MOODY FLATS QUARRY PROJECT
BIOLOGICAL RESOURCES

DECEMBER | 2009

REVISED FEBRUARY 2011

Lead Agency
Shasta County, Department of Resource Management – Planning Division

Applicant/Operator
Moody Flats Quarry, LLC

BENCHMARK RESOURCES

MOODY FLATS QUARRY PROJECT
BIOLOGICAL RESOURCES

DECEMBER | 2009

REVISED FEBRUARY 2011

Lead Agency
Shasta County, Department of Resource Management – Planning Division
19005 Placer Street, Suite 103, Redding, California 96001

Applicant/Operator
Moody Flats Quarry, LLC
3M Center, Building 224-5N-60,
St. Paul, Minnesota 55144

Preparer
Benchmark Resources
4990 Hillsdale Circle, Suite 400, El Dorado Hills, California 95762

CONTENTS

1.0 METHODOLOGY 1

1.1 Biological Resources Assessment 2

1.2 Botanical Survey Report 3

1.3 Delineation of "Waters of the U.S." 3

2.0 EXISTING CONDITIONS 4

2.1 Geographical Setting 4

2.2 Vegetation Communities 7

2.2.1 Annual Grassland 7

2.2.2 Barren Areas 9

2.2.3 Blue Oak Woodland 9

2.2.4 Blue Oak-Gray Pine 10

2.2.5 Fresh Emergent Wetland 10

2.2.6 Mixed Chaparral 10

2.2.7 Montane Hardwood-Conifer 11

2.2.8 Montane Hardwood 11

2.2.9 Ponderosa Pine 11

2.2.10 Valley Oak Woodland 11

2.2.11 Valley Foothill Riparian 12

2.3 Jurisdictional Waters 12

2.4 Special Status Species 20
2.4.1 Special Status Plant Species 20
2.4.2 Special Status Wildlife Species 20
2.5 Oak Woodland Habitat 21

3.0 REGULATORY SETTING 22
3.1 Federal 22
3.1.1 Federal Endangered Species Act 22
3.1.2 Clean Water Act – Section 404/Section 10 Jurisdiction 23
3.2 State 24
3.2.1 California Endangered Species Act 24
3.2.2 CDFG Species of Concern 24
3.2.3 Stream Alteration 24
3.3 Local 25
3.3.1 Shasta County General Plan 25

4.0 THRESHOLDS OF SIGNIFICANCE 25

5.0 ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE DETERMINATIONS 26

TABLES

Table 1 Summary of CWHR Vegetation Habitats
Table 2 Acreage Summary of "Waters of the U.S."
Table 3 Special-Status Wildlife Species with a High Potential of Occurrence On-Site
Table 4 Oak Tree Cover, Density, and Removal Percentages

FIGURES

BIO-Figure 1 Site Location
BIO-Figure 2 Existing Conditions Aerial Photograph
BIO-Figure 3 CWHR Vegetative Habitats
BIO-Figures 4a-4g Boundaries of Waters of the United States
BIO-Figure 5 Northern Clarkia Locations

BIOLOGICAL RESOURCES

The purpose of this section is to provide a discussion of the biological resources present at the Moody Flats Quarry (Project) site and disclose the special-status plant, wildlife, and invertebrate species that might inhabit or use the Project site. This section analyzes any Project impacts to biological resources and provides a discussion of mitigation measures that would lessen these impacts, when feasible, to a less than significant level.

1.0 METHODOLOGY

The biological resources of the 1,900-acre property were assessed through a literature review and field observations from 2006 to 2009. The assessment included a Biological Resources Assessment (Appendix B), Botanical Survey Report (Appendix A), and Delineation of Waters of the United States (Appendix G).

Special-status species potentially occurring in the Project area were identified through database searches using California Natural Diversity Database (CNDDB), California Wildlife Habitat Relationships (CWHR) (CDFG 2008), the USFWS database of federally protected species, and the CNPS' Electronic Inventory (CNPS 2010), reconnaissance surveys of floral and faunal resources, and review of pertinent environmental documents and technical studies.

Using the CNDDB, a search of recorded accounts of special-status species was conducted for the *Project City, California,* and *Shasta Dam, California,* 7.5-minute USGS topographic quadrangles (CDFG 2010) (see Appendix B). The CNDDB is a database consisting of historical observations of special-status plant species, wildlife species, and natural plant communities.

The CWHR system (Version 8.2) aided in determining wildlife species that potentially occur in the vegetation habitats found within the Project area. The CWHR is a predictive database premised upon scientific information concerning wildlife species and their habitat relationships. Fish and invertebrates are not included in the CWHR system. Applications of CWHR include characterization of wildlife vegetation habitats and special habitat elements occurring within a particular area by using the CWHR vegetation habitat classification system. The CWHR model output is a list of wildlife species that potentially occur in the area, based on wildlife habitats, habitat elements, and geographic location.

The USFWS maintains a database that lists federally protected species for each USGS quadrangle in the jurisdiction of the Sacramento USFWS office. The current USFWS list of endangered and threatened species that may occur, or be affected by projects in the *Project City, California,* and *Shasta Dam, California,* 7.5-minute USGS topographic quadrangles and in Shasta County (County) were reviewed.

A database search was also performed for the Project site using the CNPS *Electronic Inventory,* which allows users to query the *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2010) using a set of search criteria (e.g., quad name, habitat type). The criteria used for the CNPS query included all CNPS List 1A, 1B, 2, 3, and 4 plants occurring in the County in annual grasslands, chaparral, cismontane woodland, lower montane coniferous forest, marshes and swamps, meadows and seeps, valley and foothill grasslands, riparian woodland, and riparian scrub habitats between elevations of approximately 800 and 2,500 feet.

1.1 Biological Resources Assessment

Wildlife habitat mapping and a reconnaissance-level survey for special-status species habitat within the Project site was conducted on April 19, 22, and 29 of 2010.

Vegetation habitats within the Project site were mapped to characterize the wildlife habitats. CWHR vegetation habitats were mapped using 1:2,400-scale rectified color aerial photography of the site. All vegetation mapping was performed in the field by ground truthing. CWHR vegetation habitats were identified and then delineated on aerial photographs. The delineated boundaries were then digitized and generated in ArcGIS software for display and data query purposes.

1.2 Botanical Survey Report

The botanical survey of the Project site was conducted in accordance with the California Department of Fish and Game (CDFG), *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* (CDFG 2000). The botanical survey was conducted by walking meandering transects that covered all habitat types. The survey intensity was increased in microhabitats (e.g., rocky outcrops near ridgelines and riparian corridors) that are known to have a greater potential for the presence of special-status plants. All habitat types were visited twice in order to observe the early- and late-season blooming plants. The botanical surveys were conducted on the dates of April 19, 22, 23, 28, 29, and June 10, 11, and 25 of 2010.

The botany surveys were conducted using Hickman (1993) as the standard reference for taxonomy and identification; and to confirm designation as a native or non-native species. Additionally, all non-native plant species were reviewed to determine their status as invasive plants (i.e., noxious weeds) according to the ratings in the *California Invasive Plant Inventory* produced by California Invasive Plant Council (Cal-IPC 2006). Cal-IPC categorizes non-native invasive plants into three categories of overall negative ecological impact in California: High, Moderate, and Limited.

1.3 Delineation of "Waters of the U.S."

The on-site routine delineation of waters of the United States in the Project site was based on field observations of positive indicators for hydrophytic vegetation, hydrology, and soils for wetlands; and on indicators of an ordinary high water mark (OHWM) for other waters of the United States. This methodology is consistent with the approach outlined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008), and Corps regulations. Taxonomic nomenclature for plant species is in accordance with *The Jepson Manual* (Hickman 1993). Wetland indicator status for plant species was confirmed using Reed (1988), and the "50/20 Rule" was applied to determine plant dominance (U.S. Army Corps of Engineers 2008). Presence of primary and secondary wetland hydrology indicators were documented for each wetland feature.

A soil pit was dug in each representative wetland feature. Soil pits were dug to a depth sufficient to document the presence or confirm the absence of hydric soil or hydrology indicators. Soils were examined in order to assess field indicators of hydric soils. Positive indicators of hydric soils were observed in the field in accordance with the criteria outlined in *Field Indicators of Hydric Soils in the United States* (Hurt and Vasilas

2006). Soil colors were determined using a Munsell® soil color chart. The hydric status of each soil map unit occurring in the Project site was reviewed using the *Web Soil Survey* (Soil Survey Staff 2010). At least one set of data points was selected to best represent the wetland feature type and the adjacent uplands. Data points were also placed in suspect areas to confirm wetland or upland status.

"Other waters" are TNWs and their tributaries. Delineation of "other waters" was based on presence of an OHWM as defined in Corps regulations (33 CFR 328.3 and 33 CFR 328.4) and whether the feature qualified as tributary to waters of the United States. Physical characteristics of an OHWM include, but are not limited to, a natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, presence of litter and debris, leaf litter disturbed or washed away, scour, deposition, presence of bed and bank, and water staining. At least one set of paired data points was then selected to best represent the "other waters" and adjacent upland conditions for each "other waters" type.

Sixty-one data points representing each feature type, the associated upland, and suspect areas were characterized and documented throughout the Project site. Field observations were conducted June 15 through July 20, 2010. Routine wetland determination data forms, and representative photographs of features delineated and data point locations, are presented in Appendix G.

The boundaries of delineated features and data points were mapped using a Trimble Pathfinder Pro XH Global Positioning System (GPS) capable of sub-foot accuracy. Where the use of the GPS was not practicable due to dense vegetation and/or topography, the features were delineated by hand onto ortho-rectified color aerial photographs.

2.0 EXISTING CONDITIONS

2.1 Geographical Setting

The Project site is located in western Shasta County, California, about 1 mile west of Interstate 5, north of the City of Shasta Lake, and 9 miles north of the City of Redding (see BIO-Figure 1, Site Location). The Project site is located on land historically utilized as open space, as shown in BIO-Figure 2, Existing Conditions Aerial Photograph. The elevation of the site ranges from approximately 800 feet to 2,000 feet above mean sea level (amsl). The site encompasses approximately 1,900 acres dominated by Montane Hardwood-Conifer and Montane Hardwood vegetative habitats. Three creeks, Moody

Figure 1, Site Location

Figure 2, Existing Conditions Aerial Photograph

Creek, Rancheria Creek, and Salt Creek, transverse the center and eastern portions of the site. The only man-made structure on the property is the Union Pacific Railroad line traversing the east side of the property and Digger Bay Road through the west side corner of the property (see BIO-Figure 2).

2.2 Vegetation Communities

Vegetation communities were classified according to the habitat type descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer Jr. 1988). Eleven habitats were mapped in the Project site: annual grassland, barren, blue oak woodland, blue oak-gray pine, fresh emergent wetland, mixed chaparral, montane hardwood-conifer, montane hardwood, ponderosa pine, valley oak woodland, and valley-foothill riparian. Approximately 90 percent of the Project site was accounted for by the following habitat types: montane hardwood-conifer, montane hardwood, blue oak-gray pine, and mixed chaparral. Table 1, Summary of CWHR Vegetative Habitats, provides the vegetation habitats and approximate acreage of those habitats within the property boundary and limits of surface disturbance. Vegetation habitat boundaries are shown in BIO-Figure 3, CWHR Vegetative Habitats. Detailed descriptions for each habitat type are provided below.

2.2.1 Annual Grassland

Annual grassland occurs in the eastern portion of the Project site and in the Moody Flats area west of the railroad tracks. It is generally characterized by a dense herbaceous layer of annual grasses and forbs dominated by yellow star-thistle *(Centaurea solstitialis),* slender wild oat *(Avena barbata),* rose clover *(Trifolium hirtum),* storks bill *(Erodium botrys),* winter vetch *(Vicia villosa),* medusahead *(Taeniatherum caput-medusae),* ripgut brome *(Bromus diandrus),* and soft chess *(B. hordeaceus).*

Seasonal wetlands including seep-springs, vernal swales, and intermittent pools occur in the annual grassland habitat. These features are inundated for long duration during the growing season supporting vegetation adapted to living in moist or wet conditions. These wetlands are dominated by a variety of grasses and forbs based on the length of saturation or inundation. Dominant species occurring in these features include Mediterranean barley *(Hordeum marinum* ssp. *gussoneanum),* Italian ryegrass *(Lolium multiflorum),* iris leaved juncus *(Juncus xiphioides),* dense sedge *(Carex densa),* dallis grass *(Paspalum dilatatum),* and sweet vernal grass *(Anthoxanthum aristatum).*

Figure 3, CWHR Vegetative Habitats

TABLE 1
SUMMARY OF CWHR VEGETATION HABITATS

Vegetation Habitats	Acreage	
	Project Boundary	*Limits of Surface Disturbance*
Annual grassland	48	47
Barren	21	12
Blue oak-gray pine	196	124
Blue oak woodland	3	3
Fresh emergent wetland	0.05	0
Mixed chaparral	148	61
Montane hardwood-conifer	905	304
Montane hardwood	504	213
Ponderosa pine	87	7
Valley foothill riparian	4	1
Valley foothill riparian/ Fresh emergent woodland	1	0
Valley oak woodland	16	15
Total	**1,933**	**787**

2.2.2 Barren Areas

Barren habitat occurs as barren areas created by significant roads and fire lines, the railroad corridor, and rock outcrops. Roads and fire lines mapped as barren predominantly occur in the western portion of the Project site. The railroad corridor bisects the mid- to eastern portion of the Project site and rock outcrops occur along the ridgelines in the west and northern portions of the Project site. Barren habitat exhibits sparse to no vegetation.

2.2.3 Blue Oak Woodland

Blue oak woodland occurs in the eastern most corner of the Project site. It is characterized by a moderate overstory of blue oak *(Quercus douglasii)* with a dense herbaceous understory. Species occurring in the adjacent annual grassland also occur in blue oak woodland and include slender wild oat, rose clover, storks bill, winter vetch, ripgut brome, and soft chess.

2.2.4 Blue Oak-Gray Pine

Blue oak-gray pine occurs mainly in the lower, moderately sloped portions of the Project site. It occurs in the western portion of the Project site in valleys generally along stream corridors and over a ridge in the north-central portion of the Project site. A dense to moderately dense overstory with a dense to moderately dense understory characterizes the blue oak-gray pine habitat. Several oak species are present in this habitat type and herbaceous cover varies from dense to sparse depending on the canopy closure. Dominant overstory species include blue oak, California black oak *(Q. kelloggii)*, valley oak *(Q. lobata)*, interior live oak *(Q. wislizenii)*, and gray pine *(Pinus sabiniana)*. Oracle oak *(Quercus* x *morehus)*, a hybrid of California black and interior live oak is also common in the overstory. Common shrubs observed in this habitat include white leaf manzanita *(Arctostaphylos viscida)*, buck brush *(Ceanothus cuneatus)*, poison oak *(Toxicodendron diversilobum)*, coffee berry *(Rhamnus californica)*, deer brush *(Ceanothus integerrimus)*, and California buckeye *(Aesculus californica)*. Common grasses and forbs observed in this vegetation habitat include pussy ears *(Calochortus tolmiei)*, Pacific hounds tongue *(Cynoglossum grande)*, slender wild oat, and soaproot *(Chlorogalum pomeridianum)*. Lianas of Dutchman's pipe *(Aristolochia californica)* and chaparral clematis *(Clematis lasiantha)* shroud shrubs and often grow into the tree canopy.

2.2.5 Fresh Emergent Wetland

Fresh emergent wetlands are uncommon in the Project site, and only occur in the pond in the southern portion of the Project site and in a small, excavated channel along the railroad tracks in the southeastern portion of the Project site. Small intermittent pools in the annual grassland habitat also contain fresh emergent vegetation. Emergent wetland vegetation dominates these wetlands due to perennial or nearly perennial inundation. Common species include pale spike rush *(Eleocharis macrostachya)*, broad-leaf cattail *(Typha latifolia)*, and pondweed (*Potamogeton* sp.).

2.2.6 Mixed Chaparral

Mixed chaparral occurs on exposed slopes throughout the Project site. This habitat is typically characterized by dense shrub stands. Dominant species include whiteleaf manzanita, buckbrush, toyon *(Heteromeles arbutifolia)*, California buckeye, Brewer's oak *(Quercus garryana* var. *breweri)*, California bay *(Umbellularia californica)*, interior live oak, Lemmon's ceanothus *(Ceanothus lemmonii)*, birchleaf mountain mahogany *(Cercocarpus betuloides)*, holly-leaf redberry *(Rhamnus ilicifolia)*, yerba santa *(Eriodictyon californicum)*,

and poison oak. Few herbaceous plants occur in this habitat and include soaproot, goosegrass *(Galium aparine),* and hedgehog dogtail *(Cynosurus echinatus).*

2.2.7 Montane Hardwood-Conifer

Montane hardwood-conifer occurs on the slopes throughout the main portion of the Project site and is characterized by a dense hardwood canopy interspersed with conifers. The dominant hardwood is California black oak with interior and canyon live oak *(Q. chrysolepis)* associates. Individuals or stands of gray pine or ponderosa pine (*Pinus ponderosa*) occur in this habitat type. Understory species are generally dense and include whiteleaf manzanita, buck brush, interior live oak, canyon live oak, California buckeye, western redbud *(Cercis occidentalis),* and California bay. Forbs and grasses occur in a sparse to moderate herbaceous layer dominated by pussy ears, soaproot, hound's tongue, and slender wild oat.

2.2.8 Montane Hardwood

Montane hardwood occurs on the slopes in the northern and western portions of the Project site and is characterized by a dense overstory of California black oak. The understory is often sparse due to a typically dense canopy. Associated species include canyon live oak, poison oak, soaproot, California buckeye, and California bay.

2.2.9 Ponderosa Pine

Ponderosa pine occurs primarily in the northwestern portion of the Project site, although there are also small stands occurring toward the southern portion. Ponderosa pine is sparsely to moderately dispersed throughout the canopy with California black oak as a common hardwood associate. Dense stands of whiteleaf manzanita, buck brush, and Brewer's oak are also present in the understory. Understory plants are sparse and include soap root, poison oak, and narrow-leaved sword fern *(Polystichum imbricans).*

2.2.10 Valley Oak Woodland

Valley oak woodland is located in the level, lower elevation areas in the eastern portion of the Project site. It occurs between Moody and Rancheria Creeks east and west of the railroad tracks. This habitat is characterized by a dense overstory dominated by valley oak. Blue, California black, and interior live oaks also occur intermittently. Moderate to dense patches of shrubs occur in the understory and include California buckeye, coffee berry, snowdrop bush, and western redbud. Lianas of California grape *(Vitis californica)*

grow into the upper canopy. Forbs and herbs occur in dense patches where openings in the canopy occur. Dominant herbaceous species include hedgehog dogtail, torilis *(Torilis arvensis),* and European hairgrass *(Aira caryophyllea).*

2.2.11 Valley Foothill Riparian

Valley foothill riparian occurs as thin strings and large patches along most stream corridors in the Project site. It also occurs around the southern edge of the pond in the southern portion of the Project site. In valley foothill riparian associated with streams, it is characterized as a sparse overstory of Fremont cottonwood *(Populus fremontii),* big leaf maple *(Acer macrophyllum),* or white alder *(Alnus rhombifolia),* and a fairly dense mid-story and herbaceous layer. The mid-story is dominated by willows including arroyo willow *(Salix lasiolepis),* narrow-leafed willow *(S. exigua),* red willow *(S. laevigata)* western choke cherry *(Prunus virginiana),* and spice bush *(Calycanthus occidentalis).* Brambles of Himalayan blackberry *(Rubus discolor)* and California blackberry *(R. ursinus)* often engulf broader, low-gradient riparian areas. Lianas of California grape grow into the canopy. Other species include California buttonwillow *(Cephalanthus occidentalis),* American dogwood *(Cornus sericea),* California ash *(Fraxinus dipetala),* and mugwort *(Artemisia douglasiana).*

2.3 Jurisdictional Waters

A formal delineation of jurisdictional "waters of the U.S." was conducted in June and July of 2010. The delineation identified ten types of "waters of the U.S." within the Project site including: fresh emergent wetland, fresh emergent-Riparian wetland, intermittent pool, intermittent swale, riparian wetland, seep-spring wetland, vegetated ditch, emphemeral stream, intermittent stream, and seep-spring/other waters. These features occupy a total of 13.65-acres of the Project site. The ACOE has not yet confirmed the delineation results. Table 2, Acreage Summary of "Waters of the U.S.", provides a breakdown of acreages associated with each "water of the U.S." type, and BIO-Figures 4a-4g, Boundaries of Waters of the United States, depicts their mapped locations.

Figure 4a, Boundaries of Waters of the United States

Figure 4b, Boundaries of Waters of the United States

Figure 4c, Boundaries of Waters of the United States

Figure 4d, Boundaries of Waters of the United States

Figure 4e, Boundaries of Waters of the United States

Figure 4f, Boundaries of Waters of the United States

Figure 4g, Boundaries of Waters of the United States

TABLE 2
ACREAGE SUMMARY OF "WATERS OF THE U.S."

Waters of the United States	Total Acreage	Acreage Within the Limits of Surface Disturbance
WETLANDS		
Fresh Emergent Wetland	0.09	0.049
Fresh Emergent-Riparian Wetland	0.22	0.000
Intermittent Pool	0.001	0.0007
Intermittent Swale	0.57	0.497
Riparian Wetland	2.40	0.089
Seep-Spring Wetland	0.24	0.053
Vegetated Ditch	0.01	0.00
OTHER WATERS		
Ephemeral Stream	0.55 (19,568 linear feet)	0.227 (10,298 linear feet)
Intermittent Stream	9.57 (114,118 linear feet)	4.323 (64,809 linear feet)
Seep-Spring/Other Waters	0.003 (73 linear feet)	0.00
Total "Waters of the U.S"	**13.65**	**5.2387**

2.4 Special Status Species

2.4.1 Special Status Plant Species

A botanical survey of the site was conducted during early- and late-season blooming periods, in accordance with CDFG Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (2000). One special status plant specie, northern clarkia (*Clarkia borealis sp. borealis*), was observed in the northwest corner of the property. The northern clarkia is not federally- or state-listed, but is a CNPS List 1B.3. The location where the northern clarkia was observed is outside of the Project's limits of surface disturbance. A complete list of plant species identified on-site during botanical surveys is included in Appendix A.

2.4.2 Special Status Wildlife Species

Special status wildlife species include those proposed for listing, candidates for listing, or those currently listed as threatened or endangered by either the Federal or State resource agencies, as well as those identified as State species of special concern. Table 3, Special Status Wildlife Species with a High Potential of Occurrence On-Site, lists special status wildlife species that have a high potential of occurring within the Project site. A

complete list of wildlife species with a potential to occur with the Project site and/or identified during an April 2010 site visit is included in Appendix B.

TABLE 3
SPECIAL-STATUS WILDLIFE SPECIES WITH A HIGH POTENTIAL OF OCCURRENCE ON-SITE

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description and Potential Occurrence On-Site
FEDERAL AND STATE LISTED SPECIES		
Pacific Fisher *Martes pennanti pacifica*	C/CT	Intermediate to large dense stages of coniferous forests and deciduous riparian habitats with greater than 50 percent canopy closure. High potential occurring in ponderosa pine, montane hardwood-conifer, and montane hardwood habitats in the Project site. Known to occur 0.5 miles northwest of the Project site.
OTHER SPECIAL-STATUS SPECIES		
Yellow Warbler *Dendroica petechia*	—/SC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods. Present. Observed in valley foothills riparian in the Project site.
Yellow-Breasted Chat *Icteria virens*	—/SC	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry. Present. Observed in valley riparian in the Project site.
Ring-Tailed Cat *Bassariscus astutus*	—/FP	Riparian habitats and in brush stands of most forest and shrub habitats. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows or woodrat nests. High potential occurring in valley foothill riparian and along stream corridors in the Project site.

[1]Status Codes:
Federal and State Codes: E = Endangered; T = Threatened; C = Candidate; CT = Candidate for Threatened (State); SC = Species of Concern (Federal) and Species of Special Concern (State); PD = Proposed for Delisting; D = Delisted; FP = California Fully Protected species

2.5 Oak Woodland Habitat

Oak trees, to varying degrees, populate some of the CWHR Vegetative Habitats mapped on-site. Table 4, Oak Tree Cover and Density, provides cover and density percentages for the CWHR Vegetative Habitats that were oak tree species that have been identified based on on-site transect data.

TABLE 4
OAK TREE COVER, DENSITY, AND REMOVAL PERCENTAGES

Vegetative Habitat	Specie	Canopy Cover (%)	Density Per Plot (%)
Blue Oak-Gray Pine	Blue Oak	19	10
	Interior Live Oak	13	15
Blue Oak Woodland	Blue Oak	50	36
Mixed Chaparral	Interior Live Oak	8	11
Montane Hardwood-Conifer	Interior Live Oak	14	20
	Blue Oak	<1	1
Valley Foothill Riparian	Valley Oak	15	8
	Blue Oak	15	6
	Interior Live Oak	8	6
Valley Oak Woodland	Valley Oak	39	8
	Canyon Live Oak	6	5

3.0 REGULATORY SETTING

3.1 Federal

3.1.1 Federal Endangered Species Act (16 USC 1531-1544)

The federal Endangered Species Act (ESA) provides protection for federally listed endangered and threatened species and their habitats. An "endangered" species is a species in danger of extinction throughout all or a significant portion of its range. A "threatened" species is one that is likely to become endangered in the foreseeable future without further protection. Other special status species include "proposed" species, and "species of concern." Proposed species are those that have been officially proposed (in the Federal Register) for listing as threatened or endangered. "Species of concern" are species for which not enough scientific information has been gathered to support a listing proposal, but still may be appropriate for listing in the future, after further study. A "de-listed" species is one whose population has reached its recovery goal and is no longer in jeopardy. The USFWS administers the federal ESA. A project may obtain permission to take federally-listed species in one of two ways: a Section 10 HCP to a private party, or Section 7 Biological Opinion from USFWS or NOAA issued to another federal agency that funds or permits an action (e.g., USACOE). Under either section of the ESA, adverse impacts to protected species are avoided, minimized or mitigated for impacts to federally listed species. Both cases require consultation with the USFWS and/or National Marine Fisheries Service (NMFS), which ultimately issues a Biological Opinion determining

whether the federally listed species will be adversely impacted by a project, or by the issuance of an incidental take permit.

3.1.2 Clean Water Act – Section 404/10 Jurisdiction (33 USC 1251-1376)

The USACE regulates discharge of dredged or fill material into waters of the United States under Section 404 of the CWA. "Discharge of fill material" is defined as the addition of fill material into "waters of the U.S.," including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes and sub-aqueous utility lines [33 C.F.R. §328.2(f)]. In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into "waters of the U.S." to obtain a certification that the discharge will comply with the applicable state effluent limitations and water quality standards.

"Waters of the U.S." include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. The USACE typically considers USGS 7.5-minute quadrangle map "blue line" drainages as jurisdictional waters, however, the appearance of a "blue line" drainage on a map is not dispositive of a jurisdictional water. Boundaries between jurisdictional waters and uplands are determined in a variety of ways depending on which type of water is present. Methods for delineating jurisdictional wetlands and non-tidal waters are described below.

- Wetlands are defined as "those areas that are 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" [33 CFR §328.3(b)]. Presently, to be a wetland, a site must exhibit three wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology existing under the "normal circumstances" for the site.
- The lateral extent of non-tidal waters is determined by delineating the ordinary high water mark [33 CFR §328.4(c)(1)]. The ordinary high water mark is defined by the USACE as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation,

the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" [33 CFR §328.3(e)].

3.2 State

3.2.1 California Endangered Species Act (CESA) (California Fish and Game Code 2050-2116)

Similar to the federal ESA, the CESA, along with the Native Plant Protection Act, authorizes the California Fish and Game Commission to designate, protect, and regulate the taking of special status species in the State. CESA defines "endangered" as those species whose continued existence in California is jeopardized. State-listed "threatened" species are those not presently threatened with extinction, but which may become endangered if their environments change or deteriorate. Section 2080 of the CDFG code prohibits the taking of state-listed plants and animals. Any Projects that may adversely impact state-listed threatened or endangered species must formally consult with CDFG. CDFG can issue incidental take permits under Section 2081 of CESA.

3.2.2 CDFG Species of Concern

In addition to species formally listed under the ESA and the CESA, "species of special concern" receive additional consideration by CDFG and local lead agencies during the CEQA process. Species that may be considered for review are included on a list of "Species of Special Concern," developed by the CDFG. It tracks species in California whose breeding populations in California may be decreasing or face local extirpation. To avoid the future need to list these species as endangered or threatened, the CDFG recommends consideration of these species, which do not as yet have any legal status, during analysis of the impacts of projects.

3.2.3 Stream Alteration

Under Section 1602 of the California Fish and Game Code, a private party must notify the CDFG if a Project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds." If an existing fish or wildlife resource may be substantially adversely affected by the activity, the CDFG may also propose reasonable measures to protect those resources. If these measures are agreeable to the party, they may enter into an agreement with the CDFG identifying the approved activities and associated mitigation measures.

3.3 Local

3.3.1 Shasta County General Plan

The General Plan contains various goals and policies to protect and/or preserve biological resources, the following policies are applicable to the proposed Project.

FW-1: Protection of significant fish, wildlife and vegetation resources.

FW-2: Provide for a balance between wildlife habitat protection and enhancement and the need to manage and use agricultural, mineral extraction, and timber land resources.

FW-b: Recognition that classification of some fish, wildlife, and vegetation resources designated and used as Timberlands, Mineral Resource, Croplands, or Grazing lands does, in most cases, protect habitat resources. However, if there is a conflict, the timber, mineral extraction, or agricultural land use classifications mentioned above shall prevail in a manner consistent with State and Federal laws.

FW-c: Projects that contain or may impact endangered and/or threatened plant or animal species, as officially designated by the California Fish and Game Commission and/or the U. S. Fish and Wildlife Service, shall be designed or conditioned to avoid any net adverse project impacts on those species.

FW-d: The significant river and creekside corridors of Shasta County shall be designated on the General Plan maps. The primary purpose of this designation is to protect the riparian habitats from development and from adverse impacts from conflicting resources uses. The purpose is also to encourage open space and recreation (policy OSR-e). Mapping of significant waterway corridors in areas designated as resource protection lands is not required since it is assumed that resource land uses will also act to protect such waterway corridors. Riparian habitat protection along the significant river and creekside corridors, as designated on the plan maps shall be achieved, where appropriate, by the following measures:

- Regulation of vegetation removal.
- Design of grading and road construction to restrict sediment input to all streams.
- Establishment of a development set-back.
- The sitting of structures, including clustering.
- Recreation plans for the Sacramento River, Clear Creek, and other feasible waterway resources.

4.0 THRESHOLDS OF SIGNIFICANCE

The following subsections describe the thresholds of significance used to assess potential environmental impacts and the impact assessment. Based on Appendix G of the CEQA Guidelines, a project is considered to result in significant impacts on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- Conflict with the provisions of any adopted habitat conservation plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.0 ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND SIGNIFICANCE DETERMINATIONS

Impact BIO-1: Substantial Effect on Special Status Plants

As discussed in Section 1.2 above, a Botanical Survey Report for the site was prepared that consisted of on-site surveys during appropriate blooming periods for special status plant species known to occur in the region. One special-status plant species, northern clarkia (*Clarkia borealis* ssp. *borealis*), was observed on-site. Northern clarkia is a CNPS List 1B.3 species, and is not State or federally listed. Two separate occurrences of northern clarkia were observed in the northwest portion of the site along rocky slopes within montane hardwood habitat. BIO-Figure 5, Northern Clarkia Locations, provides the location of the two separate occurrences, both of which are outside the Project's limits of surface disturbance. The southern occurrence consisted of approximately 250 individuals spread over approximately 100 feet along both sides of a dirt-bike trail on a northwest facing slope near the top of the ridgeline. The northern occurrence was comprised of approximately 25 plants.

Figure 5, Northern Clarkia Locations

As shown on BIO-Figure 5, the only two occurrences of northern clarkia are outside the Project's limits of surface disturbance and there is no indication that suitable habitat exists on the Project disturbances site, and therefore, no disturbance to these species would occur. This impact is less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact BIO-2: Substantial Effects on Special Status Amphibian Species

The Shasta salamander (*Hydromantes shastae*) is State-listed as a threatened species. This salamander is associated with limestone caves and outcrops, although it has also recently been observed in other habitats under rocks and forest litter within 6 km (>3 mi) of limestone formations (Lindstrand 2000). The Shasta salamander is known only from Shasta and Siskiyou Counties, and is primarily active at night during the wet winter and spring months. The closest known location for Shasta salamander listed in the CNDDB is approximately 3 miles east of the Project site (CDFG 2009). The Project site contains no limestone formations or outcroppings, and the current biological surveys and reports suggest that the Project site is too arid to support a population of Shasta salamander (see Appendix H, Shasta Salamander Survey Letter).

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact BIO-3: Substantial Impact on Special Status Reptile Species

The western pond turtle (*Emys marmorata*) is a State Species of Special Concern. This aquatic turtle inhabits ponds, lakes, streams, marshes, and other permanent waters located in woodland, grassland, and open forests below 6,000 ft (Stebbins 1985). Pond turtles can often be seen basking in the sun on partially submerged logs, rocks, mats of floating vegetation, or mud banks. During cold weather, they hibernate in bottom mud.

The pond within the Project site provides potential habitat for western pond turtles. However, the habitat is marginal, due to the intermittent nature of the creek that connects to the pond. In addition, the pond is located outside the disturbance area approximately ¼-mile from proposed surface disturbance of the

South Pit and would therefore not be impacted. This impact is less than significant.

Level of Significance Before Mitigation: Less than Significant

Mitigation Measures: None Required

Impact BIO-4: Substantial Effect on Special Status Bird and Bat Species

Raptors and Non-Raptor Bird Species

The following raptor species may nest within the Project site, and all are protected by State and/or federal laws: white-tailed kite, northern harrier, bald eagle, long-eared owl, and northern spotted owl. Other non-raptor species of special concern which may nest within the Project site include pacific fisher, yellow warbler, and yellow-breasted chat. Numerous other migratory bird species have the potential to nest within the Project site (e.g., several species of swallows, woodpeckers, sparrows, etc).

Bat Species

Pallid bat, western mastiff bat, western red bat, and Townsend's western big-eared bat are California Species of Special Concern. These bats are found in a variety of habitats, but primarily hollowed trees and rock outcrops. These species move about locally on a seasonal basis, but are not considered to be migratory. During the day, bats roost in buildings, crevices, caves, mines, and hollow trees. The breeding period for these bats is during May and June. Project operations may result in the removal of these habitats during vegetation removal prior to mining.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

Mitigation Measure BIO-3

Schedule tree removal to occur outside the primary bird nesting and bat maternity roosting season for this site. Tree removal should be scheduled for September 1 to March 1 of any given year.

Mitigation Measure BIO-4

If a tree removal schedule of September 1 to March 1 is not possible, have a qualified biologist conduct nesting bird surveys and roosting bat surveys no more than two weeks prior to tree removal. If nesting migratory birds are observed, the biologist shall establish a minimum 50-foot buffer around the nest tree/shrub where no construction will occur until the biologist has determined that all young have fledged and are capable of feeding on their own. For nesting raptors, the minimum buffer shall be 300 feet. The buffer shall be clearly demarcated in the field with orange construction fencing or conspicuous stakes and flagging. If roosting (but not breeding) bats are observed, the qualified biologist shall place one-way covers on the bat roost to allow bats to leave the roost, but not return, after receiving all necessary CDFG permits and/or approvals. No bat maternity roosts shall disturbed until all young are weaned. The biologist shall establish a suitable-sized buffer zone around any bat maternity roosts where no construction shall take place until the biologist determines that all young have been weaned.

Level of Significance After Mitigation: Less than Significant

Impact BIO-5: Substantial Effect on Special Status Mammal Species

Ring-Tailed Cat is a fully-protected California specie. Valley foothill riparian and stream corridors on portions of the site provide suitable habitat. Site development, including the secondary and ancillary processing, and load-out area, may result in the removal of these habitats during surface disturbance of habitat surrounding Moody Creek and seasonal riparian habitat. This impact is potentially significant.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures BIO-6

The Applicant shall hire a qualified biologist to conduct preconstruction surveys for Ring-Tailed Cat dens no more than 30 days prior to any ground disturbance. If no potential dens are observed, no further mitigation is required. If potential dens are observed, the qualified biologist shall conduct three nights of "den dusting" by placing tracking medium at the potential den entrance to determine if the dens are currently occupied. If no dens show signs of occupation, no further mitigation is required. If tracking shows that dens are occupied, the biologist shall excavate the burrow by hand and allow for either escape or relocation as necessary. The biologist shall have all required permits from CDFG.

Level of Significance After Mitigation: Less than Significant

Impact BIO-6: Substantial Effect on Riparian Habitat, Including Wetlands or Other "Jurisdictional Waters"

As discussed in Section 2.3 above, a formal delineation of jurisdictional "waters of the U.S." was conducted for the property. The delineation identified ten types of "waters of the U.S.," within the property occupying a total of 13.65 acres. As shown in Table 2 above, approximately 5.24 acres of "waters of the U.S." are located within the Project's limits of surface disturbance, including 0.69 acres of wetlands and 4.55 acres of "other waters" (ephemeral and intermittent streams). This impact is considered potentially significant.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

Mitigation Measure BIO-7a

The Operator shall obtain the appropriate Clean Water Act Section 404 permit from the ACOE and Section 401 Water Quality Certification from the RWQCB prior to the discharge of any dredged or fill material within jurisdictional waters of the U.S., including adjacent, jurisdictional wetlands. The Operator shall comply with any compensatory mitigation for loss of wetlands and waters of the U.S. and waters of the State as required by law.

Mitigation Measure BIO-7b

The Operator shall submit a notification of Streambed Alteration to the California Department of Fish and Game and secure a Streambed Alteration Agreement prior to any modification of watercourses, including the in-channel stock pond. The Operator shall implement any compensatory mitigation lawfully required by CDFG.

Mitigation Measure BIO-7c

Construction activities that will impact watercourses and other waters of the U.S./waters of the State shall be conducted during the dry season (typically May to November) to minimize erosion.

Mitigation Measure BIO-7d

Appropriate sediment control measures shall be in place prior to the onset of Project construction and shall be monitored and maintained until construction activities have ceased. Temporary stockpiling of excavated or imported material shall occur only in approved construction staging areas. Excess excavated soil shall be used on site or disposed of at a regional landfill or other appropriate facility. Stockpiles that are to remain on the site through the wet season shall be protected to prevent erosion (e.g. silt fences, straw bales).

Stormwater runoff and erosion from overburden and aggregate stockpiles, quarrying areas, construction activities, and any other ground disturbing activities shall be controlled through the implementation of a program of erosion control Best Management Practices (BMPs) and engineered sediment control structures. Erosion control BMPs may include, but are not limited to, the application of straw mulch; seeding with fast growing grasses; and the construction of berms, silt fences, hay bale dikes, stormwater detention basins, and other energy dissipaters.

Level of Significance After Mitigation: Less than Significant

Impact BIO-7: Impact to Oak Woodlands

The Project will affect vegetative habitats that include oak trees, including blue oak-gray pine, blue oak woodland, montane hardwood-conifer, montane hardwood, and valley oak woodland. These vegetative woodland habitats support various-sized native oaks. Oak trees may be removed or disturbed by mining, development of processing facilities, and roadway construction. The number of oak trees to be removed by Project surface disturbance will be minimized by Project design. This impact is potentially significant.

Level of Significance Before Mitigation: Potentially Significant

Mitigation Measures:

Mitigation Measure BIO-8a

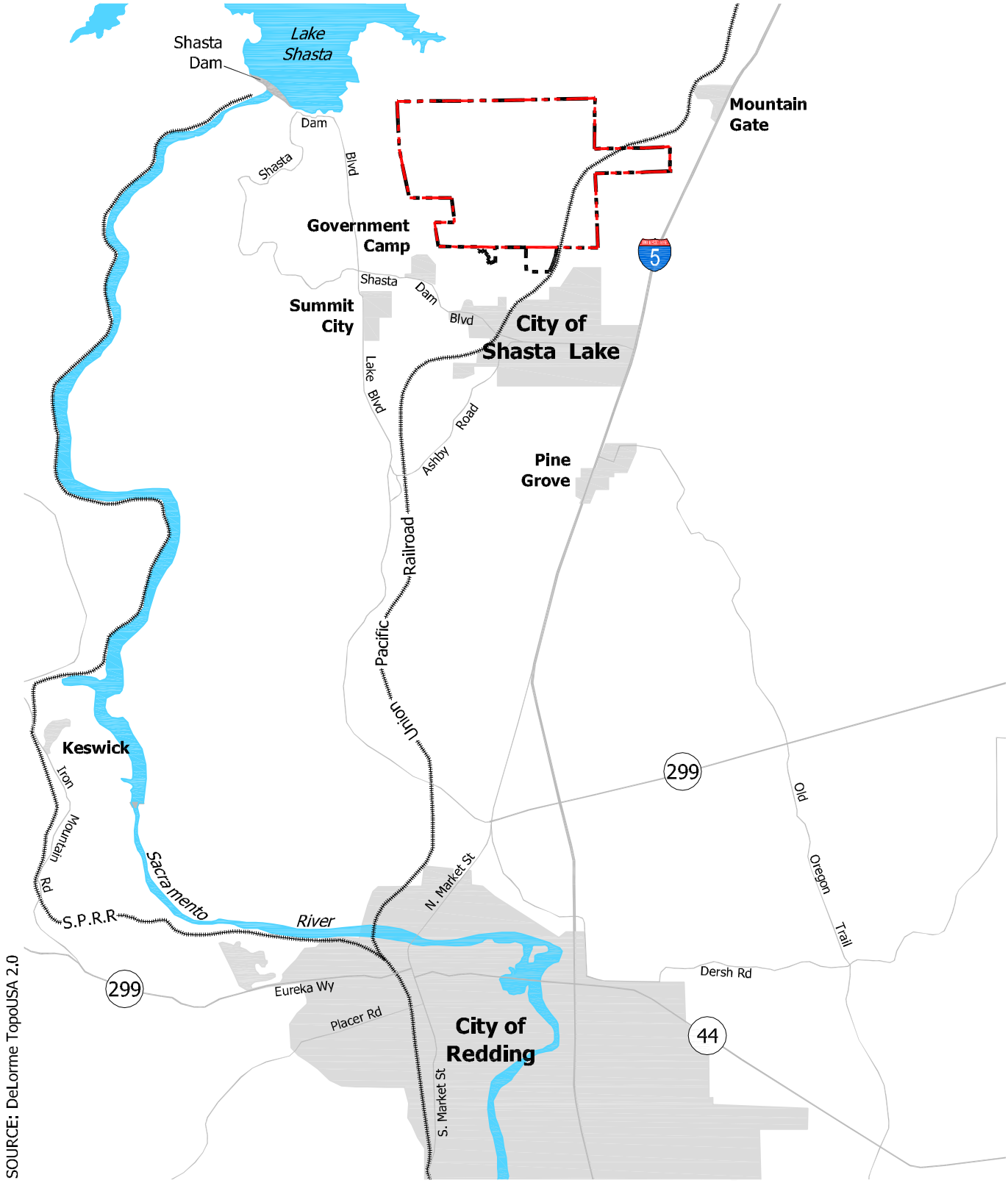
The Applicant shall avoid, minimize, and compensate for impacts to living oak trees, as required by the California Oak Woodland Conservation Act in the absence of a Shasta County Oak Woodland Management Plan. Avoidance of oak trees outside the limits of surface disturbance shall be practiced by the Applicant

to the maximum extent feasible and field avoidance measures shall be implemented for trees to be left in place. Such measures shall include installing, where feasible, protective fencing around the dripline of trees to be retained, proper techniques for trimming, and other field measures necessary to protect and/or preserve native trees. Trees/tree groves protected by fencing or other measures shall be marked in the field as "SENSITIVE HABITAT AREA – NO ACCESS".

Within 12 months of the completion of permanent Project facility construction (i.e. rail siding/spur, secondary and ancillary processing plant and load-out area, and access road), the Applicant shall implement compensation for impacts to protected oak trees. Compensation may be implemented through one of the following mechanisms, or some combination thereof: 1) replacement via replanting, 2) permanent preservation of oak trees, which could include, but not be limited to, establishment of a conservation easement on lands that support existing oak trees, or 3) contribution to the Oak Conservation Fund established under CDFG or another County-approved oak woodland conservation fund. If compensation includes plantings, maintenance and monitoring of the plantings shall be conducted in accordance with the provisions of the approved Reclamation Plan.

If off-site mitigation is used, the ratio for impacted oaks to protected oak woodland shall be a minimum of 1:1. If contributions are made to an oak woodland conservation fund, funds shall be provided at a rate approved by the County, and shall be sufficient to meet the required mitigation ratio through planting or conservation of existing oaks at off-site locations. Funds shall be used for oak woodland preservation and/or plantings, as determined by the County, or their designated agent (e.g., CDFG or other conservation entities).

Level of Significance After Mitigation: Less than Significant



N

0 1 1/2 miles

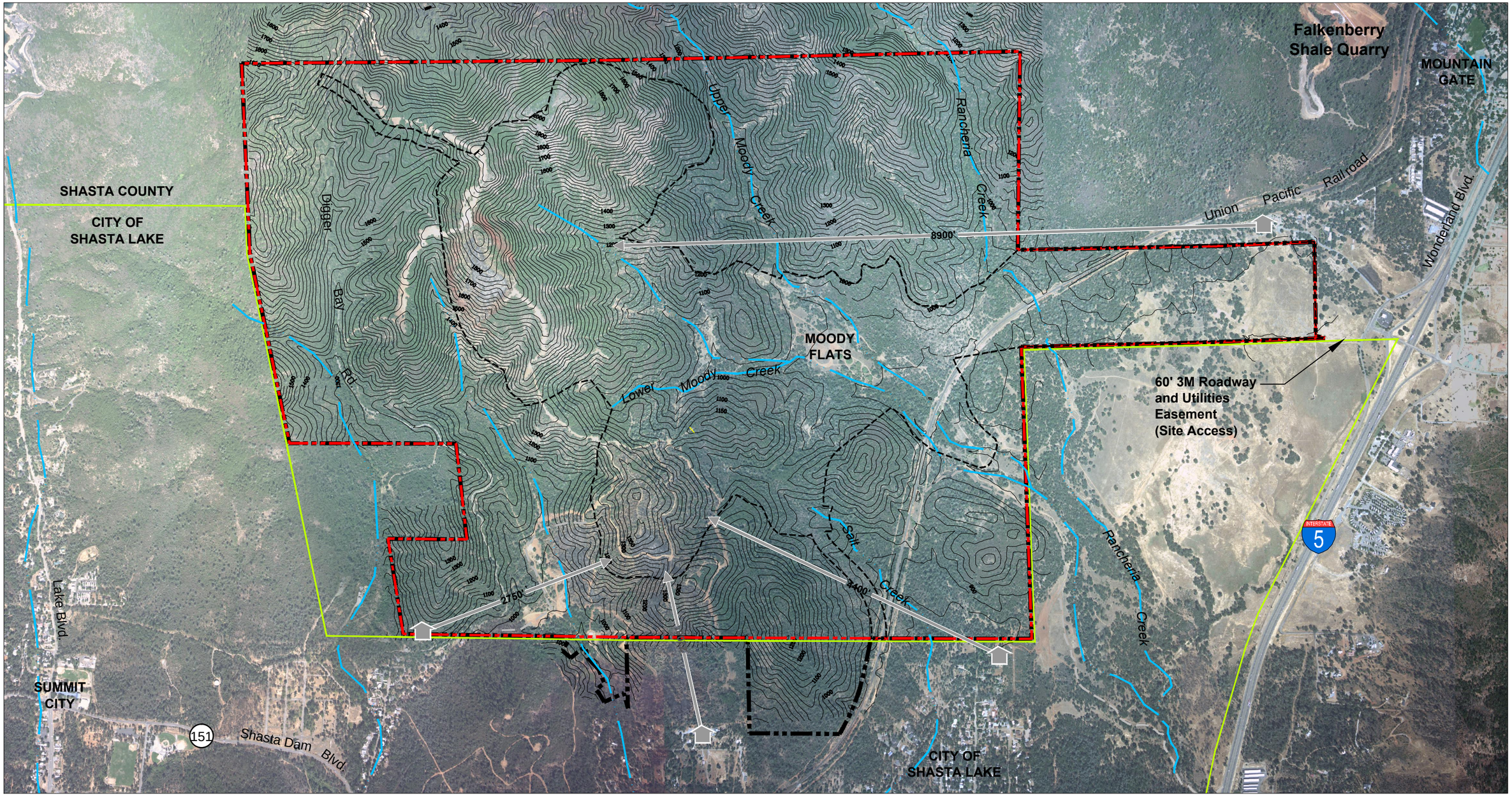
SCALE: 1" = 1 1/2 miles

BENCHMARK RESOURCES

Site Location

MOODY FLATS QUARRY

BIO - Figure 1



AERIAL PHOTOGRAPH SOURCE: Pace Civil, Inc. (08-2006)

N

0 1/4 mile

SCALE: 1" = 1/4 mile

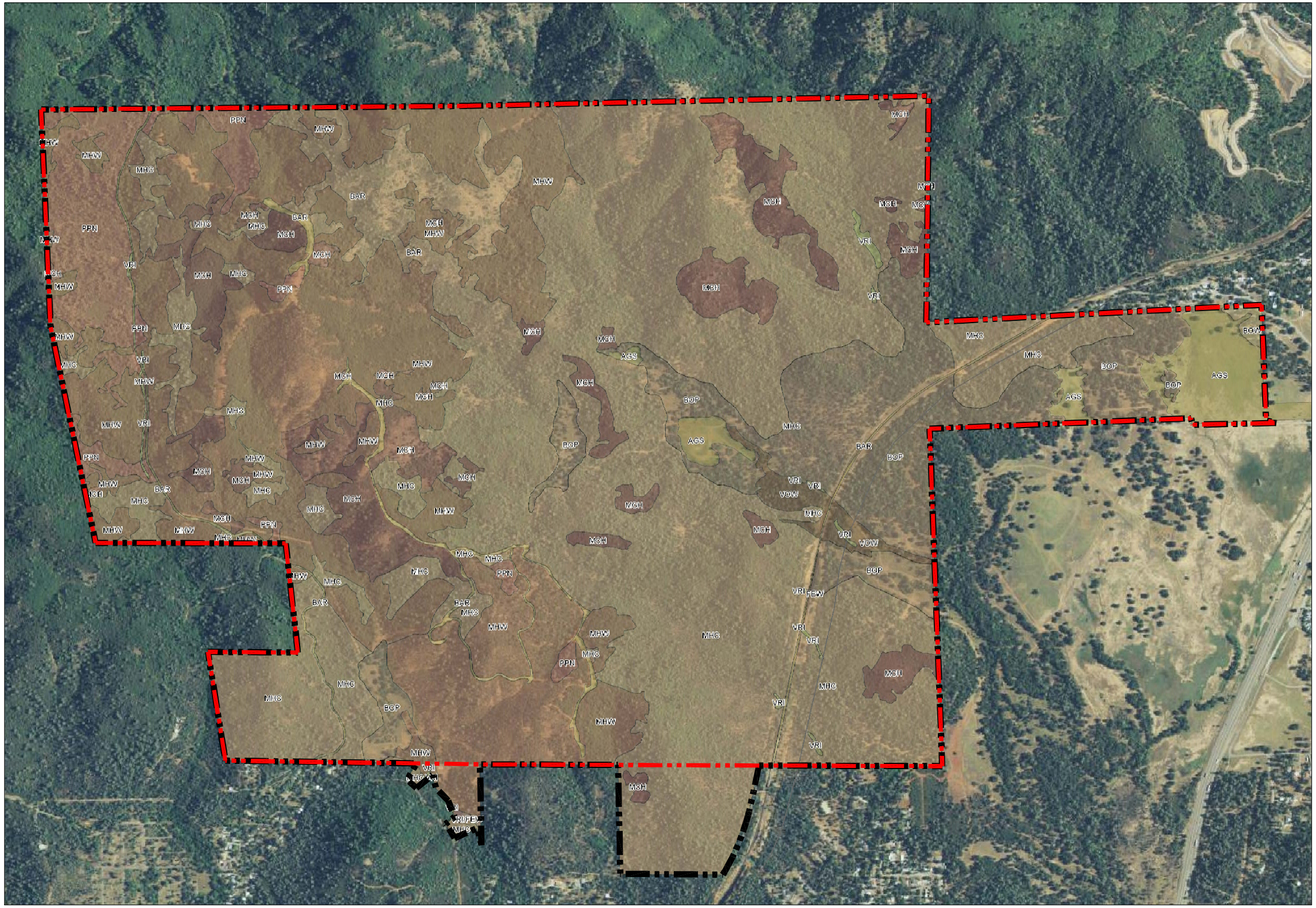
Property Ownership	± 1900 acres
Site Boundary	± 1810 acres
Limits of Surface Disturbance	
City of Shasta Lake Boundary	
Residence	

BENCHMARK RESOURCES

Existing Conditions Aerial Photograph

MOODY FLATS QUARRY

BIO - Figure 2



SOURCE: California Department of Conservation

AGS	Annual Grassland
BAR	Barren
BOP	Blue Oak - Gray Pine
BOW	Blue Oak Woodland
MCH	Mixed Chaparral
MHC	Mixed Hardwood Conifer
MHW	Montane Hardwood
PPN	Ponderosa Pine
VRI	Valley Foothill Riparian
VOW	Valley Oak Woodland

Property Ownership	± 1900 acres
Site Boundary	± 1810 acres

N

0 1/4 mile

SCALE: 1" = 1/4 mile

BENCHMARK RESOURCES

CWHR Vegetation Habitat Boundaries

MOODY FLATS QUARRY

BIO - Figure 3