

A file search of the Colorado Inventory of Cultural Resources by the Colorado Historical Society in 1984, revealed that no cultural properties in the proposed impact area. These results are presented in Exhibit 7, Archeologic Information.

The intensive field investigations recorded no significant cultural resources. The only phenomena of cultural origins observed in the area was a stock pond, located in the drainage bottom immediately north of the highway (Figure 1a, Regional Map Showing Locations of Project Area). This feature consists of an earthen dam piled in a curvilinear shape across the width of the drainage. A small pond (now dry) is impounded behind this embankment. It is considered to be of fairly recent age.

No significant cultural resources were observed on the PPA. Though the likelihood of cultural resources being found in this area is greater than for the RDA, that possibility was negated by deposits of underground development waste.

No cultural resources were recorded in the proposed project area. Consequently, no further archaeological work is considered to be necessary in those localities and clearance is recommended.

During 2011 a Cultural Resource Inventory was performed on the proposed RDA#1 expansion area and the associated RDA#1 geotechnical investigation area. One site was recorded. The site is not within the area of proposed disturbance. The report is located in Exhibit 7, Archeologic Information.

A Permit Revision (PR-6) was filed for continued mining the Blue Coal Seam. A study of the geologic structure of the area and the mine plan was completed to determine if subsidence from mining would affect the land surface. Based on multiple pillar stability analyses conducted using the ACPs program, the proposed pillar layout provides a pillar stability factor of 2.0 as recommended by NIOSH for long term stability. Given the categorization of long-term stable pillars, it is not anticipated that development mining at the New Elk Mine will initiate surface settlement as a pillar stability factor of 2.0 provides long term stability to the immediate and main roof (Newman 2022). The impacts to cultural resources in the area of mining should not occur but monitoring of these resources and subsidence will identify any effects of mining.

The entire length of the former C&W railroad grade (5LA.7112) is previously determined eligible for listing in the National Register of Historic Places (NRHP). In 2021, a cultural resources survey was conducted to record and evaluate the NRHP eligibility of extant bridges and culverts along the former C&W railroad grade. Two features potentially 45 years old or older were identified within the Project area between the mine and the intersection of the CP&W entrance road to the State Wildlife Area. Both features (5LA.14442 and 5LA.14443) are ubiquitous corrugated metal culverts surrounded by riprap. Both were recommended as not individually eligible for NRHP listing, as well as non-contributing features of the NRHP-eligible C&W railroad grade. A description of these sites is provided in the Cultural Resources report contained in Exhibit 7.

The 2021 cultural resources survey recommended the former C&W railroad grade between Allen Mine and Madrid as eligible for NRHP listing under Criterion A for significance in the areas of Transportation, Commerce, and Industry. The segment of the former C&W between Allen Mine and Weston containing the haul road was found to retain its integrity of location, overall setting, design, materials (in terms of bridges and culverts), feeling, and association. The rail line was removed in 2004 and part of NECC future plan is to reinstall the rail line.

The NRHP-eligible former C&W railroad grade (5LA.7112) was affected by the construction of a haul road between the mine and the intersection of the CP&W entrance road to the State Wildlife Area prior to DRMS approval. Neither the construction of the haul road nor the future reinstallation of the rail line within the former C&W railroad corridor alters or will alter the former C&W's alignment or height. The construction of the haul road and the future reinstallation of the rail line within the former C&W railroad corridor is intended to return the historic resource to its original use, and therefore is consistent

with the first two of the Secretary of the Interior's Standards for Rehabilitation: 1) A property will be used as it was historically or be given a new use that requires minimal changes to its distinctive materials, features, spaces, and spatial relationships; and 2) The historic character of a property will be retained and preserved. Any new construction associated with the Project will likewise be consistent with the Secretary of the Interior's Standards for Rehabilitation.

As the construction of the haul road introduces an effect to the resource, the Criteria of Adverse Effects were applied. The construction of a haul road does not cause the physical destruction of or damage to all or part of the property, does not alter the property in a way that is not consistent with the Secretary's standards for the treatment of historic properties, and does not remove the property from its historic location. As the construction of a haul road is consistent with the original use and purpose of the former C&W railroad grade, it does not change the character of the property's use of physical features within the property's setting that contribute to its historic significance, and does not introduce visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features. The construction of a haul road will not lead to the neglect of the property which causes its deterioration but will instead ideally return a neglected and deteriorated historic property to its original use. The preceding application of the Criteria of Adverse Effects also applies to the future reinstallation of the rail line within the former C&W railroad grade (5LA.7112).

2.04.5 General Description of Geology and Hydrology

2.04.5 (la, b and c)

A thorough description of the geology and hydrology, including surface and groundwater systems, water quality and water quantity within the proposed permit area and region are contained within the following sections of 2.04.6 and 2.04.7. All pertinent information on the geology and hydrology, as set forth by the regulations, are made available to the Division.

Geologic and hydrologic maps of the mine plan area (**Map 5-Regional Geology, Map 6- Surface and Bedrock Geology (Refuse Area) and Map 8-Regional Hydrology**) present the baseline conditions in the permit area. Due to the proximity of the Golden Eagle and New Elk Mines to each other, historical baseline data for both mines have been considered in defining the geologic and hydrologic environments.

2.04.5 (2)

Approved hydrological modeling techniques have been utilized as part of this permit application and data used in modeling is made readily available within the document in 2.04.7. Coal seam correlations, cross-sections, structure maps, interburden maps, overburden maps and isopach maps were generated by the use of Carison's SurvCADD software which is commonly used in the coal mining industry.