3.20 CULTURAL RESOURCES

SYNOPSIS

Effects on cultural resources are defined as impacts to all buildings, sites, structures, objects, and districts, that are considered to have historical or cultural value, including those sites recommended eligible for the National Register of Historic Places (NRHP) such as archaeological resources. Field surveys conducted between 2006 and 2016 have revealed three segments of the Iditarod National Historic Trail (INHT) and 72 archaeological sites and architectural resources. The three segments of the INHT and 49 of the archaeological sites and architectural resources are located within the area of potential effects (APE) identified for the Donlin Gold Project. Complete survey of the APE, however, has not yet been conducted. Consequently, additional resources may be identified during additional surveys prior to ground disturbing activity. The effects analysis completed for the EIS is based on formal determinations of eligibility (Bittner 2016; Darden 2016; Gordon and Newman 2016) that have been submitted from the Corps to the Alaska State Historic Preservation Office (SHPO) as of October 2016.

EXISTING CONDITION SUMMARY

The INHT, inclusive of the three trail segments identified during the field investigations, is considered eligible for listing on the NRHP, and 15 archaeological sites and architectural resources within the APE for the Donlin Gold Project have been determined eligible for inclusion in the NRHP. Four sites in the APE remain unevaluated; these sites will be treated as eligible for the purposes of analysis. Three sites were determined to not be of human origin, and the remaining 27 sites were determined not eligible due to lack of association with persons or events important in history and the inability to contribute information important to history or prehistory beyond that captured during initial documentation and testing.

In addition to the three eligible INHT trail segments (TAL-00055, TYO-00085, and MCG-00125), there are 15 NRHP-eligible sites that include two historic cabin or roadhouse sites (IDT-00260 and TY0-00215); one historic camp (TYO-0363); two prehistoric surface lithic scatters (IDT-00-275 and IDT-00288); eight prehistoric lithic scatters with both surface and subsurface components (MCG-00071, MCG-00072, MCG-00075, MCG-00076, TAL-00164, TAL-00166, TY0-00278, and TY0-00279); one prehistoric site with surface and subsurface components and archaeological features (SLT-00094); and one prehistoric depression site (TY0-00277). The four unevaluated sites to be treated as eligible include one surface lithic scatter (IDT-00292), and three historic cabin, lodge, or camp sites (IDT-00261, TAL-00044, and TAL-00129).

The Corps, as the lead federal agency for NEPA and the National Historic Preservation Act (NHPA) compliance, is in the process of developing a Programmatic Agreement (PA) that would describe how the Section 106 process will be completed for the project. This includes identification and evaluation of cultural resources, minimization and mitigation of impacts, monitoring of construction, and procedures for responding to inadvertent discovery of cultural resources. The PA will be written and executed by agencies such as the Corps, SHPO, and BLM, and the applicant, Donlin Gold, in consultation with local governments, Alaska Native tribes, and other consulting parties.

The PA would address management of these cultural resources as well as any others discovered during project implementation if the Donlin Gold Project is permitted.

EXPECTED EFFECTS SUMMARY (WITHIN APE)

If the Donlin Gold Project moves forward, activities affecting historic properties (i.e., cultural resources determined eligible for nomination to the NRHP) would be governed by the PA. Those impacts that could not be avoided would create a permanent loss of integrity with resources eligible for the NRHP. However, data recovery and other mitigation could be implemented through the PA to adequately resolve adverse effects.

The effects analysis for the Donlin Gold Project follows an analytical framework consistent with the National Historic Preservation Act (NHPA) and NEPA. This framework is explained in Section 3.20.1. The NHPA analysis identifies those properties whose historical integrity would be diminished and thus adversely affected by the project. The NEPA analysis builds upon the NHPA findings by providing a more specific and comprehensive description of how effects are manifested in historic properties by looking at effect context, intensity, duration, and extent. The following text summarizes the historic properties located within the APE of each project component and the respective project effects.

Mine Site: Development of the Mine Site would have an adverse effect to one NRHP-eligible archaeological site, the Lewis Gulch Cabin (IDT-00260). The unevaluated Grouse Creek cabin (IDT-00261) site and a prehistoric lithic scatter (IDT-00292) are located well outside of proposed disturbance areas and would not be affected.

Transportation Corridor: Development of the transportation corridor would have an adverse effect on one archaeological resource, consisting of a prehistoric occupation site (SLT-00094).

Pipeline: Development of the pipeline would have an adverse effect on three segments of the INHT (TAL-00055, TYO-00085, and MCG-00125) and seven archaeological sites. The archaeological sites include one historic cabin (TY0-00215), four prehistoric lithic scatters (IDT-00288, MCG-00071, TAL-00166, and TYO-00278), one prehistoric animal bone scatter (TYO-00279), and one prehistoric depression site (TY0-00277).

Alternative 2, therefore, would have adverse effects to 12 of these resources. If the Donlin Gold Project is permitted, final engineering design would consider the presence of identified cultural resources and avoid impacts to cultural resources where required, and minimize known impacts to potential resources. The Pipeline component would also indirectly impact the INHT, during both the Construction and Operations phases, as well as through impacts to the integrity of the trail's setting.

EXPECTED EFFECTS SUMMARY (BY ALTERNATIVE)

Alternative 1 – No Action

This alternative would not affect cultural resources in the EIS Analysis Area. No new changes are expected beyond those that have already resulted from the exploration and baseline studies work.

Alternative 2 – Donlin Gold's Proposed Action

Mine Site: One NRHP eligible cultural resource at the Mine Site, the historic Lewis Gulch Cabin (IDT-00260), would be affected.

Transportation Corridor: One NRHP-eligible cultural resource within the port facilities (prehistoric occupation site SLT-00094 would be affected.

Pipeline: Unavoidable impacts to three segments of the INHT and seven archaeological sites along the length of the pipeline corridor are expected to result in adverse effects. Under Alternative 2, the buried natural gas pipeline would be collocated with the INHT for 4.0 miles and adjacent (within 1,000 feet) for approximately 10.5 miles. Under Alternative 2-North Option, the right-of-way (ROW) would cross the INHT five times, and would be collocated with the INHT for 0.2 miles and in proximity (within 1,000 feet) for approximately 5.3 miles. Adverse effects to the INHT would occur under Alternative 2, but these adverse effects would be lessened if the North Option is selected.

OTHER ALTERNATIVES – This section discusses differences of note between Alternative 2 and the following alternatives, but does not include a comprehensive discussion of each alternative's impacts if they are the same as or similar to Alternative 2 impacts.

Alternative 4 – Birch Tree Crossing (BTC) Port

Alternative 4 would include approximately 2.5 times as much access road construction, and an alternative port site. Three archaeological sites (RUS-00111, RUS-00112, and RUS-00114) have been identified in a cultural resources inventory of the BTC Port site and access road. Effects to these resources have not been identified, but could be adverse if project plans cannot avoid or minimize effects.

Alternative 6A – Dalzell Gorge Route

Alternative 6A would increase the extent of 1,000-foot proximity to the INHT from 10.5 miles to 29.4 miles and increase collocation from 4.0 to 14.5 miles. It would also increase the number of project crossings of the INHT by 23 and adversely affect three identified segments of the INHT (MCG-00125, TAL-00055, and TYO-00085). This alternative would adversely affect five archaeological sites. These sites include: IDT-00288, TAL-00166, TYO-0277, TYO-00278, and TYO-00279. The Cumberland Trapline Cabin (TYO-00215) would also be adversely affected. This alternative would therefore increase the effects upon the INHT but have slightly fewer adverse effects on NRHP-eligible archaeological sites and architectural resources.

3.20.1 REGULATORY ENVIRONMENT

For the purposes of this EIS, a cultural resource is defined as all buildings, sites, structures, objects, districts, and landscapes that are considered to have historical or cultural value. A wide range of cultural resource types can include, but are not limited to:

- Historic properties are defined as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the secretary of the interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria” (36 CFR 800.16), and as used in Section 106 of the National Historic Preservation Act (NHPA). It is important to note that under the National Environmental Policy Act (NEPA), impacts to all types of cultural resources are

considered even if they are not NRHP eligible (i.e., designated as "historic properties" per the NHPA).

- Native American (in this case, Native Alaskan) cultural items such as human remains, funerary items, sacred objects, and objects of cultural patrimony.
- Archaeological resources, which include precontact (i.e., dating to the period in North America predating the arrival of Euroamericans) and historic archaeological sites that may or may not be historic properties.
- Cultural uses of the natural environment, such as ceremonial or other religious use of places, plants, animals, and minerals. These types of resources can include Indian (in this case, Native Alaskan) sacred sites that may or may not be considered as Traditional Cultural Properties (TCPs), cultural landscapes, ethnographic landscapes, rural historic landscapes including trails and transportation routes, and historic mining landscapes, for example.

Three regulations are particularly relevant to evaluating project impacts on cultural resources: NEPA, Section 106 of the NHPA, and the National Trails System Act (NTSA). NEPA requires that project impacts to cultural resources, considered a subset of the "human environment," (40 CFR 1508.4) be evaluated and disclosed. Cultural resources considered under NEPA include but are not limited to historic properties (as more narrowly defined in the NHPA, discussed below).

Permitting, Construction, Operations, and Closure of the Donlin Gold Project will require compliance with Section 106 of the NHPA (16 USC Section 470), its implementing regulations (36 CFR 800), and the Corps' NHPA Section 106 procedures (33 CFR 325, Appendix C). These regulations require federal agencies to consider the effects of their actions on historic properties. The regulations require federal agencies to identify historic properties within the APE, determine if an undertaking will constitute an adverse effect to identified historic properties, and seek to resolve any adverse effects. Cultural resources are evaluated for inclusion in the National Register based upon established criteria listed in 36 CFR 60. Cultural resources can be determined eligible for inclusion in the National Register if they possess integrity, the capacity to convey their significant historic associations, and meet one of four criteria listed in Title 36, CFR 60:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:
>
> (a) are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) are associated with the lives or persons significant in our past; or
>
> (c) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) have yielded, or may be likely to yield, information important in prehistory and history.

If significant (i.e., National Register-eligible) resources are identified, then federal agencies are directed to take prudent and feasible measures to avoid or reduce adverse impacts. It should be noted that the terms "impacts" and "effects," for the purposes of the Cultural Resources section, are used interchangeably.

Prehistoric archaeological sites are most often found eligible under Criterion (d), while archaeological sites containing historical deposits as well as some prehistoric sites are also often considered under criteria (a) through (c) when applicable. Likewise, historic buildings and structures (as opposed to archaeological sites) are assessed under a variety of NRHP criteria. While nearly all sites have the potential to yield some information useful in addressing a limited number of research questions, this limited potential is not always considered sufficient to qualify a site for inclusion on the NRHP under Criterion (d). Federal guidelines encourage the use of a set of research questions that are generally recognized as important research goals as a means of evaluating significance. If a site contains information that is demonstrably useful in answering such questions, it can be considered an important site. NRHP evaluation guidelines state that a site must retain integrity to be considered eligible under one or more of the criteria.

The NRHP describes historic resources as standing or collapsed buildings, unique engineering designs, mines, ranches, and railroad grades that are at least 50 years old, or have achieved significance within the past 50 years. Archaeological resources are prehistoric or historic remains of human lifeways or activities that are at least 50 years old, and include artifact concentrations or scatters, whole or fragmentary tools, rock carvings or paintings, and buildings or structures. Resources that incorporate geographic areas, including both cultural and natural features, and that are associated with historic events or other cultural values include Traditional Cultural Properties, cultural landscapes, ethnographic landscapes, rural historic landscapes, and historic mining landscapes.

The NTSA (16 USC Section 1241) addresses management of national recreation, scenic, and historic trails including the INHT, and connecting or side trails providing access to the INHT. The NTSA directs the Secretary of the Interior or the Secretary of Agriculture to administer and manage designated National Trails. Section 7(c) of the NTSA requires the assessment of potential effects of proposed actions on designated National Trails. Administering agencies may permit uses on the trail provided they do not "substantially interfere with the nature and purpose of the trail." While BLM is the federal administrator for the INHT, the INHT traverses federal, state, and private lands. To comply with the NTSA, the BLM finalized a Comprehensive Management Plan (CMP) for the INHT in 1986. The primary goal of the CMP was to "establish a common guide which will be used to promote the preservation, enjoyment, use, and appreciation of the historic route of the Iditarod Trail" (BLM 1986a). Among other management objectives, the CMP provides guidance to land managers and owners to identify INHT segments for active management to protect and interpret their historic values, guide public use such that it does not impact historic values, and identify certain trail segments for further evaluation and nomination to the NRHP (BLM 1986a).

Federally managed segments of the INHT would not be affected under any alternative evaluated in this EIS, with the possible exception of a one-mile segment of trail near the Rohn River Roadhouse (MCG-00007) and Rohn River Checkpoint Cabin (MCG-00019) under Alternative 6A. MCG-00007 was destroyed, however, and thus adverse effects to the site would not be anticipated. The affected segments of the INHT are on state land. See Section 3.15, Land

Ownership, Management and Use, for more information on the regulatory setting and management of the INHT.

Numerous other laws, regulations, and Executive Orders protect cultural resources. The American Indian Religious Freedom Act of 1978 (42 USC Section 1996) requires that federal agencies consider the effects of their actions on cultural resources that are of religious significance to Native Americans and Alaska Natives. Native American and Alaska Native graves, burial grounds, and associated funerary objects on federally managed lands are protected by the Native American Graves Protection and Repatriation Act (25 USC Sections 3001-3013) (NAGPRA).

Alaska state laws are also applicable to the discovery of human remains in Alaska. The State Medical Examiner has jurisdiction over all human remains in the state, regardless of age. Specifically, AS 11.46.482(a)(3), which applies to all lands in Alaska, makes the "intentional and unauthorized destruction or removal of any human remains or the intentional disturbance of a grave" a class C felony; AS 41.35.200, which applies only to State lands, makes the disturbance of "historic, prehistoric and archaeological resources" (including graves, per definition) a class A misdemeanor; and AS 18.50.250, which applies to all lands in Alaska, requires permits for the transport, disinterment, and reinternment of human remains.

Executive Order 13007 – Indian Sacred Sites directs federal agencies to allow Native Americans to worship at sacred sites located on federal property and to avoid adversely affecting such sites to the extent practicable. The Antiquities Act of 1906 (16 USC Section 431) establishes penalties for damage and destruction of antiquities and allows for designation of historic landmarks on federal lands. The Archaeological Resources Protection Act of 1979 (16 USC Section 470) establishes a permit process on public and Native American lands, and provides penalties for violations and damages to archaeological sites. Executive Order 13287 – Preserve America directs federal agencies to build partnerships with local governments, Indian tribes, and the private sector to preserve cultural resources, and improve the stewardship of cultural resources.

In addition, the Alaska Historic Preservation Act (AS 41.35) states that the policy of the State is to preserve and protect the historic, prehistoric, and archaeological resources of Alaska and asserts the State's title to all historic, prehistoric, and archaeological resources situated on land owned or controlled by the State, including tideland and submerged land. Further regulations not listed here may also apply to the Donlin Gold Project.

3.20.1.1 PROGRAMMATIC AGREEMENT

Because of the Donlin Gold Project's size, scope, and the various alternatives under consideration, the Corps as the lead federal agency has initiated preparation of a Programmatic Agreement (PA) as a management tool to address cultural resources that may be affected by the Donlin Gold Project and to resolve any potential adverse effects. The PA outlines measures to ensure compliance with Section 106 of the NHPA, including but not be limited to protocols for the identification and evaluation of historic properties, permitting requirements, treatment of historic properties, monitoring requirements, inadvertent discovery protocols, curation, and treatment of human remains. The PA identifies known adverse effects to historic properties, including the INHT, and provides a discussion of proposed mitigation measures that would be implemented through the Cultural Resources Management Plan (CRMP). The PA will be a legal document with signatories and concurring parties. Finalization of the area of potential effect

(APE) and the development of a PA are two primary goals of ongoing Section 106 compliance meetings between the Corps, BLM, and consulting parties. Information collected and decisions reached during these meetings will be reflected in the PA. Agency signatories, invited signatories, and concurring parties include the Corps, the SHPO, the ACHP, the BLM, local governments, Alaska Native tribes, villages, and organizations, as well as Donlin Gold. The version of the PA available at the time of publication is included as Appendix Y.

3.20.2 AFFECTED ENVIRONMENT

The purpose of this section is to describe cultural resources within the APE, as defined in 36 CFR 800.16(d) and more specifically described in Section 3.20.3.1, for the Donlin Gold Project, which is a geographic area or areas which may be directly or indirectly affected by the Donlin Gold Project. For cultural resources, effects could be the result of ground disturbances, visible or audible disturbances, or changes in public access, traffic patterns, or land use.

Information presented herein is based on a review of data on file at the Alaska Heritage Resource Survey (AHRS) and the extensive series of cultural resources survey reports prepared for the Donlin Gold Project. While the surveys cover the majority of the APE, not all areas of the proposed APE have been surveyed for cultural resources. Additional surveys would likely result in the identification of additional resources. Also, consultation between the agencies and tribes could identify additional resources not yet documented for the Donlin Gold Project. Specifically, the PA process discussed above is designed in part to facilitate the identification of information on resources of traditional, religious, or sacred importance through consultation, as these resources are not readily identifiable through standard archaeological inventory. This section, therefore, discusses cultural resources known to be present based on these previous studies as well as the potential of the Donlin Gold Project to affect as yet undiscovered cultural resources. It should also be noted that Section 3.21, Subsistence, presents a discussion of traditional subsistence practices within the region and the potential for project related impacts to those practices. Impacts to those practices are not repeated here.

This section begins with an overview of the APE for cultural resources as currently proposed. The APE describes the areal extent of where potential project impacts to cultural resources could occur. Next, an overview of the precontact, ethnohistoric, and historical cultural setting is provided as context for the cultural resources found in the EIS Analysis Area. This cultural setting section is followed by a discussion of previous archaeological investigations that have been conducted in association with the proposed development since 2004. These investigations, discussed below, have targeted the identification of cultural resources in the proposed mine area, as well as along the transportation and proposed pipeline corridors. The sections that follow address identified cultural resources within each of these areas.

3.20.2.1 AREA OF POTENTIAL EFFECT

Donlin Gold, the Corps, BLM, and the SHPO are defining an APE for Section 106 of the NHPA that will address direct and indirect effects and will include the following spatial parameters consistent with 36 CFR 800.16(d) and inclusive of potential direct, indirect, and cumulative effects from project activities (see the PA in Appendix Y). For this analysis, direct impacts to cultural resources would likely occur within the project APE (i.e., 300-foot wide pipeline corridor, roads, ancillary facilities, Mine Site, and port area) during the Construction Phase. The

Operations and Closure of facilities would result in minimal new ground disturbance, with less of a chance for subsequent direct impacts.

Typically indirect effects occur to cultural resources through increased use or visual effects on resources that are valued for their context, setting, association, or similar aspects of integrity. Historic trails, for example, may have settings that contribute to their historical significance, and alterations to the viewshed and setting may indirectly impact these resources. Noise, vibration, and air quality issues may also introduce indirect effects to select cultural resources. The final APE will be determined through consultation and will be agreed upon as part of the PA development process. Finalization of the APE may result in minor variations to the effects determinations presented herein; resolution of effects will be guided by the PA.

3.20.2.1.1 MINE SITE AND TRANSPORTATION CORRIDOR

- Donlin Gold Lease Area:

  Direct effects: approximately 64,238 acres which includes the mine site lease area, airstrip, as well as the road between the airstrip and mine;

  Indirect effects: 2 miles surrounding the Mine Site footprint, or to the lease boundary, whichever is larger.

- Proposed Angyaruaq (Jungjuk) Port site:

  Direct effects: 0.25 mile buffer around the proposed port site;

  Indirect effects: 2 miles surrounding the Jungjuk port site.

- Roads:

  Direct effects: 250 feet each side of centerline (500 feet total) all roads west of Crooked Creek;

  Indirect effects: 2 miles surrounding the roads.

- Ancillary Facilities:

  Direct effects:100-foot buffer around all material sites west of Crooked Creek;

  Indirect effects: 2 miles surrounding ancillary facilities.

3.20.2.1.2 PIPELINE

- Proposed pipeline planning ROW:
  - Direct effects: 150 feet on either side of the centerline (300 feet wide);
  - Indirect effects: 1 mile buffer from pipeline ROW on either side of centerline.
- Roads:
  - Direct effects: 100-foot buffer each side of proposed road centerlines and footprints (200 feet wide);
  - Indirect effects: 1 mile on either side of the ROW centerline.
- Ancillary Facilities:

  - Direct effects: 100-foot buffer around all above ground facility footprints (compressor station, fault crossing, etc.), 50-foot buffer around Beluga barge landing site footprint and from the centerline of existing road centerline for winter access routes for construction.

- APE for indirect effects to INHT: 1-mile buffer from centerline of pipeline ROW (the indirect APE will vary due to topographic variation and the presence or absence of vegetation).

The following sections discuss the cultural resources within the APE (Donlin Gold 2015c). Consultation will continue between the parties, and the APE may be adjusted in the future. Specifically, the proposed APE may be refined during the development of the PA.

3.20.2.2 PREHISTORIC AND HISTORIC CONTEXT

The area of southwestern Alaska within which the EIS Analysis Area is located lies within the western subarctic culture area, an area occupied by Athabascan-speaking groups in the recent past. Given the vast size and remote nature of this area, its prehistory remains poorly understood and most current knowledge comes from coastal or near coastal sites. Archaeological investigations within interior Western Alaska began in the 1920s and 1930s and have been conducted sporadically since that time, with more recent investigations largely linked to specific projects. Regional chronological sequences have been developed and refined by Ackerman et al. (1979, 1996a, 1996b, 1996c), Clark (1981), Dumond (1984), and others, and have been summarized by Reuther et al. (2004). From oldest to most recent, these traditions have been termed Paleoindian, American Paleoarctic, Northern Archaic, Arctic Small Tool Tradition, Western Thule / late prehistoric Eskimo, and Athabascan (Reuther et al. 2004).

Archaeologists currently believe that the earliest residents of Southwestern Alaska are believed to have migrated from Siberia along a land bridge, though evidence of Paleoindian sites is scarce. The Paleoindian Tradition, dated 10,000 to 8,000 years ago, is the earliest occupation recognized in the region. Though there is some evidence suggesting human occupation of Southwest Alaska prior to 10,000 years ago, including cut marks on a 15,000 year old caribou humerus (Ackerman 1996a), the earliest sites with unequivocal artifacts date to approximately 10,000 years ago. The nature of archaeological assemblages associated with these sites implies temporal and cultural connections with early sites in more temperate latitudes such as the Great Plains and the American Southwest; fluted points are believed to have been a plains culture element that diffused northward (Clark 1981).

With the exception of these few isolated finds, evidence for Paleoindian occupation is rare. More commonly encountered is evidence of microblade technology, characteristic of the American Paleoarctic Tradition and generally thought to date to between about 10,000 and 7,000 years ago (Reuther et al. 2004). Side-notched spear points, large knives, chopping tools, scrapers, net sinkers, and burins are associated with the microblade tradition, which emerged coterminous with the late Paleoindian culture and suggests the arrival of new populations traveling across the land bridge and arriving in Western Alaska (Clark 1981). Distinctive artifacts found in American Paleoarctic sites are remarkably similar to stone technologies from Northeast Eurasia, suggesting cultural connections across the Bering Land Bridge. American Paleoarctic tool kits are generally thought to have been oriented toward the production of composite antler and stone projectiles, used to hunt late Pleistocene-early Holocene fauna. This

cultural tradition of production of parallel-sided prismatic stone blades and microblades underwent several regional variations and spanned the period from about 10,000 to 2,000 years ago.

Sometime after 6,000 years ago, side-notched projectile point forms begin to appear in interior, northern, and western Alaska archaeological assemblages, a hallmark of the Northern Archaic tradition dated to 6,000 to 2,000 years ago (Reuther et al. 2004). The broad occurrence of this point type throughout interior and northern Alaska and the Yukon Territory, along with distinctive scraping implements and other lithic tools, is thought to perhaps represent the spread of a new boreal forest-oriented cultural tradition, though this interpretation is in part contradicted by similar sites in tundra environments.

Following the Northern Archaic Tradition, beginning roughly 4,500 years ago is a prehistoric culture known as the Arctic Small Tool tradition, known for tiny, finely flaked stone tools (Reuther et al. 2004). The dramatic change in stone tool technology from the earlier Northern Archaic to the later Arctic Small Tool tradition assemblages may mark the introduction of the bow and arrow, and is interpreted by many archaeologists as a direct ancestral lineage to modern Eskimo people in Alaska and the arctic regions of Canada and Greenland. Following the gradual decline of the microblade tradition is the transition into prehistoric Athabaskan culture, from about A.D. 1 to 1900. This shift is associated with the appearance and abundance of side-notched points, along with the absence of microblade technology.

Archaeologists currently believe that the direct ancestors of the southwest Alaskan Yup'ik Eskimos were likely people of the Western Thule Tradition, dated to A.D. 900 to 1825. Typical artifacts include ground slate, chipped stone technology, heavy gravel temper pottery, snowshoes, hafted beaver-tooth knives, and birch bark baskets (Dumond 1984). Regional variants of the Western Thule Tradition are found throughout southwest Alaska. Subsistence was broad-based at this time, with both interior and coastal resource exploitation.

The Project Area is also located within the traditional territory of the Deg Hit'an, Kolchan, and Dena'ina Athabascan groups (Reuther et al. 2004). Deg Hit'an territory extends along the lower Yukon and the middle and lower Kuskokwim; Kolchan territory stretches along the upper Kuskokwim River; and the Dena'ina inhabited areas of southcentral and southwestern Alaska, particularly along Cook Inlet, and shared traits with both Eskimo and other Athabascans. In archaeological usage, the Athabascan tradition is a prehistoric culture attributed to ancestors of the northern Athabascan Indians of Alaska, whose history precedes Euroamerican contact. At present, sites in interior Alaska dating to at least 2,000 years ago and up to AD 1880 are generally attributed to the Athabascan tradition. In common usage, the Athabascan Tradition continues to the present. Early prehistoric Athabascan sites are characterized by subsurface housepit and cache features associated with a variety of flaked and ground stone, bone, and antler artifacts. Proto-historic (or late prehistoric) Athabascan sites include artifact assemblages predominately characterized by Alaska Native made items with a small amount of non-Native trade goods, such as iron and glass beads. These goods were obtained through trade with other Alaska Native groups, and can be tied to the Hudson's Bay Company and Russian American Company fur trade, as well as prospector and missionary influence along the Yukon River (AD 1740-1850). Historic Athabascan sites (post-1850) generally contain a mixture of log cabin and house pit dwellings affiliated with a greater percentage of Euroamerican artifacts, and possibly changes in site location in order to obtain these goods.

3.20.2.2.1 REGIONAL ETHNOHISTORY

The Donlin Gold Project Area is located in the central Kuskokwim area, an area of overlap between both Yup'ik speaking Eskimo groups of the Yukon-Kuskokwim area and the Athabascan bands of interior Alaska. The villages of Stony River, Sleetmute, Red Devil, Crooked Creek, Chuathbaluk, Aniak, Upper Kalskag, and Lower Kalskag are considered central Kuskokwim villages. The central Kuskokwim region lies within the contemporary Yup'ik language area (Woodbury 1984). Yup'ik social organization was characterized by relatively autonomous territorial units prior to European contact and influence, but after contact included members of other areas and societies, both Native and non-Native. Salmon, moose, caribou, waterfowl and various other resources, obtained through harvesting or indirectly through trade, sustained the riverine populations.

Southwestern Alaska Eskimo groups shared a diversity of ethnic boundaries, many of which were blurred as a result of European contact effects (VanStone 1984b). VanStone (1984b) described this as an area that the Kusquqvagmiut group of Yup'ik Eskimos jointly occupied with the Georgetown subgroup of the Deg Hit'an Athabascans. Populations diminished by epidemic disease in the nineteenth and early twentieth centuries resulted in shifting spheres of cultural influence. The central Kuskokwim is at the intersection of three Alaska Native language areas, the central Yup'ik, Deg Hit'an Athabascan (formerly known as Ingalik), and Dena'ina Athabascan languages and the current ethnicity of the villages reflects its complex history. Yup'ik Eskimos are the predominant residents of the villages of Lower and Upper Kalskag and Chuathbaluk. The villages of Sleetmute, Stony River, and Crooked Creek include individuals of Yup'ik, and Deg Hit'an or Dena'ina Athabascan descent, while Red Devil and the regional hub of Aniak are composed of both non-Native and Yup'ik people. Lime Village residents are primarily of Dena'ina Athabascan descent. The Deg Hit'an Indians are the westernmost Athabascan-speakers of interior Alaska and traditionally occupied territory along the middle Yukon and the upper Kuskokwim rivers.

Traditionally, the Dena'ina Athabascan people inhabited areas of Southcentral and Southwestern Alaska, particularly along Cook Inlet, and shared traits with both Eskimo and other Athabascans. The Inland Dena'ina groups along the Kuskokwim fished and hunted along the waterways, but resources were less abundant than on the coast. Inland populations consolidated into Lime Village, Nondalton and Pedro Bay by the 1970s. Considerable intermarriage occurred between the Stony River Dena'ina and Kuskokwim Deg Hit'an over at least the past 100 years. Although Inland Dena'ina Athabascan is the dominant cultural heritage of Lime Village, by the mid-1980s most residents were of mixed racial heritage.

Immigrant populations of Russian, English, American, Scandinavian, and various other outside groups have introduced cultural influences to the region throughout the past 200 years. The major sources of external cultural influence in the twentieth century have been resource development activities such as gold and mercury mining, trapping, and commercial fishing. The indirect impacts of statehood, 1960s social reform programs, and the passage of the Alaska Native Claims Settlement Act (ANCSA) in 1971 have also brought major changes to the social structure and cultural milieu in rural Alaska generally, and the central Kuskokwim villages in particular.

The closest known historic and modern settlements to the Donlin Gold Project Area are Canoe Village and Crooked Creek. Canoe Village, or Agyahwagamiut in Yup'ik, was located along the right bank of the Kuskokwim River, approximately 12 miles south of the present location of

Crooked Creek. Canoe Village was occupied in 1900, and in 1906 included three or four resident families. They soon began leaving because the river bank was eroding and by 1970 all the structures except for a cabin and smokehouse had washed away.

Oswalt (1980b) reports that Crooked Creek was known in Yup'ik as "Kupchaupuk," meaning Crooked Creek. In the 1840s, this was a summer camp of people from Kwigiumpainukamiut, a village across the river from Kolmakovskiy (Oswalt 1980b). An early historic village existed at the modern village site, but it had been abandoned before Dennis Parent settled here and opened his trading post in 1914-1915 (Oswalt 1980b).

When the Russians became familiar with the area in the 1830s, the population of this sector was small and consisted of predominantly Deg Hit'an Athabascans. A smallpox epidemic in 1838-39 killed many if not most of the Deg Hit'an Athabascans. At that time Yup'ik Eskimos from the lower Kuskokwim River were already moving upstream and assimilating the Deg Hit'an Athabascans, and by the early 1840s the Deg Hit'an on the Kuskokwim River had largely adopted the Yup'ik Eskimo way of life. The epidemic of 1900 presumably depleted both segments of the population, but its impact on the Deg Hit'an was more dramatic because of their smaller number. Soon after, increasing numbers of Yup'ik Eskimos moved into the region and further assimilated the surviving Deg Hit'an Athabascans. The modern population is culturally Yup'ik Eskimo although numerous persons are of mixed Athabascan and Yup'ik Eskimo ancestry. By the late 1970s a small number of persons at Crooked Creek still spoke Deg Hit'an.

Crooked Creek village was established in 1909 as a way station for the Flat and Iditarod gold mining camps. The United States Geological Survey (USGS) reported it in 1910 as "Portage Village" because it was at the south end of a portage route up Crooked Creek to the Iditarod placer mining region. In 1914 or 1915, Dennis Parent founded a trading post upriver from the creek mouth in what would become the "upper village" of Crooked Creek (Oswalt 1980b). A post office was opened in 1927 and a school was built in 1928. Yup'ik Eskimos and Deg Hit'an Athabascans settled the "lower village". By the early 1940s, there was a Russian Orthodox Church, St. Nicholas Chapel, and several homes. The upper and lower portions of the village remain today. Gold production in the vicinity continued through the late 1980s, when Western Gold Mining and Exploration went out of business.

Yup'ik-speaking Eskimo groups, the Athabascan bands of interior Alaska, and other Alaska Native peoples did not keep written records; much of the knowledge of these groups is maintained by oral traditions, such as stories, songs, and place names. These are passed down from generation to generation, conveying accumulated knowledge of the world around them. Efforts to record this information include significant efforts such as Shem Pete's Alaska: The Territory of the Upper Cook Inlet Dena'ina (Kari and Fall 2003), which documents the depth and breadth of the understanding of the traditional territory that has been maintained by Dena'ina elders. Aspects of this ethnogeographic knowledge critical to an analysis of potential impacts from the Donlin Gold Project will assessed through the ongoing consultation process.

3.20.2.2.2 HISTORIC CONTEXT

The "discovery" of Alaska by Europeans is usually dated from Vitus Bering's second expedition in 1741; within a short time, Russian fur hunters began to exploit the rich sea otter grounds along the Aleutian chain. In 1778, Captain James Cook arrived in southern Alaska where, at

Cook Inlet, Dena'ina Athabascans came to his ship to exchange furs and fish for iron. Cook noted that at this time, a few European goods were already in the possession of the Indians. At this time, while southern Alaska Indians and Eskimos were eager to trade with Europeans visiting in ships, attempts at settlement were opposed. As a result, with the exception of the Aleuts, Alaska's inhabitants remained relatively free of European influence (Townsend 1981).

In 1784, Russian fur traders established a post on Kodiak Island, destined to become one of the major headquarters of the Russian-American Company. Within 20 years, additional posts were established on the Kenai Peninsula and at Sitka, and Dena'ina and other Native groups were drawn more actively into the fur trade (Townsend 1981).

In 1832, Russians built fur trade stations at the junction of the Holitna and Kuskokwim rivers near Sleetmute; in 1833 at Lukin's Odinochka (the Russian term for a small trading post) further downstream; and in 1841 at Kolmakovskiy Redoubt. Archaeological investigations at Kolmakovskiy Redoubt suggest that although many trade goods of Russian-American Company origin were uncovered, and that the Athabascans of the Kuskokwim area appear to have been deeply involved and influenced by their participation in the fur trade, the Kuskokwim Yup'ik were marginal participants, at least as reflected in the longevity of their use of traditional artifacts (Oswalt 1980b). While the Kuskokwim area Athabascans appeared to have abandoned most of their traditional material culture, the Russians failed to greatly alter the economic lives of the Kuskokwim Yup'ik. Russian Orthodoxy, however, became an aspect of life in the region that persists to this day (Reuther et al. 2004).

Russian Orthodox missionaries followed traders into the middle and upper Kuskokwim region. These missionaries, and later Moravian missionaries, were centered at trading posts and had to travel extensively to meet with their parishioners. Many of the communities in the region had accepted, at least superficially, aspects of Christian ritual and belief by the mid-1800s (VanStone 1984c).

The Russian-American Company abandoned Kolmakovskiy Redoubt in 1866. After the U.S. purchased the rights to Alaska from Russia in 1867, the Alaska Commercial Company operated and supplied Alaskan trading posts purchased from the Russians. These posts and others in the region under American operation failed to develop into lucrative ventures. The Moravian Church and Roman Catholic Church were also active in the region in the late 1800s. Missions, boarding schools, and orphanages brought new and different concepts of social, religious and cultural interaction to the region (Reuther et al. 2004).

Reindeer were introduced to Alaska in 1891 to provide food and clothing for Alaska Native people, and, in 1906, the Moravian church brought reindeer herding to the Kuskokwim area after the depletion of wild caribou stocks. The U.S. Department of the Interior Office of Education administered the program until 1929, using local schoolteachers to supervise herding operations. In the 1890s, the U.S. government hired indigenous Sami reindeer herders and their families to teach herding skills to Yup'ik and Inupiaq people. These herders helped build up the reindeer herds that provided food, clothing, and transportation for Alaskans during the 1920s and 1930s. The settlement of Akiak was an important herding locale, with 35,000 animals in the area, but the numbers declined dramatically shortly thereafter. Many of the Sami herders left after the decline of herding during the mid-1940s (Reuther et al. 2004).

3.20.2.2.3 THE IDITAROD TRAIL

Gold mining boomed in the Iditarod region of the Yukon River drainage in the early 1900s following the gold rushes in the Klondike and Nome areas. The Ganes Creek and Ophir Creek strikes in 1906 and Ruby Creek discovery in 1907 brought thousands of prospectors into the region. Subsequent discoveries on Otter Creek and Flat Creek brought many more. The communities of Flat and Iditarod were founded and developed at the same time, with Iditarod being the main supply center and transportation hub, and Flat being the center of the gold fields, until World War I (WWI). During WWI, mining substantially decreased, and Iditarod was mostly abandoned in the early 1920s when the river shifted away from the town site. With the introduction of air service, Flat became the population center of the area until after World War II (Reuther et al. 2004).

Gold was discovered on Donlin Creek in 1909. Between 1909 and 1956, various prospectors and placer miners worked the area by hand as well as by underground and hydraulic methods, producing 30,000 ounces of placer gold. From the 1970s until 1996, Robert Lyman and his heirs resumed sluice mining in the Donlin Creek area and placer-mined Snow Gulch; about 800 ounces of gold were recovered (Reuther et al. 2004).

The sheer numbers of immigrants influenced local culture during the gold rush. Prospectors came into the country on the heels of massive epidemics and subsequent population loss, bringing rapid cultural changes in the areas of communications, transportation, economics, and government. Towns sprung up in formerly sparsely populated areas, trails were transformed into roadways, railways brought goods to new markets, and telegraphs and newspapers brought news and ideas across vast distances (Reuther et al. 2004).

The development of the gold district in Nome in the early 1900s prompted a need for a transportation route to an ice-free port in the winter. In 1908, Walter Goodwin pioneered such a route. The Alaska Road Commission (ARC) dispatched a survey party led by Walter L. Goodwin, superintendent of the Nome District, to locate an overland route between Cook Inlet and Nome through the Innoko-Iditarod area. Starting in January 1908, the Goodwin party partially followed the Alaska Central Railway to Kern Creek and then surveyed a path through the Alaska Range at Rainy Pass, forded the Yukon River and at Kaltag took the portage to Unalakleet, then followed the north coast of Norton Sound until they arrived in Nome on April 5, 1908 (Higgs 2016). In the winter of 1910 and 1911, the ARC began to formally construct the trail with one party led by Goodwin and another party led by Anton Eide. Goodwin marked the trail using wood tripods poised at key locations. Over the course of construction trail location refinements were developed including a cutoff from Berry's Big River Roadhouse to Farewell Lake to the South Fork Kuskokwim River. This route reduced the distance of the 1908 trail route by 52 miles (Higgs 2016).

Completed in 1911, the route eventually became known as the Iditarod (Goodwin) Trail and connected a point 50 miles north of Seward, Alaska, where the Alaska Central Railway, a forerunner of the Alaska Railroad, ended, through Iditarod and then to Nome. The trail was about 1,150 miles long and followed traditional trails used by the Dena'ina and Yup'ik. Trail conditions varied along the route and accommodated multiple forms of transportation depending on conditions, including wagons, bobsleds, sleighs pulled by horse teams, railroads, tramways, and pedestrians on foot. An assortment of travelers used the trail, including prospectors, trappers or Native Alaskans transporting goods from Seward to the various mining districts or traveling between mining camps and trade centers. Dogsled teams raced

along the trail carrying fresh produce, mail, or gold, with noteworthy drivers earning nicknames such as Frank Tondreu, the "Malemute Kid;" John "Iron Man" Johnson and his indefatigable Siberians; Captain Ulysses Grant Norton, the "tireless Trojan of the trails;" "Split the Wind;" and Jujiro Wada, the "Wandering Japanese" (BLM 1986a). The trail gained worldwide attention in the winter of 1925, when an outbreak of diphtheria struck Nome. Winter ice had closed the port city and there was insufficient serum to inoculate its residents. Serum from Anchorage was rushed by train to Nenana and picked up by a sled dog relay. A relay of 20 sled dog teams carried the serum 674 miles from Nenana to Nome in just over 127 hours.

Along the trail route a number of roadhouses were constructed by opportunistic merchants who hoped to provide material support for trail users. The Alaska Legislature also formed the Territorial Board of Road Commissioners (TBRC) who supported construction of shelter cabins along the Iditarod as well as developing trails to mining camps and, later, airfields. The TBRC also performed trail maintenance to keep the routes open. The transportation network, however, proved short lived as some portions of the trail experienced reduced use with the construction of the Alaska Railroad from Seward to Fairbanks starting in the early 1920s. Downturns in gold mining activity also reduced the need to access the remote areas serviced by the trail. Air mail service in the late 1920s eliminated use of the most of the remaining southern sled trail segments. To the north, however, sled dog use of the Iditarod Trail System remained robust, particularly the Kaltag-Nome trail, through the mid-1920s until trail maintenance funds were slashed in the 1930s (Higgs 2016).

Following the downturns in use starting in the early 1920s, the Iditarod Trail fell into disuse for close to 50 years, until 1973 when Alaskans reopened the routes and created a sled dog race from Anchorage to Nome that followed portions of the historic Iditarod Trail route. The Iditarod Trail Sled Dog Race ultimately revived dog mushing in Alaska and around the world. In the inaugural event in March 1973, the 1,000 mile long race from Knik to Nome had a $50,000 prize. Thirty-four teams started with 22 completing the journey to Nome. Miner and trapper Dick Wilmarth from Red Devil on the Kuskokwim River, won this first race. The race has been conducted each year since. The race also reignited interest in the history behind the use of the Iditarod Trail and the resources associated with its use including the historic roadhouses, shelter cabins, distinctive trail markers, deliberate route selection, trail traces and clearings, and traverses across interior Alaska's varying natural landscapes. This interest translated into a nomination and congressional designation of the Iditarod National Historic Trail in 1978. Subsequent cultural resource studies have recognized the historically layered physical characteristics of the Iditarod Trail. Collectively, the trail's physical legacy reflects distinctive time periods, geographies, and resources associated with gold rush primary and secondary connecting trails, the 1910 Goodwin Route, and the Iditarod Race Trail (Higgs 2016). A Multiple Property Documentation Form for the Iditarod Trail was developed in 2016 in order to place the trail within a larger historic context and make listing segments and resources associated with the Iditarod on the National Register of Historic Places easier (Antonson and Lewis 2016).

3.20.2.2.4 THE RED DEVIL MINE – HISTORIC MINING LEGACY

Mercury (quicksilver) mining provided another stable economic resource in the region for many years, as various cinnabar and mercury deposits in the Kuskokwim region were discovered and exploited along a roughly 250-mile line between Bethel and McGrath. Claims near Red Devil were staked in 1906, producing notable quantities of mercury over the next 18 years. In the

1950s, rising prices of mercury led to a resurgence in mercury mining; the Red Devil Mine continued to function as a major mercury producer into the early 1970s (Reuther et al. 2004).

The historic Red Devil Mine is well known to residents of the central Kuskokwim River villages, and remains an important legacy shaping the perceptions of residents about mining. Residents of Crooked Creek, during the January 2013 Scoping Meeting in their community, recommended an oral history project to learn more about the social impacts of this mine in its day, the so-called "boom and bust" cycle. Residents believed that the oral history work would provide project planners with a better understanding of how the project may impact cultural resources over time. While situated outside of the APE and therefore not affected by the project, the story of the Red Devil Mine nonetheless provides a backdrop for analyzing project construction and operations and their impacts upon cultural resources. A summary of interviews conducted in the summer of 2013 is provided below.

Commercial salmon fishing began on the Kuskokwim River in 1913, when Chinook salmon were first taken commercially. Small operations continued from 1916 through 1925. As was the case in many unregulated Alaska fisheries, over-fishing quickly took its toll and by 1926, legislation prohibited commercial fishing in the Kuskokwim River; though subsistence fishing and fishing to provide food for dog teams was still allowed. In the 1930s, legislation again changed to allow limited commercial fishing of Kuskokwim Chinook salmon for export by Alaska Native and permanent white residents. In the late 1950s, coinciding with Alaska statehood, commercial fishing along the lower Kuskokwim developed again. During the 1960s, lower Kuskokwim fisheries cooperatives provided a steadily increasing source of revenue (Reuther et al. 2004).

Other mid-twentieth century developments that affected the region included World War II military activities that produced the Alaska Territorial Guard and its successor, the Alaska National Guard. Pre-and post-war, Civil Aeronautics Authority and its successor the Federal Aviation Administration (FAA) increased regional transportation capabilities, particularly air transportation, and the Cold War defense build-up that stimulated the regional economy prior to statehood.

ORAL HISTORY OF THE RED DEVIL MINE BOOM AND BUST

Introduction

What happened to local communities during the Red Devil Mine period? How can those experiences help people to think ahead about the Donlin Gold Project? These were questions raised in the Crooked Creek scoping meeting in January 2013. In response, an oral history and archival research project was initiated. Although historic mining technology and regulations differ greatly from today, local understandings of the social impacts of the Red Devil Mine provide important insights for future projects in the region.

Background

The Red Devil Mine produced cinnabar ore, a mercury containing ore, from 1938-1971 near a remote village located on the middle Kuskokwim River. The mine processed the ore on-site from 1938 until early 1969, after which ore was sent by barge down river to be processed in Japan. The mine produced many thousands of pounds of mercury using mining and processing methods common in that era. After closure, contaminated mine tailings created environmental problems due to runoff into the Kuskokwim River. Efforts to remediate the contaminated sites and to study impacts on fish have been underway since the late 1980s, under the Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund. This work is ongoing.

Social Impacts

The Red Devil Mine had substantial impacts on local communities, in population growth, income and employment, infrastructure, local traditions, and customary practices. In general, the positive impacts were economic – local citizens were able to obtain training for a job, allowing some to later go on to new employment elsewhere. But the negative impacts of mine operations were social, in rapid population growth, and associated social ills. When the mine abruptly closed, adverse impacts included loss of jobs and income, and for some families the need to relocate to find work. A few quotes below illustrate some of the good and bad effects of the mine:

Robert John was born in Crooked Creek, Alaska in 1944. During the time Red Devil was operational, both Robert and his father worked there. He stated, "*It was good wages, you know; I was just 16-17 years old. I was providing for me and my brother Jimmy...*" Moxie Alexie also remembered the positive impacts new income had on his brothers' lives. "*When people have jobs they are able to buy pretty nice stuff. During those years when my brothers worked at the mine, during that time they never went trapping. … I remember my brothers were able to buy new boats and motors, for hunting and fishing. Provide for their family.*"

The same people also remembered bad things about the mine. Robert John said "*From that mill they used to dump their water right into the Creek. From the mill on down, the water was greyish color. It drained out to the Kuskokwim River 24 hours a day, 7 days a week. …*" Moxie Alexie said "*If you were an Alaska Native back, then you didn't get paid very much. It was mostly labor work. Cleaning, working in the kitchen; miners helpers compared to the non-natives who were skilled workers.*"

Positive Impacts

- Increase in personal income
- Increase in employment and income
- Economic growth and prosperity
- Better elementary and secondary education
- Improved subsistence activities with modern tools and technology
- Improvement in overall quality of life
- New community infrastructure

Negative Impacts

- Influx of outsiders to work
- Low education levels limited job access
- Lack of economic diversification and sustainable growth
- Increased burden to health and social services
- Challenges to tribal community cohesiveness, family relocations
- Long-term alteration to traditional culture and lifestyles
- Environmental contamination

Conclusions

The Red Devil Mine brought nearly 30 years of new employment and income opportunities to the Central Kuskokwim River villages. The mine increased the linkage of local Alaska Native residents to the cash economy, with all of its good and bad features. There was little planning for the day when the mine would close, and the abrupt closure resulted in major changes for those who remained in the region and for those forced to relocate to find work.

At this time, local villages had little voice in the business or governmental affairs of the region. With the Alaska Native lands claims movement and passage of the Alaska Native Settlement Claims Act by Congress in 1971, the Calista Corporation and later The Kuskokwim Corporation became important landowners and business leaders in the area.

Drawing lessons from the social outcomes of the Red Devil Mine, the region could anticipate that if the Donlin Gold Project proceeds, there could be new training and educational opportunities, employment, and income. The addition of small businesses started to support the project could extend the economic diversification. However, rapid growth is likely to increase some social ills, and it is important that communities have time to plan ahead to mitigate these impacts, perhaps through improved local government and social services. Socioeconomic and cultural settings have changed since the Red Devil mine operated. Communities may be more resilient in responding to change as there is more experience with integration of western culture; villages have laws banning alcohol; services are more available, and there are very different modern standards for company policies toward local hire, sustainability and cultural awareness.

3.20.2.2.5 PREVIOUS ARCHAEOLOGICAL RESEARCH

The earliest cultural resource research in the EIS Analysis Area was conducted in and near the village of Crooked Creek in 1930 by Aleš Hrdlička, who worked extensively for the Smithsonian Institution. During this period Hrdlička (1930) excavated one burial and noted an "old site" near Parent's Trading Post (SLT-064). In the early 1950s, Oswalt visited Crooked Creek while gathering data on tree-rings in the Kuskokwim drainage and noted a shallow, unconsolidated historic midden located in the middle of the village. In 1976, Alaska Division of Parks archaeologists Greg Dixon and Lloyd Jones surveyed the location for a proposed airstrip and three potential material sources near Crooked Creek and recorded several collapsed historic structures, referring to these as the "Middle Crooked Creek Remains." In 1982, Bureau of Indians Affairs (BIA) archaeologists inventoried cultural resources on Alaska Native allotments and townsites along the Kuskokwim River from Stony River to Chuathbaluk, recording 44 potentially significant sites along a 150-mile stretch of the river (Kurtz 1983). Several sites within the vicinity of Crooked Creek recorded during the 1982 BIA survey include Crooked Creek Village (SLT-00004), St. Nicholas Chapel (SLT-00013), Vanderpool Fish Camp (SLT-026), Parent's Trading Post (SLT-00064), and SLT-00035 (Kurtz 1983).

In 1984, as part of a joint mapping project of the Iditarod Quadrangle by the Alaska Division of Geological and Geophysical Survey (DGGS) and the USGS, Robert Betts (1985) conducted an archaeological reconnaissance survey in the Kuskokwim Mountains region between Bonanza Creek and George River. Betts (1985) recorded three potential isolated finds and one definitive archaeological site, the Miller Ridge site (IDT-00047).

In 1985, DGGS compiled historic and archaeological information for the Kuskokwim River Planning Area from literature, maps, and other primary and secondary source materials, as a part of a planning and management tool (Spartz 1985). The compilation provided a general overview of the resources within the Kuskokwim River Planning Area, which includes the vicinity of the Mine Site and Crooked Creek region.

In 1993, Michael Yarborough (1993) conducted a survey in the village of Crooked Creek. No definitive cultural materials were identified, though Yarborough did collect valuable oral historic information pertaining to Parent's Trading Post (SLT-064) located in the vicinity of the middle village.

Since 2004, a number of archaeological investigations have been conducted in association with the proposed development of the Donlin Gold Mine. These investigations have targeted the identification of cultural resources in the proposed Mine Site area, as well as along the proposed Transportation Corridor and Pipeline. For ease of discussion, the results of these investigations are presented by project component.

3.20.2.3 MINE SITE

Archaeological investigations for the Mine Site area began in 2004. The study was initiated with a records search and literature review, which revealed that 23 known AHRS sites had been recorded within a 15-mile radius of the Mine Site. These sites include two historic cabins, one mine, three village sites, one chapel, nine fish camps, five camping areas, and a trading post (Reuther et al. 2004). In addition, the Bureau of Indian Affairs (BIA) and Association of Village Council Presidents (AVCP) were contacted for information regarding historic sites located on

Native Allotments and 14(h)1 historic sites and cemetery lands selected under the Alaska Native Claims Settlement Act (ANSCA) (Reuther et al. 2004).

Archaeological surveys were conducted within the Donlin Gold Mine lease boundary, proposed Angyaruaq (Jungjuk) dock site, proposed gravel source sites, and four alternative airstrips in 2004. Low altitude helicopter overflight was used to examine 28,690 acres; 3,381 acres were subject to pedestrian survey and high potential subsurface testing. A majority of the terrain within the Donlin Gold Mine lease boundary consists of steep ridge side slopes and low lying valley floors; black spruce, alder, dwarf and paper birch, and larch are the dominant plant types along the hillsides, while muskeg vegetation, underlain by permafrost, is present in the valley bottoms near drainages. Steep hillsides and low lying black spruce and muskeg environments were considered to have a low potential for the presence of archaeological sites and were surveyed by helicopter; ridgetops with gentle and relatively flat slopes were considered areas of high potential for the presence of archaeological sites.

Seven cultural resources were discovered during the 2004 survey for the Donlin Gold Project Area, six of which are situated within the Donlin Gold Mine lease boundary. These sites consist of one historic cabin (IDT-00260), possibly associated with a historic trail; the location of two collapsed structures (IDT-00261); a large lithic flake scatter (IDT-00262); two small lithic scatters (IDT-00263 and -00264); and two historic ditches (IDT-00265 and -00266), measuring 2.0 to 2.5 miles in length that were associated with mining. Phase II evaluations of these resources were conducted in 2010 and resulted in recommendations of non-eligibility for all but two of these sites. IDT-260 was recommended as eligible for nomination to the NRHP, while the eligibility of IDT-261 remained undetermined (Hays et al. 2011). Formal requests for eligibility for these and other sites in the EIS Analysis Area were submitted to the SHPO for concurrence in 2016; SHPO provided concurrence with the recommendations on May 23, 2016 and October 28, 2016 (ADNR 2016b, 2016c).

Additional survey was conducted in the Mine Site area in 2011, to address expansion of the proposed mine lease boundary. Thirty moderate to high probability landforms were tested during this effort. One additional archaeological site (IDT-00292), a prehistoric lithic scatter, was identified during this effort (Hays et al. 2012) and is unevaluated for NRHP eligibility.

3.20.2.4 TRANSPORTATION CORRIDOR

Archaeological research specific to the Transportation Corridor was initiated in early 2006 with winter archaeological monitoring of initial project geotechnical testing along portions of the Angyaruaq (Jungjuk) mine access road route. Archaeologists inspected 28 geotechnical pits dug along portions of the route from roughly the Donlin camp to Juninggulra Mountain but did not identify any cultural resources (Wooley et al. 2007). Later that year, a second season of cultural resource field surveys was conducted for the Donlin Gold Project Area (Wooley et al. 2007). The proposed development activities surveyed in 2006 included: 1) the proposed Angyaruaq (Jungjuk) mine access road ROW extending approximately 28.5 miles south from the Donlin Gold camp to the Kuskokwim River; 2) 15 potential material sites (MS1 through MS15) that encompassed approximately 352 acres along the road route; 3) a proposed airstrip near Return Creek and access road connecting it to the Angyaruaq (Jungjuk) mine access road; and 4) a proposed dock site (250 acres) along the north bank of the Kuskokwim River just north of the confluence of Jungjuk Creek. One prehistoric site (SLT-00094) was identified during the 2006 field survey.

In early 2007, a proposed alternative dock site location (referred to as Birch Tree Crossing [BTC] Port and analyzed in Alternative 4) was identified along the northern bank of the Kuskokwim River, approximately 12 miles west of Aniak. This alternative requires a longer road than the initial proposed road to the mouth of Jungjuk Creek. In addition, a proposed limestone source was being explored at the crossing site. Because AHRS site RUS-00091 had been reported nearby and two Native allotments were located upstream (at George One's Creek) and downstream (at Old Mary's Bar) of the location, a thorough archaeological assessment of the area was conducted.

Access to the BTC Port (Alternative 4) would involve construction of an approximately 75-mile long road corridor, traversing the upland hills from the Donlin Gold camp to the port site. Fifty material sites associated with the proposed road and port site construction were also identified for development (see Section 2.3.5, Descriptions of Alternatives). In addition, several locations were considered at the time for establishing wind farm sites where wind turbines could provide a potential alternative source of energy to the Donlin Gold camp. Archaeological survey of these project components is documented in Wooley et al. (2008). The total area surveyed was approximately 5,234 acres; 1,717 acres were subject to pedestrian survey and subsurface testing of high probability areas, with the remainder subject to low-level helicopter reconnaissance. A total of 21 high potential areas were tested for buried cultural remains with a total of 89 tests pits placed within these areas. Four previously undocumented cultural resource sites (RUS-00111, RUS-00112, RUS-00113, and RUS-00114) were recorded in the 2007 survey; only RUS-00112 lies within the material site APE boundaries. All four sites consist of sparse lithic scatters. With the concurrence of the SHPO, two of the sites were determined eligible (RUS-00112 and RUS-00114) for information potential regarding prehistory of Alaska, while one site was determined ineligible (RUS-00111). Site RUS-00113 was not evaluated because it was over 500 feet from the APE boundary (Wooley et al. 2008).

Although no longer part of the Donlin Gold Project or alternatives, a proposed Crooked Creek road ROW and four associated material sites were surveyed in 2008. The corridor extends 10.7 miles east from the proposed Angyaruaq (Jungjuk) mine access road corridor to the lower village of Crooked Creek along the Kuskokwim River. A material site and associated access road connecting it to the Angyaruaq (Jungjuk) mine access road corridor were also surveyed near the Montana Creek airstrip. Also during the 2008 survey work, four areas within the mine lease boundary identified during the 2004 field season as high in potential for cultural materials were tested to provide a more complete set of data on the EIS Analysis Area. No cultural resources were identified during the 2008 survey (Proue et al. 2009).

3.20.2.5 PIPELINE

Surveys conducted for the Pipeline have been guided by an archaeological model developed for the Donlin Gold Project in 2010 (Reuther et al. 2010). The site location model and survey approach were based on use of GIS techniques to identify patterns of known site locations in subarctic Alaska, using environmental variables to project site location potential. The objective of the model was to provide efficient survey and testing coverage of the Pipeline APE meeting professional standards and legal regulations for this large-scale project. The site location model was used to divide the APE into survey zones with differential potential for site discovery due to the heterogeneous and variable nature of Alaskan prehistoric, protohistoric, and pre-Gold Rush Era sites; more recent Gold Rush and Post-Gold Rush Era Sites (1880 to 1960 A.D.) were

not included in the model because there is much more reliance on archival research and a high degree of surface visibility associated with these types of sites (Reuther et al. 2010). In zones with a lower potential for site discovery, helicopter-based (Type A) survey was used, while zones with a higher potential, intensive ground (Type B) survey methods were employed. About 43 percent of the proposed alignments were designated as Type A (helicopter) survey, while 57 percent were designated as Type B (ground survey).

As with the Mine Site and Transportation Corridor project components, limited archaeological investigations were initiated in the early twentieth century, with more recent studies conducted largely in conjunction with the Donlin Gold Project. One exception to this is a number of studies conducted in association with the INHT, the early twentieth century route between Seward, on the Kenai Peninsula, Girdwood, on Turnagain Arm, and the mining community of Nome.

Records search and literature review efforts conducted prior to initiating Pipeline corridor studies for the Donlin Gold Project resulted in the identification of 50 sites within a 5-mile radius of the pipeline corridor. The majority (41) are historic sites including collapsed cabins and structures, mining-related ditch features, roadhouses, a Russian village, a Civilian Conservation Corps cabin, and modern camps/resource use areas including buildings and features associated with FAA Air Navigation Facilities ca. 1940-1958. Most of the historic sites (31) are associated with either the INHT or FAA activities. There are also eight prehistoric sites consisting mainly of lithic scatters, a few isolated tools, and one cave occupation. There is one site thought to be protohistoric, likely occupied prior to the arrival of Russians (Reuther et al. 2011). In addition to the 50 sites, the records search indicates seven potential resources could be present that are not recorded in the AHRS system; these are recent and/or historic era sites such as roadhouses/cabins, undefined use areas, and a telephone line that are shown on historic maps but not identified during field studies (Reuther et al. 2011). Some of these resources, if present, may be associated with the INHT.

The original Pipeline corridor, surveyed in 2010, extended approximately 314 miles from Beluga on Cook Inlet to the planned Mine Site in the middle Kuskokwim Region in southwest Alaska. The draft APE for the Pipeline is considered to be a 300-foot wide corridor, 150 feet on each side of the Pipeline centerline. While the direct APE is considered to be 300 feet wide, a greater area was surveyed for cultural resources. Surveys were conducted within 500 feet of the Pipeline corridor, 250 feet on each side of the Pipeline route. Additionally, an APE of one mile from the Pipeline ROW centerline was applied to assess potential indirect impacts to the INHT.

A Phase I Identification survey of the Pipeline corridor began in 2010; surveys of subsequent revisions to the route were completed during the 2012 field season. In total, the helicopter-based aerial survey covered approximately 130 miles (4,705 acres), while the ground survey covered approximately 183 miles (6,662 acres). A total of 375 high potential landforms identified during the pedestrian and aerial surveys have been tested (Reuther et al. 2011). Survey and research efforts conducted in 2010 identified 35 cultural resources: 23 newly discovered sites and 12 previously known sites (Reuther et al. 2011). Also in 2010, the field evaluation and historic context data gathering process began for historic-period resources located within the proposed alignment.

In 2011, field investigations included additional survey and testing along a revised Pipeline route between May and August of 2011 (Reuther et al. 2012). The total length of the revised Pipeline route at that time was 312 miles (11,404 acres). In 2011, the Phase I Identification survey was completed along 18.6 miles (676 acres) of route deviations between previous and current

revisions; 8.8 miles (320 acres) were covered by aerial survey and 9.8 miles (356 acres) by pedestrian methods. Phase I Identification testing was completed at 220 high potential landforms in 2011, with 20 new cultural resources identified during that field season (Reuther et al. 2012). Eight potentially affected areas adjacent to or within the Pipeline route were also assessed and surveyed in 2011 (Reuther et al. 2012). These areas included locations where geotechnical activities such as borehole drilling are ongoing and where directional drilling workspaces are planned.

A 2012 field program was undertaken to complete Phase I Identification testing at 13 remaining test areas within the revised Pipeline corridor; and to complete the Phase II Evaluation field documentation of the known cultural resources that are situated within 500 feet of the proposed corridor, or 250 feet on each side of the proposed Pipeline route. In total, 52 prehistoric and historic cultural resources were identified as a result of the 2010 to 2012 field investigations along the Pipeline corridors (Reuther et al. 2011, 2012). Fourteen cultural resources (11 prehistoric sites and three historic sites) located within approximately 500 feet of the Pipeline centerline were recommended as eligible to the NRHP. The remaining resources within 500 feet of the Pipeline centerline were recommended as not eligible to the NRHP because they either do not meet the necessary requirements of being 50 years of age of older to be eligible, or do not possess the potential to yield any important data beyond what was gathered during the project's field seasons. Eligibility recommendations were submitted to the SHPO in 2016, with concurrence received that year (ADNR 2016b, 2016c).

In the pipeline corridor segments, associated with the current 316-mile pipeline corridors, ten additional prehistoric sites were identified, documented, and evaluated as a result of the new alignments (Rogers et al. 2013). As a result of these inventory efforts, all known pipeline corridor segments with the exception of the North Option and as-yet unidentified ancillary facilities areas have been subject to archaeological survey per the methods described above. It is anticipated that any areas identified for archaeological survey after the signing of the PA would be addressed through the consultation process outlined in the PA.

Nine recent use sites were also identified, and include vehicular, sled or pedestrian trails, trap line corridors, aircraft wreckage, culturally modified tree areas, fire pits, hunting stands, and other resources that are less than 50 years old. These non-historic site resources were documented so that if one was encountered during construction managers would know that they were previously assessed during the permitting stage (Rogers et al. 2013). However, the recent use sites are not eligible for the NRHP because they do not meet the minimum age requirement and are not considered further.

3.20.2.6 SUMMARY OF IDENTIFIED RESOURCES WITHIN THE APE

Field surveys for the Donlin Gold Project were conducted between 2006 and 2016 along all pipeline alternatives identified prior to that time period but not including the North Option. These surveys revealed three segments of the INHT and 49 cultural resource sites within the proposed APE, including 20 resources treated as historic properties (16 that have been determined eligible for the NRHP and 4 that are unevaluated and treated as eligible for the purpose of this analysis) (Table 3.20-1). The remaining 29 sites are not historic properties and were determined not eligible due to lack of association with persons or events important in history, the inability to contribute information important to history or prehistory beyond that

captured during initial documentation and testing, and or were identified as not in the APE or destroyed.

The 15 NRHP-eligible sites include: two historic cabin or roadhouse sites (IDT-00260 and TY0-00215); two prehistoric surface lithic scatters (IDT-00-275, IDT-00288); eight prehistoric lithic scatters with both surface and subsurface components (MCG-00071, MCG-00072, MCG-00075, MCG-00076, TAL-00164, TAL-00166, TY0-00278, and TY0-00279); one prehistoric site with surface and subsurface components and archaeological features (SLT-00094); one prehistoric/historic depression site (TY0-00277); and one camp associated with the INHT (TYO-00363). The three segments of the INHT in the APE include TAL-00055, TYO-00085, and MCG-00125

The four unevaluated sites include one surface lithic scatter (IDT-00292) and three historic cabin/lodge sites (IDT-00261, TAL-00044, and TAL-00129).

NHRP-eligible historic roadhouses or cabins include the Lewis Gulch Cabin ruins (IDT-00260), a miner's cabin with associated pit features, a prospect hole, and a refuse dump dating to ca. 1910. The Lewis Gulch Cabin, found at the Mine Site along Crooked Creek, is eligible for the NRHP under Criterion D for its potential to provide archaeological data on the history of mining and prospecting in the Middle Kuskokwim region during the early period of prospecting from 1910 to 1915 (Hays et al. 2011). The historic/modern Cumberland Trapline Cabin was built around the 1940s in the vicinity of Skwentna and is significant for its architectural style and information potential regarding the history of animal trapping (Reuther et al. 2013).

The INHT has been assigned three distinct AHRS numbers in the Donlin Gold Project APE. These include trails used to transport goods and people through the Rainy Pass area from 1912-1924. Site MCG-00125, the Rainy Pass-Big Lake Trail, is described as mostly intact but with discontinuous evidence of its physical structure and location (Higgs 2016). The trail segment identified as the Goodwin-IT or Knik-Rainy Pass Trail (TYO-00085) was also used from 1912 to 1924 and is characterized by discontinuous evidence of its location (Higgs 2016). The Goodwin IT or Knik-Rainy Pass Trail segment with more continuous physical structure and location is documented as TAL-00055 (Higgs 2016). All INHT segments are currently being treated as NRHP-eligible resources.

In addition to the INHT segments, there is one historic camp, the McPherson Camp 39 (TYO-00363), located near the Skwentna River, which represents an early twentieth century railroad survey party's overnight camp site (Higgs 2016).

The prehistoric Angyaruaq site (SLT-00094) is near the Kuskokwim River and was identified during survey of the Angyaruaq (Jungjuk) Port site. The site includes several housepits and tools, with radiocarbon dates revealing multiple occupations dating to about 2,000 years ago. The intact, buried site with in situ artifacts present in association with dated cultural materials is recommended as eligible to the NRHP because of its potential to yield information pertaining to prehistoric subsistence and settlement patterns in Southwest Alaska (Wooley et al. 2007). The prehistoric animal bone scatter designated as TYO-00279 is on a terrace at the confluence of the Happy River and Skwentna River and consists of calcined bones (faunal materials) associated with a buried soil but no artifacts, dating to about 4200 BP. The site, identified along the pipeline corridor, is recommended as eligible to the NRHP for its ability to provide

archaeological data on the human prehistory of the Alaska Range and routes between southern Alaska's largest drainages (Reuther et al. 2013).

The 10 prehistoric lithic scatters (IDT-00275, IDT-00288, MCG-00071, MCG-00072, MCG-00075, MCG-00076, TAL-00164, TAL-00166, TY0-00278, and TY0-00279) vary in constituents but are eligible to the NRHP under Criterion D because of their ability to address important research questions. For example, prehistoric lithic scatters IDT-00275 and IDT-00288 are found in the same pipeline segment and both exhibit a wide range of lithic materials and large variation in activities, with artifact assemblages comprised of both local and exotic lithic materials. Both sites are recommended as eligible to the NRHP for their potential to yield data on the cultural history and land use patterns of the middle Kuskokwim region and western Alaska. Prehistoric site MCG-00071 is located near the Tatina River along the pipeline and consists of lithic artifacts, calcined bone fragments, and a charcoal/hearth feature. The site dates to ca. 4300 BP and is recommended as eligible to the NRHP for its ability to yield data regarding land use patterns, exchange networks, and the nature of utilization at the site (Rogers et al. 2013). Site TYO-00278, found at the confluence of the Happy and Skwentna rivers, consists of charcoal and cultural materials in buried soils representing three cultural components spanning ca. 4000 to 7000 BP. The site, found along the pipeline corridor, is recommended as eligible to the NRHP under Criterion D for its ability to provide data on the human history of the Alaska Range, the upper Kuskokwim region, and western Alaska (Reuther et al. 2013).

Four sites are unevaluated, but assumed to be eligible for the NRHP for the purposes of this analysis. The unevaluated sites include recent-historic cabin ruins (IDT-00261) of indeterminate age, the Puntilla Cabin (TAL-00044), Rainy Pass Lodge (TAL-00129), and a prehistoric lithic scatter (IDT-00292). Because the age of the cabin is unknown, site IDT-00261 has not been fully evaluated for the NRHP. The prehistoric lithic scatter (IDT-00292) was identified at the mine project component but has not been evaluated. The site consists of a small flake scatter of culturally modified basalt (Hays et al. 2012). The Puntilla Cabin (TAL-00044), built prior to 1922 and refurbished as a shelter cabin, and Rainy Pass Lodge (TAL-00129), which consists of several log and frame buildings, many of which date back to the 1930s, are associated with the INHT and are located near the pipeline corridor, but have not been formally evaluated.

The remaining 29 cultural resources in the APE are not eligible to the NRHP because they do not possess the potential to yield any important data beyond what was gathered during the project's field seasons. For example, some sites were initially documented as lithic scatters but later determined upon further investigation to be non-cultural (IDT-00282, IDT-00284, and IDT-00285). The other non-eligible prehistoric sites (e.g., IDT-00262, IDT-00263, IDT-00264, and others as listed on Table 3.20-1) are typically areas of expedient stone tool production and maintenance on ridge tops where lithic raw materials were readily available and artifact density is low. These sites lack a potential to yield important information reading cultural and land use history of the region beyond what was gathered during the project (Bittner 2016; Newman 2016; Reuther et al. 2013; Rogers 2016).

In addition to the prehistoric sites, two historic and/or recent placer mining features (IDT-00265 and -00266), which extend for 2.0 to 2.5 miles and may date between 1909 and the 1970s, were determined ineligible for the NRHP because they lack ability to yield important archaeological or historical data, and because better-preserved water diversion structures are present elsewhere (Hays et al. 2011).

SHPO concurred with recommendations for eligibility on October 25, 2016. Final determinations of eligibility involved consultation among the Section 106 consulting parties and included the considerations of Alaska Native tribes and other parties. Procedures for formal determinations are also addressed in the PA for cultural resources.

The INHT is congressionally designated and the trail system is considered eligible for nomination to the NRHP. Three segments that intersect the APE are reflected in the AHRS and have site numbers: Rainy Pass-Big Lake Trail (MCG-000125) and two segments of the Knik-Rainy Pass Trail (TYO-00085 and TAL-00055) (Higgs 2016). Associated roadhouse and cabin sites include the Puntilla Cabin (TAL-00044). A draft thematic Multiple Property Documentation Form was prepared for the INHT currently under review by the NRHP program of the National Park Service, but NRHP eligibility will involve consultation among the Section 106 consulting parties, and details regarding this will be addressed in the PA. The INHT is discussed in more detail in Section 3.20.2.6.10, below.

Table 3.20-1: Summary of Documented Cultural Resources and Historic Properties within the APE for the Donlin Gold Project

AHRS#	Nature of resource	Location	Eligibility Recommendation	Criteria for Eligibility/ Comments	Project Effect (SHPO Concurrence)
IDT-00260	Lewis Gulch cabin	Mine Area	Eligible	Criterion D (information potential re: history of mining in Alaska)	Adverse
IDT-00261	Grouse Creek cabin	Mine Area	Not Evaluated	N/A	Not Adverse
IDT-00262	Surface lithic scatter	Mine Area	Not Eligible	Insufficient association and data potential.	N/A
IDT-00263	Surface lithic scatter	Mine Area	Not Eligible	Insufficient association and data potential.	N/A
IDT-00264	Surface lithic scatter	Mine Area	Not Eligible	Insufficient association and data potential.	N/A
IDT-00265	Ditch feature	Mine Area	Not Eligible	Insufficient association and data potential.	N/A
IDT-00266	Ditch feature	Mine Area	Not Eligible	Insufficient association and data potential.	N/A
IDT-00275	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
IDT-00276	Subsurface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
IDT-00277	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
IDT-00278	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
IDT-00279	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
IDT-00280	Surface lithic artifacts	Alts. 2 and 6A Pipeline	Not Eligible	Insufficient association and data potential.	N/A

Table 3.20-1: Summary of Documented Cultural Resources and Historic Properties within the APE for the Donlin Gold Project

AHRS#	Nature of resource	Location	Eligibility Recommendation	Criteria for Eligibility/ Comments	Project Effect (SHPO Concurrence)
		Corridor			
IDT-00281	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
IDT-00282	Surface lithic artifacts (Determined non-cultural)	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Determined non-cultural	N/A
IDT-00283	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
IDT-00284	Surface lithic artifacts (Determined non-cultural)	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Determined non-cultural	N/A
IDT-00285	Surface lithic artifacts (Determined non-cultural)	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Determined non-cultural	N/A
IDT-00286	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
IDT-00287	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
IDT-00288	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Adverse
IDT-00289	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
IDT-00290	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
IDT-00291	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
IDT-00292	Surface lithic scatter	Mine Area	Not Evaluated	N/A	Not Adverse
MCG-00061	Surface lithic artifacts	Alt. 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
MCG-00064	Subsurface lithic artifacts	Alt. 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
MCG-00069	Subsurface lithic artifacts	Alt. 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
MCG-00071	Subsurface lithic artifacts	Alt. 2 Pipeline Corridor	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Adverse

Table 3.20-1: Summary of Documented Cultural Resources and Historic Properties within the APE for the Donlin Gold Project

AHRS#	Nature of resource	Location	Eligibility Recommendation	Criteria for Eligibility/ Comments	Project Effect (SHPO Concurrence)
MCG-00072	Subsurface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
MCG-00075	Subsurface lithic artifacts	Alt. 2 Pipeline Corridor	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
MCG-00076	Subsurface lithic artifacts	Alt. 2 Pipeline Corridor	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
MCG-00125[1]	Iditarod Trail segment (Rainy Pass-Big Lake Trail)	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion A (Association with significant events)	Adverse
SLT-00094	Extensive multi-locus surface/ subsurface features and artifacts	Jungjuk Port Site	Eligible	Criterion D (information potential re: prehistory of Southwest Alaska)	Adverse
TAL-00044	Puntilla Cabin	Alt. 6A Pipeline Corridor	Not Evaluated	N/A	Not Adverse
TAL-00055[1]	Iditarod Trail segment (Knik-Rainy Pass Trail)	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion A (Association with significant events)	Adverse
TAL-00129	Rainy Pass Lodge	Alts. 2 and 6A Pipeline Corridor	Not Evaluated	N/A	Not Adverse
TAL-00151	Subsurface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
TAL-00152	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
TAL-00153	Surface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
TAL-00163	Subsurface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
TAL-00164	Subsurface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion D (archaeological information potential re: prehistory of Kuskokwim region)	Not Adverse
TAL-00166	Subsurface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Adverse
TAL-00177	Subsurface lithic artifacts	Alt. 2 Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
TAL-00178	Subsurface lithic artifacts	Alt. 2 Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
TYO-	Iditarod Trail	Alts. 2 and 6A	Eligible	Criterion A (Association with	Adverse

Table 3.20-1: Summary of Documented Cultural Resources and Historic Properties within the APE for the Donlin Gold Project

AHRS#	Nature of resource	Location	Eligibility Recommendation	Criteria for Eligibility/ Comments	Project Effect (SHPO Concurrence)
00085[1]	segment (Knik-Rainy Pass Trail)	Pipeline Corridor		significant events)	
TYO-00214	Skwentna Crossing Shelter Historic cabin	Alts. 2 and 6A Pipeline Corridor	Not Eligible	Insufficient association and data potential.	N/A
TYO-00215	Historic/Modern Cumberland Trapline Cabin (ca. 1940s-1970s)	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion C (building type) and Criterion D (archaeological information potential re trapping history of Skwentna River Valley)	Adverse
TYO-00277	Prehistoric/Historic depression features	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion D (archaeological information potential re: prehistory of Susitna region)	Adverse
TYO-00278	Subsurface lithic artifacts	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion D (archaeological information potential re: prehistory of Kuskokwim region)	Adverse
TYO-00279	Calcined animal bones	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Adverse
TYO-00363	McPherson's Camp 39	Alts. 2 and 6A Pipeline Corridor	Eligible	Criterion A (association with significant events re: Goodwin Iditarod Trail); Criterion D (information	Not Adverse

Notes:
1 Sites TAL-00055, TYO-00085, MCG-000125 are segments of the Iditarod Trail (Goodwin Trail, Iditarod National Historic Trail, Iditarod Race Trail) but are documented as separate resources.
Source: Hays et al. 2011, Hays et al. 2012, Higgs 2016, Reuther et al 2013, Rogers et al. 2013, Wooley et al. 2007, Wooley et al. 2008

3.20.2.6.1 IDITAROD NATIONAL HISTORIC TRAIL

Nature and Purpose

The INHT includes a 938-mile primary trail and 1,326 miles of connecting trails between Seward, in southcentral Alaska where there is an ice free deep water port, and Nome, on the southern side of the Seward Peninsula in northwest Alaska. The primary route reflects the trail surveyed by W.L. Goodwin of the ARC in 1910 to connect Seward, Nome and the town of Iditarod and is considered the most important route of the INHT trail system during the Iditarod Gold Rush. Branching from the primary route are over a thousand miles of INHT connecting trails which were important components of this gold rush trail system.

U.S. Congress designated the INHT in 1978 in recognition of its significance as a scenic, recreational, and historic transportation route, with the BLM appointed as the federal trail

administrator (Antonson and Lewis 2016). The Draft National Register of Historic Places Multiple Property Documentation Form (MPD) for the Iditarod Trail describes the significance of the INHT as:

> …important in the development of south central, west central and western Alaska, providing people access to and around these parts of Alaska and access to and from an ice free port at Seward particularly during the winter months. Segments of the route were used before 1896. Segments at times, as well as the entire trail, had an important role in several Alaskan gold rushes. The trail facilitated travel and communication and promoted business development all along its route. On occasion, a section of the trail has an association with a significant event, such as the Serum Run of 1925. Also, the Iditarod Trail system is associated with Walter L. Goodwin, the ARC employee who surveyed and blazed the main route. Additional research might identify mail carriers, freighters, or other individuals who traveled all or part of the trail for a sustained period of time who were of local significance. Sections of the trail might exhibit construction techniques or engineering out of the ordinary or adapted for Alaska, and there might be archaeological evidence that exhibit these (Antonson and Lewis 2016).

The INHT also incorporates many portions of an early system of Native Alaskan travel routes. The Native Alaskan settlements along the INHT, which continued to be occupied during the gold rush era, demonstrated the culturally layered relationship between the historic and prehistoric system of trails and exemplify Native involvement in the activities of the system, including transport, mail delivery, and roadhouse operations.

The INHT commemorates the winter trail, the use of sled dogs for conveyance, and the unique natural setting associated with the Iditarod gold rush, which was the last great gold rush in America. Major portions of the INHT retain excellent integrity of feeling, setting, location, design, and association. Portions of the INHT historic route overlap the current sled dog race routes at various points along the trail. Primary uses of these portions of INHT include recreation and tourism. Use is high during winter months when the trail is used for Iditarod Trail Sled Dog Race, the Northern Lights 300, the Knik 200, the Junior Iditarod Sled Dog Race, the Iron Dog snowmachine race, and the Iditarod Invitational (Nordic skiers, mountain bikers, snowshoers, and runners). Those segments of the INHT not located along the race route receive subsistence use and local winter travel, and remain important to local communities for these purposes.

Character Defining Features and Integrity

The draft National Register nomination for the INHT contains registration requirements for eligible segments of the INHT. In order to be historically contributing, a segment is recommended to be at least 0.25-mile long and maintain sufficient integrity of location, design, materials, setting, feeling, and association to convey a historic sense of the route. The trail must maintain evidence of a discernable marked route and follow a route used during the period of significance (1896-1942). In addition, the setting and surrounding landscape must closely resemble that of the period of significance (1896-1942) (Antonson and Lewis 2016).

The INHT's character defining features and setting are characterized by the historic nature and purpose of the Iditarod Trail network and its primary use during the winter. Components that generally comprise the trail's setting include natural corridors through lowland areas, which offered easier travel when rivers, creeks, lakes and tundra froze. To provide protection from the wind, trails were through forested areas wherever possible. Trails had low grades to adhere to

the ARC's 1905 established standard widths for pack (or foot) and sled dog trails, which "were to be eight feet wide with no grades steeper than four percent." Barren stretches of trails were to be flagged (Antonson and Lewis 2016).

Although the Iditarod Trail accommodated multiple forms of transportation in various segments, near the Pipeline ROW, the INHT is much more rural, and is likely categorized as a pack and sled trail, the least improved trail type. Pack and sled trails accommodated both winter and summer use and sometimes crossed terrain too rough or steep for other transportation methods (Antonson and Lewis 2016).

Within the Pipeline ROW APE, the INHT is not located on federal lands; however, as the administrator of the INHT, the BLM leads broad trail-wide responsibilities. These include coordinating with state and local stakeholders on trail planning activities, oversight of trail development, development of trail maintenance standards, trail marking, trail segment certification, resource protection, inventories, and mapping. The BLM prepared the Iditarod National Historic Trail Comprehensive Management Plan (INHT CMP), which encompasses the entire trail system and includes a resource inventory (BLM 1986a, 1982). The resource inventory identifies the INHT's historic and cultural resources, as well as natural and scenic resources, and outdoor recreation resources (BLM 1982). The INHT CMP, including the historic and cultural resources inventory and natural and scenic resource inventory, provides an additional basis for evaluating the INHT's historical integrity and assessing potential indirect impacts from the Donlin Gold Project. The CMP, therefore, builds upon the effects analysis prepared under Section 106 of the NHPA. The CMP provides broader assessment of the INHT's integrity of setting and how the project may affect the physical elements of that visual setting that contribute to the significance of the INHT. This includes breaking down the segments of the trail into their potential significance, the physiographic regions they occupy, and their visual and scenic quality. As previously noted, the INHT's setting is an important component of the resource's integrity and thus its relative significance.

The INHT CMP's Historic and Cultural Resources Inventory established methods for identifying different trail types such as primary, connecting, or other trails. The INHT CMP evaluated portions of the INHT as located, not visible or located, or meandering. The INHT CMP also evaluated the historic sites for condition, access, present and potential visitor use and assigned each resource as Level 1, 2, or 3 based on the priority, secondary, or minimum management recommended. All of this information in the CMP assists with assessing the trail's historical integrity, more specifically its setting, association, feeling, workmanship, location, and design.

The INHT CMP's Natural and Scenic Resource Inventory, is particularly helpful in understanding the INHT setting. The inventory describes "visual and perceptual" aspects of the INHT by identifying Scenic Quality Rating Units (SQRU) within portions of visually significant trail segments, classified by physiographic region and ranked based on seven key factors: landform, vegetation, water, color, influence of adjacent scenery, scarcity, and cultural modification. The ranked classifications identify Class A areas that "combine the most outstanding characteristics of each rating factor;" Class B areas in which there is a combination of some outstanding features and some that are fairly common to the physiographic region; and, Class C areas in which the features are fairly common to the physiographic region (see Section 3.17, Visual Resources) (BLM 1982). In addition to ranking scenic quality, this inventory

also identifies view areas, Significant Viewpoints, and Important Landmark Features that contribute to the character of each SQRU segment.

Within the ROW indirect APE, the INHT crosses two physiographic provinces, the Alaska Range and Susitna Lowlands, with eight SQRUs present ranging from Class A to Class C scenic quality (see Section 3.17 Visual Resources). Significant Viewpoints are identified at the Happy River/Skwentna River confluence, Rainy Pass, Dalzell Gorge, and Rohn River Roadhouse (MCG-00007). Important Landmark Features visible from the APE are identified at Kohlsaat Peak north of the Rainy Pass Lodge (TAL-00129), Pyramid Mountain, Mount Susitna and Beluga Mountain (BLM 1982).

The indirect APE includes varying trail conditions for the primary trail and connecting trails, but mostly includes located trails. Two Priority Level 1 historic sites, Old Skwentna Roadhouse (TYO-00021) and Rohn River Roadhouse (MCG-00007) are in the APE. Priority Level 2 historic sites in the APE include Mountain Climber Roadhouse (TYO-00022, not found), Happy River Roadhouse (TYO-00023, site destroyed by natural causes), and Dalzell Roadhouse (MCG-00003, eligible). Priority Level 3 historic sites in the APE include an Unnamed Roadhouse (not visited), Puntilla Cabin (TAL-00044, in Alternative 6B APE), Rainy Pass Roadhouse, and Rohn River Checkpoint Cabin (MCG-00019, eligible).

The indirect APE for the proposed operational ROW crosses eight SQRUs, including five SQRUs located within the Susitna Lowlands physiographic province (SL-04, SL-05, SL-06, SL-07, SL-08) and three SQRUs located within the Alaska Range physiographic province (AR-01, AR-02, AR-06). The APE for the Pipeline Alternative 6A ROW would cross three additional SQRUs in the Alaska Range physiographic province (AR-03, AR-04, AR-05). The characteristics and features within each SQRU describe the integrity of setting, feeling, and association through the trail's scenic qualities and attributes within the physiographic regions. Character-defining features and integrity are described below and summarized in Table 3.20-2. The text presents SQRUs in southwest to northeast order.

Susitna Lowlands Physiographic Province

The Susitna Lowlands physiographic province largely borders Cook Inlet with landforms consisting primarily of glacial deposits and level terraces that border principal rivers. The water forms are chiefly low moraines interspersed with numerous lakes, bogs, and broad outwash plains. The physiographic province has low diversity in both landform and water form, with the strongest contrast between the Chugach and Alaska mountain ranges. The principal vegetation in the lower elevations is Sitka spruce near Cook Inlet, black spruce in the wetter areas, and treeless muskeg bogs with interspersed black spruce on their periphery. The upland forests are predominately occupied with white spruce and paper birch and in areas above 800 feet in elevations, grasses, willows, and alders predominate. Recreation, fishing, and hunting activities have modified the landscape, as well as mining operations.

Within the APE in the Susitna Lowlands physiographic province, the scenic quality includes Class A (SQRU SL-06 and SL-08) and Class B (SQRU SL-07) areas. The INHT passes through the Susitna Lowlands on two primary segments. The Rainy Pass to Farewell Lake Primary Trail segment is a located primary trail segment with a parallel unnamed connecting trail. The Knik to Susitna Primary Route (east of Farewell Lake Primary Trail), also a located primary trail, passes north of the SQRU away from the Pipeline ROW, while an unnamed connecting trail traverses through SL-04 in proximity to the Pipeline ROW. The APE includes Old Skwentna

Roadhouse (TYO-00021), a Priority Level 1 historic site within SQRU SL-06. The APE also includes the Mountain Climber Roadhouse (TYO-00022) in SQRU SL-07 and the Happy River Roadhouse (TYO-00023) in SQRU SL-08, both Level 2 sites (BLM 1982).

SQRU SL-06 is located at the intersection of the INHT and the Skwentna River. The segment offers an openness of views at the break created by the Skwentna River crossing, as the braided channel of the fast flowing river at this intersection provides "significant relief from the vast homogenous forests of the Susitna Lowlands" (BLM 1982). The Alaska Range becomes visible as it looms to the west in views from the trail and the Old Skwentna Roadhouse, where the Knik to Susitna River Primary Route and the Susitna Station to Old Skwentna (Yentna River) Connecting Trail join. Bottomland spruce and large poplars are characteristic vegetation. Scenic quality is ranked as Class A. No important landmark features or significant viewpoints are identified in the INHT CMP (BLM 1982).

SQRU SL-07 is located north of the Skwentna River, extending from roughly the confluence with the Talachulitna River to south of McDoel Peak, and is typical of the foothills of the Alaska Range. Though the Skwentna River and several lakes (Shell Lake, Onestone Lake) are within a mile of the trail, these features are seldom seen due to the spruce-poplar and lowland/upland spruce-hardwood forests. Scenic quality is ranked as Class B. Dickason Mountain, located to the southwest, is identified as a view area, particularly the Shell Hills to the north (BLM 1982).

SQRU SL-08 is located south of McDoel and Columbia peaks and extending from approximately Finger Lake to the Happy River. This area contains a "well-defined visual corridor" directed toward Rainy Pass with views of Happy River to the south and mountains that create "continuous visual landmarks on either side of the trail" (BLM 1982). The landform is characterized by rolling hills with intersecting terraces along the Happy River and significant views of steep, jagged peaks in the Alaska Range. The trail remains heavily forested with lowland and upland spruce/hardwoods with alpine tundra on the mountain sides. The vegetation and landform creates a significant break near Finger Lake in the southern portion of the SQRU. Scenic quality is ranked as Class A. The confluence of the Happy and Skwentna rivers is identified as a significant viewpoint, and surrounding higher elevation valley walls are identified as view areas (BLM 1982).

Alaska Range Physiographic Province

The Alaska Range physiographic province offers a dramatic emphasis of glacially originated landforms, with rugged peaks elevating above 10,000 feet within the primarily long, narrow mountain range in southcentral Alaska. The high ridges are juxtaposed by several low passes to travel through. High, steep slopes are generally bare of vegetation. Shrubby alpine vegetation covers most of the lower slopes, as well as isolated areas of black spruce forests. Many rivers originate in the Alaska Range, including the headwaters of the Tanana and Kuskokwim rivers. The population in this region is sparse, and recreation is the chief attraction. Dominant visual elements in this segment include the expansive, uninterrupted views from the trail due to lack of vegetation along the trail (BLM 1982).

All SQRUs in the Alaska Range within the APE are ranked as Class A for scenic quality. The APE within this physiographic province includes the Rainy Pass to Farewell Lake Primary Trail. From Rainy Pass, the Ptarmigan Pass Connecting Trail diverges to the south, reconnecting with the primary trail near the Rohn River Roadhouse (MCG-00007) within the Pipeline Alternative 6A APE. No Level 1 or Level 2 historic sites are within the Pipeline ROW APE (Alternative 2),

but the Rohn River Roadhouse (MCG-00007), a Level 1 historic site, and the Dalzell Roadhouse (MCG-00003) a Level 2 historic site, are within the Pipeline Alternative 6A APE. Level 3 historic sites in the APE include an Unnamed Roadhouse near the confluence of the two physiographic regions and Puntilla Cabin (TAL-00044) in SQRU AR-01, as well as Rainy Pass Roadhouse in SQRU AR-03, and Rohn River Checkpoint Cabin (MCG-00019) near SQRU AR-04 (BLM 1982).

SQRU AR-01 is located in the Happy River Valley between Destin Peak and Puntilla Mountain. From here, the INHT provides diverse visual experiences from higher elevations, and uninterrupted views from the trail. Views are expansive with long vistas in all directions, with dominant visual elements of steep jagged mountains of the Alaska Range. The trail corridor is situated on rolling terrain with terraces at higher elevations. Trail users experience heightened anticipation of the upcoming Rainy Pass. The valley walls of the Alaska Range are identified as a view area (BLM 1982).

SQRU AR-02 is within the Happy River Valley south of Kohlsaat Peak and Rainy Pass Creek south of Rainy Pass. The SQRU is characterized by steep jagged mountains that surround the distinct enclosed U-shaped valley in this extremely remote trail section. Expansive and uninterrupted views from this corridor occur in all directions due to lack of vegetation. The rugged landforms to the east of Pass Creek are identified as an important landmark feature, and the valley walls of the Alaska Range are identified as a view area (BLM 1982). From here, the INHT separates from the Pipeline ROW APE as it passes the Pass Creek Roadhouse (outside of the APE) and traverses east through Rainy Pass (BLM 1982). The Pass Creek Roadhouse, a Level 3 historic site is situated along the trail in this SQRU.

SQRU AR-04 is within the Alternative 6A proposed pipeline APE and encompasses a section of the INHT referred to as the Dalzells. This SQRU is characterized by the narrow valley rapidly descending in elevation along the twisting and curving trail, with views of the west side of the range. The Dalzell Roadhouse (MCG-00003), a Level 2 historic site is located along the trail in this SQRU (BLM 1982).

SQRU AR-05 is within the Alternative 6A proposed pipeline APE, located where Dalzell Creek meets the Tatina River and the South Fork Kuskokwim River. From this significant viewpoint, the valley opens and becomes much broader, providing expansive views to the west of V-shaped valleys. Diverse vegetation begins to appear. The northwest end of the Ptarmigan Pass Connecting Trail joins with the primary route. The Rohn River Roadhouse (MCG-00007), a Level 1 historic site and the Rohn River Checkpoint Cabin (MCG-00019), a Level 3 historic site are within the SQRU (BLM 1982).

SQRU AR-05 is within the Alternative 6A proposed pipeline APE, located where Dalzell Creek meets the Tatina River and the South Fork Kuskokwim River. From this significant viewpoint, the valley opens and becomes much broader, providing expansive views to the west of V-shaped valleys. Diverse vegetation begins to appear. The northwest end of the Ptarmigan Pass Connecting Trail joins with the primary route. The Rohn River Roadhouse (MCG-007), a Level 1 historic site and the Rohn River Checkpoint Cabin, a Level 3 historic site are within the SQRU (BLM 1982).

SQRU AR-06 marks a significant transition in physiographic provinces as the expansive Alaska Range opens to the Kuskokwim Lowlands to the northwest, creating a distinct change in setting from the expansive, rugged, and incised Alaska Range to the broad, flat, and panoramic qualities of the Tanana-Kuskokwim Lowlands. Two scenic resources are identified in the INHT

CMP (BLM 1982): 1) Egypt Mountain, identified as an Important Landmark Feature; and 2) the valley walls of the Alaska Range, identified as a view area. The anticipation of crossing the arduous Bear Creek Burn is heightened at this point along the trail (BLM 1982).

Table 3.20-2: Summary of Scenic Quality and Character-Defining Features of the Iditarod National Historic Trail by Scenic Quality Rating Unit

SQRU	Physiographic Unit	Scenic Quality Rating	View Areas	Significant Viewpoints	Important Landmark Features
SL-06	Susitna Lowlands	A	N/A	N/A	N/A
SL-07	Susitna Lowlands	B	Dickason Mountain	N/A	N/A
SL-08	Susitna Lowlands	A	Valley walls of Alaska Range	The confluence of the Happy and Skwentna Rivers	N/A
AR-01	Alaska Range	A	Valley walls of Alaska Range	N/A	N/A
AR-02	Alaska Range	A	Valley walls of Alaska Range	N/A	Rugged landforms to the east of Pass Creek
AR-03	Alaska Range	A	Valley walls of Alaska Range	Rainy Pass	N/A
AR-04	Alaska Range	A	Valley walls of Alaska Range	Dalzell Gorge	N/A
AR-05	Alaska Range	A	Valley walls of Alaska Range	The confluence of Dalzell Creek with the Tatina and South Fork Rivers	N/A
AR-6	Alaska Range	A	Valley walls of Alaska Range	N/A	Egypt Mountain

Source: The Iditarod National Historic Trail Comprehensive Management Plan (BLM 1982).

3.20.2.6.2 TRADITIONAL CULTURAL PROPERTIES

A traditional cultural property (TCP) is defined as a place that is "eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1992). TCPs often represent the location where important traditional events, activities, or cultural observances have taken place in the past, yet remain active in the community's or tribe's cultural practices. An ethnographic study involving the affected tribes can assist in properly identifying and evaluating the significance of TCPs. Confidential results of the ethnographic study would then be shared with the lead agencies and may or may not be distributed as public information.

As discussed above, the history of the region is characterized by intensive use and occupation by the Inland and Upper Inlet dialect areas of the Dena'ina, Upper Kuskokwim, Deg Hit'an (Kuskokwim dialect), and Central Yupik (middle Kuskokwim dialect) peoples, including residential and camp locations, subsistence resources, origin locations, place names, and travel

routes. Data on these locations are contained in a variety of sources, including published and unpublished historic accounts, oral traditions, and recorded interviews, but have not been compiled into a comprehensive document as part of the current proposed undertaking. Further development of the PA and Section 106 consultations with tribes may result in further efforts to identify and evaluate potential TCPs within the project APE.

3.20.2.6.3 CLIMATE CHANGE

Climate change may induce or hasten permafrost degradation, land subsidence, and riverine and coastal erosion. Cultural resources and historic properties have been affected by climate change to the extent that these related physical processes are in the vicinity of cultural resources and historic properties. A recent article in a publication of the Archaeological Institute of America focused on an archaeological site in Quinhagak where the remains of an historic Yup'ik settlement is threatened by climate change induced erosion (Weiss 2015). Other cultural resources and historic sites, including Alaska Native village sites, are also at risk of riverine and coastal erosion processes accelerated by climate change (Demer 2014). The Quinhagak site and other archaeological sites may supplement climate change studies and adaptation measures by providing an understanding of human responses to past climate changes (University of Aberdeen 2012). The Walakpa archaeological site, located southwest of Utqiagvik (formerly Barrow), Alaska, is a multi-component site comprised of a series of mounds and midden deposits dating to at least 1200 years ago and providing critical evidence on the migration and evolution of Birnirk and Thule cultures, a major cultural transition in the western North American Arctic. A possible earlier Arctic Small Tool Tradition occupation may be present at the site, suggesting that the archaeological record may span the entire occupation of the Arctic, over 4,000 years. Unfortunately, after years of relative stability, the site is now in imminent danger from increased coastal erosion due to northern climate change. Reduced sea ice cover and increased storm frequency, coupled with melting permafrost, are rapidly devastating the North Slope archaeological record and the Walakpa site. Recovery efforts at the site were conducted in 2013 and 2014, but ongoing erosion continues to destroy the site.

In general, cultural resources and historic properties within the Project Area are affected by climate change. The degree of effects range depending upon the location of the resource, the proximate soil conditions, and the microclimate within which it exists.

3.20.3 ENVIRONMENTAL CONSEQUENCES

The Construction, Operations, and Closure of the Donlin Gold Project could potentially result in both direct and indirect effects to cultural resources. This section summarizes anticipated impacts to cultural resources based on the proposed alternatives as analyzed under NEPA and NHPA. NEPA and NHPA criteria are relevant for all cultural resources.

3.20.3.1 AREA OF POTENTIAL EFFECT FOR IMPACTS ANALYSIS

As discussed in Section 3.20.1, the classification of a "cultural resource" for purposes of this EIS includes all buildings, sites, districts, structures, objects and landscapes that have been created by or are associated with humans and are considered to have historical or cultural value. This definition is broad and can include cultural landscapes, TCPs, and resources of spiritual or other importance to tribes, for example. Cultural resources as defined herein also include, but are not limited to, "historic properties" as they are more narrowly defined under the NHPA.

The APE for cultural resources is defined in the Section 106 regulations as: "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking" (36 CFR 800.16[d]). Examples of direct and indirect effects are discussed in 36 CFR 800.5(a)(2) and in Section 3.20.3.1.2. Donlin Gold, in consultation with the Corps and the SHPO, has proposed an APE, as detailed in Section 3.20.1, which is depicted in Figure 3.20-1.

The following sections discuss cultural resources identified within the APE as currently defined. Consultation is ongoing, and the APE may be adjusted in the future as a result of consultation under NEPA and NHPA with interested parties, Alaska Native tribes, local governments, and state and federal agencies. Specifically, the APE may be refined in conjunction with a visual assessment currently in progress regarding indirect effects to additional portions of the INHT.

3.20.3.1.1 ANALYSIS OF IMPACTS UNDER NEPA

For cultural resources, direct effects typically occur as ground disturbance during construction activities and the impacts are permanent. For this analysis, direct impacts to cultural resources would likely occur within the project APE (i.e., 300-foot wide pipeline corridor, Mine Site, roads, ancillary facilities, and port area) during the Construction Phase. The Operations and Closure of facilities would result in minimal new ground disturbance, with less of a chance for subsequent direct impacts.

Typically indirect effects occur to cultural resources through increased use or visual effects on resources that are valued for their context, setting, association, or similar aspects of integrity. Historic trails, for example, may have settings that contribute to their historical significance, and alterations to the viewshed may indirectly impact these resources. Noise, vibration, and air quality issues may also introduce indirect effects to select cultural resources.

The level of impacts on cultural resources will be based on levels of intensity, duration, extent or scope, and context, as shown in Table 3.20-3. Considerations of project effects under NEPA are not limited to NRHP-eligible historic properties (as defined by the NHPA Section 106 process), but information on NRHP eligibility helps develop an understanding of the intensity of an effect. NRHP criteria are identified in Table 3.20-3.

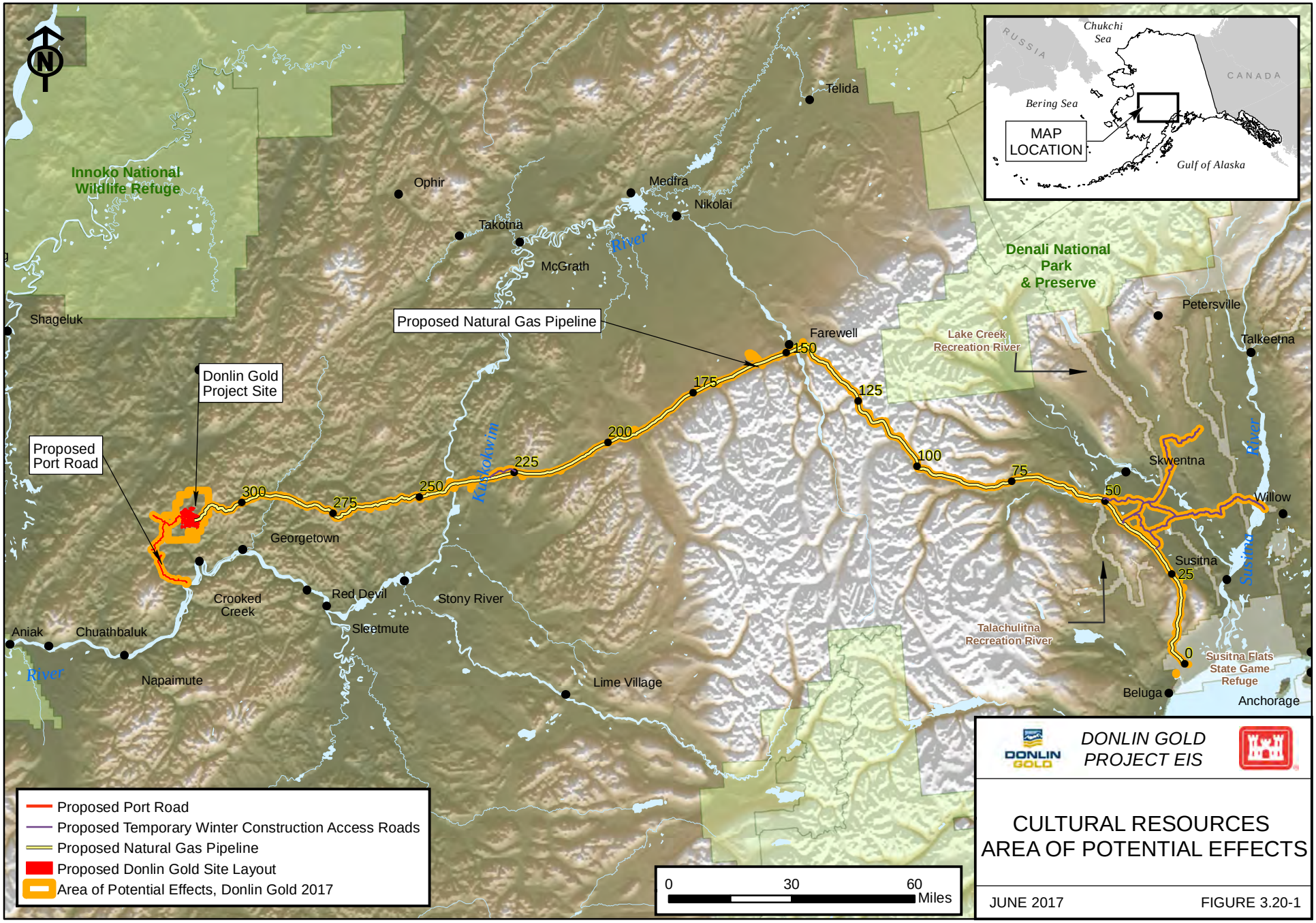
Innoko National Wildlife Refuge
Ophir
Medfra
Nikolai
Telida
Takotna
McGrath
Kuskokwim River
Shageluk
Proposed Natural Gas Pipeline
Donlin Gold Project Site
Proposed Port Road
Farewell
Denali National Park & Preserve
Lake Creek Recreation River
Petersville
Talkeetna
Skwentna
Willow
Susitna River
Susitna
Georgetown
Crooked Creek
Red Devil
Stony River
Sleetmute
Aniak
Chuathbaluk
Napaimute
Lime Village
Talachulitna Recreation River
Susitna Flats State Game Refuge
Beluga
Anchorage
MAP LOCATION
Chukchi Sea
Bering Sea
Gulf of Alaska
RUSSIA
CANADA
0
25
50
75
100
125
150
175
200
225
250
275
300
Proposed Port Road
Proposed Temporary Winter Construction Access Roads
Proposed Natural Gas Pipeline
Proposed Donlin Gold Site Layout
Area of Potential Effects, Donlin Gold 2017
0
30
60
Miles
DONLIN GOLD PROJECT EIS
CULTURAL RESOURCES AREA OF POTENTIAL EFFECTS
JUNE 2017
FIGURE 3.20-1

Table 3.20-3: Impact Methodology for Cultural Resources under NEPA

Type of Effect	Impact Factor	Assessment Criteria		
Effects on Cultural Resources	Magnitude or Intensity	No detectable changes in integrity, or able to mitigate impacts through CRMP and PA.	Measurable impacts that diminish historical integrity but not sufficient to affect NRHP eligibility. Impacts mitigated through CRMP and PA.	Loss of integrity such that eligibility to the NRHP is completely diminished. Impacts mitigated through CRMP and PA.
	Duration	Resource integrity would be reduced through the Construction Phase, but short term mitigation would be expected to restore pre-activity levels.	Resource integrity would be reduced through the life of the project, but effects could be mitigated.	Permanent effects; resource would not be anticipated to return to previous levels even after actions that caused the impacts were to cease.
	Extent or Scope	Impacts limited geographically to discrete portions of EIS Analysis Area. Significance is defined in 36 CFR 60.4.	Affects resources with significance throughout the EIS Analysis Area. Significance is defined in 36 CFR 60.4.	Affects resources with significance beyond the region or EIS Analysis Area. Significance is defined in 36 CFR 60.4.
	Context	Affects cultural resources not eligible for the NRHP, but may be protected by other laws. The portion of the resource affected does not fill a unique social or ecological role within the locality or the region.	Affects cultural resources eligible for the NRHP that fill a rare social or cultural role either within the locality or the region, or the rare resource is protected by the *Wild and Scenic Rivers Act,* or *Wilderness Act*. The INHT is considered a valuable resource for the purposes of this analysis; the historic and scenic resources associated with the trail are considered rare within the region. However, designation as a state or federal conservation unit, such as National Park or State Game Refuge, does not in and of itself constitute a unique resource.	Affects cultural resources eligible for the National Register NRHP or the affected resource is protected by the *Wild and Scenic Rivers Act* or *Wilderness Act* and/or the portion of the resource affected fills a unique ecosystem role within the locality or the region.

3.20.3.1.2 DETERMINATIONS OF EFFECTS UNDER SECTION 106 OF THE NHPA

Under the NHPA, historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the secretary of the interior (36 CFR 800.16(l)(1)). Under 36 CFR 800, impacts to cultural resources are evaluated by determining if there is no effect, no adverse effect, or adverse effect. In compliance with the NHPA, the Corps' Procedures for the Protection of Historic Properties

characterizes projects as having a potential for the following effects findings: no potential to cause effects, no effect, no adverse effect, and adverse effect (33 CFR 325, Appendix C).

An adverse effect to historic properties, as defined by 36 CFR 800.5(a) is "when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register." According to 36 CFR 800.5(a)(2), examples of adverse effects include, but are not limited to:

(i) physical destruction of or damage to all or part of the property;

(ii) alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;

(iii) removal of the property from its historic location;

(iv) change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance; and

Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features. Adverse effects for this project can be resolved through consultation performed under the PA and mitigated by implementing the CRMP.

As Table 3.20-4 shows, the determination of effects following 36 CFR 800.5 and 33 CFR 325, Appendix C is most similar to the "Magnitude or Intensity" parameter used to address impacts under NEPA and assessing whether those impacts are significant (compare with Table 3.20-3).

Table 3.20-4: Determination of Effect under NHPA

Type of Effect	Impact Component	Effects Summary		
Changes to Cultural Resources Character	Magnitude or Intensity	**No Potential to Cause Effects or No Effect**	**No Adverse Effect**: Historical integrity of NRHP eligible resource not diminished.	**Adverse Effect**: Diminished integrity or loss of integrity of NRHP-eligible resource.

3.20.3.1.3 ANALYSIS OF EFFECTS TO THE INHT

The analysis area for the INHT included portions of the trail located in the Susitna Lowlands and Alaska Range physiographic provinces. The analysis was conducted at the scale of SQRUs presented in the INHT CMP (BLM 1982).

The impact assessment for the INHT focused on the pipeline's potential to cross, be collocated with, be in proximity to, or within the one-mile viewshed of the trail. The following interrelated resources were incorporated into the assessment of visual resources (see Section 3.17, Visual Resources), historic and cultural resources, and historic and cultural setting.

The degree to which the Donlin Gold Project could result in adverse impacts to the INHT was based on the degree to which potential alteration of the INHT would be amenable to minimization or mitigation, after taking into account impact-reducing design features. Through consultation and the PA process, mitigation measures will be identified to address adverse and residual effects.

The following indicators were used to determine potential impacts to the INHT that may result from the Donlin Gold Project:

- Alteration of character-defining features and integrity (e.g., location, design, setting, materials, workmanship, feeling, and association); and
- Change in scenic quality to the SQRUs, as defined in the INHT CMP (1982).

Impacts to the INHT were assessed in terms of ROW crossings, collocations, or project visibility from the trail and trail-related historic sites in the indirect APE. Indirect impacts to the INHT's integrity of setting, feeling and association were evaluated using the INHT CMP's SQRUs and assessed in terms of magnitude or intensity, exposure (duration), geographic extent, and the historical context of the INHT (Table 3.20-3 and Table 3.20-5). Specific procedures to evaluate scenic quality, such as the Contrast Rating Procedure (BLM 1986a), are described in Section 3.17, Visual Resources.

The outcome of this assessment was used to determine the extent to which the proposed action or alternatives would diminish the important characteristics of the INHT and/or impact the nature and purpose of the trail, trail resources, qualities, values, uses and associated settings. Exposure and geographic extent was determined by overlaying the centerline of the INHT historic route and associated SQRU on the Pipeline ROW and viewshed (see Section 3.17.3.1, Visual Resources), and calculating the following metrics:

- The number of crossings (intersections) between the INHT historic route and the proposed Pipeline ROW;
- The length (miles) of the Pipeline ROW collocated with the INHT historic route;
- The length (miles) of the INHT historic route within the indirect APE of the Pipeline ROW;
- The length (miles) of the INHT historic route that crosses the viewshed of the proposed Pipeline ROW within the immediate foreground (<0.5 mile), and foreground-middleground (0.5 - 5.0 miles).

3.20.3.1.4 METHODS AND ASSUMPTIONS FOR IMPACT ANALYSIS

As described in Section 3.20.2, a number of cultural resource surveys have occurred for the Donlin Gold Project within the APE. However, surveys have not occurred over 100 percent of the APE. Where they have occurred, the area covered by cultural surveys is broader than the project component footprints in order to account for changes in project scope/footprint. This impacts analysis is based upon current project proposals and the APE as currently defined (Donlin Gold 2015c).

Table 3.20-5: Analysis of Effects – Iditarod National Historic Trail

Type of Effect	Impact Component	Effects Summary		
Level of Effect		**No Effect**	**No Adverse Effect**	**Adverse Effect**
Effects on INHT Scenic Quality and Character-Defining Features	Alterations to setting through changes in SQRUs	**DISCRETE** –Impacts would not alter key factors used to rank scenic quality in affected SQRU(s) and no change to scenic quality score for affected SQRUs would result.	**LIMITED** – Impacts would result in change of at least one key factor used to rank scenic quality in affected SQRU(s); a change to scenic quality score for affected SQRUs would result. However, scenic quality values for two or more adjacent SQRUs within a similar physiographic unit would not occur.	**EXTENDED** – Impacts would result in change of at least one key factor used to rank scenic quality in affected SQRU(s); a change in key factor values would and/or scenic quality score for affected SQRUs would result in two or more adjacent SQRUs within a similar physiographic unit.

Under Section 106 of the NHPA, effects to NRHP-eligible cultural resources (historic properties) must be considered prior to project implementation. In accordance with 36 CFR 800.14(b)(1)(ii), because effects on historic properties cannot be fully determined prior to the approval of an undertaking, the PA will be used to outline the process for identification, evaluation of properties and effects, and minimization or mitigation of effects. To facilitate compliance with Section 106 of the NHPA, the PA is under development by the lead federal agency (the Corps), the BLM, the Alaska SHPO, the Advisory Council on Historic Preservation, and other consulting parties. The federal agency (i.e., the Corps) is responsible for the PA under provisions of 36 CFR 800.14(a)(1) and(b). The PA will provide agencies with a framework for completing the section 106 framework in a phased manner. This will include identification and evaluation of cultural resources, consultation, and mitigation of effects. The PA identifies how the proponent will comply with Section 106 after signature of the Record of Decision (ROD). Specifically, cultural resources in the area of potential effect will need to be identified as part of the affected environment, evaluated for NRHP eligibility, and analyzed for potential effects. Multiple signatures are needed for the PA, and the process includes active involvement by federally recognized tribes, Native corporations, and other cooperators and stakeholders. Completion of the PA will coincide with the issuance of the ROD. Under the terms of the PA, a CRMP, including an unanticipated discovery plan, is also being prepared to direct Donlin Gold in the event of a discovery during Construction or Operations. The CRMP identifies measures to mitigate adverse effects. The PA will include stipulations for the inadvertent discovery of human remains. Additional mitigation measures would be outlined in the PA. Anticipated effects to cultural resources from project activities would be assessed as final design or construction plans are submitted to administering agencies for approval. A NAGPRA plan will also be implemented and address the process for the treatment of Native American human skeletal remains and grave items that may be found on federal lands.

For the purpose of this analysis, the following assumptions are made:

- Cultural resources identified within the APE are assumed to be NRHP-eligible unless otherwise specified;
- Impacts to cultural resources will be avoided whenever possible or legally required;
- Ongoing tribal and agency consultation will occur to help confirm the APE; and
- TCPs or areas of traditional or spiritual significance may be identified and impacts to these resources would be addressed in accord with the PA.

It is important to note that the APE for the Mine Site is substantially larger than the Mine Site footprint to allow for potential expansion within the lease area; while cultural resources within the developed area of the Mine Site are expected to be impacted, not all cultural resources within the APE are expected to be disturbed. The construction APE for the Transportation Corridor and Pipeline components is also larger than the actual area needed for clearing and construction. Construction planning would take the presence of identified cultural resources into account, and in final engineering design, cultural resources would be avoided if possible.

If avoidance of cultural resources is not feasible, these resources could be subject to partial or complete removal, thereby reducing or eliminating important historical associations and the potential for these resources to contribute information on the prehistory or history of the region. If it is not possible to avoid cultural resources through relocation of project facilities, then necessary steps would be taken to minimize adverse impacts. If necessary, treatment strategies would be developed in accordance with the stipulations of the PA. Such measures could include relocation of proposed facilities, construction monitoring, archaeological data recovery, or other mitigating measures.

3.20.3.2 ALTERNATIVE 1 – NO ACTION

Under Alternative 1, the No Action Alternative, development of the Donlin Gold Project and construction of Transportation Corridor, the Pipeline, and associated infrastructure would not be approved or permitted. The PA for this project would not be executed, but the regular Section 106 process would apply to any other projects in the area requiring federal authorization. Consequently, there would be no direct, indirect, or cumulative impacts to cultural resources and historic properties as a result of implementation of the No Action Alternative. Alternative 1 would have no effect on climate change as related to cultural resources and historic properties in the EIS Analysis Area.

3.20.3.3 ALTERNATIVE 2 – DONLIN GOLD'S PROPOSED ACTION

Under Alternative 2 (Donlin Gold's Proposed Action), development of the Donlin Gold Project would occur and would include mine site development, construction of the road and other transportation facilities, natural gas pipeline, and associated facilities. Direct and indirect impacts to cultural resources may result from these actions. For example, direct damage to, or removal of cultural resources within the APE may occur as a result of Construction, while indirect changes to setting could impact resources within the APE.

Numerous cultural resources have been identified as a result of surveys of project components in Alternative 2, inclusive of the Mine Site, Transportation Corridor, and Pipeline. As currently

designed, of the 49 cultural resources (including eight resources within the Mine Site, one within the Transportation Corridor, and 40 within the Pipeline component), 16 cultural resources have been recommended as eligible for listing in the NRHP and have the potential to be affected by implementation of Alternative 2. Eligibility evaluation is incomplete for four sites, but these are also assumed eligible for the purposes of analysis. Three Segments of the INHT have AHRS numbers and are considered eligible for the NRHP. The three segments within the APE are TAL-00055, TYO-00085, and MCG-00125. In addition to the PA under Alternative 2 that will direct treatment of cultural resources, Donlin Gold will implement project design features to minimize impacts, including construction planning to avoid cultural resources if possible, and restrictions on general public access to areas of active construction and operations at the mine site and transportation facilities. Donlin Gold will also establish policies to prohibit employees, contractors, and others associated with the Donlin Gold Project from damaging, destroying, looting, or vandalizing cultural resources.

Based on comments on the Draft EIS from agencies and the public, one route option has been included in Alternative 2 to address concerns due to pipeline crossings of the Iditarod National Historic Trail (INHT):

- North Option: The MP 84.8 to 112 North Option would realign this segment of the natural gas pipeline crossing to the north of the INHT before the Happy River crossing and remain on the north side of the Happy River Valley before rejoining the alignment near MP-112 where it enters the Three Mile Valley. The North Option alignment would be 26.5 miles in length, compared to the 27.2 mile length of the mainline Alternative 2 alignment it would replace, with one crossing of the INHT and only 0.1 mile that would be physically located in the INHT right-of-way (ROW). The average separation distance from the INHT would be 1 mile.

3.20.3.3.1 MINE SITE

Cultural resources pedestrian survey and testing occurred within the Mine Site along high probability areas (representing approximately 12 percent of the total Mine Site acreage) as determined by land-use models and helicopter survey (Hays et al 2011). Survey of the Mine Site has resulted in the identification of eight resources within the Mine Site APE (Table 3.20-6). Documented archaeological sites include two historic cabin ruins, four prehistoric lithic scatters, and two historic ditches. Five of the sites have been determined not eligible for listing in the NRHP, while one site (Lewis Gulch Cabin ruins, IDT-00260) has been recommended as eligible. Two sites are unevaluated but assumed eligible, including one historic archaeological cabin ruins site (IDT-00261) and one prehistoric lithic scatter (IDT-00292). Evaluation was not completed because these sites are located well outside of areas planned for development.

The Lewis Gulch Cabin ruins (IDT-00260) would be directly impacted by implementation of Alternative 2. Under the NHPA, the impacts to this site would be considered to be an adverse effect. The PA, through the CRMP, will identify measures to satisfactorily mitigate the adverse effect. One additional historic cabin site (IDT-00261) and a lithic scatter (IDT-00292) remain unevaluated pending additional research. While located within the APE, the remaining sites that are not eligible or unevaluated for the NRHP would experience no effect from implementation of Alternative 2. As noted above, the APE refers to a wider physical area employed for analysis, rather than the actual construction footprint. Not all resources within the APE would be affected by the Donlin Gold Project.

In terms of intensity, measurable impacts would occur at one site recommended as eligible (IDT-00260) for the NRHP. The PA, through the CRMP, will identify measures to mitigate the effect. The duration of effects would be permanent since resources would be removed from their original location and would not be anticipated to return to previous levels, even after actions that caused the impacts were to cease. The extent or scope of effects would affect a single site within the Mine Site area with the potential to contribute to the history of mining in Alaska. In terms of context, impacts would occur to cultural resources recommended as eligible for the NRHP that would be noteworthy at the regional level.

Table 3.20-6: Cultural Resources within the Alternative 2 Mine Site APE

Site Number	Type	Determinations of NRHP Eligibility	Criteria for Eligibility/ Comments	Proposed Effects Determination (NHPA)
IDT-00260	Historic Lewis Gulch cabin ruins (ca. 1910s)	Eligible	Criterion D (information potential re: historic mining in Alaska)	Adverse Effect
IDT-00261	Grouse Creek cabin (ca. 1950s-1980s)	Unevaluated	N/A	No Adverse Effect
IDT-00262	Prehistoric surface lithic scatter	Not Eligible	Insufficient association and data potential	N/A
IDT-00263	Prehistoric/Protohistoric lithic scatter	Not Eligible	Insufficient association and data potential	N/A
IDT-00264	Prehistoric/Protohistoric lithic scatter	Not Eligible	Insufficient association and data potential	N/A
IDT-00265	Historic Snow-Gulch to Ruby Gulch ditch (ca. 1927-1930)	Not Eligible	Insufficient association and data potential	N/A
IDT-00266	Historic Dome Creek to Quartz Creek ditch (ca. 1927-1930)	Not Eligible	Insufficient association and data potential	N/A
IDT-00292	Prehistoric lithic scatter	Unevaluated	N/A	No Adverse Effect

3.20.3.3.2 TRANSPORTATION CORRIDOR

Archaeological surveys of the proposed Transportation Corridor have included the road corridor, 65 material sites, a proposed Angyaruaq (Jungjuk) Port site, the Bethel Yard Dock (connected action), two potential airstrips, and a camp site (Wooley et al. 2007, 2008). As a result of these studies, four archaeological sites have been identified within the APE for the Transportation Corridor (Table 3.20-7). One cultural resource, a prehistoric occupation site (SLT-00094), is eligible for inclusion in the NRHP. The prehistoric occupation site (SLT-00094) is adjacent to the Angyaruaq (Jungjuk) Port facility proposed under Alternative 2. Although the port footprint was designed to avoid direct impacts to the site, construction activities would be in close proximity (less than 20 feet) from the property. Consequently, as defined under the NHPA, the site could be subject to an adverse effect from the Transportation Corridor.

Table 3.20-7: Cultural Resources within Alternative 2 Transportation Corridor

Site Number	Type	Determination of NRHP Eligibility	Criteria for Eligibility/Comments	Proposed Effects Determination (NHPA)
SLT-00094	Prehistoric occupation	Eligible	Criterion D (Information potential re: prehistory of Alaska)	Adverse Effect

3.20.3.3.3 PIPELINE

Cultural resource surveys have occurred for the Pipeline component, with approximately half of the alignment being subjected to a pedestrian ground survey and half subjected to a helicopter assessment to identify high probability areas. Survey of the Pipeline ROW has resulted in the identification of 39 cultural resources, inclusive of the INHT, within the proposed Pipeline APE. The INHT is considered eligible for nomination to the NRHP and is discussed under a separate heading later in this section.

A total of 39 cultural resources are found within the Alternative 2 pipeline, including 18 NRHP eligible resources (which includes three NRHP eligible INHT trail segments and one unevaluated resource considered eligible), and 21 determined not eligible. Of the 39 resources, 34 are common to the pipelines in both Alternatives 2 and 6A. The five resources that are found only in Alternative 2 are all lithic scatters (MCG-00071, MCG-00075, MCG-00076, TAL-00177, and TAL-00178).

The 17 NRHP-eligible or treated-as-eligible resources within Alternative 2 include three segments of the INHT (MCG-00125; TAL-00055; TYO-00085); one historic camp (TYO-00363); two cabins/shelters including the Rainy Pass Lodge Cabins (TAL-00129) and the Cumberland Trapline Cabin (TYO-00215); nine prehistoric lithic scatters (IDT-00275, IDT-00288, MCG-00071, MCG-00072, MCG-00075, MCG-00076, TAL-00164, TAL-00166, and TYO-00278); one prehistoric site with animal bone scatter (TYO-00279), and one prehistoric/historic depression site (TY0-00277) (Table 3.20-8). The 22 resources that are not eligible for the NRHP include one cabin and 21 lithic scatters, some of which were determined to be non-cultural upon further analysis.

Under the NHPA, the impacts to these sites would be considered to be an adverse effect. Based on proposed direct and indirect impacts associated with Alternative 2, the Donlin Gold Project has been determined by the Corps, with concurrence from the SHPO, to have an adverse effect on 10 NRHP-eligible resources: four prehistoric lithic scatters (IDT-00288, MCG-00071, TAL-00166, and TYO-00278); the prehistoric/historic depression site (TYO-00277); the prehistoric calcined animal bones scatter (TYO-00279); three segments of the INHT (MCG-00125, TAL-00055, and TYO-00085); and the Cumberland Trapline Cabin (TYO-00215); (Table 3.20-8). The remaining eight NRHP-eligible resources would not be adversely affected by the project.

Alternative 2 also includes the North Option for a Pipeline alignment that would depart from the proposed alignment at MP 84.8 and cross to the north of the INHT before the Happy River crossing and remain north of the Happy River Valley before rejoining the proposed alignment near MP 110. In this segment, it is unknown if there are any eligible sites as no archaeological survey has been completed, but the number of INHT crossings and distances where the project would collocate or be in proximity to the INHT would be reduced. Under the North Option, the Pipeline ROW would cross the INHT five times, collocated with ROW for 0.2 miles and in

proximity (within 1,000 feet) for approximately 5.3 miles. While the impacts to the INHT would be reduced, adverse effects to the INHT would remain.

While specific ethnographic or TCP studies have not been undertaken for the Donlin Gold Project, local Alaska Native communities have noted that the Pipeline route has historical and traditional cultural importance. As noted by a local resident, "The pipeline route is an historic hunting route that people would take every few years to collect salt" (Bob Charles, cited in URS 2013c). As previously discussed, a future evaluation of TCPs would occur in accordance with the PA.

In terms of intensity, measurable impacts from all phases of the project would occur at the 10 cultural resources recommended as eligible for the NRHP. Consultation performed through the PA and avoidance, minimization or mitigation measures, as identified in the CRMP could help to eliminate or mitigate the adverse effect for the sites. The duration of impacts would be permanent, as the resources would be removed from their original locations and would not be anticipated to return to previous levels even after actions that caused the impacts were to cease. The extent or scope of effects would affect sites within the Pipeline area, all of which potentially contain information on the prehistory and history of Alaska. In terms of context, impacts would occur to cultural resources recommended as eligible for the NRHP that would be significant at the regional level.

Table 3.20-8: Cultural Resources within or adjacent to the Alternative 2 Pipeline Corridor

Site Number	Type	Determination of NRHP Eligibility	Criteria for Eligibility/ Comments	Project Effect (SHPO Concurrence)
IDT-00275	Surface lithic artifacts	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
IDT-00276	Subsurface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00277	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00278	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00279	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00280	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00281	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00282	Determined non-cultural	Not Eligible	Determined non-cultural	N/A
IDT-00283	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00284	Determined non-cultural	Not Eligible	Determined non-cultural	N/A
IDT-00285	Determined non-cultural	Not Eligible	Determined non-cultural	N/A
IDT-00286	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00287	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00288	Surface lithic artifacts	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Adverse
IDT-00289	Surface lithic	Not Eligible	Insufficient association and	N/A

Table 3.20-8: Cultural Resources within or adjacent to the Alternative 2 Pipeline Corridor

Site Number	Type	Determination of NRHP Eligibility	Criteria for Eligibility/ Comments	Project Effect (SHPO Concurrence)
	artifacts		data potential	
IDT-00290	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00291	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
MCG-00071	Subsurface lithic artifacts	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Adverse
MCG-00072	Subsurface lithic artifacts	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
MCG-00075	Subsurface lithic artifacts	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
MCG-00076	Subsurface lithic artifacts	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
MCG-00125	Iditarod Trail segment (Rainy Pass-Big River Roadhouse Trail)	Eligible	Criterion A (Association with significant events re: INHT)	Adverse
TAL-00055	Iditarod Trail segment (Knik-Rainy Pass Trail)	Eligible	Criterion A (Association with significant events re: INHT)	Adverse
TAL-00129	Historic/Modern INHT Knik-Rainy Pass Lodge Cabins (ca. 1930s-present)	Not Evaluated	N/A	Not Adverse
TAL-00151	Subsurface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
TAL-00152	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
TAL-00153	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
TAL-00163	Subsurface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
TAL-00164	Subsurface lithic artifacts	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
TAL-00166	Subsurface lithic artifacts	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Adverse
TAL-00177	Subsurface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
TAL-00178	Subsurface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
TYO-00085	Iditarod Trail segment (Knik-Rainy Pass Trail)	Eligible	Criterion A (Association with significant events re: INHT)	Adverse
TYO-00214	Skwentna Crossing Shelter Historic cabin	Not Eligible	Insufficient association and data potential	N/A

Table 3.20-8: Cultural Resources within or adjacent to the Alternative 2 Pipeline Corridor

Site Number	Type	Determination of NRHP Eligibility	Criteria for Eligibility/ Comments	Project Effect (SHPO Concurrence)
TYO-00215	Historic/Modern Cumberland Trapline Cabin (ca. 1940s-1970s)	Eligible	Criterion C (building type) and Criterion D (archaeological information potential re trapping history of Skwentna River Valley)	Adverse
TYO-00277	Prehistoric/Historic depressions	Eligible	Criterion D (archaeological information potential re: prehistory of Susitna region)	Adverse
TYO-00278	Prehistoric lithic scatter	Eligible	Criterion D (archaeological information potential re: prehistory of Kuskokwim region)	Adverse
TYO-00279	Calcined animal bones	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Adverse
TYO-00363	McPherson's Camp 39	Eligible	Criterion A (association with significant events re: Goodwin Iditarod Trail); Criterion D (information potential re: history of Goodwin-Iditarod Trail)	Not Adverse

Iditarod National Historic Trail

Under Alternative 2, the Pipeline corridor would impact two segments of the INHT located in the Alaska Range and Susitna Lowland physiographic provinces (Table 3.20-9 and Table 3.20-10; see also Section 3.17, Visual Resources; Section 3.16, Recreation; and Section 3.15, Land Ownership, Management, and Use). The congressionally designated INHT is considered eligible for nomination to the NRHP and conveys a rare historical context within the framework of the impacts analysis (see Table 3.20-3). Impacts would range in intensity from undetectable changes in integrity, to measurable changes that diminish historic integrity and thus having adverse effects, but not sufficient enough to affect NRHP eligibility. Resource integrity would be reduced through the life of the project, but effects could be mitigated. Implementation of Alternative 2 would result in both direct temporary construction-related impacts and longer-term indirect impacts to the setting through visual effects. Specifically, the buried natural gas pipeline corridor under Alternative 2 would cross the INHT 14 times, and would be collocated with the INHT for 2.5 miles and in proximity (within 1,000 feet) for approximately 14.3 miles. Approximately 55.7 miles of the INHT would be present within the indirect APE for the Pipeline. Under the Alternative 2-North Option, the ROW would cross the INHT 5 times, and would be collocated with the INHT for 0.2 miles and in proximity (within 1,000 feet) for approximately 5.3 miles. If the North Option of the Pipeline routing is selected, it would reduce potential impacts to the INHT, but adverse effects to the INHT's setting, association, and feeling would remain.

Construction of the Pipeline near portions of the INHT located in the Susitna Lowlands and Alaska Range physiographic provinces would occur during the winter months, between November and April. Impacts would result from the moderate to strong visual contrast of

cleared areas, infrastructure, and exposed soils against the surrounding landscape. Infrequent direct impacts from vegetation removal would affect the scenic quality and landscape character of the INHT during the Construction Phase. Section 3.17, Visual Resources, outlines where indirect effects would occur to the INHT's scenic quality. Construction-related actions may be seen by winter recreationists where the trail intersects the Construction ROW (approximately 2.5 miles collocated), or where the INHT is within the one-mile viewshed of the Pipeline ROW (approximately 18.9 miles). It should be noted that approximately 36.8 miles of the indirect APE would have no views of the Pipeline ROW due to intervening topography and vegetation.

Construction infrastructure could temporarily affect the landscape character of the INHT, particularly in the vicinity of the Shell River and Happy River mainline camps and airstrips. Temporary construction activity could be visible from the INHT between the Skwentna River and Onestone Lake. Additional temporary construction infrastructure, including winter routes and shoofly roads, would result in crossings, collocation and proximity to the INHT. As noted in Table 3.16-3, Miles of Winter Routes Impacting the INHT (see Section 3.16, Recreation), four winter routes used for Pipeline delivery and other supplies would result in nine crossings, collocation for 3.9 miles, and proximity for 4.0 miles. Table 3.16-4, Miles of Shoofly Roads Impacting the Iditarod National Historic Trail, shows that five shoofly road segments would result in three crossings, 1.2 miles of collocation, and 1.5 miles of proximity to the INHT. Temporary impacts related to Pipeline installation could be observed by winter recreationists on the INHT where the Pipeline ROW intermittently crosses or intersects the trail between approximately MP 50-52 and MP 86-106. Those project activities that diminish the historical integrity, particularly as it relates to setting, would result in adverse effects to the INHT. Impacts could be mitigatable through consultation performed under the PA and through measures implemented under the CRMP.

Long-term Operations-related impacts are discussed below by physiographic province and SQRU.

Susitna Lowlands Physiographic Province

The Pipeline ROW would cross, collocate, be sited proximate to the INHT, or be within the one-mile viewshed in three SQRUs characterizing the Susitna Lowlands Physiographic Province: SQRU SL-06, SL-07, SL-08 (Table 3.20-9).

Table 3.20-9. Interaction of Proposed Pipeline ROW with INHT - Susitna Lowlands

SQRU	Length of Trail in SQRU (miles)	Number of Trail Crossings	Length of Collocations with Trail (miles)	Length of Trail within 1,000 feet of ROW (miles)	Length of Trail in indirect APE (miles)	Length of Trail in indirect APE and viewshed (miles)	Length of Trail in Foreground/ Middleground (0-5 miles) Viewshed (miles)
Alternative 2 as proposed							
SL-06	8.9	2	0	1.4	7.8	1.9	0.8
SL-07	9.4	0	0	1.9	9.4	1.3	0.4
SL-08	15.8	3	0.5	1.4	15.8	4.4	1.0
Alternative 2 north pipeline alignment							
SL-06	8.9	2	0.1	0.0	2.6	0.1	0.1
SL-07	0	0	0	0	0	0	0
SL-08	15.8	1	<0.1	<0.1	2.2	0.1	0.1

Scenic Quality Rating Unit SL-06

Within SQRU SL-06, 7.8 miles of the INHT are within the APE, and 1.9 miles are within the 1-mile Pipeline ROW viewshed in a deciduous spruce forest area. The INHT enters into the APE near MP 49 of the Pipeline ROW and then follows a similar meandering route through approximately MP 54. For 1.4 miles, the INHT would be within 1,000 feet of the pipeline ROW. Two trail routes, the Knik to Susitna River Primary Route and the Susitna Station to Old Skwentna (Yentna River) Connecting Trail join at the Old Skwentna Roadhouse between MP 50 and MP 51, approximately 0.25 mile north of the Pipeline ROW. The Pipeline ROW would cross the INHT primary route twice, once between MP 50 and MP 51 west of the trail's intersection with the Skwentna River, and again near MP 52 adjacent to a Pipeline access route. No collocations would occur in this SQRU. The Skwentna River Roadhouse is within the pipeline viewshed and may have visibility of vegetation removal, particularly at the MP 50/MP 51 crossing.

Therefore, in SQRU SL-06, the Pipeline ROW would have measurable direct and indirect impacts that diminish the integrity of INHT and trail-related historic sites, but not sufficient to affect NRHP eligibility. Impacts could be mitigatable through consultation performed under the PA, and through measures implemented under the CRMP. The duration of impacts would last through the life of the project, but effects could be mitigated. Due to the Pipeline ROW's limited viewshed in this area, impacts would be limited to areas near the crossings and the Happy River Roadhouse (TYO-00023).

Scenic Quality Rating Unit SL-07

Within SQRU SL-07, the entire 9.4 miles of the INHT in the SQRU are within the APE, from approximately MP 54 to MP 76; and 1.3 miles are within the 1-mile Pipeline ROW viewshed in a deciduous spruce forest area. Within this SQRU, the Pipeline ROW would mostly follow south of the Knik to Susitna River Primary Route. For 1.9 miles, the INHT would be within 1,000 feet of the Pipeline ROW. No Pipeline ROW crossings or collocations would occur in this SQRU. The recorded location of Mountain Climber Roadhouse (TYO-00022) is approximately 950 feet south of the Pipeline ROW near MP 70. Several field efforts to relocate the cabin with the recorded

location or within the APE were unsuccessful, indicating that the property has either been destroyed or is not present at this location.

Therefore in SQRU SL-07, the Pipeline ROW would have no detectible changes to the integrity of INHT and trail-related historic sites and impacts could be mitigatable through consultation as required under the PA and measures implemented through the CRMP, as visibility would not cause detectable changes in integrity. The duration and extent of impacts would be the same as described above for SL-06.

Scenic Quality Rating Unit SL-08

Within SQRU SL-08, the entire 15.8 miles of the INHT within the SQRU are within the APE, from approximately MP 76 to MP 88; and 4.4 miles within the one-mile Pipeline ROW viewshed in a deciduous spruce forest area. Within this SQRU, the Pipeline ROW would mostly follow south of the INHT Knik to Susitna River Primary Trail, but would cross the trail on three occasions. These crossings would occur at MP 86 near the Happy River Roadhouse (TYO-00023); between MP 86 and MP 87; and just after MP 87. For 1.4 miles, the Pipeline ROW would be within 1,000 feet of the INHT and would be collocated with the trail for 0.5 miles between MP 86 and MP 87.

Therefore, in SQRU SL-08, the Pipeline ROW would have measurable direct and indirect impacts that diminish the integrity of INHT and trail-related historic sites, but not sufficient to affect NRHP eligibility or impacts are mitigatable through consultation as required under the PA and by implementing measures identified in the CRMP. Impacts would be limited to areas near the crossings and the Happy River Roadhouse (TYO-00023) where the visibility of vegetation removal for the Pipeline ROW may diminish the integrity of setting. Project collocation within the Pipeline ROW would constitute an adverse effect, but these effects could be mitigatable through consultation required by the PA and by implementing measures outlined in the CRMP Construction areas near the Happy River Roadhouse (TYO-00023) may cause additional temporary indirect impacts.

Alaska Range Physiographic Province

The Pipeline ROW would cross, collocate, or be sited proximate to the INHT in three SQRUs characterizing the Alaska Range Physiographic Province: SQRU AR-01, AR-02, and AR-06 (Table 3.20-10).

Table 3.20-10. Interaction of Proposed Pipeline ROW with INHT - Alaska Range

SQRU	Length of Trail in SQRU (miles)	Number of Trail Crossings	Length of Trail Collocations (miles)	Length of Trail within 1,000 feet of ROW (miles)	Length of Trail in indirect APE (miles)	Length of Trail in indirect APE and viewshed (miles)	Length of Trail in Foreground/ Middleground (0-5 miles) Viewshed (miles)
Alternative 2 (as proposed)							
AR-1	13.8	6	2.8	4.4	13.8	7.6	2.4
AR-2	15.6	0	0.7	1.0	4.6	0.9	1.6
AR-6	19.4	2	0	0.1	4.3	2.8	3.1
Alternative 2 North Pipeline Alignment Option							
AR-6	19.4	2	0.1	<0.1	0.1	0.4	<0.1

Scenic Quality Rating Unit AR-01

Within SQRU AR-01, the entire 13.8 miles of INHT in the SQRU are within the APE, from approximately MP 88 to MP 103; and 7.6 miles are within the 1-mile Pipeline ROW viewshed with varying vegetation. The Pipeline ROW roughly follows the same path as the Knik to Susitna River Primary Trail south of the Happy River, and crosses the INHT on six occasions. These crossings occur twice near MP 87, and at MP 91 in deciduous spruce forest areas; and at MP 95, MP 96, MP 97, and MP 101 in spruce woodland areas. No trail-related historic sites are near these crossings, but vegetation removal would be visible from the INHT. The Pipeline ROW would be within 1,000 feet of the INHT for 4.4 miles and would be collocated with the trail for 2.8 miles. Collocation would occur between approximately MP 90 and MP 93.

Two INHT-related historic sites are within the APE. The Unnamed Roadhouse is south of the Pipeline ROW between MP 89 and MP 90 in a deciduous spruce forest area. The Pipeline ROW would be parallel to the INHT in this area. Views would be limited and are unlikely to diminish the site's integrity of setting, feeling, or association. Puntilla Cabin (TAL-00044) is north of the Pipeline ROW between MP 99 and MP 100 and is at the edge of the viewshed in a spruce forest area. Due to the distance, views of the pipeline ROW and associated vegetation removal would be limited from this historic site, and are unlikely to diminish the integrity of setting, feeling, or association.

The Pipeline ROW would have measurable direct and indirect impacts that diminish the integrity of the INHT, but not sufficient to affect NRHP eligibility. Impacts could be mitigatable through measures identified in the CRMP. The duration of impacts would persist through the life of the project, but effects could be mitigated. The extent or scope of impacts would be limited to discrete portions of the EIS Analysis Area. Impacts from collocation would be mitigatable through consultation required by the PA and by implementing the CRMP. Collocation would have the same duration, extent, and context of impacts as described above for the Pipeline ROW. The Pipeline ROW would also potentially have indirect impacts on trail-related historic sites due to the potential visibility of vegetation removal from the Unnamed Roadhouse and Puntilla Cabin (TAL-00044). However, these impacts would not result in detectable changes in the integrity of the trail, and impacts could be mitigatable. The extent or scope of impacts would be limited to areas near the historic sites.

Scenic Quality Rating Unit AR-02

Within SQRU AR-02, 4.6 miles of the INHT are within the APE, from approximately MP 103 to MP 108, and 0.9 mile is within the 1-mile Pipeline ROW viewshed in a dwarf shrub area. For 1.0 mile, the INHT would be within 1,000 feet of the Pipeline ROW. Between MP 105 and MP 106, the Pipeline ROW would be collocated with the INHT for 0.7 mile. In this area, the trail has a narrow viewshed corridor through dwarf shrub and herbaceous areas. No crossings would occur in this SQRU. Due to the limited visibility, the Pipeline ROW would not diminish the INHT's integrity of setting, feeling, or association. As the INHT Rainy Pass to Farewell Creek Primary Trail leaves the APE and heads south towards Happy River and the Pass Creek Roadhouse, the visibility of the Pipeline ROW would be limited to the area near Halfway Lake.

In SQRU AR-02, the Pipeline ROW would have potential direct impacts on the integrity of the INHT, and impacts could be mitigatable through consultation required by the PA and by implementing the CRMP. The duration of impacts would persist through the life of the project,

but effects could be mitigated. Impacts would be limited in extent to the Pipeline ROW collocation with the INHT.

Scenic Quality Rating Unit AR-06

Within SQRU AR-06, 4.3 miles of the INHT are within the APE and 2.8 miles are within the 1-mile Pipeline ROW viewshed. Two INHT routes, the Rainy Pass to Farewell Lake Primary Trail, and the Farewell Lake to Big River Primary Trail, pass perpendicular to the Pipeline ROW through the APE between approximately MP 147 and MP 148. The northern foothills of Egypt Mountain, an important landscape feature, are within the APE and 1-mile Pipeline ROW viewshed. For 0.1 mile, the Pipeline ROW would be within 1,000 feet of the INHT, located adjacent to the crossings, and no collocations would occur.

The Pipeline ROW would cross each of the two INHT routes on one occasion. Where the Pipeline ROW would cross the Rainy Pass to Farewell Lake Primary Trail along the South Fork Kuskokwim River, visibility to the south and around the crossing would be limited, but the Pipeline ROW would potentially be visible from the north. Along this route, the INHT meanders through herbaceous vegetation and does not have physical evidence of a clearly defined route in the APE (BLM 1982). Due to the lack of historic integrity to the INHT at this location, no adverse effects are anticipated along this segment. Where the Pipeline ROW would cross the Farewell Lake to Big River Roadhouse Primary Trail, vegetation is primarily spruce woodland forest. Views of Egypt Mountain to the south would potentially be impacted from north of the crossing, where the intersecting Pipeline ROW and INHT route would be visible within the setting. Along this route, the INHT is located and more clearly defined in the APE (BLM 1982). The project may diminish the integrity of the INHT at this crossing. Adverse impacts could be reduced by implementing measures identified in the CRMP.

3.20.3.3.4 CLIMATE CHANGE

The Donlin Gold Project would contribute to climate change through the production of greenhouse gases as discussed in Section 3.8, Air Quality. The amount of greenhouse gas emissions from implementation of Alternative 2 is not likely to create climate change effects to cultural resources and historic properties. However, if current climate change trends persist, impacts to cultural resources and historic properties would likely be similar to those discussed in Section 3.20.2, including the potential loss of cultural resources and historic properties through melting permafrost and accelerated erosive processes. Cultural resources and historic properties would continue to potentially contribute to climate change science through evidence of historic climate patterns and historic adaptation measures.

3.20.3.3.5 SUMMARY – ALTERNATIVE 2

Using the identified NEPA impact criteria, under Alternative 2 from the Mine Site and Pipeline there would be measurable direct impacts that diminish historical integrity, but not sufficient to affect NRHP eligibility. These impacts could be mitigatable and/or through consultation required by the PA and by implementing measures identified in the CRMP (Table 3.20-11). Impacts would be to NRHP-eligible resources that would occur within the APE for the Mine Site and Pipeline. Impacts to five cultural resources recommended as eligible in the NRHP would be considered an adverse effect under the NHPA within the vicinity of the Mine Site and the Pipeline. These resources include the Lewis Gulch Cabin ruins (IDT-00260), three prehistoric

lithic scatters (IDT-00288, MCG-00071, and TYO-00278) and a prehistoric animal bone scatter in the vicinity of the pipeline (TYO-00279). Consultation performed through the PA and avoidance, minimization or mitigation measures, as identified in the CRMP could help to mitigate the adverse effect for these five identified resources. These five cultural resources would be removed from their original locations, and would not be anticipated to return to previous levels even after actions that caused the impacts were to cease. The five cultural resources are recommended as eligible for the NRHP as archaeological sites with local importance to subregions of Alaska.

Site SLT-00094 would be adversely affected by the Transportation Corridor proposed under Alternative 2. Consultation performed through the PA and avoidance, minimization or mitigation measures, as identified in the CRMP could help to mitigate the adverse effect for this resources. The cultural resource would be removed from its original location, and would not be anticipated to return to previous levels even after actions that caused the impacts were to cease. The cultural resource is recommended as eligible for the NRHP as an archaeological site with local importance to subregions of Alaska.

Potential direct and/or indirect impacts for segments of the INHT and cultural landscapes in relation to the Pipeline would result in measurable changes to, and diminished integrity of the trail, but not sufficient to affect NRHP eligibility. Under Alternative 2, the INHT would be crossed 14 times, be collocated with the pipeline for 2.5 miles and be within proximity (one mile) of the project for 14.3 miles. Effects to scenic quality of the congressionally designated INHT would result in a reduction of scenic quality values compared to those classified during the INHT scenic quality inventory; however, no overall reduction in scenic quality class would occur. The effects would alter aspects such as setting that contribute to the overall importance of these resources; conditions would not be anticipated to return to previous levels even after the actions that caused the impacts were to cease. At discrete locations, the intensity of impacts could result in a loss of integrity and/or loss of eligibility to the NRHP; however, viewer exposure to the Pipeline ROW would be transient and episodic.

If Alternative 2-North Option is selected, archaeological survey of the alignment would be completed under the PA and if adverse effects to newly identified sites could not be avoided or minimized, they would be mitigated through the CRMP as implemented through consultation performed under the PA. The selection Alternative 2-North Option would reduce the number of INHT crossings and distances where the project would collocate with the INHT. The North Option would also reduce the distances where the project would be in proximity to the INHT. Under the North Option, the Pipeline ROW would cross the INHT five times, be collocated with ROW for 0.2 miles and lie in proximity (within 1,000 feet) for approximately 5.3 miles. Adverse effects to the INHT would remain.

3.20.3.3.6 MITIGATION AND MONITORING FOR ALTERNATIVE 2

Effects determinations take into account impact reducing design features (Table 5.2-1 in Chapter 5, Impact Avoidance, Minimization, and Mitigation) proposed by Donlin Gold and also the Standard Permit Conditions and BMPs (Section 5.3) that would be implemented.

Design features important in reducing impacts to cultural resources include:

- Where an important cultural resource site is identified near the proposed project upriver port site, a community-based excavation project would be undertaken to involve the

community in scientific documentation of the site, thereby avoiding loss of context for the cultural resource;

- A cultural anthropologist will be available during construction activities;
- The project design includes routing decisions to minimize visual impacts to the INHT including co-location of the proposed pipeline with the INHT where appropriate to reduce multiple crossings by the pipeline and thereby reduce the possibility that the pipeline ROW becomes used as a separate trail;
- Pipeline construction schedules were adjusted to minimize impacts to peak periods of recreation and tourism activities in the area (e.g., recreation uses of INHT for annual events);
- Donlin Gold has studied various pipeline corridors that would avoid and/or minimize adverse effects to the INHT. The most significant route modifications have been incorporated into the analysis (Jones Route Alternative and the North Route Option);
- Routing decisions were made taking into account baseline archeological studies to avoid identified cultural resource sites and historic properties where practicable;
- Donlin Gold will work with user groups to promote trail preservation and use. Any actual mitigation measures for impacts to the INHT would be agreed to as a part of the Section 106 compliance process and specified in the PA; and
- A CRMP for the management of cultural and paleontological resources on BLM, State, and private land will be prepared and implemented for the project. The plan would prescribe an effective process for managing potential effects on these resources, and ensure that agreed-upon and approved procedures are established. At a minimum, the plan would include: training of workers regarding cultural resource issues and responsibilities; measures to avoid or minimize impacts to cultural resources (e.g., flagging, monitoring); standard protocols for any known cultural resources that may be exposed during project construction, operations, and reclamation; prescribed actions to be taken in the event that unanticipated cultural resources are discovered, or known resources are impacted in an unanticipated manner; and protocols for treatment of any discovered human remains.

Standard Permit Conditions and BMPs important in reducing impacts to cultural resources include:

- Compliance with Section 106 PA and CRMP, including adequate survey prior to ground-breaking activities and protocol for inadvertent discovery of cultural resources; and
- Development and maintenance of ODPCPs, SPCC Plans, and FRPs.

Additional measures are being considered by the Corps and Cooperating agencies and are further assessed in Chapter 5, Impact Avoidance, Minimization, and Mitigation (Section 5.5 and Section 5.7). Examples of additional measures being considered that are applicable to this resource include:

- Where practicable, when clearing brush and shrubs as required to maintain the operations ROW, introduce variation in the edges of clearing (i.e., avoid extended straight lines) to minimize effects to visual resources;
- Include measures to mitigate visual impacts to known sensitive cultural resource areas, such as clearing a narrower construction ROW, using HDD drilling under a sensitive site, minor realignment of the construction ROW, or other appropriate measures to avoid known sensitive areas; and
- Use LiDAR technology in advance of ground disturbing operations to avoid or minimize impacts to cultural resources.

Measures may ease potential impacts in the case of the discovery of new, unanticipated cultural resources during ground disturbing project activities.

3.20.3.4 ALTERNATIVE 3A – REDUCED DIESEL BARGING: LNG-POWERED HAUL TRUCKS

Implementation of Alternative 3A would require the construction and operation of additional LNG project components at the Mine Site compared to Alternative 2, which would result in a slightly larger facility footprint within the mine site. However, the increase in the footprint of Alternative 3A is minimal, and the other major project components would remain the same as Alternative 2. No additional cultural resources are likely to be encountered. As a result, direct and indirect impacts of Alternative 3A are anticipated to be the same as or similar to Alternative 2. Impacts associated with climate change would also be the same as discussed for Alternative 2. The effects determinations take into account applicable impact-reducing design features, as discussed in Alternative 2. No additional mitigation measures have been identified to reduce effects to cultural resources.

3.20.3.5 ALTERNATIVE 3B – REDUCED DIESEL BARGING: DIESEL PIPELINE

Since the diesel pipeline under Alternative 3B would be installed within the same ROW as Alternative 2, the direct and indirect impacts to cultural resources would be the same as or similar to Alternative 2. Impacts under the option to use Port MacKenzie instead of Tyonek, and the option for a collocated diesel and natural gas pipeline are unknown. Adverse effects to the NRHP-eligible resources would be resolved through consultation performed under the PA and avoidance, minimization, or mitigation measures would be identified in the CRMP. Impacts associated with climate change would also be the same as discussed for Alternative 2. The effects determinations take into account applicable impact-reducing design features, as discussed in Alternative 2. Examples of additional measures being considered that are applicable to this resource are listed under Alternative 2.

Table 3.20-11: Summary Impacts of Alternative 2 on Cultural Resources by Project Component

Impacts	Assessment Criteria			
	Magnitude or Intensity	**Duration**	**Extent or Scope**	**Context**
Mine Site				
Change to Archaeological Sites	Measurable impacts that diminish integrity but not sufficient to affect NRHP eligibility. Impacts are mitigatable by implementing the CRMP.	Permanent effects; resource would not be anticipated to return to previous levels even after actions that caused the impacts were to cease.	Affects resources with significance throughout the EIS Analysis Area. Significance is defined in 36 CFR 60.4	Affects cultural resources eligible for the NRHP that fill a rare social or cultural role either within the locality or the region, or the rare resource is protected by the *Wild and Scenic Rivers Act,* or *Wilderness Act*.
Transportation Corridor				
Change to Archaeological Sites	No effect.			
Pipeline				
Change to Archaeological Sites	Measurable impacts that diminish integrity but not sufficient to affect NRHP eligibility. Impacts are mitigatable by implementing the CRMP.	Permanent effects; resource would not be anticipated to return to previous levels even after actions that caused the impacts were to cease.	Affects resources with significance throughout the EIS Analysis Area. Significance is defined in 36 CFR 60.4	Affects cultural resources eligible for the NRHP that fill a rare social or cultural role either within the locality or the region, or the rare resource is protected by the *Wild and Scenic Rivers Act,* or *Wilderness Act*.
Change to Aboveground Historic Resources	Same as above.	Same as above.	Same as above.	Same as above.
Change to Historic Trails (INHT)	Same as above.	Same as above.	Same as above.	Same as above.
Change to Cultural Landscape	Same as above.	Same as above.	Same as above.	Same as above.

Notes:
1 The expected impacts account for impact reducing design features proposed by Donlin Gold and Standard Permit Conditions and BMPs that would be required. It does not account for additional mitigation measures being considered.

3.20.3.6 ALTERNATIVE 4 – BIRCH TREE CROSSING (BTC) PORT

Under Alternative 4, the upriver port site proposed at Angyaruaq (Jungjuk) under Alternative 2 would be moved downriver BTC reducing the barge distance for freight and diesel out of Bethel bound for the Mine Site from 199 miles to Angyaruaq (Jungjuk) Port versus 124 miles to BTC, a decrease of 75 miles. Under this alternative, the BTC Port road would be considerably longer than the road proposed under Alternative 2, but there would not be other changes from Alternative 2 with the Mine Site or Pipeline components. A new 76-mile access road between the BTC Port and the Mine Site would be used for transporting fuel and cargo for the Donlin Gold Project, adding approximately 46 miles of road corridor to the undertaking.

A cultural resources inventory of the BTC Port site and extended road corridor identified two prehistoric lithic scatters (RUS-00111 and RUS-00112) and a reported village location (RUS-00091) (Wooley et al. 2008). If this alternative is selected impacts to these cultural resources could occur. Adverse effects to the NRHP-eligible resources would be resolved through consultation performed under the PA and avoidance, minimization, or mitigation measures would be identified in the CRMP. Impacts to cultural resources resulting from the Mine Site and Pipeline would be the same as Alternative 2.

3.20.3.6.1 SUMMARY – ALTERNATIVE 4

Overall impacts to cultural resources from Construction, Operations, and Closure of the Donlin Gold Project under Alternative 4 would be similar to Alternative 2. Impacts associated with climate change would also be the same as discussed for Alternative 2. The effects determinations take into account applicable impact-reducing design features, as discussed in Alternative 2. Examples of additional measures being considered that are applicable to this resource are listed under Alternative 2.

3.20.3.7 ALTERNATIVE 5A – DRY STACK TAILINGS

Implementation of Alternative 5A would not result in a larger total area of physical impact related to the project components. As a result, no additional cultural resources are likely to be encountered. Under Alternative 5A, the impacts to cultural resources would remain the same as under Alternative 2. Impacts associated with climate change would also be the same as discussed for Alternative 2. The effects determinations take into account applicable impact-reducing design features, as discussed in Alternative 2. Examples of additional measures being considered that are applicable to this resource are listed under Alternative 2.

3.20.3.8 ALTERNATIVE 6A – MODIFIED NATURAL GAS PIPELINE ALIGNMENT: DALZELL GORGE ROUTE

Under Alternative 6A, the number of cultural resources subject to potential impacts at the Mine Site and Transportation Corridor would be the same as under Alternative 2, but two fewer cultural resources would be impacted from the Pipeline under the Alternative 6A. The types of sites impacted along the Pipeline are similar in composition, primarily consisting of prehistoric lithic scatters. Impacts to the INHT would be greater under Alternative 6A, due to an increased number of crossings and miles of the INHT that would be collocated, within proximity to, or within the indirect APE of the Pipeline.

For the Pipeline, an archaeological survey of the Dalzell Gorge Route was accomplished during the 2010-2012 pipeline corridor studies; this survey resulted in the identification of 49 cultural resources within or adjacent to the Pipeline corridor (Reuther et al. 2013). In addition to the INHT, the area within 300 feet of the Alternative 6A Pipeline route includes 24 cultural resources (total 25) (Table 3.20-12); 23 of the resources are common to the proposed pipelines in both Alternatives 2 and 6A, while two resources differ between the alternatives (Table 3.20-8 and Table 3.20-13).

A total of 38 cultural resources are found within the Alternative 6A pipeline, including 14 NRHP eligible resources, two resources not evaluated and treated as eligible, and 22 resources determined not eligible. Of the 38 resources, 34 are common to the pipelines in both Alternatives 2 and 6A. The four resources that are found only in Alternative 6A include three lithic scatters (MCG-00061, MCG-00064, and MCG-00069) and the Puntilla Cabin (TAL-00044).

The 15 NRHP-eligible or treated-as-eligible resources within Alternative 6A include three segments of the INHT (MCG-00125; TAL-00055; TYO-00085); one historic INHT camp (TYO-00363); three cabins/shelters (Puntilla Cabin, TAL-00044; Rainy Pass Lodge Cabins, TAL-00129; and Cumberland Trapline cabin, TYO-00215); six prehistoric lithic scatters (IDT-00275, IDT-00288, MCG-00072, TAL-00164, TAL-00166, TYO-00278); one prehistoric site with animal bone scatter (TYO-00279), and one prehistoric/historic depression site (TY0-00277) (Table 3.20-8). As in Alternative 2, the remaining 23 resources include one cabin and 22 prehistoric lithic scatters not eligible for the NRHP (Bittner 2016; Newman 2016; Reuther et al. 2013; Rogers et al. 2013).

Under the NHPA, the impacts to these NRHP-eligible sites would be considered to be an adverse effect. Based on proposed direct and indirect impacts associated with Alternative 6A, the Donlin Gold Project has been determined by the Corps, with concurrence from the SHPO, to have an adverse effect on nine NRHP-eligible cultural resources, including: three prehistoric lithic scatters (IDT-00288, TAL-00166, and TYO-278), a prehistoric/historic depression site (TYO-00277); a prehistoric animal bone scatter (TYO-00279), a cabin (Cumberland Trapline Cabin TYO-00215); and three segments of the INHT (MCG-00125; TAL-00055; TYO-00085). The remaining seven NRHP-eligible resources would not be adversely affected by the project.

Under the NHPA, the impacts to these sites would be considered to be an adverse effect. Consultation performed through the PA and avoidance, minimization or mitigation measures, as identified in the CRMP could help to mitigate the adverse effect.

Impacts to cultural resources would be similar for Alternative 6A as those described under Alternative 2. Although the number of affected archaeological sites is nearly the same between the alternatives, Alternative 6A would include more extensive direct and indirect impacts to the INHT. As a result, potential impacts associated with the Pipeline component of Alternative 6A would have a greater impact on the congressionally designated INHT.

Regardless of the slight difference in quantity and composition of the documented resources between the two routing alternatives (i.e., impacts 10 versus 9 NRHP-eligible resources for Alternatives 2 and 6A, respectively), impacts to cultural resources along the Pipeline under Alternative 6A would be similar to Alternative 2 as a comparable number and type of NRHP-eligible sites would be affected. Direct and indirect impacts to segments of the INHT would be increased under Alternative 6A, but could be mitigated using similar measures as Alternative 2. Impacts associated with climate change would also be the same as discussed for Alternative 2. The effects determinations take into account applicable impact-reducing design features, as

discussed in Alternative 2. Examples of additional measures being considered that are applicable to this resource are listed under Alternative 2.

Table 3.20-12: Cultural Resources within the Alternative 6A Pipeline Corridor

Site Number	Type	Determination of NRHP Eligibility	Criteria for Eligibility/ Comments	Project Effect (SHPO Concurrence)
IDT-00275	Surface lithic artifacts	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
IDT-00276	Subsurface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00277	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00278	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00279	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00280	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00281	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00282	Determined non-cultural	Not Eligible	Determined non-cultural	N/A
IDT-00283	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00284	Determined non-cultural	Not Eligible	Determined non-cultural	N/A
IDT-00285	Determined non-cultural	Not Eligible	Determined non-cultural	N/A
IDT-00286	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00287	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00288	Surface lithic artifacts	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Adverse
IDT-00289	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00290	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
IDT-00291	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
MCG-00061	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
MCG-00064	Subsurface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
MCG-00069	Subsurface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A

Table 3.20-12: Cultural Resources within the Alternative 6A Pipeline Corridor

Site Number	Type	Determination of NRHP Eligibility	Criteria for Eligibility/ Comments	Project Effect (SHPO Concurrence)
MCG-00072	Subsurface lithic scatter	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
MCG-00125	Iditarod Trail segment (Rainy Pass-Big River Roadhouse Trail)	Eligible	Criterion A (Association with significant events re: INHT)	Adverse
TAL-00044	Puntilla Cabin (ca 1922)	Not Evaluated	N/A	Not Adverse
TAL-00055	Iditarod Trail segment (Knik-Rainy Pass Trail)	Eligible	Criterion A (Association with significant events re: INHT)	Adverse
TAL-00129	Historic/Modern INHT Knik-Rainy Pass Lodge Cabins (ca. 1930s-present)	Not Evaluated	N/A	Not Adverse
TAL-00151	Subsurface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
TAL-00152	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
TAL-00153	Surface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
TAL-00163	Subsurface lithic artifacts	Not Eligible	Insufficient association and data potential	N/A
TAL-00164	Subsurface lithic artifacts	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Not Adverse
TAL-00166	Prehistoric lithic scatter	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Adverse Effect
TYO-00085	Iditarod Trail segment (Knik-Rainy Pass Trail)	Eligible	Criterion A (Association with significant events re: INHT)	Adverse
TYO-00214	Skwentna Crossing Shelter Cabin	Not Eligible	Insufficient association and data potential	N/A
TYO-00215	Historic/Modern Cumberland Trapline Cabin (ca. 1940s-1970s)	Eligible	Criterion C (building type) and Criterion D (archaeological information potential re trapping history of Skwentna River Valley)	Adverse
TYO-00277	Prehistoric/Historic depressions	Eligible	Criterion D (archaeological information potential re: prehistory of Susitna region)	Adverse
TYO-00278	Subsurface lithic artifacts	Eligible	Criterion D (archaeological information potential re:	Adverse

Table 3.20-12: Cultural Resources within the Alternative 6A Pipeline Corridor

Site Number	Type	Determination of NRHP Eligibility	Criteria for Eligibility/ Comments	Project Effect (SHPO Concurrence)
			prehistory of Kuskokwim region)	
TYO-00279	Calcined animal bones	Eligible	Criterion D (information potential re: prehistory of Alaska Range)	Adverse
TYO-00363	McPhearson's Camp 39	Eligible	Criterion A (association with significant events re: Goodwin Iditarod Trail); Criterion D (information potential re: history of Goodwin-Iditarod Trail)	Not Adverse

Iditarod National Historic Trail

Similar to Alternative 2, the pipeline corridor under Alternative 6A would adversely impact the INHT. The pipeline corridor under Alternative 6A would be collocated with the INHT for 9 miles and within 1,000 feet of the INHT for a total of 37.0 miles (46.0 miles in total), compared to 16.8 miles (2.5 miles collocated) under Alternative 2. A total of 93.7 miles of the INHT would be within the indirect APE under Alternative 6A, compared to 55.7 miles under Alternative 2. The pipeline route under Alternative 6A varies from Alternative 2 within the Alaska Range physiographic province. The pipeline route under Alternative 6A would not cause any impacts in SQRU AR-06, but would cause impacts in SQRUs AR-02, AR-03, AR-04, and AR-05 that would not be present under Alternative 2, including 23 additional trail crossings (37 total). These are listed in Table 3.20-13, below. There would be measurable direct and indirect impacts that diminish the integrity of the INHT, but not sufficient to affect NRHP eligibility. Impacts could be mitigatable through consultation as required under the PA and by implementing the CRMP. Impacts would persist through the life of the project, but are limited to discrete portions of the EIS Analysis Area. Impacts persisting through Operations are discussed below by SQRU.

The Construction and Operations of the Pipeline has the potential to impact the setting and historic intactness of segments of the INHT affected by the Pipeline routing proposed under Alternative 6A. Section 3.17, Visual Resources, outlines where indirect effects would occur to the scenic quality of the INHT. While limited, in some instances there would be a reduction of scenic attributes at discrete segments of the INHT. These impacts have the potential to reduce the value for cultural modification as described in the INHT CMP (BLM 1982).

Table 3.20-13. Additional Interaction of Proposed Pipeline with INHT under Alternative 6A

SQRU	Length of Trail in SQRU (miles)	Number of Trail Crossings	Length of Trail Collocations (miles)	Length of Trail within 1,000 feet of ROW (miles)	Length of Trail in One-mile Study Area (miles)
AR-02	15.6	6	2.5	4.7	11.5
AR-03	7.5	6	2.9	4.5	7.5
AR-04	7.6	5	2.1	4.0	7.6
AR-05	32.4	6	3.7	7.1	25.0

Scenic Quality Rating Unit AR-02

Within SQRU AR-02, the Pipeline corridor under Alternative 6A would deviate from Alternative 2 near MP 106, heading west to follow the path of the INHT Rainy Pass to Farewell Lake Primary Trail as it passes through open shrub vegetation along the Happy River. Within SQRU AR 02 under Alternative 6A, there would be six crossings of the INHT (compared to none under Alternative 2) and 2.5 miles of collocation (compared to 0.7 mile). Within the SQRU, 11.5 miles of the INHT would be within the proposed Pipeline APE under Alternative 6A (compared to 4.6 miles under Alternative 2), and 4.7 miles would be within 1,000 feet (compared to 1.0 mile), including near the Pass Creek Roadhouse. Due to the crossings and proximity, the Pipeline would potentially diminish the INHT's integrity of setting, feeling, and association under this alternative.

The Pipeline's crossings and collocations with the INHT in SQRU AR-02 would result in measurable direct and indirect impacts that diminish the integrity of the trail and potential indirect impacts to trail-related historic sites that would persist through the life of the project. However, these impacts could be mitigatable through consultation as required under the PA and by implementing measures identified in the CRMP.

Scenic Quality Rating Unit AR-03

Within SQRU AR-03, the entire 7.5 miles of the INHT in the SQRU are within the proposed Pipeline APE under Alternative 6A. The Pipeline ROW would follow the INHT Rainy Pass to Farewell Lake Primary Trail as it passes through dwarf, low and tall shrub areas along the Happy River near where the Ptarmigan Pass Connecting Trail diverges from the primary route, followed by bare ground and low shrub areas through Rainy Pass. The Pipeline ROW would cross the INHT on six occasions, would be collocated with the trail for 2.9 miles, and be within 1,000 feet for 4.5 miles. Where collocated, the Pipeline ROW would cause limited vegetation removal within the tight corridor, including near the Rainy Pass Roadhouse. At the crossings and non-collocated areas, the Pipeline ROW would potentially diminish the trail's integrity of setting, feeling, and association.

Under Alternative 6A, the Pipeline crossings and collocations with the INHT in SQRU AR-03 would result in the same intensity, duration, and extent of impacts as described above for AR-02. However, direct impacts to INHT-related historic sites would be avoided.

Scenic Quality Rating Unit AR-04

Within SQRU AR-04, the entire 7.6 miles of the INHT in the SQRU are within the proposed Pipeline APE under Alternative 6A. The Pipeline ROW would follow the INHT Rainy Pass to Farewell Lake Primary Trail through the Dalzell Gorge, vegetated with spruce forest. The

Pipeline ROW would cross the INHT on five occasions, would be collocated with the trail for 2.1 miles, and be within 1,000 feet for 4.0 miles. Where collocated, the Pipeline ROW would cause limited vegetation removal with minimal changes in setting through the Dalzell Gorge. The Pipeline ROW would potentially impact views facing north from the Dalzell Roadhouse, in an area where the Pipeline would transition from a collocation to a parallel route with the INHT. At the crossings and non-collocated areas, the Pipeline ROW would potentially diminish the trail's integrity of setting, feeling, and association.

Under Alternative 6A, the Pipeline crossings and collocations with the INHT in SQRU AR-04 would result in the same intensity, duration, and extent of impacts as described above for AR-02.

Scenic Quality Rating Unit AR-05

Within SQRU AR-05, 25.0 miles of the INHT are within the proposed Pipeline APE under Alternative 6A. The Pipeline ROW would cross the INHT on six occasions, would be collocated with the INHT for 3.7 miles, and be within 1,000 feet for 7.1 miles. In this SQRU, the Pipeline ROW would follow the INHT Rainy Pass to Farewell Lake Primary Trail as it converges with the intersection of the Tatina River and South Fork Kuskokwim River, where the trail corridor opens to herbaceous vegetation. The Pipeline's collocation with the INHT and reduced vegetation removal would limit the impact on the INHT at this viewpoint, but would likely impact the historic setting at other portions of the trail within the SQRU. Northwest of the intersection of rivers, the Rohn River Roadhouse (MCG-00007) would be approximately 0.6 mile southwest of the Pipeline ROW, and the Rohn River Checkpoint Cabin (MCG-00019) would be approximately 0.75 mile southwest of the Pipeline ROW. The Pipeline ROW under Alternative 6A may be visible from these sites, but the limited amount of vegetation removal is not likely to diminish the integrity of setting, feeling, or association of the trail.

The Pipeline's crossings and collocations with the INHT in SQRU AR-05 would result in measurable direct and indirect impacts that diminish the integrity of the trail and potential indirect impacts to trail-related historic sites that would persist through the life of the project. However, these impacts could be mitigatable through consultation as required under the PA and by implementing measures identified in the CRMP.

3.20.3.9 IMPACT COMPARISON – ALL ALTERNATIVES

A comparison of the impacts to cultural resources by alternative is presented in Table 3.20-14.

Table 3.20-14: Comparison of Impacts by Alternative*

Impact-causing Project Component	Alt. 2 – Proposed Action	Alt. 3A – LNG-Powered Haul Trucks	Alt. 3B – Diesel Pipeline	Alt. 4 – BTC Port (and Road)	Alt. 5A – Dry Stack Tailings	Alt. 6A – Dalzell Gorge Route
Cultural Resources within the Mine Site	Total: 8 • NRHP Eligible: 1 (1 historic cabin) • NRHP Not Eligible: 5 (3 prehistoric sites, 2 historic ditches) • Not Evaluated: 2 (1 prehistoric site, 1 historic cabin)	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
Cultural Resources within the Transportation Corridor	Total: 1 • NRHP Eligible: 1 (1 prehistoric site)	Same as Alternative 2.	Same as Alternative 2.	Total: 4 • Recommended as NRHP Eligible: 2 (2 prehistoric sites) • Not Eligible: 1 (prehistoric lithic scatter) • Not Evaluated: 1 (unable to locate reported village location)	Same as Alternative 2.	Same as Alternative 2.
Cultural Resources within the Pipeline	Total: 39 • NRHP Eligible: 17 (1 camp, 2 cabins/shelters, 11 prehistoric sites; 3 INHT segments) • NRHP Not Eligible: 21 (18 prehistoric sites, 3 non-cultural) • Not Evaluated (Treated as eligible): 1 (1 cabin) • Pipeline route had historic and traditional cultural importance. • INHT would cross on 14 occasions, pipeline collocated with INHT for 2.5 miles, in proximity to INHT for 14.3 miles, and in the indirect APE of INHT for 55.7 miles • North Option: The Pipeline ROW would cross the INHT 5 times, collocated with INHT for 0.2 miles and in proximity to INHT (within 1,000 feet) for approximately 5.3 miles.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Total: 38 (5 sites specific to Alt. 2 and 4 sites specific to Alt. 6A) • NRHP Eligible: 14 (1 camp, 2 cabins/shelters, 8 prehistoric sites; 3 INHT segments) • NRHP Not Eligible: 22 (19 prehistoric sites, 3 non-cultural) • Not Evaluated (Treated as eligible): 2 (2 cabins) • Pipeline route had historic and traditional cultural importance, same as Alternative 2. • INHT would cross on 37 occasions, ROW collocated with INHT for 9 miles, in proximity for 37.0 miles, and in the indirect APE of INHT for 93.7 miles
Summary Impact Level						
Mine Site	Intensity: Predominantly result in measurable direct impacts to 1 NRHP eligible resource within the Mine Site APE. Impacts to this site would be considered an adverse effect under NHPA; data recovery would be employed to mitigate adverse effect. Duration Resources would be removed from their original locations if the sites cannot be avoided. Resources would not be anticipated to return to previous levels even after actions that caused the impacts were to cease. Extent or Scope: Impacts would affect a single resource in the vicinity of the mine site. Context: Affects cultural resources eligible for the NRHP that fill a rare social or cultural role either within the locality or region.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.

Table 3.20-15: Comparison of Impacts by Alternative*

Impact-causing Project Component	Alt. 2 – Proposed Action	Alt. 3A – LNG-Powered Haul Trucks	Alt. 3B – Diesel Pipeline	Alt. 4 – BTC Port (and Road)	Alt. 5A – Dry Stack Tailings	Alt. 6A – Dalzell Gorge Route
Transportation Corridor	Intensity: Impacts to 1 site recommended as eligible would be considered an adverse effect under NHPA. Consultation performed through the PA and avoidance, minimization or mitigation measures, as identified in the CRMP could help to mitigate the adverse effect. Through consultation, data recovery could help to mitigate the adverse effect. Duration: Resources would be removed from their original locations if they cannot be avoided. Resources would not be anticipated to return to previous levels even after actions that caused the impacts were to cease. Extent or Scope: Impacts to eligible resources would be limited to discrete portions of the EIS Analysis Area. Impacts to SQRUs associated with the INHT would extend beyond throughout the EIS Analysis Area. Context: Affects cultural resources eligible for the NRHP that fill a rare social or cultural role either within the locality or the region and congressional designation of national historic trail.	Same as Alternative 2.	Same as Alternative 2.	Intensity: Result in potential measurable direct impacts to 2 NRHP-eligible resources within the transportation facilities. Impacts to these sites would be considered an adverse effect under NHPA. Consultation performed through the PA and avoidance, minimization or mitigation measures, as identified in the CRMP could help to mitigate the adverse effect. Duration: Resources would be removed from their original locations if the sites cannot be avoided. Resources would not be anticipated to return to previous levels even after actions that caused the impacts were to cease. Extent or Scope: Impacts would affect a single resource in the vicinity of the transportation facilities. Context: Affects cultural resources eligible for the NRHP that fill a rare social or cultural role either within the locality or region.	Same as Alternative 2.	Same as Alternative 2.
Pipeline	Intensity: Predominantly result in measurable direct and indirect impacts to the INHT (recommended as eligible in NRHP; three contributing segments) and 7 NRHP eligible resources within the pipeline APE. Impacts to sites recommended as eligible would be considered an adverse effect under NHPA. Consultation performed through the PA and avoidance, minimization or mitigation measures, as identified in the CRMP could help to mitigate the adverse effect. Duration: Resources would be removed from their original locations if they cannot be avoided. Resources would not be anticipated to return to previous levels even after actions that caused the impacts were to cease. Extent or Scope: Impacts to eligible resources would be limited to discrete portions of the EIS Analysis Area. Impacts to SQRUs associated with the INHT would extend throughout the EIS Analysis Area. The extent and scope of the effects would be reduced if the North Option were selected. Context: Affects cultural resources eligible for the NRHP that fill a rare social or cultural role either within the locality or the region and congressional designation of national historic trail.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Impacts to INHT would be greater than under Alternative 2.

Notes:

*The No Action Alternative would have no impacts to cultural resources.