Plan of Operations Approval (POOA) F20219958POOA & Reclamation Plan Approval (RPA) F20219958RPA.03 – Amendment Requests

Teck

Prepared for:
Alaska Department of Natural Resources

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ABBREVIATIONS AND DEFINITIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish & Game
ADL	Alaska Division of Lands
APDES	Alaska Pollutant Discharge Elimination System
B&GEP	Bald and Golden Eagle Protection
CGP	Construction General Permit
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
DMTS	Delong Mountain Transportation System
HSE	Health, Safety, Environment
IDF	Inflow Design Flood
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
MLE	Mine Life Extension
NANA	Northwest Arctic Native Association
NAB	Northwest Arctic Borough
POO	Plan of Operations
POOA	Plan of Operations Approval
RDO	Red Dog Operations
RPA	Reclamation Plan Approval
SOP	Safe Operating Procedure
SRCE	Standardized Reclamation Cost Estimator
SWP	Safe Work Plan
SWPPP	Stormwater Pollution Prevention Plan
TAK	Teck Alaska Inc., Red Dog Operations
TBD	Tailings Back Dam
TMD	Tailings Main Dam
TSF	Tailings Storage Facility
USFWS	US Fish & Wildlife Service
WACH	Western Arctic Caribou Heard

1.0 INTRODUCTION

1.1 General

Red Dog Operations (RDO) is one of the world's largest zinc-lead-silver mines, located in the Western Brooks Range of northwest Alaska, approximately 80 miles north of the Arctic Circle, near Kotzebue.

In 1982, RDO was developed through an innovative operating agreement between the operator, Teck (formerly Cominco), and the landowner, Northwest Arctic Native Association (NANA), a regional Alaska Native corporation owned by the Iñupiat people of Northwest Alaska. The mine and concentrator properties are leased from and were developed under the agreement with NANA.

RDO is an open-pit truck-and-loader operation that uses conventional drill-and-blast mining methods to produce zinc and lead concentrates. Concentrates produced at RDO are shipped during the summer to customers in North America, Asia, and Europe. RDO revenue has been a significant contributor to Alaska's economy and a source of funding for the Northwest Arctic Borough (NAB).

The Delong Mountain Transportation System (DMTS) is a 52-mile, all-weather industrial road and port system connecting RDO to the Red Dog Port and shipping facilities on the Chukchi Sea, providing year-round transportation of concentrates from the Mine to Port storage. In addition to lead and zinc concentrate, the Port is the primary storage location for diesel. Power required to support and sustain operations and camp facilities is generated by diesel engines, with fuel trucks continuously travelling between the Port and RDO to ensure continuous power generation at the main camp and mill facilities. Current mine production is expected to cease in 2031, with two nearby underground deposits under exploration as potential mine-life extension (MLE) opportunities.

Red Dog Operations (RDO) is located almost entirely on NANA land. However, in anticipation of future development requirements to support operations, Teck Alaska, Inc. (TAK) sought the Alaska Division of Lands (ADL) Mill Site Lease (ADL 233521) and was granted authorization by the Alaska Department of Natural Resources (ADNR) through Plan of Operations Approval (POOA) F20219958POOA (2020) and F20219958RPA.03 (2025).

The 2021 Red Dog Mine Millsite Lease Plan of Operations included the future Emergency Spillway Construction. That Plan stated

> "*Golder has developed a preliminary design for the spillway and that design will be advanced as the mine approaches the end of mine life. The current design calls for constructing the spillway in bedrock. This PoO will be updated in the future as more detailed design and planning information for the spillway becomes available. Estimated construction costs for the spillway are included in the updated (2021) Red Dog Mine reclamation cost estimate and will become part of the 2021 updated reclamation bond for the mine.*"

The submission provides that POO update.

1.2 Site Description

ADL 233521 is located on the western boundary of the Red Dog Mine site, within the Kateel River Meridian, Township 031 North, Range 019 West. The site description is as shown in the accompanying figures.

1.3 Purpose of Amendment Requests

This POOA amendment request is submitted by Teck Alaska, Incorporated (TAK) to the ADNR for approval to construct an emergency spillway within the wind- and wave-freeboard zone of the Tailings Storage Facility (TSF), which is impounded by the Tailings Main Dam (TMD) and Tailings Back Dam (TBD). The purpose of the Emergency Spillway is to provide a controlled overflow path that prevents overtopping of the TMD in the event the Inflow Design Flood (IDF) storage is fully utilized by either the IDF or additional precipitation that TAK cannot manage. Mitigation of the risk of overtopping at the TMD for precipitation and flood events following the IDF by passing additional storm events up to and including the 1,000-year recurrence interval. TAK is committed to a risk-management framework that proactively addresses all conceivable credible failure scenarios. By evaluating alternatives beyond standard design requirements, TAK seeks to ensure that potential risks are mitigated to the greatest extent practicable. The emergency spillway would provide a controlled release pathway in the event of extreme hydrologic scenarios. The Emergency Spillway is being advanced as part of the TSF closure and reclamation strategy, as a permanent risk-reduction feature intended to support the long-term safety and performance of the facility through both the end of operations and active closure.

2.0 PROPOSED ACTIVITIES ON MILLSITE LEASE LANDS

2.1 Project Description

2.1.1 Project Location and Setting

The project consists of constructing an Emergency Spillway, and an associated permanent access road.

The Project site is situated in the southern section of the Millsite Lease (ADL 233521). Refer to the appendices for maps and figures.

Table 1 - Land Ownership for the Project. All Parcels are within the Kateel Meridian

Land Ownership	Township	Range	Section
State	31N	019W	24
NANA	31N	018W	19, 30

Table 2 – Location, all facilities are within the Northwest Arctic Borough (NAB)

Description	Latitude	Longitude
Spillway	68° 3' 50"N	162° 53' 33"W

2.2 Structures & Facilities

The project will have two primary areas: (1) Emergency Spillway, and (2) Site access road. Both are on NANA lands and State lands.

2.2.1 Emergency Spillway

The project consists of constructing an unlined Emergency Spillway for the TSF by excavating a trapezoidal channel primarily into weathered bedrock within the Western Saddle on the west side of the TSF (Figure 3). The spillway alignment is approximately 760 ft long and is designed with three distinct components:

(1) an entrance channel that transitions flow from the TSF toward the spillway crest;

(2) a broad-crested weir section at the spillway crest (invert elevation 1,005.4 ft); and

(3) a spillway chute that follows the anticipated bedrock surface and conveys flow to the downstream discharge point.

At the downstream end of the chute, an energy dissipation apron is included to dissipate flow energy into an unnamed tributary of Red Dog Creek. The apron is lined with riprap (D50 ≈ 6 in.) placed over a nonwoven geotextile filter layer and is keyed into bedrock to provide erosion resistance.

2.2.2 Site Access Road

There will also be a permanent access road located adjacent to the spillway alignment. The access road is approximately 670 ft long and 20 ft wide, connecting to the existing West Tails Road, with a roundabout at the end. Road construction is intended to minimize disturbance by generally following existing ground where practicable.

3.0 CONSTRUCTION METHODS

3.1 General

Construction methods will include clearing, grubbing and stockpiling organics, excavation of overburden and bedrock of the spillway geometry, and shaping/finishing of the channel base and side slopes. At the spillway crest, bedrock excavation is followed by placement and compaction of non-frost susceptible fill to meet the specified elevation tolerance. Road construction includes subgrade preparation, geotextile placement, and placement and compaction of fill and rock materials. The energy dissipation apron is constructed by excavating into bedrock, placing geotextile and placing riprap. No fill is to be placed in the identified wetlands or waters.

Construction is planned to commence after August 1, 2026. First, equipment and materials will be received on the barge. Then the project will begin and is expected to be completed within a maximum duration of four (4) weeks, subject to weather cooperation and equipment availability.

Key schedule details:

- Start: After August 1, 2026 (targeting the first available mobilization post-barge window).
- Total duration: Up to 4 weeks.

- Weeks 1 – 2: Bulk excavation: < 2 weeks, with road work progressing in parallel where practical.
- Week 3 – 4: Final grading/trim, crest grade control, energy dissipation apron (geotextile + riprap), road completion, and closeout.

3.2 Vegetation Management

Vegetation management is an essential part of project construction planning to minimize environmental impacts, protect sensitive habitats, and maintain safe and efficient work areas. All construction activities will incorporate vegetation management measures appropriate to the site. Disturbed areas that are suitable to be restored, would be done to pre-construction use. If necessary, vegetation cover using native and certified seed mixes and seed dispersal, management, and maintenance processes would be implemented.

To prevent the introduction, or spread, of non-native, invasive plant species or weeds, equipment will be used that is already located at the project site. If new equipment is moved into the Red Dog mine for this project, it will undergo the following protocol:

- The equipment would receive complete steam cleaning. This provides a means of close inspection for leaks and also removes any direct and foreign debris from the internal and external surfaces that may have accumulated during prior use. This cleaning assures that no material from potential invasive species is transported from site to site and facilitates a comprehensive maintenance inspection.

3.3 Sediment & Erosion Control

A project-specific Storm Water Pollution Prevention Plan (SWPPP) will be implemented in accordance with the Alaska Department of Environmental Conservation (ADEC) Alaska Pollutant Discharge Prevention Elimination (APDES) and the Construction General Permit (CGP) requirements. Contractors will perform regular inspections, manage runoff, and implement erosion/sediment controls in accordance with the SWPPP.

3.4 Construction Waste Management

3.4.1 Hazardous Waste

Fuel, hydraulic fluids, and oils would be transferred directly from the original storage containers at the Mine Site to a tanker truck for individual refueling of equipment. Then, the equipment would be serviced or refueled in accordance with the site's standard Spill Prevention practices.

Any other hazardous materials, such as batteries, would be removed from the site and disposed of in accordance with the site's requirements for handling hazardous materials. Other items that are not feasible to remove at the point of generation, such as small containers of lubricants, paints, thinners, solvents, cleaners, batteries, and sealants, would be stored in a secure location with secondary containment and maintained in accordance with all requirements for hazardous waste storage until removal for proper disposal. All oils would be recycled off-site at an appropriately licensed facility. Site personnel responsible for handling these materials would be trained to do so safely. Containers used to store hazardous materials would be inspected regularly for any signs of failure or leakage.

Quantity estimates for solid and hazardous waste, along with management approaches to be adopted during Project decommissioning, are provided in Table 3 on the following page.

Additional hazardous materials may include, but are not limited to, the following:

- Diesel for generators and fuel pumps (if on site)
- Batteries

3.4.2 Construction Waste Considerations

Table 3 outlines the estimated construction waste that may be generated during this project.

Table 3 - Construction Waste

Waste Type	Composition	Quantity[1]	Frequency of Generation	Management Approach
Construction Waste (hazardous)	Solvents, used oil, paint, oily rags	Minimal, if any at all.	Every 90 days	Accumulate within the Mine. Return to the vendor or ship off-site for disposal at a permitted hazardous waste facility.
Spent Batteries (universal waste)	Lead acid, alkaline type, or lithium ion	Small power tools, headlamps, etc. Minimal, if any at all.	Intermittent during construction	Spent batteries to be staged in designated on-site battery storage areas prior to off-site shipment.
Construction Waste (non-hazardous)	Scrap wood, steel, plastic, paper, wood pallets	To be determined (TBD)	Intermittent	Recycle when it is feasible. Dispose of the materials in the Class III landfill when it is not feasible to recycle.
Sanitary Waste (non-hazardous)	Portable toilet facilities, sanitary waste	Porto-potty trailer unit (20ft x8ft x14ft)	On days of active decommissioning	Pump to ADEC permitted 'Wastewater collection tanker truck' by a licensed contractor who would dispose of it at the proper TAK facilities for processing and treatment.
Office Waste (non-hazardous)	Paper, aluminum, food	N/A – Work will require minimal office/printed support.	Intermittent	Recycle when it is feasible. Dispose of Class III landfill on site when it is not feasible to recycle.
Note: [1]Calculations are estimated from analysis of other projects.				

3.5 Health, Safety, and Environment

In addition to the RDO Dig Permit process, a project-specific Safe Work Plan (SWP) and a Health, Safety, and Environment (HSE) Risk Assessment will be developed and reviewed before construction. These HSE-specific construction plans will address hazards associated with cold weather, heavy equipment, wildlife interactions, and work near existing utilities.

Environmental constraints and sensitive resources (including wetlands, drainage features, tundra vegetation, wildlife movement corridors, and cultural resources) will be identified before construction. Avoidance areas and buffer zones will be clearly marked in the field in accordance with the RDO Flagging & Barricading Policy (Teck Alaska, Inc., 2023). Construction timing will be coordinated to take advantage of ground conditions where practicable, minimizing surface disturbance. Environmental protection measures, including erosion and sediment controls, will be installed before construction as required.

3.6 Archaeological Investigation and Avoidance

A cultural resources study has been completed to provide the baseline information to inform knowledge of cultural resources in the project area. Consultation with the State Historic Preservation Office concluded that there are no eligible sites in the project area. TAK designed the project to avoid all archaeological sites identified in 2023–2025 cultural resource studies (e.g., State Cultural Resource Investigation Permit 2023-29 and 2025-99, Alaska Historic Resources Survey sites per Office of History and Archaeology filings). Site locations are withheld from public figures for confidentiality but are available to qualified reviewers through OHA.

3.7 Breeding Bird Survey

Prior to surface disturbance, trained personnel will survey to comply with the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (B&GEP). Vegetation removal will be avoided during nesting periods unless surveys confirm there are no active nests. The RDO MBTA Safe Operating Procedures (SOP) will be followed.

3.8 Wildlife

According to the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC), there are no listed endangered or threatened species or critical habitats within the project area.

Bald eagles occur in the Northwest Arctic. There are no known bald eagles' nests in the area[1]. There are no known golden eagles in the northwest Arctic.

Migratory birds exist in the project area. Work may be performed during the MBTA window, and the project proposes to follow the RDO MBTA SOP and conduct the required bird surveys before construction.

There is a fish barrier installed on the south fork for Red Dog Creek, downstream of the project area. This was installed to prevent fish from migrating upstream and inhabiting these drainages.

Under the Millsite Lease, NANA Agreements, and Alaska Administrative Code (AAC) 5 AAC 92: Title 5 – Fish & Game Statewide Provisions, Teck is required to "put measures into place to prevent animals from entering the site and provide details of the preventative measures to ADF&G. In addition, any mortalities or incidents concerning Western Arctic Caribou Herd (WACH) occurring at the facility are to be reported to the ADF&G Kotzebue Office (907-442-3420)."

> *Note: The WACH is a highly important subsistence resource for residents of western and interior Alaska. The ADF&G works closely with the WACH working group, which includes subsistence hunters, sport hunters, conservationists, and others, to ensure the long-term conservation and management of the herd.*

Under current site operations, RDO employs several wildlife hazing activities to prevent wildlife from entering the mine site work zones. The hazing activities are outlined in documents that are controlled in a Teck document control program called Qualtrax (QID):

1. Wildlife Interactions Management Plan (Teck Document number QID#7268)
2. Smoking Policy (QID#2476)
3. Environmental Field Travel/Work Preparation SOP (QID#513)
4. Alaska Department of Public Safety, Statewide Services Everywhere App (QID#6918)
5. Public Safety Permit (QID#2464)
6. Public Safety Permit Hazing List (QID#7254)
7. RDM Facilities Wildlife Access Control SOP (QID#7026)
8. Red Dog Operations 3.03 Firearms Policy (QID#7026)
9. Red Dog Recreation Map (QID#6073)
10. Wildlife Animal Control Procedures (QID#7333)
11. Wildlife Awareness Training (TECK, People Central)

3.9 Wetlands Avoidance

A wetland delineation took place in the project area in 2023 and 2024 which surveyed both wetland and upland locations.

The report delineates wetlands in the project area. The report states that these are isolated wetlands that are not connected to regulated Waters of the United States.

This project avoids the placement of fill within jurisdictional Waters of the United States, including wetland areas.

3.10 Reclamation

TAK is responsible for the reclamation of this area. Discussion with William Groom, Large Mine Projects Lead with DNR, indicated that the construction and maintenance of the spillway was included as part of the closure estimate for the RCP and Standardized Reclamation Cost Estimate (SRCE). His recommendation was for Teck to verify that the current more detailed costs are accurate against the previous estimates, and if they are to leave the update of the SRCE for the upcoming renewal.

The spillway is a permanent structure, that itself is not intended to be reclaimed, as it is important for future water management. Teck has verified that the construction costs and ongoing maintenance costs are captured as part of the RCP.

Legend

- Proposed Project
- NHD Flowlines
- Anadromous Waters

NAB Zoning Districts

- General Conservation
- Resource Development

Notes:
1. Background imagery is from AGC Imagery, 2024.
2. Anadromous Stream data is from Alaska Department of Fish and Game (ADF&G) & USGS National Hydrography Dataset (NHD)
3. Red Dog LDP Projection

0 0.25 0.5 1 Miles

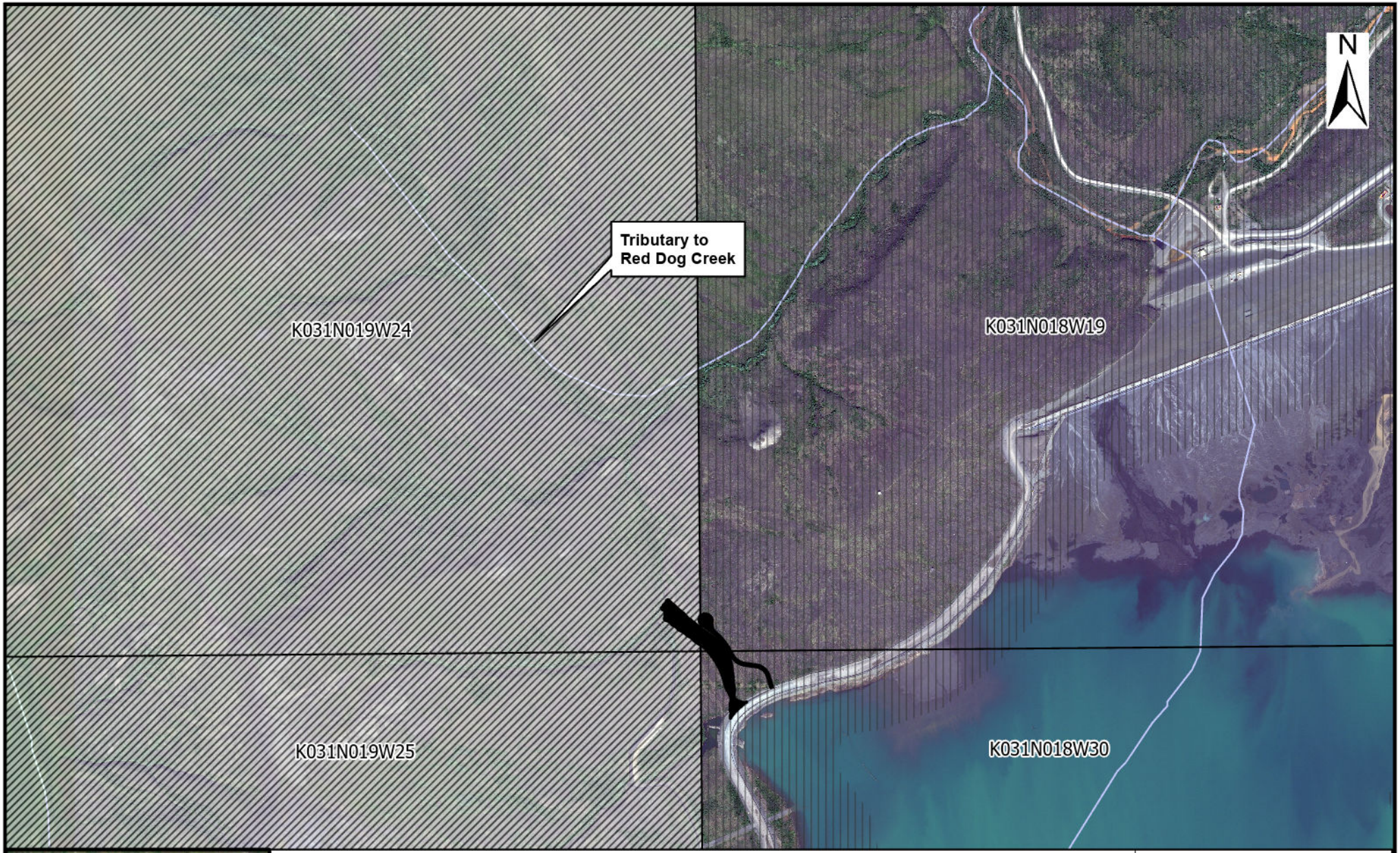
Northwest Arctic Borough
Title 9 Permit
Vicinity Map

Teck

FIGURE 1

Date : 2/11/2026

Scale: 1:35,000
1 inch equals 1 miles



Legend

- Proposed Project
- NHD Flowlines
- Anadromous Waters
- Township/Section/ Range
- State Ownership
- Native Ownership

Notes:
1. Background imagery is from July 26, 2025.
2. Red Dog LDP Projection

0 500 1,000 2,000 Feet

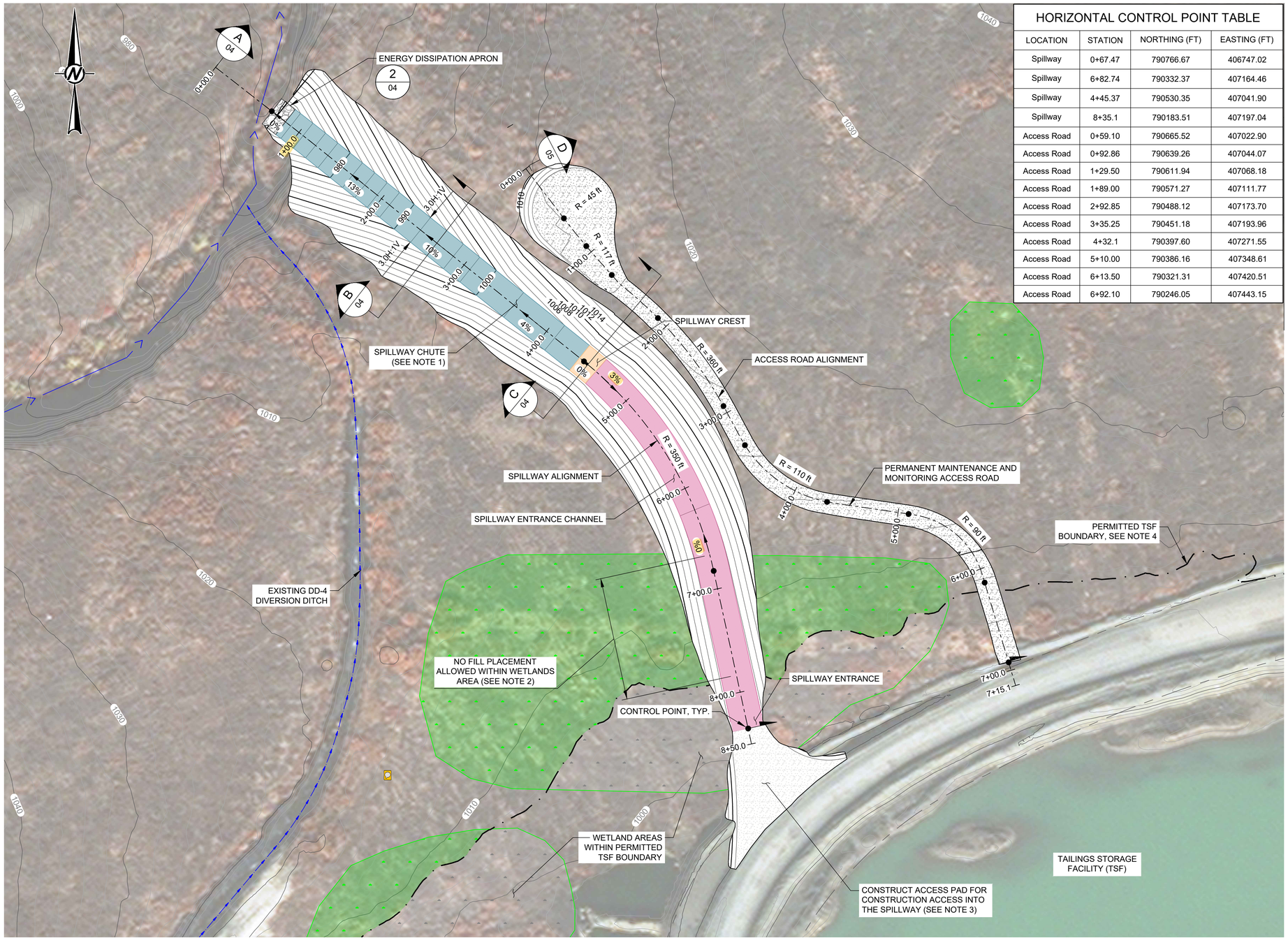
Northwest Arctic Borough
Title 9 Permit
Site Map

Teck

FIGURE 2

Date : 2/11/2026

Scale: 1:10,000
1 inch equals 833 feet



HORIZONTAL CONTROL POINT TABLE

LOCATION	STATION	NORTHING (FT)	EASTING (FT)
Spillway	0+67.47	790766.67	406747.02
Spillway	6+82.74	790332.37	407164.46
Spillway	4+45.37	790530.35	407041.90
Spillway	8+35.1	790183.51	407197.04
Access Road	0+59.10	790665.52	407022.90
Access Road	0+92.86	790639.26	407044.07
Access Road	1+29.50	790611.94	407068.18
Access Road	1+89.00	790571.27	407111.77
Access Road	2+92.85	790488.12	407173.70
Access Road	3+35.25	790451.18	407193.96
Access Road	4+32.1	790397.60	407271.55
Access Road	5+10.00	790386.16	407348.61
Access Road	6+13.50	790321.31	407420.51
Access Road	6+92.10	790246.05	407443.15

LEGEND

- EXISTING GROUND ELEVATION CONTOURS (2 FT INTERVAL)
- PROPOSED GROUND ELEVATION CONTOURS (2 FT INTERVAL)
- RED DOG CREEK TRIBUTARY CENTERLINE
- DIVERSION DITCH CENTERLINE
- SPILLWAY CHANNEL AND ACCESS ROAD ALIGNMENTS
- EXISTING WEST TAILS ROAD
- EL. 1007.4 FT CONTOUR - PERMITTED TSF BOUNDARY
- RIPRAP LINING
- ACCESS PAD AND GRAVEL ROAD
- WETLAND OUTSIDE PERMITTED TSF BOUNDARY (EL. 1007.4 FT CONTOUR)
- WETLAND INSIDE PERMITTED TSF BOUNDARY (EL. 1007.4 FT CONTOUR)
- SPILLWAY CHUTE
- SPILLWAY CREST
- SPILLWAY ENTRANCE
- CONTROL POINT

NOTE(S)

1. SPILLWAY CHANNEL (ENTRANCE, CREST, AND CHUTE) SHALL BE EXCAVATED TO LINES AND GRADES SHOWN IN THESE DRAWINGS
2. NO FILL MATERIAL PLACEMENT SHALL BE ALLOWED WITHIN THE WETLANDS OUTSIDE OF THE PERMITTED TSF BOUNDARY (APPROXIMATELY BETWEEN SPILLWAY STATIONS 6+55 AND 7+90). CONTRACTOR SHALL USE RIG MATS OR OTHER MEANS APPROVED BY THE CONSTRUCTION MANAGER TO PROTECT NATIVE SOILS FROM RUTTING/DEFORMATIONS WITHIN WETLANDS OUTSIDE OF PERMITTED TSF BOUNDARY.
3. CONSTRUCT SPILLWAY ACCESS PAD FROM EXISTING WEST TAILS ROAD TO SPILLWAY ENTRANCE TO ALLOW ACCESS INTO SPILLWAY DURING CONSTRUCTION.
4. CONSTRUCT SPILLWAY ACCESS ROAD OUTSIDE OF WETLANDS AND ALONG APPROXIMATE ALIGNMENT SHOWN. THE SPILLWAY ACCESS ROAD SHALL NOT BE CLOSER THAN 5 FT FROM EDGE OF SPILLWAY SIDE SLOPE.

REFERENCE(S)

1. AERIAL IMAGERY DATED SEPTEMBER 10, 2025 BY PHOTOSAT.
2. EXISTING GROUND TOPOGRAPHY FROM JULY 26, 2025 PHOTOSAT TOPOGRAPHY PROVIDED BY TAK.

NOT FOR CONSTRUCTION

DRAFT

0 50 100
1" = 50' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
A	2026-01-30	DRAFT	AS	BM	MC	SA

SEAL

CLIENT
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PROJECT
TSF EMERGENCY SPILLWAY
DETAILED DESIGN
RED DOG MINE, ALASKA

TITLE
PROPOSED SITE PLAN

PROJECT NO.	TASK	REV.	SHEET
31406197.4111	7001	A	3 of 5 3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1 in