BLM

WALKING BOX RANCH: Development Concept Plan

Draft Environmental Assessment

(DOI-BLM-NV-S020-2010-0001-EA)

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WALKING BOX RANCH: Development Concept Plan

Public Draft Environmental Assessment

Abstract

The Bureau of Land Management (BLM) proposes to establish a Walking Box Museum/Interpretive Center and Field Research and Training Center at the site of the historic Walking Box Ranch.

Located in the Piute Valley ACEC at the northern boundary of the Mojave Desert Preserve, the proposed museum/interpretive center would provide tours and interpretive displays on cultural and historical topics, as well as topics related to the Mojave Desert. Educational and historical programs would inform the public about the history of the main house, outbuildings, and ranch lands, as well as educate the public about conservation and preservation efforts underway in the Piute Valley.

The center would provide a natural desert setting where students, researchers, educators, federal land management agency personnel, and the public can focus on issues that increase knowledge and understanding of the natural and cultural resources of the Mojave Desert. The mission of the center will be to educate people on issues related to responsibility for conservation, sustainability, and stewardship of the natural and cultural resources in the Mojave Desert, and to provide research opportunities to enhance our understanding and management of desert lands and environments.

A master planning and preservation planning process has been undertaken in support of this vision for the Walking Box Ranch. The master plan and preservation plan have been combined to form a single document, which is henceforth referred to as the 'Development Concept Plan' (DCP).

Deadline for Draft EA Comments

Comments on the Draft EA must be received at the address provided below no later than: **July 18, 2010.**

For further information or to comment on the Draft EA, contact:

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EXECUTIVE SUMMARY

Background

Walking Box Ranch, located just west of Searchlight in Clark County, Nevada, was historically operated as a cattle ranch. Originally carved from the massive Rock Springs Land and Cattle Company, the ranch was purchased and occupied by silent film era stars Rex Bell and Clara Bow, beginning in May 1931. The property continued as an operating cattle ranch, under Bell and the subsequent ownership of Karl Weikel, through the 1980s until it was sold to Viceroy Gold Corporation in 1989. Viceroy used the property to access their local mine and rehabilitated the ranch headquarters to serve as an executive retreat. Since the mid-1990s, the property, located in the midst of an expansive desert tortoise conservation area, has changed hands several times and is now owned by the Bureau of Land Management (BLM).

Proposed Project

The BLM proposes to establish a Walking Box Museum/Interpretive Center and Field Research and Training Center (FRTC) at the site of the historic Walking Box Ranch (40-acre parcel).

The Southern Nevada Public Lands Management Act of 1998 (SNPLMA), among other things, provides for funding of selected Capital Improvement projects within Clark County in southern Nevada. Under two separate SNPLMA awards, funding has been allocated for the BLM to establish a Museum/Interpretive Center and FRTC at the site of the historic Walking Box Ranch.

The first SNPLMA project provides for rehabilitation of the historic structures at the Walking Box Ranch and phased development of a museum/interpretive center. As specified in the project nomination, the goal of the museum/interpretive center project is to “[educate] the public about the historic site and also about the biological diversity and geological features of the Mojave Desert setting.”

The second SNPLMA project provides for the development of a FRTC at the Walking Box Ranch. As specified in the project nomination, the goal of the FRTC project is “for the ranch to become a recognized facility for national training and research on important arid lands issues.”

Purpose and Need

By establishing the Walking Box Ranch Museum/Interpretive Center, the BLM has an opportunity to develop a facility dedicated to promoting public appreciation of a historic Southern Nevada site, to preserve some of the best examples of architecture and building materials representative of the time period of the early 1930s, and to provide a venue for public education about the fragile ecosystems and public land management of the Mojave Desert.

By establishing the Walking Box Ranch FRTC, the BLM has the opportunity to partner with the Nevada System of Higher Education (formerly UCCSN) in developing a facility dedicated to understanding and managing the fragile and biodiversity-rich ecosystems centered on the Mojave Desert. The Walking Box Ranch FRTC is envisioned as becoming the flagship property within an integrated network of field educational, research, and training sites located within and focusing on southern Nevada’s natural and cultural resources.

The Walking Box Ranch museum/interpretive center and the FRTC present a unique opportunity for exploring issues and opportunities related to sustainability in the desert, including both historic sustainable practices and modern sustainable or "green" technologies. The BLM proposes to design and develop the museum/interpretive center and FRTC, including both construction and programming, consistent with Leadership in Energy and Environmental Design (LEED) accreditation standards.

Scoping

Project scoping letters were mailed (December 24 and 26, 2008, respectively) to approximately 450 interested parties. The letters were intended to inform the agencies and public of the project and to invite comments and feedback on the proposal and its potential impacts. All letter recipients were given approximately 30 days to respond with comments. The BLM received three written comment responses, including one response from a private individual and two responses from interested agency or stakeholder groups.

Additionally, agency and stakeholder groups were invited to participate in a scoping meeting on January 20, 2009. Three agency/stakeholder groups were represented at the scoping session, including: The Nature Conservancy (TNC), U.S. Geological Survey, and the Red Rock Canyon Interpretive Association. Representatives from BLM, University of Nevada – Las Vegas (UNLV), and EDAW AECOM facilitated the agency scoping meeting.

Alternatives

For the purposes of this Environmental Assessment (EA), the Proposed Action alternative includes the desired program elements from the 2009 Development Concept Plan, as well as several additional program elements and site options identified in the 2008 Master Plan and Preservation Plan. These additional elements and options have been included to expand BLM decision space as well as to account for final design, site conditions, and market conditions at the time of implementation.

This EA analyzes the effects of a No Action alternative and a Proposed Action alternative as there are no other alternatives to this Proposed Action that would substantially differ in design or effect and still fulfill the Purpose and Need for the project (BLM National Environmental Policy Act [NEPA] Handbook 8.3.4.2).

Table ES-1 provides a summary of the key elements of the No Action and Proposed Action alternatives.

Table ES-1. Summary of Site-Specific Elements by Alternative.

Element	No Action	Proposed Action
NATIONAL REGISTER ELEMENTS		
Historic Buildings		
Ranch House	No changes to the existing structure	Preserved and rehabilitated; portions of the first floor would be used for interpretive and administrative purposes
Barn	No changes to the existing structure	Upgraded and reconstructed, including climate control and new concrete foundation; barn would serve as the gateway to the ranch and primary visitor contact station
Historic Structures		
Ice House Interpretive Exhibit	No changes to the existing structure; original ice house exists in nonhistoric location	Relocated elsewhere within the barn area, but not to historic location; used for interpretation or storage
Water Tank	No changes to the existing structure	Existing water tank to remain in use for fire suppression water storage; to be interpreted
Corrals	No changes to the existing structure	Existing corrals to remain and to be interpreted; would also serve as expanded exhibit space, group gathering areas, picnicking areas, and special event space; amphitheater-style seating for up to 25 people on haybales; southernmost corral used for event/overflow parking
Historic Site Features		
Walking Box Ranch Road / Site Entry	No changes to the ranch entry way	Ranch entry road improvements to include partial paving and additional signage
Boundary Fences	No changes to the existing structure	Existing corrals, fences, water tank, shed ruins, and wagon artifacts to remain and to be interpreted; minor modification, including removal or repair of some sections, as necessary, to ensure ranch security, delineate property boundaries, etc.
Pathways	No changes to the existing pathways	Circulation through the interior of the site, connecting points of interest, gathering areas, parking areas, and other essential amenities; patterns to take advantage of existing / historic 'corridors'
OTHER EXISTING RANCH ELEMENTS		
Bunkhouse	No changes to the existing structure; currently accommodates up to 12 guests in double-occupancy rooms	Completely remodeled for interpretive exhibits and/or support space; would not serve any overnight guests
Guest Cottages	(None existing)	One ~800 sq. ft. two-story duplex style guest cottage to accommodate faculty and VIP guests; located south and west of the historic core
Reconstructed 'Shop String'	(None existing, no interpretation)	'Shop string' is interpreted through exhibits, but would not be reconstructed
Reconstructed Blacksmith's Shop	(None existing, no interpretation)	Blacksmith's shop would be reconstructed in a new (nonhistoric) location; the reconstructed shop would be used for interpretive purposes
Reconstructed Guest House	(None existing, no interpretation)	(None proposed)
Pumphouse and Water Treatment System	No changes to the existing structure	The existing pumphouse and treatment facility would be demolished and a new pressurized system and pumphouse would be constructed; potable and nonpotable water would be separated into different pipe systems

Element	No Action	Proposed Action
NEW ELEMENTS		
Maintenance Area	(None existing)	New ~1,650 sq. ft. maintenance building south of the historic core with workshop, 'dirty lab', and enclosed maintenance yard. Adjacent to the new research facility; covered parking area
New Concession Structure	(None existing)	A new concession structure would not be necessary if the bunkhouse were remodeled to fit these needs
New Research Facility	(None existing)	New 2,500-5,000 sq. ft. research facility to include classrooms, offices, laboratories, observation/interpretation area and storage space; located south of the historic core
New Bunkhouse	(None existing)	New ~3,700 sq. ft. bunkhouse facility to consist of several buildings connected by covered porches; double-occupancy rooms, including ADA accessible rooms, and common/shared living space and kitchen
Manager's Residence	(None existing)	Permanent housing for a ranch manager south of the ranch house; 800-1,000 sq. ft.
Caretaker's Residence	Temporary double-wide mobile home	Permanent housing for a caretaker south of the ranch house; 800-1,000 sq. ft.
Interpretive center	(None existing)	None, existing barn would serve as primary visitor contact station
Parking	Ad hoc parking in existing disturbed areas	Paved visitor drop-off area capable of accommodating buses; drop-off and main parking areas would be adjacent but not connected; overnight and long-term guest parking located central to the new group camping area and new bunkhouse addition; event parking would be available in the southernmost corral, immediately west of the pumphouse
Group and RV Camping	(None existing)	New designated group (35-40 guests) and RV camping (3 full hook-up sites) areas for researchers, students, and official guests located south of the historic core; not open for public or recreational use; one new 400 sq. ft. shower/restroom building would be constructed.
SUMMARY		
Total new development footprint	n/a	4 acres
Existing disturbed areas that would be restored with native plantings	n/a	5 acres
Short-term disturbance footprint (in addition to the total new development footprint)	n/a	3 acres (primarily for pipeline trenches; where possible, these pipelines would be routed through existing disturbed areas)
Total net change	n/a	Negligible; difference is approximately 1 acre, restored

Resources Analyzed

Per the BLM Nevada supplemental authorities and issues identified during scoping, the following resources and/or issues were retained for description and analysis in Chapters 3.0 and 4.0 of the EA.

- Air Quality
- Cultural Resources
- Hydrology, Drainage, and Erosion
- Land Use
- Non-Native Invasive and Noxious Species
- Soils
- Threatened, Endangered, or Protected Species
- Vegetation
- Visitation / Residents
- Visual and Aesthetic Resources
- Wildlife, including Migratory Birds

Summary of Effects

Table ES-2 presents a comparison of project effects by alternative.

Table ES-2. Summary of Alternative Impacts by Resource.

Resource(s)	No Action Alternative	Proposed Action Alternative
Air Quality	No direct effects to air quality.	Short-term direct adverse effects as a result of construction-generated dust and vehicle emissions. Long-term minor adverse effect as a result of increased vehicle traffic, and subsequently increased emissions.
Cultural Resources, Native American Religious Concerns	No direct effects to historic structures or district. Without human presence on the ranch, increased potential for vandalism, theft, and fire. Potential adverse effects to the structures and district would be long-term and moderate or greater.	Rehabilitation and stabilization of historic structures; some adverse effects as a result of modifications to these structures; intensity or severity of effects would be minimized through the use of project design features and Secretary's Standards. Overall, long-term benefit to the integrity of the district; no overall adverse effect to National Register status.
Hydrology, Drainage, and Erosion / Soils	No direct effects to hydrology, drainage, and erosion.	Minor short-term adverse effects to erosion and hydrology as a result of construction activities. Long-term effects to drainage patterns within the 40-acre parcel boundary as a result of relocated swales. Negligible adverse effects anticipated beyond the 40-acre boundary. Future water demand is anticipated to be within existing water rights. Overall, negligible effects to groundwater resources.
Land Use	No direct effects on land uses at the ranch. No Action may encourage unauthorized uses of the ranch. Ultimately, not consistent with the terms of TNC conservation easement as it would not preserve the historic and scenic values of the ranch.	Direct effects to existing land uses at the ranch. Ranch would transition from a dormant historic ranch to an active educational and interpretive facility. Would ensure the preservation of historic and scenic values, as stipulated in TNC conservation easement.
Vegetation; Threatened, Endangered, or Protected Plant Species; Non-Native Invasive and Noxious Species	No direct effects to vegetation, including threatened, endangered, or protected plant species such as cactus and yucca. Indirect effects are unlikely.	Direct effects to 3 acres in the short term; however, much of this area is currently denuded. Long-term loss of 4 acres of native vegetation due to building footprints. Restoration of approximately 5 acres to native vegetation. Total net change: approximately 1 acre. Low risk to special status species. Limited potential for long-term impacts to individual yucca and cacti. Where these species occur within the construction footprint, individuals would be salvaged and relocated.

Visitation / Residents	No direct effects to visitation. Ranch is currently closed to the public, except by special arrangements. May encourage unauthorized visitors and delinquent activities at the ranch in the long term.	New public educational and interpretive opportunities. Increase in permanent resident presence. Long-term UNLV academic pursuits. Potential for several special events per year.
Visual and Aesthetic Resources	No direct effects. Long-term adverse effects as deterioration of historic structure and facilities worsens without human presence on the ranch. Overall, still consistent with VRM Class II objectives.	Short-term minor adverse effects resulting from construction activities. Long-term beneficial impacts resulting from rehabilitation and preservation of historic structures. Overall, consistent with VRM Class II objectives.
Wildlife, Threatened and Endangered Wildlife Species, Migratory Birds	No direct effects to any wildlife species or habitats. Long-term negligible beneficial impacts resulting from removal of human presence.	Minor adverse direct effects to wildlife species in the short-term resulting from increased human activity, noise, dust, vibrations, or displacement during construction. Long-term minor adverse effects as a result of increased background levels of human activity. Minor long-term benefit as a result of restoration of denuded areas.

ACRONYMS

ACEC	Area of Critical Environmental Concern
ADA	Americans with Disabilities Act
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CHU	Critical Habitat Unit
DAQEM	Department of Air Quality and Environmental Management
DCP	Development Concept Plan
DR	Decision Record
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
FRTC	Field Research and Training Center
ID Team	Interdisciplinary Team
IT	Information Technology
KOP	Key Observation Point
LVRMP	Las Vegas District Resource Management Plan
LEED	Leadership in Energy and Environmental Design
MBTA	Migratory Bird Treaty Act
MSHCP	Multiple Species Habitat Conservation Plan
NAAQS	National Ambient Air Quality Standard
NCA	National Conservation Area
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NNHP	Nevada Natural Heritage Program
NPS	National Park Service
NRA	National Recreation Area
NRHP	National Register of Historic Places
O_3	Ozone
PM	Particulate Matter
$PM_{2.5}$	fine particles smaller than 2.5 microns in size
PM_{10}	coarse particles smaller than 10 microns in size
P.L.	Public Law
PV	Photovoltaic

RMP	Resource Management Plan
ROW	Right-of-Way
RV	Recreational Vehicle
SAT	Save America's Treasures (grant)
SHPO	State Historic Preservation Office
SNPLMA	Southern Nevada Public Lands Management Act
TNC	The Nature Conservancy
UNLV	University of Nevada – Las Vegas
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
VRM	Visual Resource Management

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CHAPTER 1.0 - PROJECT PURPOSE AND NEED

1.1 Historical Overview / Context

Walking Box Ranch, located just west of Searchlight in Clark County, Nevada, was historically operated as a cattle ranch. Originally carved from the massive Rock Springs Land and Cattle Company, the ranch was purchased and occupied by silent film era stars Rex Bell and Clara Bow, beginning in May 1931. The property continued as an operating cattle ranch, under Bell and the subsequent ownership of Karl Weikel, through the 1980s until it was sold to Viceroy Gold Corporation in 1989. Viceroy used the property to access their local mine and rehabilitated the ranch headquarters to serve as an executive retreat. Since the mid-1990s, the property, located in the midst of an expansive desert tortoise conservation area, has changed hands several times and is now owned by the Bureau of Land Management (BLM. A complete historical overview of the Walking Box Ranch for the period 1894-present is presented in Appendix A.

1.2 Project Background

In 1994, the United States Fish and Wildlife Service (USFWS) designated the area around Searchlight as desert tortoise critical habitat. In response, the BLM designated the area as an Area of Critical Environmental Concern (ACEC) for the conservation and recovery of the threatened desert tortoise. The Nature Conservancy (TNC) holds two conservation easements on the 40- and 120-acre parcels of the Walking Box Ranch, constraining and limiting the extent of development that may occur on the property. In 2004, the University of Nevada, Las Vegas (UNLV) received a Save America's Treasures (SAT) grant to prepare a preservation and master plan for the property. The BLM acquired Walking Box Ranch with Southern Nevada Public Lands Management Act (SNPLMA) funds in 2005. Assistance agreements were signed by BLM and UNLV in September 2008, formalizing the partnership by which UNLV assists BLM in the operations, future planning, and preservation of the ranch property.

The SAT grant monies were awarded to UNLV for preservation of the Walking Box Ranch and to fund a planning process to determine the appropriate uses for the buildings and site in the future. In undertaking joint management of the property with the BLM, UNLV had a vision for a facility that would serve both the academic community and the public. To this end, UNLV assisted the BLM in obtaining funding for two nominations through the SNPLMA program.

Under these nominations, which provide much of the funding for future work at Walking Box Ranch, the expressed goals for the ranch are twofold and are reiterated in the proposed project's Purpose and Need statement:

- Educating the public about the historic site and also about the biological diversity and geological features of the Mojave Desert setting; and
- For the ranch to become a recognized facility for national training and research on important arid lands issues.

1.3 Project Area and Site Description

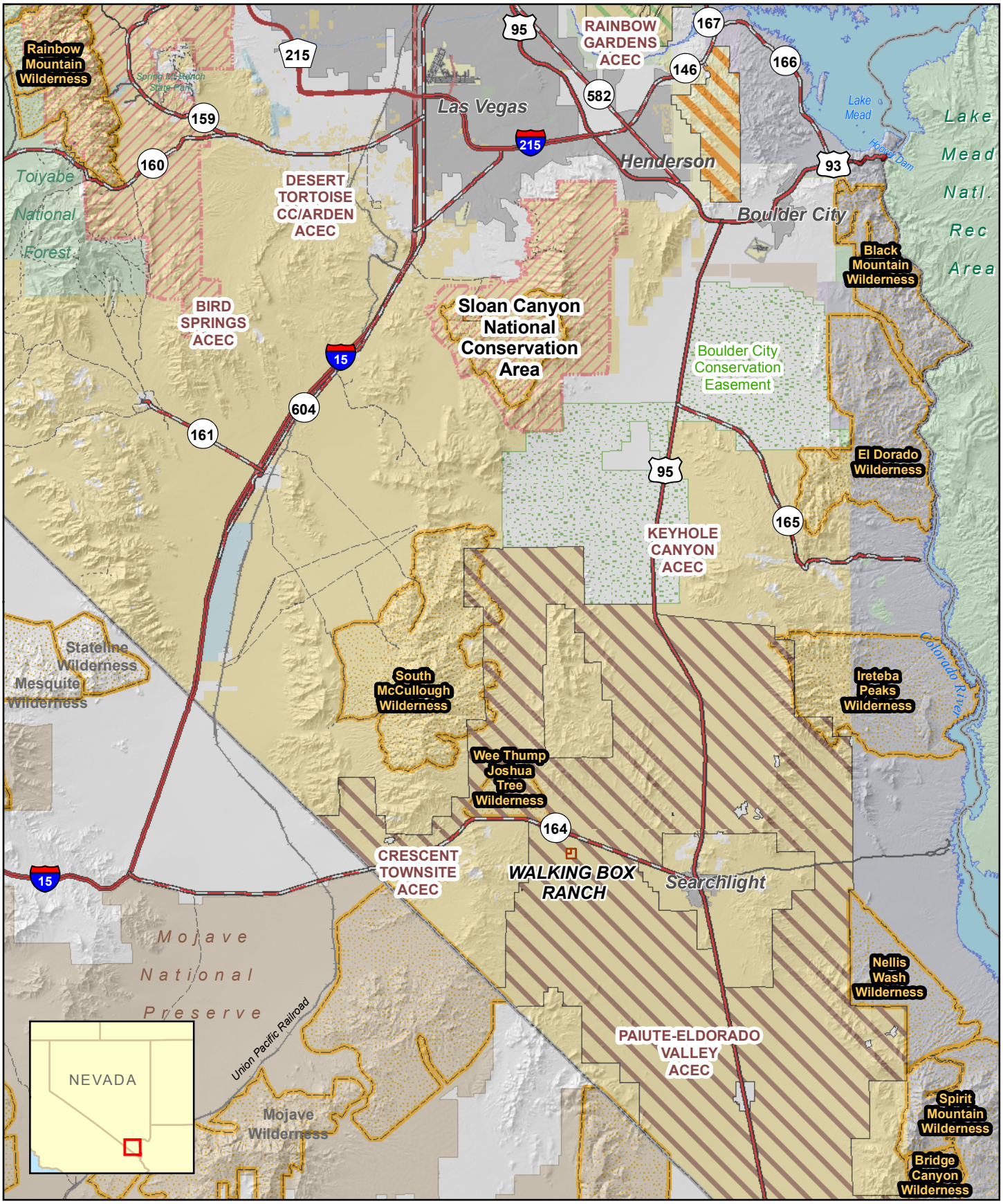
Walking Box Ranch is located in southern Nevada, about 45 miles south of Las Vegas and 7 miles west of Searchlight, Nevada (Maps 1 and 2). The ranch occupies a 160-acre site, comprised of three parcels legally described as follows:

> **Parcel 1**: The southwest quarter (SW ¼) of the southwest quarter (SW ¼) of Section 22, Township 28 South, Range 62 East, M.D.B.&M., Clark County, Nevada. Begin that Certain Property shown as Lot One (1) of that Certificate of Land Division LD-221-93, Recorded in Book 931123 as Document No. 01610, Official Records, Clark County, Nevada. Excepting therefrom the westerly fifty (50) feet of said land as conveyed to Clark County, Nevada, by a deed recorded December 1, 1991, in Book 911202 as Instrument No. 00807, Official Records, Clark County, Nevada.
>
> **Parcel 2**: The southeast quarter (SE ¼) of the southwest quarter (SW ¼) of Section 22, Township 28 South, Range 62 East, M.D.B.&M., Clark County, Nevada, further described as follows: Lot 2 of that Certain Land Division LD-221-93, Recorded November 23, 1991, in Book 931123 as Document No. 01610, Official Records, Clark County, Nevada.
>
> **Parcel 3**: The north half (N ½) of the northwest quarter (NW ¼) of Section 27, Township 28 South, Range 62 East, M.D.B.&M., Clark County, Nevada.

The developed area of the ranch is located almost entirely within Parcel 1. This developed area is fenced; however, the current fencing does not correspond to the parcel boundaries. Additional fences and unpaved roads and trails also occur on the 120-acre portion of the site (Parcels 2 and 3). The site is located approximately 3,700 feet south of Clark County Highway 164 (Nipton Road) and can be reached via Walking Box Ranch Road, a 50-foot wide county right-of-way. The right-of-way continues through the property, providing access to mining sites located several miles to the southwest.

The property is situated in a rural area in the eastern Mojave Desert at an elevation of approximately 3,850 feet above mean sea level (msl). The surrounding landscape, the floor of the Piute Valley, is covered with Joshua trees, Mojave yucca (“Spanish daggers”), creosote, and indigenous species of cactus. The ranch is located in a portion of the Piute Valley bordered by the Newberry Mountains on the east and the New York Mountains on the west. The ranch is located entirely within the Piute-Eldorado Valley Critical Habitat Unit (CHU) and ACEC, designated for the conservation and recovery of desert tortoise; the three ranch parcels are an exception within the ACEC.

Today, Walking Box Ranch includes the 40-acre homestead parcel and the 120-acre parcel; however, the ranch originally included an additional 300,000-400,000 acres of grazing leases, essentially the entire Piute Valley. The 40-acre parcel is proposed for future development and is the subject of this Environmental Assessment (EA).



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

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Land Status

- Bureau of Land Management
- Bureau of Reclamation
- Clark County, Nevada
- Department of Energy
- Forest Service
- National Park Service
- Nevada State

Regional Overview

Map 1-1

EDAW | AECOM

WALKING BOX RANCH

UNLV University of Nevada, Las Vegas

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Project Area

Map 1-2

EDAW | AECOM

WALKING BOX RANCH

UNLV University of Nevada, Las Vegas

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Topography across the 40-acre parcel gently slopes down from the northwest to the southeast. The landscape of the 40-acre parcel shows signs of significant human and ranching use. The surrounding land historically served as cattle grazing land. Vegetation, with few exceptions, reflects the historic appearance of the landscape during the ranching era. The property was historically divided into three distinct zones, with the family's residence located at the southeast corner, housing for the hired help at the northeast corner, and the cattle ranching functions at the west side.

1.4 Proposed Project

The proposed project would establish a Walking Box Museum/Interpretive Center and Field Research and Training Center (FRTC) at the site of the historic Walking Box Ranch.

Located in the Piute Valley ACEC at the northern boundary of the Mojave Desert Preserve, the proposed museum/interpretive center would provide tours and interpretive displays on cultural and historical topics, as well as topics related to the Mojave Desert, to K-12 students, citizens of the state, and visitors. Educational and historical programs would inform the public about the history of the main house, outbuildings, and ranch lands, as well as educate the public about conservation and preservation efforts underway in Piute Valley.

The FRTC would provide a natural desert setting where students, researchers, educators, federal land management agency personnel, and the public can focus on issues that increase knowledge and understanding of the natural and cultural resources of the Mojave Desert. The mission of the FRTC will be to educate people on issues related to responsibility for conservation, sustainability, and stewardship of the natural and cultural resources in the Mojave Desert, and to provide research opportunities to enhance understanding and management of desert lands and environments.

A master planning and preservation planning process has been undertaken in support of this vision for the Walking Box Ranch. The master plan and preservation plan have been combined to form a single document, which is henceforth referred to as the Development Concept Plan (DCP).

1.5 Purpose and Need

The SNPLMA of 1998, among other things, provides for funding of selected Capital Improvement projects within Clark County in southern Nevada. Under two separate SNPLMA awards, funding has been allocated for the BLM to establish a Museum/Interpretive Center and FRTC at the site of the historic Walking Box Ranch.

The first SNPLMA project provides for rehabilitation of the historic structures at the Walking Box Ranch and development of a museum/interpretive center. As specified in the project nomination, the goal of the museum/interpretive center project is to "[educate] the public about the historic site and also about the biological diversity and geological features of the Mojave Desert setting."

The second SNPLMA project provides for the development of a FRTC at the Walking Box Ranch. As specified in the project nomination, the goal of the FRTC project is "for the ranch to become a recognized facility for national training and research on important arid lands issues."

By establishing the Walking Box Ranch Museum/Interpretive Center, the BLM has an opportunity to develop a facility dedicated to promoting public appreciation of a historic southern Nevada site, to preserve some of the best examples of architecture and building materials representative of the time period of the early 1930s, and to provide a venue for public education about the fragile ecosystems and public land management of the Mojave Desert.

By establishing the Walking Box Ranch FRTC, the BLM has the opportunity to partner with the Nevada System of Higher Education (formerly UCCSN) in developing a facility dedicated to understanding and managing the fragile ecosystems centered on the Mojave Desert. The Walking Box Ranch FRTC is envisioned as becoming the flagship property within an integrated network of field educational, research, and training sites located within and focusing on southern Nevada's natural and cultural resources.

Las Vegas is the 11th fastest growing population center in the country (City Mayors n.d.). Growth is now extending south along the Interstate 15 (I-15) – Colorado River corridor. This growth is expected to accelerate with future construction of the Ivanpah airport and completion of a new bridge spanning the Colorado River, providing improved access from Arizona. The Walking Box FRTC would provide southern Nevada with a research and training center for long-term monitoring of the effects of urbanization on adjacent public lands, and the resulting effects of the creation of a mosaic of natural and urbanized environments extending south from Las Vegas.

By virtue of its location, the Walking Box FRTC would become a key center for students, public land management agency personnel, researchers, and the public to develop a greater understanding of critical components of Mojave Desert ecosystems. These ecosystems are vulnerable to urbanization and require careful attention in future resource management plans. The facility would become a key portal into the nearby Mojave National Preserve, assuming the critical role of introducing visitors from around the globe as well as Nevadans to the Mojave Desert and teaching them about desert environments.

The Walking Box Ranch museum/interpretive center and the FRTC present a unique opportunity for exploring issues and opportunities related to sustainability in the desert, including both historic sustainable practices and modern sustainable or "green" technologies. The BLM proposes to design and develop the museum/interpretive center and FRTC, including both construction and programming, consistent with Leadership in Energy and Environmental Design (LEED) accreditation standards.

1.6 Relationship to Statutes, Regulations, or Other Plans

1.6.1 Conformance with the Existing Land Use Plan

This EA is a project-level analysis that considers all applicable management direction provided in the 1998 *Las Vegas Resource Management Plan* (RMP); this RMP is the current land use planning document used throughout the BLM's Southern Nevada District (BLM 1998). This EA tiers to the RMP and is hereby incorporated by reference, as encouraged by 40 CFR 1520.20.

The RMP provides long-term programmatic goals and objectives. This project decision must be consistent with the RMP or would require a land use plan amendment. RMP goals are expressed in broad, general terms and are timeless in that, unless otherwise noted, they have no specific date by which they are to be completed.

1.6.2 Applicable Laws and Regulations

The following acts (in chronological order) are pertinent to the historic preservation and/or site development activities proposed at the Walking Box Ranch. For the protection of BLM lands and resources, the DCP will be developed in conformance with the following legislation:

- Antiquities Act of 1906 (Public Law [P.L.] 59-209; 34 Stat. 225; 16 U.S.C. 432, 433)
- Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755), as amended.
- Historic Sites Act of 1935 (P.L. 74-292; 49 Stat. 666; 16 U.S.C. 461)
- Archeological and Historic Preservation Act of 1960 (P.L. 86-523, 16 U.S.C. 469-469c-2), as amended.
- National Historic Preservation Act (NHPA) of 1966 (P.L. 89-665; 16 U.S.C. 470 et seq.).
- NEPA of 1969 (42 U.S.C. 4321 et seq.).
- Clean Air Act of 1970 (42 U.S.C. 7401 et seq.), as amended.
- Executive Order (EO) 11593 ("Protection and Enhancement of the Cultural Environment," 36 F.R. 8921, May 13, 1971)
- Federal Water Pollution Control Act (Clean Water Act) of 1972 (33 U.S.C. §1251 et seq.), as amended.
- Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended.
- The Federal Noxious Weed Act of 1974, as amended (7 U.S.C. 2814)
- Federal Land Policy and Management Act (FLPMA) of 1976, as amended (43 U.S.C.1701 et seq.)
- Safe Drinking Water Act Amendments of 1977 (42 U.S.C. 201)
- EO 11990, Protection of Wetlands, May 24, 1977.
- Archaeological Resources Protection Act of 1979 (P.L. 96-95; 16 U.S.C. 470aa-mm), as amended.
- EO 12875, Enhancing the Intergovernmental Partnership, October 26, 1983.
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001).
- EO 12898, Environmental Justice, February 11, 1994.
- EO 13084, Consultation and Coordination with Indian Tribal Governments, May 14, 1998.
- SNPLMA of 1998 (P.L. 105-263)
- Noxious Weed Control Act of 2004 (P.L. 108-412)

1.7 Decision to be Made

The BLM will decide which of the alternatives described in Chapter 2.0 would result in the highest and best use of the ranch and its historic structures, while preserving its historic integrity and environmental resources and making it accessible to and understandable by the public, consistent with limitations contained in the conservation easements.

This EA is not the decision document for the proposed project. The Red Rock / Sloan Field Manager is the responsible official who will decide which, if any, management actions for this project will be implemented. The decision document will include all management requirements, including design features and post-project monitoring actions that will occur in association with the selected alternative.

The decision of whether or not to implement the Proposed Action alternative will be documented in the Decision Notice. The Field Manager will also determine whether an Environmental Impact Statement (EIS) is required based on the significance of environmental effects (40 Code of Federal Regulations [CFR] 1509.9) documented in the EA. If no significant effects are identified, a Finding of No Significant Impact (FONSI) and Decision Record will be issued by the Field Office Manager and the project will proceed with implementation.

1.8 Scoping and Public Involvement Activities

"Scoping" is the process by which the BLM solicits internal and external input on the issues, impacts, and potential alternatives that will be addressed in an EIS or EA, as well as the extent to which those issues and impacts will be analyzed in the NEPA document (BLM 2008).

Project scoping letters were mailed (December 24 and 26, 2008, respectively) to approximately 450 interested parties. One letter was addressed specifically to interested agencies and/or stakeholder groups. The second letter was distributed to private landowners, congressional representatives, special interest groups, county commissioners, and local media, including radio stations and newspapers. The letters were intended to inform the agencies and public of the project and to invite comments and feedback on the proposal and its potential impacts. All letter recipients were given approximately 30 days to respond with comments.

The BLM received three written comment responses, including one response from a private individual and two responses from interested agency or stakeholder groups. Additionally, agency and stakeholder groups were invited to participate in a scoping meeting on January 20, 2009. Three agency/stakeholder groups were represented at the scoping session, including: TNC, U.S. Geological Survey, and the Red Rock Canyon Interpretive Association. Representatives from BLM, UNLV, and EDAW AECOM facilitated the agency scoping meeting.

In July 2009, the BLM - Southern Nevada District Office requested that UNLV and TNC submit their comments on the proposed DCP. UNLV's Planning and Construction Department reviewed the DCP and provided written comments in March 2010. TNC provided written comments on February 5, 2010. These comments are considered in this EA and will be reflected in the final DCP.

A project Interdisciplinary Team (ID Team) comprised of BLM, UNLV, and contractor resource specialists reviewed all comments received to help determine the range of issues to be analyzed in the EA. The scoping letter, press releases, mailing list, and all comments received

are filed in the Project Record, available for review at the Red Rock/Sloan Field Office in Las Vegas.

All comments received were considered when defining the scope of the EA, and helped guide the appropriate level of analysis for each resource. The following list of issues and concerns indicates the major items of public or agency concern identified during the scoping process; however, it is not intended to be a complete or comprehensive list of issues to be analyzed in the EA. All written and oral comments received during the scoping period are summarized below.

- Consistency with the conservation easements.
- Concerns about increasing human presence in a remote and fragile desert environment.
- Existing and emerging land use proposals in the greater Ivanpah, Piute, and southern Eldorado valleys and Lake Mead National Recreation Area.
- Long-term funding for the Walking Box Ranch programs.
- Cumulative effects of nearby land use changes.
- Ensuring the character and function of lands adjacent to the Walking Box Ranch, which are critical to the recovery of the desert tortoise.
- Ensure that other biodiversity and ecological values remain intact or are enhanced.
- Concerns about inadequate BLM resource protection capacity to enforce existing land use designations in and around desert tortoise critical habitat.
- Potential for increased public recreational use in the areas surrounding the project site, specifically within the Multiple Species Habitat Conservation Plan (MSHCP) mitigation reserve area and how it may impact past, current, and future mitigation actions funded by the DCP.
- Concerns that emerging land use patterns or major developments may compromise the research opportunities at/around the Walking Box Ranch.
- Potential for collaboration and coordination to promote desert environment educational opportunities; interpretive network.
- Concerns regarding what level of development is permissible/consistent with the language of the conservation easements.

CHAPTER 2.0 - ALTERNATIVES

2.1. Introduction

An ID Team, representing various interests in the Walking Box Ranch, developed a range of reasonable alternatives for the proposed project. The ID Team identified relevant issues and reviewed concerns presented during the public and agency scoping periods, and then formulated alternatives in response to these issues.

This chapter describes the alternative development process and the various components of each alternative. Descriptions of the resources potentially affected by the project and an analysis of the potential impacts are provided in Chapters 3.0 and 4.0, Affected Environment and Environmental Consequences. The proposed project would comply with all laws and regulations including, but not limited to, the 1998 *Las Vegas Field Office RMP* (see also Section 1.6).

2.2. Alternative Development Process

At the start of the Master Planning process, in 2006, a series of nine stakeholder workshops were held at UNLV, in Searchlight, and at Walking Box Ranch. The purpose of the workshops was to involve the broadest range of potential users, as well as those with relevant knowledge and experience of similar facilities, in determining and planning a 'vision' for Walking Box Ranch and, subsequently, a program for its implementation.

The goal of the June 2006 stakeholder Master Plan 'visioning' workshop was to discuss the suggestions that had been put forward for future use of the ranch; examine the implications, potential general improvement/restoration concepts, and cost/benefits of the suggestions; and establish a consensus and a preferred general physical plan for future use. There were 34 attendees, including the ID Team.

In addition to the visioning workshop series, an email survey of UNLV faculty concerning research program needs was conducted in August 2006. This survey produced target square footages and equipment needs for the various research programs to take place at the ranch.

Concurrently with a 'visioning' process for the Walking Box Ranch, the ID Team began looking at how program elements could be accommodated on the site. Utilizing the aerial survey data, documentation of existing buildings, and site observations, a series of conceptual plans showing varying degrees of site development and new construction was prepared (Appendix B).

Two additional stakeholder workshops were held in September 2006, in which the conceptual plans, with their corresponding range of program elements and site options, were presented.

Following the stakeholder workshops, additional meetings between BLM, UNLV, and TNC were held to refine the conceptual plans to meet the conditions of TNC's easements. TNC's concerns centered on limiting the new development footprint and confining it to previously impacted areas of the site.

Ultimately, in the 2008 *Master Plan and Preservation Plan* concept "Alternative 4A" was determined to have the most desirable program elements and site options. Alternative 4A was further described and developed in the 2009 *Design Concept Plan*.

For the purposes of this EA, the Proposed Action alternative includes the desired program elements from the 2009 *Design Concept Plan*, as well as several additional program elements and site options identified in the 2008 *Master Plan and Preservation Plan*. These additional elements and options have been included to expand BLM decision space as well as to account for final design, site conditions, and market conditions at the time of implementation.

This EA analyzes the effects of a No Action alternative and a Proposed Action alternative as there are no other reasonable alternatives to this Proposed Action that would substantially differ in design or effect and still fulfill the Purpose and Need for the project (BLM NEPA Handbook 8.3.4.2). Other alternatives considered but eliminated are described in Section 2.5.

Table 2-1 provides a summary of the key elements of the No Action and Proposed Action alternatives.

Table 2-1. Summary of Site-Specific Elements by Alternative.

Element	No Action	Proposed Action
NATIONAL REGISTER ELEMENTS		
Historic Buildings		
Ranch House	No changes to the existing structure	Preserved and rehabilitated; portions of the first floor would be used for interpretive and administrative purposes
Barn	No changes to the existing structure	Upgraded and reconstructed, including climate control and new concrete foundation; barn would serve as the gateway to the ranch and primary visitor contact station
Historic Structures		
Ice House Interpretive Exhibit	No changes to the existing structure; original ice house exists in non-historic location	Relocated elsewhere within the barn area, but not to historic location; used for interpretation or storage
Water Tank	No changes to the existing structure	Existing water tank to remain in use for fire suppression water storage; to be interpreted
Corrals	No changes to the existing structure	Existing corrals to remain and to be interpreted; would also serve as expanded exhibit space, group gathering areas, picnicking areas, and special event space; amphitheater-style seating for up to 25 people on haybales; southernmost corral used for event/overflow parking
Historic Site Features		
Walking Box Ranch Road / Site Entry	No changes to the ranch entry way	Ranch entry road improvements to include partial paving, development of turning lanes, and additional signage
Boundary Fences	No changes to the existing structure	Existing corrals, fences, water tank, shed ruins, and wagon artifacts to remain and to be interpreted; minor modification, including removal or repair of some sections, as necessary, to ensure ranch security, delineate property boundaries, etc.
Pathways	No changes to the existing pathways	Circulation through the interior of the site, connecting points of interest, gathering areas, parking areas, and other essential amenities; patterns to take advantage of existing / historic 'corridors'
OTHER EXISTING RANCH ELEMENTS		
Bunkhouse	No changes to the existing structure; currently accommodates up to 12 guests in double-occupancy rooms	Completely remodeled for interpretive exhibits and/or support space; would not serve any overnight guests
Guest Cottages	(None existing)	One ~800 sq. ft. two-story duplex style guest cottage to accommodate faculty and VIP guests; located south and west of the historic core
Reconstructed 'Shop String'	(None existing, no interpretation)	'Shop string' is interpreted through exhibits, but would not be reconstructed
Reconstructed Blacksmith's Shop	(None existing, no interpretation)	Blacksmith's shop would be reconstructed in a new (non-historic) location; the reconstructed shop would be used for interpretive purposes
Reconstructed Guest House	(None existing, no interpretation)	(None proposed.)
Pumphouse and Water Treatment System	No changes to existing structure	The existing pumphouse and treatment facility would be demolished and a new pressurized system and pumphouse would be constructed; potable and non-potable water would be separated into different pipe systems

Element	No Action	Proposed Action
NEW ELEMENTS		
Maintenance Area	(None existing)	New ~1,650 sq. ft. maintenance building south of the historic core with workshop, 'dirty lab', and enclosed maintenance yard. Adjacent to the new research facility; covered parking area
New Concession Structure	(None existing)	A new concession structure would not be necessary if the bunkhouse were remodeled to fit these needs.
New Research Facility	(None existing)	New 2,500-5,000 sq. ft. research facility to include classrooms, offices, laboratories, observation/interpretation area and storage space; located south of the historic core
New Bunkhouse	(None existing)	New ~3,700 sq. ft. bunkhouse facility to consist of several buildings connected by covered porches; double-occupancy rooms, including ADA accessible rooms, and common/shared living space and kitchen.
Manager's Residence	(None existing)	Permanent housing for a ranch manager south the ranch house; 800-1,000 sq. ft.
Caretaker's Residence	Temporary double-wide mobile home	Permanent housing for a caretaker south the ranch house; 800-1,000 sq. ft.
Interpretive center	(None existing)	None, existing barn would serve as primary visitor contact station
Parking	Ad hoc parking in existing disturbed areas	Paved visitor drop-off area capable of accommodating buses; drop-off and main parking areas would be adjacent but not connected; overnight and long-term guest parking located central to the new group camping area and new bunkhouse addition; event parking would be available in the southernmost corral, immediately west of the pumphouse
Group and RV Camping	(None existing)	New designated group (35-40 guests) and RV camping (3 full hook-up sites) areas for researchers, students, and official guests located south of the historic core; not open for public or recreational use; one new 400 sq. ft. shower/restroom building would be constructed.
SUMMARY		
Total new development footprint	n/a	4 acres
Existing disturbed areas that would be restored with native plantings	n/a	5 acres
Short-term disturbance footprint (in addition to the total new development footprint)	n/a	3 acres (primarily for pipeline trenches; where possible, these pipelines would be routed through existing disturbed areas)
Total net change	n/a	Negligible; difference is approximately 1 acre, restored

2.3. No Action Alternative

The No Action alternative provides a baseline for comparing the relative changes and effects that would occur with implementation of any action alternative. It considers what may result if the proposed project is not implemented. It is defined as a continuation of existing management practices. Current management plans would continue to guide management activities in the analysis area.

Under the No Action alternative, no additional preservation, educational, or interpretive activities would be implemented within the project area. Therefore, Walking Box Ranch operations would not be consistent with the UNLV vision for the ranch, and UNLV would not continue to support Walking Box Ranch. UNLV caretakers and security presence would be removed from the property. There is only a remote possibility that another group would pursue preservation or other uses of the ranch.

2.4. Proposed Action

The overall site plan for the Proposed Action is shown in Figure 2-1; additional thematic development details are shown in Figures 2-2 and 2-3. The Proposed Action alternative description is organized as follows:

- Description of proposed improvements or modifications to ranch features and structures listed on the National Register of Historic Places (NRHP)
- Description of proposed improvements or modifications to non-NRHP ranch features and elements
- Description of altogether new developments or improvements
- Description of utilities and stormwater improvements

2.4.1 National Register of Historic Places – Historic Elements

A) RANCH HOUSE

The ranch house would be preserved and rehabilitated. Its interior would be devoted primarily to interpretive use, with docent-led tours of the primary spaces on the main floor and the courtyard. Non-historic alterations and partitions in the garage would be removed. The original garage would be rehabilitated as a multipurpose room, primarily for academic users. The great room and courtyard would be used for UNLV related receptions and activities.

The ranch house is the centerpiece of the site. Its historic exterior would be repaired and rehabilitated but would not be altered, except for disabled accessibility. One entrance door would be widened, and the courtyard would be regraded with a ramp to allow ADA access between the house and the large patio. The original garage doors (still in place) would be made operable to allow the former garage (future multi-purpose room) to be opened in good weather. The south side of the garage (previously altered) would have folding doors that would completely open it up to the courtyard and pool patio. For safety and sustainability, the existing swimming pool would be retained as a covered cistern; the cover would be designed to suggest the pool's original aquatic appearance. The barbeque area south of the courtyard would provide a staging area for catering outdoor events.

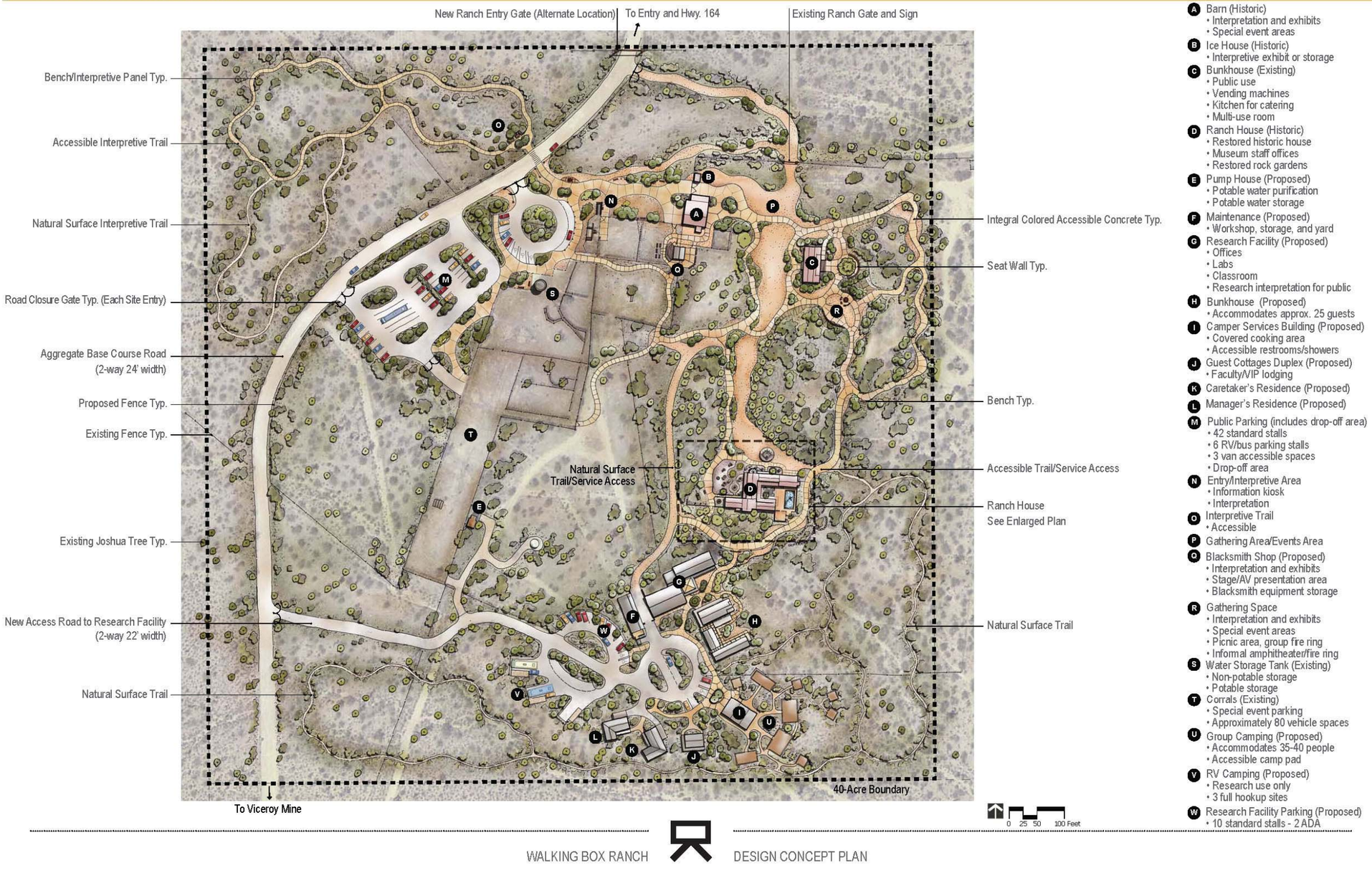

Figure 2-1. Overall Site Plan

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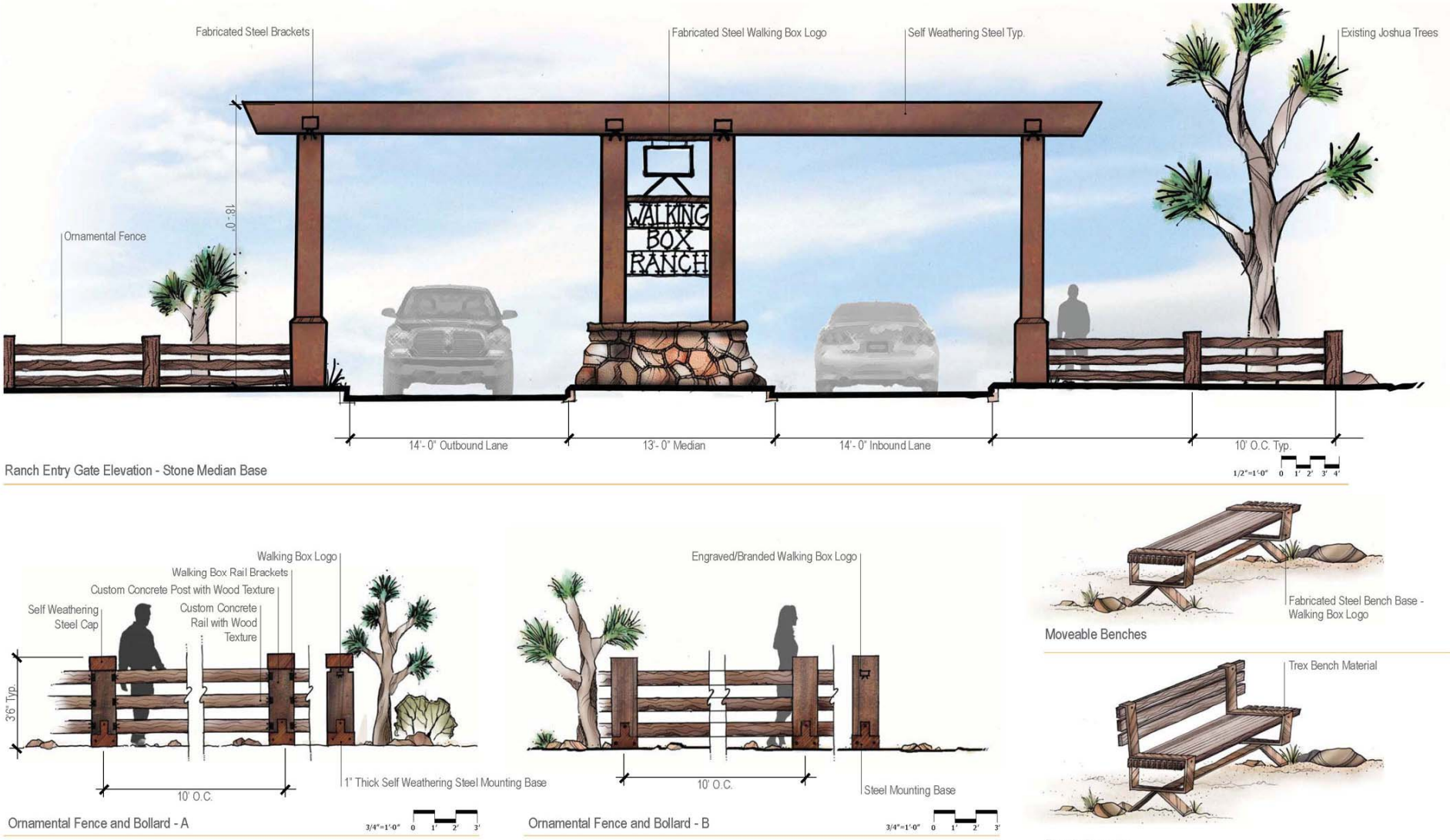
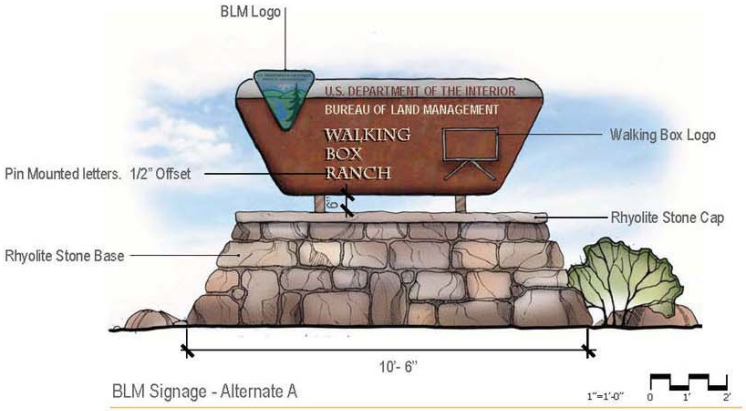
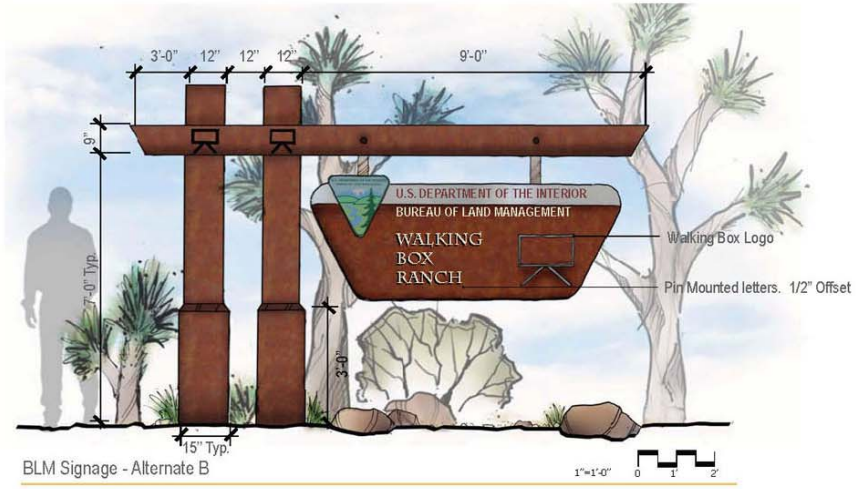
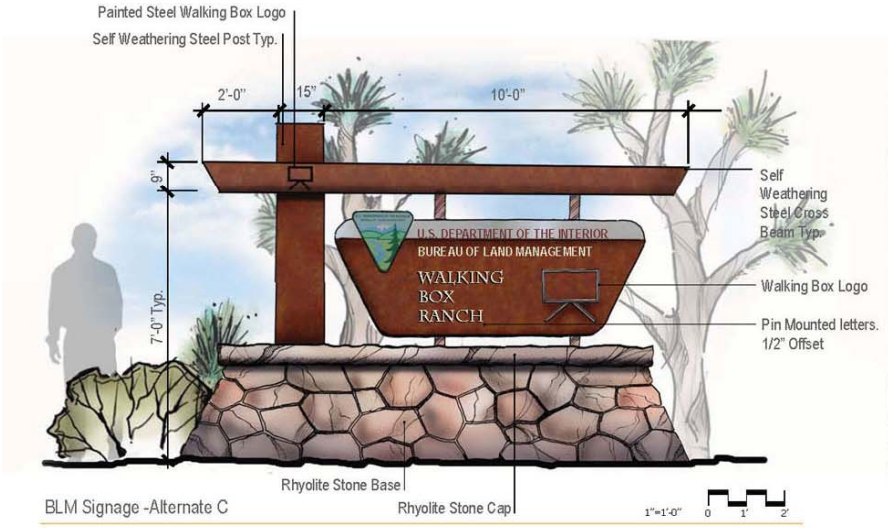


Figure 2-2. Thematic Development Details.







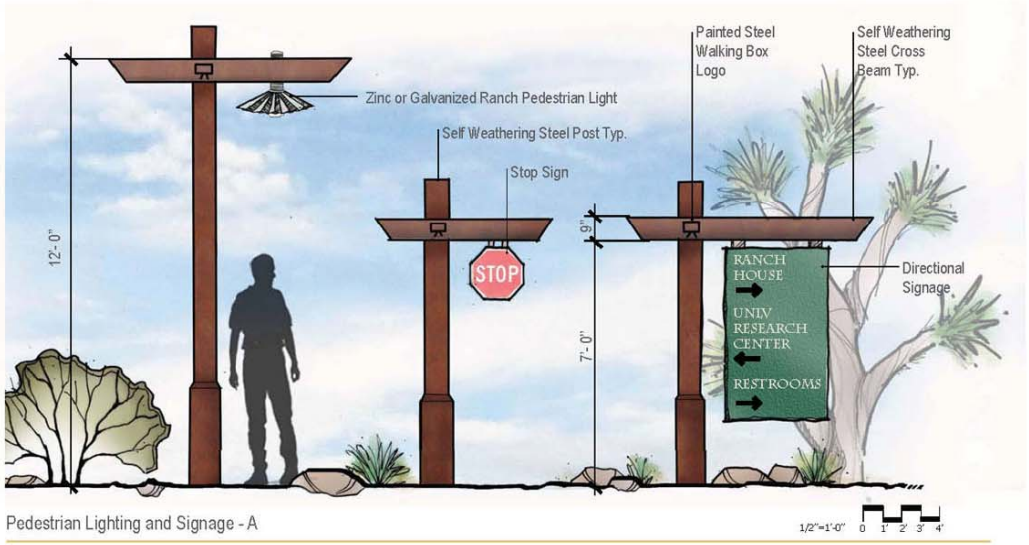


Figure 2-3. Thematic Development Details (cont).

The primary historic spaces – the Great Room, Game Room, Guest Bedroom, Boys' Bedroom, and Kitchen – would be preserved and used primarily for interpretive purposes. Secondary spaces would be adapted for appropriate support functions: a catering prep area and storage. The second floor rooms, which are also historic, are unassigned. Although it is BLM's goal that the entire ranch house be open to public visitation and all office space be confined to the bunkhouse or FRTC, these unassigned spaces may be used later for additional interpretive space or meeting space. The former garage, converted in the 1990s to guest rooms, would be reconfigured to its historical single space for interpretive use (exhibits, films, etc.) and for classes and meetings. This room would open on both its north and south walls for use during events on the site or in the courtyard.

All ranch house renovations, such as widening of doors for ADA compliance, electrical improvements, or plumbing upgrades, would be completed in conformance with the Secretary of the Interior Standards for Treatment of Historic Properties (see Section 2.4.5 for more information on Project Design Features specific to Cultural and Historic Resources).

B) BARN

The existing barn is located at the northwest corner of the site, and is well situated to become the ranch's primary visitor center. The existing barn would serve as the public "gateway" to the ranch. The barn would be structurally stabilized and upgraded to accommodate most of the public support facilities, such as:

- Information desk
- Exhibits (permanent and temporary)
- Multipurpose room for audio/visual interpretation
- Retail, vending machines, and storage

The barn is currently in poor condition and would require significant upgrades and reconstruction. Upgrades to the barn would include the installation of a fire sprinkler system and weatherproofing. Reconstruction would be completed by matching the historic materials in their original rather than current, deteriorated state. The building would be seismically stabilized, including a new foundation. A concrete floor slab would be installed to provide a safe, level, and ADA accessible walking surface.

In order to retain the character of the interior, the barn would remain uninsulated and would not be air-conditioned. Passive and low-tech insulation and ventilation methods, such as ceiling fans (for summer cooling) and stacked straw bales (for winter insulation), would be used to mitigate the extreme desert temperatures. The large barn doors on the east and west sides of the building would ideally be open during visitor hours. New glazed folding doors would be installed behind the large barn doors, and could be closed or opened entirely depending on weather conditions.

The barn would house interpretive exhibits, a retail area and information desk, and related storage and equipment space. Because of the 'natural' conditioning of the barn, activities that require the public to remain indoors, such as a video presentation or special interactive exhibit, would occur elsewhere. There would be supplemental heat and cooling for staff working in the information/retail area.

C) ICE HOUSE

The existing ice house would be left in its current location and rehabilitated with the addition of a foundation, but its appearance would remain unaltered. Ultimately, it would be used either for interpretation or for storage. In the event that the ice house is used for interpretation, it would retain its original refrigerant equipment and tools.

A variant of this project element would be to relocate the ice house to its historic location in the reconstructed shop string and use it for interpretation or storage.

D) WATER TANK

The ranch's original 40,000 gallon water tank would continue to be used for non-potable water storage for fire suppression. This feature would potentially be used for interpretive purposes. See also the discussion on Potable and Non-Potable Water Supply for additional information on how this tank would be connected to the water distribution system.

E) CORRALS

The corrals would provide areas for gatherings, picnicking, and opportunities for interpretation. An informal amphitheater constructed of haybale seating and capable of seating up to approximately 25 people would also be located in the corrals. The southernmost corral, immediately west of the pumphouse, would be used for event/overflow parking.

F) WALKING BOX RANCH ROAD / SITE ENTRY

All visitors would access the ranch from the east on the existing Walking Box Ranch Road (accessible from Nevada State Highway 164) into the primary parking lot. Minor ranch entry road improvements would include partial paving and additional signage on Walking Box Road near the highway (Figures 2-2 and 2-3). These improvements would be located in the Nevada Department of Transportation's highway right-of-way and would likely be subject to further environmental review by the state prior to implementation.

G) BOUNDARY FENCES

Fences and gates throughout the ranch were determined to be contributing features to the overall historic significance of the ranch. Three sides of the property are enclosed by boundary fences, some dating to Rex Bell era (1931-51), and others rebuilt or newly constructed during the Karl Weikel period (1951-1990) or by Viceroy Gold in the 1990s.

Fence construction varies, with combinations of split or whole redwood tie posts, juniper spacers, mesh wire or barbed wire, occasional steel posts, horizontal boards, and salvaged steel pipe. There are historic wood gates at a south entrance to the property and at the original access to the water pipeline and road. An internal fence, possibly from the Bell period, acts as a separation between the cattle-working area and the residential complex. Although the fences have been subject to various repair and replacement campaigns, they retain their original configuration and many of their original materials. The older fences remain in fair condition, with some damage caused by encroaching native vegetation, seasonal water run-off in several washes running through the property, and general lack of maintenance. The two range fences were damaged when the road bypass was cut through them. Several of the gates have fallen and are inoperable.

The Proposed Action would include some removal, reuse, and/or reconfiguration of existing sections of wood and wire fencing and gates. Boundary fences and gates would be repaired using historically appropriate materials and methods for operations and security purposes. Fencing that is not historic or required for property delineation would be removed. For example, in some locations existing fencing would be removed to accommodate new development, parking, or walkways. The removed fence sections would be reused, when possible, for interpretive purposes, at the ranch entryway, or to replace other sections of dilapidated fence on the 40-acre ranch parcel.

H) HISTORIC PATHWAYS AND RANCH CIRCULATION

Within the homestead area, buildings and structures have always been connected by a series of unpaved paths and driveways across the site. The open, unpaved ranch yard and informal unpaved trails throughout the natural landscape of the site were determined to be contributing features to the overall historic significance of the ranch. Roads and parking areas are not delineated; years of driving through and around the site have expanded this network of social roads and parking areas to cover much of the immediate area of the ranch yard. Likewise, pedestrian circulation is not delineated or controlled and decades of use have resulted in a disorganized and unnecessarily complex network of social trails throughout the site. Many of these social trails are probably from the historic cattle ranch operations, as many of them radiate from the corral areas.

The Proposed Action would utilize previously impacted areas of the site for new development, to the extent possible with respect to historic treatments (Figure 2-15). This alternative would retain portions of the original road through the ranch for interpretive purposes. All unnecessary, non-contributing roads would be closed and restored with native landscape. Similarly, all non-contributing pedestrian and cattle trails would be closed and restored.

This alternative would create a system of paved pedestrian trails to allow for ADA access (Figure 2-1). Paving materials would be appropriate for the historic appearance of the site.

2.4.2 Other Existing Ranch Elements (non-NRHP)

I) BUNKHOUSE

The existing bunkhouse was constructed c. 1990 by Viceroy to replace the earlier, dilapidated bunkhouse. It is currently used as temporary lodging for visitors to the site.

The existing bunkhouse would be completely remodeled to serve a number of support functions: public restrooms, vending area (primarily for bottled water), a manager's office, a break room for docents and volunteers, and a small exhibit space. The office and break room would be strategically located to provide a view of most of the public areas of the site. There would be only one change to the bunkhouse exterior: a new porch would be constructed along the west side of the building. This would provide sheltered outdoor interpretive space. A passage would be opened up through the center of the building and connect to the existing east-facing porch, which would be a sheltered area for those using the picnic area to the east. The existing, remodeled bunkhouse would not serve any overnight guests.

A variant of this project element, in the event that a new bunkhouse was not constructed as a component of the new research facility, would be to construct a new addition to the existing bunkhouse that could accommodate up to 12 overnight guests. The existing bunkhouse space would be remodeled to provide interpretive and public spaces.

J) BLACKSMITH SHOP

Historically, the blacksmith shop stood southeast of the barn. It can be seen in a single aerial photo, but there is no other physical documentation of its appearance. Based on Rex Bell, Jr.'s narrative description of the blacksmith shop, and to house his collection of tools used in the original shop, a new building would be constructed. Because of the lack of documentation, it would not be located in the center of the ranch where it appears to have been historically, but instead would be located along the edge of the corral, south of the barn.

The reconstructed blacksmith shop would serve two functions: as an outbuilding to display and interpret the blacksmith's craft, and as a backdrop for the small amphitheater in the corral. The new building would be constructed of materials similar to the barn: wood structure, sheet metal roof, and board and batten siding. It would be approximately 12 x 16 feet in size, with a covered porch on both the east and west sides. Large doors on the east side would open up the shop, and the porch would provide an area for demonstrations. Similar doors on the east side would enclose a storage room for AV equipment and, when open, a large pull-down screen for videos and films. The porch on this side would be raised to serve as an informal stage.

A variant to this project element would be to interpret but not reconstruct. An open pavilion would be constructed at the historic location of the original blacksmith shop which would serve as interpretive space focusing on ranch activities.

K) POTABLE AND NON-POTABLE WATER SUPPLY

For both potable and non-potable uses, existing groundwater rights are expected to be adequate for projected ranch needs when used in combination with above ground water storage tanks. These storage tanks and pumps would provide the required water and pressure on demand, even when the existing well is not capable of handling the needs on demand. In the future, the existing well may need to be replaced by a new facility in a new location. The new

facility would potentially have a higher capacity, but would still operate within existing water rights that allow for an average yield of 12,275 gallons per day (gpd).

There are currently a pumphouse, water treatment system, and 2,500 gallon potable water storage located at the southeast end of the corrals. The existing pumphouse and treatment facilities would be replaced with new facilities including pressurized storage and an expanded potable water storage tank that would allow for higher peak water usage.

Buried water distribution lines would transport fire suppression and irrigation water to all developed areas on the ranch. Potable water would run through a treatment process to make the water safe to drink and be stored in a pressure tank for use upon demand. The non-potable system, used for fire suppression, would not be looped.

L) SHOP STRING RECONSTRUCTION

A “shop string”, consisting of work sheds for various ranch activities (e.g., ferrier), previously existed at the ranch. The Proposed Action would interpret the shop string through exhibits, but would not reconstruct the work sheds.

2.4.3 New Elements / New Development

M) MAINTENANCE AREA

A new maintenance building (approx. 1,500 sq. ft.) would be located south of the historic core and would contain a workshop, 'dirty' lab for researchers, and enclosed maintenance yard (Figure 2-4). The maintenance facility would be located near the service roads to provide access to all locations on site. With the adjacent new lab building, the maintenance building would create an enclosed yard for maintenance activities and for delivery of field specimens. The building would consist of a shop on the north end and a storage room on the south, with a roofed parking area for two cars or small trucks and two electric vehicles in between. There would be a charging station for several electric vehicles. The building would have a concrete slab floor, a wood or steel frame, and SIPs for the exterior walls. Exterior finishes would be composite board and batten siding, and sheet metal for the gable roof over the shop and parking. The roof of the storage space would be flat, accessed via an outdoor stair at the south end of the building. With a parapet wall around it, the rooftop would provide space for ongoing outdoor UNLV experiments.

At this location, these activities would be out of the line of sight from the historic public area of the ranch. A gated fence would enclose both ends of the maintenance yard.

N) NEW CONCESSION STRUCTURE

The existing, remodeled bunkhouse would be used for public services, including restrooms and vending machines. Therefore, a new concession structure is not necessary under the Proposed Action.

O) NEW RESEARCH FACILITY

A new research facility would be constructed to house classroom, offices, laboratories, and storage space (Figures 2-4 and 2-5).

The new research facility would be located south of the historic core of the ranch, in the location of the current caretaker's trailer. The proposed research facility is approximately 2,500-5,000 sq. ft. This facility would include an observation area for the visiting public to view ongoing research or laboratory work.

A variant of this project element would be to locate the new research facility in the historic core of the ranch, immediately east of the existing tennis courts.

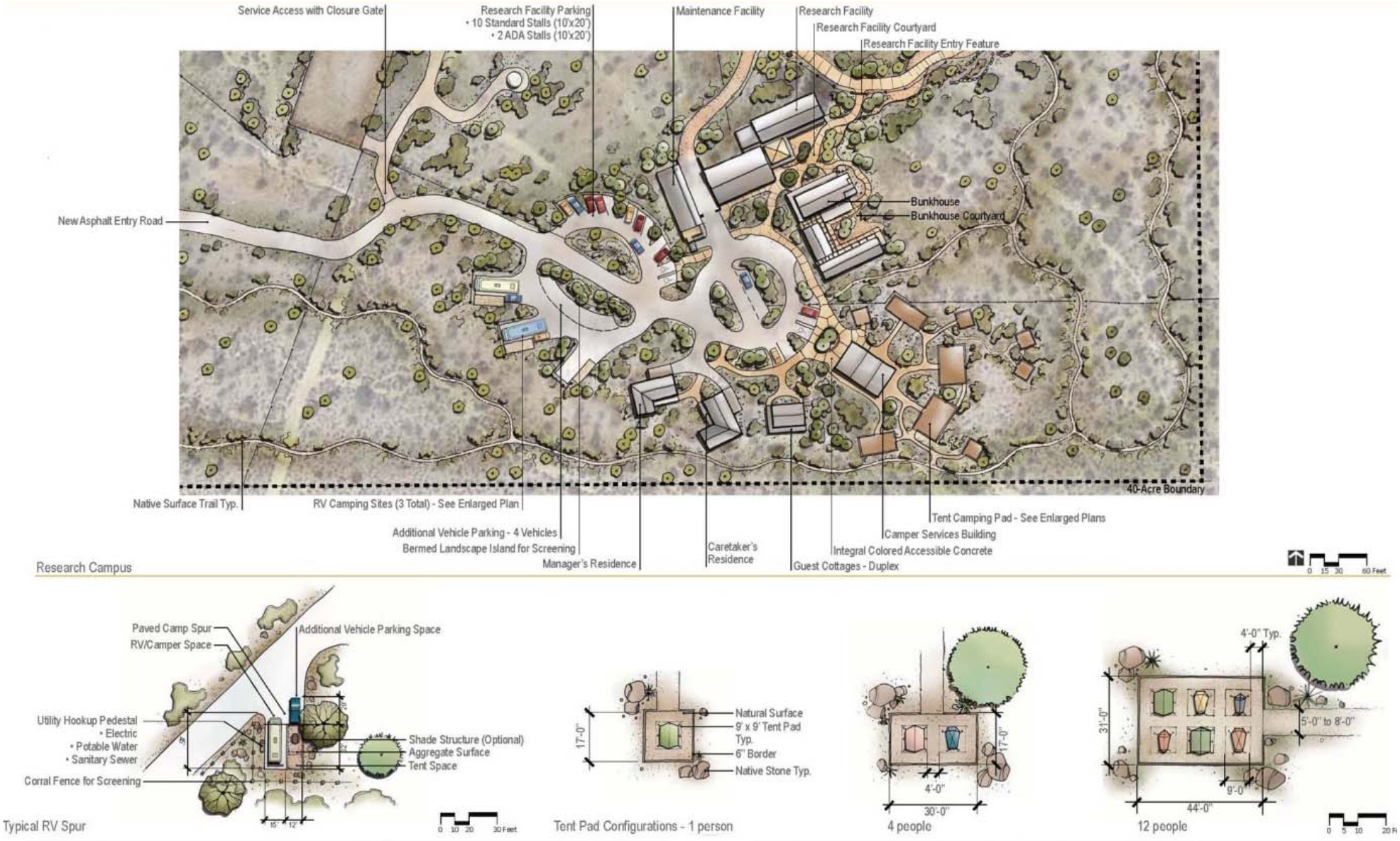


Figure 2-4. Research Campus Plan.

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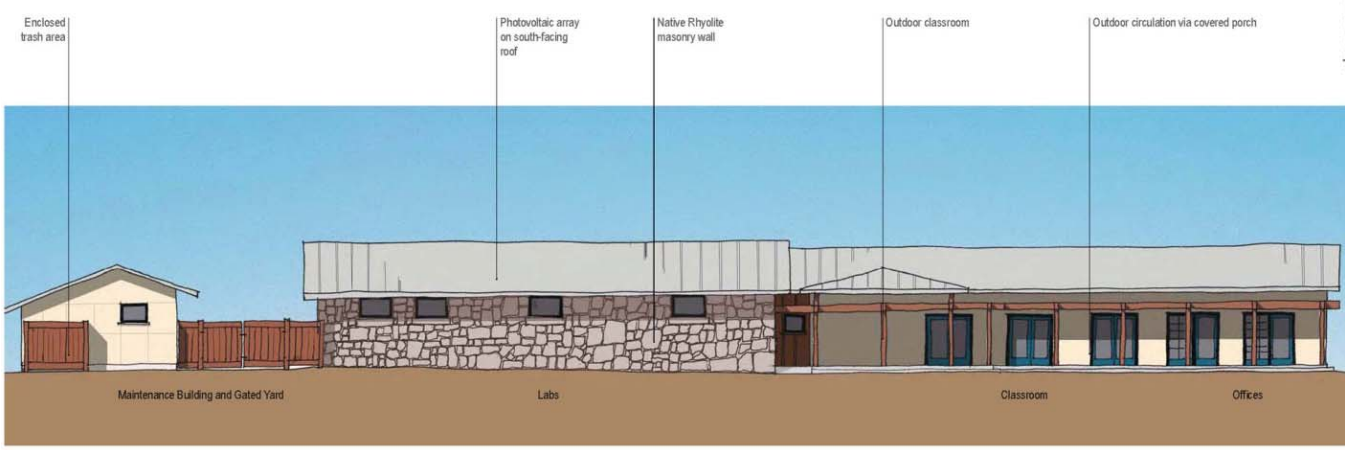

Figure 2-5. Research Facility – South Elevation.

P) CARETAKER'S AND MANAGER'S RESIDENCES

Two new residences, the Caretaker's and Manager's homes, would be located on the south side of the proposed new access road. The residences would provide permanent housing for a ranch manager and caretaker. There would be two, three-bedroom residences on the site: one for the resident caretaker and one for the ranch manager. Each house would have a one-car garage and porch oriented toward views.

Construction would be the same ranch style vernacular as the guest cottage and bunkhouse: wood framing and a metal roof (Figure 2-6). The caretaker's and manager's residences would be located south of the ranch house to keep visual modifications outside of the historic core and out of the main house viewshed.

Each residence would be approximately 800-1,000 sq. ft. in size. The residences would be located south of the ranch house.

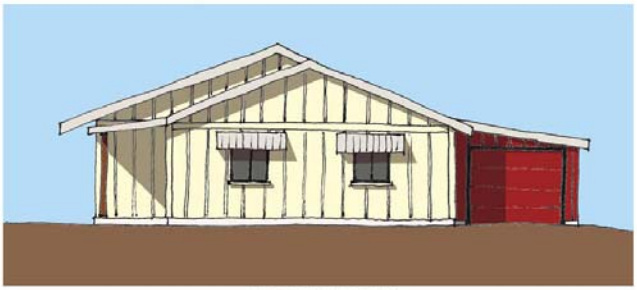

Figure 2-6. Caretaker's and Manager's Residences.

Q) GUEST COTTAGES

One two-story cottage containing quarters for visiting faculty or VIP guests would be constructed immediately south of the ranch house. Construction would be the same ranch style vernacular as the residences and bunkhouse: wood framing and a metal roof (Figure 2-7). Each guest suite would have a large porch oriented toward views to the south and east. The quarters would consist of a sitting room, bedroom, kitchenette, and bath. The cottages would be ADA accessible. Each cottage unit would be approximately 400 sq. ft. in size for a total of 800 sq. ft.

A variant of this project element would be construct two separate one-story cottages containing guest quarters for visiting faculty or VIP guests south and west of the historic core. Construction and accommodation features would be the same as described above. The lower level would be ADA accessible. Each unit would be approximately 350 sq. ft. in size.

Figure 2-7. Typical Two-Story Guest Cottage.

R) NEW BUNKHOUSE

The largest new structure at the ranch would be the new bunkhouse located south and west of the historic ranch house (approx. 3,700 sq. ft.). The bunkhouse would consist of three buildings connected by open porches (Figures 2-8 and 2-9). The building would be oriented to maximize views toward the Spirit Mountains from the porches. With its front porch facing the classroom building, the bunkhouse 'commons' would be the social center of the campus. The commons would consist of a one-story building containing a large dining room, a smaller sitting room, and a community kitchen. The commons would have an exposed truss roof structure, a balcony accessed from the upper level sleeping porch, and a large fireplace constructed of Viceroy Mine rhyolite. The main living and dining space would open on its south side to a large covered porch and landscaped courtyard.

The two bunkhouse dormitory structures would form an 'ell' around the courtyard. Each of the dormitories would be two stories with outdoor corridors at both levels, connecting all rooms back to the commons area. The lower level of one building would include an ADA accessible guest room and bath, as well as a second ADA accessible restroom and laundry, janitor, and storage rooms. On its upper level, the dormitory would have one double occupancy room, shared bathrooms, and additional storage space. The second dormitory building would have five double occupancy rooms and shared bathrooms on each level.

The bunkhouse would have stained and polished concrete slab floors at ground level, wood floors on the upper level, and wood framing. Exterior finishes would be composite siding (board and batten and panelized) and sheet metal roofs. Porches and stairs would be constructed of wood and Trex-type materials. The chimney at the commons would be built of rhyolite.

The new bunkhouse would accommodate approximately 14 overnight guests.

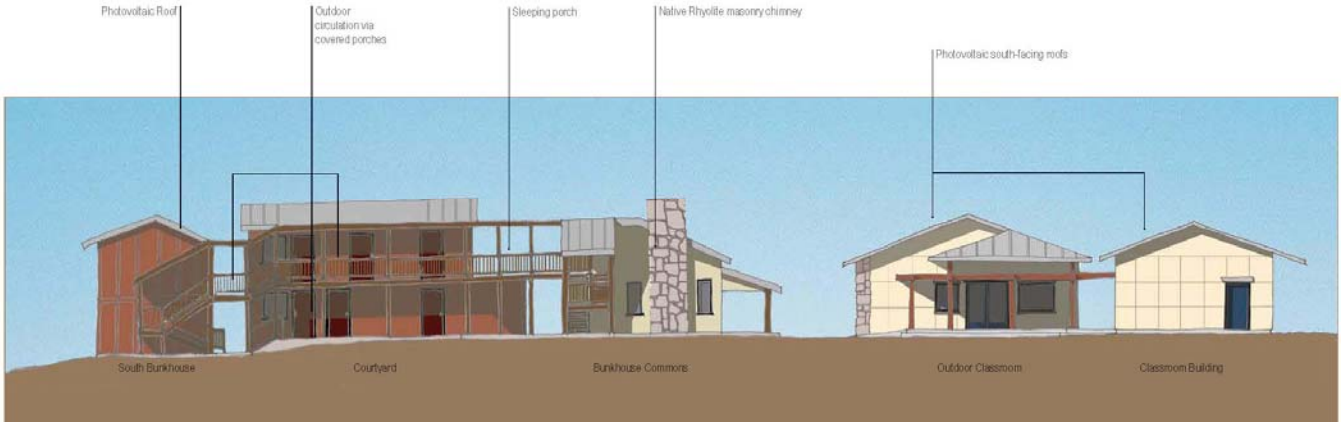

Figure 2-8. Bunkhouse and Research Buildings.

Figure 2-9. New Bunkhouse – West Elevation.

S) PARKING

The drop-off and primary long-term public (visitor) parking areas would be separate (Figure 2-10). Parking areas would not disturb any historic features and would allow front door access into the ranch complex. Landscape islands would be utilized to help visually reduce the size of the parking lots. The separate paved drop-off area, sized to accommodate large vehicles and equipped with ADA and standard stalls, would lead immediately to an entry plaza and gathering space that serve as the primary pedestrian entry point into the site. The separation of these two areas would allow ranch managers to close the main lot during non-business hours, but would still allow visitors access to the entry plaza for self-guided interpretation and the interpretive trail on the east side of Walking Box Ranch Road.

Overnight and long-term guest parking would be provided separate from the public parking areas. The road to the existing pumphouse would continue to be used for service access. The guest parking area would be located south of the historic core, central to the new research facility, permanent residences, new bunkhouse, and group and recreational vehicle (RV) camping areas. This parking area would be accessed from a new road oriented east-west between the Walking Box Ranch Road, across the southwestern corner of the site, and the camping area.

Event/overflow parking would be provided in the rectangular-shaped corral immediately west of the proposed pumphouse (southernmost corral). For large events, remote/off-site parking would be provided in the community of Searchlight with shuttles to and from the ranch. Portable restroom and local sanitation services would be used for these events.

Table 2-2 indicates parking capacity by type (e.g., overnight, public, drop-off, event, etc.).

Table 2-2. Parking Capacity for All Action Alternatives.*

Parking Area Types	Small Vehicle Parking Spaces	Large Vehicle Parking Spaces
Public (main parking)	37	4
Drop-Off / Off Hours	8	0
Overnight (Academic and Camping)	10	3
Event	80	0
Total	135	7

If the group camping area were to be located in the northeast corner of the ranch and an addition to the existing bunkhouse were constructed, a variant of this project element would be to locate the primary overnight and long-term guest parking area central to these facilities.

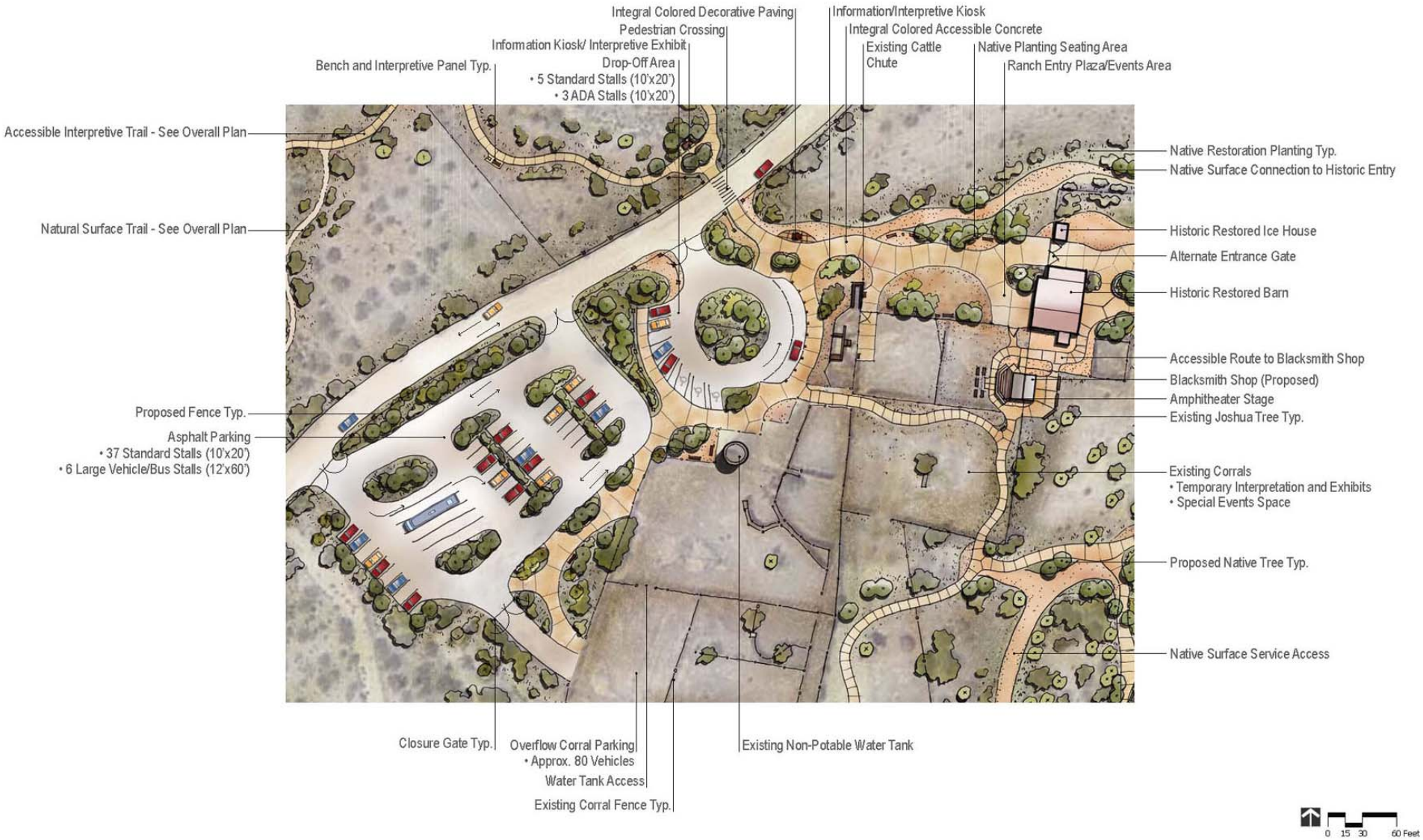

Figure 2-10. Parking and Site Entry Plaza Area.

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T) GROUP AND RV CAMPING

All alternatives would include a new group camping area for researchers or ranch guests; this may include semi-permanent tent structures on platforms or may be a traditional 'bring-your-own-tent' campground. Approximately three full hook-up RV camping spaces would be available under each of the alternatives. The group and RV camping areas would not be open for public or recreational use.

The group camping area would be located due south of the historic ranch house, adjacent to the 40-acre parcel boundary (Figure 2-4). The group camping area would be designed to accommodate up to 35-40 guests. The RV camping area would be located south and west of the historic core and would provide three full hook-up sites (Figure 2-4). These two camping areas would share one, centrally located new shower and restroom facility.

A variant of this project element would be to locate the group camping area north and east of the existing bunkhouse and designed to accommodate up to 25 guests. The RV camping area would be located south and west of the historic core. In this scenario, two new restroom and shower buildings would be constructed adjacent to each of the two camping areas.

U) RESTORATION

All alternatives would restore some existing disturbed areas. Planned site restoration would use native, xeric vegetation. Short-term irrigation (2-3 years) would be necessary for adequate re-establishment of native plants.

V) INTERPRETIVE TRAILS

A self-guided interpretive trail would lead visitors through the historic core and research grounds. The trail would only be open to visitors when a staff member or ranch volunteer is on duty. The trail would wind through the northwest, central, and southeast portions of the ranch, and would include various interpretive stations (e.g., signs, kiosks) that present various key ranch themes (i.e., water in the desert, stewardship, history). Interconnecting segments of the trail would be constructed to meet ADA accessibility guidelines, including hard surfacing such as concrete or asphalt.

The proposed concrete trails/walkways would total approximately 1.5 miles throughout the site and the soft surface trails would total approximately 0.75 miles.

W) VISITATION AND VISITOR MANAGEMENT

The proposed visitor management strategy is based on a desired range of visitation that falls between the site's capacity and lowest daily visitation expected. The site's capacity was determined by the number of cars that could be parked on areas previously denuded by humans (e.g., in the corrals) which total approximately 4 acres. This previously disturbed area of the ranch could accommodate approximately 450 vehicles, which would equate to approximately 1,000 visitors (average vehicle is assumed to carry 2.3 passengers). This level of visitation would be undesirable from a visitor experience and resource impact perspective, but could theoretically be accommodated within existing disturbed areas. However, the Proposed Action would limit special event parking to approximately 200 vehicles. The low daily visitation estimate is based on the average number of occupants in the proposed permanent

residences (see Caretaker and Manager's Residence discussion above.) With permanent staff and families, this estimate is anticipated to be less than 10 daily.

Based on the use of all proposed parking areas, including special event parking in the corrals, the peak visitation level is estimated to be 563 persons (includes general public, short- and long-term guests, and permanent residents) at any one time. This could occur multiple times each year.

Table 2-3. Existing and Proposed Daily Visitation / Residents.

Daily Visitation / Residents	
Current / Existing	
Permanent Staff	Max. 3
Short- and Long-term Researchers/Academic Guests	Max. 12 (assumes no camping)
Day Use Public Visitors	0
Special Event Visitors	0
Peak Visitor Management Level	*Max. 15*
Future / Proposed	
Permanent (Staff)	Max. 10
Short- and Long Term Researchers/Academic Guests	Max. 65
Peak Day Use Public Visitors (based on available parking)	Max. 304
Peak Special Event Visitors (average of 2 events a year) * (public only, does not include permanent staff and researchers)	Max. 488
Peak Visitor Management Level (on Special Event Days)	*Max. 563*

All special events that would exceed the capacity of the primary parking area (Table 2-2) would need to be approved under a BLM Special Use Permit. Visitors would be limited to designated areas, paths, and trails at all times. Signage and rules would be clearly posted and provided to visitors. Overnight use would be permitted only in designated camping areas or buildings, not to exceed the overnight capacity of the ranch camping areas and guest quarters.

Though the optimal visitor experience and management level has not been defined, the conservative approach to visitation management would be to cap peak daily visitation at the proposed parking capacity level (563 persons/day). On most days, however, public visitation is anticipated to be far below peak capacity. In shoulder seasons and off-peak months (six months out of the year), daily visitation/guest levels would be in the range of 10-75 persons per day. For context, the museum at Searchlight receives approximately 4,500 visitors annually, or an average of 12 visitors per day.

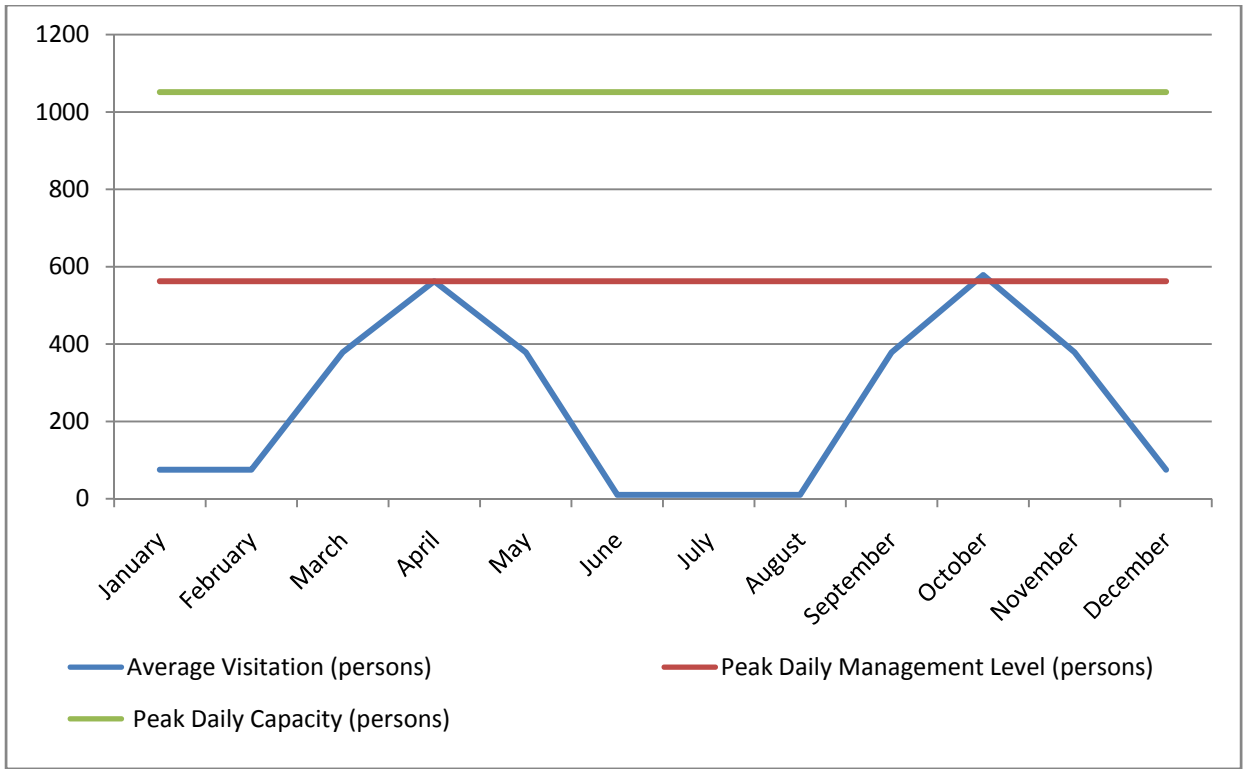


Figure 2-11. Estimated Average and Peak Daily Visitation Levels (Persons at One Time).

The proposed visitor management strategy would be to allow up to 563 persons on the ranch at any given time on several occasions throughout the year, although typical daily use would be much lower. In any setting that allows visitor use, some degradation of resources and visitor experience is possible. In order to maintain the desired quality of resources and experiences, a visitor impact monitoring program would be established. This annual visitor impact monitoring program would be operated by UNLV to evaluate visitor experience, resource conditions, and site characteristics during peak events to determine if peak visitation should be adjusted (e.g., more/less events per year, adjustments to the maximum allowable numbers at these events, or additional conditions on issuance of Special Use Permits). If it is determined that peak visitation could be increased, additional visitation would be accommodated via shuttle buses from the community of Searchlight or surrounding jurisdictions No additional parking spaces would be added without a separate planning and environmental assessment effort. If it is determined that peak visitation should be decreased, proposed parking areas could be reevaluated for restoration potential.

2.4.4 Utilities and Stormwater Improvements

X) SITE DRAINAGE IMPROVEMENTS – RELOCATIONS AND REMOVAL OF SWALES

New stormwater drainage paths would be cut by a small excavator to reroute existing drainages around proposed facilities and improvements (Figure 2-12). The existing rerouted drainages would be filled using the soils removed from new drainage paths. Depending on the exact relocation and the amount of water being diverted, some riprap or other form of erosion protection may be required. In most cases, newly filled areas would be compacted and serve as the location of a new trail, parking area, or building pad.

All site drainage relocation work would occur within the 40-acre parcel boundary. Relocated drainages would be directed back to the natural channels before leaving the 40-acre parcel boundary.

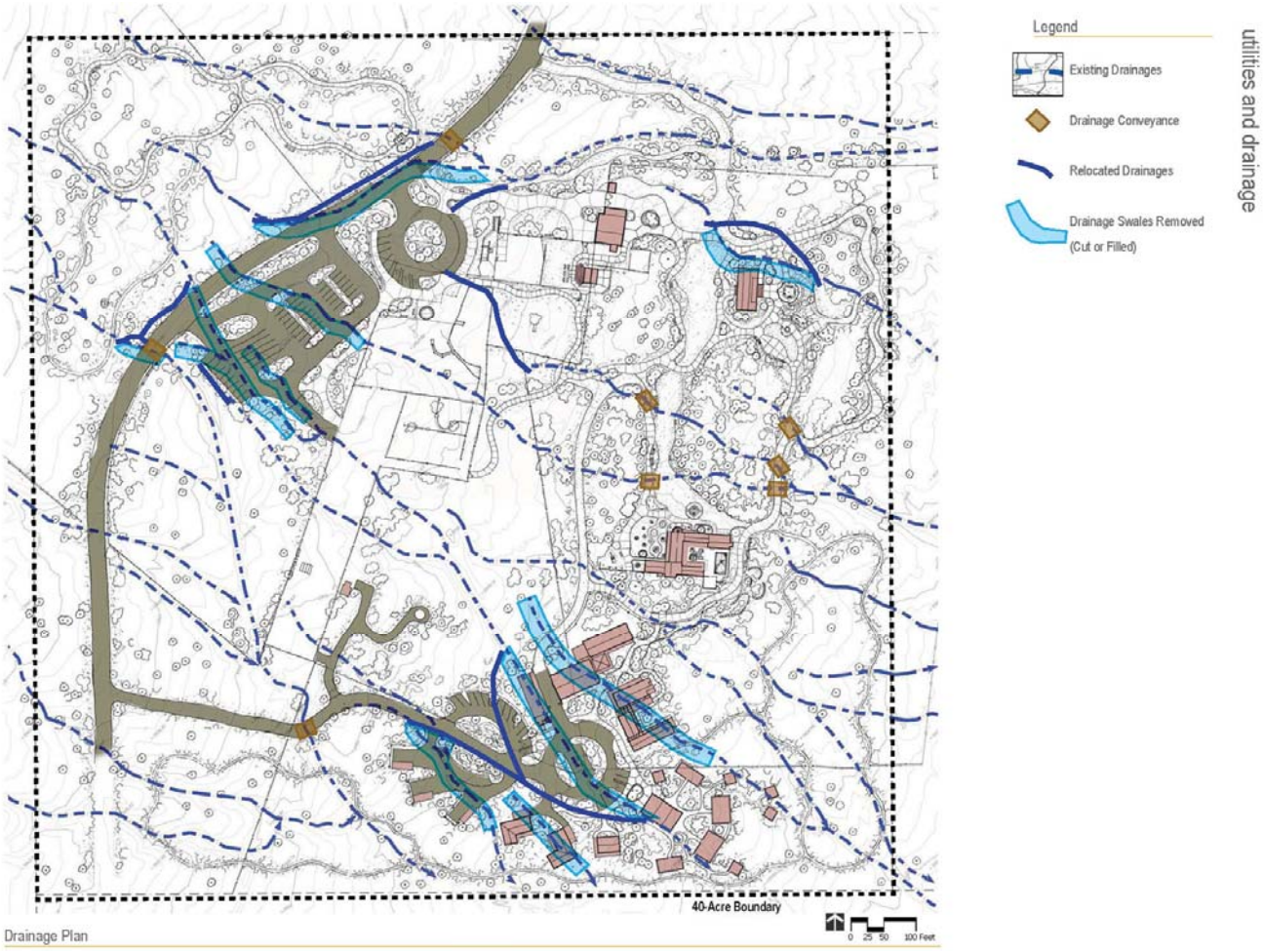


Figure 2-12. Drainage Plan.

Y) UTILITIES

All utilities described below, including the leach fields, water pipelines, and buried electrical and communications lines, have been located in existing disturbed areas. The construction or installation of new utility features would result in only minimal disturbance to existing intact native vegetation or historic features. Existing utilities are shown in Figure 2-13; proposed utilities are shown in Figure 2-14.

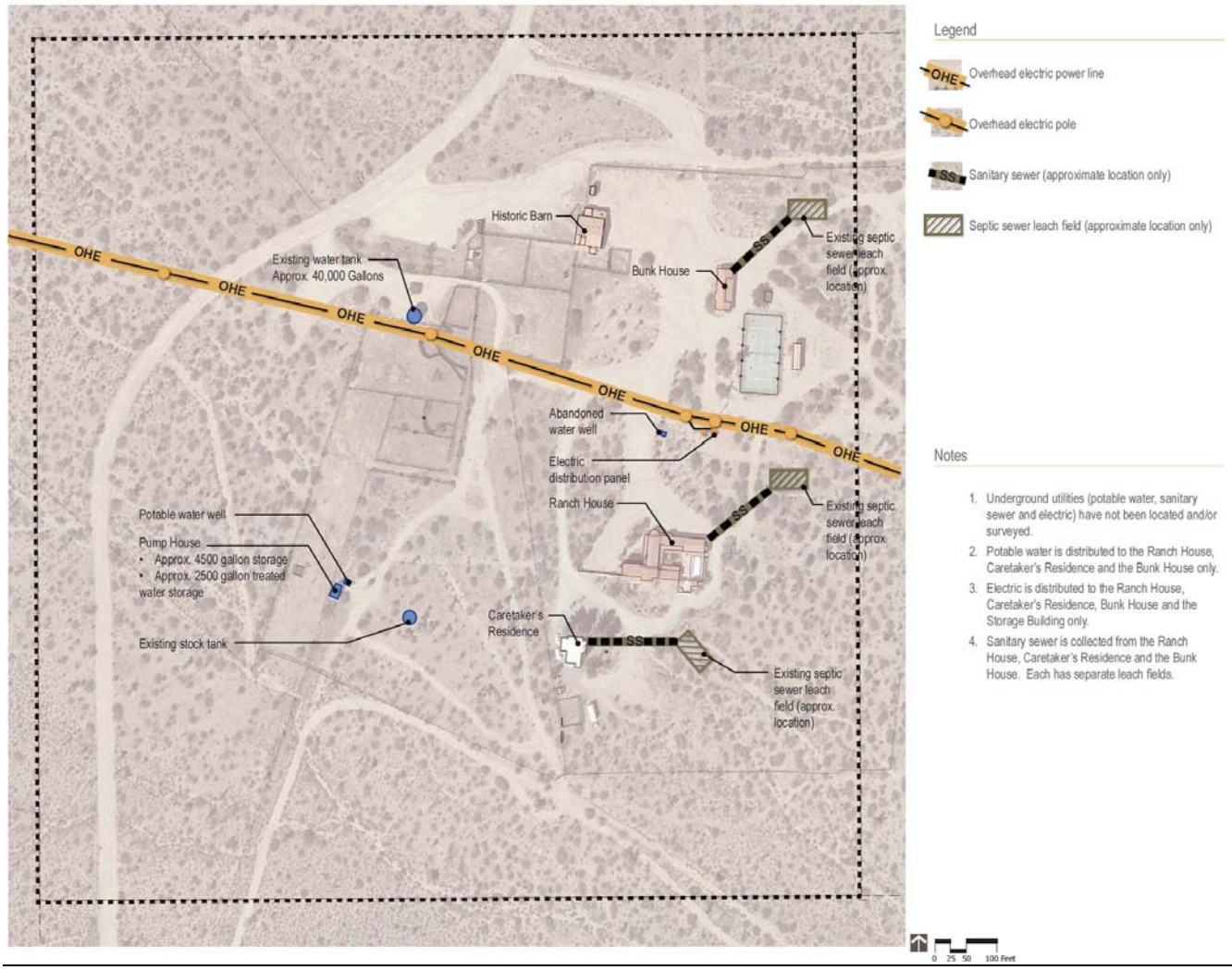


Figure 2-13. Existing Utilities Plan.

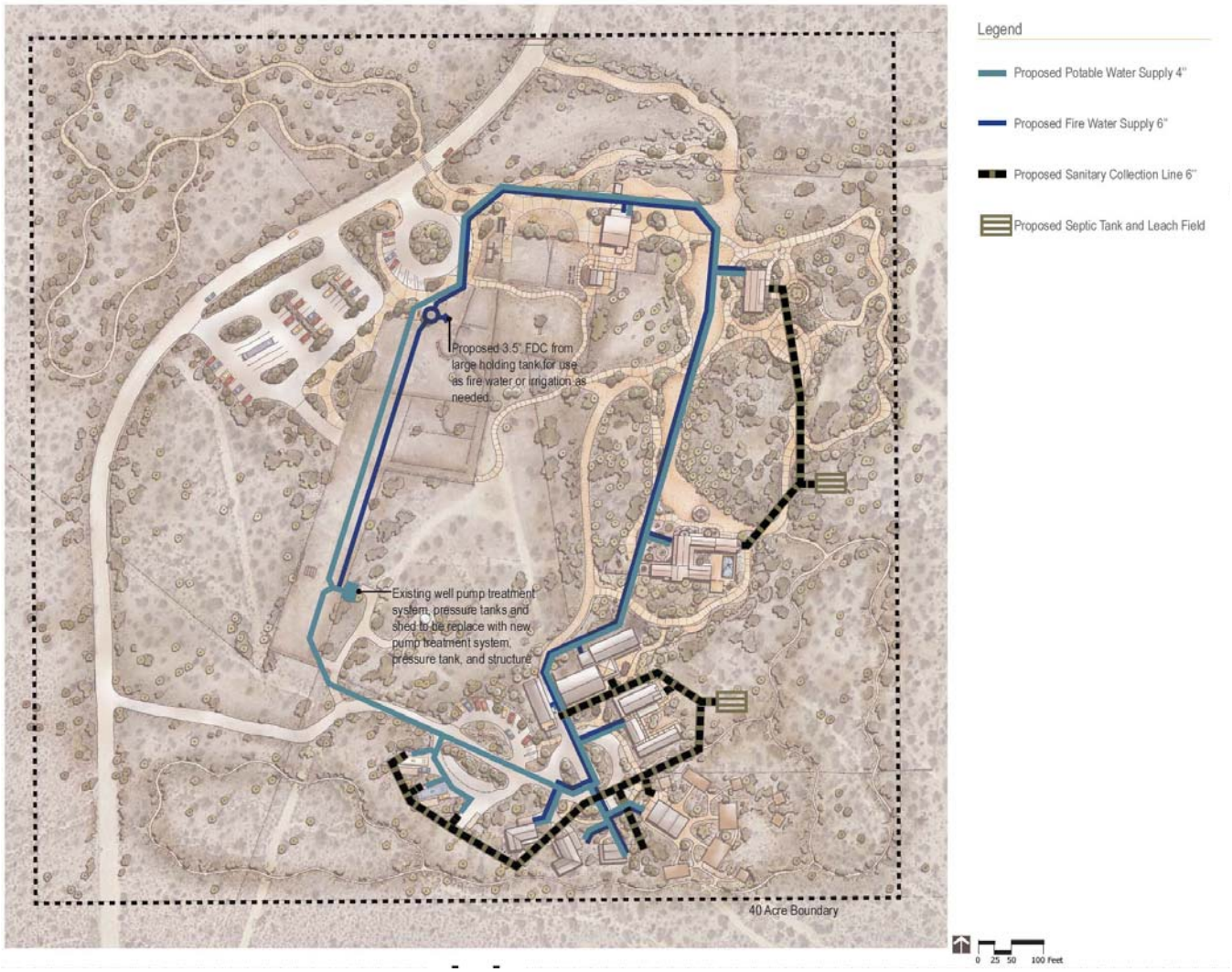


Figure 2-14. Proposed Utilities Plan.

Z) NEW LEACH FIELDS

Two new leach fields would be constructed to filter wastewater from the ranch facilities (Figure 2-14). The size of the leach field(s) would ultimately depend on soil percolation and the anticipated wastewater flow rates. The system would consist of PVC collection pipe to direct the wastewater via gravity to a septic tank or pre-treatment tanks. The pre-treated water would then flow into a series of infiltrator trenches or pipes to percolate into the soil.

Leach field construction would include trenching for the pipes and a larger trench for the septic tank(s). The infiltration trenches are partially filled with washed gravel wrapped in fabric to keep soil and gravel separate, which provides voids to hold water while it percolates into the soil, then they are backfilled with native material. The excess native soil material removed for leach field trenching would be used as fill elsewhere on the site, depending on the properties and needs for the material.

AA) ELECTRICITY

The existing site power is served from an overhead 15 kV utility power line that runs generally east to west across the site. A pole mounted transformer provides 120/240V power to a pad mounted 600 amp switchboard (MDC), located adjacent to the pole, which is located between the ranch house and bunkhouse. There is a separate service from the same pole that appears to feed the well pump. Feeders run underground from the switchboard to the ranch house, bunkhouse, and storage building. The caretaker's mobile home is fed from the ranch house, and the barn is fed from the bunkhouse.

The BLM would request Nevada Energy to provide two new power services to serve the new campus buildings. A new 120/208V, 3-phase service from a pad-mounted transformer located adjacent to the research building would feed a distribution panel (MDP1) in the building. Underground feeders from the distribution panel would serve the maintenance building and bunkhouse. The pumps for the ground source heat pump bore field would be connected to this service. A new 120/240V, single-phase service from a pad mounted transformer located adjacent to the caretaker or manager's residence would feed a distribution panel (MDP2) on the exterior of the building. Underground feeders from the distribution panel would serve the guest cottage, camping pavilion, and RV hookups. Site lighting and site power pedestals would be fed from the nearest building. A stand-alone photovoltaic system shall be provided for the entry monument and sign lighting.

The existing buildings on site would continue to be served from the existing switchboard MDC. It is expected that due to increased loads, the feeder to the barn would need to be replaced with a new, larger service fed directly from the MDC. The adequacy of the feeders to the other existing buildings would be evaluated as the design progresses and loads are known. It may become necessary to replace the existing MDC due to required capacity or the inability to add the necessary circuit breakers.

BB) BUILDING ELECTRICAL AND COMMUNICATIONS SYSTEMS

Linear fluorescent, compact fluorescent, and LED light sources would be used throughout all building.

Rooms that would normally be occupied during the day, i.e., classroom, labs, offices, living/dining space, shop, employee area, and large restrooms, would be equipped with a photocell in each room to dim or turn off lights when there is adequate daylight.

All rooms, except bedrooms and mechanical/electrical rooms, would be equipped with motion sensors to turn off lights when the rooms are unoccupied.

Exterior lighting would be low wattage compact fluorescent or LED luminaries controlled by photocell, motion sensor, or local switch as appropriate. Exterior lighting circuits for each building would be routed through a relay panel in each building. The relay panels would be networked together with a data cable to allow lighting on individual buildings or all buildings, to be turned on or off from a central location. This would allow the site to be easily blacked out for dark sky events, or to turn on all lights for security purposes.

Photovoltaic (PV) panels would be installed on the southfacing roofs of all new buildings in the research campus. Power generated by the PV systems on individual buildings would feed back to the nearest utility service and would be connected to the utility as a grid-tied system.

Telephone, data, and television lines would be distributed to all buildings on site from the Information Technology (IT) room in the new classroom/lab building through underground conduits and pull boxes. It is anticipated that telephone/IT/TV service for the site would be provided by wireless means.

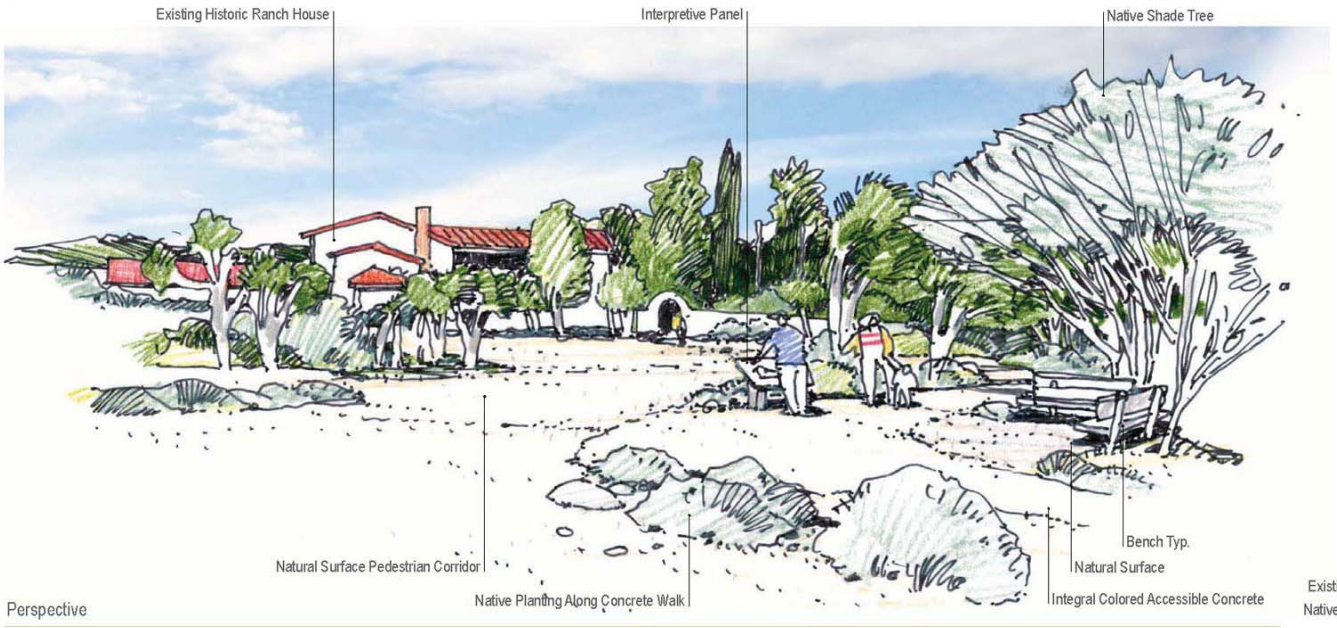
CC) RANCH HOUSE ELECTRICAL IMPROVEMENTS

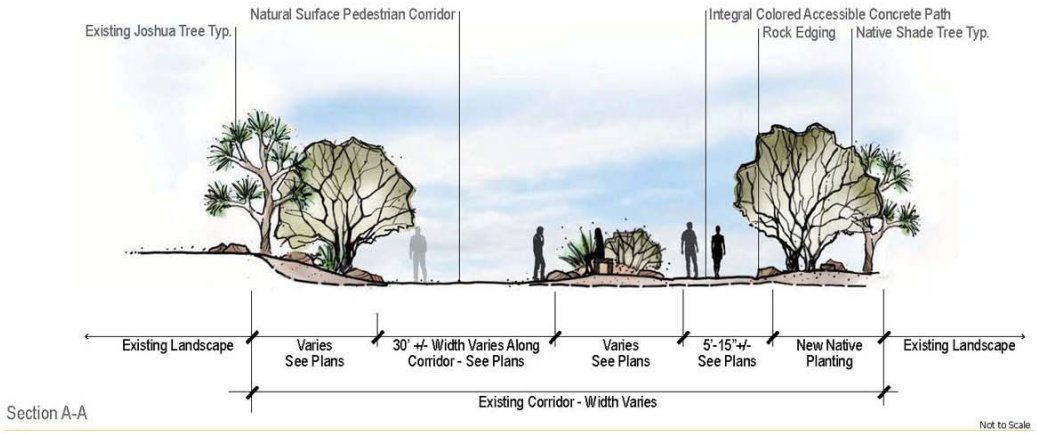
The existing 200A ranch house feeder would remain in place unless program needs dictate a larger service. A new subpanelboard, fed from the main exterior panel, would be added to serve the remodeled garage area. Existing wiring and panelboards in the ranch house would be inspected, and any deficiencies or code violations would be corrected.

DD) IRRIGATION SYSTEM

An irrigation system would be constructed on site for new landscaping as well as for areas proposed for restoration. The irrigation system may include permanent and temporary irrigation fixtures; it is expected to be a drip system.

The irrigation system would be the last item constructed or installed. The installation of a main trunk line (primary water distribution line) would consist of a shallow trench backfilled once the line is installed. The final layout of distribution lines from the main trunk line would be determined after all ranch construction and improvements are completed.





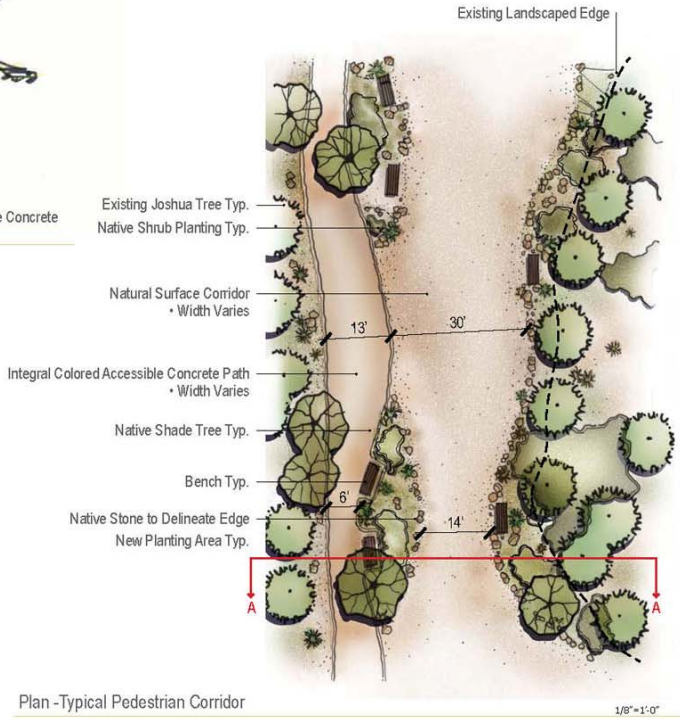


Figure 2-15. Historic Corridor Concept.

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2.4.5 Project Design Features

Design features are the specific means, measures, or practices that comprise the Proposed Action. Design features are often developed with the intent of minimizing or eliminating adverse effects of project implementation. The following list of design features would be implemented as part of the Proposed Action.

Design features and monitoring requirements have been incorporated into the action alternatives to reflect different ways of responding to relevant issues raised internally and externally. This includes specific monitoring requirements for the avoidance of unexpected resource effects, and the completion of project design and implementation as planned. The effectiveness of all design features, mitigation, and monitoring would be assessed in more detail in Chapter 3.0 – Affected Environment and Environmental Consequences.

A) ARCHITECTURE

1. New buildings would be designed and sited to complement the existing ranch house, as the outbuildings on a ranch might have been.
2. The architecture would respond to the desert environment, with modestly-sized, protected openings in the exterior walls, and overhangs and porches.
3. New buildings would be simple and contemporary in character, with no attempt to appear ‘historic’; their scale and forms would reflect those of traditional ranch structures.
4. New buildings would draw on the palette of colors and materials of the existing ranch house and barn and the site.
5. All exterior materials would be chosen for their suitability for a desert environment. Suitable materials shall be light-colored, resistant to ultraviolet degradation, and good insulators. These would include tile, metal or wood shingles for roofs, concrete, stucco, or wood for walls.
6. The architecture would seek to engage the site by utilizing architectural elements such as terraces, verandas, patios, walled yards, pergolas, and porches. Exterior surfaces may include stone, tile, natural concrete, and decomposed granite.

B) SUSTAINABILITY

LEED is a third-party certification program that provides a widely accepted benchmark for the design, construction, and operation of high performance projects. LEED promotes a multidisciplinary approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. The goals of LEED projects include minimizing required operational energy (and carbon); utilizing natural resources (i.e., day lighting and passive solar); site integration with habitat and natural hydrology; and reduction of dangerous finishes and building materials in order to provide a safe, efficient, and ultimately superior built environment. Site-wide sustainability measures include native landscape restoration from seeds gathered on this site, pervious pathways, solar powered signage, full cut-off photo-controlled light fixtures on motion detectors, and recycled material in site furnishings.

All new and improved facilities would adhere to LEED Platinum standards, as funding allows. The following key principles and features will be used to achieve LEED standards:

1. Sustainable materials and building systems would be an integral part of the design.
2. The new facilities will include both passive solar construction and sustainable design technologies. The two will be integrated to achieve maximum energy savings and decreased system size.
3. Architectural features such as solar siting, deep overhangs, operable exterior shutters, thermal mass, and strategic window placement will provide climate-responsive buildings.
4. A well-designed geo-exchange cooling system will help provide cooling required by buildings.
5. Exterior lighting shall be low wattage compact fluorescent or LED luminaries controlled by photocell, motion sensor, or local switch as appropriate. The relay panels will be networked together with a data cable to allow lighting on individual buildings, or all buildings, to be turned on or off from a central location. This will allow the site to be easily blacked out for dark sky events, or turn on all lights for security purposes

C) HISTORIC AND CULTURAL PRESERVATION

1. The legal requirements of the funding grants (SAT and SNPLMA) stipulate that the ranch be rehabilitate and/or restored in compliance with The Secretary of the Interior's Standards for Historic Preservation Projects. Rehabilitation is defined as the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of property that are significant to its historic, architectural, and cultural values.
2. Cultural and historic elements of the ranch will be preserved and protected.
3. Design elements for existing historic buildings will be constructed to meet the program requirements without compromising historic integrity.
4. Mechanical conditioning shall be limited to critical areas, and natural ventilation will provide primary source of cooling.
5. Where possible, and where it will not negatively affect the historic value of the ranch, new construction should occur at locations that have already been impacted by this earlier development.

D) FISH AND WILDLIFE

1. No species listed as threatened or endangered species were identified on the 40-acre parcel during targeted survey efforts in the summer of 2009. If, during project implementation, any Special Status Species are discovered, construction activities will be suspended until appropriate protective measures were implemented.

2. Prior to construction activity, all construction contractor personnel would be informed of desert tortoise sensitivities, common signs, and likely burrow characteristics.
3. An annual monitoring program will be implemented that analyzes impacts to wildlife habitat from visitation.
    - Prior to construction activity, construction crews would be educated on desert tortoise habitat, behavior, and ongoing conservation efforts prior to beginning work on site.
    - If desert tortoise is encountered during construction, crews would cease all activities until the tortoise has safely moved through the construction area.
    - If new tortoise burrows are indentified within the proposed development footprints, construction crews will consult with the BLM to adjust the trail alignment accordingly to avoid impacts to active burrows.
4. To prevent undue harm to the western burrowing owl (Athene cunicularia) and other breeding bird species, habitat-altering actions should be scheduled outside the general breeding season (approximately March 15-June 30 in upland desert and ephemeral wash habitats).
5. If project construction activities have the potential to alter breeding habitat during the breeding season, a qualified biologist must survey the area for nests prior to ground-disturbing or other construction activities. Surveys shall include burrowing, ground nesting, and vegetation nesting species.
6. Should any active nests be indentified during the construction phase, an appropriately sized buffer area (determined by a qualified biologist) must be avoided until all of the young have fledged.

E) VEGETATION

1. Topsoil from building or utilities excavation activities will be salvaged and used for nearby restoration efforts.
2. All construction vehicles will be cleaned and inspected for plant material prior to entering the ranch in order to prevent the transport or spread of noxious weed seeds.
3. Known noxious weed infestations will be treated (either mechanically or chemically) prior to construction.
4. If new noxious weed infestations are identified during construction, construction crews will report infestation to the BLM for mapping and appropriate treatments.
5. Prior to construction, a noxious weed management plan will be prepared to outline the parties responsible for monitoring and initiating treatment of noxious and invasive species that establish within the development footprint.
6. A biological monitor trained in identifying rosy two-toned beard tongue shall be on site during construction and identify any individuals that occur within or adjacent to the proposed development footprints.

7. If BLM sensitive plants are identified adjacent to new development footprints or downgradient from these areas, proper Best Management Practices will be used to prevent erosion, sedimentation, trampling, or any incidental damage to plants related to construction or interpretive trail use.
8. All populations of BLM sensitive plants will be mapped by the biological monitor, and notes on habitat will be taken for later reference during restoration efforts.
9. Interpretive signs will be installed at strategic locations to educate users on the natural history of these rare plant species and the need to stay on designated paths and trails.
10. At those locations where avoidance is not possible for yucca and cactus species, all individuals in the construction footprint will be salvaged and relocated to an adjacent location that will not be impacted by construction.
    - If cacti are salvaged, mature multi-branched individuals will be used to propagate additional individuals at a nursery for planting at an adjacent site with suitable conditions.
    - Salvaged cacti will be allowed to harden before planting to prevent root rot.
    - Once planted, the cactus will be watered and otherwise maintained until the cactus is established (a minimum of one year).
    - Salvaged plants will be maintained by a qualified contractor (with at least three years relevant experience or other BLM-approved qualifications) for a period of one year.
    - Prior to relocating any yucca or cactus individuals, all appropriate permits will be obtained.
11. If rosy two-toned beard tongue is unavoidably impacted during trail construction, rosy two-toned beard tongue seed will be collected if seasonally available.
    - Collected seed will be multiplied under nursery conditions.
    - Rosy two-toned beard tongue seed will be seeded at sites with suitable habitat conditions.
12. All restoration efforts will be directed by BLM.
13. All seeded or planted plants will be monitored by BLM to document the success or failure of the seeding and planting efforts. Monitoring will occur for five years following installation.
14. An adaptive management plan will be developed if restoration efforts prove to be unsuccessful to implement remedial measures.

F) WATER QUALITY, HYDROLOGY, AND SOILS

1. An erosion control plan will be prepared.

2. Activities associated with construction of the facilities will be done in a way that minimizes potential disturbance to reduce the area requiring post-construction rehabilitation.
3. Salvage and stockpile as much topsoil as possible for later use to re-establish native vegetation.
4. Whenever construction disturbs the landscape, naturalize contours and re-establish vegetation.
5. Employ temporary erosion control techniques as required until landscape restoration is completed.
6. Reclamation will be implemented concurrent with construction and site operations to the fullest extent possible.
7. Use watering trucks to minimize dust; watering should be sufficient to confine dust plumes to the project work areas.
8. Limit vehicular paths on unpaved surfaces and stabilize any temporary roads.
9. Revegetate disturbed land, including vehicular paths created during construction to avoid future off-road vehicular activities.
10. Drainages will be maintained where possible, and connections to historic drainages off the site preserved.

G) LANDSCAPING AND VEGETATION

1. As use areas of the site are more defined and use becomes more controlled, impacts to the existing landscape would be lower. These controls, combined with some site restoration, would result in a more diverse landscape.
2. New development would be concentrated outside the primary historic viewshed of the ranch house and yard. Landscape screening would be used to lessen the impact of any development within the viewshed.
3. All new planting in restored areas would be indigenous and drought tolerant, with limited temporary irrigation for plant development.
4. ‘Designed’ landscaping with indigenous low-water demand plants would be confined to select areas at the ranch house and new academic zone.
5. Hard paving would be limited to areas required for permanent parking and for disabled access about the site.
6. Landscaping and berming would be utilized in the parking lots to help visually reduce the size of the parking lots.
7. Weed control would be a part of the regular maintenance.

H) VISITOR MANAGEMENT

1. Access to the 120-acre parcel will be prohibited, in general. The 40-acre parcel is fenced, however, during periods of high visitation or special events, additional temporary fencing or signage may be installed to further discourage visitor access of the 120-acre parcel.

2. Visitor management will include designated parking areas. Parking will include 13 spaces for researchers and staff, 49 visitor spaces, and 80 event spaces, as shown in Table 2-3. The maximum available parking spaces on site will be 142.
3. All special events that would exceed the capacity of the primary parking area (Table 2-2) would need to be approved under a BLM Special Use Permit.
4. Visitors will be managed so not to detract from the site's character. Visitors will be managed to have between 13-75 persons at one time on site for most months. Peak visitation will be managed at less than 600 people (currently planned for two events per year).
5. An annual monitoring program will evaluate visitor experience, resource conditions, and site characteristics to determine if peak visitation should be adjusted (e.g., more/less than two events per year and maximum allowable numbers at these events). If it is determined that peak visitation could be increased, additional visitation would be accommodated via shuttle buses from the community of Searchlight. No additional parking spaces would be added without a separate planning and environmental assessment effort. If it is determined that peak visitation could be decreased, proposed parking areas could be reevaluated for restoration potential.
6. Off-highway or utility vehicle use would be limited to designated routes within the 40-acre parcel boundaries. No off-highway or utility vehicle use would be allowed on the 120-acre parcel without prior TNC and BLM consent.
7. Information specific to desert tortoise, desert ecology, and other sensitive habitats will be incorporated into educational and interpretive programming at the ranch.

I) AIR QUALITY

1. All construction activities and contractors will obtain the appropriate dust control permits prior to project or task implementation.
2. Compliance with local, state, and national air quality standards will be maintained for the duration of the project.

J) VISUAL RESOURCES

1. The historic water tank will be painted a shadow grey color consistent with the 2008 *Walking Box Ranch Master Plan and Preservation Plan Report* and BLM Environmental Standard Colors to reduce glare and to return it to its original, unfinished grey steel color.

2.5. Alternatives or Elements Considered but Eliminated from Further Analysis

2.5.1 Master Plan Alternative 1 - Minimum Development Utilizing Existing Structures

Alternative 1 would require minimal new construction and would, overall, result in no (or negligible) net change in the development footprint on the ranch. All construction and development would occur on the fenced 40-acre (Parcel 1) portion of the site. There is no development on the remaining 120 acres. Much of the currently disturbed area of the site, including the tennis court, would be restored and revegetated. The barn and ranch house would be used as the primary facilities for interpretation and visitors. The existing bunkhouse and a new campground would accommodate overnight guests. Camping and bunkhouse parking would be located north of the existing bunkhouse. Alternative 1 would provide minimal advancement of research and interpretive programs; research opportunities would be extremely limited and public visitation opportunities would be limited to 12 days/year (minimum necessary to satisfy requirements of the SAT grant). Research facilities (e.g., labs, offices) would be retrofitted into the ranch house garage. This alternative includes two potential locations (corral areas) for a new rustic amphitheater for up to 50 persons. One Searchlight party/gathering per year would be permitted. Alternative 1 will be eliminated from further analysis because it does not satisfy the research needs identified and only partially meets the museum and public education needs identified.

2.5.2 Master Plan Alternative 4B - Focused Site-Appropriate Development with New Interpretive Center

Alternative 4B is identical to Alternative 4A with one exception: Alternative 4B would stabilize and close the barn and construct a new interpretive center (as described in Alternative 3, which has been retained for further analysis). Alternative 4B was developed as a variation of Alternative 4A, in the event that occupancy of the barn proves infeasible. Similar to Alternative 4A, 4B would create a distinct academic ‘campus’ on the site and would provide an expanded public program, utilizing the historic ranch configuration as a model. All development and construction would occur on the fenced 40-acre (Parcel 1) portion of the site; no development or construction would occur on the remaining 120-acre parcel. Much of the currently disturbed area of the site, including the tennis court, would be restored and revegetated.

Alternative 4B has been eliminated from further analysis because it is it is substantially similar in design to Alternatives 3 and 4A. The BLM and UNLV decided that, given budget and staffing constraints, a new interpretive center may not be realistic for implementation if Alternative 4B were to be selected as the preferred alternative. If Alternative 4B were carried forward, the new interpretive center element could be individually removed from Alternative 4B at the time of the FONSI/Decision Record. The removal of the interpretive center at the time of decision would equate to selecting Alternative 4A for implementation. As such, it was decided that further analysis of Alternative 4B would be unnecessarily redundant with 4A and would not extend the range of reasonable alternatives carried forward for analysis.

2.5.3 No Work / Reuse Only Alternative

This alternative proposed reusing only the existing structures on the site, with only minimal improvements, such as remedial work or stabilization. New construction or site improvements were not part of this proposal. This alternative was abandoned very early in the planning

process, as it did not meet the objectives of the BLM's property acquisition or partnership agreement between UNLV and BLM.

2.5.4 Development in Disturbed Areas Only Alternative

This alternative proposed reusing the existing structures and new construction on previously disturbed portions of the site. Previously disturbed portions of the site include those areas to the north and northwest of the main ranch house up to Walking Box Ranch Road. This alternative would have created an academic zone through the reuse of the bunkhouse and the construction of a new academic facility on the former tennis court site. The other historic buildings would be used for a mix of public and academic uses. This alternative was abandoned because it would necessitate major new construction in the central historic core of the site which would have had resulted in unacceptable adverse impacts to the ranch house viewshed. Additionally, the area available for construction would not have been adequate to satisfy program needs.

2.5.5 Restoration of Disturbed Areas and Development in the Northwest Corner of the Site

This alternative is similar to Alternative 3 (which has been retained for analysis); however, the new academic facilities would be constructed around the entry point of the site, in the northwest corner, rather than at the south side of the site (as shown in Alternative 3). The existing buildings were programmed for interpretive public uses. This alternative was eliminated for several reasons. Although it would have allowed for more public interaction with the academic facilities, it was also determined that it might be confusing for public visitors to the site, as they would have to make a choice between entering the interpretive facility or research facility upon arrival on the property. This alternative would have involved the realignment of the access road at the west side of the site, a county right-of-way. It also would have impacted the relatively undisturbed portion of the site to the northwest.

2.5.6 Restoration of Disturbed Areas, Reconstruction of Historic Structures, and Development at South Side of Site

This alternative is similar to Alternative 3 (which has been retained for analysis), but would have included the reconstruction of several buildings in the historic core of the site. These small structures, though located and modeled to recall the original outbuildings, would have introduced new construction into the heart of the historic site. Additionally, their small size would not have adequately housed the necessary facilities. Therefore, this alternative would not have effectively addresses the purpose and need for the project.

2.5.7 Restoration of Disturbed Areas and Off-Site Development on Adjacent ACEC (Area of Critical Environmental Concern) Lands

This alternative proposed reusing the existing buildings on the 40-acre parcel for public interpretive uses and special events. New development on the parcel would have been limited to restoration and revegetation of disturbed areas, with limited improvements for parking. The new academic research center, maintenance facility, and parking lot would have been constructed on undisturbed, designated ACEC land immediately to the north. This site development scheme resulted in separate public and academic zones. This alternative was eliminated from further analysis because of the potential for unacceptable adverse impacts to

currently undisturbed desert tortoise and desert habitat when numerous other alternatives with less potential for harmful effects had been identified as reasonable and feasible.

2.5.8 Other Site-Specific Elements

Reconstructed Ranch Guest House: This project element proposed to rebuild the historic ranch guest house north of the main ranch house (in the historic core) to serve interpretive or other public functions.

New Interpretive Center: This project element proposed to build a new 4,000 sq. ft. interpretive center to consolidate most visitor functions northwest of the historic core.

Shop String Reconstruction: This project element proposed to reconstruct a small building at the location of the historic "shop string." The reconstructed shop building would be used to house interpretive exhibits focused on research activities at the ranch.

Ultimately, each of these project elements were dropped from further consideration because it was determined that they did not offer any unique public or education opportunities, did not significantly enhance the proposed program, or would have contributed to site impacts that could be avoided or minimized through the incorporation of other elements.

CHAPTER 3.0 - AFFECTED ENVIRONMENT

3.1 Introduction

This chapter discusses the existing physical, biological, and socioeconomic resources in the study area (Affected Environment).

In addition to the BLM Nevada supplemental authorities identified for further analysis (Table 3-1), the following resources and/or issues will also be described in Chapter 3.0 as well as Chapter 4.0, Environmental Consequences.

- Hydrology, Drainage, and Erosion
- Land Use
- Soils
- Visual and Aesthetic Resources
- Visitation / Residents

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Table 3-1. BLM Nevada Supplemental Authorities.

Element	Relevant Authority	BLM Manual or Regulation	Not Present	Present / Not Affected	Present / May be Affected	Rationale
Air Quality	Clean Air Act, as amended (42 USC 7401 *et seq.*); Section 176(c) CAA - General Conformity	MS 7300 40 CFR 93 subpart B			X	Air quality is addressed under Section 3.2.
Areas of Critical Environmental Concern	Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.)	MS 1613		X		The Walking Box Ranch is surrounded by the Piute-Eldorado Valley ACEC; however, the ranch itself is an exception within the ACEC. Because all proposed development would occur within the 40-acre parcel, the ACEC is not expected to be affected.
Cultural Resources	National Historic Preservation Act, as amended (16 USC 470)	MS 8100 2009 NV State/BLM Protocol Agreement per 36 CFR part 800.14			X	Cultural and historic resources are addressed under Section 3.3.
Environmental Justice	E.O. 12898 "Federal Actions to Address Environmental Justice in Minority and Low-Income Populations" 2/11/94	H-1601-1	X			No minority or low-income groups live on the ranch or in the immediate vicinity of the ranch; therefore, none of these groups would be disproportionately affected by health or environmental effects of the project.
Farm Lands (Prime or Unique)	Surface Mining Control and Reclamation Act of 1977 (30 USC 1201 et seq.) Farmland Protection Policy Act (7 USC 4202 et seq.)	7 CFR 658.4	X			Resource is not present.
Floodplains	E.O. 11988, as amended "Floodplain Management" 5/24/77	MS 7260	X			Resource is not present.
Forests and Rangelands (HFRA projects only)	Healthy Forests Restoration Act of 2003 (P.L. 108-148)	N/A	X			(Project is not applicable.)
Human Health and Safety (Herbicide Projects)	E.O. 13045 “Protection of Children from Environmental Health Risks and Safety Risks	MS 9011	X			(Project is not applicable.)

Element	Relevant Authority	BLM Manual or Regulation	Not Present	Present / Not Affected	Present / May be Affected	Rationale
Migratory Birds	E.O. 13186 "Migratory Birds"; Migratory Bird Treaty Act (16 USC 703 - 711)	50 CFR 10, 17			X	Migratory birds are addressed under the Wildlife Resources section, Section 3.9.
Native American Religious Concerns	American Indian Religious Freedom Act of 1978 (42 USC 1996)	MS 8100 H-8160-1	X			Resource is not present.
Non-Native Invasive and Noxious Species	E.O. 13112, Invasive Species, 2/3/99	MS 9015 517 DM 1			X	Non-native invasive and noxious species are addressed under the Vegetation Resources section, Section 3.6.
Threatened and Endangered Species	Endangered Species Act of 1973, as amended (16 USC 1531)	MS 6840			X	There are no federally threatened, endangered, or candidate plant species within the project area. Federally threatened and endangered wildlife species are addressed in Section 3.9.
Wastes, Hazardous or Solid	Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.) Comprehensive Environmental Response, compensation, and Liability Act of 1980, as amended (42 USC 9615)	MS 9180 MS 9183	X			This resource concern is not currently present on the ranch. The project would not generate or expose solid or hazardous wastes.
Water Quality, Surface/Ground	Safe Drinking Water Act, as amended (42 USC 300f et seq.) Clean Water Act of 1977 (33 USC 1251 et seq.)	MS 7240 MS 9184			X	Potable and fire suppression water is supplied by an on-site well. Effects to groundwater levels as a result of the proposed project are addressed in Section 3.7.
Wetlands/Riparian Zones	E.O. 11990 "Protection of Wetlands" 5/24/77	MS 6740	X			Resource is not present.
Wild and Scenic Rivers	Wild and Scenic Rivers Act, as amended (16 USC 1271)	MS 8014	X			Resource is not present.
Wilderness	Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.) Wilderness Act of 1964 (16 USC 1131 et seq.)	43 CFR 6300 H-8550-1 MS 8560	X			Resource is not present.

3.2 Air Quality

The Clark County Department of Air Quality and Environmental Management (DAQEM) manages air quality monitoring stations and develops implementation plans to achieve air quality standards compliance within the county. Compliance requires that air quality levels for monitored pollutants do not exceed the National Ambient Air Quality Standards published by the Environmental Protection Agency (EPA) within delineated airsheds (Appendix C).

Walking Box Ranch is not located in a non-attainment boundary and falls directly to the south of the Eldorado Valley hydrographic basin #167, which stretches from Boulder City to Searchlight. The closest air quality monitoring site is located northwest of Walking Box Ranch in Jean, Nevada. The Jean monitoring station was primarily established by Clark County to monitor transport pollution from southern California, ozone, and particulate matter, but is also used to establish general background concentration levels (Clark County 2009). The Jean monitoring station has reported yearly fourth highest 8-hour average concentration ozone trend levels above the current EPA 8-hour standard (75 ppb) for every year between 1998 and 2007 (Clark County 2009). The Jean station has also reported one of the lowest annual mean particulate matter readings in Continuous PM_{10} Trends, the lowest readings in Filter-Based $PM_{2.5}$ FRM Trends between 1999 and 2008, and one of the lowest readings for Continuous $PM_{2.5}$ Annual Mean Trends for 2008 (Clark County 2009). The next closest monitoring station in Boulder City has reported yearly fourth highest 8-hour average concentration ozone trend levels above the current EPA 8-hour standard for 5 years, non-continuously, between 1998 and 2008 (Clark County 2009).

A non-attainment area designation indicates that a defined region, such as a hydrographic basin, has exceeded safe levels for one or more criteria pollutants as set forth by the National Ambient Air Quality Standards (NAAQS) that contribute to poor air quality, and which may affect human health and the environment. The Eldorado Valley airshed is in attainment for air quality, unlike the Las Vegas Valley airshed directly to the north. As of 2008 in Clark County, all monitored pollutants with an EPA-designated 8-hour standard have been recorded at all monitoring stations in the county as below the standard, with the exception of ozone. The levels of most pollutants have remained constant. There have been no recorded exceedances of carbon monoxide (CO) in the last 10 years, so Clark County has sought redesignation to maintenance status with the EPA.

Ground-level ozone (O_3) is a toxic gas, which is naturally found as a component of ambient air that reaches hazardous levels due to human activities. O_3 levels are monitored as an average concentration over an 8-hour period. Unlike other pollutants, O_3 is not produced by any specific source; rather it is formed in the air through reactions between other airborne man-made chemicals in the presence of sunlight. Sources of contributing chemical components primarily stem from gasoline vapors, but also include other fuel and solvent vapors and consumer products. Emissions from these sources can be carried over hundreds of miles, forming high ground-level O_3 concentrations over very large areas and in locations other than the source areas. Weather and temperature affects the production of O_3; warm, sunny days increase the levels of O_3. In Clark County, ground-level ozone is predicted to be at moderate levels throughout the warmer months (May-Sept.), particularly within the Las Vegas Valley north of Walking Box Ranch, with occasionally higher, unhealthy levels occurring in the afternoons when breezy conditions do not exist to move the air.

Coarse or fine particulate matter as a pollutant can be any type of material substance suspended in air, either liquid or solid. Particulate pollutant levels are monitored as the total weight of matter collected over a 24-hour period, every sixth day. Particles are typically classified into two size categories: coarse particles smaller than 10 microns in size (PM_{10}), and fine particles smaller than 2.5 microns in size ($PM_{2.5}$). Coarse particle emissions typically occur from processes such as travel over paved or unpaved roads, dust blown from open desert or vacant lands, rock and gravel mining, or processing or construction activities (Clark County 2007). Weather activity can contribute to higher levels of suspended particulate matter, such as high winds over lands naturally or artificially cleared of vegetation or desert soils which have been disturbed and have a loose surface or broken soil crusts (Clark County 2007). Fine particle sources include liquids and solids from all types of fuel combustion, and pollutants that are formed in the air from interactions between airborne chemicals and compounds. The majority of monitored fine particulates monitored in the county consist of sulfates, organic and elemental carbon, carbonaceous compounds such as CO, and low levels of nitrates (DRI 2002).

Current uses of Walking Box Ranch include field studies, caretaker occupation, and state police accommodations/stationing. The primary contributor to air quality issues is the use of vehicles to access the ranch from the main highway north of the study area. Road access and the area around the ranch buildings consist of packed dirt, which is blown up as vehicles travel over it. Current vehicular uses at Walking Box Ranch may contribute moderate amounts to the coarse particulate matter in the immediate area of the ranch as well as minor amounts of fine particulates, and may be carried off site depending on weather patterns. Additional air quality contaminants can come from air conditioning units used by the caretaker and officers, and are dependent on the types of equipment in use.

3.3 Cultural Resources

Additional historical context is provided in Section 1.1 and Appendix A. Walking Box Ranch is associated with patterns of events that have contributed to the development of southern Nevada, in this case the development of agriculture, specifically cattle ranching, in the Mojave region. As a remote ranch in a desolate location, the ranch illustrates the development of cattle ranching in the area throughout the twentieth century. The complex is illustrative of the period when cattle ranchers were obligated to set up privately owned home ranches to maintain access to public grazing lands under the Taylor Grazing Act. Walking Box Ranch is also associated with a more particular trend associated with ranching in the 1930s – that of the Hollywood actor-turned-rancher. Rex Bell and Clara Bow, both Hollywood personalities, built the main house and many of the outbuildings.

Walking Box Ranch embodies the distinctive architectural characteristics of a type, period, region, and method of construction. The design of the main house is characteristic of the Spanish Colonial Revival Style and includes many typical features. Though no architect has been identified, the main house exhibits subtle design details associated with an architect-designed building. Designed for a high-profile Hollywood couple in a Mediterranean style (popular in California at the time), it is representative of its era. The property also exhibits a distinctive regional method of construction (railroad tie construction) in the barn and also in the corrals. Walking Box Ranch typifies the western home ranch property type in the southern Nevada desert. The extant historic buildings and surrounding landscape retain a fair to high degree of individual integrity, and thus, they are able to convey their original uses, intent, and historic and architectural significance. The relationship between these various contributing resources in the district is substantially unchanged since the Bell period. Thus, Walking Box

Ranch remains as an excellent example of the home ranch in Clark County and the Mojave region.

The 40-acre ranchstead site of the Walking Box Ranch was listed on the National Register of Historic Places as a historic district in January 2009. The period of significance for the district as an operating cattle ranch is 1931-1958.

The National Register is the official recognition by the federal government of cultural resources worthy of preservation. A Historic District is a group of buildings, properties, or sites that have been designated by one of several entities on different levels as historically or architecturally significant. Buildings, structures, objects, and sites within a historic district are normally divided into two categories: contributing and non-contributing. Broadly defined, a contributing property is any property, structure, or object that adds to the historical integrity or architectural qualities that make a historic district significant.

The Walking Box Ranch Historic District constitutes approximately 40 acres, located at the northwest quadrant of the original 160-acre home ranch, which is historically associated with Walking Box Ranch and contains those extant resources directly associated with the operations of the ranch. There are no individually listed buildings or structures, nor designated National Historic Landmarks within the district. Contributing resources to the historic district are the ranch house, barn, ice house, water tank, corrals, fences, and internal pathways. The district also includes Walking Box Ranch Road, which historically and today provides access to the district. Several original outbuildings, such as the guest house and blacksmith shop, have been demolished. In comparison to the surviving main house, barn, ice house, corrals, and water tank, the demolished buildings played a secondary role in the day-to-day operations of the ranch.

A number of non-contributing buildings, structures, site features, and objects also occupy the site; many of them are below ground (two water wells), small in scale (a water trough), or temporary in nature (two mobile trailers).

The Walking Box Ranch Historic District is significant under National Register Criteria A and C:

- **Criterion A**, for its association with the history of cattle ranching in Clark County and the Mojave region;
- **Criterion C**, for the Barn as an example of typical local vernacular construction - railroad tie architecture;
- **Criterion C**, for the Ranch House as an uncommon example of the Spanish Colonial Revival Style; and
- **Criterion C**, as a representative local example of the cattle ranch property type.

3.3.1 Management Considerations

In 2006, SAT grant monies were awarded to UNLV to preserve the historic ranch and to undertake a master plan to determine the most appropriate uses for the buildings and site in the future. The following objectives highlight the desired planning outcomes for the SAT grant monies:

- Work with and satisfy requirements of the BLM, as owner of the property; The Nature Conservancy, as holder of easements on the property; the Nevada State Historic Preservation Office (SHPO); and other review bodies having jurisdiction.
- Develop a plan that will result in the highest and best use of the ranch and its historic structures, while preserving and making it accessible to and understandable by the public.
- Develop a master plan that will successfully integrate academic and public functions and uses in a complementary way, to achieve an economically sustainable future for the ranch.

Additionally, two separate SNPLMA nominations and subsequent funding (2006) call for rehabilitation of the historic structures, and development of a museum/interpretive center and a FRTC intended to preserve, study, and convey the historical and cultural significance of the ranch.

A cooperative management agreement was signed by BLM and UNLV in December 2005, formalizing the partnership by which UNLV assists BLM in managing the ranch. In undertaking joint management of the property with the BLM, UNLV had a vision for a facility that would serve both the academic community and the public, consistent with the 2006 SAT grant and two SNPLMA nominations. In 2008, two new assistance agreements were signed by BLM and UNLV, one for custodial maintenance and the other for assistance in the design and development of the ranch.

3.4 Water and Soil Resources

3.4.1 Surface Water and Drainage

The 40-acre site is located entirely within the arid Mojave Desert, approximately 30 miles south of the City of Las Vegas and 6 miles west of the community of Searchlight. This area receives an average of about 8 inches of rainfall per year. Table 3-2 shows the average annual rainfall for the community of Searchlight.

Table 3-2. Monthly Average Rainfall at the Community of Searchlight in Clark County, 1931-1995.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
mm	21.4	22.2	21.6	9.7	5.4	2.6	24.6	29.8	17.8	12.4	12.8	21.6	202.9
inches	0.8	0.9	0.9	0.4	0.2	0.1	1	1.2	0.7	0.5	0.5	0.9	8
Source: SEARCHLIGHT, CLARK COUNTY data derived from NCDC Cooperative Stations. 57 complete years between 1931 and 1995													

Most months average between 0.5 inch and 1.0 inch of rain. Although the area is typically dry, occasional high intensity and large volume rainfall events occur. These infrequent, large rainfall events can produce large amounts of runoff from the upper reaches of the watershed, and may result in flash flooding within the natural collection channels and washes.

The infrequent nature of rainfall in this part of the country results in only intermittent channelized flow on the project site; there are no permanent streams or surface waters within the analysis area.

The topography of the site encourages runoff to flow across the headquarters area (40 acres) from west/northwest to east/southeast. The contributing watershed is approximately 444 acres,

including a portion of the hills to the west of the project. Resulting runoff from a 100-year discharge event can be as much as 30 cfs flowing in a series of shallow swales and rivulets across the site.

Natural drainage channels on the site are generally shallow and wide. Many of them are no more than a few inches and spread 5-10 feet wide. The larger on-site channels are approximately a foot or so deep and 10-15 feet wide.

Figure 3-1 shows existing surface runoff patterns on the project site. There are four distinct areas of concentrated flow that convey rainfall runoff from the watershed west of the property through the site. From north to south, the major flow paths that cross the site are 1) north of the main gate, 2) north of the ranch house, 3) south of the ranch house, and 4) south of the caretaker's residence. There are several other swales that collect on-site drainage and act as tributaries to the more major flow paths.

The existing buildings on site are at an elevation very near the existing drainage conveyance channel elevation and, as a result, are exposed to potential flooding. It is likely that during larger rainfall events, the exterior of some of the buildings comes in contact with stormwater flowing across the site. No damage has been observed to the buildings from these flows, but the potential is obvious with the close proximity and grade to the conveyance channels as shown in Figures 3-2, 3-3, and 3-4.

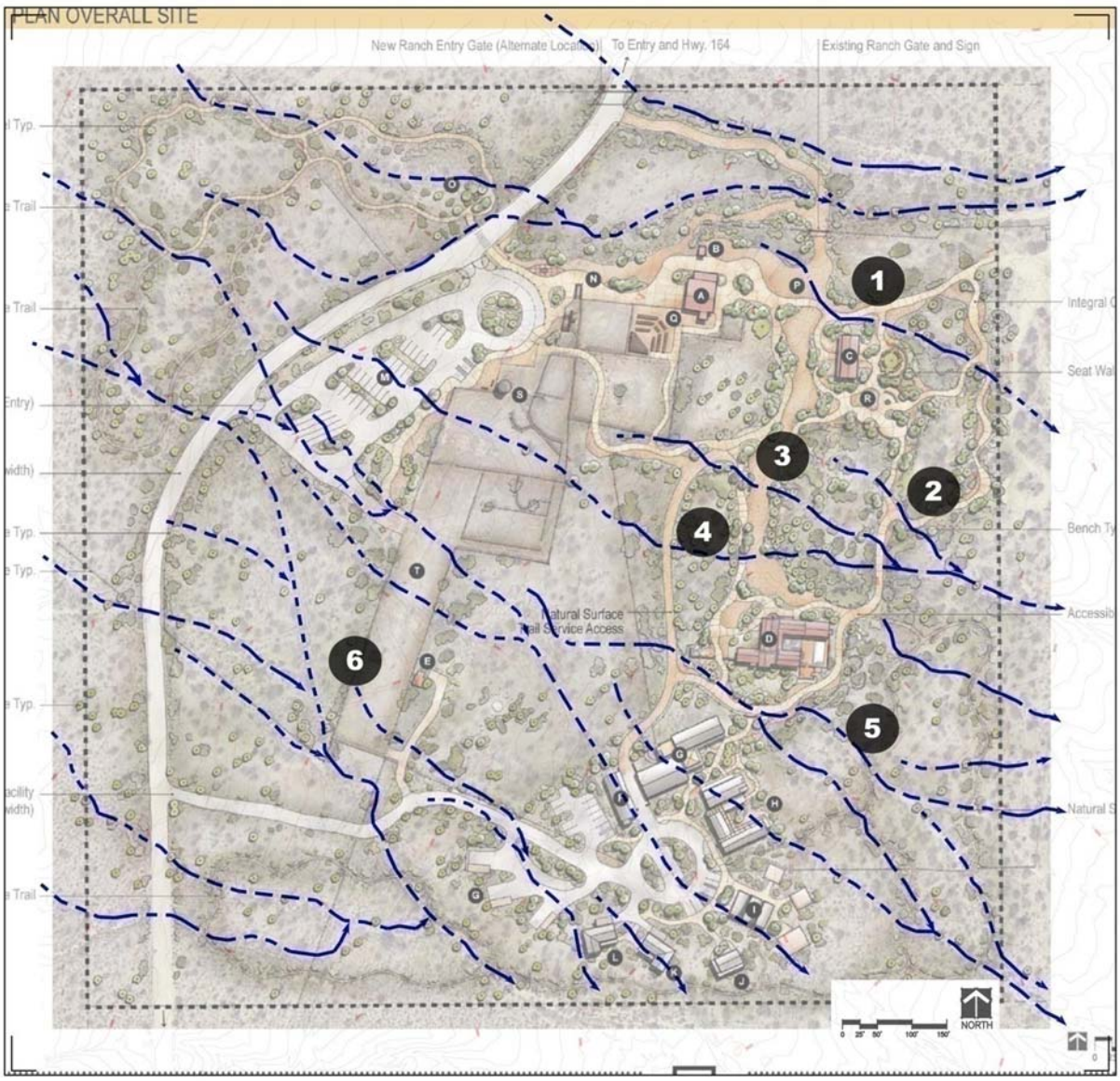

Figure 3-1. Walking Box Site Hydrology - Existing Drainage Pattern Across Site.

Figure 3-2. Larger On-Site Existing Stormwater Conveyance Channel.

Figure 3-3. Example of Existing Stormwater Conveyance Channel Adjacent to Structure.

Figure 3-4. Existing Stormwater Conveyance Channel.

As the stormwater flows travel to lower elevations and flatter grades, the runoff begins to fan out in very shallow and wide flow paths across the valley. At this point, some portion of runoff will make its way to groundwater aquifers. Groundwater in this region tends to be quite deep.

Groundwater Resources

The Walking Box Ranch 40-acre parcel has two water wells. One well was drilled to 920 feet in 1964; the second well was drilled to 1,095 feet in 1992. The 1964 well is now abandoned – it is reported that a pump was dropped into the well, making it inoperable. The 1992 well is the only water supply on site.

The drilling report for the 1992 well shows that the static water table was encountered at 700 feet, and it was air-lift tested at 20 gallons per minute (gpm). The well hole diameter is 12 inches down to 535 feet and 8 inches from 536 feet to the bottom (1,095 feet) (State of Nevada Division of Water Resources Well Driller's Report # 38903, 7/6/1992).

A submersible pump is used to draw water from the 1992 well; this water is stored in a 7,500-gallon (est.) water storage tank at the southwest end of the main ranch house headquarters area. Recently the well pump was replaced with a new 5 HP, 3 phase unit. Pumping tests were performed on the well using this new pump in December 2007. The results of the recent testing show the water fluctuating from a depth of 650 initially to a maximum depth of 795 feet. The pumping rate fluctuated between 5.6 and 12.2 gpm, with an average of 8.7 gpm over a 24-hour well test period. Since most of the pumping rates in the later part of the test were ranging from 7.3-9.0 gpm, it is reasonable to assume a sustainable pumping rate in the 7-8 gpm range. A pumping rate of 7 gpm yields 10,080 gallons per day.

A water quality report shows that a water sample taken 12/12/2008 exceeded state limits for arsenic and fluoride. Coliform levels were noted in this test as well. The well was cleaned and

a follow-up water quality sample was taken 12/17/08. No coliform was present in the second sample.

Adjacent to the large potable water storage tank is a structure housing water softening and pressurizing equipment, which is used to adjust the pH and bring it up to potable water standards. Softened water is pressurized and stored in a 2,500-gallon pressurized tank. The pressurized and softened water is delivered to the ranch house, bunkhouse, and caretaker's home.

BLM has determined that the ranch has 13,755 acre-feet per year of water rights associated with the property and has finalized the transfer of these rights to their name. This translates to approximately 4.48 million gallons yearly or 12,275 gallons per day (a typical residence uses approximately 500-1,000 gallons per day).

3.4.2 Erosion and Soils

Erosion in the desert environment can be manifested in many ways (Figure 3-5). What begins as small rills within upper portions of watersheds concentrates into small channels. As small channels collect and combine within the watershed, washes are formed. Depending on the slope and stability of the channel material (sand, cobbles, bedrock, etc.), large washes and possibly deep gullies may occur.

Figure 3-5. Existing Natural Stormwater Conveyance Channel with Minor Erosion.

Soils in the project area consist primarily of gravelly sand and sand/clay loam, with some cobble to boulder size material. Table 3-3 lists local soils mapping from the National Soil Conservation Service. The soils in the project area tend to be well-drained soils with moderate to high runoff potential. The upper regions of the drainage basin tend to have a higher erosion potential as a result of steeper slopes. The project site, however, is located in the valley with a flatter grade and less erosion potential.

Table 3-3. Soil Types within the Walking Box Ranch Site.

Soil Number	Soil / Association Name	Hydrological Description
160	Lanip-Kidwell Association	Well drained gravelly soil with some clay and sand at depth. Flooding is rare with no ponding; 2- 4% slopes; water table >80"
680	Lanfair-Hoppswell Association	Well drained gravelly soil with some clay and sand at depth. Flooding is rare with no ponding; 2-8% slopes; water table >80" 5% of surface covered with cobbles, stones, or boulders

3.5 Land Use

Walking Box Ranch is located approximately 7 miles west of Searchlight, NV. While historically operated as a cattle ranch, the ranch now occupies important desert tortoise habitat. The historic nature of the ranch headquarters, including the ranch house and several associated facilities, has led to its listing on the National Register of Historic Places. The historic context of the ranch and its associated facilities are described in Section 3.3 (Cultural Resources). This section provides an overview of pertinent land use and management guidance applicable to the Walking Box Ranch.

Originally constructed in 1931-32, the BLM acquired the Walking Box Ranch property in 2005 with funding from the SNPLMA. Prior to the BLM's purchase, the ranch changed ownership multiple times throughout its history. The ranch was originally built and owned by silent film stars Rex Bell and Clara Bow. In 1951, Karl Weikel purchased the property and renamed it the YKL Ranch. In 1989, the ranch was purchased by the Viceroy Gold Corporation. Ownership of the ranched changed several more times from the mid-1990s until the BLM purchased the property in 2005.

From its foundation through the 1980s, the Walking Box Ranch was operated primarily as a cattle ranch. The Viceroy Gold Corporation used the ranch for access, but also restored the historic ranch house and used it as an executive retreat. The ranch site, as well as the adjacent 120-acre parcel, is within the BLM's Piute-Eldorado Valley CHU and ACEC, which is managed for desert tortoise habitat protection and prohibits cattle ranching.

While the ranch parcels (both the 40 and 120-acre) are exempt from the ACEC and its habitat conservation measures, desert tortoise habitat is protected on both parcels by two conservation easements held by TNC. The conservation easements covering the analysis area are described in Section 3.5.1 (Management Considerations).

Although the ranch site is located in a relatively remote area, the potential for large-scale land use changes is emerging in the surrounding area. Among these is urbanization extending from the Las Vegas Valley down the I-15 corridor, which is stimulated in part by the proposed

Ivanpah Airport, a planned airport located approximately 20 miles west of the ranch site. The new airport is planned as a reliever airport for McCarron and is anticipated to open in approximately 10 years.

Another major land use trend is the increasing interest in renewable energy development, including a large-scale wind farm near Searchlight, which would generate 370 mw of power using as many as 160 turbines that would be visible at great distances due to their height of over 400 feet. Solar energy production is also anticipated, with several proposed projects in southern Nevada already announced as well as the existing Solar One project south of Boulder City.

3.5.1 Management Considerations

The BLM manages approximately 3.3 million acres of public lands in southern Nevada. These lands are managed under the Las Vegas District Resource Management Plan (LVRMP) (BLM 1998). The ranch property is not specifically addressed in the LVRMP, since the plan pre-dates the BLM's acquisition of the Walking Box Ranch. However, the ranch is surrounded by the Piute-Eldorado Valley ACEC, which is managed by the BLM for protection of important habitat for the desert tortoise.

In addition to the BLM, land uses and management of the analysis area are also predicated on a conservation easement held by TNC, which dates to 1994 and therefore was in place at the time of BLM's purchase of the land. Acquired in 1994 by TNC, the purpose of the conservation easement on the 40-acre headquarters parcel (i.e., analysis area) is "to preserve and protect in perpetuity the natural, historic, scenic and open space features and values" of the ranch (TNC 1994). The conservation easement imposes specific development restrictions on the analysis area, including:

- Parcel cannot be divided or subdivided;
- Mining exploration and extraction, including quarrying and sand/gravel removal, are prohibited;
- Geothermal exploration and development are prohibited;
- Industrial and commercial activities are prohibited, except historic agricultural practices (e.g., crops, grazing, etc.); and
- Parcel may not be used for public utility purposes (except as needed for the buildings within the analysis area).

Despite these development prohibitions, the conservation easement allows the construction of a BLM interpretive center within the analysis area. The inclusion of a potential interpretive center at Walking Box Ranch in the conservation easement evolved out of a proposal in the Castle Mountain mine expansion project (as described in the Castle Mountain EIS/Environmental Impact Report, 1990). The adjacent 120-acre parcel is also protected by a TNC conservation easement. The primary purpose of this easement is desert tortoise habitat protection, and the restrictions and prohibitions on potential uses are much more stringent.

In 2006, the BLM and UNLV signed a cooperative management agreement for the analysis area. Under the terms of the agreement, the Walking Box Ranch headquarters area (i.e., analysis area) will be made available to the public for education and interpretive purposes. All

land use activities associated with the BLM/UNLV partnership in the analysis area will be compliant with the terms of the TNC conservation easements.

3.6 Vegetation Resources

Vegetation within the project area consists primarily of Great Basin plant communities commonly found in the Mojave Desert ecosystem. The Mojave Desert extends from southern Nevada, southwestern Utah, southeastern California, and into northern Arizona. Typical vegetation types found within the project area, as described in the 2006 RMP, include moderate creosote communities, sparse creosote/bursage mix, and desert wash communities. Creosote (*Larrea tridentata*), white bursage (*Ambrosa dumosa*), Joshua tree (*Yucca brevifolia*), and mojave yucca (*Yucca schindegera*) are the most common species found throughout the project area; however, many other species are common throughout. Other less dominant components include brittlebush (*Encelia frutescens*), four-wing saltbush (*Atriplex canescens*), burrobush (*Hymenocilea salsola*), cat-claw (*Acacia greggii*), spiny horsebrush (*Tetradymia spinosa*), and a variety of cactus (cholla, barrel, and hedgehog cactus). In addition, a number of non-native trees are established throughout the developed portions of the property, including mulberry (*Morus sp.*), fremont cottonwood (*Populus fremontii*), cypress (*Cupressus sp.*), arborvitae (*Thuja occidentalis*), and box elder (*Acer negundo*). A list of all species observed during the reconnaissance surveys are provided in Appendix D.

Reconnaissance level field surveys were performed to supplement the RMP plant community descriptions. Field surveys were conducted on June 7 2006 and between May 28, 2009 through May 30, 2009. In general, species composition and distribution were observed to vary across the project area based on soil type, available soil moisture, elevational gradient, slope aspect, and geomorphology. Like many desert environments, plant density is relatively sparse with exposed soil and rock being the predominant cover.

During the reconnaissance level field surveys, many annual and perennial forbs had senesced or were at the tail end of their life cycle for the year. Most of these species flower between March and May following the cooler temperatures and precipitation in winter and spring. During the field visits, it was noted that approximately half of the 40-acre parcel has been developed as part of the historic cattle operation and that much of the 40-acre parcel appears to have been modified at some point, as indicated by lower species diversity as compared to the surrounding parcels. Each of the plant communities are described below based on adapted GAP and RMP vegetation descriptions and field surveys. The Nevada Natural Heritage Program (NNHP) mapping shows 95 percent of the plant community as Mojave mixed scrub, 2 percent as Blackbrush Grassland, and 3 percent as Mojave desert scrub creosote-bursage. A summary of the plant communities are provided in Table 3-4.

Mojave Mixed Scrub – The Mojave mixed scrub is characterized by the occurrence of creosote (*Larrea tridentate*) in association with a number of species, including bursage, Joshua tree, blackbrush, Mojave yucca, desert thorn (*Lycium spp.*), shadscale (*Atriplex confertifolia),* hopsage (*Grayia spinosa*), ratany (*Krameriaceae parvifollia*), and Mormon tea (*Ephedra nevadensis*). The primary shrub species associated with this community are blackbrush, brittlebrush (*Encelia farinosa*), burro bush, sweetbush (*Bebbia juncea*), eastern Mojave buckwheat (*Eriogonum fasciculatum*), western Mojave buckwheat (*Eriogonum mohavense*), and bladder sage (*Salazaria Mexicana*). Other associated species include numerous cacti (*Echinocereus spp.*), cholla (*Opuntia spp.*), and barrel cactus (*Ferocactus cylindraceus*). Grasses and forbs present include fluff grass (*Erioneuron pulchellum*), desert apricot mallow

(*Sphaeralcea ambigua*), round leaf spineflower (*Oxytheca perfoliata*), rigid spine flower (*Chorizanthe rigida*), skeleton weed (*Eriogonum brachypodium*), desert trumpet (*Eriogonum inflatum*), California cottonrose (*Filago californica*), cryptantha (*Cryptantha spp*.), and rattlesnake weed (*Chamaesyce albomarginata*). Many of the disturbed areas such as corrals, parking areas, etc. were covered with dense mats of red-stemmed filaree (*Erodium cicutarium*).

Creosote-Bursage – This shrubland is dominated primarily by creosote and white bursage. Other less dominant shrub species include blackbrush, Mormon tea, indigo bush, shadscale, hopsage, desert thorn, ratany, burro bush, and brittlebush. Joshua tree, Mojave yucca, and numerous cacti species are found throughout.

Blackbrush – Blackbrush is the dominant species in this community, occurring in Mojave Desert transition areas. Primary associated shrub species include spiny hopsage, Mormon tea, shadscale, desert thorn, and creosote. Joshua tree and yucca are also present, but in less density than the other two communities.

3.6.1 Special Status Plant Species

A list of special status species was requested from NNHP on January 27, 2009. They determined that no at risk taxa have been previously located in the area. However, habitat may be suitable for the New York Mountains catseye (*Cryptantha tumulosa*), a USFS (Region 4) sensitive species, and rosy twotone beardtongue (*Penstemon bicolor ssp. Roseus)*. No sensitive or special status plant species were observed during the field surveys. The special status designation for each of these species is listed in Table 3-4.

Table 3-4. List of Special Status Plant Species.

Scientific Name	Common Name	NV BLM Sensitive Species	USFWS ESA Candidate	NNHP Sensitive MSHCP Watch	MSHCP Covered	State-Listed Critically Endangered
Penstemon bicolor ssp. *roseus*	rosy two-toned beardtongue	●		●		
Cryptantha tumulosa	New York Mountains catseye			●		

Source: (NNHP 2005)

Rosy two-toned beardtongue – The rosy two-toned beardtongue is a perennial herb that grows in rocky calcareous, granitic, or volcanic soils in washes, along roadsides, scree at outcrop bases, rock crevices, or other places that receive greater runoff (NNHCP 2005b and AHDMS). This species is only found in Clark and Nye counties in Nevada as well as parts of California and Arizona. It occurs at elevations ranging from 1,800-4,839 feet. This species tends to flourish with disturbance and is typically associated with creosote-bursage, blackbrush, and mixed-shrub zones. No rosy two-toned beardtongue was observed during the field surveys.

New York Mountains catseye – This species is only recorded in Nye and Clark counties in Nevada as well as in California. This perennial herb occurs at elevations between 4,480 and 9,900 feet above mean sea level (MSL). Little is known about the New York Mountains catseye, It has a global ranking of G4 – apparently secured (uncommon but not rare; some cause for long-term concern due to declines or other factors), and S2 – imperiled (imperiled in the jurisdiction because of rarity due to very restricted range, very few populations, steep declines, or other factors making it very vulnerable to extirpation from jurisdiction) (Natureserve 2009). This species is not likely to occur in the project area, which has an elevation range of 3,840-3,870 feet.

3.6.2 Invasive, Non-Native Plant Species

Noxious and invasive weeds are a continuing threat to the biological diversity and integrity of native ecosystems. Noxious and invasive weeds cause the loss of productive rangeland, loss of wildlife habitat, increased soil erosion, decreased biological diversity, and increase risk of fire. No noxious weeds were observed during the field surveys; however, some patches of non-native species were observed throughout the project area, including cheatgrass (*Bromus tectorum*), red brome (*Bromus madritensis*), split grass (*Schismus arabicus*), and Russian thistle (*Salsola tragus*). In addition, red stemmed filaree (*Erodium cicutarium*) was also found throughout the project area, but was particularly dense in areas with disturbed soils, such as corral, driveway, etc. Other ornamental trees were planted adjacent to buildings, but these species are supported by irrigation and are not expected to establish in the community.

Executive Order 13112, signed by President Clinton in 1999, sets up a mechanism to prevent the introduction of invasive species; provides for their control; and minimizes the economic, ecological, and human health impacts that invasive species cause. Weeds are difficult to control unless there is regional land management cooperation such as federal, state, county, and private groups. The Carlson-Foley Act (P.L. 90-583), as well as state and county laws, holds the federal government responsible to control designated noxious and invasive weeds on federal land and provide direction for their control. Although the site is relatively disturbed, the limited access to the site has likely limited the introduction of noxious weeds to the site.

The Nevada Agricultural Department has designated a list of non-natives species as noxious. Appendix E lists these noxious weeds by threat category.

Invasive species and noxious weeds are already well established in the Las Vegas Valley. Noxious weeds are being managed by land managers (such as the BLM) and on a regional level by Clark County Vector Control, Conservation District of Southern Nevada, Southern Nevada Water Authority, and others.

3.7 Visitation

This section describes the following Walking Box Ranch visitor / resident types:

- **Public visitors** – Users within this group include the general public, tourists, tour groups, and school groups. This user type also extends to special event participants. Public visitors are typically on the ranch for up to several hours at a time.
- **Short-term guests** – Short-term guests typically include UNLV or other institutions' classes, professors, and researchers, as well as ranch volunteers, interpretive staff

(paid or unpaid), and docents. Short-term academic guests may be single-day visitors or on the ranch for up to several days at a time.

- **Long-term academic guests** – Long-term academic guests include UNLV or other institutions' visiting researchers, field classes, and extended stay guests. Long-term academic guests are typically on the ranch for several days up to several months at a time.
- **Ranch residents / managers** – Ranch residents / managers are permanent residents of the ranch. These residents oversee the daily operations of the facility including research, education, interpretation and training, maintenance, and security.

3.7.1 Context

The Walking Box Ranch is located approximately 7 miles west of the Town of Searchlight in Clark County, Nevada. Clark County is a destination for many people due to the number of urban entertainment options as well as numerous recreational and cultural attractions. The Town of Searchlight serves as a gateway to Lake Mojave and attracts many through-travelers. The Searchlight Museum provides a relevant parallel for understanding existing and future non-academic visitation at the Walking Box Ranch. The museum's peak visitation period is typically November through March. The average monthly museum attendance is approximately 400 visitors, but can reach up to 1,500 visitors per month during peak season. Typical museum visitors include retired travelers, often traveling by RV, and senior citizen and school tour groups.

3.7.2 Current Visitation/Residents at the Ranch

Currently, the ranch is closed to the public, except for occasional organized tours or with special permission. Access to the site is controlled by a locked gate. The ranch does not currently provide any formal interpretive opportunities or public services, such as restrooms or water. The lack of visitor infrastructure currently limits public visitation at the ranch. Organized tours are available but must be coordinated in advance. There is currently no designated volunteer or docent staff to lead or accommodate public visitors. The ranch caretaker is responsible for intercepting ranch visitors. There are currently no special events or large events occurring on the ranch that are open to the public.

Academic visitation, both short and long term, is currently managed by UNLV. Overnight guests are required to fill out an overnight stay request form and liability release waiver. UNLV records indicate that approximately less than 100 visitors stay overnight at the ranch annually. The average overnight stay is two nights.

There is one semi-permanent residence on the property. UNLV currently contracts with an outside provider for caretaker personnel. Currently, the caretaker position is rotated to a new person approximately every 6 months. The ranch caretaker (and family) lives in the double-wide trailer located south of the historic ranch house.

Recent break-ins and vandalism have prompted UNLV to pursue additional security personnel for the ranch. In the absence of additional ranch personnel, academic staff, or BLM presence at the ranch, UNLV has contracted with the Las Vegas Metropolitan Police to provide overnight security presence at the ranch. Up to three law enforcement officers rotate shifts on the ranch. Two camper trailers have been temporarily stationed outside of the bunkhouse to house the

officers while on duty. Increased security presence has successfully deterred unwanted visitors in the short term.

Table 3-5 provides an overview of current human presence at the ranch.

Table 3-5. Snapshot of Current Annual Ranch Visitation Levels.

Visitation / Residents	
General Public (day-use visitors)	None*
Short and Long-term Academic Guests	<100
Current Permanent Residents	1-3

*Ranch is not currently open to the public. Informal visitation may occur but is not tracked.

3.7.3 Management Considerations

In addition to BLM policy, current management of the ranch is guided by specific conditions contained in the conservation easement held by TNC. Despite overarching development prohibitions, the conservation easement allows the construction of an interpretive center within the analysis area. Additionally, the conservation easement stipulates that the natural, historic, scenic, and other open space features and values of the ranch be preserved.

The two SNPLMA nominations, on which much of the ranch's funding is dependent, were largely based on the development of public and/or educational facilities intended to convey interpretive themes about the ranch's history or explore arid lands issues. One of the nominations specifically proposes to establish a museum/interpretive center at the Walking Box Ranch to provide guided tours and interpretive displays on cultural and historical topics, as well as topics related to the Mojave Desert. The other nomination proposes to establish a renowned facility dedicated to understanding and managing the fragile and biodiversity-rich ecosystems centered on the Mojave Desert. Each of these nominations implies that future increased visitation to the ranch is a management goal or metric for determining satisfaction of the SNPLMA grants.

In 2006, the BLM and UNLV signed a cooperative management agreement for the analysis area. Under the terms of the agreement, the Walking Box Ranch headquarters area (i.e., analysis area) will be made available to the public for education and interpretive purposes.

3.8 Visual Resources

The Walking Box Ranch is located within the scenic Piute Valley, which is characterized by expansive vistas of the Mojave Desert and adjacent mountain ranges. The ranch was historically operated as a cattle ranch and retains the visual character. This section provides an overview of pertinent visual resources and management guidance applicable to the Walking Box Ranch. The primary issue for visual resources is maintaining the integrity of the historic viewshed of and from the ranch headquarters.

The ranch is divided into two distinct sections: 1) a 40-acre headquarters parcel, and 2) a 120-acre undeveloped parcel. For visual resource purposes, the analysis area includes the entire 160-acre ranch, though specific emphasis is placed on the historic viewshed in the foreground of and from the ranch headquarters parcel.

The Walking Box Ranch is typical of a traditional southwestern ranch, i.e., the ranch house and associated facilities are clustered on a relatively small area surrounded by largely undeveloped lands that were traditionally used for grazing. The ranch headquarters area is comprised of multiple buildings and includes a two-story ranch house, caretaker's house, barn, bunkhouse, ice house, corrals, and other typical ranch support facilities (e.g., water troughs, cattle ramps, etc.), as well as a pool and tennis court. Only some of the facilities on the headquarters parcel are considered historic structures, as described in Section 3.3. The surrounding undeveloped area (120-acre parcel) is largely native vegetation, typical of the Mojave Desert ecosystem.

The ranch house and barn are of particular importance to the scenic quality of the headquarters parcel. The historic and visually distinct ranch house is an excellent example of the Spanish Colonial Revival style. This style of architecture is typified by smooth stucco walls, low-pitched clay tile roofs, and terra cotta ornaments (among other distinct architectural features), and is not commonly found in the region. The 40-acre headquarters parcel also includes an impressive railroad tie barn. The historic and architectural qualities of the ranch buildings are key features of the scenic resources on the 40-acre parcel and are described in more detail in Section 3.3 (Cultural Resources).

The adjacent 120-acre parcel is characterized by vegetation typical of the Mojave Desert. This includes Joshua trees, Mojave yucca ("Spanish daggers"), and creosote, among other types of native vegetation. This landscape is similar to the rest of the Piute Valley (and larger Mojave Desert) and not visually unique. Beyond the analysis area and included in the larger viewshed are two mountain ranges: 1) the Newberry Mountains to the east, and 2) the New York Mountains to the west. These mountain ranges help physically define the Piute Valley and add to the overall visual quality of the analysis area and region. Key observation points (KOPs) are described in Section 4.11 (Visual Resources, Environmental Consequences).

3.8.1 Management Considerations

The analysis area is located within the BLM planning area that is managed under the guidance and direction of the LVRMP and conservation easements. The LVRMP provides visual resource guidance applicable to the analysis area using the BLM's visual resource management (VRM) system.

The BLM's VRM system defines scenic quality as the degree of harmony, contrast, and variety that influences the overall impression of a landscape (BLM 1986). VRM objectives are generally aimed at protecting the scenic quality of public lands (under BLM jurisdiction), especially those most often viewed by the public. The LVRMP designates the Walking Box Ranch and approximately one mile to the east and south as Class II. A VRM Class II area typically has a very high scenic quality, is highly visible to a large number of visitors, and tends to be in the foreground of viewsheds. The outstanding scenic quality of the Walking Box Ranch, as well as the potential high levels of use that may be anticipated in the future (upon completion of the proposed project), make the analysis area "very sensitive to impacts that could affect scenic quality" (BLM 1998). The objective of VRM Class II is "to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape" (BLM 1986). A VRM Class III area begins approximately one mile east and south of the ranch, extending to Searchlight, Nevada.

In addition to the BLM, visual resources in the analysis area are also protected by conservation easements held by TNC. TNC holds two conservation easements at Walking Box Ranch: 1) the 40-acre headquarters parcel, and 2) the 120-undeveloped parcel (actually 2 parcels combined for easement purposes). The purpose of both conservation easements is "to preserve and protect in perpetuity the natural, historic, scenic, and open space features and values" of the ranch (TNC 1994). The easement on the 40-acre headquarters parcel allows for the development of an interpretive facility, requiring the property be used in a manner that perpetuates the setting of the historic site, a working ranch and agricultural operation, and specifically restricts subdivision of the property, extraction of minerals, geothermal development, industrial or commercial activity, and use of the property for public utility purposes. The easement on the 120-acre parcel prohibits all development and is focused on protecting vital desert tortoise habitat. As a result, all activities associated with the proposed project at the analysis area must be compliant with the terms of the TNC conservation easements.

3.9 Wildlife Resources

The Walking Box Ranch contains two ecosystem types according to the Southwest Regional Gap Analysis Project (USGS 2004): Mojave Mid-Elevation Mixed Desert Scrub and Inter-Mountain Basins Semi-Desert Shrub Steppe. The NNHP further defines the communities on the ranch as Mojave Mixed Scrub as the majority cover, along with small portions of Grassland and Creosote-bursage. Processes that influence wildlife distribution and density on Walking Box Ranch include vegetation patterns, meteorology, and human uses.

Walking Box Ranch contains a variety of wildlife species in four major classes: mammals, reptiles, birds, and invertebrates.

Field surveys were conducted in the summer of 2007 and again in the spring of 2009. A list of species observed during field surveys is provided in Table 3-6. BLM Sensitive Species and State of Nevada Protected Species were observed, as well as species listed as Covered and High Priority MSHCP species. Federally listed species were not directly observed. Information on the diversity and distribution of invertebrates on Walking Box Ranch was difficult to obtain.

Mammal burrows of all sizes were observed in and around Walking Box Ranch. Although juvenile tortoises are known to enlarge rodent burrows for their use, the observed burrows appeared to be too tall and steep for tortoise and were assumed to not be tortoise sign. No other tortoise sign, such as scat or carcasses, were observed within the survey area.

Non-native species and those not typically representative of desert environments were observed primarily in the vicinity of the ranch buildings. This is especially true of the bird species observed, particularly those only seen around the bird feeders at the caretaker's house.

Table 3-6. Species Observed on Walking Box Ranch.

Common Name	Species Name	MSHCP Tracked	Nevada BLM	State LIsted	Year(s) Observed
Mammals					
Bat (species unidentified)	*unknown*				2007
Black-tailed jackrabbit	*Lepus californicus*				2009, 2007
Coyote	*Canis latrans*				2009, 2007
Desert cottontail	*Sylvilagus audubonii*				2009, 2007
Desert woodrat	*Neotoma lepida*				2007
Domestic cat	*Felis domesticus*				2007
Kangaroo rat (unconfirmed)	*Dipodomys sp.*	High Priority if *D. deserti*			2009, 2007
Kit fox	*Vulpes macrotus*	High Priority			2007
Mojave ground squirrel	*Spermophilus mohavensis*				2009
Mouse (species unidentified)	*Peroganthus sp.*				2007
Birds					
American kestrel	*Falco sparverius*				2009, 2007
Ash-throated flycatcher	*Myiarchus cinerascens*				2009
Bendire's thrasher	*Roxostoma bendirei*	High Priority			2007
Black-headed grosbeak	*Pheucticus melanocephalus*				2009
Black-tailed gnatcatcher	*Polioptila melanura*				2009
Black-throated sparrow	*Amphisizia bilineata*				2009, 2007
Brewer's blackbird	*Euphagus cyanocephalus*				2009
Cactus wren	*Campylorhynchus brunneicapillus*				2009, 2007
Common ground dove	*Columbina passerina*				2009
Common raven	*Corvis corax*				2009, 2007
Eurasian collared dove	*Steptopelia decaocto*				2009
Flicker (species unidentified, possibly gilded)	*Colaptes sp.*				2007
Gambel's Quail	*Callipepla gambelii*				2009, 2007
Greater roadrunner	*Geococcyx californianus*				2007
Gray vireo (unconfirmed)	*Vireo vicinior*	High Priority	Yes	Yes	2009
House finch	*Carpodacus mexicanus*				2009, 2007
House sparrow	*Passer domesticus*				2009, 2007
Long-eared owl	*Asio otis*		Yes	Yes	2007
Mourning dove	*Zenaida macroura*				2009, 2007
Northern mockingbird	*Mimus polyglottus*				2007
Red-tailed hawk	*Buteo jamaicensis*				2009

Common Name	Species Name	MSHCP Tracked	Nevada BLM	State LIsted	Year(s) Observed
Sage sparrow (unconfirmed)	*Amphispiza belli*				2009
Say's phoebe	*Sayornis saya*				2009, 2007
Turkey vulture	*Carthartes aura*				2007
Verdin	*Auriparus faviceps*				2009, 2007
Western kingbird	*Tryannus verticalus*				2009, 2007
Wilson's warbler	*Wilsonia pusilla*				2009
Yellow-rumped warbler (unconfirmed)	*Dendroica coronata*				2009
Yellow warbler	*Dendroica petechia*				2009
Reptiles					
Desert horned lizard (sub-species unidentified)	*Phrynosoma platyrhinos ssp.*	High Priority if *P. p. calidiarum*			2009
Large-spotted leopard lizard	*Gambelia wislizenii wislizenii*	Covered	Yes		2009, 2007
Long-tailed brush lizard (unconfirmed)	*Urosaurus graciosus*				2009
Mojave green rattlesnake	*Crotalus scutulatus scutulatus*	Covered	Yes		2009
Rosy boa	*Lichanura trivirgata gracia*				2009
Side-blotched lizard (unconfirmed)	*Uta stansburiana*				2009
Western whiptail lizard	*Aspidoscelis tigris*				2009
Zebra-tailed lizard	*Callisaurus draconoides*				2009
Invertebrates					
Cabbage white butterfly	*Pieris rapae*				2009
Dotted blue butterfly (species unidentified)	*Euphilotes sp.*		Possibly		2009
Swallowtail butterfly (species unidentified)	*Papilio sp.*				2009
Tarantula hawk wasp	*Prepis formosa*				2007

3.9.1 Special Status Wildlife Species

Protective or special status designations for species are delineated independently by several federal and state agencies, including USFWS, BLM, Nevada Division of Wildlife (NDOW), and the NNHP, among others. Each agency has its own list of special status species, which often overlap between the agencies.

"It is BLM policy to manage the habitats of all special status species, to prevent future listing of species, to ensure the recovery of listed species, and to ensure that any Federal actions authorized, funded, or carried out are not likely to jeopardize the continued existence of any such species." (BLM Manual 6840). Several accepted regulatory plans cover different aspects

of the biological resources found on Walking Box Ranch. The BLM implements the LVRMP and participates in the implementation of the Clark County Multiple Species Habitat Conservation Plan in cooperation with the USFWS, NDOW, USFS, National Park Service (NPS), and other state and federal agencies. Federal regulatory plans that apply to the management of Walking Box Ranch resources include the ESA, MBTA, and the Desert Tortoise Recovery Plan on ACEC lands adjacent to Walking Box Ranch.

3.9.2 Federally Listed Species

Only one federally threatened species, desert tortoise (Gopherus agassizii), is predicted to occur on Walking Box Ranch. Desert tortoise is also listed as a State of Nevada threatened species. Desert tortoise population declines have been documented since the 1970s, and the Mojave Desert population of tortoise was listed as threatened in 1990 based on concerns for the species due to habitat degradation and loss, predation and take (particularly as juveniles), and the effects of disease and drought. Critical habitat for the tortoise has been established by USFWS in areas of the species' range; one of these, the Piute-Eldorado Valley CHU, completely surrounds Walking Box Ranch. Typical habitats for tortoise within the CHU are flats, alluvial fans, and bajadas, but tortoises will readily use rockier, steeper terrain. Burrows are dug in friable soils, often in embankments or under vegetation. The MSHCP wildlife habitat model for this species indicates that the entire ranch area, as well as the surrounding habitat, is potential tortoise habitat, with the exception of the area in and immediately around the ranch buildings. Desert tortoises are relatively slow-moving and easy to approach in open areas, leading to negative impacts from human interactions. The BLM is responsible for the protection of all federally listed species and their habitat present on Walking Box Ranch.

The MBTA (16 United States Code [U.S.C.] 703-711) covers all migratory birds against unintentional or purposeful "taking" which includes killing, possessing, or transporting any migratory bird or its eggs, nests, or parts. All native bird species which are found on the Walking Box Ranch are protected by the MBTA.

3.9.3 Bureau of Land Management Sensitive Species

Six Nevada BLM Sensitive Species have the potential to occur in the project area; their habitat preferences are described in Table 3-7.

3.9.4 State of Nevada Protected Species & Nevada Natural Heritage Species

Two state protected species have the potential to occur in the project area; their habitat preferences are described in Table 3-7.

The mission of the NNHP "is to coordinate the resource need of Nevada's diverse biological heritage with human activities." The publically-funded program is located within the State of Nevada's Conservation & Natural Resources Department and researches, collects and organizes data on, and evaluates conservation priorities for over 700 native species and their habitats, particularly those at the greatest risk of extinction or in population decline.

3.9.5 Clark County Multiple Species Habitat Conservation Plan

The list of MSHCP covered species originates from the Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement for Issuance of a Permit to Allow Incidental Take of 79 Species in Clark County, Nevada (Clark County 2000). This document

was prepared primarily to conserve 242 species and their habitats within the county. The MSHCP identified actions to protect species and habitats, and proposed that 79 of the species be specifically protected by Section 10(a) Permits for species, which are currently federal or state listed, and with Prelisting Agreements for those species that are not currently listed (Covered Species). All Covered Species are treated in Clark County as though they are listed species subject to the requirements of the Endangered Species Act, including protection of habitat. High Priority species are not subject to the same permitting requirements as covered and listed species, but the MSHCP addresses actions necessary to protect those species and the viability of their habitat.

Of those species covered by the Clark County MSHCP (Clark County 2000), two species of mammals, three species of birds and raptors, and 16 species of reptiles are predicted to occur on Walking Box Ranch (Table 3-7). Two of these reptiles, one of the mammals, and all three of the birds and raptors are also listed as Nevada BLM Sensitive Species (see Table 3-7). One species of reptile predicted to occur at the ranch, the desert tortoise (Gopherus agassizii), is also federally listed as threatened. Walking Box Ranch is contained within an ACEC designated primarily for the conservation of desert tortoise and their habitat.

Table 3-7. Sensitive Species Potentially Occurring on Walking Box Ranch.

Common Name	Species Name	MSHCP Tracked	Nevada BLM	State Listed	Federally Listed	Habitat Characteristics (Clark County 2000)
Mammals						
Pale Townsend's big-eared bat	*Corynorhinus townsendii pallescens*	High Priority	Species-level Sensitive			Associated with sagebrush, sagebrush/perennial grassland, hopsage, blackbrush, Mojave mixed scrub, creosote-bursage, mesquite, and lowland riparian habitats located near mine tunnels, caves, cliff crevices, or abandoned buildings.
Kit fox	*Vulpes macrotis arsipus*	High Priority		Yes		Primary habitat is blackbrush, salt desert scrub, and Mojave desert scrub.
Birds						
American peregrine falcon	*Falco peregrinus anatum*	Covered	Sensitive			Inhabit mixed conifer, pinyon-juniper, sagebrush, lowland riparian, and grassland habitats, as well as agricultural and urban areas near high cliffs, old raptor nests, riparian tree cavities, or suitable man-made nesting structures.
Phainopepla	*Phainopepla nitens*	Covered	Sensitive			Desert, scrubland, riparian, and woodland habitat, areas containing desert trees such as mesquite, catclaw, juniper, ironwood, and palo verde which support mistletoe. Also consume berries of other plants.
Western burrowing owl	*Athene cunicularia hypugea*	High Priority	Sensitive	Yes		Open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands.

Common Name	Species Name	MSHCP Tracked	Nevada BLM	State Listed	Federally Listed	Habitat Characteristics (Clark County 2000)
Reptiles						
Desert tortoise	*Gopherus agassizii*	Covered			Threatened	Desert scrub and desert wash habitats including Mojave desert scrub and blackbrush communities in valleys and on bajadas and hills below 4,500 ft.
Banded gecko	*Coleonyx variegatus*	Covered				Blackbrush, Mojave desert scrub, and mesquite/catclaw habitats with availability of rocks, crevices, fallen logs/limbs, or rubbish piles for shelter.
Great Basin collared lizard	*Crotaphytus bicinctores*	Covered				Mojave desert scrub, salt desert scrub, mesquite/catclaw, desert riparian, blackbrush, sagebrush, and pinyon-juniper habitats in rocky terrain, arroyos, hill slopes, or washes with sparse vegetative cover up to 7,500 ft.
Large-spotted leopard lizard	*Gambelia wislizenii wislizenii*	Covered				Inhabits primarily Mojave desert scrub and salt desert scrub, but also occurs in blackbrush, sagebrush, and pinyon-juniper habitats. Prefers hardpan, gravelly, or sandy open ground where vegetation is sparse or in small clumps blow 6,000 ft.
Western red-tailed skink	*Plestiodon gilberti rubricaudatus (formerly Eumeces)*	Covered	Sensitive			Primarily inhabit pinyon-juniper and riparian habitat including canyon bottoms near water. Less common in higher-elevations, sagebrush, blackbrush, mesquite/catclaw, and desert riparian habitats in rocky areas.
Western leaf-nosed snake	*Phyllorhynchus decurtatus*	Covered				Mojave desert scrub and salt desert scrub habitats in rocky areas and sandy flats.
Glossy snake	*Arizona elegans*	Covered				Mojave desert scrub and salt desert scrub habitats with open sandy surface, scattered brush, and rocky areas; extending into grasslands and pinyon-juniper habitats to 7,000 ft.
California (common) kingsnake	*Lampropeltis getulus californiae*	Covered				Wide ranging, most commonly found in Mojave desert scrub and salt desert habitats in the vicinity of rock outcrops or clumps of vegetation up to 7,000 ft.
Western long-nosed snake	*Rhinocheilus lecontei lecontei*	Covered				Mojave desert scrub and salt desert scrub with open sandy surface, scattered brush, and in rocky areas below 5,000 ft.
Sonoran lyre snake	*Trimorphodon biscutatus lambda*	Covered				Rocky areas in Mojave desert scrub, pinyon-juniper, and mixed conifer habitat in lowlands, mesas, and lower mountain slopes up to 7,400 ft.

Common Name	Species Name	MSHCP Tracked	Nevada BLM	State Listed	Federally Listed	Habitat Characteristics (Clark County 2000)
Speckled rattlesnake	*Crotalus mitchelli*	Covered				Pinyon-juniper, sagebrush, Mojave desert scrub, and blackbrush habitats up to 7,800 ft on rocky terrain as well as loose soils/sand.
Sidewinder	*Crotalus cerastes*	Covered				Mojave desert scrub, mesquite/catclaw, and salt desert scrub habitats, but also found in rocky stream beds, on bajadas, hardpan, barren dunes, and in rocky areas below 5,500 ft.
Mojave green rattlesnake	*Crotalus scutulatus scutulatus*	Covered				Mojave desert scrub and blackbrush flats.
Banded Gila monster	*Heloderma suspectum cinctum*	High Priority	Species-level Sensitive			Mojave desert scrub, mesquite/catclaw, blackbrush, pinyon-juniper, and desert riparian habitats on lower slopes of rocky canyons, mesic areas, and flats with grassland or succulents that contain rocks or burrows of animals which are used for cover.
Southern desert horned lizard	*Phrynosoma platyrhinos calidiarum*	High Priority				Woody shrubs, cacti, and yuccas primarily in Mojave desert scrub, typically on sandy flats, alluvial fans, washes, and dunes below 6,500 ft. Also occurs in mesquite/catclaw, slat desert scrub, blackbrush, sagebrush, and pinyon-juniper habitats.
Desert night lizard	*Xantusia vigilis*	High Priority				Most commonly found in blackbrush, Mojave desert scrub, and mesquite/catclaw habitats. Less commonly found in pinyon-juniper and sagebrush habitats. Associated with Joshua tree, yucca, digger pine, chamise, pinyon pine, and juniper.

CHAPTER 4.0 - ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This chapter discusses the anticipated environmental effects (Environmental Consequences) of the alternatives presented in Chapter 2.0. The level of analysis is commensurate with the expected level of potential effects.

The analysis of the potentially affected resources is based on the professional judgment and experience of BLM resource specialists, discussions with other agency resource experts and professionals, literature review, and field trips to the study area by resource personnel.

The goal of this chapter is to disclose, to the greatest extent possible, the effects of each alternative on the affected resources. If quantitative estimates are not possible, qualitative estimates are provided to facilitate the comparison of alternatives by the public and decision makers.

4.2 Impact Thresholds

Direct, indirect, and cumulative effects are analyzed for each impact topic and are described in terms of type, duration, and intensity; general definitions of each are provided below. All potential effects discussed represent the residual effect expected after incorporating and successfully implementing the project design features presented in Section 2.4.5.

4.2.1 Impact Type

Classifies the effect as direct, indirect, or cumulative, and then determines whether the effect would result in beneficial or adverse effects.

- **Direct**: Effect caused by alternative and occurs in the same time and place (e.g., removal of vegetation, use of machinery, construction disturbances, etc.).
- **Indirect**: Effect caused by alternative but is later in time or farther removed in distance, but is still reasonably foreseeable (e.g., increased visitation).
- **Cumulative**: Incremental effect caused by alternative when added to other past, present, and reasonably foreseeable future actions; see Section 4.4 for more information.
    - ***Beneficial****:* Positive change in the condition or appearance of the resource, or a change that moves the resource toward the desired condition or goals identified in Chapters 2.0 or 3.0.
    - ***Adverse****:* Negative change that detracts from the condition or appearance of the resource, or a change that moves the resource away from the desired condition or goals identified in Chapters 2.0 or 3.0.

4.2.2 Impact Duration

Describes the length of time an effect would occur as short or long term.

- **Short Term**: Lasting no longer than the immediate 2-3 year implementation period (e.g., construction period, build-out period, and immediate restoration period).
- **Long Term**: Lasting beyond the implementation period (beyond 5 years), typically extending beyond a decade or indefinitely.

4.2.3 Impact Intensity

Describes the degree, level, or significance of an effect as no effect, negligible, minor, moderate, or significant.

- **No effect**: No discernable effect.
- **Negligible**: Effect is at the lowest level of detection and causes very little or no disturbance or improvement.
- **Minor**: Effect that is slight but detectable, with some perceptible effects of disturbance or improvement.
- **Moderate**: Effect is readily apparent and has measurable effects of disturbance or improvement.
- **Significant**: Effect is readily apparent and has measurable effects of disturbance or improvement that are of local, regional, or global importance; or sets a precedent for future project undertakings by Federal agencies.

4.3 Special Status Species

"Special status species" include federal and state listed species, BLM Sensitive Species, and state and/or county listed noxious weeds identified as having potential to occur in the Walking Box Ranch study area. These species will be addressed under the "*Special Status Species*" subheading within the plants and wildlife Affected Environment and Environmental Consequences discussions. A determination of effects, as required by the Section 7, ESA consultation guidelines, is presented for all federally listed species with potential to occur in the analysis area(s).

4.4 Cumulative Effects Analysis

4.4.1 Cumulative Effects under NEPA

The Council on Environmental Quality defines cumulative effects as:

The impacts on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

The NEPA cumulative effects analysis is focused on defining the incremental effects of this project in context with the effects from:

- Past actions with relevance to the current resource conditions.

- Present actions of relevance, but not part of the Proposed Action or action alternatives.
- Reasonably foreseeable future actions of relevance, but not part of the Proposed Action or action alternatives.

To analyze the implications of cumulative effects, this analysis considers background levels of effects, past project contributions, ongoing project contributions, effects from this project's proposals, as well as the effects anticipated from reasonably foreseeable actions (future actions). Additionally, these effects will be collectively evaluated against legal or administrative thresholds to further judge significance of the effects. The geographic scope for cumulative effects analysis varies by resource. Each resource described in the following sections will indicate the geographic analysis area relevant for that resource.

Public scoping comments, local trend analyses (demographic and recreational), and consultation with various agencies or entities, such as TNC, NPS, USFS, USFWS, municipalities, and other project stakeholders, were used to develop an inventory of past, present, and reasonably foreseeable projects pertinent to this cumulative effects analysis.

The effects of various past, present, or future actions (regardless of the entity pursuing the action) and natural processes have the potential to coincide either in time or space with the effects of the Walking Box Ranch DCP project. The nexus of these effects will be discussed by resource throughout the remainder of this chapter. Identifying past and present activities is especially important to understanding the environmental baseline of resources within the analysis area. Furthermore, the following list of projects provides context for the Walking Box Ranch DCP activities:

Urban Development / Population Growth – In recent years, Clark County has been among the fastest growing counties in the United States. The county's population increased from 277,000 in 1970 to more than 1.7 million in 2004. Electric meter hookups, another indicator of population growth, exceeded national and regional averages for the same period. Steady in-migration is a cornerstone of the modern Southern Nevada economy; most observers believe it will continue, however, at a more modest pace due to the 2008-2009 recession, into the foreseeable future.

Regional Protected Area Conservation – In addition to the recent and rapid urbanization trends in the greater Las Vegas Valley, local, county, state, and federal agencies have also been proactive in identifying lands suitable for conservation or protected status. The Regional Open Space Plan (approved by the Southern Nevada Regional Planning Coalition in 2006) and the Las Vegas Valley Perimeter Open Space Plan (approved by the same body in 2009) set ambitious goals for conserving open space to create appropriate transitions and connectivity to Sloan Canyon National Conservation Area (NCA), Red Rock Canyon NCA, and other regional protected areas.

Cattle Grazing – Until recently, cattle grazing was an active practice in the Piute-Eldorado Valley. Remnant effects of previous grazing activities are still evident in the landscape. Grazing activities have contributed to noxious weed infestations in the valley.

Searchlight Wind Energy Farm – In 2008, the BLM began the environmental review process for a large wind farm proposed east of the Town of Searchlight. The wind farm would include approximately 90 turbines and, likely, a series of transmission lines.

4.4.2 Cumulative Effects under ESA

Cumulative effects under NEPA, as defined above, are distinct from the "cumulative effects" required by Section 7 of the ESA [50 CFR § 402.02]. Cumulative effects under ESA are those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation [50 CFR §402.02]. This definition applies only to Section 7 analyses and should not be confused with the broader use of this term under NEPA or other environmental laws. For the purposes of this document, all discussions and analyses of cumulative effects adhere to the NEPA definition, **unless otherwise noted.** Additionally, ESA cumulative effect analyses will examine a separate list of future activities than those noted above. These activities will be noted on a case-by-case basis in the individual resource analyses.

4.5 Air Quality

4.5.1 No Action

DIRECT AND INDIRECT EFFECTS

Under the No Action alternative, there would be no direct effects to air quality. If security and/or caretaker personnel are removed from the ranch, there may be a long-term beneficial effect to local air quality as a result of reduced vehicle emissions and vehicle-generated dust at the ranch. However, these long-term effects are not anticipated to provide any measureable benefits.

CUMULATIVE EFFECTS

Given that there are no direct effects and the long-term effects are anticipated to be below the level of detection, there would be no cumulative effects to airshed or regional air quality as a result of the No Action alternative.

4.5.2 Proposed Action

DIRECT AND INDIRECT EFFECTS

The Proposed Action alternative would result in short-term direct adverse effects as a result of construction-generated dust and vehicle emissions. Dust generation would be largely controlled by implementing appropriate Best Management Practices, including the use of watering trucks for dust abatement and requiring open loads coming to/from the ranch to be covered. Adverse effects as a result of construction activities at the ranch would be locally minor and negligible at the airshed and regional scales. These short-term effects would have no effect on regional or global climate change.

In the long term, increased visitation and operational traffic to the ranch would result in increased vehicle emissions and dust generation. These long-term adverse effects would be minor at the local scale and negligible at the airshed and regional scales. During large or special events, minor to moderate adverse effects to local air quality would occur as the result of

increased vehicular emissions and dust generation. These effects would, in the long term, occur intermittently. These intermittent moderately adverse effects would be local in nature, but could have minor adverse effects on the Town of Searchlight, depending on wind and weather patterns.

The Proposed Action would accommodate an increased number of campers. The localized particulate matter generation as a result of increased pedestrian travel in the group and RV camping areas is not, however, anticipated to produce any additional measurable adverse effects.

Ultimately, these effects would not have any permanent adverse effects on local or regional air quality or global climate change.

CUMULATIVE EFFECTS

Due to the undeveloped nature, limited traffic, and other emission or dust generating activities in the local airshed, long-term adverse cumulative effects as a result of the Proposed Action alternative are unlikely. Adverse effects as a result of large events and the associated vehicular traffic could, when combined with the effects of reasonably foreseeable future developments, including reasonably foreseeable large scale energy or residential developments, cause short-term adverse cumulative effects. The intensity of short-term adverse cumulative effects would be largely dependent on wind and weather patterns, but is not anticipated to exceed minor to moderate levels.

RECOMMENDED MITIGATION MEASURES

Mitigation measures are not recommended for this resource.

4.6 Cultural Resources

4.6.1 No Action Alternative

DIRECT AND INDIRECT EFFECTS

NRHP Elements

Ranch House: No repairs would be made to the ranch house. This would lead to continued deterioration of walls and windows due to extreme sunlight conditions and water infiltration, and continued deterioration of exterior wood elements leading to eventual collapse of porch roofs. The interior finishes and furnishings would be damaged due to the lack of environmental or climate control.

The loss of on-site security would result in increased potential for vandalism, fire, and theft.

Barn: In its present condition, the barn presents a structural hazard. Without repair and stabilization, it would continue to deteriorate and, ultimately, collapse. The loss of security on the site would result in increased potential for vandalism, fire, theft, and/or personal injury.

Ice House: The windowless ice house could be locked up and secured. However, without maintenance, its cladding and roof would degrade.

Water Tank: The harsh desert environment would continue to degrade the painted exterior of the water tank; ongoing maintenance must continue or the tank would cease to function. The temporary cover on the water tank has a limited lifespan. If it is not replaced by a permanent roof, the cover would deteriorate and the tank would again pose a hazard to wildlife (primarily raptors), and would also be vulnerable to vandalism and/or human injury.

Corrals: Lack of maintenance would result in continued deterioration of the corral fences, gates and equipment. Without on-site security, these elements would be subject to vandalism and theft.

Boundary Fences: Historic portions of the boundary fence that are not required elements of the present BLM-installed boundary fence would not be maintained and would continue to deteriorate. It is assumed that the BLM would maintain those historic portions required to complete the BLM-installed boundary fence.

Walking Box Ranch Road: It is assumed that the county would continue to maintain the Walking Box Ranch Road as it provides access to several mines southwest of the ranch.

Pathways: The site would be fenced and unoccupied. The pathways would remain similar to current conditions. However, without maintenance, there is potential for continued erosion and establishment by noxious weeds throughout the site.

Historic District: Because the No Action alternative would not satisfy the requirements of the SNPLMA grants, BLM funding for the project would likely be withdrawn. Likewise, Walking Box Ranch operations would not be consistent with the UNLV vision for the ranch and UNLV would not continue to support the facility. UNLV caretakers and security presence would be removed from the property. The expected deterioration would result in loss of National Register status for the Walking Box Ranch Historic District.

The spatial organization of the ranch stead would remain as it currently exists. Non-contributing buildings, structures and objects would not be removed from the site. The entire district would become vulnerable to fire, theft, and vandalism.

Summary

The No Action alternative would not require the expenditure of capital funds; would allow an adverse effect to a National Register-Listed Historic District; and would not meet the purpose and need of the proposed action. The indirect impacts on the individual historic structures identified above would be long-term and adverse. The intensity or severity of impacts would range from minor, in the case of the Walking Box Ranch Road and pathways, to potentially significant, in the case of the ranch house and barn. Collectively, the impact on the district as a whole would be adverse and long-term. Ultimately, the intensity or severity of the No Action alternative would be moderate or greater.

CUMULATIVE EFFECTS

The geographic scope for this cultural resources cumulative effects analysis is limited to the Walking Box Ranch (40-acre parcel). However, past, present, and reasonably foreseeable

future activities in the greater Piute-Eldorado Valley, extending west to the Mojave National Preserve, east to Lake Mojave, and north to the City of Boulder, may influence or affect cultural resources at the ranch.

The indirect effects of reduced or no human presence at the ranch would, when combined with the effects of an increasing population and reasonably foreseeable renewable energy projects and resident workforces in the region, contribute to unauthorized or trespass uses of the ranch, including vandalism, theft, or fire. Ultimately, these activities may accelerate the deterioration or destruction of the ranch's NRHP structures and the integrity of the district as a whole.

4.6.2 Proposed Action Alternative

DIRECT AND INDIRECT EFFECTS

NRHP Elements

All work under the Proposed Action would be performed in accordance with the Secretary of the Interior's Standards for Rehabilitation (see Section 2.4.5) and the SAT grant requirements per consultation between UNLV and SHPO.

Ranch House: The ranch house would be structurally stabilized, rehabilitated and used for interpretation. Its historic exterior and interior features would be retained. An accessible path would be provided through the primary spaces and would require the adaptation of some hardware (e.g., handrails). New mechanical, electrical and fire protection systems would be installed. The garage would be restored to its original configuration and used for public programs and interpretation.

To provide public access to the ranch house, one secondary entrance door would be widened and the courtyard garden would be regraded to provide an accessible path up to the porch. The swimming pool would be covered, with a surface that would suggest the nature of its original use.

Barn: The barn, which is currently in a deteriorated, unstable condition, would be completely rehabilitated for use as the site's visitor center. The barn's exterior would retain its original configuration and appearance; its unique railroad tie construction would be preserved. Severely deteriorated exterior elements would be replaced with historically appropriate materials.

Overall, the barn's character would be retained to the greatest extent possible by limiting the following improvements:

- It would not be insulated or air conditioned.
- Audio-visual presentations and restrooms would not be located in the barn, but would be located elsewhere, in less historically significant buildings.

New glazed entrances would be installed inside the barn doors for basic security and natural environmental/climate control. Structural and seismic stabilization would require replacement of undersized, missing and deteriorated elements and the installation of a slab foundation. The concrete slab would accommodate ADA accessibility.

Extensive replacement of the severely deteriorated exterior cladding would have a direct adverse impact on the barn. However, with the use of historically appropriate materials, the severity of impact would be minimized. The interior modifications, including the slab floor, would also result in direct adverse effects. Overall, the improvements would ensure that the barn is stabilized and preserved.

Ice House: The ice house would remain in or near its present non-historic location on the site where it would be rehabilitated. A new foundation and electrical system would be installed. The original fittings and equipment inside the ice house would be retained and interpreted.

Water Tank: The water tank would be rehabilitated for continued use for storage of the fire protection water supply. A permanent roof would be added.

Corrals: The historic corrals would be retained. Corral fences, gates, pens, chutes and equipment would be repaired and missing elements would be replaced in-kind.

Some fence sections, outside of the historic core, would need to be removed as required for access on the south part of the site.

A small blacksmith shop, incorporating a space for AV equipment, would be constructed at the corral adjacent to the barn. This structure would be designed and located based on aerial photographs and oral history to best reflect historic conditions. The reconstructed blacksmith's shop would house a collection of artifacts from the original shop. This new construction would be reversible and compatible with the Secretary's Standards but would ultimately be distinguishable from other historic structures on the site.

Boundary Fences: Sections of the historic boundary fence would be preserved and maintained and supplemented with new, in-kind fencing and gates to create a complete enclosure of the 40-acre site.

Walking Box Ranch Road: The historic Walking Box Ranch Road would be retained as the access to the historic site; it would be extended to provide direct access to the new academic campus without passing through the historic ranch stead. The road would be regraded and partially paved; stormwater drainage along the road would be improved with minor modifications to existing run-off swales.

Pathways: The site has been impacted by years of uncontrolled traffic by humans, livestock, and vehicles. Within the historic core of the site, this general state would be maintained but somewhat reduced by restoring some areas to native landscape. A concrete ADA accessible path would be created to connect all public areas of the site and an ADA accessible interpretive trail would be created around the perimeter of the 40-acre site.

Historic District: Under this alternative, there would be extensive new construction within the historic district, however, most of this new construction would occur south of the ranch's historic core and outside of the primary historic viewsheds.

Several non-contributing structures would be removed from the District including the caretaker's mobile home, a large trailer used for storage, and a tennis court. These areas would be either restored with native vegetation or would be re-used as the footprints for the Proposed Action

developments. For example, the general location of the current caretaker's trailer would be re-used as a location of the proposed new research facility.

Other, site-wide or district-wide modifications include restoration of currently denuded areas with native plantings.

The construction of new buildings and modifications in historic corridors (such as the ADA accessible pathways) would have long-term adverse effects within the district. The rehabilitation and/or stabilization of the ranch house, barn, ice house, and water tank, as well as the removal of non-contributing buildings and structures, would ultimately benefit the District by preserving significant structures and returning the ranch stead to a layout more reflective of historic conditions.

Summary

Some of the proposed activities would have direct adverse effects on aspects of the historical buildings and features of the ranch. Collectively, the Proposed Action would ultimately result in the stabilization, enhancement, and long-term preservation of the contributing structures and the Historic District overall.

The intensity or severity of adverse impacts would be minimized with incorporation of the Secretary's Standards, the SAT grant requirements, and other project design features defined in Section 2.4.5. The majority of new developments would occur south of the historic core of the ranch. New construction and site restoration activities (e.g., plantings, rock gardens, etc.) would be compatible with the existing architecture and elements of the historic district. All rehabilitation actions would be completed with in-kind materials when possible.

Although some long-term adverse effects are anticipated, the net effect of the Proposed Action would be beneficial to the preservation of the District and would not adversely affect the National Register status of the district or its contributing elements.

CUMULATIVE EFFECTS

The geographic scope would be the same as described for the No Action alternative. The effects analysis is limited to the Walking Box Ranch boundary.

With increased permanent human presence at the ranch and rehabilitation of the deteriorated structures, the effects of other past, present, and reasonably foreseeable actions in the region on cultural resources at the ranch would not be as noticeable as under the No Action alternative. As such, the effects of the Proposed Action would reduce the risk of vandalism, theft, fire, or other destruction of NRHP structures at the ranch. The cumulative effect of the Proposed Action would therefore be beneficial; it would diminish the potential for future losses or intentional destruction of NRHP structures.

RECOMMENDED MITIGATION MEASURES

Mitigation measures are not recommended for this resource.

4.7 Water and Soil Resources

4.7.1 No Action

DIRECT AND INDIRECT EFFECTS

There would be no direct effects to site hydrology, soils, or existing erosion patterns as a result of the No Action alternative. Existing surface runoff and erosion issues would continue as is. Regular county road maintenance on the Walking Box Road would continue to preserve the existing drainage paths crossing the road.

Maintenance would occur only in response to emergencies, such as precipitation or runoff events that cause blow-outs, mass wasting, or building damage.

CUMULATIVE EFFECTS

The No Action alternative would not result in any cumulative effects to hydrology or soil resources at the ranch.

4.7.2 Proposed Action Alternative

DIRECT AND INDIRECT EFFECTS

This alternative would involve creating new runoff conveyances in up to 10 locations at the ranch. The relocation of drainage swales would involve connecting existing swales to new depressions (0.5-1.0 foot depth over a broad area) in order to redirect stormwater runoff away from new and historic structures. All of the relocated swales would reconnect with natural drainage conveyances prior to leaving the 40-acre parcel. Within the 40-acre parcel boundary, these new conveyance depressions would result in minor changes to hydrologic patterns. (Outside of the 40-acre parcel boundary, there would be no effect to the natural hydrologic patterns.)

The addition of impervious surfaces at the ranch would have a minor effect on runoff volumes (increased) downstream of the 40-acre parcel. The predominant soil type at the ranch has relatively low natural percolation rates and naturally provides moderately high volumes of runoff.

The newly restored areas included in the Proposed Action would ultimately intercept rainfall and runoff better than bare, disturbed ground. Restored areas would therefore help to offset increased runoff effects resulting from additional impervious surfaces associated with new buildings and other site uses.

Additionally, in the long term, ongoing regular maintenance of drainage swales (e.g., grading, cleaning out culverts, etc.) would help to prevent damage from large precipitation and runoff events.

The effects to groundwater, including water quality, as a result of the increased water demand would be negligible. A 2008 Water and Power Demand Study estimated normal daily water demand would be less than 3,000 gpd for the Proposed Action. During periods of higher visitation, these demands would likely range from 15,000-20,000 gpd. As described in the Chapter 3.0, existing water rights allow for an average of 12,275 gpd. Even with occasional

periods of higher usage, the ranch would remain within the average daily use demand allowed by existing water rights. In the long term, as long as increased water demands remain below the existing water rights threshold, no measurable adverse effects to ground water are anticipated.

Ultimately, the Proposed Action would not result in any long-term adverse changes to hydrologic or soil patterns on the ranch.

CUMULATIVE EFFECTS

The majority of lands upstream of the 40-acre parcel is largely undeveloped and has, in most cases, successfully re-established native vegetation following the removal of cattle grazing in the Piute-Eldorado Valley. As such, past actions have minimal influence on hydrology at the ranch and areas downstream of the 40-acre parcel. No reasonably foreseeable future actions have been identified upstream of the ranch that would, when combined with this project, alter hydrology in the Piute-Eldorado Valley. This alternative would have no measurable cumulative effects on regional hydrology.

RECOMMENDED MITIGATION MEASURES

Mitigation measures are not recommended for this resource.

4.8 Land Use

4.8.1 No Action Alternative

DIRECT AND INDIRECT EFFECTS

The No Action alternative would have no direct effects on land use at the ranch or adjacent to the ranch.

UNLV would likely terminate the Cooperative Management Agreement with the BLM and remove UNLV-funded caretaker and security personnel. Without regular monitoring and maintenance, existing historic features and other buildings on the ranch would likely fall into disrepair.

Additionally, as noted in the Visitation impacts section (Section 4.10); reduced or no regular human presence on the ranch may encourage unauthorized activities that conflict with BLM land management objectives and the TNC conservation easements.

Ultimately, the No Action alternative would not be consistent with the terms of the TNC conservation easement, which stipulate that the property be preserved and protected to perpetuate the natural, historic, scenic, and open space features and values of the property. The No Action alternative would also conflict with the SAT grant stipulations and SNPLMA nominations, which call for the development of additional educational and research opportunities at the ranch.

CUMULATIVE EFFECTS

The geographic scope for visitation cumulative effects analysis includes the greater Piute-Eldorado Valley, extending west to the Mojave National Preserve, east to Lake Mojave, and north to the City of Boulder.

The indirect effects of reduced or no human presence at the ranch would, when combined with the effects of an increasing population and reasonably foreseeable renewable energy projects and resident workforces in the region, contribute to unauthorized or trespass uses of the ranch. Ultimately, these activities may accelerate the deterioration of the ranch's natural, historic, and scenic features and values and have cumulative adverse effects on the BLM's ability to satisfy the TNC conservation easement.

4.8.2 Proposed Action Alternative

DIRECT AND INDIRECT EFFECTS

The Proposed Action would directly change the existing uses and activities at the ranch and on BLM lands adjacent to the ranch. Under the Proposed Action alternative, the ranch would transition from a dormant historic ranch to an active historic interpretive site and research and educational facility. The majority of activity would be contained within the 40-acre parcel boundary; however, future research projects may seek to use or study adjacent BLM lands. Research uses beyond the 40-acre parcel would be subject to a separate environmental review process and are not further analyzed in this EA.

The Proposed Action would retain and/or enhance the historic character and scenic values of the ranch by rehabilitating and stabilizing historic structures, removing non-historic structures, and restoring currently denuded areas on the ranch.

The Proposed Action is consistent with the restrictions of the conservation easement. New interpretive, educational, and research opportunities at the ranch would perpetuate the history of agricultural and ranching practices at the ranch.

The Proposed Action would result in some visual changes at the ranch and some minor new land uses (e.g., new group camping area). The new uses would affect approximately 4 acres. Overall, however, the Proposed Action would ensure the integrity and long-term protection and/or rehabilitation of natural and historic features and values of the ranch, consistent with the SNPLMA and SAT grants and TNC conservation easement.

CUMULATIVE EFFECTS

The geographic scope would be the same as described for the No Action alternative. The land use changes associated with the Proposed Action are very minor. Their contribution to the effects of other past, present, or reasonably foreseeable actions, such as increased urbanization or renewable energy development, would be cumulatively negligible.

RECOMMENDED MITIGATION MEASURES

Mitigation measures are not recommended for this resource.

4.9 Vegetation Resources

4.9.1 No Action alternative

DIRECT AND INDIRECT EFFECTS

There would be no new ground disturbance under the No Action alternative. As such, there would be no direct effects to vegetation resources as a result of the No Action alternative. It is unlikely that the No Action alternative would have any long-term indirect effects on vegetation resources. Noxious weed infestations would likely continue in the future, but spread or establishment of new non-native species could not be attributed to taking no action.

CUMULATIVE EFFECTS

The No Action alternative would have no cumulative effect on vegetation resources in the Piute-Eldorado Valley.

4.9.2 Proposed Action

DIRECT AND INDIRECT EFFECTS

The Proposed Action would have minor adverse effects on vegetation resources on the 40-acre parcel in the short term. This alternative would result in 3 acres of temporary disturbance for construction or installation purposes. Direct disturbance to the community types described in Chapter 3.0 would occur as a result of trampling by machinery, personnel, or materials during construction.

In the long term, approximately 4 acres of native vegetation would be permanently removed where new buildings or development are proposed. Cacti and yucca would be transplanted as described in the Project Design Features, Section 2.4.5; however, successful re-establishment of all transplanted individuals is not guaranteed. Some mortality is likely.

The risk of short or long-term adverse effects to rare or special status plants is low, as suitable, on-site habitat for these species is limited and no individuals have been identified on the 40-acre parcel.

Until native communities have successfully re-established, the 40-acre parcel would be at increased risk of noxious weed infestation as a result of ground-disturbing activities. High-traffic vehicle and pedestrian areas that are not paved or armored, such as walking trails, tent pads, and overflow parking areas, would be especially susceptible to noxious weeds. Annual monitoring and eradication activities would help control the spread of these species elsewhere on the ranch and outside of the main 40-acre parcel. Overall, with the increased human/caretaker presence on the ranch and diligent restoration efforts, the risk should be minimized.

The Proposed Action would ultimately restore all areas temporarily disturbed during construction as well as many areas disturbed by recent, non-historic uses (e.g., tennis courts). A total of 5 acres would be restored. This would result in a net increase of approximately one acre of vegetation, which represents a negligible, long-term beneficial impact.

CUMULATIVE EFFECTS

The Proposed Action would have no cumulative effect on modification or loss of special status species habitat in the valley. (Effects would be limited to the 40-acre parcel.)

In the short term, the Proposed Action would present a minor incremental contribution to the risk of noxious weed spread in the valley.

If relocated cacti and yucca are not transplanted successfully, the incremental contribution of the Proposed Action to the overall loss of these species would be negligible at the regional scale.

RECOMMENDED MITIGATION MEASURES

Mitigation measures are not recommended for this resource.

4.10 Visitation

4.10.1 No Action Alternative

DIRECT AND INDIRECT EFFECTS

Public visitation opportunities would remain unchanged; the ranch would still be locked and closed to the general public.

Under the No Action alternative, UNLV would be much less likely to pursue short and long-term academic uses of the ranch. It is reasonable to assume that all short and long-term UNLV uses of the ranch would cease.

Most notably, UNLV would likely terminate the Cooperative Management Agreement with the BLM and remove UNLV-funded caretaker and security personnel. Therefore, there would be no permanent residents at the ranch.
Without further development of public opportunities, little or no academic use of the ranch, and no permanent on-site personnel, human activity at the ranch would be intermittent and incidental. BLM presence at the ranch would be limited to maintenance or emergency repairs and occasional visits by resource specialists. Overall, the No Action alternative would reduce the human presence on the ranch to negligible levels.

In the absence of any permanent, on-the-ground personnel, delinquent, unauthorized visitation would increase. The effects of ongoing break-ins, vandalism, and defacement of property by unauthorized visitors would be adverse and moderate or greater. Effects on ranch characteristics as a result of this type of visitor are also described in Cultural Resources and Land Use, Sections 4.6 and 4.8, respectively.

Ultimately, the No Action alternative would not be consistent with the intent of the two SNPLMA grants and TNC easements, which stipulate, respectively, that the ranch provide guided tours and interpretive displays; educate people on arid lands issues; and preserve the natural and historic features and values of the ranch. The No Action alternative would not be consistent with the terms of the BLM-UNLV Cooperative Management Agreement. With the No Action alternative, these effects would be long term, adverse, and moderate or greater.

CUMULATIVE EFFECTS

The geographic scope for visitation cumulative effects analysis includes the greater Piute-Eldorado Valley, extending west to the Mojave National Preserve, east to Lake Mojave, and north to the City of Boulder.

With increasing population and reasonably foreseeable renewable energy projects and resident workforces in the region, the lack of human presence at the ranch would contribute to trespassing, vandalism, and/or other delinquent, unauthorized activities at the ranch.

4.10.2 Proposed Action Alternative

DIRECT AND INDIRECT EFFECTS

Public visitation opportunities at the ranch would increase as a result of developing visitor amenities, interpretive programs, educational opportunities, and improved overnight accommodations for ranch managers and academic guests.

As described in the Market Study, Walking Box Ranch Master Plan and Preservation Plan (2008), given the visitation levels at comparable facilities, a reasonable estimate of annual public visitation to the ranch would be 4,000-7,000 visitors annually, which is approximately the same level of visitation at the Searchlight Heritage Museum.

The direct impacts of increasing visitation opportunities at the ranch include:

- Increased annual operations and maintenance costs.
- Increased materials, equipment, and insurance costs.
- Increased standard operating costs (e.g., telephone and utilities).
- Special event costs (e.g., food, beverage, supplies, labor and transportation).

Operational and maintenance costs would be partially offset by general public entry fees, visitor expenditures on gift shop items and vending, special event use fees, school groups, camping fees, and by educational users on facility use.

Therefore, if the annual visitor impact monitoring reports show that resource conditions remain unaffected at this level and can be increased to accommodate more visitors, other strategies such as direct marketing, busing or bus tours, or increasing the number of events could be pursued to meet the market demand and support the ranch's finances and operations.

The presence of permanent staff would ensure the maintenance and preservation of the ranch's features. Increased human activity, including long-term visitors and permanent residences, would deter break-ins and vandalism at the ranch.

Additionally, increased visitation to the Walking Box Ranch would result in some economic benefit to the nearby towns of Searchlight and Nippon, California. These impacts would be long-term and beneficial, and would range from minor to moderate in peak seasons.

The Proposed Action would be consistent with the terms of the SNPLMA nominations. The development of a museum/interpretive center, research facility, and interpretive exhibits

throughout the ranch would directly benefit additional visitor opportunities and experiences at the ranch in the long term.

The development of the museum/interpretive center (barn) and interpretive exhibits, as well as the rehabilitation of historic features, would provide educational opportunities for the public and perpetuate the ranch's history. The development of the field and research training center for visiting academic guests and land managers would promote beneficial research and conservation efforts related to arid lands issues. Therefore, the Proposed Action would satisfy the terms of the SNPLMA grants.

CUMULATIVE EFFECTS

The geographic scope for Proposed Action cumulative effects would be the same as described for the No Action alternative.

Within the region, future population growth, the development of renewable energy facilities and resident workforces, and growing interest in historical attractions would result in cumulative increases in visitation at the ranch over time, as well as other increased visitation at similar facilities in southern Nevada.

RECOMMENDED MITIGATION MEASURES

Mitigation measures are not recommended for this resource.

4.11 Visual Resources

Impacts to visual resources were determined on the basis of whether the predicted visual change caused by the Proposed Action would be within or exceed the allowable degree of visual contrast for VRM Class objectives and conservation easement limitations. In the context of a historic ranch setting, the VRM Class II objective requires that site planning and architectural detailing repeat the basic elements of form, line, color, and texture of the historically contributing features.

The potential impacts to visual resources were evaluated through KOPs, contrast ratings, field observations, and a qualitative review of the Walking Box Master Plan and Preservation Plan (BLM 2008) and project alternatives.

Two KOPs were identified from which to analyze the typical effects of each alternative. Map 4-1 shows the locations of each KOP. For each KOP, the BLM's Visual Contrast Rating Worksheets (Form 8400-4) compared the characteristics of the existing landscape and basic elements of form, line, color, and texture to each alternative's degree of contrast and compliance with VRM Class II objectives.

4.11.1 No Action Alternative

DIRECT AND INDIRECT EFFECTS

Under the No Action alternative, there would be no additional facilities built on the property, resulting in no adverse or beneficial effect to visual resources. As UNLV caretakers and security personnel are removed from the ranch, the facilities would continue to deteriorate. Existing ad

hoc parking and circulation would increase, resulting in widening and deterioration of landscaping and natural vegetation. Vandalism may also occur at greater levels with less restoration activities. Therefore, the No Action alternative would result in direct effects that would be adverse and long term.

CUMULATIVE EFFECTS

There would be no cumulative effects to visual resources as a result of the No Action alternative.

4.11.2 Proposed Action

DIRECT AND INDIRECT EFFECTS

Adverse impacts to visual resources in a historic setting can result from modifying a significant characteristic of a historic structure or landscape resource, removing a significant structure or landscape resource, or adding new, incompatible facilities in proximity to a historic site or structure. The Proposed Action does not damage or remove significant structures or landscape resources. New facilities would be designed to be compatible with the NRHP setting, and be sited outside of sensitive view corridors to the south of the historic core. Viewer sensitivity is low to new interpretive, recreation, and research facilities in an interpretive area, as these are essential to the desired experience.

Short-term adverse impacts to the historic setting include construction activities (i.e., scaffolding surrounding a building during rehabilitation work), traffic, and dust.

Beneficial impacts to visual resources in a historic setting result from restoration or rehabilitation of resources, or removal of incompatible or noncontributing facilities. The Proposed Action rehabilitates ranch features and structures listed on the NRHP using historically appropriate materials and methods, resulting in beneficial effects, by creating a scene with greater historical integrity. The Proposed Action removes incompatible facilities, such as the non-historic tennis courts and lighting, temporary storage trailer, caretaker's house, and inappropriate landscaping.

As described in Chapter 2.0, vehicular and pedestrian areas are not delineated; years of driving and walking through and around the site have resulted in an expanded network of social roads and parking areas, and in a disorganized and unnecessarily complex network of social trails throughout the site. The Proposed Action would utilize previously impacted areas of the site for new development, to the extent possible. All unnecessary, non-contributing roads would be closed and restored with native landscape. Similarly, all non-contributing pedestrian and cattle trails would be closed and restored. Definition of vehicular and pedestrian traffic would prevent damage to existing vegetation and enhance the pedestrian and residential scale of the parcel. These activities would result in long-term beneficial effects.

All site utilities, including the leach fields, water pipelines, and electrical and communication lines, have been located in existing disturbed areas, resulting in minimal disturbance to existing intact native vegetation or historic features. Overhead electrical lines would be buried, resulting in direct beneficial effects.

Two KOPs within and directed towards the 40-acre ranch headquarters parcel represent the most important viewpoints to the public.

- **KOP #1, Ranch Entrance (looking south)***:* KOP #1 is the ranch entrance seen as approached from the north, as it was historically. The landscape character is a historic western home ranch (with ranch outbuildings) in the southern Nevada desert. The landscape surrounding the ranch house is a panoramic landscape type, with undulating mountains in the background horizon. Viewers have a high expectation of seeing a historic architectural and landscaped ranch environment with high scenic integrity. Visibility beyond the gated ranch complex is limited due to vegetation screening, making the ranch complex a strong visual feature.

  Features visible from the entrance that appear to retain a fair to high degree of individual historic or contributing integrity are the barn, fences, ice house, ranch home, bunkhouse, pumphouse, water tower, and internal pathways. Non-contributing features visible include the tennis courts and lighting, temporary storage trailer, and electrical distribution lines. Large portions of the ranch yard are denuded of vegetation due to years of uncontrolled traffic.

  The Proposed Action would increase historic scenic integrity by removing the tennis courts and lighting, temporary storage trailer, and delineating traffic circulation. All unnecessary, non-contributing roads and pedestrian and cattle trails would be closed and restored with native landscape. Historic features (barn, gate, ranch house) would remain intact. New features include interpretive and directional signage, and native planting beds would be delineated. These activities would result in beneficial changes to the form, color, and texture of the characteristic landscape.

  Behind the ranch home, new buildings would be added that are of similar size and scale (1-2 stories) to the ranch home and the roofs may be visible above vegetation and the ranch home but subordinate to the scene. New rooflines visible from the ranch entrance would result in minor contrasts to existing conditions.

- **KOP #2, Ranch Home (looking north)***:* The characteristic landscape is that of the "western home ranch property type" in the southern Nevada desert, built during the historical period of 1931-1958. Architecture is representative of its era, characteristic of the Spanish Colonial Revival Style, and in a Mediterranean style popular in California at the time. KOP #2 is typical of views north from the bay window of the ranch house great room and other north-facing interior windows.

  The landscape surrounding the ranch house is a panoramic landscape type, with undulating mountains in the background horizon. Viewers have a high expectation of seeing a historic architectural and landscaped ranch environment with scenic integrity.

  Features visible from the ranch home that appear to retain a fair to high degree of scenic historic integrity are the barn, bunkhouse, fences, and internal pathways. Non-contributing features visible include the tennis courts and lighting, temporary storage trailer, and electrical distribution lines. Large portions of the ranch yard are denuded of vegetation due to years of uncontrolled traffic.

  The Proposed Action would increase historic scenic integrity by removing the tennis courts and lighting, and temporary storage trailer. All unnecessary, non-contributing roads and pedestrian and cattle trails would be closed and restored with native landscape. New features include interpretive and directional signage, and native planting beds would be delineated. Figure 2-15, Historic Corridor Concept, illustrates how all unnecessary, non-contributing roads and pedestrian and cattle trails would be closed and restored with native landscape. Historic features (barn, gate, ranch

house) would remain intact. These activities would result in beneficial changes to the form, color, and texture of the characteristic landscape.

Adverse impacts to visual resources in a historic setting can also result from physical changes to the regional viewshed surrounding the site. Walking Box Ranch is located in the Piute-Eldorado Valley, 0.75 miles southwest of Highway 164 (Joshua Tree Highway), a major east-west thoroughfare in southern Nevada. The flat valley floor and height of creosote-Joshua Tree vegetation prevents the ranch from being visible from most locations along Highway 164. However, ranch features are visible from Highway 164 at two locations: 1) at the junction of Highway 164 and Walking Box Ranch Road, and 2) traveling westbound along Highway 164 from Highland Mountains through the Piute-Eldorado Valley towards the Walking Box Ranch. The ranch is not visible traveling eastbound.

At the junction of Highway 164 and Walking Box Ranch Road, Walking Box Ranch is not visible with the exception of the Water Tank which is highly visible as it is aligned with Walking Box Ranch Road and painted white. The white color creates an uncharacteristic glare and contrast in context with the native vegetation. A second, thinner but taller water tank is located further southwest, also painted white, and referred to as the existing Pumphouse and Treatment Facilities, which would be removed under the Proposed Action resulting in a beneficial, long-term effect. Under the Proposed Action, the Water Tank would be painted a Shadow Grey color (from the BLM Environmental Standard Colors) to reduce glare and return it to its original, unfinished grey, steel color. Other ranch features do not come into view through the vegetation until within 0.25 miles from the ranch complex on Walking Box Ranch Road. Safety and welcome signage and other minor improvements would be constructed at the junction of Highway 164 and Walking Box Ranch Road. Viewer sensitivity is low to safety and directional signage designed as described in Chapter 2.0. Therefore, views beyond the Walking Box Ranch property would not be affected by the Proposed Action alternative.

Traveling westbound along Highway 164, the Walking Box Ranch is visible for approximately 1-4.5 miles. At lower elevations on the valley floor within 2 miles, most ranch features are screened by the creosote-Joshua Tree vegetation though a series of rectangular rooftops can be seen. As a recreational destination, the partial screening would likely result in a sense of mystery and increased visual interest in the ranch's appearance, which would be a beneficial effect. Beyond 2 miles at higher elevations from Highway 164 (KOP #3), the Walking Box Ranch appears as a complex of rectangular buildings with bare areas from vehicle circulation and cattle. The absence of vegetation, combined with the colors (browns, whites) and rectangular forms creates a low degree of contrast. The ranch complex (5 acres) would be comparable in scale to existing conditions and with other housing developments that occur infrequently along Highway 164 around Searchlight, and would be compatible with VRM Class II requirements.

CUMULATIVE EFFECTS

There would be no cumulative effects to visual resources as a result of the Proposed Action.

RECOMMENDED MITIGATION MEASURES

Mitigation measures are not recommended for this resource.

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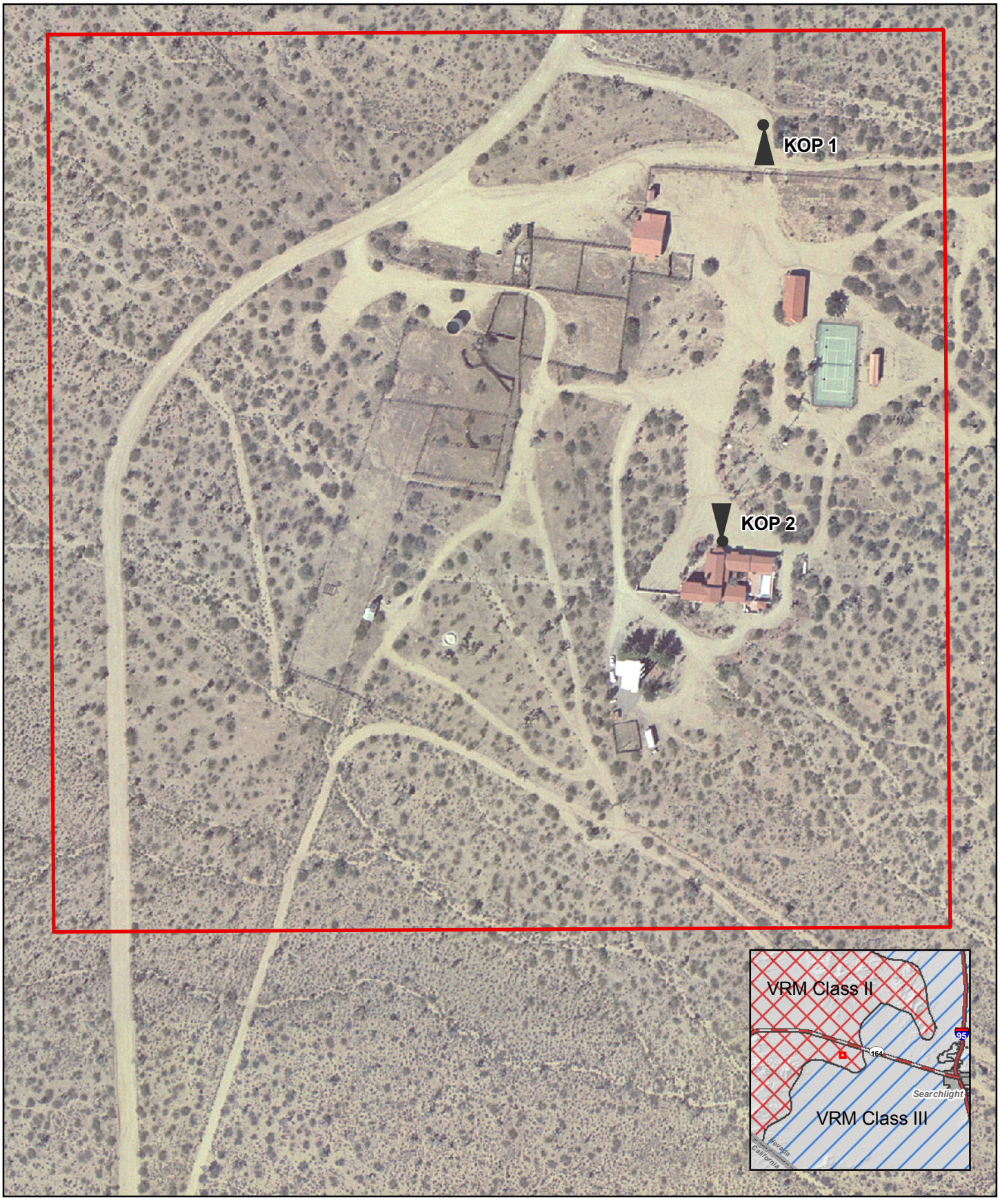

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Key Observation Points

Map 4-1

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4.12 Wildlife Resources

4.12.1 No Action Alternative

DIRECT AND INDIRECT EFFECTS

There would be no direct effects to wildlife as a result of the No Action alternative. In the long term, if caretaker and security personnel were removed from the ranch, some wildlife species affected by human presence, living quarters, and noise may benefit. Overall, however, the indirect effects of the No Action alternative are anticipated to be negligible.

CUMULATIVE EFFECTS

Cumulative effects to wildlife resources in the Piute-Eldorado Valley as a result of the No Action alternative are unlikely.

4.12.2 Proposed Action Alternative

DIRECT AND INDIRECT EFFECTS

In the short term, construction activities would have moderately adverse effects on wildlife species and habitat at the ranch. Increased human and machinery activity, noise, dust, and vibrations would result in temporary displacement of many common species. Heavy machinery has the potential to trample, compact, or fill burrows, ground nests, or other ground-level habitat. Direct mortality of some species is possible; the effects on local populations would be adverse but overall, negligible.

Habitat-altering activities would be avoided during the breeding season or pre-construction surveys would occur prior to ground disturbance. All active nest sites would be avoided until the young have fledged. Therefore, there would be no direct impacts to burrowing owls or breeding birds at the ranch. Some inactive but potential nesting burrows may be lost due to the construction activities and new development footprints. Overall, however, the loss of potential nesting habitat is anticipated to be adverse, but negligible at even a local scale.

In the long term, some habitat would be lost to new building or development footprints. However, 5 acres of existing disturbed areas would be restored, representing a net change of 1 acre of potential habitat area.

Large events at the ranch would result in intermittent disturbances to wildlife in the long term. Increased presence of humans, vehicular traffic, noise, lights, food waste, and dust could have adverse effects, but would not result in the permanent displacement of species or habitat destruction.

Similarly, increased human presence as a result of ranch residents or long-term guests may affect wildlife habits and behavior. Food wastes, in particular, may attract non-native or predatory species that could displace or out-compete common, native species (e.g., ravens). Monitoring, appropriate disposal of garbage, and appropriate measures to avoid attracting pests should minimize the risk of non-native or predatory species effects on native populations.

New structures, such as buildings, eaves, or awnings, may provide additional habitat for nesting species, such as bats or birds. Restored areas may, over time, provide additional habitat for reptile species and some species of birds or small mammals.

The Proposed Action alternative results in a determination of "may affect, likely to adversely affect" to the federally threatened desert tortoise and critical habitat because ground-disturbing activities would occur within suitable habitat areas; however, the proposed design features would eliminate the potential for direct harm to the species and the project would result in minimal net change to available habitat in the project area.

The Proposed Action alternative results in a determination of may adversely impact individuals (MAII) to BLM sensitive species but would not result in a trend toward federal listing for any of the species reviewed.

CUMULATIVE EFFECTS

Although short-term effects of the Proposed Action alternative would be adverse, the long-term cumulative effect of 5 acres of restoration would ultimately offset the short-term impacts. The Proposed Action alternative would have no adverse cumulative effect on modification or loss of special status species habitat in the Piute-Eldorado Valley. Much of the existing ranch is already disturbed and barren.

RECOMMENDED MITIGATION MEASURES

On-site passive relocation should be implemented if the avoidance is not possible. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 m from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls (California Burrowing Owl Consortium [CBOC]1993).

Owls should be excluded from burrows in the immediate impact zone and within a 50 m (approx. 160 ft.) buffer zone by installing one-way doors in burrow entrances. One-way doors should be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact zone (CBOC 1993).

4.13 Comparison of Effects

Table 4-1 summarizes the effects of each alternative by resource.

Table 4-1. Summary of Alternative Impacts by Resource.

Resource(s)	No Action Alternative	Proposed Action Alternative
Air Quality	No direct effects to air quality.	Short-term direct adverse effects as a result of construction-generated dust and vehicle emissions. Long-term minor adverse effect as a result of increased vehicle traffic, and subsequently increased emissions.
Cultural Resources, Native American Religious Concerns	No direct effects to historic structures or district. Without human presence on the ranch, increased potential for vandalism, theft, and fire. Potential adverse effects to the structures and district would be long-term and moderate or greater.	Rehabilitation and stabilization of historic structures; some adverse effects as a result of modifications to these structures; intensity or severity of effects would be minimized through the use of project design features and Secretary's Standards. Overall, long-term benefit to the integrity of the district; no overall adverse effect to National Register status.
Hydrology, Drainage, and Erosion / Soils	No direct effects to hydrology, drainage, and erosion.	Minor short-term adverse effects to erosion and hydrology as a result of construction activities. Long-term effects to drainage patterns within the 40-acre parcel boundary as a result of relocated swales. Negligible adverse effects anticipated beyond the 40-acre boundary.
Land Use	No direct effects on land uses at the ranch. No Action may encourage unauthorized uses of the ranch. Ultimately, not consistent with the terms of the TNC conservation easement as it would not preserve the historic and scenic values of the ranch.	Direct effects to existing land uses at the ranch. Ranch would transition from a dormant historic ranch to an active educational and interpretive facility. Would ensure the preservation of historic and scenic values, as stipulated in the TNC conservation easement.
Vegetation, Threatened and Endangered Plant Species, Non-Native Invasive and Noxious Species	No direct effects to vegetation. Indirect effects are unlikely.	Direct effects to 3 acres in the short-term; however, much of this area is currently denuded. Long-term loss of 4 acres of native vegetation due to building footprints. Restoration of approximately 5 acres to native vegetation. Total net change: approximately 1 acre. Low risk to special status species.
Visitation / Residents	No direct effects to visitation. Ranch is currently closed to the public, except by special arrangements. May encourage unauthorized visitors and delinquent activities at the ranch in the long-term.	New public educational and interpretive opportunities. Increase in permanent resident presence. Long-term UNLV academic pursuits. Potential for several special events per year.

Visual and Aesthetic Resources	No direct effects. Long-term adverse effects as deterioration of historic structure and facilities worsens without human presence on the ranch. Overall, still consistent with VRM Class II objectives.	Short-term minor adverse effects resulting from construction activities. Long-term beneficial impacts resulting from rehabilitation and preservation of historic structures. Overall, consistent with VRM Class II objectives.
Wildlife, Threatened and Endangered Wildlife Species, Migratory Birds	No direct effects to any wildlife species or habitats. Long-term negligible beneficial impacts resulting from removal of human presence.	Minor adverse direct effects to wildlife species in the short-term as a resulting from increased human activity, noise, dust, vibrations, or displacement during construction. Long-term minor adverse effects as a result of increased background levels of human activity. Minor long-term benefit as a result of restoration of denuded areas.

4.14 Unavoidable Adverse Effects

Unavoidable adverse effects are those environmental consequences of an action that cannot be avoided, either because modifying the action would change the nature of the project or effective mitigation through project design is not feasible. Pursuant to NEPA Sec. 102 [42 USC § 4332] (2)(C)(ii), this analysis must identify those alternative actions that would result in unavoidable adverse effects.

The action alternatives would result in adverse effects that are unavoidable. The construction and permanent development of new buildings, paved walkways, or other site features would result in the unavoidable loss of approximately 4 acres of native vegetation and wildlife habitat. The Proposed Action would, however, restore approximately 5 acres of existing disturbed areas. Although this represents a significant offset of the project's permanent footprint impacts, it would not entirely make up for the loss of existing habitat features such as ground nests or burrows existing at the time of construction.

Additionally, the Proposed Action alternative would result in the modification of historic structures. Although these modifications are intended to benefit the structures in the long-term, the modifications would cause some unavoidable adverse effects (e.g., widening of a door in the ranch house.)

Other unavoidable effects would be the increased interaction between wildlife and ranch visitors. Although this is anticipated to be minor, it would be long-term and unavoidable.

4.15 Relationship Between Short-term Uses and Long-Term Productivity

Pursuant to NEPA Sec. 102 [42 USC § 4332] (2)(C)(iv), this analysis must identify alternative actions that would result in trade-offs between short-term uses and long-term productivity. For this federal action, "short term" is defined as within the 3-5 year implementation period. Long term is defined as any time period beyond the implementation period.

None of the alternatives presented in Chapter 2.0 or impacts identified in Chapter 4.0 would result in trade-offs between short-term uses and long-term productivity.

Under the No Action alternative, the long-term productivity of the ranch would be jeopardized. However, there are no formal short-term uses of the ranch that affect or would affect this outcome under No Action.

Under the Proposed Action, the long-term productivity of the ranch would be benefitted. The short-term uses contribute to this productivity. Therefore, there are no trade-offs between short-term uses and long-term productivity.

4.16 Irreversible and Irretrievable Commitments of Resources

Pursuant to NEPA Sec. 102 [42 USC § 4332] (2)(C)(v), this analysis must identify alternative actions that would result in the irreversible and/or irretrievable commitments of resources. Irreversible commitments are those that cannot be reversed, such as species extinction, mining ore, or logging old growth forest, which would take hundreds of years to recover. Such decisions are considered irreversible when their implementation would affect a resource such that its useful renewal could occur only over a period of time longer than the useful life of the project, at exorbitant expense, or because they would cause the resource to be destroyed or removed. Irreversible commitments of resources on Federal lands are typically attributed to major infrastructure construction projects, such as the use of federal lands for the original construction of dams, reservoirs, or associated conveyance features.

Under No Action, the continued deterioration of NRHP structures and the district as a whole would result in irreversible effects to historic resources at the ranch.

The Proposed Action would result in the irreversible commitment of fossil fuel resources during construction activities and as a result of increased visitation by car or bus. It is anticipated that the amount would be locally minor and globally negligible. Otherwise, there would be no irreversible commitments of resources as a result of project implementation.

Irretrievable commitments of resources result in the loss of production or use of resources as a result of a decision where the resource commitments represent a moratorium on other site-specific uses or opportunities for the useful life of the associated project. For example, if a paved highway is constructed through a forest, the timber productivity of the cleared right-of-way (ROW) is lost for as long as the highway remains. The construction of the highway represents an irretrievable loss in exchange for the benefits of the highway.

The Proposed Action alternative would cause some minor irretrievable commitment of soil and vegetation resources that would be removed to accommodate building and development footprints. These losses would be largely offset by the restoration of other areas at the ranch.

CHAPTER 5.0 - PREPARERS AND CONTRIBUTORS

5.1 Interdisciplinary Team

In accordance with 40 CFR 1501.2a, the BLM, UNLV, and contractors selected an ID Team of resource specialists to systematically plan and analyze all project components that may have an impact on the physical or human environment. The ID Team consisted of the following BLM and contractor personnel (in alphabetical order):

Jayson Barangan	Natural Resource Specialist, BLM
Jason Bird	Civil Engineer, EDAW AECOM
Mark Boatwright	Archaeologist, BLM
Rebecca Brofft	Environmental Planner, EDAW AECOM
Lauren Brown	Restoration Ecologist, BLM
Tom Busch	Architect, BLM
Jeremy Call	Visual Resources, EDAW AECOM
Nora Caplette	Weed Management Specialist, BLM
Sergio Capozzi	Visual Resources and Land Use, EDAW AECOM
Nancy Christ	Project Manager, Power Services, Inc
Lisa Christianson	Environmental Protection Specialist, BLM
Jean Cline	Professor, UNLV / Director, Walking Box Ranch
Molly Cobbs-Lozon	NEPA / Project Manager, EDAW AECOM
Fred Edwards	Botanist, BLM
Susan Farkas	Planning and Environmental Coordinator, BLM
Chris Gaughan	Wildlife Resources, EDAW AECOM
Phil Hendricks	Landscape Architect, EDAW AECOM
Sendi Kalcic	Wilderness Planner, BLM
Kimberly Karish	Wildlife Biologist, EDAW AECOM
Tom Keith	Principal-in-Charge, EDAW AECOM
John Ko	Biologist, EDAW AECOM
Cathleen Malmstrom	Cultural and Historic Resources, Architectural Resources Group
Robbie McAboy	Sloan Canyon NCA Manager, BLM
Bruce Meighen	Principal-in-Charge, EDAW AECOM
Greg Oakes	Landscape Designer, EDAW AECOM
Sarah Peterson	Hydrologist, BLM
Peg Rees	Interim VP for Educational Outreach, UNLV / Executive Director, The Public Lands Institute
Linda Spangler	Technical Editor, EDAW AECOM
Jessica Stegmeier	Wildlife Biologist, BLM
Robert Taylor	SNPLMA Capital Improvements Program Manager, BLM
George Varhalmi	Geologist, BLM

5.2 Federal, State, and Local Agencies

Notification letters were sent to various federal, state, and local agencies describing the Walking Box Ranch Development Concept Plan and outlining the agency and public scoping process. A letter was sent to representatives from each of the following agencies on December 26, 2008. Each agency was asked to provide general comments on the proposed project, as well as resource-specific comments germane to their area of expertise or jurisdiction.

Castle Mountain Venture
Clark County
College of Southern Nevada
Desert Research Institute
Justice of the Peace
Las Vegas Springs Preserve
Lost City Museum at Overton
Mojave Desert Heritage and Cultural Association
Mojave National Preserve, National Park Service
Natural Resources Conservation Service
Nevada Division of Wildlife
Nevada State Historic Preservation Office
Red Rock Canyon Interpretive Association
Save America's Treasures
Searchlight Nugget
Searchlight Town Board
Searchlight Town Manager
Sierra Club
The Nature Conservancy
U.S. Fish and Wildlife Service, Desert National Wildlife Refuge
U.S. Geological Survey
University of Nevada at Reno, Cooperative Extension
University of Nevada Las Vegas
Viceroy/Terrasearch, Inc.

Each of these agencies was also invited to participate in an agency scoping meeting held at the BLM Red Rock-Sloan Field Office on January 20, 2009.

CHAPTER 6.0 - REFERENCES

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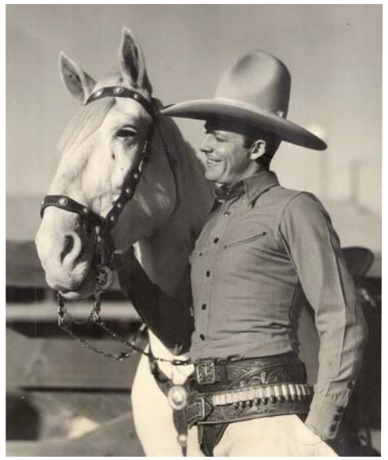
APPENDIX A: HISTORICAL OVERVIEW

The following pages are excerpted from the *Walking Box Ranch Master Plan and Preservation Plan Report* (June 2008). This report was prepared by Architectural Resources Group (ARG) of San Francisco, California.

HISTORICAL OVERVIEW AND CONTEXT

Karl Weikel. Courtesy of Dennis Casebier.



The Bell's pet goat with what may be the original ranch 'shack' in the background. Courtesy of Rex Bell

Publicity photos of Rex Bell and Clara Bow. Courtesy of Rex Bell.

Walking Box Ranch, located just west of Searchlight in Clark County, Nevada, was operated as a cattle ranch. Originally carved from the massive Rock Springs Land and Cattle Company, the ranch was purchased by Rex Bell in May 1931. The property continued as an operating cattle ranch, under Bell and the subsequent ownership of Karl Weikel, through the 1980s until it was sold to Viceroy Gold Corporation in 1989. Viceroy used the property to access their local mine and rehabilitated the ranch headquarters to serve as an executive retreat. Since the mid-1990s, the property has changed hands several times and is now located in the midst of an expansive desert tortoise conservation area.

Cattle ranching in the eastern Mojave began in earnest following the 1883 construction of the Southern Pacific rail line between Needles, California and San Francisco. Beginning in 1886, T.L. Blackburn and Co. began obtaining water rights throughout the region and in 1894 incorporated as the Rock Springs Land and Cattle Company (RSLCC). RSLCC was headquartered in Barnwell, California with operations in a roughly fifty-mile square area of the eastern Mojave that supported approximately 10,000 head of cattle in its heyday. RSLCC began to move cattle across the Nevada border and into the Piute Valley in the first decade of the twentieth century. John Woolf served as Rock Springs long-time ranch manager.

Rock Spring Land and Cattle Company suffered financial reverses as a result of several seasons of drought in the 1920s and decided to sell its assets, including land, livestock, grazing and water rights. As part of this disposition, the Nevada ranch lands were given to John Woolf. At least one local newspaper account indicates Woolf's association with the ranch as early as 1927; however, the deed to the property was signed over to Woolf in February 1930. The grazing rights associated with the original ranch extended north from the ranch headquarters to Railroad Pass, east to Highway 95 and the Colorado River, south to the Newberry Mountains and west across Crescent Peak and the California border. Woolf sold the ranch, including water and grazing rights, to cowboy actor Rex Bell (born George F. Beldam) in May 1931.

At roughly this same time, silent screen star Clara Bow, Rex Bell's future wife was suffering mental and physical health problems, in part related to a legal suit against her former friend and manager Daisy Devoe and a separate public scandal. After suffering a nervous breakdown and short recuperative stays at two Southern California sanitariums, Bow broke her contract with Paramount

II. BACKGROUND

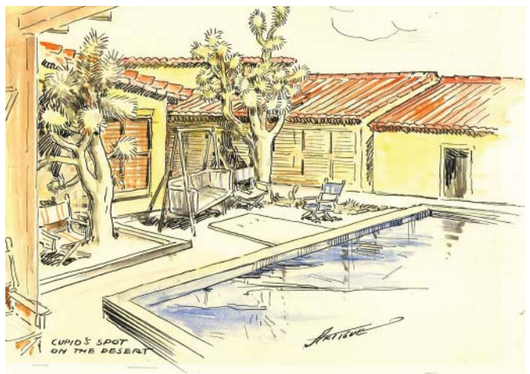
Studios. In her letter of resignation to Paramount, Bow indicated that she could be contacted at Woolf Ranch in Nipton, California where she intended to continue her recuperation.

Once at the ranch, Bell and Bow quickly began construction of a large Spanish Colonial Revival style ranch house. The style of the house was atypical for ranch house construction in the area, which had long relied on locally available building materials such as discarded railroad ties. Instead, Bell and Bow constructed a large stucco house typical of period revival style architecture popular in Southern California in the 1920s and 1930s. The plan and form of the house, however, suggest an interest in creating an appropriate building to serve as a ranch headquarters. The architect of the structure could not be identified. The rock chimney and now demolished rock gardens were designed and installed by long-time Searchlight deputy, "Big John" Silveria.

After much public speculation, Bell and Bow were married in Las Vegas in early December 1931. The Bells raised two young sons (born in 1934 and 1938) at Walking Box Ranch. A two-story addition and pool were constructed around 1935 to accommodate the needs of the growing family. Bell also cooperated with the Civilian Conservation Corps (C.C.C.), a New Deal work program, to construct two wells on the grazing lands associated with the ranch.

Rex Bell was not a seasoned rancher or rider. He continued to make movies in Hollywood during his time at Walking Box Ranch, and a ranch manager handled the daily ranching operations. Red Verzani and later Al Marshall were each employed as ranch manager. There were no other full-time cowboys, but they were hired as needed during the year. Ranch hands, including Al Marshall's family, lived in the original bunkhouse. A carpenter employed by the family lived in a small house that stood in front of the carpenter's shop. (Both structures have been demolished.) In addition, the family generally employed cooks who lived in the main house with the family.

While not a hands-on rancher, Bell did begin a successful political career as a leader in local ranching, serving on the first advisory board for Nevada Grazing District #5. In the early 1940s, Bell sold the northern half of his grazing rights, north of the old Nipton Road, to his ranch manager Al Marshall. By the mid-1940s, Bell moved his family to Las Vegas, where he had opened a western wear store. At that time, the property was leased to Wyatt Marshall and a business



Undated watercolor done at about the time of construction of the ranch house, signed 'Artigue'. Courtesy of Rex Bell.

Clara Bow and Rex Bell in the ranch house great room. Courtesy of Rex Bell.

Clara Bow and one of several 'rock gardens' built by John Silveria. Courtesy of Rex Bell.

A 1930s winter view from the ranch house. The 'shop string' is on the right, with the original bunkhouse beyond. Courtesy of Rex Bell.

2006 aerial survey photo of the developed portion of Walking Box Ranch. Later features, such as the tennis court, are clearly visible, as are the heavily degraded areas of the site.

partner for a five-year period. After a failed bid for a Congressional seat in the 1940s, Bell was elected Lieutenant Governor in 1954 and served until his death in 1962. Bell died suddenly just as he began his campaign for governor.

Following the lease period, Rex Bell sold Walking Box Ranch to Karl Weikel, a former Navy officer, in 1951, and the property became known as the YKL Ranch. Weikel continued cattle ranching operations through the 1970s. Weikel eventually sold the ranch to Viceroy Gold Corporation in 1989. Viceroy interest in the property stemmed from their need for better access to local mines; however, the ranch itself was rehabilitated for use as an executive retreat. Alterations to the main house, demolition and relocation of outbuildings, and alteration to landscape features date from the period.

In the last fifteen years, the United States Fish and Wildlife Service and The Nature Conservancy have established the area around Searchlight as a desert tortoise conservation habitat, effectively ending the remains of cattle ranching in the area. The Bureau of Land Management acquired Walking Box Ranch with Round 3 SNPLMA funds. The Nature Conservancy holds two separate easements on the 160-acre parcel. UNLV received a Save America's Treasures grant to prepare a preservation and master plan for the property in 2004.

The Walking Box Ranch has been nominated to the National Register of Historic Places, as part of the Save America's Treasures grant, for two aspects of historic significance: for its association with cattle ranching in Clark County and the Mojave; and for its architectural significance. Architecturally, it has been documented as an example of the cattle ranch property type as a whole, including the main house, outbuildings and structures, and associated landscape features. In addition, the main house has been documented as an example of Spanish Colonial Revival architecture and the barn and elements of the corrals as examples of a railroad tie construction. The period of significance for Walking Box Ranch extends from 1931-1958. A draft nomination was submitted the Nevada Historic Preservation Office in March 2008 and is currently under review.

II. BACKGROUND

CHRONOLOGY OF DEVELOPMENT AND USE

Information related directly to the physical ranch and its improvements are indicated in **boldface**.

1894	Rock Springs Land and Cattle Company (RSLCC) incorporated, forming approximately one million acre cattle ranch in the eastern Mojave Desert
1909	Clark County created from Lincoln County
c. 1927	Break-up of RSLCC, creating several smaller ranches including OX, 88, and Woolf Ranch
02/21/1930	**John Woolf acquires Nevada ranch from RSLCC**
09/22/1930	John Woolf acquires Nevada stock watering permits, including Bullion Spring and Borbridge Big Springs, from James M. Borbridge
10/30/1930	Los Angeles Times reports that Clara Bow and Rex Bell are "said to be" engaged
05/01/1931	John Woolf sells ranch to George F. Beldam (Rex Bell), "a single man"
05/06/1931	Clara Bow admitted to Glendale Sanitarium after collapsing previous Sunday evening, following nervous breakdown related to legal suit and public scandal (reported in *Los Angeles Times*)
06/1931	Bow's six-year contract with Paramount Pictures terminated
06/05/1931	Bow leaves La Crescenta Sanitarium
06/10/1931	Bow closes her Beverly Hills home on Saturday and departs for Walking Box Ranch (WBR)
12/03/1931	Bell and Bow married in Las Vegas
1931-32	**Spanish Colonial Revival style ranch house constructed at ranch headquarters site**
06/28/1934	Taylor Grazing Act of 1934 passed
12/16/1934	Birth of Bell and Bow's first child
c. 1934-35	Construction of two-story addition to the house, including a new master bedroom and bath, children's room and bath, and pool

Clara Bow and Rex Bell at Walking Box Ranch.
Courtesy of Rex Bell.

Walking Box Ranch in 1932 before addition of bedroom wing.
Courtesy of Rex Bell.

Walking Box Ranch in 1935, with bedroom addition at right. Front and side porches have been enclosed with screens. Courtesy of Rex Bell.

1980s aerial view of Walking Box Ranch. This is prior to Viceroy Gold Corporation's demolition of the 'shop string' of three small structures at left and the blacksmith shop, lower center of photo. Courtesy of Dennis Casebier.

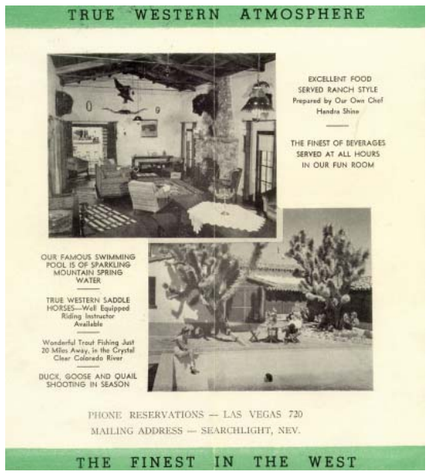
c. 1936	Bell Ranch becomes known as Walking Box Ranch
11/03/1936	Nevada Grazing District #5 (Clark County) established, following Amendment to Taylor Act. Rex Bell named one of original eleven Grazing District #5 Advisory Board members
1937-38	**Six Mile Well and Ten Mile Well constructed by the Civilian Conservation Corps (C.C.C.)**
1940	Grazing District #5 name changed to Searchlight District
c. 1941-42	**Grazing rights north of Old Nipton Road sold to A.C. Marshall**
c. 1941	General Patton and troops visit WBR
c. 1945	Rex Bell moves family to Las Vegas and opens Rex Bell's Frontier Stylings and Sportswear store; WBR leased on a five-year basis to Wyatt Marshall (son of Al Marshall) and Kenneth Jay of Northrop Aircraft Company
1946	Bureau of Land Management created from General Land Office and Grazing Service
c. 1948	WBR intended for use as Rawlings Guest Ranch
4/06/1951	Walking Box Ranch sold to Karl "Cap" Weikel, including base property and grazing rights; name changed to YKL Ranch
YKL period	**(no specific dates) - alterations included removal of original rock gardens and guesthouse and installation of small shooting range.**
1955-1962	Rex Bell serves as Lieutenant Governor of Nevada
03/04/1976	BLM orders 75% cutback in grazing
c. 1979	**Caretaker's trailer installed on site**
10/1980	Property sold to Nevada Silver Refinery; Weikels move to Searchlight
01/1982	Property repossessed by Weikel
1989-1991	YKL Ranch sold to Viceroy Gold Corporation

II. BACKGROUND

c. 1990	Conversion of ranch for use as Viceroy executive retreat. Rehabilitation of the ranch house, including replacement of the original roof tiles, installation of red clay tile over original red linoleum throughout first floor and reconfiguration of garage and service wing as apartments; pool re-surfaced and deck tiled; barbeque area constructed.; bunkhouse re-built; tennis courts constructed; carpenter's house and shop demolished; blacksmith shop demolished; ice house relocated; and rehabilitation tax credit application abandoned
c. 1990	Realignment of access road around west side of ranch headquarters to re-connect with pipeline road
08/1991	US Fish and Wildlife Service creates 400,000-acre desert tortoise preserve in southern Clark County as part of land swap to allow development in Las Vegas Valley; remaining cattle ranching in region effectively ended
1993	Viceroy Gold Corporation sells ranch property grazing rights to The Nature Conservancy (TNC)
12/21/1993	40-acre conservation easement granted to TNC by Viceroy Gold Corporation
12/18/2000	Viceroy Gold Corporation sells ranch property to Las Vegas Gaming Investments
07/21/2001	Walking Box Ranch, LLC established as property owner
7/15/2004	Walking Box Ranch, LLC grants TNC a conservation easement on the remaining 120 acres of ranch
2004-2005	BLM purchases ranch and surrounding ranch site

Demolitions with dates unknown—original house (unconfirmed) and dog kennels.

Ranch house courtyard prior to c. 1990 renovation by Viceroy Gold Corporation, with swimming pool in foreground. Note original handmade roof tiles.

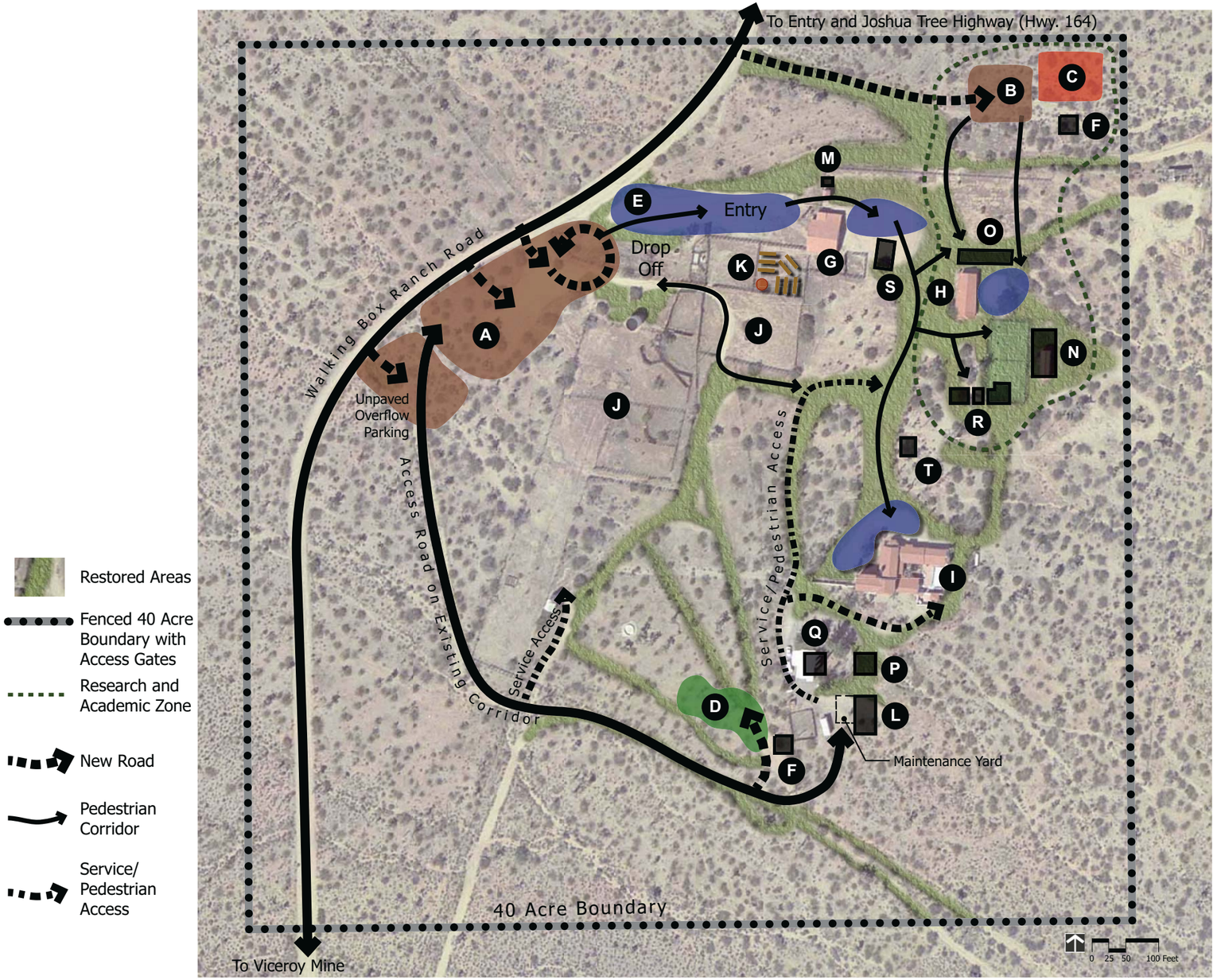


Brochure promoting the Walking Box Ranch as a guest ranch in the 1940s. Courtesy of Rex Bell.

Ranch house living room during renovation by Viceroy. Most original features were retained. Linoleum flooring is visible prior to installation of quarry tile.

APPENDIX B: CONCEPTUAL PLANS

The following pages are excerpted from the *Walking Box Ranch Master Plan and Preservation Plan Report* (June 2008), prepared by Architectural Resources Group (ARG) of San Francisco, California and the *Walking Box Ranch Final Design Concept Plan* (2009), prepared by EDAW AECOM of Fort Collins, Colorado.



Site Plan for Alternative 2: Development Around Existing and Reconstructed Historic Structures

A **Public Parking**
- Public Use accommodates approx. 25 cars
- 2-4 RV/Bus Parking Stalls
- Overflow unpaved parking accommodates 25 Cars and 2 RV/Bus Stalls
- Drop-off area

B **Guest Parking**
- Use accommodates approx. 10 vehicles including oversized and accessible

C **Group Camping**
- Camping/tent cabins to accommodate approx. 25 people

D **RV Camping**
- Use for research, retreats, or seminars
- Accommodates approx. 2-3 sites

E **Gathering Spaces**
- Interpretation and exhibits
- Event areas
- Picnic area

F **Restroom Facilities**
- Camping use

G **Barn**
- Public use
- Rebuilt/conditioned space
- Interpretive exhibits
- Information desk
- Retail
- Multipurpose room
- Storage

H **Bunkhouse**
- Accommodates approx. 12 guests

I **Ranch House**
- Docent led tours
- Receptions
- Multi-purpose room for academic uses
- Museum staff area

J **Corrals**
- Temporary interpretation & exhibits
- Expanded picnic area
- Special events

K **Amphitheatre**
- Informal seating for approx. 25 persons
- AV presentations

L **Maintenance**
- Workshop, storage and yard
- 'Dirty' Lab

M **New Concession Structure**
Vending machines / restrooms

N **New Research Facility**
- Long-term research studies
- Offices
- Labs
- Classroom

O **Bunkhouse Addition**
- Accommodates approx. 12 guests
- Private rooms for faculty/VIP's
- Expanded kitchen for catering

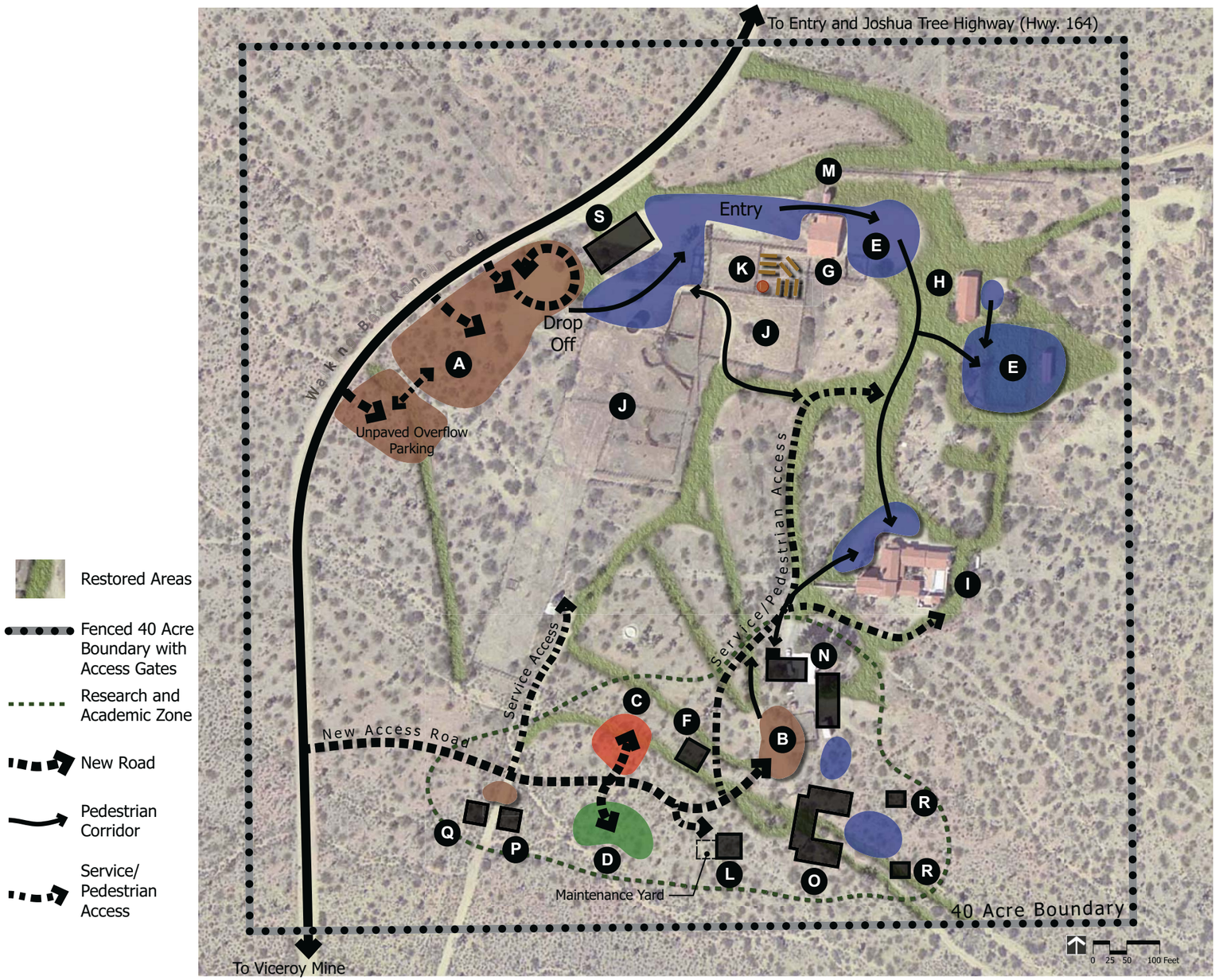
P **Manager's Residence**

Q **Caretaker's Residence**

R **Reconstructed 'Shop String' w/Relocated Ice House**
- Research interpretation for public

S **Reconstructed Blacksmith Shop**
- Public Use
- Interpretive pavilion

T **Reconstructed Guest House**
- Interpretive exhibits



Site Plan for Alternative 3: Maximum Site-Appropriate Development

A **Public Parking**
- Public Use accommodates approx. 25 cars
- 2-4 RV/Bus Parking Stalls
- Overflow unpaved parking accommodates 25 Cars and 2 RV/Bus Stalls
- Drop-off areas

B **Guest Parking**
- Use accommodates approx. 10 vehicles including oversized and accessible

C **Group Camping**
- Camping/tent cabins to accommodate approx. 25 people

D **RV Camping**
- Use for research, retreats, or seminars
- Accommodates approx. 2-3 sites

E **Gathering Spaces**
- Interpretation and exhibits
- Event areas
- Picnic area

F **Restroom Facilities**
- Camping use

G **Barn**
- Public use
- Stabilized/unconditioned space
- Interpretive exhibits
- Informal events

H **Bunkhouse**
- Interpretive exhibits and support space
- Exhibit preparation

I **Ranch House**
- Docent led tours
- Receptions
- Multi-purpose room for academic uses
- Museum staff area

J **Corrals**
- Temporary interpretation & exhibits
- Expanded picnic area
- Special events

K **Amphitheatre**
- Informal seating for approx. 25 persons
- AV presentations

L **Maintenance**
- Workshop, storage and yard

M **Ice House**
- Interpretive exhibit

N **New Research Facility**
- Long-term research studies
- Offices
- Labs (clean and dirty)
- Classroom
- Research Interpretation for public
- Catering kitchen

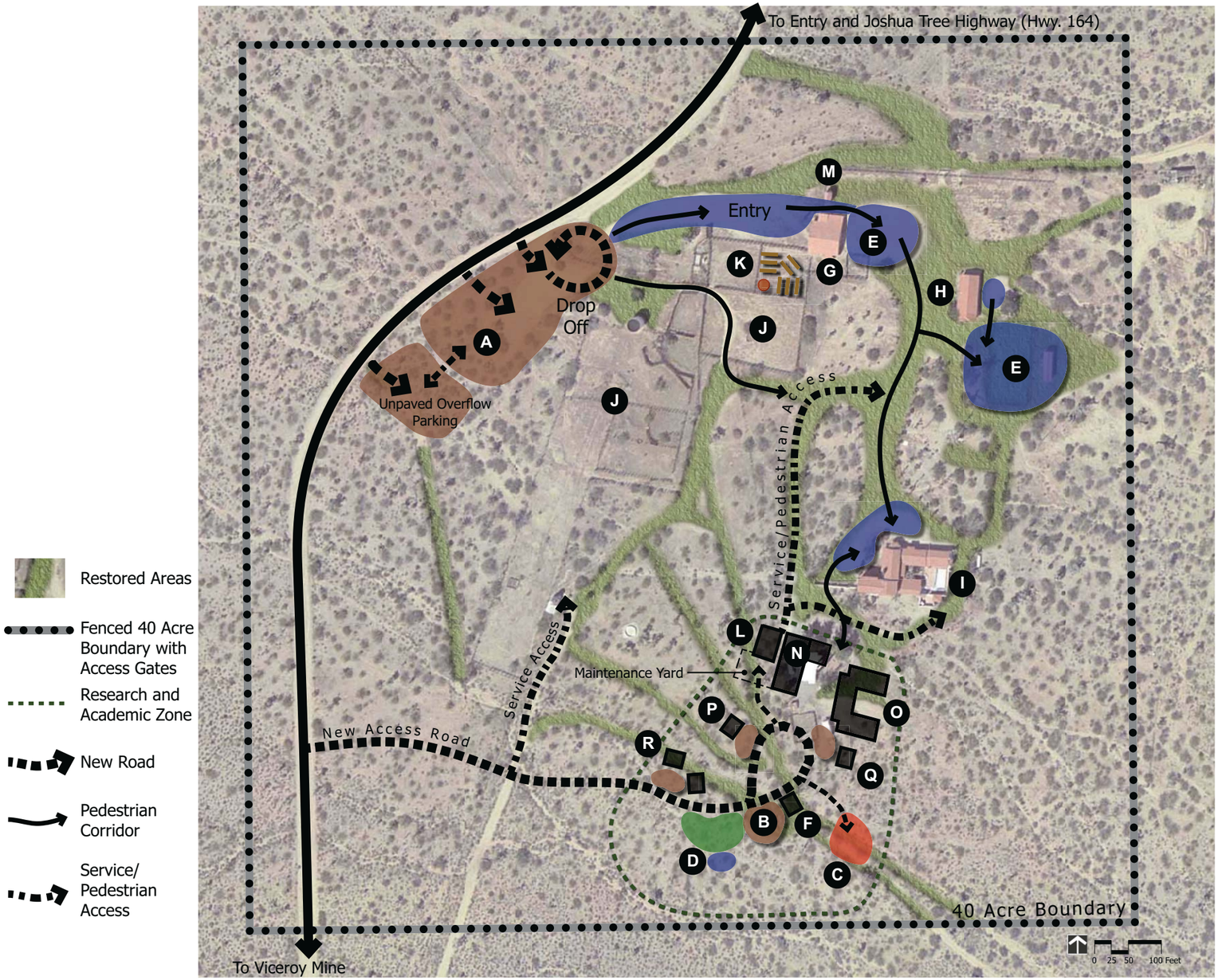
O **New Bunkhouse**
- Accommodates approx. 25 guests

P **Manager's Residence**

Q **Caretaker's Residence**

R **Guest Cottages (2)**
- For faculty/VIP's

S **Interpretive Center**
- Public Use
- Interpretive exhibits
- Restrooms
- Information desk
- Retail/vending machines
- Multipurpose/AV room
- Docent space
- Storage



Site Plan for Preferred Alternative 4A: Focused Site-Appropriate Development

A Public Parking
- Public Use accommodates approx. 25 cars
- 2-4 RV/Bus Parking Stalls
- Overflow unpaved parking accommodates 25 Cars and 2 RV/Bus Stalls
- Drop-off areas

B Guest Parking
- Use accommodates approx. 10 vehicles including oversized and accessible

C Group Camping
- Camping/tent cabins to accommodate approx. 25 people

D RV Camping
- Use for research, retreats, or seminars
- Accommodates approx. 2 sites

E Gathering Spaces
- Interpretation and exhibits
- Event areas
- Picnic area

F Restroom Facilities
- Camping use

G Barn
- Public use
- Rebuilt/conditioned space
- Interpretive exhibits
- Multipurpose room
- Information desk
- Retail

H Bunkhouse
- Public use
- Vending machines
- Custodial/storage area
- Exhibit preparation
- Expanded kitchen for catering

I Ranch House
- Docent led tours
- Receptions
- Multi-purpose room for academic uses
- Museum staff area

J Corrals
- Temporary interpretation & exhibits
- Expanded picnic area
- Special events

K Amphitheatre
- Informal seating for approx. 25 persons
- AV presentations

L Maintenance
- Workshop, storage and yard
- 'Dirty' Lab

M Ice House
- Interpretive exhibit or storage

N New Research Facility
- Long-term research studies
- Offices
- Labs
- Classroom
- Research Interpretation for public

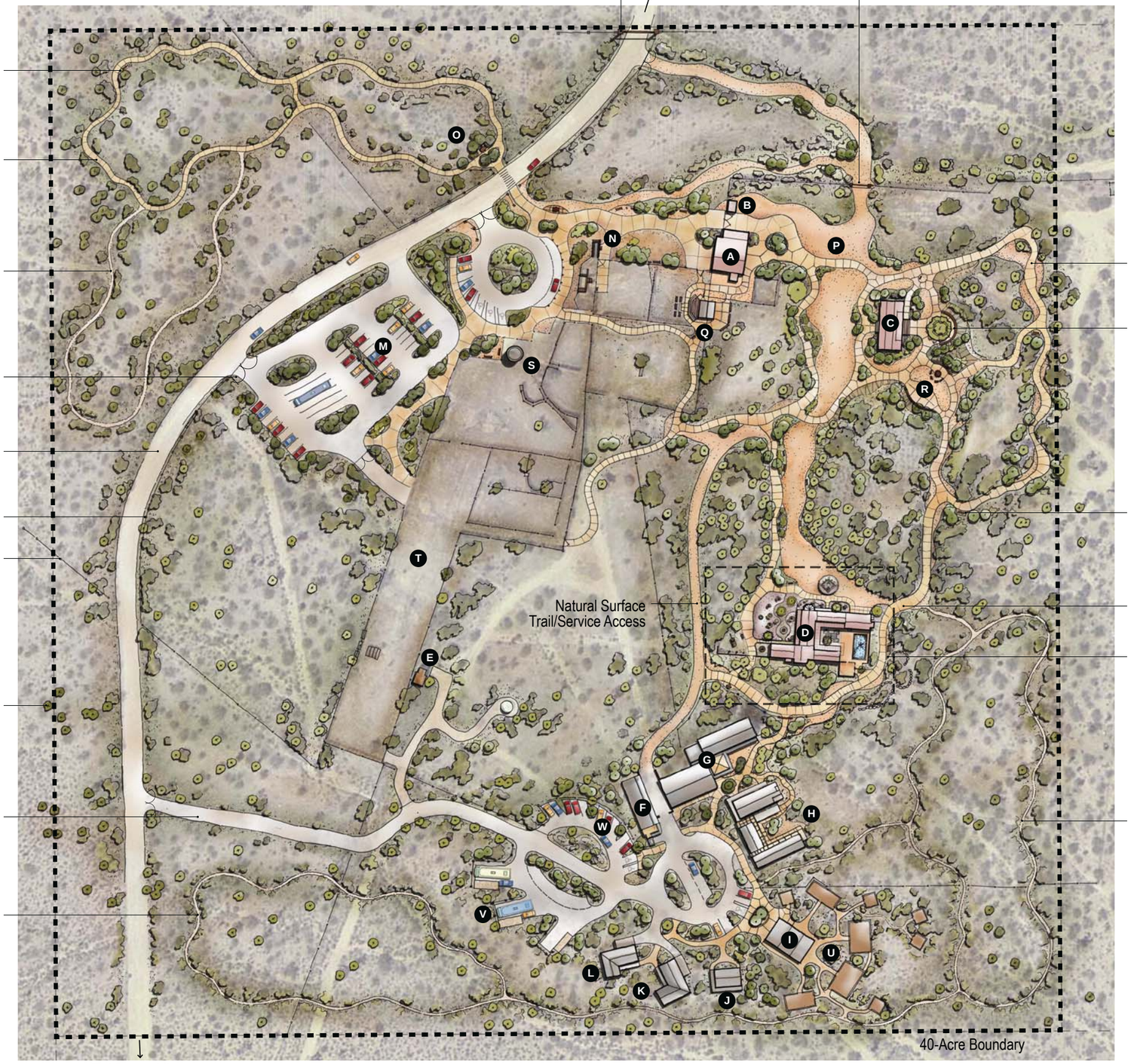
O New Bunkhouse
- Accommodates approx. 25 guests

P Manager's Residence

Q Caretaker's Residence

R Guest Cottages (2)
- For faculty/VIP's

OVERALL SITE PLAN - 40 ACRES



- **A** Barn (Historic)
  - Interpretation and exhibits
  - Special event areas
- **B** Ice House (Historic)
  - Interpretive exhibit or storage
- **C** Bunkhouse (Existing)
  - Public use
  - Vending machines
  - Kitchen for catering
  - Multi-use room
- **D** Ranch House (Historic)
  - Restored historic house
  - Museum staff offices
  - Restored rock gardens
- **E** Pump House (Proposed)
  - Potable water purification
  - Potable water storage
- **F** Maintenance (Proposed)
  - Workshop, storage, and yard
- **G** Research Facility (Proposed)
  - Offices
  - Labs
  - Classroom
  - Research interpretation for public
- **H** Bunkhouse (Proposed)
  - Accommodates approx. 25 guests
- **I** Camper Services Building (Proposed)
  - Covered cooking area
  - Accessible restrooms/showers
- **J** Guest Cottages Duplex (Proposed)
  - Faculty/VIP lodging
- **K** Caretaker's Residence (Proposed)
- **L** Manager's Residence (Proposed)
- **M** Public Parking (includes drop-off area)
  - 42 standard stalls
  - 6 RV/bus parking stalls
  - 3 van accessible spaces
  - Drop-off area
- **N** Entry/Interpretive Area
  - Information kiosk
  - Interpretation
- **O** Interpretive Trail
  - Accessible
- **P** Gathering Area/Events Area
- **Q** Blacksmith Shop (Proposed)
  - Interpretation and exhibits
  - Stage/AV presentation area
  - Blacksmith equipment storage
- **R** Gathering Space
  - Interpretation and exhibits
  - Special event areas
  - Picnic area, group fire ring
  - Informal amphitheater/fire ring
- **S** Water Storage Tank (Existing)
  - Non-potable storage
  - Potable storage
- **T** Corrals (Existing)
  - Special event parking
  - Approximately 80 vehicle spaces
- **U** Group Camping (Proposed)
  - Accommodates 35-40 people
  - Accessible camp pad
- **V** RV Camping (Proposed)
  - Research use only
  - 3 full hookup sites
- **W** Research Facility Parking (Proposed)
  - 10 standard stalls - 2 ADA

APPENDIX C: NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Primary Standards Level	Primary Standards Averaging Time	Secondary Standards Level	Secondary Standards Averaging Time
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour[1]	None	
	35 ppm (40 mg/m^3)	1-hour[1]		
Lead	1.5 µg/m^3	Quarterly Average	Same as Primary	
Nitrogen Dioxide	0.053 ppm (100 µg/m^3)	Annual (Arithmetic Mean)	Same as Primary	
Particulate Matter (PM_{10})	150 µg/m^3	24-hour[2]	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3	Annual[3] (Arithmetic Mean)	Same as Primary	
	35 µg/m^3	24-hour[4]	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour[5]	Same as Primary	
	0.08 ppm (1997 std)	8-hour[6]	Same as Primary	
	0.12 ppm	1-hour[7] (Applies only in limited areas)	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm (1300 µg/m^3)	3-hour[1]
	0.14 ppm	24-hour[1]		

(1) Not to be exceeded more than once per year.

(2) Not to be exceeded more than once per year on average over 3 years.

(3) To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.

(4) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3 (effective December 17, 2006).

(5) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)

(6) (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.

(7) (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is $\leq$ 1.

(b) As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) Areas.

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APPENDIX D: OBSERVED PLANT SPECIES LIST

FAMILY	SCIENTIFIC NAME	COMMON NAME
Gymnosperm		
Cupressaceae	*Thuja plicata*	western red cedar
Cupressaceae	Cupressus sp.	cypress
Dicot		
Aceraceae	*Acer negundo*	boxelder
Asteraceae	*Ambrosia dumosa*	burrobush
Asteraceae	*Bebbia juncea* var. *aspera*	sweetbush
Asteraceae	*Brickellia arguta*	pungent brickellbush
Asteraceae	*Chrysothamnus* sp.	rabbitbrush
Asteraceae	*Encelia farinosa*	brittlebush
Asteraceae	*Encelia frutescens*	button brittlebush
Asteraceae	*Ericameria pinifolia*	pinebush
Asteraceae	*Filgao californica*	California cottonrose
Asteraceae	*Guttierezia microcephala*	matchweed
Asteraceae	*Hymenoclea salsola*	burrobrush
Asteraceae	*Stephanomeria pauciflora*	small wire lettuce
Asteraceae	*Tetradymia spinosa*	spiny horsebrush
Asteraceae	*Viguiera parishii*	Parish's goldeneye
Boraginaceae	*Cryptantha circumcissa*	cushion cryptantha
Boraginaceae	*Cryptantha micrantha*	redroot cryptantha
Boraginaceae	*Cryptantha nevadensis*	Nevada cryptantha
Boraginaceae	*Cryptantha utahense*	scented cryptantha
Cactaceae	*Echinocereus fasciculatus*	robust hedgehog cactus
Cactaceae	*Ferocactus cylindraceus*	California barrel cactus
Cactaceae	*Opuntia acanthocarpa* ssp. *Coloradensis*	buckhorn cholla
Cactaceae	*Opuntia basilaris*	beavertail cholla
Cactaceae	*Opuntia erinacea*	Mojave pricklypear
Chenopodiaceae	*Atriplex canescens*	fourwing saltbrush
Chenopodiaceae	*Atriplex confertifolia*	shadscale
Chenopodiaceae	*Grayia spinosa*	hosage
Chenopodiaceae	*Krasheninnikovia lanata*	winter fat
Cucurbitaceae	*Cucurbita palmata*	coyote melon
Ephedraceae	*Ephedra viridis*	mormon tea
Euphorbiaceae	*Chamaesyce albomarginata*	rattlesnake weed
Fabaceae	*Acacia greggi*	catsclaw
Fabaceae	*Prosopis glandulosa*	mesquite
Fabaceae	*Psorothamnus fremontii*	indigo bush

FAMILY	SCIENTIFIC NAME	COMMON NAME
Geraniaceae	*Erodium cicutarium*	redstem stork's bill
Krameriaceae	*Krameria erecta*	ratany
Lamiaceae	*Salazaria mexicana*	bladder sage
Lamiaceae	*Salvia columbariae*	chia
Lamiaceae	*Salvia mojavensis*	Mojave sage
Liliaceae	*Yucca brevifolia*	Joshua tree
Liliaceae	*Yucca schidigera*	Mojave yucca
Loasaceae	*Petalonyx nitidus*	shiny-leaf sandpaper plant
Malvaceae	*Sidalcea* sp.	checkered mallow
Malvaceae	*Sphaeralcea ambigua*	desert apricot mallow
Moraceae	*Morus alba*	mulberry
Nyctaginaceae	*Mirabilis bigelovii*	wishbone bush
Polygonaceae	*Chorizanthe rigida*	rigid spiny herb
Polygonaceae	*Eriogonum brachypodium*	skeleton weed
Polygonaceae	*Eriogonum fasciculatum*	eastern Mojave buckwheat
Polygonaceae	*Eriogonum inflatum*	desert trumpet
Polygonaceae	*Eriogonum mohavense*	western Mojave buckwheat
Polygonaceae	*Oxytheca perfoliata*	round-leaved spineflower
Polygonaceae	*Salsola tragus*	Russian thistle
Rosaceae	*Coleogyneramosissima*	blackbrush
Salicaceae	*Populus fremontii*	fremont cottonwood
Solanaceae	*Lycium cooperi*	peach thorn
Zygophyllaceae	*Larrea tridentata*	creosote bush
Monocot		
Poaceae	*Aristida purpurea*	three-awn
Poaceae	*Bromus madritensis* ssp. *rubens*	red brome
Poaceae	*Bromus tectorum*	cheat grass
Poaceae	*Erioneuron pulchellum*	fluff grass
Poaceae	*Pleuraphis rigida*	big galleta
Poaceae	*Schismus arabicus*	split grass

APPENDIX E: NOXIOUS WEEDS

Table 1. List Of Nevada's Noxious Weeds.

Scientific Name	Common Name
Category A Weeds	
Peganum harmala	African rue
Rorippa austriaca	Austrian fieldcress
Sphaerophysa salsula / Swainsona salsula	Austrian peaweed
Hyoscyamus niger	Black henbane
Alhagi camelorum	Camelthorn
Crupina vulgaris	Common crupina
Linaria dalmatica	Dalmation toadflax
Isatis tinctoria	Dyer's woad
Myriophyllum spicatum	Eurasian water-milfoil
Arundo donax	Giant Reed
Salvinia molesta	Giant salvinia
Galega officinalis	Goats rue
Pennisetum setaceum	Green fountain grass
Cynoglossum officinale	Houndstongue
Hydrilla verticillata	Hydrilla
Centaurea iberica	Iberian starthistle
Hypericum perforatum	Klamath weed
Centaurea melitensis	Malta star thistle
Anthemis cotula	Mayweed chamomile
Salvia aethiopis	Mediterranean sage
Lythrum salicaria, L.virgatum and their cultivars	Purple loosestrife
Centaurea calcitrapa	Purple starthistle
Chondrilla juncea	Rush skeletonweed
Sonchus arvensis	Sow thistle
Centaurea masculosa	Spotted knapweed
Centaurea virgata	Squarrose knapweed
Potentilla recta	Sulfur cinquefoil
Zygophyllum fabago	Syrian bean caper
Centaurea solstiltialis	Yellow starthistle
Linaria vulgaris	Yellow toadflax
Category B Weeds	
Solanum carolinense	Carolina horse-nettle
Centaurea diffusa	Diffuse knapweed
Euphorbia esula	Leafy spurge
Taeniatherum caput-medusae	Medusahead
Carduus nutans	Musk thistle
Acroptilon repens	Russian knapweed
Brassica tournefortii	Sahara mustard

Scientific Name	Common Name
Onopordum acanthium	Scotch thistle
Solanum elaeagnifolium	White horse-nettle
Category C Weeds	
Cirsium arvense	Canada thistle
Cardaria draba	Hoary cress
Sorghum halepense	Johnson grass
Lepidium latifolium	Perennial pepperweed
Conium maculatum	Poison hemlock
Tribulus terrestris	Puncture vine
Tamarix spp	Salt cedar (tamarisk)
Cicuta maculata	Water hemlock

Source: Nevada Department of Agriculture (NDA 2005).

Category "A": Weeds not found or limited in distribution throughout the state; actively excluded from the state and actively eradicated wherever found; actively eradicated from nursery stock dealer premises; control required by the state in all infestations.

Category "B": Weeds established in scattered populations in some counties of the state; actively excluded where possible, actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur.

Category "C": Weeds currently established and generally widespread in many counties of the state; actively eradicated from nursery stock dealer premises; abatement at the discretion of the state quarantine officer.