MATERIAL SITE #308

(ZURICH PIT)

RECLAMATION PLAN

Mine Identification # 91-14-00XX

Draft November 09, 2023

California Department of Transportation (Caltrans)

500 South Main Street

Bishop, California 93514

TABLE OF CONTENTS

1.0.0 INTRODUCTION

This Surface Mining and Reclamation Plan addresses the operation and reclamation of the Caltrans Material Site 308, also known as the Zurich Pit. The Zurich Pit is located near the community of Big Pine in Inyo County, California. The total Caltrans right-of-way (ROW) area is 54.26 acres, encompassing an extensive area of alluvial, aggregate materials that can serve as a source of sand and gravel to be used for road construction and maintenance. Of the total 54.26 acres, 14 acres of previously mined areas will be mined in two phases over a period of 59 years.

This reclamation plan describes a process that will minimize environmental impacts during and resulting from mining, implement reclamation activities as soon as possible, and return the mined land to a condition suitable of supporting open space, wildlife habitat and designated end uses.

1.1.0 APPLICANT & OPERATOR

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1.1.1 REPRESENTATIVE

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1.4.0 LOCATION AND SITE HISTORY

The site is in Inyo County, approximately 3 miles northeast of Big Pine at post-mile marker 21.5 along State Route 168 East. The Zurich Pit was previously used as an aggregate source for more than 50 years until it was deactivated and underwent reclamation during early 2000s. The property has since been used primarily for recreational purposes by the public, as the land was previously owned and managed by the Bureau of Land Management. The site was managed by the Bishop BLM Field Office as a Community Use Pit until approximately 2005, when they decided to reclaim the site and no longer issue special use permits (SUP) for extraction by applicants. No reclamation plan existed for the site, and the pit was designated as a "community use pit" by the BLM. Previous records indicate that Caltrans mined Zurich Pit (then MS# 283) through the 1980s and 1990s via Free Use Permits issued by the Bishop BLM field office (on an as-need basis). Records also indicate that Inyo County Roads Department and Caltrans may have been the only SUP applicants to extract material from the site. Initial Caltrans SUP's for the site were for general use extraction of approximately 2,000 cubic yards annually for highway maintenance purposes, for five to ten years at a time. Later SUP's were for specific projects and quantities, which also included asphalt batch plants. Records starting in 1987 indicate that the BLM started analyzing closing this site and opening another site in the Big Pine area due to local concerns over visual impacts and dust generation. In 2005, a cooperative agreement was developed between Caltrans and BLM to each contribute $25,000 towards reclamation work. Some road ripping, minor revegetation, and drainage work was done with these funds via a Caltrans contract. The site remains relatively disturbed and is utilized by the public for OHV staging, target shooting, and illegal dumping, currently accessed by a dirt road connecting to the highway from the west.

1.4.1 HIGHWAY EASEMENT DEED

Caltrans submitted a BLM Map Application in 202X and anticipates a finalized a Highway Easement Deed in 202X (will attach as Appendix B once received). This property is also known as Assessor's Parcel Number 4264-1.

1.4.2 CADASTRAL & GEOGRAPHIC COORDINATES

The site corresponds to a portion of Section 03, Township 9 South, and Range 34 East (Mount Diablo Base and Meridian [MDBM]) of the USGS "Uhlmeyer Spring, California" 7.5-minute quadrangle. The approximate center of the pit is located at 37.191813° Latitude and -118.244390° Longitude.

FIGURE 1: REGIONAL LOCATION MAP OF CALTRANS MATERIAL SITE #308

2.0.0 DESCRIPTION OF ENVIRONMENTAL SETTING

2.1.0 SITE ACCESS

Access to the property is via an unmarked, dirt road leading southeast off State Route 168, approximately 3 miles northeast of the community of Big Pine.

2.2.0 GEOLOGY

Owens Valley is one of the westernmost of the down dropped graben blocks of the Basin and Range province and is important because it includes part of the boundary between the Sierra Nevada and Great Basin regions. This boundary is a structural trough separated by normal faults from the Sierra Nevada on the west and the White and Inyo Mountains on the east. As the valley floors were subsiding, the bounding mountain masses of the Sierra Nevada rose leading to erosion and geomorphic processes of the valley walls. The erosion debris was then transported to lower elevations and deposited as alluvial fans, stream deposits, and lake beds.

The deformation that formed the current state of the Owens Valley may have begun in early Tertiary time and has continued to very recent times. First, the glaciers carved into the Valley and deposited extensive moraines during the ice ages in the Pleistocene epoch. Recently, from a geological perspective, the land has been shaped by streams and rivers including the Owens River, the most prominent river in the region.

The geologic history of this area has produced a diverse collection of minerals, making the region an important economic mineral resource and hotspot for mining activity. Some of the major ore found in this region includes silver, lead, gold, copper, zinc, and tungsten.

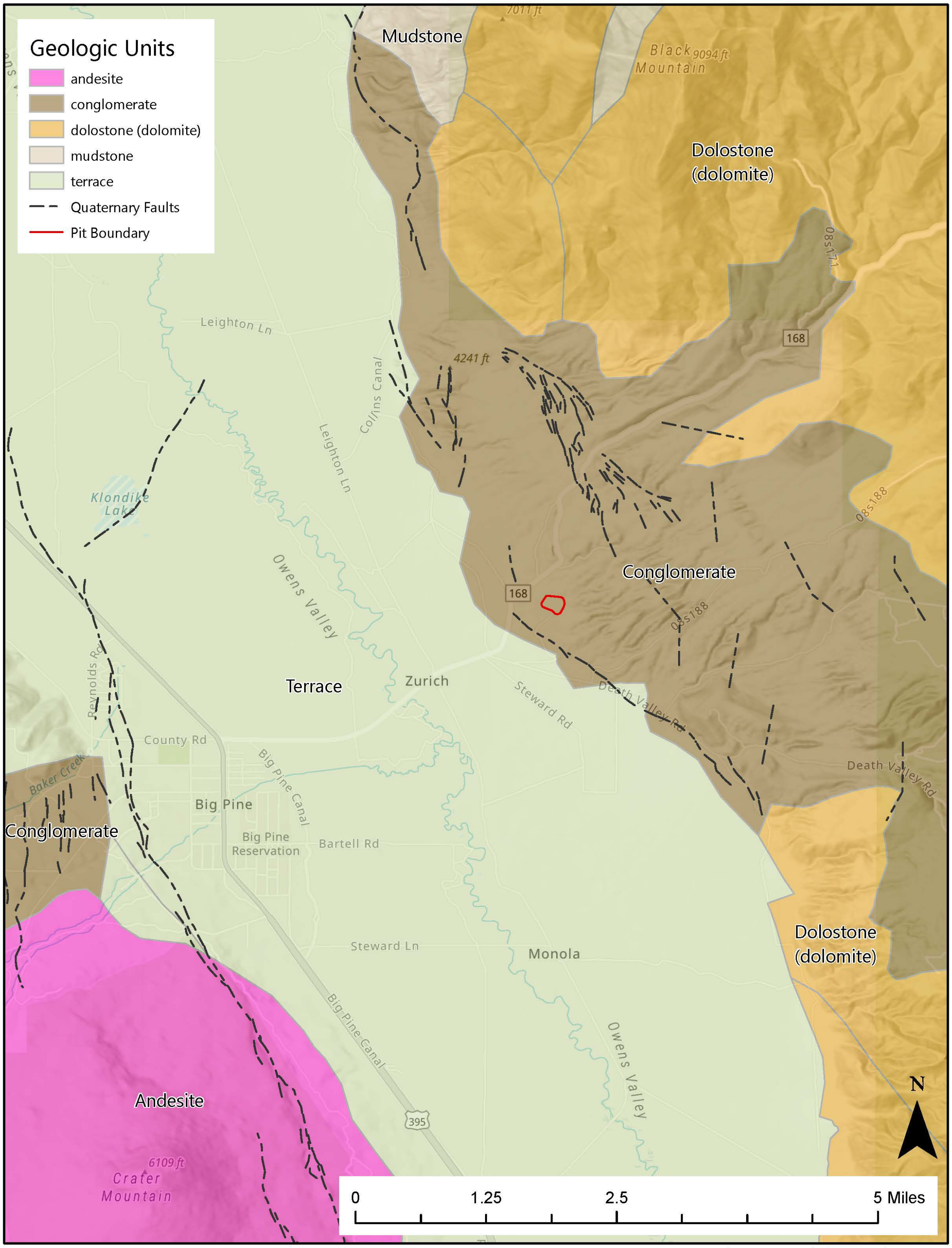
2.2.1 SITE SPECIFIC GEOLOGY

The site is primarily an alluvial deposit composed of sandstone, shale, and gravel deposits dating from the Pleistocene and Pliocene age (Big Pine USGS 15-minute Quadrangle Map). The material site lies within the western edge of the Basin and Range Geomorphic Province within the Owen’s Valley portion of the Eastern Sierra Valley System (ESVS) (Stevens et. al., 2013).

2.2.2 SESIMISCITY

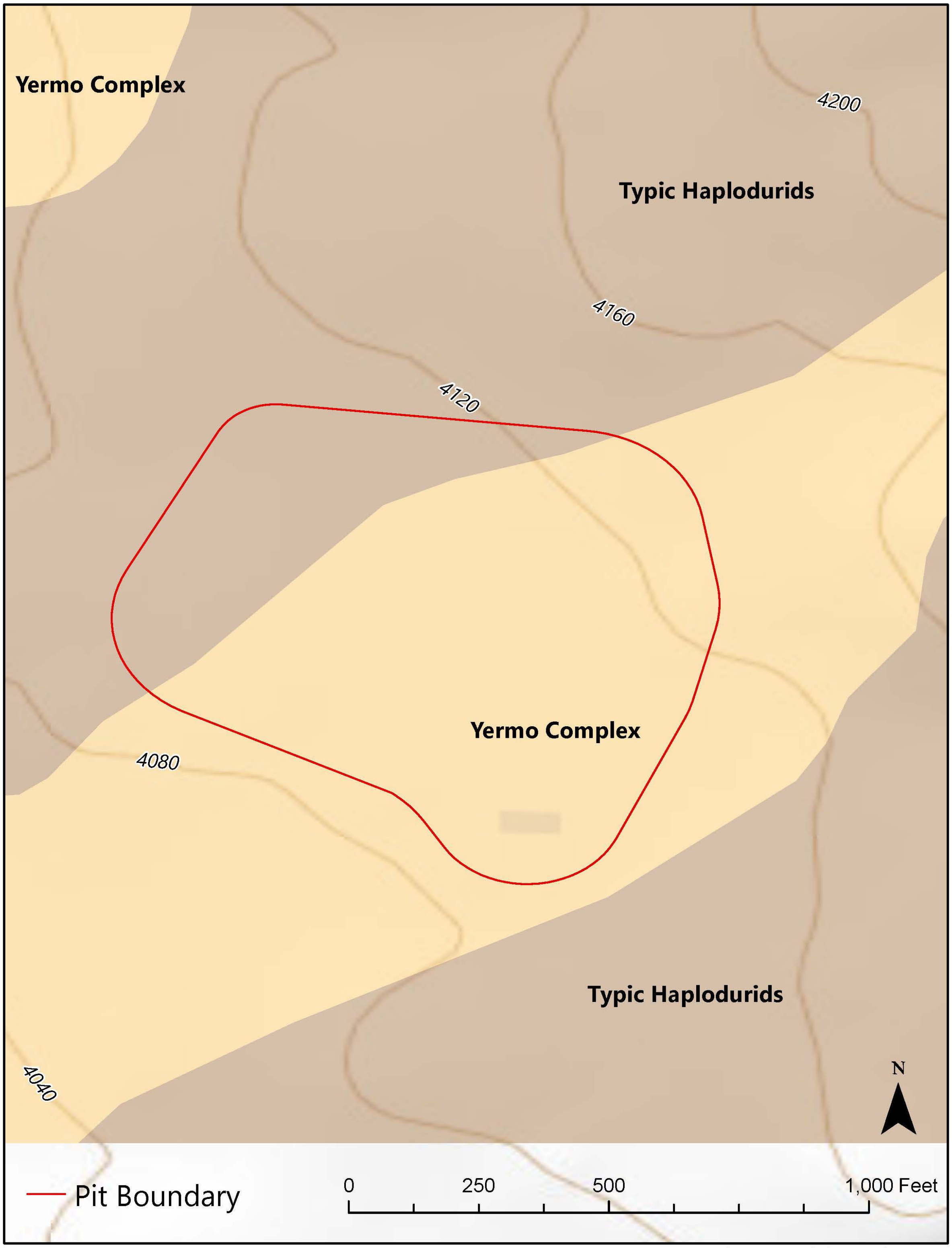
The Zurich material site is within an area of active seismicity and, according to the USGS Quaternary Fault database, the nearest active fault is the Deep Springs fault. This fault lies approximately 10 miles southeast of the material site, and the last suspected movement occurred approximately 1,800 years ago with an estimated recurrence interval between 2 to 4 ky. The largest earthquake to hit this region occurred on March 26, 1872, because of movement along the fault forming the eastern front of Alabama Hills, west of Lone Pine (Richter, 1958, p. 499-503). The earthquake was estimated at a magnitude of 7.4 and was approximately 45 miles south of the Zurich material site.

FIGURE 3: GEOLOGIC MAP OF PROJECT SITE



Author: L. Morris | December 2022

FIGURE 4: SOIL AND TOPOGRAPHIC MAP OF PROJECT SITE



Author: L. Morris | December 2022

2.3.0 SOILS

The web soil survey for the Benton-Owens Valley Area Parts of Inyo and Mono County (Natural Resources Conservation Service [NRCS], 2016) provided information on known soil types within the study area. Two soil types were identified within the project limits and are as follows: (1) Cambidic Haplodurids-Typic Haplodurids association, cool, 5 to 50 percent slopes, and (2) Yermo stony-Yermo complex, cool, 5 to 15 percent slopes (Figure 6). These soil series are described in more detail below.

2.3.1 Cambidic Haplodurids-Typic Haplodurids Association

This soil complex is a combination of two named soil series, Cambidic (65%) and Typic (25%), and occurs on fan terraces at elevations between 3,900-5,700 feet with 5 to 50 percent slopes. Both individual soil series consists of alluvium derived from mixed rock resources. The Cambidic series soil ranges from shallow to moderately deep, while the Typic series is shallow. Both series are classified as well-drained, medium to rapid runoff, and moderately rapid permeability.

Cambidic soils are stratified into five layers at a depth of 60 inches, with the predominant surface layer ranging from extremely gravelly sandy loam to gravelly sandy loam. Typic soils are less stratified than Cambidic with a depth of 5 inches and 3 layers. and with Both soils have light gray composition. Typic soils are slightly alkaline or moderately alkaline reactive, and calcareous throughout.

2.3.2 Yermo Stony-Yermo Complex

This soil complex is approximately 45% Yermo stony soil, 40% Yermo soil, and 15% contrasting inclusions. The soils originate from mixed alluvium and form along the middle and lower parts of fan terraces at an elevation between 3,700 – 4,400 feet. Vegetation cover is normally between 10-20% on top of these soils, rooting depths are up to 60 inches, and permeability is moderately rapid. Both soils are very well drained and have low water capacity. Yermo, stony soils have a moderate hazard to erosion by wind, while Yermo soils only have a slight. Yermo, stony soils are moderately alkaline to strongly alkaline. Soil texture ranges from cobbly, gravel to extremely gravelly sandy loam.

2.4.0 HYDROLOGY

2.4.1 GROUNDWATER SETTING

The Owens Valley Groundwater Basin (6-012) is approximately 1,030 square miles, ranges from 3,600 feet above mean sea level (amsl) along the Owens Lake to over 9,700 feet amsl near Basin Mountain in the northwestern corner of the basin. Owens Valley Groundwater Basin (OVGB) extends roughly 125 miles from Benton Valley in southeastern Mono County to Haiwee in southwestern Inyo County. OVGB is bounded by nonwater-bearing rocks of the Benton Range on the north, of the Coso Range on the south, of the Sierra Nevada on the west, and of the White and Inyo Mountains on the east. This array of valleys drains via several creeks to the Owens River, which eventually flows southward into the Owens (dry) Lake, a closed drainage depression in the southern part of the Owens Valley. The principal source of replenishment for the OVGB is percolation of stream flow from the surrounding mountains. Other and much lesser sources of recharge include excess irrigation waters and precipitation (Danskin, 1998).

LADWP owns many of the local water rights and has been extracting water from several of the local sources in the basin since the 1930s. Water table levels have gone through periods of extreme lows to plentiful highs, based on the on the ground pumping and rainfall quantities. For example, groundwater levels were depressed near Bishop and Independence during the late 1920s to 1930s because of heavy pumping, but water levels rebounded somewhat and remained steady through the early 1960s (DWR, 1964). Additionally, a series of wet years between 1982 and 1986 and relatively low groundwater pumping resulted in generally high-water tables, but then was followed by water level declines due to six years of heavy groundwater pumping. The proposed extraction plan is not expected to encounter groundwater, and the depth to groundwater will be monitored as the pit depth increases.

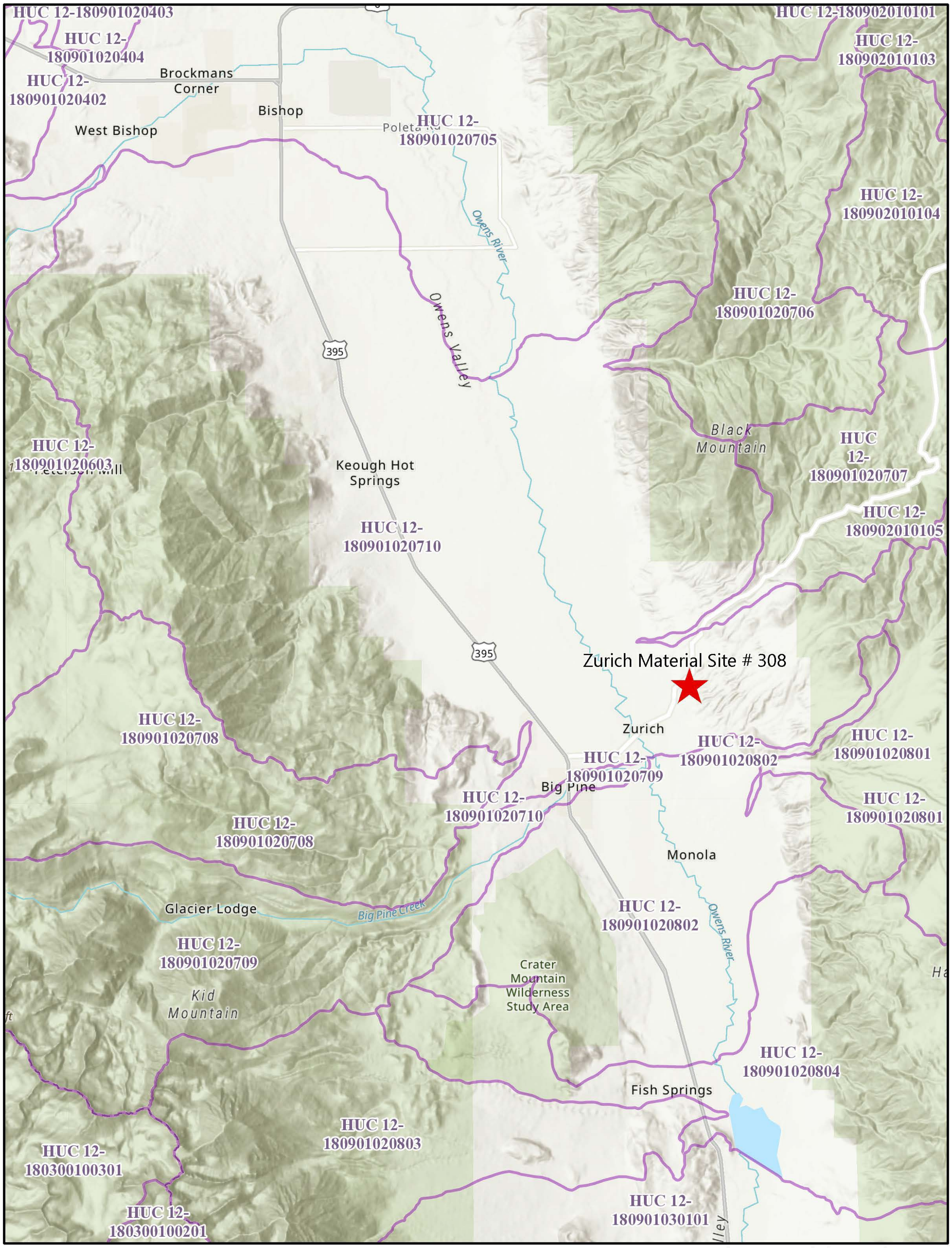
2.4.1.1 LOCAL WELLS

The nearest well to the project site is located east of US 395 and approximately 3 miles southwest of the site (station #371601N1182779W001). This well is currently active and has been monitored by LADWP since 1971. According to the DWR groundwater level data reports, the lowest groundwater depth was 3,925 feet (1971 and 2019), and the highest groundwater depth recorded was 3,902 feet (1989). The most recently reported depth in June 2021 was 3,914 feet (DWR Groundwater Level Report, 2021).

2.4.2 SURFACE WATER SETTING

The site is located within the Crowley Lake watershed and, more specifically, the Rawson Creek-Owens River watershed (HUC# 180901020710), (USGS Hydrography Dataset, 2021). Surface waters within the site originate primarily from tributary, ephemeral streams flowing down canyons along the west side of the White Mountains, across naturally occurring alluvial fans, and out onto the basin. Tributary streams, that reach the Bishop Basin, are captured by the trunk stream of the valley, the Owens River, which has its headwaters in the Long Valley. The Owens River is also the closest running, water body to the site and can be reached by traveling approximately 150 feet downgradient and around 2 miles southwest near the town of Big Pine.

FIGURE 5: WATERSHED (HUC 12) MAP OF PROJECT SITE



Author: L. Morris | December 2022

2.5.0 BIOLOGY

A general biological resource assessment was conducted by means of literature review and field survey. The biological study area (BSA), or area evaluated for biological resources, includes the intended mining operations area [proposed project site] and surrounding property, 55.5 areas in total. All habitats, flora, and fauna considered sensitive by BLM, California Department of Fish and Wildlife (CDFW), United States Fish and Wildlife Service (USFWS), and Caltrans were assessed within the BSA.

Plant communities identified within the project site were mapped and classified in accordance with *A Manual of California Vegetation* (Sawyer *et al.,* 2009). The dominant native plant community within the BSA is representative of the Atriplex Confertifolia Shrubland Alliance, commonly referred to as shadscale scrub. Another land cover type described as disturbed/developed was also observed onsite. Disturbed/developed lands are often denuded or devoid of vegetation, however, in areas where soil substrate is present, some plant species, including non-native species, are typically present.

Using the representative plant communities within the BSA, potential sensitive habitats, flora and fauna were assessed using a combination of literature and database review, including USFWS's *Information for Planning and Consulting (IPaC)* and CDFW's *California Natural Diversity Database (CNDDB)* 7.5-minute USGS nine-quad search method. For further details and a full list of species analyzed, refer to the *Biological Resources Memo*, included as Appendix G.

In addition to the literature review, field surveys of the proposed project site were conducted on April 23, 2020, and February 24, 2022, by Caltrans Environmental staff. The survey was conducted from 8:00 a.m. until 11:00 a.m., to capitalize on the period of highest diurnal animal activity. The survey methods entailed a pedestrian survey of the entire project site, using binoculars to identify animal species from a distance. A plant and animal list were maintained during the survey. No sensitive plant or animal species were observed during the survey. Additional focused sensitive plant surveys will be conducted during peak blooming periods within the year prior to the start of each phase of the project.

2.5.1 VEGETATION

Due to the arid environment of the Owens Valley, vegetation is mediated by the hydrology and varies depending on the elevation, floristic region, and soil salinity. Vegetation communities range from salt-tolerant shadscale scrub, alkali sink scrub, desert greasewood scrub, alkali meadow, and desert saltbush scrub on the low elevations of the valley floor, to more drought-tolerant Mojave Mixed Woody Scrub, Blackbush Scrub, and Great Basin mixed scrub on alluvial fans (Davis et al., 1998).

The dominant native plant community within the BSA is representative of the Atriplex Confertifolia Shrubland Alliance, commonly referred to as Shadscale scrub. In the Atriplex Confertifolia Shrubland Alliance, Atriplex confertifolia is dominant or co-dominant in the shrub canopy with white bursage (*Ambrosia Dumosa*), allscale scrub (*Atriplex polycarpa*), spinescale scrub (*Atriplex spinifera*), green rabbitbrush *(Chrysothamnus viscidiflorus*), blackbrush (*Coleogyne ramosissima*), Acton brittlebush (*Encelia actonii*), Virgin river brittlebush (*Encelia virginensis*), Mormon tea (*Ephedra nevadensis*), Heermann's buckwheat (*Eriogonum heermannii*), spiny hop sage (*Grayia spinosa),* sticky snake weed *(Gutierrezia microcephala*), winter fat (*Krascheninnikovia lanata*), creosote bush (*Larrea tridentata*), Anderson thornbush (*Lycium andersonii*), budsage *(Picrothamnus desertorum*), greasewood (*Sarcobatus vermiculatus*) and longspine horsebrush (*Tetradymia axillaris*). Emergent, taller shrubs may be present at low cover.

Seventy one (71) sensitive plant species were returned from the *Bishop BLM Office Sensitive Species List* and CNDDB search of the Uhlmeyer Spring, Big Pine, Waucoba Mountain, Tinemaha Reservoir, Poleta Canyon, Westgard Pass, Deep Springs Lake, Cowhorn Valley and Fish Springs 7.5-minute USGS quadrangles. Of these seventy one species, seven have potential to occur within the site, including: Coyote gilia (*Aliciella triodon*), Shockley's milk vetch (*Astragalus serenoi var. shockleyi*), King's eyelash grass (*Blepharidachne kingii*), Wheeler's dune-broom (*Chaetadelpha wheeleri*), MacDougal's lomatium (*Lomatium foeniculaceum ssp. Macdougalii*), Intermontane lupine (*Lupinus pusillus var. intermontanus*), and Nevada oryctes (*Oryctes nevadensis*).

2.5.1.1 SITE SPECIFIC VEGETATION

Plant communities identified within the site were mapped and classified in accordance with *A Manual of California Vegetation* (Sawyer *et al.,* 2009). The vegetation community surrounding the material site is dominated by salt tolerant, Shadscale scrub natural community. The site is located within a network of alluvial fans, where the water table is disconnected from the root zone; therefore, plant communities survive on precipitation alone.

Prominent plant species observed within the site during field surveys include scadscale scrub (*Atriplex confertifolia*), Mojave indigo bush (*Psorothamnus arborescens*), budsage (*Artemisia spinescens*), winterfat (*Krascheninnikovia lanata*), greasewood (*Sarcobatus vermiculatus*), Mojave woolyaster (*Xylorhiza tortifolia*), and desert trumpet (*Eriogonum inflatum*). Of the seventy-one sensitive species that were analyzed, seven rare plant species were determined to potential to occur within the BSA. Focused rare plant surveys will be conducted within the BSA during peak blooming periods, prior to the start of each phase of mining operations.

Areas classified as 'disturbed' did not support a native plant community and consisted of dirt roads and surfaces. These roads and surfaces are currently utilized by the public, managed by BLM and designated as multi-use public land. Disturbed areas dominate much of the proposed project site, with native upland communities surrounding the disturbed area, which exists as a footprint of the previous material site.

Approximately 86% of the proposed, 14-acre area for mining was previously disturbed by prior mining operations. However, baseline vegetation conditions were established based on transects performed in undisturbed areas within the site and near the site that reflect surrounding, undisturbed Shadscale scrub conditions.

Table 2.5.1.1: Plant species survey #1

Zurich Pit - Botanical surveys				
Survey:	1			
Surveyors:	D. Aalbu, R. Spalding			
Date:	4/23/2020			
Time:	8-11 AM			
Weather:	~65F, winds 5-10 mph			
Flora Observed				**Fauna Observed**
Type	**Scientific Name**	**Common Name**	**If Dominant, then Y**	**Come Name**
Shrubs	Atriplex confortifolia	shadscale scrub	Y	Common Raven
	Psorothamnus arborescens	Mojave Indigo bush	Y	Turkey Vulture
	Artemisia spinescens	Budsage	Y	White-crowned sparrow
	Ephedra nevadensis	Nevada Ephedra		Black-throated sparrow
	Ericameria teretifolia	Green rabbitbrush		Southern desert horned-lizard
	Krascheninnikovia lanata	Winterfat	Y	black-tailed jackrabbit
	Menodora spinescens	Spiny desert olive		
	Sarcobatus vermiculatus	Greasewood	Y	
Grasses	Bromus madritensis ssp. Rubens	foxtail brome (i)		
Perennial Herbs	Xylorhiza tortifolia	Mojave woolyaster		
	Eriogonum inflatum	desert trumpet	Y	
Annual Herbs	Sisymbrium altissimum	tumble mustard (i)		
	Phacelia femontii	Fremont's phacelia		
	Oxytheca perfoliata	roundleaf puncturebract		
	Nama aretioides	Purple nama		
	Crypthantha recurvata	curve nut cryptantha		
	Crypthantha circumscissa	Western forget me not		
	Chaenactis xantiana	Xantus' chaenactis		
	Calycoseris parryi	yellow tackstem		(i) = invasive
	Gilia cana ssp. Triceps	showy gilia		
	Chorizanthe brevicornu	brittle spine flower		
	Salsola tragus	Russian thistle (i)		
	Lupinus odoratus	Mohave lupine		
	Eriogonum brachypodum	Parry's buckwheat		

2.5.1.2 SENSITIVE COMMUNITIES

The California Natural Diversity Database (CNDDB) returned three sensitive natural communities within the USGS 9-quad search area, including: Bristlecone Pine Forest, Transmontane Alkali Marsh, and the Water Birch Riparian Scrub. All three communities are absent from the BSA. The closest plant community containing riparian shrub exists approximately 0.5 miles southeast of the project site on Los Angeles Department of Water and Power (LADWP) property.

2.5.1.3 INVASIVE EXOTICS

Invasive exotics are likely to occur onsite, given the presence of disturbed land within the proposed project area. Three invasive species were observed during the 2020 field survey within the project area including: foxtail brome (*Bromus madritensis ssp. Rubens*), tumble mustard (Sisymbrium altissimum), and Russian thistle (*Salsola tragus*).

2.5.2 WILDLIFE

The upland shadscale shrub vegetation community and network of alluvial fans are characteristic of an arid high desert landscape, which contains a largely open viewshed and highly variable terrain. Common wildlife families in this type of habitat include small mammals, reptiles, and birds. Characteristics species of the shadscale aspect of the xerophytic phase of Alkali Scrub include the pallid/pale kangaroo mouse (*Microdipodops pallidus*), chisel-toothed kangaroo rat (*Dipodomys microps*), zebra-tailed lizard (*Callisaurus draconoides*), and the San Emigdio blue butterfly (*Plebulina emigdionis*), whose host plant is four-wing saltbush (Jaeger and Smith 1966, Pyle 1981). Characteristic species of other aspects of Alkali Scrub habitat are the Mojave ground squirrel (*Xerospermophilus mohavensis*), zebra-tailed lizard (*Callisaurus draconoides*), and long-nosed leopard lizard (*Gambelia wislizenii*). Other common animal species observed during the 2020 field survey include: common raven (*Corvus corax*), turkey vulture (*Cathartes aura*), white-crowned sparrow (*Zonotrichia leucophrys*), black-throated sparrow (*Amphispiza bilineata*), southern desert horned lizard (*Phrynosoma platyrhinos*), and black-tailed jackrabbit (*Lepus californicus*). Given the sparsity of vegetation, most bird species are more likely to exist as opportunistic foragers then breeders within the BSA.

2.5.2.1 DESCRIPTION OF HABITAT

The proposed project site is located within a previously disturbed area. Existing human activity and disturbance in the form of dirt roads, trash and denuded pit area within the project site make the area generally unsuitable habitat for sensitive-status species.

The BSA, which includes the project site and surrounding 55.5-acre property, includes a shadscale scrub vegetation community and exists within an alluvial fan topography where the vegetation, though sparse, is diverse in species. In areas where native vegetation exists and disturbance is limited, there may be habitat for both common and sensitive-status animal species.

2.5.2.2 SENSITIVE SPECIES

In total, forty-three sensitive-status animal species were identified during the literature review. The BSA was not found to be within critical habitat for any State or Federally listed species or be potential habitat for any State of Federally listed species. However, the common/northern sagebrush lizard, a species considered sensitive by the BLM was found to have potential habitat within the BSA. To avoid any impacts to the northern sagebrush lizard, focused reptile surveys will be conducted within the BSA prior to the start of mining operations. If any northern sagebrush lizard individuals are observed, the BLM will be consulted with to determine appropriate avoidance and minimization measures.

2.6.0 AIR RESOURCES/CLIMATE

The semiarid to arid climate in the Owens Valley is greatly influenced by the Sierra Nevada mountain range and is characterized by low precipitation, abundant sunshine, frequent winds, moderate to low humidity, and high potential evapotranspiration.

2.6.1 PRECIPITATION

Precipitation is chiefly derived from moisture-loaded airmasses, formed over the Pacific Ocean, moving eastward over the Sierras. As air masses descend the eastern Sierra slope, the descending air warms, clouds evaporate, and precipitation declines east of the range. The combined effect of (1) increased precipitation as air masses ascend the west slope and cross the Sierra crest, and (2) decreasing precipitation as air masses descend the east slope is known as the “rain shadow effect.” Due to this effect, the average precipitation along the Owens Valley floor and near the project site is approximately 5 – 10 in/year (Danskin, 1998).

2.6.2 TEMPERATURE

Records taken from the Bishop and Independence National Weather Bureau stations indicate that daily temperatures typically fall to as low as 24 F in winter and can rise to as high as 107° F in summer, but rarely go below 14 F or above 102 F. These conditions are typical of the semiarid to arid climate in high desert basins.

2.6.3 AIR QUALITY

Air quality in the area is typically excellent, with visibility exceeding 70 miles most of the time. However, strong dust storms occur in the region due to the exposure of erodible sediments on the valley floor. Air quality can be greatly reduced in the mine site during periods of high winds.

2.6.4 WIND

Prevailing wind direction is westerly but varies depending on the type of storm and deflection caused by the surrounding mountains. Typical windspeeds in the valley range from zero to more than 30 mi/h, but have an overall, annual average between 5-7 mi/h. Winds are highly variable, even within a single day, and have no apparent seasonal trend. High windspeed events can occur at any time during the year, but generally accompany a winter or a spring storm.

2.7.0 LAND USES AND AESTHETICS

The property is designated as open space-natural resources in the Inyo County General Plan, meaning that low-intensity rural uses are allowable in a manner that recognizes and maintains the resource values of the parcel. Inyo County defers land use authority to the federal or other agency land authority; therefore, the project does not require a land use approval, such as a Conditional Use Permit (CUP), from Inyo County. However, Inyo County is the designated Lead Agency under SMARA and has the authority to review and approve the Reclamation Plan.

3.0.0 DESCRIPTION OF PROPOSED MINING OPERATION

3.1.0 DIMENSIONS / ACREAGE

Material Site #308 encompasses approximately 54.26 acres, of which 14 acres will be mined in two phases, to a depth no greater than 40 feet below existing grade. The current boundary also includes a storage and operations area within the pit's bottom floor. The new site boundary will be clearly delineated with metal posts, survey markers, and material site boundary signs.

3.1.1 MAXIMUM ANTICIPATED DEPTH

The maximum anticipated depth of surface mining at the proposed site is 40 feet. The material site slopes would be regraded to the final 3:1 slope. Final elevations are expressed in terms of elevation above mean sea level (amsl). Phase I final mining depths would range from approximately 4,088 feet amsl at the northeast portion to 4,095 feet amsl at the southeast portion of the pit. The final Phase 2 depth would be at 4,068 feet amsl in the southern portion of the pit, refer to Construction Details C-4. Mine tailings will be backfilled into the pits prior to reclamation to assist with final contouring and construction of the final slopes.

3.2.0 INITIATION AND TERMINATION DATES

The initiation of mining will commence once the Notice of Completion is received from Inyo County on the reclamation plan application. Phase 1 is estimated to span approximately 16 years and phase 2 at approximately 43 years, or until 20XX. Material production estimates are based on an average of 5,000 CY per year. The County's Notice of Completion and associated conditions of approval will dictate the active term for mining.

3.3.0 PRODUCTION SCHEDULE

Mining activities will occur in two phases, with a total estimated production volume of 294,000 cubic yards (CY). An average annual estimate of mining production for the site is 5,000 CY. Emergency road repairs due to flood and/or landslide damage can significantly increase production. Little to no waste is anticipated during production. After the completion of the mining phases, final site reclamation will commence.

The primary use of the site would be for highway maintenance and operations, including:

- Material mining, sorting, and stockpiling for use in routine and emergency maintenance activities on the State Highway System.
- Caltrans maintenance forces would perform mining activities mostly with graders, loaders, dozers, sorting grizzlies, and mobile shaker/sorters.
- Only reusable imported natural materials collected from highway clean-up or Caltrans construction activities, such as dirt and rock, would be temporarily stored at the site. All other non-reusable materials would be disposed of elsewhere, likely at the County landfill.

3.3.1 MINING PHASES

MINING PHASE	MINED RAW MATERIAL (CUBIC YARDS)	MAXIMUM ANTICIPATED DEPTH (FT)	AREA - BOTTOM (ACRES)	AREA -TOP (ACRES)	DURATION[1] (YEARS)
Phase 1	79,000	20	3.25	8.21	16
Phase 2	215,000	37	3.25	12.53	43
TOTAL	**294,000**	**37**	**3.25**	**12.53**	**59**

[1] The estimated duration is based on an average production of 5,000 CY per year.

Please refer to the Operation Plan (Appendix D) for a more detailed description of the project phases.

3.4.0 MINING PLAN

3.4.1 Drainage Control

The NOAA rainfall intensity-duration-frequency data tables (2021) were consulted for the designs of sufficient on-site water storage and erosion control methods, and the models were calculated based on a 25-year, 60-minute storm event. Additionally, the site is considered an area of minimal flood hazard (FEMA, 2021), and is neither located within a 100-year flood plain nor within 1-mile of a state highway bridge. The proposed extraction plan is not expected to encounter groundwater. The depth to groundwater will be monitored as the pit depth increases.

In the early stages of mining the site, the pit will be too shallow to accommodate the 25-year 1-hour design storm volume, so runoff will be directed to its natural course with the addition of armored rock riprap to protect against erosion. At a later stage in the course of mining, the pit will have sufficient volume for the design storm which will allow it to act as a retention pond and stilling basin. The armored overflow will still act as erosion control in the event of a larger discharge.

Caltrans adaptive stormwater prevention practices will also be used to address conditions as they evolve. Surface runoff and drainage from surface mining activities shall be controlled by Best Management Practices (BMPs) such as check dams, ditches, berms, swales, fiber rolls, and sediment detention basins will utilize localized earthen materials. BMPs will be utilized as needed on a temporary basis for sediment control.

Caltrans complies with the waste discharge requirements described in the Order 2022-0033-DWQ: *National Pollutant Discharge Elimination System Statewide Stormwater Permit and Waste Discharge Requirements for State of California Department of Transportation* (Statewide NPDES Permit). The Statewide NPDES Permit is provided as an attachment.

3.4.2 Topsoil Handling

During material extraction operations, duff/topsoil (the top 6 inches, including woody debris) will be stockpiled within the 20-foot buffer zone for future slope reclamation. Mining overburden/waste material will be stored at the outer perimeter near the base of the outer slopes and kept at a minimum. Upon final slope configuration, overburden material would be used to reach final slope configuration if necessary.

3.4.3 Onsite Hazardous Materials

Mining will require the use and onsite storage of a loader, which contain hazardous materials (i.e., fuel, oil, hydraulic fluid). The loader will be parked on an impermeable surface (i.e., paved or plastic lined). Other sources of hazardous materials to be stored on the property may include fuel, lubricating oils, and other vehicle and equipment fluids.

All hazardous and nonhazardous waste will be disposed of according to state and local health and safety ordinances. All Best Management Practices (BMP) would be used to reduce the potential for the discharge of materials from hazardous material storage areas by minimizing exposure of the materials to stormwater and safeguarding against accidental release of materials (Caltrans, 2003).

3.4.4 Dust, Visual, and Emissions Control

Temporary visual impacts for equipment visible from scenic visual receptors will be minimized as much as possible by screening/shielding with earthen berms or placement within subgrade detentions.

Air quality parameters that are potentially affected by aggregate mining operations are vehicular emissions and suspended particulate (dust). Mining operations would not significantly increase vehicular traffic on SR 168. Increased emissions would however emanate from the pit during the active extraction phase. However, the site will be mined in a manner that will result very nearly in the final reclaimed landform; therefore, reclamation activities will not cause an increase in vehicular emissions.

Because the soil disturbance from materials processing, extraction, and hauling is a "fresh" disturbance, the major component of the produced dust will be of large particle size (greater than 10 microns), which settles out rapidly. Best available control technology, such as maintaining a moist aggregate surface, will be used to suppress processing, extraction, and hauling dust sources. Reclamation activities, such as re-soiling with stockpiled topsoil mixed with native vegetative debris, will also help to control dust.

3.4.5 Noise

Mining operations may include the use of a D8, loaders, belly dumps, bobtail trucks, maintenance trucks, and haul trucks. This aspect of the mining operation will affect noise and emissions. The noise emissions will be most heavily concentrated within the processing area of the pit and will be shielded from surrounding receptors by the pit walls and topsoil berms. Both the physical walls of the pit and the large distance to receivers will reduce the potential noise impact from mining.

3.4.6 Test Plots for Revegetation

Test plots will not be utilized at this site, because they will not produce any additional value to current known data. We have solid evidence what will revegetate the site from previous reclamation via coop between BLM and Caltrans, as well as what grew over the past 15 years. The vegetation surveys conducted for this reclamation plan (see table 2.5.1.1 and table 4.9.3.1), which show native dominant species coverage, which developed naturally on its own. The pit floor, which was not decompacted, shows great success by Shadscale coverage throughout. Pit slopes show Shadscale, plus other species like Mojave Indigo Bush, Budsage, and Spiny desert olive to be quite successful on their own.

3.5.0 PROCESSING EQUIPMENT

All processing equipment will be temporarily used at the site during screening operations only. A portable screening operation will be moved onto the site during periods of operation, which primarily constitutes screening grizzlies, a bulldozer, a loader, and a sorting hopper. No permanent buildings or equipment will be construed on site as part of the mining operation.

3.6.0 WATER REQUIREMENTS

Water requirements for this site will be limited to that needed for processing and for dust control. A water truck with pump and sprayer will be used on site to mitigate dust related to hauling, grading, and particularly during screening operations. Water trucks will be filled at the Independence Maintenance Yard or the Bishop Maintenance Yard with an average of 5,000 gallons per day usage during summer processing operations, and an average of 15 days or processing per year to create stockpiles.

3.6.1 Wastewater

The only type of wastewater to be produced by this mining operation will be screening water that will be collected in the operations area and allowed to evaporate or infiltrate.

3.6.2 Drinking Water

Drinking water will only be available on the site by employees that bring their own water jugs filled by offsite sources.

3.7.0 HOURS OF OPERATION/NUMBER OF EMPLOYEES

The hours of operation may be up to 12 hours per day during the hours of 7:00 AM to 7:00 PM. On average it is estimated that this operation will employ 2-3 people during mining activities. No temporary facilities for employees are anticipated to be provided at the mine site.

3.8.0 TRANSPORATION

During operational phases, transportation by employees to the mine site will not significantly increase traffic on State Route 168 nor Highway 395 due to the low number of workers. Additionally, the minimal frequency needed for the transportation of aggregate resources to road construction locations will not have a significant increase on SR 168 nor Highway 395 traffic activity.

4.0.0 DESCRIPTION OF PROPOSED RECLAMATION

4.1.0 SUBSEQUENT USES

The land is zoned by Inyo County as natural resources open space, with no special land use restrictions. According to various resource maps, the site does not support any designated, critical wildlife habitat; however, the site provides general habitat values to various wildlife species. The new pit area will be reclaimed to open space natural resources, which will leave the site readily adaptable to alternative end uses.

4.2.0 IMPACT ON FUTURE MINING

The aggregate resource extends beyond the site boundaries and is at least 100 feet deep. The current mining plan will not have exhausted onsite resources, and reclamation of this site will not preclude mining at a future date.

4.3.0 RECLAMATION SCHEDULE

Reclamation work will commence within one year of the following fall season, to achieve best results by having the site prepped by late fall/early winter. Site revegetation monitoring will commence the Spring of year 1 (second spring, not year 0 which is first spring) following reclamation work and be annually inspected for erosion, invasive species, and vegetative coverage. Once the reclamation treatments have been implemented, those treatments will be monitored until performance standards have been met. The monitoring plan is designed to evaluate site-specific criteria for slope stability, erosion/sediment control, and revegetation.

4.4.0 POST MINING TOPOGRAPHY

Plan Sheet L-3 depicts the post-mining and reclaimed topography for the mined area. The final site configuration will, in general, be a rounded, rectangular-shaped excavated pit, no greater than 40-feet deep from original grade, with side slopes no steeper than 3:1 (H:V). The entry road to the pit will be blocked with soil berms and ripped for decompaction, seeded, and revegetated to blend with the surrounding topography. Stockpiled topsoil and vegetative debris (termed "duff"), and fines will be applied to the final pit slopes. Wind dispersed seeds from the surrounding undisturbed vegetation will aid in revegetation efforts.

4.4.1 Slope Stability

Pit slopes for the mining phases and the final reclaimed site will not be steeper than 3:1 (H:V), or 18°. The angle of repose of the loose stockpile material on the site is approximately 32°. For the final 3:1 (H:V) pit slopes, a static factor of safety of 1.9 is calculated. Thus, pit slopes will be stable at the proposed angle under static conditions. However, depending on the conditions of the sediment exposed on the slope (moisture content, vegetation cover, compaction, etc.), portions of the pit slope could experience surficial failure due to seismic loading from a maximum credible earthquake on one of the active faults in the area. Any slope failures will be retained within the pit.

4.4.2 Final Drainage Plan and Impoundments

Plan Sheet L-3 details the final drainage plan of the reclaimed site.

4.4.3 Disposition of Equipment

Any equipment brought onto the site will be removed following termination of mining activity. No equipment will be stored on the site following the end of Phase II.

4.5.0 RESOILING

The native soil of this site is very sandy to course material (gravel or larger), and the topsoil contains native seeds and microorganisms. The upper six inches of soil, defined as topsoil, will be salvaged and treated as a valuable resource for revegetation. Duff is defined as the topsoil and the vegetative material. Prior to mining any area that has not been previously mined, the top six inches of the native surface and any existing woody material will be scraped off and stored as topsoil berms within the buffer zone at the top of the excavation slopes (Plan Sheet L-2). Harvest and stockpile options for the vegetation are to: (1) keep separate from the native soil, (2) concurrently harvest and stockpile with the native soil, or (3) mix with the topsoil via hydroxide, chopping, breaking, or chipping.

Native surface material stored in the topsoil berms, at the top of the excavation slopes, will be kept separate from the processing and sedimentation pond fines storage areas. The native material will be spread on the slopes first, with the remaining material, if any, spread on the pit bottom. The remaining areas will receive processing and sedimentation pond fines.

Prior to spreading the stored topsoil and fines, all compacted areas will be de-compacted (ripped or disked to facilitate root growth. The topsoil that was stockpiled or windrowed, on the sides of the pit, will then be re-spread over the disturbed slopes and roughened to form a variety of microsites. This can be accomplished by rough grading, imprinting, or other suitable methods.

4.6.0 REVEGETATION

Revegetation treatments of the site will strive to achieve visual integration with the surrounding vegetation and provide wildlife habitat. Decompaction, topsoil spreading, surface roughening, and seeding of the site will take place during the fall, from late October to December. The primary access road connecting the pit to SR 168 will be decommissioned (earthen berms near the entrance from SR 168 to deter vehicular access and heavy ripping of the road bead) once all site work has been completed.

4.6.1 Seedbed Preparation

After re-spreading of the topsoil, duff, or fines, the area will be roughened to form a variety of microsites; this can be accomplished by heavy ripping the site, track walking, or imprinting. The growth media will be prepared to provide a firm, but not overly compacted seedbed.

4.6.2 Seedmix Sources & Methods

Many plant species are comprised of local ecotypes that are highly adapted to the local climate and edaphic conditions (Plummer et al. 1955, 1968). The plants that will have the best chance of survival on a site are those ecotypes that are growing on (or near) the site. Besides the problem of purchasing a less adaptive ecotype, one could also cause genetic contamination of the local ecotype through interbreeding with an introduced ecotype. Commercially available seeds often contain small amounts of invasive and/or exotic species. This site has only one sparsely dispersed invasive, Russian thistle (*Salsola* *tragus*), and the introduction of other invasive/exotic species would reduce the quality of revegetation efforts. The best policy is to use seeds from on or near the site.

The first method of gathering seed would be the storing of topsoil in berms adjacent to the site. Once the berms are in place, they will be left undisturbed until final reclamation activities. It is estimated that the topsoil berms will be in place for several years to decades. Native plants will continue to grow and add to the seed bank at these berms.

The second method will rely on the various wind dispersed seeds from the surrounding undisturbed landscape. Most plant species observed at the site rely on wind dispersal to propagate seeds. The heavy roughening of slopes, like linear crevices at the site, would be the primary method in capturing wind dispersed seeds. Previous site records of mining and reclamation indicated that the site was not previously seeded (15 years ago), while native species have reestablished themselves with great success on the previously disturbed slopes and pit floor despite continued recreational and illegal dumping uses of the site.

If vegetation success criteria are not met by method 1 or 2, then hand gathered seeds, from the surrounding undisturbed landscape, will be broadcast and mixed into the top ½-inch of the substrate, either by raking or dragging a chain across the seedbed (or other suitable method). Permission from the landowner (BLM) would be required prior to this activity. Difficulties in gathering multiple species, over several blooming seasons, with extremely low plant cover makes this method the least practical of the three options. However, if seed gathering is necessitated, consultation with BLM will begin several years before to develop a targeted seed gathering strategy for local dominant species within the 54-acre boundary of the BLM easement. This will likely require two seasons of targeted species seed gathering by hand during the peak blooming period.

<u>4.6.4 Mulches</u>

Topsoil berms and existing plants growing on the berms will be the primary source of vegetative debris. The linear crevices, created by roughing of the slopes, will capture the wind-blown fines, seeds, precipitation, and minor surface runoff.

No imported mulching material will be used at this site since it would not be compatible with the native alkaline soil types.

<u>4.6.5 Irrigation</u>

The use of irrigation on this site would likely aid germination; however, it would also encourage growth of weedy species, thereby increasing the competitive advantage of the weedy, exotic species, such as Russian thistle. Therefore, irrigation is not recommended for this site. Instead, roughing of slopes in a linear pattern that slows and gathers precipitation runoff would aid in plant establishment. Existing site conditions, as seen in site AO|3 of the vegetation cover analysis, show higher density plant coverage along the drainage and natural, lowland areas (Towill 2017, Appendix F).

4.6.6 Plant Protection Measures

No protection will be provided for the seeded areas, except as a remedial measure. Though the final site measures will attempt to block vehicle entry to the site, which would have a negative impact on revegetation efforts.

4.6.7 Plant Eradication Measures

If Russian thistle invades revegetated areas to the point that it is impacting the germination and/or growth of desired species, then this invasive exotic will be manually removed from the site as a primary remedial measure. A secondary remedial measure of herbicide spraying to contain large Russian Thistle blooms, while still young, may be requested of BLM if deemed a necessary control measure beyond hand pulling.

4.7.0 EROSION AND SEDIMENT CONTROL

Erosion and sediment control will be achieved by implementation of the previously described plan sheets and revegetation plans. Earthen berms will be maintained to prevent intrusive runoff and erosion from the two adjacent drainage channels and to maintain internal settling basins. Re-soiling and reseeding will be performed according to the revegetation plan. Existing site conditions do indicate erosion rills as a natural occurrence for the site and surrounding area, which provides blending with the surrounding arid landscape.

4.8.0 PUBLIC SAFETY

The configuration of the mined lands will not pose a hazard to the public. Hazardous materials associated with mining and processing will be stored properly on site; and prior to reclamation, will be disposed of properly off-site. The steep slopes of the wave-cut terraces, as well as other steep slopes both on- and off-site, are natural features.

4.9.0 PERFORMANCE STANDARDS

The following discussion sets forth minimum site criteria, or performance standards, for the various aspects of site reclamation. Monitoring of reclamation performance standards will be conducted by a qualified individual or group of individuals, agreed upon by Caltrans and Inyo County.

4.9.1 Erosion and Sediment Control

Erosion and sediment control monitoring will be completed at the same time and frequency as the vegetation monitoring. The results will aid in identifying potential failure areas in need of remedial measures before the problem areas cause widespread failures. The benefits to remediating erosion should be weighed verses the potential impacts to site vegetation establishment if heavy equipment access to the site is deemed necessary. A net positive results of site benefits should be assumed for such remediation to be deemed necessary.

Sedimentation basins will be inspected following the season's first major storm event or at a minimum of annually. Basins will be cleaned out as needed to maintain a minimum storage capacity.

4.9.2 Slope Stability

No large man-made slope shall be steeper than 3:1 (H: V), which has been determined to exceed the slope stability standard for this material for all except the most severe earthquake events.

4.9.3 Revegetation

Undisturbed site-indigenous shrub cover was surveyed and concluded to be 25% (Towill 2017, Appendix F). Reclamation will strive to achieve 12.5% (50% of baseline conditions) indigenous shrub cover. Aerial site surveys will be used to verify plant cover for the site annually during the reclamation phase. Species richness surveys conducted on the undisturbed area planned for mining showed a richness of three species per 50 square meters (see Table 2.5.1.1 and Table 4.9.3.1). Reclamation will also strive to achieve a species richness of three per 50 square meters.

Since the site was previously mined and subsequently naturally revegetated with native species, site conditions provide solid evidence that nearby native species seeding will naturally occur given time. By far the dominant species indicated during vegetation surveys was Shadscale (Atriplex confertifolia), which is covering the pit floor and surrounding slopes despite no decompaction or soil preparations measures. Other dominant species are indicated in the table below.

Table 4.9.3.1- Species Survey #2

Survey:	2		
Surveyors:	D. Aalbu, L. Morris, F. Becket		
Date:	2/24/2022		
Time:	3-4 PM		
Weather:			
Flora Observed			
Type	**Scientific Name**	**Common Name**	**If Dominant, then Y**
Shrubs	Atriplex confertifolia	Shadscale	Y(1)
	Psorothamnus arborescens	Mojave Indigo bush	Y(2)
	Artemisia spinescens	Budsage	Y(3)
	Ephedra nevadensis	Nevada Ephedra	
	Ericameria teretifolia	Green rabbitbrush	
	Krascheninnikovia lanata	Winterfat	
	Menodora spinescens	Spiny desert olive	Y(4)
	Sarcobatus vermiculatus	Greasewood	
	Ephedra viridis	Morman Tea	

4.10.0 MAINTENANCE, MONITORING, AND REDMEDIAL MEASURES

Site maintenance and monitoring will continue until Inyo County deems reclamation complete.

4.10.1 Erosion and Sediment Control

All erosion and sediment control structures will be maintained and monitored for as long as mining and reclamation continues. This will ensure that the failure of one or more structures does not apply additional and unplanned stress on other structures. If infilling or failure of a structure occurs, steps to repair the original structure will be taken.

4.10.2 Slope Stability

All slopes will be assessed, during annual monitoring, to ensure that they are stable. If excess slope erosion is observed, or failures noted, the appropriate remedial measures will be implemented. All pit slopes will be no greater than 3:1 (H: V).

4.10.3 Revegetation

Revegetation of the site will be monitored following implementation of each phase. Monitoring activities will take place during the peak flowering season, approximately April to June. Once the monitoring date is set, monitoring of the site, during the subsequent years, will occur within 30 days of that original date. This scheme will assure that the data will be comparable over time.

Revegetation monitoring will consist of visual assessments and recording the progress of reclamation with photographs. Overall vegetative coverage will be calculated by use of high-quality aerial photography analysis with an 80% or greater confidence level. Species richness data will be gathered by way of 50-meter belt transects. If it appears that the site will not meet the performance standards, then the investigator shall suggest remedial measures. Appropriate remedial measures are listed in Table 4.10.3 – Remedial Measures.

4.11.0 REPORTING

Once the reclamation activities have been completed, monitoring activities will commence and will continue until the performance standards have been met. This annual report will, at a minimum, consist of the name and credentials of the investigator(s), a summary, the date of the visit(s), the methods and materials used, the data collected, an analysis of the data and performance standards, and any suggested remedial measures. I final inspection request will be submitted to the County once survey data supports that the reclamation success criteria have been achieved.

5.0.0 COST OF RECLAMATION

The annual Financial Assurance Cost Estimate calculations will be provided in the Inyo County Reclamation Plan application.

TABLE 4.10.3- REMEDIAL MEASURES

FEATURE	OBJECTIVES	MONITORING FREQUENCY	FINDINGS	ACTION
Wind Erosion	Soil stabilized, no nuisance dust from site	Continuously during mining and reclamation implementation; annually following reclamation	Soil drifts found behind plants and rises, blowing dust	Consider additional soil stabilization (i.e. rock mulching)
Water Erosion	Soil stabilized, no evidence of riling or gullying equal to or greater than a Class 3	After first major storm event (>0.5-inch rain in a 24-hour period) following construction; annual monitoring of reclamation	Riling or gullying or erosion judged to be excessive	Repair area; consider additional stabilization (water bars, berms, diversion channels, or rock lining)
Slope Stability	No evidence of slope failures	Monitor continuously during mining operations; and annually during reclamation	Slope failures, slumping	Reconstruct slope, lessen angle of slope, and implement erosion control measures
Sedimentation	Little accumulation of sediment in basins (pit); basins maintain adequate capacity	After first major storm event (>0.5-inch rain in a 24-your period) following construction; annually during reclamation	Sedimentation basins filling up; diminished capacity	Clean out basin; analyze watershed for source of sediment; implement erosion control measures to correct problem
Invasion by Russian thistle or other invasive exotics	No interference with establishment of native vegetation	Once per year, note areas of infestation of Russian Thistle or other species	Infestation of exotics interfering with establishment of native vegetation	Apply weed eradication measures by hand-pulling and hand- culling
Revegetation	Perennial density averages 0.16%	Annually following implementation	Significantly below objectives	Consider reseeding; analyze soil for problems
Re-soiling	De-compacted native soils or fines re-spread to a depth of 6 inches	Monitor during implementation	Fines absent from substrate surface or a compacted substrate	Re-spread additional fines; rip or disc site to alleviate compaction

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