

**RECLAMATION PLAN  
FOR THE  
BAGDAD CHASE MINE**

**San Bernardino County  
Formerly Reclamation Plan # 84M-022**

*Prepared For:*



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*Submitted To:*

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**August 2021**

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Note: Geological Maps are found in Appendix C (Slope Stability Report, Terracon, May 2021).

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## APPENDICES

- A *Habitat and Jurisdictional Assessment*, ELMT, June 2021
- B *Revegetation Plan*, ELMT, June 2021
- C *Slope Stability Investigation Report*, Terracon, May 2021
- D *Drainage Report*, CASC, August 2021
- E Boundary Survey - Bagdad Chase, Merrell Johnson, May 2021
- F Certificate of Land Use Compliance and Conditional Approval, County of San Bernardino, July 25, 2011

## MAP SHEETS (attached)

- 1 Bagdad Chase Mine Cover Sheet
- 2 Bagdad Chase Mine Plan
- 3 Bagdad Chase Reclamation Plan
- 4 Bagdad Chase Mine Cross Sections

# PROFESSIONAL CERTIFICATIONS

## Slope Stability (Appendix C)

We have completed the Slope Stability Investigation services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. PCB215021 dated February 15, 2021. This report presents the findings of the data review, geologic mapping, field testing, and structural evaluation, and provides recommendations concerning suitable slope angles and heights for reclamation consistent with Surface Mining and Reclamation Act (SMARA) requirements.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,  
Terracon Consultants, Inc.



*John S. McKeown*  
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*J. J. Martin*  
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**Drainage Study - Surface Hydrology (Appendix D)**



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**Land Survey and Aerial Mapping/Topography – Merrell Johnson (Appendix E)**

<p>CRAIG JOHNSON L.S. 7562</p>	<p>22221 HIGHWAY 18 APPLE VALLEY, CALIFORNIA 92307 (760) 240-8000 (760) 240-1400 FAX</p> <p>15091 KAMANA RD APPLE VALLEY, CALIFORNIA 92307 (760) 256-2088 (760) 530-8672 FAX</p>	<p><b>BOUNDARY SURVEY</b> OF: APN: 0561-181-02 THROUGH 14, 0561-191-01 THROUGH 05, 07, 0561-191-10 THROUGH 12, 0561-191-15, 16, 17, 24 &amp; 25 <b>SAN BERNARDINO COUNTY, CALIFORNIA</b> FOR: <b>BAGDAD CHASE INC.</b></p>	<p>DRAWN BY: MM DATE: 05/03/21</p> <p>JOB NO. 3649.001</p> <p>SHEET <b>1 OF 5</b></p>
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## **BAGDAD CHASE MINE RECLAMATION PLAN**

### **1.0 MINE OPERATIONS**

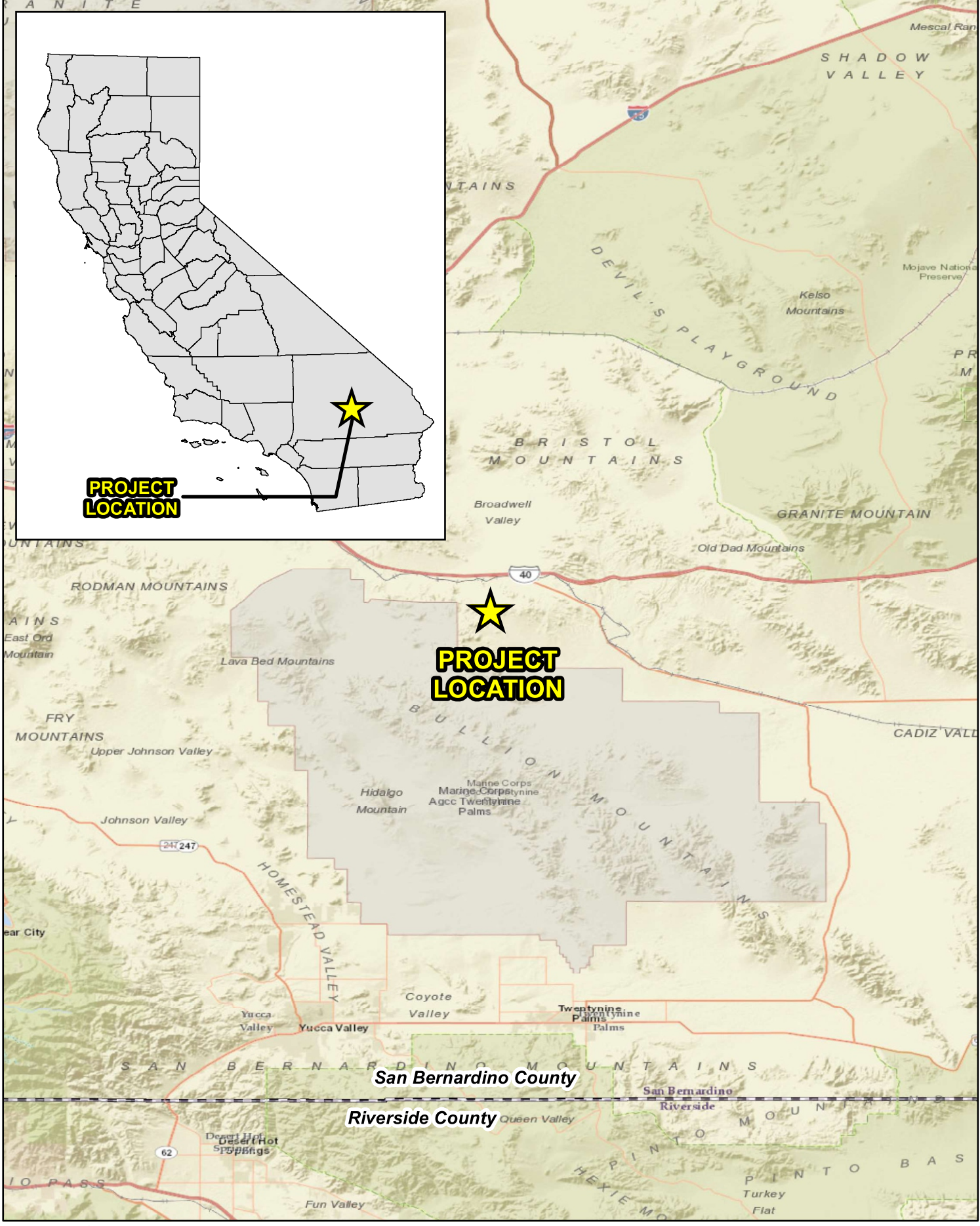
The Bagdad Chase Mining Company LLC (Bagdad Chase) is submitting this application for a Reclamation Plan (Plan) for the Bagdad Chase Mine. The Bagdad Chase Mine (project or mine site) has been explored and mined intermittently since the late 1800s and is located on patented (private) lands owned by Bagdad Chase. It was a major gold source in the County of San Bernardino (County) in the period from 1903 to 1953 with an estimated 340,000 ounces of gold produced.

Under the Surface Mining and Reclamation Act of 1975 (“SMARA”, Cal. Public Resources Code Section 2710 et seq.), to operate a mine, a site must have: (1) a vested right or a conditional use permit; (2) a reclamation plan; and (3) a financial assurance. (Cal. Public Resources Code Section 2770.) This site has a vested right.

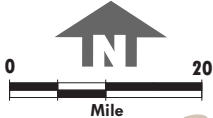
In July 2011, the County of San Bernardino approved a Certificate of Land Use Compliance and Conditional Approval to certify legal use of the site (vested right) for mineral resource development (refer to Appendix F). This vested right is consistent with the vested right definition in the Surface Mining and Reclamation Act of 1975 under (“SMARA”, Cal. Public Resources Code Section 2776). In addition, along with its long history of mining and mineral exploration, the County approved a Reclamation Plan (84M-022) for the mine in June 1984 demonstrating recognition of the surface and underground mineral resource development activities as an existing vested right. The Certificate further states *“Mineral resource development to the fullest extent at the subject properties shall not require a mining Conditional Use Permit approval under the County’s Development Code, as the pre-existing use was a permitted use by right, enacted at the time the subject properties underwent development and subsequent approval by the County (ref. Reclamation Plan 84M-022 dated May 30, 1984).”* [pages 1 & 2]

While the recognition of the mine’s vested rights allows mineral resource development onsite, a Reclamation Plan must be submitted and approved by the County per its Development Code (Chapter 88.03) and SMARA.

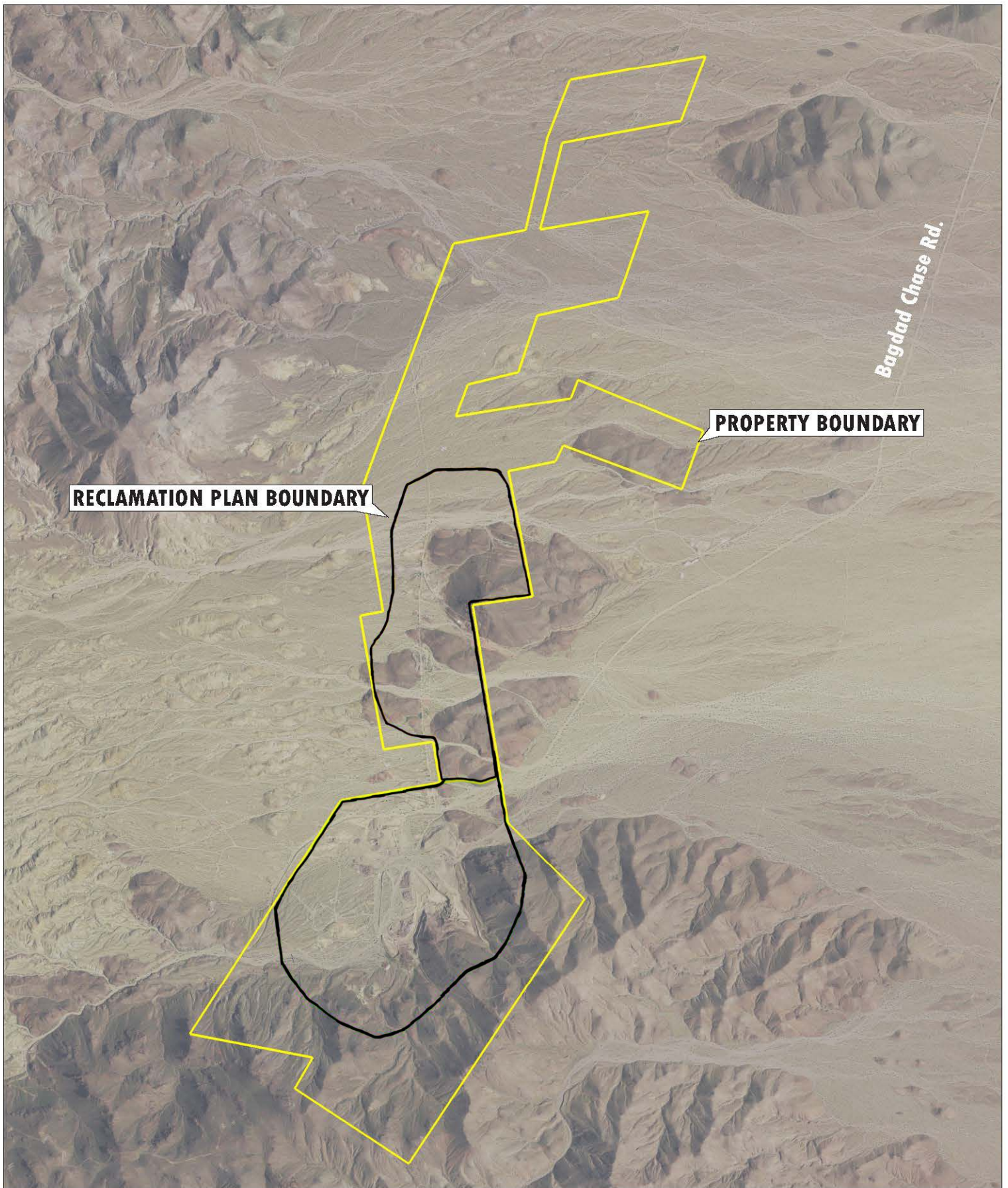
Bagdad Chase plans on reopening the historic gold mine within the Stedman / Buckeye Mining District located about 50 miles east of Barstow and seven miles south of Ludlow and Interstate 40 (I-40). The proposed mining and exploration activities will consist of approximately 244 acres within 511.75 acres of private lands in portions of Sections 4, 5, and 8, Township 6 North, Range 8 East and Section 32 in Township 7 North, Range 8 east, San Bernardino Base and Meridian. The Bagdad Chase Mine is located within the Assessor Parcel Numbers (APNs) as listed in Table 1, Land Ownership. Bagdad Chase also holds unpatented mining claims on approximately 4,000 acres surrounding the private lands. Refer to Figures 1 and 2 for Location and Vicinity Maps.



Source: ELMT Consulting, Inc., June, 2021.



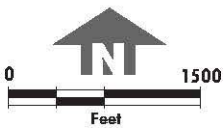
# REGIONAL MAP



**RECLAMATION PLAN BOUNDARY**

**PROPERTY BOUNDARY**

*Bagdad Chase Rd.*



Source: Lilburn Corp., August, 2021.

**VICINITY MAP**  
Bagdad Chase Mine  
Reclamation Plan



The site is accessed from Ludlow, I-40, and the National Trails Highway via the unpaved Bagdad Chase Road utilized to access the area's mines and former small mining towns since the early 1900s. This road is shown on County Assessor Parcel Maps and all USGS topographic maps. The 2011 County Certificate of Land Use Compliance certified the *"legal use of the properties and may support a protective measure for existing access routes by giving priority of use over other proposed future lands uses in the immediate area."* Currently, the northern 0.6 miles of the road is utilized by a communications site and the northern 3 miles are also used for access to a west to east utility corridor. (See Mitchell Chadwick letter on August 12, 2021, for further information on the access roads.)

Bagdad Chase plans on excavating the former mining area defined as the Main Pit (47 acres) to extract precious metal ore. The run-of-mill ore will be graded and separated onsite, then transported to a processing facility to be constructed south of Ludlow under a separate Conditional Use Permit (CUP.) The mine and reclamation plan boundary is on privately held lands totaling approximately 511.75 acres with a mining and exploratory disturbance area to be reclaimed consisting of approximately 244 acres. Approximately 53 acres are disturbed from past mining and exploration activities. In addition, aggregate and decorative rock will be produced from non-ore bearing rock or overburden based on demand. Bagdad Chase is planning an operational period of 30 years followed by 5 years of reclamation with revegetation monitoring continuing until success criteria achieved. Therefore, the overall reclamation plan will be 35 years.

The surrounding areas are public lands designated as the Mojave Trails National Monument in 2016. It is administered by the Bureau of Land Management (BLM). The area consists of vacant desert lands within the historic Steadman/Buckeye Mining District with numerous historical mine workings and former town sites (ghost towns). There are no adjacent or nearby sensitive land uses with the nearest residences located seven miles north in Ludlow.

The property is situated in the foothills of the Bullion Mountains, in the upper Mojave Desert at an elevation averaging 2,400 feet above mean sea level (amsl). The Marine Corps 29 Palms Base is located about 1 to 2 miles to the south and west. The plant community within the boundary of the project site and adjacent open space areas is creosote desert scrub.

This proposed Reclamation Plan was prepared with the following objectives:

- To reopen an historic and vested precious ore mine to produce gold and other precious metals that can be economically processed with current processing methods;
- To develop the precious metal resource in compliance with the State's and County's SMARA requirements;
- To utilize overburden to produce secondary products including construction aggregate and decorative rock;
- To operate the mine in a safe and environmentally friendly manner with respect to open desert resources;
- To provide reclamation in the form of backfilling the pits with overburden and revegetation to the disturbed areas to reduce visual, biological, and safety impacts; and
- To reclaim the site for open space end use.

The following information is listed as required by SMARA:

Land Owner, Operator:

The Bagdad Chase Mining Company, LLC  
425 South 2nd Ave. PMB 1269  
Barstow, CA 92311

Representative:

The Bagdad Chase Mining Company, LLC  
425 South 2nd Ave. PMB 1269  
Barstow, CA 92311  
Andrew Plummer  
Phone #: (206) 790-8997  
avpiv516@gmail.com

Reclamation Plan No.: New number to be provided by County; formerly 84M-022 (approved in 1984; expired June 1996)

Mineral to be Mined: precious metal ore up to 100,000 tons of ore per year

County Wide Policy Plan (November 2020) Land Use Category (LUC): Open Space (OS)

County Wide Policy Plan (November 2020) Zoning: Resource Conservation (RC)

Estimated Start Date: January 1, 2022

Estimated Operating Life: 30 years (or until December 31, 2151)

Estimated Mining Termination Date: December 31, 2151

Property Area: 511.75 acres

Reclamation Plan Area: 244 acres

Area to be Reclaimed: 103 acres (111 acres total minus about 5 acres for roads and 3.5 acres for the diversion channel)

Estimated Reclamation Completion: December 31, 2156 (followed by revegetation monitoring until success criteria achieved)

Reclaimed End Use: Open space

## **Land Holdings**

Bagdad Chase's mostly contiguous private land holdings that make up the owner's property with the reclamation plan boundary within said parcels are listed below (refer to Figure 3 and Sheets 1, 2 and 5). Table 1 lists the assessor's parcel number, area, and section location. All of the private parcels are assessed for mining/metals and for industrial class. In addition, Bagdad Chase holds over 4,000 acres of unpatented claims in the surrounding areas.

**Table 1**  
**Bagdad Chase Mine - Privately-Held Land Holdings**

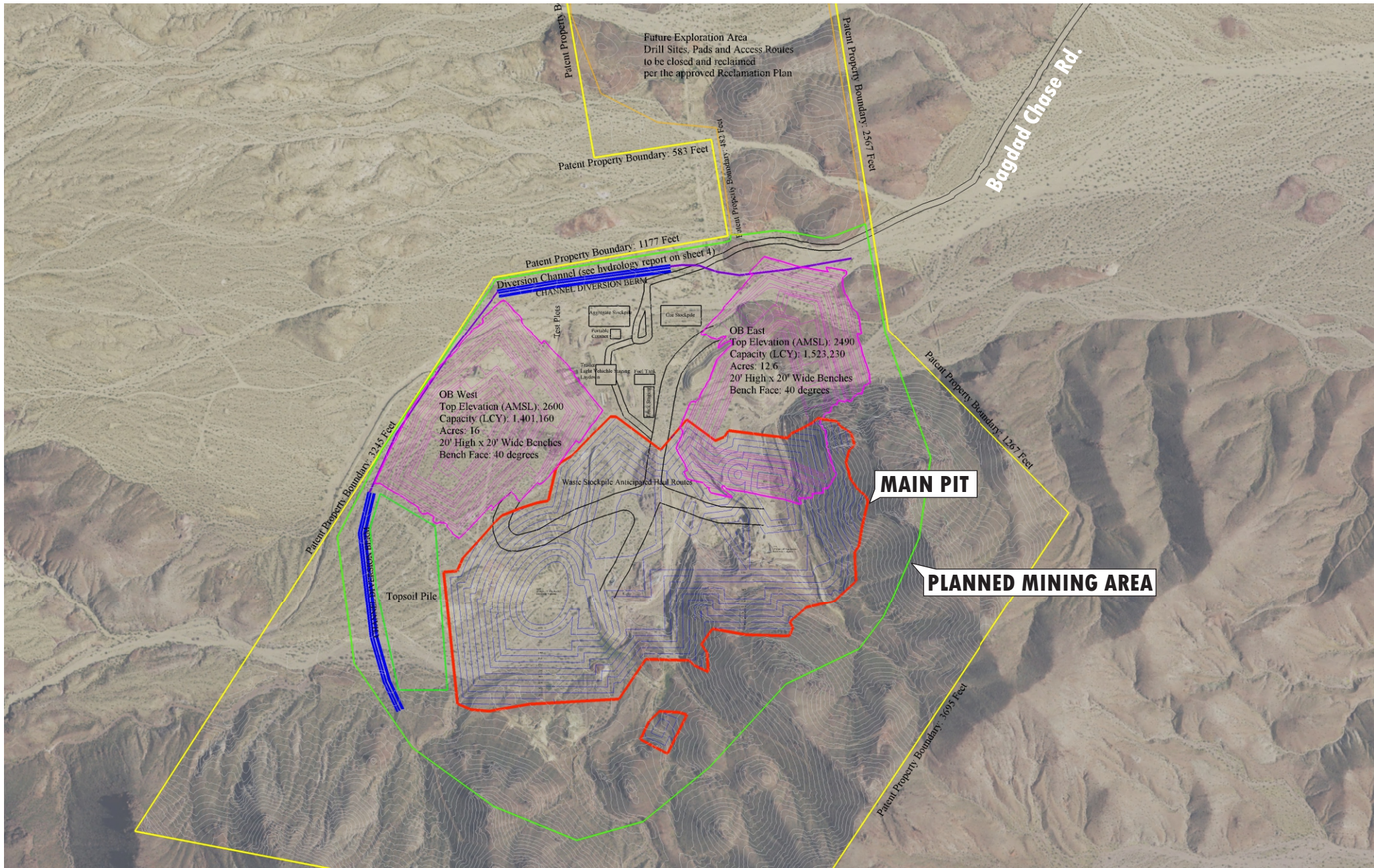
<b>Parcel Number</b>	<b>Area (acres)</b>	<b>Sections within T6N, R8E;SBBM</b>
0551-181-02	20.66	8
0551-181-03 (RP)	20.66	8
0551-181-04 (RP)	20.66	8
0551-181-05 (RP)	19.07	8
0551-181-06 (RP)	19.07	8
0551-181-07 (RP)	6.57	8
0551-181-08 (RP)	15.52	8
0551-181-09 (RP)	20.66	8
0551-181-10 (RP)	20.66	8
0551-181-11 (RP)	20.66	8
0551-181-12 (RP)	20.66	8
0551-181-13 (RP)	20.66	8
0551-181-14	20.66	8
055-191-02	20.66	32 <sup>1</sup>
0551-191-03	20.66	32 <sup>1</sup>
0551-191-04	20.66	4 , 5 & 32 <sup>1</sup>
0551-191-05	10.57	5 & 32 <sup>1</sup>
0551-191-07	7.38	5
0551-191-10	20.66	4
0551-191-11	20.66	4 & 5
0551-191-12	20.66	5
0551-191-15 (RP)	20.66	5
0551-191-16 (RP)	13.77	5
0551-191-17 (RP)	20.66	5
0551-191-19 <sup>2</sup>	20.66	5
0551-191-22 <sup>2</sup>	7.75	5
0551-191-24 (RP)	20.66	5 & 8
0551-191-25 (RP)	20.66	5 & 8
<b>Total Parcels (28)</b>	<b>511.75</b>	---
<b>Total Reclamation Plan Area</b>	<b>244</b>	---
<b>Total Disturbance Area to be Reclaimed</b>	<b>111</b>	---

Sources: SB County APN information, Bagdad Chase; Merrell Johnson Survey, 2021.

(RP) – Portions of or all of parcel within the Reclamation Pan boundary;

<sup>1</sup> - Section 32 with T7N, R8E;

<sup>2</sup> – Recently purchased; not a part of the survey or reclamation plan boundary.



See Sheet 2

## 1.1 MINING OPERATIONS

The Bagdad Chase Mine will consist of a 47-acre Main Pit with two overburden stockpiles of 28.5 acres. The mine is estimated to contain approximately 8 million cubic yards or 19.5 million short tons (2.43 short tons/cubic yard) of ore and rock (overburden). For start-up years 1 to 4, the site will be mined at an average rate of 800,000 tons annually; approximately 50,000 tpy of ore, 250,000 tpy of aggregate/rock, and 500,000 tpy of overburden. Note that substantially less overburden is expected in the initial year or two as mining will remove existing and near surface ore previously stockpiled and exposed.

For years 5 to 20, excavations are planned at an average rate of approximately 1,020,000 tpy; approximately 100,000 tpy of ore, 250,000 tpy of aggregate/rock, and 670,000 tpy of overburden (see Table 2). Bagdad Chase is planning a 30-year operating plan due to variations in ore quality, ore volumes, economic conditions, and overall annual production. Therefore, Bagdad Chase is requesting a 35-year reclamation plan.

**Table 2**  
**Estimated Bagdad Chase Mine Production**

Main Pit	Estimated Years	Ore (tons)	Aggregate (tons)	Overburden (varies year-to-year) (tons)	Total Excavated (tons)
<b>Annual Production</b>	1 – 4 <sup>1</sup>	50,000	250,000	500,000	800,000/yr.
	5 - 20	100,000	250,000	670,000	1,020,000/yr.
<b>Totals for Life of Mine</b>	20 – 30 <sup>2</sup>	1.8M	5M	12.7M	19.5M

Source: Bagdad Chase 2021

<sup>1</sup> – Substantially less overburden is expected in the initial years as mining will remove existing and near surface ore previously stockpiled and/or exposed.

<sup>2</sup> - Planning 30 years of operations due to variations in ore quality, volumes, and production followed by 5 years for reclamation. Volumes are estimated based on drilling data, mine design, and computer modeling. Material density is 2.43 per cubic yard. Tons rounded to tens of thousands. Totals may be slightly different due to rounding.

The Plan proposes to initiate mining within the existing Main Pit and previous underground mining area creating an oval-shaped pit to an average depth of 250 feet. The pit depth will be deepened from about 2,500 feet amsl on the hillside to the east to a floor depth of approximately 2,125 feet amsl. A total of about 19.5M tons will be excavated with estimated 1.8M tons of ore. Overburden will initially be placed in the East Overburden Stockpile; as mining progresses west, overburden will be placed in the West Overburden Stockpile. As soon as feasible, overburden will be placed back into a completed section of the east pit concurrent with mining. Eventually, mining will be conducted under the East Overburden Stockpile and overburden in both stockpiles will be used to backfill the Main Pit in accordance with SMARA regulations.

Table 3 lists the planned operational areas for the mine, overburden stockpiles, operations, exploration areas, and roads. Refer to Figure 3 and Sheet 2 for the Mine Plan.

**Table 3  
Planned Operational Areas (estimated acres)**

<b>Bagdad Chase Mine Areas</b>	<b>Existing Mine &amp; Disturbed Areas (acres)</b>	<b>Planned Mine &amp; Reclamation Areas (acres)</b>
Bagdad Chase Main Pit	34	47
Ore & Aggregate Stockpiles	1.0	1.0 & within pits or OB stockpile areas
Overburden Stockpile East (to be pushed back into eastern portion of completed Main Pit; years 16 - 35 )	4.0	12.5
Overburden Stockpile West (to be pushed back into pit during final reclamation; years 31 – 35)	6.0	16.0
Operations Area & Access/Haul Roads (portable crushing /screening and loading as needed within pits or stockpile areas)	6.5	6.5
Topsoil Stockpiles (& north sides of OB stockpiles and within pit)	---	6.0
Channel Diversion	--	3.5
Test Plots	0.5	0.5
<b>Totals (planned mine activities)</b>	53	93*
Buffer Areas (not to be disturbed) (mainly around SW, south, & SE of pit)	3.0*	53
Exploration Areas (to north)	5*	98 (estimate less than 10% or 10* acres of new disturbance)
Total Reclamation Plan Area (93 + 53 + 98)	53	244
Total Area to Be Reclaimed (93 + 3 + 5 + 10)	53	111

Sources: Bagdad Chase, Anderson Mining, & Lilburn August 2021

\* - Areas to be reclaimed. Total areas to be reclaimed approx. 111 acres.

Note: Totals may be slightly different due to rounding.

### Site Preparation Prior to Clearing

The following activities will be conducted prior to opening new areas for mining and overburden stockpile development to limit disturbed areas to within the mine plan boundaries and to facilitate ongoing and future reclamation and revegetation:

- Excavation and other disturbance limits will be located and marked in the field;
- Specified plants per the California Desert Plant Protection Act if found onsite that can tolerate transplant will be salvaged to the degree possible and will be replanted on

reclaimed land available for revegetation. Note that there are no western Joshua trees (*Yucca brevifolia*) onsite (a candidate species under the California Endangered Species Act (CESA));

- Seeds of specified plants will be collected to the extent feasible and either used for revegetation or stored appropriately for future seeding; and
- Salvageable “topsoil” or growth media up to 0.5 feet typically will be placed in a separate identified topsoil stockpile(s) located generally on the north sides of the overburden stockpiles and will be clearly marked and covered with larger material to limit wind and water erosion. In alluvium areas, additional material will be salvaged. Note that over 40 acres in the Main Pit have been disturbed by past mining activities and limited salvageable soil is available. If needed, native materials will be crushed for additional soil cover.

Mining operations for the Main Pit will consist of the following:

- Drilling and blasting;
- Excavating by excavators and loaders;
- Loading of excavated ore and aggregate rock onto off-road trucks at excavation site for transport to temporary onsite ore and aggregate stockpiles for grading and sorting (aggregate and low, medium, and high grade ore);
- Loading overburden material onto off-road haul trucks by an excavator or loader for transport to one of the two overburden stockpiles or directly backfilled into a portion of pit previously mined; and
- Loading the graded ore and aggregate rock onto 30 to 50-ton haul trucks by a loader and transporting materials approximately seven miles north on the Bagdad Chase Road to a processing facility and storage yard located to the south of Ludlow.

Some crushing and concentrating may take place onsite; however, no leaching or use of any chemicals will be used onsite. Per specific contracts, some processing of aggregate and decorative rock may be undertaken onsite by an outside contractor. All portable processing plants brought onsite must be in compliance with Mojave Desert Air Quality Management District (MDAQMD) rules and permits.

The Main Pit will be excavated by excavators and loaders with benches 25 feet in height with an inter-slope angle of 79° (about 5-foot offset) with a horizontal bench of a total of 25 feet sloped slightly towards the slope. Mine haul roads will be 60 feet wide with a typical grade of 10% or less depending on locations and conditions. Bench heights and widths may slightly vary with deposit geometry as determined in the field. The overall slope for operations and reclamation is approximately 45° or 1H:1V. See Figure 4 for the Mine Cross Sections and Sheet 4 for detailed cross-sections.

Mining and onsite stockpiling will produce from 200 to 400 tons/day of ore and 500 up to 1,000 tons/day of aggregate for an 8-hour day on approximately 250 days per year. Approximately 2,000 to 2,400 tons/day of overburden will be removed and stockpiled. The approximate total of onsite off-road haul truck trips would be 16 to 20 utilizing 200-ton capacity

trucks, or 32 to 40 if utilizing 100-ton haul trucks. Utilizing 50-ton trucks, 4 to 8 trucks trips/day would be needed to haul ore to the South Ludlow Facility site. In addition, an average of 10 to 20 trucks trips would be needed to haul aggregate to the South Ludlow Facility site depending on the market for construction aggregate.

## **Slope Stability**

The *Slope Stability Evaluation Report* prepared by Terracon May 2021 (see Appendix C) calculated slope stability for feasibility of reclamation rock slope configurations and kinematic analysis of potential failure geometries in rock benches were performed for the Main Pit areas. The kinematic data include the measured geologic structures and pertinent data from site mapping. Global slope stability was evaluated along model sections representing the tallest and steepest proposed slopes with consideration of the major geologic units and structures as they potentially affect the wall-scale stability.

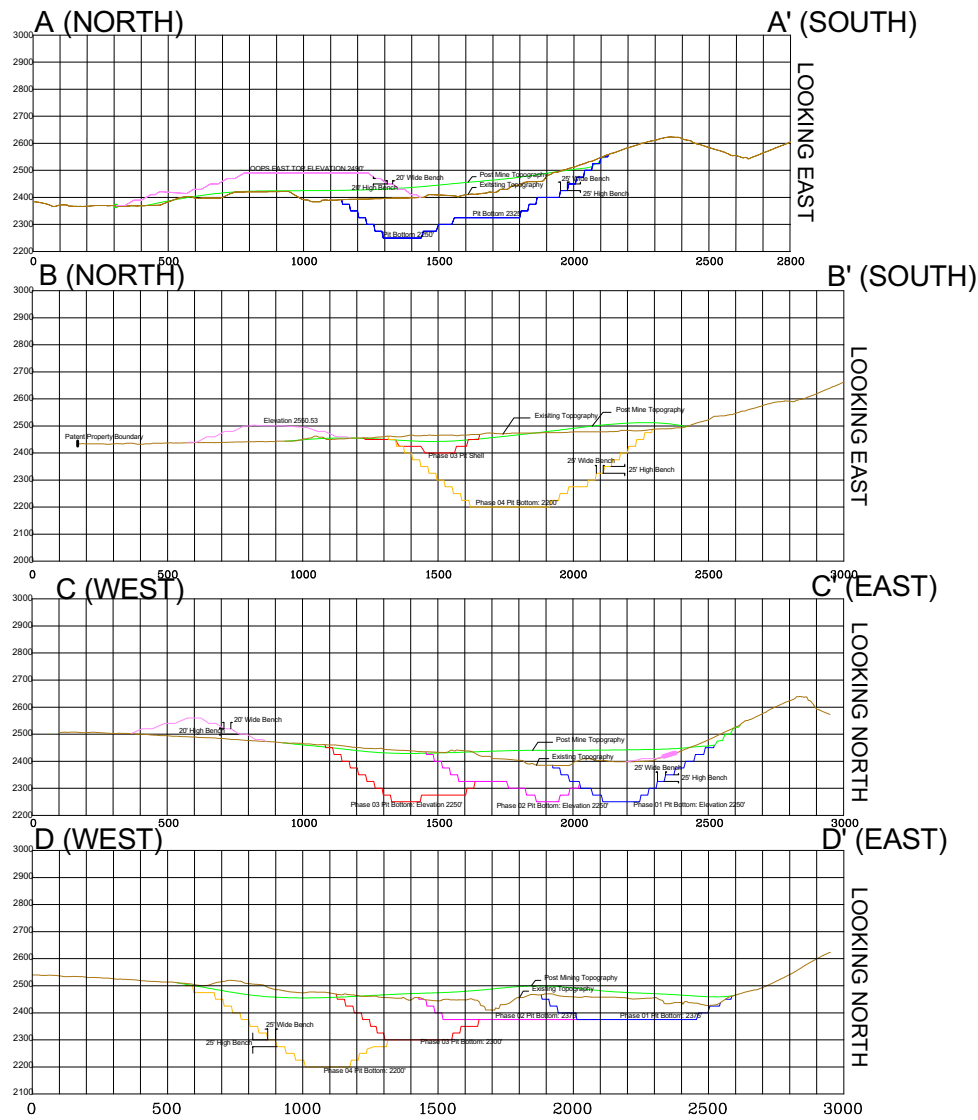
Existing excavations in and adjacent to the Main Pit area include benched cuts, room and pillar, short adits, and shaft-type features utilized during past mining. According to the proposed reclamation configuration, most existing features will be removed by future mining where they lie within the pit margin. The room and pillar area of the Main Pit is partially collapsed. Surface fissures were noted along the southern and eastern sides of the Main Pit area and are formed in fills and spoils lying above assumed underground workings.

Geological structural features evident in the Main Pit are instructive as to the types and orientations of discontinuities that could be present in final highwall cuts. The potential hazard of slope failure associated with these features is expected to be greatly reduced and mitigated under the proposed reclamation/benching/backfilling program.

The rock mass within the pit area is generally competent and capable of forming stable slopes at the proposed slope angles for reclamation. The rock structure includes blocky fabric formed by joint systems that have been characterized by analysis to yield suitably stable rock slopes. Localized structures at the bench scale may form zones that require scaling and/or excavation to flatten or steepen face angles to achieve suitable reclamation conditions.

The mine may have reclaimed worst case rock slopes with a maximum height of approximately 300 feet based on comparison of the project boundary elevations with the proposed pit bottom elevations if no backfilling were conducted. The overall slope angles would be on the order of 40 degrees, using a 25-foot high, 25-foot wide face to bench ratio. The slope models used 79-degree bench faces in global calculations. Typical face angles are between 65 degrees and 80 degrees in rock slopes; therefore, the modeled global configuration is based on a suitable geometry.





See Sheet 4

# CROSS SECTIONS

Bagdad Chase Mine  
County of San Bernardino, California

The results of global slope stability analyses are summarized below in Table 4. Details of stability calculations including material type boundaries, strength parameters, and the minimum factor of safety and critical slip surface are included in Appendix C.

**Table 4**  
**Summary of Global Stability Results**

Mine Area	Materials	Slope Configuration	Static Factor of Safety	Seismic Factor of Safety (with Kh=0.20)
Main Pit west slope	Andesite	300H @ 40 degrees	2.87	2.09
Main Pit northwest slope	Alluvium Andesite	275H @ 40 to 30 degrees	1.65	1.12
Main Pit east slope	Andesite	250H @ 40 degrees in rock cut 100H @ 28 degrees in native rock	2.88	2.07
Copper Jack	Andesite	100H @ 40 degrees	3.94	2.90

Note that the Copper Jack site is not a part of this Reclamation Plan.  
Source: *Slope Stability Report*; Terracon May 2021.

Based on the geologic field observations and results of the slope stability analysis, Terracon determined that slope configurations analyzed for the worst case scenario are feasible with respect to slope stability from a geotechnical standpoint. Sufficient static factors of safety (FS) in excess of 1.5 and seismic (pseudo-static) factors of safety at or greater than 1.1, which are in conformance with Division of Mine Reclamation (DMR) criteria, were indicated for the modeled scenario rock slopes configurations. Slopes utilizing overall slope angles lower than 51 degrees have higher factors of safety by inference and are not calculated for this evaluation.

Based on the arid site conditions and site geology, it is unlikely that a static water table exists at or above the proposed maximum depth of reclaimed pit bottom. Groundwater conditions during mining and at completion of mining (reclamation stage) may include water seepage and ponding of limited extent. Groundwater is not anticipated to significantly affect the stability of the proposed reclamation slopes.

Moderate to severe seismic shaking of the site can be expected to occur during the lifetime of the proposed mining and reclamation. This potential has been considered in our analyses and evaluation of slope stability.

Terracon recommended the following design/monitoring measures during operations and reclamation which have been included in the slope assessment:

- Inclusion of horizontal safety benches in final slope design if not backfilled which will be an effective protection from rockfall, reduces tensional forces in surface rock, and reduces surface erosion rates.

- Pit rims will be protected with berms as necessary to prevent slope erosion in areas where overland flow is toward slopes and also for public safety.
- Overall final cut slopes in the rock materials shall be no steeper than the slopes designed in the Excavation Plan (note that the Main Pit will be backfilled with overburden, but there may be some slopes remaining on the east side).
- Localized structures at the bench scale may form zones that require scaling and/or excavation to flatten or steepen face angles to achieve suitable reclamation conditions. At such time and locations as reclamation slopes are excavated, a qualified geotech professional should examine the slope conditions to determine conformance with the reclamation plan.
- Visual inspection and monitoring of mine benches and slope conditions for indications of potential instability and failure warning signs shall be implemented.
- Annual inspections of pit wall stability with respect to planar, toppling, wedge failures and rockfall hazards should be conducted as mining progresses. The intent of these inspections is to provide recommendations to prevent or remediate potentially hazardous conditions that may be revealed during mining. The kinematic condition associated with the interaction of faults/shear planes and individual walls, if exposed in reclamation slopes, should be examined during annual inspections.
- Final reclaimed overburden stockpile slopes if left in-place shall be no steeper than 2H:1V to the maximum proposed heights as shown on the Mine Reclamation Plan and surface drainage shall be conveyed away from slopes.

### **Ongoing Exploration**

Based on past drilling and years of mining data, additional resources are likely to occur within the property and reclamation plan boundary. Over the life of the Reclamation Plan, Bagdad Chase will continue to evaluate its onsite resources with exploratory boreholes and trenching based on geologic information within the mine area but also within about 98 acres in the northern half of the site as shown on Sheet 1. This exploration will mainly be within or on past disturbed areas and graded roads and will comply with operational and environmental protection conditions. It is expected that about 10 acres may be newly disturbed in this area. Any disturbed areas will be reclaimed per this Reclamation Plan.

### **Plant and Mobile Equipment**

The typical mine equipment listed in Table 5 will be utilized for mining, hauling, and road maintenance activities. As operations progress over time, replacement equipment may be required to optimize operations and to meet equipment emissions' standards. The replacement equipment types would not substantively change over time. Haul trucks, diesel equipment, and any temporary portable processing plants will meet all requirements of the MDAQMD and the California Air Resources Board's (CARB) for off-road diesel vehicles regulations to reduce diesel pollutants.

Scheduled equipment maintenance will take place onsite with portable maintenance/fuel trucks with appropriate environmental safeguards. Any used oil generated at the mine site will be collected and transported for off-site recycling or disposal by approved methods and by properly

trained and licensed personnel. There will be one diesel and one gasoline storage tanks at the Mine with appropriate spill containment. The development of the site will incorporate Best Management Practices (BMPs) and a Storm Water Pollution Prevention Plan (SWPPP).

**Table 5  
Typical Mine Equipment for Bagdad Chase Mine**

<b>Equipment</b>	<b>Typical No.</b>	<b>Planned Days/Year</b>	<b>Planned Hours/Day</b>	<b>Purpose</b>
Excavators (vary)	2	250	8	Loading of excavated ore and overburden into off-road trucks at excavation site for transport to temporary onsite ore and aggregate stockpiles and overburden to stockpiles.
Front-End Loaders (CAT 988 typ.)	2	250	8	Loading of excavated ore and aggregate from stockpiles into on-road haul trucks for transport to South Ludlow Facility.
Dozer (CAT D8 typ.)	1	125	4	Mining and stockpiling of material; construction and maintenance of roads and pit benches.
Grader (CAT 140 typ.)	1	80	4	Construction and maintenance of roads.
Drill Rig (varies)	1	200	8	Drill holes for placement of explosives.
Off-Road Haul Trucks (CAT 789) (typical)	2-4	250	8	Transportation of excavated material to the temporary onsite ore and aggregate stockpiles and overburden to stockpiles.
Dump Truck 2 or 3 axel)	1	125	4	Miscellaneous material movement onsite
On-Road Haul Trucks	7	250	8	Haul raw graded ore and rock to South Ludlow facility and storage yard for processing.
Water Truck (4,000 gal. typ.)	1	250	4	Water spray haul roads, active mine areas, overburden stockpiles, and general dust control.
Lubrication/fuel maintenance service truck	1	125	8	Service truck for onsite equipment
Portable Processing Plant (as needed) (feed hopper, crusher(s), screen(s), and conveyors)	1	intermittent	varies	Portable crushing/screening plant for ore and as needed per contract to process aggregate or decorative by outside contractors utilizing permitted equipment.
Ancillary Equip.	Varies	Varies	Varies	Maintenance vehicles, pick-ups, SUVs, etc.

Source: Bagdad Chase 2021

List above is typical equipment to be used onsite. Equipment types are not expected to vary. Specific equipment will change during the life of the project due to replacement of aging equipment and updated equipment and fleet emission standards.

## **Dust Control**

Dust control measures must be in compliance with MDAQMD Rules 401 (limiting visible emissions); 402 (avoid nuisance emissions to people or businesses or property); and 403 (prohibits visible dust from crossing property lines and controlling fugitive dust). The main dust

control method is the water spraying of roads, operational mine areas, and active overburden stockpiles. A 4,000-gallon water truck would be used for dust control. Water for dust control will be obtained from private sources in the Ludlow area (will serve letter from water supplier) or a well to be drilled at the South Ludlow Facility.

Haul roads and the Bagdad Chase Road will be improved with an 8-inch gravel base produced onsite to reduce dust and erosion. Bagdad Chase will also utilize magnesium chloride or other approved dust suppressant as recommended by the manufacturer to further reduce road dust.

In addition, any portable crushing/screening plants occasionally used onsite by outside contractors will be required to be permitted by the MDAQMD and to implement applicable dust control measures.

### **Sanitation**

Portable toilets will be supplied for use by employees and will be located onsite at the operations area.

### **Employee Safety**

Approximately 15 employees are expected to work onsite. Active mining areas will comply with all federal (MSHA) and state (Cal-OSHA) mine safety regulations. Workers, including contractor labor, will be trained in mine safety and first aid. Access and haul roads will be designed with safety berms per MSHA requirements, the pit will safety benches with berms, and inactive ramps and roads in mining areas will be blocked to prevent access.

Prior to blasting activities, employees working in the area will be notified, and a visual search of the area is done prior to blasts to verify that no one is present in the area. Standard horn signals are used to notify personnel before and after blasts (all clear).

### **Site Access and Public Safety**

The site is accessed from the planned South Ludlow Facility via the unpaved Bagdad Chase Road utilized to access the area's mines and former small mining towns since the early 1900s. This road is shown on County Assessor Parcel Maps and all USGS topographic maps from the past to present. Currently the northern 0.6 miles of the road is utilized by a communications site and the northern 3 miles are also used for access to a west to east utility corridor. (See also Mitchell Chadwick letter of August 12, 2021.)

Haul trucks of 30 to 50-ton capacity (typical) with street-legal widths as allowed will be transporting ore and aggregate rock from the mine site to the South Ludlow Facility. Roads will be graded and improved with an 8-inch gravel road base which will be sourced from the Bagdad Chase mine.

Mine areas will have warning signs every 500 feet, dirt roads not used will be blocked or closed, and safety berms six feet in height will be constructed along the pit rims where the public could access. Any unauthorized roads will be blocked or closed permanently at the property boundary.

There are no water wells onsite to be closed. Numerous portals, shafts, tunnels or openings located in the planned operations area will be “mined” out reducing public safety concerns. Any portals, shafts, tunnels or openings that remain on the mining site after mining and backfilling, they will be either closed or gated and protected from public entry but preserved for bat and other wildlife if appropriate with County consultation.

## **1.2 MINE WASTE**

Overburden material is estimated to be approximately about 12.7 million short tons over the life of the plan. During the initial 1 to 4 years, overburden production will be limited due to the removal of stockpiled and exposed ore currently onsite. Overburden will be stored temporarily in two stockpiles; the East and West overburden stockpiles. The stockpiles will have slopes of 2H:1V during operations and all overburden will be used to backfill the pit concurrently as feasible with backfilling completed during final reclamation. Note that during the initial clearing of the pit areas, the top 0.5 feet or more of growth media “topsoil” (mostly alluvium) will be pushed and hauled to the southwest side of the West Overburden Stockpile and along the north and west sides of the East Overburden Stockpile where it will be stored until final reclamation. The “topsoil” stockpiles will be clearly marked and covered with larger material to limit wind and water erosion.

East Overburden Stockpile – Overburden stockpile for the Main Pit with an area of 12.5 acres (will extend into Main Pit footprint at times) and a maximum height of about 125 feet above the surface (approximately 2,550 feet amsl). As mining progresses westward across and is completed in the east side of the Main Pit, overburden from new mining and from this stockpile will be backfilled into the pit until it is exhausted and compacted by equipment rollover.

West Overburden Stockpile – Overburden stockpile for the Main Pit with an area of 16 acres and a maximum height of about 100 feet above the surface (approximately 2,550 feet amsl). As mining progresses westward across and is completed in the west side of the Main Pit, overburden from this stockpile will be backfilled into the pit until exhausted and compacted by equipment rollover.

Any material separated for use as aggregate or decorative rock that remain after termination of operations, will be backfilled and graded into the Main Pit area.

### **Hazardous Materials and Waste**

No hazardous materials will be used onsite with the exception of fuel and oil for mobile equipment. Equipment maintenance and re-fueling will take place utilizing mobile maintenance trucks and portable onsite fuel tanks up to 10,000 gallons and conducted at the mine with appropriate required safeguards and best management practices (BMPs). Any used oil generated at the mine site will be collected and transported for off-site recycling or disposal by approved methods and by properly trained and licensed personnel.

The Hazardous Materials Division of the San Bernardino County Fire Department is designated as the Certified Unified Program Agency (CUPA) for the County to focus the management of specific environmental programs at the local government level. Bagdad Chase will prepare a Business Emergency/ Contingency Plan to include operations for the site. The Business Plan

includes a hazardous materials inventory and Spill Prevention Control and Countermeasure Plan (SPCC) to ensure that on site materials are stored appropriately and contained in the event of uncontrolled release utilizing BMPs. Fuel storage specifications apply to all above ground fuel containers. A Hazardous Materials Business Plan (HMBP) for the mine site that addresses any hazardous materials stored and used at these facilities will be prepared. The HMBP describes methods and procedures to minimize the potential for hazardous material and waste releases including an emergency response and contingency and spill response procedures.

Safety measures for the use of blasting materials are discussed in Section 1.6 on Blasting.

### **1.3 ORE PROCESSING**

The raw ore and aggregate (when in demand) is planned to be shipped to a processing facility and yard south of Ludlow permitted under a separate CUP for processing the precious metal ore and to crush and screen aggregate construction material. However, on occasion, ore may be crushed and concentrated onsite to facilitate transport off-site. No leaching or chemical processes would be undertaken onsite, only mechanical crushing and concentrating if needed. Per specific contracts, some processing of aggregate and decorative rock may be undertaken onsite by an outside contractor. All portable processing plants used an/or brought onsite must be in compliance with MDAQMD rules and permits related to dust emissions.

Bagdad Chase conducted various tests on the ore in addition to previous testing conducted in the 1980s. It has been the intention of the Bagdad Chase owners to find another alternative to cyanide extraction. Through testing, it has been determined that non-toxic gravitational and flotation concentration has proven just as effective as cyanide extraction. Therefore, the South Ludlow processing facility for the Bagdad Chase mine (or other off-site facilities) will use non-toxic concentration techniques. Once material is concentrated, the material will be loaded into super sacs and loaded onto semi-trucks and transported to a refinery to be processed into gold bars.

### **1.4 PRODUCTION WATER**

Water will be used for dust control measures only. Water will be applied to the working areas, roads, and material transfer points. Water is not available at the Bagdad Chase Mine and will be hauled via a 4,000-gallon water truck (typical) from a well to be drilled if deemed favorable at the South Ludlow Processing Facility and /or purchased from a private well owner who has provided a “will serve” letter. In addition, Bagdad Chase has an off-site well located about eight miles to the east. A portable construction type water tank will be used onsite as needed.

The estimated water usage is four to five truckloads or about 20,000 gallons/day; 15 acre-feet per year based on 250 operational days per year. Water used for dust control will evaporate and therefore, the project will not produce any run-off water. If crushing is undertaken onsite, an addition 50% of the daily water usage or 10,000 gallons would be consumed for dust control. There is no surface water within the project vicinity.

## 1.5 EROSION AND SEDIMENTATION CONTROL

Due to the hard bedrock material and low rainfall (less than 4 inches/year) the site has little potential for erosion and sedimentation. Control of surface drainage, erosion, and sedimentation of the operations involves the following primary components:

- Limiting surface disturbance to the minimum area required for active operations;
- Diverting drainages and runoff from flowing into the mine pit and into natural drainages down gradient; and
- Stabilizing disturbed areas through backfilling, regrading, replacement of soils, revegetation, re-establishing drainages, and erosion control practices.

All operations onsite will comply with a SWPPP to be updated periodically with mine site development and implementation of storm water BMPs. The mine will be cut into bedrock and precipitation falling within the mine will be allowed to flow into the mine and percolate or evaporate during operations. After backfilling the pit, drainages will be re-established to flow through the site to natural drainages down gradient. The planned control practices are described below.

### **Limiting Surface Disturbance**

The pit and overburden stockpiles will be developed as needed to limit surface disturbances. Surface disturbance areas which will be subject to potential erosion and sediment loss will be limited through long-range planning, effective design practices, phased development of expansion areas, and final reclamation of disturbed areas.

### **Diverting Runoff**

The wash that flows across the mine site from the southwest to northeast was diverted by past mine operations around the north side of the mine area. The hydrology study determined flows (100-year/1 hour design) in the wash and designed and sized a diversion channel to divert and adequately carry flows to the north around the pit and return into its natural drainage course to the northeast.

Within the pits, run-off from onsite precipitation will be allowed to flow into the pits. The pits' benching will be graded slightly toward the pit wall to limit over the bench rim run-off. A safety berm five feet high and 10 feet wide will be constructed around the pits during operations which will also serve to restrict any run-on from flowing down the quarry slopes.

The overburden stockpile slopes will be developed at a slope of 2H:1V and developed in lifts to reduce potential run-off. The tops of the overburden stockpiles will be designed with inward drainage with an up to 5-foot deep depression to catch precipitation which will percolate and evaporate and avoid runoff down the stockpile slopes or haul roads and potential erosion. Concurrently as feasible and during final reclamation, the overburden stockpiled material will be used to backfill the two pits. The footprint of the stockpiles will be ripped and revegetated.



## **Stabilization of Disturbed Areas**

The site will be visually inspected after major precipitation events to determine if any substantial erosion is evident such as sheet, rill or gully erosion or any surficial instability. Appropriate erosion control measures will be implemented where erosion is observed. In active pit areas, drainage control generally will not be a significant concern since essentially all disturbed area drainage will be retained within the basin created by the pit excavation and composed of hard rock.

Long-term stabilization, or reclamation, will generally involve backfilling the two pits, grading or reshaping disturbed areas, re-establishing effective drainage, placement of soil and alluvium, and revegetation. Surface stabilization of backfilled pit areas will consist of ripping compacted areas, soil/alluvium replacement and revegetation. Following reclamation, the majority of surface drainage through the pit areas will be re-established to existing drainages flowing to the north and then east.

Acid mine drainage refers to the outflow of acidic water from metal mines or coal mines; typically, those that are abandoned. The Bagdad Chase pits will be backfilled with the native rock material or overburden. This material does not have sulfides and will not create acid mine drainage. In addition, given the arid environment, no water outflow is expected in any event.

### **1.6 BLASTING**

Blasting operations involve drilling along the mining face, placement of charges, and detonation of the charges by a blaster licensed through the Bureau of Alcohol, Tobacco, Firearms, and Explosives (BATF&E) for handling explosive materials. The transporting, handling, storage, and use of explosive materials, blasting agents, and blasting equipment shall be directed and supervised by a qualified blasting contractor. The blasting contractor and the explosive delivery company must be licensed in accordance with all Federal, State, and local agencies and regulations, U.S. Department of Transportation hazardous materials (HAZMAT) Certificate of Registration, California HAZMAT Transportation License, and general liability insurance policy for explosive transportation and permitted under the San Bernardino County Fire Department pursuant to Uniform Fire Code adopted by the Department.

All blasters shall possess a current blasting license issued by CAL-OSHA and be experienced in mine blasting and hold applicable insurance. The blasting contractor's employees must be trained in accordance with CAL-OSHA and MSHA requirements and possess certification of such training.

Blasting shall only be conducted by a licensed blaster under the Office of Surface Mining (OSM) Blasting Performance standards (30 CFR Section 816.61-68). A blast design is required if conducted within 1,000 feet of any building used as a dwelling, public building, school, church, or community or institutional building outside the permit area and pre-blasting surveys are required for all residents or owners of dwellings or other structures located within 1/2 mile of the permit area (30 CFR Section 816.61-62). No such dwellings or residents exist within these distances to blasting operations.

Drilling will be conducted 5 days a week, 8 hours/day on about 200 days per year with depths of approximately 30 feet. Blasting will be conducted approximately 5 times per month or 60 times

per year. Blasting activities will take place between the hours of 10:00 a.m. and 4:00 p.m. on weekdays (Monday through Friday). No blasting shall be allowed after dark.

It is also important that basic safety requirements are practiced during blasting for onsite employees, equipment, and structures. A number of safety measures specific to the project site will be required including removal of unstable boulders, stabilizing boulders, limiting the amount of explosive used in blasting, inspecting the site prior to blasting, posting lookouts and use of warning signals.

The blasting agents will be ammonium nitrate and fuel oil (ANFO). No explosives will be stored onsite.

## **2.0 RECLAMATION PLAN**

### **2.1 LAND USE**

The Bagdad Chase Mine is located entirely on private/patented land owned by Bagdad Chase. Bagdad Chase has unpatented mining claims that surround the private parcels. The County Wide Policy Plan (November 2020) land use category for the site is Open Space (OS) with zoning of Resource Conservation (RC). The site and surrounding area consists of vacant, rugged mountainous desert lands.

The surrounding areas are federal public lands designated as the Mojave Trails National Monument in 2016 administered by the BLM. The area consists of vacant desert lands within the historic Steadman/Buckeye Mining District with numerous historical mine workings and former town sites (ghost towns). There are no adjacent or nearby sensitive land uses with the nearest residences located seven miles north in Ludlow.

The property is situated in the foothills of the Bullion Mountains, in the upper Mojave Desert at an elevation averaging 2,400 feet above mean sea level (amsl). The Marine Corps 29 Palms Base is located about 1 to 2 miles to the south and west. The plant community within the boundary of the project site and adjacent open space areas is creosote desert scrub.

### **2.2 VISIBILITY**

The site is not visible by any surrounding residences or roads. The site is not part of a scenic viewshed or visible from a scenic highway including old Route 66, which is approximately 7 miles to the north. The eventual reclamation and revegetation of the site will aid in blending the site with the surrounding topography and vegetation.

### **2.3 VEGETATION**

During the biological field investigation one plant community was observed within the boundary of the project site: creosote bush scrub. In addition, one land cover type, classified as disturbed, was observed onsite. For a complete description of the onsite vegetation, refer to the *Biological Resource Report* prepared by ELMT Consulting, Inc. (June 2021) included in Appendix A of this Plan.

#### *Past Mining Areas (approx. 53 acres)*

Disturbed areas are generally areas that have been subject to a high level of human disturbances from historic mining activities and no longer support a native plant community. These areas are unpaved and are entirely devoid of vegetation or support ruderal/weedy plant species and are primarily found adjacent to remnant mining areas. Disturbed areas include existing mining pits, dirt access roads, and spoil piles. Some of the disturbed areas have partially revegetated with early/pioneer species from creosote bush scrub plant community. Plant species occurring within these disturbed areas include desert trumpet, creosote, desert tea, Mediterranean grass, chia, and wire lettuce.

## *Proposed Mining Areas*

The creosote bush scrub plant community occurs throughout the survey area, outside of the areas that have been subject to historic mining activities. This plant community is dominated by creosote (*Larrea tridentata*). Common plant species observed in this plant community include brittlebush (*Encelia farinosa*), desert trumpet (*Eriogonum inflatum*), ladder buckwheat (*Eriogonum exaltatum*), cheesebrush (*Ambrosia salsola*), burrobrush (*Ambrosia dumosa*), silver cholla (*Cylindropuntia echinocarpa*), pencil cholla (*Cylindropuntia ramosissima*), Mediterranean grass (*Schismus* sp.), cryptantha (*Cryptantha* sp.), desert tea (*Ephedra californica*), catclaw (*Senegalia greggii*), Mojave spineflower (*Chorizanthe spinosa*), Alverson's foxtail cactus (*Coryphantha alversonii*), ajamete (*Asclepias subulata*), chia (*Salvia columbariae*), sweetbush (*Bebbia juncea*), barrel cactus (*Ferocactus cylindraceus*), beavertail (*Opuntia basilaris*), wire lettuce (*Stephanomeria* sp.), brittle spineflower (*Chorizanthe brevicornu*), desert mistletoe (*Phoradendron californicum*), Mojave rabbitbrush (*Ericameria paniculata*), coyote melon (*Cucurbita palmata*), whitemargin beardtongue (*Penstemon albomarginatus*), and smoke tree (*Psorothamnus spinosus*).

### Special-Status Plants

According to the CNDDB and CNPS, seven (7) special-status plant species have been recorded in the surrounding quadrangles (refer to Appendix A). No special-status plant communities were identified within these quadrangles. Based on habitat requirements for the identified special-status species, and known distributions, it was determined that the creosote bush scrub plant community onsite has a moderate potential to support Alverson's foxtail cactus, Emory's crucifixion thorn (*Castela emoryi*), Torrey's box-thorn (*Lycium torreyi*), and white-margined beartongue (*Penstemon albomarginatus*). Further, it was determined that the project site does not have potential to support any of the other special-status species documented as occurring within the vicinity of the project site.

Focused plant surveys spaced throughout the growing seasons were conducted. Alverson's foxtail cactus was the only special-status plant species observed onsite. Emory's crucifixion thorn, Torrey's box-thorn, and white-margined beartongue and other special-status plant species known to occur within the general vicinity of the project site were not detected during the surveys.

Alverson's foxtail cactus is designated as a CNPS Rare Plant Rank 4.3 (a watch list of plants of limited distribution, not very threatened in California [low degree and immediacy of threat]) that is fairly common the Mojave Desert.

None of the aforementioned special-status plant species are federally or State listed as endangered or threatened and have only been listed by the CNPS as Rare Plant Rank species.

## **2.4 WILDLIFE**

Plant communities provide foraging habitat, nesting and denning sites, and shelter from adverse weather or predation. A discussion of wildlife species that were observed during the field survey or that are expected to occur within the project site is included below. Refer to Appendix A for additional information on wildlife.

## *Fish and Amphibians*

No fish, amphibians, or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) with frequent sources of water that would provide suitable habitat for fish and amphibians were observed on or immediately adjacent to the project site.

## *Reptiles*

The creosote bush scrub plant community provides suitable foraging and nesting habitat for a variety of reptilian species adapted to conditions within the Mojave Desert. Reptilian species observed during the field investigation included western zebra-tailed lizard (*Callisaurus draconoides rhodostictus*), common side-blotched lizard (*Uta stansburiana elegans*), desert tortoise (*Gopherus agassizii*), and common chuckwalla (*Sauromatus ater*). Additional reptilian species that could be expected to occur onsite include, horned lizard (*Phrynosoma platyrhinus calidiarum*), Great Basin collard lizard (*Crotaphytus bicinctores*), Great Basin whiptail (*Aspidoscelis tigris tigris*), southwestern speckled rattlesnake (*Crotalus mitchellii pyrrhus*), northern Mohave rattlesnake (*Crotalus scutulatus scutulatus*) and Great Basin gopher snake (*Pituophis catenifer deserticola*).

## *Birds*

The creosote bush scrub plant community provides suitable foraging and nesting habitat for a variety of resident and migrant bird species adapted to conditions within the Mojave Desert. Avian species observed during the field investigation include American raven (*Corvus corax*), black-throated sparrow (*Amphispiza bilineata*), and house finch (*Haemorhous mexicanus*). Common avian species expected to occur onsite include lesser goldfinch (*Spinus psaltria*), American crow (*Corvus brachyrhynchos*), cactus wren (*Campylorhynchus brunneicapillus*), rock wren (*Salpinctes obsoletus*), and Say's phoebe (*Sayornis saya*).

## *Mammals*

The creosote bush scrub plant community provides suitable foraging and nesting habitat for a variety of mammalian species adapted to conditions within the Mojave Desert. Most mammal species are nocturnal and are difficult to observe during a diurnal field visit. Mammalian species observed or detected during the field investigation were black-tailed jackrabbit (*Lepus californicus*), white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), coyote (*Canis latrans*), kangaroo rat (*Dipodomys* sp.), and desert woodrat (*Neotoma lepida*). Additional common mammalian species that have potential to occur onsite include desert cottontail (*Sylvilagus audubonii*) and bat species (*Myotis*, *Lasiurus*, and *Antrozous* sp.). The southern portion of the site supports rock faces and steep cliffs that provide potential roosting habitat for local bat species.

## *Nesting Birds*

No active nests or nesting behaviors were observed during the field investigation. The creosote bush scrub plant community provides suitable foraging and nesting habitat for year-round and seasonal avian residents, as well as migrating songbirds that have adapted to conditions in the Mojave Desert. A pre-construction nesting bird clearance survey shall be conducted within three

(3) days prior to ground disturbance to ensure no nesting birds will be impacted from project implementation.

### Wildlife Corridors and Linkages

According to the San Bernardino County Wide Policy Plan, the project site has not been identified as occurring within a Wildlife Corridor or Linkage. Although partially constrained by existing mining facilities, the open and natural habitats on and surrounding the project site allow for local wildlife to move from the project site into the undeveloped areas surrounding the project site in search of food, shelter, or nesting habitat.

The project site does not function as a major wildlife movement corridor or linkage. As such, implementation of the proposed project is not expected to have a significant impact to wildlife movement opportunities or prevent local wildlife movement through the area since there is ample habitat adjacent to the project site to support wildlife movement opportunities.

### State and Federal Jurisdictional Waters

The project site was evaluated for the presence of jurisdictional waters of the United States, waters of the State, and/or jurisdictional streambed. Several unnamed ephemeral drainage features were observed within the boundaries of the project site during the field delineation. All of the onsite drainage features generally flow in a west to east direction across the project site and south to north across the site. These features only convey surface flow in direct response to precipitation, and do not support riparian vegetation. All of the onsite drainage features, after flowing offsite, eventually infiltrate into dry lakebeds. The onsite drainage features do not have a surface hydrologic connection to downstream waters of the United States. The onsite drainage may fall under the regulatory authority of the Regional Board as waters of the State, and, potentially, CDFW as jurisdictional streambed.

The onsite drainage features exhibit characteristics consistent with the Regional Board's and CDFW's methodology and may be considered jurisdictional waters of the State. Approximately 7.2 acres (6,430 linear feet) of non-wetland waters of the State and CDFW streambed occur onsite. Direct impacts to onsite jurisdictional areas will likely require a Regional Board Report of Waste Discharge permit prior to project implementation, and a CDFW Section 1602 Lake or Streambed Alteration Agreement.

### Special-Status Wildlife

According to the CNDDDB, ten (10) special-status wildlife species have been reported in the six quadrangles in and around the project site (refer to Appendix A). No special-status wildlife species were observed onsite during the surveys. Based on habitat requirements for specific species and the availability and quality of onsite habitats, it was determined that the proposed project site has a moderate potential to support desert tortoise and burrowing owl (*Athene cunicularia*), and a low potential to support golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), and loggerhead shrike (*Lanius ludovicianus*). Further it was determined that the project site does not provide suitable habitat for any of the other special-status wildlife species known to occur in the area since the project site.

### *Nesting Birds, Burrowing Owl and Raptors*

In order to ensure impacts to the aforementioned bird species do not occur, the following condition to comply with the Migratory Bird Treaty Act (MBTA) and Fish and Game Code is required:

*Construction activities and/or the removal of any trees, shrubs, or any other potential nesting habitat should be conducted between September 1 and January 31 outside the avian nesting season. Nesting birds are protected pursuant to the MBTA and California Fish and Game Code (Sections 3503, 3503.3, 3511, and 3513 of the California Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs).*

*If construction occurs inside the peak nesting season (between February 1 and August 31), a pre-construction survey by a qualified Biologist shall be conducted within 72 hours prior to construction activities to identify any active nesting locations. If the Biologist does not find any active nests, the construction work shall be allowed to proceed. The biologist conducting the clearance survey shall document a negative survey with a report indicating that no impacts to active avian nests shall occur.*

*If the Biologist finds an active nest within the pre-construction survey area and determines that the nest may be impacted, the Biologist shall delineate an appropriate buffer zone around the nest. The size of the buffer shall be determined by the Biologist and shall be based on the nesting species, its sensitivity to disturbance, expected types of disturbance, and location in relation to the construction activities. These buffers are typically 300 feet from the nests of non-listed species and 500 feet from the nests of raptors and listed species.*

### *Desert Tortoise*

During the initial field survey, several potential desert tortoise burrows were observed. Due to the sign observed during the initial field investigation desert tortoise focused presence/absence surveys were conducted on October 29, 2020 and May 14, 2021. Despite a systematic search of the project site, no live tortoises or signs were observed on the project site during the presence/absence survey. The plant communities found on the project site and onsite topography provide suitable foraging and burrowing habitat for desert tortoises. However, based on the results of the focused survey, desert tortoise is presumed absent from the project site.

It should be noted that there are eight (8) known locations of desert tortoise in the area that have been relocated in the vicinity of the proposed project site from the 29 Palms Military Base, located outside of the proposed project boundaries.

Out of an abundance of caution, a pre-construction desert tortoise clearance surveys should be conducted prior to ground disturbing activities for mining and exploration activities to ensure no desert tortoise occur within the limits of disturbance and typical desert tortoise protection measures should be implemented.

- *A pre-construction clearance survey shall be conducted thirty (30) days prior to ground disturbing activities in undeveloped areas to confirm the absence of desert tortoise within*

*the boundaries of the survey area. Although not anticipated, if desert tortoise are found onsite in an area to be disturbed during the pre-construction clearance survey, coordination will need to occur with the USFWS and CDFW to determine if avoidance and minimization measures can be implemented to avoid any direct or indirect impacts to desert tortoise, or if "Take" permits will need to be obtained prepared and approved by the USFWS and CDFW.*

- *Worker/employee desert tortoise education program provided prior to working onsite;*
- *Disturbance shall be confined to the smallest practical areas;*
- *Vehicle speeds shall not exceed 25 miles per hour onsite;*
- *Cross-country travel with motorized vehicles outside of the project area by project personnel is prohibited;*
- *Vehicles and equipment parked shall be inspected immediately prior to being moved.*
- *To the extent possible, new disturbances on undisturbed areas shall be scheduled when tortoises are inactive (November 1 - March 15);*
- *All trash and food items shall be promptly contained within closed, common raven-proofed containers; and*
- *Firearms, dogs, or other pets shall be prohibited at the work site.*

With implementation of a pre-construction nesting bird clearance survey, impacts to these special-status species will be less than significant and no mitigation will be required.

### Critical Habitat

Under the federal Endangered Species Act, "Critical Habitat" can be designated and refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species.

The project site is not located within federally designated Critical Habitat. The closest Critical Habitat designation is located approximately 18.5 miles northwest of the site for desert tortoise. Therefore, no loss or adverse modification of federally designated Critical Habitat will occur from implementation of the proposed project.

## **2.5 RECLAMATION**

Bagdad Chase proposes to reclaim the site to meet SMARA requirements implemented by the County that will minimize impacts to the surrounding environment and provide public safety. The objectives of this Reclamation Plan are to:

- Reduce environmental impacts from mining operations;
- Reclaim to a usable condition for post-mining end uses which will include open space/habitat;



- Backfill pit with available overburden and revegetate disturbed areas to return biological productivity and to minimize aesthetic impacts; and
- Reclaim the site as necessary to eliminate hazards to public health and safety.

Because of the phased nature of the mining development, reclamation concurrent with mining only can occur to a limited degree for safety and logistical reasons. Concurrent reclamation starts with the initiation of mining and development of new mine areas, roads or new overburden stockpiles and includes the following:

- Pre-development plant surveys to mark specific plants and cacti for salvaging;
- Salvaging seeds and re-locatable plants and cuttings for re-planting to available reclamation areas during clearing of areas to be developed;
- Stockpile available surface material for future revegetation in separate identified stockpiles seeded with an erosion control ground cover, water sprayed to create a crust, and/or covered with a larger rock material to limit wind and water erosion;
- Using a portion of the mine pit footprint for overburden placement;
- During operations, sloping and grading of mine and stockpile slopes for safety, slope stability, and erosion control;
- Backfill the Main Pit in a phased manner during operations with available overburden and complete backfill after termination of mining; overburden stockpiles will be completely removed.

All waste rock extracted from the east side of the Main Pit will be sent to the West OB stockpile to make adequate room for backfill inventory. Once the pit has been excavated to its final depth in an east to west direction, final backfill inventory will be made available for backfill while still providing a safe working condition. The backfill process will avoid rehandle and expedite the reclamation process. A model has already been designed with computer modeling to take into account the ore and aggregate removed, material swelling, and compaction. The PMT is designed to blend reclaimed surfaces into adjacent undisturbed lands; control reclamation costs by using available overburden materials (optimize cut/fill balance); utilize salvaged soils for soil cover adequate to support revegetation; create a stable fill taking into account swelling and compaction; and reestablish drainage channels.

The PMT will be a guide and reference during the concurrent backfilling in the pit. The reason for this is to promote dump efficiency as well as decreasing the time that disturbed areas will go from mining into final reclamation. Once material is dumped close to the PMT design a dozer will then push and regrade the ground, promoting compaction and laying a firm base to help support the topsoil that will be laid on top of the reclaimed material. This methodology will avoid the straight hauling of material to waste stockpiles and help ensure that we are efficient and effectively satisfying the requirements of SMARA to re-establish post mining topography.

- Ripping of compacted areas and roads to be reclaimed prior to revegetation;
- Covering disturbed areas with salvaged soil and alluvium overburden to aid in revegetation;

- Revegetation – imprinting seeds and broadcast seeding followed by covering seed with layer of soil or alluvium by pulling chains or screens over the broad cast seeded area;
- Upon completion of mining, remaining equipment, any structures, and internal roads not needed for site access will be reclaimed, and
- Monitoring and remediation until success criteria achieved.

The development of the mine and timing for reclamation are linked to operational parameters, product demand, and phased operations as shown on Sheet 4. Mining operations experience unscheduled development changes due to market/economic demands and variation in ore. The County will be updated in the annual monitoring report on the status of operational and reclamation timing.

Reclamation will include the removal of all equipment, any structures, and debris from the site. Any remaining overburden or aggregate stockpiles will be backfilled into the pit and graded for positive drainage. Compacted surfaces will be loosened by mechanical means and the entire site, onsite roads, stockpile areas, and the pit footprint, will be reseeded with native plant species. The Bagdad Chase Mine will cover approximately 111 disturbed acres including exploration roads and drill pads which will be reclaimed except for the access road, drainage channel, and internal mine roads needed for access for revegetation and site maintenance (about 8 acres not to be revegetated). Mining of the pit could continue until 2151.

Because the pit will be backfilled, there will be no steep slopes remaining. If the pit is not completely backfilled, any perimeter slopes will be filled to 2H:1V. If needed, a protective berm will be maintained around the pit rim and shall be posted with warning signs of steep slope hazard. The ends of any remaining benches will be blocked with large rock (larger than ¼ ton) to prevent access. Refer to Figure 5 and Sheet 3 for the Reclamation Plan.

The overburden stockpiles and any remaining aggregate or ore will be pushed back into the pit; the stockpile areas graded and ripped as needed, covered with salvaged soil and revegetated.

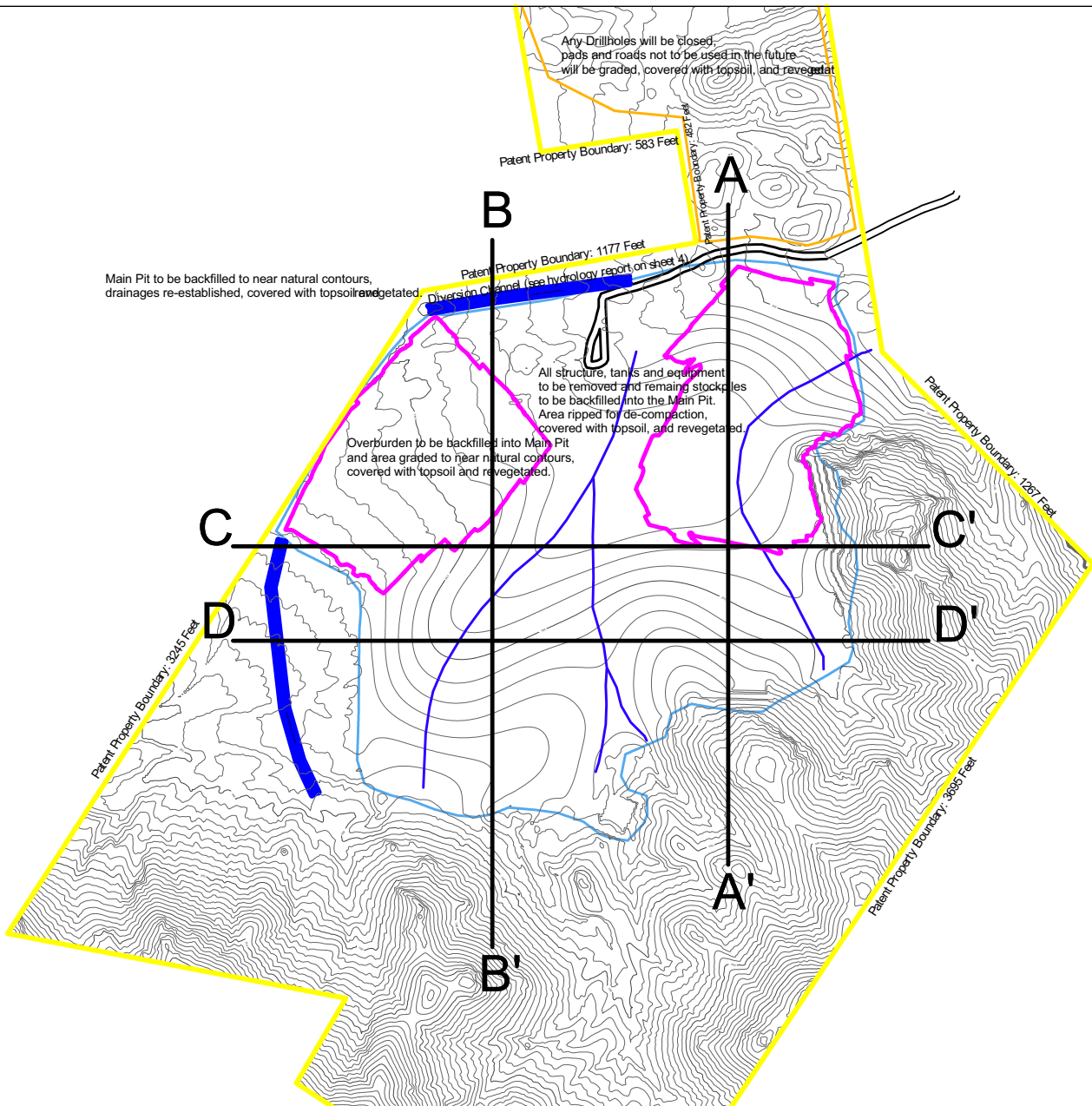
The access roads will be left onsite for use during revegetation and monitoring activities and for overall future site access and public safety as shown on the Reclamation Plan. Roads not needed for site and mine access will have any road base material removed, surface ripped and covered with available soil and revegetated. Other onsite roads needed for mine access will be reclaimed after reclamation of quarries and stockpiles to allow access to all reclamation areas.

## **2.6 REVEGETATION**

A *Revegetation Plan* for the Bagdad Chase Mine was prepared by ELMT Consulting (June 2021) and is included as Appendix B. It includes detailed procedures and methodologies for the revegetation effort. This section includes a summary of the *Revegetation Plan*.

### **Existing Baseline Vegetation**

The existing vegetative conditions of the site were documented by a biological survey included within the *Revegetation Plan*. Only one native plant community is found within the proposed mining areas, a *Larrea tridentata*-*Ambrosia dumosa* shrubland alliance (Creosote bush scrub)



See Sheet 3

**RECLAMATION PLAN**  
 Bagdad Chase Mine  
 County of San Bernardino, California



**FIGURE 5**

which is homogenous throughout the expansion area with only minor variations in composition associated with changes in landforms upland terrain with gentle to moderate slopes and ephemeral drainages/erosion channels that are commonly defined dry washes.

In order to accurately define the existing plant community composition and to be able to adequately measure the success of the revegetation over time, plant transects were conducted using the point intercept methodology to document baseline conditions. ELMT biologists used the Releve methodology to select representative transect locations. The Releve methodology allows a biologist to use their knowledge of an area and the habitat(s) found within that area to subjectively select transect lines or locations as representative of that habitat(s) rather using other methodologies that require a large number of randomly generated transects in order to ensure that sample size is sufficient to adequately represent habitat(s) in the area.

The creosote plant community is homogenous across most of the project site, with some minor vegetative variation associated with areas of different landforms or topographic relief. On the project site, two landforms were identified: gently to moderate sloping terrain and ephemeral drainages/erosion channels that are commonly defined desert dry washes. Five transect locations were selected as representative of the two landforms: three transects in the upland habitats associated with gentle to moderate slopes and two transects in the desert dry washes.

The information collected was used to document the species present, percent vegetative cover, species density and species diversity as part of documenting baseline conditions within each landform. Baseline vegetation within in each line was sampled using the point-intercept method (California Native Plant Society 2014). Each transect was 50 meters long and 1 meter wide. All native and non-native plant species within a 50-meter square transect were recorded and are presented in Table 6. Additionally, a transect line was stretched down the center of each transect and plant species, native and non-native, that were intercepted by the line were noted and recorded at half-meter (1.6-foot) intervals. Refer to the Revegetation Plan in Appendix B for additional transect data.

Table 7 show the results of the plant transect data gathered onsite in terms of cover, density and species richness. The revegetation effort will focus on the perennial pioneer shrubs, herbs, and annuals that aid in providing organic material, holding moisture, and breaking up the surface.

## **Revegetation**

To implement revegetation, it is recommended that all native seeds be used during the revegetation effort. Therefore, native seed should be collected onsite or from similar areas of undisturbed Mojavean Desert scrub habitat located adjacent to the active mine site. If needed to augment seed collection, native seeds may be purchased from commercial suppliers.

**Table 6  
Plants Identified Within Each Transect**

Plant Species	Transects				
	Upland Habitat			Desert Dry Wash	
	1	2	3	4	5
<b>Native Perennials</b>					
<i>Acacia greggii</i> (catclaw)		X			X
<i>Ambrosia Dumosa</i> (burrobush)	X	X	X	X	X
<i>Ambrosia Salsola</i> (cheesebush)				X	X
<i>Bebbia juncea</i> (sweetbush)		X	X	X	X
<i>Encelia farinose</i> (brittlebush)	X	X	X	X	
<i>Ephedra californica</i> (desert tea)		X			
<i>Eriogonum inflatum</i> (desert trumpet)	X	X	X	X	X
<i>Escobaria vivipara</i> (desert pincushion)		X			
<i>Larrea tridentata</i> (creosote)	X	X	X	X	X
<i>Psoralea spinosa</i> (smoke tree)		X			X
<b>Native Annuals</b>					
<i>Camissonia californica</i> (CA suncup)	X	X	X		
<i>Chorizanthe rigida</i> (spineflower)		X			
<i>Crypthanta sp.</i>	X	X	X	X	X
<i>Eriogonum gracile</i> (rose/white buckwheat)				X	X
<b>Non-Native Species</b>					
<i>Schismus barbatus</i> (Mediterranean grass)	X	X			

Source: *Revegetation Plan*, ELMT Consulting June 2021

**Table 7  
Plant Community Composition (Native Perennials) (per 50 m<sup>2</sup>)**

Transect / Landform	Perennial Percent Cover	Native Species Density	Native Species Diversity
1, 2 & 3 (ave.) (Upland habitat)	33%	46%	12
4 & 5 (ave.) (Desert wash)	31%	45%	10

Source: *Revegetation Plan*, ELMT Consulting June 2021

The following procedures will be implemented prior to when an area is cleared or developed:

- Conduct plant surveys to mark sensitive and protected plants and cacti for salvaging; (Note that there are no western Joshua trees onsite);
- Salvage re-locatable plants and cuttings for re-planting to available reclamation areas; and
- Stockpile available surface material for use as a seed bed and bank in separate identified stockpiles seeded with an erosion control ground cover or covered with a larger rock material to limit wind and water erosion.

*Plant Palette*

The seeds to be used for revegetation purposes include species that are either present on the site already or are present in the surrounding area as part of the creosote bush plant community. The proposed plant palette is based on native species found in this plant community in the area, not just the species identified in the plant transects. The list may be revised based on the information collected from the reference site at the time of revegetation. While the shrubs will eventually dominate a habitat type, the forbs and annuals provide early successional species that stabilize the soil and help shelter slower-growing woody shrubs. See Table 8 for proposed species to be seeded onsite.

**Table 8  
Proposed Native Plant Species for Seeding**

SPECIES		POUNDS PER ACRE
SCIENTIFIC NAME	COMMON NAME	
<i>Ambrosia dumosa</i>	Burrobush	2.50
<i>Ambrosia salsola</i>	Cheesebush	2.50
<i>Amsinckia tessellata</i>	Fiddleneck	0.25
<i>Cammissonia californica</i>	Evening primrose	0.25
<i>Chorizanthe rigida</i>	Rigid spineflower	0.25
<i>Chaenaetis fremontii</i>	Desert pincushion	0.25
<i>Ericameria nauseous</i>	Rabbitbrush	3.00
<i>Ericameria linearifolia</i>	Narrow leaf goldenbush	0.75
<i>Eriogonum fasciculatum</i>	Flat-topped buckwheat	2.00
<i>Eriogonum gracilei</i>	Slender woolly buckwheat	0.50
<i>Gilia spp.</i>	Gila	0.25
<i>Larrea tridentata</i>	Creosote bush	3.00
<i>Malacothrix glabrata</i>	Desert dandelion	0.75
<i>Mentzelia affinis</i>	Blazingstar	0.50
<i>Phacelia distans</i>	Phacelia	0.25
<i>Salvia columbariae</i>	Chia	0.25
<i>Stephanomeria exigua</i>	Small wirelettuce	0.25
<b>TOTAL pounds per acre</b>		<b>17.50</b>

*Source: Revegetation Plan, ELMT Consulting June 2021*

### Site Preparation

The following procedures will be implemented for site preparation and seeding:

- Secure the site from unauthorized impacts;
- Remove trash, equipment, and debris;
- Remove non-native invasive plant species;
- Rip or scarify compacted areas including closed roads to a 0.5-foot minimum depth with surface rills and furrows left to aid in water and wind-blown seed collection;
- Place soils that have been stockpiled partially mixed with underlying scarified material;
- Seed with locally native species either collected or purchased commercially as needed and revegetate per methods described below and as listed in Table 8;

- Stake or flag reclaimed areas to eliminate additional disturbance;
- Monitoring and maintenance; and
- Application of remedial activities, if necessary, including but not limited to additional seeding and planting with mycorrhizal, plant protection and change of seed mix.

### *Seeding*

Seeds will be distributed throughout an area scheduled for revegetation during the rainy season, generally between October 1 and January 30, or during a suitable period based on weather forecasts and rainfall.

Broadcasting will be conducted by hand and therefore should not occur when there are detectable winds that might carry seed away from its intended location. Seed should be broadcast twice: first, half of the seed should be spread while moving in one direction, and then the other half of the seed should be spread while moving perpendicular to the original direction. Seeds will be hand raked or mechanically covered by a tractor with a chain attachment.

Seed can be mixed with wheat bran or another approved substitute to aid in application and the prevention of seed segregation. In addition, mycorrhizal fungi can be applied to the seeds where necessary, particularly in highly disturbed areas where plants may otherwise have difficulty growing. The restoration contractor shall determine the appropriate mixing ratio of the seed to the binder and/or mycorrhizae, if used.

### *Test Plots*

The use of test plots is recommended to provide valuable data for the revegetation efforts. Two general topographic aspects were identified within the creosote bush scrub plant community: gently to moderately sloping upland areas and ephemeral drainages/erosion channels that are commonly defined dry washes.

The operator shall establish a minimum four-100 m<sup>2</sup> test plots representative of where mining will occur in areas consisting of creosote scrub habitat. Test plots would include surface ripping/no seeding (control plot); surface ripping, soil cover/no seeding; surface ripping, soil cover/seeding as described above; and surface ripping, soil cover/seeding as described above using mycorrhizal fungi. Additional tests would be conducted if the initial tests and any active revegetation are not successful and may include various types and amounts of seeds and different surface/soil preparation.

### *Irrigation*

The revegetation planned for the site utilizes native seeds. The average precipitation in the area should be sufficient for seed germination and root establishment of native species. Irrigation will be only conducted by hand as needed (up to 3 years) for those transplanted yucca and cacti to allow the salvaged plants to receive adequate moisture to become established but to not create a dependence on artificial irrigation.

### *Fertilization*

No fertilization of the site is recommended. All revegetation will utilize native seeds tolerant to existing soil conditions.

### *Non-Native Invasive Weed Control*

The purpose of the non-native invasive species control plan is to reduce or limit the occurrence of non-native invasive plant species that may invade the site where active and natural revegetation is taking place. Non-native invasive species (weeds) can compete with native plant species for available moisture and nutrients and consequently interfere with revegetation of the site.

A review of the data from the baseline vegetation inventory, non-native vegetation, although present, was found to occur at a low enough level, 1% or less. *Schismus barbatus* was the only non-native species identified in the transects. All non-native populations, if they become established, should be removed prior to revegetation. Manual clearing would be the suggested method. A second method would be the use of approved herbicides, depending on the species and the extent of the infestation. One or both of these methods could be used to accomplish this task. The selection of method(s) to be used will be site specific and made by the qualified Biologist in concert with Bagdad Chase Mines and San Bernardino County. All efforts to remove non-native species will be overseen by a qualified Biologist to ensure the level effort addresses the issue.

If manual clearing is used, the Biologist will ensure all non-native, exotic, or invasive plant material is gathered into appropriate storage containers (drawstring plastic trash bags are acceptable), removed from the Site, and deposited at an approved disposal facility (a landfill is acceptable) to prevent the introduction and establishment of those species to new areas. If herbicides are used, the appropriate herbicide will be selected by the Biologist in consultation with Bagdad Chase Mines and San Bernardino County. At this time, it is anticipated the herbicide to be used will be Fusillade and Roundup (glyphosate). The Biologist would also oversee their application.

The occurrence of non-native species onsite after revegetation shall be monitored by visual inspection semi-annually for the first two years and then annually thereafter. The goal is to prevent non-native invasive species from becoming established and depositing seeds in revegetated areas. Reports of inspections and weed control implementation shall be part of the revegetation monitoring as detailed and kept on file by the operator.

### *Success Criteria*

Composition of the native creosote scrub plant community was determined using vegetation transects conducted within of the existing, undisturbed native habitat. Vegetation composition data, a series of performance standards or success criteria were derived. Success criteria for native perennial shrub cover was based on 45% of baseline values, while species density and species diversity were based on 40% of baselines values. Fulfillment of the performance standards is expected to indicate that revegetated areas are progressing toward the long-term goal



of becoming a functioning, self-sustaining creosote scrub plant community. Refer to Table 9 for the Plant Species Composition and the Performance Standards.

**Table 9**  
**Revegetation Performance Standards or Success Criteria\***  
**(45% of Baseline Cover, 40% of Baseline Species Density/Diversity)**

<b>Landform</b>	<b>Upland Habitat</b>	<b>Dry Wash</b>
Perennial Cover (%)	15	14
Species Density (%)	18	18
Species Diversity	5	4

\*Native perennial shrubs from the 2021 baseline surveys per 50 m<sup>2</sup>.

*Source: Revegetation Plan, ELMT Consulting June 2021*

## **Revegetation Monitoring and Remediation**

Revegetation monitoring will be conducted for three purposes: 1) to ensure that the site preparation, seeding and weed eradication follows the Revegetation Plan (implementation monitoring), 2) to evaluate native plant establishment and vigor, and to identify and make recommendations for correcting problems (qualitative monitoring) and 3) to quantitatively measure development of the creosote bush scrub habitat (quantitative monitoring) to determine its progress with respect to the established success criteria. The success of the revegetation effort will be measured primarily by the analysis of the quantitatively collected data compared to the success criteria. The Annual Revegetation Report will be prepared to summarize revegetation and monitoring efforts over the past year and to assess the results of revegetation on the disturbed areas of the site. Monitoring will continue until success criteria have been achieved.

## **2.7 CLEANUP**

At the completion of mining activities, clean-up, backfilling, and revegetation will be conducted within five years of the termination of mining. All equipment and structures will be removed within one year recycled, and/or disposed of at an appropriate landfill site (e.g., Barstow Landfill). Excess material stockpiles will be used for backfilling and regraded for positive drainage, scarified, and revegetated.

There are no wells onsite to be closed. If any portals, shafts, tunnels or openings remain on the reclamation site after mining and backfilling, they will be either closed, or gated and protected from public entry but preserved for bat and other wildlife if appropriate with County consultation.

## **2.8 POST RECLAMATION AND FUTURE MINING**

The reclaimed site will allow for future exploration and development of additional reserves located on both patented lands and unpatented claims outside of the backfilled Main Pit. The reclaimed site will not preclude or necessitate any future mining activities or surface modification.

## **2.9 SLOPE AND SLOPE TREATMENT**

Refer to the slope stability discussion in Section 1.1, pages 13-15, above and in Appendix C.

## **2.10 PONDS, WASTES**

No water is used in ore processing or for washing except for dust control. Therefore, no wastewater is produced and no ponds are needed. The overburden material will be stockpiled and backfilled as shown on the mining and reclamation plan sheets and in accordance with PRC, Section 2773.3 and CCR, Section 3704.1 (h).

## **2.11 SOILS**

Onsite surface elevation ranges from approximately 1,780 to 2,550 feet above mean sea level. Topography onsite generally consists of flat desert dry wash areas, rolling hills and several steep sided hilltops and ridgelines located across the survey area. There are several portions of the project site that have previously been mined resulting in further areas of topographic relief. Based on the NRCS USDA Web Soil Survey, the project site itself is not mapped and the greater area in the vicinity of the site is underlain by Rositas-Carrizo and Upspring-Sparkhule-Rock outcrop complexes. Soils within the southern portion of the survey area around the existing mine have been mechanically disturbed and compacted from mining activities and recreational off-highway vehicle activities. The portions of the survey area that do not occur adjacent to mining areas are relatively undisturbed.

If additional soil is needed for revegetation, onsite materials will be crushed and utilized for cover material.

## **2.12 DRAINAGE AND EROSION CONTROLS**

Due to the hard bedrock material and low rainfall (less than 4 inches/year) the site has little potential for erosion and sedimentation. Control of surface drainage, erosion, and sedimentation of the operations involves the following primary components:

- Limiting surface disturbance to the minimum area required for active operations;
- Diverting drainages and runoff from flowing into the mine pit and into natural drainages down gradient; and
- Stabilizing disturbed areas through backfilling, regrading, replacement of soils, revegetation, re-establishing drainages, and erosion control practices.

All operations onsite will comply with a SWPPP to be updated periodically with mine site development and implementation of storm water BMPs. The mine will be cut into bedrock and precipitation falling within the mine will be allowed to flow into the mine and percolate or evaporate during operations. After backfilling the pit, drainages will be re-established to flow through the site to natural drainages down gradient to the east. The diversion channel will be left in place.

Long-term stabilization or reclamation will generally involve final backfilling of the pit, grading disturbed areas, establishing effective drainage, placement of soil, and revegetation. Following reclamation, surface runoff will flow into natural drainages.

### **2.13 PUBLIC SAFETY**

All equipment and debris will be removed from the site upon project completion. Access to the site will be controlled with locked gates, signage, and blocked secondary access roads. The pit will be backfilled and the overburden stockpiles removed for the backfill material; therefore no steep slopes will remain onsite.

Mine areas will have warning signs every 500 feet, dirt roads not used will be blocked or closed, and safety berms six feet in height will be constructed along any remaining pit rims where the public could access. Any unauthorized roads will be blocked or closed permanently at the property boundary.

Numerous portals, shafts, tunnels or openings located in the planned operations area will be “mined” out reducing public safety concerns. Any portals, shafts, tunnels or openings that remain on the mining site after mining and backfilling, will be either closed or gated and protected from public entry but preserved for bat and other wildlife if appropriate with County consultation.

### **2.14 MONITORING AND MAINTENANCE**

Monitoring will include both site monitoring to assess control, trash dumping and other forms of human disturbances, as well as biological monitoring of revegetation progress. Site monitoring of human use (access, trash dumping and off-road vehicle use) includes monthly inspection by Bagdad Chase personal to check access control and signs and to schedule removal of illegal dumping. Biological monitoring will be conducted to qualitatively and quantitatively evaluate overall conditions of the revegetated site with respect to native plant conditions, weed growth and control effectiveness as detailed in Section 2.6 above and Appendix B.

SMARA requires annual reporting of Mining and Reclamation activities and an annual inspection by the County, the lead agency. The reports are filed with the State Division of Mine Reclamation and the County. Revegetated areas will be monitored over a 5-year period or until success criteria is achieved following initial seeding and/or planting. Data on plant species diversity, cover, survival and vigor will be collected on revegetated sites and compared to baseline data from undisturbed sites to evaluate project success and documented in an annual report.

Monitoring and maintenance of reclamation is an ongoing responsibility of Bagdad Chase. The project site will be inspected annually by the County.

In addition, CEQA requires adoption of a reporting and monitoring program for the conditions of approval of a project that are intended to mitigate or avoid significant adverse environmental effects. The County program is intended to ensure compliance with mitigation measures throughout the life of the approved Project. The program will identify the conditions of approval that act as mitigation measures and will outline who is responsible for implementation and verification for each measure.

**2.15 RECLAMATION FINANCIAL ASSURANCE**

Once the proposed revision to the reclamation plan is approved by San Bernardino County, Bagdad Chase will post a reclamation financial assurance in an amount sufficient to pay for the cost of reclamation for the first year of planned operations and estimated area disturbance as outlined in Section 2. The reclamation financial assurance shall be reviewed by the County annually as required by SMARA. San Bernardino County is the lead agency for SMARA compliance and will review the Reclamation Assurance and inspect the mine site annually.

**STATEMENT OF RESPONSIBILITY**

The statement of responsibility for the reclamation of the site (below) will be signed by Bagdad Chase’s representative and will be included as a separate form upon project approval.

*I, the undersigned, hereby agree to accept full responsibility for reclamation of all mined lands as described and submitted herein and in conformance with the applicable requirements of Articles 1 and 9 (commencing with Sections 3500 et. seq. and 3700 et. seq., respectively) of Chapter 8 of Division 2 of Title 14 of the California Code of Regulations, the Surface Mining and Reclamation Act commencing with Section 2710 et. seq., and with any modifications requested by the administering agency as conditions of approval.*

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 2021 by:

Signature: \_\_\_\_\_ Title: \_\_\_\_\_

Printed Name: \_\_\_\_\_

### 3.0 GEOLOGY

The geology of the Bagdad Chase project has been studied by multiple sources including Joseph S. Polovina *Mineralized Hydrothermal Breccias In The Stedman District San Bernardino County, California (1987)*. Mineralization exists as a hydrothermally altered breccia. The Tertiary breccia exists between two rhyodacite units as a sill and also is contained along fault structures. Three potential faulting geometries may be present at this deposit as normal faults trending to the northwest, listric detachments trending the northeast and strike/slip faulting crossing the two other fault orientations. The right lateral strike/slip faults can create detachments and “tear aparts” which will reactivate fluid mobilization. This is apparent in the mineralization zoning and up to 4 different pulse events in the ore zones. In addition to the fault mineralization a secondary supergene type of re-mobilization occurs in the upper portion of the mineralized zones. Potential mineral resources for the mine can be gold, silver, copper oxide, aggregate rock, hematite and barite.

The following discussions are from the *Slope Stability Investigation Report for the Bagdad Chase Mine* (Terracon 2021). The geologic units are delineated on the [Geologic Maps](#) attached to the *Slope Stability Investigation Report* included as Appendix C in this Reclamation Plan.

The Bagdad Chase Mine is located in San Bernardino County, south of Ludlow, California. The site is accessed via Bagdad Chase Road. The Mojave Desert is dominated by broad alluviated basins that receive sediments from adjacent uplands that bury the older topography. Playa lakes (internally drained) are a common feature of the region. The site is located in the eastern foothills of the Bullion Mountains, an area of moderate to steep slopes and moderate relief formed in Tertiary age volcanic and sedimentary rocks. An alluviated plain surrounds bedrock outcrops in the project area and is dominated by alluvial sands and gravels (fan sediments) derived from upland terrain to the west and northwest.

#### Geologic Units

Pitfills (f) and cut slopes are present throughout disturbed areas. An abandoned railroad embankment lies approximately 550 feet northwest of the Main Pit footprint. Fills encompass areas of stockpiles and creation of access roads. These include safety berms, mine fills, overburden stockpiles and debris. These areas were not observed in detail during the mapping. Fills and disturbed ground are visible in aerial imagery. A stockpile approximately 3 acres in size is located north of the Main Pit area.

Recent wash deposits (Qw) associated with eastward draining, active channels lie within and form a channel along the toe of a bedrock slope in the southwest portion of the Main Pit area. This channel trends toward disturbed ground associated with past mining. Wash deposits include minor amounts of reworked spoils from former mine workings.

Younger alluvial fan (Qf) sediments are present in channels and as isolated areas within the Main Pit area. These sediments are derived from local highland sources.

Andesite porphyry of Dibblee (2008) (Tap) forms the majority of bedrock outcrops in the mine areas. As described by Dibblee, this unit ranges to dacite porphyry and quartz latite porphyry. Colors vary from greenish, pinkish to brownish-gray. Fabric is massive to faintly flow-laminated

with mostly plagioclase phenocrysts in subvitreous to microcrystalline groundmass. The rock forms dark brown, irregular intrusive masses and volcanic outcrops with blocky structure.

Andesite porphyry (Tah) forms more subdued terrain (due to less resistance to weathering/erosion) and is visible in aerial imagery as tan colored low-lying outcrops surrounded by younger alluvial fan sediments. Tah is similar to Tap but hydrothermally leached, light brown, softer and more porous than Tap with altered feldspars. This unit lies beneath a thin veneer of sediment in the western portion of the Main Pit footprint. The contact between Tap and Tah is the main ore-bearing zone of the mine area and includes brecciated zones.

## **Geologic Structure**

Geological structure within and adjacent to each proposed pit area was examined and measured in the field using electronic mapping methods. Geological structural features evident in the Main Pit include:

- Crude flow banding defined by thin mineralized veins and layering in andesite.
- Smooth and polished low- to moderate-angle joint surfaces locally within andesite
- Mineralization/brecciation in the contact zone between andesite (Tap) and hydrothermally altered andesite (Tah) units
- Moderate- to low-angle, laterally continuous joints in andesite formed along flow banding (expressed as laterally continuous features in ridgeline at east side of Main Pit)
- Steep joints oriented orthogonal to flow banding in native andesite outcrops forming standing column type outcrops with topple potential
- Shear zones/faults –steeply northeast and west-dipping with slickensides, commonly with associated mineralized zones and former mine workings; and
- Andesite rock unit with orthogonal blocky joint fabric.

## **Slope Stability**

Refer to Appendix C and Section 1.1, pages 13 - 15 above.

## **Seismic Considerations (Terracon 2021)**

The ground-shaking hazard at the site was evaluated from a deterministic standpoint for use as a guide to formulate an appropriate seismic coefficient for use in slope stability analysis. The deterministic calculation of peak ground acceleration (PGA) was made using attenuation relations of Abrahamson and others (2014), Boore and others (2014), Campbell and Bozorgnia (2014) and Chiou and Youngs (2014).

The site is located northeast and south of fault seismic sources. The Pisgah-Bullion Fault (Lavic Lake segment) ruptured in the 7.1-magnitude Hector Mine earthquake in October 1999 with an epicenter approximately 9 kilometers west of the project area. A contour map of PGA generated by this event indicates ground acceleration on the order of 0.5g at the site (USGS Earthquake

Hazards Program, 2021). Seismic conditions may influence the stability of slopes and rockfall potential on a time scale that postdates most planned mine reclamations. Rockfalls are a common occurrence after major earthquakes because of strong ground shaking. The Hector Mine earthquake is an example of a seismic event with the potential to cause rockfall at the site.

The simplified procedure of Bray and Travasarou (2009) for selection of critical acceleration ( $K_h$ ) as one-half PGA is commonly used for slope stability calculations for habitable structures. Their method is not typically required or applicable for pit slope design. Given the project location in an area of moderate to high seismic potential, we used  $K_h = 0.20$ , consistent with Bray and Travasarou (2007) and historic seismicity, to approximate one-half the value of PGA from the deterministic calculation for the closest fault, the data from the Hector Mine earthquake, and considering the end use of the site.

## 4.0 HYDROLOGY

### Surface Hydrology

CASC prepared the *Drainage Study* (August 2021) which is included as Appendix D. Discussion below is summarized from this report.

The site is outside of the Mojave River groundwater basin and Mojave River drainage basin (USGS, 2017). The Project is located at the Southeastern edge of a valley and surrounded by hills to the south, west, and north. Topographically, the Main Pit drainage area ranges from approximately 3,400 feet to 2,330 feet above Mean Sea Level. The Project's drainage area is mainly comprised of flows from the nearby hills, where natural rills and gullies have captured, concentrated, and conveyed runoff from the hills towards the Project. Main Pit complex has a proposed 98-acre disturbance area, within an approximate 760-acre drainage area.

A majority of the Project is located on what was once gently sloping alluvium traversed by a wash system. The Project has been historically disturbed by previous mining activities which have realigned the wash channels and diverted storm flows around the site and into the dumps and pits of the historical mining area. There are three major Drainage Areas (A, E and F), that make up the southern Main Pit drainage area, that confluence and eventually discharge at a point (Point 109 on the enclosed hydrology maps; Exhibit A) at the eastern end of the Main Pit disturbance area. Drainage Area B makes up the northern Main Pit drainage area where it discharges north of Drainage Areas A, E, and F at a point (Point 205) on the northeastern end of the Main Pit disturbance area. The Hydrology Study Map (Appendix D, Exhibit A) shows the drainage areas and flow paths used for the analysis and the proposed diversion channel to divert flows around the north site of the pit and operations area and return said flow back into its natural drainage to the east.

The dry washes are subject to surface flows during infrequent but potentially intense rainfall events. There is no evidence of seeps or springs such as surface flow or concentrated vegetation observed within the site.



## REFERENCES, ACRONYMS, and GLOSSARY

### REFERENCES

*Biological Resources Report*; ELMT Consulting, June 2021.

*Delineation of State and Federal Jurisdictional Waters*; ELMT Consulting, June 2021.

*Digital Topography*; Merrell Johnson Companies, 2020.

*Drainage Study for the Bagdad Chase Mine*; CASC, August 2021.

*Reclamation Plan (84M-022) for Bagdad Chase Quarries*; approved by San Bernardino County, May 1984; expired June 1996.

*Revegetation Plan*; ELMT Consultants, June 2021.

*Rules and Regulations*; Mojave Desert Air Quality Management District, 2020.

*San Bernardino County Wide Policy Plan (November 2020)*.

*Slope Stability Investigation Report for the Bagdad Chase Mine*; Terracon Consultants Inc., May 2021.

*Surface Mining and Reclamation Act (SMARA)*; California Department of Conservation, State Mines and Geology Board, January 2020.

### ACRONYMS

<b>af</b>	acre-feet
<b>amsl</b>	above mean sea level
<b>BATF&amp;E</b>	Bureau of Alcohol, Tobacco, Firearms and Explosives (federal agency)
<b>BLM</b>	Bureau of Land Management
<b>BMP</b>	Best Management Practices
<b>Cal-OSHA</b>	California Occupational Safety and Health Administration
<b>CCR</b>	California Code of Regulations
<b>CDFW</b>	California Department of Fish and Wildlife
<b>CESA</b>	California Endangered Species Act
<b>CEQA</b>	California Environmental Quality Act
<b>CFR</b>	Code of Federal Regulations
<b>CNPS</b>	California Native Plant Society
<b>CUPA</b>	Certified Unified Program Agency (Hazardous Materials Division of the San Bernardino County Fire Department is designated as the "CUPA.")
<b>CY, cy</b>	Cubic yards
<b>DEHS</b>	Department of Environmental Health (County)
<b>DMR</b>	Division of Mine Reclamation
<b>DOC</b>	Department of Conservation
<b>FESA</b>	Federal Endangered Species Act

<b>H:V</b>	horizontal to vertical; typically in feet (slope inclination)
<b>MBTA</b>	Migratory Bird Treaty Act (protects nesting birds)
<b>MSHA</b>	Mining Safety and Health Administration
<b>MDAQMD</b>	Mojave Desert Air Quality Management District
<b>PMT</b>	post-mining topography
<b>RWQCB</b>	Regional Water Quality Control Board
<b>SMARA</b>	Surface Mining and Reclamation Act
<b>SPCC</b>	Spill Prevention, Control, and Counter-measure
<b>SWPPP</b>	Storm Water Pollution Prevention Plan
<b>USFWS</b>	United States Fish and Wildlife Service
<b>USGS</b>	United States Geological Survey

## GLOSSARY OF TERMS

**BACT:** Best Available Control Technology – Air quality term used to describe air pollutant control equipment for equipment and facilities that produce air emissions.

**Bench:** Terrace or leveled area breaking the continuity of a slope. For the Bagdad Chase Mine, the benches will be 25 feet wide every 25 vertical feet with an inter-bench slope of approximately 80°.

**Berm:** An elongated earthen structure which acts as a barrier; e.g., to make it difficult for a vehicle or ORV to cross along the rim of a quarry/pit or along a haul road, or to redirect the flow of water.

**California Environmental Quality Act (CEQA):** Policies enacted in 1970, and subsequently amended, the intent of which is the maintenance of a quality environment for the people of California now and in the future.

**Endangered species:** A species whose prospects of survival and reproduction in the wild are in immediate jeopardy from one or more causes.

**Factor of safety:** Ratio of forces resisting slope failure over forces driving slope failure.

**Fine Particulate Matter:** Extremely small air pollutants less than 2.5 microns in diameter and that form primarily from engine combustion sources, not from fugitive dust sources (PM<sub>2.5</sub>).

**Haul road:** A road used by haul trucks to haul ore and waste rock from the open pit to other locations usually to the processing plant or to stockpiles.

**Hazardous material:** Substance which, because of its potential for corrosivity, toxicity, ignitability, chemical reactivity, or explosiveness, may cause injury to persons or damage to property.

**Hazardous waste:** Defined in Section 1004(5) of the federal Resource Conservation and Recovery Act (RCRA) as, "...a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: (a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or

incapacitating reversible, illness; or (b) pose a substantial present or potential hazard to human health or the environmental when improperly treated, stored, transported, or disposed of, or otherwise managed.”

**Hydrogeology:** The study of surface and subsurface water.

**Ore body:** A generally continuous mass of ore distinct from the surrounding rock.

**Overburden:** Material which does not meet quality specifications and other rock types encountered during excavations which will be hauled directly to overburden stockpiles.

**Rare species:** A species, which, although not presently threatened with extinction, is in such small numbers throughout its range that it may become endangered if its present environment worsens.

**Reclamation:** The combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations (SMARA).

**Reclamation Plan:** A restoration plan for the stabilization and recovery of a mine site after cessation of mining operations for another use; generally open space or other low intensity use.

**Revegetation:** Establishment of native vegetation on lands that have been disturbed.

**Regional Water Quality Control Board (RWQCB):** Agency which administers the requirements of the California Administrative Code, Title 23, Division 3, Chapter 15 to ensure the highest possible water quality consistent with all demands.

**Sensitive species:** A plant or animal species, which is recognized by the government or by a conservation group, as being depleted, rare, threatened, or endangered.

**Threatened species:** Species, which, although not presently threatened with extinction, are likely to become endangered in the foreseeable future in the absence of special protection and management efforts.

**Water table:** The upper water level of a body of groundwater.

## CROSS REFERENCE MATRIX

### Bagdad Chase Reclamation Plan (CA Mine ID# 91-36-xxxx) & Surface Mining and Reclamation Act

Including reference to:

ARTICLE 1. GENERAL PROVISIONS. SECTION 2710 et seq.

ARTICLE 2. DEFINITIONS. SECTION 2725 et seq.

ARTICLE 3. DISTRICT COMMITTEES. SECTION 2740 – 2741

ARTICLE 4. STATE POLICY FOR THE RECLAMATION OF MINED LANDS. SECTION 2755 et seq.

ARTICLE 5. RECLAMATION PLANS AND THE CONDUCT OF SURFACE MINING OPERATIONS.

SECTION 2770 et seq., as amended

CCR TITLE 14 (REGISTER 85, No. 18-5-4-83)

CHAPTER 8. MINING AND GEOLOGY

SUBCHAPTER 1. STATE MINING AND GEOLOGY BOARD

ARTICLE 1. SURFACE MINING AND RECLAMATION PRACTICE. SECTION 3500 et seq.

ARTICLE 9. RECLAMATION STANDARDS. SECTION 3700 et seq.

SMARA/CCR SECTION	DESCRIPTION	N/A	PAGE(S)	SECTION(S)
<b>MINING OPERATIONS AND CLOSURE</b>				
SMARA 2770.5	100-year flood, Caltrans contact	X		
SMARA 2772 (c) (1)	Name and Address of operator/agent.		5	1.0
SMARA 2772 (c) (2)	Quantity & type of minerals to be mined.		4-5, 8	1.0, 1.1
SMARA 2772 (c) (3)	Initiation and termination date.		5	1.0
SMARA 2772 (c) (4)	Maximum anticipated depth of mining.		8	1.1
SMARA 2772 (c) (5)	Description, including map with boundaries, topographic details, geology, streams, roads, utilities.		1-17, 40-42	1.0, 1.1, 3.0
SMARA 2772 (c) (6)	Mining plan and time, schedule for reclamation (concurrent or phased reclamation).		1-17; 27-29	1.0, 1.1, 2.5
SMARA 2772 (c) (7)	Proposed subsequent use.		36	2.8
SMARA 2772 (c) (8)	Description of reclamation measures adequate for proposed end use.		27-29	2.5
SMARA 2772 (c) (8) (a)	Description of containment control and mine waste disposal.		17-18	1.2

SMARA/CCR SECTION	DESCRIPTION	N/A	PAGE(S)	SECTION(S)
<b>MINING OPERATIONS AND CLOSURE</b>				
SMARA 2772 (c) (8) (b)	Rehabilitation of stream banks/beds to minimize erosion		19-20; 37-38; App. D	1.5; 2.12; App. D
SMARA 2772 (c) (9)	Impact of reclamation on future mining.		36	2.8
SMARA 2772 (c) (10)	Applicant statement accepting responsibility for reclamation per the reclamation plan.		39	2.15
SMARA 2773 (a)	Water quality monitoring plan specific to property.		19-20	1.5; SWPPP
SMARA 2773 (a)	Sediment and erosion control monitoring plan specific to property.		19-20; 37-38	1.5, 2.12
SMARA 2773 (a)	Revegetation plan specific to property. Monitoring Plan.		29-36	2.6; Appendix B
SMARA 2773.1	Performance (financial) assurances.		39	2.15
SMARA 2777	Amended reclamation plans required prior to substantial deviations to approved plans.		Informational only.	
CCR 3502 (b) (1)	Environmental setting and impact of reclamation on surrounding land uses. (Identify sensitive species, wildlife habitat, sensitive natural communities, e.g., wetlands, riparian zones, etc.).		22-27	2.1-2.4
CCR 3502 (b) (2)	Public health and safety (exposure).		16-17; 38	1.1, 2.13
CCR 3502 (b) (3)	Slopes: critical gradient, consider physical properties and landscaping.		11-14; 37	1.1, 2.9
CCR 3502 (b) (4)	Fill materials in conformance with current engineering practice.		17-18; 27-29	1.2
CCR 3502 (b) (5)	Disposition of old equipment		36	2.7
CCR 3502 (b) (6)	Temporary stream and water diversions shown.		19-20	1.5

SMARA/CCR SECTION	DESCRIPTION	N/A	PAGE(S)	SECTION(S)
<b>MINING OPERATIONS AND CLOSURE</b>				
CCR 3503 (a) (1)	Removal of vegetation and overburden preceding mining kept to a minimum.		27-36	2.5 – 2.6
CCR 3503 (a) (2)	Overburden stockpiles managed to minimize water and wind erosion.		17-18	1.2
CCR 3503 (a) (3)	Erosion control facilities (dikes, ditches, etc.) as necessary.		19-20; 37-38	1.5; 2.12
CCR 3503 (b) (1)	Settling ponds (sedimentation and water quality).	X		
CCR 3503 (b) (2)	Prevent siltation of groundwater recharge areas.		19-20; 37-38	1.2; 1.5
CCR 3503 (c)	Protection of fish and wildlife habitat (all reasonable measures).		23-27	2.4; App. A
CCR 3503 (d)	Disposal of mine waste and overburden (stable-no natural drainage restrictions without suitable provisions for diversion).		17-20	1.2; 1.5
CCR 3503 (e)	Erosion and drainage (grading to drain to natural courses or interior basins).		19-20	1.5; App. D
CCR 3503 (f)	Resoiling (fine material on top plus mulches).		27-36	2.5, 2.6
CCR 3503 (g)	Revegetation and plant survival (use available research).		29-36	2.6; App. B
CCR 3703 (a)	Sensitive species conserved or mitigated		22-27	2.3; 2.4
CCR 3703 (b)	Wildlife habitat at least as good as pre-project, if approved end use is habitat.		23-36	Wildlife Desc. 2.4; 2.5; Reveg. 2.6
CCR 3703 (c)	Wetlands avoided or mitigated at 1:1 minimum	X	---	---
CCR 3704 (a)	For urban use, fill compacted in accordance with UBC or local grading ordinance.	X	---	---
CCR 3704 (b)	For resource conservation, compare to standard for that end use		27-36	2.5; 2.6

SMARA/CCR SECTION	DESCRIPTION	N/A	PAGE(S)	SECTION(S)
<b>MINING OPERATIONS AND CLOSURE</b>				
CCR 3704 (c)	Mine waste stockpiled to facilitate phased reclamation and separate from growth media.		27-36	2.5; 2.6
CCR 3704 (d)	Final reclamation fill slopes not exceed 2:1, except when engineering and revegetation analysis allow.		27-29; 37	2.5; 2.9
CCR 3704 (e)	Final landforms or fills conform with surrounding topography or end use.		27-29; 37	2.5; 2.9 App. C
CCR 3704 (f)	Cut slopes have minimum factor of safety for end use and conform with surrounding topography.		11-14; 27-29	1.1; 2.5; 2.9
CCR 3704 (g)	Piles or dumps not placed in wetlands without mitigation.	X	---	---
CCR 3705 (a)	Vegetative cover, suitable to end use, self-sustaining. Baseline studies documenting cover, density and species richness.		29-36	2.6 App. B
CCR 3705 (b)	Test plots if success has not been proven previously		29-36	2.6
CCR 3705 (c)	Decompaction of site.		27-36	2.5; 2.6
CCR 3705 (d)	Roads stripped of road base materials, resoiled and revegetated, unless exempted.		29-36	2.6
CCR 3705 (e)	Soil altered or other than native topsoil, required soil analysis. Amend if necessary.		29-36	2.6
CCR 3705 (f)	Temporary access not bladed. Barriers installed.	X	---	---
CCR 3705 (g)	Use native plant species, unless exotic species meet end use.		29-36	2.6
CCR 3705 (h)	Plant during correct season.		29-36	2.6
CCR 3705 (i)	Erosion control and irrigation, when necessary.		29-36	2.6
CCR 3705 (j)	If irrigated, demonstrate self-sustaining without for two-year minimum.	X		.
CCR 3705 (k)	Weeds managed.		29-36	2.6; App. B29-36
CCR 3705 (l)	Plant protection measures, fencing, caging.	X		

SMARA/CCR SECTION	DESCRIPTION	N/A	PAGE(S)	SECTION(S)
<b>MINING OPERATIONS AND CLOSURE</b>				
CCR 3705 (m)	Success quantified by cover, density and species-richness. Standards proposed in plan. Sample method set forth in plan and sample size provides 80 percent confidence level, as minimum.		29-36	2.6 App. B
CCR 3706 (a)	Mining and reclamation to protect downstream beneficial uses.		19-20; 37-38	1.5; 2.12 SWPPP
CCR 3706 (b)	Water quality, recharge, and groundwater storage shall not be diminished, except as allowed by plan.		19-20; 37-38	1.5; 2.12 SWPPP
CCR 3706 (c)	Erosion and sedimentation controlled during all phases as per RWQCB/SWRCB.		19-20; 37-38	1.5; 2.12 SWPPP
CCR 3706 (d)	Surface runoff and drainage controlled and methods designed for not less than 20 year/1 hour intensity storm event.		19-20; 37-38	1.5; 2.12 SWPPP
CCR 3706 (e)	Altered drainages shall not cause increased erosion or sedimentation.		19-20; 37-38	1.5; 2.12 SWPPP
CCR 3706 (f)	Stream diversions constructed in accordance with DFG 1603, EPA 404, Sec. 10 Rivers and Harbors.		19-20	1.5; App. D
CCR 3706 (g)	All temporary diversions eventually removed.		19-20	1.5
CCR 3707 (a)	Return prime ag to prime ag, unless exempted.	X		
CCR 3707 (b)	Segregate and replace topsoil by horizon.	X		
CCR 3707 (c)	Productivity rates equal pre-project or similar site for two consecutive years. Rates set forth in plan.	X		
CCR 3707 (d)	Fertilizers and amendments not contaminate water.	X		
CCR 3708	Other ag capable of sustaining crops of area.	X		
CCR 3709 (a)	Equipment stored in designated area and waste		36	2.7



SMARA/CCR SECTION	DESCRIPTION	N/A	PAGE(S)	SECTION(S)
<b>MINING OPERATIONS AND CLOSURE</b>				
	disposed of according to ordinance.			
CCR 3709 (b)	Structures and equipment dismantled and removed.		36	2.7
CCR 3710 (a)	Surface and groundwater protected.		19-20; 37-38	1.5; 2.12
CCR 3710 (a)	Surface and groundwater projected in accordance with Porter Cologne and Clean Water Acts (RWQCB/SWRCB).		19-20; 37-38	1.5; 2.12
CCR 3710 (b)	In-stream in accordance with CFG 1600, EPA 404, and Sec. 10 Rivers and Harbors.	X	No in-stream mining.	---
CCR 3710 (c)	In-stream channel elevations and bank erosion evaluated annually using extraction quantities, cross-sections, and aerial photos.	X	No in-stream mining.	---
CCR 3710 (d)	In-stream mining activities shall not cause fish to become entrapped in pools or in off-channel pits. California Fish and Game Code section 1600.	X	No in-stream mining.	---
CCR 3711(a)	All salvageable topsoil removed. Topsoil and vegetation removal not proceed mining by more than one year.		29-36	2.6 App. B
CCR 3711 (b)	Topsoil resources mapped prior to stripping, location of stockpiles on map. Topsoil and growth media in separate stockpiles.		29-36	2.6 App. B
CCR 3711 (c)	Soil salvage and phases set forth in plan, minimize disturbance, designed to achieve revegetation success.		29-36	2.6 App. B
CCR 3711 (d)	Topsoiling phased ASAP. Stockpiles not to be disturbed until needed. Stockpiles clearly identified and planted with vegetation or otherwise protected.		29-36	2.6 App. B
CCR 3711 (e)	Topsoil redistributed in stable		29-36	2.6

<b>SMARA/CCR SECTION</b>	<b>DESCRIPTION</b>	<b>N/A</b>	<b>PAGE(S)</b>	<b>SECTION(S)</b>
<b>MINING OPERATIONS AND CLOSURE</b>				
	site and consistent thickness.			App. B
CCR 3712	Waste and tailings, and waste disposal governed by SWRCB (Article 7, Chapter 15, Title 23, CCR).		17-18; 38	1.2; 2.13
CCR 3713 (a)	Drill holes, water wells, monitoring wells abandoned in accordance with laws.		36	2.7
CCR 3713 (b)	All portals, shafts, tunnels or openings, gated or protected from public entry, but preserve access for wildlife.		36	2.7