

Although there are no known occurrences of Monte Neva Indian paintbrush in the Project Area; the BLM has identified occupied habitat for this species between Lone Mountain and 3 Bars Road near Hot Springs Hill. The species is aquatic or wetland-dependent but lies outside of the area impacted by the predicted aquifer drawdown.

- **Impact 3.9.3.3-7:** Occupied and potential habitat for the Monte Neva Indian paintbrush is not expected to experience water stress because it is located outside of the predicted water table drawdown associated with ground water pumping and subsequent recovery of the water table. However, lowering of the water table in the occupied and potential habitat could potentially impact this species.

**Significance of the Impact:** No indirect impact from the Proposed Action is expected to this species or occupied habitat because they are located outside of the predicted water table drawdown. Yearly monitoring would be conducted for this species. If impacts to the species from the Project are detected mitigation would be developed by the BLM and EML.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

#### 3.9.3.3.3 Residual Adverse Impacts

Residual adverse impacts to vegetation would include the permanent loss of vegetative productivity from approximately 734 acres of land associated with the open pit that would not be reclaimed and a long-term change in vegetation composition (i.e., tree and shrub dominated communities to grass and forb dominated communities, potential **change in phreatophyte vegetation percent cover and composition**) as a result of Project development and operation.

Residual adverse effects to special status species would not occur as a result of the Project since no special status species were located within the Project Area. There is a potential residual indirect effect to potential unoccupied special status plant species habitat.

#### 3.9.3.4 No Action Alternative

Under the No Action Alternative, the proposed Project would not be developed and associated impacts to vegetation would not occur. EML would continue existing activities under previously permitted Notices, and the area would remain available for future mineral development or for other purposes as approved by the BLM.

##### 3.9.3.4.1 Vegetation Communities Disturbed by the No Action Alternative

Under the No Action Alternative, EML would continue to conduct mineral exploration and data acquisition within the Project Area. Ongoing reclamation would help to minimize impacts to vegetation through continuation of current and ongoing activities, with resulting short-term impacts to herbaceous species and long-term impacts to woody species.

- **Impact 3.9.3.4-1:** Implementation of the No Action Alternative would result in the general removal of vegetation.

**Significance of the Impact:** The impact is not considered significant.

#### 3.9.3.4.2 Special Status Plant Species

No additional disturbance beyond that previously authorized would occur in association with ongoing existing operations. As a result, there would be no additional impacts to potential habitat for special status plant species under this alternative.

#### 3.9.3.4.3 Residual Adverse Impacts

The No Action Alternative would have unavoidable short-term impacts to herbaceous species and long-term impacts to wood vegetation species as part of surface disturbance associated with permitted exploration and data acquisition; however, revegetation and reclamation would minimize these impacts to vegetation.

#### 3.9.3.5 Partial Backfill Alternative

##### 3.9.3.5.1 Vegetation Communities Disturbed by the Partial Backfill Alternative

Impacts to vegetation community types would be similar to those described for the Proposed Action; however, the Partial Backfill Alternative would involve the partial backfilling of the open pit to eliminate the pit lake and the floor of the open pit would be reclaimed using growth media and then seeded. Although the Proposed Action would have 734 acres that would remain unvegetated in the open pit, under this alternative approximately 527 acres would remain unvegetated following Project completion and reclamation; therefore, impacts to vegetation would be similar to, but slightly less than, those described for the Proposed Action.

- **Impact 3.9.3.5-1:** Disturbance or removal of vegetation community types would occur as a result of the Partial Backfill Alternative.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

Impacts to phreatophyte vegetation would be similar to those under the Proposed Action.

- **Impact 3.9.3.5-2:** Phreatophyte vegetation would potentially experience a change in species composition and percent cover due to the predicted water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the area of phreatophytes is not expected to result in a net loss of vegetation in these communities.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

The Project mining activities and vehicular traffic would affect vegetation within the immediate vicinity of the Project Area by increasing the amount of airborne particulate deposition onto vegetation surfaces. Deposition could result in lowered primary production in plants due to reduced photosynthesis and decreased water use efficiency. The potential effects on vegetation from dust would be reduced by wind and periodic precipitation, which would remove some of the accumulated dust. In addition, the implementation of the fugitive dust reduction measures outlined in the Proposed Action would reduce the impact of dust deposition on vegetation.

- **Impact 3.9.3.5-3:** Vegetation in the immediate vicinity of the Project Area could suffer periodic short-term reductions in primary production due to airborne particulate deposition onto exposed surfaces.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

The fenced area around the Project would limit BLM fire management activities by preventing normal access. The development of the Project well field in Kobeh Valley would create multiple unvegetated linear features (roads) that could be used as fire breaks in BLM fire management activities. These constructed roads could also provide additional access for potential fire management activities. Mine equipment and water resources could also be used to aid in suppression activities.

Potential impacts to the management of vegetation communities for wildland fire prevention and control as a result of Project activities would be limited as a result of the implementation of precautionary measures outlined in Sections 2.1.10 and 2.1.14.8.

- **Impact 3.9.3.5-4:** The Project would result in limitations and enhancements to the BLM's fire management activities within the vicinity of the Project Area.

**Significance of the Impact:** Based on the conclusions from the analysis, the impact is not significant. The following mitigation measure is proposed **for this impact**.

- **Mitigation Measure 3.9.3.5-4:** During periods of high fire danger, EML would utilize welding tents during welding activities along the pipeline or powerline routes in the Project Area.
- **Effectiveness of Mitigation and Residual Effects:** Mitigation Measure 3.9.3.5-4 would be effective at reducing the potential for Project activities to result in wildland fires.

#### 3.9.3.5.2 Special Status Plant Species

Impacts to special status plant species and their habitat as a result of the Partial Backfill Alternative would be similar to those for the Proposed Action.

- **Impact 3.9.3.5-5:** Disturbance or removal of potential habitat for Beatley buckwheat and windloving buckwheat could occur as a result of the Proposed Action.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.9.3.5-6:** Potential, unsurveyed habitat for least phacelia located outside of the Project Area would potentially experience water stress due to the water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the potential habitat could potentially impact these species indirectly.

**Significance of the Impact:** The indirect impact of the Proposed Action to potential habitat of these species would not meet the significance criteria listed in Section 3.9.3.1.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.9.3.5-7:** Occupied and potential habitat for the Monte Neva Indian paintbrush is not expected to experience water stress because it is located outside of the predicted water table drawdown associated with ground water pumping and subsequent recovery of the water table. However, lowering of the water table in the occupied and potential habitat could potentially impact this species.

**Significance of the Impact:** No indirect impact from the Proposed Action is expected to this species or occupied habitat because they are located outside of the predicted water table drawdown. Yearly monitoring would be conducted for this species. If impacts to the species from the Project are detected, mitigation would be developed by the BLM and EML.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

#### 3.9.3.5.3 Residual Adverse Impacts

Residual adverse effects to vegetation would include the permanent loss of vegetative productivity from approximately 527 acres of land associated with the open pit that would not be reclaimed and a long-term change in vegetation composition (i.e., tree and shrub dominated communities to grass and forb dominated communities, potential **change in phreatophyte vegetation percent cover and composition**) as a result of Project development and operation.

Residual adverse effects to special status species would not occur as a result of the Project since no special status species were located within the Project Area.

#### 3.9.3.6 Off-Site Transfer of Ore Concentrate for Processing Alternative

##### 3.9.3.6.1 Vegetation Communities Disturbed by the Off-Site Transfer of Ore Concentrate for Processing Alternative

Although the Off-Site Transfer of Ore Concentrate for Processing Alternative would result in approximately 20 acres less surface disturbance in the piñon-juniper/big sagebrush vegetation community when compared to the Proposed Action, impacts to vegetation community types from this alternative would be similar to those for the Proposed Action since the disturbance acreage would decrease by only 0.2 percent.

- **Impact 3.9.3.6-1:** Implementation of the Off-Site Transfer of Ore Concentrate for Processing Alternative would result in the general removal of vegetation.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

Impacts to phreatophyte vegetation would be similar to those under the Proposed Action.

- **Impact 3.9.3.6-2:** Phreatophyte vegetation would potentially experience a change in species composition and percent cover due to the predicted water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the area of phreatophytes is not expected to result in a net loss of vegetation in these communities.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

The Project mining activities and vehicular traffic would affect vegetation within the immediate vicinity of the Project Area by increasing the amount of airborne particulate deposition onto vegetation surfaces. Deposition could result in lowered primary production in plants due to reduced photosynthesis and decreased water use efficiency. The potential effects on vegetation from dust would be reduced by wind and periodic precipitation, which would remove some of the accumulated dust. In addition, the implementation of the fugitive dust reduction measures outlined in the Proposed Action would reduce the impact of dust deposition on vegetation.

- **Impact 3.9.3.6-3:** Vegetation in the immediate vicinity of the Project Area could suffer periodic short-term reductions in primary production due to airborne particulate deposition onto exposed surfaces.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

The fenced area around the Project would limit BLM fire management activities by preventing normal access. The development of the Project well field in Kobeh Valley would create multiple unvegetated linear features (roads) that could be used as fire breaks in BLM fire management activities. These constructed roads could also provide additional access for potential fire management activities. Mine equipment and water resources could also be used to aid in suppression activities.

Potential impacts to the management of vegetation communities for wildland fire prevention and control as a result of Project activities would be limited as a result of the implementation of precautionary measures outlined in Sections 2.1.10 and 2.1.14.8.

- **Impact 3.9.3.6-4:** The Project would result in limitations and enhancements to the BLM's fire management activities within the vicinity of the Project Area.

**Significance of the Impact:** Based on the conclusions from the analysis, the impact is not significant. The following mitigation measure is proposed **for this impact**.

- **Mitigation Measure 3.9.3.6-4:** During periods of high fire danger, EML would utilize welding tents during welding activities along the pipeline or powerline routes in the Project Area.
- **Effectiveness of Mitigation and Residual Effects:** Mitigation Measure 3.9.3.6-4 would be effective at reducing the potential for Project activities to result in wildland fires.

#### 3.9.3.6.2 Special Status Plant Species

Impacts to special status plant species and their habitat as a result of the Off-Site Transfer of Ore Concentrate for Processing Alternative would be similar to those for the Proposed Action.

- **Impact 3.9.3.6-5:** Disturbance or removal of potential habitat for Beatley buckwheat and windloving buckwheat could occur as a result of the Off-Site Transfer of Ore Concentrate for Processing Alternative.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.9.3.6-6:** Potential, unsurveyed habitat for least phacelia located outside of the Project Area would potentially experience water stress due to the water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the potential habitat could potentially impact these species indirectly.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.9.3.6-7:** Occupied and potential habitat for the Monte Neva Indian paintbrush is not expected to experience water stress because it is located outside of the predicted water table drawdown associated with ground water pumping and subsequent recovery of the water table. However, lowering of the water table in the occupied and potential habitat could potentially impact this species.

**Significance of the Impact:** No indirect impact from the Off-Site Transfer of Ore Concentrate for Processing Alternative is expected to this species or occupied habitat because they are located outside of the predicted water table drawdown. Yearly monitoring would be conducted for this species. If impacts to the species from the Project are detected mitigation would be developed by the BLM and EML.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

### 3.9.3.6.3 Residual Adverse Impacts

The potential residual impacts to vegetation resources from the Off-Site Transfer of Ore Concentrate for Processing Alternative would be similar to those for the Proposed Action.

### 3.9.3.7 Slower, Longer Project Alternative

Impacts from the Slower, Longer Project Alternative would occur over a period approximately twice as long in duration compared to the Proposed Action. As discussed in Section 3.2.3, the surface area predicted to be impacted by the drawdown by this alternative is similar to, but slightly different than, the Proposed Action. The differences between the predicted drawdown area is illustrated on Figure 3.2.3. Impacts to vegetation as a result of the Slower, Longer Project Alternative are expected to be similar to the Proposed Action at the end of the Project.

#### 3.9.3.7.1 Vegetation Communities Disturbed by the Slower, Longer Project Alternative

Vegetation communities impacted by the Slower, Longer Project Alternative would be the same as the Proposed Action.

- **Impact 3.9.3.7-1:** Disturbance or removal of vegetation community types would occur as a result of the Slower, Longer Project Alternative.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.9.3.7-2:** Phreatophyte vegetation would potentially experience a change in species composition and percent cover due to the predicted water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the area of phreatophytes is not expected to result in a net loss of vegetation in these communities.

**Significance of the Impact:** The impact is **not** considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.9.3.7-3:** Vegetation in the immediate vicinity of the Project Area could suffer periodic short-term reductions in primary production due to airborne particulate deposition onto exposed surfaces.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

The fenced area around the Project would limit BLM fire management activities by preventing normal access. The development of the Project well field in Kobeh Valley would create multiple unvegetated linear features (roads) that could be used as fire breaks in BLM fire management activities. These constructed roads could also provide additional access for potential fire management activities. Mine equipment and water resources could also be used to aid in suppression activities.

Potential impacts to the management of vegetation communities for wildland fire prevention and control as a result of Project activities would be limited as a result of the implementation of precautionary measures outlined in Sections 2.1.10 and 2.1.14.8.

- **Impact 3.9.3.7-4:** The Project would result in limitations and enhancements to the BLM's fire management activities within the vicinity of the Project Area.

**Significance of the Impact:** Based on the conclusions from the analysis, the impact is not significant. The following mitigation measure is proposed **for this impact**.

- **Mitigation Measure 3.9.3.7-4:** During periods of high fire danger, EML would utilize welding tents during welding activities along the pipeline or powerline routes in the Project Area.
- **Effectiveness of Mitigation and Residual Effects:** Mitigation Measure 3.9.3.7-4 would be effective at reducing the potential for Project activities to result in wildland fires.

#### 3.9.3.7.2 Special Status Plant Species

Impacts to special status plant species from the Slower, Longer Project Alternative would be the same as the Proposed Action.

- **Impact 3.9.3.7-5:** Disturbance or removal of potential habitat for Beatley buckwheat and windloving buckwheat could occur as a result of the Slower, Longer Project Alternative.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.9.3.7-6:** Potential, unsurveyed habitat for least phacelia located outside of the Project Area would potentially experience water stress due to the water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the potential habitat could potentially impact these species indirectly.

**Significance of the Impact:** The indirect impact of the Proposed Action to potential habitat of these species would not meet the significance criteria listed in Section 3.9.3.1.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.9.3.7-7:** Occupied and potential habitat for the Monte Neva Indian paintbrush is not expected to experience water stress because it is located outside of the predicted water table drawdown associated with ground water pumping and subsequent recovery of the water table. However, lowering of the water table in the occupied and potential habitat could potentially impact this species.

**Significance of the Impact:** No indirect impact of the Proposed Action is expected to this species or occupied habitat because they are located outside of the predicted water table drawdown. Yearly monitoring would be conducted for this species. If impacts to the species from the Project are detected, mitigation would be developed by the BLM and EML.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

#### 3.9.3.7.3 Residual Adverse Impacts

Residual adverse impacts to vegetation would include the permanent loss of vegetative productivity from approximately 734 acres of land associated with the open pit that would not be reclaimed and a long-term change in vegetation composition (i.e., tree and shrub dominated communities to grass and forb dominated communities, potential **change in phreatophyte vegetation percent cover and composition**) as a result of Project development and operation.

Residual adverse effects to special status species would not occur as a result of the Project since no special status species were located within the Project Area.

### 3.10 Noxious Weeds, Invasive & Nonnative Species

#### 3.10.1 Regulatory Framework

Noxious weeds are designated by state, federal, or other laws and regulations and are mandated to be prevented or controlled because of their potential to cause economic harm (e.g., affect the quality of forage on rangelands, affect cropland, or forest land productivity), environmental harm (e.g., displace native plants and natural habitats), or harm human and animal health. There are no State of Nevada listed noxious weeds found within the boundary of the Project Area. This analysis will focus on invasive plant and nonnative species. Invasive and/or nonnative plant species are generally plants that have become too extensive and widely distributed to be effectively controlled or eradicated.

##### 3.10.1.1 Executive Order 11312: Prevention and Control of Invasive Species

Several federal laws provide direction for addressing the prevention and control of noxious weeds, invasive and nonnative species. For example, the Plant Protection Act authorizes the USDA to list weeds that have been determined to cause certain harm, including damage to agricultural or natural resources, as being "noxious weeds." EO 11312 established a national Invasive Species Council, made up of federal agencies and departments, and a supporting Invasive Species Advisory Council, composed of state, local, and private entities. The Invasive Species Council and Advisory Committee oversees and facilitates implementation of the EO, including preparation of a National Invasive Species Management Plan.

### 3.10.1.2 Federal Noxious and Invasive Weed Laws

A number of federal laws pertain to noxious and invasive weeds, including the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C. 4701 et seq.), Lacey Act, as amended (18 U.S.C. 42), Federal Plant Pest Act (7 U.S.C. 150aa et seq.), Federal Noxious Weed Act of 1974, as amended by the Food, Agriculture, Conservation, and Trade Act of 1990 (Section 1453 “Management of Undesirable Plants on Federal Lands” U.S.C. 2801 et seq.), the Carlson-Foley Act of 1968 (Public Law 90-583), and Federal EO 11312 released February 3, 1999. In Nevada, the BLM is primarily concerned with the control of State of Nevada listed noxious weed infestations and their dispersal on public lands. The BLM, USDA and the Nevada Department of Agriculture (NDOA) maintain lists of noxious weeds of economic or ecological concern.

### 3.10.1.3 Nevada Noxious Weed Laws

Chapter 555 of the NRS pertains to noxious weeds. The NDOA has responsibility for jurisdiction, management, and enforcement of the state’s noxious weed law. Plants on Nevada’s noxious weeds list are mandated to be controlled on both private and public land. The NDOA also maintains and updates a list of state listed noxious weeds, which can be found at the following web link, ([http://agri.nv.gov/nwac/PLANT\\_No WeedList.htm](http://agri.nv.gov/nwac/PLANT_No WeedList.htm)). Chapter 555 also calls for the establishment of county “Weed Control Districts” with the responsibility to control and eradicate noxious weeds. The legislature declared that it is the responsibility of each owner or occupier of land in Nevada to control noxious weeds on their land, but finds that in certain areas this responsibility can best be discharged through control by organized Weed Districts. **In Eureka County, weed control is primarily discharged through Eureka County weed control under the County Department of Natural Resources and through the Diamond Valley Weed Control District.**

## 3.10.2 **Affected Environment**

### 3.10.2.1 Study Methods

Noxious weed, invasive and nonnative weed surveys were conducted by SRK in a majority of the Project Area between June 2005 through August 2006. The noxious weed, invasive and nonnative species surveys were conducted concurrently with the vegetation and wildlife biological baseline surveys (SRK 2007b, 2007c). The Kobeh Valley portion of the Project Area was surveyed for noxious weeds, invasive and nonnative species by Great Basin Ecology in July 2008 (Great Basin Ecology 2008).

### 3.10.2.2 Existing Conditions

No infestations of NDOA listed noxious weeds were observed in the Project Area. Cheatgrass (an invasive nonnative annual grass species) was observed as an understory component of most of the vegetation types; however, no large cheatgrass monocultures were observed (SRK 2007b). Other invasive nonnative plants species observed within the Project Area were halogeton and Russian thistle (*Salsola kali*). These two species are not considered noxious weeds by the State of Nevada and, therefore, not listed on the NDOA's noxious weed list.

Although no noxious weeds were observed in the Project Area during the initial 2007 survey, weedy annual species including cheatgrass and halogeton were identified within the Project Area, weedy annual species including cheatgrass and halogeton were identified within the Project Area, and Russian thistle was located near the Project Area. Although Scotch thistle (*Onopordum acanthium*), hoary cress (*Cardaria draba*), and salt cedar (*Tamarix ramosissima*) have been mapped and treated by Eureka County in the vicinity, these species were not observed during initial surveys of the Project Area. Subsequently, hoary cress has been observed along roadsides within the Project boundary.

### 3.10.3 Environmental Consequences and Mitigation Measures

#### 3.10.3.1 Significance Criteria

Based upon BLM Manual 9015 guidelines, the Proposed Action or alternatives would be considered to have a significant effect on noxious weed management if it resulted in the following:

- An increased likelihood of the introduction of noxious weed species or invasive, nonnative species, into a relatively weed-free area at moderate or high ecological risk as a result of a lack of preventative action; or
- An expansion of noxious weed infestation(s) within and outside of the Project Area into relatively weed-free areas at moderate or high ecological risk.

Ecological risk is the level of likelihood and consequence of adverse effects on the environment. A determination of a Risk Rating (none, low, moderate, or high) is made through the Risk Assessment process outlined in Appendix 1 of BLM Manual 9015. Areas with a moderate or high risk rating have the following: a) noxious weed infestations immediately adjacent to or within the Project Area; b) activities associated with the Project that are likely to result in some areas becoming infested; and c) there are probable adverse effects on native plant communities within, and possibly outside of, the Project Area.

#### 3.10.3.2 Assessment Methodology

The assessment of the effects of the Project on noxious weed management is based on a qualitative analysis of the potential for noxious weeds, invasive and nonnative species to become introduced or established within the Project Area as a result of increased activity disturbance and reclamation. The effects of the Project are determined to be significant or not significant based on the applicable significance criteria listed in Section 3.10.3.1.

#### 3.10.3.3 Proposed Action

Invasive, nonnative plant species readily invade areas that have been disturbed and which typically lack or have minimal vegetation cover. Development and operation of the Project would remove or disturb 8,355 acres of vegetation over the 44-year mine life, of which 734 acres associated with the open pit would not be reclaimed.

The **applicant committed practices** outlined in Section 2.1.14.8 would substantially reduce the introduction and spread of noxious weeds, invasive and nonnative species. The **applicant committed practices** include the implementation of a noxious weed monitoring and control plan

during construction and throughout operations. Implementation of this plan would be coordinated with the BLM, **Eureka County Natural Resource Department, and Diamond Valley Weed Control District.**

Reclamation would also reduce the establishment of noxious weeds in the Project Area. Due to concurrent reclamation, the total acreage of vegetation disturbed would not occur all at one time; however, minor populations of weedy annual species (e.g., halogeton and cheatgrass) may become established in localized areas for short periods of time. Growth media stockpiles would be reclaimed with an interim seed mix to stabilize the growth media, reduce soil erosion, and minimize the potential for the establishment of noxious weeds. Successful reclamation of mine related surface disturbance areas would result in the establishment of a permanent vegetative cover, which would minimize the potential establishment of noxious weeds in the long term. Although the open pit would not be reclaimed, noxious weeds would not likely become established in the open pit due to the absence of soil and the formation of a pit lake in the long term. As described in Section 2.1.14, EML would utilize certified weed-free seed mixes for reclamation. Weed control practices would be implemented in coordination with the BLM to limit the spread of noxious weeds, if they appear in the Project Area.

- **Impact 3.10.3.3-1:** Implementation of the Proposed Action could result in the introduction and spread of noxious weeds, invasive and nonnative species.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.10.3.3-2:** Phreatophyte vegetation, riparian corridors, and wet meadows would potentially experience **changes in species composition and density due to the water table drawdown associated with ground water pumping and subsequent recovery of the water table.** Noxious weeds as well as invasive and nonnative species associated with existing surface disturbance or those transported into the phreatophytes, riparian corridors, and wet meadows could potentially invade areas that experience changes in species composition and density.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

#### 3.10.3.3.1 Residual Adverse Impacts

The Proposed Action would result in the unavoidable disturbance of approximately 8,355 acres of vegetation over the 44-year mine life, which would produce conditions conducive to supporting noxious weeds. Implementation of reclamation and the noxious weed monitoring and control plan would reduce or eliminate the chance of noxious weed establishment and infestation (EML 2006, Appendix 13).

### 3.10.3.4 No Action Alternative

Under the No Action Alternative, the proposed Project would not be developed and associated impacts to noxious weed management would not occur. EML would continue existing activities under previously permitted Notices for a total of 35 acres of surface disturbance and the area would remain available for future mineral development or for other purposes as approved by the BLM.

#### 3.10.3.4.1 Residual Adverse Impacts

There are no residual adverse impacts from noxious weeds associated with the No Action Alternative.

### 3.10.3.5 Partial Backfill Alternative

Impacts from noxious weeds would be similar to those described for the Proposed Action; however, the Partial Backfill Alternative would involve the partial backfilling of the open pit to eliminate the pit lake and the floor of the backfilled open pit would be reclaimed with growth media and seeded. The **applicant committed practices** outlined in Section 2.1.14.8 and reclamation would reduce the potential for noxious weeds to establish in the Project Area. Although the Proposed Action would have 734 acres that would remain unvegetated in the open pit, under this alternative approximately 527 acres would remain unvegetated following Project completion and reclamation. Therefore, impacts from noxious weeds would be similar to, but slightly less than, those described for the Proposed Action.

- **Impact 3.10.3.5-1:** Implementation of the Partial Backfill Alternative could result in the introduction and spread of noxious weeds, invasive and nonnative plant species.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.10.3.5-2:** Phreatophyte vegetation, riparian corridors, and wet meadows would potentially experience **changes in species composition and density due to the water table drawdown associated with ground water pumping and subsequent recovery of the water table. Noxious weeds as well as invasive and nonnative species associated with existing surface disturbance or those transported into the phreatophytes, riparian corridors, and wet meadows could potentially invade areas that experience changes in species composition and density.**

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

### 3.10.3.5.1 Residual Adverse Impacts

The Partial Backfill Alternative would result in the unavoidable disturbance of approximately 8,355 acres of vegetation over the 44-year life of the mine, which would produce conditions conducive to supporting noxious weeds. Implementation of reclamation and the noxious weed monitoring and control plan would reduce or eliminate the chance of noxious weed establishment and infestation.

### 3.10.3.6 Off-Site Transfer of Ore Concentrate for Processing Alternative

Impacts from noxious weeds would be similar to those described for the Proposed Action; however, the Off-Site Transfer of Ore Concentrate for Processing Alternative would result in approximately 20 acres less surface disturbance. The **applicant committed practices** outlined in Section 2.1.14.8 and reclamation would reduce the potential for noxious weeds to establish in the Project Area. When compared to the Proposed Action, impacts from noxious weeds as a result of this alternative would be similar to those for the Proposed Action since the acreage of surface disturbance would decrease by only 0.2 percent.

- **Impact 3.10.3.6-1:** Implementation of the Off-Site Transfer of Ore Concentrate for Processing Alternative could result in the introduction and spread of noxious weeds, invasive and nonnative plant species.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.10.3.6-2:** Phreatophyte vegetation, riparian corridors, and wet meadows would potentially experience **changes in species composition and density due to the water table drawdown associated with ground water pumping and subsequent recovery of the water table. Noxious weeds as well as invasive and nonnative species associated with existing surface disturbance or those transported into the phreatophytes, riparian corridors, and wet meadows could potentially invade areas that experience changes in species composition and density.**

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

### 3.10.3.6.1 Residual Adverse Impacts

The Off-Site Transfer of Ore Concentrate for Processing Alternative would result in the unavoidable disturbance of approximately 8,335 acres of vegetation over the 44-year mine life of which 734 acres associated with the open pit would not be reclaimed, which would produce conditions conducive to supporting noxious weeds. Reclamation and the noxious weed monitoring and control plan would reduce or eliminate the chance of noxious weed establishment and infestation.

### 3.10.3.7 Slower, Longer Project Alternative

Impacts from noxious weeds would be similar to those described for the Proposed Action; however, the Slower, Longer Project Alternative would occur over a period approximately twice as long in duration compared to the Proposed Action and the surface area predicted to be impacted by the drawdown by this alternative is slightly different than the Proposed Action. The differences between the predicted drawdown area is illustrated on Figure 3.2.28. The **applicant committed practices** outlined in Section 2.1.15 and reclamation would reduce the potential for noxious weeds to establish in the Project Area. Impacts from noxious weeds and invasive, nonnative species as a result of the Slower, Longer Project Alternative are expected to be similar to the Proposed Action at the end of the Project.

- **Impact 3.10.3.7-1:** Implementation of the Slower, Longer Project Alternative could result in the introduction and spread of noxious weeds, invasive and nonnative plant species.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.10.3.7-2:** Phreatophyte vegetation, riparian corridors, and wet meadows would potentially experience **changes in species composition and density due to the water table drawdown associated with ground water pumping and subsequent recovery of the water table.** Noxious weeds as well as invasive and nonnative species associated with existing surface disturbance or those transported into the phreatophytes, riparian corridors, and wet meadows could potentially invade areas that experience changes in species composition and density.

**Significance of the Impact:** The impact is **not** considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

#### 3.10.3.7.1 Residual Adverse Impacts

The Slower, Longer Project Alternative would result in the unavoidable disturbance of approximately 8,355 acres of vegetation over the extended mine life, which would produce conditions conducive to supporting noxious weeds. Implementation of reclamation and the noxious weed monitoring and control plan would reduce or eliminate the chance of noxious weed establishment and infestation.

## 3.11 Wetlands and Riparian Zones

### 3.11.1 Regulatory Framework

This section discusses the regulatory definition of wetlands, as well as the laws and regulations that may apply to wetland and riparian resources potentially affected by the Project. Wetland communities are considered valuable natural resources that provide habitat for a variety of

dependent plant and wildlife species. Riparian/wetland areas also provide ecosystem services and values that are critical within BLM's multiple use mandate. The USACE and the EPA have policies and laws that regulate federally jurisdictional wetlands. However, there are no federally jurisdictional wetlands within the Project Area. As a result, federal management of wetlands is through the BLM on public lands and through State of Nevada Water Law relative to the use of water from wetlands. State of Nevada Water Law is discussed in Section 3.2.

#### 3.11.1.1 Definition of Wetlands

Wetlands are defined by the USACE and EPA in 40 CFR 230.3 and 33 CFR 328.3 as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal conditions, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The BLM defines riparian as: "A riparian area is an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and stream banks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil."

In 1991 the BLM Director approved the *Riparian-Wetland Initiative for the 1990's*, which establishes national goals and objectives for managing riparian-wetland resources on public lands. One of the chief goals of this initiative is to restore and maintain riparian-wetland areas so that 75 percent or more are in proper functioning condition (PFC) by 1997 (BLM 1991). The overall objective of this goal is to achieve an advanced ecological status, except where resource management objectives, including PFC, would require an earlier successional stage, thus providing the widest variety of vegetation and habitat diversity for wildlife, fish, and watershed protection. This objective is important to remember because riparian-wetland areas would function properly long before they achieve an advanced ecological status. The *Riparian-Wetland Initiative for the 1990's* also includes a strategy to focus management on the entire watershed. Entire watershed condition is an important component in assessing whether a riparian-wetland area is functioning properly.

The USACE's Wetland Delineation Manual (USACE 1987) defines a three parameter approach to delineating jurisdictional wetlands. In order for an area to be considered a jurisdictional wetland it must support each of the three parameters: hydric soils; wetland vegetation; and wetland hydrology.

#### 3.11.1.2 Executive Order 11990: Protection of Wetlands

The federal government supports a policy of minimizing "the destruction, loss, or degradation of wetlands" (EO 11990, May 24, 1977). The EO directs all federal agencies to refrain from assisting or giving financial support to projects that encroach on public or privately owned wetlands.

### 3.11.1.3 Federal Land Policy and Management Act

The FLPMA directs the BLM to manage public lands in a manner that would provide for multiple use and at the same time protect natural resources for generations to come. In addition to FLPMA, numerous laws, regulations, policies, EOs, and Memoranda of Understanding (MOUs) direct the BLM to manage its riparian/wetland areas for the benefit of the nation and the economy. BLM Manual 1737 for Riparian Wetland Area Management identifies marshes, shallow swamps, lakeshores, bogs, muskegs, wet meadows, estuaries, and riparian areas as wetlands.

### 3.11.2 **Affected Environment**

#### 3.11.2.1 Study Methods

On September 21, 2005, SRK conducted a Routine On-Site Wetland Delineation (SRK 2007e) to determine the presence or absence of jurisdictional and non-jurisdictional wetlands within the Project Area in accordance with the following: Section 404 of the CWA; the USACE Wetland Delineation Manual (USACE 1987); and the Sacramento District, Reno, Nevada, field office Minimum Standards for Acceptance of Preliminary Wetland Delineations (October 11, 1994), revised November 30, 2001. If present, the extent of the wetland was determined. Potential wetlands within the Project Area are supported by spring or seep flow, and ephemeral surface flows. On July 15 through 17, 2011, JBR Environmental Consultants, Inc. (JBR) conducted a supplemental spring and riparian area investigation (JBR 2011).

Prior to the Routine On-Site Wetland Delineation, aerial photographs and topographic map tools were reviewed for indications of open water, springs, and ephemeral, intermittent, and perennial drainages. The Soil Survey of Eureka and Part of White Pine Counties, prepared by the NRCS was reviewed prior to visiting the site (NRCS 1998).

#### 3.11.2.2 Existing Conditions

In the Routine On-Site Wetland Delineation it was determined that no waters of the U.S. are located in the Project Area. With no jurisdictional waters present in the Project Area, USACE jurisdiction does not extend to the wetlands in the Project Area. A number of non-jurisdictional wetlands, or riparian areas, were identified in and surrounding the Project Area. Wetlands identified in the Project Area were recognized by the presence of facultative wet/obligate wetland plant species, ordinary high water mark (OHWM) indicators, and hydric soil indicators. The delineation identified 1,400 square feet (0.03 acre) of wetlands associated with Garden Spring (597) outside of the Project Area. During the July 2011 spring and seep survey, 0.22 acre of riparian vegetation was located within the Project Area associated with the Zinc adit (839) (JBR 2011). The springs and associated riparian vegetation identified in the Project Area and vicinity are shown on Figure 3.9.1.

### 3.11.3 **Environmental Consequences and Mitigation Measures**

#### 3.11.3.1 Significance Criteria

Impacts to wetlands and riparian zones would be considered significant if the Proposed Action or alternatives resulted in any of the following:

- Violations of EO 11990 - Protection of Wetlands;
- Effects that are inconsistent with the objectives set forth in the BLM Riparian Initiative; or
- Eliminate, reduce, or adversely affect wetlands, riparian, or phreatophytic vegetation areas within the area directly or indirectly affected by Project activities.

### 3.11.3.2 Assessment Methodology

Potential effects on wetlands and riparian zones can be categorized as direct and indirect, as well as short term (i.e., during the life of the Project) and long term. Direct effects on wetlands and riparian zones could include removal or disturbance of riparian and wetland communities. Indirect effects could result from water table drawdown as a result of mine dewatering systems and well field pumping for process water. Short-term impacts are those that could occur during Project implementation and until reclamation is complete. Long-term impacts are those occurring after reclamation is complete. The effects are determined to be significant or not significant based on the applicable significance criteria listed in Section 3.11.3.1.

### 3.11.3.3 Proposed Action

Riparian and wetland communities that provide important habitat for local and migratory wildlife and fish species are considered sensitive resources, providing ecosystem services such as nutrient cycling, and also providing values such as irrigation and fisheries and are of concern to federal and state agencies. Riparian systems also provide water and habitat to wild horses and water to livestock. There are no jurisdictional wetlands or any other wetlands within the proposed areas of disturbance. Impacts to springs and stream water flows are discussed in Section 3.2.

- **Impact 3.11.3.3-1:** The Project would not result in the removal or disturbance (**direct impact**) of wetlands in the Project Area.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

**The mine dewatering system and pumping of the production well field is expected to drawdown the ground water table in an area surrounding the open pit. As discussed in Section 3.2, modeling results show that significant water table drawdowns in the aquifer would occur in an area measuring approximately 232 square miles around the Project Area including the northeast quadrant of Kobeh Valley and the southernmost fringe of the Roberts Mountains.**

**Phreatophytes that may be impacted as a result of the Proposed Action aquifer drawdown occur in Kobeh Valley. In the central Kobeh Valley, as discussed in Section 3.2 the shallow ground water (between zero and ten feet bgs) at the valley floor supports substantial areas of phreatophyte vegetation (Figure 3.9.2). As illustrated on Figure 3.2.9, approximately 4,122 acres of phreatophyte vegetation were mapped as occurring within the area predicted to be impacted by aquifer drawdown. More recent data from satellite imagery indicate that as many 28,500 acres of phreatophytes are located in Kobeh Valley (these data will be finalized upon publication) (USGS 2011). In order to verify the extent of phreatophytes**

potentially impacted by the Project, the soil associations in Kobeh Valley were reviewed to determine which soils are associated with phreatophytes. This review identified Bubus loam (1010), Bubus-Diane (1012), Ocala silt loam (161), Diane silt loam (250), Brinum silt loam (400), and Beanflat silt loam (410). The extent of these soils in Kobeh Valley is similar to the extent of phreatophytes identified in the preliminary results from the USGS Open-File Report 2011-1089 (USGS 2011), and are distributed southwest of the Project Area and overlap modeled ground water drawdown contours up to 70 feet in depth. However, the majority of phreatophytes that would be impacted are located in the area predicted to experience a ten- to 20-foot drawdown. Where the phreatophytes would be impacted as a result of ground water drawdown, the increase in the depth to ground water is expected to result in impacts to the phreatophyte vegetation through a change in vegetation composition and cover.

Impacts to other vegetation communities as a result of drawdown are not expected. The predicted ten-foot water drawdown contour for the Proposed Action does not intercept any known phreatophyte vegetation within Diamond Valley, Antelope Valley, or Pine Valley.

- **Impact 3.11.3.3-2: Phreatophyte vegetation would potentially experience a change in species composition and percent cover due to the predicted water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the area of phreatophytes is not expected to result in a net loss of vegetation in these communities.**

**Significance of the Impact:** The impact is **not** considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

**Direct impacts to the 0.22 acre of riparian vegetation associated with the Zinc adit are expected from the Project.**

Water table drawdown would have a negative effect on wetland vegetation species dependent on seeps or springs. Lowering of the water table in the area where these plants occur would potentially cause a decline in the wetland community and the structure, functionality, and values offered by these systems. As the water table is lowered, the soils may dry out and these plants may decline due to water stress. Wetland plants that die as a result of water stress would likely be replaced by vegetation species that are not dependent on spring or seep water.

**There are twenty-two existing springs, 7.7 miles of perennial streams in the Roberts Creek and Henderson Creek drainage, and 61.4 acres of riparian areas associated with these creeks that occur within the ten-foot drawdown contour (Figure 3.9.2). Table 3.2-6 in the Water Resources - Water Quantity Section identifies those springs that may be affected as a result of the Proposed Action. The total area of riparian vegetation that may be indirectly affected by the decline in the water table is approximately four acres associated with springs and 61.4 acres associated with the 7.7 miles of perennial streams.**

- **Impact 3.11.3.3-3: Vegetation dependent on springs, seeps, and perennial streams (i.e., riparian vegetation) would potentially experience water stress due to the water table drawdown associated with ground water pumping and subsequent recovery of the water**

table. Lowering of the water table in the area where these plants are located would potentially cause a decline in the riparian vegetation community. **Additionally, direct impacts to the 0.22 acre of riparian vegetation associated with the Zinc adit are expected from the Project.**

**Significance of the Impact:** Potential impacts to riparian vegetation areas within the area directly or indirectly affected by Project activities would be monitored as outlined in Section 2.1.15 and in the Plan. The impact is considered potentially significant.

- **Mitigation Measure 3.11.3.3-3:** As stated in Mitigation Measure 3.2.3.3-2a specific mitigation for the two perennial stream segments and 22 perennial or potentially perennial spring sites are outlined in Table 3.2-9. Implementation of the mitigation outlined in this table would result in up to 46.3 acres of additional surface disturbance associated with the pipeline construction and maintenance. This supplemental water should sustain riparian vegetation. **EML, in coordination with the BLM, would identify sites for mitigation in the area affected and implement mitigation measures at a three to one ratio with local cuttings, plugs, or seeds within one year of direct disturbance. EML would monitor these sites on an annual basis for at least three years after treatment to ensure effectiveness.**
- **Effectiveness of Mitigation and Residual Effects:** Mitigation Measure 3.2.3.3-2a is designed to address the specific spring or surface water that is affected, which enhances the effectiveness of the mitigation. In addition, a variety of approaches to mitigation can be used within these measures to achieve the objective. These mitigation measures are expected to be effective because the mitigation measures are specifically intended to directly address the impact by restoring or enhancing surface flows, and because the measures would be reviewed and addressed by the BLM. Mitigation Measure 3.11.3.3-3 would reduce impacts to the loss of riparian vegetation during Project activities. Replacement with local cuttings, plugs, or seeds would ensure no long-term impacts to the loss of riparian vegetation.

#### 3.11.3.3.1 Residual Adverse Impacts

Following Project completion and reclamation, residual adverse impacts to riparian zones from the Proposed Action would consist of a gradual return of flows to those springs, seeps, and perennial streams that experienced reduced flows from the ground water pumping. In addition, up to 0.22 acre of riparian vegetation within the Project Area would be removed through Project activities.

#### 3.11.3.4 No Action Alternative

Under the No Action Alternative, the proposed Project would not be developed and associated impacts to wetlands and riparian zones would not occur. EML would continue existing activities under previously permitted Notices, and the area would remain available for future mineral development or for other purposes as approved by the BLM.

#### 3.11.3.4.1 Residual Adverse Impacts

There are no residual adverse impacts to wetlands and riparian zones associated with the No Action Alternative.

#### 3.11.3.5 Partial Backfill Alternative

Although the Partial Backfill Alternative would involve the partial backfilling of the open pit to eliminate the pit lake and the floor of the open pit (approximately 527 acres) would be reclaimed with growth media and seeded, the impacts to wetland and riparian areas would be similar to those described for the Proposed Action. The absence of water in the open pit would increase the amount of water available to wetlands and riparian areas as compared to the Proposed Action, particularly related to areas close to the open pit. Under this alternative, approximately 100 ac-ft of evaporation from the pit lake would be prevented, and presumably that water would affect ground water resources.

- **Impact 3.11.3.5-1:** The Partial Backfill Alternative would not result in the possible removal or disturbance of wetlands in the Project Area.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.11.3.5-2:** Phreatophyte vegetation would potentially experience a change in species composition and percent cover due to the predicted water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the area of phreatophytes is not expected to result in a net loss of vegetation in these communities.

**Significance of the Impact:** The impact is **not** considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.11.3.5-3:** Vegetation dependent on springs, seeps, and perennial streams (i.e., riparian vegetation) would potentially experience water stress due to the water table drawdown associated with mine dewatering and subsequent filling of the open pit. Lowering of the water table in the area where these plants are located would potentially cause a decline in the riparian vegetation community. **Additionally, direct impacts to the 0.22 acre of riparian vegetation associated with the Zinc adit are expected from the Project.**

**Significance of the Impact:** Potential impacts to riparian vegetation areas within the area directly or indirectly affected by Project activities would be monitored as outlined in Section 2.1.15 and the Plan. The impact is considered potentially significant.

- **Mitigation Measure 3.11.3.5-3:** As stated in Mitigation Measure 3.2.3.3-2a, specific mitigation for the two perennial stream segments and 22 perennial or potentially

perennial spring sites are outlined in Table 3.2-9. Implementation of the mitigation outlined in this table would result in up to 46.3 acres of additional surface disturbance associated with the pipeline construction and maintenance. This supplemental water should sustain riparian vegetation. **EML, in coordination with the BLM, would identify sites for mitigation in the area affected and implement mitigation measures at a three to one ratio with local cuttings, plugs, or seeds within one year of direct disturbance. EML would monitor these sites on an annual basis for at least three years after treatment to ensure effectiveness.**

- **Effectiveness of Mitigation and Residual Effects:** Mitigation Measure 3.2.3.3-2a is designed to address the specific spring or surface water that is affected, which enhances the effectiveness of the mitigation. In addition, a variety of approaches to mitigation can be used within these measures to achieve the objective. These mitigation measures are expected to be effective because the mitigation measures are specifically intended to directly address the impact by restoring or enhancing surface flows, and because the measures would be reviewed and addressed by the BLM. Mitigation Measure 3.11.3.5-3 would reduce impacts to the loss of riparian vegetation during Project activities. Replacement with local cuttings, plugs, or seeds would ensure no long-term impacts to the loss of riparian vegetation.

#### 3.11.3.5.1 Residual Adverse Impacts

Following Project completion and reclamation, residual adverse impacts to wetland and riparian zones from the Partial Backfill Alternative would consist of a gradual return of flows to those springs, seeps, and perennial streams that had reduced flows from the ground water pumping. In addition, up to 0.22 acre of riparian vegetation within the Project Area would be removed through Project activities.

#### 3.11.3.6 Off-Site Transfer of Ore Concentrate for Processing Alternative

Although the Off-Site Transfer of Ore Concentrate for Processing Alternative would result in approximately 20 acres less surface disturbance compared to the Proposed Action, impacts to riparian areas from this alternative would be similar to those for the Proposed Action.

- **Impact 3.11.3.6-1:** The Off-Site Transfer of Ore Concentrate for Processing Alternative would not result in the removal or disturbance of wetlands in the Project Area.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.11.3.6-2:** Phreatophyte vegetation would potentially experience a change in species composition and percent cover due to the predicted water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the area of phreatophytes is not expected to result in a net loss of vegetation in these communities.

**Significance of the Impact:** The impact is **not** considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.11.3.6-3:** Vegetation dependent on springs, seeps, and perennial streams (i.e., riparian vegetation) would potentially experience water stress due to the water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the area where these plants are located would potentially cause a decline in the riparian vegetation community. **Additionally, direct impacts to the 0.22 acre of riparian vegetation associated with the Zinc adit are expected from the Project.**

**Significance of the Impact:** Potential impacts to riparian vegetation areas within the area directly or indirectly affected by Project activities would be monitored as outlined in Section 2.1.15 and the Plan. The impact is considered potentially significant.

- **Mitigation Measure 3.11.3.6-3:** As stated in Mitigation Measure 3.2.3.3-2a, specific mitigation for the two perennial stream segments and 22 perennial or potentially perennial spring sites are outlined in Table 3.2-9. Implementation of the mitigation outlined in this table would result in 46.3 acres of additional surface disturbance associated with the pipeline construction and maintenance. This supplemental water should sustain riparian vegetation. **EML, in coordination with the BLM, would identify sites for mitigation in the area affected and implement mitigation measures at a three to one ratio with local cuttings, plugs, or seeds within one year of direct disturbance. EML would monitor these sites on an annual basis for at least three years after treatment to ensure effectiveness.**
- **Effectiveness of Mitigation and Residual Effects:** Mitigation Measure 3.2.3.3-2a is designed to address the specific spring or surface water that is affected, which enhances the effectiveness of the mitigation. In addition, a variety of approaches to mitigation can be used within these measures to achieve the objective. These mitigation measures are expected to be effective because the mitigation measures are specifically intended to directly address the impact by restoring or enhancing surface flows, and because the measures would be reviewed and addressed by the BLM. Mitigation Measure 3.11.3.5-3 would reduce impacts to the loss of riparian vegetation during Project activities. Replacement with local cuttings, plugs, or seeds would ensure no long-term impacts to the loss of riparian vegetation.

#### 3.11.3.6.1 Residual Adverse Impacts

Following Project completion and reclamation, residual adverse impacts to wetland and riparian zones from the Off-Site Transfer of Ore Concentrate for Processing Alternative would consist of a gradual return of flows to those springs, seeps, and perennial streams that had reduced flows from the ground water pumping. In addition, up to 0.22 acre of riparian vegetation within the Project Area would be removed through Project activities.

### 3.11.3.7 Slower, Longer Project Alternative

Impacts from the Slower, Longer Project Alternative would occur over a period approximately twice as long in duration compared to the Proposed Action. As discussed in Section 3.2.3, the surface area predicted to be impacted by the drawdown by this alternative is similar to, but slightly different than, the Proposed Action. The differences between the predicted drawdown area is illustrated on Figure 3.2.28. Impacts to riparian vegetation as a result of the Slower, Longer Project Alternative are expected to be similar to the Proposed Action at the end of the Project.

- **Impact 3.11.3.7-1:** The Slower, Longer Project Alternative would not result in the removal or disturbance of wetlands in the Project Area.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.11.3.7-2:** Phreatophyte vegetation would potentially experience a change in species composition and percent cover due to the predicted water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the area of phreatophytes is not expected to result in a net loss of vegetation in these communities.

**Significance of the Impact:** The impact is not considered significant.

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.**

- **Impact 3.11.3.7-3:** Vegetation dependent on springs, seeps, and perennial streams (i.e., riparian vegetation) would potentially experience water stress due to the water table drawdown associated with ground water pumping and subsequent recovery of the water table. Lowering of the water table in the area where these plants are located would potentially cause a decline in the riparian vegetation community. **Additionally, direct impacts to the 0.22 acre of riparian vegetation associated with the Zinc adit are expected from the Project.**

**Significance of the Impact:** Potential impacts to riparian vegetation areas within the area directly or indirectly affected by Project activities would be monitored as outlined in the Plan. The impact is considered potentially significant.

- **Mitigation Measure 3.11.3.7-3:** As stated in Mitigation Measure 3.2.3.3-2a, specific mitigation for the two perennial stream segments and 22 perennial or potentially perennial spring sites are outlined in Table 3.2-9. Implementation of the mitigation outlined in this table would result in up to 46.3 acres of additional surface disturbance associated with the pipeline construction and maintenance. This supplemental water should sustain riparian vegetation. **EML, in coordination with the BLM, would identify sites for mitigation in the area affected and implement mitigation measures at a three to one ratio with local cuttings, plugs, or seeds within one year of direct**

disturbance. EML would monitor these sites on an annual basis for at least three years after treatment to ensure effectiveness.

- **Effectiveness of Mitigation and Residual Effects:** Mitigation Measure 3.2.3.3-2a is designed to address the specific spring or surface water that is affected, which enhances the effectiveness of the mitigation. In addition, a variety of approaches to mitigation can be used within these measures to achieve the objective. These mitigation measures are expected to be effective because the mitigation measures are specifically intended to directly address the impact by restoring or enhancing surface flows, and because the measures would be reviewed and addressed by the BLM. Mitigation Measure 3.11.3.5-3 would reduce impacts to the loss of riparian vegetation during Project activities. Replacement with local cuttings, plugs, or seeds would ensure no long-term impacts to the loss of riparian vegetation.

#### 3.11.3.7.1 Residual Adverse Impacts

Following completion and reclamation, residual adverse impacts to wetland and riparian zones from the Slower, Longer Project Alternative would consist of a gradual return of flows to those springs, seeps, and perennial streams that experienced reduced flows from the ground water pumping. In addition, up to 0.22 acre of riparian vegetation within the Project Area would be removed through Project activities.

### 3.12 Livestock Grazing and Production

#### 3.12.1 Regulatory Framework

##### BLM Standards and Guidelines for Livestock Grazing

The BLM has established Standards and Guidelines approved by the Secretary of the Interior (43 CFR 4180). The purpose of these Standards and Guidelines is to ensure that BLM administration of grazing helps preserve currently healthy conditions and restores healthy conditions of rangelands (BLM 2001).

##### BLM Resource Management Plan

The RMP that covers the Project Area includes rangeland programs that authorize livestock grazing on public lands (43 CFR 1601.0-5(b) and CFR 4100.08). The regulations require that the BLM manage livestock grazing on public lands under the principles of multiple use and sustained yield. To accomplish this, rangeland has been broken down into controllable land areas called allotments to manage both short- and long-term objectives for livestock grazing. Allotments are leased to permittees for a defined period of time. **BLM MLFO allotments are managed to achieve Northeast Great Basin Resource Advisory Council standards and guidelines.** They are evaluated periodically by the BLM to determine whether management goals are being met (BLM 2001).

**disturbance. EML would monitor these sites on an annual basis for at least three years after treatment to ensure effectiveness.**

- **Effectiveness of Mitigation and Residual Effects:** Mitigation Measure 3.2.3.3-2a is designed to address the specific spring or surface water that is affected, which enhances the effectiveness of the mitigation. In addition, a variety of approaches to mitigation can be used within these measures to achieve the objective. These mitigation measures are expected to be effective because the mitigation measures are specifically intended to directly address the impact by restoring or enhancing surface flows, and because the measures would be reviewed and addressed by the BLM. Mitigation Measure 3.11.3.5-3 would reduce impacts to the loss of riparian vegetation during Project activities. Replacement with local cuttings, plugs, or seeds would ensure no long-term impacts to the loss of riparian vegetation.

#### 3.11.3.7.1 Residual Adverse Impacts

Following completion and reclamation, residual adverse impacts to wetland and riparian zones from the Slower, Longer Project Alternative would consist of a gradual return of flows to those springs, seeps, and perennial streams that experienced reduced flows from the ground water pumping. In addition, up to 0.22 acre of riparian vegetation within the Project Area would be removed through Project activities.

### 3.12 Livestock Grazing and Production

#### 3.12.1 Regulatory Framework

##### BLM Standards and Guidelines for Livestock Grazing

The BLM has established Standards and Guidelines approved by the Secretary of the Interior (43 CFR 4180). The purpose of these Standards and Guidelines is to ensure that BLM administration of grazing helps preserve currently healthy conditions and restores healthy conditions of rangelands (BLM 2001).

##### BLM Resource Management Plan

The RMP that covers the Project Area includes rangeland programs that authorize livestock grazing on public lands (43 CFR 1601.0-5(b) and CFR 4100.08). The regulations require that the BLM manage livestock grazing on public lands under the principles of multiple use and sustained yield. To accomplish this, rangeland has been broken down into controllable land areas called allotments to manage both short- and long-term objectives for livestock grazing. Allotments are leased to permittees for a defined period of time. **BLM MLFO allotments are managed to achieve Northeast Great Basin Resource Advisory Council standards and guidelines.** They are evaluated periodically by the BLM to determine whether management goals are being met (BLM 2001).

### 3.12.2 Affected Environment

#### 3.12.2.1 Study Methods

This section includes a discussion of existing grazing allotments, types and classes of livestock, and active grazing preferences, as well as the current grazing practices and management strategies within the Project Area.

#### 3.12.2.2 Existing Conditions

The Project Area is located within six BLM grazing allotments: Lucky C; Roberts Mountain; Romano; Ruby Hill; Shannon Station; and 3 Bars (Figure 3.12.1). Although not located within the Project Area footprint, the Santa Fe/Ferguson Allotment is located within the maximum extent ten-foot ground water drawdown contour and is included in Table 3.12-1 below. **Associated with each of these seven allotments are private lands that are used for livestock grazing and production.** Season of use and type of livestock permitted on the seven allotments are detailed in Table 3.12-1.

**Table 3.12-1: Livestock Grazing Permits for the Grazing Allotments Located within the Project Area and Ten-foot Ground Water Drawdown Contour**

Grazing Allotment	Type of Livestock	Season of Use	Active Preference (AUMs)
Lucky C	Cattle	4/15 through 2/28	3,054
		<b>Subtotal</b>	<b>3,054</b>
Roberts Mountain	Cattle	3/01 through 2/28	7,314
	Sheep	4/10 through 10/15	2,310
		<b>Subtotal</b>	<b>9,624</b>
Romano	Cattle	5/01 through 12/31	2,887
		<b>Subtotal</b>	<b>2,887</b>
Ruby Hill	Cattle	3/16 through 8/29	275
	Sheep	5/1 through 9/30	1,011
		<b>Subtotal</b>	<b>1,286</b>
Shannon Station	Cattle	4/1 through 2/28	2,520
		<b>Subtotal</b>	<b>2,520</b>
3 Bars	Cattle	3/1 through 2/28	4,111
	Sheep	3/1 through 2/28	1,729
		<b>Subtotal</b>	<b>5,840</b>
Santa Fe/Ferguson	Cattle	3/1 through 12/1	2,767
	Sheep	3/1 through 12/1	1,227
		<b>Subtotal</b>	<b>3,994</b>
		<b>TOTAL</b>	<b>29,205</b>

The Lucky C Allotment includes approximately 108,666 acres of public land. The active grazing preference for the allotment is 3,054 animal unit months (AUMs) for cattle, or approximately

36 acres per AUM and is under a rotational grazing system. An AUM is the amount of forage **necessary for the sustenance of one cow or its equivalent for a period of one month**. A total of **909.5** acres of the Lucky C Allotment are located in the powerline portion of the Project Area. **In addition, the ten-foot drawdown contour overlaps with the phreatophytes located within this allotment (Figure 3.12.1). According to Figure 3.12.1, this area would cover 3,143 acres (2.89 percent of this allotment).**

The Roberts Mountain Allotment includes approximately 151,060 acres of public land. The active grazing preference for the allotment is 9,624 AUMs for cattle and sheep, or on average approximately 16 acres per AUM. The allotment is currently under a rotation grazing system. A total of 7,954 acres of the Roberts Mountain Allotment are located in the fenced portion of the Project Area (of this, 1,365 acres are located in the Henderson pasture and 6,589 acres in the Nichols pasture).

The Romano Allotment consists of 76,070 acres of public lands with an active grazing preference of 2,887 AUMs for cattle, or approximately 26 acres per AUM (although AUMs/acre vary depending on pastures). This allotment is currently under a rotation grazing system. A total of 6,252 acres of the Romano Allotment are located in the fenced portion of the Project Area.

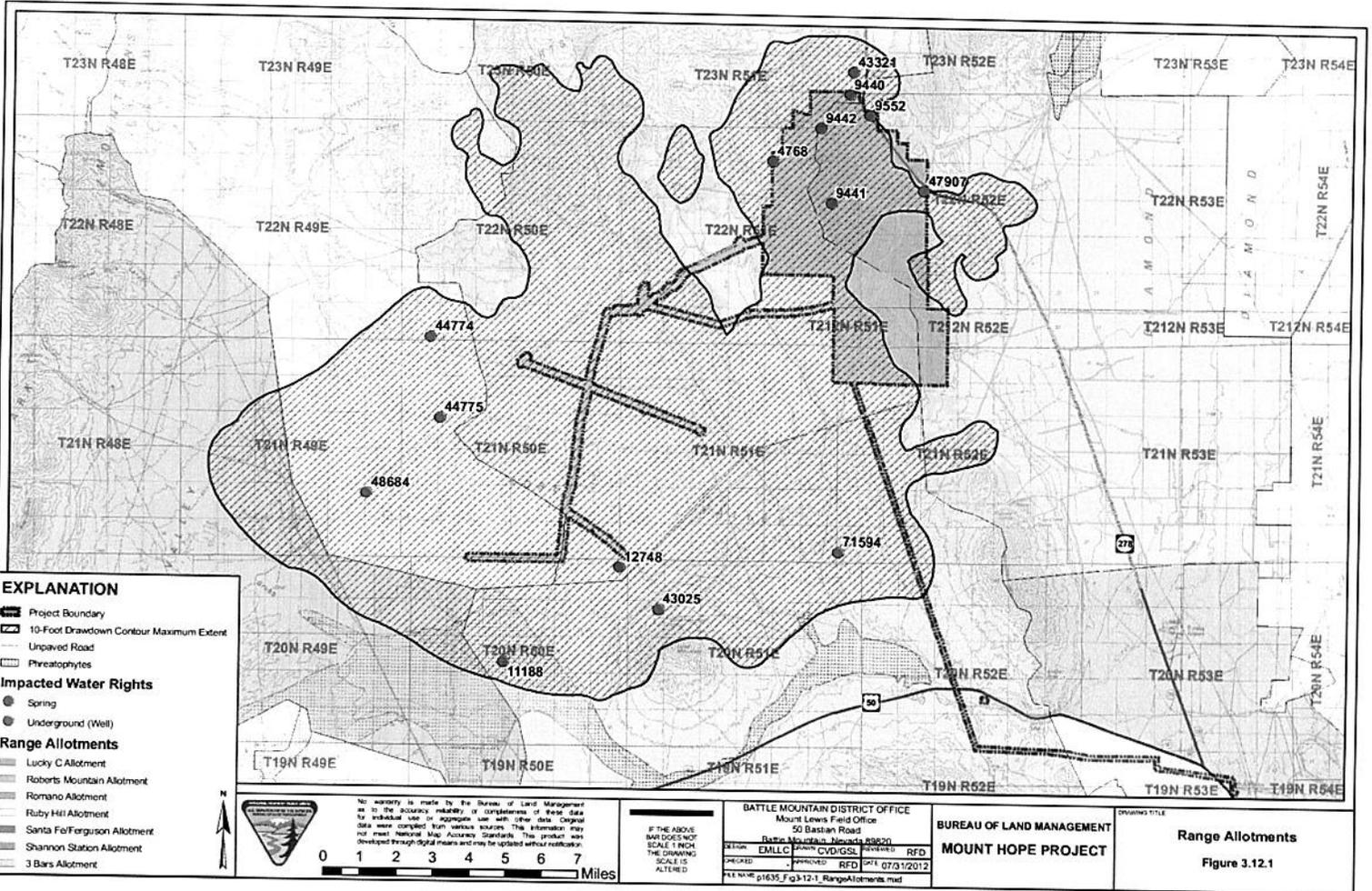
The Ruby Hill Allotment includes approximately 14,659 acres of public land. The active grazing preference for the allotment is 1,286 AUMs for cattle and sheep, or approximately 11 acres per AUM. A total of **317.7** acres of the Ruby Hill Allotment are located in the powerline portion of the Project Area.

The Shannon Station Allotment includes approximately 32,888 acres of public land. The active grazing preference for the allotment is 2,520 AUMs for cattle, or approximately 13 acres per AUM. The allotment is currently under a rotation grazing system. A total of **65.1** acres of the Shannon Station Allotment is located in the powerline portion of the Project Area.

The 3 Bars Allotment includes approximately 76,740 acres of public land. The active grazing preference for the allotment is 5,840 AUMs for cattle and sheep, or approximately 13 acres per AUM. The allotment is currently under a rotation grazing system. A total of 1,157 acres of the 3 Bars Allotment is located in the well field portion of the Project Area. **In addition, the ten-foot drawdown contour overlaps with the phreatophytes located within this allotment (Figure 3.12.1). According to Figure 3.12.1, this area would cover five acres (0.007 percent of this allotment).**

In addition to the six allotments discussed above, the ten-foot drawdown contour **overlaps with the phreatophytes located in** a seventh allotment, the Santa Fe/Ferguson Allotment (Figure 3.12.1). **According to Figure 3.12.1, this area would cover 974 acres (1.2 percent of the allotment).** The Santa Fe/Ferguson Allotment includes approximately 84,375 acres of public land. The active grazing preference for the allotment is 3,994 AUMs for cattle and sheep, or approximately 21 acres per AUM. The allotment is currently under a rotation grazing system.

The following BLM range improvements have been authorized within Sections affected by the entire Project Area: one well; one fence; one fence/cattleguard; one pipeline/trough; one pipeline; two seeding projects; one seeding tank; two spring developments; and one reservoir dam.



The consequences of weather and climate change on livestock grazing, and grassland use can be subtle and complex. The projected changes in climate – increases in temperature, reductions in soil moisture, and more intense rainfall events – may require changes in livestock management. The availability of feed and water for livestock grazing is extremely vulnerable to drought; hence the carrying capacity of land may influence livestock management.

### 3.12.3 Environmental Consequences and Mitigation Measures

#### 3.12.3.1 Significance Criteria

Impacts to livestock grazing and production would be considered significant if the Proposed Action or alternatives would result in any of the following:

- Change in forage availability that measurably affects livestock grazing;
- Change in access to water that measurably affects livestock grazing;
- Change in number of AUMs available before, during, and after mining; or
- Undue harassment that adversely affects livestock grazing.

#### 3.12.3.2 Assessment Methodology

Environmental consequences to livestock grazing and production within the Project Area were evaluated using authorized AUMs, pasture/use area acres, and Project disturbance acres. The pasture/use area acres were divided by the total AUMs by pasture (acres/AUM). The Project disturbance within each pasture was then divided by the acres/AUM to determine the total AUMs impacted. Where an allotment did not have pastures or use areas, the total acres and authorized AUMs were utilized for the calculation. **The analysis of effects to livestock grazing and production from the ground water drawdown, utilizes the acreage of phreatophytes within allotments affected by the ten-foot drawdown contour.**

#### 3.12.3.3 Proposed Action

Project-related activities could result in direct impacts to livestock from traffic accidents or other mine-related activities. In order to minimize these impacts, a perimeter fence would be constructed during Project activities that would enclose 14,204 acres in the Mine and Process Area, which includes the open pit, WRDFs, and TSFs. The constructed fence would exclude livestock grazing during mine operations and reclamation for approximately 70 years. The open pit would result in the permanent loss of approximately 734 acres (644 acres within the Romano Allotment and 90 acres within the Roberts Mountain Allotment). **A total of 32 AUMs in the Romano and Roberts Mountain Allotments would be lost in perpetuity as a result of the open pit.** As described in the Proposed Action, the fence would be monitored on a regular basis and repairs made as needed.

When an area of **BLM administered land is devoted to a single public purpose**, such as mineral production, AUMs are adjusted to reflect the area withdrawn from multiple use. These AUMs are lost until such time mining has ceased and reclamation has been successfully completed. At that time, the area will be evaluated to determine if the AUMs can be returned.

**In addition to the AUMs permanently lost as a result of the open pit, a total of 490 AUMs in the Roberts Mountain Allotment would be lost for approximately 70 years as a result of**

7,954 acres being excluded by the Project fence. This would reduce the active grazing preference to 9,134 AUMs in the allotment from 9,624 AUMs (Table 3.12-2). The loss of AUMs represents five percent of the active grazing preference in the Roberts Mountain Allotment.

**In addition to the AUMs permanently lost as a result of the open pit, a total of 291 AUMs in the Romano Allotment would be lost for approximately 70 years as a result of 6,252 acres being excluded by the Project fence. This would reduce the active grazing preference to 2,596 AUMs in the allotment from 2,887 AUMs (Table 3.12-2). The loss of AUMs represents ten percent of the active grazing preference in the Romano Allotment.**

**Table 3.12-2: Grazing Capacity within the Project Area and Area Affected by Ten-Foot Water Drawdown Contour Before and During Project Activities**

Allotment	Active Grazing Capacity (AUMs)	
	Before the Proposed Action	During the Proposed Action
Lucky C	3,054	3,054
Roberts Mountain	9,624	9,134
Romano	2,887	2,596
Ruby Hill	1,286	1,286
Shannon Station	2,520	2,520
3 Bars	5,840	5,840
Santa Fe/Ferguson	3,994	3,994
<b>Total</b>	<b>29,205</b>	<b>28,424</b>

The grazing and agricultural service sectors of the Eureka County economy would be marginally affected by the reduction in AUMs associated with the Proposed Action due to the construction of the fence around 14,204 acres of the Project Area. The fence would exclude access to portions of the Roberts Mountains and Romano Allotments and result in a reduction of 781 AUMs for approximately 70 years **and 32 AUMs permanently from the development of the open pit.** According to the Nevada Grazing Statistics Report and Economic Analysis for Federal Lands in Nevada (Resource Concepts, Inc. 2001), the **total economic impact associated with each AUM equals \$53.40 (1999 dollars) (\$73.75 in 2012 dollars) annually. This value specifically estimates the direct, indirect, and induced impacts of industry output and added value of grazing in Nevada. Applying this value to the AUMs permanently and temporarily displaced under the Proposed Action, the total economic impact could be an annual reduction of \$41,705 (1999 dollars) (\$57,597 in 2012 dollars). This would be a \$15,539 (1999 dollars) (\$21,460 2012 dollars) impact resulting from displaced Romano Allotment AUMs and a \$26,166 (1999 dollars) (\$36,137 2012 dollars) impact resulting from displaced Roberts Mountain Allotment AUMs. While the impact may not be significant to the ranching community, the impact may be meaningful to individual ranch operations. However, it is important to note that this impact reflects the total economic impact, not lost revenue for specific operators. The subsequent two paragraphs describe in greater detail the economic impact to grazing investigated in the Nevada Grazing Statistics Report and Economic Analysis for Federal Lands in Nevada Report.**

The direct industry impacts to Nevada's economy from one AUM are estimated to be \$24.40 based on the total production value of grazing divided by the total AUMs. Indirect and induced impacts to the industry, estimated at \$16.00 per AUM, occur throughout the economy as a result

of providing goods and services to the livestock industry and include other industrial sectors such as crops, construction, manufacturing, transportation, communication, utilities, and trade and services. Induced impacts include those caused by household consumption as a result of the direct and indirect impacts. In total, industry impacts were estimated to equal \$40.40 per AUM (1999 dollars).

The labor income impact estimates (total \$7.40 per AUM) are based on the wages and salaries of workers and proprietors' income. Total value-added impacts (\$13.00 per AUM) include impacts to wages and salaries, proprietors' income, other property income (i.e., interest, rent, royalties), and indirect business taxes (1999 dollars). Employment impacts based on \$24.40 direct industry impacts are too small to have any impact based on one AUM.

Based on the estimated direct, indirect, and induced economic impacts of one AUM (\$53.40), the economic value of the 781 AUMs reduced during the life of the Project equates to \$41,705.40 per year, or in sum \$2,919,378.00 over approximately 70 years. This represents approximately 2.7 percent of the economic value of all the allotments affected by the Project. The permanent loss of 32 AUMs (valued at \$1,708.80 annually in 1999 dollars) represents less than one percent of all allotments affected by the Project and, therefore, is considered a minor impact on the long-term Eureka County grazing economy.

Table 3.12-2 includes the active preference before and during the Project for the affected allotments. The loss of 781 AUMs represents 2.7 percent of the active grazing preference for the allotments in the Project Area.

- **Impact 3.12.3.3-1: Project development and operation under the Proposed Action would result in the permanent loss of 32 AUMs and the loss of 781 AUMs for approximately 70 years from allotments within the fenced Project Area.**

**Significance of the Impact: The impact is considered potentially significant.**

**No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures. Also see Section 3.26 for suggested mitigation outside of the BLM's jurisdiction.**

The 14,204-acre enclosure would not impact AUMs within the 3 Bars, Santa Fe/Ferguson, or Lucky C Allotments; however, portions of these allotments could sustain potential impacts to AUMs due to the possible impacts to forage in the phreatophyte vegetation community related to ground water drawdown. **Figure 3.12.1 illustrates the location of phreatophytes relative to the allotments within the Project Area boundary and the ten-foot drawdown contour. There are no phreatophytes on private land within the ten-foot drawdown.**

Ground water drawdown could result in a change from phreatophytes to another vegetation community composed of plant species that do not have long roots that reach down to the water table that would still provide forage for livestock. **Impacts are not expected to other vegetation communities that do not rely on the direct connection to ground water.** Additionally, reseeding mitigation proposed in Section 3.11.3 would ensure the availability of forage for livestock in areas identified by the BLM. **Following reseeding, the BLM would evaluate and determine if there is a need to suspend livestock grazing for two years or until the objectives of the seeding are met. The BLM would utilize rangeland standards as a goal**