

**CULTURAL RESOURCE HISTORIC CONTEXT SUMMARY REPORT
FOR THE U.S. DEPARTMENT OF ENERGY
YUCCA MOUNTAIN RAIL ENVIRONMENTAL IMPACT STATEMENT**

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TABLE OF CONTENTS

1.0	INTRODUCTION	3
1.1	PROJECT DESCRIPTION	3
1.2	PROJECT LOCATION	3
1.2.1	Caliente Rail Alignment.....	3
1.2.2	Mina Rail Alignment	3
1.3	METHODOLOGY.....	5
2.0	SUMMARY OF PREVIOUS RESEARCH.....	6
2.1	CALIENTE RAIL ALIGNMENT.....	6
2.1.1	Class I Archaeological Site Record Search.....	6
2.1.2	Class II Sample Survey.....	7
2.1.3	Historic Context Development.....	7
2.2	MINA RAIL ALIGNMENT.....	9
2.2.1	Class I Archaeological Site Record Search.....	9
2.2.2	Class II Sample Survey.....	10
2.2.3	Historic Context Development.....	11
3.0	HISTORIC CONTEXT.....	13
3.1	AMERICAN INDIAN PREHISTORIC PERIOD	13
3.1.1	Prehistoric (~12,000-150 B.P.).....	13
3.1.2	Pre-contact/Proto-historic Numic (~750-150 years ago).....	16
3.2	AMERICAN INDIAN HISTORIC PERIOD.....	17
3.2.1	Contact (1849-1875).....	21
3.2.2	Co-existence (1860-present)	21
3.2.3	Consultation (1980-present).....	22
3.3	EUROHISTORIC PERIOD.....	22
3.3.1	Exploration (1849-1900)	22
3.3.2	Early Mining (1865-1880)	24
3.3.3	Early Settlement and Land Use (1865-1940).....	24
3.3.4	Early Transportation (1860-1920).....	25
3.3.5	Later Mining (1900-1920)	26
3.4	CULTURAL LANDSCAPES.....	26
4.0	SOURCES.....	28

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The U.S. Department of Energy (DOE) proposes to construct and operate a railroad for shipment of materials from an existing rail line in Nevada to a repository at Yucca Mountain, Nye County, Nevada. This railroad would consist of a rail line, railroad operations support facilities, and other related property and infrastructure. The Yucca Mountain Rail Alignment Environmental Impact Statement (EIS) is currently in progress to evaluate two alternative alignments: the Caliente rail alignment and the Mina rail alignment. Under the Caliente implementing alternative, the rail line would extend north from Caliente, Nevada, turn in a westerly direction and head to near the northwest corner of the Nevada Test and Training Range, and then continue south-southeast to Yucca Mountain. The rail line could range in length from approximately 528 to 541 kilometers (328 to 336 miles) (see Figure 1). Under the Mina Implementing Alternative, the rail line would extend from near Wabuska, Nevada, in a southeasterly direction to Yucca Mountain. The total length of the Mina rail alignment could range from approximately 452 to 502 kilometers (281 to 312 miles), which includes portions of an existing rail line currently operated by the Department of Defense. Additionally, railroad operations along the Mina rail alignment would require DOE to operate trains on the Union Pacific Railroad Hazen Branchline, which extends from Hazen, Nevada, south to Wabuska (see Figure 1).

The proposed undertaking has the potential to effect archaeological sites that are located within the project area, and a study of these effects are included as part of the Rail Alignment Environmental Impact Statement (RAEIS). To date, cultural resource investigations have been conducted to identify archaeological sites that are present in the project area, and predict relative site densities for the alternative segments, and to provide DOE and BLM with recommendations concerning eligibility of those sites for inclusion on the National Register of Historic Places (NRHP).

The overall purpose of this report is to establish a cultural resources baseline for the Yucca Mountain Rail Alignment EIS. The report compiles references and summarizes the results of the intensive archaeological and historical site file searches, statistical sample field surveys, and concentrated literature reviews. The report will provide an overview of the types of archaeological sites identified during the previous studies, historical events and activities that took place in the vicinity of the rail alignment, and the research themes associated historic contexts covering prehistoric and historic American Indian and historic Euroamerican activities and resources that have occurred throughout the study areas.

1.2 PROJECT LOCATION

1.2.1 Caliente Rail Alignment

The Caliente rail line would extend north from Caliente, Nevada, turn in a westerly direction and head to near the northwest corner of the Nevada Test and Training Range, and then continue south-southeast to Yucca Mountain. The rail line could range in length from approximately 528 to 541 kilometers (328 to 336 miles) (see Figure 1). The Caliente rail line is comprised of 20 segments, six of which are common segments and 14 are alternative segments.

1.2.2 Mina Rail Alignment

The Mina rail line would extend from near Wabuska, Nevada, in a southeasterly direction to Yucca Mountain. The total length of the Mina rail alignment could range from approximately 452 to 502 kilometers (281 to 312 miles), which includes portions of an existing rail line currently operated by the Department of Defense. Additionally, railroad operations along the Mina rail alignment would require DOE to operate trains on the Union Pacific Railroad Hazen Branchline, which extends from Hazen, Nevada, south to Wabuska (see Figure 1). The Mina Rail Alignment is comprised of 11 segments, four of which are common segments and seven are alternative segments.

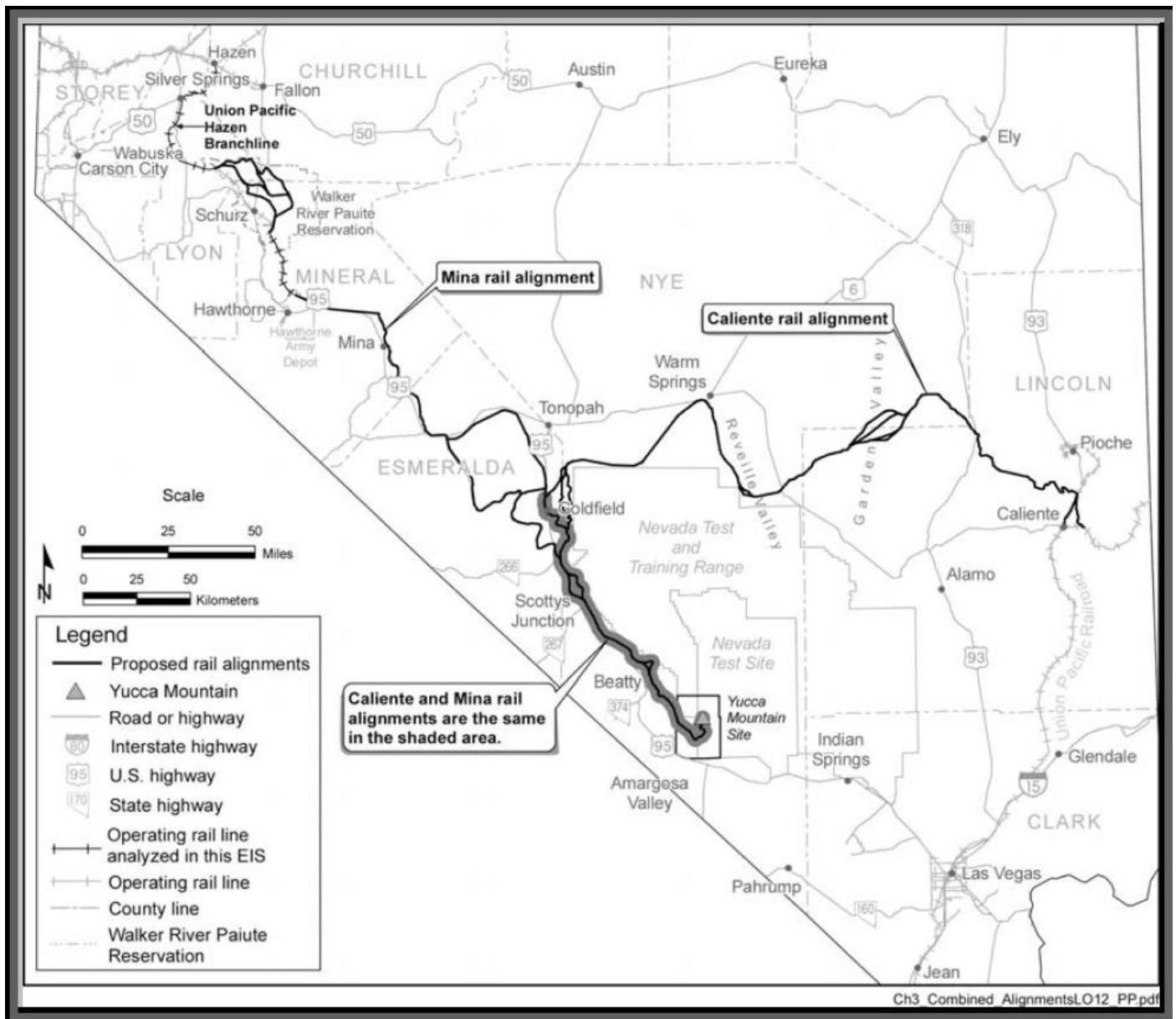


Figure 1. Caliente and Mina Rail Alignments

1.3 METHODOLOGY

The region of influence for cultural resources analysis includes two levels of coverage that incorporate areas where construction or other land disturbances could directly or indirectly impact cultural resources:

Level I – The first level of coverage is a 1,000-foot wide area centered on the rail alignment, and includes the nominal width of the construction right-of-way and the area where ground disturbance could have direct or indirect impacts on cultural resources. Under Section 106 of the National Historic Preservation Act, the Level I region of influence would comprise the project’s Area of Potential Effect.

Level II – The second level of coverage is a 3.2-kilometer (2-mile)-wide area centered on the rail alignment, and includes the area of potential disturbances that could have indirect impacts on cultural resources. For example, rail-line operation and maintenance activities could have an aesthetic, auditory, or visual impact on a potentially significant historic or ethnographic vista.

Cultural resource investigations were completed for all common segments and alternative alignments to support the Yucca Mountain Rail Alignment EIS. These investigations include intensive Class I archaeological and historical site file searches and Class II statistical sample field surveys. In addition, a concentrated literature review was completed to better understand the cultural history for the rail alignment study area. These documents are referenced below.

Class I Inventory. Desert Research Institute (DRI 2007, all) conducted a review of existing cultural resource files for both the Caliente and Mina rail alignments. Previous surveys conducted in, or within, one mile of the proposed rail corridor, together with recorded archaeological sites, are summarized in each report.

Class II Survey. HRA, Inc. (2005) and URS (2007), respectively, conducted Statistical Sample Field Surveys of both the Caliente and Mina rail alignments. These inventories were guided by research designs prepared in consultation with the BLM and State Historic Preservation Office and were designed to provide a 20 percent sample of each rail alignment. The purpose of these investigations was to identify a sample of archaeological sites present within the project area, to predict relative site densities for alternative corridors, and to provide DOE and the Bureau of Land Management (BLM) with recommendations concerning the eligibility of identified sites for inclusion on the National Register of Historic Places (NRHP).

Context Report. Dr. Paul Nickens (AEGISS 2005) prepared a Cultural Resources Historic Context Report for the Draft Rail Alignment Environmental Impact Statement. Preparation of the baseline resource report involved consulting and citing a large number of published and unpublished sources, and contacting knowledgeable persons, institutions, and offices holding relevant data.

DOE is using a phased cultural resource identification and evaluation approach, as described in 36 CFR 800.4(b)2, to identify specific cultural resources along the final alignment. Under this approach, the Department would perform final field surveys (the BLM Class III intensive surveys) of the actual right-of-way and centerline, as provided in the programmatic agreement between DOE, the BLM, the STB, and the Nevada State Historic Preservation Office (DIRS 176912-DOI 2006, p. 15). In the interim, 20-percent Class II sample surveys have provided information to characterize the nature and distribution of cultural resources along the rail alignments. Before starting any ground-disturbing activities that could affect cultural resources, the Department would perform the intensive Class III inventory of the selected alternative segments, site evaluations, impact assessments, and mitigation measures, as appropriate.

2.0 SUMMARY OF PREVIOUS RESEARCH

The area through which the rail alignment would pass demonstrates a history of diverse prehistoric and historic land-use patterns. Native peoples occupied this area for many thousands of years, as exhibited by the archaeological sites identified in the area. These sites include campsites, rockshelters, lithic scatters, quarries, rock rings and alignments, and rock-art sites. Euroamerican presence in the area is largely limited to the past 150 years or so, but is characterized by diverse activities represented at a wide variety of site types. Recorded and anticipated sites include early transportation features such as wagon and stage roads; railroads and railroad camps and sidings; homesteads; and mines, mills, and mining camps. Isolated features and artifacts related to all of these activities can also be anticipated. This section presents data on both previously recorded cultural resources and known, but unrecorded, properties along the proposed alignment and alternative segments. This section first presents the results of the Caliente rail alignment Class I site-file search and Class II field survey, followed by the Mina rail alignment Class I and Class II results. The results are followed by a historic context overview.

2.1 CALIENTE RAIL ALIGNMENT

2.1.1 Class I Archaeological Site Record Search

The file search for previously recorded prehistoric and historic archaeological sites within the 2-mile wide region of influence (summarized in AEGISS 2005) was updated by Desert Research Institute (DRI 2007) to reflect the most recent data. The file search consisted of compiling known records of cultural resources investigations and archaeological site records and review of historic maps and documents at the Harry Reid Center (HRC) in Las Vegas and the BLM Tonopah and Ely field offices. In addition, the National Register Information System website was queried and the General Land Office Maps (GLOs) were reviewed on the Nevada State BLM website. Site records included sites identified during the Class II sample survey (HRA 2005), in addition to supplemental surveys (DRI 2005, URS 2006).

The Class I file search identified 589 cultural resources (465 sites and 124 isolates) recorded within the 2-mile wide region of influence. Of this total, 432 date to the prehistoric period and 100 date to the historic period; 47 sites contain both prehistoric and historic components; and 10 are unknown.

Prehistoric sites are the most abundant; time-diagnostic artifacts indicate occupation by native people in the region dating roughly 12,000 years ago to historic times, around AD 1840. Many prehistoric sites are isolated artifacts such as chipped stone flakes or tools, or small lithic scatters of such tools and stone debris. Several sites also contain ground stone tools used for milling foods or grinding pigments, or fire hearths, indicating longer-term camps or residential sites. A few rockshelters and several rock art sites, including the Willow Witch Well Site (26NY806), Beatty Wash (26NY7957), Indian Cove (26LN1531), Lowe Shelter (26NY251), and near Goldfield (26ES508) are located along the route.

Many historic sites are isolated artifacts such as cans or bottle glass fragments, but several larger sites include features or structures associated with early historic settlements, railroad, mining, and ranching. These include remnants of railroad grades, stations, and sidings, mining adits, telegraph poles, and historic refuse scatters. Of these cultural resources, 49 sites are considered eligible for inclusion in the National Register of Historic Places, 436 are not eligible, and 104 have not been evaluated for eligibility.

Of the 589 cultural resources recorded within the 2-mile wide region of influence, 113 sites are located within the 1,000-foot wide construction zone. Two properties are listed on the National Register (the Goldfield Historic District (ES0952) and the Caliente Railroad Depot (LN01508), 13 are recommended eligible for the National Register, 89 are not eligible, and 11 are unevaluated. The National Register eligible sites include a section of the Tonopah-Goldfield railroad (ES0499) and Panaca-Caliente Railroad (LN03670), the Goldfield dump (ES0726) and Goldfield mining site (ES0507), a prehistoric rock art site with a historic mill (ES0508) Lida-Goldfield ethnohistoric camp (NY00857/NY00961), and several

prehistoric campsites and lithic scatters (LN01519, LN04887, NY10964, NY12182, NY12183, NY12187).

2.1.2 Class II Sample Survey

The Class II sample archaeological survey of the proposed Yucca Mountain rail corridor was conducted between April and June 2005 (HRA 2005). The sample was designed to ascertain the nature of archaeological sites present along the corridor, to predict relative site densities along alternative alignments, and to provide recommendations for eligibility of identified archaeological sites for listing in the National Register of Historic Places (NRHP).

Under the terms of an agreement between DOE and the BLM, the Class II inventory was designed to sample 15 percent of the length of the various alternative alignments and common segments. Sampling units measuring 0.5 miles in length and 400 feet in width were distributed along the proposed centerline; 180 units were surveyed, for a total of 4365 acres. Sampling units were apportioned among four sampling strata defined with reference to soil and vegetation types present in the project area: creosote bush habitat, greasewood-shadscale habitat, sagebrush habitat, and montane habitat.

The Class II survey led to the identification of 50 archaeological sites, including one previously recorded site and 49 newly identified sites. Forty-one of the sites date to the prehistoric period and seven date to the historic period; two sites contain both prehistoric and historic components. Preliminary recommendations suggest that 14 of the 50 sites recorded along the rail alignment qualify as eligible for nomination to the NRHP. Thirteen of these sites are prehistoric and one contains both historic and prehistoric components. The remaining 36 sites are recommended as not eligible for inclusion in the NRHP.

The 7 historic sites include 5 mining sites, 1 railroad construction camp, and 1 trash scatter. Two multiple component sites, defined by both prehistoric and historic components, were identified. The 41 prehistoric sites consist of 25 (60%) lithic scatters or quarries, 6 (15%) flaked stone tool assemblages, 6 (15%) artifact and feature assemblages, and 4 (10%) milling equipment or pottery assemblages. Lithic scatters are the most common, and flaked stone items, such as bifaces, cores, projectile points, and flake tools, dominate artifact assemblages. These sites occur among an array of habitats, primarily creosote and sagebrush.

In addition to archaeological sites, 482 isolated finds were recorded project-wide, inclusive of both prehistoric and historic items. The prehistoric isolates consist of 254 items, including mostly flaked stone and 8 ceramic sherds. Historic-era isolates consist of 215 items representing both artifacts and features. Features are dominated by mine claim markers, wooden posts, adit openings and mining prospects. Artifacts include a variety of cans and glass fragments, and two contain both prehistoric and historic components.

Summary data from the Class II inventory indicate that the rail alignment contains approximately one site for every two miles in length, or 0.5 sites per mile. Creosote bush habitat contained the highest density of sites by habitat type, while gaps and passes in hilly or mountainous areas also contained elevated frequencies of sites. Given limitations on the size of the sample and the number of sites recorded, no statements are presented on the relative archaeological sensitivity of alternative alignments proposed for the project.

2.1.3 Historic Context Development

Dr. Paul Nickens (AEGISS 2005) prepared a Cultural Resources Historic Context Report for the Caliente rail alignment. Preparation of the baseline resource report involved consulting and citing a large number of published and unpublished sources, and contacting knowledgeable persons, institutions, and offices holding relevant data. For the Caliente alignment, Nickens developed a resource management framework for cultural resources that are either known to exist within the study area or may be encountered during future inventories. The framework includes potential historic contexts, with temporal confines and

associated property types, and cultural landscape settings along the rail alignment that are characterized by definable patterns of human activities in generally bounded geographical territories.

Nickens' report is organized into American Indian Historic Contexts and Euroamerican Historic Contexts, each consisting of five components. American Indian Historic Contexts include prehistoric, protohistoric, contact, co-existence, and the consultation eras. Euroamerican Historic Contexts include exploration, early mining period, settlement, early transportation, and the later mining period. In addition, potential cultural landscapes are identified. These include: early Mormon settlement in the Meadow Valley Wash; sheep ranching in the Coal Valley-Garden Valley area; ethnographic settlement and historic ranching activities in the Reveille Valley-Kawich Range-Stone Cabin Valley area; historic mining in the Reveille Range-Reveille Valley-Kawich Range-Eastern Stone Cabin Valley Area; ethnographic settlement and historic mining in the Goldfield Hills; and ethnographic settlement and historic ranching activities in the Upper Oasis Valley.

Each of these concepts is designed to group information about related historic properties based on a unifying theme, geographical limits, and a chronological period. Together, they provide a comprehensive summary of all aspects of the history of the area and provide a framework for effective identification, evaluation, and treatment of property types that might be affected by the project.

The Historic Context report summarizes previous American Indian studies and consultations associated with the Yucca Mountain Project, the Nevada Test Site, the Nevada Test and Training Range, and other projects have yielded significant information on the concerns of modern-day American Indians regarding traditional and cultural values. These concerns include evidence of their ancestors' occupation and use of traditional homelands, and their feelings about natural resources and geologic formations in the region, such as plants, animals, and natural landforms that mark important locations.

Based on past studies, the following historic properties could be of cultural value for American Indians:

- Hot springs, rock shelters, plant resources, and trails used by Southern Paiutes in the Caliente area, including Meadow Valley and Clover Creek. Within the Caliente alternative segment Level II region of influence.
- Black Rock Spring Campsite. In North Pahroc Range south of Caliente common segment 3.
- Petroglyphs. In Reveille Valley within the Caliente common segment 3 Level II region of influence.
- Western Shoshone camp. In Reveille Valley—within the Reveille Mill locale west of Caliente common segment 3.
- Western Shoshone winter camp. In the Warm Springs vicinity north of Caliente common segment 3.
- Western Shoshone winter village of Hugwapagwa. In Stone Cabin Valley, at the mouth of Hawes (Longstreet) Canyon south of Caliente common segment 3.
- Rabbit Spring Rock shelter camp. In the Goldfield alternative segment 4 Level II region of influence.
- Winter Village, probable site of a Western Shoshone village named Matsum. East of Goldfield in the Willow Springs vicinity, within the Goldfield alternative segment Level II region of influence.
- Beatty area petroglyphs. East of Caliente common segment 6.
- Western Shoshone Ogwe'pi District, a cluster of winter villages along the upper Oasis Valley and the headwaters of the Amargosa River, including two probable villages. In the Oasis Valley, north of Beatty and within or adjacent to Level II region of influence for Caliente common segments 5 and 6, and the Oasis Valley alternative segments.

- Black Cone site, a place of religious significance. Near Crater Flat area, west of Caliente common segment 6.
- Significant crossroad where numerous traditional American Indian trails came together. Near Fortymile Wash, within the Yucca Mountain Site boundary.
- Rock art near Busted Butte, inside the Yucca Mountain Site boundary.

2.2 MINA RAIL ALIGNMENT

2.2.1 Class I Archaeological Site Record Search

Desert Research Institute (DRI 2007) conducted a record search for previously recorded prehistoric and historic archaeological sites within the 2-mile wide region of influence. The file search consisted of compiling known records of cultural resources investigations and archaeological site records and review of historic maps and documents at the Harry Reid Center (HRC) in Las Vegas and the BLM Tonopah and Ely field offices. In addition, the National Register Information System website was queried and the General Land Office Maps (GLOs) were reviewed on the Nevada State BLM website. Site records included sites identified during the Class II sample survey (HRA 2005), in addition to supplemental surveys (DRI 2005, URS 2006).

The Class I file search identified 602 cultural resources (531 sites and 71 isolates) recorded within the 2-mile wide region of influence. Of this total, 426 date to the prehistoric period and 132 date to the historic period; 42 sites contain both prehistoric and historic components; and 2 are unknown. Of the 602 cultural resources recorded within the 2-mile wide region of influence, 64 sites are considered eligible for inclusion in the National Register of Historic Places, 419 are not eligible, and 118 have not been evaluated for eligibility.

Of the 531 archaeological sites, prehistoric era are the most abundant (n=378); time-diagnostic artifacts indicate occupation by native people in the region dating roughly 12,000 years ago to historic times, around AD 1840. Seventy percent of archaeological sites recorded within or adjacent to the corridors are prehistoric lithic scatters (n=372), which have been noted in all project segments. Of these, most are surface artifact scatters that are sparse to moderate in flake density. Several sites also contain ground stone tools used for milling foods or grinding pigments, or fire hearths, indicating longer-term camps or residential sites. A few rockshelters and several rock art sites, including Beatty Wash (26NY7957), near Goldfield (26ES508), and northeast of Schurz (26LY9, 26CH926) are located along the route.

Many historic sites are isolated artifacts such as cans or bottle glass fragments, but several larger sites include features or structures associated with early historic settlements, railroad, mining, and ranching (n=128). These include remnants of railroad grades, stations, and sidings, mining adits, telegraph poles, and historic refuse scatters. The most common historic site types consist of refuse scatters (n=49); followed by mining resources, including both features and sites (n=31); and railroad (n=23) related properties. A group of other historic site types includes 22 properties, while homesteads consist of only 3 sites. Twenty-five sites contain both prehistoric and historic components.

The majority of the recorded sites are located south and east of Blair Junction, NV where the proposed alignment splits and runs either west and south through Clayton Valley or east and south through Montezuma Valley. This is likely a sampling bias as there has been more archaeological survey coverage for that area than in the corridor north of Blair Junction. Given the topography, ethnographic history, and history of the corridor area north of Blair Junction it was expected that sites would occur in the southern area and in much the same ratio; predominantly sparse to moderate density prehistoric lithic scatters, and sites related to mining and railroads.

Of the 602 cultural resources recorded within the 2-mile wide region of influence, 116 sites are located within the 1,000-foot wide construction zone. One property is listed on the National Register (the

Goldfield Historic District (ES0952), 19 are recommended eligible for the National Register, 74 are not eligible, and 22 are unevaluated. National Register eligible sites include:

Beatty Cattle Company Ranch and Colson Ranch with associated Western Shoshone villages (ES0821); Goldfield Historic District (ES0952), town dump (ES0726), mining camp (ES0507), railroad station (ES0660), and cemetery; Historic railroads including segments of the Carson and Colorado, Las Vegas and Tonopah, Tonopah and Goldfield, and Southern Pacific railroads (ES0419, ES0422, ES0444, ES0499); historic roads including segments of the Sodaville to Tonopah freight road (CRNV-03-2173/64-8558) and Overland Stage Road (LY1024); Millers townsite (ES0464); prehistoric rock art site with early mining features (ES0508); mining camp (ES0790); mining prospect and lithic scatter (NY10964); lithic scatter with groundstone (NY12183); can concentration for CC RR construction (CRNV-32-4758); Chinese RR workers' camp (CRNV-32-4759); Lahontan Dam (CH0895) and Newlands Waterworks at Lahontan City.

2.2.2 Class II Sample Survey

The Class II sample archaeological survey of the proposed Yucca Mountain rail corridor was conducted between March and April 2007 (URS 2007). The sample was designed to ascertain the nature of archaeological sites present along the corridor, to predict relative site densities along alternative alignments, and to provide recommendations for eligibility of identified archaeological sites for listing in the National Register of Historic Places (NRHP).

Under the terms of an agreement between DOE and the BLM, the Class II inventory was designed to sample 20 percent of the length of the various alternative alignments and common segments. Sampling units measuring 0.5 miles in length and 400 feet in width were distributed along the proposed centerline; 117 units were surveyed, for a total of 2,835 acres. Sampling units were apportioned among four sampling strata defined with reference to soil and vegetation types present in the project area: creosote bush habitat, greasewood-shadscale habitat, sagebrush habitat, and montane habitat.

The inventory resulted in the identification and recordation of 103 archaeological sites, including 76 prehistoric sites, 4 multiple component sites, and 23 historic sites. Additionally, 145 isolated finds were recorded, including 60 prehistoric and 85 historic items.

The 76 prehistoric sites consist of 55 (73%) lithic scatters, 12 (16%) single reduction loci, 6 (8%) lithic and ground stone scatters, 2 (3%) quarries, and 1 (1%) ground stone scatter. These sites occur among an array of landforms, including slopes, low-lying ridges, alluvial fans, streamside terraces, playas, and dunes. Artifact assemblages are dominated by flaked stone items, such as cryptocrystalline silicate (CCS), obsidian, rhyolite, and basalt debitage; biface fragments; cores; projectile points; and flake tools. The projectile point styles suggest human use of the area beginning during the Middle Archaic period (4000-1500 B.P.), as noted by the presence of stemmed and Elko series points. The Late Archaic period (post 1500 B.P.) is reflected by Rosegate, Cottonwood, and Desert Side-notched points. Ground stone artifacts were identified at seven sites and were restricted to handstones and millstones made of local materials. Ceramic artifacts were noted at only one site (MC-056), consisting of a single fragment of brownware.

The 23 historic sites include 19 trash scatters, 2 railroad sidings, 1 homestead, and 1 mining site. Activities of the C&C railroad are represented by the Gillis (MC-046) and Acme (MC-021) sidings, as well as two trash scatters (MC-043, MC-020). Activities of the Tonopah and Goldfield railroad are evidenced by four trash scatters (MC-065, -076, -066, -067) located along the non-extant rail line. The remaining 13 trash scatters include 6 undated deposits and 7 sites with assemblages ranging from the 1920s to the 1940s.

Four multiple component sites, defined by both prehistoric and historic components, were identified. The prehistoric components include two lithic scatters, one site with a lithic and ground stone scatter, and one site with a lithic scatter and a milling station. The historic components include three trash scatters and the remains of a homestead.

In addition to archaeological sites, 145 isolated finds were recorded project-wide, inclusive of both prehistoric and historic items. The prehistoric isolates consist of 57 items, including 56 flaked stone and 1 ground stone piece. The flaked stone items include both individual pieces of debitage (n=38), assayed cobbles (n=3) and formed tools (n=19). Debitage tool stone includes petrified wood (n=1), obsidian (n=17), basalt (n=2), and CCS (n=17). The formed tools include three flake tools, three projectile point fragments, six biface fragments, and seven cores. The single ground stone artifact is a pestle/handstone fragment.

Historic-era isolates consist of 88 items representing both artifacts and features. Artifacts include a variety of hole-and-cap, hole-in-cap, and sanitary type cans; syrup tins; pails; glass insulators; horseshoe, amethyst and aqua glass fragments; ammunition casings; stovepipe; barrel rims; metal straps; railroad ties; and a water trough. Features are dominated by mine claim markers, typically a rock ring with a central, upright wooden post or a rock cairn without a post. Other features include a 1917 benchmark, a USGS benchmark, and several mining prospects.

Preliminary recommendations suggest that 20 of the 103 sites recorded along the rail alignment qualify as eligible for nomination to the NRHP. Of the 20 eligible sites, 15 of these sites are prehistoric, 3 are historic, and 3 contain both historic and prehistoric components. The remaining sites are unevaluated or recommended as not eligible for inclusion in the NRHP.

Summary data from the Class II inventory indicate that approximately 527 cultural resources may be present within the Level I region of influence. Creosote bush habitat contained the highest density of sites by habitat type, while gaps and passes in hilly or mountainous areas also contained elevated frequencies of sites. Given limitations on the size of the sample and the number of sites recorded, no statements are presented on the relative archaeological sensitivity of alternative alignments proposed for the project.

2.2.3 Historic Context Development

The Cultural Resources Historic Context Report prepared by Dr. Paul Nickens (AEGISS 2005) for the Caliente rail alignment is applicable to most of the Mina rail alignment, since they both share common segments from the Goldfield area to Yucca Mountain. The historic context development of the Mina rail alignment includes Nickens' framework and data compiled from the Mina rail alignment Class I and Class II reports. The framework includes potential historic contexts, with temporal confines and associated property types, and cultural landscape settings along the rail alignment that are characterized by definable patterns of human activities in generally bounded geographical territories. The historic context of both the Caliente and Mina rail alignments is presented in Chapter 3.

Nickens' report summarizes previous American Indian studies and consultations associated with the Yucca Mountain Project, the Nevada Test Site, the Nevada Test and Training Range, and other projects that have yielded significant information on the concerns of modern-day American Indians regarding traditional and cultural values. Based on past studies and ongoing consultation, the following historic properties within the Mina rail alignment region of influence could be of cultural value for American Indians:

- Medicine Rock sites, Walker River Paiute Reservation
- Winter Village, east of Goldfield. Probable site of a Western Shoshone village named Matsum at Willow Springs vicinity

- Oasis Valley, north of Beatty. Western Shoshone Ogwe'pi District, a cluster of winter villages along the upper Oasis Valley and the headwaters of the Amargosa River, including two probable villages that lie within or close to the region of influence.
- Beatty area petroglyphs.
- Black Cone site, Crater Flat area. A place of religious significance.
- Fortymile Wash, inside the Yucca Mountain Site boundary. Significant crossroad where numerous traditional American Indian trails came together.
- Rock art near Busted Butte, inside the Yucca Mountain Site boundary.

3.0 HISTORIC CONTEXT

The goal of a historic context is to provide information about one or more themes of history to which a property or property types (buildings, structures, objects, sites, and districts) can be associated through its historic uses, activities, associations, and physical characteristics, and its meaning made clear. Themes include significant events, activities, trends or patterns that have influenced the physical development or character of an area during one or more periods of prehistory or history. Historic contexts are organized by theme, geographical area, and time period and provide a framework for determining the significance of a property and its eligibility for National Register listing.

In order to be eligible for National Register listing, a property must possess significance in American history, architecture, archaeology, engineering, or culture when evaluated within the historic context of a relevant geographical area, possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. Is associated with an event, or series of events that have made a significant contribution to the broad pattern of history; or
- B. Has an unequivocal association with the lives of people significant in the past; or
- C. Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or
- D. Has yielded or may be likely to yield information important in prehistory or history.

Generally, the National Register Criteria excludes: properties less than fifty years of age; religious, moved, or commemorative properties; and birthplaces, graves, or cemeteries unless they meet special requirements.

The historic context compiles references and summarizes the results of the intensive archaeological and historical site file searches, statistical sample field surveys, and concentrated literature reviews. This chapter will provide an overview of the types of archaeological sites identified during the previous studies, historical events and activities that took place in the vicinity of the rail alignment, and the research themes associated with activities and resources that have occurred throughout the study area.

The past century of historic and archaeological research in Nevada has produced an impressive body of data, along with a general outline of the regions history. The themes identified in this historic context are presented in three thematic periods: (1) American Indian Prehistoric Period; (2) American Indian Historic Period; (3) Euroamerican Historic Period. Each of these periods is divided into subperiods and includes associated property types and research themes.

3.1 AMERICAN INDIAN PREHISTORIC PERIOD

3.1.1 Prehistoric (~12,000-150 B.P.)

Native people inhabited the southern Nevada region for the past 12,000 years, perhaps longer, and left artifacts and traces of their lifeways. Property types associated with this period include rockshelters, campsites, lithic scatters, rock art, resource extraction localities (lithic quarry, plant, or other resources), isolated artifacts or features, rock rings, rock features, and hearths. American Indian prehistoric period research themes include settlement patterns, subsistence systems, past environments and geochronology, trade and exchange, ideology and belief systems, resource procurement, artifact production.

The primary source of information about human prehistory in the region, from about 12,000 years ago until the arrival of Euroamerican settlers around 150 years ago, derives from archaeology. Since that time, historic sources of information about Native American lifeways has come from early Euroamerican

ethnohistoric accounts, ethnographic studies, and oral histories from local Southern Paiute and Western Shoshone tribes.

Unfortunately, previously archaeological surveys conducted in the project area have identified few prehistoric artifacts and features that can be assigned to a particular period in the past. However, archaeological evidence from the southern Nevada region and adjacent areas are relevant to the prehistory of the project area. The prehistory of Southern Nevada into five subperiods: (1) Pre-Archaic (ca.12,000-7000 B.P.); Early Archaic (7000-4000 B.P.); Middle Archaic (4000-1500 B.P.); Late Archaic (1500-150 B.P.); and Pre-contact/Protohistoric (~750-150 B.P.). These subperiods are summarized below.

Pre-Archaic (ca. 12,000 - 7000 B.P.)

The earliest unambiguous evidence for human occupation of the southern Great Basin begins at about 12,000 B.P.; claims for earlier, Wisconsin-age occupations such as those made for Tule Springs (Harrington and Simpson 1961), China Lake (Davis 1978), and Manix Lake (Simpson 1958, 1960, 1961) have not been substantiated. This era experienced profound environmental changes as the relatively cool and moist conditions of the terminal Wisconsin glacial age gave way to the warmer and drier climate of the Holocene (Spaulding 1990). Progressive desertification continued throughout the period, with mesquite appearing by ca. 8000 B.P. Cultural materials dating to this time are assigned to the Clovis tradition, characterized by large fluted points, and the Stemmed Point tradition, also known as the *Lake Mojave Complex* (Warren and Crabtree 1986). Data compiled by Willig and Aikens (1988) suggest that the Clovis tradition predated the Stemmed Point tradition by several centuries, however, the Clovis tradition, characterized by a large fluted point, are usually found as isolated specimens (1988:17). The Stemmed Point tradition, or Lake Mojave assemblages, include Lake Mojave series points (leaf-shaped, long stemmed points with narrow shoulders), Silver Lake points (short bladed stemmed point with distinct shoulders), crescents, abundant bifaces, and a variety of large, well-made scrapers and heavy core tools. Milling stones are generally absent in the archaeological record of this time. In the Mojave Desert and southern Great Basin, this assemblage is typically (but not exclusively) found around the margins of ancient lakes, although the role of the lakes in the overall adaptation remains unclear.

Several Clovis tradition artifacts have been recorded in Nye and Lincoln County (DuBarton 2000; Hayes 2001; Jones and Edwards 1994; Perkins 1967; Reno 1984; Reno et al. 1989; as summarized in Hayes 2001 and Roberts and Ahlstrom 2000). Fifty-eight Clovis artifacts have been recorded in the Tonopah Lake and Mud Lake area (Tuohy 1988), and three points have been recovered in the Railroad Valley (Zancanella 1988). Evidence of Stemmed-Point tradition also occur in the Railroad Valley (Zancanella 1988) and in Nye County, particularly in the vicinity of the Nevada Test Site, where “a truly massive complex of sites” has been identified (Hayes 2001:8).

The Clovis tradition and Stemmed Point tradition artifacts are useful for studying spatial distribution, morphological variability, and environmental setting (Kelly 1978), and some sites have provided more substantial information on such topics as culture history and the lifeways (Davis et al. 1996). Additionally, Jones et al. (2003) provides a discussion of paleoarchaic foraging patterns and a study of lithic source use. The Nellis Air Force Base Obsidian Study (Johnson and Haarklau 2005) identifies Obsidian Butte, located in the central study area, as the most important obsidian source pre 4000-B.C.

Early Archaic (ca. 7000 - 4000 B.P.)

The period between about 7500 and 5000 B.P. appears to have been more arid than present conditions throughout the region (Hall 1985; Spaulding 1991). It is during this period that woodland attained its approximate modern elevation range, and the modernization of desert scrub communities was completed with the immigration into the area of such plant species as creosote bush. To the south, Warren (1984) sees this period as marking the beginnings of cultural adaptation to the desert, as materials characteristic of the Pinto period gradually replace those of the preceding Lake Mojave period. Jones et al. (2003) suggest a date range of 7500-6000 B.P. for Pinto points in east-central Nevada and Zancanella dates range from 6000 to 5000 BC in his Railroad Valley study. Sites associated with the early archaic era are usually found in open settings, in relatively well-watered locales representing isolated oases of high productivity.

Major technological shifts include the appearance of Pinto points, domed scrapers, and a significant increase in the use of milling stones (Warren and Crabtree 1986). Warren (1990) attributes the latter development to exploitation of hard seeds, which is viewed as part of a subsistence diversification process brought on by increased aridity and reduced ecosystem carrying capacity. Big-game hunting probably continued as an important focus during this time, but the economic return of this activity likely decreased as artiodactyl populations declined in response to increased aridity (Warren and Crabtree 1986).

To the north, in the central Great Basin, Archaic components have been tied to the latter half of this period. At both Triple T and Gatecliff shelters, initial occupation appears to date to about 5400 B.P., a few hundred years after the arrival of the piñon-juniper woodland. These introduce the Clipper Gap phase (5500-4500 B.P.), marked by large, wide, concave-based Triple T projectile points. Very few sites of this age are known and populations appear to have been quite low. At Gatecliff Shelter, the Clipper Gap strata suggest occupation by small groups of hunters pursuing mountain sheep (Elston 1986:138).

In central Nevada, the latter part of the Early Archaic is known as the Devil's Gate phase (4500-3500 B.P.). Sites of this phase, marked by the use of Gatecliff series projectile points, indicate a sharp population increase and reliance on upland resources, possibly including the newly arrived piñon pine. Gatecliff series points are relatively abundant in Reese River Valley and Monitor Valley sites, but are less common elsewhere, suggesting that such upland use may be a local phenomenon (Elston 1986:138-139).

Middle Archaic (ca. 4000 - 1500 B.P.)

Gradual amelioration of the climate began by around 5000 B.P., culminating in the Neoglaciation at about 3600 B.P. and a period of greater effective moisture dating to the latter part of the middle Holocene (Enzel et al. 1989, 1992; Spaulding 1995). At this time, the barren pans in the Mojave Sink episodically held perennial water (Enzel et al. 1992), although it is not known if this was the case for other closed basins in the region.

Culturally, in the southern Great Basin, the Gypsum period is marked by population increases and broadening economic activities as technological adaptation to the desert environment evolved (Warren 1984; Warren and Crabtree 1986). Hunting continued to be an important subsistence focus, but the processing of plant foods took on greater significance as evidenced by an increase in the frequency and diversity of ground stone artifacts. Later, the bow and arrow were introduced, increasing the efficiency of hunting. Perhaps as a result of these new adaptive mechanisms, the increase in aridity during the late Gypsum period (after ca. 2500 B. P.) seems to have had relatively little consequence on the distribution and increase in human populations (Warren 1984; Warren and Crabtree 1986). In addition to open sites, the use of rockshelters appears to have increased at this time. Base camps with extensive midden development are a prominent site type in well-watered valleys and near concentrated subsistence resources (Warren and Crabtree 1986). Additionally, several types of special purpose sites in upland settings begin to appear.

Considerable evidence has been found indicating increased contact with the California coast and the Southwest during the Late Archaic, and the presence of split-twig figurines and zoomorphic petroglyphs suggest a rich ritual life (Fowler and Madsen 1986). Gypsum period sites are characterized by medium to large stemmed and notched projectile points (Elko series, Humboldt Concave Base, and Gypsum), rectangular-based knives, flake scrapers, occasional large scraper planes, choppers, and hammerstones; handstones and millingstones become relatively commonplace and the mortar and pestle appear for the first time.

The Middle Archaic in the central Great Basin spans the period between 3500 and 1500 B.P., represented by the Reveille phase in Thomas' chronology (Thomas 1982:159). It is also marked by apparent population expansion and the beginnings of intensive use and occupation at numerous sites throughout the region. Big game hunting remains an important subsistence activity, focusing on mountain sheep, antelope, and deer; faunal remains of bison and elk are also present in small numbers in Gatecliff Shelter and other assemblages. Like the southern Great Basin, the Reveille phase exhibits the first evidence of

regional exchange in obsidian and marine shell beads, as well as an increase in the numbers and complexity of portable rock art or incised stones (Elston 1986:142).

Late Archaic (ca. 1500 - 750 B.P.)

Sometime after 2000 B.P., Eastgate and Rose Spring points began to dominate assemblages in the Mojave Desert and southern Great Basin, signaling the onset of the Late Archaic (Lyneis 1982b). These points fall within the Saratoga Springs period, a time of marked regional differentiation (Warren and Crabtree 1986). This period saw the rise of Basketmaker III and Anasazi cultures in southeastern Nevada, the influence of which, as evidenced by painted ceramics, extended a good distance to the west. Change is most apparent in the reduced size of projectile points. Rose Spring and Cottonwood series points dominate assemblages of this period, while milling stones, handstones, mortars and pestles continue in use (Warren and Crabtree 1986).

In the Central Great Basin, this period is referred to as the Underdown phase. At Gatecliff Shelter, overall numbers of artifacts decrease at this time, and biface production declines; similar observations are made at other sites in the region. At the same time, some contact with the horticultural Fremont and Anasazi cultures to the east and south is indicated by the occasional appearance of ceramics (Elston 1986:146).

3.1.2 Pre-contact/Proto-historic Numic (~750-150 years ago)

According to some researchers, the pre-contact/proto-historic period occurred ca. 700 to 1,000 years before present in the study area; others argue for a longer period of development (Nickens 2005:30). Early ethnohistoric cultural patterns, such as those outlined by Steward (1941, 1997), are assumed to extend back in time. Property types associated with the Pre-contact/Proto-historic numic period include: traditional origin and mythological places, ceremonial locations, habitation places, trails, burial places, resource collection places and area, along with associated campsites. The period is marked by the presence of Desert series projectile points and Intermountain brownware pottery (Nickens 2005).

After the Anasazi vacated southern Nevada around A.D. 1150 or 1200, the region's ethnic and linguistic picture increases in complexity. Late in prehistory (approximately A.D. 1000), it appears that Numic speakers expanded into southern Nevada and adjacent Arizona from the west or southwest. In the extreme south, Hakatayan, and later, Yuman-speaking groups occupied a broad area extending to the Gulf of California (Schroeder 1979). It is likely that groups representing both of these traditions interacted in some fashion with the Anasazi, but the exact nature of these contacts remains unclear (Lyneis 1982b). Evidence from three sites in the central area, the Slivovitz and Civa II shelters located in the Coal Valley-Garden Valley area, and the Lowe Shelter located in the Mud Lake area, indicate contact between local groups and farming communities in the Fremont area to the east, the Virgin Branch area to the southeast, and possibly the Patatan area to the south (HRA 2005:33).

To the north in the central Great Basin, the end of the Late Archaic is marked by changes in technology, subsistence, and settlement patterns. Brownware pottery and Desert series projectile points, hallmarks of Thomas' (1982) Yankee Blade phase, are introduced at this time. Evidence suggests an increased focus on gathering, particularly an intensification of piñon exploitation. This is accompanied by an increase in house size, settlement size, and sedentism, culminating in the large valley floor villages documented for the Western Shoshone of the ethnohistoric period. In some areas, in fact, temporary high-altitude hunting camps are replaced by far more substantial residential base camps (Elston 1986:146).

One of the most important regional developments during the late prehistoric period was the apparent expansion of Numic-speaking or Shoshonean groups throughout most of the Great Basin. Many researchers accept the proposition that sometime around A.D. 1000 the Numic spread eastward from a homeland in the southwestern Great Basin, possibly Death Valley (Lamb 1958) or the Owens Valley (Bettinger and Baumhoff 1982). While there is little dispute that the Numic spread occurred, there is much disagreement over its mechanics and timing (see Madsen and Rhode 1995). It is apparent, however, that the ethnographic Western Shoshone and Southern Paiute are manifestations of the entry of

Numic speakers into central and southern Nevada sometime during this period. Numic speakers comprise a branch of the widespread Uto-Aztecan language family. The Western Shoshone peoples, together with the Panamint and Comanche, spoke varieties of Central Numic. The Southern Paiute and Chemehuevi represent the Southern Numic branch, while the Mono and Northern Paiute comprise the Western Numic. Characteristics of these late period assemblages in southern Nevada include Desert series projectile points, brownware ceramics, unshaped handstones and milling stones, incised stones, mortars, pestles, and shell beads (Warren and Crabtree 1986). Research themes explored by archaeologist during this time period include: the Numic expansion; settlement and subsistence patterns; land use dynamics and mobility strategies; trade and exchange relationships; population movements and ethnic boundaries (Nickens 2005).

3.2 AMERICAN INDIAN HISTORIC PERIOD

The Caliente rail alignment would cross lands historically occupied by two indigenous ethnic groups, the Western Shoshone and the Southern Paiute, and the Mina rail alignment would cross lands historically occupied by the Northern Paiute and the Western Shoshone. Other neighboring groups, such as the Owens Valley Paiute and Shoshones from adjacent regions, had strong kinship ties and occasionally visited the region.

The Western Shoshone, Southern Paiute, and Northern Paiute were characterized by local subgroups, defined by slight language or dialectical differences, traditional centers of residential occupation, more or less regular home ranges or districts, and closeness of kin ties. Local subgroups clustered around small oases scattered throughout the desert where springs and flowing streams could be found. Mountains and surrounding valleys were important resource collection areas, but seasonal changes in food availability prevented areas from being occupied year-round. Figure 3.2.13-1 shows areas occupied by these subgroups.

The rail alignments would cross or be adjacent to the territories of several American Indian subgroups. Western Shoshone areas include the Oge'pi District near Beatty; the Piadoya District in the Kawich Range, extending into Stone Cabin Valley and Reveille Valley; the Lida-Goldfield area; and other subgroups in Ralston Valley, Hot Creek Valley, and Railroad Valley. The eastern part of the rail alignment was inhabited by two Southern Paiute subgroups, the Pahrnagat of the Pahrnagat Valley and Pahroc Range areas, and the Panaca of Meadow Valley Wash near the present-day City of Caliente and town of Panaca. Northern Shoshone areas include the *Aga idökadö* District north and east of Walker Lake and the *Pakwidökadö* District south of Walker Lake. Western Shoshone subgroups include bands based in the Lida-Goldfield area.

Following initial contact by European Americans in the early to middle 1800s, native people in central and southern Nevada began to adapt to changing conditions as settlement and development by miners, prospectors, and ranchers rapidly encroached on the landscape. As their essential resources were being lost to the Euroamerican expansion, the Western Shoshone, Southern Paiute, and the Northern Paiute were forced to confine their activities to selected reservations carved out of small portions of their traditional lands. Given the difficulties of making a living on these restricted areas, many responded by providing labor and other services to mining and ranching ventures, often times living in mining towns or at ranches. In the vicinity of the region of influence, there were Indian encampments at mining communities in the Beatty–Bullfrog, Goldfield, Tonopah, Reveille Valley, and Panaca–Pioche areas. There was another Western Shoshone village on the eastern side of Stone Cabin Valley, where American Indians worked as ranch hands and laborers for the Reeds Ranch and the Reeds United Cattle and Packing Company, which operated over 12,000 square kilometers (3 million acres) between 1906 and 1940. American Indian children attended small schools set up at places such as Reeds Ranch and the Reveille Mill.

Northern Paiute

The northern extent of the Mina Corridor study area lies within the traditional territory of the Northern Paiute, a Great Basin people comprised of culturally and politically distinct populations that shared linguistic similarities (Fowler and Liljeblad 1986:435-437). The Northern Paiute occupied an economically diverse area ranging from north of the Owens Valley, California, along the east side of the Sierra Nevada mountains, and north to approximately the John Day River in Central Oregon. The area is characterized by basin and range topography; scattered throughout are specific sub areas that provided exceptional resources. Two regions within Northern Paiute territory contained large freshwater lakes, Walker Lake associated with the Walker River, and Pyramid Lake, associated with the Truckee River. Groups centered around these lakes and rivers were able to take advantage of large and abundant fisheries focused on cutthroat trout, chub, and other species. Seasonal attention to these species affected both settlement patterns, which were often semi sedentary during the fishing season, and material culture. Other areas within Northern Paiute territory can be characterized for their extensive freshwater marshes, including those at Carson Sink, Humboldt Sink, and the middle Walker River. The exploitation of marsh resources is reflected in a predominance of tule technology in these areas, and a focus on seasonal and permanent waterfowl (Fowler and Liljeblad 1986:437-438).

Northern Paiute bands were comprised of small fluid groupings consisting of individual households or families that exploited resources in a shared territory. Subsistence was based on intensive exploitation of resources on a seasonal basis by these smaller family groups that would regularly band together into larger camps during harvest periods. In a typical seasonal round, spring was a time for gathering roots, and Great Basin peoples would congregate into larger groups at traditional root grounds or fishing areas. People dispersed into smaller more mobile units during the summer, and collected berries, hunted, and fished. Summer camps were smaller, and dwellings often consisted only of brush windbreaks or sun shelters. By late summer, seeds and berries were ready for harvest. With the on-set of fall, winter camps were prepared and intensive hunting activities took place, including rabbit and antelope drives. Winter camps were located near water sources and were comprised of populations of about 50 people; traditional villages were not formed due to environmental pressures, and the dwellings were not closely spaced (Fowler and Liljeblad 1986:443). Winter dwellings were typically conical mat houses occupied by a single family. The winter season was a time of rationing and less mobility, supplemented by limited hunting and fishing, until the cyclic abundance of roots and salmon began again in spring.

The introduction of the horse in the-mid to late 1700s resulted in dramatic changes to traditional subsistence patterns of some Northern Paiute bands. In spite of linguistic differences, some Northern Paiute bands, particularly from eastern Oregon, joined with Shoshone groups of Idaho and traveled widely throughout the Snake River Plain. This group became known as the Bannock, and adopted an equestrian lifestyle provided by the increased mobility, including raiding, buffalo hunting, other Plains social traits (Fowler and Liljeblad 1986:455). The adoption of the horse did not affect all Northern Paiute groups to the same degree, however, and many groups remained unmounted at the time of Euroamerican contact. In 1827, however, trapper Jedediah Smith encountered a band of 20 to 30 horseman at Walker Lake. Peter Skene Ogden had a similar encounter with an estimated 200 mounted Indians at Humboldt Sink in 1829. Both of the groups encountered were in possession of Spanish blankets, buffalo robes, and Euroamerican goods, indicating that at least some outside influence on material culture in western Nevada by this time Fowler and Liljeblad 1986:455).

Western Shoshone

At its southern extent, the proposed Mina Corridor passes from Northern Paiute territory into the lands of the Western Shoshone. The ethnographic territory of the Western Shoshone extended from Death Valley, California northeast across Nevada and into northwest Utah and southern Idaho (Thomas et al. 1986). Steward (1937, 1938) identified as many as 48 subgroups within this territory, and linguistic information indicates that several different varieties of Central Numic languages were spoken. Sources of ethnographic data regarding the Western Shoshone include the works of Steward (1938), Kroeber (1925), and Eggan (1980), among others, as well as a summary by Thomas and colleagues (1986).

Available documentation suggests that Western Shoshone subsistence practices were based on exploitation of a variety of floral and faunal resources procured during the course of relatively frequent moves within a territory. Small family groups relied primarily on the gathering of plant foods, including seeds, piñon nuts, greens, roots, and berries. Resource emphasis varied, however, depending upon the seasonality and local availability of specific plants. Piñon nut harvests occurred in the fall, especially in the Kawich Range (Steward 1938), and stored nut reserves provided the bulk of the diet during winter months. In the westernmost zones of Western Shoshone occupation, mesquite pods comprised an important dietary staple, while sage (*Salvia*, not to be confused with sagebrush) seeds, cactus, crucifers, agave, and gourds provided significant subsistence resources for groups in the south (Thomas et al. 1986).

Gathering of plant foods was supplemented by hunting of large and small game. Hunted animals include bighorn sheep, antelope, deer, jackrabbit, cottontail, pocket gophers, ground squirrels, reptiles, and birds. Reptiles and rodents were caught using various methods, while jackrabbits, cottontails, and antelope were often procured through communal game drives. Deer was not a significant subsistence resource among southern Western Shoshone groups, but bighorn sheep, generally procured individually through ambush or through chance encounters, were important for some groups.

Due to their mobile lifeway, Western Shoshone habitation structures tended to be simple. Conical huts of poles and bark, sometimes held in place by rocks, served as winter dwellings. Lighter structures of brush served as dwellings and/or shades in warmer months, and circular or domed wickiups were employed by some groups. Conical sweathouses were common to all Western Shoshone, and menstrual huts were utilized by most groups.

Items of material culture related to subsistence activities included sinew-backed bows, animal-skin quivers, arrows of willow and reed, hunting nets, flaked stone tools, milling stones, and digging sticks. The gathering and processing of plant foods was facilitated by the use of coiled baskets, twined seed beaters and winnowing trays, and twined conical burden baskets. Ceramics were generally manufactured locally.

Western Shoshone social organization was apparently fluid and simple, primarily due to the high residential mobility, small group size, and disproportionate resource distribution throughout their territory. Small territories were loosely defined around winter villages, or valleys were occupied by several family groups that hunted and gathered within and between various ecological zones as seasonal resources became available. Several families would winter together at a central village, the composition of which could vary from year to year. An informal headman was recognized at the winter village, but such individuals had little authority. The Western Shoshone apparently enjoyed relatively congenial relations with neighboring groups.

Several trappers and explorers traversed Western Shoshone territory in the early 1800s, including Jedediah Smith, Peter Skene Ogden, and John C. Fremont. Later development of homesteads, settlements, and mining within the territory ultimately brought an end to the traditional Shoshone lifeways. The wave of emigrants rushing to California after the discovery of gold in 1848 and the subsequent discovery of the Comstock lode in Nevada in 1859, resulted in conflicts between Euroamericans and Western Shoshone, culminating in raids on travelers. As a result, several treaties were signed in 1863 to end the hostilities, develop commerce, pay reparations, and establish reservations. Implementation of such measures was not forthcoming, however, and many Western Shoshone refused to submit to reservation life. It was not until after 1900 that federal lands reserved for the Western Shoshone became widely occupied by them, marking a significant shift away from the traditional way of life.

Southern Paiute

The Southern Paiute belong to the southern Numic branch of the Uto-Aztecan language family. Sixteen ethnographically distinct groups of Numa occupied a broad strip of territory extending across southern Nevada (Las Vegas and Moapa bands of the Southern Paiute), southern Utah, and portions of southeastern California and northern Arizona. The Southern Paiute inhabited a relatively large area extending into the Mojave Desert up to the southern Great Basin, including the Spring Range. Generally, Paiute bands were

economically self-sufficient but shared a relatively uniform culture (Euler 1966; Kelly and Fowler 1986). Ethnographic research among the Southern Paiute began as early as the 1870s with the work of John Wesley Powell, edited by Fowler and Fowler (1971). More extensive research was conducted by Kelly in the early 1930s (Kelly 1964); most of these findings remain unpublished. The following discussion is focused primarily on the Las Vegas subgroup and based on syntheses of Southern Paiute ethnography and ethnohistory compiled by Kelly and Fowler (1986) and Euler (1966).

The Southern Paiute commonly employed a mobile settlement system dependent upon the seasonal availability of a wide variety of plant and animal resources. Large game consisted primarily of bighorn sheep and deer. Most frequently hunted, however, were such small animals as rabbits, gophers, squirrels, mice, and woodrats. Several species of birds were also used for meat and eggs. Lizards, snakes, and tortoises were eaten along with ant larvae, locusts, and caterpillars (Kelly and Fowler 1986).

Several plant resources were heavily utilized by the Southern Paiute. Pinyon nuts were available at higher elevations and were considered a staple. Agave (*Agave utahensis*) was also an important part of the diet. It grows extensively on uplands throughout the territory and can be harvested year-round. In addition, several varieties of seeds were collected to be ground into flour and used for meal or bread (Kelly and Fowler 1986). Before Euroamerican occupation in the mid-nineteenth century, several Southern Paiute groups developed simple horticultural practices. Although the cultivation of crops appears to have supplemented the Southern Paiute diet, horticulture seems to have been of minor importance in the subsistence system when compared to the traditional hunting and gathering of wild foods (Steward 1938).

Ethnographic reports of the material culture of the Southern Paiute note the use of a variety of items, including the bow and arrow with stone or hardened wood tips, flaked stone knives, milling stones, stone pipes, digging sticks, basketry, and ceramics (Euler 1966). Baskets were produced in a variety of different forms to accommodate various uses. Winnowing trays were fan-shaped, for instance, while carrying baskets were more conical in shape. Infant carriers and basketry cradles were also common items, and typically included a woven shade or visor. Most baskets were manufactured using a twining method, but depending on intended use, a coiling method was also employed. Several products, such as water jugs, were coated with pinyon pitch to make them water-tight (Kelly and Fowler 1986).

Ceramic technology was practiced by most of the Southern Paiute groups. Some types of clay did not require the use of temper, but for other clays, cactus juice or dried roots were used as tempering agents. The Las Vegas peoples employed sand tempering, indicating a Mojave influence. The Panaca and the Moapa Paiute began their pots with a spiral and worked upward into conical shapes using concentric circles of rolled clay. The Las Vegas group, on the other hand, used the paddle-and-anvil technique and often painted their vessels in a decorative manner (Kelly and Fowler 1986).

The Southern Paiute did not exhibit any overall political organization between groups, nor was there any central control within the groups themselves. Each group contained a number of economic units, comprised of clusters of families, much like bands in other tribal organizations. These bands usually had a headman who took on advisory responsibilities. The headman of a band was typically a brother, grandson, or uncle of the previous headman, but was rarely, if ever, the headman's son (Kelly and Fowler 1986). Boundaries between groups were not formal and allowed for the utilization of resources "belonging" to neighboring groups. Springs, however, were private property and were inherited (Kelly and Fowler 1986).

In general, relationships between Southern Paiute ethnographic groups were peaceable. Marriage and trade took place between groups, and conflicts were uncommon. Relationships with non-Paiute groups, however, were more varied. A congenial relationship existed between the Southern Paiute and several neighboring groups, such as the Western Shoshone to the northwest. Some Las Vegas peoples even spoke the Shoshone language. Other neighboring groups, however, such as the Navajo, invoked fear among the Paiutes, and occasionally stole horses, children, and women (Kelly and Fowler 1986). Kroeber (1925) also notes that the Moapa subgroup occasionally met with hostility from lower Colorado River peoples when crossing the Colorado River.

Early Spanish incursions into the Southwest, beginning about 1540, had little direct impact on Southern Paiute groups for as long as 250 years. By the early nineteenth century, however, Spanish impacts were both direct and devastating. The Spanish colonies of northern New Mexico and southern California practiced institutionalized slavery, and archival evidence suggests that some Southern Paiutes may have been held as slaves in Santa Fe and surrounding communities as early as the late 1700s. Their presence in that area by 1810 is well documented. The Southern Paiute were located between Ute raiders on the north and east, and Navajos on the south. They also resided along the Old Spanish Trail, which opened for commerce in the 1830s and became a route for slaving activities. Southern Paiute captives were often sold as slaves in Santa Fe or carried off to southern California, transported there by Ute captors or sold to traffickers along the Trail. Euler (1966) cites historic documentation noting the absence of Southern Paiute from ecologically favorable, but heavily traveled, areas within their territory in the 1830s and 1840s, suggesting that they may have been avoiding possible capture. He also notes reports of open aggression and hostility among some Paiutes in the 1840s, perhaps demonstrating retaliation against slave traffickers. This is in marked contrast to the peaceable temperament reported for the Southern Paiute in the pre-contact period (Kelly and Fowler 1986).

Slave raiding against the Southern Paiute came to an end shortly after the Mormons arrived in Utah in 1847. This positive effect, however, was soon offset by the negative effects of a permanent Mormon presence. Mormon farms and settlements spread throughout Utah and southern Nevada by 1855, displacing Southern Paiutes from their best gathering and horticultural lands. Traditional food supplies were further depleted by livestock, timbering, and other activities. The Southern Paiute retaliated by raiding settlements and travelers during the late 1850s and the 1860s. Within the next two decades, several reservations were established, including the Moapa Reservation on the Muddy River in 1872; the Colorado River Reservation in 1874; and the Shivwits Reservation, near Saint George, Utah, in 1891. Other Southern Paiute reservations, including the Las Vegas Colony (1911), were established in the early twentieth century (Kelly and Fowler 1986).

The American Indian Historic Period themes identified in this historic context are derived from associated events that helped shape the development of the study area. Each theme spans a particular time period, however, events contributing to more than one theme occurred at any given point in time. Therefore, time periods for many of the historic context themes overlap. The American Indian historic period is divided into three subgroups defined by Nickens (2005): (1) Contact; (2) Co-Existence; (3) Consultation.

3.2.1 Contact (1849-1875)

According to Nickens (2005: 31) the Contact period is marked by exploration and emigration parties, e.g., 1849 Death Valley Party, Wheeler (1871), and Fremont (1853-54), early mining ventures in the Reveille Range, and the Pioche and Paranagut areas, the Ruby Valley Treaty of 1863, and the Mormon settlement of eastern Nevada, including Meadow Valley. Archaeological sites include a combination of Euroamerican and American Indian artifacts. Nickens (2005:31) has established a list of property types and research themes that may be associated with the Contact period. Associated Property Types include: Traditional origin and mythological places, ceremonial locations, historical locations, habitation places, including temporary seasonal occupations, trails, burial places, dance/festival sites. In addition, research themes include: Traditional Shoshone and Paiute adaptation to the study area; territory encroachment by exploration and emigration; interaction, conflict, and accommodation with Euroamericans; early resource appropriation; introduction of horse and other nontraditional items; trade; early Mormon and non-Mormon settlement; early mining (Nickens 2005:31).

3.2.2 Co-existence (1860-present)

According to Nickens (2005:32), the Co-existence period begins with established Euroamerican presence in the study area, around 1860, until recent times. Various authors identify this period as very complicated and exceedingly culturally stressful for the Shoshone and Paiute peoples (cf. Bengston 2003:37-44, Crum 1994, Knack 2001, and Stoffle and Dobyns 1983:89-160). Nickens (2005:32) has established a list of property types and research themes that may be associated with the Co-existence period. Property types include: homesteads, farms, or ranches; pinyon gathering camps; neighborhoods on the fringes of ranches; mining towns and other settlements; and reservation settlements. Additionally, research themes include:

continued territory encroachment; usurping of land, water and other resources; resistance and conflict; economic interaction and intermarriage; treaties and establishment of reservations; colonies, homesteads, and allotments; response to diseases; demographic changes and changes in social cohesion and political integration; cultural responses to change such as the Ghost Dance; transition from traditional subsistence strategies to employment and wage labor; education at boarding schools and alternative forms of formal learning; cultural persistence; termination of land claims; self determination

3.2.3 Consultation (1980-present)

According to Nickens (2005:33), the Consultation period begins around 1980. The last 25 years has generated a wealth of ethnographic information for central and southern Nevada in response to requirements of federal government laws and regulations. A large number of these investigations have been conducted with direct participation of American Indian people. Nickens (2005:33) has established a list of property types and research themes that may be associated with the consultation period. Property types include: creation story locations and boundaries; sacred portals recounting star migrations; universal center locations; historic migration destiny locations; places of prehistoric revelations; traditional vision quest sites; plant-animal relationship locations; mourning and condolence sites; historic past occupancy sites; local and regional trails; spirit sites; recent historic event locations; plant, animal, and mineral gathering locations and associated trails; and sanctified ground. Additionally, research themes include: identifying and understanding cultural landscapes, including creation, ceremonial, and residence places; connections to places and local landscapes; spiritual connections to places; individual learning and vision quests; individual healing and balancing; community healing and balancing; places for worldwide healing and balancing; trails to the afterlife; song trails; creation stories.

3.3 EUROHISTORIC PERIOD

The Eurohistoric period themes identified in this historic context are derived from associated events that helped shape the development of the Study Area. Each theme spans a particular time period, however, events contributing to more than one theme occurred at any given point in time. Therefore, time periods for many of the historic context themes overlap. The Eurohistoric Period is divided into five subgroups defined by Nickens (2005): (1) Exploration; (2) Early Mining; (3) Early Settlement and Land Use; (4) Early Transportation; (5) Later Mining.

3.3.1 Exploration (1849-1900)

Euroamerican incursion into the Great Basin was considerably slower than in other regions of North America. Consequently, American Indian groups in the intermontane West were able to survive early contact better than many other tribes and bands. During the first decades of contact, they were able to develop responses to the pressures exerted by Euroamericans on Native culture. Consequently, by the reservation period of the 1860s, they had adopted means of resistance and acculturation that permitted the survival of much of their traditional lifeways (Malouf and Findlay 1986:499).

Present-day Nevada remained largely unexplored by Euroamericans prior to 1826. Fifty years earlier, in 1776, the Spanish Garcés and Dominques-Escalante parties ventured near the area in an attempt to establish a land route linking the Spanish settlements of the Southwest with those of the southern California coast, but did not actually enter present-day Nevada. These expeditions are important, however, in that they document the first Euroamerican penetration of the Great Basin (Cline 1963:35). Although the Spanish period, which lasted until 1820 or so, was a time of minimal contact between Europeans and Indians, it did see the adoption of the horse by some Indian groups as well as the start of trade relations. Most Northern Paiute and Western Shoshone groups, however, resisted adaptation to the horse because it did not suit their habitat or way of life (Malouf and Findlay 1986:499-500).

Contact between Euroamericans and Indians increased somewhat during the Mexican period, from 1821 to 1846, particularly as a result of the fur trade, exploration, and the beginnings of overland migration (Malouf and Findlay 1986:499). The first successful crossing of southern Nevada was made by Jedediah

Smith and his party in 1826. Smith followed a route from the Great Salt Lake area south to the Virgin and Colorado rivers, across the Mojave Desert to Spanish southern California, a difficult trip which he repeated the next year. His return east on the first trip included crossing the Sierra Nevada, entering the present state of Nevada, and passing to the south of Walker Lake on his journey to the Great Salt Lake (Cline 1963:153, 157-158; Malouf and Findlay 1986:502-504). Smith's ventures down the Virgin and Colorado rivers linked the Dominques-Escalante route, which originated in the Spanish settlements of New Mexico, with the Garces route, from the Spanish settlements of southern California, stimulating trade between these regions (Wright 1982).

At about the same time as Smith and his American trappers were entering the Great Basin from the east, trappers and traders from the British Hudson's Bay Company were arriving from the Pacific Northwest. Foremost among these was Peter Skene Ogden, who led a series of four expeditions into the northern Basin and Snake River plateau between 1826 and 1830, locating the Humboldt River and Humboldt Sink, as well as traveling south to Walker Lake and the Owens Valley. Specifically, on his 1829-1830 expedition, Ogden and his party retraced their steps of the previous year from the Columbia River to the Humboldt Sink, continued south to the Carson Sink and on to the Walker River which they followed down to Walker Lake. Continuing south and southwest past the location of present Hawthorne, Nevada, the party eventually reached the Owens River and Lake, following the Owens Valley south to the Mojave Desert (Cline 1963:125-127). In 1833, an American party under the leadership of Joseph Reddeford Walker followed the Humboldt River and crossed the Sierra Nevada, returning the next year via the Owens Valley, Walker Lake, and the Walker River. On both trips, Walker and his men clashed with Northern Paiute in the vicinity of the Humboldt Sink (Cline 1963:176; Malouf and Findlay 1986:505-506).

Exploration had continued in the south, as well. In 1830, New Mexico merchant Antonio Armijo reached the Las Vegas Valley, pioneering a route that became the northern branch of the Old Spanish Trail. John C. Fremont later traveled through the region on three journeys, including an expedition through Las Vegas Springs via the Old Spanish Trail in 1844. His notes and maps were published the following year, popularizing the northern trail through the Las Vegas Valley (Myhrer et al. 1990; Roske 1986). Trade along the Old Spanish Trail ended in 1848 with the Mexican War. Travel through the Las Vegas Valley, however, continued on the Mormon Road, a variant of the Old Spanish Trail, linking Mormon headquarters in Salt Lake City with southern California (Paher 1971).

The trails established by trappers and traders across the Great Basin eventually became heavily traveled overland routes to the Pacific coast. Explorers, migrants, and eventually the transcontinental railroad all made their way across the Basin (Malouf and Findlay 1986:503). The Old Spanish Trail and the California Trail along the Humboldt River tended to channel overland travel to the Pacific, with most early parties following the northern of the two routes. Two of the earliest groups, the Bidwell-Bartleson party of 1841 and the Walker-Chiles party of 1843, in part followed the trail established along the Walker River to the vicinity of Walker Lake before continuing on to California (Cline 1963:183-187).

The surge of travelers along the Overland Trail corridor peaked after the discovery of gold in California in 1848, placing increasing pressure on resources along the Humboldt, all of which were heavily relied upon by Indian inhabitants. In the face of these destructive forces, many native inhabitants were forced to withdraw from former habitations along the river. Those who remained were often forced into conflicts with the whites. Similar, though perhaps less intensive, impacts also occurred along the Old Spanish Trail (Malouf and Findlay 1986:506-507).

Nickens (2005:34) has established a list of property types and research themes that may be associated with the Exploration period. Property types include: unmarked trails and routes; mountain range passes, campsites near springs. In the study area, this includes: the Jayhawkers's Trail (Death Valley Party of 1849) in the Panaca area, Bennett Pass, Dry Lake Valley, White River Valley, Garden Valley, and Sand Spring Valley; John C. Fremont (1853-54) in the Garden Valley Sand Spring Valley, southern Railroad Valley, and southern Reveille Valley; George Wheeler's routes of travel (1871); Carl Alberts Purpus

plant collection explorations (1898) in the Pioche, Bennett Springs, Bennett Pass, Dry Lake Valley, Pahrac Spring and Range, Sand Spring Valley, Railroad Valley, Reveille Range, and Twin Springs Ranch. Research themes include: exploration; survey; scientific surveys; and contacts with American Indians.

3.3.2 Early Mining (1865-1880)

In addition to a military presence, the discovery and extraction of various ores and minerals in western Nevada necessitated the construction of new transportation operations. In 1880, the Carson and Colorado (C&C) Railroad Company was formed. The corporation was formed by William Sharon, Hume Yerington, and Darius Mills with the goal of running narrow gauge rail from the vicinity of Carson City, Nevada to the Colorado River. Construction of the C&C line began in 1880 and ran from Carson City south along the east side of Walker Lake and extended south to Keeler, California near the northern shore of Owens Lake. The C&C line was sold to Southern Pacific in 1900 for the sum of \$275,000.00. By this time the gold mining boom had waned in the Carson City area but within a short time thereafter gold deposits in Tonopah were discovered and the line continued to deliver supplies from Owens Valley to the Nevada mining operations.

To the north, in Nye, Lincoln, and Esmeralda Counties, mining remained the major economic interest. By 1870, a number of mining districts were established throughout south-central Nevada. Major community centers were also appearing, including Belmont, Austin, Pioche, and Hiko. By the early twentieth century, conditions began to change. Precious metals were discovered in Tonopah in 1900 and Goldfield in 1902 and companies were formed to develop railroads and improve transportation to and from these economic centers. Besides gold, the mining of other ores including especially borax, a boron ore used in making cleaning products and in the manufacture of glass and ceramics, created additional need for rail transport in west central Nevada. In 1905 Francis Marion Smith initiated the construction of a narrow gauge rail line that would run from his borax mines near Gold Center, Nevada, south through the Mojave Desert and on to Ludlow, California. The new railroad was operated under the name Tonopah and Tidewater Railroad Company (T&T). The T&T operated as both a passenger train and supply train from 1905 to 1940. In June 1940 the last T&T run was made for special guests, workers and their families. The track lay in place until 1942 when Sharp & Fellows was awarded a contract to take-up the line for steel needed in support of the war effort. Removal operations were completed on the T&T by July, 1943 (http://www.ttrr.org/tt_tocs.html).

Nickens (2005:35) has established a list of property types and research themes that may be associated with the Early Mining period. Property types include: claim markers; discovery posts and cairns; small or large prospects; small campsites associated with individual claims; mining base camps established by organized prospecting parties; milling features and technological equipment; miner's housing including tent area, dugouts, and buildings of brick, wood, or cut stone; debris scatters and dumps; and transportation routes; (Nickens 2005:35). Early mining districts include: Freiburg (northern Worthington Range), discovered in 1865; Pioche (Highland range), discovered 1863; Old Reveille (Reveille Range) and Reveille Mill (Reveille Valley), discovered 1866. Early mining settlements occurred at each of these locations in response to needs associated with labor, equipment, and the transportation of ore, including individual properties such as mining sites, foundaries, ditches, boarding houses, saloons, and mining and trading posts. Research themes include: American Indians as original discoverers; exploration and discovery of districts; mining and milling technology; mining camp housing and lifeways; American Indians as wage earners in mines and associated settlements.

3.3.3 Early Settlement and Land Use (1865-1940)

The United States officially acquired the territory of the Great Basin as a result of the Treaty of Guadalupe Hidalgo in 1848, which concluded the Mexican-American War. The first Euroamericans to settle in the Basin were the Mormons, who sought refuge in the Salt Lake Valley in 1847, then a remote part of Mexican territory. The Mormons were the first to arrive in the Great Basin with the intent of settlement and quickly established a number of missions throughout the territory. Among the first of

these was Mormon Station, later renamed Genoa, located on the Humboldt River trail from Salt Lake City to Sacramento via Carson Pass, about 60 miles south of present-day Reno, settled in 1851. Other settlements soon followed. In 1855, Mormon leader Brigham Young selected Las Vegas as a location for a Mormon settlement, although the mission was terminated in 1857 and abandoned by 1858. Permanent Mormon communities were established in the 1860s, including Panaca, Eagle Valley and Clover Valley in the upper Meadow Valley Wash, and Moapa, West Point, St. Joseph, and St. Thomas along the Muddy River (Rusco and Munoz 1983:74).

Following in the footsteps of the Mormons, small farms and ranches began appearing in some of the more well-watered portions of the Great Basin. But it was the discovery of silver at the Comstock Lode that spurred major migration to western Nevada in the 1850s and 1860s. Mormons had begun small-scale panning for gold in the creeks of the Carson Valley as early as 1850. Limited success led others to move to the area in relatively small numbers, particularly in relation to the number of miners settling in California. In 1859, however, miners working near Gold Hill, south of Virginia City, determined that the bluish mineral hindering the recovery of gold was actually high-grade silver ore. Soon known as the Comstock Lode, the find was the richest known deposit of silver ore discovered in the United States, resulting in the generation of immense fortunes for several individuals as well as stimulating growth in both San Francisco and the state of Nevada (Young 1970:234-240).

As the population in the Virginia City and Carson Valley areas expanded, conflicts with native inhabitants also increased, as Indian populations were forced out of traditional homelands and the already scarce resources upon which their livelihood depended were exhausted. Settlers demanded protection, and in 1860, the U.S. Army established Fort Churchill on the Carson River. Following a dispute at Pyramid Lake during which local Native Americans killed three white men who had kidnapped two Indian girls, a retaliatory force of 105 volunteers were successfully fended off by the Indians. A second force of regular army troops from California joined the remaining volunteers and defeated the Indians at Pyramid Lake. These events hastened the call for a fort that could protect the settlers of the Carson City area and the nearby Pony Express outpost. In 1860 money was allocated for its construction and the fort, named after the Inspector General of the Army, was completed that same year. The fort itself was an installation consisting of adobe buildings on stone foundations arranged about a square parade ground in the center. Standing forces at the fort averaged about 200 individuals. Nine years after its construction the fort was abandoned and sold to a private party. On February 16, 1961 the fort was given back to the State of Nevada (National Park Service; <http://parks.nv.gov/fc.htm>).

Nickens (2005:36) has established a list of property types and research themes that may be associated with the Early Settlement and Land Use period. Property types include: ranches and related property types; towns and related property types; farms and related property types; mining districts and related property types. Early settlement in the study area focused on the following areas: Meadow Valley, Lincoln County; Coal and Garden Valleys, Lincoln and Nye counties; Reveille and Stone Cabin Valleys, Nye county; Goldfield area, Esmerelda County; and upper Oasis Valley, Nye County. Research themes include: settlement patterns for farming, cattle ranching, sheep ranching, and mining efforts; interaction with American Indians; resource use and depletion; transportation networks; social interaction between groups.

3.3.4 Early Transportation (1860-1920)

Early transportation routes began in association with the development of early mining and settlement efforts in the vicinity of the study area. A review of historic maps offer a view of sequential development from early wagon roads to more permanent auto roads in the early twentieth century. Railroads played a central role in the eastern and western sectors of the study area. In the east, early railroads include the San Pedro, Los Angeles and Salt Lake Railroad that would become the Union Pacific route today and the Caliente and Pioche Railroad. In the Tonopah and Goldfield vicinity, the following railroads were extant in the early 1900s: Tonopah and Goldfield Railroad; Las Vegas and Tonopah Railroad; Bullfrog and

Goldfield Railroad. The lifespan of a given railroad can be subdivided into three phases: the construction; the use and maintenance, and the removal and abandonment (Nickens 2005:38)

Nickens (2005:37) has established a list of property types and research themes that may be associated with the Early Transportation period. Property types include: roads; unimproved, rutted, or desert roads; debris scatters or dumps along the linear route; landscape or construction features; stream and arroyo crossings; railroad construction camps; debris scatters and dumps; sidings; stations; wyes; railroad grades and berms; drainage crossings; diversion and road crossing features; tunnels; locations of disasters (wrecks, floods, etc.) Research themes include: road or railroad construction; technological development and maintenance; demographic information associated with roadway or railroad construction and support workers; railroad operation; linear alignments and associated components as part of a regional transportation system; the relationship between regional transportation and economic systems; ethnic differentiation and activities during construction; abandonment; and reuse.

3.3.5 Later Mining (1900-1920)

The early twentieth century mining boom in central and southern Nevada led to the development of several mining districts and associated towns. Large-scale developments were located at Tonopah, Goldfield and the Beatty area. Smaller mining ventures and districts occurred in Pioche and Caliente area in the east, the Worthington Range, Reveille Range (New Reveille and Arrowhead), and the Kawich Range (Clifford, Bellehellen, Gold Arrow, Blake's Camp, Eden, Harriman, and Silverbow).

Nickens (2005:39) has established a list of property types and research themes that may be associated with the Later Mining period. Property types include: claim markers; discovery posts and cairns; small or large prospects; small campsites associated with individual claims; mining base camps established by organized prospecting parties; milling features and technological equipment; miner's housing including tent area, dugouts, and buildings of brick, wood, or cut stone; debris scatters and dumps; transportation routes; and water source developments (Nickens 2005:39). Research themes include: American Indians as original discoverers; exploration and discovery of districts; mining and milling technology; mining camp housing and lifeways; American Indians as wage earners in the mines and associated settlements; town development; impact of railroads.

3.4 CULTURAL LANDSCAPES

Based on the literature review completed by Nickens (2005) of the cultural history of the region of influence, DOE identified several examples of potential cultural landscapes reflecting significant ethnographic, mining, ranching, and railroading activities that might be eligible for listing on the *National Register of Historic Places*.

The potential cultural landscapes in the Caliente Rail area include:

- Ethnographic. Historic period Western Shoshone villages and surrounding use areas in Oasis Valley, the Goldfield area, Stone Cabin Valley, and Reveille Valley.
- Rural historic. Early cattle ranching operations in Oasis Valley, Stone Cabin Valley, Reveille Valley, and Railroad Valley, sheep ranching in northern Garden Valley and Coal Valley (including the neighboring Quinn Canyon, Golden Gate and Seaman Mountain Ranges), and the early Mormon settlement of Meadow Valley Wash. Historic mining districts in the Goldfield, Clifford, and Reveille areas.

The potential cultural landscapes in the Mina Rail area include:

- Ethnographic. Historic period Northern Paiute settlements in the Walker River and Lake area, and Western Shoshone villages and surrounding use areas in Oasis Valley and the Goldfield area.
- Rural Historic. Several historic mining districts, including the Santa Fe Mining District on the west slope of the Gabbs Valley Range east of Luning; the Mina or Silver Star Mining District in

the Excelsior Mountains southwest of Mina; the Sodaville Mining District in the south end of the Pilot Range east of Sodaville; the Silver Peak Mining District in the Clayton Valley area; and the Goldfield area. Historic railroad activities in the Luning, Mina, Sodaville, Silver Peak, and Goldfield areas.

3.4 SUMMARY

The area through which the rail alignment would pass demonstrates a history of diverse prehistoric and historic land-use patterns. Native peoples occupied this area for many thousands of years, as exhibited by the archaeological sites identified in the area. These sites include campsites, rockshelters, lithic scatters, quarries, rock rings and alignments, and rock-art sites. Euroamerican presence in the area is largely limited to the past 150 years or so, but is characterized by diverse activities represented at a wide variety of site types. Recorded and anticipated sites include early transportation features such as wagon and stage roads; railroads and railroad camps and sidings; homesteads; and mines, mills, and mining camps. Isolated features and artifacts related to all of these activities can also be anticipated.

This report provides an overview of the types of archaeological sites identified during the previous studies, historical events and activities that took place in the vicinity of the rail alignment, and the research themes associated historic contexts covering prehistoric and historic American Indian and historic Euroamerican activities and resources that have occurred throughout the study areas. Chapter 4 includes a list of references and sources that provide additional information regarding the results of the intensive archaeological and historical site file searches, statistical sample field surveys, and concentrated literature reviews.

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