## **Teck**

# Anarraaq and Aktigiruq Exploration Program

## Reclamation Plan

Prepared for

## **Teck American Incorporated**





SRK Consulting (U.S.), Inc. USPR002151 August 2025

# Anarraaq and Aktigiruq Exploration Program Reclamation Plan

August 2025

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## **Executive Summary**

This Reclamation Plan outlines Teck American Incorporated's (TAI's) approach to reclaiming both surface and underground components of the Anarraaq and Aktigiruq Exploration Program. Building on a previously approved plan, this updated version incorporates previous amendments and expands its scope to include underground exploration reclamation. The Reclamation Plan (Plan) reflects TAI's ongoing commitment to responsible land use and environmental stewardship, with reclamation activities set to begin immediately upon project completion.

The Plan is organized into eight sections that address regulatory requirements, project and site descriptions, detailed reclamation methods and schedules, cost estimates using the Standardized Reclamation Cost Estimator (SRCE), and post-reclamation monitoring. Supporting documentation and references are included to provide transparency and ensure compliance with State of Alaska reclamation standards. A brief summary of the contents of each section of this Plan is as follows:

- Section 1 Describes the purpose and scope of the Plan, including a summary of the contents of each section on the Plan, and applicant information, as well as all applicable State of Alaska reclamation and closure requirements.
- Section 2 Provides required applicant information.
- **Section 3** Provides a detailed project description, including location and land status information, as well as general environmental information.
- Section 4 Begins with a brief overview of the proposed Project and outlines the surface
  and underground components to be constructed for the Project. It details the location and
  land status of the property, and both current and proposed access to the site. This
  section also provides a more in-depth description of the surface components and
  associated disturbances, along with a sequence and schedule for all proposed
  construction activities.
- **Section 5** Describes State of Alaska reclamation requirements, reclamation performance standards, and temporary closure.
- Section 6 Describes the planned reclamation and closure activities, including, the
  reclamation methods, equipment, and schedule for reclaiming the access road,
  secondary and material site access roads, bridges, surface pads, material sites, and
  underground portal and ventilation openings. It also covers the post-reclamation
  monitoring that will be conducted by TAI.
- Section 7 Describes the reclamation cost estimate and bonding. Drawings of the
  reclamation along the road corridors are included in the SRCE Excel file. The estimated
  costs for temporary closure, reclamation, and post-closure monitoring were derived using
  the Standardized Reclamation Cost Estimator (SRCE) software. The Basis of Estimate
  Report which outlines the sources, assumptions, and methodology used in the cost
  estimation, is included in Appendix A to this Plan. Additionally, several supporting
  documents with more detailed information are referenced throughout the Plan.
- Section 8 Provides a comprehensive list of references used throughout the Plan.

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## **Appendices**

Appendix A – Basis of Estimate for the SRCE Model

### **List of Abbreviations**

AAC Alaska Administrative Code

ADEC Alaska Department of Environmental Conservation

ADNR Alaska Department of Natural Resources

AS Alaska Statute

BMP Best Management Practices

BOE Basis of Estimate
CMP Corrugated metal pipe

DMLW Division of Mining, Land and Water

MS Material Site

NDEP Nevada Department of Environmental Protection, Bureau of Mining Regulation and

Reclamation

NOT Notice of Termination
PAG Potentially acid generating

Plan Reclamation Plan

Project Anarraaq and Aktigiruq Exploration Program

QA/QC Quality Assurance/Quality Control

RDM Red Dog Mine

SRCE Standardized Reclamation Cost Estimate

TAI Teck American Incorporated USGS U.S. Geological Survey

#### **Units of Measure**

 $\begin{array}{ll} \text{ft} & \text{foot/feet} \\ \text{Mt} & \text{metric tonne} \\ \text{yd}^3 & \text{cubic yard} \\ \text{yd}^2 & \text{square yard} \end{array}$ 

#### 1 Introduction

Teck American Incorporated (TAI) is proposing the development of the Anarraaq and Aktigiruq Exploration Program (Project), an underground exploration program to evaluate the economic and technical feasibility of mining lead-zinc resources identified near upper Ikalukrok Creek and the Red Dog Mine (RDM) in northwest Alaska, known as the Anarraaq and Aktigiruq deposits (**Figure 1**). The Project will include the construction of surface and underground facilities and other regulated activities associated with the underground exploration program.

TAI is committed to protecting the environment and the people living near the Project area. As part of this commitment, TAI has developed this Reclamation Plan (Plan) which details the orderly closure of the Project and reclamation of all disturbed areas. This Plan has been prepared in accordance with State of Alaska requirements, as provided by Alaska Statute (AS) 27.19 and Alaska Administrative Code 11 AAC 97, for reclamation and reclamation bonding and is intended to present the proposed reclamation activities in sufficient detail for regulatory agency review and approval.

#### 1.1 Purpose of Reclamation Plan

Reclamation of the proposed Anarraaq and Aktigiruq Exploration Program falls under the jurisdiction of the Alaska Department of Natural Resources (ADNR), Division of Mining, Land and Water (DMLW), Mining Section.

This document presents a revised comprehensive Reclamation Plan for the entirety of the Project, including surface and underground infrastructure and developments. This Plan has been updated from the previous Plan, approved by the State of Alaska in August 2022 (No. F20229339RPA), to address changes to scope of the exploration program. The previously approved Plan and amendments (No. F20229339RPA.01, F20229339RPA.02, and F20229339RPA.03) outlined the reclamation of all surface components of the project including the access road to the proposed underground exploration area, secondary access and material site access roads, surface pads, and material sites. This revised comprehensive Plan includes all previously approved reclamation activities, and all activities associated with underground development, including the portal, twin declines, and ventilation shaft. This Plan is limited to describing the reclamation of all components associated with the exploration development in the event that the Project does not advance beyond underground exploration.

The purpose of this Reclamation Plan is to provide guidelines for implementing reclamation procedures for the roads, surface pads, bridges, material sites, underground access portals, ventilation opening, and all other support infrastructure associated with the proposed Anarraaq and Aktigiruq Exploration Program. These guidelines are based on the best available reclamation technologies and practices. This Plan describes the procedures and processes used to return land disturbed by exploration activities to a stabilized condition providing long-term protection of land and water resources as required by Alaska Statute (AS) 27.19 and Alaska Administrative Code (AAC), Title 11 and Chapter 97.

This Plan describes the schedule for reclamation activities, general reclamation procedures, and the methods for achieving the final closure requirements and objectives. Further, this Plan serves as a basis for calculating reclamation costs and the amount of financial assurance necessary to satisfy bonding requirements per AS 27.19.040(a) and 11 AAC 97.400.

#### 1.2 Scope of Reclamation Plan

This Reclamation Plan describes the reclamation activities necessary for the development of the exploration program from initiation through commencement. Facilities included in this Plan include the main access road, secondary roads and material site access roads, bridges, laydown pads, camp and portal pads, vent raise pads, material sites, underground access portals, ventilation shaft and support infrastructure. Construction of the access road began in December 2024 and will continue through the summer of 2026 when the final compacted crown of the road will be completed. Underground exploration is anticipated to begin in 2028 and conclude in 2030, at which point TAI will determine if the Project advances beyond underground exploration. The general location and components of the Project are shown in **Figure 1** and the mining claims associated with the Project are shown in **Figure 2**. The remaining figures (**Figures 3 – 9**) represent a detailed view of the project development and reclamation activities covered under this Plan.

This Plan describes the activities required to reclaim all components of the proposed Project and provides a cost estimate for completing these reclamation activities. This Plan considers reclamation of the access road, secondary roads, material site access roads, surface pads, material sites, temporary surface structures, and underground access and ventilation openings. **Section 6** describes the activities planned for the closure period.

This Plan and accompanying Appendix are intended to present the proposed reclamation activities in sufficient detail for regulatory agency review and approval.

## 2 Applicant Information

As required by 11 AAC 97.310(b)(1), the following provides contact information for the designated agent and all owners, operators, or leaseholders of the mining operation.

## 2.1 Corporate Officer Completing Application

Name: Jacob Rowland

Manager: Lead, Regulatory Approvals

Telephone: (907) 229-7527 Date: June 2025

#### 2.2 Designated Contact Person

Name: Jacob Rowland

Manager: Lead, Regulatory Approvals

Telephone: (907) 229-7527

#### 2.3 Corporate Information

Business Name: Teck American Incorporated
Address: 501 N Riverpoint Blvd., Suite 300

Spokane, Washington 99202

Telephone: (509) 747-6111
President: Brock Gill
Vice President: Karla Mills
Treasurer: Tammy Nelson

Secretary: Deanna Willman (General Counsel)

Signing Officer: Mary Mitchener

Directors: Brock Gill, Tom Appleman, Anissa Bay, Dave Enos

#### 2.4 Alaska Registered Agent

Name C T Corporation Service Company Address: 8585 Old Dairy Road, Suite 208

Juneau, AK 99801

## 3 Project Description and Location

#### 3.1 Project Description

TAI is proposing the development of an advanced stage underground exploration program to evaluate the economic and technical feasibility of mining lead-zinc resources identified near upper Ikalukrok Creek and the Red Dog Mine (RDM) in northwest Alaska, known as the Anarraaq and Aktigiruq deposits (**Figure 1**).

The project involves the development of infrastructure to support an underground exploration program. This includes the construction of an access road with multiple bridge crossings, secondary roads, surface pads, material sites, underground access and ventilation openings, and other related activities. Further details about the exploration program are provided in the amended Plan of Operations Modification for the Anarraaq and Aktigiruq Exploration Program (TAI 2025). See **Section 4** for a more detailed description of the Project and its components.

This Plan expands on the document originally submitted to and approved by ADNR in 2022 for reclamation of all surface components of the Project and now covers reclamation of both the surface and underground components of the Project.

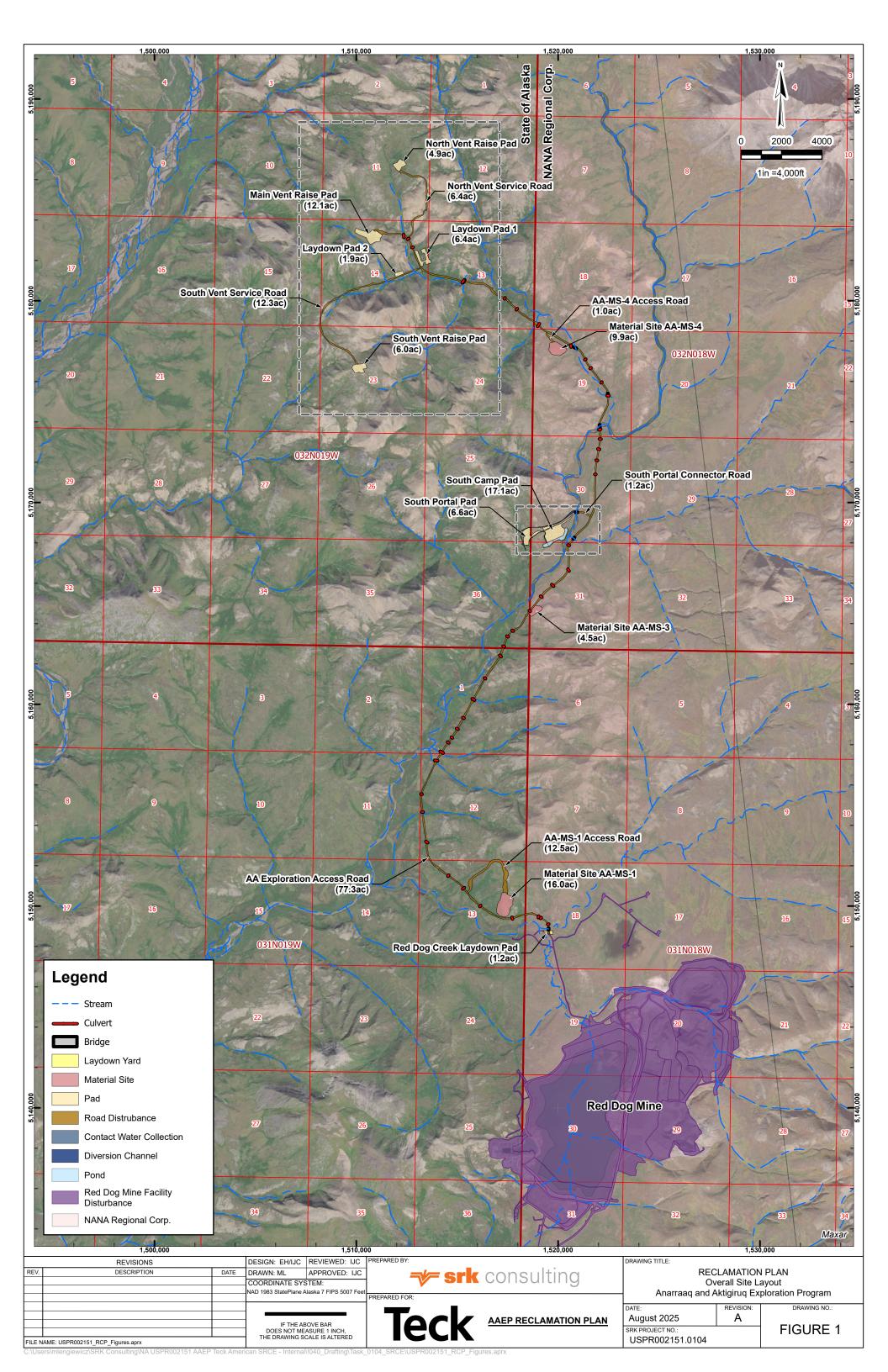
### 3.2 Location, Land Status, and Property Description

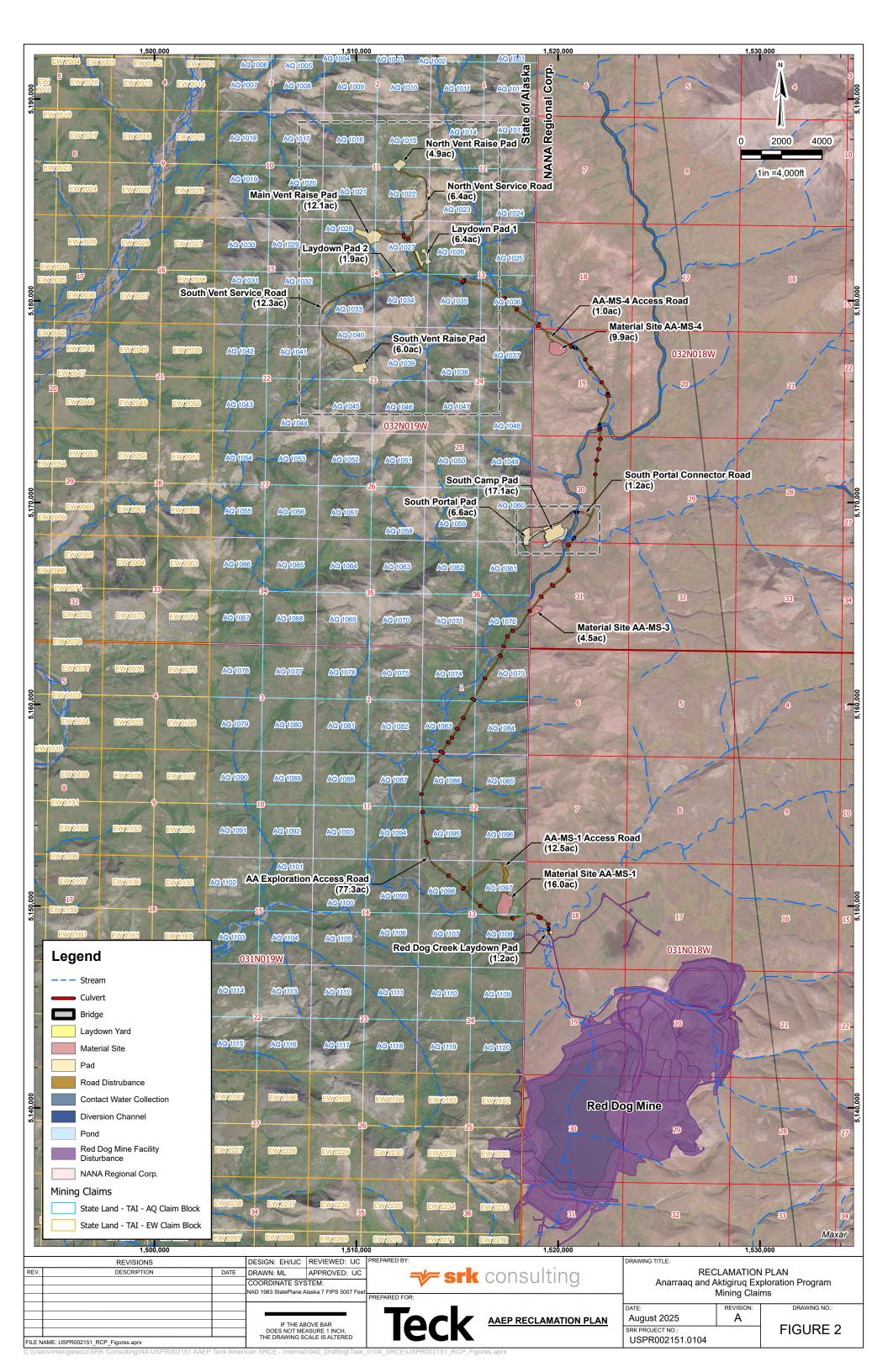
The Project site is located approximately 51 miles northeast of Kivalina and 8 miles north of the existing Red Dog Mine (**Figure 1**). The proposed project is within the Delong Mountains A-2 1:63,360 U.S. Geological Survey (USGS) quadrangle of the Delong Mountains 1:250,000 quadrangle map. The exploration property is situated within four townships including Township 31 North, Range 18 West, Section 18; Township 31 North, Range 19 West, Sections 1, 12, and 13; Township 32 North, Range 18 West, Sections 18, 19, 30, and 31; and Township 32 North, Range 19 West, Sections 11, 12, 13, 14, 15, 22, 23, 25 and 36 of the Kateel River Meridian (**Figure 1**).

There is currently no existing overland access to the exploration area; however, TAI began constructing a single lane exploration access road to the site in December 2024. The exploration access road for the Project begins near the terminus of the existing Fish Weir Road below the Tailings Storage Facility at Red Dog Mine and extends in a northerly direction for approximately 9.3 miles along Ikalukrok Creek and the West Fork Ikalukrok Creek to the proposed Anarraaq and Aktigiruq exploration area (**Figure 1**). The access road route crosses State land where TAI owns State mining claims (**Table 1 and Figure 2**) but also includes two segments that cross NANA land in Township 31 and 32 North, Range 18 West (**Figure 1**). NANA has provided written approval to construct the exploration access road segments on their land under a separate agreement between TAI and NANA. The proposed exploration project is wholly owned and operated by TAI, a separate legal entity from Teck Alaska who owns and operates the existing Red Dog Mine.

**Table 1. Project Area Mining Claims** 

ADL No.	Claim Name	Location Date	MTRS Quarter Section
725339	AQ 1021	07/Sep/2017	Kateel River, 32N 19W, 11, SW
725340	AQ 1022	07/Sep/2017	Kateel River, 32N 19W, 11, SE
725341	AQ 1023	07/Sep/2017	Kateel River, 32N 19W, 12, SW
725343	AQ 1025	07/Sep/2017	Kateel River, 32N 19W, 13, NE
725344	AQ 1026	07/Sep/2017	Kateel River, 32N 19W, 13, NW
725345	AQ 1027	07/Sep/2017	Kateel River, 32N 19W, 14, NE
725346	AQ 1028	07/Sep/2017	Kateel River, 32N 19W, 14, NW
725350	AQ1032	07/Sep/2017	Kateel River, 32N 19W, 15, SE
725351	AQ 1033	07/Sep/2017	Kateel River, 32N 19W, 14, SW
725352	AQ 1034	07/Sep/2017	Kateel River, 32N 19W, 14, SE
725353	AQ 1035	07/Sep/2017	Kateel River, 32N 19W, 13, SW
725354	AQ 1036	07/Sep/2017	Kateel River, 32N 19W, 13, SE
725355	AQ 1037	07/Sep/2017	Kateel River, 32N 19W, 24, NE
725358	AQ 1040	07/Sep/2017	Kateel River, 32N 19W, 23, NW
725359	AQ 1041	07/Sep/2017	Kateel River, 32N 19W, 22, NE
725378	AQ 1060	07/Sep/2017	Kateel River, 32N 19W, 25, SE
725379	AQ 1061	07/Sep/2017	Kateel River, 32N 19W, 36, NE
725390	AQ 1072	07/Sep/2017	Kateel River, 32N 19W, 36, SE
725391	AQ 1073	07/Sep/2017	Kateel River, 31N 19W, 1, NE
725392	AQ 1074	07/Sep/2017	Kateel River, 31N 19W, 1, NW
725401	AQ 1083	07/Sep/2017	Kateel River, 31N 19W, 1, SW
725402	AQ 1084	07/Sep/2017	Kateel River, 31N 19W, 1, SE
725404	AQ 1086	07/Sep/2017	Kateel River, 31N 19W, 12, NW
725405	AQ 1087	07/Sep/2017	Kateel River, 31N 19W, 11, NE
725412	AQ 1094	07/Sep/2017	Kateel River, 31N 19W, 11, SE
725413	AQ 1095	07/Sep/2017	Kateel River, 31N 19W, 12, SW
725415	AQ 1097	07/Sep/2017	Kateel River, 31N 19W, 13, NE
725416	AQ 1098	07/Sep/2017	Kateel River, 31N 19W, 13, NW
725417	AQ 1099	07/Sep/2017	Kateel River, 31N 19W, 14, NE
725425	AQ 1107	07/Sep/2017	Kateel River, 31N 19W, 13, SW
725426	AQ 1108	07/Sep/2017	Kateel River, 31N 19W, 13, SE





#### 3.2.1 General Environmental Information

The Project area is generally low mountainous terrain with taiga and tundra type biomass, interstitial to rocky outcroppings and talus slopes. Existing soils found within the project disturbance limit include alluvial, colluvial, organic rich (wetland soils), and rock outcroppings (Golder 2017). Vegetation generally consists of willow, dwarf birch, alder, and other lowland type grasses, lichens, and mosses. Growth media/topsoil is very limited in depth and occurrence and generally only found near the lower slopes. Ephemeral and perennial streams are present throughout the course of the road alignment and exploration project site.

The project is in a Sub-Arctic environment underlain by permafrost. Precipitation in the region is generally low, ranging from 12-15 inches per year including rain and snowfall (HDR 2017).

Major stream courses found within the project vicinity include Red Dog Creek, Ikalukrok Creek (main stem), East and West Fork of Ikalukrok Creek, and Grayling Jr. Creek. Ikalukrok Creek is a major tributary to the Wulik River, converging approximately 30 miles to the southwest.

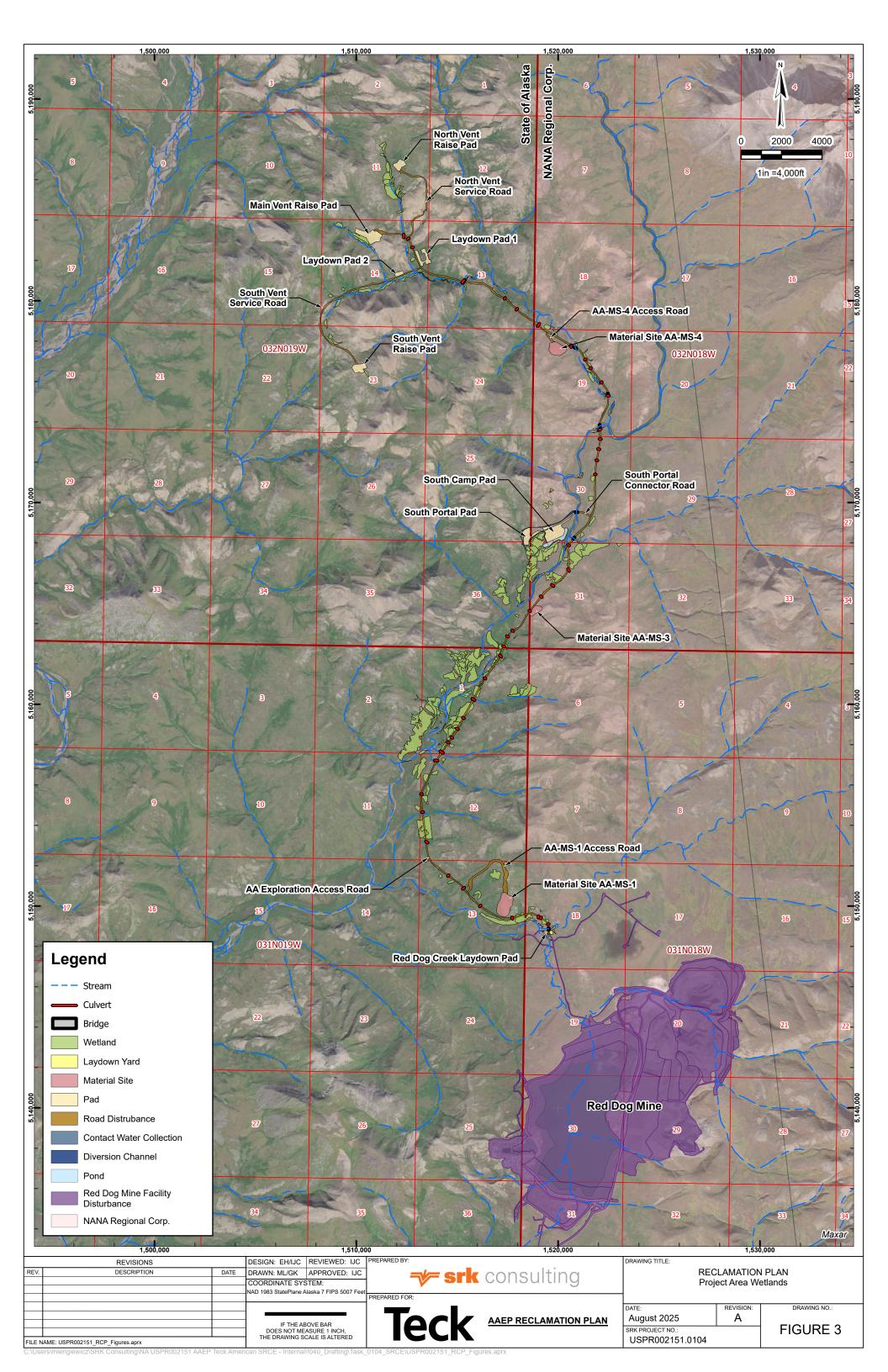
#### 3.2.2 Wetlands

As confirmed by recent wetlands delineations conducted by Stantec in 2022 and 2023, the project area is dominated by wetlands, primarily consisting of shrub communities, particularly dwarf, low, and willow shrubs. Deciduous shrubs dominate the wetland vegetation, while herbaceous wetlands (like sedge and horsetail) make up a small portion—less than 2% of the area and 7.7% of the total wetlands. Ponds and streams cover 2.2% of the area.

Wetlands are classified as slope, riverine, and depressional types:

- **Slope wetlands**, the most common, are found on steep terrain and fed by groundwater, interflow, and precipitation.
- Riverine wetlands are found along active floodplains and riparian zones of local streams and creeks.
- Depressional wetlands are located in isolated basins with perched water above permafrost.

All streams eventually flow into the Wulik River and then the Chukchi Sea, making them jurisdictional under the Clean Water Act. Similarly, all wetlands are considered jurisdictional due to their surface hydrologic connections to stream systems. Wetlands within the Project vicinity are depicted on **Figure 3**.



## 4 Project Components and Construction

As described in TAI's Plan of Operations Modification (TAI 2025), the Project entails the following:

- Continued construction of approximately 9.3 miles of authorized exploration access road (AA-Exploration Access Road) starting from the Fish Weir Road at the Red Dog Mine and extending along Ikalukrok Creek to the proposed Main Vent Raise Pad (previously authorized as North Camp Pad).
- Constructing approximately 3.6 miles of secondary roads to connect the AA-Exploration
  Access Road to previously permitted surface pads and Material Sites described below.
  Constructing approximately 0.2 miles of road to connect the AA-Exploration Access Road
  to the newly proposed South Portal Pad, located approximately 4 miles from the terminus
  of the access road described below.
- Constructing eight surface pads (including the South Portal Pad, the South Camp Pad, three ventilation raise (vent raise) pads, and three laydown pads),
- Development of an underground access portal, twin declines, and a single ventilation opening,
- Developing two material sites (AA-MS-3 and AA-MS-4), including blasting and crushing, on NANA land and one (0.1 acres of AA-MS-3 crosses onto State land) and one (AA-MS-1) on TAI owned and operated State mining claims to provide sufficient material for road and surface pad construction, and
- Reclamation, including a reclamation cost estimate for the reclamation of the AA-Exploration Access Road, secondary roads, surface pads, Material Sites, and underground access and ventilation openings on State mining claims and NANA land.

For simplicity, Project components are broken into five major categories in this Reclamation Plan:

- 1. Access and secondary roads,
- 2. Surface pads for laydown pads, the South Portal Pad, the South Camp Pad, and a single ventilation raise,
- 3. Water management structures (ponds and channels),
- 4. Underground workings and support infrastructure, and
- 5. Material Sites.

These components are discussed in more detail in the following subsections. The surface disturbance acreages associated with each component of the proposed project and the surface disturbance by land ownership are summarized in **Table 2**.

Best Management Practices (BMPs) will be implemented to reduce erosion and sedimentation of disturbed areas during construction, operation, and reclamation activities.

Facility Type	Disturbance Area (Acres)**	NANA Land (Acres)**	State Land (Acres)**
Access and Secondary Roads	110.8	31.7	79.0
Material Sites	30.4	14.3	16.1
Surface Pads	56.2	18.3	38.0
Water Management Structures	9.1	8.4	0.7
Total Disturbance	206.5	72.7	133.8

**Table 2. Project Surface Disturbance Summary** 

#### 4.1.1 Exploration Access Road and Secondary Roads

An approximately 9.3-mile access road is required to connect RDM to the proposed Anarraaq and Aktigiruq exploration area. The access road for the Project begins near the terminus of an existing ancillary road for Red Dog Mine (RDM) near the bank of Red Dog Creek, see **Figure 1**. The road continues in a northerly direction crossing both State lands and NANA lands before arriving at the Anarraaq and Aktigiruq deposit location to the north. In addition to the exploration access road, secondary roads are required to access various surface pads and designated material sites. All roads are intended to be temporary. The design parameters will support construction traffic and anticipated daily exploration traffic. The design anticipates subsidence of underlying soils along the roadway, requiring maintenance throughout the summer season as the active layer thaws.

Much of the roadway will be constructed as a fill embankment; however, some areas are designed with cut-to-fill or full cut sections (Kuna 2022). Depth of fill is contingent upon underlying soil stability and grade requirements. Depths of fill range between one (1) foot minimum to ten or more (10+) feet near stream crossings. Depths of cuts range from one (1) to more than twenty (20+) feet in areas of cut along the roadway and borrow areas. Growth media may be found in limited usable quantities and where practical it may be separated and stockpiled for future reuse during reclamation, although vegetation and root mass in this alpine environment is quite minimal.

Construction of the access and secondary roads require snow be cleared and minimal removal prior to installation of fill. Shrubs and small diameter woody vegetation will be rolled flat prior to installation of geotextile fabric or cut at the ground surface, with careful consideration to not disturb underlying soils (Golder 2017). A shallow lift of fill material may be required to protect the geotextile fabric from punctures prior to placement of the structural fill in areas of thick woody vegetation. Geotextile will be provided under the embankment, either as separation of fill on exiting grade or fill on cut (Kuna 2022).

<sup>\*\*</sup>Values are derived from areas calculated from Kuna, Ausenco, Stantec, and SRK design drawings specific areas are illustrated in figures of the Basis of Estimate (Appendix A). Allow minor variations for rounding.

Six major stream crossings are included in the proposed access road design. To avoid or minimize detrimental effects on fish and fish habitat, TAI will install six steel span, truss-supported, bridges where the exploration access road crosses large streams, including Red Dog Creek, Grayling Jr. Creek, Ikalukrok Creek (three crossings), and East Fork Ikalukrok Creek where the streams are known to support Arctic Grayling and Arctic Char. The West Fork Ikalukrok Creek crossing near the northern exploration facilities will be constructed using fill and large diameter culverts. In addition to the bridges, drainage is conveyed in strategically placed corrugated metal pipe (CMP) culverts installed at minor stream crossings and in areas where drainage will otherwise be impeded by the road. This reclamation plan incorporates reclamation for the main access road and all secondary roads.

#### 4.1.2 Surface Pads

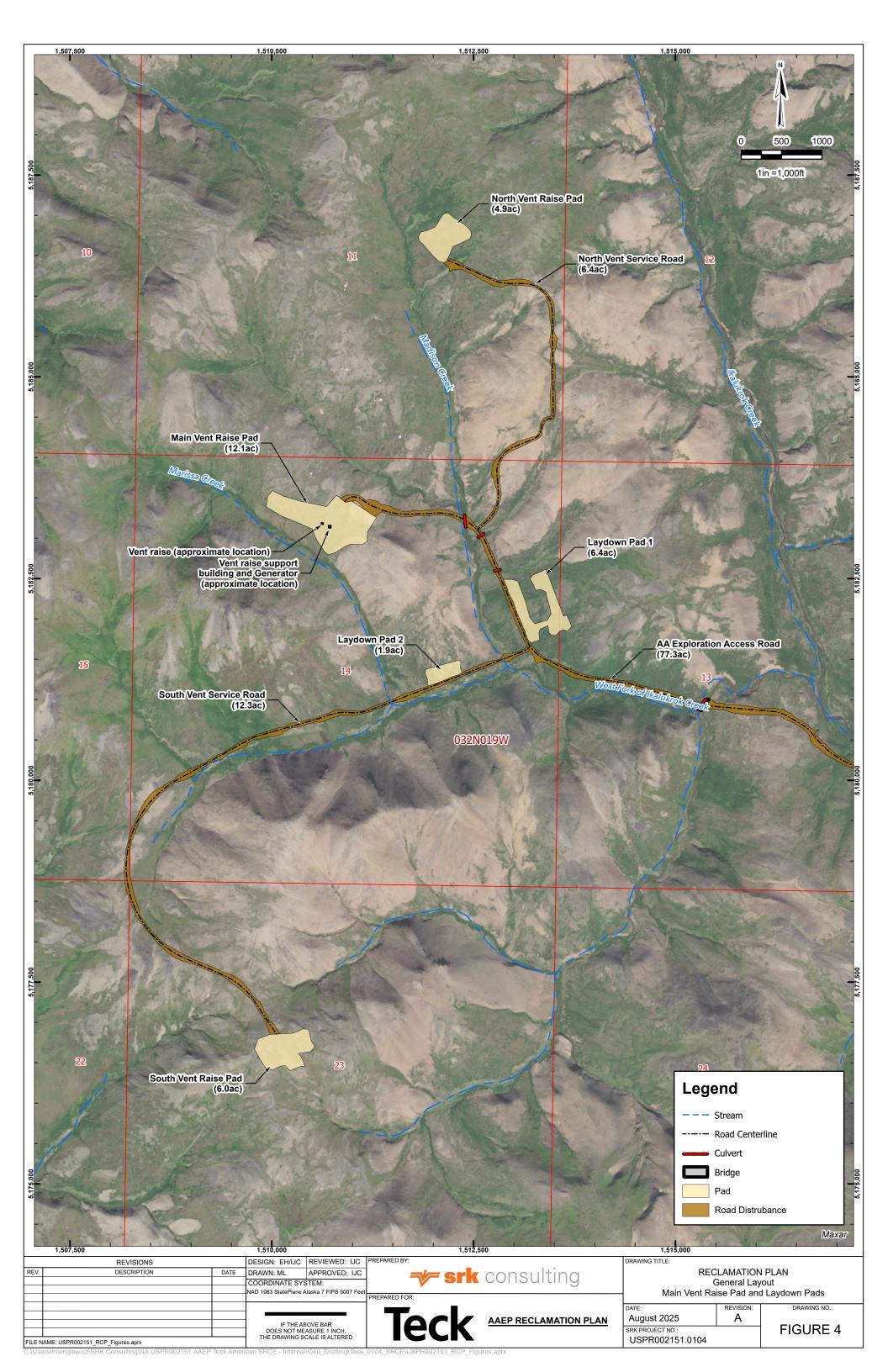
Construction of surface facilities requires the development of seven surface pads which include five laydown areas (Red Dog Creek Laydown Pad, Laydown Pad 1, Laydown Pad 2, North Vent Raise Pad, and South Vent Raise Pad), a portal pad (South Portal Pad), and camp pad (Camp Pad), and a single ventilation raise pad (Main Vent Raise Pad). This Plan addresses reclamation of these pads. **Figure 4** illustrates the general arrangement of the proposed Main Vent Raise Pad and laydown areas at the north end of the access road. **Figure 5** illustrates the South Portal and South Camp Pad. Cut and fill construction methods will be employed to construct these pads, or as required, using material sourced from one of the material sites. All surface pads are connected to the exploration access road by secondary roads. The portal pad, camp pad, vent raise pad, and laydown pads will consist of at least 3 feet of general embankment fill from the material sites, capped with material suitable to create a driving surface. These pads will be constructed on uplands, where settling and thermal instability is not a concern. This Plan incorporates reclamation of the surface pads.

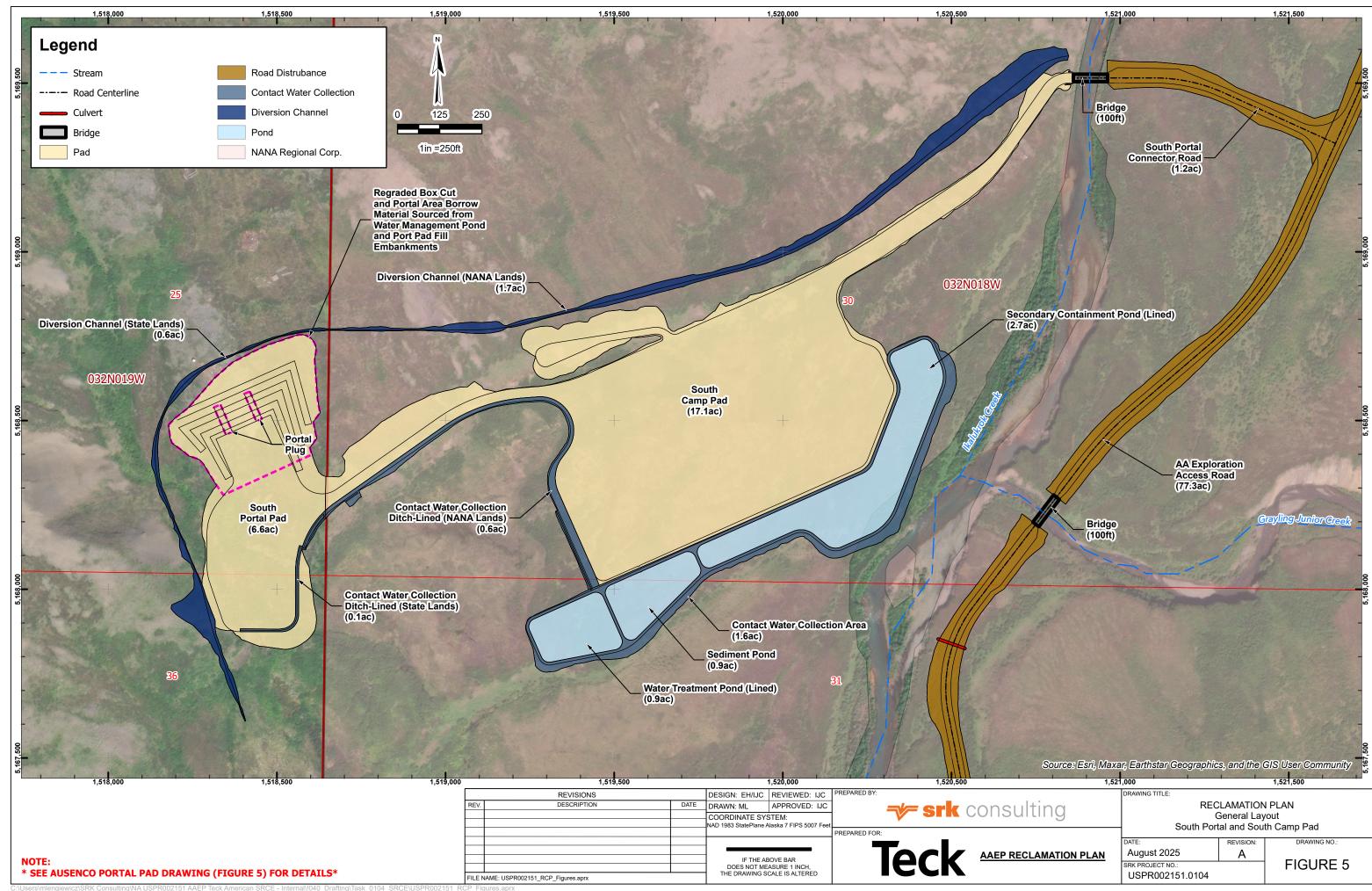
#### 4.1.3 Material Sites

Three material sites will be developed to supply material for construction of the access road, secondary roads, and surface pads. In addition, fill material may be sourced from cut areas at the pads and along the roads. The material sites are all on uplands and the material consists of variably weathered shale, chert, quartzite, limestone, and/or limey sandstone. Material will be blasted, excavated, and some will be passed through a stationary grizzly before being hauled for use in road and pad construction. Some material will also be processed through a crusher. Any potentially acid generating (PAG) material that is excavated will be managed in accordance with TAI's approved Construction Rock Handling Plan (Handling Plan). Material Site AA-MS-1 is on State land while material sites AA-MS-3 and AA-MS-4 are on NANA land (**Figure 1**). This Reclamation Plan incorporates reclamation of all three material sites.

The material sites were selected on the basis of geochemical data that indicate they are likely comprised of non-PAG material. However, at the initial development of each of the material sites, and at any time when mineralized material is identified in a site, TAI will characterize the material as PAG or non-PAG in accordance with the Handling Plan approved by ADEC. If significant PAG is identified the site will likely be abandoned and eventually reclaimed. There is no scenario where TAI will develop a site that results in a PAG highwall. Any small volumes of PAG that are

excavated to access non-PAG material will be removed to temporary storage at AA-MS-1 in accordance with the approved Handling Plan.





#### 4.1.4 Underground Access Portal and Ventilation Opening

Due to the depth of the Anarraaq and Aktigiruq deposits, an underground twin decline is necessary to further advance resource definition drilling. The underground declines will allow TAI to drill closer to the mineralized zones. Access to underground development will be through a portal located approximately three miles from the start of the access road. The portal will be approximately 18 feet (ft) high by 19 ft wide. The declines will be advanced into the Aktigiruq deposit located northwest of the proposed portal. The two declines will allow for dedicated traffic in each direction with minimal disruption to exploration activities.

Construction of the twin decline is expected to begin in Q1 of 2028 and will take approximately three years to complete. In total, construction of the twin decline is expected to produce approximately 1.5 million metric tonnes (Mt) of waste rock. Approximately 416,000Mt of waste rock will be generated annually between 2028 and 2030. Waste rock will be stored on a temporary waste rock stockpile near the portal before being transported to and disposed of at an approved disposal facility at Red Dog Mine.

A ventilation shaft is necessary to support the underground exploration program due to the air requirements for diesel equipment, service bays, shaft heaters, and other equipment. Ventilation will initially be provided through a single ventilation raise, which connects to the surface at the Main Vent Raise Pad, located north of the South Portal Pad (**Figure 4**).

After the initial access drifts into the deposit are completed, a permanent ventilation shaft will be bored near the center of the deposit. This shaft will serve as the primary exhaust vent for the rest of the underground exploration activities. Shotcrete may be applied to the box cut and underground workings for geotechnical stability and left in place for closure. Shotcrete would be sourced from a temporary concrete batch plant that will be decommissioned and removed at closure.

#### 4.1.5 Surface Buildings and Infrastructure

Temporary structures will be located on the portal pad as well as the ventilation raise pad. The majority of the infrastructure will be located on the South Portal and South Camp Pads. Buildings on the South Portal Pad will include a portal pad area with dual portals, a powder magazine, a detonator magazine, a concrete batch plant, diesel fuel storage, and a diesel generator and compressor. Other surface infrastructure on the South Portal Pad will include a temporary waste rock stockpile, a truck waste, and diesel fuel storage. Buildings on the South Camp Pad will include an exploration camp, dry/cold food storage, contractor offices, a first aid facility, a maintenance shop, covered/heated storage, a core shack, a sewage treatment plant, and a water treatment plant. Other surface infrastructure on the South Camp Pad will include parking, a truck wash, a helicopter pad, diesel generators and compressors, and bulk storage (Ausenco 2025). Water management on the site includes a sediment pond, a lined water treatment pond, a lined secondary containment pond, lined contact water collection ditches, and a diversion channel. The Main Vent Raise Pad will have one building to house the fan and other necessary equipment (Figure 4). Detailed descriptions of the buildings and infrastructure to be located on the South

Camp Pad and Main Vent Raise Pad can be found in the Plan of Operations Modification (TAI 2025) and a detailed layout of the facilities on the Portal Pad are included in **Figure 6**.

The structures will consist of modular construction camp and office facilities, as well as steel truss tent frame structures for equipment storage and maintenance. Permanent foundations are not expected at this time. Buildings will be constructed using pre-cast foundation supports, small diameter piles or small concrete anchor pads as needed. Interior floors for tent structures will consist of crushed gravel or compacted soils. Select buildings will have cast concrete slabs to provide a hard, durable surface for housekeeping and maintenance activities. Various modular support structures may be constructed on site as needed to support activities. Shaft heaters and ventilation fans will be placed near the portal and/or the ventilation raise as needed to support underground operations.

Fuel will be supplied to the portal area via tanker truck and stored in one of the temporary storage tanks located near the portal. A fueling station will be constructed using best management practices (BMPs) including a lined collection sump or some other technology to contain fuel spills. Minor concrete pads may be constructed as to support fueling activities.

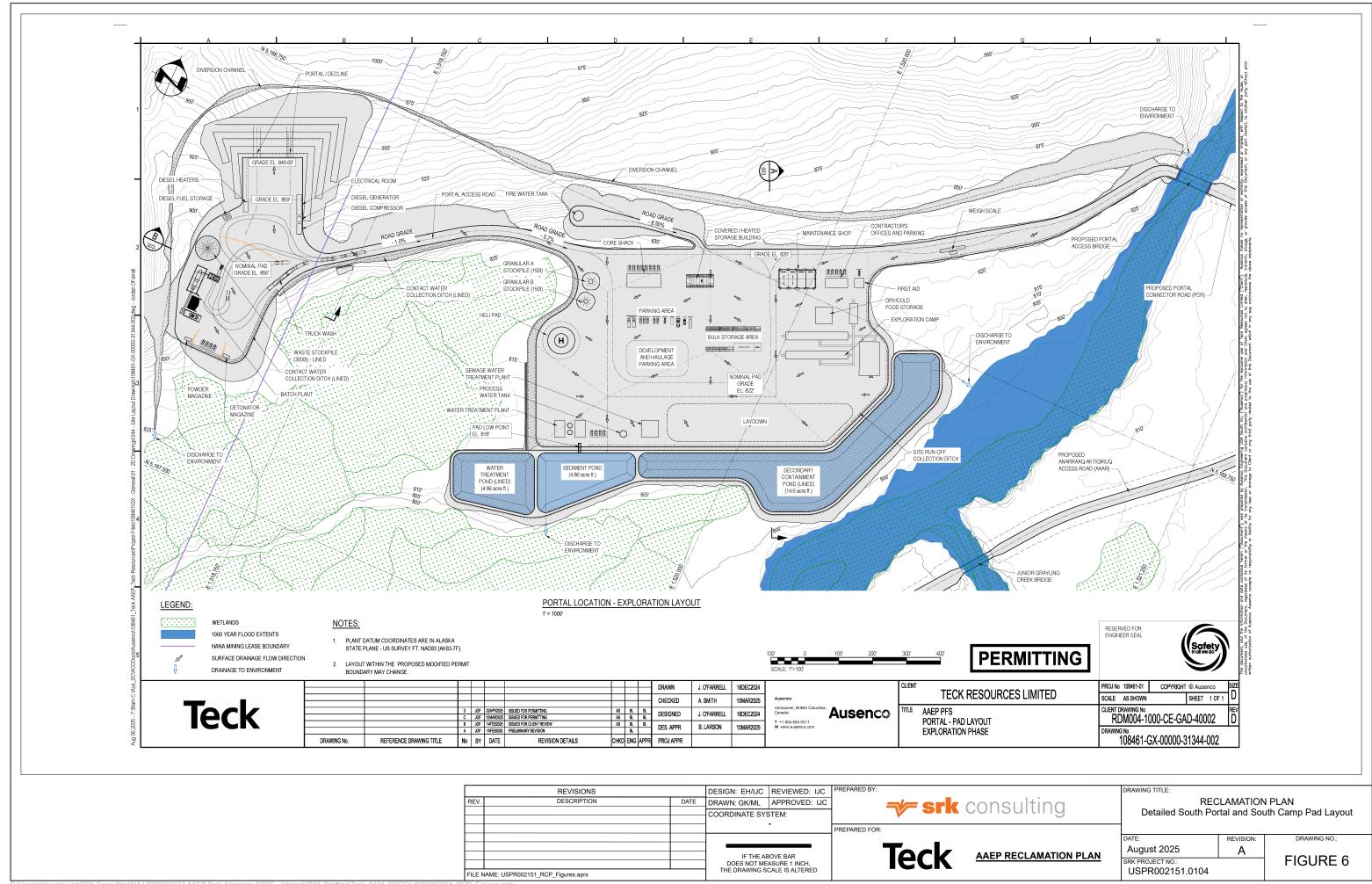
#### 4.1.6 Stormwater Management

Surface runoff from the portal and camp pad areas will be conveyed to a small stormwater management pond located southeast of the camp pad. The pond will be designed to attenuate runoff and settle suspended solids prior to release to the environment. Any impacted water not meeting water quality requirements will be treated appropriately using BMPs prior to discharge.

Diversion channels and berms will be placed around the facility to divert run-on from entering developed areas as needed. Discharge of diverted runoff will be stabilized using BMPs.

#### 4.1.7 Water Treatment and Collection

Water treatment will be necessary during underground exploration and the first year of reclamation. A reverse osmosis (RO) water treatment plant, located on the south camp pad, will be used to treat contact water, consisting of water collected from underground and surface facilities. Treated water will be discharged to the environment, while the brine byproduct from the RO process will be transported by tanker or dump trucks to Red Dog for disposal within a permitted facility. A scoping-level water management strategy has been developed for the project, which includes plans for the on-site treatment plant (Stantec 2023a). Detailed water management and treatment procedures are outlined in the Project's Water Management Plan.



## 5 Alaska Reclamation Requirements

#### 5.1 General

Alaska Statute (AS) 27.19, the Reclamation Act, applies to State, federal, municipal, and private land and water subject to mining operations. This statute is administered by ADNR. The Reclamation Act states that "a mining operation shall be conducted in a manner that prevents unnecessary and undue degradation of land and water resources, and the mining operation shall be reclaimed as contemporaneously as practicable with the mining operation to leave the site in a stable condition" that allows for the reestablishment of renewable resources on the site within a reasonable period by natural processes. Alaska Administrative Code 11 AAC 97.240 further states "a miner shall reclaim a mined area that has potential to generate acid rock drainage (acid mine drainage) in a manner that prevents the generation of acid rock drainage or prevents the offsite discharge of acid rock drainage."

An approved reclamation plan is required by the State mining regulations 11 AAC 97.300 – 97.350. Pursuant to 11 AAC 97.310(a), miners must submit a proposed reclamation plan that is correct and complete to the best of the miner's knowledge and has been signed and dated by the miner or the miner's designee prior to starting mining operations. The reclamation plan does not become effective until a performance (reclamation) bond is in place. The performance bond amount shall be set at a level not more than an amount reasonably necessary to ensure the faithful performance of the requirements of the reclamation plan. 11 AAC 97 applies to the approval of reclamation plans, reclamation bonding, and the enforcement of reclamation requirements under AS 27.19 for locatable mineral, leasable mineral, and material mining operations on State, federal, municipal, and private land.

Reclamation performance standards are regulated under 11 AAC 97.200-250. The performance standards that are relevant to this project (because of the limited project scope) and addressed in this Reclamation Plan include 11 AAC 97.200, 97.210, 97.220, 97.240, and 97.250. These regulations address land reclamation performance standards, disposal of buildings structures and debris on State, federal, and private land, acid rock generation, and reclamation of material sites. The reclamation activities described in this Plan will meet the requirements of these regulations.

#### 5.2 Reclamation Performance Standards

Reclamation performance standards are regulated under 11 AAC 97.200-250. The performance standards that are relevant to this project (because of the limited project scope) and addressed in this reclamation plan include 11 AAC 97.200, 97.210, and 97.250. These regulations address land reclamation performance standards, disposal of buildings structures and debris on state, federal, and private land, and reclamation of material sites. The reclamation activities described in this Plan will meet the requirements of these regulations.

#### 5.3 Temporary Closure

Temporary closure means the planned or unplanned cessation of operations for a period of not more than three years. If conditions require temporary closure to extend beyond three years, final

reclamation will begin, unless an extension is requested by TAI and approved by ADNR and ADEC. Temporary closure scenarios that require modifications to the Plan of Operations, Reclamation Plan, or 404 Permit will be coordinated with the appropriate Federal and State agencies for approval.

Planned temporary closures typically have specific conditions defining their beginning and end, and include, but are not limited to, the following:

- Interruptions in the active beneficiation processes to provide planned periods of quiescence for metallurgical or operating reasons.
- Any other planned condition, which would interrupt the active beneficiation process including modification to process components or suppressed metal market conditions.
- Change in ownership requiring the temporary cessation of operations while operating permits are transferred to the new owner/operator.

Unplanned temporary closures may include, but are not limited to, the following:

- Closure because of unforeseen weather events
- A failure in a major system component or a process failure, which causes the fluid management system, or a portion thereof, to shut down.
- The cessation of operations because of litigation.
- Bankruptcy of the mine operator

TAI shall notify the Authorized Officer (ADNR, the Director of the Division of Mining, Land and Water or a designee) in writing at least 30 days prior to any planned temporary closure of 90 days or longer. TAI shall notify the Authorized Officer of any unanticipated temporary closure expected to last 90 days or more within 10 days of the first day of the temporary closure. The notice shall state the nature and reason for the temporary closure, the anticipated duration of the temporary closure, what actions will be taken to maintain compliance with project permits and plan approvals, and any event which would reasonably be anticipated to result in the resumption of mining or the permanent cessation of mining. Mining operations must resume for not less than 90 consecutive days in order to terminate the temporary closure status.

## 6 Reclamation Schedule and Procedures

TAI is committed to protecting the environment and the people living near the Anarraaq and Aktigiruq Exploration Program area. TAI's reclamation goals in relation to the Project are to recontour, revegetate, or otherwise stabilize all areas impacted by exploration activities so lands are left in a stable condition that supports the reestablishment of renewable resources within a reasonable period. This would allow the lands to be returned to much the same use they are now. This section describes the reclamation activities that will be completed for the access road, secondary roads, surface pads, material sites, and underground access portal and ventilation raise described in **Section 4** of this Plan.

This Plan describes reclamation activities that would be implemented in the event that the Project does not advance beyond underground exploration. It is not possible to discuss a schedule (absolute date) for reclamation of the Project; however, it is possible to discuss the duration and sequencing of reclamation activities if the Project were not to proceed beyond underground exploration. In this Plan and the accompanying Standardized Reclamation Cost Estimator (SRCE) cost estimate, TAI assumes that all reclamation activities will begin in 2031 and be performed in two construction seasons with complete mobilization of equipment taking place in early summer and demobilization taking place in the late fall.

#### 6.1 Reclamation Schedule

Construction of the access road began in December 2024 and will continue through the summer of 2026 when the final compacted crown of the road will be completed. Construction of secondary roads will be initiated as soon as the access road allows, and the construction of surface pads will follow. Construction of secondary roads and surface pads will likely extend through 2026, following a construction break during the spring freshet. Winter construction will limit environmental impacts including reducing thermal impacts to permafrost, degradation of wetlands, and disturbance to fish habitat. Following completion of the pads, surface buildings will be constructed to support the remaining construction and exploration program. Lastly, the ventilation raise pad will be constructed and surface buildings will be located in anticipation of the completion of the ventilation raise.

Construction of the underground access portals will begin in early 2028 and conclude in late 2030, at which point TAI will determine if the Project will advance beyond underground exploration. If it is determined that the Project is not economically or technically feasible and will not move forward, reclamation will begin immediately upon completion of underground exploration.

The anticipated reclamation schedule is summarized in **Table 3** below.

**Table 3. AAEP Project Construction and Reclamation Schedule** 

Exploration Ends in 2030 --> Reclamation Post-Closure **Project Development and Exploration Period** Project - AAEP Period Period 2026 2027 Calendar Year 2025 2028 2029 2030 2031 2032 2033 i 2040 Closure Year 10 -6 -4 -3 -2 -1 1 2 AAEP Access Road Construction Surface Pad Development and Infrastructure Underground Exploration and Decline Development Remove Underground Utilities and Equipment Install Portal Plugs Water Treatment (UG Management Until Closure) Reclaimation - WTP and Surf. Water Mgt. Structures Reclamation - Yard and Misc. Surface Facilities Remove All Surface Structures (Buildings) Reclamation - Roads and Material/Borrow Sites BMPs and Revegetation Maintenance Water Monitoring Well Abandonment

#### 6.2 General Reclamation Procedures

Key components of reclamation typically include earthwork, placement of suitable growth media, preparation of the soil surface, application of soil amendments if needed, revegetation, and ongoing monitoring. These activities are managed with the overarching goal of establishing a stable post-disturbance landscape capable of supporting long-term, self-sustaining vegetation—preferably dominated by native plant species.

#### 6.2.1 Earthwork

Roads, pads and material sites will require regrading, contouring, and revegetation. Other disturbed areas will be revegetated; some may require regrading to promote drainage and/or reduce potential erosion. Growth media stockpiled during construction will be reapplied to reclaimed surfaces to promote revegetation efforts, otherwise native soils will be revegetated. Generally, slopes will be graded to 2.5H:1V (horizontal:vertical), or flatter. For the purposes of the Financial Assurance (FA) calculations, a slope of 3H:1V are considered resulting in a more conservative estimate of earthwork volumes, and long-term stability.

Reclamation earthwork activity will utilize similar heavy equipment used for mining operations. The equipment list will likely include dozers, rubber-tired scrapers, water trucks, motor graders, front-end loaders, track and tire mounted backhoes, compactors, and haul trucks. Equipment needed for reclamation and operations will remain dynamic, as specific conditions require different equipment during implementation of the plan.

#### 6.2.2 Control of Sedimentation

Implementation of BMPs to control erosion during active mining will be designed to minimize redisturbance during reclamation. The BMPs will be consistent with those measures and practices identified in Alaska Department of Environmental Conservation, Alaska Storm Water Guide, December 2011 (ADEC 2011).

Temporary sediment and erosion control devices will be maintained until site-specific potential for erosion has been minimized through earthwork or revegetation. Removal of devices will be determined by field conditions. Costs assume price per acre using total revegetation surface area as calculated in the *Recl. Maint* worksheet column 'D'. Full-time observation and management of Storm Water Pollution Prevention (SWPP) permit will be provided during construction activities.

#### 6.2.3 Hazardous Materials

All containers and materials will be salvaged or disposed of properly. All controlled and hazardous chemicals, fuels, and regulated materials will be removed from the site for recycling and/or disposal in an approved manner. Decommissioning will include pumping to remove any remaining hazardous materials in pipes, tanks, and other potential storage units. Tanks will be cleaned and purged following all applicable and relevant regulations. All surplus fuel, hazardous materials, above-ground tanks, and piping will be removed and disposed of in an approved facility in Anchorage, Alaska.

Fuel tanks and steel infrastructures will be disposed of in designated solid waste facility at the RDM or salvaged for use at RDM. Hydrocarbon contaminated soils or gravels will be treated in a manner approved by ADEC. Any synthetic liners used for containment will be removed and salvaged or transferred to an approved disposal facility off-site. The estimate assumes contaminated soils will be hauled off site for disposal in an approved facility in Anchorage, Alaska.

A plan will be developed to comprehensively test for fuel contamination near the storage areas. If found, contaminated soil will be removed and treated in accordance with ADEC guidelines before the area is recontoured and revegetated.

#### 6.2.4 Concrete Foundations and Slabs

All concrete will be broken using hydraulic hammers and buried within the building footprint. All foundation walls, footings and concrete slabs will be broken below grade and/or buried in place with a minimum 36 inches of cover. Elevated slabs, walls, and footings will be broken to grade level and buried as fill material.

#### 6.2.5 Piping

Surface piping will be flushed, if necessary, and hauled to an approved solid waste disposal facility or barged to Anchorage or another location during the ice-free season.

Buried pipe will be excavated and hauled to an approved solid waste disposal facility or barged to Anchorage or another location during the ice-free season. Buried pipes will be kept to a minimum but will mainly consist of water and sewage transfer pipes on site. Buried water and sewer lines will be flushed before in situ disposal and filled with a slurry of sand or some other approved method. Buried lines (other than water or sewer lines) will be blown free of liquids using compressed air to remove any residual fuel, antifreeze or hazardous chemicals unless otherwise approved by ADNR. Pipes shall be removed and disposed of or abandoned in place using approved methods such as filling with grout or sand slurry.

#### 6.2.6 Septic and Leach Fields

Surface components of the sewage treatment system will be removed and hauled to an approved solid waste disposal facility or barged to Anchorage or another location during the ice-free season. The remaining below-ground portions will be abandoned in accordance with ADEC regulations.

#### 6.2.7 Wells

Water supply and monitoring wells will be abandoned by removing all projecting casing a minimum of 36" below grade and piping and plugging from the surface to the water table with concrete or bentonite. Concrete will not be used as a surface plug due to its susceptibility to frost jacking in ice-rich environments. All wells will be abandoned in accordance with ADEC regulations.

#### 6.2.8 Revegetation

Disturbed ground will be seeded to encourage an initial vegetative cover to provide stability while native recruitment eventually establishes a longer-term stable cover of native vegetation. For the initial revegetation, the seed mixture recommended for use in the Red Dog Mine Reclamation and Closure Plan (Teck Alaska Incorporated 2021), will be used for the Project reclamation work. The Alaska Plant Materials Center provides guidance on plant species and seeding rates. Field trials at RDM have identified plant species for reclamation of specific disturbance-types as outlined in **Table 4**. The table outlines the native grass cultivars and native forbs appropriate for the reclamation of roads, pads, and quarries and the shrub cuttings and seedlings appropriate for the reclamation of stream banks and other wet areas. Recommended native grass cultivars and forbs including seed rates are described in **Table 5**.

**Table 4. Revegetation Recommendations for Infrastructure Areas** 

Area	Plant Species	Planting Specifications
Reclaim roads, laydown areas, pads, and material sites	Native grass cultivars Native forbs	(See Table 5) (See Table 5)
Banks of streams and other wet areas	Shrub cuttings and seedlings Diamond leaf willow Felt leaf willow Richardson willows Shrub/dwarf birch	Cuttings on one-foot centers Cuttings on one-foot centers Cuttings on one-foot centers 80 seeds/yd <sup>2</sup>

**Table 5. Proposed Revegetation Species** 

Plant Species	Planting Specifications		
Native-grass cultivars Boreal red fescue Glaucous tundra bluegrass Nortran tufted hairgrass Reed bluejoint Wainwright ("slender") wheatgrass	Festuca rubra Poa glauca Poa alpina Deschampsia caespitosa Elymus trachycaulus	Apply seed at 40 lb/acre (final mixture). Ratio of species will depend on availability but may include predominantly P. alpina for drier areas and D. caespitosa, E. trachycaulus, and C. canadensius for mesic sites.	
Native forbs Alpine sweetvetch (masu) Dwarf fireweed Indian milkvetch Low-lying stinkweed Other potential forb species	Hedysarum alpinum Chasmerion latifolium Astragalus aboriginum Artemisia arctica	Apply forb seed at 5% of total seed rate in equal parts per species or as available. E.g., if grass seed rate is 20 lb/acre, apply grass at 19 lb/acres and forbs at 1 lb/acre. Mix may include A. alpinus, A. arcticus, E.	
Alpine milkvetch Arctic bladderpod Boreal yarrow Field oxytrope Siberian aster Tall fireweed	Astragalus alpinus Lesquerella artctica Achillea millefolium borealis Oxytropis campestris Eurybia sibirica Chamerion angustifolium	sibirica, L. arctica, and O. campestris in drier/apline areas, and A. millefolium, Chamerion spp, and H. alpinum in mesic areas.	

As with any seed mix, a degree of flexibility is necessary depending on seed availability and site-specific conditions; and the mix may be modified. The seed mix may change over time depending on factors such as internal and external research, technologic advancements, changes in land management approach, and commercial availability. The seed mixtures described in **Tables 4** and 5 will be purchased commercially and augmented with some local forbs.

The timing of seeding considers the germination of the seed and its establishment. The preferred seeding time is in the spring, immediately following snowmelt and runoff when the soil surface is moist, and temperatures are warming. However, fall seeding will be practiced when necessary. If seed is applied during the winter, the snow surface will be roughed to provide microsites for trapping the seed. Proposed seeding data cut-offs are presented in **Table 6** below.

Seed will be broadcast by hydro-seeder, depending on the size and accessibility of areas to be treated. Alternatively, helicopter-seeding may be used to revegetate the whole site, but the cost estimate in **Section 7** assumes seed is applied with a hydro-seeder. During revegetation, weed control practices would be implemented to limit the growth and spread of weeds and invasive species and promote the successful re-establishment of native plant species.

Table 6. Seed Timing

Germinate & Establish Seedlings for Overwintering		Lie Dormant until Spring Freshet				
Uplands	Spring freshet through July 30	October 15 through spring freshet				

#### 6.2.9 Topsoil

11 AAC 97.310(b)(6) includes a requirement for measures for topsoil removal, storage, protection, and replacement. The environment in the Anarraaq and Aktigiruq Exploration Program area is sub-arctic. The entire area is understood to be underlain by permafrost to depths as great as 600 feet. Little soil development is possible under these conditions and most fine-grained soils are high in moisture and generally frozen. During construction of the access and secondary roads and surface pads TAI anticipates that very little salvageable topsoil will be encountered, salvaged and stockpiled. Where thicker soils may exist, it is typically along stream valley bottoms where the soils are frozen with a high moisture content. Construction practice in these permafrost-rich environments is to disturb this soil as little as possible to maintain the existing soil insulating qualities and avoid destabilizing the underlying permafrost. Topsoil that TAI does salvage will be stored opportunistically in select areas, close to where it was removed, and saved for reclamation use.

#### 6.3 Specific Reclamation Procedures

Reclamation for the Project will include a goal of returning the disturbed areas to near predisturbance condition. This will include reshaping surface pads, material sites, and road prisms to provide positive drainage, and recontour landforms in a way that blend with the surrounding landscape. Reclamation activities for the Project are divided into two stages, physical reclamation and post closure monitoring activities. The following sections detail specific reclamation activities for each facility.

#### 6.3.1 Underground Equipment

All salvageable equipment, pumps, utilities, piping, and ventilation, as well as all fuel and any other potentially hazardous materials will be removed from underground prior to closure and backfill of the portal and ventilation raise. Pipes supplying fuel and hazardous materials will be flushed before disposal. All air, electrical, water and ventilation lines will be removed from the portal area in anticipation of backfilling.

#### 6.3.2 Underground Access Portal, Shafts, and Ventilation Raise

Closure of underground openings (portals, shafts and raises) requires detailed engineering design and analysis. The final design will depend on the final configuration of the underground workings and hydraulic conditions expected at closure. At this time neither final ground conditions nor rebounded ground water elevation are known. The Nevada Department of Environmental Protection (NDEP) provides guidance for closing underground openings (NDEP 2022). The concept below and reclamation costs are based on that guidance, and a summary of the probable sequence of closure is noted below.

Upon completion of underground exploration, all underground openings will be permanently stabilized and sealed using a combination of non-reactive waste rock backfill and concrete slurry to prevent access and drainage. Ground support structures located near the surface opening will be removed if protrusion is more than two feet below finished grade, otherwise all supports will be buried in place.

Hydraulic plugs will be placed in competent bedrock below the permafrost line (approximately 1,500ft from the portal opening). The plugs will resist the pressure head developed between natural groundwater and plug elevation. The concrete used to construct the plug will likely be Type II Portland cement mixed with Type F fly ash to ensure low shrinkage and good sulfate resistance. A grout curtain will minimize seepage across the plugs.

The final plug design will be prepared and stamped by a licensed professional engineer, then submitted to the appropriate State agency for comprehensive review and approval. Each set of plans will be informed by a thorough site investigation that evaluates geotechnical, geochemical, and hydrogeological conditions specific to each location. The design process will address potential failure modes—both static and dynamic—as well as estimate seepage rates for each plug. Additionally, the feasibility of implementing a long-term monitoring program will be assessed. The final design package will also include a detailed description of the proposed construction methods, a quality assurance and quality control (QA/QC) plan to ensure construction meets design specifications, and an itemized estimate of construction costs.

Backfill will be placed in the portal and blended with the surrounding topography, slightly mounded in fill areas to allow for consolidation, scarification, and seeding. The highwall cut faces near the box cut will be backfilled to a final slope of 3:1 using material borrowed from the portal pad and stormwater pond embankments. Fill embankments will be reclaimed by pulling the outer

crest of the fill over the pad to the highwall, grading to control surface water runoff, and blending with the local topography as much as possible. The recontoured surfaces will be ripped where compacted, covered with growth media if necessary, and seeded.

The ventilation raise will be reclaimed by either backfilling with non-reactive waste rock, or by capping with a concrete slab. Both options are suitable for long term closure; however, there are disadvantages. Backfill material will consolidate over time; additional material should be heaped on the surface to account for consolidation. Further, concrete caps have a finite life expectancy and may need to be replaced at some point far into the future. Construction costs for both activities are similar and minor in comparison to the total cost. The estimate assumes backfilling the shafts to the surface.

#### 6.3.3 Water Treatment and Management

Water management and treatment will occur as needed throughout the duration of the exploration project. This includes collecting contact water from underground workings and surface areas. Water will be collected in underground sumps and surface-lined channels, conveyed to lined ponds, then treated and discharged to the environment in accordance with an approved water management plan.

Underground closure activities are expected to be completed within the first year of reclamation. During this period, water levels will be controlled to ensure safe working conditions. Water collection and treatment will continue until underground closure activities are complete or conditions allow water management to cease.

Once underground closure is finalized, pumps will be shut off, allowing the underground workings to flood naturally. Surface water management structures such as ponds and collection channels will be decommissioned. Liners will be removed, and embankments will be regraded, seeded, and stabilized. Water wells will be abandoned by removing all projecting casing and piping and plugged from the surface to the water table with concrete or bentonite.

The downward sloping aspect of the portal allows water to infiltrate underground workings verses discharge. The portal is located near the minimum height of surrounding terrain, while the vent raise collar is located near the maximum heigh of surrounding terrain. The static water elevation is expected to be about 850 feet  $\pm$  5 feet amsl, no water is expected to seep into the environment from the underground workings at closure.

#### 6.3.4 Temporary Surface Facilities, Fuel, Equipment, and Refuse

Operation activities require a camp and admin facility, service shops, generators, fuel storage, and other ancillary support structures. All structures will be temporary with limited foundation and slab construction. Buildings consist of steal truss/frame facilities with vinyl covering, or modular construction similar to ATCO type facilities. All facilities will either be demolished, deconstructed, salvaged and removed from the site.

During construction, one or more contractors may place modular offices, Conex containers, fuel storage tanks, or other equipment on the site or along the access road to support construction

activities. During the initial stage of reclamation, the pads will be cleared of these facilities, equipment, tanks, refuse, etc., to allow the initiation of reclamation of these pads. It may be necessary to leave some facilities and equipment in place to support reclamation, but all will be removed prior to that site being regraded and reseeded.

Fuel and all controlled and hazardous materials/chemicals stored on site will consist of fuel and material used during construction activities and underground exploration. All hazardous materials, surplus fuel, fuel storage containers and fueling equipment will be removed from the exploration area and disposed of properly. Contaminated gravels will be treated in a manner approved by the ADEC. Any liners used for fuel containment will be removed and salvaged or transferred to an approved disposal facility.

#### 6.3.5 Access Road, Secondary Roads, Surface Pads, and Material Sites

In this subsection the reclamation activities associated with road, bridge and pad removal are discussed. Reclamation earthwork activity will utilize similar heavy equipment used for mining operations at Red Dog Mine. The equipment list will likely include dozers, rubber-tired scrapers, water trucks, motor graders, front-end loaders, track and tire mounted backhoes, compactors, and haul trucks. Equipment needed for reclamation and operations will remain dynamic, as specific conditions require. The cost estimate assumes that all equipment will have to be mobilized to the site in advance of performing the reclamation work described here.

**Figures 6 and 7** illustrate typical details proposed for reclamation of the access road, bridges, and culverts.

#### 6.3.6 Access Road

The access road surface will be ripped or scarified, as necessary, to eliminate the effects of compaction, and recontoured to blend with the original topography and provide for positive drainage and promote natural revegetation. The recontoured road surface will be covered with growth media (if available) and re-seeded using the species listed in **Tables 4 and 5**. In areas where road fill may impound water, the berms and embankment may be removed to facilitate drainage. The reclaimed road will be stabilized to ensure the area will retain sufficient moisture for natural revegetation. In addition, any disturbance caused by thawing permafrost adjacent to the road embankment will be filled to prevent further degradation of underlying soils to the extent practicable for stabilization. Efforts will be made to identify any areas of thermal instability as they develop during construction so they can be mitigated as soon as practical in advance of reclamation activities.

Pull-outs along the entire road alignment and other cleared areas will be reclaimed in a manner like the access road and be ripped or scarified and recontoured as needed for drainage, covered with growth media (if available), and seeded following final equipment removal.

Bridges and abutments will be removed and salvaged. Abutment construction materials such as concrete and exposed geotextile fabric will be removed and disposed of properly. Culverts will be removed and salvaged or disposed of properly off site. Any stream channels that were diverted

will be re-established in a stable location. Disturbed areas will be ripped or scarified, recontoured, and seeded as necessary following removal off all appurtenances.

Any geotextile fabric exposed during reclamation grading will be excavated back two feet from the surface, cut and disposed of at an approved landfill location.

**Figure 7** illustrates proposed reclamation details for the access road while **Figure 8** illustrates the proposed details for bridge and culvert reclamation.

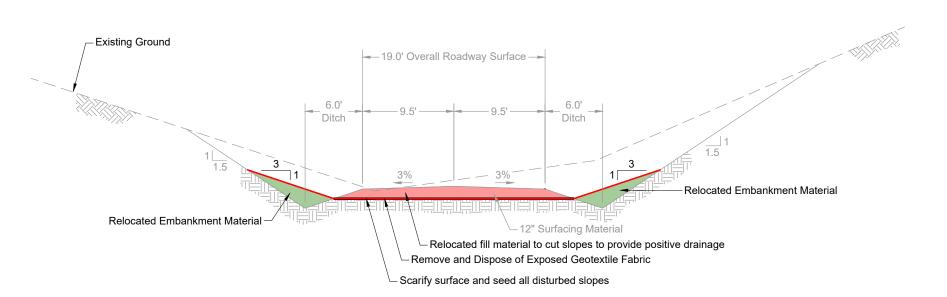
#### 6.3.7 Secondary Roads

Secondary roads leading to or from reclaimed pads will be ripped or scarified, as necessary, to eliminate the effects of compaction, and recontoured as needed to blend with the original topography and provide for positive drainage and promote natural revegetation. Fill material used for construction of the roads will be removed and placed on the uphill side filling in drainage ditches. The embankments will be graded to prevent ponding of water and re-establish drainage patterns. The recontoured road surface will be covered with growth media (if available) and reseeded using the species listed in **Tables 4 and 5**. The reclaimed roads will be stabilized to ensure the area will retain sufficient moisture for natural revegetation. BMPs will be maintained and installed as necessary to control erosion and runoff, removal of all culverts and ripping or scarifying the surface prior to reseeding.

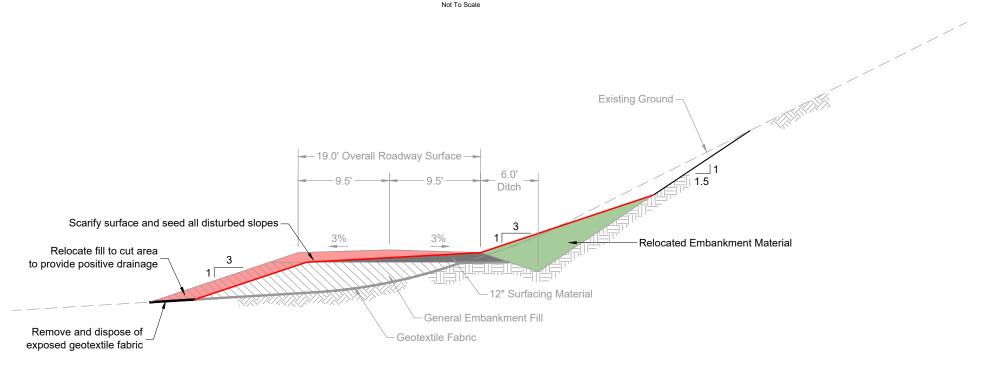
Any geotextile fabric exposed during reclamation grading will be excavated back two feet from the surface, cut, and disposed of at an approved landfill location.

## NOTES 1. All dime

All dimension shown are in feet unless otherwise stated.



#### **Typical Road Section Reclamation - Cut**



#### Typical Road Section Reclamation - Cut to Fill

ot To Scale

Conceptual Design
Not For Construction

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AAEP RECLAMATION PLAN

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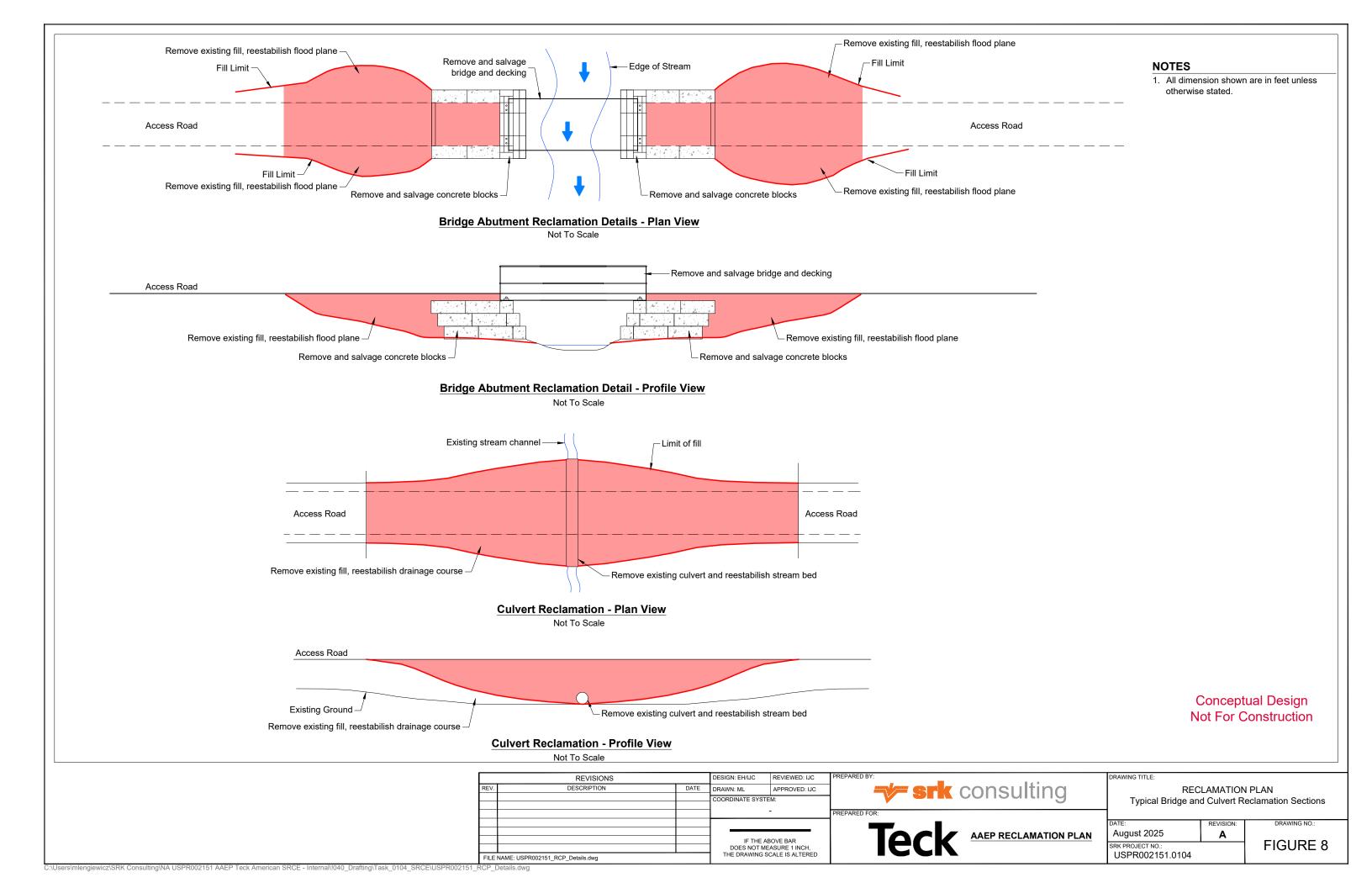
Typical Road Reclamation Section

Typical Road Reclamation Sections

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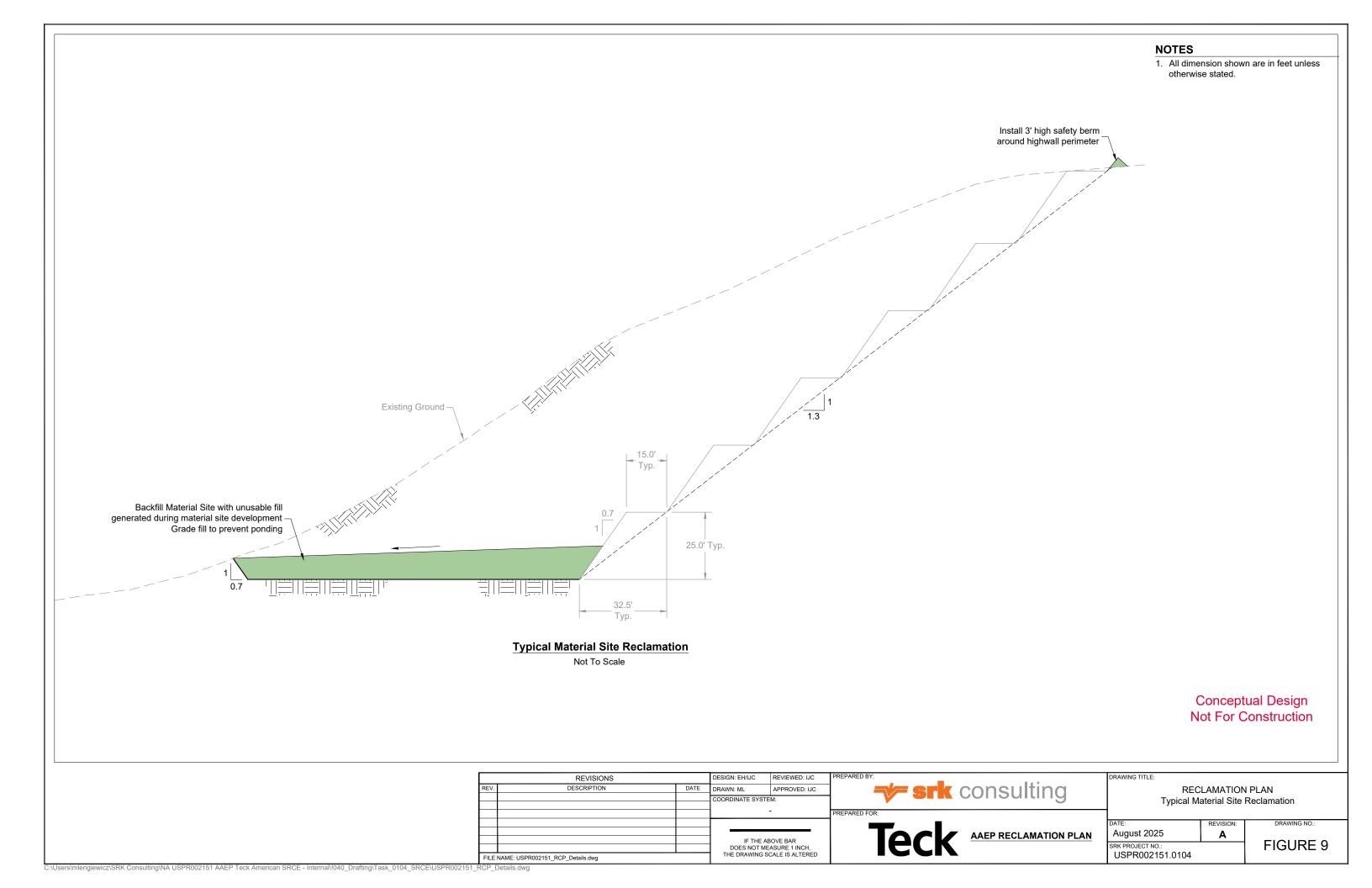


#### 6.3.8 Surface Pads

The surface pads for the ventilation raises, portal pad, camp pad, and laydown areas will be graded to discourage ponding of surface water. Any highwall cut faces will be stabilized and left in place. Fill embankments will be reclaimed by pulling the outer crest of the fill over the pad to the highwall, grading to control surface water, and blending with the local topography as much as possible. The recontoured surfaces will be ripped or scarified where compacted, covered with stockpiled growth media (if available), and seeded.

#### 6.3.9 Material Sites

Three material sites are located along the access road alignment, see **Figure 1** for general location. All material sites will be reclaimed when no longer needed for closure materials. The highwall cut faces will be stabilized and remain at developed cut slope angles and left in place. A safety berm consisting of large boulders, or an earthen embankment will be placed along the crest of the highwalls for public safety. Fill embankments will be reclaimed by pulling the outer crest of the fill over the pad to the highwall, grading to control surface water runoff to free drain out of the pits will be established, blending with the local topography as much as practical. The recontoured surfaces will be ripped where compacted, bedrock will be covered with suitable soils conducive to plant recolonization, covered with stockpiled growth media (if available), and seeded. **Figure 9** illustrates the proposed details for material site reclamation.



#### 6.4 Post-Closure Monitoring

Once all physical reclamation is complete, all surface disturbances will be stabilized, and acceptable stormwater quality is anticipated. Once reclamation activities are completed and in the absence of any surface instability in reclaimed areas, TAI will file a Notice of Termination (NOT) of the Stormwater Multi-Sector General Permit. Stormwater permit monitoring requirements will cease with the NOT. However, TAI will perform annual flyovers of all reclaimed areas to identify any reclaimed areas that appear to be exhibiting evidence of significant erosion or failure of the initial revegetation effort TAI will be prepared to reseed or hand-dress these areas to stabilize them. TAI anticipates performing the flyovers for the first five years following final reclamation and has included these costs and a contingency cost for addressing areas that require dressing or reseeding.

Closure monitoring will include range monitoring, water quality sampling, water level measurements, and observations of the success of revegetation. The frequency of sampling events will be adjusted as appropriate between the reclamation and post-closure periods. See Table 8 for the conceptual monitoring schedule. An approved monitoring plan will be developed which may change the frequency and type of monitoring required.

**Table 7. Conceptual Monitoring Schedule** 

Fxn	loration	Fnds	in 2030	)>

Exploration Linus in 2000>										
Environmental Monitoring		mation riod	Post-Closure Period							
Calendar Year	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Closure Year	1	2	3	4	5	6	7	8	9	10
Range Monitoring			В	В	В	В	Α	Α	Α	Α
Water Monitoring	М	М	Q	Q	Q	Q	Α	Α	Α	Α
Reclamation Maintenance			Yes			Yes				Yes

M = Monthly, B = Bi-annually Q = Quarterly, A = Annually

#### 6.4.1 Water Monitoring

Surface water monitoring is assumed to be conducted at four sites near and downstream from the portal site. Monitoring will occur on a monthly basis during the two-year reclamation period, and then biannually for the first four years post closure, and finally annually for the remaining four years.

Two groundwater monitoring wells with piezometers will be constructed downstream of the portal location to assess groundwater chemistry and water elevations and confirm groundwater model predictions. These wells will be monitored on a monthly basis during the two-year reclamation period, and then biannually for the first four years post closure, and finally annually for the remaining four years. All wells will be abandoned within ten years of closure. Monitoring wells will be accessible by helicopter once the access road has been fully reclaimed. Additional groundwater monitoring points may be installed at compliance points determined by TAI and ADEC in a water management plan.

A detailed Water Monitoring Plan will be developed by TAI in collaboration with ADEC.

#### 6.4.2 Control of Sedimentation

Throughout the post-closure monitoring period, all diversion ditches and erosion control structures will be regularly inspected to evaluate their performance, integrity, and long-term stability. Any signs of deterioration, inefficiency, or failure will be documented and addressed promptly. Maintenance activities and design modifications will be implemented as necessary to maintain the effectiveness of these features and to support the overall long-term success of the site closure.

#### 6.4.3 Post Reclamation Maintenance

Once physical reclamation activities are underway, TAI personnel will conduct routine inspections of all temporary diversion structures and sedimentation control systems to ensure they are functioning as intended. These systems will be cleaned, repaired, or modified as needed to maintain their effectiveness. Long-term or permanent diversion structures, along with any associated signage, will continue to be monitored and maintained until the reclamation bond is formally released.

Post-reclamation monitoring will also include periodic aerial reseeding, conducted by helicopter, to support vegetation establishment until final site release. The overall success of reclamation efforts will be assessed through regular visual inspections aimed at identifying signs of erosion or other forms of surface instability. If significant erosion or loss of growth media is observed, corrective actions will be implemented as soon as practicable.

Revegetation success will be evaluated qualitatively through ongoing visual assessments conducted by both TAI and ADNR personnel. When conditions warrant, quantitative vegetation data will also be collected to supplement these evaluations. All quantitative monitoring will be performed during the peak growing season, typically in July and August, to ensure accurate assessment of vegetation performance. The reclamation estimate assumes revegetation maintenance will be conducted based on the reclamation schedule in **Table 7**.

## 7 Reclamation Cost Estimate and Financial Assurance

Under AS 27.19 and 11 AAC 97, mining operators in Alaska are required to provide financial assurance, commonly referred to as a bond, to cover the full cost of reclamation and closure activities. According to AS 27.19.040(a), the ADNR Commissioner must require individual financial assurance in an amount that reflects the reasonable and probable costs of implementing the approved reclamation plan. This financial assurance ensures the operator's faithful performance of all reclamation obligations.

The required bond amount is based on the Reclamation Plan and calculated using the Standard Reclamation Cost Estimator (SRCE). These calculations include both direct and indirect costs of reclamation, in accordance with state regulations and financial assurance policy. The State and TAI will negotiate a final bond amount prior to the approval of the Plan of Operations describing the development and reclamation activities included in this Plan.

The SRCE model includes costs for reclamation of the access road, secondary roads, surface pads, material sites, support infrastructure, underground exploration activity, and post-reclamation monitoring. Reclamation is assumed to be completed within two construction seasons following a decision to end exploration activities and reclaim the disturbed areas.

The SRCE model assumes third party implementation of this Reclamation Plan, no recycle or salvage costs recovery credits are included, and it assumes on-site disposal or complete removal of all equipment and facilities. Hazardous waste is expected to minimal and will be shipped off-site to an appropriate hazardous waste disposal facility.

A Basis of Estimate (BOE) report is included in Appendix A. The BOE summarizes the sources, assumptions, and basis for the unit costs, construction quantities, equipment fleet, and crew productivities and other costs. Drawings which support the material take-off quantities used to develop costs for the SRCE model are included in in the BOE.

**Table 8** summarizes the estimated reclamation costs for all major reclamation activities.

Table 8. Reclamation Cost Summary - SRCE Output

Activity	Total Cost (\$)						
Direct Costs							
Access and Secondary Roads	900,865						
Stormwater Management	442,727						
Reclamation Monitoring	1,700,913						
Material Sites	121,660						
Waste Disposal	229,346						
Underground Facilities	3,550,127						
Surface Pads	360,247						
Material Hauling	357,288						
Foundations and Buildings	1,626,268						
Water Management	3,775,913						
Well Decommissioning	95,636						
Reclamation Maintenance	117,704						
G&A	1,839,433						
Camp Cost	6,549,126						
Human Resources	10,090,683						
Misc. Equipment	312,297						
Mob/Demob	5,718,932						
Direct Costs Subtotal	37,789,165						
Indirect Costs							
Engineering, Design, and Construction Plan (4%)	1,511,567						
Contingency (15%)	5,668,375						
Contractor OH and Profit (also includes Liability and Bonding) (15%)	5,668,375						
Contract Administration (5%)	1,889,458						
Indirect Costs Subtotal	14,737,775						
TOTAL RECLAMATION COST	52,526,940						

SRCE file: AAEP\_Phase II\_SRCE\_USPR002151\_DNR\_Submittal\_20250820

This report, Anarraaq and Aktigiruq Exploration Program Reclamation Plan, was prepared by



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All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

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The opinions expressed in this document have been based on the information available to SRK at the time of preparation. SRK has exercised all due care in reviewing information supplied by others for use on this project. While SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information, except to the extent that SRK was hired to verify the data.

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