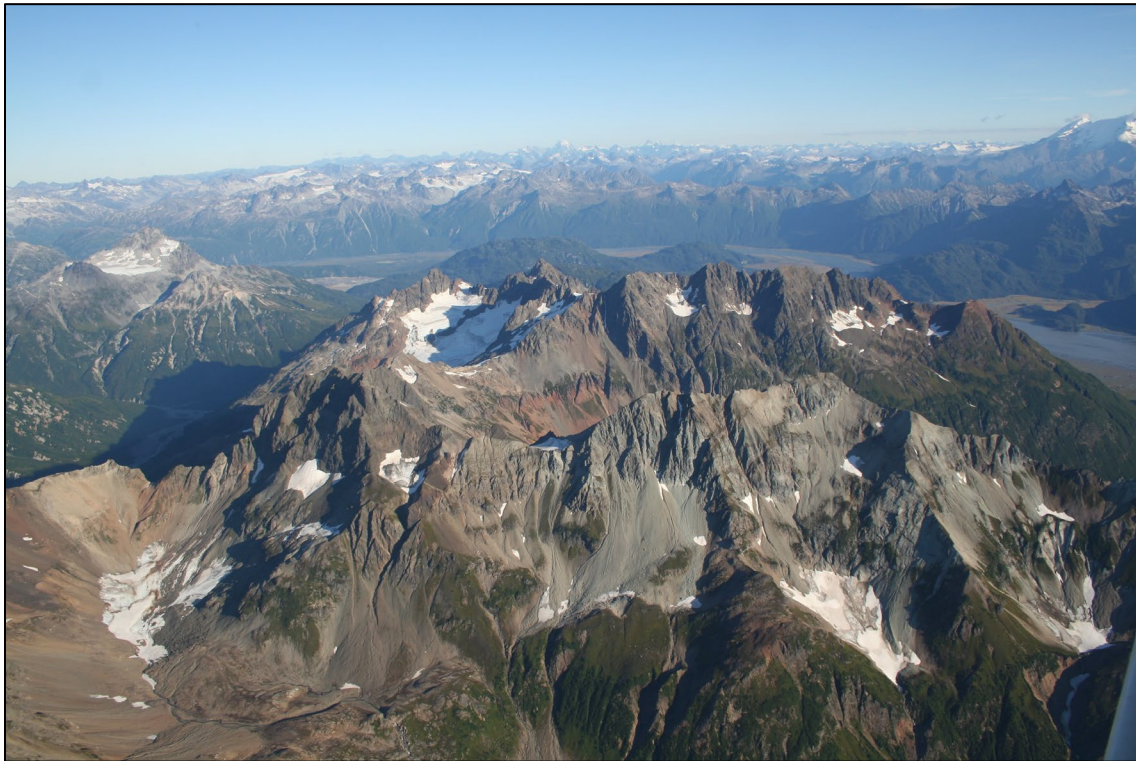




Right-of-Way Certificate of Access for North Tract of Johnson Tract

Environmental Assessment

September 2020



Estimated NPS total costs
associated with developing and
producing this EA: \$14,438



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to assure that their development is in the best interests of all. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

NOTE TO REVIEWERS

If you wish to comment on this document, you may mail comments to:

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You may also comment for this project online at <http://parkplanning.nps.gov/JohnsonRWCA>.

Retrieve Right-of-Way Certificate of Access for North Tract of Johnson Tract to provide comments electronically.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. You can ask us to withhold your personal identifying information from public review, but we cannot guarantee that we will be able to do so.

ON THE COVER

Headwaters of Hungryman Creek in the North Tract Johnson Tract, Lake Clark National Park, Alaska. Photo by Chuck Lindsay, National Park Service

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List of Acronyms

AKDEC	Alaska Department of Environmental Conservation
ADFG	Alaska Department of Fish and Game
AKDNR	Alaska Department of Natural Resource
ANILCA	Alaska National Interest Lands Conservation Act
ANCSA	Alaska Native Claims Settlement Act
CIRI	Cook Inlet Region, Inc.
HighGold	HighGold Mining Incorporated
JTMI	J T Mining Incorporated
LACL	Lake Clark National Park and Preserve
NPS	National Park Service
RWCA	Right-of-Way Certificate of Access

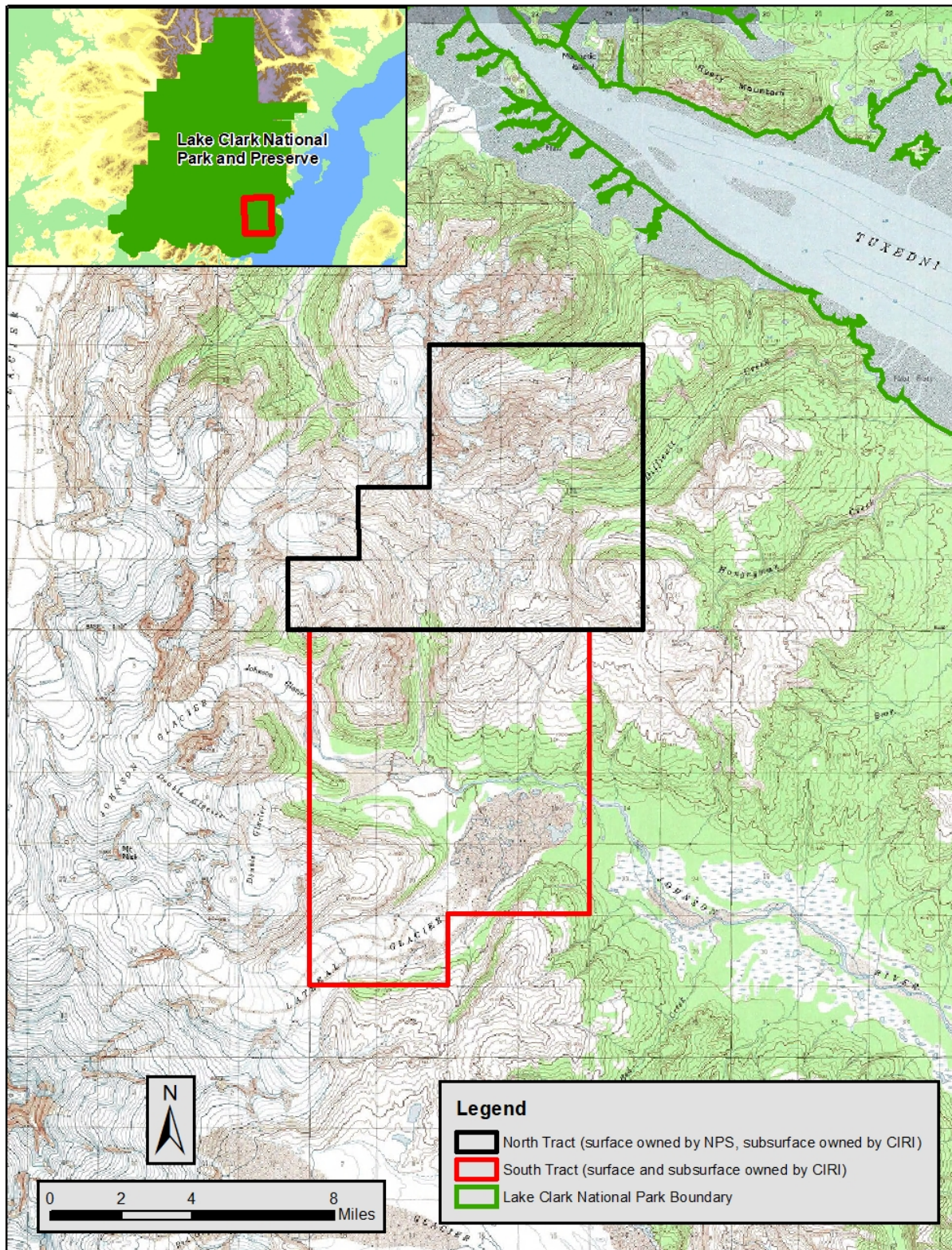
1 Proposed Action

The National Park Service (NPS) is considering issuing a Right-of-Way Certificate of Access (RWCA) to Cook Inlet Region, Inc. (CIRI) lessee, HighGold Mining, Inc. (HighGold), to conduct a multi-year core drilling program for mineral exploration on the North Tract (Parcel: LACL 03-107) of the Johnson River Tract within Lake Clark National Park and Preserve (LACL).

2 Purpose and Need

The purpose of the project is to issue CIRI's lessee, HighGold, a RWCA authorizing access to the North Tract of the Johnson River Tract. CIRI was conveyed the lands comprising the Johnson River Tract under the Cook Inlet Land Exchange Act to fulfill CIRI's land selections under the 1971 Alaska Native Claims Settlement Act (ANCSA). These parcels were selected for their mineral potential and CIRI retains surface and subsurface mineral estate of the South Tract and the subsurface mineral estate of the North Tract. The surface estate of the North Tract is held by the NPS. Granting of a RWCA by the NPS complies with 1110(b) of Alaska National Interest Lands Conservation Act (ANILCA) and ensures adequate and feasible access for CIRI to the North Tract.

Figure 1. Location of North Tract in Lake Clark National Park and Preserve.



3 Background

The Johnson Tract is situated on the west side of Cook Inlet (Figure 1) 125 miles southwest of Anchorage, Alaska. The Cook Inlet region has long been the population center of Alaska and contains the most settled and developed lands in the state. During the ANCSA Native lands selection process, CIRI was not able to make its full land selection because most of the land in the Cook Inlet region was already under private, federal, municipal or state ownership. Through the courts and a subsequent negotiation process with the Department of the Interior and the State of Alaska, the Cook Inlet Land Exchange was passed by Congress and signed by the President in 1976 to fulfill CIRI's ANCSA land selections.

As part of the land exchange agreement, CIRI received the 20,942 acre Johnson Tract, a known mineral prospect on the west side of Cook Inlet at the head of the Johnson River. The Johnson Tract consists of two smaller tracts: the South Tract, an 11,342 acre fee simple tract where CIRI received both surface and subsurface estates, and the North Tract, a 9,600 acre tract where CIRI received the subsurface estate and where the surface estate of the North Tract is managed by the National Park Service. The South Tract surface use by CIRI is restricted for purposes of mining and mineral extraction by covenant. These conveyances to CIRI were made by the Bureau of Land Management on May 14, 1979 and March 10, 1982, respectively.

In 1980, when Lake Clark National Park and Preserve was established in Section 201(7) of ANILCA, Congress significantly expanded the boundaries of the original park proposal to the shores of Cook Inlet. Within this expanded area, the law specifically excluded privately owned lands. Now an inholding within Lake Clark National Park and Preserve, CIRI retains fee simple ownership of the South Tract and subsurface mineral rights on the North Tract.

The Johnson Tract has been long known for its mineral potential. Gold and other mineral assets were discovered in 1982 by the now-defunct mining company, Anaconda. During the 1980's and early 1990's the deposit continued to be explored until a combination of factors caused efforts to cease. During this period, 90 drill holes were completed, 11 of which were on the North Tract.

On May 21, 2019, J T Mining Incorporated (JTMI), an Alaska company and wholly owned subsidiary of HighGold, entered into a lease agreement with CIRI. The lease grants JTMI rights of access and the right to explore for and develop the minerals of the Johnson Tract. In 2019, HighGold requested a Special Use Permit from LACL to authorize helicopter access to support geological work on the North Tract. A one-month permit was approved (Special Use Permit Number: 2019-LACL-SUP-005), and exploratory geological work occurred in the fall of 2019. A second Special Use Permit (Special Use Permit Number: 2020-LACL-SUP-001) was requested and issued for additional helicopter supported geological work on the North Tract between June 1 and October 31, 2020. In June 2020, CIRI/HighGold completed a draft request of a RWCA for 8 years of mineral exploration, including core drilling, for the North Tract.

Access to inholdings, including subsurface lands, in Alaska National Parks is governed by ANILCA Section 1110(b), which provides that the NPS shall provide adequate and feasible access to privately

owned lands that are encapsulated by public lands. The RWCA is the authorization issued by NPS to provide required legal access to private property owners, including owners of subsurface estates.

ANILCA Section 1110(b):

“Notwithstanding any other provisions of this Act or other law, in any case in which State owned or privately owned land... is within or effectively surrounded by one or more conservation system units... the State or private owner or occupier shall be given by the Secretary such rights as may be necessary to assure adequate and feasible access for economic and other purposes to the concerned land...”

This EA was initiated before the 2020 Council on Environmental Quality (CEQ) Implementing NEPA Regulations were in effect, and therefore was developed in accordance with the 1978 CEQ NEPA Regulations and 2008 Department of the Interior NEPA regulations. The process for this EA and content is consistent with those regulations.

4 Issues

Issues Selected for Detailed Analysis

The following issues will be evaluated for each alternative:

Water Resources: The mineralization in the North Tract consists of a sulfide-rich deposit. Sulfide minerals, when exposed to air or dissolved oxygen in water, oxidize to sulfate, which then turns to sulfuric acid. Drilling through sulfide-rich ore bodies produces sulfide-rich mud and cuttings that can create localized acid drainage, which can increase metal concentrations and reduce pH in adjacent waters.

Pumping to support drilling operations may affect adjacent surface water sources, and in small streams, during seasonal periods of low water, water pumping could lead to dewatering.

Aquatic Resources: The sulfide-rich muds and cuttings from drilling through the sulfide-rich ore bodies can lead to localized acid drainage and subsequent elevation of metal concentrations in nearby waters. Fish, aquatic plants and invertebrates, and other wildlife are sensitive to changes in water quality, including increases in copper concentration. Waters in this area contain native species, including anadromous salmonids. Dewatering small streams could affect aquatic biota including fish and invertebrates both locally as well as downstream.

Wildlife: The Johnson River area provides denning habitat to both brown and black bears. The locations of proposed core drilling operations overlap the habitat type preferred by brown bears for denning. The human activity, infrastructure, noise of drilling and water pumping equipment, and necessary helicopter support have the potential to affect bears both in and while entering or excavating dens. In addition, these activities may affect other mammals (e.g., wolves wolverines, red fox, porcupines, shrews and voles) and resident and migratory birds.

Natural Soundscape: The area currently has little human caused noise. Noise from core drilling and water pumping would affect the natural soundscape for of up to 90 days between July 1 and October 31.

Vegetation and Soils: The proposed area has undisturbed native vegetation communities and soils. Rare plant populations are known in areas adjacent to the North Tract. The drilling activity and creation of helicopter and water pump equipment pads would remove vegetation from those areas.

Viewshed (Natural, Aesthetic, and Scenic Values): The viewshed of the area is natural. The construction of platforms for the drilling, helicopter and water pump equipment would affect the natural characteristics of the area and its scenic value.

Issues Considered but Dismissed

The following issues were identified, considered, and dismissed from further analysis:

Air Quality, Wilderness, Subsistence, Recreation and Land Status, Cultural Resources, Floodplains and Wetlands, and Threatened and Endangered Species: The proposed action would not result in substantial change to these issues. The proposed actions would result in use that would generate emissions but would not appreciably alter air quality or contribute to climate change. The project area is ineligible for wilderness designation so there would be no impact on designated wilderness. Subsistence and recreational use of the area is limited due to its remoteness and challenging access. Project activities would not result in changes to either of these activities. Cultural resources and historic properties were assessed through a cultural resource inventory and reconnaissance and a Section 106 review by LACL with consultation by the State Historic Preservation Office and tribes. No known historic properties were identified, and the area is considered to have low potential for cultural resources. During project work, any exposure of cultural resources would stop work and initiate archaeological testing. The project area is comprised of upland shrub and alpine communities with no regulatory floodplain or wetlands, so would have no effect on their function or values. No threatened or endangered species are known to occur in the project area.

5 Alternatives

Alternative 1: No Action

Under the No Action alternative, helicopter access to LACL 03-107, and drilling activities and infrastructure therein, would not be permitted. Other means of access would need to be determined by CIRI with no formal agreement with the NPS. The method, activities, and terms and conditions would not be developed. The North Tract would remain closed to helicopter use and no exploratory drilling activity would be conducted. There would be no impacts to water resources, aquatic resources, wildlife, natural soundscape, vegetation and soils, or viewshed. Refusal to issue a RWCA to the holder of the subsurface estate would be in violation of ANILCA Section 1110(b), 43 CFR 36.10, and would violate the inholders' statutory rights.

Alternative 2: Issue RWCA Authorizing Helicopter Access and Exploratory Drilling on LACL 03-107 (Proposed Action and Preferred Alternative)

Under Alternative 2, the NPS would issue a RWCA to CIRI authorizing helicopter access to the North Tract, exploratory drilling of up to 150 holes, and nondestructive surveys to support mining activities. This right-of-way would be the primary access for exploration of the North Tract.

Work on the North Tract would be seasonal, with activity planned to occur between June 1 and October 31 annually through 2028. Activity would be expected to vary annually, with a maximum length up to 150 days of exploration. Drilling activity on the North Tract would be confined to the area shown in Figure 2, with the majority expected to occur in the focus core drilling areas and lesser amounts in the low potential core drilling areas.

Helicopter access would support the drilling operations and typically requires the construction of helipads to safely access the steep, rocky terrain typical of the focus areas. Helipads are constructed of timber and would have an area 14 feet by 14 feet. When possible, one helipad would support multiple drillpads.

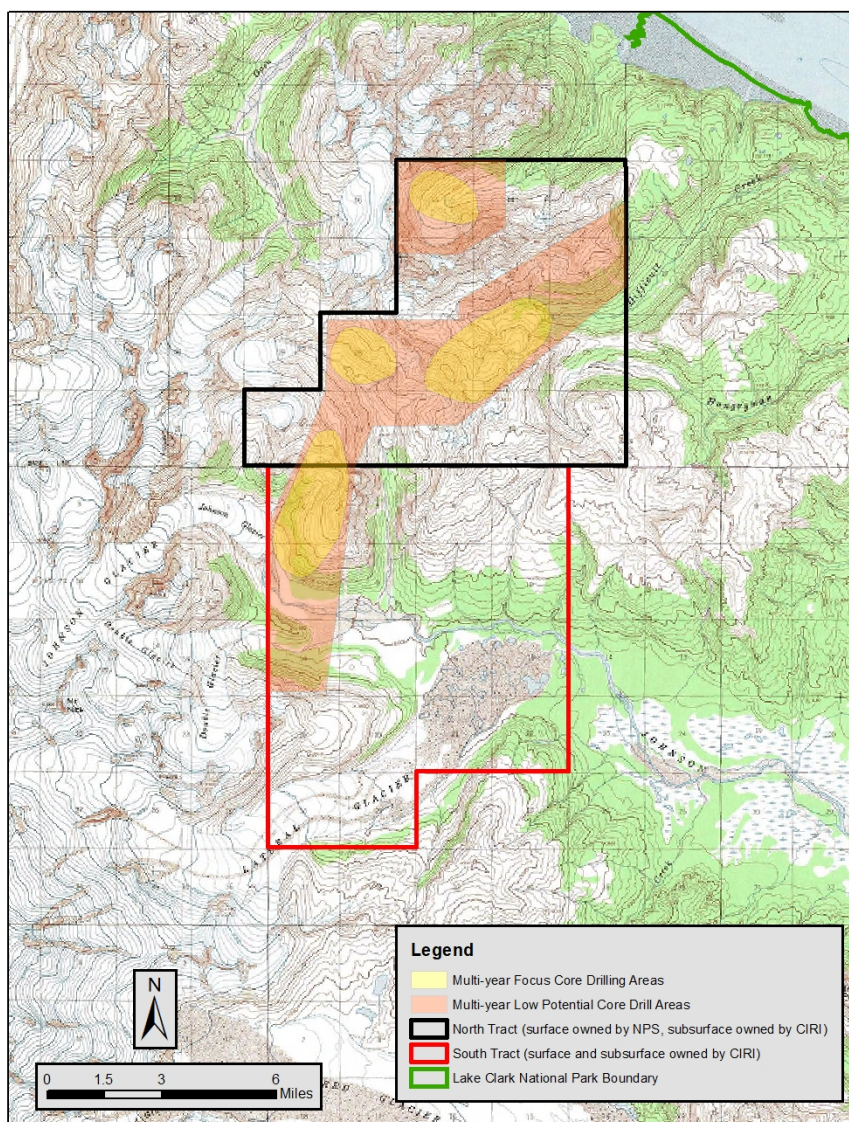
During the 8-year period of exploration, between 20 and 150 drillpads would be needed. The number varies depending on the drilling results, with positive results leading to additional drilling and drillpads. The drillpads would be temporary and are necessary to create stable, level platforms to support the drills and their associated supplies. Pads would be constructed of wood timbers placed on the ground with minimal surface disturbance. The footprint is typically 20 feet by 20 feet.

Water would be needed to lubricate the drill during operation, requiring a water pump to draw surface water from a nearby source. A water supply pump pad would be constructed near the water source to support the pump. Construction would consist of a timber frame with 12 feet by 12 feet footprint.

Return water from the drilling contains drill cuttings (fine rock sediment) and may stay within the subsurface rock formation or may return up the drillhole to the surface. If cuttings reach the surface, procedures would be in place to contain them and avoid their release to surface waters. The procedure includes directing cuttings to unlined sumps for settling. Any sumps used to collect cuttings would be filled with native vegetation and capped with a 6-inch clay cap during site reclamation.

Fuel would be required for each drill and water pump. Fuel would be transported via helicopter in fly tanks ranging in capacity from 70 to 130 gallons and incorporating secondary containment. Water supply pump stations and drilling pads would have fuel stored in secondary containment with cumulative storage of up to 260 gallons. Personnel would be trained in spill prevention and spill response procedures, with training occurring at least annually. Spill kits would be located at all drill and pump sites.

Figure 2. Focus and low potential drilling areas of the North Tract Johnson River.



Drillpads would be deconstructed and reused for subsequent drill holes. Drillpad and helipad reclamation would take place concurrently with drilling operations, with a maximum of 20 active unreclaimed pads at any given time. Drillpad reclamation would occur after a drill is removed from the drillpad. The drillpad would be deconstructed and moved by helicopter to the next site for reuse.

Drillhole closure procedures would be designed to comply with Alaska Department of Natural Resource (AKDNR) requirements, to prevent artesian water from reaching the surface and surface water from entering the groundwater. For all holes with static water, 10 feet of bentonite pellets would be placed on a Van Ruth plug directly above the water table. For all reclaimed holes, a displacement plug with 10 feet of bentonite pellets would be placed within 20 feet of the collar. For drillholes that intersect reportable intersections of mineralization, holes would be cemented through

the mineralized zone and 100 feet above and below. In all scenarios, casing would be cut close to ground level, capped with an aluminum or steel cap that is stamped with drillhole information, and photographed as part of reclamation. If artesian conditions would be encountered, JTMi would contact the Alaska Department of Environmental Conservation (AKDEC) and the Division of Mining, Land, and Water of the AKDNR for advice prior to abandoning the hole and moving the drill. If groundwater discharged from the hole would enter surface waters, the hole would be plugged immediately. Under certain scenarios, drillholes would be kept open in an un-reclaimed state temporarily. This includes scenarios in which the hole would be required for a monitoring well, water source, geophysical survey, or hydrology study. In some instances, holes may be lined with PVC to aid downhole passage of survey instrumentation.

Proposed Permit Stipulations

- Helicopter landings on LACL lands would be restricted to the North Tract.
- If previously unidentified archeological resources are encountered, work in the discovery area would be interrupted until an NPS archeologist is contacted, able to assess the site, and the State Historic Preservation Officer has been consulted regarding the significance of the discovery using the National Register Criteria (60.4).
- Helicopter flights would be kept to the minimum needed to transport field crews. If a bear is observed during flight, at least one kilometer of distance should be maintained to minimize disturbance. When this distance cannot be maintained, an alternative flight path should be considered.
- If a field crew encounters a freshly excavated bear den or a bear denning, work in the area may only continue if a minimum separation distance of one kilometer can be maintained. This distance would limit bear disturbance and minimize the chance for a negative human-bear encounter. Encounters would be reported to Lake Clark National Park Natural Resources Program Manager.
- Drilling locations and timing would be structured to minimize the potential disturbance to denning and nesting wildlife.
- HighGold would avoid any ground- or vegetation-disturbing activity at or near the known *Cladonia luteoalba* lichen population located in the project area. This plant is identified by the Alaska Natural Heritage Program as critically imperiled in the state. The approximate geographic coordinates of the occurrence are: 60.15208, -152.94970 decimal degrees. The NPS would be consulted if such activities could occur within one-quarter mile of this population.
- To prevent the spread of invasive species into the park, clothing, gear, building materials, and all equipment should be cleaned and be free of soil or plant material before entering the park.

- Drilling sites would be visited two to three years after reclamation to determine if any invasive species have become established.
- If invasive species are found in the project area, the NPS would be consulted for appropriate measures to remove them.
- Invasive species-related issues and mitigations would be presented within the annual activity and reclamation report to the NPS.
- Any ground disturbance resulting in removal of vegetation would have that vegetation restored after soil or rock samples are removed.
- Baseline water quality and stream sediment metal concentrations data would be collected for stream reaches downgradient from drilling locations. The following parameters would be measured in the water: pH, specific conductance, and at minimum the following metals: Arsenic, Copper, Iron, Lead, Zinc. The same metal concentrations would be analyzed in the stream sediment samples using sampling methods and analytical procedures that comply with AKDEC standards. Data would be provided to the NPS within three months of the annual operation end date.
- Continuous monitors for pH and specific conductance will be installed along streams with active drilling, downgradient of operations, and collect hourly data for the duration of the operational season. Data would be provided to the NPS.
- At the end of each drilling season, all indicated water quality and stream sediment parameters shall be re-measured in reaches where exploration activities have been conducted. These values would be compared to the baseline values from before drilling and reported to the NPS within three months of the annual operation end date.
- Drillpads, helipads, and sumps should be kept at least 50 feet from flowing water.
- A 1/8-inch stainless steel screen would cover the intake hose to prevent organisms from being pulled into the pump. The intake would be placed in a 5-gallon bucket to further mitigate this risk.
- In situations when stream levels are extremely low and field crews have trouble maintaining sufficient intake flows, work would be suspended until flows increase to minimize potential dewatering impacts to fish downstream. Alternatively, another water source could be used if sufficient flows are present.
- Drilling fluids would only consist of water with no additives.
- All bypass water would be mitigated by placing the bypass outlet on well-vegetated or hard-to-erode ground of shallow slope, by configuring the outlet to slow flow, and by inspecting the site twice daily.
- Drill fluids are recycled to reduce contact volumes and keep all contact waters contained within the borehole and sump.
- Sumps would be unlined and used to retain drill cuttings and fluids.

- Sumps would be dug deeply enough to retain all drill fluids and the surface of the residual drill muds and cuttings would be at least 1.5 feet below the surrounding surface. Place a 0.5-foot-thick bentonite clay cap on drill sumps and cover the clay cap with native soil and native vegetation. This bentonite cover would encourage water runoff and seepage to travel around the sump contents thereby minimizing the infiltration of oxygen and water into the drill cuttings and reduce the rate of oxidation of any pyritic cuttings. In this configuration vegetation would not be in contact with any drill mud and cuttings and the clay cap would provide an effective barrier between mud and cuttings and any natural vegetation recruitment. Deeply buried drill mud and cuttings would reduce the availability of the sulfides to shallow ground water and oxidation and delay the groundwater from reaching nearby surface waters.
- Exploration activities should cease when the ground is no longer able to absorb discharge due to being frozen or saturated.
- Silt fences should be placed downgradient of sumps to prevent accidental overflows from spreading into the environment.
- Drillholes would be filled and plugged to inhibit flow after drilling is complete.
- All products associated with drilling and drillhole reclamation (including products used to seal artesian wells) would always be kept in containment to prevent escape to the environment.
- Drill cuttings and fluids would not be discharged directly into any standing or flowing water or vegetated areas.
- Daily inspections of the drill sites, water sources, and sumps will be conducted to identify potential issues.
- Any gross introduction of sediment/turbidity to a water source would be reported to the NPS and AKDEC immediately.
- Reclamation of sumps and bare ground, using stockpiled overburden and topsoil, would greatly reduce the volume of sediment exposed to potential erosive forces.
- In reclamation, no excavated ground is left with a slope >15% greater than the surrounding slopes and soil would be covered by rocks of the same average size as the surrounding rocks, or if initially vegetated, native vegetation.
- Drillpad and sump location coordinates would be provided to the NPS annually.
- Visit each drillpad and sump location two years following reclamation to determine the success of their efforts.

Table 1. Summary of Alternatives

Action	Alternative 1: No Action	Alternative 2: Issue RWCA Authorizing Helicopter Access and Exploratory Drilling (Preferred Alternative)
Issue RWCA	The park would not issue a RWCA to CIRI and the provisions of ANILCA would not be implemented.	NPS would issue a RWCA to CIRI authorizing helicopter access, mineral exploration, and exploratory drilling of the North Tract.
Authorize construction of helipads and drillpads to support exploratory drilling operations	<ul style="list-style-type: none"> • No helicopter access would be authorized. • Access to the inholding would be restricted to currently authorized methods with no formal agreement with NPS. • Construction of helipads and drillpads would not be authorized and exploratory drilling would not be conducted. 	<ul style="list-style-type: none"> • Helicopter access would be allowed June 1 through to October 31 annually through 2028. • Timber helipads 14 feet by 14 feet would be constructed to support exploratory drilling operations. • Between 20 and 150 drillpads would be constructed using timber frames with an area of 20 feet by 20 feet. • Water pump pads 12 feet by 12 feet would be constructed of timbers. • Drill cuttings coming to the surface in return water will be collected in unlined sumps which are capped with a bentonite clay and covered with local soil and native vegetation.

6 Affected Environment

Water Resources

Waters of the North Tract consist of headwater streams draining directly into the Johnson River and Tuxedni Bay (Figure 3). Headwater streams contributing to the Johnson River include Ore and Kona Creek, which generally flow south. Headwater streams contributing to Tuxedni Bay flow north and include Open, Difficult, and Hungryman Creeks.

Average daily discharge of the Johnson River ranged from 1.5 cubic feet per second to 5020 cubic feet per second during periods of open water between 1995 and 2002 (Brabetts and Riehle 2003), with high flows driven by snowmelt in summer. Monthly average discharge ranged from 183 cubic feet per second to 719 cubic feet per second for May and July, respectively (Brabetts and Riehle 2003). Winter discharge data are unavailable but expected to be close to 0 cubic feet per second due to the glacial-fed nature of the river.

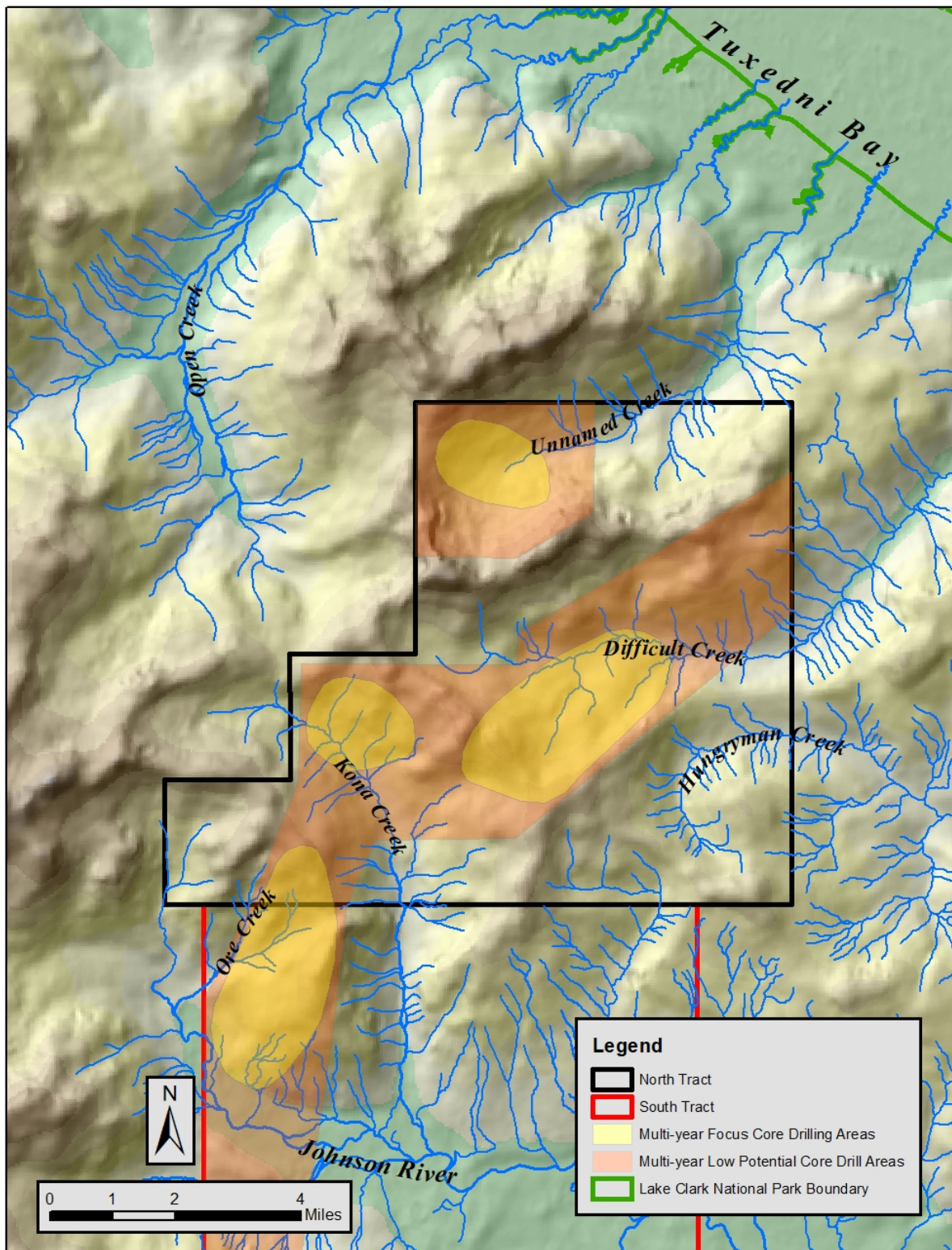
Flow data for Kona and Ore Creek is limited, with discharge only measured during late July 2000. Discharge was 24 cubic feet per second for Ore Creek and 123 cubic feet per second for Kona Creek (Brabetts and Riehle 2003). These flows represent a 4% and 20% contribution to the Johnson River by Ore Creek and Kona Creek, respectively. Contributions by Johnson Glacier and Double Glacier combine for the remainder of the flow. No flow data are available for the creeks draining into Tuxedni Bay.

Brabetts and Riehle (2003) conducted water quality sampling of the Johnson River from 1999-2001, and on Ore and Kona Creek in 2000. They found the physical and chemical parameters (specific conductance, pH, water temperature, and dissolved oxygen) and concentrations of basic water-quality constituents of the Johnson River indicative of good water quality.

Waters from Ore Creek and Kona Creek contained low concentrations of dissolved trace metals (Brabetts and Riehle 2003). Low dissolved metal contents likely resulted from natural buffering by carbonate and weathering of previously sulfur-bearing rocks.

East Fork Ore Creek streambed sediments contained the highest concentrations of arsenic, barium, cadmium, copper, lead, selenium, and zinc (Brabetts and Riehle 2003). Concentrations of these elements substantially decreased downstream, indicating the introduction of additional fine sediment from the inputs of Johnson Glacier and Double Glacier. Several of these Ore Creek sediment trace element concentrations exceeded the Interim Freshwater Sediment Quality Guidelines, probable effect levels, threshold effect concentrations, and probable effect concentrations (Brabetts and Riehle 2003). Most sites sampled in the study area have low amounts of organic carbon and mean probable effects concentration quotients greater than 0.5, which indicates the presence of toxicity.

Figure 3. Waters of the North Tract Johnson River.



Aquatic Resources

The extent of freshwater fish resources in the North Tract are not well known. Few formal fish surveys of this area have occurred, with most occurring in the lower reaches of streams originating on the North Tract or on the Johnson River. Of the North Tract waters draining into Tuxedni Bay, only Difficult Creek was sampled within the boundary of the North Tract. The fish inventory on Difficult Creek in August 2009 observed sculpin and both adult and juvenile Dolly Varden (<http://www.adfg.alaska.gov/sf/reports/FishSurveys/rptSite.cfm?site=0922500005>). Inventory sites on stream segments outside the North Tract on Open Creek, Difficult Creek, and Hungryman Creek found juvenile Dolly Varden (Fish Inventory Sites 0922500002, 0922500007, 092500008). All three creeks and an additional unnamed creek located between Open Creek and Difficult Creek are listed as anadromous waters in the Alaska Department of Fish and Game (ADFG) Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes. Open Creek lists spawning Chum Salmon. Difficult, Hungryman, and the unnamed creek draining into Tuxedni Bay list Chum Salmon as present.

North Tract creeks in the Johnson River watershed are not listed as anadromous waters and no formal surveys have occurred in Kona Creek or Ore Creek. Dolly Varden are generally distributed throughout the Johnson River area and Kona Creek contains resident Dolly Varden (Morsell, 1993).

Wildlife

Both brown bears and black bears are found throughout the Johnson River area including the North Tract. The topography and land cover of the North Tract makes it most suitable as denning habitat for brown bears with some foraging occurring pre- and post-denning.

Population data for brown and black bears on the coast of LACL are indicative of high densities of both species. Aerial surveys conducted in 2003-04 found densities of 147 and 136 bears/1000km² for brown and black bears, respectively (Olson and Putera 2007). Coastal habitats with seasonally available salmon can support these high densities.

Data on denning is limited to aerial surveys conducted by LACL staff. Surveys were conducted in 1985, 1987, 1992, 1994, and 2019, but varied in the timing and spatial extent covered. Dens were only documented on the North Tract in the 2019 survey, with 2 dens located in Difficult Creek (LACL unpublished data).

Other wildlife that may inhabit the North Tract include wolves, wolverine, red fox and various small mammals including porcupine, shrews and voles (Cook et al. 2007).

Several breeding and migratory bird species of conservation concern have been documented near the project area in similar habitat including: Willow Ptarmigan, White-tailed Ptarmigan, Peregrine Falcon, Golden Eagle, Rusty Blackbird and Wilson's Warbler (Ruthrauff et al 2007).

Natural Soundscape

The North Tract is located in a remote region of LACL. The nearest areas with high seasonal human use are along Tuxedni Channel and Silver Salmon Creek, which are located 13 and 22 miles away, respectively. Sounds on the North Tract are natural, with little recreation use or other human created noise. The most common non-natural noise is generated via aircraft traversing the area, although most air traffic is concentrated along the Cook Inlet coastline.

Vegetation and Soils

Vegetation

The vegetation of the North Tract is typical of higher elevation coastal sites. Ecotypes most prevalent within the North Tract are Alpine Barrens and Lichen Tundra and Maritime Upland Shrub and Graminoid Meadow. Together, these two ecotypes combine to account for 70% of the land within the North Tract. Fourteen landcover classes are found on the North Tract. Predominant landcover types in the North Tract include Gravel and Sparsely Vegetated, Ice and Snow, Prostrate Shrub Tundra, and Closed and Open Alder. Combined, these 5 classes account for 87% of the landcover on the North Tract.

At lower elevations where the Alder landcover types are common, common plant species include coastal alder with an understory of Devil's club, salmonberry, and a well-developed grass and fern layer.

At higher elevations, Prostrate Shrub Tundra and Gravel and Sparsely Vegetated types are prevalent. This Alpine Tundra consists of barren rocks interspersed with low growing herbaceous and shrubby vegetation. Dominant species are low mats of mountain avens, moss campion, black oxytrope, arctic sandwort, and several grasses and sedges.

Data compiled by the Alaska Natural Heritage Program (<https://aknhp.uaa.alaska.edu>) and University of Alaska Fairbanks Museum of the North Herbarium (<https://www.uaf.edu/museum/collections/herb/>) indicate that several species of conservation concern, rare in Alaska and/or globally, could have suitable habitat in the project area (Table 2 and 3). Rare plant surveys have not been conducted in the project area, but several plant inventories have recorded the occurrence of rare or sensitive species on the boundary of, immediately adjacent to, or in the general vicinity of the project area (Carlson et al. 2013; McCune et al. 2018).

Table 2. Alaska Natural Heritage Program global and state plant rankings.

Global	State
G1: Critically imperiled globally	S1: Critically imperiled in the state
G2: Imperiled globally	S2: Imperiled in the state
G3: Rare or uncommon globally	S3: Rare or uncommon in the state
G4: Apparently secure globally, but with cause for long-term concern	S4: Apparently secure in the state, but with cause for long-term concern
G5: Demonstrably secure globally	S5: Demonstrably secure in the state

Table 3. Plant species of conservation concern known or suspected to occur in the project area.

Common name	Scientific name	AKNHP Rank	Suitable habitats	Presence in project area
Lemon pixie lichen	<i>Cladonia luteoalba</i>	G2S1	Mineral soil in high-montane to alpine areas	Known
Dunhead sedge	<i>Carex phaeocephala</i>	G4S3	Rocky soils in high-montane to alpine areas	Suspected
Drummond's cinquefoil	<i>Potentilla drummondii</i>	G5S2S3	Mesic to wet rocky or meadow sites in high-montane to alpine areas	Suspected

The imperiled lichen (G2S1) is the only rare species known to occur in the project area. It occurs in open habitat at a range of elevations, and can be found on soil and organic matter (https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.124621/Cladonia_luteoalba). It was documented in a saddle near the headwaters of the Johnson River, on the western boundary of the project area, in an open, gravelly area of noncalcareous rock with calcareous inclusions. The collection was taken on mesic mineral soil at an elevation of roughly 770 m (McCune et al. 2018).

Several species of conservation concern have been found at alpine sites within approximately 10-20 km of the project area, two of which have the potential to occur within the project area (Table 2). Dunhead sedge occurs on rocky soils in high-montane to alpine areas throughout western North America and has been recorded in steep herbaceous meadows, eroded mudstone gravels, and weathered talus at nearby sites in Lake Clark National Park and Preserve (Carlson et al. 2013). Drummond's cinquefoil is found in mesic to wet sites in montane and alpine areas and has been recorded at a snowbed site just north of Tuxedni Bay (Carlson et al. 2013). The proximity of these known populations, and the comparable habitat characteristics present in the North Tract suggest that the project area could support either one of these species.

No non-native (exotic) invasive plants are known to occur in the project area. However, fourteen exotic invasive species have been recorded on the outer coast of Lake Clark National Park and Preserve (Rapp 2009), and these have the potential to be transported into the project area via off-site operations, including operations in the South Tract. At least one species, the common dandelion is well established at several locations along the coast and readily disperses in the wind and/or on wildlife to establish in disturbed sites.

Several plants harvested for traditional use elsewhere are likely to occur in the project area (e.g. crowberry; alpine bearberry; lowbush cranberry). However, due to the remote location and lack of access, they are unlikely to be widely utilized.

Soils

General soil texture within the North Tract is indicative of its early post-glacial, high elevation location. Over 70% of the area is classed as bedrock, with the remainder identified as rocky, ashy-loamy-rocky, and snow-ice.

Seven soil landscapes are present on the North Tract. Alpine Rocky Barrens and Shrublands and Maritime Upland Rocky Barrens, Shrublands, and Forests comprise 80% of the soil landscape. The remainder of the North Tract consists of Glaciers and Permanent Snow Fields, Maritime Upland Ashy-Loamy-Rocky Meadows, Shrublands, Forests, and Glacial Sandy-Rocky Barrens and Shrublands.

The area of proposed drilling is an area of steep slopes characterized by fractured bedrock, porous colluvium, and other unconsolidated materials. The mineralization consists of a sulfide-rich deposit of sphalerite (Zn,Fe)S, chalcopyrite CuFeS₂, pyrite FeS₂, galena PbS, anhydrite CaSO₄, barite BaSO₄, sand Fe chlorite (Steeffel 1987, Gray 1988, Suntherland 2019)

Viewshed

The North Tract is scenic, with mountains, glaciers and streams dominating views. From Tuxedni Bay, the northeast boundary of the North Tract is 2.5 miles to the south making the boundary area visible from Tuxedni Bay. The southern bound of the North Tract lies 2 to 5 miles north of the Johnson River. The upper elevations of Kona and Ore Creek within the North Tract are visible from

the river. The North Tract viewshed includes few alterations. Alterations to the natural viewshed are predominantly associated with development for mineral exploration on the South Tract.

7 Impact Analysis

Alternative 1: No Action

Under Alternative 1, the RWCA would not be granted. Helicopter access would be restricted and no infrastructure to support exploratory drilling would be constructed. There would be no additional impacts to area water, aquatic resources, wildlife, soundscape, vegetation, soils, or viewshed. The NPS would have no formal agreement with CIRI regarding access or exploration of their inholding and the provisions of ANILCA would not be implemented.

Alternative 2: Issue RWCA Authorizing Helicopter Access and Exploratory Drilling on LACL 03-107 (Proposed Action and Preferred Alternative)

Water Resources

Focus core drilling areas would be within the drainages of Difficult, Hungryman, Kona, Ore, and one unnamed creek draining into Tuxedni Bay. The maximum area that would be actively disturbed at one time by drillpads, helipads, and water pump pads would be less than 0.4 acres. Over the 8-year period, a maximum of 2.7 acres could be disturbed. Construction of helipads, drillpads, and water supply pads would disturb soil and could remove vegetation, increasing the possibility of sediment transport. During rain events, steep terrain would allow for increased overland flow, increasing the likelihood of sediments reaching nearby waters.

Water pumped from streams would reduce flow to lower reaches. Reductions in flow could lead to dewatering which could impact riparian vegetation and aquatic organisms. During periods of low natural flow, work would be suspended until flows increase to minimize potential dewatering impacts downstream.

Exposed sulfide minerals from drill cuttings have the potential to cause localized acid drainage, increase metal concentrations, and reduce the pH of ground and surface waters. Procedures to separate cuttings from the returned drill water and placement in hand dug sumps for settling would prevent release to waters. Sumps would be of adequate depth and covered with a bentonite clay cap limiting contents from exposure to water or oxygen. Sumps would be filled and covered during site reclamation.

Aquatic Resources

Resident and anadromous fish are found in Difficult, Hungryman, Kona, Ore, and one unnamed creek draining into Tuxedni Bay. Dewatering of streams could reduce flows and impact fish rearing habitat and eggs. Reducing water pumping during periods of low water, could minimize impact on fish rearing and eggs. Water pumps could draw in juvenile fish, causing mortality. The addition of an 1/8-inch stainless steel screen to the intake hose would limit the intake of fish.

Fish are sensitive to copper, and the presence of chalcopyrite in drill cuttings could lead to increased concentrations of copper in the nearby streams affecting resident and anadromous fish. Containing returned drill water in sumps and reclaiming them with a fill consisting of native vegetation and a bentonite clay cap would limit their exposure to water and oxygen.

Wildlife

Much of the North Tract is potential brown bear denning habitat, with dens observed in Difficult Creek. Disturbance from noise created by drilling, water pumps, and helicopters could disturb bears. The presence of structures and humans on the landscape could cause avoidance of areas used seasonally for foraging and denning. Increased contact between bears and humans could lead to an increased risk of negative bear-human interactions. Structuring the temporal and spatial aspects of drilling operations to periods in which bears are out of the den and less likely to be using areas within the North Tract would minimize disturbance and bear-human interactions.

Other wildlife species in this area would potentially experience habitat loss, disturbance, and displacement from the construction of facilities and noise from operations. Nesting birds, especially ground nesters (e.g., Willow, Rock and White-tailed Ptarmigan, montane-nesting shorebirds and passerines) could be displaced and disturbed, and nests and chicks possibly crushed by the ground disturbance. If adult birds were flushed from their nests, eggs or young would be more vulnerable to the elements and predation. Migrating birds (e.g., hawks and passerines) that use this area to rest and feed would likely be impacted by the noise, ground disturbance, and increased human presence. Limiting operations spatially and temporally to avoid nesting habitat would minimize impacts.

Natural Soundscape

Sounds in the North Tract are primarily natural, with little human generated noise. The median summer, daytime sound level is expected to be between 31 and 37 dB (Mennitt et al. 2013). During the 8 years of the project, human induced noise could be present from June 1 to October 31 on the North Tract. Helicopter noise in the area would increase current aviation noise. The construction and operation of infrastructure to support and conduct the drilling operations would add mechanical noise to the natural sounds. Drilling operations could run for up to 24 hours per day, creating continuous mechanical noise during this period. The remote nature of the North Tract limits access and use by visitors, minimizing the impact of human induced noise on visitor experience. The distance to high visitation areas, greater than 13 miles, reduces the probability of noise impacts at those sites.

Vegetation and Soils

Vegetation and soils in the North Tract are natural with limited human disturbance. Development of infrastructure over the 8-year period would disturb a maximum of 2.7 acres of vegetation and soil. This disturbance could be distributed over 150 sites within the drill areas. While the overall area of disturbance is small, the potentially high number of drill sites and their supporting infrastructure could increase the risk of damaging or destroying unknown occurrences of rare plants. Post exploration reclamation of sites with local, native vegetation would return disturbed sites to a natural state.

Given the remote and natural nature of the North Tract, the presence of exotic plants is unlikely at this time. However, the proposed increase in human activity, introduction of materials from outside the area, and ground disturbance provide a means of transport and establishment of exotic plant species. If contaminated materials are introduced and later reused, the potential for broadly spreading exotic plant species within the drill areas would be possible. Stipulations that would be included in the permit include cleaning of clothing, gear, building materials, and all equipment prior to entering the park to limit the potential spread of exotic plants; and revisiting drilling sites several years post-reclamation to determine if cleaning measures were successful at preventing establishment of exotic plants.

Viewshed

The North Tract is a natural viewshed and contains no human development. Up to 150 temporary drill sites could be constructed during the 8 years of exploration. During this period, the natural viewshed would be degraded by infrastructure for exploration activities. The remote nature and limited access of the North Tract would reduce the probability of viewshed impacts affecting visitor experience. As exploration is completed at a site, reclamation would be completed, limiting the amount of infrastructure on the landscape at any one time. After the 8-year exploration period on the North Tract, all infrastructure would be removed and sites reclaimed, restoring the natural viewshed.

Cumulative Impacts

The discussion of cumulative impacts considers the contribution of direct and indirect impacts to the past, present and reasonably foreseeable future actions as they relate to the proposed action and alternatives.

Past Actions

The land comprising the Johnson Tract was part of an exchange between CIRI and the federal government to fulfill their land selections under ANCSA. These lands were selected for their mineral potential, which was explored between 1982 and 1995. During this period, mineral exploratory activities occurred on the North and South Tract with 90 drillholes completed, including 11 on the North Tract. After this period, a variety of factors led to the cessation of exploration activities. In 2019, HighGold obtained a special use permit to resume exploratory efforts with geological mapping on the North Tract.

Present Actions

Presently, HighGold is conducting geological mapping, rock and soil sampling, and geophysical surveys under a special use permit on the North Tract. Work was approved for the period of June 1, 2020 to October 31, 2020.

A cultural resource inventory and reconnaissance of the North Tract was completed by Midnight Sun Environmental in July 2020. The Phase I/II Identification and Evaluation Survey for cultural resources was completed to fulfill Section 106 of the National Historic Preservation Act prior to the allowance of ground disturbing activities on North Tract lands.

NPS has no current projects occurring in the North Tract and no visitation has been reported or is known to be occurring there at this time.

Reasonably Foreseeable Future Actions

Within the North Tract, it is reasonably foreseeable that NPS would increase operations in the area to manage resources, evaluate reclamation, and minimize potential for establishment of exotic plants. Rare plant surveys of probable habitat within drill areas may occur to ensure these plant species are protected. Initiation of periodic water quality monitoring in the creeks within drill areas would likely occur.

Conclusion

The proposed action would result in direct impacts to a maximum of 2.7 acres of vegetation and soil across 150 sites over 8 years on the North Tract. Removal of vegetation, disturbance of soils, increased human activity, and introduction of building materials would heighten the risk of establishing exotic plants. Exposed minerals from drill cuttings would have the potential to increase metal concentration in ground and surface waters. Water pumping would reduce flows in creeks, potentially impacting habitat of aquatic organisms downstream.

Human activity and mechanical sounds related to exploration would disturb wildlife, and combined with the construction of infrastructure, could lead to displacement, reduced survival and failure of reproduction for some species. The natural soundscape would be degraded seasonally by the addition of mechanical sounds from the drilling, water pumping, and helicopter flights in the area. The infrastructure for exploration would add development to the natural viewshed of the North Tract for the duration of exploration.

Evidence of past actions persists on the North Tract, including plugged drillholes, reclaimed drill and pump sites, and minor scarring from rock and soil sampling. Impacts to streams and aquatic life from prior water pumping operations are not discernible. Wildlife habitat, viewshed, and soundscapes do not exhibit impacts from prior operations.

Impacts from present operations are anticipated to be ephemeral, persisting during operations, but ceasing at the end of the activity.

The NPS presence would increase on the North Tract in the future. New inventory and monitoring efforts related to vegetation would likely begin, focused on rare plants and the potential introduction of exotic plants. Assessment of water quality in areas where exploration occurred would be implemented and continued periodically into the foreseeable future. Fish and wildlife monitoring efforts may also increase. These efforts would increase travel and human presence on the landscape adding noise to the natural soundscape.

Past, present, and reasonably foreseeable future actions are not expected to have lasting effects in the vicinity of the North Tract. The direct and indirect effects from proposed action would constitute the bulk of the cumulative effects to water resources, aquatic resources, wildlife, natural sound,

vegetation and soils, and viewshed in the vicinity of the North Tract. However, these impacts are estimated to be limited in context and intensity; the actions would be constrained to small sites covering a total of 2.7 acres and affected resources are expected to recover after operations cease.

Table 4. Summary of Impacts

Issue	Alternative 1: No Action	Alternative 2: Issue RWCA Authorizing Helicopter Access and Exploratory Drilling (Preferred Alternative)
Water Resources	No new impacts	<ul style="list-style-type: none"> • Water pumped from streams would reduce flow to lower stream reaches. • Exposed sulfide minerals from drill cuttings would have the potential to cause localized acid drainage, increase metal concentrations, and reduce the pH of ground and surface waters.
Aquatic Resources	No new impacts	<ul style="list-style-type: none"> • Streams would experience reduced flows affecting fish rearing habitat and eggs, and aquatic invertebrates.
Wildlife	No new impacts	<ul style="list-style-type: none"> • Disturbance from noise created by drilling, water pumps, and helicopters would disturb and displace wildlife. • Construction of infrastructure would cause habitat loss and displacement of wildlife, possibly resulting in reproductive failure or reduced survival.
Soundscape	No new impacts	<ul style="list-style-type: none"> • The natural soundscape would be impacted by the introduction of mechanical noise.

Issue	Alternative 1: No Action	Alternative 2: Issue RWCA Authorizing Helicopter Access and Exploratory Drilling (Preferred Alternative)
Vegetation and Soils	No new impacts	<ul style="list-style-type: none"> A maximum of 2.7 acres of soil and vegetation would be disturbed or removed
Viewshed	No new impacts	<ul style="list-style-type: none"> The natural viewshed would be diminished by the construction of infrastructure.

8 Consultation and Coordination

Tribal and Alaska Native Corporation Consultation

- Letters were sent to Chickaloon Native Village, Kenaitze Indian Tribe, Native Village of Tyonek, Ninilchik Traditional Council, Seldovia Tribal Council, and Seldovia Village Tribe on 05/26/2020 informing about the project details and offering Government to Government consultation should they find it necessary.
- A follow-up email was sent to Chickaloon Native Village, Kenaitze Indian Tribe, Native Village of Tyonek, Ninilchik Traditional Council, Seldovia Tribal Council, and Seldovia Village Tribe on 06/11/2020 to discuss the project and determine if formal consultation was requested. A second follow-up email was sent to and to Chickaloon Native Village, Native Village of Tyonek, and Seldovia Village Tribe on 06/25/2020.
- Consultation with Chickaloon Village Traditional Council occurred via video-conference on 07/10/2020.

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- Informal consultation with the U.S. Fish and Wildlife Service through the IPAC system 07/31/2020 was initiated to determine if threatened and endangered species occur within the proposed project area. No species were identified, and a formal Biological Assessment was not prepared for this project.

9 References

Carlson ML, Lipkin R, Roland C, Miller AE. 2013. New and important vascular plant collections for south-central and southwestern Alaska: A region of floristic convergence. *Rhodora* 115(961): 61-95.

- Cook, J. A., and S. O. MacDonald. 2005. Mammal inventory of Alaska's National Parks and Preserves: Southwest Alaska Network: Kenai Fjords National Park, Lake Clark National Park and Preserve, and Katmai National Park and Preserve. National Park Service Alaska Region, Inventory and Monitoring Program Final Report. 57 pages + appendices.
- Gray, T.E., 1988, Origin and evolution of sub-seafloor Au-Zn-Cu-Pb mineralization and related alteration at the Johnson River Prospect, south-central Alaska, Masters Thesis, University of Oregon, 219 p.
- McCune B, Arup U, Breuss O, Di Meglio E, Di Meglio J, Esslinger TL, Magain N, Miadlikowska J, Miller AE, Muggia L, Nelson PR, Rosentreter R, Schultz M, Sheard JW, Tønsberg T, Walton J. 2018. Biodiversity and ecology of lichens of Katmai and Lake Clark National Parks and Preserves, Alaska. *Mycosphere* 9(4): 859–930.
- Mennitt, D., Frstrup, K., Nelson, L. and McKenna, M., 2013. Mapping the extent of noise on a national scale using geospatial models. *The Journal of the Acoustical Society of America*, 134(5), pp.4159-4159.
- Morsell, J. 1993. Johnson River Gold Project Fish Habitat Reconnaissance Investigation. Northern Ecological Services, Anchorage, Alaska.
- Rapp W. 2009. Invasive species summary for the Southwest Alaska Inventory and Monitoring Network. Natural Resource Report. NPS/SWAN/NRR—2009/152. Natural Resource Program Center; National Park Service. Fort Collins, Colorado.
- Ruthrauff, Daniel R., T. Lee Tibbitts, Robert E. Gill, Jr., and Colleen M. Handel. 2007. Inventory of montane-nesting birds in Katmai and Lake Clark National Parks and Preserves. Unpublished final report for National Park Service. U. S. Geological Survey, Alaska Science Center, Anchorage, AK.
- Steefel, C.I., 1987, The Johnson River Prospect, Alaska: Gold-Rich Sea-Floor Mineralization from the Jurassic. *Economic Geology*, v. 82, pp. 894-914
- Sutherland, B.A., 2019, NI 43-101 Technical Report for the Johnson Tract Project, HighGold Mining Inc., Vancouver, BC Canada, 121 p.
URL:https://www.constantinemetals.com/site/assets/files/3903/johnson_tech_report.pdf

Appendix A: ANILCA Section 810(A) Subsistence – Summary Evaluation and Findings

I. INTRODUCTION

This evaluation was prepared to comply with Title VIII, Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA). It summarizes the evaluation of potential restrictions to subsistence activities that could result from the issuance of a Right of Way Certificate of Access (RWCA) to CIRI and their lessee, HighGold authorizing helicopter access and exploratory drilling on parcel LACL 03-107, also known as the North Tract of the Johnson Tract. Access to inholdings, including subsurface lands, in Alaska National Parks is governed by the Alaska National Interest Lands Conservation Act (ANILCA) Section 1110(b), which provides that the NPS shall provide adequate and feasible access to privately owned lands that are encapsulated by public lands.

II. LAKE CLARK NATIONAL PARK AND PRESERVE

The purposes for which Lake Clark National Park and Preserve were created are found in the language of the 1980 Alaska National Interest Lands Conservation Act (ANILCA, Pub. L. 96-487). As a unit of the National Park System, Lake Clark National Park and Preserve shall be administered to:

- protect the watershed necessary for the perpetuation of the red salmon fishery in Bristol Bay;
- maintain unimpaired the scenic beauty and quality of portions of the Alaska Range and Aleutian Range, including active volcanoes, glaciers, wild rivers, lakes, waterfalls, and alpine meadows in their natural state; and
- protect habitat for and populations of fish and wildlife including but not limited to caribou, Dall sheep, brown/grizzly bears, bald eagles, and peregrine falcons.

III. THE EVALUATION PROCESS

Section 810(a) of ANILCA states: “In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands . . . the head of the Federal agency . . . over such lands . . . shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would

reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other use, occupancy or disposition of such lands which would significantly restrict subsistence uses shall be affected until the head of such Federal agency:

1. gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to Section 805;
2. gives notice of, and holds, a hearing in the vicinity of the area involved; and
3. determines that (A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity would involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps would be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.

IV. PROPOSED ACTION ON FEDERAL LAND

Lake Clark National Park and Preserve proposes to issue a Right-of-Way Certificate of Access (RWCA) to CIRI and their lessee, HighGold authorizing helicopter access and exploratory drilling on parcel LACL 03-107, also known as the North Tract of the Johnson Tract. The *Description of Alternatives* section of the EA describes each alternative being considered in detail. The following is a brief summary:

Under the *No Action Alternative* the NPS would not permit helicopter access to LACL 03-107, nor drilling activities and infrastructure therein. Other means of access would need to be determined by CIRI with no formal agreement with the NPS. The method, activities, and terms and conditions would not be developed. The North Tract would remain closed to helicopter use and no exploratory drilling activity would be conducted.

Under *Alternative 2, (NPS Preferred Alternative)* the NPS would issue a RWCA to CIRI authorizing helicopter access to the North Tract and exploratory drilling. This right-of-way would be the primary access for exploration of the North Tract.

Work on the North Tract would be seasonal, with activity planned to occur between June 1 and October 31 annually through 2028. Activity would be expected to vary annually, with a maximum length up to 150 days of exploration. Drilling activity on the North Tract would be confined to the area shown in Figure 2 of the Environmental Assessment, with the majority expected to occur in the focus areas and lesser amounts in the lower potential areas.

V. THE AFFECTED ENVIRONMENT RELATIVE TO SUBSISTENCE USE

Traditionally the west side of Cook Inlet has been the home of the Cook Inlet Dena'ina. Although they lived in winter villages, the Cook Inlet Dena'ina used a series of seasonal camps in other locations for specific resource harvests during their annual seasonal round. In support of subsistence activities, they established trails and trade routes, named landmarks, and built settlements, camps, and shelters within the territory of their regional band. The Dena'ina used all the river systems in all major bays along west Cook Inlet, such as Chinitna, Iliamna, Ursus, Redoubt, and Trading bays. Trails connecting the Cook Inlet shoreline and eastern slopes of the Chigmit Mountains with the Lake Iliamna and Lake Clark drainages supported active trade and social interactions between the Cook Inlet and Inland groups of Dena'ina. Some of the best evidence of Dena'ina knowledge of travel routes and hunting, fishing, and gathering areas is preserved in the intricate system of Dena'ina place names (Stanek, et al.:16). The village of Tyonek is the closest permanent modern settlement to the Johnson Tract on the west side of Cook Inlet. The Kenai Peninsula communities of Kenai, Ninilchik, Anchor Point and Soldotna are the closest on the east side of the Inlet.

In accordance with regulations in 36 CFR Part 13, residents of the NPS designated resident zone communities of Iliamna, Lime Village, Newhalen, Nondalton, Pedro Bay, and Port Alsworth and people who reside inside the boundaries of the park are qualified to engage in subsistence activities in Lake Clark National Park and Preserve under the Federal Subsistence Program. Local rural residents who do not live in these communities but who have customarily and traditionally engaged in subsistence activities within the park may continue to do so with a subsistence use permit issued by the park superintendent. Currently there are only two active firewood harvest permits for rural residents in the Cook Inlet region of the park and no active permits for hunting or other subsistence activities.

Current subsistence use in the area around the Johnson Tract is very low, with some wood cutting activity conducted by residents living at Silver Salmon Lakes to the southeast. The proposed project area is composed of rugged, partially glaciated mountainous terrain with deeply incised and recently deglaciated stream and river valleys. The project area is not accessible from any of the park's designated resident zone communities without using aircraft which is prohibited by 43 CFR § 36.11(f)(1) for purposes of taking fish and wildlife for subsistence uses.

VI. SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impacts on subsistence activities from issuing the RWCA, three evaluation criteria were analyzed relative to existing subsistence resources:

1. The potential to reduce subsistence fish and wildlife populations by (a) reductions in number, (b) redistribution of subsistence resources, or (c) habitat losses;

2. The potential effect on subsistence fisher or hunter access;
3. The potential to increase fisher or hunter competition for subsistence resources.

1. The potential to reduce populations

Alternative 1 (No Action Alternative) The NPS would not permit helicopter access to LACL 03-107, or drilling activities and infrastructure and there would be limited potential to reduce numbers of or redistribute fish and wildlife populations, or reduce habitat for subsistence fish and wildlife populations.

Alternative 2 (NPS Preferred Alternative). There is some potential to reduce numbers of or redistribute fish and wildlife populations, or reduce habitat for subsistence fish and wildlife populations. Human activity and mechanical sounds related to exploration would disturb wildlife, and combined with the construction of infrastructure, would lead to displacement. Resident and anadromous fish are found in Difficult, Hungryman, Kona, Ore, and one unnamed creek draining into Tuxedni Bay. Dewatering of streams could reduce flows and impact fish rearing habitat and eggs.

2. Restriction of Access

Alternative 1 (No Action Alternative). The NPS would not permit helicopter access to LACL 03-107, or drilling activities and infrastructure. Access to LACL 3-107 would still require the use of fixed wing aircraft.

Alternative 2 (NPS Preferred Alternative). The NPS will permit helicopter access to LACL 03-107 by CIRI and its lessee, HighGold. Access by all other parties would still require the use of fixed wing aircraft.

3. Increase in Competition

Alternative 1 (No Action Alternative). The no action alternative will preserve the status quo and not encourage new or expanded use of the tract. Alternative 1 will not result in any increase in competition between subsistence users and other users for subsistence resources.

Alternative 2 (Preferred Alternative). The NPS would permit helicopter access to LACL 03-107, for drilling activities and infrastructure, which could interfere with subsistence uses of the area through displacement of fish and wildlife from human activity and mechanical sounds. Currently there is no known subsistence use of LACL 03-107, however, so there is a limited chance of increased competition for resources.

VII. AVAILABILITY OF OTHER LANDS

Lands managed by the Bureau of Land Management share common boundaries with LACL and are the closest federal public lands to the proposal area where Title VIII subsistence occurs. There are other lands inside and outside LACL boundaries where local rural residents may harvest subsistence resources including state, tribal and private lands and lands belonging to ANCSA corporations.

VIII. ALTERNATIVES CONSIDERED

This analysis has evaluated two alternatives: Alternative 1, to maintain the status quo, and Alternative 2, to issue a RWCA to CIRI authorizing helicopter access to LACL 03-107 and exploratory drilling and associated infrastructure.

IX. FINDINGS

This analysis concludes that the proposed action described in Alternative 2 would not result in a significant restriction of subsistence uses.

REFERENCES

Stanek, Ronald T., James A. Fall, and Davin L. Holen. 2007. *West Cook Inlet Ethnographic Overview and Assessment for Lake Clark National Park and Preserve*. National Park Service.