Overview

Potential scenery impacts of the proposed action and its alternatives are assessed using two different but complementary analysis systems: the Forest Service Visual Management System and the BLM Visual Resource Management system. Each involves an evaluation of likely changes to the visual landscape from key observation points, or KOPs, which are points in the landscape determined to be most representative of what viewers may see before and after development of the GPO-proposed project or its alternatives. KOP view analyses focus in particular on anticipated landscape-scale changes in form, line, color, and texture, and on how contrasting changes in the landscape may affect viewers.

3.11 Scenic Resources

3.11.1 Introduction

This section addresses the existing conditions of scenic resources (including dark skies) in the area of the proposed action and alternatives. It also addresses the potential changes to those conditions from construction and operation of the proposed project. The information contained in this section reflects the analysis information in the process memorandum (Newell and Grams 2018).

Scenery resources are the visible physical features on a landscape; they include land, water, vegetation, animals, structures, and other features. The combination of these physical features creates scenery and provides an overall landscape character. The variety and intensity of the landscape features and the four basic elements—form, line, color, and texture—make up the landscape character. These factors give an area a unique quality that distinguishes it from its immediate surroundings. Usually, if the elements coexist harmoniously, the more variety of these elements a landscape has, the more interesting or scenic the landscape becomes. Scenic quality is the relative value of a landscape from a visual perception point of view.

The scenery resources analysis area (figure 3.11.1-1) lies within the Mexican Highland section of the Basin and Range physiographic province. The province is generally characterized by roughly parallel mountain ranges separated by semi-flat valleys. The analysis area, located at the northern end of the Basin and Range area, includes classic Basin and Range characteristics, with rugged mountains to the north, east, and south, combined with broad basin valleys. Elevations in the area range from 1,520 feet amsl (western terminus of MARRCO corridor) to 5,520 feet amsl (Montana Mountain).

3.11.2 Analysis Methodology, Assumptions, and Uncertain and Unknown Information

3.11.2.1 Analysis Area

We considered the potential viewsheds of different proposed project components and alternatives to develop an overall analysis area for impacts on scenery resources (see figure 3.11.1-1). We based the analysis area on specific distance buffers for the proposed action and alternatives components. We assumed that impacts would be accounted for within these project component buffers.

3.11.2.2 Expected Scenery Changes

Our analysis presents the scenery changes and impacts that we expect based on the mine plans and design, and we present these for each mine component. Further, the analysis includes a qualitative discussion on anticipated changes in contrast between the existing landscape and the proposed activities and facilities. We also discuss the analysis in terms of sensitive viewers in the analysis area. The distance zones and scenery contrast definitions are presented in the accompanying text box. The distance zones differ from those found in the Forest Service Visual Management System (U.S. Forest Service 1974) to reflect the potential views in the desert landscape relative to the scale of the proposed project.

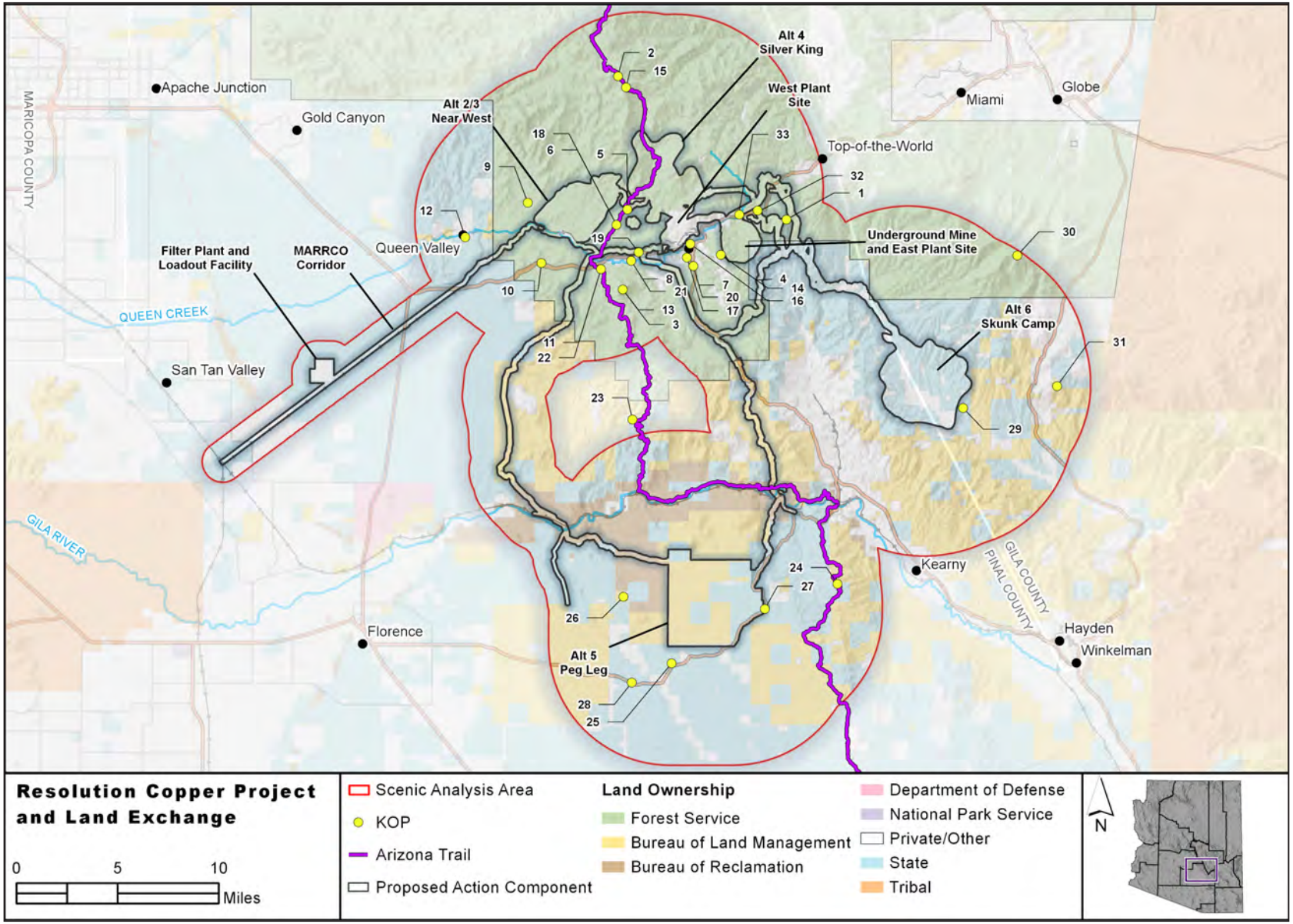

Figure 3.11.1-1. Scenic resources analysis area

Scenery Analysis Area Project Component Buffers
• 6 miles – Tailings facility alternatives
• 2 miles – Slurry pipeline corridor alternatives
• 2 miles – East Plant Site and subsidence area
• 2 miles – West Plant Site
• 2 miles – Transmission lines
• 1 mile – MARRCO corridor
• 1 mile – Filter plant and loadout facility

3.11.2.3 Viewshed Analysis

The Forest Service and NEPA team developed the viewshed analysis of the tailings facilities for the proposed action and alternatives to illustrate where the facilities would theoretically be visible. We modeled the approximate heights of the tailings facilities and determined, based upon landform and elevation, where the facilities would potentially be visible in the surrounding landscape. The viewshed model does not account for vegetation, structures, and other landscape elements that could obstruct views, but it does provide an approximation of the facility visibility within the analysis area. The viewshed analysis also includes miles of sensitive linear corridors from which the facilities would potentially be visible. The viewshed analyses for each alternative tailings facility are in the process memorandum (Newell and Grams 2018).

Distance Zones
Foreground : Up to 1 mile
Middle Ground: 1 to 3 miles
Background: Beyond 3 miles
Contrast Impact Definitions
None: The contrast is not visible or perceived.
Weak: The element contrast can be seen but does not attract attention.
Moderate: The element contrast begins to attract attention and begins to dominate the characteristic landscape.
Strong: The element contrast demands attention, would not be overlooked, and is dominant in the landscape.

3.11.2.4 Key Observation Points and Contrast Rating Analysis

Contrast analysis is a method that measures potential project-related changes to the landscape. The Forest Service and the BLM use this methodology to analyze the impacts on scenic quality and describe landscapes. The method allows for a level of objectivity and consistency in the process and reduces subjectivity associated with assessing landscape character and scenic quality impacts. We used the BLM's Visual Resource Contrast Rating system, as outlined in BLM Manual 8431 – Visual Resource Contrast Rating (Bureau of Land Management 1986a), for the contrast analysis. The system determines the degree to which a proposed project would affect the scenic quality of a landscape based on the visual contrast created between the proposed project and

the existing landscape. The method measures contrast by comparing the proposed project features with the major features in the existing landscape using basic design elements of form, line, color, and texture.

We conducted the contrast rating analysis for 33 key observation points (KOPs) representing sensitive views from residential areas, travel routes, and recreation areas of the proposed action and alternative tailings facilities, transmission lines, and pipeline corridors (see figure 3.11.1-1). The contrast rating worksheets for each KOP are in the process memorandum Newell and Grams (2018). To support the contrast rating analysis and disclose potential visibility of the proposed action and alternative tailings facilities, we provide photographic simulations of the theoretical views of the proposed action and alternatives from the KOPs (Newell and Grams 2018). The simulations are intended to provide a theoretical view of the tailings facilities post-reclamation. We completed most of the simulations with on-site photography. Some simulations were completed using a "block model" process that illustrates the model of the tailings facility with Google Earth imagery.

3.11.3 Affected Environment

3.11.3.1 Relevant Laws, Regulations, Policies, and Plans

Federal

FOREST SERVICE VISUAL MANAGEMENT SYSTEM

The Tonto National Forest Land and Resource Management Plan (1985b) uses the Visual Management System (U.S. Forest Service 1974) for management of forest scenery resources. The Visual Management System establishes Visual Quality Objectives (VQOs) for the forest and designates an acceptable degree of alteration of the characteristic landscape (table 3.11.3-1). This method measures the degree of alteration in terms of visual contrast with the surrounding landscape generated by introduced changes in form, line, color, and texture.

Table 3.11.3-1. Forest Service Visual Quality Objective classification descriptions

VQO Category	Description
Preservation	Allows ecological change only and management activities that are not noticeable to observers. Applies to wilderness areas, primitive areas, other special classified areas.
Retention	Allows management activities that are not evident to the casual forest visitor. Under Retention, activities may only repeat form, line, color, and texture which are frequently in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, pattern, etc., should not be evident.
Partial Retention	Allows management activities that may be evident to the observer but must remain subordinate to the characteristic landscape. Activities may repeat form, line, color, or texture common to the characteristic landscape but changes in their qualities of size, amount, intensity, direction, pattern, etc., remain visually subordinate to the characteristic landscape.
Modification	Allows management activities that may dominate the characteristic landscape but that must, at the same time, use naturally established form, line, color, and texture. Activities which are predominately introduction of facilities such as buildings, signs, roads, etc., should borrow naturally established form, line, color, and texture so completely and at such scale that their visual characteristics are compatible with the natural surroundings.
Maximum Modification	Allows management activities of vegetative and landform alterations that dominate the characteristic landscape. When viewed as foreground or middle ground, they may not appear to borrow completely from naturally established form, line, color, or texture.

BUREAU OF LAND MANAGEMENT VISUAL RESOURCE MANAGEMENT

The BLM uses the Visual Resource Management (VRM) system to manage visual resources on public lands (Bureau of Land Management 1984, 1986a, 1986b). The VRM system provides a framework for managing visual resources on BLM-administered lands. The four VRM class objectives describe the different degrees of modification allowed to the basic elements of the landscape (i.e., line, form, color, and texture) (table 3.11.3-2).

Table 3.11.3-2. Visual Resource Management class descriptions

VRM 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 should not attract attention.
II	The objective of this class is to retain 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 changes 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 characteristic landscape 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 that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These 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 of the landscape.

State of Arizona Scenic Road Designation

Arizona Revised Statutes 41-512 through 41-518 provide for the establishment of parkways, historic roads, and scenic roads. ADOT implements and administers the law. The “Scenic Road” designation includes a roadway (or segment of a roadway) that offers a memorable visual impression, is free of visual encroachment, and forms a harmonious composite of visual patterns. The analysis area contains the Gila-Pinal Scenic Road and the Copper Corridor Scenic Road West, described in section 3.11.3.2.

Local Lighting Ordinances

The Pinal County Outdoor Lighting Code and the Gila County Outdoor Light Control Ordinance contain guidelines and lighting requirements for projects that are proposed in the counties.

3.11.3.2 Existing Conditions and Ongoing Trends

Forest Service and BLM Scenery Management Designations

The number of acres under Tonto National Forest VQO and BLM VRM designations for the scenery resources analysis area are presented in table 3.11.3-3 and illustrated in figure 3.11.3-1.

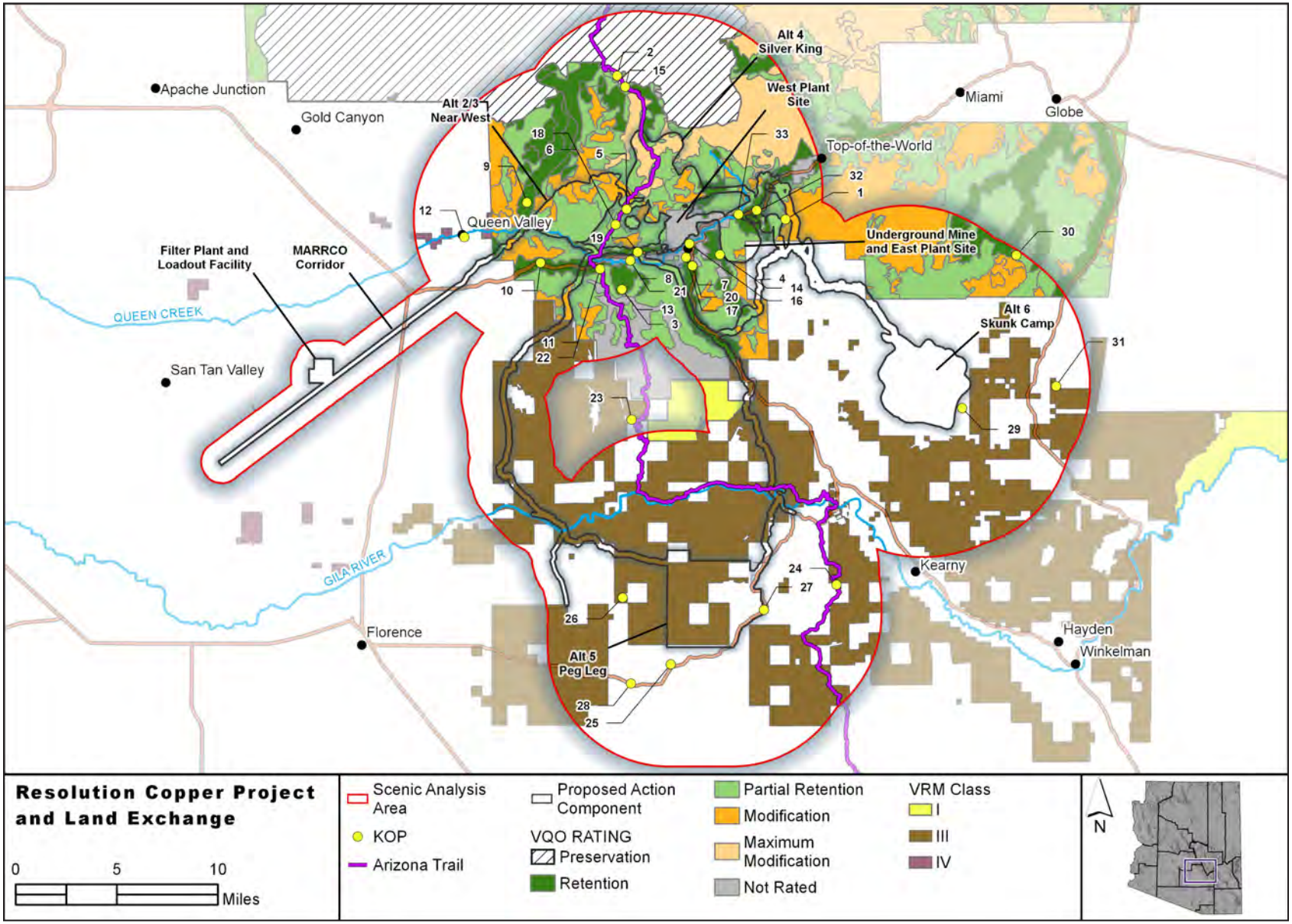

Figure 3.11.3-1. Forest Service and BLM scenery management designations (VQO and VRM)

Table 3.11.3-3. Acreages by scenery management designation

Scenery Designation	Acres
Forest Service VQO	
Preservation	25,410
Retention	26,902
Partial Retention	53,379
Modification	32,638
Maximum Modification	15,014
BLM VRM Class	
Class I	2,607
Class II	0
Class III	124,429
Class IV	738

Scenery Resources in the Analysis Area

The analysis area contains multiple types of scenic resources that could be impacted by construction of the proposed action or alternatives.

- **Arizona National Scenic Trail.** The Arizona Trail extends 800 miles across the state of Arizona from the U.S. border with Mexico to the state of Utah. The trail was designated a National Scenic Trail by Congress in 2009 (U.S. Forest Service 2018a). Approximately 55 miles of the trail—including Passage 15 Tortilla Mountains, Passage 16 Gila River Canyons, Passage 17 Alamo Canyon, and Passage 18 Reavis Canyon—are in the scenery analysis area. The high visual quality of scenery from these passages is diverse and includes steep rocky canyons, high-point vistas, riparian riverways, and developed trailheads and trail facilities. Passage scenery is described in more detail in the process memorandum (Newell and Grams 2018).
- **Apache Leap.** The Apache Leap escarpment is a geographically, culturally, and historically unique feature in the analysis area. The dramatic escarpment visually dominates the eastern skyline from the basin below and provides a scenic backdrop for the town of Superior. Climbers and hikers access the top of Apache Leap by climbing routes and undesignated trail routes. Views from the top of Apache Leap include broad long-distance views of the expansive valley below and more confined views to the east toward the Oak Flat area.

Apache Leap South End parcels, looking east from Donkey Canyon toward the Apache Leap escarpment

- **Picketpost Mountain.** Picketpost Mountain is a prominent mountain feature in the analysis area. At 4,377 feet amsl, it rises dramatically above the valley with rugged geological features and rock cliffs and outcrops. Hikers climb the rugged mountain using undesignated routes. Views from the top of the mountain include broad and expansive views into the valley to the north and views to the south toward the White Canyon Wilderness and the Gila River, including rugged and rolling desert mountains.

Picketpost Mountain, looking east from the Arizona Trail trailhead

View overlooking the town of Superior and the West Plant Site

- **Superstition Mountains.** The Superstition Mountains are a popular mountain range providing a scenic desert mountain backdrop in the northern portion of the analysis area. They include many heavily used roads and trails. Views from locations in the analysis area include broad and expansive views into the valley below and farther south to Picketpost Mountain and the Gila River valley in the background.
- **Pinal Mountains.** The Pinal Mountains, located south of Globe, Arizona, on the east side of the analysis area, provide popular high-elevation recreation to the surrounding region. Recreationists visit the mountain forest during the hot summer months to enjoy the cooler temperatures. The highest point, Pinal Peak (rising to 7,848 feet amsl), is accessible by dirt road and is frequently visited by recreationists. From Pinal Peak scenic views include background views of the Gila River valley to the east and the wide desert landscapes to the west. Middle ground views include the surrounding Pinal Mountains rugged terrain, including the Dripping Springs Valley.
- **Town of Superior, Arizona.** Located in the northern portion of the analysis area, the town of Superior is surrounded by the Tonto National Forest and the natural forest landscape, including Apache Leap and the Superstition Mountains, providing a scenic backdrop to the town. Scenic views from the town include middle ground views of surrounding desert rolling hills and canyons, with background views of rugged mountains, including Apache Leap, Picketpost Mountain, and the Superstition Mountains.
- **Queen Valley, Arizona.** Queen Valley, a residential community located in the eastern portion of the analysis area, lies south and east of the Tonto National Forest. Views of the national forest include background views of rolling desert hills and canyons as well as the rugged and scenic Superstition Mountains.
- **Gila-Pinal Scenic Road (U.S. 60).** The Gila-Pinal Scenic Road is a 35-mile route following U.S. 60 between Forest Junction and Globe, Arizona (Arizona Department of Transportation

2018). The road travels from the western Sonoran Desert habitats through canyons and up to higher ponderosa pine forests in the Globe area. Scenic features along the route include views of the Superstition Mountains, Apache Leap escarpment, the Boyce Thompson Arboretum, Picketpost Mountain, and the town of Superior. The history of copper mining in the region is evident along the eastern portion of the route.

- **Copper Corridor Scenic Road West (U.S. 177).** The Copper Corridor Scenic Road West is a 20-mile route following U.S. 177 between Kearny and Superior, Arizona (Arizona Department of Transportation 2018). The road travels through rugged mountains and river valleys and passes by the vast Ray Mine operations. The Dripping Spring Mountains are on the east side of the road and the White Canyon Wilderness is located to the southwest of the route. Upon the northern approach to Superior, the scenery is dominated by the Superstition Mountains, Apache Leap, and Picketpost Mountain.
- **Florence-Kelvin Highway.** The Florence-Kelvin Highway is a partially paved, partially graded dirt road that extends approximately 32 miles from outside of Florence, Arizona, eastward to U.S. 177. Views along the road include classic Sonoran Desert vegetation of creosote, cholla, ocotillo, and saguaro cactus. Unique rock outcrops appear near the Cochran Road intersection. The road travels northeast and crosses the Gila River, where it joins U.S. 177.
- **Off-Highway Vehicle Recreation Roads.** Dozens of miles of OHV recreation roads are located within the analysis area (see Section 3.9, Recreation, for more detailed information on OHV roads). These roads are used to travel through the Tonto National Forest, BLM-managed lands, and Arizona State Trust lands to visit recreation sites and as scenic tours. Views from these roads include a broad array of scenery, including natural desert rolling hills and canyon, mountain backdrops, and specific scenic features. A heavily used set of OHV roads is located in the northern portion of the analysis area on the Tonto National Forest. The Cochran Road in the southern portion of the analysis area is a popular road on State of Arizona–managed and BLM-managed lands that has views of the White Canyon Wilderness mountains to the north, the Gila River, and an open desert landscape. The Dripping Springs Road, located in the eastern portion of the analysis area, is a moderately used OHV recreation road with views of the Pinal Mountains, rural ranches, and rugged desert rolling hills.
- **Climbing Areas.** Climbing areas are described in detail in Section 3.9, Recreation. The Apache Leap area (described above in this list) represents a climbing area that could be impacted by construction of the proposed action and alternatives, as are the climbing areas located on Oak Flat.
- **Boyce Thompson Arboretum.** The Boyce Thompson Arboretum is located in the northern portion of the analysis area south of U.S. 60. It was established in 1924 and is a popular regional destination with thousands of annual visitors. The arboretum includes a visitor center, demonstration gardens, picnic area, and trails that lead visitors through exhibits of unique vegetation and desert ecosystems. Views from the area range from confined foreground views of rugged rock outcrops, desert vegetation, and canyons to views of expanded vistas of the surrounding Tonto National Forest, Picketpost Mountain, the Superstition Mountains, and Apache Leap.
- **Regional Dark Skies.** Current dark sky conditions in the analysis area are described in the report titled “Impact Assessment of the Proposed Resolution Copper Mine on Night Sky Brightness” (Dark Sky Partners LLC 2018). The report illustrates that current dark sky conditions in the analysis area are influenced by lighting in developed communities and current mining operations. In general, light sources that influence dark skies in the analysis area include the Phoenix metropolitan area (western portion of analysis area), the town of Superior, the Ray Mine, and Florence, Arizona. Specifically,

the study measured current lighting using light-measurement cameras from four locations in the analysis area: Queen Valley, Boyce Thompson Arboretum, town of Superior, and Oak Flat Campground.

Selected Lands

Scenery in the Oak Flat Federal Parcel consists of rolling to steep hillslopes with rounded boulder outcrops, interspersed with high desert vegetation. Background views include the eastern slopes of Apache Leap and the steep and rugged Queen Creek canyon hillslopes. Visitors to Oak Flat Campground, rock climbers climbing the numerous boulder features, OHV recreationists, and hikers represent the sensitive viewers that frequent the Oak Flat Federal Parcel. VQO designations for the Oak Flat Federal Parcel are as follows: Retention—785 acres, Partial Retention—1,416 acres, and Modification—137 acres, with the remaining acres not rated.

3.11.4 Environmental Consequences of Implementation of the Proposed Mine Plan and Alternatives

3.11.4.1 Alternative 1 – No Action

Under the no action alternative, the proposed action or alternatives would not be constructed and therefore no changes to scenery would occur. There would be no impacts on scenic resources.

IMPACTS COMMON TO ALL ACTION ALTERNATIVES

Some components of the project would occur under all action alternatives. The "common to all" components and their associated scenery impacts are described in table 3.11.4-1.

Effects of the Land Exchange

The selected Oak Flat Federal Parcel would leave Forest Service jurisdiction. The role of the Tonto National Forest under its primary authorities in the Organic Administration Act, Locatable Regulations (36 CFR 228 Subpart A), and Multiple-Use Mining Act is to ensure that mining activities minimize adverse environmental effects on NFS surface resources; this includes effects on the scenery resources that occur on the Oak Flat Federal Parcel. The Oak Flat Federal Parcel would become private at the completion of the NEPA process, and the current VQOs (Retention, Partial Retention, Modification), which provide protection to scenery resources, would be removed. The Forest Service would not have the ability to require mitigation for effects on scenery resources on the lands; thus, effects on scenery could be greater than if the parcel retained the VQO designation.

The offered lands parcels would come under Federal jurisdiction. Specific management of the scenery resources of those parcels would be determined by the agencies to meet desired conditions or support appropriate land uses. In general, these parcels contain a variety of scenery resources similar to those found in the analysis area, that would come under Federal jurisdiction.

Effects of Forest Plan

The Tonto National Forest Land and Resource Management Plan (1985b) provides guidance for management of lands and activities within the Tonto National Forest. It accomplishes this by establishing a mission, goals, objectives, and standards and guidelines. Missions, goals, and objectives are applicable on a forest-wide basis. Standards and guidelines are either applicable on a forest-wide basis or by specific management area.

A review of all components of the 1985 forest plan was conducted to identify the need for amendment due to the effects of the project, including both the land exchange and the proposed mine plan (Shin 2019). A number of standards and guidelines were identified as applicable to management of scenery resources.

Table 3.11.4-1. Impacts on scenic resources common to all action alternatives

Mine Facility and Phase	Visual Impact Assessment
East Plant Site Facilities	
Construction	Visual disturbance from construction equipment movement and activity, fugitive dust, and overall change in contrast in form and color from the existing landscape would occur. Areas in the East Plant Site vicinity that remain open to future public visitation are limited. Because of this and the landscape topography, the East Plant Site would be visible from a limited number of locations on the national forest; primarily, visibility would be from high points to the east on NFS Road 2466, approximately 2.5 miles from the East Plant Site. The visual dominance of construction would be short term with intensity of views varying based upon distance and topography, resulting in overall moderate impact on scenery.
Operations	Long-term impacts on scenery would result from a change in contrast from existing landscape conditions from new development. Because of existing facility development at the East Plant Site and the limited visibility from the area, the anticipated change in contrast is moderate. The scenery impact would be long term in duration; however, visual dominance and intensity of scenery impacts would be reduced as a result of limited visibility from sensitive viewers.
Closure and Reclamation	Mine facilities at the East Plant Site would be largely removed, and the area would be reclaimed to natural conditions to the maximum amount possible. Headframes and hoists and some roads would remain in place for use in post-closure groundwater monitoring. Long-term visual dominance and intensity from development of the East Plant Site to the scenery would move from moderate to minor with increased site revegetation and successful site reclamation.
Subsidence Area	
Operations	Subsidence breakthrough is anticipated to begin at approximately mine year 12. Subsidence would expand slowly to the maximum width and depth at approximately mine year 47. As described earlier in this section, because of limited public access and visibility, visual dominance from changes in form, line, color, and texture of the subsidence area would be limited to small portions of the adjacent Tonto National Forest. KOP 1 (NFS Road 2466, east of the subsidence area) illustrates long-term scenery impacts from subsidence. The visual simulation shows the anticipated change in contrast from the existing landscape expected from ground subsidence (Newell and Grams 2018). Because of distance and angle of view to the subsidence area, the anticipated visual dominance and intensity to scenery from this KOP is weak (visible, but does not attract attention). Figure 3.11.4-1 presents a visual simulation of anticipated subsidence at end of mining from an aerial perspective using Google Earth imagery.
Closure and Reclamation	At the end of mine operations, a fence or berm would be constructed around the continuous subsidence area and no reclamation activities, including revegetation, would occur because of safety hazards. Long-term impacts on scenery would remain weak from KOP 12. Views of the subsidence area are most accessible from the elevated viewpoints in the air. Visualizations of the subsidence area from these elevated viewpoints that illustrate the different fracture zones are presented in the visual simulation package (Newell and Grams 2018). Visual dominance and intensity impacts on views from the air would be strong; however, there would be very few people viewing from this angle and elevation.

continued

Table 3.11.4-1. Impacts on scenic resources common to all action alternatives *(cont'd)*

Mine Facility and Phase	Visual Impact Assessment
West Plant Site Facilities	
Construction	Impacts on scenery in the area would result from the construction activity, including heavy equipment operation, traffic and heavy truck transportation, fugitive dust from ongoing land disturbance, and power line construction. Areas within 2 miles of the West Plant Site could be impacted by construction activities by a change in landscape form, line, color, and texture and the dominance of new landscape features in the view. This area includes the town of Superior and recreation roads on the Tonto National Forest. The overall impact on scenery from these construction activities would be strong because of the visual dominance related to changes in form, line, color, and texture, and intensity of views in the landscape foreground.
Operations	During operations, impacts on scenery would continue to be strong within 2 miles of the area.
Closure and Reclamation	Mine operation facilities would be largely removed and the area would be reclaimed to natural conditions to the maximum amount possible. Some facilities and roads would remain to support long-term monitoring at the site. Visual dominance and intensity of impacts, after facility removal and successful restoration and revegetation, would potentially go from strong to moderate, depending upon reclamation success. Because of the scale of the facility ground disturbance, the site contrast would likely remain visible for many years post-reclamation.
Transmission Lines	
3.5-mile 230-kV line from existing Silver King substation to new Oak Flat substation at East Plant Site. Follows existing line.	Construction: Scenery impacts from construction activities would include active construction equipment and traffic, land clearing, and fugitive dust emissions. Construction activity visual disturbances would temporarily impact viewers adjacent to the transmission corridors. Travelers on Gila-Pinal Scenic Road (U.S. 60) would view transmission line construction activities, specifically in areas where the line is directly adjacent to and crossing over the highway in the steep, rocky section of the highway near the East Plant Site. Operations: The upgraded towers and wires would be visible from the Gila-Pinal Scenic Road (U.S. 60). Although there is an existing line in this corridor, the new adjacent line would be larger and more visible than the existing line. Depending upon the angle of view and exact locations of the transmission towers, the contrast would range from moderate to strong. In areas where the transmission line has potential to "skyline" (i.e., to be visible on high landscape features with sky in the background), the transmission line would present strong contrast. In areas where there are landscape features in the background of the view, contrast would be moderate. Where the transmission line corridor crosses U.S. 60 near the East Plant Site, the structures would present a strong contrast, depending upon their siting relative to the steep canyon walls. Visual dominance and intensity, related to changes in form and line would be increased relative to the existing transmission lines in the corridor, particularly in the Oak Flat area along U.S. 60. KOP 33 (U.S. 60 transmission lines) illustrates scenery impacts from transmission line construction in the vicinity of Oak Flat on U.S. 60 and shows the anticipated change in contrast relative to the existing landscape expected from transmission line operation ((Newell and Grams 2018). The new transmission line would dominate the view for sensitive viewers traveling on U.S. 60, the designated Gila-Pinal Scenic Road. The transmission line also would present strong contrast and visual dominance relative to the existing landscape from changes in line and color from the wires and poles at the top of the canyon walls. Closure and Reclamation: The closure and reclamation plan for the transmission facilities is currently unknown. If a post-mining use for the power facilities and transmission lines is identified, the facilities would remain on the landscape. If not, the structures would be removed and the area reclaimed.

continued

Table 3.11.4-1. Impacts on scenic resources common to all action alternatives *(cont'd)*

Mine Facility and Phase	Visual Impact Assessment
3.5-mile 230-kV line from new Oak Flat substation (East Plant Site) to new West Plant Site substation.	Construction: General construction impacts are the same as described above. This line segment also is adjacent to and crosses the Gila-Pinal Scenic Road (U.S. 60) and would have similar impacts on that area. This segment traverses the hills above the town of Superior and is approximately 0.5 to 1.0 mile from the community. Construction disturbance could temporarily impact scenery resources in the town, including operation of construction equipment and fugitive dust.
New line.	Operations: Operations impacts are similar to those described above. The new towers and wires would be visible from the town of Superior and in areas where the angle of view creates "skylining," and where new roads are constructed the contrast would be strong. In areas without new road construction and where the line contrast is absorbed by a landscape background, the contrast would range from moderate to weak. Closure and Reclamation: Same as described above.
Tailings Facility	
Construction	General construction impacts on scenery resources for each tailings facility alternative would be similar. During initial tailings facility development (mine years 0 to 6), activities would include construction of perimeter fencing, access roads, drainage control structures, containment ponds, monitoring wells, and an office and equipment storage facility. Construction of these facilities would impact scenery resources in the area surrounding the tailings in the foreground, middle ground, and background through facility development and ground disturbance. Large areas of ground disturbance, vegetation removal, and fence construction would create a strong change in contrast with the background landscape that would be visible by a range of viewers extending from the foreground to the background (beyond 3 miles). Viewers in the vicinity would be impacted by the change in contrast created by land disturbance and vegetation removal, fugitive dust emissions from traffic and land-disturbing activities, and construction equipment operation, and the impact on these users would be strong (demands attention). The tailings facility would dominate long-term views in the vicinity of the tailings facility from intense changes in form, line, color, and texture related to the existing landscape.
Operation	General operation impacts on scenery resources for each tailings facility alternative would be similar. The facility would slowly grow to the full facility. Prior to reclamation activities, as the embankment grows, the facility would become increasingly visible from sensitive viewpoints in the region surrounding the tailings facility. In general, the tailings facility would become more and more visible over time, and the color of the tailings stockpile would be a medium gray color. Concurrent reclamation activities vary and are described for each alternative. The tailings facility would dominate long-term views in the vicinity of the tailings facility with increasing intensity as the facility grows and dominates the view with changing form, line, color, and texture.
Closure and Reclamation	The tailings facility would be revegetated during closure and reclamation. Contrast would be reduced as vegetation grows on the tailings embankment faces and other parts of the facility. Contrast would continue to be strong in the middle ground and foreground after revegetation because of the change in landform. The tailings facility would continue to dominate the views of the landscape with obvious difference in form, line, color, and texture from the surrounding landscape.

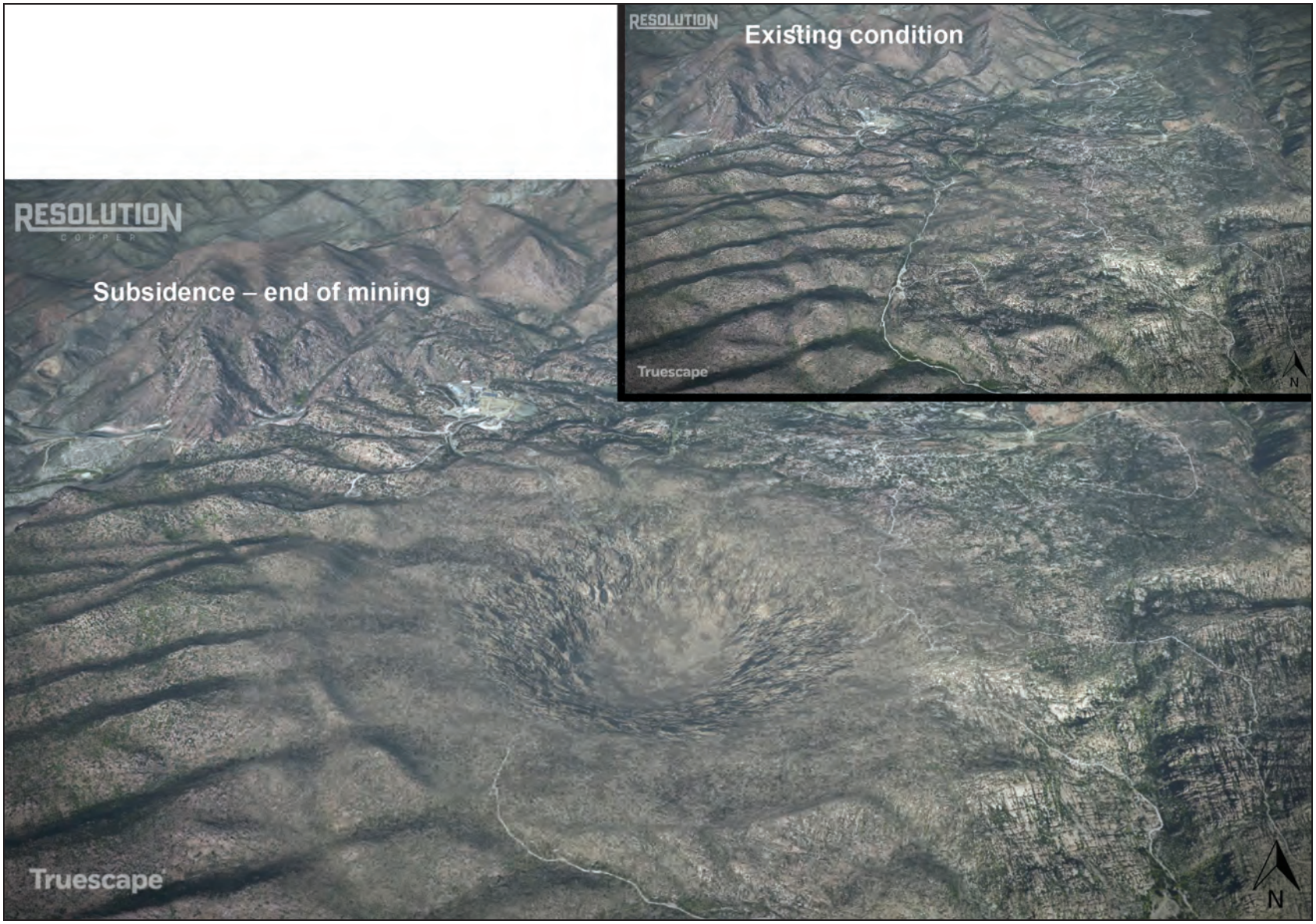

Figure 3.11.4-1. Subsidence area visual simulation from aerial perspective at end of mining using Google Earth imagery

The project would have effects on the scenery resources within the Tonto National Forest by modifying the current forest plan VQO designations. In general terms, Retention and Partial Retention do not allow for the proposed project activities as a whole. Retention requires that activities be "not visually evident." Partial Retention requires that activities be "visually subordinate" to the characteristic landscape. The Modification designation allows for activities to visually dominate the original character of the landscape, but vegetation and landform should mimic the natural landscape. With adequate mitigation, including revegetation, the project as proposed could meet the Modification designation. Implementation of the project would require amending the forest plan by changing the areas designated Retention and Partial Retention to the Modification VQO category.

Table 3.11.4-2 lists the VQO designation acres for each alternative within each of the affected management areas. It presents the total acres for Retention and Partial Retention that would be changed to Modification by alternative and the percentage change in acreage for each category in the scenery resources analysis area.

Applicant-Committed Environmental Protection Measures

A number of environmental protection measures are incorporated into the design of the project that would act to reduce potential impacts on scenic resources. These are non-discretionary measures and their effects are accounted for in the analysis of environmental consequences.

Applicant-committed environmental protection measures by Resolution Copper include those outlined in the dark skies analysis (Dark Sky Partners LLC 2018):

- Implement an outdoor lighting plan that would reduce potential impacts from artificial night lighting.
- Reduce illumination levels where appropriate while still meeting MSHA requirements for lighting sufficient to provide safe working conditions.
- Adhere to the Pinal County Outdoor Lighting Code.
- Use control systems that can turn off lights at particular times of night or are activated by detecting motion while still meeting MSHA requirements for lighting sufficient to provide safe working conditions.

Additional applicant-committed environmental protection measures by Resolution Copper include the following:

- Use non-reflective earth-tone paints on buildings and structures to the extent practicable.
- Bury concentrate pipelines to the extent practicable. Concentrate pipelines will have approximately 3.3 feet (1 m) of cover over buried sections. See detailed concentrate pipeline protection plan for further information.
- Build rust colored towers or use wooden poles on transmission lines.
- Use shafts constructed of rust colored metal headframes that blend with the scenery.
- Bury tailings and other pipelines to the extent practicable.
- Perform concurrent reclamation of tailings embankment beginning at approximate year 10 of tailings operations.
- Use a reclamation seed mix of weed-free native species consistent with surrounding vegetation.
- Build concentrator building behind mountain terrain to screen views from the town of Superior.
- Use colors that blend in with the desert environment.

Table 3.11.4-2. Scenery management designations by management area and alternative (acres)

Management Area/VQO	Alternatives 2 and 3	Alternative 4	Alternative 5 (East)	Alternative 5 (West)	Alternative 6 (North)	Alternative 6 (South)
MA 2F						
Retention*	**343**	**343**	**663**	**502**	**648**	**743**
Partial Retention*	**2,413**	**4,583**	**1,825**	**1,744**	**1,963**	**2,145**
Modification	523	1,159	203	352	573	511
Maximum Modification	0	1,847	0	0	0	0
MA 3I						
Retention*	**50**	**28**	**28**	**28**	**28**	**28**
Partial Retention*	**2,771**	**80**	**80**	**80**	**80**	**80**
Modification	1,182	19	19	19	19	19
Maximum Modification	0	0	0	0	0	0
Acres of VQO changed from Retention and Partial Retention to Modification for both management areas	**5,577**	**5,034**	**2,596**	**2,354**	**2,719**	**2,996**
Percent Change (decrease) of Retention and Partial Retention†	**−6.9**	**−6.3**	**−3.2**	**−2.9**	**−3.4**	**−3.7**
Percent Change (increase) in Modification†	**17.1**	**15.4**	**8.0**	**7.2**	**8.3**	**9.2**

* Under the action alternatives, these Retention and Partial Retention acreages would change to a Modification management designation.

† Calculated using data from table 3.11.3-3. Total acres in analysis area for Partial Retention and Retention equals 80,281, and Modification equals 32,638.

Table 3.11.4-3. Impacts on scenic resources under Alternative 2

Mine Facility and Phase	Visual Impact Assessment
Tailings Pipeline Corridor	
Construction	Impacts on the area scenery from construction activities would affect sensitive users on the Arizona Trail (Passage 18 Reavis Canyon) and NFS OHV roads in the vicinity of the pipeline corridor (up to 2 miles). The corridor crosses NFS Road 650, a popular OHV road. NFS Road 982 parallels the corridor near the Arizona Trail and provides access to this area near the western end of the pipeline corridor. Scenery impacts from construction activities on these users would include fugitive dust from ground disturbance, and visual disturbance from construction equipment, including construction vehicles accessing the area on NFS Roads 650 and 982. For forest users in the vicinity of the construction activities, impacts on scenery would be strong.
Operations	Impacts on scenery would result from linear mine support facilities in the corridor causing a strong change in contrast with the existing landscape. A strong contrast from vegetation removal in the 150-foot-wide corridor would be visible from 2 miles or more, depending on the vantage viewpoint. The 34.5-kV transmission line following the corridor would include approximately 35-foot-tall transmission line structures. The structures would present strong contrasting horizontal and vertical lines from associated towers and wires. Long-term visual dominance from prominent changes in form and line would occur in areas where recreation facilities cross the corridor. Impacts on sensitive viewers using OHV roads in the vicinity of the tailings would occur in areas where the roads cross or are parallel to the corridor. KOP 5 (Arizona Trail Barnett Camp) was established to illustrate long-term scenery impacts on the Arizona Trail from the tailings pipeline corridor. The visual simulation presents views of the elevated pipeline bridge from the Arizona Trail in the Barnett Camp area approximately 800 feet from the facilities (Newell and Grams 2018). The bridge presents dominant contrasting horizontal and vertical lines in light and dark gray colors in the foreground of the view. The pipeline bridge would dominate the view from this KOP for the long term with strong visual contrast (demands attention and is dominant in the landscape).
Closure and Reclamation	The tailings corridor and associated infrastructure would be removed and the corridor area would be regraded to mimic the natural condition and planted with native vegetation. Long-term impacts on scenery would be expected to persist because revegetation of disturbed landscapes in this type of desert ecosystem is difficult. The tailings corridor would likely be visible and present a permanent linear corridor contrast across the background landscape. Initial scenery impacts would be strong and would potentially reduce to moderate as vegetation growth increases in the corridor over many years. Intensity and dominance of the corridor form and line in the scenic landscape would be reduced over time.

continued

Table 3.11.4-3. Impacts on scenic resources under Alternative 2 *(cont'd)*

Mine Facility and Phase	Visual Impact Assessment
MARRCO Corridor	
Construction	Temporary impacts on scenery from construction equipment operation and traffic, facility construction, land disturbance, and fugitive dust emissions would occur. Sensitive viewers in the area around the MARRCO corridor include travelers on U.S. 60, Queen Valley Road, Hewitt Station Road, OHV roads in the vicinity, and hikers on the Arizona Trail (Passage 18 Reavis Canyon). These areas close to the corridor would experience strong contrast (demands attention) from the construction activities. This impact would be temporary as construction activities moved down the corridor. The construction activities would dominate landscape views for sensitive viewers in the foreground with changes in form, line, and color.
Operations	New facilities in the MARRCO corridor would result in a change in scenery contrast in areas adjacent to the facilities. Although the corridor is currently disturbed, the addition of several pipelines and road improvement would increase the visual contrast to a moderate to strong level because of the change. Sensitive areas in the vicinity include the Arizona Trail as it parallels and then crosses the corridor, Hewitt Station Road and a portion of Queen Valley Road, and the Gila-Pinal Scenic Road (U.S. 60). Moderate to strong changes in contrast would result. Facilities in the corridor would introduce changes in form, line, and color that would create long-term dominant changes in the landscape.
Closure and Reclamation	The closure and reclamation plan for the MARRCO corridor facilities and utilities is unknown at this time. It is known that the copper concentrate lines would be removed and the area around the lines recontoured and revegetated. Other facilities, including transmission lines, water lines, and the upgraded railroad facility, may be left in place. The impact on scenery in the area around the facilities would continue to be moderate to strong.
Filter Plant and Loadout Facility	
All mine phases	Impacts on scenery would be from construction equipment operation and traffic, facility construction, fugitive dust emissions, and rail line traffic on-site. However, sensitive viewers in the area around the facility are few as the parcel is isolated, and impacts on viewers and scenery in the area would therefore be minimal. Overall impacts on scenery would be weak.

3.11.4.2 Alternative 2 – Near West Proposed Action

Impacts on scenery specific to Alternative 2, in addition to the impacts common to all action alternatives (see table 3.11.4-1), are described in table 3.11.4-3.

Tailings Facility

Sensitive viewers in the foreground (within 1 mile) under Alternative 2 that would be impacted are users of the Arizona Trail (Passage 18 Reavis Canyon) and OHV users on the area NFS roads (Hewitt Station Road, NFS Roads 982, 1904, 1903). These users would be impacted by the change in contrast created by land disturbance and vegetation removal, fugitive dust emissions from traffic and land-disturbing activities, and construction equipment operation, and the impact on these users would be strong (demands attention). The scope and scale of the tailings facility would visually dominate the existing landscape features and scenery with highly visible, long-term changes in landscape form, line, color, and texture. During mine operations, the tailings facility would slowly grow to the full facility size of approximately 4,864 acres and 520 feet high. The tailings embankment would be constructed at a 4H:1V slope and reclamation/revegetation of the embankment would begin in approximately mine year 28.[68] Concurrent reclamation (beginning in mine year 28) would begin to reduce the contrast as vegetation grows on the tailings embankment faces.

Viewshed Analysis. The viewshed for Alternative 2 is presented in the process memorandum (Newell and Grams 2018). It illustrates the general visibility of the tailings facility across the landscape within the analysis area and shows the high points and location where the facility could be most visible. Viewshed analysis for the linear features in the analysis area is presented in table 3.11.4-4.

KOP Scenery Analysis. The Forest Service and NEPA team identified sensitive viewpoints around the tailings facility to analyze impacts on the area's scenery resources (see figure 3.11.1-1). An Alternative 2 impact summary for these KOPs is presented in table 3.11.4-3. The contrast rating analysis process (described in section 3.11.2.4) was conducted for each KOP and is presented in table 3.11.4-5. More detail on the KOPs, along with the related contrast rating worksheets and the visual simulations, is provided in the process memorandum (Newell and Grams 2018).

Dark Skies

The proposed mining activities under Alternative 2 would increase lighting at the East Plant Site, West Plant Site, and tailings facility, which would impact current dark sky conditions in the analysis area; see "Impact Assessment of the Proposed Resolution Copper Mine on Night Sky Brightness" (Dark Sky Partners LLC 2018). The report states,

> When considering the areas of the sky in directions toward the proposed RC facilities, the proposed RC lighting will increase sky brightness between 40% and 160%. Such increases are likely to be obvious to even casual observers. (Dark Sky Partners LLC 2018)

Based on this analysis, the mine operation facilities would be visible and noticeable at night from the town of Superior, U.S. 60, Boyce Thompson Arboretum, the Arizona Trail, and the surrounding national forest landscape. The GPO states that exterior lighting would be kept to the minimum required for safety and security purposes and that lighting would be directed downward and hooded where practicable.

The mine facility lighting plan would comply with the Pinal County Outdoor Lighting Code as long as mine safety and operations are not compromised and there are not conflicts with MSHA regulations (M3 Engineering and Technology Corporation 2019a). The mine facilities would be regulated by the code's Lighting Zone 3 (the most restrictive

68. There is a possibility that the embankment could be constructed at a 3H:1V slope rather than the steeper 4H:1V slope as designed and that reclamation could begin approximately in mine year 22; this analysis assumes the steeper slope and later commencement of reclamation.

Table 3.11.4-4. Viewshed analysis for linear features (roads and trails) in Alternative 2

Linear Viewshed Component	Total Miles in Analysis Area	Total Miles within Viewshed	Scenery Impact Discussion
U.S. 60	32.5	21.2	Views of the facility would vary and would depend on landscape feature such as structures and vegetation. Visible locations closest to the facility would be most impacted and would have strong to moderate changes in contrast relative to distance, angle of view, and potential visual obstructions. The tailings facility would visually dominate views, compared with the existing landscape, as a result in changes in form, line, and color. The intensity and dominance would be greater in areas in the foreground and middle ground with unobstructed views. Specific views from the road are described in the KOP analysis in table 3.11.4-5.
SR 177	2.9	2.5	Although the viewshed illustrates that the tailings facility would be visible from a majority of the road, landscape features such as structures and vegetation could obstruct some views. With distance to the facility ranging from 4.75 to 5 miles, the tailings feature would appear in the background landscape when visible. Visual dominance would be minimal because changes in form, line, and color would be less visible due to the distance to the tailings facility. Specific views from the road are described in the KOP analysis in table 3.11.4-5.
Arizona Trail	23.0	11.0	For persons traveling on the Arizona Trail, scenic views would be impacted by the proposed tailings facility. As described above, landscape features may obstruct views. The tailings facility would visually dominate views, compared with the existing landscape, as a result in changes in form, line, and color. The intensity and dominance would be greater in areas in the foreground and middle ground with unobstructed views. Specific views along the trail are described in the KOP analysis in table 3.11.4-5.

Table 3.11.4-5. Alternative 2 key observation point descriptions and contrast rating analysis

KOP Number	KOP Name	View Description and Contrast Rating Analysis
1	NFS Road 2466 east of subsidence area	Analysis presented earlier in this section under the subsidence operation analysis in *table 3.11.4-3*.
2	Arizona Trail northwest of Montana Mountain*	The tailings facility would be visible from this location and would present a change in contrast ranging from moderate to strong. As the facility grows, contrast would increase with the strongest contrast presented at the end of mining operations, but before closure and reclamation is complete.
3	Picketpost Mountain*	The tailings facility would be highly visible from this KOP and would present prominent changes in the middle ground and background views in form, line, color, and texture. The changes would result in strong contrast.
4	Apache Leap*	The tailings facility would be moderately visible from this KOP and would present changes in background views in line and color. The changes would result in moderate contrast because the distance and angle of view of the facility would potentially blend with the background landscape.
5	Arizona Trail – Barnett Camp†	Analysis presented earlier in this section under the tailings corridor operation analysis in *table 3.11.4-3*.
6	Arizona Trail – Ridge†	The facility would be located in the foreground and middle ground views of the KOP and would present a strong change in form, line, color, and texture in the landscape. As the facility develops, it would become increasingly visible due to the changes in landscape color and form, with the facility presenting a gray tone and new line features within the rolling terrain. The facility would be most visible prior to commencement and implementation of successful concurrent reclamation activities. It is anticipated that concurrent reclamation would begin to mitigate visual contrast in approximately mine year 30.
7	SR 177 from Kearny†	Because of distance and angle of view, the tailings facility would be minimally visible to persons traveling on SR 177. The change in contrast in form and color would be weak.
8	Picketpost House – (Boyce Thompson Arboretum)†	The tailings facility would be visible in the KOP's middle ground view. Prior to concurrent reclamation activities, contrast would be moderate to strong for changes in form, line, and color in the landscape. The facility's gray color would be visible from the KOP. Upon implementation of successful concurrent reclamation, the contrast would be reduced to moderate.
9	NFS Road 172†	The tailings facility would be visible in the foreground to middle ground of this KOP. Impacts on scenery are similar to the discussion presented for KOP 6.
10	U.S. 60 Milepost 219†	The tailings facility would be visible in the middle ground and background views of the KOP. As the tailings facility grows, it would become increasingly visible from this KOP because of the color, line, and form changes in the landscape. The facility would be most visible prior to successful concurrent reclamation. The contrast would be strong but could become moderate with successful concurrent reclamation. The visual simulation for KOP 10 is presented in figure 3.11.4-2.

continued

Table 3.11.4-5. Alternative 2 key observation point descriptions and contrast rating analysis *(cont'd)*

KOP Number	KOP Name	View Description and Contrast Rating Analysis
11	Arizona Trail at Picketpost Trailhead†	The tailings facility would be visible in the middle ground view of the KOP. Existing terrain features and angle of view reduce the visibility and noticeability of the facility from trail users. Changes in contrast would be weak to moderate prior to concurrent reclamation and potentially weak after successful reclamation.
12	Queen Valley, North Charlotte Street†	The tailings facility is minimally visible within the background views of the KOP. The terrain features a low saddle between higher hills in the background. A small part of the highest portion of the tailings facility would be visible from this KOP. However, it would not be noticeable to the casual viewer, and the anticipated change in contrast from this location is weak.

* Block model Google Earth visual simulation

† Photograph visual simulation

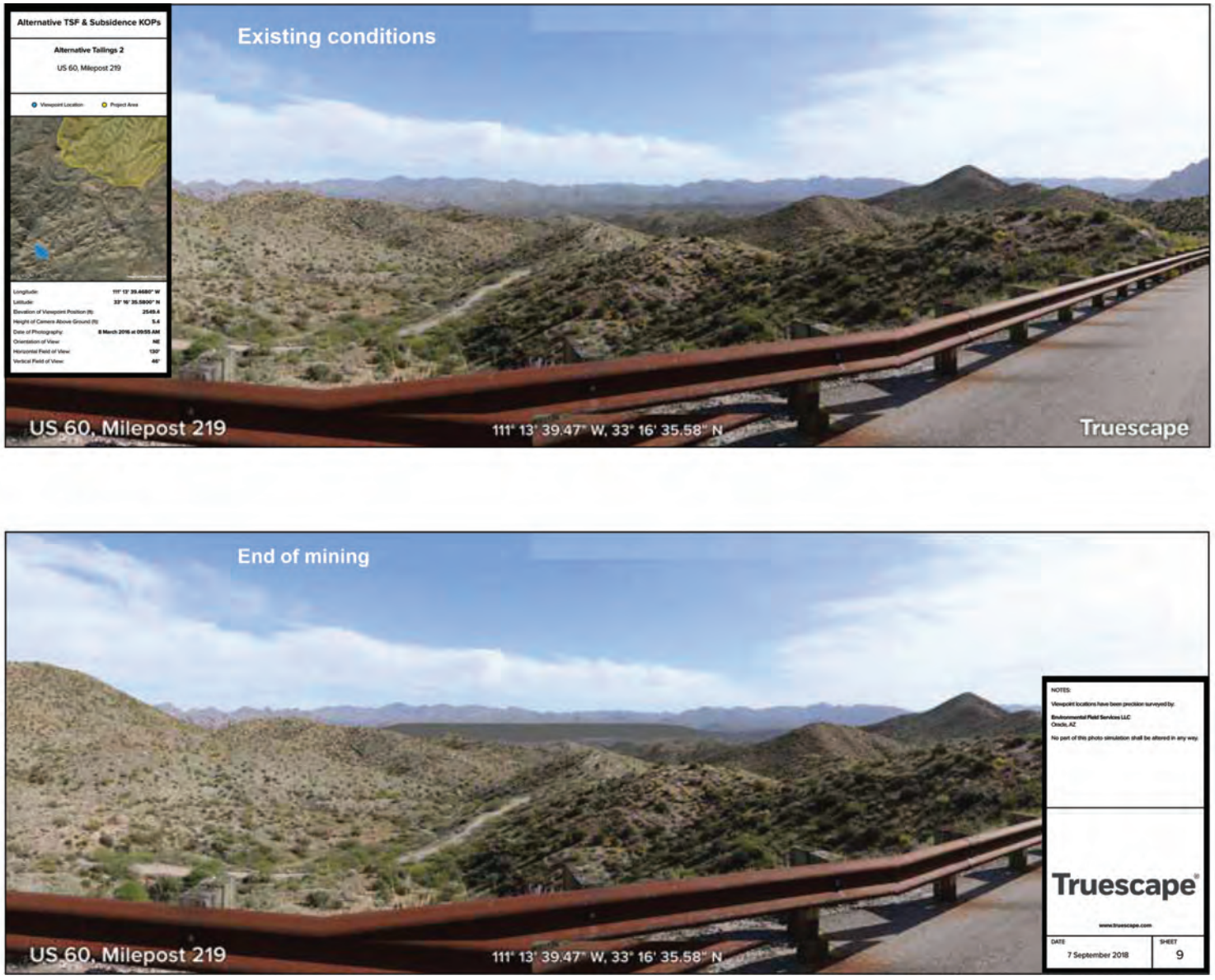

Figure 3.11.4-2. Visual simulation of Alternative 2 tailings facility from KOP 10 – U.S. 60 Milepost 219

zones) that allows the maximum lumen density (amount of light) as 19 lumens per square foot from all light sources.

3.11.4.3 Alternative 3 – Near West – Ultrathickened

The differences in impacts on scenery between Alternatives 2 and 3 are described in the following text.

Tailings Facility

Unlike the proposed action that includes concurrent reclamation of the tailings facility beginning in mine year 28, Alternative 3 would not include concurrent reclamation activities. Reclamation of the tailings embankment face would not occur until construction of the tailings embankment face is complete at the end of mining operations (mine year 46). Under Alternative 3, the tailings facility would present strong contrast in the region's scenery for all sensitive viewers for approximately 20 additional years, compared with Alternative 2. The scope and scale of the tailings facility would visually dominate the existing landscape features and scenery with highly visible, long-term changes in landscape form, line, color, and texture. The tailings facility would create a strong contrast in the landscape that would increase over many years, with the strongest contrast occurring when the mining operations are complete (mine year 46) and successful reclamation has occurred at the facility (approximately mine year 50 to 55).

Dark Skies

General impacts on the area's night skies would be the same as described under Alternative 2.

3.11.4.4 Alternative 4 – Silver King

The differences in impacts on scenery between Alternatives 2 and 4 are described in the following text.

West Plant Site

Under Alternative 4, the filter plant and loadout facility would be moved to the West Plant Site. However, the addition of this facility would result in generally the same scenery impacts as presented in "Impacts Common to All Action Alternatives" earlier in this section.

Tailings Pipeline Corridor

Tailing slurry would be delivered from the West Plant Site to the Silver King tailings facility via pipelines approximately 1.5 miles long. General impacts on scenery related to pipeline construction are described under Alternative 2. Under Alternative 4, an overall reduction in the length of tailings slurry pipeline, a consolidation of mine operations facilities, and reduced footprint would result in reduced impacts on scenery from tailings pipeline construction and operation.

Tailings Facility

Although there are differences between the proposed action tailings facility and the Silver King tailings facility in terms of design and processing, general scenery impacts from the two are the same as described under "Impacts Common to All Action Alternatives" and Alternative 2. Additions of two filter plants, mechanical conveyers, and emergency slurry overflow ponds, while adding to the facilities, would not change the general impacts described previously. However, the Silver King facility would be the tallest at over 1,000 feet in height and approximately double the height of the Alternative 2 and 3 facilities. The height of the facility increases the visual dominance of the overall form in the existing canyon landscape and increases visibility from sensitive viewing locations.

Reclamation and contouring of the filtered tailings would occur concurrently during mining operations. However, it is unknown at this time what year the concurrent reclamation would occur. Assuming it is similar to the reclamation timing under Alternative 2 (concurrent reclamation beginning in mine year 28) impacts would be same as described earlier in this section.

Table 3.11.4-6. Viewshed analysis for linear features (roads and trails) in Alternative 4

Linear Viewshed Component	Total Miles in Analysis Area	Total Miles within Viewshed	Scenery Impact Discussion
U.S. 60	26.3	18.3	Viewing distance to the facility ranges from approximately 2 to 6 miles. This alternative contains approximately 2 fewer miles of highway within the viewshed than Alternative 2. Impacts are similar to those described under Alternative 2. Specific views from the road are described in the KOP analysis in table 3.11.4-7.
SR 177	4.2	3.6	Viewing distance to the facility ranges from approximately 2 to 6 miles. This alternative contains approximately 1 more mile of highway within the viewshed than Alternative 2. Impacts are similar to those described under Alternative 2. Specific views from the road are described in the KOP analysis in table 3.11.4-7.
Arizona Trail	21.0	16.3	This alternative contains approximately 5.3 more miles of the Arizona Trail within the viewshed than Alternative 2. Impacts are similar to those described under Alternative 2. Specific views from the trail are described in the KOP analysis in table 3.11.4-7.

Viewshed Analysis. The viewshed for Alternative 4 is presented the process memorandum (Newell and Grams 2018). It illustrates the general visibility of the tailings facility across the landscape within the analysis area and shows the high points and location where the facility could be most visible. Viewshed analysis for the linear features in the analysis area is presented in table 3.11.4-6.

KOP Scenery Analysis. We identified sensitive viewpoints (KOPs) in the area around the Silver King tailings facility to analyze impacts on the area's scenery resources (see figure 3.11.1-1). The contrast rating analysis process (described in section 3.11.2.4) for each KOP is presented in table 3.11.4-7. The related contrast rating worksheets and the visual simulations are provided in the process memorandum (Newell and Grams 2018).

MARRCO Corridor

Under Alternative 4, active railcars would transport copper concentrate via the MARRCO corridor instead of pipelines. The two 50-railcar trains would follow the upgraded rail corridor twice a day. Construction impacts on scenery would be similar to those described under Alternative 2. During the operations phase, railcars passing two times per day would present a weak to moderate impact on scenery. Although the trains would be noticeable to viewers along the corridor, the visibility and impact are transitory in nature.

Dark Skies

General impacts on the area's night skies would be the same as described under Alternative 2.

3.11.4.5 Alternative 5 – Peg Leg

The differences in impacts on scenery between Alternatives 2 and 5 are described in the following text.

Tailings Pipeline Corridor

The general scenery impacts described for the tailings pipeline corridor construction, operation, and closure/reclamation would be the same as those described under Alternative 2. However, the pipeline would be in a different location, and there are two options for the pipeline—west

Table 3.11.4-7. Alternative 4 key observation point descriptions and contrast rating analysis

KOP Number	KOP Name	View Description and Contrast Rating Analysis
13	Picketpost Mountain*	The tailings facility would be highly visible from this KOP as presented in the visual simulation package (Newell and Grams 2018). The facility would present prominent changes in the middle ground and background views in form, line, color, and texture. The changes would result in strong contrast and would be highly visible from this KOP.
14	Apache Leap – Tailings*	The tailings facility would be moderately visible from this KOP as presented in the visual simulation package (Newell and Grams 2018). The facility would present changes in background views in line and color and result in moderate contrast because the distance and angle of view of the facility would potentially blend with the background landscape and hill slopes in the foreground of the facility.
15	Arizona Trail – Montana Mountain (Silver King view)*	The tailings facility would be visible from this location and would present a change in contrast ranging from moderate to strong. The foreground hills hide a large portion of the facility. As the facility grows, contrast would increase with the strongest contrast presented at the end of mining operations, but before closure and reclamation is complete.
16	Town of Superior, South Stone Avenue†	The tailings facility would be visible from this location in the middle ground and background. Prior to successful reclamation, the tailings facility would present a strong contrast in the landscape. After reclamation, the contrast would be moderate to weak, depending on the success of revegetation.
17	Town of Superior, Baseball Field†	The tailings facility would be visible from this location in the background view. The facility would obscure a portion of the background ridgeline and present a strong change in form, line, and color. The change in contrast would be most strong and prominent prior to successful concurrent reclamation activities. After reclamation is complete, the facility would be less visible and present a moderate change in contrast. The visual simulation for KOP 17 is presented in figure 3.11.4-3.
18	Arizona Trail – Ridge†	The tailings facility would be visible from this KOP in the middle ground to background landscape, although it would be obscured by some hill slopes in the foreground. Prior to reclamation, the contrast would be strong and would decrease with post-reclamation activities, as described above.
19	U.S. 60 – Near Silver King Wash†	The tailings facility would be visible in the middle ground and background and present strong contrast to viewers traveling the highway. The facility is not obscured by the foreground landscape. The strong contrast would be as described above.
20	SR 177 from Kearny†	The tailings facility would be visible with strong contrast presented in the middle ground to background landscape. The change in form, line, and color would obscure the existing ridgeline. Changes in contrast over time are described above.
21	Picket Post House – (Boyce Thompson Arboretum)†	The tailings facility would be visible with strong contrast presented in the in the background landscape. Changes in contrast related to reclamation and contrast over time are described above.
22	Arizona Trail at Picketpost Trailhead†	The tailings facility would not be visible from this KOP.

* Block model Google Earth visual simulation

† Photograph visual simulation

Figure 3.11.4-3. Visual simulation of Alternative 4 tailings facility from KOP 17 – Town of Superior baseball field

and east. Scenery impacts for both pipeline options are described in the following text.

West Tailings Pipeline Corridor Option—The west pipeline corridor option would be visible from U.S. 60 (at the crossing and parallel segments), NFS OHV roads, Boyce Thompson Arboretum, and Cochran Road (at the crossing).

East Tailings Pipeline Corridor Option—The east pipeline corridor option would be visible from U.S. 60 (at the crossing), NFS OHV roads, Boyce Thompson Arboretum, SR 177, the Arizona Trail (Gila River Canyon Passage 16), and the Florence-Kelvin Highway. Miles of corridor for each visual resource inventory category are given in table 3.11.4-7.

A representative KOP analysis for pipeline impacts is presented under Alternative 6 at KOP 32 – Tailings Pipeline U.S. 60.

Tailings Facility

Although there are differences between the proposed action tailings facility and the Peg Leg tailings facility in terms of design, general impacts on scenery from the facility are similar to those described under Alternative 2. A major difference is that concurrent reclamation would not occur, and reclamation of the tailings embankment face would not begin until mining operations are complete (approximately mine year 46). Without concurrent reclamation, the tailings facility would present strong contrast, with contrast increasing as the facility grows. At mining closure, the facility would be most visible.

Viewshed Analysis. The viewshed for Alternative 5 is presented in the process memorandum (Newell and Grams 2018). It illustrates the general visibility of the tailings facility across the landscape within the analysis area and shows the high points and location where the facility could be most visible. Viewshed analysis for the linear features in the analysis is presented in table 3.11.4-8.

KOP Scenery Analysis. Sensitive viewpoints (KOPs) in the area around the Peg Leg tailings facility were identified to analyze impacts on the area's scenery resources (see figure 3.11.1-1). The contrast rating analysis process (described in section 3.11.2.4) was conducted for each KOP and is presented in table 3.11.4-9. The related contrast rating worksheets and the visual simulations are presented in the process memorandum (Newell and Grams 2018).

Table 3.11.4-8. Viewshed analysis for linear features (roads and trails) in Alternative 5

Linear Viewshed Component	Total Miles in Analysis Area	Total Miles within Viewshed	Scenery Impact Discussion
U.S. 60	27.7	1.5	Although the viewshed model shows that the Peg Leg tailings facility could potentially be viewed from U.S. 60, the facility is too far away to be visible.
SR 177 East Pipeline Option	11.6	1.4	Although the viewshed model shows that the Peg Leg tailings facility could potentially be viewed from SR 177 east pipeline route option, the facility is too far away to be visible.
Arizona Trail	37.2	8.7	This alternative contains approximately 2 fewer miles of the Arizona Trail within the viewshed than Alternative 2. Specific views from the trail are described in the KOP analysis in table 3.11.4-9.

Dark Skies

General impacts on night skies from the mining operations facilities would generally be the same as those described under Alternative 2. However, lighting at the tailings facility would be in a different location. Lighting from the tailings facility would be seen and noticed by nighttime recreationists in the area, Arizona Trail users, and persons

Table 3.11.4-9. Alternative 5 key observation point description and contrast rating analysis

KOP Number	KOP Name	View Description and Contrast Rating Analysis
23	Arizona Trail – Peg Leg North*	The tailings facility would be visible in the background landscape. Because of distance and angle of view, the change in contrast would be moderate. The facility would be noticeable to the casual observer but would not dominate the view.
24	Arizona Trail – Tortilla Mountains*	The tailings facility would be visible in the background landscape view. Because of distance and angle of view, the change in contrast would be moderate. The facility would be noticeable to the casual observer but would not dominate the view.
25	Cochran OHV Parking†	The tailings facility would be visible from this KOP. Although the foreground landscape topography shields the view of the lower portion of the facility, the upper portion would be visible and present a moderate to strong contrast to the existing landscape. The facility would be most visible at the end of mine life and prior to reclamation and revegetation activities. After successful reclamation, the contrast could be reduced to moderate. The visual simulation for KOP 25 is presented in figure 3.11.4-4.
26	Cochran Road OHV Dispersed Site†	The tailings facility would be visible from this KOP. A strong contrast in form, line, and color would dominate the middle ground view. The facility would be most visible at the end of mine life and prior to reclamation and revegetation activities. After successful reclamation, the contrast could be reduced to moderate.
27	Florence-Kelvin Highway – East Side†	The tailings facility would be visible from this KOP in the foreground. A strong contrast would be present in form, line, and color, with strong straight lines dominating the view. The facility would be most visible at the end of mine life and prior to reclamation and revegetation activities. After successful reclamation, the contrast could be reduced to moderate.
28	Florence-Kelvin Highway –South†	The tailings facility would not be visible from this location.

* Block model Google Earth visual simulation
† Photograph visual simulation

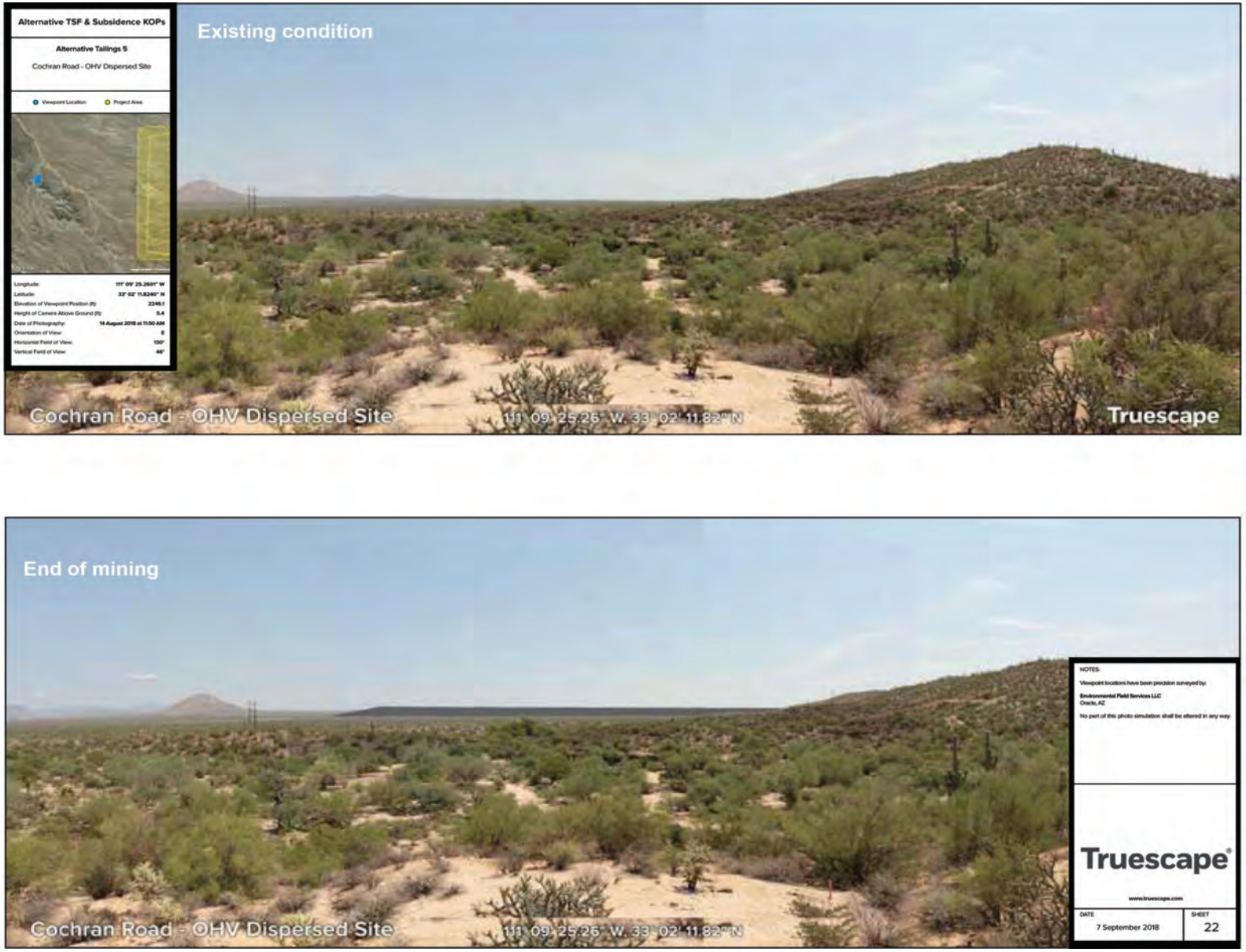

Figure 3.11.4-4. Visual simulation of Alternative 5 tailings facility from KOP 25 – Cochran OHV parking

traveling on the Florence-Kelvin Highway. This alternative would also comply with the Pinal Outdoor Lighting Code as described under Alternative 2.

3.11.4.6 Alternative 6 – Skunk Camp

The differences in impacts on scenery between Alternatives 2 and 6 are described in the following text.

Tailings Pipeline Corridor

The general scenery impacts described for the tailings pipeline corridor construction, operation, and closure/reclamation would be the same as those described under Alternative 2. However, the pipeline would be in a different location. There are two options for the pipeline (north and south); scenery impacts are described in the following text.

North Tailings Pipeline Corridor Option—The north pipeline corridor option contains the pipeline corridor and access roads as described in chapter 2, section 2.2.8. The corridor would be visible from U.S. 60 (at the crossing), NFS Road 2466, and Dripping Springs Road. KOP 32 (Tailings Pipeline U.S. 60) illustrates scenery impacts from construction and operation of the tailings pipeline in the vicinity of U.S. 60, the designated Gila-Pinal Scenic Road, and the Oak Flat area. The visual simulation shows the anticipated change in contrast from the existing landscape expected from tailings pipeline operation (Newell and Grams 2018). The tailings pipeline corridor would be visible in the vicinity of the crossing with U.S. 60 at the crossing and on the north and south side of the highway. The visual dominance and contrast would be strong in line, color, and texture. Post-reclamation contrast would be moderate upon successful revegetation and reclamation.

South Tailings Pipeline Corridor Option—The south pipeline corridor option follows the northern portion of the Peg Leg east pipeline corridor option, and impacts in that portion are the same as those described for Alternative 5. It also follows a portion of the Skunk Camp north pipeline corridor option. Additional locations with views of the pipeline corridor not described previously include NFS Road 315.

Transmission Line Corridor

A new power line, approximately 11.5 miles in length, would be constructed between the Silver King substation, north of U.S. 60, and the Skunk Camp tailings facility. Impact on scenery from transmission line construction would generally be the same as described under Alternative 2. This line would be visible from U.S. 60, NFS Road 2466, and Dripping Springs Road.

Tailings Facility

Although there are differences between the proposed action tailings facility and the Skunk Camp tailings facility in terms of design, general impacts on scenery from the facility are similar as those described under Alternative 2. Concurrent reclamation would occur, but the mine year that reclamation would begin is not yet defined. Strong contrast would be visible at the facility until concurrent reclamation is started and successful revegetation of the facility occurs. Although the visual simulations, as described in table 3.11.4-10, illustrate strong to moderate contrast from the tailings facility, in general, impacts on scenery and sensitive viewers in the Skunk Camp area are less than for the other alternatives. This is because there are limited areas where the facility would be visible and fewer sensitive viewers in the vicinity.

Viewshed Analysis. The viewshed for Alternative 6 is presented in the process memorandum (Newell and Grams 2018). It illustrates the general visibility of the tailings facility across the landscape within the analysis area and shows the high points and location where the facility could be most visible. Linear facilities (U.S. 60, SR 177, and the Arizona Trail) are not visible within the viewshed model for the Skunk Camp tailings facility.

KOP Scenery Analysis. Sensitive viewpoints (KOPs) in the area around the Skunk Camp tailings facility were identified to analyze impacts on the area's scenery resources (see figure 3.11.1-1). The contrast rating analysis process (described in section 3.11.2.4) was conducted for each KOP and is presented in table 3.11.4-10. The related contrast rating

Table 3.11.4-10. Alternative 6 key observation point description and contrast rating analysis

KOP Number	KOP Name	View Description and Contrast Rating Analysis
29	Dripping Springs Road*	The tailings facility would be highly visible from this KOP and the contrast in form, line, color, and texture would be strong. The facility would dominate the foreground view and obscure the mountains and ridgeline views of the background. Because of proximity and angle of view, the contrast would remain strong and dominate the view after closure and reclamation. The visual simulation for KOP 29 is presented in figure 3.11.4-5.
30	Pinal Peak†	The tailings facility would be visible from this KOP in the background valley below. The contrast would be strong in form, line, and color until reclamation is complete. Post-reclamation contrast would be moderate upon successful revegetation and reclamation of the facility.
31	San Carlos†	The tailings facility would be visible from this KOP in the background valley below. The contrast would be strong in form, line, and color until reclamation is complete. Post-reclamation contrast would be moderate upon successful revegetation and reclamation of the facility.
32	Tailings Pipeline U.S. 60*	The tailings pipeline corridor would be visible in the vicinity of the crossing with U.S. 60 at the crossing and on the north and south side of the highway. It would also be intermittently visible to persons travelling east on U.S. 60. The visual dominance and contrast would be strong in line, color, and texture. Post-reclamation contrast would be moderate upon successful revegetation and reclamation.

* Photograph visual simulation

† Block model Google Earth visual simulation

worksheets and the visual simulations are presented in the process memorandum (Newell and Grams 2018).

Dark Skies

General impacts on night skies from the mining operations facilities would generally be the same as described under Alternative 2. However, lighting at the tailings facility would be in a different location. The facility would be lit and visible from the surrounding area. There would be few observers of the night sky in the area because of the remote location of the facility. This alternative would also comply with the Pinal Outdoor Lighting Code as described under Alternative 2. The Skunk Camp tailings facility would be located in Gila County and the lighting plan for this component would be designed in compliance with the Gila County Outdoor Light Control Ordinance.

3.11.4.7 Forest Service and BLM Scenery Management Designations

Table 3.11.4-11 presents the Tonto National Forest and the BLM scenery management designation acreages by project area alternative component. The acreages represent areas where the proposed project components cross Federal lands. Total acreages vary, depending upon the amount of private or State lands included in the project area alternatives.

The majority of project area alternatives on NFS lands are designated Retention, Partial Retention, and Modification. In general terms, Retention and Partial Retention do not allow for the proposed project activities as a whole. Retention requires that activities be “not visually evident.” Partial Retention requires that activities be “visually subordinate” to the characteristic landscape. The Modification designation allows for activities to visually dominate the original character of the landscape, but vegetation and landform should mimic the natural landscape. With adequate mitigation, including revegetation, the project as proposed could meet the Modification designation. Under Alternative 4, 1,847 acres of the project area are designated Maximum

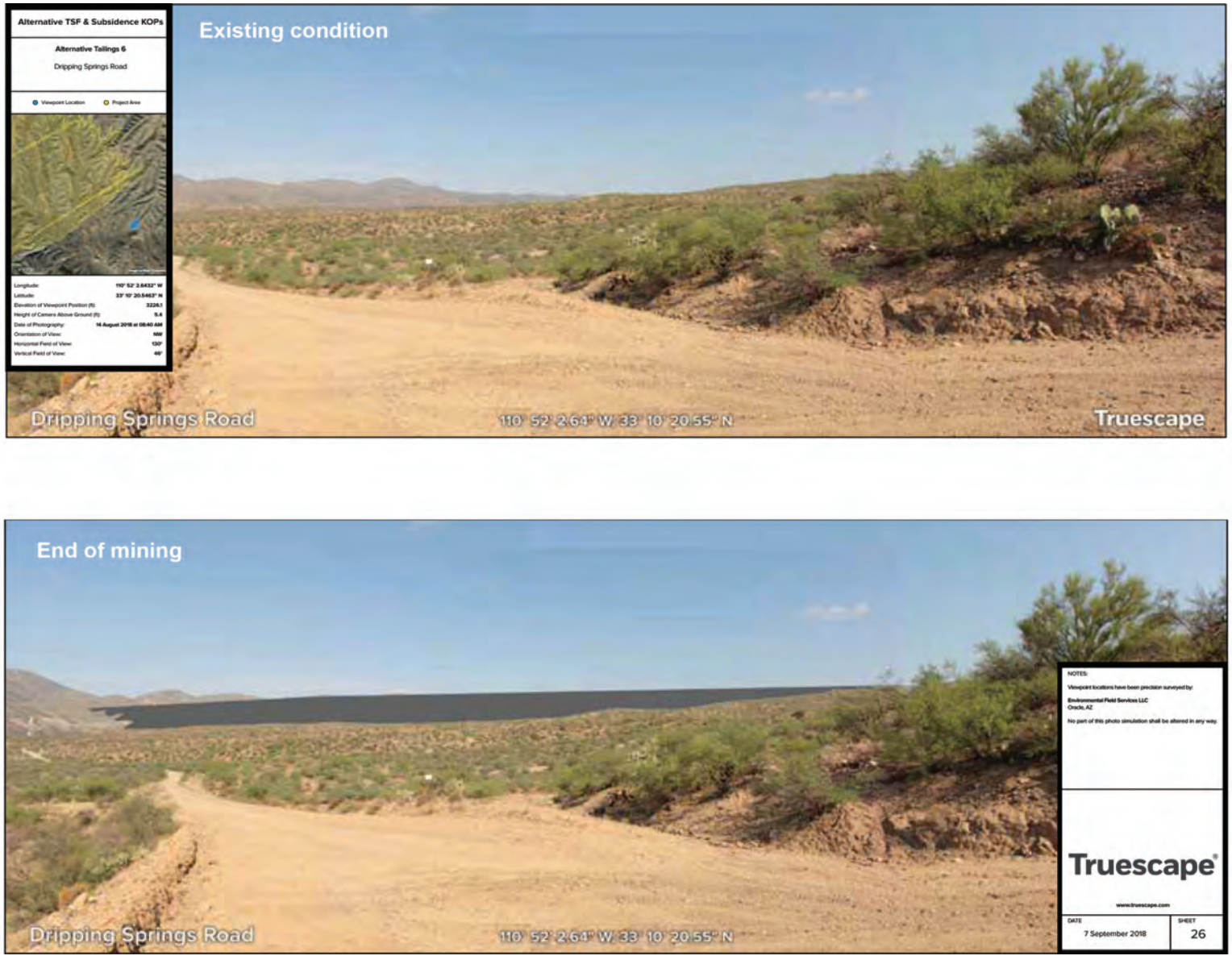

Figure 3.11.4-5. Visual simulation of Alternative 6 tailings facility from KOP 29 – Dripping Springs Road

Table 3.11.4-11. Project area alternative scenery management designation acreage

	Alternatives 2 and 3	Alternative 4	Alternative 5 (East)	Alternative 5 (West)	Alternative 6 (North)	Alternative 6 (South)
VQO						
Preservation	0	0	0	0	0	0
Retention	393	371	691	530	676	771
Partial Retention	5,184	4,663	1,905	1,824	2,043	2,225
Modification	1,705	1,178	222	371	592	530
Maximum Modification	0	1,847	0	0	0	0
VRM						
Class III	0	0	7,086	7,558	0	0
Class I, II, IV	0	0	0	0	0	0
Total Acreage	**7,282**	**8,059**	**9,904**	**10,283**	**3,311**	**3,526**

Modification. With mitigation, this designation would allow for the proposed project activities.

Portions of NFS lands that would not meet the VQO designations include the following:

- Retention Acres—Alternatives 2 and 3 (393), Alternative 4 (371), Alternative 5 East (691), Alternative 5 West (530), Alternative 6 North (676), Alternative 6 South (771)
- Partial Retention Acres—Alternatives 2 and 3 (5,184), Alternative 4 (4,663), Alternative 5 East (1,905), Alternative 5 West (1,824), Alternative 6 North (2,043), Alternative 6 South (2,225)

Alternatives 2 and 3 have the least acres designated Retention, with Alternative 6 (south option) having the most. Alternative 5 (west option) has the least acres designated Partial Retention with Alternatives 2 and 3 having the most.

Alternative 5 is the only alternative on BLM lands, and it intersects with BLM VRM Class III designation (Alternative 5 [east option] 7,086 acres, and Alternative 5 [west option] 7,558 acres). The designation does not preclude mining activities but does require that activities not dominate the view of the casual observer. The level of change to the characteristic landscape from Alternative 5 would likely be deemed too great to meet the requirements of the Class III designation because the tailings facility would dominate the view from several viewpoints.

3.11.4.8 Cumulative Effects

The Tonto National Forest identified the following list of reasonably foreseeable future actions as likely to occur in conjunction with development of the Resolution Copper Mine. These RFFAs may contribute to cumulative changes in scenic resources in the assessment area, including in the vicinity of the proposed Resolution Copper Mine and its project alternative components, as well as in the visual landscape viewed from distant locations, where the viewshed could include proposed project components along with RFFA project

components, resulting in a cumulative scenic resources impact. As noted in section 3.1, past and present actions are assessed as part of the affected environment; this section analyzes the effects of any RFFAs, to be considered cumulatively along with the affected environment and Resolution Copper Project effects.

- *Ripsey Wash Tailings Project.* Mining company ASARCO is planning to construct a new tailings storage facility to support its Ray Mine operations. As approved, the proposed tailings storage facility project would occupy 2,627 acres of private lands and 9 acres of BLM lands and be situated within the Ripsey Wash watershed just south of the Gila River approximately 5 miles west-northwest of Kearny, Arizona, and would contain up to 750 million tons of material (tailings and embankment material). The tailings facility would include two starter dams, new pipelines to transport tailings and reclaimed water, a pumping booster station, a containment pond, a pipeline bridge across the Gila River, and other supporting infrastructure. ASARCO estimates a construction period of 3 years and approximately 50 years of expansion of the footprint of the tailings storage facility as slurry tailings are added to the facility, followed by a 7- to 10-year period for reclamation and final closure. A segment of the Arizona Trail would be relocated east of the tailings storage facility. If the Alternative 5 – Peg Leg tailings storage facility location is selected as the agency-preferred alternative, then the proximity of Ripsey Wash tailings storage facility and the Peg Leg tailings storage facility would have cumulative effects on scenic resources. The Ripsey Wash tailings storage facility would be located within the same viewshed as the Peg Leg facility. Both facilities would cumulatively affect the areas scenic quality. The Ripsey Wash tailings storage facility would result in large-scale, permanent changes in the landscape that would create strong visual contrasts and cause major and highly noticeable changes to the area's existing character. The Ripsey Wash tailings storage facility at full build-out would be visible from portions of the Florence-Kelvin Highway, SR 177, the Arizona Trail, and various OHV routes in the vicinity. The facility would also be visible in the background view from the White Canyon Wilderness, although views of the Ripsey Wash tailings storage facility from the wilderness would be from relatively inaccessible areas with rugged and steep terrain that are expected to have limited public visitation.
- *Ray Land Exchange and Proposed Plan Amendment.* ASARCO is seeking to complete a land exchange with the BLM by which the mining company would gain title to approximately 10,976 acres of public lands and federally owned mineral estate located near ASARCO's Ray Mine in exchange for transferring to the BLM approximately 7,304 acres of private lands, primarily in northwestern Arizona. It is known that at some point ASARCO wishes to develop an open-pit copper mining operation in the "Copper Butte" area west of the Ray Mine; however, no details are currently available as to specific mine development plans and how these would affect scenic resources in this popular recreation area and from surrounding viewpoints.
- *Silver Bar Mining Regional Landfill and Cottonwood Canyon Road*. AK Mineral Mountain, LLC, NL Mineral Mountain, LLC, POG Mineral Mountain, LLC, SMT Mineral Mountain, LLC, and Welch Mineral Mountain, LLC proposed to build a municipal solid waste landfill on private property surrounded by BLM land in an area known as the Middle Gila Canyons area. There is no way to access the proposed landfill without crossing BLM land. The owners/developers and Pinal County have applied for a BLM right-of-way grant and Temporary Use Permit for two temporary construction sites to obtain legal access to the private property and authorization of the needed roadway improvements. The proposed action includes improving a portion of the existing Cottonwood Canyon Road and a portion of the existing Sandman Road in order to accommodate two-way heavy truck traffic to and from the proposed landfill. The access road on BLM-administered land would be widened to 44 feet as needed. The overall life of the proposed landfill is 50 years. The slight widening of the road to

accommodate drainage would not have an impact on the overall characteristics of the landscape; however, the proposed landfill would be visible from SR 79, U.S. 60, and Cottonwood Canyon Road. Visual impacts would be greatest on Cottonwood Canyon Road.

- *ADOT Vegetation Treatment.* ADOT plans to conduct annual treatments using EPA-approved herbicides to contain, control, or eradicate noxious, invasive, and native plant species that pose safety hazards or threaten native plant communities on road easements and NFS lands up to 200 feet beyond road easement on the Tonto National Forest. It can be reasonably assumed that ADOT will continue to conduct vegetation treatments along U.S. 60 on the Tonto National Forest during the expected life of the Resolution Copper Mine (50–55 years) for safety reasons. The vegetation treatment could measurably impact cumulative scenic resources.
- *Tonto National Forest Travel Management Plan.* The Tonto National Forest is currently in the process of developing a Supplemental EIS to address certain court-identified deficiencies in its 2016 Final Travel Management Rule EIS. This document and its implementing decisions are expected within the next 2 years. This document will have substantial impacts on current recreational uses of NFS lands and transportation routes, which in turn would have some impact on disturbance of scenery resources from new road construction or decommissioning of other roads.

Other future projects not yet planned, such as large-scale mining activity, pipeline projects, power transmission line projects, and other utility infrastructure development, are expected to occur in this area of south-central Arizona during the foreseeable future life of the Resolution Copper Mine (50–55 years). These types of unplanned projects, as well as the specific RFFAs listed here, would cumulatively contribute to future changes in scenic resources in the region.

3.11.4.9 Mitigation Effectiveness

Mitigation Measures Applicable to Scenic Resources

Minimize visual impacts from transmission lines (FS-03). Resolution Copper would use best management practices or other guidelines (when on NFS lands) that would minimize visual impacts from transmission lines. Measures could include using non-specular transmission lines, transformers, and towers; avoiding use of monopole transmission structures; avoiding "skylining" of transmission and communication towers and other structures (i.e., consider topography when siting transmission structures to avoid "skylining" of structures on high ridges in the landscape); and in areas of the highest visual sensitivity with difficult access, use of air transport capability to mobilize equipment and materials for clearing, grading, and erecting transmission towers. These measures would reduce and minimize the scenery impacts and project contrast of mining operations in the surrounding landscape and impacts upon sensitive viewers. The power line corridors occur mainly on Forest Service–managed lands, and the mitigation measures can be required within those areas, regardless of alternative.

Mitigation Effectiveness and Impacts

Applying mitigation to transmission lines would be effective in reducing impacts on scenery resources and sensitive viewers on NFS lands through reducing impacts from increased contrast from form and line introduced into the landscape. In particular, avoiding "skylining" of structures would reduce visual dominance relative to the existing landscape through increased screening of views and reduce impacts on sensitive viewers. Impacts related to this mitigation would be related to air transport of equipment and materials. This would cause noise and scenery impacts on national forest visitors in the vicinity of the transmission line. However, these impacts would only occur during construction and would be temporary.

Unavoidable Adverse Impacts

The subsidence area and residual tailings storage facility would constitute a permanent adverse impact that cannot be avoided or completely mitigated. While night brightness from mine facility lighting would be mitigated to a large degree, residual impacts would remain that are not avoidable and cannot be completely mitigated.

3.11.4.10 Other Required Disclosures

Short-Term Use and Long-Term Productivity

Impacts on visual resources would be both short and long term. While impacts associated with processing plant buildings and structures such as utility lines and fences would cease when they are removed at closure, the subsidence area and tailings storage facility would permanently alter the scenic landscape and affect the scenic quality of the area in perpetuity. Impacts on dark skies from night lighting would cease after mine closure and reclamation.

Irreversible and Irretrievable Commitment of Resources

For all action alternatives, there would be an irretrievable loss of scenic quality from increased activity and traffic during the construction and operation phases of the mine. The size and extent of the tailings facilities would create losses of scenic quality until rock weathering and slope revegetation have reduced color, form, line, and texture contrasts to a degree that they blend in with the surrounding landscape; revegetation would occur relatively soon after closure, but weathering would take such a long time scale as to be considered permanent. Due to the geological time frame necessary for these processes to occur, the loss of scenic quality associated with the tailings facilities would effectively be irreversible.

For each action alternative, the visual contrasts that would result from the introduction of facilities associated with the project would be an irretrievable loss of the undeveloped, semiprimitive setting until the project is closed and full reclamation is complete. Under all of the action alternatives, existing views would be irreversibly lost behind the tailings storage facility because of the height and extent of the piles.

There would be an irretrievable, regional, long-term loss of night-sky viewing during project construction and operations because night-sky brightening, light pollution, and sky glow caused by mine lighting would diminish nighttime viewing conditions in the direction of the mine. Impacts on dark skies due to night lighting would cease after mine closure and reclamation. Regional dark skies would continue to brighten due to other development factors in the region throughout the mine life. Therefore, it is unlikely that a return to current dark sky conditions would occur after mine closure.