

# **SECTION 3.0**

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## ***DESCRIPTION OF THE AFFECTED ENVIRONMENT***

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### **DESCRIPTION OF AFFECTED ENVIRONMENT**

#### **3.1 INTRODUCTION**

This section describes the existing environment of the area that may be affected by the Preferred Action and proposed alternatives as required by Council on Environmental Quality (CEQ) Guidelines:

“The environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced.” (40 CFR Part 1502.15).

Resources that are described include Land Resources, Water Resources, Air Quality, Biological Resources, Cultural Resources, Socioeconomic Conditions, Resource Use Patterns, Public Services, and Other Values.

## 3.2 LAND RESOURCES

This section describes the existing environmental conditions of land resources for the proposed Amador County project site. Topics contained in this section include topography, geological setting, soils, seismicity, and mineral resources. The general and site-specific profiles of Land Resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

### 3.2.1 TOPOGRAPHY

The project site lies on moderate to steep slopes in the foothills of the Sierra Nevada mountain range. The topography of the project site and vicinity ranges from approximately 900 feet to 1,150 feet above mean sea level (amsl). The northern portion of the site has little relief. The southern portion of the site has a moderately sloping hill on the southwest section of the site, while the southeast portion of the site contains a steeper gradient. The eastern and southern sections of the project site are more steeply sloped compared with the northern and western sections.

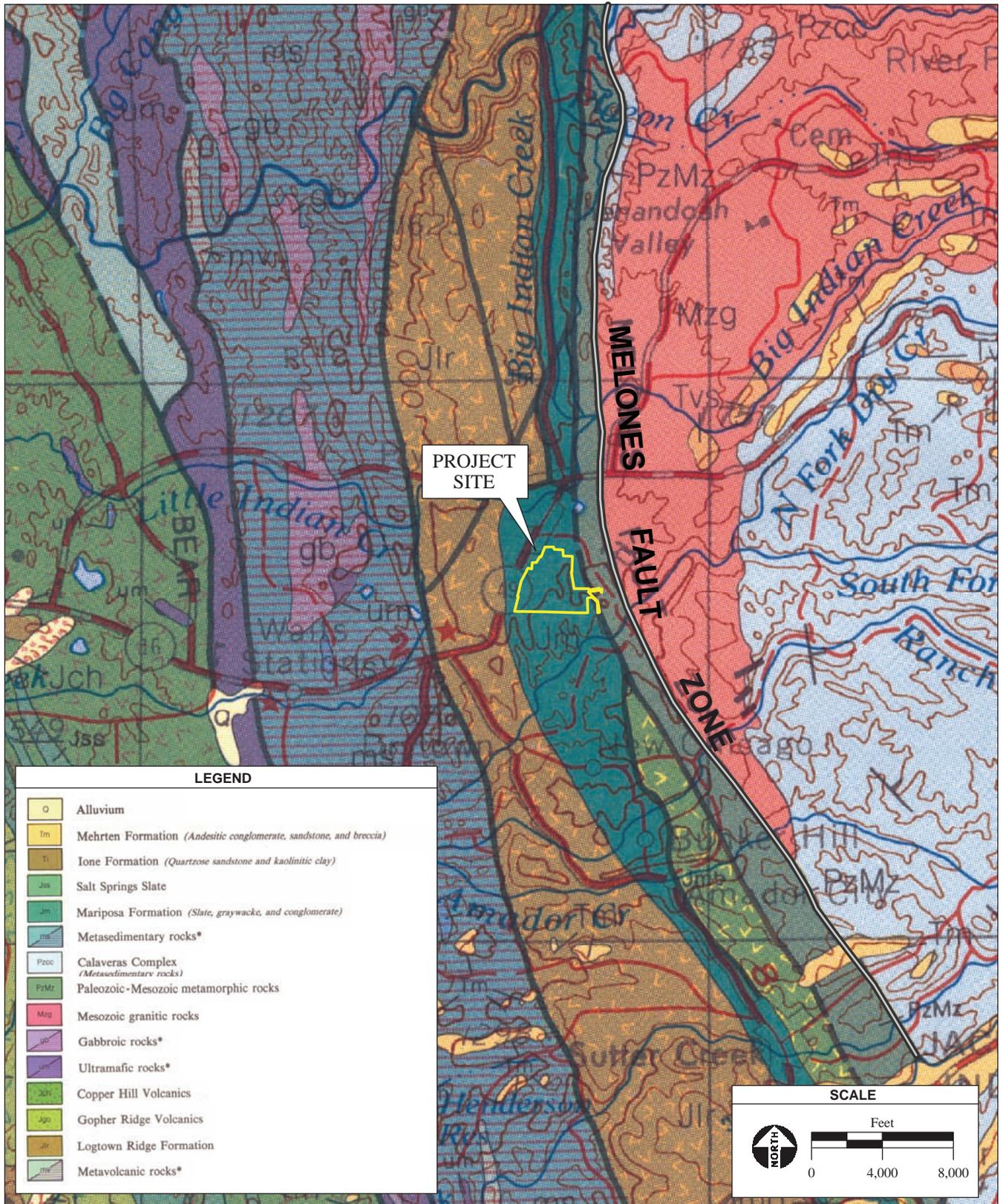
### 3.2.2 GEOLOGIC SETTING

The project site is greenstone and gray to black slate of the Mariposa Formation (Upper Jurassic age) and metasedimentary rocks, chiefly graphitic schist, metachert and amphibolite schist of the Calaveras Formation (Carboniferous to Permian) (**Figure 3.2-1**). The trend of ridges and rock formations in the project area is generally northwest to southeast. The Mariposa Formation consists of greenstone that has its origins as metamorphosed basic, igneous intrusive rock and slate that was once seafloor mud. The formation was metamorphosed and evenly folded and fractured during the Nevadan mountain building episode (late Jurassic). The Mariposa Formation crops out as marine sedimentary and metasedimentary rocks with greenstone along the western edge. The Calaveras Formation consists of ancient marine sediments of the Paleozoic era likely formed as a result of coral reef activities. Seismic activity in Jurassic times (250 million years ago) and again about 5 million years ago caused the ancient sediments including the coral reef to be uplifted and folded into its present state (Plymouth, 2001). The geologic materials of the project site consist of Upper Jurassic marine sedimentary and metasedimentary rocks of the Mariposa Formation with greenstone along the western edge. These sedimentary and metasedimentary rocks are primarily weathered shale and slate with minor thin beds of sandstone (AEG, 2004).

### 3.2.3 SOILS

#### *PROJECT AREA SOILS*

Soil surveys for the proposed site are available online through the Natural Resource Conservation Service (NRCS), a sub-unit of the United States Department of Agriculture (USDA, 2007). Each



SOURCE: California Division of Mines and Geology, 1981; AES 2007

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**Figure 3.2-1**  
Structural Geology Map

survey maps soil units and provides a summary of major physical characteristics for each unit.

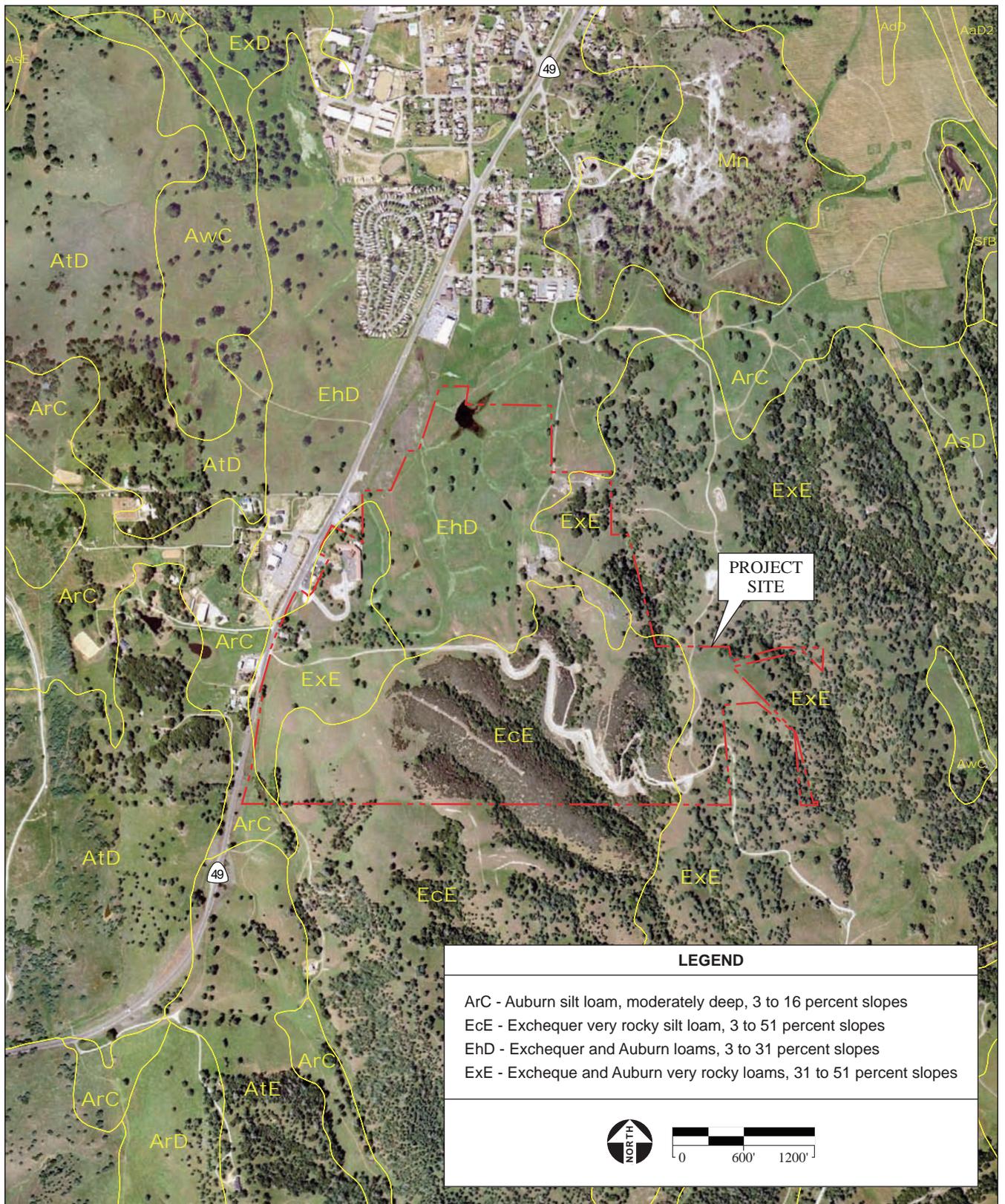
A customized soil report from the Web Soil Survey service was prepared for the project site, and is included as **Appendix T** of the Final EIS. The web soils survey identified the dominant soil types on the project site as Exchequer very rocky silt loam (EcE), Exchequer and Auburn loams (EhD), and Exchequer and Auburn very rocky loams (ExE) (**Figure 3.2-2**). These soils are loams and silty loams, with low clay content. The soils are derived from the erosion of shallow bedrock of the Calaveras and Mariposa formations described above under the geologic setting.

EcE map unit soils cover approximately 47.5-percent of the project site, and are classified as hydrologic group D soils. Soils with this rating have very slow water infiltration rates correlating to high runoff potentials. This soil map unit does not experience frequent ponding or flooding. Comprised of silt loam, EcE soils have a low rating for shrink-swell potential associated with constant water saturation and subsequent drying and are therefore not classified as expansive soils. The potential for soils to demonstrate expansive properties is primarily dependent upon clay content. These soils have a moderate potential for sheet and rill erosion from wind and water.

EhD map unit soils cover approximately 29.7-percent of the project site, and are classified as hydrologic group D soils, and therefore exhibit similar water drainage characteristics as EcE soils. This soil map unit does not experience frequent ponding or flooding. Comprised of Exchequer and Auburn loam soils, this map unit exhibits a low potential for shrink-swell and is therefore not classified as expansive soil. These soils have a low to moderate potential for sheet and rill erosion from wind and water.

ExE map unit soils cover approximately 22.6-percent of the project site, and are also classified as hydrologic group D soils. This soil map unit does not experience frequent ponding or flooding. Comprised of silt loam, ExE soils have a low rating for shrink-swell potential and are therefore not classified as expansive soils. These soils have a low to moderate potential for sheet and rill erosion from wind and water.

An additional soil map unit was identified on the soils survey, Auburn silt loam (ArC). This soil map unit is classified as hydrologic group C. Soils classified in this hydrologic group have slow water infiltration rates and typically have a layer that impedes the downward movement of water. This soil map unit only covers approximately 0.2-percent of the project site, at the southwestern corner of Parcel #1. There is no development planned within the ArC map unit of Parcel #1; therefore, no further discussion regarding this soil map unit is necessary.



SOURCE: U.S. Department of Agriculture Natural Resources Conservation Service, 1/4/2007;  
 Airphoto USA Aerial Photograph, 4/1/2004; AES, 2007

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**Figure 3.2-2**  
 Soil Types

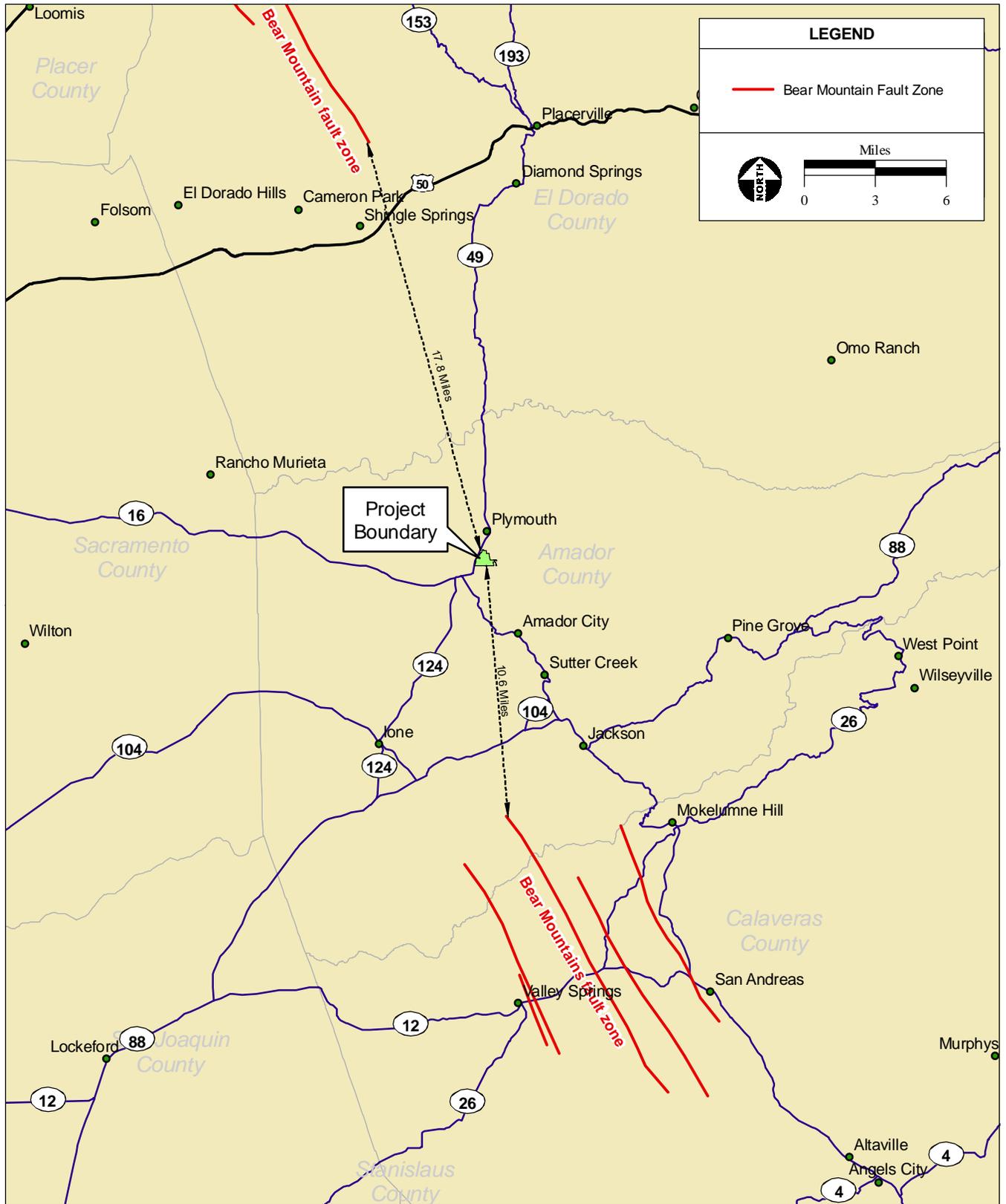
### 3.2.4 SEISMICITY

The State of California Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act), signed into law December 1972, requires the delineation of zones along active and potentially active faults in California. The California Geological Survey (CGS) defines an “active” fault as one that exhibits evidence of activity during Holocene time (about the last 11,000 years). Faults that exhibit evidence of Quaternary activity (within the last 1.6 million years) are considered to be “potentially active.” The purpose of the Alquist-Priolo Act is to regulate development on or near fault traces to reduce the hazard of fault rupture and to prohibit the location of most structures for human occupancy across these traces. According to the 1990 update of the act, there are no faults zoned for special studies within 60-65 miles of the project site.

The project site is located between the Bear Mountains Fault Zone and the Melones Fault Zone. The United States Geological Survey (USGS) fault maps show seismic activity up to 1.6 million years ago. According to the USGS map, the nearest faults include two traces of the Bear Mountain Fault Zone. These two traces are located approximately 17.8 miles north and approximately 10.6 miles south of the project site. These faults are categorized as “other faults” by the USGS, and are not considered potentially active quaternary faults (USGS, 2008a). No faults in the region surrounding the project site are identified by USGS as having signs of activity up to the Quaternary period, which are considered by geologists as the most likely faults to erupt in the future (USGS, 2008b). According to the Alquist-Priolo Seismic Hazards Map, the Bear Mountain Fault Zone is not a special study area because surface expression is poor and there is no evidence of Holocene (recent) activity (USGS, 2004).

The Amador County General Plan (General Plan) describes the County’s location within the Sierra Nevada block as an area of historically low seismic activity. The General Plan identifies a local fault that is not located on USGS fault trace maps. The Melones Fault, which according to the General Plan trends north and south adjacent to the eastern region of Plymouth and approximately one-half mile from the project site, is part of the “Mother Lode” geological feature (Cite Section that explains the “Mother Lode”)

Seismic intensity is one measure of the strength of shaking experienced during an earthquake. The Modified Mercalli Intensity Scale (MMI) is an arbitrary ranking of intensity based on observed effects from an earthquake and is not mathematically based (**Table 3.2-1**). This scale is composed of twelve increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, expressed by Roman numerals. The reported intensity will generally decrease as the distance increases away from the epicenter of an earthquake. The geologic characteristics of a particular site strongly influence the intensity of an earthquake. Sites on soft ground or alluvium experience MMI intensities 2 to 3 values higher than sites on bedrock (USGS, 1997). The lower numbers on the intensity scale generally describe the manner in which the



SOURCE: USGS Earthquake Hazards Program, 2007; AES 2008

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**Figure 3.2-3**  
Project Site Distances to Bear Mountain Fault Zone

**TABLE 3.2-1**  
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Acceleration
I.	Not felt except by a very few persons under especially favorable circumstances.	< 0.0015 g
II.	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	< 0.0015 g
III.	Felt quite noticeably indoors, especially on upper floors of buildings, but many persons do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration similar to a passing of a truck. Duration estimated.	< 0.0015 g
IV.	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	0.015 g-0.02 g <sup>a</sup>
V.	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.	0.03 g-0.04 g
VI.	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	0.06 g-0.07 g
VII.	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.	0.10 g-0.15 g
VIII.	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.	0.25 g-0.30 g
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.50 g-0.55 g
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 0.60 g
XI.	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 0.60 g
XII.	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 0.60 g

Source: Bolt, Bruce A., *Earthquakes*, W. H. Freeman and Company, New York, 1988

<sup>a/</sup> g is gravity = 980 centimeters per second squared.

earthquake is felt by people. The higher numbers on the scale define observed structural damage that can accompany an earthquake (USGS, 1989). The City of Plymouth is rated as having no potential for earthquake-related landslide hazards. The project site is located in one of the regions of lowest

ground shaking potential in California, and is rated minor for potential earthquake intensity, with a maximum MMI scale rating of VI to VII (CGS, 2007).

Soil liquefaction can occur during strong seismic shaking events. Liquefaction is the temporary transformation of soil behavior from a relatively stable, solid condition to a liquefied state as a result of increased seismic activity when soils are water saturated. Liquefaction potential has been found to be greatest where the ground water is within a depth of 50 feet or less, as do submerged loose, fine sands. Liquefaction potential decreases with increasing grain size and clay and gravel content, but increases as the ground acceleration and duration of shaking increases. The soils of the project site are very rocky with a high degree of cohesiveness and the area has a low MMI scale rating for seismic shaking. Therefore, the project site has very little potential to experience liquefaction during seismic events along the nearest fault traces.

During strong seismic shaking events, surfaces can collapse into underground voids or less dense soil layers. This phenomenon is known as subsidence. Areas sensitive to subsidence include areas experiencing drastic reductions in groundwater elevations, leaving voids or less dense soils below ground surface elevations. Underground voids such as natural caves or human-created mine shafts can subside during strong seismic events causing surface collapse. Subsidence can destroy structures and other development infrastructure such as pipelines and roadways. The project site is located within the Mother Lode gold mining belt of California. Part of the Mother Lode gold mining belt of California includes the Pioneer Mine of Plymouth. The abandoned Pioneer Mine is located within the trust portion of the project site, however the mine site is outside of the areas to be developed. The mine is discussed below in more detail under mineral resources.

### **3.2.5 MINERAL RESOURCES**

According to the California Division of Mines and Geology, August 1, 1984, *Mineral Land Classification of the Sutter Creek 15' Quadrangle*, Plymouth was determined to have “known mineral deposits where well-developed lines of reasoning, based upon economic geologic principles and adequate data demonstrate that the likelihood for occurrence of significant mineral deposits is high.” The document states that these deposits are either “inferred reserves or presently sub-economic as determined by limited sample analysis exposure and mining history.” The above analysis of the mineral deposits and the economic viability of extraction include the deposits of the Pioneer Mine (City of Plymouth, 2001). The current property owner utilizes the project site to access adjacent properties to which aggregate and slate are actively surface mined.

The primary access road utilized as the trucking route for the surface mine approaches from the south off New Chicago Road, east of Drytown. Potential mineral resources on the project site include slate deposits along the eastern border.

The Pioneer Mine (Plymouth Consolidated) is located on the eastern margin of the project site, and was historically accessed for gold and quartz mining. Features associated with historical mining activities at the Pioneer Mine include prospect pits, ditches and tailings. Two prospect pits and a waste rock pile are located at the eastern foot of the ridge, due east of the Pioneer Mine. Two prospecting pits are located on the west bank of a tributary to the Dry Creek and four adit-like prospects are located on the east bank. Additional prospect pits are located on the crest and the western flank of the ridge east of Pioneer Mine. Ditches used during mining operation traverse away from Dry Creek along the 1,040-foot contour. Ditch segments are also located on the 1,020-foot contour on the southern and central portions of the site and two ditch segments are located along 1,000-foot contour west central portion of site. In addition to the pits, adits, and ditch segments, the site now includes an abandoned hoist house and piles of non-hazardous waste rock (tailings). The sole remaining mineshaft was filled with debris and capped to prevent physical hazards (Matulich, pers. comm., 2003). For further description of mining-related features see **Section 3.6**.

### 3.3 WATER RESOURCES

This section describes the existing environmental conditions of water resources for the proposed Amador County project site. Topics include the regional watershed, surface water, drainage, flooding, groundwater, and water quality. The general and site-specific profiles of Water Resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

Other sections of this document also address water resources. **Section 3.5** Biological Resources provides a detailed characterization and map of the streams and wetlands on the project site. **Section 3.9** Public Services describes the water supply for the City of Plymouth (City) and groundwater wells on and near the project site. The Public Services section also provides details on existing water supply facilities and regulatory requirements for wastewater treatment and disposal. Impacts to water resources are discussed within their corresponding sections in **Section 4.0**.

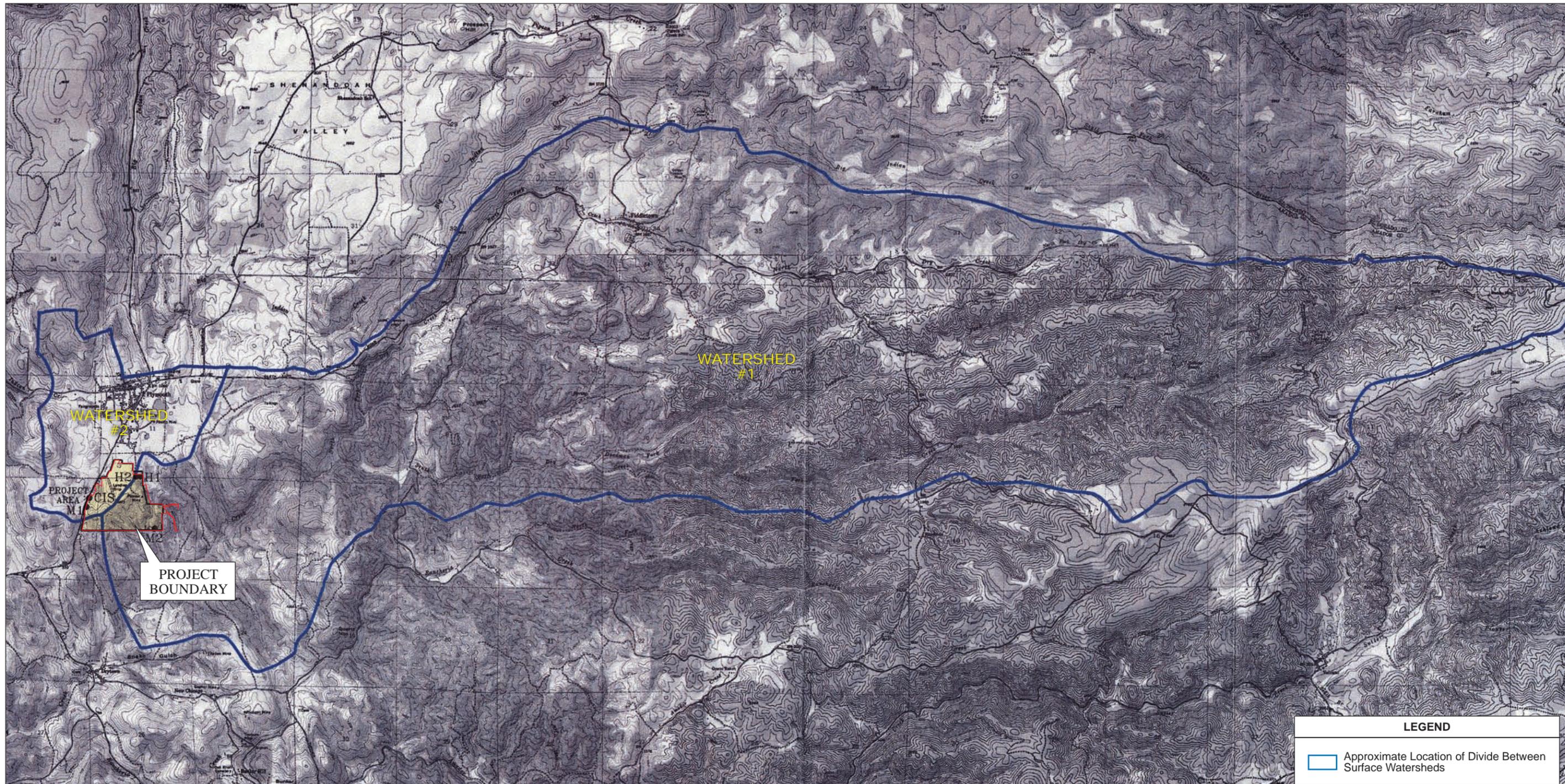
#### 3.3.1 REGIONAL WATERSHED

Regionally, Amador County is located within the San Joaquin drainage basin. The San Joaquin Drainage Basin covers an area over 10 million acres and includes all tributary watersheds of the San Joaquin River and the Delta south of the Sacramento River. Principal streams and larger tributaries of the San Joaquin drainage basin include the Cosumnes, Mokelumne, and the Calaveras River (CVRWCQB, 1998). Amador County is drained primarily by the Mokelumne River to the south and the Cosumnes River to the north. These rivers join and flow westward into the San Joaquin River and Delta.

#### 3.3.2 SURFACE WATER

Surface water supplies within and around the City are limited to the Arroyo Ditch and Dry Creek. Water from the Middle Fork of the Cosumnes River is diverted via the Arroyo Ditch where it flows approximately 17 miles south to the City. The Arroyo Ditch was purchased from Amador County and the Amador Water Agency and serves as a limited domestic water supply source for the City. The Dry Creek channel, an intermittent stream and a tributary of the Mokelumne River, flows in a southwesterly direction and is located southeast of Plymouth. Little Indian Creek, also an intermittent stream originating on the west side of SR 49, conveys the combined runoff from the southern portion of the City where it flows in a northeasterly direction.

Within the project site there are two sub-sheds of the larger Mokelumne River watershed as shown in **Figure 3.3-1**. All drainage in Watershed Area 1 drains south into Dry Creek, which eventually drains into the Mokelumne River. All drainage in Watershed Area 2 drains north towards Little Indian Creek, which eventually drains into the Cosumnes River. The Cosumnes River drains westward and meets with the Mokelumne River, flowing into the greater San



Joaquin River and Delta. Surface water features on the project site include several natural springs in the southwest corner, four cattle ponds, several seasonal drainages and seasonal wetlands, and a small pond in the central portion of the project site adjacent to the abandoned runway. These features are described in detail in **Section 3.5.5** Water of the United States.

#### ***SITE DRAINAGE***

Surface runoff on the proposed site discharges to Little Indian Creek at several locations and flows in a northeasterly direction. An existing on-site pond provides limited detention for a portion of the total runoff. Little Indian Creek originates on the west side of SR 49. Several locations for surface runoff combine and traverse SR 49 immediately north of the project site. The eastern and southern portions of the project site are steeply sloped and consist of small watersheds that drain into Dry Creek. The Dry Creek channel, an intermittent stream, flows in a southwesterly direction and is located off the project site to the southeast, and is a tributary of the Mokelumne River. Existing conditions on-site offer limited detention of pre-project surface runoff flows into the adjacent water collectors. Existing storm water runoff from the project site for the 100-year, 24-hour storm event is estimated to be 258 cubic feet per second (cfs) (**Appendix G**).

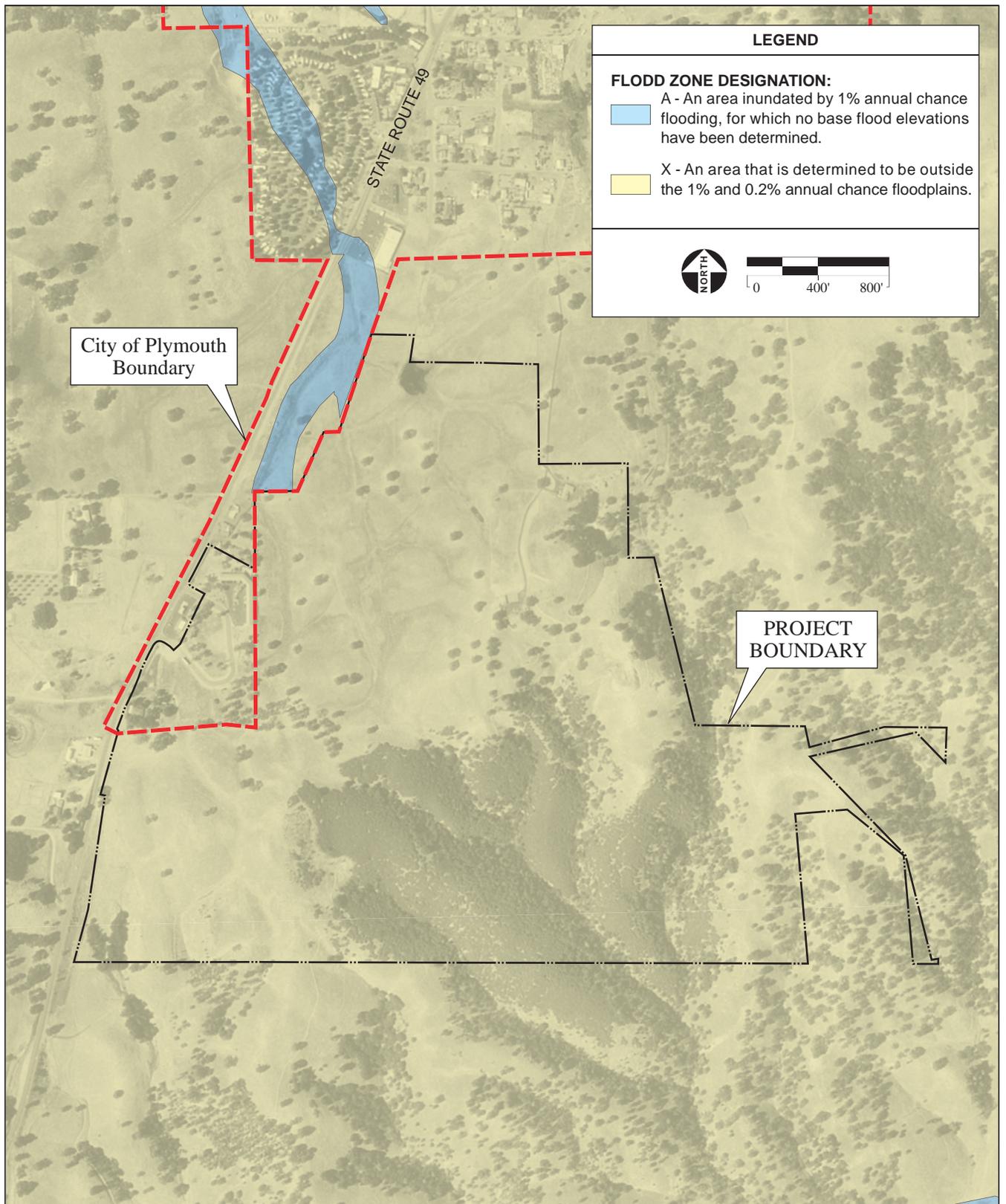
#### ***FLOODPLAIN***

The majority of the project area is not located in a floodplain mapped by the Federal Emergency Management Agency (FEMA). Less than one-acre of Parcel # 3 is within Flood Zone A, an area inundated by 1-percent annual chance of flooding, for which no base flood elevations have been determined (**Figure 3.3-2**). The majority of the project site, including the area planned for development, is within Zone X, an area determined to be outside the 1-percent and 0.2-percent annual chance floodplains (FEMA, 2003).

#### ***SURFACE WATER QUALITY***

The Federal Clean Water Act (CWA) (1990) sets forth national water quality goals and standards. It requires that all discharges from any point source into waters of the United States must obtain a National Pollution Discharge Elimination System (NPDES) permit. It also directs each state to establish water quality standards and to review and update them on a triennial basis (Section 303(c)).

The Porter-Cologne Water Quality Control Act (1969) provides the basis for surface water and groundwater quality regulation within California. The act established the authority of the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs). The act requires the State, through the SWRCB and the RWQCBs, to designate beneficial uses of surface waters and groundwaters, and specify water quality objectives designed to protect those uses. These water quality objectives are presented in the *Regional Water Quality*



**Figure 3.3-2**  
Floodplain Map

*Control Plans* (Basin Plans). The project site is currently under the jurisdiction of the Central Valley RWQCB (CVRWQCB). The beneficial uses and water quality objectives relating to the Mokelumne River, Dry Creek, and its tributaries contained within the Basin Plan for the central valley are summarized below to characterize the water quality issues in the project area. The beneficial and potential beneficial uses of the Mokelumne River Watershed identified in the Basin Plan as follows:

- Municipal and Domestic Supply
- Agricultural Supply
- Water Contact Recreation
- Non-Contact Recreation
- Cold Freshwater Habitat
- Warm Freshwater Habitat
- Migration of Aquatic Organisms
- Spawning, Reproduction, and/or Early Development
- Wildlife Habitat
- Navigation

The water quality objectives for Sacramento-San Joaquin River Basin inland surface waters, as they correlate to sample parameters, are summarized in **Table 3.3-1** below.

**TABLE 3.3-1**  
WATER QUALITY OBJECTIVES FOR INLAND SURFACE WATERS OF THE  
SACRAMENTO-SAN JOAQUIN RIVER BASIN

Constituent	Water Quality Objective
Bacteria	In waters designated for contact recreation (REC-1) the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.
Chemical Constituents	Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. Water designated for use as domestic or municipal (MUN) water supply shall not contain concentration of chemical constituents in excess of the maximum contaminant levels specified in the provisions of Title 22 of the California Code of Regulations. Water designated for use as MUN shall not contain lead in excess of 0.015 mg/l.
Color	Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.
pH	The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in waters designated cold freshwater habitat or warm freshwater habitat.

SOURCE: CVRWQCB, 1998

In accordance with Section 303(d) of the CWA, States periodically prepare a list of all major surface waters in the state for which beneficial uses of the water – such as for drinking,

recreation, aquatic habitat, and industrial use – are impaired by pollutants. These are estuaries, lakes, streams, and groundwater basins that fall short of state surface water quality standards, and are not expected to improve within the next two years. States establish a priority ranking of these impaired waters for purposes of developing plans that include Total Maximum Daily Loads (TMDLs). A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards and an allocation of that amount to the pollutant’s sources. These plans describe how an impaired water body will meet water quality standards through the use of TMDLs. The Cosumnes River, the sole supplier of surface water to the City of Plymouth via the Arroyo Ditch, is not on the impaired waters list.

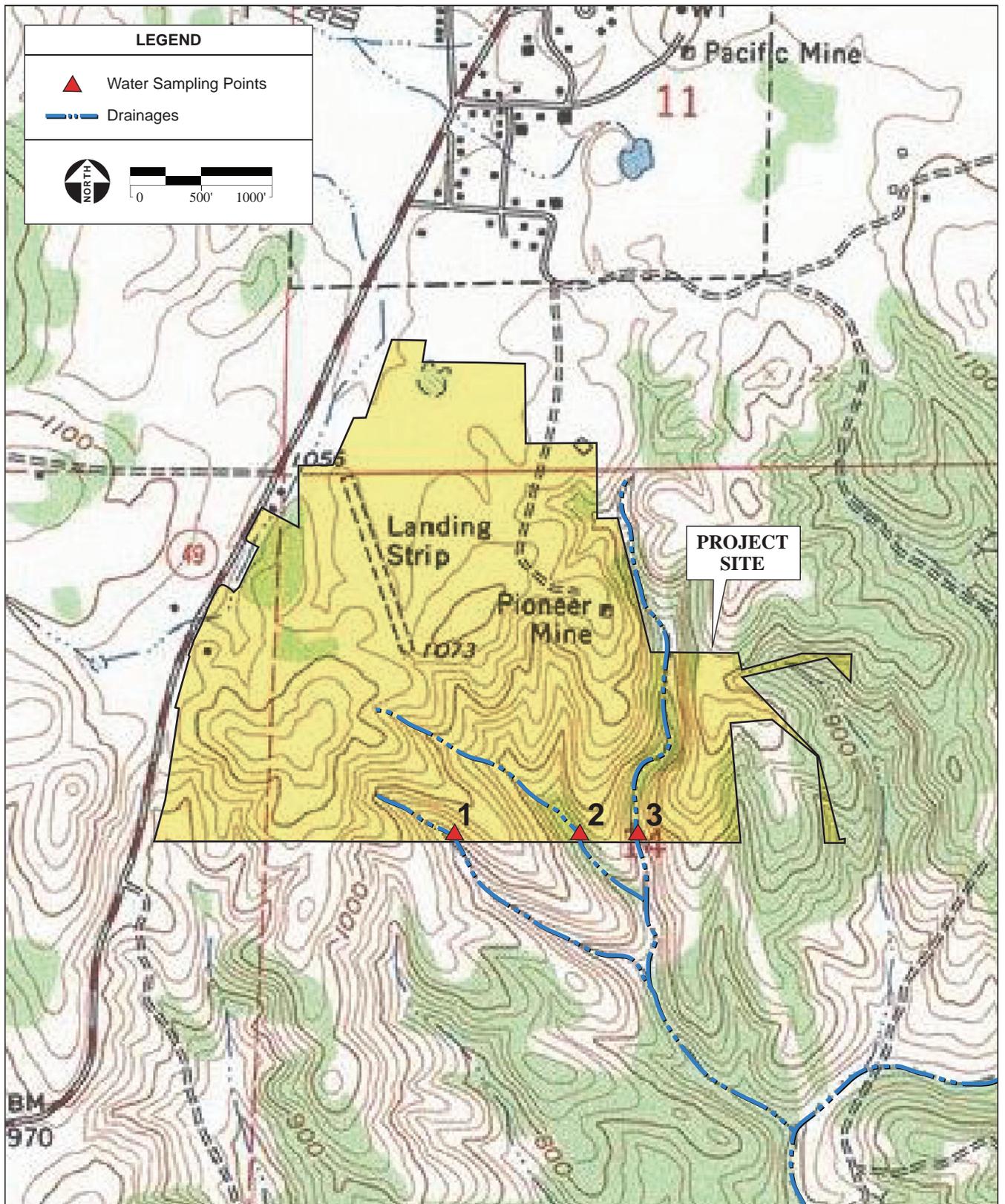
Water samples were taken from three locations on the southern edge of the project site (**Figure 3.3-3**). All tributaries from which water samples were collected are intermittent drainages that have little or no flow during the summer months. Results are reported in **Table 3.3-2** as they correlate to basin plan objectives, including California Code of Regulations Title 22 (Title 22) maximum contaminant levels as discussed under the “Chemical Constituents” objectives in **Table 3.3-1**.

**TABLE 3.3-2**  
CONTAMINANTS DETECTED WITHIN DISCHARGE SITE WATER SAMPLES

Chemical or Constituent	Sample Location			Title 22 MCLs <sup>1</sup>	
	1	2	3	1°	2°
Fluoride (mg/L)	0.12	0.12	0.14	2.0	
Nitrate (mg/L)	2.3	3.0	2.2	45	
Total Dissolved Solids (mg/L)	94	110	170		500
Nitrate/Nitrite (mg/L)	0.52	0.67	0.50	10	
Turbidity (NTU)	7.5	9.6	12		5
pH	7.25	7.41	7.62		
Color	30	30	15		15
Zinc (µg/L)	<20	<20	58		5,000
Arsenic (µg/L)	<5.0	<5.0	11	50	
Fecal Coliforms (MPN/100mL)	8.0	170	240		

1= California Title 22 which outlines maximum contaminant levels within drinking water. The Basin Plan utilizes the drinking water standards as inland surface water quality standards. Primary standards (1°) are based on human health protection while secondary standards (2°) are based on consumer acceptance of taste, odor, and color and are not based on risk to human health. SOURCE: AES, 2005; 22 California Code of Regulations §64431 and §64449

Results of water sampling indicated contaminants were not present at levels above their respective primary maximum contaminant levels (MCLs), when applicable. Primary MCLs are standards outlined in Title 22. Primary MCLs are based on potential human health effects, are enforceable regulatory levels for drinking water, and have been incorporated as inland surface water quality objectives within the Basin Plan. Color sample results were reported at sample sites 1 and 2 greater than the respective Title 22 secondary MCL. Secondary MCLs are also listed in



SOURCE: "Amador City, CA" USGS 7.5 Minute Topographic Quadrangle, Sections 11, 14, & 15, T7N, R10E, Mt. Diablo Baseline and Meridian; AES, 2007

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**Figure 3.3-3**  
Surface Water Sample Locations

Title 22, however these levels are not based on human health effects, but are based on consumer taste and acceptance. This result is anticipated for intermittent streams that traverse grazing areas. The other samples constituents were below their applicable secondary MCLs.

Fecal coliform levels were reported at sample site 3, greater than the Basin Plan water quality objective for inland surface waters. Although the fecal coliform results were slightly higher at sample site 3 than the Basin Plan water quality objective, the objective is specific for surface waters designated with the beneficial use of contact recreation. As discussed above, the surface waters in the area are designated as non-contact recreation. Slightly higher coliform levels are expected within surface waters that traverse through livestock grazing areas like the project site. The coliform results from site 3 do not indicate a water quality concern in regards to the protection of the beneficial uses of the sampled tributary to Dry Creek. For pH, the basin plan states that surface waters shall read between 6.5 and 8.5 standard pH units. Samples indicated all three sites were within the Basin Plan requirement for pH.

### 3.3.3 GROUNDWATER

#### *REGIONAL SETTING*

Of the many mountainous areas in California, groundwater is stored within deep fractures of bedrock underlying soil layers. Availability of groundwater in such formations can vary widely, even over a distance of a few yards. Conditions that affect availability of water within fractured rock include:

- Density of fractures within a given area;
- Connectivity between fractures;
- Fracture size and shape; and
- Recharge source.

How much water passes through fractured rock varies greatly depending on connections between fractures. As a result, interference between neighboring wells is difficult or impossible to predict in advance. Currently there are no identified maps of the many groundwater basins that exist due to the fractured bedrock within the Plymouth area. As a result, groundwater profiles are difficult to characterize.

#### *GROUNDWATER USAGE*

Based on Department of Water Resources (DWR) well logs, there are 36 domestic wells in the smaller of the two area watersheds, which is identified above as Watershed Area 2 (Appendix C). The larger basin, described above as Watershed 1 Area, is reported as having 96 domestic wells. A majority of the City of Plymouth lies within the smaller watershed area. The City maintains four wells located at two sites lying about a half mile apart, east of the City. Two wells produce flows of approximately 175 gallons per minute (gpm) each and the other two produce

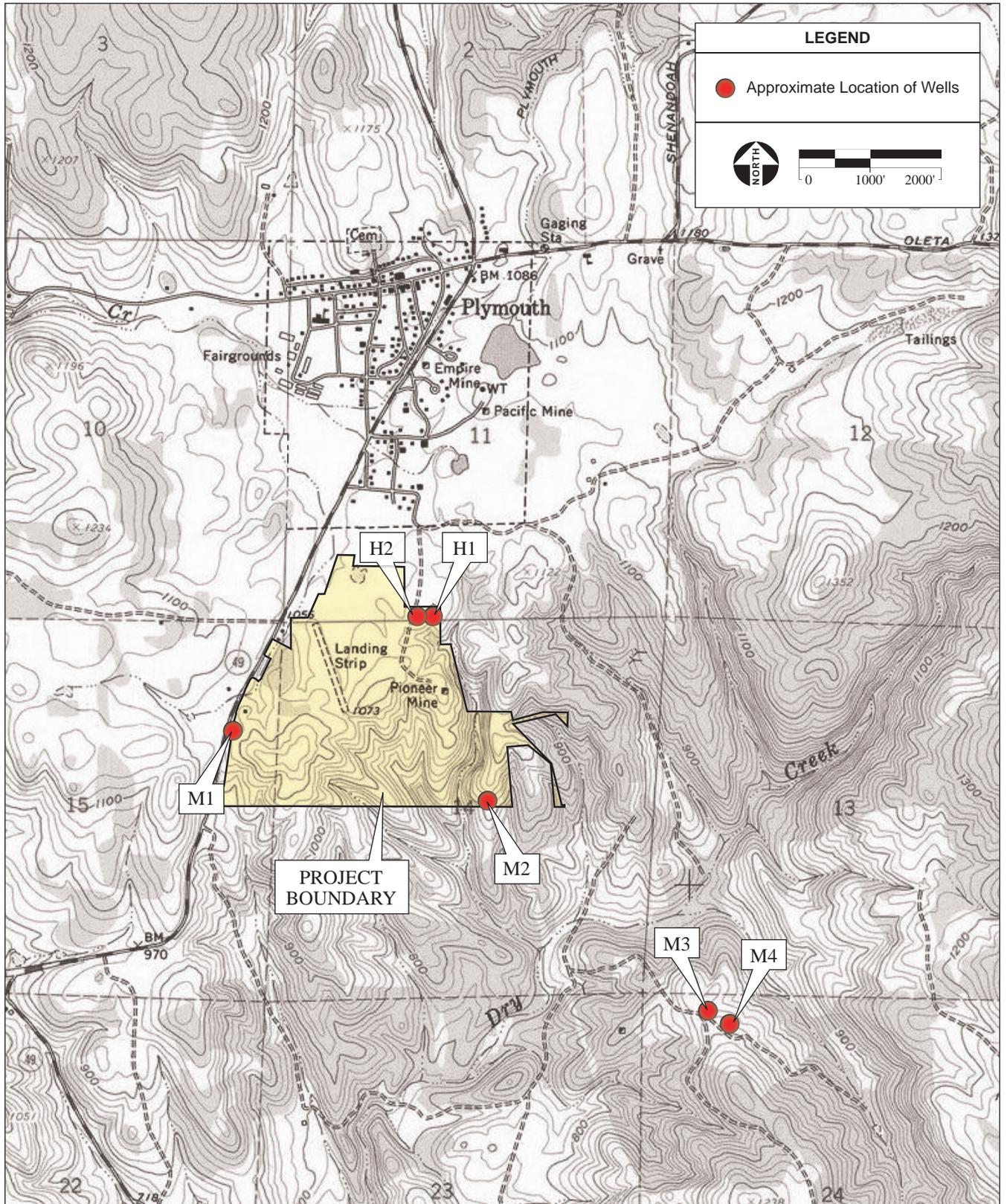
flows of approximately 250 gpm. Together, these four wells represent the majority of the water usage for the basin, which is identified to cover in excess of 100-acres of land (Ketron, 2004). Due to the unreliability of the groundwater basin beneath the City's wells, the California Department of Public Health has limited the firm yield for the City's well field to 25 percent of the production yield. This equates to a combined firm yield of the four City wells of 175 gpm. Increased pumping by the City has led to an overdraft of the groundwater basin. The City wells are currently required to be pumped at rates that exceed firm yield to meet average day and summer day maximum demands (City of Plymouth, 2006). The City currently has an average day water demand of approximately 204 gpm, and maximum (summer) day demand of 465 gpm, for which groundwater is utilized to meet a majority of the summer peak demand due to low resources from the arroyo ditch as this time of the year. The City's water demand is projected to increase to an average day water demand of approximately 409 gpm and maximum (summer) day demand of 924 gpm by 2025 (City of Plymouth, 2006).

Operation of the high capacity wells east of the City at rates greater than firm yield during summer months has resulted in a groundwater depression that has affected an area between the City wells and extending to the east in excess of one-quarter of a mile. The response to pumping is monitored on a semiannual basis at the City, Sutter Home Vineyards, and residential wells located east of the City. Water levels taken from these six production wells indicate a general groundwater flow direction towards the City wells from the north, northeast, and east. The hydraulic response to the west and south is not monitored, but is likely also radial towards the City wells due to the high cumulative pumping rates from the City and adjacent Sutter Home Vineyards (well production rate of 250 gpm) and residential wells (well production rates ranging from 150 gpm to less than 20 gpm) (City of Plymouth, 2006).

#### ***Project Site***

Groundwater on the project site primarily occurs in the fractured bedrock zones. Most fractured bedrock zones are found within the upper few hundred feet of rock. The upper portions of the bedrock on-site appear to be nearly impervious; therefore, have low hydraulic conductivity. Groundwater recharge is attributable to interconnected fractures that store and transmit groundwater. This impervious rock allows for limited recharge from surface water infiltration. Currently there are four wells located on-site as shown in **Figure 3.3-4**. Two other wells are located off-site and could supply the project site with water. For reference, the on-site wells are labeled H1, H2, M1, and M2. Off-site wells are labeled M3 and M4. Construction details of the existing wells are provided below in **Table 3.3-3**. A cistern is located approximately 500 feet north on Well M1 in the center of Parcel 7. Wooden planks cover the cistern and conduit pipes lead to a submerged bladder pump. The historical use of the cistern is unknown.

Due to the unique geology of the region, no single groundwater basin exists within the area. Rather, interconnected fractures within the geology store and transmit groundwater forming a multitude of smaller basins within the region, such as the basin beneath the City's well field. As a result, standard well pumping tests, which are generally based on aquifer response to a



SOURCE: "Amador City, CA" USGS 7.5 Minute Topographic Quadrangle, Sections 11, 14, & 15, T7N, R10E, Mt. Diablo Baseline and Meridian; AEG, 2004; AES, 2007

**Figure 3.3-4**  
Groundwater Well Locations

relatively short period of pumping, may not be representative of actual groundwater conditions. To address the uncertainty of the groundwater conditions, a range of recommended long-term well yields were calculated using pump tests.

**TABLE 3.3-3**  
WELL CONSTRUCTION DETAILS

Well	Total Depth (bgs)	Depth to Water Strike	Static Water Level	Air Lift Yield <sup>1</sup> (gpm)
<b>M1</b>	620	600	60	15
<b>M2</b>	480	300	200	5
<b>M3</b>	220	180	30	70
<b>M4</b>	340	200	45	15
<b>H1</b>	223	200-205	75	150
<b>H2<sup>2</sup></b>	-	-	-	-

NOTES: <sup>1</sup> Airlift yield obtained from Well Completion Reports, measured prior to well installation. Test duration was for four hours.

bgs = below ground surface

gpm = gallons per minute

<sup>2</sup> A Well Completion Report was not available for H2. The well currently serves a home and supplies approximately 1 gpm.

SOURCE: AEG, 2008;

A Pumping Test and Sustainability Analysis was performed for wells M1, M3, and H1 to calculate the long-term well yields. The entire report is available in **Appendix C**. Pump tests were not completed for wells H2, M2 and M4 due to low yields as indicated on the well logs and close proximity to higher producing wells. Estimation of long-term well yields were based on individual well performance and the appropriate factors were applied to account for the uncertainties inherent in natural systems. In addition to reductions in long-term yield estimates relating to boundary conditions and well recovery characteristics, further reductions were applied to address factors such as natural variability in precipitation and recharge rates that could potentially affect well performance. These reductions resulted in conservative estimates of long-term well yield, which are presented in **Table 3.3-4**.

**TABLE 3.3-4**  
LONG TERM WELL YIELDS

Well	Lower Limit (gpm)	Upper Limit (gpm)	Recommended Long-Term Yields (gpm)
<b>M1</b>	8.5	12.1	10
<b>M3</b>	31.9	45.6	37
<b>H1</b>	28.5	40.7	34
<b>Total</b>			<b>81</b>

SOURCE: AEG, 2008

**GROUNDWATER QUALITY**

Samples were collected from M1, M3, H1, H2, and the cistern, located along the west edge of the project site. The sample results are summarized below in **Table 3.3-5**. The results indicate high quality groundwater, with only one parameter exceeded. In wells H1 and H2, total dissolved solid (salts) levels exceeded secondary MCL levels. In order to provide consumers with water that would not be rejected due to taste, water treatment would be required to remove excess salts.

**TABLE 3.3-5**  
ON-SITE GROUNDWATER QUALITY <sup>a</sup>

Analyte	MCL	Reporting Limit	M1	M3	Cistern	H1	H2
Arsenic (ug/L)	10	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Lead (ug/L)	15	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (ug/L)	100	20	< 20	< 20	< 20	< 20	< 20
Copper (ug/L)	1,300	20	440	< 20	< 20	< 20	27
Zinc (ug/L)	5000 <sup>d</sup>	20	60	< 20	< 20	< 20	< 20
Mercury (ug/L)	2	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Fluoride (mg/L)	2.0	0.10	0.34	0.21	0.36	0.24	0.17
Nitrate as NO <sub>3</sub> (mg/L)	10	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
pH (std. units)	6.5-8.5	--	8.00	6.90	7.40	7.20	7.12
Total Dissolved Solids (mg/L)	500 <sup>d</sup>	10	200	360	240	910	760

NOTES: <sup>a</sup> Results reported as micrograms per liter, unless otherwise noted.

<sup>b</sup> Sample collected during pumping test.

<sup>c</sup> Sample collected after pumping test was complete, but before water level in well had recovered.

<sup>d</sup> Secondary MCL.

<sup>e</sup> MCL is for foaming agents.

SOURCE: HSE, 2005; AES 2004

## 3.4 AIR QUALITY

This section describes the air quality of the air basin encompassing the proposed Amador County project site. Topics include regulatory context, Criteria Air Pollutants, pollutants of concern, and sensitive receptors near the project site. The general and site-specific profiles of Air Quality contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

### 3.4.1 REGULATORY CONTEXT

In 1990, the Federal Clean Air Act (CAA) was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. Basic components of the CAA and its amendments include national ambient air quality standards (NAAQS) for major air pollutants and state implementation plans (SIPs) for states that do not meet NAAQS. The U.S. Environmental Protection Agency (USEPA) is the federal agency responsible for identifying Criteria Air Pollutants (CAPs), establishing NAAQS, and approving and overseeing state air programs as they relate to the CAA.

#### *CRITERIA AIR POLLUTANTS (CAPs)*

CAPs are air pollutants commonly emitted from a myriad of sources around the country that have been identified as being detrimental to human health, and are used as general indicators of regional air quality. The EPA has designated six CAPs: ozone (O<sub>3</sub>), carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and lead (Pb).

#### *Ozone*

Ozone (O<sub>3</sub>) is not directly emitted in concentrations of concern. Of concern are the photochemical reactions (reactions initiated by sunlight) that create ground-level ozone at concentrations that may impact sensitive individuals. Photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO<sub>x</sub>) resulting from the incomplete combustion of fossil fuels are the largest source of ground-level O<sub>3</sub>. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. As a photochemical pollutant, O<sub>3</sub> is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. O<sub>3</sub> is considered a regional pollutant, as the reactions forming it take place over time and are often most noticeable downwind from the sources of the emissions.

#### *Carbon Monoxide*

Carbon monoxide (CO) is a colorless, odorless gas formed when carbon in fuel is not fully combusted. In cities, 85- to 95-percent of all CO emissions may come from motor vehicle exhaust. CO is considered a local pollutant because it dissipates quickly. High CO

concentrations occur in areas of limited geographic size sometimes referred to as hot spots. Higher levels of CO generally occur in areas with heavy traffic congestion. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

#### ***Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>)***

Particle pollution is a mixture of microscopic solids and liquid droplets suspended in the air as a result of direct emissions from a variety of anthropogenic and natural sources. Commonly referred to as particulate matter, this form of pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). The size of particles is directly linked to their potential for causing health problems. Small particles less than 10 micrometers ( $\mu\text{m}$ ) in diameter, known as PM<sub>10</sub>, pose the greatest problems, because they have the potential to deeply penetrate people's lungs. The term PM<sub>10</sub> corresponds to any particle less than 10 microns in size. Even smaller particles less than 2.5  $\mu\text{m}$ , known as PM<sub>2.5</sub>, have the potential to enter the bloodstream. Exposure to such particles can affect both lungs and heart. Larger particles are of less concern, as they are trapped by the body's natural defenses (such as mucus and bifurcating airways) although they can irritate eyes, nose, and throat.

#### ***Nitrogen Dioxide***

Nitrogen dioxide (NO<sub>2</sub>) is a brownish, highly reactive gas present in all urban environments. NO<sub>2</sub> is directly emitted from combustion devices such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily Nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO<sub>2</sub>. The combined emissions of NO and NO<sub>2</sub> are referred to as nitrogen oxides (NO<sub>x</sub>), and are reported as equivalent NO<sub>2</sub>. Because NO<sub>2</sub> is formed and depleted by reactions associated with photochemical smog (ozone), the NO<sub>2</sub> concentration in a particular geographical area may not be representative of the local NO<sub>x</sub> emission sources.

#### ***Sulfur Oxides and Lead***

The standards for sulfur oxides (SO<sub>x</sub>) and lead (Pb) are either being met or are unclassified throughout the country. Many of the sources for these CAPs have either been eliminated or that industry standard source pollution control techniques have dramatically reduced emissions. National pollutant trends for SO<sub>x</sub> and Pb show that emission levels are on a steady decline.

#### ***NATIONAL AMBIENT AIR QUALITY STANDARDS***

The established maximum concentrations for the six CAPs are known as NAAQS (**Table 3.4-1**). Concentrations above these time-averaged limits are anticipated to cause adverse health affects to

sensitive receptors. The CAA established primary and secondary NAAQS. Primary standards set limits to protect public health, while secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. For some of the CAPs, more than one averaging time standard has been identified in order to address the typical exposures found in the environment. The EPA has established violation criteria for each CAP. For example, in order to constitute a violation, the NAAQS for O<sub>3</sub> must be exceeded on more than three days in three consecutive years. On the other hand, if the CO NAAQS is exceeded on more than one day in any given year, a violation has occurred. Refer to **Table 3.4-1** for the violation criteria for the various averaging times for each CAP.

**TABLE 3.4-1**  
NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Symbol	Average Time	Standard (ppm)	Standard (ug/m <sup>3</sup> )	Violation Criteria
Ozone	O <sub>3</sub>	8 hours	0.08	N/A	If exceeded on more than 3 days in 3 years
Carbon monoxide	CO	8 hours	9	N/A	If exceeded on more than 1 day per year
		1 hour	35	N/A	If exceeded on more than 1 day per year
Nitrogen dioxide	NO <sub>x</sub>	Annual average 1 hour	0.053	100	If exceeded
Sulfur dioxide	SO <sub>x</sub>	Annual average	0.03	80	If exceeded
		24 hours	0.14	365	If exceeded on more than 1 day per year
Inhalable particulate matter	PM <sub>10</sub>	Annual geometric mean	N/A	N/A	N/A
		Annual arithmetic mean	N/A	50	If exceeded
		24 hours	N/A	150	If exceeded on more than 1 day per year
Fine particulate matter	PM <sub>2.5</sub>	Annual arithmetic mean	N/A	15	If exceeded
		24 hours	N/A	35	If exceeded on more than 1 day per year
Lead particles	Pb	Calendar quarter	N/A	1.5	If exceeded on more than 1 day per year
		30 days	N/A	60	N/A

SOURCE: EPA, 2006

NOTES: All standards are based on measurements at 25°C and 1 atmosphere pressure.

National standards shown are the primary (health effects) standards.

N/A = not applicable; ppm = parts per million; ug/m<sup>3</sup> = micrograms per cubic meter.

The EPA classifies areas throughout the United States based on their compliance status with NAAQS. Areas that meet current NAAQS are subsequently labeled as “attainment” areas. Areas where insufficient data is available to determine attainment status are classified as “unclassified” and are assumed to be in attainment for that pollutant. Areas that do not meet NAAQS are labeled either “nonattainment” or “maintenance” for the CAP for which the area is non-

compliant. The EPA further classifies nonattainment areas according to the ability of the region to meet NAAQS for the particular CAP. There are five classes of nonattainment areas: maintenance (recently became compliant with the NAAQS), marginal (relatively easy to obtain levels below the NAAQS), serious, severe, and extreme (will be difficult to reach levels below NAAQS). The CAA uses the classification system to design clean-up requirements appropriate for the severity of the pollution and set realistic deadlines for reaching clean-up goals. Attainment and nonattainment areas are identified through monitoring. Unclassifiable areas are those for which air monitoring has not been conducted but are assumed to be in attainment for the NAAQS. States that contain areas of non-attainment are required to develop a State Implementation Plan (SIP), which outlines policies and procedures designed to bring the state into compliance with the NAAQS.

#### ***STATE IMPLEMENTATION PLANS***

In accordance with the CAA, states with nonattainment areas within their borders must take steps towards attainment by a specific timeline. These steps are consolidated in SIP as mandated by the CAA. The SIP sets forth the state's strategy for achieving federal air quality standards. The SIP is not a single document, but rather is a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), federal controls, state regulations, and local rules where applicable (such as in California which has local air districts). All of the items that are included in the SIP are published in the Code of Federal Regulations.

#### ***DIESEL PARTICULATE MATTER***

Although Diesel particulate matter (DPM) is not listed as a CAP or hazardous air pollutant (HAP) by the USEPA, it is defined as a Toxic Air Contaminant (TAC) by the California Air Resources Board (CARB). TACs are substances that are known or suspected to be emitted in California and have potential adverse health effects. According to CARB, the estimated health risk from TACs can be primarily attributed to relatively few compounds, such as DPM. DPM differs from many other TACs in that it is not a single substance, but rather a complex mixture of air pollutants, composed of gaseous and solid material, such as particulate matter. Diesel particulate matter is derived from the combustion of diesel fuels within large vehicles or pieces of equipment, such as construction vehicles equipment.

### **3.4.2 AMADOR COUNTY AIR QUALITY**

#### ***REGIONAL METEOROLOGY***

The project site is located within Amador County, which is typically characterized as hot and dry during the summer months with mild and wet winters. The County is moderately moist and the average annual temperature is approximately 65 degrees Fahrenheit (65 °F), with temperatures ranging from below freezing ( $\leq 32^{\circ}$  F) to over 100° F. Precipitation in Amador County varies, but annual average precipitation totals approximately 25-30 inches. The bulk of the rainfall occurs in

fall, winter and spring and a relatively small amount in the summer months. The normal wind pattern in Amador County is a gentle westerly breeze that averages less than ten miles per hour. However, heavy damaging winds can accompany occasional thunderstorms in the summer months. Northerly and easterly winds often blow over the lower west slopes of the Sierra Nevada Mountain Range, bringing warm and dry winds in the spring and summer months and cold, dry winds in the winter months (Amador General Plan, 1993).

Amador County is highly dependent on the meteorology of neighboring Sacramento/San Joaquin Valley. On days when the north wind carries pollutants from the broader Sacramento Area into the northern San Joaquin Valley, afternoon breezes from the west may then push polluted air from the valley into the Sierra Nevada foothills. Under these conditions Amador County can be impacted by broader Sacramento and San Joaquin area emissions. The Sacramento area largely receives air pollution transported from the San Francisco Bay Area. As a result, the meteorology from as far away as San Francisco has the potential to impact Amador County (CARB, 2001).

### ***REGIONAL AIR QUALITY***

The proposed site is located in the Mountain Counties Air Basin (MCAB). The MCAB covers the central portion of the northern Sierra Nevada mountain range, from Plumas County at the northern border to Mariposa County at the southern border of the basin. The basin covers roughly 11,000 square miles, with elevations ranging from 10,000 feet above sea level (asl) at the Sierra crest to a few hundred feet asl at the border with Sacramento County.

### ***NAAQS Designations***

As shown in **Table 3.4-2**, Amador has been designated “Basic” nonattainment under the federal 8-hour ozone NAAQS with an attainment deadline of June 2010. The MCAB meets the federal standards or is unclassifiable for all other pollutants.

**TABLE 3.4-2**  
AMADOR COUNTY NAAQS ATTAINMENT STATUS

<b>Pollutant</b>	<b>Federal Attainment Status</b>
Ozone (8-hour)	<b>Nonattainment, Basic</b>
Respirable Particulate Matter (PM <sub>10</sub> )	Unclassified
Fine Particulate Matter (PM <sub>2.5</sub> )	Attainment
Carbon Monoxide	Attainment
Nitrogen Dioxide	Attainment
Sulfur Dioxide	Attainment

Source: CARB 2004; AES, 2006

In accordance with the California Clean Air Act (1988), the Amador County Air Pollution Control District (ACAPCD) has jurisdiction over the project site and the air basin, governing air quality under the delegation and oversight of the California Air Resources Board (CARB) and the USEPA, although it does not have jurisdiction on Tribal lands. ACAPCD regulates air quality through its permit authority over most types of stationary emissions sources and through its planning and review activities. ACAPCD has adopted an attainment plan for O<sub>3</sub>, *2007 Ozone State Implementation Plan for Northern California*.

### ***ASBESTOS***

Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are: a) chrysotile, b) amosite, and c) crocidolite. Inhalation of asbestos fibers from disturbing either materials containing asbestos or areas containing natural occurring asbestos minerals has been linked to lung ailments ranging from reduced breathing capacity to a special type of cancer called mesothelioma.

### ***Asbestos Containing Building Materials***

Chrysotile, also known as white asbestos, was used in commercial buildings prior to the late 1970's for thermal insulation and fire retardation. In 1975, asbestos was phased out as an ingredient within building materials, and buildings constructed after 1981 could not include any asbestos containing material (ACM). Asbestos within buildings is not always an immediate hazard. In fact, if asbestos can be maintained in good condition, it is recommended that it be left alone and periodic surveillance be performed to monitor its condition. It is only when ACM are disturbed or the materials become damaged that it becomes a potential airborne hazard.

As discussed in **Section 2.0**, the project site is currently developed with the Shenandoah Inn and four private residences. According to business records, the Shenandoah Inn began operation in 1990. Asbestos would not have been used in the construction of the inn. According to the cultural resources study, Section 3.6, two of the residences were built in 1984 and 1972. The age of construction of the other two residences are unknown. With at least one residence known to be constructed prior to 1981, the presence of asbestos is assumed unless data is obtained clearing the structure of ACM.

### ***Naturally Occurring Asbestos***

Sources of asbestos emissions include: unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present. According to the *General Location Guide for Ultramafic Rocks in California* (CDOC, 2000), and as discussed in **Section 3.2**, the project site is not located in an area of ultramafic rock, and therefore, would not contain deposits of natural occurring asbestos.

### ***SENSITIVE RECEPTORS***

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions source, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality related health problems. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with greater associated exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions, because vigorous exercise associated with recreation places a high demand on the human respiratory system.

The project site is adjacent to commercial and low-density residential land uses. The closest school that could be considered a sensitive receptor is Plymouth Elementary School located at 18601 Sherwood Street in the town of Plymouth, which is one mile north of the proposed Amador site. The nearest sensitive receptor is a residence 1,200 feet from the eastern boundary of the site. A mobile home court is located across Highway 49 (to the west) approximately 1,500 feet from the northern boundary of the site.

### **3.4.3 CLIMATE CHANGE**

#### ***REGULATORY SETTING***

##### ***Federal***

In 1997 the Council on Environmental Quality (CEQ) circulated an internal draft memorandum (CEQ, 1997a) on how global climate change should be treated for the purposes of the National Environmental Policy Act (NEPA). The CEQ draft memorandum advised federal lead agencies to consider how proposed actions subject to NEPA would affect sources and sinks of green house gases (GHGs). During the same year, CEQ released guidance on the assessment of cumulative effects in NEPA documents (CEQ, 1997b). Consistent with the CEQ draft memorandum, climate change impacts were offered as one example of a cumulative effect.

##### ***State***

California has been a leader among the states in outlining and aggressively implementing a comprehensive climate change strategy that is designed to result in a substantial reduction in total statewide GHG emissions in the future. California's climate change strategy is multifaceted and involves a number of state agencies implementing a variety of state laws and policies. We have attempted to briefly summarize these laws and policies below.

##### ***Assembly Bill 1493 (AB 1493)***

Signed by the Governor in 2002, assembly bill (AB) 1493 requires that the CARB adopt regulations requiring a reduction in GHG emissions emitted by cars in the state. AB 1493 is

intended to apply to 2009 and later vehicles, however recently the USEPA has denied a Clean Air Act waiver, which the state needs in order to implement AB 1493. Although the state is apparently planning to appeal this decision, at this time it is unclear whether AB 1493 will be implemented (Bee, 2007).

#### *Executive Order S-3-05 (EO S-3-05)*

EO S-3-05 was signed by the Governor on June 1, 2005. EO S-3-05 established the following statewide emission reduction targets:

- Reduce GHG emissions to 2000 levels by 2010,
- Reduce GHG emissions to 1990 levels by 2020, and
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

EO S-3-05 created a “Climate Action Team” or “CAT” headed by the California Environmental Protection Agency and including several other state agencies. The CAT is tasked by EO S-3-05 with outlining the effects of climate change on California and recommending an adaptation plan. The CAT is also tasked with creating a strategy to meet the emission reduction target required by the EO. In April 2006 the CAT published an initial report that accomplished these two tasks.

#### *Assembly Bill 32 (AB 32)*

Signed by the Governor on September 27, 2006, AB 32 codifies a key requirement of EO S-3-05, specifically the requirement to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 tasks CARB with monitoring state sources of GHGs and designing emission reduction measures to comply with the law’s emission reduction requirements. However, AB 32 also continues the CAT’s efforts to meet the requirements of EO S-3-05 and states that the CAT should coordinate overall state climate policy.

In order to accelerate the implementation of emission reduction strategies, AB 32 requires that CARB identify a list of discrete early action measures that can be implemented relatively quickly. In October 2007, CARB published a list of early action measures that it estimated could be implemented and would serve to meet about a quarter of the required 2020 emissions reductions (CARB, 2007a). In order to assist CARB in identifying early action measures, the CAT published a report in April 2007 that updated their 2006 report and identified strategies for reducing GHG emissions (CAT, 2007). In its October 2007 report, CARB cited the CAT strategies and other existing strategies that may be utilized in achieving the remainder of the emissions reductions. AB 32 requires that CARB prepare a comprehensive “scoping plan” that identifies all strategies necessary to fully achieve the required 2020 emissions reductions. According to AB 32 this scoping plan must be in place no later than January 1, 2009. CARB has initiated preparation of the scoping plan and plans on adopting a final plan in late 2008 (CARB, 2007b).

*Executive Order S-01-07 (EO S-01-07)*

EO S-01-07 was signed by the Governor on January 18, 2007. It mandates a statewide goal to reduce the carbon intensity of transportation fuels by at least 10 percent by 2020. This target reduction was identified by CARB as one of the AB 32 early action measures identified in their October 2007 report.

*Western Regional Climate Initiative*

The Western Regional Climate Initiative creates a coalition of western states (California, Washington, Oregon, Arizona, New Mexico) and British Columbia, Canada that have agreed to collaborate on identifying, evaluating, and implementing regional mechanisms for reducing GHG emissions. In light of this goal, the Initiative creates a regional emissions registry and plans the creation of a regional market-based multi-sector emissions reduction mechanism by August 2008.

*Senate Bill 97 (SB 97)*

Signed by the governor on August 24, 2007, SB 97 requires that no later than July 1, 2009, the state Office of Planning and Research (OPR) prepare CEQA guidelines for evaluating the effects of GHG emissions and for mitigating such effects. The Resources Agency is required to certify and adopt these guidelines by January 1, 2010. It is anticipated that this guidance would establish standardized significance criteria for the purposes of assessing project impacts pursuant to CEQA. In the absence of specific guidelines, OPR has referred CEQA document authors to existing general guidelines, examples of impact analyses in existing CEQA documents (which OPR acknowledges ranges greatly from little analysis due to the speculative nature of climate change impact analysis to the calculation of GHG emissions and the inclusion of mitigation), and to a variety of white papers on the subject of GHG impact analysis, including one prepared by the Association of Environmental Professionals (AEP, 2007).

*Governor's Office of Planning and Research – Technical Advisory*

The Governor's Office of Planning and Research (OPR) released a Technical Advisory on June 19, 2008, titled *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act Review*. The Technical Advisory provides informal, interim guidance for analyzing climate change impacts in advance of comprehensive amendments to the CEQA Guidelines to be prepared pursuant to SB 97, and scheduled for release on or before January 1, 2010. The Technical Advisory provides the following guidance when providing climate change analyses in a CEQA document:

- Each lead agency needs to develop its own approach to performing climate change analyses.
- Lead agencies should determine whether GHGs are generated by the project and, if they are, they must be quantified.

- A project's impact can either be cumulatively or individually significant, but climate change is "ultimately a cumulative issue."
- A lead agency must provide mitigation measures to avoid, reduce, or otherwise mitigate the impacts of GHG emissions.
- There is no standard format for including the analysis in a CEQA document.
- A less than significant impact can be presented using mitigation measures.
- The Technical Advisory outlines mitigation measures.

The methodology analyzing climate change impacts outlined in **Section 4.4** of this document is consistent with the OPR Technical Advisory.

### ***INTRODUCTION***

It is anticipated that the average global temperature could rise 0.6 (33.0) to 4.0 °C (39.2 °F) between the years 2000 and 2100 (IPCC, 2007). The extent to which human activities affect global climate change is a subject of considerable scientific debate. While many in the scientific community contend that global climate variation is a normal cyclical process that is not necessarily related to human activities, the IPCC report identifies anthropogenic GHGs as a contributing factor to changes in the Earth's climate (Michaels, 2004; IPCC, 2007). Preferring to error on the side of caution, the analysis in this Environmental Impact Statement (EIS) assumes anthropogenic GHGs are in fact contributing to global climate changes.

The U.S. Supreme Court has held that CO<sub>2</sub> (a GHG) falls under the Clean Air Act's (CAA's) definition of an "air pollutant", such that the EPA has statutory authority to regulate the emissions of this gas (CO<sub>2</sub>). *Massachusetts v. Environmental Protection Agency*, U.S., 1275 S.Ct. 1438, 1462 (2007), concluded that GHG emission from human activities would result in an additional warming of the Earth's surface. The U.S. Court of Appeals, stated succinctly, the potential for greenhouse gas emissions must be analyzed in NEPA documents, *Center for Biological Diversity v. National Highway Safety Administration*, 508 F.3d 508 (9<sup>th</sup> Cir. 2007).

### ***THE GREENHOUSE EFFECT AND CLIMATE CHANGE***

The Earth's temperature is regulated by a system known as the "greenhouse effect." GHGs are primarily water vapor (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) that trap the heat of the sun, preventing radiation from dissipating into space. Water vapor is the most abundant GHG and CO<sub>2</sub> is a distant second. Without the effect of these GHGs, which are both naturally occurring and anthropogenic, the average temperature on the Earth would be approximately -18 °C (-64.4 °F), instead of the current average of 15 °C (59 °F).

IPCC modeling estimates that anthropogenic CO<sub>2</sub> in the lower atmosphere has increased by approximately 31 percent since 1750. At the same time, average temperature in the lower atmosphere has increased approximately 0.6 (33.0) to 0.8 °C (33.4 °F). Due to the challenges

inherent in modeling the complexities of the Earth's climate, the proportional importance of anthropogenic activities as opposed to natural feedback systems is exceptionally difficult to establish. Nonetheless, the IPCC concludes that "Most of the observed increase in globally-averaged temperatures since the mid-20<sup>th</sup> century is very likely due to the observed increase in anthropogenic GHG concentrations." As noted above, this EIS assumes that an increase in anthropogenic GHG concentration is in fact contributing to global warming.

IPCC theorizes that a continuation of this warming trend could have profound implications, including flooding, erratic weather patterns, increased sea levels, and reduced arctic ice. The IPCC projects a number of future GHG emissions scenarios leading to a varying severity of impacts on the environment and the global economy. According to the 2007 IPCC report if anthropogenic GHG continue to increase in the atmosphere there will be a point at which the above impacts would become irreversible, this point is commonly referred to as the "tipping point." Although the 2007 IPCC Report states the tipping point may be as far off as 20 years, some experts contend the tipping point has already been reached.

**Table 3.4-3** illustrates the state contribution to the global increase in GHG emissions. The 2020 estimates assume current GHG emission practices. As shown, without modifications in human activities or the introduction of new technologies, GHG emissions are anticipated to increase.

**TABLE 3.4-3**  
GLOBAL GREENHOUSE GAS EMISSIONS

Regions	Estimated GHG Emissions
	Million metric tons per year of CO <sub>2</sub> e <sup>1</sup>
<b>1990</b>	
Global Emissions	626,395
California Emissions	427
<b>2020</b>	
Global Emissions	882,246
California Emissions	600

<sup>1</sup>Carbon Dioxide Equivalent (see methodology in Section 4.12)  
Source: CARB, 2007; IPCC. 2007

## 3.5 BIOLOGICAL RESOURCES

The assessment of existing site conditions and the analysis of potential effects to biological resources were based upon numerous biological field surveys conducted to document existing habitat types and determine the potential for special status species to occur within the project site (AES, 2004b). This included informal consultation with the U.S. Fish and Wildlife Service (USFWS), and a review of the California Department of Fish and Game (CDFG) Natural Diversity Data Base (CNDDDB) for reported occurrences of federally-listed species within the project vicinity (**Appendix H**). The general and site-specific profiles of Biological Resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

### 3.5.1 REGULATORY SETTING

The following section summarizes the federal and state regulations applicable to biological resources in the study area.

#### *FEDERAL*

##### *Federal Endangered Species Act*

The USFWS and the National Marine Fisheries Service (NMFS) implement the Federal Endangered Species Act of 1973 (hereafter, "FESA," 16 USC §1531 et seq.). Threatened and Endangered Species on the federal list (50 CFR §17.11, 17.12) are protected from take (defined as direct or indirect harm) unless a Section 10(a)(1)(B) permit is granted or a Biological Opinion with incidental take provisions is rendered by the USFWS.

Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed species may be present in the project site and determine whether the proposed project will have a potentially significant impact upon such species. Under FESA, habitat loss is considered an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species that is proposed for listing under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]).

##### *Wetlands and Other Waters of the U.S.*

Any project that involves the discharge of dredged or fill material in navigable and other waters of the United States, must first obtain authorization from the U.S. Army Corps of Engineers (USACE), under Section 404 of the Clean Water Act (CWA). In addition, the project must comply with the terms of the General Construction National Pollution Discharge Elimination System (NPDES) Permit for construction activities in excess of one acre and must achieve compliance with Section 401 of the Federal Clean Water Act.

***Migratory Bird Treaty Act***

Most bird species, especially those that are breeding, migratory, or of limited distribution, are protected under federal and state regulations. Under the Migratory Bird Treaty Act of 1918 (16 USC §703-711), migratory bird species, and their nests and eggs that are on the federal list (50 CFR §10.13) are protected from injury or death, and project-related disturbances must be reduced or eliminated during the nesting cycle.

***STATE***

State-listed species are also subject to consultation requirements and take prohibitions under the California Endangered Species Act (CESA) and the Native Plant Protection Act (NPPA), which currently apply to the study area. Once the property is transferred to federal trust status, the provisions of CEQA, CESA, and NPPA are not directly applicable.

**3.5.2 METHODOLOGY**

For the purpose of this EIS, biological resources are considered to include all plants; vegetation communities and other wildlife habitats; wildlife; and waters of the U.S. Vegetation communities were identified during literature reviews and field surveys. Biological community classifications were made using the CDFG Terrestrial Natural Communities of California system, or “Holland type” (Holland 1986), and where applicable, detailed by "Vegetation Series" using the CNPS Vegetation Classification system (Sawyer and Keeler-Wolf 1995). Wetlands and other aquatic habitats were classified using USFWS National Wetlands Inventory/Classification System for Wetland and Deepwater Habitats, or “Cowardin class” (Cowardin *et al.* 1979). Wildlife habitats were classified according to the CDFG California Wildlife Habitat Relationships System or “CWHR type” (Mayer and Laudenslayer 1988). Additionally, a review of the California Natural Diversity Database (CNDDDB) was conducted and species lists were obtained from the USFWS and the California Native Plant Society (CNPS) to identify special-status species or other sensitive biological resources potentially present on-site.

AES biologists conducted numerous reconnaissance-level field assessments of the project site and vicinity. The field assessments were performed by pedestrian survey to ensure complete coverage of the project site. All observed flora and fauna were noted and identified to the lowest possible classification. All habitat types occurring in the study area were characterized and evaluated for their potential to support regionally occurring special-status species. The site was also assessed for the presence of waters of the U.S. and other biologically sensitive features. In addition, AES staff biologists conducted a late-spring survey for special-status animal species noted to occur in the vicinity of the project site.

A preliminary wetland delineation was conducted and a summary report was prepared for the EIS (**Appendix I**). Additional biological surveys were conducted on February 15 and 23, March 16,

and June 18 and 20, 2007 as follow up to the 2004 delineation and to help supplement special-status species information for the project site.

First wet season protocol-level vernal pool branchiopod surveys were conducted in Dec-April of 2005. A second wet season of protocol-level vernal pool branchiopod surveys were conducted for the project site, at the approval of Jana Milliken with USFWS. The surveys were conducted by permitted biologist Chris Sheehy with assistance by Stephen Stringer under the authority of Federal Fish and Wildlife Permit No. TE-799564-2 held by Sycamore Environmental Consultants, Inc. Survey methodology followed “wet season sampling” protocols outlined in the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (Guidelines). The summary reports are included in **Appendix J**. Both surveys produced negative findings.

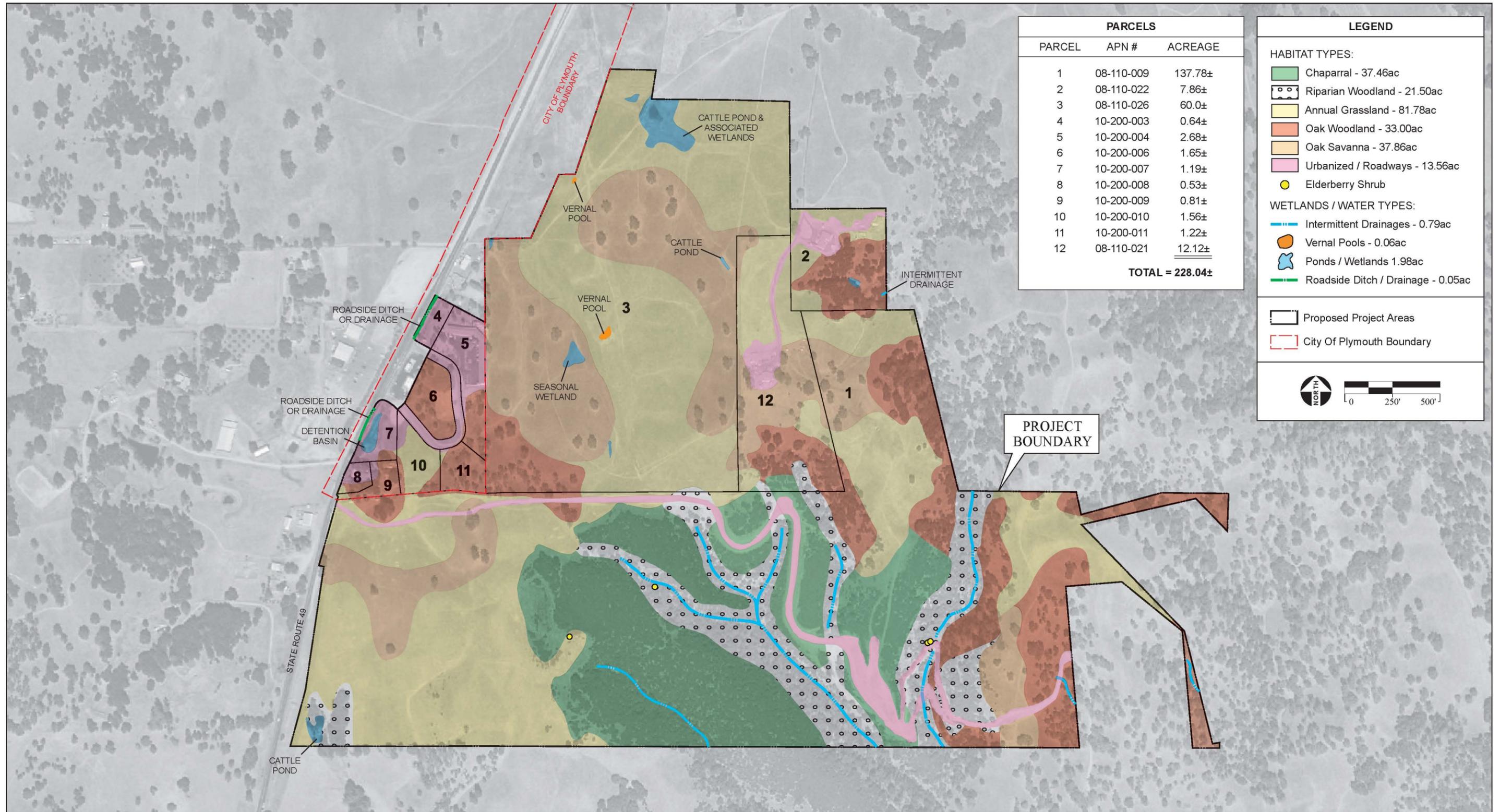
In addition, protocol-level California red-legged frog (RLF) surveys were conducted, with the approval of USFWS (included in **Appendix J** of the FEIS). Survey protocol followed that of the *Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog* (Guidance). The RLF survey produced negative findings; this report has been submitted to the USFWS for concurrence review.

### 3.5.3 HABITAT TYPES

The project site is located within the northern Sierra Nevada floristic district, which is contained within the Sierra Nevada biogeographic region of the larger California floristic province (Hickman, 1993). The habitat types that occur within the project site include: annual grassland, chaparral, oak savanna, oak woodland, riparian woodland, seasonal wetlands, and urbanized land (**Figure 3.5-1**). A complete list of plant species observed on site is included in **Appendix H**. **Table 3.5-1** provides a summary of the habitat types within the project site. These habitat types are discussed in detail in the following paragraphs.

#### *ANNUAL GRASSLAND*

The southwest to northeastern portion of the project site is vegetated by annual grassland and encompasses approximately 82-acres or 36-percent of the project site. Annual grassland plant species found during site visits included creeping bent grass (*Agrostis stolonifera*), silver European hairgrass (*Aira caryophyllea*), sweet vernal grass (*Anthoxanthum odoratum*), wild oat (*Avena fatua*), cultivated oat (*Avena sativa*), California brome (*Bromus carinatus*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), yellow star-thistle (*Centaurea solstitialis*), dogtail fescue (*Cynosurus echinatus*), filaree (*Erodium cicutarium*), California fescue (*Festuca californica*), tarweed (*Hemizonia fasciculata*), meadow barley (*Hordeum brachyantherum*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), weed barley (*Hordeum murinum*



**Figure 3.5-1**  
Habitat Types

ssp. *leporinum*), hedge mustard (*Sisymbrium officinale*), milk thistle (*Silybum marianum*), winter vetch (*Vicia villosa*), and Zorro fescue (*Vulpia myuros*). Animals seen within the annual grassland during site visits include western bluebird (*Sialia mexicana*) and western meadowlark (*Sturnella neglecta*).

**TABLE 3.5-1**  
SUMMARY OF HABITAT TYPES WITHIN THE PROPOSED PROJECT SITE

Habitat Type	Acres	Percent Area
<b>Terrestrial Habitats</b>		
Annual grassland	81.78	35.86%
Chaparral	37.46	16.42%
Oak savanna	37.86	16.60%
Oak woodland	33.00	14.47%
Riparian woodland	21.50	9.43%
Urbanized/Roadways	13.56	5.95%
<b>Aquatic/Wetland Habitats</b>		
Stock Ponds	1.69	0.74%
Detention Basin	0.24	0.11%
Roadside Ditches	0.02	0.01%
Emergent Wetlands	0.07	0.03%
Vernal Pools	0.07	<b>0.03%</b>
Ephemeral Drainages	0.79	<b>0.31%</b>
<b>Total</b>	<b>228.04</b>	<b>100%</b>

Source: AES, 2006

### **CHAPARRAL**

Within the southern half of the project area approximately 37-acres (16-percent of total project acreage) of chaparral occur (**Figure 3.5-1**). Chaparral plant species identified in these areas during site visits included chamise (*Adenostoma fasciculatum*), manzanita (*Arctostaphylos manzanita*), wood fern (*Dryopteris arguta*), yerba santa (*Eriodictyon californicum*), cudweed (*Gnaphalium californicum*), sticky monkey flower (*Mimulus aurantiacus*), and interior live oak (*Quercus wislizenii*). Wildlife species identified within the chaparral community included the western scrub jay (*Aphelocoma californica*) and the California quail (*Callipepla californica*).

### **OAK SAVANNA**

Oak savanna comprises approximately 38-acres or approximately 17-percent of the project site (**Figure 3.5-1**). The oak savanna within the proposed project site is dominated by blue oak

(*Quercus douglasii*). Plants identified within the oak savanna habitat areas during site visits included primarily blue oak and the same dominant annual grasses identified in the annual grassland. Wildlife species identified in these areas include gopher snake (*Pituophis catenifer*), western fence lizard (*Sceloporus occidentalis*), acorn woodpecker (*Melanerpes formicivorus*), mourning dove (*Zenaida macroura*), and mule deer (*Odocoileus hemionus*).

#### **OAK WOODLAND**

Oak woodland comprises approximately 33-acres or 14-percent of the project site and is dominated by blue oaks and to a lesser extent interior live oaks. The oak woodland areas also contained black oaks (*Quercus kelloggii*), gray pines (*Pinus sabiniana*), and ponderosa pines (*Pinus ponderosa*). Understory vegetation included poison oak (*Toxicodendron diversilobum*), manzanita (*Arctostaphylos manzanita*), toyon (*Heteromeles arbutifolia*), dogtail fescue, and goldenback fern (*Pentagramma triangularis* ssp. *triangularis*).

Wildlife seen in the oak woodland during site visits include western scrub jay, Cooper's hawk (*Accipiter cooperii*), oak titmouse (*Baeolophus inornatus*), red-tailed hawk (*Buteo jamaicensis*), northern flicker (*Colaptes auratus*), Nuttall's woodpecker (*Picoides nuttallii*), American Robin (*Turdus migratorius*), mourning dove, white-crowned sparrow (*Zonotrichia leucophrys*), and mule deer.

#### **RIPARIAN WOODLAND**

Riparian or moisture-loving habitat often occurs in canyons and arroyos along rivers and streams and often forms scrub or woodland. Deciduous trees, shrubs, grasses, and forbs dominate the riparian woodlands on site. Riparian woodlands comprise approximately 22-acres or approximately 10-percent of the project site and are predominately associated with the ephemeral drainages on Parcel #1. The stream beds of these ephemeral drainages are littered with weathered shale fragments and vegetated with non-native grasses and forbs. These riparian areas are composed of an overstory of shrubs and trees that form a dense canopy over the drainages (**Figure 3.5-1**). All but one of the riparian areas support a canopy dominated by interior live oaks, which intergrades with the adjoining chaparral. Dominant plant species identified in these areas include interior live oak, California buckeye (*Aesculus californicus*), toyon, California black walnut (*Juglans californica*), holly-leaf redberry (*Rhamnus ilicifolia*), and poison oak. The deep eastern drainage located on Parcel #1 is steep-sided with a well-developed ephemeral channel surrounded by mixed oak-pine riparian woodland. Plant species identified in the central riparian zone of Parcel #1 includes interior live oak, black oak (*Quercus kelloggii*), California black walnut, gray pine, ponderosa pine (*Pinus ponderosa*), and red willow (*Salix laevigata*). Wildlife observed during site visits includes western scrub jay, oak titmouse, mourning dove, golden crowned sparrow (*Zonotrichia leucophrys*), and white-crowned sparrow.

**URBANIZED AREAS**

Urbanized areas classified as disturbed or developed habitat consist of approximately 14-acres or 6-percent of the project site. These areas are associated with the residential and commercial developments in portions of Parcel numbers 2, 4, 5, 6, 7, 8, 9, 10, 11, and 12. These areas support a combination of ornamental and ruderal vegetation. Ruderal vegetation identified in this area during site visits includes yellow star thistle, doveweed (*Eremocarpus setigerus*), prickly lettuce (*Lactuca serriola*), and winter vetch. No wildlife was observed in this area.

**SEASONAL WETLANDS**

Seasonal wetlands are characterized as depressional features that inundate for a duration that allows a hydric plant community to annually establish. Typically, seasonal wetlands contain soils that are moderately restrictive to water movement. This allows the prolonged inundation that supports hydric plant communities. These wetlands typically dry down in the late spring and summer months and commonly contain less hydric plant species during the dry season or when below average annual rainfall occurs. These wetlands typically occur within terraces that support seasonal flooding; in depressional areas where pooling of seasonal rains occurs or where shallow groundwater persists. There are distinct types of seasonal wetlands found onsite. A detailed discussion of all wetland features is found in **Section 3.5.4** below and in **Appendix I**.

**EMERGENT WETLANDS**

Emergent wetlands comprise approximately 0.07 acres and .03 percent of the habitat onsite. Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes such as cattails, rushes and tules which typically remain standing after the growing season. These wetlands are associated with more permanent, perennial type water sources and are commonly seen in sloughs, roadside ditches and marshes that are supplemented by seeps of shallow groundwater, irrigation flows, or roadside runoff. The plant species that typify this habitat tend to grow fast, creating dense areas of vegetation that prevents other smaller herbaceous species to establish. A detailed discussion of all wetland features is found in **Section 3.5.4** below and in **Appendix I**.

**STOCK PONDS**

Stock ponds are man made features that serve to collect seasonal runoff and in many cases are solely used as a watering hole for free grazing livestock. Many stock ponds over time develop an associated emergent plant community of cattails, sedges and tules and can resemble naturally occurring seasonal wetlands. These features don't typically support the specialist species as seen in naturally occurring depressional wetlands or vernal pools, yet many similar species can be attributed to these features.

### ***VERNAL POOLS***

Vernal pools are specialized seasonal wetlands that contain restrictive soil layer of either northern hardpan or clay that drains poorly, thus they sustain inundation for abnormally prolonged periods. This combination of specialized soils and prolonged inundation allows a unique community of obligate plant species to persist. Many of the plant species that are observed in vernal pools would not be noted to occur in any other habitat types, and as such, many vernal pool plants are listed as rare species in California. A detailed discussion of all wetland features is found in **Section 3.5.4** below and in **Appendix I**.

### ***EPHEMERAL DRAINAGES***

Ephemeral drainages comprise approximately 0.70-acres or 0.31-percent of the habitats onsite. Ephemeral drainages are features that convey runoff during and directly after storm events, and do not typically flow otherwise. This limited flow regime minimizes stream processes and typically creates incised channels with minimal sediment transport. Several ephemeral drainages occur in the southeastern portion of the project site. These features do not typically support a large number of obligate plant species and have a reduced habitat complexity. Most vegetation associated with these ephemeral drainages occurs along the riparian zones and can withstand extreme fluctuations in water availability. These species include interior oak, California buckeye, toyon, California black walnut, holly-leaf redberry, and poison oak. These drainages are tributary to Dry Creek.

### ***ROADSIDE DITCHES***

A well established roadside ditch conveys roadside runoff along SR49, flowing south to north from Feature B.

## **3.5.4 WATERS OF THE UNITED STATES**

The term “waters of the U.S.” is defined in 33 CFR Part 328 as:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes; or natural ponds, the use or degradation of which could affect interstate or foreign commerce including any such waters:
  - i. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
  - ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - iii. Which are used or could be used for industrial purpose by industries in interstate commerce.

“Wetlands” are defined as:

- Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (38 CFR Part 328).

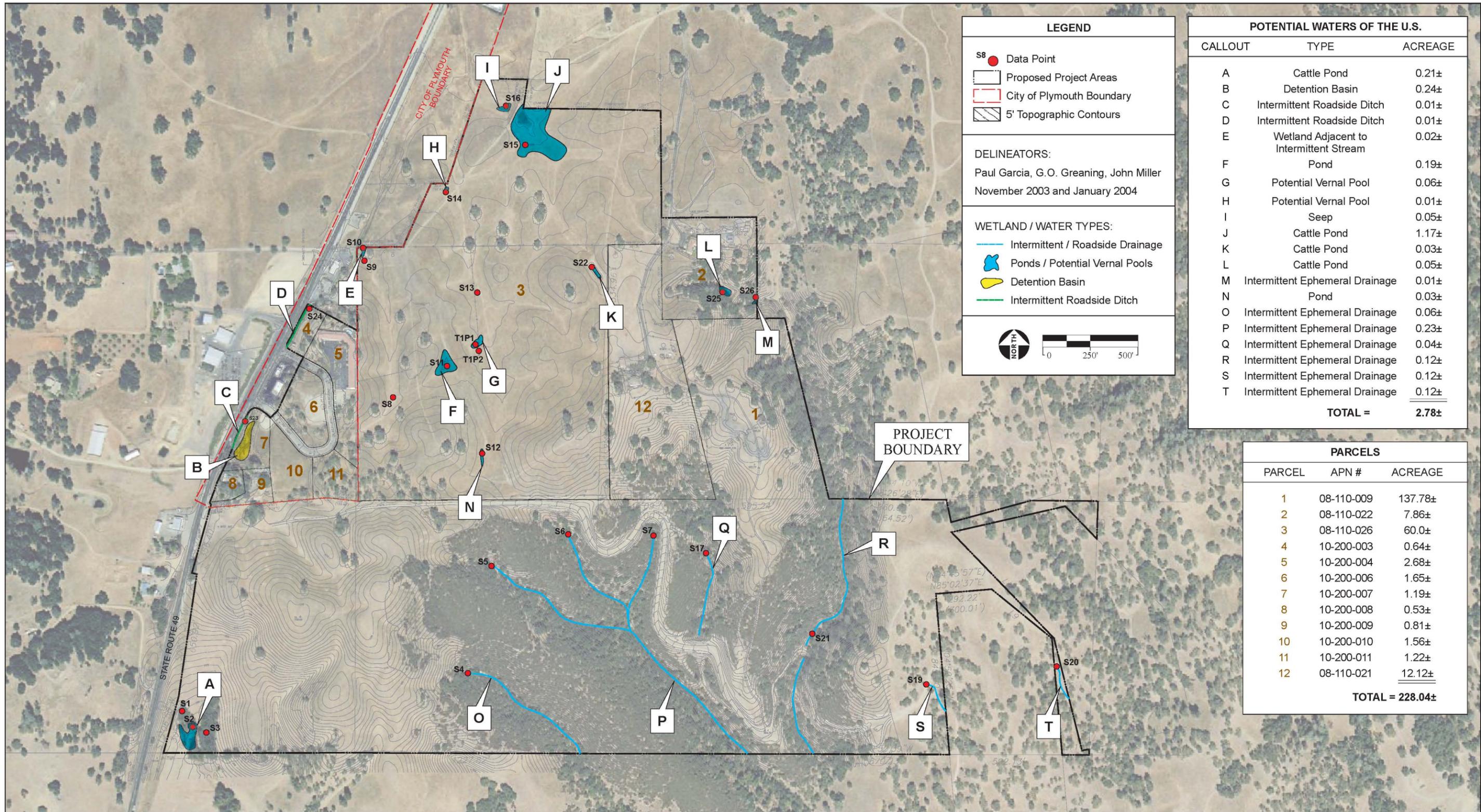
As discussed above, a delineation of “waters of the U.S.” within the 228.04± acre project site was conducted by AES biologists in 2004. In conjunction with special status species biological surveys additional wetland work was conducted in 2007 and 2008. All areas were viewed to the degree necessary to determine the presence or absence of jurisdictional “waters of the U.S.” Waters of the U.S. have been mapped within the study area including intermittent and ephemeral streams, cattle ponds, potential vernal pools, and a detention basin (**Figure 3.5-2; Appendix I**).

The USFWS has also inventoried several wetlands in the area as part of the National Wetlands Inventory (NWI), which provides information on the characteristics, extent, and status of the Nation’s wetlands, deepwater habitat, and other wildlife habitats. These include palustrine emergent and unconsolidated wetlands that were natural and/or impounded. All of the stock ponds and one of the seasonal ponds (i.e. the pond formed from the abandoned grass aircraft runway fill) appeared on the NWI map (**Appendix I**). The AES field survey confirmed the presence of the seasonal wetlands that were identified in the NWI map, including cattle ponds, a detention basin, intermittent and ephemeral streams, potential vernal pools, and ponds. AES also mapped additional potential waters of the U. S. features (**Figure 3.5-2; Appendix I**).

The wetlands and “waters of the U.S.” within the site occupy a total of 2.78-acres or approximately 1.22-percent of the project site. **Table 3.5-2** below provides an acreage summary.

### ***STOCK PONDS***

Six stock ponds occur within the project site; features A, F, J, K, L and N as depicted in **Figure 3.5-2**. Feature A, located near the southwest corner of Parcel #1, is fed by two swales that capture runoff from nearby Highway 49 and the surrounding landscape. The pond and its perimeter are devoid of vegetation, except for scattered willow weed (*Polygonum lapathifolium*). This feature is a result of excavation and damming to create an impoundment suitable for stock watering. Feature F is formed by the aircraft runway, as water drains down the grade that is impounded along the west side of the runway. Water from feature F also seeps through the runway to form feature G. Feature J is the largest aquatic feature onsite and is located near the northern boundary of Parcel #3. This impoundment supports an open water habitat that varies in



**Figure 3.5-2**  
Potential Waters of the United States Map

depth throughout the season and supports a peripheral area that is saturated long enough through the wet season to maintain a thick herbaceous layer dominated by spikerush (*Eleocharis macrostachya*). This feature is a result of excavation and damming of a swale for purposes of stock watering. The dam for feature J seeps to the west, forming feature I. Another cattle pond occurs along the eastern boundary of Parcel #3 (Feature K). No vegetation was observed in association with this pond. An additional cattle pond, feature L, occurs within Parcel #2 (**Figure 3.5-2**). While Feature N pools on the east side of the runway, these remaining two ponds support minimal vegetation.

**TABLE 3.5-2**  
WATERS OF THE U. S. SUMMARY

<b>Feature</b>	<b>Mapping Callout on Figure 7</b>	<b>Acreage</b>
Stock Ponds	A, F, J, K, L & N	1.69
Detention Basin	B	0.24
Roadside Ditches	C & D	0.02
Emergent Wetlands	E & I	0.07
Vernal Pools	G & H	0.07
Ephemeral Drainages	M, O, P, Q, R, S, T	0.79
<b>TOTAL</b>		<b>2.88</b>

SOURCE: AES, 2004

#### ***DETENTION BASIN***

Feature B is a detention basin that is located along the western boundary of Parcel #7. This detention basin appears to collect runoff from this portion of the site and channel it into a culvert that daylights just north of the gas station and continues as a roadside ditch; Features C and D.

#### ***ROADSIDE DITCHES***

The two roadside ditches, features C and D in Figure 3.5-2, are shown as intermittent drainages where a portion of the drainage appears to be a modification of a historic drainage that once flowed through the western portion of Parcel #4, paralleling SR49. A small wetland forms adjacent to this drainage. Dominant plants identified during site visits include broadleaf cattail (*Typha latifolia*) and Himalaya blackberry (*Rubus discolor*). Plants identified within the drainage include broadleaf cattail, curly dock (*Rumex crispus*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepis*).

#### ***EMERGENT WETLANDS***

Two emergent wetlands are located onsite, features E and I. These are smaller features that are vegetated with typical emergent vegetation such as spikerush, Baltic rush (*Juncus balticus*), cattail, and sedges.

**VERNAL POOLS**

Two vernal pools, features G and H, occur within Parcel #3. Feature H is located north of feature G, adjacent to the western project site boundary (**Figure 3.5-2**). Vegetation associated with the vernal pools included spikerush, Vasey's branching coyote thistle (*Eryngium castrense*), and pillwort (*Pilularia americana*).

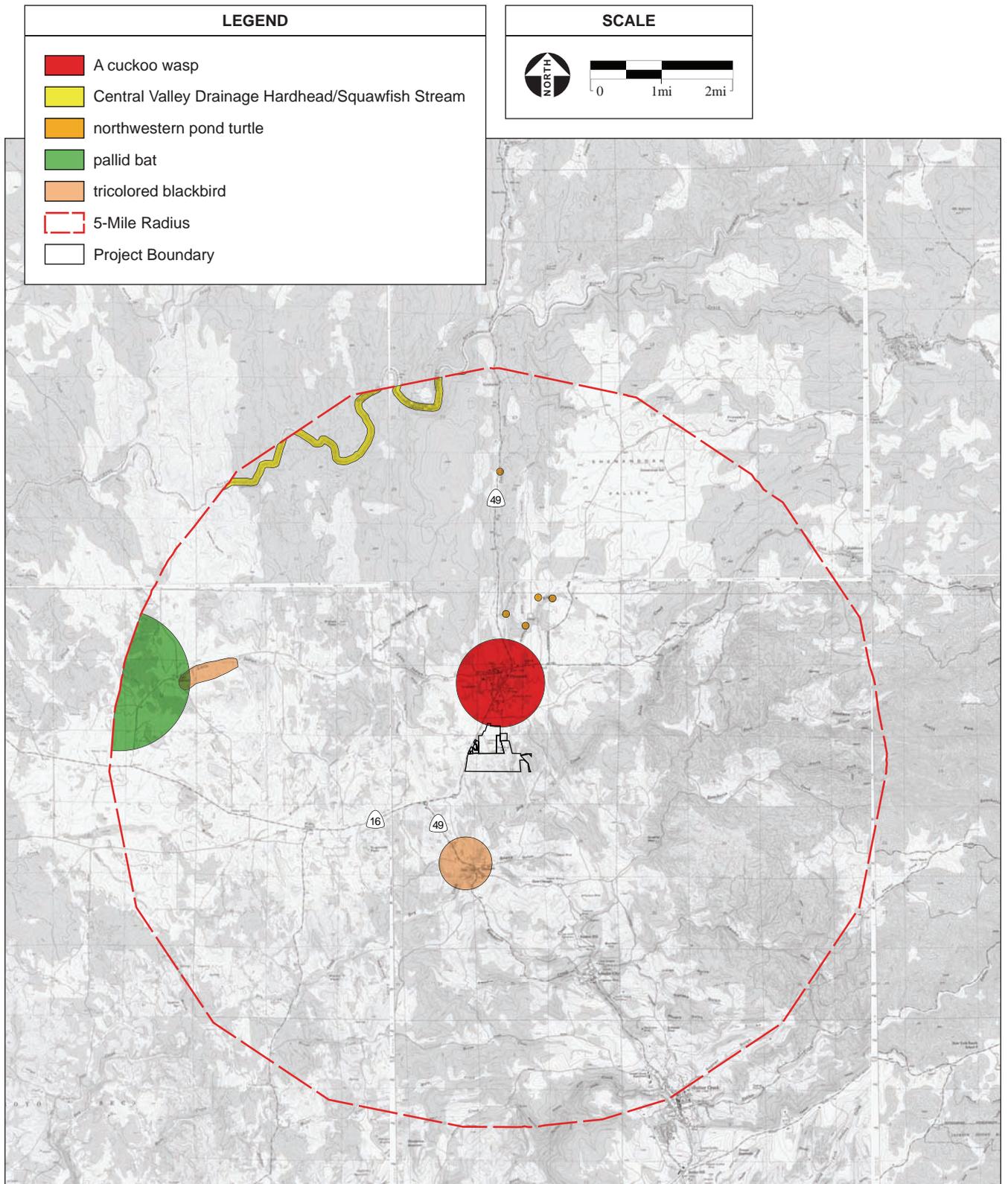
**EPHEMERAL DRAINAGES**

Several ephemeral drainages occur on the southern and eastern portion of the proposed project site (features M, O, P, Q, R, S, and T on **Figure 3.5-2**). These drainages have substrates of primarily cobble and shale. They are vegetated primarily with non-native grasses and forbs and generally have canopies of riparian trees and shrubs over them.

**3.5.5 SPECIAL-STATUS SPECIES**

A detailed list of all special-status species with the potential to occur on the project site was generated based upon pertinent literature, aerial photographs, site topographic maps, informal consultation with USFWS, local experts, CNDDDB occurrence queries, and numerous biological field surveys as outlined in (**Appendix H**).

The DFG CNDDDB was queried for known documented occurrences of special-status species within a standard 5 mile radius of the project site. This radius search incorporated the “Amador City, CA” 7.5 Minute Quadrangle as well as parts of the Latrobe, Irish Hill and Fiddletown Quadrangles. All resultant occurrences within a five-mile radius of the site were plotted on a map (**Figure 3.5-3**). Additionally, **Appendix H** contains a species table compiled from a nine quad CNDDDB special status species search. This search compiled all state and federal special status species that have been previously documented to occur within the “Amador City, CA” 7.5 Minute Quadrangle and the eight surrounding quadrangles. All of these species reported by this CNDDDB query were fully assessed for potential to occur within the project site. The specific habitat requirements for each of these special-status species was determined through literature review then compared to the habitats occurring within the project site and adjacent areas. The results of this analysis are compiled in **Table 3.5-3**, which contains all state and CNPS-listed species with suitable habitat on-site that were reported by the CNDDDB query. Those species that were eliminated from **Table 3.5-3** due to a lack of suitable habitat onsite are fully addressed in **Appendix H**. Those species considered in the 2005 Biological Resources Assessment that no longer have a state or federal listing and those CNPS species without state or federal listing that occur within five miles of the site were eliminated from further analysis. Additionally, the Sacramento USFWS produced an informal consultation letter (**Appendix H**) listing all federal special status species that have been reported to occur within the “Amador City, CA” 7.5 Minute Quadrangle as well as a list for all special status species that have been documented to occur in Amador County. **Appendix H** contains a table in which all species reported by the USFWS to occur within the localities detailed above were fully assessed for the potential to occur within the



SOURCE: "Amador City, CA" USGS 7.5 Minute Quadrangle; CNDDDB Database, 2007; AES, 2007

*Ione Band of Miwok Indians EIS / 203525* ■

**Figure 3.5-3**  
Special Status Species

**TABLE 3.5-3**  
STATE AND CNPS SPECIAL-STATUS SPECIES LIST

SCIENTIFIC NAME COMMON NAME	STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
<b>PLANTS</b>				
<i>Clarkia biloba ssp. brandegeae</i> Brandegee's clarkia	--/1B	Butte, El Dorado, Nevada, Placer, Seirra, and Yuba counties.	Chaparral and cismontane woodland, often in roadcuts.	May - July
<i>Eryngium pinnatisectum</i> Tuolumne button-celery	--/1B	Amador, Calaveras, Sacramento, and Tuolumne counties.	Cismontane woodland, lower montane coniferous forest, and vernal pools. Elevation ranges from 230-3,000 ft.	June - August
<i>Horkelia parryi</i> Parry's horkelia	--/1B	Calaveras, El Dorado, and Mariposa counties.	Open chaparral and cismontane woodland between 300 and 3,000 ft. in elevation, found most often on lone Soils.	April - June
<i>Sphenopholis obtusata</i> Prairie wedge grass	--/2	The current distribution is Amador, Fresno, Inyo, Mono, Riverside, and San Bernardino Counties	Meadows and seeps 1,000-6,500 ft. in elevation.	April - July
<b>ANIMALS</b>				
<b>Reptiles</b>				
<i>Actinemys marmorata marmorata</i> Northwestern pond turtle	CSC/--	West coast of North America from southern Washington, USA to northern Baja California, Mexico. Many populations have been extirpated and others continue to decline throughout the range, especially in southern California.	Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	All year
<b>Birds</b>				
<i>Agelaius tricolor</i> Tricolored blackbird	CSC/--	California and Baja California, Mexico.	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water in Central Valley.	April - July

**STATUS CODES****STATE: California Department of Fish and Game**

CSC California Species of Special Concern

**CNPS: California Native Plant Society**

List 1B Plants rare or endangered in California and elsewhere

List 2 Plants rare or endangered in California, but more common elsewhere

SOURCE: California Department of Fish and Game, 2003; CNPS, 2006.

**TABLE 3.5-4  
FEDERAL SPECIAL-STATUS SPECIES LIST**

SCIENTIFIC NAME COMMON NAME	FEDERAL STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
<b>ANIMALS</b>				
<b>Invertebrates</b>				
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT	Vernal Pools in the Central Valley, Coast Ranges, and limited number of sites in Transverse ranges and Riverside County, California.	The vernal pool fairy shrimp is restricted to seasonal vernal pools and prefers cool-water pools that have low to moderate dissolved solids, are less predictable, and often short lived.	December - May
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT	Central Valley in riparian habitats.	Breeds and forages exclusively on elderberry shrubs ( <i>Sambucus mexicana</i> ) below 2,500 ft. in elev.; specifically on shrubs with stem diameter of one-inch or greater.	All year
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE	The vernal pool tadpole shrimp is known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, and from a single vernal pool complex located on the San Francisco Bay National Wildlife Refuge in the City of Fremont, Alameda County.	Found in a variety of seasonal wetlands from 6.5 square feet to 88 acres in size. Found on a variety of geologic formations and soil types but over 50 percent of the time on High Terrace landforms and Redding and Corning soils. May be able to resist temporary drying conditions.	December - May
<b>Amphibians</b>				
<i>Rana aurora draytonii</i> California red-legged frog	FT	Locally abundant within portions of the San Francisco Bay area (including Marin County) and the central coast. Only isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse ranges and Baja California, Mexico.	Lowlands and foothills in or near permanent or late-season sources of deep water with shrubby overhanging or dense emergent vegetation.	May - November

SCIENTIFIC NAME COMMON NAME	FEDERAL STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
<i>Ambystoma californiense</i> California tiger salamander, central population.	FT	Sacramento and San Joaquin River Valleys, surrounding foothills and westward in the lower elevations of California's central Coast.	Occurs in annual grasslands. Breeds and lays eggs November to February in vernal pools and other temporary rainwater ponds and sometimes permanent man-made ponds where predators are absent. May co-exist with bullfrogs ( <i>Rana catesbeiana</i> ) in vegetated ponds that provide refugia.	November - February

## STATUS CODES

**FEDERAL: U.S. Fish and Wildlife Service or National Marine Fisheries Service**

FE = Listed as Endangered by the Federal Government

FT = Listed as Threatened by the Federal Government

SOURCE: USFWS, 2007.

project site. Those federally-listed species that were determined to have potentially suitable habitat elements onsite are detailed in **Table 3.5-4** and more fully addressed the *Federally-listed Species* section.

Special-status state listed species are designated as having special status by state agencies, the CNPS), or other conservation organizations because of their rarity or their vulnerability to habitat loss or population decline. Species designated as having special status at the state or local-level generally receive no specific protection on tribal land taken into trust by the federal government.

For the purposes of this EIS, federally listed species include those plant and animal species that are listed as endangered or threatened under FESA or formally proposed for listing.

#### ***STATE AND CNPS LISTED SPECIES***

##### ***Plant Species***

No state or CNPS listed plant species are documented to occur within five miles of the project site, however, four CNPS-listed plant species occur within the “Amador City” quadrangle and the eight surrounding quads and have potential habitat within the site: Brandegee’s clarkia (*Clarkia biloba* ssp. *brandegeae*), Tuolumne button-celery (*Eryngium pinnatisectum*), Parry’s horkelia (*Horkelia parryi*), and prairie wedge grass (*Sphenopholis obtusata*). Surveys were performed during the bloom season of these plants. None of these species were observed during the seasonally appropriate field surveys.

##### ***Reptile Species***

One state-listed reptile species has been documented to occur within five miles of the project site and has potential habitat within the site: northwestern pond turtle (*Actinemys marmorata marmorata*). The closest CNDDDB occurrence for this species (157) is approximately 1.1 miles from the project site, observed in a large cattle pond in July of 2002. This species was not observed on the project site during focused surveys for California red-legged frog, which share a similar habitat. One unidentified pond turtle was observed in Dry Creek during the protocol RLF frog surveys, less than one mile southeast the project site. This species was not observed onsite during field surveys.

##### ***Bird Species***

One state-listed bird species has been documented to occur within five miles of the project site and has potential breeding and foraging habitat within the site: tricolored blackbird (*Agelaius tricolor*). The closest CNDDDB occurrence for this species (259) is approximately 1.1 miles from the project site. A colony of 200 nests was sighted in 1986. No significantly appropriate nesting habitat was observed on site and this species was not observed during field surveys.

**FEDERALLY-LISTED SPECIES*****Plant Species***

Two federally listed plant species have been documented to occur within the “Amador City” quadrangle and the eight surrounding quads: Ione manzantia (*Arctostaphylos myrtifolia*) and Irish Hill buckwheat (*Eriogonum apricum* var. *prostratum*). Both of these species require Ione soils in chaparral habitats. Ione soils are not mapped within the project site by the NRCS (USDA, 2007), nor were they present in any sample pits dug for wetland delineation purposes. These plant species were not observed during field visits conducted during the bloom period of these plants and suitable habitat for these species is not present within the project site.

***Invertebrate Species***

Three federally-listed invertebrate species have been documented to occur within the “Amador City” quadrangle and the eight surrounding quads: vernal pool fairy shrimp (*Branchinecta lynchi*), valley elderberry longhorn beetle (VELB; *Desmocerus californicus dimorphus*), and vernal pool tadpole shrimp (*Lepidurus packardi*). These species are discussed below.

**VERNAL POOL FAIRY SHRIMP (BRANCHINECTA LYNCHI)**

Federal status: Threatened

The vernal pool fairy shrimp is a small crustacean in the family Branchinectidae. It ranges in size from 0.5-1 inch long and occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05-acre. Pools of this size are most commonly found in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. Vernal pool fairy shrimp have been collected from early December to early May (USFWS 2003).

Female fairy shrimp carry their eggs in a ventral brood sac that are either dropped to the pool bottom or remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs. The eggs remain in the dry pool bed until rains and other environmental stimuli hatch them. Resting fairy shrimp eggs are known as *cysts*. They are capable of withstanding heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Average time to maturity is only forty-one days. In warmer pools, it can be as little as eighteen days (USFWS 2003). Due to the extensive loss of vernal pools in the Central Valley, the USFWS listed the vernal pool fairy shrimp as threatened in 1994 pursuant to the Federal Endangered Species Act.

Period of Identification: December-May

Recovery Plan/ Critical Habitat Designation: A Recovery Plan for vernal pool ecosystems of California and southern Oregon was established in December 2005 (USFWS 2005). The closest

critical habitat unit is unit 14A, which includes southeastern Sacramento County and the far west side of Amador County. This critical habitat is located 9.5 miles west-southwest of the project site. The closest Recovery Area is the Rancho Seco/Cosumnes core recovery area and its closest boundary is in approximately the same location as the critical habitat unit 14A (71 Federal Register, 7118-7314).

**CNDDDB Records:** Listed branchiopods have not been documented in the CNDDDB in Amador County. The closest occurrence is approximately 11 miles southwest of the project site in the Laguna Creek drainage in a mitigation bank site.

**Potential to Occur on the Project Site:** The vernal pools in the study area represent potential listed branchiopod habitat. Two sets of wet season protocol-level surveys have been performed according to the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (Appendix J)*. The first set was performed in the 2004-2005 wet sampling season and the second in the 2007 wet sampling season. Listed branchiopod species were not observed on the project site on any of the survey dates. Vernal pool fairy shrimp do not occur within the vernal pools on the project site.

**VALLEY ELDERBERRY LONGHORN BEETLE (*DESMOCERUS CALIFORNICUS DIMORPHUS*)**

Federal status: Threatened

The valley elderberry longhorn beetle (VELB) occurs in California's Central Valley and are completely dependent on its host plant, elderberry (*Sambucus mexicana*), during its entire life cycle (USFWS 1999). VELB larvae live within the soft pith of the elderberry where they feed for 1-2 years. Adults emerge from pupation inside the wood of elderberry shrubs during the spring as the plant begins to flower. The adults feed on the elderberry foliage up until they mate. Females lay their eggs in the crevices of elderberry bark. Upon hatching the larvae then tunnel into shrub stems and feed there. VELB typically utilize stems that are greater than one-inch in diameter at ground level (USFWS 1999). Due largely to the loss of riparian habitat within California's Central Valley the VELB populations in the state had decreased to a point that in 1980 the USFWS listed the species as threatened pursuant to the Federal Endangered Species Act.

Four elderberry shrubs were observed within Parcel #1 (**Figure 3.5-1**):

- One large shrub was observed at the headwaters of the westernmost drainage in a non-riparian area. This shrub was observed to support 4 stems greater than 5" inches in diameter, 6 stems greater than 3" inches in diameter, and 10 stems greater than one inch in diameter. No exit holes were observed.
- One shrub was observed adjacent to the central large drainage within Parcel #1. This shrub had one stem, approximately 3" and was in fair to poor health. No exit holes were observed.

- Two small shrubs were observed in a disturbed riparian area on the northern slope of the road crossing of the eastern most drainage within the area of the proposed reclaimed water seasonal storage reservoir. Each of these two shrubs had two stems greater than one, but less than three inches in diameter. No exit holes were observed on either of these two shrubs.

Period of Identification: All year

Recovery Plan/ Critical Habitat Designation: There are no recovery areas or critical habitat units in Amador County. The closest recovery area is approximately 26 miles northwest along the American River Parkway in Sacramento County (USFWS 1984). The closest critical habitat designation coincides with that area.

CNDDDB Records: Only one occurrence was found on the CNDDDB in Amador county and this was 9.7 miles to the southwest of the project site, along the north side of Sutter Creek, 1.5 miles west of Ione.

Potential to Occur on the Project Site: The VELB has the potential to occur on the project site in the elderberry shrubs. The project site is neither within nor near any critical habitat units or recovery areas (none occur in Amador county). A protocol-level survey for the VELB was conducted by staff biologist John Downs on October 5, 2004 according to the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999) and no beetles or exit holes were found on the elderberry shrubs. An additional survey was performed on February 23, 2007, with the same results. VELB are not likely to occur within the project site.

**VERNAL POOL TADPOLE SHRIMP (*LEPIDURUS PACKARDI*)**

Federal status: Endangered

The vernal pool tadpole shrimp (*Lepidurus packardi*) is a small crustacean in the family Triopsidae. This animal inhabits vernal pools containing clear to highly turbid water, ranging in size from 54 square feet to 89 acres (USFWS 2004b). The life history of the vernal pool tadpole shrimp is linked to the seasonal cycle of the vernal pool. After winter rainwater fills the pool, the population is reestablished from cysts that lie dormant in the dry pool sediments. Sexually mature adults have been observed in vernal pools three to four weeks after the pools had been filled. Some cysts hatch immediately and the others remain dormant in the soil to hatch during later rainy seasons (USFWS 2003). Due to the extensive loss of vernal pools in the Central Valley, the USFWS listed the vernal pool tadpole shrimp as threatened in 1994 pursuant to the Federal Endangered Species Act.

Period of Identification: December-May

Recovery Plan/ Critical Habitat Designation: A Recovery Plan for vernal pool ecosystems of California and southern Oregon was established in December 2005 (USFWS 2005). The closest critical habitat unit is unit 14A, which includes southeastern Sacramento County and far western Amador County. It is located 9.5 miles west southwest of the project site. The closest Recovery Area is the Rancho Seco/ Cosumnes core recovery area and its closest boundary is in approximately the same location as the critical habitat unit 14A (71 Federal Register, 7118-7314).

CNDDDB Records: Listed branchiopods have not been documented in the CNDDDB in Amador County. The closest occurrence is approximately 11 miles southwest of the project site in the Laguna Creek drainage in a mitigation bank site.

Potential to Occur on the Project Site: The project site is not within the range of any listed branchiopods. The vernal pools in the study area represent potential listed branchiopod habitat. Two sets of wet season protocol-level surveys have been performed according to the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (Appendix J)*. The first set was performed in the 2004-2005 wet sampling season and the second in the 2007 wet sampling season. Listed branchiopod species were not observed on the project site on any of the survey dates. Vernal pool tadpole shrimp do not occur within the vernal pools on the project site.

### ***Amphibian Species***

Two federally-listed amphibian species occur within the “Amador City” quadrangle and the eight surrounding quads: California red-legged frog (*Rana aurora draytonii*) and California tiger salamander, central population (*Ambystoma californiense*). These species are discussed below.

#### **CALIFORNIA RED-LEGGED FROG (*RANA AURORA DRAYTONII*)**

Federal status: Threatened

California red-legged frogs (CRLF) historically occupied portions of the western slope of the Sierra Nevada from Shasta County south to Tulare County. Over the years these populations have become fragmented or extirpated. The CRLF occupies a fairly distinct habitat, combining both specific aquatic and riparian components. The adults require dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2 1/3-foot deep) still or slow moving water. The largest densities of CRLF are associated with deep-water pools with dense stands of overhanging willows (*Salix* sp.) and an intermixed fringe of cattails (*Typha latifolia*). Well-vegetated terrestrial areas within the riparian corridor may provide important sheltering habitat during winter (USFWS 2007). Stock ponds can be used by this species if they have the proper hydroperiod and are absent of nonnative predators such as bullfrogs. CRLF can estivate in small mammal burrows and moist leaf litter during the summer. They have been found up to 100 feet from water in adjacent dense riparian vegetation. Waters have to be inundated for at least 4-5 months for metamorphosis.

The CRLF has sustained a 70-percent reduction in its geographic range in California as a result of several factors acting singly or in combination. Habitat loss and alteration, combined with over exploitation and introduction of exotic predators, were significant factors in the red-legged frogs' decline in the early to mid-1900s (USFWS 2003). As a result, the USFWS listed the CRLF as threatened in 1996.

Due to the listing of the CRLF, USFWS and other state, municipal and private protection measures have been implemented to assist in the recovery of the species. In 2002 USFWS published the Recovery Plan for the CRLF (Recovery Plan). In the Recovery Plan USFWS identifies eight recovery units within California that contain core areas that are targeted for development and implementation of management and protection plans for the CRLF. The project site is located within the Cosumnes River core recovery area for the CRLF. Conservation needs prescribed by USFWS for the Cosumnes River core area include:

- Protection of existing populations,
- Restoration of additional habitat,
- Protection of habitat connectivity, and
- Reestablishment of populations and/or augmentation of existing populations.

Period of Identification: May-November

Recovery Plan/ Critical Habitat Designation: The nearest boundary of a critical habitat unit, unit 3, is approximately 18 miles away in El Dorado County (71 Federal Register, 19243-19346). The project site is within the Cosumnes River core recovery area for the CRLF.

CNDDDB Records: The nearest reported CRLF occurrence is 22 miles northeast of the site, on Sopiago Creek in neighboring El Dorado County.

Potential to Occur on the Project Site: The project site is within the historic CRLF range documented by verified sightings and museum records (Jennings and Hayes 1994). The stock ponds occurring on the project site represent potential breeding habitat for CRLF. The presence of bullfrogs in these ponds makes it unlikely that CRLF would utilize them for breeding. Potential dispersal, foraging, and/ or refuge habitat occurs throughout the site in swales, seeps, intermittent drainages, potential vernal pools and the detention basin. Protocol-level California red-legged frog surveys were conducted by AES biologists in 2007 (**Appendix J**). Survey protocol followed that of the *Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog* (Guidance). A *California Red-legged Frog Survey Report for the Ione Land Transfer and Casino Project* is pending submittal to the USFWS. No CRLF were observed during protocol surveys. The CRLF does not occur within the project site.

**CALIFORNIA TIGER SALAMANDER, CENTRAL POPULATION (*AMBYSTOMA CALIFORNIENSE*)**

Federal status: Threatened

In the Central California foothills, the California tiger salamander (CTS) is typically found at elevations below 1,500 feet. CTS spend the majority of their lives in upland habitats such as annual grasslands, oak savannah, mixed grassland and woodland habitats, woodlands, scrub, or chaparral habitats plant communities associated with vernal pools, vernal pool complexes, and seasonal ponds. Within these upland habitats, adult CTS spend part of their lives in the underground burrows of small mammals. They utilize seasonal ponds, natural vernal pools, vernal pool complexes, and roadside ditches for breeding during their aquatic phase. Small artificial water bodies such as stock ponds may be used but are often not optimum breeding habitat for the CTS because the hydroperiod of stock ponds can be so short that larvae cannot metamorphose or so long that predatory fish and bullfrogs can colonize the pond. Periodic maintenance of stock ponds may also cause a temporary loss of functioning aquatic habitat. Successful breeding ponds for California tiger salamanders need to be inundated for a minimum of 12 weeks to allow for successful metamorphosis (USFWS 2004c).

The CTS has been eliminated from an estimated 55- to 58-percent of its historic breeding sites and has lost an estimated 75-percent of its habitat. The CTS was listed as a federally threatened species under FESA in August of 2004. Critical habitat for the CTS occurs 14 miles southwest of the project site. The CTS is included in the CRLF Recovery Plan as an associated species in the USFWS ecosystem approach to conservation.

Period of Identification: November-February

Recovery Plan/ Critical Habitat Designation: The project is located 8.5 miles away from the Central California Tiger Salamander Central Valley Region recovery area and 14 miles away from critical habitat unit #4 boundary (70 Federal Register, 49379-49458).

CNDDDB Records: The nearest reported CTS occurrence in the CNDDDB is 10 miles west-southwest of the site in Amador County.

Potential to Occur on the Project Site: Vernal Pools, the cattle ponds, and associated upland oak savannah, woodland edge, and annual grassland identified within the study area represent potential habitat for CTS. Due to the highly disturbed state of the aquatic and associated terrestrial habitats and the lack of historic findings of this species on or near the project site CTS are not anticipated to occur on-site. While protocol-level surveys for CTS were not conducted, CRLF surveys, branchiopod surveys, and the wetland delineation were performed within the potential CTS habitat on-site. No CTS or CTS larvae were observed during any of the focused field surveys. In addition, all of the aquatic habitats on-site with the potential to be CTS habitat,

were occupied with bullfrogs. Many of these features contained mosquito fish. These species prey on CTS larvae. The project site is also out of the range of CTS. CTS are not likely to occur within the project site.

***Fish Species***

All federally-listed fish species that occur in the “Amador City” quadrangle and eight surrounding quads, including delta smelt (*Hypomesus transpacificus*), Central Valley steelhead (*Oncorhynchus mykiss*), Central Valley fall/late fall-run Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) require perennial aquatic habitat for survival. While some of the cattle ponds are perennial, they do not provide suitable habitat for these species. Suitable habitat for these fish species is not present on site.

***Bird Species***

One federally-listed bird species occurs within the “Amador City” quadrangle and eight surrounding quads; bald eagle (*Haliaeetus leucocephalus*). This species typically nests in trees near large bodies of water. Suitable habitat for this species is not present on site.

***Migratory Birds***

Migratory birds and raptors could potentially nest in trees or near ponds located on or within the immediate vicinity of the proposed development areas. Under the Migratory Bird Treaty Act of 1918 (16 USC §703-711), migratory bird species, and their nests and eggs, which are on the federal list (50 CFR §10.13) are protected from injury or death, and project-related disturbances must be reduced or eliminated during the nesting cycle. Several migratory bird species including Canadian Geese (*Branta Canadensis*), mourning dove (*Zenaida macroura*), American robin (*Turdus migratorius*), western kingbird (*Tyrannus verticalis*), and Nuttall’s woodpecker (*Picoides nuttallii*) were observed on the project site during field visits.

***Mammal Species***

One federally-listed bird species occurs within the County: pacific fisher (*Martes pennanti pacifica*). The habitat within the project site is not suitable for this species and the elevation of the project site is outside of the typical elevation range for this mammal species.

## 3.6 CULTURAL RESOURCES

This section describes the existing conditions of cultural resources for the proposed Amador County project site. Topics contained in this section include the regulatory setting for evaluation of cultural resources, regional and site-specific background of local prehistory, ethnography, and history, and a summary of the known cultural resources identified as a result of archival research and field investigations. The information contained herein provides the baseline by which direct, indirect, and cumulative effects to cultural resources are identified and measured in **Section 4.0**.

### 3.6.1 REGULATORY SETTING

#### *NATIONAL HISTORIC PRESERVATION ACT*

Section 106 of the National Historic Preservation Act (NHPA) as amended, and its implementing regulations found in 36 CFR Part 800, require federal agencies to identify cultural resources that may be affected by actions involving federal lands, funds, or permitting. The significance of the resources must be evaluated using established criteria outlined 36 CFR 60.4, as described below in **Section 3.6-6**.

If a resource is determined to be a *historic property*, Section 106 of the NHPA requires that effects of the development on the resource be determined. A historic property is defined as:

*...any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic Places, including artifacts, records, and material remains related to such a property...(NHPA Sec. 301[5])*

Section 106 of the NHPA prescribes specific criteria for determining whether a project would adversely affect a historic property, as defined in 36 CFR 800.5. An impact is considered significant when prehistoric or historic archaeological sites, structures, or objects that are listed, or eligible for listing, in the National Register of Historic Places (NRHP) are subjected to the following:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property that causes its deterioration; and

- Transfer, lease, or sale of the property out of federal control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

If the historic property will be adversely affected by development, then prudent and feasible measures to avoid or reduce adverse impacts must be taken. The State Historic Preservation Officer (SHPO) must be provided an opportunity to review and comment on these measures prior to project implementation.

### **3.6.2 PREHISTORY**

#### ***PRE-ARCHAIC PERIOD (10,000-8,000 B.C.)***

The earliest occupants of California are generally believed to have been reliant for their subsistence on the hunting of big game. Although tools for grinding are occasionally found on these early sites, the gathering of plant material appears to have been only a small part of their subsistence strategy. Few sites from this period have been found in California, suggesting a small, widely dispersed population. Most of the sites dating to this period have been found in the vicinity of ancient shorelines of the large, pluvial lakes that were common during this time (Chartkoff and Chartkoff, 1984).

#### ***EARLY ARCHAIC PERIOD (8,000-5,000 B.C.)***

With the end of the Pleistocene, the climate began a warming and drying trend that lasted for several thousand years. The great inland lakes that had covered large areas of the Great Basin began to dry up, and the megafauna – the mainstay of Pre-Archaic Period subsistence – suffered mass extinction. People adapted to these changes by shifting their foraging emphasis away from hunting and increasing their use of plant resources, as evidenced by a marked increase in the presence of plant processing tools at archaeological sites dated to this time period. More handstones and millingslabs suggest that people had begun to rely much more heavily on hard seeds and grains.

#### ***MIDDLE ARCHAIC PERIOD (5,000-1,300 B.C.)***

The Middle Archaic occurred during a cooler and moister period of the Holocene, and archaeological visibility increases compared to Early Archaic times. Living structures consisted of pit houses with associated interior features, such as hearths, storage pits, and burials. Big game hunting remained the predominate subsistence strategy. Flaked stone technology relied on the production of large bifaces, retouched flakes, and perforators/gravers.

#### ***LATE ARCHAIC PERIOD (1,300 B.C.-HISTORIC PERIOD)***

A major change in subsistence came in the Late Archaic Period with the discovery of a method to remove the tannins from acorns, allowing this nearly ubiquitous nut to become a staple food for

the indigenous people of California. In addition to providing a rich and essentially inexhaustible source of nutrition, it allowed people to gather and store large surpluses of food to carry them through lean seasons. Concomitant with this was an increase of group size and population densities. Sedentism increased and sophisticated cultures developed comparable to those found in farming areas in other parts of North America. It has been suggested that agriculture never took root in the Pacific west because the richness of the natural environment provided all that the people needed to survive and a good deal more (Chartkoff and Chartkoff 1984). Trade also increased during this period, bringing in goods and, presumably, ideas from afar. Hunting of a diverse range of large and small game, fishing, and gathering of wild plant resources remained important elements of overall subsistence strategies.

### **3.6.3 REGIONAL ARCHAEOLOGY**

Evidence of the prehistoric inhabitants of the region surrounding the Plymouth project area comes from several sites including AMA-3, Bamert Cave, a rock shelter first investigated in the early 1950s by University of California at Berkeley (UCB) archaeologists Heizer and Treganza (Moratto 1984). Excavations at Bamert Cave yielded digging sticks, arrow shafts and hardwood arrow points, cordage, a carrying net, twined and coiled basketry, a tule mat as well as projectile points and beads. Items of non-Indian manufacture indicate the use of this site in late prehistoric and early historic times. The presence of at least one burial and pit-and-groove petroglyphs suggest the cave was used for mortuary and ceremonial purposes (Moratto 1984:196).

UC Davis archaeologists excavated another important site, AMA-56, the Applegate Site on Jackson Creek, in 1965 (Moratto 1984). AMA-56 yielded mortars, pestles, and manos indicating the processing of vegetal foods. Faunal remains attest to the inhabitants collecting mussels and turtles from the adjacent slough, hunting and trapping deer, elk, black-tailed hare, small rodents, and birds. Human remains at the Applegate Site included one cremation, 18 burials, and 11 fragmentary skeletons. Associated artifacts suggest a long occupation of the site. AMA-56 is considered an important site as “a link between the Sacramento Valley and the burial caves of the Sierra Nevada foothill region to the east” (Johnson in Moratto 1984:198).

Another site of importance in the project vicinity is AMA-14, the ethnographic village site of *Tco'se*, located northeast of Jackson (Moratto 1984). At this site in 1963, archaeologists documented 1,185 mortars and 363 petroglyphs in a single limestone outcrop. The rock art at this site has been dated (based on a similarity of styles in the western Great Basin) to approximately 3,000 to 500 years before present (BP) and may represent pre-Miwok peoples of Great Basin origin (Moratto 1984:314).

### 3.6.4 ETHNOGRAPHY

Ethnographically, the project area is in the nuclear territory occupied by the Northern Sierra Miwok. Prior to the arrival of Spanish, the Miwok were one of the largest native groups in California, stretching from the crest of the Sierra, across the Great Valley and Delta Region, into the Coast Range north of San Francisco. The Northern Sierra Miwok lived within the foothills and mountains of the Cosumnes and Mokelumne River drainages. They belong to the Sierra Miwok language group, which is a subset of the Utian language family. Lexicostatistical chronologies suggest that the Miwok ancestors inhabited California's Delta Region for millennia, with expansion into the foothills occurring in the more recent past (Levy 1978).

The triblet was the primary political unit among the Miwok. The triblet controlled a defined territory and all of the resources within it. Triblets were composed of several lineages that were each tied to geographical locations. Levy (1978:402) suggests that the population of Sierra Miwok settlements averaged 25 persons. The village of *Yuleyumne* was the primary Northern Sierra Miwok settlement near the project area and was located where the town of Plymouth is now situated (Levy 1978). *Chakanesu* is identified as the Northern Sierra Miwok tribelet in Ione (Bennyhoff in Theodoratus 2004).

Based on mission records, the accounts of early explorers, and initial attempts at censuses, it has been estimated that the total Miwok population was around 19,500 prior to 1800. In 1904, Special Indian Agent C.E. Kelsey estimated the total population at less than 800 (Slagle 2004).

Subsistence activities of the Northern Sierra Miwok closely resembled that of other inhabitants of the Sierra Foothills. As winter snows thawed, small groups moved out of the village, following deer into higher elevations. At the same time, spring greens were gathered to supplement the stored foods and meat. Seeds of many different plants, particularly grasses, were collected between May and August. Following the annual burning of the underbrush in August, the highly prized gray-pine nuts (*P. sabiniana*) were collected. These pine nuts were also occasionally collected before they were ripe in the spring. Fall and early winter was when families would set out to collect and stockpile acorns (Levy 1979:402). Hunting was a year-round activity for the Northern Sierra Miwok.

Acorns from at least seven species of oak were collected and eaten by native Californians. While acorns from the valley oak were most important to the Plains Miwok, Sierra Miwok made the most extensive use of acorns from the interior live oak, blue oak, and black oak. They were usually collected from the ground after they had fallen from the tree, although long sticks were sometimes used to collect acorns that had yet to be released (Levy 1978:402).

Nuts were also an important element of the Miwok diet and included buckeye, laurel, hazelnut, gray pine, and sugar pine. They also harvested roots like wild onion and "Indian potato," which

was eaten raw, steamed, baked, or dried and processed into flour cakes to be stored for winter use. Berries were eaten, although they did not comprise a substantial portion of the diet.

Animals taken by the Northern Sierra Miwok included mule deer, black bear, grizzly bear, black tailed jackrabbits, cottontails, beavers, gray and ground squirrels, wood rats, valley quail, and mountain quail. Occasional forays were made down to the valley floor to hunt antelope and tule elk, which were not available in the Sierra Foothills (Levy 1978). The Sierra Miwok undertook fishing, yet it was not a central part of the diet. Salmon was available in the lower stretches of Sierran rivers and trout was taken at higher elevations.

Other foods exploited by the Northern Sierra Miwok included insects, such as grasshoppers, yellow jacket larvae, and shellfish such as river mussels and fresh water clam (Levy 1978). The Sierra Miwok observed food taboos and, as a result, they did not consume dog, coyote, skunk, eagle, great-horned owl, roadrunner, snakes, or frogs (Levy 1978:402).

The Sierra Miwok constructed a variety of structures for different purposes. The primary house used by the Miwok living in the foothills was the conical bark-slab house (Levy 1978). More substantial semi-subterranean houses were occupied during the winter months by those wealthy enough to afford such a structure. A circular brush structure was used in the summer during times of mourning. Semi-subterranean earth lodges, measuring 40 – 50 feet in diameter, were used for social or communal gatherings. The Miwok also made use of sweathouses that generally measured 6 – 15 feet in diameter.

Trade was important with goods generally traveling east to west and vice versa. Items such as *olivella* and *haliotis* shells, salmon, and salt traveled east from the coast and valley into the Sierra and beyond. Gray and sugar pine nuts, bows, arrows, and deerskins came down from the Sierra to the Great Valley. Precious goods, such as salt and obsidian, were also traded in the Great Basin. Basketry moved in both directions in the prehistoric trade networks (Wilson and Towne 1978; Levy 1978).

The Spanish made occasional forays into the Central Valley beginning around 1769, with the first written description composed by Pedro Fages in 1772 (ECORP 2005). By 1776, Miwok territory had been explored by José Canizares. In 1808, Gabriel Moraga again crossed Miwok territory while he led an expedition to identify appropriate sites for the establishment of new missions and to capture Indians who had fled missionary life. In 1813, a major battle was fought between the Miwok and the Spaniards near the mouth of the Cosumnes River.

Though the Northern Sierra Miwok appear to have largely escaped being removed to missions by the Spanish (unlike the Plains Miwok), they were not spared the ravages of European-spread disease. In 1833, an unknown epidemic, which may have been a bout of malaria, raged through

the Sacramento Valley, killing an estimated 75-percent of the native population (ECORP 2005). When John Sutter erected his fort at New Helvetia, the future site of Sacramento, he had no problem getting the few native survivors to settle nearby. The discovery of gold in 1848, near the Nisenan village of Culloma (also Coloma), drew thousands of miners into the foothills and led to widespread killing and the virtual destruction of traditional Miwok culture.

### ***IONE BAND OF MIWOK INDIANS***

The Ione Band of Miwok Indians has continuously used and occupied the lands located in Amador County, the town of Plymouth, and the surrounding areas as part of their traditional territory. The Ione Band is comprised of individuals descended from native people indigenous to present day Amador, El Dorado, Calaveras, San Joaquin, Sacramento and Placer counties, and include the Northern Sierra Miwok, the Locolomne, and Moquelumne tribelets of the Plains Miwok, and the Wapumne, a tribelet of the Nisenan (Theodoratus 2004). The traditional relationships among these tribelets fostered ease of movement into one another's territories. Their movements and frequent intermarriage were outcomes of devastating impacts to their native population and culture by successive incursions of non-Indians into their traditional territories.

The turmoil and chaos associated with the increasing incursions by foreigners (Spaniards, Mexicans, and Americans alike), resulted in forced tribal mobility that disregarded traditional boundaries in order to avoid total annihilation (Theodoratu, 2004). Native inhabitants of the region drifted in search of a safe, stable environment with resource provisions. One Mexican land grant, the Arroyo Seco Rancho, offered a habitation site of relative sanctuary. The Arroyo Seco Rancho was a grant of 11 square leagues encompassing portions of Sacramento, Amador, and San Joaquin counties. The grant was made in 1840 to Teodosia Yorba by then-Governor Alvarado. A patent was issued in 1863 for 48,857.52-acres to a group of White settlers; however, the Indian occupants remained on the land through succeeding ownership changes (Shumway in Theodoratus, 2004). Ancestors of the present day Ione Band occupied land within and around Amador County, where they have lived continuously since at least 1840.

In the early part of the 20<sup>th</sup> century, the U.S. government attempted to purchase and set aside lands for Indians of California (Theodoratus 2004). In 1917, the BIA recognized the pressing need to secure land for the Tribe. Land located in the Tribe's aboriginal area was identified for purchase to serve the needs of the Tribe. At that time, the U.S. formally proposed to purchase a forty-acre parcel located in Amador County as trust lands for the Ione Band. However, the U.S. never completed the transaction because the government was not able to obtain clear title to the land. Although clear title to this parcel was never achieved, some members of the Ione Band continued to occupy the land. Today, individual tribal members currently hold title in fee. As a result, the Tribe had no land base since being dispossessed of their land in the mid-1800s. The Ione Band received confirmation of their federal recognition through a directive from Assistant

Secretary of Indian Affairs Ada Deer on March 22, 1994, yet no lands are currently held in trust by the Federal government.

### **3.6.5 HISTORICAL CONTEXT OF PROJECT AREA**

Although the Spanish had made forays into the Central Valley since about 1769, it was not until 1808 that Capitán Gabriel Moraga explored and named the Sacramento area (Lawson 2001). Other than fighting with the Indians, as in 1813 when Luis A. Arguello fought a major battle with the Miwok near the mouth of the Cosumnes River, the Spanish took little interest in the area (Wilson and Towne 1978). In 1827, American trapper Jedediah Smith traveled up the Sacramento River and into the San Joaquin Valley to meet other trappers of his company he had left encamped there, but no permanent settlements were established (Peak & Associates 1997).

In 1839, John Augustus Sutter, a Swiss émigré, set foot on the banks of the American and Sacramento Rivers' confluence with expectations of building an agricultural empire. Mexican Governor Juan Bautista Alvarado assisted in this dream by granting Sutter a 48,000-acre tract of land known as the New Helvetia Land Grant, which includes the present-day City of Sacramento and the site of Sutter's Fort (Owens 1994). The Spanish had traveled into the Central Valley as early as 1769; fur trappers traversed the Sacramento River, but it remained for Sutter to establish the first permanent settlement. Sutter engaged hundreds of Native Americans, the majority of them former residents of the Spanish Missions for labor in the fields and in construction. Sutter's Fort became a Mecca for thousands of immigrants traveling the Overland Emigrant Trail, in need of rest and fresh supplies after the arduous trek across Carson Pass. However, the future of California changed dramatically when John Marshall discovered gold in a flume at Sutter's lumber mill on the South Fork of the American River near the Nisenan village of Culloma (Coloma) in 1848.

As a direct result of the gold rush, numerous mining towns arose seemingly overnight within the Foothills. Although many of these claims and towns were short-lived, some became long-term settlements. One such location was a 120-mile-long belt of gold mineralization called the Mother Lode. Argonauts from a variety of ethnic backgrounds and social classes prospected along this corridor that ran through western Amador County. The County was created in 1854, and named for the gold miner and native Californian Jose Maria Amador. Although Amador County was one of the smallest mining counties in California, it proved to be one of the most prosperous areas, producing \$180 million (Clark 1979:73). Its streams possessed some of the finest placer deposits at the time.

The town of Plymouth is one of the mining camps along that belt of mineralization that survived the transition from camp to town. When the post office was established in 1871, the name changed to Plymouth, after the nearby Hooper's Plymouth Mine (Hoover et al. 1990; Gudde 1969).

The project area lies within the Plymouth-Jackson Mining District. Its history reflects the economic and agricultural development of Amador County, as well as the commerce and trade between outlying mining camps. Some of the earliest California gold mining took place along gulches that stretched to the Foothills of the Sierra Nevada Mountains. Captain Charles M. Weber, founder of the City of Stockton, is credited for finding the first gold in Amador Country in 1848 (Hoover et al. 1990).

The discovery of the immense belt of gold-bearing rock known as the Mother Lode drew new attention to the area in the 1850s-1860s. As early as 1851, a quartz mill had been built along Amador Creek. By 1866, Rick Stretch, a civil engineer and mining expert at that time, recorded 296 stamps employed on fifteen mines in the County (Stretch 1879:5-8). The Kennedy, Keystone, Empire and Plymouth Consolidated Mines were some of the most renowned and productive quartz mines in the Sierra, but other smaller ones played an important role in the history of Amador County.

Dr. Thomas Boyson was involved in numerous patenting transactions. The Pioneer and Boyson mining claims were first filed in 1860 but exact locations are unclear (Windmiller and Osanna 2001: 6). Records do not indicate a transfer of ownership, yet a mining deed dated May 9, 1880 shows the Pioneer Quartz Mine sold by John Evans to his son Lawrence Evans, for the sum of one dollar. The mine was located “one mile south of the town of Plymouth” and described as a “gold bearing quartz lode” (Amador County 1881:532). The Pioneer Quartz Mine consisted of 19.77-acres in 1881. In the 1880 Plymouth census, Lawrence Evans was listed as a 22 year-old single, white male California resident who lived with his English immigrant parents. Both he and his father stated their occupation as workers in quartz mines. In 1882, Lawrence recorded his mine with the General Land Grant office, which in turn assigned the claim Lot No. 87 (General Land Office 2004). The plat indicates the presence of three mineshafts.

While the majority of people drawn to the Jackson-Plymouth area were miners, many came to homestead and pursue an agrarian lifestyle. Dry farming, which was typical for this area, produced grapes, walnuts, pears, and various farm products (Hoover et al. 1990). Michael Butler, an Irish immigrant, with his wife Laura and their seven children, homesteaded 160-acres to the west of the Pioneer Quartz Mine. His property included the northwest portion of section 14, Township 7N, Range 10E; the northern half of the northeast portion of section 15, T7N, R15E; and the northeast portion of section 15, T7N, R10E. Alfred B. Summers owned approximately 123-acres to the south of Butler’s land in 1895 (General Land Office 2004).

In the Eighth Annual Report of the State Mineralogist, “Messrs. Ballard & Martin” were noted for having eight claims one mile south of the center of the town of Plymouth. The most noted was the New London Quartz Mine that lies directly north of the Pioneer mine. The other claims

Ballard and Martin owned were the Martin, Pioneer, Ballard, Humboldt, Central, and two other unnamed claims (Ireland 1888: 49-50). Between 1888 and 1893 records indicate Ballard and Martin conveyed title and rights to land in and around Plymouth to Dr. Boyson. Included was a quarter interest in the Illinois Quartz Mine.

The New London Quartz Mine, also known as the Lucille Gold Mining Company, a “corporation framed under the laws of Great Britain,” was physically and financially involved with the Pioneer Quartz Mine (Logan 1934:99). In 1894, Boyson deeded rights to run tailings across the Pioneer Mine to the Lucille Quartz Mine (Amador County 1894: 412).

Quartz mining production in the 1850s required a different type of extraction and processing than that used in Placer mining. By the 1890s, the quartz mines and stamp mills produced the majority of California’s gold output (JRP/CA DOT 2000:51). The 1894 State Mineralogist Report noted that the Pioneer Quartz Mine, though idle for many years, was “rehabilitated in the fall of 1893; new hoisting works” built and mining began again. A new shaft had been sunk to a depth of 300 feet revealing high-grade ribbon rock. Boyson’s holdings in quartz mines also included the Chief Mine adjoining the east boundary of the Pioneer Mine (Ireland 1894:78-79)

In 1895, Boyson, along with John Barton, John Currey, L. F. Reichling, and George Goodman, formed a private corporation entitled the Pioneer Gold Mining Company. Boyson had controlling interest with 199,960 shares, the other four shareholders owning 10 shares each. The amount of capital stock of the corporation was listed at a value of \$2 million, placing Boyson’s share at \$1,999,600 (Amador County Archives n.d.) The deed filed with the Secretary of the State of California and the County Recorder’s Office indicates the amount of land that Boyson owned in Amador County (Mining Deed, Book 72, 1895: 440). Boyson also had land that he later sold to the Lucille Mine for a mill site, the Pioneer Quartz Mine, a piece of land called the *Central* (also known as the Chief), the Boyson Quartz Mine, and the Boyson Extension Mine. In 1896, Boyson added to his holdings and bought 28-acres from his neighbor Michael Butler, along with mining rights on Butler’s land for \$40 worth of gold coin (Quartz Mining Deed, Book 13, 1896:141). A 1934 map from Boyson’s estate shows the boundaries of the Pioneer Quartz Mine, the Boyson Quartz Mine, as well as the Pioneer Gold Mining Company (Aubury 1903:np). The reader should note that the 1903 map recordation of boundaries for the various claims does not completely delineate the Pioneer Gold Mining Company boundaries.

The 1896 State Mineralogist Report found the Pioneer Quartz Mine “actively in progress” with eight men employed. The owner of the Pioneer Mining Company is listed as R. Robinson, of Plymouth (Crawford 1894: 75). Proof of Labor documents from 1899 record “20 feet of drift tunnel besides open cuts” in the Boyson Extension Mine; and “30 feet of drift tunnel besides open cuts” in the Boyson Quartz Mine. The Pioneer Gold Mining Company paid for all the labor (Amador County Archives File #3127.2 and File #3127.3).

Dr. Boyson moved to Plymouth in 1903, perhaps to be closer to his investments. He acquired two-fifths ownership of two mining claims known as the Blue Jay and the Klondike Quartz mines from Italian immigrants Peter and Louis Foppiano of Drytown for failing to deliver their share of the assessment work (Amador County Archives File #3127.3). The 1903 Register of Mines and Minerals reported that Dr. Boyson owned one mill named Pioneer, which had 20 stamps that could each pound 750 pounds.

Boyson continued to buy and sell quartz-mining interests into the early 1900s. He registered a quartz patent for the Green Quartz Mine located in sections 2 and 15 of T7N, R10E (General Land Office 2004) and purchased one-half interest in the Bona Fortuna Mill site from Louie Foppiano. Two months later he quit claimed the Bona Fortuna Quartz Mine to Mannie Foppiano (Mining Deed 1/24/10; 3/9/10).

By 1915 the Pioneer Mine was idle once again due to a caved in, 550 foot shaft. Little is written about the Pioneer Mine or the Pioneer Gold Mining Company again until 1935 when the Amador County Recorder's Office published the estate of Boyson on a map indicating his holdings in section 11, 14 and 15 (map from Amador County Probate Office, December 14, 1935). Lode mining required more capital and greater geologic knowledge than the previous forms of placer mining.

In the late 1930s, another attempt was made to restore the Pioneer Mine by the Associated Mining Company, its new owner. They rehabilitated the property and built a new surface plant that included a "60-foot head frame, compressor and hoist house, charge house, repair shop, office and mill. Operations were on a two-shift basis at present, with about 20 men employed under the direction of B. C. Clark, Superintendent" (Windmiller and Osanna 2001:8).

### **3.6.6 CULTURAL RESOURCES**

#### ***RECORDS AND LITERATURE SEARCH***

A literature and records search of the California Historical Resources Information System was completed August 13, 2003, at the North Central Information Center (NCIC), California State University-Sacramento (**Appendix K**). The NCIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of archaeological and historic records and reports for a six-county area that includes Amador County, and is housed at Sacramento State University in Sacramento, California.

Archival research indicates that one prior archaeological study has been undertaken within a portion of the project area: Phase I Inventory of Cultural Resources Pioneer Mine Project, Plymouth, Amador County, California (Windmiller and Osanna 2001). Windmiller and Osanna's 2001 study of a portion of the current Area of Potential Effect (APE) resulted in the positive

identification of seven cultural resources within the proposed project boundaries (**Appendix K**). All of the resources identified by Windmiller and Osanna were evaluated for listing on the California Register of Historical Resources as mandated by California Environmental Quality Act (CEQA) and found to be ineligible (Windmiller and Osanna, 2001). The records search also revealed the presence of cultural resources recorded in close proximity to the project area.

In addition to the official records and maps for archaeological sites and surveys in Amador County, the following historic references were also reviewed: The National Register of Historic Places- Listed Properties (National Park Service 2004); California Historical Landmarks (Office of Historic Preservation 2004); California Points of Historical Interest (1992 and updates); Gold Districts of California (1979); California Gold Camps (Gudde 1975); California Place Names (Gudde 1969); Survey of Surveys (Historic and Architectural Resources) (1989); Directory of Properties in the Historical Resources Inventory (1999); Caltrans Local Bridge Survey (1989); Caltrans State Bridge Survey (1987); and Historic Spots in California (Hoover et al. 1990).

#### ***FIELD SURVEY METHODS AND RESULTS***

An archaeological survey for the project site was conducted between August 14, 2003 and June 14, 2004, by archaeologists with ECORP Consulting, Inc. (**Appendix K**). The survey was designed to identify historic and prehistoric sites, artifacts, and features within the previously unsurveyed portions of the APE (**Appendix K**). Survey transects were spaced 15 to 25 meters apart over the previously unsurveyed portions of the project area. Previously surveyed areas were inspected to confirm the locations of previously recorded cultural resources. The survey was conducted to the standards set by the Secretary of the Interior (National Park Service 1990, 1983).

The previously recorded resources were field checked and monitored. All resources appeared to be in the same condition as when they were originally recorded. Photos were taken of the previously recorded resources (**Appendix K**). Field reconnaissance identified three previously unrecorded historic resources (EC-04-02, EC-04-04, and EC-04-05). The sites were recorded with the State of California's primary, archaeological, and linear resource forms. Several isolates were also noted, both during Windmiller and Osanna's 2001 survey and ECORP's field investigations. These resources typically consist of non-diagnostic fragments of glass, ceramic, or metal; or isolated shallow prospect pits with no associations. Several wooden or metal claim marker posts were also noted. Brief descriptions of previously and newly recorded sites are found in **Table 3.6-1**.

#### ***Criteria for Evaluation – 36 CFR Section 60.4***

The eligibility of a resource for listing in the NRHP is determined by evaluating the resource using criteria defined in 36 CFR 60.4 as follows: *The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and*

*objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, association, and*

**TABLE 3.6-1**

## RECORDED CULTURAL RESOURCES WITHIN PROJECT AREA

<b>Site Name/Number</b>	<b>Description</b>
Pioneer Mine District	District containing structures & features associated with mining operations during 1860s, 1890s, and 1930s.
RWCA-01-PM-Site-01	Pioneer Mine and associated features. Part of Pioneer Mine District.
RWCA-01-PM-Hoist Room	Two-story corrugated metal building that once contained hoist works for the Pioneer Mine. Part of the Pioneer Mine District.
RWCA-01-PM-Site-02	Segment of mining ditch dating from late 1800s; partially destroyed by later (1930s) mining activity. A portion of the ditch extends through the Pioneer Mine District.
RWCA-01-PM-Site-03	Segment of split rail and barbed wire fence.
RWCA-01-PM-Site-04	Abandoned powerline, represented by a cut pole of non-treated timber with a ceramic insulator.
RWCA-01-PM-Site-05	A collection of mining features (adits, prospects, and one shaft) with associated tailings.
RWCA-01-PM-Site-06	A collection of six mining features (adits and prospects) with associated tailings.
EC-04-02	Two segments of a mining ditch
EC-04-04	Four segments of a mining ditch
EC-04-05	Historic refuse scatter, four prospecting pits

Source: Windmiller and Osanna, 2001; ECORP, 2005

- (a) That are associated with events that have made a significant contribution to the broad patterns of our history;*
- (b) That are associated with the lives of persons significant in our past;*
- (c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
- (d) That has yielded, or may be likely to yield, information important to prehistory or history*

In addition to meeting at least one of the criteria listed above, the property must be over 50 years old, unless of exceptional importance, and also retain enough integrity to enable it to convey its

historic significance. The National Register recognizes seven aspects or qualities that, in various combinations, define integrity (NPS 1990). These seven elements of integrity are: location, design, setting, materials, workmanship, feeling, and association. To retain integrity a property will always possess several, and usually most, of these aspects.

While most historic buildings and many historic archaeological properties are significant because of their association with important events, people, or styles (criteria a,b, and c), the significance of most prehistoric and some historic-period archaeological properties is usually assessed under criterion d. This criterion stresses the importance of the information contained in an archaeological site, rather than its intrinsic value as a surviving example of a type or its historical association with an important person or event. It places importance not on physical appearance but rather on information potential.

Each of the recorded archaeological sites, the one standing building, and the historic district were evaluated according to the above criteria. None of the identified cultural resources meet the criteria needed for inclusion in the NRHP. Isolated artifacts and features are considered inherently ineligible for nomination to the NRHP unless they display exceptional characteristics that would bestow unusual significance, such as being the oldest or best-preserved representative of a rare artifact type. None of the isolates recorded within the project area display any exceptional qualities. For complete descriptions and evaluations of each site, see **Appendix K**.

#### ***Contemporary Resources***

Several contemporary resources that were noted, but not formally recorded include: a landing strip; a single-family residence and a hotel located within the northeast quarter of section 15, just east of SR 49; and a second single-family residence located in the northeast ¼ of the northwest ¼ of section 14.

- Landing strip is depicted on the current topographic map and is little more than a relatively flat spot in a field, in the NW ¼ of the NE ¼ of section 14
- Contemporary Resource #1 is a single-family residence built in 1984 (pers. comm. Ron Haueter, August 2003)
- Contemporary Resource #2 is the Shenandoah Inn was built about 1989 (pers. comm. Evette, June 2004)
- Contemporary Resource #3 is a single-family residence built in 1972 (pers. comm. Laura La Frank, June 2004)

#### ***Native American Consultation Results***

The Native American Heritage Commission (NAHC) was consulted for potential areas of Native American concern regarding the project area. Letters detailing the proposed undertaking were mailed to the Native American Contacts. Follow-up contact with the Native American

individuals was completed and resulted in no comment or concern expressed from those contacted. All the information sent and received from NAHC, Native American individuals and organizations, or Federally Recognized Tribes are included in the record of consultation (**Appendix K**).

### **3.6.7 PALEONTOLOGICAL RESOURCES REGULATORY SETTING**

Paleontological resources are the traces or remains of prehistoric plants and animals. Such remains often appear as fossilized or petrified skeletal matter, imprints or endocasts, and reside in sedimentary rock layers. Paleontological resources are protected by several federal and state regulations and policies including the Antiquities Act, National Environmental Protection Agency (NEPA), CEQA, and the California Public Resources Code (PRC).

#### ***FEDERAL***

##### ***Antiquities Act***

Passed in 1906, the Antiquities Act prohibits the collection, destruction, injury, or excavation of “any historic or prehistoric ruin or monument, or any object of antiquity” that is situated on federal land without permission of the appropriate land management agency. The Act also provides for the criminal prosecution, including fines and imprisonment, for individuals who commit one or more of the acts described above. While neither the Antiquities Act nor its implementing regulations (found at 43 CFR 3) explicitly mention fossils or paleontology, the inclusion of “object[s] of antiquity” in the Act has been interpreted to extend to paleontological resources by many federal agencies. As such, projects involving federal lands require permits for paleontological resource evaluation and mitigation efforts that involve excavation, collection, etc.

##### ***National Environmental Policy Act***

NEPA’s requirement that federal agencies take all practical measures to “preserve important historic, cultural, and *natural aspects* of our national heritage” has been widely interpreted to cover paleontological resources potentially impacted by federal projects (emphasis added). Thus, whenever possible, mitigation measures are recommended to lessen impacts to paleontological resources as a result of federal projects.

#### ***STATE***

##### ***California Environmental Quality Act***

CEQA provides protection for *unique paleontological resources* and *unique geologic features*, and requires that impacts to such resources must be considered in the project review process. The Act distinguishes between ubiquitous fossils that are of little scientific consequence, and those which are of some importance by providing protection for the latter. While CEQA does not precisely define *unique paleontological resources*, criteria established by the Society of

Vertebrate Paleontology (SVP) provide guidance. The SVP defines a significant paleontological resource as one which meets one or more of the following criteria (SVP, 1995):

- Provides important information shedding light on evolutionary trends and/or helping to relate living organisms to extinct organisms;
- Provides important information regarding the development of biological communities;
- Demonstrates unusual circumstances in the history of life;
- Represents a rare taxon or a rare or unique occurrence, is in short supply and in danger of being destroyed or depleted;
- Has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
- Provides important information used to correlate strata for which it may be difficult to obtain other types of age dates.

CEQA similarly fails to precisely define a unique geologic feature. For the purpose of this analysis, a *unique geologic feature* is defined as a resource or formation that:

- Is the best example locally or regionally;
- Embodies distinct characteristics of a geologic principal that is exclusive locally or regionally;
- Provides a key piece of geologic information important in geology or geologic history;
- Is a type locality of a geologic feature;
- Contains a mineral not known to occur elsewhere locally or regionally; or
- Is used repeatedly as a teaching tool.

#### ***California Public Resources Code***

Section 5097.5 of the PRC prohibits “knowing and willful” excavation, removal, destruction, injury, or defacement of paleontological resources on public lands without prior permission from the appropriate agency. Public lands include those “owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.” If paleontological resources are identified within a given project area, the lead agency must take those resources into consideration when evaluating project impacts. The level of consideration may vary with the importance of the resource in question.

### **3.6.8 PALEONTOLOGICAL ENVIRONMENTAL SETTING**

The presence of paleontological resources at any particular site is influenced by geological composition resulting from formation processes occurring over long periods of time. Fossils

typically reside in sedimentary layers, and may or may not become mineralized dependent upon the mineral composition within their depositional environment.

As described in **Section 3.2**, the region's geologic history is characterized as greenstone and gray to black slate of the Mariposa Formation (Upper Jurassic age) and metasedimentary rocks, chiefly graphitic schist, metachert and amphibolite schist of the Calaveras Formation (Carboniferous to Permian). The Mariposa Formation consists of greenstone that has its origins as metamorphosed basic, igneous intrusive rock and slate that was once seafloor mud. The Mariposa Formation crops out as marine sedimentary and metasedimentary rocks with greenstone along the western edge. The Calaveras Formation consists of ancient marine sediments of the Paleozoic era likely formed as a result of coral reef activities. Seismic activity in Jurassic times (250 million years ago) and again about 5 million years ago caused the ancient sediments including the coral reef to be uplifted and folded into its present state (Plymouth, 2001). The geologic materials of the project site consist of Upper Jurassic marine sedimentary and metasedimentary rocks of the Mariposa Formation with greenstone along the western edge.

A search of the University of California Paleontology Museum's (UCMP) database indicates that 59 paleontological localities have been reported in Amador County (UCMP, 2008). The Calaveras Formation contains six localities within which five were microfossils and one invertebrate from the Paleozoic era. These five localities are found south and west of Pardee Dam Road, west of Jackson, approximately 20 miles southeast of the project site. Closer to the project site is the Middle Eocene Ione Formation located approximately 10 miles southeast of the Plymouth area. The Ione Formation, a famous paleobotanical locality, contains one of the great fossil leaf-bearing districts in California. In addition to paleobotanical specimens, the Ione Formation is also known to contain trace fossils such as Ophiomorpha. These specimens are fossilized burrows of a species of a shrimp-like animal.

Several sources were consulted to identify unique geologic formations within the project site. Sources reviewed include: the *California Geotour Index* maintained by the California Geologic Survey (CA Geologic Survey, 2007); *California Geology* (Harden, 2004); *California Landscape* (Hill, 1984); *Roadside Geology of Northern and Central California* (Alt and Hyndman, 2000); *California Fossils for the Field Geologist* (Schenck and Keen, 1955); and *A Natural History of California* (Schoenherr, 1992). A review of the above-referenced sources did not identify the presence of any unique geologic features within or in close proximity to the project site. Overall, the geology of the project site is typical of the surrounding western Sierra foothills.

#### ***PALEONTOLOGICAL SUMMARY***

Despite several localities of invertebrate and paleobotanical fossil specimens documented near the project site, indicators of *unique paleontological resources* within the project site are absent in the sources consulted, and no such resources were observed in the course of a surface

reconnaissance survey in 2003. The geologic formation upon which the project site is located has produced few significant paleontological specimens of scientific consequence and thus would not be likely to yield unique paleontological resources. Furthermore, no unique geologic features are known to exist within the project site.

### 3.7 SOCIOECONOMIC CONDITIONS AND ENVIRONMENTAL JUSTICE

This section addresses the existing socioeconomic conditions of the Tribe, Amador County, and surrounding communities. Topics include population, housing, employment, property taxes, community infrastructure, and environmental justice. The general and site-specific profiles of the existing socioeconomic conditions contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

#### 3.7.1 SOCIOECONOMIC CHARACTERISTICS OF THE IONE BAND OF MIWOK INDIANS

##### *POPULATION*

The Ione Band of Miwok Indians has 652 members (**Table 3.7-1**). Based on an economic survey distributed to members of the Tribe (32-percent of which responded), 44-percent are unemployed with 18-percent receiving social assistance payments. It has been estimated that about 81-percent of all members have incomes below the national median income level<sup>1</sup>.

**TABLE 3.7-1**  
SOCIOECONOMIC PROFILE OF THE IONE BAND OF MIWOK INDIANS

Category	Ione Band
<b>Tribal Enrollment</b>	652
<b>Age Distribution of Tribal Members</b>	
Under 18	386
Over 18	266
<b>Employment and Income *</b>	
Percent Employed	56
Percent with Incomes of Less Than \$10,000	30
Percent with Incomes of Less Than \$40,000	67
Percent with Incomes Below the National Median Income Level	81
Percent of Members Receiving Social Assistance Payments	18

Source: Ione band of Miwok Indians, 2005;

\* GVA, 2004. Based on a 32 percent survey response.

##### *TRIBAL GOVERNMENT*

The Tribe is governed by a tribal council consisted of 5 members; under a constitution ratified by members on March 12, 2002. The BIA has subsequently approved the new constitution, tribal membership rolls, and elected tribal council members. Being Federally recognized, the Tribe is

<sup>1</sup> Three year average national median income (2001-2003) reported by US Census Bureau was \$43,527.

eligible to acquire land for reservation purposes, however no land is currently held in trust by the BIA.

### ***TRIBAL ATTITUDES, EXPECTATIONS, LIFESTYLE AND CULTURE***

Both the Tribal government and individual Tribal members participate in area political and social activities. Tribal children attend schools located primarily in Amador and Sacramento Counties, and various Tribal members of age are employed by local businesses. Altogether, tribal attitudes and expectations promote increasing participation in and benefit from the regional economy, with continuation of the long tradition of comfortable coexistence and cooperation with their non-Indian neighbors.

### **3.7.2 SOCIOECONOMIC CHARACTERISTICS OF THE AMADOR COUNTY REGION POPULATION**

According to the data in **Table 3.7-2**, the population in Amador County (County) grew 16.8-percent from the 1990 census to the 2000 census (CDOF, 2007). The County's population grew an additional 10-percent from the 2000 Census to existing conditions (2007). The County's population is projected to increase approximately 8.5-percent by 2020 (CDOF, 2004b). Locally, the City of Plymouth's (City's) population increased by 20.8-percent from the 1990 census to the 2000 census (US Census 2000), while the City's population grew an additional 7.1-percent from the 2000 census to existing conditions (2007)(CDOF, 2004c). According to the City's General Plan (amended 2001), the population is anticipated to grow to 1,880 persons in 2020, an increase of 80-percent compared to existing conditions, (City of Plymouth, 2001). As shown in **Table 3.7-2**, the majority of the population of Amador County resides in unincorporated areas. The County's largest cities are Ione and Jackson, with Plymouth being a relatively smaller incorporated area.

**TABLE 3.7-2**  
REGIONAL POPULATION ESTIMATES

<b>Location</b>	<b>1990</b>	<b>2000</b>	<b>2007</b>
<b>Amador County (total)</b>	30,039	35,100	38,435
Plymouth	811	980	1,050
Jackson	3,545	3,989	4,317
Ione	6,516	7,129	7,842
Sutter Creek	1,835	2,303	2,945
Amador City	196	196	214
Unincorporated County	17,136	20,503	22,067

Source: California Department of Finance, 2007.

**HOUSING**

According to the data in **Table 3.7-3**, the total number of housing units in Amador County grew by 17.3-percent from 1990 to 2000. In 2000, the vacancy rate was 15.1-percent with approximately 10.8-percent of units being identified as seasonal, recreational, or occasional use residences. In January 2004, the housing units grew to an estimated 16,020 units, with a vacancy rate of 15-percent (CDOF, 2004c). Based on the ratio of seasonal, recreational, and occasional use units vacant to the total units shown in the 2000 Census and recent total vacancy rates, it is estimated that approximately 689 units<sup>2</sup> are vacant in Amador County (US Census 2000; CDOF, 2004c). Of the total housing stock in the county, 81.6-percent are single-family homes, 7.6 percent are multi-family homes, and 10.7 percent are mobile homes. In 2000, the median value of owner-occupied housing units in the county was \$153,700 and the median contract rent was \$568 per month. The General Plan's Housing Element estimates that nearly 20 percent of homeowners were overpaying for housing (paying more than 30-percent of gross income for rent or mortgage) and that nearly 40-percent of renters were overpaying for housing (Amador County, 2005).

**TABLE 3.7-3**  
2004 REGIONAL HOUSING ESTIMATES

Location	Total Housing Units	Percent Vacant <sup>1</sup>	Estimated Vacant Units <sup>2</sup>
<b>Amador County (total)</b>	16,020	4.3	689
Plymouth	500	6.9	35
Jackson	1,928	3.8	73
lone	1,350	5.4	73
Sutter Creek	1,199	4.9	59
Amador City	98	1.0	1
Unincorporated County	10,945	4.1	448

Notes: <sup>1</sup> Percent Vacant is based on the ratio of seasonal, recreational, and occasional use vacant units to total vacant units shown in the 2000 Census and estimated January 2004 vacancy rates provided by the California Department of Finance.

Source: CDOF, 2004a; US Census 2000.

The number of housing units in Plymouth grew by 27.3-percent from 1990 to 2000 (US Census 1990 and 2000). In 2000, the vacancy rate was 14.2-percent, with approximately half of the vacant units (7.4-percent of total units) being identified as seasonal, recreational, or occasional use residences (**Table 3.7-3**). In January 2004, the number of housing units grew to an estimated 500, with a vacancy rate of 15-percent (CDOF, 2004c). Based on the ratio of seasonal, recreational, and occasional use vacant units to total units shown in the 2000 Census and recent total vacancy rates, it is estimated that approximately 35 units<sup>3</sup> are vacant in Plymouth (US

<sup>2</sup> This figure does not include seasonal, recreation, or occasional use residences.

<sup>3</sup> This figure does not include seasonal, recreation, or occasional use residences.

Census 2000; CDOF, 2004c). The number of housing units in Plymouth accounts for a very small portion of the total number of units in Amador County. The General Plan’s Housing Element identifies that approximately 139 rental units existed in the City in 2000 (Amador County, 2005). Based on this ratio, and the total number of housing units presented in **Table 3.7-3**, it is estimated that by 2004 there were approximately 175 rental units in the City.

**EMPLOYMENT**

Within this document, labor force will be generally defined as those who are employed and those who are unemployed, but are actively seeking work. As shown in **Table 3.7-4**, Amador County has an estimated labor force of approximately 15,390 and estimated employment of 14,630 as of April 2004, resulting in an unemployment rate of 4.9-percent (EDD, 2004a). This rate is slightly less than the State of California’s unemployment rate of 6.1-percent and the national unemployment rate of 5.4-percent. The employment/housing ratio<sup>4</sup> for Amador County’ was one-point-one to one (1.1/1) in 2000 (FedStats, 2004). In 2000, employment in Amador County centered around government, services, and retail trade sectors. Together these industries accounted for 77.6-percent of the total employment in the County. **Table 3.7-5** is a list of the major employers in Amador County during 2002. In April 2004, Plymouth had an estimated labor force of approximately 470 (EDD, 2004a). The City’s General Plan is considered to present the most accurate estimate of the cities unemployment status. Accordingly, unemployment is estimate at about five percent or 24 individuals (City of Plymouth, 2008).

**TABLE 3.7-4**  
REGIONAL LABOR FORCE ESTIMATES

Location	Labor Force	Reported Unemployment	Unemployment Rate
<b>Amador County</b> (total)	15,390	760	4.9%
Plymouth	470	24 <sup>2</sup>	5% <sup>2</sup>
Jackson	1,920	90	4.8%
Ione	1,740	60	3.3%
Sutter Creek	1,240	50	3.8%
Amador City	180	0	0%
Unincorporated County*	9,840	560	5.7%

Notes: <sup>1</sup> Not reported by EDD. Figures estimated from City and County figures.

Source: EDD, 2004a

<sup>2</sup> City of Plymouth, 2008.

<sup>4</sup> Based on year 2000 full and part time jobs by place of work of 16,644 divided by the year 2000 number of housing units of 15,035 (2002 units [15,490] – 2000 to 2002 net change [455] = 15,035). 16,644/15,035 = 1.1/1.

**TABLE 3.7-5**  
MAJOR EMPLOYERS AND MANUFACTURERS IN AMADOR COUNTY

<b>Employer Name</b>	<b>Industry</b>
California Youth Authority	Public Administration (Government)
Jackson Rancheria Casino Hotel	Misc. Amusement, Recreation Services
K Mart	Department Stores
Mule Creek State Prison	Public Administration (Government)
Preston Youth Correctional Facility	Correctional Institution
Sierra Pine	Sawmills and Planing Mills
Sutter Amador Hospital	Hospitals
US Forest Service Ranger Station	Forestry Services
Volcano Vision	Cable & Other Pay Television Services
Wal-Mart	Department Stores

Source: EDD, 2004c

### ***PROPERTY TAXES***

For the fiscal year 2005-2006, the total collection of secured and unsecured property tax revenues by Amador County was \$9,890,000 (Amador County, 2006). The current base and fixed property tax collected on the proposed fee-to-trust parcels for the tax year 2005-2006 is \$35,820.20, approximately 0.4-percent of the County total for the same period.

### ***COMMUNITY INFRASTRUCTURE***

#### ***Schools***

Amador County Unified School District (District) provides education for grades K-12 throughout Amador County. Two schools are located within the City: Monarch Montessori is located at 9282 Main and Plymouth Elementary School, associated with the District, is located at 10601 Sherwood Street, both approximately one mile north of the project site. Monarch Montessori offers preschool education for students age two through six. Plymouth Elementary School offers K-6 education within the City. Students in the City attending grades 7-8 attend the Ione Junior High School located at 450 South Mill Street in Ione and are within the District's boundaries. The nearest middle school is Ione Junior High and is located approximately 10 miles southwest of the project site. City students graduate from Amador High School, located at 330 Spanish Street, Sutter Creek; approximately 7 miles southeast of the project site.

Amador County School Superintendent has indicated that all public schools within the County are currently at or beyond their existing capacity (**Appendix L**). The current capacity of the schools has been extended with the use of portable classrooms; however, most of the school sites do not provide an adequate area of space available for future classroom capacity estimates. The minimum recommended acreage for elementary school sites in Amador County is 10-acres

(Carey, 2004). Only two of the seven elementary school sites are 10-acres or larger. In 2004, the District completed a five-year facilities master plan, which revealed that enrollment would continue to grow steadily to the year 2009. The number of classrooms needed and available over the next five years for K-12 schools was projected using the District's planned project schedules and expenditures. Based on the expected addition or removal of classrooms over the next five years, the District is projected to have an excess of six classrooms for grades K-12 by the year 2008 (Government Financial Strategies, Inc., 2004). In the facilities master plan, Ione Elementary, Sutter Creek Elementary, and Argonaut High School were the only schools projected to have a shortfall of classrooms. The capacity, current enrollment, 5-year projected enrollment, and 5-year projected excess or shortfall of classrooms are all shown in **Table 3.7-6**.

**TABLE 3.7-6**  
AMADOR COUNTY SCHOOL DISTRICT CAPACITY AND ENROLLMENT

School	Current Student Capacity	Current Student Enrollment	5-Year Projected Student Enrollment	5-Year Projected Excess or [Shortfall] <sup>1</sup> of Classrooms <sup>2</sup>
Ione Elementary	500	509	567	[3]
Jackson Elementary	400	429	467	0
Plymouth Elementary	200	201	201	2
Pioneer Elementary	250	247	249	2
Pine Grove Elementary	300	296	316	4
Sutter Creek Elementary	375	386	492	[3]
Ione Junior High	500	509	531	0
Jackson Junior High	350	383	396	5
Amador High School	750	882	767	4
Argonaut High School	675	678	783	[5]
<b>District Totals</b>	4,300	4,520	4,769	6

<sup>1</sup> Numbers in [brackets] represent the projected shortfalls of classrooms for 2008; numbers without brackets represent the projected number of classrooms in excess in 2008.

<sup>2</sup> Number of classrooms projected for 2008 includes classrooms expected for addition or removal over the next five years.

SOURCE: Carey, 2004; Government Financial Strategies, Inc., 2004.

Site expansions and new school sites are currently being considered based on the master plan. Due to the minimum amount of space available for expansion on existing school sites, a new elementary school and/or junior high school will need to be built in order to accommodate future educational demand in the District. A new residential community in Sutter Hill, proposed by Gold Rush Properties, includes plans for a new junior high school that would encompass all students in grades 7-8. Future plans may also include a new elementary school in the Sutter Creek area and a new high school that would serve all county students in grades 9-12 (Carey,

2004). The District is currently preparing an updated facilities master plan including the addition of a new junior high school.

Planned projects over the next five years, including the addition and removal of classrooms at Lone Junior High School and Argonaut High School, is estimated to cost approximately \$16.38 million after factoring in inflation (Government Financial Strategies, Inc., 2004). The total funds available for the projects planned in the facilities master plan is approximately \$24.49 million, which exceeds the total inflation adjusted costs of planned projects. This indicates that sufficient funds are available for the planned District expansion and improvement projects over the next five years. Primary financing for the expansion of school facilities will be provided by state aid and local property taxes, discussed in detail below.

California's system for funding public schools is largely based on voter and judicial decisions. Since Proposition 13 was passed in 1978, the school districts' ability to exert substantial control over their revenues was passed to the Governor and Legislature. Revenue limits for each district were set according to the district's expenditures on general education programs. Proposition 98, approved in 1988, also provided a measure of security by guaranteeing a minimum amount of support for public education.

The main source of funding for K-12 schools comes from the state and derives from local property tax, business, corporate, and personal income taxes, sales taxes, and some special taxes. Additional funding comes from the federal government, miscellaneous local revenues, (i.e., commercial or residential construction fees, special elections for parcel taxes, contributions from parents, etc.), and a portion from the California Lottery. Each district's income is based on the average number of students attending school during the year (ADA), the general purpose (revenue limit) money the district receives based on ADA, and special support (categorical aid) from the state and federal governments. **Table 3.7-7** lists the general fund revenues provided to the Amador County Unified School District in the school year of 2002-2003. Based on the facilities master plan, the projected funds available over the next five years are sufficient to cover expenditures each year, indicating that the current schedule of projects is feasible.

As shown in **Table 3.7-7**, property taxes constitute approximately 65-percent of the District's revenue. The current annual property tax rate for the project site is \$35,820 for the 2005-2006 tax year. The distribution of property taxes to City and County funds is dependent on the Tax Rate Area (TRA) for the individual parcel. Eight of the twelve parcels on the property are located within TRA 003-000 of the City and the remaining four are located within TRA 052-086 of Unincorporated Amador County. Within TRA 003-000, 33.2-percent of property taxes are distributed to the school district, 14.24-percent are distributed to the Educational Revenue Augmentation Fund (ERAF), and 1.6 percent is distributed to the County Office of Education. Within TRA 052-086, 50.5 percent of property taxes are distributed to the school district, 10.5-

percent are distributed to the Educational Revenue Augmentation Fund (ERAF), and 2.4-percent is distributed to the County Office of Education. Based on these percentages and the current property tax rate of \$35,820 for the proposed project area, approximately \$13,400 would be distributed to the school district, \$4,775 would be distributed to ERAF, and \$643 would be distributed to the County Office of Education.

**TABLE 3.7-7**  
AMADOR COUNTY SCHOOL DISTRICT REVENUES FOR 2005-2006

Title	Total Dollars	Dollar Amount per Student (ADA)	Percentage
<b>Revenue Limit Sources</b>			
State Aid	\$3,669,718	\$841	12.4%
Local Property Taxes & Fees	\$19,158,093	\$4,389	64.8%
Federal Revenues	\$1,229,799	\$282	4.2%
Other State Revenues	\$4,757,515	\$1,090	16.1%
Other Local Revenues	\$746,382	\$171	2.5%
<b>Total Revenues</b>	<b>\$29,561,506</b>	<b>\$6,773</b>	<b>100%</b>

SOURCE: Ed-Data, 2004.

***Libraries***

Five Amador County Public Libraries are located within 12 miles of the project site. The closest library is the Plymouth Branch of the Amador County Public Library located at 9375 Main Street, approximately 1 mile northeast of the project site.

***Parks and Recreation***

According to the City’s General Plan, there are approximately 39-acres of parkland within the City. Most of the 39-acres of parkland are accounted for by the Amador County Fairgrounds, the Plymouth City Park, Lodgehill Park and playgrounds, and open space on public school lands. The Amador County Fairgrounds are located approximately one mile north of the project site and are available to City residents for a variety of public or private recreational uses (City of Plymouth, 2001).

**3.7.3 ENVIRONMENTAL JUSTICE**

***POLICY/REGULATORY CONSIDERATIONS***

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, as amended, directs Federal agencies to develop an Environmental Justice Strategy that identifies and addresses disproportionately high and adverse human health or

environmental effects of their programs, policies, and activities on minority populations and low-income populations. The Council on Environmental Quality (CEQ) has oversight responsibility of the Federal Government's compliance with Executive Order 12898 and National Environmental Policy Act (NEPA). The CEQ, in consultation with the USEPA and other agencies has developed guidance to assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed.

According to the CEQ's *Environmental Justice Guidance Under the NEPA*, agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present and within the area affected by the proposed action, and if so whether there may be disproportionately high and adverse environmental effects. Communities may be considered "minority" under the executive order if one of the following characteristics apply:

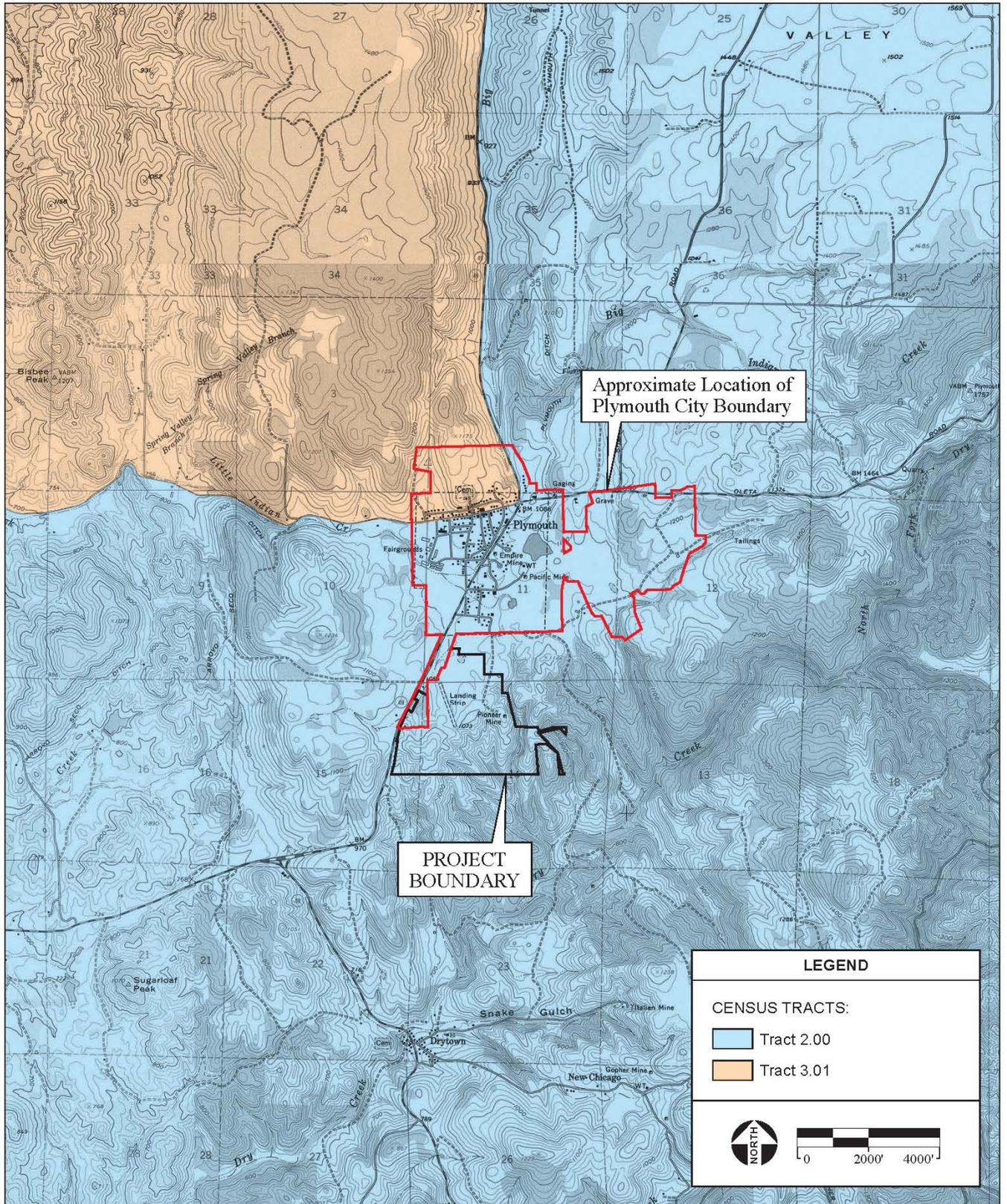
- The cumulative percentage of minorities within the affected environment is greater than 50-percent (primary method of analysis) or
- The cumulative percentage of minorities within the affected environment is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (secondary method of analysis).

Communities may be considered "low-income" under the executive order if one of the following characteristics applies:

- The median household income for a census tract is below the poverty line (primary method of analysis) or
- Other indications are present that indicate a low-income community is present within the census tract (secondary method of analysis).

### ***AFFECTED ENVIRONMENT***

To determine whether a proposed action is likely to have disproportionately high and adverse effects on a population, agencies must identify a geographic scale for which they will obtain demographic information. Census tracts are a small, relatively permanent statistical subdivision of a county delineated by a local committee of census data users for the purpose of presenting data. Census tracts are designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions at the time of establishment. Therefore, statistics of census tracts provide a more accurate representation of a community's racial and economic composition. Amador County Census Tracts 2.00 and 3.01 were selected since these areas are most closely associated with the affected environment, although they are undoubtedly somewhat larger (**Figure 3.7-1**). The project area is contained within Census Tract 2.00 with



SOURCE: "Amador City, CA" USGS 7.5 Minute Topographic Quadrangle, Sections 11, 14, & 15, T7N, R10E, Mt. Diablo Baseline and Meridian; U.S. Census TIGER Data, 2000; AES, 2005

**Figure 3.7-1**  
Census Tracts

Census Tract 3.01 covering an area to the north and the west of the project site. These census tracts provide demographic coverage for the entire City.

***Ethnic Composition***

The following races are considered minorities under the executive order:

- American Indian or Alaskan Native
- Asian or Pacific Islander
- Black, not of Hispanic origin
- Hispanic

**Table 3.7-8** summarizes Census 2000 data on the racial composition of the two census tracts identified, as well as for Amador County and the City, which are used for comparison of the racial composition of the regional population. Census 2000 data represents the most current racial data available by census tract. Although this data is more than six years old, the racial composition of census tracts is not expected to have changed substantially.

**TABLE 3.7-8**  
ETHNIC COMPOSITION OF AMADOR COUNTY AND AFFECTED AREA

Geographic Area	Hispanic or Latino	Black	American Indian /Alaska Native	Asian	Native Hawaiian /Pacific Islander	Other	Total Minority	White
Amador County	8.9%	3.8%	1.5%	0.9%	0.1%	2.3%	17.5%	82.5%
Census Tract 2.00	5.6%	0.2%	1.3%	0.6%	0.0%	2.2%	10%	90.0%
Census Tract 3.01	22.7%	22.2%	1.8%	2.0%	0.1%	3.4%	52.2%	47.8%

Source: AES, 2007; U.S. Census 2000.

According to the 2000 Census, census tract 3.01 has a total minority population that is 52.2-percent of the total population. Census tract 3.01 is considered to constitute a minority community under the primary method of analysis, since the cumulative minority percentage is greater than 50-percent. The largest minority in this census tract are Hispanic or Latinos and Blacks which each represent approximately 22 percent of the population. Census Tract 3.01 is located to the northwest of the City and covers a large expanse of area. This area is characterized by open spaces with scattered and isolated developments. Census Tract 2.00 is not identified as a total minority population under the primary method of analysis, since the cumulative minority percentage is less than 50 percent of the total population.

For the secondary method of analysis the minority population in the general region is represented by Amador County. In Amador County, the minority population is 17.5-percent of the total population. Relative to Amador County, the total minority percentage of Census Tract 2.00 is slightly below Amador County, and Census Tract 3.01 is substantially greater. Under the secondary method of analysis Census Tract 3.01 is considered to constitute a minority

community, since the minority percentage is greater than three times that of the County. Census Tract 2.00 is not considered to constitute a minority community under the secondary method of analysis, since the total minority population is not meaningfully greater than Amador County's.

### ***Income and Poverty Status***

**Table 3.7-9** summarizes Census 2000 data of income and poverty status of the two census tracts identified for the project site. Census 2000 data represents the most current median household income data available for census tract divisions.

**TABLE 3.7-9**  
INCOME AND POVERTY STATUS

<b>Geographic Area</b>	<b>Median Household Income*</b>	<b>Average Household Size</b>	<b>Poverty Threshold</b>	<b>Below Poverty Threshold</b>
Amador County	42,280	2.4	\$10,869	9.2%
Census Tract 2	45,280	2.4	\$10,869	10.4%
Census Tract 3.01	48,438	2.6	\$13,290	7.1%

Note: \* Income in 1999 Dollars  
Source: AES 2007; U.S. Census 2000.

For the primary method of analysis a low-income community is identified by a poverty threshold. Poverty thresholds for Census 2000 income data are found in Table 1 of the U.S. Census Bureau's report *Poverty: 1999* (2003), which relates household income to household size rounded up to the nearest integer. Census 2000 average household size data is used to establish the poverty threshold of each census tract. Poverty thresholds for the identified census tracts range from \$13,290 for an average household of three to \$10,869 for an average household of two. For both of the census tracts, the median household income is substantially greater than the poverty threshold, which is demonstrated by the fact that median household income is at least three times as great as the poverty threshold for each of the census tracts identified. Under the primary method of analysis none of the census tracts are considered to constitute a low-income community.

For the secondary method of analysis the percentage of persons below the poverty threshold is evaluated to further characterize poverty in each census tract. The poverty status of the general region is represented by Amador County. In Amador County, 9.2-percent of the population earned income below the poverty threshold. Relative to Amador County, the percentage of persons below the poverty threshold of Census Tract 2.00 is slightly greater than Amador County, while for Census Tract 3.01 is slightly lower than that of Amador County. Since neither of the census tracts had a meaningfully large percentage of the population below the poverty threshold, neither census tract are considered to constitute a minority community under the secondary method of analysis.

## 3.8 RESOURCE USE PATTERNS

This section describes the existing environmental conditions of resource use patterns for the proposed Amador County project site. Topics include Transportation, Land Use, Agriculture, and other resource use patterns such as hunting and fishing grounds, timber harvesting, and mining. The general and site-specific profiles of Resource Use Patterns contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

### 3.8.1 TRANSPORTATION

A revised traffic impact analysis (revised TIA) was prepared for the FEIS and is included as **Appendix M**. The following is a summary of the existing transportation network, including existing roadway segment and intersection levels of service (LOS), as determined within the revised TIA.

#### *EXISTING CIRCULATION NETWORK*

Several State routes, parkways, and roads constitute the existing roadway network servicing the project site. The existing lane configurations are shown in the revised TIA as Figures 8 and 8a. The following are summaries of the major roadways that would serve the project site:

**U.S. Route 50** is an east-west freeway located north of the project site. Generally US 50 serves all of El Dorado County's major population centers and provides connections with Sacramento to the west and the South Lake Tahoe region/State of Nevada to the east. In the vicinity of the US 50/Missouri Flat interchange, US 50 highway is a divided four-lane freeway with an average daily traffic (ADT) volume of approximately 55,000 vehicles.

**State Route 49** is primarily a north-south two-lane road extending nearly 300 miles between SR 70 in Plumas County to SR 41 in Oakhurst. The route serves residential and retail developments and lacks curb, gutter, and sidewalk near the project site. In the vicinity of the project site, SR 49 has a center two-way left turn lane. It provides direct access to the site via two driveways.

**Jackson Highway (SR 16)** is a major arterial that traverses in the east-west direction, providing a connection between Folsom Boulevard in the City of Sacramento and SR 49 in Amador County. In the vicinity of the project site, Jackson Highway has two 12-foot travel lanes with eight-foot paved shoulders. The speed limit along Jackson Highway is posted at 55 miles per hour (mph). Surrounding land uses include retail and residential developments.

**Grant Line Road** is a two-lane thoroughfare, which begins at SR 99 and continues in a northeast direction into the County of Sacramento, where it terminates at White Rock Road. It has a full

access interchange at SR 99. In the vicinity of the project site, Grant Line Road has two 12-foot travel lanes with six-foot paved shoulders and a posted speed limit of 55 mph. The facility generally lacks curbs, gutters, and sidewalks.

**Sunrise Boulevard** is a north-south thoroughfare that begins at Grant Line Road and continues north into the City of Roseville. Sunrise Boulevard varies in roadway width, from two to six lanes. In the vicinity of the project site, Sunrise Boulevard is a two-lane facility with paved shoulders and lacks curbs, gutters, and sidewalks. The posted speed limit along the roadway varies between 45 and 55 mph.

**Bradshaw Road** is a four-lane wide thoroughfare with paved shoulders, which begins at Grant Line Road. It has a full access interchange with US 50. The roadway primarily serves rural residential and industrial developments. The posted speed limit varies between 45 and 55 mph along the roadway.

**Dillard Road** is a two-lane rural collector that extends from SR 99 to SR 16. Dillard Road lacks curbs, gutters, and sidewalks and is approximately 22 feet wide. The roadway primarily serves low-density residential developments. The posted speed limit along the roadway is 55 mph.

**Stonehouse Road** is a two-lane undivided north-south rural collector, which runs between SR 16 and Latrobe Road. Stonehouse Road is approximately 20 feet wide with no shoulders and lacks curbs, gutters, and sidewalks. There is no posted speed limit along Stonehouse Road. The roadway primarily serves residential development.

**Murieta Parkway** north of SR 16 serves the Rancho Murieta gated community. South of SR 16, Murieta Parkway is also known as Murieta Drive. South of SR 16, Murieta Drive is a two-lane road with a posted speed limit of 25 mph and access to the Placerville Airport.

**Murieta South Parkway** serves the Ranch Murieta gated community on the north side of SR 16. South of SR 16, Murieta Parkway provides access to the Rancho Murieta Community Services District.

**Latrobe Road (Sacramento County)** is a two-lane rural road with soft shoulders beginning at SR 16. South of SR 16, Latrobe Road is also known as Indio Drive. In the vicinity of the project site, Latrobe Road lacks curbs, gutters, and sidewalks and has a posted speed limit of 55 mph.

**Sloughhouse Road** is a two-lane rural road, which begins at SR 16. The roadway lacks curbs, gutters, and sidewalks and has no shoulders. The speed limit along this roadway is 55 mph.

**Excelsior Road** is a two-lane road with a 55-mph posted speed limit with a southern terminus at Grant Line Road. North of Kiefer Road, Excelsior Road is also known as Mather Boulevard. Excelsior Road is generally rural in nature lacking curb, gutter and sidewalk.

**Ione Road** is a two-lane rural road between SR 16 and Michigan Bar Road with a posted speed limit of 50 mph and no curb, gutter and sidewalk.

**SR 88** begins in San Joaquin County at SR 99 and terminates at the California/Nevada border. In the vicinity of the project site, SR 88 is a two-lane conventional highway and is classified as a principal arterial. The posted speed limit is 55 mph. SR 88 also has paved shoulders on each side. A segment of SR 88 passing through the communities of Lockeford and Clemens is designated as both SR 88 and SR 12. The posted speed limit in these areas ranges from 25 to 40 mph. There is also a center two-way left-turn lane along SR 88 in Lockeford.

**Kettleman Lane** is an east-west roadway also known as SR 12 on the west side of SR 99. East of SR 99, Kettleman Lane is two lanes wide with a posted speed limit that varies between 40 to 45 mph. There are paved shoulders on each side of the roadway.

**SR 12** extends from Highway 1 in Sonoma County and terminates at SR 88 in Amador County. East of SR 99, SR 12 is a two-lane road with a posted speed limit of 55 mph. It generally provides paved shoulders on each side of the roadway.

**Tully Road** is two-lane rural roadway with soft shoulders. West of SR 88, Tully Road is known as Elliot Road. The roadway primarily serves residential and some agricultural land uses. It has a posted speed limit of 25 mph. Sidewalks are present on both sides of the roadway.

**Liberty Road** is a two-lane rural roadway with soft shoulders. It extends from west of SR 99 in San Joaquin County and continues east until its terminus at Camanche Parkway. The posted speed limit is 55 mph.

**SR 124** is a two-lane rural road extending from SR 88 south of Ione to SR 49. It is also known as Church Street in the City of Ione and Plymouth Highway north of the City of Ione. The posted speed limit in the City of Ione is 25 to 35 mph. Outside of the City of Ione, it has a posted speed limit that varies from 55 to 65 mph.

**SR 104** is an east-west road connecting SR 99 near the City of Galt to SR 88 near the City of Ione. SR 104 is a two-lane roadway and has a posted speed limit of 25 mph in the City of Ione. It is designated as Main Street in Ione and has on-street parking and paved sidewalks along the roadway. North of the City of Ione, it is known as Preston Avenue.

**Jackson Valley Road** is a two-lane rural roadway with no shoulders. It runs between Old Stockton Road and Buena Vista Road in Amador County. The posted speed limit is 45 mph.

**Latrobe Road** (Amador County) is a two-lane roadway that begins at SR 16 in Amador County and continues north into El Dorado County where it terminates at an intersection with US 50. Latrobe Road generally lacks curbs, gutters, and sidewalks and provides access to rural residential development in Amador County. North of US 50, Latrobe Road is also known as El Dorado Hills Boulevard. It has a full access interchange with US 50.

**Miller Way** is a local roadway in the City of Plymouth. It is an east-west roadway which begins at SR 49. Miller Way is a wide roadway with no center line markings; it provides access to residential development. The roadway has a posted speed limit of 25 mph.

**Main Street** is a two-lane arterial in the City of Plymouth. It has a posted speed limit of 25 mph. It is also known as Shenandoah Road east of SR 49. The roadway primarily serves residential and retail developments.

**Poplar Street** is a two-lane collector, which generally lacks curbs, gutters, and sidewalks. The roadway primarily serves residential development. The posted speed limit is 25 mph.

**Empire Street** is a two-lane collector, which runs between SR 49 and Church Street in the City of Plymouth. It has a posted speed limit of 25 mph. The roadway primarily serves residential development.

**Randolph Drive** is a two-lane roadway which begins at SR 49 and continues east until its terminus with Randolph Court. The main project driveway will become the fourth leg of its intersection with SR 49.

**Pleasant Valley Road** is an east-west two-lane minor arterial approximately 12 miles in length, beginning to the west at Mother Lode Road and terminating to the east at Sly Park Road. Only the ±2.2 mile section of Pleasant Valley Road west of Diamond Road is designated as SR 49. The roadway carries approximately 13,500-16,000 vehicles per day (VPD) along the SR 49 section of the roadway and immediately east of Diamond Road. The speed limit within the community of Diamond Springs is 25 mph (between Missouri Flat Rd. and Racquet Way), increasing to 35 mph outside of Diamond Springs.

**South Shingle Road** is a two-lane road that provides connection between Latrobe Road to the south and US 50 to the north. Past US 50, it becomes known as North Shingle Road. The speed limit on this roadway varies between 25 mph to 45 mph. This two-lane road provides access to residential communities south of US 50.

**Missouri Flat Road** is north-south arterial roadway approximately 3.5 miles in length that begins to the south at Pleasant Valley Road and terminates at Green Valley Road. It has a full access interchange with US 50. In the vicinity of Forni Road, Missouri Flat Road accommodates approximately 33,500 VPD.

**Mother Lode Drive** is an east-west, two-lane roadway that generally parallels US 50 to the south. Mother Lode Drive connects South Shingle Road to the west with Missouri Flat Road to the east. According to the El Dorado County Department of Transportation, Mother Lode Drive accommodates approximately 14,500 VPD between South Shingle Road and Missouri Flat Road.

**Forni Road** is a two-lane collector roadway that connects the intersection of SR 49/Pleasant Valley Road with Missouri Flat Road and serves approximately 9,000 VPD. The speed limit along this roadway varies between 35 mph and 45 mph.

#### ***Public Transportation***

Public transportation throughout Amador County is serviced by Amador Regional Transit System (ARTS), which is based in the unincorporated area of Martell. ARTS provides services to a range of communities linking them together through a regulated time and route schedule from Monday through Friday. There are six primary lines that serve Amador County and one direct route leading to and from Sacramento. This line, known as the Sacramento/Amador Express, departs three times daily with multiple stops along the way.

Within the City of Plymouth there is one line known as the “P” line that runs between the City of Plymouth and the City of Jackson. There are three designated “P” lines departing at three different time intervals, with designated route stops. In addition, there are three on-call stops for Fiddletown, River Pines and Amador High School that can be arranged by special request.

ARTS will deviate from the regular route within a ½ mile given a 24-hour notice. Once that stop has been approved, ARTS requires only a one-hour notification period. All buses are equipped to accommodate people with special needs and animals that serve to assist with special needs.

#### ***Bicycle and Pedestrian Circulation***

Field observations indicate that walking and bicycling activity is limited in the immediate vicinity of the proposed project site. This is primarily due to the lack of existing bicycle and pedestrian traffic generators in the vicinity of the project site. However, there is also a lack of curbs, gutters, and sidewalks along SR 49, which would accommodate additional pedestrian activity. On most of the roadways in the study area, bicyclists must ride in the roadway and share the travel lane with vehicular traffic.

## EXISTING OPERATING CONDITIONS

### Analysis Methodologies

Operating conditions experienced by drivers are described in terms of levels of service (LOS). LOS is a qualitative measure that includes factors such as speed, travel time, delay, freedom to maneuver, driving comfort, and convenience. LOS ratings are represented as letters ranging from A to F, whereby LOS A represents the best traffic flow driving conditions and LOS F represents the worst traffic flow driving conditions.

### Roadway Segments

Roadway segment analysis is based upon the daily traffic volume thresholds established in the 2004 *Amador County Regional Transportation Plan (RTP)* update dated September 15, 2004. The LOS methodology used to analyze the capacity of roadway segments was based on the LOS Criteria outlined in the RTP. This methodology examines the average daily trip (ADT) volumes as compared to the daily traffic volume capacity of the roadway facility. A roadway facility is classified as either an arterial or collector with a class ranging from I-V. **Table 3.8-1** presents the LOS criteria for roadway segments.

**TABLE 3.8-1**  
ROADWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

Facility Type	Daily Service Volumes (vehicles per day)				
	A	B	C	D	E
Arterial, Class I	2,600	5,900	10,300	16,900	20,200
Arterial, Class II	2,200	5,200	9,300	15,300	18,900
Arterial, Class III	1,600	4,500	8,600	14,200	18,600
Arterial, Class IV	1,200	3,300	6,400	11,000	15,500
Arterial, Class V	1,000	3,000	5,900	10,200	14,300
Arterial (with climbing lane)	N/A	12,200	16,500	22,200	25,100
Arterial (2 lanes each direction)	N/A	24,900	30,800	32,700	34,900
Collector, Class I-III	1,300	3,900	7,500	12,600	16,900
Collector, Class IV	1,000	3,000	5,500	8,750	11,200
Collector, Class V	600	2,000	3,500	4,900	5,500

NOTES: N/A = Not Achievable

SOURCE: TY Lin International/CCS 2005, AES 2005

### Intersections

Analyses for signalized intersections and unsignalized intersections (those controlled by stop signs) were conducted using a methodology outlined in the Transportation Research Board's Special Report 209, Highway Capacity Manual, 2000. For signalized intersections, this procedure calculates an average control delay per vehicle at a signalized intersection and assigns a LOS designation based on the delay of the entire intersection, all movements. The method also provides a calculation of the volume-to-capacity (v/c) ratio of the critical movements at the intersection. For unsignalized intersections, this procedure calculates an average total delay per

vehicle for the overall intersection and each controlled movement. **Table 3.8-2** presents the LOS criteria for signalized and unsignalized intersections.

#### Signal Warrants

Signal warrant criteria used in this analysis is provided in the Manual on Uniform Traffic Control Devices (MUTCD) and is summarized in the revised TIA. At each unsignalized intersection, the potential need for a traffic signal was evaluated. Traffic signal warrants are a series of standards that provide guidelines for determining if a traffic signal is appropriate. Signal warrant analyses are typically conducted at intersections of uncontrolled major streets and stop sign-controlled minor streets. If one or more signal warrants are met, signalization of the intersection may be appropriate. However, a signal should not be installed if none of the warrants are met, since the installation of signals would increase delays on the previously uncontrolled major street, and may increase the occurrence of particular types of accidents.

**TABLE 3.8-2**  
INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Signalized	Unsignalized
		(Avg. control delay per vehicle; sec/veh.)	(Avg. control delay per vehicle; sec/veh.)
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream	≤ 10	≤ 10
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20	> 10 – 15
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35	> 15 – 25
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55	> 25 – 35
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80	> 35 – 50
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50

SOURCE: *Highway Capacity Manual*, Transportation Research Board, Special Report No. 209, Washington, D.C., 2000.

#### *Standards of Significance*

LOS thresholds for each intersection and roadway in the study area are provided according to applicable jurisdiction in the revised TIA as Tables 1 and 2. The LOS standards of significance for each different jurisdiction for the Friday PM peak hours is applied to the Saturday PM peak hour.

### ***Roadway Segments and Intersections Existing Level of Service***

#### *Roadway Segment Operations*

Automated daily machine counts for this revised TIA were conducted on a Friday and Saturday in August 2008 to characterize travel patterns in the study area. The following roadway segment locations in the vicinity of the project site were analyzed as requested by Amador County, Sacramento County and Caltrans District 10:

- SR 49 between Main Casino Entrance and Main Street in Plymouth
- SR 49 between Main Casino Entrance and SR 49/SR 16 Junction-
- SR 16 between Bradshaw Road and Excelsior Road
- SR 16 between Excelsior Road and Sunrise Boulevard
- SR 16 between Sunrise Boulevard and Grant Line Road
- SR 16 between Grant Line Road and Dillard Road
- SR 16 between Dillard Road and Stonehouse Road
- SR 16 between Stonehouse Road and Ione Road
- SR 16 between Ione Road and Old Sacramento Road
- SR 16 between Latrobe Road (Amador) and SR 124
- SR 16 between SR 124 and SR 49
- Latrobe Road (Amador) north of SR 16
- SR 124 between SR 16 and Tonzi Road
- SR 124 between Tonzi Road and SR 104
- SR 104 between SR 124 and Main Street
- SR 104 between Main Street and Church Street
- SR 124 between Main Street and SR 88
- SR 88 between SR 124 and Liberty Road
- SR 88 between Liberty Road and SR 12 East
- SR 88 between SR 12 East and Tully Road
- SR 88 between Tully Road and SR 12 West
- SR 88 between SR 12 West and Kettleman Lane

#### **Existing Level of Service**

Levels of service for the existing study roadway segments are shown in the revised TIA as Table 8. All of the existing roadway segments operate acceptably except for the following:

- SR 104 between SR 124 and Main Street during the Friday and Saturday PM peak hours,
- SR 104 between Main Street and Church Street during the Friday and Saturday PM peak hours,
- SR 88 between SR 124 and Liberty Road during the Friday and Saturday PM peak hours,
- SR 88 between Liberty Road and SR 12 East during the Saturday PM peak hour,

- SR 88 between SR 12 East and Tully Road during the Friday and Saturday PM peak hours,
- SR 88 between Tully Road and SR 12 West during the Friday and Saturday PM peak hours, and
- SR 88 between SR 12 West and Kettleman Lane during the Friday and Saturday PM peak hours.

*Intersection Operation*

Twenty-five intersections were considered most likely to be affected by the proposed project alternatives and were evaluated in the revised TIA. A list of 45 study intersections was developed in consultation with the City of Plymouth and the County of Amador. The original list of 45 intersections was narrowed down to 25 by assessing which intersections would experience more than a 10 percent growth in average weekday daily volumes with the addition of project traffic. However, Amador County, El Dorado County, and Caltrans District 10 requested analysis of additional intersections; these were also included in the revised TIA. The following intersections were analyzed:

1. SR 49 / Miller Way
2. SR 49 / Main Street
3. SR 49 / Poplar Street
4. SR 49 / Empire Street
5. SR 49 / Randolph Drive
6. SR 49 / SR 16
7. SR 16 / SR 124
8. SR 16 / Latrobe Road (Amador County)
9. SR 124 / Preston Avenue
10. Preston Avenue / Main Street
11. Church Street / Main Street
12. SR 88 / SR 124
13. SR 88 / Jackson Valley Road
14. SR 88 / Liberty Road
15. SR 88 / SR 12 (east)
16. SR 88 / Tully Road
17. SR 88 / SR 12 (west)
18. SR 88 / Kettleman Lane
19. SR 16 / Ione Road
20. SR 16 / Murieta South Parkway
21. SR 16 / Murieta Parkway
22. SR 16 / Stonehouse Road
23. SR 16 / Latrobe Road (Sacramento County)

24. SR 16 / Dillard Road
25. SR 16 / Sloughhouse Road
26. SR 16 / Grant Line Road
27. SR 16 / Sunrise Boulevard
28. SR 16 / Excelsior Road
29. SR 16 / Bradshaw Road
30. Latrobe Road / White Rock Road
31. Latrobe Road / South Shingle Road
32. Missouri Flat Road / US 50 WB Ramps
33. Missouri Flat Road / US 50 EB Ramps
34. Missouri Flat Road / Motherlode Drive
35. Missouri Flat Road / Forni Road
36. Pleasant Valley Road / Missouri Flat Road
37. Pleasant Valley Road / Forni Road
38. Pleasant Valley Road / SR 49

The location of these intersections are provided in Figure 1 of the revised TIA. Eighteen of the study intersections are controlled by traffic signals. Twenty are unsignalized and controlled by either all-way stops or stop signs on the minor street.

#### **Existing Levels of Service**

Existing Condition LOS were calculated for the Friday and Saturday PM peak hour at the study intersections using the TRAFFIX and Synchro software packages and are provided in Table 6 of the revised TIA. Synchro was used along the Missouri Flat Road corridor in order to simulate coordination among the closely spaced signalized intersections. A peak hour factor was used at each intersection and calculated based on the collected traffic count data. A truck percentage was used along each route as specified in the *2006 Annual Average Daily Truck Traffic on the California State Highway System*, published by Caltrans. Truck percentages used in this analysis were eight percent along SR 49, nine percent along SR 16 in Sacramento County, eight percent along SR 16 in Amador County, eight percent along SR 124, seven percent along SR 88 in San Joaquin County, and nine percent along SR 88 in Amador County. The following intersections currently operate at an unacceptable LOS:

- The westbound approach of the Preston / SR 124 intersection during the Friday PM peak hour,
- The southbound approach of the Preston Avenue / Main Street intersection during the Friday PM peak hour,
- Grant Line Road / SR 16 during the Friday PM peak hour,
- Missouri Flat / US 50 WB Ramps during the Friday PM peak hour, and
- Missouri Flat / US 50 EB Ramps during the Friday PM peak hour.

The results of the peak hour MUTCD signal warrant analysis shows the following intersections meet the MUTCD peak hour signal warrant:

- Preston Avenue / SR 124 during the Friday PM peak hour,
- Preston Avenue / Main Street during the Friday and Saturday PM peak hours, and
- Forni Road / Pleasant Valley Road during the Friday PM peak hour.

All other unsignalized intersections do not meet the MUTCD peak hour signal warrant criteria during the Friday and/or Saturday PM peak hours.

### **3.8.2 LAND USE**

#### ***REGIONAL SETTING***

Amador County is the fifth smallest geographic area of all California Counties, totaling 601 square miles (CSAC, 2004). There are five incorporated cities in Amador County: (1) Plymouth, (2) Jackson, (3) Amador City, (4) Sutter Creek, and (5) Ione. Unincorporated Amador County surrounds the City of Plymouth, including historic Dry Town located south of the City of Plymouth. The incorporated City of Ione has the largest population in the County, respectively followed by Jackson, Sutter Creek, Plymouth, and Amador City (CDOF, 2004).

#### ***PROJECT AREA SETTING***

Land uses in and around the project area are largely rural and semi-rural in nature. The portion of SR 49 in the project vicinity is a two-lane, undivided highway lined with fence posts and utility poles. The land surrounding the project area generally consists of undeveloped grassland. The area to the east of the project site consists of several active mining claims. Land uses immediately west and adjacent to the project site includes a small gas station and market. Land uses northwest and adjacent to the project site include two small restaurants, and to the west, consist of sparsely scattered rural homes and light commercial development, including a hardware store. Approximately three-quarters of a mile north of the project site is downtown Plymouth. Land uses between downtown Plymouth and the project site consist of scattered low-density housing and small businesses, with higher-density residential and commercial uses in the downtown area. The Amador County Fairgrounds are located approximately one-half mile northwest of the project site. **Figure 3.8-1** shows the existing Land Use types in and around the project site.

#### ***PROJECT SITE***

The project site consists of twelve parcels of land totaling approximately 228.04± acres of which eight parcels are located within the City of Plymouth and four parcels are located within unincorporated Amador County (**Figure 1-3**). The following is a description of the Land Use on each of the twelve parcels.



**Parcel #1** is the largest of the twelve project parcels (137.78± acres) and is located just south of the City of Plymouth within unincorporated Amador County. This parcel is primarily vacant land used for cattle grazing. The parcel also includes new and old mining roads, a dilapidated lift station, remnants of various mining infrastructure, and remnants of an old mining operation (please see **Appendix K** for more details).

The topography of this parcel consists of gently rolling hills and several ravines sloping from east to west. A small pond is located on the southwestern corner of the project parcel. Access to the parcel is available from a private unimproved dirt road that intersects with SR 49.

The current Amador County General Plan Land Use designation for Parcel #1 is Residential- Suburban (R-S), which allows for low-density residential uses in suburban areas not served by domestic water and sewer services or other urban services (County of Amador, 1967). Allowed density of the R-S designation is one single-family unit per acre. Parcel #1 is zoned Special Use (X) by Amador County. The Special Use zone allows for all types of development not prohibited by law. While there are no non-conforming uses within this zone, ultimate development approval is determined by the County.

**Parcel #2** consists of 7.68± acres of land located immediately outside the City of Plymouth in unincorporated Amador County. Parcel #2 lies adjacent to the northern leg of Parcel #1, roughly three-quarters of a mile east of SR 49 and adjacent to Bush Street to the east. The majority of the parcel is currently undeveloped grassland with evidence of light to moderate cattle grazing activities. A single-family home is located near the center of the parcel. Cattle grates and fencing prevent grazing activities from occurring near the home. The topography of the site consists of flat rangeland with a deep ravine located in the southeast corner of the parcel. Access to this area is provided from the north along Bush Street.

The County General Plan Land Use designation for this parcel is Residential-Suburban (R-S), which allows for low-density residential uses in suburban areas not served by domestic water and sewer services or other urban services (County of Amador, 1967). Allowed density of the R-S designation is one single-family unit per acre. Parcel #2 is zoned Single-family Residential-Agriculture (R1-A) by Amador County, which allows one dwelling unit per five acres.

**Parcel #3** is a 60±-acre parcel located in the unincorporated County. The parcel is situated to the north of and adjacent to Parcel #1 and to the west of Parcel #2. Currently this parcel is being used for cattle grazing. No urban features or land uses exist on Parcel

#3, except utility poles, cattle fencing, and a small wooden shed located on the western corner of the site. A small landing strip was once situated in the middle of the parcel although no physical evidence of the strip remains today. Natural drainage from the surrounding hills creates ponding in the central portion of the parcel. The topography has little relief with a few gently rolling hills. Access to Parcel #3 is provided from the north along Bush Street.

The County General Plan Land Use designation for this parcel is Residential-Suburban (R-S), which allows for low-density residential uses in suburban areas not served by domestic water and sewer services or other urban services (County of Amador, 1967). Allowed density of the R-S designation is one single-family unit per acre. Parcel #3 is zoned Single-family Residential-Agriculture (R1-A) by Amador County, which allows one dwelling unit per five acres.

**Parcel #4** is a 0.64± acre parcel located within the City of Plymouth. Parcel #4 lies adjacent to the eastern edge of State Route 49. The sign for the Shenandoah Inn constitutes the only urban feature or land use for this parcel. Main access to this area is from SR 49. The City of Plymouth General Plan Land Use Designation for this parcel is identified as Commercial (C) (City of Plymouth 2001).

This parcel is also within the City of Plymouth Scenic Corridor Combined Zoning District. The Scenic Corridor Combined zoning classification is attached to the subject parcel commercial zone classification. Acceptable uses for the commercial zone include retail, food and beverage establishments, offices, automotive sales and service, hotels and motels, storage facilities, wholesale commercial, processing services, light assembly, and other similar commercial activity. Regulations specific to the Scenic Corridor Combined Zone are limited to the consideration of design review guidelines specified in Chapter 19.50 of the City of Plymouth Municipal Code.

**Parcel #5** is a 2.68± acre City parcel that is located east of SR 49 and Parcel #4 and adjacent to Parcel #3. The main urban feature for this area is The Shenandoah Inn. Vacant, undeveloped land to the southeast makes up the remainder of the parcel. Access to this parcel is provided via an unnamed driveway from SR 49. The current City of Plymouth General Plan Land Use Designation and Zoning Designation for this parcel are both identified as Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

**Parcel #6** is a 1.65± acre City parcel located east of the service station that fronts SR 49. No urban features or land uses exist on Parcel #6. The topography of the area consists of a gently sloping hillside. Access to this parcel is from Village Drive off SR 49. The City

of Plymouth General Plan Land Use Designation and Zoning Designation for this parcel are both identified as Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

**Parcel #7** is a 1.19± acre City parcel east of SR 49. Urban features in this area are limited to a well that sits on a concrete slab. A drainage ditch on the western side of the parcel runs along SR 49. Topography for the area consists of flat open space with a man-made upward trending slope bordering the south and east edge of the area. Access to the area is provided via SR 49 and Village Drive. The City of Plymouth's General Plan Land Use Designation for this parcel is identified as Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

This parcel is also within the City of Plymouth Scenic Corridor Combined Zoning District. Acceptable uses for this area are described under Parcel #4.

**Parcel #8** is a 0.53± acre City parcel located adjacent to the east side of SR 49. A private residence sits in the center of the parcel. Topography for the area has been modified to accommodate the private residence and is generally level with a gentle downward slope to the north and west portion of the site. Access to this area is provided by a private driveway from SR 49. The City of Plymouth General Plan Land Use Designation and Zoning Designation for this parcel are both identified as Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

This parcel is also within the City of Plymouth Scenic Corridor Combined Zoning District. Acceptable uses for this area are described under Parcel #4 (above).

**Parcel #9** is a 0.81± acre City parcel located east of Parcel #8 and north of Parcel #1. A small portion of this parcel lies adjacent to the east side of SR 49. A private residence sits near the north side of the parcel. Topography for the area has been modified to accommodate the private residence and is generally flat with a gentle northerly slope to the north. Access to this area is from a private drive off SR 49. The City of Plymouth General Plan Land Use Designation and Zoning Designation for this parcel is Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

This parcel is also within the City of Plymouth Scenic Corridor Combined Zoning District. The Scenic Corridor Combined zoning classification is attached to the subject parcel commercial zone classification. Acceptable uses for the commercial zone include retail, food and beverage establishments, offices, automotive sales and service, hotels and motels, storage facilities, wholesale commercial, processing services, light assembly, and

other similar commercial activity. Regulations specific to the Scenic Corridor Combined Zone are limited to the consideration of design review guidelines specified in Chapter 19.50 of the City of Plymouth Municipal Code.

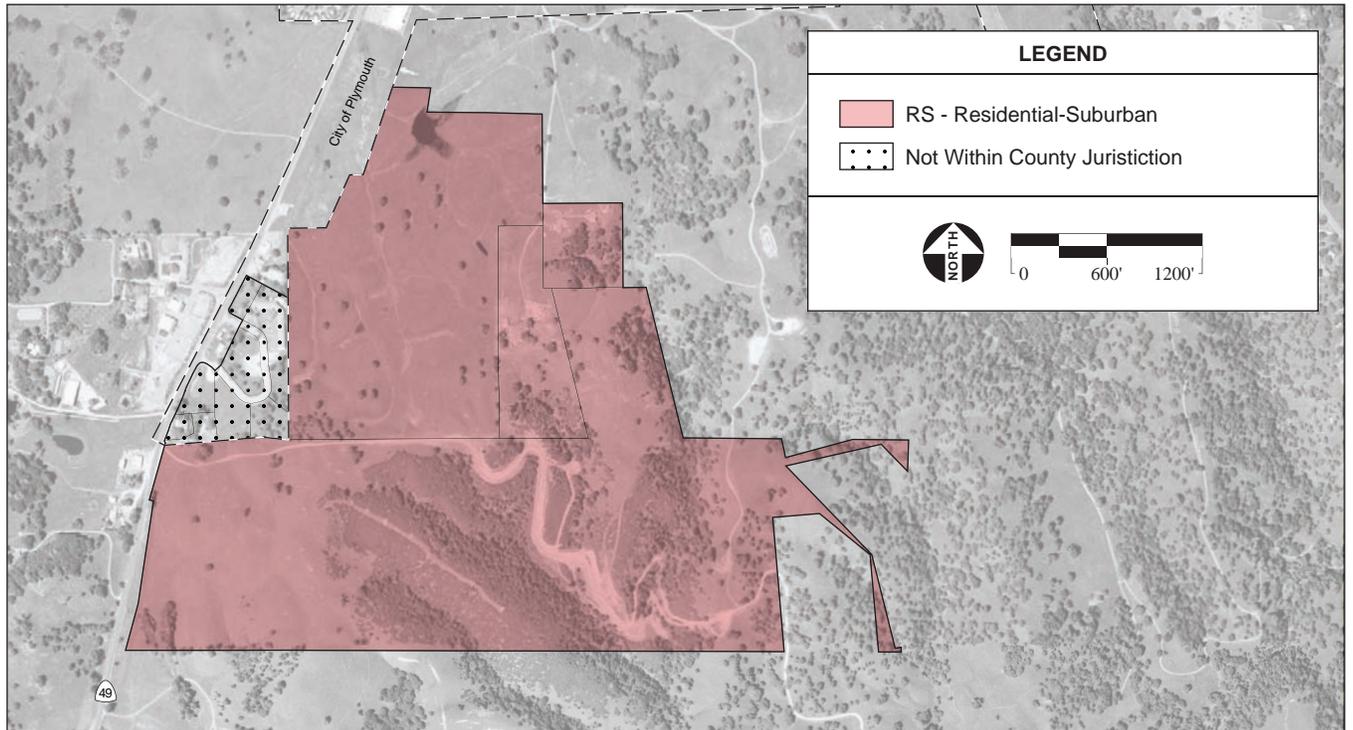
**Parcel #10** is a 1.56± acre City parcel located north of Parcel #1 and east of Parcel #9. No urban features or land uses exist on Parcel #10. The topography of the area is primarily flat with an easterly upward-sloping hillside. Access to this parcel is provided by an unnamed driveway from SR 49. The City of Plymouth General Plan Land Use Designation and Zoning Designation for this parcel are both Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

**Parcel #11** is a 1.22± acre City parcel located north of Parcel #1, east of Parcel #10, and southwest of Parcel #5. No urban features or land uses exist on Parcel #11. The topography of the area consists of moderately flat terrain with gently rolling hills to the east. Access to this parcel is provided by an unnamed driveway off SR 49. The current City of Plymouth General Plan Land Use Designation and Zoning Designation for this parcel are both Commercial (C) (City of Plymouth). Acceptable uses for this area are described under Parcel #4 (above).

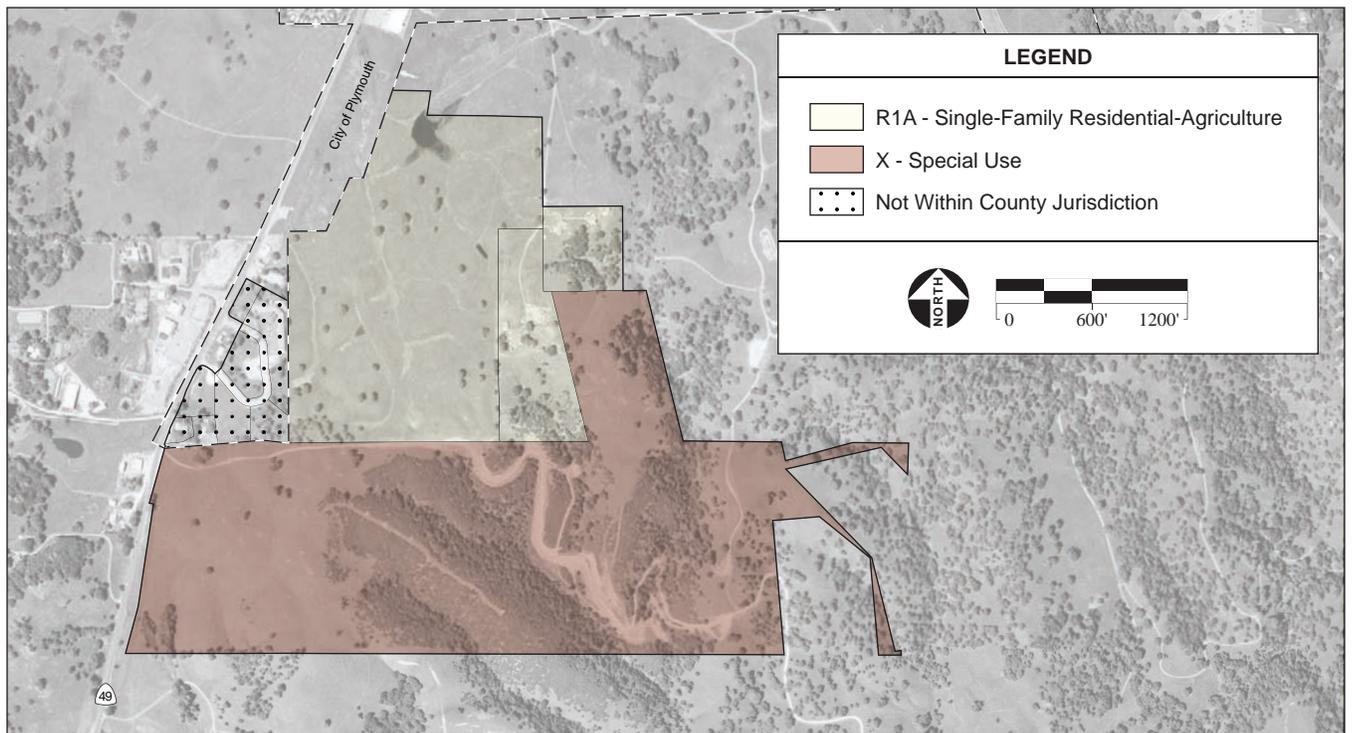
**Parcel #12** is a 12.12± acre parcel located within unincorporated Amador County. Parcel #12 borders Parcel #3 on the east, with the majority of Parcel #12 being undeveloped grassland. A small single-family residence is located in the central part of the property atop a gently sloping hill, with a portion of the property being used to raise horses. The topography of the site consists of gently rolling hills, with a steep east-trending slope located at the back of the single-family home. Access to this parcel is from the north along Bush Street. Parcel #12 is zoned Single-family Residential-Agriculture (R1-A) by Amador County, which allows one dwelling unit per five acres. The current Amador County General Plan Land Use designation for this parcel is Residential-Suburban (R-S), which allows for low-density residential uses in suburban areas not served by domestic water and sewer services or other urban services (County of Amador, 1967). Allowed density of the R-S designation is one single-family unit per acre.

#### ***LOCAL POLICY DOCUMENTS***

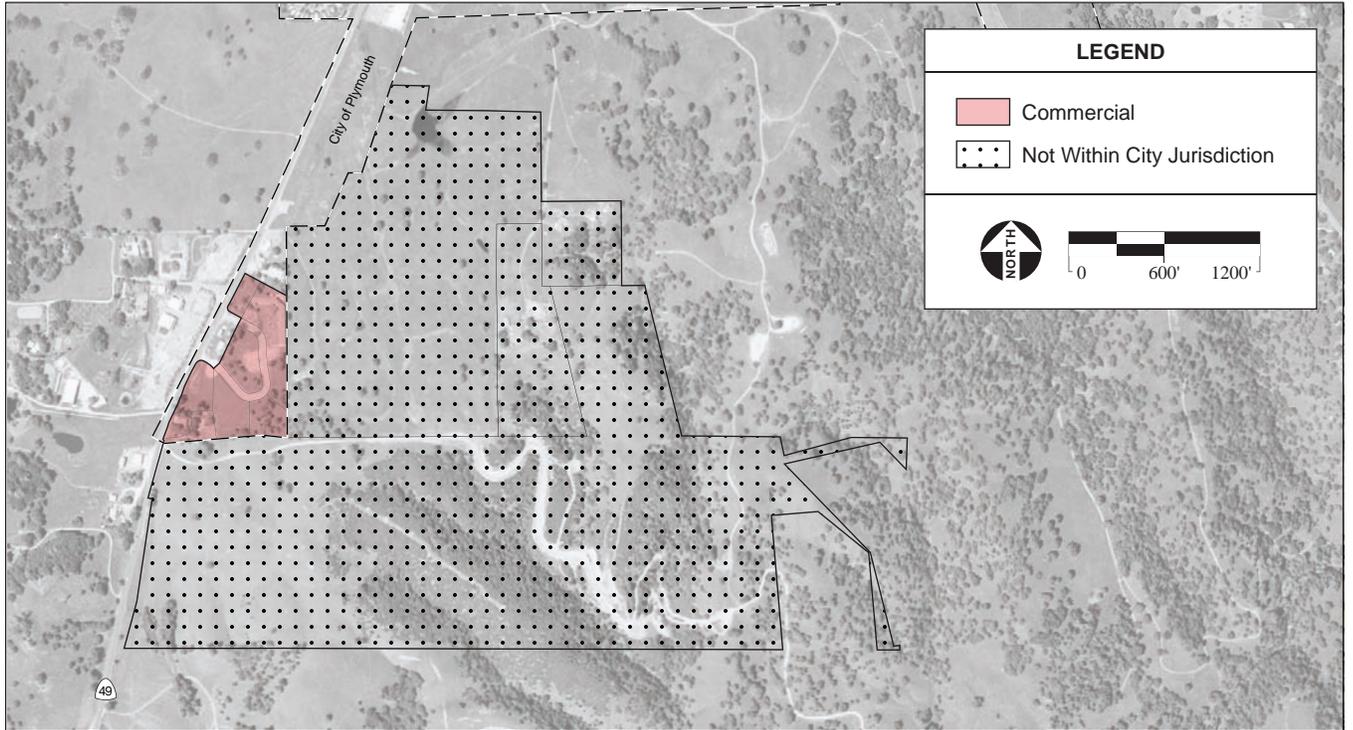
Currently, Parcels #1 through #3 and Parcel #12 fall under the jurisdiction of Amador County. As such, Land Use planning is guided by the 1967 Land Use Element of the Amador County General Plan, amended in 1973, and the 1962 Amador County Zoning Plan, amended in 2002. Parcels #4 through #11 are under the jurisdiction of the City of Plymouth. The 2001 City of Plymouth General Plan and Zoning Ordinance of the Plymouth Planning Code guides Land Use planning for these parcels. County and City zoning and Land Uses are identified in **Figures 3.8-2 and Figure 3.8-3**.



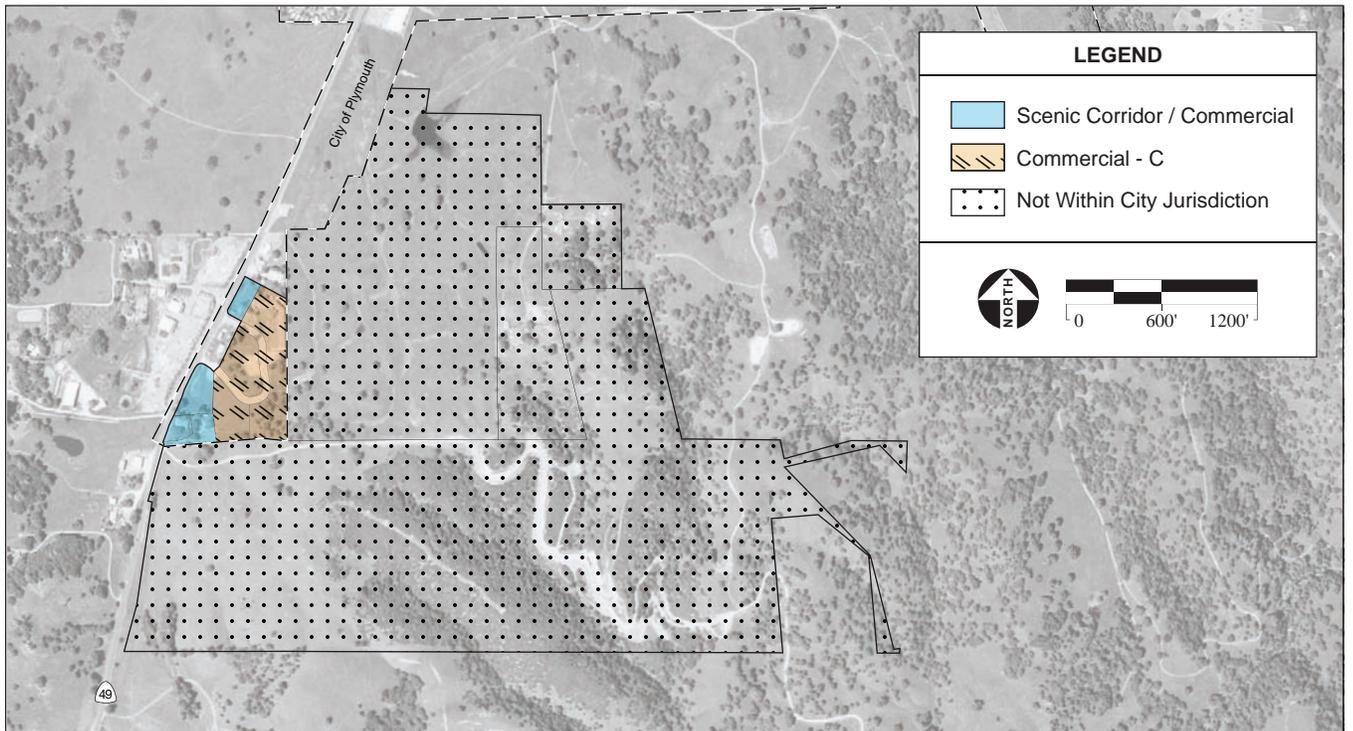
**AMADOR COUNTY - GENERAL PLAN LAND USE DESIGNATION**



**AMADOR COUNTY - ZONING**



**CITY OF PLYMOUTH - GENERAL PLAN LAND USE DESIGNATION**



**CITY OF PLYMOUTH - ZONING**

**City of Plymouth General Plan**

Parcels #4 through #11 are currently under the jurisdiction of the City of Plymouth. The City of Plymouth General Plan, 1986, amended September 2001, currently guides Land Use planning for these parcels. The Housing Element of the Plymouth General Plan was amended in December of 2004. The General Plan Land Use designation for the project parcels described above is Commercial (C). The City of Plymouth describes the (C) designation as follows:

*The C [Commercial] designation indicates areas where a broad range of light and heavy commercial activities would be desired. Types of uses being considered as commercial for the purposes of this designation include retail sales, eating and drinking establishments, professional or business offices, automotive sales and service, hotels and motels, storage, wholesaling, processing services, light assembly, and similar developments or activities that would normally be considered “commercial” activity.*

*Commercial areas are so designated in order to continue the economic well being of the City and enhance the City’s position as a commercial center of the County. Established commercial areas should provide a range of service which meet resident needs (provide variety) and interest to visitors, recognizing the importance of the tourist industry and be protected from the encroachment of incompatible land uses, which would be detrimental to existing land use. Developing commercial areas should compliment – functionally and visually – existing commercial areas.*

*Minimum parcel size shall be 6,000 square feet and building coverage may be 80 percent (City of Plymouth, 2001).*

**Applicable Goals and Policies**

Through consultation with City of Plymouth planning staff, the following specific goals and policies were identified in **Table 3.8-3** as currently applicable to the project site (City of Plymouth, 2007):

**TABLE 3.8-3**  
CITY OF PLYMOUTH GENERAL PLAN POLICIES

<b>Land Use Element: Goals and Policies</b>	
<b>Section</b>	<b>Goal or Policy</b>
<b>Goal</b>	Provide for a balanced and effective arrangement of Land Uses while maintaining the rural atmosphere, quality of life and separate identity of the City.
<b>Goal</b>	Achieve an orderly and efficient pattern of community development consistent with economic, social, and environmental needs.
<b>Goal</b>	Provide for a diversified economic base with a range of employment opportunities for all residents.

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**Land Use Element: Goals and Policies**

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Section	Goal or Policy
Goal	Revitalize the downtown as the heart of the City.
Goal	Coordinate land and transportation planning measures / actions to foster reduced dependence on the automobile and increased opportunities for alternative modes of travel.
Goal	Provide adequate levels of public service in logical increments.
Goal	Plan for diverse educational opportunities and adequate school facilities.
Goal	Preserve and enhance the historical and cultural resources of the area.
Policy	Ensure that City Council and Planning Commission Land Use decisions are consistent with the General Plan.
Policy	All areas of the City shall have all necessary service available and proper access to circulation routes.
Policy	Maximize opportunities to bring out-of town dollars into the community.
Policy	Actively promote business development activities that will generate local employment opportunities and help diversify the local economy.
Policy	Protect areas designated for business use from encroachment by non-commercial activities.

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**Circulation Element: Goals and Policies**

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Section	Goal or Policy
Goal	Develop and maintain a safe and efficient transportation system.
Goal	Implement physical and operational capacity improvements to improve existing problems and support the planning and design of improvements to accommodate future travel demands.
Goal	Implement planned improvements to accommodate future travel demand.

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**Housing Element: Goals and Policies**

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Section	Goal or Policy
Policy 1.3	The City shall ensure that adequate infrastructure and public services are available prior to approval of developments projects within the City.
Goal 2.5.1	A balanced residential environment with access to employment locations, community facilities, and adequate services.

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**Conservation and Open Space Element: Goals and Policies**

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Section	Goal or Policy
Policy	Preserve critical wildlife habitats, which enhance a rural atmosphere for present and future residents of Plymouth.

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**Noise Element: Goals and Policies**

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Section	Goal or Policy
Goal	Achieve and maintain ambient noise levels that preserve the quiet rural atmosphere of Plymouth.
Policy	Protect and regulate existing ambient noise levels in rural and quiet areas.

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**Land Use Element: Goals and Policies**

Section	Goal or Policy
<b>Policy</b>	Protect against vibration and nuisance noise.

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**Safety Element: Goals and Policies**

Section	Goal or Policy
<b>Goal</b>	Provide a safe and hazard free environment for the citizens of the City.
<b>Policy</b>	Consider the imposition of impact fees or other acceptable measure upon new residential, commercial, industrial, or other developments for the purpose of mitigating the development impact upon public services or facilities.
<b>Policy</b>	New development will be required to accurately identify any significant increase to natural surface water flow and sewage flow and address on and off-site impacts created by such flows.
<b>Implementation</b>	Obtain resources for assuring adequate citywide water quantity and pressure through grant or loan funding and/or impact fees, benefit assessments or other local funding sources.

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***Zoning Ordinance of the City of Plymouth***

Section 65860 of the California Government Code requires that City Zoning be consistent with General Plan designations. The zoning ordinance of the City of Plymouth provides “day-to-day” implementation and enforcement of city land development requirements (City of Plymouth, 1993). All of the project parcels which fall under the jurisdiction of the City of Plymouth are zoned commercial. Acceptable uses for the commercial zone include retail, food and beverage establishments, offices, automotive sales and service, hotels and motels, storage facilities, wholesale commercial, processing services, light assembly, and other similar commercial activity.

Four of the eight project parcels located within the City of Plymouth are within the Scenic Corridor Combined zone classification, as shown in **Figure 3.8-3**. Generally, the Scenic Corridor Combined Zone includes all parcels that are zoned commercial, industrial, or light industrial and adjacent to the SR 49 right of way. In the case of the project site, four project parcels are zoned commercial and within the Scenic Corridor (SC) Combined Zone. The Scenic Corridor Combined Zone was established to preserve the visual character and preserve the historical image of development within the SR 49 corridor. All uses that are allowed in the regular zone with which the SC zone is combined are allowed. Regulations specific to the Scenic Corridor Combined Zone are limited to the consideration of design review guidelines specified in Chapter 19.50 of the City of Plymouth Municipal Code.

***Amador County General Plan***

The County’s General Plan is a long-term policy guide for the growth and development of Amador County. The General Plan was designed to provide a “comprehensive, long term plan for the physical development of the planning area.” Generally, Amador County consists of small rural and semi-rural communities with populations not larger than 8,000 people. All parcels

under the jurisdiction of Amador County within the project site are designated as Residential Suburban (R-S) by the County General Plan Land Use Element. The R-S designation generally allows for low-density residential uses in suburban areas not served by domestic water and sewer services or other urban services. **Table 3.8-4** below shows the specific goals and policies currently applicable to the project site.

**TABLE 3.8-4**  
**APPLICABLE COUNTY OF AMADOR GENERAL PLAN POLICIES**

<b>Land Use Element: Urban and Suburban Classifications</b>	
<b>Section</b>	<b>Policy</b>
1.a. Residential Suburban (R-S)	This classification is applied to lands best suited to low density residential uses in suburban areas not serviced by both domestic water and sewer systems, or by various other urban services.
<b>Scenic Highways Element: Implementation Policies and Issues</b>	
<b>Section</b>	<b>Policy</b>
6. Background and Purpose	The California Streets and Highways Code has listed portions of two state highways in Amador County as being eligible for official designation as scenic highways, one of which is relevant to the Proposed Project and Alternatives: <ol style="list-style-type: none"> <li>The entire length of State Highway 49 between the El Dorado County line and the Calaveras County line.</li> </ol>
<b>Scenic Highways Element: Implementation Policies and Issues</b>	
<b>Section</b>	<b>Policy</b>
b. Regulations-Generally	<ol style="list-style-type: none"> <li>Notwithstanding the provisions of any other general plan element classification which may be within a scenic highway corridor, the following zone districts are the only ones which may be found to be consistent with the scenic highway corridor overlay: "R1A", "TPZ", "AG", "PD".</li> <li>All Development projects submitted to Amador County which are proposed to be located partially or wholly within the scenic highway corridor shall be submitted for review and comment to the Tri County Technical Advisory Committee so long as it may be in existence. These projects shall include but not be limited to building permits, commercial recreation, or other use permits, land divisions, rezones, variances, grading permits, advertising signs and structures etc.</li> <li>The California Public Utilities Commission requires under grounding of utilities "within 1,000 feet from each edge of the right-of-way of designated State Scenic Highways" and "...which would be visible from such scenic highway if erected above ground..." This state requirement will protect scenic highways from the intrusion of unsightly utility uses, such as poles, lines, etc.</li> <li>In conjunction with existing policies 13 and 16 of the Land Use Element, non-appurtenant outdoor advertising structures (billboards) shall not be permitted in the scenic highway corridor. Appurtenant or on-site advertising structures, shall be considered as permits requiring County review and approval prior to erection.</li> </ol>
c. Regulations-Site Specific	<ol style="list-style-type: none"> <li>The exterior colors of the sides and roofs of structures and sign supports shall not contrast with natural colors in the area. Colors of supports shall not contrast with natural colors in the area. Colors of stains, paints or finished building materials shall be shown to harmonize with the forest setting or they shall be denied. In general, natural "earth tones" and soft shades that will blend with the surroundings shall be required to achieve this harmony. Stains are preferable to paints and natural wood colors are encouraged. Examples of earth tone colors may include by are not limited to neutral or soft browns, redwood, weathered gray</li> </ol>

or gray green, and dark greens. Artists renderings of the proposed colors or actual paint samples shall be submitted as part of the project or permit plans. Roofs and outside trim shall not have colors, which sharply contrast with the colors of the remainder of the structure. County may deny incompatible proposed structural coloring and the County may deny colors found to be inconsistent with the objectives of the Scenic Highway Element

3. Commercial structures shall be restricted to having only two occupancy floor levels. Subsurface basement levels or underground parking shall not be considered an occupancy level. Any requested use permits for excessive building or sign height above the 35 foot building height limitation in the Amador County Code, "R1A" District, will be recommended for denial unless the use permit can be found to be in conformance with the objectives of the Scenic Highway Element.
4. Proposals to cut, fill, or otherwise move more than fifty cubic yards of earth shall require an engineered grading plan to be filed with the Building Department prior to any work taking place. This grading plan shall include a statement as to the effects on off-site drainage. Radical cuts or fills, in the opinion of the County, are contrary to the Goal and Intent for which the scenic highway corridor was adopted may be denoted by the county.

**Scenic Highways Element: Implementation Policies and Issues**

Section	Policy
c. Regulations-Site Specific	<ol style="list-style-type: none"> <li>5. A landscaping plan shall be submitted as part of the application for any project or permittee within the scenic highway corridor. The plan shall include a plot plan showing the location of existing mature trees and shall indicate their ultimate disposition at the completion of the project. The landscaping plan shall indicate where the applicant is proposing to plant vegetation and the type of vegetation. Following review and recommendations from the Tri-County Technical Advisory Committee the county may require landscaping as a condition of project or permit approval. The County may require the retention of mature trees where it can be found that their removal is not essential to the construction of the project or permit. Attempts by a property owner to circumvent this requirement by removing trees prior to a project application could result in a much more stringent and expensive landscaping plan being required. As Condition for the approval of a landscaping plan the County may require the planting of native species of trees and shrubs to ensure high survival rates and low maintenance. "As good or better" landscaping proposal submitted by the applicant may be approved in lieu of native species.</li> <li>7. A parking plan shall be submitted with all commercial use applications to the County. Minimum parking requirements shall be one space per 200 feet of floor area for all commercial uses. Parking spaces and access driveways</li> </ol>

**Amador County Development Policy Statement**

Section	Policy
13.	The system of parkways and scenic roads and highways shown on the General Plan maps will receive special protection against future incompatible development and no proposed billboards, trailers, open cut mining, or clear-cut timber operations within sight distance of such roads will receive county approval. The location of overhead utility lines will be discouraged whenever practicable or feasible. All routes for utility transmission lines should be reviewed by the Planning Commission.

**Amador County Development Policy Statement**

Section	Policy
14. Public Lands Policy	<ol style="list-style-type: none"> <li>B. It is the policy of the Amador County Board of Supervisors that the following advance notification referral, coordination and joint participation process shall be adhered to by all federal agencies active in Amador County:               <ol style="list-style-type: none"> <li>1. All federal agencies, to the fullest extent permissible by law, shall inform the County of Amador of all pending, contemplated, or proposed actions affecting</li> </ol> </li> </ol>

local communities, citizens, or affecting County policy, and shall, if requested by the County, coordinate the planning and implementation of those actions with the County. Such notification shall include, as soon as information is available, a detailed description of the proposed plan, procedure, rule, guideline, or amendment sufficient to fully inform lay persons of its intent and effects including the effects on the customs, culture, economy, resources, and environmental of the County of Amador as defined and described in the following subsections of this general plan. Such notification shall include a report on the purpose, objectives, and estimated impacts of the proposed action on Amador County and its citizens. These reports shall be provided to the County of Amador for review and coordination with sufficient time to prepare a meaningful response by the federal agency proposing the action.

2. All federal agencies shall, to the fullest extent permissible by law, comply with all applicable procedures, policies, and practices issued by the State of California and the County of Amador.

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**Scenic Highways Element: Implementation Policies and Issues**

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Section	Policy
	<ol style="list-style-type: none"> <li>3. All federal agencies shall, to the fullest extent permissible by law, comply with all applicable procedures, policies, and practices issued by the State of California and the County of Amador.</li> <li>4. Notification of the availability of related documents shall be available for the minimum time set forth by the federal statute for such review or, if none is established by law, for a period of not less than 45 days prior to the proposed date of action, adoption, or approval. Any proposed substantive revisions to any proposed actions shall be processed in the same manner and given the same notification as the original proposal.</li> <li>5. Any citizen or group claiming to be affected by and pending, contemplated, or proposed action of any federal agency where the decision or comments upon the action is within the purview of the Board of Supervisors is encouraged to present relevant information to the Board.</li> <li>6. The Board of Supervisors may hold hearings on any proposed federal action and may designate staff to receive, review, and comment upon the pending, contemplated, or proposed action on behalf of the Board.</li> <li>7. The Board of Supervisors may decide to seek whatever remedy is open available to the County to protect the best interests of the County and its citizens against federal actions which could adversely affect the custom, culture, economy, resources, and environment of Amador County.</li> <li>8. Whenever any federal agency proposed to take any action, including the formation of any policy, which will affect Amador County, the Board of Supervisors may request that the federal agency enter into a memorandum of understanding with the Board so that said federal agency shall act in accordance with this resolution. It shall be the policy of the Board of Supervisors to enter into MOU's with federal agencies that the County deals with on a regular basis.</li> </ol>
16.	Billboards along the highways will be restricted in size and number, prohibited in scenic areas (which includes most rural areas of Amador County) and confined to commercial or industrial zones.

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SOURCE: County of Amador, 1967

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***Amador County Zoning Plan – Title 19***

Title 19 of the Amador County Code, the Zoning Plan, regulates Land Use and development of land within the unincorporated areas of Amador County. Currently, Parcels #1 through #3 and Parcel #12 fall under the jurisdiction of Title 19 of the Amador County Code.

Parcels #2, #3 and #12 are zoned Single Family Residential Agricultural District (R1-A) by the County of Amador. The R1-A classification is applied to lands best suited to low-density residential uses in suburban areas not served by both domestic water and sewer systems, or by various other urban services. Appropriate uses are single family residential, agricultural and schools, parks, etc. **Table 3.8-4** shows the specific goals and policies applicable to the project site and the project alternatives. Parcel #1 is zoned Special Use (X). Zoning for this parcel is loosely defined by allowing all uses subject to securing a use permit from the County. This leaves typical development proposals up to the discretion of the County.

As shown in **Figure 3.8-2**, within Amador County, the project site contains two zones: (1) Single-Family-Residential-Agricultural (R1-A) and (2) Special Use (X). These two zones are described below:

**R1-A—Single-Family-Residential-Agricultural**

The Single-Family-Residential-Agricultural allows one dwelling unit per five acres. Minimum structural setback from public roads should be no less than 50 feet from the centerline of any street, highway, or road. The height of any structure is limited to 35 feet, unless otherwise indicated in an approved permit (Amador County, 1985).

**X—Special Use**

The Special Use zone allows all uses allowed by law subject to securing a use permit. The minimum front setback should not be less than fifty feet from the centerline of any street, highway, or road. Building height and side and rear setbacks should be specified in the use permit (Amador County, 1985).

**3.8.3 AGRICULTURE**

The Natural Resource Conservation Service (NRCS) categorizes farmland in a number of ways. These categories include prime farmland, farmland of statewide importance, and unique farmland. Prime farmland is considered to have the best possible features to sustain long-term productivity. Farmland of statewide importance includes farmland similar to prime farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Unique farmland is characterized by inferior soils. This land generally needs irrigation depending on climate. These designated farmlands must also have been in production four years prior to the

mapping date. Consultation with the NRCS showed that there are no prime farmlands, unique farmlands, or farmlands of statewide importance on the project site (**Appendix N**).

The California Land Conservation Act (LCA) of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Parcels containing a Williamson Act Contract cannot change from an agricultural Land Use unless a timely process is initiated. There are active Williamson Act Contracts on the adjacent parcels located south of the project site as well as due east of the project site.

#### **3.8.4 OTHER RESOURCE USES**

The project parcels are not used for hunting, fishing, gathering, timber harvesting, or other resource-related activities. Historically, extensive mining operations have taken place locally. On-site mining debris indicates that mining activities have taken place on Parcels #1 and #2. However, as described in **Section 3.2**, there are no active mining operations on any of the proposed fee-to-trust parcels.

## 3.9 PUBLIC SERVICES

This section describes the existing environmental conditions of public resources for the proposed Amador County project site. Topics include municipal water supply, municipal wastewater treatment and disposal, solid waste disposal, telecommunications, natural gas, electricity, and public health and safety (police, fire, and emergency medical services). The general and site-specific profiles of Public Services contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

### 3.9.1 MUNICIPAL WATER SUPPLY

The City of Plymouth (City) provides water to residences, commercial enterprises, multifamily units, institutional operations, and the Amador County Fairgrounds. The City receives surface water via the Arroyo Ditch and groundwater from several wells. In 1987, the Arroyo Ditch, which diverts water from the middle fork of the Cosumnes River, was purchased from Amador County and the Amador Water Agency (AWA) to serve as a peak-use water source for the City. Surface water from the Arroyo Ditch and groundwater from City wells are treated at the City's water treatment plant (WTP), which includes a low press, multi-media filter and chlorination system. The City contracts with the AWA for the operation and maintenance of the WTP. However, surface water is only used during peak times, and is not a primary source of potable water. The City has a five hundred thousand-gallon storage tank to meet existing requirements for the City, but does not provide sufficient capacity for future City growth. This water supply nearly meets existing average day demands of 205 gallons per minute (gpm), but does not meet existing summer or maximum day demands of over 450 gpm.

In 1987, the California Department of Health Services concluded that the City was not capable of providing adequate water supplies to its residents. As a result, a moratorium was placed on all new development within the City. A new well source was constructed in 1988, resulting in a partial lift of the moratorium in 1990 and the issuance of approximately 50 new residential building permits (County of Amador, 2004). The City is not allowed to permit any development that would require new water connections established, and although the City has an approximate capacity for 50 permitable connections, because of an existing cease and desist order related to wastewater disposal, the City is currently not allowed to issue permits (Howell, pers Comm. 2008). To identify a secure and reliable cost-effective supply of treated drinking water to allow for the City's General Plan build-out, the City contracted with the Amador Water Agency to construct a pipeline from their Tanner WTP to the City storage tanks, located at the eastern edge of the City.

The AWA diverts water from the Mokelumne River at Lake Tabeaud under a 1985 agreement with Pacific Gas and Electric (PG&E) entitling AWA with up to 15,000 acre-feet of water per year, at a rate up to 30 cubic feet second (cfs). The Plymouth Pipeline will convey treated water

approximately 11 miles from the AWA's Tanner WTP to the City's existing potable water storage tank. To convey the water supply the pipeline project will construct an approximately 8.5-mile pipeline and connections to existing AWA water lines.

### **GROUNDWATER**

Department of Water Resources (DWR) Well Completion Reports (DWR Well Logs) for water supplies within a two-mile radius of the Project Site were reviewed. Based on the well logs, it was determined that approximately 36 domestic water-producing wells are located within Watershed 2, which encompasses most of the City (**Figure 3.3-1**). There are approximately 96 wells located within the western end of Watershed 1 (**Figure 3.3-1**). These wells vary in depth from approximately 80 feet to 500 feet, with static water levels ranging from 14 feet to over 200 feet. The majority of the wells are located on the western half of the City. Only two domestic wells within the City produce water at a rate greater than 200 gpm. These wells vary in depth from less than 100 feet to over 800 feet. Approximately 50 percent of the wells are reported to produce greater than 50 gpm.

Three existing on-site wells (M1, H1, and H2), an on-site cistern, and two off-site wells (M3, M4) have been evaluated for project water supply. Their locations are shown in **Figure 3.3-4**. Of these wells, pumping tests were performed on M1, M3, and H1 to determine firm yield. The pump testing methods included step-drawdown tests, constant rate tests, constant yield/drawdown tests, and recovery tests. **Table 3.9-1** presents the recommended long-term well yields based on the pumping tests. A copy of the report on the pumping tests and water quality analysis is included as **Appendix C**.

**TABLE 3.9-1**  
RECOMMENDED LONG-TERM WELL YIELDS <sup>a</sup>

<b>Well</b>	<b>Lower Limit</b>	<b>Upper Limit</b>	<b>Recommended Long-Term Well Yields</b>
<b>M1</b>	8.5	12.1	10
<b>M3</b>	31.9	45.6	37
<b>H1</b>	28.5	40.7	34
<b>Recommended Yield</b>	<b>68.9</b>	<b>98.4</b>	<b>81</b>

NOTES: <sup>a</sup> All values shown in gallons per minute (gpm)  
SOURCE: HSE, 2004; AEG 2004; AES 2005

### **3.9.2 WASTEWATER SERVICE**

#### ***EXISTING FACILITIES***

The City owns and operates a wastewater treatment plant (WWTP) located off Old Sacramento Road, approximately two miles west of downtown Plymouth. The City's WWTP consists of an aerated facultative pond, two polishing ponds, chlorination facilities, and a 185-acre-foot unlined effluent storage reservoir. The WWTP has a design capacity of 170,000 gallons per day (gpd). Wastewater is treated to disinfected, secondary-treated recycled water levels in accordance with California Title 22 recycled water guidelines. Disinfected, secondary-treated recycled water may be used to irrigate recreational areas where people will not come in direct contact with the water, crops where the edible portion will not come in contact with the water, and areas of general disposal where persons will not come in direct contact with the water. The WWTP receives an average daily flow of 97,000 gpd from 346 residential connections, 28 commercial connections, 20 community connections, the Far Horizons 49er Village connection, and the connection from the Amador County Fairgrounds. The highest recorded inflow event (wet season) was 560,000 gpd.

For disposal of the effluent produced at the City WWTP, the City owns approximately 125 acres of land located approximately one mile west up Old Sacramento Road. Wastewater is disposed to approximately 85 of the 125 acres by spray irrigation. The spray fields have a disposal capacity (which would entail using all 125 acres as spray fields) of 180,000 gpd.

The WWTP has a history of violating Waste Discharge Requirements (WDRs) approved by the Central Valley Regional Water Quality Control Board (CVRWQCB), which limit operation and disposal parameters of the WWTP to protect water quality in the region. Previous violations by the City's WWTP include discharge of waste into surface water features, disposal of treated effluent at the spray fields during the winter season, dissolved oxygen concentrations below the minimum 1.0 mg/l requirement in the treatment ponds, ammonia as nitrogen levels above the treated effluent maximum requirement, and failure to submit various required reports. The violations resulted in an Administrative Civil Liability Complaint from the Board, which included a \$20,000 penalty. The violations are a result of insufficient sizing and/or design of the wastewater treatment process, effluent storage reservoir, and spray field areas (CVRWQCVB, CDO NO. R5-2005-0006). The City has begun submitting the required reports requiring the entire system to be updated in order to not only meet existing inflow demands on the system, but to also meet growth expectations once the Plymouth Pipeline Project is completed, which would remove the moratorium on growth in the City's sphere of influence.

### **3.9.3 SOLID WASTE SERVICE**

The Amador Disposal Service, which is a subsidiary of Waste Connections, Inc., provides solid waste collection services to Plymouth residents. Waste that is collected is separated at a material recovery facility (MRF) in Ione (CIWMB, 2004). The Western Amador Recycling Facility

(WARF), located at 6500 Buena Vista Road, is located approximately 20 miles south of the project site. The WARF consists of the closed Buena Vista Landfill, Amador Disposal Service's administration building and equipment and storage area, and an abandoned vehicle storage yard (Amador County, 2003). The WARF is classified as a large-volume transfer/processing facility with a permitted throughput of 152 tons per day; it currently has an average daily throughput of 72 tons per day (CIWMB, 2006). The two-acre facility accepts agricultural waste, construction/demolition waste, industrial waste, mixed municipal waste and tires (CIWMB, 2004).

The WARF received solid waste from the entire county prior to the closing of the Buena Vista Landfill on April 1, 2004 (Amador County Public Works, pers comm, 2004). Currently, waste is routed to the Forward Landfill in Manteca, San Joaquin County. The Forward Landfill is located on 567 acres (354.5 disposal acres) approximately 45 miles southwest of the project site and 34 miles southwest of the WARF. The Forward Landfill is classified as a solid waste disposal facility with a permitted capacity of 8,668 tons/day, with an average day receiving rate of 5,417 tons. The landfill has a permitted capacity of 51 million cubic yards and can accept construction/demolition waste, asbestos, agricultural waste, contaminated soils, mixed municipal waste, industrial, green materials, tires, shreds, ash, and other designated waste and sludge (biosolids). The estimated closure date for this solid waste landfill is September 2017 (CIWMB, 2008).

The Sacramento County Landfill (Kiefer Landfill) is located 20 miles west of the project site. The Kiefer Landfill is located at 12701 Kiefer Boulevard in Sloughhouse on 1,084 acres (660 disposal acres). The Kiefer Landfill is classified as a solid waste disposal facility with a permitted capacity of 10,815 tons/day, with an average day receiving rate of 2,050 tons/day. The landfill has a permitted capacity of 117 million cubic yards and can accept construction/demolition waste, mixed municipal waste, and other designated wastes and sludge (biosolids). The estimate closure date for the Kiefer Landfill is January 2064 (CIWMB, 2004).

### **3.9.4 ELECTRICITY, NATURAL GAS AND TELECOMMUNICATIONS**

#### ***ELECTRICAL AND GAS SERVICES***

Pacific Gas & Electric (PG&E) provides electrical power to the majority of Amador County, including the City. PG&E currently maintains a 12-kilovolt substation on the corner of Main Street and Shenandoah Road that serves an area from Plymouth to Sutter Creek. Overhead PG&E utility lines are located adjacent to the project site and on the project site to serve the existing homes and the Shenandoah Inn. PG&E does not provide natural gas in the area. However, Plymouth-area residents store and use propane made available through a number of suppliers in the County, including Suburban Propane, Amador Propane, First Propane of Amador, Golden State Propane, Kamps Propane, AAA Propane, and First Propane Franchising Inc (City of Plymouth, 2001).

### **TELECOMMUNICATIONS**

Southern Bell Communications (SBC) provides telephone service in the City .

An AT&T wireless telecommunications tower is located on the east side of town and provides cell phone coverage to the City (City of Plymouth 2001).

### **3.9.5 PUBLIC HEALTH AND SAFETY**

#### **LAW ENFORCEMENT**

The Amador County Sheriff's Office (ACSO) and jail renovation project was completed in June 2004. The project added 4,190 square feet of space for administrative services and renovated the jail by 1,298 square feet (Amador County, 2004). The ACSO is currently adding to the office space in the administrative wing of the main Sheriff's Office in Jackson. According to the Sheriff, the jail is continually over capacity by ten to fifteen percent. However, the above-mentioned expansion did not include an increase of holding capacity and there are no plans in process to increase holding capacity (ASCO, 2004a) (**Appendix L**).

The City disbanded its two-person police department in 1985 in response to statewide difficulties with liability insurance coverage. Law enforcement within the City is now provided through a Law Enforcement Services Agreement (LES Agreement) with the County of Amador, whereby the ACSO provides general law enforcement services to the City, including traffic-related enforcement services. Funding to the ACSO from the City is provided by a grant from the State of California Citizen Option's for Public Safety (State COPS) program. The LES Agreement terminates 45 days after gaming compact is signed by the Tribe and approved by the Secretary of the interior or after the land is taken into trust by the BIA, whichever occurs first. If neither occurs, the LES Agreement remains in effect until June 30, 2010.

The nearest station is located in the fire station on Sherwood Street in Plymouth. A total of three deputies use this facility, which consists of one desk, one filing cabinet and a telephone. The main office and jail for the ACSO is located at 700 Court Street in Jackson, approximately fourteen miles from the project site. Response times to the City vary because the grant funding from the City accounts for only one full time equivalent (FTE) deputy. . If a deputy is in the vicinity , response time for both emergency and non-emergency calls can be less than five minutes. However, with the low staffing level, there are periods when no deputies are in the vicinity and response times then average thirteen minutes for emergency calls and 29 minutes for non-emergency calls (ASCO, 2004a) (**Appendix L**).

The California Highway Patrol (CHP) provides traffic enforcement services to the project area from a main office located at 301 Clinton Road in Jackson. The CHP provides traffic enforcement services to all of the unincorporated areas of Amador County out of the Jackson office. The office is staffed with 21 officers and three Sergeants on three shifts: Shift A, B & C. The A Shift is from 5:45am to 2:15pm, and consists of seven officers on duty with a deployment

of 3-4 officers with one person per car. The B Shift is from 1:45pm to 10:15pm, and also consists of seven officers on duty with a deployment of 3-4 officers with one person per car. The C Shift is from 7:30pm to 4:00am and consists of four officers on duty with a deployment of 1-4 officers with one to two people per car. One car is on duty between the end of the C Shift at 4:00am and the beginning of the A Shift at 5:45am (Knudsen, pers. comm., 2004).

The Amador County District Attorney's (DA's) Office provides the City with investigation and prosecution of crimes committed within the County. The office also supervises the Public Conservator and Public Administrator Offices. According to the District Attorney, the offices provide attorney services, investigative services, clerical services, and victim/witness services (ACDA, 2004) (**Appendix L**).

Attorney services provided by the Amador County DA's office include performing a review of cases, reviewing discovery information and making charging decisions. The DA's office is also responsible for filing criminal complaints and subpoenaing witnesses. The DA's office researches and prepares all written motions and prepares for preliminary hearings and trials including parole hearings. The DA's office communicates and attends meetings with law enforcement agencies, the defense counsel and witnesses. The DA's office conducts public outreach on public safety issues and provides research and legal advice for Grand Jury and other agencies. According to the Amador County District Attorney, a typical motion takes about 1 hour to argue, and 5-7 hours to research and prepare. A typical preliminary hearing, while lasting 1-2 hours, will have taken 5-7 hours of preparation time. A typical trial will last 1-2 days and take 20-30 hours of preparation time (ACDA, 2004) (**Appendix L**).

The elected District Attorney and six Deputy District Attorneys staff the office. The DA and the Chief Staff Attorney handle primarily administration, policies and procedures, personnel issues, Grand Jury issues, training, public outreach, budget preparation and management, attorney assignments, criminal and juvenile cases as assigned, and some criminal charging. In the 2003 calendar year, the District Attorney's Office received 1,098 felony referrals, 2,649 misdemeanor referrals, 1,063 infractions (partial total), and 280 juvenile referrals for a total of 5,090 total criminal referrals. The six Deputy District Attorneys handled an average of 848 criminal referrals apiece during that same year (ACDA, 2004) (**Appendix L**).

Investigative services provided by the DA's office include obtaining copies of video surveillance tapes and audiocassette tapes of interviews and detentions and obtaining copies of photos, police reports and prior criminal records for defendants and witnesses. The DA's office conducts witness interviews and views, collects and reports on physical evidence from a crime scene. The DA conducts public outreach sessions on public safety issues and conducts peace officer training for other law enforcement agencies. The DA's office also provides background investigations for

other County agencies, testifies at motions, preliminary hearings and trials and attends parole hearings and meetings.

According to the DA's Office, investigative staff includes a Chief District Attorney Investigator, Supervising DA Investigator, 10 full-time and four part-time investigators assigned to the Public Conservator's Office, Central Sierra Child Support Office, various grants, child abduction, backgrounds, welfare fraud, prison and Youth Authority crimes, and general criminal investigations. Since not all criminal referrals require investigative services, the District Attorney expressed difficulty in calculating an accurate estimate of the average caseload for the investigators. A rough estimate from the DA's office is that the investigators handled an average of 50-70 referrals a piece in 2003 (ACDA, 2004) (**Appendix L**).

Clerical services provided by the DA's Office include services such as opening, preparing and filing criminal complaints. The clerical services division provides defense discovery, including supplemental discovery and communicates with the Superior Court and law enforcement agencies. Clerical duties include pulling cases for the court calendar, copying or transcribing video and/or audiotapes and typing, copying, and filing any motions. The clerical staff prepares jury instruction packets and verdict forms for trial and subpoenas for motions, preliminary hearings, and/or trials. Other clerical duties include opening and sorting all incoming mail, compiling statistics for cases and organizing case files. According to the District Attorney, clerical staff of the DA's Office includes one Supervisor, six legal secretaries, a legal processing clerk, and a paralegal. The six legal secretaries and the legal processing clerk handled an average of 727 criminal referrals each in 2003 (ACDA, 2004) (**Appendix L**).

Victim/witness services provided by the DA's Office staff typically include meeting with and attending court appearances with the victims and assisting in the coordination of all witness testimony. The division also refers victims to other needed services; assists victims in preparing restraining orders and provides transportation for victims. The office is staffed with 1 full-time Program Manager who serves roughly 300-350 victims and witnesses annually (ACDA, 2004) (**Appendix L**).

### ***FIRE PROTECTION***

The City entered into a contract in February 1999 with the Amador Fire Protection District (AFPD) to receive fire and emergency medical services. The City pays the AFPD approximately \$22,252 a year and provides a fire station located within the City. The AFPD is a regional service provider for fire, rescue and emergency medical services and provides these services to the communities and surrounding areas of Amador Pines, Pioneer, Pine Grove, Pine Acres, Volcano, Martell, Drytown, Willow Springs, Fiddletown, River Pines, and the City. The AFPD is supported by approximately 65 volunteer firefighters who respond to over 1,500 fire and medical emergency calls each year (Amador County, 2003a). There are 13 volunteers assigned to Station

122 and in 2004, personnel responded to 136 calls for service in the City. Of those calls, approximately 70 percent, or 95 calls, were for emergency medical services (City of Plymouth, 2005).

The AFPD serves the community with volunteer firefighters. AFPD is under contract to the City and provides fire protection, fire suppression and emergency response services relating to the protection of lives and property. AFPD Station 122 in the City is approximately one mile from the project site. According to Fire Chief Jim McCart, volunteer recruitment and retention is problematic and current volunteer roster, as well as the very nature of a volunteer system, does not guarantee personnel to respond to each emergency in the numbers needed to mitigate that emergency (AFPD, 2004) (**Appendix L**). The average response time for all emergency and non-emergency AFPD calls is eight minutes<sup>1</sup>. The average response time for service within the City in 2004 was five minutes and 32 seconds. The average personnel turnout for calls occurring within the City in 2004 was 3.2 people. The most common service response is for medical aid related emergencies (AFPD, 2004) (**Appendix L**).

The Insurance Services Office (ISO) Public Protection Classification (PPC) System rating for the AFPD is a 6/8 (AFPD, 2004) (**Appendix L**). The PPC Class is the rating an area receives and this system is used to determine what residents will pay for the fire protection portion of their homeowner's insurance. The best rating is 1 and worst rating is 10. Areas with mixed urban and rural receive two ratings (urban/rural), the first is the urban rating and the second is the rural rating. The Schedule measures the major elements of a fire district or city's fire suppression system. The classification is divided into three major sections: the fire department organization in the area, the water supply in the area, and how fire alarms are received and handled for the community. Water supplies make up 40 percent of the rating, fire department operations account for 50 percent of the rating, and receiving and handling fire alarms accounts for 10 percent of the rating.

The AFPD provides fire and medical protection service to approximately 350 households and businesses within the City from the Plymouth AFPD fire station. Thirteen volunteer fire fighters staff the Plymouth AFPD fire station including one Assistant Battalion Chief/EMT Level 1, two Captains, and ten Fire Fighters. The Sutter Amador Health Center, located at Empire and Locust Street in Plymouth, is the main health care facility available for the City. Medical services are also available in Jackson, including the Amador County Health Department, the Amador County Mental Health Department, the Sutter Amador Hospital, and the American Legion Ambulance Service (City of Plymouth, 2001). Ambulatory and transport services are not provided by the AFPD. These services are provided by various private agencies that serve the Plymouth area (City of Plymouth, 2005).

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<sup>1</sup> Response time standards for fire and EMS calls is 6 minutes for professional fire departments. Response time standards do not apply to volunteer fire departments.

## 3.10 OTHER VALUES

This section describes the existing environmental conditions of other values for the proposed Amador County project site. Topics include noise, hazardous materials, and visual resources. The general and site-specific profiles of Other Values contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

### 3.10.1 NOISE

#### *ACOUSTICAL BACKGROUND AND TERMINOLOGY*

Noise is often defined as unwanted sound. Pressure variations occurring frequently enough (at least 20 times per second) that the human ear can detect are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called hertz (Hz).

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable. Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure) as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness.

#### *NOISE EXPOSURE AND COMMUNITY NOISE*

Community noise is commonly described in terms of the “ambient” noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level ( $L_{eq}$ ) over a given time period (usually one hour). The  $L_{eq}$  is the foundation of the Day-Night Average Level noise descriptor ( $L_{dn}$ ), and shows very good correlation with community response to noise. **Table 3.10-1** contains definitions of acoustical terminology used in this section. **Table 3.10-2** shows examples of noise sources that correspond to various sound levels.

The  $L_{dn}$  is based upon the average noise level over a 24-hour day, with a +10 decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. Additional weight is placed on nighttime readings based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because  $L_{dn}$  represents a 24-hour average, it tends to disguise short-term variations in the noise environment.  $L_{dn}$ -based noise

standards are commonly used to assess noise effects associated with traffic, railroad, and aircraft noise sources.

**TABLE 3.10-1**  
ACOUSTICAL TERMINOLOGY

<b>Term</b>	<b>Definition</b>
A-weighted	The A-weighted sound level has been shown to correlate with subjective responses and two sounds judged to be of similar loudness would produce similar dB(A) values, although their unweighted dB values would vary considerably. The A-weighting compares well with other noise sources. It is, therefore, the most widely used.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of noise.
Decibel or dB	Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 to 10 p.m.) weighted by a factor of 3 and nighttime hours weighted by a factor of 10 prior to averaging.
$L_{dn}$	The 24-hour day and night A-weighted noise exposure level that accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.
$L_{eq}$	The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The $L_{eq}$ is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).
$L_{max}$	The highest root-mean-square (RMS) sound level measured over a given period of time.

SOURCE: Beranek, 1998.

### ***EFFECTS OF NOISE ON PEOPLE***

The effects of noise on people fall into three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction.
- Interference with activities such as speech, sleep, and learning.
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to

measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

**TABLE 3.10-2**  
TYPICAL A-WEIGHTED SOUND LEVELS OF COMMON NOISE SOURCES

Loudness Ratio	Decibels (dBA)	Description
128	130	Threshold of pain.
64	120	Jet aircraft take-off at 100 feet.
32	110	Riveting machine at operator's position.
16	100	Shotgun at 200 feet.
8	90	Bulldozer at 50 feet.
4	80	Diesel locomotive at 300 feet.
2	70	Commercial jet aircraft interior during flight.
1	60	Normal conversation speech at 5 to 10 feet.
1/2	50	Open office background level.
1/4	40	Background level within a residence.
1/8	30	Soft whisper at 2 feet.
1/16	20	Interior of recording studio.

SOURCE: Beranek, 1998.

Human reaction to a new noise can be estimated through comparison of the new noise to the existing ambient noise level within a given environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will likely be judged by the recipients. With regard to increases in A-weighted noise levels, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected.
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause adverse response.

Noise effects on humans can be physical or behavioral in nature. The mechanism for chronic exposure to noise leading to hearing loss is well established. The elevated sound levels cause trauma to the cochlear structure in the inner ear, which gives rise to irreversible hearing loss.

Though it pales in comparison to the health effects noted above, noise pollution also constitutes a significant factor of annoyance and distraction in modern artificial environments:

- The meaning listeners attribute to the sound influences annoyance; if listeners dislike the noise content, they are annoyed.
- If the sound causes activity interference (for example, sleep disturbance), it is more likely to annoy.
- If listeners feel they can control the noise source, it is less likely to be perceived as annoying.
- If listeners believe that the noise is subject to third party control, including police, but control has failed, they are more annoyed.
- The perceived unpleasantness of the sound causes annoyance. What is music to one is noise to another.

Generally, most noise worldwide is generated by transportation systems, principally motor vehicle noise, but also including aircraft noise and rail noise. Poor urban planning may also give rise to noise pollution, since juxtaposition of industrial to residential land uses, for example, often results in adverse consequences for the residential acoustic environment. Besides transportation noise, other prominent sources are office equipment, factory machinery, appliances, power tools, lighting hum, and audio entertainment systems.

Stationary point sources of noise, including stationary mobile sources, such as idling vehicles, attenuate (lessen) at a rate of six to nine dBA per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles, would typically attenuate at a lower rate, approximately four to six dBA.

#### ***NOISE ATTENUATION***

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for hard sites and 7.5 dBA for soft sites for each doubling of distance from the reference measurement. Hard sites are those with a reflective surface between the source and the receiver such as parking lots or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the changes in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface, such as soft dirt, grass or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. Line sources (such as traffic noise from vehicles) attenuate at a

rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans, 1998).

### **REGULATORY ENVIRONMENT**

Noise criteria used in this study include the Federal Highway Administration (FHWA) Noise Abatement Criteria (NAC) for the assessment of noise consequences related to surface traffic. In addition, environmental consequences are also evaluated relative to the change in ambient noise conditions at existing noise-sensitive uses in the project vicinity that would result from the project. These criteria are discussed below.

#### **Federal Noise Abatement Criteria**

The FHWA establishes the NAC for various land uses, which have been categorized based upon activity. Land uses are categorized on the basis of their sensitivity to noise, as indicated in **Table 3.10-2**. The standards and criteria in **Table 3.10-3** which may be considered applicable to this project would be the 67 dBA  $L_{eq}$  exterior noise-level standard for Residences and Motels (Category B) and the 52 dB interior noise-level standard applied to those same uses under Category E.

**TABLE 3.10-3**  
FEDERAL NOISE ABATEMENT CRITERIA

<b>Activity Category</b>	<b><math>L_{eq}</math> (h), dBA</b>	<b>Activity Category Description</b>
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	---	Undeveloped Lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

NOTE: Hourly A-Weighted Sound Level--decibels (dBA)

SOURCE: Federal Highway Administration; 23 CFR, Part 772, Caltrans, *Traffic Noise Analysis Protocol*, 1998.

### **DESCRIPTION OF THE AFFECTED ENVIRONMENT**

The noise environment of the project area is primarily defined by traffic on SR 49. Generally, experienced noise levels from highway traffic decrease as receptor distance from the highway increases. For each doubling of distance from the source, noise levels decrease approximately 3 to 4.5 dBA due to attenuation, which could be greater if barriers come between traffic and the

receptor. To quantify ambient noise levels in the project vicinity, two on-site locations were chosen to conduct 24-hour noise measurements on the following days: Sunday, January 11, 2004 and Monday, January 12, 2004 (**Appendix X**). Site measurement locations are shown on **Figure 3.10-1**. The results of the 24-hour tests are shown on **Figure 3.10-2**. The results are also summarized in **Figure 3.10-3**. As seen in the figures, noise levels at 50 feet from SR 49 average less than 60  $L_{eq}$  at most times and noise levels at 1,000 feet from SR 49 average less than 50  $L_{eq}$  at most times, below the abatement criteria in **Table 3.10-3**.

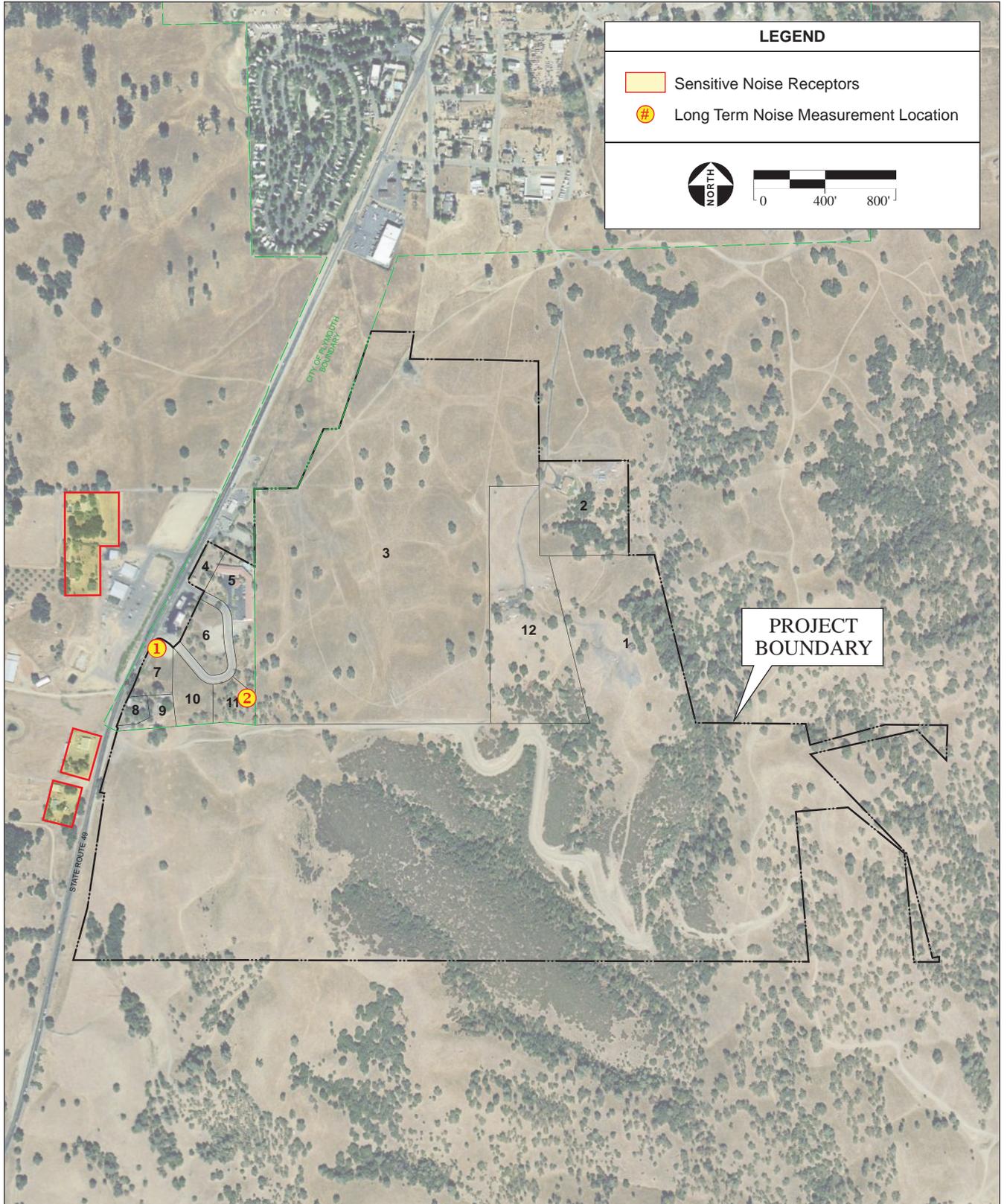
### ***SENSITIVE RECEPTORS***

There is a range of sensitivity to noise levels that varies according to the land use of the receiver of the noise. Sensitive land use areas include picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals. Commercial and industrial land uses are not as sensitive to noise levels. Sensitive land uses near the project site consist of residences to the east of the project site and one residence to the northwest of the proposed main casino but within the overall boundaries of the project site.

The project site is bordered to the east and south by undeveloped land. The land to the west is lightly developed with commercial uses and residences that are approximately 1,000 feet from activity areas on the project site. There is about a 500-foot buffer of undeveloped land between the most northerly part of the project site and the Pokerville Grocery, which is designated as a Commercial land use and not considered a sensitive use. A mobile home court is located across SR 49 (to the west) approximately 45 feet from the Pokerville Grocery. See **Figure 3.10-1**. There are commercial businesses in the vicinity of the project (e.g., gas station and mini mart, restaurants, hardware store, hay and grain store, and a veterinary clinic) but these are also designated as Commercial and are not considered to be sensitive receptors for noise. As seen in **Figure 3.10-1**, the nearest sensitive receptors are west of the project site: two residences adjacent to SR 49 southwest of the project site and one residence to the northwest of the site, about 500 feet from SR 49.

### **3.10.2 HAZARDS AND HAZARDOUS MATERIALS**

A Phase I Site Environmental Site Assessment (Phase I) of the project site was performed in September 2004 and updated November 2008 (**Appendix O**). The purpose of the Phase I is to identify Recognized Environmental Conditions (RECs) and hazardous materials involvement that may pose a material risk to human health or to the environment, or may affect the proposed use of the project site. The Phase I was performed in conformance with the scope and limitations of ASTM Standard Practice E 1527-05, which specifies the appropriate inquiry requirements for the innocent landowner defense under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Notable features and environmental conditions of the project site

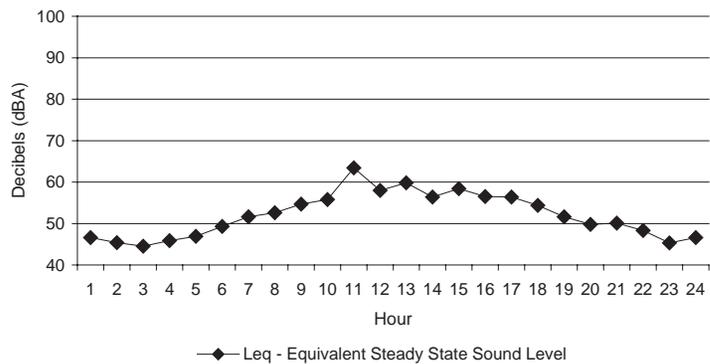


SOURCE: USGS Aerial Photograph, 8/16/1998; AES, 2005

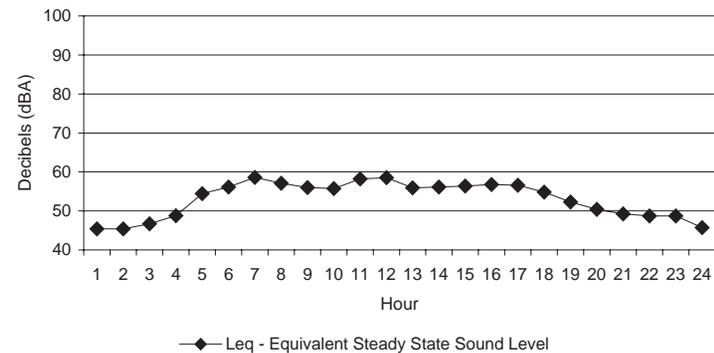
Ione Band of Miwok Indians EIS / 203525 ■

**Figure 3.10-1**  
Sensitive Receptors and Location of Long-Term Noise Measurements

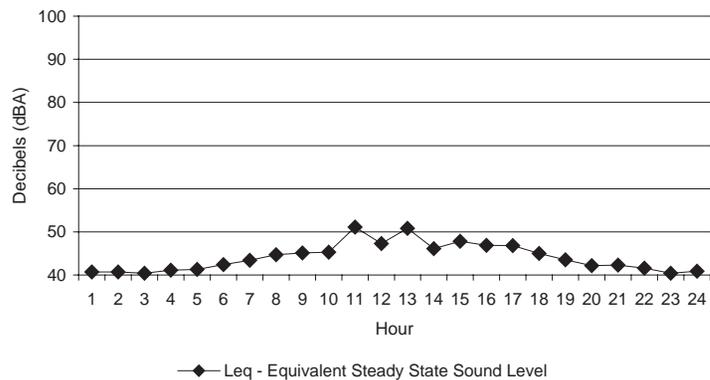
24-hours Noise Measurement  
 Site A - 50' from edge of Hwy 49  
 Sunday January 11, 2004



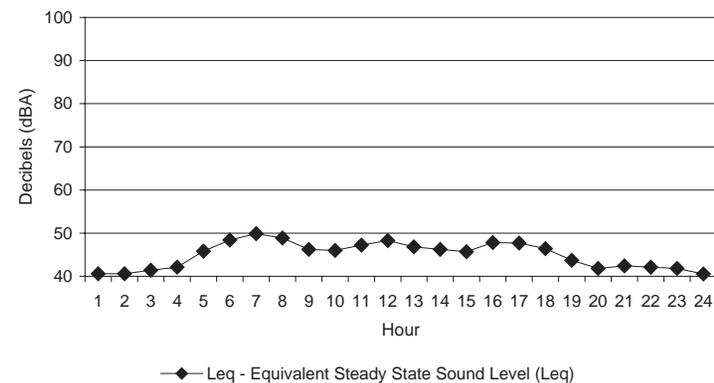
24-hours Noise Measurement  
 Site A - 50' from edge of Hwy 49  
 Monday January 12, 2004



24-hours Noise Measurement  
 Site B - 1,000' east of Hwy 49  
 Sunday January 11, 2004



24-hours Noise Measurement  
 Site B - 1,000' east of Hwy 49  
 Monday January 12, 2004



### EXISTING NOISE MEASUREMENTS

Location	Time Period	L <sub>eq</sub>	Noise Sources & Comments
Location A	24-hour measurements <sup>1</sup> were: <ul style="list-style-type: none"> <li>· Sunday 57 CNEL</li> <li>· Monday 59 CNEL</li> </ul>	44 - 63 (hourly values)	Noise from traffic on Highway 49. Meter is 50 feet from centerline of Highway 49, some additional noise from activity at the Shell station.
Location B	24-hour measurements <sup>1</sup> were: <ul style="list-style-type: none"> <li>· Sunday 49 CNEL</li> <li>· Monday 51 CNEL</li> </ul>	40 - 51 (hourly values)	Noise from traffic on Highway 49. Meter is 1,000 feet from Highway 49.
Highway 16 at Michigan Bar Road	5 minute measurements <sup>2</sup> <ul style="list-style-type: none"> <li>· Sunday 60 L<sub>eq</sub></li> <li>· Wednesday 61 L<sub>eq</sub></li> </ul>	No hourly data	Noise from traffic on Highway 16.
Highway 124 near Dry Creek Bridge	5 minute measurements <sup>2</sup> <ul style="list-style-type: none"> <li>· Sunday 54 L<sub>eq</sub></li> <li>· Wednesday 57 L<sub>eq</sub></li> </ul>	No hourly data	Noise from traffic on Highway 124.
Highway 49 just north of Drytown	5 minute measurements <sup>2</sup> <ul style="list-style-type: none"> <li>· Sunday 60 L<sub>eq</sub></li> <li>· Wednesday 62 L<sub>eq</sub></li> </ul>	No hourly data	Noise from traffic on Highway 49.
Highway 49 at Miller Way just north of Plymouth	5 minute measurements <sup>2</sup> <ul style="list-style-type: none"> <li>· Sunday 63 L<sub>eq</sub></li> <li>· Wednesday 56 L<sub>eq</sub></li> </ul>	No hourly data	Noise from traffic on Highway 49, plus a couple of cars each measurement on Miller Way.

1. The 24-hour (plus) measurements at sites A and B began at midnight on Sunday January 11, 2004 and collected data all day Sunday and Monday.
2. The short-term 5-minute measurements were conducted between 1 p.m. and 2:30 p.m. on Sunday August 8, 2004 and between 5 p.m. and 6 p.m. on Wednesday August 11, 2004. Measurements were 100 feet from the roadway centerline.

identified during the performance of the Phase I are summarized below.

Some of the project parcels are comprised of vacant lands which have never been developed, while others are developed and include a commercial hotel and residential structures. A summary of project site improvements can be found within Section 2.2 of the Phase I ESA (**Appendix O**).

**Parcel 1:** Parcel 1 has never been developed and is comprised of 137.78 acres used for cattle grazing. There are remains of a mine that appears to have been filled with debris. The debris is comprised of corrugated metal and large wood planks arranged in a pile, covering the mine shaft. Several piles of what appear to be mine tailing are located next to the mine. The tailings are described by the property owner as crushed slate that was discarded during prior hard rock mining activities. The piles are covered with native vegetation that does not appear stressed. In September, 2008 bulk soil samples were collected from the mine tailings and analyzed for CAM-17 heavy metals and for naturally occurring asbestos (NOA). All samples were non-detect for NOA as shown in the laboratory report attached to the Phase I (**Appendix O**). Several exceedances were noted for arsenic. The exceedances for arsenic are common in the foothills of Northern California, were background levels within the Sierra Foothills often exceed 1,000 ppm (AEHS, 2008).

Other obvious remnants of the mine include several concrete footings/foundations along a hillside; the footing/foundations are arranged in a staircase fashion, originating at the top of a hill along the northeast corner of Parcel 1. Several pits and ditches were noted along in the northern portions of Parcel 1, north of the abandoned mine. These features carry over into the southern portions of Parcel 2. A previous geotechnical investigation (Geocon, 2005) noted several ditches and adits in areas south of the former mine. The vegetation in these areas are representative of the remainder of the site and do not appear stressed. There are no indicators of gross contamination such a stained soil, debris piles, chemical odors, or other potential signs of gross contamination on this portion of the project site. The presence of the mine constitutes a REC.

**Parcel 2:** The physical address of Parcel 2 is 9448 Bush Street. This parcel is developed and has a vacant, approximately 1,200 square foot (sq/ft), wood framed, concrete slab house with composition shingle roof. A septic system, two domestic wells, barn, pig pen, and pump house were noted on this parcel. The southern portion of Parcel 2 has what appear to be several mining ditches. Several items of non-hazardous debris are located on Parcel 12 including a pile of roofing materials. These materials do not appear to be of an age where asbestos containing materials (ACMs) would be present, nevertheless, these materials should be removed and taken to a licensed disposal facility.

**Parcel 3:** This parcel comprises approximately 60 acres and is a vacant field used for cattle grazing. A seasonal pond located along on the northern border of Parcel 3 is fed from stormwater

runoff that originates from an open field located on the neighboring parcel to the north. There are no indicators of gross contamination on this portion of the project site.

**Parcel 4:** This parcel comprises approximately 0.64 acres and contains the marquis sign for the Shenandoah Inn. There is a vegetated roadside ditch along Highway 49 where surface stormwater accumulates. Several power poles are located next to the roadside ditch. There are no pole mounted transformers associated with these power lines.

**Parcel 5:** This parcel is developed and is the location of the Shenandoah Inn, which is a two story 49 room hotel located at 17674 Village Drive. Utilities for the hotel include water and wastewater service provided by the City of Plymouth, propane gas provided through a private company, and electricity provided through Pacific Gas and Electric. The hotel was built in 1989 (Patel, 2008). Prior to 1989, Parcel 5 was undeveloped as shown on historic aerial photos and topographic maps.

**Parcels 6, 7, 10, and 11:** These parcels are all located off Village Drive. Portions of these project parcels appear to have been graded previously in anticipation of future development. Improvements along Village Drive include fire hydrants, storm drains, and curb and gutters.

**Parcel 8:** This parcel is developed and has an occupied residential structure approximately 1,500 sq/ft in size. The residential structure is comprised of concrete block walls, concrete slab foundation, and composition shingle roof. The physical address of Parcel 8 is 17594 Highway 49. A domestic well was noted along the eastern portion of this parcel.

**Parcel 9:** Parcel 9 is also developed and includes an unoccupied 1,200 sq/ft residential structure with concrete slab foundation and attached garage. The physical address of Parcel 9 is 17590 Highway 49.

**Parcel 12:** The physical address of Parcel 12 is 9458 Bush Street. An approximately 1,200 square foot ranch-style home with a composition shingle roof, concrete slab foundation, detached garage/barn, private groundwater well, and a septic system. Several items of non-hazardous debris are located on Parcel 12 including a pile of roofing materials. These materials do not appear to be of an age where asbestos containing materials (ACMs) would be present, nevertheless, these materials should be removed and taken to a licensed disposal facility.

Prior land uses reviewed during preparation of the Phase I ESA do not indicate historical use of hazardous materials that would create a human health hazard. The Phase I ESA included a regulatory database search to identify federal, state, and local records of known storage tank sites and hazardous materials generation, storage, or contamination on or near the project site. The database report was conducted by a computer search firm, Environmental Data Resources, Inc.

(EDR). Databases were searched for sites and listings up to two miles from a point roughly equivalent to the center of the subject property. Additionally, data from the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) was reviewed. No oil or gas wells were identified within a one-mile radius of the subject property.

**Regulatory Agency Database Report:** Several gas station sites were mapped in the EDR Radius Map Report under various locations and addresses (**Appendix O**). The EDR report lists the Sierra Trading Post and Exxon Station #506 as being located at within less than 0.25 miles of the project site. The EDR report identifies these two gas station sites as being located at the intersection of Highway 49 and Main Street. During the site inspection it was determined the intersection of Highway 49 and Main Street is approximately 0.65 miles from the northern border of Parcel 3. The Sierra Trading Post, Exxon Station #506, and E-Z Serve are the same business and located at the intersection of Highway 49 and Main Street in Plymouth. It appears there is a mapping error within the EDR radius map report as these sites are not located within 0.25 miles. There are no other gas stations with the exception of the Shell Gas Station/Village Market located in the vicinity of the project site on Highway 49.

There are two historic mines shown on the historical topographic maps in the vicinity of the Subject Property: the Pacific Mine and Empire Mine. These two hard rock mines are located approximately 0.50 and 0.65 miles from the project site, respectively. Generally the risks associated with historic mines are safety related and consist of either collapse or the risk of falling into an unmarked mining pit. Environmental impacts also occur from the concentration of heavy metals such as arsenic in mine tailings. Water quality degradation can occur from acid mine drainage, which results from heavy metals reacting to oxygen and rain water. A review of topographic maps indicates concentrated stormwater runoff from the Pacific Mine and Empire Mine does not appear to flow towards the Subject Property.

### 3.10.3 VISUAL RESOURCES

The project area contains three residences, scattered outbuildings, yards, the Shenandoah Inn, unpaved access roads, remnants of an old mining operation (including a lift station), and utility lines (**Figure 3.10-4**). SR 49 borders the project site on the west. The viewshed of the project site from SR 49 includes one rural residence and the Shenandoah Inn. Views of Parcels #4 through #11 are mostly shielded from northbound travelers on SR 49 by commercial development and gently sloping topography along the highway. The viewshed of southbound travelers along SR 49 (**Figure 1-3**) is unhindered across the relatively flat vista of Parcel #3 but is partially shielded by commercial development and gently sloping topography upon traversing Parcels #4 through #11.



PHOTO 1: View of the abandoned mine looking northeast.



PHOTO 2: View looking north from the south central portion of the project site.



PHOTO 3: View looking north from central portion of the project site.



PHOTO 4: View looking south of the existing road.



PHOTO 5: View looking south at the two onsite residential units in the east central portion of the project site.



PHOTO 6: View looking south along Highway 49 adjacent to the project site.

Parcel #1 is the southern boundary of the project area. The western quarter of Parcel #1 consists of gently rolling hills with annual grasses and sparsely scattered oak savanna. The landscape slopes downward to the southwestern corner of the parcel where a small cattle pond is located. The topography of the remainder of the parcel consists of much steeper rolling hillsides with an eastward downslope. Intermittent drainages flow to the southeast. Chaparral and riparian woodland cover most of the hillside. The northern extension of Parcel #1 contains an abandoned mine. Remnants of the mine lift station and scattered debris piles are still visible. Views of the mine from the other project parcels are restricted from all angles as a result of the oak savanna, oak woodland habitat, and surrounding hills.

Parcel #2 and #12 are located immediately northwest of the abandoned mine. Roughly one-quarter of each parcel is urbanized with single-family residential homes and associated outbuildings. Parcel #2 contains a small pigpen housing approximately a half dozen pigs. Parcel #12 contains a gravel area with several abandoned vehicles. The remainder of the parcels are covered primarily with annual grasslands and oak woodland habitat. The topography of each parcel has little relief; however, a small gulch is located on the southeastern corner of Parcel #2 with evidence of intermittent drainage.

Parcel #3 lies to the west of Parcel #2 and north of Parcel #1. This parcel has very little relief and consists primarily of flat annual grassland and sparsely scattered oak savanna and oak woodland habitat. Two cattle ponds and associated wetlands are located to the north and east on the edge of Parcel #3. A few small vernal pools and a vernal swale are found in various locations around the parcel. An abandoned shed is located on the western portion of the parcel that is closest to SR 49.

Parcels #4 and #5 are located east of SR 49 and west of Parcel #3. Roughly three-quarters of the combined parcels contain urban features with little to no topographic relief. Signage for the Shenandoah Inn is located on Parcel #4, adjacent to and east of SR 49. The Shenandoah Inn and associated outbuildings are located on Parcel #5, east of Parcel #4 and adjacent to the western edge of Parcel #3. The remainder of Parcel #5 is comprised primarily of flat oak woodland habitat. Village Drive, a small loop road that connects to SR 49, makes up the southwestern border for the two parcels.

Parcel #6 is an undeveloped parcel bordered on the west by a small gas station and to the north, east, and south, by the loop road, Village Drive. The topography for Parcel #6 consists of a gentle easterly upward-trending slope covered by oak woodland habitat.

Parcel #7 is located adjacent and to the east of SR 49. The majority of this parcel is vacant but has been prepared for development as indicated by a man-made slope that borders the southern and eastern edges of the parcel. A small detention basin and cistern lie in the middle of the parcel. A roadside detention basin runs parallel to SR 49 on western edge of the parcel.

Parcels #8 and #9, located east of SR 49 and north of Parcel #1, each contain a small house and associated outbuildings. The home on Parcel #8 is on an elevated graded pad roughly fifteen feet higher than the home on Parcel #9. An aboveground power line serves each residence. The non-urbanized areas of the two parcels are primarily flat, oak woodland habitat.

Parcels #10 and #11, north of Parcel #1 and east of parcel #9, are currently undeveloped annual grasslands and oak woodland habitat. The topography of the two parcels consists of an east-trending up slope.