



United States Department of the Interior



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In Reply Refer to:
2860 (NVL0100)
N-66289

APR 26 2012

Dear Reader,

AT&T/Nevada Bell has requested authorization of an amended right-of-way grant N-66289, to construct a water diversion that will redirect water flow back to a natural swale. A buried AT&T/Nevada Bell communication cable has become exposed within its previous excavated trench due to the flow of the surface water discharge. Over time, surface water runoff has eroded the trench leaving the communication cable partially exposed. The communication cable is the only telecommunication landline that connects the residents of Cherry Creek to service outside the community.

The Bureau of Land Management (BLM) has prepared a Preliminary Environmental Assessment (EA) to evaluate and consider potential environmental impacts and mitigation measures regarding the proposed right-of-way grant. Attached is your copy of the preliminary EA for review. Based on the findings of the EA, the proposed mitigation as identified in the EA, and public comment, BLM will decide whether or not the proposed action will result in significant environmental impacts.

There will be a 30 day comment period with **comments due by May 28, 2012**. The EA has been added to the National NEPA register. At the end of the comment period, BLM will determine if a Decision Record, Finding of No Significant Impact (DR FONSI) will be approved with the Final EA.

Persons wishing to provide BLM with comments may do so in writing to:

BLM Egan Field Office
Attn: Stephanie Trujillo
HC 33 Box 33500
702 N Industrial Way
Ely, NV 89301

If you have any questions regarding this document, please contact Stephanie Trujillo at (775) 289-1831 or strujill@blm.gov.

Sincerely,

Doris A. Metcalf
Field Manager
Egan Field Office

Enclosure

U.S. Department of the Interior
Bureau of Land Management

Environmental Assessment

SBC/Nevada Bell Cherry Creek Amendment

September 2011

DOI-BLM-NV-L010-2011-0035-EA

SBC/ Nevada Bell Cherry Creek Amendment, N-66289

PREPARING OFFICE

U.S. Department of the Interior
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Environmental Assessment: SBC/Nevada Bell Cherry Creek Amendment

September 2011

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Chapter 1. Introduction

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This Environmental Assessment (EA) has been prepared to analyze SBC/NevadaBell's proposal to amended right-of-way (ROW), N-66289. The EA is a site specific analysis of potential impacts that could result with the implementation of the proposed project. An EA assists the Bureau of Land Management (BLM) in project planning, ensuring compliance with the National Environmental Policy Act (NEPA), and determining whether any "significant" impacts could result from the analyzed actions. The context and intensity of the impacts are considered when determining "significance." If there is a Finding of No Significant Impact (FONSI), the context and intensity criteria are listed with rationale for the determination in the FONSI document.

Should a determination be made that implementation of the Proposed Action or an alternative action would not result in "significant environmental impacts" or "significant environmental impacts beyond those already disclosed in the existing NEPA document," a FONSI will be prepared to document that determination. A Decision Record will be issued providing the rationale for approving the chosen alternative.

1.1. Identifying Information:

1.1.1. Title, EA number, and type of project:

SBC/Nevada Bell Cherry Creek Amendment, DOI-BLM-NV-L010-2011-035-EA, Right-of-Way Amendment

1.1.2. Location of Proposed Action:

[Give either/or a legal description or narrative description of the project location.]

MDM, T 23N R 64E, Sec 09 NE $\frac{1}{4}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$ NE $\frac{1}{4}$,

Sec 10 NW $\frac{1}{4}$ NW $\frac{1}{4}$

1.1.3. Identify the subject function code, lease, serial, or case file number:

L51010000 ER0000 LVRWF1106280

Case file number N-66289

1.1.4. Applicant Name:

SBC/Nevada Bell

1.2. Background

The BLM has previously authorized SBC/Nevada Bell to disturb approximately 128.33 acres of public land for the installation of a fiber optic cable line running from Ely, Nevada to Cherry Creek, Nevada. The underground fiber optic cable was installed starting from approximately four miles north of Ely. The underground cable travels north adjacent to U.S. Highway 93, within an existing Nevada Bell ROW, to State Route 489 where the cable is bored under Highway 93

west to Cherry Creek. The fiber optic cable was designated as a rural improvement project and was mandated by the Nevada Public Utility Commission (PUC) due to the remoteness of Cherry Creek, Nevada. The fiber optic line is the only tele-communications landline that connects the residents of Cherry Creek to service outside the community.

The line has become exposed due to high runoff of water and erosion of the trench the fiber optic line was encased in; this action is needed to prevent the line from becoming damaged to the point that it is no longer serviceable. The Proposed Action and Alternative 1 for the Cherry Creek fiber optic line were developed in response to the submitted SF-299 (Application for Transportation and Utility Systems and Facilities on Public Lands) received by SBC/Nevada Bell.

1.3. Purpose of the Proposed Action

The BLM's purpose is to respond to an application received by SBC/Nevada Bell, for the authorization of the proposed project, which consists of the existing fiber optic cable, as well as the amendment to add a water diversion facility to the existing ROW, and to provide a legitimate use of public lands to the proponent. Legitimate uses are those that are authorized under the Federal Land Policy and Management Act (FLPMA) of 1976 or other Public Land Acts and meet the project objectives while preventing undue and unnecessary degradation.

1.4. Need for the Proposed Action

The BLM needs to consider approval of the amended application for the proposed project by responding to its mandate under FLPMA to manage public lands for multiple use while protecting scientific, scenic, historic, archaeological, ecological, environmental, air and atmospheric, and hydrologic values. The need for this proposal is to stabilize and secure an existing fiber optic line, to prevent further deterioration of the encasement and fiber optic line. The fiber optic line supports outside tele-communications for Cherry Creek, Nevada residents.

1.5. Relationship to Planning

1.5.1. Conformance with BLM Land Use Plan(s)

This proposed action is consistent with the compliance terms with which the proponent agreed to under the original authorization of the existing right-of-way. The Proposed Action is in conformance with the Lands and Realty Land Use Authorizations parameter objective LR-47 of the *Ely District Record of Decision and Approved Resource Management Plan* (BLM 2008) which is:

- Where feasible, consolidate new land use authorizations within or adjacent to existing authorizations.

1.6. Scoping, Public Involvement and Issues:

Internal scoping was conducted by an interdisciplinary team that analyzed the potential consequences of the Proposed Action on August 15, 2011. Preliminary issues identified during internal scoping and preparation of the Plan of Development are listed below along with sections they are addressed.

- Would Cultural resources and Native American religious concerns be affected by the project? (Sections 3.0 and 3.3.1);
- What potential impacts to Water resources would be expected? (Sections 3.0 and 3.3.1);
- What impacts would the proposed action have on Wildlife and wildlife habitat? (Sections 3.0 and 3.3.1);
- What potential impacts to Special status species would be expected? (Sections 3.0 and 3.3.1);
- How would the existing Visual character of the landscape be altered? (Sections 3.0 and 3.3.1);
- What potential impacts would occur to Vegetation resources from the proposed action? (Sections 3.0 and 3.3.1);

Scoping with Native American tribes was initiated during the BLM internal scoping and review period, by tribal consultation letter on August 29, 2011. No comments were received.

The Preliminary EA, was posted to the National NEPA Register and letters notifying interested publics of a 30-day comment period were sent :

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Chapter 2. Proposed Action and Alternatives

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2.1. Description of Alternatives, including the Proposed Action:

The Proposed Action is to respond to a request by SBC/Nevada Bell to grant authorization of an amendment to right-of-way NVN-66289. The amendment would authorize SBC/Nevada Bell to provide reliable communication capacity to parts of White Pine County. SBC/Nevada Bell proposes to construct, operate, and maintain approximately 53 miles of buried communication line (of which 3,300 feet are subject to the amendment), and a water diversion within the right-of-way (Figure 2). The requested amendment to the right-of-way includes approximately an additional 0.24 acres of public land and consists of the following:

- a 3,300-foot fiber optic communication line to the Cherry Creek community;
- a 65 by 10 foot drainage diversion berm containing rip rap material;
- two 5 by 10 foot rip rap flow diverters (at 15 degree angle from berm).
- two temporary ingress/egress action points along eroded trenchline accessed from SR 489; and,
- temporary construction area including a maintenance road adjacent to the south edge of the eroded trenchline

The proposed project area is located entirely on public lands administered by the BLM (Figure 3). Because construction activities would be limited to the project area, no more than 0.24 acres could be disturbed by the Proposed Action. It is anticipated that actual disturbance would be less and would be concentrated at the existing trench line, staging areas, and the water berm diversion site. Most disturbances would be temporary for the duration of construction and establishment of reclamation seeding. Approximately 8.8 acres of surface disturbance would be temporary; the remaining 0.24 acres would be permanent. Detailed construction, operation, and reclamation procedures for the proposed project are provided in the following sections.

2.1.1.

Construction Procedures

General Construction Practices

The Nevada Contractors Field Guide for Construction Site Best Management Practices (Nevada Division of Environmental Protection 2008) and State of Nevada Non-Designated Area Water Quality Management Plan, Handbook of Best Management Practices (Nevada Division of Environmental Protection 1994) would be used as guides during construction activities. SBC/Nevada Bell would implement best management practices throughout construction. The communication lines and water diverter would be designed, constructed, tested, operated, and maintained in accordance with state and federal regulations, including the National Electrical Safety Code. Any areas temporarily disturbed during construction of the proposed project would be reclaimed immediately after construction activities are completed.

2.1.2.

Construction Schedule, Workforce, and Equipment

*Chapter 2 Proposed Action and Alternatives
Description of Alternatives, including the
Proposed Action:*

The facilities would be built in accordance with county, state, and federal requirements as applicable. Construction would commence following authorization of the Proposed Action and after all other necessary federal, state, and local permits are obtained. SBC/Nevada Bell anticipates that construction would be completed within the 2 to 4 weeks following authorization of the Proposed Action and after all other necessary permits are obtained. Adverse weather conditions, personnel absence, or other unforeseen circumstances that would be prohibitive to construction may lengthen the construction period. Construction would typically occur Monday through Friday, between sunrise and sunset. No construction would occur between sunset and sunrise. The ingress/egress action points and a maintenance road would be constructed first. The maintenance road would be created along the length (southern edge) of the proposed amended trenchline. The fiber line will be reburied within the existing trench at a depth of four feet. The eroded trench will be filled in with native soil, sand and rock at the following rates:

- Up to 4,000 cubic yards of fill dirt using 1.2–1.4 compaction rates, including additional material to be used for overflow of trench for erosion control.
- Up to 250 cubic yards of sand for “bedding” the fiber line
- Approximately 25 cubic yards of rock for rip rap

The new drainage diversion berm site would be constructed after the trenchline has been restored. The proposed drainage berm was designed to divert the surface water flow from the discharge end of an existing culvert, and divert it further north to tie-into an existing natural drainage swale as proposed in the Drainage Report and Design Proposal completed by Great Basin Engineering (see Appendix A). Reclamation of temporary construction disturbance would be performed after construction activities are completed. SBC/ Nevada Bell anticipates that the workforce would comprise 8 to 10 personnel members, which would include heavy equipment operators, laborers, and site engineers. Construction equipment would consist of 8 to 10 trucks and trailers, a bobcat, a backhoe, a loader, water truck and dumptrucks. Restroom facilities available to personnel would consist of a portable chemical toilet stored within the project area during construction. A local contractor would be utilized to clean and remove waste from the chemical toilet.

Best Management Practices would be used to limit erosion and sediment transport from proposed facilities and disturbed areas during construction and operation, in accordance with the Nevada General Stormwater Permit. Management practices may include, but would not be limited to, diversions and routing of stormwater away from development using accepted engineering practices, such as diversion ditches, sediment traps, and rock and gravel covers. Following construction activities reclamation with native and non native seed would be conducted to accelerate stabilization of disturbed areas. Weed stipulations from the Weed Risk Assessment would apply during construction and reclamation to prevent weed establishment and spread.

2.2. No Action Alternative

Under the No Action Alternative the existing ROW for the fiber optic line would not be amended. The ROW consisting of the fiber trenchline would continue to erode. The protective casing holding the fiber line would deteriorate and the communication services for the Cherry Creek, Nevada residents would be broken or intermittent.

2.3. Alternatives Considered but not Analyzed in Detail

SBC/Nevada Bell had considered installing the fiber optic line aboveground. Under this alternative SBC/Nevada Bell would attach the fiber optic line to existing wooden utility poles located within the vicinity to the proposed project, south of SR 489. The utility lines located on these wooden utility poles are owned by Mt. Wheeler Power. This alternative is not discussed in detail further in this environmental analysis because the entire existing trenchline within the ROW would need to be re-disturbed and the fiber optic line relocated. There would also be a temporary loss of the outside tele-communication ability for the Cherry Creek Residents. This option was eliminated from further analysis since it would create additional disturbance on public lands, and it does not meet the mandate that SBC/Nevada Bell must meet for rural residential safety communication capacities.

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Chapter 3. Affected Environment and Environmental Effects:

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The following items have been evaluated for the potential for significant impacts to occur, either directly, indirectly, or cumulatively, due to implementation of the proposed action. Consideration of some of these items is to ensure compliance with laws, statutes or Executive Orders that impose certain requirements upon all Federal actions. Other items are relevant to the management of public lands in general and to the Ely BLM in particular.

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
Air Quality	No	The analysis area and White Pine County is considered "unclassifiable/attainment" for six of seven critical pollutants monitored by the State of Nevada to assess air quality (sulfur dioxide, carbon monoxide, ozone, particulate matter less than 2.5 micrometers, particulate matter less than 10 micrometers, and nitrogen dioxide). The analysis area and White Pine County exceed the lead standards and are considered "attainment". The proposed action may cause a temporary increase in dust during construction activities but would not alter air quality in the analysis area or White Pine County.
Areas of Critical Environmental Concern (ACEC)	No	No ACEC's occur within or adjacent to project area.
Cultural Resources	No	A Class III cultural resource inventory occurred for the proposed project. No cultural resources were identified.
Environmental Justice	No	No minority or low-income groups would be disproportionately affected by health or environmental effects. Concern is not present.
Fish and Wildlife	No	The immediate project is pronghorn antelope (<i>Antilocapra americana</i>) habitat. Habitat for other species is not within three miles. Other smaller mammals, reptiles and birds may be present. Large, mobile animals may be displaced temporarily while activities are taking place. Small fossorial animals may be injured or killed by digging equipment. This is unlikely to affect the population of any such species. Detailed analysis is not necessary.
Floodplains	No	The analysis area is not included FEMA flood maps for White Pine County.
Forest Health	No	Resource is not present within project area.
Lands and Realty	No	There are no conflicting Rights-of-Way within project area.
Migratory Birds (including Bald and Golden Eagles)	No	Activities taking place outside of the nesting season (April 15 through July 15) would have no effect on migratory birds. Ground disturbing activity taking place during the nesting season will require a qualified biologist to survey the area prior to the disturbance. Detailed analysis is not necessary.
Mineral Resources	No	No mineral operations occur within the project area.
Native American Religious Concerns and other concerns	No	No traditional religious or cultural sites have been identified within or adjacent to the proposed project area.
Noxious and Invasive Weed Management	No	The design features (weed stipulations) of the proposed action would help minimize the spread of weeds. No further analysis is necessary.
Paleontological Resources	No	Currently there are no identified resources within this allotment.
Prime and Unique Farmlands	No	No Prime or Unique Farmlands occur within the analysis area.
Rangeland Health	Yes	The proposed action and alternatives may affect the overall rangeland health of the project area, a detailed analysis is provided in chapters 3, 4 of this document.

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
Recreation Uses	No	No impact to recreational uses are expected to occur with the proposed action.
Special Status Animal Species, other than those listed or proposed by the FWS as Threatened or Endangered	No	Sage grouse (<i>Centrocercus urophasianus</i>) summer and winter habitat has been identified in the project area. There are no leks within five miles of the project area. There is potential pygmy rabbit (<i>Brachylagus idahoensis</i>) habitat identified within the project area. The area proposed for activity has been previously disturbed by the installation of the original line. No occurrences of these species has been noted. No further analysis is necessary.
Special Status Plant Species, other than those listed or proposed by the FWS as Threatened or Endangered	No	Resource not known to be present.
Soil Resources	Yes	Soil surface disturbance would occur to the width of the equipment used to trench and bury the proposed pipeline, including excavation and backfilling the trench for the pipes. Pipeline construction and installation of the water trough would disturb approximately 8 acres of land surface. Minor soil loss could occur as a result of erosion by wind. Soil surface disturbance would occur as a result of vehicle travel necessary for construction of the proposed fenceline. Maintenance access roads for the pipeline and fence would be used sporadically during the life of the facilities and is not expected to cause undue or excessive soil disturbance. Further analysis is not necessary.
Threatened or Endangered Species or critical habitat.	No	There are no Threatened or Endangered species listed or proposed for listing known to occur within or near the project area.
Vegetative Resources	No	The proposed action of 0.24 acres includes stipulations to reclaim disturbed areas with native and non-native seed; and vegetation is expected to recover. No further analysis is necessary.
Visual Resources	Yes	The proposed project area falls within Visual Resource Management (VRM) Classes II and III, therefore the proposed action may impact visual resources. A detailed analysis is provided within this document.
Wastes, Hazardous or Solid	No	The proposed action or alternatives would not produce hazardous or solid waste.
Water Resources	Yes	The proposed action is not expected to lead to a measurable change in the surface and subsurface water sources, water rights, and quantity of water that occurs in the analysis area.
Wilderness	No	No Wilderness occurs within or adjacent to the project area. No further analysis is necessary.
Wetlands/Riparian Zones	No	No riparian areas and/or wetland zones are present in the proposed project area. No riparian soil, hydrophytic vegetation, or appropriate hydrologic indicators are present.
Wild Horses	No	The project area is within the Triple B Herd Management Area (HMA). Wild horses should not be affected by the proposed action.
Wild and Scenic Rivers	No	No Wild and Scenic Rivers occur within or adjacent to the project area.

3.1.1.

3.2. Soil Resources

3.2.1. Affected Environment

The entire analysis area is composed of soils belonging to the Pyrat-Linoyer association and characterized as having gravelly sandy loam surface textures. The soils are composed of about 16% clay-, 65% sand-, and 19% silt—sized materials which translate into a low soil erodibility factor or K factor. The low K factor is due to having a sufficiently high clay content to resist soil particle detachment and coarse constituents which help to prohibit high runoff events.

The trench for the existing buried cable was inundated with stream flow water and soil and fill material eroded to form a gully. Soil and fill material was washed into the valley floor and deposited leaving a large void exposing the fiber optic cable.

3.2.2. Environmental Effects

Proposed Action

The installation of the proposed fiber optic cable would create conditions where the current trench would require adjustment and repair. Removal of fill material and reburial of the fiber optic cable would be undertaken with moderately heavy equipment with the expected impacts of soil compaction and displacement. Compaction near and over the trench would be required to assure proper bedding of the cable and reduce risks associated with water infiltration and percolation through buried fiber optic systems. Further soil compaction would be expected from equipment traversing the project area to access construction and maintenance locations during the installation and future maintenance phases. Dust liberated during construction would be a short-term or ephemeral wind erosion risk and expected to pre-work levels soon after cessation of activity. Compaction to soils outside the trench and maintenance right-of-way areas would slowly return to pre-work conditions as climate and weather act upon the soil.

Diversion of water away from the fiber optic trench and into an existing but dry flow path would initially cause the transport of accumulated fine- and medium-sized streambed materials. Stream channel evolution is expected to occur as annual flow characteristics modify the channel. Natural erosional and depositional features are expected to form to accommodate stream flows. The hardening of the diversion location with large rock is expected to minimize stream bank erosion risk due to misalignment of culvert beneath the highway. The risk of the new stream channel forming a gully is expected to be low due to the generally coarse-textured nature of the soil. A very rare stream flow event could exceed the design limit of the water diversion or capacity of the new channel and possibly lead to water reentering the fiber optic channel or resulting in gully formation in the new stream channel.

No Action Alternative

The existing trench and cable would be repaired with no accommodation for altering the water flow emanating from the culvert beneath the highway. It is expected that the fill material used

in the trench would be compacted and all the effects sans the diversion of water would occur. There would be more than a minimal risk of water penetrating the trench in the future leading to gully formation.

3.3. Visual Resources

Visual resources are identified through the Visual Resource Management (VRM) inventory. This inventory consists of a scenic quality evaluation, sensitivity level analysis and a delineation of distance zones. Based on these factors, BLM-administered lands are placed into four visual resource inventory classes: VRM Class I, II, III and IV. Class I and II are the most valued, Class III represents a moderate value and Class IV is of the least value. VRM classes serve two purposes: (1) as an inventory tool that portrays the relative value of visual resources in the area, and (2) as a management tool that provides an objective for managing visual resources.

3.3.1. Affected Environment

The proposed project area falls within VRM Classes II and III. The Class II objective 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 dominate the view 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 III objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

The proposed project area is located east of the Cherry Creek Range. Elevations in the area range from approximately 6,300 feet to 9,200 feet above mean sea level (amsl). The topography in the area is typical of that found in the Basin and Range Physiographic Province. The Great Basin is characterized by a rhythmic pattern of isolated mountain ranges and broad sweeping basins. The Project Area includes flat valley bottoms, angular hills and ridges with steep side slopes. Vegetation colors include, brown, green, dark green, gray-green, and gold tones. The BLM has previously authorized an underground fiber optic line within an existing ROW as described in Section 1.2, which has been reclaimed.

3.3.2. Environmental Effects

Proposed Action

Overall, the effect to the visual resources within the proposed project area would be weak to moderate. The effect on visual resources would be temporary and moderately noticeable from Key Observation Points (KOP) 1 and 2 from Hwy 93 during construction, however given the speed at which the viewers are travelling on the highway, the proposed action should not dominate their view within the existing characteristic landscape. Viewers from KOP 3 would have the most impact visually, as they are travelling next to the project area and at a slower speed. There would be some color contrasts with the clearing of vegetation to create temporary access and with creation of the berm; however, this would fade over time when the roads reclaimed and the berm

revegetated. Impacts from the road construction adjacent to the fiber optic line would be minimal considering it is proposed to be parallel to the existing ROW. Impacts to visual resources include changes in form, line, color, and texture resulting from the clearing of vegetation during road and the berm construction.

Upon completion of reclamation activities, visual resources would be improved. Reclamation would restore the characteristic line and color elements. Areas where reclamation is not complete or successful would continue to contrast with visual resources. Any evidence of reclaimed roads may invite continued use by the general public, perpetuating linear intrusions in the characteristic landscape.

No Action Alternative

No change in the current level of impacts to visual resources is anticipated.

3.4. Rangeland Health

3.4.1. Affected Environment

The proposed action is within the Cherry Creek grazing allotment. This allotment encompasses approximately 153,107 acres of public land, most of which is currently used for livestock grazing. The Cherry Creek allotment is currently not achieving the rangeland health standards for Nevada's Northeastern Great Basin Area but are making significant progress towards the achievement of these standards. These rangeland health standards represent the goals of healthy and productive rangelands for livestock, wildlife and other uses of public lands. These standards consist of 3 major standards: Upland Site, which evaluates the overall health and stability of the soil. Riparian and Wetland Sites, which evaluates the overall health and functionality of riparian or wetland areas. Habitat, which evaluates the overall health, productivity and structure of wildlife habitat.

3.4.2. Environmental Effects

Proposed Action

The proposed action would not affect the overall progression or achievement of the rangeland health standards or grazing use, mainly due to the size and area of the proposed action. The proposed action would consist of approximately 0.24 acre of construction activities of the overall 153,107 acres within this management area and it is immediately adjacent to a major road. It is anticipated that the construction activities would not lead to unhealthy, barren soils or excessive erosion, permanently destroy suitable wildlife habitat or have any direct or indirect effect to the health and functionality of the riparian or wetlands within this management area.

No Action Alternative

In this case, the excessive erosion that is currently occurring at the site could likely continue. Overall, the no action alternative would likely not affect the overall progression or achievement of the rangeland health standards in the area.

3.5. Water Resources

3.5.1. Affected Environment

The project analysis area lays within the Steptoe Valley physiographic basin. Water flowing through the culvert under the highway is supplied by a small watershed approximately 2034 acres in size. Long Gulch drains the unnamed watershed with its headwaters in the Schell Creek Mountain Range and generally flows westerly for about 4.5 miles until reaching the highway. Water from the stream flows through the culvert into the gully/stream channel and eventually becomes subsurface before reaching the valley floor. Elevations in the watershed range from a reported low at the culvert outlet of about 5993 feet to a high of approximately 8454 feet. High stream flow events are typically in direct relation to springtime snow melt runoff and localized spring or summer rain events.

3.5.2. Environmental Effects

Proposed Action

The direct and indirect effects to water resources center on water being diverted from its current path and placed into a former flow path configuration. The amount of water flowing through the system and the highway right-of-way would not be affected by the proposed action. Placement of the water diversion and redirection of stream flows would occur after water leaves the right-of-way and enters onto public land.

The water diversion being an earthen structure fortified and protected with large rock would be used to deflect water away from the existing trench location and into another, formerly occupied, channel for eventual distribution of water out into the valley. There is a minimal risk that stream flows may be reduced to such an extent as water impacts the energy dissipating rock structure which leads to a backwater or ponding situation upstream of the diversion. The diversion of water and reduction of water energy is expected to reduce erosion potential and material transport potential and thus, provide stability to the stream system. Lower velocities over a channel of lesser gradient is expected to favor the establishment of water-favoring riparian vegetation which would add further stability to a system devoid of riparian vegetation. Initial bedload transport (movement of dry residual soil material) is expected to occur as water enters a system that has not routinely seen water for several years. Due to the generally coarse sand streambed texture such material is expected to pulse through the system until a average limit is reached where water infiltrates the streambed and surrounding soil and becomes a subsurface water source; the expected natural outcome.

3.5.3. No Action Alternative

No change in the current level of impacts to water resources is anticipated.

Chapter 4. Cumulative Impacts:

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Introduction

As required under NEPA and the regulations implementing NEPA, this section analyzes potential cumulative impacts from past, present, and reasonably foreseeable future actions combined with the impacts of the Proposed Action. A cumulative impact is defined as “the impact which results from the incremental impact of the action, decision, or project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

Resources considered in this cumulative impact assessment are limited to resources impacted by the Proposed Action. The Proposed Action would contribute up to 9.4 acres of temporary and permanent surface disturbance. Approximately 8.8 acres of surface disturbance would be temporary; the remaining 0.24 acres would be permanent. The Proposed Action would have minor impacts on rangeland health, soil resources, visual and water resources after BLM-recommended mitigation measures are implemented.

The area from which potential cumulative projects were drawn is referred to as the cumulative impacts assessment area and includes a 1-mile area surrounding all sides of the proposed project area. The Proposed Action would not affect any of the resources identified above beyond this analysis area. There are approximately 640 acres contained within the limits of the cumulative impacts assessment area.

The period of time for the cumulative analysis is 17 years because the proposed project would provide communication services for that length of time before a renewal of the ROW is required. The majority of effects from the proposed project would occur during the construction period, which is anticipated to last 2 to 4 weeks. Effects to visual resources would be anticipated for the entire cumulative analysis period. Maintenance and repair of the proposed project would be on-going as needed during the cumulative time frame but would be anticipated to occur infrequently.

4.1. Past, Present and Reasonably Foreseeable Future Actions

4.1.1. Past Actions

Livestock and wild horse grazing has a long history in the region dating back to the late 1800's. Throughout its history, livestock grazing (cattle and horses) has been characterized by localized areas of intense use. In many areas in which this intense grazing occurred there is a lack of herbaceous cover and is primarily shrub dominate. Range improvement projects have occurred in the area to improve grazing management and include fencing and spring/stock water developments.

Construction of roads has added linear contrast to land and vegetation elements of natural landscape. U.S. Highway 93 and State Route 489 are the most visibly apparent roads in the area. Construction of overhead transmission lines has added linear contrast to land and vegetation elements of natural landscape. The transmission line poles and authorized material pits have added moderate contrast to the structure element of the landscape.

4.1.2. Present Actions

The project area is currently being grazed by livestock. Current livestock grazing management can be characterized as light to moderate use of the available forage and striving to achieve healthy and productive rangelands. Maintenance of range improvements is ongoing and generally includes repairing fences and stock water troughs. These maintenance activities generally use existing two-track and developed roads.

Roads, overhead transmission lines, and material pits continue to add contrast to the land, vegetation, and structure components of the visual landscape.

4.1.3. Reasonably Foreseeable Future Actions

It is anticipated that livestock grazing would likely continue at current levels. New range improvement projects are considered on an annual basis and analyzed on a site-specific basis. Maintenance of range improvements would likely continue.

Roads, overhead transmission lines, and material pits would continue to add contrast to the land, vegetation, and structural components of the visual landscape.

4.2. Cumulative Effects Analysis

4.2.1. Soil Resources

Ground disturbance can affect soil resources by removing soils from productive use and as a result of burial or excavation or storage, altering infiltration and erosion as a result of compaction, or changes in topography. Disturbed soils can increase both wind and water erosion and are more susceptible to establishment of non-native invasive species. Wildland fire and other natural disturbance processes can be expected to occur in the future.

4.2.2. Visual Resources

The cumulative effects analysis area is the same as analyzed and described in Section 3.3. The impacts resulting from the addition of these project components would be minor overall. Elements of the proposed action would occur parallel or adjacent to the existing ROW and roads which are similar in appearance. New access roads being constructed would cause a short-term effect on visual resources until reclamation is completed. The berm construction phase would provide a moderate contrast to the characteristic landscape, which would occur for the short-term. While the berm itself would remain, reclamation activities would provide for minor contrasts to the characteristic landscape for the long-term. There are no past, present, or reasonably foreseeable future actions within the cumulative effects analysis area that would contribute to visual resource impacts. Minor residual impacts are expected to occur following the proposed action.

4.2.3. Rangeland Health

Proposed Action

It is anticipated that the proposed action, in combination with the past, present and reasonably foreseeable future actions, would continue to progress towards achieving or achieve the rangeland health standards within the area. In this particular area livestock grazing is the main use of the land and the current management plans have been designed to progress towards the achievement or achieve the rangeland health standards and maintain healthy and productive rangelands and wildlife habitat.

No Action Alternative

It is anticipated that the no action alternative, in combination with the past, present and reasonably foreseeable future actions, would also continue to progress towards achieving or achieve the rangeland health standards within the area and maintain healthy and productive rangelands.

4.2.4. Water Resources

Potential cumulative impacts of surface water resources could occur from mining operations and exploration activities, oil and gas exploration, fuel treatment projects, livestock grazing, and projects having direct surface disturbance. In general, projects involving surface disturbance have the potential to impact surface water quality and quantity, primarily through increased sedimentation as a result of the removal of vegetation and disturbance to the soil structure. Impacts are anticipated to be limited to the life of each project and the localized nature of each project.

Potential cumulative effects to groundwater resources could occur from mining operations and exploration activities, oil and gas exploration, and any other projects where the groundwater is intercepted, such as open pits, or where groundwater is accessed and utilized.

Due to the lack of surface water resources in the plan area and the minimal impacts to surface water from the proposed action, the proposed action would have a negligible impact on surface water quality and quantity. Cumulative impacts to groundwater quantity and quality from the proposed action are anticipated to be negligible.

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**Chapter 5. Tribes, Individuals,
Organizations, or Agencies Consulted:**

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Table 5.1. List of Persons, Agencies and Organizations Consulted

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
AT&T/Nevada Bell	Proponent	Provided input throughout
Great Basin Engineering	3rd Party Contractor	Drainage Report, Provided input throughout
Duckwater Shoshone Tribe	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Skull Valley Band of Goshutes	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Ely Shoshone Tribe	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Las Vegas Paiute Tribe	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Confederated Tribes of the Goshute Indian Reservation	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Battle Mountain Band Council	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Paiute Indian Tribe of Utah	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No known cultural or archaeological sites notification received September 29, 2011
Te-Moak Tribes of the Western Shoshone Indians of Nevada	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Indian Peaks Band	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Wells Band Council	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Shivwits Band of Paiutes	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
South Fork Band Council	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Cedar City Band of Paiutes	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Elko Band Council	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Kaibab Band of Paiutes Indians	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Yomba Shoshone Tribe	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Moapa Band of Paiutes	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
Winnemucca Indian Colony of Nevada	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Lovelock Paiute Tribe	Executive Order 13175: Consultation and Coordination with Indian Tribal Governments	No comments
Nevada Department of Wildlife		

Chapter 6. List of Preparers

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Table 6.1. BLM List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
TJ Mabey	Natural Resource Specialist	Rangeland Resources
Mark D'Aversa	Hydrologist	Soil, Water, Riparian/Wetland Areas
Mindy Seal	Natural Resource Specialist	NEPA; Vegetation; and Invasive, Non-native Species
Leslie Riley	Archeologist	Archeological, Historic, and Paleontological Resources
Stephanie Trujillo	Realty Specialist/Project Lead	Introduction, Alternatives, Lands and Realty
Marian Lichtler	Wildlife Biologist	Wildlife, Migratory Birds, Special Status Species
Erin Rajala	Outdoor Recreation Planner	Recreation, VRM
Miles Kreidler	Geologist	Minerals
Erica Husse	Range Technician, ES&R	Non-native species, vegetation, ES&R
Elvis Wall	Native American Coordinator	Native American Religious Concerns, Tribal Coordination
Gina Jones	Ecologist/Planning & Environmental Coordination	Environmental Justice, Land Use Planning, NEPA Compliance
Doris Metcalf	Field Manager	

6.1.

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Chapter 7. Photos

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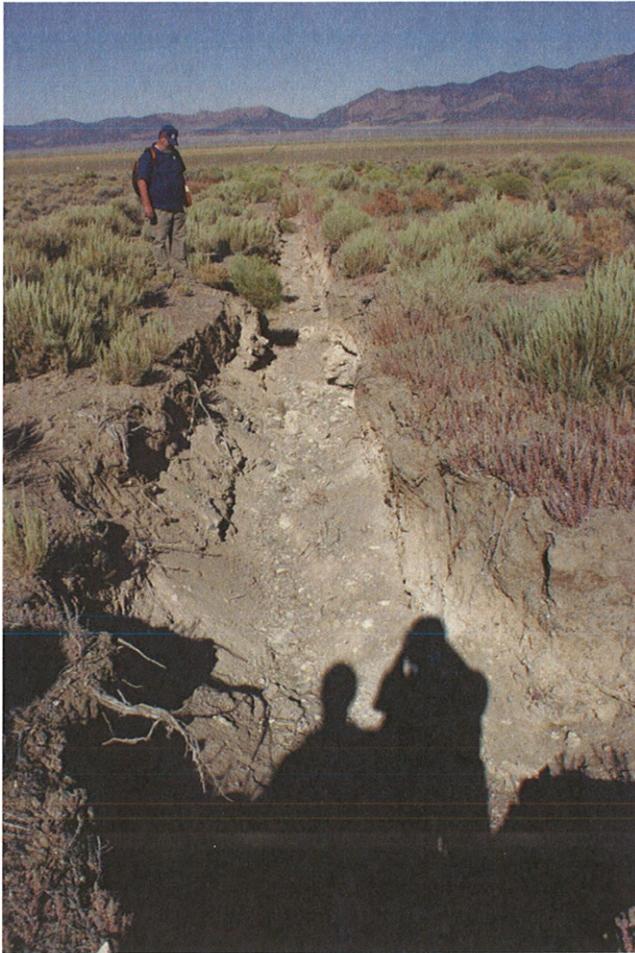


Photo of eroded fiber optic line taken on August 24, 2010, looking towards Cherry Creek Nevada.

Figure 7.1. Eroded Trenchline



Photo of eroded fiber optic line. Exposed fiber encasing shown in the eroded ditch.

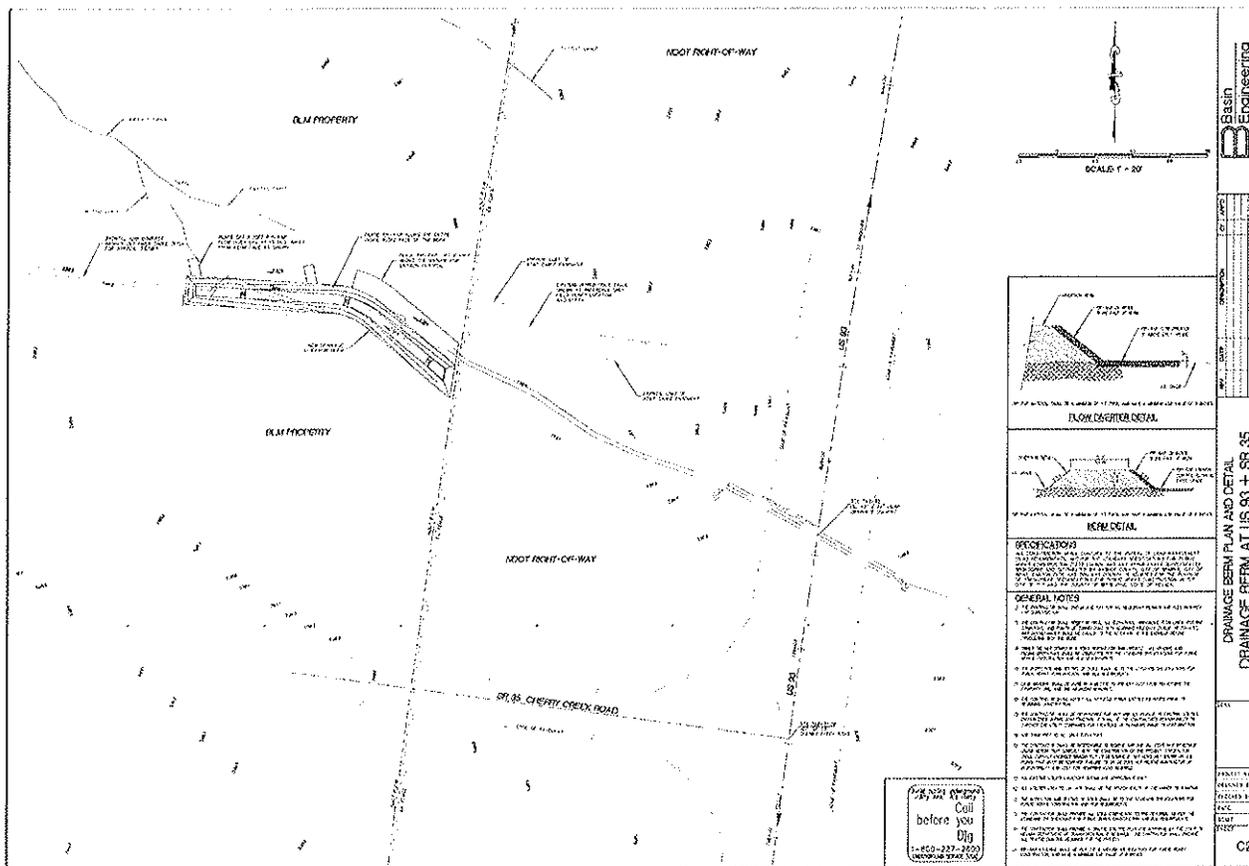
Figure 7.2. Exposed Fiber Optic Line

Chapter 8.

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8.1. Map

Map 8.1.



Map of proposed project area. Shows diversion diagram at the Cherry Creek Junction. US Highway 93 and State Route 489

Map 8.2. Site Location

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Chapter 9. Drainage Report

**DRAINAGE CULVERT AT US-93 AND SR-35
(CHERRY CREEK ROAD)**

DRAINAGE REPORT AND DESIGN PROPOSAL

July 2011

**PREPARED FOR
AT&T
OSP PLANNING & ENGINEERING DESIGN**

Prepared By:



Table of Contents

1.0	Introduction	
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4.0	Recommended Improvements	
4.1	New Drainage Diversion Berm.....	6
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APPENDICES:

- A. Existing Culvert Analysis using HY-8
- B. Engineered Drainage Improvement Plans

1.0 INTRODUCTION

1.1 Background

AT&T has a buried communication cable just north of SR-35 (Cherry Creek Road) that crosses from US-93 in Steptoe Valley in the north eastern part of White Pine County that services the town of Cherry Creek, located approximately 34 miles north of the City of Ely, Nevada.

Surface runoff water from an upstream drainage basin on the east side of US-93 is conveyed through an existing 42" x 27" Corrugated Metal Arch Pipe (CMAP), and is discharged on the west side of US-93 just above the buried AT&T communication cable.

This buried communication cable has become exposed within its previous excavated trench due to the flow of the surface water discharge as it made its way to the lower regions of the Steptoe Valley floor. Over time, surface water runoff has eroded the communication leaving the communication cable partially exposed.

1.2 Purpose

AT&T has contracted with Basin Engineering Corporation to analyze the existing drainage situation and provide recommended drainage improvements to eliminate further erosion and prevent any future damage to the communication cable due to surface water runoff. The engineering work includes:

- Topographical surveying and mapping of the area near the intersection of US-93 and Cherry Creek Road to establish all existing improvements and grades to a one-foot contour interval for the preparation of the Drainage Study and the Design Improvement Plans.
- Prepare engineering plans for the necessary drainage improvements within the Bureau of Land Management (BLM) property near the Cherry Creek Road, and submitting the improvement plans to BLM to obtain approval of the improvement design.
- Prepare a final drainage report to analyze the existing improvements and surface water discharge flows for use in designing necessary drainage improvements.

2.0 SITE INVESTIGATION

2.1 Field Surveying

A field survey was completed of the entire area locating the existing roadways, drainage culvert, fence, right-of-way monuments, exposed communication cable and drainage ditches. The survey information collected was used for the purpose of creating a topographical and location map of the project area, and was used for the analysis of the existing drainage condition and proposed improvements.

2.2 Field Site Investigation

A field site investigation was completed to get a personal visualization of the scope of work and extent of the existing erosion damage to the communication cable trench.

The other item of interest for the field site investigation was to visually investigate the surrounding area with regards to the potential new improvements relative to the existing natural drainage pattern just north west of the existing drainage culvert.



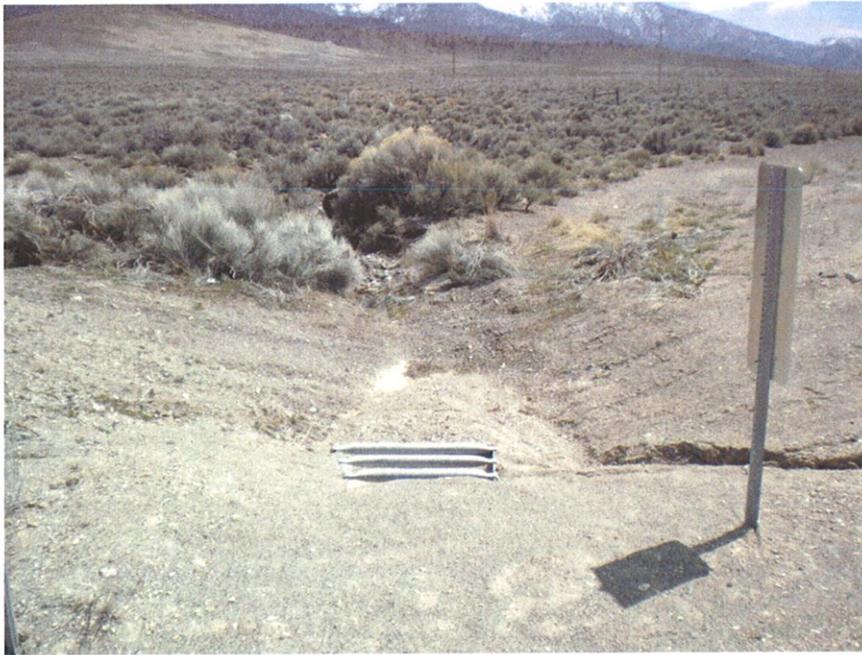
Existing 42" x 27" CMAP Storm Drainage Culvert Discharge End at US-93



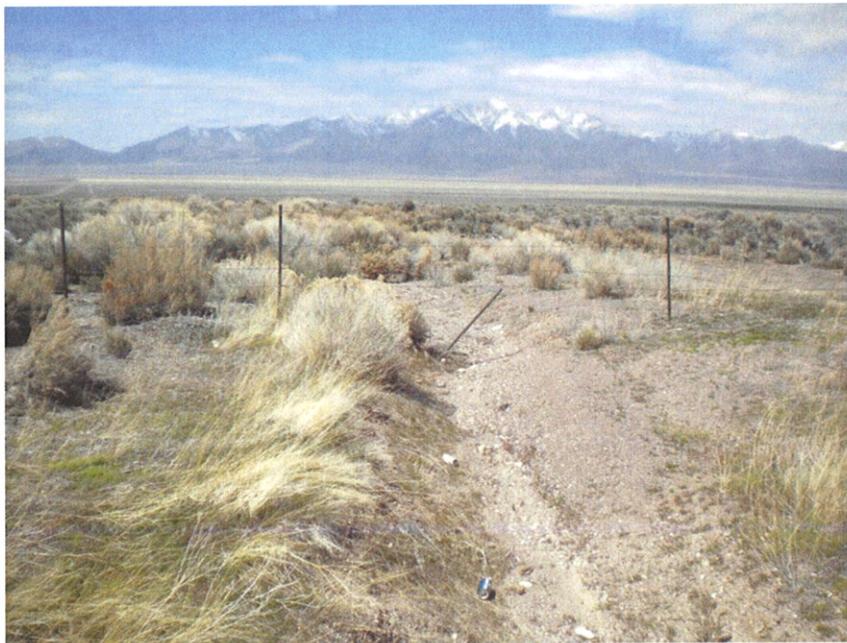
Existing Drainage Ditch from Culvert Discharge Looking West Towards Cherry Creek



Existing 42" x 27" CMAP Storm Drainage Culvert Inlet End at US-93



Existing Storm Drainage Culvert Inlet Looking Upstream (East) from US-93



Existing Drainage Ditch from Culvert Discharge Looking West at Fence Location



Eroded Communication Trench Looking West into Steptoe Valley



Eroded Communication Trench Looking East toward Culvert and US-93

3.0 EXISTING CULVERT CAPACITY EVALUATION

3.1 Analysis Using HY-8 7.2

The existing 42" x 27" CMAP drainage culvert hydraulic profiles were calculated using HY-8 version 7.2 Culvert Hydraulic Analysis Program, made available by the U.S. Department of Transportation Federal Highway Administration. HY-8 allowed us to identify the existing culverts flow capacities and roadway overtopping parameters. The HY-8 program is used and analysis reports are accepted by NDOT's Hydrology Department.

3.2 Existing Culvert Evaluation

The existing 42" x 27" CMAP storm drainage culvert was investigated for the rate of storm water discharge that is capable of coming out of the discharge end of the pipe to be used for the design of the new diversion drainage ditch. All considerations regarding type of culvert, length, invert elevations, slope, roadway elevations, and roadway overtopping were considered in the analysis. This evaluation and analysis was done using the HY-8 program. The HY-8 Analysis Report is attached as Appendix-A.

The analysis indicates that the existing culvert has a capacity of 45 cubic feet per second (cfs) before overtopping the roadway at 50 cfs. For design purposes, a value of 50 cfs is to be used for the proposed improvements.

4.0 RECOMMENDED IMPROVEMENTS

4.1 New Drainage Diversion Berm

The existing culvert analysis results show a total discharge rate of 50 cfs prior to the surface water overflowing the US-93 roadway. A value of 50 cfs was used in the design of the new drainage diversion berm.

The proposed drainage berm was designed to divert the surface water flow from the discharge end of the existing culvert, and divert it further north to tie-into existing natural drainage swales. The new diversion berm is located all within BLM's land just outside of the NDOT right-of-way fence and constructed within the 150-foot offset area from the NDOT right-of-way. The new drainage diversion berm Design Drawings are attached as Appendix-B.

The new drainage diversion berm is approximately 150 feet long with a top of berm slope of 0.0185. The new diversion berm has an average depth of 2 feet, with a 5 foot wide top and side slopes of 2.5:1. The new drainage diversion berm will divert the water away from the eroded communication trench northerly to a natural drainage swale. Rip-rap material is to be placed along the entire sloped face of the drainage side of the berm. A section of rip-rap is to be placed 10 feet wide by 65 feet long along the existing ground surface at the start of the diversion berm to dissipate energy and slow the flow of water to prevent erosion of the natural terrain. Two (2) 5 foot by 10 foot rip-rap flow diverters set at a 15 degree angle from the berm are to be place at the lower section of the diversion berm to assist in the diversion of the flow of water into the existing natural drainage.



Existing Natural Drainage Swale to be used for New Drainage Outlet
Looking towards Fence, Roadway, and Existing Culvert



Existing Natural Drainage Swale looking North West down into Steptoe Valley
Cherry Creek Road is in the left of the Picture

Based upon the review of information provided by AT&T and our field survey, the erosion area within the BLM property extends approximately 3,078 feet west from the NDOT right-of-way fence line and is approximately 4 feet deep by 4 feet wide. The fiber cable trench is to be completely backfilled and compacted with BLM approved material, and mounded as not to create any depression to prevent the accumulation of water. The entire disturbance area is to be reseeded as per BLM requirements. The AT&T easement extends 10 feet on each side of the buried fiber cable, and all work is to be maintained within the 20 foot easement, excluding the first 150 foot area where the diversion berm is located.

5.0 SUMMARY AND CONCLUSIONS

AT&T has a buried communication cable just north of SR-35 (Cherry Creek Road) that crosses under US-93 in Steptoe Valley. Surface water from an upstream drainage basin on the east side of US-93 is conveyed through an existing 42" x 27" CMAP culvert, and discharged on the west side of US-93 just above the buried communication cable. The buried communication line has become exposed within its trench due to the flow of the surface water discharge as it made its way to the lower regions of the Steptoe Valley floor. Basin Engineering has been contracted to analyze the existing drainage situation and provide recommended improvements to eliminate further erosion and prevent any possible future damage to the communication cable.

A field survey and site investigation was completed of the existing culvert and surrounding area to gather physical information of the existing drainage system, and to determine possible recommendations. The existing drainage culvert drainage hydraulic profiles were calculated using HY-8 version 7.2.

Based on our evaluation of the existing field conditions and culvert flows, Basin Engineering recommends that the discharge flow from the culvert be diverted north to an existing swale where it will take the surface water flow away from the buried communication cable trench and naturally drain into the Steptoe Valley floor.

APPENDIX-A

HY-8 Culvert Analysis Report

Project Notes

Project Title: **Drainage Culvert at US-93 and SR-35 for AT&T**

Designer: **Basin Engineering**

Project Date: Wednesday, April 20, 2011

Notes: Project No. 1102007

AT&T Culvert at Cherry Creek

US 93, STA. 799+61

Existing 43" x 27" Culvert CMAP

Table 1 - Summary of Culvert Flows at Crossing: 1102007 AT&T AT CHERRY CREEK

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
5996.78	20.00	20.00	0.00	1
5997.10	25.00	25.00	0.00	1
5997.45	30.00	30.00	0.00	1
5998.01	35.00	35.00	0.00	1
5998.33	40.00	40.00	0.00	1
5998.89	45.00	45.00	0.00	1
5999.67	50.00	49.41	0.49	37
5999.73	55.00	49.67	5.18	6
5999.75	58.00	49.78	8.02	4
5999.80	65.00	49.99	14.83	4
5999.83	70.00	50.13	19.81	4
5999.66	49.35	49.35	0.00	Overtopping

Rating Curve Plot for Crossing: 1102007 AT&T AT CHERRY CREEK

Total Rating Curve

Crossing: 1102007 AT&T AT CHERRY CREEK

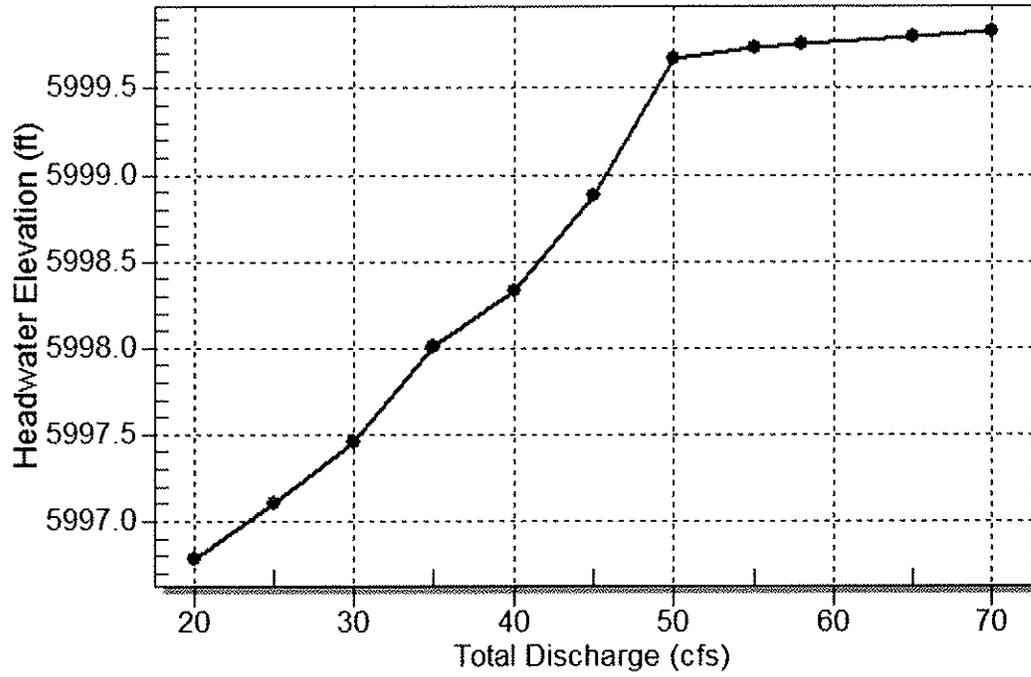


Table 2 - Culvert Summary Table: Culvert 1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
20.00	20.00	5996.78	1.833	0.0*	1-S2n	0.965	1.060	0.969	0.199	6.356	4.570
25.00	25.00	5997.10	2.151	0.0*	1-S2n	1.129	1.211	1.129	0.228	6.773	4.992
30.00	30.00	5997.45	2.503	0.0*	5-S2n	1.297	1.353	1.302	0.254	7.068	5.361
35.00	35.00	5998.01	2.910	3.060	2-M2c	1.481	1.480	1.483	0.279	7.303	5.699
40.00	40.00	5998.33	3.385	3.332	2-M2c	1.700	1.597	1.601	0.303	7.793	6.006
45.00	45.00	5998.89	3.935	3.702	2-M2c	2.217	1.702	1.707	0.325	8.347	6.292
50.00	49.41	5999.67	4.486	4.724	7-M2c	2.217	1.788	1.792	0.347	8.817	6.557
55.00	49.67	5999.73	4.519	4.778	7-M2c	2.217	1.791	1.796	0.367	8.846	6.807
58.00	49.78	5999.75	4.534	4.801	7-M2c	2.217	1.793	1.796	0.379	8.858	6.949
65.00	49.99	5999.80	4.562	4.846	7-M2c	2.217	1.796	1.802	0.407	8.882	7.266
70.00	50.13	5999.83	4.580	4.875	7-M2c	2.217	1.798	1.804	0.425	8.898	7.480

* theoretical depth is impractical. Depth reported is corrected.

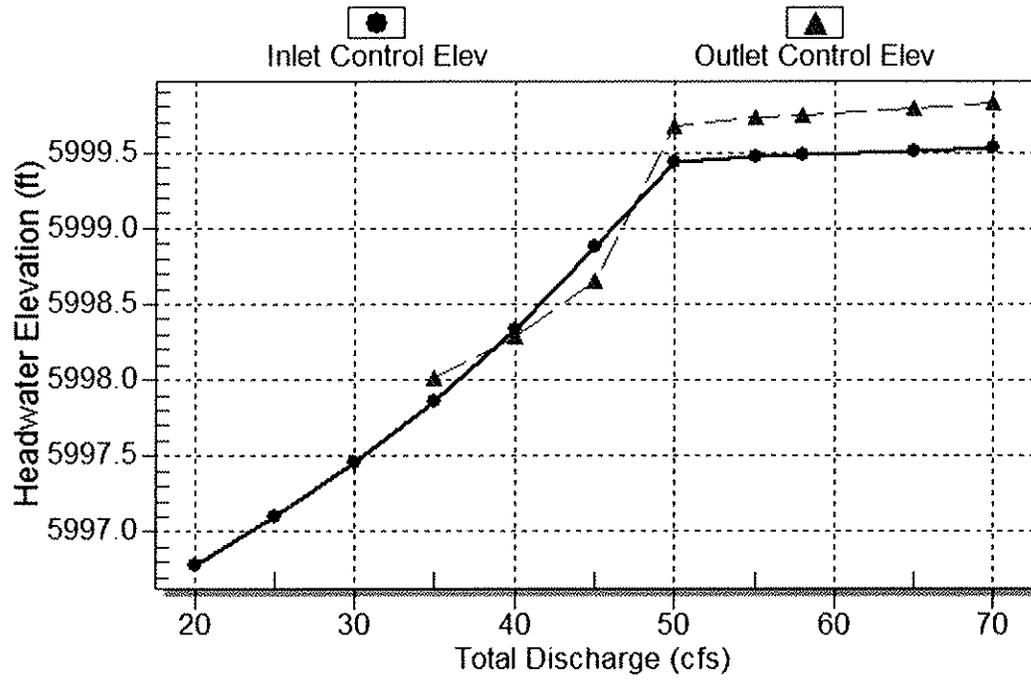
Inlet Elevation (invert): 5994.95 ft, Outlet Elevation (invert): 5992.86 ft

Culvert Length: 100.02 ft, Culvert Slope: 0.0209

Culvert Performance Curve Plot: Culvert 1

Performance Curve

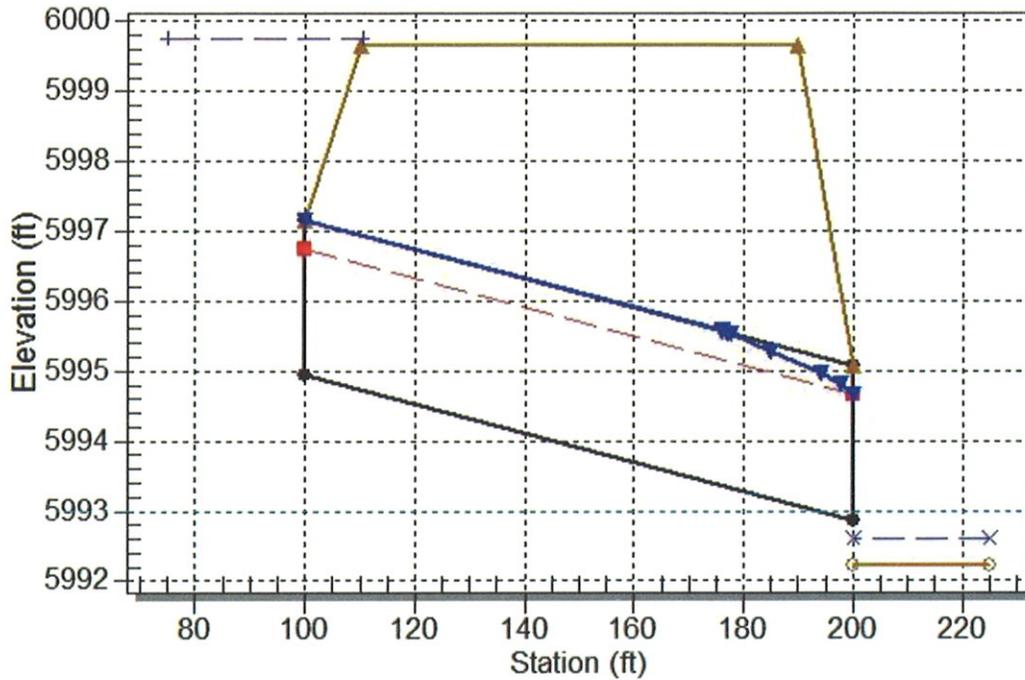
Culvert: Culvert 1



Water Surface Profile Plot for Culvert: Culvert 1

Crossing - 1102007 AT&T AT CHERRY CREEK, Design Discharge - 58.0 cfs

Culvert - Culvert 1, Culvert Discharge - 49.8 cfs



Site Data - Culvert 1

Site Data Option: Culvert Invert Data

Inlet Station: 100.00 ft

Inlet Elevation: 5994.95 ft

Outlet Station: 200.00 ft

Outlet Elevation: 5992.86 ft

Number of Barrels: 1

Culvert Data Summary - Culvert 1

Barrel Shape: Pipe Arch

Barrel Span: 43.30 in

Barrel Rise: 26.60 in

Barrel Material: Steel or Aluminum

Embedment: 0.00 in

Barrel Manning's n: 0.0250

Inlet Type: Conventional

Inlet Edge Condition: Projecting

Inlet Depression: NONE

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
20.00	5992.42	0.20	4.57	0.93	1.81
25.00	5992.45	0.23	4.99	1.07	1.84
30.00	5992.47	0.25	5.36	1.19	1.87
35.00	5992.50	0.28	5.70	1.31	1.90
40.00	5992.52	0.30	6.01	1.42	1.92
45.00	5992.55	0.33	6.29	1.52	1.94
50.00	5992.57	0.35	6.56	1.62	1.96
55.00	5992.59	0.37	6.81	1.72	1.98
58.00	5992.60	0.38	6.95	1.78	1.99
65.00	5992.63	0.41	7.27	1.90	2.01
70.00	5992.65	0.43	7.48	1.99	2.02

Table 3 - Downstream Channel Rating Curve (Crossing: 1102007 AT&T AT CHERRY CREEK)

Tailwater Channel Data - 1102007 AT&T AT CHERRY CREEK

Tailwater Channel Option: Rectangular Channel

Bottom Width: 22.00 ft

Channel Slope: 0.0750

Channel Manning's n: 0.0300

Channel Invert Elevation: 5992.22 ft

Roadway Data for Crossing: 1102007 AT&T AT CHERRY CREEK

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 5999.66 ft

Roadway Surface: Paved

Roadway Top Width: 80.00 ft

APPENDIX-B