Attachment E
Chuitna Permittee Responsible Mitigation Plan

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Attachment E Chuitna Permittee Responsible Mitigation Plan

Objectives

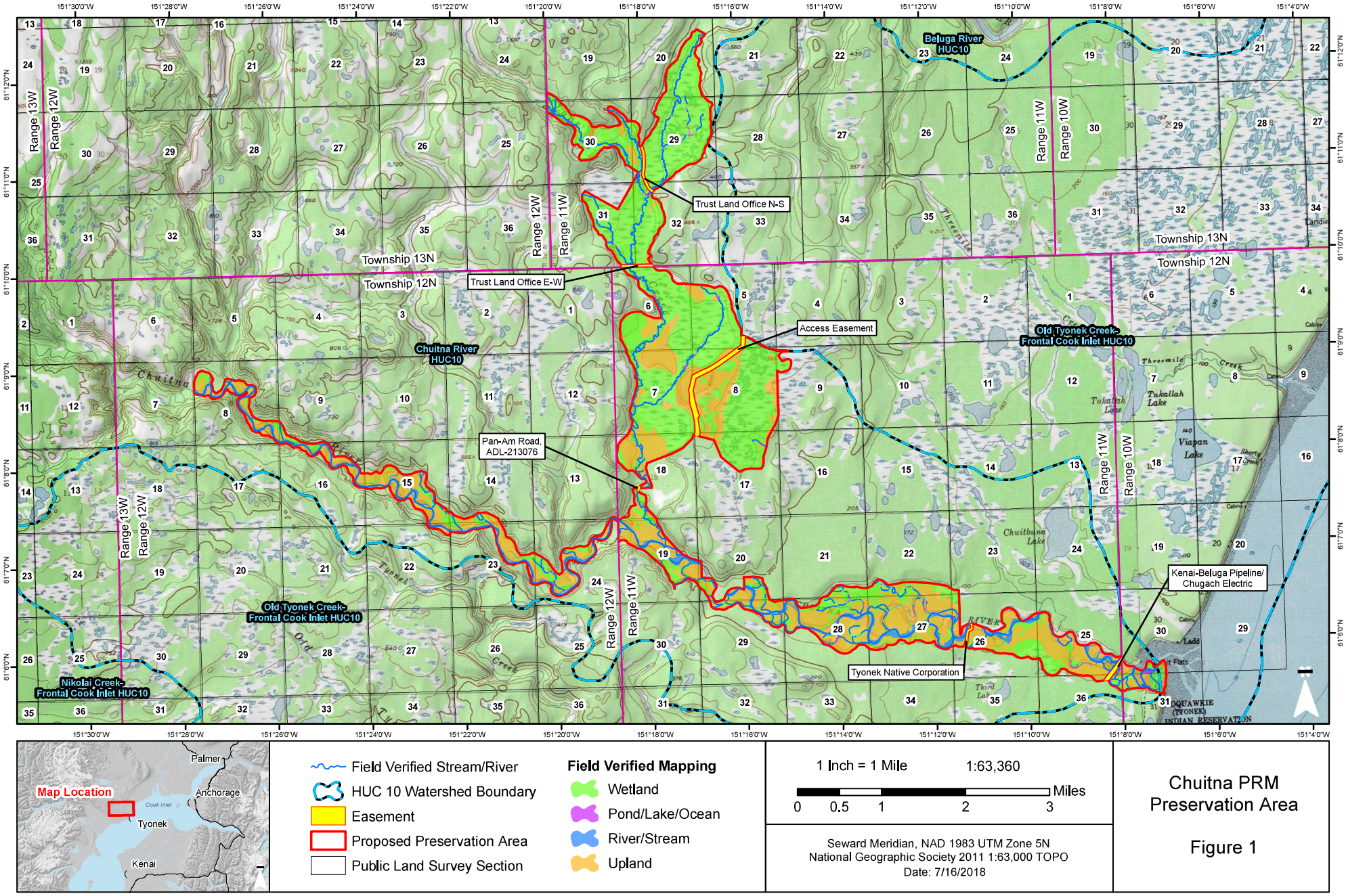
The objective of the Chuitna Permittee Responsible Mitigation (PRM) Plan (Plan) is to provide compensatory mitigation for the wetland and aquatic resource impacts associated with the Donlin Gold, LLC (Donlin Gold) Project (Project). The Plan will protect a parcel of land totaling 5,870 acres, including 3,269 acres of wetlands and ponds, and 418 acres of streams and rivers, totaling 3,687 acres of Waters of the United States (WOUS). It also protects 2,183 acres of upland riparian and buffers, and 258,056 linear feet (48.87 miles) of streams. Fill and other ground disturbing activities in wetlands in the Chuitna Preservation Area (Preservation Area) would be detrimental to aquatic habitat and wetland-dependent wildlife species, including all five species of Pacific salmon and endangered Beluga whales at the mouth of the Chuitna River. The Preservation Area is on land owned by the Tyonek Native Corporation (TNC) and the Alaska Mental Health Trust Authority (AMHT) as shown on Figure 1. Michael Baker International (Michael Baker) completed field wetland delineation work in the Chuitna Preservation Area from June 5th through 11th 2018. The field verified results are presented in this Plan. Preservation is appropriate under the 2008 Mitigation Rule (Rule) under the criteria of 33 CFR 332.3(h) (United States Army Corps of Engineers [USACE] and United States Environmental Protection Agency [EPA] 2008) and supported by the 1994 Alaska Wetland Initiative (EPA et al. 1994). In 33 CFR 332.3(3)(b)(4) of the Rule, USACE and the EPA discuss the mitigation hierarchy of mitigation banks, in-lieu fee (ILF) programs, and PRM projects. The Code of Federal Regulation (CFR) states:

> "Where permitted impacts are not in the service area of an approved mitigation bank or in-lieu fee program that has the appropriate number and resource type of credits available, permittee responsible mitigation is the only option. Where practicable and likely to be successful and sustainable, the resource type and locations for the permittee-responsible compensatory mitigation should be determined using the *principles* [added emphasis] of a watershed approach…"

A portion of the natural gas pipeline includes some very limited permanent wetland impacts within the Great Land Trust ILF program and Su-Knik Mitigation Bank service areas (see Compensatory Mitigation Plan [CMP], Section 5.0). However, no existing bank or ILF programs are available for the Mine Area (MA) impacts, the Transportation Area (TA) impacts or the majority of the Pipeline Area (PA) impacts. Hence, the Preservation Area is proposed as PRM.

One concern often raised regarding PRM projects is that the applicants cannot gain control of all the land necessary for watershed level benefits; i.e., PRM areas often are small isolated areas that represent small parts of a much larger watershed area. The Chuitna parcel, in keeping with the principles of a watershed approach, provides a large, contiguous, and ecologically valuable site, selected based on its location, size, connectivity, unique aquatic values, and the ongoing threat of near-term development in the watershed. In establishing the Preservation Area, Donlin Gold specifically focused on protecting important and productive wetlands and streams at the watershed level. The parcel boundaries were determined through a detailed planning process that is based on geographic features. The goal is to

protect the streams and associated floodplains as well as the valley slopes adjacent to the floodplain. In most areas, the boundary is defined by the crest at the top of the valley.



Chuitna PRM Preservation Area

Figure 1

The unique and valuable ecological features of the Preservation Area are:

- The parcel is composed of productive wetlands, streams, and upland habitats. This diversity contributes to the ecological success and long-term sustainability of the watershed.
- The size and location of the parcel provide a connection between the hydrologic source waters in the Alaska Range, through shallow ground water that flows through the wetland string bogs, the tributaries, and finally to the Chuitna River and Cook Inlet.
- The ericaceous shrub bog-string bog wetlands, a specific type of slope Hydrogeomorphic (HGM) wetlands (also known as patterned fens) are a unique wetland type to the area, and only occur in a few very specific places worldwide.
- The parcel preserves important wetlands, riparian areas, and buffers adjacent to anadromous streams containing five Pacific salmon species.
- The riparian wetland areas provide ecological functions and services to maintain and protect water quality.
- The parcel contains estuarine habitat in Cook Inlet which supports Beluga whales and is part of the designated critical habitat area for this listed endangered species.

The method of legal conservation is land preservation via deed restrictions. The resources for preservation contribute to the ecological sustainability of the watershed, including Pacific salmon.

Site Selection Criteria

Regulatory Considerations

The Rule was consulted to determine the site selection criteria framework. Mitigation plans must address the following criteria if preservation is proposed [33 CFR 332.3(h)]:

1. "The resources preserved must provide important physical, chemical, or biological functions for the watershed;
2. The resources preserved must contribute significantly to the ecological sustainability of the watershed. In determining the contribution of those resources to the ecological sustainability of the watershed, the district engineer must use appropriate quantitative assessment tools, where available;
3. Preservation is determined by the district engineer to be appropriate and practicable;
4. The resources are under threat of destruction or adverse modifications;
5. The preserved site will be permanently protected through an appropriate real estate or legal instrument (e.g., easement, title transfer to state resource agency or land trust)."

In determining parcel size and location, Donlin Gold sought preservation parcels that provided:

- Important physical, chemical, or biological functions within a watershed;
- Contained wetland and aquatic resources that contribute significantly to the ecological sustainability of the watershed; and
- Provided sufficient acreage to offset the Project's permanent impacts to wetlands by at least an acre per acre.

To define ecological sustainability Donlin Gold consulted the Rule [33 CFR 332.3(d)(1) and 40 CFR 230.93(d)(1)]. In determining the ecological suitability, the following factors were considered:

> "(i) Hydrological conditions, soil characteristics, and other physical and chemical characteristics;
>
> (ii) Watershed-scale features, such as aquatic habitat diversity, habitat connectivity, and other landscape scale functions;
>
> (iii) The size and location of the compensatory mitigation site relative to hydrologic sources and other ecological features;
>
> (iv) Compatibility with adjacent land uses and watershed management plans;
>
> (v) Reasonably foreseeable effects the compensatory mitigation project will have on ecologically important aquatic or terrestrial resources (e.g., shallow sub-tidal habitat, mature forests), cultural sites, or habitat for federal or state listed, threatened and endangered species;
>
> (vi) Other relevant factors including, but not limited to, development trends, anticipated land use changes, habitat status and trends, the relative locations of the impact and mitigation sites in the stream network, local or regional goals for the restoration or protection of particular habitat types or functions (e.g., re-establishment of habitat corridors or habitat for species of concern), water quality goals, floodplain management goals, and the relative potential for chemical contamination of the aquatic resources."

To help determine parcel size and location, Donlin Gold referred to the definitions (33 CFR 332.2) of "Riparian area" and "Buffer" to construct the boundaries of the parcel within the watershed, so the threats adjacent to the parcel would not degrade its features and functions. The definitions state:

- "Riparian areas are lands adjacent to streams, rivers, lakes, and estuarine marine shorelines. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality."
- "Buffer means an upland, wetland, and/or riparian area that protects and/or enhances aquatic resource functions associated with wetlands, rivers, streams, lakes, marine, and estuarine systems from disturbances associated with adjacent land uses."

Using the regulatory framework of the Rule, Donlin Gold developed its site selection criteria to evaluate size, location, wetlands, aquatic resources, hydrology, and ecological sustainability of preservation parcels. Donlin Gold adopted the following site selection criteria:

> *The site needs to supply watershed scale hydrology, wetlands, or soils providing aquatic habitat diversity, habitat connectivity, and aquatic and terrestrial resource habitats for Pacific Salmon and, if possible, federal or state listed, threatened and endangered species. The site needs to supply adequate wetland and riparian area to replace aquatic resources lost commensurate with project impacts. There must be sufficient parcel size to buffer preserved wetlands and streams from adjacent threat.*

Preservation Area Location and Size

The Preservation Area is located on the west side of Cook Inlet within the Cook Inlet Lowlands Major Land Resource Area (MLRA). The Preservation Area totals 5,870 acres, and includes 3,269 acres of

wetlands and 258,056 linear feet (48.87 miles) of streams, in part of the most densely populated region of the state. Existing and potential future land use within the MLRA includes agriculture, logging, commercial fishing, mining, and oil and gas extraction. Additionally, tourism, recreation, urban development, and subsistence activities contribute to impacts within the area (Natural Resources Conservation Service [NRCS] 2004).

The parcel contains wetlands and aquatic stream resources to sufficiently offset the potential losses of aquatic resources associated with the Project. In addition, the parcel includes buffers that further protect this key portion of the Chuitna watershed and the important physical, chemical, and biological functions of the wetlands and streams.

Mitigation credits can include both wetlands and buffers. "District engineers may require the restoration, establishment, enhancement, and preservation, as well as the maintenance, of riparian areas and/or buffers around aquatic resources where necessary to ensure the long-term viability of those resources. Buffers may also provide habitat or corridors necessary for the ecological functioning of aquatic resources. If buffers are required by the district engineer as part of the compensatory mitigation project, compensatory mitigation credit will be provided for those buffers." [33 CFR 332.3(h)(2)(i)].

Preservation Area Wetland Ecology

The Preservation Area acreages in this Plan are rounded to the nearest whole number and will be further defined in the Chuitna Preservation Area Preliminary Jurisdictional Determination (PJD) anticipated in late July 2018. For comparison purposes, Project fill quantities in this Plan are also rounded to the nearest whole number; these data are from the 2016 PJD (Michael Baker 2016) and 2017 Department of Army (DA) Application (Donlin Gold 2017).

The Preservation Area linear feet and wetland acres have been calculated to avoid double-counting. Stream credits are calculated in linear feet, and wetland credits are calculated in acres. Streams visible in aerial imagery have been delineated as polylines and polygons. The polylines are used to calculate linear feet of stream length, while the polygons are used to delineate stream and wetland boundaries and to exclude stream acres from the overall credit calculation.

Wetlands have been classified using HGM (Brinson 1993) and National Wetland Inventory (NWI) (Cowardin et al. 1979) systems. The label "Riverine" is used in both classification systems.

- HGM: Following Brinson (1993), riverine HGM only applies to wetlands adjacent to streams where the dominant water source is hyporheic or overland flow from the stream. No streams delineated as polygons have been included in the riverine HGM wetland total. The riverine HGM applies only to wetlands.

- NWI: Following Cowardin et al. (1979), NWI riverine is a system level class that applies to habitats contained within a channel. Polylines classified under NWI as riverine correspond to stream systems, and count toward linear feet of stream. Polygons classified under NWI as riverine are not counted in the total wetland credit acres.

The Preservation Area contains wetlands and aquatic resources that are unique to the area and provide valuable ecosystem functions at the watershed level. The Preservation Area includes headwater streams flowing through large bogs, connecting to intermediate streams with highly productive salmon and riparian habitat, into an anadromous river, and to its outlet through an estuarine area into Cook Inlet. Most of the Preservation Area is located within the Chuitna River HUC-10 watershed (5,852 acres or greater than 99 percent), while a small portion at the mouth of the Chuitna River is located within the Old Tyonek Creek-Frontal Cook Inlet HUC-10 watershed (18 acres or less than 1 percent).

The two HUC-10 watersheds were mapped using the NWI and total 182,304 acres, of which 64,226 acres (35 percent) are WOUS. (Table 1). The Preservation Area totals 5,870 acres, of which 3,687 acres (62.8 percent) are WOUS (Table 2).

Table 1 Chuitna River and Old Tyonek Creek-Frontal Cook Inlet Watershed Wetlands and Waters (Acres, Percent)

Wetland Type (NWI)	Acres	Percent
Freshwater Emergent Wetland	9,156	5
Freshwater Forested/Shrub Wetland	27,337	15
Estuarine and Marine Wetland	13,212	7
Freshwater Pond	1,104	<1
Lake	1,487	<1
Estuarine and Marine Deepwater	10,707	6
Riverine (Stream and River Area)	1,223	<1
Total Wetland and Waters	**64,226**	**35**
Upland Riparian and Buffer	118,078	65
Total Area	**182,304**	**100**

Source: National Wetlands Inventory (NWI) 2017

Table 2 Preservation Area Wetlands and Waters and Buffers (Acres, Percent)

Wetland Type	Acres	Percent
Wetlands and Ponds	3,269	55.7
Stream and River Area	418	7.1
Total Wetlands and Waters	**3,687**	**62.8**
Upland Riparian and Buffer	2,183	37.2
Total Mapped Area	**5,870**	**100.0**

Source: Field Verified Mapping, Michael Baker June 2018

Wetlands and waters within the Preservation Area have been characterized through field verified mapping by HGM classification (Brinson 1993), summarized in Table 3; vegetation type classification based on a modified Viereck Classification System (Viereck et.al. 1992), summarized in Table 4; and Cowardin classification (Cowardin et al. 1979), summarized in Table 5.

The most common NWI mapped wetland vegetation type in the two HUC-10 watersheds is freshwater forested/shrub followed by estuarine habitat, the majority of which is within the Old Tyonek Creek-Frontal Cook Inlet watershed.

The most common wetland types in the field verified Preservation Area are ericaceous shrub bog-string bog and low shrub bogs.

Table 3 Preservation Area HGM Classification (Acres, Percent)

HGM Classification	Acres	Percent
Depressional	79	1.3
Estuarine Fringe	29	0.5
Riverine	500	8.5
Riverine Channel	418	7.1
Slope	2,661	45.3
Total Wetlands/WOUS	**3,687**	**62.8**
Upland Riparian and Buffer	**2,183**	**37.2**
Total Mapped Area	**5,870**	**100.0**

Source: Field Verified Mapping, Michael Baker June 2018
Notes: Apparent inconsistencies due to rounding

Table 4 Preservation Area Vegetation Type Classification (Acres, Percent)

Vegetation Type	Field Verified Acres	Field Verified Percent
Forested Types		
Open Black Spruce Forest	252	4.3
Black Spruce Woodland	206	3.5
Open Deciduous Forest	7	0.1
Closed Mixed Forest	5	0.1
Open Mixed Forest	523	8.9
Woodland Deciduous Forest	5	0.1
Woodland Mixed Forest	44	0.7
Total Forest Type	**1,041**	**17.7**
Shrub Types		
Closed Alder Shrub	12	0.0
Closed Alder Willow Shrub	36	0.6
Ericaceous Shrub Bog-String Bog	802	13.7
Low Shrub Bog	548	9.3
Open Alder Shrub	268	4.6
Open Alder Willow Shrub	230	3.9
Open Willow Shrub	41	0.7
Total Shrub Type	**1,936**	**33.0**
Herbaceous Types		
Aquatic Herbaceous	1	0.0
Mesic Herb	97	1.7
Wet Herbaceous	140	2.4
Total Herbaceous Type	**239**	**4.1**
Open Water (Pond and Estuarine Fringe)	54	**0.9**
Total Wetlands and Ponds	**3,269**	**55.7**
Riverine System (Streams and Rivers)	418	7.1
Total Wetlands/WOUS	**3,687**	**62.8**
Total Upland Riparian and Buffer	**2,183**	**37.2**
Total Mapped Area	**5,870**	**100.0**

Source: Field Verified Mapping, Michael Baker June 2018
Notes: Apparent inconsistencies due to rounding

Table 5 Preservation Area Cowardin Classifications (Acres, Percent)

Cowardin Groups	Cowardin Classification	Cowardin Acres	Percent
Coniferous Forests	PFO4/SS1	163	2.8
	PFO4	26	0.4
	PFO4/SS4	6	0.1
	PSS1/FO4	89	1.5
Total Coniferous Forests		**284**	**4.8**
Deciduous Forests	PFO1	3	0.0
	PFO1/SS1	3	0.0
	PSS1/FO1	4	0.1
	PF01/EM1	2	0.0
	PEM1/FO1	1	0.0
Total Deciduous Forests		**13**	**0.2**
Mixed Forests	PFO4/1	245	4.2
	PFO1/4	283	4.8
	PSS1/FO1	18	0.3
	PEM1/FO1	9	0.1
Total Mixed Forests		**554**	**9.4**
Coniferous Scrub	PSS1/4	134	2.3
	PSS4	5	0.1
	PSS4/1	51	0.9
Total Coniferous Scrub		**190**	**3.2**
Shrub	PSS1	283	4.8
	PSS1/EM1	1,570	26.7
	PEM1/SS1	84	1.4
Total Shrub		**1,937**	**33.0**
Herbaceous	E2EM1	26	0.4
	PEM1/2	3	0.0
	PEM1	208	3.5
Total Herbaceous		**237**	**4.0**
Ponds	PUB/AB3	1	0.0
	PUB	49	0.8
Total Ponds		**51**	**0.9**
Estuarine Waters	E2US	3	0.0
Total Estuarine		**3**	**0.0**
Total Wetlands, Ponds, and Estuarine		**3,269**	**55.7**
Rivers and Streams	R1UB	13	0.2
	R3UB	404	6.9
	R4SBC	1	0.0
***Total Rivers and Streams**		**418**	**7.1**
Total Wetlands and Waters		**3,687**	**62.8**
Total Upland Riparian and Buffers		**2,183**	**37.2**
Grand Total		**5,870**	**100.0**

Source: Field Verified Mapped, Michael Baker June 2018
Notes: Apparent inconsistencies due to rounding
*Note: Streams and Rivers acreage is not included within wetlands and ponds

The wetland systems within the Preservation Area include large areas of slope HGM wetlands including ericaceous shrub bog-string bog wetlands, riverine HGM riparian wetlands, estuarine fringe HGM wetlands, and a small number of depressional HGM wetlands.

- Slope HGM Wetlands – The largest HGM wetland type in the Preservation Area is slope HGM. This wetland type covers 2,661 acres, or about 45 percent of the area (Table 3). The dominant source of water in slope HGM wetlands is discharge of groundwater to the land surface. Functions performed by these wetlands include discharge of water, modification of stream flow and water quality, export of detritus, maintenance of plant communities, and habitat support (Hall et. al. 2003). Lone Creek, a tributary of the Chuitna River, flows through or near much of the slope HGM wetlands in the Preservation Area. These wetlands contribute to the stream base flow and nutrient outputs, which then flow to the Chuitna River.

  Ericaceous Shrub Bog-String Bog Wetlands – A type of slope HGM wetlands also known as patterned fens, these wetlands are a unique wetland type to the area, and only occur in a few very specific places worldwide. They are characterized by alternating ridges (strangs) dominated by shrubs and wet depressions (flarks). These features generally run perpendicular to the direction of water movement. Functions performed by these wetlands include discharge of water, water storage, particulate retention, export of carbon, cycling of elements, maintenance of plant communities, and habitat support including characteristic structures, interspersion, and connectivity (Hall et al. 2003). In the Preservation Area, 802 acres of the slope HGM wetlands are ericaceous shrub bog-string bog wetlands (Table 4).

- Riverine HGM Wetlands – Riverine HGM wetlands occur in floodplains and riparian areas. The dominant water sources are overbank flow from the channel or hyporheic flow between the stream and wetlands (NRCS 2008). Functions performed by riverine HGM wetlands include groundwater discharge and recharge of water, water storage, modification of stream flow and water quality, export of carbon, maintenance of plant communities, and habitat support (Powell et al. 2003). The Preservation Area contains 500 acres of riverine wetlands (Table 3).

- Estuarine Fringe HGM Wetlands – Estuarine fringe HGM wetlands occur along coastlines and are under the influence of sea water (NRCS 2008). Functions performed by estuarine fringe HGM wetlands include shoreline erosion control, nutrient absorption, maintenance of plant communities, and habitat support (EPA 2017). The Preservation Area contains 29 acres of estuarine fringe HGM wetlands surrounding the outlet of the Chuitna River into Cook Inlet (Table 3).

- Depressional HGM Wetlands – In the Preservation Area, there are 79 acres of the Preservation Area as depressional HGM wetlands (Table 3). These wetlands occur in topographic depressions. Functions performed by depressional HGM wetlands include groundwater discharge and recharge depending on landscape position, storm and floodwater storage, modification of streamflow and water quality, maintenance of plant communities, and habitat support (Powell et al. 2003).

The Preservation Area also protects areas adjacent to wetlands and streams. These uplands provide important ecosystem functions and values. Upland areas can be important for groundwater recharge, sometimes exceeding adjacent wetlands due to more permeable soil. Upland areas directly adjacent to slope HGM wetlands support groundwater discharge functions, helping to maintain the downgradient wetlands. Upland buffers adjacent to wetlands also protect and maintain wetland function. They act to slow and stop sediment and pollutants entering wetlands, provide organic matter to wetlands, and maintain wildlife habitat and movement corridors (McElfish et al. 2008). Figure 2 and Figure 3 show representative drawings of these areas and their functions.

Uplands and wetlands in the Preservation Area surrounding the Chuitna River and Lone Creek were selected to maximize the protection of wetlands, floodplains, anadromous streams, and riparian areas using a watershed approach. The Chuitna River floodplain includes back water sloughs, ponds, minor channels, riverine wetlands, and scrub and forested uplands in the bends of the river. The Preservation Area boundaries on the mainstem of the Chuitna River were selected to maximize full protection of the floodplain flow channels, which support the anadromous stream system. The protection of wetlands, streams, and upland riparian areas in the watershed provides a diversity of habitat and vegetation types, both terrestrial and aquatic, while protecting anadromous waters.

The boundaries around Lone Creek were established to maximize the amount of unique ericaceous shrub bog-string bog wetlands. This created a large contiguous undeveloped parcel of the stream and its tributaries and wetlands interspersed with uplands. This unfragmented parcel in the lower Lone Creek watershed protects the wetlands, baseflow, streams, and anadromous fisheries of both Lone Creek and the Chuitna River from development.

Figure 2 Representative Chuitna River Cross-Section in the Preservation Area

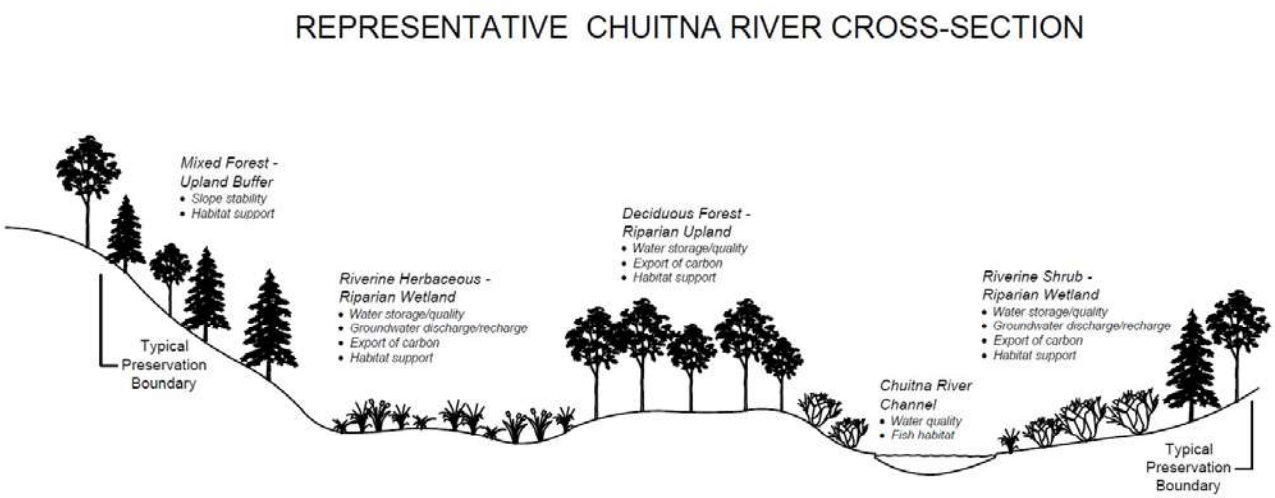
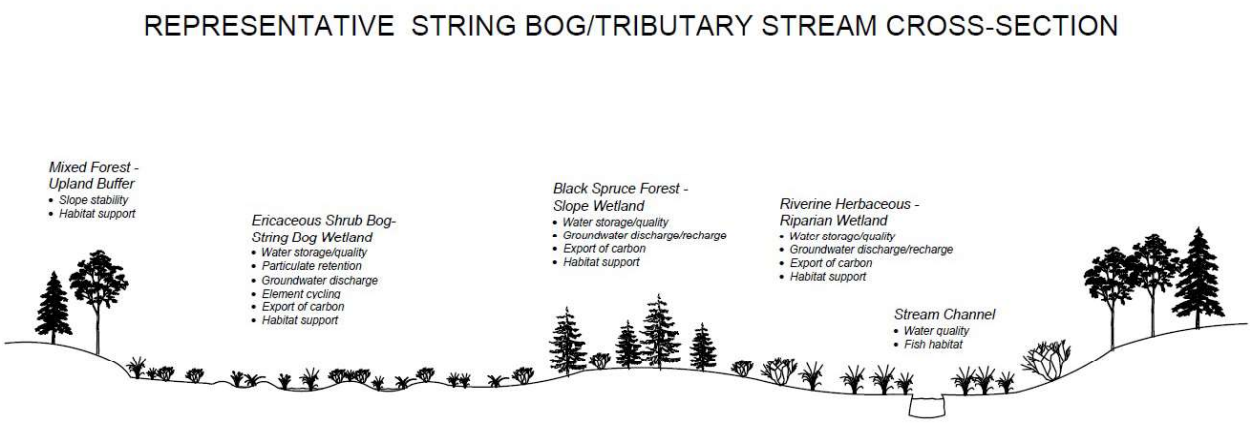


Figure 3 Representative String Bog/Tributary Stream Cross-Section in the Preservation Area



Preservation Area Wetland Ecology Comparison to MA/TA

Approximately 44 percent of Interior Alaska consists of WOUS (Hall et al. 1994). The MA/TA is in the Kuskokwim Highlands ecoregion in the Interior and consists of 55.4 percent wetlands (Hall et al. 1994). Precipitation drives the hydrology of most of the Interior wetlands and waters (Alaska Department of Environmental Conservation [ADEC] 1999); these are classified as flat HGM (Brinson 1993, ADEC 1999). As noted in Table 6, flat HGM wetlands comprise most wetlands impacted by the Project.

Slope wetlands comprise most wetlands in the Preservation Area. Buffer areas that provide similar functions as wetlands are also included in the Preservation Area; they are not shown in Table 6, but their functions are displayed in Figure 2 and Figure 3. The Preservation Area will permanently protect a parcel of land totaling 5,870 acres.

Table 6 Preservation Area HGM Classification Wetlands Comparison to MA/TA: Preserved and Permanently Filled (Acres)

HGM Classification	Preservation Area[1] Acres Preserved	MA/TA[2] Acres Permanent Fill
Depressional	79	3
Estuarine Fringe	29	0
Flat	0	1,623
Riverine	500	160
Slope	2,661	888
Total Wetlands[3]	**3,269**	**2,676**

Source: [1]Field Verified Mapping, Michael Baker June 2018, [2]DA (Donlin Gold 2017),
Notes: [3]Apparent inconsistencies due to rounding

Wetlands perform several functions including terrestrial support for plants/animals, geochemical retention and transformation, hydrologic functions, carbon/nutrient export, and fish/aquatic system support. Each HGM classification performs various functions within each class to differing degrees. The flat HGM wetlands in the MA/TA are comprised mostly of large black spruce vegetated hillsides, for the most part without streams. Streams would provide an outlet for nutrient/carbon export to the Crooked

Creek system, but without streams, there is no nutrient/carbon export and no opportunity for flat HGM wetlands to provide fish or aquatic system support. Within the Preservation Area, slope and riverine HGM wetlands are the dominant classes associated with groundwater systems that export carbon/nutrients, and contribute to adjacent streams which support the anadromous fish in the Chuitna River.

The slope HGM wetlands within the MA/TA are associated with small groundwater and precipitation driven hillside drainages, headwater intermittent and perennial streams, and black spruce wetlands at the toeslopes of the hills adjacent to the floodplains of the various valley streams. Slope wetlands are not supporting a large stream system. The upper swales and hillside drainages are vegetated with willow and alder, with bluejoint (*Calamagrostis canadensis*) understories (Photo 1).

In comparison, Lone Creek, a tributary of the Chuitna River, flows through or drains most of the slope HGM wetlands, including the ericaceous shrub bog-string bog wetland systems in the Preservation Area. These wetlands provide habitat support, nutrient cycling, flood water storage, and contribute to the stream base flow and nutrient outputs of the Chuitna River. Photo 2 shows an example of string bog systems within the Preservation Area.

Photo 1 MA/TA Upper American Creek

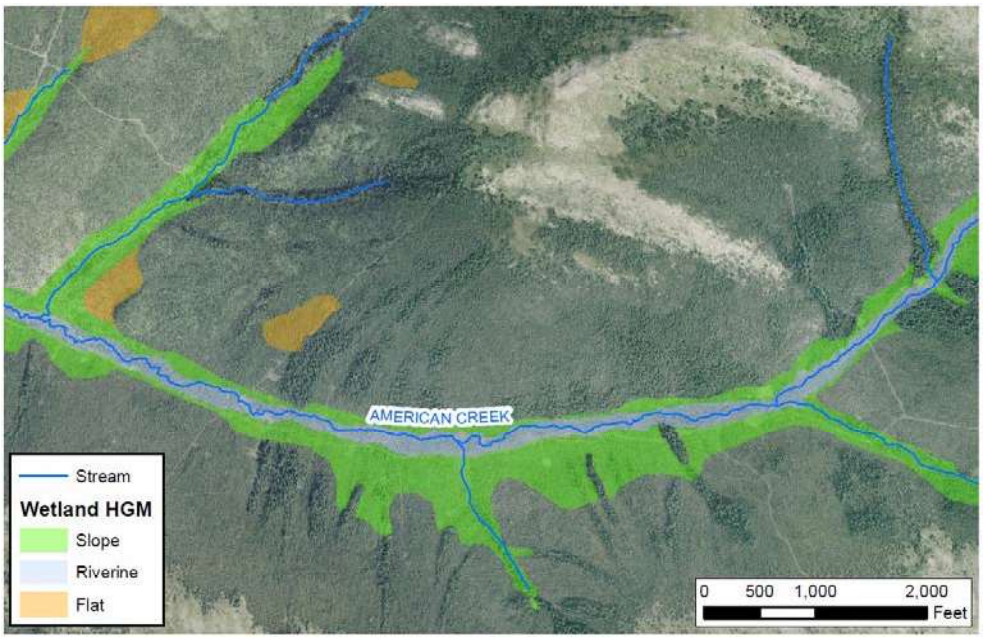
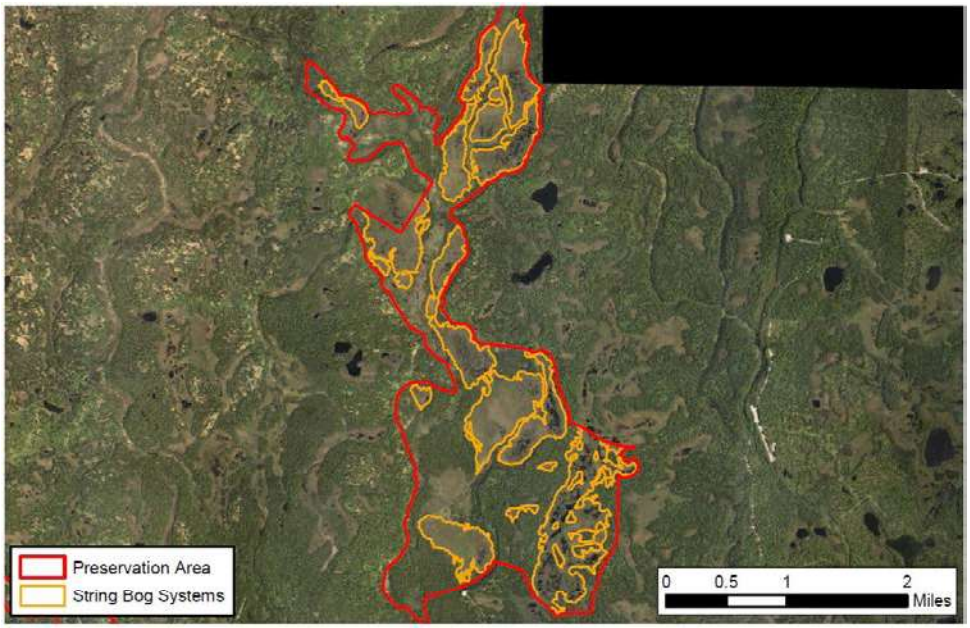


Photo 2 Preservation Area String Bog Systems Example



In the MA/TA, the American and Anaconda Creek drainages are small low-flow systems that appear to lack substantial winter flow. Each creek is associated with a narrow riverine HGM floodplain. The 160 acres of MA floodplains consist of willow, alder, and spruce/mixed forest types. Photo 3 shows the riverine HGM floodplain associated with the anadromous portion of American Creek.

Compared to the MA/TA's low-flow streams and small associated floodplains, the Preservation Area provides over three times the riverine HGM floodplains, and these floodplains help support the salmon fisheries of the Chuitna River. Also associated with the wetland floodplains are the riparian uplands included in the Preservation Area, as shown in Photo 4.

Photo 3 MA/TA American Creek Riverine HGM Floodplain

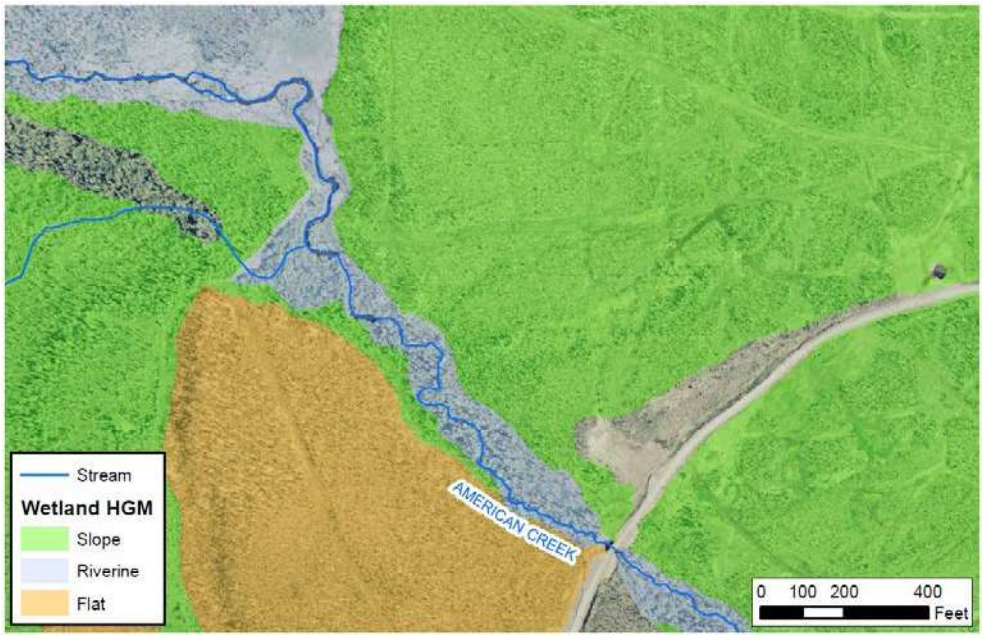
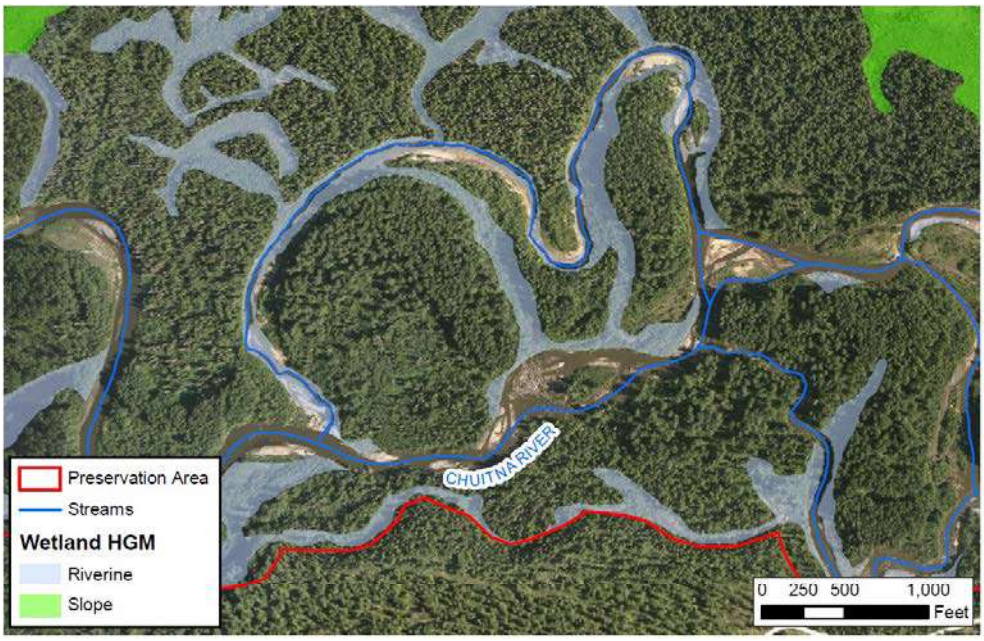


Photo 4 Preservation Area Riverine HGM Wetlands, Chuitna River



The Chuitna River and Lone Creek, both anadromous streams, have 424 acres of associated riverine HGM floodplains (Table 7) while the MA/TA has 8 acres. Only 76 acres of riverine HGM wetlands in the Preservation Area are associated with non-anadromous streams compared to 152 acres in the MA/TA.

Table 7 Preservation Area Riverine HGM Wetlands Comparison to MA/TA

HGM Classification	Preservation Area[1] Acres	MA/TA[2] Acres
Riverine, Anadromous	424	8
Riverine, Non-Anadromous	76	152
Total Riverine Wetlands	**500**	**160**

Source: [1]Field Verified Mapping, Michael Baker June 2018, [2]DA (Donlin Gold 2017)

There are no estuarine HGM wetlands in the MA/TA. In the Preservation Area, these estuarine HGM wetlands and waters are connected to riverine HGM wetlands, the Chuitna River, and Cook Inlet. The critical habitat area of the Beluga whale encompasses intertidal and subtidal waters of Cook Inlet with depths less than 30 feet and within 5 miles of high and medium flow anadromous fish streams (National Oceanic and Atmospheric Administration [NOAA] 2011), including estuarine HGM waters at the mouth of the Chuitna River.

Preservation Area Stream Ecology and Fisheries

The streams and rivers in the Preservation Area provide habitat for Chinook, coho, chum, and pink salmon, as well as limited habitat for sockeye salmon, Dolly Varden, and rainbow trout. The mainstem of the Chuitna River includes Chinook, coho, chum, and pink salmon spawning habitat, and rearing habitat for all five Pacific salmon species. Tributaries to the Chuitna River within the Preservation Area also have documented use by all five Pacific salmon species. Acquisition of the Chuitna River drainage properties

will preserve 258,056 linear feet (48.87 miles) of field verified stream channels, of which at least 148,632 linear feet (28.15 miles) are documented as Pacific salmon habitat including spawning, rearing, and migration habitats in five streams, as shown in Table 8 and Table 9. Figure 4 shows the anadromous streams in the Preservation Area. Fisheries data was derived from the current Anadromous Waters Catalog (AWC) at the time the analysis was performed by Owl Ridge Consultants. The AWC assigns attributes for fish presence, utilization and habitat to stream reaches in the National Hydrography Dataset (NHD), and consequently stream lengths for fish presence and habitat do not exactly reflect the Michael Baker International field verified linear lengths of streams.

The Preservation Area includes 104,544 linear feet (19.80 miles) of the mainstem of the Chuitna River, within which, 49,262 linear feet (9.33 miles) of Chinook salmon spawning habitat, 69,115 linear feet (13.09 miles) of coho spawning habitat, 44,088 linear feet (8.35 miles) of chum spawning habitat, and 104,544 linear feet (19.80 miles) of pink spawning habitat are documented. The entire 104,544 linear feet (19.80 mile) reach contains documented rearing for Chinook and coho salmon juveniles. Some reaches of the mainstem are also documented as rearing habitats for other Pacific salmon, including 100,690 linear feet (19.07 miles) for sockeye, 12,514 linear feet (2.37 miles) for chum, and 13,253 linear feet (2.51 miles) for pink salmon (Table 8).

Table 8 Preservation Area Salmon Habitat Preserved in the Chuitna River Mainstem

Chuitna River Mainstem

Species	AWC Presence Linear Feet (Miles)	AWC Spawning Linear Feet (Miles)	AWC Rearing Linear Feet (Miles)	Total AWC Linear Feet (Miles)
Chinook	55,282 (10.47)	49,262 (9.33)	104,544 (19.80)	104,544 (19.80)
Sockeye	100,690 (19.07)	0	100,690 (19.07)	104,544 (19.80)
Coho	49,526 (9.38)	69,115 (13.09)	104,544 (19.80)	104,544 (19.80)
Chum	80,414 (15.23)	44,088 (8.35)	12,514 (2.37)	104,544 (19.80)
Pink	29,885 (5.66)	104,544 (19.80)	13,253 (2.51)	104,544 (19.80)

Source: AWC, Owl Ridge 2017

In addition to the mainstem Chuitna River habitats, the Preservation Area includes important Pacific salmon habitats in Bass Creek (stream 2004 from Chuitna baseline surveys), Middle Creek (stream 2003 from Chuitna baseline surveys), Lone Creek (stream 2002 from Chuitna baseline surveys) and an unnamed anadromous stream (No. 247-20-10010-2020-3008) [LGL Alaska Research Associates, Inc (LGL) 2009], as shown in Table 9.

Table 9 Preservation Area Salmon Habitat Preserved in Tributaries to the Chuitna River

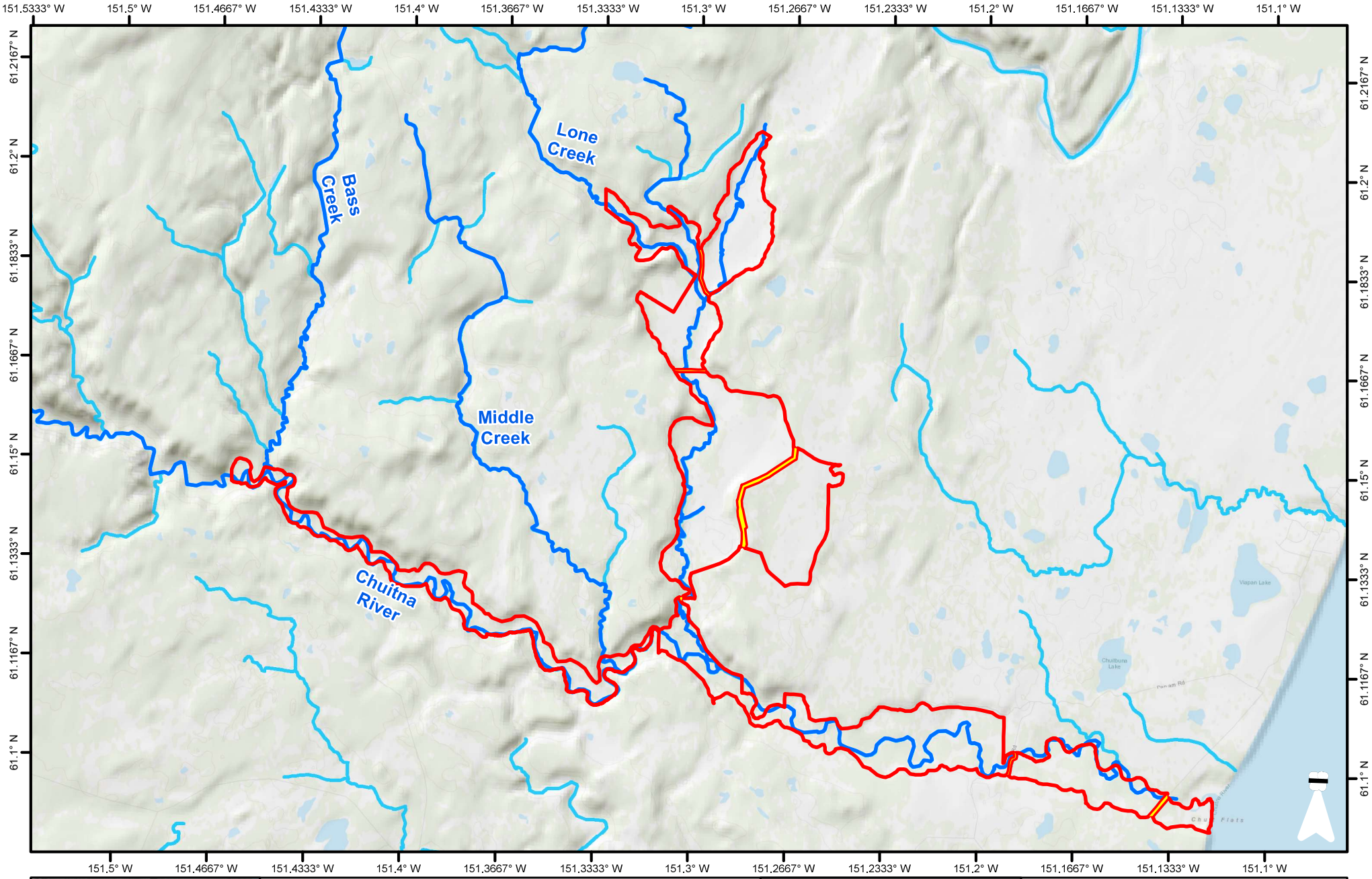
Species	AWC Presence Linear Feet (Miles)	AWC Spawning Linear Feet (Miles)	AWC Rearing Linear Feet (Miles)
Chinook	317 (0.06)	0	317 (0.06)
Sockeye	317 (0.06)	0	317 (0.06)
Coho	317 (0.06)	0	317 (0.06)
Chum	317 (0.06)	0	317 (0.06)
Pink	317 (0.06)	0	0

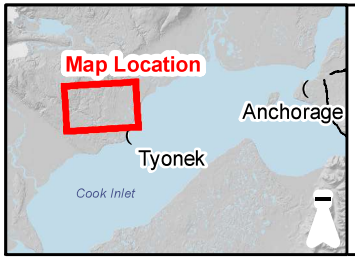
Species	AWC Presence Linear Feet (Miles)	AWC Spawning Linear Feet (Miles)	AWC Rearing Linear Feet (Miles)
Chinook	0	1,426 (0.27)	1,426 (0.27)
Sockeye	1,426 (0.27)	0	0
Coho	0	1,426 (0.27)	1,426 (0.27)
Chum	0	0	0
Pink	0	1,426 (0.27)	0

Species	AWC Presence Linear Feet (Miles)	AWC Spawning Linear Feet (Miles)	AWC Rearing Linear Feet (Miles)
Chinook	0	26,928 (5.10)	26,928 (5.10)
Sockeye	26,928 (5.10)	0	0
Coho	4,699 (0.89)	0	26,928 (5.10)
Chum	26,928 (5.10)	0	0
Pink	26,928 (5.10)	0	0

Species	AWC Presence Linear Feet (Miles)	AWC Spawning Linear Feet (Miles)	AWC Rearing Linear Feet (Miles)
Chinook	0	0	0
Sockeye	0	0	0
Coho	6,336 (1.20)	0	15,418 (2.92)
Chum	0	0	0
Pink	0	0	0

Source: AWC, Owl Ridge 2017





ADF&G Anadromous Waters Catalog Stream Intersecting Preservation Area

ADF&G Anadromous Waters Catalog Stream

Easement

Proposed Preservation Area

Miles
0 0.5 1 1.5 2

1 inch = 7,920 feet

1:95,040

Chuitna Preservation Area
ADF&G Anadromous Streams
Figure 4

Seward Meridian, NAD 1983, UTM Zone 5N
Imagery: DigitalGlobe, 2014
Date: 07/03/18

While only 317 linear feet (0.06 miles) of Bass Creek fall within the Preservation Area, juvenile Chinook, sockeye, coho, and chum salmon use this reach for rearing, while pink salmon have unspecified presence.

The lower 1,426 linear feet (0.27 miles) of Middle Creek fall within the Preservation Area and are documented spawning habitat for Chinook, coho, and pink salmon, as well as rearing habitat for Chinook and coho salmon. Unspecified pink salmon habitat is also documented in this reach.

Lone Creek has 26,928 linear feet (5.10 miles) and 15,418 linear feet (2.92 miles) of its downstream tributary stream (AWC Stream No. 247-20-10010-2020-3008) within the Preservation Area. The entire 26,928 linear feet (5.10 mile) reach of Lone Creek is documented as important Chinook salmon spawning habitat and Chinook and coho salmon rearing habitat. Sockeye, chum, and pink salmon are documented throughout the reach, but habitat uses have not been specified. The entire 15,418 linear feet (2.92 mile) reach of the Lone Creek tributary within the Preservation Area is documented as important coho salmon rearing habitat.

Salmon smolt production was estimated for coho salmon in the Chuitna River watershed and specifically for Lone Creek (2008), and Middle and Bass Creeks in 2008 through 2011 (LGL 2009, 2010, 2011, 2013a and 2013b). Average Chuitna River production ranged from 37,424 to 44,794 coho smolt, with Bass Creek accounting for 19 to 31 percent of production, Middle Creek accounting for 12 to 17 percent of total production, and Lone Creek accounting for up to 50% of production (LGL 2009).

Total salmon escapement for the Chuitna River and tributaries has been estimated with a variety of methods and in varying years for the different Pacific salmon species. Chinook salmon have the longest escapement record, with escapement data available between 1979 and 2015, ranging from 502 fish in 2012, to 4,043 fish in 1983 (Erickson et al. 2017). The Chuitna River did not meet the overall escapement goal of 750 fish in 2010, 2011, or 2012, which led to the stock being identified as a stock of management concern by the Alaska Board of Fisheries. However, Chinook salmon escapement increased to 1,690, 1,398, and 1,965 fish in 2013, 2014, and 2015, respectively.

In 2008, escapement for Chinook salmon was estimated at 217 to 341 fish in Lone Creek; 21 to 80 fish in Middle Creek; and 77 to 153 in Bass Creek. Coho, chum, sockeye, and pink salmon escapement estimates are not available for the entire Chuitna drainage; however, escapement has been estimated for the Chuitna River tributaries, including Bass, Middle, and Lone Creeks. Numbers of coho salmon entering these tributaries have been estimated at 2,336 to 2,903 fish in Lone Creek; 1,983 to 2,313 fish in Middle Creek, and 269 to 726 fish in Bass Creek (LGL, 2009 summarized by Owl Ridge 2017). These estimates are considerably higher than estimates from the early 1980s, when between 1,085 and 2,400 coho were estimated moving into the entire drainage (Erickson et al. 2017). Lone Creek has had the highest identified escapement of pink salmon among the tributaries. Chum salmon abundance has ranged from one to 100 fish in the drainage, while sockeye salmon were only found in 2008 and 2009 and in low numbers. In addition to Pacific salmon, anadromous Dolly Varden and resident rainbow trout are widely distributed throughout the drainage (Erickson et al. 2017).

Preservation Area Stream Ecology Comparison to MA/TA

American and Anaconda Creeks are the only Crooked Creek tributaries with documented fish use that will be directly impacted by the Project. Both drainages are small low-flow systems that appear to lack substantial winter flow. In American Creek, at least 1,320 linear feet (0.25 miles) used by rearing juvenile coho salmon and 10,930 linear feet (2.07 miles) of resident Dolly Varden habitat will be removed during pit development. In Anaconda Creek, 898 linear feet (0.17 miles) used by juvenile coho salmon and 13,200 linear feet (2.5 miles) of resident fish habitat used by Dolly Varden will be permanently filled by the tailings storage facility (TSF) construction. In total, 26,400 linear feet (5 miles) of habitat used by fish within the two drainages will be permanently filled with 2,218 linear feet (0.42 miles) being coho rearing habitat (Table 10).

Between 2004 and 2014, Crooked Creek drainage-wide baseline sampling of established 300-foot stream reaches averaged 405.1 coho for all stream reaches combined (OtterTail 2014). On average, American Creek contributed 6 (1.48 percent) coho per 300 feet and Anaconda Creek contributed 0.1 (0.02 percent) coho juveniles per 300 feet. All juvenile coho were captured in the lower reaches of both creeks, nearest their confluences with Crooked Creek. No other salmon species were captured in stream habitats that will be removed by MA development.

Table 10 MA/TA Crooked Creek Anadromous Fish Habitats Permanently Filled by Project Development

	Anadromous Habitat Permanently Filled (American and Anaconda Creeks)
Species	**AWC Rearing Habitat Linear Feet (miles)**
Chinook	0
Sockeye	0
Coho	2,218 (0.42)
Chum	0
Pink	0

Source: OtterTail 2014

Development of the Project will permanently fill up to 26,400 linear feet (5 miles) of fish habitat, including about 2,218 linear feet (0.42 miles) of anadromous coho salmon rearing habitat. In-watershed mitigation for these impacts will be provided by the Upper Crooked Creek PRM Plan (see CMP, Attachment D). In addition, the Preservation Area will provide an additional 147,840 linear feet (28 miles) of off-site mitigation through preservation of the mainstem Chuitna River and tributary habitat identified as important for all five species of Pacific salmon, anadromous Dolly Varden, and resident rainbow trout (Table 11). The Preservation Area preserves habitat that is considerably more productive salmon habitat, as shown by the numbers of juvenile salmon produced in the Chuitna River versus the impacted habitat in the Crooked Creek drainage, as well as by adult escapement data (Table 12). Considering only Chinook salmon, preservation of the Chuitna River properties will protect a stock of management concern, as well as a population with consistently higher escapements (even during the lowest three years) than in the entire Crooked Creek drainage. Escapement for coho salmon from the three Chuitna River tributaries also exceeds those found in the entire Crooked Creek drainage.

Table 11 Summary of Anadromous Stream Habitat Preserved (Chuitna Drainage) and Permanently Filled (Crooked Creek Drainage)

	Spawning		Rearing		Total Anadromous Habitat	
	Chuitna Drainage	Crooked Creek Drainage	Chuitna Drainage	Crooked Creek Drainage	Chuitna Drainage	Crooked Creek Drainage
Species	Preserved	Permanently Filled[1]	Preserved	Permanently Filled[1]	Preserved	Permanently Filled[1]
	Linear Feet (miles)		Linear Feet (miles)		Linear Feet (miles)	
Chinook	77,616 (14.7)	0	133,214 (25.23)	0	133,214 (25.23)	0
Sockeye	0	0	101,006 (19.13)	0	133,214 (25.23)	0
Coho	70,541 (13.36)	0	148,632 (28.15)	2,218 (0.4)	148,632 (28.15)	2,218 (0.4)
Chum	44,088 (8.35)	0	12,514 (2.37)	0	131,789 (24.96)	0
Pink	106,128 (20.1)	0	13,253 (2.51)	0	133,214 (25.23)	0

Note: [1] American and Anaconda Creeks in the MA/TA; Source: Table 8, Table 9, and Table 10.

Table 12 Salmon, Rainbow Trout, and Dolly Varden Comparison: Crooked Creek and Chuitna River

Species		Crooked Creek Mainstem (2008-2012)[1]	Chuitna River Mainstem (2008-2015)[2]	Chuitna River Tributaries (2008)[3]			
				Bass Creek (Stream 2004) (2008)	Middle Creek (Stream 2003) (2008)	Lone Creek (Stream 2002) (2008)	Combined
Chinook	Min	29	502	77	21	217	315
	Max	100	1,956	153	80	341	574
	Mean	59	1,069	115	50.5	279	445
Coho	Min	591	NA	269	1,983	2,336	4,588
	Max	4,204	NA	726	2,313	2,903	5,942
	Mean	1,634	NA	498	2,148	2,619.5	5,265
Pink	Min	4	NA	0	1	232	233
	Max	59	NA	0	4	338	342
	Mean	20	NA	0	2.5	285	288
Sockeye	Min	1	NA	6	24	12	42
	Max	60	NA	50	NA	NA	50
	Mean	18	NA	28	24	12	64
Chum	Min	832	NA	0	0	4	4
	Max	3,755	NA	NA	NA	NA	NA
	Mean	1,907	NA	NA	NA	NA	NA
Rainbow Trout	Min	NA	NA	38	73	92	203
	Max	NA	NA	340	172	316	828
	Mean	1.4	NA	189	122.5	204	516
Dolly Varden	Min	NA	NA	189	146	272	607
	Max	NA	NA	406	306	440	1,152
	Mean	32	NA	298	226	356	880

Notes: [1] Five-year average based on resistance board weir counts (Ottertail 2014)
[2] Eight-year average based on Alaska Department of Fish and Game (ADF&G) aerial counts, includes lowest three years on record (ADF&G 2017)
[3] Estimates based on camera trap passage, upper and lower bounds of estimate are presented as min/max (LGL 2009)
NA – Not Available

Preservation Area Endangered and Protected Species

Belugas are small, toothed whales. They are about 5 feet long at birth and weigh 90 to 130 pounds. Adults grow to be 11 to 15 feet long. Females are smaller than males, rarely growing over 12 feet. Reports of adult Beluga weights vary from 1,000 to 3,300 pounds (ADF&G 2018).

The Beluga whale is a northern hemisphere species that inhabits fjords, estuaries, and shallow waters of the Arctic and subarctic oceans. Five distinct stocks of Beluga whales are currently recognized in Alaska: Beaufort Sea, eastern Chukchi Sea, eastern Bering Sea, Bristol Bay, and Cook Inlet. The Beaufort Sea and

eastern Chukchi Sea populations are considered healthy and stable. The Bristol Bay and eastern Beaufort Sea populations are stable or increasing (ADF&G 2018).

The Cook Inlet population is numerically the smallest of these, and is the only one of the five Alaskan stocks occurring south of the Alaska Peninsula in waters of the Gulf of Alaska. The Cook Inlet Beluga whale stock may once have numbered as many as 1,300 individuals but declined dramatically during the 1990s. Population abundance surveys indicated a 47 percent decline between 1994 and 1998. Annual population abundance surveys from 1999 to 2016 estimated abundance ranging between 278 and 435 Beluga whales, with a 2016 estimated abundance of 328 Beluga whales. Since 1999, the population has declined by 0.4 percent annually with a 10-year decline (2006-2016) of 0.5 percent annually (NOAA 2018 72 [Federal Register (FR) 19854]).

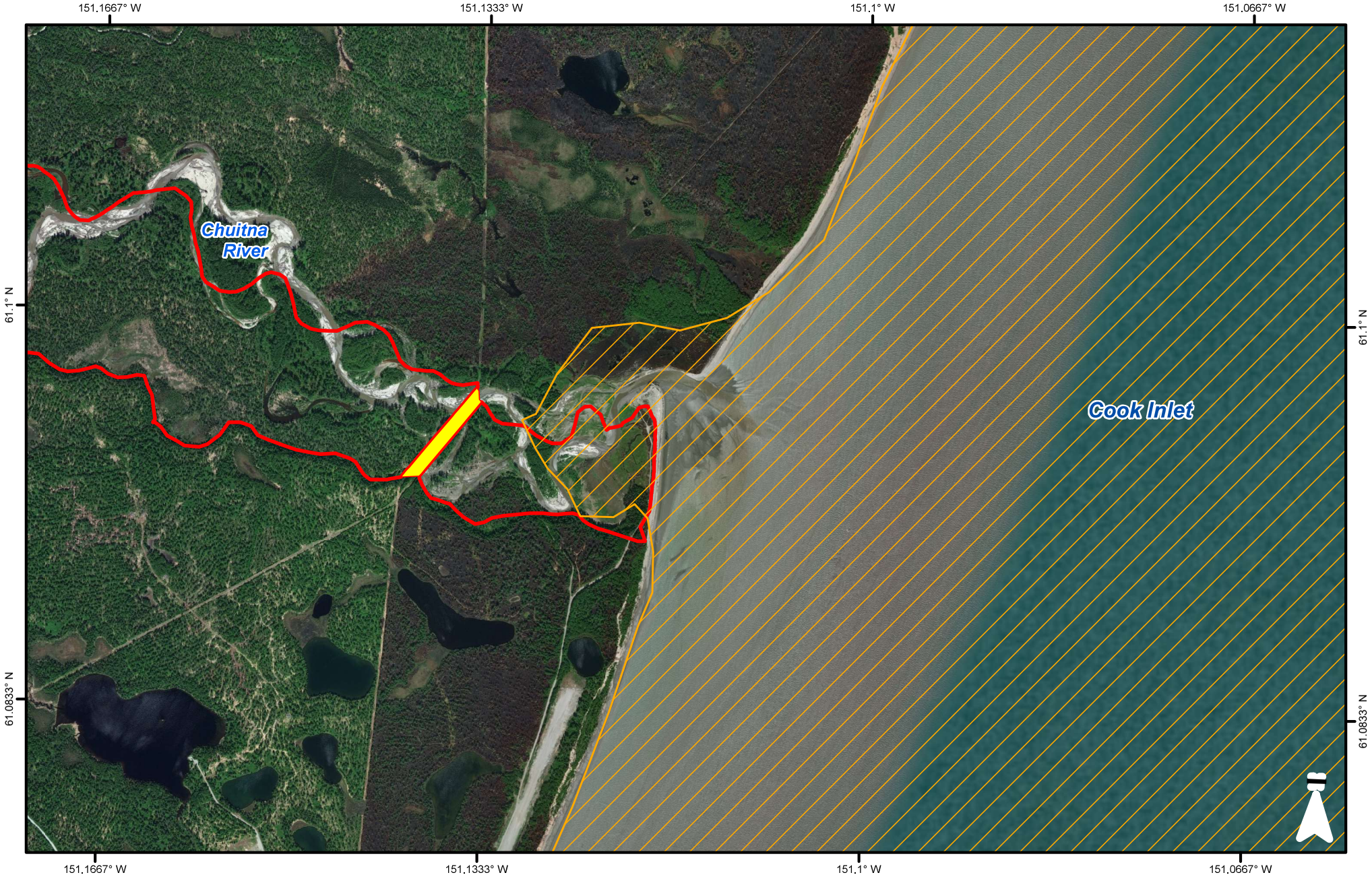
Cook Inlet is a unique biological setting in terms of these Beluga whales because it supports the southernmost of the five extant Beluga populations in Alaska, and is the only water south of the Alaska Peninsula, or within the Gulf of Alaska, which supports a viable population of Beluga whales. The ecological setting of Cook Inlet is also unique in that it is characterized as an incised glacial fjord, unlike other Beluga habitats to the north. Cook Inlet experiences large tidal exchanges and is a true estuary, with salinities varying from freshwater at its northern extreme to marine near its entrance to the Gulf of Alaska. No similar Beluga whale habitat exists in Alaska or elsewhere in the United States (NOAA 2018 [72 FR 19854]).

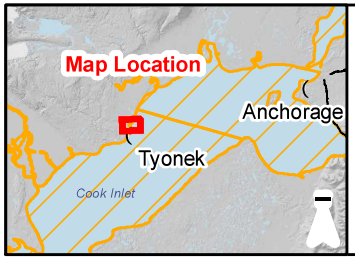
Potential threats to Beluga whales include hunting, interaction with fisheries, stranding, entrapment in sea ice, predation, underwater noise pollution, contaminants, and climate change. Alaska Natives hunt Belugas as part of their subsistence culture (ADF&G 2017). Belugas are harvested by Alaska Natives living in coastal villages from Tyonek in Cook Inlet to Kaktovik in the Beaufort Sea. Hunting is done in spring as whales travel northward through leads in the ice, as well as during the summer and autumn open-water period. Entanglement in gillnets can be a cause of mortality in some localized areas. There is also concern that Belugas may be competing with fisheries for their prey species. Strandings are a potential source of mortality for Beluga whales. Within estuaries, Belugas sometimes become stranded on tidal flats when tides retreat quickly. In Cook Inlet, numerous strandings on tidal flats have been documented. Mortality from these events is generally low, but larger whales are more likely to die in these situations than smaller whales. Belugas may also become trapped in sea ice. Beluga whales fall prey to orcas. Orca attacks on Belugas have been documented in Cook Inlet, Bristol Bay, and Hooper Bay. Belugas have been observed moving into shallow water or areas covered with sea ice to avoid orcas (ADF&G 2018).

On October 22, 2008, the National Marine Fisheries Service (NMFS) listed the Distinct Population Segment of Beluga whale found in Cook Inlet as endangered under the Endangered Species Act (ESA) of 1973, as amended. On April 11, 2011, NMFS designated critical habitat for the Cook Inlet Beluga whale under the ESA. Two areas were designated as critical habitat; both comprising 3,016 square miles (7,809 square kilometers) of marine and estuarine environments considered essential for the whales' survival and recovery. The designated critical habitat area encompasses intertidal and subtidal waters of Cook Inlet with depths less than 30 feet and within 5 miles of high and medium flow anadromous fish streams (NOAA 2011).

The Preservation Area includes 29 acres of estuarine fringe HGM wetlands at the mouth of the Chuitna River that support Cook Inlet Beluga whales (Figure 5) (NOAA 2018). Cook Inlet Belugas concentrate at rivers and bays in upper Cook Inlet in the summer and fall, moving offshore in winter (NMFS 2008). The mouth of the Chuitna River is characterized as having moderate use by Belugas during the summer and occasional winter use (Moore et al. 2000), with two Beluga whale carcasses found in the area in 1999 and 2000 (Moore et al. 2000) and a live siting reported in 1982 (Shelden et al. 2015). In 2017, a baby Beluga was rescued from the tidal flats just south of the mouth of the Chuitna River. It was transported to the Alaska Sea Life Center for rehabilitation and was given the name Tyonek.

Estuarine habitat has value for Beluga whale feeding and molting. Feeding occurs over the continental shelf, in nearshore estuaries, and in river mouths. Estuarine environments are considered essential for the whales' survival and recovery (NMFS 2008). Most feeding dives are shallow. Belugas are generally considered to be opportunistic feeders (ADF&F 2018). Stomach content diet studies have found Chinook, coho, and chum salmon (NMFS 2008 and Quakenbush et al. 2015), all of which are supported by streams within the Preservation Area. Salmon are among the most important food sources for Cook Inlet Beluga whales, as identified through research and Alaska Native traditional wisdom and knowledge (NMFS 2008). Overall, fish species make up a large part of their diet including salmon, herring, capelin, smelt, cod, flatfish, sculpin, lingcod, and eulachon.





Easement

Proposed Preservation Area

Beluga Whale Critical Habitat

Feet
0 1,000 2,000

1 inch = 2,000 feet

1:24,000

Cook Inlet Beluga Whale Critical Habitat
Figure 5

Seward Meridian, NAD 1983, UTM Zone 5N
Imagery: DigitalGlobe, 2014
Date: 07/03/18

Preservation Area Site Condition

The Preservation Area was reviewed both on the ground and by aerial photography to ascertain existing man-made disturbances. Areas of disturbance found in the aerial imagery, or by helicopter flights were confirmed on the ground, coded and mapped as part of the wetland field work. Existing disturbance within the Preservation Area includes a drill pad, trails, and small roads, but these disturbances are minimal. Within the Preservation Area, totaling 5,870 acres, only 6 acres were found to be disturbed. Table 13 presents the conditional analysis.

Table 13 Preservation Area Condition Analysis (Acres)

Disturbance Type	Upland Acres	Wetland Acres	Total Acres	Notes
Former Drill Pad	3	2	5	Beaver Activity has flooded 2 acres of the abandoned drill pad returning 2 acres to wetlands
Existing Roads	1	0	1	Two short roads access the Chuitna River near the mouth
Minor Trail Construction with Vegetation Cut	0	<1	<1	Three locations total less than 0.5 acres of vegetation clearing, two are in wetlands where soils appear undisturbed.
Total Area	**4**	**2**	**6**	

Apparent inconsistencies in sums are the results of rounding.

A former drill pad is located within the Preservation Area and totals 5 acres. Alders are growing on a 3 acre upland portion of the drill pad, and beaver activity has flooded the remainder (2 acres), converting this area back to wetlands. There are two small access roads located at the mouth of the Chuitna River. Their footprint is confined to 1 acre. There are three locations in the Preservation Area where trail construction has adversely disturbed the soils and hydrology. At these trail locations ponding, soil disturbance, and/or erosion are visible. These three sites total less than 1 acre.

A few low use All-Terrain Vehicle (ATV) trails exist in the Preservation Area. Their use has not altered the soils or hydrology of the area and has not changed the wetland status, or created ponding, flooding, or erosional features. These trails were not mapped as a disturbance type and they are not listed in Table 13.

Preservation Area Threat of Development

The Chuitna River watershed is a drainage located on the west side of Cook Inlet 45 air miles from Anchorage, the largest city in Alaska, as shown in Figure 6 (inset). This area has a unique mix of existing and potential industrial activities that surround the Chuitna drainage. The area has two active areas for handling of marine transportation – the port at North Foreland to the south, which includes a beach barge landing area and a pile supported trestle and dock; and a barge beach landing area to the north known as Grant's Landing. These areas have been used for the import of oil field pipe, equipment, fuel, and local supplies for Tyonek and Beluga, two local communities. A series of connecting service trails and roads connect Tyonek and Beluga for local uses. Resource development roads have been interspersed in the region to facilitate the harvest of timber, and for the development of the regional oil and gas industry. Temporary roads have been constructed for coal exploration and development. The

Beluga coal field and the Beluga oil and gas basin are centered here on the west side of Cook Inlet. Gas from the region is collected and shipped to the Beluga natural gas power plant or into the regional gas supply system for distribution to Anchorage, the Matanuska Susitna Borough, and the Kenai Peninsula for heating and power generation. The Chuitna River area is used by Alaskans and non-residents for recreational and guided fishing. Shore based set-net fishing along the beaches provides for both commercial and subsistence harvest of salmon. Offshore fisheries in Cook Inlet include salmon and halibut. As discussed earlier, the Chuitna River contains a productive salmon run including Chinook salmon (listed as a species of concern by ADF&G), coho, sockeye (minor use), chum, and pink salmon. While state and federal permit programs are in place that strive to balance development with land, habitat, and wildlife protection, the pressures on the Chuitna River merit special consideration for additional protection through preservation of portions of the watershed. The key threats to the area include the following.

Oil and Gas Development

With the discovery of oil in Cook Inlet in the 1960s, the west side of Cook Inlet has been an ongoing region for development. The northwestern portion of the basin, within which the Chuitna River watershed lies, is primarily a gas field. Numerous companies have a series of wells and collection pipelines that extend from as far north as the Theodore River south to Nicolai Creek, past Trading Bay to West Foreland. Oil and gas wells on TNC lands are in the Chuitna watershed along Lone Creek and south of the Chuitna River, and wells drilled just north of the watershed in the Threemile Creek drainage are on AMHT land. Oil and gas facilities also exist to the south and west of the Chuitna River on lands owned by TNC and AMHT, which were selected for their natural resource potential. Collection pipelines exist in the area to gather the product from these well sites. Access roads connect the drill pads and development facilities. Portions of the Chuitna River watershed remain under active lease for oil and gas development. Easements in the Preservation Area have been included at the request of the adjacent property owners to ensure continued access to resources.

Coal Production

Numerous companies have held coal leases in the Chuitna watershed and surrounding area dating back to the 1960s. The entire Chuitna watershed is underlain by extensive, world class coal deposits. Numerous coal outcrops are visible along the mainstem of the Chuitna River. The Diamond Shamrock Joint Venture permitted a 300-million-ton coal deposit between 1985 and 1990. An EPA-led Environmental Impact Statement (EIS) for a coal mine was completed for Diamond Shamrock ‘s Chuitna Coal project in the Beluga coal field in 1990. Legal challenges between 1990 and 1994 prevented the project from going into development. By the time the legal challenges were settled, the international coal markets softened and the project was shelved, but the leases remained intact. The owners of those leases formed PacRim Coal, LP (PRC) in 2005 and re-initiated permit efforts that continued until 2016. A Supplemental EIS to inform Clean Water Act Section 402 and 404 permitting was evaluated. The work was undertaken by EPA as the lead Federal Agency and then transferred to USACE in November 2010. PRC proposed a run-of-mine surface coal export project. The mine life was proposed at 25 years. The coal was to be hauled by truck from the pit, crushed, and put on a conveyor for transport and storage at Ladd Landing for shipment. A 10,000-foot long offshore pile-supported elevated conveyor was proposed to extend from the shoreline to a water depth that would allow tide-independent coal loading at

approximately minus 65 feet mean lower low water. Proposed infrastructure included mine roads, stream diversions, settling ponds, material sources, an airstrip, and a camp. Approximately 2,400 acres of WOUS would have been impacted and two stream tributaries removed during the proposed mine operations. Due to changing economic conditions, the proposal was suspended in 2016. The coal reserves remain available for lease and the threat of future development still exists. The operating mine plan and data could be acquired, and a new application brought before the agencies for review. The mine plan pursued by PRC proposed a Logical Mining Unit northwest of the Preservation Area. A future coal mine following the PRC plan would not be precluded by this Preservation Area. The new mine plan would, however, need to refine the transportation design (roads and conveyor) in accordance with the provisions of the Preservation Area. In addition, the Beluga Coal Company currently maintains coal leases in the watershed just west of the leases that were held by PRC.

Coal Bed Methane and Underground Coal Gasification Development

Numerous companies have expressed an interest in producing gas from the coal seams in the Beluga coal field. Linc Energy held exploration rights for the areas surrounding the surface coal leases within the past decade and conducted preliminary test work to develop Underground Coal Gasification (UCG). Cook Inlet Regional Incorporated (CIRI) explored UCG potential on its lands to the east of the Chuitna River in 2008. The Cook Inlet basin sub-bituminous coals found at shallow depths (less than 5,000 feet) in the Tyonek and overlying Beluga formations, contain methane and cover most of the central and southern basin. Estimates of the gas from the sub-bituminous coals at shallow depths along the margins of the basin have been as high as 140 trillion cubic feet of gas (Montgomery and Barker 2003). Coal extraction requires surface drill pads and roads with an infrastructure to separate the gas from the ground water. In addition, buried gas pipelines would be required to collect the gas and move the gas to market.

Timber

In the 1970s, Kodiak Lumber Mills signed an agreement with TNC and built a dock at North Foreland to export wood chips from timber logged on TNC lands. This included several hundred acres of timber logged from the Chuitna watershed. AMHT has supported logging operations from their lands. Birch and spruce are prevalent and are of ongoing interest to the forest industry. Port Mackenzie, which is east of the Beluga area near Anchorage has an ongoing history of exporting wood chips using these species of trees.

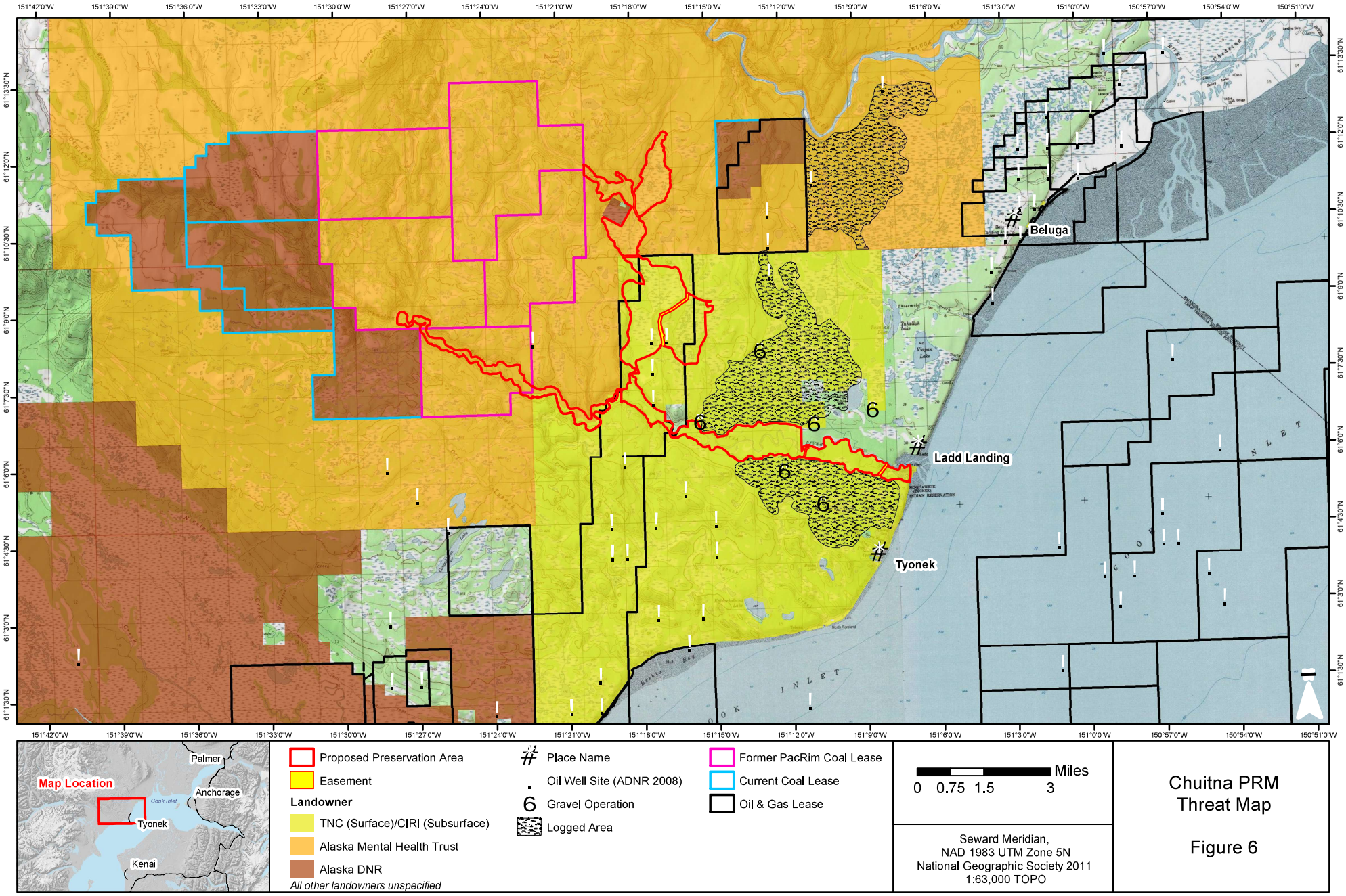
Gravel and Placer Mining

TNC conducts gravel mining in the area to support road construction for maintenance and expansion of oil and gas development. Several borrow pits are in the Chuitna watershed. Tyonek Contractors, a subsidiary of TNC, permitted a new multi-acre gravel source pit area just north of the Chuitna River and began development of the site within the past decade. The gravel in the majority of the watershed is glacially derived and is high in silt content. The gravels found closer to the mainstem of the Chuitna River tend to be cleaner (due to alluvial deposition) and more desirable for construction purposes.

Summary

AMHT and TNC manage their assets to generate income. Revenue-generating uses of their lands include: land leasing and sales; real estate investment and development; commercial timber sales; mineral

exploration and production; coal, oil and gas exploration and development; sand, gravel and rock sales; and other general land uses. There is ever-increasing resource development pressure in and surrounding the Chuitna watershed. This Plan restricts this development within its boundaries, but does not preclude development in adjacent areas, containing oil and gas leases and coal resources. The Preservation Area, however, ensures that any future development will not have direct impacts on important aquatic resources within the large contiguous Preservation Area in the watershed.



Chuitna PRM Threat Map

Figure 6

Site Protection Instrument

The following provides the language to be included in the deed restrictions for TNC and AMHT. These deed restrictions will be finalized and recorded prior to initiating Project construction. The instruments will "run with the land" for a substantial period of time in accordance with the USACE Compensatory Mitigation Site Protection Instrument Handbook (July 2016). Donlin Gold will provide for oversight by an independent third party in a manner acceptable to USACE, following the Long-term Management Plan (LMP).

Draft Language for TNC Lands

Description of Property

*This deed restriction applies to lands owned by TNC with subsurface ownership held by CIRI. The lands are located in the Chuitna River watershed on the northwest shores of Cook Inlet. The deed restriction applies to 3,949 acres as shown on the attached Figure [*Figure 7 in this document*] (herein referred to as the Property).*

Natural Conditions

The purpose of this deed restriction is to ensure the Property will be preserved in a "Natural Condition", as defined as it exists at the time this document is recorded for 99 years.

Documentation of Current Conditions

The Current Conditions of the Property as of the date of this Deed are further documented in a "Present Conditions Report", dated, _____, 20__ and prepared by [preparer's name], which report is acknowledged as accurate by Grantor and Grantee:

> *(a) a current aerial photograph of the Property at an appropriate scale taken as close as possible to the date the recording is made;*
>
> *(b) on-site photographs taken at appropriate locations on the Property, including of major natural features;*
>
> *(c) Wetlands mapping, conducted in 2018, documenting the streams and waters of the United States (WOUS) in the Preservation Area using USACE guidance in place at the time of the mapping; and*
>
> *(d) Graphical depiction of the boundaries of the area being preserved at a scale and with a datum identified that can be used to overlay the Property on future site maps of the area.*

Prohibitions

> *(a) There shall be no filling, flooding, excavating, mining or drilling; no removal of natural materials; no dumping of materials; and, no alteration of the topography in any manner except as provided for under Reserved Rights below.*
>
> *(b) There shall be no clearing, burning, cutting or destroying of trees or vegetation, except as expressly authorized in the Reserved Rights; there shall be no planting or introduction of non-native or exotic species of trees or vegetation.*

(c) There shall be no construction, erection, or placement of buildings, billboards, or any other structures, or any additions to existing structures, except small structures or additions in areas not mapped as WOUS and as otherwise provided for under Reserved Rights below.

(d) There shall be no construction of new roads, trails or walkways except as provided in the Reserved Rights below and only with the prior written approval of the USACE, including the manner in which they are constructed.

(e) There shall be no construction or placement of utilities or related facilities in WOUS without the prior written approval of the USACE.

Reserved Rights

Actions required to prevent or repair severe erosion or damage to the Property or portions thereof, or significant detriment to existing or permitted uses, is allowed, provided that such actions are generally consistent with preserving the natural condition of the Property.

Harvesting and management of timber by Landowner is limited to the extent necessary to protect the natural environment in areas where the forest is damaged by natural forces such as fire, flood, storm, insects, infestations, or infectious organisms.

Landowner reserves the right to engage in any outdoor recreational activities, including hunting (excluding planting or burning) and fishing, with cumulatively very small impacts, and which are consistent with the continuing natural condition of the Property.

Landowner specifically reserves a qualified mineral interest (as defined in § 170(h)(6) of the Internal Revenue Code) in subsurface oil, gas or other minerals and the right to access such minerals. However, there shall be no extraction or removal of, or exploration for, minerals by any surface mining method, nor by any method which results in subsidence or which otherwise interferes with the continuing natural condition of the Property.

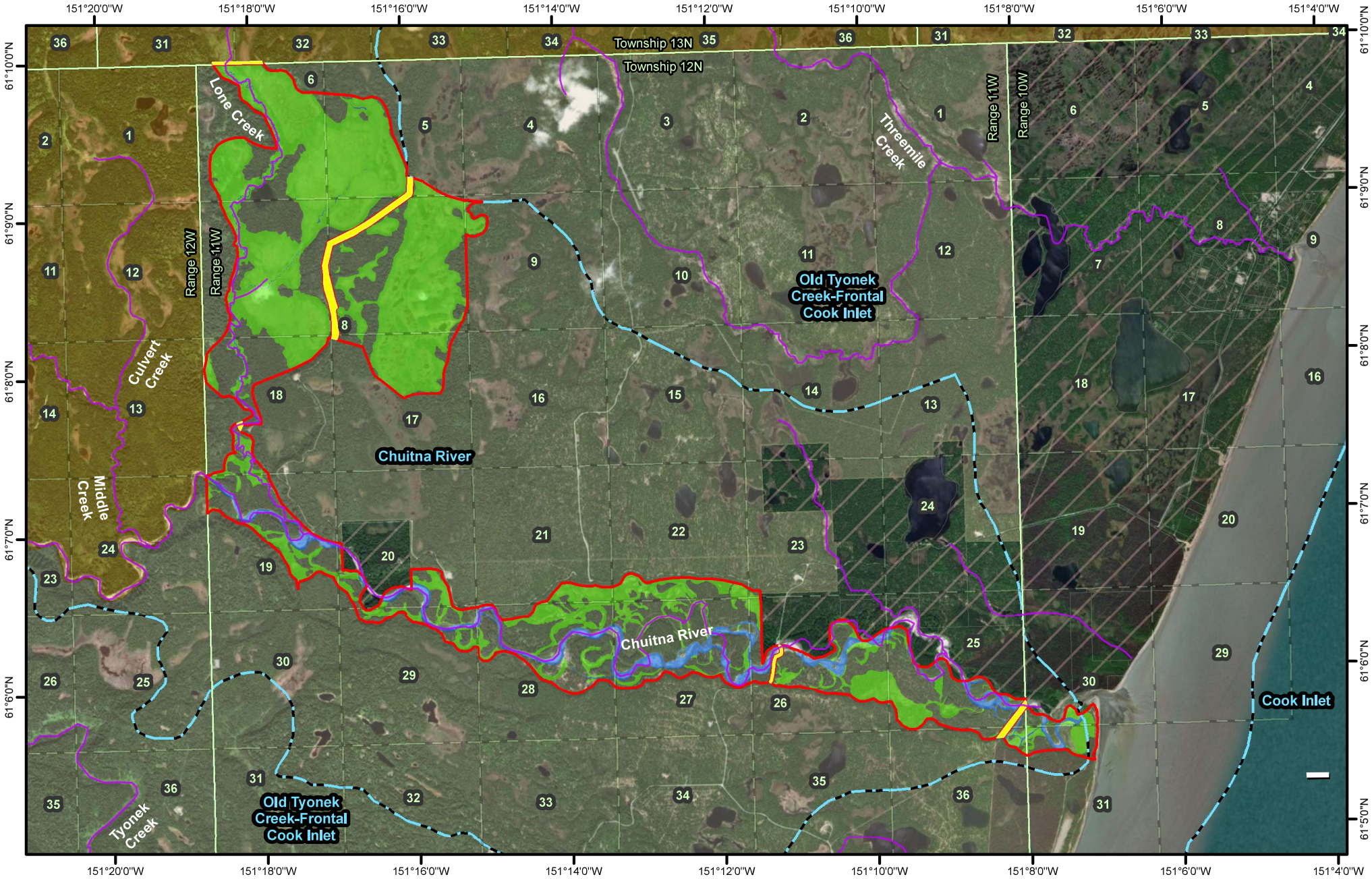
Landowner reserves the right to maintain existing roads, trails or walkways. Maintenance shall be limited to: removal or pruning of dead or hazardous vegetation; application of permeable materials (e.g., sand, gravel, crushed rock) necessary to correct or impede erosion; grading; replacement of culverts, water control structures, or bridges; and maintenance of roadside ditches.

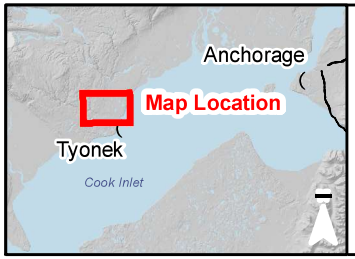
Landowner reserves the right to engage in the removal or trimming of vegetation downed or damaged due to natural disaster, removal of man-made debris, removal of parasitic vegetation (as it relates to the health of the host plant) and removal of non-native or exotic plant or animal species.

Landowner reserves the right to construct habitat improvements within the Property, including activities such as creating moose browse, replacing blocked culverts to improve fish passage, or constructing new fish habitat in the area. The Landowner will be required to obtain the necessary permits for these activities, including from the Alaska Department of Fish and Game (ADF&G) and the USACE, as required.

Landowner specifically reserves the right to reconstruct or, if needed, relocate the existing bridge crossing over the Chuitna River for safety and structural reasons, upon approval of the relocation from the USACE.

Landowner reserves the right to engage in all acts or uses not prohibited by the Restrictions, and which are not inconsistent with the conservation purposes of this grant, the preservation of the Property in its natural condition, and the protection of its environmental systems.





Anadromous Stream
Public Land Survey Section

Land Owner

Tyonek Native Corp.
AK Mental Health Trust
Other Land Owner

HUC 10 Watershed Boundary
Easement
Proposed Preservation Area

Field Verified Mapping

Wetland/Pond/Lake
River/Stream

Mile
0 0.25 0.5 1

1 Inch = 5,000 Feet

1:60,000

Chuitna Wetland and Stream Tyonek Native Corporation Preservation Area
Figure 7

Seward Meridian, NAD 1983, UTM Zone 5N
Imagery: DigitalGlobe, 2014
Date: 07/03/18

Draft Language for AMHT Lands

Description of Property

This deed restriction applies to lands owned by AMHT managed by the Trust Land Office. The lands are located in the Chuitna River watershed on the northwest shores of Cook Inlet. The deed restriction applies to 1,921 acres as shown on the attached Figure [Figure 8 in this document] (herein referred to as the Property).

Natural Conditions

The purpose of this deed restriction is to ensure the Property will be preserved in a "Natural Condition", as defined as it exists at the time this document is recorded for 99 years.

Documentation of Current Conditions

The Current Conditions of the Property as of the date of this Deed are further documented in a "Present Conditions Report", dated, _____, 20__ and prepared by [preparer's name], which report is acknowledged as accurate by Grantor and Grantee:

(a) a current aerial photograph of the Property at an appropriate scale taken as close as possible to the date the recording is made;

(b) on-site photographs taken at appropriate locations on the Property, including of major natural features;

(c) Wetlands mapping, conducted in 2018, documenting the streams and waters of the United States (WOUS) in the Preservation Area using USACE guidance in place at the time of the mapping; and,

(d) Graphical depiction of the boundaries of the area being preserved at a scale and with a datum identified that can be used to overlay the Property on future site maps of the area.

Prohibitions

(a) There shall be no filling, flooding, excavating, mining or drilling; no removal of natural materials; no dumping of materials; and, no alteration of the topography in any manner except as provided for under Reserved Rights below.

(b) There shall be no clearing, burning, cutting or destroying of trees or vegetation, except as expressly authorized in the Reserved Rights; there shall be no planting or introduction of non-native or exotic species of trees or vegetation.

(c) There shall be no construction, erection, or placement of buildings, billboards, or any other structures, or any additions to existing structures, except small structures or additions in areas not mapped as WOUS and as otherwise provided for under Reserved Rights below.

(d) There shall be no construction of new roads, trails or walkways except as provided in the Reserved Rights below and only with the prior written approval of the USACE, including the manner in which they are constructed.

(e)There shall be no construction or placement of utilities or related facilities in WOUS without the prior written approval of the USACE.

Reserved Rights

Actions required to prevent or repair severe erosion or damage to the Property or portions thereof, or significant detriment to existing or permitted uses, is allowed, provided that such actions are generally consistent with preserving the natural condition of the Property.

Harvesting and management of timber by Landowner is limited to the extent necessary to protect the natural environment in areas where the forest is damaged by natural forces such as fire, flood, storm, insects, infestations, or infectious organisms.

Landowner reserves the right to engage in any outdoor recreational activities, including hunting (excluding planting or burning) and fishing, with cumulatively very small impacts, and which are consistent with the continuing natural condition of the Property.

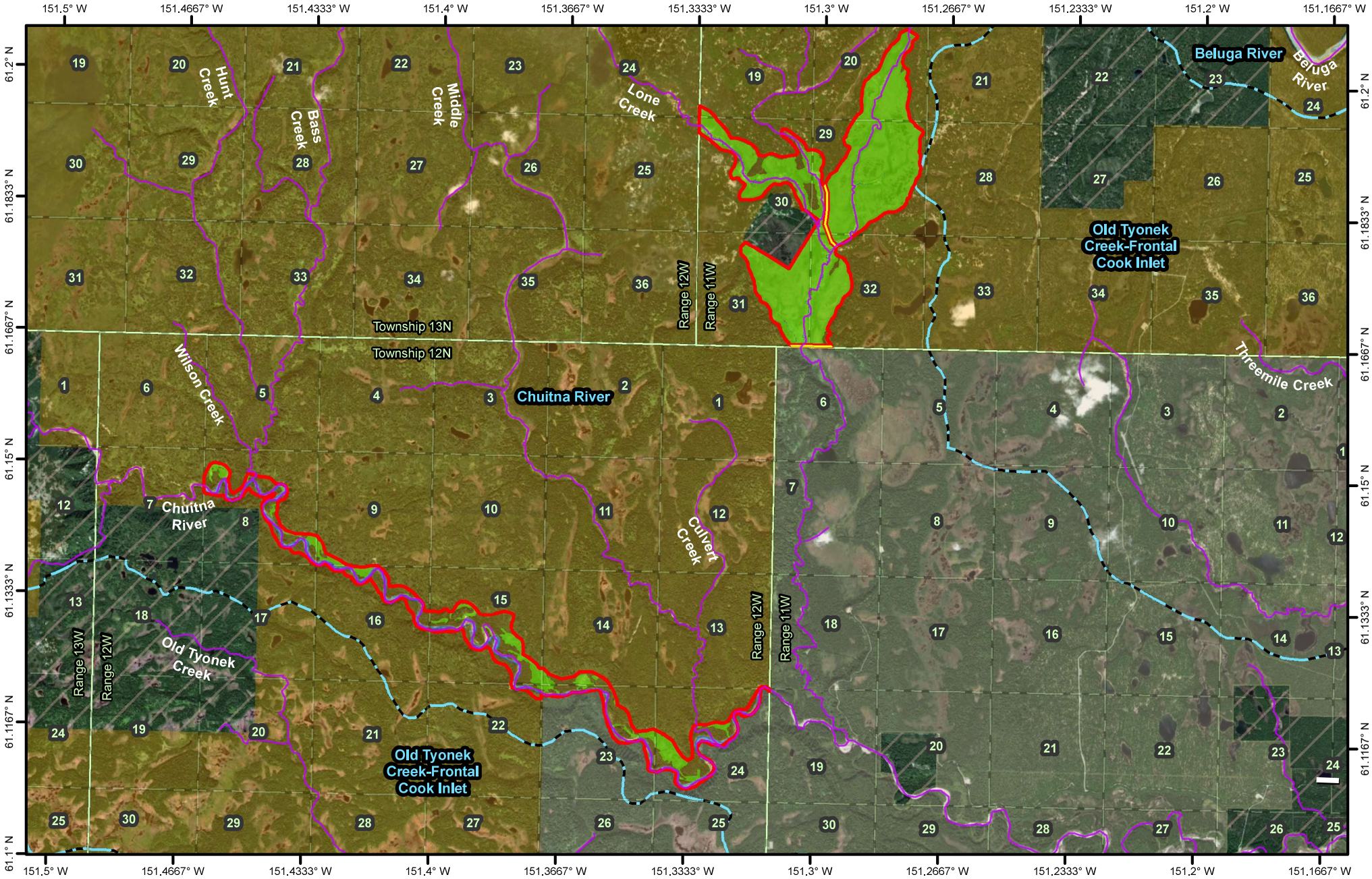
Landowner specifically reserves a qualified mineral interest (as defined in § 170(h)(6) of the Internal Revenue Code) in subsurface oil, gas or other minerals and the right to access such minerals. However, there shall be no extraction or removal of, or exploration for, minerals by any surface mining method, nor by any method which results in subsidence or which otherwise interferes with the continuing natural condition of the Property.

Landowner reserves the right to maintain existing roads, trails or walkways. Maintenance shall be limited to: removal or pruning of dead or hazardous vegetation; application of permeable materials (e.g., sand, gravel, crushed rock) necessary to correct or impede erosion; grading; replacement of culverts, water control structures, or bridges; and maintenance of roadside ditches.

Landowner reserves the right to engage in the removal or trimming of vegetation downed or damaged due to natural disaster, removal of man-made debris, removal of parasitic vegetation (as it relates to the health of the host plant), and removal of non-native or exotic plant or animal species.

Landowner reserves the right to construct habitat improvements within the Property, including activities such as creating moose browse, replacing blocked culverts to improve fish passage, or constructing new fish habitat in the area. The Landowner will be required to obtain the necessary permits for these activities, including from the Alaska Department of Fish and Game (ADF&G) and the USACE, as required.

Landowner reserves the right to engage in all acts or uses not prohibited by the Restrictions, and which are not inconsistent with the conservation purposes of this grant, the preservation of the Property in its natural condition, and the protection of its environmental systems.



Chuitna Wetland and Stream Alaska Mental Health Trust Preservation Area
Figure 8

Seward Meridian, NAD 1983, UTM Zone 5N
Imagery: DigitalGlobe, 2014
Date: 07/03/18

Baseline Information

The baseline data for the Preservation Area has been provided in the Site Selection section. Wetland ecology, stream, and fish data were summarized and then contrasted to the MA/TA. The fish data for the Preservation Area was summarized by Owl Ridge (2017) using the AWC and available resource data. The existing site disturbance conditions for the Preservation Area were summarized, including approximately 6 acres of pads, roads and trails.

Preservation Area Wetland Mapping

A seven-day field program was conducted to verify and update the preliminary desktop mapping in June 2018. Preliminary mapping was used to identify initial field targets. The wetland evaluation and collection of field data, wetland determinations, and the resulting digital maps were completed in accordance with guidance provided in the United States Army Corps of Engineers Wetland Delineation 1987 Manual (USACE 1987) and the Regional Supplement to the United States Army Corps of Engineers Wetland Delineation Manual: Alaska Region, 2007 Supplement Version 2.0 (2007 Supplement) (USACE 2007). All field data were reported using the 2016 National Wetlands Plant List (Lichvar et al. 2016).

All information required in SPN 2010-45 (USACE 2010) was collected in the field to complete a PJD report for the Preservation Area. Boundaries between wetlands and uplands were delineated, the preliminary mapping was used to identify and focus work in boundary areas including forest types, where wetland status is difficult to determine without field verification. Field plot locations were determined using the best available ESRI World Imagery collected by DigitalGlobe in 2014, preliminary mapping and by handheld Global Positioning System units. All field data were entered into a wetland database where the data was reviewed, and queries were generated to provide the information needed for the digital map and report. Detailed information was collected on one tenth of an acre plots (1/10) and was recorded in representative project vegetation types along wetland boundaries. Additional field data, notes, and photographs were gathered while walking through the study area to evaluate mapping areas with similar characteristics. Areas of disturbance were mapped and notes taken for inclusion in the PJD.

Field data were collected and recorded using four types of plots:

1. **Wetland Determination (WD) Plots.** At these sites investigators recorded detailed descriptions of vegetation, hydrology, and soils on field data forms. Wetland status for this plot type were determined based on the presence or absence of hydrophytic vegetation, hydrology, and hydric soils using the 2007 Supplement.

2. **Field Verification Points (FVP).** Photographs and Global Positioning System (GPS) locations were taken where investigators encountered vegetation communities and landscape positions that were clearly wetlands or upland based on WD results in nearby similarly situated areas. Project Vegetation Type, HGM, and Cowardin classifications were recorded.

3. **Stream Crossing (SC) Points.** Photographs and GPS locations were taken where investigators encountered streams and rivers. Information on the stream status as a seasonal or perennial

Relatively Permanent Waters (RPW) or Traditional Navigable Waters (TNW) and stream width at the ordinary high-water mark were recorded.

4. **Waterbody (WB) Points.** Photographs and GPS locations were taken where investigators encountered ponds, lakes, and Cook Inlet.

The Chuitna Preservation Area PJD (anticipated late July 2018) will include the detailed results of the final mapping.

Preservation Area Site Condition Analysis

The Preservation Area is almost entirely undisturbed. Maps of the existing condition showing the location of pads, roads, and trails will be supplied in the Chuitna Preservation Area PJD. The Preservation Area site condition survey noted 6 acres of existing disturbance with fill in wetlands or areas where hydrology and soils were adversely affected by man-made activity, see further discussion under Baseline Conditions.

Determination of Credits

The aquatic resource losses from the Project were quantified using the HGM and the Cowardin Classification systems by acres for wetlands and linear feet for stream loss (see 332.3(f)(1)). The aquatic resources preserved by the Plan have been described using the same HGM and the Cowardin Classification systems by acres for wetlands and linear feet for streams. The Preservation Area parcel includes 5,870 acres, including 3,269 acres of wetlands and ponds, 418 acres of streams and rivers, 2,183 acres of upland riparian and buffers, and 258,056 linear feet (48.87 miles) of streams, that will be permanently protected from development as shown in Table 14.

Table 14 Areas Permanently Protected by the Preservation Area

Land Description	Type	Acres	Linear Feet (Miles)
Wetlands and Ponds	Preservation	3,269	-
*Streams and Rivers	Preservation	418	258,056 (48.87)
Upland Riparian and Buffer	Preservation	2,183	-
Total		**5,870**	**258,056 (48.87)**

*Note: Streams and Rivers acreage is not included within wetlands and ponds

Mitigation Work Plan

The Preservation Area will be protected in the existing pristine state. The Mitigation Work Plan consists of implementing the Site Protection Instruments (shown above) and LMP Section (described on the next page).

Maintenance Plan

There are no plans to actively undertake maintenance or rehabilitation activities within the Preservation Area. No maintenance is specifically planned for the minimal existing disturbance in the area, see Baseline Conditions. All existing disturbed sites will be allowed to naturally revegetate. See the LMP

Section for the actions to be taken to ensure compliance with the deed restrictions, including any maintenance arising from observations during the annual site visits.

Performance Standards

Donlin Gold has proposed Site Protection Documents for the Preservation Area. Donlin Gold will execute preservation of the parcel concurrently with work authorized under the DA application for the Project. The Performance Standards consist of documenting compliance with the requirements of the deed restrictions through implementation of the LMP.

Monitoring Requirements

See the Long-term Management Plan Section (below) for discussion of the proposed site monitoring to ensure compliance with the deed restriction requirements.

Long-term Management Plan (LMP)

As part of finalizing the Site Protection Instruments for TNC and AMHT lands, Donlin Gold will prepare a LMP for the Preservation Area. This LMP will be implemented by a third party to conduct inspections and provide reports to demonstrate compliance with the deed restrictions. Finalizing the LMP and selection of the third party will be subject to USACE review and approval based on their qualifications to serve in this role.

Donlin Gold will submit the LMP to USACE at least six months prior to the start of Project construction. Project construction will not be initiated until the deed restrictions are in place and the LMP is approved by USACE.

Specifically, the LMP will be designed to ensure that the Preservation Area is monitored, managed, and maintained for the long-term sustainability and preservation of its baseline conditions. Existing conditions were delineated in June 2018 as described in the Chuitna Preservation Area PJD (anticipated late July 2018). Prior to construction, Donlin Gold will be responsible for confirming and updating the baseline conditions as needed. The LMP will be intended to extend for the duration of the deed restrictions. The LMP will also specifically describe the mechanism by which the proposed third party's inspections and reporting will be funded over the term of the restrictions.

To support preparation of the LMP (and finalize the deed restrictions), Donlin Gold will complete a metes and bounds survey of the Preservation Area or other method of identification and documentation according to methods acceptable to the USACE. The survey is expected to closely resemble the boundaries represented within this CMP and will be used to establish the exact property boundaries for the deed restrictions and LMP. The survey will specifically define the boundaries of the easements that have been excluded from the Preservation Area. Under the provisions of the LMP, the third party and the landowners will implement methods to limit access to, and restrict activities in, the Preservation Area where appropriate.

Donlin Gold shall implement the approved LMP for the purposes stated above. The LMP will require annual monitoring site visits by the third party to qualitatively monitor the general conditions of the

Preservation Area and compliance with the terms of the deed restrictions. The conditions of the Preservation Area will be evaluated, documented, and mapped during the site visits. The third party will be responsible for preparing annual monitoring reports detailing the existing conditions of the Preservation Area, and any recommended management actions. In the annual reports, the third party will specifically describe if there have been any anthropogenic changes to the status of the Preservation Area's conservation values including: WOUS, wetlands, and streams. The annual monitoring reports will be available to the USACE upon request.

As described in the LMP, the landowners will not be responsible for changes to the site conditions attributable to natural catastrophes such as flood, fire, drought, disease, regional pest infestation, and others that are beyond their reasonable control. Active management will not be required for ecological changes that come about because of processes such as climate change, fluctuating river levels, and sedimentation due to overbank flood deposits that many affect the Preservation Area's wetlands. Over time, natural successional processes could occur that may affect stream channels and wetland functions or total wetland acreages.

Finally, the LMP will describe how Donlin Gold and the third party will work with the landowners to ensure that any activities proposed to occur in the Preservation Area comply with the requirements of the deed restrictions. This will include preventing any activities that are specifically prohibited by the deed restrictions, see the Site Protection Instrument Section.

In summary, Donlin Gold proposes that the LMP include the following specific sections:

1. Introduction and Purpose
2. Third Party and Responsibilities
3. Preservation Area Description
    a. Location and boundaries
    b. Ownership
    c. Existing land use and disturbance
    d. Baseline conservation values, including wetlands, streams, and WOUS
4. Management and Monitoring
    a. Annual site visits, including scope, documentation, and action items
    b. Security, safety, and public access
    c. Limits of responsibility, including exclusions of natural events
5. Allowable Improvements and Activities
    a. Permitted and prohibited actions
    b. Third party and landowner coordination
6. Adaptive Management
7. Reporting and Administration
8. Amendments, Transfer, Replacement/Termination, and Notice Provision
9. Funding
10. USACE Rights, Responsibilities, and Authorities
11. Signatures (Donlin Gold, Landowners, and USACE)

Adaptive Management Plan

Preservation Area site conditions are expected to change over time due to natural events. As discussed above under the Long-term Management Plan Section, monitoring reports will be completed yearly showing updated site conditions. The annual reports will identify any areas of concern (i.e., occurrence of prohibited activities) along with any necessary corrective or remedial actions.

Financial Assurances

The LMP will include an estimate of the annual third party costs required to implement its provisions. Prior to initiating Project construction, Donlin Gold will obtain financial assurance using an instrument acceptable to the USACE for the cost of 30 years of LMP implementation.

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