ENVIRONMENTAL ASSESSMENT

F-96588

New Horizons Telecom, Incorporated for AT&T Alascom, Incorporated

Fiber Optic Cable Line from Yukon River to Coldfoot

Bureau of Land Management
Central Yukon Field Office
1150 University Avenue
Fairbanks, Alaska 99709

January 2014

FINAL

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LIST OF ACRONYMS

ADOT&PF	Alaska Department of Transportation and Public Facilities
ADNR	Alaska Department of Natural Resources
AKEPIC	Alaska Exotic Plants Information Clearinghouse
Alyeska	Alyeska Pipeline Service Company
ANILCA	Alaska National Interest Lands Conservation Act
AOR	Area of Review
APDES CGP	Alaska Pollution Discharge Elimination System Construction General Permit
AST	aboveground storage tank
AT&T	AT&T Alaska
BLM	Bureau of Land Management
DOT	U.S. Department of Transportation

EFH	Essential Fish Habitat
feet	feet/foot
GMU	Game Management Unit
HDPE	high density polyethylene
JDR	Jurisdictional Determination Report
MP	mile post
MSFCMA	Magnuson-Stevens Fish Conservation and Management Act
NHTI	New Horizons Telecom, Inc.
RMP	Resource Management Plan
ROW	right of way
SWPPP	Storm Water Pollution Prevention Plan
TAPS	Trans-Alaska Pipeline System
THRC	Territory Heritage Resources Consulting
TPECI	Travis/Peterson Environmental Consulting, Inc.
USFWS	United States Fish and Wildlife Service

1. INTRODUCTION

1.1 IDENTIFYING INFORMATION

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Facility: Trans-Alaska Pipeline Pump Station No. 6 to Coldfoot, Alaska

Property: Within the right of way (ROW) of the Dalton Highway.

Table 1 Legal Lands Description

Meridian	Township	Range	Section
Fairbanks	12N	10W	18
			7
			6
		11W	1
			2
	13N	11W	36
			35
			26
			27
			22
			21
			20
			17
			18

Meridian	Township	Range	Section
Fairbanks	13N	11W	7
		12W	12
			1
			2
	14N	12W	35
			34
			27
			28
			21
			20
			17
			8
			7
			6
	15N	12W	31
			30
			29
			19
			18
			7
			6
		13W	1
	16N	13W	36
			25
			24
			23
			14
			15
			10
			9
			4
	17N	13W	34
			33
			28
			21
			20
			17
			18
			7
			6
		14W	1
	18N	14W	36
			25
			26
			23
			14
			15

Meridian	Township	Range	Section
	18N	14W	10
			9
			4
			5
Fairbanks	19N	14W	32
			31
			30
			19
		15W	24
			13
			14
			11
			2
			3
	20N	15W	34
			33
			28
			21
			20
			17
			8
			9
			4
			3
			2
	21N	15W	36
			25
		14W	30
			19
			18
			7
			6
	22N	14W	31
			30
			19
			18
		15W	13
			12
		14W	7
			6
		15W	1
	23N	15W	36
		14W	31
			30
			19
			18
			17

Meridian	Township	Range	Section
Fairbanks	23N	14W	8
			9
			4
			3
	24N	14W	34
			27
			26
			23
			24
			13
		13W	18
			7
			8
			5
	25N	13W	33
			34
			27
			26
			23
			24
			13
		12W	18
			7
			6
		13W	1
	26N	13W	36
			25
			26
			23
			14
			11
			2
	27N	13W	35
			26
			23
			14
			11
			12
		12W	7
			6
	28N	12W	31
			30
			29
			28
			21
			16
			15

1.2 PURPOSE AND NEED FOR ACTION

AT&T Alaska (AT&T), through its registered agent, New Horizons Telecom, Inc (NHTI) has applied for a right of way (ROW) for a buried fiber optic cable line along the Dalton Highway from the Yukon River to Coldfoot, Alaska. This fiber optic cable is being installed to provide a new telecommunications "transmission line" between AT&T central offices or hub locations. Similar to an electrical transmission line, as opposed to a distribution line, this line would not be providing "drops" for service along the corridor, with the possible exception of making connections to the Trans-Alaska Pipeline System (TAPS) Pump Stations and/or State of Alaska Department of Transportation and Public Facilities (ADOT&PF) maintenance facilities along the route. The installation of this line may also serve the purpose of providing a backbone infrastructure system for future expansion of telecommunications along this corridor by local providers, if that need develops, and to provide connection to any future constructed cellular sites. No new local telecom service is planned by AT&T along this route at this time. This project would be installed within the existing ADOT&PF ROW when feasible. The fiber optic line would operate year round providing telecommunication with a minimum life expectancy of 25 years. AT&T would be responsible for any and all maintenance.

1.3 SCOPING, PUBLIC INVOLVEMENT, AND ISSUES

Public involvement is not required in association with this Environmental Assessment (EA) because no communities would be affected by the construction of this project. Inter-agency communication may be necessary for this project. Construction would be done within federally and state managed lands.

A Utility Permit issued by ADOT&PF is included in Appendix D and serves as a non-objection letter from ADOT&PF. A non-objection letter from Alyeska Pipeline Service Company (Alyeska) would be included in Appendix D once received.

2. PROPOSED ACTION AND ALTERNATIVES

The following sections discuss the preferred Proposed Action, the No-Action Alternative, and the alternatives that were eliminated.

2.1 DESCRIPTION OF PROPOSED ACTION

The proposed project would be to install fiber optic cable within the transportation and utility corridor along the Dalton Highway to provide improved telecommunications infrastructure availability to Pump Stations 6 and 5 of the TAPS as well as to provide the backbone infrastructure for expanded telecommunications within this corridor. The proposed project would involve excavation and replacement of soils to allow the burial of fiber optic cable. Support activities associated with this project are discussed in the following sections. Project plan sheets are included in Appendix A.

Construction activities are scheduled to begin October of 2013 and continue through December of 2014. Generally, project construction would be completed working north to south with work

in saturated wetlands to be conducted during frozen winter conditions. With the arrival of summer, the construction would begin anew at Coldfoot and work from north to south in the remaining locations.

2.1.1 Location and Land Status

The proposed project would be located within the designated BLM Utility Corridor which generally parallels the Dalton Highway from the Yukon River at MP 56 to near Slope Mountain at MP 300. The project would be located within the ROW of the Dalton Highway beginning near Pump Station No. 6 and ending in Coldfoot, Alaska. The project site is accessed from the Dalton Highway. Project coordinates for the beginning of project ([milepost [MP] 55) are 65° 52′ 45″ latitude and -149° 43′ 01″ longitude. Project Coordinates for the end of project (MP 175) are 67° 15′ 11″ latitude and -150° 10′ 47″ longitude. This land is either unencumbered Bureau of Land Management (BLM) lands or State selected lands, with some private lands at the community of Coldfoot. Portions of this project occur on land designated as "development nodes" in the Utility Corridor Plan. The exact location of the proposed project would be prescribed by the maps supplied by AT&T and NHTI and as approved and granted by BLM.

2.1.2 Construction Methods

Land Clearing

Fiber optic line installation would require a width of 14 feet of cleared ROW. The clearing activities would be done through the use of mechanized clearing equipment. First the larger vegetation and trees would be cleared using hydro-axes to a height of six inches to one foot above grade. This would be followed by a "Prime Tech", a drum type clearing device propelled on tracks, which then grinds the larger wood pieces into smaller chips and clears the vegetation to ground level. The existing root mass remains in place; no grubbing activities are performed because the trench method (described below) cuts through remaining roots to allow for cable placement.

Cable Installation

The cable placement would consist of two one and one-quarter inch diameter high density polyethylene (HDPE) conduits with a 48 strand fiber optic cable in one of the conduits placed 36 to 48 inches below grade (36 inch minimum). The installation of this line would be done by a combination of a "trenched" and a "plowed" method. This combination of installation methods would utilize a small chain trencher (ditch-witch style equipment) which first cuts an approximately six inch wide trench through the roots, soil and permafrost to facilitate the plowing of the conduit. Plowing involves the use of a D-4 (or similar) tracked dozer equipped with a plow blade in the rear and conduit spool reel carriers in front. This plow essentially "furrows" into the cut trench, inserting the conduit at the desired depth, without further disrupting the adjacent soils. All sidecast soils which have come to the surface during trenching activities are then placed back into the trench using a "mini-excavator" and the route is track walked. Final cleanup involves placing wood chips across the disrupted area as ground cover. Specific construction methodology for cable installation in waterways is discussed in Section 2.1.3.

Manholes/Handholes
Handholes and/or manholes would be required approximately every 5,000 feet, at bore locations and at right angles as defined on the construction drawings (Appendix A). These handholes would be installed by excavating a hole for placement using the "mini-excavators" and backfilling.

Regeneration Sites
The fiber optic line would require a fenced regeneration site to be located at mile post 111.25 off the Dalton Highway with associated structures and appurtenances. This site would be located a minimum of 200 feet from the centerline of the highway and the fiber optic cable line would be buried alongside the entrance access road to the site. The chain link fence would be six (6) feet high with three (3) strands of barb wire on the outriggers on top. The total footprint of the regeneration site would be 56 feet long by 95 feet wide and would be comprised of: one generator building 12 feet by 16 feet containing two (2) generators, a day tank, associated power and controls, and a fire suppression system; one 12 feet by 20 feet communications building containing four racks of -48v batteries for a 48 hour battery backup, communications equipment racks and a fire suppression system; and a 4,000 gallon above ground storage tank (AST) for diesel fuel to supply the generators. The above buildings would be painted "juniper green" and the fuel tank would be placed on a pad of pit-run gravel (approximately 500 cubic yards) to be imported from the nearest available materials site (site to be coordinated with BLM for use).

Equipment and Materials
The following outlines a typical listing of equipment and materials that would be necessary to complete the land clearing, cable installation, manhole/handhole installation, and construction of the regeneration site. The quantity and type of equipment may vary during the course of the project.

- 2 Hydro-Axe mechanized land clearing machines
- 2 "Prime Tech" drum type chipping/mulching machines
- 2 ditch witchs chain trenchere;
- 2 D-4 or similar cable plows;
- 2-4 "mini excavators";
- 2 D-4 or similar bulldozers;
- 1 or 2 directional drilling machines;
- Tractor (Semi) with low boy equipment trailer;
- Crew vehicles;
- ATVs;
- Handholes;
- Manholes;
- Cable spools; and
- Stockpiled materials

2.1.3 Construction in Waterways

For major stream crossings, cable installation would be done by directional boring as described below. The project proponent proposes to use subsurface boring to avoid impacting the stream

channel. This would require the digging of a bore pit on either side of the stream. To the extent practical, the bore pits would be constructed in upland areas and the directional boring installed cable conduit would span the stream and associated riparian wetlands. Native vegetation would not be disturbed for a minimum of 25 feet from each stream edge and the bore would typically be installed at 10 feet below the stream scour. Four-inch diameter HDPE pipe would be installed in most stream bores with one and one-quarter inch HPDE conduit placed inside the four inch bore pipe.

In the case of minor drainages with only seasonal flow or small amounts of flow (i.e., less than 5 cubic feet per second at base flow), the cable would be installed by direct burial during low water or frozen periods of the season. Most minor drainages crossed will be worked during frozen conditions. Small streams crossed during thawed conditions will be completed using the plow method and by crossing at right angles, with the disturbed plow line immediately track walked.

Water would be withdrawn from streams along this route for use in directional boring activities. Withdrawals would total less than 500 gallons per occurrence per location. As such, the State of Alaska Department of Natural Resources (ADNR) Water Resources Section had previously made the determination of "No water use authorization required" for the subcontractor for the 2012 construction year (see letter dated August 9, 2012 included in Appendix D). Prior to construction we would apply for a renewed letter of determination from the ADNR with regard to water use authorization for the portion of the project between the Yukon River and Coldfoot.

2.1.4 Camps

It would be necessary to establish temporary camps to house workers, equipment, and to stage materials for the installation of this project. The following is a brief outline of camp needs. The camp locations requested include established campgrounds at MP 60 Dalton Hwy (5 Mile Camp), at MP 115.5 Dalton Hwy (Arctic Circle Campground) at MP 180 Dalton Hwy (Marion Creek Campground); the use of these public campground sites would be limited to stays of no more than 14 days continuously by a crew of six or less members, typically inspectors or project engineers. No heavy equipment or materials storage would take place at these locations. Larger camps set up to house the heavy construction crews and to stage equipment and materials would be located at previous construction camp sites or within inactive materials sites. Coordination between BLM, ADOT&PF, and Alyeska would be required prior to the use of any material site to ensure they would not be active during their use as a campsite for this project.

The construction camps would consist of:

- Up to 20 personal camp trailers or RV's (6 to 10 typical);
- Two office trailers;
- A generator;
- Chemical toilets;
- Fuel trailer with up to 4,000 gallons of diesel fuel and 1,200 gallons of unleaded gasoline;
- A large tent, approximately 20 feet by 40 feet;
- A dumpster;
- Parking area for trucks and equipment;

- Storage for reels of HDPE conduit and spools of fiber optic cable; and
- Composite handholes/manholes.

Chemical toilets would be pumped and emptied by a commercial pumping service as needed and disposed of off-site. During winter months a commercial camp service may be contracted, and some of the RV's would be replaced with ATCO style camp units consisting of sleeping quarters, kitchen and dining facilities, living quarters, and restroom/shower facilities. Potable water would be hauled in, and grey water and waste water would be pumped and hauled away by contracted services.

2.1.5 Fuel Storage and Handling

Fuel would be stored at the temporary construction camp location(s) (see Section 2.1.4) in a DOT approved fuel trailer. This trailer would be capable of holding 4,000 gallons of diesel and 1,200 gallons of unleaded gasoline. The trailer would be parked inside of a secondary containment dike capable of containing at least 110% of the volume of the trailer. Fuel would be dispensed from this trailer into DOT approved transfer tanks mounted in the crew trucks. Fuel would then be distributed from the transfer tanks to fuel pieces of equipment as necessary. During fueling operations a spill containment device (duck pond) would be placed beneath the nozzle, and/or absorbent pads would be held to the nozzle if it is not possible to place a pond. No fuel transfers would take place below the high water mark of streams and rivers.

Duck ponds would also be deployed beneath vehicles during maintenance operations where the potential for spills exist. Each crew would have at least one truck equipped with a portable fuel spill kit. A larger fuel spill kit in an overpack drum would be kept at the camp location to be deployed as needed. A hazardous material control plan would be developed in association with the Storm Water Pollution Prevention Plan (SWPPP) for the project.

The regeneration site would require a 4,000 gallon AST for diesel to supply the generators. The regeneration site AST would be a secondary containment tank fitted with leak detection monitoring equipment.

A Spill Prevention, Control and Countermeasure Plan (40 CFR 112) will be prepared and maintained for the fuel storage for this project.

2.1.6 Storm Water Management

A SWPPP would be developed in accordance with the Alaska Pollutant Discharge Elimination System Construction General Permit (APDES CGP) for this project in order to minimize the discharge of storm water pollutants from construction activities to Waters of the United States. The following best management practices would be utilized during construction in order to stabilize soils:

- Clearing Limits: Project clearing limits would be clearly marked.
- Preserve Existing Vegetation: Natural vegetation would be preserved by minimizing clearing to provide buffer zones and stabilized areas which help control erosion, protect

water quality, and enhance aesthetic benefits. Grubbing would not be conducted except within the six inch disturbance where the fiber optic cable would be placed.

- Vegetation Buffer: A vegetation buffer strip consists of areas of undisturbed vegetation no less than 25 feet wide.
- Fiber Roll: Fiber rolls consist of straw, flax or other similar materials bound into a tight tubular roll and may be used protect slopes, slow sheet flow, and as a perimeter control to prevent sediment from traveling offsite.
- Straw Mat: Straw mat would be utilized as necessary to prevent erosion and to provide stability to any steeply sloped areas disturbed during installation while vegetation regrows.
- Brush Barrier: Brush barriers are perimeter sediment control structures using material such as small tree branches, root mats, stone or other non-erodible debris lefeet over from site clearing.

2.2 DESCRIPTION OF ALTERNATIVES

2.2.1 No-Action Alternative

The No-Action Alternative would result in no upgrades of the telecommunications infrastructure along the Dalton Highway.

2.2.2 Eliminated Alternatives

There are only two alternatives considered for this project which include the Proposed Action and No-Action alternatives. An alternative route does not exist to extend telecommunications north of the Yukon River without crossing Federal lands.

3. AFFECTED ENVIRONMENT

This section of the EA provides an outline of the resources that may be affected by the Proposed Action.

3.1 RESOURCES NOT AFFECTED

The following resources were considered and determined to not be affected by the Proposed Action. These resources are not discussed further in the EA.

Air Quality	No affect.
Areas of Critical Environmental Concern	No affect, none present within or immediately adjacent to the project area.
Farmland (Prime or Unique)	No affect, none present within or immediately adjacent to the project area.
Geology	No affect.
Lands with Wilderness Characteristics	No affect, none present within or immediately adjacent to the project area.
Lands/realty	No affect.

Law Enforcement	No affect.
Minerals	No affect.
National Monuments	No affect, none present within or immediately adjacent to the project area.
National Natural Landmarks	No affect, none present within or immediately adjacent to the project area.
Noise	No affect.
Operations/engineering	No affect.
Recreation	No affect.
Threatened and Endangered Species	No affect, none present within or immediately adjacent to the project area.
Wild Horses/Burros	No affect, none present within or immediately adjacent to the project area.
Wild & Scenic Rivers	No affect, none present within or immediately adjacent to the project area.

3.2 POTENTIALLY AFFECTED RESOURCES

The following sections describe the resources that may be potentially affected due to the Proposed Action.

3.2.1 Physical Resources

Physical resources which are potentially affected by the Proposed Action are described in the following sections.

3.2.1.1 Soils

The proposed project area extends north across the Ray Mountains. Soils of the Ray Mountains are largely dependent upon their distance from the Tanana and Yukon rivers. Near these rivers, loess is common and silt from the river floodplains are transported and deposited on coarse-textured subsoil (Péwé, 1975). Far from these rivers, on hill tops, residual soils from weathered bedrock are dominant. In the valley bottoms, soils are a combination of weathered bedrock, colluvium, and fluvial sand and gravel (Kreig, 1982).

3.2.1.2 Water Quality

A total of 15 named waterways would be crossed during cable installation including the Yukon River, Fort Hamlin Hills Creek, No Name Creek, Dall Creek, Kanuti River, Fish Creek, South Fork Bonanza Creek, North Fork Bonanza Creek, Prospect Creek, Jim River 1, Jim River 2, Douglas Creek, Jim River 3, South Fork Koyukuk River, and Rosie Creek. Two of these waterways, the Yukon River and the Koyukuk River, are Traditionally Navigable Waters. Additionally, many unnamed streams and waterways would be crossed or would be adjacent to the project area.

3.2.2 Biological Resources

Physical resources which are potentially affected by the Proposed Action are described in the following sections

3.2.2.1 Vegetation and Forestry

Regional vegetation has been described by Nowacki et al. (2001). Boreal forests dominate the landscape. In valley bottoms and north facing hillsides, ice rich permafrost is overlain by bogs typically vegetated with open sedge tussock communities, shrub/scrub, and black spruce forests. South facing slopes and ridge tops are dominated by forests of birch, aspen and white spruce.

3.2.2.2 Invasive Plants

A search of the Alaska Exotic Plants Information Clearinghouse (AKEPIC, 2012) created by the University of Alaska Anchorage, Alaska Natural Heritage Program identified 27 plant species of concern, or invasive species, for this project. Invasiveness rank is a 0 to 100 scale representing how much risk a plant poses to native ecosystems. The rank is determined based on ecological impacts, biological attributes, distribution, and response to control measures (AKEPIC, 2012). For the purposes of this EA, plants with an invasiveness rank of 60 or above are discussed below in further detail due to their moderate to extreme invasiveness. All information was obtained through the AKEPIC bio page for each plant.

White Sweetclover – *Melilotus alba*
White sweetclover has an invasiveness rank of 81. A single white sweetclover plant is able to produce 350,000 seeds which can remain viable in the soil for up to 81 years. Seeds may be spread long distances by the movement of water and by vehicle tires. Management is primarily done through multiple treatments of mechanical control methods such as pulling and cutting. Due to the longevity of seed viability, it is important to monitor sites that have been treated.

Bird Vetch – *Vicia cracca*
Bird vetch has an invasiveness rank of 73. Bird vetch plants reproduce sexually by seeds, which can remain viable for several years, and vegetatively. Management practices are not well-known; once species are established they are very difficult to eradicate.

Canada Thistle – *Cirsium arvense*
Canada thistle has an invasiveness rank of 76. A single Canada thistle plant is able to produce 40,000 seeds per year. Canada thistle reproduces via seeds and lateral roots which send up new shoots every year. A combination of management techniques, including mechanical, chemical, and cultural, is more effective than a single control method.

Yellow Sweetclover – *Melilotus officinalis*
Yellow sweetclover has an invasiveness rank of 69. A single yellow sweetclover can produce over 100,000 seeds, which can remain viable for many years in soil. Management for yellow sweetclover is best achieved by mechanical methods.

Yellow Toadflax – *Linaria vulgaris*
Yellow toadflax has an invasiveness rank of 69. Yellow toadflax reproduces sexually by seeds and vegetatively. A single plant can produce between 1,500 and 30,000 seeds although seed viability is generally low. Management can be accomplished by annual mechanical or chemical treatments to control seed reproduction and plant infestations.

Birdsfoot Trefoil – *Lotus corniculatus*
Birdsfoot trefoil has an invasiveness rank of 65. A single birdsfoot trefoil can produce 18,000 seeds, many of which have hard seed coats allowing them to be viable for 11 years. Birdsfoot trefoil roots can also reproduce vegetatively under certain conditions. Because birdsfoot trefoil can resprout from roots afeeter aboveground growth removal, hand pulling small populations may be a successful management technique.

Foxtail Barley – *Hordeum jubatum*
Foxtail barley has an invasiveness rank of 63. Foxtail barley reproduces by seeds. More than 180 seeds may be produced per plant most of which approximately 67% remain viable afeeter being buried for 1 year. Controlling water levels and planting desirable plants can be effective at managing foxtail barley populations though once established, it is difficult to eradicate.

Smooth Brome – *Bromus inermis* ssp. *Inermis*
Smooth brome has an invasiveness rank of 62. Smooth brome reproduces primarily vegetatively though a single plant may also produce up to 10,080 seeds which may remain viable for up to 10 years. Selective control is a good management practice; however, cultural, chemical, and mechanical control methods have shown varied success.

Oxeye Daisy – *Leucanthemum vulgare*
Oxeye daisy has an invasiveness rank of 61. Oxeye daisy spreads by seeds, which may remain viable for 20 years, and vegetatively. Management can be done by intensive cultivation and herbicide use.

Common Tansy – *Tanacetum vulgare*
Common tansy has an invasiveness rank of 60. Common tansy reproduces sexually by seeds and vegetatively. A single plant can produce over 50,000 seeds. Management practices include hand pulling or digging as well as mechanical methods like mowing.

3.2.2.3 Wildlife and Wildlife Habitat

This section describes the bird and terrestrial mammal species that are most likely to exist at some point (breeding, migration, feeding, nesting, etc.) within the proposed project area.

Mammals
The Pump Station No. 6 to Coldfoot project area extends through Game Management Units (GMUs) 20F and 24A. Common mammals that occur within the proposed project area include: American beaver, Arctic ground squirrel, American marten, American mink, black bear, brown bear, brown lemming, Canadian lynx, caribou, cinereus shrew, collared pika, common muskrat,

coyote, dall sheep, dusky shrew, ermine, least weasel, moose, North American river otter, North American porcupine, northern bog lemming, northern flying squirrel, northern red-backed vole, porcupine, pygmy shrew, red fox, red squirrel, root vole, snowshoe hare, tundra shrew, wolf, and wolverine (MacDonald and Cook, 2009).

Birds

A variety of bird species occupy this area either seasonally, for breeding purposes, or yearlong as resident birds. All work associated with this project would be conducted pursuant to the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, as well as guidance from the United States Fish and Wildlife Service (USFWS) relating to the protection of migratory birds. Table 2 has been adapted from the USFWS Land Clearing Timing Guidance.

Table 2 USFWS Land Clearing Timing Guidance

Habitat Type → / Region ↓	Forest or woodland[1] *(i.e., trees present)*	Shrub or Open *(i.e., shrub cover or marsh, pond, tundra, gravel, or other treeless/ shrubless ground habitat)*	Seabird colonies *(including cliff and burrow colonies)*	Raptor and raven cliffs
Interior *(north of Talkeetna to south slope Brooks Range; west to treeline)*	May 1 – July 15[2]		May 1 – July 20[5]	April 15 – August 1

1 Owl species may begin to nest two or more months earlier than other forest birds, and are fairly common breeders in forested areas of Alaska. You may wish to survey for nesting owls (or other early spring tree-cavity nesters) prior to tree-cutting. It is your responsibility to protect active nests from destruction.
2 Canada geese and swan habitat: begin April 20
5 Seabird colonies in Interior refer to terns and gulls

3.2.2.4 Fish and Essential Fish Habitat

According to the Magnuson-Stevens Fish Conservation and Management Act (MSFCMA) Essential Fish Habitat (EFH) are waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity. Under the MSFCMA, all five Pacific salmon stocks (pink, sockeye, chum, coho, and Chinook) found in Alaska are protected. EFH includes all stages of life in freshwater and marine environments, and are discussed further below.

According to the Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes – Interior Region, Effective July 1, 2013 anadromous fish streams crossed by the project include the Yukon River, Prospect Creek, Douglas Creek, Jim River 3, and South Fork Koyukuk River. All waters crossed by this project could be considered potential habitat for fish species. Table 3 below outlines the anadromous fish species associated with each of the aforementioned streams crossed by the proposed project.

Table 3 Anadromous Water Bodies and Fish Species

Water Body Name	Species
Yukon River	CHp, COp, Kp, Pp, Sp, SFp, Wp
Prospect Creek	Ksr
Douglas Creek	Kr
Jim River 3	CHs, Ks
South Fork Koyukuk River	CHp, CHs, Kp, Kr, Wp

CH – Chum Salmon; CO – Coho Salmon; K – Chinook Salmon;
P – Pink Salmon ;S – Sockeye Salmon; SF – Inconnu/Sheefish;
W – Whitefish, undifferentiated
p – present; s – spawning; r – rearing

Other local fish species which may be encountered in streams and drainages crossed or adjacent to the project include: arctic lamprey, arctic grayling, broad whitefish, burbot, humpback whitefish, lake chub, round whitefish, sheefish, and slimy sculpin (BLM, 1989).

3.2.2.5 Wetlands

Various types of wetlands exist within the proposed project area. TPECI completed a Jurisdictional Determination Report (JDR) for the United States Army Corps of Engineers during the 2012 season. For the purpose of the JDR, the Area of Review (AOR) for the project consists of the land surface within approximately 250 feet of the road surface. Anticipated wetland involvement within the AOR in acres by wetland type is:

- Emergent wetlands – 0.08 acres;
- Emergent flooded wetlands – 0.12 acres;
- Emergent shrub scrub wetlands – 1.34 acres;
- Flooded wetlands – 0.12 acres;
- Forested wetlands – 0.54 acres;
- Forested shrub scrub wetlands – 5.61 acres;
- Shrub scrub wetlands – 49.76 acres;
- Shrub scrub emergent wetlands – 36.67 acres; and
- Shrub scrub forested wetlands – 0.05 acres.

The total anticipated wetland involvement for the project is 94.29 acres.

For complete wetlands information specific to the proposed project area, see Attachment 4 of the EA cover letter, Corps of Engineers Wetland Permit Application (TPECI, 2013).

3.2.3 Heritage Resources and Human Environment

3.2.3.1 Cultural Resources

A survey of the project area was conducted by Territory Heritage Resources Consulting (THRC) in 2013. See Appendix B of the EA for specific cultural resource information pertaining to the proposed project area. A recommendation of a finding of no adverse effect to historic properties was provided by THRC in their interim cultural resources report dated 26 August 2013, pending review and approval of the agency.

3.2.3.2 Socioeconomics

This project is to be completed between Pump Station No. 6 and Coldfoot, Alaska. No communities exist within the project area to be considered under the socio-economic impacts of the construction of this project.

3.2.3.3 Subsistence

An Alaska National Interest Lands Conservation Act (ANILCA) 810 Analysis of Subsistence Impacts due to the Proposed Action was conducted and is included in Appendix E of this EA. According to the ANILCA 810 Analysis, no adverse impacts to subsistence are anticipated as a result of the Proposed Action.

3.2.4 Visual Resource Management

The proposed project occurs adjacent to the Dalton Highway, which is designated as an Alaskan State Scenic Byway. Approximately 20,000 to 25,000 visitors travel to the Dalton Highway to the North Slope, with many being a part of a package tour (State of Alaska, 2007).

4. ENVIRONMENTAL EFFECTS

This section of the EA provides an outline of the environmental effects of the Proposed Action and alternatives.

4.1 NO-ACTION ALTERNATIVE DIRECT, INDIRECT, CUMULATIVE, AND RESIDUAL EFFECTS

The No-Action Alternative would result in no upgrades of the telecommunications infrastructure along the Dalton Highway. The No-Action Alternative would have no direct, indirect, cumulative, or residual effects on the environment. Only the effects of the Proposed Action are discussed in the following sections.

4.2 PROPOSED ACTION DIRECT, INDIRECT, CUMULATIVE, AND RESIDUAL EFFECTS AND MITIGATION

This section of the EA provides an outline of the resources which have direct, indirect, cumulative, or residual environmental effects caused by the Proposed Action. Mitigation for those resources which have any identified direct, indirect, cumulative, or residual environmental effects are also described in this section.

4.2.1 Physical Resources

This section of the EA provides an outline of the physical resources which have direct, indirect, cumulative, or residual environmental effects caused by the Proposed Action. Mitigation for those physical resources which have any identified direct, indirect, cumulative, or residual environmental effects are also described in this section.

4.2.1.1 Soils

Direct and Indirect Effects
Impacts to soils include the disturbance of the soil profile during construction. Impacts of backfilling include mixing of soils and a short term reduction of adjacent plants ability to acquire required nutrients from the disturbed soils. Significant long-term direct or indirect effects to soils are not anticipated as a result of the Proposed Action.

Cumulative Effects
The proposed project area is within the transportation and utility corridor along the Dalton Highway and near the TAPS system all of which have caused previous disturbance to surrounding soils. Additional disturbance of soils due to the Proposed Action is not anticipated to be significant.

Residual Effects
Residual Effects to soils are not anticipated as a result of the Proposed Action.

Mitigation
Best management practices for storm water management (described in Section 2.1.6) which include practices to contain loose soil during trenching, handhole digging, and installation to avoid soil loss, are expected to minimize adverse, direct, or indirect impacts to soils.

4.2.1.2 Water Quality

Direct and Indirect Effects
The construction in waterways techniques (described in Section 2.1.3) to be employed for this project were designed to prevent impacts to water quality. In water work, to the degree possible, is to occur during frozen winter condition. However, if encountered during open water periods, waterways may experience slight water quality discharges as a result of storm water discharges. If storm water discharges occur, water quality impacts are expected to be temporary and only occur during in water construction. Significant long-term direct or indirect water quality effects are not anticipated.

Cumulative Effects
The proposed project area is within the transportation and utility corridor along the Dalton Highway and near the TAPS system all of which have caused previous disturbance soils surrounding waterways. Additional disturbance of soils due to the Proposed Action is not anticipated to be significant.

Residual Effects
Residual Effects to water quality are not anticipated as a result of the Proposed Action.

Mitigation
Best management practices for storm water management (described in Section 2.1.6) which include practices to retain vegetation, contain loose soil during trenching, handhole digging, and

installation to avoid soil loss, are expected to minimize adverse, direct, or indirect impacts to water quality.

4.2.2 Biological Resources

This section of the EA provides an outline of the biological resources which have direct, indirect, cumulative, or residual environmental effects caused by the Proposed Action. Mitigation for those biological resources which have any identified direct, indirect, cumulative, or residual environmental effects are also described in this section.

4.2.2.1 Vegetation and Forestry

Direct and Indirect Effects
Impacts to vegetation include the disturbance of surface vegetation and root systems during construction. Impacts of backfilling include a short term reduction of adjacent plants ability to acquire required nutrients from freshly disturbed soils. Introduction and propagation of invasive plant species (described in Section 4.2.2.2 below) is of significant concern to native vegetation at during and after construction has ceased. Impacts to forestry include clearing of native trees. Felled trees can lead to potential forest health issues such as creating new spruce bark beetle habitat.

Cumulative Effects
The proposed project area is within the transportation and utility corridor along the Dalton Highway and near the TAPS system all of which have caused previous disturbance to surrounding vegetation and native trees and potentially introduced invasive plants. Additional disturbance of vegetation and cleared trees due to the Proposed Action is not anticipated to be significant.

Residual Effects
Residual effects caused by the Proposed Action are limited to potential loss of vegetation cover and trees and those relating to invasive plants which are described in Section 4.2.2.2 below.

Mitigation
Introduction of invasive plants in vegetated area disturbed by construction may be avoided as described under mitigation in Section 4.2.2.2 below. Forest health issues will be avoided by not leaving green boles of trees along the cleared corridor. Felled trees of six inches diameter at breast height or greater will be bucked to a maximum 6 feet length and scored along their length or chipped into mulch to be used as erosion control products along the corridor. If trees are bucked into lengths and left along the corridor, the location of same will be spread amongst local area residents who may remove the wood for subsistence uses.

4.2.2.2 Invasive Plants

Direct Effects
The proposed project is within the transportation and utility corridor of the Dalton highway. These areas act as passageways for plant seeds and other plant reproductive parts to travel.

Propagation of these migrated invasive species is much easier in disturbed areas which would be caused by construction. The combination of open pathways and disturbed soils greatly increases the chance of invasive plant infestation.

Indirect Effects
Disturbances due to soil disruption, walking, vehicle use, and other construction related activities may allow invasive species to establish populations in previously un-infested areas. Additionally, natural pathways, such as animals and/or wind may also introduce invasive species to areas disturbed by construction. Established populations in disturbed areas can then serve as seed banks for future infestations.

Cumulative Effects
Ground disturbances caused by construction would increase the opportunity for invasive species to establish at disturbed sites potentially providing seed banks for future infestations. Over time, the establishment of invasive species can impair the native plants of the area.

Residual Effects
Residual effects caused by the Proposed Action include potential loss of native vegetation ground cover and the propagation of invasive plant species within and outside of the proposed project area.

Mitigation
Introduction of invasive plants in areas disturbed by construction may be avoided by implementing the following management practices:

- Construction equipment would be inspected and pressure washed/cleaned prior to commencing work on Federally owned lands;
- The project would be worked on a segment by segment basis in a north to south direction to help alleviate spread of invasive plants, as terrain allows;
- The total area disturbed at one time would be minimized;
- Areas disturbed by construction would be stabilized as soon as they are completed; and

4.2.2.3 Wildlife and Wildlife Habitat

Direct and Indirect Effects
The Proposed Action would temporarily disturb and/or displace resident birds, wildlife, and wildlife habitat located within the proposed project area. The disturbance area caused by the Proposed Action in any one location at a time is minimal and is not expected to have appreciable effects on birds, wildlife, and wildlife habitat. The proposed clearing necessary to carry out the Proposed Action may also result in a minimal loss of wildlife habitat within and near the proposed project area especially if trees are cleared. Significant impairment of birds, wildlife, and wildlife habitat due to the Proposed Action is not anticipated.

Cumulative
The proposed project area is within the transportation and utility corridor along the Dalton Highway and near the TAPS system all of which have previously caused removal and disturbance of birds, wildlife, and wildlife habitat within the proposed project area. Additional

disruption to birds, wildlife, and wildlife habitat in the area due to the Proposed Action is anticipated to be temporary and not significant.

Residual Effects
A minimal loss of wildlife habitat my result in a slight reduction of the number of wildlife and bird species located in and/or near the area of the Proposed Action.

Mitigation
Construction will be conducted in accordance with the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, as well as guidance from the United States Fish and Wildlife Service (USFWS). Measures, such as employee training, monitoring, and managing foods, will be taken to avoid human-wildlife interaction.

4.2.2.4 Fish and Essential Fish Habitat

Direct and Indirect Effects
The construction in waterways techniques (described in Section 2.1.3) to be employed for this project were designed to prevent impacts to fish and essential fish habitat. More specifically, impacts to EFH are not anticipated given the implementation of directional boring and because vegetative buffers will be maintained adjacent to all salmon bearing streams. In water work, to the degree possible, is to occur during frozen winter conditions. However, if encountered during open water periods, local fish species may experience short term impacts due to construction. Impacts are expected to be temporary and only occur during in water open water construction. Significant long-term direct or indirect fish and fish habitat effects are not anticipated.

Cumulative Effects
The proposed project area is within the transportation and utility corridor along the Dalton Highway and near the TAPS system all of which have caused previous disturbance of soils surrounding waterways. Additional disturbance of soils due to the Proposed Action is not anticipated to be significant.

Residual Effects
Residual Effects to fish and fish habitat are not anticipated as a result of the Proposed Action.

Mitigation
No mitigation to potential effects to fish and essential fish habitat are anticipated.

4.2.2.5 Wetlands

Direct and Indirect Effects
TPECI (2012) completed a JDR for the United States Corps of Engineers during the 2012 season. Based on the information gathered in that report, 94.29 acres of various types of wetlands would be directly affected through construction of the Proposed Action.

The anticipated temporary surface disturbance for cable installation is 14 feet of vegetation clearing with a 10 feet work zone. The fiber optic cable would be installed 3 feet below grade.

The installation of the cable would require the setting of handholes every 5,000 feet along the project. To the extent practical, the setting of handholes in wetland areas would be avoided. The total number of handholes required in wetlands is 41. The total estimated permanent disturbance of wetlands attributable to handholes is 2,296 square feet (0.053 acre). The total number of manholes (splice vaults) required in wetlands is 23. The total estimated permanent disturbance of wetlands attributable to manholes is 1,752 square feet (0.04 acres). A total of 3,085 square feet of fill material would be added for handhole and manhole installation in wetlands.

Cumulative Effects

The proposed project area is within the transportation and utility corridor along the Dalton Highway and near the TAPS system all of which have previously caused disturbance to wetlands in the area. Additionally impacts to wetlands due to the Proposed Action are not anticipated to be significant.

Residual Effects

Residual effects to wetlands include temporary disruption of wetland characteristics which would be minimized as described above. Additional residual effects to wetlands include the introduction and propagation of invasive species to disturbed wetland areas during mitigation of wetlands after construction.

Mitigation

The following installation methods would be utilized in order to reduce effects to wetland areas.

Uplands and Forested Wetlands

In upland areas and forested wetlands, the proposed installation method consists of:

1. Clearing of vegetation as required to allow equipment access;
2. Excavation, cable placement, and burial using a cable plow or chain trencher; and
3. Backfilling, track walking, and wood chip placement.

Forested Shrub Scrub and Shrub Scrub Wetlands

In forested shrub scrub wetlands and shrub scrub wetlands, the proposed installation method consists of:

1. Clearing of vegetation as required to allow equipment access;
2. Excavation, cable placement, and burial by using a chain trencher; and
3. Backfilling, track walking, and wood chip placement.

To further minimize wetland disturbance, work in saturated forested shrub scrub and shrub scrub wetlands is proposed to be completed while the underlying soils are frozen.

Emergent Wetlands

In emergent wetlands, including both forested and shrub scrub, the proposed installation method consists of:

1. Clearing of vegetation as required to allow equipment access;
2. Excavation, cable placement, and burial by using a chain trencher; and

3. Backfilling, track walking, and wood chip placement.

To further minimize wetland disturbance, work in saturated emergent wetlands is proposed to be completed while the underlying soils are frozen.

4.2.3 Heritage Resources and Human Environment

This section of the EA provides an outline of the heritage resources and human environments which have direct, indirect, cumulative, or residual environmental effects caused by the Proposed Action. Mitigation for those heritage resources and human environments which have any identified direct, indirect, cumulative, or residual environmental effects are also described in this section.

4.2.3.1 Cultural Resources

Direct, Indirect, Cumulative, and Residual Effects
A survey of the proposed project area was conducted by THRC in 2013. See Appendix B of the EA for specific impact information pertaining to the proposed project area. A recommendation of a finding of no adverse effect to historic properties was provided by THRC in their interim cultural resources report dated 26 August 2013, pending review and approval of the agency.

4.2.3.2 Hazardous Materials

Direct, Indirect, Cumulative and Residual Effects
Fuels would be stored as outlined in Section 2.1.6 above. No direct, indirect, cumulative, or residual effects due to fuel storage are anticipated as part of the Proposed Action.

4.2.3.3 Socioeconomics

Direct, Indirect, Cumulative and Residual Effects
This project is to be completed between Pump Station No. 6 and Coldfoot, Alaska. No communities exist within the project area, therefore no direct, indirect, cumulative or residual effects to socioeconomics are anticipated due to the Proposed Action.

4.2.3.4 Subsistence

Direct, Indirect, Cumulative and Residual Effects
An ANILCA 810 Analysis of Subsistence Impacts due to the Proposed Action was conducted and is included in Appendix E of this EA. According to the ANILCA 810 Analysis, the Proposed Action is not anticipated to have any subsistence direct, indirect, cumulative, or residual effects.

4.2.4 Visual Resource Management

Direct, Indirect, and Residual Effects
During the cable installation process and the construction of the regeneration site, visual resources may be limited to those traveling the Dalton Highway. During cable installation, heavy equipment and project flagging would be visible. However, impairments to visual resources due to the cable installation would be temporary. As the regeneration site is to be located in close proximity to the existing TAPS pipeline no permanent direct, indirect or residual effects of due to the construction of the regeneration site are anticipated.

Cumulative Effect
Significant additional impacts to the surrounding area due to the construction of the regeneration site in the vicinity of MP 110 of the Dalton Highway are not anticipated as part of the Proposed Action.

4.2.5 Camps

Direct and Indirect Effects
Direct and indirect effects due to camp needs (described in Section 2.1.4 above) include general wear and tear of topography at camp locations due to the increased volume of human and vehicular traffic. Additionally, due to increased human traffic, there is a potential for increased refuse generation and litter at camp sites. Long term direct and indirect effects due to camps are not anticipated.

Cumulative Effects
The proposed camp locations are established campgrounds and material sites along the Dalton Highway. These established camps and material sites have all caused previous wear and tear of local topography due to their general use. Additional wear and tear to existing camp and material sites is anticipated to be temporary and minor as a part of the Proposed Action.

Residual Effects
As the camp sites are established campgrounds and material sites and would be used as intended, residual effects due to the proposed project are not anticipated.

Mitigation
Camps will be maintained in a sanitary manner and in compliance with stipulations issued. Solid waste will be collected in enclosures and will be hauled away for proper disposal via contracted solid waste services. Chemical toilets, and gray water and black water stored in holding tanks of individual RV's will be removed via pumping services provided by contract services. All equipment, materials and camp sites will be removed and the site restored to as near as possible to its original condition when decommissioning these sites.

4.2.6 Regeneration Site

Direct and Indirect Effects

The regeneration site is described in Section 2.1.2 above. During construction of the regeneration site, impacts include disturbance of the soil profile and the existing vegetation root system. Impacts of backfilling include a short term reduction of adjacent plants ability to acquire required nutrients from freshly disturbed soils. Introduction and propagation of invasive plant species is of significant concern to native vegetation at during and after construction has ceased. Additionally, visual resources in the vicinity of the regeneration site may also be impact during the regeneration site construction.

Cumulative Effect

The regeneration site is to be located in the vicinity of MP 111.25 of the Dalton Highway. Significant additional impacts to soils, and vegetation in the surrounding area due to the construction of the regeneration site near MP 111.25 are not anticipated as part of the Proposed Action. Some impacts to visual resources will occur due to the construction of the facility, but should be minimal.

Residual Effects

Residual effects caused by the Proposed Action are limited to potential loss of vegetation cover and those relating to invasive plants which are described in Section 4.2.2.2 above and a slight increase in noise. Once the regeneration site is completed and operational, the required diesel powered generator would run at an approximate noise level of ~65 db. The regeneration site will not be located adjacent to any public use sites. Residual effects to soils and visual resources are not anticipated as a result of the Proposed Action.

Mitigation

To minimize the impact to visual resources in the vicinity of the regeneration site, the two buildings required for the site will be painted a color to blend in with the local landscape, as approved by the authorized officer. The site location has been selected to allow existing trees to remain between the highway and the building locations to act as a visual buffer, screening the site from view from most angles. The location proposed here has been modified from previously submitted information so that the site is not located at the apex of a hill to minimize visual impact.

5. TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED

Review of this Environmental Assessment includes the following agencies.

Department of the Interior, Bureau of Land Management.

All provisions of the summer and winter stipulations for Authorized Actions from the BLM would be followed by NHTI. A partial but not inclusive Utility Corridor Resource Management Plan (RMP) is included in Appendix C.

The individuals instrumental in the preparation of this Environmental Assessment are listed below in Table 4.

Table 4 List of Preparers

Name	Affiliation	Professional Discipline/Experience
PROJECT COORDINATION AND SUPERVISION		
Edmond C. Packee, Jr.	TPECI Project management, Document review	CPSSc. No. 28100 CPESC. No. 2337 CPSWQ, No. 0318 CESSWI, No. 0221
ORGANIZATION AND TEXT		
Jessica Knowles, EIT	TPECI Document Preparation	Environmental Consulting 1 year experience

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