Environmental Assessment

for the Issuance of Long-Term Incidental Eagle Take Permits
for the Cortez and Phoenix Mine Projects

Nevada

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U.S. Fish and Wildlife Service
U.S. Department of the Interior
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ACRONYMS AND ABBREVIATIONS

Applicant	Nevada Gold Mines LLC
BCI	Barrick Cortez Inc.; now NGM
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CM	Conservation Measure
Cortez Plan	Cortez Plan of Operations
EA	Environmental Assessment
Eagle Act	Bald and Golden Eagle Protection Act
ECP	Eagle Conservation Plan
EIS	Environmental Impact Statement
EMU	Eagle Management Unit
EPM	Environmental Protection Measure
ESA	Endangered Species Act of 1973, as Amended
IAPP	Industrial Artificial Pond Permit
LAP	Local Area Population
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NGM	Nevada Gold Mines LLC
NHPA	National Historic Preservation Act
PEIS	Programmatic Environmental Impact Statement for the Eagle Rule Revision
permit	Eagle Incidental Take Permit
Phoenix Plan	Phoenix Plan of Operations
Projects	Cortez Mine Project and Phoenix Mine Project
REA	Resource Equivalency Analysis
Service	U.S. Fish and Wildlife Service
Survey Area	Operations Area Plus a 10-Mile Radius for Each of the Cortez and Phoenix Projects
SWReGAP	Southwest Regional GAP Analysis Project
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared to analyze the environmental consequences of the U.S. Fish and Wildlife Service (Service or USFWS) issuing two incidental take permits for the take of golden eagles (*Aquila chrysaetos*) associated with both the proposed Cortez Mine Project and Phoenix Mine Project (Projects) pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321–4347). Issuance of an eagle incidental take permit (permit) by the Service for take that is incidental to otherwise lawful activities under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668–668d and 50 Code of Federal Regulations [CFR] § 22.80) constitutes a discretionary federal action that is subject to NEPA. This EA assists the Service in ensuring compliance with NEPA and in making a determination as to whether any "significant" impacts could result from the analyzed actions that would require preparation of an Environmental Impact Statement (EIS). This EA evaluates the effects of alternatives for our decision whether to issue the two eagle incidental take permits.

The Eagle Act authorizes the Service to issue eagle take permits only when the take is compatible with the preservation of each eagle species, defined (in USFWS 2016a and 50 CFR § 22.6) as "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the geographic range of each species."

The applicant for the permits, Nevada Gold Mines LLC (NGM; Applicant), is requesting Eagle Act take coverage for reoccurring disturbance to and loss of annual productivity from four golden eagle breeding pairs at the Cortez Mine and two golden eagle breeding pairs at the Phoenix Mine for ongoing mining activities associated with the Cortez and Phoenix Plans of Operations. The Applicant has requested a 30-year incidental take permit for each Project for golden eagles under the Eagle Act at the Cortez and Phoenix mines. The Applicant's Eagle Conservation Plans (ECPs) (**Appendix A** and **Appendix B**) are the foundation of the permit applications for the Projects.

The Applicant is requesting separate permits for each Project (i.e., Cortez Mine and Phoenix Mine) to authorize the reoccurring disturbance to and loss of annual productivity (i.e., rearing of young) for the golden eagle breeding territories in and near each Project site. The Applicant is requesting permits for the loss of productivity resulting in three eagles per year, or 71 eagles during the course of a 30-year permit, at the Cortez Mine and two eagles per year, or 36 eagles during the course of a 30-year permit, at the Phoenix Mine. This EA evaluates whether issuance of these two eagle incidental take permits will have significant impacts on the existing human environment. "Significance" under NEPA is defined by regulation at 40 CFR 1501.3(b) and requires short- and long-term consideration of both the context of a proposal and its intensity.

This proposal conforms with, and carries out, the management approach analyzed in, and adopted subsequent to, the Service's Programmatic Environmental Impact Statement for the Eagle Rule Revision, December 2016 (PEIS; USFWS 2016a). Accordingly, this EA tiers from the 2016 PEIS (USFWS 2016a).

Cortez and Phoenix Project-specific information not considered in the PEIS (USFWS 2016a) will be considered in this EA as described below.

1.1 Purpose and Need

The need for this action is a decision on two eagle incidental take permit applications from NGM, one for the Cortez Mine and one for the Phoenix Mine. The decision must comply with all applicable regulatory requirements and be compatible with the preservation of eagles.

1.2 Authorities

Service authorities are codified under multiple statutes that address management and conservation of natural resources from many perspectives, including, but not limited to, the effects of land, water, and energy development on fish, wildlife, plants, and their habitats. This analysis is based on the Eagle Act (16 U.S.C. 668d) and its regulations (50 CFR Part 22). The PEIS (USFWS 2016a) has a full list of authorities that apply to this action (PEIS section 1.6, pages 7–12), which are incorporated by reference here.

1.3 Background

Cortez Mine

NGM has been approved by the Bureau of Land Management (BLM) Battle Mountain District Office to conduct mining activities at the Cortez Mine within the Cortez Plan of Operations (Cortez Plan) boundary (**Figures 1-1** and **1-2**). The Cortez Mine is located in Lander County, Nevada, approximately 60 miles southeast of Battle Mountain, 72 miles southwest of Elko, and 47 miles south of Interstate 80.

Mining in the Cortez Mining District began with the discovery of silver ore in 1862. Underground silver mining was conducted in the area until the 1930s. Modern production of gold in the area started in the 1940s and in 1968 at Cortez and has continued with the development of additional mines (Pipeline, Cortez Hills, and Deep South) and associated processing facilities. Mining activities have continuously occurred in the area through the present time (Stantec 2020a).

Within the Cortez Plan boundary, including the appropriate disturbance buffers surrounding Project activities, there are 26 previously identified golden eagle nests. The 26 nests, which are located on natural and humanmade features, are thought to represent all or part of 10 breeding territories. The territory delineation process is discussed in **Section 3.1.2** of this EA. Three of these territories have one or more alternate nests outside a one-mile radius of approved disturbance and a two-mile radius of approved pit blasting; therefore, they have not been included for proposed take since they have nesting alternatives at a distance likely to ameliorate impacts from disturbance. Two other territories (one of which also has a nest outside the one-mile radius of approved disturbance and two-mile radius of approved pit blasting) are being included in NGM's separate application for a disturbance take permit for the Goldrush Mine Project, and impacts will be analyzed in a separate NEPA action; thus, they are not analyzed further in this EA. One territory consists of one nest (MT-03) that was not located in 2019, 2020, 2021, or 2022 and no longer appears to be present; thus, impacts are not anticipated to occur to this territory. One territory

(including nests HDC-01 and HDC-02) occurs within one mile of a rapid infiltration basin and associated infrastructure that experiences low-level light truck activity equivalent to recreational and ranching activities frequently experienced across Nevada. It has an alternate nest (HDC-01) that is not within the line of sight of any surface disturbance; thus, it is not anticipated that this territory would be impacted. Accordingly, NGM has applied to the Service for authorization for disturbance take associated with four territories at the Cortez Mine. The 10 territories are illustrated in **Table 1-1**, with bold font for territories and their associated nests that are subject to disturbance take. The applicable nests and territories are also shown on **Figure 1-3**.

Table 1-1 Cortez Golden Eagle Nest Territories Within One-Mile Radius of Approved Surface Disturbance and Two-Mile Radius of Approved Pit Blasting

Territory Nests	Nest ID	Within One Mile of Approved Surface Disturbance	Within Two Miles of Pit Blasting	Included in Goldrush Take Permit Application	Territory with Nest(s) Outside One- and Two-Mile Radii	Nest Distance Specifics
CC-01, CC-03, CC-04	**CC-01**	**Yes**	**No**	**No**	**No**	**Nests are within 0.9 mile of each other along the same range front. The closest nest is TR-11, 1.1 miles southwest of CC-01.**
	CC-03	**Yes**	**Yes**			
	CC-04	**Yes**	**Yes**			
CM-08, CM-10, CVC-02, CVC-06	CM-08	Yes	No	No	Yes – 2 out of 4 nests (CM-10 and CVC-06)	Nests are within 1.3 miles of each other along a similar range front. Next closest nest (CM-16) is 2.9 miles to the northeast of CM-10.
	CM-10	No	No			
	CVC-02	Yes	No			
	CVC-06	No	No			
CWC-03, CWC-04, CWC-05, CWC-06, CWC-08	CWC-03	No	No	No	Yes – 4 out of 5 nests (CWC-03, CWC-04, CWC-05, CWC-06)	Nests are within 0.5 mile of each other in Cottonwood Canyon. The closest nest is LCC-01, 1.5 miles west of CWC-08.
	CWC-04	No	No			
	CWC-05	No	No			
	CWC-06	No	No			
	CWC-08	Yes	No			
GAP-01, GAP-02, GAP-05, GAP-06, GAP-07	**GAP-01**	**Yes**	**Yes**	**No**	**No**	**Nests GAP-01, GAP-03, and GAP-05 occur in the Gold Acres Pit. Nest GAP-06 occurs in the GAP Pit. Nests are within 1.3 miles of each other. The closest nest, GQM-01, is 4.3 miles northeast of GAP-02.**
	GAP-02	**Yes**	**Yes**			
	GAP-05	**Yes**	**Yes**			
	GAP-06	**Yes**	**Yes**			
	GAP-07	**Yes**	**Yes**			
HDC-01,* HDC-02	HDC-01*	Yes	No	No	No	Nests are within 0.29 mile of each other. Closest nest is LCC-01, 1.2 miles to the south of HDC-01.
	HDC-02	Yes	No			
MC-03, MC-04	**MC-03**	**No**	**Yes**	**No**	**No**	**Nests are within 0.7 mile of each other and occur in the same drainage. The closest nest, MC-02, is 1.1 miles east of MC-03.**
	MC-04	**Yes**	**Yes**			
RP-01, RP-02	**RP-01**	**Yes**	**No**	**No**	**No**	**Nests are within 1.2 miles of each other. The closest nest is**
	RP-02	**Yes**	**No**			

Territory Nests	Nest ID	Within One Mile of Approved Surface Disturbance	Within Two Miles of Pit Blasting	Included in Goldrush Take Permit Application	Territory with Nest(s) Outside One- and Two-Mile Radii	Nest Distance Specifics
						RM-12, 2.3 miles south of RP-01.
HC-08, MT-01	MT-01	No	Yes	Yes	Yes – 1 out of 2 nests (HC-08)	Nests are within 1.2 miles of each other. The next closest nest, WC-04, is 1.9 miles east of MT-01.
	HC-08	No	No			
MT-02	MT-02	Yes	Yes	Yes	No	No other nests occur in the same drainage. The closest nest (which is no longer present) was MT-03, 1.5 miles north.
MT-03**	MT-03**	Yes	Yes	No	No	No nest was found in 2019, 2020, and 2022.

Note: **Bold font** and highlighted gray are subject to disturbance take.
* HDC-01 is approximately 100 feet within the one-mile buffer of the approved rapid infiltration basin and not within line of sight; therefore, this territory has not been included as proposed for take.
** MT-03 was reported as a golden eagle nest in 2014 but has never been documented as in use by golden eagles. The nest area was in use by a different species (prairie falcon) in 2017, and presence of a nest could not be located in 2019, 2020, or 2022. As such, MT-03 has not been included as a territory proposed for take because it is no longer present.

The Cortez Mine Project Plan boundary and a surrounding 10-mile radius includes various rock outcrops and pit highwalls that are identified as potential eagle nesting areas. Shrub communities directly north of the Cortez Project and in valleys within 10 miles of the Cortez Project provide valuable foraging habitat. Limited water sources and very little riparian habitat are present in the Cortez Project area.

Phoenix Mine

NGM has been approved by the BLM Mount Lewis Field Office to conduct mining activities at the Phoenix Mine within the Phoenix Mine Plan of Operations (Phoenix Plan) boundary (**Figures 1-1** and **1-4**). The Phoenix Mine is located in the Copper Canyon area of the Battle Mountain Mining District in Lander County, Nevada, approximately 12 miles southwest of Battle Mountain.

The Copper Canyon area has a long history of minerals production dating back to the initial discovery of copper ore in 1864. Mining and beneficiation operations have been conducted through a steady succession of owners/operators and production periods. Beginning in the late 1970s, mining and recovery of precious metal ores continued through 1993, and mining and heap leaching of disseminated precious metal ores began in 1990 and continues through the present (Stantec 2020b).

Within the Phoenix Plan boundary, including the appropriate disturbance buffers surrounding Project activities, there are a total of eight nests, which are located on natural features. The eight nests are thought to represent a total of two golden eagle breeding territories. The two territories are within one mile of approved surface disturbance and within two miles of approved pit blasting and are anticipated to be impacted during operations. The applicability of radius distances and

territory nest associations are shown in **Table 1-2** and on **Figure 1-5**.

Table 1-2 Phoenix Golden Eagle Nest Territories

Territory Nests	Nest ID	Within One Mile of Approved Surface Disturbance	Within Two Miles of Approved Pit Blasting	Territory with Nest(s) Outside One- and Two-Mile Radii	Nest Distance Specifics
CBR-01-A, B, C, D, and E	CBR-01-A	Yes	Yes	No	Nests are within 50 to 270 feet of each other on the same cliff face north of Buffalo Valley Road. The next closest nest is PC-04-A, two miles northeast.
	CBR-01-B	Yes	Yes		
	CBR-01-C	Yes	Yes		
	CBR-01-D	Yes	Yes		
	CBR-01-E	Yes	Yes		
PC-03-A, PC-04-A, and PC-05-A	PC-03-A	Yes	Yes	No	Nests are within 0.5 mile of each other along the same range front. The closest nest is CBR-01 A–E, two miles southwest of PC-04-A.
	PC-04-A	Yes	Yes		
	PC-05-A	Yes	Yes		

The Phoenix Plan boundary and a surrounding 10-mile radius includes various rock outcrops and pit highwalls that are identified as potential eagle nesting areas. Shrub communities in valleys surrounding the Phoenix Project provide valuable foraging habitat. Limited water sources and very little riparian habitat are present in the Phoenix Project area.

1.4 Scoping, Consultation, and Coordination

This EA incorporates by reference the scoping performed for the PEIS (chapter 6, page 175) (USFWS 2016a). The draft EA will be made public on the Service's Pacific Southwest Region webpage[1] for 30 days to solicit public comments.

The Applicant worked closely with the Service and BLM to develop the ECPs in support of its application to avoid, minimize, and mitigate adverse effects to eagles. The Applicant developed a detailed monitoring plan that will be implemented for activities within one mile of active mining or two miles of blasting in coordination with the Service, BLM, and Nevada Department of Wildlife (NDOW).

1.5 Tribal Coordination

Tribal participation is an integral part of the NEPA and National Historic Preservation Act (NHPA) process, as well as a key component of determining whether to issue an eagle take permit. Cultural and religious concerns regarding eagles were analyzed in the PEIS (USFWS 2016a), and Tribal consultation was conducted for the PEIS (USFWS 2016a). The PEIS (USFWS 2016a) identified Tribal coordination as an important issue for subsequent analysis, given the cultural importance of eagles to the Tribes. In accordance with Executive Order 13175, "Consultation and Coordination

[1] https://www.fws.gov/library/collections/pacific-southwest-region-nepa-documents-eagle-permits

with Tribal Governments (65 Federal Register 67249, November 9, 2000)", the NHPA Section 106 regulations (36 CFR Part 800) and the Service's Native American Policy, the Service consults with Native American Tribal governments whenever actions taken under the authority of the Eagle Act may affect Tribal lands, resources, or the ability to self-govern. This coordination process is also intended to ensure compliance with the American Indian Religious Freedom Act.

The Service sent letters on February 13, 2023 to 11 federally recognized Tribal governments located within 109 miles (the natal dispersal distance of golden eagles, thought to adequately define the species local area population [LAP]) of the Projects informing them of the received permit application and preparation of this EA, and offering the opportunity for formal consultation regarding potential issuance of the permit. In addition, comments from Tribes are also encouraged and welcomed during the 30-day comment period on the EA. The Fallon Paiute-Shoshone Tribe responded through the Service's California Great Basin Regional Native American Liaison and a Government-to-Government in-person meeting for additional information was held March 24, 2023. The Fallon Paiute-Shoshone Tribal Council and Tribal members were in opposition to activities the BLM had already authorized for the Cortez and Phoenix Projects and the Service's potential issuance of an incidental take permit. The Service takes these concerns seriously and has attempted to clarify that the current actions proposed under this EA are intended to maintain NGM's compliance with the Eagle Act for previously authorized activities, and the resulting compensatory mitigation would serve to reduce population level impacts to golden eagles compared to conditions resulting from the No Action Alternative or permit denial. The Service received no response from any of the other Tribes contacted.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Alternative 1: Proposed Action

Under this alternative the Service proposes to issue two incidental eagle take permits, one for the Cortez Mine and one for the Phoenix Mine, with associated conditions, to the Applicant for the reoccurring disturbance to and loss of annual productivity from golden eagle breeding territories. Previously authorized mining and operational activities at the Cortez Mine would cause disturbance and lost productivity at up to four golden eagle breeding territories annually for 30 years. The permit for the Cortez Mine would authorize up to four incidents of disturbance take each year for 30 years, during which Project activities and past incidents of take would be evaluated at five-year intervals. Previously authorized mining and operational activities at the Phoenix Mine would cause disturbance and lost productivity of up to two golden eagle breeding territories annually for 30 years. The permit for the Phoenix Mine would authorize two incidents of disturbance take each year, during which Project activities and past incidents of take would be evaluated at five-year intervals, as described further below. Unless the Service determines the lack of eagle nesting and/or failure to fledge eagle chicks is conclusively caused by another means, any lack of nesting and/or loss of productivity would be attributed to activities at the Cortez Mine and the Phoenix Mine, respective to each permit.

Under this alternative, all monitoring and adaptive management measures, minimization measures, and detection and reporting measures outlined in **Section 2.3** would be permit requirements.

2.1.1 Compensatory Mitigation

Compensatory mitigation to fully offset authorized take would be conducted within the Pacific Flyway Eagle Management Unit (EMU). The Applicant would provide the compensatory mitigation at the required 1.2:1 ratio by retrofitting electric utility poles, as discussed in the 2016 PEIS. The intent would be to minimize the potential for eagle electrocutions and ensure that the effects of eagle incidental take are offset at the population level.

Long-term eagle incidental take permits require the Service to conduct five-year reviews. Based on the results of monitoring described in **Section 2.3.1** for the Projects, during the five-year review process, the Service would evaluate if disturbance take occurred for each known breeding territory described in **Tables 1-1** and **1-2**. If eagles in these breeding territories do not produce successful young, the Service would assume NGM's activities prevented eagles from successfully breeding and a disturbance take incident occurred. If NGM confirms no Project activity occurred within one mile of a golden eagle nest, or blasting within two miles of nests, from December 15–April 15 and monitoring confirms eagle nests are not in-use the Service would determine no take occurred. The Service would consider use of alternate nests within a given territory when evaluating whether take occurred as a result of NGM's mine-related activities. After assessing how many take incidents occurred during the first 5 years, the Service would then evaluate how much compensatory mitigation might be either credited or owed for each successive five-year period remaining within the permit duration for each Project.

Cortez Mine

The permit for the Cortez Mine would require mitigation for the authorized annual disturbance take of four golden eagle breeding territories for up to 30 years at the Cortez Mine. The amount of compensatory mitigation required for the lost breeding productivity has been determined through the Service's Golden Eagle Resource Equivalency Analysis (REA) (USFWS 2018). Long-term eagle incidental disturbance take permits require the Service to conduct five-year reviews. Therefore, the mitigation will be paid in five-year cycles, with the first payment occurring upon permit issuance. NGM must commit to mitigate the first five years of estimated take at the time of permit issuance. At each five-year check-in, data collected during the previous five years will be used to determine the amount of further compensatory mitigation that would be required in the following five years. For the first five-year portion of the permit period NGM would contribute compensatory mitigation in an amount equal to the power pole retrofit of one of the following, or a combination of both:

- 431.47 poles (avoided loss from retrofits maintained and effective for 10 years); or
- 187.78 poles (avoided loss from retrofits maintained and effective for 30 years).

Phoenix Mine

The permit for the Phoenix Mine would require mitigation for the authorized annual disturbance take of two golden eagle breeding pairs for up to 30 years at the Phoenix Mine. The amount of compensatory mitigation required for 30 years of lost productivity has been determined through the Service's Golden Eagle REA (USFWS 2018). Long-term eagle incidental disturbance take permits require the Service to conduct five-year reviews. Therefore, the mitigation will be paid in five-year cycles, with the first payment occurring upon permit issuance. NGM must commit to mitigate the first five years of estimated take at the time of permit issuance. At each five-year check-in, data collected during the previous five years will be used to determine the amount of further compensatory mitigation that would be required in the following five years. For the first five-year portion of the permit period NGM would contribute compensatory mitigation in an amount equal to the power pole retrofit of one of the following, or a combination of both:

- 215.73 poles (avoided loss from retrofits maintained and effective for 10 years); or
- 93.89 poles (avoided loss from retrofits maintained and effective for 30 years).

2.2 Alternative 2: No Action Alternative

Under the No Action Alternative, the Service would take no further action on NGM's two permit applications. However, the Service must take action on the two permit applications and determine whether to deny or issue the permits. Accordingly, this alternative is considered because Service policy and the NEPA requires evaluation of a No Action Alternative and it provides a clear comparison of any potential impacts to the human environment from the Proposed Action. The No Action Alternative in this context analyzes predictable outcomes of the Service not issuing permits for the Cortez Mine and the Phoenix Mine. Should the two permits not be issued, compensatory mitigation would not be required. Thus, for purposes of analyzing the No Action Alternative, the

conservation measures proposed in the two permit application packages would not be required. The Applicant may choose to voluntarily implement some, none, or all of those conservation measures. Under this alternative, it is assumed that the Applicant would take reasonable steps to avoid disturbing eagles, but NGM would not be protected from enforcement for violating the Eagle Act should disturbance take of eagles occur at the Cortez Mine or the Phoenix Mine.

2.3 Project Components Common to Both Alternatives

This section describes components of the Projects that are the same for the Proposed Action and No Action Alternative, whether or not a permit is issued. If the Proposed Action is taken and the Service issues the two permits, these measures would become requirements for the two permits.

2.3.1 Monitoring and Adaptive Management

The Applicant will implement all measures required by other agencies and jurisdictions to conduct the activity at the Cortez Mine and the Phoenix Mine, including Applicant-committed Environmental Protection Measures (EPMs). Monitoring will be implemented over the life of the Projects. **Table 2-1** and **Table 2-2** presents a summary of the Applicant-committed EPMs with monitoring and a schedule for implementation at the Cortez Mine and the Phoenix Mine that would be applicable with the issuance of the permit for the Cortez Mine and the Phoenix Mine.

Table 2-1 Cortez Mine EPM Monitoring Schedule

EPM	Monitoring Actions	Duration
EPM 1	Territory occupancy ground surveys will be conducted within the four golden eagle territories in the Cortez Mine that are part of the disturbance take permit in January to mid-March (i.e., the preferred survey window) to assess golden eagle territory occupancy and document in-use nests as appropriate. Every attempt will be made to conduct the ground surveys mid- to late February. NGM will coordinate with the USFWS prior to the ground surveys occurring to communicate existing conditions on the ground that may prohibit ground surveys to some nest sites (e.g., heavy snow, access concerns, golden eagle disturbance, etc.). This communication prior to ground surveys being conducted will allow for flexibility in the monitoring requirements based on conditions at the site during the preferred survey window. NGM would coordinate with the USFWS and BLM to discuss monitoring as the season progresses and assess if monitoring requirements need to be modified based on site conditions, access concerns, or potential disturbance to nesting golden eagles. Nests MC-03 and MC-04 are not possible to access for early-season ground surveys based on road conditions and limited observation options without resulting in additional ground disturbance. Early-season ground surveys will not be conducted for the territory with nests MC-03 and MC-04. These nests will be monitored via an early-season (January to mid-March) aerial survey following Pagel et al. (2010) protocol. High-resolution photographs from the early-season aerial flight will be used to assess evidence of early-season occupancy at nests (e.g., new nest material, reformed/developed nest bowl, etc.). Aerial surveys later in the breeding season will clarify occupancy and breeding status (see Cortez Mine Conservation Measure 6 [CM-6]) and comply with Pagel et al. (2010) protocol. Every attempt will be made to conduct the first aerial survey by mid-March and the follow-up aerial survey in mid-April.	Annually until Permit Expiration

EPM	Monitoring Actions	Duration
	An early-season (January to mid-March) ground survey will be conducted for nests GAP-01, GAP-02, and GAP-05 if on-site conditions and access are conducive to ground monitoring. NGM will coordinate with the USFWS and BLM regarding the site conditions prior to conducting the ground surveys to determine if ground monitoring is feasible in the January to mid-March preferred survey window months. If a ground survey is not possible during January or February due to site conditions, access concerns, or potential disturbance to golden eagles, video monitoring may be used in lieu of the ground survey, in coordination with the BLM and USFWS. Aerial surveys later in the breeding season will be conducted following Cortez Mine CM-6 and comply with Pagel et al. (2010) protocol. Every attempt will be made to conduct the first survey by mid-March and the follow-up aerial survey in mid-April. An early-season (January to mid-March) ground survey will be conducted for nests GAP-06 and GAP-07 using similar observation points as previous years. NGM will coordinate with the USFWS and BLM regarding site conditions and access to these observation points prior to the ground survey occurring. If on-site conditions make a ground survey not feasible during the preferred survey window, NGM will coordinate with the USFWS and BLM to modify monitoring requirements based on site conditions, access concerns, or potential disturbance to nesting golden eagles. Aerial surveys later in the breeding season will be conducted following Cortez Mine CM-6 and comply with Pagel et al (2010) protocol. Every attempt will be made to conduct the first survey by mid-March and the follow-up aerial survey in mid-April. An early-season (January to mid-March) ground survey will be conducted for nests RP-01 and RP-02. If on-site conditions make a ground survey not feasible during the ideal survey window, NGM will coordinate with the USFWS and BLM to modify monitoring requirements based on site conditions, access concerns, or potential disturbance to nesting golden eagles. Aerial surveys later in the breeding season will be conducted following Cortez Mine CM-6 and comply with Pagel et al. (2010) protocol. Every attempt will be made to conduct the first survey by mid-March and the follow-up aerial survey in mid-April. An early-season (January to mid-March) ground survey will be conducted for nests CC-01, CC-03, and CC-04. If on-site conditions make a ground survey not feasible during the ideal survey window, NGM will coordinate with the USFWS and BLM to modify monitoring requirements based on site conditions, access concerns, or potential disturbance to nesting golden eagles. Aerial surveys later in the breeding season will be conducted following Cortez Mine CM-6 and comply with Pagel et al. (2010) protocol. Every attempt will be made to conduct the first survey by mid-March and the follow-up aerial survey in mid-April. Ground survey observations will focus in the areas around nests, nest cliffs, and other suitable nesting habitat. Specific observation criteria used for the ground survey for establishing golden eagle territory occupancy include the following: An adult eagle within 500 meters of a nest within the territory, when the bird is clearly in view of the nest, and when the eagle's presence is clearly not a rapid pass-over of the nest. Two adults, or an adult and a sub-adult bird, paired within the territory. Reproductive or territorial behavior within the territory: Courtship behavior, undulating flight, copulation	

EPM	Monitoring Actions	Duration
	Territorial defense Nest-building behaviors (stick carrying, nest maintenance) A follow-up aerial or ground survey will be conducted for those nests that were determined to contain breeding attempts during the above-discussed surveys. Success at golden eagle nests is determined by nestlings greater than 51 days old, which is primarily late May and peaks mid-June.	
EPM 2	If new nests are identified within the territories that are part of the disturbance take permit during the 30-year term of the take permit, NGM will coordinate with the USFWS regarding the new nests, and these new nests will be monitored as discussed above, concurrent with the other nests within the territories that are part of the disturbance take permit. After ground surveys are completed, Cortez Mine CM-6 would apply to nests within a territory that have a disturbance take permit and in compliance with Pagel et al. (2010) protocol. If new nests are identified within one mile of disturbance or two miles of blasting that are outside a territory with a disturbance take permit, NGM will inform and coordinate with the USFWS and BLM regarding the new nest sites that are outside the territories with a disturbance take permit. Cortez Mine CM-4 and CM-6 would apply for new nests identified outside a territory with a disturbance take permit, in coordination with the USFWS and BLM. Unless a disturbance take permit is in place, golden eagle nests with concern for potential disturbance should be considered not in-use for a given breeding season if they are confirmed not in-use on April 15 or later. Prior to April 15, they are considered potentially in-use unless an alternate nest within the same territory is already confirmed in-use, and spatial disturbance buffers (one mile for surface disturbance or two miles for blasting) would be adhered to until nests are confirmed not in-use, after July 31 if nests are in-use, or four weeks after nestlings fledge if monitoring confirms approximate fledging date.	Annually until Permit Expiration

Table 2-2 Phoenix Mine EPM Monitoring Schedule

EPM	Monitoring Actions	Duration
EPM 1	In compliance with the most recent USFWS golden eagle survey recommendations in Nevada, initial early-season occupancy surveys (ground-based or aerial-based) will be conducted within a four-mile buffer of the Phoenix Mine Project boundary in January to mid-March (i.e., the preferred survey window) to assess golden eagle territory occupancy and document in-use nests, as appropriate. Every attempt will be made to conduct these surveys by mid- to late February. NGM will coordinate with the USFWS prior to the initial early-season occupancy surveys to communicate existing conditions on the ground (e.g., heavy snow, access concerns, golden eagle disturbance, etc.). This communication will allow for flexibility in the monitoring requirements based on conditions at the site during the preferred survey window. NGM will coordinate with the USFWS and the BLM to discuss monitoring as the season progresses and assess if monitoring requirements need to be modified based on site conditions, access concerns, or potential disturbance to nesting golden eagles. Follow-up aerial-based occupancy surveys following Pagel et al. (2010) will be conducted within a four-mile buffer of the Phoenix Mine Project Plan boundary at least 30 days following initial early-season occupancy surveys (ideally in March to mid-April) and will focus on assessing territory occupancy in areas not confirmed during the initial survey, assessing all suitable nesting habitat to identify previously undocumented nests, and assessing nest and territory occupancy status of all golden eagle nests and nests of other cliff-nesting raptor species. Final late-nestling	Annually until Permit Expiration

EPM	Monitoring Actions	Duration
	productivity surveys (aerial or ground-based) will occur generally late May through June to assess golden eagle breeding success/productivity at nests identified as in-use during the initial and follow-up surveys at the time when golden eagles are expected to have late-stage nestlings (i.e., breeding attempts considered successful when one or more nestling reaches greater than 51 days old).	
EPM 2	If new nests are identified within one mile of disturbance or two miles of blasting that are outside a territory with a valid take permit, NGM will inform and coordinate with the USFWS and the BLM regarding these nest sites. Nests are considered in-use for a given breeding season (i.e., December 15 through July 31) until they are confirmed to not be in-use on April 15 or later. In the absence of a take permit, spatial disturbance buffers (i.e., one mile of surface disturbance and two miles of blasting) will be adhered to until nests are confirmed to be not in-use by April 15 or later, four weeks after nestlings fledge if monitoring confirms approximate fledging date, or after July 31 if they are in-use and not otherwise monitored to verify fledging date.	Annually until Permit Expiration

2.3.2 Minimization Measures

NGM has currently implemented the following measures at the Projects and plans to continue to implement these measures to minimize impacts to golden eagles from the Projects whether or not the permits are issued.

Vehicle Speed Limits: Speed limits within the Plan boundaries will be reduced to help avoid the risk of vehicle collisions with eagles. The modified speed limit will also reduce the number of carcasses on roadways from terrestrial mammal collisions.

Carcass Management: NGM staff will remove carcasses from all roadways within the Cortez Mine Project and Phoenix Mine Project when on-site and dispose of them appropriately to reduce the risk of vehicle collisions.

Employee Awareness and Training Program: Staff and contractors utilizing the Project areas will be provided training on reducing risks to eagle collisions, reporting eagle and nest observations, and any Service requirements provided within the eagle permit.

Additionally, existing Applicant-committed conservation measures specific to the Cortez Mine are provided in **Table 2-3,** and those specific to the Phoenix Mine are provided in **Table 2-4**. The source of each existing Applicant-committed conservation measure has also been provided.

Table 2-3 Cortez Mine Conservation Measures

Number	Conservation Measure	Source(s)
CM-1	Netting, pond covers, or floating "bird balls," as appropriate, will be installed over ditches and ponds that contain leach solutions to minimize potential impacts to avian and terrestrial wildlife species. In addition, the heaps will be scarified to minimize ponding and pooling of process solutions.	BLM 2008a, 2015, 2019
CM-2	Weak acid dissociable cyanide concentrations in the tailings impoundments will be maintained at non-lethal levels. As added protection, the existing cyanide detoxification system (which uses in-line addition of ferrous sulfate to the tailings solution) will be used if it should become necessary to lower the cyanide levels in the tailings discharge to the tailings facility.	BLM 2008a, 2015, 2019

Number	Conservation Measure	Source(s)
CM-3	To minimize potential impacts to wildlife species, the top of leach pads will be monitored daily for any substantial pooling of cyanide solutions, and wildlife mortalities will be reported in accordance with the NDOW Industrial Artificial Pond Permit.	BLM 2015, 2019
CM-4	In the event that initiation of the Project should occur during the raptor nesting season (March 1 through July 31 and April 1 through July 31 for the burrowing owl), a raptor survey will be conducted. Project-related disturbance for a specific location will be conducted within 14 days of the survey, or another survey will be conducted. If active nests are located or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective radius (the size depending on the habitat requirements of the species and location of the nest) will be established around the nests following consultation with the BLM resource specialist. No construction will occur within the avoidance zone until the birds are no longer actively breeding or rearing young or until the young have fledged.	BLM 2008a, updated in 2015, 2019
CM-5	To protect nesting birds, removal of migratory bird habitat on currently undisturbed lands in the Cortez Gold Mine Operations Area will be avoided to the extent possible between March 1 and July 31. Should removal of habitat be required during this period, BCI (Barrick Cortez Inc.; now NGM) will coordinate with the BLM and NDOW to conduct migratory bird nesting surveys and implement appropriate mitigation, such as avoidance zones around occupied nests, as needed. Project-related disturbance for a specific location will be conducted within 14 days of the survey, or another survey will be conducted.	BLM 2008a, updated in 2015, 2019
CM-6	Raptor surveys will be conducted annually during the raptor breeding season (March 1 through July 31) utilizing the methods outlined in Pagel et al. (2010). The survey area will include the Cortez Gold Mine Operations Area plus a 10-mile radius. Two rotor wing (helicopter) aerial surveys and subsequent ground surveys of occupied nests will be conducted. The annual survey report will be provided to the BLM.	BLM 2015, 2019
CM-7	Transmission lines will be designed and constructed in accordance with applicable regulations to minimize raptor electrocution and collision potential. To minimize the collision potential for foraging raptors and other birds, standard safe designs as outlined in *Reducing Avian Collisions with Power Lines* (APLIC 2012) will be incorporated, as applicable. To minimize the potential for electrocution of raptor species attempting to perch on the lines in areas of identified avian concern, standard safe designs as outlined in *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) and *Avian Protection Plan Guidelines* (APLIC and USFWS 2005) will be incorporated, as applicable.	BLM 2008a, updated in 2015, 2019
CM-8	To minimize potential mine-related effects to perennial surface waters, the site-specific contingency mitigation measures developed for identified perennial waters within the currently authorized operations' modeled groundwater drawdown area will be implemented if monitoring data indicate that an observed reduction in flow is attributable to mine-induced groundwater drawdown. If needed, one or more of the identified mitigation methods will be implemented per the site-specific mitigation plans presented in Table 3.2-1 of the Cortez Hills Expansion Project Supplemental Final EIS (BLM 2011a). Site-specific contingency mitigation measures identified in BCI's (now NGM's) proposed Contingency Mitigation Plans for Surface Waters (BCI and Stantec 2018) will be implemented to minimize potential mine-related effects to perennial waters within, and within one mile of, the modeled maximum extent of the Proposed Action's groundwater drawdown area not covered by the 2011 mitigation plan.	BLM 2011a, 2011b, updated in 2019
CM-9	BCI (now NGM) will voluntarily coordinate with the BLM to develop new wetland/riparian areas and/or enhance existing wetland/riparian areas at off-site locations to address the direct loss of wetland/riparian vegetation. The loss of wetland/riparian vegetation will be replaced at a 2:1 ratio (i.e., for every acre of wetland/riparian vegetation removed or disturbed by mine development or groundwater drawdown, two acres of wetland/riparian vegetation will be created and/or enhanced). Where appropriate, replacement of wetland/riparian vegetation will be developed in conjunction with the mitigation measures for potentially affected perennial waters. BCI (now NGM), in coordination with a BLM botanist, will identify appropriate wetland/riparian species to be seeded or transplanted in these locations. Alternately, local existing areas of	BLM 2008b, updated in 2019

Number	Conservation Measure	Source(s)
	wetland/riparian vegetation unaffected by mine-related groundwater drawdown will be identified in coordination with the BLM for enhancement. Enhancement methods could include, but will not be limited to, the use of BLM-approved fencing to minimize livestock impacts, implementation of weed controls, and/or supplemental planting or seeding, as appropriate.	
CM-10	BCI (now NGM) will continue its mandatory employee education program for all personnel to minimize wildlife/vehicle-related impacts during operation.	BLM 2008b

Table 2-4 Phoenix Mine Conservation Measures

Number	Conservation Measure	Source(s)
CM-1	Protective measures associated with avian wildlife and potentially deleterious supernatant pond solutions are managed in compliance with the NDOW Industrial Artificial Pond Permits (IAPPs) issued for Phoenix. In addition, the proponent samples, analyzes, and reports analytical results associated with decant tailings solution, tailings solids, and supernatant pond fluids to the Nevada Division of Environmental Protection – Bureau of Mining Regulation and Reclamation in accordance with Phoenix Water Pollution Control Permit provisions. This periodic sampling and analysis in conjunction with daily operational analysis associated with tailings supernatant pond make-up water additional to Phoenix milling process, and the operational analysis of tailings discharge water quality provides a frequent examination and identification of possible deleterious supernatant pond water quality. In the event such conditions are experienced, protective avian wildlife measures would include possible water quality treatment of the supernatant pond fluids to adequately adjust pH values using chemical alkalinity additions such as hydrated lime, milk of lime, or sodium hydroxide. The addition of these chemical constituents would adjust the pH value and would result in the precipitation of trace metal hydroxides, abating potential wildlife effects associated with low pH and trace metal concentrations.	BLM 2003
CM-2	Operators have been trained to monitor the mining and process areas for the presence of larger wildlife species (e.g., deer and pronghorn antelope) as well as winged species (e.g., bats, birds, etc.) and other terrestrial wildlife. Mortality information is collected in accordance with the IAPPs. Phoenix continues to operate in accordance with established wildlife protection policies that prohibit feeding or harassment of wildlife.	BLM 2012
CM-3	Phoenix developed a wildlife monitoring plan to identify wildlife mortality in the Phoenix area and to report all mortalities. As part of this process, the top of the copper heap leach facility is monitored daily for any substantial pooling of process solutions. Drip emitters are used, and the heap surface is scarified to minimize ponding and pooling of the process solutions. If pooling does occur during active operations, Phoenix would 1) reduce solution application rates, 2) re-scarify the heap leach facility surface, and 3) place netting over any ponding to prevent wildlife access.	BLM 2003, updated 2012
CM-4	In order to minimize impacts to wildlife species from the exposure to precipitate in the E-ponds, Phoenix committed to 1) installing and maintaining fencing around, and bird netting across, E-ponds to minimize wildlife access to the ponds until reclamation is complete and 2) submitting quarterly reports to the BLM and NDOW on wildlife mortalities. If wildlife mortalities are identified within or near the E-ponds, Phoenix would immediately contact NDOW, as required under the IAPPs, and the BLM to determine appropriate mitigation. Although the Record of Decision for the Phoenix Copper Leach Project (BLM 2012) identified bird netting as a method of minimizing wildlife access to the ponds, Phoenix (through coordination with the BLM) currently utilizes bird balls and may use other measures (e.g., bird netting) to minimize wildlife access to the ponds.	BLM 2012
CM-5	Eight-foot-high chain-link fencing has been installed around the process ponds (including the raffinate pond) in accordance with the NDOW IAPPs at Phoenix. Netting, pond covers, or floating bird balls, as appropriate, would be installed over ditches and ponds containing leach solutions to minimize potential impacts to winged species and other terrestrial wildlife.	BLM 2012

Number	Conservation Measure	Source(s)
CM-6	The transmission line segment (120-kilovolt) and power line segment (13.8-kilovolt) for the Phoenix Copper Leach Project (BLM 2012) have been designed and constructed in accordance with applicable guidelines to minimize raptor perching, nesting, electrocution, and collision potential. To minimize raptor perching and nesting, BLM-approved raptor deterring devices have been installed on horizontal cross bars. To minimize electrocution of raptor species attempting to perch on the lines, standard safe designs as outlined in *Suggested Practices for Raptor Protection on Power Lines* (APLIC 2006) are incorporated in the Phoenix area, as applicable. To minimize collision potential for foraging raptors, standard safe designs as outlined in *Mitigating Bird Collisions with Power Lines* have been incorporated, as applicable.	BLM 2012
CM-7	To comply with the Migratory Bird Treaty Act, no new surface disturbance would occur during the migratory bird breeding season (March 1 through July 31 for raptors and April 1 through July 31 for other avian species). If surface-disturbing activities are unavoidable during the migratory bird breeding season, a nest survey would be conducted by a BLM-approved, qualified avian biologist prior to any surface-disturbing activities in order to avoid potential impacts to breeding migratory birds. Pre-disturbance surveys for migratory birds are only valid for 14 days. If the disturbance for the specific location does not occur within 14 days of the survey, another survey would be conducted. If active nests or burrows are located around the Project area or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food) is observed, a protective radius (the size depending on the habitat requirements of the species) would be delineated and the protective area avoided to prevent destruction or disturbance to nests or birds until they are no longer actively breeding or rearing young. The site characteristics to be used to determine the size of the avoidance area are 1) topographic screening, 2) distance from disturbance to nest, 3) the size and quality of foraging habitat surrounding the nest, 4) sensitivity of the species to nest disturbances, and 5) the protection status of the species.	BLM 2012, updated 2018
CM-8	In the event avian or bat/building collisions are determined to be of concern, perch deterrents would be used on ledges, rooftops, and other areas. Such deterrents could limit the attractiveness of these facilities to avian and bat species and reduce the potential for collisions.	BLM 2018
CM-9	Any new power line poles would be constructed with avian deterrent devices or methods. Some poles may require the use of guy wires for stability purposes. The guy wires and static line are generally the smallest-diameter wires and therefore would be the most likely to be involved with avian collisions. All new guy wires that are required for power poles within the Plan boundary will be marked to prevent avian and bat collisions.	BLM 2018
CM-10	The process ponds are constructed with side slopes of 3H:1V or steeper to deter avian use of the solution. Process ponds are completely covered with high-density polyethylene, hexagonal balls (bird balls). Bird balls float on the solution surface and preclude wildlife access to the solution surface. Phoenix operators perform inspections of process ponds twice per day to review the coverage and condition of bird balls. Bird balls are replaced or added when necessary. The heap leach facility is managed to prevent solution ponding on top of the pad. If solution ponding occurs on the surface of the heap leach facility, efforts would be employed to eliminate the ponding or standing solution. Efforts may include, but will not be limited to, reducing or stopping solution application where ponding occurs, ripping the surface to promote infiltration, and covering ponded areas with netting to preclude avian access to the ponded solution.	BLM 2018
CM-11	The International Cyanide Management Code recognizes a concentration of 50 parts per million as the lethal threshold for most wildlife species. The Phoenix tailings storage facility employs a dual cyanide destruction system that uses Caro's acid and ammonium bisulfite to promote cyanide destruction prior to depositing tailings in the tailings storage facility. Phoenix monitors the tailings slurry leaving the mill daily to ensure that weak acid dissociable cyanide concentrations in the tailings slurry are below 50 parts per million prior to deposition in the tailings storage facility. The tailings storage facility is further managed to minimize the size of the supernatant pool and thereby the attractiveness and risks to birds and bats. The tailings storage facility is not expected to produce invertebrates or other prey sources for birds or bats.	BLM 2018

Number	Conservation Measure	Source(s)
CM-12	Follow the *Suggested Practices for Raptor Protection on Power Lines*, per APLIC (2006), which provides guidance on power line construction and design on all future transmission and power lines.	BLM 2018
CM-13	Avoid construction designs (including structures such as meteorological towers) that increase the risk of collision, such as guy wires. If guy wires are used, mark them with bird flight diverters (according to the manufacturer's recommendation).	BLM 2018
CM-14	Instruct Phoenix personnel and visitors to drive at low speeds (less than 25 mph) and be alert for wildlife, especially in low-visibility conditions.	BLM 2018
CM-15	Where necessary (as determined by mortality records) and practicable, retrofit problem structures to reduce avian injury/mortality and coordinate efforts with the BLM and NDOW.	BLM 2018

2.3.3 Detection and Reporting Measures

Eagle injuries, mortalities, and previously undocumented eagle nests will be detected through incidental observations by NGM personnel and contractors. Although the Projects' activities are not expected to result in injury or mortality to eagles, NGM field staff will be advised to remain alert for eagles within the Cortez and Phoenix Mine Project boundaries and access roads at all times to improve the probability that injuries and mortalities do not go undetected. The detection of any new nest sites will occur through annual raptor nest surveying (aerial and ground-based) and incidental observations.

In the event that a new eagle nest is detected within proximity to mine activities, the NGM Environmental Department or designee will record the circumstances and conditions associated with the observation. Among the information recorded and reported to the Service will be the date and time of the detection, the Global Positioning System location (North American Datum 83), the status of the nest, and the species.

If NGM personnel or its contractors encounter a golden eagle injury or mortality within the Plan boundaries, they must report the incident to the NGM Environmental Representative. Personnel must not handle dead or injured eagles unless specifically directed to do so by the Service. In the event of an eagle injury, NGM's Environmental Representative will notify the Service and NDOW immediately (the same business day), and in the event of mortality, notification will occur by the next business day.

2.4 Other Alternatives Considered but Not Evaluated in This Environmental Assessment

The Service considered other alternatives based on communication with the Applicant but concluded that these alternatives did not meet the purpose and need underlying the action because they were impracticable for the Applicant to carry out or did not adequately address the risk of take at the two Projects. Therefore, the Service did not assess the potential environmental impacts of those alternatives. Below is a summary of the alternatives considered but eliminated from further review.

2.4.1 Alternative 3: Deny Permit

Under this alternative, the Service would deny the two permit applications because the Applicant falls under one of the disqualifying factors and circumstances denoted in 50 CFR § 13.21, and the application fails to meet all regulatory permit issuance criteria and required determinations listed in 50 CFR § 22.80.

Our permit issuance regulations at 50 CFR § 13.21(b) set forth a variety of circumstances that disqualify an Applicant from obtaining a permit. None of the disqualifying factors or circumstances denoted in 50 CFR § 13.21 apply to NGM. We next considered whether the Applicant meets all issuance criteria for the type of permit being issued. For eagle take permits, those issuance criteria are found in 50 CFR § 22.80(f). NGM's application meets all the regulatory issuance criteria and required determinations (50 CFR § 22.80) for eagle take permits.

When an Applicant for an eagle take permit is not disqualified under 50 CFR § 13.21 and meets all the issuance criteria of 50 CFR 22.80, denial of the permit is not a reasonable option. Therefore, this alternative, denial of the two permits, was eliminated from further consideration.

3.0 AFFECTED ENVIRONMENT

This section describes the current status of the environmental resources and values that are affected by the Proposed Action and No Action Alternative.

3.1 Golden Eagles

General information on the population trends, distribution, and habitat of golden eagles is detailed in sections 3.3 and 3.4 of the PEIS (USFWS 2016a). This section more specifically describes the golden eagle population in the Cortez Mine and Phoenix Mine areas.

3.1.1 Project Areas Habitat

Foraging Habitat

Cortez Mine

Vegetation communities for the Cortez Mine have been mapped by the Southwest Regional GAP Analysis Project (SWReGAP) in land cover files (USGS 2011). The SWReGAP mapping shows 30 vegetation communities occurring within a 10-mile radius of the Plan boundary (Survey Area); these communities are shown in **Table 3-1**. Five are mapped as over five percent of the Project area: Intermountain Basins Big Sagebrush Shrubland (38 percent), Great Basin Xeric Mixed Sagebrush Shrubland (15 percent), Intermountain Basins Montane Sagebrush Steppe (13 percent), Great Basin Pinyon-Juniper Woodland (nine percent), and Intermountain Basins Greasewood Flat (seven percent). Each of the remaining 25 communities was mapped as five percent or less of the Survey Area. The potential foraging value of the various habitat types present in the region has not been quantified, but in general, the Intermountain Basins Big Sagebrush Shrubland, Great Basin Xeric Mixed Sagebrush Shrubland, and Intermountain Basins Montane Sagebrush Steppe are believed to represent the highest-value native foraging habitat. These three communities account for about 66 percent of the mapped habitat withing the Cortez Mine Survey Area.

Table 3-1 SWReGAP Vegetation Communities Within the Cortez Mine Survey Area

Vegetation Community Name	Acres	Percent of Survey Area
Agriculture	673	0.10
Barren Lands, Non-Specific	978	0.15
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	785	0.12
Great Basin Pinyon-Juniper Woodland	62,010	9.40
Great Basin Semi-Desert Chaparral	82	0.01
Great Basin Xeric Mixed Sagebrush Shrubland	97,740	14.81
Inter-Mountain Basins Big Sagebrush Shrubland	253,452	38.41
Intermountain Basins Big Sagebrush Steppe	1,233	0.19
Intermountain Basins Cliff and Canyon	9,532	1.44
Intermountain Basins Greasewood Flat	45,056	6.83
Intermountain Basins Mixed Salt Desert Scrub	30,049	4.55

Vegetation Community Name	Acres	Percent of Survey Area
Intermountain Basins Montane Sagebrush Steppe	84,387	12.79
Intermountain Basins Mountain Mahogany Woodland and Shrubland	1,283	0.19
Intermountain Basins Playa	20,133	3.05
Intermountain Basins Semi-Desert Grassland	11,535	1.75
Intermountain Basins Semi-Desert Shrub Steppe	1,140	0.17
Intermountain Basins Subalpine Limber-Bristlecone Pine Woodland	61	0.01
Intermountain West Aspen-Mixed Conifer Forest and Woodland Complex	2	0.00
Invasive Annual and Biennial Forbland	3,533	0.54
Invasive Annual Grassland	16,533	2.51
Invasive Perennial Grassland	1,568	0.24
North American Arid West Emergent Marsh	9	0.00
Open Water	93	0.01
Recently Burned	11,666	1.77
Recently Mined or Quarried	6,117	0.93
Rocky Mountain Aspen Forest and Woodland	118	0.02
Rocky Mountain Dry Tundra	3	0.00
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	48	0.01
Rocky Mountain Subalpine Mesic Meadow	1	0.00
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	55	0.01
Total	286,227	100.00

* **Bold** denotes habitat types believed to be native foraging habitats of the highest value.

Phoenix Mine

Vegetation communities for the Phoenix Mine have been mapped by the SWReGAP in land cover files (USGS 2011). The SWReGAP mapping shows 24 vegetation communities occurring within the Survey Area; these communities are shown in **Table 3-2**. Four are mapped as over five percent of the Survey Area: Intermountain Basins Big Sagebrush Shrubland (34 percent), Intermountain Basins Greasewood Flat (28 percent), Great Basin Xeric Mixed Sagebrush Shrubland (12 percent), and Intermountain Basins Mixed Salt Desert Scrub (10 percent). Each of the remaining 20 communities was mapped as five percent or less of the Survey Area. The potential foraging value of the various habitat types present in the region has not been quantified, but in general, the Intermountain Basins Big Sagebrush Shrubland, Great Basin Xeric Mixed Sagebrush Shrubland, and Intermountain Basins Mixed Salt Desert Scrub are believed to represent the highest-value native foraging habitat. These three communities account for about 57 percent of the mapped habitat within the Phoenix Mine Project area.

Table 3-2 SWReGAP Vegetation Communities Within the Phoenix Mine Survey Area

Vegetation Community Name	Acres	Percent of Survey Area
Agriculture	1,815	0.50
Barren Lands, Non-Specific	184	0.05

Vegetation Community Name	Acres	Percent of Survey Area
Developed, Medium – High Intensity	145	0.04
Developed, Open Space – Low Intensity	380	0.11
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	258	0.07
Great Basin Pinyon-Juniper Woodland	7,227	2.00
Great Basin Xeric Mixed Sagebrush Shrubland	45,155	12.47
Intermountain Basins Big Sagebrush Shrubland	124,687	34.44
Intermountain Basins Big Sagebrush Steppe	477	0.13
Intermountain Basins Cliff and Canyon	4,997	1.38
Intermountain Basins Greasewood Flat	101,016	27.90
Intermountain Basins Mixed Salt Desert Scrub	35,000	9.67
Intermountain Basins Montane Sagebrush Steppe	17,580	4.86
Intermountain Basins Mountain Mahogany Woodland and Shrubland	20	0.01
Intermountain Basins Playa	4,527	1.25
Intermountain Basins Semi-Desert Grassland	1,635	0.45
Intermountain Basins Semi-Desert Shrub Steppe	45	0.01
Invasive Annual and Biennial Forbland	5,874	1.62
Invasive Annual Grassland	2,307	0.64
North American Arid West Emergent Marsh	349	0.1
Open Water	61	0.02
Recently Mined or Quarried	8,284	2.29
Rocky Mountain Aspen Forest and Woodland	24	0.01
Rocky Mountain Dry Tundra	2	<1
Total	362,048	100

*** Bold** denotes habitat types believed to be native foraging habitats of the highest value.

Other habitat types that are believed to represent important golden eagle foraging habitats in the region include natural water sources, wetlands, and meadows. Wetlands and springs provide a reliable water source for eagle prey and, therefore, allow higher concentrations of eagle prey. There are multiple seeps, springs, stock troughs, and intermittent and ephemeral drainages throughout the vicinity of the Projects. Meadow habitats, marshes, agricultural alfalfa pivots, and pastures in the vicinity of the Projects also support large populations of rodents and lagomorphs. These habitats occur at farms and ranches throughout the valley floors surrounding the Projects.

Nesting Habitat

Cortez Mine

Golden eagle nesting habitat at the Cortez Mine and within its 10-mile radius includes cliff and rock outcrops in the Shoshone Mountains to the west, the Cortez Mountains to the east, and the Toiyabe Mountains to the south, and there are multiple open pits with highwalls throughout the Project area. Golden eagles may nest in trees if available.

Phoenix Mine

Golden eagle nesting habitat at the Phoenix Mine and within its 10-mile radius includes cliff and rock outcrops in the Battle Mountain Range, the Sheep Creek Mountains, and the Shoshone Range. There are multiple open pits with highwalls throughout the Project area. Golden eagles may nest in trees if available.

Other Topographic Features Attractive to Golden Eagles

Tops of slopes oriented perpendicular to prevailing winds or near ridge crests of cliff edges are features that are conducive to slope soaring and are attractive features for eagles. Mountainous areas that include ridgelines and slopes with a variety of aspects such that winds from multiple directions would create deflection currents are also suitable for soaring. Saddles or low points on ridgelines or near riparian corridors may serve as flight paths. These features occur within both the Cortez Mine Project and the Phoenix Mine Project.

3.1.2 Project Areas Eagle Populations

The golden eagle nesting territories within the 10-mile radii of the Projects were delineated based on surveys conducted between 2012 and 2019 at the Cortez Mine and 2012, 2013, and 2018 at the Phoenix Mine. Within the Cortez Mine Project area, a total of 68 distinct territories were delineated, and at the Phoenix Mine Project area, a total of 13 distinct territories were delineated. Delineations were based on proximity of nests to one another, concurrent occupancy of adjacent nests, alternating occupancy (from year to year) of adjacent nests, and nearest available quality nesting substrate obtained from surveys and monitoring at the Projects.

The number of fledged young in the Cortez Project area was 27 in 2018 and 10 in 2019, with an average annual productivity of approximately 0.95 and a range from 0.59 to 1.34 fledged young per occupied (in-use) territory. The number of fledged young in the Phoenix Project area was 1.0 in 2013 and 2.0 in 2018, with an average annual productivity of approximately 1.25 and a range from 0.5 to 2.0 fledged young per occupied (in-use) territory. These generally fall within values documented for other golden eagle populations, as McIntyre (2002) reports a fledglings per occupied territory rate from 1988 to 1999 of 0.16 to 1.16. The breeding effort rates (i.e., percent of known territories that attempt breeding each year) at the Cortez Mine for 2013 through 2019 ranged from 26 to 53 percent. The breeding effort rates at the Phoenix Mine for 2012, 2013, and 2018 ranged from 36 to 53 percent. These ranges in breeding effort rates are generally consistent when compared to the values presented by Steenhof et al. (1997), which was 38 to 100 percent, and McIntyre and Adams (1999), which was 33 to 90 percent.

3.1.3 Territories Within the Projects' Plan Boundaries, One-Mile Mining Radii, and Two-Mile Pit Blasting Radii

Cortez Mine

Within the Cortez Plan boundary, including a one-mile radius of approved disturbance and a two-mile radius of approved pit blasting, there are 26 previously identified golden eagle nests. The 26 nests, which are located on natural and humanmade features, are thought to represent all or part

of 10 breeding territories. The territory delineation process is discussed in **Section 3.1.2** of this EA. Three of these territories have one or more alternate nests outside a one-mile radius of approved disturbance and a two-mile radius of approved pit blasting; therefore, they have not been included for proposed take since they have nesting alternatives at a distance likely to ameliorate impacts from disturbance. Two other territories (one of which also has a nest outside the one-mile radius of approved disturbance and two-mile radius of approved pit blasting) are being included in NGM's separate application for a disturbance take permit for the Goldrush Mine Project, and impacts will be analyzed in a separate NEPA action; thus, they are not analyzed further in this EA. One territory consists of one nest (MT-03) that was not located in 2019, 2020, 2021, or 2022 and no longer appears to be present; thus, impacts are not anticipated to occur to this territory. One territory (including nests HDC-01 and HDC-02) occurs within one mile of a rapid infiltration basin and associated infrastructure that experiences low-level light truck activity equivalent to recreational and ranching activities frequently experienced across Nevada. It has an alternate nest (HDC-01) that is not within the line of sight of any surface disturbance; thus, it is not anticipated that this territory would be impacted. Accordingly, NGM has applied to the Service for authorization for disturbance take associated with four territories at the Cortez Mine. Territory specifics, including nest cluster distances and nearest territory distances, are described in **Table 1-1**. The applicable nests and territories are also shown in **Figure 1-3**.

Phoenix Mine

Within the Phoenix Mine Plan boundary, there are two breeding territories. Both territories occur within the one-mile approved surface disturbance radius and two-mile approved pit blasting radius; thus, two territories are anticipated to be impacted by operations. Territory specifics, including nest cluster distances and nearest territory distances, are described in **Table 1-2** and shown in **Figure 1-5**.

3.1.4 Existing Stressors on the Two Projects' Eagle Populations

Mine Project Activities

Authorized Project activities in the Cortez Mine and Phoenix Mine include development of roads, blasting, drilling, moving large pieces of equipment, hauling ore, processing, and other mining-related activities. Risks to golden eagles include unintentional disturbance from activity near nest sites, such as noise and visual irritation from surface disturbance, vehicular traffic on roads, and large equipment operation. Other risks are applicable to golden eagles nesting on highwalls of active pits, which may cause nest abandonment due to the mining activities occurring nearby and within pits.

Roads

Mobile equipment (i.e., vehicles) used in operations at the Projects or traveling to or from the Projects could strike and injure or kill wildlife. Road-killed wildlife may attract scavenging eagles, which in turn could be injured or killed by vehicle collision. NGM has reduced speed limits placed on equipment and vehicles operating at the Projects. The greater risk for vehicle mortality is on area roads outside the Mine (e.g., Interstate 80 and Nevada State Route 306), which are outside NGM's control, due to higher speeds and additional traffic.

Utilities

Electrical utility infrastructure present in the Cortez Mine and Phoenix Mine includes power poles, power lines and guy wires, and transformers. These utilities present risks to eagles from electrocution and collision. Electrical transmission and distribution lines that do not include sufficient spacing between energized lines or between energized lines and ground wires represent an electrocution hazard to large birds. The Projects are not currently authorized to construct additional electrical utility infrastructure; therefore, additional electrical utility infrastructure would not be constructed by the proponent within the Cortez Mine or Phoenix Mine.

3.2 Bald Eagles

Bald eagles (*Haliaeetus leucocephalus*) are known to occur in the region, but their presence in the two Project areas is minimal. Bald eagles usually nest in mature trees or snags near open water that offers foraging opportunities and will rarely nest on cliffs in areas with no trees. Winter habitat generally includes open water and upland habitats for foraging. In addition to open water, other important habitat components for wintering eagles include suitable trees for diurnal perching and night roosting.

No bald eagle nesting or roosting habitat occurs in or near the Cortez Mine or the Phoenix Mine; however, migrating eagles do move through the state, and wintering birds would occur within the appropriate winter habitats (e.g., Humboldt River corridor). Bald eagle wintering habitat exists along the Humboldt River, approximately 30 miles north of the Cortez area. Therefore, eagle presence in the immediate vicinity of the Projects would be infrequent and limited to occasional foraging in the upland habitats. Thus, bald eagles are not expected to be affected by any construction, operational, or maintenance activities at the Cortez Mine or the Phoenix Mine, and disturbance and loss of territory of bald eagles are not expected to result from the Cortez Mine Project or the Phoenix Mine Project. Although this document addresses both bald eagles and golden eagles, because bald eagle presence in the Project areas is minimal, they are not expected to be affected by construction, operation, and maintenance of the Project; therefore, disturbance and loss of territory of bald eagles are not expected to result from the Projects. Consequently, the Applicant has not requested bald eagle take authorization for either the Cortez Mine or the Phoenix Mine.

3.3 Migratory Birds

Effects to migratory birds have been analyzed in the PEIS (USFWS 2016a). Various migratory birds have been identified in the Cortez Plan and Phoenix Plan boundaries; however, issuance of the proposed permit is not anticipated to affect one or more species of migratory birds. Additionally, NGM has committed to EPMs to reduce potential impacts to migratory birds within the Cortez Plan and Phoenix Plan boundaries (BLM 2003, 2008a, 2011a, 2012, 2015, 2018, and 2019).

3.4 Species Listed under the Endangered Species Act

There are no federally threatened or endangered species listed under the Endangered Species Act of 1973, as amended (ESA) (16 U.S.C. §§ 1531–1544), or potential habitat within the Cortez Plan and Phoenix Plan boundaries (BLM 2003, 2008a, 2011a, 2012, 2015, 2018, and 2019). Moreover, the Service's decision regarding the requested two eagle take permits would not alter the physical footprint of the Cortez Mine Project or the Phoenix Mine Project and therefore would not alter the impacts to federally threatened and endangered species in the two Plan boundaries.

3.5 Cultural and Socioeconomic Interests

Bald and golden eagles are important symbols of U.S. history and sacred to many Native American cultures. Some Native American cultures utilize eagles, eagle feathers, and other eagle parts for religious practices and cultural ceremonies. Outside of rituals and practices, wild eagles as live beings are deeply important to many Tribes (Lawrence 1990, as cited by USFWS 2016a). Numerous Tribes confirmed the importance of wild eagles during scoping and Tribal consultation for the PEIS. The Proposed Action and considered alternatives would not impact cultural or socioeconomic interests beyond the impacts already discussed in the PEIS. Therefore, cultural and socioeconomic interests will not be analyzed further in this EA.

3.6 National Historic Preservation Act

The Projects have not changed in scope, timing, or duration since analyzed in previously completed NEPA analysis (BLM 2003, 2008a, 2011a, 2012, 2015, 2018, and 2019). As such, NHPA compliance occurred during these authorizations and is not analyzed further in this EA.

3.7 Climate Change

Climate change was considered in the PEIS (USFWS 2016a, section 3.9, page 144) and is incorporated by reference here.

4.0 ENVIRONMENTAL CONSEQUENCES

This section summarizes the effects on the environment of implementing the Proposed Action or alternatives to the action. The discussion of overall effects to the environment of the eagle take permit program is provided in the PEIS (USFWS 2016a) and is incorporated by reference here. This section of this EA analyzes only the effects that were not analyzed in the PEIS (USFWS 2016a) that may result from the issuance of two eagle take permits applicable to the Projects. In this analysis, and in our consideration of take authorization to the Applicant for the Cortez Mine and the Phoenix Mine, each incident of take results in loss of productivity for a single season for a single eagle breeding pair. Take that may result in injury or mortality of eagles is not expected, nor would it be authorized under this permit. While the available data indicate that currently known breeding territories are most likely to be impacted by mine-related activities, as these pairs have nests located in the vicinity of the Projects, eagle populations are dynamic with shifting territory boundaries, and eagle pairs may establish new nest locations. New territories and new nesting locations may be identified within or in proximity to the Projects over the life of the permits. When considering the potential for effects to eagles from activities at the Cortez Mine and Phoenix Mine, we also took into account the possibility for golden eagle pairs to build nests in new locations that may be both closer to and farther away from activities at the Projects. Disturbance take authorization would only be necessary when breeding eagles have an in-use nest (see 50 CFR § 22.6 for "in-use nest" definition) within one mile of Project activities or two miles of blasting, as nesting eagles within these distance buffers have an increased likelihood of disturbance.

4.1 Alternative 1: Proposed Action

In determining the significance of effects of the two Projects on eagles, we confirmed that the Proposed Action of issuing an eagle take permit for the take of golden eagles does not deviate from the analysis provided in the PEIS (USFWS 2016a) and the Service's 2016 report *Bald and Golden Eagles: Population Demographics and Estimation of Sustainable Take in the United States, 2016 Update* (USFWS 2016b). We also assessed effects specific to the Cortez Mine and Phoenix Mine to eagles that were not covered in PEIS analysis. These effects may occur at the project scale, at the local-area eagle population scale, and at the regional EMU scale.

4.1.1 Direct and Indirect Effects

The Applicant is requesting authorization for disturbance to and loss of annual productivity from four golden eagle breeding pairs at the Cortez Mine and two breeding pairs at the Phoenix Mine, each under a separate permit authorization. Under the Proposed Action, we would issue 30-year permits for each Project. The applicable breeding pairs have territories with nests within proximity to mine activities where disturbance preventing successful nesting would occur as a result of the Projects. The Proposed Action would authorize the disturbance to and loss of annual productivity from the applicable breeding pairs associated with the Cortez Project and Phoenix Project.

The Proposed Action could have a direct impact to the golden eagles in the four breeding pairs at the Cortez Mine and the two breeding pairs at the Phoenix Mine resulting from the presence of

mining in close proximity to their nests, thus causing potential negative impacts to golden eagle breeding and nesting activities.

Disturbance of an occupied golden eagle territory is assumed to result in loss of annual productivity (i.e., number of young reared) from that territory. The Service uses an estimate of 0.59 golden eagle young fledged per occupied nesting territory per year (USFWS 2016c) to estimate loss of annual productivity.

Along with the monitoring and minimization measures outlined in **Section 2.3**, the Applicant would provide compensatory mitigation to offset the proposed take. To determine the amount of mitigation required, the Service's Golden Eagle REA was used (USFWS 2018). The values described above are directly entered into the REA to calculate the required compensatory mitigation to offset disturbance of the breeding pair for 30 years, which would be evaluated every five years.

Based on updated Eagle Act permit regulations, a compensatory mitigation ratio of 1.2:1 is used. The 1.2:1 ratio for compensatory mitigation achieves a net benefit to golden eagle populations, ensuring that regional eagle populations are maintained consistent with the preservation standard of the Eagle Act despite indications of declines in golden eagle populations (USFWS 2016a). Using the REA, the Applicant would offset the take of golden eagles at the Projects for the first five-year permit period by contributing to a Service-approved fund or an approved in-lieu fee program in the amount equal to retrofitting the following:

- Cortez Mine: Approximately 431.47 poles (avoided loss from retrofits maintained and effective for up to 10 years) or 187.78 poles (avoided loss from retrofits maintained and effective for up to 30 years) under the Proposed Action.

- Phoenix Mine: Approximately 215.73 poles (avoided loss from retrofits maintained and effective for up to 10 years) or 93.89 poles (avoided loss from retrofits maintained and effective for up to 30 years) under the Proposed Action.

The final power pole number depends on the type and expected longevity of each retrofit. As the implementation of compensatory mitigation would fully offset the estimated take for the Projects and would provide additional net benefit to eagle populations, there would be no significant negative impacts to eagle populations from issuing an eagle take permit under the Proposed Action.

The Service uses electric utility power pole retrofitting to offset authorized take of golden eagles. Electrocution from power poles is known to be a major cause of eagle mortality. Power poles can be retrofitted by verified methods (such as insulating or covering electrical components or modifying pole elements to increase the distance between electrical components) to reduce the risk of electrocution to eagles, with the maintenance and efficacy of retrofits confirmed through post-installation inspections and monitoring. The effects of retrofitting power poles have been quantified "per eagle," allowing use of the REA to calculate the number of power pole retrofits needed to offset the authorized take of golden eagles (USFWS 2013).

Eagle Act regulations require compensatory mitigation to be conducted in the same EMU in which the take occurs. The Projects are located in the Pacific Flyway EMU. The site of power poles to be retrofitted has not yet been determined but would be in the Pacific Flyway.

In addition, the Proposed Action incorporates adaptive management and minimization measures as described in **Section 2.3**. The proposed Applicant-committed measures would be required to be implemented to further reduce the risk of Project-related injury or mortality hazards to eagles within the boundaries of the Cortez Mine and Phoenix Mine.

The Proposed Action meets the purpose and need as they are consistent with the Eagle Act and its regulations and adequately addresses the risk of take at the Projects.

Bald Eagles

Because the Cortez Project and Phoenix Project have not changed in scope, timing, or duration, no significant adverse effects are foreseen to bald eagles as a result of issuance of the two permits (BLM 2003, 2008a, 2011a, 2012, 2015, 2018, and 2019). Although take of bald eagles is not expected to occur at these Projects and take of bald eagles would not be permitted, bald eagles in the region may benefit from avoidance and minimization measures established to reduce the risk to golden eagles. Bald eagles may benefit from compensatory mitigation actions provided to offset the take of golden eagles under the Proposed Action.

Migratory Birds

Because the Cortez Project and Phoenix Project have not changed in scope, timing, or duration, no significant adverse effects to migratory bird populations are expected as a result of the issuance of the two permits (BLM 2003, 2008a, 2011a, 2012, 2015, 2018, and 2019). Issuance of eagle take permits to the Projects may also provide benefits to migratory birds. Power pole retrofits done as compensatory mitigation for the eagle take permits may minimize electrocution risk for raptors and other migratory birds, just as with eagles.

Species Listed under the ESA

Because the Cortez Project and Phoenix Project have not changed in scope, timing, or duration, no significant adverse effects are foreseen to endangered species as a result of the issuance of the two permits (BLM 2003, 2008a, 2011a, 2012, 2015, 2018, and 2019).

4.1.2 Cumulative Effects

The purpose of this cumulative effects evaluation is to identify situations where the eagle disturbance take proposed under the Proposed Action, combined with take from other past, present, or foreseeable future actions and sources, may be approaching levels that are biologically problematic or that cannot reasonably be offset through compensatory mitigation. Effects of take may be cumulative at the project scale, at the local-area eagle population scale, and at the EMU scale.

At the scale of the Cortez Mine Project and Phoenix Project, the alteration of the eagle habitat from mine-related activities could cause shifting in eagle pair territory boundaries in the vicinity of the Projects, which could cause increased antagonistic interactions with surrounding eagle pairs, potentially creating a ripple effect of impacts to eagles in areas surrounding the Projects.

To ensure that eagle populations at the local scale are not depleted by cumulative take in the local area, the Service analyzed in the PEIS (USFWS 2016a) the amount of take that can be authorized while still maintaining LAP of eagles. The LAP scale is defined for eagles as the median natal dispersal distance for the given species, which for golden eagles is a 109-mile radius (USFWS 2016b). In order to issue a permit, cumulative authorized take must not exceed five percent of a LAP unless the Service can demonstrate why allowing take to exceed that limit is still compatible with the preservation of eagles. Eagle take permit regulations require the Service to conduct an individual LAP analysis for each permit application as part of the application review.

Therefore, the Service considered cumulative effects to the LAP surrounding the Cortez Mine Plan boundary and Phoenix Mine Plan boundary (**Figure 4-1**) to evaluate whether the take to be authorized under each permit, together with other sources of permitted take and unpermitted eagle mortality, may be incompatible with the persistence of the LAP of the Cortez Mine Project and Phoenix Mine Project. Data provided by NGM, data on other eagle take authorized and permitted by the Service, and information regarding other reliably documented unauthorized eagle mortalities have been incorporated to estimate cumulative impacts to the LAP. The cumulative effects analysis was conducted as described in the Service's *Eagle Conservation Plan Guidance* (USFWS 2013).

The combined LAP for the Cortez Project and Phoenix Mine Project was estimated to be 787.03 golden eagles. The five percent benchmark for authorized take of that LAP is 39.35 eagles, while current authorized take in the LAP, including that estimated to occur at the Cortez Project and Phoenix Project, is 4.51 golden eagles, or 0.57 percent of the LAP per year. The take that would be authorized by this permit for the Projects does not exceed one percent of the LAP, so it would not significantly impact the LAP (**Appendix C**).

Additionally, take of eagles has the potential to affect the larger eagle population. Accordingly, the 2016 PEIS (USFWS 2016a) analyzed the cumulative effects of permitting take of golden eagles in combination with ongoing unauthorized sources of human-caused eagle mortality and other present or foreseeable future actions affecting golden eagle populations. The Service established that golden eagles could sustain population levels at a 10 percent take threshold. Unpermitted take levels essentially meet the 10 percent threshold; thus, there is no capacity for unmitigated take. Adult golden eagle populations are currently at an equilibrium level that would likely not sustain further unmitigated mortality (USFWS 2016a). Over the past 30 years, the Service knows of 300 golden eagles killed by a variety of causes within the LAP (**Appendix C**). This is approximately 14.29 golden eagles killed per year. This annual unpermitted take is approximately 1.8 percent of the LAP. As part of the analysis, the Service determined sustainable limits to permitted take within each EMU. The take that would be authorized by this permit would be offset by the compensatory mitigation that would be provided by the Applicant, so it would not significantly impact the EMU eagle population. The minimization measures that would be required under the permit, along with the additional adaptive management measures, are designed to further

ensure that the permit is compatible with the preservation of golden eagles at the regional EMU population scale.

4.2 Alternative 2: No Action Alternative

4.2.1 Direct and Indirect Effects

The Service assumes the rate of take is the same under the Proposed Action and No Action Alternative, but under the No Action Alternative, the Service would take no action on the permit applications. The two permits would not be issued, and compensatory mitigation would not be required. Under this alternative, direct impacts of the Projects on the golden eagle population would be assumed to be loss of productivity of four breeding pairs at the Cortez Mine and two breeding pairs at the Phoenix Mine, impacting six breeding pairs annually over 30 years, and this take would not be offset by compensatory mitigation. The Applicant would continue to implement the avoidance and minimization measures for the Projects as described in **Section 2.3**; however, additional measures outside of those referenced in **Section 2.3**, including compensatory mitigation, would not be implemented.

This alternative does not meet the purpose and need for the action because, by regulation (50 CFR § 13.21), when in receipt of a completed application, the Service must either issue or deny a permit to the Applicant. The No Action Alternative also does not meet the purpose of and need for the action because it would result in the adverse, unmitigated effects to golden eagles described above, and these effects are not compatible with the preservation of golden eagles.

Bald Eagles

The Applicant did not apply for take authorization for bald eagles, nor is take of bald eagles expected to occur from activities at the Cortez Mine and Phoenix Mine. However, the No Action Alternative would mean benefits that bald eagles might also incur from avoidance and minimization measures established to reduce the risk to golden eagles and compensatory mitigation actions provided to offset the take of golden eagles would not occur.

Migratory Birds

Any incidental benefits to migratory birds from minimization measures and compensatory mitigation required under the eagle take permits would not be realized under the No Action Alternative.

Species Listed under the ESA

There are no federally threatened or endangered species listed under the ESA (16 U.S.C. §§ 1531–1544) or potential habitat within the Cortez Plan and Phoenix Plan boundaries (BLM 2003, 2008a, 2011a, 2012, 2015, 2018, and 2019). Moreover, the Service's decision regarding the requested two eagle take permits would not alter the physical footprint of the Cortez Mine Project or the Phoenix Mine Project and therefore would not alter the impacts to federally threatened and endangered species in the two Plan boundaries.

4.2.2 Cumulative Effects

Cumulative impacts are defined as incremental impacts of the action on the environment when added to other past, present, and reasonably foreseeable future actions. The geographic extent for the analysis of cumulative impacts is within a 175-kilometer (109-mile) radius surrounding the Projects, which represents the average natal dispersal distance of golden eagles (USFWS 2016a). There is incomplete information available regarding the level of unpermitted golden eagle take in the geographic extent for the analysis of cumulative impacts; thus, golden eagle take in the past, present, and foreseeable future is not fully known. Over the past 30 years, the Service knows of 300 golden eagles killed by a variety of causes (**Appendix C**). This is approximately 14.29 golden eagles killed per year. This annual unpermitted take is approximately 1.8 percent of the LAP. Taken together with permitted golden eagle take (i.e., 0.57 percent of the LAP), the cumulative impacts from mining activities undertaken by NGM may be around 2.37 percent of the LAP and would therefore be compatible with the preservation of golden eagles (**Appendix C**).

4.3 Comparison of Effects of Alternatives

The main differences between the Proposed Action and No Action Alternative are the issuing of permits with compensatory mitigation requirements to offset the permitted take under the Proposed Action and the level of concurrent and post-construction monitoring that would occur (**Table 4-1**). The Service assumes the rate of take is the same under the Proposed Action and No Action Alternative, but under the No Action Alternative, compensatory mitigation would not be required, and the impacts to golden eagles would not be authorized or offset.

The Proposed Action is likely to have no significant impacts on golden eagles, as there is no unmitigated take, and the Proposed Action meets all regulatory requirements and the conservation standard set forth in the 2016 PEIS (USFWS 2016a).

Table 4-1 Comparison of the Proposed Action and No Action Alternative

	Alternative 1: Proposed Action	**Alternative 2: No Action Alternative**
Eagle Take Levels	Loss of productivity from four golden eagle breeding pairs at the Cortez Mine and two breeding pairs at the Phoenix Mine for a 30-year period.	Same as detailed under the Proposed Action.
Avoidance and Minimization	NGM has and will continue to implement the measures to minimize impacts to golden eagles at the Projects as outlined in **Section 2.3**.	Same as detailed under the Proposed Action, as the Applicant is committed to these measures under previous BLM authorizations even without issuance of the two permits.
Compensatory Mitigation	Retrofitting of power poles to offset the loss from four golden eagle breeding pairs at the Cortez Mine and two breeding pairs at the Phoenix Mine over the life of the two 30-year permits, evaluated and mitigated in five-year periods.	None provided.

	Alternative 1: Proposed Action	Alternative 2: No Action Alternative
Detection and Reporting	NGM will continue to meet its BLM requirements under previous BLM authorizations as well as implement an eagle nest site reporting and detection system to ensure that environmental personnel adhere to the appropriate actions should a previously unidentified nest, injured eagle, or deceased eagle be identified. NGM will implement EPM-1 and EPM-2, as specified in **Table 2-1** and **Table 2-2**.	Same as detailed under the Proposed Action, as the Applicant is committed to these measures under previous BLM authorizations even without issuance of the two permits.
Unmitigated Eagle Take	None.	Loss of productivity from four golden eagle breeding pairs at the Cortez Mine and two breeding pairs at the Phoenix Mine for a 30-year period.
Adaptive Management	NGM will provide the Service with eagle monitoring information at minimum every five years (50 CFR § 22.80[c][7][iii]). Conditions of the two permits would require annual reporting of methods and results of the monitoring described above. The Service would use this information to assure that the permittee remained compliant with the two permits, assess if there were any needed adjustments to the two permits, and determine future mitigation payment needs. NGM will coordinate with the Service regarding any concerning golden eagle activity beyond what is described in this EA. NGM will also review all future mine projects during the planning stage and identify potential risks these future projects may have on the area golden eagle population.	None.
Data Collection/Monitoring	NGM will monitor golden eagle nests within the two Plan boundaries for the duration of the permits in accordance with Pagel et al. (2010). Additionally, a pre-egg laying survey will determine territorial occupancy in the Projects' boundaries. NGM will also document any Project-related mortality, including monitoring the alignments of power lines for electrocuted birds within the two Plan boundaries and monitoring hazardous waste–containing facilities for any failures of the mines' exclusion systems for the lives of the permits. NGM will implement EPM-1 and EPM-2, as specified in **Table 2-1** and **Table 2-2**.	NGM will conduct annual monitoring in accordance with Pagel et al. (2010) for the Projects, as the Applicant is committed to these measures even without issuance of the permits.

	Alternative 1: Proposed Action	Alternative 2: No Action Alternative
Company Liability for Eagle Take	None, if NGM is in compliance with permit conditions.	Yes.
Meets Eagle Act Regulatory Requirements	Yes.	No.

5.0 MITIGATION AND MONITORING

The Proposed Action incorporates measures to minimize and avoid impacts to the maximum degree practicable, as required by regulation. To ensure that regional eagle populations are maintained consistent with the preservation standard, regulations require that any golden eagle take that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation at a 1.2:1 ratio. As golden eagle take limits for all EMUs were determined to be zero (USFWS 2016a), compensatory mitigation is necessary to offset any authorized take of golden eagles. The 1.2:1 ratio for compensatory mitigation achieves a net benefit to golden eagle populations, ensuring that regional eagle populations are maintained consistent with the preservation standard of the Eagle Act despite indications of declines in golden eagle populations (USFWS 2016a). As this would fully offset the estimated take, as well as provide an additional net benefit to eagle populations, there would be no significant effects to eagle populations from issuing the two eagle take permits under the Proposed Action. **Sections 2.1.1** and **2.3** provide details of the compensatory mitigation and minimization measures that would be completed under the Proposed Action.

NGM will monitor eagle territory occupancy and nesting activities using independent, third-party monitors that report directly to the Service annually. At five-year intervals, the Service will review the eagle data and other pertinent information, as well as information provided by NGM and independent third-party monitors, assessing whether NGM is in compliance with the terms and conditions of the permits and has implemented all applicable adaptive management measures specified in the permits and ensuring eagle take has not exceeded the amount authorized within that time frame. We will update fatality predictions, authorized take levels, and compensatory mitigation, as needed, for future years of the permits. If authorized take levels for the period of review are exceeded in a manner or to a degree not addressed in the adaptive management conditions of the permits, based on the observed levels of take using approved protocols for monitoring and estimating total take, the Service may require additional actions, including but not limited to adding, removing, or adjusting avoidance, minimization, or compensatory mitigation measures; modifying adaptive management conditions; modifying monitoring requirements; and suspending or revoking the permits.

6.0 LIST OF PREPARERS AND REVIEWERS

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FIGURES

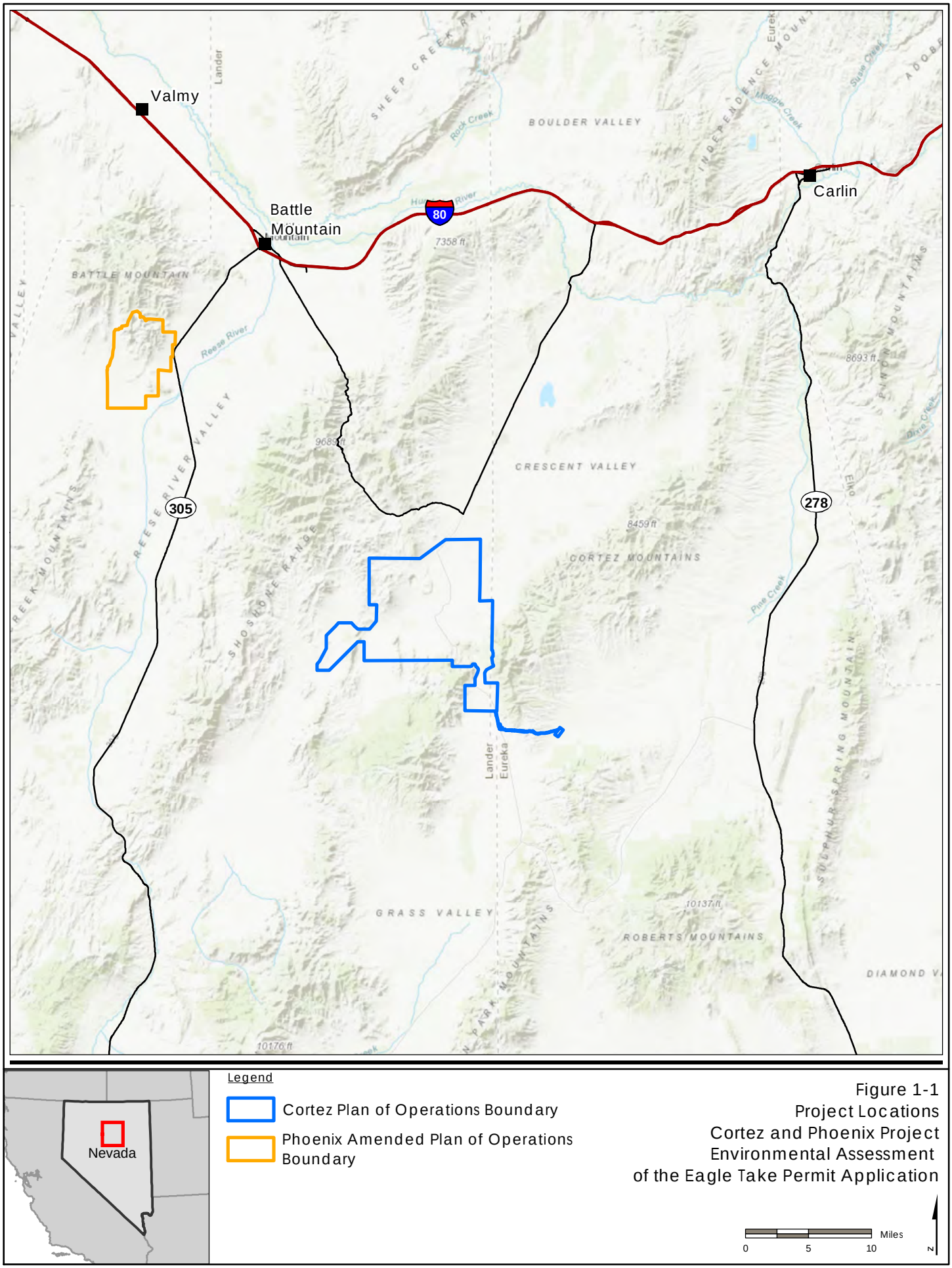
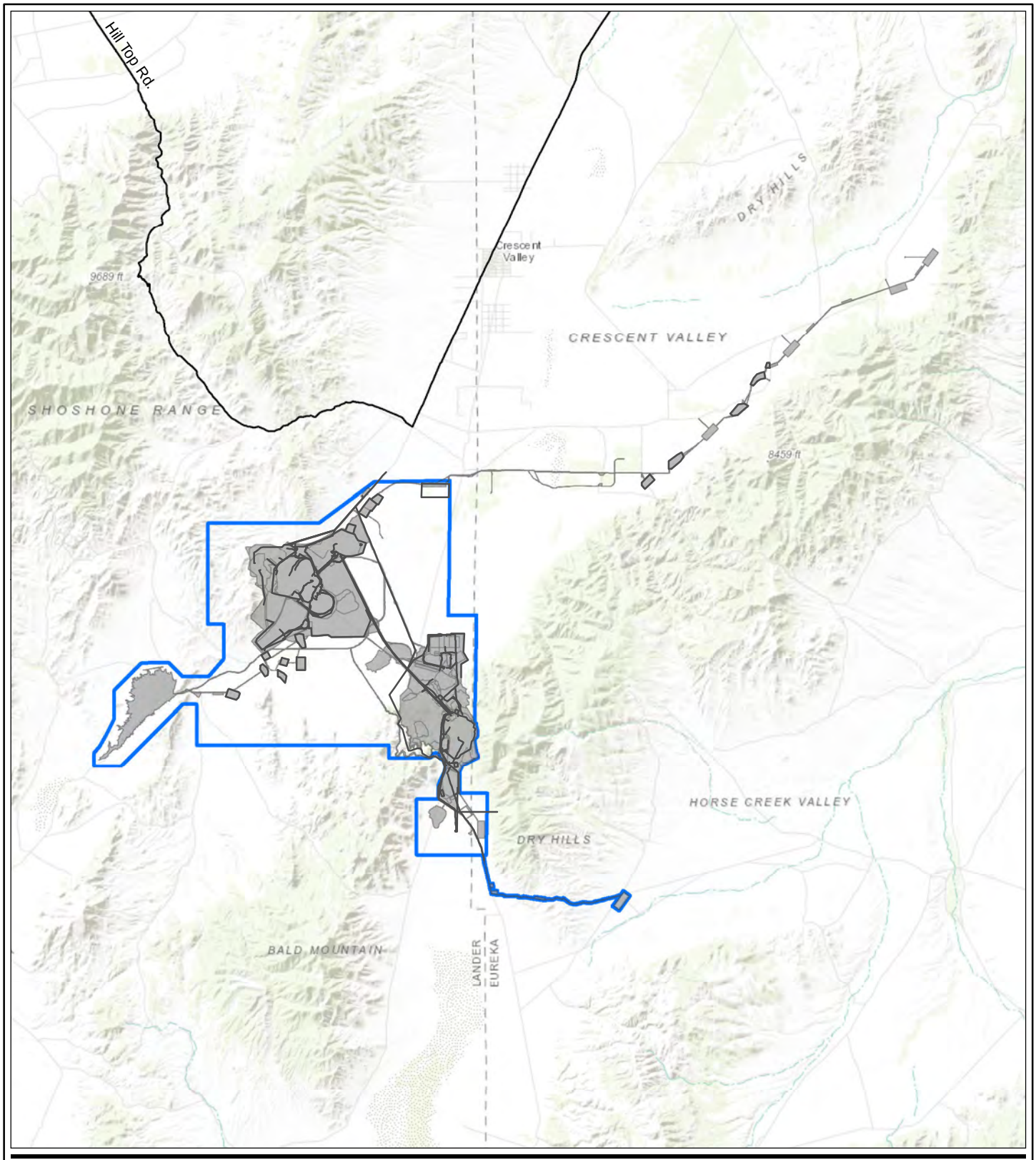


Figure 1-1
Project Locations
Cortez and Phoenix Project
Environmental Assessment
of the Eagle Take Permit Application



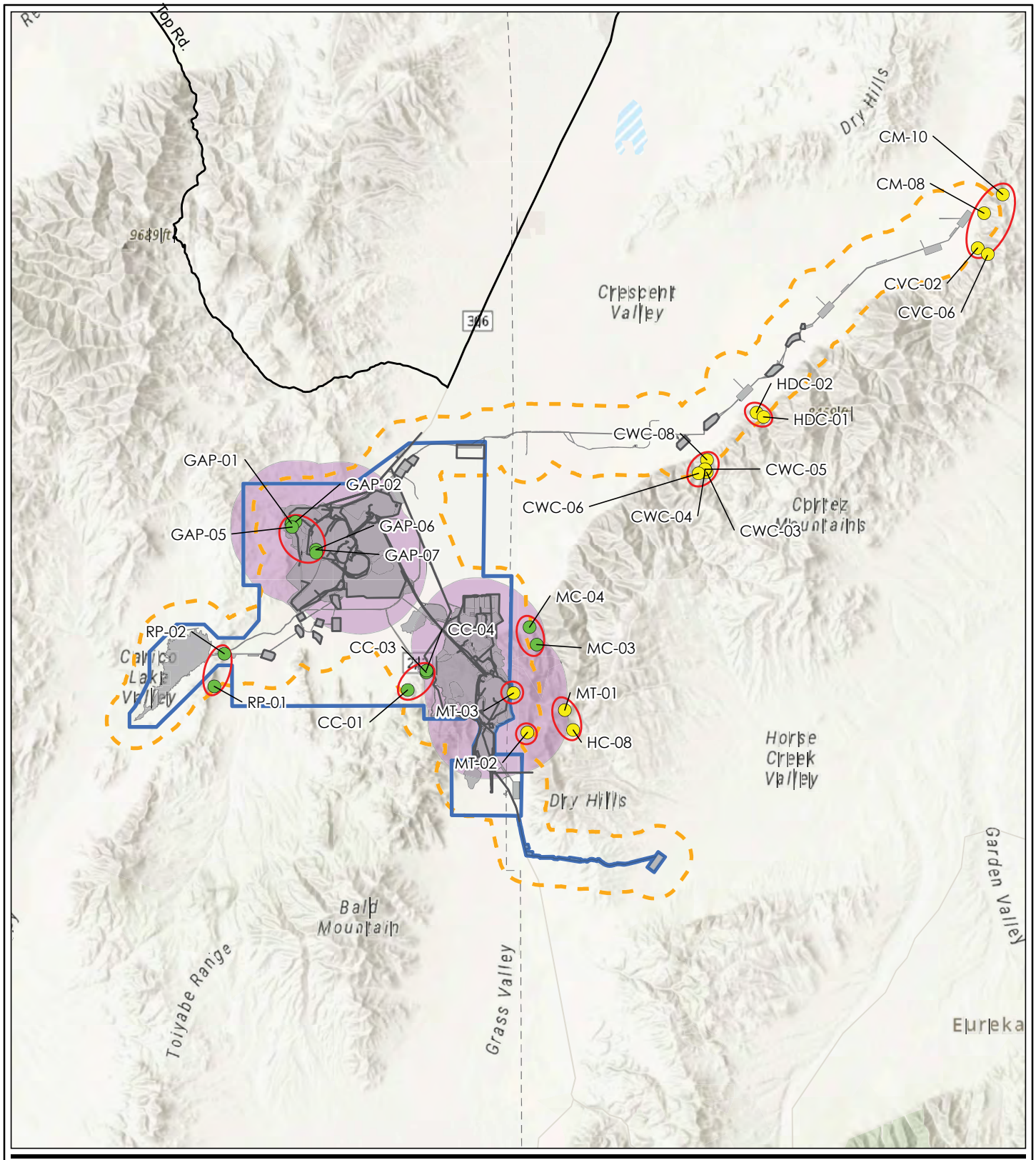
Legend

Cortez Plan of Operations Boundary

Cortez Authorized Disturbance

Figure 1-2
Authorized Facilities
Cortez Mine Project
Environmental Assessment
of the Eagle Take Permit Application

Miles
0
2.5
5
N



Legend

- Cortez Plan of Operations Boundary
- Cortez Authorized Disturbance
- One-Mile Radius of Authorized Disturbance
- Pit Blasting Two-Mile Radius
- Golden Eagle Nest Territory
- Golden Eagle Nest
- Golden Eagle Nest Subject to Take

Figure 1-3
Territories within Proximity of Authorized Mining
Cortez Mine Project
Environmental Assessment of the Eagle Take Permit Application

Miles
0 2.5 5
N

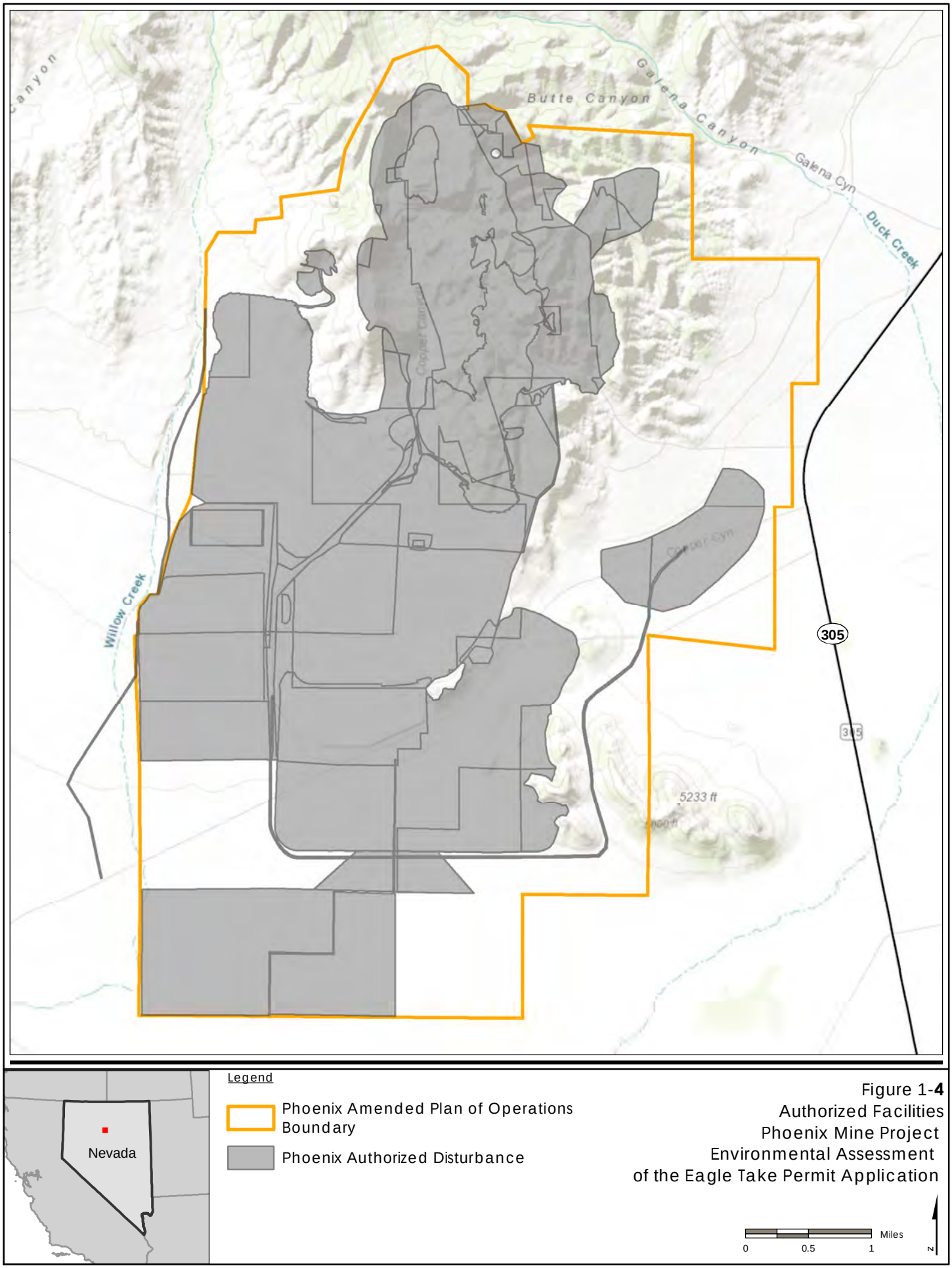


Figure 1-**4**
Authorized Facilities
Phoenix Mine Project
Environmental Assessment
of the Eagle Take Permit Application

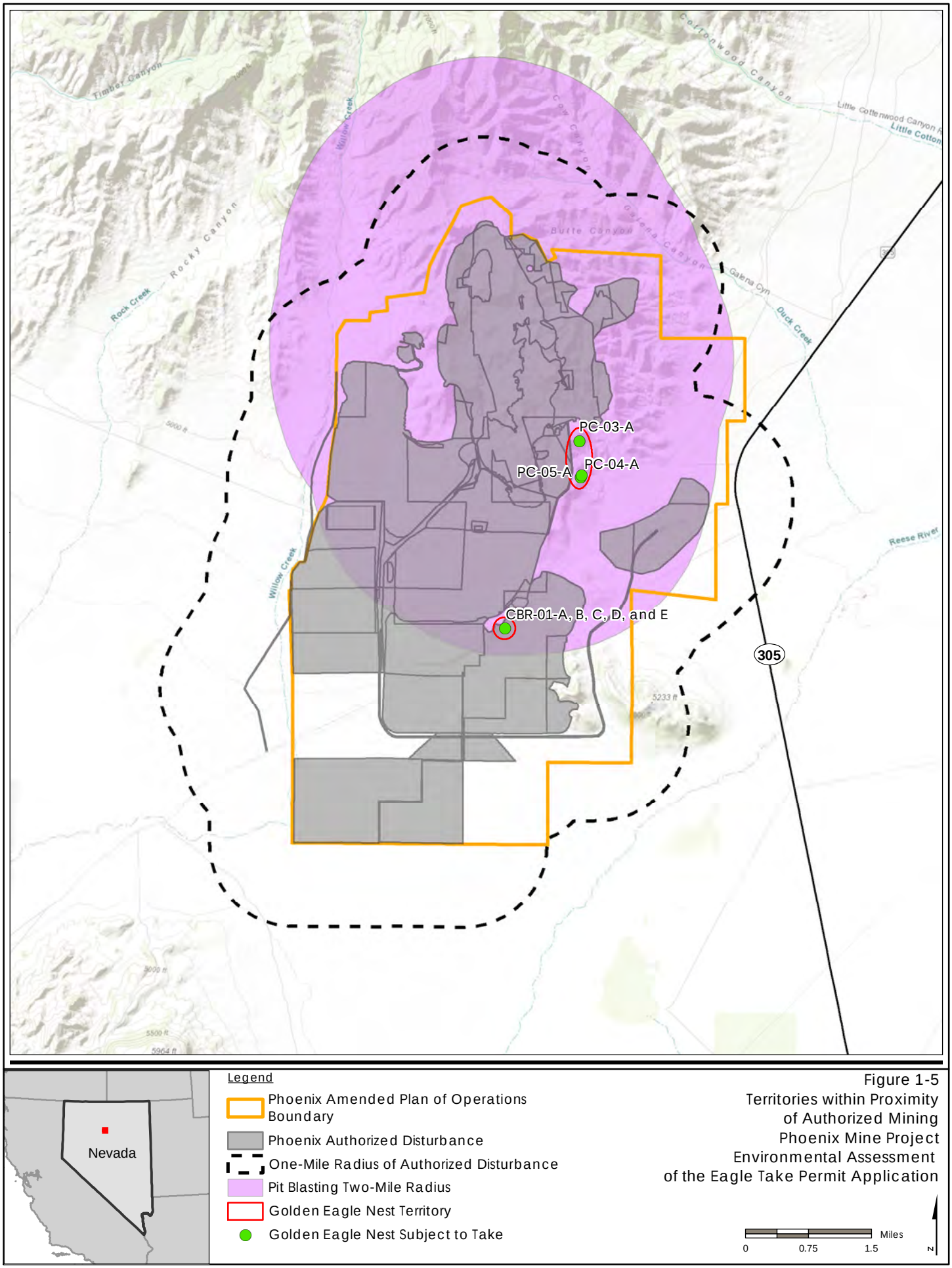


Figure 1-5
Territories within Proximity of Authorized Mining
Phoenix Mine Project
Environmental Assessment of the Eagle Take Permit Application

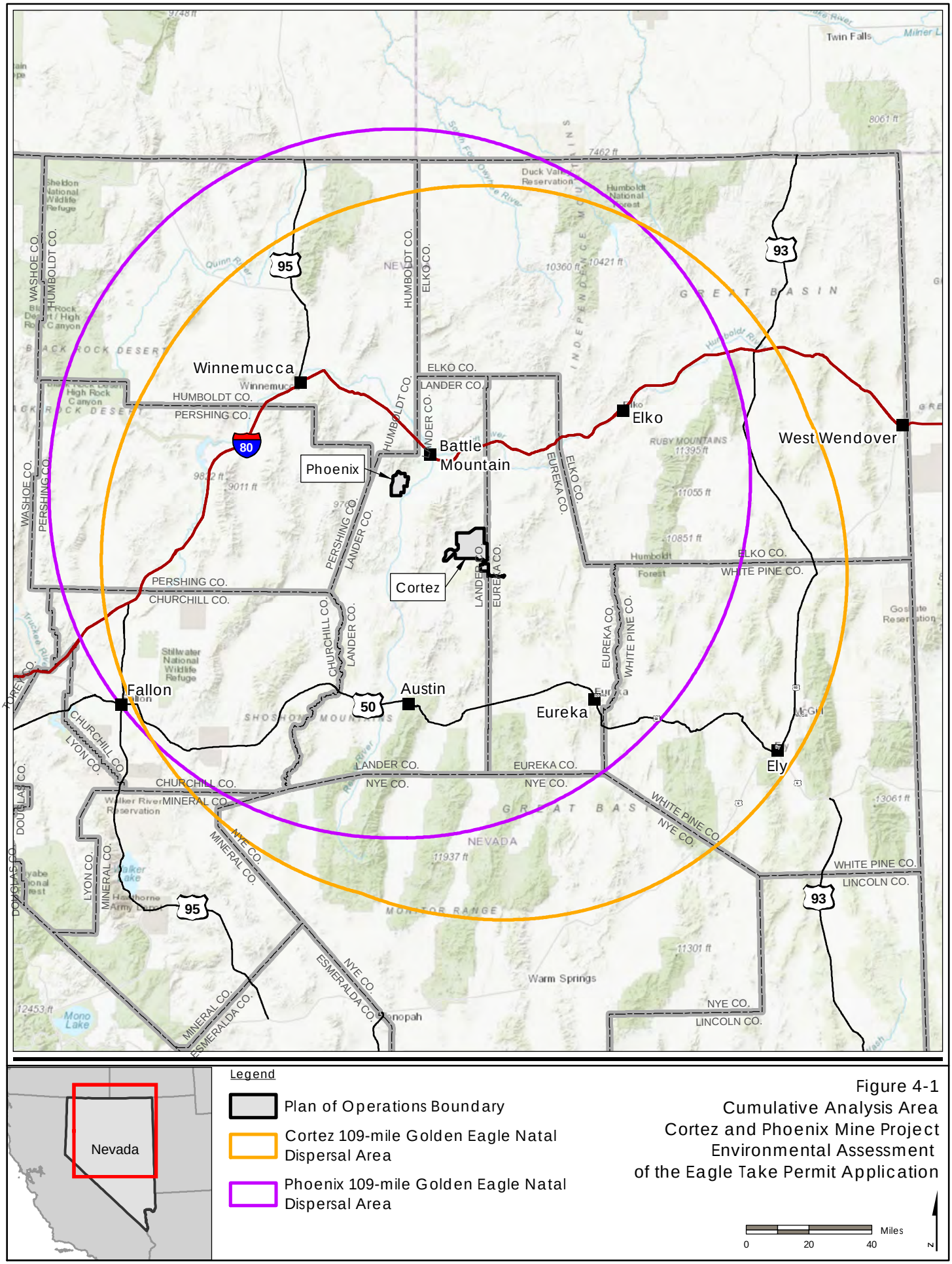


Figure 4-1
Cumulative Analysis Area
Cortez and Phoenix Mine Project
Environmental Assessment
of the Eagle Take Permit Application

APPENDIX A

Eagle Conservation Plan, Cortez Mine Project

EAGLE CONSERVATION PLAN
CORTEZ MINE PROJECT
LANDER AND EUREKA COUNTIES, NEVADA

Prepared for:

Nevada Gold Mines LLC
Cortez District
HC 66 Box 1250
Crescent Valley, Nevada 89821

December 2023

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ACRONYMS AND ABBREVIATIONS

BGEPA	Bald and Golden Eagle Protection Act of 1940, as amended
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
Cortez	Cortez Mine
ECP	Eagle Conservation Plan
EMU	Eagle Management Unit
HLF	Heap leach Facility
HLP	Heap Leach Pad
NDOW	Nevada Department of Wildlife
NGM	Nevada Gold Mines LLC
Plan	Plan of Operations
Project	Cortez Mine Project
REA	Resource Equivalency Analysis
RIB	Rapid Infiltration Basin
study area	Project Footprint and a Surrounding 10-mile Buffer Area
SWReGAP	Southwest Regional Gap Analysis Project
USFWS	United States Fish and Wildlife Service

1.0 PURPOSE OF THIS PLAN

The purpose of this Eagle Conservation Plan (ECP) is to support application(s) for a golden eagle (*Aquila chrysaetos*) nest take permit under the permit regulations of the Bald and Golden Eagle Protection Act (BGEPA) of 1940, as amended. Specifically, Nevada Gold Mines LLC (NGM) is requesting a take permit issued by the United States Fish and Wildlife Service (Service or USFWS) under 50 Code of Federal Regulations [CFR] § 22.26 for the incidental take of golden eagles from otherwise lawful activities associated with the Cortez Mine (Cortez) Project (Project). The Project is located in Lander and Eureka counties, Nevada (**Figure 1**). Cortez is a complex of mining areas approved by the Bureau of Land Management (BLM) Battle Mountain District Office in Lander County, Nevada.

The Bald and Golden Eagle Protection Act of 1940 (BGEPA), as amended, prohibits the "take" of bald and golden eagles. BGEPA defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb," and prohibits take of individuals and their parts, nests, or eggs. "Disturb" is further defined as "means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior". Permitting regulations (50 CFR Part 22) were issued in 2009 and revised in 2016. Known as the "Eagle Permitting Rule," these regulations allow the USFWS to administer a permit program allowing for the lawful take of eagles and nests.

Cortez has prepared this ECP to support a BGEPA eagle "take" permit application. This ECP provides the necessary support materials to accompany an eagle nest take permit application and demonstrates that the proposed take is compatible with the preservation of golden eagles and the issuance criteria in 50 CFR § 22.26. This ECP will accompany the eagle nest take permit application requesting approval for reoccurring disturbance to and loss of annual productivity from up to four golden eagle breeding pairs' territories for a 30-year period.

An application for a take permit under 50 CFR § 22.26 requires the information listed below. Also provided is a reference to where in this ECP that information is provided.

- Identification of the species proposed to be taken, the amount of take, and the type of take (e.g., disturb, incidental mortality, or injury) (see **Section 5**).
- The duration of the permit (see **Section 1**).
- A description of the Project activity as it relates to eagles, including:
    - A description of the activity (see **Sections 2** and **5**);
    - The dates the activity will start and is projected to end (see **Section 1**);
    - An explanation of why the take of eagles is necessary, including what interests will be protected by the Project or activity (see Sections 2, 5, and 8); and
    - The location of the activity, including maps, photographs, and geographic coordinates, as appropriate (see **Figures 1** through **15**).
- Information about eagle activity relevant to the Project activity, including:

    - A description of the type of eagle activity (e.g., nesting, roosting, important use area, etc.) (see Sections 3 and 4);
    - Location of the eagle activity, including geographic coordinates and, as appropriate, maps, digital photographs, and other information (see Sensitive Area Golden Eagle Information Report for Cortez Mine District [NGM 2021]);
    - History of the nest occupation, roost area, or important use area, if known (see Section 4 and Sensitive Golden Eagle Information Report for Cortez Mine District [NGM 2021]); and
    - If known, the specific distance and locations of nests and other eagle use areas from the Project footprint (see Section 4 and Sensitive Area Golden Eagle Information Report for Cortez Mine District [NGM 2021]).

- If take is in the form of disturbance, information about the following:
    - Whether the activity will be visible to eagles in the eagle use areas or whether are there visual buffers such as screening vegetation or topography that blocks the view (see **Figures 4 through 15**);
    - The extent of existing activities in the vicinity that are similar in nature, size, and use to the activity and the distance between those activities and the important eagle use areas (see Section 2 and **Figures 1** through **15**);

- A detailed description of all avoidance, minimization, mitigation, and monitoring measures incorporated into the planning for the activity will be implemented to reduce the likelihood for take of eagles (see Sections 6, 7, and 8).

- Project-specific monitoring and survey protocols, take probability models, and any other applicable data quality standards and all the data thereby obtained (see Section 8 and Sensitive Area Golden Eagle Information Report for Cortez Mine District [NGM 2021]).

2.0 INTRODUCTION AND BACKGROUND

Mining in the Cortez Mining District began with the discovery of silver ore in 1862. Underground silver mining was conducted in the area until the 1930s. Modern production of gold in the area started in the 1940s, and mining activities have continuously occurred in the area through the present time.

NGM's currently approved Plan of Operations (Plan) boundary is 62,372 acres, with disturbance approved to occur on up to 20,498 acres in Eureka and Lander counties (**Figure 1**). Approved and existing mining and processing facilities are located in four main areas known as the Cortez, Cortez Hills, Pipeline, and Gold Acres complexes (**Figure 2**). Collectively, these areas make up the Cortez Mine Project. The Cortez and Cortez Hills complexes are located on the western flank of Mount Tenabo in the Cortez Mountains on the southeast side of Crescent Valley, approximately seven miles southeast of the Pipeline Complex. The Gold Acres Complex is located directly west of the Pipeline Complex. Because mineral mining is dependent on the status of the economy, consumer demand, and commodity pricing, long-term planning for mines has a level of variability and uncertainty inherent in their operations. Currently, Cortez estimates that the Crossroads Pit (Pipeline Complex) will be completed in 2025, and mining of the Gold Acres Complex would start in about 2030.

NGM may conduct surface disturbance associated with the areas shown in gray on **Figure 2**. Blasting to break up rock for processing may occur in any of the authorized pit locations. These areas are also shown on **Figure 2**. A summary of authorized activities for each area is described below.

The Cortez Complex is approved for:

- Three open pits (Cortez, Ada 52, and F-Canyon);
- Two pit partial backfill areas (Cortez Pit and Ada 52 Pit);
- One pit backfill area (F-Canyon Pit);
- Three heap leach facilities (HLF) (closed);
- Four waste rock facilities (Cortez, Cortez East, Ada 52 Top, and F-Canyon);
- One tailings area composed of eight ponds (Ponds 1 through 4 and 6 [closed], Pond 5 [approved as a settling pond for the Cortez Hills underground operations], Pond 7 [open but not currently in use], and Pond 8 [approved but not constructed]);
- Ancillary facilities still in use, including administration buildings, truck shop, underground portals, and surface support facilities in the F-Canyon Pit for underground operations, power infrastructure, pumpback/remediation systems, range front declines, and an underground portal; and
- Cross-valley water pipelines to the Pipeline infiltration basins and process facilities.

The Cortez Hills Complex is approved for:

- One open pit (Cortez Hills with Pediment East and Pediment South extensions);
- One pit backfill area (Cortez Hills Pit);
- One HLF;

- Three waste rock facilities (Canyon, North, and South);
- A water treatment plant and associated facilities; and
- Ancillary and support areas.

The Pipeline Complex is approved for:

- One open pit complex (Pipeline Pit Complex, inclusive of the Pipeline, Crossroads, and GAP pits);
- Two waste rock facilities (GAP and Pipeline);
- Two pit backfill areas (Pipeline Pit and GAP Pit);
- Pipeline Mill for processing mill-grade oxide ore;
- Two HLF (Pipeline [Area 28] and Pipeline South Area [Area 30]);
- One tailings impoundment (Pipeline [Area 28]);
- Ancillary and support areas; and
- Dewatering facilities and infiltration basins.

The Gold Acres Complex is approved for:

- One open pit (Gold Acres) and three satellite pits (Alta, Bellwether, and Pasture);
- Three waste rock facilities (Gold Acres North, Gold Acres South, and Gold Acres East);
- HLF (closed);
- Buildings and ancillary support facilities (e.g., mine operations office, septic system, fuel skid, water pipeline, power infrastructure);
- Class III waivered landfill;
- 90-day temporary hazardous materials storage facility (oil, etc.);
- Hydrocarbon bio-remediation facilities;
- Blasting materials storage area; and
- Refractory ore stockpile and growth media stockpile.

Additional water management items not tied to a specific complex include:

- Rapid Infiltration Basins (RIBs) and associated infrastructure in Grass Valley, Pine Valley, and on private land outside of Cortez Operations Area in Crescent Valley.
- Construction of the Rocky Pass Reservoir and associated infrastructure, if needed, and realignment a segment of County Road 225 to provide public access around the reservoir.

A summary of avoidance and minimization measures in place at Cortez that relate to golden eagles are included in Section 6.0.

3.0 AREA HABITATS

The ECP Guidance Module 1–Land-based Wind Energy, Version 2 recommends that an analysis of potential impacts on nesting golden eagles include the Project footprint itself and a surrounding 10-mile buffer area (study area) (**Figure 1**).

3.1 FORAGING HABITAT

Vegetation communities in the study area have been mapped by the Southwest Regional Gap Analysis Project (SWReGAP) in land cover files for the study area (**Figure 3**) (USGS, 2011). The SWReGAP mapping shows 30 vegetation communities occurring within the study area. **Table 1** presents the total acres of the vegetation communities within the study area. Golden eagle prey species such as black-tailed jackrabbits, mountain cottontails, and larger diurnal rodents such as yellow-bellied marmots are commonly found in many of the vegetation communities present in the Project Area.

Table 1 SWReGAP Vegetation Communities within the Study Area

Vegetation Community	Acres	Percent
Agriculture	1,707	0.19
Barren Lands, Non-specific	3,044	0.33
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	1,576	0.17
Great Basin Pinyon-Juniper Woodland	67,302	7.38
Great Basin Semi-Desert Chaparral	103	0.01
Great Basin Xeric Mixed Sagebrush Shrubland	126,320	13.85
Inter-Mountain Basins Big Sagebrush Shrubland	357,017	39.16
Inter-Mountain Basins Big Sagebrush Steppe	4,345	0.48
Inter-Mountain Basins Cliff and Canyon	12,146	1.33
Inter-Mountain Basins Greasewood Flat	51,919	5.69
Inter-Mountain Basins Mixed Salt Desert Scrub	31,572	3.46
Inter-Mountain Basins Montane Sagebrush Steppe	119,628	13.12
Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland	1,581	0.17
Inter-Mountain Basins Playa	23,740	2.60
Inter-Mountain Basins Semi-Desert Grassland	23,306	2.56
Inter-Mountain Basins Semi-Desert Shrub Steppe	2,420	0.27
Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland	61	0.01
Inter-Mountain West Aspen-Mixed Conifer Forest and Woodland Complex	5	0.00
Invasive Annual and Biennial Forbland	19,917	2.18
Invasive Annual Grassland	42,737	4.69
Invasive Perennial Grassland	1,855	0.20
North American Arid West Emergent Marsh	13	0.00
Open Water	93	0.01
Recently Burned	12,985	1.42
Recently Mined or Quarried	6,117	0.67
Rocky Mountain Aspen Forest and Woodland	151	0.02

Vegetation Community	Acres	Percent
Rocky Mountain Dry Tundra	3	0.00
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	48	0.01
Rocky Mountain Subalpine Mesic Meadow	1	0.00
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	55	0.01
Total	**911,766**	**100.00**

Other habitat types that are believed to represent important golden eagle foraging habitats in the region include wetlands, natural water sources, and meadows. Wetlands and springs provide a reliable water source for eagle prey and, therefore, allow higher concentrations of eagle prey. There are multiple seeps, springs, stock troughs, and intermittent and ephemeral drainages throughout the study area. Meadow habitats, agricultural alfalfa pivots, and pastures in the study area support large populations of rodents and lagomorphs. These habitats occur at ranches in Crescent Valley and Rocky Pass. Golden eagles feed on carrion especially during winter and even when live prey is available; golden eagles have been known to consume fresh carrion during nesting season (Kochert and Steenhof, 2002).

3.2 NESTING HABITAT

Within the study area, various rock outcrops and mine highwalls were identified as areas with nesting golden eagles. In 2018, there were 28 in-use golden eagle nests within a one-mile radius of approved disturbance and a two-mile radius of approved pit blasting. In 2019, there were 17 in-use golden eagle nests documented in the study area, all of which were either on rock outcrops or highwalls. Within a one-mile radius of approved disturbance and a two-mile radius of approved pit blasting, there were 17 golden eagle nests in use in 2020, 13 in 2021, and seven in-use golden eagle nests observed in 2022. Cliff and rock outcrops exist in the Shoshone Mountains to the west, the Cortez Mountains to the east, and the Toiyabe Mountains to the south, and there are multiple open pits throughout the study area.

3.3 TOPOGRAPHIC FEATURES ATTRACTIVE TO EAGLES

Tops of slopes oriented perpendicular to prevailing winds or near ridge crests of cliff edges are features that are conducive to slope soaring and are attractive features for eagles. Saddles or low points on ridge lines or near riparian corridors may serve as flight paths. Nearby perch and roost sites may also attract eagles. As described above, the area surrounding the Project represents golden eagle potential foraging habitat, though the value of this habitat varies in quality. Cliffs and outcrops occur in the Shoshone Mountains to the west, the Cortez Mountains to the east, and the Toiyabe Mountains to the south. Mountainous areas that include ridgelines and slopes with a variety of aspects, such that winds from multiple directions would create deflection currents, are suitable for soaring. Habitats surrounding the Project include perch and roost sites, and the area is suitable golden eagle nesting and foraging habitat as described above.

4.0 TERRITORIES PROPOSED FOR TAKE

A major component of the risk assessment is to identify Project activities that could result in a take. Those territories proposed for take are those that have been identified within the Plan boundary and are in the USFWS's two-mile buffer of blasting activities and/or one-mile buffer for surface disturbance activities.

Within a one-mile radius of approved disturbance and a two-mile radius of approved pit blasting there are a total of 26 previously identified golden eagle nests. The 26 previously identified nests, which are located on natural and man-made features, are thought to represent all or part of 10 breeding territories. Three of these territories have one or more alternate nests outside of a one-mile radius of approved disturbance, and a two-mile radius of approved pit blasting, thus these three territories are not anticipated to be impacted. Two of the territories (one of which also has a nest outside of the one-mile radius of approved disturbance, and two-mile radius of approved pit blasting) are being requested for disturbance take as part of a separate permit application for the Goldrush Mine Project and thus are not proposed for take under this application. One territory consists of a single nest (MT-03) that was not located in 2019, 2020, 2021, or 2022, and no longer appears to be present, thus impacts to this territory are not anticipated. One territory (including nests HDC-01 and HDC-02), occurs within one mile of a RIB and associated infrastructure that experiences low-level light truck activity equivalent to recreational and ranching activities frequently experienced across Nevada. It also has an alternate nest (HDC-01) that is not within the line of site of any surface disturbance, thus impacts to this territory are not anticipated. A viewshed analysis has been conducted using Geographic Information System tools and is presented as **Figures 4** through **15** to illustrate the portions of anthropogenic activity that are within line-of-sight from the golden eagle nests proposed for take.

Accordingly, four territories at the Cortez Mine are considered vulnerable to disturbance take within the permit application. The 10 territories are illustrated in **Table 2** with bold font for territories and their associated nests that are subject to disturbance take.

The potential for disturbance take of up to four golden eagle territories is unavoidable due to the location of the ore bodies that occur adjacent to the nests, as well as the economic factors that contribute to the profitable extraction of the minerals contained therein. NGM is committed to coordinating unavoidable take with the USFWS and completing required mitigation with the goal of achieving a stable or increasing nesting population of golden eagles. Because NGM has applied for a take permit for the proposed take of these breeding territories, these impacts would be fully offset through mitigation, and surface and blasting activities would not be restricted in the one- and two-mile buffers.

Table 2 Nests Within One Mile of Disturbance or Two Miles of Pit Blasting

Territory Nests	Nest ID	Within One Mile of Approved Surface Disturbance	Within Two Miles of Pit Blasting	Included in Goldrush Take Permit Application	Territory with Nest(s) Outside of One-and Two-Mile Radii	Nest Distance Specifics
CC-01, CC-03, CC-04	**CC-01**	**Yes**	**No**	**No**	**No**	**Nests are within 0.9 mile of each other along the same range front. Closest nest is TR-11, 1.1 miles**
	CC-03	**Yes**	**Yes**			
	CC-04	**Yes**	**Yes**			

Territory Nests	Nest ID	Within One Mile of Approved Surface Disturbance	Within Two Miles of Pit Blasting	Included in Goldrush Take Permit Application	Territory with Nest(s) Outside of One-and Two-Mile Radii	Nest Distance Specifics
						southwest of CC-01.
CM-08, CM-10, CVC-02, CVC-06	CM-08	Yes	No	No	Yes–2 out of 4 nests (CM-10 and CVC-06)	Nests are within 1.3 miles of each other along a similar range front. Closest nest (CM-16) is 2.9 miles to the northeast of CM-10.
	CM-10	No	No			
	CVC-02	Yes	No			
	CVC-06	No	No			
CWC-03, CWC-04, CWC-05, CWC-06, CWC-08	CWC-03	No	No	No	Yes–4 out of 5 nests (CWC-03, CWC-04, CWC-05, CWC-06)	Nests are within 0.5 mile of each other in Cottonwood Canyon. Closest nest is LCC-01, 1.5 miles west of CWC-08.
	CWC-04	No	No			
	CWC-05	No	No			
	CWC-06	No	No			
	CWC-08	Yes	No			
GAP-01, GAP-02, GAP-05, GAP-06, GAP-07	**GAP-01**	**Yes**	**Yes**	**No**	**No**	**Nests GAP-01, GAP-03, and GAP-05 occur in the Gold Acres Pit. Nest GAP-06 occurs in the GAP Pit. Nests are within 1.3 miles of each other. Closest nest (GQM-01) is 4.3 miles northeast of GAP-02.**
	GAP-02	**Yes**	**Yes**			
	GAP-05	**Yes**	**Yes**			
	GAP-06	**Yes**	**Yes**			
	GAP-07	**Yes**	**Yes**			
HDC-01*, HDC-02	HDC-01*	Yes	No	No	No	Nests are within 0.29 mile of each other. Closest nest is LCC-01, 1.2 miles to the south of HDC-01.
	HDC-02	Yes	No			
MC-03, MC-04	**MC-03**	**No**	**Yes**	**No**	**No**	**Nests are within 0.7 mile of each other and occur in the same drainage. Closest nest MC-02 is 1.1 miles east of MC-03.**
	MC-04	**Yes**	**Yes**			
RP-01, RP-02	**RP-01**	**Yes**	**No**	**No**	**No**	**Nests are within 1.2 miles of each other. Closest nest is RM-12, 2.3 miles south of RP-01.**
	RP-02	**Yes**	**No**			
HC-08, MT-01	MT-01	No	Yes	Yes	Yes–1 out of 2 nests (HC-08)	Nests are within 1.2 miles of each other. Closest nest (WC-04) is 1.9 miles east of MT-01.
	HC-08	No	No			
MT-02	MT-02	Yes	Yes	Yes	No	No other nests occur in the same drainage. Closest nest (which is no longer present) was MT-03, 1.5 miles north.

Territory Nests	Nest ID	Within One Mile of Approved Surface Disturbance	Within Two Miles of Pit Blasting	Included in Goldrush Take Permit Application	Territory with Nest(s) Outside of One-and Two-Mile Radii	Nest Distance Specifics
MT-03**	MT-03**	Yes	Yes	No	No	No nest was found in 2019, 2020, and 2022.

Note: **bold fon**t and highlighted gray are subject to disturbance take.
*HDC-01 is approximately 100 feet within the one-mile buffer of the approved RIBs and not within line of sight; therefore, this territory has not been included as proposed for take.
**MT-03 was reported as a golden eagle nest in 2014 but has never been documented as in use by golden eagles. The nest area was in use by a different species (prairie falcon) in 2017 and presence of a nest could not be located in 2019, 2020 or 2022. As such, MT-03 has not been included as a territory proposed for take because it is no longer present.

CC-01, CC-03, CC-04–All three nests within this territory are within one mile of approved surface disturbance, and two of the three nests are within two miles of approved pit blasting.

CM-08, CM-10, CVC-02, CVC-06–Two nests (CM-08 and CVC-02) within this territory are within one mile of approved surface disturbance. Two out of the four nests (MM-10 and CVC-06) within this territory are outside of the one mile of approved surface disturbance. Because there are other golden eagle nests associated with this territory located outside of one mile of surface disturbance and two miles of pit blasting, disturbance take of golden eagles is not anticipated.

CWC-03, CWC-04, CWC-05, CWC-06, CWC-08–This territory consists of five nests, one nest, CWC-08, and is within one mile of approved surface disturbance. Because there are other golden eagle nests associated with this territory located outside of one mile of surface disturbance and two miles of pit blasting, disturbance take of golden eagles is not anticipated.

GAP-01, GAP-02, GAP-05, GAP-06, and GAP-07–All nests within this territory are within the disturbance footprint created by the mine, as well as within one mile of approved disturbance and two miles of approved pit blasting. All five of these nests are located on highwalls created as a result of mining. GAP-01, GAP-02, GAP-05 are within the Gold Acres Pit, and expansion and laybacks have been approved within this pit that would result in the direct removal of these nests. GAP-6 and GAP-07 are within the GAP Pit, which has been approved for complete backfill that would result in the direct removal of these nests. At this time, direct take of these nests is not anticipated, but disturbance take could occur.

HDC-01, HDC-02–This territory consists of two nests, and both are within one mile of approved disturbance. The surface disturbance located within one mile of these nests is associated with RIBs. RIBs are where dewatering water (water pumped to keep a mining area dry in order to work safely) is pumped to in order to infiltrate back into the ground. HDC-02 is approximately 100 feet within the one-mile buffer and in the foothills of the Cortez Mountains, out of line of sight of the RIBs; therefore, disturbance take of golden eagles is not anticipated.

MC-03, MC-04–Within this territory, the two nests are both within two miles of approved pit blasting, and one nest (MC-04) is within one mile of approved surface disturbance. Disturbance take is proposed for this territory.

RP-01, RP-02–This territory consists of two nests, both within one mile of approved surface disturbance. Disturbance take is proposed for this territory.

HC-08, MT-01–Within this territory, one of the two nests (MT-01) is within two miles of approved pit blasting. This territory is included in the Goldrush Take Permit application; therefore, it is not included in the take permit application for Cortez in order to prevent duplicate permitting actions.

MT-02–This territory is thought to contain one nest (MT-02) within both one mile of approved disturbance and two miles of approved pit blasting. This nest is included in the Goldrush Take Permit application; therefore, it is not included in the take permit application for Cortez in order to prevent duplicate permitting actions.

MT-03–This territory is thought to contain one nest (MT-03) within both one mile of approved disturbance and two miles of approved pit blasting. MT-03 was reported as a golden eagle nest in 2014 and has never been documented as in use by golden eagles. The nest area was in use by a different species (prairie falcon) in 2017 and presence of a nest could not be located in 2019, 2020, 2021, or 2022. As such, it is thought that the MT-03 territory is no longer present and disturbance take is not anticipated.

Additional information for the four territories included in the take permit application and subject to potential disturbance take are discussed below.

4.1 CC-01, CC-03, AND CC-04

Three nests, CC-01, CC-03, and CC-04, are located within Copper Canyon on rock outcroppings. Specific details about the nests are discussed below.

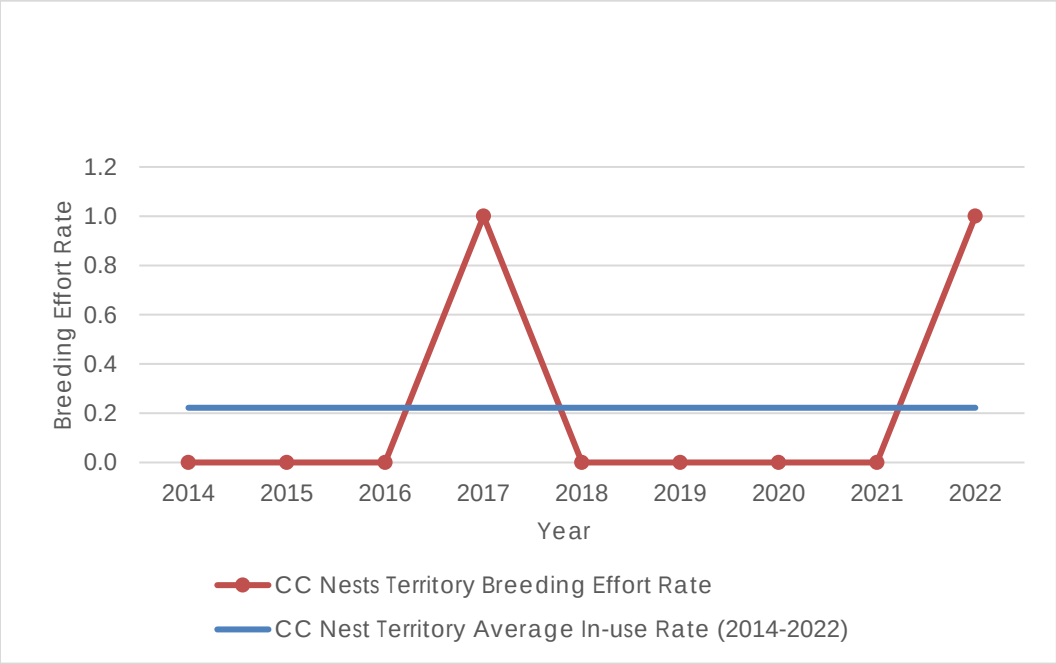
CC-01 was found in 2016 and was identified as a golden eagle nest in 2017. In 2017, it was in use. It was not observed to be in use in 2018, 2019, 2020, and 2021, but was observed to be in use by a golden eagle in 2022. The CC-01 nest has been surveyed six times since it was identified as a golden eagle nest (2017-2022), giving it a breeding effort rate of 0.33. In 2017, one nestling was observed in the nest. However, it is unknown if the nest produced eggs or young in 2022, since only an incubating adult was observed and no eggs or young were observed.

CC-03 was found in 2014 and was identified as a golden eagle nest in 2018. This nest has been surveyed five times since it was identified as a golden eagle nest. The CC-03 nest has not been in use over the five years it has been surveyed since being identified as a golden eagle nest (2018-2022), giving it a breeding effort rate of zero.

CC-04 was found in 2014 and was identified as a golden eagle nest in 2015. The nest was in use by another species in 2018, 2019, 2021, and 2022. The nest was not identified as being in use by any species in 2020. The CC-04 nest has not been in use by golden eagles over the eight years it has been surveyed since being identified as a golden eagle nest (2015-2022), giving it a breeding effort rate of zero.

Overall, breeding efforts occurred in the territory in 2017 and 2022, or two times over the last eight years. The seven-year average breeding effort rate is 0.25. **Graph 1** presents the CC nests territory breeding effort rate per year.

Graph 1 CC Nest Territory Breeding Effort



4.2 GAP-01, GAP-02, GAP-05, GAP-06, AND GAP-07

Five nest sites, GAP-01, GAP-02, GAP-05, GAP-06, and GAP-07 are thought to make up this breeding territory. Three nests (GAP-01, GAP-03, and GAP-05) are located within the Gold Acres Pit and two nests (GAP-06 and GAP-07) are located within the GAP Pit. All five nests are located on highwalls constructed from previous mining activities. Specific details about each nest are discussed below.

GAP-01 was found in 2013 and was identified as a golden eagle nest in 2014. It has never been observed as in use during the ten years it has been surveyed (2013-2022) resulting in a breeding effort rate of zero. In 2018 and 2019, the nest was covered in soil and sloughing off the highwall.

GAP-02 was found in 2013 and was identified as a golden eagle nest in 2014. In 2013, the nest was in use by an unknown species. In 2014, the nest was in use with an adult golden eagle sitting on the nest. In 2015, the nest was in use by common raven. From 2016 through 2020, the nest was not in use. The GAP-02 nest was in use by golden eagle in 2014 and has been surveyed ten times (2013-2022), giving it a breeding effort rate of 0.1. The number of eggs produced in 2014, and whether the nest produced young, is unknown since only an incubating adult was observed and no eggs or young were observed. The nest is located at the entrance of an adit exposed in the highwall, making it difficult to observe the nest during aerial and ground surveys.

GAP-05 was found in 2018 and was identified as a golden eagle nest. The nest was in use in 2018, 2019, and 2020. The nest has been surveyed five times (2018-2022) and has been in use three of the five years giving it breeding effort rate of 0.6. One egg was observed on the nest in 2018 that did not produce young or fledge, giving it a success rate of zero percent. No young are thought to have fledged from this nest in

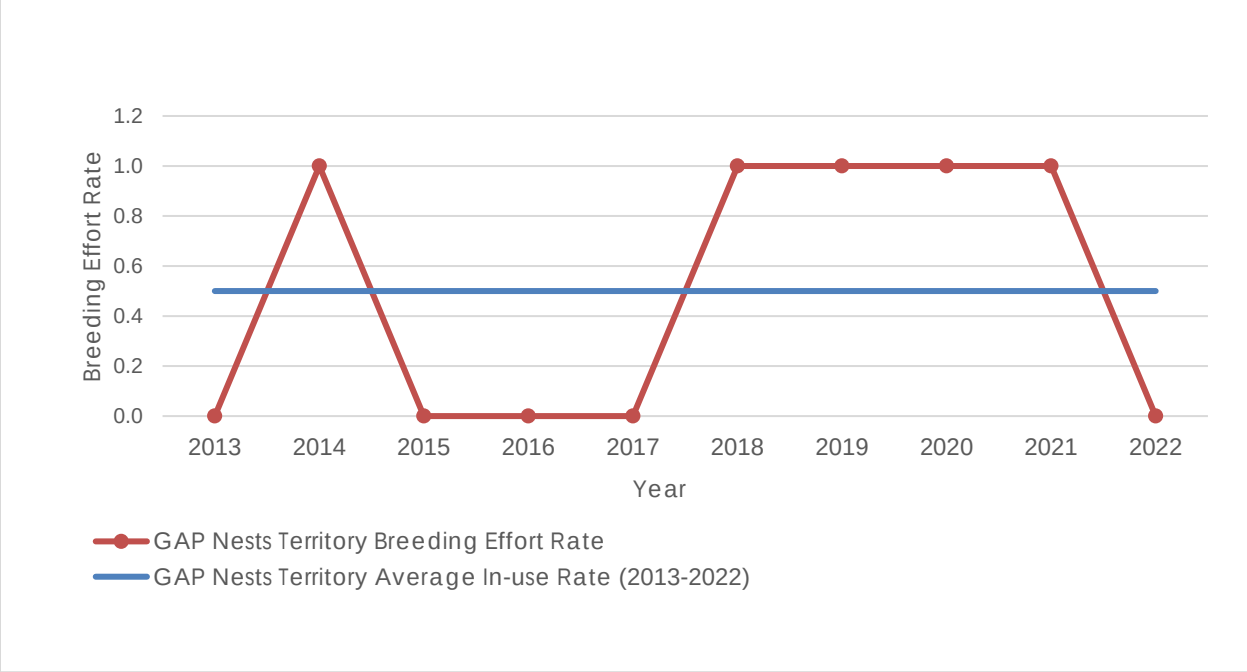
2019, specific nest data is unavailable for 2020, and in 2021 and 2022 was not in use by golden eagles. The nest is located at the base of a highwall lift, and vegetation is growing at the base of the nest.

GAP-06 was found in 2021 and was identified as an abandoned golden eagle nest. The nest is located 300 feet below the top edge of the pit. The GAP-06 nest was not in use in 2021 or 2022 giving it a breeding effort rate of zero.

GAP-07 was found in 2021 and was identified as a golden eagle nest. The nest was in use with an adult observed incubating on the nest. In May 2021, an adult golden eagle was observed with two chicks in the nest. In 2022, the nest was observed to not be in use. The nest is located in a rock outcropping on the west side of the authorized disturbance. The breeding effort rate of GAP-07 is 0.50.

Graph 2 presents the GAP nests breeding effort rate per year.

Graph 2 GAP Nest Territory Breeding Effort



4.3 MC-03 AND MC-04

Two nest sites, MC-03 and MC-04 are located within the Cortez Mountains on rock outcroppings. Specific details about the nests are discussed below.

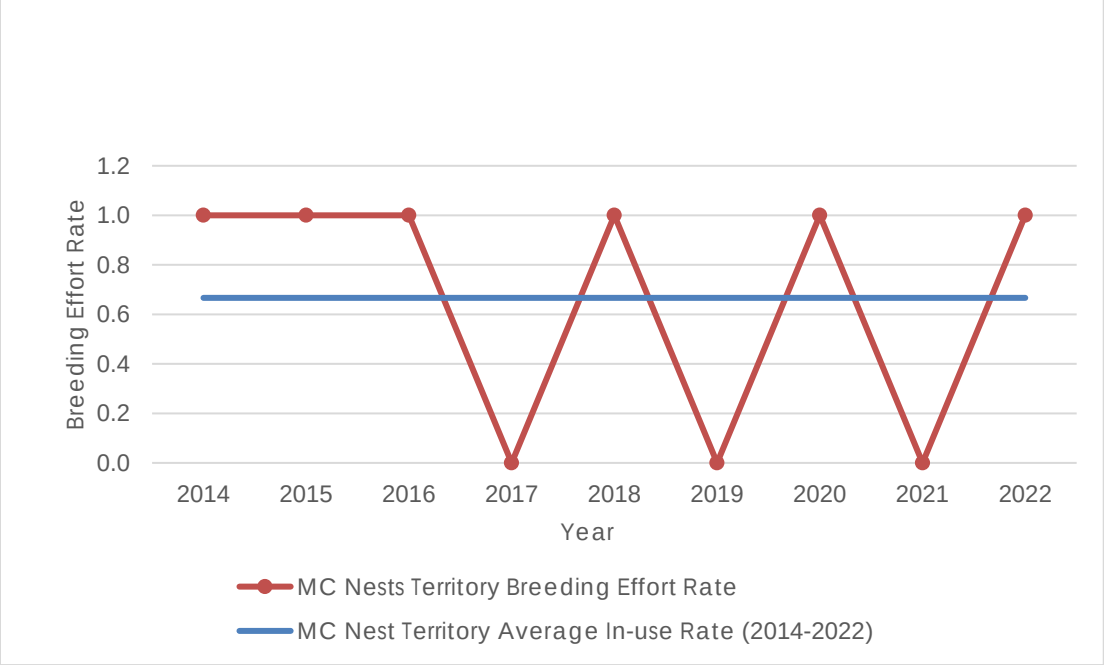
MC-03 was found in 2014 and was identified as a golden eagle nest in 2016. In 2016 it was in use. The nest has not been surveyed as in use since. The nest has been surveyed nine times (2014-2022) and in use once, giving it a breeding effort rate of 0.11.

MC-04 was found in 2014 and was in use by golden eagles. The nest was again in use in 2015, 2018, 2020 , and 2022. In 2018, one egg was observed in the nest. In 2020, a downy young was observed in the nest.

The nest has been surveyed nine times (2014-2022) and in use five times, giving it a breeding effort rate of 0.56.

Graph 3 presents the McClusky Creek nests breeding effort rate per year.

Graph 3 MC Nest Territory Breeding Effort



4.4 RP-01 AND RP-02

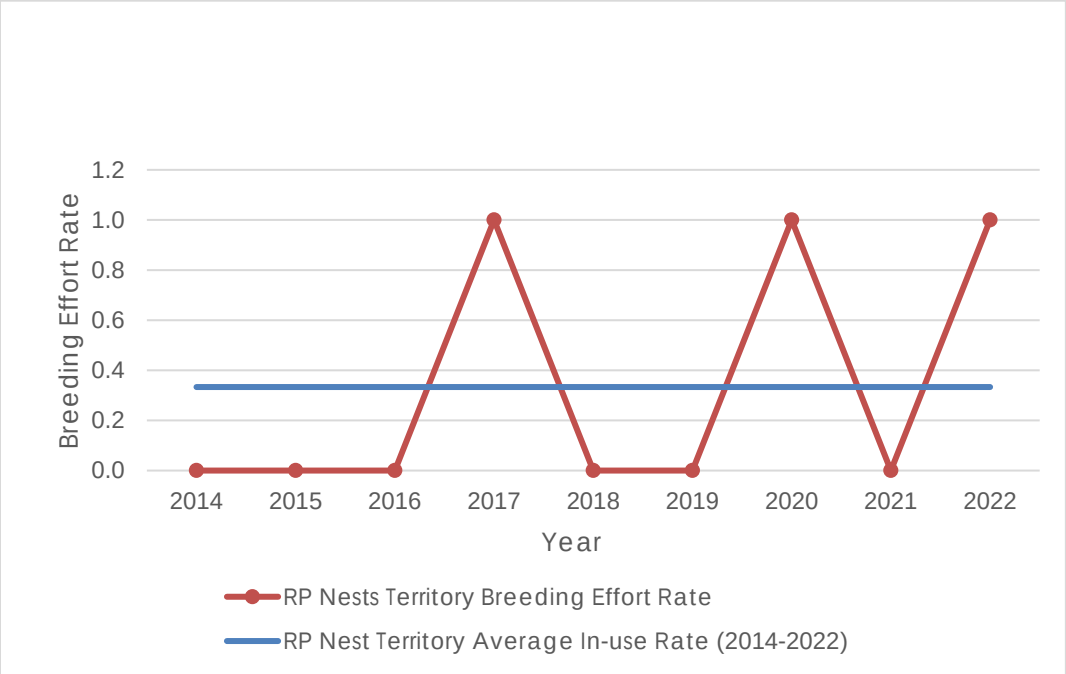
Two nest sites, RP-01 and RP-02 are located within Rocky Pass on rock outcroppings. Specific details about the nests are discussed below.

RP-01 was found in 2017 and was identified as a golden eagle nest in 2018. In 2018, it was in use and the nest contained two eggs and eventually one nestling. In 2020, the nest was in use and two nestlings were observed. The RP-01 nest was in use in 2018 and 2020 and has been surveyed six times (2017-2022), giving it a breeding effort rate of 33 percent. Of the two breeding attempts in 2018 and 2020, both years resulted in breeding successes, in which one nestling fledged in 2018 and two nestlings fledged in 2020, giving the nest a 100 percent success rate.

RP-02 was found in 2014. The nest was in use by other species in 2015 and 2017 through 2019. The RP- 02 nest has not been in use by golden eagles over the nine years it has been surveyed (2014-2022), giving it a breeding effort rate of zero.

Overall, the territory has been in use in 2018 and 2020, or twice over the last nine years (22 percent breeding effort rate). **Graph 4** presents the Rocky Pass nests breeding effort rate per year.

Graph 4 RP Nest Territory Breeding Effort



5.0 RISK ASSESSMENT

This section presents a discussion of the assessment of the level of risk from the Project to the golden eagle breeding population in the vicinity. Potential disturbance-creating activities at Cortez include mining, processing, exploration, administrative, and support processes; authorized mining activities are listed in **Section 2.0**. The greatest risk-factor to golden eagles associated with an active mining operation will likely occur during the breeding season, including the courtship, incubation, nestling, fledging, and post-fledgling stages. This is especially true when golden eagle breeding territories are located within the Plan boundary or nearby, as is the case for the territories proposed for take which are described in **Section 4.0**.

A summary of proposed take to golden eagles anticipated from activities associated with Cortez is provided in **Table 3**. Discussion of the risk that could be posed by the mine to golden eagles is described below.

Table 3 Summary of Impacts to Eagles

Eagle Impact	Cortez Impacts
Direct take (morality)	None anticipated, low risk: Section 5.2, 5.3, and 5.4
Indirect take (loss of productivity from disturbance)	Section 4.0: Four golden eagle breeding pairs' territories; take permit submitted to USFWS.
Habitat loss	Section 5.1
Territory loss (number of territories)	Section 4.0: Four golden eagle breeding pairs' territories; take permit submitted to USFWS.
Nest removal (number of nests for each territory involved)	None.

5.1 HABITAT-RELATED RISKS

Cortez is approved for surface disturbance of up to 20,498 acres. Reduction of habitat as a result of direct mining disturbance has the potential to impact golden eagles. Specifically, impacts to functional shrublands that support jackrabbit populations could influence prey availability to golden eagles, especially during the breeding season when adults are foraging routinely to provide adequate food for their young. Loss of suitable habitat within golden eagle home ranges may result in reduced prey base and foraging opportunities such that territory persistence and reproductive output may be negatively impacted.

5.2 UTILITIES-RELATED RISKS

Utility structures pose a risk to perching birds, including raptors such as golden eagles, and may cause mortality through accidental collisions and electrocutions. Larger birds that inhabit open habitat appear to be at greater risk for electrocution due to the lack of natural perches and nesting sites (APLIC & USFWS, 2005). Electrocution occurs when a bird completes an electric circuit by simultaneously touching two energized parts, or an energized part and a grounded part, of the electrical structure. Inadequate conductor and/or phase spacing may allow birds to bridge electrical parts, which results in electrocution. Birds of all sizes are at-risk, especially on utility hardware such as transformers, which have many energized parts in close proximity to one another (APLIC & USFWS, 2005). Risk for avian electrocution on distribution lines increases when the distance between conductors is less than the wingspan or height of a landing or

perching bird, or hardware or equipment cases are grounded and in close proximity to energized conductors, parts or jumper wires (APLIC & USFWS, 2005).

In the 2008 Environmental Impact Statement for the Cortez Hills Expansion Project, Cortez committed to constructing any new transmission lines in accordance with applicable regulations to minimize raptor electrocution and collision potential. To minimize the collision potential for foraging raptors and other birds, standard safe designs as outlined in Reducing Avian Collisions with Power Lines (APLIC, 2012) are incorporated, as applicable. To minimize the potential for electrocution of raptor species attempting to perch on the lines in areas of identified avian concern, standard safe designs as outlined in Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC, 2006) and Avian Protection Plan Guidelines (APLIC and USFWS, 2005) are also incorporated, as applicable. Because all transmission lines installed since 2008 have been constructed per APLIC guidelines, potential risk to golden eagles from electrocution at the mine is low.

5.3 PROCESS-RELATED RISKS

Mining processes and facilities that use cyanide and other chemicals pose a risk to wildlife species, including golden eagles. In conjunction with Nevada Department of Wildlife's (NDOW's) Industrial Artificial Pond Permit and International Cyanide Management Code requirements, all areas that contain cyanide must be controlled to reduce or eliminate the potential for wildlife mortality and meet stringent human health and safety standards. At varying concentrations, cyanide can poison wildlife through accidental ingestion of water sources containing cyanide (i.e., process ponds) and may cause mortality. Cortez uses cyanide in material processing, on head leach pads, and at tailings storage facilities.

In heap leach operations, sodium cyanide solution is pumped onto lined heap leach pads (HLP) and dispersed through drip irrigation or water sprays. The solution migrates through the HLP, where cyanide extracts gold from the ore. The pregnant solution (gold-bearing) is collected in lined trenches and collection pipes and flows into a tank or pregnant pond. Once gold is removed from the pregnant solution, the cyanide solution is pumped into the intermediate pond, cyanide concentrations are increased, and the cyanide solution is pumped back to the HLP to repeat the cycle. On occasion, solution application results in ponding on the top or sides of HLPs and presents an opportunity for wildlife to encounter cyanide solution. NGM operators are cognizant of the risk this situation presents and solution application is managed to minimize and eliminate ponding. Wildlife may also encounter cyanide in the collection and distribution ponds. Cyanide concentrations are usually lowest in the pregnant pond and highest in the barren or intermediate ponds. In some cases, the cyanide is injected directly into the feed pipes and cyanide concentrations are low in all the ponds. Wildlife exclusion measures such as bird balls, netting, and fencing are used in conjunction with heap leach ponds to prevent wildlife from accessing ponds that contain cyanide solution.

To reduce risk of wildlife exposure to chemicals, including cyanide, Cortez currently has three conservation measures in place. Note that these measures are required to be implemented per Project approvals by the BLM.

- Netting, pond covers, or floating "bird balls," as appropriate, will be installed over ditches and ponds that contain leach solutions, to minimize potential impacts to avian and terrestrial wildlife species.
- In addition, the heaps will be scarified to minimize ponding and pooling of process solutions. To minimize potential impacts to wildlife species, the top of leach pads will be monitored daily for any

substantial pooling of cyanide solutions, and wildlife mortalities will be reported in accordance with the NDOW Industrial Artificial Pond Permit.

- WAD cyanide concentrations in the tailings impoundments will be maintained at non-lethal levels. As added protection, the existing cyanide detoxification system (which uses in-line addition of ferrous sulfate to the tailings solution) will be used if it should become necessary to lower the cyanide levels in the tailings discharge to the tailings facility.

Because of the conservation measures in place, the potential risk to golden eagle from process-related risks is low.

5.4 VEHICLE COLLISION-RELATED RISKS

Mobile equipment (i.e., vehicles) used in operations at the mine or traveling to or from the mine could strike and injure or kill wildlife. Road-killed wildlife may attract scavenging eagles, which in turn could be injured or killed by vehicle collision. Due to the speed limits placed on equipment operating at the mine, the potential for eagle mortality due to vehicle collision at Cortez is low. Additional traffic controls can be implemented by NGM as necessary through direct communication regarding road hazards. Additionally, no eagle mortalities due to vehicle collision have been reported at Cortez.

6.0 AVOIDANCE AND MINIMIZATION MEASURES

Cortez currently employs conservation measures associated with the approved Plan. Conservation measures that may also benefit golden eagles that are implemented at Cortez are listed below in **Table 4**.

Table 4 Authorized Avoidance and Minimization Measures

Number	Conservation Measure	Source(s)
CM-1	Netting, pond covers, or floating "bird balls," as appropriate, will be installed over ditches and ponds that contain leach solutions, to minimize potential impacts to avian and terrestrial wildlife species. In addition, the heaps will be scarified to minimize ponding and pooling of process solutions.	BLM, 2008a; BLM, 2015; BLM, 2019
CM-2	WAD (weak acid dissociable) cyanide concentrations in the tailings impoundments will be maintained at non-lethal levels. As added protection, the existing cyanide detoxification system (which uses in-line addition of ferrous sulfate to the tailings solution) will be used if it should become necessary to lower the cyanide levels in the tailings discharge to the tailings facility.	BLM, 2008a; BLM, 2015; BLM 2019
CM-3	To minimize potential impacts to wildlife species, the top of leach pads will be monitored daily for any substantial pooling of cyanide solutions, and wildlife mortalities will be reported in accordance with the NDOW Industrial Artificial Pond Permit.	BLM, 2015; BLM, 2019
CM-4	In the event that initiation of the Project should occur during the raptor nesting season (March 1 through July 31 and April 1 through July 31 for the burrowing owl), a raptor survey will be conducted. Project-related disturbance for a specific location will be conducted within 14 days of the survey, or another survey will be conducted. If active nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species and location of the nest) will be established around the nests following consultation with the BLM resource specialist. No construction will occur within the avoidance buffer until the birds are no longer actively breeding or rearing young, or until the young have fledged.	BLM, 2008a; updated in BLM, 2015; BLM, 2019
CM-5	To protect nesting birds, removal of migratory bird habitat on currently undisturbed lands in the Cortez Operations Area will be avoided to the extent possible between March 1 and July 31. Should removal of habitat be required during this period, NGM will coordinate with the BLM and NDOW to conduct migratory bird nesting surveys and implement appropriate mitigation, such as buffer zones around occupied nests, as needed. Project-related disturbance for a specific location will be conducted within 14 days of the survey, or another survey will be conducted.	BLM, 2008a; updated in BLM, 2015; BLM, 2019
CM-6	Raptor surveys will be conducted annually during the raptor breeding season (March 1 through July 31) utilizing the methods outlined in Pagel et al. (2010). The survey area will include the Cortez Operations Area plus a 10-mile buffer. Two rotor wing (helicopter) aerial surveys and subsequent ground surveys of occupied nests will be conducted. The annual survey report will be provided to the BLM.	BLM, 2015; BLM, 2019
CM-7	Transmission lines will be designed and constructed in accordance with applicable regulations to minimize raptor electrocution and collision potential. To minimize the collision potential for foraging raptors and other birds, standard safe designs as outlined in Reducing Avian Collisions with Power Lines (APLIC, 2012) will be incorporated, as applicable. To minimize the potential for electrocution of raptor species attempting to perch on the lines in areas of identified avian concern, standard safe designs as outlined in Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC, 2006) and Avian Protection Plan Guidelines (APLIC and USFWS, 2005) will be incorporated, as applicable.	BLM, 2008a; Updated in BLM, 2015; BLM, 2019

Number	Conservation Measure	Source(s)
CM-8	To minimize potential mine-related effects to perennial surface waters, the site-specific contingency mitigation measures developed for identified perennial waters within the currently approved operations' modeled groundwater drawdown area will be implemented if monitoring data indicate that an observed reduction in flow is attributable to mine-induced groundwater drawdown. If needed, one or more of the identified mitigation methods will be implemented per the site-specific mitigation plans presented in Table 3.2-1 of the Cortez Hills Expansion Project Final Supplemental Environmental Impact Statement (BLM, 2011a). Site-specific contingency mitigation measures identified in NGM's proposed Contingency Mitigation Plans for Surface Waters (BCI and Stantec, 2018) will be implemented to minimize potential mine-related effects to perennial waters within, and within one mile of, the modeled maximum extent of the Proposed Action groundwater drawdown area not covered by the 2011 mitigation plan.	BLM 2011; BLM 2011a; Updated in BLM, 2019
CM-9	NGM will voluntarily coordinate with the BLM to develop new wetland/riparian areas and/or enhance existing wetland/riparian areas at off-site locations to address the direct loss of wetland/riparian vegetation. The loss of wetland/riparian vegetation will be replaced at a 2:1 ratio (i.e., for every acre of wetland/riparian vegetation removed or disturbed by mine development or groundwater drawdown, two acres of wetland/riparian vegetation will be created and/or enhanced). Where appropriate, replacement of wetland/riparian vegetation will be developed in conjunction with the mitigation measures for potentially affected perennial waters. NGM in coordination with a BLM botanist will identify appropriate wetland/riparian species to be seeded or transplanted in these locations. Alternately, local existing areas of wetland/riparian vegetation unaffected by mine-related groundwater drawdown will be identified in coordination with the BLM for enhancement. Enhancement methods could include, but will not be limited to, the use of BLM-approved fencing to minimize livestock impacts, implementation of weed controls, and/or supplemental planting or seeding, as appropriate.	BLM, 2008b; Updated in BLM, 2019
CM-10	NGM will continue its mandatory employee education program for all personnel to minimize wildlife/vehicle-related impacts during operation.	BLM, 2008b

7.0 MONITORING AND ADAPTIVE MANAGEMENT

Golden eagle surveys have been conducted in the vicinity of the Plan boundary since 2013. Recent inventory and monitoring efforts follow Pagel et al. (2010), which is the standard golden eagle survey protocol accepted by the USFWS. Surveys focus on completing a thorough inventory of nests within a recommended 10-mile radius surrounding the Project Area and capturing information regarding nest occupancy, productivity, and success. At least two aerial surveys have been conducted annually during the golden eagle breeding season, with the surveys conducted at least one month apart.

In addition, Cortez will implement the below Environmental Protection Measures:

> **EPM-1**–Territory occupancy ground surveys will be conducted within the four golden eagle territories in the Cortez Mine that are part of the disturbance take permit in January to mid-March (i.e., the preferred survey window) to assess golden eagle territory occupancy and document in use nests as appropriate. Every attempt will be made to conduct the ground surveys mid-to-late February. NGM will coordinate with the USFWS prior to the ground surveys occurring to communicate existing conditions on the ground that may prohibit ground surveys to some nest sites (e.g., heavy snow, access concerns, golden eagle disturbance, etc.). This communication prior to ground surveys being conducted will allow for flexibility in the monitoring requirements based on conditions at the site during the preferred survey window. NGM would coordinate with the USFWS and the BLM to discuss monitoring as the season progresses and assess if monitoring requirements need to be modified based on site conditions, access concerns, or potential disturbance to nesting golden eagles.
>
> Nests MC-03 and MC-04 are not accessible for early season ground surveys based on road conditions and limited observation options, without resulting in additional ground disturbance. Early season ground surveys will not be conducted for the territory with nests MC-03 and MC-04. These nests will be monitored via an early season (January to mid-March) aerial survey following Pagel et al. (2010) protocol. High resolution photographs from the early season aerial flight will be used to assess evidence of early season occupancy at nests (e.g., new nest material, reformed/developed nest bowl, etc.). Aerial surveys later in the breeding season will clarify occupancy and breeding status (see Cortez Mine Conservation Measure 6 (CM-6)) and complying with Pagel et al. (2010) protocol. Every attempt will be made to conduct the first aerial survey by mid-March and the follow up aerial survey in mid-April.
>
> An early season (January to mid-March) ground survey will be conducted for nests GAP-01, GAP- 02, and GAP-05, if onsite conditions and access are conducive to ground monitoring. NGM will coordinate with the USFWS and the BLM regarding the site conditions prior to conducting the ground surveys to determine if ground monitoring is feasible in the January to mid-March preferred survey window months. If a ground survey is not possible during January or February due to site conditions, access concerns, or potential disturbance to golden eagles, video monitoring may be used in lieu of the ground survey, in coordination with the BLM and the USFWS. Aerial surveys later in the breeding season will be conducted following Cortez Mine Conservation Measure 6 (CM- 6) and complying with Pagel et al. (2010) protocol. Every attempt will be made to conduct the first survey by mid-March and the follow up aerial survey in mid-April.

An early season (January to mid-March) ground survey will be conducted for nests GAP-06 and GAP-07 using similar observation points as previous years. NGM will coordinate with the USFWS and the BLM regarding site conditions and access to these observation points prior to the ground survey occurring. If onsite conditions make a ground survey not feasible during the preferred survey window, NGM will coordinate with the USFWS and the BLM to modify monitoring requirements based on site conditions, access concerns, or potential disturbance to nesting golden eagles. Aerial surveys later in the breeding season will be conducted following Cortez Mine Conservation Measure 6 (CM-6) and complying with Pagel et al (2010) protocol. Every attempt will be made to conduct the first survey by mid-March and the follow up aerial survey in mid-April.

An early season (January to mid-March) ground survey will be conducted for nests RP-01 and RP- 02. If onsite conditions make a ground survey not feasible during the ideal survey window, NGM will coordinate with the USFWS and the BLM to modify monitoring requirements based on site conditions, access concerns, or potential disturbance to nesting golden eagles. Aerial surveys later in the breeding season will be conducted following Cortez Mine Conservation Measure 6 (CM-6) and complying with Pagel et al. (2010) protocol. Every attempt will be made to conduct the first survey by mid-March and the follow up aerial survey in mid-April.

An early season (January to mid-March) ground survey will be conducted for nests CC-01, CC-03, and CC-04. If onsite conditions make a ground survey not feasible during the ideal survey window, NGM will coordinate with the USFWS and the BLM to modify monitoring requirements based on site conditions, access concerns, or potential disturbance to nesting golden eagles. Aerial surveys later in the breeding season will be conducted following Cortez Mine Conservation Measure 6 (CM- 6) and complying with Pagel et al. (2010) protocol. Every attempt will be made to conduct the first survey by mid-March and the follow up aerial survey in mid-April.

Ground survey observations will focus in the areas around nests, nest cliffs, and other suitable nesting habitat. Specific observation criteria used for the ground survey for establishing golden eagle territory occupancy include:

- An adult eagle within 500 meters of a nest within the territory, when the bird is clearly in view of the nest, and when the eagle's presence is clearly not a rapid pass-over of the nest.
- Two adults, or an adult and a sub-adult bird paired within the territory.
- Reproductive or territorial behavior within the territory:
    - Courtship behavior, undulating flight, copulation
    - Territorial defense
    - Nest building behaviors (stick carrying, nest maintenance).

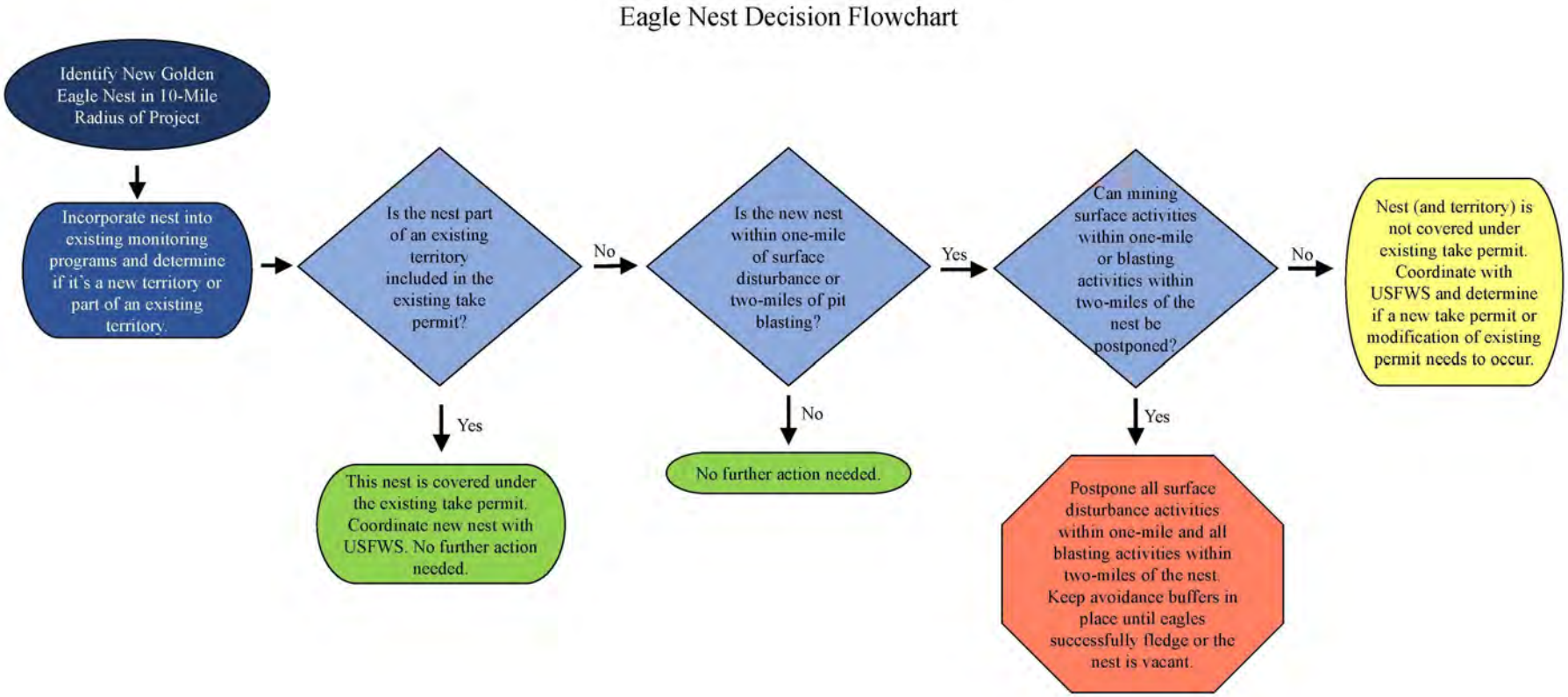
A follow up aerial or ground survey will be conducted for those nests that were determined to contain breeding attempts during the above discussed surveys. Success at golden eagle nests is determined by nestlings greater than 51 days old, which is primarily late-May and peaking mid-June.

EPM-2 - If new nests are identified within the territories that are part of the disturbance take permit during the 30-year term of the take permit, NGM will coordinate with the USFWS regarding the new

nests, and these new nests will be monitored as discussed above, concurrently with the other nests within the territories that are part of the disturbance take permit. After ground surveys are completed, Cortez Mine Conservation Measure 6 (CM-6) would apply to nests within a territory that have a disturbance take permit, and in compliance with Pagel et al. (2010) protocol. If new nests are identified within one mile of disturbance, or two miles of blasting, that are outside of a territory with a disturbance take permit, NGM will inform and coordinate with the USFWS and the BLM regarding the new nest sites that are outside the territories with a disturbance take permit. Cortez Mine Conservation Measure 4 (CM-4) and Cortez Mine Conservation Measure 6 (CM-6) would apply for new nests identified outside of a territory with a disturbance take permit, in coordination with USFWS and the BLM.

Unless a disturbance take permit is in place, golden eagle nests with concern for potential disturbance should be considered not in use for a given breeding season if they are confirmed not in use on April 15 or later. Prior to April 15 they are considered potentially in use unless an alternate nest within the same territory is already confirmed in use, and spatial disturbance buffers (one mile for surface disturbance or two-mile for blasting) would be adhered to until nests are confirmed not in use, after July 31 if nests are in use, or four weeks after nestlings fledge if monitoring confirms approximate fledging date. For adaptive management purposes, verification of implemented avoidance and minimization measures as provided in Section 6.0 is necessary. Cortez currently has a monitoring and reporting system for incidents related to wildlife fatality as part of the wildlife management plan and Industrial Artificial Pond Permits, as required by NDOW. Any incident that results in wildlife fatality or death, including golden eagles, must be reported.

Monitoring the Project Area golden eagle population for additional golden eagle nests will occur concurrently with existing and future required survey efforts as part of potential authorized construction or disturbance actions. During the life of mine, Cortez recognizes the possibility for new construction of golden eagle nests within the Plan boundary. If a previously undocumented nest is identified, Cortez will implement the decision tree as shown below to determine how to proceed. This decision tree is applicable to scenarios where a new nest is encountered and has been created to guide Cortez on how to appropriately deal with these new nests and to be transparent in the decision-making process. The decision tree shows the process for monitoring, avoiding, and coordinating activities in proximity to any new golden eagle nest. Cortez would not take a golden eagle nest, either by physically removing a nest or indirectly, without legally obtaining golden eagle take permit from the USFWS.


Eagle Nest Decision Flowchart
Identify New Golden Eagle Nest in 10-Mile Radius of Project
Incorporate nest into existing monitoring programs and determine if it's a new territory or part of an existing territory.
Is the nest part of an existing territory included in the existing take permit?
Yes
This nest is covered under the existing take permit. Coordinate new nest with USFWS. No further action needed.
No
Is the new nest within one-mile of surface disturbance or two-miles of pit blasting?
No
No further action needed.
Yes
Can mining surface activities within one-mile or blasting activities within two-miles of the nest be postponed?
Yes
Postpone all surface disturbance activities within one-mile and all blasting activities within two-miles of the nest. Keep avoidance buffers in place until eagles successfully fledge or the nest is vacant.
No
Nest (and territory) is not covered under existing take permit. Coordinate with USFWS and determine if a new take permit or modification of existing permit needs to occur.

8.0 COMPENSATORY MITIGATION

Compensatory mitigation to fully offset authorized take would be conducted within the Pacific Flyway Eagle Management Unit (EMU). The Applicant would provide the compensatory mitigation at the required 1.2 to 1 ratio by retrofitting electric utility poles, as discussed in the 2016 USFWS Programmatic Environmental Impact Statement (USFWS 2016). The intent would be to minimize the potential for eagle electrocutions and ensure that the effects of eagle incidental take are offset at the population level. NGM will utilize a USFWS-approved mitigation program, such as, but not limited to, the Bald Eagle and Golden Eagle Electrocution Prevention In-Lieu Fee Program (In-Lieu Fee Program), for electric pole retrofits to offset the potential loss of productivity in four golden eagle territories resulting from approved Project activities.

Potential disturbance from authorized activities within proximity to the four golden eagle territories is unavoidable due to the location of the ore bodies that occur within proximity to nests within each territory, and the economic factors that contribute to the profitable extraction of the minerals contained therein. Mitigation will not be required for nesting seasons in which there is no blasting within two miles or mining-related activities within one mile of the nests in the territories covered by a take permit; or if monitoring shows there was a successful nesting attempt (i.e., fledged one or more young) in the territories covered by the permit. Priority will be requested for retrofitting opportunities within Nevada and/or the Great Basin. However, if opportunities are not available in these areas, mitigation credits will be used to retrofit poles anywhere within the EMU, at the discretion of the In-Lieu Fee Program entity administering the mitigation. Once NGM has purchased the credits, the In-Lieu Fee Program entity administering the mitigation will be responsible for coordinating and implementing the retrofits; however, NGM will be responsible for purchasing additional credits if there are discrepancies between the initial purchased amount and actual costs incurred for the retrofits.

Long-term eagle incidental disturbance take permits require the Service to conduct five-year reviews. Based on the results of monitoring described in **Section 2.3.1** for the Projects, during the five-year review process, the Service would evaluate how much take may have occurred for each known breeding territory described in **Tables 1-1** and **1-2,** or in previously unconsidered territories within the appropriate disturbance buffers dependent on future monitoring results. For example, should nest disturbance occur within one mile of a golden eagle nest or two miles of blasting during the courtship phase, or egg-laying period of the breeding season (December 15–April 15), the Service would assume NGM's activities prevented eagles from breeding and a take incident occurred. If NGM's data validate no disturbance occurred within one or two miles of a breeding pair's nest site until after April 15 in a given year, and monitoring confirms nests are not in use, NGM could proceed with its activities and the Service would determine no take occurred. The Service would consider use of alternate nests within a given territory when evaluating whether take occurred as a result of NGM's mine-related activities. After assessing how many take incidents occurred during the first five years, the Service would then evaluate how much compensatory mitigation might be either credited or owed for each successive five-year period remaining within the permit duration for each Project.

The permit for the Cortez Mine would require mitigation for the annual disturbance take of four breeding territories for up to 30 years at the Cortez Mine. The amount of compensatory mitigation required for the lost productivity has been determined through the Service's Golden Eagle Resource Equivalency Analysis (REA) (USFWS 2018). NGM must commit to mitigate the first five years of take at the time of permit issuance. At each five-year check in, data collected during the previous five years will be used to determine if further compensatory mitigation will be required in the following five years. Unless monitoring indicates

reduced impacts to breeding golden eagles, NGM would contribute compensatory mitigation in an amount equal to the power pole retrofit of one of the following, or a combination of both:

- 897.87 poles (avoided loss from retrofits maintained and effective for 10 years); or
- 390.76 poles (avoided loss from retrofits maintained and effective for 30 years).

The eagle conservation measures presented within this ECP include a comprehensive description of measures NGM is implementing to avoid and minimize impacts from Project design, operation, and construction on eagles. Mitigation, in the form of funds to be used for power pole retrofits, will offset impacts and contribute to the preservation of golden eagles associated with the loss of productivity from disturbance for four territories.

Within 30 days from the issuance of the take permit, NGM will make a payment into the same USFWS-specified account for the total retrofit obligation to offset disturbance take associated with an average of 2.36 takes per year for the first five years. The monetary value of each pole will be determined through coordination with USFWS prior to NGM depositing the funds into the specified account. The number of poles for the first five years is 66 (the value of 65.13 from the USFWS REA was rounded up), which assumes retrofitting for 30 years of avoided loss and is based on the ratio of 1.2 to 1.

Upon completion of the USFWS five-year permit review, a determination of whether disturbance take occurred will take place. Using the results of this determination, disturbance take funds that have been paid to date will be either rolled over (either in part or the full sum) or additional payment will be made to the same account, based on actual disturbance take as determined through close coordination with the USFWS and based on observed nest occupancy and productivity, as described in **Section 8.0.** Applicable mitigation will be paid every five years, as applicable, throughout the 30-year permit periods of the Projects.

9.0 REFERENCES

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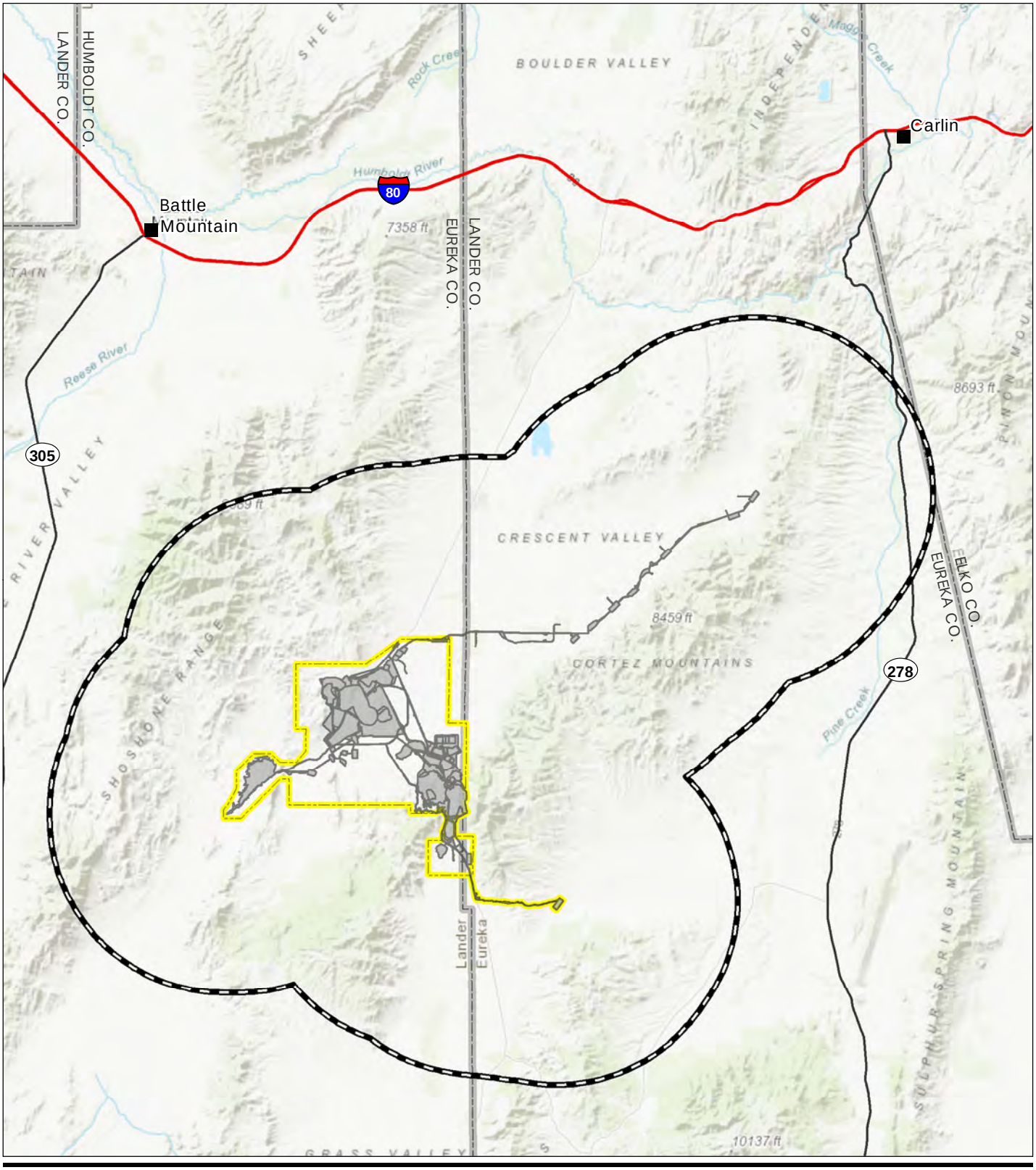
FIGURES



Legend

- Cortez Mine Plan of Operations (Plan) Boundary
- Existing and Approved Facilities
- 10-mile Radius of Plan Boundary (Study Area)

N

0 4 8 Miles

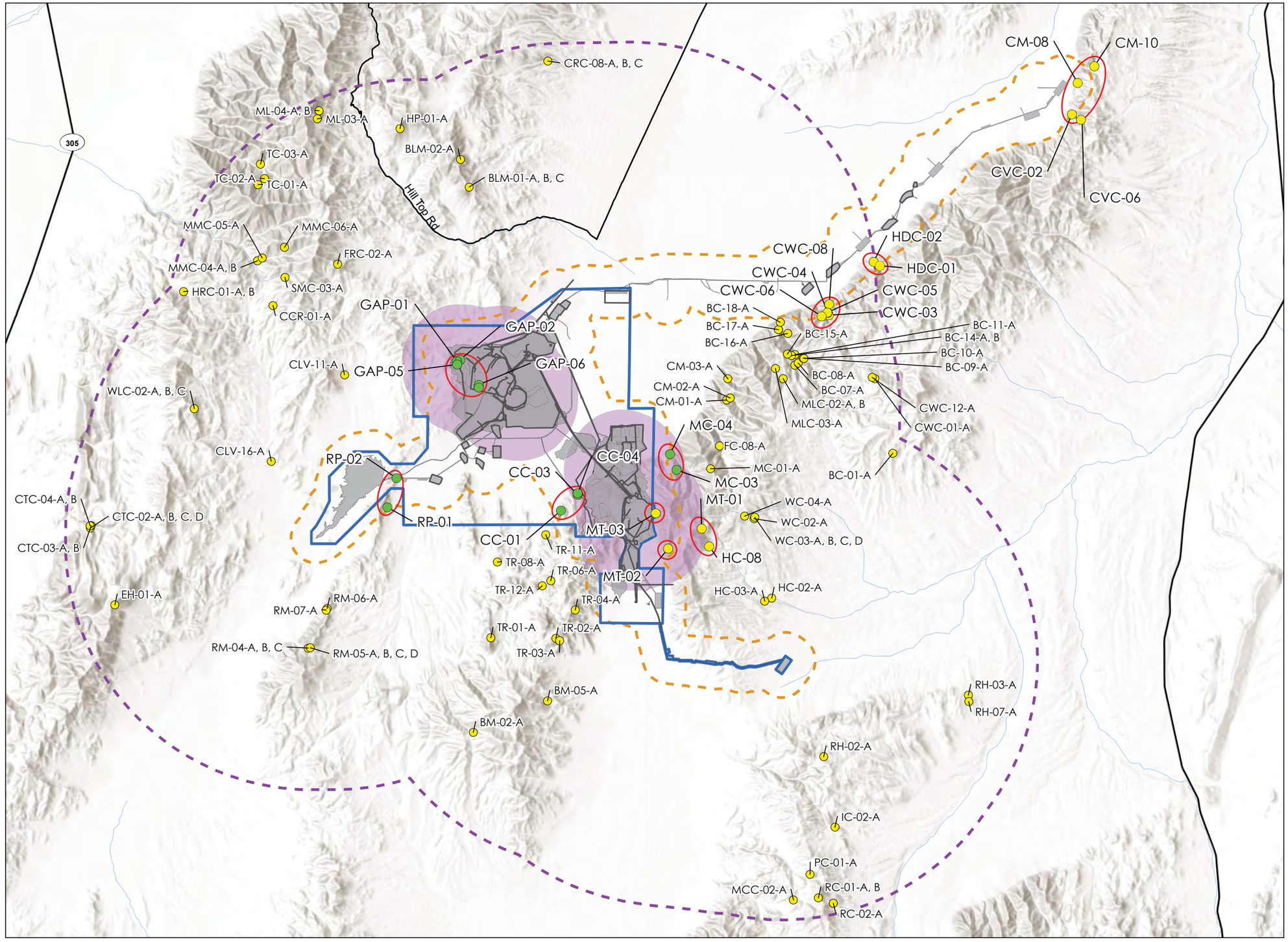
1 in = 8 miles

Eureka and Lander County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: JT	2ND REVIEW: DE
DATE: 1/5/2021	PROJECT NO: 2037221840	

Nevada Gold Mines LLC
Cortez District
Golden Eagle Conservation Plan

Figure 1
Project Location and Study Area



Legend

- Cortez Mine Plan of Operations Boundary
- Study Area (10-mile Buffer of Project Area)
- Cortez Mine Authorized Disturbance
- One-Mile Radius of Authorized Disturbance
- Pit Blasting Two-Mile Radius
- Golden Eagle Nest Territory
- Golden Eagle Nest
- Golden Eagle Nest Subject to Take

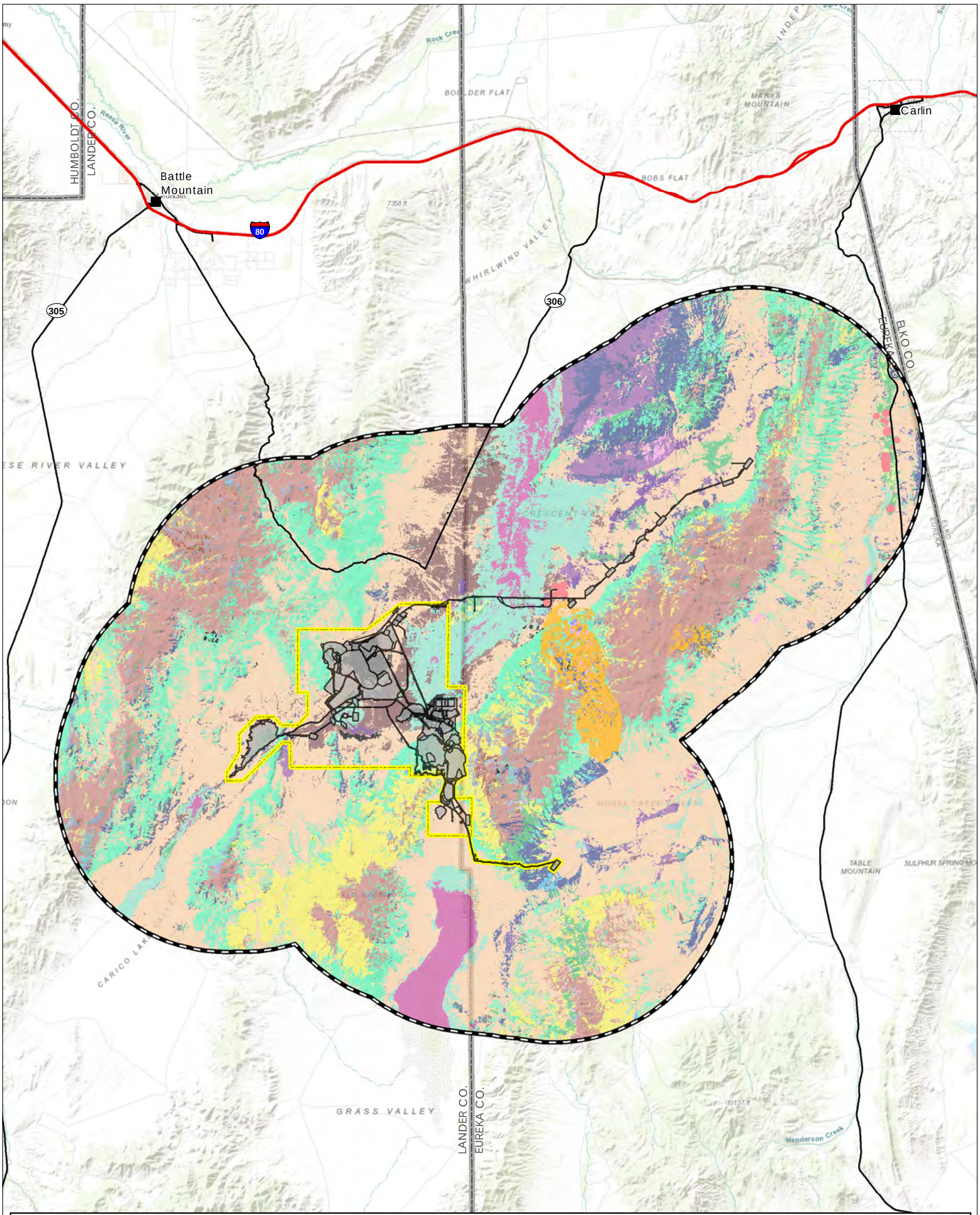
Miles
0 2 4
1 in = 4 miles
N

Eureka and Lander County, NV
NAD 1983 UTM Zone 11N

PROJECT NO: 203722641
DRAWN BY: IH
1ST REVIEW: BT
2ND REVIEW: SM
DATE: 2023-12-08

Nevada Gold Mines LLC
Cortez District
Golden Eagle Conservation Plan

Figure 2
Territories within Proximity of Authorized Mining



Legend

Cortez Mine Plan of Operations (Plan) Boundary

Approved Facilities

10-mile Radius of Approved Facilities (Study Area)

N

Miles

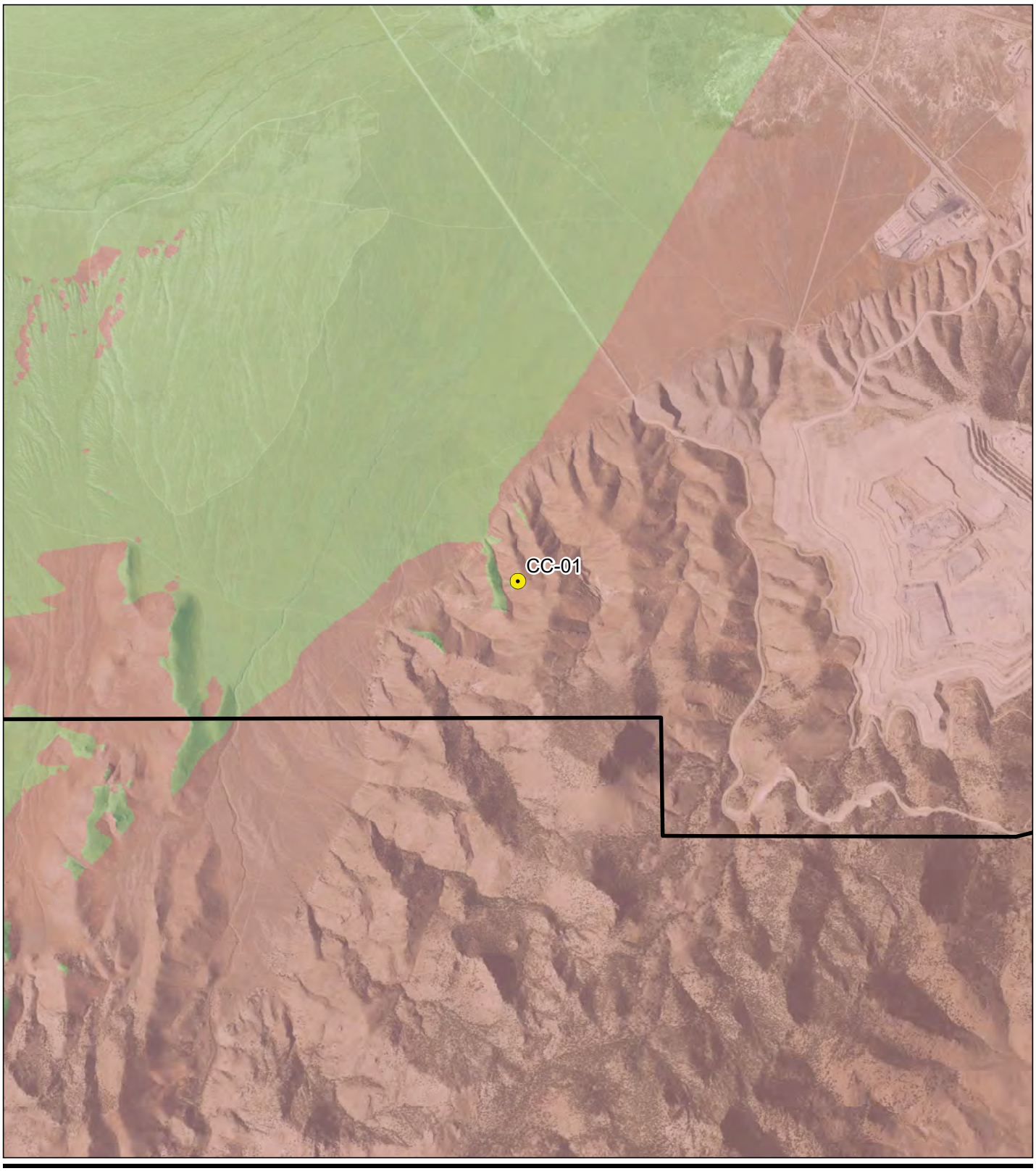
0 3 6 1 in = 6 miles

Eureka and Lander County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: BT	2ND REVIEW: DE
DATE: 10/2/2020	PROJECT NO: 203721840	

Nevada Gold Mines LLC
Cortez District
Golden Eagle Conservation Plan

Figure 3
Foraging Habitat
within the Study Area



Legend

- Golden Eagle Nest
- Cortez Mine Plan of Operations Boundary
- Not Visible
- Visible

N

0 1,500 3,000 Feet

1 in = 3,000 Feet

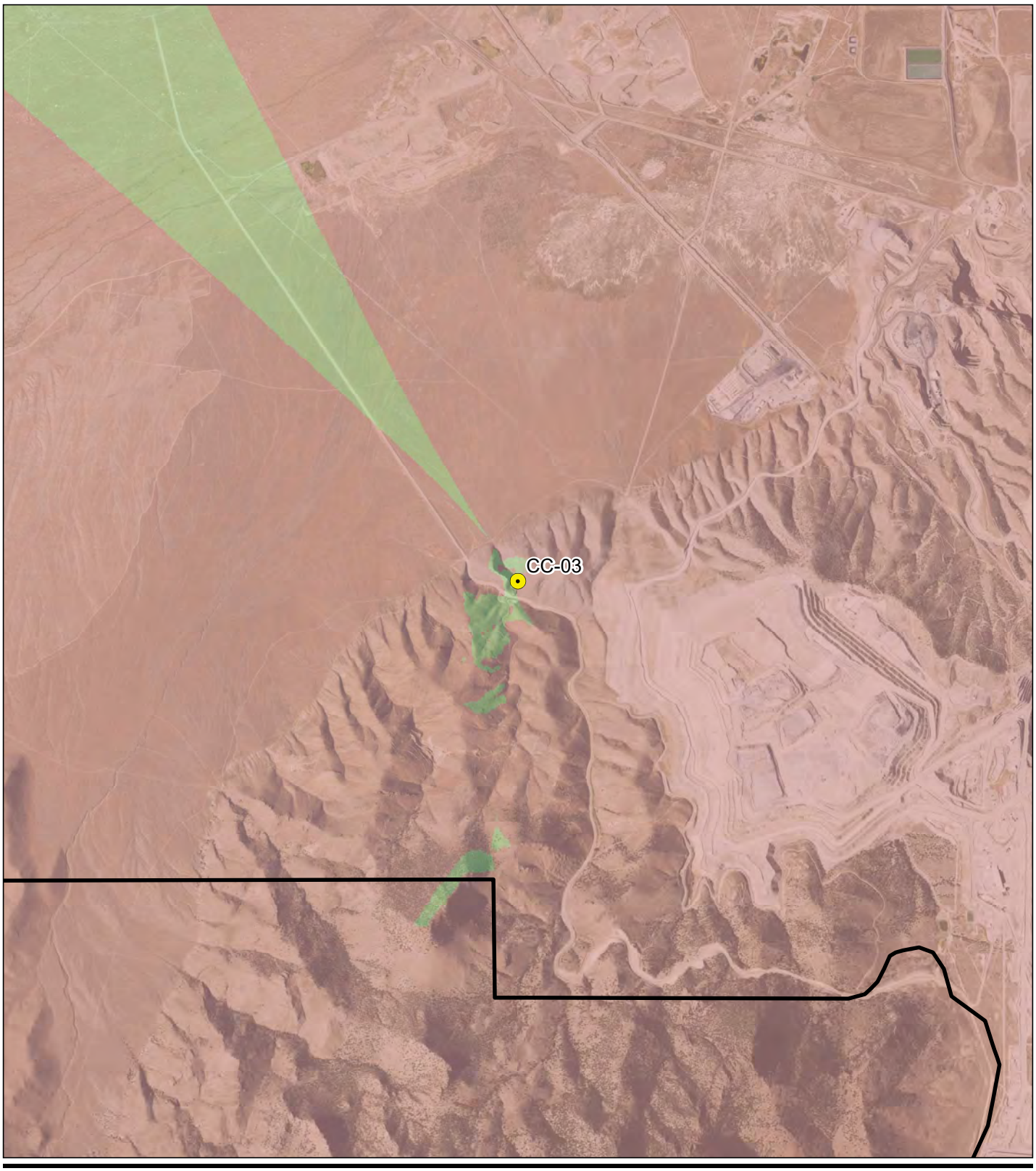
Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-03-24

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Nest Monitoring Plan

Figure 4
CC-01 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Cortez Mine Plan of Operations Boundary
- Not Visible
- Visible

N

0 1,500 3,000 Feet

1 in = 3,000 Feet

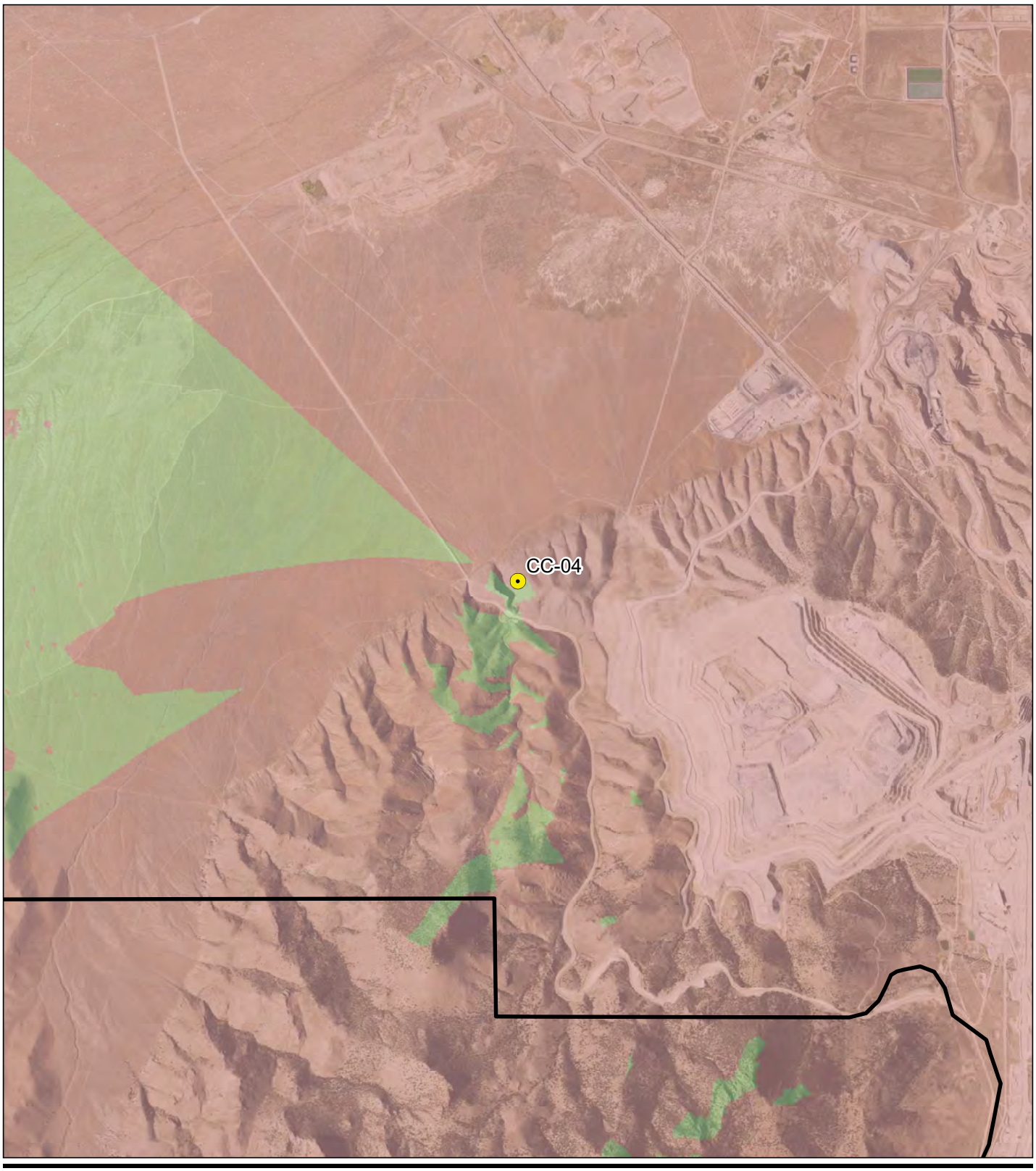
Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-03-24

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Nest Monitoring Plan

Figure 5
CC-03 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Cortez Mine Plan of Operations Boundary
- Not Visible
- Visible

N

0 1,500 3,000 Feet

1 in = 3,000 Feet

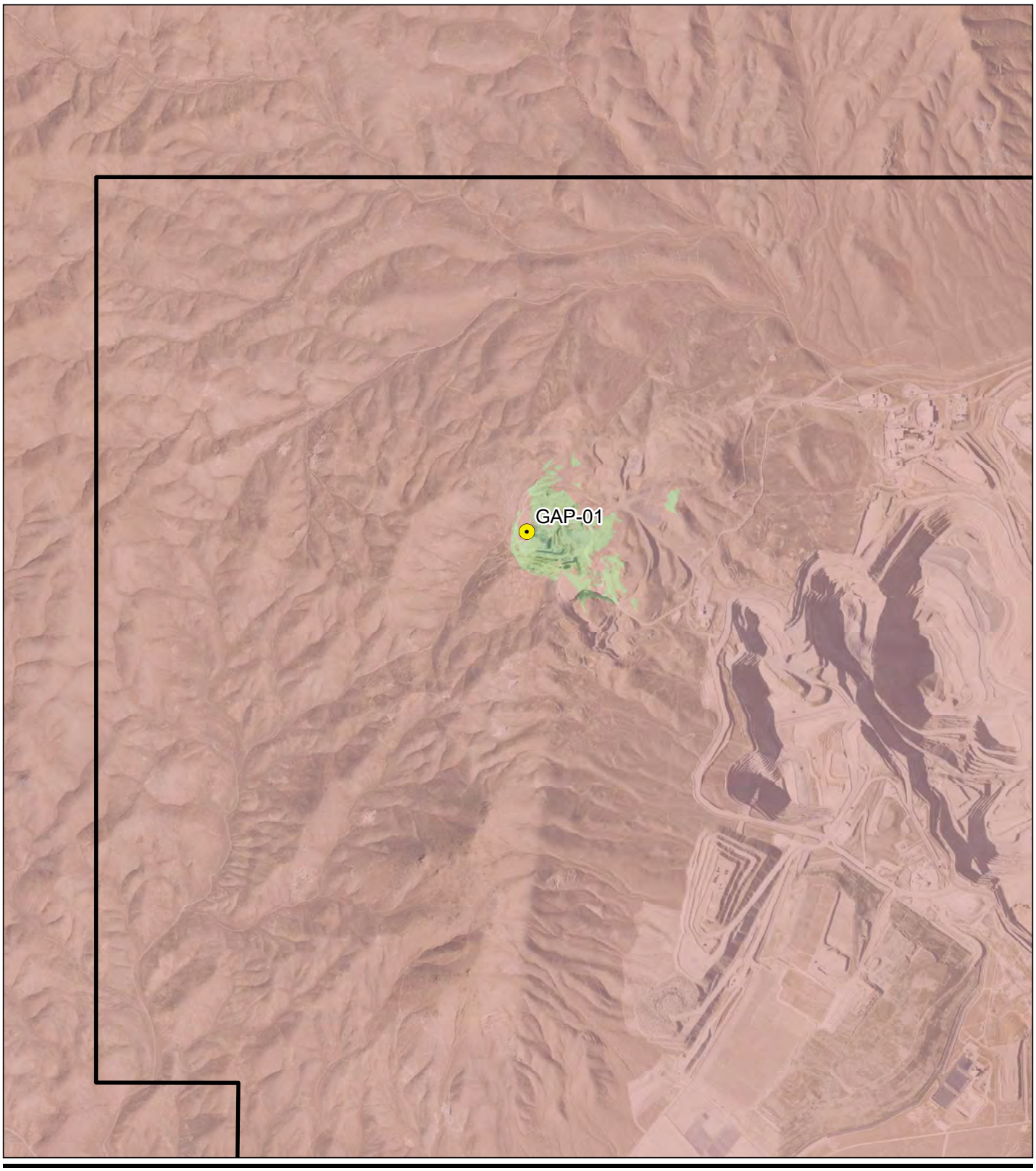
Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-03-24

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Nest Monitoring Plan

Figure 6
CC-04 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Cortez Mine Plan of Operations Boundary
- Not Visible
- Visible

N

0 1,500 3,000 Feet

1 in = 3,000 Feet

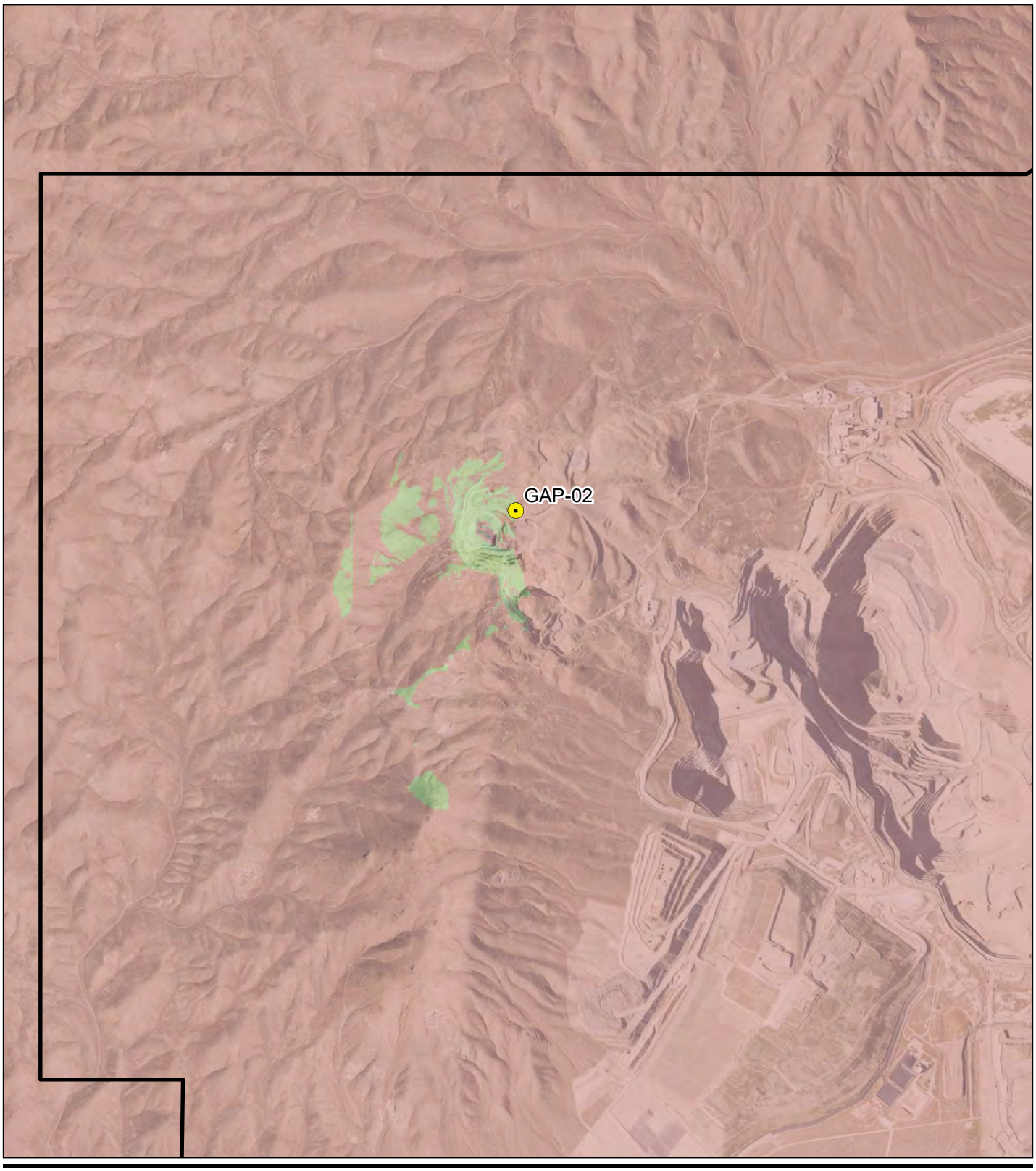
Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-03-24

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Nest Monitoring Plan

Figure 7
GAP-01 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Cortez Mine Plan of Operations Boundary
- Not Visible
- Visible

N

0 1,500 3,000 Feet

1 in = 3,000 Feet

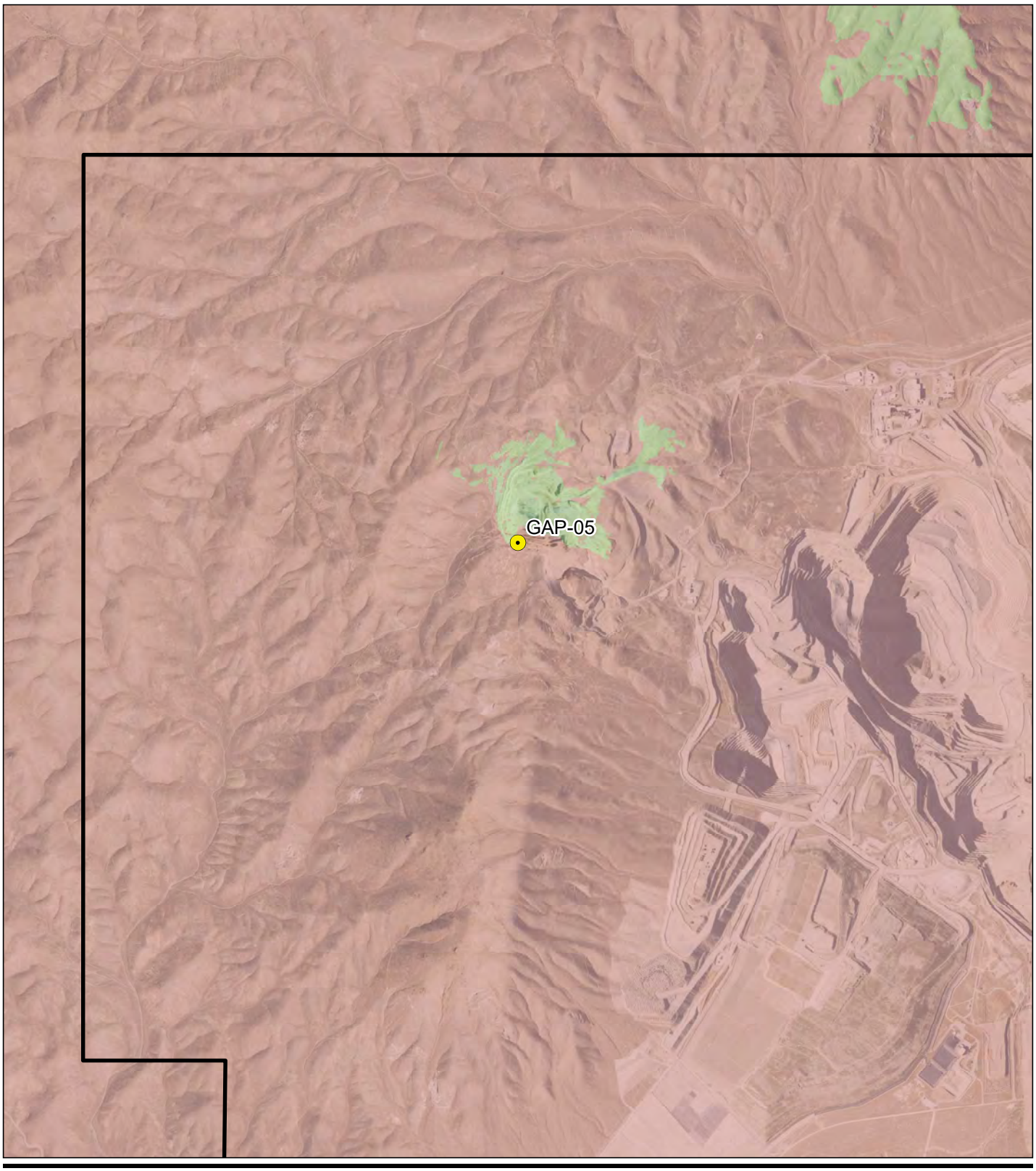
Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-03-24

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Nest Monitoring Plan

Figure 8
GAP-02 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Cortez Mine Plan of Operations Boundary
- Not Visible
- Visible

N

0 1,500 3,000 Feet

1 in = 3,000 Feet

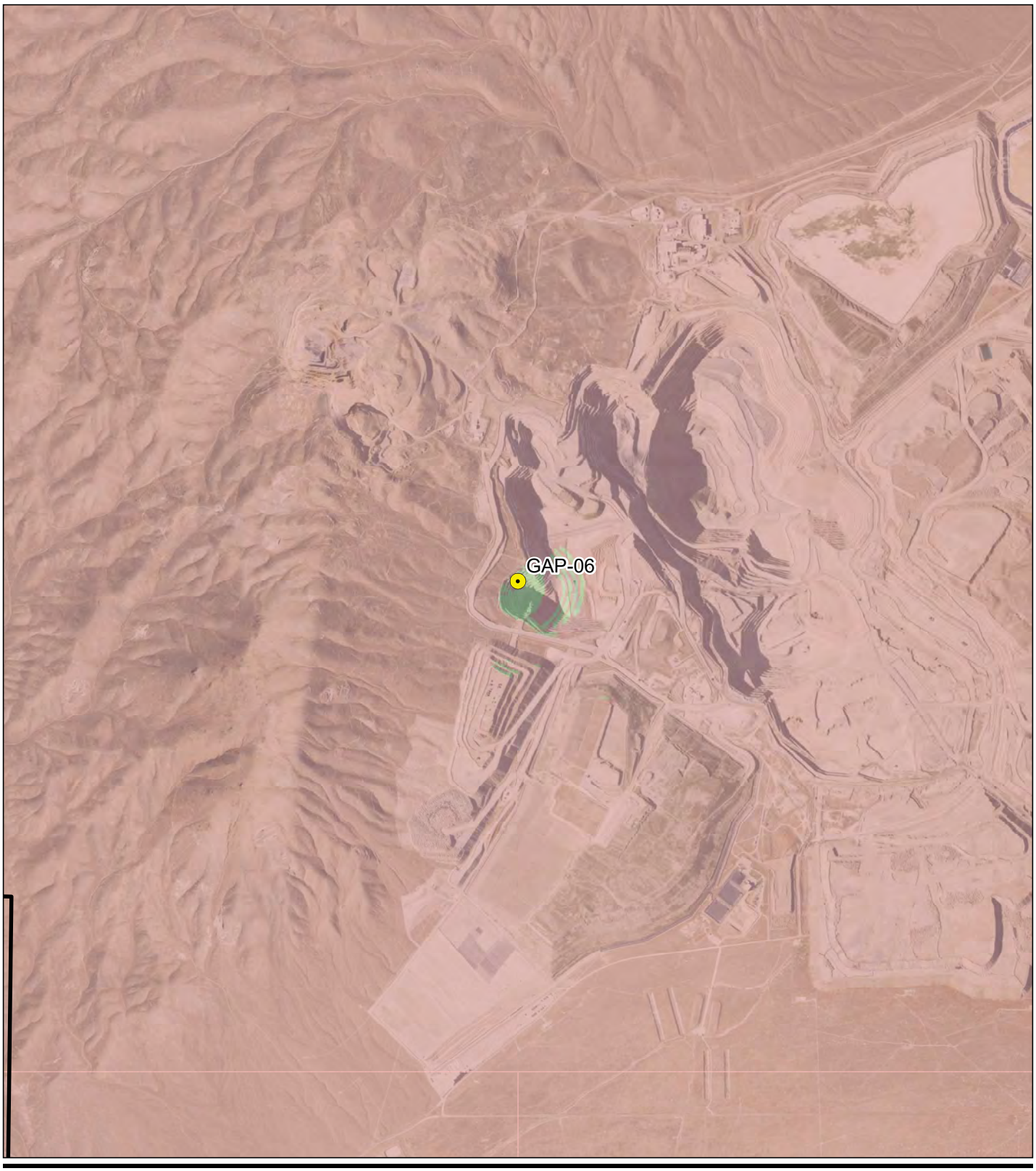
Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-03-24

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Nest Monitoring Plan

Figure 9
GAP-05 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Cortez Mine Project Plan of Operations Boundary
- Golden Eagle Nest
- Not Visible
- Visible

N

Feet
0 1,500 3,000
1 in = 3,000 Feet

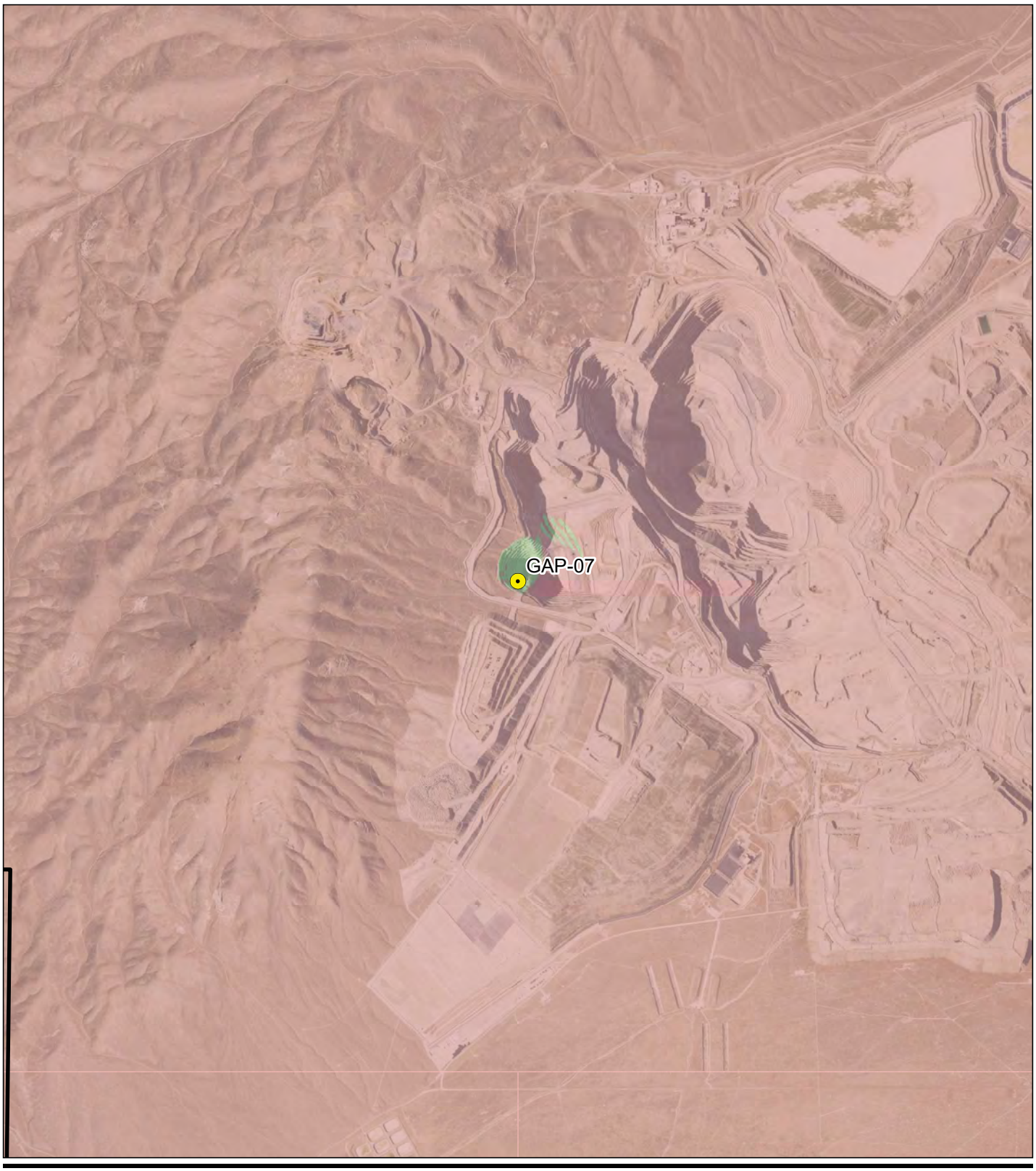
Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-12-08

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Conservation Plan

Figure 10
GAP-06 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Cortez Mine Project Plan of Operations Boundary
- Golden Eagle Nest
- Not Visible
- Visible

N

0 1,500 3,000 Feet

1 in = 3,000 Feet

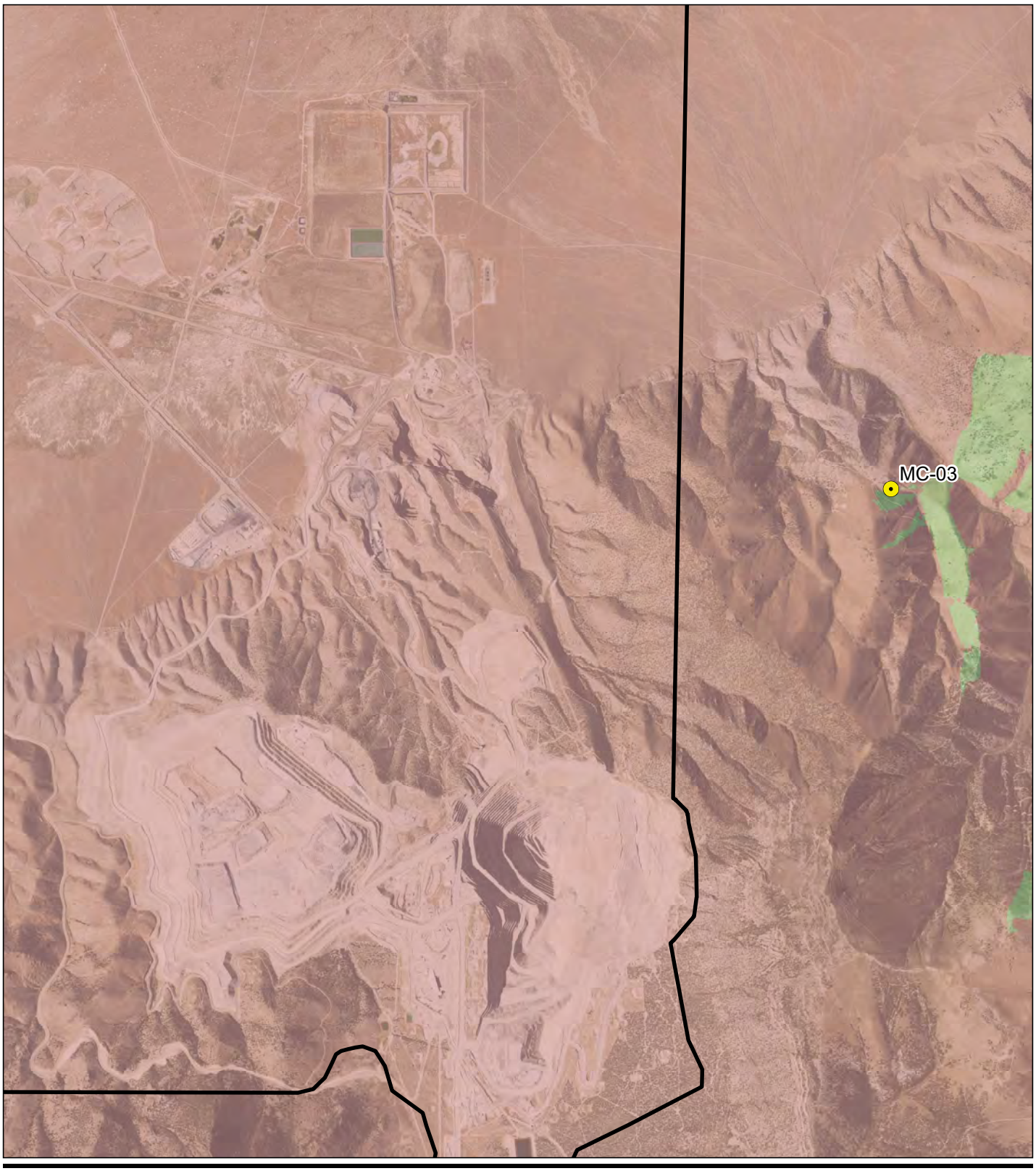
Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-12-08

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Conservation Plan

Figure 11
GAP-07 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Cortez Mine Plan of Operations Boundary
- Not Visible
- Visible

N

0 1,500 3,000 Feet

1 in = 3,300 Feet

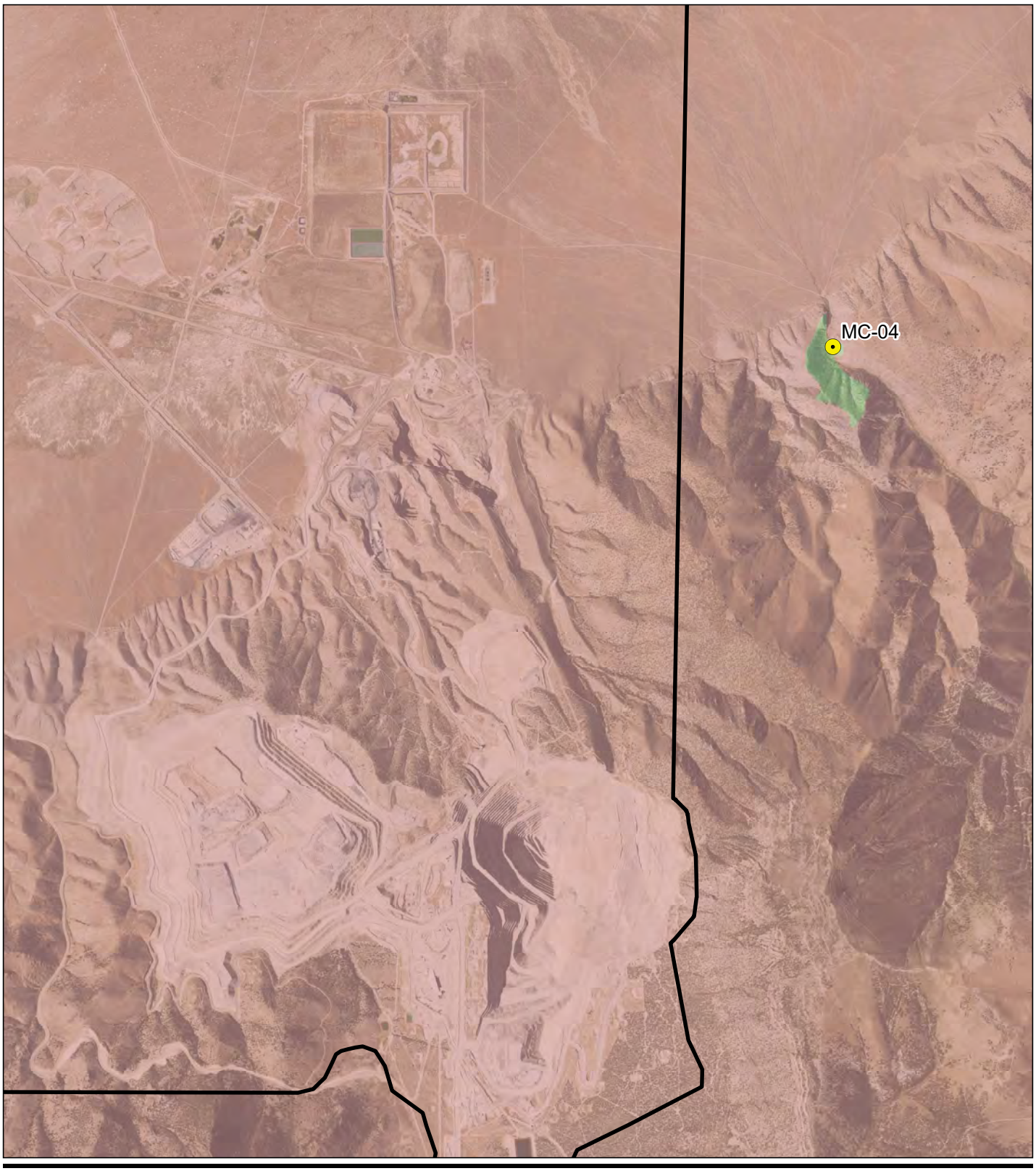
Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-03-24

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Nest Monitoring Plan

Figure 12
MC-03 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Cortez Mine Plan of Operations Boundary
- Not Visible
- Visible

N

0 1,500 3,000 Feet

1 in = 3,300 Feet

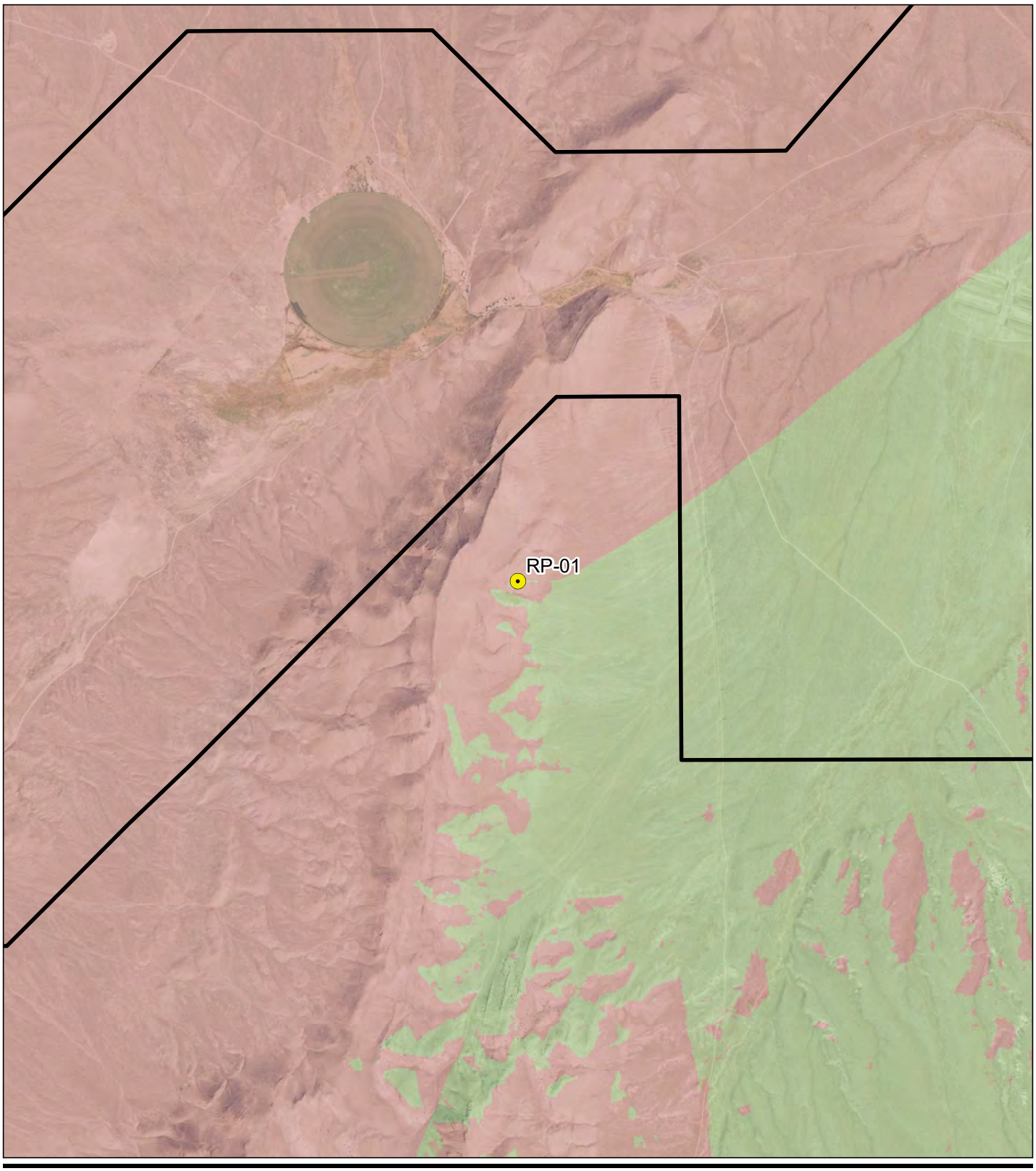
Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-03-24

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Nest Monitoring Plan

Figure 13
MC-04 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Cortez Mine Plan of Operations Boundary
- Not Visible
- Visible

N

0 1,500 3,000 Feet

1 in = 3,000 Feet

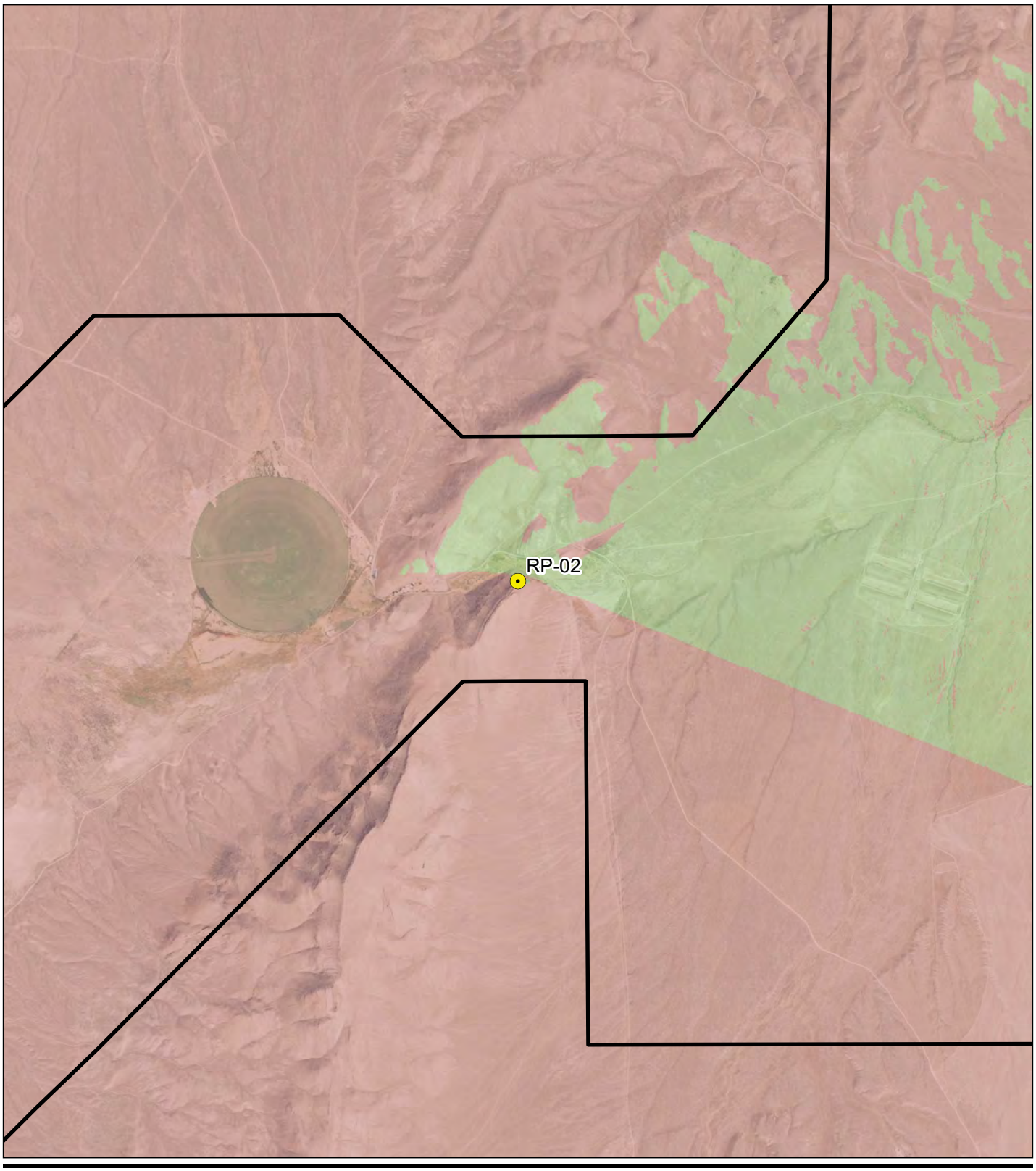
Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-03-24

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Nest Monitoring Plan

Figure 14
MC-04 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Cortez Mine Plan of Operations Boundary
- Not Visible
- Visible

N

0 1,500 3,000 Feet

1 in = 3,000 Feet

Eureka and Lander Counties, NV
NAD 1983 UTM Zone 11N

DATE: 2023-03-24

Nevada Gold Mines LLC
Cortez Mine Project
Golden Eagle Nest Monitoring Plan

Figure 15
RP-02 Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency

APPENDIX B

Eagle Conservation Plan, Phoenix Mine Project

EAGLE CONSERVATION PLAN
PHOENIX MINE PROJECT
LANDER COUNTY, NEVADA

Prepared for:

Nevada Gold Mines LLC
Phoenix Mine
1655 Mountain City Highway
Elko, Nevada 89801

December 2023

TABLE OF CONTENTS

TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

BGEPA	Bald and Golden Eagle Protection Act of 1940, as Amended
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
ECP	Eagle Conservation Plan
E-Pond	Event Pond
EMU	Eagle Management Unit
IAPP	Industrial Artificial Pond Permit
In-Lieu Fee Program	Bald Eagle and Golden Eagle Electrocution Prevention In-Lieu Fee Program
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NGM	Nevada Gold Mines LLC
Phoenix	Phoenix Mine
Plan	Plan of Operations
Project	Phoenix Mine Project
REA	Resource Equivalency Analysis
Service	United States Fish and Wildlife Service
study area	10-Mile Radius of the Project Area
SWReGAP	Southwest Regional Gap Analysis Project
USFWS	United States Fish and Wildlife Service
WRSF	Waste Rock Storage Facility

1.0 PURPOSE OF THIS PLAN

The purpose of this Eagle Conservation Plan (ECP) is to support application(s) for a golden eagle (*Aquila chrysaetos*) nest take permit under the permit regulations of the Bald and Golden Eagle Protection Act of 1940, as amended (BGEPA). Specifically, Nevada Gold Mines LLC (NGM) is requesting a take permit issued by the United States Fish and Wildlife Service (Service or USFWS) under 50 Code of Federal Regulations (CFR) § 22.26 for the incidental take of golden eagles from otherwise lawful activities associated with the Phoenix Mine (Phoenix) Project (Project). The Project is located in Lander County, Nevada (**Figure 1**).

The BGEPA (as amended) prohibits the take of bald and golden eagles. The BGEPA defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb" and prohibits take of individuals and their parts, nests, or eggs. "Disturb" is further defined as "means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior." Permitting regulations (50 CFR Part 22) were issued in 2009 and revised in 2016. Known as the "Eagle Permitting Rule," these regulations allow the USFWS to administer a permit program allowing for the lawful take of eagles and nests.

Phoenix has prepared this ECP as a precursor to applying for a BGEPA eagle take permit. This ECP provides the necessary support materials to accompany an eagle nest take permit application and demonstrates that the proposed take is compatible with the preservation of golden eagles and the issuance criteria in 50 CFR § 22.26. This ECP will accompany the eagle nest take permit application requesting authorization for reoccurring disturbance to and loss of annual productivity from up to two golden eagle breeding pairs' territories for a 30-year period.

An application for a take permit under 50 CFR § 22.26 requires the information listed below. Also provided is a reference to where in this ECP that information is provided:

- Identification of the species proposed to be taken, the amount of take, and the type of take (e.g., disturb, incidental mortality, or injury) (**Section 5.0**).
- The duration of the permit (**Section 1.0**).
- A description of the Project activity as it relates to eagles, including the following:
    - A description of the activity (**Sections 2.0** and **5.0**);
    - The dates the activity will start and is projected to end (**Section 1.0**);
    - An explanation of why the take of eagles is necessary, including what interests will be protected by the Project or activity (**Sections 2.0**, **5.0**, and **8.0**); and
    - The location of the activity, including maps, photographs, and geographic coordinates, as appropriate (**Figures 1** through **3**).
- Information about eagle activity relevant to the Project activity, including the following:
    - A description of the type of eagle activity (e.g., nesting, roosting, important use area, etc.) (**Sections 3.0** and **4.0**);

- Location of the eagle activity, including geographic coordinates and, as appropriate, maps, digital photographs, and other information (NGM, 2021);
- History of the nest occupation, roost area, or important use area, if known (**Section 4.0** and NGM, 2021); and
- If known, the specific distance and locations of nests and other eagle-use areas from the Project footprint (**Section 4.0** and NGM, 2021).

- If take is in the form of disturbance, information about the following:
  - Whether the activity will be visible to eagles in the eagle-use areas or whether there are visual buffers such as screening vegetation or topography that block the view (**Figures 4** through **11**); and
  - The extent of existing activities in the vicinity that are similar in nature, size, and use to the activity and the distance between those activities and the important eagle-use areas (**Section 2.0** and **Figures 1** through **11**).

- A detailed description of all avoidance, minimization, mitigation, and monitoring measures incorporated into the planning for the activity will be implemented to reduce the likelihood for take of eagles (**Sections 6.0**, **7.0**, and **8.0**).

- Project-specific monitoring and survey protocols, take probability models, and any other applicable data quality standards and all the data thereby obtained (NGM, 2021, and **Section 8.0**).

2.0 INTRODUCTION AND BACKGROUND

2.1 Mine History

The Phoenix Mine is a gold and copper mine located in the Copper Canyon area of the Battle Mountain Mining District. The Copper Canyon area has a long history of minerals production dating back to the initial discovery of copper ore in 1864. Mining and beneficiation operations have been conducted through a steady succession of owners/operators and production periods. Beginning in the late 1970s, mining and recovery of precious metal ores continued through 1993, and mining and heap leaching of disseminated precious metal ores began in 1990 and continues through the present.

2.2 Authorized Facilities

The authorized Plan of Operations (Plan) boundary is 18,839 acres, including 10,132 acres of public land managed by the Bureau of Land Management (BLM). Total mine-related surface disturbance, which is authorized until 2063, in the Plan boundary is approximately 11,871 acres, which includes 5,975 acres on private land and 5,896 acres on public land. The Phoenix Project is located in Copper Canyon within the Battle Mountain Range near Antler Peak, approximately 12 miles southwest of Battle Mountain, Nevada. Elevations in the Project area range from approximately 5,000 feet in Buffalo Valley and Reese River Valley to approximately 6,800 feet at the upper ridgelines above Copper Canyon and Box Canyon.

Authorized and existing facilities at Phoenix include Phoenix Pit, stockpiles, waste rock storage facilities (WRSFs), tailings storage facilities, growth media stockpiles, borrow areas, haul and access roads, and various ancillary and processing facilities. Territories within proximity of authorized and existing mining and processing facilities in the Plan boundary are shown on **Figure 2**. NGM may conduct surface disturbance associated with the areas shown in gray on **Figure 2**. Blasting to break up rock for processing may occur in the authorized Phoenix Pit (**Figure 2**).

A summary of avoidance and minimization measures in place at Phoenix that relate to golden eagles are included in **Section 6.0**.

3.0 AREA HABITATS

The Eagle Conservation Plan Guidance Module 1 – Land-Based Wind Energy, Version 2, recommends that an analysis of potential impacts on nesting golden eagles include the Project footprint itself and a surrounding 10-mile buffer area (study area) (**Figure 1**).

3.1 Foraging Habitat

Vegetation communities in the study area have been mapped by the Southwest Regional Gap Analysis Project (SWReGAP) in land cover files for the study area (**Figure 3**) (USGS, 2011). The SWReGAP mapping shows 24 vegetation communities occurring within the study area. **Table 1** presents the total acres of the vegetation communities within the study area. Golden eagle prey species such as black-tailed jackrabbits (*Lepus californicus*), mountain cottontails (*Sylvilagus nuttallii*), and larger diurnal rodents such as yellow-bellied marmots (*Marmota flaviventris*) are commonly found in many of the vegetation communities present in the Project area.

Table 1 Vegetation Community Types in the Study Area

Vegetation Community Name	Acres	Percent of Study Area
Agriculture	1,815	0.50
Barren Lands, Non-Specific	184	0.05
Developed, Medium – High Intensity	145	0.04
Developed, Open Space – Low Intensity	380	0.11
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	258	0.07
Great Basin Pinyon-Juniper Woodland	7,227	2.00
Great Basin Xeric Mixed Sagebrush Shrubland	45,155	12.47
Inter-Mountain Basins Big Sagebrush Shrubland	124,687	34.44
Inter-Mountain Basins Big Sagebrush Steppe	477	0.13
Inter-Mountain Basins Cliff and Canyon	4,997	1.38
Inter-Mountain Basins Greasewood Flat	101,016	27.90
Inter-Mountain Basins Mixed Salt Desert Scrub	35,000	9.67
Inter-Mountain Basins Montane Sagebrush Steppe	17,580	4.86
Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland	20	0.01
Inter-Mountain Basins Playa	4,527	1.25
Inter-Mountain Basins Semi-Desert Grassland	1,635	0.45
Inter-Mountain Basins Semi-Desert Shrub Steppe	45	0.01
Invasive Annual and Biennial Forbland	5,874	1.62
Invasive Annual Grassland	2,307	0.64
North American Arid West Emergent Marsh	349	0.1
Open Water	61	0.02
Recently Mined or Quarried	8,284	2.29
Rocky Mountain Aspen Forest and Woodland	24	0.01
Rocky Mountain Dry Tundra	2	<1
Total	**362,048[1]**	**100**

[1.] Within the 362,048 acres of vegetation communities, approximately 11,871 acres of disturbance is authorized for the Phoenix Mine.

Other habitat types that are believed to represent important golden eagle foraging habitats in the region include roads and wetlands, natural water sources, and meadows. Wetlands and springs provide a reliable water source for eagle prey and, therefore, allow higher concentrations of eagle prey. There are multiple

seeps, springs, and drainages through the study area, primarily in the Battle Mountain Range to the north and the Fish Creek Mountains to the south. There are also playas to the east and west that collect water. Marsh habitats and agricultural landscapes in the study area support large populations of rodents and lagomorphs. A number of roads, paved (e.g., State Route 305) and non-paved, are located within the study area. Golden eagles feed on carrion, which can be found along roads, especially during winter and even when live prey is available; golden eagles have been known to consume fresh carrion during nesting season (Kochert and Steenhof, 2002).

3.2 Nesting Habitat

Within the study area, various rock outcrops and mine highwalls were identified as areas with nesting golden eagles. In 2018, there were seven in-use golden eagle nests documented in the study area, all of which were either on rock outcrops or highwalls. Cliffs and rocky outcrops are available throughout the northern portion of the study area on Battle Mountain and in the southwest corner of the study area in the northern portion of the Fish Creek Mountains.

3.3 Topographic Features Attractive to Eagles

Tops of slopes oriented perpendicular to prevailing winds or near ridge crests of cliff edges are features that are conducive to slope soaring and are attractive features for eagles. Saddles or low points on ridgelines or near riparian corridors may serve as flight paths. Nearby perch and roost sites may also attract eagles. As described above, the area surrounding Phoenix represents golden eagle potential foraging habitat, though the value of this habitat varies in quality.

Cliffs and outcrops occur on Battle Mountain to the north and in the northern portion of the Fish Creek Mountains to the southwest. Mountainous areas that include ridgelines and slopes with a variety of aspects, such that winds from multiple directions would create deflection currents, are suitable for soaring.

Habitats surrounding Phoenix include perch and roost sites, and the area is suitable golden eagle nesting and foraging habitat as described above.

4.0 TERRITORIES PROPOSED FOR TAKE

A major component of the risk assessment is to identify Project activities that could result in a take. Those territories proposed for take are those that have been identified within the Plan boundary and are in the Service's two-mile buffer for blasting activities and/or one-mile buffer for surface disturbance activities (NGM, 2021).

Nests within one mile of authorized surface disturbance, two miles of authorized blasting, and/or within the authorized disturbance footprint are provided in **Table 2**. Incidental take could occur to eight nests associated with two unique territories as indicated in **Table 2**. As such, the potential impacts of the Project would include the indirect take of two territories represented by a loss of productivity. A viewshed analysis has been conducted using authorized disturbance, post-reclamation topography, and Geographic Information System tools for each nest, which are shown on **Figures 4** through **11** to illustrate the portions of anthropogenic activity that are within line of sight from the golden eagle nests subject to take.

Table 2 Nests Within One Mile of Authorized Disturbance or Two Miles of Authorized Pit Blasting

Territory	Nest ID	Within One Mile of Authorized Surface Disturbance	Within Two Miles of Authorized Pit Blasting
4	CBR-01-A	Yes	Yes
	CBR-01-B	Yes	Yes
	CBR-01-C	Yes	Yes
	CBR-01-D	Yes	Yes
	CBR-01-E	Yes	Yes
10	PC-03-A	Yes	Yes
	PC-04-A	Yes	Yes
	PC-05-A	Yes	Yes

CBR-01-A, **B**, **C**, **D**, and **E**: All five nests within this territory are within one mile of authorized surface disturbance and two miles of authorized pit blasting. This territory is also within Phoenix's authorized expanded tailings facility that has yet to be constructed; however, NGM does not have any intention to directly remove any nests located within areas where mining has been authorized in the next 30 years. If mine plans change, NGM will coordinate with the USFWS regarding applying for a direct take permit. As shown on **Figures 4** through **8**, the expanded tailings storage facility and agricultural cropping area would be the main mine components visible from each of the five nests in this territory, some of which has yet to be constructed. In addition, portions of the Natomas and Box Canyon WRSFs and portions of the Reona heap leach facility would also be visible from each of the nests.

PC-03-A, **PC-04-A**, and **PC-05-A**: All three nests within this territory are within one mile of authorized surface disturbance and two miles of authorized pit blasting. As shown on **Figures 9** through **11**, the authorized borrow area along Buffalo Valley Road would be visible from each nest.

The potential for incidental disturbance take of up to two golden eagle territories is unavoidable due to the location of the ore bodies that occur adjacent to the nests, as well as the economic factors that contribute to the profitable extraction of the minerals contained therein. NGM is committed to coordinating unavoidable take with the USFWS and completing required mitigation with the goal of achieving a stable or increasing nesting population of golden eagles. Because NGM has applied for a take permit for the proposed take of

these breeding territories, these impacts would be fully offset through mitigation, and surface and blasting activities would not be restricted in the one- and two-mile buffers.

4.1 Territory 4: CBR-01-A, B, C, D, and E

Nest sites CBR-01-A, B, C, D, and E are thought to make up this breeding territory. Three nests are located on the upper rim, while two nests are located just below on the second shelf of the foothill within the authorized expanded tailings storage facility. The authorized expanded tailings facility has yet to be constructed, and NGM has committed to not directly removing any nests located within areas where mining has been authorized. If NGM determines that the authorized tailings facility is needed, NGM will coordinate with the USFWS and determine if a modification to its existing take permit is needed or if a new take permit application will need to be submitted for the direct take and subsequent National Environmental Policy Act (NEPA) analysis of this territory. This site, which contains five observed nests, is located on a cliff face within the Plan boundary. Specific details about the nests are discussed below.

CBR-01-A was found in 2012 and was identified as a potential golden eagle nest due to the size of the nest and the size of the nesting substrate used. This nest was surveyed five times (2012, 2013, 2018, 2021, and 2022) and has never been in use. Therefore, this nest has a breeding effort rate of zero for golden eagles.

CBR-01-B was found in 2012 and was identified as a potential golden eagle nest due to the size of the nest and the size of the nesting substrate used. This nest was surveyed five times (2012, 2013, 2018, 2021, and 2022) and has never been in use. Therefore, this nest has a breeding effort rate of zero for golden eagles.

CBR-01-C was found in 2012 and was identified as a potential golden eagle nest due to the size of the nest and the size of the nesting substrate used. This nest was surveyed five times (2012, 2013, 2018, 2021, and 2022) and has never been in use. Therefore, this nest has a breeding effort rate of zero for golden eagles.

CBR-01-D was found in 2012 and was identified as a potential golden eagle nest due to the size of the nest and the size of the nesting substrate used. This nest was surveyed five times (2012, 2013, 2018, 2021, and 2022) and was in use in 2018, giving it a breeding effort rate of 0.20 (20 percent) for golden eagles. The productivity rate is unknown, as eggs or fledged young were unable to be documented during the 2018 surveys due to an adult sitting on the nest.

CBR-01-E was found in 2012 and was identified as a potential golden eagle nest due to the size of the nest and the size of the nesting substrate used. This nest was surveyed five times (2012, 2013, 2018, 2021, and 2022) and has never been in use. Therefore, this nest has a breeding effort rate of zero for golden eagles.

4.2 Territory 10: PC-03-A, PC-04-A, PC-05-A

Nest sites PC-03-A, PC-04-A, and PC-05-A are thought to make up this breeding territory. Each nest is located on a cliff face in the Plan boundary. Specific details about each nest are discussed below.

PC-03-A was discovered in 2012 and was identified as a golden eagle nest. The PC-03-A nest was in use in 2012 and has been surveyed for five years (2012, 2013, 2018, 2021, and 2022), giving it a breeding effort rate of 0.20 (20 percent). This nest had two eggs during the first 2012 survey (May 30, 2012) and was empty during the second 2012 survey (June 25, 2012); therefore, this nesting attempt was considered to be unsuccessful.

PC-04-A was found in 2018 and was identified as a golden eagle nest that was in use by prairie falcons. The PC-04-A nest has been surveyed for three years (2018, 2021, and 2022). This nest has a breeding effort rate of zero for golden eagles.

PC-05-A was found in 2012 and was identified as a golden eagle nest that had partially collapsed. The nest was not in use in 2013. During the 2018 survey, the nest was in use by prairie falcons. On April 10, 2020, this nest was observed during pre-construction clearance migratory bird surveys with two adult golden eagles on the nest; no eggs or young were observed during the survey. After the eagles were identified, in coordination with the USFWS and BLM, a camera was set up approximately 0.6 mile from the nest to monitor activity at the nest. No disturbance from operations at Phoenix occurred within one mile of the golden eagle nest, per the requirements. During this camera monitoring, it was identified that an egg was laid, resulting in one nestling. During the period of June 1 to June 7, 2020, it was observed that the eaglet was showing signs of branching. The eaglet attempted to dismount from the rim of the nest. Based on the camera monitoring, the fledging attempt was unsuccessful (NGM, 2020). The PC-05-A nest has been surveyed for six years (2012, 2013, 2018, 2020, 2021, and 2022). Therefore, this nest has a maximum breeding effort rate of 0.17 for golden eagles.

5.0 RISK ASSESSMENT

This section presents a discussion of the assessment of the level of risk from the Project to the golden eagle breeding population in the vicinity. Potential disturbance-creating activities at Phoenix include mining, processing, exploration, and administrative and support processes; authorized mining activities are listed in **Section 2.0**. The greatest risk factor to golden eagles associated with an active mining operation will likely occur during the courtship, nesting, and fledging season. This is especially true when golden eagle breeding territories are located within the Plan boundary or nearby, as is the case for the territories proposed for take, which are described in **Section 4.0**.

A summary of proposed take to golden eagles anticipated from activities associated with Phoenix is provided in **Table 3**. Discussion of the risk that could be posed by the mine to golden eagles is described below.

Table 3 Summary of Impacts to Eagles

Eagle Impact	Phoenix Impacts
Direct take (mortality)	None anticipated, low risk: **Sections 5.2**, **5.3**, and **5.4**
Indirect take (loss of productivity from disturbance)	**Section 4.0**: Two golden eagle breeding pairs' territories
Habitat loss	**Section 5.1**
Territory loss (number of territories)	**Section 4.0**: Two golden eagle breeding pairs' territories
Nest removal (number of nests for each territory involved)	None

5.1 Habitat-Related Risks

Phoenix is approved for surface disturbance of up to 11,871 acres. Reduction of habitat as a result of direct mining disturbance has the potential to impact golden eagles. Specifically, impacts to functional shrublands that support jackrabbit populations could influence prey availability to golden eagles, especially during the breeding season when adults are foraging routinely to provide adequate food for their young. Loss of suitable habitat within golden eagle home ranges may result in reduced prey base and foraging opportunities such that territory persistence and reproductive output may be negatively impacted.

5.2 Utility-Related Risks

Utility structures pose a risk to perching birds, including raptors such as golden eagles, and may cause mortality through accidental collisions and electrocutions. Larger birds that inhabit open habitat appear to be at greater risk for electrocution due to the lack of natural perches and nesting sites (APLIC & USFWS, 2005). Electrocution occurs when a bird completes an electric circuit by simultaneously touching two energized parts, or an energized part and a grounded part, of the electrical structure. Inadequate conductor and/or phase spacing may allow birds to bridge electrical parts, which results in electrocution. Birds of all sizes are at risk, especially on utility hardware such as transformers, which have many energized parts in close proximity to one another (APLIC & USFWS, 2005). Risk for avian electrocution on distribution lines increases when the distance between conductors is less than the wingspan or height of a landing or perching bird or when hardware or equipment cases are grounded and in close proximity to energized conductors, parts, or jumper wires (APLIC & USFWS, 2005).

Phoenix has committed to the following conservation measures in previously approved NEPA documents, which prevent risk of electrocution to golden eagles:

- The transmission line segment (120-kilovolt) and power line segment (13.8-kilovolt) for the Phoenix Copper Leach Project (BLM, 2012) has been designed and constructed in accordance with applicable guidelines to minimize raptor perching, nesting, electrocution, and collision potential. To minimize raptor perching and nesting, BLM-approved raptor deterring devices have been installed on horizontal cross bars. To minimize electrocution of raptor species attempting to perch on the lines, standard safe designs as outlined in *Suggested Practices for Raptor Protection on Power Lines* (APLIC, 2006) are incorporated in the Phoenix area, as applicable. To minimize collision potential for foraging raptors, standard safe designs as outlined in *Reducing Avian Collisions with Power Lines* (APLIC, 2012), formerly *Mitigating Bird Collisions with Power Lines* have been incorporated, as applicable.

- Follow the *Suggested Practices for Raptor Protection on Power Lines*, per APLIC (2006), which provides guidance on power line construction and design on all future transmission and power lines.

5.3 Process-Related Risks

Mining processes and facilities that use chemicals pose a risk to wildlife species, including golden eagles. In conjunction with the Nevada Department of Wildlife's (NDOW's) Industrial Artificial Pond Permits (IAPPs) and International Cyanide Management Code requirements, all areas that contain cyanide must be controlled to reduce or eliminate the potential for wildlife mortality and meet stringent human health and safety standards. At varying concentrations, chemicals can poison wildlife through accidental ingestion of water sources containing chemicals (i.e., process ponds) and may cause mortality.

To reduce risk of wildlife exposure to chemicals, including ponded areas, Phoenix has the following conservation measures in place. Note that these measures are required to be implemented per project approvals by the BLM:

- Protective measures associated with avian wildlife and potentially deleterious supernatant pond solutions are managed in compliance with the NDOW IAPPs issued for Phoenix. In addition, the proponent samples, analyzes, and reports analytical results associated with decant tailings solution, tailings solids, and supernatant pond fluids to the Nevada Division of Environmental Protection – Bureau of Mining Regulation and Reclamation in accordance with Phoenix Water Pollution Control Permit provisions. The sampling and analysis requirements provide a frequent examination and identification of possible deleterious supernatant pond water quality. In the event such conditions are experienced, protective avian wildlife measures would include possible water quality treatment of the supernatant pond fluids to adequately adjust pH values using chemical alkalinity additions such as hydrated lime, milk of lime, or sodium hydroxide. The addition of these chemical constituents would adjust the pH value and would result in the precipitation of trace metal hydroxides, abating potential wildlife effects associated with low pH and trace metal concentrations.

- Phoenix developed a wildlife monitoring plan to identify wildlife mortality in the Phoenix area and to report all mortalities. As part of this process, the top of the copper heap leach facility is monitored daily for any substantial pooling of process solutions. Drip emitters are used, and the heap surface is scarified to minimize ponding and pooling of the process solutions. If pooling does occur during active operations, Phoenix would: 1) reduce solution application rates, 2) re-scarify the heap leach facility surface, and 3) place netting over any ponding to prevent wildlife access.

- In order to minimize impacts to wildlife species from the exposure to precipitate in the event ponds (E-ponds), Phoenix committed to 1) installing and maintaining fencing around, and bird netting across, E-ponds to minimize wildlife access to the ponds until reclamation is complete and 2) submitting quarterly reports to the BLM and NDOW on wildlife mortalities. If wildlife mortalities are identified within or near the E-ponds, Phoenix would immediately contact NDOW, as required under the IAPPs, and the BLM to determine appropriate mitigation. Although the Record of Decision for the Phoenix Copper Leach Project (BLM, 2012) identified bird netting as a method of minimizing

wildlife access to the ponds, Phoenix (through coordination with the BLM) currently utilizes bird balls and bird netting to minimize wildlife access to the ponds.

- Eight-foot-high chain-link fencing has been installed around the process ponds (including the raffinate pond) in accordance with the NDOW IAPPs at Phoenix. Netting, pond covers, or floating bird balls, as appropriate, would be installed over ditches and ponds containing leach solutions to minimize potential impacts to winged species and other terrestrial wildlife.

- The process ponds are constructed with side slopes of 3H:1V or steeper to deter avian use of the solution. Process ponds are completely covered with high-density polyethylene, hexagonal balls (bird balls). Bird balls float on the solution surface and preclude wildlife access to the solution surface. Phoenix operators perform inspections of process ponds twice per day to review the coverage and condition of bird balls. Bird balls are replaced or added when necessary.

- The heap leach facility is managed to prevent solution ponding on top of the pad. If solution ponding occurs on the surface of the heap leach facility, efforts would be employed to eliminate the ponding or standing solution. Efforts may include, but will not be limited to, reducing or stopping solution application where ponding occurs, ripping the surface to promote infiltration, and covering ponded areas with netting to preclude avian access to the ponded solution.

- The International Cyanide Management Code recognizes a concentration of 50 parts per million as the lethal threshold for most wildlife species. The Phoenix tailings storage facility employs a dual cyanide destruction system that uses Caro's acid and ammonium bisulfite to promote cyanide destruction prior to depositing tailings in the tailings storage facility. Phoenix monitors the tailings slurry leaving the mill daily to ensure that weak acid dissociable cyanide concentrations in the tailings slurry are below 50 parts per million prior to deposition in the tailings storage facility. The tailings storage facility is further managed to minimize the size of the supernatant pool and thereby the attractiveness and risks to birds and bats. The tailings storage facility is not expected to produce invertebrates or other prey sources for birds or bats.

Because of the conservation measures in place, the potential risk to golden eagles from process-related risks is low.

5.4 Vehicle Collision–Related Risks

Mobile equipment (i.e., vehicles) used in operations at the mine or traveling to or from the mine could strike and injure or kill wildlife. Road-killed wildlife may attract scavenging eagles, which in turn could be injured or killed by vehicle collision. Because Phoenix implements the following conservation measures, the potential for eagle mortality due to vehicle collision at Phoenix is low:

- Operators have been trained to monitor the mining and process areas for the presence of larger wildlife species (e.g., deer and pronghorn antelope) as well as winged species (e.g., bats, birds, etc.) and other terrestrial wildlife. Mortality information is collected in accordance with the IAPPs. Phoenix continues to operate in accordance with established wildlife protection policies that prohibit feeding or harassment of wildlife.

- Instruct Phoenix personnel and visitors to drive at low speeds and be alert for wildlife, especially in low-visibility conditions.

Additional traffic controls can be implemented by NGM as necessary through direct communication regarding road hazards. Additionally, no eagle mortalities due to vehicle collision have been reported at Phoenix.

6.0 AVOIDANCE AND MINIMIZATION MEASURES

Phoenix currently employs avoidance and minimization measures associated with the authorized Plan that have been committed to during previous NEPA permitting. Avoidance and minimization measures specific to golden eagles and implemented at Phoenix are listed below in **Table 4**.

Table 4 Authorized Avoidance and Minimization Measures

Number	Avoidance and Minimization Measure	Source(s)
CM-1	Protective measures associated with avian wildlife and potentially deleterious supernatant pond solutions are managed in compliance with the NDOW IAPPs issued for Phoenix. In addition, the proponent samples, analyzes, and reports analytical results associated with decant tailings solution, tailings solids, and supernatant pond fluids to the Nevada Division of Environmental Protection – Bureau of Mining Regulation and Reclamation in accordance with Phoenix Water Pollution Control Permit provisions. This periodic sampling and analysis in conjunction with daily operational analysis associated with tailings supernatant pond make-up water additional to Phoenix milling process, and the operational analysis of tailings discharge water quality provides a frequent examination and identification of possible deleterious supernatant pond water quality. In the event such conditions are experienced, protective avian wildlife measures would include possible water quality treatment of the supernatant pond fluids to adequately adjust pH values using chemical alkalinity additions such as hydrated lime, milk of lime, or sodium hydroxide. The addition of these chemical constituents would adjust the pH value and would result in the precipitation of trace metal hydroxides, abating potential wildlife effects associated with low pH and trace metal concentrations.	BLM, 2003
CM-2	Operators have been trained to monitor the mining and process areas for the presence of larger wildlife species (e.g., deer and pronghorn antelope) as well as winged species (e.g., bats, birds, etc.) and other terrestrial wildlife. Mortality information is collected in accordance with the IAPPs. NGM continues to operate in accordance with established wildlife protection policies that prohibit feeding or harassment of wildlife.	BLM, 2012
CM-3	NGM developed a wildlife monitoring plan to identify wildlife mortality in the Phoenix area and to report all mortalities. As part of this process, the top of the copper heap leach facility is monitored daily for any substantial pooling of process solutions. Drip emitters are used, and the heap surface is scarified to minimize ponding and pooling of the process solutions. If pooling does occur during active operations, NGM would 1) reduce solution application rates, 2) re-scarify the heap leach facility surface, and 3) place netting over any ponding to prevent wildlife access.	BLM, 2003; updated BLM, 2012
CM-4	In order to minimize impacts to wildlife species from the exposure to precipitate in the E-ponds, NGM committed to 1) installing and maintaining fencing around, and bird netting across, E-ponds to minimize wildlife access to the ponds until reclamation is complete and 2) submitting quarterly reports to the BLM and NDOW on wildlife mortalities. If wildlife mortalities are identified within or near the E-ponds, Phoenix would immediately contact NDOW, as required under the IAPPs, and the BLM to determine appropriate mitigation. Although the Record of Decision for the Phoenix Copper Leach Project (BLM, 2012) identified bird netting as a method of minimizing wildlife access to the ponds, NGM (through coordination with the BLM) currently utilizes bird balls and bird netting to minimize wildlife access to the ponds.	BLM, 2012
CM-5	Eight-foot-high chain-link fencing has been installed around the process ponds (including the raffinate pond) in accordance with the NDOW IAPPs at Phoenix. Netting, pond covers, or floating bird balls, as appropriate, would be installed over ditches and ponds containing leach solutions to minimize potential impacts to winged species and other terrestrial wildlife.	BLM, 2012

Number	Avoidance and Minimization Measure	Source(s)
CM-6	The transmission line segment (120-kilovolt) and power line segment (13.8-kilovolt) for the Phoenix Copper Leach Project (BLM, 2012) has been designed and constructed in accordance with applicable guidelines to minimize raptor perching, nesting, electrocution, and collision potential. To minimize raptor perching and nesting, BLM-approved raptor deterring devices have been installed on horizontal cross bars. To minimize electrocution of raptor species attempting to perch on the lines, standard safe designs as outlined in *Suggested Practices for Raptor Protection on Power Lines* (APLIC, 2006) are incorporated in the Phoenix area, as applicable. To minimize collision potential for foraging raptors, standard safe designs as outlined in *Mitigating Bird Collisions with Power Lines* have been incorporated, as applicable.	BLM, 2012
CM-7	To comply with the Migratory Bird Treaty Act, no new surface disturbance would occur during the migratory bird breeding season (March 1 through July 31 for raptors and April 1 through July 31 for other avian species). If surface-disturbing activities are unavoidable during the migratory bird breeding season, a nest survey would be conducted by a BLM-approved, qualified avian biologist prior to any surface-disturbing activities in order to avoid potential impacts to breeding migratory birds. Pre-disturbance surveys for migratory birds are only valid for 14 days. If the disturbance for the specific location does not occur within 14 days of the survey, another survey would be conducted. If active nests or burrows are located around the Project area or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) would be delineated and the buffer area avoided to prevent destruction or disturbance to nests or birds until they are no longer actively breeding or rearing young. The site characteristics to be used to determine the size of the buffer area are 1) topographic screening, 2) distance from disturbance to nest, 3) the size and quality of foraging habitat surrounding the nest, 4) sensitivity of the species to nest disturbances, and 5) the protection status of the species.	BLM, 2012; updated BLM, 2018
CM-8	In the event avian or bat/building collisions are determined to be of concern, perch deterrents would be used on ledges, rooftops, and other areas. Such deterrents could limit the attractiveness of these facilities to avian and bat species and reduce the potential for collisions.	BLM, 2018
CM-9	Any new power line poles would be constructed with avian deterrent devices or methods. Some poles may require the use of guy wires for stability purposes. The guy wires and static line are generally the smallest-diameter wires and therefore would be the most likely to be involved with avian collisions. All new guy wires that are required for power poles within the Plan boundary will be marked to prevent avian and bat collisions.	BLM, 2018
CM-10	The process ponds are constructed with side slopes of 3H:1V or steeper to deter avian use of the solution. Process ponds are completely covered with high-density polyethylene, hexagonal balls (bird balls). Bird balls float on the solution surface and preclude wildlife access to the solution surface. Phoenix operators perform inspections of process ponds twice per day to review the coverage and condition of bird balls. Bird balls are replaced or added when necessary. The heap leach facility is managed to prevent solution ponding on top of the pad. If solution ponding occurs on the surface of the heap leach facility, efforts would be employed to eliminate the ponding or standing solution. Efforts may include, but will not be limited to, reducing or stopping solution application where ponding occurs, ripping the surface to promote infiltration, and covering ponded areas with netting to preclude avian access to the ponded solution.	BLM, 2018
CM-11	The International Cyanide Management Code recognizes a concentration of 50 parts per million as the lethal threshold for most wildlife species. The Phoenix tailings storage facility employs a dual cyanide destruction system that uses Caro's acid and ammonium bisulfite to promote cyanide destruction prior to depositing tailings in the tailings storage facility. NGM monitors the tailings slurry leaving the mill daily to ensure that weak acid dissociable cyanide concentrations in the tailings slurry are below 50 parts per million prior to deposition in the tailings storage facility. The tailings storage facility is further managed to minimize the size of the supernatant pool and thereby the attractiveness and risks to birds and bats. The tailings storage facility is not expected to produce invertebrates or other prey sources for birds or bats.	BLM, 2018

Number	Avoidance and Minimization Measure	Source(s)
CM-12	Follow the *Suggested Practices for Raptor Protection on Power Lines*, per APLIC (2006), which provides guidance on power line construction and design on all future transmission and power lines.	BLM, 2018
CM-13	Avoid construction designs (including structures such as meteorological towers) that increase the risk of collision, such as guy wires. If guy wires are used, mark them with bird flight diverters (according to the manufacturer's recommendation).	BLM, 2018
CM-14	Instruct Phoenix personnel and visitors to drive at low speeds and be alert for wildlife, especially in low-visibility conditions.	BLM, 2018
CM-15	Where necessary (as determined by mortality records) and practicable, retrofit problem structures to reduce avian injury/mortality and coordinate efforts with the BLM and NDOW.	BLM, 2018

7.0 MONITORING AND ADAPTIVE MANAGEMENT

Golden eagle surveys have been conducted in the vicinity of the Plan boundary since 2012. Recent inventory and monitoring efforts follow Pagel et al. (2010), which is the standard golden eagle survey protocol accepted by the USFWS. Surveys focus on completing a thorough inventory of nests within the recommended Project survey area and capturing information regarding nest site occupancy, breeding effort, productivity, and success.

In addition, the Phoenix Mine Project will implement the below Environmental Protection Measures:

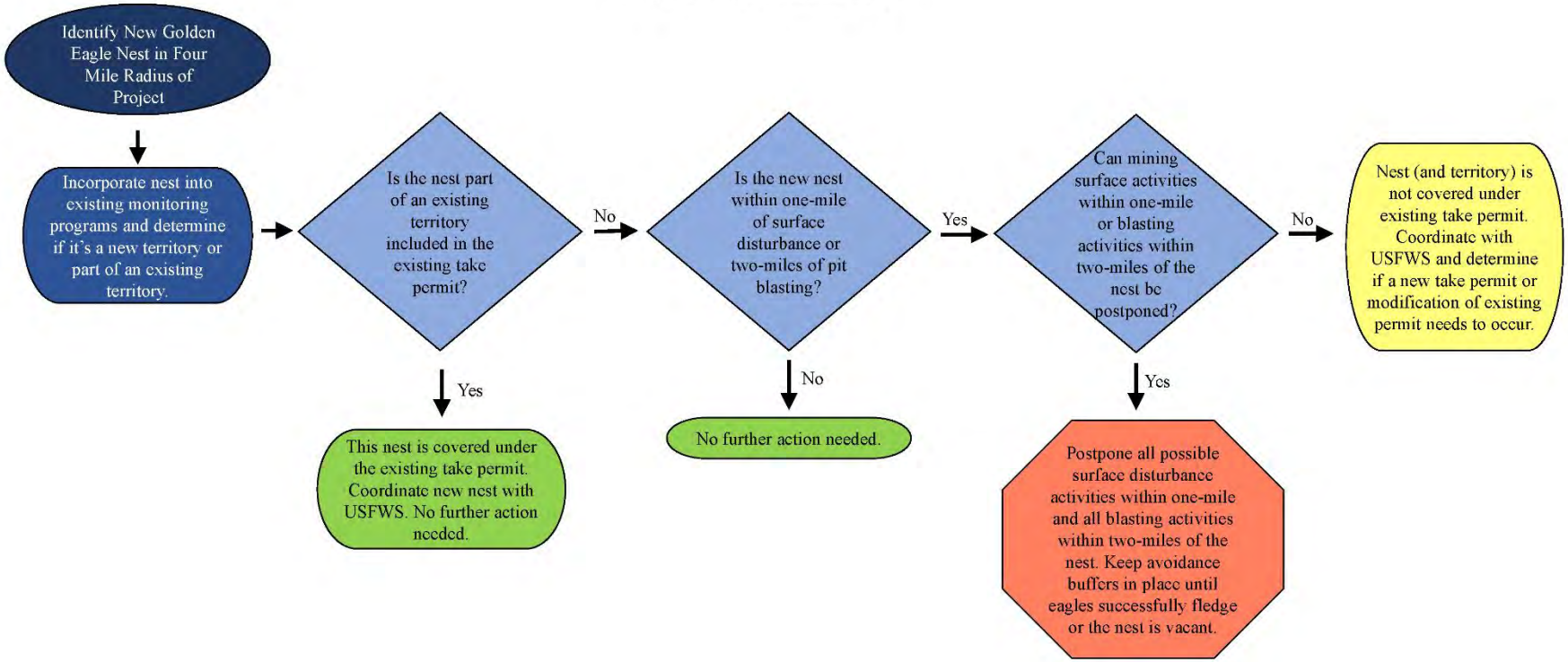
> **EPM-1**: In compliance with the most recent USFWS golden eagle survey recommendations in Nevada, initial early-season occupancy surveys (ground-based or aerial-based) will be conducted within a four-mile buffer of the Phoenix Mine Project boundary in January to mid-March (i.e., the preferred survey window) to assess golden eagle territory occupancy and document in-use nests, as appropriate. Every attempt will be made to conduct these surveys by mid- to late February. NGM will coordinate with the USFWS prior to the initial early-season occupancy surveys to communicate existing conditions on the ground (e.g., heavy snow, access concerns, golden eagle disturbance, etc.). This communication will allow for flexibility in the monitoring requirements based on conditions at the site during the preferred survey window. NGM will coordinate with the USFWS and the BLM to discuss monitoring as the season progresses and assess if monitoring requirements need to be modified based on site conditions, access concerns, or potential disturbance to nesting golden eagles. Follow-up aerial-based occupancy surveys following Pagel et al. (2010) will be conducted within a four-mile buffer of the Phoenix Mine Project Plan boundary at least 30 days following initial early-season occupancy surveys (ideally in March to mid-April) and will focus on assessing territory occupancy in areas not confirmed during the initial survey, assessing all suitable nesting habitat to identify previously undocumented nests, and assessing nest and territory occupancy status of all golden eagle nests and nests of other cliff-nesting raptor species. Final late-nestling productivity surveys (aerial or ground-based) will occur generally late May through June to assess golden eagle breeding success/productivity at nests identified as in use during the initial and follow-up surveys at the time when golden eagles are expected to have late-stage nestlings (i.e., breeding attempts considered successful when one or more nestling reaches greater than 51 days old).

> **EPM-2**: If new nests are identified within one mile of disturbance or two miles of blasting that are outside a territory with a valid take permit, NGM will inform and coordinate with the USFWS and the BLM regarding these nest sites. Nests are considered in use for a given breeding season (i.e., December 15 through July 31) until they are confirmed to not be in use on April 15 or later. In the absence of a take permit, spatial disturbance buffers (i.e., one mile of surface disturbance and two miles of blasting) will be adhered to until nests are confirmed to be not in use by April 15 or later, four weeks after nestlings fledge if monitoring confirms approximate fledging date, or after July 31 if they are in use and not otherwise monitored to verify fledging date.

For adaptive management purposes, verification of implemented avoidance and minimization measures as provided in **Section 6.0** is necessary. Phoenix currently has a monitoring and reporting system for incidents related to wildlife fatality as part of the wildlife management plan and IAPPs, as required by NDOW. Any incident that results in wildlife fatality or death, including golden eagles, must be reported.

Monitoring the Project area golden eagle population for additional golden eagle nests will occur concurrently with existing and future required survey efforts as part of potential authorized construction or disturbance actions. During the life of the mine, Phoenix recognizes the possibility for new construction of golden eagle nests within the Plan boundary. If a previously undocumented nest is identified, Phoenix will implement the decision tree as shown below. This decision tree is applicable to scenarios where a new nest is encountered, and potential indirect disturbance could occur. However, this decision tree is not applicable in scenarios where nest removal is necessary. During the Phoenix mine life, it is possible that golden eagles will build new nests in unforeseeable locations in the area. The decision tree has been created to guide Phoenix on how to appropriately deal with these new nests. The decision tree shows the process for monitoring, avoiding, and coordinating activities in proximity to any new golden eagle nests. The Project would not take any golden eagle nest, either by physically removing a nest or indirectly, without legally obtaining golden eagle take permits from the USFWS.

Eagle Nest Decision Tree



8.0 COMPENSATORY MITIGATION

The eagle conservation measures presented within this ECP include a comprehensive description of measures NGM is implementing to avoid and minimize impacts from Project design, operation, and construction on eagles. Mitigation, in the form of funds to be used for power pole retrofits, will offset impacts and contribute to the preservation of golden eagles associated with the loss of productivity from disturbance for two territories.

Compensatory mitigation to fully offset authorized take would be conducted within the Pacific Flyway Eagle Management Unit (EMU). The Applicant would provide the compensatory mitigation at the required 1.2:1 ratio by retrofitting electric utility poles, as discussed in the 2016 USFWS Programmatic Environmental Impact Statement (USFWS, 2016). The intent would be to minimize the potential for eagle electrocutions and ensure that the effects of eagle incidental take are offset at the population level. NGM will utilize a USFWS-approved mitigation program, such as, but not limited to, the Bald Eagle and Golden Eagle Electrocution Prevention In-Lieu Fee Program (In-Lieu Fee Program), for electric pole retrofits to offset the potential loss of productivity in two golden eagle territories resulting from approved Project activities.

Potential disturbance from authorized activities within proximity to the two golden eagle territories is unavoidable due to the location of the ore bodies that occur within proximity to nests within each territory and the economic factors that contribute to the profitable extraction of the minerals contained therein. Mitigation will not be required for nesting seasons in which there is no blasting within two miles or mining-related activities within one mile of the nests in the territories covered by the take permit or if monitoring shows there was a successful nesting attempt (i.e., fledged one or more young) in the territories covered by the permit. Priority will be requested for retrofitting opportunities within Nevada and/or the Great Basin. However, if opportunities are not available in these areas, mitigation credits will be used to retrofit poles anywhere within the EMU at the discretion of the In-Lieu Fee Program entity administering the mitigation. Once NGM has purchased the credits, the In-Lieu Fee Program entity administering the mitigation will be responsible for coordinating and implementing the retrofits; however, NGM will be responsible for purchasing additional credits if there are discrepancies between the initial purchased amount and actual costs incurred for the retrofits.

Long-term eagle incidental take permits require the Service to conduct five-year reviews. Based on the results of monitoring described in **Section 7.0** for the Project, during the five-year review process, the Service would evaluate if take occurred for each known breeding territory described in **Table 2** as subject to possible disturbance in each year. For example, should nest disturbance occur within one mile of a golden eagle nest or two miles of blasting during the courtship phase or egg-laying period of the breeding season (December 15–April 15), the Service would assume NGM's activities prevented eagles from breeding and that a take incident occurred. If NGM's data validate that no disturbance occurred within one or two miles of a breeding pair's nest site until after April 15 in a given year and monitoring confirms nests are not in use, NGM could proceed with its activities, and the Service would determine no take occurred. The Service would consider use of alternate nests within a given territory when evaluating whether take occurred as a result of NGM's mine-related activities. After assessing how many take incidents occurred during the first five years, the Service would then evaluate how much compensatory mitigation might be either credited or owed for each successive five-year period remaining within the permit duration for the Project.

The permit for the Phoenix Mine would require mitigation for the annual disturbance take of two breeding pairs for up to 30 years at the Phoenix Mine. The amount of compensatory mitigation required for 30 years of lost productivity has been determined through the Service's Golden Eagle Resource Equivalency Analysis (REA). NGM must commit to mitigate the first five years of take at the time of permit issuance. At each five-year check-in, data collected during the previous five years will be used to determine if further compensatory mitigation will be required in the following five years. Unless monitoring indicates reduced impacts to breeding golden eagles, NGM would contribute compensatory mitigation in an amount equal to the power pole retrofit of one of the following or a combination of both:

- 448.94 poles (avoided loss from retrofits maintained and effective for 10 years); or
- 195.38 poles (avoided loss from retrofits maintained and effective for 30 years).

Within 30 days from the issuance of the take permit, NGM will make a payment to the same USFWS-specified account for the total retrofit obligation to offset disturbance take associated with an average of 2.36 takes per year for the first five years. The monetary value of each pole will be determined through coordination with the USFWS prior to NGM depositing the funds into the specified account. The number of poles for the first five years is 66 (the value of 65.13 from the USFWS REA was rounded up), which assumes retrofitting for 30 years of avoided loss and is based on the ratio of 1.2:1.

Upon completion of the USFWS five-year permit review, a determination of whether disturbance take occurred will take place. Using the results of this determination, disturbance take funds that have been paid to date will be rolled over (either in part or the full sum), or additional payment will be made to the same account, based on actual disturbance take as determined through close coordination with the USFWS and based on observed nest occupancy and productivity, as described in **Section 8.0**. Mitigation will be paid every five years, as applicable, throughout the 30-year permit period of the Project.

9.0 REFERENCES

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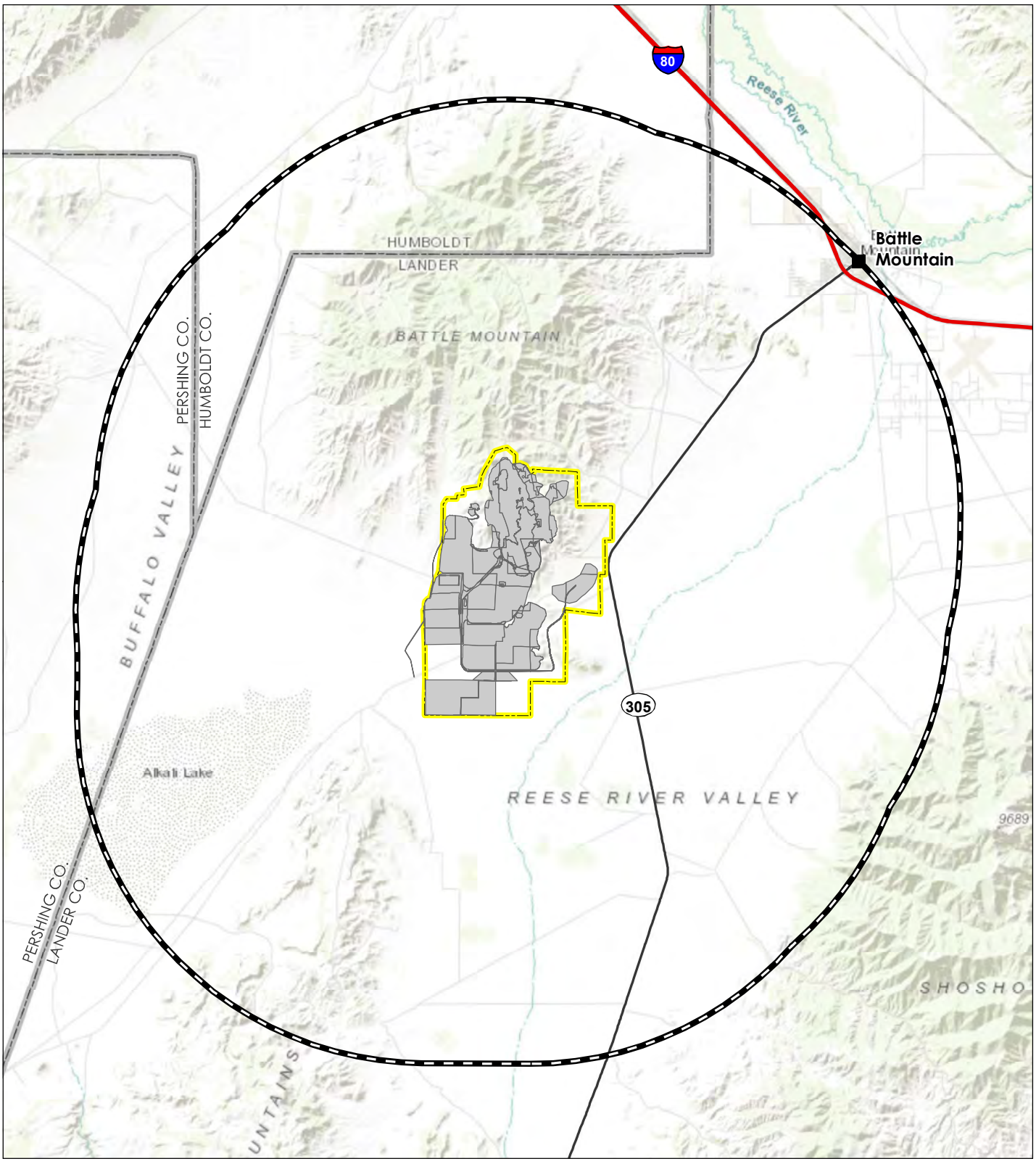
FIGURES



Legend

- Phoenix Mine Plan of Operations (Plan) Boundary
- 10-mile Radius of Plan Boundary (Study Area)
- Authorized Facilities

N

Miles

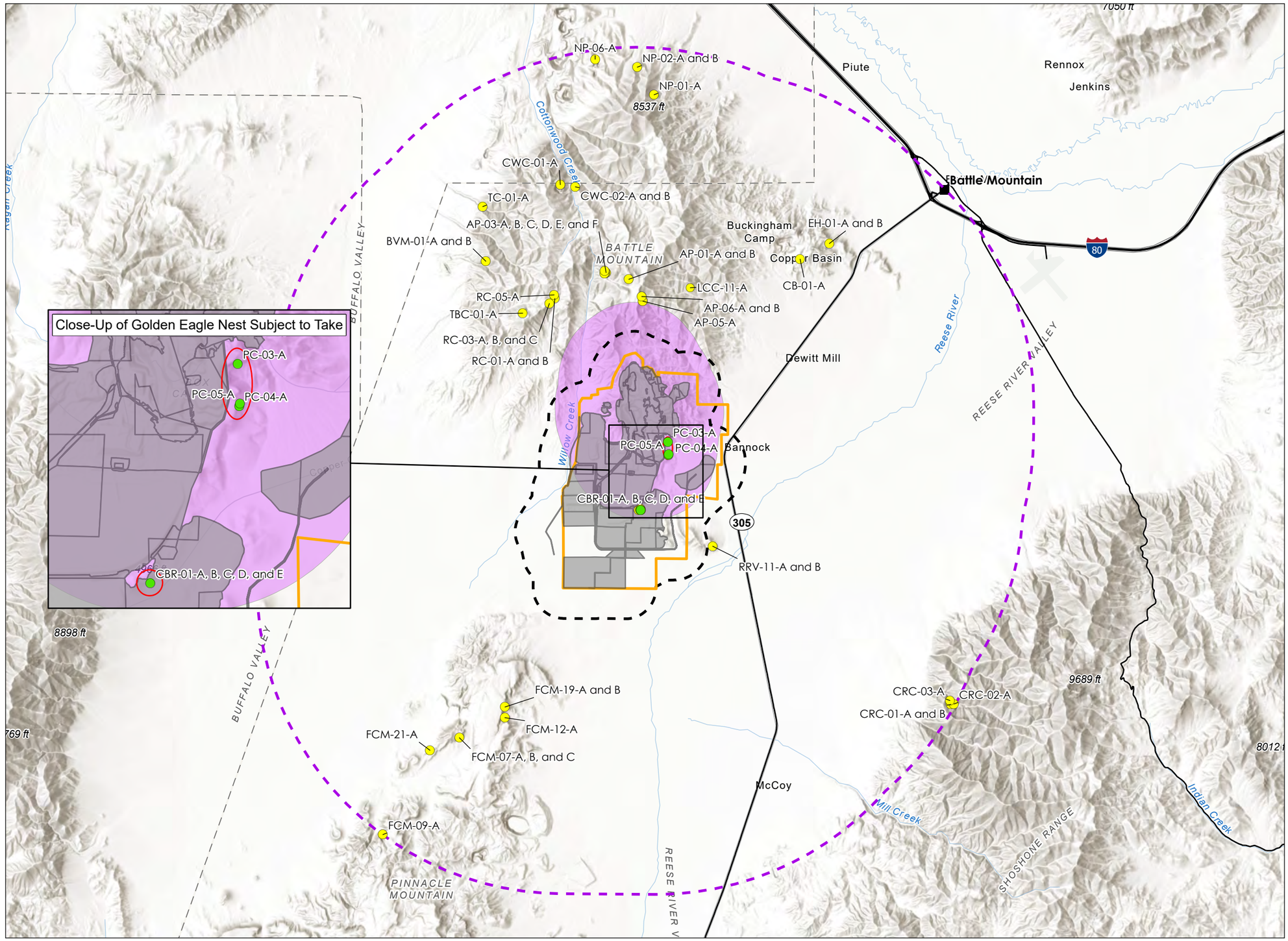
0 2 4 1 in = 4 miles

Humboldt, Lander and Pershing County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: JT	1ST REVIEW: BT	2ND REVIEW: CS
DATE: 12/2/2020	PROJECT NO: 203722058	

Nevada Gold Mines LLC
Phoenix Mine
Golden Eagle Conservation Plan

Figure 1
Project Location and Study Area



Legend

- Phoenix Mine Plan of Operations (Plan) Boundary
- Study Area (10-mile Buffer of Project Area)
- Phoenix Authorized Disturbance
- One-Mile Radius of Authorized Disturbance
- Pit Blasting Two-Mile Radius
- Golden Eagle Nest Territory
- Golden Eagle Nest Subject to Take
- Golden Eagle Nest

Feet
0 3,000 6,000
1 in = 6,000 feet

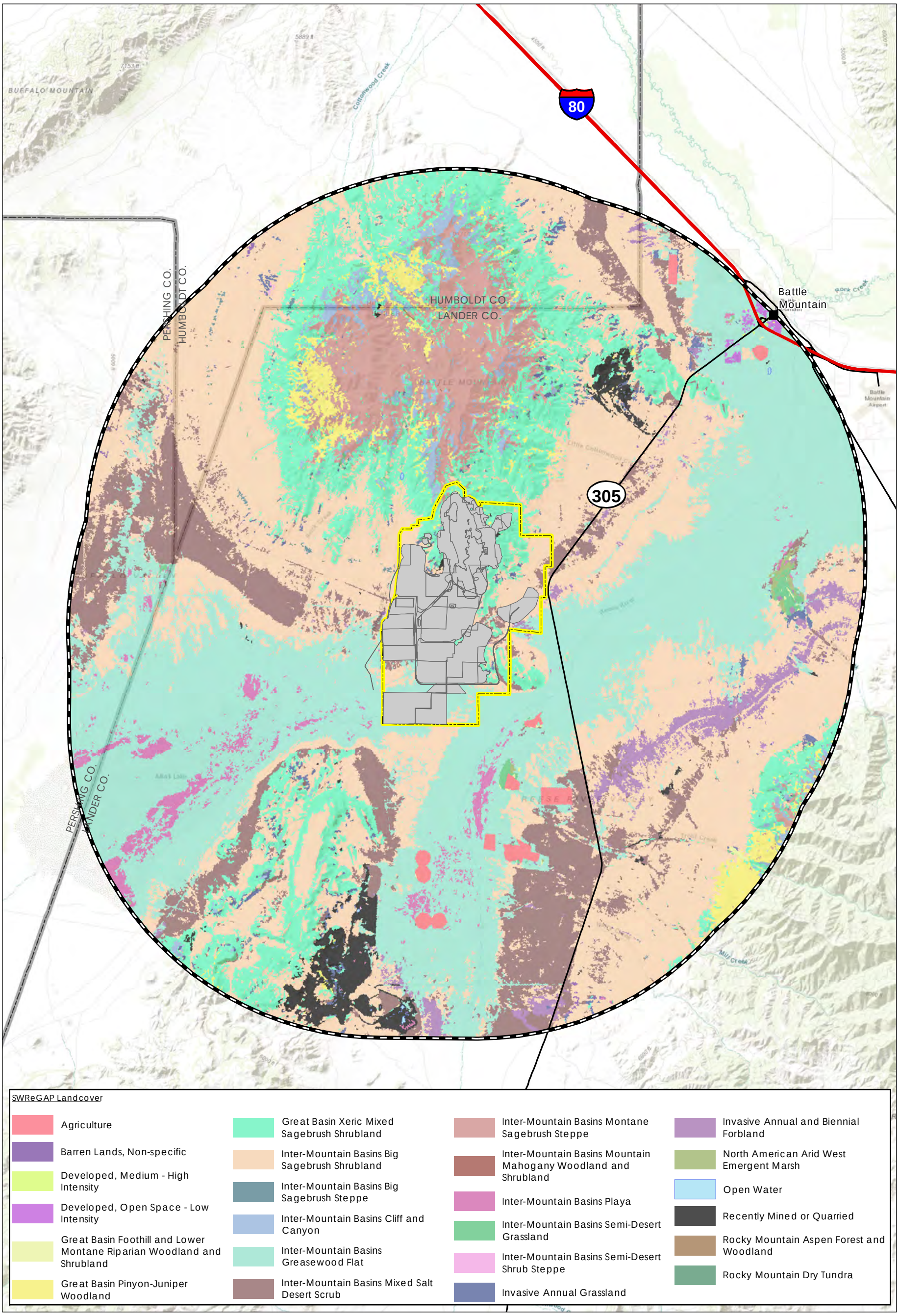
N

Humboldt, Lander and Pershing County, NV
NAD 1983 UTM Zone 11N

PROJECT NO: 203722641
DRAWN BY: IH
1ST REVIEW: BT
2ND REVIEW: SM
DATE: 2023-12-08

Nevada Gold Mines LLC
Phoenix Mine
Golden Eagle Conservation Plan

Figure 2
Territories within Proximity of Authorized Mining



Legend

- Phoenix Mine Plan of Operations (Plan) Boundary Authorized
- Facilities
- 10-mile Radius of Plan Boundary (Study Area)

N

Miles

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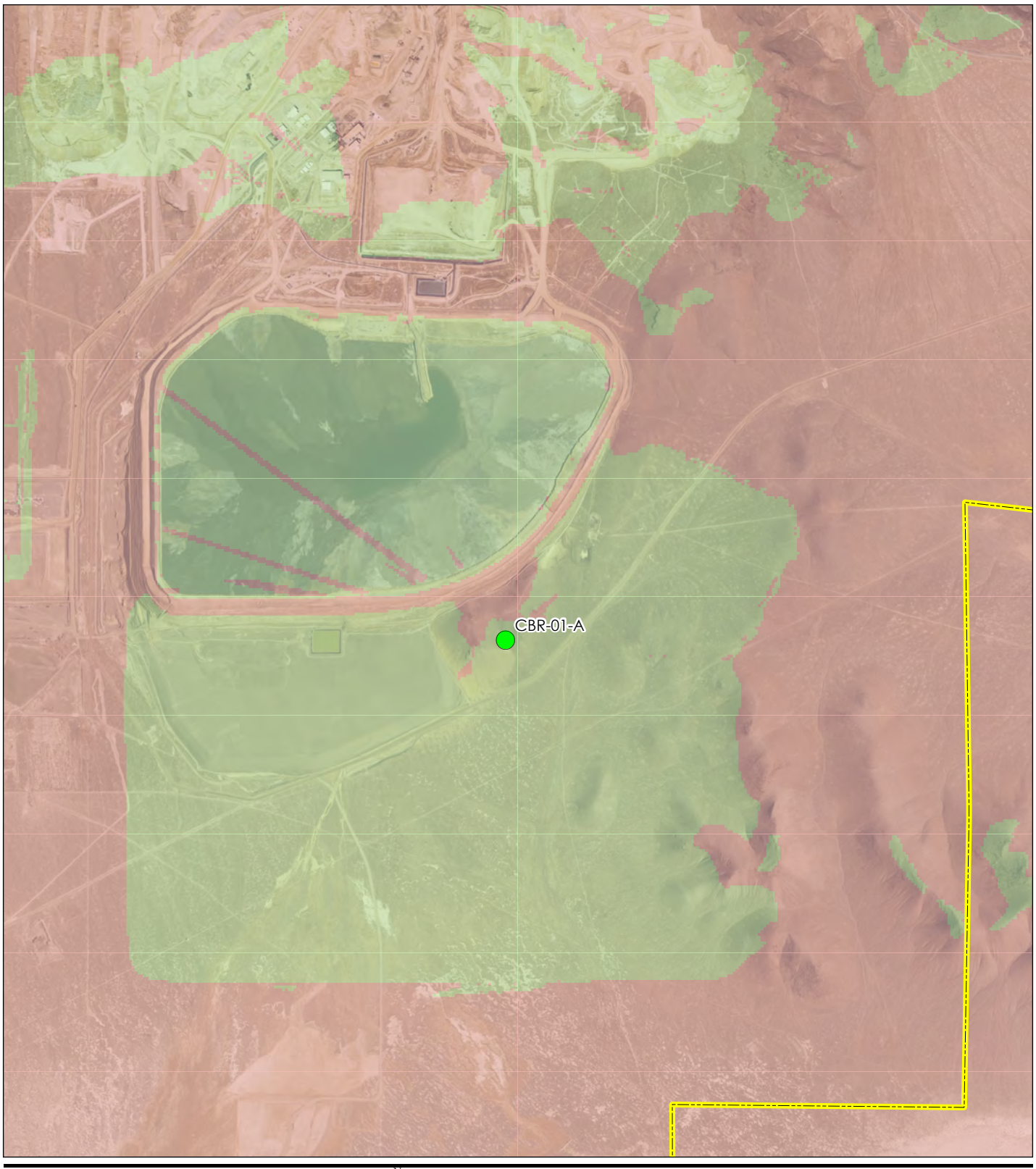
Humboldt, Lander and Pershing County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: JT	1ST REVIEW: BT	2ND REVIEW: CS
DATE: 12/2/2020	PROJECT NO: 203722058	

Nevada Gold Mines LLC
Phoenix Mine
Golden Eagle Conservation Plan

Figure 3
Foraging Habitat
within the Study Area



Legend

- Golden Eagle Nest
- Phoenix Mine Plan of Operations (Plan) Boundary
- Not Visible
- Visible

N

Feet
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1:30,000

Humboldt, Lander and Pershing County, NV
NAD 1983 UTM Zone 11N

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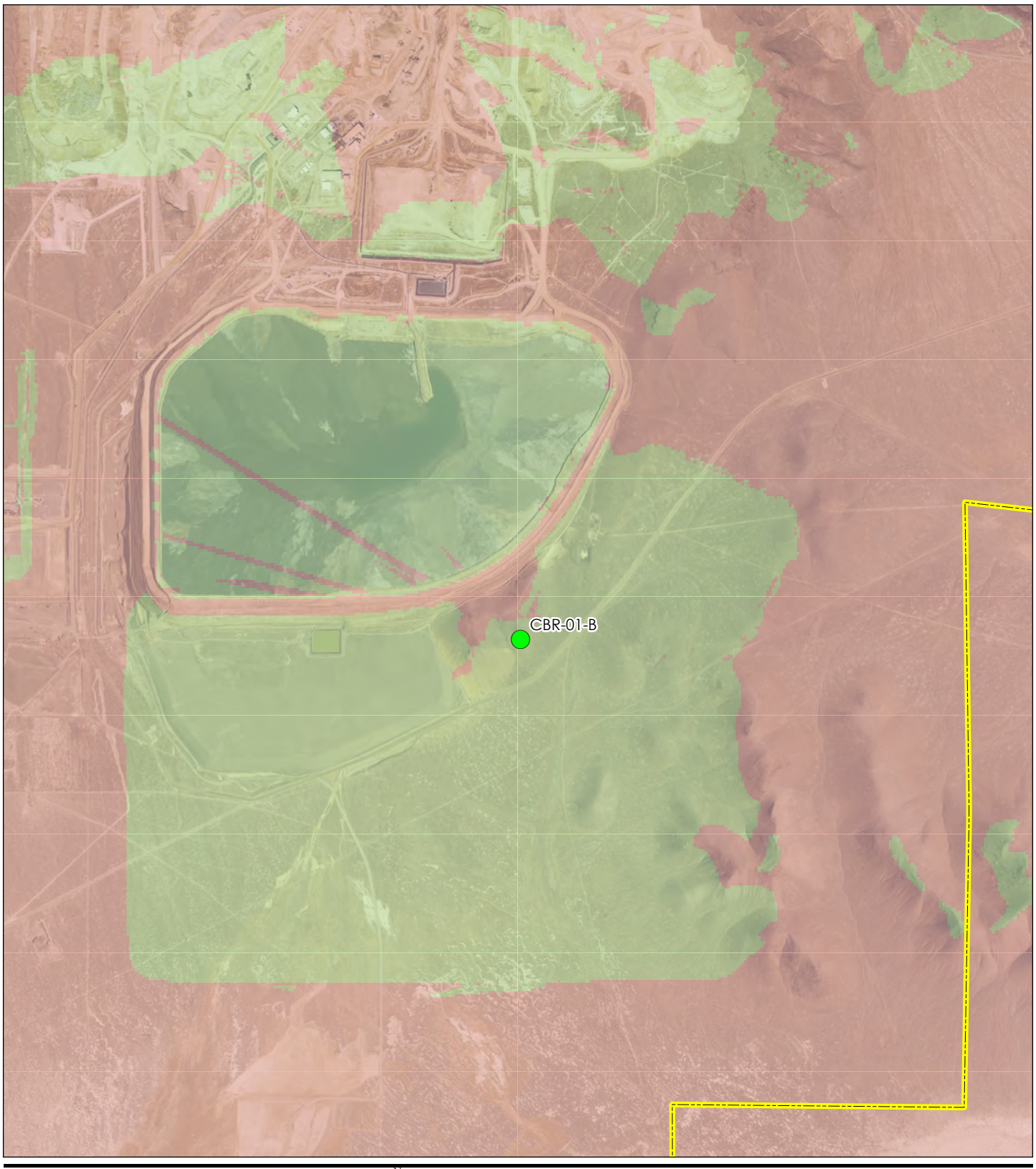
DATE: 2023-07-20	PROJECT NO: 203721773	

Nevada Gold Mines LLC
Phoenix Mine
Golden Eagle Conservation Plan

Figure 4
CBR-01-A Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Phoenix Mine Plan of Operations (Plan) Boundary
- Not Visible
- Visible

N

0 1,000 2,000 Feet

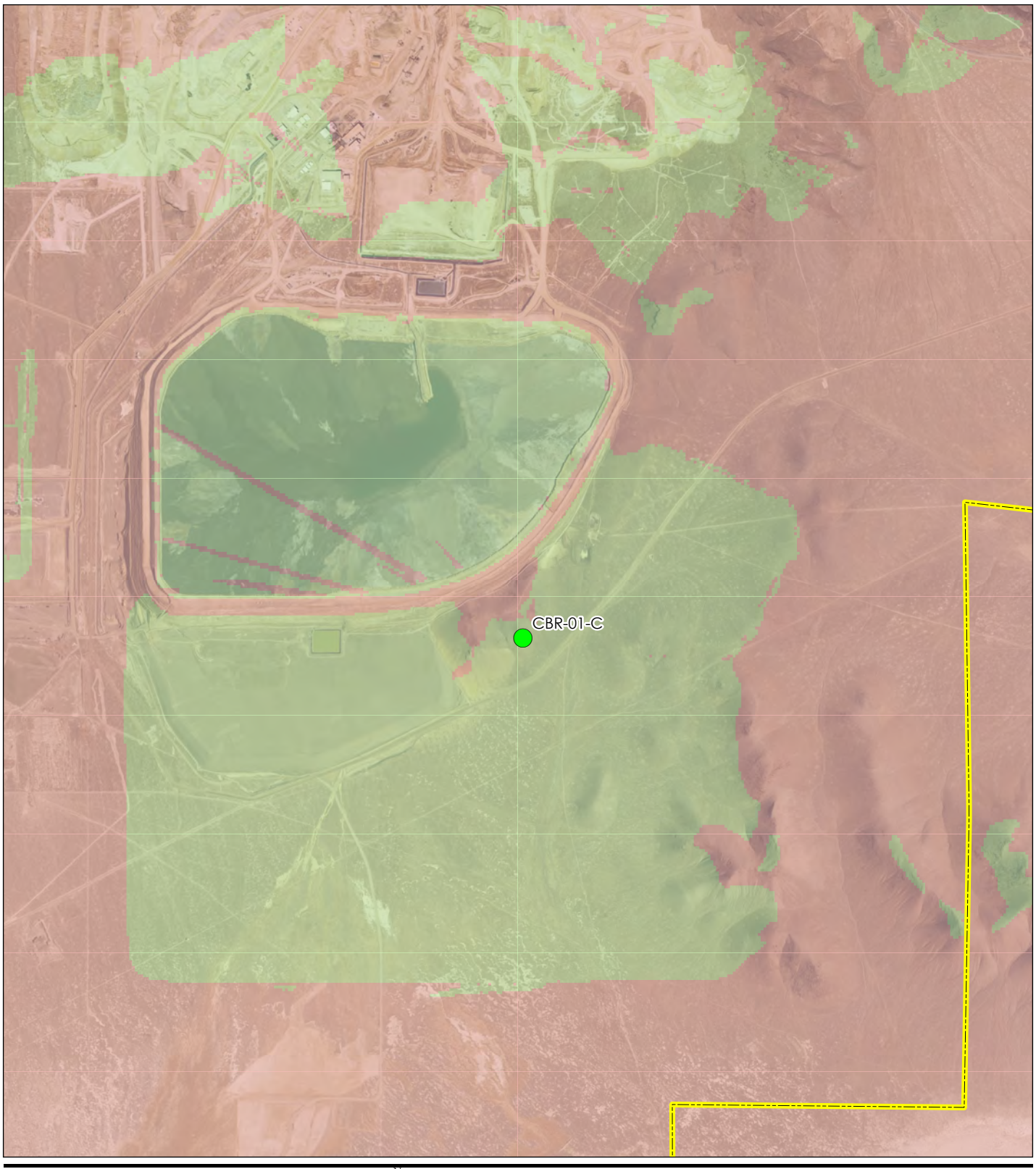
1:30,000

Humboldt, Lander and Pershing County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: JT	1ST REVIEW: BT	2ND REVIEW: CS
DATE: 2023-07-20	PROJECT NO: 203721773	

Nevada Gold Mines LLC
Phoenix Mine
Golden Eagle Conservation Plan

Figure 5
CBR-01-B Golden Eagle Nest Viewshed Results



Legend

- Golden Eagle Nest
- Phoenix Mine Plan of Operations (Plan) Boundary
- Not Visible
- Visible

N

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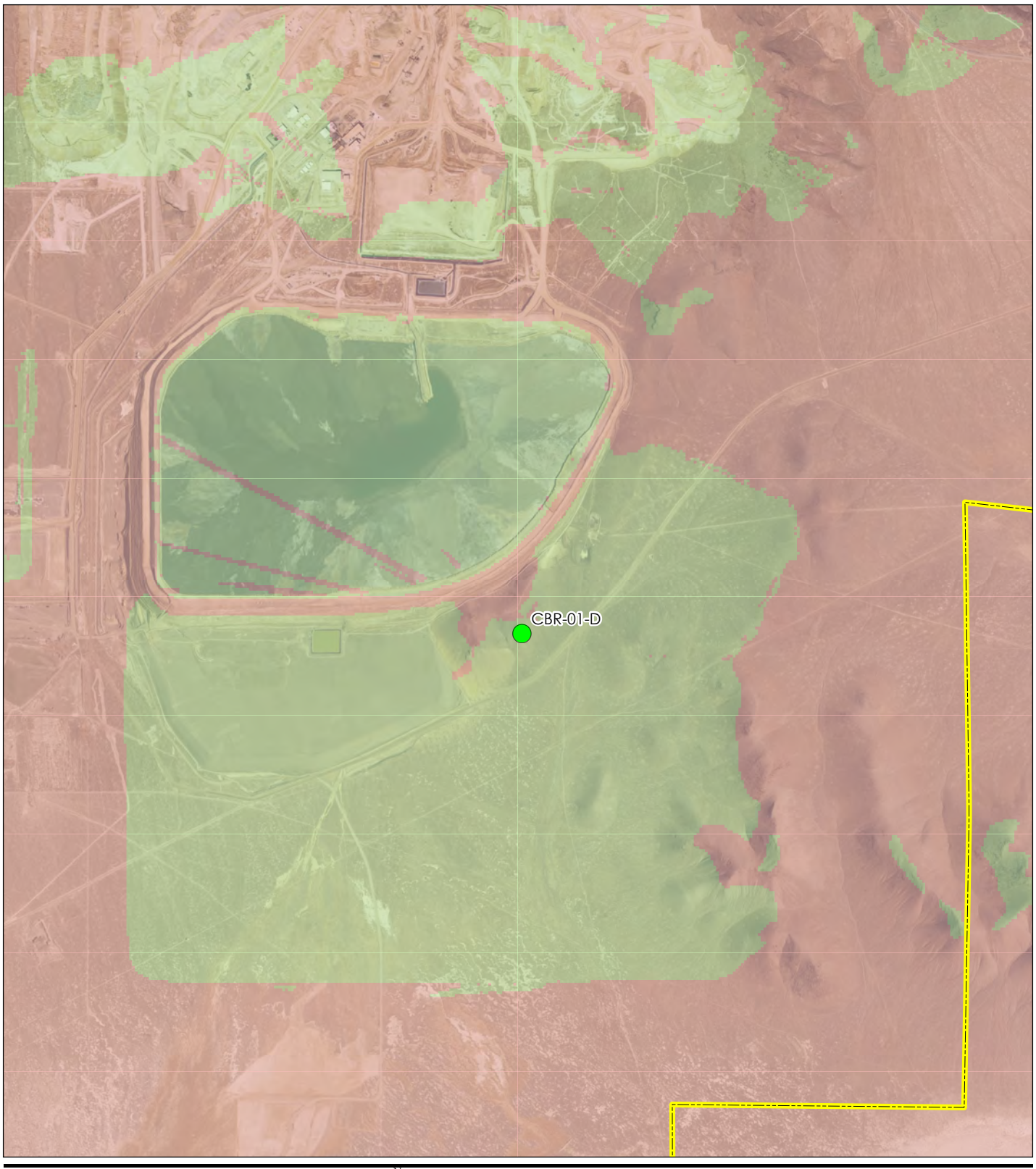
1:30,000

Humboldt, Lander and Pershing County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: JT	1ST REVIEW: BT	2ND REVIEW: CS
DATE: 2023-07-20	PROJECT NO: 203721773	

Nevada Gold Mines LLC
Phoenix Mine
Golden Eagle Conservation Plan

Figure 6
CBR-01-C Golden Eagle Nest Viewshed Results



Legend

- Golden Eagle Nest
- Phoenix Mine Plan of Operations (Plan) Boundary
- Not Visible
- Visible

N

Feet
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1:30,000

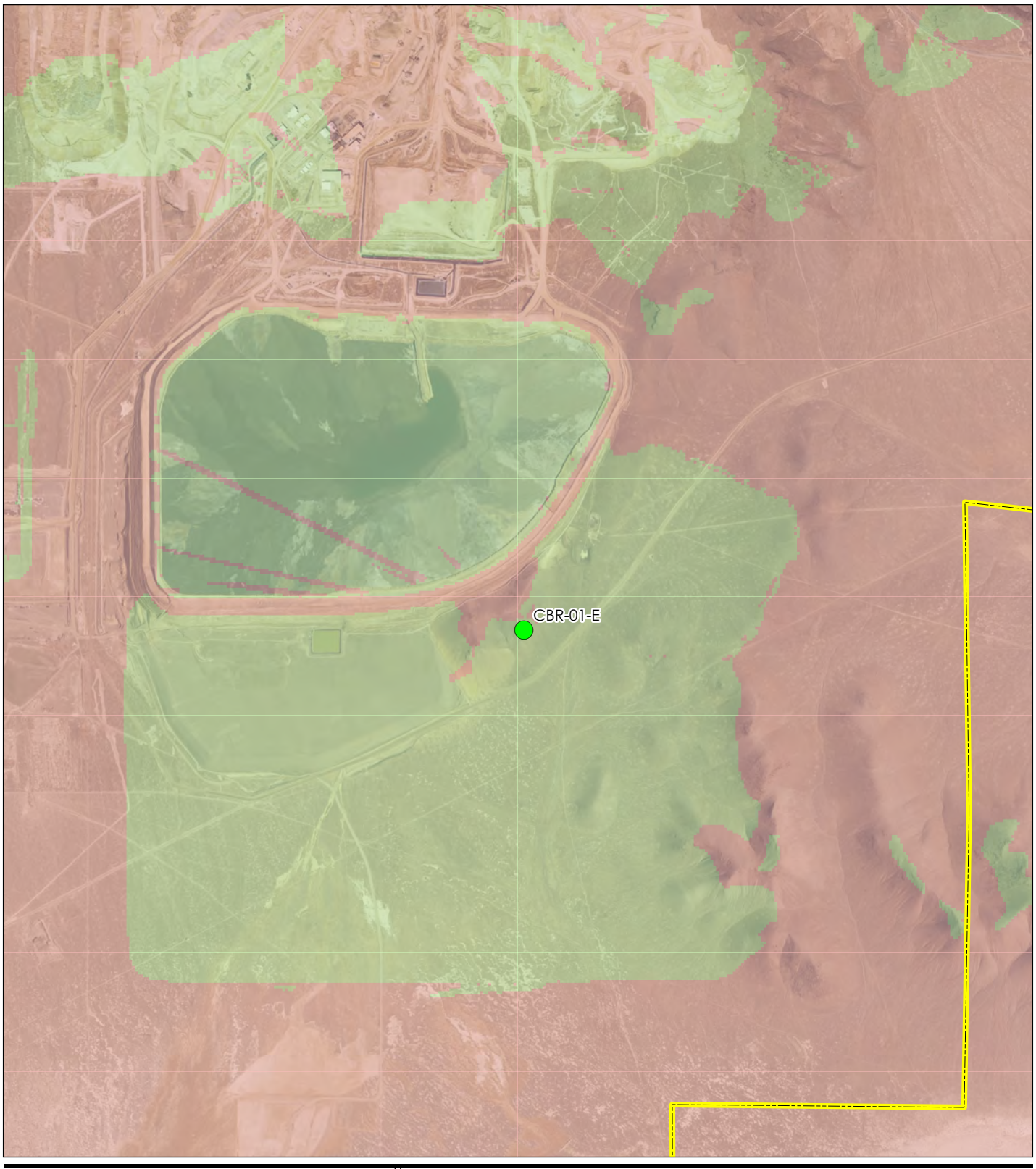
Humboldt, Lander and Pershing County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: JT	1ST REVIEW: BT	2ND REVIEW: CS
DATE: 2023-07-20	PROJECT NO: 203721773	

Nevada Gold Mines LLC
Phoenix Mine
Golden Eagle Conservation Plan

Figure 7
CBR-01-D Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Phoenix Mine Plan of Operations (Plan) Boundary
- Not Visible
- Visible

N

Feet
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1:30,000

Humboldt, Lander and Pershing County, NV
NAD 1983 UTM Zone 11N

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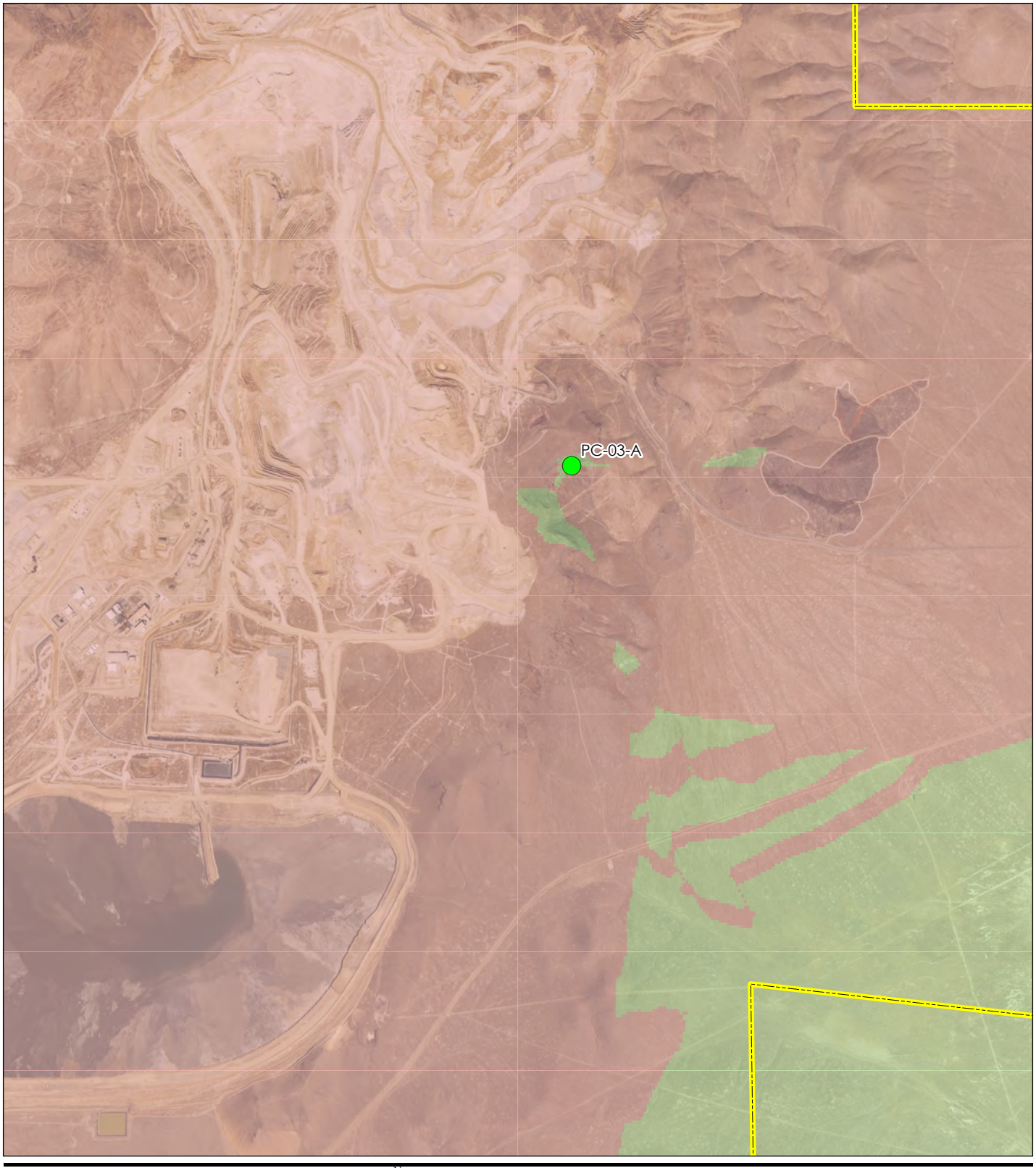
DATE: 2023-07-20	PROJECT NO: 203721773	

Nevada Gold Mines LLC
Phoenix Mine
Golden Eagle Conservation Plan

Figure 8
CBR-01-E Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Phoenix Mine Plan of Operations (Plan) Boundary
- Not Visible
- Visible

N

Feet
0 1,000 2,000
1:30,000

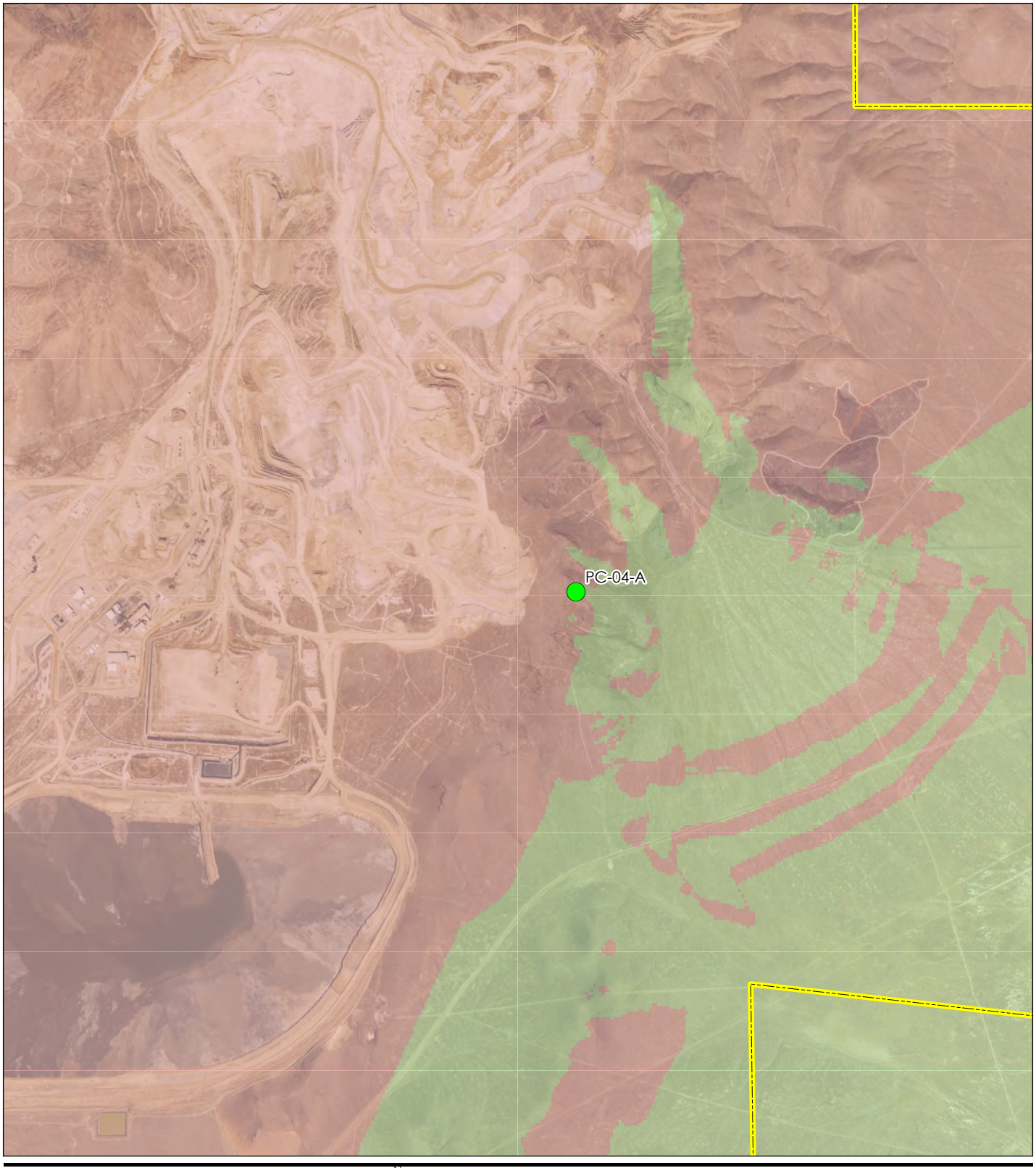
Humboldt, Lander and Pershing County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: JT	1ST REVIEW: BT	2ND REVIEW: CS
DATE: 2023-07-20	PROJECT NO: 203721773	

Nevada Gold Mines LLC
Phoenix Mine
Golden Eagle Conservation Plan

Figure 9
PC-03-A Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Phoenix Mine Plan of Operations (Plan) Boundary
- Not Visible
- Visible

N

Feet
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1:30,000

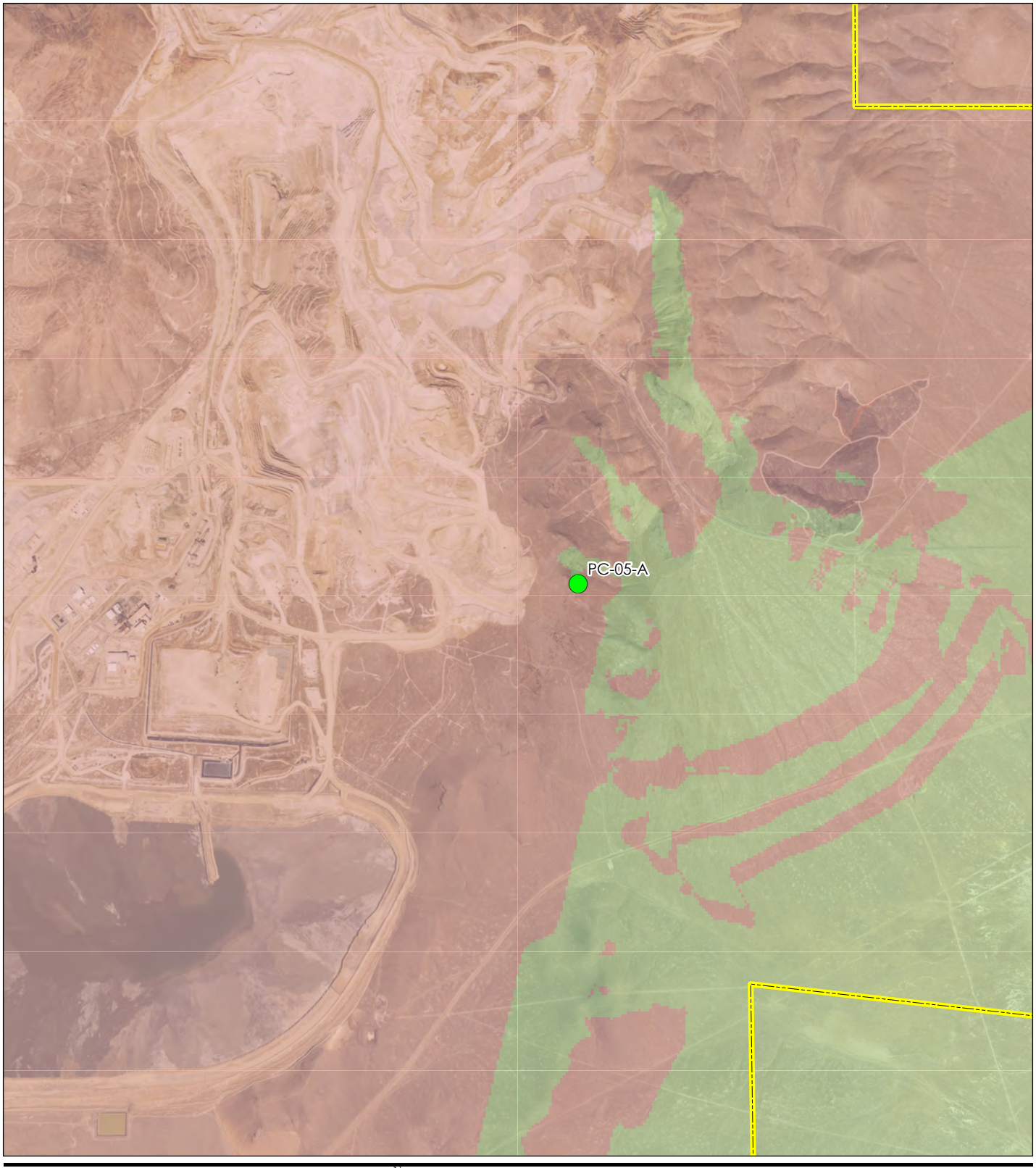
Humboldt, Lander and Pershing County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: JT	1ST REVIEW: BT	2ND REVIEW: CS
DATE: 2023-07-20	PROJECT NO: 203721773	

Nevada Gold Mines LLC
Phoenix Mine
Golden Eagle Conservation Plan

Figure 10
PC-04-A Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency



Legend

- Golden Eagle Nest
- Phoenix Mine Plan of Operations (Plan) Boundary
- Not Visible
- Visible

N

Feet
0 1,000 2,000
1:30,000

Humboldt, Lander and Pershing County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: JT	1ST REVIEW: BT	2ND REVIEW: CS
DATE: 2023-07-20	PROJECT NO: 203721773	

Nevada Gold Mines LLC
Phoenix Mine
Golden Eagle Conservation Plan

Figure 11
PC-05-A Golden Eagle Nest Viewshed Results

Service Layer Credits: USA NAIP Imagery: Natural Color: Esri, USDA Farm Service Agency

APPENDIX C

Results of Golden Eagle Local Area Population Analysis for Cortez and Phoenix Mine Nest Disturbance Permit Application

logfile start
US FWS Cumulative Effects Tool
Summary Results (Golden Eagle)
run 2023-02-08 18:19:53

Focal Project: Cortez_Phoenix_Mines

Local Area Population (LAP) Estimates by Local Area Density Unit (LADU):

Cortez_Phoenix_Mines_GREAT_BASIN	787.03
Cortez_Phoenix_Mines LAP (total)	787.03
1% LAP Benchmark	7.87
5% LAP Benchmark	39.35

'Permitted' & 'Other' Projects with Overlapping LAPs:

Project 20776D	0.59	35.84%	13369.52	0.21
Project 16920D	0.59	0.78%	290.72	0
Project 16920D	0.59	1.20%	445.9	0.01
Project 76086D	0.59	31.07%	11588.85	0.18
Project 53540D	0.59	97.10%	36217.91	0.57
All Projects (total)	2.95			0.97

		Percent of LAP
		5%
Total Overlapping Take	0.97	0.12%
Focal Project Predicted Take	3.54	0.45%
Focal Project + Total Overlapping Take	**4.51**	**0.57%**

Unpermitted Take Summary			**Discovery Period**
Golden Eagle	**All Known**	**Reported Years**	2013-2022
Emaciation;Trauma	1	2014-2014	1
Electrocution	138	1993-2023	115
Shot	18	2012-2021	15
Collision/electrocution	6	2018-2022	6
Collision with vehicle	11	2002-2022	10
Trapped	1	2021-2021	1
Collision with wind turbine	6	2012-2015	5
Unknown	89	2011-2022	87
Determination pending	1	2014-2014	1
Collision	1	2021-2021	1
Other	6	2014-2022	6
Trauma	8	1994-2021	6
Poisoned (pesticide);Trauma	1	2014-2014	1
Collision with wire	4	2014-2018	4
Poisoned (lead)	1	2018-2018	1
Disease	3	2006-2017	1
Emaciation;Starvation	3	2003-2014	2
Starvation	1	2015-2015	1
Emaciation	1	2017-2017	1