SECTION 3.0
AFFECTED ENVIRONMENT

3.0 AFFECTED ENVIRONMENT

This section of the EA describes the natural and human environment that exists in the Campo and Jacumba regions, as well as site-specific conditions, as appropriate. Only those parameters that have the potential to be affected by the proposed action are described, as per CEQ guidance (40 CFR 1501.7). Therefore, discussions of resources such as transportation, unique/sensitive areas, climate, hazardous material, and coastal zone management are limited in scope and are not addressed further due to the lack of effect from the project on the resource, or because that particular resource is not located within the project area.

3.1 Land Use

In general, land use is indicative of the land ownership. The major land uses in San Diego County include agriculture, rangeland, urban, forest, recreation/special use, and waterbodies. The total area of San Diego County is about 4,255 square miles with a population of 2,813,833 (U.S. Census Bureau 2001). The major land use in the county is special land use with 1,508,100 acres (70%). This category consists of parks, wildlife management areas, military installations, and Native American lands. California State Parks and the U.S. Forest Service are the primary landholders/managers in the county. The City of San Diego and surrounding communities are the primary urban center of the county. Agricultural land encompasses approximately 205,600 acres (9%), and is used for producing vegetables, fruits, flowers, eggs, and milk. Rangeland accounts for approximately 152,100 acres (7%) and is used primarily for grazing livestock. Waterbodies (1%) encompasses approximately 13,800 acres of the county's total land area.

Revised

Land within the proposed project areas is predominately undeveloped. Ownership of land is divided between private ownership, Federal lands, state lands, and local government. Privately owned land is the largest group of land owners and is typically developed as single-residence ranch land or remains undeveloped and held for occasional use (i.e., recreation).

3.2 Aesthetics

Aesthetic resources consist of the natural and man-made landscape features that appear indigenous to the area and give a particular environment its visual characteristics. It is essentially based on an individual or group of individuals' judgment as to whether or not an object is pleasing, and/or would affect quality of life. With the exception of small residential communities near Canyon City, Campo, and Jacumba, the project area is characterized by undeveloped, open landscapes. The major appeal of the area is its vast areas of naturally occurring landscape. At a closer look, past UDA traffic has created a large number of trails, unpaved tracks and roads, damage from human-induced wildland fires, and litter left behind by UDAs can be found throughout the project area and detract from the region's natural beauty. There are no unique, natural, or manmade features in the project area that create any different visual landscapes than those described above.

3.3 Soils and Prime Farmland

Several different soil associations are located along the international border between Canyon City and Jacumba. The western portion of the project corridor consists of the Las Posas association, the Stony association, and the Rock land association. The Las Posas association consists of well-drained stony fine sandy loams that have clay subsoils. Exposed bedrock and large boulders dominate the Rock land association. The central portion of the project corridor consists of the Tollhouse-La Posta-Rock land association (eroded); the La Posta-Kitchen Creek association (rocky, eroded); and the Mottsville-Calpine association. The Tollhouse-La Posta-Rock land association is described as excessively drained and coarse sandy loams over granitic rock and areas of rock land. The La Posta-Kitchen Creek association is somewhat excessively drained loamy coarse sands over decomposed granodiorite; the Mottsville-Calpine association is similar, but is associated with alluvial fans. The eastern portion of the project, near Jacumba, is comprised of the Mecca-Indio association and the Rock land association. The Mecco-Indio association is described as well-drained sandy and silt loams on alluvial fans (USDA 1973).

More information on specific soils can be found in previous documents addressing projects in the area (INS 2001, USACE 1994); however, specific soils located in each of the projects that would require ground-disturbing activities are described in the following paragraphs.

3.3.1 Soil Types

3.3.1.1 Night Vision Scope Pad and Access Road Construction

The soil type associated with the Airport Mesa scope pad and access road construction is Stony land. This soil type consists of rocks and boulders with little vegetation. It is strongly sloping and very steep with a severe erodibility rating (USDA 1973).

Scope pad and access road construction associated with Mountain Empire is Tollhouse rocky coarse sandy loam, 5 to 30% slopes, eroded near the top of the hill at the Mountain Empire Campground. The drainage structure repair near Mountain Empire at Campo Creek would occur on La Posta rocky loamy coarse sand, 5 to 30% slopes. The Tollhouse, 5 to 30%, soil is formed of excessively drained, shallow coarse sandy loams. The La Posta, 5 to 30%, soil consists of excessively drained sands that are formed from granodiorite. Both the Tollhouse and La Posta soils have a severe erodibility rating (USDA 1973).

3.3.1.2 Drainage Structures

Drainage structures proposed for La Gloria Canyon and Smith Canyon would be installed in Tollhouse rocky coarse sandy loam, 30-65% slopes. The Maupins drainage structure would be installed in Mottsville loamy coarse sand, 2 to 9% slopes. Mottsville loamy coarse sand, 2 to 9% slopes, Mottsville, 2 to 9%, soil is excessively drained, deep loamy coarse sand found in alluvial areas. The Mottsville soil has a severe erodibility rating (USDA 1973). The Tollhouse soil type is described above in Section 3.3.1.1.

3.3.1.3 Bollard Fence

Three soil types are located near the proposed bollard fencing site: the Rositas loamy coarse sand, 2 to 9% slopes; the Reiff fine sandy loam, 0 to 2% slopes; and the La Posta rocky loamy coarse sand, 5 to 30% slopes. The Rositas soil type is somewhat excessively drained and deep. These soils are found on alluvial fans and have an erodibility rating of severe. The Reiff soil type is a well-drained, deep fine sandy loam

formed in alluvium derived granite rock. This soil type is classified as severely erodable (USDA 1973). The La Posta soil type has been described above in Section 3.3.1.1.

3.3.1.4 Blasting

The individual sites designated for blasting consist of large rocks and boulders. No soil would be disturbed for the blasting activities. All roadwork associated with the blasting activities is addressed in previous NEPA documents (INS 2001; USACE 1997, 1994).

3.3.1.5 Water Wells and Concrete Holding Tanks

Soil types would be the same as those discussed for the Smith and La Gloria Canyon drainage structures.

3.3.2 Hydric Soils

There are no hydric soils located within the footprint of any of the project components (Hydric Soils of California 2002).

3.3.3 Prime Farmland

The Reiff fine sandy loam, 0 to 2% slopes located within the proposed bollard fence corridor is the only soil type classified as prime farmland in the project areas; however, it is only classified as such if it is irrigated for farmland use (USDA 1973). Urban or built-up areas that contain listed soils are not considered prime farmland. Therefore, the Reiff soil type in the project corridor would not be considered a prime farmland soil type due to the present land use and proximity to an urban area.

3.4 Geology

The entire project corridor is located within the Peninsular Range Geomorphic Province, which is mostly made of granitic rock (Nyman 2002). The Peninsular Ranges Province was formed by the Southern California Batholith, a composite of several bodies of igneous rock formed in the subsurface (Demere 1997). These bodies of igneous rock, having varying chemical composition, shifted from gabbro to granodiorite. In the Cretaceous period, the Nevadan Orogeny caused major upward thrusting in southern California (Sharp 1976).

Additional information on the geology in the project area can be found in the project-specific hydrology report found in Appendix B.

3.5 Water Resources

The primary Federal law that protects waters of the United States is the Clean Water Act (CWA) of 1972. This Act was passed by Congress with two major goals: 1) to prohibit the discharge of pollutants into waters, and 2) to improve water quality levels to where they are safe for recreation and wildlife and fisheries purposes. This Act protects all waters of the U.S. from streams and rivers to lakes, reservoirs, and even aquifers. Each state has a water resources division that is required to identify waterbodies that do not meet U.S. Environmental Protection Agency (EPA) standards. Along with implementing Federal regulations, the California Department of Water Resources offers further protection to the local water resources.

Another Federal law that protects water resources is the Safe Drinking Water Act (SDWA), which was passed by Congress in 1974, as amended. This Act was designed to regulate all public drinking water supplies, such as public wells, springs, lakes, and rivers, to protect public health. The EPA is responsible for setting drinking water standards.

3.5.1 Groundwater

The project area lies within the Peninsular Range geomorphic province. This province covers a large portion of southern California, including all of San Diego County. Large quantities of water are stored in the granitic rock from which this area formed. Most of the groundwater stored moves through the area through cracks and fractures (Nyman 2002). Groundwater in this system is replenished through rain and snow events.

This particular province provides water to the Campo/Cottonwood Creek aquifer, which is the principal source of water for the project area between Canyon City and Boulevard (just west of Jacumba). This aquifer was designated as a Sole Source Aquifer by the EPA on 5 May 1993 under Section 1424(e) of the SDWA. The EPA defines a sole or principal source aquifer as “one which supplies at least 50% of the drinking water consumed in the area overlying the aquifer. These areas can have no alternative

drinking water source(s) which could physically, legally, and economically supply all those who depend upon the aquifer for drinking water" (EPA 2002). Much of the project area is dependant on private wells for their drinking supply.

The USBP currently uses approximately 730,000 to 800,000 gallons of water per year, or roughly two acre-feet per year for on-going projects. Current estimates indicate that the aquifer contains about 7,000 acre-feet of water presently, even though the area has experienced significant droughts over the past four years. Pumping from the current wells would be substantially reduced or cease, once the new wells along the border were installed; therefore, no additional amounts of water would be pumped from the aquifer.

A project specific hydrology report is included in Appendix B, which provides specific details on the region's groundwater resources and the effects of installing the proposed water wells.

3.5.2 Surface Water

Due to the climate of the project area, most of the surface drainage channels are dry much of the year (including three of the four drainages addressed in this document). Since both sides of the international border are relatively undeveloped, there are few sources of surface water contaminates in the area.

Campo Creek is the only intermittent stream located within the proposed project area. In the U.S. Fish and Wildlife Service (USFWS) wetlands and aquatic habitats classification system, Campo Creek would be best classified as an "intermittent riverine streambed" (Cowardin 1979). This creek falls within the proposed Mountain Empire night vision scope pad and access road construction of the proposed action alternative (see Figure 2-2). Other drainages directly affected by the proposed projects would be considered ephemeral (i.e., water only flows during storm events).

3.5.3 Waters of the U.S. and Wetlands

Section 404 of the CWA of 1977 (P.L. 95-217) authorizes the Secretary of the Army, acting through the USACE, to issue permits for the discharge of dredged or fill material into Waters of the U.S. (WUS), including wetlands. WUS (Section 328.3[2] of the CWA)

are those waters used in interstate or foreign commerce, subject to ebb and flow of tide, and all interstate waters including interstate wetlands. WUS are further defined as all other waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, or impoundments of waters, tributaries of waters, and territorial seas. Jurisdictional boundaries for WUS are defined in the field as the ordinary high water mark, which is that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural lines impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE 1987).

The USACE, acting under Section 404 of the CWA, provides a vital function in protecting our valuable aquatic resources, including wetlands. The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Under Section 404 of the CWA, the Secretary of the Army is responsible for administering a Regulatory Program that requires permits for the placement of dredged or fill materials into WUS, including wetlands.

Areas regulated under Section 404 are collectively referred to as "Waters of the United States." The Supreme Court ruling in the Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers case ("SWANCC," Case No. 99-1178) on January 9, 2001 restricted the EPA and USACE's regulatory authority under CWA. This ruling eliminates the CWA jurisdiction over isolated, non-navigable, and intrastate waters used as habitat by migratory birds. WUS specifically affected by the SWANCC ruling include small intrastate lakes, isolated rivers and streams (including intermittent streams), isolated wetlands, sloughs prairie potholes, wet meadows, playa lakes, or natural ponds.

The USACE has established Nationwide Permits (NWPs) to efficiently authorize common activities, which do not significantly impact WUS. The NWPs were modified and reissued by the USACE in the *Federal Register* on January 15, 2002. The USACE has the responsibility to authorize permitting under a NWP, or to require an Individual Permit.

3.5.4 Floodplains

A floodplain is the area adjacent to a river, creek, lake, stream, or other open waterway that is subject to flooding when there is a significant rain. If an area is in the 100-year flood plain, there is a 1-in-100 chance in any given year that the area will flood.

Executive Order (EO) 11988 (Flood Plain Management) (43 FR 6030) was enacted on May 24, 1977 to "avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. EO 11988 directs all Federal agencies to reduce the risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains…" (USFWS 2002b).

The drainage structure proposed for repair at Campo Creek for the Mountain Empire scope site (Figure 3-1) is the only action that falls within the 100-year floodplain (FEMA 2002).

3.6 Vegetation

The major vegetation communities along the U.S.-Mexico border in eastern San Diego County are chaparral, desert transition chaparral, and creosote bush scrub (Beauchamp 1986). The predominant plant species in the chaparral community are chamise (*Adenostoma fasciculatum*), manzanita (*Xylococcus bicolor*), and California lilac (*Ceanothus tomentosa*). The predominant plant species in the desert transition chaparral include acacia (*Acacia greggii*), rabbitbrush (*Chrysothamnus* sp.), cholla (*Opuntia* sp.), barrel cactus (*Ferocactus cylindraceus*), telegraph weed (*Heterotheca grandiflora*), and tumbleweed (*Salsola tragus*). Common associates of the creosotebush scrub community include creosotebush (*Larrea tridentata*), sage (*Salvia columbariae*), four winged saltbush (*Atriplex canescens*), and acacia. Additional information on vegetation in the project can be found in previous NEPA documents (USACE 1993, 1994, 1997; INS 2001).

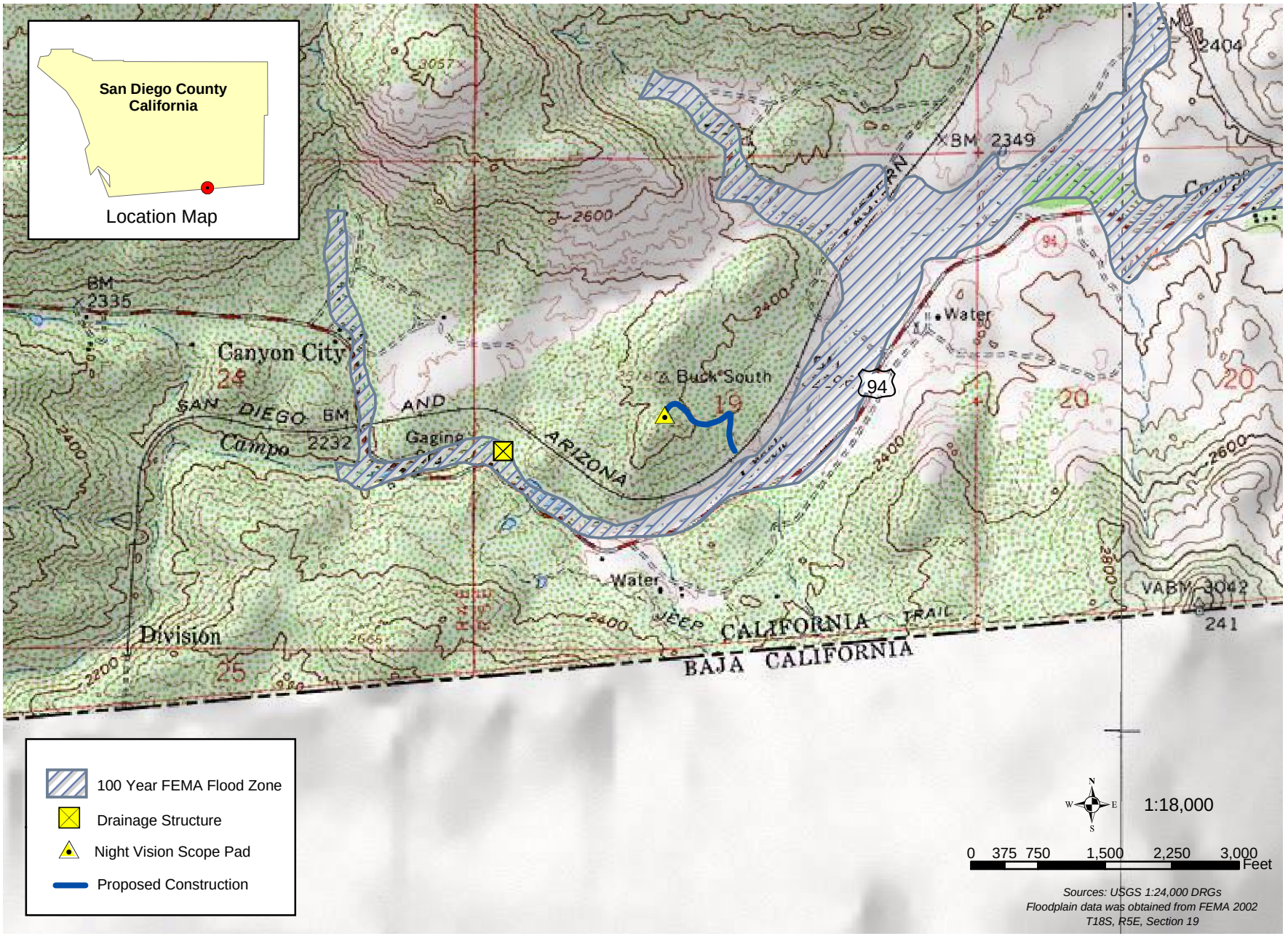

Figure 3-1: Proposed Drainage Structure for Mountain Empire within the 100 Year FEMA Flood Zone

gsrc / GULF SOUTH RESEARCH CORPORATION

Date: December 2002

Other vegetation recorded during a site visit performed in April 2002 by each project site outside of the 60-foot Roosevelt Easement is listed below. These species were observed in the vicinity of the impact area.

- Airport Mesa – Vegetation on Airport Mesa consisted of a desert scrub community. Ground cover density ranged from 60% in protected areas on the slopes to less than 15% on top of Airport Mesa. Predominate species included cholla, jojoba (*Simmondsia chinensis*), hedgehog cactus (*Echinocereus* sp.), creosotebush, soap-tree yucca (*Yucca elata*), Mormon tea (*Ephedra* sp.), prickly pear (*Opuntia* sp.), one-seed juniper (*Juniperus monosperma*), buckwheat (*Eriogonum* sp.), and four winged saltbush.
- Mountain Empire – The Mountain Empire scope site and access road would traverse a chamise chaparral community. Density in this area is high, sometimes ranging between 80 and 85%. Predominant shrubs in this community included chamise, Mormon tea, holly-leaf cherry (*Prunus ilicifolia*), sugar bush (*Rhus obata*), buckwheat, sage, and mountain mahogany (*Cercocarpus betuloides*). The riparian community along Campo Creek included species such as mulefat (*Baccharis viminea*), willow (*Salix* spp.), cottonwood (*Populus* sp.), dock (*Rumex* spp.), currant (*Ribes* sp.), wild celery (*Apiastrum angustifolium*), and water cress (*Rorippa* sp.); however, this community would not be affected by the proposed actions. The canopy cover is closed creating very low density and diversity of shrubs and ground cover. The potential area of impact for the drainage crossing consists of the existing road and culvert.
- La Gloria Canyon – The proposed drainage crossing is located within a riparian community consisting of large coast live oaks (*Quercus agrifolia*) and red willows (*Salix laevigata*).
- Smith Canyon – Smith Canyon supports a riparian community consisting of four winged saltbush, yerba santa (*Eriodictyon californicum*), elderberry (*Sambucus* sp.), and needle grass (*Achnatherum* sp.). Density in this streambed varies from 50 to 65%.
- Maupins – The vegetation at this proposed drainage structure consists of four winged saltbush, broom snakeweed (*Gutierrezia sarothrae*), and goldenrod (*Solidago* sp.). Coast live oak occurs on the eastern ridge, but would not be disturbed by the proposed action.

3.7 Wildlife and Aquatic Resources

California is one of the most biologically diverse areas in North America. Within its 160,000 square miles, California harbors more unique animals than any other state (Steinhart 1990).

The native faunal components of the Peninsular Range support 432 species of birds, which are dominated by woodwarblers (40 species), swans, geese, and ducks (34 species), sandpipers and phalaropes (30 species), gulls and terns (20 species), sparrows and towhees (20 species), and tyrant flycatchers (22 species). The majority of these species occur in spring and fall when neotropical migrants (e.g., flycatchers and warblers) pass through on their way to either summer breeding or wintering grounds and during winter when summer resident birds (i.e., robins, kinglets, and sparrows) from the north arrive to spend the winter. The majority of the 94 mammalian species found in the Peninsular Range are evening bats and rodents, with rodents being the most common. Only 17 species of amphibians are found within this province, with frogs being the most abundant and common. A total of 54 species of reptiles inhabit the Peninsular Range, with the iguanid lizards and colubrid snakes being dominant (Ingles 1957; Stebbins 1985; Holt 1990).

Very few fauna species were observed during the site visit in April 2002. Wildlife species seen in the various project areas were Steller's jay, Abert's towhee, acorn woodpecker, scrub jay, phoebe, western rufous-sided towhee, and Wilson's warbler.

3.8 Threatened and Endangered Species and Critical Habitat

The Endangered Species Act (ESA) [16 U.S.C. 1532 et. seq.] of 1973, as amended, was enacted to provide a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. All Federal agencies are required to implement protection programs for designated species and to use their authorities to further the purposes of the Act. Responsibility for the identification of a threatened or endangered species and development of any potential recovery plans lies with the Secretary of the Interior and the Secretary of Commerce.

The USFWS and the National Marine Fisheries Service are the primary agencies responsible for implementing the ESA. The USFWS's responsibilities under the ESA include: (1) the identification of threatened and endangered species; (2) the identification of critical habitats for listed species; (3) implementation of research on, and recovery efforts for, these species; and (4) consultation with other Federal agencies concerning measures to avoid harm to listed species.

An endangered species is a species in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Proposed species are those, which have been formally submitted to Congress for official listing as threatened or endangered. Species may be considered endangered or threatened when any of the five following criteria occurs: (1) the current/imminent destruction, modification, or curtailment of their habitat or range; (2) overuse of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; and (5) other natural or human-induced factors affect continued existence.

In addition, the USFWS has identified species that are candidates for listing as a result of identified threats to their continued existence. The candidate designation includes those species for which the USFWS has sufficient information on hand to support proposals to list as endangered or threatened under the ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.

3.8.1 Federal

A total of 46 Federally protected species have the potential to occur in San Diego County. This list includes three amphibians, 11 birds, four fish, four invertebrates, four mammals, and 20 plants. A total of 33 species are listed as endangered, 11 as threatened, one as candidate, and one as proposed threatened. Information pertaining to species identified by the USFWS as well as all other Federally protected species in San Diego County, is included in Table 3-1.

Table 3-1: Threatened and Endangered Species in San Diego County, California

Common Name/ Scientific Name	Federal Status	Critical Habitat	Habitat
AMPHIBIANS			
Arroyo toad *Bufo microscaphus californicus*	E	Yes	Found exclusively in streams in southern California and northern Baja California
California red-legged frog *Rana aurora draytonii*	T	Yes	Occupies rocky and shaded streams with cool waters originating from springs and snowmelt
Mountain yellow-legged frog *Rana muscosa*	E	No	High-elevation streams in the high Sierra Mountains and western Nevada
BIRDS			
Bald eagle *Haliaeetus leucocephalus*	T	No	Near large bodies of open water such as lakes, marshes, seacoasts and rivers, and tall trees
Brown pelican *Pelecanus occidentalis*	E	No	Found in coastal areas; on rocky shores and cliffs, in sloughs, and coastal river deltas.
California least tern *Sterna antillarum browni*	E	No	Nest in colonies on sandy beaches that are usually associated with river mouths or estuaries
Coastal California gnatcatcher *Polioptila californica californica*	T	Yes	Commonly occurs in coastal sage scrub
Least Bell's vireo *Vireo bellii pusillus*	E	Yes	Occurs in riparian habitats with well-developed overstories and understories
Light-footed clapper rail *Rallus longirostris levipes*	E	No	Found in dense vegetation within coastal salt and brackish marshes
Mountain plover *Charadrius montanus*	PT	Yes	Open arid plains, short-grass prairie.
Short-tailed albatross *Phoevastria albatrus*	E	No	Oceanic
Southwestern willow flycatcher *Empidonax traillii extimus*	E	No	Occurs in dense riparian habitats with tamarisk or willow species and medium sized shrubs
Western snowy plover *Charadrius alexandrinus nivosus*	T	Yes	Occurs on coastal beaches for nesting and wintering

Table 3-1: Threatened and Endangered Species in San Diego County, California

Common Name/ Scientific Name	Federal Status	Critical Habitat	Habitat
Yellow-billed cuckoo *Coccyzus americanus*	C	No	Forest to open woodlands, those areas with dense undergrowth such as parks, riparian woodlands and thickets
FISH			
Desert pupfish *Cyprinodon macularius*	E	Yes	Found in warm desert pools, marshes, streams and springs
Mohave tui chub *Gila bicolor mohavensis*	E	No	Streams and lakes
Tidewater goby *Eucyclogobius newberryi*	E	Yes	Endemic to California, and is unique in that it is restricted to coastal brackish water habitats.
Unarmored threespine stickleback *Gasterosteus aculeatus williamsoni*	E	Yes	Prefers slow moving reaches or quiet water microhabitats of streams and rivers
INVERTEBRATES			
Laguna Mountains skipper *Pyrgus ruralis lagunae*	E	No	Forest clearings, meadows, pastures, streamsides; from sea level to 10,000 feet
Quino checkerspot butterfly *Euphydryas editha quino*	E	Yes	Found on open grasslands near meadows, vernal pools, or lakes; also coastal sage scrub
Riverside fairy shrimp *Streptocephalus woottoni*	E	Yes	Occurs in vernal pools
San Diego fairy shrimp *Branchinecta sandiegonensis*	E	Yes	Occurs in vernal pools
MAMMALS			
Peninsular bighorn sheep *Ovis Canadensis cremnobates*	E	Yes	Dry, rocky, low-elevation desert slopes, canyons, and washes
Pacific pocket mouse *Perognathus longimembris pacificus*	E	No	Fine-grain, sandy substrates near Pacific Ocean
Southern sea otter *Enhydra lutris nereis*	T/X*	No	Narrow band along the coast, and rarely venture much more than about 1 1/2 miles offshore

Table 3-1: Threatened and Endangered Species in San Diego County, California

Common Name/ Scientific Name	Federal Status	Critical Habitat	Habitat
Stephen's kangaroo rat *Dipodomys stephensi*	E	No	Restricted to dry grasslands and scrub of Southern California
PLANTS			
California Orcutt grass *Orcuttia californica*	E	No	Occurs in vernal pools
Coastal dunes milk-vetch *Astragalus tener* var. *titi*	E	No	Occurs on a relatively flat coastal terrace within 100 feet of the ocean beach
Del Mar manzanita *Arctostaphylos glandulosa* spp. *crassifolia*	E	No	Occurs in southern maritime chaparral and dense southern mixed chaparral
Encinitas baccharis *Baccharis vanessae*	T	No	Occurs in southern maritime chaparral and dense southern mixed chaparral
Gambel's water cress *Rorippa gambelii*	E	No	Marshes, swamps, and the borders of lakes
Mexican flannelbush *Fremontodendron mexicanum*	E	No	Found in coniferous forests
Nevin's barberry *Berberis nevinii*	E	No	Found in chaparral and alluvial scrub associated with rocky slopes and sediments and sandy washes
Orcutt's spineflower *Chorizanthe orcuttiana*	E	No	Found in coastal chaparral openings in chamise
Otay mesa mint *Pogogyne nudiuscula*	E	No	Occurs in vernal pools
Otay tarplant *Hemizonia conjugens*	T	No	Typically found in grassland or coastal sage scrub
Peirson's milk-vetch *Astragalus magdalenae var. peirsonii*	T	No	Desert dunes
Salt marsh bird's beak *Cordylanthus maritimus maritimus*	E	No	Found exclusively in coastal salt marshes
San Bernardino blue grass *Poa atropurpurea*	E	No	Found in meadow habitats
San Diego ambrosia *Ambrosia pumila*	E	No	Restricted to flat or sloping grasslands, often along valley bottoms or areas adjacent to vernal pools

Table 3-1: Threatened and Endangered Species in San Diego County, California

Common Name/ Scientific Name	Federal Status	Critical Habitat	Habitat
San Diego button-celery *Erynginum aristulatum* var. *parishii*	E	No	Occurs in vernal pools
San Diego mesa mint *Pogogyne abramsii*	E	No	Occurs in vernal pools
San Diego thornmint *Acanthomintha ilicifolia*	T	No	Occurs in coastal sage scrub, chaparral, and native grassland
Spreading navarretia *Navarretia fossalis*	T	No	Occurs in vernal pools
Thread-leaved brodiaea *Brodiaea filifolia*	T	No	Vernally moist grasslands and the periphery of vernal pools
Willowy monardella *Monardella linoides* spp. *viminea*	E	No	Riparian scrub, usually at sandy locales in seasonally dry washes

Source: USFWS 2001, 2002a; CNDDB 2002

P=Proposed
T=Threatened
E=Endangered
C=Candidate
T/X*=Threatened (experimental population)

A 100% pedestrian survey was completed for each portion of the proposed project in April 2002 to determine the presence of any protected species. No Federally listed threatened or endangered species were observed during the biological surveys for this project or from past surveys in the area (USACE 1994, 1997). Much of the project area would not be suited for any protected species due to the disturbed nature of the area. The potential for the southwestern willow flycatcher and least Bell's vireo to be found in the riparian habitats for the Campo Creek (Mountain Empire) and La Gloria drainage structure repairs is possible; however, the footprint for the two drainage structures would remain the same as they are now. No riparian habitat would be lost due to the repair/replacement of the drainage structures.

The California Natural Diversity Database (CNDDB) shows one location for the Federally protected least Bell's vireo approximately 1.5 miles to the northeast of Mountain Empire (CNDDB 2002). The database showed no other Federally protected species in or near the project areas.

3.8.2 Critical Habitat

The ESA also calls for the conservation of what is termed Critical Habitat - the areas of land, water, and air space that an endangered species needs for survival. Critical habitat also includes such things as food, breeding sites, cover or shelter, and sufficient habitat area to provide for normal population growth and behavior. One of the primary threats to many species is the destruction or modification of essential habitat by uncontrolled land and water development.

While 13 species have designated critical habitats in San Diego County, none fall within the project areas. One area of critical habitat for the Quino checkerspot butterfly falls along the border just to the west of blasting sites 13, 14, 15, and the 300-foot section of bollard fence. The proposed portable lights would be placed starting at the PCT and continue to the Imperial County line; no lighting systems would be placed within the Quino critical habitat area. Critical habitat for the peninsular bighorn sheep (*Ovis canadensis cremnobates*) begins just east of the project area across the Imperial County line. Figure 3-2 shows the designated critical habitats for the Quino and sheep in relation to the proposed actions.

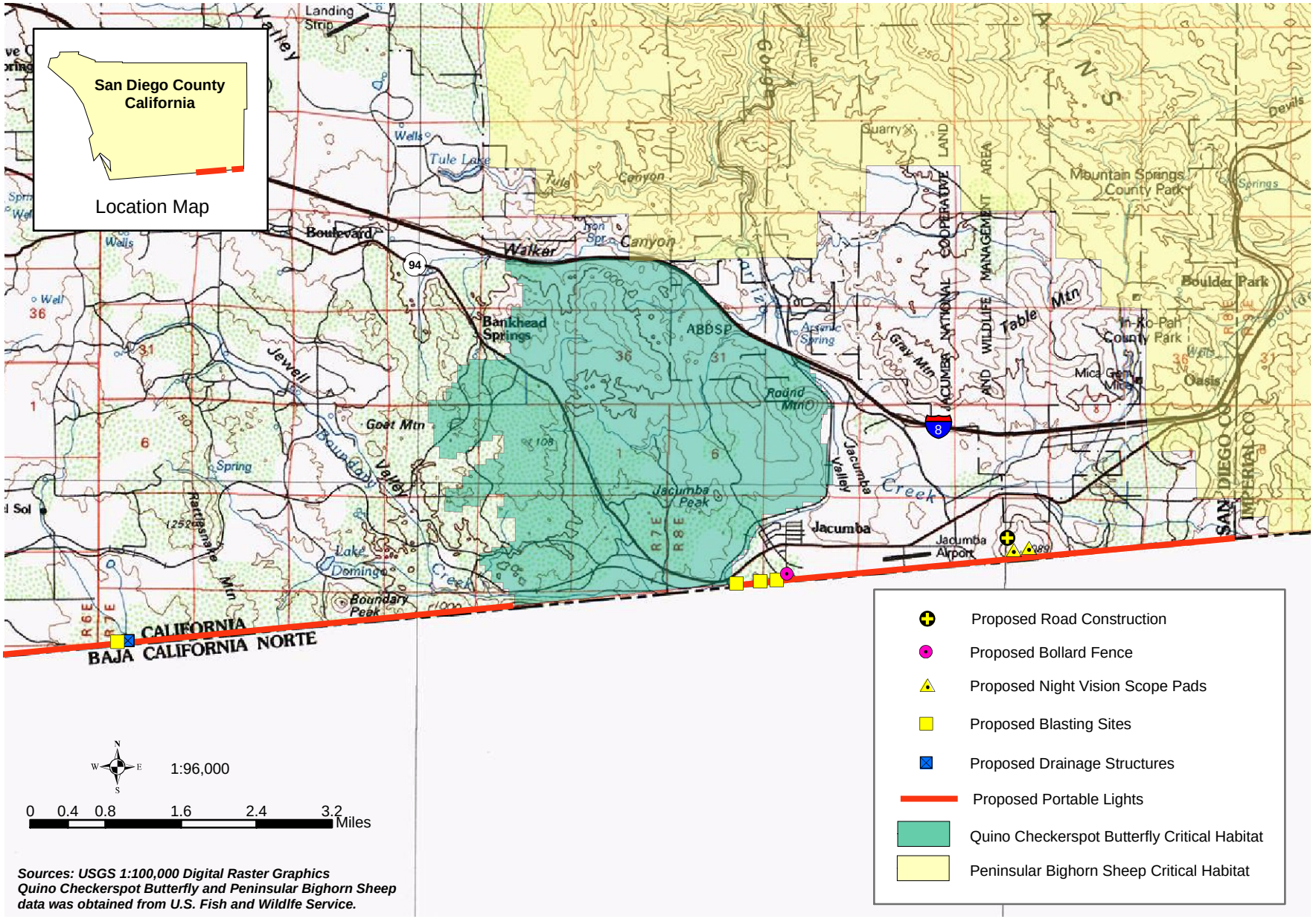

Figure 3-2: Proposed Projects, Peninsular Bighorn Sheep and Quino Checkerspot Butterfly Critical Habitat Location

gsrc / GULF SOUTH RESEARCH CORPORATION

Date: December 2002

3.8.3 State

The Wildlife and Habitat Data Analysis Branch of the California Department of Fish and Game (CDFG) Department maintains lists of Wildlife of Special Concern. This list includes species whose occurrence in California is or may be in jeopardy, or with known or perceived threats or population declines. The CNDDB is a statewide inventory of the locations and condition of the state's rare species and natural communities. These species are not necessarily the same as those protected by the Federal government under the ESA.

The CDFG currently list 44 species that are considered endangered, threatened, rare, or candidate within San Diego County (CNDDB 2002). A full list of those species that are potentially occurring within San Diego County can be found in Appendix C.

3.9 Air Quality

The Clean Air Act, which was last amended in 1990, requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The Act established two types of national air quality standards. Primary standards set limits to protect the public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The EPA Office of Air Quality Planning and Standards have set NAAQS for six criteria pollutants (Table 3-2). In addition to adopting the Federal NAAQS, the California Air Resources Board (CARB) has adopted more stringent California Ambient Air Quality Standards (CAAQS). The NAAQS and CAAQS are shown in Table 3-2 along with the newly adopted 8-hour standard for ozone. The new 8-hour standard will be implemented within the next few years and air districts are considering their status with respect to both the 1- and 8-hour standard. However, air districts must first reach attainment of the 1-hour ozone standard before being required to implement any additional controls that may be needed to achieve the 8-hour standard.

Table 3-2: California and National Ambient Air Quality Standards

POLLUTANT	California Standards	National Standards	
	CONCENTRATION	CONCENTRATION	STANDARD TYPE
Carbon Monoxide (CO) 1-hour average 8-hour average	 9 ppm (10 mg/m^3)* 20 ppm (23 mg/m^3)*	 9 ppm (10 mg/m^3)* 35 ppm (40 mg/m^3)*	None
Nitrogen Dioxide (NO_2) Annual arithmetic mean 1-hour average	 -- 0.25 ppm (470 µg/m^3)*	 0.053 ppm (100 µg/m^3)* --	Same as Primary
Ozone (O_3) 1-hour average 8-hour average	 0.09 ppm (180 µg/m^3)* --	 0.12 ppm (235 µg/m^3)* 0.08 ppm (157 µg/m^3)*	Same as Primary
Lead (Pb) 30 days average Quarterly average	 1.5 µg/m^3 --	 -- 1.5 µg/m^3	Same as Primary
Particulate Matter <10 micrometers (PM_{10}) Annual geometric mean Annual arithmetic mean 24-hour average	 30 µg/m^3 -- 50 µg/m^3	 -- 50 µg/m^3 150 µg/m^3	Same as Primary
Particulate Matter <2.5 micrometers ($PM_{2.5}$) Annual arithmetic mean 24-hour average	 Same Same	 65 µg/m^3 15 µg/m^3	Same as Primary
Sulfates 24-hour average	 25 µg/m^3	No Federal Standards	
Hydrogen sulfide 1-hour average	 0.03 ppm (42 µg/m^3)*		

Source: CARB 1999

Legend
ppm = parts per million
mg/m^3 = milligrams per cubic meter
µg/m^3 = micrograms per cubic meter
* Parenthetical value is an approximate equivalent concentration

The San Diego County Air Pollution Control District (SDAPCD) is the local agency responsible for air quality management matters (e.g., permitting) in San Diego County. The CARB is the state-level agency responsible for administration of state and Federal air quality regulations. The EPA San Diego Air Quality Control Region encompasses San Diego County in its entirety (40 CFR Part 81).

Emissions that would result from the construction and operation of the proposed action should comply with the rules and regulations of the SDAPCD. The rules and regulations of this agency are designed to achieve the Federal NAAQS and CAAQS that are protective of public health. The air quality assessment consists of identifying applicable state and NAAQS, the current attainment status of the area of the proposed action, and any current emissions at the site.

3.9.1 Attainment Status

Based on measured ambient criteria pollutant data, areas are designated as having air quality better than the standard (attainment) or worse than the standard (nonattainment).

In California, attainment is classified for both NAAQS and CAAQS. In addition to being classified as "nonattainment," the degrees of nonattainment are divided into categories indicating the severity. Degrees of nonattainment include marginal, moderate, serious, severe, or extreme. Areas are often designated as unclassified when ambient criteria pollutant data are insufficient for the EPA to determine attainment status.

A maintenance area is an area that was previously designated as a nonattainment area and has been redesignated as attainment. The assignment of an attainment category is based on the measured criteria pollutant concentration in a given location and varies for each pollutant of concern.

San Diego County has been designated as a nonattainment area for the NAAQS and CAAQS for ozone, with a classification of "serious" in both cases. In addition, San Diego County operates under a maintenance plan for carbon monoxide (CO), since a portion of San Diego County was previously a moderate CO nonattainment area. This former nonattainment area encompassed the western portion of the county. San Diego County has not violated the Federal standard since 1990; however, the state's 8-hour standard

was violated once in downtown San Diego in 1990. San Diego County is also in nonattainment of state standards for particulate matter less than 10 microns in diameter (PM_{10}). The attainment status of San Diego County with regard to both state and Federal standards is summarized in Table 3-3.

Table 3-3: Air Quality Designations in the San Diego Air Basin

Pollutant	Federal Designation	State Designation
Ozone (O_3)	Nonattainment (Serious)	Nonattainment (Serious)
Carbon Monoxide (CO)	Attainment	Attainment
Particulate matter (PM_{10})	Unclassified	Nonattainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Attainment	Attainment
Sulfates	*(No Federal standard)*	Attainment
Hydrogen Sulfide	*(No Federal standard)*	Unclassified
Visibility Reducing Particles	*(No Federal standard)*	Unclassified

Source: SDAPCD 2001

3.9.2 Local Ambient Air Quality Monitoring

As a result of the ozone pollution problems within San Diego County's urban areas, there is a network of ambient air monitoring stations collecting data on the six criteria pollutants. Ambient air quality data collected from these monitoring stations are used to determine compliance with the NAAQS. The closest monitoring station (to the project area) is located in Alpine, which is approximately 30 miles northwest of Campo. Air quality in the Alpine area meets all Federal standards, but will occasionally exceed the state 1-hour standard for ozone.

Air quality is consistently improving in San Diego County, and in 1999, for the first time, San Diego County had no exceedances of the Federal 1-hour ozone standard. Monitoring data in 2000 supports this trend; however, the county remains classified as a serious nonattainment area for ozone.

3.10 Noise

Noise is generally described as unwanted sound, which can be based either on objective effects (hearing loss, damage to structures, etc.) or subjective judgments (community annoyance). Sound is usually represented on a logarithmic scale with a unit called the

decibel (dB). Sound on the decibel scale is referred to as a sound level. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB.

Noise levels are computed over a 24-hour period and adjusted for nighttime annoyances to produce the day-night average sound level (DNL). DNL is the community noise metric recommended by the EPA and has been adopted by most Federal agencies (EPA 1972; FICON 1992).

Several examples of noise pressure levels in dBA are listed in Table 3-4. A DNL of 65 dBA is the level most commonly used for noise planning purposes and represents a compromise between community impacts and the need for activities like construction, which do cause noise. Areas exposed to DNL above 65 dBA are generally not considered suitable for residential use. A DNL of 55 dBA was identified by the EPA as a level below which there is effectively no adverse impact (EPA 1972).

Table 3-4: A-Weighted (dBA) Sound Levels of Typical Noise Environments

dBA	Overall Level	Noise Environment
120	Uncomfortably Loud (32 times as loud as 70 dBA)	Military jet takeoff at 50 ft
100	Very loud (8 times as loud as 70 dBA)	Jet flyover at 1,000 ft
80	Loud (2 times as loud as 70 dBA)	Propeller plane flyover at 1,000 ft Diesel truck 40 mph at 50 ft
70	Moderately loud	Freeway at 50 ft from pavement edge Vacuum cleaner (indoor)
60	Relatively quiet (1/2 as loud as 70 dBA)	Air condition unit at 10 ft Dishwasher at 10 ft (indoor)
50	Quiet (1/4 as loud as 70 dBA)	Large transformers Small private office (indoor)
40	Very quiet (1/8 as loud as 70 dBA)	Bird calls Lowest limit of urban ambient sound
10	Extremely quiet (1/64 as loud as 70 dBA)	Just audible
0	Threshold of hearing	

Some noise levels are continuous sounds (i.e., air conditioner, vacuum cleaner) whose levels are constant for some time. Other noise levels like the automobile or heavy truck

are the maximum sound during a vehicle passby. Noise levels, such as urban daytime and urban nighttime, are averages over some extended period.

3.11 Cultural Resources

3.11.1 Cultural History

The archaeological record in southern California begins approximately 12,000 years ago. Chartkoff and Chartkoff recognize four major periods: Paleoindian, Archaic, "Pacific" (herein referred as Late Prehistoric consistent with Erlandson 1994; Moratto 1984), and Historic (Vargas et al. 2002a).

The Paleoindian Period (12,000 – 8,000 B.P.) is characterized by small, mobile bands of hunter-gatherers. Their economy was centered on big-game hunting. The environment during this time was wetter and cooler than at present. Their material culture consisted of a variety of generalized flaked stone tools, including large, well-made projectile points (Vargas et al. 2002a). There is only sparse evidence of terminal Paleoindian occupation in the San Diego area. Lasting from the terminal Pleistocene to the Altithermal in the San Diego region is a series of cultures termed the Western Pluvial Lakes Tradition (WPLT). Typically WPLT sites are associated with pluvial lakes, and the associated lake, marsh, and grassland environments. Artifact assemblages from WPLT sites typically have percussion flaked tools, lack groundstone, and have crescent knives and other unique components to the toolset. In the San Diego region the cultural expression of that parallels the WPLT has been classified by Moratto as a "Paleo-Coastal Tradition," which is seen as including the San Dieguito Complex (Moratto 1984; Vargas et al. 2002a).

The Archaic Period (8,000 – 2500 B.P.) occupations that followed the San Dieguito Complex were originally defined as the *Shell Midden Culture* and were later renamed the La Jolla Complex (Vargas et al. 2002a). The La Jolla tool kits include ceramics, large-stemmed and indented-based points, and unique discoidal and cogged stones of unknown function and sites of this complex are frequent recognized by milling stone assemblages associated with shell middens (Vargas et al. 2002a).

The Late Prehistoric Period (2500 – 200 B.P.) arose gradually from the Archaic and is characterized by a shift to a more local economy and the development of complex

societies. Changes during this period differed from region to region but generally included shifts from lagoon-based shellfish acquisition to land based, an increasing importance upon acorn processing, and the introduction of cremation versus flexed burials (Vargas et al. 2002a). Both True (1966, 1970) and Moratto (1984) suggest that for the San Diego Area the La Jolla evolved into the Cuyamaca Complex, which in turn evolved into the historic Digueño speakers.

The Historic Period (200 B.P. – present) marks the advent of European settlement in California. The first Spanish Explorer in San Diego County was Juan Rodigro Cabrillo in 1542. Spanish settlement in the area began in 1769 with the founding of the first presidio and mission. Soon afterwards, other missions and presidios were established farther north along the coast of California. The mission complexes sought to convert the indigenous Yuman-speaking inhabitants to Christianity and make them loyal to the Spanish Crown. Mexico declared its independence in 1822 and replaced the colonial Spanish missions with the ranchero system. Mexico held this area of California until the end of the Mexican-American War with the signing of the Treaty of Guadalupe-Hidalgo in 1848 and ceded California to the United States. By the 1850-1870 interval, California became a state and San Diego became an American frontier town. The Mexican ranches were subdivided into smaller farms and ranches; this system is still in existence today. In the late 1860s, the center of San Diego was relocated from the old town to an adjoining area within present day San Diego, on the San Diego Bay. With its position on the San Diego Bay and plans for the construction of a railroad connection, San Diego became the regional economic center and a merchant port. In the 1880s, an economic boom further fostered economic diversification and urbanization of the area. It was during this time that the South Pacific Rail Road built a branch line southward to San Diego from its main line in Los Angeles (Vargas et al. 2002a). In 1919, the San Diego and Arizona Railroad was completed. Portions of the rail line cross near the current project area and through the Cities of Tecate and Campo. The rail line was beset with problems during construction and operation. The last passenger train operated in 1951 and the last freight train on the line operated in 1982. Recently there has been a renewed interest in opening the line to transport goods from Mexico to the Port of San Diego and for opening portions of the line for tourism (Vargas et al. 2002a).

3.11.2 Previous Investigations

A site records check was conducted for a 1-mile radius around all project areas. The records check was conducted at the South Coastal Information Center (SCIC) and the San Diego Museum of Man (SDMM). All known cultural resources, previous cultural resources studies, and historic properties were identified that lie within one mile of any of the proposed project areas. As a result, 72 archaeological sites, one historic district (Table Mountain Historic District), and 17 cultural resources studies were identified (Vargas et al. 2002b). Table 3-5 summarizes the archaeological sites found within one mile of all the proposed project sites. Two sites (CA-SDI-4458 and CA-SDI-177) were located close to the proposed construction at Airport Mesa. One site (CA-SDI-4460) would have been bisected by the road as originally planned. Consequently, the road was redesigned to avoid the site. Because of the realignment, all three previously recorded archaeological sites were avoided. Site CA-SDI-6035 is located near the proposed construction at Mountain Empire; however, the site is 200 feet away, a sufficient distance as to be avoided by construction activities (Vargas et al. 2002b).

3.11.3 Current Investigations

Prior to conducting the archaeological surveys, a record search was conducted at the SCIC and the SDMM. The results of that record search are summarized in Section 3.11.2. The BLM declined the need for a site file search at the Palms Springs-South Coast Field Office as their site records where duplicated at the SCIC. All areas that were not previously surveyed within the area of potential effect was surveyed by walking non-overlapping straight transects spaced no more than 49 feet apart. Ground surface visibility averaged about 80% across all areas surveyed. No previously recorded archaeological sites were encountered during the initial field surveys or during the survey of the revised road alignment outlined in Section 3.11.2. The four previously recorded sites (CA-SDI-177, CA-SDI-4458, CA-SDI-4460 and CA-SDI-6035) that were located close to the project area were revisited and evaluated. Sites CA-SDI-177 and CA-SDI-4460 were both found to be heavily impacted by foot traffic, past bulldozing disturbance and erosion. As a result, the potential for intact subsurface deposits at these

Table 3-5: Sites within One Mile of all Project Locations

Site Number	Temporal Affiliation	Site Type	Distance from Project Site (miles)
CA-SDI-176	Prehistoric	Large occupation area with rock art (extensively looted)	0.85
CA-SDI-177	Prehistoric	Surface Lithic Scatter	0.10
CA-SDI-178	Prehistoric	Surface Ceramic Scatter	0.25
CA-SDI-4448	Prehistoric	Small camp site with roasting pit	0.60
CA-SDI-4449	Prehistoric	Large lithic scatter (moderate density)	0.30
CA-SDI-4450	Record Missing from SCIC		
CA-SDI-4458	Unknown	Rock alignment, earthen depressions	0.10
CA-SDI-4460	Prehistoric	Lithic scatter	0.10
CA-SDI-4461	Prehistoric	Lithic scatter	0.20
CA-SDI-4462	Prehistoric	Milling slicks, small lithic scatter	0.50
CA-SDI-4465	Prehistoric	Lithic Scatter	0.35
CA-SDI-4467	Prehistoric	Lithic Scatter	0.65
CA-SDI-4468	Prehistoric	Artifact Scatter	0.30
CA-SDI-4470	Prehistoric	Artifact Scatter	0.40
CA-SDI-4472	Prehistoric	Lithic Scatter	0.45
CA-SDI-4477	Prehistoric	Surface scatter; lithics, sherd	0.60
CA-SDI-4478	Prehistoric	Lithic scatter	0.30
CA-SDI-4479	Prehistoric	Temporary camp; depressions, pits, rock alignments, lithic scatter	0.25
CA-SDI-5163	Prehistoric	Artifact scatter	0.35
CA-SDI-5164	Prehistoric	Lithic scatter	0.75
CA-SDI-5165	Prehistoric	Pulping station	0.80
CA-SDI-6035	Prehistoric	Large occupation site with extensive milling features	0.04
CA-SDI-6037	Prehistoric	Probably occupation site, bedrock milling	0.50
CA-SDI-6742	Prehistoric	Lithic scatter	0.25
CA-SDI-6776	Prehistoric	Rock shelter: lithics, ceramics	0.70
CA-SDI-6780	Prehistoric	Rock shelter – Heavily looted	1.0
CA-SDI-6781	Prehistoric	Rock shelter – Heavily looted	1.0
CA-SDI-6993	Historic-Euroamerican	Farming Storage Area and repair site (2 structures)	0.30
CA-SDI-6995	Prehistoric	Base Camp: Midden, grinding stones	0.20
CA-SDI-6996	Prehistoric	Small lithic scatter	0.35
CA-SDI-7005	Late Prehistoric	Ceramic Concentration	0.50
CA-SDI-7039	Prehistoric	Lithic scatter	0.85
CS-SDI-7040	Prehistoric	Lithic scatter	0.80
CA-SDI-7041	Prehistoric	Lithic Scatter	0.85
CA-SDI-7042	Prehistoric	Lithic scatter	0.85
CA-SDI-7043	Historic	Possible mining camp – historic component of 7044	0.75
CA-SDI-7044	Prehistoric	Lithic scatter	0.75
CA-SDI-7045	Prehistoric	Lithic scatter	0.50
CA-SDI-7946	Prehistoric	Quarry and lithic scatter	0.70

Table 3-5 continued.

Site Number	Temporal Affiliation	Site Type	Distance from Project Site (miles)
CA-SDI-7051	Prehistoric	Rockshelter, artifact scatter: lithics, ceramics (boundaries extended to include 7063)	0.65
CA-SDI-7052	Prehistoric	Lithic scatter	0.75
CA-SDI-7053	Prehistoric	Lithic scatter	0.75
CA-SDI-7054	Prehistoric/Historic	Lithic scatter quarry, historic artifact scatter	0.65
CA-SDI-7057	Unknown	Rock cairn	0.70
CA-SDI-7058	Prehistoric	Lithic scatter	0.75
CA-SDI-7059	Prehistoric	Base camp: lithics, pottery, milling, midden, rockshelters	0.75
CA-SDI-7060	Prehistoric	Base camp: lithics, pottery, milling, midden, rockshelters	0.90
CA-SDI-7062	Prehistoric	Lithic scatter (2 flakes)	0.65
CA-SDI-7063	Prehistoric	Temporary camp: rockshelter, flakes, milling	0.70
CA-SDI-7084	Prehistoric	Lithic scatter	0.75
CA-SDI-7085	Prehistoric	Base camp: large milling complex, sherd and lithics scatter	0.75
CA-SDI-7086	Prehistoric	Sherd and lithic scatter	0.60
CA-SDI-7087	Prehistoric	Lithic scatter	0.70
CA-SDI-8304	Prehistoric	Artifact Scatter	0.75
CA-SDI-8430	Prehistoric	Quarry	0.35
CA-SDI-8431	Prehistoric	Lithic scatter	0.50
CA-SDI-8432	Prehistoric	Bedrock milling station, lithic and ceramic scatter	0.50
CA-SDI-9157	Prehistoric	Lithic scatter	0.60
CA-SDI-9159	Historic	Commercial “Bromo Seltzer” sign painted on granite boulders	0.60
CA-SDI-9160	Historic	Purple glass bottle bust	0.45
CA-SDI-9165	Historic	Historic glass bottle bust	0.50
CA-SDI-9167	Historic	Trash dump	0.40
CA-SDI-9174	Historic-Euroamerican	Well – Iron pipe in concrete foundation	0.75
CA-SDI-9275	Prehistoric	Lithic Scatter	0.35
CA-SDI-9276	Prehistoric	Ceramic Scatter	0.40
CA-SDI-9927	Prehistoric	Lithic scatter	0.80
CA-SDI-9928	Prehistoric	Lithic scatter	0.60
CA-SDI-9929	Prehistoric	Lithic scatter	0.60
CA-SDI-9930	Prehistoric	Ceramic and lithic scatter	0.60
CA-SDI-12866	Prehistoric	Small lithic scatter	0.75
CA-SDI-13249	Prehistoric	Small lithic scatter & two milling slicks	0.65
W-2893 (SDMM)	Prehistoric	Small milling site (3 slicks on rock outcrops)	0.10

sites is extremely low and they are recommended ineligible for inclusion on the National Register of Historic Places (NRHP). Sites CA-SDI-4458 and CA-SDI-6035 had a greater degree of integrity and both possess the potential for intact subsurface deposits that could have data potential. As a result, both sites are recommended as potentially eligible for inclusion on the NRHP (Vargas et al. 2002b).

3.12 Socioeconomics

3.12.1 Population

The Region of Influence (ROI) for the proposed project is San Diego County, which is part of the San Diego Metropolitan area. The region around Campo lies within the San Diego Regional Planning Agency (SANDAG) Mountain Empire subregion. The 2000 population of San Diego County was estimated to be 2,813,833, which ranked third in the State of California (U.S. Census Bureau 2001). This is an increase of 12.6% over the revised 1990 census population of 2,498,016. The racial mix of the San Diego County is mainly comprised of Caucasians (67%) and Asian and Pacific Islanders (8%). The remaining 25% is split among African-Americans, Native Americans, and other races. Less than half of the total population (27%) claim to be of Hispanic origin (U.S. Census Bureau 2001). The population of the Mountain Empire subregion is an estimated 6,420. This population is predominantly Caucasian (65%), followed by Hispanic (26%) with the remaining 9% divided between African-American, Asian, and other races (SANDAG 2001).

3.12.2 Employment, Poverty Levels, and Income

The total number of jobs in the study area was 1,664,791 in 1999, an increase of 18% over the 1989 number of jobs of 1,407,585 (Regional Economic Information System 2001). The services industry provided the most jobs followed by the government sector and the retail trade industry. The 1999 unemployment rate for San Diego County was 3.1%. This is lower than the unemployment rate for the State of California of 5.2% (California Employment Development Department, County Snapshot 2001). The total number of jobs within the Mountain Empire subregion was estimated to be 1,925 in 1995. Within this subregion the government furnished the most jobs, followed by the services and retail trade industries respectively (SANDAG 2001).

The 1999 annual total personal income (TPI) for the ROI was $83 billion. This TPI ranked third in the state of California and accounted for 8.4% of the state total (BEARFACTS 2001). In 1989, the TPI of San Diego County was $50 billion and ranked third in the state. Over the past 10 years the average annual growth rate of TPI was 5.2%. This is higher than the annual growth rate for the state of 5% and lower than that for the Nation of 5.6%. Per capita personal income (PCPI) for San Diego County was $29,489 in 1999. This PCPI ranked 14th in the state, and was 99% of the state average, $29,856, and 103% of the national average, $28,546. In 1989, the PCPI of San Diego County was $20,478 and ranked 14th in the state. The average annual growth rate of PCPI over the past 10 years was 3.7%, which was the same as the state's growth rate of 3.7% and lower than the national growth rate of 4.4%. The 1997 model based median household income for San Diego County is $29,427. The estimated number of people of all ages in poverty for San Diego County in 1997 was 386,232. This represented 14.2% of the county, which is lower than the estimated 16.5% of the state population that lives in poverty (BEARFACTS 2001). The median household income for the Mountain Empire subregion was estimated to be $33,009 in 2000 (SANDAG 2001).

3.12.3 Housing

The total number of housing units in San Diego County in 2000 was 1,040,149. This is a 9.9% increase over the 1990 total number of housing units of 946,240 (U.S. Census Bureau 2001). This represents 8.5% of the total housing units reported for the State of California in 2000. The home ownership rate in San Diego County for 2000 was 55.4%, which was lower than the home ownership rate for the State of California at 56.9%. The total number of owner occupied housing units in 2000 was 388,236 and renter occupied housing units totaled 407,321 (U.S. Census Bureau 2001). The estimated total number of housing units within the Mountain Empire subregion is 2,860, of which 2,092 are occupied, giving a vacancy rate of 26.9% (SANDAG 2001).

3.12.4 Environmental Justice (EO 12898)

The fair treatment of all races has been assuming an increasingly prominent role in environmental legislation and implementation of environmental statutes. In February 1994, President Clinton signed EO 12898 titled, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This action requires all Federal agencies to identify and address disproportionately high and

adverse effect of its programs, policies, and activities on minority and low-income populations.

While the border region between Canyon City and Jacumba has a high minority population, the project area itself is sparsely populated. The population within the project area is not grouped into neighborhoods or communities, only agricultural land holdings, industrial/commercial developments, and public lands. The area south of the border also has a high percentage of the population that claims Hispanic origins.

3.12.5 Protection of Children (EO 13245)

EO 13045 requires each Federal agency "to identify and assess environmental health risks and safety risks that may disproportionately affect children"; and "ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." This EO was prompted by the recognition that children, still undergoing physiological growth and development, are more sensitive to adverse environmental health and safety risks than adults. Due to the sparse population of the border region between Canyon City and Jacumba, potential of impacts to children is low.

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