Draft

Environmental Assessment Yankee Canyon Coal Mine Safeguarding Project Colfax County, New Mexico

Prepared for New Mexico Energy, Minerals, and Natural Resources Department Abandoned Mine Land Program

Prepared by



6020 Academy NE, Suite 100 Albuquerque, New Mexico 87109 www.dbstephens.com DB21.1363

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1. Introduction

Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this environmental assessment (EA) for the proposed Yankee Canyon Safeguard Project (herein referred to as the Proposed Project or Proposed Action).

1.1 Summary of Proposed Project

The New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD) Abandoned Mine Land (AML) Program, in partnership with the U.S. Department of Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), is proposing to safeguard hazardous abandoned mine features throughout the Yankee Canyon area (Project Area) located near the City of Raton, Colfax County, New Mexico (Figure 1). Coal was first discovered in the Raton region in 1821, but full-scale mine production did not begin until the arrival of the railroad in 1879 (AML, 1998). Mine production in the Sugarite and Yankee Canyon area began in the 1870s, eventually shutting down in the early 1940s after the rail lines ceased operation and the town of Yankee was dismantled.

The Project Area consists of private land and land administered by the New Mexico State Land Office (SLO) (Figure 2). The Proposed Project is needed as a result of the numerous historical mining features that pose a threat to public safety and may also represent environmental hazards.

The Proposed Project focuses on safeguarding and repairing the most dangerous mining hazards in the Project Area, specifically a section of County Road A-25 where it passes through the Project Area. Safeguarding measures would include the investigation and repair of subsidence on County Road A-25, stabilization of steep slopes on coal gob piles, and construction of structural barriers designed to restrict human access to mine openings. Gates, cupolas, or other wildlife-compatible barriers would be installed site-wide where the dangerous features are located.

Existing roads would be used wherever possible to access the mine features proposed for closure. Construction staging areas would be located near existing roads in areas that are already disturbed.



1.2 Project Location

The Proposed Project is located approximately 8 miles northeast of Raton, New Mexico, within Colfax County, north of NM Highway 72 on the east- and south-facing slopes of Horse Mesa below the mesa rim down to near the bottom of Yankee Canyon (Project Area) (Figures 1 and 2). County Road A-25 crosses the Project Area as it traverses the canyon bottom at County Road A-27 to the top of Horse Mesa.

The Project Area is located within Township 31 N, Range 24 E, Sections 1 and 2, and Township 32 N, Range 24 E, Sections 35 and 36, as shown on the Yankee, NM, 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle (Figure 2).

1.3 Purpose and Need for Proposed Project

The purpose of the Proposed Project is to safeguard against the hazards associated with historical mining features—including adits, shafts, subsidence features, and other mine openings—throughout the Project Area and with a special focus on County Road A-25. The purpose of the Proposed Project also includes reclaiming coal waste piles. All safeguarding measures would be taken while preserving cultural resources and wildlife habitat to the extent possible.

The unpaved County Road A-25 appears to be experiencing a loss of bearing capacity due to historical mining activity in the area. Based on evidence of subsidence observed and documented in the road, the Colfax County Road Department has temporarily closed the road due to dangerous, unstable conditions for vehicle passage in this area. There is therefore a need to stabilize the road where subsidence has been observed, and to thoroughly investigate and repair all potential areas of subsidence along the roadway. There are other areas of unprotected mine features throughout the Project Area that are hazardous and yet remain accessible to the public. Mine safeguarding is needed to reduce or eliminate these safety hazards. In addition, the coal waste gob piles located throughout the Project Area are exposed to weathering and erosion that can lead to leaching of coal waste into nearby waterways. Therefore, reclamation of the gob piles is also needed.

1.4 Project History/Background

The Surface Mining Control and Reclamation Act (SMCRA), enacted on May 2, 1977 (amended in 2006), created the nationwide AML reclamation program. It places fees on active coal mines to



fund the reclamation of coal mines abandoned before 1977. OSMRE distributes funds to the state and tribal abandoned mine land programs, which rank abandoned mine land problems on a priority scale of 1 to 3 (P1, P2, and P3) as defined by federal law. High priority (P1 and P2) indicates a need for the protection of public health and safety from the adverse effects of coal mining practices prior to 1977, including restoration of land, water, and the environment, and mine pollution problems ranked 1 and 2 are addressed first. Yankee Canyon is characterized by a variety of all three priority categories, including P1 for the road subsidence hazard, P2 for gob piles associated with a dangerous opening (i.e., adit), and P3—the lowest danger category—covering the waste/gob piles not associated with other features.

The Yankee Canyon Project Area encompasses a total of approximately 580 acres, consisting of about 300 acres of private land and approximately 280 acres of land administered by the New Mexico SLO. Mining operations first started in the Raton area in the late 1870s and quickly expanded with the arrival of the railroads in the early 1900s. Coal mining spread throughout the region, and towns such as Sugarite and Yankee were established for miners and their families. As other energy sources such as oil and gas became prevalent, the need for coal dropped. The coal mines of the area declined and by the late 1930s to early 1940s, coal production ceased and towns such as Yankee were shut down and disassembled.

The Project Area and surrounding region have largely remained rural, with ranching and hunting as the main economic drivers. Sugarite Canyon State Park, established in 1985, is located on the west side of Horse Mesa, but has supported recreational opportunities for hunting, fishing, boating, camping, and hiking for decades (McLemore, 2010).

1.5 Project Decision

This EA for the Proposed Project was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321, et seq.) and Council on Environmental Quality (CEQ) guidelines (40 CFR 1500-1508), which require a systematic, interdisciplinary approach to project planning and implementation and emphasize that the environmental impacts of federally funded projects be seriously considered in the decision-making process.

DBS&A prepared this EA for the AML Program to evaluate the environmental consequences of implementing the Proposed Project and project alternatives. A public meeting introducing the project was conducted on March 9, 2023, and input on the project was solicited. A second public meeting is planned for June 8, 2023, at which time a draft of the EA will be made available



to the public for review, comment, and consideration. The AML Program is seeking a finding of no significant impact (FONSI), which will be prepared describing the findings of the analysis in the final EA. As the federal lead, OSMRE will be the Deciding Official for the Proposed Project as the signatory on the FONSI.

1.6 Relevant Statutes and Regulations

The Proposed Project does not conflict with any known state or local planning or zoning ordinances. It is required to conform and comply with the following applicable and relevant regulations and statutes:

- American Indian Religious Freedom Act of 1978 (42 United States Code [USC] 1996)
- Archaeological Resources Protection Act (ARPA) of 1979 (16 USC 470)
- Clean Air Act (CAA) of 1972, as amended (42 USC 7401 et seq.)
- Clean Water Act (CWA) of 1972, as amended (33 USC 1251 et seq.)
- Endangered Species Act (ESA) of 1973, as amended (16 USC 1531 et seq.)
- Environmental Justice (Executive Order [EO] 12898)
- Floodplain Management (EO 11988)
- Invasive Species (EO 13112)
- NEPA of 1969, as amended (42 USC 4321 et seq.)
- Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500 et seq.)
- Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 USC 703–712)
- National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470 et seq.)
- National Pollutant Discharge Elimination System (NPDES), as amended (33 USC 1251 et seq.)
- Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 USC 3001 et seq.)
- Protection and Enhancement of the Cultural Environment (EO 11593)
- Protection of Wetlands (EO 11990)
- Secretarial Order 3206, American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act



2. Proposed Action and Appropriate Alternatives

2.1 No Action

The No Action alternative would not allow for proposed safeguarding activities to protect the general public from the hazards associated with historical mining features—including adits, shafts, subsidence features, and other mine openings, in addition to gob piles—located throughout the Project Area.

The No Action alternative does not satisfy the Proposed Project's purpose and need because it does not allow for the following:

- Protection of public health, safety, general welfare, and property from extreme danger resulting from the adverse effects of past mineral mining practices
- Protection of public health, safety, and general welfare from adverse effects of past mineral mining and processing practices that do not constitute an extreme danger

2.2 Proposed Action

The Proposed Action is designed to investigate and mitigate hazardous mine features (Figure 3) in the Project Area, including a section of County Road A-25 where subsidence features (tension cracks) have been identified. The scope of work also includes safeguarding of other related hazardous mine openings and features identified throughout the Project Area, while allowing for open access and continued use of underground habitat by smaller wildlife species, including bats. The following safeguarding measures are being evaluated for implementation in priority areas:

• *County Road A-25:* Geotechnical exploration and backfilling through drilling and injection of a water, sand, and cement grout mixture are proposed to mitigate subsidence impacting County Road A-25. Voids that are identified beneath and adjacent to the County Road A-25 alignment would be mapped then injected with the grout mixture. The grouting work may take place concurrently with the drilling investigation. The goal of the grout injection is to stabilize the road and prevent additional subsidence in the area. The drill holes would be spaced every 30 feet along the County Road A-25 alignment, with an increased drilling density of every 20 feet around the existing subsidence features.



Gates: Gates would be installed over mine shafts and in mine adits or portals, as well as in other mine entryways where they are determined to be the best method for blocking access to mine features. The gates would be designed in accordance with the latest industry standards and would be modified as necessary to fit the specific entryway, occasionally using steel culverts to support them. The basic gate design generally used consists of a vertical to horizontally placed flat grid of welded steel cross bars anchored in place over the mine entryway. The cross bars would be oriented horizontally and welded onto vertical supports spaced widely. Spacing of the horizontal cross bars would be 6 inches, designed to allow passage of bats in flight, as well as access for other small mammals and for birds, but not spaced widely enough to allow human entry. Gates are typically constructed of 2-inch by 4-inch and 2-inch-square tubular weathering steel that is anchored into the surrounding rock using 1-inch steel rods. Gates are designed to not inhibit air flow into or out of the mine feature and constructed of angled steel oriented with the apex up to maximize the airflow through the gate.

The gates would be installed at all features identified for closure that have been surveyed by Bat Conservation International (BCI) and documented for historical purposes (Okun, 2023). Closure and construction timing would be in accordance with the recommendations of BCI. Any recommendations, such as pre-construction wildlife surveys, resulting from the biological assessment(BA)/biological evaluation (BE) conducted in the Project Area (DBS&A, 2023) would be followed.

- *Rock/concrete bulkhead with culvert gate:* At some locations, gates would consist of a bulkhead constructed of a 2- to 4-foot-thick section of rocks cemented together with concrete; a 3- to 4-foot steel culvert with a steel gate would be constructed inside.
- *Cupolas:* Cupolas are a type of gate designed to fit over a vertical mine shaft if it is
 determined to be an appropriate measure for safeguarding a feature in the Project Area.
 Locations and construction timing would be in accordance with the recommendations of BCI
 and pre-construction surveys of wildlife usage of mine features.
- *Backfill:* Mine openings may be backfilled with adjacent coal gob or waste rock piles.
- Other structural closures: Polyurethane foam (PUF) plugs and other structures may be used to safeguard mine openings.
- *Coal Gob Pile Reclamation:* Stabilization of steep slopes on coal gob piles may be needed to prevent mine waste from entering adjacent ephemeral stream channels. Work may include



in situ burial of coal gob, establishment of vegetation, and installation of various erosion control structures on the gob piles as necessary to facilitate effective stormwater management.

Photographs representing examples of the mine safety features being considered as part of the Proposed Project are included in Appendix A. Implementation of the Proposed Project is anticipated to begin at the earliest in fall 2023. The Proposed Project ground disturbance footprint would be focused on the hazardous mine features identified throughout the Project Area. Colfax County Roads A-25 and A-26 would serve as the main access roads, along with former two-track, unpaved mine roads that would serve as access for geotechnical drilling activities and to access other areas situated away from the county roads. Existing disturbed and flat areas adjacent to the road may also be used for geotechnical drilling activities and staging of drilling, construction equipment, and materials.

The Proposed Project would be implemented in two phases. During the first phase, the road would be repaired and the adits located nearest the road would be closed. During Phase 2, all other mine openings would be closed, and gob piles would be reclaimed on at least SLO lands. Gob piles on private lands would only be reclaimed where agreement is reached with property owners.

2.3 Alternatives Considered but Eliminated from Detailed Analysis

One additional alternative was identified for the Yankee Canyon area early in the planning process. It would consist of safeguarding all of the mine features of the 580-acre Project Area. This alternative was eliminated from detailed analysis due to the prohibitive cost of construction, especially as material supply and demand drove construction costs up over the last few years. This alternative is therefore not considered for further analysis.

Another alternative considered during early planning but later discounted consisted of only repairing the road. Under this alternative, mine openings would have continued to represent public safety hazards in the Project Area. This alternative was also not considered for further analysis.



3. Affected Environment

3.1 General Project Setting

Outside of the small town of Raton, the area remains relatively undeveloped across the natural landscape. Land use includes livestock grazing, logging, mining, and outdoor recreational activities such as hunting, fishing, and camping. Development of the region consists mostly of scattered ranch houses, hunting lodges, and small communities. Sugarite State Park is located just west of the Yankee Canyon Project Area, and contains one of the few perennial creeks in the area.

The region is located within mid-elevation (8,000 to 10,000 feet above mean sea level [feet msl]) forests on crystalline and metamorphic substrates. It is on the edge of the lower-elevation portion of the Southern Rocky Mountains, where there is a transition from the higher-elevation forests to drier and lower plains and plateaus (Griffith et al., 2006).

The Project Area lies on the eastern and southern slopes of Horse Mesa, at elevations that range from approximately 7,150 to 8,100 feet msl. The slopes are generally steep and rugged, as the area is composed of unconsolidated alluvial and colluvium deposits. Drainages in the Project Area are ephemeral. The vegetation communities of the Project Area have been altered by wildfire, specifically the Track Fire that burned through the region in 2011. Much of the area that was formerly a mosaic of ponderosa pine, mixed conifer forest, and oak shrubland is now covered almost exclusively by Gambel's oak shrub on the side slopes of the mesa.

The mean temperatures of the area are 9°/36°F (minimum/maximum) in January and 42°/76°F in July (Griffith et al., 2006). Annual precipitation ranges from 18 to 28 inches.

3.2 Cultural Resources

3.2.1 History of Yankee Canyon

Raton's economy came to be dominated by coal mining in the late 1800s and early 1900s. Coal had been discovered on the Miranda and Beaubien Land Grant in the 1840s, but the industry did not develop in Colfax County until the arrival of the railroad allowed for easy transport. At this point, a series of company coal mining towns—usually owned by a company that also constructed railroads—developed along the lower canyons of the Sangre de Cristo Mountains, and Colfax County quickly became one of the largest coal-producing regions in the western



United States. The AT&SF Railroad began coal prospecting in Dillon Canyon in 1880, and the Raton Coal and Coke Company was established (Appendix B). Formal mining operations began in 1881, and significant settlement occurred between 1880 and 1882 at Blossburg, the first official coal camp in Colfax County and one of the oldest mining towns in New Mexico. As demand for coal increased, immigrants from Europe (particularly Italy) flocked to the area. Blossburg had 500 residents by 1885 and nearly 1,200 by 1890 (Appendix B).

Coal mining began in Yankee Canyon in 1905 and continued as late as the 1960s (Appendix B). Systematic corporate mining took place at the Yankee Mines from 1905 to 1913, with all subsequent mining conducted as small-scale family operations. Much of the following discussion is derived from Moiola (1998), who provides an excellent history of Yankee Canyon compiled from Territorial and State Mine Inspectors Reports from 1906 to 1922, a Lees (1924) summary of the Raton Coal Field, a Nickelson (1979) evaluation for the New Mexico Bureau of Mines and Mineral Resources, and other local accounts. Ranchers had mined small amounts of coal on Johnson Mesa for domestic fuel in the late 1800s, but the Llewellyn and Turner Mines established in 1901 were the first formal mines in the area. By 1905, the Yankee Mines had been established, and a joint venture by several corporate interests backed the construction of the Santa Fe, Raton, and Eastern Railroad to link the coal mining areas of Sugarite, Yankee, and Carrisbrooke to Raton (Pratt, 1986). The town site of Yankee was laid out, and it grew into a local boomtown with a post office by 1906 and as many as 2,000 residents by 1907-1908 (Moiola, 1998).

The Yankee Fuel Company constructed three mine entrances (Mines No. 1, 2, and 3), a three-rail gravity incline, tipple, ventilation furnace and fan, and other mining infrastructure 1 mile west of town. In 1906, the mine had 75 coal cars, 80 men working underground, and 30 additional workers; mules hauled coal from the underground rooms to a junction where it was loaded onto the gravity incline that carried it to the canyon below (Sheridan, 1906). In 1908, the mines operated for 228 days, employed 92 men underground, and produced 60,341 tons of coal. According to Moiola (1998), the peak years of large-scale corporate mining in Yankee Canyon were 1907-1909.

In 1909, the mine operations were suspended, and although they resumed in 1910, production began to decline and two of the entries were permanently abandoned in 1911. According to Lee (1924), all the Yankee Mines had been abandoned and were inaccessible when he visited in 1913. The New Mexico and Colorado Coal and Mining Company took over operations that year, constructed a new tipple and gravity incline, and opened new mines in the Kellogg Bed farther





to the north. However, this coal bed was not as productive, and the new mines were sold to the Superior Coal Company in 1917 and abandoned by 1921. The town of Yankee followed the fortunes of the mines, and it began losing population after 1910. The railroad line was abandoned in the 1930s, and only a few ranching families remained in the area into the 1950s. During these later periods, small-scale family mining operations continued sporadically, with some operations occasionally reopening portions of the previous Yankee Mines or developing new locations. These later, family-scale mining efforts continued until at least 1963 (Moiola, 1998), and resulted in the development of several of the mining sites documented during the current project.

The decline of Yankee Canyon mirrored developments in the broader region, as the town of Raton declined along with the coal and railroad industries after 1920. First, the construction of new railroads, including the Belen Cutoff, decreased the importance of the route through Raton as a major transcontinental freight line. Diesel began to replace coal as the primary fuel for locomotives and, eventually, most freight was carried on trucks rather than railroads. Coal production declined throughout the 1920s and Great Depression, and most of the coal camps in the region had been abandoned by the 1940s (Barrett, 2007).

3.2.2 Archaeological resources in the Project Area

A total of 11 historic archaeological sites and 9 isolated occurrences (IOs) were discovered and documented during pedestrian survey of the Project Area (Okun, 2023) (Appendix B). The area of potential effects (APE) for the project was broadly defined by the AML Program to include 581.7 acres of land, which encompasses all areas of potential project implementation and access. All 11 sites are associated with twentieth century coal mining; four are previously recorded but were fully updated, and seven are newly discovered. No prehistoric/aboriginal resources were discovered. All documented resources were fully recorded and evaluated for eligibility to the National Register of Historic Places (NRHP) and project effects.

Based on the National Register Bulletin 15 and other resources for the of evaluation of historic mining sites, the primary considerations impacting Okun's eligibility recommendations were (1) whether a site contained habitation loci with potential for intact subsurface archaeological deposits (Criterion D) and (2) whether a site contained intact or unique mine engineering features with the ability to visually convey an association with the period of historic mining in Yankee Canyon (Criterion A). None of the sites in the Project Area have demonstrable associations with significant historical people that would qualify them for listing under



Criterion B, and they do not exhibit the levels of integrity necessary to qualify as excellent examples of a unique engineering style or methods of construction (Criterion C). Overall, mining features (including underground mine entrances and extraction pits) and supporting infrastructure (transport features, platforms, structures, and other features) in the Project Area tend to exhibit poor integrity due to material salvage efforts in the 1960s after mines were closed, past remediation (including closing of adits) in the 1980s and 1990s, and other, more gradual, forms of disturbance, such as erosion and colluvial slumping (Appendix B).

OCS also considered the eligibility determinations made by the AML Program and subsequent concurrence issued by the State Historic Preservation Officer (SHPO) in 1998 (Historic Preservation Division Log Number [No. 54930]), although all sites were reevaluated during the current project. In 1998, two sites (LA 57200 and LA 120611) were determined not eligible and two sites (LA 119817 and LA 119818) were determined eligible for listing on the NRHP under Criterion D. OCS (2023) agrees with three of these previous determinations but recommends that the eligibility status of LA 120611 be changed from not eligible to eligible under Criterion D (see discussion below). It is also possible that the collection of mining sites in the Project Area—particularly if combined with sites on the valley floor below—could qualify as a historic district, but designation as a historic district was beyond the scope of the current documentation effort and would require a broader spatial scope (Appendix A).

Of the 11 archaeological sites, 4 (LA 119817, LA 119818, LA 120611, and LA 202929) are recommended as eligible for listing on the NRHP under Criteria A or D, and 7 (LA 57200, LA 202927, LA 202928, LA 202930, LA 202931, LA 202932, and LA 202933) are recommended as not eligible for listing on the NRHP due to a lack of integrity and/or historic significance. As a general rule, the 7 sites recommended as not eligible are simple mines that date to the later periods of small-scale mining, lack habitation loci with subsurface information potential, do not contain intact or unique mine engineering features, and lack complexity in their feature types (Okun, 2023) (Appendix B).

3.3 Water Resources

There are no surface waters within the Project Area. Ephemeral drainages are present, and they carry stormwater runoff from the mesa top through tributaries that eventually drain to the East Fork of Chicorica Creek in Yankee Canyon. The nearest perennial Waters of the U.S. navigable water is the Canadian River, approximately 20 miles southwest of the Project Area. The Project Area is within an area in which flood hazards are undetermined, but possible (FEMA, 2010).



Groundwater levels within the Project Area vary from a few feet below surface in the canyon bottom to more than 100 feet on the uppermost slopes and plateaus. The nearest well site to the Project Area is located on Bartlett Mesa, west of the Project Area; the depth to groundwater at the well was measured at 100 feet (USGS, 2023). This well is likely not representative of the Project Area, as it is on a different mesa at least 3 miles away. The depth would not factor in the topography of mesa slopes within the Project Area. Regional groundwater flow is to the south and southeast toward the East Fork of the Chicorica Creek. Water use in the area would be supplied by domestic wells.

3.4 Vegetation

General vegetation communities in the Project Area vary between north and south aspects, but the most prevalent is classified as Rocky Mountain Gambel Oak-Mixed Montane Shrubland (USGS, 2004) (Figure 4). This ecological system occurs in the mountains, plateaus, and foothills of the southern Rocky Mountains and Colorado Plateau. Representative shrublands are typically found along dry foothills, lower mountain slopes, and at the edge of the western Great Plains from 6,560 to 9,510 feet msl, and are often situated above pinyon-juniper woodlands (Figure 4). The vegetation is typically dominated by Gambel's oak (*Quercus gambelii*) alone or codominant with western serviceberry (*Amelanchier alnifolia*), Utah serviceberry (*A. utahensis*), big sagebrush (*Artemisia tridentate*), mountain mahogany (*Cercocarpus montanus*), chokecherry (*Prunus virginiana*), Stansbury cliffrose (*Purshia stansburiana*), bitterbrush (*P. tridentate*), New Mexico locust (*Robinia neomexicana*), mountain snowberry (*Symphoricarpos oreophilus*), or roundleaf snowberry (*S. rotundifolius*). This ecological system intergrades with lower montane-foothills shrubland systems, with which it shares many of the same site characteristics. Density and cover of Gambel's oak and serviceberry species often increase after fire (NatureServe, 2022).

Scattered throughout the area is Southern Rocky Mountain Ponderosa Pine Woodland, primarily on the less prevalent north-facing aspects of the area. This ecological system is a widespread foothill and montane forest, woodland and savanna group that typically occurs at the lower treeline, with grasslands or shrublands below and relatively mesic forests above. Sites are typically warm, dry, and exposed, ranging from 5,580 to 9,515 feet msl, extending down to 5,000 feet msl in its northern extent. Stands occur on a variety of landforms including bottomlands, elevated plains, cinder cones, piedmont slopes, mesas, foothills, and mountains. The ecological system can be found on all slopes and aspects, but if it occurs on south- or westfacing slopes, it is typically only at higher elevations. It is dominated by ponderosa pine (*Pinus ponderosa*) with many possible tree canopy associates depending on location, including white fir



(*Abies concolor*), juniper (*Juniperus* spp.), pinyon pine (*Pinus edulis*), limber pine (*P.s flexilis*), quaking aspen (*Populus tremuloides*), and Douglas fir (*Pseudotsuga menziesii*).

Also on north-facing aspects and near the drainages of the southern parcel is Southern Rocky Mountain Montane Subalpine Grassland. This ecosystem is the prevalent classification for the top of Horse Mesa; however, there are reaches that extend into the Project Area. This ecosystem typically occurs between 7,217 and 9,842 feet msl on flat to rolling plains and parks or on lower side slopes that are dry, but it may extend up to 10,990 feet msl on warm aspects. An occurrence usually consists of a mosaic of two or three plant associations with one of the following dominant bunchgrasses: oatgrass (*Danthonia intermedia*), Parry's oatgrass (*D. parryi*), Idaho fescue (*Festuca idahoensis*), Arizona fescue (*F. arizonica*), Thurber's fescue (*F. thurberi*), and Muhly (*Muhlenbergia filiculmis*). The subdominants include blue grama (*Bouteloua gracilis*) and pine bluegrass (*Poa secunda*). These large-patch grasslands are intermixed with matrix stands of spruce-fir, lodgepole pine, ponderosa pine, and aspen forests (NatureServe, 2022).

The vegetation communities of the Project Area have been altered by the Track Fire, which burned through the area in 2011. Much of the region that was formerly a mosaic of ponderosa pine, mixed conifer forest and oak shrubland is now covered almost exclusively by Gambel's oak shrub on the side slopes of the mesa. Mixed conifer forest persists only in pockets and in the two large drainages of the area that were largely unaffected by the fire. In addition to Gambel's oak, New Mexico locust is common throughout the burned area, as is mountain mahogany.

Noxious weeds were observed during a biological survey of the Project Area on October 6 and 7, 2022 (DBS&A, 2023). One Siberian elm (*Ulmus pumila*), a Class C species, was observed at a gob pile at the southern end of the northern parcel. The elm was observed in an area that is being considered for safety measures taken as part of the Proposed Action.

3.5 Wildlife

The Project Area harbors species adapted to montane and woodland environments. During the October 6 and 7, 2022 biological survey, 31 vertebrate species were directly or indirectly recorded, including 20 species of birds, 9 species of mammals, and 2 species of reptiles (DBS&A, 2023) (Appendix C).

Townsend's solitaires (*Myadestes townsendi*), spotted towhees (*Pipilo maculatus*), and American robins (*Turdus migratorius*) were commonly heard or seen throughout the survey area. Other common birds in the area included the common raven (*Corvus corax*), Woodhouse's scrub jay



(*Aphelocoma woodhouseii*), Steller's jay (*Cyanocitta stelleri macrolopha*), mountain chickadee (*Poecile gambeli*), and black-capped chickadee (*P. atricapillus*).

Evidence of mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis nelsoni*), and black bear (*Ursus americanus*) presence was observed throughout the Project Area (Appendix C). Other mammals, including northern pocket gopher (*Thomomys talpoides*) and domestic cow (*Bos taurus*), appeared to be common throughout the area as evidenced by burrows, tracks, or scat. A rock squirrel (*Otospermophilus variegatus*) was observed in the bottom of the main canyon near a dirt access road in an area where dumped trash was present. It appeared that many of the larger mammals such as black bears, cows, and elk use the network of old mining roads that lead to local gob piles. These roads likely enable larger mammals to travel more easily by avoiding the dense oak brush that cover the slopes (DBS&A, 2023). Bats occupy mine features of the Project Area with three hibernating Townsend's big-eared bats (*Corynorhinus townsendii*) observed in two distinct features comprising two openings to the surface (BCI, 2021).

Two reptiles were observed within the Project Area during the survey: the prairie lizard (*Sceloporus undulatus*) and short-horned lizard (*Phrynosoma douglash*).

BCI (2021) surveyed two unique features located within the Project Area on November 17 and 18, 2021, following standardized protocols and safety procedures. Mapping efforts focused on accessible workings to determine proximity to County Road A-25 and a known subsidence in the middle of the roadway. The field project resulted in bat surveys being conducted on two distinct features, comprising two openings to the surface. Bat habitat assessments and closure recommendations were provided for all features. Of the two unique features that received comprehensive biological surveys, one offered a "good" potential of subterranean habitat with potential for bat use, and the other offered a "moderate" such potential. Of the two features, one was recommended for bat-compatible closure during the warm season and the other was recommended for "destructive closure, warm season" (BCI, 2021).

3.6 Special Status Species

Special status species include those species that are (1) federally listed as threatened or endangered, are candidates for listing as federally threatened or endangered, or are species proposed for listing under the provisions of the ESA, and (2) species listed by the State of New Mexico as threatened or endangered.



Prior to the 2022 biological survey, the U.S. Fish and Wildlife Service (USFWS), the New Mexico Department of Game and Fish (NMDGF), NMEMNRD Forestry Division and the New Mexico Rare Plant Technical Council (NMRPTC) databases were reviewed to determine potential occurrence of state or federal proposed, threatened, endangered, and candidate species in the Project Area (DBS&A, 2023) (Appendix C). Specifically, the Information, Planning, and Consultation System (IPaC) planning tool from the USFWS (New Mexico) was used to obtain information on federally listed flora and fauna species (https://ecos.fws.gov/ipac/). The BISON-M database (http://www.bison-m.org/) was searched for state-listed fauna species. The State Endangered Plant Species List was searched for information on potential state endangered flora species within Colfax County (NMEMNRD Forestry Division [state.nm.us]).

The habitat requirements of listed species were compared to ecological conditions found in the Project Area to identify which species were likely to occur. Species considered unlikely to occur and for which suitable habitat does not exist within the Project Area, were removed from further consideration. A list of target species—those species that are likely to occur or have potential habitat within the Project Area—was developed from these comprehensive lists prior to the biological survey. The Project Area does not contain critical habitat for any federally listed threatened or endangered species (DBS&A, 2023).

Based on the BA/BE (DBS&A, 2023) (Appendix C), the determinations in the following subsections were made for special status species.

3.6.1 Federally Endangered, Threatened, and Proposed Species

Due to the lack of federal critical habitat, suitable habitat, or occurrence records, it was determined that none of the federally endangered, threatened, and proposed species analyzed in the BA/BE were likely to occur within the Project Area (DBS&A, 2023).

3.6.2 State-Listed Species and other Special-Status Species

Of the species (fauna) listed as by the state as endangered or threatened in Colfax County, none were determined to have the potential to occur within the Project Area.

There are no state endangered plant species listed for Colfax County (NMEMNRD, 2023).

Also evaluated were important plant areas (IPAs), specific places in New Mexico that support either a high diversity of sensitive plant species or are the last remaining locations of the state's most endangered plants (NMEMNRD-Forestry Division, 2017). It was determined that there are



no IPAs present in the Project Area (DBS&A, 2023). The nearest IPA is east of Raton, identified as an area of moderate significance.

3.7 Topography/Geology/Soils

3.7.1 Topography

The Project Area lies along the east and south-facing slopes below Horse Mesa at elevations that range from approximately 7,400 to 7,700 feet msl. The slopes are generally steep and rugged. The area is within unconsolidated landslide deposits and colluvium.

3.7.2 Geology

During the Laramide age (late Cretaceous and early Tertiary), orogenic episodes in northern and central New Mexico formed six structural synclinal features called basins. The Project Area is in northern New Mexico in the easternmost basin, called the Raton Basin. It is crescent-shaped, and is bordered on the west by the eastern flank of the Sangre de Cristo uplift and on the east by the Great Plains province. The Raton Basin stretches from Las Vegas, New Mexico, to northwest of Trinidad, Colorado (Cather, 2004). As uplifting of the region was taking place, the basin was filling with sediment being deposited in the Cretaceous sea that was receding eastward. Cather (2004) surmised that sediment thicknesses were affected by the rate at which sediment was deposited from the process of mountain building and erosion and no other factor (i.e., not by eustatic changes in sea level). The stratigraphy of the Raton Basin from oldest to youngest in the Project Area consists of upper Pierre Shale, Trinidad Sandstone, Vermejo Formation, Raton Formation, and Tertiary basalt (Cather, 2004; McLemore, 2010).

Streams coming off the highlands carried sand, silt, mud, and clay. The high-energy streams carried sand and larger particles forming sandstones and conglomerates when the stream lost energy near the coast of the Cretaceous sea. The material rapidly accumulated and became compacted. The finer particles were carried beyond the shore to the low-energy environment of the receding sea forming the Pierre Shale. The floodplain deposits contained organic material called peat, which turned to coal and became part of the Raton Formation that is made up of about 1,100 feet of sandstone, siltstone, mudstone, and coal (McLemore, 2010; Moiola,1998). The Raton Formation contains coal-bearing units in the Project Area ranging in thickness from a little more than 2 feet to about 5.5 feet (Nickelson, 1979 in Moiola, 1998).



The Raton Formation (TKr) is one of the three geological formations that outcrops in the Project Area (Figure 5). It dates back to the Upper Cretaceous and Paleocene age. The Vermejo Formation and Trinidad Sandstone (Kvt) also outcrop in the Project Area. The Vermejo Formation is of Upper Cretaceous age. The Trinidad Sandstone was deposited on an eastwardprograding shoreline during the final retreat of the Cretaceous sea from northern New Mexico. Landslide deposits (QI) include unconsolidated, unsorted, chaotically mixed colluvium and rock debris formed as a result of bedrock failure. This includes rock-fall, mudflow, debris flow, scree, and talus deposits.

3.7.3 Soils

Soils other than the mined areas are almost exclusively Aridic Argiustolls-Rock outcrop association, and are found on the side slopes of mesas at elevations from 6,000 to 10,500 feet msl (NRCS, 2022) (Figure 6). Aridic Argiustoll, approximately 80 percent of the association, is a colluvium derived from igneous and sedimentary rock and/or residuum weathered from igneous and sedimentary rock. The typical profile is composed of very flaggy loam from absent to 23 inches and very flaggy clay loam from 23 to 40 inches, with clay loam beyond. Past mining activities at Yankee Canyon have directly or indirectly impacted historical native soils surrounding the mine features and associated infrastructure.

3.8 Land Use

The Project Area consists of approximately 300 acres of private land and approximately 280 acres of land administered by the SLO. It is an area that is rich in natural resources, with abundant wildlife including game species such as elk and deer. County Road A-25 is used not only by residents in the area, but also by hunters. Lands are also used for livestock grazing.

3.9 Human Health and Safety

Public safety hazards associated with historical mining features in the Project Area include subsidence along County Road A-25, which generated enough concern for the County to close the road. Hazards also include open shafts and horizontal openings resulting from underground mining. These features present serious threats to human health and safety. When many of the underground mines were abandoned, the entries into them were not adequately sealed. Unstable or open portals and shafts on the ground surface can be very hazardous. Dangers within the mines include oxygen deficiencies, flooded sections, unstable roofs, hard-to-see vertical shafts, venomous insects and snakes, and disorienting mazes of mine workings. These



problems are compounded by total darkness within underground mines. For inexperienced visitors to abandoned mines, the hazards are not always apparent, posing an even greater safety risk. According to records maintained by the AML Program, numerous injuries, some of them fatal, have occurred in abandoned mines around New Mexico (Dodgson, 2015). In addition, the Project Area contains numerous coal waste gob piles. These waste piles present environmental hazards from leaching toxic materials into waterways and potential spontaneous combustion, creating fire hazards. Stabilization and reclamation would mitigate these hazards.

3.10 Socioeconomic/Environmental Justice

3.10.1 Socioeconomic Issues

The general area's population is centered in the City of Raton, approximately 8 miles southwest of the Project Area. The population in the vicinity of the Proposed Project is scattered, primarily rural ranch residences mostly centered in the former mining town of Yankee and along New Mexico Highway 72 9NM 72). The population of Raton totals 6,047, almost half of the population of Colfax County, which is 12,385. The median household income (MHI) of Raton is \$34,233 (U.S. Census Bureau, 2022). Demographic data, including income and minority population data for Raton and, for comparison, Colfax County and the state of New Mexico is summarized in Table 1.

	New Mexico	Colfax County	City of Raton
Population	2,113,344	12,356	6,047
Native American (%)	11.2	3.1	1.9
Black or African American alone (%)	2.7	1.0	0.8
Asian (%)	1.9	0.8	0.0
Hawaiian/Pacific Islander (%)	0.2	0.2	0.0
White alone (%)	81.3	92.6	77.0
Hispanic or Latino (%)	50.1	49.2	57.6
Economic Data			
Median household income	\$54,020	\$39,483	\$34,233
Percentage of population below poverty level	18.4%	18.8%	26.2%

Table 1. Demographic Summary for Raton/Colfax/New Mexico

Source: U.S. Census, QuickFacts, 2022



Economic issues evaluated in this EA include business, employment, and socioeconomic conditions. The number of low-income residents in Raton is higher than in Colfax County or New Mexico as a whole. Social issues that might be affected by the Proposed Action include temporary employment or access during construction.

3.10.2 Environmental Justice

The potential environmental justice (EJ) consequences of the Proposed Action were evaluated using the EJ View tool to generate data to determine the potential for disproportionate effects on minority and/or low-income populations (U.S. EPA, 2023a). The EJ report (Appendix D) shows that the Proposed Project area with an 8-mile radius to include Raton, does not have a higher population of people of color. However, low-income populations are higher relative to the state of New Mexico, the EPA region, and the U.S. (Table 2).

Table 2.Environmental Justice Summary for Area within 8 Miles of
Proposed Project

Demographic Indicator	Area within 8 miles of Yankee Canyon	State Average	EPA Region Average	U.S. Average
People of Color	55%	63%	40%	36%
Low Income Population	50%	39%	36%	30%

Source: U.S. EPA, 2023a

4. Environmental Impacts

4.1 Cultural Resources

All four sites recommended as eligible for listing on the NRHP under criteria A or D contain habitation loci with residential masonry foundations and trash middens/artifact concentrations (Appendix B). The four eligible sites would require management during project implementation. The AML Program is currently evaluating the feasibility of engineering various safeguarding options at these mining sites, and activities may include closing mine openings with bat-compatible closures, backfilling features using on-site materials, and regrading or contouring features to facilitate appropriate drainage. Access to these features will be along existing roads.



The qualifying characteristics at all four sites include the habitation loci, including masonry foundations and associated middens, privies, or artifact concentrations. Okun recommends that these portions of the sites be avoided with suitable buffers during mine remediation, and that all project activities within these sites be monitored by a permitted archaeologist.

In addition to habitation areas, intact mining infrastructure at LA 119818—including Feature 1 (fan house), Feature 2 (generator room), Feature 5 (loadout), Feature 6 (fan mount), parts of Feature 8 (tramway incline), Feature 12 (adobe administrative building), and Feature 26 (tipple complex)—should be preserved, and suitable avoidance buffers should be established around each of these features during implementation. If the adit is altered, safeguarding materials and methods that minimize intrusive visual elements and changes to the historic setting should be used. In general, it is recommended that the AML Program select safeguarding options that have the least possible impact on the visual aspects of these sites, while still accomplishing the important goal of protecting the public from the significant hazards posed by abandoned mining features. If possible, materials used to close and restrict access to dangerous features should not obscure aboveground elements or detract from the ability of these features to convey their historic functions. Materials used should be used to the extent feasible. If these recommendations are followed, the project would have no adverse effect on these historic properties.

Under the No Action Alternative, the Proposed Project would not be implemented. There would be no impacts on any cultural resources present in the Project Area.

4.2 Water Resources

Raton Water Works obtains its raw water prior to treatment from two surface water sources: the Lake Maloya watershed in Sugarite Canyon or the Cimarron River, which is fed from Eagle Nest Lake. In the Project Area, however, there are no perennial surface waters, and all water for consumptive use in the area would be supplied by domestic wells. Groundwater levels within the Project Area vary from a few feet below ground surface in the canyon bottom to more than 100 feet on the uppermost slopes and plateaus.

There would be no negative impacts to surface water as a result of the Proposed Project. Because the Proposed Project would stabilize and reclaim coal gob piles in the Proposed Project



area, the impacts would be beneficial to any surface water flows and to groundwater resources because leaching from the piles would be mitigated.

Under the No Action Alternative, groundwater and surface flows (during storms and snowmelt) could continue to be negatively impacted from leaching from the gob piles.

4.3 Vegetation

General vegetation communities in the Project Area have been altered by the Track Fire, which burned through the area in 2011. Much of the region that was formerly a mosaic of ponderosa pine, mixed conifer forest and oak shrubland is now covered almost exclusively by Gambel's oak shrub on the side slopes of the mesa. Mixed conifer forest persists only in pockets and in the two large drainages of the area that were largely unaffected by the fire. In addition to Gambel's oak, New Mexico locust is common throughout the burned area, as is mountain mahogany. Ground disturbance and vegetation removal would be minimal as they would be limited to existing roadways and around mine openings. Gob piles would be reclaimed in place and revegetated with native species such as New Mexico locust. Any vegetation that is disturbed will be reseeded with a native grass and forbs mix. Impacts to vegetation would therefore be minimal and would be mitigated such that there would be no long-term impact as a result of the Proposed Project. In the longer term, the reclamation of gob piles would reduce the risk of spontaneous combustion and wildfire.

One noxious weed, a Siberian elm (*Ulmus pumila*), was identified at the Proposed Project. Any noxious weed disturbed around mine openings would be removed with proper disposal. In addition, all efforts will be made to limit any introduction of noxious weeds (e.g., using native seed mix certified to be weed-free). Therefore, there would be no long-term impact from the Proposed Project to the spread of noxious weeds.

Under the No Action Alternative, there would be no direct impacts on the vegetation. Gob piles would continue to pose a risk of spontaneous combustion and wildfire.

4.4 Wildlife

The Project Area harbors species adapted to montane and woodland environments (DBS&A, 2023). Surveys were conducted in two unique features for bats (BCI, 2021). Of the two unique features that received comprehensive biological surveys, one offered a "good" potential of subterranean habitat with potential for bat use, and the other offered a "moderate" level.



Wildlife conservation measures will be implemented to minimize any impacts on wildlife of the Proposed Project area. The following actions will be incorporated into the design of the Proposed Project:

- The existing roads and trails in the Project Area would be used as primary access for all vehicles.
- Secondary access would be limited to the extent possible. Once construction is completed, the disturbed areas would be reseeded with native grass and forb species.
- Existing disturbed and flat areas would be used for construction staging of all equipment and materials. The staging areas would be located on or adjacent to the existing roads and trails.
- Surveys for wildlife usage of mine features such as adits would be conducted prior to installation of safeguarding measures.
- If possible, construction activities should all take place outside of the migratory bird nesting season. If not, a pre-construction nesting survey of the Project Area would be conducted prior to the commencement of construction. Any active nests found will be flagged for avoidance during construction activities.

The recommendations outlined by BCI will be implemented for reducing impacts to any bats from the construction of structural barriers. The 2021 report identified two unique features. Of the two features, one was recommended for bat-compatible closure during the warm season and the other was recommended for "destructive closure, warm season" BCI (2021). For mining features that are not associated with any potential bat habitat, no closure stipulations were recommended (i.e., mining features can be closed at any time by any means deemed necessary). Construction features for gates at mine entrances will be designed in accordance with BCI recommendations to allow access of bats and other small mammals and reptiles, but will not be wide enough to allow human entry. Construction will be timed consistent with BCI recommendations (BCI, 2021).

There would be no long-term impacts to wildlife with the implementation of these conservation measures.

Under the No Action Alternative, there would be no impacts on wildlife.



4.5 Special Status Species

4.5.1 Federally Listed Endangered, Threatened, and Proposed Species

Due to the lack of federal critical habitat, suitable habitat, or occurrence records, it was determined that none of the federally listed endangered, threatened, and proposed species analyzed in the BA/BE were likely to occur within the Project Area (DBS&A, 2023). The Proposed Project would therefore have no impact on any federally listed species. There would be no impacts on federally endangered, threatened, and proposed species under the No Action Alternative.

4.5.2 State-Listed Species and other Special-Status Species

Of the species (fauna) listed by the state as endangered or threatened in Colfax County, none were determined to have some potential to occur within the Project Area. There are no state endangered plant species listed for Colfax County (NMEMNRD, 2023). The Proposed Project would therefore have no impact on any state listed species. There would be no impacts on state-listed and other special-status species under the No Action Alternative.

4.6 Topography/Geology/Soils

4.6.1 Topography

Spoil banks of waste rock and piles of overburden from the open pit mines are spread over the area and are near the mining features. Some of these materials would be used as backfill, precluding the necessity of bringing in backfill from outside the site. In these areas, the topography may change somewhat as the materials would be removed. However, any removal and reuse of backfill material would serve to bring the landscape back to pre-mining conditions; therefore, there would be a beneficial impact from implementation of the Proposed Action.

There would be no impacts on topography under the No Action Alternative.

4.6.2 Geology/Soils

There are no prime or unique farmland soils as defined by the Farmland Protection Policy Act in the Project Area. Soils other than the mined areas are almost exclusively Aridic Argiustolls-Rock outcrop association, and are found on the side slopes of mesas at elevations from 6,000 to 10,500 feet msl. Past mining activities have directly or indirectly impacted historical native soils surrounding the mine features and associated infrastructure, and the Proposed Project would



focus only on those disturbed soils. Vehicle traffic and construction staging areas would largely remain on or adjacent to existing roads. Travel to more remote sites would use smaller equipment and would remain on existing former mine roads. There would be no lasting impact on soil or geologic resources from dust or noise caused by the relocation of the soil as backfill. Dust and wind erosion would be minimized with implementation of sediment fences, straw wattles, and other best management practices (BMPs). Therefore, there would be no impact to geology or native, undisturbed soils of the Project Area as a result of the Proposed Project.

Under the No Action Alternative, geologic formations and soils would not be impacted.

4.7 Land Use

Safeguarding measures would be implemented on county-maintained roads, private property, and state land. Access agreements would be in place prior to construction. The project would change land use by allowing for County Road A-25 to reopen following road stabilization. No other land use would change as a result of the Proposed Project. The Proposed Project would therefore have a beneficial to no impact on land use.

Under the No Action Alternative, land use would be negatively affected, as County Road A-25 would continue to deteriorate or remain closed due to subsidence risks.

4.8 Human Health and Safety

The Proposed Project would mitigate the hazards of the former Yankee Mine. Impacts to health and safety from the Proposed Project would therefore be beneficial.

The No Action alternative would not address any of the hazards related to the mine features of the Project Area. No work would be conducted to stabilize County Road A-25, and none of the mine features would be safeguarded. No coal gob pile reclamation would take place. Thus, public safety hazards would continue to be present in the Project Area.

4.9 Socioeconomic/Environmental Justice

4.9.1 Socioeconomic Issues

Implementation of the Proposed Action would result in a short-term positive and direct economic impact due to the creation of construction jobs and additional local spending and revenue during construction. There would also be a long-term positive direct impact from the



implementation of the Proposed Action, as it would provide residents with safe travel along County Road A-25 and mine features of the area would be safeguarded.

No short-term impact on socioeconomics would be expected under the No Action alternative. In the long term, however, negative socioeconomic impacts would occur in the Proposed Project area as County Road A-25 would continue to deteriorate, unsafe conditions for travel along the roadway would persist, and unsafe mine features would continue to be a hazard.

4.9.2 Environmental Justice

The Proposed Project would have no negative, measurable impact on environmental justice indicators. Nearby residents would experience improved access to County Road A-25, safeguarding of hazardous mine features, and potentially improved water quality from reclaimed coal waste piles. The Proposed Action would therefore have a beneficial impact on the region in terms of environmental justice.

Under the No Action alternative, people of low-income populations of the region would experience the continued hazards from the mines around Yankee Canyon. The No Action alternative would therefore have a negative impact on environmental justice.

5. Consultation and Coordination

The following public agencies and tribal entities were contacted or consulted with during the development of this EA (in alphabetical order).

- Colfax County Road Department
- Comanche Nation
- Jicarilla Apache Nation
- Kiowa Tribe
- Mescalero Apache Tribe
- New Mexico Department of Game and Fish (NMDGF) online county species list for state listed species and Environmental Review Tool
- New Mexico State Historic Preservation Office
- New Mexico State Land Office



- New Mexico State Representative
- New Mexico State Senator
- OSMRE Denver Field Branch
- U.S. Fish and Wildlife Service, Ecological Services Field Office, online IPaC report services
- Taos Pueblo

Appendix E provides stakeholder, agency, and tribal outreach responses. The information sent to these entities is included as an attachment to the meeting summary in Appendix F.

A public scoping meeting was held on March 9, 2023 to present the Proposed Project, answer questions, and gather input. The meeting summary is provided in Appendix F.

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Figures









EA/YANKEE CANYON CANYON ANKEE ENVIRONN AML DIDATAS/PROJECTS/DB21.1363 ENMRD

Figure 3


5/26/2023

DB21.1363

Figure 4





Figure 6

Appendix A

Photographs





1. View from County Road A-25 looking north toward Project Area



2. Coal waste piles, northern parcel (view to southeast)



YANKEE CANYON EA Photographs



3. Mining structure with overgrown vegetation, south end of the northern parcel



4. View to west from old mining road, southern parcel



YANKEE CANYON EA **Photographs**



5. Bottom of main canyon, midway, southern parcel



6. Historic automobile at mine site



YANKEE CANYON EA **Photographs**



7. View from the northern parcel near County Road A-25 looking north toward Horse Mesa



8. View from the northern parcel looking south toward a old mining road



YANKEE CANYON EA Photographs



9. View of old mining road that also shows the stand-replacing effect from the 2011 Track Fire



10. View to the east from the northern parcel of the main tributary to the East Fork of the Chicorica Creek and County Road A-26



YANKEE CANYON EA **Photographs**



11. Bear print in the Project Area



YANKEE CANYON EA Photographs

Appendix B

Cultural Resources Report





THE YANKEE CANYON HISTORIC MINING DISTRICT: CULTURAL RESOURCE SURVEY FOR AN EMNRD ABANDONED MINE LAND PROGRAM COAL MINE SAFEGUARDING PROJECT, COLFAX COUNTY, NEW MEXICO

PREPARED FOR The New Mexico Energy, Minerals and Natural Resources Department (EMNRD), Mining and Minerals Division, Abandoned Mine Land Program (AML Program)

> PREPARED BY Okun Consulting Solutions

> > MAY 2023



NMCRIS ACTIVITY NUMBER 151925

THE YANKEE CANYON HISTORIC MINING DISTRICT: CULTURAL RESOURCE SURVEY FOR AN EMNRD ABANDONED MINE LAND PROGRAM COAL MINE SAFEGUARDING PROJECT, COLFAX COUNTY, NEW MEXICO

Prepared for

The New Mexico Energy, Minerals and Natural Resources Department (EMNRD), Mining and Minerals Division, Abandoned Mine Land Program (AML Program)

Prepared by Adam Okun and Timothy Schoonover

Submitted by Adam Okun, Principal Investigator **Okun Consulting Solutions** 727 Morningside Dr. NE Albuquerque, NM 87110

Reviewing Agencies EMNRD AML Program New Mexico State Land Office New Mexico Historic Preservation Division

Survey Conducted Under New Mexico General Archaeological Investigation Permit Number: NM-22-285-S

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ABSTRACT

This report presents the results of cultural resource survey and detailed documentation within the Yankee Canyon Coal Mining District in Colfax County, New Mexico. The project area is located along the edge of Horse Mesa approximately 6 miles northeast of Raton and 2 miles east of Sugarite State Park. The State of New Mexico Energy, Minerals and Natural Resources Department (EMNRD), Mining and Minerals Division, Abandoned Mine Land Program (AML Program), with funding from the Office of Surface Mining Reclamation and Enforcement, is proposing a variety of mine safeguarding activities at the site, including manually or mechanically filling mine openings with surrounding waste material or polyurethane foam and building structural barriers that restrict human ingress, such as locking gates, cupolas, high-tensile steel mesh coverings, gated culverts, or other wildlife-compatible closures. The project area contains a combination of privately owned land and State Trust Land managed by the New Mexico State Land Office (SLO). The AML Program is taking the taking the administrative lead for Section 106 compliance on behalf of the OSMRE. The SLO Cultural Resource Office (SLO) is also serving as a reviewing agency.

A total of 11 historic archaeological sites and nine isolated occurrences (IOs) were discovered and documented during pedestrian survey of the Yankee Canyon Mine Safeguard project area. The area of potential effects (APE) for the project was broadly defined by the AML Program to include 581.7 acres of land, which encompasses all areas of potential project implementation and access. The APE includes 299.9 acres of private land and 281.8 acres managed by the SLO. All 11 sites are associated with twentieth century coal mining; four are previously recorded but were fully updated, and seven are newly discovered. No prehistoric/aboriginal resources were discovered. All documented resources were fully recorded and evaluated for eligibility to the National Register of Historic Places (NRHP) and project effects.

Based on the *National Register Bulletin 15* and other resources for the of evaluation of historic mining sites, the primary considerations impacting our eligibility recommendations were: (1) whether a site contained habitation loci with potential for intact subsurface archaeological deposits (Criterion D) and (2) whether a site contained intact or unique mine engineering features with the ability to visually convey an association with the period of historic mining in Yankee Canyon (Criterion A). None of the sites in the project area have demonstratable associations with significant historical people that would qualify them for listing under Criterion B, nor do they exhibit the levels of integrity necessary to qualify as excellent examples of a unique engineering style or methods of construction (Criterion C). Overall, mining features (including underground mine entrances and extraction pits) and supporting infrastructure (transport features, platforms, structures, and other features) in the project area tend to exhibit poor integrity due to material salvage efforts in the 1960s after mines were closed, past remediation (including closing of adits) in the 1980s and 1990s, and other, more gradual, forms of disturbance, such as erosion and colluvial slumping.

We also considered the eligibility determinations made by the AML Program and subsequent concurrence issued by the State Historic Preservation Officer (SHPO) in 1998 (Historic Preservation Division Log Number [No. 54930]), although all sites were reevaluated during the current project. In 1998, two sites (LA 57200 and LA 120611) were determined not eligible and two sites (LA 119817 and LA 119818) were determined eligible for listing on the NRHP under Criterion D. We agree with three of these previous determinations but recommend that the eligibility status of LA 120611 be changed from not eligible to eligible under Criterion D (see discussion below). It is also possible that the collection of mining sites in the project area – particularly if combined with sites on the valley floor below – could qualify as a historic district, but designation as a historic district is beyond the scope of the current documentation effort and would require a broader spatial scope (see Chapter 7 discussion).

Of the 11 archaeological sites, four (LA 119817, LA 119818, LA 120611, and LA 202929) are recommended as eligible for listing on the NRHP under criteria A or D, and seven sites (LA 57200, LA 202927, LA 202928, LA 202930, LA 202931, LA 202932, and LA 202933) are recommended as not eligible for listing on the NRHP due to a lack of integrity and/or historic significance (see summary table below). Pending agency



determinations, no further management considerations or treatment recommendations are warranted for the sites recommended as not eligible. As a general rule, the seven sites recommended as not eligible are simple mines that date to the later periods of small-scale mining, lack habitation loci with subsurface information potential, do not contain intact or unique mine engineering features, and lack complexity in their feature types. Chapter 7 provides additional clarification of how these criteria were applied to individual sites.

All four sites recommended as eligible contain habitation loci with residential masonry foundations and trash middens/artifact concentrations (see Table 14). At some sites, privies or other domestic features are also present. These areas have excellent potential for buried archaeological deposits that could provide important information relating to frontier mining technology and engineering, the spatial organization of historic mining landscapes, and the lifeways, economic status, and participation in broader economic networks of twentieth century miners in Yankee Canyon. As a result, they are recommended as eligible for listing on the NRHP under Criterion D. LA 119817, LA 120611, and LA 202929 do not qualify under Criterion A because their mine engineering features do not exhibit the necessary integrity to convey their historic associations. LA 119818, on the other hand, contains unique and partially intact engineering features, including elements of a gravity tramway incline, tipple complex, and other structural remains that convey an association with locally significant early and mid-twentieth century coal mining, and this site is also recommended as *eligible* under Criterion A for its association with locally significant historic events.

The four eligible sites will require management during project implementation. The AML Program is currently evaluating the feasibility of engineering various safeguarding options at these mining sites, and activities may include closing mine openings with bat-compatible closures, backfilling features using onsite materials, and regrading or contouring features to facilitate appropriate drainage. Access to these features will be along existing roads. The qualifying characteristics at all four sites include the habitation loci, including masonry foundations and associated middens, privies, or artifact concentrations. We recommend that these portions of the sites be avoided with suitable buffers during mine remediation, and that all project activities within these sites be monitored by a permitted archaeologist.

In addition to habitation areas, intact mining infrastructure at LA 119818—including Feature 1 (fan house), Feature 2 (generator room), Feature 5 (loadout), Feature 6 (fan mount), parts of Feature 8 (tramway incline), Feature 12 (adobe administrative building), and Feature 26 (tipple complex)—should be preserved, and suitable avoidance buffers should be established around each of these features during implementation. If the adit is altered, we recommend that materials and methods are utilized that minimize intrusive visual elements and changes to the historic setting. In general, we recommend that the AML Program select safeguarding options that have the least possible impact on the visual aspects of these sites, while still accomplishing the important goal of protecting the public from the significant hazards posed by abandoned mining features. If possible, materials used to close and restrict access to dangerous features should not obscure above-ground elements or detract from the ability of these features to convey their historic functions. Materials used should be as visually inobtrusive as possible, and materials that are consistent with the mining period should be utilized to the extent feasible. If these recommendations are followed, the project would have no adverse effect on these historic properties.

his cultural resource inventory complies with the provisions of the National Historic Preservation Act (NHPA) of 1966, as amended through 1992, the New Mexico Cultural Properties Act (18-6-1 through 18-6-17 New Mexico Statutes Annotated 1978), and all other applicable rules and regulations. It was completed in accordance with §4.10.15 NMAC: Standards for Survey and Inventory and other relevant guidance documents.

Appendix C

Biological Assessment/ Biological Evaluation



Biological Assessment/ Biological Evaluation Yankee Canyon Coal Mine Safeguarding Project Colfax County, New Mexico

Prepared for New Mexico Energy, Minerals, and Natural Resources Department Abandoned Mine Land Program

Prepared by



6020 Academy NE, Suite 100 Albuquerque, New Mexico 87109 www.dbstephens.com DB21.1363

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1. Introduction

Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this biological assessment/ biological evaluation (BA/BE) to assess the effects of the proposed Yankee Canyon Coal Mine Safeguarding Project (Proposed Action) on state and federal protected natural resources. The Proposed Action is located on the east and south facing slopes of Horse Mesa down to Yankee Canyon (Project Area) within Colfax County, approximately 6 miles northeast of the Town of Raton, New Mexico (USGS Yankee 7.5-minute quadrangle, in Township 31 and 32 N, Range 25 E) (Figures 1 and 2). The Proposed Action is to be undertaken to mitigate historical coal mining within the boundaries of the Project Area. The proposed area of potential effect (APE) consists of approximately 580 total acres, including approximately 300 acres of private land and approximately 280 acres of land administered by the New Mexico State Land Office (SLO). The Proposed Action involves measures to repair the area around County Road A-25 where a section of the road is collapsing due to mine features. Additional measures include stabilization of steep slopes on coal gob piles and safeguarding of other hazardous abandoned mine features such as adits and entryways.

Section 7(a)(1) of the Endangered Species Act (ESA) directs all federal agencies to carry out programs for the conservation of threatened and endangered species. Section 7(a)(2) of the ESA requires federal agencies to ensure that any actions authorized, funded, or carried out by the agency are not likely to jeopardize the continued existence of any threatened, endangered, or proposed species or to adversely modify critical habitat. This BA/BE documents the potential effects of the Proposed Action on federally listed endangered and threatened species that have the potential to occur locally, together with critical habitat for any of these species. It also helps fulfill requirements set forth under the State of New Mexico's Wildlife Conservation Act [17-2-37 NMSA 1978]. Under the Wildlife Conservation Act, it is unlawful to "take" species determined to be endangered within the state as set forth by regulations of the State Game Commission. From Section 3(18) of the ESA, the term "take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." As used in the Wildlife Conservation Act [17-2-37 to 17-2-46 NMSA 1978], "take" or "taking" means to harass, hunt, capture, or kill any wildlife or attempt to do so.



2. Project Description

2.1 Background

Enacted on May 2, 1977 (amended in 2006), the Surface Mining Control and Reclamation Act (SMCRA) created the nationwide Abandoned Mine Land Reclamation (AML) Program. It places fees on active coal mines to fund the reclamation of coal mines abandoned before 1977. The Office of Surface Mining Reclamation and Enforcement (OSMRE) distributes funds to the state and tribal abandoned mine land programs, which rank abandoned mine land problems on a priority scale of 1 to 3 as defined by federal law. High priority reflects the degree of need for the protection of public health, safety, and property from the adverse effects of coal mining practices prior to 1977, including restoration of land, water, and the environment. The funds are also allowed for safety closures of mine sites other than coal mines if they have been determined to be a public safety hazard.

Mining was first conducted around Yankee Canyon, as well as the nearby Sugarite Canyon, in the early 1890s. Mining operations continued for over 40 years until the early 1940s, when mining was shut down in the area.

County Road A-25 traverses the slopes from the bottom of Yankee Canyon to the top of Horse Mesa, through the Project Area. The unpaved road appears to be experiencing a loss of bearing capacity due to historical mining activity in the area. Based on evidence of subsidence observed in the road, the Colfax County Road Department has temporarily closed the road due to dangerous, unstable conditions for vehicle passage in this area.

No previous mine reclamation or safeguarding measures have been completed in the Project Area.

2.2 Project Description

The Proposed Action is designed to investigate and repair areas adjacent to County Road A-25 where subsidence features (tension cracks) have been identified along a section of the road. Geotechnical drilling will be performed to characterize subsurface conditions to determine if the subsidence is related to underground mine workings. The scope of work also includes safeguarding of other related hazardous mine openings and features identified throughout the Project Area (Figure 3), while allowing for open access and continued use of the mine features



by smaller wildlife species, including bats. The following safeguarding measures are being evaluated for implementation in priority areas:

- *County Road A-25:* Geotechnical exploration and backfilling through drilling and injection of a water, sand and cement grout mixture are proposed to mitigate subsidence impacting the road. Grout would be injected into the voids beneath and adjacent to the A-25 alignment. The grouting work may take place concurrently with the drilling investigation. The goal of drilling and grouting the County Road A-25 subsidence features is to map the voids under and near the road alignment and to fill those voids with grout to stop additional subsidence in the area and stabilize the road. The drill holes would be spaced every 30 feet along the A-25 alignment, with an increased drilling density of every 20 feet around the existing subsidence features (Trihydro, 2023).
- *Gates:* Gates would be installed over mine shafts and in mine adits or portals, as well as in other mine entryways where gates are determined to be the best method for blocking access to mine features. The gates would be designed in accordance with the latest industry standards and would be modified as necessary to fit the specific entryway, occasionally using steel culverts to support the gate. The basic gate design generally used consists of a vertical to horizontally placed flat grid of welded steel cross bars anchored in place over the mine entryway. The cross bars are oriented horizontally and welded onto vertical supports spaced widely. Spacing of the horizontal cross bars would be 6 inches, designed to allow passage of bats in flight, as well as access for other small mammals and for birds, but not spaced widely enough to allow human entry. Gates are typically constructed of 2-inch by 4-inch and 2-inch-square tubular weathering steel that is anchored into the surrounding rock using 1-inch steel rods. Gates are designed to not inhibit air flow into or out of the mine feature and constructed of angled steel oriented with the apex up to maximize the airflow through the gate (Fant et al., 2009; BCI, 2021).

The gates would be installed at all features identified for closure and surveyed by Bat Conservation International (BCI) and following recommendations provided in BCI's 2021 report conducted for the Project Area (BCI, 2021). Additional features may also be identified for safeguarding based on the results of an extensive cultural resources survey completed for the Project Area (Okun, 2023). Construction timing would be in accordance with the recommendations of the BCI report and any recommendations resulting from surveys of the Project Area performed for this BA/BE. Pre-construction wildlife surveys will also be performed as necessary prior to any destructive closures or the installation of safeguarding measures to inspect for wildlife usage of features prior to closure. In addition, on some adit



and shaft openings within the open stopes of the Project Area, gates constructed and anchored as described above would be installed.

- *Rock/concrete bulkhead with culvert gate:* At some locations, gates would consist of a bulkhead constructed of a 2- to 4-foot-thick section of rocks cemented together with concrete. A 3- to 4-foot steel culvert with a steel gate would be constructed inside.
- *Cupolas:* Cupolas are a type of gate designed to fit over a vertical mine shaft. Bat-friendly cupolas may be installed over mine shafts if determined to be an appropriate measure for safeguarding a feature in the Project Area. Locations and construction timing would be in accordance with the recommendations of the bat report by BCI (2021) and based on preconstruction surveys of wildlife usage of features.
- Backfill: Mine openings may be backfilled with adjacent coal gob or waste rock piles.
- Other structural closures: Polyurethane foam (PUF) plugs, gated culverts, and other structures may be used to safeguard mine openings.
- *Coal Gob Pile Reclamation:* Stabilization of steep slopes on coal gob piles to prevent mine waste from entering adjacent ephemeral channels. Proposed work may include in situ burial of coal gob or the establishment of vegetation and installation of various erosion control structures on the gob piles as necessary to facilitate effective stormwater management.

The Proposed Project ground disturbance footprint would be focused on the identified hazardous mine features throughout the Project Area (Figure 3). Colfax County Roads A-25 and A-26 would serve as the main access roads, along with former two-track, unpaved mine roads that would serve as access for geotechnical drilling activities and to access other areas situated away from the county roads. Existing disturbed and flat areas adjacent to the road may also be used for geotechnical drilling activities and staging of drilling, construction equipment and materials.

Implementation of the Proposed Action is anticipated to begin at the earliest in fall 2023.

3. Action Area

50 CFR 402 establishes the procedural regulations governing interagency cooperation under Section 7 of the ESA. For species listed under the ESA, the impact analysis must be conducted within the so-called Action Area, defined as all areas that may be affected directly or indirectly



by the Proposed Action. This report provides analyses of the environmental baseline and likely impacts from the Proposed Action in the Action Area.

The delineation of the Action Area for this project is primarily based on expected noise from construction. The Action Area includes an approximate 200-foot buffer around the project area where ground disturbance would occur.

4. Environmental Baseline

On October 6 and 7, 2022, three DBS&A biologists conducted a pedestrian survey for mapping and documentation of ecosystem types and sensitive resources (e.g., wetlands) in the Project Area (Figure 4); as well as evaluating habitat for federal and state listed species. The survey was conducted with a special focus on mine features and the surrounding habitat within the 580-acre Yankee Canyon Project Area. The Project Area boundaries provided by the AML Program were used for general orientation. Prior to the biological survey, old mining roads were mapped using filtering features on a geographic information system (GIS) mapping program and were used for pedestrian access. County Road A-25 divides the northern and southern parcels and the road was used to access the historical mine roads. Fieldwork consisted of the following specific tasks:

- A general botanical survey with an inventory of important or sensitive plant species or plant communities (e.g., milkweed colonies)
- Documentation and mapping of noxious weed infestations
- Documentation of all evidence (e.g., nests) of fauna or observed fauna (including raptors and statutory migratory birds) encountered during fieldwork (notes and photographs)
- Evaluation of habitat types and wildlife corridors to determine the potential for specialstatus species to occur locally.

Surrounding areas within line of sight were visually inspected using binoculars for the presence of birds, their nests, or past signs of use (e.g., whitewash) within a 200-foot buffer of mine features within the Project Area. Photographs taken during the field survey are provided in Appendix A.



4.1 Soils and Topography

The Project Area lies along the east and south-facing slopes below Horse Mesa at elevations that range from approximately 8,100 feet above mean sea level (feet msl) to 7,150 feet msl. The slopes are generally steep and rugged. The area is within unconsolidated landslide deposits and colluvium.

Soils other than the mined areas are almost exclusively Aridic Argiustolls-Rock outcrop association, and are found on the side slopes of mesas at elevations from 6,000 to 10,500 feet msl (NRCS, 2022) (Figure 5). Aridic Argiustoll, approximately 80 percent of the association, is a colluvium derived from igneous and sedimentary rock and/or residuum weathered from igneous and sedimentary rock and very flaggy loam from 0 to 23 inches and very flaggy clay loam from 23 to 40 inches, with clay loam beyond.

4.2 Groundwater

Groundwater levels around the area of the Proposed Action will generally match the topography, ranging from a shallow depth at the tributaries to Yankee Canyon to depths of several hundred feet outside of the drainages on the slopes and up to the top of Horse Mesa. Regional groundwater flow is to the southeast toward the East Fork of Chicorica Creek, the main east to west creek in Yankee Canyon and paralleling NM Highway 72.

4.3 Surface Water

No surface waters, wetlands, or wet riparian areas were observed within the Project Area, with the exception of a small 3-foot by 6-foot area. A pipe that protrudes from the canyon slope of the drainage in the southern parcel of the Proposed Action was observed to be dripping, and has created a wet area with a very small amount of surface water and mud that flows to the bottom of the drainage, a distance of approximately 30 feet. Seasonally saturated substrates are present in the Project Area (USFWS, 2023) and, based on the biological survey, there are ephemeral drainages that carry stormwater runoff from the mesa top to the main tributary of the East Fork of Chicorica Creek in Yankee Canyon below.

4.4 Vegetation Communities

The Proposed Action is located on the eastern and southeastern slopes and associated ephemeral drainages of Horse Mesa. The most prevalent ecoregion overlapping the mesa slopes is classified as Rocky Mountain Gambel Oak-Mixed Montane Shrubland (USGS, 2004)



(Figure 4). This ecological system occurs in the mountains, plateaus and foothills of the southern Rocky Mountains and Colorado Plateau. These shrublands are most commonly found along dry foothills, lower mountain slopes, and at the edge of the western Great Plains from 6,560 to 9,510 feet msl, and are often situated above pinyon-juniper woodlands. Substrates are variable and include soil types ranging from calcareous, heavy, fine-grained loams to sandy loams, gravelly loams, clay loams, deep alluvial sand, or coarse gravel. The vegetation is typically dominated by Gambel's oak alone or codominant with western serviceberry (Amelanchier alnifolia), Utah serviceberry (Amelanchier utahensis), big sagebrush (Artemisia tridentate), mountain mahogany (Cercocarpus montanus), chokecherry (Prunus virginiana), Stansbury cliffrose (Purshia stansburiana), bitterbrush (Purshia tridentate), New Mexico locust (Robinia neomexicana), mountain snowberry (Symphoricarpos oreophilus), or roundleaf snowberry (Symphoricarpos rotundifolius). There may be inclusions of other mesic montane shrublands with Gambel's oak absent or as a relatively minor component. This ecological system intergrades with lower montane-foothills shrubland systems and shares many of the same site characteristics. Density and cover of Gambel's oak and serviceberry species often increase after fire (NatureServe, 2022).

Scattered throughout the area is Southern Rocky Mountain Ponderosa Pine Woodland, primarily on the less prevalent north-facing aspects of the area. This ecoregion is a widespread foothill and montane forest, woodland and savanna group that typically occurs at the lower treeline, with grasslands or shrublands below and relatively mesic forests above. Sites are typically warm, dry, and exposed, ranging from 5,580 to 9,515 feet msl extending down to 5,000 feet msl in its northern extent. Stands occur on a variety of landforms including bottomlands, elevated plains, cinder cones, piedmont slopes, mesas, foothills, and mountains. The ecoregion can occur on all slopes and aspects, but if it occurs on south- or west-facing slopes, it is typically only at higher elevations. This group is dominated by ponderosa pine (*Pinus ponderosa*) with many possible tree canopy associates depending on location, including white fir (*Abies concolor*), juniper (*Juniperus* spp.), pinyon pine (*Pinus edulis*), limber pine (*Pinus flexilis*), quaking aspen (*Populus tremuloides*), and Douglas fir (*Pseudotsuga menziesii*).

Also on north-facing aspects and near the drainages of the southern parcel is Southern Rocky Mountain Montane Subalpine Grassland. This ecosystem is the prevalent classification for the top of Horse Mesa; however, there are reaches that extend into the Project Area. This ecosystem typically occurs between 7,217 and 9,842 feet msl on flat to rolling plains and parks or on lower side slopes that are dry, but it may extend up to 10,990 feet msl on warm aspects. An occurrence usually consists of a mosaic of two or three plant associations with one of the



following dominant bunchgrasses: oatgrass (*Danthonia intermedia*), Parry's oatgrass (*Danthonia parryi*), Idaho fescue (*Festuca idahoensis*), Arizona fescue (*Festuca arizonica*), Thurber's fescue (*Festuca thurberi*), and Muhly (*Muhlenbergia filiculmis*). The subdominants include blue grama (*Bouteloua gracilis*) and pine bluegrass (*Poa secunda*). These large-patch grasslands are intermixed with matrix stands of spruce-fir, lodgepole pine, ponderosa pine, and aspen forests (NatureServe, 2022).

A few scattered reaches, primarily in the lower elevations of the area, consist of Southern Rocky Mountain Pinyon Juniper Woodland. This pinyon-juniper woodland group occurs in the southern Rocky Mountains on dry mountains and foothills primarily in southern Colorado east of the Continental Divide, and is characterized by pinyon pine that dominates or co-dominates the tree canopy with one-seed juniper (*Juniperus monosperma*).

The vegetation communities of the Project Area have been altered by the Track Fire that burned through the area in 2011. Much of the region that was formerly a mosaic of ponderosa pine, mixed conifer forest and oak shrubland is now covered almost exclusively by Gambel's oak shrub on the side slopes of the mesa. Mixed conifer forest persists only in pockets and in the two large drainages of the area that were largely unaffected by the fire. In addition to Gambel's oak, New Mexico locust is common throughout the burned area, as is mountain mahogany.

During the biological survey, riparian vegetation was observed in the bottom of the main canyon bisecting the southern portion of the Project Area. That vegetation was dominated in places by narrowleaf cottonwood (*Populus angustifolia*), Rocky Mountain maple (*Acer glabrum*), and New Mexico locust.

A list of plants recorded during the biological survey is provided in Table 1. No plants on the lists of sensitive species were observed during the site survey (NMEMNRD, 2022; NMRPTC, 2022).

4.5 Noxious Weeds

The U.S. Department of Agriculture's (USDA's) most updated federal noxious weed list, the 2016 New Mexico noxious weed list (Class A, Class B, and Class C species) (NMDA, 2016), and watch lists were all reviewed to determine the current status of noxious weeds and their potential for local occurrence.

Noxious weeds were observed during the biological survey on October 6 and 7, 2022. One Siberian elm (*Ulmus pumila*), a Class C species, was observed at a gob pile at the southern end



of the northern parcel. The elm was in an area that could have safety measures taken as part of the Proposed Action.

4.6 Wildlife

The Project Area and Action Area harbor species adapted to higher elevation montane and oak shrubland habitats. Table 2 lists all of the species recorded during the October 6 and 7, 2022 biological survey.

The following subsections describe species known to be present and/or observed during the field survey.

4.6.1 Invertebrates

Among the invertebrates documented during the survey were the lubber grasshopper (*Romalea* sp.), the clouded sulphur butterfly (*Colias philodice*), and the blue fungus beetle (*Cypherotylus californicus*).

4.6.2 Fish

There were no surface waters (and therefore no fish) within the Project Area.

4.6.3 Amphibians and Reptiles

No amphibians were recorded in the Project Area, but reptiles were observed including the prairie lizard (*Sceloporus undulatus*) and short-horned lizard (*Phrynosoma douglash*).

4.6.4 Birds

A total of 20 bird species were documented during the survey. Townsend's solitaires (*Myadestes townsendi*), spotted towhees (*Pipilo maculatus*), and American robins (*Turdus migratorius*) were commonly heard or seen throughout the survey area. Other common birds in the area included the common raven (*Corvus corax*), Woodhouse's scrub jay (*Aphelocoma woodhouseii*), Steller's jay (*Cyanocitta stelleri macrolopha*), mountain chickadee (*Poecile gambeli*) and black-capped chickadee (*Poecile atricapillus*).

4.6.5 Mammals

Evidence of mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis nelsoni*), and black bear (*Ursus americanus*) presence was observed throughout the Project Area. Other mammals



including northern pocket gopher (*Thomomys talpoides*) and domestic cow (*Bos taurus*) appeared to be common throughout the area as evidenced by burrows, tracks, or scat. A rock squirrel (*Otospermophilus variegatus*) was observed in the bottom of the main canyon near a dirt access road in an area where dumped trash was noted. It appeared that many of the larger mammals such as black bears, cows, and elk use the network of old mining roads that lead to local gob piles. These roads likely enable larger mammals to travel more easily by avoiding the dense oak brush that cover the slopes.

The AML Program commissioned a separate survey conducted in mines of Yankee Canyon to assess bat habitat and provide closure recommendations. The survey conducted by BCI resulted in bat surveys on two distinct features comprising two openings to the surface (BCI, 2021). Three hibernating Townsend's big-eared bats (*Corynorhinus townsendii*) were observed in Yankee Adit 1, located in the southern portion of the northern parcel (BCI, 2021).

5. Species/Critical Habitat Considered

This section evaluates the potential for listed species to occur in the Project Area or Action Area and be affected by the Proposed Action. For federally listed species, the Information, Planning, and Consultation System (IPaC) planning tool from the U.S. Fish and Wildlife Service (USFWS) (New Mexico) was used to obtain information on biological resources of the area (USFWS, 2022) (Appendix B). The state (animal) species list was obtained for Colfax County from the New Mexico Department of Game and Fish (NMDGF) Biota Information System of New Mexico (BISON-M) website (NMDGF, 2022) (Appendix B). The project was also submitted to the New Mexico Environmental Review Tool (NMERT), a tool used for conservation planning and review of important resources for wildlife and habitats (NMERT, 2022). The state endangered plant species list for Colfax County was obtained from the NMEMNRD and the New Mexico Rare Plants Database.

5.1 Federal Threatened and Endangered Species

The IPaC report obtained for this project lists a total of 6 federal threatened, endangered, and proposed species, with no designated or proposed critical habitat for the Project Area (USFWS, 2022) (Appendix B).

Of the 6 species, none have the potential to occur in the Project Area. Table 3 contains habitat descriptions for all 6 federal listed species and determination on their potential for occurrence in



the Project Area and/or Action Area. No effect determination and no Section 7 consultation are needed.

5.2 State-Listed and other Special-Status Species

The list of Colfax County's state threatened or endangered species was also reviewed as part of this evaluation (Appendix C). It consists of 2 fish, 2 mollusks, 11 birds, and 3 mammals, for a total of 18 species. Table 4 provides habitat descriptions for these species and an assessment of their potential for occurrence in the Project Area. None of the 18 species are likely to occur in the Project Area.

No state-listed species were observed during the biological survey on October 6 and 7, 2022 (Table 2).

Important plant areas (IPAs) are specific places in New Mexico that support either a high diversity of sensitive plant species or are the last remaining locations of the state's most endangered plants (NMEMRND, 2017). IPAs and their biodiversity rank were reviewed for the project footprint, and it was determined that there are no IPAs present in the region of Yankee Canyon (NMEMRND, 2017). The nearest IPA is a narrow band of land of approximately 3,621 acres that reaches from Raton east to Sugarite Canyon, beyond the Project Area to the west, and is associated with the Spiny Aster (*Eurybia horrida*).

No state endangered plant species are located within Colfax County (NMEMNRD, 2022) (Table 4). In addition to reviewing state-listed species, DBS&A reviewed the New Mexico Rare Plant Conservation Scorecard (scorecard) for the Project Area. The scorecard provides an analysis of the current conservation status of the 235 strategy rare plants, including threats, degree of protection, and actions needed to conserve species (management actions, inventories, monitoring, taxonomic work, etc.) (NMNHP, 2022). Two rare plant species, New Mexico stickseed (*Hackelia hirsuta*) and spiny aster (*Eurybia horrida*) were determined as having a low potential to occur in the Project Area. New Mexico stickseed is found on dry sites of shaley or igneous soils in lower to upper montane coniferous forest, usually with Gambel oak at 7,700 to 10,200 feet msl. The species often occupies roadcuts or excavations that expose mineral soils. It is not significantly threatened by common land uses within its habitat (NMRP, 2022). The spiny aster is found on sandy shales on mountain and canyon slopes, from upper montane conifer forest down to juniper savanna, often associated with oak scrub at elevations ranging from 4,100 to 10,700 feet msl. This species shows ecological adaptability as it occurs on both dry, south-facing slopes in high mountains and shaded, north-facing slopes at low elevations. This



plant is sporadically distributed, but not infrequent within the Canadian River Basin of New Mexico (NMRP, 2022). Table 4 lists Colfax County's state endangered and New Mexico rare plant species, together with a description of their habitats and their potential for occurrence in the Project Area.

Table 1 provides a list of all plant species observed during the biological survey. No specialstatus species were observed during the biological survey on October 6 and 7, 2022.

6. Listed Species and Critical Habitat Analysis

6.1 Species Listings

This section evaluates the potential for listed species to occur in the Project Area or Action Area and potentially be affected by the Proposed Action. The IPaC planning tool from the USFWS (New Mexico) was used to obtain information on biological resources of the area (Appendix B). The NMDGF list of state-listed species for Colfax County as accessed from the Biota Information System of New Mexico (BISON-M) website was also reviewed as part of the evaluation (Appendix C). In addition, the New Mexico state endangered plant list (NMEMNRD, 2022) and the USDA noxious weed list (NRCS, 2022) were obtained online and reviewed. Recommendations from the tool are incorporated as appropriate. The following subsections summarize the results of these queries.

6.1.1 U.S. Fish and Wildlife Service

The IPaC report obtained for this project listed a total of 6 federal threatened, endangered, or proposed species, with no designated critical habitat within the Project Area.

6.1.2 New Mexico Department of Game and Fish

The list of state-listed species in Colfax County was obtained from the NMDGF website (NMDGF, 2022). A total of 18 state endangered or threatened species have the potential to occur in Colfax County, New Mexico (Appendix C).

6.1.3 New Mexico Endangered Plants

The New Mexico state endangered plant list was reviewed for Colfax County (NMEMNR, 2022). No state endangered plants are listed for the county. In addition, the list of rare plant species in Colfax County was obtained from the NMRPTC website (NMRPTC, 2022). A total of



10 (including state endangered) rare plant species have the potential to occur in the county. Two rare plant species were determined to have a low potential to occur in the Project Area; however, neither one was observed during the biological survey.

6.2 Critical Habitat Analysis

The Project Area was determined to not be located within any designated or proposed critical habitat (USFWS, 2022c). The nearest critical habitat is for the New Mexico meadow jumping mouse (*Zapus hudsonius luteus*), located within Sugarite Canyon, approximately 2.5 miles west of the Proposed Action.

6.3 Listed Species Eliminated from Further Consideration

Table 3 summarizes the findings for federally listed species that have been removed from further evaluation because suitable habitat is not present within the Project Area and Action Area. Table 4 summarizes the findings for state-listed species that have been removed from further evaluation because suitable habitat is not present within the Project Area.

6.4 Listed Species Evaluated Further

No federally listed threatened or endangered species have been determined to have the potential to occur in the Project Area and/or the Action Area.

One federal candidate species, the monarch butterfly (*Danaus plexippus*), was determined to have a low potential to occur in the Project Area. Adult monarch butterflies require a diversity of blooming nectar resources during breeding and migration, which they feed on along their migration routes and on breeding grounds (spring through fall). Monarchs also need milkweed (for both oviposition and larval feeding) embedded within their diverse nectaring habitat. The correct phenology, or timing, in the life cycle of monarchs and blooming of nectar plants and milkweed is important for monarch survival. There are two migrating populations, eastern and western. New Mexico contains spring breeding areas primarily in the eastern one-third of the state (USFWS 2020). There is therefore a low potential for the monarch butterfly to occur within the Project Area and/or Action Area. Yankee Canyon is located within the eastern third of the state where spring breeding areas have been documented. However, the potential for milkweed plant species to be present is low. No milkweed was observed during the site survey.



6.5 Other Wildlife

The NMDGF Environmental Review Tool (ERT) was used by defining the project scope and the Project Area to generate a report for recommendations by the NMDGF (NMDGF, 2022). The ERT provides an initial list of recommendations regarding potential impacts to wildlife or wildlife habitats from the proposed project, and is a preliminary environmental screening assessment tool only, used in conjunction with findings from the biological survey and other evaluation tools. The ERT stated the following:

[The] proposed project occurs within an area where springs or other important natural water features occur. This may result in the presence of a high use area for wildlife relative to the surrounding landscape. To ensure continued function of these important wildlife habitats, [the] project should consider measures to avoid the following.

- Altering surface or groundwater flow or hydrology,
- Disturbance to soil that modifies geomorphic properties or facilitates invasion of nonnative vegetation. Affecting local surface or groundwater quality.

Creating disturbance to wildlife utilizing these water features. Disturbance to wildlife can be reduced through practices including clustering infrastructure and activity wherever possible, avoiding large visual obstructions around water features, and limiting nighttime project operations or activities.

[The] project occurs within important habitats for wildlife, which could include fawning/calving or wintering areas for species such as deer and elk, or high wildlife movement and activity areas. Management recommendations within these areas may include the following.

- Restrictions on noise-generating activities between December 1 and April 15. These activities would include oil and gas well pad development and operation that exposes wildlife to noises loud noises (at or above 48.6 dB(A) Leq at 400 feet in any direction from the source) from drilling, compressors, and pumping stations.
- Modifying fences along high use areas to make them wildlife friendly and facilitate large animal movement.
- Taking mitigation actions to reduce wildlife-vehicle collisions at high risk locations.

Short-term direct impacts to wildlife in the Project Area would include noise and ground disturbance during construction; however, no loud noise would occur above 48.6 dB(A), 400 feet from the source. No long-term noise impacts are anticipated.



There was a small area of surface water observed during the survey. It was not determined whether it was a natural spring or sourcing from an adit. This area could be temporarily impacted by noise or nearby ground disturbance during construction; however, no long-term impact to any surface water would occur from the project.

Construction activities would likely result in the direct loss of some smaller, less-mobile species of wildlife, such as small mammals and reptiles, and displacement of more mobile species to adjacent undisturbed habitats until construction activities are completed. The most common wildlife responses to noise and the presence of construction equipment and human presence are avoidance or accommodation. Avoidance would result in displacement of animals from an area larger than the actual disturbance area. Overall, avoidance of the Project Area would be relatively short-term and would cease soon after completion of construction activities.

It is very likely that at least some of the adits and other mine features are used by wildlife such as bears in the Project Area. A thorough survey of these mine features would be conducted prior to any disturbance, such as gating of adit openings, in order to ensure that no bears or any other wildlife would be impacted by safeguarding measures. The former mine roads would likely be used for access during construction, and temporary disturbance would occur for wildlife that use the roads.

No long-term detrimental impacts to wildlife are anticipated. Adits that may have been used by denning bears would no longer be accessible; however, there are other natural features throughout the Project Area (trees, large boulders) that could be used for purposes such as denning. The mining roads that exist throughout the Project Area would largely remain in place following construction activities, allowing for wildlife passage corridors to continue.

6.6 Plants

No federally endangered or threatened plant species are listed for the Project Area within Colfax County. No plants are listed as state endangered for Colfax County.

A total of 10 rare plant species have the potential to occur in the Colfax County. Of these, 2 rare plant species were determined to have a low potential to occur in the Project Area: spiny aster (*Eurybia horrida*) and New Mexico stickseed (*Hackelia hirsuta*) (Table 4).

The Project Area contains soils that are very flaggy loam to very flaggy clay loam on steep, 20 to 40 percent slopes. The parent material is colluvium derived from igneous and sedimentary rock and/or residuum weathered from igneous and sedimentary rock. The biological survey focused



especially on areas of proposed disturbance around mine features; the two species were not observed (Table 2).

None of these plant species should be impacted by the Proposed Action even if they were to occur in the Project Area. The biological survey focused especially on areas of proposed disturbance around mine features, and none of these species were documented.

6.7 Cumulative Effects Analysis

As defined under the ESA, "cumulative effects" encompass only effects of future state or private activities reasonably certain to occur within the Project Area. After completion of the Proposed Action, planned future actions may include activities conducted by the County. These activities could include road maintenance or signage, none of which would be expected to impact local plants and wildlife. No additional actions by the AML Program are planned and no cumulative effects to any listed resources are anticipated.

7. Conservation Measures

Although Section 7 consultation is not necessary for the Proposed Action, some conservation measures are recommended to minimize any impacts on wildlife and plants of the Project Area. The following actions are incorporated into the design of the proposed action:

- The existing roads and trails in the Project Area would be used as primary access for all vehicles.
- Secondary access would be limited to the extent possible. Once construction is completed, the disturbed areas would be reseeded with native grass and forb species.
- Existing disturbed and flat areas would be used for construction staging of all equipment and materials. The staging areas would be located on or adjacent to the existing roads and trails.
- Surveys for wildlife usage of mine features such as adits would be conducted prior to installation of safeguarding measures.
- If possible, construction activities should all take place outside of the migratory bird nesting season. If not, a pre-construction nesting survey of the Project Area would be conducted



prior to the commencement of construction. Any active nests found will be flagged for avoidance during construction activities.

8. Conclusions

The Proposed Action is designed to safeguard dangerous mine features located within the Yankee Canyon Mining District. Conservation measures such as using bat-friendly gates as safeguarding mine features, using existing roads during construction, and conducting preconstruction nesting surveys will be implemented as part of the project.

A biological survey was conducted on October 6 and 7, 2022 to observe field conditions, assess the likelihood of occurrence of special-status (including federal threatened and endangered) species, and evaluate potential impacts.

There is no critical habitat within the Project Area, as noted in the USFWS IPaC report generated for this project (Appendix B). This evaluation finds that the project will have no effect on critical habitat.

No federally listed species were determined to have a potential to occur within the Action Area or Project Area. This evaluation finds that the project will have no effect on federally listed species. Informal Section 7 consultation with the USFWS is not necessary. No written concurrence from USFWS is needed.

No state-listed species were determined to have the potential to occur within the Action Area or Project Area. No impact to state-listed species is anticipated as a result of the project.

The work will temporarily disturb vegetation, as well as animal species and their habitats, within the Project Area.

Project impacts to non-listed species would include temporary noise impacts, as well as vegetation removal, elimination of burrows and potential nest sites, and ground disturbance. However, if construction is timed outside of the nesting season, project impacts would be negligible.

Humans can spread the fungus that causes White-Nose Syndrome from one hibernaculum to another by accidentally carrying the fungus on shoes, clothing, or gear. Reduced human access


to any of the mine features that harbor or could harbor bats in the future is an anticipated benefit of the Proposed Action.

With conservation measures implemented, the project impacts listed above would likely be negligible.

9. Contacts Made

No ESA Section 7 consultation is necessary for this project.

10. Preparers

This BA/BE documents the findings from biological surveys conducted on October 6 and 7, 2022 and potential impacts from the proposed Yankee Canyon Coal Mine Safeguarding Project. This BA/BE was prepared by DBS&A biologists Dr. Jean-Luc Cartron and Julie Kutz.

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Figures





SERVICES/PHASE 5_YANKEE CANYON BA-BE/DOCS/DRAFT BABE/GIS/MXDS/F01_AREA_MAP.MXD ENVIRONMENTAL \\SS6ABQ\DATAS\PROJECTS\DB21.1363_ENMRD_AML_

Figure 1



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Figure 2



Figure 3



M DBS&A ogic Compan 1/26/2023 DB21.1363 YANKEE CANYON BA-BE Vegetation Map



1/26/2023 DB21.1363

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Soils Map

Tables





Table 1.Flora Observed During Biological Survey
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		NM Noxious	
	Common	Weed	
Family	Name/Scientific Name	Class	Abundance/Location
Trees			
Fagaceae	Gambel oak (Quercus gambelii)	_	Most abundant plant species in the Project Area. Located throughout, mostly on drier slopes, stand-replacing species in burned areas. Also common as a shrub. Large tree stands in main canyon valley, northern parcel.
Fabaceae	New Mexico locust (Robina neomexicana)		Abundant. Located throughout; most common in areas with Gambel oak.
Cupressaceae	One-seed juniper (Juniperus monosperma)	_	Common, northern and southern parcels, drier slopes.
	Rocky Mountain juniper (Juniperus scopulorum)		Common throughout, northern and southern parcels.
Pinaceae	Ponderosa pine (<i>Pinus ponderosa</i>)	_	Common in unburned areas, uncommon in burned areas throughout northern and southern parcels.
	Douglas fir (Pseudotsuga menziesii)	_	Common primarily on steep, unburned slopes of canyons in northern and southern parcels.
	Pinyon pine (<i>Pinus edulis</i>)	_	Scattered throughout, primarily on drier slopes, unburned areas.
	Blue spruce (<i>Picea pungens</i>)		Uncommon, in sheltered canyon bottom, southern parcel.
Ulmaceae	Siberian elm (<i>Ulmus pumila</i>)	С	One tree observed at coal pile located at south end of the northern parcel.
Aceraceae	Rocky Mountain maple (Acer glabrum)	_	Uncommon, in sheltered canyon bottom, southern parcel.
Salicaceae	Narrowleaf cottonwood (Populus angustifolia)		Uncommon, in sheltered canyon bottom, upstream of dripping spring in southern parcel.
Shrubs			
Anacardiaceae	Three-leaf sumac (<i>Rhus trilobata</i>)	—	Common throughout northern and southern parcels.
Rosaceae	Mountain mahogany (Cercocarpus ledifolius)		Common throughout northern and southern parcels.
	Wild rose (Rosa woodsii)		Common in canyons and drainages, both southern and northern parcels.



Table 1.Flora Observed During Biological Survey
Page 2 of 4

		NM Noxious	
	Common	Weed	
Family	Name/Scientific Name	Class	Abundance/Location
Shrubs (cont.)			
Fagaceae	Shrub live oak (Quercus turbinella)	_	Uncommon, observed in southern parcel.
Chenopodiaceae	Fourwing saltbush (Atriplex canescens)	_	Uncommon, one location observed at coal pile in the southern parcel.
Betulaceae	Thinleaf alder (<i>Alnus</i> <i>incana</i> ssp. <i>tenuifolia</i>)	_	Common in canyons and drainages, both southern and northern parcels.
Caprifoliaceae	Common snowberry (Symphoricarpos rotundifolius)	_	Few observed in canyons and drainages, both southern and northern parcels.
Anacardiaceae	Poison ivy (Toxicodendron rydbergii)	_	Few observed in canyons and drainages, both southern and northern parcels.
Ranunculaceae	Western red columbine (Aquilegia elegantula)		Forested slope, northern parcel.
Graminoids			
Poaceae	Blue grama (<i>Bouteloua</i> <i>gracilis</i>)		Abundant throughout northern and southern parcels.
	Sideoats grama (Bouteloua curtipendula)	_	Common throughout northern and southern parcels.
	Scribner's needlegrass (Achnatherum scribneri)		Common throughout northern and southern parcels.
	Rice grass (Achnatherum hymenoides)	_	Uncommon, observed in southern parcel.
	Nodding brome (Bromus anomalus)		Uncommon, observed in southern parcel.
	Purple three-awn (Aristida purpurea var. longiseta)	_	Common throughout northern and southern parcels.
	Little bluestem (Schizachyrium scoparium)	_	Common throughout northern and southern parcels.



Table 1.Flora Observed During Biological Survey
Page 3 of 4

	Common	NM Noxious	
Family	Name/Scientific Name	Class	Abundance/Location
Graminoids (cont.)		1	
Poaceae (cont.)	Fescue (<i>Festuca</i> spp.)	—	Common in forested areas and in canyon bottoms of the northern and southern parcels.
	Western wheatgrass (Pascopyrum smithii)	_	Common throughout northern and southern parcels.
	Mountain muhly (<i>Muhlenbergia</i> <i>montana</i>)	_	Common throughout northern and southern parcels.
Forbs			
Asteraceae	Hoary aster (Dieteria canescens)	_	Uncommon, observed in northern parcel.
	Three-nerved daisy (Erigeron subtrinervis)	_	Uncommon, observed in northern parcel.
	Narrow goldenrod (Solidago simplex)	_	Uncommon, primarily observed in canyon bottoms southern and northern parcels.
	Snakeweed (Gutierrezia sarothrae)	_	Common, scattered throughout northern and southern parcels, drier slopes.
	Gumweed (Grindelia hirsutula)	_	Uncommon, northern and southern parcels.
	Wavy-leafed thistle (Cirsium undulatum)		Observed in one upland area in the northern parcel.
	Prairie sagewort (Artemisia frigida)	_	Common, northern and southern parcels.
	Yarrow (Achillea millefolium)	_	Common throughout northern and southern parcels.
	Sandsage (Artemisia filifolia)	_	Uncommon, drier and disturbed areas, northern and southern parcels.
Liliaceae	Nodding onion (Allium cernuum)	_	One location, northern parcel.
	Wild iris (<i>Iris</i> missouriensis)	_	Uncommon, canyon bottom, southern parcel.
Convolvulaceae	Field bindweed (Convolvulus arvensis)	_	Uncommon, bottom of main valley of Yankee Canyon



Table 1.Flora Observed During Biological Survey
Page 4 of 4

		NM Noxious	
	Common	Weed	
Family	Name/Scientific Name	Class	Abundance/Location
Forbs (cont.)			
Fabaceae	Yellow clover (<i>Melilotus</i> officinalis)	_	Uncommon, southern parcel.
	Spurred Iupine (<i>Lupinus</i> <i>caudatus</i> ssp. <i>argophyllus</i>)	_	Uncommon, bottom of main valley of Yankee Canyon.
Scrophulariaceae	Woolly mullein (Verbascum thapsus)		Common throughout northern and southern parcels.
Polygonaceae	James' wild buckwheat (<i>Eriogonum jamesii</i>)		Common throughout northern and southern parcels.
Amaranthaceae	Lambsquarters (Chenopodium album)		Uncommon, northern parcel.
Ranunculaceae	Virgin's bower — Uncommon, valley bottor (<i>Clematis ligusticifolia</i>)		Uncommon, valley bottom, southern parcel.
Lamiaceae	Field mint (<i>Mentha arvensis</i>)	_	Uncommon, valley bottom, southern parcel.
Berberidaceae	Creeping Oregon grape (<i>Mahonia repens</i>)		Uncommon, valleys and forested slopes, northern and southern parcels.
Cyperaceae	Meadow sedge (<i>Carex</i> microptera)		One location at dripping spring, canyon bottom, southern parcel.
Succulents			
Cactaceae	Plains prickly pear (<i>Opuntia polyacantha</i>)	_	Common on drier slopes and meadows, northern and southern parcels.
	Hedgehog (<i>Echinocereus</i> spp.)	_	Uncommon, drier meadows, northern and southern parcels.
Agavaceae	Soapweed yucca (<i>Yucca glauca</i>)	—	Uncommon, drier, south-facing meadows, southern parcel.
	Banana yucca (Yucca baccata)		Uncommon, drier, south-facing meadows, southern parcel.



Table 2.Fauna Observed During Biological Survey
Page 1 of 2

Class	Family	Species
Invertebrates	Pieridae	Clouded sulphur butterfly (Colias philodice)
	Nymphalidae	Painted lady butterfly (Vanessa cardui)
	Romaleidae	lubber grasshopper (Romalea sp.)
	Erotylidae	Blue fungus beetle (Cypherotylus californicus)
Reptiles	Phrynosomatidae	Prairie lizard (Sceloporus undulatus)
		Short-horned lizard (Phrynosoma douglash)
Birds	Tyraniidae	Townsend's solitaire (Myadestes townsendi)
		Say's phoebe (Sayornis saya)
	Turdidae	American robin (Turdus migratorius)
		Western bluebird (Sialia mexicana)
	Emberizidae	Spotted towhee (Pipilo maculatus)
		Dark-eyed junco (Junco hyemalis)
	Corvidae	Common raven (Corvus corax)
		Woodhouse's scrub jay (Aphelocoma woodhouseii)
		Steller's jay (Cyanocitta stelleri macrolopha)
		Black-billed magpie (Pica hudsonia)
	Fringillidae	Lesser goldfinch (Spinus psaltria)
	Aegithalidae	American bushtit (Psaltriparus minimus)
	Picidae	Northern flicker (Colaptes auratus)
		Downy woodpecker (Picoides pubescens)
	Sittidae	White-breasted nuthatch (Sitta carolinensis)
	Paridae	Mountain chickadee (Poecile gambeli)
		Black-capped chickadee (Poecile atricapillus)
	Phasianidae	Wild turkey (Meleagris gallopavo)
	Accipitridae	Red-tail hawk (Buteo jamaicensis)
		Cooper's hawk (Accipiter cooperii)
Mammals	Cervidae	Mule deer (Odocoileus hemionus)
		Elk (Cervus canadensis nelsoni)
	Canidae	Coyote (Canis latrans)
	Sciuridae	Rock squirrel (Otospermophilus variegatus)
		Least chipmunk (Neotamias minimus)
	Ursidae	Black bear (Ursus americanus)



Table 2.Fauna Observed During Biological Survey
Page 2 of 2

Class	Family	Species	
Mammals	Leporidae	Mountain cottontail (Sylvilagus nuttallii grangeri)	
(cont.)	Geomyidae	Northern pocket gopher (Thomomys talpoides)	
	Bovidae	Domestic cow (Bos taurus)	



Table 3.Federally Listed Species Included in the Analysis and Likelihood of
Occurrence in the Project Area/Action Area, Page 1 of 2

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area and/or Action Area
Birds	Southwestern willow flycatcher (Empidonax trailii extimus)	FE	Habitat consists of dense riparian vegetation growing on saturated soils along rivers, streams, or other wetlands, where its diet consists primarily of insects. Vegetation includes dense growth of willows (<i>Salix</i> spp.), arrow weed (<i>Pluchea sericea</i>), alder (<i>Alnus</i> spp.), and saltcedar (<i>Tamarix ramosissima</i>).	Unlikely to occur in the Project Area/Action Area, which do not contain any dense riparian vegetation, saturated soils, or surface water.
	Mexican spotted owl (<i>Strix occidentalis</i>)	FT	Primarily within shaded, mesic, and cool canyons with steep sides that have mixed conifer, pine-oak, and riparian forest types. Forests used for roosting or nesting often contain moderate to high canopy closure, a wide range of tree sizes suggestive of uneven-age stands, large overstory trees of various species, and high plant species richness with adequate levels of residual plant cover to maintain fruits, seeds, and regeneration to provide for the needs of prey species for the owl. In New Mexico, occurs in mountain ranges in the western two- thirds of the state; not recorded east of the Sangre de Cristo in the northern part of the state,	Unlikely to occur in the Project Area/Action Area. Yankee Canyon is outside the distribution of the Mexican spotted owl
	Piping Plover (Charadrius melodus)	FT	Piping plovers breed along ocean shores in the Northeast and along lakeshores and alkali wetlands in the northern Great Plains and Great Lakes. They, at all times, occur on sandflats or along bare shorelines of rivers, lakes, or coasts.	Unlikely to occur in the Project Area/Action Area, which do not contain any sandflats, bare shorelines of rivers, lakes, or coasts.



Table 3.Federally Listed Species Included in the Analysis and Likelihood of
Occurrence in the Project Area/Action Area, Page 2 of 2

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area and/or Action Area
Mammals	New Mexico meadow jumping mouse (<i>Zapus hudsonius luteus</i>)	FE	Habitat specialist using persistent emergent herbaceous wetlands and scrub-shrub wetlands on wet soil along perennial streams. Also uses patches of herbaceous vegetation dominated by sedges along water edges within willow and alder dominated habitats.	Unlikely to occur in the Project Area/Action Area, which do not contain emergent herbaceous wetlands, scrub-shrub wetlands, or willow and alder habitat containing sedges.
Reptiles	None			
Amphibians	None			
Fish	Rio Grande cutthroat trout Oncorhynchus clarkii virginalis	FC	The Rio Grande cutthroat trout is a subspecies of cutthroat trout, endemic to the Rio Grande, Pecos, and possibly the Canadian River Basins in New Mexico and Colorado.	Unlikely to occur in the Project Area/Action Area, which do not contain any surface water.
Invertebrates	Monarch butterfly (<i>Danaus plexippus</i>)	FC	During breeding and migration, adult monarchs require a diversity of blooming nectar resources, which they feed on throughout their migration routes and breeding grounds (spring through fall). Monarchs also need milkweed (for both oviposition and larval feeding) embedded within this diverse nectaring habitat. The correct phenology, or timing, in the life cycle of monarchs and blooming of nectar plants and milkweed is important for monarch survival. There are two migrating populations, eastern and western. New Mexico contains spring breeding areas primarily in the eastern third of the state (USFWS, 2020).	There is a low potential for the monarch butterfly to occur within the Project Area and/or Action Area. Yankee Canyon is located within the eastern third of the state where spring breeding areas have been documented. However, the potential for milkweed plant species to be present is low. No milkweed was observed during the site survey.

FE = Federal endangered

FT = Federal threatened

FC = Federal candidate



Table 4.Non-Federal Special-Status Species Identified for Project Area and/or
Action Area, Page 1 of 6

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Plants ^a	One-flowered milkvetch (Astragalus wittmannii)		The one-flowered milkvetch is endemic of northeastern New Mexico, where it is found in Greenhorn limestone hills and knolls in shortgrass prairie at 5,900 to 6,600 feet.	Unlikely to occur in the Project Area. The Project Area is not within Greenhorn limestone hills and knolls.
	Pecos mariposa lily (Calochortus gunnisonii var. perpulcher)		The Pecos mariposa lily is found in meadows and aspen glades in upper montane coniferous forest at 9,500 to 11,200 feet.	Unlikely to occur in the Project Area. The Project Area is outside of the elevational range for the species.
	Yellow lady's slipper (Cypripedium parviflorum var. pubescens)		Mesic deciduous and coniferous forest, openings, thickets, prairies, meadows, fens. In New Mexico sporadic in moist conifer forests, at elevations between 5,750 and 11,000 ft.	Unlikely to occur in the Project Area. As a result of the Track Fire in 2011, most of the Project Area has transitioned to drier, warmer habitat with much less conifer forest.
	Robust larkspur (<i>Delphinium</i> <i>robustum</i>)		The robust larkspur is found in canyon bottoms and aspen groves in lower and upper montane coniferous forest at 7,200 to 11,200 feet.	Unlikely to occur in the Project Area. The Project Area contains canyon bottoms; however, the canyon bottoms are dry, and there are no aspen groves. The Project Area contains much less coniferous forest due to the 2011 Track Fire.
	Sapello Canyon larkspur (<i>Delphinium</i> sapellonis)		The Sapello Canyon larkspur is found in canyon bottoms and aspen groves in lower and upper montane coniferous forest at 2,450 to 3,500 m (8,000 to 11,500 feet)	Unlikely to occur in the Project Area. The Project Area contains canyon bottoms; however, there are no aspen groves and the Project Area is outside of the species' elevational range.



Table 4.Non-Federal Special-Status Species Identified for Project Area and/or
Action Area, Page 2 of 6

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Plants ^a (cont.)	Cimarron wild buckwheat (<i>Eriogonum</i> <i>aliquantum</i>)		The Cimarron wild buckwheat is presently known only from the Cimarron, Vermejo, and Canadian River basins where the shortgrass prairie meets the foot of the Sangre de Cristo Mountains. Dry, eroded, shaley slopes with stands of low shrubs in otherwise shortgrass steppe or low, clayey flats in alkali sacaton (<i>Sporobolus airoides</i>) grassland at 6,000 to 6,700 feet.	Unlikely to occur in the Project Area. The Project Area is not within dry, eroded, shaley slopes and is outside of the elevational range for the species.
	Spiny aster (<i>Eurybia horrida</i>)		Sandy shales on mountain and canyon slopes, from upper montane conifer forest down to juniper savanna; often associated with oak scrub; (4,100 to 10,700 feet). This species has great ecological amplitude occurring on dry, south-facing slopes in high mountains and shaded, north-facing slopes at low elevations.	There is a potential for the spiny aster to be present in the Project Area. However, the species was not observed during the biological survey.
	New Mexico stickseed (<i>Hackelia hirsuta</i>)		The New Mexico stickseed is found on dry sites of shaley or igneous soils in lower to upper montane coniferous forest, usually with Gambel oak at 7,700 to 10,200 feet.	There is a potential for the New Mexico sitckseed to be present in the Project Area. However, the species was not observed during the biological survey.
	Wood lily (<i>Lilium</i> philadelphicum var. andinum)		Moist woodlands and meadows in mixed conifer forests and canyon bottoms, between 7,550 and 10,000 feet.	Unlikely to occur in the Project Area. Most of the Project Area has transitioned to drier, warmer habitat with much less conifer forest habitat due to the large scale forest fire in 2011. Canyon bottoms contain almost no surface water/ moist habitat.
	San Juan Mountains Starwort (<i>Stellaria</i> sanjuanensis)		The San Juan Mountains Starwort is narrowly restricted to dry, exposed alpine scree slopes of usually volcanic origin.	Unlikely to occur in the Project Area. The Project Area does not overlap with any alpine scree slopes.



Table 4.Non-Federal Special-Status Species Identified for Project Area and/or
Action Area, Page 3 of 6

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Mammals	Least shrew (Cryptotis parvus)	ST	The least shrew is restricted to damp, mesic areas, such as the borders of streams or lakes, within otherwise relatively arid habitat.	Unlikely to occur in the Project Area. The Project Area does not contain streams or lakes.
	Pacific marten (<i>Martes caurina</i>)	ST	The Pacific marten prefers late successional stands of mesic, conifer- dominated forest. Optimum habitat appears to be mature old-growth spruce-fir communities with more than 30 percent canopy cover, well- established understory of fallen logs and stumps, and lush shrub and forb vegetation supporting microtine and sciurid prey. Their elevational range is from 7,000 to 13,000 feet, primarily above 9,000 feet. The species' distribution consists of disjunct areas in Rio Arriba, Taos, and Santa Fe, as well as extreme western Colfax, Mora, and San Miguel counties (Cartron and Frey, in press)	Unlikely to occur in the Project Area. The Project Area is outside the species' distribution
	New Mexico meadow jumping mouse (Zapus hudsonius luteus)	SE/FE	Habitat specialist using persistent emergent herbaceous wetlands and scrub-shrub wetlands on wet soil along perennial streams. Also uses patches of herbaceous vegetation dominated by sedges along water edges within willow and alder dominated habitats.	Unlikely to occur in the Project Area. The Project Area does not contain emergent herbaceous wetlands, scrub-shrub wetlands, or willow and alder habitat containing sedges.
Birds	Piping Plover (Charadrius melodus)	ST/FT	Piping Plovers breed along ocean shores in the Northeast and along lakeshores and alkali wetlands in the northern Great Plains and Great Lakes. They, at all times, occur on sandflats or along bare shorelines of rivers, lakes, or coasts.	Unlikely to occur in the Project Area. The Project Area does not contain any sandflats, bare shorelines of rivers, lakes or coasts.



Table 4.Non-Federal Special-Status Species Identified for Project Area and/or
Action Area, Page 4 of 6

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Birds (cont.)	White-tailed ptarmigan (<i>Lagopus leucura</i>)	SE	This species presently is resident in the Sangre de Cristo Mountains, where populations occur on Costilla, Latir, Wheeler, Truchas, and associated peaks.	Unlikely to occur in the Project Area. The Project Area is not within the elevational range of the species in New Mexico.
	Least tern (Sternula antillarum)	SE	This species uses sandbars, beaches, and spits in coastal areas. In New Mexico and other parts of the southern Great Plains, alkali flats are selected as nesting areas.	Unlikely to occur in the Project Area. The Project Area does not contain beaches, sandbars, or alkali flats.
	Neotropic cormorant (Phalacrocorax brasilianus)	ST	The cormorant is found within lakes and river systems.	Unlikely to occur in the Project Area. The Project Area does not overlap with any major river systems or lakes.
	Brown pelican (Pelecanus occidentalis)	SE	The brown pelican occurs near river systems, lakes, stream and canals.	Unlikely to occur in the Project Area. The Project Area does not overlap with any major river systems, canals or lakes.
	Bald eagle (Haliaeetus leucocephalus)	ST	The bald eagle is usually found along seacoasts, lakes, and rivers. Nesting sites are usually isolated high in trees, on cliffs, or on pinnacles.	Unlikely to occur in the Project Area. The Project Area is not located near any seacoasts, lakes, or rivers.
	Common black hawk (Buteogallus anthracinus anthracinus)	ST	The black hawk is found within forested habitat along permanent streams	Unlikely to occur in the Project Area. The Project Area contains no riparian forest.
	Boreal owl (Aegolius funereus)	ST	The boreal owl inhabits old growth forests of spruce-fir primarily within the Rocky Mountain range.	Unlikely to occur in the Project Area. The Project Area is not within old- growth spruce-fir mountain forests



Table 4.Non-Federal Special-Status Species Identified for Project Area and/or
Action Area, Page 5 of 6

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area		
Birds (cont.)	Peregrine falcon (<i>Falco peregrinus</i>)	ST	Habitat of the peregrine falcon is primarily located in open wetlands near cliffs. In New Mexico, the breeding territories center on cliffs that are in wooded/forested habitats with large "gulfs" of air nearby in which these predators can forage.	Unlikely to occur in the Project Area. The Project Area is not within an area that contains cliffs near wetlands.		
	Southwestern willow flycatcher (<i>Empidonax trailii</i> <i>extimus</i>)	FE, SE	Habitat for the southwestern willow flycatcher consists of dense riparian vegetation growing on saturated soils along rivers, streams, or other wetlands, where its diet consists primarily of insects. Vegetation includes dense growth of willows (<i>Salix</i> spp.), arrow weed (<i>Pluchea sericea</i>), alder (<i>Alnus</i> spp.), and saltcedar (<i>Tamarix ramosissima</i>).	Unlikely to occur in the Project Area. The Project Area does not contain any dense riparian vegetation, saturated soils, or surface water.		
	Baird's sparrow (<i>Ammodramus</i> <i>bairdii</i>)	ST	The Baird's sparrow breeds in a fairly small geographic area of south-central Canada, Montana, and North and South Dakota. It winters on grasslands of the northern Mexican plateau, primarily in Chihuahua and Durango but including portions of bordering states. The winter range extends into small portions of southeast Arizona, southern New Mexico, and southwest Texas. In New Mexico, Baird's Sparrow has been found on Otero Mesa and in the Animas Valley, and may occur in other areas of suitable winter habitat, particularly in the southeast portion of state (NM Avian Conservation Partners, 2014; BISON-M, USGS distribution map).	Unlikely to occur in the Project Area. The Project Area is north of the known winter range of the Baird's sparrow and far outside the breeding distribution.		
Reptiles	None					
Amphibians	None					



Table 4.Non-Federal Special-Status Species Identified for Project Area and/or
Action Area, Page 6 of 6

Species	Species	Status		Potential for Presence in
Category	species	Status	Habitat Associations	Project Area
Fish	Southern redbelly dace (<i>Phoxinus</i> <i>erythrogaster</i>)	SE	The dace is found in the upper Mora River drainage, in Coyote Creek, and in the tributaries of Black Lake in Colfax and Mora counties	Unlikely to occur in the Project Area. The Project Area does not overlap with any of the tributaries occupied by the species, nor does it contain enough surface water to sustain fish populations.
	Suckermouth minnow (Phenacobius mirabilis)	ST	The suckermouth minnow is found in the Dry Cimarron River, the Canadian drainage (Cimarron to Conchas Lake), and in the upper Pecos River from Sumner Lake to Fort Sumner.	Unlikely to occur in the Project Area. The Project Area does not contain any streams or river systems.
Mollusks	Lake fingernailclam (<i>Musculium</i> <i>lacustre</i>)	ST	The southernmost occurrence of the lake fingernailclam is in the Sangre de Cristo Mountains, within Colfax County. It is known within a localized distribution in upper Clenegville Creek (T25N, R16E), southeast of Angel Fire.	Unlikely to occur in the Project Area. The Project Area is not within the known distribution of the fingernail clam.
	Star gyro snail (<i>Gyraulus crista</i>)	ST	The star gyro snail has been found only in Coyote Creek, which is a tributary of Black Lake in Colfax County.	Unlikely to occur in the Project Area. The Project Area is not near Coyote Creek or Black Lake.
Invertebrates	None			

^a Includes species on the New Mexico Rare Plants list for Colfax County and NMNHP.

SE = State endangered

ST = State threatened

FE = Federal endangered

FT = Federal threatened

Appendix A

Photographs





1. From County Road A25 looking north toward Project Area



2. View from County Road A25 northern parcel upslope to the west of burned habitat that has regenerated in gambel oak scrub, mixed with ponderosa pine that survived the 2011 fire.





3. View to northeast of non-burned forest habitat from CR A25, northern parcel



4. Wild turkey bone observed in northern parcel





5. View from northwest corner of the northern parcel looking east/northeast



6. Gambel oak shrub above coal waste piles, northern parcel





7. Coal waste piles, northern parcel, looking southeast



8. Old mining road, northern parcel





9. Main canyon bottom, eastern boundary, northern parcel



10. Mining structure with overgrown vegetation, south end of the northern parcel





11. View to southeast from old mining road located on the north side of the southern parcel



12. View upslope from old mining road located at north side of the southern parcel





13. View to west from old mining road, southern parcel



14. View to south from old mining road, toward the southern project area in the southern parcel, showing the extensive burned area from the 2011 forest fire with a dense vegetation cover of gambel oak and locust shrubs





15. Coal waste pile, southern parcel, looking south



16. Surface water from a dripping pipe, located on the north slope of the upper main canyon in the southern parcel





17. Dense vegetation in bottom of canyon below the dripping spring



18. Coal waste pile on the south slope above the canyon bottom where dripping spring is located





19. View to north from the southern parcel, southern end of the Project Area



20. Coal waste piles, far southern end of the Project Area





21. Old mining road, far southern end of Project Area (southern parcel)



22. View to west toward coal waste pile at the upper reach of the main canyon in the Project Area, southern parcel




23. View to south from the coal waste piles at the upper reach of the main canyon



24. View of the upper main canyon, southern parcel





25. View upstream in the main canyon, showing narrow-leaf cottonwoods and dry stream bed



26. Bottom of main canyon, midway, southern parcel





27. View of habitat showing typical stand-replacing effects from the 2011 Track Fire



28. Rock squirrel





29. Least chipmunk



30. Prairie lizard





31. Baby horned lizard



32. Bear paw print





33. Wavy-leaf thistle, northern parcel



Appendix B

U.S. Fish and Wildlife Information for Planning and Consultation Report





United States Department of the Interior

FISH AND WILDLIFE SERVICE New Mexico Ecological Services Field Office 2105 Osuna Road Ne Albuquerque, NM 87113-1001 Phone: (505) 346-2525 Fax: (505) 346-2542



In Reply Refer To: Project Code: 2022-0090377 Project Name: Yankee Canyon Reclamation September 29, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Thank you for your recent request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of New Mexico wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 et seq.), the Migratory Bird Treaty Act as amended (16 USC 701-715), and the Bald and Golden Eagle Protection Act as amended (16 USC 668-668(c)). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area, and to recommend some conservation measures that can be included in your project design.

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the ESA of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the ESA is to provide a means whereby threatened and endangered species and

the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the ESA and its implementing regulations (50 CFR 402 *et seq*.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (NEPA; 42 USC 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF.

Candidate Species and Other Sensitive Species

A list of candidate and other sensitive species in your area is also attached. Candidate species and other sensitive species are species that have no legal protection under the ESA, although we recommend that candidate and other sensitive species be included in your surveys and considered for planning purposes. The Service monitors the status of these species. If significant declines occur, these species could potentially be listed. Therefore, actions that may contribute to their decline should be avoided.

Lists of sensitive species including State-listed endangered and threatened species are compiled by New Mexico State agencies. These lists, along with species information, can be found at the following websites.

Biota Information System of New Mexico (BISON-M): www.bison-m.org

New Mexico State Forestry. The New Mexico Endangered Plant Program: <u>https://www.emnrd.nm.gov/sfd/rare-plants/</u>

New Mexico Rare Plant Technical Council, New Mexico Rare Plants: nmrareplants.unm.edu

Natural Heritage New Mexico, online species database: nhnm.unm.edu

WETLANDS AND FLOODPLAINS

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. These habitats should be conserved through avoidance, or mitigated to ensure that there would be no net loss of wetlands function and value.

We encourage you to use the National Wetland Inventory (NWI) maps in conjunction with ground-truthing to identify wetlands occurring in your project area. The Service's NWI program website, <u>www.fws.gov/wetlands/Data/Mapper.html</u>, integrates digital map data with other resource information. We also recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands.

MIGRATORY BIRDS

In addition to responsibilities to protect threatened and endangered species under the ESA, there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the Service (50 CFR 10.12 and 16 USC 668(a)). For more information regarding these Acts see https://www.fenws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a Federal nexus) or a Bird/Eagle Conservation Plan (when there is no Federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php. We also recommend review of the Birds of Conservation Concern list (https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php) to fully evaluate the effects to the birds at your site. This list identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent top conservation priorities for the Service, and are potentially threatened by disturbance, habitat impacts, or other project development activities.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 thereby provides additional protection for both migratory birds and migratory bird habitat. Please visit <u>https://www.fws.gov/</u>migratorybirds/pdf/management/executiveordertoprotectmigratorybirds.pdf for information

regarding the implementation of Executive Order 13186.

We suggest you contact the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding State protected and at-risk species fish, wildlife, and plants.

For further consultation with the Service we recommend submitting inquiries or assessments electronically to our incoming email box at <u>nmesfo@fws.gov</u>, where it will be more promptly routed to the appropriate biologist for review.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Mexico Ecological Services Field Office 2105 Osuna Road Ne Albuquerque, NM 87113-1001 (505) 346-2525

Project Summary

Project Code:2022-0090377Project Name:Yankee Canyon ReclamationProject Type:Surface Reclamation - CoalProject Description:Mine reclamation for historic coal miningProject Location:Surface Reclamation - Coal

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/@36.9503001,-104.34288256575209,14z</u>



Counties: Colfax County, New Mexico

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
New Mexico Meadow Jumping Mouse <i>Zapus hudsonius luteus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <u>https://ecos.fws.gov/ecp/species/7965</u>	Endangered
Birds NAME	STATUS
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <u>https://ecos.fws.gov/ecp/species/8196</u>	Threatened
Piping Plover Charadrius melodus Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <u>https://ecos.fws.gov/ecp/species/6039</u>	Threatened
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <u>https://ecos.fws.gov/ecp/species/6749</u>	Endangered

Fishes

NAME

Rio Grande Cutthroat Trout *Oncorhynchus clarkii virginalis* No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/920</u>

Insects

NAME

Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/9743</u>

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

STATUS

Candidate

STATUS

Candidate

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act^{1} and the Bald and Golden Eagle Protection Act^{2} .

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described <u>below</u>.

- 1. The <u>Migratory Birds Treaty Act</u> of 1918.
- 2. The <u>Bald and Golden Eagle Protection Act</u> of 1940.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <u>https://ecos.fws.gov/ecp/species/1626</u>	Breeds Dec 1 to Aug 31
Black Rosy-finch <i>Leucosticte atrata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9460	Breeds Jun 15 to Aug 31

NAME	BREEDING SEASON
Brown-capped Rosy-finch <i>Leucosticte australis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 15 to Sep 15
Cassin's Finch <i>Carpodacus cassinii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9462</u>	Breeds May 15 to Jul 15
Clark's Grebe <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Clark's Nutcracker <i>Nucifraga columbiana</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Jan 15 to Jul 15
Evening Grosbeak Coccothraustes vespertinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9408</u>	Breeds Apr 20 to Sep 30
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/3914</u>	Breeds May 20 to Aug 31
Pinyon Jay <i>Gymnorhinus cyanocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9420</u>	Breeds Feb 15 to Jul 15
Virginia's Warbler Vermivora virginiae This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9441</u>	Breeds May 1 to Jul 31
Western Grebe <i>aechmophorus occidentalis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/6743</u>	Breeds Jun 1 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the

FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ()

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

- 1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
- 2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
- 3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (=)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bald Eagle Non-BCC Vulnerable	+ 1 1	- I +]	- <mark> </mark> + +	•+ <mark> </mark> +	1+41	++ <mark>I</mark> +	<u> </u> +	<u> </u> +	11-1	++++		- 1 1 -
Black Rosy-finch BCC Rangewide (CON)	++++	+	• + • •	++++	+++++	++++	++++	++++	++-+	++++	-++	+1
Brown-capped Rosy-finch BCC Rangewide (CON)	++++	-+++	· + + +	++++	++++	┼┼┼┼	++++	++++	++++	++++	-++	+1
Cassin's Finch BCC Rangewide (CON)	++++	-+++	-+++	+	++++	+++	++++	++++	++-+		-++	-++
Clark's Grebe BCC Rangewide (CON)	++	+	-++	-+++	++#+	++++	++++	++++	++-+	++-+	-++	
Clark's Nutcracker BCC - BCR	+ • • •		-1++	- 1++	++++	++++	++++	++++	+ ++	+-++	-++	-++
Evening Grosbeak BCC Rangewide (CON)	· + + +		- +	++ <mark> </mark> +	++++	++++	++1	<mark>+ 1</mark>] +	1++		-++	-++
Lewis's Woodpecker BCC Rangewide (CON)	+ • ++		<mark> </mark> -++	++ <mark>+</mark> 1	11	1111	111	111	11-1	111	++·	•+1-+
Olive-sided Flycatcher BCC Rangewide (CON)	++	+	-++	-+++	++ +	11++	++++	++1,	++-+	+++		-++
Pinyon Jay BCC Rangewide (CON)	++++	-•• +	• • • •	•+1+	∎+∎∔	++++	++++	∎+++	++-+	++++	-++	+1
Virginia's Warbler BCC Rangewide (CON)	++++	+	-+++	++++	++	<u> </u> +		+111	+ -+	++++	-++	-++
Western Grebe BCC Rangewide (CON)	++	+	-++	+ <mark> </mark> +	1+11	+++	++++	++++	++-+	1-++	-++	

Additional information can be found using the following links:

- Birds of Conservation Concern <u>https://www.fws.gov/program/migratory-birds/species</u>
- Measures for avoiding and minimizing impacts to birds <u>https://www.fws.gov/library/</u> <u>collections/avoiding-and-minimizing-incidental-take-migratory-birds</u>
- Nationwide conservation measures for birds <u>https://www.fws.gov/sites/default/files/</u> <u>documents/nationwide-standard-conservation-measures.pdf</u>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS <u>Birds of Conservation Concern</u> (<u>BCC</u>) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the <u>Avian</u> <u>Knowledge Network (AKN)</u>. The AKN data is based on a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science datasets</u> and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (<u>Eagle Act</u> requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the <u>Rapid Avian Information</u> <u>Locator (RAIL) Tool</u>.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the <u>Avian Knowledge Network (AKN)</u>. This data is derived from a growing collection of <u>survey, banding, and citizen science datasets</u>.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the <u>RAIL Tool</u> and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point

within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

- 1. "BCC Rangewide" birds are <u>Birds of Conservation Concern</u> (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
- 2. "BCC BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
- 3. "Non-BCC Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the <u>Eagle Act</u> requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the <u>Northeast Ocean Data Portal</u>. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the <u>NOAA NCCOS Integrative Statistical</u> <u>Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic</u> <u>Outer Continental Shelf</u> project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the <u>Diving Bird Study</u> and the <u>nanotag studies</u> or contact <u>Caleb Spiegel</u> or <u>Pam Loring</u>.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to <u>obtain a permit</u> to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no

data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

IPaC User Contact Information

Agency:New Mexico Energy, Minerals, and Natural Resources DepartmentName:Julie KutzAddress:6020 Academy NECity:AlbquerqueState:NMZip:87109Emailjkutz@geo-logic.comPhone:505359103

Lead Agency Contact Information

Lead Agency: Office of Surface Mining

Appendix C

State Threatened/ Endangered Species Colfax County







Federal or State Threatened/Endangered Species Colfax

<u>Taxonomic Group</u>	<u># Species</u>	<u>Taxonomic</u>	<u>Taxonomic Group</u>				
Birds	12	Fish	-			2	
Lepidoptera; moths and butterflies	1	Mammals				5	
Molluscs	2						
	TOTAL SPEC	ES: 22					
Common Name	<u>Scientific Name</u>	<u>NMGF</u>	<u>USFWS</u>	Critical <u>Habitat</u>	<u>SGON</u>	<u>Photo</u>	
Least Shrew	Cryptotis parvus	Т			Y	<u>View</u>	
<u>Canada Lynx</u>	Lynx canadensis		Т			No Photo	
Pacific Marten	Martes caurina	Т			Y	<u>View</u>	
Black-footed Ferret	Mustela nigripes		E		Y	<u>View</u>	
Meadow Jumping Mouse	Zapus luteus luteus	E	E	Υ	Y	<u>View</u>	
White-tailed Ptarmigan	Lagopus leucura	E			Y	<u>View</u>	
Piping Plover	Charadrius melodus	Т	Т			No Photo	
Least Tern	Sternula antillarum	E			Y	<u>View</u>	
Neotropic Cormorant	Phalacrocorax brasilianus	Т			Y	<u>View</u>	
Brown Pelican	Pelecanus occidentalis	E				<u>View</u>	
Bald Eagle	Haliaeetus leucocephalus	Т			Y	<u>View</u>	
Common Black Hawk	Buteogallus anthracinus	Т			Y	<u>View</u>	
Mexican Spotted Owl	Strix occidentalis lucida		Т	Y	Y	<u>View</u>	
Boreal Owl	Aegolius funereus	Т			Y	<u>View</u>	
Peregrine Falcon	Falco peregrinus	Т			Y	<u>View</u>	
Southwestern Willow Flycatcher	Empidonax traillii extimus	E	E	Y	Y	<u>View</u>	
Baird's Sparrow	Centronyx bairdii	Т			Y	<u>View</u>	
Southern Redbelly Dace	Chrosomus erythrogaster	E			Y	<u>View</u>	
Suckermouth Minnow	Phenacobius mirabilis	Т			Y	<u>View</u>	
<u>Star Gyro</u>	Gyraulus crista	Т			Y	No Photo	
Monarch Butterfly	Danaus plexippus		С			<u>View</u>	
Lake Fingernaildam	Musculium lacustre	Т			Y	<u>View</u>	

Appendix D

BCI Report on Yankee Canyon Abandoned Mine Bat Surveys





то:	Lloyd Moiola Environmental Manager New Mexico EMNRD Santa Fe, New Mexico	Laurence D'Alessandro Project Manager New Mexico EMNRD Albuquerque, New Mexico
FROM:	<u>Subterranean Team, Bat Conserva</u> Dillon Metcalfe Subterranean Specialist Flagstaff, Arizona	ation International Shawn Thomas Subterranean Team Manager Olympia, Washington
SUBJECT:	Report on Yankee Canyon Aband	loned Mine Bat Surveys
SURVEY DATES:	November 17-18, 2021	

OVERVIEW:

This biological survey project assessed abandoned mines in Yankee Canyon, located on the flanks of Horse Mesa, east of Raton, New Mexico. All sites were surveyed by Bat Conservation International (BCI) staff following standardized protocols and safety procedures for providing subterranean mapping, biological data, and closure recommendations. Mapping efforts focused on accessible workings to determine proximity to road A-25 and a known subsidence in the middle of the roadway. The field project resulted in bat surveys being conducted on two distinct features, comprising two openings to the surface (Figure 1, Table 1). Bat habitat assessments and closure recommendations are provided for all features. A survey summary, full survey results, and a discussion of road A-25 can be referenced on the following pages.

ACKNOWLEDGEMENTS:

BCI wishes to thank Lloyd Moiola for initiating the project and for providing the scope of work and site inventory descriptions. Special thanks to Laurence D'Alessandro for providing on-site navigation, assistance locating features, and serving in the surface safety role during field work. Additional thanks to Yeny Maestas, ENMRD, for joining the crew in the field.

All surveys conducted by BCI Subterranean Team staff: Dillon Metcalfe and Bill Burger. This report was authored by Dillon Metcalfe.

Report and photos submitted February 18, 2021.



Figure 1: Overview Map of Project Area and Features Surveyed

Feature ¹	Closure	Live Bats ³	Bat Sign	Roost Function	Bat Habitat
	Recommendation ²		_		
Yankee Adit	BCWS	3 COTO	none	hibernaculum	Good
VanLaten01					
Yankee Adit	DCWS	none	none	none	Moderate
VanLaten02					

Table 1. Summary of bat survey results and closure recommendations.

¹Feature: A distinct feature may consist of a single opening, multiple openings interconnected via underground workings, or closely related surface workings. In the "Feature" column, distinct features are separated by solid lines, and associated openings of a feature are separated by dashed lines. A feature contains shared biological and habitat characteristics and is therefore described by a single survey, whereas closure recommendations are unique to each opening.

² Closure recommendations:	Bat-compatible Closures	No Action	
	BCAT – bat-compatible closure, any time	$\overline{LAI - leave}$ as is	
	BCCS – bat-compatible closure, cold season		
	BCWS – bat-compatible closure, warm season		
	CM – closure modification		
	Destructive Closures	Other Closure Type	
	DCAT – destructive closure, any time	AC – airflow closure	
	DCWS – destructive closure, warm season		
³ Bat species codes:	COTO – Townsend's big-eared bat (Corynorhinu.	s townsendii)	

SECTION 1: SURVEY SUMMARY

BIOLOGICAL SURVEY SUMMARY:

Biological surveys are focused on subterranean habitat, with a primary emphasis on bat use. Surveys attempt to identify bat species present, document other bat sign (e.g., guano, insect parts, roost staining), and determine roost function of the site. Additionally, surveys document other wildlife use of features, evident by live animals, scat, nests, etc. All bat and other wildlife observations inform habitat assessments and closure recommendations.

Bat Use:

Two distinct features¹ received comprehensive biological surveys. Both of these features offered some level of subterranean habitat with potential for bat use. One feature contained three hibernating bats. No other bat sign was observed.

Other Wildlife Use:

Other wildlife sign consisted of a small amount of packrat scat in VanLaten 2.

BAT HABITAT ASSESSMENT SUMMARY:

Bat habitat assessments are determined based on observed bats and bat sign, along with physical characteristics of the site such as complexity and extensiveness of workings, portal size and obstructions, ceiling textures that bats select for, hydrological activity (such as seasonal flooding) that may preclude bat use, and any additional observations that may influence bat use of the site. A bat habitat assessment is applied to each distinct AML feature, which may include multiple openings. See Appendix 2 for additional details on assessment classifications. Bat habitat assessments for this project are summarized in Table 2.

Bat Habitat Assessment	# Features
None	0
Poor	0
Marginal	0
Moderate	1
Good	1
Excellent	0
Unknown	0

Table 2. Bat habitat assessments for distinct AML features surveyed.

¹A distinct feature may consist of a single opening, multiple openings interconnected via underground workings, or closely related surface workings. Each distinct feature, including associated openings, contains shared biological and habitat characteristics and is therefore described by a single survey.

CLOSURE RECOMMENDATION SUMMARY:

Closure recommendations generally fall into bat-friendly or destructive closure categories and include a seasonal component that recommends the closure to occur either during the warm season, cold season, or at any time. A closure recommendation is provided for each individual opening of an AML feature. See Appendix 3 for additional details on recommendation classifications and Appendix 4 for guidance on conducting exclusion prior to closure. Closure recommendations for this project are summarized in Table 3.

Closure Recommendation	Code	# Openings
Bat-compatible Closure, Any Time	BCAT	0
Bat-compatible Closure, Cold Season	BCCS	0
Bat-compatible Closure, Warm Season	BCWS	1
Other Wildlife-compatible Closure	OWC	0
Destructive Closure, Any Time	DCAT	0
Destructive Closure, Warm Season	DCWS	1
Leave As Is	LAI	0
Closure Modification	СМ	0
Airflow Closure	AC	0

Table 3. Closure recommendations for AML openings surveyed.

APPENDICES:

Appendix 1 contains selected photos from this survey project. Appendix 2 describes bat habitat assessment classifications. Appendix 3 describes closure recommendation classifications. Appendix 4 provides guidance on bat exclusion methods when recommended for destructive closures.

SECTION 2: FULL SURVEY RESULTS

Unless otherwise noted, all features are driven in moderate- to good-quality rock (qualitative safety assessment), contain good air*, and exhibit minimal signs of post-mining human disturbance. All feature locations are listed as latitude and longitude (decimal degrees) in the WGS84 datum.

* Good air is defined as no alarm sounding on the Altair 4x Multi-gas Detector carried during all surveys. The detector measures four gases (oxygen, carbon monoxide, hydrogen sulfide, methane) and alarms for gas levels that fall outside of safe thresholds.

Feature: Yankee Adit VanLaten01 **Location:** 36.95887065, -104.34187169 **Date:** November 17, 2021

Observations: This feature is a straight adit with a short crosscut that leads to another crosscut parallel to the main adit. Total workings are 457' and together form a capitol "H" shape in plan view. The main adit is straight and wide and is 274' long to where it ends in collapse. It is very likely that this feature connected to the known historical workings of the Yankee Mine prior to this collapse. There are plentiful timber stulls fixed with intermittent porcelain knobs for electrical wire. 73' from the portal, a crosscut is driven 32' to the right, where it intersects another crosscut that is driven 89' in one direction and 63' in another. Three hibernating Townsend's big-eared bats were observed in various parts of the mine. No other wildlife sign was observed.

Bat Habitat: Good

Closure Recommendation: Bat-compatible Closure, Warm Season (BCWS)

Feature: Yankee Adit VanLaten02

Location: 36.95651851, -104.34240019

Date: November 17, 2021

Observations: This feature is a backfilled adit that has subsided. It can be identified by a piece of railroad rail that is stuck in the backfill material. The open subsidence is 2' wide and 1.5' high. 112' of workings were surveyed. The adit is driven straight for 55', where an unstable, collapsing area prevented further passage. A very large block of sandstone is precariously balanced on a single old stull, and passage would not be possible without pressing against the block in order to slide past. 29' from the face, a drift is driven to the left for 33' before ending in collapse.

Bat Habitat: Moderate

Closure Recommendation: Destructive Closure, Warm Season with exclusion.

Discussion of county road A-25: Attempts were made to find a connection between the subsidence and either of the accessible portals. Neither Yankee Adit 01 or Yankee Adit 02 connected to the subsidence via accessible subterranean workings. Both features ended in collapse before the large, historically documented workings could be reached. It is likely that the road overlays some historical excavation and that further subsidence is possible. Given the known extent of the historical mine, the road will likely need to be rerouted to the east and north. No major topographical obstacles appear to prevent this reroute, but extensive archeological resources in the vicinity of the portal should be considered before construction. The georeferenced map provided in Figure 1 of this report suggests that rerouting the road anywhere to the west would risk overlaying the historical workings that honeycomb the mesa.

APPENDIX 1

Selected photos from the field project. The full set of photos from all features was provided in digital form with this report.



Yankee Adit 01: Dillon examines the back for bats. BCI Photo by Bill Burger



Yankee Adit 01: A Townsend's big-eared bat roosts on the ribs. BCI Photo by Bill Burger



Yankee Adit 01: The coal seam is visible along the ribs. BCI Photo by Bill Burger



Yankee Adit 02: The dangerous section that prohibited passage. Note the large, rectangular white block balanced on a single old timber stull. BCI Photo by Bill Burger



Yankee Adit 02: Another view of the dangerous blockage. BCI Photo by Bill Burger


Yankee Adit 01: Much of the feature required crawling squeezes to negotiate. BCI Photo by Bill Burger



Yankee Adit 01: Dillon quietly crawls under a hibernating bat. BCI Photo by Bill Burger

APPENDIX 2

Bat Habitat Assessment Classifications

Bat habitat is assessed for each feature surveyed and describes the value of that feature for bat use. Determining bat habitat is the primary objective of surveys conducted by the BCI Subterranean Program. Survey of a feature results in seven possible bat habitat classifications: excellent, good, moderate, marginal, poor, no habitat, or unknown. Each of these classifications are described below.

Excellent Bat Habitat

Description

Excellent bat habitat is very rare amongst features surveyed. For a feature to be assessed as having excellent habitat, significant bat use, usually by colonies, must be documented. Typically, this occurs when a large single species roost (>20 bats) is identified using the feature for warm season aggregation, usually in conjunction with substantial guano piles. Bats present in lower numbers but representing multi-species use of three or more species also warrants an assessment of excellent habitat. Bats need not be present to identify excellent habitat, as obvious bat sign such as large guano piles, heavily scattered guano along flyways, and roost staining on ceilings are indicators of significant bat use. Major winter use by bats cannot be confirmed during warm season surveys, though features that exhibit cold temperatures, airflow, and a high diversity of microclimates and roosting habitat can be identified as sites with good potential for serving as hibernacula. Features offering excellent bat habitat usually exhibit striking internal complexity, with extensive workings and possibly multiple levels. Due to the extensiveness of underground workings, these features nearly always offer high quality rock habitat. Exceptions, however, include small features used as maternity sites. Feature stability should be good, with little concern for future collapse that could result in loss of the roost.

Closure Recommendation

Features with excellent bat habitat should nearly always be recommended for protection (exceptions include imminent collapse or other major safety hazards). To minimize disturbance while bats are using the feature for a critical life cycle phase, bat-friendly closures should occur during the opposite season of primary use. For example, closure of a feature that hosts a maternity colony should occur during the cold season, and closure of a feature that serves as a hibernaculum should occur during the warm season. For features with multiple entrances, closures should protect all openings that are either used for bat access or necessary to preserve airflow patterns.

Good Bat Habitat

Description

Good bat habitat is represented by features that contain clear signs of persistent bat use but do not exhibit the striking evidence of significant use by bat colonies. These features often support use by one or two species of bats that use the site as a day roost or night roost. Bat sign such as guano, either scattered or in small piles, and insect parts are common in these features. The internal workings usually exhibit moderate complexity, with rock habitat quality that meets the specific needs of day or night roosting bats, such as domes, drill holes, and/or a heavily featured back. Feature stability should be good, with little concern for future collapse that could result in loss of the roost.

Closure Recommendation

Features with good bat habitat should nearly always be recommended for protection (exceptions include imminent collapse or other major safety hazards). Bat-friendly closures can usually occur at any time of the year, as bat use of these sites is persistent but dispersed and does not represent significant use for warm season maternity colony aggregation or cold season hibernation. For features with multiple entrances, closures should protect all openings that are either used for bat access or necessary to preserve airflow patterns.

Moderate Bat Habitat

Description

Moderate bat habitat generally refers to features that exhibit some signs of minor bat use or have potential for bat use due to the level of complexity and/or stable microclimate offered within. Moderate habitat features are often occupied by one or two bats, possibly on a seasonal nature, but will not display any signs of significant bat use. Guano, if present, will be lightly scattered, or in no more than a few very small piles representative of solitary bats of a single species. Insect parts may also be present, indicating night roosting. Bat sign may also be completely absent from these features at the time of survey, either due to extremely limited bat use, suspected winter use that cannot be detected during a warm season survey, or feature conditions such as flooding that may cover or destroy evidence of bat use. Complexity of the feature will range from simple, if combined with other signs of bat use, to moderately complex. Feature stability should be relatively stable, and rock habitat quality should offer some level of suitable roosting surface.

Closure Recommendation

Features with moderate bat habitat fall into the "grey area" where bat use is not necessarily prominent enough to immediately warrant a protective closure, yet the possibility for increased future bat use exists. Generally, a bat-friendly closure should be recommended for features with moderate habitat in order to maintain a conservative approach to habitat protection. Furthermore, the context of the feature relative to the surrounding landscape may elevate its importance if few other suitable habitat options are available. Scenarios that may call for destructive closure recommendations on features that meet the criteria for moderate habitat include unstable internal conditions that suggest future collapse/destruction of the feature or areas in which the feature is eclipsed by numerous other features with superior habitat. If a destructive closure is recommended, it must be accompanied by bat exclusion prior to closure.

Marginal Bat Habitat

Description

Features designated marginal bat habitat generally lack bats and bat sign. Less commonly, these features may exhibit signs of very minor, infrequent use. A single bat may be present, but there may be no accompanying signs that would allow detection if the bat was absent. Guano and insect parts, if present, will be very sparsely scattered and require diligence for detection. Complexity of the feature will always be simple, with no substantial workings; however, these features are usually extensive enough to include a dark zone, and the entire feature is not visible from the portal or collar. Marginal features are often short, simple adits or blind and bald shafts. Feature stability can be stable, but often poor rock conditions contribute to marginal habitat. Rock habitat quality will generally be poor to fair, with less than ideal roosting surfaces.

Closure Recommendation

Features with marginal bat habitat are almost invariably recommended for destructive closure due to these features lacking bat sign and/or containing unstable conditions that threaten collapse. Given the possibility for bats to be present in these features, exclusion is required prior to closures occurring in the warm season when bats are active. In rare circumstances, a protective closure may be warranted to allow for the possibility of future bat use, especially if the feature represents one of the only subterranean habitat options in the area.

Poor Bat Habitat

Description

Features classified as poor bat habitat tend to be very small prospects that exhibit no signs of bat use. While these features offer some level of subterranean habitat, the workings are so limited as to offer no true dark zone and no area of stable subterranean microclimate. Usually, the entire feature will be visible from the portal or collar. These features are so small that structural stability is often quite good, but they may also be in a state of collapse. Rock habitat quality can range the entire spectrum, but this assessment is largely irrelevant in such small features that offer little physical area from which bats can select roosting spots that have a stable microclimate.

Closure Recommendation

Features with poor bat habitat are recommended for destructive closure. Due to the lack of bat sign or potential for future bat use, a "DCAT" recommendation is usually warranted on these features.

No Bat Habitat

Description

Assessing a feature as containing no bat habitat means no subterranean habitat is available. No underground workings are present at all, and the feature would present no option for bats to roost in subterranean environments. This scenario occurs for features that are totally collapsed, prospect scrapes, entirely and permanently flooded, or some other similar circumstance. This assessment is also appropriate for portals that are almost entirely sloughed closed and/or overgrown with vegetation such that bats would be unable to access the workings.

Closure Recommendation

With no subterranean component and thus no bat habitat, a "DCAT" recommendation is always warranted. For some features, though, especially those that contain no inherent hazard, a "Leave As Is" recommendation may be most appropriate. This recommendation is most applicable to prospect scrapes and pits that contain no headwall and may be largely overgrown.

Unknown Bat Habitat

Description

If an internal survey cannot be conducted, and underground workings are likely to exist based on observations from the surface, then bat habitat cannot be assessed. This usually occurs when the feature is not accessible due to safety concerns (e.g., wildlife hazards, rock or timber hazards) at the portal or collar. Often, looking into the feature from outside confirms that underground workings are present, though inaccessible. An unknown bat habitat assessment may also be appropriate for some partial internal surveys, when a survey is terminated underground due to safety concerns. In these instances, though, if extensive workings and/or bats and bat sign are observed prior to terminating the survey, then a higher bat habitat classification and feature protection are warranted.

Closure Recommendation

Closures of features with unknown bat habitat should follow conservative recommendations to minimize the possibility of destroying potentially important bat roosts. When possible, bat-friendly closures should be recommended for these features. In cases where destructive closures are more appropriate (e.g., collapse of feature is imminent), exclusion is required prior to closures occurring in the warm season when bats are active.

APPENDIX 3

Closure Recommendation Classifications

Closure recommendations are assigned to each opening of a distinct feature surveyed and prescribe the appropriate remediation strategy for the site. Bat use, other wildlife use, feature stability, and overall nature of the workings are considered when determining the closure recommendations. Survey of a feature usually results in recommendation of a bat-compatible closure or destructive closure for each opening, with a seasonal component to advise suitable timing of the closure. In some cases, openings may warrant other wildlife-friendly closures or recommendation of no action (leave as is). Each of these classifications are described below.

Bat-compatible Closures

Bat-compatible closures are recommended for openings to features that contain bats / bat sign and/or exhibit characteristics that indicate high potential for bat use. These features warrant protective closures to maintain the bat habitat within and allow for continued bat use. Batcompatible closures include a variety of methods that fall on a spectrum of high to low compatibility. No closure method is perfect for all bat species, but generally, gates designed to comply with bat-compatible specifications are preferred to 1) minimize the potential of disrupting current use patterns and 2) promote long-term access for bats and other wildlife. For openings that are unstable or present access challenges, construction of a standard bat gate may not be possible. In these instances, use of alternative methods such as culverts or cable nets may be the most feasible method; while these closure types are not ideal for bats and other wildlife, they may still facilitate moderate levels of access and habitat use and therefore present a suitable alternative to total habitat loss.

Three seasonal designations are used to recommend appropriate timing of bat-friendly closures:

- BCAT (Bat-compatible Closure, Any Time): "Any time" bat closures are recommended for openings to features in which overall bat use is relatively minor or not confined to any single season.
- BCCS (Bat-compatible Closure, Cold Season): Cold season bat closures are recommended for openings to features that display significant warm season use, typically by a maternity colony of bats. Closure is recommended to occur during the cold season to avoid disturbance of bat colonies, which could potentially lead to abandonment of the site.
- BCWS (Bat-compatible Closure, Warm Season): Warm season bat closures are recommended for openings to features that are documented as hibernacula or exhibit characteristics that indicate high potential for significant cold season use by hibernating bats. Closure is recommended to occur during the warm season to avoid disturbance of hibernating bats, which could potentially lead to bats arousing and burning critical energy reserves.

Airflow Closures

Airflow closures may be recommended for secondary openings to features with multiple openings that access habitat warranting protection. Independent, secondary openings often contribute to the microclimate and habitat suitability of the underground workings via air exchange but may not serve as important access points for wildlife. In these cases, it is appropriate to close these secondary openings in a way to maintain air exchange without preserving access to wildlife.

Other Wildlife-compatible Closures

Protection may also be recommended for openings to features that display significant use by wildlife other than, or in addition to, bats. These closure recommendations are relatively rare, and closure methods are dependent on type of wildlife use. Protection of features may be warranted for use by wildlife including, but not limited to, birds (e.g., owls, vultures), mammals (e.g., cats, foxes, porcupines, ringtails), and reptiles/amphibians (e.g., salamanders).

Closure Modifications

Closure modifications are recommended for existing closures such as bat gates or backfills that do not adequately protect or maintain habitat provided by the feature. In these cases, a modification to the existing closure is recommended to improve wildlife access to habitat assessed at the time of survey. Closure modifications are recommended to provide access to previously inaccessible habitat or to facilitate increased use of existing habitat. Seasonality is also considered in closure modification recommendations to advise suitable timing of the modification.

Destructive Closures

Destructive closures are recommended for openings to features that either offer no bat habitat, contain no evidence of bat use, or exhibit only minor, insignificant bat use. In some cases, destructive closures may also be recommended for secondary openings to features that are protected through bat-compatible closure of primary openings used for wildlife access. Two destructive closure designations are used to recommend appropriate measures based on possible bat use:

- DCAT (Destructive Closure, Any Time): These openings access features that exhibit no signs of bat use or potential for bats to be present and can be destructively closed without conducting exclusion, during any season. This recommendation may also be applied to secondary openings to features protected for wildlife habitat, provided that these openings do not serve any critical function in maintaining wildlife access or suitable habitat conditions.
- DCWS (Destructive Closure, Warm Season): These openings access features that either exhibit signs of minor, insignificant bat use or have the potential for bats to be present

during destructive closure. In some cases, other wildlife such as birds may be present, and these animals should also be excluded; alternatively, closure with bat exclusion may be timed for after the nesting season when birds are no longer using the feature. Using appropriate exclusion techniques on the features prior to closure is critical. Exclusion needs to be done during the warm season when bats are active and will be able to escape. See Appendix 5 and refer to "Managing Abandoned Mines for Bats," published by Bat Conservation International, for guidance on exclusion techniques.

No Action

"Leave as is" treatments are recommended for features that present no inherent safety concerns. A feature with this recommendation is generally either a prospect scrape/trench with no subterranean component, or the portal has completely collapsed, making the feature inaccessible.

APPENDIX 4

Exclusion Guidance as Excerpted from BCI's "Managing Abandoned Mines for Bats"

Timing of Exclusions

The exact timing of exclusions and site closures is best determined locally, given the variability in types of use by different species. As a general rule, bats must be active for exclusions to be effective, so all exclusions should be conducted outside of hibernation season. In general:

- The best time to implement exclusions and portal closures is during late summer or early fall, after cessation of maternity activities and before the onset of hibernation.
- Early-fall closures will best ensure a window for bats to find alternate hibernacula and will give females a full spring season to locate alternate maternity sites.

Exclusions for Destructive Closures

Regardless of the reason for a destructive closure of known or potential bat roosts, steps must be taken to ensure significant bat colonies are not destroyed as a direct result of closure activities. Managers should include adequate exclusions as a routine part of mine reclamation programs to minimize the risk of entombing bats in closed workings. Further, closures should be conducted immediately following exclusion to limit the chance of bats becoming reestablished in the mine. In general, these two guidelines can help determine whether exclusions should be conducted and how intense the exclusion effort should be.

Exclusions Not Required: Exclusions are generally not required if a mine does not offer potential bat habitat, as mutually agreed upon by all partners involved in the mine closure project.

Standard Exclusions: In general, exclusions are recommended at all mines that represent habitat for bats. Given the ephemeral and episodic use of some roosts, it is prudent to err on the side of caution and conduct standard exclusions efforts, especially if significant time has elapsed since biological assessments were conducted.

The use of one-inch mesh material (e.g., chicken wire, polypropylene or similar material) is most often used to exclude bats from a mine. Lighter-weight material may be used for remote mines that require physically transporting the material over long distances or rough terrain. Although this material is very effective for excluding bats, it may also entangle bats and other wildlife. Managers may need to develop a plan to periodically check exclusion materials at sites with large bat colonies or high use by other wildlife to prevent loss of entangled bats, amphibians, reptiles or birds.

Exclusion materials should be maintained for at least three nights prior to portal closure at mines that provide habitat and where little or no bat use has been detected. Simultaneously

covering all external openings with exclusion materials and leaving it in place for at least one week is an effective method for excluding most bat species from roosts. Difficulties in navigating through exclusion materials should cause bats to seek alternate roosts rather than continuing to access the mine through the wire.

For most species, simply spreading exclusion materials across portals will be sufficient to allow bats to exit a mine while effectively discouraging their return. However, not all bats in all roosts across all landscapes will respond in an identical manner. As a general rule, smaller colonies in areas where roosts are abundant tend to quickly abandon roosts after exclusion materials are installed. For example, exclusion materials left in place for three to five nights will usually cause small colonies of Townsend's big-eared bat roosting in small mines in Nevada to abandon the roosts.

END OF SURVEY REPORT

Appendix D

EJ Report







8 miles Ring Centered at 36.943830,-104.333600, NEW MEXICO, EPA Region 6

Approximate Population: 6,229

Input Area (sq. miles): 200.96

Yankee

Selected Variables	State Percentile	USA Percentile
Environmental Justice Indexes		
Particulate Matter 2.5 EJ index	29	0
Ozone EJ index	10	92
Diesel Particulate Matter EJ index*	5	0
Air Toxics Cancer Risk EJ index*	0	3
Air Toxics Respiratory HI EJ index [*]	0	2
Traffic Proximity EJ index	52	68
Lead Paint EJ index	80	85
Superfund Proximity EJ index	21	12
RMP Facility Proximity EJ index	0	0
Hazardous Waste Proximity EJ index	0	0
Underground Storage Tanks EJ index	78	84
Wastewater Discharge EJ index	0	0

EJ Indexes - The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.



*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.





8 miles Ring Centered at 36.943830,-104.333600, NEW MEXICO, EPA Region 6

Approximate Population: 6,229 Input Area (sq. miles): 200.96 Yankee



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0





8 miles Ring Centered at 36.943830,-104.333600, NEW MEXICO, EPA Region 6

Approximate Population: 6,229

Input Area (sq. miles): 200.96

Yankee

Selected Variables	Value	State Avg.	%ile in State	USA Avg.	%ile in USA
Pollution and Sources					
Particulate Matter 2.5 (µg/m ³)	4.76	5.54	23	8.67	0
Ozone (ppb)	52.9	56	7	42.5	90
Diesel Particulate Matter [*] (µg/m ³)	0.0161	0.198	4	0.294	<50th
Air Toxics Cancer Risk* (lifetime risk per million)	10	20	0	28	<50th
Air Toxics Respiratory HI*	0.1	0.23	0	0.36	<50th
Traffic Proximity (daily traffic count/distance to road)	190	510	41	760	45
Lead Paint (% Pre-1960 Housing)	0.51	0.18	88	0.27	74
Superfund Proximity (site count/km distance)	0.01	0.14	16	0.13	4
RMP Facility Proximity (facility count/km distance)	0.0083	0.24	0	0.77	0
Hazardous Waste Proximity (facility count/km distance)	0.007	0.81	0	2.2	0
Underground Storage Tanks (count/km ²)	11	3.3	92	3.9	90
Wastewater Discharge (toxicity-weighted concentration/m distance)	1.1E-06	3.5	13	12	9
Socioeconomic Indicators					
Demographic Index	52%	51%	53	35%	76
Supplemental Demographic Index	18%	17%	58	15%	71
People of Color	55%	63%	40	40%	70
Low Income	50%	39%	66	30%	80
Unemployment Rate	2%	7%	36	5%	36
Limited English Speaking Households	2%	5%	49	5%	63
Less Than High School Education	14%	14%	58	12%	67
Under Age 5	5%	6%	58	6%	55
Over Age 64	30%	17%	84	16%	88
Low Life Expectancy	20%	19%	62	20%	61

EJScreen is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJScreen outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.





8 miles Ring Centered at 36.943830,-104.333600, NEW MEXICO, EPA Region 6

Approximate Population: 6,229

Input Area (sq. miles): 200.96

Yankee

Selected Variables	State Percentile	USA Percentile
Supplemental Indexes		
Particulate Matter 2.5 Supplemental Index	32	0
Ozone Supplemental Index	8	90
Diesel Particulate Matter Supplemental Index*	4	0
Air Toxics Cancer Risk Supplemental Index*	0	2
Air Toxics Respiratory HI Supplemental Index*	0	1
Traffic Proximity Supplemental Index	54	64
Lead Paint Supplemental Index	81	82
Superfund Proximity Supplemental Index	20	6
RMP Facility Proximity Supplemental Index	0	0
Hazardous Waste Proximity Supplemental Index	0	0
Underground Storage Tanks Supplemental Index	77	81
Wastewater Discharge Supplemental Index	0	0

Supplemental Indexes - The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on low-income, limited English speaking, less than high school education, unemployed, and low life expectancy populations with a single environmental indicator.



This report shows the values for environmental and demographic indicators, EJScreen indexes, and supplemental indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. For additional information, see: www.epa.gov/environmentaljustice.

Appendix E

Agency Responses



Michelle Lujan Grisham Governor

Sarah Cottrell Propst Cabinet Secretary

Todd Leahy, JD, PhD Deputy Secretary

May 15, 2023

Greetings,

Albert Chang, Director Mining and Minerals Division



The Abandoned Mine Land (AML) Program is proposing to safeguard hazardous mine features at the former Yankee Mine and is in the process of evaluating measures that would best meet the purpose and need for the project. The project area is located approximately 8 miles northeast of the City of Raton, Colfax County, New Mexico, all on private and State Land Office lands (See attached map). County Road A-25 crosses the project area and is included in the safeguarding measures being proposed.

Daniel B. Stephens & Associates, Inc. has prepared the Draft Environmental Assessment (EA) for the proposed project on behalf of the AML Program. As part of the release of the Draft EA, we are inviting review of the EA from interested parties regarding potential environmental impacts resulting from implementation of the project.

To assist you in evaluating this project, please find the following attachments:

- Project Summary
- Location Map

A public meeting is scheduled for June 8, 2023 from 5:30 to 7:00 pm, to provide information regarding the project, and present findings of the Draft EA. Please find a meeting flyer attached for more information regarding the meeting. Please feel free to share the information with others who would also like to attend or who may be interested in learning more about the project.

The Draft EA and additional information regarding the project will be available at the following link: https://www.emnrd.nm.gov/mmd/public-notices/

Please simply reply to this email (jkutz@geo-logic.com) or by mail to Ms. Julie Kutz, Daniel B. Stephens & Associates, 6020 Academy NE, Albuquerque NM 87109-3315 with your comments or questions; or call 505-822-9400 to discuss. You may also contact James Hollen at: james.hollen@emnrd.nm.gov or (505) 231-8332 with questions, comments, or for more information.

We appreciate your input and thank you for your interest in the project.

Project Summary

Background

The New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD), Abandoned Mine Land (AML) Program, in partnership with the U.S. Department of Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), is proposing to safeguard hazardous abandoned mine features throughout the Yankee Canyon area (Project Area) located eight miles northeast of the City of Raton, Colfax County, New Mexico (Figure 1).

Mining was first conducted around Yankee Canyon, as well as the nearby Sugarite Canyon, in the early 1890s. Mining operations continued for over 40 years until the early 1940s, when mining was shut down in the area.

The Project Area consists of private land and state trust land administered by the New Mexico State Land Office. The area contains numerous historical mining features, many of which are hazardous and in need of safeguarding.

Project Description

The Yankee Canyon Safeguard Project (herein referred to as the Proposed Project) involves the implementation of safeguarding measures in the most dangerous locations of the Project Area with a focus on repair of a section of County Road (CR) A-25 where it passes through the Project Area. Safeguarding measures would include investigation and repair of subsidence on CR A-25, stabilization of steep slopes on coal gob piles, and the construction of structural barriers designed to restrict human access. Gates, cupolas, or other wildlife-compatible closures would be installed site-wide where the dangerous features are located.

Existing roads would be used wherever possible to access the mining features proposed for closure. Construction staging areas would be located near existing roads in areas that are already disturbed. The Proposed Project ground disturbance footprint would be focused on the identified hazardous mine features throughout the Project Area. Colfax County Roads A-25 and A-26 would serve as the main access roads, along with former two-track, unpaved mine roads that would serve as access to other areas situated away from the county roads. Existing disturbed and flat areas adjacent to the road may also be used for geotechnical drilling activities and staging of drilling, construction equipment and materials.

Implementation of the Proposed Project is anticipated to begin in the early fall 2023. The Proposed Project would be completed in phases, with the most critical work taking place first. The below table shows the phases and estimated timing of completion.

Phase	CR A-25	Structural Closures	Coal Waste (Gob) Piles	Approximate Timing of Completion	Public Accessibility During Construction
I	X	X (near CR A-25)	-	Up to 1 month	Access will be limited during work along CR A-25. All efforts will be made to accommodate local residential traffic, however there may be times when the road must be shut down.
II	-	Х	X (on at least state trust lands)	Up to 1 year	No limitations

Phase I

Phase I would investigate and repair areas on or adjacent to CR A-25 where subsidence features (tension cracks) have been identified along a section of the road. In addition, Phase I includes the safeguarding of several adits close to the road. Safeguarding hazardous mine openings and other features will be designed to allow for open access to, and continued use of, the mine features by smaller wildlife species, including bats.

Phase II

Phase II would consist of safeguarding the remaining adits and other hazardous features identified throughout the Project Area. Phase II would also include gob pile reclamation on state trust land and potentially on private land.

Phase I and II Project Details

The following describes the safeguarding measures in detail for the Proposed Project:

County Road A-25

Geotechnical exploration would be conducted by drilling to further characterize subsurface conditions and determine if the subsidence is related to underground mine workings. Backfilling through drilling and injection of a water, sand and cement grout mixture would then be completed to mitigate the areas of subsidence impacting the road. The grout mixture would be injected into the voids beneath and adjacent to the A-25 alignment. The grouting work may take place concurrently with the drilling investigation. The goal of drilling and grouting the CR

A-25 subsidence features is to map the voids under and near the road alignment and to fill those voids with grout to stop additional subsidence in the area and stabilize the road. The drill holes would be spaced every 30 feet along the A-25 alignment, with an increased drilling density of every 20 feet around the existing subsidence features.

Adits and Other Hazardous Mine Features

Gates: Gates would be installed over mine shafts and in mine adits or portals, as well as in other mine entryways where gates are determined to be the best method for blocking access to mine features. The gates would be designed in accordance with the latest industry standards and would be modified as necessary to fit the specific entryway, occasionally using steel culverts to support the gate. The basic gate design generally used consists of a vertical to horizontally placed flat grid of welded steel cross bars anchored in place over the mine entryway. The cross bars would be oriented horizontally and welded onto vertical supports spaced widely. Spacing of the horizontal cross bars would be 6 inches, designed to allow passage of bats in flight, as well as access for other small mammals and for birds, but not spaced widely enough to allow human entry. Gates are typically constructed of 2-inch by 4-inch and 2-inch-square tubular weathering steel that is anchored into the surrounding rock using 1-inch steel rods. Gates are designed to not inhibit air flow into or out of the mine feature and constructed of angled steel oriented with the apex up to maximize the airflow through the gate.

The gates would be installed at all features identified for closure that have been surveyed by Bat Conservation International (BCI) and documented for historical purposes (Okun 2023). Closure and construction timing will be in accordance with the recommendations of BCI. Any recommendations, such as pre-construction wildlife surveys, resulting from the BA/BE conducted in the Project Area (DBSA 2022) will be followed.

Rock/concrete bulkhead with culvert gate: At some locations, gates would consist of a bulkhead constructed of a 2- to 4-foot-thick section of rocks cemented together with concrete. A 3- to 4-foot steel culvert with a steel gate would be constructed inside.

Cupolas: Cupolas are a type of gate designed to fit over a vertical mine shaft. Bat-friendly cupolas may be installed over mine shafts if determined to be an appropriate measure for safeguarding a feature in the Project Area. Locations and construction timing will be in accordance with the recommendations of BCI and based on pre-construction surveys of wildlife usage of features.

Backfill: Some mine openings may be backfilled with adjacent coal gob or waste rock piles.

Other structural closures: Polyurethane foam (PUF) plugs, gated culverts, and other structures may be used to safeguard mine openings.

Coal Waste (Gob) Pile Reclamation

Stabilization of steep slopes on coal gob piles would be conducted in place to prevent mine waste from entering adjacent ephemeral channels. Proposed work would include in situ burial of coal gob or the establishment of vegetation and installation of various erosion control structures on the gob piles as necessary to facilitate effective stormwater management.









PUBLIC MEETING NOTICE Yankee Mine Safeguarding Project Raton, NM

Thursday, June 8, 2023, 5:30 – 7:00pm City of Raton Library, 244 Cook Ave., Raton, NM Draft Environmental Assessment Presentation



The Abandoned Mine Land (AML) Program invites you to a public meeting for the proposed safeguarding of the former Yankee Mine, including County Road A-25, located 8 miles northeast of Raton, NM. **Project Scope:** The New Mexico Energy, Minerals, and Natural Resources Department, AML Program, in partnership with the U.S. Department of Interior, Office of Surface Mining Reclamation and Enforcement is proposing to safeguard numerous hazardous abandoned mine openings/features throughout the former Yankee Mine area with a focus on destabilized areas of CR A-25, which traverses through the former mine site. **Public Meeting Purpose:** Coinciding with the release of the Draft Environmental Assessment (EA), the meeting is to give the public, area neighbors, and stakeholders the opportunity to learn more about the project. The findings of the EA will be discussed during the meeting.

ADA: To request Americans with Disabilities Act (ADA)-related accommodations for this meeting, contact Jean-Luc Cartron at (505) 822-9400 or <u>jcartron@geo-logic.com</u> at least two days before the public meeting. **Comments:** Comments/questions will be accepted and recorded at the meeting, or they can be submitted to <u>james.hollen@state.nm.us</u> or by phone (505-231-8332). Please submit comments by July 8, 2023.

From:	Zeller, Brook J
To:	Kutz, Julie
Cc:	Hollen, James, EMNRD; Cartron, Jean-Luc
Subject:	Re: [EXTERNAL] Draft EA for Yankee Canyon Safeguarding Project
Date:	Thursday, May 18, 2023 2:16:24 PM

Received, thank you Julie!

Brook Zeller

Environmental Protection Specialist OSMRE – Denver Field Branch Office: (303)-236-3980 Cell: (303)-874-8806 Email: bzeller@osmre.gov

From: Kutz, Julie <jkutz@geo-logic.com>
Sent: Wednesday, May 17, 2023 11:01 AM
Cc: Hollen, James, EMNRD <james.hollen@emnrd.nm.gov>; Cartron, Jean-Luc <jcartron@geo-logic.com>
Subject: [EXTERNAL] Draft EA for Yankee Canyon Safeguarding Project

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Good morning,

Please see the attached documents for an announcement of the release of the draft Environmental Assessment for a safeguarding project northeast of Raton, New Mexico. The project is being proposed by the New Mexico Abandoned Mine Land Program.

Thank you for your time and please let me know if you need more information. Julie

Julie Kutz

Biologist

Daniel B. Stephens & Associates, Inc. a Geo-Logic Company

6020 Academy NE, Suite 100 Albuquerque, New Mexico 87109-3315 Office: (505) 822-9400 | Direct: (505) 353-9103 | Mobile: (505) 715-9140 jkutz@dbstephens.com and jkutz@geo-logic.com

www.dbstephens.com | www.geo-logic.com

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Appendix F

Public Scoping Meeting Summary





Memorandum

To:	Lloyd Moiola and James Hollen,	Date:	March 30, 2023
	Abandoned Mine Land Program		
From:	Julie Kutz and Jean-Luc Cartron		
Subject:	Public Scoping Summary, Yankee Canyon Mine Safeguarding March 9, 2023 Public Meeting 1	g Project	

The New Mexico Energy Minerals and Natural Resources Department (EMNRD), Mining and Minerals Division (MMD), Abandoned Mine Land Program (AML) is in the process of preparing a draft environmental assessment (EA) for the Yankee Canyon Mine Safeguarding Project located east of the Town of Raton, New Mexico. A public meeting to provide information on the project, answer questions and receive input was conducted on March 9, 2023 at the City of Raton public library (Arthur Johnson Memorial Library), located at 244 Cook Avenue. This was the first meeting for the proposed project.

Public Meeting Outreach

Notification of the meeting was completed by the following methods (Attachment 1):

- Agencies and stakeholders were e-mailed and/or sent by regular mail an invitation flyer, project description, and project location map for the meeting on March 9, 2023.
- Newspaper announcements were run one time in English and Spanish in one newspaper: *The World Journal* (February 23, 2023). The advertisement was also set for publication on February 23, 2023 in *The Chronical News*; however, an error by the newspaper caused the announcements to not be published. Attachment 1 provides documentation from each publication.
- Radio public service announcements (PSAs) were provided to KRTN 93.9 FM for reading on their Community Meetings segment.
- Flyers (in Spanish and English) were posted at the Raton public library (Arthur Johnson Memorial Library).
- A meeting announcement, as well as reports related to the project, were posted on the AML website on or around February 20, 2023.



• The PowerPoint presentation was posted on the AML website following the March 9, 2023 meeting.

Public Meeting

The meeting was conducted at the Raton public library, second floor, on March 9, 2023 from 5:30 to 7:00 p.m. A PowerPoint presentation was given to describe the proposed project and its purpose and need, the National Environmental Policy Act (NEPA) process, and the upcoming draft EA, with an overview of the affected environment and resource topics, anticipated impacts, and mitigation measures (Attachment 2). Following the presentation, the meeting was opened up for questions and comments.

There were 12 attendees, including 6 private citizens, present at the meeting. One person attended the meeting virtually, through the Zoom[©] virtual meeting service. Questions or comments during the meeting were as follows:

- 1. Can you please explain what a gob pile is?
- 2. Most of us live/work near by the project area. Overall it is a great project; however, we worry about accessibility during construction on CR A-25.
- 3. Can you provide the schedule of construction?
- 4. How are gob piles reclaimed?
- 5. What is the contracting process?
- 6. What is the construction cost?
- 7. How long is the road segment?
- 8. How deep are the voids?
- 9. Is there before and after water quality sample data from Sugarite to review and see if gob pile reclamation has been effective?
- 10. Can water sampling be conducted at a spring on my property, located downstream of this project area?
- 11. Why was reclamation of Yankee Canyon not conducted at the same time as Sugarite Canyon?

Responses to these comments/questions are provided in Attachment 3.

DRAFT



Comments

The comment period was set to be from March 9, 2023 until April 9, 2023. There were a total of four comments received from private citizens. Responses are summarized in the table provided as Attachment 3. Comments received are provided in Attachment 4.

DRAFT

Attachment 1

Outreach Documentation





February 16, 2023

City of Raton Library 244 Cook Avenue Raton, NM 87740

Re: Public Meeting for Abandoned Mine Lands Program

Dear Sir or Madam:

We will be holding our public meeting at your library on the 9th of March and we would appreciate it if you can post the enclosed meeting notice in your library. I've included a few extra copies that you can hand out or post elsewhere. There are 2 versions, English and Spanish, if you don't mind please post one of each. I can also send more copies if needed.

Also, we will be arriving in Raton mid-afternoon and will check in at the library to make sure we are ready for the meeting. Can you refer me to who I will need to talk to for checking in? I've included my phone/email contact info below. We will have a PowerPoint presentation, what equipment will we need to bring? We can bring a laptop, projector and screen if necessary.

Thank you so much and thank you for letting us use your facility, we're looking forward to the meeting!

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

Julie Kutz Biologist

Office Phone: 505-353-9103; Cell phone: 505-715-9140 Email: jkutz@geo-logic.com

File Attachment: Meeting flyers

<u>r.com</u>
<u>JL</u>
cements
ry 20, 2023 9:35:00 AM
ments.docx

Good morning,

I'm attaching a meeting notice that I am hoping you can read on air as part of your public service announcements. If you could read it starting toward the end of this week and maybe a few times up until March 9, I would greatly appreciate it. I've included 2 versions, a shorter and longer, I wasn't sure if you have time constraints so which ever works better for you is fine. Please let me know if you need anything else from me.

Thank you so much! Julie

Julie Kutz

Biologist

Daniel B. Stephens & Associates, Inc. a Geo-Logic Company

6020 Academy NE, Suite 100 Albuquerque, New Mexico 87109-3315 Office: (505) 822-9400 | Direct: (505) 353-9103 | Mobile: (505) 715-9140 <u>jkutz@dbstephens.com and jkutz@geo-logic.com</u>

www.dbstephens.com | www.geo-logic.com

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Radio Announcement for KRTN Radio

(shorter version - about 23 seconds)

Learn about the Proposed Yankee Mine Safeguarding Project located 8 miles northeast of Raton. There will be a public meeting about the project on Thursday, March 9th from 5:30 to 7:00 PM at the City of Raton Library. For more information call (505) 353-9103.

(longer version – about 29 seconds)

The New Mexico Abandoned Mine Land Program is proposing a mine safeguarding project at the former Yankee Mine located 8 miles northeast of Raton. There will be a public meeting to discuss the project on Thursday, March 9th from 5:30 to 7:00 PM at the City of Raton Library, 244 Cook Avenue. For more information call (505) 353-9103.

From:	Lloyd Gum		
To:	Kutz, Julie		
Subject:	Re: Newspaper ad for public meeting		
Date:	Wednesday, March 8, 2023 12:11:42 PM		
Attachments:	image011.png		
	image012.png		
	image013.png		
	image014.png		
	image015.png		
	image016.png		
	image018.png		
	image019.png		
	image020.png		
	image021.png		
	Outlook-40tyotcu.png		
	Outlook-dakyhsdh.png		
	Outlook-ak3u3wzg.png		
	Outlook-h5atb4kt.png		
	Outlook-21idlck3.png		
	Outlook-Ow4qquot.png		
	media 99fe7e05-79a7-4508-aded-9a8f39bb3875.png		
	linkedin 7f3abc2e-1b0f-4e82-8338-0b0ca32179a9.png		
	facebook 44c4c80a-f481-419d-8f82-cc1987719370.png		
	Twitter32 99725968-8d22-4aa5-88a8-9f7f499c951a.png		

This is a response to the reason why the announcement about the Meeting on March 9th was sent in plenty of time to make the paper, Julie had received a proof and approved the ad, somehow the ad did not get placed in the paper, it was not a break down on Julie, she did everything to approve the ad for the paper, I am checking with our production department to find out why this ad did not run on the 23 and why it was not checked against our manifest of ads to run. I want to apologize for this misstate on our part, sincerely Lloyd Gum

Lloyd Gum | Multimedia Sales Executive

Kansas -Dodge Globe, Pratt Tribune, St. John News Kiowa Co. Signal, Del Suroeste (Spanish) Southwest Shopper Colorado-Ag Journal (E .Colo, W. Kan, N.NM), Bent Co Democrat, La Junta Tribune-Democrat Fowler Tribune, The Trinidad Chronicle-New.com

Cell 620-682-5558

LGum@cherryroad.com







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Lloyd Gum | Multimedia Sales Executive

Dodge City Daily Globe LGum@cherryroad.com



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From: Kutz, Julie <jkutz@geo-logic.com>
Sent: Tuesday, March 7, 2023 10:51 AM
To: Lloyd Gum <LGum@cherryroad.com>
Subject: RE: Newspaper ad for public meeting

Good morning Lloyd,

I'm just checking in to see if I can get the invoice for the ad publication and either the affidavit of publication or a copy of the page showing the ad (an e-tear?). Thank you, Julie

Julie Kutz

Biologist

Daniel B. Stephens & Associates, Inc. a Geo-Logic Company

6020 Academy NE, Suite 100 Albuquerque, New Mexico 87109-3315 Office: (505) 822-9400 | Direct: (505) 353-9103 | Mobile: (505) 715-9140 <u>jkutz@dbstephens.com and jkutz@geo-logic.com</u>

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From: Lloyd Gum <LGum@cherryroad.com>
Sent: Monday, February 20, 2023 7:37 AM
To: Kutz, Julie <jkutz@geo-logic.com>
Subject: Re: Newspaper ad for public meeting

You will receive a statement at the end of the month, thanks

Lloyd Gum | Multimedia Sales Executive

Kansas -Dodge Globe, Pratt Tribune, St. John News Kiowa Co. Signal, Del Suroeste (Spanish) Southwest Shopper Colorado-Ag Journal (E .Colo, W. Kan, N.NM), Bent Co Democrat, La Junta Tribune-Democrat Fowler Tribune, The Trinidad Chronicle-New.com

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Lloyd Gum | Multimedia Sales Executive

Dodge City Daily Globe LGum@cherryroad.com



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From: Kutz, Julie <jkutz@geo-logic.com>
Sent: Friday, February 17, 2023 3:49 PM
To: Lloyd Gum <LGum@cherryroad.com>
Subject: RE: Newspaper ad for public meeting

Hi Lloyd, That looks great, thank you for running it by me. Please let me know who I need to talk to for billing. Happy Friday! Julie

Julie Kutz Biologist

Daniel B. Stephens & Associates, Inc. a Geo-Logic Company

6020 Academy NE, Suite 100 Albuquerque, New Mexico 87109-3315 Office: (505) 822-9400 ¦ Direct: (505) 353-9103 ¦ Mobile: (505) 715-9140 jkutz@dbstephens.com and jkutz@geo-logic.com

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From: Lloyd Gum <LGum@cherryroad.com>
Sent: Friday, February 17, 2023 2:32 PM
To: Kutz, Julie <jkutz@geo-logic.com>
Subject: Re: Newspaper ad for public meeting

Proof

Lloyd Gum | Multimedia Sales Executive

Kansas -Dodge Globe, Pratt Tribune, St. John News Kiowa Co. Signal, Del Suroeste (Spanish) Southwest Shopper Colorado-Ag Journal (E .Colo, W. Kan, N.NM), Bent Co Democrat, La Junta Tribune-Democrat Fowler Tribune, The Trinidad Chronicle-New.com

Cell 620-682-5558

LGum@cherryroad.com





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Lloyd Gum | Multimedia Sales Executive

Dodge City Daily Globe



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permanently delete this message and its attachments. Thank you.

From: Kutz, Julie <jkutz@geo-logic.com>
Sent: Tuesday, February 14, 2023 10:49 AM
To: Lloyd Gum <LGum@cherryroad.com>
Cc: Cartron, Jean-Luc <jcartron@geo-logic.com>
Subject: Newspaper ad for public meeting

Good morning Lloyd,

Attached are 2 ads, one in English and one in Spanish, that we would like published on or near the 23rd of February (that puts our notice out 2 weeks before the meeting). I set the margins, I think, so that the ad is about 3.5"x5", one of the sizes we discussed. If I remember correctly that would be \$90 for each ad for a total of \$180? I will call you to discuss payment and any questions. Also, I'm including the pngs/jpg for the logos and the map in case you need them.

Thank you so much for your help.

Julie

Julie Kutz

Biologist

Daniel B. Stephens & Associates, Inc. a Geo-Logic Company

6020 Academy NE, Suite 100 Albuquerque, New Mexico 87109-3315 Office: (505) 822-9400 ¦ Direct: (505) 353-9103 ¦ Mobile: (505) 715-9140 jkutz@dbstephens.com and jkutz@geo-logic.com

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February 23, 2023

MCMC's high tech conference room

by Sharon Niederman RATON — The Feb. 17 meeting of Miners Colfax Medical Center Board of Trustees marked the board's inauguration of the hospital's new technicallyenabled acute care conference room. Intended for meetings, conferences, and special events, the state-of-the-art venue allows both audio and visual presentations to be experienced with clear, professional, high quality dynamics.

Gina Duran received the monthly Cares Act recognition for outstanding service as secretarial coordinator responsible for scheduling and interfacing with medical personnel, earning the respect of MDs for her reliable and hardworking efforts.

HR Director Barbara Duran reported on recruitment efforts designed to lower agency personnel dependence, setting a realistic goal of recruiting five personnel. Her department is working on creating clear job descriptions of the hospital's 260 employees' positions, is advertising daily on KRTN, and looking toward expanding advertising. To encourage staff's "involvement and communication" with each other, she is "trying to celebrate everything we can," such as monthly birthdays, national spaghetti day, national meatball day, Superbowl, and other fun events. Despite the departures of at least nine medical staff, many full and part-time positions have been filled, with the additions of ER physicians, a surgeon, a hospitalist, and more."We're in a good spot right now," Duran said.

CFO Lonny Medina reported MCMC has \$3.26 million in cash on hand, which translates at 30.7 days of operation in the bank, up 5.5% from this time last year. The cost of operating the hospital is \$110,000-\$115,000 per day. A legislative request of \$44.65 million is being made.

CEO Bo Beames said in his administrative report there has been a downturn of COVID cases, especially among employees. He announced the Federal public health emergency order will expire May 11, 2023. The hospital will be paying close attention and making a suitable response. Dr. Singleton of Long-Term Care

Dr. Singleton of Long-Term Care visited the potash miners in Carlsbad, NM with good response.

NM with good response. Beames also reported the Outreach team is "doing great" and reaching 32 miners in Questa and 35 in Kirtland, NM. The team is headed to Socorro and Utah.

Colfax County welcomes new deputies

by Lillian Eva Lieske RATON - On Feb. 16 Sheriff Leonard Baca of the Colfax County Sheriffs Office swore in the department's two newest deputies. Deputy Jonathan Hernandez and Deputy Steven Roble. Hernandez and Roble took their oath and signed their paperwork. **Both Deputy Hernandez** and Deputy Roble have experience in law enforcement. Both deputies used to be police officers in the small community of Springer, New Mexico. With a generous sign-on bonus of \$10,000 for new deputies in Colfax



Colfax County Sheriff Baca swears in the county's newest Deputies, Deputy Jonathan Hernandez and Deputy Steven Roble on Feb. 16. Photo courtesy of CCSO

County, the small areas, villages, and towns are seeing their law enforcement go to the county. Relocation and bonuses are drawing in more and more deputies to the Colfax County Sheriff's Office.



The Abandoned Mine Land (AML) Program invites you to a public meeting for the proposed safeguarding of the former Yankee Mine, including County Road A-25, located 8 miles northeast of Raton, NM.

Public Meeting Purpose: To give the public, area neighbors, and stakeholders the opportunity to learn about the project, ask questions, and provide input. ADA: To request Americans with Disabilities Act (ADA)-related accommodations for this meeting, contact jegg-jus (2007) at (505) 822-9400 or <u>contron Piece-logic com</u> at least two days before the public

meeting.



HEY TRINIDAD, WE'RE HIRING: APPLY TODAY FOR THE COLORADO STATE PATROL TROOPER ACADEMY!

The DVS Highly Rural Veterans Transportation Program

A program by the New Mexico Department of Veterans Services (DVS) providing FREE round-trip rides from a veteran's home...

WE BELIEVE IN MAKING A DIFFERENCE. APPLY BEFORE 5 P.M. ON MONDAY, MARCH 6





...to any medical appointments at VA facilities, or VA-approved non-VA facilities...

...for veterans living in the following 15 counties designated by VA as "highly rural":

Catron, Cibola, Colfax, De Baca, Guadalupe, Harding, Hidalgo, Lincoln, Mora, Quay, San Miguel, Sierra, Socorro, Torrance, Union



(actual transport vehicles)

Reservations must be made three days in advance for these FREE round trip rides by calling DVS at:

(505) 429-5906



This program is courtesy of the New Mexico Department of Veterans Services. It is funded in part by a grant from the U.S. Department of Veterans Affairs (VA). The opinions, findings and conclusions stated herein are those of DVS and do not necessarily reflect those of VA.

Yankee Canyon Mine Safeguarding Project Stakeholders

<u>NM State Land Office</u> Kyle Rose, PhD Assistant Director of Stewardship Surface Resources Division NM State Land Office 505-490-5704 (cell) 505-827-3827 (office) <u>krose@slo.state.nm.us</u>

<u>Colfax County Road Department</u> Colfax County Road Superintendent 207 Copper Ave, Raton, NM 87740 (575) 445-8292

<u>NM Dept of Cultural Affairs - SHPO</u> Historic Preservation Division NM Department of Cultural Affairs Bataan Memorial Building 407 Galisteo St., Suite 207 Santa Fe, NM 87501

<u>OSMRE</u>

Brook Zeller Environmental Protection Specialist OSMRE – Denver Field Branch Office: (303)-236-3980 Cell: (303)-874-8806 Email: bzeller@osmre.gov

<u>NM State Representative – House District 67</u> Representative Jack Chatfield <u>Jack.Chatfield@nmlegis.gov</u> 505-986-4467

<u>NM State Senator – Senate District 8</u> Senator Pete Campos <u>Pete.campos@nmlegis.gov</u> 505-986-4311

Newspaper Legal Notice/Flyer and Local Radio Announcements

Trinidad Chronicle-News <u>https://www.thechronicle-news.com/contact-us/</u> World Journal - Advertising: <u>debi.worldjournal@gmail.com</u>, <u>office.worldjournal@gmail.com</u> KRTN Radio (Enchanted Air Radio 575-445-3652 <u>krtnradio.com</u>; 93.9 FM & 1490 AM)

Yankee Canyon Area - adjacent landowners

Van L. Leighton 48 S ROGERS WAY GOLDEN CO 80401 vleighton@live.com

Steven Vukonich 155 Francis Ave. Raton, NM 87740

Rhet French 4 OAKBRIDGE DR PUEBLO CO 81001

Diane K. Berry 765 HIGHWAY 72 RATON NM 87740

MCAULIFFE RANCH CO PO BOX 1122 RATON NM 87740

Mike Begio & TESTAMENTARY TRUST 660 HIGHWAY 72 RATON NM 87740

Robert & Shirley Walton

MAILING RECORD:

1404 GARDNER RD RATON NM 87740

James S. Bennett PO BOX 1072 RATON NM 87740

Robert Louis Caldarelli 573 HIGHWAY 72 RATON NM 87740

Dr. Donald F. Belknap P.O. Box 1454 Raton, NM 87740

Non-Profit Organizations

New Mexico Wildlife Federation Headquarters: 3620 Wyoming Blvd NE, Suite 222 Albuquerque, NM 87111 Email: <u>nmwildlife@nmwildlife.org</u> Phone: 505-299-5404

Hard copy mailed Thursday, February 16, 2023 Five+ hard copies of fliers mailed to Raton Library on February 16, 2023 Emailed to 5 emails on Monday, February 20, 2023 Hard copy mailed to Dr. Donald Belknap on February 27, 2023 Did not email Van Leighton because we received his email address on March 1, 2023 and he had received his hard copy package. Michelle Lujan Grisham Governor

Sarah Cottrell Propst Cabinet Secretary

Todd Leahy, JD, PhD Deputy Secretary

February 16, 2023

Greetings,

Mike Tompson, Interim Director Mining and Minerals Division



The Abandoned Mine Land (AML) Program is proposing to safeguard hazardous mine features at the former Yankee Mine and is in the process of evaluating measures that would best meet the purpose and need for the project. The project area is located approximately 8 miles northeast of the City of Raton, Colfax County, New Mexico, all on private or State Land Office lands (See attached map). County Road A-25 crosses the project area and is included in the safeguarding measures being proposed.

Daniel B. Stephens & Associates, Inc. is currently preparing the Environmental Assessment (EA) for the proposed project on behalf of the AML Program. As part of the preparation of the EA, we are requesting input from interested parties regarding potential environmental impacts resulting from implementation of the project.

To assist you in evaluating this project, please find the following attachments:

- Project Summary
- Location Map

A public meeting is scheduled for March 9, 2023 from 5:30 to 7:00 pm, to provide information regarding the project, answer questions and gather input. Please find a meeting flyer attached for more information regarding the meeting. Please feel free to share the information with others who would also like to attend or who may be interested in learning more about the project.

Additional information regarding the project is available at the following link: <u>https://www.emnrd.nm.gov/mmd/public-notices/</u>

Please simply reply to this email (jkutz@geo-logic.com) or by mail to Ms. Julie Kutz, Daniel B. Stephens & Associates, 6020 Academy NE, Albuquerque NM 87109-3315 with your comments or questions; or call 505-822-9400 to discuss. You may also contact James Hollen at: <u>james.hollen@emnrd.nm.gov</u> or (505) 231-8332 with questions, comments, or for more information.

We appreciate your input and thank you for your interest in the project.

Project Summary

Background

Enacted on May 2, 1977 (amended in 2006), the Surface Mining Control and Reclamation Act (SMCRA) created the nationwide Abandoned Mine Land (AML) Reclamation Program. It places fees on active coal mines to fund the reclamation of coal mines abandoned before 1977. The Office of Surface Mining Reclamation and Enforcement (OSMRE) distributes funds to the state and tribal abandoned mine land programs, which rank abandoned mine land problems on a priority scale of 1 to 3 as defined by federal law. High priority reflects the degree of need for the protection of public health, safety, and property from the adverse effects of coal mining practices prior to 1977, including restoration of land, water, and the environment. The funds are also allowed for safety closures of mine sites other than coal mines if they have been determined to be a public safety hazard.

Mining was first conducted around Yankee Canyon, as well as the nearby Sugarite Canyon, in the early 1890s. Mining operations continued for over 40 years until the early 1940s, when mining was shut down in the area.

County Road A-25 traverses the slopes from the bottom of Yankee Canyon to the top of Horse Mesa, through the Project Area. The unpaved road appears to be experiencing a loss of bearing capacity due to historical mining activity in the area. Based on evidence of observed subsidence, the Colfax County Road Department has temporarily closed the road due to dangerous, unstable conditions for vehicle passage in this area.

No previous mine reclamation or safeguarding measures have been completed in the Project Area.

Project Description

The Proposed Action is designed to investigate and repair areas adjacent to County Road A-25 where subsidence features (tension cracks) have been identified along a section of the road. Geotechnical drilling will be performed to characterize subsurface conditions to determine if the subsidence is related to underground mine workings. The scope of work also includes safeguarding of other related hazardous mine openings and features identified throughout the Project Area, while allowing for open access and continued use of the mine features by smaller wildlife species, including bats. The following safeguarding measures are being evaluated for implementation in priority areas:

- *County Road A-25:* Geotechnical exploration and backfilling through drilling and injection of a water, sand and cement grout mixture are proposed to mitigate subsidence impacting the road. Grout would be injected into the voids beneath and adjacent to the A-25 alignment. The grouting work may take place concurrently with the drilling investigation. The goal of drilling and grouting the County Road A-25 subsidence features is to map the voids under and near the road alignment and to fill those voids with grout to stop additional subsidence in the area and stabilize the road. The drill holes would be spaced every 30 feet along the A-25 alignment, with an increased drilling density of every 20 feet around the existing subsidence features.
- *Gates:* Gates would be installed over mine shafts and in mine adits or portals, as well as in other mine entryways where gates are determined to be the best method for blocking access to mine features. The gates would be designed in accordance with the latest industry standards and would be modified as necessary to fit the specific entryway, occasionally using steel culverts to support the gate. The basic gate design generally used consists of a vertical to horizontally placed flat grid of welded steel cross bars anchored in place over the mine entryway. The cross bars would be oriented horizontally and welded onto vertical supports spaced widely. Spacing of the horizontal cross bars would be 6 inches, designed to allow passage of bats in flight, as well as access for other small mammals and for birds, but not spaced widely enough to allow human entry. Gates are typically constructed of 2-inch by 4-inch and 2-inch-square tubular weathering steel that is anchored into the surrounding rock using 1-inch steel rods. Gates are designed to not inhibit air flow into or out of the mine feature and constructed of angled steel oriented with the apex up to maximize the airflow through the gate.

The gates would be installed at all features identified for closure and surveyed by Bat Conservation International (BCI) and following recommendations provided in BCI's 2021 report conducted for the Project Area. Additional features may also be identified for safeguarding based on the results of an extensive cultural resources survey completed for the Project Area. Construction timing would be in accordance with the recommendations of the BCI report and any recommendations resulting from surveys of the Project Area performed for this BA/BE. Pre-construction wildlife surveys will also be performed as necessary prior to any destructive closures or the installation of safeguarding measures to inspect for wildlife usage of features prior to closure. In addition, on some adit and shaft openings within the open stopes of the Project Area, gates constructed and anchored as described above would be installed.

Rock/concrete bulkhead with culvert gate: At some locations, gates would consist of a bulkhead constructed of a 2- to 4-foot-thick section of rocks cemented together with concrete. A 3- to 4-foot steel culvert with a steel gate would be constructed inside.

- *Cupolas:* Cupolas are a type of gate designed to fit over a vertical mine shaft. Bat-friendly cupolas may be installed over mine shafts if determined to be an appropriate measure for safeguarding a feature in the Project Area. Locations and construction timing would be in accordance with the recommendations of the bat report by BCI (2021) and based on preconstruction surveys of wildlife usage of features.
- Backfill: Mine openings may be backfilled with adjacent coal gob or waste rock piles.
- *Other structural closures:* Polyurethane foam (PUF) plugs, gated culverts, and other structures may be used to safeguard mine openings.
- *Coal Gob Pile Reclamation:* Stabilization of steep slopes on coal gob piles may be needed to prevent mine waste from entering adjacent ephemeral channels. Proposed work may include in situ burial of coal gob or the establishment of vegetation and installation of various erosion control structures on the gob piles as necessary to facilitate effective stormwater management.

The Proposed Project ground disturbance footprint would be focused on the identified hazardous mine features throughout the Project Area. Colfax County Roads A-25 and A-26 would serve as the main access roads, along with former two-track, unpaved mine roads that would serve as access for geotechnical drilling activities and to access other areas situated away from the county roads. Existing disturbed and flat areas adjacent to the road may also be used for geotechnical drilling activities and staging of drilling, construction equipment and materials.

Implementation of the Proposed Action is anticipated to begin at the earliest in fall 2023.



Attachment 2

Public Meeting







Sign-in Sheet

Public Information Meeting

Yankee Canyon Mine Safeguarding Project

City of Raton Library, 244 Cook Ave., Raton, NM Thursday, March 9, 2023, from 5:30 pm to 7:00 pm

Name	Organization (if applicable)	Address	Email Address
Veny Maestas	AMC	Santa Fe	Veny maestas Demarduna
JULIEKUTZ	DB54.4		ikintz@, gen-Logi, com
James Hollen	AML	SAF	ames hollen Demnrdinm
Jortsje ? Don Belknap		350 Horse Mesa Road	Dforbes B & grail com
Pam Harkses	ME Aulite Kande	PO.BA 1122-KAAM	harkness Ram @ hot mail.
KATHRYNWEBB		422 5 7th	
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Yankee Canyon Mine Safeguarding Project Public Meeting 03/09/2023









Project Location









Project Area









Mine Features of Project Area









Project Purpose and Need

- Many of Yankee Mine's mine features are accessible to the public, yet many of them represent safety hazards.
- County Road A-25 shows evidence of subsidence likely caused by underground mining. For safety reasons, the road has been closed. There is a need to stabilize it before it can be reopened.
- Exposed gob piles can threaten water quality.
- The purpose of the project is to mitigate risks to public safety and environmental issues in the project area.







COUNTY ROAD A-25 SUBSIDENCE FEATURE

SCALE: NONE







Project Team

- Abandoned Mine Land Program: Mike Tompson, AML Program Manager, Yeny Maestas, Project Manager, Lloyd Moiola, Environmental Manager; James Hollen, NEPA Coordinator.
- Daniel B. Stephens & Associates: Jean-Luc Cartron, Project Manager/NEPA and Natural Resources Lead.
- Okun Consulting Solutions: Adam Okun, Cultural Resources Expert.







Supporting Studies

- Trihydro. 2023. County Road A-25 Subsidence, Colfax County, New Mexico, Site Characterization and Mitigation Recommendations Report.
- Okun Consulting Solutions. 2023. *Cultural Resources Report, Yankee Canyon.*
- Daniel B. Stephens & Associates. 2022. Biological Assessment/Biological Evaluation, Yankee Canyon Coal Mine.
- Bat Conservation International. 2021. *Report on Yankee Canyon Abandoned Mine Bat Surveys*







County Road A-25

- Trihydro Corporation conducted site characterization of CR A-25 for the AMLP (Trihydro 2023).
- By utilizing historical records and conducting visual inspections, Trihydro located 3 distinct subsidence features likely related to historic mining.
- Through a ground penetrating radar (GPR) and electromagnetic induction (EMI) geophysical investigation voids were mapped along a 600 ft section of the A-25 roadway.
- Following the subsurface investigation Trihydro determined that there may be other subsidence locations along A-25 and recommended further investigation and monthly monitoring until the road can be stabilized.
- Reclamation recommendations were made leading to the proposed project.









Safeguarding Project

- **County Road A-25.** The project would further investigate then repair areas on road where subsidence features are identified.
 - Investigation by Geotechnical Drilling Performed to characterize subsurface conditions. Drill holes placed every 20 to 30 feet.
 - Repair through Backfilling conducted through drilling and injection of a water, sand and cement grout mixture. Grout would be injected into voids beneath and adjacent to the road.



CR A-25 Subsidence (Trihydro, 2023)







Safeguarding Project, Cont.

- Gates. Gates may be installed in mine entryways safeguarding mine openings. The gates would be designed according to the latest industry standards, and wildlife compatible, following recommendations by Bat Conservation International.
- **Cupolas.** Bat cupolas may be an option to cover vertical shafts.
- **Backfill**. Mine openings may be backfilled with adjacent waste rock piles.









Safeguarding Project, Cont.

- Other Structural Closures. Polyurethane Foam (PUF) plugs, gated culverts, and other structures may be used to safeguard mine openings.
- Coal Gob Pile Reclamation.
 Stabilization of steep slopes on coal gob piles needed to prevent mine waste from entering adjacent ephemeral channels.









National Environmental Policy Act

- Federal agencies and their representatives are required to provide meaningful opportunities for public participation. A primary goal of public involvement is to ensure that all interested and affected parties are aware of the proposed action.
- An analysis of all the potential impacts is being conducted.









Biological Surveys

- Plants and wildlife species were documented during a biological survey conducted in 2022 by Daniel B. Stephens & Assoc.
- During the survey, an evaluation of potential impacts to special-status species and their habitat was conducted.
- A separate survey of bats and bat habitat was conducted by Bat Conservation International.











Bats and Bat Habitat





- Bat Conservation International (BCI) evaluated bat occupancy and potential habitat associated with the mine features in 2021.
- BCI's 2021 survey of two distinct mine features found suitable habitat for Townsend's big-eared bat.
- BCI provided closure recommendations (BCI 2021).







History of Yankee Canyon Coal Mining



Town of Yankee in 1907

- Coal was discovered in the region by the 1840s
- First major mining area was west of Raton
- From 1910 to 1920, Colfax County produced
 75 percent of coal in New Mexico
- Yankee formed as a boomtown after the construction of the SFR&E Railroad from Raton to Yankee Mines on Johnson Mesa
- Town went into decline around 1910; Yankee Mines were closed in 1921
- Railroad line was abandoned in 1930s
- Small-scale family mining began around 1901 and continued all the way to the 1960s







Cultural Resource Survey

- Cultural resources survey was conducted in Oct-Nov 2022 to document historic mining features and help the project comply with the National Historic Preservation Act and other historic preservation laws.
- 582 acres were surveyed
- 138 separate mining features and hundreds of historic artifacts were documented
- Coal waste (gob) pile is the most common feature type, but many other types are present
- Features are related to assaying, extraction, processing, transport, and supporting activities

FEATURE TYPE	COUNT	FEATURE TYPE	COUNT
Coal Gob Pile	35	Ore Cart	2
Structure Foundation	19	Road-Related Feature	2
Adit	10	RR Grade	2
Open Cut/Pit	8	Structure (Extant)	2
Fence	7	Tramway Feature	2
Car Body	4	Prospect Pit	2
Waste Rock Platform	4	Machine Platform	2
Landform Modification	4	Privy/Depression	2
Wall	4	Ramp	2
Midden	3	Bridge	1
Tramway Segment	3	Corral	1
Entrance (Shaft/Vent)	3	Graffiti Panel	1
Reservoir/Tank	3	Well	1
Concrete Bin	2	Tipple Foundation	1
Developed Spring	2	Utility Pole	1
Trail/Road	2	Wood Concentration	1
TOTAL			138

Documented Mining Feature By Type

Survey Results

- 11 different clusters defined as archaeological sites
- Yankee Mines and small family operations are represented
- Sites date from 1905 to 1960s
- Four of the mines had been documented in the past









Historic Mining Features

- Below are examples of historic mining features
- AML will work to preserve significant features where feasible



Coal Gob Piles on Steep Slope



Tipple Structure Remains



Car Body



Mine Opening







Land Use

- The area is rich in natural resources, with abundant wildlife including game species such as elk and deer. County Road A-25 is utilized by hunters and provides access to private ranches and hunting lodges in the region.
- Lands are also utilized for livestock grazing.











Land Use, cont.

- Safeguarding measures would be on county-maintained roads, private property and state land. Access agreements would be in place prior to construction.
- The project would change land use by allowing for CR A-25 to reopen following road stabilization. No other land use would change as a result of the project.









Mine Features of Project Area









Typical AML Reclamation/Closures



Revegetated gob pile (Dillon Canyon).



Rock bulk-headed culvert with batfriendly gate. Cemented rocks assist with blending into landscape







Typical AML Closures





Culvert with bat and wildlifefriendly gate

Bat and wildlife friendly gate enclosure







Typical AML Closures



Polyurethane foam plug with a drain pipe (Cerrillos Hills State Park)



A complete polyurethane foam closure with beehive grate and concrete collar






Any Questions?

- For questions or additional information, please contact:
 - Lloyd Moiola, <lloyd.moiola@state.nm.us>, 505-629-3757
 - James Hollen,<James.Hollen@state.nm.us>, 505-231-8332 OR
 - Mike Tompson P.E., <Mike.Tompson@state.nm.us>, 505-690-8063
- To submit comments, please email:
 - jcartron@geo-logic.com, call 505-353-9190, or mail to:

DBS&A, c/o Jean-Luc Cartron

6020 Academy NE, Suite 100

Albuquerque, NM 87109

Please provide comments by April 9, 2023

Thank you!

Attachment 3

Comments Summary and Responses



Yankee Canyon Environmental Assessment Meeting Comments and Questions, March 9, 2023

Comment No.	Comment category	Comment	Date	Response Given during the Meeting	Follow-up Comment by the AML Program
1	Mining reclamation process	Can you please explain what a gob pile is?	3/9/2023	A gob pile is the coal waste from the mining operation. It consists of actual coal, but it is determined to be of lesser value and therefore discarded.	
2	Schedule/accessibility	Most of us live/work near by the project area. Overall it is a great project, however we worry about accessibility during construction on CR A-25.		We are hoping for Phase I construction to take no more than a week* to complete and at least most of the time will not require complete road closure. Drilling to look for subsidence will primarily be located on the edge of the roadway.	*The time estimated at the March 9, 2022, meeting was one week. This time frame has been subsequently revised to reflect the potential for complications during construction. Stakeholders will be informed of the revised time estimate.
3	Schedule/accessibility	Can you provide the schedule of construction	1	We are planning to complete the road work and installation of adit closures first as the Phase I part of the overall construction. We are planning to complete work before winter, by late September/early October. The EA will need to be completed and approved by the end of summer, then the contractor bidding process can commence. The plan is to select the contractor, do the Phase I project at least and complete construction by October. The Spec Book (Construction & Materials Specifications) is ready, and so is the design packet.	
4	Mining reclamation process	How are gob piles reclaimed?		They will most likely be reclaimed in place. The pile is amended, typically it is not necessary to bring in soil as long as there is ammendments on the pile. A native mix of seedlings and plants is then worked in with the amendment. Mixes included an emphasis on planting New Mexico locust trees, along with a ground cover mix of grasses and forbs.	
5	Cost/funding/hiring of contractor	What is the contracting process		Through the State's purchasing division. The AMLP advertises for construction contractors, with an emphasis on hiring local contractors.	
6	Cost/funding/hiring of contractor	What is the construction cost?		For construction alone, the estimate is around \$300,000	
7	Details about road subsidence	How long is the road segment?		The estimated subsidence segment is 600 feet.	
8	Details about road subsidence	How deep are the voids?		Based on surface investigations done by Trihydro in December 2021, the largest of 4 subsidence features in CR A-25 measured approximately 28 in. by 11 in. with a measured depth of 15 ft. (Trihydro 2023). The other three measured were considerably smaller. Trihydro believes that mine workings are about 5.5 ft thick and may be fairly shallow near the A-25 subsidence due to the location of the Turner Mine adit and the 2-degree coal seam dip (Trihydro 2023)	

Yankee Canyon Environmental Assessment Meeting Comments and Questions, March 9, 2023

Comment No.	Comment category	Comment	Date	Response Given during the Meeting	Follow-up Comment by the AML Program
9	Water quality	Is there before and after water quality sample data from Sugarite to review and see if gob pile reclamation has been effective?		There is at the Environment Department, and the AML will pull the data. The Sugarite gob pile reclamation has also been very effective for preventing sediment from entering waterways. Compared to hard rock mining, gob piles represent more of an erosion issue	
10	Water quality	Can water sampling be conducted at a spring on my property, located downstream of this project area?		Yes, it would be a good location to sample. The NMED also has water quality data for that area in Yankee Canyon.	
11	Other	Why was reclamation of Yankee Canyon not conducted at the same time as Sugarite Canyon?		Mostly because of funding. The most noticeable issues get attention first.	

Attachment 4

Comments Received



This attachment will be provided once all public comments are received.