

# **VISUAL ASSESSMENT FOR SOLEDAD MOUNTAIN PROJECT**

Golden Queen Mining Company, LLC

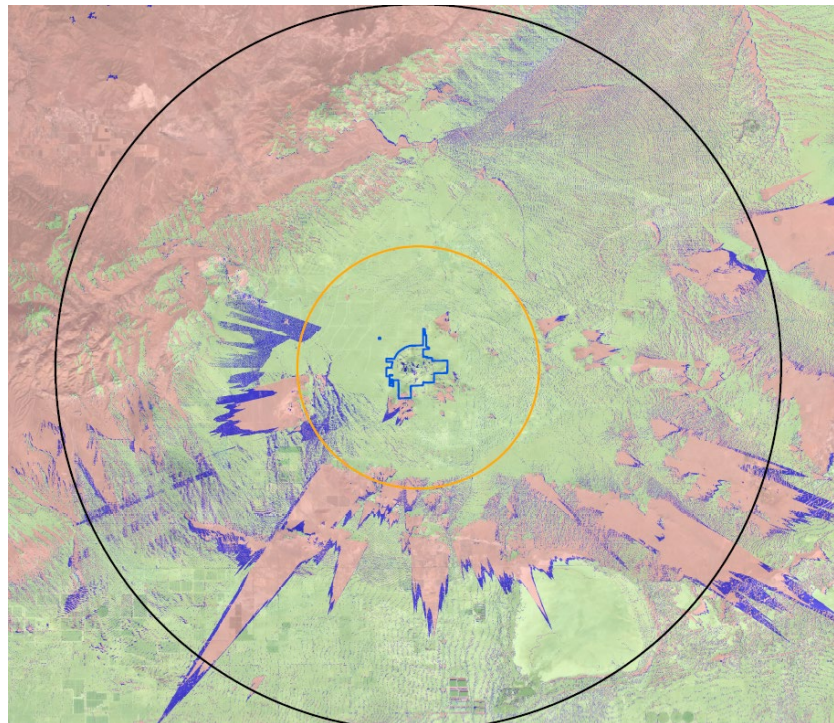
Prepared for:



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## I. INTRODUCTION AND BACKGROUND

WestLand Resources, Inc. (WestLand), was retained by Golden Queen Mining Company, LLC (GQMC) to assess impacts on aesthetics for the Soledad Mountain Project (the Project). The Soledad Mountain Project a gold/silver and aggregates surface mining operation (the Project), located approximately 5 miles south of the town of Mojave, California (**Figure 1**).

Construction of the Project began in 2014 and mining commenced in March 2015 following two major environmental review processes for the Project. First, a joint National Environmental Policy Act (NEPA) and CEQA analysis (Kern County and BLM 1997) resulted in a joint Environmental Impact Report/Environmental Impact Statement (1997 EIR/EIS) that became certified and final in 1997. Second, a supplemental Environmental Impact Report (SEIR) analyzing a smaller project than was analyzed in the 1997 EIR/EIS was certified in 2010 (Kern County 2010), with final County approval in 2012. GQMC is proposing to modify the existing mine plan and entitlements to re-authorize mining and related activities in substantially the same configuration as originally approved and permitted by the Bureau of Land Management (BLM) and Kern County (County) in 1997.

GQMC is proposing to modify the outline of the excavation area and changes in the locations of the surge piles used for aggregate storage. The Modified Project will disturb approximately 1,188 acres (Permit Modification Area, see **Figure 2**) within a total permit area that encompasses approximately 2,009 acres (Modified Project Area), as shown in **Figures 1 and 2**. This report analyzes some areas that were addressed in the 1997 EIR/EIS and the 2010 SEIR, as well as areas that were not in order to provide a more complete assessment of biological resources.

The original visual assessment was completed and accepted in 1997 by Kern County and the Bureau of Land Management (BLM) as supporting documentation for 1997 EIR/EIS prepared for the Project as approved in 1997. This report describes a comparison of visual impacts between the Modified Project and the 1997 Project to support the permitting process for the Modified Project (**Figure 2**).

The following sections provide a summary of the Modified Project (**Section 2**), describe the methods and assumptions used for performing this visual resources assessment (**Section 3**), describe the results of the visual analysis (**Section 4**), summarize the conclusions from the 1997 EIS/EIR and 2010 SEIR concerning the Project's aesthetic impacts (**Section 5**), identify the existing regulatory requirements and the mitigation measures for the Project (**Section 6**), and describe the impacts associated with the Modified Project (**Section 7**).

## 2. PROJECT SUMMARY

The Modified Project is substantially the same as the 1997 Project, with certain minor modifications (See **Figure 3**; **Table 1**). **Table 1** presents a summary of the Project between 1997, 2010, and the Modified Project now being proposed as relevant to aesthetic impacts, and **Figure 3** provides a visual comparison of the 1997 and 2010 permit areas and Project footprints and the 2019 Modified Project boundary and footprint.

**Table 1. Comparison Between 1997, 2010, and Modified Projects**

<b>1997 Project</b>	<b>2010 Project (with updates from 2011 and 2012)</b>	<b>Modified Project</b>
<b>Project Acreage</b>		
Project Site: 1,690 acres Total Disturbance Area: 930 acres Total Reclaimed Area: 419 ac. of 930 ac. (45%)	Project Site: 1,440 acres Total Disturbance Area: 905 acres Total Reclaimed Area: 839 ac. of 905 ac. (93%)	Project Site: ~2,009 acres Total Disturbance Post-Excavation, Pre-Reclamation (before sale of 20 MT of aggregate): ~1,156 acres Total Disturbance Area upon Reclamation (2:1 slopes): ~1,188 acres 100% of the disturbed areas are included in the reclamation plan.
<b>Effects of Project Footprint</b>		
As analyzed in the 1997 FEIR/EIS	Revised Project reduces surface disturbance; however, it also includes modifications to the leaching process. Changes in the location and extent of the Phase 1 heap leach pad result in placement over a recorded access easement, siting within a floodplain, and reduced distance to a County-maintained roadway.	No major changes from the 1997 and 2010 plans. Some increase in surface disturbance (~259 acres more than 1997 plan).
<b>Project Tonnage</b>		
Overburden: 225 million tons Ore: 60 million tons	Overburden: 108.4 million tons (19.0 million tons sold as aggregate and construction materials and 89.4 million tons managed on-site). Ore: 51.2 million tons	Overburden: 264 million tons (20 million tons sold as aggregate) Ore: 59 million tons
<b>Mining Process</b>		
No material replacement into mined-out phases of the open pit	Sequential material replacement into mined-out phases of the open pit.	Sequential material replacement into mined-out phases of the open pit.

**Table 1. Comparison Between 1997, 2010, and Modified Projects**

<b>1997 Project</b>	<b>2010 Project (with updates from 2011 and 2012)</b>	<b>Modified Project</b>
<b>Construction Activities</b>		
Time = 1 Year	Time = 1 Year	No additional construction activities.
<p>Activities would include:</p> <ul style="list-style-type: none"> <li>• Improving site access and creation of a construction staging area</li> <li>• Building access and haulage roads to the open pit mining areas and other site facilities</li> <li>• Preparation of the initial open pit mine production areas • Site preparation of and construction of crushing, conveying, and agglomeration facilities</li> <li>• Site preparation of and construction of the heap leach solution processing and precious metals recovery plant</li> <li>• Site preparation and installation of the first stage of the heap leach pad liner and leak detection system</li> <li>• Site preparation and construction of parking, office, maintenance, and other ancillary facilities</li> </ul>	<p>No Change, but Phase 2 of the mining process will include construction of a coarse ore pipe conveyor to haul ore to the primary crusher.</p>	<p>No coarse ore pipe conveyor will be built. No other planned construction other than the additional stages of the Leach Pad, which are already conceptually approved.</p>

**Table 1. Comparison Between 1997, 2010, and Modified Projects**

1997 Project	2010 Project (with updates from 2011 and 2012)	Modified Project
<b>Reclamation Plan</b>		
The project area will be returned to open space for wildlife habitat as the primary land use objective.	No change.	No change.
Reclamation will include: <ul style="list-style-type: none"> <li>• Salvage and storage of top soils for use as growth media</li> <li>• Slope reduction of the overburden piles</li> <li>• Contouring and surface preparation of top horizontal surfaces of the overburden piles</li> <li>• Contouring and surface preparation of top and sides of the heap leach piles</li> <li>• Contouring and surface preparation of exploration disturbances and production support facilities sites</li> <li>• Revegetation of prepared surfaces of the overburden piles, heap leach pads and support facilities</li> <li>• Revegetation with seeds collected from the site vicinity</li> <li>• Neutralization of the process components</li> <li>• Dismantling and removal of structures</li> <li>• Preserving evidence of the mineralization and the mineral resources</li> <li>• Reducing risk to public health and safety</li> </ul>	No change, except sequential replacement of material into mined-out phases of the open pit will occur.	No change.
Process Plant Equipment List	Process Plant Equipment List	No change.

Source: Table 3-1 and Table 3-3 2010 SEIR, 2012 Correspondence for Compliance with Condition 107 of the Surface Mining and Reclamation Plan

### 3. METHODS

An Analysis Area approximately 700 square miles in size was selected for the purposes of this assessment to ensure that visual impacts to areas surrounding the Modified Project Area were considered within a 15-mile radius. For this analysis, a computer model was used to evaluate the viewshed from points within the Modified Project Area using post-construction topography. A 3D model of the 1997 Project was created using the proposed topographic profile provided in the 1997 EIS/EIR (Exhibits 2.2-5, 2.2-6, and 2.2-7). The 1997 Project plans were georeferenced, and the contour lines were digitized and assigned elevations from the profiles. The surface was then created from the digitized contours to create the 3D model.

Visual impacts resulting from the 1997 and Modified Projects were analyzed using ArcGIS 10.1 software with a 3D Analyst extension within the Analysis Area. This methodology assumes that if an area is visible from the disturbance area, then the disturbance area would be visible from that area. An example viewshed map is provided below and illustrates on a Digital Elevation Model what an observer can see in all directions from an identified point with a set viewing height (**Exhibit 1**). Vegetation cover and manmade structures were not considered in the analysis (a more conservative approach), and the observer's perspective was assumed to be 6 feet from the ground.

This visual resources assessment also considers the distance zones defined by the BLM, including the foreground- middleground (up to 5 miles), background (5 to 15 miles), and seldom seen (areas that are not visible from the foreground-middleground and background and areas beyond the background). Generally following BLM definitions, three distance categories of 0 to 5 miles, 5 to 15 miles, and some areas beyond 15 miles were plotted around the Modified Project Area for this analysis. This depiction of areas seen and unseen within the Analysis Area were then compared to this same depiction that was created for the 1997 Project.

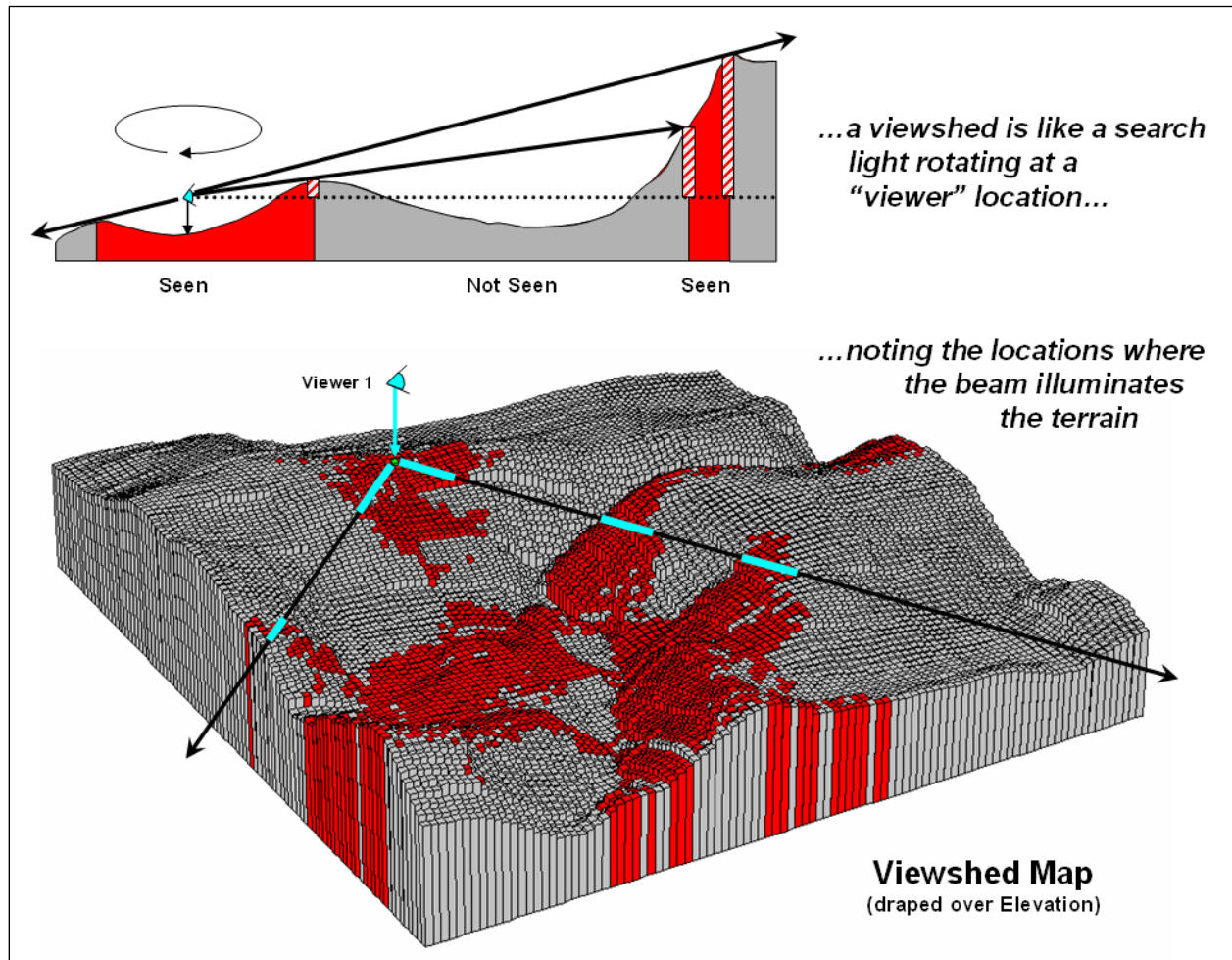
### 4. RESULTS

The Modified Project would be visible from approximately 4 percent of the area within a 5-mile radius of the Modified Project Area and 6 percent of the area between a 5- and 15-mile radius of the Modified Project Area in addition to the areas from which the 1997 Project would be visible. **Figure 4** depicts these areas in purple. No designated scenic resources occur within these areas.

A summary of the comparison of visual impacts between the Modified and 1997 Projects is provided in **Table 2**.



**Exhibit I. Example Viewshed Map Illustration**



Source: (Berry 2003)

**Table 2. Comparison of Visual Impacts between the Modified and 1997 Projects**

Project	0 to 5 Miles		5 to 15 Miles	
	Percentage of Area	Acres	Percentage of Area	Acres
Neither Project is Visible	6%	3,253	41%	166,217
1997 and Modified Projects Are Visible	89%	44,771	52%	210,787
Modified Project Only Visible	4%	2,231	6%	25,117
<b>TOTAL*</b>	100%	50,255	100%	402,121

\* Total percentages are rounded to the nearest one.

## 5. 1997 EIS/EIR AND 2010 SEIR CONCLUSIONS

The 1997 EIR/EIS concluded:

*Operations under the Proposed Action would cause some visual contrast with the surrounding land from more distant viewpoints, even after reclamation. However, when the Proposed Action is viewed in relationship to other current and historical activities there is only a weak contrast. The project area, with the implementation of the Proposed Action, would contrast slightly with the existing environment. Due to the viewing distance from the major travel routes, viewer sensitivity to the visual resources is considered to be low to moderate.*

*All the mining projects in the area are subject to reclamation procedures which would reduce the impact to the visual resources. The proposed project would not alter the existing appearance to the casual viewer because the type of activities outlined in the Proposed Action are consistent with past activities in the area.*

*The visual impacts from the Proposed Action would be Less Than Significant when compared to the currently existing conditions and surrounding views. (1997 FEIR/EIS, pp. 249-250)*

The 1997 EIR/EIS also concluded that "The visual character of the site could be altered by the project activities." (1997 FEIR/EIS, p. S-34) It was further explained in the 1997 EIR/EIS that this general impact statement pertained to impacts that could result from the visibility of surface disturbance associated with construction and operation of project facilities, the creation of overburden piles, the creation of the heap leach facilities, the creation of the open pit mine and the occasional dust plumes resulting from blasting in the open pit mines. (1997 FEIR/EIS, p. 248) The 1997 EIR/EIS found that visual character alterations could also result from the potential visibility of fugitive light during nighttime; color contrasts between structural features and natural landscapes; and historical mining disturbances, if not reclaimed. (1997 FEIR/EIS, p. 248-250.)

With the proposed measures that were implemented based on regulatory requirements and conditions of approval, however, the 1997 EIR/EIS concluded that reclamation of the site would reduce the long-term impacts of surface disturbance, and the use of earthtone colors on processing equipment would mitigate effects related to visual contrast. (1997 FEIR/EIS, p. 251) Additionally, the 1997 FEIR/EIS concluded:

*The operations plan calls for portable lighting units which will be used in the active working areas in the mine and on the overburden piles. The facilities will be lighted for safety 24-hours per day. The lights would be visible from the KOP's (Key Observations Points); however, all lighting will be directed toward the working areas and shield. Project design features will reduce the level of impact to Less Than Significant. (1997 FEIR/EIS, p. 250)*

In 2010, the County determined that the Project would result in no new or more significant aesthetic impacts compared to the 1997 Project. It was determined that the Project did not include any

significantly new or modified design features that would conflict with the 1997 EIR/EIS conclusions, and that there were no new unique scenic resources within the project area or vicinity. Therefore, the impacts associated with the Project that were evaluated in 2010 remained less than significant.

The 2010 SEIR found that the Project along with requisite structural painting and lighting plans would employ the same characteristics as the original 1997 Project's plans. Therefore, the Project's visual impacts would remain less than significant.

## **6. REGULATORY REQUIREMENTS AND MITIGATION MEASURES**

The regulatory requirements and the proposed mitigation measures for the Projects evaluated in the 1997 EIS/EIR and the 2010 SEIR are provided below. These same requirements and mitigation measures would remain applicable to the Modified Project. There are no additional measures or conditions required for the Modified Project.

Regulatory Requirements:

- A Reclamation Plan approved by Kern County will include:
  - The removal of all buildings and foundations at the end of the project;
  - Grading of overburden piles and heap leach piles to fit in with the surrounding topography; and
  - Revegetation of the disturbed areas with native species of plants.
- Dust control measures required in the air permit to control particulate emissions will minimize the potential visual impact of fugitive dust.

Existing Mitigation Measures/Conditions of Approval:

- Surface disturbance will be minimized to that required for safe and efficient operation. (Condition of Approval No. 27)
- Historical mining disturbance will be reclaimed (Condition of Approval No. 44)
- Buildings and structures will be painted with non-reflective earthtone colors to blend with the predominant background. (Condition of Approval No. 45)
- Outdoor lighting for the mine pit and other areas of nighttime activities will be shielded and directed downward to reduce fugitive light. (Condition of Approval No. 46)
- Light poles will be no higher than necessary for safe and efficient lighting. (Condition of Approval No. 46)
- Low-pressure sodium bulbs or other appropriate technology will be used for outdoor lighting. (Condition of Approval No. 46)

## 7. MODIFIED PROJECT IMPACTS

Compared to the 1997 Project, the Modified Project would be visible from an additional approximately 4 percent of the area within a 5-mile radius of the Modified Project Area and an additional 6 percent of the area between a 5- and 15-mile radius of the Modified Project Area (see areas shown in purple in **Figure 4**).

As shown in **Table 1**, the Modified Project includes no additional construction activities. Visual impacts from the Modified Project would be solely attributable to surface mining operations within the additional 258 acres that would be disturbed by the Modified Project compared to the 1997 Project. Surface mining operations within these 258 acres would be consistent with operations elsewhere within the Modified Project Area that were analyzed in the 1997 EIR/EIS. As with the 1997 Project, the Modified Project impacts to these 258 acres would cause some visual contrast with the surrounding land from more distant viewpoints, even after reclamation. However, like the 1997 Project, when the Modified Project is viewed in relationship to other current and historical activities there is only a weak contrast with the existing environment.

Moreover, compared to the 1997 Project, the Modified Project would incorporate more thorough reclamation procedures that would reduce the Modified Project's visual impacts compared to the 1997 Project. The Modified Project would entail sequential material replacement, natural contouring, and revegetation over the entire disturbance area. During both operational and post-reclamation phases, the 226 additional acres that would be impacted by the Modified Project would be visually indistinguishable from the remainder of the Project as analyzed in 1997. Finally, regulatory requirements and existing mitigation measures that would be implemented as part of the Modified Project would further minimize and mitigate these effects (See **Section 6**).

## 8. REFERENCES

- Berry, Joseph K. 2003. "Beyond Mapping III. Topic 15. Deriving and Using Visual Exposure Maps. Use Maps to Assess Visual Vulnerability." Originally published in GeoWorld. <http://www.innovativegis.com/basis/mapanalysis/topic15/topic15.htm>.
- Kern County. 2010. Supplemental Environmental Impact Report: Golden Queen Mining Co. Inc., Soledad Mountain Project. *Prior SCH # 96061052*. Bakersfield, California: Kern County Planning Department. January 2010.
- Kern County and Bureau of Land Management. 1997. Golden Queen Mining Co., Inc. Soledad Mountain Project Final Environmental Impact Report/Environmental Impact Statement, Volumes 1-7 (Appendices I through XIII). *State Clearinghouse Number 96061052*. Mojave, Kern County, California. September 1997.

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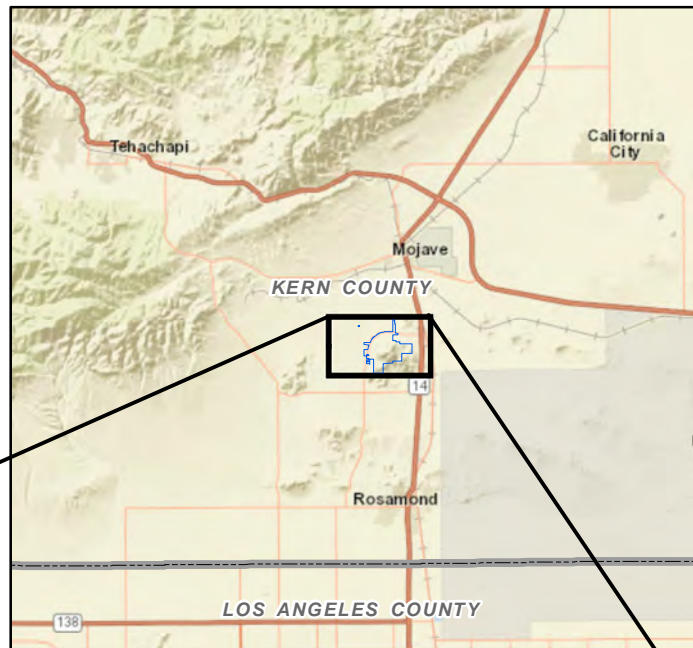
# FIGURES



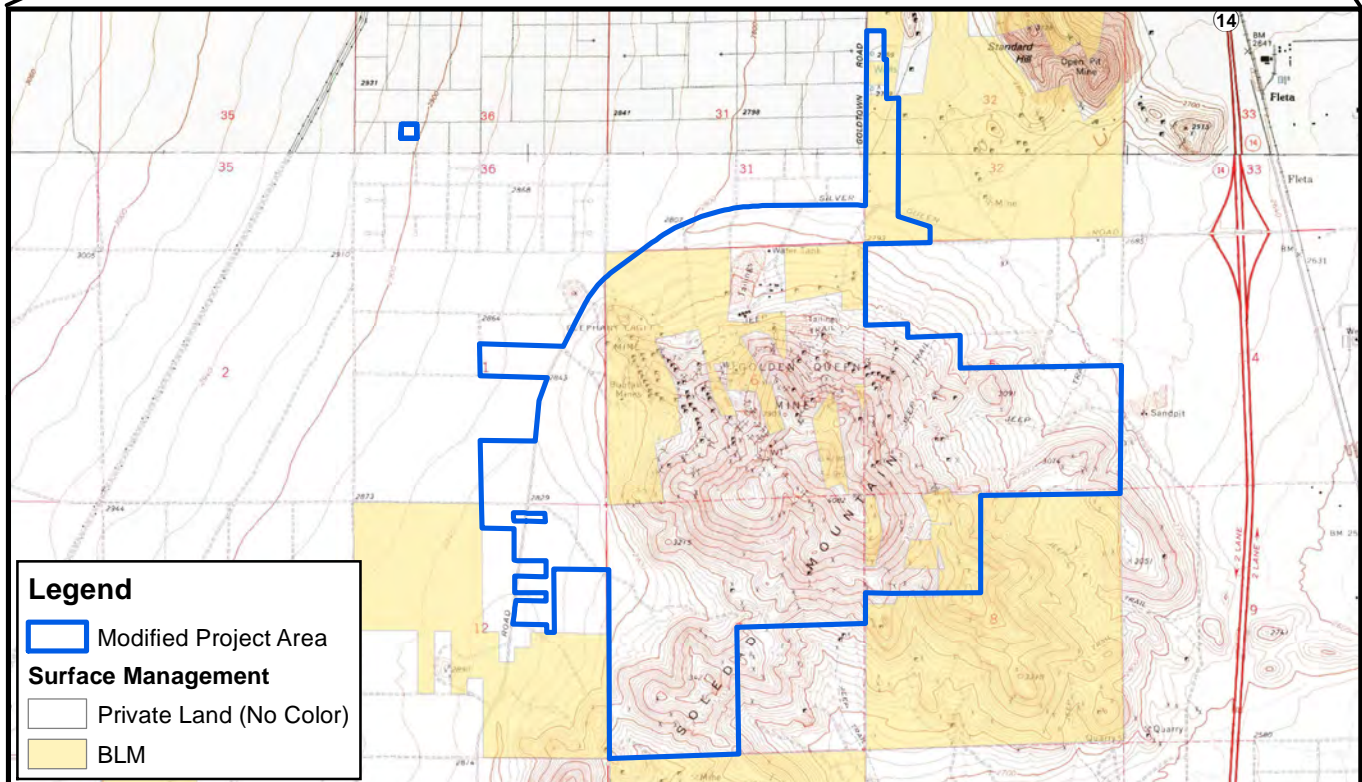
## CALIFORNIA



## PROJECT VICINITY



Approximate Scale 1 Inch = 10 Miles



T10N, R12W, Portions of Sections 5-8,  
 T10N, R13W, Portions of Sections 1 and 12,  
 T11N, R12W, Portions of Sections 31 and 32,  
 T11N, R13W, a Portion of Section 36,  
 Kern County, California  
 Mojave and Soledad Mountain USGS 7.5' Quadrangles  
 Surface Management: BLM 2017, WRI modified 2018  
 Image Source: ArcGIS Online, World Street Map

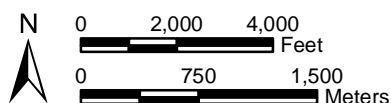
GOLDEN QUEEN MINING COMPANY, LLC

Visual Assessment  
 Soledad Mountain Project

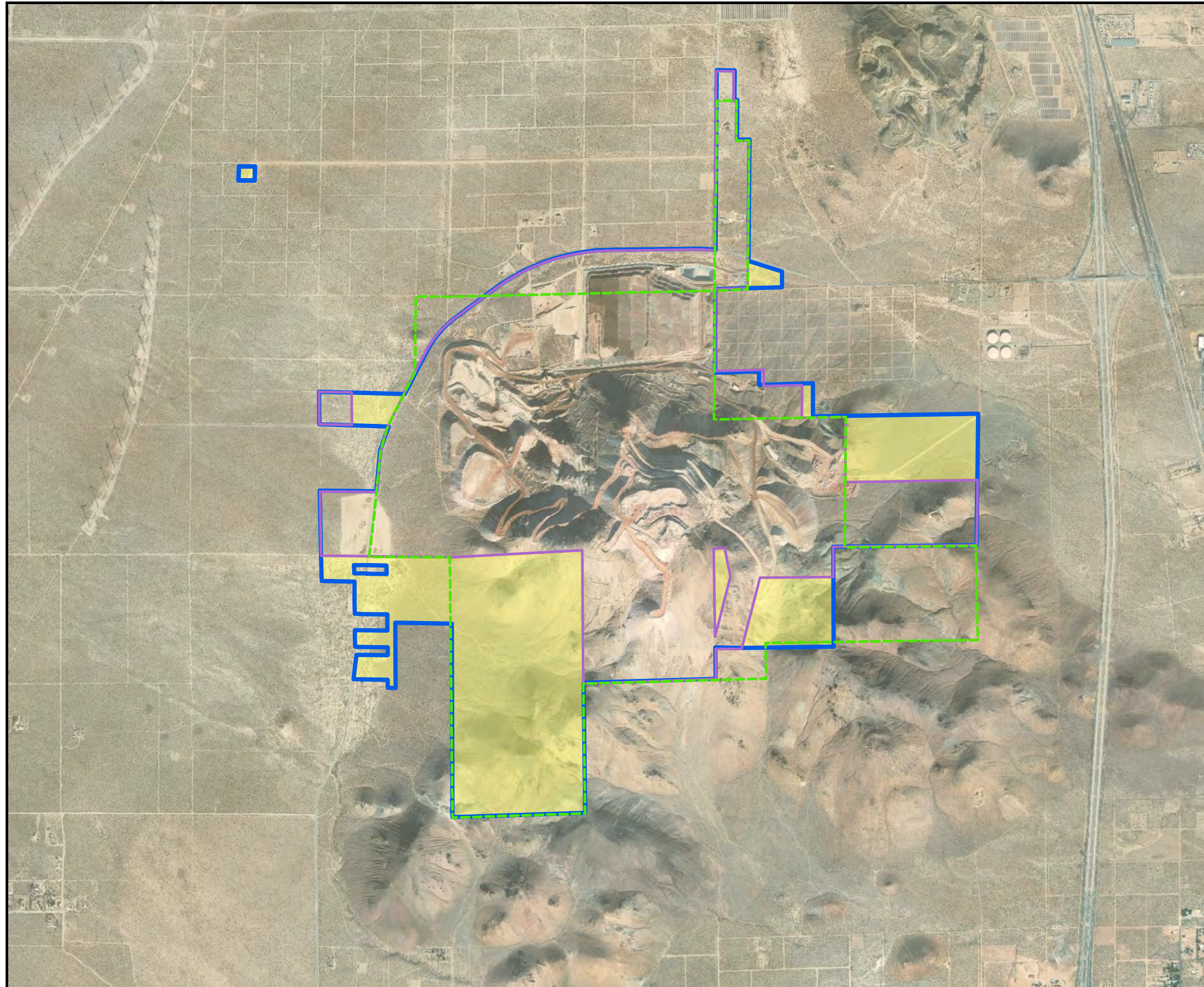
VICINITY MAP

Figure 1

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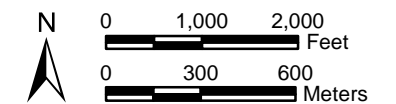




T10N, R12W, Portions of Sections 5, 6, 7, and 8,  
T10N, R13W, Portions of Sections 1 and 12,  
T11N, R12W, Portions of Sections 31 and 32,  
T11N, R13W, a Portion of Section 36,  
Kern County, California  
Projection: California State Plane Zone V, NAD83  
2019 Digital Globe imagery provided by ArcGIS Online

### Legend

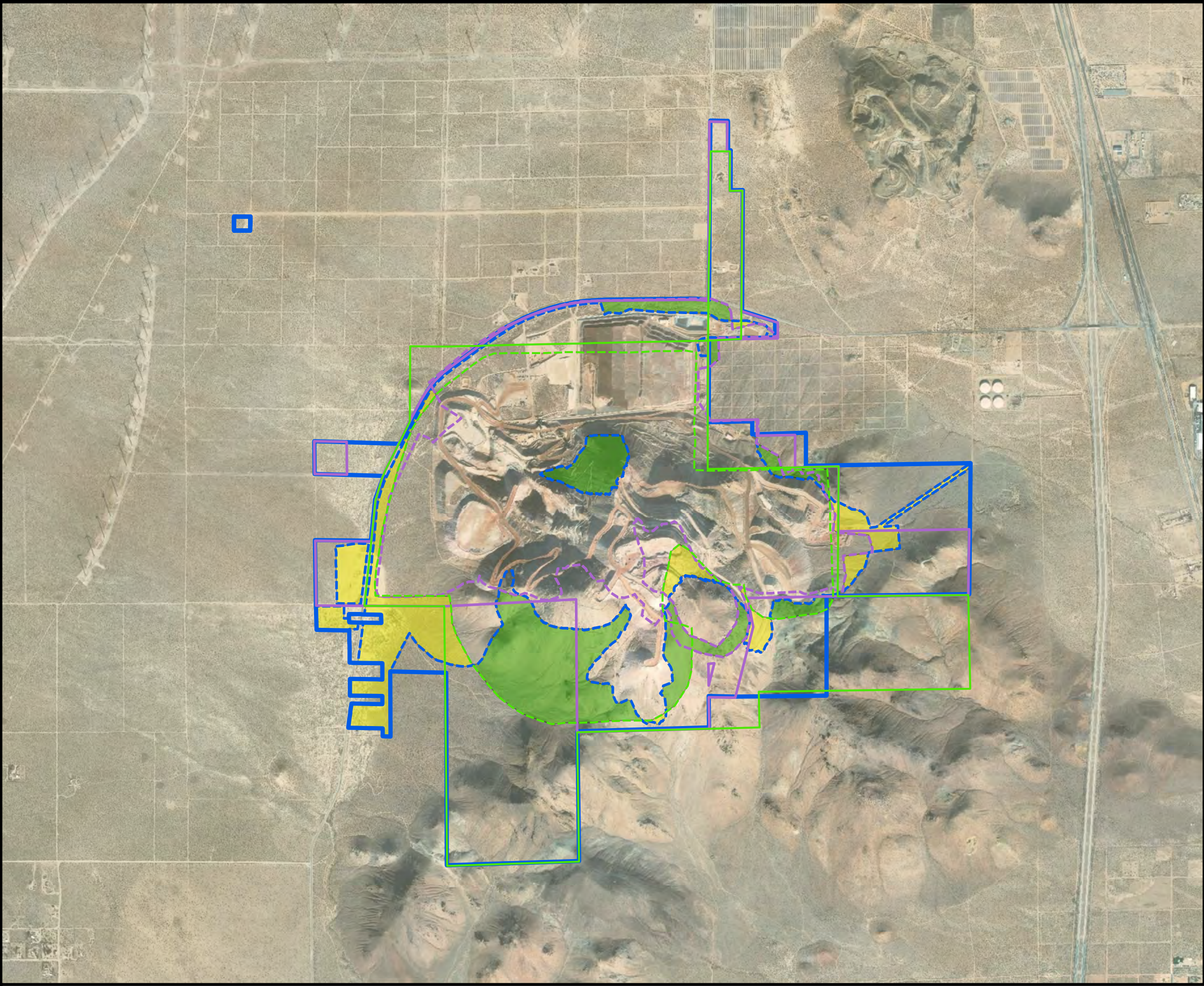
- Modified Project Area
- County Recorded Permit Boundary  
(2010 Project Boundary)
- FEIS/EIR Permit Area  
(1997 Project Boundary)
- Permit Modification Area  
(conservatively based on 2010 Project Boundary)



  
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GOLDEN QUEEN MINING COMPANY, LLC  
Visual Assessment  
Soledad Mountain Project  
PERMIT MODIFICATION AREA  
Figure 2



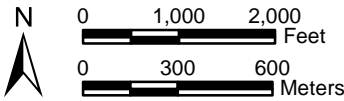


T10N, R12W, Portions of Sections 5-8,  
T10N, R13W, Portions of Sections 1 and 12,  
T11N, R12W, Portions of Sections 31 and 32,  
T11N, R13W, a Portion of Section 36,  
Kern County, California  
Data Source: Soledad Mtn. Golden Queen Mines LTD, and SESPE  
Image Source: ArcGIS Online, World Imagery,  
07/31/2016 & 03/07/2017

Note: 1997 Permit Area and Project Footprint were digitized from Exhibit 1.0-2 (Property Boundaries and Federal Lands) of the 1997 EIS/EIR. The 1997 acreages provided in the legend were taken from Table 3-3 of the 2010 SEIR. The 2019 Permit Area and acreage provided in the legend is from Kenton R. Maevers (PLS 7850); the 2019 Project Footprint is from Golden Queen Mining Company, LLC, and the 2019 Project Footprint acreage provided in the legend was calculated in GIS by WestLand Resources Inc.

**Legend**

- New Impact Areas (155 AC.)
- No Longer Impacted (214 AC.)
- 2019 Soledad Mountain Modified Project Area (2009 AC.)
- 2019 Project Footprint (1188 AC.)
- 2010 SEIR Permit Area (1440 AC.)
- 2010 Project Footprint (950 AC.)
- 1997 FEIS/EIR Permit Area (1690 AC.)
- 1997 Project Footprint (930 AC.)



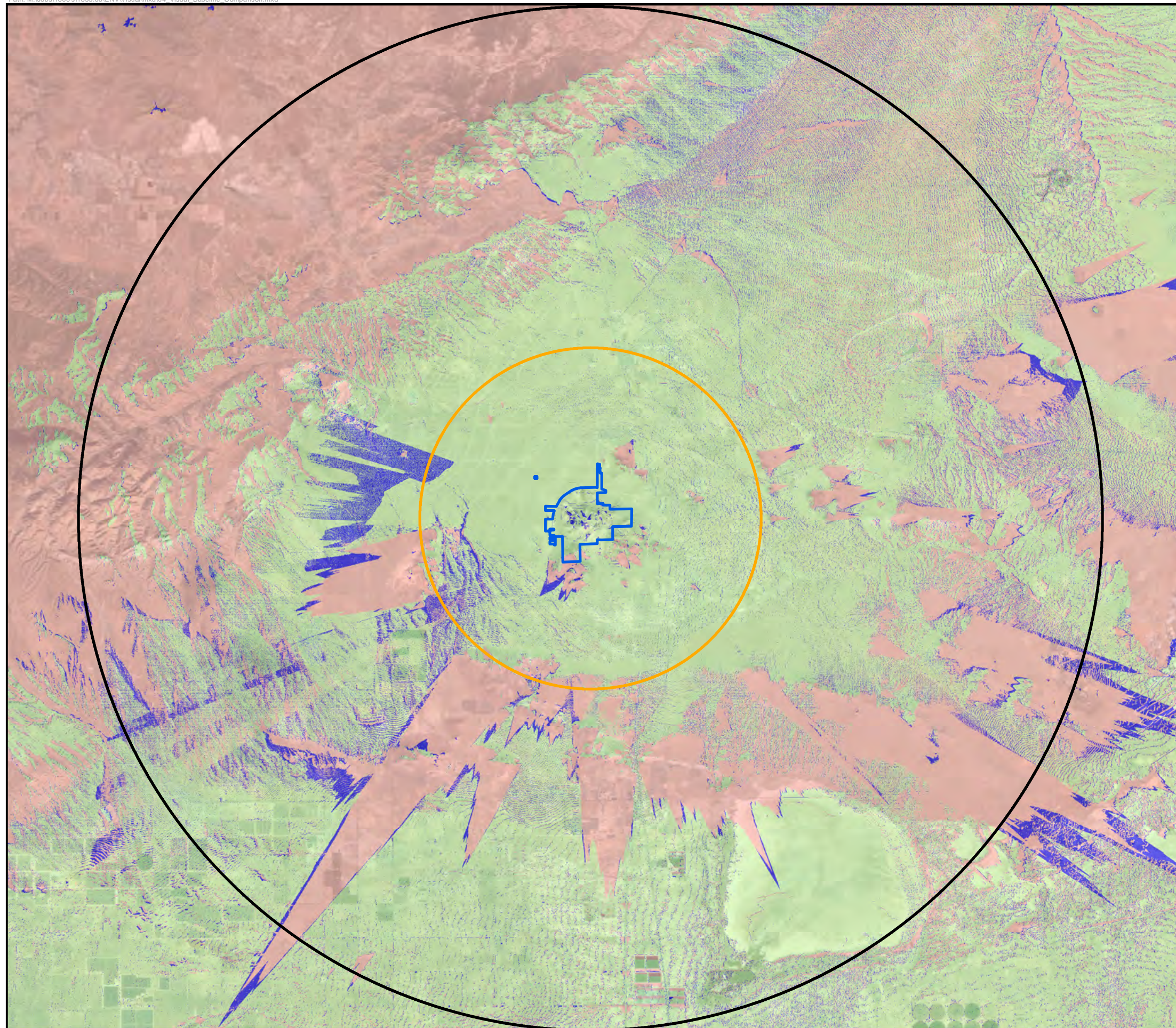
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Visual Assessment  
Soledad Mountain Project







COMPARISON OF THE 1997, 2010  
AND MODIFIED PROJECTS  
Figure 3

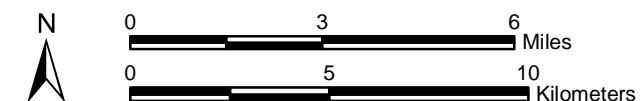




T10N, R12W, Portions of Sections 5-8,  
T10N, R13W, Portions of Sections 1 and 12,  
T11N, R12W, Portions of Sections 31 and 32,  
T11N, R13W, a Portion of Section 36,  
Kern County, California  
Data Source: Soledad Mtn., Golden Queen Mine LTD, July 2019  
Image Source: ArcGIS Online, World Imagery,  
07/31/2016 & 03/07/2017

### Legend

-  Modified Project Area
-  Not Visible
-  Baseline Visible (1997 Project Footprint)
-  Additional Area Visible (Modified Project Footprint)
-  5 Mile Buffer
-  15 Mile Buffer



  
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Visual Assessment  
Soledad Mountain Project

BASELINE COMPARISON

Figure 4