AGNICO EAGLE

Meadowbank Division

WHALE TAIL PIT

Water Management Plan

SEPTEMBER 2018
VERSION 2

EXECUTIVE SUMMARY

Agnico Eagle Mines Limited – Meadowbank Division (Agnico Eagle) is proposing to develop Whale Tail Pit and Haul Road Project (Project), a satellite deposit located on the Amaruq property, to extend mine operations and milling at Meadowbank Mine.

The open pit mine, mined by truck-and-shovel operation, will produce 8.3 million tonnes (Mt) of ore, 61.3 Mt of waste rock, and 6.0 Mt of overburden waste. There are four phases to the development: 1 year of construction, 3 years of mine operations, 8 years of closure, and the postclosure period. According to the Whale Tail Pit Life of Mine (LOM) calculation, the addition of the Whale Tail Pit to the actual Meadowbank LOM (LOM 2015) will generate an addition of approximately 8.3 Mt (dry) of tailings to the Meadowbank Tailings Storage Facility (TSF) for a total of 35.4 Mt.

The water management objectives are to minimize potential impacts to the quantity and quality of surface water at the mine site. Water management structures (water retention dikes/berms and diversion channels) will be constructed, dependent on the potential presence and volume of water, to contain and manage the contact water from the areas affected by the mine or mining activities. The major water management infrastructure includes: two contact water ponds, three water diversion channels, four water retention dikes, and two Water Treatment Plants (WTP).

This Water Management Plan for the Project describes the main objectives pertaining to water management, which are to limit and/or stop the flow of surface water runoff in the pit and to limit the impact on the local environment. In developing the water management plan, the following principles were followed:

- keep the different water types separated as much as possible;
- control and minimize contact water through diversion and containment;
- minimize freshwater consumption by recycling and reusing the contact and process water wherever feasible; and
- meet discharge criteria before any site contact water is released to the downstream environment.

During mine construction and operations, contact water originating from affected areas on surface will be intercepted, diverted and collected within the various collection ponds. The collected water on the mine site will be eventually pumped and stored in the Whale Tail Attenuation Pond, where the contact water will be treated by the WTP prior to discharge to the receiving environment or reused in the operations.

During operations, site contact water quality is predicted to exceed established effluent criteria (i.e. under the Meadowbank Water Licence for Portage Pit) for arsenic and total dissolved solids in Whale Tail Waste Rock Storage Facility (WRSF) Pond and in Whale Tail Pit sump. Therefore, this water will be

controlled by constructing the Whale Tail WRSF Dike and the Whale Tail Attenuation Pond. The Whale Tail WRSF Pond water will report with all other contact water and will be mixed in the Whale Tail Attenuation Pond and treated during operations. Through best management practices and mitigation, the predicted water quality of Whale Tail Lake (North Basin) meets aquatic life guidelines post-closure.

During operations when the mine is at its maximum footprint, the conservative predictions of future water quality indicate that most parameter concentrations in the downstream environment are below CEQG-AL except for arsenic. A site wide water balance will be updated on a regular basis and end pit water quality modelling will be conducted as needed to update predictions.

Dikes will not be breached until the water quality in the flooded area meets Canadian Council of Ministers of the Environment Water Quality Guidelines, baseline concentrations or appropriate site specific water quality objectives. During mine closure, no mine discharges will occur to the downstream receiving environment since all contact waters are diverted to the open pit and Whale Tail Lake (North Basin) for re-flooding. The water quality in open pit and Whale Tail Lake (North Basin) averaged over the closure period is predicted to be similar to that of the last year of operations, with similar maximum and average concentrations.

DOCUMENT CONTROL

Version	Date	Section	Page	Revision	Author
1	January 2017			Water Management Plan for the Whale Tail Pit	Agnico Eagle Meadowbank Division and Golder Associates Ltd.
2	September 2018	All	All	Water Management Plan for the Whale Tail Pit	Agnico Eagle Meadowbank Division and SNC-Lavalin inc.

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ACRONYMS

Agnico Eagle	Agnico Eagle Mines Limited – Meadowbank Division
CCME	Canadian Council of Ministers of the Environment
DFO	Department of Fisheries and Oceans Canada
FEIS	Final Environmental Impact Statement
NWB	Nunavut Water Board
OMS	Operation, Maintenance, and Surveillance
PGA	Peak Ground Acceleration
Plan	Water Management Plan
Project	Whale Tail Pit
STP	Sewage Treatment Plant
TSS	total suspended solids
WRSF	Waste Rock Storage Facility
WSER	Wastewater System Effluent Regulations
WTP	Water Treatment Plant

UNITS

±	plus or minus
<	less than
%	percent
°C	degrees Celsius
°C/m	degrees Celsius per metre
masl	metre(s) above sea level
mg/L	milligrams per litre
km	kilometre(s)
km^2	kilo square metre(s)
L/day/person	litres per person per day
m	metre
mm	millimetre
m^3	cubic metre(s)
m^3/day	cubic metres per day
m^3/hour	cubic metres per hour
m^3/year	cubic metres per year
Mm^3/year	million cubic metre(s) per year
Mm^3	million cubic metre(s)
t	tonne
Mt	million tonne(s)

SECTION 1 • INTRODUCTION

Agnico Eagle Mines Limited – Meadowbank Division (Agnico Eagle) is proposing to develop Whale Tail Pit and Haul Road Project (Project), a satellite deposit located on the Amaruq property, to continue mine operations and milling at Meadowbank Mine.

The Amaruq property is a 408 square kilometre (km^2) site located on Inuit Owned Land approximately 150 kilometres (km) north of the hamlet of Baker Lake and approximately 50 km northwest of Meadowbank Mine in the Kivalliq Region of Nunavut. The deposit will be mined as an open pit (i.e., Whale Tail Pit), and ore will be hauled to the approved infrastructure at Meadowbank Mine for milling.

The open pit mine, mined by truck-and-shovel operation, will produce 8.3 million tonnes (Mt) of ore, 61.3 Mt of waste rock, and 6.0 Mt of overburden waste. There are four phases to the development: 1 year of construction, 3 years of mine operations, 8 years of closure, and the postclosure period. According to the Whale Tail Pit Life of Mine (LOM) calculation, the addition of the Whale Tail Pit to the actual Meadowbank LOM (LOM 2015) will generate an addition of approximately 8.3 Mt (dry) of tailings to the Meadowbank Tailings Storage Facility (TSF) for a total of 35.4 Mt.

The construction and preparation of material started in summer 2018 after all permits and authorizations were received andconstruction of the dikes has started in the third quarter of Year -1 (2018). Focus on site preparation and construction of infrastructure, with the development of the open-pit to produce construction material will continue in 2018. During this first phase, waste rock and overburden will be piled in the Whale Tail Waste Rock Storage Facility (Whale Tail WRSF) and ore stockpiled on the ore pads. The operational phase will span approximately 3 years, from Year 1 (2019) to Year 4 (2022). Mining activities are expected to end in Year 3 (2021) and ore processing is expected to end during the first quarter of Year 4 (2022). Closure will occur from Year 4 (2022) to Year 11 (2029) after the completion of mining and will include removal of the non-essential site infrastructure and flooding of the mined-out open pit as well as reestablishment of the natural Lake A17 (Whale Tail Lake) level. Only essential infrastructure related to water treatment will remain on site during the closure and post-closure phases. Accordingly, in addition to the Water Treatment Plant (WTP), a part of the camp, including all infrastructure allowing camp autonomy and security, as well as site roads, will be maintained following the operational phase (see more information in Whale Tail Pit Interim Closure and Reclamation Plan). Post-closure is expected from Year 11 (2029) forwards. Site and surrounding environment monitoring will start from the beginning of the construction and be completed during the post-closure phase when it is shown that the site and water quality meets the regulatory closure objectives. Table 1.1 summarizes the overview of the timeline and general activities.

Table 1.1 Overview of Timeline and General Activities

Phase	Year	General Activities
Construction	Year -1	• Construct site infrastructure • Develop open pit mine • Stockpile ore
Operations	Year 1 to 3	• Open pit operations • Transport ore to Meadowbank Mine • Stockpile ore • Discharge Tailings in Meadowbank TSF
	Year 4	• Complete transportation of ore to Meadowbank Mine • Complete discharge tailings in Meadowbank TSF
Closure	Year 4 to 11	• Remove non-essential site infrastructure • Flood mined-out open pit • Re-establish natural Whale Tail Lake level
Post-Closure	Year 11 forwards	• Site and surrounding environment monitoring

TSF = Tailings Storage Facility

This document presents the Water Management Plan (Plan) for the Project in accordance with Part B, conditions 14 and 15, and Part E, condition 7, of the Nunavut Water Board (NWB) Water License 2AM – WTP1826. It is also addressing Term and Condition n. 6 of the Nunavut Impact Review Board (NIRB) project certificate. Agnico Eagle has applied the same water management and water balance approach in this document as used for the annual Meadowbank Mine Water management report (Agnico Eagle, 2015a and 2018). The purpose of this Plan is to provide consolidated information on water management, required water management infrastructure and water balance for the operations of Whale Tail Pit as a satellite pit for the Meadowbank Mine.

This Plan will be updated as required to reflect any changes in operations or economic feasibility occurs, and to incorporate new information and the latest technology, where appropriate.

SECTION 2 • BACKGROUND INFORMATION

2.1 Site Conditions

The general mine site location for the Project is presented in Figure 2-1.

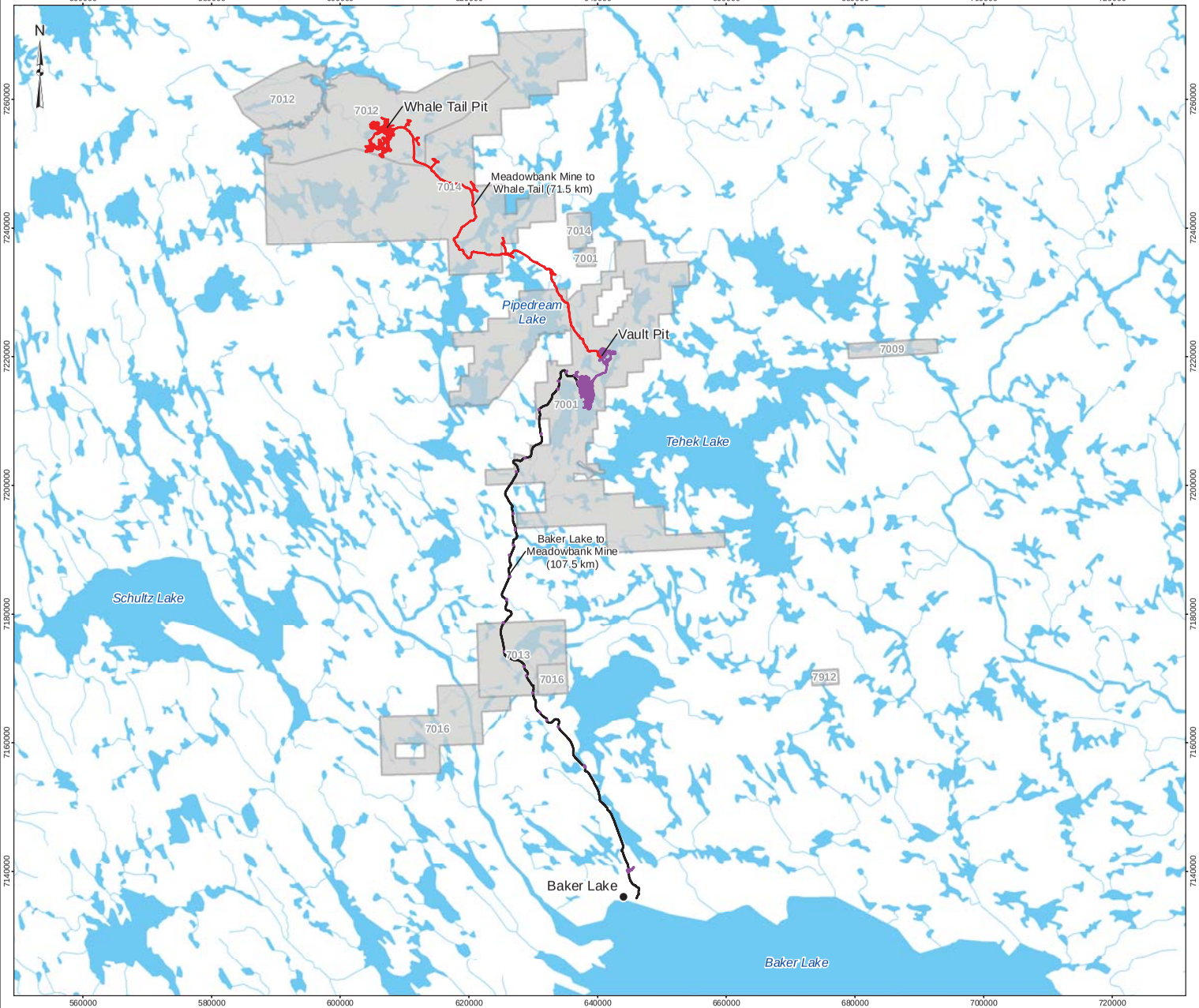
2.1.1 Climate

Climate characteristics presented herein were extracted from the permitting level engineering report (SNC 2015).

The Project is located in an arid arctic environment that experiences extreme winter conditions, with an annual mean temperature of -11.3 degrees Celsius (°C). The monthly mean temperature ranges from -31.3°C in January to 11.6°C in June, with above-freezing mean temperatures from June to September. The annual mean total precipitation at the Project is 249 millimetres (mm), with 59 percent (%) of precipitation falling as rain, and 41% falling as snow. Mean annual losses were estimated to be 248 mm for lake evaporation, 80 mm for evapotranspiration, and 72 mm for sublimation. Mean annual temperature, precipitation, and losses characteristics are presented in Table 2.1.

Short-duration rainfall, representative of the Project are presented in

Table 2.2, based on intensity-duration-frequency curves available from the Baker Lake A meteorological station (Station ID 2300500) operated by the Government of Canada (2015).



LEGEND

- COMMUNITY
- PROPOSED HAUL ROAD
- ALL WEATHER ROAD
- WHALE TAIL PIT
- MEADOWBANK OPERATION AND INFRASTRUCTURE
- CLAIM BOUNDARY
- WATERCOURSE
- WATERBODY

REFERENCE

1. HAUL ROAD OBTAINED FROM AGNICO EAGLE MINES LIMITED. 2015-10-14 FROM 6103-117-230-200_R0.dwg
2. CLAIM BOUNDARIES OBTAINED FROM AGNICO EAGLE MINES LIMITED.
3. WATERCOURSE AND WATERBODY DATA OBTAINED FROM CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
4. INSET MAP DATA OBTAINED FROM ESRI.

DATUM: NAD 83 CSRS PROJECTION: UTM ZONE 14

12 0 12
KILOMETRES

PROJECT
AGNICO EAGLE

AGNICO EAGLE MINES LIMITED:
MEADOWBANK DIVISION
WHALE TAIL PIT PROJECT

TITLE

LOCATION OF THE PROJECT

Golder Associates

PROJECT		1541520	FILE No.	
DESIGN	JR	24 Mar. 2016	SCALE AS SHOWN	REV. 0
GIS	CDB	11 May 2016		
CHECK	SO	06 Jun. 2016		
REVIEW	LY	06 Jun. 2016		

FIGURE 2.1

Y:\burnaby\CAD-GIS\Client\Agnico_Eagle_Mines_Ltd\Whale_Tail\99_PROJECTS\1541520_FEIS\02_PRODUCTION\FEIS\MXD\1300_Documentation\1340_Project_Description\Report\WATER_MANAGEMENT_PLAN\1541520_FIG_2.1_PROJECT_LOCATION.mxd

Table 2.1 Estimated Mine Site Monthly Mean Climate Characteristics

Month[a]	Mean Air Temp. (°C) [a]	Monthly Precipitation (mm) [a]			Losses [a]		
		Rainfall (mm)	Snowfall Water Equivalent (mm)	Total Precip. (mm)	Lake Evap. (mm)	Evapo-transpiration (mm)	Snow Sublimation (mm)
January	-31.3	0	7	7	0	0	9
February	-31.1	0	6	6	0	0	9
March	-26.3	0	9	9	0	0	9
April	-17.0	0	13	13	0	0	9
May	-6.4	5	8	13	0	0	9
June	4.9	18	3	21	9	3	0
July	11.6	39	0	39	99	32	0
August	9.8	42	1	43	100	32	0
September	3.1	35	7	42	40	13	0
October	-6.5	6	22	28	0	0	9
November	-19.3	0	17	17	0	0	9
December	-26.8	0	10	10	0	0	9
Annual	-11.3	146	103	249	248	80	72

[a] SNC (2015).

°C = degrees Celsius; mm = millimetre.

Table 2.2 Estimated Mine Site Extreme 24-Hour Rainfall Events

Return Period (Years) [a]	24-hour Precipitation (mm) [a]
2	27
5	40
10	48
25	57
50	67
100	75
1000	101

[a] SNC (2015).

mm = millimetre.

2.1.2 Permafrost

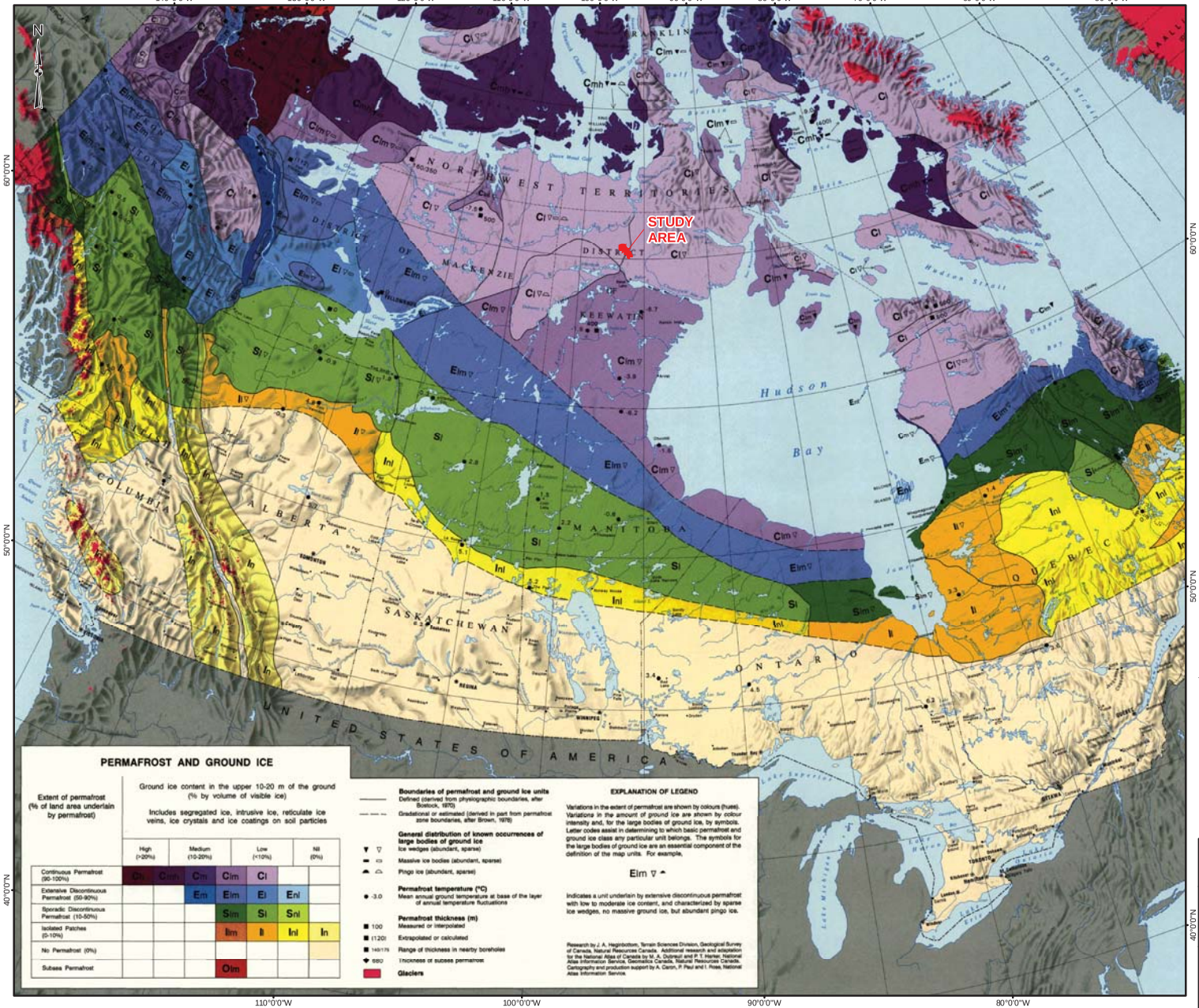
The mine site is located in an area of continuous permafrost, as shown on Figure 2.2. Based on measurements of ground temperatures (Knight Piésold 2015), the depth of permafrost at the mine site is estimated to be in the order of 425 metres (m) outside of the influence of waterbodies. The depth of the permafrost and active layer will vary based on proximity to the lakes, overburden thickness, vegetation, climate conditions, and slope direction. The typical depth of the active layer is 2 m in this region of Canada.The typical permafrost ground temperatures at the depths of zero annual amplitude (typically at the depth of below 15 m) is approximately -8.0 °C in the areas away from lakes and streams. The geothermal gradient measured is 0.02 degrees Celsius per meter (°C/m) (Knight Piésold 2015). Late-winter ice thickness on freshwater lakes is approximately 2.0 m. Ice covers usually appear by the end of October and are completely formed in early November. The spring ice melt typically begins in mid-June and is complete by early July.

Groundwater characteristics at the mine site are detailed in the Final Environmental Impact Statement (FEIS), Volume 6, Section 6.2 (Agnico Eagle, 2016) and are briefly summarized herein.

Two groundwater flow regimes in areas of continuous permafrost are generally present:

- a deep groundwater flow regime beneath the base of the permafrost; and
- a shallow flow regime located in an active (seasonally thawed) layer near the ground surface.

From late spring to early autumn, when temperatures are above 0˚C, the active layer thaws out. Within the active layer, the water table is expected to be a subdued replica of topography, and is expected to parallel the topographic surface. Project area groundwater in the active layer flows to local depressions and ponds that drain to larger lakes at velocities estimated to range from about 0.004 m/day to 0.08 m/day.



REFERENCE

PROPOSED HAUL ROAD FROM AGNICO EAGLE MINES LIMITED (AGNICO EAGLE).
PERMAFROST MAP OF CANADA PRODUCED BY THE NATIONAL ATLAS INFORMATION SERVICE, CANADA CENTRE FOR MAPPING, GEOMATICS CANADA, AND THE TERRAIN SCIENCES DIVISION, GEOLOGICAL SURVEY OF CANADA, NATURAL RESOURCES CANADA. PRINTED 1995 (MCR 4177).
DATUM: NAD 83 CSRS PROJECTION: CANADA ATLAS LAMBERT

280 0 280
KILOMETRES

PROJECT
AGNICO EAGLE

AGNICO EAGLE MINES LIMITED:
MEADOWBANK DIVISION
WHALE TAIL PIT PROJECT

TITLE

PERMAFROST MAP OF CANADA

Golder Associates

PROJECT	1524321	FILE No.	
DESIGN	DO	28 OCT. 2015	SCALE AS SHOWN
GIS	CDB	11 MAY 2016	REV. 0
CHECK	SO	06 Jun. 2016	
REVIEW	LY	06 Jun. 2016	

FIGURE 2.2

Y:\burnaby\CAD-GIS\Client\Agnico_Eagle_Mines_Ltd\Whale_Tail\99_PROJECTS\1541520_FEIS\02_PRODUCTION\FEIS\MXD\1300_Documentation\1340_Project_Description\Report\WATER_MANAGEMENT_PLAN\1541520_FIG_2.2_CANADA_PERMAFROST.mxd

2.1.3 Hydrology

Hydrology characteristics were extracted from surface water quantity impact assessment section (FEIS, Volume 6, Section 6.3; Volume 6, Appendix 6-C, Agnico Eagle, 2016).

The proposed mine site is located in the A watershed (i.e., where Lake A17 [Whale Tail Lake] and Lake A16 [Mammoth Lake] are located), and water management activities are planned in the A watershed, and the C watershed (i.e., where Lake C38 [Nemo Lake] is located); these two watersheds drain into Lake DS1, which drains north to the Meadowbank River. These watersheds comprise an extensive network of lakes, ponds, and interconnecting streams, and have lake water surface fractions (i.e., the ratio of lake area to watershed area) of 16% (A watershed) and 23% (C watershed).

Shorelines in the mine site area exhibit a consistent terrain type related to shorelines that have developed in morainal material. These morainal shorelines were observed at all lakes visited during the 2015 field survey. Limited areas of bedrock and shallowly sloped sandy shorelines were also observed. As a general characteristic for the surveyed shorelines, the predominant materials are boulder gardens mixed with cobble with very limited soils or organic materials on top. The outlet channels are relatively short with a low sinuosity (i.e., close to 1.0) and exhibit the same characteristics for streambed materials, which results in interstitial flow through large boulders or below the surface likely close to the bedrock, making flow difficult to observe and measure.

Discharges of watercourses in the mine site area typically peak in late-May to mid-June from snowmelt, rapidly decline in July, and low discharges prevail until frozen conditions in October to November, with a secondary peak in September from rainfall events. Watercourses in the Project area are frozen over the winter.

Derived long-term mean annual water yield for selected lakes in the mine site area vary between 86 mm at Lake C38 (Nemo Lake) to 230 mm at Lake A69. These water yields are similar to regional water yields reported at the Meadowbank Mine.

2.1.4 Surface Water Quality

Water quality characteristics were extracted from the water quality baseline report (FEIS, Volume 6, Appendix 6-G, Agnico Eagle, 2016) and the water quality impact assessment section (FEIS, Volume 6, Section 6.4, Agnico Eagle, 2016). Baseline water quality sampling was conducted at lakes and tributaries in various watersheds in the study area during open-water conditions in 2014 and 2015.

Surface water collected from lakes during the open water season was characteristic of low productivity headwater lakes in the Arctic; soft water, with low alkalinity, low turbidity (and corresponding high Secchi depth) and low total suspended solids (TSS). There was minor thermal stratification evident at some deeper lake stations. The water columns of lakes are well oxygenated and pH was neutral to slightly acidic. The majority of water chemistry parameter concentrations were below the analytical detection limit and below the Canadian Council of Ministers of the Environment

water quality guidelines for the protection of aquatic life (CCME, 1999) and the Canadian drinking water guidelines (Health Canada, 2014).

Samples collected from the tributaries showed them to be well oxygenated, with low conductivity, and neutral to slightly alkaline pH. As with the lakes, the majority of the water chemistry parameter concentrations were below the aquatic life and drinking water quality guidelines.

2.1.5 Climate Change

Climate change information presented herein was extracted from the air quality impact assessment section (FEIS, Volume 4, Section 4.2, Agnico Eagle, 2016).

The climate in the Arctic is changing faster than at mid-latitudes (IPCC, 2014). The most recent set of climate model projections (CMIP5) predict an Arctic-wide year 2100 multi-model mean temperature increase of +13^{o}C in late fall and +5^{o}C in late spring under the IPCC's "business as usual scenario" (RCP8.5). IPCC climate change mitigation scenario RCP4.5 results in a year 2100 multi-model Arctic wide prediction of +7^{o}C in late fall and +3^{o}C in late spring (Overland et al., 2013). The effects of changes of this magnitude to terrestrial, aquatic and marine ecosystems, social and economic systems of the Arctic are an active area of research. However, the short duration of the proposed Project means that climate change related effects to the Project are likely negligible.

2.1.6 Seismic Zone

The mine site is located in an area of relatively low seismic risk. The peak ground acceleration (PGA) for the area was estimated using seismic hazard calculator from the 2010 National Building Code of Canada website (http://www.earthquakescanada.nrcan.gc.ca/hazard-alea/interpolat/index_2010-eng.php). The estimated PGA is 0.019 g for a 5% in 50-year probability of exceedance (0.001 per annum or 1 in 1,000 year return) and 0.036 g for a 2% in 50-year probability of exceedance (0.000404 per annum or 1 in 2,475 year return) for the area.

2.2 Mine Operations Description

2.2.1 Mine Development Plan

Whale Tail Pit will be mined using traditional open pit method, and the mining is planned from Q2 of Year -1 (2018) to the end of Year 3 (2021).

Two mine waste streams will be produced at Whale Tail Pit, waste rock and overburden. Approximately 61.3 Mt of waste rock and 6.0 Mt of overburden will be generated by the Project. As ore is transported to the Meadowbank Mine for processing, a third mine waste stream, tailings, will be produced at Meadowbank Mine (Refer to the Meadowbank Mine Waste Rock and Tailings Management Plan). The operation management and monitoring of the TSF is regulated under Agnico Eagle Type A water Licence 2AM-MEA1526.

The mine development will include the following major infrastructure:

- industrial area (camp and garage);
- crusher;
- ore stockpiles;
- rock and Overburden Storage facilities;
- landfill;
- haul and access roads; and
- open pit mine.

In addition, the mine development will include construction of water management facilities, listed in Section 3.1.2.

2.2.2 Summary of Mine Waste Management

This section describes a summary of the mine waste management plan. More detailed information on mine waste management is presented in the Whale Tail Pit Waste Rock Management Plan. Water management associated with mine waste management is described in Section 3.1.4 of this document. One area was identified as the Whale Tail WRSF to store waste rock and overburden material, as shown in Figure A.1 to Figure A.4 in Appendix A. Table 2.3 presents a summary of the total tonnage of mine waste materials and their proposed usage or destination.

Table 2.3 Summary of Mine Waste Tonnage and Destination

Mine Waste Stream	Estimated Quantities	Waste Destination
Overburden	6.0Mt	• Temporary storage West of Whale Tail Lake (~ 0.1 Mt for operations) • Co-disposed with waste rock in Whale Tail WRSF
Waste Rock	61.3Mt	• Construction material • Whale Tail WRSF • Closure and site reclamation
Tailings	8.3 Mt	• As slurry tailings placed in the approved Meadowbank Mine tailings storage facility

WRSF = Waste Rock Storage Facility; Mt = million tonne

SECTION 3 • WATER MANAGEMENT PLAN AND WATER BALANCE

3.1 General Water Management Strategy

3.1.1 Water Management Objectives and Strategies

The goal of water management is to minimize the impact of the mine activities on the aquatic ecosystem surrounding the mining area. The key objectives for water management are:

- keep the different water types (i.e., contact, non-contact, and freshwater) separated to the extent practical;
- control and minimize contact water through diversion and containment;
- minimize freshwater usage by recycling and reusing the contact water to the extent practical; and
- meet discharge criteria before any site contact water is released to the downstream environment.

To achieve the above water management objectives, the following key strategies were implemented to develop the Plan:

- Two levels of catchment disturbance have been defined for the area, namely undisturbed and disturbed. Areas that have been disturbed as part of the mine development are considered disturbed catchments, while the areas left unaffected are considered undisturbed catchments.
- For the purpose of mine water management, runoff from undisturbed areas is considered non-contact water, while runoff from disturbed catchment areas is considered contact water. Surface water that is diverted around the mine facilities, or groundwater that does not emerge into a mine facility, is considered non-contact water. Any non-contact water that mixes with contact water becomes contact water.
- Conveyance and storage of contact water will be controlled by channels and containment structures (i.e., sumps and ponds). Sumps will be installed in the open pit and in low points surrounding the open pit. Contact water will be diverted and collected in various sumps and water collection ponds and conveyed to the Whale Tail Attenuation Pond.
- The collected water will be treated if the water quality does not meet the discharge criteria established in the Water Licence 2AM-WTP1826.
- The treated water will be reused as much as possible to minimize the freshwater requirements. The excess treated water will be discharged into Lake A16 (Mammoth Lake) through a submerged diffuser.
- Non-contact water will be intercepted and directed away from disturbed areas by means of natural catchment boundaries and/or man-made diversion structures and will be allowed to flow to the neighbouring waterbodies.

3.1.2 Water Management System

The water management system includes the following components (identified on Figure A.1 to Figure A.5 in Appendix A):

- Turbidity Curtains;
- low-permeability access road to reach the Stage 1 WRSF and a collection sump;
- two contact water collection ponds (Whale Tail Attenuation and Whale Tail WRSF);
- two freshwater collection ponds (Whale Tail Lake (South Basin) and Northeast Sector);
- three proposed water diversion channels (Whale Tail, East, and North, if deemed necessary);
- four water retention dikes (Whale Tail, Mammoth, Whale Tail WRSF, and Northeast);
- two coffer/saddle dams;
- seven proposed culverts (Culverts 181, 182, 183, 184, 185, 186, and Mammoth Channel Culvert, if deemed necessary);
- a freshwater intake causeway and pump system;
- a WTP and associated intake causeway;
- a WTP for construction;
- a Sewage Treatment Plant (STP);
- pipeline and associated pump system;
- a Potable WTP; and
- a discharge diffuser located in Lake A16 (Mammoth Lake).

3.1.3 Waterbody Inventory

The A and C watersheds will potentially be impacted by mining activities, primarily by dewatering of Whale Tail Lake (North Basin) to Lake A16 (Mammoth Lake), the Northeast Diversion to the C watershed, and the Whale Tail Lake (South Basin) Diversion to Lake A16 (Mammoth Lake). Waterbodies directly impacted by mining activities are presented in Table 3.1 and shown in Figure A.2 in Appendix A.

Table 3.1 Inventory of Waterbodies Directly Impacted by Mining Activities

Watershed	Primary Disturbance	Waterbody	Note
A	Dewatering	Lake A16 (Mammoth Lake)	Receiving lake during dewatering activities
	Northeast Diversion	Lake A47	Flooded
		Lake A48	Flooded
		Lake A55	Flooded
		Lake A62	Flooded
		Lake A63	Flooded
		Lake A65	Flooded
		Lake A113	Flooded
		Pond A-P38	Flooded
		Pond A-P68	Flooded
	Whale Tail Lake (South Basin) Diversion	Lake A18	Flooded
		Lake A19	Flooded
		Lake A20	Flooded
		Lake A21	Flooded
		Lake A22	Flooded
		Lake A45	Part of diversion channel
		Lake A55	Flooded
		Lake A62	Flooded
		Lake A63	Flooded
		Lake A65	Flooded
		Pond A-P1	Flooded
		Pond A-P53	Flooded
	Various Water Management Activities	Lake A17 (Whale Tail Lake)	Water management activities include diversion of upper watershed and dewatering of Whale Tail Lake (North Basin)
C	Water Intake	Lake C38 (Nemo Lake)	

3.1.4 Water Management Plan during Construction and Operations

3.1.4.1 Infrastructure Required for Mine Site Water Management

During the mine construction, operational and closure phases, a network of collection and interceptor channels and sumps will be constructed and maintained to facilitate mine site water management. A list of the water management control structures and facilities is presented in Table 3.2 together with the proposed construction schedule. These structures were designed according to design criteria presented in the FEIS, Volume 2, Appendix 2-J (Agnico Eagle, 2016). Final design details of these structures will be provided to the regulators for approval at least 60 days prior to construction.

Appendix A, Figure A.1 to Figure A.5 shows the location of the respective structures at the different development stages of the mine life. Information on operation, maintenance, and surveillance (OMS) of Project dikes is provided in the following sub-sections.

Table 3.2 Water Management Facilities and Construction Schedule

Mine Year	Figure	Water Management Facilities Constructed or Installed
Year -1 (2018) Construction	A.1 and A.5	• Turbidity Curtains • Start Whale Tail Dike • Start Mammoth Dike • Start the contact water intake causeway in the Whale Tail Attenuation Pond • Construction of the low-permeability access road built of overburden and collection sump for Stage 1 WRSF • Freshwater intake causeway in Nemo Lake • Water Treatment Plant and Construction Water Treatment Plant • Pipelines and associated pump systems for water management and dewatering • Sewage Treatment Plant • Potable Water Treatment Plant • Discharge diffuser in Mammoth Lake • Culverts 184, 186, and Mammoth Channel
Year 1 (2019) Operations	A.2	• Complete Whale Tail Dike • Complete Mammoth Dike • Complete the contact water intake causeway in the Whale Tail Attenuation Pond • Whale Tail WRSF Dike • Northeast dike • Whale Tail Lake (South Basin) Diversion Channel • Whale Tail East Channel and Saddle/Coffer Dam • If deemed necessary, North Diversion Channel • Saddle/Coffer Dam #1 in Whale Tail WRSF

WRSF = Waste Rock Storage Facility.

3.1.4.2 Dike Construction

The Whale Tail Dike is intended to raise Whale Tail Lake (South Basin), Lake A18, Lake A19, Lake A20, Lake A21, Lake A22, Lake A55, Lake A62, Lake A63, Lake A65, Pond A-P1, and Pond A-P53, to an elevation of 156.0 metres above sea level (masl), and divert runoff downstream to the Lake A16 (Mammoth Lake) watershed through the Whale Tail Lake (South Basin) diversion channel. Whale Tail Dike will be constructed as a zoned rockfill dike on the lakebed foundation with a core composed of a fine filter dynamically compacted. A coarse filter will be placed between the rockfill and the fine filter.

A cement-bentonite cutoff wall consisting mainly of secant piles will be constructed through this dense core and will act as a seepage barrier. The construction technique will differ for the sections extending into the existing lake from those at the abutments. For the lake sections of the dike, construction will be initiated by advancing two single-line platforms built at elevation 154.0 masl. After cleaning out the central key trench by reaching the bedrock, backfill consisting of fine and coarse filters will be gently deposited up to elevation 154.0 masl. The WTD will then be constructed up to elevation 157.0 masl. From this level, the fine filter will be dynamically compacted by heavy tamping. The secant piles will then be installed from elevation 157.0 masl to 1.0 m below the bedrock surface. The type of material used for the cutoff wall will be a cement-bentonite mix. The maximum height of the secant pile cutoff wall is expected to be of 10.5 m.

At the west abutment, the footprint of WTD will cross an esker which extends well below lake level. The esker will be blasted to about elevation 153.0 masl at the west abutment. The bottom of the excavation would be 0.5 m above lake level and then the rockfill zones and fine filter would be placed. Above elevation 153.0 masl, a key trench to the bedrock will then be progressively excavated in the thawed esker to expose its surface. In addition, and to minimize the number of secant piles, it is proposed to place a cement-bentonite slurry cutoff wall where bedrock surface is above elevation 155.5 masl. The secant piles will overlap the cured CB slurry cutoff over 1.5 m in horizontal length.

The strategy for the east abutment will be different than for the west abutment. It would be beneficial to remove (in the core trench area) the layer that contains ice rich till prior to the placement of any material. Due to schedule and access constraints, the east abutment will be blasted in order to remove about 4 m of frozen soil (in the core trench area) that contains ice rich material.

The performance of Whale Tail Dike will be evaluated based on the quantity of seepage collected (compared to the design estimate). This structure will be highly instrumented with sections of piezometers and thermistor strings to understand the hydraulic and thermal behaviour during reservoir filling. The thermal regime will be monitored all along the dike to note the thermal impact of raising the lake water level. Monuments and inclinometers will be installed along the dike as well. Typical sections of Whale Tail Dike and of Whale Tail Dike abutment are shown in Figure 3.1. All design drawings and figures can be found in the Whale Tail Dike Detailed Design Report (SNC, 2018).

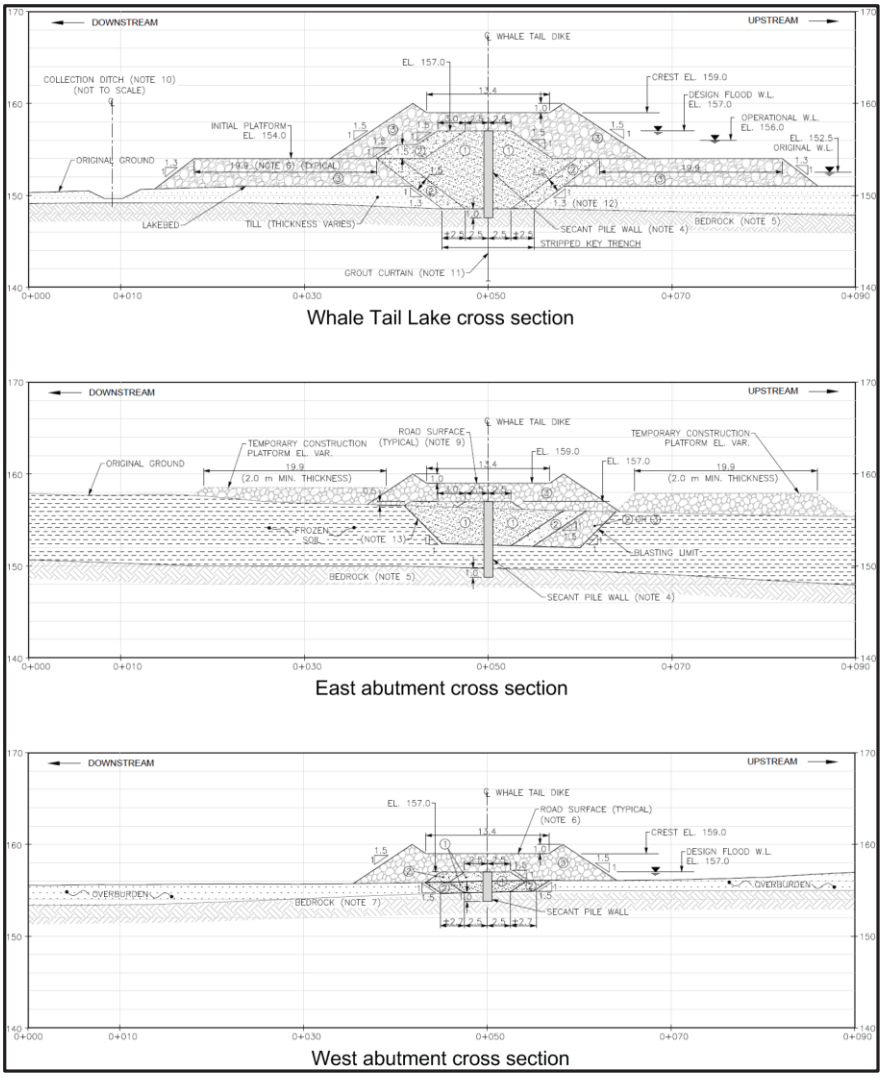


Figure 3.1 Typical Sections of Whale Tail Dike and Whale Tail Dike Abutment

The Mammoth Dike is intended to protect the mine site area from potential backwatering from Lake A16 (Mammoth Lake) during the operational and closure phases. The concept of this structure is similar to the other dikes in shallow water operated by Agnico Eagle (as Vault Dike). Mammoth dike has a length of about 300 m and a height of 2 m. It will be a rockfill dike lined with bituminous geomembrane on its upstream face encapsulated at the toe in a layer of fine filter amended with bentonite (FFAB) liner in turn constructed in a key trench. The key trench will extend down to the bedrock and all boulders along the alignment will be removed. A thermal cap of rockfill will be placed on top during the winter season to prevent the FFAB from thawing. The winter construction technique aims to reinforce the permafrost strength of the foundation. A typical section of the Mammoth Dike is shown in Figure 3.2.

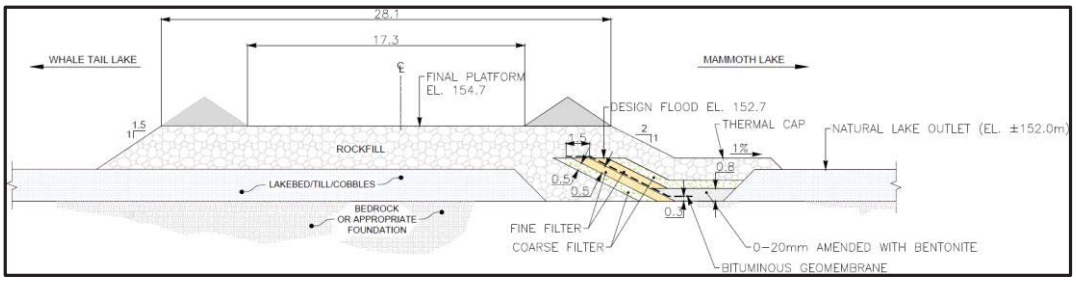


Figure 3.2 Typical Section of Mammoth Dike

Note: Adapted from SNC-Lavalin (2017).

The Whale Tail WRSF Dike confines contact water in the Whale Tail WRSF Pond before it is pumped to the Whale Tail Attenuation Pond. The WRSF dike is about 300 m and 5 m height and has been classified as a high based on CDA Guidelines. As the Mammoth Dike, the Whale Tail WRSF Dike will be a rockfill dike with a bituminous liner on its upstream face encapsulated at the toe in a layer of FFAB liner in turn constructed in a key trench anchored to the bedrock during the summer season. The liner will take advantage of frozen soil conditions to integrate the permafrost into its foundation (and key trench). The key trench will be stripped during the summer season. All ice-rich material sensitive to thawing will be removed below the liner. Once the bedrock is exposed, the bituminous liner will be sealed with FFAB. While the geomembrane in the key trench is buried, a thermal cap will be put in place to protect the foundation against sources of heat. If during the operation the degradation of the permafrost occurs, a grout curtain will be installed to enhance the performance of the dike. A typical section of the Whale Tail WRSF Dike is shown in Figure 3.3.

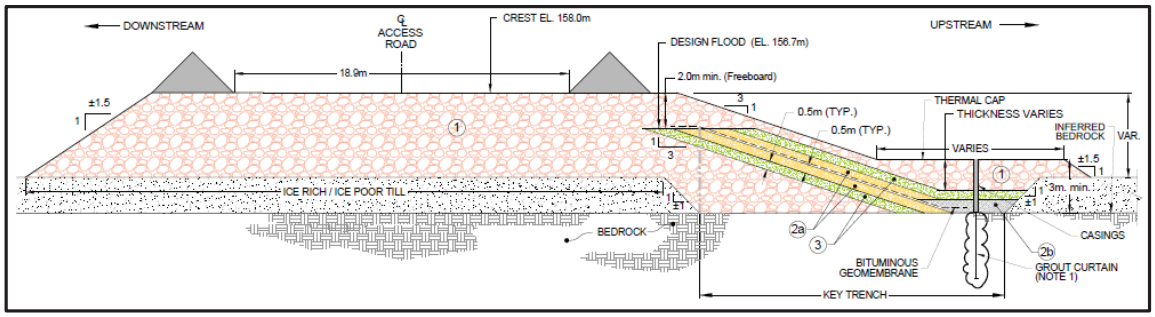


Figure 3.3 Typical Section of Whale Tail Waste Rock Storage Facility Dike

Note: Adapted from SNC (2015).

The Northeast (NE) Dike is a temporary structure with an estimated service life of about two (2) years and is designed to prevent runoff from the Northeast watershed reporting to the Whale Tail Pit As both Mammoth and WRSF Dikes, the upstream slope of the NE Dike will be lined with bituminous geomembrane encapsulated at the toe in a layer of FFAB liner in turn constructed in a key trench to the bedrock or to an appropriate foundation (ice-poor till). The construction will promote the extraction of heat to reinforce the permafrost of the key trench thus making it impervious. Dewatering should be completed prior to beginning of winter to promote development of permafrost in the

foundation. A thermal cap will be put in place to limit the penetration of heat into the foundation. A typical section of the Whale Tail WRSF Dike is shown in Figure 3.4.

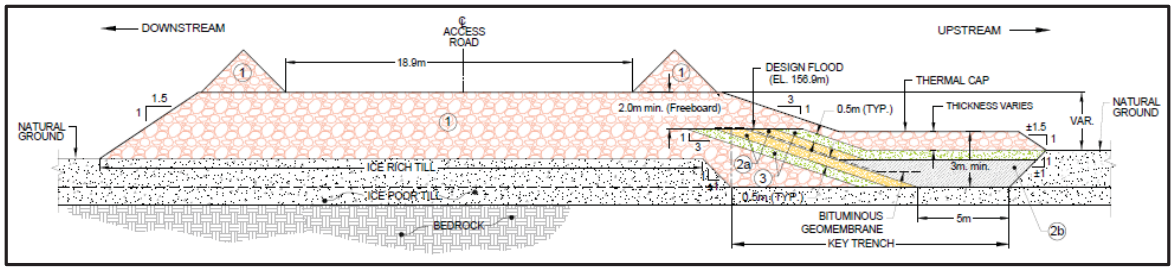


Figure 3.4 Typical Section of Northeast Dike

Note: Adapted from SNC (2015).

During dike construction, both the dike material itself as well as the disturbed material on the lake floor (particularly in the deep areas of the lakes) will contribute to increases in concentrations of suspended sediments in the water column. In the absence of sediment control measures, suspended sediment plumes would be expected to migrate with wind-driven currents. The key means for minimizing suspended sediment discharges from the dike construction zones during dike construction include the deployment of Turbidity Curtains and water treatment (if deemed necessary).

For the construction of Whale Tail Dike, a total of four (4) layers of turbidity curtains will be installed across Whale Tail Lake (two (2) on each side of the dike). These curtains will be deployed concurrently with the start of the dike construction to contain turbid water caused by the construction while the fishout is taking place. In addition, requirement for pumps installed in the water in front of the construction platform to neutralise the current created by the displacement of water from the deposition of rock in the lake will be evaluated at the beginning of the construction. If such mitigation measure is required, water will be pumped to the dewatering WTP and discharged into Lake A16 (Mammoth Lake) through the existing discharge diffuser system. The proposed location for the Turbidity Curtains is shown in Figure A.1.; however final location of the curtains will depend of the final dike design and site conditions.

For Northeast Dike, no specific TSS management plan is expected as the construction of this facility is planned when the open pit will be in operation and contact water will be managed as part of the current operations.

3.1.4.3 Dewatering

To allow the mining of the Whale Tail Pit, Lake A17 (Whale Tail Lake) will be partly dewatered once the Whale Tail Dike is constructed. The estimated total volume of Whale Tail Lake (Lake A17) is 8.5 million m^3 (Mm^3); the upper portion of Lake A17 (3.4 Mm^3) will be pumped to either Whale Tail Lake (South Basin) or to Lake A16 (Mammoth Lake) through the discharge diffuser. It is assumed that approximately 66% of the volume of water will be pumped directly to Whale Tail Lake (South Basin) if

it meets discharge criteria, and the remaining 34% of water will be pumped to the WTP first and then discharged to Lake A16 (Mammoth Lake) after treatment. The dewatering activity is planned from March to May 2019 to Whale Tail Lake (South Basin) and from June to September 2019 to Lake A16 (Mammoth Lake).

3.1.4.4 Key Water Management Activities during Construction and Operations

An inventory of waterbodies impacted by mining activities is provided in Table 3.1 (Section 3.1.3) and the water management facilities required for the Plan is provided in Table 3.2 (Section 3.1.4.1). These tables should be read in conjunction with Table 3.3, which presents the yearly major water management activities during the construction and operational phases. Water management activities during the closure phase are described in Section 3.2.

Table 3.3 Water Management Activities during Construction and Operations

Mine Year	Water Management Activities and Sequence
Year -1 (2018)	• Temporary pump contact water from the Stage 1 WRSF sump to quarry 1 • Temporary pump contact water from the starter pit to quarry 1 • Temporary pump contact water from open pit to the Whale Tail WRSF Pond • Treat turbid water from construction using the construction WTP and discharge in Lake A16 (Mammoth Lake) • Treat contact water from quarries using the construction WTP and discharge in Lake A16 (Mammoth Lake)
Year 1 (2019)	• Dewater Whale Tail Lake (North Basin) • Pump contact water from the open pit to the Whale Tail Attenuation Pond • Pump contact water from the Whale Tail WRSF Pond to the Whale Tail Attenuation Pond • Treat through the WTP the Whale Tail Attenuation Pond contact water and discharge in Lake A16 (Mammoth Lake) • Whale Tail East channel diverts non-contact water from Lake A53 to Whale Tail Lake (South Basin) • If deemed necessary, North channel diverts non-contact water from the north shore of the open pit to Lake A16 (Mammoth Lake)
Year 2 (2020)	• Continue to pump contact water from the open pit to the Whale Tail Attenuation Pond • Continue to pump contact water from the Whale Tail WRSF Pond to the Whale Tail Attenuation Pond • Treat through the WTP the Whale Tail Attenuation Pond contact water and discharge in Lake A16 (Mammoth Lake) • Northeast Pond flows towards the C watershed • Whale Tail Lake (South Basin) flows to Lake A16 (Mammoth Lake) through the Whale Tail Lake (South Basin) Diversion Channel

WRSF = Waste Rock Storage Facility; WTP = Water Treatment Plant.

A brief summary of the Plan during the construction and operational phases is presented as follows:

- Turbidity Curtains will be used during the construction of the Whale Tail Dike and, if deemed necessary for the construction of Mammoth Dike and Whale Tail WRSF Dike.
- During the construction, to the extent practical, turbid water originating from Lake A17 (Whale Tail Lake) and from the quarry 1 will be treated and discharged in Lake A16 (Mammoth Lake).
- The main contact water pond of the Project (i.e., Whale Tail Attenuation Pond) is located in a deep part of Whale Tail Lake (North Basin).
- Contact water from the major mine infrastructure will be diverted and/or collected in the Whale Tail Attenuation Pond.
- Contact water from the Whale Tail WRSF Pond will be pumped to the Whale Tail Attenuation Pond.
- Runoff water in the open pit will be collected by the sumps and then pumped to the Whale Tail Attenuation Pond.
- Water collected in the Whale Tail Attenuation Pond will be reused to the extent practical in the open pit and dust control operations, and the excess water will be treated by the WTP prior to discharge to the receiving environment via the diffuser into Lake A16 (Mammoth Lake). Water quality objectives for arsenic and phosphorous will be meet via the proposed diffusor design: 10 ports at 12.6 m spacing and 75mm, diameter diffusor ports, effluent mixing (mixing zone). Within Mammoth Lake, the required dilution of WRSF seepage is predicted to be met at 60 m from the discharge location in all scenarios. A rock fill weir at outlet will channelize seepage outflow into Mammoth Lake and facilitate dilution.
- Non-contact water is diverted away from the mine site infrastructure by reversing natural flows and/or using diversion channels.
- Freshwater usage on site will be supplied from Lake C38 (Nemo Lake) during operations, and from Whale Tail Lake (South Basin) during closure.

Table 3-4 summarizes the overall contact water management plan for the major mine infrastructure with the initial water collection location and final water destination. Detailed water management information for major mine infrastructure areas is described in the following sub-sections. Water management flowsheets for the construction and operations phase are provided in Appendix B.

Table 3.4 Overall Site Surface Contact Water Management Plan

Contact Water Source	Initial Contact Water Collection Location	Final Contact Water Collection Location
Industrial Sector	Whale Tail Attenuation Pond	Whale Tail Attenuation Pond
Whale Tail WRSF Sector	Whale Tail WRSF Pond (Quarry 1 for the temporary Stage 1 WRSF sump)	
Ore Stockpiles	Whale Tail Attenuation Pond	
Landfill	Whale Tail WRSF Pond	
Open Pit	Open pit sumps	

WRSF = Waste Rock Storage Facility.

3.1.4.5 Erosion and Sediment Control Plan

As described in the previous sections, Whale Tail Pit site infrastructure, channels, sumps and associated water management activities are designed with consideration of site wide erosion and sediment control. In addition to design controls, best management practices (BMPs) will furthermore ensure that activities, practices, devices or a combination thereof will prevent or reduce the release of sediments and will control erosion. The selection of permanent or temporary BMPs will be specific to the site and timing and may require regulatory approval prior to installation or construction.

Temporary BMPs Whale Tail Pit may include:

- Silt fences and fabric installation;
- Turbidity curtains;
- Sediment control basins to detain sediment-laden water; and
- Diversion of flows away from the construction area.

Permanent BMPs at the Whale Tail Pit may include:

- Infiltration basins and trenches;
- Sedimentation basins or ponds; and
- Construction of swales in ditches.

Monitoring of erosion and sedimentation associated with construction and operations are discussed in Section 3.2 of this plan and are detailed in the Whale Tail Pit Water Quality and Flow Monitoring Plan (FEIS Appendix 8 B.3, Agnico Eagle, 2016) and dike construction sediment control and monitoring is presented in Whale Tail Pit Dike Construction and Dewatering Management Plan (FEIS Appendix 8 – A.2, Agnico Eagle, 2016).

For specific details on sediment control guidelines and license requirements, on erosion monitoring and mitigation during freshet and the rise of water level in the South Basin of Whale Tail Lake, refer to the Whale Tail Project - Erosion Management Plan (Agnico Eagle, 2018b).

3.1.4.6 Water Management in Whale Tail Waste Rock Storage Facility

As mentioned in the document Amaruq Stage 1 WRSF, Ore Stockpile 1 and Starter Pit Design Report and Drawings (Agnico Eagle, 2018c), while awaiting the construction of the Whale Tail WRSF dike expected in winter 2019, a Stage 1 WRSF will be initiated. The Stage 1 WRSF, located within the footprint of the final location of the WRSF, will be positioned as to be able to control the watershed using the topography in combination with temporary water management structures in order to prevent potentially contaminated contact water from seeping into the environment. The duration of this Stage 1 WRSF will be during the second half of 2018 until the aforementioned WRSF dike is constructed or when weather conditions are sufficiently cold that no thawing or water runoff can occur.

To avoid any potential contact water from entering the environment, a low-permeability access road built of overburden will be established first to reach the Stage 1 WRSF location and will act as a barrier to any water not naturally diverted towards a containment sump that will be established once the access road is completed and prior to any placement of PAG / ML material. The location of the Stage 1 WRSF was chosen as to use the topography to control water runoff, in combination with the access road and collection sump designed to sustain a 1:100 year rain event. All water collected in the sump will be directed towards Quarry 1 in a closed circuit. Refer to Figure A.5 of Appendix A.

The Whale Tail WRSF will be used to permanently store all waste rock and overburden from mining activities. Seepage and runoff from the Whale Tail WRSF during the construction and operational phases will be managed via the Whale Tail WRSF Pond, isolated by the Whale Tail WRSF dike, where the contact water will be pumped to the Whale Tail Attenuation Pond for further treatment. During the construction phase or until the Whale Tail WRSF Dike is operational, runoff and especially water originating from thawed ice-rich soils will be managed with ditches and local sumps. All overburden soils will be stabilized with waste rock berms in order to limit spreading and soil water separation. More details about management of the Whale Tail WRSF are presented in the Mine Waste Rock and Tailings Management Plan.

3.1.4.7 Water Management for Ore Stockpile Areas

The ore stockpiles are located within the catchment of the Whale Tail Attenuation Pond as shown in Figure A.2, Figure A.3 and Figure A.5 (Appendix A). Based on the topographic information, contact water will naturally flow to the Whale Tail Attenuation Pond for further treatment. Channels will be constructed if deemed required to direct the seepage and runoff to the pond.

The Ore Stockpile Pad 1, which constitute the first stage of the ore stockpile, was designed based on the following considerations. A minimum 1.0 m of overburden and/or waste rock will be placed over original ground to reduce any thaw-induced differential settlements. Waste rock will then be placed to follow the natural topography, thereby reducing the likelihood of water ponding on the surface of the pad requiring additional maintenance. A final grade of about 0.5% sloping towards the Whale Tail

Attenuation Pond will be achieved. Any surface run off from the ore stockpile or the pad will therefore be directed to the Attenuation Pond containment area.

3.1.4.8 Water Management for the Pit Sector

The Whale Tail open pit is planned to extend to approximately 115 m below the ground surface. The open pit will be mined mostly within permafrost except for the north-central portion of the pit which will be within the closed talik at the northern end of Lake A17 (Whale Tail Lake). The pit does not extend through the bottom of the closed talik; however, the open pit acts as a sink for groundwater flow during operations, with water induced to flow up through the open talik beneath the central portion of Lake A17 (Whale Tail Lake) and into the open pit. Accordingly, groundwater inflows into open pit are expected, this water will be mixed with the open pit contact water and pumped the Whale Tail Attenuation Pond for further treatment.

3.1.4.9 Water Management for Haul Road

A network of access and haul roads will connect the ore body to the Whale Tail WRSF Sector and the Industrial Sector. The majority of the roadways servicing the mining area will drain directed towards the proposed contact water management infrastructure. Detailed information on roads is described in the Whale Tail Pit Haul Road Management Plan.

The approach to water management for these roads will involve the implementation of local best management practices during the construction, operational, and closure phases. The roads are constructed of non-potential for acid generating and non-leaching waste rock from mining operations. Other best management practices will strive to minimize the amount of runoff originating from the roadways and to prevent the migration of surfacing material from the roadways and crossings. Any areas identified as point sources of runoff originating from the roadways or crossings can be managed locally with silt fences, straw booms, turbidity curtains, interceptor channels, rock check dams, and/or small sedimentation ponds.

3.1.4.10 Water Management for Landfill

The landfill is located southeast of the Whale Tail WRSF, within the catchment of Whale Tail WRSF Pond, as shown in Figure A.2 to Figure A.4 (Appendix A). Based on the topographical information (PhotoSat 2015), runoff and any seepage from the landfill will naturally flow to the Whale Tail WRSF Pond and then pumped to the Whale Tail Attenuation Pond for further treatment before discharge.

Further information on the management of this facility is described in the Whale Tail Pit Landfill and Waste Management Plan.

3.1.4.11 Sludge Management from Water Treatment Plant

Sludge water (typically with 2 to 3% of solid content) from the WTP will be discharged into the Whale Tail Attenuation Pond. The maximum predicted annual volume of sludge water from the WTP is approximately 26,280 cubic metres (m^3). The construction WTP, is designed to treat total suspended

solids only and will be in used during the construction period. The of sludge water from the construction WTP will be disposed in the Whale Tail North Basin.

Further information on the management of this facility is described in the Whale Tail Water Treatment Plant Operation and Maintenance Manual.

3.1.5 Freshwater and Sewage Water Management

3.1.5.1 Freshwater Management

Freshwater for the Whale Tail Camp will be sourced from Lake A17 (Whale Tail Lake) and from Lake C38 (Nemo Lake), as per Part E, conditions 1, 2 and 3 of the Water License 2AM-WTP1826. Freshwater usage includes potable use, fire suppression, dust suppression, drilling water, if contact water is not available, and water for the truck shop. The freshwater source is Lake C38 (Nemo Lake) during construction and operations, and Lake A17 (Whale Tail Lake) during closure. For explosives mixing and associated use, the water will be pumped from the unnamed lake, as per Part E, condition 4 of the Water License 2AM-WTP1826. Freshwater will also be required to refill Whale Tail Lake (North Basin) at closure and will be sourced from the Whale Tail Lake (South Basin) and inflows to Whale Tail Lake (North Basin). Agnico Eagle will endeavour to minimize the amount of freshwater required for the Project, where possible.

Freshwater will be sourced through a freshwater intake and pump system. The intake will consist of vertical filtration wells fitted with vertical turbine pumps that supply water on demand. The intake will be connected to the pump house with piping buried under a rockfill causeway. The intake pipe will exit at the bottom of the causeway and will be fitted with a stainless steel screen, as per Part E, condition 6 of the Water License 2AM-WTP1826. The rockfill causeway will act as a secondary screen to prevent fish from becoming entrained. The stainless steel screens design for the water intake will be consistent the Fisheries and Oceans Canada (DFO) “Freshwater Intake End-Of-Pipe Fish Screen Guideline” (DFO 1995). As per the DFO policy intake screens will be cleaned every 2 years. The freshwater intake will be moved to Whale Tail Lake (North Basin) at closure.

Freshwater will be pumped to an insulated main storage tank located at the Whale Tail Camp. The freshwater pipeline will be a high density polyethylene pipe and insulated and heat traced. The Whale Tail Camp will have a WTP for potable (domestic) water. The design flow rate for the potable water for the Whale Tail Camp and accommodations (i.e., kitchen, laundry) is 84 cubic metres per day (m^3/day), based on a 350 people camp capacity, using both the existing Exploration Camp and additional 210 units and a nominal consumption of 240 litres per day per person (L/day/person). In the Potable WTP, the freshwater will first go through sand filters and then be pumped through ultraviolet units, and finally be treated with chlorine. The treated water will be stored within a potable water tank. Potable water will be monitored according to the Nunavut health regulations for total and residual chlorine and microbiological parameters. Treated potable water will be piped to other facilities requiring potable water.

Approximately 8,760 cubic metres per year (m^3/year) of freshwater will be required during the construction phase, 118,625 m^3/year during the operational phase, and 17,520 m^3/year during the closure phase. The use of freshwater will respect the limits as per Part E, conditions 1 and 2 of the Water License 2AM-WTP1826 During closure, the Whale Tail Pit and Whale Tail Lake (North Basin) will be allowed to flood naturally with non-contact, treated, and freshwater from direct precipitation, runoff from adjacent land, and Whale Tail Lake (South Basin). It is anticipated that approximately 24,000,000 m^3 over 8 years is required to fill the mined-out Whale Tail Pit (i.e., approximately 17,000,000 m^3) and Whale Tail Lake (North Basin) (i.e., approximately 7,000,000 m^3) to its original level, including approximately 2,300,000 m^3/year from Whale Tail Lake (South Basin), 120,000 m^3/year from tributaries to Whale Tail Lake (North Basin), and 580,000 m^3/year from direct precipitation to Whale Tail Lake (North Basin). As per part E, condition 5 of the Water License 2AM-WTP1826, the use of water from Whale Tail Lake shall not exceed a total of 10,655,000 m^3/year commencing when notification of closure is received by the NWB through to the expiry of the Licence.

3.1.5.2 Sewage Water Management

Sewage will be collected from the camp and change-room facilities and pumped to a STP. The objective of the STP is to treat sewage to an acceptable level for discharge to the Whale Tail Attenuation Pond via a sewage water discharge pipeline. The STP will be housed in a prefabricated (modular) structure located in the Whale Tail Camp. The sewage treatment system will be designed based on a flow rate of 200 L per day per room for a peak load of 210 rooms, for an average daily flow rate of 42 m^3 (1.75 cubic metres per hour [m^3/hour]). As already installed on site for the Exploration Camp, additional Bionest Kodiak biological reactor units are envisioned to be installed to treat camp waste water and accommodate for a total of 350 rooms.

The STP for the camp facilities will be designed to meet appropriate guidelines for wastewater discharge (for example, NWT Water Board 1992). Wastewater System Effluent Regulations (WSER) criteria are not currently applicable to systems located in Nunavut, and is unlikely to apply to the Project effluent quality.
Table 3.5 provides the anticipated performance of the system compared to the WSER criteria.
Further information on the management of this facility is described in the Whale Tail Sewage Treatment Plant Operation and Maintenance Manual.

Table 3.5 Effluent Quality and Wastewater Characteristics

Parameter	Units	Regulatory Limit	Design Value
Wastewater			
• Biochemical Oxygen Demand	mg/L	-	952
• Total Suspended Solids	mg/L	-	300
• Total Kjeldahl Nitrogen	mg/L	-	130
• Ammonia nitrogen	mg/L	-	130
• Fat, Oil and Grease	mg/L	-	30
• pH	-	-	6 to 9.5
• Water Temperature	°C	-	10 to 25
• Alkalinity	mg/L as $CaCO_3$	-	471.1
• Prohibited Chemicals/Compounds	Not present		
• Grinder Pumps	Not present Upstream of MBR		
Effluent			
• pH	-	6-9.5	6.5 to 8.5
• Carbonaceous Biochemical Oxygen Demand	mg/L	<25	<5
• Total Suspended Solids	mg/L	<25	<1
• Un-ionized ammonia	mg/L	<1.25	<0.08
• $N0_3$-N	mg/L	<5	4
• TP	mg/L	<0.5	0.5
• Fat, Oil and Grease	mg/L	<5	<1
• Fecal Coliform	CFU/100mL	<200	Non-Detect
• Total Residual Chlorine	mg/L	<0.02	0

1. Noted values are assumed blend between kitchen and dormitory wastewater after the grease trap.
2. A complete list of prohibited chemicals is included in the membrane maintenance manual.

3.2 Operation, Maintenance, and Surveillance of Project Dikes

3.2.1 Consequence of Failure

The consequence of failure classification is presented in SNC (2018b) based on the guidelines provided in the Canadian Dam Association Dam Safety Guidelines (CDA, 2014). The Whale Tail Dike and the Mammoth Dike are rated as “High” consequence of failure structures, Northeast Dike is rated as “Significant” consequence of failure structure, and Whale Tail WRSF Dike is classified as “Low” consequence of failure structure.

No flooding or inundation mapping has been completed.

It is assumed that failure of Whale Tail Dike and Mammoth Dike could flood the Whale Tail Pit, resulting in associated threat to the safety of mine personnel, equipment, and other workings within

the dewatered area. Flooding would likely cause cessation of mining operations within the pit, either temporarily or permanently.

Finally, as the Whale Tail WRSF Pond will have a small volume and will continue to be pumped to the Whale Tail Attenuation Pond over the summer season, a low probability of failure is attributed to the Whale Tail WRSF Dike and then to the consequence of failure.

3.2.2 Operation, Maintenance, and Surveillance Manual

The Meadowbank Mine OMS manual (Whale Tail Addendum) will be updated by Agnico Eagle before the operations of the dikes, reviewed on an annual basis and revised as necessary to accommodate changes in the condition and operations of the facilities or in management structure as per Part B, condition 13 of the Water License 2AM-WTP1826 . The OMS Manual will be an extension of the existing Meadowbank OMS Manual (Agnico Eagle, 2017).

3.2.3 Role and Manual Holders

The Meadowbank Mine Engineering Superintendent will be responsible for delivering the first release of the OMS Manual as well as issue all revisions and addenda to the registered holders: General Mine Manager, Environment Superintendent, Mine Operations Superintendent, Engineering Superintendent, General Services Manager, Site Services Superintendent, Corporate Environment Director, Health and Safety Superintendent, and Dike Design Engineer. The role and responsibilities of holders will be revised when issuing the OMS Manual.

3.2.4 Dewatering

Based on SNC (2018c), the design criteria for minimum freeboard for the dikes are presented in Table 3.6. The freeboard may change due to fluctuations in Whale Tail Lake and Ponds, or due to settlement in the dikes. Maintenance may be required to restore loss of freeboard due to settlement. The freeboard may also change during further advanced engineering phases.

Table 3.6 Design Minimum Freeboard

Structure	Minimum Freeboard		
	Normal operation (m)	Design flood conditions (m)	Actual minimum freeboard (m)
Whale Tail Dike	2.0	1.8	2.0
Mammoth Dike	No water	1.3	1.5
Whale Tail WRSF Dike	No water	0.6	0.7
Northeast Dike	No water	0.7	0.8

m = metre; WRSF = Waste Rock Storage Facility.

Based on past experience at dewatering operations (i.e. Vault Lake for Meadowbank operations), a WTP was not required because the regulatory criteria limit was reached without treatment or a WTP was used only during the latter stages when TSS from bottom sediments were present. It is expected for the Project that approximately 2/3 of the dewatered water from the Whale Tail Lake (North Basin) will be pumped and directly discharged to Whale Tail Lake (South Basin) while the remaining 1/3 of the water will be processed through the WTP to reduce TSS and discharged to Lake A16 (Mammoth Lake) thru a diffuser. During new dike construction, Agnico Eagle will abide by limits established by the NWB in the Water License 2AM-WTP1826. .

Pore water pressures in the foundation of the dewatering dikes will be monitored during dewatering as a predictor of possible slope instability. Both pore water pressures and temperature measurements will be monitored during dewatering as one method of detecting potential zones of seepage. The quantity of water pumped out during dewatering will be monitored with flow meters in addition to monitoring the water level downstream of the Lake A17 (Whale Tail Lake) watershed.

3.2.5 Operations

Water from the seepage collection systems of the dikes is to flow naturally to the Whale Tail Attenuation Pond or to the Open-Pit and the Collection Ponds and be pumped to the Whale Tail Attenuation Pond. The quantity of seepage through the dikes will be estimated on further advanced engineering phases. Seepage rates, volumes and the condition of the seepage water (i.e. turbidity, temperature, etc.) will be monitored as per Part I, conditions 15 and 16 of the Water License 2AM-WTP1826, and incorporated in the Water Balance.

Water quality of the seepage and runoff collected in the sumps and ditches at the toe of the dikes is to be monitored during operations according to the Water License 2AM-WTP1826requirements. Weekly inspections will be performed as an indicator of dike performance to note whether seepage water is clear, cloudy or if fine material is present.

3.2.6 Surveillance

A program of regular surveillance is required to ensure that the dikes, instrumentation and seepage collection systems are performing adequately and that problems are detected so that the necessary corrective actions can be implemented in a timely manner. A surveillance program will be implemented based on the International Commission on Large Dams (ICOLD 1998) for detection of potential failure mechanisms applicable to the dikes, primarily Whale Tail Dike, Northeast Dike and Whale Tail WRSF Dike. The surveillance program for the Project will be implemented in the OMS Manual by Agnico Eagle before the operations of the dikes.

3.2.7 Monitoring and Instrumentation

Monitoring of the dikes will be carried out for the purpose of environmental monitoring, assessment of physical stability of the structures, assessment of overall performance of the dikes, and aiding in future design. Monitoring complements the surveillance and is divided into the following aspects: drawdown rate and water quality during dewatering, geotechnical instrumentation including piezometers, thermistors, inclinometers, survey prisms, etc., and seepage rates and water quality during operations. The monitoring program for the Project will be implemented by the OMS Manual issued by Agnico Eagle before the operations of the dikes.

3.2.8 Reporting Procedures and Data Management

Emergency, inspection, and instrumentation measurements will be reported according to the role and responsibility of individuals and as per the OMS Manual requirements. An electronic library or database will be set up to catalogue and store inspection documents, maintenance reports and instrumentation measurements. Hard copies will also be catalogued and stored on site.

3.2.9 Decommissioning

The decommissioning of the dikes will take place progressively as the dikes are decommissioned and opened to reconnect lakes.

The Whale Tail Dike and the Mammoth Dike will remain intact during the controlled flooding of the Whale Tail Pit and Whale Tail Lake (North Basin). These are flooded gradually over the course of several years. Once the water levels have stabilized within Whale Tail Lake (South Basin) and Whale Tail Lake (North Basin) and water quality is considered acceptable for mixing with neighbouring lakes, these two dikes will be decommissioned to allow circulation of lake water.

The Northeast Pond will be draw-down into the open-pit before the dike be decommissioned.

The Whale Tail WRSF Dike will remain in place during closure and post-closure period or until the water quality monitoring results meet discharge criteria to allow water to naturally flow to the receiving environment. Following confirmation the water quality monitoring results meet discharge criteria the Whale Tail WRSF Dike will be decommissioned.

Long-term inspection will be carried out to ensure the adequate performance of maintained closure and post-closure facilities.

3.2.10 Emergency Preparedness Plan

The purpose of an Emergency Preparedness Plan is to present a basic procedure for responding to potential failure mechanisms for dikes. The procedure identifies various measurable or observable effects or causes of the failure mechanisms, identifies the appropriate people to notify, presents the procedure to put in place according to the level of emergency and lists the response reference. The Emergency Preparedness Plan for the Project will be implemented in the OMS Manual by Agnico Eagle before the operations of the dikes.

3.3 Water Management during Closure

Mine closure is integral to the mine design and will be modified during operations. Planning for permanent closure is an active and iterative process. The intent of the process is to develop a final closure plan including specific water management components using adaptive management. This begins during the mine design phase and continues through to closure implementation. Adaptive management enables the plan to evolve as new information becomes available through analysis, testing, monitoring, and progressive reclamation. The detailed mine closure and reclamation activities are provided in the Whale Tail Pit Interim Closure and Reclamation Plan (FEIS, Volume 8, Agnico Eagle Mine, 2016).

Water management during closure and reclamation will involve maintaining contact water management systems on site until monitoring results demonstrate that water quality is acceptable for discharge of all contact water to the environment without further treatment. Once water quality meets the discharge criteria, the water management systems will be decommissioned to allow the water to naturally flow to the receiving environment. In 2018, a WRSF seepage analysis and Hydrodynamic modelling of Mammoth Lake were conducted to address NIRB project certificate Term and Condition no. 6 a). The objectives were to assess Mammoth Lake near-field water quality at WRSF seepage outlet post-closure and to evaluate seasonal water circulation patterns in Mammoth Lake resulting from effluent discharge. This analysis also aimed to predict and evaluate the water quality within Mammoth lake during operations and post-closure (Golder, 2018a). Results show that no modification to the water management strategy are needed concerning closure activities and sequence.

The key water management activities during mine closure are summarized in Table 3.7. Figure B.2 to Figure B.4 in Appendix B show the water management flowsheets during mine closure phases.

Table 3.7 Key Water Management Activities during Mine Closure

Mine Year	Figure	Key Water Management Activities and Sequence
Year 4 (2022) to Year 7 (2025)	A.3	• Fill the mined-out open pit with active pumping of water from Whale Tail Lake (South Basin) and treated Whale Tail WRSF pond water • Draw-down of the raised Northeast Sector and breaching of the Northeast Dike. The Northeast Pond water flows in the open pit and Lake A47, Lake A48, Lake A113, Pond A-P38, and A-P68 return to their natural water level and drainage patterns • Water from the A watershed stops to flow in the C watershed • Water from Whale Tail Lake (South Basin) stops flow through Whale Tail Lake (South Basin) Diversion Channel and to Lake A16 (Mammoth Lake) • Draw-down of the raised Whale Tail Lake (South Basin) to natural water level by pumping to Whale Tail Lake (North Basin). Lake A55, Lake A65, Lake A62, Lake A63, Lake A18, Pond A-P23, Lake A20, Lake A21, Lake A22, and Lake A45 return to their natural water level and drainage patterns. • The freshwater intake is moved in Whale Tail Lake (South Basin) • The monitoring of the site water quality starts • If necessary, the WTP is moved in the Whale Tail WRSF sector
Year 8 (2026) to Year 11 (2029)	A.4	• Fill Whale Tail Lake (North Basin) with active pumping water from Whale Tail Lake (South Basin). The pumping rate will be equivalent to the natural inflow to Whale Tail Lake (South Basin) to keep a constant and natural water level in Whale Tail Lake (South Basin) • The Whale Tail Attenuation Pond as well as the Industrial Sector and the Whale Tail Camp are no longer considered as contact water and now contribute to the re-establishment of the natural water level of the Whale Tail Lake (North Basin) • Whale Tail Dike and Mammoth Dike are breached when i) the South side and the North side of the Whale Tail Dike are at the same water level (i.e., at natural water level) and ii) the water quality monitoring results meet discharge criteria to allow water to naturally flow to the receiving environment Remove non-essential site infrastructure
Post-Closure	N/A	• Treated contact water from the Whale Tail WRSF Sector is discharged in Lake A16 (Mammoth Lake) through the existing diffuser system. This water is treated until water quality meet direct discharge criteria, following which the water management system is decommissioned • Breach the Whale Tail WRSF Dike once water quality monitoring results meet discharge criteria to allow water to naturally flow to the receiving environment • Remove non-essential site infrastructure

WRSF = Waste Rock Storage Facility; N/A = not applicable.

3.3.1 Open Pit and Refilling of Whale Tail Lake (North Basin)

Following completion of mining, the open pit will be filled with natural runoff and water pumped from Whale Tail Lake (South Basin) and treated water from the Whale Tail WRSF. During the summer of the

Year 4 (2022), the water accumulated in Whale Tail Lake (South Basin) over the years of operations will be pumped in the open pit. It will take approximately 4 years to refilling the pit with an assumed pumping rate of 45,000 m^3/day. Following this first pumping summer, the water elevation in Whale Tail Lake (South Basin) will be back to the baseline value (152.5 masl) and no outlets will be available for this basin as the Whale Tail Lake (South Basin) Diversion Channel is at the elevation 156 masl and the Whale Tail Dike is maintained in place. During the following years and until Whale Tail Lake (North Basin) reaches the same water elevation as Whale Tail Lake (South Basin) (i.e., baseline water surface elevation of 152.5 masl), the yearly accumulated water in Whale Tail Lake (South Basin) (i.e., over the baseline water surface elevation of 152.5 masl) is pumped to Whale Tail Lake (North Basin). At an assumed pumping rate of 45,000 m^3/day, the north and south parts of the Lake A17 (Whale Tail Lake) will be at the same elevation 8 years after the end of the operational phase and then the Whale Tail Dike and the Mammoth Dike will be reconnected when the water quality monitoring results meet discharge criteria to allow water to naturally flow to the receiving environment. Results from the 2018 modelling (Golder, 2018a) show that effluent discharge into Mammoth Lake will be well mixed. Steady-state untreated WRSF contact water released is predicted to meet SSWQO for arsenic in the Lake in the long-term, under the anticipated cover performance scenario (from the 4.7 meter cover of low arsenic leaching waste rock). Mammoth Lake is sensitive to cover material seepage quality, in turn sensitive to cover composition and WRSF pile contact water volume. Observational data at Meadowbank WRSF suggest that pile contact water volumes are substantially lower than originally predicted (Portage is 20 to 40% lower, Vault WRSF contact water is minimal compared to 178,000m^3 predicted at maximum footprint year) using similar modelling assumptions. Modelling results reflect a conservative chemical load estimate to Mammoth Lake in WRSF seepage that will be verified with monitoring.As per Type A Water Licence 2AM-WTP1826 Part E, conditions 7 and 8 , Agnico Eagle anticipates a site wide water balance and end pit water quality model update will be required for the Whale Tail Pit Site as part of the annual water management plan.

3.3.2 Contact Water Collection System

The complete contact water collection system will remain in place to collect surface runoff water and seepage from the mine site until the open pit is flooded. During this period of 4 years, the Industrial Sector and the Whale Tail Camp will be reclaimed and the non-essential site infrastructure will be removed. Thereafter, water in these sectors will no longer be collected and will contribute to the reestablishment of the natural elevation of Whale Tail Lake (North Basin). Although water might not meet the discharge criteria after 4 years, water will be controlled as the Whale Tail Dike and the Mammoth Dike will remain in place until Year 11 of the Project.

In the Whale Tail WRSF Sector, the contact water collection system will remain in place. Dikes will not be reconnected until the water quality in the flooded area meets Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines, baseline concentrations or appropriate site specific water quality objectives. Contingency for water treatment if required in closure is also accounted for in the closure plan.

Dike breaching will involve the removal of a portion of the dike to original ground levels. Consideration will be given to breach staging, with the above water portions of the dike/berm in the breach area removed during winter periods, when there will be little surface water flow, thereby minimizing the potential release of sediments to the neighbouring waterbodies. The remainder of the breach would be completed during the open water season following freshet so as to allow for the deployment of turbidity curtains to control potential releases of sediment.

Channel and sump closure involve the infrastructure will be re-contoured and/or surface treated according to site-specific conditions to minimize wind-blown dust and erosion from surface runoff, if required. This closure activity is intended to enhance site area development for re-colonization by native plants and wildlife habitat.

3.4 Water Balance

A water balance model was developed to assist in the evaluation of the proposed water management infrastructure, and estimation of the pumping requirements over the life of the mine (SNC, 2015) and under closure conditions (Whale Tail Interim Closure and Reclamation Plan).

The water balance was computed on a monthly time step based on mean annual climate conditions (Section 2.1.1) and the following conservative assumptions:

- snow sublimation is subtracted from snowfall on a monthly basis. If snow sublimation is greater than snowfall for a particular month, net snow value us zero for that month;
- snowfall between October and May, net of snow sublimation and rainfall, accumulates as snow and ice, and melts entirely in June;
- runoff is composed of precipitation and snow melt during the summer months (June to September);
- net inflow for a lake or pond is computed as runoff minus evapotranspiration (computed based on the watershed area minus lake or pond area) and lake evaporation (computed based on the lake or pond area); and
- change in storage was not accounted for, and net inflow is equal to net outflow.

The water management flow sheets are presented in Appendix B, and water balance results are presented in Appendix C for mean annual climate conditions during operations.

The estimated mean annual water input/output from each of various water management facilities under mean annual climate conditions during operations are summarized in Table 3.8.

Table 3.8 Estimated Mean Annual Volumes from Mine Site Water Balance

Item	Mean Annual Water Volume (m^3)[1]
Whale Tail Attenuation Pond	455,000
Whale Tail WRSF Contact water to Pond	112,000
Open Pit inflows	111,000
Freshwater Pumped from Lake C38 (Nemo Lake)	74,000
Treated Water from WTP to be Discharged to the Receiving environment	420,000
Freshwater Diverted from Watershed A to Watershed C	207,000
Freshwater from Whale Tail Lake (South Basin) to Lake A16 (Mammoth Lake)	1,873,000

[1] Volume rounded to the nearest thousand.

WRSF = Waste Rock Storage Facility.

SECTION 4 • REFERENCES

Agnico Eagle (Agnico Eagle Mines Limited). 2018a. Water Management Report and Plan, version 6, Meadowbank Division, March 2018.

Agnico Eagle (Agnico Eagle Mines Limited). 2018b. Whale Tail Project - Erosion Management Plan, Version 1, Meadowbank Divison, June 2018.

Agnico Eagle (Agnico Eagle Mines Limited). 2018c. Amaruq Stage 1 WRSF, Ore Stockpile 1 and Starter Pit Design Report and Drawings. Meadowbank Divison, June 2018.

Agnico Eagle (Agnico Eagle Mines Limited). 2017. Dewatering Dikes, Operation, Maintenance and Surveillance Manual, , Meadowbank Division, March 2017..

Agnico Eagle (Agnico Eagle Mines Limited). 2016. Final Environment Impact Statement (FEIS) Volumes 1 to 8, Whale Tail Pit Project, Meadowbank Division.

Agnico Eagle (Agnico Eagle Mines Limited). 2015. Water Management Report and Plan, version 3, Meadowbank Division, October 2015.

CCME (Canadian Council of Ministers of the Environment). 1999 (with updates to 2016). Canadian Environmental Quality Guidelines, 1999. Canadian Environmental Quality Guidelines Summary Table, with updates to 2016. Winnipeg, MB, Canada. Available at: http://st-ts.ccme.ca/. Accessed March 2016.

CCME. 2004. Canadian Water Quality Guidelines for the Protection of Aquatic Life: Phosphorus: Canadian Guidance Framework for the Management of Freshwater Systems. In: Canadian Environmental Quality Guidelines, 2004. Canadian Council of Ministers of the Environment, Winnipeg, MB, Canada.

CDA (Canadian Dam Association). 2014. Canadian Dam Association, Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams.

DFO (Fisheries and Oceans Canada). 1995. Freshwater Intake End-of-Pipe Fish Screen Guideline, March, 1995.

Government of Canada. 2015. Historical Climate Data. Available online from: http://climate.weather.gc.ca/index_e.html

Health Canada. 2014. Guidelines for Canadian Drinking Water. Prepared by the Federal-Provincial-Territorial Committee on Drinking Water. Ottawa, ON, Canada.

ICOLD (International Commission of Large Dams) 1998. Dam Failures and Statistical Analysis. Bulletin 99.

IPCC. 2014. Summary for Policymakers. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1-32

Knight Piesold. 2015. Agnico Eagle Mines Ltd.: Meadowbank Division – Whale Tail Pit – Permafrost and Hydrogeological Characterization, File No.:NB101-00622/04-A.01

NWT Water Board. 1992. Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories.

Overland, J.E., M. Wang, J.E. Walsh, and J.C. Stroeve. 2013. Future Arctic climate changes: Adaptation and mitigation time scales, Earth's Future, 2, doi:10.1002/2013EF000162.

PhotoSat Information Ltd. (PhotoSat). 2015. PhotoSat Stereo Satellite Elevation Mapping Project Report. Reference No. 3631.

SNC (SNC Lavalin Inc.). 2018a. Whale Tail Dike Detailed Design Report.

SNC (SNC Lavalin Inc.). 2018b. Design criteria – Basins and Pumps. Technical note no. 651298-8000-40EC-0001_00, April 2018.

SNC (SNC Lavalin Inc.). 2018c. Amaruq Freeboard Study. Technical note no. 651298-2600-4HER-0002_01, June 2018.

SNC (SNC Lavalin Inc.). 2017. Preliminary design of Mammoth Dike. Technical note no. 645003-3000-4GER-0001_01, August 2017.

SNC (SNC Lavalin Inc.). 2015. Whale Tail Pit Project Permitting Level Engineering, Geotechnical and Water Management Infrastructure, A Technical Report Submitted to Agnico Eagle Mines Ltd. by SNC Lavalin, December 2015.

APPENDIX A • YEARLY SITE LAYOUT PLANS

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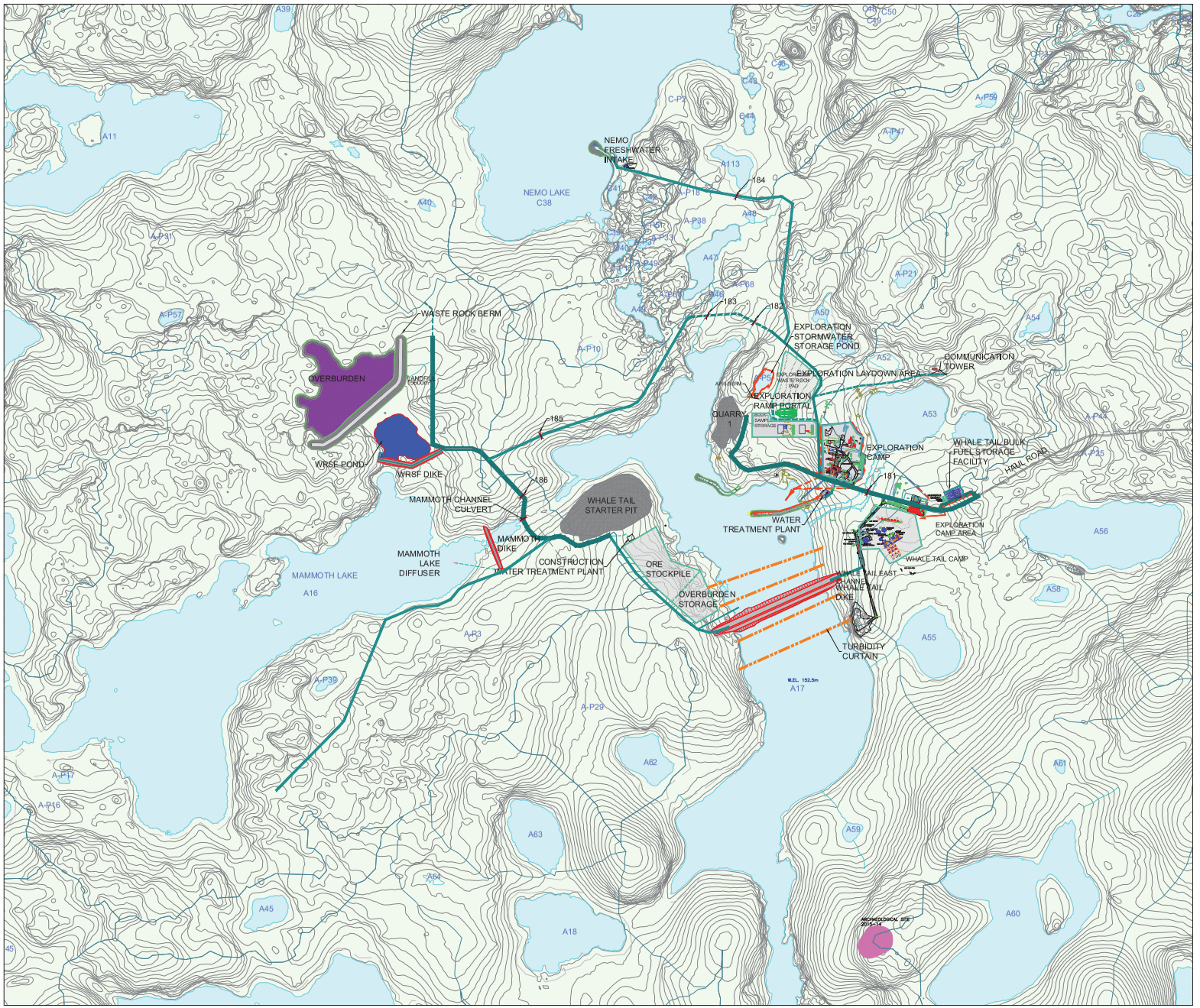

PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

- ROAD
- TEMPORARY ROAD
- NATURAL WATERSHED
- COLLECTION CHANNEL
- CULVERT
- INTAKE WATER PIPE
- CONTACT WATER PIPE
- FRESHWATER PIPE
- TURBIDITY BARRIER
- DIKE
- ARCHAEOLOGICAL SITE
- POND / SUMP

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AGNICO EAGLE

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AGNICO–EAGLE – MEADOWBANK DIVISION
WHALE TAIL PROJET
WM

YEARLY SITE LAYOUT PLAN
(YEAR –1:2018)

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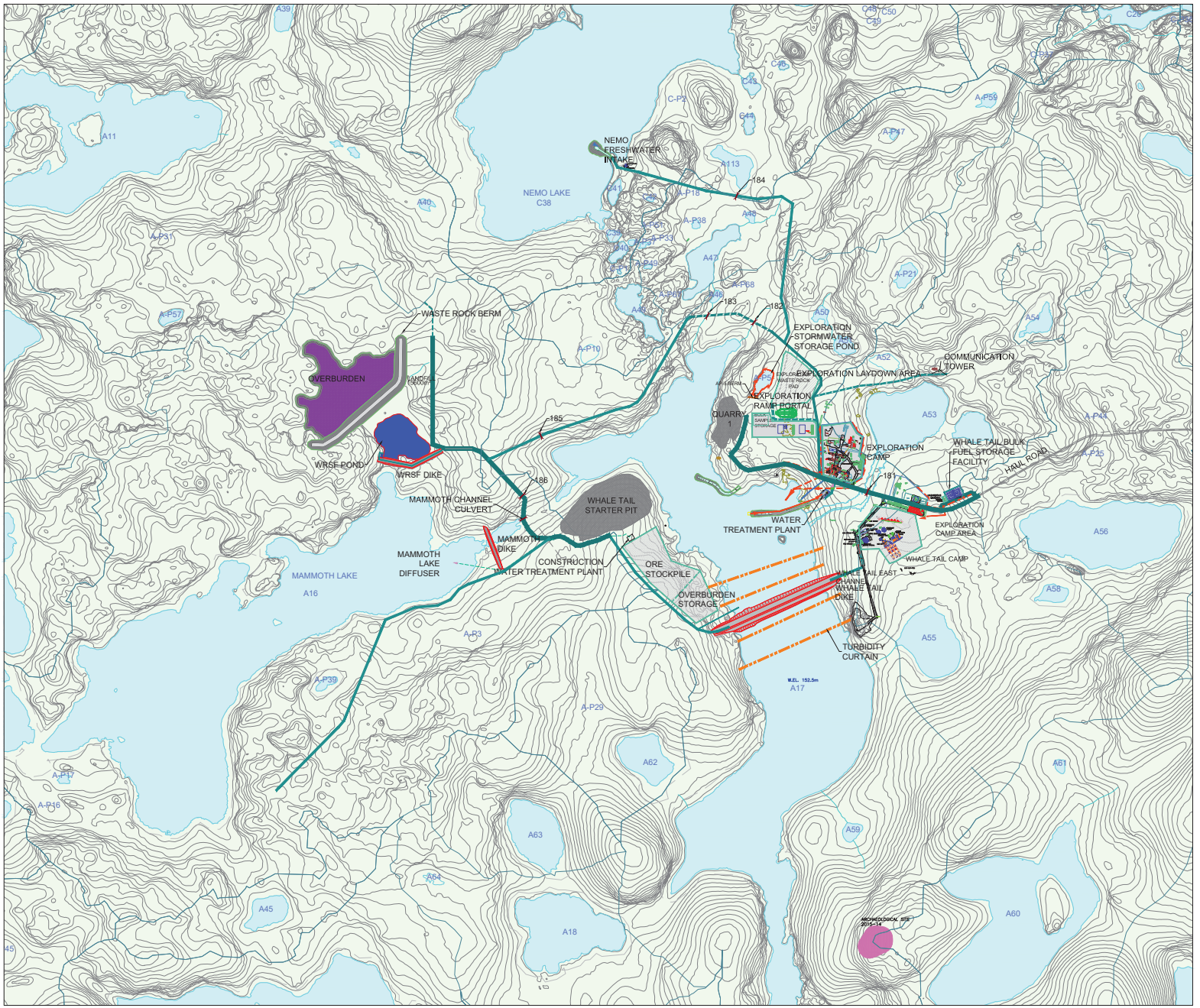

PLAN CLÉ
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NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

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- TEMPORARY ROAD
- NATURAL WATERSHED
- COLLECTION CHANNEL
- CULVERT
- INTAKE WATER PIPE
- CONTACT WATER PIPE
- FRESHWATER PIPE
- TURBIDITY BARRIER
- DIKE
- ARCHAEOLOGICAL SITE
- POND / SUMP

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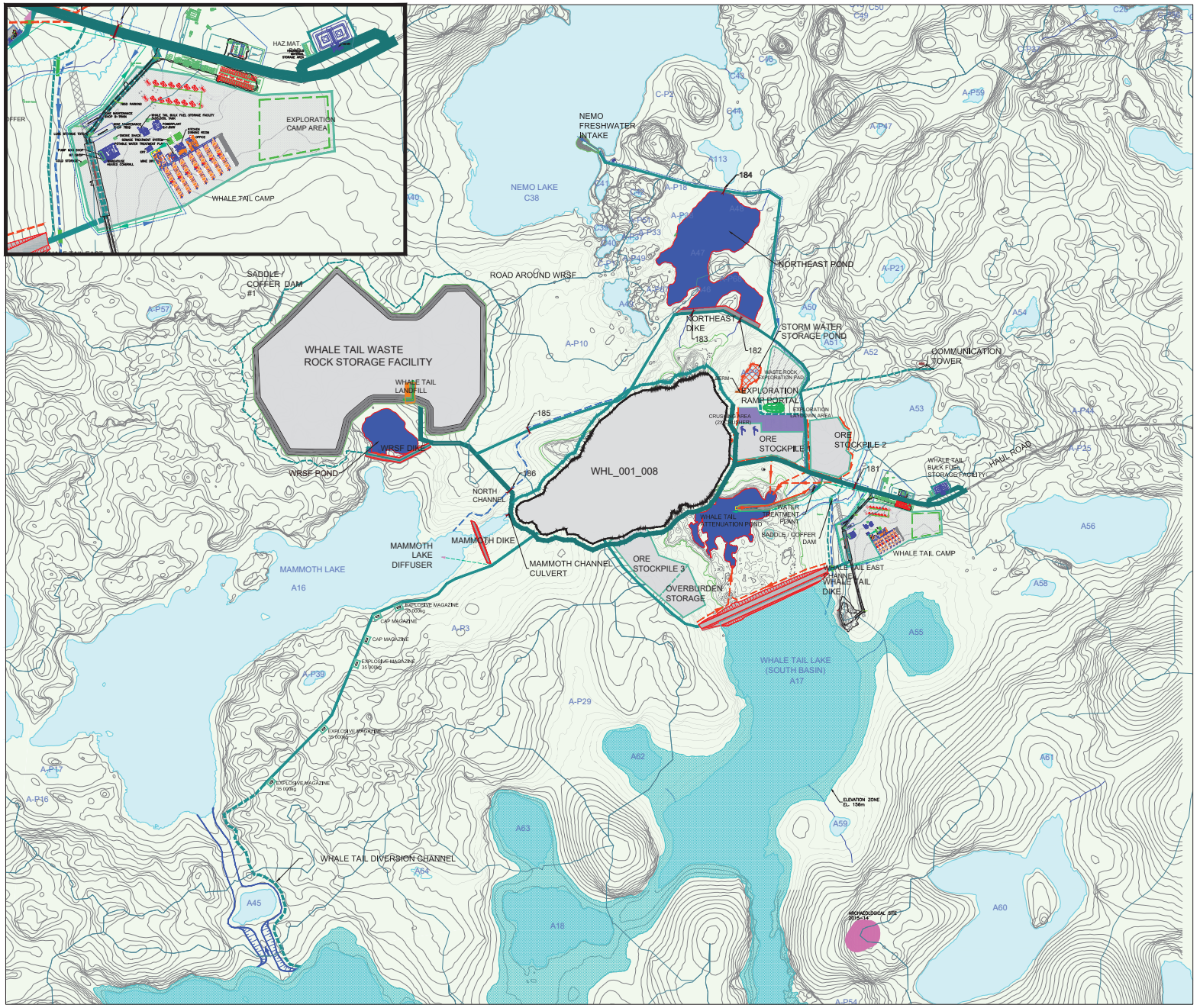

PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

- WHALE TAIL LAKE(SOUTH BASIN) FLOODED LIMIT (WATER LEVEL 156.0m)
- ROAD
- TEMPORARY ROAD
- NATURAL WATERSHED
- DIVERSION CHANNEL
- COLLECTION CHANNEL
- CULVERT
- INTAKE WATER PIPE
- CONTACT WATER PIPE
- FRESHWATER PIPE
- DIKE
- POND / SUMP
- ARCHAEOLOGICAL SITE

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YEARLY SITE LAYOUT PLAN
(YEAR 1:2019)

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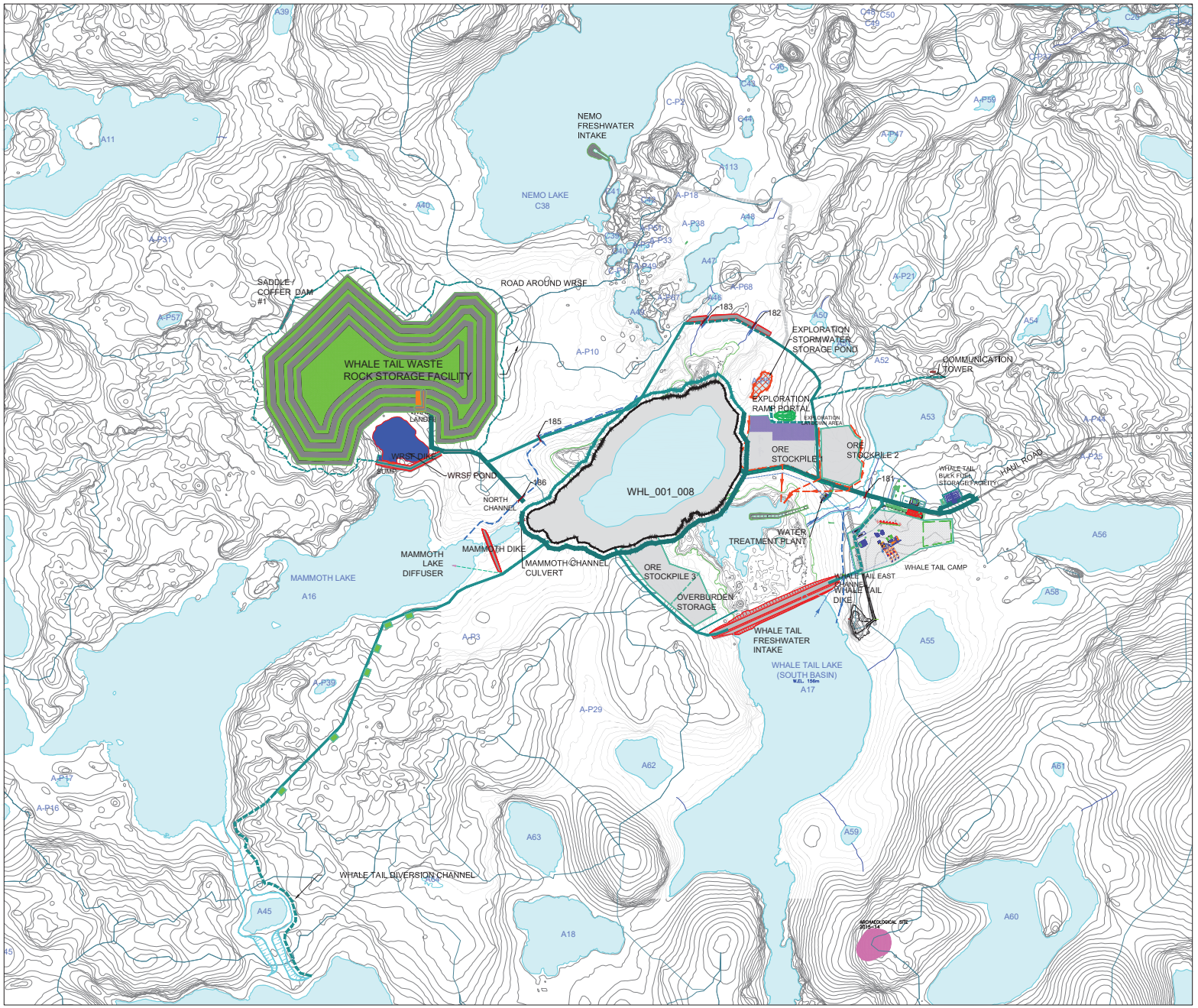

PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

- CLOSED FACILITY
- ROAD
- TEMPORARY ROAD
- SCARIFIED ROAD & ACCESS
- NATURAL WATERSHED
- DIVERSION CHANNEL
- COLLECTION CHANNEL
- CULVERT
- INTAKE WATER PIPE
- CONTACT WATER PIPE
- FRESHWATER PIPE
- DIKE
- POND / SUMP
- ARCHAEOLOGICAL SITE

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

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(YEAR 4:2022)

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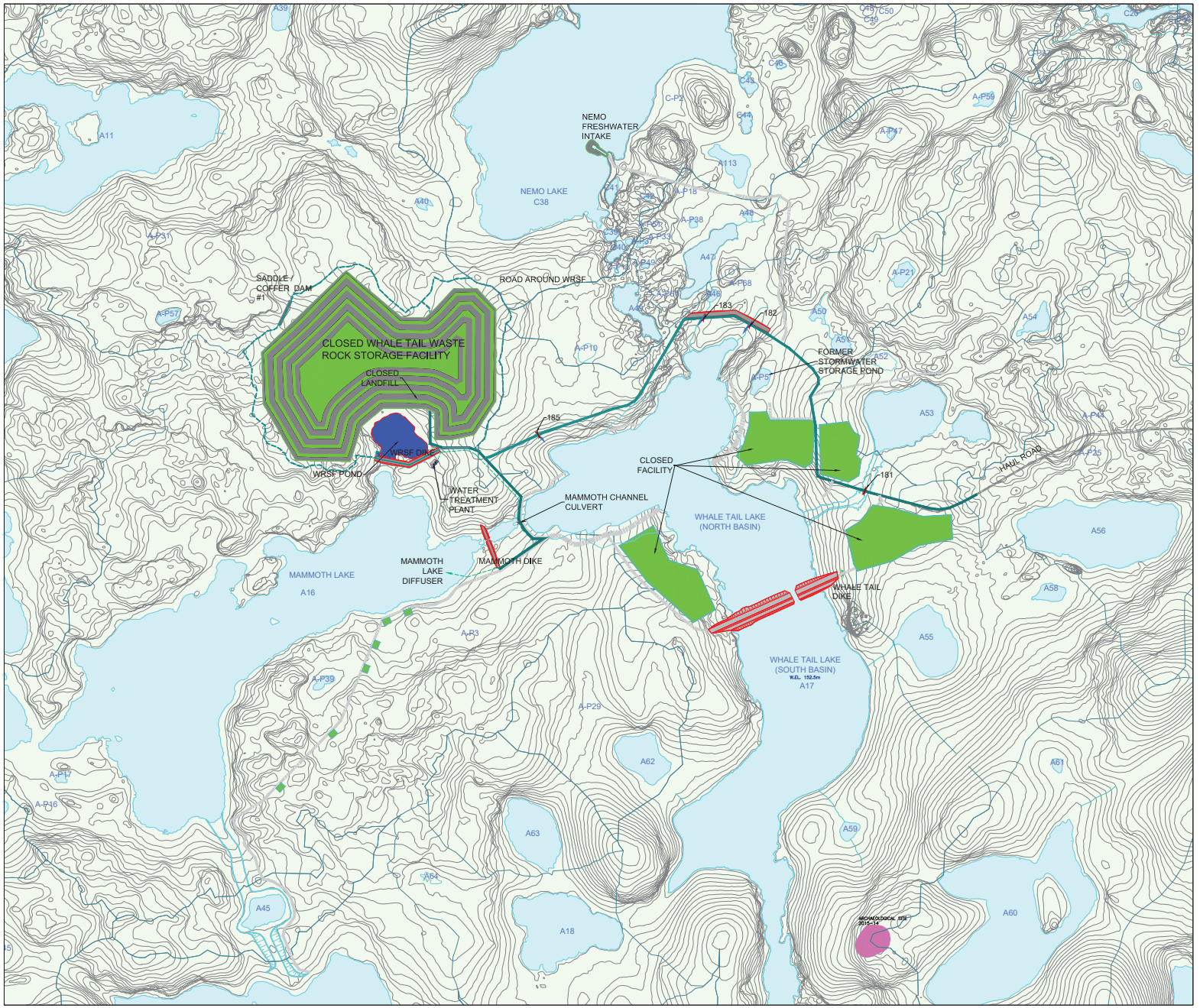


PLAN CLÉ
KEY PLAN

NOTES GÉNÉRALES / GENERAL NOTES

LEGEND

- CLOSED FACILITY
- ROAD
- TEMPORARY ROAD
- SCARIFIED ROAD & ACCESS
- NATURAL WATERSHED
- CULVERT
- FRESHWATER PIPE
- DIKE
- POND / SUMP
- ARCHAEOLOGICAL SITE

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT

REVISIONS

TITRE / TITLE

AGNICO–EAGLE – MEADOWBANK DIVISION
WHALE TAIL PROJET
WM

YEARLY SITE LAYOUT PLAN
(YEAR 11:2029)

DESSINÉ PAR / DRAWN BY: J.CRETE	DATE: 2018–05–04
VERIFIÉ PAR / CHECKED BY	
APPROUVÉ PAR / APPROVED BY	
ÉCHELLE / SCALE	DATE
NO. DESSIN / DRAWING NO.	2029
NO. PROJET / PROJECT NO.	REVISION / FEUILLE / SHT: 1 / 1

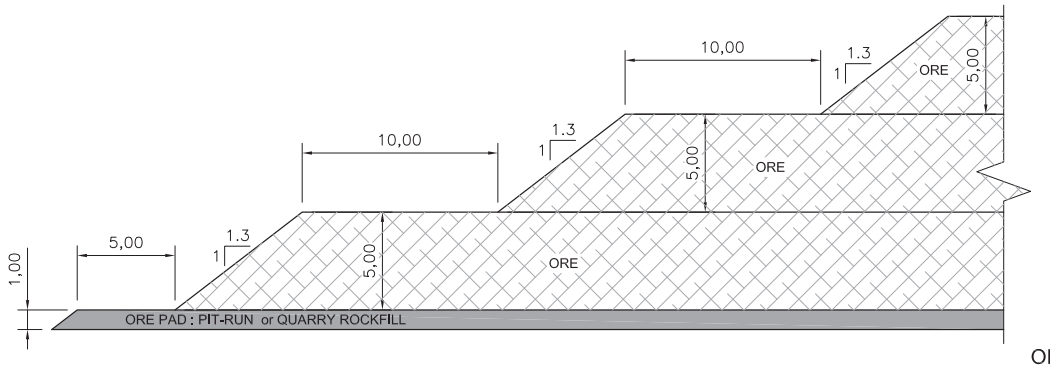
AE–CART–ANSI C

FILE NO. .DWG

N:\Projet\Vmorva\050 Studies\0108 Permitting Concepts\010 Info by area\000 General\00 Drawings\0108-II WHL_001_OGR\0108-600-210-004_R3(2029) - Standard\0108-600-210-004_R3(2029).dwg, 04 Mai 2018

NO. DESSIN
DRAWING NO.

FORMAT ANSI B–11x17



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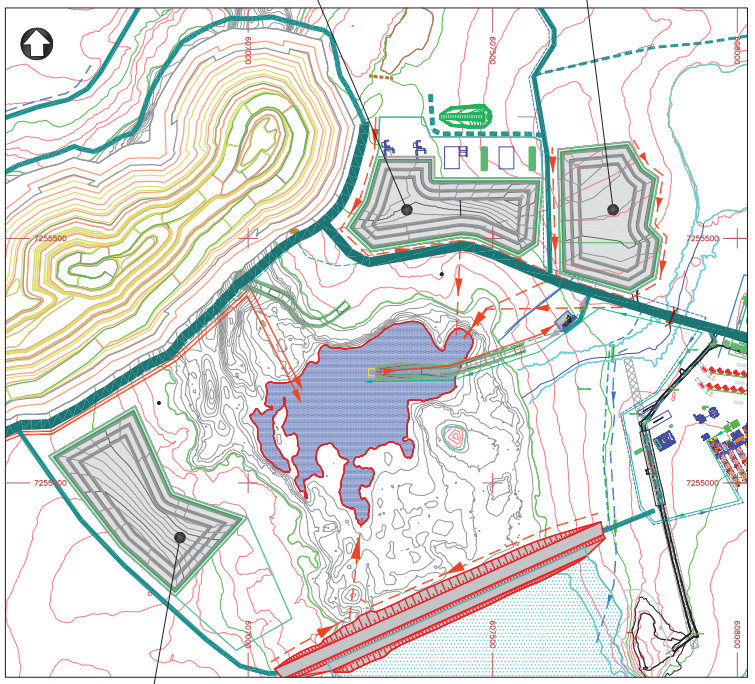

PLAN VIEW
SCL 1:10000

ISSUED FOR PERMITTING
DATE : 2016-05-03

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_	_	0	ISSUED FOR PERMITTING	2016-05-03	J.C.
TITRE / TITLE	# DWG	REV	DESCRIPTION	DATE	PAR BY
DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS		REVISIONS			

AGNICO EAGLE

Golder Associates

DESSINÉ PAR DRAWN BY	J.CRETE	DATE 2016-05-02
VÉRIFIÉ PAR CHECKED BY	F.PETRUCCI	2016-05-03
APPROUVÉ PAR APPROVED BY	S. OUELLET	2016-05-03
No. PROJET PROJECT NO.	6108	
DATE	2016-05-02	

TITRE / TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
WHALE TAIL PIT PROJECT
ORE STOCK PILE #1, #2, #3
ORE PAD MAXIMUM CAPACITY
PLAN VIEW & TYPICAL SECTION

ÉCHELLE/ SCALE	A/S	FICHIER FILE	.DWG
No. DESSIN/ DRAWING NO.	6108–687–210–001	REVISION	0
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APPENDIX B • WATER MANAGEMENT SCHEMATIC FLOW SHEETS

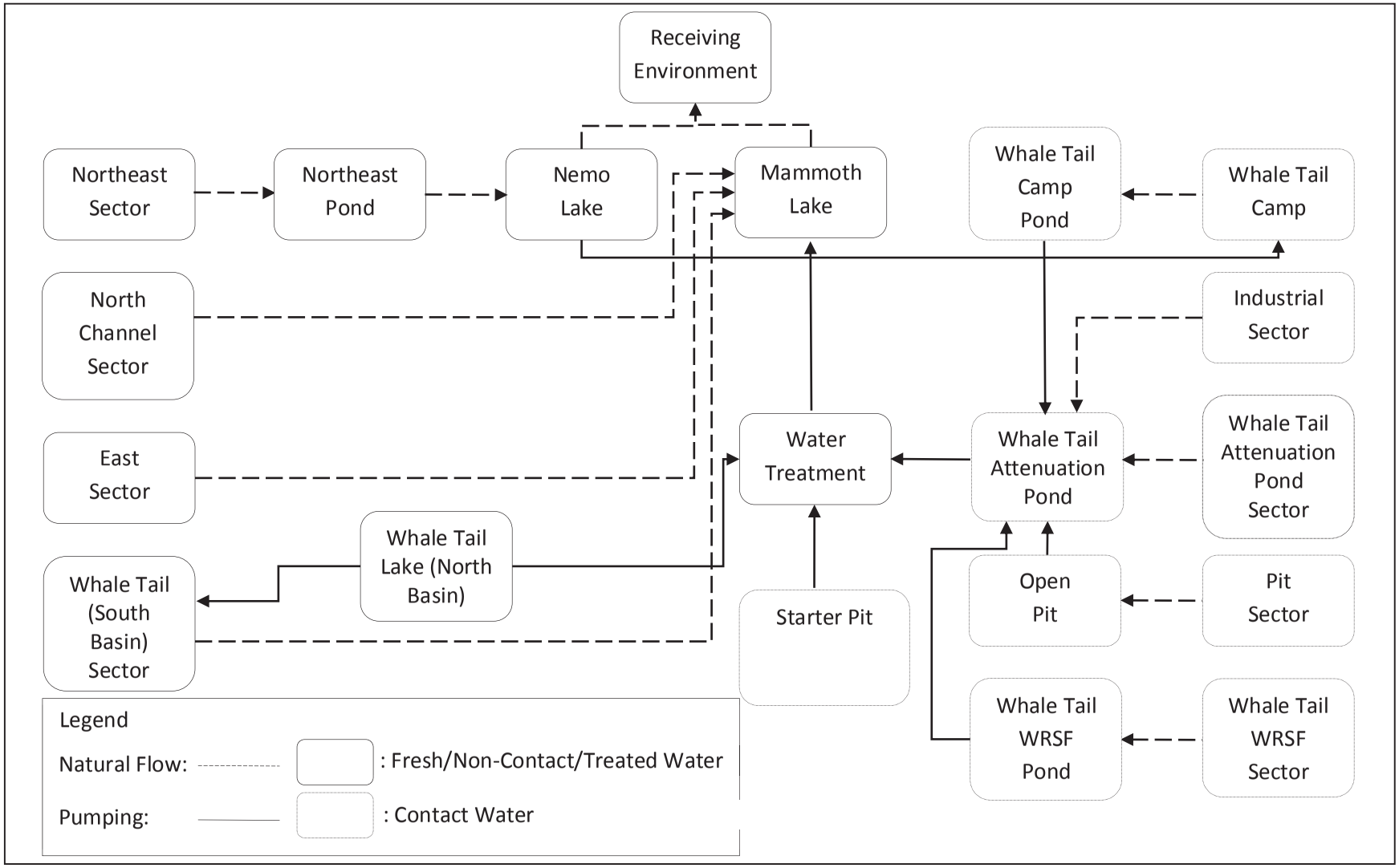

Figure B.1 Water Management Flowsheet during Construction and Operations

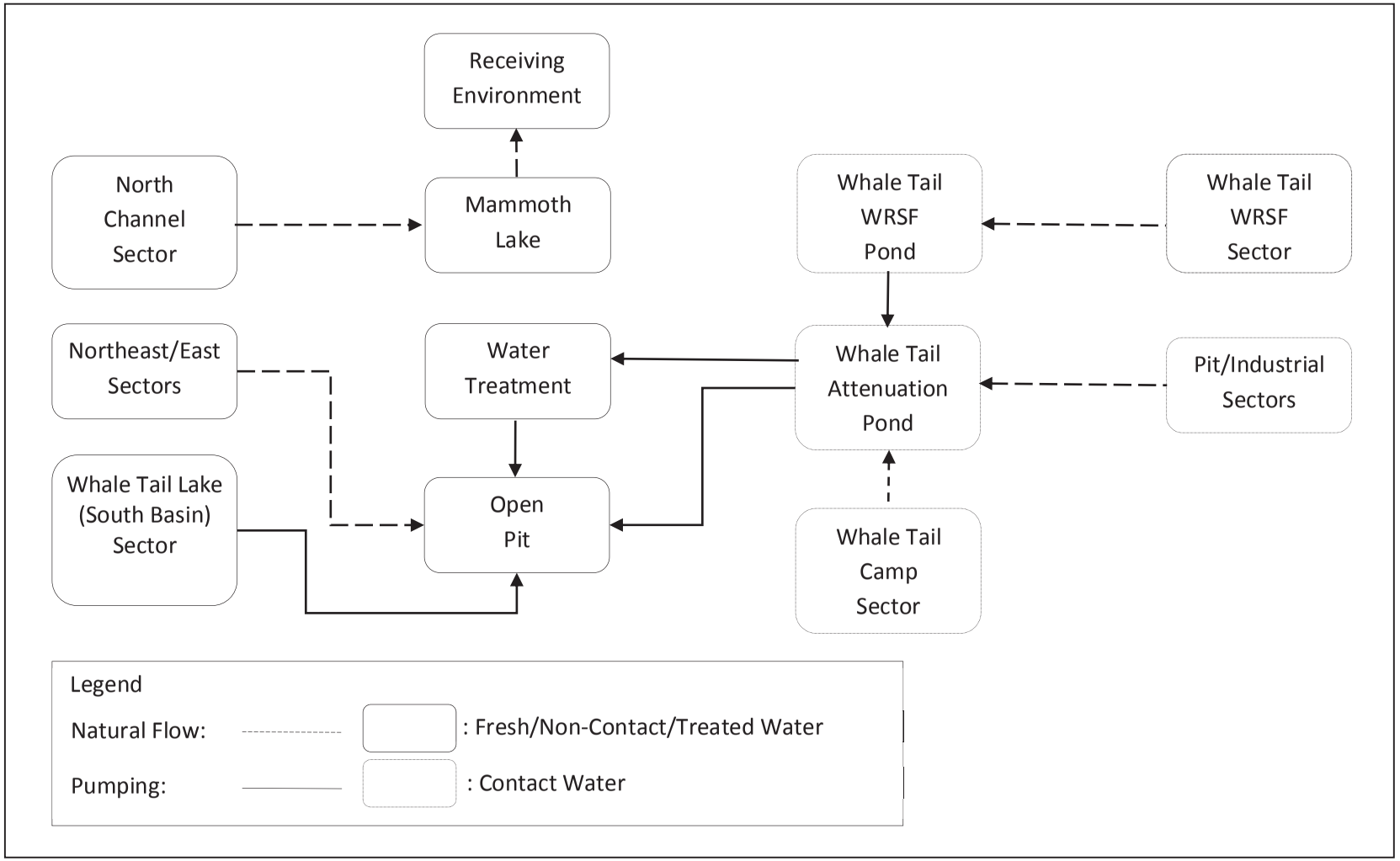

Figure B.2 Water Management Flowsheet during Closure (Year 4 [2022] to Year 7 [2025])

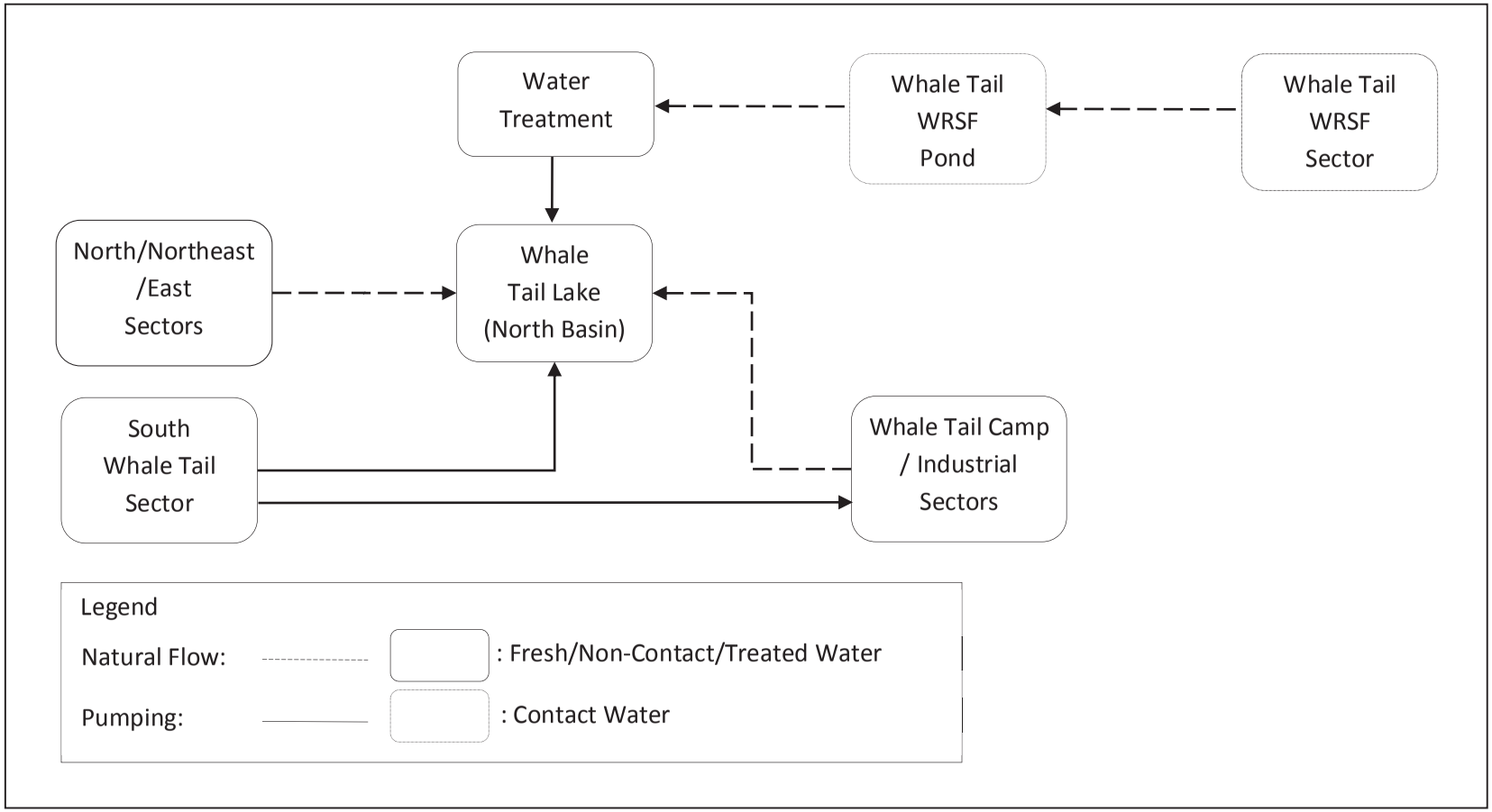

Figure B.3 Water Management Flowsheet during Closure (Year 8 [2026] to Year 11 [2029])

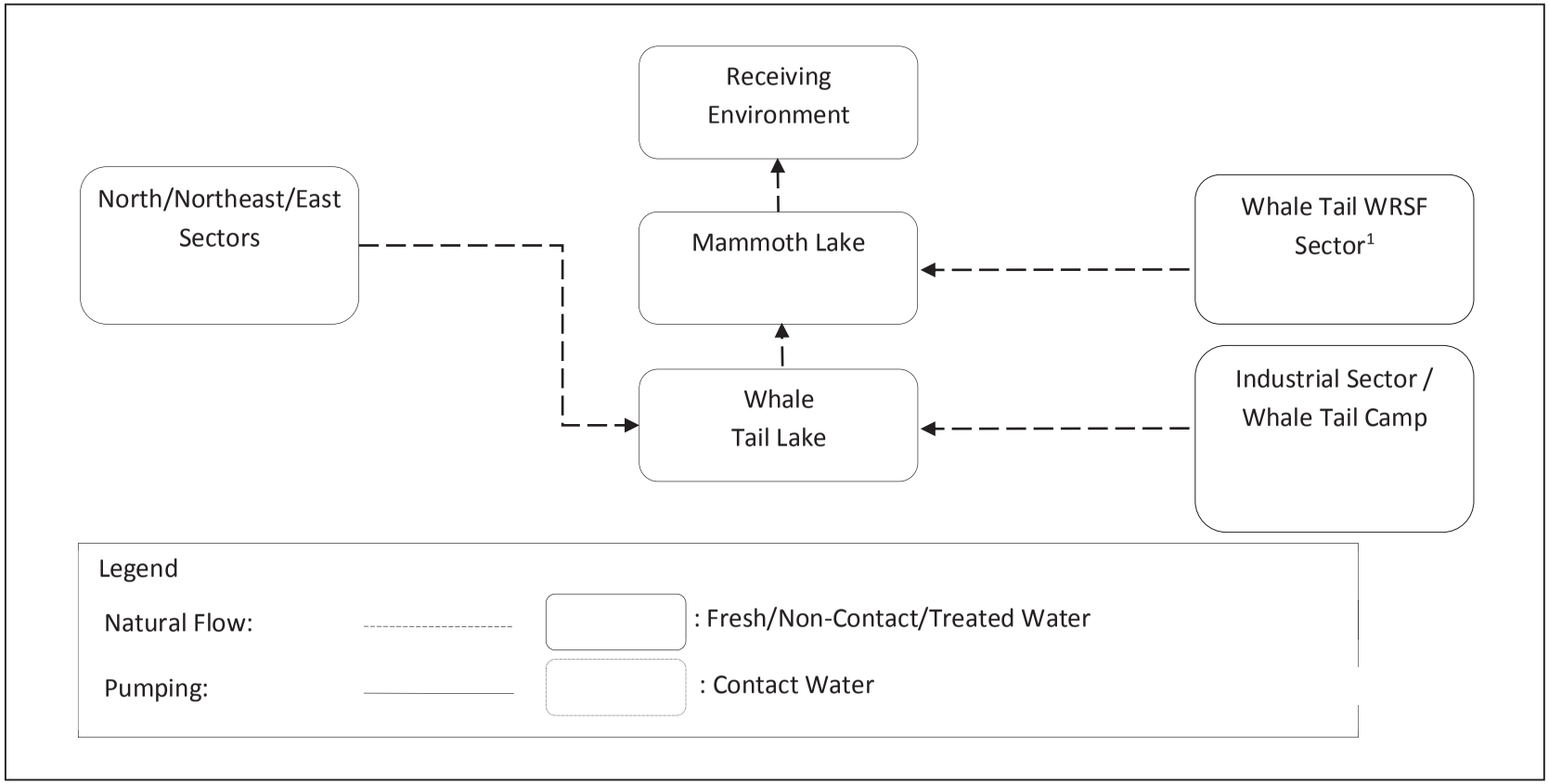

Figure B.4 Water Management Flowsheet during the Post-Closure

[1] Breaching of Whale Tail WRSF Dike may be delayed if water treatment is required

APPENDIX C • SELECTED YEARLY WATER BALANCE DATA

Water balances for each storage facilities were extracted from the permitting level engineering report (SNC 2015) under mean annual climate conditions for the operational phase. Design criteria and considerations can be found in the permitting level engineering report (SNC 2015), and in the FEIS, Volume 2, Appendix 2-J.

Table C.1 Whale Tail Waste Rock Storage Facility Pond Water Balance

Month	Temperature [°C]	Snowfall [m³]	Max Snow Sublimation [m³]	Net Inflow from Snow [m³]	Rainfall [m³]	Total Runoff [m³]	Other Qin [m³]	Total Inflow [m³]	Lake Evaporation [m³]	Maximum Evapotrans-piration [m³]	Total Inflow Net from Evaporation [m³]	Pumping out [m³]	Total Outflow [m³]
Jan	-31.3	7,536	9,864	0	19	0	0	0	0	0	0	0	0
Feb	-31.1	6,840	9,864	0	35	0	0	0	0	0	0	0	0
Mar	-26.3	9,981	9,864	117	31	0	0	0	0	0	0	0	0
Apr	-17.0	14,561	9,864	4,697	460	0	0	0	0	0	0	0	0
May	-6.4	8,871	9,864	0	5,663	0	0	0	0	0	0	0	0
Jun	4.9	3,285	0	3,285	19,847	65,478	0	65,478	3	3,110	62,365	62,365	62,365
Jul	11.6	6	0	6	42,199	42,205	0	42,205	30	35,062	7,112	7,112	7,112
Aug	9.8	671	0	671	46,176	46,847	0	46,847	31	35,486	11,330	11,330	11,330
Sep	3.1	7,465	0	7,465	37,987	45,452	0	45,452	12	13,961	31,478	31,478	31,478
Oct	-6.5	24,601	9,864	14,737	6,987	0	0	0	0	35	0	0	0
Nov	-19.3	18,180	9,864	8,316	213	0	0	0	0	0	0	0	0
Dec	-26.8	10,907	9,864	1,043	27	0	0	0	0	0	0	0	0
Year	-11.3	112,903	78,912	40,337	159,644	199,982	0	199,982	76	84,655	112,285	112,285	112,285

°C = degrees Celsius; m^3 = cubic metres.

Table C.2 Whale Tail Camp Pond Water Balance

Month	Temperature [°C]	Snowfall [m³]	Max Snow Sublimation [m³]	Net Inflow from Snow [m³]	Rainfall [m³]	Total Runoff [m³]	Other Qin [m³]	Total Inflow [m³]	Lake Evaporation [m³]	Maximum Evapotrans-piration [m³]	Total Inflow Net from Evaporation [m³]	Pumping out [m³]	Total Outflow [m³]
Jan	-31.3	1,623	2,124	0	4	0	0	0	0	0	0	0	0
Feb	-31.1	1,473	2,124	0	7	0	0	0	0	0	0	0	0
Mar	-26.3	2,149	2,124	25	7	0	0	0	0	0	0	0	0
Apr	-17.0	3,135	2,124	1,011	99	0	0	0	0	0	0	0	0
May	-6.4	1,910	2,124	0	1,219	0	0	0	0	0	0	0	0
Jun	4.9	707	0	707	4,274	14,099	0	14,099	12	666	13,421	13,421	13,421
Jul	11.6	1	0	1	9,087	9,088	0	9,088	139	7,507	1,442	1,442	1,442
Aug	9.8	145	0	145	9,943	10,088	0	10,088	141	7,598	2,349	2,349	2,349
Sep	3.1	1,607	0	1,607	8,180	9,787	0	9,787	55	2,989	6,742	6,742	6,742
Oct	-6.5	5,297	2,124	3,173	1,504	0	0	0	0	8	0	0	0
Nov	-19.3	3,915	2,124	1,791	46	0	0	0	0	0	0	0	0
Dec	-26.8	2,349	2,124	225	6	0	0	0	0	0	0	0	0
Year	-11.3	24,311	16,992	8,686	34,376	43,062	0	43,062	347	18,768	23,954	23,954	23,954

°C = degrees Celsius; m³ = cubic metres.

Table C.3 Whale Tail Pit Water Balance (Groundwater not considered)

Month	Temperature [°C]	Snowfall [m³]	Max Snow Sublimation [m³]	Net Inflow from Snow [m³]	Rainfall [m³]	Total Runoff [m³]	Other Qin [m³]	Total Inflow [m³]	Lake Evaporation [m³]	Maximum Evapotrans-piration [m³]	Total Inflow Net from Evaporation [m³]	Pumping out [m³]	Total Outflow [m³]
Jan	-31.3	7,639	9,999	0	20	0	0	0	0	0	0	0	0
Feb	-31.1	6,933	9,999	0	35	0	0	0	0	0	0	0	0
Mar	-26.3	10,118	9,999	119	32	0	0	0	0	0	0	0	0
Apr	-17.0	14,760	9,999	4,761	466	0	0	0	0	0	0	0	0
May	-6.4	8,992	9,999	0	5,741	0	0	0	0	0	0	0	0
Jun	4.9	3,330	0	3,330	20,118	66,374	0	66,374	176	3,097	63,101	63,101	63,101
Jul	11.6	6	0	6	42,776	42,783	0	42,783	1,984	34,912	5,887	5,887	5,887
Aug	9.8	680	0	680	46,808	47,488	0	47,488	2,008	35,334	10,146	10,146	10,146
Sep	3.1	7,567	0	7,567	38,507	46,074	0	46,074	790	13,901	31,382	31,382	31,382
Oct	-6.5	24,938	9,999	14,939	7,082	0	0	0	2	35	0	0	0
Nov	-19.3	18,429	9,999	8,430	216	0	0	0	0	0	0	0	0
Dec	-26.8	11,056	9,999	1,057	27	0	0	0	0	0	0	0	0
Year	-11.3	114,449	79,992	40,889	161,829	202,719	0	202,719	4,960	87,280	110,516	110,516	110,516

°C = degrees Celsius; m³ = cubic metres.

Table C.4 Whale Tail Attenuation Pond Water Balance

Month	Temperature [°C]	Snowfall [m³]	Max Snow Sublimation [m³]	Net Inflow from Snow [m³]	Rainfall [m³]	Total Runoff [m³]	Pumping In from Dump, Pit and Exploration Camp [m³]	Total Inflow [m³]	Lake Evaporation [m³]	Maximum Evapotrans-piration [m³]	Total Inflow Net from Evaporation [m³]	Pumping out [m³]	Total Outflow [m³]
Jan	-31.3	6,319	8,271	0	16	0	0	0	0	0	0	0	0
Feb	-31.1	5,735	8,271	0	29	0	0	0	0	0	0	0	0
Mar	-26.3	8,369	8,271	98	26	0	0	0	0	0	0	0	0
Apr	-17.0	12,209	8,271	3,938	385	0	0	0	0	0	0	0	0
May	-6.4	7,438	8,271	0	4,749	0	0	0	0	0	0	0	0
Jun	4.9	2,754	0	2,754	16,641	54,903	138,886	193,789	251	2,528	191,011	191,011	191,011
Jul	11.6	5	0	5	35,384	35,389	14,441	49,830	2,826	28,496	18,508	18,508	18,508
Aug	9.8	563	0	563	38,719	39,282	23,825	63,107	2,860	28,841	31,406	31,406	31,406
Sep	3.1	6,259	0	6,259	31,852	38,111	69,603	107,714	1,125	11,347	95,242	95,242	95,242
Oct	-6.5	20,628	8,271	12,357	5,858	0	0	0	3	29	0	0	0
Nov	-19.3	15,244	8,271	6,973	179	0	0	0	0	0	0	0	0
Dec	-26.8	9,146	8,271	875	23	0	0	0	0	0	0	0	0
Year	-11.3	94,670	66,168	33,823	133,862	167,685	246,755	414,441	7,065	71,241	336,166	336,166	336,166

°C = degrees Celsius; m³ = cubic metres.

Table C.5 Northeast Pond Water Balance

Month	Temperature [°C]	Snowfall [m³]	Max Snow Sublimation [m³]	Net Inflow from Snow [m³]	Rainfall [m³]	Total Runoff [m³]	Other Qin [m³]	Total Inflow [m³]	Lake Evaporation [m³]	Maximum Evapotrans-piration [m³]	Total Inflow Net from Evaporation [m³]	Pumping out [m³]	Total Outflow [m³]
Jan	-31.3	13,917	18,216	0	36	0	0	0	0	0	0	0	0
Feb	-31.1	12,631	18,216	0	64	0	0	0	0	0	0	0	0
Mar	-26.3	18,432	18,216	216	58	0	0	0	0	0	0	0	0
Apr	-17.0	26,889	18,216	8,673	849	0	0	0	0	0	0	0	0
May	-6.4	16,382	18,216	0	10,459	0	0	0	0	0	0	0	0
Jun	4.9	6,066	0	6,066	36,651	120,918	0	120,918	0	5,746	115,173	0	115,173
Jul	11.6	12	0	12	77,929	77,941	0	77,941	0	64,768	13,173	0	13,173
Aug	9.8	1,239	0	1,239	85,274	86,514	0	86,514	0	65,551	20,962	0	20,962
Sep	3.1	13,785	0	13,785	70,151	83,936	0	83,936	0	25,790	58,147	0	58,147
Oct	-6.5	45,432	18,216	27,216	12,902	0	0	0	0	65	0	0	0
Nov	-19.3	33,574	18,216	15,358	394	0	0	0	0	0	0	0	0
Dec	-26.8	20,142	18,216	1,926	50	0	0	0	0	0	0	0	0
Year	-11.3	208,500	145,728	74,492	294,817	369,309	0	369,309	0	161,920	207,454	0	207,454

°C = degrees Celsius; m³ = cubic metres.

Table C.6 Whale Tail Lake (South Basin) Water Balance

Month	Temperature [°C]	Snowfall [m³]	Max Snow Sublimation [m³]	Net Inflow from Snow [m³]	Rainfall [m³]	Total Runoff [m³]	Other Qin [m³]	Total Inflow [m³]	Lake Evaporation [m³]	Maximum Evapotrans-piration [m³]	Total Inflow Net from Evaporation [m³]	Pumping out [m³]	Total Outflow [m³]
Jan	-31.3	166,428	217,845	0	429	0	0	0	0	0	0	0	0
Feb	-31.1	151,050	217,845	0	768	0	0	0	0	0	0	0	0
Mar	-26.3	220,430	217,845	2,585	692	0	0	0	0	0	0	0	0
Apr	-17.0	321,568	217,845	103,723	10,150	0	0	0	0	0	0	0	0
May	-6.4	195,907	217,845	0	125,075	0	0	0	0	0	0	0	0
Jun	4.9	72,542	0	72,542	438,310	1,446,063	0	1,446,063	33,893	57,778	1,354,392	0	1,354,392
Jul	11.6	139	0	139	931,955	932,094	0	932,094	382,064	651,314	0	0	0
Aug	9.8	14,822	0	14,822	1,019,793	1,034,614	0	1,034,614	386,686	659,192	0	0	0
Sep	3.1	164,858	0	164,858	838,935	1,003,792	0	1,003,792	152,132	259,344	592,317	0	592,317
Oct	-6.5	543,320	217,845	325,475	154,300	0	0	0	385	657	0	0	0
Nov	-19.3	401,510	217,845	183,665	4,714	0	0	0	0	0	0	0	0
Dec	-26.8	240,882	217,845	23,037	598	0	0	0	0	0	0	0	0
Year	-11.3	2,493,455	1,742,760	890,846	3,525,717	4,416,563	0	4,416,563	955,160	1,628,284	1,946,709	0	1,946,709

°C = degrees Celsius; m³ = cubic metres.

Table C.7 Lake A16 (Mammoth Lake) Water Balance

Month	Temperature [°C]	Snowfall [m³]	Max Snow Sublimation [m³]	Net Inflow from Snow [m³]	Rainfall [m³]	Total Runoff [m³]	Qin from Whale Tail South and Whale Tail Attenuation Pond [m³]	Total Inflow [m³]	Lake Evaporation [m³]	Maximum Evapotrans-piration [m³]	Total Inflow Net from Evaporation [m³]	Pumping out [m³]	Total Outflow [m³]
Jan	-31.3	65,196	85,338	0	168	0	0	0	0	0	0	0	0
Feb	-31.1	59,172	85,338	0	301	0	0	0	0	0	0	0	0
Mar	-26.3	86,351	85,338	1,013	271	0	0	0	0	0	0	0	0
Apr	-17.0	125,970	85,338	40,632	3,976	0	0	0	0	0	0	0	0
May	-6.4	76,744	85,338	0	48,997	0	0	0	0	0	0	0	0
Jun	4.9	28,417	0	28,417	171,702	566,477	1,545,145	2,111,622	12,246	22,966	2,076,410	0	2,076,410
Jul	11.6	54	0	54	365,081	365,136	15,602	380,738	138,042	258,894	0	0	0
Aug	9.8	5,806	0	5,806	399,491	405,297	28,465	433,762	139,711	262,026	32,024	0	32,024
Sep	3.1	64,581	0	64,581	328,642	393,223	686,402	1,079,625	54,966	103,088	921,570	0	921,570
Oct	-6.5	212,839	85,338	127,501	60,445	0	0	0	139	261	0	0	0
Nov	-19.3	157,286	85,338	71,948	1,847	0	0	0	0	0	0	0	0
Dec	-26.8	94,362	85,338	9,024	234	0	0	0	0	0	0	0	0
Year	-11.3	976,779	682,704	348,977	1,381,155	1,730,132	2,275,614	4,005,746	345,104	647,236	3,030,004	0	3,030,004

°C = degrees Celsius; m³ = cubic metres.