

CALICO RESOURCES USA CORP.
GRASSY MOUNTAIN MINE PROJECT
MALHEUR COUNTY, OREGON

**VISUAL RESOURCES
BASELINE REPORT**

DECEMBER 2017

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VISUAL RESOURCES BASELINE REPORT**

TABLE OF CONTENTS

1	INTRODUCTION	1
2	RESOURCE STUDY AREA	1
3	REGULATORY FRAMEWORK.....	4
3.1	Bureau of Land Management	4
4	STUDY METHODOLOGY	6
4.1	Literature Review.....	6
4.2	Field Studies.....	6
5	BASELINE CHARACTERIZATION.....	6
5.1	Description of the Characteristic Landscape.....	6
5.2	Key Observation Points	8
5.2.1	KOP 1.....	9
5.2.2	KOP 2.....	10
5.2.3	KOP 3.....	10
5.2.4	KOP 4.....	11
6	BIBLIOGRAPHY.....	12
7	CONTACTS.....	12
8	LIST OF PREPARERS	12

LIST OF TABLES

Table 1:	BLM Visual Resource Management Classes.....	4
Table 2:	Key Observation Points.....	8

LIST OF PHOTOS

Photo 1:	Characteristic Landscape.....	8
Photo 2:	KOP 1.....	9
Photo 3:	KOP 2.....	10
Photo 4:	KOP 3.....	11
Photo 5:	KOP 4.....	12

LIST OF FIGURES

Figure 1:	Location Map	2
Figure 2:	Permit Area Map	3
Figure 3:	Visual Resources Study Area.....	5
Figure 4:	Visual Resources Management Classes and Key Observation Points	7

LIST OF ABBREVIATIONS AND ACRONYMS

BLM	Bureau of Land Management
HDR	HDR Engineering, Inc.
KOPs	key observation points
NEPA	National Environmental Policy Act
Project	Grassy Mountain Mine Project
VRM	Visual Resources Management

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VISUAL RESOURCES BASELINE REPORT**

1 INTRODUCTION

Visual resources are a composite of basic topography, geologic features, water features, vegetative patterns, and land use effects that typify an area and influence the visual appeal that an area may have to viewers. Effects to visual resources are evaluated to address such issues as the type and extent of actual physical contrast resulting from implementation of the Proposed Action and the level of visibility of a specific feature, activity or structure from areas such as primary travel routes, residences, and recreation facilities.

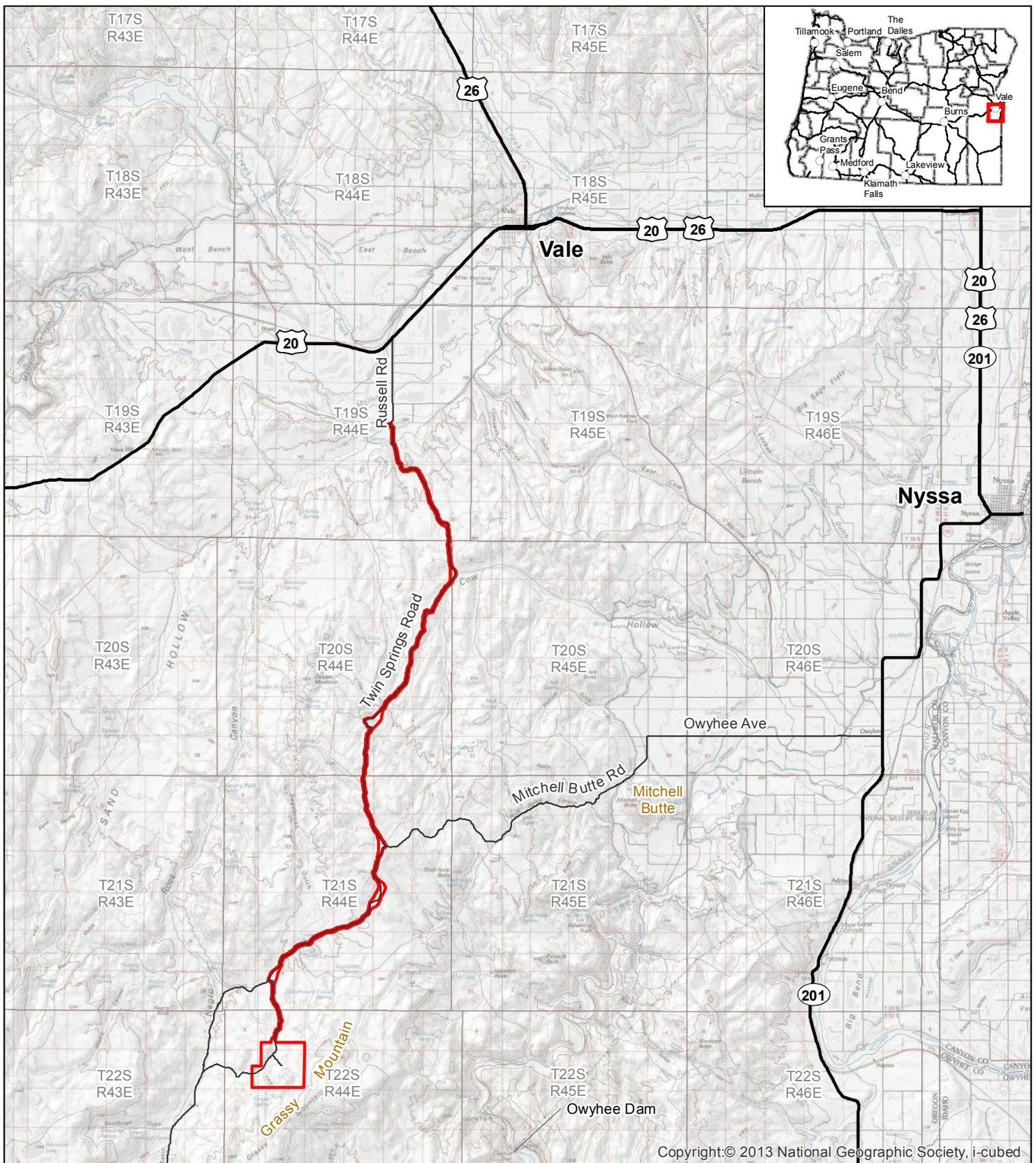
The purpose of this visual resources baseline report is to characterize existing scenic values and describe the characteristic landscape in the visual resources study area for the Grassy Mountain Mine Project (Project). This baseline report will be used to support a National Environmental Policy Act (NEPA) evaluation for future mine site activities, and will be included in the Consolidated Permit Application submitted to the Oregon Department of Geology and Mineral Industries. A large portion of the text and photos used in this report has been taken from the November 2014 *Draft Visual Resources Baseline Study* and July 2015 *Draft Visual Resources Baseline Study Addendum #1* prepared for the Project by HDR Engineering, Inc. (HDR). Additional or updated information has been added where necessary to accommodate the current permit area. The additional/updated information includes: 1) expansion/description of the permit area; 2) renumbering of the key observation points (KOPs); and 3) Contacts and Preparers.

2 RESOURCE STUDY AREA

The Project is located in Malheur County, Oregon, approximately 22 miles south-southwest of Vale (Figure 1), and consists of two areas: the Mine and Process Area and the Access Road Area (Permit Area) (Figure 2).

The Mine and Process Area is located on three patented lode mining claims and unpatented lode mining claims that cover an estimated 886 acres. These patented and unpatented lode mining claims are part of a larger land position that includes 419 unpatented lode mining claims and nine mill site claims on lands administered by the Bureau of Land Management (BLM) (Figure 2). All proposed mining would occur on the patented claims, with some mine facilities on unpatented claims. The Mine and Process Area is in all or portions of Sections 5 through 8, Township 22 South, Range 44 East (T22S, R44E) (Willamette Meridian).

The Access Road Area is located on public land administered by the BLM, and private land controlled by others (Figure 2). A portion of the Access Road Area is a Malheur County Road named Twin Springs Road. The Access Road Area extends north from the Mine and Process Area to Russell Road, a paved Malheur County Road. The Access Road Area is in portions of Section 5, T22S, R44E, Sections 3, 10, 11, 14, 15, 21 through 23, 28, 29, and 32, T21S, R44E, Sections 1, 12 through 14, 23, 26, 27, and 34, T20S, R44E, Sections 6 and 7, T20S, R45E, and Sections 22, 23, 26, 35, and 36, T19S, R44E (Willamette Meridian). The width of the Access Road Area is 300 feet (150 feet on either side of the access road centerline) to accommodate possible minor widening or re-routing, and a potential powerline adjacent to the access road. There are several areas shown that are significantly wider than 300 feet on the Permit Area Map (Figure 2), which are areas where the final alignment has not yet been determined. The final engineering of the road

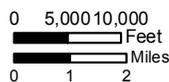


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Explanation

- Permit Area
- Existing Road

Projection: UTM Zone 11 North, NAD83, meters



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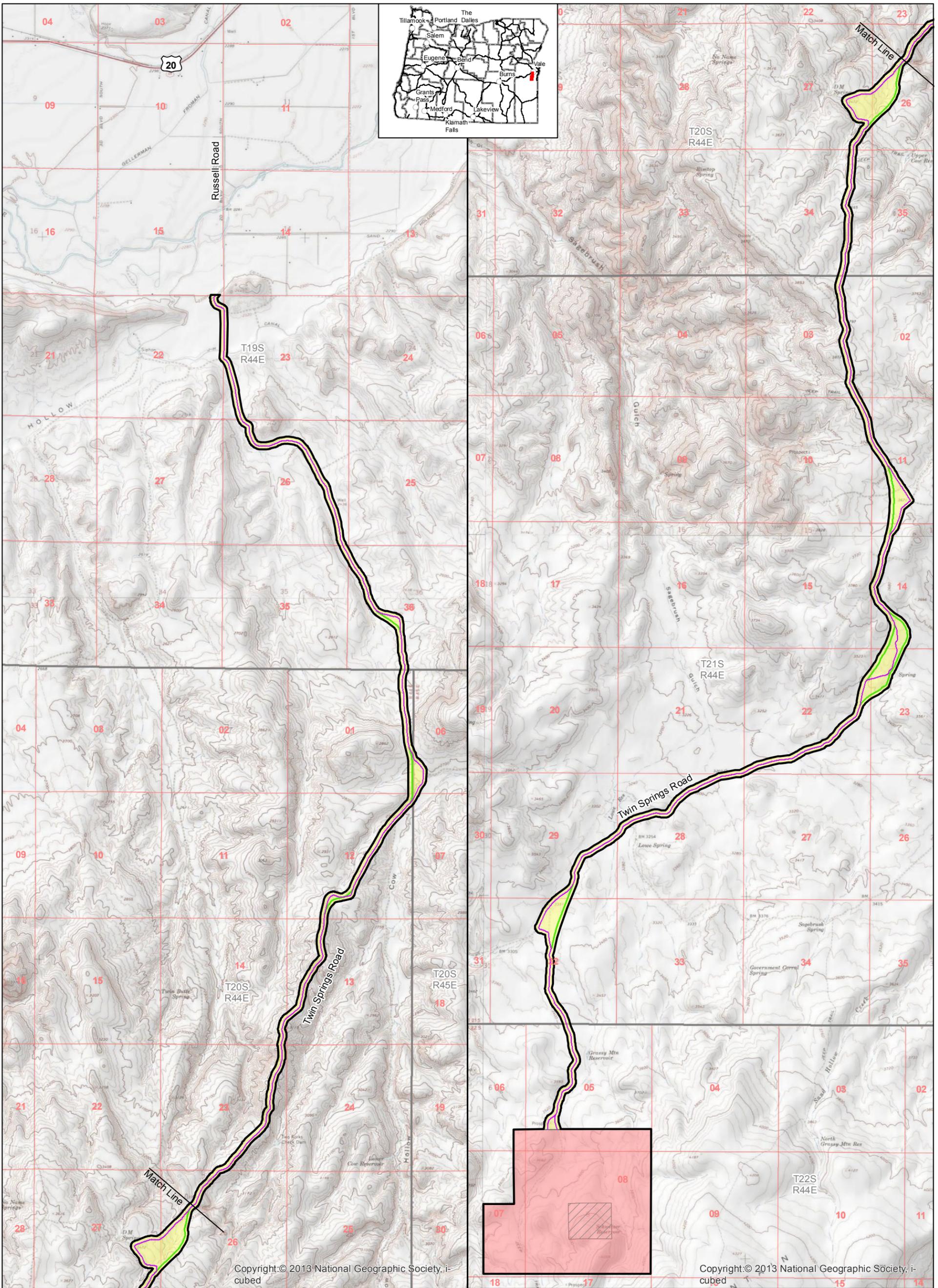
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Location Map

Figure 1

Date: 12/19/2017	Drawn By: JDB
Revised:	Project No.: 3672
Base Map: USGS 100K quads: Boise, Brogan, Vale, Weiser	
File Name: 3672G_GrassyMtn_BL_Fig01_Location.mxd	

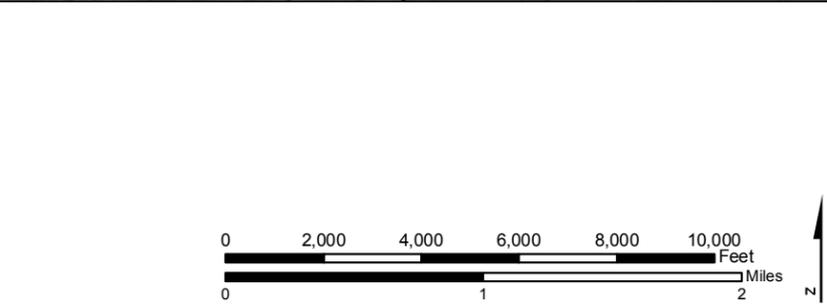




Explanation

- Permit Area
- Mine and Process Area
- Access Road Area
- Patented Lode Claims
- Proposed Access Road
- Possible Road Realignment

Projection: UTM Zone 11 North, NAD83, meters



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Permit Area Map

Figure 2

Date: 12/19/2017	Drawn By: JDB
Revised:	Project No.: 3672
Base Map: USGS 7.5 Minute Topographic Map, Grassy Mountain, Kane Spring, Oregon	
File Name: 3672G_GrassyMtn_BL_Fig02_PermitArea.mxd	

will be consistent throughout, and within the Permit Area. The Access Road Area also includes a buffer on either side of the proposed road width for the collection of environmental baseline data. The road corridor will be 40 feet wide, which includes a 24-foot wide road travel width (12 feet on either side of the road centerline), four-foot wide shoulders on each side of the road, minimum one-foot wide ditches on each side of the road, and appropriate cut and fill. The Access Road Area totals approximately 876 acres. The Visual Resources Study Area (Study Area) is shown on Figure 3.

3 REGULATORY FRAMEWORK

3.1 Bureau of Land Management

Scenic quality is a measure of the visual appeal of a parcel or parcels of land. Section 102(a)(8) of the Federal Land Policy and Management Act places an emphasis on the protection of the quality of scenic resources on public lands. Section 101(b) of NEPA requires that measures be taken to ensure that aesthetically pleasing surroundings be retained for all Americans.

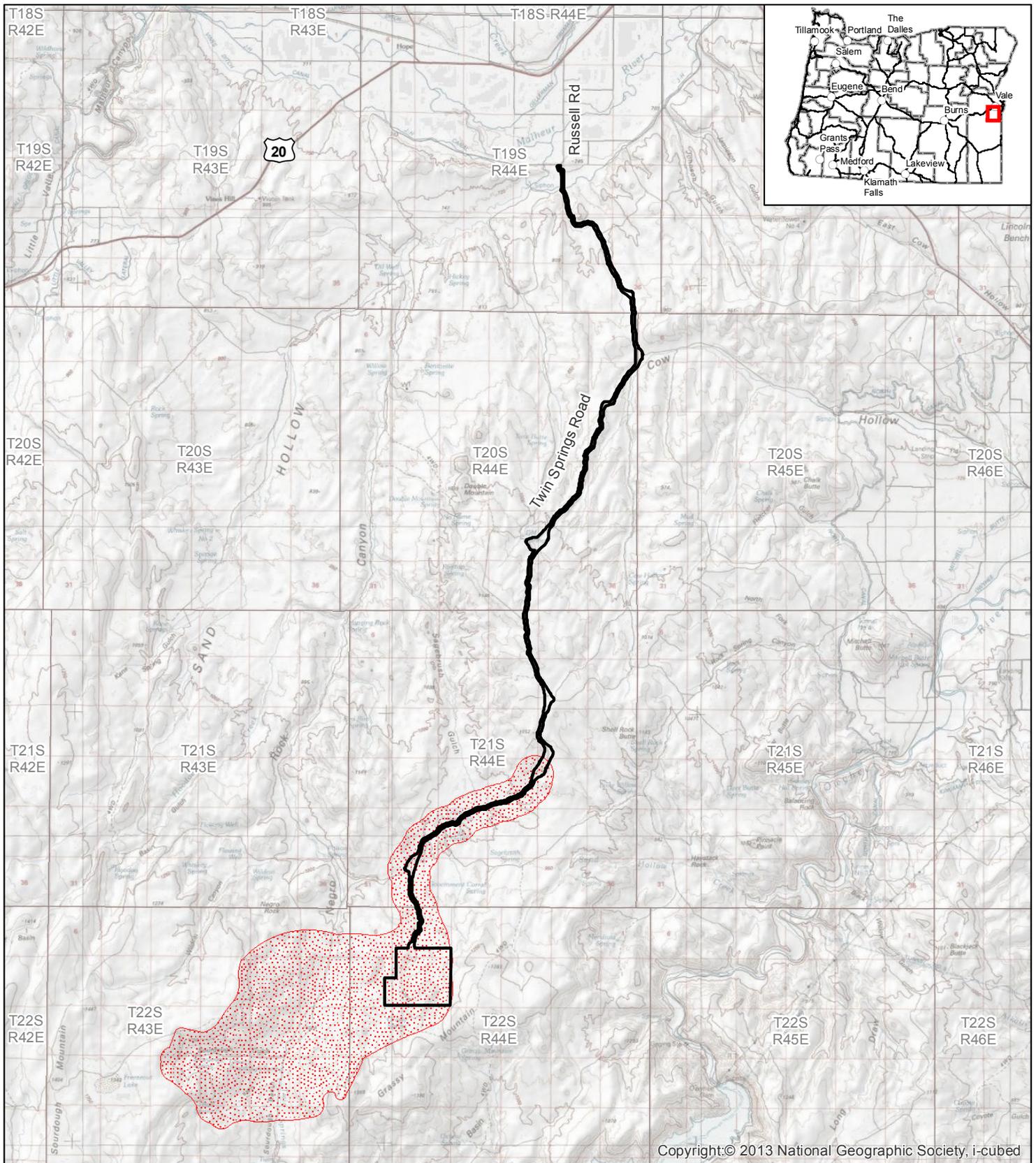
To ensure that these objectives are met, BLM developed the Visual Resources Management (VRM) system. The VRM system provides a method to identify visual resource values, establishes objectives for managing these values, and provides information to evaluate the visual effects of proposed projects on public lands. The inventory of visual values combines evaluations of scenic quality, sensitivity levels, and distance zones to establish visual resource inventory classes, which are “informational in nature and provide the basis for considering visual values in the land use planning process. They do not establish management direction and should not be used as a basis for constraining or limiting surface disturbing activities” (BLM 1986).

VRM classes are typically assigned to public land units through the use of the visual resource inventory classes in the BLM’s land use planning process. One of four visual resource management classes is assigned to each unit of public lands. The specific objectives of each visual resource management class are presented in Table 1.

Table 1: BLM Visual Resource Management Classes

VRM Class	Class Description
I	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
II	The objective of this class is to preserve the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any change must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
III	The objective of this class is to partially retain the existing character of the landscape. The level of change to the character should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
IV	The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Source: BLM 1986



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Explanation

-  Permit Area
-  Visual Resources Study Area

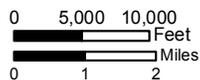
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Visual Resources Study Area

Figure 3

Projection: UTM Zone 11 North, NAD83, meters



Date: 12/19/2017	Drawn By: JDB
Revised:	Project No.: 3672
Base Map: USGS 100K quad: Vale	
File Name: 3672G_GrassyMtn_BL_VR_Fig03_StudyArea.mxd	



Landscapes are divided into three distance zones: foreground-middleground; background; and seldom seen. The distance zones are based on relative visibility from travel routes or observation points. Details are more visible to the viewer in the foreground-middleground and are less visible in the seldom seen zone. Therefore, viewers may be more sensitive to landscape changes made to land in the foreground-middleground. Distance zones are defined by the BLM as follows:

- Foreground-middleground: visibility generally from three to five miles;
- Background: visibility generally from five to 15 miles; and
- Seldom seen: visibility defined as greater than 15 miles.

4 STUDY METHODOLOGY

4.1 Literature Review

The majority of the baseline characterization in this report has been taken from the November 2014 and July 2015 HDR reports. Additional or updated information has been added where necessary to accommodate the revision of the Permit Area.

References used for this report are included in Section 6, Bibliography.

4.2 Field Studies

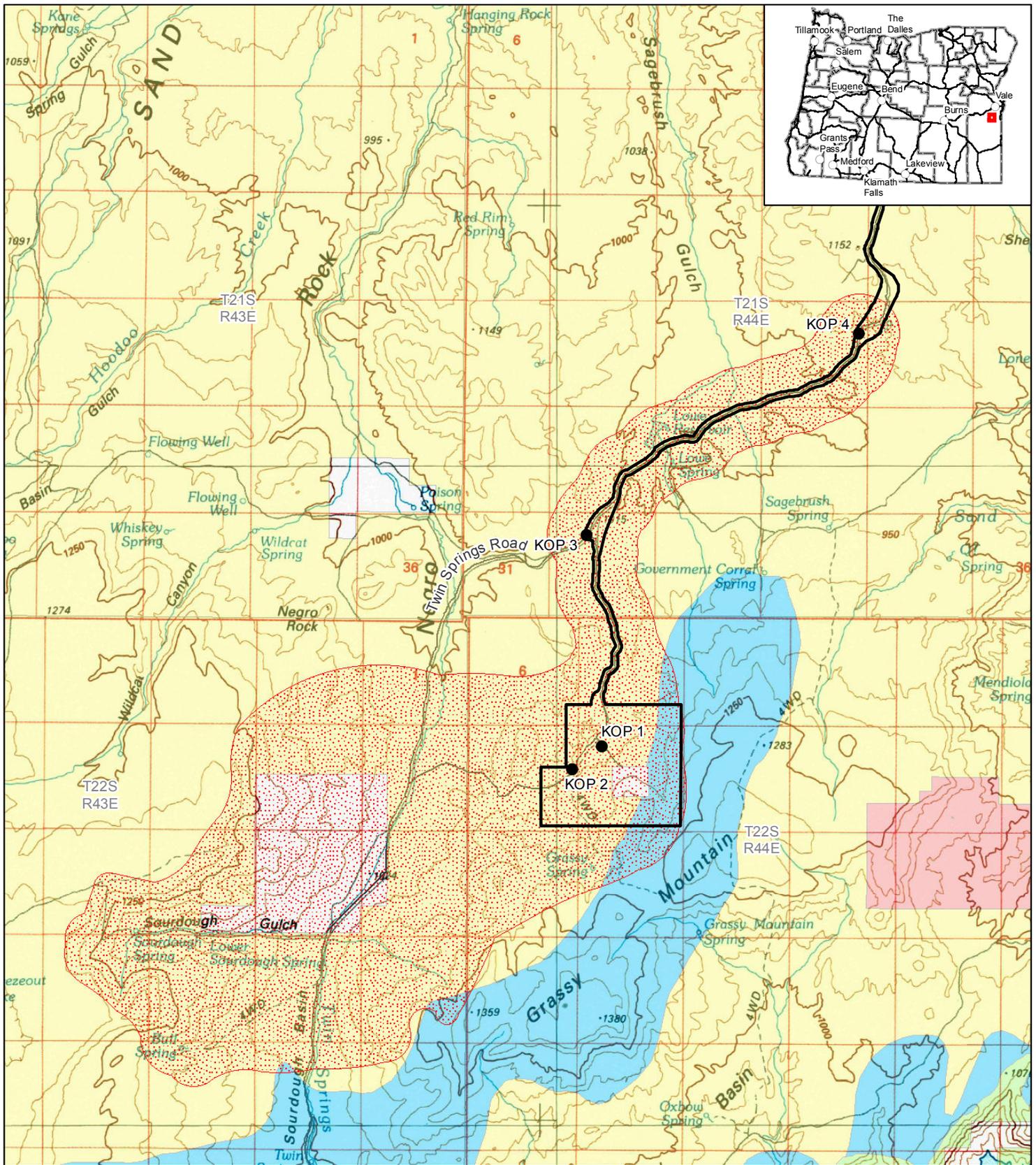
Field investigations were conducted to document the existing landscape conditions in the Study Area during the spring and fall of 2014 and April 2015. Several KOPs were chosen to describe the existing visual elements of the Study Area in the context of form, line, color, and texture associated with the characteristic landscape. BLM Visual Contrast Rating Worksheets for each KOP were completed to ensure that all parameters necessary to characterize the existing conditions were documented. KOPs 5, 6, 7, and 8, as identified in the April 2015 HDR report have been renumbered to KOPs 1, 2, 3, and 4, respectively, for this report (Figure 4).

5 BASELINE CHARACTERIZATION

5.1 Description of the Characteristic Landscape

The landscape within the Study Area is characterized by gently rolling hills, with small rock outcroppings along ridgelines. In general, soils throughout the Study Area are light tan in color. Dark brown rock outcroppings are visible along ridgelines. The Study Area has experienced some disturbance created by various access roads; however, very few man-made structures exist throughout the landscape. The most common structures include fence lines, stock-watering troughs, and transmission lines, which are visible at various locations throughout the Study Area.

Vegetation within the study area is a desert-rangeland type, where sagebrush and grasses are the dominant species. The area has been extensively grazed for many years and invasive cheatgrass dominates much of the landscape. The landscape experiences very little change in color throughout the year. In general, hues of green/gray are typically visible in the sagebrush and rabbitbrush, and the grasses vary between light-yellow/green to light-gold/brown throughout the year. Photo 1 shows the characteristic landscape during spring when there is the most color contrast.



Explanation

- Permit Area
- Visual Resources Study Area
- Existing Road
- Key Observation Point (KOP)

- Visual Resources Management Classes (VRM)**
- VRM 1 - Preserve existing character of landscape
 - VRM 2 - Largely retain the existing character of the landscape
 - VRM 3 - Partially retain the existing character of the landscape
 - VRM 4 - Modification of the character of the landscape is allowed

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Visual Resources Management Classes and Key Observation Points

Projection: UTM Zone 11 North, NAD83, meters



Date: 12/19/2017	Drawn By: JDB
Revised:	Project No.: 3672
Base Map: USGS 100K quad: Vale	
File Name: 3672G_GrassyMtn_BL_VR_Fig04_VRM_KOP.mxd	



Figure 4

Photo 1: Characteristic Landscape



Source: HDR 2015

In general, the landscape is devoid of unique water features, has vegetation common to the region, has relatively homogenous color composition, and has large amounts of open space with few unique topographic features.

5.2 Key Observation Points

Four KOPs have been selected to capture views that represent the existing landscape where Project activities are being proposed. The KOPs include views of BLM-administered land that may be used to support future mining activities, as well as the proposed access road corridor, which could be upgraded to provide improved vehicle access to the Project. Each of the four KOPs is given a number designation. The KOPs are briefly described in Table 2 and shown on Figure 4 along with the VRM classes.

Table 2: Key Observation Points

KOP	Location Description	VRM Class	View Description
1	End of Access Road facing south in Mine and Process Area	IV	Gently rolling hills with rock outcroppings in middleground and background. Sagebrush/bunchgrass vegetation has fine to medium texture. Linear elements include access road tire tracks.
2	Western portion of Mine and Process Area facing northeast	IV	Gently rolling hills. Sagebrush/bunchgrass vegetation creates a mottled, fine to medium texture across the landscape. Linear elements include access road tire tracks.

KOP	Location Description	VRM Class	View Description
3	Intersection of Access Road Area and Twin Springs Road facing south toward Mine and Process Area	IV	Relatively flat valley bottom. Gently rolling hills are visible in the middleground and background near the Mine and Process Area. Vegetation is relatively homogeneous. The color and texture of the access road contrasts sharply with the adjacent, undisturbed landscape.
4	Along Twin Springs Road facing south toward Mine and Process Area	IV	Terrain slopes gently toward the south toward the Mine and Process Area. Slightly undulating landforms are visible in the middleground and background. Landscape is mottled with fine textured grass species. The color and texture of Twin Springs Road contrasts sharply with the adjacent, undisturbed landscape.

Source: HDR 2015

5.2.1 KOP 1

KOP 1 (Photo 2) is located at the end of the Access Road facing south in the Mine and Process Area.

The visible landscape in this area is characterized by gently rolling hills, viewed in the middleground and background. Rock outcroppings are visible along the ridgelines viewed in the middleground, especially at the proposed Mine and Process Area. Soil ranges from tan to brown and rock outcroppings are dark brown in color.

Vegetation at this location consists of a shrub stratum that includes big sagebrush and rabbitbrush. The herbaceous stratum consists of bunchgrasses and cheatgrass, which is dominant across the landscape. The shrub stratum, which is viewed in the foreground and middleground, is gray/green with a fine to medium texture. The herbaceous stratum, which is viewed in the foreground and middleground, is light and varies between green and bright green. In general, the landscape is void of species diversity.

Tire tracks created by the access road add a linear element to the foreground of the viewshed. The texture of the tire tracks contrasts with the adjacent vegetation and undisturbed soil. No other man-made features are visible at this location.

Photo 2: KOP 1



Source: HDR 2015

5.2.2 KOP 2

KOP 2 (Photo 3) is located in the western portion of the Mine and Process Area facing northeast.

Similar to KOP 1, the visible landscape from this location is characterized by gently rolling hills, viewed in the middleground and background. Soil colors range from tans to browns with a few dark brown colored rocks scattered throughout the landscape.

Vegetation dominated by sagebrush and bunchgrasses creates a mottled texture throughout the viewshed. The shrub stratum is comprised of big sagebrush and rabbitbrush, while the herbaceous stratum consists of bunchgrasses and cheatgrass. The shrub stratum, viewed in the foreground and middleground, is gray/green with a fine to medium texture. The herbaceous stratum, viewed in the foreground and middleground, is light green in color.

Tire tracks created by the access road add a linear element to landscape as they pass through the viewshed from the foreground before disappearing into the middleground. The texture of the tire tracks contrasts with the adjacent vegetation and undisturbed soil. No other man-made features are visible at KOP 2.

Photo 3: KOP 2



Source: HDR 2015

5.2.3 KOP 3

KOP 3 (Photo 4) is located at the intersection of the Access Road Area and Twin Springs Road facing south toward the Mine and Process Area.

The terrain consists of a relatively flat valley bottom. Gently rolling hills are visible in the middleground and background, in the area of the Project. Fine-textured soil throughout the landscape ranges from light tan to brown. Some rock outcroppings are visible in the background and are dark brown in color. Small, light-colored, angular rocks and gravel are present along the access road.

Vegetation viewed in the foreground is relatively homogenous and dominated by grasses, including bluebunch wheatgrass and cheatgrass ranging from green to green/brown in color. Sagebrush in the shrub stratum is sparsely distributed throughout the landscape.

The soil color and texture of the access road contrast with the adjacent undisturbed landscape, especially in the foreground. Views of the roadway diminish as it passes through the middleground to the background toward the Mine and Process Area. Tire tracks in the foreground and middleground introduce a linear element to the natural landscape. No other man-made features are visible from this KOP.

Photo 4: KOP 3



Source: HDR 2015

5.2.4 KOP 4

KOP 4 (Photo 5) is located along Twin Springs Road in the northeastern portion of the Study Area facing south toward the Mine and Process Area.

The terrain viewed in the foreground and middleground slopes gently toward the south. Gently rolling hills are visible in the background along the horizon line. Soils range from tan to light brown. Some rock outcroppings are visible in the middleground and background and are dark brown in color. Small angular rocks are present along the edge of the existing road.

Vegetation viewed in the foreground is dominated by grasses, including bluebunch wheatgrass and cheatgrass, which create a mottled, fine texture across the landscape. Sagebrush in the shrub stratum is sparsely distributed throughout the landscape. Varying hues of green are visible throughout the landscape.

The colors and textures created by Twin Springs Road contrast sharply with the adjacent undisturbed landscape, especially in the foreground. Views of the roadway diminish as it passes through the middleground to the background. Tire tracks in the foreground and middleground introduce a linear element to the natural landscape. No other man-made features are visible from this KOP.

Photo 5: KOP 4



Source: HDR 2015

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