Greater Sage-Grouse Mitigation - Project Plan

GOLD BAR MINE - MCEWEN MINING INC.

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Prepared for:

Gold Bar Mine: Proponent Driven Greater Sage-Grouse Mitigation Plan

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ACRONYMS AND ABBREVIATIONS

3 Bars FEIS	3 Bars Ecosystem and Landscape Restoration Project FEIS
ARMPA	Approved Resource Management Plan Amendment
ATV	All-Terrain Vehicle
BMPs	Best Management Practices
BLM	Bureau of Land Management's
cm	centimeters
EPMs	environmental protection measures
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
GHMA	general habitat management areas
in	inches
LUPA/FEIS	Nevada and Northeastern California Greater Sage-Grouse Proposed Land Use Plan Amendment and FEIS
MLFO	Mount Lewis Field Office
MLRA	Major Land Resource Area
MMI	McEwen Mining Inc
NDOW	Nevada Division of Wildlife
OHMA	Other Habitat Management Areas
Plan Amendment	MMI's sage-grouse compensatory mitigation plan amendment
PHMA	priority habitat management areas
RDFs	Required Design Features
ROD	Record of Decision
Sage-grouse	Greater sage-grouse (*Centrocercus urophasianus*)
SRCE	Standardized Reclamation Cost Estimator
SETT	Sagebrush Ecosystem Technical Team
USDA	United States Department of Agriculture

USFWS	United States Fish and Wildlife Service

1.0 INTRODUCTION

This document describes McEwen Mining Incorporated's (MMI) compensatory mitigation plan amendment ("Plan Amendment") for greater sage-grouse (*Centrocercus urophasianus*; hereafter referred to as "sage-grouse"). MMI will voluntarily implement, monitor and manage important habitat for sage-grouse, thereby offsetting habitat losses to sage-grouse from direct and indirect impacts of the Gold Bar Mine Project and achieving a measurable, net conservation gain for sage-grouse.

MMI developed a proponent driven sage-grouse mitigation plan, which was analyzed in the Gold Bar Mine Project Final Environmental Impact Statement (FEIS). The proponent driven plan proposed to conduct vegetation treatments in areas identified and analyzed in the 3 Bars Ecosystem and Landscape Restoration Project FEIS ("3 Bars FEIS"; BLM 2016a). The Record of Decision for the 3 Bars Ecosystem and Landscape Restoration Project FEIS was issued on March 30, 2020. Therefore, MMI can proceed with the proponent driven mitigation plan, as described in the Record of Decision for the Gold Bar Mine Project Final Environmental Impact Statement (FEIS),

The Record of Decision for the Gold Bar Project, received on November 7, 2017 (DOI-BLM-NV-B010-2015-0010-EIS), requires that MMI implement a plan to mitigate for potential impacts to sage grouse from the Project. The approach to mitigate for direct and indirect impacts, analyzed in the Gold Bar Mine Project FEIS, used mitigation ratios of 4:1 priority habitat management area (PHMA), 3:1 general habitat management area (GHMA), and 2:1 other habitat management area (OHMA) on direct habitat loss, which is supported by quantification of indirect and direct impacts using the calculation framework presented in the FEIS. As a result, MMI is responsible for treating 768 acres of PHMA and 1,626 acres of GHMA or PHMA to meet the mitigation obligation.

The format and structure of this Project Plan follows the Bureau of Land Management's (BLM) *Mitigation Handbook H-1794-1* (BLM 2016b). Other guidance was considered and incorporated into this Plan Amendment where appropriate. The remaining sections of this Project Plan detail the following:

- Purpose and Need for the Project Plan (Section 1.1);
- Regulatory Framework (Section 1.2) and Guidance (Section 1.3) consulted in the development of this Project Plan;
- Identification of Principals and Standards of Mitigation (Section 1.4) that were incorporated into this Project Plan;

- A general project area description (Section 2.0);
- Presentation of the mitigation approach, which includes a summary of impacts being mitigated (Section 3.1); goals, objectives, and performance standards of the Project Plan program (Section 3.2); locations of identified treatment units and selection of specific treatment blocks (Section 3.3); and the expected outcomes, effectiveness and additionality that the program is anticipated to achieve (Section 3.4);
- Methods that will be used to implement the treatments, including Best Management Practices (BMPs) to avoid and minimize environmental impacts from the actions taken in the treatment blocks (Section 4.0);
- Program duration and implementation schedule (Section 5.0);
- The monitoring plan following implementation of treatments, which includes discussion of pre-implementation data to be collected to support demonstration of effectiveness (Section 6.2);
- Maintenance commitments, adaptive management, and force majeure considerations (Sections 6.1, 6.3 and 6.4);
- Reporting schedule and content (Section 7.0);
- Durability assurances (Section 8.0);
- Roles and Responsibilities of MMI, BLM, and other stakeholders (Section 9.0); and
- References cited in the Project Plan (Section 10.0).

1.1 Purpose and Need

The MMI Gold Bar Mine Project FEIS analyzed the impacts of the Project/Proposed Action and Alternatives to sage-grouse. Several aspects of the Gold Bar Mine Project were designed and environmental protection measures (EPMs) were developed to avoid, minimize, rectify, and reduce/eliminate potential impacts to sage-grouse. After these measures were applied, the analysis determined the need for compensatory mitigation. The Record of Decision (ROD) for the Gold Bar Mine Project gives MMI the option of a proponent-driven plan to meet the compensatory mitigation requirements for the Project.

MMI developed a proponent driven sage-grouse mitigation plan, which was analyzed in the FEIS. The proponent driven plan proposed to conduct vegetation treatments in areas identified and analyzed in the 3 Bars FEIS The Record of Decision for the 3 Bars Ecosystem and Landscape Restoration Project FEIS was issued on March 30, 2020. Therefore, MMI has developed this Project Plan, to implement sage grouse mitigation using treatment approach and units described in the 3 Bars FEIS. This Project Plan also identifies the locations of treatment blocks, and the specific methods that will be used to implement treatments and monitor post-implementation effectiveness.

MMI will voluntarily implement, monitor and manage at least 768 acres of PHMA and 1,626 acres of GHMA or PHMA for sage-grouse, thereby offsetting habitat losses to sage-grouse from the Project and achieving a measurable, net conservation gain for sage-grouse. By enhancing or maintaining priority and general habitat management areas, MMI will make progress towards meeting sage-grouse life-cycle requirements and habitat objectives based on site potential, as described in Section 2.2.4 of BLM (2015).

1.2 Guidance

Primary guidance consulted in the development of this Project Plan includes the Bureau of Land Management's (BLM) *Mitigation Handbook H-1794-1* (BLM 2016b). Other guidance used in the development of this Project Plan included the Fish and Wildlife Service's (USFWS) *Greater Sage-Grouse Range-Wide Mitigation Framework* (USFWS 2014).

Techniques and methods to select appropriate management actions and treatments, and measure net conservation gain in the form of habitat uplift, included guidance provided by BLM (Stiver et al. 2015), and the general literature, as cited in relevant sections below.

1.3 Principles and Standards of Mitigation

This Project Plan considered the full mitigation hierarchy in the development of the compensatory mitigation program. Several aspects of the Gold Bar Mine Project were designed, and EPMs were developed, to avoid, minimize, rectify, and reduce/eliminate potential impacts to sage-grouse. MMI has also committed to Required Design Features (RDFs) and Management Decisions from the Approved Resource Management Project Plan ([ARMPA]; BLM 2015). It should be noted that most of the RDFs are not "required" for non-discretionary projects and that any commitments by MMI have been done so as a good-faith effort to avoid, minimize, rectify, reduce, and eliminate impacts to sage-grouse. After these measures were applied, the analysis determined the need for compensatory

mitigation. This Project Plan addresses the requirements for compensatory mitigation requirements for the Gold Bar Mine Project.

This mitigation program considered all relevant scales, and incorporated landscape-level considerations into selection of specific treatment sites, as described Section 3.3. EPMs will be followed during treatment implementation, as described in Section 4.0. A list of the EPMs is also provided in Appendix A.

As described in BLM Handbook H-1794-1, effective mitigation is durable, defined by outcomes, implemented and monitored for effectiveness, considered within an adaptive management framework, reported upon, managed by a responsible party, guided by the best available science, and developed through effective, early, and frequent communication with the public land user, cooperating agencies, and other stakeholders, including the public. Each of these principles of mitigation has been incorporated into this Project Plan in the following ways:

Durability – Section 8.0 discusses the financial, administrative, and resource assurances that ensure the mitigation program will be durable.

Outcome Driven – Section 3.5 describes the anticipated outcome and effectiveness of the program. The outcomes will be demonstrated through the performance standards, which are described in Section 3.2. Data will also be collected prior to implementation to show program effectiveness, as described in Section 3.4.

Implementation and Monitoring – Methods to effectively implement the treatments are described in Section 4.0. Post-implementation monitoring and maintenance is described in Section 6.0. Monitoring will measure whether or not performance standards have been achieved by treatment implementation, thereby measuring the effectiveness of the treatments.

Adaptive Management – Should implementation not achieve the desired outcomes, or if a force majeure event should occur that prevents achievement of desired outcomes, adaptive management provisions will be followed, as described in Section 6.4.

Reporting – Reporting schedule and content is described in Section 7.0.

Responsible Management – Roles and responsibilities of MMI, BLM, and other stakeholders, are described in Section 9.0 (Roles and Responsibilities). Additional responsibilities in the form of financial

and administrative assurances (Section 8.0) describe how management will be responsible for ensuring program effectiveness.

Best Available Science – Best available science was incorporated into all aspects of this Project Plan. The technical underpinnings guiding treatment area selection (Section 3.3) and implementation methods (Section 4.0) are described in their respective sections. Performance standards (Section 3.4) were developed from general principles in Stiver et al. (2015) and other literature showing benefits to sage-grouse from shifts in vegetation cover (e.g., Severson et al. 2017a,b). Measures to demonstrate program effectiveness were based on best available science demonstration of ecosystem health aspects shown to benefit sage-grouse and provide a net conservation gain (discussed in Section 3.3).

Communication – Communication protocols between MMI, BLM, and other stakeholders is described in Section 9.0 (Roles and Responsibilities). Communication with the public and interested parties will be achieved through administrative assurances, as described in Section 8.2.

Many of these principles of mitigation are identified in FWS' sage-grouse mitigation framework. The FWS also identifies several standards of mitigation, which include siting (Section 3.3), additionality (Section 3.5), duration (Section 5.0), effectiveness (Section 3.5), durability (Section 8.0), and metrics (defined in this Project Plan as performance standards, Section 3.4).

2.0 PROJECT AREA DESCRIPTION

The Gold Bar Mine Project is located approximately 30 miles northwest of Eureka in the southern Roberts Mountains in Eureka County, Nevada. The Gold Bar Mine Project boundary encompasses 5,362 acres of public land and 199 acres of private land. The public land is administered by the BLM Mount Lewis Field Office (MLFO). This Project Plan identifies areas within the Frazier and Vinini Treatment Areas, as identified in 3 Bars FEIS and in close proximity to the Gold Bar Mine Project (Figure 2.0-1). The entire Project area consists of 2,557 acres of targeted treatment areas in Vinini and Frazier Corridors. The Project area acreage is greater than the requirement described in the Gold Bar ROD to allow for operational flexibility. Targeted areas to treat were prioritized based on the spatial scale of treatments individually and combined, temporal scale of effectiveness. The temporal and spatial effectiveness of the proposed treatments depends on the quality of existing vegetation cover, proximity of treatments to leks and sage-grouse brood-rearing habitat, ability of the treatment methods to achieve performance standards, cumulative ecological footprint, and other ongoing activities in the vicinity. Targeted treatment areas were selected within those units after considering these factors. A summary of several factors for the Project area is provided in Table 2.0-1.

Table 2.0-1. Targeted Treatment Area Acres

Treatment Unit	Total Acres	Habitat Type		Woodlands	
		PHMA	GHMA	Phase I	Phase II
Vinini Corridor	1,985	1,864	121	1,613	372
Frazier Corridor	572	312	260	425	146
Total Acres	2,557	2,176	381	2,038	518

The primary treatment within the Project area would involve tree removal, with supplemental seeding and weed treatment as needed to obtain performance standards. Tree removal treatments are shown to be highly effective in benefiting females and nest survival, contributing to positive population growth (Severson et al. (2017a,b), supporting related concepts of the utility of tree removal as a conservation strategy (Connelly et al. 2000; Baruch-Mordo et al. 2013).

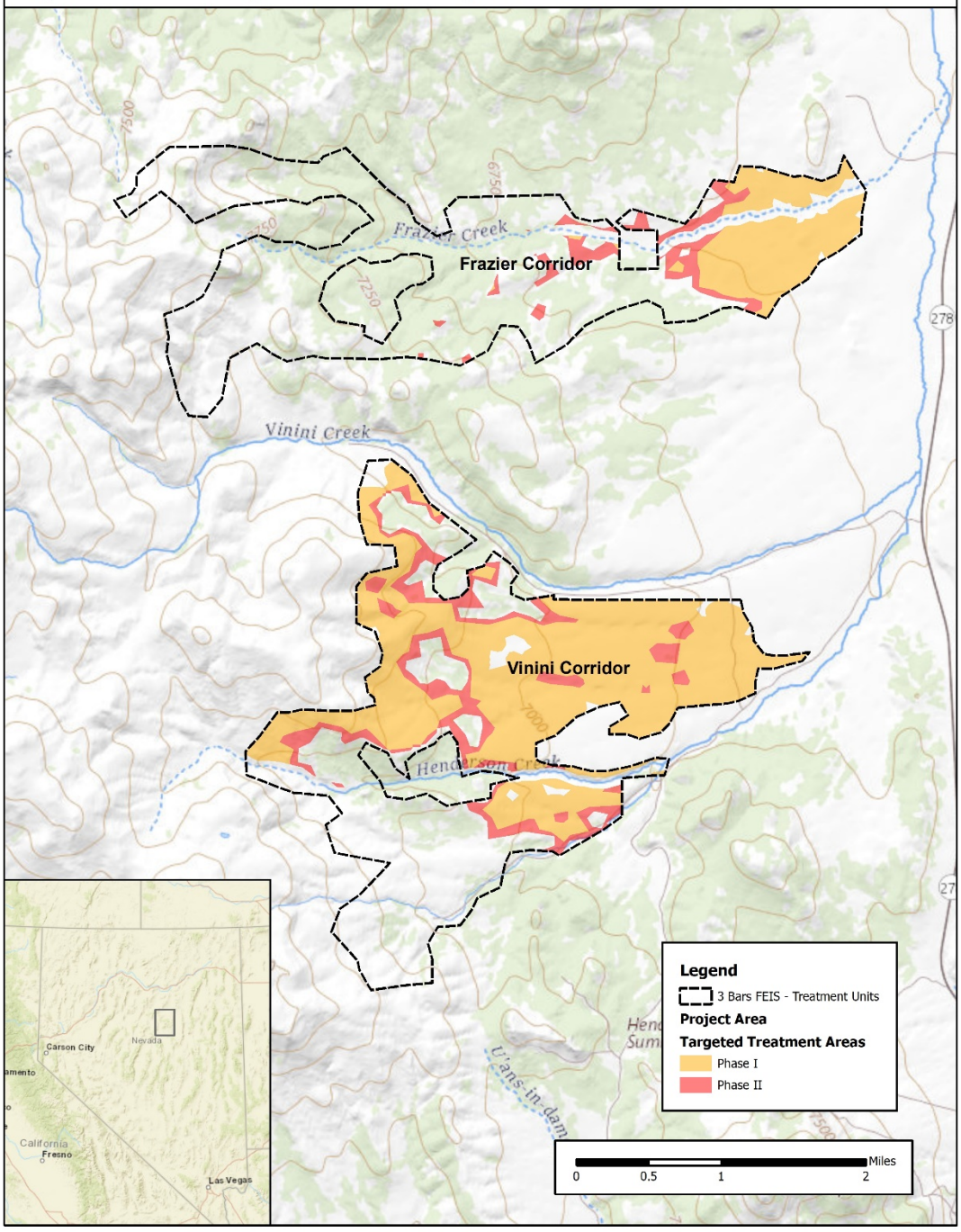
Tree removal in Project area would be expected to enhance nesting and brood rearing habitat for sage-grouse, and provide net conservation gain beyond the immediate footprint of tree removal areas. Phase I and Phase II transitional woodland habitats support a high diversity of shrub, grass, and forest animal species (O'Meara et al. 1981, Miller et al. 2005), although sagebrush-obligate species decline in such environments (e.g., Coppedge et al. 2004, Woods et al. 2013). Among other factors, tree encroachment can increase perch availability for corvids and raptors that prey on sage-grouse, which may be one of the underlying mechanisms affecting sage-grouse populations (Manzer and Hannon 2005).

Finally, temporal scale of effectiveness was also considered in treatment selection. The benefits of tree removal can be immediately observed; Severson et al. (2017b) found that sage-grouse populations had expanded 25 percent or more within 2 years of large-scale tree removal.

On a landscape-scale, Severson et al. (2017b) showed that the ecological footprint of conifer stands on sage-grouse is larger than the actual area of the stand. Consequently, targeted removal of conifers may have a larger positive benefit than the actual area removed, and possibly indicate that large conifer removal projects on the landscape may be needed to benefit sage-grouse. Location of the treatment areas proximal to the leks suggests that tree removal in these areas will positively benefit surrounding leks. Additionally, the treatment areas are within close proximity to leks and riparian habitat along Vinini and Henderson Creeks, which is important for sage-grouse nesting and brood rearing. Donnelly et al. (2016).

The Project area lies within Nevada and Northeastern California Sage-Grouse Management Areas on BLM managed public lands (BLM 2018). Sage-grouse habitat on BLM-administered and National Forest System lands in the decision area consists of lands allocated as priority habitat management areas (PHMA), general habitat management areas (GHMA), and other habitat management areas (OHMA). In the Nevada and Northeastern California Greater Sage-Grouse Proposed Resource Management Project Plan and FEIS (BLM 2018), PHMA is defined as areas that have been identified as having the highest conservation value to maintaining sustainable sage-grouse populations. These areas are occupied seasonally or year-round and include breeding, late brood-rearing, and winter concentration areas. GHMA is defined as an area that is likely to be occupied seasonally or year-round outside of a PHMA and where management would apply to sustain the sage-grouse populations. GHMA may include active leks, seasonal habitats, and fragmented or marginal habitat. OHMA is defined as areas with appropriate environmental conditions for sage-grouse that are less used by sage-grouse or have marginal habitat suitability.

Figure 2.0-1: Project Area – Targeted Treatment Areas



3.0 MITIGATION APPROACH

3.1 Goals and Objectives

The goal of this compensatory mitigation program is to provide benefits to sage-grouse and sagebrush ecosystems. MMI will voluntarily implement, monitor and manage important habitat for sage-grouse, thereby offsetting habitat losses to sage-grouse from the Gold Bar Mine Project and achieving a measurable, net conservation gain for sage-grouse. By enhancing or maintaining PHMA and GHMA lands, MMI will make progress towards meeting sage-grouse life-cycle requirements on a landscape level, and sage-grouse habitat objectives as described in Section 2.2.4 of BLM (2015) and amended as described in BLM (2018).

Conservation of sage-grouse requires and understanding of landscape-level considerations while implementing and monitoring on a site-scale (Stiver et al. 2015). Both landscape level threats to sage-grouse (see: SETT 2018, BLM 2015), and the different scales of habitat suitability, as described in Stiver et al. (2015), were considered in the development of program objectives. The specific compensatory mitigation program objectives are to:

1. Improve overall ecological health of vegetation communities that are or have potential to be sage-grouse habitat by improving the vigor and diversity of native plant communities and reducing invasions or spread of non-natives.

2. Increase habitat suitability for sage-grouse by restoring, enhancing, and/or improving connectivity between habitat that contributes to sage-grouse nesting, brood-rearing, and winter habitat.

3. Protect crucial sage-grouse habitat from wildfire by reducing presence of non-native annual grasses to achieve longer fire-return intervals, reducing hazardous fuel loads, and preventing expansion of tree encroachment onto sagebrush habitat.

3.2 Performance Standards

Performance standards are observable or measurable physical, chemical, or biological attributes that are used to determine if mitigation actions meet the agreed upon minimum objectives set forth in this Project Plan. MMI will measure the amount of ecological uplift gained by the various treatments described in detail in Section 4.0. Ecological uplift is defined as improvements in habitat suitability and ecological health. Ecological uplift will be measured by quantifying vegetative ground cover pre-

and post- treatment. Grass, sagebrush, forb, and tree cover would be measured by point-intercept methods at a frequency sufficient to enable statistical quantification of cover and native species diversity. Sufficient ecological uplift will be realized when the following conditions are met in the treatment areas:

- Pinyon-juniper tree cover is less than one percent of total live foliar cover;
- Native sagebrush, perennial and annual grass, and forb cover, increases 10 percent over baseline conditions;
- Diversity of preferred forb species increases 10 percent over baseline conditions, where preferred forb species are defined as species that are part of the native ecosystem or are preferred by sage-grouse and are able to establish under site soil conditions (specific species are listed in Table B-1 of Stiver et al. 2015);
- Non-native grass and noxious weed cover will decline.

Pre-treatment field data was collected in 2019 and will be used as the benchmark to determine the effectiveness of the treatments.

3.3 Outcomes and Effectiveness

The outcome of this mitigation program will increase the quality and quantity of sage-grouse habitat, thereby resulting in a measurable, net conservation gain for sage-grouse. Performance standards will be used to monitor and assess the effectiveness of the treatments in achieving this outcome. Effectiveness in terms of ecological uplift will be measured by quantifying vegetative ground cover pre- and post- implementation. Sufficient ecological uplift is expected to be gained by the treatments in this Project Plan.

The treatments described in this Project Plan would provide benefits to other sagebrush obligate species besides greater sage-grouse, therefore provide benefits beyond those that would be achieved if MMI does not complete them and would exceed what is otherwise required by federal, state, or local regulations. These treatments would have beneficial, cumulative effects at the landscape level.

4.0 IMPLEMENTATION METHODS

Each year, MMI would submit a Vegetation Treatment Work Plan to BLM for approval at least 30 days before activities are planned to begin, that describes the sage-grouse mitigation treatment activities planned for that calendar year. Following each calendar year, MMI would also submit and annual report to BLM that describes the vegetation treatments conducted for the mitigation program for the calendar year.

Treatments are defined as the specific methods that MMI will implement to enhance and restore sage-grouse habitat and are all analyzed in the 3 Bars FEIS. MMI will contract with a third-party contractor to conduct the treatments. The treatments identified to achieve mitigation program goals include tree removal, seeding and invasive species and noxious weed control.

During implementation, MMI will follow EPMs to minimize and avoid environmental impacts of the treatments. The EPMs are defined in Appendix A. Although the treatment plan in the 3 Bars FEIS describes several methods of tree removal, seeding, and noxious weed control techniques, the preferred techniques are those that avoid ground disturbance and minimize impacts to land, air, or water. As such, the preferred techniques, those which are intended to be implemented to achieve mitigation requirements, are described in detail in the following sections.

4.1 Tree Removal

In areas with Phase I or Phase II tree cover, trees will be removed to reduce or eliminate tree canopy cover, thereby creating or enhancing sage-grouse nesting habitat. Treatment of these areas would promote development of native grasses, forbs, and shrubs through removal of pinyon-juniper, thereby improving the quality of sage-grouse nesting habitat. Removing trees would also reduce heavy fuel loads, and improve vegetation cover, which has been shown to increase insect productivity and benefit sage-grouse hens and their broods (Wenninger 2008).

Trees will be felled by hand thinning, which involves using a chainsaw to lop tree-tops or cut them down near the base of the trunk. Felled trees will be managed following the Fire Hazard Management Plan, which includes hauling away felled trees if the density of trees is more than 10 trees per acre. Felled trees will be left in place or distributed over the area if tree density is less than this threshold.

4.2 Seeding

Seeding will occur in upland ecological systems to promote the growth of shrubs, grasses, and forbs, to proportions and diversities that meet performance standards for that ecological system. Seeding would occur in areas where existing vegetation cover would be inadequate to ensure successful revegetation, and will be used in conjunction with tree removal and noxious weed and invasive species control as needed to restore or enhance habitat conditions preferred for sage-grouse nesting and/or late brood rearing. Seeding would be conducted while soil moisture is optimal, which is typically during fall or early winter months, prior to snowfall, but in some cases, may be in the spring.

Desirable plant species by sage-grouse would be used. Seeds will be obtained from commercially-available sources or native seed harvested locally. Seeds will be stored in an appropriate storage facility prior to use. The seed mix will be developed in coordination with BLM and consider species preferred by sage-grouse (Stiver et.al. 2015). Seed may be mixed on site and during application to ensure the correct seeding rate and depth according to the final application method and site condition.

Seeding techniques may include hand seeding or aerial broadcast. Depending on the terrain, soil type, soil moisture, and seed species, either or both of these seeding methods may be used. Final decision regarding specific methods to implement will consider financial and technical feasibility, and incorporate best available science and relevant guidance as appropriate.

Hand seeding includes scattering seed by hand without the use of tools, or by using hand-held broadcast spreaders. Aerial broadcast seeding is the application of seed using airplanes, drones, or helicopters, with the seed falling through the air and landing randomly within the application area.

4.3 Invasive Species and Noxious Weed Control

To assist with development of desirable plant cover, pre- or post- treatment of invasive, non-native plant species or noxious weeds may be conducted if it will aid in achieving performance standards and desired outcomes of the mitigation actions.

A noxious weed is defined as any species of plant that is, or is likely to be, detrimental or destructive and difficult to control or eradicate (Nevada Revised Statute 555.010-555.220). A noxious weed is any plant designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife, or property. Noxious weeds in Nevada are listed by the Nevada Department of Agriculture (http://agri.nv.gov/Plant/Noxious_Weeds/Noxious_Weed_List/). Invasive

plant species are other non-native plant species that tend to exhibit invasive characteristics in the region of interest. The BLM considers plants invasive if they have been introduced into an environment where they did not evolve; subsequently, the species usually has no natural enemies to limit their reproduction and spread, and as such, can significantly change vegetation composition or structure, or ecosystem function.

Chemical means (i.e., herbicide application) is the preferred method of noxious weed and invasive species control. Herbicides can target undesirable species while minimizing the impact on desired native species. Herbicide treatment methods will be based on species-specific and area-specific conditions (e.g., annual vs. perennial species; proximity to riparian areas; grazing routines; and time of year). Chemical application will be in accordance with the BLM weed management plans and MMI's integrated weed management control plan. In accordance with these plans, MMI will use products and adjuvants which are approved by BLM. All treatments will be conducted in compliance with federal, state, and local regulations and in consultation with the BLM. Herbicide application will be conducted by qualified and/or licensed personnel and used in accordance with applicable chemical contact times as specified by the manufacturer.

5.0 DURATION AND SCHEDULE

MMI is responsible for completion of treatment activities within 2 years of receiving approval from BLM to initiate mitigation activities. It is expected that some treatments, may take multiple seasons or treatments to complete, while other conservation actions may be completed within a single season. Specific schedules may be modified but MMI intends to begin tree removal in fall of 2020 and complete the tree removal and interseeding by 2023, with weed control activities ongoing, as needed.

Monitoring the treatments to off-set the Gold Bar Mine Project's direct and indirect impacts will continue until the reclamation bond is released. This duration is commensurate to the residual effects of the Project as required by the BLM Handbook H-1794-1. The Gold Bar Mine Project has a mine-life of approximately seven years for mine operations and leaching. Reclamation is anticipated to be completed within eight years after the cessation of mining, with the majority of active reclamation completed within five years after mining has ceased. Therefore, the anticipated duration of the mitigation activities, from the point of initial implementation through final monitoring, should be approximately 13 years.

6.0 POST-IMPLEMENTATION MANAGEMENT

After treatments have been implemented, monitoring will begin in order to validate whether conservation actions are achieving the Project Plan goals and objectives. Maintenance of treated areas will continue over the duration of the Gold Bar Mine Project. An adaptive management process will occur throughout the life of the project to reduce uncertainty and achieve required mitigation outcomes. Progress and status of the program will be communicated to BLM primarily in the form of reports, except in the case of a force majeure event. This section describes monitoring plans, maintenance commitments, adaptive management and force majeure provisions for the program.

6.1 Maintenance

MMI will be responsible to maintain and monitor treatment areas in accordance with this Project Plan, except for damage or non-compliance caused by Force Majeure events or Unlawful Acts (see Section 6.4). As stipulated in the ROD, MMI is also responsible for treating noxious weeds, every three years, in the treatment units until the Project's reclamation is completed. In areas where pinyon-juniper removal is implemented, MMI is responsible for maintaining this treatment at five-year intervals, until the Project's reclamation is completed.

6.2 Monitoring

After treatments have been implemented, effectiveness monitoring will begin. The primary purpose of the effectiveness monitoring is to measure the effectiveness of the treatments and determine whether performance standards have been met. Post-implementation monitoring will also inform maintenance needs for tree removal and noxious weed control.

Pre-implementation data was collected using the same methods described below in order to compare post-implementation effectiveness. Supplemental site inspections will also occur at least once annually after treatment begins. Site inspections will be qualitative in nature. Information recorded during site visits will include a log of the date of site inspection, photograph(s) of the site, and any notes as the condition of the site or maintenance concerns. The sections below describe the vegetation data collection methods and the schedule for pre-implementation data collection, site inspection schedule, and post-implementation monitoring.

6.2.1 Vegetation Data Collection Methods

Ground cover will be measured by line-point-intercept methods along a 32 foot (10 meter) transect. Locations of the transects will be determined randomly in the field using a systematic-random approach, where a pre-determined sampling grid composed of evenly distributed points are randomly placed across the sampling area.

The number of transects will be sufficient to allow for statistical evaluation of the data, and be of sufficient coverage to characterize the expected level of heterogeneity for a sagebrush or arid grassland-dominated site. The Cochran equation will be used to calculate the minimum number of samples to estimate a population within 20 percent of the true mean (μ), with 80 percent confidence (i.e., a p-value of 0.2).

At 3.2-foot (one-meter) intervals along the transect, the following data will be recorded: plant species, litter, rock (>2millimeter), or bare soil. The precise location of the cover at each interval will be measured using a laser point bar, which records a set of 10 readings (referred to as “hits”) per interval. Hits are determined at each interval by activating a group of 10 narrow laser beams situated along the bar at approximately four-inch (10-cm) intervals, and recording the variable (plant, litter, rock) intercepted by each of the beams. In this manner, a total of 100 hits per transect are recorded, resulting in a one percent cover measurement per intercept. The laser point bar is an unbiased, precise, and repeatable methodology used widely in western sagebrush and grassland systems to measure vegetation cover.

Tree density will be quantified using the point center quarter method co-located with each ground cover transect.

Photographs will be taken of each treatment unit before and after implementation. Locations of the photo-points will be recorded by GPS, and new photos collected each year of effectiveness monitoring.

6.2.2 Monitoring Schedule

Pre-implementation data was collected in 2019, prior to treatment implementation. Post-implementation effectiveness monitoring data will be collected the first year after treatment, and continue thereafter every third year following treatment (e.g., years 1, 4, 7, 10, etc) until performance standards are met. Once performance standards are met, effectiveness monitoring will be performed on a five-year interval until planned reclamation at the Gold Bar Mine Project is

complete. Both pre- and post-implementation data will be collected during the peak cold season grass and forb growing season (approximately mid-May through early July).

Site inspections will occur at least annually, including years in which quantitative measures and employed.

6.3 Adaptive Management

The outcome of the treatments may vary, and necessitate changes to implementation or monitoring activities in order to achieve performance standards. The decision process to adjust implementation or monitoring is referred to in this Project Plan as the adaptive management decision process. The adaptive management process recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is an iterative process which includes monitoring, evaluating, and adjusting.

The adaptive management process begins once a conservation action has been implemented. Following implementation, monitoring data is collected. The evaluation step consists of determining whether the restoration effort has achieved performance standards, is progressing towards performance standards, or is not effective. In some cases, the progression may be occurring more slowly than expected or reflect natural environmental variability.

Monitoring data will be used to determine adaptive management needs. If a treatment unit is not meeting the performance standards, a causal factor analysis will be completed to identify the underlying factors(s) and determine whether additional actions are needed to address the gap in performance standard achievement. Following this analysis, MMI will work with BLM to identify appropriate actions for achieving the required mitigation outcomes and for complying with the terms and conditions of applicable land use authorizations. If the reasons for departures from expected conditions are not within MMI control but expected to improve with time, this is expected to result in a need for continued monitoring to ensure that actions can be taken if the system does not improve, or worsens. However, if the reasons for departures are within MMI control and current conditions are not expected to improve, remedial actions would be taken.

The BLM will take appropriate follow-up actions, including enforcement actions, consistent with applicable law and as provided for in applicable regulations, as necessary, if the mitigation measures were not implemented as designed or if the mitigation measures have not been effective in achieving the required mitigation outcomes, based on effectiveness monitoring, unless the outcome is not achieved due to a force majeure event.

This adaptive process of monitoring, evaluating, and adjusting will continue over the duration of the project.

6.4 Force Majeure

MMI will be responsible to maintain treatment areas in accordance with this Project Plan, except for damage or non-compliance caused by Force Majeure events or Unlawful Acts. Force majeure events are defined as unforeseen events, such as changes in climate, fire, new invasive species, flood, earthquake, storm, or other natural disasters, or riot, other civil disorder, governmental restriction, or the failure by any governmental agency to issue any requisite permit or authority, or any injunction or other enforceable order of any court of competent jurisdiction, which as a material and detrimental impact on the treatment areas and over which MMI does not have control. Unlawful Act is defined as the unlawful act of any person or entity other than MMI and includes an event or series of events, such as the intentional release within the treatment areas, or any connected watercourse, of any hazardous substance, or the discharge of such as substance in violation of a statute, ordinance, regulation or permit, which event or series of events has a material and detrimental impact on the treatment areas.

In order for such an exception to apply, MMI must demonstrate the following:

1. That damage or non-compliance was caused by circumstances beyond the control of MMI, and any person or entity under the direction or control of MMI including its employees, agents, contractors, and consultants;

2. That MMI, or any person or entity under the direction or control of MMI, including its employees, agents, contractors, and consultants, could have reasonably foreseen and prevented such damage or non-compliance; and

3. The period of damage or non-compliance was a direct result of such circumstances.

MMI will notify the BLM within 24 hours of discovery of an event of force majeure, and as promptly as reasonably possible thereafter, MMI, the BLM will meet to discuss the course of action in response to such occurrence. In the meantime, MMI will continue to manage and maintain the treatment areas to the fullest extent practicable.

7.0 REPORTING

An annual report will be generated each year that details all work completed the previous year, and all planned work for the next year. In the annual report, MMI will also identify areas that meet the performance standards. Annual reports will be submitted to BLM Mount Lewis Field Office in Battle Mountain no later than February 15 of the year following the date of activity. Each annual report will cover the period from January 1 to December 31 of the preceding year.

The reports will contain sufficient level of detail to verify that treatments are being implemented as planned and that the outcomes are being achieved. As appropriate, the annual reports will consist of written summaries, geospatial data layers (with metadata) of the treatments completed, digital photos (with appropriate geospatial information), maintenance records, pre-implementation and monitoring data, and any adaptive management measures proposed or performed. For years where no treatments were implemented and no quantitative monitoring data collected, the annual report is expected to be in the form of a simplified letter, providing a status update to BLM.

Notification to BLM for force majeure events will be separate from the annual report, as described in Section 6.4.

8.0 DURABILITY

For a mitigation program to be effective, the durability of the mitigation plan was considered in the development of this Project Plan, including resource, administrative, and financial assurances.

8.1 Administrative Assurances

The planned treatments are located on public land managed by the BLM. All conservation actions implemented on BLM-administered public land would be subject to approval and authorization by the BLM. These proposed conservation actions must be in conformance with existing land use plans. Through the Nevada and Northeastern California Greater Sage-Grouse Proposed Land Use Project Plan and FEIS (BLM 2015), BLM Nevada amended all existing land use plans to adopt measures to conserve, enhance, and restore sage-grouse habitat. As such, BLM will seek to avoid, minimize, or ultimately compensate for unavoidable impacts to sage-grouse habitat in the context of BLM's multiple use and sustained yield mission under the Federal Land Policy and Management Act.

Thus, if a project is proposed on public land which has the potential to impact the restoration and enhancement of sage-grouse habitat previously implemented through this Project Plan, BLM would acknowledge and analyze those impacts during under the National Environmental Policy Act review process. In such a review, the baseline for existing conditions on public land where conservation actions have been initiated would take into account not just the present condition of the land, but the projected conditions expected to result from conservation actions.

In the event that a project is proposed on public land which has the potential to impact the restoration and enhancement of sage-grouse habitat previously implemented within the treatment areas, MMI and BLM shall meet to discuss the potential effect, if any, on MMI's conservation actions. MMI and BLM will work to ensure together to explore options to maintain or offset the net conservation gain from implementation of MMI's conservation actions within the scope of BLM's regulatory authorities, which vary by land use authorization.

8.2 Resources Assurances

Resource assurances include ensuring that the mitigation measures will achieve and maintain their required outcomes. Discussion of the effectiveness of the planned treatments to meet the goals and objectives of the Project Plan are discussed in Section 3.3. Maintenance and monitoring of treated areas are discussed in Section 6.0.

9.0 ROLES AND RESPONSIBILITIES

This section outlines the responsibilities of MMI, as the mitigation provider, the BLM, as the federal agency overseeing the Project, and other agency stakeholders, who have participated in the development of this plan.

The parties agree to work together to promote conservation of sagebrush ecosystems and habitat, pursue measureable net conservation gains for sagebrush species, and to further the objectives of this Project Plan.

BLM and MMI, and, as appropriate, the Sagebrush Ecosystem Technical Team (SETT), Nevada Division of Wildlife (NDOW), and Eureka County, will coordinate and agree on provisions in the Project Plan, including treatments, monitoring, and adaptive management guidelines.

MMI will develop and implement sagebrush conservation and habitat management practices pursuant to the approved Project Plan.

MMI will ensure that lands subject to the Project Plan are managed and maintained in accordance with the Project Plan.

MMI will monitor and report on the implementation and results of the conservation actions proposed by this Project Plan and approved by relevant government agencies.

The BLM agrees to provide technical assistance in carrying out provisions of this Project Plan, and to aid in the coordination and communication with other stakeholders. As the state agency responsible for the restoration and management of wildlife resources, NDOW and its regional staff will provide expertise and on the ground knowledge that will contribute to project plan development, benefit adaptive management processes, and aid in understanding the biological effectiveness of conservation practices.

The BLM agrees to make a good faith effort to review permit applications and other applications submitted by MMI to implement the Project Plan in a timely fashion and to provide comments on the reports submitted in accordance with the Project within 60 days from the date of complete submittal.

10.0 REFERENCES

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Appendix A

Environmental Protection Measures

ENVIRONMENTAL PROTECTION MEASURES

Each year, MMI would submit a Vegetation Treatment Work Plan to BLM for approval at least 30 days before activities are planned to begin, that describes the sage-grouse mitigation treatment activities planned for that calendar year. Following each calendar year, MMI would also submit and annual report to BLM that describes the vegetation treatments conducted for the mitigation program for the calendar year.

MMI would continue to follow the EPMs developed for the Gold Bar Mine, as applicable. Additional EPMs, specific to the mitigation treatment activities, will include:

Cultural

The project will adhere to Appendix B - Programmatic Agreement Between the Mount Lewis Field Office of the BLM and the Nevada State Historic Preservation Officer in Volume 2 of the 3 Bars Ecosystem and Landscape Restoration Project Final Environmental Impact Statement.

Erosion and Sediment Control

Best management practices (BMPs) would be used to limit erosion and reduce sediment in disturbed areas during treatments. These BMPs as would apply to the mitigation treatment areas would include:

- no new roads will be constructed for mitigation treatments. MMI will use existing roads to access the treatment areas.
- assessing the susceptibility of the site to soil damage and erosion prior to treatment.
- timing treatments to avoid intense rainstorms and to encourage rapid recovery of vegetation.
- using equipment that avoids or minimizes soil disturbance and compaction.
- retaining plant debris on site, when appropriate, to increase moisture, provide nutrients, and minimize erosion.

Fire Protection and Tree Management

Heat and friction generated from chainsaw action on trees could create a fire risk. MMI and contractors will be required to carry fire extinguishers, hand tools, and/or backpack-type water pumps in their vehicles to suppress small fires. Tree cutting will be avoided during late summer if

possible, when weather conditions are hottest and driest. Trees would be felled near the base of the tree, removing as much of the above ground biomass as practicable. No more than 3 feet would be left at the base of the tree after chainsaw removal.

Felled trees can present a fire hazard and would therefore be managed to prevent additional fire risk. If the density of felled trees on the Mine site or mitigation areas is less than or equal to 10 trees per acre, trees may be scattered and left in place. If felled trees are more than 10 trees per acre, MMI will collect the felled wood and remove it from the treatment areas. The wood would either be given away, burned, or chipped and incorporated into reclamation material.

MMI would promptly comply with any emergency directives and requirements of Eureka County and the BLM pertaining to industrial operations during the fire season.

Invasive, Non-native Species

MMI would continue implementing the Noxious Weed Plan for the Gold Bar Mine, and following the EPMs outlined in the approved Plan, which would extend to mitigation activities, as applicable. In the mitigation treatment areas, noxious weeds and invasive, non-native species would be surveyed prior to other treatments (i.e., tree removal or seeding) and would be treated to achieve performance standards outlined in the mitigation plan following regulations and policies described in the Noxious Weed Plan.

Public Safety and Access

Public safety would be maintained throughout implementation of treatment activities and all equipment would be maintained in a safe and orderly manner. To protect public safety, activities would be conducted in conformance with applicable state and federal health and safety requirements. If needed, MMI would control public access to treatment areas until hazards associated with treatments such as felling trees no longer exist. Public access control points would be established in these cases where pre-existing roads and trails enter activity areas to ensure public safety is maintained. The boundaries of active treatment areas would consist of a combination of signs warning of activity and other physical barriers to restrict access, if needed.

Solid and Hazardous Wastes

The Proposed Action will not generate or dispose of any hazardous waste. Petroleum products may be used in treatment areas during implementation. Petroleum products are excluded as hazardous

substances under the Comprehensive Environmental Response, Compensation, and Liability Act section 101(14). Oil and lubricant that may be needed for equipment during implementation would be transported to the treatment areas in portable containers, but will not be stored on-site, and where ever possible, applied off-site. If regulated materials (petroleum products) are released, measures will be taken under MMI spill response guidelines to control the extent of the release, and the appropriate agencies will be notified in accordance with the applicable federal and state regulations.

Any solid waste generated during implementation activities will be transported and disposed off-site for disposal at an approved solid waste facility or at the permitted Gold Bar Class III waivered landfill. It is not anticipated that any temporary solid waste storage will be required for the Proposed Action.

Water Quality

MMI would target treatment activities in upland areas, and avoid disturbance to water bodies. Activities would be conducted at least 200 feet away from streams, wetlands, seeps/springs, or water development projects. Natural drainage patterns will not be altered.

MMI's spill contingency plan would be implemented for mitigation treatment activities. This plan includes, but is not limited to, using well-maintained equipment to perform the work required at the treatment sites. When practicable, equipment maintenance would be performed off-site. In the event of an oil, fuel, lubricating grease, or other equipment leak, cleanup would be conducted as soon as possible. If the leak is on compacted soil, an oil-absorbing product, such as Absorb®, may be applied. Contaminated soil would be removed, managed, and disposed of at an off-site facility in compliance with state and federal regulations, and reportable quantities reported per the Nevada Department of Environmental Protection (NDEP) guidelines and U.S. Environmental Protection Agency guidelines established under Title III List of Lists (40 CFR Part 302). Additionally, the BLM and will be notified within 24 hours and the appropriate remedial actions and confirmation sampling will be conducted under direction of the BLM and NDEP.

Wild Horses and Livestock

Selection of treatment areas considered units that were outside wild horse herd management areas and outside of moderate and heavy use BLM-identified livestock grazing areas. These initial screening criteria were selected so as to be able to implement treatments without needing to modify grazing permits, and in areas less likely to experience wild horse over-use, which would decrease the success

rate of seeding treatments. Mitigation treatment-specific EPMs for wild horse and livestock use include:

- designing treatments to take advantage of normal livestock grazing rest periods, when possible.
- conducting treatments outside of wild horse herd management areas;
- consideration and awareness of presence of horse and potential conflicts that could result in injury to horses during treatments with appropriate modifications made to operations if required.
- fencing exclosures will not be used following treatments.

Wildlife

Implementation activities will be scheduled after nesting/breeding seasons for migratory birds and raptors (March 1 to July 31) and after lekking season for sage-grouse (March 1 through May 15). Ground disturbance during treatment activities would be minimized or absent, avoiding subsequent wildlife disturbances.

If implementation activities cannot avoid nesting/breeding season for raptors and BLM sensitive species, potential impacts would be avoided by implementing migratory bird clearance surveys (March 1 to July 31). Surveys will be conducted by a BLM-approved biologist prior to ground disturbing activities. Pre-disturbance surveys for wildlife will only be 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. MMI's biologist will recommend to the BLM an avoidance buffer around the nest that the BLM, in coordination with the NDOW and USFWS, will review and approve prior to surface disturbance. MMI's biologist will inform MMI when the birds have left the nest. MMI will not conduct treatment activities within the exclusion zone until the biologist determines that the birds are no longer nesting.

Impacts to golden and bald eagle nests would be avoided by identifying the locations of these nests each year during MMI's annual aerial nest surveys for raptors. This survey consists of two aerial raptor nest surveys conducted within 10 miles of the MPO annually over the life of the project by a BLM-qualified biologist during eagle breeding season (December through August) to identify nests to be avoided. This survey radius would include all treatment units for which implementation activities

are planned to occur that year. Methods of the raptor survey will follow Pagel et al. (2010). Tree removal would avoid any occupied or intact golden or bald eagle nests.

Speed limits will be enforced, and vehicle speeds reduced on unpaved roads to minimize the potential for fugitive dust emissions, to protect wildlife and livestock and personnel safety. Personnel conducting the treatment activities would be instructed to avoid harassment and disturbance of wildlife. Harassment would include, but is not limited to, feeding, chasing, approaching, luring, calling or other actions that could result in habituating wildlife to approach human activity.

In the event that treatment activities will involve ground disturbance, MMI will conduct pre-disturbance surveys within potential habitat to avoid disturbance of BLM special status species. Surveys will be identified in the annual work plan in coordination with the BLM, and approved prior to commencing surface disturbing activities.