

**Lead Agency:**

United States  
Department of Commerce  
  
National  
Telecommunications &  
Information Administration



**Grant Award:**

American Recovery and  
Reinvestment Act

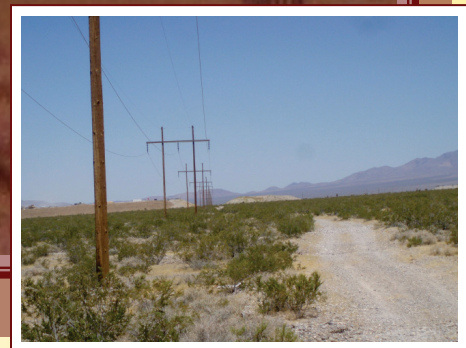


FINAL  
**Environmental Assessment**

Nevada Hospital Association  
Nevada Broadband Telemedicine Initiative

January 20, 2012

**Volume I**



## EXECUTIVE SUMMARY

On August 1, 2010, the Nevada Hospital Association (NHA) was awarded a \$19.6 million federal grant for the construction and operation of a statewide broadband network. The private broadband network would transport and interconnect the healthcare needs of the State of Nevada. This grant was awarded through the U.S. Department of Commerce Broadband Technology Opportunities Program (BTOP) Broadband Stimulus Program.

The NHA plans to build fiber optic cable routes between Reno and Las Vegas, connecting rural hospitals and communities along U.S. Highway 95. The NHA also plans to connect service to Elko and Ely along Interstate 80 and U.S. Highway 50 respectively.

The Proposed Nevada Broadband Telemedicine Initiative (NBTI) Project is to construct, maintain, and operate a statewide telemedicine network that will facilitate telemedicine applications, and allow for the meaningful use of electronic medical records as required under the Health Information Technology for Economic and Clinical Health (HITECH) Act (P.L. 111-5) enacted as part of the American Recovery and Reinvestment Act (ARRA). In addition the project would serve a minimum of 36 hospitals and medical facilities with additional capacity available to serve public safety entities, educational institutions, and Native American Governments.

The project is needed in Nevada because there are large disparities between the access to and availability of broadband services across the state. These disparities are further accentuated by long distances between communities and economic conditions. In many cases, access to reliable high-speed, high capacity broadband service, suitable for the medical applications envisioned by the HITECH Act, do not exist. In the limited areas where services are available, they are often cost prohibitive for all but the largest institution with the funding and technology resources required to take advantage of these services.

The Proposed Action includes installation of fiber optic cable and appurtenances and is illustrated by Figures 1 and 2. Table E-1 below summarizes the impacts by resource.

**Table E-1. Summary of Project Impacts**

Resource	No Action	Proposed Action
<b>Air Quality</b>	No Effect	Temporary localized increases in dust during construction. Less than significant project and cumulative effect.
<i>Greenhouse Gases (GHGs)</i>	Increases to GHGs due to continued travel by patients to hospitals.	Less than 200 metric tons temporary localized increases in GHG emissions during construction. Reduction in overall GHG over the life of the project from reduced travel by patients to hospitals. Less than significant project and cumulative effect.
<b>Biological Resources</b>		
<i>Vegetation</i>	No Effect	Temporary localized disturbance due to crushing along the edges of some jeep roads. Temporary localized loss of vegetation due to trenching between Goldfield and Lida Junction for 14.34 miles or 1.74 acres. Less than significant project and cumulative effect.
<i>Wildlife</i>	No Effect	Temporary localized loss of vegetation due to trenching between Goldfield and Lida Junction for 14.34 miles or 1.74 acres. Temporary localized disturbances to wildlife due to increased human presence and noise during construction. No permanent effects. Less than significant project and cumulative effect.

<b>Resource</b>	<b>No Action</b>	<b>Proposed Action</b>
<i>Amargosa Mesquite ACEC</i>	No Effect	No Effect
<i>Migratory Birds</i>	No Effect	Temporary localized indirect impacts due to loss of vegetation (habitat) over buried portions of project. With implementation of the BMPs, there would be no direct impacts. Indirect impacts would be less than significant. Less than significant project and cumulative effect.
<i>Threatened, Endangered, and Sensitive Species</i>	No Effect	The findings of the Biological Assessment per the Endangered Species Act were as follows: May affect but would not likely adversely affect the desert tortoise; and no effect to southwestern willow flycatcher, yellow bellied cuckoo, Yuma clapper rail  Direct and indirect impacts to sensitive species would be less than significant.  Less than significant project and cumulative effect.
<i>Noxious and Invasive Species</i>	No Effect	No known noxious weed infestations within this project area. Construction and maintenance impose increased risks of introducing and transporting weeds with potential to spread to adjacent lands. Weed transport by construction equipment and crews would be minimized or avoided by through implementation of the environmental commitments described in Section 2.4 of this document. Less than significant project and cumulative effect.
<b>Cultural and Historic Resources</b>		
<i>Archaeological</i>	No Effect	No effect through implementation of the environmental commitments described in Section 2.4 of this document.
<i>Architectural</i>	No Effect	No effect through implementation of the environmental commitments described in Section 2.4 of this document.
<i>Native American</i>	No Effect	No Effect
<b>Geology, Minerals and Soils</b>		
<i>Geology</i>	No Effect	No Effect
<i>Minerals</i>	No Effect	No Effect
<i>Soils</i>	No Effect	Direct impacts would be less than significant through implementation of the environmental commitments described in Section 2.4 of this document. Less than significant project and cumulative effect.
<b>Human Health and Safety</b>		
<i>Wastes, Hazardous and Solid</i>	No Effect	Direct impacts would be less than significant through implementation of the environmental commitments described in Section 2.4 of this document. Less than significant project and cumulative effect.
<i>Fire</i>	No Effect	Direct impacts would be less than significant through implementation of the environmental commitments described in Section 2.4 of this document. Less than significant project and cumulative effect.
<b>Infrastructure</b>	No Effect	No Effect

<b>Resource</b>	<b>No Action</b>	<b>Proposed Action</b>
<b>Land Management</b>	No Effect	ROW must be obtained from all land management agencies and private landowners. Less than significant project and cumulative effect.
<i>Public Land Grazing</i>	No Effect	Direct impacts would be less than significant through implementation of the environmental commitments described in Section 2.4 of this document. Less than significant project and cumulative effect.
<i>Wild Horses and Burros</i>	No Effect	Temporary localized loss of vegetation due to trenching between Goldfield and Lida Junction for 14.34 miles or 1.74 acres. Temporary localized disturbances to wild horses and burros due to increased human presence and noise during construction. No permanent effects. Less than significant project and cumulative effect.
<b>Noise</b>	No Effect	Direct impacts would be less than significant through implementation of the environmental commitments described in Section 2.4 of this document. Less than significant project and cumulative effect.
<b>Recreation</b>	No Effect	No Effect
<b>Socioeconomics</b>	Negative, insignificant impact to patients	Positive impact for patients and hospitals in rural Nevada by reducing the need to drive to receive some medical evaluations and treatments.
<b>Environmental Justice</b>	No Effect	Positive impacts to low-income rural residents by reducing the need to drive to receive some medical evaluations and treatments.
<b>Visual Resources</b>	No Effect	Direct, indirect, and cumulative impacts would be less than significant
<b>Water Resources</b>		
<i>Surface Water and Floodplains</i>  <i>Wetlands and Other Waters of the U.S.</i>	No Effect	14.34 miles or 1.74 acres of new ground disturbance are expected, which will have no significant impacts on soil and water resources as long as the environmental commitments described in Section 2.4 of this document are adhered to. The remaining sections of the line are either above ground or along existing and previously disturbed ROWs and will have no new significant impacts on floodplains, wetlands/riparian zones, soils, water resources and hydrologic conditions.

**Nevada Hospital Association  
Nevada Broadband Telemedicine Initiative**

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*File Doc: 2012-02-17 NTIA Fnl EA 11-101.11 Optica Grp lz-jm L2-27.doc  
[February 17, 2012]*

**LIST OF ACRONYMS**

AASHTO	American Association of State Highway and Transportation Officials
ACEC	Areas of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ACOE	Army Corps of Engineers
ADSS	All-dielectric Self-supporting
AIRFA	American Indian Religious Freedom Act
AML	allowable management level
APE	area of potential effect
ARRA	American Recovery and Reinvestment Act
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMPs	Best Management Practices
BTOP	Broadband Technology Opportunities Program
CBC	California Broadband Company
CEQ	President’s Council on Environmental Quality
CERCLIS	superfund sites
CNIDC	Central Nevada Interagency Dispatch Center
CVMC	Carson Valley Medical Center
DOD	Department of Defense
DPS	distinct population segment
EA	Environmental Assessment
Eagle Act	Bald and Golden Eagle Protection
ESA	Endangered Species Act
Ex U/G	Existing Underground
FLPMA	Federal Land Policy and Management Act
FRTA	National Forest Road and Trail Act
GBBDC	game birds below desired condition
GHGs	greenhouse gases
HDPE	high density polyethylene
HITECH	Health Information Technology for Economic and Clinical Health
HMA	herd management areas
Hwy 50	U.S. Highway 50
Hwy 582	Boulder Highway
Hwy 95	U.S. Highway 95
I-80	Interstate 80
IBAs	Important Bird Areas
IM	Instruction Memorandum
IRU	Indefeasible Right to Use
IRU-RLS	IRU Restricted Lit Service
LVICC	Las Vegas Interagency Communications Center
MBTA	Migratory Bird Treaty Act

**LIST OF ACRONYMS (*continued*)**

NBTI	The Proposed Nevada Broadband Telemedicine Initiative
NDEP	Nevada Division of Environmental Protection
NDF	Nevada Division of Forestry
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NEPA	National Environmental Policy Act
NHA	Nevada Hospital Association
NTCS	National Tower Communication System
NTIA	National Telecommunications and Information Administration
NVCRIS	Nevada Cultural Resource Information System
POD	Plan of Development
RCRA	hazardous waste sites
ReGAP	Regional Gap Analysis Project
RUS	Rural Utilities Service
SHPO	State Historic Preservation Officer
SMNRA	Spring Mountain National Recreation Area
SWPPP	Stormwater Pollution Prevention Plan
TFO	Tonopah Field Office
TPH	total petroleum hydrocarbons
U/G	Underground
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey
VEA	Valley Electric Association
WH&B	wild horse and burro

## **1.0 PURPOSE AND NEED**

### **1.1 Project Background & History**

The American Recovery and Reinvestment Act (ARRA) provided the Department of Commerce's National Telecommunications and Information Administration (NTIA) and the U.S. Department of Agriculture's Rural Utilities Service (RUS) \$7.2 billion to expand access to broadband services in the United States. Of those funds, the ARRA provided \$4.7 billion to the NTIA to support the deployment of broadband infrastructure, enhance and expand public computing centers, encourage sustainable adoption of broadband service, and develop and maintain a nationwide public map of broadband service capability and availability. This funding program is called the Broadband Technology Opportunities Program (BTOP) and is administered by the NTIA.

The BTOP Comprehensive Community Infrastructure Program, one of the subsets of the overall BTOP, provides grants to deploy new or improved broadband facilities (e.g., laying new fiber optic cables or upgrading wireless towers) and to connect "community anchor institutions" such as schools, libraries, hospitals, and public safety facilities. These networks would help ensure sustainable community growth and provide the foundation for enhanced household and business broadband services.

The non-profit Nevada Hospital Association (NHA) was awarded a \$19.6 million grant under the BTOP Comprehensive Community Infrastructure Program for the Nevada Broadband Telemedicine Initiative (NBTI). The NBTI would be a custom designed, private, broadband network to transport and interconnect the health care needs throughout the State of Nevada. The NBTI would link medical facilities with broadband fiber optic cable, delivering secure and reliable high-speed transport for telemedicine applications as well as the exchange of electronic medical records as required under the Health Information Technology for Economic and Clinical Health (HITECH) Act.

The new fiber optic cable segments would offer 10 megabit per second (Mbps) to one gigabyte per second (Gbps) capacity to each of the targeted anchor institutions throughout the state. The fiber optic cable network is referred to as "broadband". The NBTI network would utilize existing transmission, aerial attachment, and fiber optic cable facilities by securing agreements with dark or lit fiber providers and partnering with local utility providers to lower network build and operating costs. Once complete, the network would provide an increased quality of bandwidth, capacity, and integrity of services available to NHA facilities and community anchor institutions. Partnerships supporting the utilization of existing facilities are projected to include the Nevada Department of Transportation (NDOT), NV Energy (NV Energy, formerly Sierra Pacific Power Company), Valley Electric Association (VEA), Zayo, University Medical Center, Nevada Indian Health Board, Nevada System of Higher Education, and Nevada Department of Information Technology.

The network design includes additional capacity beyond that which might be required to support telemedicine applications. This additional capacity positions the network to support and transport future technological advances as well as providing an opportunity to forge partnerships with public agencies, Native American Governments, learning institutions, and last mile service providers to deliver services to areas that are today either not served or underserved.

#### **1.1.1 Project Objectives Summary**

The NBTI project objectives are to:

- Facilitate telemedicine applications, and allow for the meaningful use of electronic medical records;
- Meet the HITECH Act requirements;

- Provide reliable, affordable broadband services with sufficient capacity to support the high bandwidth demands of medical applications;
- Enable NDOT to enhance its statewide first responder two-way radio system and Intelligent Traffic Sign programs that provide road condition and Amber Alert information;
- Allow for excess capacity, which can then be made available to public safety providers, Native American Governments and last mile service providers; and,
- Build a network that maximizes consumer welfare, innovation and investment through affordable access to robust broadband services.

### ***1.1.2 Benefits of Broadband Infrastructure***

Once complete, the NBTI network would increase the quality of bandwidth, capacity, and integrity of services available to NHA facilities and community anchor institutions. The NBTI network would serve identified customer end-points with increased quality of service metrics and capacity; thereby achieving the ambitious goal of introducing a highly secure, private, terrestrial broadband facility meeting statewide public use and health care needs now and well into the future.

The NBTI program would provide services to promote the social well being in rural communities throughout the state including:

- Job training to the unemployed or under-employed;
- Assistance to school children to access the materials and resources they need to learn and remove geographic and time barriers that may otherwise inhibit educational opportunities;
- Allow rural health care professionals to connect to more specialized urban medical centers;
- Lay a foundation to position Nevada to attract much-desired 21st century diverse industries into the state; creating jobs, expanding the economy, and helping to lead Nevada out of its multi-year economic slowdown;
- Remove geographic and time barriers to healthcare by enabling telemedicine applications and remote patient monitoring; and,
- Provide a secure platform for distance education and employee training events.

Broadband can enable improvements in public education through e-learning and online content, which then facilitates more personalized learning opportunities for students. Broadband can also facilitate the flow of information, helping teachers, parents, schools and other organizations to make better decisions tied to each student's needs and abilities.

Broadband is a foundation for economic growth, job creation, global competitiveness and a better way of life. It is enabling entire new industries and unlocking vast new possibilities for existing ones. It is changing how we educate children, deliver health care, manage energy, ensure public safety, engage government, and access, organize and disseminate knowledge (Federal Communications Commission, 2011). The NBTI aims to bring much-needed economic diversification to communities throughout the state. The NBTI would provide a direct benefit to communities and incumbent service providers by providing access to additional capacity made available over the NBTI network. The NBTI is designed to ensure robust competition and, as a result maximize consumer welfare, innovation, and investment.

### ***1.1.3 Nevada Hospital Association and e-Care Nevada, Project Proponents***

The NHA is the grantee or “recipient” of the BTOP funding. The NHA has contracted with *e-Care Nevada* to construct and operate the network infrastructure. *e-Care Nevada* is a Las Vegas based Nevada Corporation and is owned and operated by The Broadband Group, a Nevada based telecommunications consulting and operating company, and PinPoint Holdings LLC, a Nebraska Local Exchange and fiber optic cable transport Service Provider. The *e-Care* team includes experienced managers, engineers, and subject matter experts to support this initiative. The combined resources comprise over 120 years of telecommunications operating experience in designing, building, operating and managing broadband networks.

## **1.2 Project Purpose and Need**

The purpose of the Nevada Broadband Telemedicine Initiative is to construct, maintain, and operate a statewide telemedicine network that will:

- Offer a mechanism to cost-effectively connect medical facilities throughout Nevada on a single reliable, redundant, secure low latency IP based broadband network;
- Enable participating hospitals to deliver higher quality, efficient healthcare services across the state;
- Facilitate telemedicine applications, and support the meaningful use of electronic medical records as required under the HITECH Act enacted as part of the ARRA;
- Serve a minimum of 36 hospitals and medical facilities with additional capacity available to serve public safety entities, educational institutions, and Native American Governments; and,
- Provide backhaul capacity to local service providers and wireless broadband providers. The network can provide wholesale bandwidth to local service providers (such as wireless internet service providers or competitive local exchange carriers) allowing these service providers to avoid redundant capital investments and deliver a higher quality product at a lower price to residential and commercial end users in the community.

### ***1.2.1 Project Need***

Nevada currently lacks the statewide broadband infrastructure necessary for the medical community to take advantage of most telemedicine applications or exchange medical information among healthcare providers. While all of Nevada’s hospitals currently have some level of access to the Internet, the quality and capacity of these connections varies dramatically, often at high cost with limited reliability, and no redundancy. Many rural health providers in Nevada have limited broadband access that is not sufficient to electronically transmit critical patient information. A statewide medical network would allow for the exchange of information between medical providers. Additionally, the proposed broadband network would bring videoconferencing, telemedicine applications and other critical tools to healthcare providers throughout Nevada.

All medical providers must demonstrate the meaningful use of electronic medical records by 2016 as required by the HITECH Act enacted as part of the ARRA. Currently in Nevada, there are large disparities between the access to, and availability of, broadband services across the state. These disparities are further accentuated by long distances between communities and economic conditions. In many cases, access to high-speed, high capacity broadband service, suitable for the medical applications envisioned by the HITECH Act do not exist. In the areas where the services are available, they are often cost prohibitive for all but the largest institution with the funding and technology resources required to take advantage of these services.

In 2007 the Federal Communications Commission spent \$400 million to deploy broadband health networks reaching over 6,000 health care centers across 42 states and 3 U.S. territories. Nevada did not participate and is therefore behind other states in pursuing this type of network. The State of Nevada needs the NTBI to modernize the delivery of health care for both patients and doctors and to position itself as a leading innovative and competitive state.

### ***1.2.2 Purpose and Need for NTIA Action***

The NTIA is administering the federal grant for the project and is therefore the federal lead agency responsible for preparation of the Environmental Assessment (EA). Under the National Environmental Policy Act of 1969 (NEPA) the NTIA must examine the potential impacts of their action to grant funding to this project or its reasonable alternatives prior to making a final decision to award the funding. The NTIA is also the lead federal agency for purposes of the National Historic Preservation Act, Section 7 consultation under the Endangered Species Act of 1973 as amended (ESA), and tribal consultations.

The purpose of the NTIA grant is to provide the NHA the opportunity to construct and maintain statewide medical network that allows for the secure exchange of critical health care information and applications between medical providers.

### ***1.2.3 Purpose and Need for Bureau of Land Management (BLM) Action***

The purpose of the BLM action is to provide the NHA the opportunity to construct and maintain a statewide medical network allowing for the exchange of information between medical providers by granting a right-of-way (ROW) on lands managed by three BLM districts (Carson City, Battle Mountain, and Southern Nevada). The Carson City District Office, Sierra Front Field Office is the BLM lead for granting the ROW for the project.

The BLM is a designated Cooperating Agency in the BTOP EA process pursuant to 40 CFR sec 1501.6. The framework for cooperation and coordination between the NTIA and the BLM is established in the Memorandum of Understanding between the NTIA and the BLM, which is a part of the project record.

#### *Decision to be Made by BLM*

The BLM would make a decision whether to issue a ROW for 14.92 linear miles of buried fiber optic cable with associated handholes and cable markers; 308.96 linear miles of aerial fiber optic cable; four signal regeneration stations (within existing substation facilities); and 6.72 miles of cable in existing conduit on BLM-managed lands. The Proposed Action would have a total of 1.92 acres of temporary ground disturbance due to new buried fiber optic cable and structures. The applicant is requesting a 10-foot ROW for aerial cable on existing poles for a total of 374.50 acres, and a 10-foot ROW for new buried cable for a total of 18.08 acres.

The Carson City District Office, Sierra Front Field Office, would issue a ROW grant for all BLM-managed lands included in the Proposed Action. The BLM action is established by the BLM's responsibility under the Federal Land Policy and Management Act of 1976 (FLPMA) and BLM Use Right-of-Way Regulations at 43 CFR 2800, to respond to a Right-of-Way application.

#### *Land Use Conformance Statements*

This project is in conformance with the Carson City Field Office Consolidated Resource Management Plan (2001). Sections that specifically apply to this project include:

- LND-7, Administrative Actions #6: “Exchanges and minor non-Bureau initiated realty proposals considered where the analysis indicates they are beneficial to the public.”



- ROW-4, Administrative Actions #3: "...applicants for right-of-way grants...are subject to standard approval procedures outlined in the right-of-way regulations (43 CFR 2800)..."

The project is in conformance with the approved Tonopah Resource Management Plan (RMP) and Record of Decision (ROD) (BLM 1997). The section that specifically applies to this project include:

- Item #6 page 19: "...All other lands within the Tonopah Planning Area in which there are no un-resolvable conflicts with other resource values would be open to consideration for linear or area rights-of-way, leases and land use permits."

The Project is in conformance with the ROD for the approved Las Vegas RMP and Final Environmental Impact Statement (1998). The section that specifically applies to this project include:

- RW-1-h, Management Direction: "All public land within the planning area, except as stated in RW-1-c through RW-1-g are available at the discretion of the agency for rights-of-way under the Federal Land Management Policy Act."

Although RW-1-e states that ACECs are avoidance areas, this project is not inconsistent with the ACEC as the new fiber optic cable would be placed on existing poles owned by VEA. The existing transmission line and ROW through the Amargosa Mesquite ACEC pre-dates the ACEC designation. As this fiber optic cable would be placed on existing poles, there would be no ground disturbing activities.

#### ***1.2.4 Purpose and Need for Bureau of Reclamation (Reclamation) Action***

The proposed project crosses a total of 1.52 miles of land managed by Reclamation via overhead lines on existing poles including 1.13 miles in the Railroad Pass area south of Las Vegas; 0.39 miles in the Reno area of fiber optic cable on existing poles; 7.5 miles of existing conduit between Silver Springs and Fallon; and 0.34 miles of existing conduit between Reno and Carson City. The purpose of the Reclamation action is to provide the NHA Association the opportunity to construct and maintain a statewide medical network allowing for the exchange of information between medical providers by granting a ROW across Reclamation land. The Proposed Action would have no ground disturbance from new buried fiber optic cable or structures. The applicant is requesting a 10-foot ROW for aerial cable on existing poles for a total of 1.84 acres.

It is Reclamation's responsibility under the Act of Congress of June 17, 1902 (32 Stat. 388), the Act of Congress approved August 4, 1939 (53 Stat. 1187), Section 10, and 43 CFR Part 429 to respond to a request for Rights-of-Way on Reclamation-administered federal lands.

#### ***1.2.5 Purpose and Need for the U.S. Forest Service (USFS) Action***

The proposed project crosses 4.99 miles of the Humboldt-Toiyabe National Forest land managed by the USFS in the Spring Mountains west of Las Vegas via existing power poles. The project would also cross 0.15 miles of USFS land utilizing existing conduit between Reno and Carson City. The purpose of the USFS action is to provide the NHA the opportunity to construct and maintain a statewide medical network allowing for the exchange of information between medical providers by granting a ROW across USFS land. The applicant is requesting a 10-foot ROW for aerial cable on existing poles for a total of 6.05 acres.

Section 2 of the National Forest Road and Trail Act (FRTA; 16 U.S.C. 533) covers the granting of easements; section 3, their termination (16 U.S.C. 534); and section 5, the recording of the granting instrument in county records and the furnishing of copies to the BLM when the easement is across lands withdrawn from the public domain or with public domain status (16 U.S.C. 536).

***1.2.6 Purpose and Need for the Bureau of Indian Affairs (BIA) Action***

The proposed project crosses 8.05 miles of Walker River Paiute Tribe land and 1.47 miles of Timbisha Tribe land via existing poles. Federal Code of Regulations Title 25, Part 169 covers the responsibilities of the BIA for granting rights-of-way across tribal lands. The applicant is requesting a 10-foot ROW for aerial cable on existing poles for a total of 9.76 acres over Walker River Paiute Tribe land and 1.78 acres over Timbisha Tribe land.

***1.2.7 Purpose and Need for the Department of Defense (DOD) Action***

The proposed project crosses 14.23 miles of land managed by the DOD. 32 CFR Part 643 covers the responsibilities of the DOD for real estate actions. The applicant is requesting a 10-foot ROW for aerial cable on existing poles for a total of 17.25 acres.

## 2.0 DESCRIPTION OF PROPOSED PROJECT AND ALTERNATIVES

### 2.1 Proposed Action (Preferred Alternative)

#### 2.1.1 Types of Facilities

The Proposed Action is to build and operate a statewide telemedicine network serving medical providers throughout the state, with additional capacity for use by public safety agencies, educational institutions, tribal governments, and last mile service providers. Existing service providers serving residential and commercial customers would have access to additional backhaul capacity made available over the NBTI network. This additional capacity would ultimately provide consumers with more robust broadband services, and as a result, maximize consumer welfare, innovation, and investment.

There are five basic types of facilities that will be used to complete the NTBI project:

1) Indefeasible Right to Use (IRU). This type of facility involves contractual agreements to use existing buried fiber optic cable. The IRU is a contractual agreement with the supplier for exclusive, unrestricted use. The fiber optic cable is already in the ground and no improvements are proposed or required. Lateral (or last mile) fiber optic cables would be installed to access the leased fiber optic cables. These laterals are described separately.

2) Restricted Lit Service (RLS). The RLS reflects a proposed restricted bandwidth lease from NDOT. The fiber optic cable is already in the ground and no improvements are proposed or required. Lateral (or last mile) fiber optic cables would be installed to access the leased fiber optic cables. These laterals are described separately.

3) Existing Underground (Ex U/G). In this type of facility, existing underground conduit would be used to house new fiber optic cable. Microducts and fiber would be air-jetted or blown into the existing conduit at existing access locations. Installation of fiber optic cable into existing conduits using these methods would not require any new ground disturbance, only access to existing buried handholes.

4) Overhead (Ovhd). Overhead facilities would use existing poles to attach the new All-dielectric Self-supporting (ADSS) fiber optic cable. The vast majority of the existing poles to be used for this project are currently owned and maintained by Nevada Energy (NV Energy, formerly Sierra Pacific Power Company) or VEA. There would be no ground disturbance for overhead routes other than vehicles driving on roads and along the power lines. Details for overhead construction are described in Section 2.5.

5) Underground (U/G). Underground facilities would be used where there are no practical overhead alternatives. Underground facilities would include new fiber optic cable and fiber optic cable in conduit. Underground facilities would require ground disturbance for trenching or direct bury of the fiber optic cable. Details for underground construction are described in Section 2.5.

#### 2.1.2 Facility Locations

The proposed project includes installation of fiber optic cable and appurtenances including primary, or backhaul, routes and lateral connections to hospitals. In this document, the routes are grouped and described as:

- Three primary, or backhaul, routes:
  - 1) Two west to east connections following Interstate 80 and U.S. Highway 50;
  - 2) A north south connection from Reno to Las Vegas; and
  - 3) A route between Carson City and Gardnerville;

- Lateral, or last mile, routes to connect with the hospitals and data centers; and
- City ring connections.

The NTBI project is described below by group. The individual routes are detailed in Tables 2-1a, 2-1b and 2-1c and generally illustrated by Figures 1 and 2.

Interstate 80 and Highway 50 RLS and Existing Underground

Existing fiber optic cable in the Interstate 80 (I-80) and U.S. Highway 50 (Hwy 50) corridors (see Figure 1) would be used as follows:

- The I-80 RLS route owned by NDOT from Reno to Elko, Nevada would provide backhaul service for the lateral, or last mile, connections to the hospitals in Lovelock, Winnemucca, Battle Mountain, and Elko.
- The Hwy 50 RLS route owned by NV Energy from Fallon to Ely, Nevada would provide backhaul service for the lateral, or last mile, connections to the hospitals in Fallon and Ely.

North-South Backhaul Connection from Reno to Las Vegas, Nevada

A north-south primary, or backhaul, route would be constructed as follows:

- From Reno to Carson City existing underground conduit owned by NV Energy would be used. As mentioned in the description of existing underground, no new disturbance would be necessary. Fiber would be air-jetted or blown into the existing conduit at existing access locations (see Figure 3).
- From Carson City to Silver Springs and on to Fallon existing underground conduit owned by NV Energy would be used to provide backhaul connections to the north-south fiber optic cable as well as continuing east to Ely (see Figure 4).
- From Silver Springs to Goldfield, new fiber optic cable would be attached to existing power poles owned by NV Energy along a route that roughly follows Alt 95 and U.S. Highway 95 (Hwy 95) (Figures 5 and 6A to 6E). At Silver Springs, fiber optic cable would tie into the backhaul fiber optic cable in the Hwy 50 corridor described previously. Signal regeneration stations would be constructed at the following existing facilities: the NV Energy Yerington Substation; at the Hawthorne substation; at the Candelaria and Tonopah substation sites; and at the NDOT yard in Goldfield.
- From Goldfield to Lida Junction, the project would be buried within the limits of the NDOT Hwy 95 ROW (Figure 7). There are no power poles through this section on which to hang fiber optic cable.
- From Lida Junction to Las Vegas, fiber optic cable would be attached to existing power poles owned by the VEA along a route that roughly follows Hwy 95 and Hwy 160 and continuing due east to the Amargosa substation site near the Boulder Highway (Hwy 582) (Figures 8A to 8C and 9). Signal regeneration stations would be constructed at the Beatty, Amargosa Valley, and Arden substation sites as well as at the VEA office facility.

Carson City Backhaul Connection to Gardnerville

Carson City would connect to Gardnerville via an overhead connection using existing power poles owned by NV Energy (Figure 10).

City Ring Connections

Within the urban areas of Reno, Carson City, and Las Vegas existing fiber optic cable networks, or city rings, would be used through IRU agreements, new underground, and overhead fiber optic cable described previously.

Lateral Connections to Serve Hospitals and to Connect with Data Centers

Lateral connections to serve the hospitals would be constructed using existing poles, new underground, and IRU agreements. The physical connections with the hospitals would be completed using IRU agreements, new underground, or overhead fiber optic cable as appropriate for each hospital. In many cases, the NHA will be installing the fiber within the buildings. Currently, the best physical connections are being negotiated with the hospitals. The following table lists the hospitals to be served. The routes are illustrated by Figures 11 through 21.

**Table 2-1a. Hospitals to be Served by Proposed Action Laterals**

	<b>Rural Nevada Locations</b>	<b>Town</b>
1	Northeastern Nevada Regional Hospital	Elko
2	Battle Mountain General Hospital	Battle Mountain
3	Humboldt General Hospital	Winnemucca
4	Pershing General Hospital	Lovelock
5	Carson Valley Medical Center	Gardnerville
6	South Lyon Medical Center	Yerington
7	Banner Churchill Community Hospital	Fallon
8	Mt. Grant General Hospital	Hawthorne
9	Nye Regional Medical Center	Tonopah
10	William Bee Ririe Hospital	Ely
11	Desert View Hospital	Pahrump
12	Boulder City Hospital	Boulder City
	<b>Reno / Carson Nevada Locations</b>	<b>Town</b>
1	Carson Tahoe Regional Medical Center	Carson City
2	Carson Tahoe Specialty Hospital (Continuecare)	Carson City
3	Sierra Surgery Hospital	Carson City
4	Northern Nevada Medical Center	Sparks
5	Renown Regional Medical Center	Reno
6	Renown Rehabilitation Hospital	Reno
7	Renown South Meadows Medical Center	Reno
8	Saint Mary's Regional Medical Center	Reno
9	Tahoe Pacific Hospital	Reno

	<b>Las Vegas Nevada Locations</b>	<b>Town</b>
1	Centennial Hills Hospital Medical Center	Las Vegas
2	Desert Springs Hospital Medical Center	Las Vegas
3	St. Rose Dominican Hospitals – San Martin Campus	Las Vegas
4	Mountain View Hospital	Las Vegas
5	Nathan Adelson Hospice	Las Vegas
6	North Vista Hospital	Las Vegas
7	UMC Rancho Rehabilitation Center	Las Vegas
8	Southern Hills Hospital Medical Center	Las Vegas
9	Spring Valley Hospital Medical Center	Las Vegas
10	St. Rose Dominican Hospitals – Siena Campus	Henderson
11	St. Rose Dominican Hospitals – Rose de Lima Campus	Henderson
12	Summerlin Hospital Medical Center	Las Vegas
13	Sunrise Hospital Medical Center	Las Vegas
14	University Medical Center – Southern NV	Las Vegas
15	Valley Hospital Medical Center	Las Vegas

**Table 2-1b. Proposed Action Backhaul and Lateral Route Summary**

Route Name	Supplier or Pole Owner	From / To	Route Type	Miles	Service Summary and Appurtenances
<b>WEST – EAST CONNECTIONS</b>					
I-80 Route	NDOT	Reno to Elko	RLS	288.0	Existing fiber optic cable would be used within existing road ROWs for service to Elko.
Fallon to Ely Hwy 50	NDOT	Fallon to Ely	RLS	259.0	Existing fiber optic cable would be used within existing road ROWs for service to Ely. Handholes at end points; Co-locate Regen Station at Silver Springs SS
<b>NORTH – SOUTH CONNECTION</b>					
Reno to Carson City	NV Energy	Reno to Carson City	Ex. U/G	31.70	Part of the Reno to Las Vegas fiber optic cable connection; 3 handholes
Carson City to Silver Springs	NV Energy	Carson City POP to Silver Springs	Ex. U/G	34.64	Part of the connection to eastern NV via Hwy 50; 2 handholes
Silver Springs to Fallon		Carson City POP to Silver Springs to Fallon	Ex. U/G	26.69	Part of the connection to eastern NV via Hwy 50; 2 handholes
Silver Springs to Yerington	NV Energy	Silver Springs Hwy 50 to Yerington (South Lyon Medical Center)	Ovhd	32.68	Part of the Reno to Las Vegas fiber optic cable connection; 4 handholes on poles. Co-locate Regen Station at Silver Springs SS.
Yerington to Hawthorne	NV Energy	Yerington (South Lyon Medical Center) to Hawthorne (Hawthorne SS)	Ovhd	66.21	Part of the Reno to Las Vegas fiber optic cable connection; 2 handholes on poles; Co-locate Regen Station at Hawthorne SS
Hawthorne to Tonopah to Goldfield	NV Energy	Hawthorne (Hawthorne SS) to Tonopah SS Goldfield End of NV Energy Pole line	Ovhd	120.18	Part of the Reno to Las Vegas fiber optic cable connection; 4 handholes on poles; Co-locate Regen Station at Hawthorne SS and Tonopah SS and NDOT yard in Goldfield
Goldfield to Lida Junction	NA	Goldfield; End of NV Energy Powerline to Lida Junction end of VEA Powerline	U/G & Ovhd	14.34 0.49	Part of the Reno to Las Vegas fiber optic cable connection where no overhead alternative exists; Follows the west side of Hwy 95 ROW; 31 handholes; co-locate regen station at NDOT yard in Goldfield.

Route Name	Supplier or Pole Owner	From / To	Route Type	Miles	Service Summary and Appurtenances
Lida Junction to Pahrump	VEA	Lida Junction (Northern end of VEA Powerline) to Pahrump (Vista SS)	Ovhd U/G	133.67 1.65	Part of the Reno to Las Vegas fiber optic cable connection; 2 handholes on poles; Co-locate Pahrump - VEA Office; regen stations at "Amargosa Valley" SS, Beatty SS, and Private Parcel in Lida Jctn.
Pahrump to Las Vegas	VEA	Pahrump to Amargosa SS	Ovhd	63.48	Part of the Reno to Las Vegas fiber optic cable connection; 2 handholes; Co-locate Regen Station at Arden SS. Includes: Ovhd Arden SS to Amargosa SS and on to Pahrump
<b>CARSON CITY TO GARDNERVILLE</b>					
Carson City to Carson Valley Medical Center (CVMC) Overhead	NV Energy	Carson City to CVMC	Ovhd	32.45	Carson City to Carson Valley Medical Center
<b>CITY RING CONNECTIONS</b>					
Reno Ring	NHA	Reno Rings	Ovhd, Ex U/G	25.51 0.26	Existing fiber optic cable would be used within existing road ROWs. These rings would be used for the laterals for the hospitals within this city
Carson City Ring	NHA	Carson City Rings	Ovhd	17.20	
Zayo Vegas Rings	Zayo	Las Vegas Rings	IRU	126.0	
Amargosa SS to Zayo Rings	NHA	Amargosa SS north to Zayo Ring	U/G	5.31	Includes 13 handholes; Amargosa SS north to Zayo Ring
<b>LATERAL AND DATA CENTER CONNECTIONS</b>					
Arden SS to Super NAP	NHA	Arden SS to SuperNAP	U/G	4.05	U/G from Arden SS to SuperNAP
Battle Mountain Lateral	NHA	I-80 NDOT Hut to Battle Mtn. General Hosp.	U/G	0.69	Includes 5 handholes
Carson City Laterals	NHA	Carson City Laterals and Co-Locate	U/G	2.15	Includes service to 3 hospitals in Carson City; 4 handholes
Elko Lateral	NHA	I-80 NDOT Hut to Northeastern Nevada Regional Hosp.	U/G	4.19	Includes 16 handholes



Route Name	Supplier or Pole Owner	From / To	Route Type	Miles	Service Summary and Appurtenances
Ely Lateral	NHA	I-80 NDOT Hut to William Bee Ririe Hospital	Ovhd	0.25	Connects the main backbone line to the hospital via existing power poles.
Fallon Lateral	NHA	I-80 NDOT Hut to Banner Churchill Hosp	U/G	1.41	Includes 2 handholes
Las Vegas to Boulder City	NV Energy	Amargosa SS to Boulder City Hospital	Ovhd U/G	8.76 1.98	Includes 9 handholes;; Amargosa SS to Boulder City Hospital
Las Vegas Laterals	NHA	Las Vegas Laterals to hospitals	U/G Ovhd	14.32 0.57	Includes service to 15 hospitals in Las Vegas and Henderson; 97 handholes
Lovelock Lateral	NHA	I-80 NDOT Hut to Pershing General Hosp.	U/G	0.60	Includes 5 handholes
Reno Laterals	NHA	Reno Laterals	U/G	2.20	Includes service to 6 hospitals in Reno / Sparks; 11 handholes
Tonopah Lateral	NV Energy	Tonopah SS to Tonopah Hospital	Ovhd	3.36	Includes service to the Nye Regional Medical Center
Winnemucca Lateral	NDOT	I-80 NDOT Hut to Winnemucca Hospital	IRU	2.00	To serve Humboldt General Hospital
Yerington Lateral	NV Energy	Wabuska to Yerington	Ovhd	2.73	Connects the backbone line to South Lyon Medical Center; 8 handholes on poles

***Explanation of Terms and Abbreviations used in Table:***

IRU	Indefeasible <i>Right to Use</i>	POP	Point of Presence
IRU – RLS	<i>Restricted Lit Service IRU</i>	VEA	Valley Electric Association
Ex. U/G	Existing <i>Underground Fiber Optic Cable</i>	NV Energy	Nevada Energy
Ovhd	Overhead <i>on Existing Poles</i>	NDOT	Nevada Department of Transportation
U/G	New Underground	NHA	Nevada Hospital Association
SS	Substation	CBC	California Broadband Company
Regen	Signal regeneration station	NA	not applicable

Where more than once facility type is listed, both types would be used in different locations along the alignment.

**Table 2-1c. Proposed Action Route Summary By Land Management Agency**

Route Description			Route Type					Miles by Land Management						
Route Name	Type	Total Miles	IRU (miles)	Ex U/G (miles)	UG (miles)	Ovhd (miles)	Hand-holes (#)	Private / Muni	NV State	USFS	BIA	DOD	BOR	BLM
<b>WEST-EAST CONNECTION</b>														
Reno to Elko via I-80	RLS	288.80	288.80				2	189.15	1.74		3.15		18.23	76.53
Fallon to Ely via Hwy 50	RLS	259.09	259.09				2	29.22		7.01	0	8.10	5.04	209.72
<b>NORTH–SOUTH CONNECTIONS</b>														
Reno to Carson City	Ex. U/G	31.70		31.70			3	28.88	0.51	0.15			0.34	1.82
Carson City to Silver Springs	Ex. U/G	34.64		34.64			2	30.89						3.75
Silver Springs to Fallon	Ex. U/G	26.69		26.69			2	15.89	2.15				7.50	1.15
Silver Springs to Yerington	Ovhd	32.68				32.68		22.84						9.84
Yerington to Thorne SS	Ovhd	55.18				55.18		9.63			8.05			37.50
Thorne to Hawthorne SS	Ovhd	11.03				11.03		2.95				6.16		1.92
Hawthorne SS to Tonopah to Goldfield	Ovhd	120.18				120.18		8.83				8.07		103.28
Goldfield to Lida Junction	Ovhd U/G	14.83			14.34	0.49	31							0.49 14.34
Lida Junction to Pahrump	Ovhd U/G	135.32			1.65	133.67		24.53 1.65			1.47			107.67
Pahrump to Las Vegas	Ovhd	63.48				63.48		23.33		4.99				35.16
<b>CARSON TO GARDNERVILLE</b>														
Carson City to Carson Valley Medical Center	Ovhd	32.45				32.45		20.55						11.90
<b>CITY RING CONNECTIONS</b>														
Reno Rings	Ex U/G, Ovhd	25.77		0.26		25.51		25.06 0.26					0.39	0.06
Carson City Rings	Ovhd	17.20				17.20		15.17	0.89					1.14
Zayo Vegas Rings	IRU	126.0	126.0					126.0						
Amargosa SS to Zayo Rings	U/G	5.31			5.31		13	5.31						
<b>LATERAL CONNECTIONS</b>														
Arden SS to SuperNAP	U/G	4.05			4.05		16	3.85						0.20
Battle Mountain Lateral	U/G	0.69			0.69		5	0.69						
Carson City Laterals	U/G	2.15			2.15		8	2.15						

Route Description			Route Type					Miles by Land Management						
Route Name	Type	Total Miles	IRU (miles)	Ex U/G (miles)	UG (miles)	Ovhd (miles)	Hand-holes (#)	Private / Muni	NV State	USFS	BIA	DOD	BOR	BLM
Elko Lateral	U/G	4.19			4.19		16	4.19						0
Ely Lateral	Ovhd	0.25				0.25	2	0.25						
Fallon Lateral	U/G	1.41			1.41		2	1.41						
Las Vegas to Boulder City	Ovhd & U/G	10.74			1.98	8.76	2	7.63 1.98					1.13	
Las Vegas Laterals U/G	U/G	14.32			14.32		32	13.94						0.38
Las Vegas Laterals Ovhd	Ovhd	0.57				0.57		0.57						
Lovelock Lateral	U/G	0.6			0.6		5	0.60						
Reno Laterals	U/G	2.20			2.20		10	2.20						
Tonopah Lateral	Ovhd	3.36				3.36		3.36						
Winnemucca Lateral	IRU	2.0	2.0					2.0						
Yerington Lateral	Ovhd	2.73				2.73		2.73						
		<b>Total Miles</b>	<b>IRU (miles)</b>	<b>Ex U/G (miles)</b>	<b>UG</b>	<b>Ovhd</b>	<b>Hand-holes</b>	<b>Private / Muni</b>	<b>NV State</b>	<b>USFS</b>	<b>BIA</b>	<b>DOD</b>	<b>BOR</b>	<b>BLM</b>
		<b>1329.87</b>	<b>675.89</b>	<b>93.29</b>	<b>52.89</b>	<b>507.54</b>	<b>149</b>	<b>627.69</b>	<b>5.29</b>	<b>12.15</b>	<b>12.67</b>	<b>22.33</b>	<b>32.63</b>	<b>616.85</b>
		<b>Total IRU/RLS Miles</b>	<b>675.89</b>					346.37	1.74	7.01	3.15	8.10	23.27	286.25
		<b>Total Ex U/G</b>	<b>93.29</b>					75.92	2.66	0.15	0.00	0.00	7.84	6.72
		<b>Total Underground ROW Miles</b>	<b>52.89</b>					<b>37.97</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14.92</b>
		<b>Total Overhead ROW Miles</b>	<b>507.54</b>					<b>167.43</b>	<b>0.89</b>	<b>4.99</b>	<b>9.52</b>	<b>14.23</b>	<b>1.52</b>	<b>308.96</b>
		<b>Total Underground ROW Acres</b>	<b>64.11</b>					46.02	0	0	0	0	0	18.08
		<b>Total Overhead ROW Acres</b>	<b>615.20</b>					202.95	1.08	6.05	11.54	17.25	1.84	374.50
		<b>Total ROW Acres</b>	<b>679.31</b>					248.97	1.08	6.05	11.54	17.25	1.84	392.58

**Explanation of Terms and Abbreviations used in Table:**

IRU	Indefeasible Right to Use	Private/Muni	Private or municipal land
IRU – RLS	Restricted Lit Service IRU	NV State	State of Nevada
Ex. U/G	Existing Underground Fiber Optic Cable	USFS	U.S. Forest Service
Ovhd	Overhead on Existing Poles	BIA	Bureau of Indian Affairs
U/G	New Underground	DOD	Department of Defense
SS	Substation	BOR	Bureau of Reclamation
Regen	Signal regeneration station	BLM	Bureau of Land Management

### 2.1.3 Proposed Action Appurtenances

**Data Centers:** The project includes two data centers, one in northern Nevada and one in southern Nevada, to be housed in existing facilities. The data center in the north would be housed in Carson City on private land. The data center in the south would be housed in the SuperNAP facility near the intersection of South Decatur Boulevard and West Badura Avenue in Las Vegas. The data centers would not require any new ground disturbance.

**Signal Regeneration Stations:** As light travels down a fiber optic cable, it loses power. Regeneration stations or “regens” are used to amplify a weak incoming signal and send the amplified signal along the network toward the customer. The spacing of these regens is determined by many factors, but the regens are generally necessary every 50 to 75 miles. One of the major factors for determining the suitability of a potential regen site is the availability of commercial power. As currently designed, the majority of the regens along the NHA network are planned to be co-located at existing power substation locations, owned by either VEA or Nevada Energy.

Regeneration sites vary in size from 20 by 20 feet to 40 by 60 feet, depending on the available space and would require minor ground disturbance for construction. Table 2-2 summarizes the proposed regen locations.

**Table 2-2. Proposed Regeneration Station Locations**

General Location	Site Name	Facility Owner	Land Management Agency
Gardnerville	Buckeye Substation	NV Energy	Private
Silver Springs	Silver Springs Substation	NV Energy	Private
Yerington	Yerington Substation	NV Energy	Private
Thorne	Thorne Substation	NV Energy	BLM
Hawthorne	Hawthorne Substation	NV Energy	BLM
Candelaria	Candelaria Substation	NV Energy	BLM
Tonopah	Tonopah Substation	NV Energy	Private
Goldfield	NDOT Yard	NDOT	Private
Lida Junction	Lida Junction	Private	Private
Beatty	Beatty Substation	VEA	Private
Amargosa Valley	Amargosa Valley Substation	VEA	BLM

**Fiber Optic Cable Co-Locations:** There are two fiber optic cable co-locations, one in Carson City and one in Pahrump at the VEA Office. These fiber optic cable co-locations are areas where multiple fiber optic cable providers share infrastructure.

**Handholes:** Handholes are features used in the buried segments only. They are located where splices or slack for future access are placed and where fiber optic cable placement transitions from aerial to buried or vice versa. The ground disturbance would consist of excavation for the placement of these handholes, which would be roughly 4 feet wide by 5 feet long by 4 feet deep. The physical permanent handhole would be 30-inch wide by 48-inch long by 30-inch high for splice locations and in conduit systems.

Handhole placement would be limited to splice locations that are more or less 10,000 feet apart and at access points for laterals.

The proposed handholes for this project are Carson H-Series or equivalent. Handholes would be surface accessible and meet the American Association of State Highway and Transportation Officials (AASHTO) H10 truckload rating for unimproved rural rights-of-way, or AASHTO H20 truck load rating for locations in an urban environment, in sidewalks, etc.

Existing underground segments have existing handholes. These are flush with the ground surface or buried by as much as 12 inches. These handholes are located using metal detectors.

Handhole locations and spacing are determined by three factors:

- Handholes are placed at fiber optic cable ends and/or intersections for splicing and storing the splice case and slack. Reel lengths are approximately 20,000 feet in rural areas, and there may be three to four points of some interest within these spans for an average spacing of 5,000 feet.
- Handholes are placed at access points for future use and storage of slack fiber optic cable for maintenance purposes. In urban areas where conduit is placed and fiber optic cable is subsequently pulled through it, the spacing could be reduced to approximately 1,500 feet to provide more slack storage and access locations in these high traffic areas.
- Handholes are placed as pull locations in conduit runs where either the distance, number of turns/bends or a combination of both, require a mid-assist point to pull fiber optic cable into the conduit without excessive splice points. These considerations may decrease the average spacing further in urban areas due to numerous potential street intersections, deviations around existing facilities, and changes in route direction to pass additional customer sites.

Handholes are also placed in-line on existing conduit systems to facilitate cable pulling, additional access points for lateral connections and/or where a physical obstruction/transition requires a change in facility (such as a transition from buried conduit to a bridge attachment). Placing is limited to digging up directly above the existing conduit in previously disturbed soil, accessing the conduit by cutting out a section and setting the new handhole directly over this access location.

**Fiber optic cable Route Markers:** Fiber optic cable markers would be placed along the buried portions of the project as follows:

- At all handhole locations;
- At changes in route direction, such as a turn from one road onto another or substantial points of interest due to ROW width changes or deviations to avoid sensitive areas; and
- At all road/highway intersections.

If none of the preceding applies, a minimum spacing of 1,500 feet would be used. Pro-Mark PM303 dome marker or its equivalent would be used. These markers would consist of a white “post” with telecom orange label with black lettering. Fiber optic cable route markers would be installed over the trench for the cable.

#### **2.1.4 Proposed Project Schedule**

The overall project schedule indicates construction beginning with the Carson City laterals in January 2012. The following table details the anticipated construction timeframes for each of the proposed project segments.

**Table 2-3. Proposed Schedule**

<b>ROUTE NAME</b>	<b>TIMING</b>
<b>WEST-EAST CONNECTIONS</b>	
I-80 Route	Signing agreements Jan – March 2012
Fallon Ely Hwy 50	Signing agreements Jan – March 2012
<b>NORTH –SOUTH CONNECTION</b>	
Reno to Carson City	Signing agreements Jan – March 2012
Carson City to Silver Springs to Fallon	Signing agreements Jan – March 2012
Silver Springs to Yerington	Y3 Q1: July – Sept. 2012
Yerington to Hawthorne	Y3 Q3, Q4: Jan – June. 2013
Hawthorne to Tonopah	Y3 Q2, Q3: Oct – March 2013
Tonopah to Goldfield	Y3 Q1: July – Sept 2012
Goldfield to Lida Junction	Y2 Q3: Jan – March 2012
Lida Junction to Pahrump	Y3 Q1: July – September 2012 Y3 Q2: September – December 2012
Pahrump to Las Vegas	Y3 Q1: July – Sept 2012 Y3 Q2: Sept – Dec 2012
Las Vegas to Boulder City	Y3 Q1: July – Sept 2012
<b>CARSON CITY TO GARDNERVILLE</b>	
Carson City to Gardnerville CVMC	Y2 Q4: April – June 2012
<b>LATERAL CONNECTIONS</b>	
Battle Mountain Lateral	Y3 Q3, Q4: Jan – June. 2013
Carson City Laterals	Y2 Q4: April – June 2012
Elko Lateral	Y3 Q3, Q4: Jan – June. 2013
Ely Lateral	Y3 Q3, Q4: Jan – June. 2013
Fallon Lateral	Y3 Q1: July – September 2012
Hawthorne Lateral	Y3 Q3, Q4: Jan – June. 2013
Las Vegas Laterals	Y2 Q3: Jan – March 2012 Y2 Q4: April – June 2012
Lovelock Lateral	Y3 Q3, Q4: Jan – June. 2013
Pahrump Lateral	Y3 Q2: Sept – Dec 2012
Reno Laterals	Y2 Q4: April – June 2012
Tonopah Lateral	Y3 Q1: July – Sept 2012
VEA-Co-locate Lateral	Y3 Q1: July – September 2012
Winnemucca Lateral	Y3 Q3, Q4: Jan – June. 2013
Yerington Lateral	Y3 Q3, Q4: Jan – June. 2013
<b>CITY RING CONNECTIONS</b>	
Reno and Carson City Rings	Y2 Q4: April – June 2012
Zayo Vegas Rings	Signing agreements Jan – March 2012
Amargosa SS to Zayo Rings	Y2 Q3: Jan – March 2012
Super NAP to Arden SS	Y3 Q1: July – September 2012

### **2.1.5 Project Operation and Maintenance**

*e-Care* Nevada anticipates that annual and long-term maintenance of the poles and vegetation would be performed by the owner of the poles. The maintenance and monitoring protocol would be specified in the pole attachment agreements between *e-Care* Nevada and the pole owners. Monitoring of the overhead fiber optic cable would be through alarm circuits in the electronics attached to the cable at various points along the route. Maintenance includes replacement or repair if the appurtenances are damaged by fire, or physical destruction. The life of the fiber optic cable and regen station materials is approximately 30 years. Project hardware (fiber optic cable, regen stations handholes) would be replaced as they reach the end of their productivity. Replacement would be coordinated according to the ROW agreements.

### **2.1.6 Temporary Right-of-Way Width**

South of Tonopah in desert tortoise habitat, the temporary construction ROW width would be 10 feet wide. This construction zone would be limited to the existing roadways along the power lines and the existing access roads from the highway. No new roadways would be constructed.

Where the existing road is narrower than 10 feet, then some vegetation may be crushed adjacent to the edges of the road using the drive-out method described above. In locations where the existing road is too rough or steep for the bucket truck, then ATVs would be used to get to the poles. The poles would be climbed or a ladder used to access the attachment points. If the terrain is too rough or steep for ATV use, then the stationary reel method would be used and the crew would hike from the nearest access point to the pole. The poles would be climbed or a ladder would be used to access the attachment points.

North of Tonopah, the temporary construction ROW width would be less than 30-feet wide. This construction zone would be located within the existing roadways along the power lines and the existing access roads from the highway. No new roadways would be constructed but where roads allow, vehicles would be allowed to pass each other.

The short-term construction corridor would be no more than 10 feet wide in desert tortoise habitat between Goldfield and Lida Junction to allow for the actual cable/conduit laying machinery. This includes the actual plow rip and ground heave approximately one foot each side of the cable/conduit route and tire/track marks of the machines placing the cable/conduit. In other areas, where conditions allow, the corridor may be up to 30 feet wide to allow for passing construction vehicles (these areas would not in desert tortoise habitat and not on federally managed lands). The route segments and their widths are specified on the POD maps provided to the BLM.

The fiber optic cable / conduit system between Goldfield and Lida Junction would be placed within six feet of the western edge of the NDOT ROW. Exceptions occur where obstructions or avoidance areas require offsetting the trench/plow equipment to place the facilities closer to the ROW boundary.

### **2.1.7 Permanent Right-of-Way Width**

The permanent ROW width for installation using existing overhead pole lines would be 10 feet wide. The route segments and their widths are specified on the Plan of Development (POD) maps provided to the BLM.

The permanent buried fiber optic cable ROW width would be 10 feet wide. The permanent facilities would occupy less than six inches of horizontal space once construction is complete with the exception of handhole boxes placed for splicing and/or cable slack for future use.

## 2.2 Action Alternatives

### 2.2.1 Alternatives Considered but Dismissed

#### Alternative Systems Considered but Dismissed

Two different basic network options were examined and compared for building the backbone of the NHA network: microwave radio systems and buried fiber optic cable. The following is a summary of the factors that led to the design of this network in the final configuration.

**Microwave radio** was initially considered as a strong contender for data communication between the interconnect points on the network. The factors that eliminated this as a viable option are:

- Bandwidth requirements of this project exceeded the bandwidth capacity of currently available microwave radio systems.
- Network reliability did not meet or exceed the reliability of current fiber optic cable technologies.
- Site access issues would create potential delays in project timelines.

**Buried fiber optic cable** was also examined as a potential network topology. The reasons for minimizing this design, except for limited route segments, are:

- Buried fiber optic cable construction would present more of an environmental impact in sensitive areas than using existing poles for aerial construction.
- The cost to construct a buried network would be significantly higher than using existing poles for aerial construction, due to the terrain and rock content of the routes in question.

#### Alternative Construction Methods Considered but Dismissed

**Construction using helicopters** was suggested for consideration by the U.S. Fish and Wildlife Service (USFWS) to avoid ground disturbance and impacts to desert tortoise. The use of helicopters for fiber optic cable installation would not be practical because the cable would be hung below the existing power lines. The location for the new ADSS fiber optic cable installation on existing poles would be physically restricted by the existing wires. The hardware for the attachments is installed from a bucket truck, from a ladder on the ground or by a person who has climbed the pole. Diagrams for the poles and the pole attachments are provided in Appendix A.

#### Alternative Alignments Considered but Dismissed

**Gardnerville to Yerington Alternative:** The overhead alignment on NV Energy poles between Gardnerville and Yerington was considered but dismissed due to the very rough terrain crossed by the alignment. This alternative was replaced by the Silver Springs to Yerington alignment on NV Energy poles.

**Carson City to Carson Valley Medical Center (CVMC) Alternative:** A route involving existing conduit, existing fiber optic cable, new buried, and new overhead (on existing poles) was considered. This route was dismissed because the conduit this route would use would not be installed by Douglas County and Carson City within the timeframe needed by the NV Hospital project.

### 2.2.2 Alternative Alignments Brought Forward for Analysis

The alternative alignments brought forward for analyses are summarized in Table 2-4.



**Table 2-4. Alternative Fiber Optic Cable Routes**

Route Name	Supplier	Description	Miles/Type/Land Management
<b>NORTH - SOUTH CONNECTIONS</b>			
Alt Yerington to Hawthorne  Figures 22A, 22B	NV Energy	This route would avoid crossing the Walker River Paiute Tribe land at the north end of Walker Lake. This route would be: <ul style="list-style-type: none"> <li>• 20.53 miles more overhead build</li> <li>• Includes U.S. Forest Service land</li> </ul>	39.63 BLM Sierra Front FO 22.46 Ovhd BLM Stillwater FO 2.13 Ovhd NV State 6.74 Private 1.78 Ovhd U.S. Forest Service <u>2.25 Ovhd DOD</u> 74.99 Total
Alt Hawthorne to Mina  Figure 23	NV Energy	An overhead route from the Thorne SS to meet the NV Energy line just east of Mina. This route necessarily includes the distance from Thorne SS to the hospital. This route is longer than the proposed route. This route would be: <ul style="list-style-type: none"> <li>• 7.58 miles longer than the proposed route</li> </ul>	33.03 Ovhd BLM Sierra Front FO 7.22 Ovhd DOD <u>1.55 Private</u> 41.80 Total
Alt Lida Jct. to Goldfield  Figure 7	NHA	This route follows the east side of Hwy 95 along the existing AT&T line and would use the AT&T poles. This route would be: <ul style="list-style-type: none"> <li>• 1.7 miles less underground or 0.2 acres of disturbance</li> <li>• Increase the total overhead mileage by 1.7 miles</li> </ul>	12.16 U/G BLM Tonopah FO <u>2.48 Ovhd BLM Tonopah FO</u> 14.64 Total
Alt Las Vegas to Boulder City Underground  Figure 24	NHA	An underground route from Rose DeLima Hospital to Boulder City and continuing from edge of town to Hospital; 9 handholes; this alternative is proposed if the overhead poles cannot be used. This route would be: <ul style="list-style-type: none"> <li>• Roughly 9 miles longer underground or 1.1 acres of disturbance</li> <li>• Decrease the total overhead mileage by 9.9 miles</li> </ul>	1.13 U/G Bureau of Reclamation <u>9.78 U/G Private</u> 10.91 Total
<b>CARSON TO GARDNERVILLE</b>			
Alt Carson City to Gardnerville Overhead  Figure 25	NV Energy	An overhead route from Carson City to Gardnerville. This route would be: <ul style="list-style-type: none"> <li>• About one mile shorter than the proposed route</li> <li>• Traverses Washoe Tribe land</li> </ul>	0.25 Ovhd BLM Sierra Front FO 0.96 Ovhd Washoe Tribe <u>30.00 Ovhd Private</u> 31.21 Total

Route Name	Supplier	Description	Miles/Type/Land Management
Alt Carson City to Gardnerville joint build with CBC  Figure 25	Douglas County, Carson City, CBC	An existing underground route from Carson City to Gardnerville as a joint build with the CBC. This route may not be possible due to the timing of the BTOP grant requirements. This route would be: <ul style="list-style-type: none"> <li>• About one mile shorter than the proposed route</li> <li>• Traverses Washoe Tribe land</li> </ul>	0.79 Ovhd BLM Sierra Front FO 0.83 Ovhd Washoe Tribe 0.61 NV State <u>29.22 Ovhd Private</u> 31.45 Total
<b>CITY RING CONNECTIONS</b>			
Alt Reno and Carson Rings	Zayo	An alternative to using the proposed rings in Reno and Carson City, use of the Zayo Rings would be an IRU.	NA

***Explanation of Terms and Abbreviations used in Table:***

Ex. U/G      Existing *Underground Fiber Optic Cable*  
Ovhd        Overhead on *Existing Poles*  
U/G         New *Underground*  
DO         BLM *District Office*  
FO         BLM *Field Office*

### 2.2.3 Alternative Signal Regeneration Sites Brought Forward for Analysis

The following table lists the alternative regeneration sites to be located on property already occupied with a power substations or cell towers.

**Table 2-5. Alternative Regeneration Station Locations**

General Location	Site Name and Facility Owner	Facility Owner	Land Management Agency
Yerington	Churchill Power Station	NV Energy	Private
Tonopah	Miller Substation	NV Energy	Private
Scotty's Junction	Cell Tower	AZ Tower	Private
Lida Junction	Cell Tower	AZ Tower	BLM
Luning	Table Mountain Substation	NV Energy	BLM
Tonopah	Miller Substation	NV Energy	Private

### 2.3 No Action Alternative

The No Action Alternative serves as a baseline for comparison of impacts associated with the Proposed Action and alternatives. Under the No Action Alternative the proposed project would not be initiated. The NTIA would not provide ARRA funds for the project and the BLM, and other federal agencies and private landowners would not grant rights-of-way for the project.

The No Action Alternative would not meet the purpose and need for the project. This would result in the hospitals without adequate access to broadband services, which may impact the ability of the hospitals to provide appropriate medical services and comply with the requirements of the HITECH Act.

### 2.4 Environmental Commitments

The following environmental commitments are a part of the Proposed Action and alternatives. The project environmental commitments incorporate a variety of actions, proposed by the project proponent, the BLM, the Nevada Department of Wildlife (NDOW), and the USFWS that are designed to avoid and reduce potential significant effects to environmental resources to less than significant levels. The consultations with the agencies are provided in Appendix E and are summarized in Chapter 5.

Implementation of the environmental commitments listed herein as well as project BMPs imposed by county, state or federal permits, and stipulations in the ROW grants would be the responsibility of *e-Care*. *e-Care* shall use environmental compliance inspectors to ensure the actions are implemented. Chapter 5 of this EA lists the required permits for the proposed project, issuing agency and responsible parties.

#### Environmental Education Program

*e-Care* will provide an environmental education program to make sure construction crews are aware of sensitive biological, cultural and environmental areas and avoidance areas. These sensitive areas will also be indicated on an environmental compliance summary document provided to all construction crew chiefs. Components to the environmental education program are detailed within each resource area described in the following paragraphs. Specific education will be provided for the desert tortoise, Gila monster, burrowing owl, bats, and migratory birds. Habitat preservation education will be provided for the entire project in general but also riparian and wetland areas specifically.

### Air and Water Resources

Due to the nature of the Proposed Action, two state permits issued by the Nevada Division of Environmental Protection (NDEP) would likely be required prior to construction of the project. These pre-construction project permits are:

- The Bureau of Air Pollution Control surface disturbance permit for projects disturbing five acres or more during construction.
- The Bureau of Water Pollution Control construction stormwater permit for projects disturbing one acre or more during construction.

Washoe and Clark Counties also administer similar permit programs for construction projects occurring in their jurisdictional boundaries. These anticipated project construction permits would contain measures to control fugitive dust and surface water erosion during both project construction and under post-construction conditions. These permit requirements would be drawn from the practices recommended in the Nevada Contractors Field Guide for Construction Site Best Management Practices (BMPs) (NDEP 2008) and would be focused on site disturbances occurring during the limited installation of new fiber optic cable burial.

### Vegetation Resources

To minimize disturbance to vegetation, project-related improvements shall be installed in existing rights-of-way and disturbance corridors. Construction equipment shall be confined to existing roads or the alignment under the existing power lines. No ROW or road grading shall occur for overhead or buried routes.

The buried portion of the project between Goldfield and Lida Junction would be re-seeded using a BLM approved seed mix.

### Threatened, Endangered, or Sensitive Wildlife Species

#### *Desert Tortoise*

Potential project impacts to the desert tortoise (a threatened species) would be minimized by implementation of the conservation measures listed below and those measures contained in the Biological Opinion prepared by the USFWS, which is a part of the project record.

1. For all construction areas south of Springdale, NV, a contractor education program shall be implemented by *e-Care*. The program shall include a tri-fold brochure with important information for workers, which will be handed out during the training. Only workers who have successfully completed the education program shall be allowed to enter the construction site. Desert tortoise education shall at a minimum include information on the biology and distribution of the desert tortoise, general behavior and ecology of the desert tortoise, its legal status and occurrence in the proposed project area, the definition of “take” and associated penalties for violations of federal and state laws, the measures designed to minimize the effects of construction activities, and reporting procedures to be used in the event that a desert tortoise is encountered.
2. For all areas south of Springdale, a 25-mile per hour speed limit shall be followed for all access and construction roads. A litter control program, including use of covered, raven-proof trash receptacles and daily trash removal shall be implemented.

3. No construction activities shall begin until USFWS authorized biologists and desert tortoise monitors are approved. A USFWS authorized biologist shall possess thorough and current knowledge of desert tortoise behavior, natural history, ecology, physiology, and shall demonstrate substantial field experience and training to safely and successfully:
  - a) Handle and temporarily hold desert tortoises,
  - b) Excavate burrows to locate desert tortoises or eggs,
  - c) Relocate/translocate desert tortoises,
  - d) Unearth and relocate desert tortoise eggs, and
  - e) Locate, identify, and record all indicators of desert tortoise sign.
4. Workers shall check underneath all vehicles and equipment before moving them because tortoises often take cover underneath parked vehicles.
5. All trenches shall be backfilled or covered at the end of each day during hours of inactivity or the trenches shall be dug in such a manner that the side and/or end walls are contoured to allow any animals that inadvertently fall in, a means to climb out
6. Pre-construction clearance surveys shall be conducted in areas with a high potential for desert tortoise presence. Desert tortoises shall be relocated (if necessary), and ensure that the effects of the proposed project on the individuals are minimized.
7. Special habitat features, such as burrows/pallets, identified during pre-construction surveys shall be marked, recorded, and avoided to the extent possible. Burrows that are found shall be checked for desert tortoises and eggs. When desert tortoises are found, the burrows shall be flagged so that equipment operators and drivers shall clearly see the flagging and avoid the burrows. Unoccupied burrows shall be flagged in a manner that contrasts with occupied burrows.
8. A USFWS authorized biologist will be present during all construction activities within desert tortoise habitat without existing exclusionary fencing. Vehicles and construction equipment shall be monitored by desert tortoise monitors walking ahead of equipment.
9. Encounters with desert tortoises shall be immediately reported to a USFWS authorized biologist. The USFWS authorized biologist shall maintain a record of all desert tortoises encountered during Project activities. Information recorded for each desert tortoise shall include: the location (narrative, vegetation type, and maps); date of observation; general condition of health, including apparent injuries and state of healing; whether the desert tortoise voided its bladder; if moved, location moved from and location moved to; digital photographs of each handled tortoise; and diagnostic markings (i.e., identification numbers or marked lateral scutes).
10. If desert tortoise must be moved from harm's way during any Project activities, a USFWS authorized biologist will follow the "Guidelines for Handling Desert Tortoises During Construction Projects" (Desert Tortoise Council, 1999).
11. A USFWS authorized biologist shall have the authority to halt all non-emergency project activity should danger to a desert tortoise arise. Work shall proceed only after hazards to the listed species are cleared or removed, the species is no longer at risk, or the species has been moved from harm's way by the USFWS authorized biologist.

Upon locating a dead or injured desert tortoise, the USFWS shall be notified immediately by phone. Written notification shall be made within 72 hours of the date and time of the finding or incident (if known), and shall include location of the carcass, a photograph, cause of death (if known), and other pertinent information. Desert tortoise remains shall be left in place (or just outside of the construction

footprint or fenced area). Desert tortoises injured through project activities shall be transported to a veterinarian for treatment at the expense of the NHA. If an injured animal recovers, the USFWS shall be contacted by phone for final disposition of the animal.

#### *Banded Gila Monster*

Potential project impacts to the Gila monster (a state protected species) would be minimized by implementation of the conservation measures provided by NDOW (2007) which are listed below. The geographic range approximates that of the desert tortoise and is coincident to the Colorado River drainage. Therefore these actions will be implemented in desert tortoise habitat in the Colorado River watershed.

1. The contractor education program will include Gila monster education and will be required for all workers in Gila monster habitat. The program will include:
  - a) Gila monster identification and how it is distinguished from other lizards such as chuckwallas and western banded geckos (see Identification section above);
  - b) Gila monster reporting protocol requirements to the NDOW;
  - c) The consequences of a Gila monster bite resulting from carelessness or unnecessary harassment; and
  - d) Gila monster protective measures provided under state law.
2. Live Gila monsters found in harms way on the construction site will be captured and then detained and reported per the NDOW protocol (NDOW, 2007)
3. In the event a Gila monster is injured, it should be transferred to veterinarian proficient in reptile medicine for evaluation of appropriate treatment. NDOW will be immediately notified (Polly Conrad at 702-486-5127 ext 3718).
4. If an animal is killed or found dead, the carcass will be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, date, time, habitat, and mapped location.

#### *Threatened, Endangered, Sensitive or Migratory Bird Species*

To avoid direct and indirect impacts to the southwestern willow flycatcher (an endangered species) or yellow-billed cuckoo (a candidate species), removal of nesting vegetation would occur outside the bird-breeding season. If this cannot be avoided, vegetated areas would be surveyed for nesting birds prior to impact. If nesting birds were found, these areas would be avoided by a buffer as determined by BLM and USFWS. Prior to construction, the following measures will be taken:

1. Southwestern willow flycatcher and yellow-billed cuckoo habitat shall be delineated and flagged where it falls within 300 feet of the existing power line.
2. Construction shall not take place between June 1 and August 15 where southwestern willow flycatcher habitat is within 300 feet of the power line unless:
  - a) Surveys are conducted during the appropriate time by approved biologists with the required permits issued by the USFWS and the surveys determine there are no breeding or nesting pairs in the vicinity.

Potential project impacts to the burrowing owl (a state protected and BLM sensitive species), would be minimized by implementation of the conservation measures listed below:

1. If construction takes place between mid-March and August, pre-construction surveys shall be conducted by qualified biologists in areas with a high potential for burrowing owl presence.
  - a) If a burrow has an active nest, the site must be avoided until the chicks have fledged. To ensure that birds will not abandon the nest, a buffer of at least a 250-foot radius will be placed around the burrow within which no construction would occur. After the young have fledged, the nest burrow shall be checked for owlets before resuming construction within the buffer area.

Potential project impacts to golden eagle would be minimized by implementation of the conservation measures listed below:

1. Potential eagle habitat shall be identified by remotely sensed procedures to identify cliff habitat within five miles of the construction corridor. The Nevada Department of Wildlife raptor database shall be consulted to screen for any known nest locations. If construction is scheduled to occur within two miles of potential eagle habitat during the breeding period (February through July) pre-construction surveys of potential nesting habitat shall be conducted at least two weeks prior to construction to determine the status of nesting activity in proximity to the construction corridor. Surveys shall be conducted by qualified biologists in accordance with the *Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance (February 2010)*, or as directed by the USFWS.
  - a) If breeding activity is confirmed within two miles of the construction corridor, all construction within the breeding territory shall be suspended until juvenile birds are fledged, or as per USFWS instructions.

To avoid direct and indirect impacts to migratory birds, removal of nesting vegetation would occur outside the bird-breeding season. If this cannot be avoided, vegetated areas would be surveyed for nesting birds prior to impact.

If vegetation removal occurs during the nesting season, then a qualified biologist would survey the area prior to initiation of construction. If active nests of migratory birds are located, a buffer would be established around the nests and the area avoided until the nests are no longer active. The size of the buffer is dependant on the identified nesting species and would be determined by the qualified biologist.

Because the project spans from southern Nevada to northern Nevada, a project-specific construction timeline by area will be prepared so that the project will avoid potential impacts to active nests during construction.

Potential impacts to migratory birds from construction of new regen stations and other structures would be minimized through implementation of the following measures:

1. The regen stations shall not have any holes, gaps or hallow spaces in the proposed facilities.
2. No open-ended posts shall be used.

### Sensitive Plants

To avoid direct and indirect impacts to sensitive plants, known populations would be flagged prior to construction by a qualified biologist and avoided by construction activities. A pre-construction survey

would be conducted for the buried section between Goldfield and Lida Junction. Located populations would be flagged and avoided.

### *Sensitive Amphibians and Fish*

To avoid direct and indirect impacts to sensitive amphibians and fish, their habitat would be flagged by a qualified biologist prior to construction and avoided. Machinery would not be allowed within their habitat boundaries. If it is necessary to cross their habitat, it will be done on foot.

### *Noxious Weeds*

In order to avoid the spread of noxious or invasive weeds during construction, operation, or maintenance activities, the following measures would be implemented:

- Pre-construction surveys for noxious or invasive weeds will be conducted within the following areas:
  - The buried section between Goldfield and Lida Junction
  - The riparian area of the Carson River on the Silver Springs to Yerington segment
  - The wet areas on the north end of Mason Valley on the Silver Springs to Yerington and Yerington to Hawthorne segments
  - The north end of Walker Lake on the Yerington to Hawthorne segment
  - The Amargosa Mesquite Areas of Critical Environmental Concern (ACEC)
- The project proponent will limit the size of ground disturbance to the minimum necessary to perform the activity safely and as designed.
- The project proponent will avoid creating soil conditions that promote weed germination and establishment.
- All equipment, vehicles and employees shall be free of soil, seeds, vegetative matter, and other debris before entering the project area and when leaving. Cleaning will focus on power washing the nooks and crannies of vehicle undercarriages.
- Project operations will be in weed-free areas whenever possible. If equipment must operate in pre-existing areas infested by noxious weeds, the equipment, vehicles and employees shall be cleaned prior to being moved or transported from the immediate site.
- Any soil fill materials imported into the project area must come from documented weed free sources.
- Straw or mulch used for erosion control shall be certified weed-free or, if certified straw is not available, rice straw shall be utilized.
- Plant seed used for post-construction site stabilization shall be tested and labeled as to its source, species composition, weed content, and weed-free certification.

### *Cultural Resources*

Construction disturbance must avoid known and buried and surface archaeological deposits.

Prior to construction personnel would be instructed on the protection of cultural resources by a professional archaeologist. Archeological monitoring will be required within archaeological site 26Or1 in the Arrowhead/Goni segment in Carson City. Within one month of completing the monitoring activities, a report will be submitted to State Historic Preservation Officer (SHPO) for review.



In accordance with 36 CFR 800 of Section 106 of the NHPA , if buried cultural resources or human remains are inadvertently discovered during construction, operations shall stop in the immediate vicinity of the find and a qualified archaeologist shall be consulted to determine whether the resource requires further study. The archaeologist shall make recommendations to the lead agency concerning appropriate measures that will be implemented to protect the resources, including but not limited to excavation and evaluation of the finds, consistent with 36 CFR 800.

Cultural resources could consist of but are not limited to stone, bone, wood, or shell artifacts, or features including hearths, structural remains, or historic dumpsites. In addition, reasonable efforts to avoid, minimize, or mitigate adverse effects to the property will be taken and the SHPO and Indian tribes with concerns about the property, and the Advisory Council on Historic Preservation (ACHP) will be notified within 48 hours in compliance with 36 CFR 800.13 (b) (3).

### Minerals

In order to avoid conflicts with future mine expansion in the Tonopah and Goldfield areas, the project shall include extra splice connectors or similar in these areas to economically accommodate relocation of the power poles.

### Soils

State or county surface disturbance and water pollution control permits shall be secured by the project contractor for the approved project prior to the initiation of project construction. All project construction shall conform to the conditions and BMPs prescribed in these permits to minimize fugitive dust and surface water erosion.

Where specified, project excavations shall be stabilized upon completion of project construction in accordance with the pre-existing ROW permit requirements and conditions.

In order to avoid impacts to prime or important farmlands, final project construction plans and alignments shall be designed to avoid adverse impacts to current or customary agricultural production practices occurring on soil map units designated as being prime or statewide important farmlands.

Soil disturbance areas would be revegetated in accordance with the requirements of the involved ROW permit.

In wetlands, if soil conditions are wet, then the poles would be walked and climbed to avoid soil compaction by heavy machinery.

### Human Health and Safety

All open ground excavations in excess of one foot in depth occurring during project construction shall either be covered, backfilled or fenced in a safe manner at the end of each workday by the contractor to prevent human and animal injury.

If contaminated soil is encountered during excavation, then the contractor will halt construction in the area and contact the NDEP at 888-331-6337.

### Equipment Refueling and Leaks, Solid Waste

*e-Care* would implement standard refueling procedures for heavy equipment that is left on the ROW for long periods of time, such as bucket trucks. This equipment would be refueled in place. However, no personal or light duty vehicles would be allowed to refuel on the ROW.

Totally enclosed containment would be provided for any trash stored on site. Spill kits would be on site and diapers would be placed under leaking equipment immediately to prevent ground contamination. Spills over five (5) gallons must be reported to the NDEP at 888-331-6337 with a follow-up call to the underlying landowner or manager. Any spills would be cleaned up to the state standards.

If contaminated soil is encountered during excavation, then the contractor will halt construction in the area and contact the NDEP.

All construction waste, including trash and litter, garbage or solid waste, petroleum products and other materials would be removed to an authorized disposal facility by the contractor. All construction, operation, and maintenance activities would comply with all applicable federal, state and local laws and regulations regarding the use of hazardous substances.

The construction or maintenance crew foreman would be responsible for maintaining compliance with all applicable laws and regulations. In addition, an onsite inspector would be present during construction to make sure all materials are used and stored properly.

### Fire Protection Plan

Specific construction-related activities and safety measures would be implemented during construction of the fiber optic cable placement in order to prevent fires and to ensure quick response and suppression in the event a fire occurs. These activities and requirements include:

- All vehicles would be in good working order to avoid catalytic converters from overheating.
- Workers will be educated to never park over a pile of dry leaves or other dry vegetation.
- All construction sites shall have the following equipment in a place easily accessed: shovels and one five-pound ABC dry powder chemical fire extinguisher.
- During welding/cutting or other operations where a fire could be started, there would be at least a 100-gallon fresh water tank with pump onsite to suppress any vegetation fires.
- All employees on site shall have the appropriate notification numbers in case of fire. These numbers include the Beatty Volunteer Fire Department, BLM Fire Dispatch, the BLM Project Representative and VEA Construction Project Manager.
- All workers on site shall follow BLM smoking restrictions.

All federal, state, and county laws, ordinances, rules, and regulations, which pertain to prevention, pre-suppression, and suppression of fires, shall be strictly adhered to. *e-Care* shall advise all personnel of their responsibilities under the applicable fire laws and regulations. It would be the responsibility of the construction site manager to notify the Central Nevada Interagency Dispatch Center (CNIDC) at (775) 623-3444, BLM, Tonopah Field Office (TFO) at (775) 482-7800; or Las Vegas Interagency Communications Center (LVICC) at (702) 515-5300, when a project related fire occurs within or adjacent to the construction area.

*e-Care* would be responsible for any fire started, in or out of the project area, by its employees or operations during construction. *e-Care* would be responsible for any costs associated with fire suppression and rehabilitation. Prior to the arrival of federal firefighting forces, *e-Care* would take aggressive action to prevent and suppress the spread of wildland fires caused by the *e-Care* employees or operations within the project area.

Outside of the project area, wildfire suppression is the responsibility of the BLM on public lands surrounding the project area. Local counties and municipalities are responsible for fire starts within their boundaries and mutual aid agreement areas.

### Public Land Grazing

In order to avoid impacts to public land grazing, the following measures would be implemented:

- All private and public range improvements and facilities that fall within the project area, or are otherwise impacted by the proposed project, repaired to its current or better condition, or replaced by the contractor.
- All existing livestock fencing encountered in the project area shall be maintained in its current condition. Any openings in existing project area fencing, either by agreement or accidental damage, shall not be left unattended and shall be immediately repaired prior to the conclusion of the workday.
- The project proponent, and project contractors, shall immediately close all closed fence gates that are encountered during the construction of this project, unless a previous written agreement is enacted with the lawful owner of the fence line.

### Noise

To keep construction noise to a minimum, activities near residences would be performed during the daytime hours, Monday through Friday.

### Soils

To prevent compaction, gully and rutting in work areas, mechanical equipment operations would be limited or excluded during wet soil conditions.

### Surface Waters and Waters of the U.S.

Where waters of the U.S. are disturbed during construction of the underground segment of the project, the bed and banks would be restored to the pre-construction bed and bank configuration and stability by the contractor.

If wetland soils are wet, then the poles would be walked and climbed to avoid soil compaction by heavy machinery.

## **2.5 Construction Methods Applicable to The Proposed Action and Action Alternatives**

### **2.5.1 Construction Methods For Overhead Fiber Optic Cable Attachment**

Two basic methods would be used for placement of ADSS fiber optic cable on the existing poles: 1) the drive-out method and 2) the stationary reel method. The method used is based on existing roadway conditions to access the poles. Existing roadways would not be improved in desert tortoise habitat and no new roadways would be constructed.

The drive-out method is the preferred method and would be used in areas where there is adequate vehicular access to and along the fiber optic cable corridor. The existing roadway generally needs to be eight feet wide and passable by a standard four-wheel drive vehicle. In the drive-out method, one vehicle carrying the reel of fiber optic cable proceeds from pole to pole, paying out fiber optic cable as it moves forward. A second vehicle, a bucket truck, follows at a distance of approximately 50 feet so that a lineman may secure the fiber optic cable to the pole attachments.

The stationary reel method would be used in areas where vehicular access to the construction corridor along a pole line is restricted by rough terrain. Using this method, the poles are accessed by ATV, or on foot and the poles are either climbed or a ladder is used. A pull rope is placed through a pulley system attached to the pole. This pull rope is attached to the fiber optic cable on a stationary reel located at the nearest access point to the pole line. The fiber optic cable is pulled, preferably downhill, through the pulley system and attached to the pole. This method is the slower of the two methods and creates the widest spread of equipment and manpower along the route. However, this method has the least impact to vegetative and soil resources. The staging area for the stationary reel method would be restricted to existing roads and disturbed areas. The ATVs and hiking to the poles would result in vegetation crushing. Therefore, in desert tortoise habitat, the areas to be crushed would be cleared of desert tortoises by authorized biologists and desert tortoise monitors walking ahead of the equipment.

The general sequence for developing and constructing fiber optic cable to existing poles is:

- Order and staging of materials
- Mobilization of advance/ROW preparation crews
- Attaching temporary supports / rollers or permanent grips
- Placing pull rope (Stationary reel method only)
- Mobilization of fiber optic cable placing crews
- Pulling of fiber optic cable through temporary rollers or hanging of the cable
- Tensioning, sagging, & permanent attachment of cables
- Mobilization of splicing/testing crews
- Splice areas and slack for future access would be would be mounted on poles
- Splicing and testing of system
- Placing of route markers
- Placing of anchors & down guys, if required by pole owner

Restoration of ROW shall be concurrent with construction, throughout the splicing operations and continuing until surfaces are restored to “original” condition. Photographs are taken before and after construction to document that no permanent alteration of environmental conditions has occurred.

**Equipment Staging:** The materials consist of fiber optic cable on six-foot by four-foot reels, splice cases and appurtenances, hand holes, high density polyethylene conduit (HDPE) on six-foot by four-foot reels, aerial strand and pole line hardware. Items not in use would be kept off the ROW at a contractor storage yard and/or warehouse location and transported as needed by crews or delivery trucks as needed for construction. All packaging material would be removed and disposed of each day in the proper manner. No items, except for installed fiber optic cable, associated hardware, anchors, handholes and marker posts, would remain after installation.

**Pulling and Tensioning Areas:** In the stationary reel method of placement, areas are required at opposite ends of a multiple-pole span for parking a reel trailer or other reel carrier and a winch truck to pull back a rope and the attached fiber optic cable end. At multiple locations along the path between the reel and the winch, workers equipped with two-way radios are stationed to observe the progress of the pull and to stop the process should problems arise.

In the drive-out method of placement, the equipment needed for placement of the fiber optic cable moves in tandem from the start point to the end of the reel. All equipment will be generally within a moving 100-foot zone within the existing roads.

During the tensioning and sagging operation, a truck is positioned at one end of the span to be tensioned, while a second truck starts at the opposite end of the span and works back toward the first truck, securing the fiber optic cable that has been tensioned and sagged to the structures.

Pole heights, distances between poles, and pole types vary, per the practice of the particular owner of the existing infrastructure. Pole heights are between 45 and 65 feet. Average spacing ranges from 300 to 600 feet, with occasional spans of roughly 1,000 feet. The majority of the poles to be used for this project are wood.

A limited number of angle poles may require additional ground anchors with guy wire to carry the weight of the new fiber optic cable. In these areas, a six-foot long screw anchor would be placed in the ground near the base of the pole and attached to the pole with a cable.

**Typical Work Hours and Construction Progress:** The NHA project has anticipated a 10-hour, five-day workweek schedule. Work hours may increase due to schedule and other situations requiring production acceleration. Although the exception, crews with highly compressed schedules can work 10 to twelve hours per day, seven days per week for extended periods.

The overhead fiber optic cable can be attached to the existing poles at a one and a half to two miles per day average once placement begins. About three days of preliminary work is necessary before the cable can be attached.

**Equipment Types and Numbers:** The following tables list representative types of equipment designed to perform specific tasks, which would be used for the overhead portion of the project.

**Table 2-6a. Typical Right-of-Way Preparation Equipment Group**

Description	Model	Quantity
Pickup Truck	Ford F-250 (or equivalent)	1
Bucket Truck	International 4300 (or equivalent)	2
Two Ton Truck w/Chip Box	Ford F-750 (or equivalent)	1
Chipper/Shredder	Vermeer BC1200XL (or equivalent)	1
Misc. Small Power Tools	Stihl/Echo Chainsaws, etc	Many

Note: ROW Preparation would not occur in desert tortoise habitat.

**Table 2-6b. Typical Fiber Optic Cable Placement / Tensioning Equipment Group**

Description	Model	Quantity
Pickup Truck	Ford F-250 (or equivalent)	1
Bucket Truck	International 4300 (or equivalent)	2
Reel Carrier Truck w/ winch	International 4300 (or equivalent)	1
Misc. Small Power Tools	Stihl/Echo Chainsaws, etc	Many

**Table 2-6c. A Typical Clean Up/Restoration Equipment Group**

Description	Model	Quantity
Pickup Truck	Ford F-250 (or equivalent)	1
Dump Truck/Trailer	Ford F-750 (or equivalent)	1
Skid-Steer Loader	Caterpillar 259B Series 3 (or equivalent)	1
Backhoe/Loader	Caterpillar 416E (or equivalent)	1
Vacuum Locator System	Ditch Witch FX60 (or equivalent)	1
Compactor	Whacker BS 60 (or equivalent)	1

**2.5.2 Underground Fiber Optic Cable Activities, Duration, and Equipment**

Three basic methods would be used for placement of ADSS fiber optic cable below ground: 1) the plow method, 2) the trench method, and 3) directional bore method. The method used is based on existing conditions as described in the following paragraphs.

**Fiber Optic Cable Placement using the Plow Method:** In the NDOT ROW between Goldfield and Lida Junction, the fiber optic cable route would be plowed using a rip shank with attached cable chute. The depth of the fiber optic cable would be three feet in normal conditions and up to six feet in areas where more protection is desired, such as washes and high erosion areas. For depths over three feet, boring methods would be used. The process of plowing fiber optic cable into the ground does not leave an excavation; instead it lifts the soil and leaves a heaved area on each side of the plow slot. Restoration and compaction is limited to driving the dozer (either the cable plow itself, a second dozer used for pulling the plow or a “clean up” dozer working behind the cable plow) over each side of the plow rip to push it back to a level state. There is no need for material excavation or imported material to restore the trench. The width of the plow point is two inches. The maximum width of disturbance using this method is one foot.

**Fiber Optic Cable Placement using Trenching Method:** Narrow trench sections would be necessary where it is not possible or practical to plow the fiber optic cable or in areas where conduit is required. Trenching and cable would be necessary in areas with large rocks, boulders, or solid rock between Goldfield and Lida Junction as well as in all urban settings such as the laterals to the hospitals. Conduit would be necessary to protect the fiber optic cable in rocky areas and in all urban and rural areas. The proposed conduit is one and one-half inch diameter HDPE. The narrow backhoe trench would range from one to two feet except in rocky areas with large loose boulders where the trench may approach five feet in width.

In the Goldfield to Lida Junction section, the original material would be used to backfill the trench. Where there isn't enough granular fill to "pad" the conduit/cable before backfilling excavated rock, then sand or other acceptable material used. Final backfill is completed using dozers, an excavator and/or skid steer loaders, and the areas are typically "wheel-walked" for compaction. In urban and rural settings, the trench would be backfilled with slurry to ensure proper compaction and pavement integrity.

**Rock Sawing:** If rock sawing were necessary, the trench would be up to twelve inches wide and four feet deep.

**Directional Boring:** Hard surfaces such as paved roads would be bored wherever possible. Boring does not create a trench visible from the surface. Boring pits from eight to 10 feet in length would be necessary to tie conduit together where two bore sections meet. Bore diameters for fiber optic cable construction are large enough to accommodate (dependent on ROW owner requirements) one or more one and one-half inch HDPE conduit(s). Bore pits would be backfilled and, where appropriate, compacted using hand tamps such as mechanical whackers or compaction attachment on a backhoe.

**Utility Crossings:** Crossings of existing pipelines, power lines or telephone cables would be assessed on a case-by-case basis. For the buried sections, if an existing facility can be crossed by placing fiber optic cable at the normal specified depth (36-inch minimum) and still maintain a 12-inch clearance from the existing appurtenance, then the fiber optic cable would cross over the facility if written permission from the existing facility owners is obtained. Otherwise the cable/conduit would be placed under the existing facilities and maintain a minimum 12-inch clearance from the existing obstruction.

**Wash Culvert Crossings:** Dry washes would be plowed or bored as conditions allow and as required by the Army Corps of Engineers (ACOE) Nationwide Permit conditions. Culverts would be bored. Cable/conduit would not be placed over culverts unless written permission from the existing facility owner is obtained.

**Length of Construction Zone Layout and Sequencing:** Construction of telecommunications facilities in existing rights-of-way is a relatively fast-paced operation. The main operation for underground fiber optic cable is the plow/trench crew that is placing the fiber optic cable in the ground. The production of this crew is maximized through ROW preparations by smaller, specialized crews in advance of actual cable/conduit placing. This extends the "work zone" throughout the project area although the operations themselves are generally contained within a few hundred feet of the designed fiber optic cable route. An example of these specialized operations is boring and bridge attachment crews.

The main placing operation is relatively contained but may stretch out for a mile or more as advance excavation equipment opens trenches, exposes conduit placed previously by bore or other operations, main line trenching/plowing crews follow and finally trailing crews backfill trenches and compact and level the plow rip.

The project sequencing would follow the outline below:

- Mark ROW
- Road bores and stream crossings
- Mobilize conduit/cable placing crews
- Place conduit system and hand holes
- Pull fiber optic cable into conduit system

- Mobilize splicing/testing crew(s)
- Splice and test system
- Place route markers

Right-of-way restoration would be concurrent with construction, throughout the splicing operations and continuing until all trenches/excavations are backfilled and surfaces are reclaimed to pre-construction conditions.

**Typical Construction Progress:** Buried fiber optic cable construction crews typically construct two miles per day using the underground plow method. The Goldfield to Lida Junction section on BLM land would require 15 days.

**Equipment Types and Numbers:** There are many variations on equipment types and models used in fiber optic cable placing. The following tables list representative types of equipment designed to perform specific tasks. An example is the cable plow. Although most cross country plowing has been done with static plows mounted to various sized prime movers (mostly bulldozers), many contractors choose to use vibratory plows that allow smaller machines to be used by supplementing pulling (drawbar) power with a vibratory action to break soil compaction/resistance. Either method could be used.

**Table 2-7a. Typical Right-of-Way Preparation Equipment Group**

Description	Model	Quantity
Pickup Truck	Ford F-250 (or equivalent)	2
Bulldozer with Ripper Shank	Komatsu D85PX (or equivalent)	1
Two Ton Truck w/Chip Box	Ford F-750 (or equivalent)	1
Chipper/Shredder	Vermeer BC1200XL (or equivalent)	1
Misc. Small Power Tools	Stihl/Echo Chainsaws, etc	many

**Table 2-7b. Typical Fiber Optic Cable Plow Equipment Group**

Description	Model	Quantity
Pickup Trucks	Ford F-250 (or equivalent)	2
Semi Truck w/Lowboy Trailer	Mack Pinnacle Axle Forward (or equivalent)	1
Backhoe/Loader	Caterpillar 416E (or equivalent)	1
Excavator	Caterpillar 324D (or equivalent)	1
Cable Plow	Komatsu D65 w/Bron Plow	1
Flatbed Truck	Ford F-750 (or equivalent)	1
Cable Trailer	Miscellaneous Equipment	1
Figure 8 Machine	Miscellaneous Equipment	1



**Table 2-7c. Typical Directional Boring Equipment Group**

<b>Description</b>	<b>Model</b>	<b>Quantity</b>
Pickup Truck	Ford F-250 (or equivalent)	1
Directional Bore Machine	Ditch Witch, JT3020 MACH 1 (or equivalent)	1
Two Ton Truck w/Chip Box	Ford F-750 (or equivalent)	1
Backhoe/Loader	Caterpillar 416E (or equivalent)	1
Vacuum Locator System	Ditch Witch FX60 (or equivalent)	1

**Table 2-7d. Typical Clean-up/Restoration Equipment Group**

<b>Description</b>	<b>Model</b>	<b>Quantity</b>
Pickup Truck	Ford F-250 (or equivalent)	1
Dump Truck/Trailer	Ford F-750 (or equivalent)	1
Skid-Steer Loader	Caterpillar 259B Series 3 (or equivalent)	1
Backhoe/Loader	Caterpillar 416E (or equivalent)	1
Vacuum Locator System	Ditch Witch FX60 (or equivalent)	1
Compactor	Whacker BS 60 (or equivalent)	1

## **3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT**

### **3.1 Issues and General Setting**

#### ***3.1.1 Scoping and Issue Identification***

The issues described herein were developed through scoping with the affected agencies including the BLM, USFWS, the USFS, the DOD, BIA, State of Nevada, Nevada Department of Wildlife, and Nevada Division of Forestry. See Sections 5.0 and 6.0 for lists and descriptions of persons and agencies involved in the consultation process.

Issues with the BLM were scoped on several occasions during June through September 2011. Primary concerns brought forward include:

- The potential for impacts to cultural resources
- Coordination with tribes to get feedback on concerns
- Impacts to the desert tortoise
- Impacts to existing fiber optic cable and telecommunication facilities

Issues with the USFS, DOD and BIA were scoped in September 2011. There were no specific environmental concerns brought forward.

Issues with the BOR were scoped in September 2011. Potential impact to the desert tortoise was the only environmental concern brought forward.

Issues with the USFWS were scoped through formal Section 7 consultation for the desert tortoise initiated in August 2011.

#### ***3.1.2 General Setting***

The Proposed Action and all alternatives span between Boulder City, Nevada in southern Nevada and Reno, Nevada in northern Nevada. This distance crosses many different ecological areas.

In southern Nevada, the climate is characterized by hot dry summers in the Las Vegas Valley which are frequently over 100°F and cool winters. The freeze-free season is over 225 days. Precipitation averages less than 5 inches per year in the Las Vegas, Boulder City, and Pahrump areas. Near Mountain Springs on Hwy 160, the higher elevation equates with higher precipitation of 10 to 15 inches per year. Precipitation falls during summer monsoons and winter storms.

In central, western and northern Nevada, the climate is characterized by hot dry summers and cold winters. The frost-free season is 100 to 70 days. Precipitation comes during the winter months and is typically 5 to 10 inches per year in the valleys and up to 20 inches per year on Hwy 395 between Reno and the Carson Valley.

#### ***3.1.3 Supplemental Authorities***

The NEPA (NEPA; 42 U.S.C. §§ 4321 - 4347) specifies that federal government agency decision-making processes include environmental effects analyses. Specifically, entities (federal and non-federal) proposing projects requiring federal actions (e.g., permits, funding) must conduct an environmental analysis of the proposed project actions and reasonable alternatives to those actions. The President's Council on Environmental Quality (CEQ) oversees the regulation of NEPA.

To comply with the NEPA, the supplemental authorities itemized in the following table are requirements specified in statute, regulation or executive order and must be considered.

**Table 3-1a. Supplemental Authorities**

<b>Supplemental Authorities</b>	<b>Not Present</b>	<b>Present</b>	<b>Rationale / Discussion</b>
Air Quality		X	Construction equipment would produce exhaust; minor localized effects; fugitive dust would occur in unpaved areas
Areas of Critical Environmental Concern (ACEC)		X	The project crosses mesquite woodland in a playa flat. See the ACEC section under Biological Resources.
Cultural Resources		X	A Class I inventory of the buried portions of the project area has been completed. Discussion is in Chapters 3 and 4.
Environmental Justice		X	The project would not impact any of the designated populations described in the Executive Order. See Socioeconomic Resources.
Farmlands Prime or Unique		X	Prime farmlands are located in the project area. See Geology, Minerals, and Soils section
Floodplains		X	No new surface structures would be placed within floodplains. See Floodplains under Water Resources.
Human Health and Safety		X	See Chapters 3 and 4
Invasive, Nonnative Species		X	See this section under Biological Resources
Migratory Birds		X	See this section under Biological Resources
Native American Religious Concerns	X		At the time of publication of this EA, no written or verbal Tribal concerns have been brought forward.
Threatened & Endangered Species		X	Consultation with the USFWS indicated desert tortoise, willow flycatcher, Yuma clapper rail, and yellow-billed cuckoo as the only T&E species in the project area. See this section under Biological Resources
Wastes, Hazardous or Solids		X	See this section under Human Health and Safety
Water Quality (Surface and Ground)		X	Several perennial waters would be crossed. See Water Resources
Wetlands and Riparian Zones		X	Several wetland and riparian areas would be crossed. See Water Resources.
Wild and Scenic Rivers	X		There are no federally designated wild and scenic rivers located within the project area.
Wilderness	X		There are no federally designated wilderness areas in the project area.

Note: Supplemental Authorities determined to be Not Present need not be carried forward for analysis or discussed further in the document.

In addition to supplemental authorities, there are additional affected resources including other biological, physical, and human resources, which the BLM considers in the NEPA process. The additional affected resources that have been identified that may be present and/or affected in the project area include those listed in the following table.

**Table 3-1b. Other Resources**

<b>Other Resources</b>	<b>Not Present</b>	<b>Present</b>	<b>Rationale/ Discussion</b>
BLM Sensitive Species		X	See this section under Biological Resources
Fire Management		X	See this section under Biological Resources
Indian Trust Assets	X		No Indian Trust Assets have been identified on the Reclamation land.
Sacred Sites	X		No sacred sites have been identified on the Reclamation land.
Land Use Authorization		X	See Land Use section
Minerals		X	See Geology, Minerals, and Soils section
Paleontology		X	See Geology, Minerals, and Soils section
Recreation		X	See Recreation section
Socioeconomics		X	See Socioeconomics section
Soil		X	See Geology, Minerals, and Soils section
Vegetation		X	See section under Biological Resources
Visual Resources		X	See Visual Resources Section
Wild Horses and Burros		X	See section under Biological Resources
Wildlife		X	See section under Biological Resources

### **3.2 Air Quality**

#### **3.2.1 Air Quality Conditions**

The NDEP has adopted air quality standards that are based on the national standards for air quality. Considering all the air quality pollutants within the state's jurisdiction, monitoring data generally show no deterioration in the state's ambient air quality from 1992 to 2003 and improvement in carbon monoxide (CO) levels (State of Nevada BAQP Trend Report, 2003). In Nevada, the highest 24-hour concentrations of dust, specifically particulate matter less than 10 micrometers in size (PM-10) are often the result of high winds in dry desert terrain. High winds can occur at any time throughout the year. Weather also affects pollutant levels in other ways. In the winter, when strong temperature inversions occur in basins surrounded by mountains, CO and suspended particulates are trapped near ground level, causing poor air quality. Thus air pollution often reflects the occurrence or absence of strong inversions during winter. In the summer, ozone (O<sub>3</sub>) concentrations increase as the air temperature and amount of sunlight increase.

The NDEP Bureau of Air Pollution Control administers permits for dust control permits for projects exceeding 5 acres of disturbance and mobile sources for temporary portable equipment for road and highway construction at a location for less than 12 months, throughout the state excluding Washoe and Clark counties. The state has a special fugitive dust permitting process for the Pahrump area. The

authority to implement air pollution control requirements has been established in Nevada Revised Statutes (NRS) 445B.100 through 445B.825, inclusive, and NRS 486A.010 through 486A.180, inclusive. Washoe and Clark counties administer air quality programs within each of their perspective jurisdictions. Clark County and Washoe County are designated nonattainment for PM-10.

The Clark County Department of Air Quality and Environmental Management is the air pollution control agency for all of Clark County, Nevada. Air Quality administers a variety of programs to improve the health and welfare of county citizens by ensuring that the quality of the air in Clark County meets healthful, regulatory standards.

The Washoe County Health District Air Quality Management Division is responsible for controlling sources of air pollution and assuring compliance with federal, state, and local environmental laws governing air quality in Washoe County.

The Pahrump area was deemed to be in nonattainment in 2003 for PM-10. The Pahrump Regional Planning District Dust Control Regulations (Nye County Ordinance 289) were adopted by the Nye County Board of Commissioners on August 17, 2004, and became effective on January 1, 2005. The NDEP considers Pahrump a special permitting area and also provides funding for an inspector position based in Pahrump to assist Nye County staff in implementing and enforcing the requirements of the dust control regulations.

### **3.2.2 Greenhouse Gases (GHGs)**

The project area spans large climatic diversity, ranging from scorching lowland desert in the south to cool mountain forests in the north at higher elevations. The area has varied rugged topography, mountain ranges, and narrow valleys, which range in elevation from 2,000 feet in the Las Vegas area to over 10,000 feet at the Mountain Springs area. Wide local variations of temperature and rainfall are common.

The climate range is characterized by hot dry summers and cold winters. Summer temperatures are frequently above 100°F in the south and occasionally in the north as well. Over the northern and central portions of the state, freezes begin early in the fall and continue to late in the spring. The freeze-free season varies from less than 70 days in the northwest and northeast to about 140 days in the south-central areas to over 225 days in the south.

A winter precipitation maximum occurs in the western and south-central portions of the state, a spring maximum in the central and northeastern sections, and a summer maximum primarily in the eastern portion where thunderstorms are most frequent. Southern Nevada often receives summer rains during the monsoon season from mid-July to mid-September. Annual precipitation is as little as four inches in southern and central Nevada while the Sierra Nevada mountains on the west side of the state may receive up to 40 inches, mostly in the form of snow (NOAA, 1985).

Greenhouse gases (GHGs) are components of the atmosphere that trap heat relatively near the surface of the earth, and therefore contribute to the greenhouse effect and global warming. Most GHGs occur naturally in the atmosphere, but increases in their concentration result from human activities such as the burning of fossil fuels. Global temperatures are expected to continue to rise as human activities continue to add carbon dioxide, methane, nitrous oxide, and other greenhouse (or heat trapping) gases to the atmosphere.

Since 1900, the Earth's average surface air temperature has increased by about 1.2 to 1.4 °F. The warmest global average temperatures on record have all occurred within the past 10 years, with the warmest year being 2005 (USEPA, 2007b). Most of the U.S. is expected to experience an increase in average

temperature. Precipitation changes, which are also very important to consider when assessing climate change effects, are more difficult to predict. Whether or not rainfall will increase or decrease remains difficult to project for specific regions (USEPA, 2010a; IPCC, 2007). The extent of climate change effects, and whether these effects prove harmful or beneficial, will vary by region, over time, and with the ability of different societal and environmental systems to adapt to or cope with the change. Human health, agriculture, natural ecosystems, coastal areas, and heating and cooling requirements are examples of climate-sensitive systems. Rising average temperatures are already affecting the environment. Some observed changes include shrinking of glaciers, thawing of permafrost, later freezing, and earlier break-up of ice on rivers and lakes, lengthening of growing seasons, shifts in plant and animal ranges, and earlier flowering of trees (USEPA, 2010a; IPCC, 2007).

### **3.3 Biological Resources**

#### **3.3.1 Vegetation**

The project area is located in several biotic regions, including the Great Basin Desert in northwestern and central Nevada, and extends to the Mojave Desert in the southwestern portions. The proposed project traverses a variety of vegetation communities. The types of vegetation present and the distributions within the project corridor are influenced by a variety of factors, including elevations, slope aspect, soils, and landscape position.

The Southwest Regional Gap Analysis Project (ReGAP) is an update of the 2005 Gap Analysis mapping and assessment of biodiversity for a five-state region encompassing Arizona, Colorado, Nevada, New Mexico, and Utah. It represents a multi-institutional cooperative coordinated by the U.S. Geologic Survey (USGS). This program provides regional assessments of the location, extent, and conservation status for native invertebrate species and natural land cover types to facilitate the application of this information to land management activities (USGS 2011). This GIS-based data was used to identify and assess project effects on the vegetation resources.

In addition to the vegetation communities identified using the ReGAP database, developed areas of low and medium intensity were identified along the project corridor. These areas include a mixture of development with vegetation typified by developed landscaping. Areas described as “low intensity” development are characterized by 20 percent developed impervious surface. Low intensity development commonly includes large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes. Medium intensity development includes areas such as single-family housing units, and is characterized by approximately 50-79 percent impervious surface.

Cactus and yucca may be present within the project impact area. Cactus and yucca are considered government property and are regulated under the Nevada BLM forestry program.

General descriptions of the land cover and vegetation communities identified within the project corridor as classified by Southwest ReGAP data are described in Table 3-2 by project segment.

**Table 3-2. Vegetation Communities Occurring Within Project Corridor**

<b>Vegetation Community Type</b>	<b>General Description</b>	<b>Representative Plant Species</b>	<b>Location/Segment</b>
Agriculture	Includes both pasture/hay planted for livestock grazing or hay crops and annual cultivated crops.	Grasses, legumes, vegetables.	Primarily located within floodplains of larger rivers, including the Carson and West Walker rivers, and the Truckee Canal. Between Carson City and Gardnerville and surrounding Yerington
Great Basin Foothill/Lower Mtn Riparian Woodland and Shrubland	This tree-dominated community occurs in mountain ranges of the Great Basin and along the eastern slope of the Sierra Nevada within a broad elevation range from 4,000 to 7,000 feet.	White fir, mountain alder, birch, cottonwood, and willows. Herbaceous layer often dominated by sedges and rushes, and perennial grasses such as hair grass and thick spike wheatgrass.	Very small locations along Carson River and Walker River
Great Basin Pinyon-Juniper Woodland	Occurs on dry mountain ranges and eastern foothills of the Sierra Nevada within an elevation range of 4,800 to 7,800 feet. These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus, and ridges.	Dominated by a mix of pinyon and juniper. Curl-leaf mountain mahogany is a common associate. Associated species include low sagebrush, big sagebrush, blackbrush, and bunch grasses such as needle-and-thread grass, Idaho fescue, and Great Basin wildrye.	Common along Hwy 395 south of Gardnerville. Spring Mountains
Great Basin Xeric Mixed Sagebrush Shrubland	This shrub dominated community occurs on dry flats and plains, alluvial fans, rolling hills, rocky hill slopes, saddles, and ridges at elevations between 3,000 and 7,800 feet.	Black sagebrush (mid and low elevations), low sagebrush (high elevation), and may be codominated with Wyoming big sagebrush and rabbitbrush. Herbaceous layer is sparse and composed of perennial bunch grasses, such as Indian ricegrass, Thurber's needlegrass, and bottlebrush squirreltail.	Scattered along Hwy 395 between Garnerville and Yerington and southeast of Hawthorne. Near Goldfield
Inter-Mountain Basins Big Sagebrush Shrubland	Typically forms in broad basins between mountain ranges, plains and foothills between 4,500 to 7,800 feet. Shrub dominated with typically less than 25% vegetative cover.	Big sagebrush, scattered juniper, greasewood, and saltbushes may be present in some stands. Rabbitbrush and antelope bitterbrush may codominate in disturbed stands. Perennial grasses include Indian ricegrass, blue grama grass, thickspike wheatgrass, and Idaho fescue.	Common community found along Hwy 395 north and south of Gardnerville; between Lida and Goldfield
Inter-Mountain Basins Cliff and Canyons	Foothill to subalpine elevations and includes barren and sparsely vegetated landscapes of steep cliff faces, narrow canyons, and smaller rock outcrops.	Widely scatter trees and shrubs may include white fir, pinyon, limber pine, juniper, big sagebrush, antelope brush, and mountain mahogany.	Minor amounts in the hills east of Walker Lake

<b>Vegetation Community Type</b>	<b>General Description</b>	<b>Representative Plant Species</b>	<b>Location/Segment</b>
Inter Mountain Basin Greasewood Flat	Located in intermountain basins, typically near stream terraces and flats with saline soils and shallow water tables. Moderately dense shrublands.	Dominated by greasewood. Saltbush and winterfat may codominate. If present, herbaceous layer may include alkali sacaton, saltgrass, or spike rush.	Minor amounts crossed north of Walker Lake and west of Tonopah. Commonly occurring east of Fernley.
Inter-Mountain Basins Mixed Salt Desert Scrub	Open canopied shrublands typically found in saline basins, alluvial slopes and plains. Sparse to moderate herbaceous layer.	Characterized by one or more species of salt brush (shadscale, four-winged, allscale). Other codominate shrubs may include Wyoming big sagebrush, rabbitbrush, Mormon tea, or winterfat. Dominant grass species include Indian ricegrass, blue grama, thickspike wheatgrass, big galleta, and Sandburg bluegrass.	The dominant vegetation type on the alluvial fans from Silver Springs to Lida Junction. Common east of Hawthorne.
Inter-Mountain Basins Montane Sagebrush Steppe	Occurs in montane and subalpine elevations where climate is cool and semi arid. Occurs on deep-soiled to stony flats, ridges, ridge tops, and mountain slopes. Typically consist of abundant herbaceous layer.	Primarily dominated by mountain sagebrush, with antelope bitterbrush as common codominate. Other common shrubs include snowberry, serviceberry, and rabbitbrush. Common grasses include Idaho fescue, needle-and-thread grass, slender wheatgrass, and Sandburg bluegrass.	Small areas in the Wassuk Range
Inter-Mountain Basins Playa	Composed of barren to sparsely vegetated playas. Salt rusts are common throughout, with small saltgrass beds in depressions and around margins.	Characteristic species may include greasewood, spiny hopsage, alkaligrass, and saltgrass.	Soda Springs Valley near Mina
Inter-Mountain Basins Semi-Desert Grassland	Occurs on dry plains at approximately 4,750 to 7,610 feet.	Dominated by perennial bunch grasses such as Indian ricegrass, three-awn, blue grama, needle-and-thread grass, and big galleta. Scattered shrubs include sagebrush, salt brush, blackbrush, Mormon tea, and snakeweed.	Flat valley bottom areas surrounding Yerington
Inter-Mountain Basins Semi-Desert Shrub Steppe	Occurs on alluvial fans and flats with moderate to deep soils. Typically dominated by grasses with an open shrub layer.	Indian ricegrass, saltgrass, needle-and-thread grass, big galleta, Sandburg bluegrass, alkali sacaton. Shrub layer may include: four-wing saltbush, big sagebrush, rabbitbrush, snakeweed, and winterfat.	East of Gardnerville; common between Lida Junction and Beatty
Invasive Annual Grassland	Non-native grasses often occurring on disturbed areas.	Crested wheatgrass, smooth brome, bulbous bluegrass, Kentucky bluegrass	Near Yerington
Invasive Annual/Biennial Forbland	Non-native forbs often occurring on disturbed areas.	Halogeton, kochia, Russian thistle	Carson Valley, Mason Valley
Invasive Southwest Riparian Woodland and Shrubland	Non-native woodlands.	Salt cedar, Russian olive	Near Yerington



<b>Vegetation Community Type</b>	<b>General Description</b>	<b>Representative Plant Species</b>	<b>Location/Segment</b>
North American Arid West Emergent Marsh	Marshes are frequently or continually inundated, with stable or fluctuating water levels.	Bulrushes, cattails, rushes, smartweeds. May include floating species such as duckweed and pondweed.	Rare, associated with the Carson River and Walker River
North American Warm Desert Bedrock Cliff and Outcrop	Sparsely vegetated canyon, cliff and rock outcrops.	Lichens, cholla and succulents	Rare, Spring Mountains
North American Warm Desert Pavement	Unvegetated to sparsely vegetated flat basins.	Creosote bush, buckwheat	Rare, Pahrump area
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	Treed and shrub-dominated canyons and valleys along riparian corridors with perennial and seasonally intermittent streams.	Cottonwood, seep willow, sycamore, soapberry	North of Beatty
North American Warm Desert Playa	Forms in wind swept desert basins. Intermittent flooding.	Saltgrass, spikerush Indian ricegrass, Tiquilia, and saltbushes.	Scattered occurrences west of Las Vegas and south of Lida Junction
North American Warm Desert Riparian Mesquite Bosque	Occurs in riparian corridors along intermittent streams.	Dominant trees include honey and velvet mesquite. Shrub dominants include mule fat and coyote willow.	Scattered occurrences west of Las Vegas; North of Beatty; near Amargosa Flat
North American Warm Desert Wash	Occurs in intermittently flooded, linear washes that dissect the adjacent desert scrub.	Desert willow or catclaw acacia	West of Las Vegas
Mojave Mid-Elevation Mixed Desert Scrub	Located in the transition zone between Creosote-bursage and lower montane woodlands.	Co-dominants include black brush, California buckwheat, Mormon tea, spiny hopsage, spiny menodorah, cactus, and yucca. Grasses include Indian ricegrass, desert needlegrass, Hilaria grass, big galleta, Sandburg bluegrass.	A dominant between Las Vegas and Pahrump on the flanks of the Spring Mountains
Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodland	Mixed conifer forests	Douglas fir, white fir, ponderosa pine	Small amount in the Wassuk Range
Sonora-Mohave Creosotebush-white Bursage Desert	Commonly occurring in southern Nevada, this system forms the dominant vegetation matrix in broad valleys, plains, and low hills.	Creosotebush and white bursage dominate. Associated species include four-wing saltbush, desert holly, brittlebush, Mormon tea, and beavertail cactus.	Dominant between Lida Junction and Pahrump
Sonora-Mojave Mixed Salt Desert Scrub	Consists of open canopied shrublands within saline basins in the Mojave desert.	Composed of one or more saltbush species. Iodine bush, seepweed and other halophytic plants are often present. Grasses may include saltgrass or alkali sacaton.	Scattered occurrences near Las Vegas and south of Pahrump. Abundant between Lida Junction and Pahrump

### **3.3.2 Amargosa Mesquite Area of Critical Environmental Concern (ACEC)**

The project area crosses the Amargosa Mesquite ACEC in Nye County south of Amargosa Springs. This 6,891-acre ACEC was designated to protect 1,700 acres of mesquite woodlands important for Neotropical bird species. This mesquite woodland occurs in association with a sand dune system, offering protection from weather and predators, and provides a location where birds can find shelter to help them conserve energy in an extreme environment. Desert woodlands comprise a small percentage of the total vegetation in the Southwest, but support greater densities of birds than surrounding desert habitats. Woodland patches scattered throughout the desert may play an important role in the successful migration of birds attempting to cross large ecological barriers such as deserts, as they provide important stopover sites (BLM, 2011). The Amargosa Mesquite ACEC is illustrated in Figure 26.

### **3.3.3 Wildlife**

Wildlife habitat types were correlated with vegetation types in the Nevada Department of Wildlife (NDOW) Nevada Wildlife Action Plan (NDOW 2006). Documented wildlife species occurrences within a three-mile buffer area around the proposed project routes are provided in Appendix B. There are 14 key habitat types in the project area. Priority conservation species for each habitat type that were identified by the inter-agency Wildlife Action Plan Team are shown in Table 3-3. These lists of species are representative of the kinds of birds, mammals, reptiles, and amphibians that may be encountered in the project area.

A query of NDOW databases of wildlife sight records, commercial reptile collections, scientific collections, raptor nest sites and ranges, sage-grouse habitat, and big game distributions was used to provide additional information of species known to occur within a three-mile buffer of the proposed project area routes. These data are summarized for each of the three NDOW administrative (eastern, southern and western) in Table 3-4. Wildlife distribution maps depicting the three-mile buffer area around the project area are included with the letter from NDOW dated August 31, 2011 provided in Appendix E.

Mule deer are a Nevada species of conservation priority. Mule deer are distributed throughout the entire NDOW eastern region. In the western and southern regions, mule deer occur throughout many of the mountain ranges around the project area. There is no mule deer habitat within the three-mile buffer area in the southern region.

Rocky Mountain elk distribution occurs within the three-mile buffer around Elko, and near the three-mile buffer area south of Beatty and east of Pahrump in the Spring Mountains.

Pronghorn antelope occur within the three-mile buffer around Elko. In the southern region, pronghorn are distributed through valleys north of the three-mile buffer area and within the three-mile buffer area from Tonopah to south of Goldfield. In the western region, pronghorn distribution intersects the three-mile buffer area from Hawthorne to Tonopah and north of Yerington toward Silver Springs.

**Table 3-3. Important Habitat Types and Key Habitat Elements for Nevada Conservation Priority Species**

Habitat Type	Vegetation Types	Key Habitat Elements of Importance to Wildlife	Priority Species That Use This Habitat	
Agricultural Land	Agriculture	Irrigated fields, fallow fields, uncut hay meadows, and cottonwood trees associated with agricultural provide nesting, foraging, burrowing, protection from predators, perch sites, and attract raptors.	Ferruginous Hawk Greater Sage-Grouse Swainson's Hawk Greater Sandhill Crane Short-eared owl	Burrowing Owl Bobolink Lewis' Woodpecker Loggerhead Shrike Snowy Egret White-faced Ibis
Intermountain Cold Desert Scrub	Intermountain Basins Greasewood Flat Intermountain Basins Mixed Salt Desert Scrub Inter-mountain Basins Semi-desert Shrub Steppe	Shrubs provide nesting structure, protection from predators, and thermal cover. Sandy soils are used for burrows and dens. Rock features and gravelly soils are used for dens and protection from predators.	Loggerhead Shrike Sage Sparrow Brewer's Sparrow Burrowing Owl Pale Kangaroo Mouse Dark Kangaroo Mouse Desert Horned Lizard	Long-nosed leopard lizard Kit Fox Great Basin Collared Lizard Bald Eagle Ferruginous Hawk Pallid Bat Greater short-horned Lizard
Lower Montane Woodlands	Great Basin Pinyon-Juniper Woodland North American Warm Desert Lower Montane Riparian Woodland and Shrubland Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodland	Trees, snags, and Rock outcrops are used for nesting structure, protection from predators, thermal protection, and roosting. Grassy understory is used for foraging. Burned and disturbed areas provide an insect prey base for foraging.	Cooper's Hawk Western Bluebird Ferruginous Hawk Townsend's Big-Eared Bat Spotted Bat	Big Free-tailed bat Broad-tailed Hummingbird Green Towhee Sonoran Lyre Snake
Intermountain Rivers and Streams	Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	Willows and cottonwood provide nesting structure, foraging, protection from predators, and thermal cover. Rocks and Canyon provide foraging, protection from predators, and thermal cover. Aquatic habitat is important for fish, frogs, and aquatic insects.	Mountain Quail Mountain Willow Flycatcher Inyo Shrew Mountain Shrew Brush Mouse Cassin's Finch Northern Goshawk Swainson's Hawk Lewis' Woodpecker	Bald Eagle Snowy Egret Northwestern Pond Turtle Lahontan cutthroat Trout White River Speckled Dace White River Spin dace Northern Leopard Frog Columbia Spotted Frog Ringtail Water Shrew Sonoran Mountain Kingsnake

Habitat Type	Vegetation Types	Key Habitat Elements of Importance to Wildlife	Priority Species That Use This Habitat	
Sagebrush	Great Basin Xeric Mixed Sagebrush Shrubland Inter-Mountain Basin Big Sagebrush Shrubland Inter-Mountain Basin Montane Sagebrush Steppe	Shrubs are used for nesting structure, protection from predators, thermal cover, and foraging. Deep soils and sandy soils are used for burrows. The woodland/rock ecotone is use fro nesting and foraging  Understory grasses and forms are used for nesting cover and foraging.	Greater Sage –Grouse Loggerhead Shrike Sage Sparrow Brewer’s Sparrow Mule Deer Pygmy Rabbit Ferruginous Hawk Sagebrush Vole Merriam’s Shrew Preble’s Shrew Gilbert’s Skink	Panamint Kangaroo Rat Burrowing Owl Dark Kangaroo Mouse Pale Kangaroo Mouse Inyo Shrew Bald Eagle Kit Fox Desert Horned-Lizard Greater Short-horned Lizard Wyoming Ground Squirrel Columbian Sharptailed Grouse
Grasslands and Meadows	Inter-mountain Basins and Semi-Desert Grassland	Grasses, forbs, and shrubs are used for nesting, foraging, protection from predators, and thermal cover. Loose and moist sols are used for dens and burrows.	Cinnamon Teal Long-billed Curlew Short-eared Owl Willet Pale Kangaroo Mouse Dark Kangaroo Mouse California Kangaroo Rat American Pika Western Jumping Mouse Greater Sage-Grouse Rufous Hummingbird Loggerhead Shrike Burrowing Owl	Mountain Pocket Gopher Merriam’s Ground Squirrel Kit fox Broad-footed Mole Preble’s Shrew Ferruginous Hawk Swainson’s Hawk Long-nosed Leopard Lizard Desert Horned Lizard Greater Short-Horned Lizard Aplodontia
Cliffs and Canyon	Inter-Mountain Basins Cliff and Canyon North American Warm Desert Bedrock Cliff and Outcrop	Ledges, crevices, and rocky slopes provide nesting structure, roosting, protection from predators, and foraging.	Ferruginous Hawk Peregrine Falcon Black Rosy Finch Pallid Bat Spotted Bat Ringtail Big Free-tailed Bat Pika	Nelson Bighorn Sheep California Bighorn Sheep Banded Gila Monster Sierra Nevada Alligator Lizard Chuckwalla Great Basin Collared Lizard Sonoran Lyre Snake Sonoran Mountain Kingsnake Golden Eagle

Habitat Type	Vegetation Types	Key Habitat Elements of Importance to Wildlife	Priority Species That Use This Habitat	
Desert Playas and Ephemeral Pools	Inter-mountain Basins playa North American Warm Desert Playa North American Warm Desert Pavement	Emergent and submergent vegetation used for foraging, breeding and brooding.	American Avocet Snow Egret Snowy Plover Willet Long-billed Curlew	Eared Grebe Northern Pintail Cinnamon Teal Black-necked Stilt
Mojave/Sonoran (Warm Desert) Scrub	Sonora-Mojave Creosote Bush White Bursage Desert Scrub Sonora-Mojave Mixed Salt Desert Scrub	Creosote bush, saltbush, and yucca provide nesting structure and protection from predators. Pebbly soils and pavement provide nesting substrate. Sandy soils are used for dens and burrows. Wash ecotone is used for foraging. Rocks and canyons provide protection from predators. Plant litter provides protection from predators, thermal cover, and moisture retention.	LeConte's Thrasher Loggerhead Shrike Bendire's Thrasher Desert Night Lizard Burrowing Owl Long-nosed Leopard Lizard Desert Iguana Desert Tortoise Kit Fox Desert Pocket Mouse Verdin	Sonoran Lyre Snake Great Basin Collared Lizard Chuckwalla Banded Gila Monster Ringtail Nelson Bighorn Sheep Gilbert's Skink Desert Night Lizard Prairie Falcon Crissal Thrasher Long-tailed Brush Lizard
Mojave Mid-elevation Mixed Desert Scrub	Mojave Mid-Elevation Mixed Desert Scrub	Yucca, blackbrush, oak, and other shrubs provide nesting structure, protection from predators, and thermal cover. Understory grasses and forbs provide forage and protection from predators. Sandy soils are used for burrows and dens. Pebbly soils and pavement are used as nesting substrate. Rock outcrops provide protection from predators and foraging.	Scott's Oriole Loggerhead Shrike Bendire's Thrasher Desert Night Lizard Crissal Thrasher Brewer's Sparrow Panamint Kangaroo Rat Black-Chinned Sparrow Burrowing Owl Western Banded Gecko Great Basin Collard Lizard Chuckwalla	Kit Fox Desert Tortoise Desert Iguana Desert Horned Lizard Long-nosed Leopard Lizard Ringtail Nelson Bighorn Sheep Banded Gila Monster Sonoran Lyre Snake Costa's Hummingbird Verdin Gilbert's Skink Panamint Alligator Lizard

Habitat Type	Vegetation Types	Key Habitat Elements of Importance to Wildlife	Priority Species That Use This Habitat	
Marshes	North American Arid West Emergent Marsh	All elements are used for nesting, foraging, protection from predators, and for movement corridors	Clark's Grebe Western Grebe Eared Grebe Canvasback Redhead Forster's Tern American Whit Pelican Least Bittern Short-eared Owl Yuma Clapper Rail	Long-billed Curlew Greater Sandhill Crane Cinnamon Teal Showy Egret Tricolored Blackbird Snowy Plover Bald Eagle Ferruginous Hawk Northern Leopard frog Tui Chub (multiple species) Speckled Dace (multiple species)
Mesquite Bosque and Desert Washes	North American Warm Desert Riparian Mesquite Bosque North American Warm Desert Wash	Shrubs and trees provide nesting structure, protection from predators, foraging, and thermal cover. Sandy bottoms and grassy flats are used for burrows. Canyon and Rocks are used for foraging, burrowing, protection from predators, and movement corridors.	Loggerhead Shrike LeConte's Thrasher Crissal Thrasher Costa's Hummingbird Desert Night Lizard California Leaf-nosed Bat Lucy's Warbler Phainopepla Burrowing Owl Kit Fox	Ringtail Banded Gila Monster Western Banded Gecko Chuckwalla Great Basin Collared Lizard Desert Tortoise Desert Iguana Gilbert's Skink Panamint Alligator Lizard
Invasive Grasslands and Forblands	Invasive Annual and Biennial Forbland; Invasive Annual Grassland Invasive Southwest Riparian Woodland and Shrubland	Important for foraging, denning and supporting prey populations	Burrowing Owl Ferruginous Hawk Swainson's Hawk Kit Fox	Wyoming Ground Squirrel Desert-Horned Lizard Long-Nosed Leopard Lizard

### **3.3.4 Migratory Birds**

On January 11, 2001, President Clinton signed Executive Order 13186 (EO) placing emphasis on the conservation and management of migratory birds. Migratory birds are protected under the Migratory Bird Treaty Act of 1918 (MBTA) and the EO addresses the responsibilities of federal agencies to protect migratory birds by taking actions to implement the MBTA. BLM management for migratory bird species on BLM-administered lands is based on Instruction Memorandum (IM) No. 2008-050. This IM includes species lists. These lists have been updated based on the 2010 Memorandum of Understanding between BLM and USFWS to promote the conservation of migratory birds, which states that BLM will consult the current USFWS Species of Concern lists (BLM MOU WO-230-2010-04). BLM migratory birds of concern include: 1) federally listed birds that are listed under the MBTA; 2) USFWS Bird of Conservation Concern 2008 (BCC 2008) species that are listed under the MBTA; 3) Candidate, proposed, and recently delisted since BCC 2008 that are listed under the MBTA; 4) the USFWS list of game birds below desired condition (GBBDC); and 5) BLM sensitive species that are listed under the MBTA.

The Bald and Golden Eagle Protection Act (Eagle Act) (1940 as amended 1959, 1962, 1972, 1978) prohibits anyone without a permit issued by the Secretary of the Interior from “taking” eagles, including their parts, nests, or eggs. The Eagle Act defines “take” as “to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb”. “Disturb” means “to agitate or bother a bald or golden eagle to a degree that causes or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior.” “Important eagle-use area” is defined in the Eagle Act as an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles.

Migratory birds are important components of biological diversity. Their conservation and management help sustain ecological integrity, insect control, pollination of wild and cultivated flora, and natural seed dispersal. Migratory bird conservation and management helps meet the demand for outdoor recreation such as wildlife viewing and hunting opportunities. The Intermountain West avifaunal biome is the center of distribution for many western birds (Rich et al. 2004). Over half of this biome’s Species of Continental Importance have 75% or more of their population here. Many breeding species from this biome migrate to winter in central and western Mexico or in the Southwestern biome. Shrub-nesting species comprise the largest number of Species of Continental Importance in this biome.

The project area falls within the Pacific Administrative Flyway (USFWS, 2011). The largest area of concern for migratory birds in Nevada for the proposed project is where water is near the project area. Water occurs near Ft. Churchill along the Carson River, near Yerington and the Walker River, and near Beatty along the Amargosa River. Tables 3-3 above and the following Table 3-4 include the migratory birds, among other species, with potential to utilize the habitat along the project alignments.

Raptors that are associated with habitats along the project area are included in Table 3-3. Raptors with documented occurrences within a three-mile buffer around the project area are identified in the letter from NDOW dated August 31, 2011 in Appendix E. There are no NNHP or NDOW records of bald eagles within the 10-mile area encompassing the proposed project area. However, the NDOW database has records of golden eagle nests within 10 miles of the proposed project area.

### 3.3.5 *Threatened, Endangered and Sensitive Species*

State and federally listed threatened and endangered species and BLM and USFS sensitive species with potential to be affected by the project were identified through correspondence with the USFWS, BLM, USFS, NDOW and review of the Nevada Natural Heritage Database.

State law provides that a species or subspecies of native flora shall be regarded as threatened with extinction when the state forester fire warden, after consultation with competent authorities, determines that its existence is endangered and its survival requires assistance because of overexploitation, disease or other factors or because its habitat is threatened with destruction, drastic modification or severe curtailment (N.R.S. 527.270). The law also authorizes a program for the conservation, protection, restoration, and propagation of selected species of flora and for the perpetuation of the habitats of such species (N.R.S. 527.260, .300).

Under the ESA, species may be listed as either endangered or threatened. “Endangered” means a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future. The ESA makes it unlawful for a person to take a listed animal without a permit. Take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” Through regulations, the term “harm” is defined as “an act, which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.” Listed plants are not protected from take, although it is illegal to collect or maliciously harm them on federal land.

BLM Manual 6840 establishes policy for the management of BLM sensitive species and their habitat (BLM 2008). All federally designated candidate species, proposed species, and delisted species in the five years following their delisting shall be conserved as Bureau sensitive species. Sensitive species are species requiring special management considerations to promote their conservation and reduce the likelihood and need for future listing under the ESA. Species designated as Bureau sensitive must be native species found on BLM-administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either: (1) there is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment (DPS) of the species is at risk across all or a significant portion of the species range; or (2) the species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.

In March 2010, the USFWS published the 12-month status review finding for the greater sage-grouse (*Centrocercus urophasianus*) and determined that the species warrants the protection of the ESA, but listing was precluded by higher priority listing actions. The USFWS also announced that listing the Bi-State population (previously referred to as the Mono Basin area population), which meets criteria as a DPS of the greater sage-grouse, is warranted but precluded. As a result, both the greater sage-grouse rangewide and the Bi-State DPS have been placed on the candidate list for future action. Though candidate species receive no legal protection under the ESA, they could be proposed for listing in the near future. States continue to be responsible for managing the species. Sage-grouse are managed by the BLM as a sensitive species and potential impacts from projects are analyzed to ensure that they do not exacerbate further decline of the species.

Sensitive species are species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as BLM sensitive or USFS sensitive by the respective State Director(s). The habitat requirements and known



distribution of each sensitive species identified by the agencies or included in the NNHP database was reviewed. The October 2011 BLM sensitive species list was reviewed.

Species identified as threatened, endangered, or sensitive that have a reasonable probability of occurrence within the project corridor are listed in Table 3-4.

**Table 3-4. Threatened, Endangered or Sensitive Species With Potential to Occur in the Project Corridor**

COMMON NAME	SCIENTIFIC NAME	STATUS
<b>PLANTS</b>		
<b>Rough angelica</b>	<i>Angelica scabrida</i>	BLM Sensitive Species
<u>Habitat</u> : Moist rocky calcareous drainages, canyon bottoms, or seepy or north-facing slopes over carbonate or sandstone rock in the interior chaparral, mountain brush, and montane coniferous forest zones. Aquatic or wetland-dependent.		
Endemic to the Spring Mountains in Clark County.		
<b>White bearpoppy</b>	<i>Arctomecon merriamii</i>	BLM Sensitive Species
<u>Habitat</u> : Occurs on a wide variety of dry to sometimes-moist basic soils, including alkaline clay and sand, gypsum, calcareous alluvial gravels, and carbonate rock outcrops.		
Potential to occur from Las Vegas to Pahrump and Pahrump to Beatty. Near the project area it has been reported on the north end of the Charleston Mountains, ridge west of Indian Ridge 4.8 miles southwest of Hwy 95 and Indian Springs, 4500 ft.		
<b>Eastwood Milkvetch</b>	<i>Asclepias eastwoodiana</i>	BLM Sensitive Species USFS Sensitive Species
<u>Habitat</u> : Occurs in open areas on a wide variety of basic (pH usually 8 or higher) soils, including calcareous clay knolls, sand, carbonate or basaltic gravels, or shale outcrops, generally barren and lacking competition, frequently in small washes or other moisture-accumulating microsites, in the shadscale, mixed-shrub, sagebrush, and lower pinyon-juniper zones.		
Potential to occur near Tonopah		
<b>Cima milkvetch</b>	<i>Astragalus cimae var. cimae</i>	USFWS Species of Concern BLM Sensitive Species
<u>Habitat</u> : Dry, open, relatively barren calcareous gravel slopes or clay hills. Known to occur in Mineral and Nye Counties and also California.		
Potential to occur between Yerington and Beatty.		
<b>Black woollypod</b>	<i>Astragalus funereus</i>	BLM Sensitive Species
<u>Habitat</u> : Occurs on dry, open scree, talus, or gravelly alluvium derived from light-colored volcanic tuff, on east, south, less commonly west, rarely north aspects		
Potential to occur near Beatty.		
<b>Sodaville milkvetch</b>	<i>Astragalus lentiginosus var. sesquimetralis</i>	State Endangered
<u>Habitat</u> : Moist, open, alkaline hummocks and drainages near cool springs with <i>Distichlis spicata</i> , <i>Sarcobatus vermiculatus</i> , <i>Sporobolus airoides</i> , etc. Aquatic or wetland-dependent in Nevada. Known to occur in Mineral and Nye Counties.		
Potential to occur near Walker Lake		

COMMON NAME	SCIENTIFIC NAME	STATUS
<b>Halfring milkvetch</b>	<i>Astragalus mohavensis</i> var. <i>hemigyris</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs on Carbonate gravels and derivative soils on terraced hills and ledges, open slopes, and along washes in the creosote-bursage, blackbrush, and mixed-shrub zones.		
Potential to occur near Johnny between Pahrump and Beatty		
<b>Lavin eggvetch</b>	<i>Astragalus oophorus</i> var. <i>lavinii</i>	BLM Sensitive Species
<u>Habitat:</u> Open, dry, relatively barren gravelly clay slopes, knolls, badlands, or outcrops, derived from volcanic ash or carbonate, usually on northeast to southeast aspects, in openings in the pinyon-juniper or sagebrush zones. Known to occur in Douglas, Lyon, and possibly Mineral Counties.		
Potential to occur from Silver Springs to Hawthorn		
<b>Tonopah milkvetch</b>	<i>Astragalus pseudodanthus</i>	BLM Sensitive Species
<u>Habitat:</u> Deep loose sandy soils of stabilized and active dune margins, old beaches, valley floors, or drainages, with <i>Sarcobatus vermiculatus</i> and other salt desert shrub taxa. Dependent on sand dunes or deep sand in Nevada. Known to occur in Churchill, Esmeralda, Mineral, Nye, and possibly Lyon Counties.		
Potential to occur between Silver Springs and Tonopah.		
<b>Spring Mountains milkvetch</b>	<i>Astragalus remotus</i>	BLM Sensitive Species USFS R4 Sensitive Species
<u>Habitat:</u> Occurs on rocky, gravelly, and sandy calcareous soils derived from carbonate or sandstone. Commonly found in washes and drainages, or on hillsides or rocky ledges within desert shrub and desert wash communities. Recorded at elevations ranging from 3,400 to 7,050 feet.		
Endemic to the Spring Mountains in Clark County. Potential to occur between Las Vegas and Pahrump.		
<b>Toquima milkvetch</b>	<i>Astragalus toquimanus</i>	BLM Sensitive Species
<u>Habitat:</u> Dry, stiff, sandy to gravelly, generally somewhat basic or calcareous soils in <i>Pinus monophylla</i> , <i>Juniperus osteosperma</i> , and/or <i>Artemisia communities</i> , mostly on flats or gentle slopes, frequently growing under or up through shrubs. Known to occur in Nye County.		
Potential to occur from Tonopah to Pahrump.		
<b>Currant milkvetch</b>	<i>Astragalus unicalis</i>	BLM Sensitive Species
<u>Habitat:</u> Dry, open, sparsely-vegetated, calcareous sandy-clay soils on flats and gentle slopes of hillsides and alluvial fans. Known to occur in Nye County and also Utah.		
Potential to occur from Tonopah to Pahrump.		
<b>Alkali Mariposa lily</b>	<i>Calochortus striatus</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in meadows and wetlands.		
Potential to occur in the Beatty area.		
<b>Tecopa birdbeak</b>	<i>Cordylanthus tecopensis</i>	USWFS Species of Concern BLM Sensitive Species
<u>Habitat:</u> Open, moist to saturated, alkali-crusted clay soils of seeps, springs, outflow drainages, and meadows, with <i>Distichlis spicata</i> , <i>Juncus balticus</i> , <i>Eleocharis</i> , <i>Spiranthes infernalis</i> , <i>Centaureium namophilum</i> , <i>Typha</i> , <i>Cirsium</i> , <i>Ivesia kingii</i> , <i>Ericameria albida</i> , etc. Dependent on wetland margin areas in Nevada. Known to occur in Esmeralda and Nye Counties in Nevada and in California.		
Potential to occur between Lida Junction and Pahrump.		

COMMON NAME	SCIENTIFIC NAME	STATUS
<b>Beatley buckwheat</b>	<i>Eriogonum beatleyae</i>	BLM Sensitive Species
<u>Habitat:</u> Dry volcanic outcrops. Known to occur in Churchill, Esmeralda, Eureka, Mineral, Nye and possibly Lander Counties in Nevada and also in California.		
Potential to occur between Hawthorne and Pahrump.		
<b>Pahrump Valley buckwheat</b>	<i>Eriogonum bifurcatum</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs on mostly in barren, saline, heavy clay or silty hardpan soils on and near dry playa margins, and on adjacent shore terraces and stabilized sand dunes.		
Potential to occur near Pahrump.		
<b>Las Vegas buckwheat</b>	<i>Eriogonum corymbosum</i> var. <i>nilesii</i>	BLM Sensitive Species State Protected
<u>Habitat:</u> Confined to gypsum-rich soils in central and eastern Clark County.		
Potential to occur near Las Vegas and Boulder City. However the proposed routes in these areas do not cross gypsum-rich soils.		
<b>Churchill Narrows buckwheat</b>	<i>Eriogonum diatomaceum</i>	USFWS Candidate Species State Endangered
<u>Habitat:</u> Occurs on silty diatomaceous deposits of the Coal Valley Formation appearing as white, chalky slopes, in saltbush communities.		
Known only from a few scattered populations in the Churchill Narrows area south of Fort Churchill State Park in Lyon County. 4264–4592 feet. Potential to occur near the Silver Springs to Yerington route south of the Carson River.		
<b>Clokey buckwheat</b>	<i>Eriogonum heermannii</i> var. <i>clokeyi</i>	BLM Sensitive Species USFS Sensitive Species
<u>Habitat:</u> Occurs on carbonate outcrops, talus, scree, and gravelly washes and banks in the creosote-bursage, shadscale, and blackbrush zones		
Potential to occur from Las Vegas to Pahrump.		
<b>Nevada willowherb</b>	<i>Epilobium nevadense</i>	BLM Sensitive Species
<u>Habitat:</u> Slopes with limestone outcrops or talus at 5,000-9,100 feet elevation. Associated with singleleaf pinyon ( <i>Pinus monophylla</i> ), and ponderosa pine ( <i>P. ponderosa</i> ). Known to occur in Clark, Eureka, and Lincoln Counties in Nevada and also in Utah.		
Potential to occur between Las Vegas and Pahrump in the Spring Mountains.		
<b>Smooth dwarf greasebush</b>	<i>Glossopetalon pungens</i> var. <i>glabrum</i>	BLM Sensitive Species USFS Sensitive Species
<u>Habitat:</u> Occurs on crevices of carbonate cliffs and outcrops, generally avoiding southerly exposures, in the pinyon-juniper, mountain mahogany, and montane conifer zones.		
Potential to occur between Las Vegas and Pahrump in the Spring Mountains.		
<b>Rough dwarf greasebush</b>	<i>Glossopetalon pungens</i> var. <i>pungens</i>	BLM Sensitive Species
Crevices of carbonate cliffs and outcrops, generally avoiding southerly exposures, mainly in the lower piñon–juniper and montane conifer zones.		
Known to occur in Clark and Nye Counties, apparently restricted to the Spring and Sheep Ranges 4,400–7,800 feet.		

COMMON NAME	SCIENTIFIC NAME	STATUS
<b>Sand cholla</b>	<i>Grusonia pulchella</i>	BLM Sensitive Species
<u>Habitat:</u> Mojave desert creosote bush scrub and sagebrush scrub; sandy to rocky flats or slopes, often at edges of dry washes and lakes.		
Potential to occur Las Vegas to Pahrump and Pahrump to Boulder City.		
<b>Jaeger ivesia</b>	<i>Ivesia jaegeri</i>	BLM Sensitive Species USFS Sensitive Species
<u>Habitat:</u> Occurs in cracks and crevices in the limestone cliffs and slopes of the desert mountains.		
Potential to occur between Las Vegas to Pahrump in the Spring Mountains.		
<b>Lunar Crater buckwheat</b>	<i>Johanneshowellia crateriorum</i>	BLM Sensitive Species
<u>Habitat:</u> Sandy, pumice flats and slopes, saltbush communities; 5,500-6,300 feet; Nye County, Nevada.		
Potential to occur between Tonopah and Pahrump.		
<b>Sagebrush pygmyleaf</b>	<i>Loeflingia squarrosa ssp. artemisiarum</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in moist, sandy soils of desert dunes and flats in Great Basin sagebrush scrub and Mojave desert scrub in sagebrush and rabbitbrush scrub communities. 2,300– 5,300 feet.		
Potential to occur between Silver Springs and Pahrump.		
<b>Shevock bristlemoss</b>	<i>Orthotrichum shevockii</i>	BLM Sensitive
Found on granitic rock in the Joshua tree woodland and piñon–juniper woodland between 2461 and 6890 feet.		
Potential to occur in the Spring Mountains.		
<b>Oryctes</b>	<i>Oryctes nevadensis</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs on deep loose sand of stabilized dunes, washes, and valley flats, on various slopes and aspects.		
Potential to occur near Hawthorne and near Yerington.		
<b>Nevada dune beardtongue</b>	<i>Penstemon arenarius</i>	USFWS Species of Concern
<u>Habitat:</u> Deep loose sandy soils of valley bottoms, aeolian deposits, and dune skirts, often in alkaline areas, sometimes on road banks and other recovering disturbances crossing such soils, in the shadscale zone. Dependent on sand dunes or deep sand.		
Potential to occur from Silver Springs to Pahrump.		
<b>Yellow twotone beardtounge</b>	<i>Penstemon bicolor ssp. bicolor</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in creosote-bursage, blackbrush, mixed-shrub and lower juniper zones, on calcareous or carbonate soils in washes, roadsides, rock crevices outcrops, or similar places receiving enhanced runoff. Recorded at elevations ranging from 2,500 to 5,480 feet.		
Potential to occur from Las Vegas to Pahrump and Las Vegas to Boulder City.		
<b>Rosy twotone beardtounge</b>	<i>Penstemon bicolor ssp. roseus</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs on rocky calcareous, granitic, or volcanic soils in washes, roadsides, scree at outcrop bases, rock crevices, or similar places receiving enhanced runoff, in the creosote-bursage, blackbrush, and mixed-shrub zones. Recorded elevation range from 1,800-4,839 feet.		
Potential to occur from Las Vegas to Pahrump and Las Vegas to Boulder City.		

COMMON NAME	SCIENTIFIC NAME	STATUS
<b>Wassuk beardtongue</b>	<i>Penstemon rubicundus</i>	BLM Sensitive Species
<p><u>Habitat:</u> Open, rocky to gravelly soils on perched tufa shores, steep decomposed granite slopes, rocky drainage bottoms, and roadsides or other recovering disturbances with enhanced runoff, locally abundant on recent burns, in the pinyon-juniper, sagebrush, and upper mixed-shrub and shadscale zones. Known to occur in Douglas, Mineral, and possibly Esmeralda counties.</p> <p>Potential to occur along the Yerington to Goldfield segments.</p>		
<b>Clarke phacelia</b>	<i>Phacelia filiae</i>	BLM Sensitive Species
<p><u>Habitat:</u> Little information available. Rocky areas with <i>Atriplex argenta</i>.</p> <p>Potential to occur from Las Vegas to Boulder City.</p>		
<b>Blain combleaf</b>	<i>Sclerocactus blainei</i>	BLM Sensitive Species
<p><u>Habitat:</u> Occurs on alkaline calcareous and volcanic gravelly-clay soils in open valley bottom areas in the shadscale and lower sagebrush.</p> <p>Potential to occur from Pahrump to Las Vegas.</p>		
<b>Tonopah pincushion</b>	<i>Sclerocactus nyensis</i>	State protected
<p><u>Habitat:</u> Occurs on dry rocky soils and low outcrops of rhyolite, tuff, and possibly other rock types, on gentle slopes in open areas or under shrubs in the upper salt desert and lower sagebrush zones. Known to occur in Esmeralda and Nye counties.</p> <p>Potential to occur in the Tonopah area.</p>		
<b>WILDLIFE</b>		
AMPHIBIANS		
<b>Amargosa toad</b>	<i>Bufo nelsoni</i>	BLM Sensitive Species State Protected
<p><u>Habitat:</u> Occurs along a 10-mile stretch of the Amargosa River in the Oasis Valley.</p> <p>Potential to occur near the project area along the Amargosa River in Oasis Valley just north of Beatty.</p>		
<b>Northern leopard frog</b>	<i>Rana pipiens</i>	BLM Species
<p><u>Habitat:</u> Usually near permanent water, including springs, slow streams, marshes, ponds, canals, flood plains, reservoirs, and lakes. May inhabit wet meadows and fields in summer. Wintering sites are usually underwater. Eggs are laid and larva develop in shallow, still, permanent water, generally in areas well exposed to sunlight. Generally eggs are attached to vegetation just below the surface. Frogs feed on various small invertebrates. Larva eat algae, plant tissue, organic debris and probably some small invertebrates.</p> <p>Potential habitat occurs near the Carson City to Gardnerville route.</p>		
FISH		
<b>Pahrump poolfish</b>	<i>Empetrichthys latos latos</i>	USFWS Endangered / Proposed Threatened BLM Sensitive Species State Protected
<p><u>Habitat:</u> Occurs in shallow warm springs, such as alkaline mineral springs and outflow streams. Larger individuals frequent more open deeper waters. Spawns at any time of year, but spawning activities peak in spring. Omnivorous, feeding on a wide variety of available plant and animal material.</p> <p>Potential habitat occurs near the project area in the Pahrump area.</p>		

COMMON NAME	SCIENTIFIC NAME	STATUS
<b>Lahontan Cutthroat trout</b>	<i>Oncorhynchus clarki henshawi</i>	USFWS Threatened State Endangered BLM
Potential to occur near the project area in the Carson and Walker rivers.		
BIRDS		
<b>Golden Eagle</b>	<i>Aquila chrysaetos</i>	BLM Sensitive Species
<u>Habitat:</u> Open areas with large, rocky cliffs or large trees.		
Potential to occur throughout the project area.		
<b>Western burrowing owl</b>	<i>Athene cunicularia hypugaea</i>	BLM Sensitive Species State Protected
<u>Habitat:</u> Occurs in sagebrush and salt desert scrub communities. May also occur in suburban and disturbed sites. Habitat characterized as treeless areas with low vegetation. Nests in burrows dug by burrowing animals. Burrows dug by rodents or other small mammals must be available along with sufficient prey base. Feeds on arthropods, small mammalian and reptilian prey.		
Potential to occur on project segment Las Vegas to Boulder City; Las Vegas to Pahrump; and Pahrump to Goldfield.		
<b>Ferruginous Hawk</b>	<i>Buteo regalis</i>	BLM Sensitive Species
<u>Habitat:</u> dry, open country with grassland, shrub-steppe, and deserts.		
<b>Swainson's hawk</b>	<i>Buteo swainsoni</i>	BLM Sensitive
<u>Habitat:</u> dry, open country with grasslands.		
<b>Greater sage-grouse</b>	<i>Centrocercus urophasianus</i>	USFWS Candidate
<u>Habitat:</u> Greater sage-grouse is a sagebrush obligate species. Suitable habitat includes stringer meadows for brood rearing.		
In the NDOW eastern region, greater sage-grouse nesting and summer habitat occurs within three miles of the proposed Elko lateral line. However, there are no known core breeding habitats or winter habitats, and no lek sites in the vicinity of the project area. There are no core breeding, summer or winter habitats distributed within the 3-mile buffer area in the western or southern regions.		
<b>Western snowy plover</b>	<i>Charadrius alexandrinus nivosus</i>	USFWS Threatened BLM Sensitive Species State Protected
<u>Habitat:</u> Nests on the ground on broad open beaches or salt or dry mud flats, where vegetation is sparse or absent. Small clumps of vegetation are used for cover by chicks. Eats insects, small crustaceans and other minute invertebrates.		
Potential to occur near the south end of Walker Lake.		
<b>Yellow-billed cuckoo</b>	<i>Coccyzus americanus</i>	USFWS Candidate
<u>Habitat:</u> Dense riparian habitats along rivers, streams or other wet areas. Vegetation is usually dominated by willow or other shrubs and small trees.		
Potential to occur north of Beatty.		

COMMON NAME	SCIENTIFIC NAME	STATUS
<b>Southwestern Willow Flycatcher</b>	<i>Empidonax traillii extimus</i>	USFWS Threatened BLM Sensitive Species USFS Endangered Species
<u>Habitat:</u> Dense riparian habitats along rivers, streams or other wet areas. Vegetation is usually dominated by willow or other shrubs and small trees. The flycatcher will nest in tamarisk and Russian olive.		
Potential to occur north of Beatty.		
<b>Common Loon</b>	<i>Gavia immer</i>	State Protected USFS Sensitive Species
<u>Habitat:</u> Open water		
Potential to occur near Walker Lake.		
<b>Loggerhead Shrike</b>	<i>Lanius ludovicianus</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in open country, including grasslands and shrub-steppe areas, where there are scattered trees, tall shrubs, fence posts, utility wires, or other lookout posts. Nest in dense, thorny trees or shrubs, brush-piles, and even tumbleweeds.		
Potential to occur near Walker Lake.		
<b>Sage Thrasher</b>	<i>Oreoscoptes montanus</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in open, shrub-steppe. Prefer areas dominated by sagebrush or bitterbrush with native grasses intermixed		
Potential to occur between Tonopah and Pahrump		
<b>White-faced Ibis</b>	<i>Pelagadis chihi</i>	State Protected
<u>Habitat:</u> Marshes		
Potential to occur near Walker Lake.		
<b>Yuma clapper rail</b>	<i>Rallus longirostris yumaensis</i>	USFWS Endangered
<u>Habitat:</u> Tidal and freshwater marshes. In Nevada, it is found only along Lower Colorado River and Salton Sea.		
Although listed in the USFWS letter dated July 26, 2011, there is no potential for this bird in the project area.		
<b>Brewer's Sparrow</b>	<i>Spizella breweri</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in brushy areas, especially with sagebrush. Areas with abundant bluebunch wheatgrass and other native grasses along with scattered sage are preferred breeding habitats.		
Potential to occur throughout the project area.		
MAMMALS		
<b>Pallid bat</b>	<i>Antrozous pallidus</i>	BLM Sensitive Species State protected
<u>Habitat:</u> Occurs in low elevation (<6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forests (>7,000 feet). It is most abundant in xeric ecosystems, including the Great Basin, Mojave, and Sonoran Deserts.		
Potential to occur north of Beatty		

COMMON NAME	SCIENTIFIC NAME	STATUS
<b>Pygmy rabbit</b>	<i>Brachylagus idahoensis</i>	BLM Sensitive
<p><u>Habitat:</u> Areas of tall, dense sagebrush (<i>Artemisia</i> spp.) cover, and are highly dependent on sagebrush to provide both food and shelter throughout the year.</p> <p>Potential to occur from Silver Springs to Hawthorne.</p>		
<b>Spotted bat</b>	<i>Euderma maculatum</i>	BLM Sensitive Species USFS Sensitive Species State Protected
<p><u>Habitat:</u> Occurrence of spotted bat is thought to be most determined by suitable roost sites provided by crevices in cliffs, or spaces between loose rocks, primarily in ponderosa pine forests. Occurrence of perennial water in close proximity to cliffs increases the prey base thus improving the habitat potential for spotted bat. Diet consists almost entirely of moths. Spotted bat is a solitary rather than colony rooster, making detection of the species more difficult.</p> <p>Potential to occur from Las Vegas to Boulder City and Las Vegas to Pahrump.</p>		
<b>Western red bat</b>	<i>Lasiurus blossevillii</i>	State Sensitive BLM Sensitive
<p><u>Habitat:</u> Found primarily in wooded habitats, including mesquite bosque and cottonwood–willow riparian.</p> <p>Potential to occur near the Carson River between Silver Springs and Yerington.</p>		
<b>California myotis</b>	<i>Myotis californicus</i>	BLM Sensitive
<p><u>Habitat:</u> Deserts and arid basins.</p> <p>Potential to occur throughout the project area.</p>		
<b>Western small-footed myotis</b>	<i>Myotis ciliolabrum</i>	BLM Sensitive Species
<p><u>Habitat:</u> Found in wide ecological range, from rock outcrops on open grasslands to canyons in the foothills to lower mountains with yellow pine woodlands. Day roosts are variable, but include cracks and crevices in cliffs, beneath tree bark, in mines and caves, and occasionally in dwellings of humans. Night roosts are under a variety of natural and human-induced structures. Hibernacula include caves, mines, and tunnels.</p> <p>Potential to occur in the Yerington area</p>		
<b>Yuma myotis</b>	<i>Myotis yumanensis</i>	BLM Sensitive
<p><u>Habitat:</u> Found in riparian and juniper woodlands near open water.</p> <p>Potential to occur in the Yerington area and near Walker Lake.</p>		
<b>Pale kangaroo mouse</b>	<i>Microdipodops pallidus</i>	State Protected BLM Sensitive
<p><u>Habitat:</u> Fine sand supporting plants, often in lower parts of valleys with finest sand. Vegetation includes <i>Atriplex</i>, <i>Artemisia</i>, and <i>Sarcobatus</i>.</p> <p>Potential to occur from Hawthorne to Las Vegas.</p>		
<b>Big free-tailed bat</b>	<i>Nyctinomops macrotis</i>	BLM Sensitive Species
<p><u>Habitat:</u> Occurs in rocky areas in shrub desert and woodland habitats. Maternity colonies roosts in rock crevices in cliffs, also in buildings, and occasionally tree holes. Colonies may occupy the same crevice in successive years. Feeds primarily on large moths, and occasionally eats crickets, grasshoppers, flying ants, and other insects.</p> <p>Potential to occur between Las Vegas and Pahrump.</p>		



COMMON NAME	SCIENTIFIC NAME	STATUS
<b>Nelson (Desert) bighorn sheep</b>	<i>Ovis Canadensis nelsoni</i>	BLM Sensitive Species
Nelson (desert) bighorn sheep distributions occur in mountain ranges along the alignment routes from Clark County to Esmeralda County.		
Nelson (desert) bighorn sheep distributions intersect the 3-mile buffer area from Hawthorn to Tonopah.		
<b>Western pipistrelle</b>	<i>Parastrellus hesperus</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in deserts and lowlands, desert mountain ranges, desert scrub flats, and rocky canyons. Day and night roosts include rock crevices, under rocks, burrows and sometimes buildings or mines. Hibernates in caves, mines, or rock crevices.		
Potential to occur between Las Vegas and Pahrump.		
<b>Brazilian free-tailed bat</b>	<i>Tadarida brasiliensis</i>	BLM Sensitive Species
<u>Habitat:</u> Roosts in large, tightly packed groups primarily in buildings and caves. May also use rock crevices, bridges, or cliff swallow nest as roost during migration. Tends to return to natal cave to breed. Opportunistically feeds on moths, flying ants, beetles, bugs, and other insects.		
Potential to occur from Las Vegas to Boulder City and Las Vegas to Pahrump.		
REPTILES		
<b>Desert tortoise</b>	<i>Gopherus agassizii</i> (Mojave Desert pop.)	USFWS Threatened BLM Sensitive Species USFS Threatened Species State Protected
<u>Habitat:</u> Most commonly found in desert scrub vegetation, primarily creosote bush scrub, but may also occur in Mojave saltbush shrub, and most scrub-steppe vegetation types of the desert and semi-desert grassland complex. Occur on gently sloping terrain with soils ranging from sand to gravel. Soils must be friable enough for digging burrows, but firm enough so that burrows do not collapse.		
Potential to occur for all routes south of Tonopah.		
<b>Banded Gila monster</b>	<i>Heloderma suspectum cinctum</i>	BLM Sensitive Species State Protected
<u>Habitat:</u> Occurs in shrubby, grassy, and succulent desert habitat types, occasionally entering into oak woodlands. Habitat centers on desert wash, spring and riparian habitat that integrate with complex rocky landscapes of upland desert scrub. Occasionally found on alluvial fans. Seeks shelter in self-excavated burrows or those made by small mammals. Primarily subterranean, spending more than 95 percent of its life underground.		
Potential to occur from Las Vegas to Boulder City and Las Vegas to Pahrump.		
<b>Chuckwalla</b>	<i>Sauromalus ater</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in boulder and outcrop areas in southern Nevada		
Potential to occur from Las Vegas to Boulder City and Las Vegas to Pahrump		
<b>Nevada shovel-nosed snake</b>	<i>Chionactis occipitalis talpina</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in dry warm deserts with loose sand such as washes, dunes, sandy flats and rocky hillsides.		
Potential to occur from Las Vegas to Boulder City and Las Vegas to Pahrump		
<b>Mojave shovel-nosed snake</b>	<i>Chionactis occipitalis occipitalis</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in dry warm deserts with loose sand such as washes, dunes, sandy flats and rocky hillsides.		
Potential to occur from Las Vegas to Boulder City and Las Vegas to Pahrump		

COMMON NAME	SCIENTIFIC NAME	STATUS
<b>Desert glossy snake</b>	<i>Arizona elegans eburnata</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in barren sandy warm deserts, arid scrub and rocky washes.		
Potential to occur from Las Vegas to Boulder City and Las Vegas to Pahrump		
<b>Mojave desert sidewinder</b>	<i>Crotalus cerastes cerastea</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs in wind-blown sands, especially where sand hummocks are topped with vegetation. Also found in hardpan, open flats, rocky hillsides, and other desert areas, especially those grown with creosote bush, where the terrain is open, not obstructed by rocks or vegetation, allowing the broad side-winding locomotion.		
Potential to occur from Las Vegas to Boulder City and Las Vegas to Pahrump		
INVERTEBRATES		
<b>Carson Valley wood nymph</b>	<i>Cercyonis pegala carsonensis</i>	BLM Sensitive Species
<u>Habitat:</u> Carson River drainage; feeds on insects.		
Potential to occur in the Gardnerville area.		
<b>Early blue</b>	<i>Euphilotes enoptes primavera</i>	BLM Sensitive Species
<u>Habitat:</u> Occurs on sun-exposed rocky or sandy flats or slopes in foothills, mountains, desert, and along north Walker Lake shore		
Potential to occur near Walker Lake.		
<b>Carson wandering skipper</b>	<i>Pseudocopaeodes eunus obscurus</i>	USFWS Endangered BLM Sensitive Species
<u>Habitat:</u> Alkaline desert seeps dominated by saltgrass with a freshwater source sufficient to support summer nectar flower. Larvae feed on saltgrass.		
Potential to occur from Carson City to Gardnerville.		
<b>Spring Mountain pyrg</b>	<i>Pyrgulopsis deaconi</i>	BLM Sensitive Species
<u>Habitat:</u> Aquatic		
Potential to occur in the Spring Mountains between Las Vegas and Pahrump.		
<b>Oasis Valley pyrg</b>	<i>Pyrgulopsis micrococcus</i>	BLM Sensitive Species
<u>Habitat:</u> Aquatic		
Endemic to the Amargosa river at Beatty, north of Beatty.		
<b>Oasis Valley speckled dace</b>	<i>Rhinichthys osculus ssp 6</i>	BLM Sensitive Species State protected
<u>Habitat:</u> Aquatic: endemic to the Amargosa river at Beatty, Fleur de lis springs north of Beatty		
Potential to occur north of Beatty.		
<b>Carson Valley silverspot</b>	<i>Speyeria nokomis carsonensis</i>	BLM Sensitive Species
<u>Habitat:</u> spring and seep-fed meadows and riparian corridors.		
Potential to occur from Carson City to Gardnerville.		

Sources: Nevada Natural Heritage Program Fact Sheets; NDOW 2007; NatureServe, 2010; Western Bat Working Group, 2011.

### **3.3.6 Noxious Weeds and Invasive Species**

Noxious weeds are addressed by Executive Order 13112, which directs federal agencies to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species can cause. The Executive Order further specifies that federal agencies shall not authorize, fund, or carry out actions likely to cause or promote the introduction or spread of invasive species.

In addition to federal noxious weed lists and regulations, the Nevada Revised Statutes, Chapter 555.05 defines “noxious weeds” and mandates land owners and land management agencies to control noxious weeds on lands under their jurisdiction. The State of Nevada has listed 47 non-native invasive plant species as “noxious” and mandated control within the state. Noxious weeds are categorized by their distribution and level of establishment within the state.

There are no currently known or identified noxious weeds along the proposed alignments (Tonenna 2011). Land/soil disturbance increases the likelihood of weed invasion. The project areas most vulnerable to weed invasion are the wetter areas associated with the floodplains surrounding Carson River, Walker River, Amargosa River, and Walker Lake. The buried section between Goldfield and Lida Junction is also relatively vulnerable due to the disturbance associated with burying the fiber optic cable.

## **3.4 Cultural and Historic Resources**

### **3.4.1 Archaeology and Architecture**

A Class I Cultural Resource Inventory was conducted to assess the nature and extent of previous Cultural Resource Investigations within 1/8-mile (1/4-mile corridor) of the proposed buried fiber optic cable alignments. Placement of lines on existing overhead poles is exempt from Section 106 review, per the *Programmatic Agreement Among the U.S. Department of Agriculture Rural Utilities Service, the National Telecommunications and Information Administration, the National Conference of State Historic Preservation Officers and the Advisory Council on Historic Preservation for the Broadband Technology Opportunities Program and the Broadband Initiatives Program (BTOP PA)*.

The proposed buried 14.34-mile segment between Goldfield and Lida Junction, and the laterals to three hospitals in Las Vegas equaling 0.58 miles are on BLM managed lands. The remainder of the proposed buried sections are located on private land in towns in northern and southern Nevada. The Goldfield to Lida Junction section is characterized as open desert with moderate disturbances from construction of Highway 95. For all other buried sections, the terrain is characterized by residential, commercial and industrial development and land disturbance. Very little undisturbed land is traversed by the proposed alignment (Gnomon, 2011a).

During July and August, 2011 an electronic file search request was made to the Nevada Cultural Resource Information System (NVCRIS). The search returned five GIS datasets. These comprised all archaeological inventories and architectural surveys, associated sites and historic structures, and National Register listings within a 1/4-mile area of potential effect (APE) of the approximate fiber optic cable routes. The report and recommendations were provided to NTIA for review; SHPO concurred with all findings.

All records were checked for completeness of data fields, and pertinent fields were updated if information was missing or duplicate (redundant) entries were present. Utilizing GIS, each alignment was queried for associated cultural shapes and the results presented in tabular form. A total of 873 records were present within the data and are summarized in Table 3-5. National Register listed architectural properties are adjacent to four of the hospital lateral fiber optic cable routes in Reno.

**Table 3-5. Summary of Cultural and Historical Record Search Results within ¼-mile APE**

<b>Group</b>	<b>Number of Records</b>	<b>Inventory</b>	<b>Record Search</b>
<b>Architectural Inventory</b>	60	5,012 acres	14,245 acres
<b>Archaeology Inventory</b>	180	4,693 acres	14,245 acres
<b>Architectural Resources</b>	355	--	--
<b>Archaeological Sites</b>	77	--	--
<b>National Register Listed Properties</b>	13*	--	--

\* Note: all National Register listed properties are located on private property.

The Goldfield to Lida Junction section is characterized as open desert with moderate disturbances from construction of Highway 95.

### **3.4.2 Native American Resources**

The American Indian Religious Freedom Act (AIRFA) (16 U.S.C. 1996), the Archeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm), the National Historic Preservation Act (16 U.S.C. 470, et seq.), National Environmental Policy Act regulations (43 CFR 10.5, 10.8, and 10.9), and the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001, et seq.) and Executive Order E.O.13175, Consultation and Coordination with Indian Tribal Governments (2000) require government-to-government consultations for federally funded projects.

There are 21 federally recognized tribes in Nevada, and one tribe not yet recognized that has petitioned for recognition. The tribes in the project area are generally comprised of the Southern Paiute in southern Nevada, the Shoshone in central and northeastern Nevada, the Northern Paiute in western and northwestern Nevada, and the Washoe near Lake Tahoe.

Through use of the Federal Communications Commission Tower Construction Notification System (TCNS), and to ensure California recognized tribes and other tribal entities would be duly consulted, NTIA issued the project description and request for comments in October 2010.

There are two tribes which have parcels crossed by the proposed project, the Walker River Paiute Tribe and the Timbisha Tribe. The proposed project crosses roughly eight miles of land on the north end of Walker Lake owned by the Walker River Paiute Tribe. The Timbisha Tribe owns roughly one and a half miles of land near Lida Junction which the project crosses.

## **3.5 Geology, Minerals and Soils**

### **3.5.1 Geology**

The project is located within the Great Basin section of the Basin and Range physiographic region. The area is characterized by northeast trending mountain ranges separated by broad arid valleys. The proposed overhead portions of the project primarily cross Quaternary alluvium and Tertiary intrusive and extrusive rocks. Several small areas of Cambrian and Pre-Cambrian carbonate rocks are also crossed in Southern Nevada.

Paleontological resources have been identified in the Miocene and Pliocene sedimentary rocks and Triassic or Permian aged sediments in central and southern Nevada. In the Las Vegas area the Muddy Creek Formation and the Las Vegas Formation contain fossils.

The proposed buried portions of the project are primarily in valley bottoms where the geology is represented as Quaternary alluvium (Stewart and Carlson, 1978). Geologic units other than Quaternary alluvium for the buried sections are described by location or segment in the following table.

**Table 3-6. Summary of Geologic Units for Buried Segment**

<b>Buried Segment</b>	<b>Geology</b>
Northeastern Nevada Regional Hospital, Elko	Tertiary sedimentary rocks, including the Sheep Pass formation.
Pershing General Hospital, Lovelock	Quaternary playa, marsh, and alluvial flat deposits
Banner Churchill Community Hospital	Quaternary playa, marsh, and alluvial flat deposits
Desert View Hospital, Pahrump	Quaternary playa, marsh, and alluvial flat deposits
Goldfield to Lida Junction	North and south of Goldfield, the alignment crosses Tertiary tuffaceous sedimentary rocks, welded and non-welded silicic ash-flow tuffs, and andesite and basalt flows

### 3.5.2 Minerals

The project area traverses numerous mining claims, prospects and historic and active mining districts. Recently the high price of gold and other minerals and elements has spurred a flurry of exploration and proposals for open pit mines throughout the state. The mineralized areas surrounding Goldfield, Tonopah, Mina, Luning, and Yerington have seen renewed interest in known resources as well as exploration for new resources. At the time this EA was being prepared, there were no published maps or Plan of Operations available for review for proposals in the project area. However, the BLM alerted the project engineers as to the general areas where there is interest in developing several new open pit mines in the reasonably foreseeable future.

### 3.5.3 Soils including Prime or Unique Farmland

The length of the project area is included in completed Order III soil survey inventories published by the USDA Natural Resources Conservation Service (NRCS). These completed soils surveys include: 625 – Lyon County; 629 – Carson City; 755 – Clark County; 773 – Douglas County; 774 – Mineral County; 785 – Nye County, Southwest Part; 788 – Las Vegas Valley; and, 796 – Esmeralda County. These published soil surveys provide a wealth of information on the location, identification, and characteristics of the mapped soil units found in this project area.

The soils within the project area are dominated by aridisols and entisols with mollisols in the valley bottoms of Carson Valley (Gardnerville), Mason Valley (Yerington), and Eagle Valley (Carson City). Aridisols and entisols are found in arid areas and are poorly developed. In contrast, mollisols have a dark surface horizon and characteristically form under grass in climates that have a moderate to pronounced seasonal moisture deficit.

Important soil characteristics or classifications relating to this project include hydric soils, prime or statewide important farmland, and the susceptibility of soils to wind erosion affected by the burial of new fiber optic cable. The hydric soil designation relates to one of several factors for identifying U.S.

jurisdictional wetlands. Prime or statewide important farmland designations are afforded consideration for preservation by federal agencies under the 1981 Farmland Protection Policy Act. Under this act, federal agencies are directed to minimize impacts to existing agricultural operations occurring on soils designated as being prime farmland or having a statewide importance that could lead to the conversion of the property to non-agricultural uses. In instance of new soil disturbances associated with the burial of fiber optic cable, the wind erodibility rating of the affected soils becomes important factor for estimating project-related effects.

These important soil characteristics for the soil units transected by this project alignment are summarized by individual project segment in Appendix C. Collectively, Table 3-7 provides a summary on the number of mapped soil unit transected by soil designation and by the project segment. This compilation indicates many of the proposed project segments in the Carson and Mason Valleys will transect soil units classified as being either hydric or designated as prime or statewide important farmlands. This information also indicates the project segments between Hawthorne to Lida Junction and from Pahrump to Las Vegas do not transect soil units having these important soil characteristics.

In terms of project proposals to bury new fiber optic cable in areas having a rating of high wind erodibility (i.e., erodibility groups 1 and 2), the project segments of Carson City to Gardnerville and the Amargosa SS to Zayo Rings alignments are expected to transect a limited number of soil units having this characteristic.

**Table 3-7. Compiled Soils Information on Special Designations Relating to Hydric, Prime or Statewide Important Farmlands, and Soils with a High Wind Erodiability Rating**

Proposed Action Segment	Number of Affected Soil Units by Designation			
	Hydric Soils	Prime Farmland	Important Farmland	High Wind* Erodiability
Carson to Gardnerville	2	13		
Silver Springs to Yerington	2	12		1
Yerington to Hawthorne	1	4	2	
Goldfield to Lida Junction				1
Lida Junction to Pahrump	2			
Amargosa SS to Zayo Rings				1
<b>Proposed Project Totals:</b>	<b>7</b>	<b>29</b>	<b>2</b>	<b>3</b>
<b>Alternative Project Segment</b>				
Alt Yerington to Hawthorne	3	7		
Alt Carson to Gardnerville (overhead)	4	16		1
Alt Carson to Gardnerville (conduit)	4	16		1

\* This designation only relates to soils affected by the proposed burial of new fiber optic cable.

### 3.6 Human Health and Safety

#### 3.6.1 Wastes, Hazardous and Solid

Several national databases identify potentially hazardous materials or wastes sites within the vicinity of the project area.

The NDEP Bureau of Corrective Actions “Project Tracking” Database was reviewed for releases and remediation actions of hazardous substances and total petroleum hydrocarbons (TPH). The database (accessed 8-30-11) indicated there are five reported hazardous substance releases within some of the buried alignments in Las Vegas. All five confirmed release cases have been closed per EPA requirements.

The EPA Envirofacts Warehouse database was reviewed for releases and remediation actions of hazardous substances and total TPH. The USEPA Envirofacts database (accessed 8-30-11) indicated there are several reported hazardous substance releases near the project alignments in the Las Vegas area. All five confirmed release cases have been closed per EPA requirements.

The EPA Envirofacts Warehouse database was also searched for facilities within the Land, Waste and Toxics Databases. Five sites were identified in the Land database to be within the alignment. This database includes Brownfields sites, Superfund sites (CERCLIS), and hazardous waste sites (RCRA). Two of the five sites were determined to be conditionally exempt small quantity generators for hazardous wastes.

There is one site in Nevada on the EPA National Priorities List--the Carson River Mercury Site in Churchill and Lyon counties. This site consists of mercury contaminated sediments on the 50-mile stretch of the Carson River beginning between Carson City and Dayton, Nevada and extending downstream through the Lahontan Reservoir to Stillwater National Wildlife Refuge and tailings piles associated with the mills that were located along the river in the late 1800’s.

Sensitive receptors include children, seniors, sick persons, or persons subject to continuous exposure (noise or pollutant). Sensitive receptor locations include hospitals, schools, convalescent facilities, or residential areas. There are numerous sensitive receptors in the communities crossed by the various project alignments. The vast majority of the project crosses undeveloped land. However, there are a variety of sensitive receptors in each community including the hospitals that will be served by this project.

### **3.6.2 Fire Management**

The BLM has updated land use and fire management plans to address wildland fire policy. This includes recognizing and integrating fire as a natural ecological process. Land managers are working with local communities and agency partners to prepare landscape-scale plans across agency boundaries.

The urban interface for all communities within the project area, have been assessed for wildfire risk and hazards in 2005 under a state-wide project administered by the Nevada Fire Safe Council and funded through National Fire Plan grants from the BLM, the USFS, and the Nevada Division of Forestry (RCI, 2005).

### **3.7 Infrastructure**

All of the project segment areas are located within one hour of a community with utilities and waste disposal services. Existing telecommunication service in the State of Nevada is good within all of the project areas except for portions of the alignment north of Beatty and south of Yerington where cell tower communications are spotty. Generally, Verizon has a broader service in rural Nevada than the other telecommunication service providers. All of the project areas are accessible from major roadways.

### 3.8 Land Use

#### 3.8.1 Land Management

The existing land uses of the project area are either utility or transportation. The entire project is within existing utility or transportation rights-of-way. Table 3-8 summarizes the existing ROWs with the existing poles or roadways, portions of which will be used by the proposed project and alternatives.

**Table 3-8. Rights-of-Way Encroached by the Proposed Project and Alternatives**

Route Name	ROW Holder	Route Type	Miles on Federal land	ROW Serial Number
Reno to Carson City	NV Energy	Ex. U/G - IRU	1.82	NVN 076179
Carson City to Silver Springs to Fallon	NV Energy	Ex. U/G - IRU	3.75	NVN 176179
Silver Springs to Yerington	NV Energy	Ovhd	9.84	NVN 0056304
Yerington to Hawthorne	NV Energy	Ovhd	45.58	NVN 007255 NVCC 008964
Hawthorne to Tonopah to Goldfield	NV Energy	Ovhd	111.35	NVN 0043264
Goldfield to Lida Junction	NDOT	U/G & Ovhd	14.83	NVN 0042808
Lida Junction to Pahrump	VEA	Ovhd	107.67	NVN 0066116 Lida to Springdale NVN 0059100 Henderson to Jackass Flat NVN 029793 Lathrop Wells to Beatty
Pahrump to Las Vegas	VEA	Ovhd	40.15	NVN 0059100
Las Vegas to Boulder City	NV Energy	Ovhd	1.13	NVN 076327
<b>Carson City to Gardnerville</b>				
Carson City to Gardnerville	NV Energy	Ovhd	11.90	NVN 0057663
<b>Lateral and Data Center Connections</b>				
Arden SS to Super NAP	NA	U/G	0.20	NVN 002557

\*This buried conduit is not yet constructed by CBC

Tables 3-9a and b summarize the plans that guide the federal land management for land uses within the project corridor. On private lands, the land uses are guided by the appropriate city or county government planning documents.



**Table 3-9a. BLM Districts and Planning Documents for the Proposed Project Areas**

BLM District	BLM Field Office	BLM Planning Document
Southern Nevada	Pahrump; Las Vegas	Las Vegas RMP, 1998 Red Rock Canyon NCA GMP 2005
Carson City	Sierra Front & Stillwater	Carson City Consolidated RMP 2001
Winnemucca	Humboldt River Black Rock	Sonoma-Gerlach MFP 1982 Paradise-Denio MFP 1982
Elko	Tuscarora	Elko RMP 1987
Battle Mountain	Mount Lewis	Shoshone-Eureka RMP 1986 Tonopah RMP 1997
Elko	Wells	Elko RMP 1987
Ely	Egan Field Office	Ely District RMP 2008

**Table 3-9b. Other Federal Land Management Planning Documents for the Proposed Project Areas**

Federal Agency	Office/District	Planning Document
U.S. Forest Service	Humboldt –Toiyabe NF	Humboldt Toiyabe NF Plan 1986 and amended

### 3.8.2 Public Land Grazing

In Nevada there are about 45 million acres of public rangelands administered by the USDI Bureau of Land Management (BLM). These public rangelands are divided into approximately 745 grazing allotments. There are about 550 operators, or permittees, and a total of 635 permits issued to administer livestock grazing on these active grazing allotments (BLM 2011).

Table 3-10 provides relevant information on the active public land grazing allotments effected by the alternative project alignments. This information indicates a total of 28 permitted livestock grazing allotments could be affected by the alternative project alignments. Most of these identified grazing allotments are administered by one of three BLM Districts, including the Carson City, Battle Mountain, or Southern Nevada Districts. The Schruz Indian Tribe and the BLM Carson City District jointly administer the Walker River Allotment. The East Walker C&H Allotment, which is administered by the Bridgeport Ranger District in the Humboldt-Toiyabe National Forest, is only impacted under the Alternative Yerington to Hawthorne alignment.

Only two listed grazing allotments are located in the BLM Southern Nevada District. Due to environmental issues pertaining to the establishment of several ACEC and conservation of the desert tortoise, which was listed as a threatened species in 1990 under the ESA, numerous previously active allotments were closed to permitted livestock grazing in the BLM Southern Nevada District through the adoption and approval of the 1998 Resource Management Plan (BLM 1998).

Table 3-10 indicates most of these identified grazing allotments are involved in one or more of the project alternatives.

**Table 3-10. Public Land Grazing Allotments Affected by Alternative Project Alignments**

Permitted Grazing Allotments				Allotments Effected by Project Alignment		
No.	Name	Acreage (Ac.)	Administrating Agency	Proposed Action	Alternative Yerington to Hawthorne	Alternative Goldfield to Lida Junction
0072	San Antone	437,796	BLM Battle Mountain	√	√	√
0093	Razorback	75,651	BLM Battle Mountain	√	√	√
0094	Montezuma	615,413	BLM Battle Mountain	√	√	√
0099	Magruder Mountain	674,926	BLM Battle Mountain	√	√	√
0104	Monte Cristo	520,329	BLM Battle Mountain	√	√	√
0137	Desert Queen	716,248	BLM Carson City	√	√	√
272	East Walker C&H	44,020	FS Bridgeport RD		√	
3000	Adriance Valley	21,249	BLM Carson City	√	√	√
3010	Cleaver Peak	40,431	BLM Carson City	√	√	√
3023	Fort Churchill	14,752	BLM Carson City	√	√	√
3036	Lahontan	97,994	BLM Carson City	√	√	√
3509	Buckeye	182,451	BLM Carson City			
3530	Duck Hill	11,281	BLM Carson City	√	√	√
3531	East Walker	27,151	BLM Carson City		√	
3534	Pilot-Table Mountain	551,531	BLM Carson City	√		
3535	Garfield Flat	235,416	BLM Carson City	√		
3536	Gillis Mountain	162,207	BLM Carson City	√	√	√
3539	Gray Hills	132,582	BLM Carson City	√	√	√
3557	Lucky Boy	25,980	BLM Carson City		√	
3569	Nine Mile	22,624	BLM Carson City		√	
3572	Parker Butte	35,072	BLM Carson City	√	√	√
3573	Perry Spring – Deadman	73,328	BLM Carson City	√	√	√

Permitted Grazing Allotments				Allotments Effected by Project Alignment		
No.	Name	Acreage (Ac.)	Administrating Agency	Proposed Action	Alternative Yerington to Hawthorne	Alternative Goldfield to Lida Junction
3574	Pilot – Table Mountain	551,531	BLM Carson City	√	√	√
3583	Sand Canyon	1,888	BLM Carson City	√	√	√
5308	Silver King	141,978	BLM Battle Mountain	√	√	√
----	Walker River	305,942	Schurz Indian Tribe	√		√

### 3.8.3 Wild Horses and Burros

There are 84 herd management areas (HMAs) established to date in Nevada, which occupy a combined area of 14.7 million acres or about 20 percent of the state. The current allowable management level (AML) for these 84 HMAs is 12,618 wild horses and burros (BLM 2011).

Established HMAs located in the vicinity of this project area are shown in Figure 27 Herd Management Areas. While this project is located in the general area of several HMAs, the project alignment encroaches within the boundaries of seven active HMAs, including: Wassuk, Pilot Mountain, Montezuma Peak, Bullfrog, Johnnie, Wheeler Pass, and Red Rock. Relevant information on these affected HMAs is found in Table 3-11. This information indicates these HMAs represent sizable areas, are administered through three different BLM District Offices, and AMLs for burros have a tendency to increase, while designated horse numbers proportionally decline, in the southern portions of the project area.

**Table 3-11. Wild Horse and Burro Herd Management Areas**

Project Segment	Herd Management Areas (HMAs)				Allowable Management Levels (AMLs)	
	No.	Name	Administrating BLM District	Acreage (Acres)	No. of Horses	No. of Burros
Yerington to Goldfield	NV0312	Wassuk	Carson City	54,000	109-165	0
Alt. Yerington to Hawthorne						
Yerington to Goldfield	NV0314	Pilot Mountain	Carson City	475,500	228-346	0
			Battle Mountain		69	0
Yerington to Goldfield	NV0625	Montezuma Peak	Battle Mountain	78,000	7	52
Lida Junction to Pahrump	NV0629	Bullfrog	Battle Mountain	152,000	12	185
Lida Junction to Pahrump	NV0510	Johnnie	Southern Nevada	180,000	50	50
Pahrump to Las Vegas						
Pahrump to Las Vegas	NV0507	Wheeler Pass	Southern Nevada	86,750	0	54-108
Pahrump to Las Vegas	NV0504	Red Rock	Southern Nevada	220,000	50	50
Carson City to Gardnerville	NV0305	Pine Nut Mountains	Carson City	104,317	119-179	0

### 3.9 Noise

The level of noise in a community changes over the course of a day and over time. Noise levels are typically controlled by the activities occurring within and nearby an area. The acceptability of the level of sound is based on the compatibility of activities in an area. Unwanted or excessive sound is perceived as intrusive noise. Noise is often considered more annoying during relatively quiet nighttime hours when people are trying to relax or sleep. Ambient or baseline sound level is the background sound level and is a composite of sound from existing sources both near and far. Because ambient or baseline sound is not considered adverse, it is not classified as noise.

There are no federal, state or local noise ordinances relating to construction or operation of the proposed project or alternatives in urban areas. Noise related to impacts to wildlife and migratory birds is discussed under the Biological Resources section of this EA.

### **3.10 Recreation**

The State of Nevada is comprised of approximately 80% public land, much of which is available for recreational land uses. Among the many recreation activities Nevada public lands have to offer include hiking, backpacking, birding, wildlife viewing, biking, kayaking, whitewater rafting, climbing, fishing, hunting, rock hounding, and off road vehicle exploring. Although Nevada has city, county, state and federal parks available for public recreation uses, the majority of areas outside of the towns and cities contain open public lands with little or no supporting recreational facilities or amenities.

The proposed fiber optic cable route crosses one public recreation area in Nevada, the Spring Mountain National Recreation Area (SMNRA), which is a part of the Humboldt-Toiyabe National Forest. This portion of the route is located along the Highway 160 corridor that runs through the SMNRA, between the town of Pahrump and the city of Las Vegas. This recreation area offers developed campgrounds and a variety of hiking, biking, and climbing recreational opportunities.

### **3.11 Socioeconomic Resources**

Nevada's economy is overwhelmingly based on tourism, especially gambling (legalized in 1931) and resort industries centered in Las Vegas and, to a lesser extent, Reno and Lake Tahoe. Gambling taxes are a primary source of state revenue. The service sector employs about half of Nevada's workers. Liberal divorce laws made Reno "the divorce capital of the world" for many years, but similar laws enacted in other states ended this distinction. State gambling taxes account for 34.1% of general fund tax revenues. Although Nevada leads the nation in per capita gambling revenue, it ranks only tenth in total gambling revenue.

For nearly the past two decades the Southern Nevada region's top three employers have been gaming, construction, and government. A narrow focus on economic diversification has led to acute failures in attracting business innovation and expansion.

Much of Nevada (almost 80% of whose land is federally owned) is given over to military and related use. Nellis Air Force Base and the Nevada Test Site have been the scene of much nuclear and aircraft testing; Yucca Mountain had been slated to be the primary depository for U.S. nuclear wastes but is on hold at this time.

The state's leading agricultural industry is cattle and calves. Agricultural crops consist mainly of hay, alfalfa seed, barley, wheat, and potatoes. Mason Valley also produces onions.

Nevada manufactures gaming equipment; lawn and garden irrigation devices; titanium products; seismic and machinery monitoring devices; and specialty printing (USDA 2011).

#### **3.11.1 Environmental Justice**

Executive Order 12898 requires all federal agencies to consider the effects of their actions on minority and low-income communities especially if adverse effects to the environment or human health conditions are identified. This required analysis is often referred to Environmental Justice. Factors assessed to ascertain whether the project alternatives disproportionately effects minority or low-income communities included median household income and demographic information from the 2000 U.S. Census. Table 3-12 summarizes the census data.

**Table 3-12. Selected Demographics for the Project Area**

<b>Selected Demographic Characteristics</b>	<b>Clark County</b>	<b>Nye County</b>	<b>Mineral County</b>	<b>Lyon County</b>	<b>Douglas County</b>	<b>Carson City</b>	<b>Churchill County</b>	<b>State of Nevada</b>
Population, 2009 estimates	1.9M	44K	4.6K	52.6K	45.4K	55.1K	24.9K	2.6M
Population, percent change, April 1, 2000 to July 1, 2009	38.3%	36.1%	-8.1%	52.6%	10.2%	5.2%	3.8%	32.3%
Black persons, percent, 2009	10.6%	2.5%	5.2%	1.7%	0.7%	2.1%	1.8%	8.3%
American Indian and Alaska Native persons, percent, 2009	1.1%	1.6%	16.4%	2.2%	1.8%	2.5%	5.3%	1.5%
Asian persons, percent, 2009	7.7%	1.6%	1.3%	1.8%	2.0%	2.5%	3.0%	6.6%
Persons of Hispanic or Latino origin, percent, 2009	29.3%	12.3%	11.5%	15.4%	9.4%	21.2%	11.0%	26.5%
White persons not Hispanic, percent, 2009	50.1%	79.9%	65.9%	77.5%	84.5%	70.9%	77.0%	80.3%
Homeownership rate, 2000	59.1%	76.4%	72.5%	75.8%	74.3%	63.1%	65.8%	60.9%
Housing units in multi-unit structures, percent, 2000	36.3%	6.4%	10.7%	8.1%	12.5%	25.2%	11.7%	32.3%
Median household income, dollars, 2008	\$56.6K	\$43.4K	\$37.6K	\$47.9K	\$61.1K	\$51.5K	\$53.6K	\$56.4k
Persons below poverty level, percent, 2008	11.1%	15.8%	15.9%	9.6%	8.0%	11.3%	10.6%	1.2%
Land area, 2000 (square miles)	7.9K	18.1K	3.7K	2.0K	709	14K	4.9K	109k

Source: U.S. Census. 2010. Quick Facts from the U.S. Census. U.S. Department of Commerce. Census Bureau. Assessed on January 20, 2010 via [www.quickfacts.census.gov/qfd/states/32000.html](http://www.quickfacts.census.gov/qfd/states/32000.html).

### 3.12 Visual Resources

The project area is generally characterized as rolling hills, alluvial fans or flat playas with adjacent rugged mountain topography. The viewsapes are dominated by low shrubs and rock outcrops, general lack of tall trees, and the dominance of low shrubs.

The proposed project areas are not within designated visually sensitive areas. On BLM managed lands the project is within VRM Class II Retention; VRM Class III Partial Retention and Class IV Modification. The Classes and areas including those classes are:

The objective of 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.

The Class II areas are associated with the area surrounding Walker Lake, Hwy 266, Hwy 267, Hwy 374 and the eastern flank of the Spring Mountains.

The objective of Class III is to partially retain the existing landscape character. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the casual observer's view. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

The Class III areas encompass the project area between Carson City and Mina and between Beatty and Las Vegas with the exception of the Class II area on the east side of the Spring Mountains.

The objective of Class IV is to provide for management activities that require major modification of the existing landscape character. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. Every attempt, however, should be made to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic landscape elements.

The Class IV areas encompass the project area between Mina and Beatty.

### 3.13 Water Resources

#### 3.13.1 Surface Water, Ground Water and Floodplains

The project lies within the Great Basin and Colorado Plateau provinces. Surface water and floodplains in the project area include the Colorado River, Central Nevada, Carson River, and Walker River hydrographic basins. In the Great Basin province, waters and streams disappear into sinks or flow into lakes with no outlets such as Badwater Basin for the Amargosa River, Walker Lake for Walker River and the Carson Sink for the Carson River.

The following project segments cross perennial waterbodies:

Silver Springs to Yerington: The route crosses one perennial drainage, the Carson River just downstream of Ft. Churchill. There are several smaller ephemeral drainages crossed by the powerline within the floodplain of the Walker River through the Mason Valley.

Yerington to Hawthorne: North of Yerington, the powerline crosses the Walker River. The river is crossed again just north of Walker Lake. The Walker River is diverted in numerous locations to

provide irrigation water to the agricultural fields in Mason Valley. During the fall, the river may be locally dry due to the diversions.

Carson City to Gardnerville: The route crosses the perennial Carson River east of the Deer Run Road bridge. There are several smaller ephemeral drainages crossed by the powerline within the floodplain of the Carson River through the Carson Valley.

Beneficial uses for the Walker and Carson rivers and applicable tributaries are presented in Table 3-13a. The Amargosa River is intermittent and has no state listed beneficial uses or water quality standards. The status of water quality non-attainment is provided in Table 3-13b.

**Table 3-13a. Beneficial Uses for Water Bodies Crossed by the Proposed Project and Alternatives**

Project Segment	Water Body Name	Description	IRR	Stock	Rec-1	Rec-2	Ind	Mun	Wild	Aquatic	Aquatic Species of Concern
Carson City to Gardnerville	Carson River	Cradlebaugh Bridge to Mexican Ditch	X	X	X	X	X	X	X	X	Catfish, rainbow trout, brown trout
Silver Springs to Yerington	Carson River	Lahontan Dam to Weeks	X	X	X	X	X	X	X	X	Walleye, channel catfish, white bass
Yerington to Hawthorne	Walker River	East/West Walker confluence to Weber Reservoir Inlet	X	X	X	X	X	X	X	X	Channel catfish, largemouth bass
Alt Carson to Gardnerville	Clear Creek	From gauging sta. To Carson River	X	X	X	X	X	X	X	X	None listed

Source: Summary of Beneficial Uses for Waterbodies Identified in the Nevada Administrative Code on the NDEP web page at <http://ndep.gov/bwqp/stdsw.htm>

**Table 3-13b. Water Quality Non-Attainment for Water Bodies Crossed by the Proposed Project**

Project Segment	Water Body Name	Stream Reach Description	Water Temp.	Zinc	Iron	Fecal Coliform	Dissolved Oxygen	Mercury in fish tissue	Mercury in sediment
Carson City to Gardnerville	Carson River	Cradlebaugh Bridge to Mexican Ditch	X	X					
Silver Springs to Yerington	Carson River	Lahontan Dam to Weeks						X	X
Yerington to Hawthorne	Walker River	East/West Walker confluence to Weber Reservoir Inlet			X				
Alternatives									
Alt Carson City to Gardnerville	Clear Creek	From gauging sta. To Carson River	X	X	X	X	X		

Source: Attachment 1 – Nevada’s 2006 303(d) List of Impaired Waters NDEP Bureau of Water Quality Protection



Depth to the regional ground water resources in the project area is typically greater than 100 feet except in areas near perennial waterbodies described previously. Near the Walker Lake, the Carson and Walker rivers, and the various wetlands (described later in this section) depth to ground water is shallow and fluctuates seasonally as well as with the frequent drought cycles.

### 3.13.2 Wetlands and Other Waters of the U.S.

Jurisdictional wetlands are protected under Section 404 of the Clean Water Act and Executive Order 11990. Wetlands are classified as Waters of the U.S. by the ACOE and have three required characteristics: 1) dominance by hydrophytic vegetation; 2) hydric soils, and 3) wetland hydrology. Hydrophytic vegetation requires inundated or saturated soils. Hydric soils are ponded or flooded for a sufficient time during the growing season to develop anaerobic conditions. Wetland hydrology is the availability of water to create a wetland environment (USACE 1987).

Wetlands in the project area were identified using the digital National Wetlands Inventory and are documented in the Hydrology and Wetland technical report which is a part of the project record. Table 3-14 summarizes the wetlands crossed by the proposed project or alternatives. All of the wetlands listed in Table 3-14 are proposed overhead routes.

**Table 3-14. Wetlands Crossed by the Project**

<b>Project Route and General Location</b>	<b>Length of Wetlands crossed (feet)</b>	<b>Wetland Type</b>
Carson City to Gardnerville	3,484.80 52.80 158.40	Freshwater Emergent Wetland Freshwater Shrub Wetland Riverine
Silver Springs to Yerington Wabuska Hot Spring Outflow	1,478.40	Freshwater Palustrine Emergent Wetland
Yerington to Goldfield North Mason Valley North end of Walker Lake	369.6 2,323.2 1,320.0	Dry Lake: Lacustrine Littoral, Unconsolidated Bottom Freshwater Scrub/Shrub wetland Freshwater Palustrine Emergent Wetland
Lida Junction to Pahrapump Amargosa Valley	5,174.4	Dry Lake: Lacustrine Littoral, Unconsolidated Shore
<b>Alternatives</b>		
Alt Yerington to Hawthorne	1,267.20	Freshwater Palustrine Emergent Wetland
Alt Carson City to Gardnerville Carson Valley	105.6 12,302.4	Freshwater Scrub/Shrub wetland Freshwater Palustrine Emergent Wetland

Other Waters of the U.S. include traditional navigable waters, such as the Carson and Walker rivers and their non-navigable tributaries where the tributaries typically flow year-round or have continuous flow at least seasonally. In Nevada, there are numerous non-navigable tributaries to traditionally navigable waterways that are not relatively permanent and some of these are also regulated by the ACOE. These appear on the ground as defined dry washes. These dry washes flow during storm events. The water is conveyed beneath the roadways via culverts. Other Waters of the U.S. were identified as “blue lines” on USGS 7 ½ minute quadrangles and are illustrated in the Hydrology and Wetland technical report, which is a part of the project record.

The buried section from Goldfield to Lida Junction crosses numerous dry washes. The washes drain to a terminal basin, have no surface water connection to a Traditional Navigable Water, do not cross state lines, or have any affect on interstate commerce. Therefore, the washes are not jurisdictional under the federal Clean Water Act. Any impacts to dry washes would be temporary and would not significantly alter hydrology, soil, or vegetation. The areas disturbed for the buried portions of the project would be returned to approximate the pre-construction bed and bank configuration.

## **4.0 ANALYSIS OF ENVIRONMENTAL IMPACTS (DIRECT, INDIRECT, SHORT TERM, LONG TERM)**

### **4.1 Air Quality**

#### **4.1.1 Air Quality Conditions**

##### Proposed Action

Construction equipment used for installation of the Proposed Action and all action alternatives would have emissions. Emissions include fugitive dust from roads and soil disturbance and emissions from gas and diesel fueled vehicles and equipment. During construction, the equipment emissions and construction activities would have a direct, local, temporary effect on air quality. However, these effects would not be significant.

The primary source of particulate matter affecting air quality from construction is dust from soil disturbing activities. Project specific BMPs prescribed in Chapter 2, and compliance with NDEP fugitive dust permit requirements and county Dust Control Plans would meet the requirements for dust control measures. Therefore there would be no significant adverse effect to air quality from dust. Other types of emissions are discussed below under section 4.1.2 Greenhouse Gases.

##### Action Alternatives

The alternative Yerington to Hawthorne route is 22.67 miles longer than the proposed route. At a construction rate of two miles per day there would be 12 more days of construction emissions or four percent more construction time. The alternative Hawthorne to Mina is 7.58 miles longer and would require 3 more days of construction. This amount is not a significant increase and there would be no significant impacts to air quality. Each of the alternative Carson City to Gardnerville routes are roughly one mile shorter than the proposed route which equates to one less day of construction emissions. This is not a significant decrease and there would be no significant impacts to air quality.

The other alternatives do not represent a large difference in construction mileage and similarly to the Proposed Action would have no significant effect.

##### No Action Alternative

Under the No Action Alternative there would be no construction and therefore there would be no impacts to air quality.

#### **4.1.2 Greenhouse Gases**

##### Proposed Action

Construction of the Proposed Action and all action alternatives would result in short-term minor increases in the use of fossil fuel and associated GHG emissions. The Proposed Action would result in the release of less than 200 metric tons of equivalent CO<sub>2</sub> emissions (see Appendix D for assumptions and modeling results). After construction of the project, there would be essentially no emissions, or a minimal amount, generated from the operation and maintenance of the fiber optic cable.

The CEQ has issued draft guidance on when and how federal agencies should consider GHG emissions and climate change in NEPA. The draft guidance includes a presumptive effects threshold of 25,000 metric tons of CO<sub>2</sub> equivalent emissions from an action (CEQ, 2010). The GHG emissions associated

with the Proposed Action are well below the CEQ threshold. Therefore, GHG emissions from the Proposed Action would not contribute appreciably to climate change or global warming.

#### Action Alternatives

The alternative Yerington to Hawthorne route is 22.67 miles longer than the proposed route. At a construction rate of two miles per day there would be 12 more days of construction emissions or four percent more construction time. The alternative Hawthorne to Mina is 7.58 miles longer and would require 3 more days of construction. This amount is not a significant increase and there would be no significant impacts to GHG emissions. Each of the alternative Carson City to Gardnerville routes are roughly one mile shorter than the proposed route which equates to one less day of construction emissions. This is not a significant decrease and there would be no significant impacts to GHG emissions.

The other alternatives do not represent a large difference in construction mileage and similarly to the Proposed Action would create no significant effect.

#### No Action Alternative

The No Action alternative would result in continued CO<sub>2</sub> emissions related to hospital patients traveling to facilities for diagnoses rather than receiving the services at the rural hospital. The amount of emissions is unquantifiable and varies by the number of patients and the frequency of specialty services needed. As stated in the purpose and need, the project would allow doctors and patients to consult with specialists electronically, reducing the need to travel for medical purposes. In Nevada, travel to a major hospital can be a long drive. For instance, it requires an hour to drive from Yerington to Carson City, and five hours from Elko to Reno. The amount of travel required and the resulting GHGs is conjectural but not expected to exceed the 25,000 metric ton threshold. Therefore the GHG emissions from the No Action Alternative would not be significant.

## **4.2 Biological Resources**

### **4.2.1 Vegetation**

#### Proposed Action

Vegetation located within the project area would be affected during project construction through either crushing by project construction equipment or by removal through excavation in areas planned for fiber optic cable burial. Project effects on existing vegetation would be minimized through utilization of existing road rights-of-way and implementation of the project environmental commitments. Impacts to vegetation from construction activities would represent a temporary, short-term effect, lasting five to 10 years until revegetation of the construction corridor becomes established.

Project components relating to the installation of fiber optic cable on existing overhead poles or adding new fiber optic cable to existing conduit is expected to have a minimal and short-term effect on existing vegetation. The installation of buried fiber optic cable would require the excavation of existing plants located within a one-foot wide trench alignment. Much of this excavation disturbance would be located within existing developed rights-of-way that typically represent previously disturbed vegetation communities.

Utilizing mapping provided by the Southwest ReGAP Project, Table 4-1 provides a summary of the project effects on vegetation communities resulting from the planned installation of buried fiber optic cable. This analysis in Table 4-1 indicates that the Inter-Mountain Basins Mixed Salt Desert Shrub type would represent the vegetation community most affected by this project. Most of this project effect would incur in the Goldfield to Lida Junction project segment.

Other primary vegetation communities or land uses affected by buried fiber optic cable includes the Sonora-Mojave Creosote-White Bursage Desert Shrub in southern Nevada and agricultural land in the Carson to Gardnerville project segment. The alignment for the Carson to Gardnerville project segment falls entirely within existing rights-of-way and this project excavation is expected to represent a temporary affect that would not permanently effect or alter existing agricultural production. Cacti and yucca may be present in the project impact area. To the extent practical, cacti and yucca within the project area would be avoided by this action. If cactus and yucca are unable to be avoided, due to the small amount of disturbance associated with this project, impacts would be considered negligible.

All of the vegetation communities identified in Table 4-1 are commonly found in Nevada and are not generally considered unique or rare. Therefore the project would not have significant negative impacts to vegetation.

**Table 4-1. Effects of Buried Fiber Optic Cable on Vegetation Communities and Land Uses**

Vegetation Community or Land Use	Effects By Buried Project Segment (Acres)			
	Goldfield to Lida Junction	Pahrump U/G	Las Vegas Laterals	Totals
Developed, Medium-High Intensity		0.08	0.02	<b>0.10</b>
Developed, Open Space-Low Intensity			0.02	<b>0.02</b>
Great Basin Xeric Mixed Sagebrush Shrubland	0.08			<b>0.08</b>
Inter-Mtn. Basins Big Sagebrush Shrubland	0.20			<b>0.20</b>
Inter-Mtn. Basins Mixed Salt Desert Shrubland	1.44			<b>1.44</b>
Inter-Mtn. Basins Semi-Desert Shrub Steppe	0.01			<b>0.01</b>
Sonora-Mojave Creosotebush-White Bursage Desert Scrub			0.40	<b>0.40</b>
Sonora-Mojave Mixed Salt Desert Scrub			0.02	<b>0.02</b>
<b>Project Segment Totals (Acres):</b>	<b>1.73</b>	<b>0.08</b>	<b>0.46</b>	<b>2.27</b>

Project effects on sensitive plant species that may have the potential to inhabit these vegetation communities are discussed and examined later in this Section.

Action Alternatives

The alternative Yerington to Hawthorne route and the Carson City to Gardnerville alternatives would not involve underground construction and would not change the impacts to vegetation.

The alternative Goldfield to Lida Junction route would decrease the underground portion by 1.7 miles or 0.2 acres (assuming a one-foot wide direct burial disturbance). Again, the disturbances for the proposed alternative would be temporary and within existing road rights-of-way and would not be a significant impact to vegetation.

The alternative Las Vegas to Boulder City would increase the total underground disturbances by 9.2 miles or 1.1 acre (assuming a one-foot wide direct burial disturbance). However this disturbance would be temporary and within existing road rights-of-way and would not be a significant impact.

#### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to vegetation resources.

### **4.2.2 Amargosa Mesquite ACEC**

#### Proposed Action

The project would traverse 8,515 feet of the Amargosa Mesquite ACEC managed by the BLM Pahrump Field Office. The existing power poles would be accessed via an existing jeep trail adjacent to the power poles. As described in Chapter 2 for the construction techniques for overhead power poles, the mesquite vegetation in the ACEC would not be impacted by hanging the cables from the poles.

The ACEC is located within a playa of the Amargosa Desert and the playa soils are hydric due to poor drainage. As specified in the Environmental Protection Measures listed in Chapter 2, construction equipment would not be allowed through this area when the soils are wet.

There would be no direct or indirect effects to the ACEC. Potential effects to migratory birds using the habitat are discussed under the Migratory Bird section.

#### Action Alternatives

There are no alternatives that would avoid the Amargosa Mesquite ACEC and therefore none of the alternatives would impact the Amargosa Mesquite ACEC.

#### No Action Alternative

Under the No Action Alternative, the project would not be constructed and there would be no impacts to the Amargosa Mesquite ACEC.

### **4.2.3 Wildlife**

#### Proposed Action and All Action Alternatives

Direct and indirect impacts to wildlife in general include temporary loss of habitat over the buried portions of the project and temporary localized disturbances to individual wildlife due to increased human presence and noise during construction. Additional direct impacts to general wildlife species include mortality of ground dwelling animals and less mobile species (such as reptiles) during construction activities.

Impacts to general wildlife are anticipated to be minimal because wildlife species are common and widely distributed throughout the area and the loss of some individuals and or their habitat would have a negligible impact on populations of the species throughout the region. Wildlife species are less likely to occur in the road and other disturbed areas than the adjacent habitats, but there is still potential for individuals to wander into the area of activity and be harmed. Impacts related to migratory birds and threatened, endangered or sensitive species are described later in this section.

Noise and human presence would cause temporary direct and indirect impacts to big game. The project construction would be proceeding at two miles per day and therefore the impacts would be temporary, localized and not significant.

#### Action Alternatives

The alternative Yerington to Hawthorne route is 22.67 miles longer than the proposed route. This amount is not a significant increase in the overhead portion of the project. This route would have no significant impacts to wildlife.

Each of the alternatives Carson City to Gardnerville routes are roughly one mile shorter than the proposed route. These alternatives would have no significant impacts to wildlife.

The alternative Hawthorne to Mina is 7.38 miles longer than the proposed route. This alternative and the other alternatives do not represent a large difference in construction mileage and similarly to the Proposed Action would have no significant effect to wildlife.

#### No Action Alternative

Under the No Action Alternative, the project would not be constructed and there would be no impacts to general wildlife.

### **4.2.4 Migratory Birds**

#### Proposed Action

Migratory bird species would be temporarily disturbed and displaced from the project area during construction activities due to noise and increased human presence. Buried fiber optic cable construction could directly impact migratory birds and / or nests if vegetation is cleared during the breeding season. As described in Table 4-1, several acres of vegetation would be temporarily disturbed through construction of the underground portions of the project. The removal of vegetation and potential nesting habitat could cause indirect effects to breeding birds that might normally nest within the project area. However, the areas would be reseeded following construction and in the long-term, the disturbed areas would become revegetated.

The project has incorporated environmental commitments described in Section 2.4 of this document to avoid direct impacts to nesting migratory birds during construction. With implementation of these BMPs, direct and indirect impacts to migratory birds would be less than significant.

#### Action Alternatives

The alternative Yerington to Hawthorne route is 22.67 miles longer than the proposed route. Each of the alternative Carson City to Gardnerville routes are roughly one mile shorter than the proposed route. The alternative Hawthorne to Mina is 7.38 miles longer than the proposed route. These routes do not traverse sensitive migratory bird habitat. Similarly to the Proposed Action; there would be no significant impacts to migratory birds with the implementation of environmental commitments in Section 2.4.

#### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to migratory birds.

#### ***4.2.5 Threatened, Endangered and Sensitive Species***

##### *Proposed Action*

##### *Sensitive Plant Species*

Table 3-4 lists the threatened, endangered wildlife species with the potential to occur in or near the project area. Direct effects of the proposed project on sensitive plant species would be avoided through preconstruction surveys, flagging of identified populations, and avoidance. Direct effects occur when sensitive plants or their potential habitat are physically impacted by activities associated with the Proposed Action.

Direct impacts may include breaking, crushing, or uprooting sensitive plants by driving over them with construction equipment, trampling by project personnel and trenching activities. When plants are damaged, those individuals may experience altered growth and development, reduced or eliminated seed-set, and reduced reproduction. If the disturbance is severe, mortality of individuals or populations can occur.

The project area soils and their inclusions were studied regarding gypsum content. There are no gypsum rich soils crossed by the proposed project and therefore no potential for Las Vegas buckwheat, a gypsophile.

Direct impacts to the sensitive plants listed in Table 3-4 would be avoided through preconstruction survey of the buried section between Goldfield and Lida Junction, flagging, and avoidance as described in environmental commitments provided in Section 2.4 of this EA.

##### *Threatened, Endangered and Sensitive Wildlife Species*

Table 3-4 lists the threatened, endangered wildlife species with the potential to occur in or near the project area. Direct impacts to the desert tortoise, Gila monster, southwestern willow flycatcher, the yellow-billed cuckoo, and the Yuma clapper rail would be avoided through implementation of the specific environmental commitments for the desert tortoise, Gila monster and migratory birds provided in Section 2.4 of this EA.

Direct impacts to the two the Amargosa toad, the northern leopard frog, and the Pahrump poolfish with potential to occur near the project area would be avoided. There are no earth disturbing activities proposed within or immediately adjacent to their habitat. Direct impacts the Lahontan cutthroat trout would be avoided by disallowing machinery within their habitat. The Carson and Walker Rivers will be crossed on foot or via existing bridges. Potential impacts to these species would be avoided through implementation of the environmental commitments for amphibians and fish provided in Section 2.4 of this EA.

The western snowy plover has habitat at the southern end of Walker Lake. Western snowy plover habitat is near, but is not crossed by the proposed project. The proposed project is more than one mile from western snowy plover habitat. The project is confined to the existing roads and would not cause abnormally high amounts of noise and would not disturb snowy plovers or their habitat.

Noise and human presence would cause temporary direct and indirect impacts to golden eagle. The project construction would be within three miles of known golden eagle nests. The construction would be proceeding at two miles per day and therefore the impacts would be temporary, localized and not significant. Potential impacts to this species would be avoided or minimized through implementation of the environmental commitments for the golden eagle provided in Section 2.4 of this EA.



Noise and human presence would cause temporary direct and indirect impacts to greater sage-grouse. The project construction would not cross known leks and would not destroy habitat. The construction would be proceeding at two miles per day and therefore the impacts would be temporary, localized and not significant. Direct impacts to other sensitive bird species would be avoided as previously described in the Migratory Bird section.

Noise and human presence would cause temporary direct and indirect impacts to bighorn sheep, mule deer, pronghorn antelope, Rocky Mountain elk and other ground-dwelling mammals and reptiles. The project construction would be proceeding relatively slowly, at two miles per day, and therefore direct impacts such as injury or mortality are unlikely, although possible, as the animals may move out of the way of slow-moving machinery. Indirect impacts would be temporary, localized and not significant.

Noise and human presence would cause temporary direct and indirect impacts to sensitive bats. The project crosses foraging habitat and may be adjacent to roost habitats including talus, tree, bridge and building types of roosts, . Noise and human presence would cause temporary indirect impacts to bats. Direct and indirect impacts to bats will be minimized through the education program described in Section 2.4 of this EA. The proposed project would result in roughly two acres of vegetation disturbance, which would be a temporary, localized loss of foraging habitat.

The buried section between Goldfield and Lida Junction is located within potential habitat for several bird species, including the burrowing owl, as well as the desert tortoise and other reptile species. Roughly two acres of vegetation and ground disturbance would occur due to construction of the buried fiber optic cable in desert tortoise and burrowing owl habitat. The other reptile species are mobile and would be disturbed by noise, vibrations, and human presence. These impacts would be temporary, localized and not significant.

#### Action Alternatives

None of the action alternatives cross gypsum rich soils and therefore have no potential to impact Las Vegas buckwheat, a gypsophile.

The alternative Yerington to Hawthorne route would increase the construction by 22.67 miles which would represent a longer time and area for harassing sensitive species, if present. This is not in desert tortoise habitat.

Each of the alternative Carson City to Gardnerville routes are roughly one mile shorter than the proposed route. Similarly to the proposed action, these routes cross potential habitat for the Carson wandering skipper. However, because the alternatives do not include ground disturbing actions, the alternatives would not adversely impact this species.

The alternative Hawthorne to Mina is 7.38 miles longer than the proposed route. This alternative as well as the associated proposed route are not within habitat for threatened, endangered, or sensitive species.

The alternative Goldfield to Lida Junction route would decrease the underground portion by 1.7 miles in desert tortoise habitat. Again, the disturbances for the proposed alternative would be temporary and within existing road rights-of-way and would not be a significant impact to threatened or endangered wildlife species.

The alternative Las Vegas to Boulder City would increase the total underground disturbances by 9.2 miles. This disturbance would be in desert tortoise habitat and therefore would not be preferred. Although

the fiber optic cable would be placed within the prism of existing road ways, the construction would require special measures to avoid impacts to the desert tortoise.

Direct impacts to sensitive wildlife would be avoided through preconstruction survey, flagging, and avoidance as described in environmental commitments provided in Section 2.4 of this EA.

#### *No Action Alternative*

Under the No Action Alternative the project would not be constructed and there would be no impacts to sensitive species.

#### **4.2.6 Noxious Weeds and Invasive Species**

##### Proposed Action

Establishment of noxious weeds within the project corridor would represent an indirect effect to vegetation communities. Vegetation communities are more susceptible to noxious weed infestations following soil disturbances. During construction, operation, or maintenance, movement of crews and equipment within the proposed ROW and along access roads provide opportunities for seed transport into new areas. Once established, invasive and noxious weeds can negatively affect habitat by competing for resources such as water and light, changing the community composition, eliminating or reducing native plants or by changing the vegetation structure. The changes in community composition or vegetation structure could reduce native plant populations.

Noxious weed infestations located within the project alignment would be identified by pre-construction surveys as specified in Section 2.4 of this document. Noxious weed infestations would be marked and documented by GPS coordinates for future avoidance during project construction and potential future treatment for plant control and to limit the spread of existing noxious weed infestations located within these permit areas.

The buried portion of the project between Goldfield and Lida Junction has high susceptibility of weed establishment because of the soil and vegetation disturbance. However, there are no known noxious weed infestations within the Proposed Action or Action Alternatives. In addition, weed transport by equipment and crews during construction, operation, or maintenance would be minimized or avoided through implementation of the environmental commitments described in Section 2.4 of this document. Therefore noxious weeds are not expected to be unnecessarily distributed or established under the Proposed Action.

##### Action Alternatives

The alternative Yerington to Hawthorne route, the Carson City to Gardnerville routes and alternative Hawthorne to Mina route would not involve underground construction. Although the alternative Yerington to Hawthorne route is longer than the Proposed Action, there would not be a significant impact to noxious weeds with the implementation of the environmental commitments described in Section 2.4 of this document.

The alternative Goldfield to Lida Junction route would decrease the underground portion by 1.7 miles or 0.2 acres (assuming a one-foot wide direct burial disturbance). This disturbance would be less than the Proposed Action and would not be a significant impact to noxious weeds with the implementation of the environmental commitments described in Section 2.4 of this document.

The alternative Las Vegas to Boulder City would increase the total underground disturbances by 9.2 miles or 1.1 acre (assuming a one-foot wide direct burial disturbance). This disturbance would be temporary

and within existing road rights-of-way and would not be a significant impact to noxious weeds with the implementation of the environmental commitments described in Section 2.4 of this document.

#### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to noxious weeds and invasive species.

### **4.3 Cultural and Historic Resources**

#### **4.3.1 Archaeology and Architecture**

##### Proposed Action

Most of the buried project routes are within heavily developed urban areas and the proposed fiber optic cable alignments would be constructed within existing road prisms or disturbed areas. As proposed, construction disturbance would have no effect on National Register eligible sites whose significance is derived from Criteria A, B, or C. Trenching and boring have the greatest potential for destroying archaeological sites eligible under Criterion D.

Architectural inventories have been completed in the vicinity of a number of the proposed routes and in several instances significant architectural resources lie adjacent to the proposed routes. Installation of the fiber optic cable would be limited to subsurface disturbance, usually directional boring, in existing streets, and would have no effect on architectural resources. No additional architectural inventory is recommended.

Most of the National Register-listed properties are buildings. Four of these properties are within 50 feet of the proposed buried fiber optic cable centerline. Construction within the corridor and underground placement of fiber optic cable would have no effect on these National Register listed properties. Archaeological inventories exist, or have been recently completed, for most of the proposed alignments and modern development has disturbed much of the urban and suburban environment. The assumed 100-foot APE avoids most of the known National Register-eligible archaeological sites.

Four National Register eligible or unevaluated archaeological sites would be traversed in a few locations by the proposed routes. In these locations, construction would be confined within existing prisms or disturbed utility corridors. Several measures or combination of measures, including pre-construction routing of the alignment through around significant properties, avoidance fencing, or construction monitoring may be appropriate to ensure avoidance.

Management recommendations are included in the environmental commitments in Section 2.4 of this document. All but one of the proposed buried routes evaluated for the project to occur within extensively developed or sufficiently disturbed urban or suburban areas. This 14.34-mile long proposed buried alignment along U.S. 95 between Goldfield and Lida Junction traverses minimally disturbed areas. The northern portion of highway ROW was previously inventoried and a Class III inventory was conducted for the southern part of the route. No significant resources were discovered between Goldfield and Lida Junction (Gnomon, 2011b). The BLM reviewed the Class III report and determined that there would be no project effect in this area (see Appendix E).

Construction of buried fiber optic cables will have no effect on National Register listed or eligible architectural resources. Construction disturbance has the greatest potential for destroying buried or surface archaeological deposits. Implementing the environmental commitments listed in Section 2.4, the project will have no adverse effect on archaeological resources.

The SHPO provided a letter dated September 28, 2011, which conditionally concurred with the NTIA finding of No Adverse Effect. The conditions have been incorporated into the environmental commitments detailed in Section 2.4 and were agreed to by the NHA in writing. This letter is provided in Appendix E. The SHPO letter, together with the commitments by NHA, concludes the Section 106 review requirements.

The SHPO was provided a courtesy letter with a figure of the overall final proposed routes on January 11, 2011.

Action Alternatives

The alternative Goldfield to Lida Junction segment is located on the east side of Hwy 95. This alignment is near several old railroad grades. The Class I information indicated there are historic resources located in that area. Construction of the Goldfield to Lida Junction on the east side of Highway 95 would likely impact known historic resources. None of the other alternative buried routes would impact known historic or cultural resources.

No Action Alternative

Under the No Action Alternative, the project would not be constructed and there would be no impacts to cultural or historic resources.

**4.3.2 Native American Resources**

Table 4-2 lists the tribes which were sent information about the project and those tribes which requested additional information or those that need to be contacted if archeological or human remains are discovered.

**Table 4-2. Contacted Tribes and Requests for Additional Information**

Tribe	No Comment	No interest but contact if any discoveries are made	Additional project information provided as requested
LeAnn Skrzynski Kaibab Paiute Tribe Fredonia, AZ -	X		
Marlin Thompson Yerington Paiute Tribe Yerington, NV	X		
Linda D Otero Fort Mojave Indian Tribe Mohave Valley, AZ	X		
Bernice Lalo Battle Mountain Band Council Battle Mountain, NV	X		
Suzanna Sandoval Elko Band Council of the Te Moak Tribe of Western Shoshone Elko, NV -	X		

<b>Tribe</b>	<b>No Comment</b>	<b>No interest but contact if any discoveries are made</b>	<b>Additional project information provided as requested</b>
Cindy Pierce South Fork Band Council Spring Creek, NV	X		
Victor Mann Lovelock Paiute Tribe Lovelock, NV	X		
Ben Aleck Pyramid Lake Paiute Tribe Nixon, NV	X		
Scott Nebesky Reno-Sparks Tribal Council Reno, NV	X		
William Cowan Summit Lake Paiute Tribe Sparks, NV	X		
Darrel Cruz Washoe Tribe of Nevada & California Gardnerville, NV	X		
Teloa Brady Yomba Tribal Council Austin, NV	X		
Mark Ruber Las Vegas Paiute Tribe Las Vegas, NV	X		
Ronald Escobar Chemehuevi Tribe Havasu Lake, CA	X		
Adora Saulque Benton Paiute Tribe Benton, CA	X		
Charlotte Baker Bridgeport Indian Colony Bridgeport, CA	X		
Allen Ambler Winnemucca Indian Colony Winnemucca, NV	X		
Mark Richards Ely Shoshone Tribe Ely, NV	X		
Ed Naranjo Goshute Tribe Ibapah, UT		X	
Kristi Begay Wells Band Council Wells, NV		X	
Raynell Miller Walker River Paiute Tribal Council Schurz, NV		X	

Tribe	No Comment	No interest but contact if any discoveries are made	Additional project information provided as requested
Russell E Weller Jr Moapa Band of Paiutes Moapa, NV		X	
George Gholson Timbisha Shoshone Tribe Bishop, CA		X	
Carolyn Smith Shoshone-Bannock Tribes Fort Hall, ID		X	
Maurice Frank-Churchill, Duckwater Shoshone Tribe Duckwater, NV			X
Ted Howard Shoshone-Paiute Tribes Owyhee, NV			X
Ray Stands Fallon Paiute-Shoshone Tribe Fallon, NV			X
Dawn Hubbs Hualapai Tribe Peach Springs, AZ			X

Six tribes were provided with additional information. These tribes include the four listed in the table above, the Timbisha Tribe and the Walker River Paiute Tribe. There were no subsequent interactions with these tribes regarding Native American resources. There are no known Native American resources and no new Native American resources brought forward by the tribes for analyses for either the proposed action or any of the action alternatives.

The project crosses land owned by the Walker River Paiute Tribe and the Timbisha Tribe. ROWs are necessary for these lands similarly to that required to cross private land or land managed by the BLM. ROWs for the Timbisha was secured in December 2011. The ROW for the Walker River Paiute land requires a metes and bounds survey. The survey and necessary paperwork are expected to be complete in late January 2012.

A walking survey of the Walker River Paiute Tribe land was conducted by the tribe and one fire ring was discovered. This cultural resource will be flagged and avoided and therefore would not be impacted.

The Walker River Paiute Tribe commented on the draft EA in November 2011. Their comments are provided in Appendix E. NHA is committed to providing the information and communication requested in their letter.

No Action Alternative

Under the No Action Alternative, the project would not be constructed and there would be no impacts to tribal resources.

## **4.4 Geology, Mineral and Soil Resources**

### **4.4.1 Geology**

#### Proposed Action and All Action Alternatives

No short-term impacts to area geology from project construction, operation, or maintenance would occur as the Proposed Action and the action alternatives are either above ground or placed within the top six feet of the ground surface.

#### No Action Alternative

Under the No Action Alternative, the project would not be constructed and there would be no impacts to geologic resources.

### **4.4.2 Minerals**

#### Proposed Action and All Action Alternatives

The buried portion of the project between Goldfield and Lida Junction does not cross any known mineral resources that would be located within the top six feet of the ground surface where the fiber optic cable would be placed.

The overhead portions of the powerline in the vicinity of Goldfield and Tonopah cross known mineral resources with proposed mineral extraction projects. These areas are more specifically located in T02N, R42E and T02S, R42E. At the time of this draft EA writing (September 21, 2011), there were no formal Plans of Operation available. However, both of these potential mineral extraction projects propose to move the Hwy 95 and the adjacent powerline to the west for an unspecified distance.

The Proposed Action and all action alternatives have accounted for this future re-location through the design and inclusion of splice connectors as described in Section 2.4 of this EA. Therefore the project would have no impacts on mineral resources because the fiber optic cable design has taken into account the future need for relocation in these areas.

### **4.4.3 Soils**

#### Proposed Action

Analysis of the proposed project alignments indicates that an estimated distance of 2.41 miles of buried new fiber optic cable would occur in soil units with a high rating for wind erosion. All remaining project construction activities (i.e., adding a fiber optic cable to existing overhead poles or to existing buried conduit) are expected to result in minimal ground disturbances.

Potential environmental consequences include the potential for moderate soil loss from erosion, with subsequent changes in slope and topography within the project area. Best management practices for erosion control, as included in the environmental commitments of the Proposed Action, are expected to result in no adverse, direct, or indirect impacts to soils. These practices include containment of loose soil during installation activities to avoid soil loss. Immediately upon completion, loose soil would be backfilled, compacted, and graded into trenches or appropriate areas at the action site. Soil disturbance areas would be revegetated in accordance with the requirements of the involved ROW permit. These measures in the project design would ensure that any impacts to area soils and erosion would be minimized.

Action Alternatives

The buried alternatives do not cross highly erodible soils.

No Action Alternative

Under the No Action Alternative, the project would not be constructed and there would be no impacts to soil resources.

Prime or Unique Farmland

Proposed Action

Analysis of the proposed project alignments indicates that the project would encroach on soil map units designated as either prime farmland or soils of statewide importance (Table 4-3). There would be no impact to the soils under the overhead portion of the project. Total distance of project impact due to buried construction is estimated at 1.03 miles. However, this proposed buried fiber optic cable would be located below ground and would not affect existing agricultural production or production practices beyond the initial construction phase. This project affect would also be located in existing rights-of-way and would not result in further restrictions to existing agricultural production beyond those limitations already in place under the existing ROW agreements. Based on this project-specific analysis, no direct or indirect impacts to prime or unique farmland would occur from the Proposed Action.

**Table 4-3. Estimated Project Effects on Prime or Statewide Important Farmland Soils**

Project Segment	Estimated Project Effects by Distance (Miles)			
	Prime Farmland Soils			Statewide Important Soils
	Overhead Fiber Optic Cable	Existing Conduit	New Buried Conduit	Overhead Fiber Optic Cable
Reno to Carson City	0.0	6.3	0.0	0.0
Carson City to Gardnerville	7.65	0.0	0.0	0.0
Silver Springs to Yerington	5.2	0.0	0.7	0.0
Yerington to Goldfield	0.7	0.0	0.0	2.4
Hawthorne to Mina	0.0	0.0	0.0	0.18
<b>Project Totals (Miles):</b>	<b>13.55</b>	<b>6.3</b>	<b>1.03</b>	<b>2.58</b>
<b>Alternatives</b>				
Alt Yerington to Hawthorne	1.88	0.0	0.0	0.0
Alt Carson City to Gardnerville overhead	13.95	0.0	0.0	0.0
Alt Carson City to Gardnerville conduit	0.0	5.4	0.0	0.0

Action Alternatives

The alternatives cross prime farmlands but there are no buried sections proposed in prime farmlands. Therefore the alternatives would have no effect to prime farmlands.



#### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to prime or unique soil resources.

### **4.5 Human Health and Safety**

#### **4.5.1 Wastes, Hazardous and Solid**

##### Proposed Action and All Action Alternatives

Hazardous materials could pose a threat to human health and safety if contaminated sites are accidentally discovered and the workers are unprotected. Several national and state databases identify potentially hazardous materials or waste sites within the vicinity of the project area.

The NDEP Bureau of Corrective Actions “Project Tracking” Database indicated there are five reported hazardous substance releases within some of the buried alignments in Las Vegas. All five confirmed release cases have been closed per EPA requirements. Therefore, it is highly unlikely that contaminated soils would be encountered during construction.

The EPA Envirofacts Warehouse was searched for facilities within the Land, Waste and Toxics Databases. Five sites were identified in the Land database to be within the alignment. No releases or spills are associated with the five properties. Therefore, there is no potential for impact during trenching.

The project would cross the Carson River Mercury Site on overhead lines and there would be no soil disturbance. Therefore, there would be no effect regarding this site.

Construction of the Proposed Action and all alternatives would follow the environmental commitments listed in Equipment Refueling and Leaks, Solid Waste in Section 2.4. If contaminated soil is encountered during excavation, then the contractor will halt construction in the area and contact the NDEP at 888-331-6337. Therefore, there will be no health and safety effects on workers, the traveling public, recreation users, or sensitive receptors from hazardous materials.

##### Action Alternatives

None of the action alternatives cross potential hazardous waste areas. Therefore there is no potential impact during trenching for the action alternatives.

#### No Action Alternative

Under the No Action Alternative the project would not be constructed. Patients and hospitals would not have access to the broadband technology. Patients would be required to travel to receive specialized services. The status quo would remain and human health would not be afforded the opportunity to improve as with the Proposed Action.

#### **4.5.2 Fire Management**

##### Proposed Action and All Action Alternatives

Construction activities for the fiber optic cable project have the potential to increase fire starts in the immediate construction area. Under hot and dry conditions, sparks from equipment or heat from catalytic converters can start wildland fires. Further, construction worker actions such as cigarettes or matches could also be ignition sources.

The prevention of fire starts would be included in the environmental education program (described in Section 2.4) for all construction workers. New fire starts would be avoided through implementation of the environmental commitments for fire described in Section 2.4. With implementation of these prevention measures, there would be no significant impacts to fire management.

#### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to fire.

### **4.6 Infrastructure**

#### Proposed Action and All Action Alternatives

Existing infrastructure for utilities, waste disposal, telecommunications, and roadways were identified in the project areas. No new utilities, roadways, or waste disposal facilities would be needed for the construction or operation of the proposed project.

Regarding use of road ROW, existing pole and conduit infrastructure, e-Care and NVE are signing a pole attachment agreement and a conduit use agreement. e-Care and NDOT are entering into a MOU which describes the areas and terms of mutual use of infrastructure. The ROW permit issued from the BLM, to be signed by NHA will describe the terms of use of the existing roadways. These agreements detail, among other items, the engineering, inspection, warranties, legal use, liability, safety, and fees. These agreements will assure that there would be no adverse effect to infrastructure. The benefits of the new fiber optic infrastructure are described in Section 1.1.2.

#### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to infrastructure.

### **4.7 Land Use**

#### Proposed Action and All Action Alternatives

All of the Proposed Action and Action Alternatives are located within existing utility or transportation rights-of-way authorized by the land managing agency. Therefore, the fiber optic cable is compatible with these existing land uses and would not change any of the underlying land uses. Likewise, the existing utility or transportation rights-of-way are in fact consistent with the applicable USFS, BLM, DOD, BOR, tribal, state agency, county, and city land management or resource plans. The permitting agencies will rely on this EA in preparation of the ROW agreements. To date, all agencies have been cooperative and supportive of this project. Concurrence through the form of permit issuance is imminent following submission of this Final EA and other necessary documents pertinent to each authorizing agency. See Chapter 5 for details regarding permits and their status.

The Proposed Action as well as the action alternatives is in conformance with all of the associated land use and management plans in the project area. Therefore there would be no adverse effects to land use.

#### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to land use.

#### **4.7.1 Public Land Grazing**

##### Proposed Action

Temporary effects that have the potential to incur during project construction include increased animal injury or death due to the hazards posed in active construction sites or by increased in vehicular traffic during the project construction phase. Increased human activities during project construction can harass livestock and temporarily prevent planned livestock movements within permitted grazing allotments.

Most livestock grazing allotments have constructed range improvements that include the development of stock waters and pasture fencing to implement planned grazing systems consistent with the permit conditions. If located near the alignments for linear utility projects or along construction site access routes, existing range improvements could be damaged or impaired during project construction. Damage to existing fencing, or leaving gates open during project construction, can disrupt planned grazing rotations or result in lost or trespass livestock.

Direct effects from the Proposed Action in permitted public land allotments are summarized in Table 4-4. This analysis indicates an estimated 289 miles of the proposed project alignment would transect through 21 different allotments. Of this total project disturbance, about 95 percent of this alignment would involve the placement of fiber optic cable on existing overhead utility poles. This project-related disturbance would occur in previously disturbed and pre-existing utility ROWs and involve minimal ground and vegetation disturbance. Due the rapid progress under this project construction practice, livestock harassment associated to increased human presence, construction activities, and traffic during the project construction phase is anticipated to represent a temporary and very short-duration in-direct project effect.

The Proposed Action also includes the shallow excavation and burial of new fiber optics cable for a total distance of 14.34 miles (Table 4-4). This project construction practice will be limited to the Montezuma and Magruder Mountain Allotments administered by the BLM Battle Mountain District. This project disturbance will occur entirely within the fenced ROW for Highway 95 permitted to the NDOT. This fenced ROW is excluded from the permitted grazing occurring on the Montezuma and Magruder Mountain Allotments and will not materially affected these grazing permits.

**Table 4-4. Estimated Project Effects on Public Land Grazing Allotments by Alternative**

Permitted Grazing Allotments		Proposed Action		Alternative Yerington to Hawthorne		Alternative Goldfield to Lida Junction	
No.	Name	Existing Overhead	Cable Burial	Existing Overhead	Cable Burial	Existing Overhead	Cable Burial
0072	San Antone	0.1		0.1		0.1	
0093	Razorback	2.3		2.3		2.3	
0094	Montezuma	54.4	9.84	56.9	12.0	56.9	12.0
0099	Magruder Mountain	25.7	4.5	25.7	0.2	25.7	0.2
0104	Monte Cristo	40.9		40.9		40.9	
0137	Desert Queen	1.6		1.6		1.6	
3000	Adriance Valley	2.3		2.3		2.3	
3010	Cleaver Peak	2.4		2.4		2.4	
3023	Fort Churchill	1.5		1.5		1.5	
3036	Lahontan	9.6		9.6		9.6	
3509	Buckeye	19.41					
3530	Duck Hill	7.1		2.2		2.2	
3531	East Walker			7.7			
3535	Garfield Flat	17.03					
3536	Gillis Mountain	19.4		4.6		19.4	
3539	Gray Hills	13.4		19.0		13.4	
3557	Lucky Boy			6.6			
3569	Nine Mile			11.8			
3572	Parker Butte	10.6		13.7		10.6	
3573	Perry Spring – Deadman	8.5		10.0		8.5	
3574	Pilot – Table Mountain	43.5		43.5		43.5	
3583	Sand Canyon	2.8		2.8		2.8	
5308	Silver King	3.6		3.6		3.6	
-----	Walker River	5.4				5.4	
<b>Project Disturbance by Type (Miles):</b>		291.54	14.34	268.8	12.2	252.7	12.2
<b>Disturbance by Alternative (Miles):</b>		305.88		281.0		264.9	

Best Management Practices would be implemented during project construction to minimize the off-site transport of fugitive dust and soil sedimentation. Equipment used during project excavation would be thoroughly washed prior to accessing construction sites to eliminate the transport of new noxious or invasive weed species into the project area. All areas disturbed using project construction will be revegetated for long-term site stabilization.

The project environmental commitments disclosed in Section 2.4 also contain provisions to repair, replace or relocate existing range improvements that may be damaged during project construction to a new or the pre-existing condition. Provisions are also included in the project design for project employees or contractors to keep fence gates closed during project construction and subsequent facility operation and maintenance. Combined, implementation of the project environmental commitments are expected to fully mitigate project-related effects to permitted public land grazing to less than significant levels.

#### Action Alternatives

Table 4-4 discloses that the Proposed Action and the Alternative Goldfield to Lida Junction alignment will impact a lesser number of grazing allotments, while the Proposed Action combined with the Alternative Yerington to Hawthorne alignment will result in the largest effect on permitted grazing allotments. Due to the high degree of reliance in all the alternatives on the replacement of new fiber optics cable on existing utility poles, the limited use of new buried cable, and the adopted environmental commitments, the action alternatives would not have a significant effect on existing permitted livestock grazing. There are no grazing allotments for the Alternative Carson City to Gardnerville routes.

#### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to grazing.

### **4.7.2 Wild Horses and Burros**

#### Proposed Action and All Action Alternatives

Linear utility projects have the potential to adversely affect the sustainability of wild horse and burro (WH&B) populations by either decreasing the available forage, access to existing water sources, or limiting the free-roaming nature in established HMAs. Ground disturbances occurring during project construction or during project operation and maintenance can introduce noxious weeds and invasive annual species like cheatgrass and red brome. Established invasive weed species can in turn spread and reduce the availability of forage species either through inter-species competition, and/or increase the fire return interval to levels where the existing native perennial species become disadvantaged and sites convert to plant communities dominated by fire-adapted annual species. These potential effects can progress over time to the point of adversely affecting horse and burro carrying capacities in HMAs and limit the ability to achieve established AMLs. A reduction in forage quality and quantity can also adversely affect animal health and herd productivity.

The location of the project in HMAs can also have an effect on the severity of the resulting impact. For instance, project effects occurring along or parallel to the HMA boundary (i.e., border effects) would likely not have a substantial effect on WH&B populations or their movements through the remainder of the HMA. However, project components transecting the HMA (i.e., crossing effects) could limit the free-roaming nature of WH&Bs and introduce in-direct impacts like invasive weed species into the interior of the HMA where they could more readily spread and affect the long-term habitat quality in the HMA.

Additional temporary effects that have the potential to occur during project construction include increased animal injury or death due to the hazards posed in active construction sites or by increased vehicular traffic during the project construction phase.

Direct effects from the Proposed Action in established HMAs are summarized in Table 4-5. This analysis indicates an estimated 95.7 miles of this linear utility project would encroach on established HMAs. All of this project disturbance would be limited to the placement of new fiber optics cable on existing utility poles. With this project construction occurring in existing utility ROWs and in previously disturbed areas, effects from the Proposed Action on WH&B HMAs are expected to be minimal and represent only a slight incremental increase in the current effects that resulted from the original utility corridors and their continued maintenance. This incremental project effect would be limited to the added human presence and vehicle traffic during a short construction period and periodic project maintenance over the long term. Due to the limited site disturbances associated with this construction method, the Proposed Action is expected to have a minor and incidental effect on the native plant species that currently inhabit the utilized ROWs. Short of the surface disturbances associated with transporting equipment and personnel on existing roads into the project area to install the overhead fiber optics cable, this proposed project construction does not involve extensive soil excavation and disturbance that can be associated with the burial of new fiber optics cable.

Table 4-5 also characterizes the Proposed Action in terms of location of the expected project effects in relation to the impacted HMAs. Of the 95.7 miles of project alignment that is estimated to impact designated HMAs under the Proposed Action, about 70 percent of the project alignment would represent a crossing or transecting impact in the involved HMAs. However since the Proposed Action would limit new construction impacts to pre-existing utility corridors and structures, these project HMA crossings are expected to have a minimal effect on WH&B populations and HMA capacities due the lack of new and substantial project-related disturbances.

As stipulated in Section 2.4, BMPs would be implemented during project construction to minimize the off-site transport of fugitive dust and soil sedimentation. Equipment used during project construction would be thoroughly washed prior to accessing construction sites to eliminate the transport of new noxious or invasive weed species into the project area. All new disturbance areas occurring during project construction will be revegetated for long-term site stabilization. Implementation of these environmental commitments is expected to fully mitigate project-related effects to managed wild horses and burros and established HMAs to less than significant levels.

#### Action Alternatives

Table 4-5 indicates that the only alternative besides the Proposed Action that encroaches on designated HMAs is the Alternative Yerington to Hawthorne project alignment. This analysis indicates selection of the Alternative Yerington to Hawthorne alignment would add an addition 0.3 miles of project encroachment into the Wassuk HMA. The added impact under this alternative would constitute a “border” effect as opposed to a “crossing” effect represented by the Proposed Action. This difference is not significant. The action alternatives would have minimal effects on WH&B and HMAs.

The Alternative Goldfield to Lida Junction alignment and Alternative Carson City to Gardnerville routes would not affect designated HMAs.

#### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to wild horses and burros.

**Table 4-5. Estimated Project Encroachment on Designated Herd Management Areas**

Project Alternative Segment	Herd Management Areas		Project Effects by Disturbance Type (Miles)	
	Number	Name	HMA Crossing Effect	HMA Border Effect
<b>PROPOSED ACTION:</b>				
Yerington to Goldfield	NV0312	Wassuk	1.6	-----
	NV0314	Pilot Mountain	25.3	-----
	NV0625	Montezuma Peak	-----	4.8
Lida Junction to Pahrump	NV0629	Bullfrog	17.0	-----
	NV0510	Johnnie	12.8	
Pahrump to Las Vegas	NV0510	Johnnie	-----	2.4
	NV0507	Wheeler Pass	-----	19.0
	NV0504	Red Rock	8.4	-----
Carson to Gardnerville	NV0305	Pine Nut Mountains	-----	4.4
<b>Subtotals (Miles):</b>			<b>65.1</b>	<b>30.6</b>
<b>Alternative Total (Miles)</b>			<b>95.7</b>	
<b>OTHER PROJECT ALTERNATIVES:</b>				
Alt. Yerington to Hawthorne	NV0312	Wassuk	-----	1.9

#### 4.8 Noise

##### Proposed Action and All Action Alternatives

The proposed project would temporarily increase noise levels during construction. Construction noise in the urban areas would consist of typical construction equipment including backhoe where the fiber optic cable is buried and hand tools. There are no federal, state or local noise ordinances relating to construction or operation of the proposed project or alternatives in urban or wildland areas. Noise impacts related to wildlife and migratory birds are discussed under the Biological Resources section.

The construction noise near the hospitals would also be typical for standard construction equipment. The hospital communication rooms where the construction for the fiber optic cable connection would take place are generally in the administrative portion of the hospitals away from patient rooms. These areas generally have industrial utility. To keep construction noise to a minimum, activities near residences would be performed during the daytime hours, Monday through Friday.

##### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to noise.

## **4.9 Recreation**

### Proposed Action and All Action Alternatives

The proposed project is not expected to have an impact on recreation. The fiber optic cable would either be placed underground in existing transmission corridors or added to existing overhead power poles. No new transmission corridors would be created as a result of this project. No land disturbance would occur except for hand holes within the existing transmission corridors.

The construction methods associated with installation would not impact recreation. All access to recreational facilities through the transmission corridors would be maintained both during construction activities and upon completion of the project. The addition of the fiber optic cable would not alter any existing recreational land uses.

The addition of the fiber optic cable in the Highway 160 transportation corridor would not impact recreation within the SMNRA. The fiber optic cable would be placed on existing overhead lines that run through the roadway corridor. No ground disturbance would occur. Access to the SMNRA would remain open during the construction activities.

### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to recreation resources.

## **4.10 Socioeconomic Resources**

### Proposed Action and All Action Alternatives

The NBTI would provide a direct benefit to communities and existing service providers by providing access to additional backhaul capacity made available over NBTI network. Existing service providers, both wireline and wireless, serving residential and commercial customers would have access to additional backhaul capacity made available over the NBTI network. This additional backhaul capacity would ultimately provide consumers with more robust broadband services, and as a result, would improve consumer services.

The proposed broadband network would bring videoconferencing, telemedicine applications and other modern tools to healthcare providers in the northern region of the state where seven rural hospitals do not currently have high-capacity broadband services. These hospitals are located in the communities of Battle Mountain, Ely, Elko, Hawthorne, Lovelock, Tonopah, and Yerington.

While all of Nevada's hospitals currently have some level of access to the Internet, the quality and capacity of these connections varies dramatically, often at high cost with limited reliability, and no redundancy. Many rural health providers in Nevada have limited broadband access that is not sufficient to transmit critical patient information electronically.

The delivery of end user broadband services is greatly dependent on last mile, or local, service providers having access to cost-effective and scalable middle mile backhaul solutions. Backhaul costs and capacity are often choke points for last mile service providers and can limit their ability to deploy advanced broadband services to consumers.

In most of the rural areas of Nevada, current middle mile solutions come in the form of expensive connections that often fail to scale cost-effectively. The existing infrastructure providing backhaul in rural markets throughout Nevada do not currently provide the level of service that wireless carriers and last



mile providers need in order to meet consumer needs. A lack of competitive choices inhibits the last mile service providers' ability to adequately serve end-users and continues to be an impediment in providing reliable high-bandwidth broadband to consumers.

In addition to serving NHA member hospitals, the project would deliver cost-effective, reliable, and scalable middle mile solutions to last mile service providers in communities throughout Nevada. The project would allow various last mile service providers to economically create business plans to serve and benefit end users. This would not only bring more investment to those areas but also facilitate the broader economic development of the community.

Connecting broadband to rural areas is a proven means to creating jobs and spurring investment. As an example, planning commissions in rural southwest Virginia accelerated job growth by combining broadband deployment with new economic development projects to take full advantage of broadband benefits. These efforts helped the community attract new employers and create new jobs. The Lenowisco Planning District Commission reported 1,200 new jobs, \$55 million in new private investments and \$35 million in new payroll as a result of the region's broadband network. Its sister planning organization, the Cumberland Plateau Planning District Commission, reported 1,100 new jobs, \$60 million in private investments and \$40 million in new payrolls. The regional networks, which were designed to serve schools, incubators and health care providers, helped attract new employers, such as Northrop Grumman and CGI, to rural southern Virginia, enabling job opportunities that did not exist in the area before (Federal Communications Commission, 2011). The NBTI proposed project or alternatives would have a positive impact to local rural economies in Nevada.

#### No Action Alternative

The No Action alternative would result in continued drain of financial resources related to hospital patients traveling to facilities for diagnoses rather than receiving the services at the rural hospital. The amount of economic drain is unquantifiable and varies by the number of patients and the frequency of specialty services needed. As stated in the purpose and need, the project would allow doctors and patients to consult with specialists electronically and monitor patients remotely, eliminating the need to travel. In Nevada, travel to a major hospital can be a long drive. For instance, it requires an hour to drive from Yerington to Carson City, and five hours from Elko to Reno.

Additionally, with insufficient access to broadband, students in rural areas of the state would remain at a disadvantage compared to their peers at the best public and private schools who have long had access to robust broadband services. As a result many students may be unprepared for college because the lack access to the best books, the best teachers, and the best courses. Absent action, the individual and societal costs of digital exclusion would continue to grow. The No Action Alternative would have a negative socioeconomic impact to local rural economies in Nevada.

#### **4.10.1 Environmental Justice**

##### Proposed Action and All Action Alternatives

Current demographics show minority populations are comparably high in Clark County and Mineral County. Mineral County includes the Walker River Paiute Reservation located 33 miles to the north of Hawthorne. Due to the distance of this community from the project area, the action alternatives are not expected to have an appreciable effect on this community. However, the median household incomes in the region fall with the 65th percentile of the Nevada state average, while Douglas County has an estimated median household income that exceeds the state average by 108 percent. The Proposed Action would bring a valuable technological resource to a low-income portion of the state that otherwise would not have the means to obtain the resource. Based on these characteristics, and in terms of issues relating to

Environmental Justice, the action alternative would not have a disproportionate negative effect on minority or low-income communities.

#### No Action Alternative

Under the No Action Alternative, there would be continued negative impacts of disadvantaging low income rural and minorities with regard to access to high speed internet and all its subsequent increased services and educational and job opportunities.

### **4.11 Visual Resources**

#### Proposed Action and All Action Alternatives

The Proposed Action and all Action Alternatives are consistent with the objectives of the Class II, III and Class IV designations on BLM managed lands. The proposed project and all action alternatives would contribute to the existing conditions. However, the Proposed Action or alternatives would not appreciably change the form, line, color, or texture of the project areas to a point that the project would be inconsistent with these Class objectives. Likewise the new buried fiber optic cable would be consistent within the context of the highway corridor and other roadways. The Proposed Action would be a small temporary disturbance relative to the adjacent wide and permanent visually linear disturbance caused by the existing power lines and roadways. Therefore there would be no adverse effects to aesthetic and visual resources.

#### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to visual resources.

### **4.12 Water Resources**

#### **4.12.1 Surface and Ground Water**

#### Proposed Action and All Action Alternatives

No direct or indirect impacts to surface waterways are anticipated from the Proposed Action. Perennial waterways would be crossed using existing poles to hang the fiber optic cable. The ephemeral drainages and dry washes crossed by the 14.34-mile buried portion of the project would be restored to their pre-construction bed and bank configuration. All perennial and ephemeral drainages would be avoided as outlined in the environmental commitments in Section 2.4. Therefore, there would be no impacts to surface water resources.

The Proposed Action also includes the stipulation that the contractor would apply for and adhere to the conditions of a Stormwater Pollution Prevention Plan (SWPPP), as administered by the NDEP.

Regional ground water resources in the project area would be avoided by using aerial construction. In all areas where underground construction is proposed, the depth to ground water is greater than 10 feet. Therefore, there would be no impacts to ground water resources.

#### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to water resources.

#### **4.12.2 Floodplains**

##### Proposed Action and All Action Alternatives

The Proposed Action and all Action Alternatives would not create new aboveground encroachments into floodplains. Therefore, the Proposed Action or Action Alternatives do not require a floodplain risk assessment (Executive Order 11988). The construction of the buried cable would temporarily disturb the channels and floodplains of dry washes. However, all work within these floodplains would include surface contour and roughness restoration to approximate the pre-construction configuration as well as soil protection.

##### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to floodplains.

#### **4.12.3 Wetlands and other Waters of the U.S.**

##### Proposed Action

The buried section from Goldfield to Lida Junction crosses numerous dry washes. The washes drain to a terminal basin, have no surface water connection to a Traditional Navigable Water, do not cross state lines, or have any affect on interstate commerce. Therefore, the washes are not jurisdictional under the federal Clean Water Act and no permit is required from the Army Corps of Engineers. The Reno Field Office was contacted to discuss these findings. Kristen Hansen confirmed in an e-mail dated 12-28-11 that if notification is not required under Nationwide Permit 12 Utility Line Activities, then the project is authorized at a National level to proceed (see Appendix E). The project does not meet the notification criteria for Nationwide Permit 12.

Any impacts to dry washes would be temporary and would not significantly alter hydrology, soil, or vegetation. The areas disturbed for the buried portions of the project would be returned to approximate the pre-construction bed and bank configuration.

Several of the project segments would cross wetland areas as detailed in Table 3-14. If soil conditions are wet, then the poles would be walked and climbed to avoid soil compaction by heavy machinery. There would be no fill or other permanent or temporary impacts to wetlands or other Waters of the U.S.

##### Alternatives

The Yerington to Hawthorne and Hawthorne to Mina alternatives would not impact any wetland areas or waters of the U.S. The Carson City to Gardnerville alternatives would cross wetland areas. Similarly to the proposed action, if soil conditions are wet, then the poles would be walked and climbed to avoid soil compaction by heavy machinery. There would be no fill or other permanent or temporary impacts to wetlands or other Waters of the U.S.

##### No Action Alternative

Under the No Action Alternative the project would not be constructed and there would be no impacts to wetlands or other waters of the U.S.

#### **4.13 Proposed Action Cumulative Impacts**

Cumulative effects are the result of the incremental direct and indirect effects of any action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor, but collectively significant actions, taking place over a period of time.

Council on Environmental Quality regulations for implementing NEPA require assessment of cumulative effects in the decision making process for federal projects. Cumulative effects are defined as “the impact 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” (40 CFR 1508.7). Cumulative effects are considered for each resource and are analyzed in Section 4.16 of this document. The applicable resources potentially affected by the Proposed Action were assessed with other past, present, and reasonably foreseeable future actions identified for the project area and vicinity to summarize anticipated cumulative impacts or incremental contribution the project would have on these resources.

The cumulative impact assessment area for this EA is essentially the proposed temporary construction ROW for the proposed project and alternatives. The area consists of approximately 679 ROW acres for new overhead and buried line of which 58 percent is through BLM managed lands, six percent or less is on land managed by the USFS, the DOD, the BIA, the BOR and the State of Nevada combined. Thirty-seven percent is through private land.

#### ***4.13.1 Past, Present and Reasonably Foreseeable Future Projects***

Past projects include construction of highways, transmission lines, maintenance roads, underground utilities, and BLM ROW grants for such projects. Past and present activities on the part of BLM include: issuing ROWs, managing mineral resources, WH&B. Current environmental conditions are an indicator of the impacts of past actions. Existing conditions reflect the cumulative impact of prior human actions that have affected the environment.

The jurisdictional agencies were asked to provide information regarding current and planned future projects in the vicinity of the proposed project. Other projects in the vicinity of the NBTI project to be considered in the cumulative impacts analysis are:

- Solar Millennium, LLC Amargosa Farm Road Solar Project
- Crescent Dunes Solar Energy Project
- Digital 395 Middle Mile Project EA

The proposed project does not conflict with or constrain any of these proposed actions.

The proposed project would result in 64 acres of underground and 615 acres of overhead for a total of 679 acres of ROW for the fiber optic cable, all of which would fall within existing road or utility ROWs. For all resources, the incremental effects of the temporary impacts described in this EA are not cumulatively considerable when viewed in connection with any permanent alterations to soils and geology that may be caused by the reasonably foreseeable area projects.

## **5.0 REGULATORY PROCESS, REQUIREMENTS, AND PERMITS**

All projects funded under the ARRA must comply with the NEPA, the National Historic Preservation Act (NHPA), and all other applicable federal, state, and local environmental laws. In accordance with the CEQ implementing regulations for NEPA (40 Code of Federal Regulations [CFR] 1500), all federal agencies must independently review and assess each action's potential to impact the human environment, including cultural resources and historic properties.

In accordance with Section 106 of the NHPA, federal agencies must take into account effects of an undertaking (defined as a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency) on historic properties and afford the ACHP an opportunity to comment prior to approval of the undertaking. Section 106 is implemented through regulations, including —Protection of Historic Properties (36 CFR 800) promulgated by the ACHP.

In addition to NTIA approval, implementation of any approved project could warrant approvals and/or permits by other federal, state, and local jurisdictions. Table 5-1 is a list of potential permits and agency coordination that may be required for project implementation:

**Table 5-1. Permits, Approvals, and Coordination Required for the Proposed Action**

Agency	Action / Process	Result / Current Status
<b>FEDERAL AGENCIES</b>		
Department of Commerce National Telecommunications and Information Administration	<ul style="list-style-type: none"> <li>• 1-31-11 Draft EA Submitted for review</li> <li>• 9-16-11 revised Draft EA submitted for review</li> <li>• 12-21-11 revised Draft EA submitted for review</li> <li>• 1-23-12 Final EA to be submitted for review</li> </ul>	<ul style="list-style-type: none"> <li>• Comments received 6-29-11</li> <li>• Comments received 9-22-11</li> <li>• Comments received 1-9-12</li> <li>• FONSI expected Feb, 2012</li> </ul>
U.S. Fish and Wildlife Service	<ul style="list-style-type: none"> <li>• 12-10-10 Initiation letter from NTIA to USFWS</li> <li>• 1-10-11 Species Request from RCI to USFWS</li> <li>• 6-16-11 Species Request from RCI to USFWS</li> <li>• 7-21-11 Notice of Change letter from NTIA to USFWS</li> <li>• 8-23-11 ESA Section 7 formal consultation Initiated via letter from NTIA with BA</li> <li>• NHA sent remuneration payment to San Diego Zoo as a requirement of the BO on 12/23/11.</li> <li>• San Diego Zoo confirmed via phone receipt of remuneration payment on 01/09/12. Will forward paper receipt and W-9 to NHA.</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> <li>• Species Letter from USFWS dated 2-3-11</li> <li>• Species letter from USFWS dated 7-26-11</li> <li>• None</li> <li>• Biological Opinion received December 16, 2011 with stipulations which were incorporated into this EA</li> <li>• Upon receipt of Zoo payment, forward copies to LV USFWS (Mike Burroughs)</li> </ul>
Bureau of Land Management	<ul style="list-style-type: none"> <li>• Meeting with State Office 3-21-1, 4-25-11</li> <li>• 6-9-11 Submitted SF 299 package</li> <li>• 7-6-11 Meeting with CC BLM</li> <li>• 9-1-11 Meeting with CC BLM and NTIA</li> <li>• 9-19-11 Meeting with Tonopah BLM</li> <li>• 10-5-11 Meeting with Pahrump, Las Vegas BLM</li> <li>• 9-30-11 revised Draft EA submitted for review</li> <li>• 10-14-11 revised Draft EA submitted for review</li> <li>• 12-5-11 revised Draft EA submitted for review</li> <li>• 1-23-12 Final EA, POD and revised SF 299 to be submitted for review</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> <li>• BLM Carson City Office assigned to project 6-15-11</li> <li>• See meeting minutes</li> <li>• See Meeting minutes</li> <li>• See Meeting minutes</li> <li>• See Meeting minutes</li> <li>• Comments received 11-5-11</li> <li>• Comments received 11-28-11</li> <li>• Comments received 1-5-12</li> <li>• FONSI and ROW permit expected Feb, 2012</li> </ul>

Agency	Action / Process	Result / Current Status
Bureau of Reclamation	<ul style="list-style-type: none"> <li>• 9-19-11 project information provided</li> <li>• 10-5-11 presentation to the BOR, USFWS, Draft EA provided for review</li> <li>• 10-26-11 NTIA sent BOR Letter of Cooperation</li> <li>• RCI submitted revised draft EA on 11/14/11.</li> <li>• 12-5-11 revised Draft EA submitted for review</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> <li>• Comments received 10-26-11</li> <li>• BOR accepted Cooperating Agency status with NTIA on 11/09/11.</li> <li>• Received comments 11/21/11.</li> <li>• No comments</li> </ul>
Department of Defense and Army Corps of Engineers	<ul style="list-style-type: none"> <li>• 09/02/11, provided maps and a letter requesting permission to install on existing lines.</li> <li>• Executed a letter from NV Energy on 09/28/11 related to granting ROW at the army base in Hawthorne. Approval is pending.</li> <li>• 10/5/11 Draft EA provided for review and comment.</li> <li>• 10/06/11 RCI provided Request for Easement to Gary Hall (ACOE). Note, the ACOE provides easements for the DOD, so although the land is managed by the DOD, the ACOE is involved for the easement.</li> </ul>	<ul style="list-style-type: none"> <li>• No comments to Draft EA</li> <li>• DOD needs to draft the Report of Availability.</li> <li>• ACOE will draft easement following receipt of Report of Availability.</li> </ul>
Humboldt Toiyabe National Forest US Forest Service	<ul style="list-style-type: none"> <li>• 12-10-10 Initiation letter from NTIA to USFS</li> <li>• USFS attended presentation with Las Vegas BLM IDT on 10/05/11.</li> <li>• Provided Margie Apodaca (State USFS Reno office) with the Draft EA on 10/07/11.</li> <li>• 12-13-11 Frank Monteferrante (NTIA) spoke to Julett Denton and Joe Carbone, the FS NEPA Team Lead</li> <li>• 1-23-12 Final EA to be submitted for review</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> <li>• None</li> <li>• No comments</li> <li>• FONSI expected Feb 2012</li> </ul>
U.S. Army Corp of Engineers	<ul style="list-style-type: none"> <li>• WOUS survey conducted October 2011 from Goldfield to Lida Junction</li> <li>• Verbal discussion with Kristine Hansen October 2011</li> </ul>	<ul style="list-style-type: none"> <li>• Draft delineation report prepared</li> <li>• E-mail dated 12-28-11 stating no action is necessary as long as drainages treated as jurisdictional</li> </ul>

Agency	Action / Process	Result / Current Status
Walker River Paiute Tribe	<ul style="list-style-type: none"> <li>• RCI &amp; Optica met with the environmental coordinator in August 2011.</li> <li>• NHA attended meeting with WRPT on 10/25/11.</li> <li>• Meeting held 11/07/11 to discuss WRPT ordinances, taxation and employment policies.</li> <li>• Request made by NHA to NTIA on 11/09/11 for language regarding Resolution of Support, necessary for easement approval.</li> <li>• RCI submitted revised draft EA on 11/14/11 for 2 week review.</li> <li>• WRPT Cultural Resource Monitors completed assessment on 12/14/11.</li> <li>• NHA paid Cultural Resource Survey invoice on 12/23/11.</li> <li>• RCI submitted business license on 12-29-11</li> <li>• RCI to conduct metes and bounds survey scheduled for week of 1-17-12</li> </ul>	<ul style="list-style-type: none"> <li>• EA comments received on 11/28/11.</li> <li>• WRPT Tribal Council passed Consent to Survey resolution on 11/15/11.</li> <li>• Letter for Permission to Survey and Application for Permission to Survey received 12/08/11</li> <li>• RCI received WRPT Business License on 01/10/12.</li> <li>• RCI received WRPT Cultural Survey Report on 01/11/12.</li> <li>• Required legal description and map will be provided to Victoria Guzman for submittal to the NV BIA</li> </ul>
Bureau of Indian Affairs - NV	<p>All contact with the NV BIA is through the WRPT, Victoria Guzman—see above</p> <ul style="list-style-type: none"> <li>• NHA forwarded Letter for Permission to Survey and Application for Permission to Survey from WRPT to NV BIA on 12/09/11.</li> </ul>	<ul style="list-style-type: none"> <li>• NV BIA provided approval of Application to Survey for WRPT on 12/16/11.</li> <li>• NV BIA indicated they will process the necessary easements upon receiving tribal Resolution granting ROW and Form 94-4 from WRPT. ROW expected Feb. 2012</li> </ul>
Timbisha Tribe	<ul style="list-style-type: none"> <li>• Bill Welch (NHA) met with Chairman Gholson on 12/02/11 to discuss possible Resolution of Support.</li> <li>• TST provided Resolution of Support on 12/20/11.</li> </ul>	<ul style="list-style-type: none"> <li>• Complete</li> </ul>
Bureau of Indian Affairs - CA	<ul style="list-style-type: none"> <li>• Optica forwarded aerial pic of VEA ROW, pole picture and construction methods to Bobbie Jo Henry on 11/10/11.</li> <li>• RCI forwarded ROW to CA BIA on 11/14/11.</li> <li>• TST Resolution of Support forwarded to CA BIA on 12/20/11.</li> </ul>	<ul style="list-style-type: none"> <li>• Prior to deployment over TST land (1Q13), e-Care to send letter requesting "Application of Easement," including TST "Resolution of Support."</li> <li>• CA BIA Requested to receive any relevant construction documentation as a courtesy.</li> </ul>



Agency	Action / Process	Result / Current Status
<b>STATE AGENCIES</b>		
Nevada Natural Heritage Program	<ul style="list-style-type: none"> <li>Numerous Species shape file requests</li> </ul>	<ul style="list-style-type: none"> <li>Species data files provided 2-24-11; 3-2-11; 6-28-11; 12-21-11</li> </ul>
NV State Historic Preservation Office	<ul style="list-style-type: none"> <li>Class I Report provided on 08/31/11.</li> <li>RCI forwarded courtesy description of overhead route change to SHPO on 01/11/12.</li> </ul>	<ul style="list-style-type: none"> <li>SHPO Concurrence Letter re: Class I Report received 09/28/11.</li> <li>NHA provided Commitment Letter to NTIA re: SHPO Class I Report recommendations on 10/20/11.</li> <li>Consultation complete</li> </ul>
NV Div. of Environmental Protection; Bureau of Water Pollution Control	File NOI for Construction Stormwater Permit NVR 100000	Not yet initiated
NV Div. of Environmental Protection; Bureau of Air Pollution Control	Surface area disturbance permit General / COLA Permit (for temporary road construction equipment)	Not yet initiated
NV Dept. of Transportation	NDOT Encroachment Permit	In process
Nevada Public Utilities Commission	Utility Environmental Protection Act compliance	Complete
<b>LOCAL AGENCIES</b>		
Clark County	General Construction Permit Fugitive Dust Permit Temporary Use Permit for Staging Areas	Not yet initiated; Required prior to ground breaking in Clark County
Pahrump Regional Planning District	Dust Control Regulations of the Pahrump Regional Planning District	Not yet initiated; Required prior to ground breaking in Pahrump

Agency	Action / Process	Result / Current Status
Churchill County Douglas County Elko County Eureka County Humboldt County Lander County Lincoln County Lyon County Mineral County Nye County Pershing County White Pine County	General Construction Permit Temporary Use Permit for Staging Areas	Not yet initiated; Required prior to ground breaking in each county
Local Utilities	Permission to place buried cable above existing appurtenances	Not yet initiated; Required prior to ground breaking locally

## 6.0 LISTS OF PREPARERS AND PERSONS CONSULTED

### Resource Concepts, Inc. (RCI)

Lynn Zonge	EA manager, geology, hydrology
Marvin Tebeau	Project Principal
Don Henderson	Range, Soils, Herd Management Areas, Weeds,
Sheila Anderson	Wildlife, Vegetation, Threatened, Endangered, and
	Sensitive Species
Kristen Roaldson	Hazardous Materials
Drew Fogelsong	GIS, Mapping, Figures

### Gnomon, Inc

Mike Drews	Cultural Resources
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### Optica

Stacy Jenkins	Project Design
Tom Lane	Project Design

### Nevada Energy

Starla Lacy	Avian protection measures
Denise Stone	Pole attachment agreements

### Valley Electric Association

Mark Duvall	GIS Shape files for VEA poles
Rick Eckert	Project information

## FEDERAL AGENCIES

### National Telecommunications Initiative Administration

Frank Monteferrante	NEPA
Jill Dowling	Cultural Resources
Max Fainberg	Grant coordination
Genevieve Walker	Environmental issues

### U.S. Fish and Wildlife Service (USFWS)

Brian Novosak, Biologist	Biological Opinion
Jerry Krueger, Biologist	SW Willow Flycatcher and related birds

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Margie Apodaca	Special Uses Program Leader
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### Bureau of Reclamation

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### Department of Defense

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**Nevada State Historic Preservation Office**

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Section 106 compliance

**Nevada Natural Heritage Program**

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Species information

## **Nevada Department of Transportation**

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Walker River Paiute Tribe Tribal Council Coordination  
Program Manager, Hualapai Tribe  
Cultural Coordinator, Fallon Paiute Shoshone Tribe  
Duckwater Shoshone Tribe  
Chairperson, Walker River Paiute Tribe  
Chairperson, Timbisha Tribe

## **6.1 Public and Service Provider Outreach**

The NHA has participated in numerous public and industry specific forums to promote and discuss the NHA Broadband initiative along with the project stated goals and community impact as described below.

- ***Nevada Broadband Task Force:*** The project was formally presented to the Nevada Broadband Task Force during the program application phase. The project proponents have provided consistent updates at monthly Task Force public meetings. *e-Care Nevada* is scheduled to provide a formal presentation at the upcoming October 2011 Task Force Meeting.
- ***Nevada Telecommunications Association Conference (August 2011):*** The project proponents attended the Association's Annual Conference to update members and attendees on the project's goal. Participants at the conference included: AT&T, Beehive Telephone Co, CC Communications, CenturyLink-Nevada, Filer Mutual Telephone, Frontier Communications, Humboldt Telephone, Lincoln County Telephone, Moapa Valley Telephone Co Reliance Connects, Reliance Connects (dba Rio Virgin Telephone).
- ***Clark County Wide Area Network Meeting (Monthly):*** The project proponents attend and provided updates to project timeline, collaboration opportunities, and stated goals.
- ***Western Region Flex Conference (3Q11):*** The Nevada Rural Hospital Flexibility Program or "Nevada Flex Program" is administered by the Nevada Office of Rural Health based at the University of Nevada School of Medicine. The project proponents attended and provided program and Grant updates.
- ***Nevada Broadband Summit:*** The project proponents are scheduled to provide a formal proposal at the upcoming BTOP/BIP community impact panel on November 14, 2011.

## 7.0 REFERENCES

- BLM. Digital data for land status maps 1:100,000 scale.
- BLM. 1998. Record of Decision for the Approved Las Vegas Resource Management Plan and Final Environmental Impact Statement. Las Vegas Field Office. Las Vegas, NV. Located at: [http://www.blm.gov/nv/st/en/fo/lvfo/blm\\_programs/planning/las\\_vegas\\_field\\_office.html](http://www.blm.gov/nv/st/en/fo/lvfo/blm_programs/planning/las_vegas_field_office.html). Accessed on August 30, 2011.
- BLM. 2008. BLM Manual 6840 – Special Status Species Management. Dated December 12, 2008 under IM 2009-039. U.S. Department of the Interior, Bureau of Land Management, Washington D.C. Carson City District Office files.
- BLM. 2011a. Nevada Wild Horses and Burro Program Web Page. Herd Areas. Located at [blm.gov/nv/st/en/progr/wh\\_b/herd\\_areas/html](http://blm.gov/nv/st/en/progr/wh_b/herd_areas/html). Accessed on August 25, 2011.
- BLM. 2011b. Nevada Grazing Management Program Web Page. History of Public Land Grazing. Located at: [blm.gov/nv/st/en/prog/grazing/history\\_of\\_public/](http://blm.gov/nv/st/en/prog/grazing/history_of_public/). Accessed August 31, 2011.
- BLM. 2011c. Southern Nevada District Office Recreation web page located at [blm.gov/nv/st/en/fo/lvfo/blm\\_programs/lvfo\\_recreation/accessing\\_your\\_public/acec\\_information.html](http://blm.gov/nv/st/en/fo/lvfo/blm_programs/lvfo_recreation/accessing_your_public/acec_information.html) accessed on September 7, 2011.
- BLM. 2011d. Areas of Critical Environmental Concern web page at [blm.gov/nv/st/en/fo/lvfo/blm\\_programs/lvfo\\_recreation/accessing\\_your\\_public/acec\\_information.html](http://blm.gov/nv/st/en/fo/lvfo/blm_programs/lvfo_recreation/accessing_your_public/acec_information.html).
- Council on Environmental Quality (CEQ) 2010. Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions.
- Desert Tortoise Council, 1994 (Revised 1999). Guidelines for Handling Desert Tortoises During Construction Projects. Edward L. LaRue, Jr., editor. Wrightwood, CA.
- ESRI World Imagery Service. Aerial photographs used in figures.
- IPCC, 2007. Climate Change 2007, Synthesis Report, Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, IPCC, ISBN 92-9169-122-4.
- IUCN Red List of Threatened Species. Version 2010.4. <[www.iucnredlist.org](http://www.iucnredlist.org)>. Downloaded on January 21, 2011.
- Federal Communications Commission, 2011. National Broadband Plan Connecting America. Accessed on the web at <http://www.broadband.gov/> on 9-27-11.
- Gnomon, 2011a. Cultural Resources Records Search for Nevada Hospital Association Statewide Fiber Optic Network, August 29, 2011.
- Gnomon, 2011b. A Class III Cultural Resource Inventory of the West Side of Highway 95 from Milepost 12 to Lida Junction, Esmeralda County, Nevada. Ms on file BLM Tonopah Field Office.

- Great Basin Bird Observatory. 2011. Burrowing owl. Accessed on line at: [www.gbbo.org/pdf/bcp/46\\_Burrowing%20Owl.pdf](http://www.gbbo.org/pdf/bcp/46_Burrowing%20Owl.pdf). January 24, 2011.
- NatureServe. 2010. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: January 21, 2011).
- Nevada Department of Wildlife (NDOW), 2006a. Nevada Wildlife Action Plan located at [www.wildlifeactionplans.org/nevada.html](http://www.wildlifeactionplans.org/nevada.html).
- NDOW, 2006b. The Revised Nevada Bat Conservation Plan. The Nevada Bat Working Group.
- NDOW. 2007. Gila Monster Status, Identification and Reporting Protocol for Observations. November 1, 2007. NDOW Southern Region, Las Vegas Nevada.
- NDOW, 2011. Letter response regarding wildlife species dated 8-31-11 from Mark Freese.
- Nevada Division of Environmental Protection (NDEP). 2008. Nevada Contractors Field Guide for Construction Site Best Management Practice. Bureau of Water Pollution Control. Carson City, NV. Located at: [http://ndep.nv.gov/bwpc/storm\\_cont03.htm](http://ndep.nv.gov/bwpc/storm_cont03.htm). Accessed on August 31, 2011.
- NDEP, 2011. Bureau of Corrective Actions Database at <http://www.ndep.nv.gov/bca/data.htm> accessed on 8-30-11.
- Nevada Natural Heritage Program. Species location data provided in GIS January 2011.
- Nevada Natural Heritage Program Fact Sheets. Available at <http://www.heritage.nv.gov/facts.htm>. Accessed 1/2011, 6/2011, 9/2011.
- Nevada Hospital Association, 2010, Nevada Broadband Telemedicine Initiative Broadband Infrastructure Application Submitted to the NTIA – Broadband Technology Opportunities Program
- NOAA, 1985. Climate Narrative of the States, accessed on-line on 1-17-2011 at <http://www.wrcc.dri.edu/CLIMATEDATA.html>. From Narrative, Summaries, Tables and Maps with Overview of State Climatologist Programs Third Edition Volume 1: Alabama-New Mexico by Gale Research Company.
- NRCS Soil Data Mart web page for soil tabular and spatial data retrieved from the <http://soildatamart.nrcs.usda.gov> accessed January 2011.  
NV603 Fallon-Fernley Area, NV Parts of Churchill, Lyon, Storey and Washoe Counties  
NV625 Lyon County Area, NV  
NV629 Carson City Area, NV  
NV755 Clark County Area, NV  
NV773 Douglas County Area, NV  
NV774 Mineral County Area, NV  
NV785 Nye County, NV, Southwest Part  
NV788 Las Vegas Valley Area, NV, Part of Clark County  
NV799 Hawthorne Ammunition Plant, NV, Part of Mineral County

- Peterson, Roger T. 1990. A Field Guide to Western Birds. Third edition. Houghton Mifflin Company, Boston.
- Resource Concepts, Inc (RCI), 2005. Nevada Community Wildfire Risk/Hazard Assessment Project. Completed in 2005 for the Nevada Fire Safe Council. A report was prepared for each county.
- State of Nevada Bureau of Air Quality Planning, 2003. 2003 Trend Report. Accessed at <http://www.ndep.nv.gov/baqp/monitoring/trend/report.html> on 8-2-2011.
- Stebbins, R. C., 2003. A Field Guide to Western Reptiles and Amphibians. Third edition. Houghton Mifflin Company, Boston.
- Stewart, J.H and J.E. Carlson, 1978. Geologic Map of Nevada scale 1:500,000. USGS and NBMG.
- Tonenna, Dean. 2011. Email communication. Botanist. USDI Bureau of Land Management, Carson City District. Dated July 26, 2011.
- U.S. ACE, 1987. Corps of Engineers Wetlands Delineation Manual by Environmental Laboratory. Wetlands Research Program Technical Report Y-87-1.
- U.S. Census Bureau. 2010. Quick facts from the U.S. Census. U.S. Department of Commerce. Acquired from [www.quickfacts.census.gov](http://www.quickfacts.census.gov) on January 23, 2011.
- U.S.D.A. Economic Research Service, 2011. State Fact Sheets: Nevada. Accessed on line at [www.ers.usda.gov/statefacts/NV.HTM](http://www.ers.usda.gov/statefacts/NV.HTM) on 9-21-11.
- USEPA, 2007. 2007 Draft U.S. Greenhouse Gas Inventory Report. Draft inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005. Accessed on line at [www.epa.gov/climatechange/emissions/usinventoryreport07.html](http://www.epa.gov/climatechange/emissions/usinventoryreport07.html) on 1-11-2011.
- USEPA, 2010. Climate Change Indicators in the United States. EPA 430-R-10-007. [www.epa.gov/climatechangeindicators.html](http://www.epa.gov/climatechangeindicators.html).
- USEPA, 2011. Envirofacts database at [www.epa.gov/enviro](http://www.epa.gov/enviro).
- USFWS National Wetlands Inventory. Digital data for wetlands in Nevada accessed January 2011.
- USFWS, 2011. Flyways within the United States. Accessed at [www.fws.gov/pacific/migratorybirds/flyways\\_map.htm](http://www.fws.gov/pacific/migratorybirds/flyways_map.htm).
- USGS, 2005. The National Atlas of the United States of America, Nevada. Accessed on line at [http://www.nationalatlas.gov/printable/images/pdf/precip/pageprecip\\_nv3.pdf](http://www.nationalatlas.gov/printable/images/pdf/precip/pageprecip_nv3.pdf)
- USGS digital topographic maps 1:250,000 scale 1:100,000 scale and 1:2,000 scale.
- USGS 2011. USGS and others Southwest Regional Gap Analysis Project. Digital vegetation data accessed January 2011.
- Western Bat Working Group, 2011. Website [www.wbwg.org](http://www.wbwg.org) accessed on 8-15-11.



# Figures

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Figure 2	Project Vicinity & BLM District Map
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Figure 27	Herd Management Areas

# **Appendix A**

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Pole Attachment Photos and Diagrams and,  
Regen Station Diagrams



Photo 1. Existing H Frame near Pahrump. Note the existing wires on the top ends of vertical poles.



Photo 2. Typical single poles. These would be used from Beatty to Lida Junction.

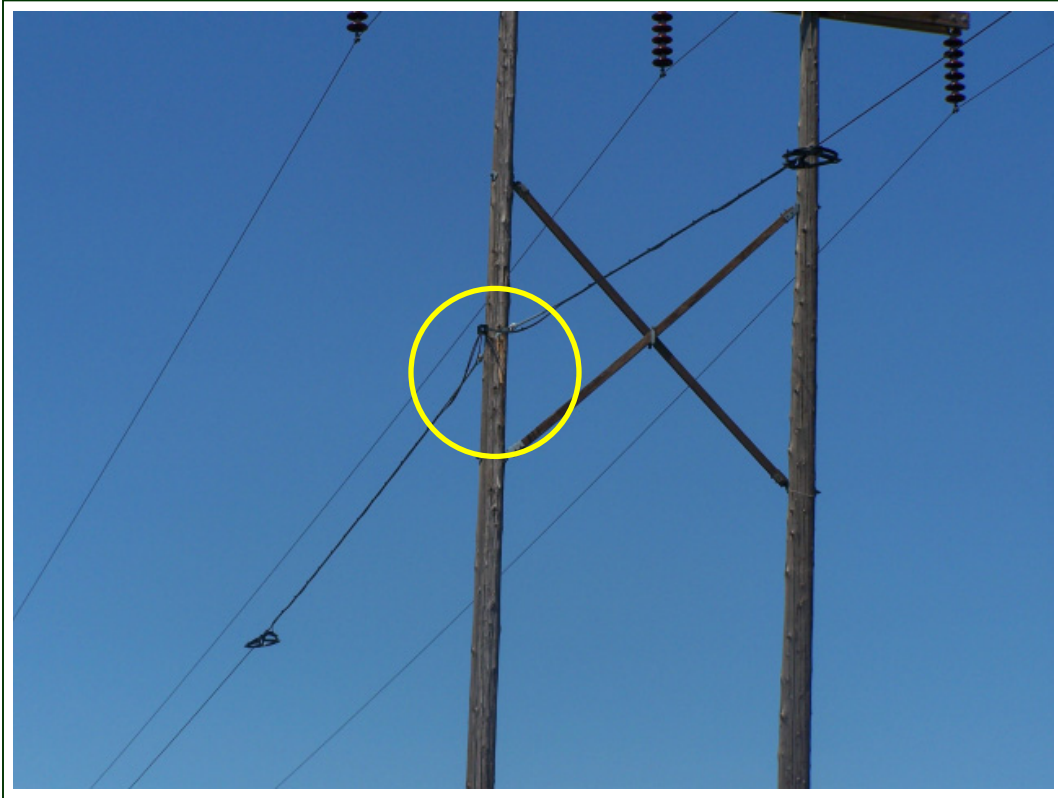


Photo 3. Typical fiber cable attachment hardware to H Frame.

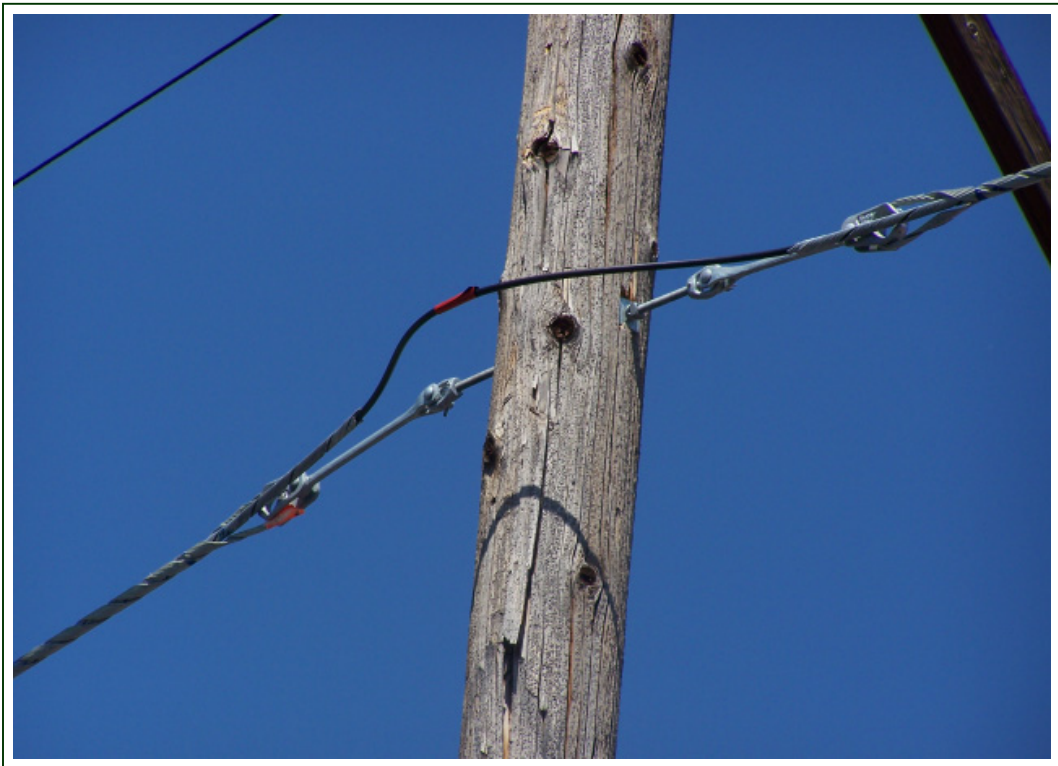
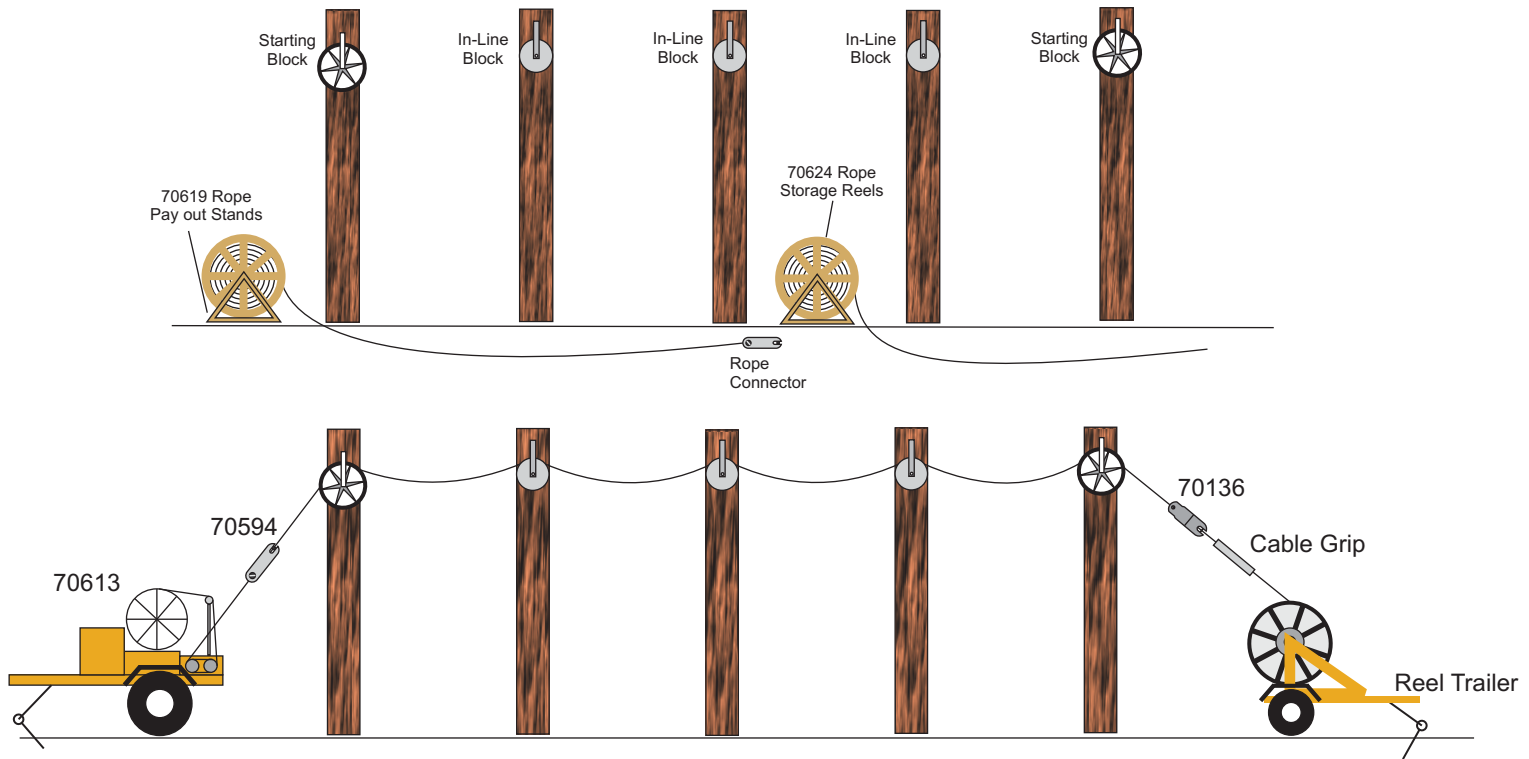


Photo 4. Close-up of fiber cable attachment to wooden power pole.



# ADSS FIBER OPTIC CABLE SOLUTIONS

## TYPICAL INSTALLATION AND TOOLS



## Recommended Installation Equipment



### In Line Block

Split side frame and hooks make it easy to use. The side frame incorporates a guide ring to protect the fiber cable. The sheave rides on ball bearings.

O.D.: 7.87"

Groove Width: 2.36"

Root Dia.: 5.4"

Wt.: 8.52 lbs.

W.L.L.: 660 lbs.

P/N 70615

O.D.: 8.44"

Groove Width: 2.36"

Root Dia.: 6.0"

Wt.: 9.5 lbs.

W.L.L.: 660 lbs.

P/N 70616



### Starting Block

The block has a safety gate and steel side frames. The sheave rides on ball bearings.

O.D.: 11.8"

Groove Width: 1.77"

Root Dia.: 9.64"

Wt.: 15.4 lbs.

W.L.L.: 2646 lbs.

P/N 70595



### Starting Block

The large diameter profiled groove helps protect the cable. The swivel oval eye, cable gate and cable retaining pin make it easy to use. The sheave rides on ball bearings.

O.D.: 18.50"

Groove Width: 2.17"

Root Dia.: 15.16"

Wt.: 30.8 lbs.

W.L.L.: 5291 lbs.

P/N 70621

O.D.: 26.06"

Groove Width: 2.36"

Root Dia.: 23.62"

Wt.: 33.1 lbs.

W.L.L.: 5291 lbs.

P/N 70614



General Machine Products Co., Inc. Treose PA 19053

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### Rope Connector

Rope connectors provide an effective method of joining pulling ropes.

P/N 70594

W.L.L.: 2200 lbs.



### Heavy-Duty Ball Bearing Swivel

These tough stainless steel swivels are designed to handle higher thrust loads for extra cable safety.

Aerial W.L.L.: 1350 lbs.

P/N 70136

### Flexible Pulling Grips

Manufactured from high-tensile, galvanized steel wire that is evenly woven in a triple wire weave, grips are slipped over the outside sheath of a cable. When pulling tension is applied, the grip contracts applying its gripping force to the outside of the cable.



P/N	Diameter Range	Min. Breaking	Grip Length
70681	.47 to .75" (12 to 19mm)	7452 lbs. (3380 kg.)	32.48" (825mm)
70682	.75 to .98" (19 to 25mm)	12214 lbs (5540 kg.)	40.35" (1025mm)
70683	.98 to 1.26" (25 to 32mm)	21054 lbs. (9550 kg)	51.18" (1300mm)



### Rope Storage Reel with 5/16 x 2000' of Rope

Unique reel design that allows it to be used on both the payout stand and the Cable Pony. Holds up to 2,000' of 5/16" dia. pulling line.

P/N 70624



### Rope Pay Out Stand

Supports the rope storage reels during the stringing process.

P/N 70619



### Cable Pony Hydraulic ADSS Winch

The GMP Cable Pony winch offers the constant pulling tension of a double capstan drive and the flexibility of a direct drive drum in one machine.

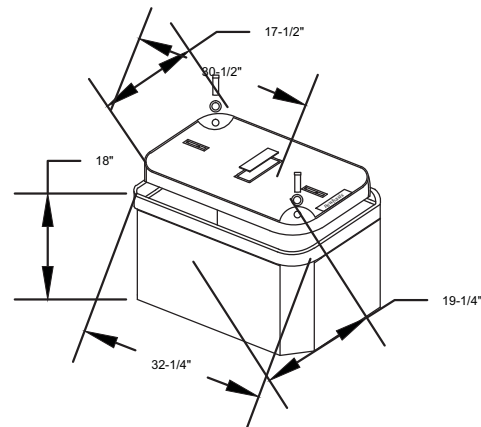
Max. Pulling Capacity: 2200 lbs (1000 kg)  
Rope Speed Max.: 130 ft/min (40 meters/min) at capstan

P/N 70613

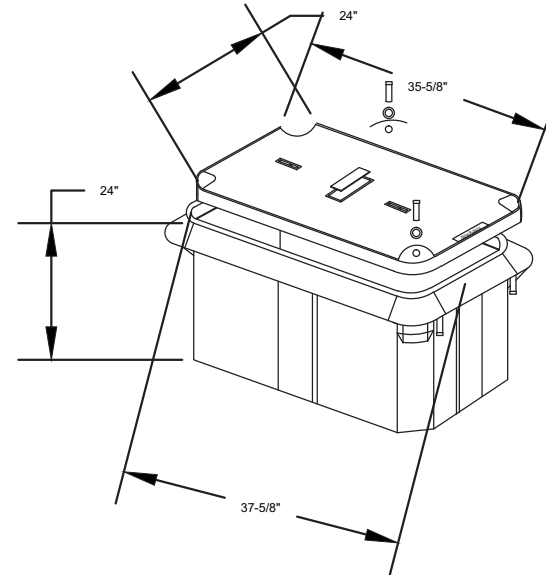


General Machine Products Co., Inc. Treose PA 19053  
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e-mail: info@gmptools.com. Web: www.gmptools.com.





**17"x30"x18" HANDHOLE**  
NOT TO SCALE



**24"x36"x24" HANDHOLE**  
NOT TO SCALE

**NOTES:**

1. SET ON A BASE OF CLEAN CRUSHED ROCK THAT IS 12" DEEP.
2. ASPHALT DRIVEWAY OR PARKING LOT LOCATIONS REQUIRE A MINIMUM LOAD OF 20K ON HANDHOLE. (NOT RECOMMENDED FOR ROADWAYS)
3. SIDEWALK (NON-TRAFFIC) LOCATIONS REQUIRE A MINIMUM LOAD OF 10K ON HANDHOLE
4. MEASUREMENTS SHOWN ARE APPROXIMATE.

**BOX FEATURES:**

- POLYMER CONCRETE RING
- FIBERGLASS REINFORCED
- POLYMER CONCRETE BODY
- COLOR - CONCRETE GREY

**COVER FEATURES:**

- 20,000 POUND WHEEL LOAD ON 10x20 PLATE
- POLYMER CONCRETE CONSTRUCTION
- COLOR - CONCRETE GREY
- NON-SKID SURFACE



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**St. Rose  
Dominican  
Hospital  
Siena Campus  
Henderson, NV**

PROJECT NO.  
**16ECAR0103**

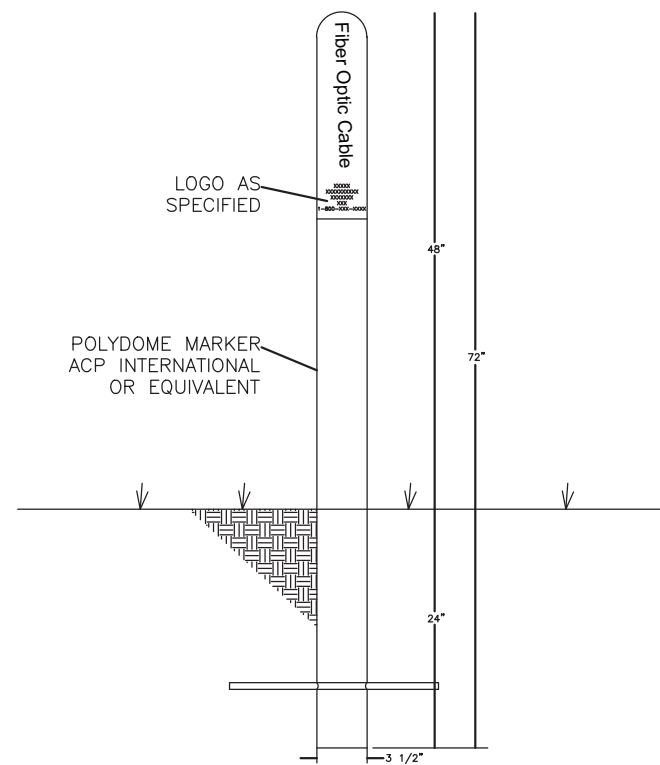
SITE NAME

SHEET TITLE  
**Construction  
Details**

SHEET NUMBER	REVISION
<b>CD2</b>	
	JOB NO.

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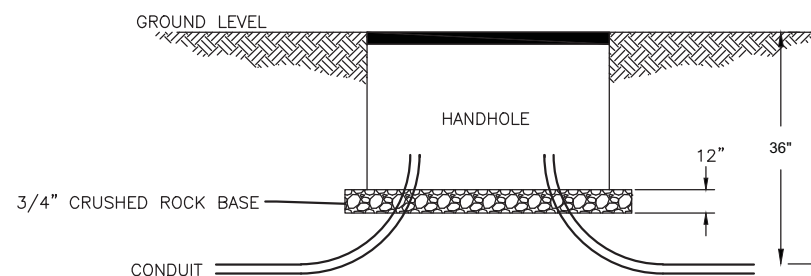


**ROUTE MARKER/WARNING POST**

NOT TO SCALE

**ROUTE MARKER/ WARNING POST**

1. MARKER POSTS W/O TEST STATION TO BE PLACED AT THE LOCATION SHOWN ON THE PLANS.
2. MARKER POSTS WITH TEST STATIONS TO BE PLACED AT SPLICE HANDHOLES SHOWN ON PLANS, SEE DETAIL, THIS SHEET.



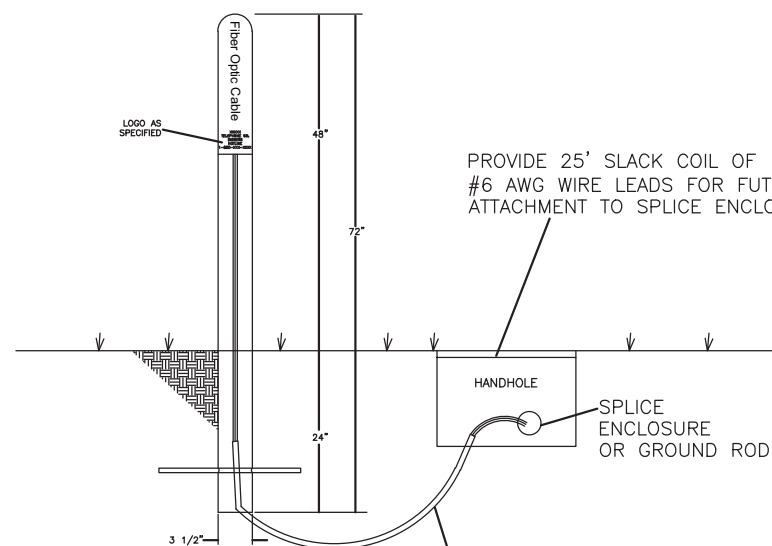
**FLUSH MOUNT HANDHOLE INSTALLATION**

NOT TO SCALE

**NOTES:**

1. EXCAVATE THE EARTH APPROXIMATELY 12" DEEPER THAN THE DEPTH OF BOX. FILL ADDITIONAL DEPTH WITH CRUSHED ROCK.
2. EXTEND CRUSHED ROCK BASE BEYOND BOTTOM OUTSIDE EDGES OF VAULT.
3. WITH COVER ON BOX, FILL AND COMPACT SOIL.

CONDUIT THAT SWEEPS INTO THE HANDHOLE MUST ENTER THE HANDHOLE FLUSH AND LEVEL TO AVOID FIBER MICRO BENDING. WHEN ENTERING A SHALLOW BOX, THE CHANGE IN THE ELEVATION OF THE CONDUIT RUN SHOULD BE KEPT AS SHORT AS POSSIBLE IN ORDER TO MAINTAIN MAXIMUM DEPTH.

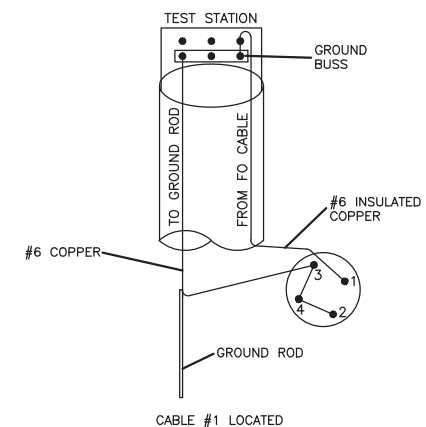


**LOCATOR MARKER DETAIL**

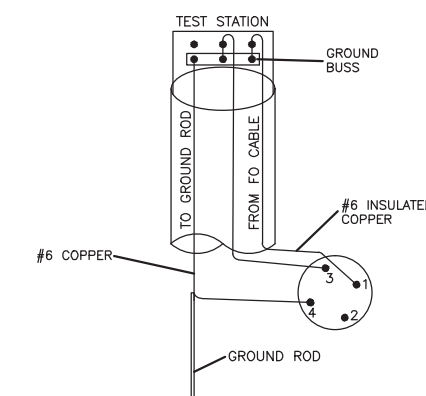
NOT TO SCALE

PROVIDE 25' SLACK COIL OF #6 AWG WIRE LEADS FOR FUTURE ATTACHMENT TO SPLICE ENCLOSURE.

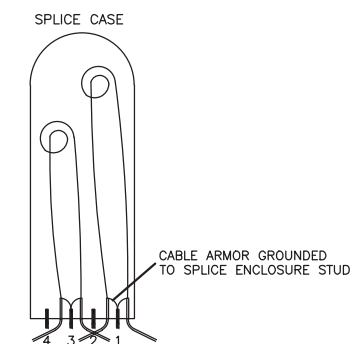
PROVIDE & INSTALL 3/4" HDPE DUCT FROM HANDHOLE TO MARKER POST. CONNECT #6 AWG WIRES TO TEST STATION & PULL THROUGH 3/4" HDPE DUCT.



CABLE #1 LOCATED



CABLE #1 & #3 LOCATED



DRAWING ILLUSTRATES CABLE #1 IS USED FOR LOCATING AND THE SECOND CABLE IS NOT. IF THE SECOND CABLE IS TO BE LOCATED THEN THE GROUNDED WIRE SHOULD BE ISOLATED AT THE SPLICE ENCLOSURE STUD AND RUN TO THE TEST STATION THE SAME AS CABLE #1.

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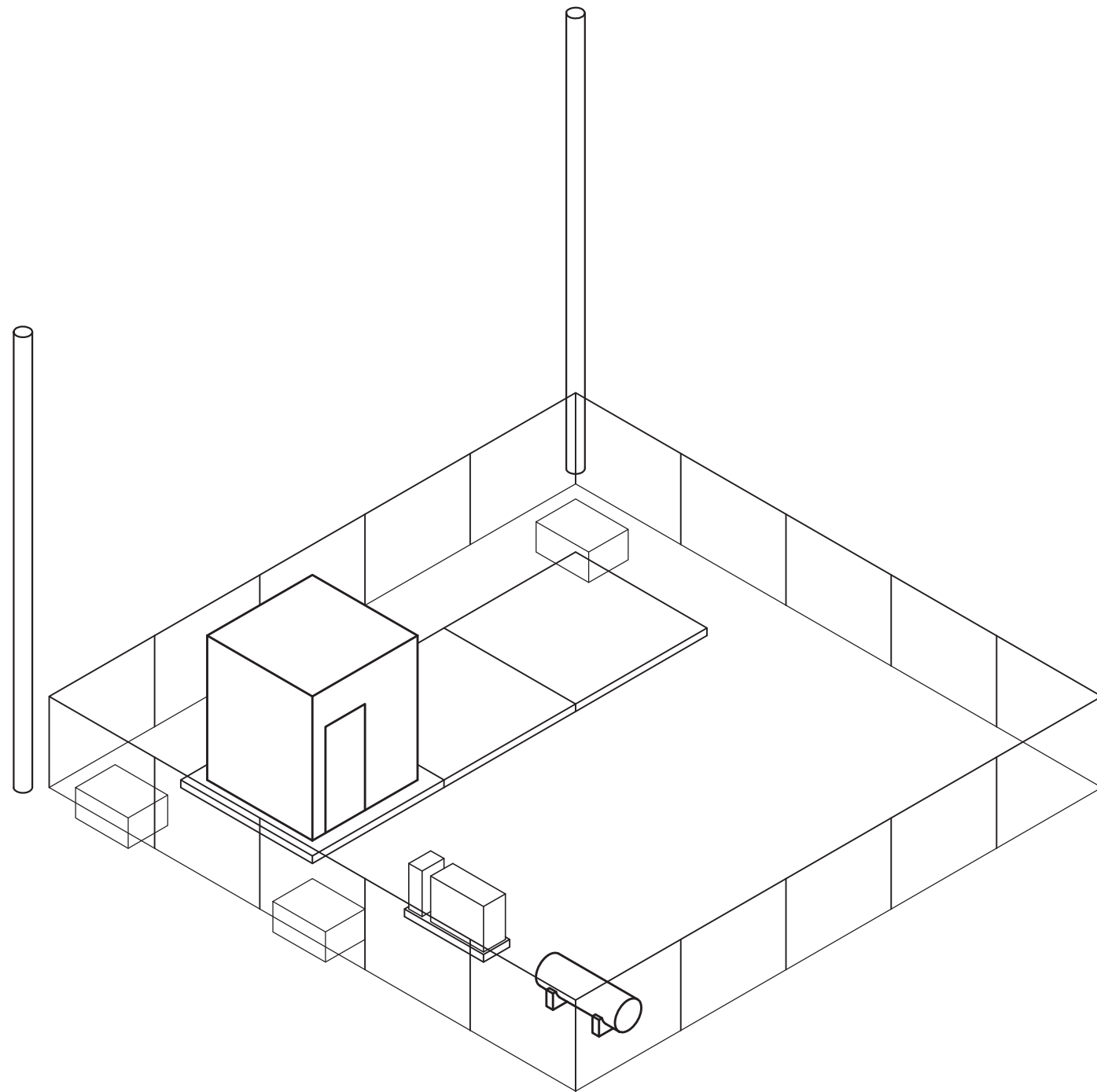


PROJECT NO.  
**16ECAR0103**

SITE NAME

SHEET TITLE  
**Construction Details**

SHEET NUMBER	REVISION
<b>CD1</b>	
	JOB NO.



REGEN SITE ISOMETRIC (TYP.)  
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JPB	

SUBMITTALS		
DATE	DESCRIPTION	REV
9/16/11		0

Typical  
Regen Site  
Isometric

PROJECT NO.  
16ECAR0103

SITE NAME

SHEET TITLE  
Construction  
Details

SHEET NUMBER	REVISION
CD7	
	JOB NO.

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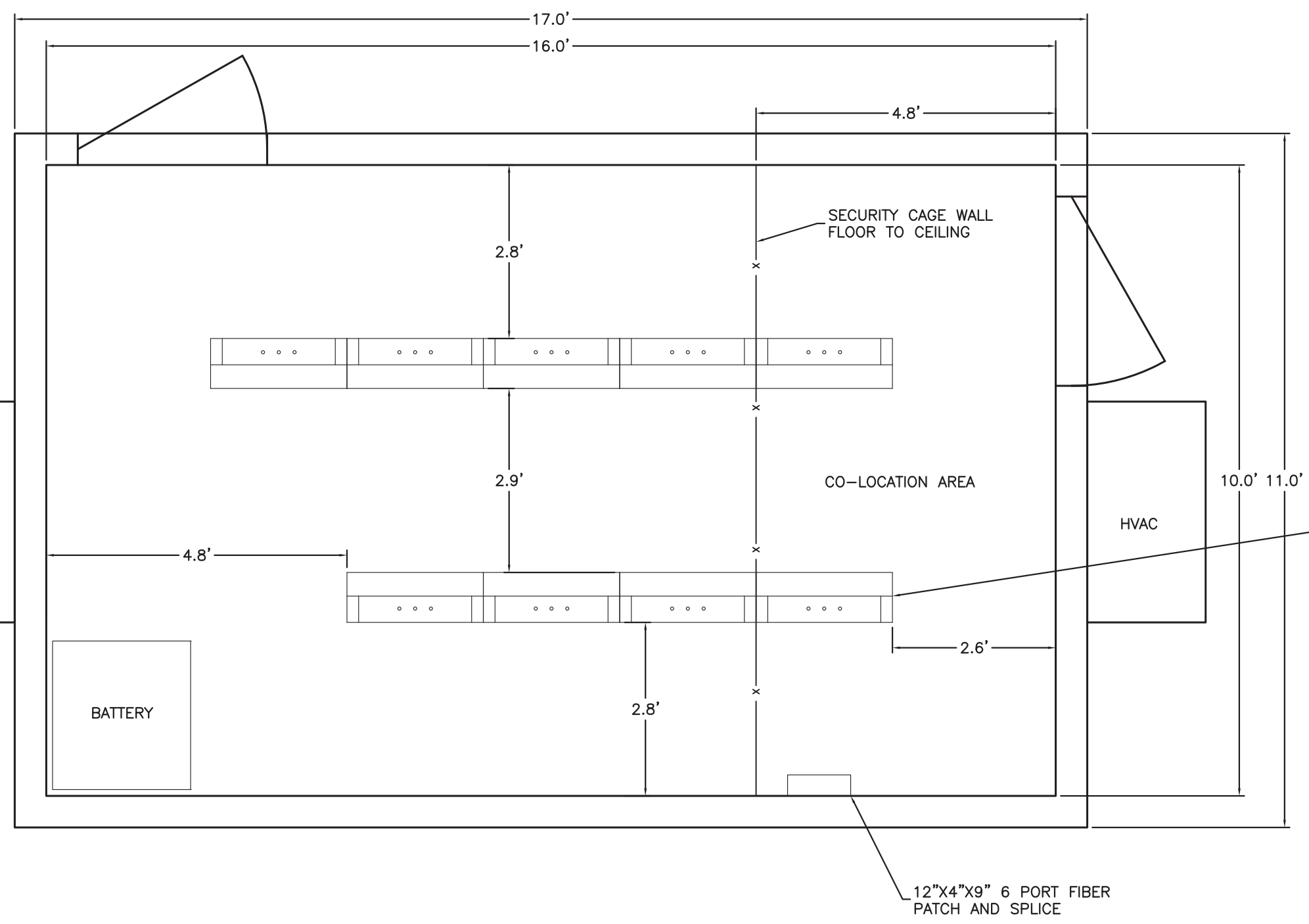
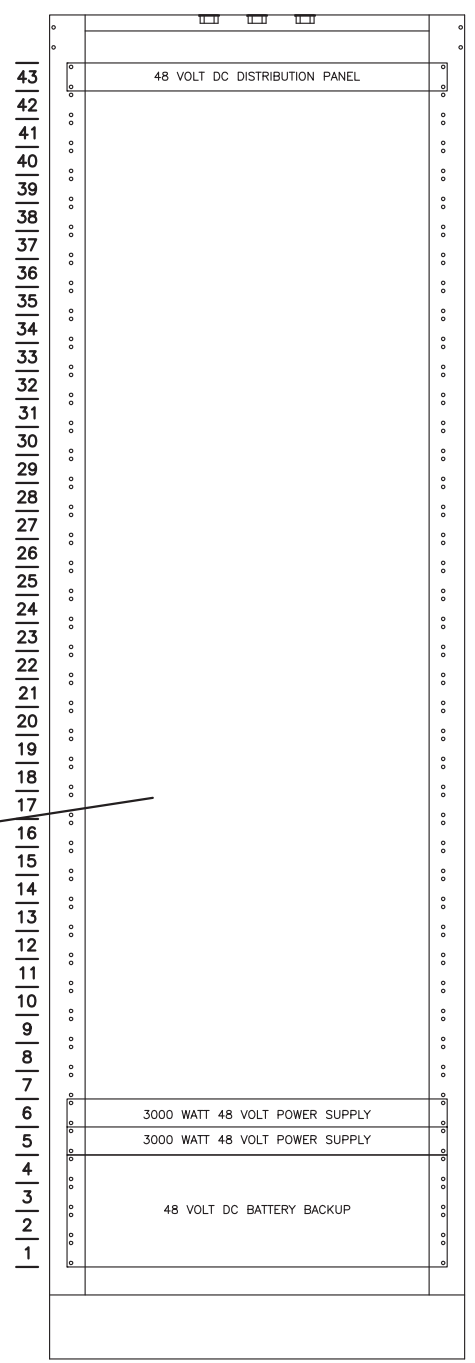
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SHELTER W/SEPARATE SECURE AREA & ACCESS FOR NV ENERGY EQUIPMENT



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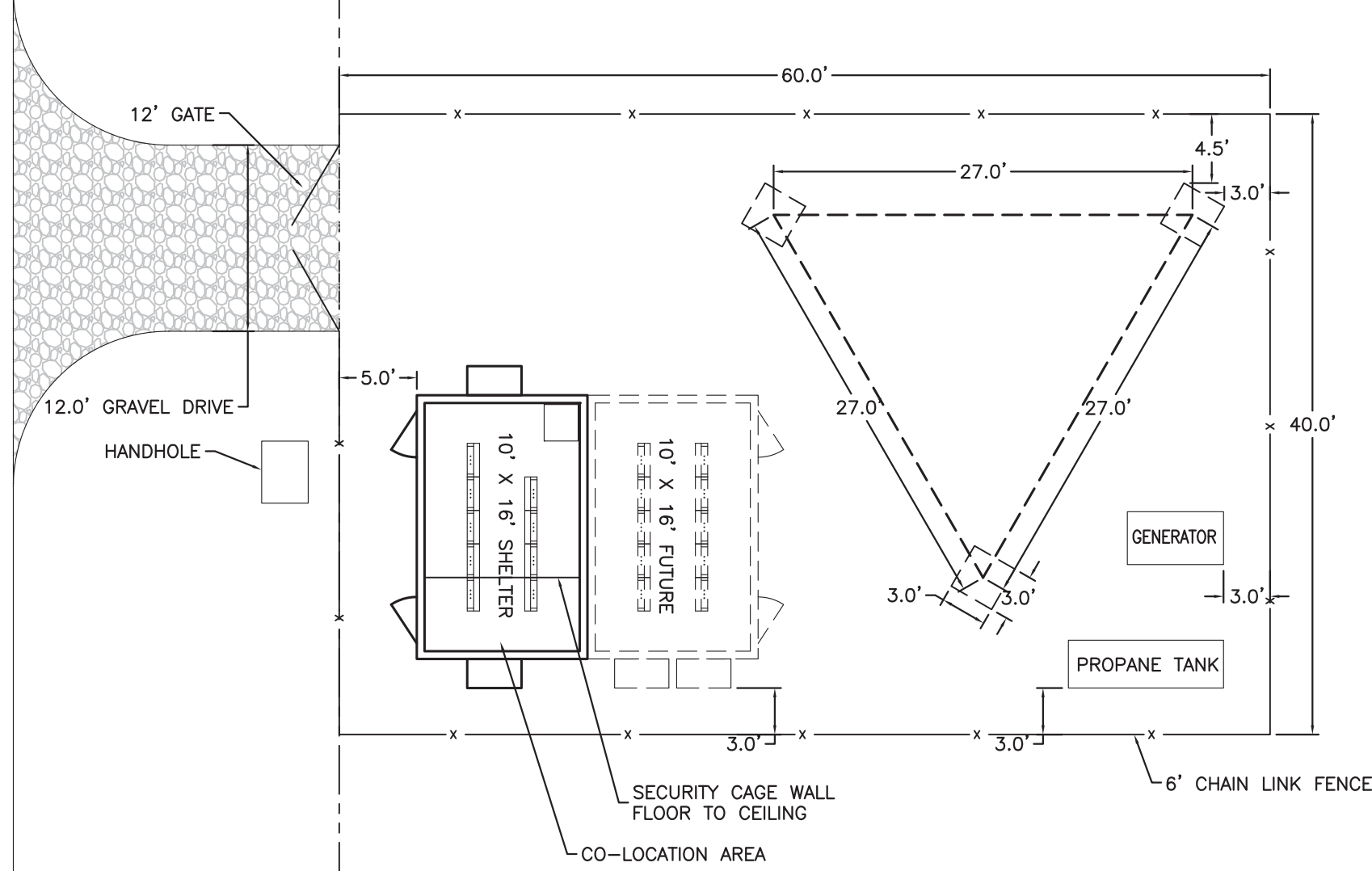
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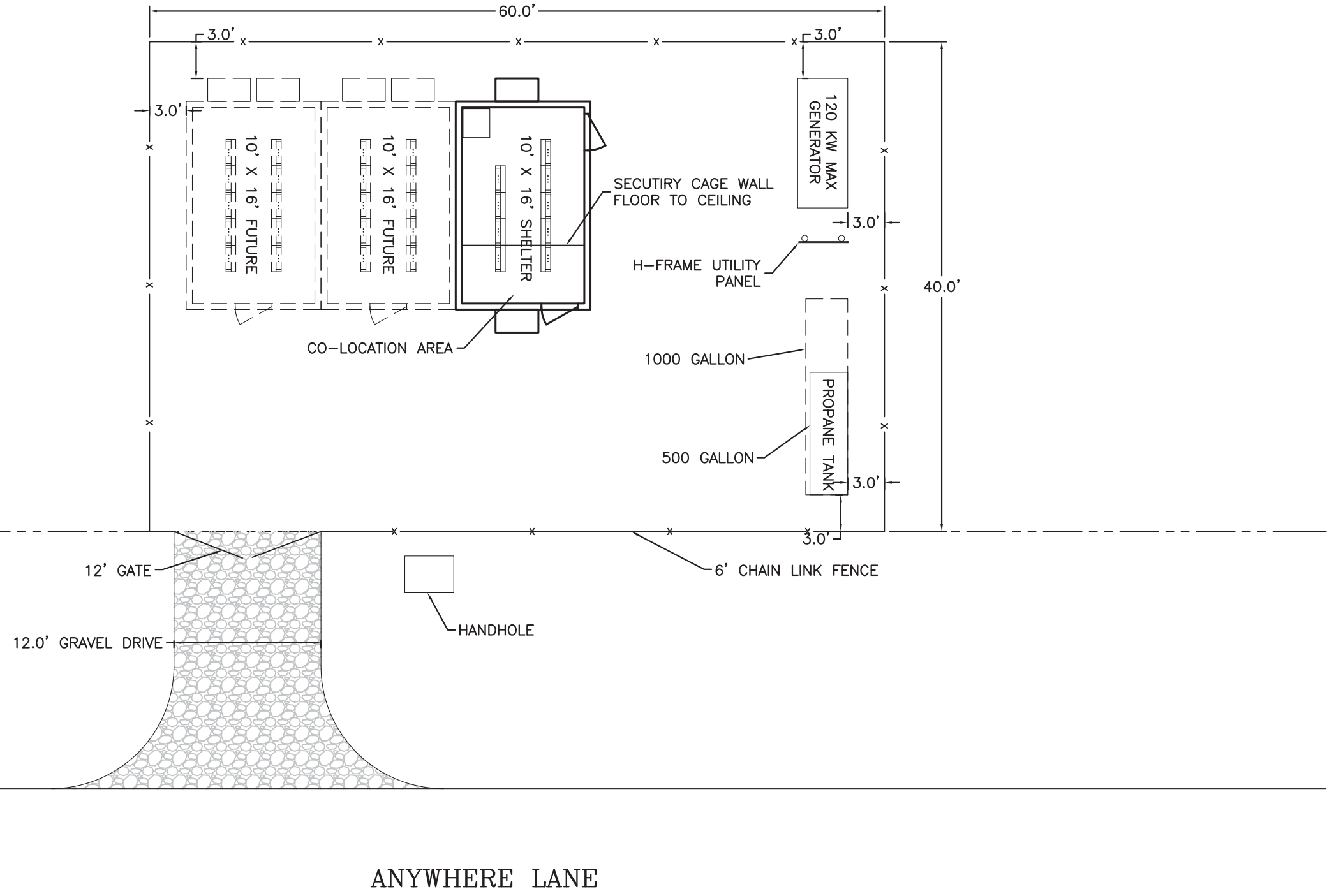
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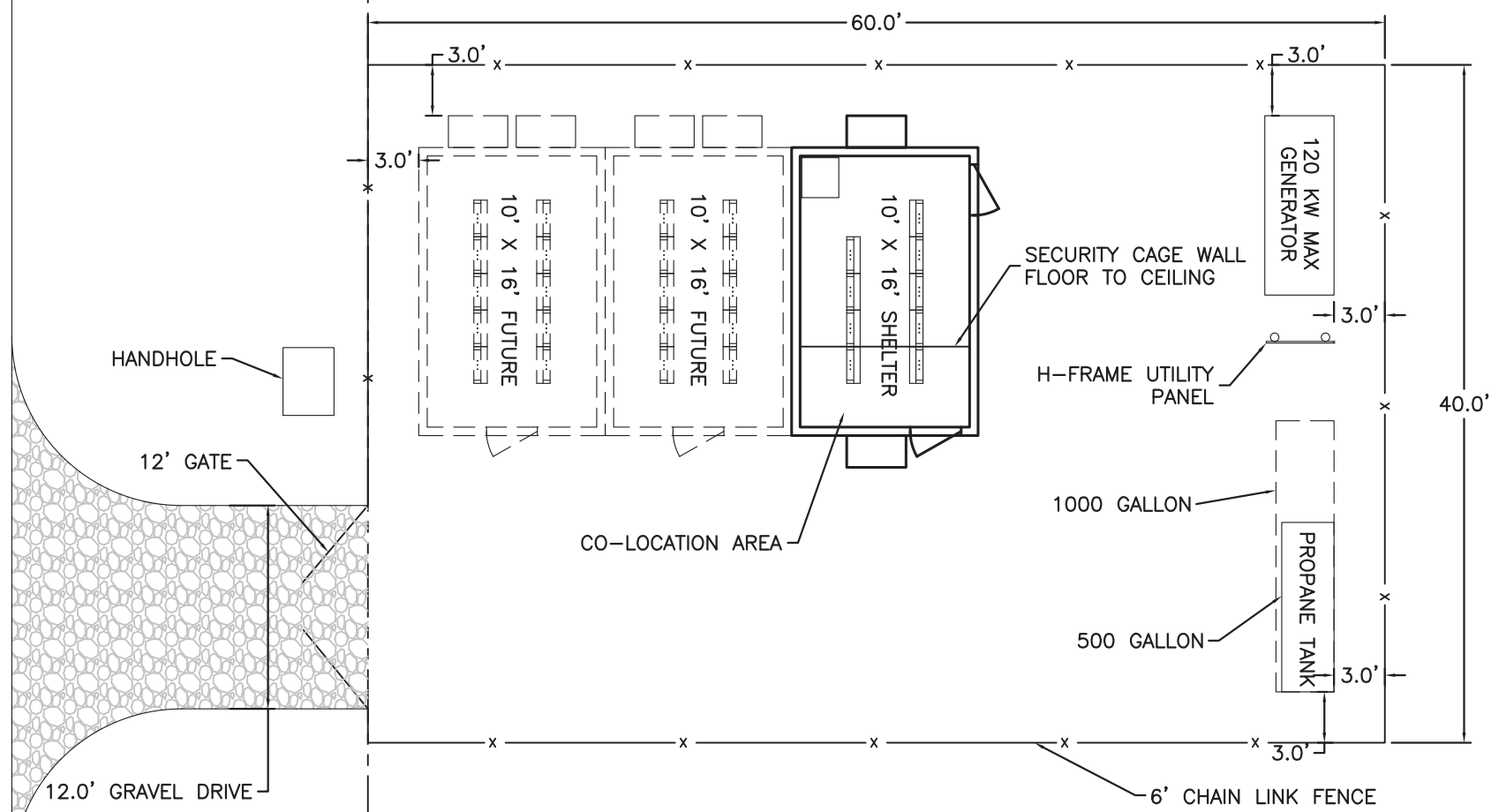
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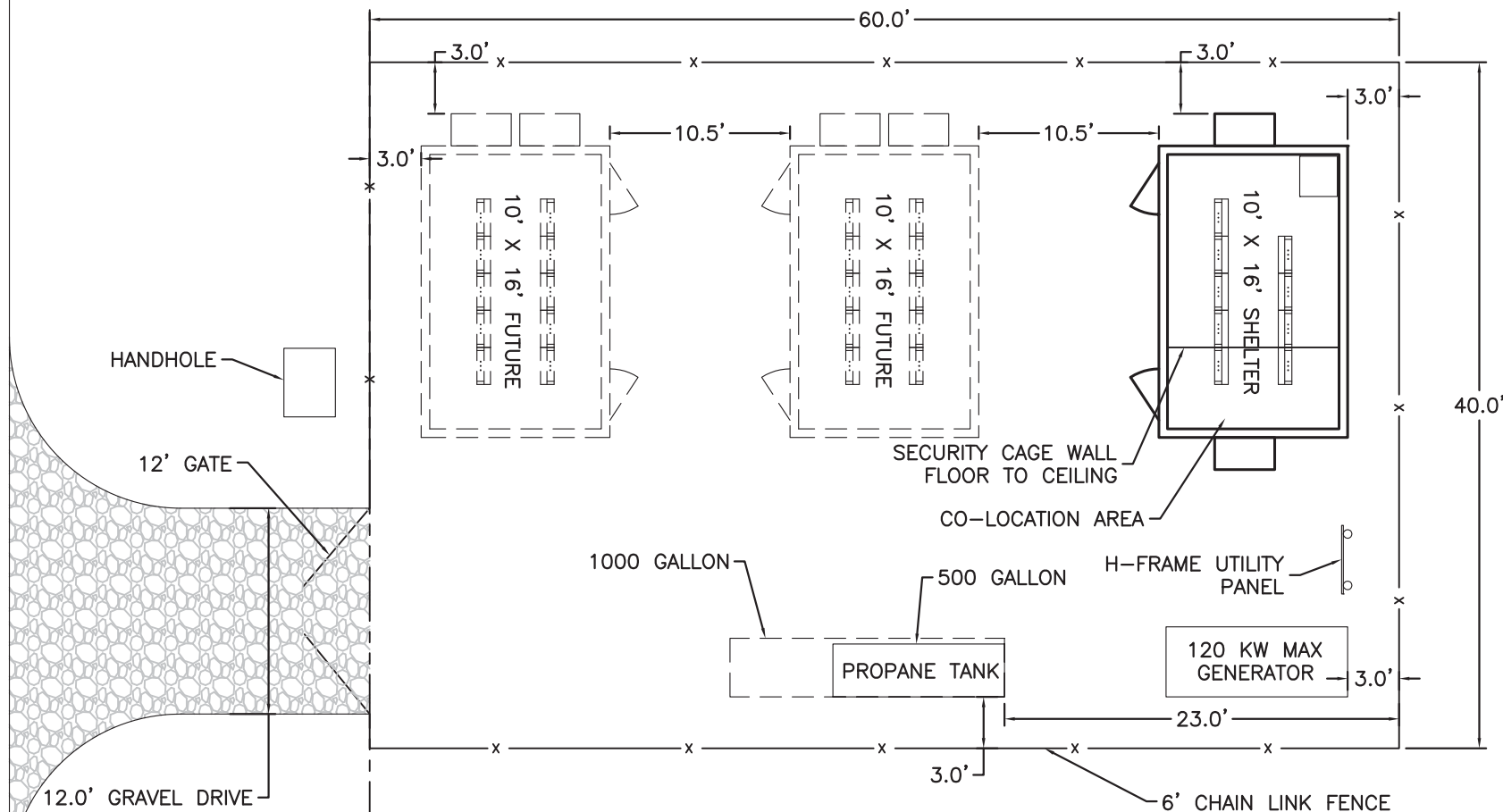
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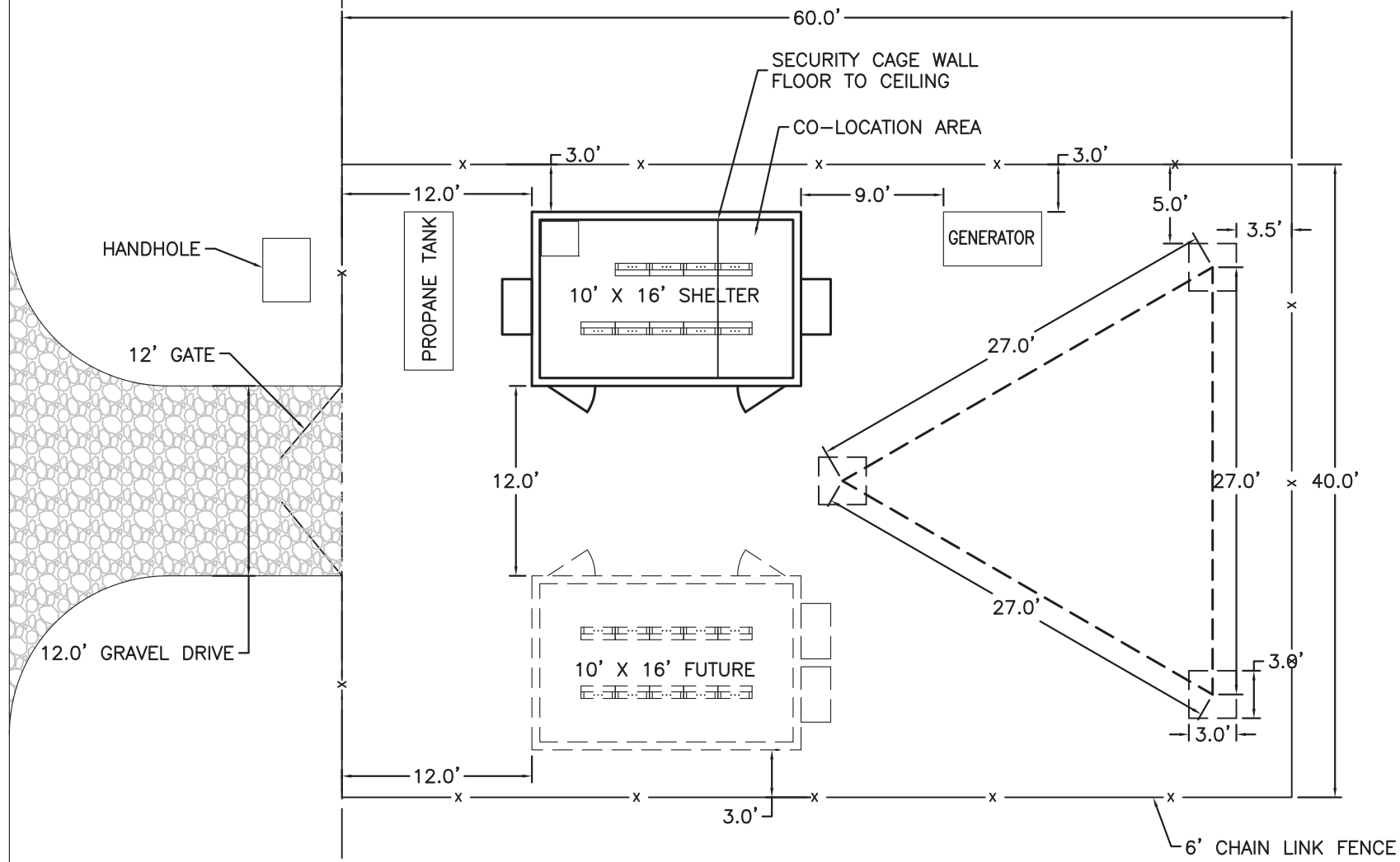
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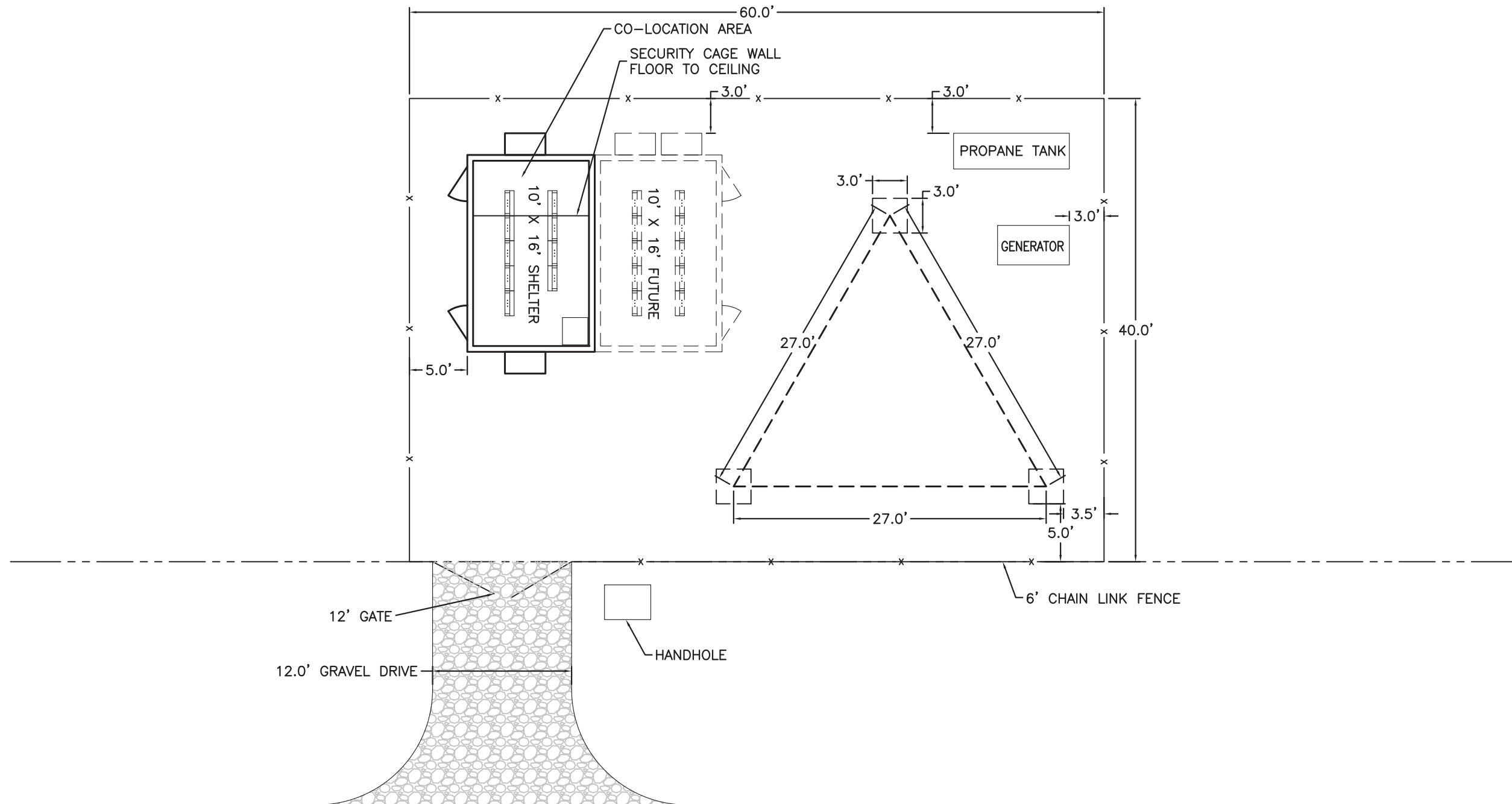
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Network Technologies  
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TEMPLATE**

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# **Appendix B**

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Species Occurrences

## Appendix B. Species Occurrences

Documented species occurrences within a three-mile buffer area around the proposed project routes (NDOW 2011).

NDOW EASTERN REGION						
Counties	Project Segments	Raptors		Migratory Birds	Other Wildlife	
Elko, Eureka, Lander, White Pine	Battle Mountain Elko Lateral Ely Lateral	American kestrel Barn owl Burrowing owl Cooper's hawk Ferruginous hawk Golden eagle Great horned owl Long-eared owl Merlin Northern goshawk	Northern harrier Northern saw-whet owl Osprey Peregrine falcon Prairie falcon Red-tailed hawk Rough-legged hawk Sharp-shinned hawk Short-eared owl Swainson's hawk	Arizona Bell's vireo Franklin's gull Willet	Turkey vulture Western screech owl California quail Chukar Gray partridge Greater sage-grouse Ring-necked pheasant Ruffed grouse Terrestrial gartersnake Big brown bat* Bobcat Brazilian free-tailed bat Silver-haired bat Western pipistrelle	<b>North American River otter</b> Striped skunk Coyote Cottontail Mountain lion Western small-footed myotis Common muskrat <b>Mule deer</b> Rocky Mountain elk Pronghorn antelope

NDOW WESTERN REGION						
County	Routes	Raptors	Migratory Birds		Other Wildlife	
Carson, Churchill, Douglas, Humboldt, Lyon, Mineral, Pershing, Storey, Washoe	Carson to Gardnerville Carson Laterals Fallon Lateral Lovelock Lateral Reno Laterals Silver Springs to Yerington Yerington to Goldfield	American kestrel bald eagle Barn owl Burrowing owl Cooper's hawk Ferruginous hawk Golden eagle Great horned owl Long-eared owl Merlin Northern goshawk Northern harrier Northern saw-whet	<b>American avocet</b> Cliff swallow Red-breasted merganser American bittern Fox sparrow Red-winged blackbird American coot Great blue heron Ring-billed gull American crow Greater roadrunner Scissor-tailed flycatcher Band-tailed pigeon	Green heron Trumpeter swan** Blue grosbeak Hairy woodpecker Western kingbird <b>Bobolink</b> House wren Western scrub-jay brant <b>Long-billed curlew</b> <b>White-faced ibis</b> California gull Mallard	Western banded gecko Great Basin collared lizard Long-nosed leopard lizard Desert horned-lizard Greater short-horned lizard Side-blotched lizard Zebra-tailed lizard Western fence lizard Yellow-backed spiny lizard Great Basin whiptail North American racer Coachwhip Great Basin gophersnake	Eurasian collared-dove European starling North American deer mouse Pinyon mouse Northern grasshopper mouse Southern grasshopper mouse Western harvest mouse Great Basin pocket mouse Little pocket mouse Long-tailed pocket mouse Pale kangaroo mouse

NDOW WESTERN REGION						
County	Routes	Raptors	Migratory Birds		Other Wildlife	
		owl Osprey Peregrine falcon Prairie falcon Red-tailed hawk Rough-legged hawk Sharp-shinned hawk Short-eared owl Swainson's hawk Turkey vulture Western screech owl	<b>Greater sandhill crane</b> <b>Snowy egret</b> <b>Black tern</b> greater white-fronted goose Surf scoter Black-and-white warbler great-tailed grackle Tree swallow Black-crowned night-heron	<b>Willet</b> Cattle egret Mourning dove Yellow-headed blackbird Cedar waxwing Northern flicker	Common kingsnake Long-nosed snake Western patch-nosed snake Terrestrial gartersnake Great Basin rattlesnake Greater sage-grouse Mountain quail	Desert kangaroo rat Merriam's kangaroo rat Ord's kangaroo rat Least chipmunk Gray fox Sierra Nevada red fox Coyote Bobcat <b>Mule deer</b> <b>California bighorn sheep</b> <b>Nelson (desert) bighorn sheep</b> Pronghorn antelope

NDOW SOUTHERN REGION						
County	Routes	Raptors	Migratory Birds		Other Wildlife	
Clark Esmeralda Lincoln Nye	Las Vegas to Boulder Pahrump Alternative Lida to Goldfield Lida to Pahrump Pahrump Laterals Pahrump to Vegas Vegas Laterals	American kestrel Bald eagle Barn owl Black-shoulder kite Burrowing owl California condor Cooper's hawk Golden eagle Great horned owl Harris's hawk Long-eared owl Northern harrier Northern saw- whet owl Osprey Peregrine falcon	<b>Abert's towhee</b> <b>Costa's hummingbird</b> <b>Phainopepla</b> <b>American avocet</b> Dark-eyed junco Pine siskin American coot Dusky flycatcher <b>Pinyon jay*</b> American goldfinch <b>Eared grebe</b> Pumbeous vireo American robin <b>Forster's tern</b> Red-breasted nuthatch Anna's hummingbird Fox sparrow <b>Red-breasted sapsucker</b> <b>Arizona Bell's vireo</b>	Brown pelican Lesser goldfinch Warbling vireo Bullock's oriole Lesser scaup <b>Western grebe</b> Bushtit Lincoln's sparrow Western gull Cactus wren <b>Loggerhead shrike</b> Western scrub-jay Canada warbler <b>Long-billed curlew</b> Western kingbird Canyon towhee <b>Long-billed dowitcher</b> Western tanager Canyon wren	Tiger salamander <b>Amargosa toad</b> California toad Red-spotted toad Woodhouse's toad Pacific tree frog Bullfrog Spiny softshell Desert tortoise Banded Gila monster Western banded gecko Common chuckwalla Desert iguana Zebra-tailed lizard Great Basin collared lizard Long-nosed leopard lizard Desert horned lizard Greater short-horned lizard Western fence lizard	Pallid bat California myotis Long-eared myotis Long-legged myotis <b>Western small-footed myotis</b> Yuma myotis <b>Townsend's big-eared bat</b> Canyon bat (western pistrelle) Western yellow bat Big brown bat Brazilian free-tailed bat <b>Hoary bat</b> American beaver North American deer mouse Cactus mouse <b>Brush mouse</b> Canyon mouse

NDOW SOUTHERN REGION						
County	Routes	Raptors	Migratory Birds		Other Wildlife	
		Prairie falcon, Red-shouldered hawk Red-tailed hawk Rough-legged hawk Sharp-shinned hawk Swainson's hawk Turkey vulture White-tailed kite	Gray flycatcher Red-eyed vireo Arctic loon Great blue heron <b>Redhead</b> Ash-throated flycatcher Greater flamingo Red-winged blackbird Baltimore oriole Greater roadrunner Ring-necked duck Band-tailed pigeon <b>Greater sandhill crane</b> Rock wren Bewick's wren Great-tailed grackle Ruby-crowned kinglet <b>Black phoebe</b> Green heron <b>Sage sparrow</b> Black-and-white warbler Green-tailed towhee s Savannah sparrow Black-chinned hummingbird Hammond's flycatcher Say's phoebe <b>Black-chinned sparrow</b> Hermit thrush <b>Scott's oriole</b> Black-headed grosbeak Hooded warbler Song sparrow <b>Black-necked stilt</b> Horned lark <b>Southwestern willow flycatcher</b> Black-tailed gnatcatcher House finch Spotted towhee	<b>Lucy's warbler</b> Western wood-pewee Cassin's kingbird MacGillivray's warbler <b>Western yellow-billed cuckoo</b> Cassin's vireo Mallard White-crowned sparrow Cattle egret Marsh wren <b>White-faced ibis</b> Cedar waxwing Mourning dove White-throated sparrow Chestnut-sided warbler Nashville warbler White-winged dove Chipping sparrow Northern mockingbird Wilson's phalarope Common merganser Northern parula Wilson's warbler Common moorhen Northern rough-winged swallow Yellow warbler Common nighthawk Northern waterthrush Yellow-breasted chat* Common poorwill Oak titmouse Yellow-headed blackbird Common raven Orange-crowned warbler Yellow-rumped warbler Common yellowthroat	Common sagebrush lizard Yellow-backed lizard Long-tailed lizard Side-blotched lizard Great Basin whiptail Panamint alligator lizard <b>Desert night lizard</b> North American racer Coachwhip Striped whipsnake Great Basin gophersnake Common kingsnake Long-nosed snake Glossy snake Western shovel-nosed snake Western patch-nosed snake Variable groundsnake Spotted leaf-nosed snake Ring-necked snake Sierra gartersnake Northern desert nightsnake Sonoran lyresnake Sidewinder Great Basin rattlesnake Speckled rattlesnake Panamint rattlesnake <b>Western diamond-backed rattlesnake</b> Mojave rattlesnake Gambel's quail	Western harvest mouse Desert woodrat Bushy-tailed woodrat Southern grasshopper mouse Desert pocket mouse Little pocket mouse Long-tailed pocket mouse Chisel-toothed kangaroo rat <b>Desert kangaroo rat</b> Rock squirrel White-tailed antelope squirrel <b>Pygmy rabbit</b> Gray fox <b>Kit fox</b> <b>Sierra Nevada red fox</b> Coyote Bobcat Mountain lion <b>Mule deer</b> <b>Nelson (desert) bighorn sheep</b> Elk Pronghorn antelope

NDOW SOUTHERN REGION						
County	Routes	Raptors	Migratory Birds		Other Wildlife	
			Black-throated gray warbler House wren Swainson's thrush Black-throated sparrow Inca dove Tennessee warbler Blue grosbeak Indigo bunting Townsend's solitaire Blue-gray gnatcatcher Killdeer Townsend's warbler boat-tailed grackle Lark sparrow Varied thrush Brewer's blackbird Lazuli bunting <b>Verdin</b> <b>Brewer's sparrow</b> <b>Le Conte's thrasher*</b> Vesper sparrow* Broad-tailed hummingbird Least flycatcher <b>Virginia's warbler</b>	Ovenbird <b>Yuma clapper rail**</b> Cordilleran flycatcher Pacific-slope flycatcher		

# **Appendix C**

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Soil Characteristics

**Appendix C Table 1. Hydric Soils in the Project Area**

<b>Project Segment</b>	<b>Location</b>	<b>Map Symbol</b>	<b>Map Unit Name</b>	<b>Soil Component</b>	<b>Hydric Criteria</b>	<b>Construction Method</b>
Carson to Gardnerville	Carson City	37	Jubilee sandy loam, 2-4% slopes	Jubilee	2B3	Existing Overhead
Carson to Gardnerville	Carson City	38	Kimmerling silty clay loam	Kimmerling	2B3	Existing Overhead
Carson to Gardnerville	Douglas Co.	553	Kimmerling clay loam	Kimmerling	2B3	Existing Overhead
Carson to Gardnerville	Douglas Co.	1041	Voltaire silty clay loam, wet, strongly saline-alkali	Voltaire	2B3	Existing Overhead
Carson to Gardnerville	Douglas Co.	1051	Voltaire variant clay loam	Voltaire variant	2B3	Existing Overhead
Silver Springs to Yerington	Lyon Co.	826	Playas	Playas	2B3,3	Existing Overhead
Yerington Hospital Lateral	Lyon Co.	293	Fallon fine sandy loam, frequently flooded	Fallon	4	Existing Overhead
Lida Junction to Pahrump	Nye Co.	2900	Playas	Playas	2B3,3	Existing Overhead
Lida Junction to Pahrump	Nye Co.	2901	Playas-Corbilt-Bluepoint association	Playas	2B3,3	Existing Overhead

Explanation of hydric criteria codes:

1. All Histels except for Folistels, and Histosols except for Folist.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
  - A. are somewhat poorly drained and have a water table at the surface (0.0 feet)
  - B. during the growing season, or
  - C. are poorly drained or very poorly drained and have either:
    - 1.) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
    - 2.) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
    - 3.) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.



**Appendix C Table 2. Prime and Other Important Farmland Soils in the Project Area**

<b>Project Segment</b>	<b>Location</b>	<b>Map Symbol</b>	<b>Map Unit Name</b>	<b>Farmland Classification</b>	<b>Construction Method</b>
Carson to Gardnerville	Carson City	13	Dalzell variant fine sandy loam, 0-4% slopes	Prime farmland if irrigated and reclaimed of excess salts & sodium	Existing Overhead
Carson to Gardnerville	Carson City	21	Greenbrae gravelly sandy loam, 4-8% slopes	Prime farmland if irrigated	Existing Overhead
Carson to Gardnerville	Carson City	25	Haybourne sandy loam, 0-2% slopes	Prime farmland if irrigated	Existing Burial
Carson to Gardnerville	Carson City	26	Haybourne sandy loam, 4-8% slopes	Prime farmland if irrigated	Existing Burial
Carson to Gardnerville	Carson City	27	Haybourne gravelly sandy loam, 2-4% slopes	Prime farmland if irrigated	Existing Burial
Carson to Gardnerville	Carson City	52	Prey fine sandy loam, gravelly substratum, 4-8% slopes	Prime farmland if irrigated	Existing Burial
Carson to Gardnerville	Carson City	61	Surprise gravelly sandy loam, 0 to 2 percent slopes	Prime farmland if irrigated	Existing Burial
Carson to Gardnerville	Douglas Co.	271	East Fork loam	Prime farmland if irrigated	New Burial
Carson to Gardnerville	Douglas Co.	272	East Fork clay loam	Prime farmland if irrigated	Existing & New Burial
Carson to Gardnerville	Douglas Co.	311	Gardnerville clay loam	Prime farmland if irrigated and reclaimed of excess salts & sodium	New Burial
Carson to Gardnerville	Douglas Co.	312	Gardnerville clay loam, drained	Prime farmland if irrigated and reclaimed of excess salts & sodium	New Burial
Carson to Gardnerville	Douglas Co.	313	Gardnerville clay loam, slightly saline-alkali	Prime farmland if irrigated and reclaimed of excess salts & sodium	Existing & New Burial
Carson to Gardnerville	Douglas Co.	314	Gardnerville clay	Prime farmland if irrigated and reclaimed of excess salts & sodium	New Burial
Carson to Gardnerville	Douglas Co.	391	Haybourne sand, 0-4% slopes	Prime farmland if irrigated	Existing Burial
Carson to Gardnerville	Douglas Co.	422	Henningsen variant loam	Prime farmland if irrigated and drained	New Burial
Carson to Gardnerville	Douglas Co.	463	Hussman clay	Prime farmland if irrigated and drained	Existing & New Burial
Carson to Gardnerville	Douglas Co.	985	Turria clay loam, wet	Prime farmland if irrigated	Existing & New Burial

<b>Project Segment</b>	<b>Location</b>	<b>Map Symbol</b>	<b>Map Unit Name</b>	<b>Farmland Classification</b>	<b>Construction Method</b>
Silver Springs to Yerington	Lyon Co.	261	Dithod loam	Prime farmland if irrigated and drained	Existing Overhead
Silver Springs to Yerington	Lyon Co.	274	East Fork clay loam	Prime farmland if irrigated and drained	Existing Overhead
Silver Springs to Yerington	Lyon Co.	292	Fallon fine sandy loam	Prime farmland if irrigated and reclaimed of excess salts & sodium	Existing Overhead
Silver Springs to Yerington	Lyon Co.	294	Fallon fine sandy loam, saline-alkali	Prime farmland if irrigated and reclaimed of excess salts & sodium	Existing Overhead
Silver Springs to Yerington	Lyon Co.	518	Patna sandy loam, occasionally flooded, 0-2% slopes	Prime farmland if irrigated	Existing Overhead
Yerington Hospital Lateral	Lyon Co.	251	Dia loam	Prime farmland if irrigated and drained	Existing Overhead & New Burial
Yerington Hospital Lateral	Lyon Co.	261	Dithod loam	Prime farmland if irrigated and drained	Existing Overhead & New Burial
Yerington Hospital Lateral	Lyon Co.	265	Dithod clay loam	Prime farmland if irrigated and drained	Existing Overhead
Yerington Hospital Lateral	Lyon Co.	274	East Fork clay loam	Prime farmland if irrigated and drained	Existing Overhead & New Burial
Yerington Hospital Lateral	Lyon Co.	292	Fallon fine sandy loam	Prime farmland if irrigated and reclaimed of excess salts & sodium	Existing Overhead & New Burial
Yerington Hospital Lateral	Lyon Co.	293	Fallon fine sandy loam, frequently flooded	Prime farmland if irrigated and reclaimed of excess salts & sodium	Existing Overhead
Yerington Hospital Lateral	Lyon Co.	294	Fallon fine sandy loam, saline-alkali	Prime farmland if irrigated and reclaimed of excess salts & sodium	Existing Overhead
Yerington to Goldfield	Lyon Co.	271	East Fork loam	Prime farmland if irrigated and drained	Existing Overhead
Yerington to Goldfield	Lyon Co.	292	Fallon fine sandy loam	Prime farmland if irrigated and reclaimed of excess salts & sodium	Existing Overhead

<b>Project Segment</b>	<b>Location</b>	<b>Map Symbol</b>	<b>Map Unit Name</b>	<b>Farmland Classification</b>	<b>Construction Method</b>
Yerington to Goldfield	Lyon Co.	294	Fallon fine sandy loam, saline-alkali	Prime farmland if irrigated and reclaimed of excess salts & sodium	Existing Overhead
Yerington to Goldfield	Lyon Co.	518	Patna sandy loam, occasionally flooded, 0-2% slopes	Prime farmland if irrigated	Existing Overhead
Yerington to Goldfield	Mineral Co.	1221	Eastgate gravelly sandy loam, 0-4% slopes	Farmland of statewide importance	Existing Overhead
Yerington to Goldfield	Mineral Co.	1441	Slaw silt loam, 0-2% slopes	Farmland of statewide importance	Existing Overhead
Alt Yerington Hospital Lateral	Lyon Co.	251	Dia loam	Prime farmland if irrigated and drained	Existing Overhead
Alt Yerington Hospital Lateral	Lyon Co.	252	Dia clay loam	Prime farmland if irrigated and drained	Existing Overhead
Alt Yerington Hospital Lateral	Lyon Co.	261	Dithod loam	Prime farmland if irrigated and drained	Existing Overhead
Alt Yerington Hospital Lateral	Lyon Co.	265	Dithod clay loam	Prime farmland if irrigated and drained	Existing Overhead
Alt Yerington Hospital Lateral	Lyon Co.	274	East Fork clay loam	Prime farmland if irrigated and drained	Existing Overhead
Alt Yerington Hospital Lateral	Lyon Co.	292	Fallon fine sandy loam	Prime farmland if irrigated and reclaimed of excess salts & sodium	Existing Overhead
Alt Yerington Hospital Lateral	Lyon Co.	518	Patna sandy loam, occasionally flooded	Prime farmland if irrigated	Existing Overhead
Alt Yerington to Hawthorne	Lyon Co.	261	Dithod loam	Prime farmland if irrigated and drained	Existing Overhead
Alt Yerington to Hawthorne	Lyon Co.	271	East Fork loam	Prime farmland if irrigated and drained	Existing Overhead
Alt Yerington to Hawthorne	Lyon Co.	292	Fallon fine sandy loam	Prime farmland if irrigated and reclaimed of excess salts and sodium	Existing Overhead
Alt Yerington to Hawthorne	Lyon Co.	294	Fallon fine sandy loam, saline-alkali	Prime farmland if irrigated and reclaimed of excess salts and sodium	Existing Overhead

<b>Project Segment</b>	<b>Location</b>	<b>Map Symbol</b>	<b>Map Unit Name</b>	<b>Farmland Classification</b>	<b>Construction Method</b>
Alt Yerington to Hawthorne	Lyon Co.	518	Patna sandy loam, occasionally flooded, 0 to 2 percent slopes	Prime farmland if irrigated	Existing Overhead
Alt Yerington to Hawthorne	Lyon Co.	642	Tocan sandy loam, 2 to 4 percent slopes	Prime farmland if irrigated and reclaimed of excess salts and sodium	Existing Overhead
Alt Yerington to Hawthorne	Lyon Co.	643	Tocan gravelly sandy loam, 4 to 8 percent slopes	Prime farmland if irrigated and reclaimed of excess salts and sodium	Existing Overhead

**Appendix C Table 3. Project Area Soils Susceptible to Wind Erosion Located in Proposed Direct Burial Construction Sites**

<b>Project Segment</b>	<b>Location</b>	<b>Map Symbol</b>	<b>Map Unit Name</b>	<b>Wind Soil Erodibility Rating</b>	<b>Wind Erosion Potential</b>	<b>Miles</b>
Carson to Gardnerville	Douglas County	391	Haybourne sand, 0 to 4% slopes	1	High	0.46
Yerington Hospital Lateral	Lyon County	302	Fernley loamy sand, drained	2	High	0.08
Goldfield to Lida Junction	Nye County	3101	Bluepoint-Besherm complex, 2	1	High	1.50
Las Vegas to Boulder City	Clark County	430	Knob Hill loamy sand, 0-4% slopes	2	High	0.37

# **Appendix D**

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Greenhouse Gas Calculation Assumptions

**GHG Emission estimation**

<b>Vehicle</b>	<b># Units</b>	<b>Gallons/ day</b>	<b># days</b>	<b>multiply er kg/gal</b>	<b>Total KG</b>
1 Bucket Truck	1	15	230.8	10.1	34,966
2 Reel Carrier Truc	1	10	266.94	10.1	26,961
3 Trucks	2	10	266.94	10.1	53,922
4 Dump Truck	1	20	36	10.1	7,272
5 Back hoe-Loader	1	20	36	10.1	7,272
6 Compactor	1	10	36	10.1	3,636
					134,029 kg
					134.03 Metric Tons

<b>Section</b>	<b>Miles</b>	<b>Miles per day</b>	<b>Total Days</b>
Reno-Carson City	Ex. U/G - IRU	31.5	10 3.15
Carson City-Fallon	Ex. U/G - IRU	61.4	10 6.14
Reno Laterals	U/G - Ovhd	2.9	2 1.45
Carson City Laterals	U/G - Ovhd	1.5	2 0.75
Yerington Lateral	Ovhd	11.4	1 11.4
Hawthorne Lateral	Ovhd	9.5	1 9.5
Silver Springs – Yerington	Ovhd	24.1	2 12.05
Yerington-Hawthorne	Ovhd	69.1	2 34.55
Hawthorne-Tonopah	Ovhd	90.5	2 45.25
Tonopah - Goldfield	Ovhd	28.9	2 14.45
Lida to Pahrump	ovhd	132.1	2 66.05
Vegas to Boulder	ovhd	23.1	2 11.55
Las Vegas-Boulder City	Ovhd & U/G	23.1	2 11.55
Vegas Laterals	Ovhd & U/G	28.9	2 14.45
Carson City-Gardnerville	U/G + Ex.U/G + C	21.2	2 10.6
Lovelock Lateral	U/G	0.6	1 1
Battle Mountain Lateral	U/G	0.7	1 1
Elko Lateral	U/G	4.2	1 4.2
Goldfield-Lida Junction	Ovhd / U/G	15.7	2 7.85
			266.94