



UPPER BEAVER PROJECT

Upper Beaver Gold Project Impact Statement

Section 3: Project Purpose and Alternative Assessment



Table of Contents

3.0	Project Purpose and Alternatives Assessment.....	3-1
3.1	Purpose of the Project	3-1
3.2	Need for the Project.....	3-2
3.2.1	Demand for the Project.....	3-2
3.2.2	Alignment with Federal and Provincial Objectives.....	3-3
3.2.2.1	Federal Mineral and Metals Policy	3-3
3.2.2.2	Canadian Critical Minerals Strategy	3-4
3.3	Identification of Alternatives	3-5
3.3.1	Background	3-5
3.3.2	Influence of Engagement with Indigenous Nations, Government Agencies and the Public.....	3-5
3.3.3	Alternatives to the Project.....	3-7
3.3.4	Alternative Methods.....	3-8
3.4	Summary of Rationale for Screened Alternative Methods	3-15
3.4.1	Mining	3-15
3.4.1.1	Methods.....	3-15
3.4.1.2	Timing.....	3-18
3.4.2	Ore Processing.....	3-18
3.4.2.1	Location	3-18
3.4.2.2	Technology - Gold	3-19
3.4.2.3	Technology - Copper	3-20
3.4.3	Overburden Management.....	3-20
3.4.4	Ore Storage	3-21
3.4.5	Buildings, Facilities and General Infrastructure	3-22
3.4.6	Water and Wastewater Management	3-23
3.4.6.1	Contact Water Management.....	3-23
3.4.6.2	In-plant Treatment	3-23
3.4.6.3	Final Effluent Treatment	3-23
3.4.7	Treated Effluent Discharge Location	3-24
3.4.8	Water Crossings	3-25
3.4.9	Corridors and Access	3-26
3.4.10	Waste Management	3-26
3.4.10.1	Domestic Solid Waste Management	3-26
3.4.10.2	Domestic Sewage Management.....	3-27
3.4.11	Mine Closure	3-27
3.5	Methodology for Assessing Viable Alternatives	3-33
3.5.1	Performance Objectives, Criteria and Indicators Overview	3-33
3.5.1.1	Performance Objectives	3-33
3.5.1.2	Evaluation Criteria and Indicators	3-34
3.5.1.2.1	Natural Environment Criteria and Indicators.....	3-34
3.5.1.2.2	Human Environment Criteria and Indicators.....	3-35

3.5.1.2.3	Technical and Economic Criteria and Indicators.....	3-37
3.5.2	Alternatives Assessment and Identification of the Selected Alternative	3-37
3.5.3	Other Regulatory Processes	3-38
3.6	Misema River Dykes and Diversions	3-38
3.6.1	Background	3-38
3.6.2	Identification of Alternatives for Assessment.....	3-39
3.6.3	Assessment of Alternatives	3-40
3.6.4	Summary of Results and Selected Alternative	3-42
3.7	Tailings and Mine Rock Management	3-48
3.7.1	Background	3-48
3.7.2	Identification of Alternatives for Assessment.....	3-48
3.7.2.1	Screening of Alternatives for Assessment - Tailings	3-48
3.7.2.2	Screening of Alternatives for Assessment – Mine Rock	3-50
3.7.2.3	Mine Waste Management Alternatives Identified for Assessment.....	3-51
3.7.3	Assessment of Alternatives	3-52
3.7.4	Summary of Results and Selected Alternative	3-54
3.8	Mine Closure - Open Pit	3-68
3.8.1	Background	3-68
3.8.2	Identification of Alternatives for Assessment.....	3-68
3.8.3	Assessment of Alternatives	3-70
3.8.4	Summary of Results and Selected Alternative	3-71
3.9	Mine Closure – Misema River Diversion.....	3-74
3.9.1	Background	3-74
3.9.2	Screening to Identify Alternatives for Assessment	3-74
3.9.3	Assessment of Alternatives	3-75
3.9.4	Summary of Results and Selected Alternative	3-76
3.10	Mine Closure - Demolition Waste	3-79
3.10.1	Background	3-79
3.10.2	Screening to Identify Alternatives for Assessment	3-79
3.10.3	Assessment of Alternatives	3-79
3.10.4	Summary of Results and Selected Alternative	3-80
3.11	Summary of Alternatives.....	3-84
3.12	References	3-87

Tables

Table 3.3-1: Identification of Alternative Methods that Satisfy Initial Questions	3-12
Table 3.3-2: Alternative Methods Assessed in Detail in the Impact Statement	3-14
Table 3.6-1: Alternatives Assessment – Main Dyke Alternative Locations	3-43
Table 3.7-1: Physical Characteristics of Waste Management Storage Alternatives	3-55
Table 3.7-2: Alternatives Assessment – Mine Waste Management Alternatives.....	3-56
Table 3.8-1: Alternatives Assessment – Pit Closure Methods	3-72
Table 3.9-1: Alternatives Assessment – Mine Closure, Misema River Diversion	3-77
Table 3.10-1: Alternatives Assessment - Demolition Waste Alternatives	3-81
Table 3.11-1: Summary of Selected Alternatives by Project Component	3-85

Figures

Figure 3.4-1: Offsite Processing Location Alternatives	3-29
Figure 3.4-2: Overburden Storage Location Alternatives.....	3-30
Figure 3.4-3: Ore Storage Location Alternatives.....	3-31
Figure 3.4-4: Treated Effluent Discharge Location Alternatives	3-32
Figure 3.6-1: Dyke Location Alternatives	3-47
Figure 3.7-1: Preliminary Mine Waste Storage Siting Study Results	3-62
Figure 3.7-2: Tailings Storage Candidate Location Alternatives	3-63
Figure 3.7-3: Mine Rock Storage Candidate Location Alternatives	3-64
Figure 3.7-4: Tailings and Mine Rock Alternatives (1, 2 and 3)	3-65
Figure 3.7-5: Tailings and Mine Rock Alternatives (4, 5 and 6)	3-66
Figure 3.7-6: Tailings and Mine Rock Alternatives (7, 8 and 9)	3-67

Acronyms and Abbreviations

AEX	Advanced Exploration
Agnico Eagle	Agnico Eagle Mines Limited
CI	Closure phase (in alternative assessment tables)
Con	Construction phase (in alternative assessment tables)
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
GHG	Greenhouse gas
MDMER	Metal and Diamond Mining Effluent Regulations
MECP	Ministry of Environment, Conservation and Parks
MNR	Ministry of Natural Resources
Op	Operations phase (in alternative assessment tables)
PA	Project Area
Project	Upper Beaver Gold Project
SAR	Species at Risk
TISG	Tailored Impact Statement Guidelines
TSF	Tailings storage facility

3.0 Project Purpose and Alternatives Assessment

3.1 Purpose of the Project

The purpose of the Upper Beaver Gold Project (Project) is to extract ore by underground and open pit mining for processing on site, to produce gold bars and copper concentrate for further processing within Canada, and to provide a competitive or acceptable return on investment within a reasonable time frame. The Project will bring employment and contracting opportunities primarily to the local area and region while also extending further away, providing revenue to the provincial and federal government.

Agnico Eagle Mines Limited (Agnico Eagle) is a Canadian-based mining company and the second largest gold producer in the world, operating mines in Canada, Australia, Finland and Mexico. Agnico Eagle is advancing a number of high-quality development mining projects in these regions as part of its sustainable growth strategy to consistently create value for its shareholders. The strategy relies on advancing high-quality, low-risk projects in regions such as Canada that have geologic potential and political stability. Agnico Eagle relies on the continued expansion of its pipeline of projects and development of new mines to support its strategy as ore resources at individual mines are finite.

3.2 Need for the Project

3.2.1 Demand for the Project

Mining is an important industry in Canada and a major job creator. Canada's mining industry is a global leader in producing responsibly-mined, low-carbon minerals and metals. The mining sector contributed \$117 billion to Canada's gross domestic product in 2023, equivalent to 4% of the total value. The mining industry directly employed 430,000 people in 2023, or about 2.1% of all Canadian jobs. Indirect employment included another 281,000 jobs, for a total of 711,000 total jobs, or about one in every 28 jobs in Canada (MAC 2025). The total value of Canadian mineral production in 2024 was \$64.3 billion, which was a decrease from \$70.4 billion in 2023 (NRCan 2025a).

The Ontario mining sector produced \$15.7 billion worth of minerals in 2023. Gold was the largest individual metal produced by value (\$6.5 billion). The mining sector directly contributed \$23.8 billion to the gross domestic product of Ontario in 2023 (representing almost 3% of the total), with indirect contributions adding another \$8 billion. Capital investments totalled \$5.2 billion, fueling job growth and economic prosperity (OMA 2025).

The mining industry is crucial to the global supply chain, providing essential minerals used in technology and manufacturing. The sector drives both employment and prosperity across Ontario. Approximately 22,000 people are directly employed, at an average annual salary of \$150,000, which is almost double the provincial all-industry average. The Ontario mining sector indirectly supports an additional 130,000 high-paying jobs (OMA 2025).

A model has been completed for the Project that demonstrates the potential benefits of this Project to the economy (Appendix N-2). The annual direct, indirect and induced effects generated during the assessed mine life include a total of \$4.7 billion in additional gross domestic product (on average \$260 million per year), 28,110 person-years of employment (1,560 persons employed in an average year), \$3.0 billion in labour compensation (on average \$170 million per year), and \$2.1 billion in government revenues (on average \$120 million per year). Of these total economic effects, up to 21,270 person-years of employment (1,180 persons employed in an average year) and up to \$2.3 billion in labour compensation (on average \$130 million per year) are expected to occur in the local area. The provincial government earns an additional \$1.1 billion (on average \$60 million per year) and local governments earn an additional \$190 million (on average \$10 million per year).

Internal studies completed by Agnico Eagle concluded that the Project could be successfully developed as an underground and open pit mining operation, producing gold and copper which are both in high demand. Gold is commonly used:

- As a monetary exchange medium
- For art, jewelry and tableware
- In electronic devices such as computers, cellular phones and televisions
- For medical equipment and devices, and in specialized medical treatments.

Approximately half of the gold consumption in the world is in jewelry, 40% is associated with investments, and 10% is used for industrial purposes.

With respect to gold and financial investments, gold has been demonstrated to be an attractive investment during periods of political and economic uncertainty (Trading Economics 2026). Geopolitical factors are expected to continue to drive gold demand for 2026 and beyond.

The strong global demand for gold cannot be fully met by recycling of metals already produced, although there is a strong gold recycling economy. Recycled gold was equivalent to less than half of the mine-produced gold in the first quarter of 2026; approximately 355 t versus 885 t (World Gold Council 2026). As a result, additional mining and processing of ore containing these metals is needed to meet current (and future) requirements.

Copper plays a crucial role across various industries, including manufacturing, construction and transportation. Copper is a soft and malleable metal that is used in:

- Electrical wires and cables for its conductivity
- Plumbing, industrial machinery, and construction materials for its durability, machinability and resistance to corrosion
- Emerging clean technologies, such as solar cells and electric vehicles (NRCan 2025b).

3.2.2 Alignment with Federal and Provincial Objectives

Two government policies have been identified, which are most pertinent to this Impact Statement and Project:

- Minerals and Metals Policy of the Government of Canada (NRCan 2025c)
- Canadian Critical Minerals Strategy (Canada 2026).

3.2.2.1 Federal Mineral and Metals Policy

The Minerals and Metals Policy of the Government of Canada (NRCan 2025c) is intended to help fulfill federal government commitments. The Policy affirms provincial jurisdiction over mining, delineates a role for the federal government in minerals and metals that is tied to other federal responsibilities, and commits the government to pursuing partnerships with stakeholders in addressing issues within its jurisdiction. Two of the stated purposes of the policy are:

- Promoting economic growth and job creation
- Meeting the challenge of sustainable development.

The minerals and metals industry is a major contributor to Canada's economic well-being as described above. This contribution may be particularly important for more remote communities and locations, where fewer development opportunities may exist. The Project is located in northeastern Ontario, where mining has been historically and continues to be an important driver of the economy. Accordingly, the Project is well-aligned with promoting economic growth and job creation.

The Government of Canada has accepted the World Commission on Environment and Development (the Brundtland Commission) definition of sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Sustainable development as described in the policy in the context of minerals and metals includes consideration of elements such as:

- Finding, extracting, and producing mineral products in efficient, competitive and environmentally responsible manner
- Maintaining or enhancing the quality of life and the environment, for present and future generations
- Participation of stakeholders, individuals and communities.

Agnico Eagle is a progressive mining company, and sets sustainability objectives and goals, including related to environmental stewardship, people and communities (Agnico Eagle 2026). By meeting these goals, Agnico Eagle aims to strengthen the production base, create value for shareholders, and support the social, environmental and economic well-being of its employees and communities. Further detail regarding the corporate approach to sustainability is provided in Section 15.

3.2.2.2 Canadian Critical Minerals Strategy

The Government of Canada (2026) identified that critical minerals are essential for a modern economy, and that global demand is forecast to increase significantly. Canada's current approach to critical minerals is focussed on three main themes:

- Promoting domestic production and processing of critical minerals in strategic areas:
 - Canada is investing in minerals that are key to clean energy and advanced technology and manufacturing, with an increased emphasis on dual-use minerals integral to commercial and defence value chains.
- Protecting Canada's sovereignty and economic resilience by safeguarding critical minerals value chains:
 - Canada is taking action to protect critical mineral value chains and industry from geopolitical threats, unfair market practices, and risks of foreign control.
- Partnering with Indigenous groups, domestic stakeholders and international allies to develop critical minerals:
 - Canada is partnering with provinces and territories, Indigenous groups, industry and other stakeholders to capitalize on strategic opportunities for critical minerals.

3.3 Identification of Alternatives

3.3.1 Background

The *Impact Assessment Act* requires the consideration of technically and economically feasible alternatives with a goal of providing transparency of Project design decisions, including:

- Alternatives to the Project:
 - Technically and economically feasible and are directly related to the project (effectively different ways of approaching and dealing with a problem or opportunity)
- Alternative means of carrying out the Project:
 - Functionally different ways to meet the need for a project and achieve its purpose, that are technically and economically feasible (IAAC 2020).

Alternatives are only considered appropriate to be assessed if they provide a viable solution (i.e., technically and economically feasible), and are likely to satisfy the following questions (adapted from Ministry of the Environment 2014):

- Are they consistent with relevant planning objectives, policies and decisions?
- Are they consistent with government priority initiatives, such as climate change?
- Could potential effects to any sensitive environmental features be mitigated?
- Are they able to be implemented and at the defined location?

These questions in combination with the Agnico Eagle preference to avoid unnecessary environmental disturbance and adverse environmental effects, were used to identify a reasonable range of potentially viable alternatives for assessment. A detailed assessment is completed of viable alternatives identified through this screening.

3.3.2 Influence of Engagement with Indigenous Nations, Government Agencies and the Public

Engagement has been ongoing for several years prior to and throughout the impact assessment process, and will continue with Indigenous Nations and stakeholders such as government agencies and the public over the life of the Project. Section 5 and 6 of the Impact Statement provides more detail on the extensive consultation process. The Record of Consultation (Appendix B) includes detailed comments received, and responses provided, during the development of the Impact Statement. Agnico Eagle provided information to stakeholders and rightsholders, including Indigenous Nations, regarding alternatives identified for potential consideration in the Impact Statement and sought input on these alternatives, and additional alternatives that were requested to be considered. Feedback received through these activities did not result in the identification of any new feasible alternatives for assessment; however, engagement input informed the assessment of alternative means, Project design refinements, mitigation planning, and the rationale for selected Project components.

The key comments that influenced the alternative assessment methodology are summarized below:

Agnico Eagle conducted periodic presentations at municipal government meetings between 2022 and 2025. These engagements included updates on the Project and targeted discussions related to road and infrastructure alternatives (see Section 5.3).

Engagement activities were also undertaken specifically to present potential alternatives and obtain feedback from the public and Indigenous Nations. Key engagement events included:

- June 15, 2022 (55 participants)
- June 17, 2023 (29 participants; included an alternatives assessment thematic table)
- November 14, 2023 (27 in-person and 19 virtual participants; alternatives-focused workshop in Larder Lake, Ontario)
- July 27, 2024, open house and barbeque, which included an interactive workshop station to gather input on ongoing studies.

The November 14, 2023, workshop was dedicated to the presentation and discussion of Project alternatives and alternative means of carrying out the Project. Supporting materials outlining the alternatives under consideration were distributed to registered participants in advance to facilitate informed review and feedback.

Key topics raised during public engagement activities in relation to alternatives included:

- Mine design alternatives, including dewatering of York Lake and channel diversion
- Process plant location, including preference for an onsite facility to reduce transportation requirements, consideration of alternative locations (e.g., Little Larder Lake), and interest in maintaining economic benefits within Ontario
- Tailings management area location and associated potential effects
- Open pit closure and reclamation approaches, including the use of tailings and opportunities to create fish habitat
- Reclamation of stockpiles.

Consultation and engagement with Indigenous Nations also informed the consideration of alternatives, as summarized in Section 6 and detailed in Appendix B.

Apitipi Anicinapek Nation (AAN):

Engagement activities related to Project design and alternatives were conducted on July 27, 2022; May 29, 2024; and April 24, 2026. Key topics discussed included:

- Mine design alternatives, including crown pillar stability considerations and associated mining methods
- Alternative access to Beaverhouse Lake in relation to the operations phase scenario
- Process plant location, including consideration of the Holt Mine as a potential processing site (determined subsequently by Agnico Eagle to be not feasible due to infrastructure requirements and associated transportation costs)
- Mine waste alternatives assessment, including interest in the weighting methodology applied in the evaluation. Agnico Eagle provided a modifiable tool to support AAN in reviewing the assessment based on community-specific priorities
- Alternative discharge location (Beaverhouse Lake).

Beaverhouse First Nation (BHFN):

Engagement activities related to Project design and alternatives were conducted on April 25, 2023; May 15, 2024; September 4, 2024; and June 13, 2025. Key topics related to the alternatives assessment included:

- Mine design alternatives, including underground and open pit scheduling, process plant location, including potential synergies with existing Agnico Eagle operations.
- Discussions around sites of importance to BHFN, including dyke and access road alignments to avoid sites of importance.
- Alternative discharge location (Beaverhouse Lake).
- The meeting of September 4, 2024, was specifically focused on York Lake 1 Archaeological Assessment Review, and the work planned for the operations phase in that area.
- The June 13, 2025, meeting discussed the York Lake 1 Diversion system alternatives assessment, confirming the site of interest to BHFN was able to be avoided.

Matachewan First Nation (MFN):

Alternatives were discussed at meetings held on January 27, 2023; April 26, 2024; and April 25, 2025. Key topics related to the alternatives assessment included:

- Mine design alternatives, including backfilling for stabilization
- Alternative assessment methodologies and criteria
- Alternative discharge location (Beaverhouse Lake).

Timiskaming First Nation (TFN):

Meetings held on November 1, 2022; April 3, 2024; June 13, 2025; August 14, 2025; and April 23, 2026; the meeting on August 14, 2025 included discussions applicable to the alternatives assessment, related to:

- Mine design alternatives, including dewatering of York Lake
- Mine waste alternatives assessment
- Alternative discharge location (Beaverhouse Lake).

Métis Nation of Ontario (MNO):

Meetings held on November 23, 2020; May 3, 2021; October 30, 2023; and February 11, 2026, included discussions applicable to the alternatives assessment, related to:

- Mine design alternatives, including dewatering of York Lake
- Alternative discharge location (Beaverhouse Lake).

3.3.3 Alternatives to the Project

The Tailored Impact Statement Guidelines (TISG) require that the Impact Statement provide a description of the alternatives to the Project that are technically and economically feasible, that meet the Project need and achieve the Project purpose from the perspective of the proponent.

Mines are unique from other types of projects for which a number of project alternatives might be available, because the ore body to be mined has a fixed location, and the only way to

proceed is to mine the ore body in place. The following potential alternatives to the Project were identified:

- Abandon the Project (i.e., no-action alternative)
- Delay the Project until circumstances are more favourable
- Proceed with the Project in the near term as planned.

No other alternatives to the Project were identified during internal proponent meetings or through consultation and engagement activities.

The identified alternatives to the Project were considered against the questions provided in Section 3.3.1.

The alternative of abandoning the Project is not a viable solution as it does not meet the Project need or purpose. There would be no return of the investment for shareholders, and furthermore, abandonment of the Project could affect proponent financials, as reclamation of the historical property would still be required with or without mine development as per the requirements of the *Mining Act*. If the Project did not proceed, existing environmental conditions would be maintained with no local or regional economic benefits.

Regarding delaying the Project until circumstances are more favourable, commodity pricing is currently highly favourable to support development of a gold and copper mining project. Gold and copper prices are currently favorable for Project development, based on market information available at the time of preparation. Project designs and mitigation measures will minimize direct and indirect disturbance of terrestrial and aquatic, habitat and species, that will be monitored over the life of the mine. Intentionally delaying the Project would not alter the level of disturbance or other adverse effects associated with the Project. No scenario has been identified whereby circumstances could be more favourable than the current conditions, and there are no advantages to delaying development over proceeding in the near term. Therefore, the alternative of delaying the Project until circumstances are more favourable is not assessed in detail.

The primary advantages of proceeding with the Project as planned is that it would earlier:

- Return on the investment made to date to advance the Project
- Delivery of positive effects to the local and regional economies, supporting skills development
- Direct and indirect employment and business opportunities.

The alternative of proceeding with the Project in the near term as planned is the preferred and selected alternative carried forward into Section 4 (Project Description). It fulfills the Project purpose and provides a return on investment within a reasonable timeframe.

3.3.4 Alternative Methods

The TISG indicates that the assessment of alternative methods should consider a number of Project components or activities which includes the following relevant to the Project:

- Mining (mining-related activities):
 - Underground and open pit mining operations (within consideration of scale of operation including need for draining of York Lake and realignment of Misema River,

noting that the public boat launch access on Beaverhouse Lake was relocated in fall 2025 and is no longer in potential conflict with mining operations)

- Design of diversion structures
- Rate of mining (daily volumes)
- Operations timing (reduced hours versus 24-hour)
- Management for ore, mine rock and overburden, including consideration of acid mine rock drainage, neutral metal mine drainage, and/or metal(loid) leaching potential of all excavated materials:
 - Storage, management and re-use of excavated materials
 - Location and design
- Processing facilities location and design, including consideration of offsite transportation of ore
- Tailings management, including consideration of acid mine rock drainage, neutral metal mine drainage, and/or metal(loid) leaching potential of all excavated materials:
 - Tailings storage methods
 - Location
- Water and wastewater management including:
 - Treatment technologies and techniques to control effluent quality
 - Location of effluent discharge points
- Location and crossing method for Victoria Creek
- Energy and power sources, temporary and permanent, stationary and mobile
- Route or corridor options for the Project
- Domestic waste management
- Suspension, decommissioning and abandonment options (closure).

For each of these Project components or activities Agnico Eagle attempted to identify a range of potentially viable alternatives (i.e., alternatives that fulfilled all the questions provided in Section 3.3.1) using information available and including from the following sources:

- Engineering studies including trade-off studies
- Proponent internal workshops, meetings and discussions
- Comments received during consultation and engagement, workshops and meetings
- Professional experience and expertise of the Impact Statement authors, briefly listed in Section 19.

The identification of potentially viable alternatives for screening and the detailed assessment methodology has also been guided in part by the results of ongoing engagement and consultation with Indigenous Nations and stakeholders summarized in Section 3.3.2, Section 5 and Section 6, and detailed in Appendix B. Agnico Eagle has provided information to

stakeholders and local Indigenous Nations regarding the alternatives initially identified to potentially be considered for the Project, and have sought feedback on these and other potential alternatives for inclusion, including as summarized in Section 5 and Section 6.

Potential alternatives were considered with the application of standard mitigation measures, such as those described in Impact Assessment Agency of Canada (IAAC 2026) for the Impact Statement phase. This includes, but is not limited to the following general topics raised during consultation and engagement to date:

- Atmospheric:
 - Dust management
 - Noise mitigation
 - Vehicle speed management
 - Preventative maintenance of equipment
 - Night-time light
- Water:
 - Collect, manage and treat contact waters
 - Avoid waterbodies and watercourses where reasonable (and compensate and offset for effects to fish and fish habitat)
 - Implement erosion and sediment control measures
- Land:
 - Maintain a compact site
 - Minimize clearing of natural vegetation
 - Minimize new or parallel existing infrastructure corridors
 - Reclaim the site after operations to mitigate potential effects to wildlife and wildlife habitat
- People:
 - Avoid or minimize adverse effects to local residences and cottages
 - Implement a procurement approach to support local employment and contracts, including Indigenous Nations
 - Engage local Indigenous Nations on reclamation strategies.

Table 3.3-1 provides an assessment of the identified Project components or activities for potential alternatives, considered against the questions provided in Section 3.3.1. A summary is presented in Table 3.3-2 for the identified viable alternative methods considered for additional assessment.

The assessment of alternative methods is further described in:

- Section 3.4 provides the additional information for the Project components or activities listed in the TISG for which viable alternatives were not identified.

-
- Section 3.5 to Section 3.10 provides an alternative assessment using a defined methodology, for Project components or activities with viable alternatives.



Table 3.3-1: Identification of Alternative Methods that Satisfy Initial Questions

Project Facility or Activity	Are there Multiple Alternatives that (are) ⁽¹⁾ :							Alternative Method Identified
	Viable and Practical Solution ⁽²⁾	Proven and Technically Feasible	Consistent with Planning	Consistent with Priorities	Support Mitigation for Sensitive Features	Practical and Economically Viable	Appropriate for the Location	
Mining (mining-related activities)								
Method (underground and open pit)	No	Not assessed further. A combined open pit and underground mining operation at a rate determined to meet Project requirements is the only technically and economically viable alternative for the ore deposit based on engineering studies completed to date. Additional information is provided in Section 3.4.1.1.						
Timing	No	Not assessed further. Operating either the underground mine after open pit mining ceases, or operating the open pit after underground mining ceases is not technically and economically viable. The operations work cycles at the Project will meet local labour laws and will facilitate continuous mine and process plant operation (24 hours per day, 7 days per week). Additional information is provided in Section 3.4.1.2.						
Misema River dykes and diversions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Location (Section 3.6)
Ore Processing								
Location	No	Not assessed further. Only processing of ore at the identified location on the Upper Beaver Property (Property) was determined to be a viable solution. Agnico Eagle has a very limited lands package for placement of a process plant. Establishment of a dedicated copper smelter on site is not warranted or viable. Additional information is provided in Section 3.4.2.1.						
Technology - gold	No	Not assessed further. The only commercially viable method for recovering gold from the ore is appropriate application of a cyanide solution to dissolve the gold present in the ore for recovery (cyanidation). The only technically and economically viable method for the destruction of residual cyanide is the SO ₂ / Air process. Additional information is provided in Section 3.4.2.2.						
Technology - copper	No	Not assessed further. Copper will be extracted by flotation followed by filtration circuits within the process plant which are common hydrometallurgical methods. Extracting by leaching is not preferred given the ore characteristics. Additional information is provided in Section 3.4.2.3.						
Tailings management	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Technology and location (Section 3.7.2 and Section 3.7.3)
Mined materials management								
Mine rock	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Location (Section 3.7.2 and Section 3.7.3)
Ore	No	Not assessed further. In consideration of land constraints and geotechnical conditions, only one location was identified. Additional information is provided in Section 3.4.4.						
Overburden	No	Not assessed further. In consideration of land constraints and geotechnical conditions, only one location was identified. Additional information is provided in Section 3.4.3.						
Buildings, facilities and general infrastructure	No	Not assessed further. The siting constraints posed by major facilities including the open pit, process plant, tailings storage facility (TSF), other stockpiles, and local waterbodies and watercourses, along with a primary goal to minimize the Project footprint result in limited locations for the siting of most of the other required Project components. As such, for many of the site buildings, facilities and general infrastructure, there are no reasonable alternative locations. Additional information is provided in Section 3.4.5.						
Water and wastewater management								
Contact water management	No	Not assessed further. Contact water management approaches are standard to the industry and are customized during detailed design as needed to meet water management requirements. Additional information is provided in Section 3.4.6.						



Project Facility or Activity	Are there Multiple Alternatives that (are) ⁽¹⁾ :							Alternative Method Identified
	Viable and Practical Solution ⁽²⁾	Proven and Technically Feasible	Consistent with Planning	Consistent with Priorities	Support Mitigation for Sensitive Features	Practical and Economically Viable	Appropriate for the Location	
Water treatment technologies (In-plant and final effluent)	No	Not assessed further. Contact water treatment technologies are standard to the industry, and techniques are customized during detailed design as needed to meet regulatory requirements. Additional information is provided in Section 3.4.6.						
Treated effluent discharge location	No	Not assessed further. The Misema River system is the only watercourse near the PA that has a large assimilative capacity and could potentially receive the treated effluent discharge from the Project. Additional information is provided in Section 3.4.7.						
Water crossings	No	Not assessed further. Location and type of water crossings is constrained by the proposed use by haul trucks. Additional information is provided in Section 3.4.8.						
Power supply	Yes	See Section 4.14 for further information. Assessed through provincial environmental assessment process.						
Corridors and access	No	Not assessed further. The Project has been designed in part to take advantage of existing infrastructure and infrastructure corridors, to reduce environmental disturbance. No new major corridors are proposed. Other alternatives result in unnecessary environmental disturbance and cost. Additional information is provided in Section 3.4.9.						
Waste management								
Solid waste	No ⁽³⁾	Not assessed further. The Project has been designed in part to take advantage of existing solid waste management facilities, to reduce environmental disturbance and the potential for drawing nuisance wildlife to the Project site. Other alternatives result in unnecessary environmental disturbance and cost. Should the decision be made to develop a landfill for construction-related waste, the provincial regulatory process will be followed. Additional information is provided in Section 3.4.10.1.						
Domestic sewage	No	Not assessed further. The Project does not have access to a municipal system. Additional information is provided in Section 3.4.10.2.						
Mine closure ⁽⁴⁾								
Open pit	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Technology (Section 3.8)
Misema River diversions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Technology (Section 3.9)
Demolition waste	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Location (Section 3.10)

Notes:

1. See Section 3.3.1 for detail regarding screening questions.

2. Only alternatives that provide a viable solution and meet the Agnico Eagle preference to avoid unnecessary environmental disturbance and adverse environmental effects, are assessed for other screening questions.

3. The Project site is situated such that Agnico Eagle prefers to utilize existing regional infrastructure for certain methods, rather than create Project-specific infrastructure.

4. Mine decommissioning and closure must satisfy the Mine Rehabilitation Code under Ontario Regulation 35/24, Rehabilitation of Lands, of the *Mining Act* or future equivalent. Select alternatives are presented herein anticipated to be of particular interest based on consultation and engagement to date.

Table 3.3-2: Alternative Methods Assessed in Detail in the Impact Statement

Potential Alternative Methods	Potentially Viable Alternatives Identified	Primary Means of Identifying Individual Alternative Methods Assessed
Misema River dykes and diversions (Section 3.6)	Locations	Internal engineering studies
Tailings and mine rock management (Section 3.7)	- Technology (tailings) - Location	- Internal engineering studies - Assessment for Alternatives for Storage of Mine Waste (Appendix C)
Mine closure, open pit (Section 3.8)	Technology	- Internal engineering studies - Professional experience and judgement
Mine closure, Misema River diversion (Section 3.9)	Technology	Internal engineering studies
Mine closure, demolition waste (Section 3.10)	Location	Internal engineering studies

3.4 Summary of Rationale for Screened Alternative Methods

This section provides an explanation for each of the Project components or activities listed in the TISG, for which viable alternatives were not identified (Table 3.3-1). In many instances, alternatives could only be identified that would materially expand the Project Area (PA), or materially increase the environmental disadvantages without additional benefit, and are therefore considered not viable to Agnico Eagle. The overall rationale for the alternatives for which viable alternatives were not identified is summarized in Table 3.3-1.

3.4.1 Mining

3.4.1.1 Methods

The available alternatives for mining of the ore body are:

- Underground mining only (Candidate Alternative A)
- Open pit mining only (Candidate Alternative B)
- Combination of open pit and underground mining (Candidate Alternative C).

The choice of a mining method (or methods) is a function of the:

- Geometry and character of the ore body in relation to the surrounding geology and terrain, including aspects related to stability
- The presence of historical underground mine workings for this Project
- Economics, ore grade and costs relative to resource value (reflective of commodity pricing)
- Environmental sensitivities.

Underground mining requires the development of an access (by ramp or shaft) to enter the underground workings and extract ore. Ramp access mining involves the use of an inclined tunnel or ramp from surface to access the ore. Drifts are driven off from the ramp into the ore body at strategic levels. Ramp mining is more suited to shallower (although not at surface) deposits, because of the cycle time it takes to truck ore and mine rock up the ramp to surface, or the high cost and maintenance requirements for longer conveyors. Shaft access mining requires the construction of a vertical, underground passage (shaft) from surface to the targeted depth. Horizontal tunnels (drifts) are driven from the shaft, at planned levels to access the ore body. Mining takes place off the drifts by drilling and blasting, and ore is transported to surface using a hoist. This type of mining is best suited to deeper, ore bodies. Where the ore is near surface and/or is not covered by host rock, underground mining must leave a substantial portion of the ore body in place (termed a crown pillar) to maintain stability on surface and underground.

Open pit mining requires the removal of surface materials to expose the ore body, followed by the stepwise development of concentric levels (benches) into the deposit, with an inclined roadway connecting the various mining levels. Open pit mining methods are generally well suited to:

- Shallow ore deposits that are exposed at surface, or are near surface covered by comparatively shallow overburden

- Large deposits that have a more uniformly distributed resource or scattered, often randomly distributed pockets, that are not readily traceable by underground mining methods
- High tonnage, low grade deposits which are uneconomic using underground mining techniques.

Where ore bodies are complex or there are complicating factors, such as stability concerns, a combination of open pit and underground mining may be used. In that circumstance, open pit mining will be used to recover the ore closer to surface, while underground mining will be used to extract more concentrated ore zones either adjacent and connected to the open pit, or deeper than the open pit.

The Upper Beaver deposit is located within the southern Abitibi Greenstone belt of the Superior Province, within the world-class Kirkland Lake – Larder Lake mining district of Ontario, Canada. Historical mining that occurred at the site from 1912 to 1971 left a complex network of underground workings, that were left open at the time to allow for fresh air circulation for workers. These workings are expressed over a relatively focussed area on surface, including under the northern portion of York Lake. Several long and narrow historical stopes extend under York Lake.

During the initial mine planning, development of a mine while maintaining a safe distance from historical mine workings was fully considered; however, that portion of the ore body located at a relatively shallow depth below York Lake is key to the Project economic viability. The purpose of the Project (a reasonable return on investment) cannot be met without extraction of that part of the deposit.

An underground-only mine including the relatively shallow deposit under York Lake was considered as a potentially viable alternative initially. Comprehensive rock stability investigations and modelling completed to support mine design between 2018 and 2020 however, identified that there was insufficient competent rock (crown pillar) above the historical underground mine workings and below York Lake, for safe future underground mining at that location. The crown pillar above the historical stopes (mining rooms) below York Lake does not consist of competent rock, and instead it is comprised of 12 to 15 m of fractured rock, overlain by 16 m of unconsolidated materials. This lack of a competent crown pillar separating the historic and future underground mine workings below York Lake poses an unacceptable risk. Failure of the crown pillar over the life of the mine could directly affect the safety of mine workers if present at the time. Uncontrolled failure of the crown pillar at York Lake at any time including into the long future after mining was completed, could result in catastrophic collapse of York Lake into the workings. Depending on the scale of the failure, this could have a substantial effect on the local surface water system.

Agnico Eagle investigated a number of potential engineering solutions that would support development of economically viable underground mine at the Project site, including:

- Geotechnical stabilization of the crown pillar using a freezing technique
- Construction of underground bulkheads (hydrostatic barricades) to isolate the historical mine workings of concern.

Freezing the rock mass or the unconsolidated sediments near York Lake was investigated, but determined to not be technically feasible. There was a concern that aggressive drilling needed to install a freezing system would result in even more damage to the bedrock which is already

thin and highly fractured. Freezing of the overlying unconsolidated materials alone would not improve the overall stability of the crown pillar or safety for underground mining.

Placement of underground bulkheads to separate off the historic and proposed underground workings would be a highly complex undertaking, particularly given the fractured nature of the rock. An element of risk for worker safety would be retained, although if viable, this alternative would have limited environmental effect unless bulkhead failure occurred. While this underground mining-only scenario may allow safe mining to occur, it would not provide for access to the near surface ore needed for Project viability.

Following review of expert studies and an internal assessment, it was determined that the underground only mining alternative was not viable.

The configuration of the ore body does not support an open pit only mine, as the ore body trend continues at depth. An open pit only mine would not be economic, due to the high volume of mine rock removal required to access sufficient ore at depth.

Two scenarios of open pit and underground mining together were considered for viability, with both requiring the temporary (life of mine) dewatering of York Lake and diversion of the Misema River:

- Extraction of a constrained (smaller) open pit focussed only on the area of stability concern, with the areal extent of the open pit reflective of the geometry of the underground stopes and open pit walls slope angles required for stability, together with underground mining
- A larger open pit designed to maximize resource extraction when combined with underground mining.

Both of the combined underground mine - open pit alternatives would have the advantage of removing the unstable rock below York Lake, as well as the ability to rehabilitate the historic tailings and mine rock located in, and beside York Lake. Tailings from the historical ore processing which included mercury amalgamation were deposited directly in York Lake and are of local interest for removal.

Extraction of a larger open pit to maximize resource extraction along with underground mining was not considered acceptable to Agnico Eagle, as it would result in greater environmental disruption, including into Ava Lake and Victoria Creek, although it could potentially provide an increased return on investment. It would also reduce the land area available for other required Project components. Land availability is a critical aspect given the relatively small Agnico Eagle land package (Figure 2.1-2).

Through these studies it was determined that the combination of a constrained open pit and underground mining is the only viable alternative for the Project. Neither open pit mining nor underground mining in isolation can meet the purpose of the Project and provide a reasonable return on investment.

Both ramps and shaft access will be required to access the underground workings over the life of mine because of the depth and lateral extent of the deposit. Use of only a shaft or only a ramp are not economically viable.

Mine-related facilities, such as for ventilation and backfilling, will be located proximal to the mine as needed for safety and efficiency, on lands held by Agnico Eagle.

3.4.1.2 Timing

Agnico Eagle investigated the optimal timing for mining as a combined open pit and underground mining method as proposed. Mining of the open pit at York Lake after underground mining is completed is not technically feasible, as the open pit is required to provide safe access to part of the underground mine resource needed for economic viability as discussed in Section 3.4.1.1. Commencement of underground mining after open pit mining operations cease is also not an economically viable solution, as the higher grade ore from the underground mine is required to balance production in the process plan with the lower-grade open pit ore.

There are portions of the underground mine that can be safely accessed and mined during the early operations phase that are not considered to be at risk. Underground mining will initially be developed off of the Advanced Exploration (AEX) Program ramp. Early underground mining will provide higher grade ore for processing with the lower grade ore from open pit mining to maintain economic viability.

3.4.2 Ore Processing

3.4.2.1 Location

While mining must occur at the location of the ore resource, processing of the ore can be completed either local to the ore resource or it can be transported off site to a new or existing processing facility.

Agnico Eagle completed two significant commercial transactions following the submission of the Detailed Project Description in September 2021:

- A merger of equals transaction with Kirkland Lake Gold in February 2022
- Acquisition of the Canadian assets of Yamana Gold in early 2023.

As a result of those transactions, the Agnico Eagle technical team completed internal investigations of potential synergies and optimization opportunities for this Project with existing operations and other proposed projects. Potential processing alternatives for the Project ore that were considered for viability, included the transport of ore mined at the Project by truck and/or rail to:

- An existing Agnico Eagle process plant located in either Ontario or Quebec, including:
 - Macassa Mine, Ontario (Candidate Alternative A)
 - Holt Complex Mine, Ontario (Candidate Alternative B)
 - Laronde Mine, Quebec (Candidate Alternative C)
 - Canadian Malartic Mine, Quebec (Candidate Alternative D)
- Construction of a new process plant and related facilities including for tailings management, at the Upper Canada exploration site located west of Dobie (Candidate Alternative E; Figure 3.4-1).

For the existing process plants, the operational timing needed to overlap sufficiently with the Upper Beaver ore availability, or the existing process plant needed to be able to continue to operate with only ore trucked from the Project if the existing mine life was shorter than for the Project.

An essential consideration for all offsite processing options, was the requirement to backhaul material or otherwise provide tailings to create paste backfill to fill the underground voids at the Project site. Without placement of paste backfill to maintain safe underground conditions, the ore body could not be mined as planned underground, and access would only be available to much less of the ore body which would not be economically viable.

Modifications would be required at the existing mines (Candidate Alternative A to Candidate Alternative D) to accept and process the Upper Beaver ore, including:

- Development of facilities to offload ore and send backfill materials
- Modifications to the ore process plant for unique ore characteristics
- Addition of a copper circuit if not present
- Expansion of the tailings management facilities and water infrastructure
- Related regulatory amendments and approval requirements.

The requirements for the Upper Canada site (Candidate Alternative E) would be similar, but would require construction of a new process plant and likely construction of a modern tailings management facility, rather than modification of existing facilities.

For all alternatives, ore would be hauled to the offsite process plant by truck or rail on existing and newly constructed, dedicated infrastructure, and backfill material would be returned to the Project site, either from the processing site or potentially from a different location. The approximate distances of these properties from the Project site range from 8 km to 185 km, depending on infrastructure options including modification of existing infrastructure and/or creating new infrastructure. The alternative of transporting the ore further away by truck or rail to process plants not owned by Agnico Eagle, or developing a new process plant on lands not owned by Agnico Eagle, is not economically viable.

Based on comprehensive engineering assessments of these alternatives, including in consideration of modifications that would be required at the existing property or mines to accept and process the Upper Beaver ore, it was determined that the only viable alternative was processing of the Upper Beaver ore in a new process plant developed on the Upper Beaver site.

3.4.2.2 Technology - Gold

Gold can be liberated from gold-bearing ores using various methods:

- Gravity separation (Candidate Alternative A): relies only on physical separation and cannot provide sufficient gold recovery for the Project to be financially viable
- Mercury amalgamation (Candidate Alternative B): is not appropriate from an environmental and worker safety perspective and is not used in the modern industry although a potentially effective method
- Aqua regia (Candidate Alternative C): relies on use of concentrated acids for recovering gold; is commonly used in small-scale operations, scrap metal and similar operations, but is not commercially viable for large-scale gold ore processing
- Thiosulphate-based and related gold recovery technologies (Candidate Alternative D): not commercially-proven at the scale required

- Cyanide solution (Candidate Alternative E): used to extract gold into solution for subsequent recovery on activated carbon.

Cyanide use (Candidate Alternative E) is the industry standard for gold processing and safe procedures for cyanide handling and subsequent detoxification are well established. Cyanide is combined with alkaline earth metals for use in processing, typically sodium, potassium or calcium, with sodium cyanide being the commonly utilized reagent. Cyanide can be safely used to extract gold while protecting workers and the environment with appropriate engineering design and application of effective management practices. The only commercially viable method for recovering gold from the Project ore is appropriate application of a cyanide solution to dissolve the gold present in the ore for recovery (cyanidation). Where appropriate, it can be used in combination with gravity separation.

Cyanidation can either occur within a process plant through a series of designed processing stages or in an on-surface heap leach. A heap leach is a large, engineered structure composed of crushed ore stockpile on top of an impermeable pad, which is irrigated with a cyanide solution to extract metals into solution for subsequent recovery. Heap leaching was not considered a viable alternative for the Project due to the following disadvantages:

- Technical challenges of irrigating a crushed ore stockpile in a northern climate
- Additional large land disturbance that would result from using this method
- Potential higher environmental risk since cyanide would be used in the open air
- Lower gold recovery in general for heap leach.

The only viable method for processing the Upper Beaver ore is cyanidation in a process plant on the Property. The resultant gold-loaded carbon may complete processing in the process plant to produce semi-pure gold bars, or it may be transported to an existing process plant such as listed above for final processing into a commercial product.

3.4.2.3 Technology - Copper

The choice of processing method for copper recovery is related to the type of ore. The use of hydrometallurgical processes to produce a concentrate was determined to be the most appropriate process for the Upper Beaver ore, which is also being processed to remove gold in a hydrometallurgical plant.

The hydrometallurgical process for extracting copper could consider heap leaching or in-plant recovery. Heap leaching was not considered a viable alternative to remove copper from the ore for the same reason it is not appropriate for gold recovery. Metallurgical tests were conducted to determine the most appropriate process circuit for copper recovery in combination with gold recovery, in the onsite process plant. It was determined that copper flotation followed by filtration to produce a concentrate for shipment offsite for additional processing, was the most viable alternative.

3.4.3 Overburden Management

The development of the Project will require removal and storage of overburden, and lesser quantities of other unconsolidated mineral wastes (lakebed sediments from York Lake and surficial soil / organics). These materials will be preferentially used directly for construction purposes, or during progressive and final reclamation as appropriate. This may not be possible for lakebed sediments depending on the results of content analyses. Direct use for construction

immediately after excavation will only be possible for a portion of the material, and storage will still be required of these materials. Storage of these materials is constrained in part by the placement of other facilities with larger footprints, by the nature of the materials and land ownership.

Overburden is proposed to be stored primarily in a single surface stockpile to facilitate materials movement and management, although smaller piles may be retained closer to where the materials are stripped to ease future reclamation (if the location does not otherwise pose a conflict).

With the selection of storage locations for mine rock and tailings, and other fixed locations facilities, two potential locations were identified for the storage of these materials that potentially have sufficient capacity:

- North of the Unnamed Stream 2 and the AEX mine rock stockpile (Candidate Location A)
- West of the open pit and Victoria Creek (Candidate Location B; Figure 3.4-2).

Field investigations during 2025, determined that the area north of Unnamed Stream 2 (Candidate Alternative A) has poor subsurface geotechnical conditions, and is not suitable for a larger stockpile. An overburden stockpile at this location would need to be of low height and have low side slope angles to provide the required stockpile stability and worker safety, resulting in a larger surface area for the same volume of ore storage. As a result, this location would not be able to hold the volume of overburden required without expanding over Unnamed Stream 2 or potentially Unnamed Stream 3. This would result in an unnecessary watercourse disturbance and/or destruction of fish habitat and not considered viable unless no other location were available.

The only viable location for storage of the bulk overburden stripped from the Project, is therefore at Candidate Location B.

Historical tailings and lakebed sediments within York Lake after dewatering, will have a naturally high water content. They are intended to be pushed into piles (segregated as practical) near the stripping location, to partially dewater for ease of handling. Once they can be reasonably handled, and depending on the results of content analyses, they will be either trucked and stored at the same location as the overburden, within a designated area located within the existing AEX Waste Rock Storage Facility footprint, or within the TSF.

3.4.4 Ore Storage

Ore that is not required for immediate processing will be stored in stockpile(s) on surface. These stockpile(s) will provide a storage buffer for disruptions in mining activities such as weather conditions or equipment challenges. Stockpile(s) are also needed to optimize processing recovery, to support blending of different ore types and grades. Locating the ore stockpile(s) near the process plant and/or mine openings (open pit, ramp and shaft) is important for operational efficiency, to minimize the overall footprint of the Project, reduce haulage costs and GHG emissions.

There is limited area available for the ore storage on lands held by Agnico Eagle, given the other fixed facilities (mine openings and AEX facilities), without covering existing watercourses or waterbodies, and unnecessary major watercourse diversions (Figure 3.4-3). Two potential locations were identified:

- Northeast of the AEX facilities (Candidate Location A)
- North of the Unnamed Stream 2 and the AEX mine rock stockpile (Candidate Location B).

As identified in Section 3.3.4, field investigations during 2025, determined that the area north of Unnamed Stream 2 (Candidate Alternative B) has poor subsurface geotechnical conditions, and is not suitable for a larger stockpile. An ore stockpile at this location would need to be of low height and have low side slope angles to provide the required stockpile stability and worker safety, resulting in a larger surface area for the same volume of ore storage. As a result, this location would not be able to hold the volume of ore required without expanding over Unnamed Stream 2 or potentially Unnamed Stream 3. This would result in an unnecessary watercourse disturbance and/or destruction of fish habitat.

Other locations on lands not held by Agnico Eagle, would unnecessarily expand the Project footprint, increasing the GHG emissions and haulage equipment needs, would incur additional costs for property purchase (if it could be obtained), and do not offer any environmental or technical advantage. The only viable location for storage of ore is therefore Candidate Location A.

3.4.5 Buildings, Facilities and General Infrastructure

Agnico Eagle is committed to respecting the environment and mitigating the effects of the Project on the environment. Minimizing the Project footprint while still providing some flexibility of operational changes within a PA is a key element of meeting that commitment.

Other buildings, facilities and general infrastructure required for the Project, not considered elsewhere in this section include: backfill plant, maintenance and other shops, offices, change rooms (dry), laboratory, storage building(s) and yards, emergency generators, fuel storage and dispensing, surface explosives magazine (temporary), conveyors, internal access and haul roads, internal pipelines and security gatehouse. Siting of these and required buildings, facilities and generally infrastructure is highly constrained by the size of the Project land package (Section 2.1.3), and the location of required major site facilities such as the open pit, process plant, TSF and stockpiles. Siting is also limited by the Agnico Eagle preference from an environmental perspective to:

- Minimize the overall site footprint and environmental disturbance
- Leave the vegetated slopes adjacent to the Beaverhouse Lake and Ava Lake undisturbed as practicable
- Avoid existing waterbodies and watercourses as reasonable.

The overall layout has been developed to facilitate efficient operating conditions and safety, generally with the least travel distances between the facilities, including to reduce GHG emissions. The exception is the temporary surface explosive storage magazine building that has stringent regulatory requirements including for remoteness (see Section 3.4.1.4), but the site footprint has been minimized as reasonable, while maintaining safety and security for that facility.

Site buildings and facilities will be supported by related roads, conveyors, pipelines and power infrastructure as needed. The positioning of supporting infrastructure and supporting facilities (such as internal haul and access roads, pipelines and the onsite electrical distribution system) is constrained by the location of facilities that they are intended to service and where

reasonable, avoidance of the open pit blast zone, or the site footprint will be unnecessarily expanded. Alternatives to locations for supporting infrastructure are therefore not considered.

Agnico Eagle does not propose to develop a construction or operations accommodations complex for the Project. If insufficient local accommodations are available to support Project construction, a temporary, portable construction camp could be developed by Agnico Eagle or a contractor, on vacant land within a local community such as Kirkland Lake or Larder Lake, Ontario, subject to meeting all provincial, municipal and similar requirements.

3.4.6 Water and Wastewater Management

3.4.6.1 Contact Water Management

The requirements for contact water management are a function of natural topography and watersheds, mine site layout and specific water management requirements related to waters that come into contact with mining facilities. The primary objectives of the Project site water management system are to collect and manage contact water to meet regulatory requirements for discharge, and where practical facilitate recycling of contact water which reduces the need to take fresh water from the environment.

Development and implementation of an integrated water management system has been proven successful at other northern Ontario mine sites, particularly where open pit mines are present, and is considered to be the industry standard. A robust system is proposed for the Project with internal redundancy to allow for management and treatment of mine water, contact runoff water and seepage. The proposed system will be optimized during the detailed design stage of the Project, in full consideration of comments received through the Impact Assessment process.

Based on this context, there are no alternative site water management configurations as the proposed system includes adaptable variations in order to meet regulatory requirements.

3.4.6.2 In-plant Treatment

Residual waters resulting from the processing of ore in the process plant will contain free cyanide and cyanide complexed with heavy metals (metallo-cyanide complexes). Ontario mining operations that have a conventional tailings management facility and a tailings pond, often rely on physical settling processes and natural degradation in whole or in part, to decrease suspended solids and cyanide concentrations in waters released to the facility from the process plant. As the Project utilizes a dry stack technology for tailings storage, a large pond is not present that would provide sufficient retention time and surface area, that could support use of natural degradation to polish suspended solids content and residual cyanide concentrations in the process plant waters.

Accordingly, Agnico Eagle proposed to treat the tailings underflow within the process plant using the SO₂/ Air process, to reduce the concentration of residual cyanide in the tailings prior to transport to final storage location. No other technically and economically viable alternatives have been identified.

3.4.6.3 Final Effluent Treatment

There will be excess water in the integrated contact water management system that will require treatment and discharge to the environment, even with the proposed extensive internal water recycling that results from the selected tailings storage method. Excess contact water resulting

from dewatering the mine workings, ore processing and site runoff will require treatment prior to discharge to the environment to meet federal and provincial, regulatory requirements, and be protective of the environment. Final effluent treatment will be in addition to the cyanide destruction and metal reduction that will occur within the process plant and natural physical and chemical processes that will occur within the site ponds and ditching.

Effluent treatment is a common industrial process, and there are a variety of treatment methods that have been proven to be effective in treating effluent from mine sites at the scale required. Various treatment technologies are considered functionally equivalent in terms of their ability to meet effluent quality objectives, and the specific technology will be determined during engineering design when we have further details such as influent characteristics, flow rates, and site-specific constraints. Best available technologies that are economically achievable will be considered in the final design of the effluent treatment plant to meet environmental protection requirements.

3.4.7 Treated Effluent Discharge Location

Discharge of treated effluent to a single primary effluent discharge to the environment is preferred for mining projects, as compared to utilization of multiple discharge locations, as it reduces the complexity of water management and monitoring, and may reduce environmental disturbance related to the infrastructure.

Treated effluent from the AEX Program is being discharged to the Misema River downstream of the existing access road (locally known as Beaverhouse Road), at the provincially-approved location. This location and the existing pipeline are expected to continue to be used for at least part of the construction phase for the Project, when sufficient assimilative capacity is available.

An increased volume of treated contact water will be required to be discharged to the environment, once the footprint expands later in the construction phase and continuing during the operations phase. The Misema River system (inclusive of Beaverhouse Lake, Ava Lake, York Lake and Misema River downstream for this context; Figure 2.9-1) is the only watercourse near the PA that has a large assimilative capacity. Other watercourses close the Project site, such as Victoria Creek, are tributaries to the Misema River and have a much lower assimilative capacity and are not appropriate for the volume of treated effluent discharge required from the Project. Establishment of a pipeline to a more distant watercourse, would result in additional environmental disturbance from the pipeline corridor with no incremental water quality benefit.

Based on this, the assessment of treated effluent discharge locations was focused on candidate locations within the Misema River system. Candidate receiving environments considered included Ava Lake, York Lake, the Misema River downstream of the Project, and Beaverhouse Lake. The candidate locations were reviewed with consideration of technical feasibility, year-round discharge requirements, assimilative capacity, pipeline length and constructability, topography, potential environmental disturbance, proximity to existing cottage properties, aquatic habitat, water quality protection, and input received through engagement, where applicable.

The advantages and disadvantages of locations within the Misema River system include that Ava Lake is a relatively small and shallow lake which could not meet the required technical criteria and will also be affected by the open pit dykes. York Lake will be dewatered as part of mining activities and will not be available. Misema River downstream of the Project does not have sufficient flow during all times of the year, to be a technically viable discharge location for the operations phase of the Project that needs to discharge treated effluent year-round.

Seasonal discharge while completed at a limited number of Ontario mines, is not attainable for this Project. The dry stack TSF for this Project does not have water-holding dams and water ponding unlike a conventional (slurry) tailings management facility where dams can be raised to provide additional storage and water retention time. Additional, large, dedicated pond(s) on the Property would be required to hold treated water over the winter or during low flow conditions when Project effluent could not be discharged, resulting in expansion of the Project footprint with the additional environmental disturbance and a high cost.

Ava Lake, York Lake, and the downstream Misema River did not meet the technical or operational requirements for operations-phase discharge, and therefore candidate discharge locations were focused on Beaverhouse Lake since it provides the best location within the Misema River system to receive treated effluent from a technical and environmental perspective. A large portion of Beaverhouse Lake borders the Property (Figure 3.4-4); however, Agnico Eagle only considered discharge locations downstream of local cottage properties, which also minimizes infrastructure requirements. The Beaverhouse Lake candidate locations, including the identified preferred location and Candidate Alternative B are shown on Figure 3.4-4 and are evaluated below. A detailed assessment was completed of the westernmost portion of the lake, in consideration of the mixing potential within the lake as well as the topography that the pipeline would need to traverse on land. Much of the northern slope of Beaverhouse Lake within and near the PA is steep, and not conducive to pipeline construction and operation, without extensive disturbance for access and increased long term erosion potential. Candidate Alternative B was discarded for that reason.

The identified preferred location is located close to the main Project site and the effluent treatment plant, downstream of existing cottage properties (Figure 3.4-4), offers a reasonable pipeline gradient and arrangement, and provides appropriate mixing for environmental protection of aquatic life. The specific location of the discharge may be refined during detailed engineering in full consideration of regulatory advice, including with respect to water quality and navigation.

3.4.8 Water Crossings

There are no large water crossings planned as part of the Project. The largest required watercourse crossing for any Project phase, is a new crossing of Victoria Creek needed to access the southwestern portion of the Agnico Eagle property. The land west of Victoria Creek is in close proximity to the open pit, and well-positioned for operational efficiency and has been selected for overburden storage (Section 3.4-3). Although this area is accessible from the access road (Beaverhouse Road), a dedicated crossing of Victoria Creek is required to avoid the safety concern of having large haul trucks carrying overburden on the same road as smaller vehicles travelling back and forth to site. These smaller vehicles could include contractors and delivery personnel that attend the site less frequently, and might not be fully aware of the safety hazards related to haul trucks that effectively cannot see smaller vehicles under certain conditions. In addition, the design of the existing Beaverhouse Road crossing of Victoria Creek would not be able to support haul trucks, so a new crossing would be required in any case. The selected location meets the engineering criteria for visibility for safety, as well as grade control to improve fuel efficiency and reduce greenhouse gas emissions. Other locations would result in additional environmental disturbance and cost. The crossing could be established as either a clear span bridge, or as a road over culvert(s) designed and placed to meet Fisheries and Oceans Canada criteria, although a single-lane, clear span bridge is preferred and currently proposed.

Minor watercourse crossings where needed to minimize infrastructure length and for traffic efficiency, will be designed and constructed to meet regulatory requirements including for fish passage, using culverts as is the industry standard, or potentially clear span bridges if needed. The upstream reaches of three minor watercourses are located within the PA: Unnamed Stream 1 (process plant area), Unnamed Stream 5 (TSF) and Unnamed Stream 6 (TSF). New culverts may be installed in these tributaries to support early construction, to allow for road construction and site access if existing crossings are insufficient. The culverts may initially pass natural flows if present, during the construction phase to minimize water capture prior to establishment of the integrated water management system. Once approvals are obtained under the *Fisheries Act*, if applicable, natural flows will be discontinued within these minor watercourses where culverts are being placed as the minor watercourse will no longer be fish habitat. While the culverts may continue to be used, they will be for passing contact waters and maintaining road conditions, rather than natural waters.

3.4.9 Corridors and Access

The Project has been designed in part to establish a compact footprint and to take advantage of existing infrastructure corridors, to reduce environmental disturbance. This includes the use of the existing Beaverhouse Road as the primary access to the Project site. The road will be maintained over the life of the mine and may be upgraded to support additional traffic; however, a new corridor is not proposed. New infrastructure corridors although they could be developed, would expand the environmental disturbance associated with the Project and change wildlife movement patterns.

As indicated in Section 4.14, the minor transmission line that will support the Project, is not within the scope of the Impact Statement. Accordingly, an assessment of corridor alternatives is not provided in the Impact Statement.

The TISG indicates that the alternatives means analysis should consider public access and conducting the Project without affecting boat launch access. Public access is not required within the Project site as it is an industrial operation and the boat launch is no longer present. An alternate boat launch was established in fall 2025 after extensive consultation, on the south shore of Beaverhouse Lake in support of the AEX Program.

3.4.10 Waste Management

3.4.10.1 Domestic Solid Waste Management

Solid waste will be produced during all phases of the Project. Non-hazardous solid wastes will consist of materials such as: domestic waste (food scraps, refuse and clothing), combustible wastes (wood and paper products) and other inert wastes (scrap metals, glass and plastics). Waste management is highly controlled in Ontario under the *Environmental Protection Act* and other regulatory instruments.

The only candidate alternatives available for solid domestic waste management are permanent storage in an approved landfill on site or off site, or burning in an incinerator. Recycling of all solid waste materials is not a viable alternative for this location, but will be considered during all phases where practical. Open air controlled burning may be completed for clean wood and cardboard waste at certain times of the year, under the guidance of the Ministry of Natural Resources (MNR). Establishment of an onsite incinerator is considered technically challenging as there are strict provincial emission requirements for incineration in order to obtain the

necessary provincial environmental approvals. As a result, this is not considered to be a viable alternative.

The Project has been designed in part to take advantage of existing solid waste management facilities, to reduce environmental disturbance and the potential for drawing nuisance wildlife to the Project site. Agnico Eagle does not wish to pursue approvals or operate a dedicated domestic landfill for the Project on site, including in consideration of comments received, limitations of the land package and requirements for long-term monitoring associated with a domestic landfill. Development of an onsite landfill is not considered to be a viable alternative.

Hazardous wastes including such items as used petroleum products, batteries, spent solvents, biomedical wastes, as well as potentially contaminated soils, will also be produced by the Project. It is not economically practical or preferred from an environmental perspective to establish a hazardous waste treatment facility on site for the low volume anticipated to be produced. Hazardous solid waste will be shipped off site in accordance with regulatory requirements. Demolition wastes associated with mine closure are assessed in Section 3.10.

3.4.10.2 Domestic Sewage Management

The Project does not have an accommodations complex on the Property, therefore the quantity of domestic sewage (and including grey water) that requires treatment, is less than for many more remote, northern Ontario mines. Potentially viable solutions for domestic sewage management for larger industrial operations in northern Ontario that do not have access to a municipal system include septic tank / tile field system and package sewage treatment plant. Agnico Eagle understands that the Ministry of the Environment, Conservation and Parks (MECP) is unlikely to support long term transport of raw sewage to a local sewage treatment plant, and as a result, this is not considered a viable alternative.

Septic tank / tile field systems are most commonly used for smaller scale applications or potentially at more remote locations. The system consists of below-ground or near-surface holding tanks into which sewage is pumped (or fed by gravity), allowing solids to settle. Bacterial processes within the ground naturally break down elements in the liquid to safe levels. Tile fields are optimally developed in coarse soils such as sandy loams, or with aggregate. A suitable location close to the main site that is not in conflict with other facilities has not been identified to date. Accordingly a septic tank / tile field system is not considered viable, but could potentially be considered in the future. Provincial or health unit approval will be obtained at that time as needed.

A package sewage treatment plant consists of a pre-engineered and pre-fabricated modular system designed to treat domestic sewage. The plant is able to produce a final effluent quality that can be either released directly to the environment or into an integrated water management system. The different technologies commercially available are effectively equivalent from the environmental perspective. This approach requires a limited land footprint, has flexibility in siting, and has a cost that can be supported by the Project, and is therefore considered the only viable alternative.

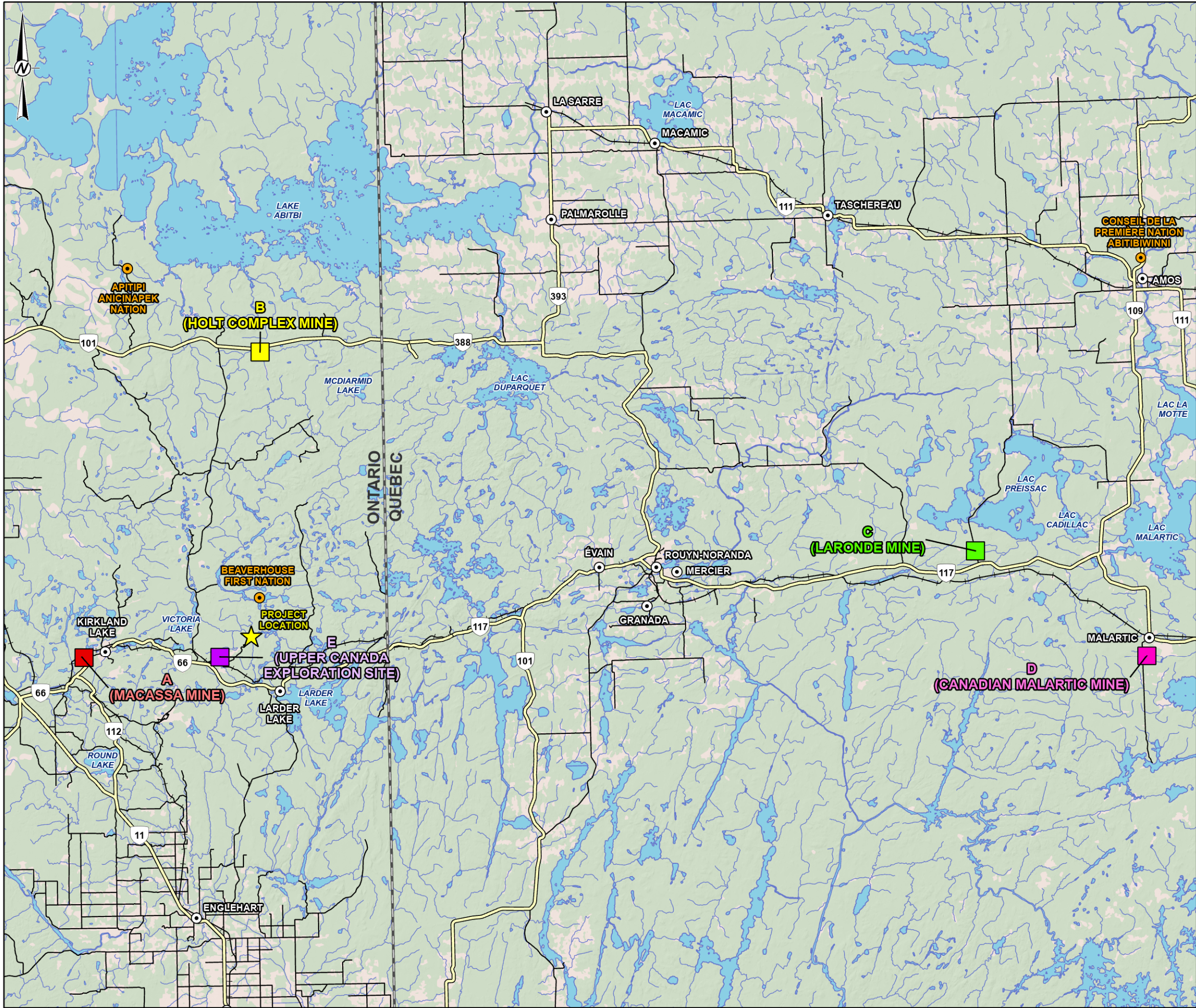
3.4.11 Mine Closure

Closure of mining projects in Ontario is regulated by the *Mining Act* and *Build More Mines Act* administered by the Ministry of Energy and Mines. A professionally-certified Closure Plan is required prior to Project-related construction activities. Financial assurance for the reclamation activities is submitted by the proponent in advance of the disturbance, which is held by the

Province until the reclamation has been completed to the satisfaction of the Province. The Closure Plan and related financial assurance are required to be amended over the mine life to reflect mine changes.

Mine decommissioning and closure activities whether completed progressively during operation or at closure, must satisfy the Mine Rehabilitation Code under Ontario Regulation 35/24, Rehabilitation of Lands of the *Mining Act*. The Code emphasizes physical stability on surface, underground mine stability and chemical stability. Final approaches to closure are developed during the Project permitting stage when the detailed Project design is available.

Alternatives to closure of the open pit, Misema River diversion and for demolition waste were identified areas of interest, and are assessed in Section 3.8, Section 3.9 and Section 3.10 respectively, recognizing that the final approach will be provided in the certified provincial Closure Plan.



LEGEND

- ★ PROJECT LOCATION
- TOWN / COMMUNITY
- FIRST NATION COMMUNITY
- HIGHWAY
- LOCAL ROAD
- RAILWAY
- WATERCOURSE
- WATERBODY
- PROVINCIAL BORDER

OFFSITE PROCESSING LOCATON ALTERNATIVES

- CANDIDATE ALTERNATIVE A
- CANDIDATE ALTERNATIVE B
- CANDIDATE ALTERNATIVE C
- CANDIDATE ALTERNATIVE D
- CANDIDATE ALTERNATIVE E

0 2.5 5 10 15 20
1:525,000 KILOMETRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. BASE DATA EXTRACTED FROM CANVEC, 2026.
2. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
AGNICO EAGLE MINES

PROJECT
UPPER BEAVER GOLD PROJECT

TITLE
OFFSITE PROCESSING LOCATION ALTERNATIVES

CONSULTANT	YYYY-MM-DD	2026-07-23
DESIGNED	---	
PREPARED	MD	
REVIEWED	---	
APPROVED	---	

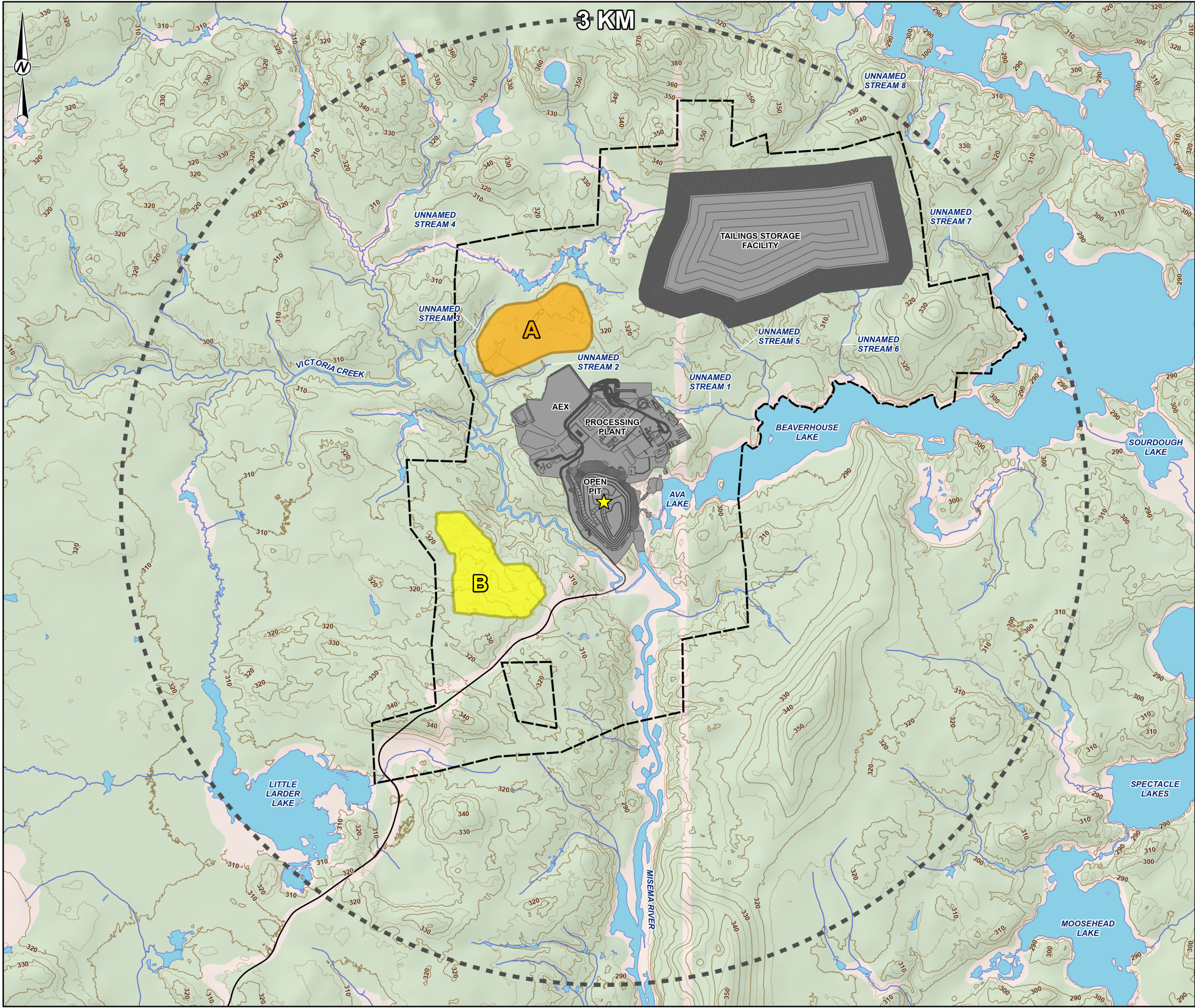
PROJECT NO.
CA0042150.6518

CONTROL
0028

REV.
A

FIGURE
3.4-1

PATH: S:\Clients\Agnico_Eagle\Upper_Beaver\09_PROJ\CA0042150_6518_0026_0000\CA0042150_6518_0026_0000.aprx PRINTED ON: AT 12:12:05 PM



LEGEND

- ★ OPEN PIT CENTROID
- KEY MINE FEATURE (AEX, PROCESSING PLANT, OPEN PIT, OPEN PIT DYKE AND TAILINGS STORAGE FACILITY)
- ⊞ OPEN PIT CENTROID BUFFER (LABELLED ON MAP)
- ▭ PROPERTY BOUNDARY
- LOCAL ROAD
- MAJOR CONTOURS (10 M INTERVAL)
- MINOR CONTOURS (5 M INTERVAL)
- WATERCOURSE
- WATERBODY

OVERBURDEN STORAGE LOCATION ALTERNATIVES

- CANDIDATE ALTERNATIVE LOCATION A
- CANDIDATE ALTERNATIVE LOCATION B



NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. WATERBODIES AND WATERCOURSE EXTRACTED FROM LIO, MNRF AND MODIFIED TO MATCH SITE PLAN LAYOUT PROVIDED BY AGNICO EAGLE MINES; TO BE FIELD CONFIRMED.
3. CONTOURS EXTRACTED FROM LIDAR, PROVIDED BY AGNICO EAGLE MINES, 2021.
4. SITE PLAN PROVIDED BY AGNICO EAGLE, FEBRUARY / DECEMBER 2025.
5. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT

AGNICO EAGLE MINES

PROJECT

UPPER BEAVER GOLD PROJECT

TITLE

OVERBURDEN STORAGE LOCATION ALTERNATIVES

CONSULTANT	YYYY-MM-DD	2026-07-23
DESIGNED	----	
PREPARED	MD	
REVIEWED	----	
APPROVED	----	



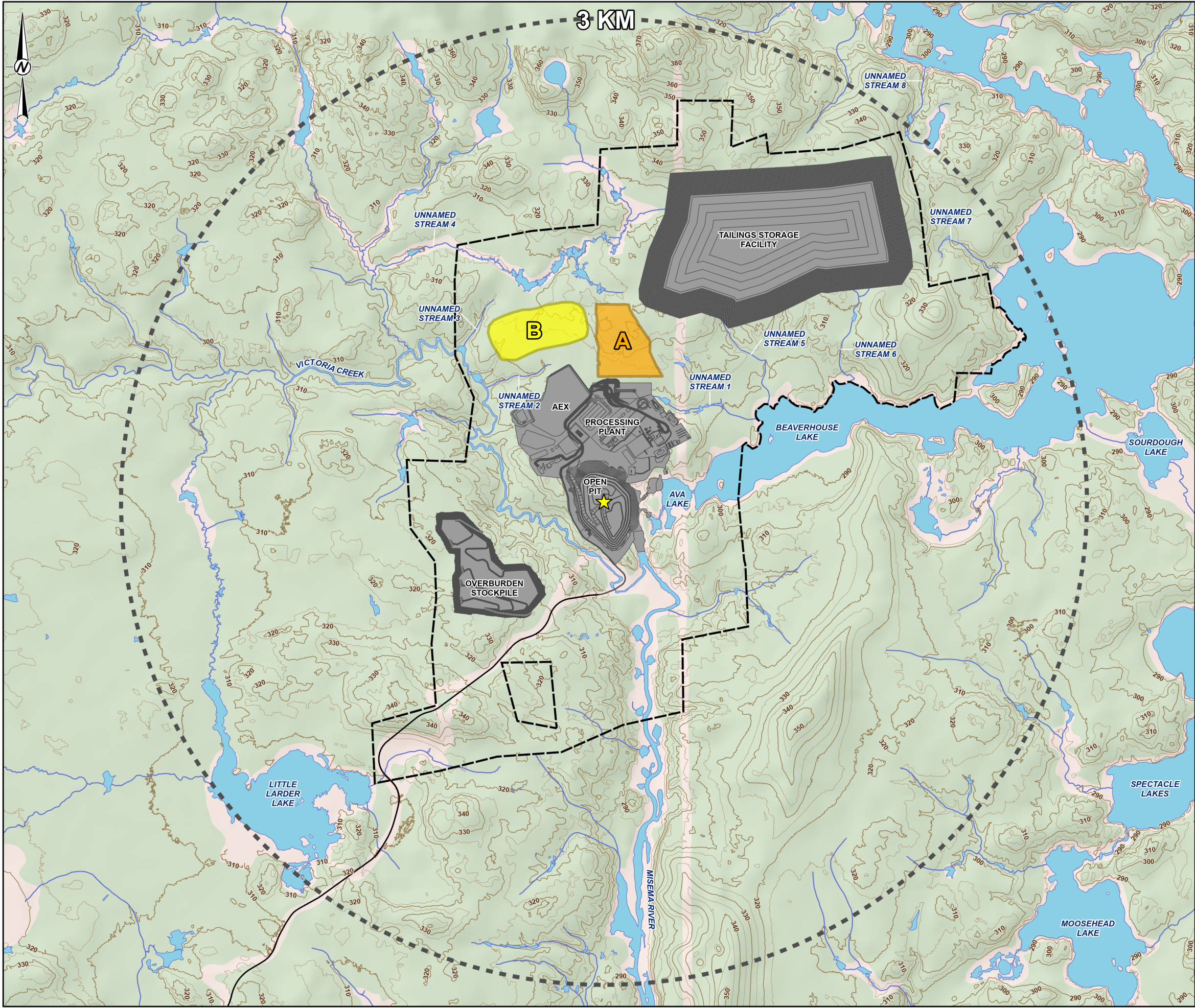
PROJECT NO. CA0042150.6518 CONTROL 0028 REV. A

FIGURE

3.4-2

25mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

PATH: S:\Clients\Agnico_Eagle\Upper_Beaver\02_0518_0028_0000\CA0042150_0518_0028_0000\CA0042150_0518_0028_0000.aprx PRINTED ON: AT 12:12:58 PM



LEGEND

- ★ OPEN PIT CENTROID
- KEY MINE FEATURE (AEX, PROCESSING PLANT, OPEN PIT, OPEN PIT DYKE, TAILINGS STORAGE FACILITY AND OVERBURDEN STOCKPILE)
- ⬛ OPEN PIT CENTROID BUFFER (LABELLED ON MAP)
- ▭ PROPERTY BOUNDARY
- LOCAL ROAD
- MAJOR CONTOURS (10 M INTERVAL)
- MINOR CONTOURS (5 M INTERVAL)
- WATERCOURSE
- WATERBODY

ORE STORAGE LOCATION ALTERNATIVES

- CANDIDATE ALTERNATIVE LOCATION A
- CANDIDATE ALTERNATIVE LOCATION B

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

- REFERENCE(S)**
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
 2. WATERBODIES AND WATERCOURSE EXTRACTED FROM LIO, MNRF AND MODIFIED TO MATCH SITE PLAN LAYOUT PROVIDED BY AGNICO EAGLE MINES; TO BE FIELD CONFIRMED.
 3. CONTOURS EXTRACTED FROM LIDAR, PROVIDED BY AGNICO EAGLE MINES, 2021.
 4. SITE PLAN PROVIDED BY AGNICO EAGLE, FEBRUARY / DECEMBER 2025.
 5. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
AGNICO EAGLE MINES

PROJECT
UPPER BEAVER GOLD PROJECT

TITLE
ORE STORAGE LOCATION ALTERNATIVES

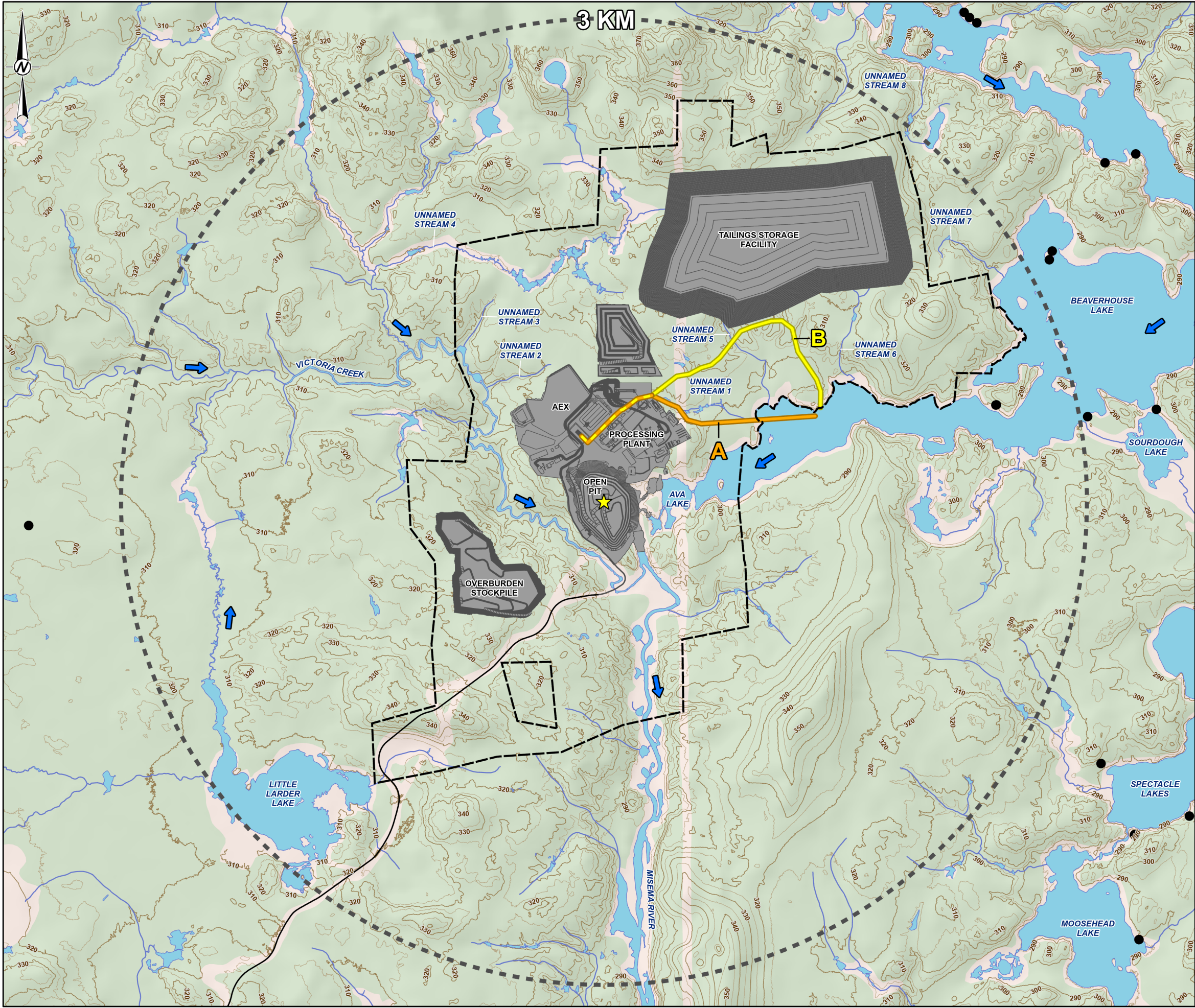
CONSULTANT	YYYY-MM-DD	2026-07-23
DESIGNED	----	
PREPARED	MD	
REVIEWED	----	
APPROVED	----	

PROJECT NO. CA0042150.6518 CONTROL 0028 REV. A

FIGURE
3.4-3

25mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

PATH: S:\Clients\Agnico_Eagle\Upper_Beaver\02_0518_0028_0000\CA0042150_0518_0028_0000\CA0042150_0518_0028_0000.aprx PRINTED ON: AT 12:23:26 PM



LEGEND

- ★ OPEN PIT CENTROID
- KEY MINE FEATURE (AEX, PROCESSING PLANT, OPEN PIT, OPEN PIT DYKE, TAILINGS STORAGE FACILITY, OVERBURDEN STOCKPILE AND ORE STOCKPILE)
- ⊞ OPEN PIT CENTROID BUFFER (LABELLED ON MAP)
- ▭ PROPERTY BOUNDARY
- PRIVATE COTTAGE
- LOCAL ROAD
- MAJOR CONTOURS (10 M INTERVAL)
- MINOR CONTOURS (5 M INTERVAL)
- WATERCOURSE
- WATERBODY

TREATED EFFLUENT PIPELINE AND DISCHARGE LOCATION ALTERNATIVES

- CANDIDATE ALTERNATIVE LOCATION A
- CANDIDATE ALTERNATIVE LOCATION B

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. WATERBODIES AND WATERCOURSE EXTRACTED FROM LIO, MNRF AND MODIFIED TO MATCH SITE PLAN LAYOUT PROVIDED BY AGNICO EAGLE MINES; TO BE FIELD CONFIRMED.
3. CONTOURS EXTRACTED FROM LIDAR, PROVIDED BY AGNICO EAGLE MINES, 2021.
4. SITE PLAN PROVIDED BY AGNICO EAGLE, FEBRUARY / DECEMBER 2025.
5. PRIVATE COTTAGES PROVIDED BY AGNICO EAGLE, JULY 2026.
6. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT

AGNICO EAGLE MINES

PROJECT

UPPER BEAVER GOLD PROJECT

TITLE

TREATED EFFLUENT PIPELINE AND DISCHARGE LOCATION ALTERNATIVES

CONSULTANT	YYYY-MM-DD	2026-07-29
DESIGNED	----	
PREPARED	MD	
REVIEWED	----	
APPROVED	----	

PROJECT NO.	CONTROL	REV.	FIGURE
CA0042150.6518	0028	A	3.4-4

25mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

3.5 Methodology for Assessing Viable Alternatives

For each viable alternative method (summarized in Table 3.3-2), a range of potentially viable candidate alternatives were determined using information available from the following sources and others:

- Engineering studies
- Proponent internal workshops, meetings and discussions
- Comments received during consultation and engagement activities
- Professional experience and expertise of the Impact Statement authors briefly listed in Section 19.

The candidate alternatives were screened for technical and economic viability to identify the alternatives for further assessment in Section 3.4.

The assessment of alternatives has been completed at a level sufficient to distinguish the different alternatives to provide transparency regarding the selection of the preferred alternative carried forward into the Project design. Primary advantages and disadvantages are presented for each of the alternatives remaining after screening. The preferred means of carrying out the Project is based on a consideration of potential effects on the natural environment, potential effects on the health, social and economic environment and Indigenous Peoples, and technical and economic feasibility, as required by the TISG.

3.5.1 Performance Objectives, Criteria and Indicators Overview

3.5.1.1 Performance Objectives

When a single alternative does not stand out from the others through the screening process, additional assessment is completed in a structured manner, utilizing performance objectives and related criteria (Section 3.5.1.2). Performance objectives are meaningful attributes essential for the Project's environmental and technical success and provide a basis for distinguishing viable alternatives, in consideration of the sustainability principles (Section 15). The key performance objectives for the Project were identified as:

- Potential effects on the natural environment
- Potential effects on the health, social and economic environment and Indigenous Peoples (termed human environment for the remainder of this section of the Impact Statement), including a consideration of Gender-based Analysis Plus as appropriate
- Technical and economic performance.

These performance objectives are reflective of the requirements and guidance provided in the *Impact Assessment Act* and TISG, and the requirement to meet the needs of Agnico Eagle and the Project. The TISG requires that the assessment of viable alternatives consider potential effects to the following which have been incorporated into the performance objectives:

- Air quality
- Water quality and quantity
- Fish and fish habitat

- Wildlife and associated habitat
- Risk from accidents and malfunctions
- Species at risk (SAR) including critical habitat as per the *Species at Risk Act*.

3.5.1.2 Evaluation Criteria and Indicators

Evaluation criteria and specific indicators for each performance objective were selected that could reasonably be applied to the assessment of alternatives to the Project and alternative means for the Project, consistent with the identified valued components for the Project (Section 7.3) and the TISG guidance including as described above.

Each viable alternative was evaluated against the three performance objectives using criteria specific to each performance objective in a comparative manner. Rankings of most preferred and least preferred were defined for each criterion. Moderately preferred is also considered for more complex alternative assessments where a larger number of alternatives are assessed. A ranking of equally preferred is provided if the alternatives assessed are considered equivalent for the criteria. When there is no or very limited interaction of the alternative and the criteria, a ranking of neutral is assessed.

The primary information sources appended to the Impact Statement are listed in the subsections below. Indigenous knowledge and traditional land use information shared with Agnico Eagle has been used within the assessment of alternatives as available, but documentation has not been appended to the Impact Statement at the request of the associated Indigenous Nations.

3.5.1.2.1 Natural Environment Criteria and Indicators

The evaluation criteria and indicators used in the assessment of the alternatives for the natural environment performance objective are provided below as well as the primary information sources in addition to confidential Indigenous knowledge shared with Agnico Eagle by local Indigenous communities:

Criteria Potential effects to:	Indicators	Primary Information Sources
Air quality	• Change in air quality	• Appendix D-1: Air Quality Baseline Report • Appendix D-2: Air Quality Modelling Report
Sound	• Change in sound level	• Appendix E-1: Sound Baseline Report • Appendix E-2: Noise Modelling Report
Water	• Change to groundwater flow direction and level • Change in flows (watercourses), and areas and levels (waterbodies) • Change in quality of groundwater and surface water	• Appendix F-1: Hydrogeology Baseline Report • Appendix F-1: Hydrogeological Modelling Report • Appendix G-1: Hydrology Baseline Report • Appendix G-3: Mine Site Water Balance Report • Appendix G-4: Receiver Water Balance Report • Appendix G-2: Water Quality Baseline Report • Appendix G-3: Mine Site Water Quality Modelling Report • Appendix G-4: Receiver Water Quality Modelling Report

Criteria Potential effects to:	Indicators	Primary Information Sources
Fish and fish habitat	Area and functionality of fish habitat that would be displaced or altered	- Appendix E-3: Blasting Assessment Report - Appendix I-1: Aquatic Resources Baseline - Appendix J: Draft <i>Fisheries Act</i> Offset Plan and MDMER Schedule 2 Fish Habitat Compensation Plan - Appendix Q-1: Human Health and Ecological Risk Assessment
Wildlife and habitat	- Area, type and functionality of habitat that would be displaced or altered - Change in the level of sensory disturbance - Ability to maintain wetland connectivity	- Appendix E-2: Noise Modelling Report - Appendix E-3: Blasting Assessment Report - Appendix K-1: Terrestrial Baseline Environment Report - Appendix Q-1: Human Health and Ecological Risk Assessment
SAR ⁽¹⁾	- Area, type and functionality of habitat that would be displaced or altered - Change in the level of sensory disturbance	- Appendix E-2: Noise Modelling Report - Appendix E-3: Blasting Assessment Report - Appendix K-1: Terrestrial Baseline Environment Report - Appendix Q-1: Human Health and Ecological Risk Assessment

Note:

1. SAR: species present on Property include bats and a few migratory birds (Appendix K-1).

3.5.1.2.2 Human Environment Criteria and Indicators

The evaluation criteria and indicators used in the assessment of the alternatives for the human environment performance objective are provided below as well as the primary information sources in addition to confidential Indigenous knowledge shared with Agnico Eagle by local Indigenous communities:

Criteria Potential effects to:	Indicators	Primary Information Sources
Land and resource use	Change to local land and resource use opportunities	- Appendix E-2: Noise Modelling Report - Appendix N-1: Socioeconomic Baseline Report - Appendix O: Viewshed Analysis
Cultural heritage	Causes damage or disturbance to known cultural heritage sites or landscapes	- Appendix K-1: Terrestrial Baseline Environment Report - Appendix Q-1: Human Health and Ecological Risk Assessment - Appendix M-1: Cultural Heritage Report

Criteria Potential effects to:	Indicators	Primary Information Sources
Archaeology	Causes damage or disturbance to known archaeological sites	- Appendix M-2: Terrestrial Archaeological Assessments - Appendix M-3: Marine Archaeological Assessment
Local and regional economy	Change to local business and economic opportunities	- Appendix N-1: Socioeconomic Baseline Report - Appendix N-2: Economic Modelling Results
Indigenous Peoples	- Maintains access to traditional lands for current traditional land uses except as otherwise agreed to with local Indigenous communities - Causes damage or disturbance to known spiritual and ceremonial sites, or implements preservation supported by local Indigenous communities - Change to Indigenous Peoples' social conditions (community services and infrastructure, and wellbeing) and health	- Appendix Q-1: Human Health and Ecological Risk Assessment - Appendix Q-2: Health Impact Assessment - Appendix N-1: Socioeconomic Baseline Report - Appendix N-2: Economic Modelling Results

The alternatives analyses considered whether the effects to Indigenous Peoples could vary for diverse populations groups. Criteria and indicators related to Gender-based Analysis Plus were not established, as they would not be differentiating for the alternative means that remained after screening. If differentiating advantage or disadvantages for diverse population groups were identified, they are noted in the text.

3.5.1.2.3 Technical and Economic Criteria and Indicators

The evaluation criteria and indicators used in the assessment of the alternatives for the technical performance objective are provided below, as well as the primary information sources:

Criteria Potential effects to:	Indicators	Primary Information Sources
Ability to service the site effectively	- Proven effectiveness and ability to consistently meet Project needs - Potential for accidents or malfunctions that may have a material effect on the environment	- Engineering studies, including engineering scoping study, prefeasibility study, topic-specific investigation reports, topic-specific trade-off studies and engineering team information - Team experience with mining projects
Supportive of net-zero greenhouse gas (GHG) emissions by 2050	Change to GHG emissions released to the environment	Appendix D-3: GHG Assessment
Cost effectiveness	- Potential effect on Project financing resulting from investor attractiveness or risk - Degree to which alternative provides a competitive or acceptable return on investment	- Team experience with financing mining projects - Engineering studies, including engineering scoping study, prefeasibility study, topic-specific investigation reports, topic-specific trade-off studies, engineering team information

Generation of GHG air emissions, including carbon dioxide, methane and nitrous oxide emissions, are of particular interest to the assessment of alternatives, because of the relationship between GHGs and climate change on the broader scale. This criterion aligns with the federal climate change plan and the Canadian commitment to achieve net-zero GHG emissions by 2050.

3.5.2 Alternatives Assessment and Identification of the Selected Alternative

The assessment of the viable alternatives was completed in consideration of the results of consultation and engagement with Indigenous Nations and stakeholders. The findings of the alternatives assessment are summarized in the text, and tables are provided at the end of individual subsections documenting the comprehensive assessments where needed. A selected alternative is identified that is carried forward as part of the Project design summarized in Section 4 (Project Description). The selected alternative is the alternative that is the most advantageous overall, based on the balance of advantages to disadvantages for each alternative.

3.5.3 Other Regulatory Processes

Alternatives assessments are a common planning approach used in regulatory processes, including as described below. These assessments are complementary and support the alternatives assessment provided in this section of the Impact Statement.

The Metal and Diamond Mining Effluent Regulations (MDMER) requires that an assessment of certain mineral waste-related alternatives be completed under certain circumstances, using the approach detailed in Environment and Climate Change Canada (ECCC; 2021b). A draft Assessment for Alternatives for Storage of Mine Waste is provided as Appendix C. The approach required by the MDMER is different than that presented in this section; however, both approaches identify the same preferred alternatives for mineral waste management.

Measures will be required to be implemented to offset habitat losses to avoid adverse effects on fish and fish habitat under the *Fisheries Act*. Preliminary alternatives related to fish habitat offsetting to meet the regulatory needs were presented in the draft *Fisheries Act* Offsetting Plan and MDMER Schedule 2 Fish Habitat Compensation Plan provided for regulatory review during Impact Statement preparation. The draft considered the results of consultation and engagement to date. The document was revised based on Fisheries and Oceans Canada (DFO) comments and input from community workshops and an updated draft of the plan is provided in Appendix J. The fish habitat offsetting plan will continue to be advanced in consultation with DFO, ECCC and Indigenous Nations in parallel with the Impact Statement process.

3.6 Misema River Dykes and Diversions

3.6.1 Background

The Misema River system that passes through the Project area comprises a series of larger waterbodies and tributaries and has a watershed area of approximately 400 km². At the Project site, the Misema River is represented by a series of inline waterbodies from east to west, Beaverhouse Lake, Ava Lake and York Lake. As discussed in Section 3.4.1, an open pit is being developed at York Lake to mitigate the effects of unstable rock and sediments in the crown pillar, and allow mining to occur. Open pit mining requires that the majority of York Lake be dewatered during the construction and operations phases. This also requires diversion of the water flowing in the Misema River system around the area. In order to complete this, a system of dykes and diversions is required to prevent surface water from flowing through the open pit area. No other feasible means for isolating this portion of the lake have been identified. The diversion system will be designed to mimic natural hydrologic conditions. It will be designed to handle the necessary water flows, as well as the passage of fish at least equivalent to the current conditions, and to maintain water levels within Beaverhouse Lake and the upstream system.

Major dykes are not required to isolate the open pit area for the Project because of the natural topography present. Dykes have been used at Canadian mines and are predictably effective. For example, the Meadowbank Mine (Nunavut), Gahcho Kué Mine (Northwest Territories) and Diavik Mine (Northwest Territories) all use dykes to hold back large lakes to access ore bodies that would otherwise be inaccessible. Dykes are also proposed for the Springpole Gold Project located in northwestern Ontario which is currently under review by the Impact Assessment Agency of Canada.

The dyke(s) will be designed to meet or exceed all regulatory requirements associated with the provincial *Lakes and Rivers Improvement Act*, as well as design requirements of the Dam Safety Guidelines and supporting technical bulletins, such as Canadian Dam Association (2013, 2019) as applicable. Instrumentation and monitoring will be installed within the dyke fill and foundation materials to monitor the dykes.

3.6.2 Identification of Alternatives for Assessment

The topography in the area of the proposed open pit offers advantages for the construction of a diversion system. Major dykes and diversions are not required for the Project.

Ava Lake is comprised of a main lake with a direct connection to York Lake through a narrow channel at its northwestern end, as well as through a discrete southwestern embayment (Figure 3.6-1) at a set of southern rapids. Candidate alternatives were selected to take advantage of these natural topographic conditions and meeting the following design criteria:

- Avoid a known heritage value under discussion with the Beaverhouse First Nation (York Lake 1 site)
- Consider safety and distance from open pit blasting for stability
- Minimize effects to fish habitat
- Consider access for construction and avoidance of unnecessary terrestrial disturbance
- Minimize the dykes required in both scale and volume, to support stability over the life of the mine
- Support maintaining lake levels in Beaverhouse Lake upstream.

The dykes must be located far enough outside the open pit for stability reasons and to provide a safety buffer from blasting. Dykes of a smaller scale (i.e., less length, lower height and lower volume) that can take advantage of local bedrock topography are generally preferred for technical and economic reasons where options are available. The dykes have been given descriptive names for the purposes of discussion in this section.

The primary requirements are a main dyke is required to stop the surface flow of water to York Lake from Ava Lake, diversion channel(s) to re-route the flow around York Lake, and an additional dyke is needed at the southern end of York Lake (York Lake dyke), to control backflow from the residual York Lake / Misema River that could backup into the open pit:

- Multiple alternatives are available for the main dyke required as discussed below.
- The southern rapids supplemental dyke is small and without alternative locations.
- The York Lake dyke at the southern end of York Lake will be situated an adequate distance from the open pit for stability, while minimizing effects to the waterbody downstream and is for that reason, without alternative locations.
- Diversion channel(s) will be situated as needed, according to the main dyke placement and flow requirements, to route flow from above the main dyke to below the York Lake dyke.

Five potential locations were identified for the placement of the main dyke (Figure 3.6-1):

- Candidate Location A: at the northern rapids between Ava Lake and York Lake

- Candidate Location B: at the northwest end of Ava Lake
- Candidate Location C: across the northwest embayment of Ava Lake
- Candidate Location D: between the northwest embayment and Ava Lake
- Candidate Location E: between Ava Lake and Beaverhouse Lake.

Other potential dyke locations in the Misema River system further to the east, such as across Beaverhouse Lake at the westernmost island, or entirely across Beaverhouse Lake further east, offer no advantages from a technical perspective, would require a considerably longer diversion channel and would cause a much larger effect to fish habitat and water users.

Candidate Locations A, B, C and D will also require a dyke at the existing southern rapids between Ava Lake to York Lake (southern channel dyke), which will be situated to minimize disturbance to fish habitat in Ava Lake, and to reduce infrastructure requirements while remaining sufficiently away from the open pit for stability purposes. These candidate main dyke locations will also require two diversion channels to re-route the flow from Ava Lake to the Misema River, situated to follow the natural topography in order to minimize unnecessary terrestrial disturbance and costs associated with blasting a channel through bedrock:

- A short (approximately 25 m) channel between the two southern embayments of Ava Lake to supplement the existing natural channel that will be retained between Ava Lake and the southwestern embayment of Ava Lake
- A longer (approximately 125 m) channel from the southernmost embayment of Ava Lake to the remnant York Lake / Misema River (Figure 3.6-1).

Candidate Location E which is located at the rapids between Ava Lake and Beaverhouse Lake will result in the removal of Ava Lake completely. It requires development of a diversion around proposed main dyke or an overflow channel within the main dyke, the creation of channelized flow within Ava Lake to the southwestern embayment of Ava Lake, and the creation of a new channel between the southernmost embayment of Ava Lake to Misema River (the latter is also required by the other candidate alternatives).

All candidate alternative locations are considered potentially viable and are assessed in Section 3.6.3:

- Alternative 1: at the northern rapids between Ava Lake and York Lake
- Alternative 2: at the northwest end of Ava Lake
- Alternative 3: across the northwest embayment of Ava Lake
- Alternative 4: between the northwest embayment and Ava Lake
- Alternative 5: between Ava Lake and Beaverhouse Lake.

3.6.3 Assessment of Alternatives

All alternative assessment performance objectives and criteria were considered in the comparative analysis as detailed in Table 3.6-1. The following performance objectives and criteria were identified as the key differentiators in the assessment of main dyke alternatives:

- Natural environment performance:
 - Water

- Change in flows (watercourses), and areas and levels (waterbodies)
- Fish and fish habitat
 - Area and functionality of fish habitat that would be displaced or altered
- Wildlife and habitat
 - Area, type and functionality of habitat that would be displaced or altered
- Technical and economic performance:
 - Ability to service the site effectively
 - Proven effectiveness and ability to consistently meet Project needs.

Based on the detailed evaluation, the following summary of advantages and disadvantages is provided for each alternative:

Alternative 1 (northern rapids between Ava Lake and York Lake)

- Advantages: requires the least amount of surface water dewatering and fish habitat, which would have an associated reduction in the cost for offsetting, very limited requirements for in-water work, and the least granular material and overall earthworks requirements.
- Disadvantages: in closest proximity to the open pit which could present a stability concern or potentially limiting to open pit operations such as blasting activities and has the potential for damage to a known archaeological site.

Alternative 2 (at the northwest end of Ava Lake)

- Advantages: would require dewatering of a small portion of Ava Lake and removal of associated fish habitat which would have the lower associated cost for offsetting; lesser requirements for in-water work, and the lesser granular material and overall earthworks requirements.
- Disadvantages: may present stability concerns as it is located close to the open pit blast zone, and has the potential for damage to a known archaeological site.

Alternative 3 (across northwest embayment of Ava Lake)

- Advantages: would require dewatering of about half of a small bay of Ava Lake and removal of associated fish habitat which would have lower associated cost for offsetting; no anticipated potential for damage to a known archaeological site.
- Disadvantages: may present stability concerns as it is located close to the open pit blast zone; higher requirements for in-water work, granular material and overall earthworks requirements.

Alternative 4 (between Northwest Bay and Ava Lake)

- Advantages: it does not present a stability concern as it is located away from the open pit blast zone; is shorter in length and aligns well with other Project infrastructure; and no anticipated potential for damage to a known archaeological site.
- Disadvantages: would require dewatering of a small bay of Ava Lake and removal of associated fish habitat which would have an increased associated cost for offsetting;

higher requirements for in-water work, granular material and overall earthworks requirements.

Alternative 5 (between Ava Lake and Beaverhouse Lake)

- Advantages: it does not present a stability concern as it is located away from the open pit blast zone; lower requirements for in-water work; and no anticipated potential for damage to a known archaeological site.
- Disadvantages: would require dewatering of Ava Lake and removal of associated fish habitat which would have a much higher associated cost for offsetting.

3.6.4 Summary of Results and Selected Alternative

The most preferred and selected alternative for the Misema River dyke and diversion is Alternative 4, based on an evaluation of the assessment criteria. This alternative is carried forward in the Project design in Section 4 (Project Description).

Table 3.6-1: Alternatives Assessment – Main Dyke Alternative Locations

Criteria	Indicators	Alternative 1 Northern Rapids	Alternative 2 Northwest End of Ava Lake	Alternative 3 Across Northwest Bay of Ava Lake	Alternative 4 Between Northwest Bay and Ava Lake	Alternative 5 Between Ava Lake and Beaverhouse Lake	Advantages and Disadvantages
Natural Environment							
Air quality	Change in air quality	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	- All alternatives (Con/Op/CI): limited air emissions would be generated from heavy equipment use during dyke and channel, construction and removal, and from maintenance activities during operation - There are no differentiating advantages or disadvantages for any location
Sound	Change in sound level	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	- All alternatives (Con/Op/CI): limited noise would be generated from heavy equipment use during dyke and channel, construction and removal, and from maintenance activities during operation - There are no differentiating advantages or disadvantages for any location
Water	Change to groundwater flow direction and level	Neutral	Neutral	Neutral	Neutral	Neutral	- All alternatives (Con/Op/CI): no anticipated additional effects to groundwater flows or levels - There are no differentiating advantages or disadvantages for any location
	Change in flows (watercourses), and areas and levels (waterbodies)	Most preferred	Most preferred	Most preferred	Most preferred	Least preferred	- Alternative 1 (Con/Op): dewatering will be required of the northern rapids channel - Alternative 2 (Con/Op): dewatering will be required of the northern rapids channel and a small area of Ava Lake - Alternative 3 (Con/Op): dewatering will be required of the northern rapids channel and approximately 50% of the northwest bay of Ava Lake - Alternative 4 (Con/Op): dewatering will be required of the northern rapids channel and the northwest bay of Ava Lake - Alternative 5 (Con/Op): Ava Lake will be dewatered - Alternatives 1, 2, 3 and 4 (Con/Op): a new channel will be created between the southwestern bay of Ava Lake and the residual York Lake / Misema River, to maintain Misema River flow continuity and natural water levels in Beaverhouse Lake - Alternative 5 (Con/Op): a channel will be created between Beaverhouse Lake and the residual York Lake / Misema River, to maintain Misema River flow continuity and natural water levels in Beaverhouse Lake - All alternatives (CI): see Section 3.9
	Change in quality of groundwater and surface water	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	- Alternatives 1 and 5 (Con/CI): requires the least amount of in-water work although industry-standard erosion and sediment control measures would be implemented for all alternatives; no material change to water quality anticipated for any alternative with standard construction and decommissioning practices to control sediment release; monitoring would be completed to confirm with application of additional mitigation measures if needed - Alternatives 2, 3 and 4 (Con/CI): requires a greater amount of in-water work; no material change to water quality anticipated for any alternative with application of standard construction and decommissioning practices to control sediment release as proposed; monitoring would be completed to confirm with application of additional mitigation measures if needed - All alternatives (Op): dyke operation would not have a material effect on water quality
Fish and fish habitat	Area and functionality of fish habitat that would be displaced or altered	Most preferred	Most preferred	Most preferred	Most preferred	Least preferred	- Alternative 1 (Con/Op): existing fish habitat will be maintained except in the northern rapids channel - Alternative 2 (Con/Op): existing fish habitat will be maintained except in the northern rapids channel and a small area of Ava Lake - Alternative 3 (Con/Op): existing fish habitat will be maintained except in the northern rapids channel and approximately 50% of the northwest bay of Ava Lake - Alternative 4 (Con/Op): existing fish habitat will be maintained except in the northern rapids channel and the northwest bay of Ava Lake - Alternative 5 (Con/Op): the greatest amount of existing lake habitat for fish in Ava Lake will be removed during dewatering; the new channelized flow path within Ava Lake will not be designed specifically for fish habitat as it will be temporary - All alternatives (Con/Op): although a new channel will be created between the southwestern bay of Ava Lake and the residual York Lake / Misema River will not be designed specifically for fish habitat as it will be temporary, it will provide for local fish passage; the removal of fish habitat during dewatering would be offset as required under the <i>Fisheries Act</i> - All alternatives (CI): dykes will be removed or reduced, and created channels blocked or backfilled after York Lake is re-established, to revert the Misema River system to existing or near existing areas

Criteria	Indicators	Alternative 1 Northern Rapids	Alternative 2 Northwest End of Ava Lake	Alternative 3 Across Northwest Bay of Ava Lake	Alternative 4 Between Northwest Bay and Ava Lake	Alternative 5 Between Ava Lake and Beaverhouse Lake	Advantages and Disadvantages
Wildlife and habitat	• Area, type and functionality of habitat that would be displaced or altered	Most preferred	Most preferred	Most preferred	Most preferred	Least preferred	- Alternatives 1, 2, 3 and 4 (Con/Op/CI): will remove lake habitat for waterfowl; however, this is not expected to be limiting; terrestrial habitat created by dewatering would be temporary only over the life of the mine - Alternative 5 (Con/Op/CI): will remove the greatest amount of lake habitat for waterfowl, however this is not expected to be limiting; terrestrial habitat created by dewatering would be temporary only over the life of the mine
	• Change in the level of sensory disturbance	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	- All alternatives (Con/Op/CI): no material differences to sensory disturbances - There are no differentiating advantages or disadvantages for any location
	• Ability to maintain wetland connectivity	Neutral	Neutral	Neutral	Neutral	Neutral	- All alternatives (Con/Op/CI): no changes to wetland connectivity - There are no differentiating advantages or disadvantages for any location
SAR	• Area, type and functionality of habitat that would be displaced or altered	Neutral	Neutral	Neutral	Neutral	Neutral	- All alternatives (Con/Op/CI): no changes to terrestrial or aquatic SAR habitat, noting also that there are no aquatic SAR present locally - There are no differentiating advantages or disadvantages for any location
	• Change in the level of sensory disturbance	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	- All alternatives (Con/Op/CI): no material differences to sensory disturbances - There are no differentiating advantages or disadvantages for any location
	Natural Environment Summary	Most preferred	Most preferred	Most preferred	Most preferred	Least preferred	Alternative 1 (Con/Op/CI): would require dewatering of the north channel, and removal of the least amount of habitat for fish and waterfowl; however, the fish habitat would be offset as required under the <i>Fisheries Act</i> Alternatives 2 and 3 (Con/Op/CI): would require dewatering of a small portion of Ava Lake and removal of fish and waterfowl habitat; however, the habitat would be offset as required under the <i>Fisheries Act</i> Alternative 4 (Con/Op/CI): would require dewatering of a small bay of Ava Lake and removal of fish and waterfowl habitat; however, the habitat would be offset as required under the <i>Fisheries Act</i> Alternative 5 (Con/Op/CI): would require dewatering of Ava Lake and removal of the greatest amount of fish and waterfowl habitat although the habitat would be offset as required under the <i>Fisheries Act</i>
Human Environment							
Land and resource use	• Change to local land and resource use opportunities	Most preferred	Most preferred	Most preferred	Most preferred	Least preferred	- Alternative 1 (Con/Op/CI): would dewater the least waterbody area, and would therefore offer the lowest potential reduction in area for recreational use and fishing - Alternatives 2, 3 and 4 (Con/Op/CI): would dewater a reduced waterbody area, and would therefore offer a low potential reduction in area for recreational use and fishing - Alternative 5 (Con/Op/CI): would dewater the greatest waterbody area, and would therefore offer the highest potential reduction in area for recreation use and fishing
Cultural heritage	• Causes damage or disturbance to known cultural heritage sites or landscapes	Neutral	Neutral	Neutral	Neutral	Neutral	- All alternatives (Con/Op/CI): no damage or disturbance to known cultural heritage sites or landscapes - There are no differentiating advantages or disadvantages for any location
Archaeology	• Causes damage or disturbance to known archaeological sites	Least preferred	Least preferred	Most preferred	Most preferred	Most preferred	- Alternative 1 and 2 (Con/Op/CI): has the potential to directly affect a known archaeology site - Alternatives 3, 4 and 5 (Con/Op/CI): no damage or disturbance to known archaeological sites
Local and regional economy	• Change to local business and economic opportunities	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	- All alternatives (Con/Op/CI): development, operation and closure of the Project which requires establishment of dykes to support dewatering of York Lake and diversion of the Misema River system, would generate considerable regional and local, employment and business opportunities - There are no differentiating advantages or disadvantages for any dyke location

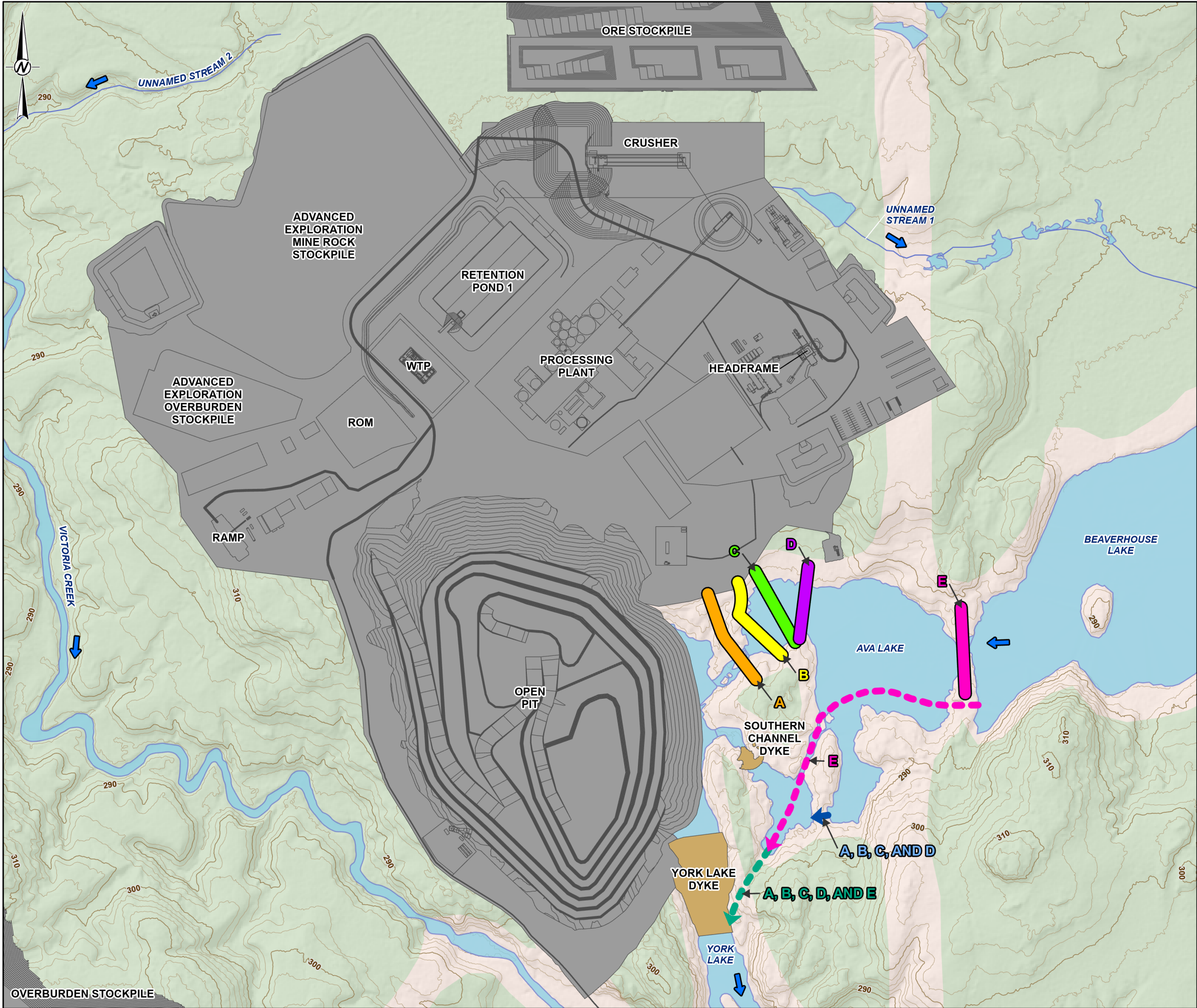


Criteria	Indicators	Alternative 1 Northern Rapids	Alternative 2 Northwest End of Ava Lake	Alternative 3 Across Northwest Bay of Ava Lake	Alternative 4 Between Northwest Bay and Ava Lake	Alternative 5 Between Ava Lake and Beaverhouse Lake	Advantages and Disadvantages
Indigenous Peoples	• Maintains access to traditional lands for current traditional land uses except as otherwise agreed to with local Indigenous communities	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	- All alternatives (Con/Op/CI): maintain equivalent access to traditional lands, although Alternative 5 would require dewatering of the greatest waterbody area and reduction in access to potential fishing area - There are no differentiating advantages or disadvantages for any location
	• Causes damage or disturbance to known spiritual and ceremonial sites, or implements preservation	Neutral	Neutral	Neutral	Neutral	Neutral	- All alternatives(Con/Op/CI): no known spiritual and ceremonial sites are present that would be damaged or disturbed - There are no differentiating advantages or disadvantages for any location
	• Change to Indigenous people's social conditions (community services and infrastructure, and wellbeing) and health	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	- All alternatives(Con/Op/CI): no predicted effect to Indigenous Peoples' social conditions - There are no differentiating advantages or disadvantages for any location
	Human Environment Summary	Least preferred	Least preferred	Most preferred	Most preferred	Most preferred	Alternatives 1, 2, 3, 4 and 5: establishment of dyke(s) and diversion channel(s) is required for the development, operation and closure of the Project which will generate considerable regional and local, employment and business opportunities. There are no clear differentiating advantages or disadvantages for any location; however Alternatives 1 and 2 have the potential to affect a known archaeology site.
Technical and Economic							
Ability to service the site effectively	• Proven effectiveness and ability to consistently meet Project needs	Least preferred	Least preferred	Least preferred	Most preferred	Most preferred	- Alternatives 1, 2 and 3 (Con/Op): closest to open pit resulting in a greater risk to stability concerns related to blast-induced vibration - Alternatives 4 and 5 (Con/Op): less susceptible to blast induced vibrations due to increased distances from the open pit - Alternatives 1, 2, 3, 4 and 5 (CI): no material difference across alternatives
	• Potential for accidents or malfunctions that may have a material effect on the environment	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	All alternatives (Con/Op/CI): all alternatives are equivalent; dyke will be designed to meet all regulatory requirements and will be monitored for ongoing stability
Supportive of net-zero GHG emissions by 2050	• Change to GHG emissions released to the environment	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	- All alternatives (Con/Op/CI): limited GHG emissions would be generated from heavy equipment use during dyke and channel, construction and removal, and from maintenance activities during operation - There are no differentiating advantages or disadvantages for any location



Criteria	Indicators	Alternative 1 Northern Rapids	Alternative 2 Northwest End of Ava Lake	Alternative 3 Across Northwest Bay of Ava Lake	Alternative 4 Between Northwest Bay and Ava Lake	Alternative 5 Between Ava Lake and Beaverhouse Lake	Advantages and Disadvantages
Cost effectiveness	• Potential effect on Project financing resulting from investor attractiveness or risk	Most preferred	Most preferred	Most preferred	Most preferred	Least preferred	- Alternatives 1, 2, 3 and 4 (Con/Op/CI): no material cost differences expected across these alternatives - Alternative 5 (Con/Op/CI): is expected to have a materially higher cost as a result of the increased fish habitat offsetting and channelization requirements
	• Degree to which alternative provides a competitive or acceptable return on investment	Most preferred	Most preferred	Most preferred	Most preferred	Least preferred	All alternatives (Con/Op/CI): no material difference amongst alternatives, although Alternative 5 is expected to be considerably more costly as a result of increased fish habitat offsetting and channelization requirements associated with the full dewatering of Ava Lake
	Technical and Economic Summary	Least preferred	Least preferred	Least preferred	Most preferred	Least preferred	Alternative 1: is the least preferred as a result of its close proximity to the open pit which could present a greater risk of stability concern or potentially limit open pit operations such as blasting activities Alternatives 2 and 3: are least preferred as a result of their close proximity to the open which could present a greater risk of stability concern or potentially limit open pit operations such as blasting activities Alternatives 4: is the most preferred on balance of proximity to the open pit and costs, including for fish habitat offsetting Alternatives 5: is least preferred as a result increased cost for fish habitat offsetting for the full dewatering of Ava Lake during the construction and operations phases
OVERALL ASSESSMENT		LEAST PREFERRED	LEAST PREFERRED	LEAST PREFERRED	MOST PREFERRED (SELECTED)	LEAST PREFERRED	Alternative 1: is the least preferred as a result of their close proximity to the open pit which could present a greater risk of stability concern or potentially limit open pit operations such as blasting activities and the potential for damage to a known archaeological site, although it would require dewatering of the north channel and removal of the least amount of fish habitat which would have the lowest associated cost for offsetting Alternative 2: would require dewatering of a small portion of Ava Lake and removal of associated fish habitat which would have an associated cost for offsetting, may present stability concerns as it is located close to the open pit blast zone, and has the potential for damage to a known archaeology site Alternative 3: would require dewatering of about half of a small bay of Ava Lake and removal of associated fish habitat which would have an associated cost for offsetting; but may present a risk of stability concern as it is located close to the open pit blast zone Alternative 4: would require dewatering of a small bay of Ava Lake and removal of associated fish habitat which would have an increased associated cost for offsetting; it does not present a risk of stability concern as it is located away from the open pit blast zone. Alternative 5: would require dewatering of Ava Lake and removal of associated fish habitat which would have a much higher associated cost for offsetting; it does not present a risk of stability concern as it is located away from the open pit blast zone

Notes:
Con: construction phase; Op: operations phase; CI: closure phase.



LEGEND

KEY MINE FEATURE
(AEX, PROCESSING PLANT, OPEN PIT, OPEN PIT DYKE, TAILINGS STORAGE FACILITY, OVERBURDEN STOCKPILE AND ORE STOCKPILE)

DYKE (LABELLED WITH NAME)

MAJOR CONTOURS (10 M INTERVAL)

MINOR CONTOURS (2 M INTERVAL)

WATERCOURSE

WATERBODY

FLOW DIRECTION

DYKE LOCATION ALTERNATIVES

CANDIDATE ALTERNATIVE LOCATION A

CANDIDATE ALTERNATIVE LOCATION B

CANDIDATE ALTERNATIVE LOCATION C

CANDIDATE ALTERNATIVE LOCATION D

CANDIDATE ALTERNATIVE LOCATION E

DIVERSION CHANNEL LOCATION ALTERNATIVES

DIVERSION CHANNEL FOR DYKE CANDIDATE ALTERNATIVE LOCATIONS A, B, C AND D

DIVERSION CHANNEL FOR DYKE CANDIDATE ALTERNATIVE LOCATIONS A, B, C, D AND E

DIVERSION CHANNEL FOR DYKE CANDIDATE ALTERNATIVE LOCATIONS E

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO

2. WATERBODIES AND WATERCOURSE EXTRACTED FROM LIO, MNRF AND MODIFIED TO MATCH SITE PLAN LAYOUT PROVIDED BY AGNICO EAGLE MINES; TO BE FIELD CONFIRMED.

3. CONTOURS EXTRACTED FROM LIDAR, PROVIDED BY AGNICO EAGLE MINES, 2021.

4. SITE PLAN PROVIDED BY AGNICO EAGLE, FEBRUARY / DECEMBER 2025.

5. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT

AGNICO EAGLE MINES

PROJECT

UPPER BEAVER GOLD PROJECT

TITLE

DYKE AND DIVERSION CHANNEL LOCATION ALTERNATIVES

CONSULTANT	YYYY-MM-DD	2026-06-08
DESIGNED	----	
PREPARED	MD	
REVIEWED	----	
APPROVED	----	

PROJECT NO.
CA0042150.6518

CONTROL
0028

REV.
A

FIGURE
3.6-1

3.7 Tailings and Mine Rock Management

3.7.1 Background

The preferred mine waste storage facilities need to contain the tailings and mine rock in a structurally sound manner, be capable of withstanding natural events during operation, and be designed to support the long-term stability of the tailings and mine rock after the mine closes. For the Project, land availability is also important, as the Agnico Eagle lands package at the Project location is of a limited scale compared to most mining projects in northern Ontario.

The MDMER requires that an assessment of alternatives be completed using the prescribed approach (ECCC 2021) for a mine waste facility that will overprint a natural, fish-bearing waterbody. The Assessment for Alternatives for Storage of Mine Waste provides additional detail on the selection of tailings storage technology (Appendix C). Naming convention from that document has been included in this section where appropriate.

3.7.2 Identification of Alternatives for Assessment

3.7.2.1 Screening of Alternatives for Assessment - Tailings

Seven candidate tailings storage methods or strategies were identified as described further in Appendix C:

- Candidate Storage Method A: Conventional slurry
- Candidate Storage Method B: Separation of coarse and fine tailings
- Candidate Storage Method C: In-pit tailings storage
- Candidate Storage Method D: High-density tailings placed as a slurry in a TSF
- Candidate Storage Method E: Paste tailings placed as a slurry in a TSF
- Candidate Storage Method F: Filtered tailings placed as a compacted fill in a TSF (filter stack)
- Candidate Storage Method G: Co-disposal of tailings and mine rock in a TSF.

The screening detailed in Appendix C identified that only conventional slurry, filter stack and co-disposal of tailings and mine rock in a TSF were potentially viable:

- Alternative Storage Method 1: Conventional slurry
- Alternative Storage Method 2: Filtered tailings placed as a compacted fill in a TSF (filter stack)
- Alternative Storage Method 3: Co-disposal of tailings and mine rock in a TSF.

An initial high-level siting study completed by Agnico Eagle identified 10 candidate locations for the storage of tailings to support initial design work (Figure 3.7-1), located between 1.0 and 5.0 km from the process plant. Tailings storage alternatives located more than 5 km from the process plant, or situated on lands subject to incompatible land characteristics and ownership such as large waterbodies, protected areas, existing third party land rights, or lands otherwise unavailable for industrial development were screened out. These candidate alternative locations are not viable as they would result in unnecessary tailings transport distances and associated

infrastructure requirements and environmental disturbance, higher operating costs, and reduced economic feasibility.

After this initial screening, five candidate locations were identified for tailings storage (Figure 3.7-1 and Figure 3.7-2) for further consideration:

- Candidate Tailings Storage Location T1: located approximately 3.5 km northwest of the process plant
- Candidate Tailings Storage Location T5: 5.0 km west of the process plant
- Candidate Tailings Storage Location T6: 3.8 km northwest of the process plant
- Candidate Tailings Storage Location T7: 1.6 km northeast of the process plant
- Candidate Tailings Storage Location T9: 3.0 km northwest of the process plant.

The five alternative locations and three storage methods resulting from this screening were combined to identify candidate tailings storage alternatives. Slurry tailings deposition was not considered appropriate at Candidate Tailings Storage Location T7 in consideration of the presence of residences along the north shore of Beaverhouse Lake. As a result, 14 combined candidate tailings storage alternatives were identified:

- Candidate Tailings Storage Alternative T1-S: Conventional slurry tailings stored in a TSF at location T1
- Candidate Tailings Storage Alternative T1-F: Filtered tailings stored in a TSF at location T1
- Candidate Tailings Storage Alternative T1-C: Co-disposal of mine rock and filtered tailings in a TSF at location T1
- Candidate Tailings Storage Alternative T5-S: Conventional slurry tailings stored in a TSF at location T5
- Candidate Tailings Storage Alternative T5-F: Filtered tailings stored in a TSF at location T5
- Candidate Tailings Storage Alternative T5-C: Co-disposal of mine rock and filtered tailings in a TSF at location T5
- Candidate Tailings Storage Alternative T6-S: Conventional slurry tailings stored in a TSF at location T6
- Candidate Tailings Storage Alternative T6-F: Filtered tailings stored in a TSF at location T6
- Candidate Tailings Storage Alternative T6-C: Co-disposal of mine rock and filtered tailings in a TSF at location T6
- Candidate Tailings Storage Alternative T7-F: Filtered tailings stored in a TSF at location T7
- Candidate Tailings Storage Alternative T7-C: Co-disposal of mine rock and filtered tailings in a TSF at location T7

- Candidate Tailings Storage Alternative T9-S: Conventional slurry tailings stored in a TSF at location T9
- Candidate Tailings Storage Alternative T9-F: Filtered tailings stored in a TSF at location T9
- Candidate Tailings Storage Alternative T9-C: Co-disposal of mine rock and filtered tailings in a TSF at location T9.

The candidate tailings storage alternatives were screened for technical viability using the following criteria:

- Distance from the process plant of less than 5 km for slurry tailings and less than 3 km for filtered tailings: increasing distance from the process plant has greater potential natural and human environment effects along the infrastructure route, as well as lower technical and economic viability (decreased ability to service the site, and higher capital and operating costs).
- Ability to store the required volume of tailings: locations that cannot accommodate the full tailings volume using the proposed method in a reasonable manner (i.e., excessive height was not considered reasonable), would result in multiple facilities with increased environmental disturbance, technical complexity and project risk, if other locations were available that could store the full amount.

Based on this screening assessment, the following tailings storage alternatives were carried forward for further analysis (Figure 3.7-2):

- Tailings Storage Alternative T1-S: Conventional slurry tailings stored in a TSF at location T1
- Tailings Storage Alternative T5-S: Conventional slurry tailings stored in a TSF at location T5
- Tailings Storage Alternative T7-F: Filtered tailings stored in a TSF at location T7
- Tailings Storage Alternative T7-C: Co-disposal of mine rock and filtered tailings in a TSF at location T7.

3.7.2.2 Screening of Alternatives for Assessment – Mine Rock

Five candidate rock storage facility locations that could store approximately 7.6 Mm³ of mine rock with appropriate side slopes were initially identified (Figure 3.7-1 and Figure 3.7-3).

- Candidate Mine Rock Storage Location R1: located approximately 1.0 km north of the open pit
- Candidate Mine Rock Storage Location R2: located approximately 3.8 km northwest of the open pit
- Candidate Mine Rock Storage Location R3: located approximately 1.9 km southwest of the open pit
- Candidate Mine Rock Storage Location R4: located approximately 2.0 km northwest of the open pit

- Candidate Mine Rock Storage Location R5: located approximately 2.2 km northeast of the open pit.

These candidate mine rock storage locations were screened for technical viability using the following criteria:

- Distance from the open pit of less than 3 km: as the only practical method for moving mine rock is by haul truck, greater potential natural and human environment effects along the infrastructure route, as well as lower technical and economic viability (decreased ability to service the site, and higher capital and operating costs).
- Appropriate subsurface conditions for long term geotechnical stability if known.

Candidate Mine Rock Storage Location R2 is located further than 3 km from the open pit and investigations at Candidate Mine Rock Storage Location R1 determined that the location was unsuitable for the long-term storage of the total mine rock volume.

Accordingly, three alternative locations were carried forward for further analysis:

- Mine Rock Storage Location Alternative R3: located approximately 1.9 km southwest of the open pit
- Mine Rock Storage Location Alternative R4: located approximately 2.0 km northwest of the open pit
- Mine Rock Storage Location Alternative R5: located approximately 2.2 km northeast of the open pit.

3.7.2.3 Mine Waste Management Alternatives Identified for Assessment

The three tailings storage alternatives (considering both method and location) and three mine rock storage locations alternatives were combined to identify integrated alternatives, in consideration that one of the tailings storage alternatives is tailings and mine rock co-disposal. Nine combined mine waste (tailings and mine rock) alternatives were identified and carried forward for assessment (Figure 3.7-3 to Figure 3.7-5):

- Mine Waste Alternative 1: Alternative Storage Method 1 (conventional slurry tailings) stored at Tailings Storage Location Alternative T1 and mine rock stored at Mine Rock Storage Location Alternative R3
- Mine Waste Alternative 2: Alternative Storage Method 1 (conventional slurry tailings) stored at Tailings Storage Location Alternative T1 and mine rock stored at Mine Rock Storage Location Alternative R4
- Mine Waste Alternative 3: Alternative Storage Method 1 (conventional slurry tailings) stored at Tailings Storage Location Alternative T1 and mine rock stored at Mine Rock Storage Location Alternative R5
- Mine Waste Alternative 4: Alternative Storage Method 1 (conventional slurry tailings) stored at Tailings Storage Location Alternative T5 and mine rock stored at Mine Rock Storage Location Alternative R3
- Mine Waste Alternative 5: Alternative Storage Method 1 (conventional slurry tailings) stored at Tailings Storage Location Alternative T5 and mine rock stored at Mine Rock Storage Location Alternative R4

- Mine Waste Alternative 6: Alternative Storage Method 1 (conventional slurry tailings) stored at Tailings Storage Location Alternative T5 and mine rock stored at Mine Rock Storage Location Alternative R5
- Mine Waste Alternative 7: Alternative Storage Method 2 (filtered tailings) stored at Tailings Storage Location Alternative T7 and mine rock stored at Mine Rock Storage Location Alternative R3
- Mine Waste Alternative 8: Alternative Storage Method 2 (filtered tailings) stored at Tailings Storage Location Alternative T7 and mine rock stored at Mine Rock Storage Location Alternative R4
- Mine Waste Alternative 9: Alternative Storage Method 3 (co-disposal of filtered tailings and mine rock) at Tailings Storage Location Alternative T7.

There is only a single co-disposal alternative, because only location T7 met the pre-screening criteria for distance from the process plant filtered tailings storage. Table 3.7-1 provides a summary of the physical characteristics of the alternatives.

3.7.3 Assessment of Alternatives

All alternative assessment performance objectives and criteria were considered in the comparative analysis as summarized in Table 3.7-2. The following performance objectives and criteria were identified as the key differentiators in the assessment of mine waste storage alternatives:

Natural environment performance:

- Wildlife and habitat
 - Area, type and functionality of habitat that would be displaced or altered
 - Ability to maintain wetland connectivity

Human environment performance:

- Land and resource use
 - Change to local land and resource use opportunities
- Indigenous Peoples
 - Maintains access to traditional lands for current traditional land uses except as otherwise agreed to with local Indigenous communities.

Technical and Economic performance:

- Ability to service the site effectively
 - Proven effectiveness and ability to consistently meet Project needs
 - Potential for accidents or malfunctions that may have a material effect on the environment
- Cost effectiveness
 - Degree to which alternative provides a competitive or acceptable return on investment.

Based on the detailed evaluation, the following summary of advantages and disadvantages is provided for each alternative:

Mine Waste Alternative 1: Conventional slurry tailings stored at T1 and mine rock stored at R3:

- Advantages: overprints a moderate area of undisturbed land, a lowest overall height above the landscape and has the lowest annual operating costs
- Disadvantages: uses slurry tailings disposal which may pose a great risk to stability and may not be preferred by investors, and has the highest capital costs.

Mine Waste Alternative 2: conventional slurry tailings stored at T1 and mine rock stored at R4:

- Advantages: overprints a moderate area of undisturbed land and has moderate annual operating costs
- Disadvantages: uses slurry tailings disposal which may pose a great risk to stability and may not be preferred by investors, and has amongst the highest capital costs.

Mine Waste Alternative 3: conventional slurry tailings T1 and mine rock stored at R5:

- Advantages: overprints a moderate area of undisturbed land and has moderate annual operating costs
- Disadvantages: uses slurry tailings disposal which relies on the long-term performance of engineered containment structures and water management, require increased monitoring and a robust design to support stability over time, and may not be preferred by investors; has the highest overall height above the landscape and has amongst the highest capital costs.

Mine Waste Alternative 4: conventional slurry tailings stored at T5 and mine rock stored at R3:

- Advantages: has lower capital costs and moderate annual operating costs
- Disadvantages: overprints the greatest area of undisturbed land, and uses slurry tailings disposal which may not be preferred by investors and has a lowest overall height above the landscape.

Mine Waste Alternative 5: conventional slurry tailings stored at T5 and mine rock stored at R4:

- Advantages: has the lower capital costs and moderate annual operating costs
- Disadvantages: overprints the greatest area of undisturbed land, uses slurry tailings disposal which may not be preferred by investors.

Mine Waste Alternative 6: conventional slurry tailings stored at T5 and mine rock stored at R5

- Advantages: has the lowest capital costs and moderate annual operating costs
- Disadvantages: overprints the greatest area of undisturbed land, uses slurry tailings disposal which may not be preferred by investors and has the highest overall height above the landscape.

Mine Waste Alternative 7: filtered tailings stored at T7 and mine rock stored at R3:

- Advantages: overprints a moderate area of undisturbed land, has simplified water management at the TSF (filtered tailings), has a low length of access and haul roads,

and moderate capital costs resulting from the elimination of water containment structures and dams, reduced long-term stability concerns, and ease of closure

- Disadvantages: produces a higher level of GHG emissions from trucking of filtered tailings for deposition, has amongst the highest overall height above the landscape and operating costs.

Mine Waste Alternative 8: filtered tailings stored at T7 and mine rock stored at R4:

- Advantages: overprints a moderate area of undisturbed land, has simplified water management at the TSF (filtered tailings) and moderate capital costs
- Disadvantages: produces a higher level of GHG emissions from trucking of filtered tailings for deposition, has amongst the highest overall height above the landscape and the highest operating costs.

Mine Waste Alternative 9: co-disposal of filtered tailings and mine rock at T7:

- Advantages: overprints the least area of undisturbed land, has the lowest exposed tailings and mine rock surface area, using co-disposal limits the overall spread of the mine footprint, is closest to the main site area with the lowest length of access and haul roads, and offers the greatest operation efficiency including for contact water management, ease of progressive reclamation, moderate capital costs and offers closure advantages, including not requiring monitoring and maintenance of dams over the very long term
- Disadvantages: produces a higher level of GHG emissions from trucking of filtered tailings for deposition, has amongst the highest overall height above the landscape and operating costs.

3.7.4 Summary of Results and Selected Alternative

Mine Waste Alternative 9 (co-disposal of filtered tailings and mine rock at T7) on balance of all the criteria is the selected mine waste storage alternative that is carried forward in the Project design described in Section 4 (Project Description).

Table 3.7-1: Physical Characteristics of Waste Management Storage Alternatives

Characteristic	Alternative								
	1	2	3	4	5	6	7	8	9
Area of undisturbed mature forest, wetlands and waterbodies (ha)	127.4	135.7	122.9	202.3	210.6	197.8	136.8	145.1	114.9
Area of waterbodies overprinted (ha)	0.46	0.17	0.17	1.73	1.44	1.44	1.53	1.24	1.24
Length of stream loss of potential fish habitat (km)	0.20	0.28	0.20	1.70	1.79	1.70	1.37	1.46	1.37
Area of mature forest overprinted (ha)	60.1	84.5	76.6	84.4	108.8	100.9	97.8	122.1	96.9
Area of wetlands overprinted (ha)	66.8	51.1	46.1	116.1	100.3	95.4	37.5	21.7	16.8
Length of access / haul roads (km)	11.8	11.3	12.3	13.3	13.7	13.9	10.5	10.7	5.9
Exposed tailings / mine rock surface area (ha)	129	114	114	205	191	191	98	83	53
Maximum facility height (m)	26.2	47	67.3	26.2	47	67.3	65	65	65
Combined distance to open pit / plant (km)	5.0	5.8	5.5	5.8	6.6	6.3	2.7	3.5	2.3
Capital Cost (million dollars; \$M)	65.1	63.9	64.5	48.8	47.8	44.3	54.9	54	50
Operating Cost (million dollars; \$M) per year	11.48	15.29	15.29	14.21	18.92	17.12	27.14	32.04	24.55

Table 3.7-2: Alternatives Assessment – Mine Waste Management Alternatives

Criteria	Indicators	Alternative 1 Slurry tailings at T1 / mine rock at R3	Alternative 2 Slurry tailings at T1 / mine rock at R4	Alternative 3 Slurry tailings at T1 / mine rock at R5	Alternative 4 Slurry tailings at T5 / mine rock at R3	Alternative 5 Slurry tailings at T5 / mine rock at R4	Alternative 6 Slurry tailings at T5 / mine rock at R5	Alternative 7 Filtered tailings at T7 / mine rock at R3	Alternative 8 Filtered tailings at T7 / mine rock at R4	Alternative 9 Co-disposal of mine rock and filtered tailings at T7	Advantages and Disadvantages ⁽¹⁾
Natural Environment											
Air quality	• Change in air quality	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Most preferred	Most preferred	Most preferred	- All alternatives (Con/Op/CI): air emissions would be generated from heavy equipment use during dam / facility construction, ongoing maintenance and dust from the tailings and mine rock surfaces which would require mitigation, but emissions will not affect the ability to attain air quality standards - Alternatives 7, 8 and 9 have the shortest distance from the open pit and will result in substantially less emissions from hauling mine rock
Sound	• Change in sound level	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Most preferred	- All alternatives (Con/Op/CI): noise would be generated during construction, transport, stockpiling and managing of the stockpiles, including from heavy equipment and backup beepers, but emissions will not affect the ability to attain standards related to noise - Alternative 9 which have tailings and mine rock stored in only one facility with the closest location, will generate less noise from vehicle movement
Water	• Change to groundwater flow direction and level	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	All alternatives (Con/Op/CI): there is no difference between the alternatives for this indicator
	• Change in flows (watercourses), and areas and levels (waterbodies)	Most preferred	Most preferred	Most preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	- All alternatives (Con/Op/CI) will require the overprinting and diversion of minor watercourses and waterbodies in order to manage contact waters, although major watercourses and waterbodies have been avoided - Alternatives 1, 2, 3 (Con/Op/CI) have the lowest area and length of overprinting of small waterbodies and watercourses (area in ha: 0.46, 0.17 and 0.17; length in km: 0.2, 0.28 and 0.2) - Alternatives 4, 5, 6, 7, 8 and 9 (Con/Op/CI) have the greatest area and length of overprinting of small waterbodies and watercourses (area in ha: 1.73, 1.44, 1.44, 1.53, 1.25 and 1.24; length in km: 1.7, 1.79, 1.7, 1.37, 1.46 and 1.37)
	• Change in quality of groundwater and surface water	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Most preferred	- All alternatives (Con/Op/CI): groundwater and surface water quality will be managed to meet regulatory requirements - Alternative 9 (Con/Op/CI): has the least complexity in surface and groundwater management as a result of the method of mine rock and tailings deposition and that there would only be one facility located close to the main mine site
Fish and fish habitat	• Area and functionality of fish habitat that would be displaced or altered	Most preferred	Most preferred	Most preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	- All alternatives (Con/Op/CI) will require the overprinting of minor watercourses and waterbodies which are assumed to represent fish habitat for this assessment; habitat that is overprinted will be compensated as required by MDMER and are comparable in the length and area of fish habitat that will be compensated for - Alternatives 1, 2, 3 (Con/Op/CI) have the lowest area and length of overprinting of small waterbodies and watercourses (area in ha: 0.46, 0.17 and 0.17; length in km: 0.2, 0.28 and 0.2) - Alternatives 4, 5, 6, 7, 8 and 9 (Con/Op/CI) have the greatest area and length of overprinting of small waterbodies and watercourses (area in ha: 1.73, 1.44, 1.44, 1.53, 1.25 and 1.24; length in km: 1.7, 1.79, 1.7, 1.37, 1.46 and 1.37)



Criteria	Indicators	Alternative 1 Slurry tailings at T1 / mine rock at R3	Alternative 2 Slurry tailings at T1 / mine rock at R4	Alternative 3 Slurry tailings at T1 / mine rock at R5	Alternative 4 Slurry tailings at T5 / mine rock at R3	Alternative 5 Slurry tailings at T5 / mine rock at R4	Alternative 6 Slurry tailings at T5 / mine rock at R5	Alternative 7 Filtered tailings at T7 / mine rock at R3	Alternative 8 Filtered tailings at T7 / mine rock at R4	Alternative 9 Co-disposal of mine rock and filtered tailings at T7	Advantages and Disadvantages ⁽¹⁾
Wildlife and habitat	• Area, type and functionality of habitat that would be displaced or altered	Moderately preferred	Moderately preferred	Moderately preferred	Least preferred	Least preferred	Least preferred	Moderately preferred	Moderately preferred	Most preferred	- Alternative 1 (Con/Op): will overprint approximately 60.1 ha of mature forest habitat and 66.8 ha of wetland habitat and have a corridor footprint of approximately 11.8 ha - Alternative 2 (Con/Op): will overprint approximately 84.5 ha of mature forest habitat and 51.1 ha of wetland habitat and have a corridor footprint of approximately 11.3 ha - Alternative 3 (Con/Op): will overprint approximately 76.6 ha of mature forest habitat and 46.1 ha of wetland habitat and have a corridor footprint of approximately 12.3 ha - Alternative 4 (Con/Op): will overprint approximately 84.4 ha of mature forest habitat and 116.1 ha of wetland habitat and have a corridor footprint of approximately 13.3 ha - Alternative 5 (Con/Op): will overprint approximately 108.8 ha of mature forest habitat and 100.3 ha of wetland habitat and have a corridor footprint of approximately 13.7 ha - Alternative 6 (Con/Op): will overprint approximately 100.9 ha of mature forest habitat and 95.4 ha of wetland habitat and have a corridor footprint of approximately 13.9 ha - Alternative 7 (Con/Op): will overprint approximately 97.8 ha of mature forest habitat and 37.5 ha of wetland habitat and have a corridor footprint of approximately 10.5 ha - Alternative 8 (Con/Op): will overprint approximately 122.1 ha of mature forest habitat and 21.7 ha of wetland habitat and have a corridor footprint of approximately 10.7 ha - Alternative 9 (Con/Op): will overprint approximately 96.9 ha of mature forest habitat and 16.8 ha of wetland habitat and have a corridor footprint of approximately 5.9 ha - All alternatives (CI) will displace local terrestrial habitat and associated plant species; the affected area will be actively or passively reclaimed at closure
	• Change in the level of sensory disturbance	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Most preferred	- All alternatives (Con/Op/CI): sensory disturbance (such as noise, vibration and light) would be generated during construction, transport, stockpiling and managing of the stockpiles, including from heavy equipment and backup beepers - Alternative 9, which has tailings and mine rock stored in only one facility that is located closest to the open pit / process plant will generate the least sensory disturbance and is proximal to other mine activities which may result in a smaller overall area of sensory disturbance to wildlife
	• Ability to maintain wetland connectivity	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Moderately preferred	Moderately preferred	Most preferred	- All alternatives (Con/Op/CI): will overprint wetlands and larger areas are more likely to result in changes to wetland connectivity - Alternative 1 (Con/Op): will overprint approximately 66.8 ha of wetland habitat - Alternative 2 (Con/Op): will overprint approximately 51.1 ha of wetland habitat - Alternative 3 (Con/Op): will overprint approximately 46.1 ha of wetland habitat - Alternative 4 (Con/Op): will overprint approximately 116.1 ha of wetland habitat - Alternative 5 (Con/Op): will overprint approximately 100.3 ha of wetland habitat - Alternative 6 (Con/Op): will overprint approximately 95.4 ha of wetland habitat - Alternative 7 (Con/Op): will overprint approximately 37.5 ha of wetland habitat - Alternative 8 (Con/Op): will overprint approximately 21.7 ha of wetland habitat - Alternative 9 (Con/Op): will overprint approximately 16.8 ha of wetland habitat



Criteria	Indicators	Alternative 1 Slurry tailings at T1 / mine rock at R3	Alternative 2 Slurry tailings at T1 / mine rock at R4	Alternative 3 Slurry tailings at T1 / mine rock at R5	Alternative 4 Slurry tailings at T5 / mine rock at R3	Alternative 5 Slurry tailings at T5 / mine rock at R4	Alternative 6 Slurry tailings at T5 / mine rock at R5	Alternative 7 Filtered tailings at T7 / mine rock at R3	Alternative 8 Filtered tailings at T7 / mine rock at R4	Alternative 9 Co-disposal of mine rock and filtered tailings at T7	Advantages and Disadvantages ⁽¹⁾
SAR	• Area, type and functionality of habitat that would be displaced or altered	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	• All alternatives (Con/Op/CI): will alter habitat which may be SAR habitat; there is no known differentiation of SAR presence or SAR habitat amongst the alternatives
	• Change in the level of sensory disturbance	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	• All alternatives (Con/Op/CI): sensory disturbance (such as noise, vibration and light) would be generated during construction, transport, stockpiling and managing of the stockpiles, including from heavy equipment and backup beepers • All alternatives (Con/Op/CI): there is no known differentiation of SAR presence amongst the alternatives
	Natural Environment Summary	Moderately preferred	Moderately preferred	Moderately preferred	Least preferred	Least preferred	Least preferred	Moderately preferred	Moderately preferred	Most preferred	• Alternative 1, 2 and 3 (Con/Op/CI): will overprint a moderate area of habitat and has a moderate travel corridor resulting in a moderate natural environment disturbance • Alternative 4, 5 and 6 (Con/Op/CI): will overprint the greatest area of habitat and has the longest travel corridor resulting in the greatest natural environment disturbance • Alternative 7 and 8 (Con/Op/CI): will overprint a moderate area of habitat and has a moderate travel corridor resulting in a moderate natural environment disturbance • Alternative 9 (Con/Op/CI): will overprint the lowest area of habitat and has the shortest travel corridor resulting in the least natural environment disturbance
Human Environment											
Land and resource use	• Change to local land and resource use opportunities	Moderately preferred	Moderately preferred	Moderately preferred	Least preferred	Least preferred	Least preferred	Moderately preferred	Moderately preferred	Most preferred	• Alternatives 1, 2 and 3 (Con/Op/CI): will overprint a moderate area of undisturbed mature forest, wetlands and waterbodies resulting in a moderate reduction in land and resource use opportunities • Alternatives 4, 5 and 6 (Con/Op/CI): will overprint the greatest area of undisturbed mature forest, wetlands and waterbodies resulting in the greatest reduction in land and resource use opportunities • Alternative 7 and 8 (Con/Op/CI): will overprint a moderate area of undisturbed mature forest, wetlands and waterbodies resulting in a moderate reduction in land and resource use opportunities • Alternative 9 (Con/Op/CI): will overprint the lowest area of undisturbed mature forest, wetlands and waterbodies resulting in the least reduction in land and resource use opportunities
Cultural heritage	• Causes damage or disturbance to known cultural heritage sites or landscapes	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	• All alternatives (Con/Op/CI): no damage or disturbance to known cultural heritage sites or landscapes
Archaeology	• Causes damage or disturbance to known archaeological sites	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	• All alternatives (Con/Op/CI): no damage or disturbance to known archaeological sites
Local and regional economy	• Change to local business and economic opportunities	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	• All alternatives (Con/Op/CI): development, operation and closure of the Project which requires establishment of mine waste management facilities, would generate considerable regional and local, employment and business opportunities. • There are no differentiating advantages or disadvantages for any location, although more distant locations will require greater equipment and labour.



Criteria	Indicators	Alternative 1 Slurry tailings at T1 / mine rock at R3	Alternative 2 Slurry tailings at T1 / mine rock at R4	Alternative 3 Slurry tailings at T1 / mine rock at R5	Alternative 4 Slurry tailings at T5 / mine rock at R3	Alternative 5 Slurry tailings at T5 / mine rock at R4	Alternative 6 Slurry tailings at T5 / mine rock at R5	Alternative 7 Filtered tailings at T7 / mine rock at R3	Alternative 8 Filtered tailings at T7 / mine rock at R4	Alternative 9 Co-disposal of mine rock and filtered tailings at T7	Advantages and Disadvantages ⁽¹⁾
Indigenous Peoples	• Maintains access to traditional lands for current traditional land uses except as otherwise agreed to with local Indigenous communities	Moderately preferred	Moderately preferred	Most preferred	Least preferred	Least preferred	Least preferred	Moderately preferred	Moderately preferred	Most preferred	- Alternative 1 (Con/Op): approximately 127.4 ha of previously undisturbed aquatic, wetland and mature forest habitat will be overprinted by the facilities (moderate area) - Alternative 2 (Con/Op): approximately 135.7 ha of previously undisturbed aquatic, wetland and mature forest habitat will be overprinted by the facilities (moderate area) - Alternative 3 (Con/Op): approximately 122.9 ha of previously undisturbed aquatic, wetland and mature forest habitat will be overprinted by the facilities (moderate area) - Alternative 4 (Con/Op): approximately 201.0 ha of previously undisturbed aquatic, wetland and mature forest habitat will be overprinted by the facilities (greatest area) - Alternative 5 (Con/Op): approximately 209.3 ha of previously undisturbed aquatic, wetland and mature forest habitat will be overprinted by the facilities (greatest area) - Alternative 6 (Con/Op): approximately 196.5 ha of previously undisturbed aquatic, wetland and mature forest habitat will be overprinted by the facilities (greatest area) - Alternative 7 (Con/Op): approximately 136.8 ha of previously undisturbed aquatic, wetland and mature forest habitat will be overprinted by the facilities (moderate area) - Alternative 8 (Con/Op): approximately 145.1 ha of previously undisturbed aquatic, wetland and mature forest habitat will be overprinted by the facilities (moderate area) - Alternative 9 (Con/Op): approximately 114.9 ha of previously undisturbed aquatic, wetland and mature forest habitat will be overprinted by the TSF (least area) - All alternatives (CI) will displace local terrestrial habitat and associated plant species; the affected area will be reclaimed at closure
	• Causes damage or disturbance to known spiritual and ceremonial sites, or implements preservation	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	All alternatives (Con/Op/CI): no known spiritual and ceremonial sites are present that would be damaged or disturbed
	• Change to Indigenous Peoples' social conditions (community services and infrastructure, and wellbeing) and health	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	All alternatives (Con/Op/CI): no known effect to Indigenous Peoples' social conditions
	Human Environment Summary	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Equally preferred	Alternatives 1, 2, 3, 4, 5, 6, 7, 8 and 9: establishment of mine waste management facilities is required for the development, operation and closure of the Project which will generate considerable regional and local, employment and business opportunities. There are no known differentiating advantages or disadvantages for any location. Alternative 9 may be preferred as a result of the smaller footprint and proximity to the main site which will also present a disruption to traditional land use.



Criteria	Indicators	Alternative 1 Slurry tailings at T1 / mine rock at R3	Alternative 2 Slurry tailings at T1 / mine rock at R4	Alternative 3 Slurry tailings at T1 / mine rock at R5	Alternative 4 Slurry tailings at T5 / mine rock at R3	Alternative 5 Slurry tailings at T5 / mine rock at R4	Alternative 6 Slurry tailings at T5 / mine rock at R5	Alternative 7 Filtered tailings at T7 / mine rock at R3	Alternative 8 Filtered tailings at T7 / mine rock at R4	Alternative 9 Co-disposal of mine rock and filtered tailings at T7	Advantages and Disadvantages ⁽¹⁾
Technical and Economic											
Ability to service the site effectively	• Proven effectiveness and ability to consistently meet Project needs	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Most preferred	• All alternatives (Con/Op/CI): utilize proven technology that will be designed to meet all regulatory requirements and will be monitored for ongoing stability • Alternatives 7, 8 and 9 (Con/Op): have the advantage of reduced water management requirements at the TSF • Alternative 9 (Con/Op/CI): is best situated in relation to site infrastructure and facilities, has the lowest distance for mine rock and tailings transport, and return travel time for hauling of rock offer the greatest operational efficiency
	• Potential for accidents or malfunctions that may have a material effect on the environment	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Most preferred	Most preferred	Most preferred	• All alternatives (Con/Op/CI): will be designed to meet industry and regulatory requirements for stability, and will be monitored for ongoing stability; all facilities will be closed out in accordance with regulatory requirements, including physical stability of slopes • Alternatives 1, 2, 3, 4, 5, and 6 (Con/Op): will store slurry tailings behind tailings dams which pose an inherently increased risk over filtered tailings facilities • Alternatives 7, 8 and 9 (Con/Op/CI): store filtered tailings, which pose a reduced stability risk
Supportive of net-zero GHG emissions by 2050	• Change to GHG emissions released to the environment	Most preferred	Most preferred	Most preferred	Most preferred	Most preferred	Most preferred	Least preferred	Least preferred	Least preferred	• All alternatives (Con/Op/CI): GHG emissions will be generated from heavy equipment use during dam / facility construction, ongoing maintenance and closure • Alternatives 7, 8 and 9 (Con/Op/CI): which produce filter tailings have higher energy requirements and overall greatest GHG emissions including because tailings are transported by truck rather than pipeline
Cost effectiveness	• Potential effect on Project financing resulting from investor attractiveness or risk	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Least preferred	Most preferred	Most preferred	Most preferred	• All alternatives (Con/Op/CI): utilize proven technology that are not expected to pose a technical or schedule risk for investors that could affect financing • Alternatives 7, 8 and 9 (Con/Op/CI): alternatives that utilize filtered tailings and co-disposal are anticipated to be preferred by investors over conventional tailings alternatives as they may be more attractive or perceived of lower technical risk
	• Degree to which alternative provides a competitive or acceptable return on investment	Most preferred	Most preferred	Most preferred	Most preferred	Moderately preferred	Most preferred	Least preferred	Least preferred	Moderately preferred	• Alternative 1 (Con/Op): will have capital (site preparation and initial construction costs, and tailings and water management infrastructure) costs and operating (tailings and mine rock deposition and annual water treatment) costs of approximately \$65.1 million (M), and \$11.48 M each year of operations • Alternative 2 (Con/Op): will have capital and operating cost of approximately \$63.9 M, and \$15.29 M each year of operations • Alternative 3 (Con/Op): will have capital and operating cost of approximately \$64.5 M, and \$15.29 M each year of operations • Alternative 4 (Con/Op): will have capital and operating cost of approximately \$48.8 M, and \$14.21 M each year of operations • Alternative 5 (Con/Op): will have capital and operating cost of approximately \$47.8 M, and \$18.92 M each year of operations • Alternative 6 (Con/Op): will have capital and operating cost of approximately \$44.3 M, and \$17.12 M each year of operations • Alternative 7 (Con/Op): will have capital and operating cost of approximately \$54.9 M, and \$27.14 M each year of operations • Alternative 8 (Con/Op): will have capital and operating cost of approximately \$54.0 M, and \$32.04 M each year of operations • Alternative 9 (Con/Op): will have capital and operating cost of approximately \$50.0 M, and \$24.55 M each year of operations • All alternatives (CI): cost for reclamation and closure is not limiting and are overall comparable across alternatives



Criteria	Indicators	Alternative 1 Slurry tailings at T1 / mine rock at R3	Alternative 2 Slurry tailings at T1 / mine rock at R4	Alternative 3 Slurry tailings at T1 / mine rock at R5	Alternative 4 Slurry tailings at T5 / mine rock at R3	Alternative 5 Slurry tailings at T5 / mine rock at R4	Alternative 6 Slurry tailings at T5 / mine rock at R5	Alternative 7 Filtered tailings at T7 / mine rock at R3	Alternative 8 Filtered tailings at T7 / mine rock at R4	Alternative 9 Co-disposal of mine rock and filtered tailings at T7	Advantages and Disadvantages ⁽¹⁾
	Technical and Economic Summary	Least preferred	Least preferred	Least preferred	Most preferred	Moderately preferred	Most preferred	Least preferred	Least preferred	Moderately preferred	All alternatives would be expected to be able to meet Project requirements. Alternatives 1, 2 and 3: are least preferred as a result of their highest capital costs (although lowest overall costs), lower operational efficiency from operating two locations, and could be less preferred by investors as a result of the tailings storage (slurry) method Alternatives 4 and 6: are most preferred as a result of their lowest capital costs (and lower overall costs), but could be less preferred by investors as a result of the tailings storage (slurry) method and offer lower operational efficiency from operating two locations Alternative 5: is moderately preferred as a result of their lowest capital costs (and moderate overall costs), but could be less preferred by investors as a result of the tailings storage (slurry) method and offer lower operational efficiency from operating two locations Alternatives 7 and 8: are least preferred based on the moderate capital costs and highest operating costs and offer lower operational efficiency from operating two locations, although the alternatives may be looked at favourably by investors as a result of the tailings storage (filtered) method Alternatives 9: is moderately preferred on balance of operational efficiency, moderate capital, higher operating costs, and that it is expected to be considered favourably by investors as a result of the mine rock tailings storage (co-disposal) method
	OVERALL ASSESSMENT	LEAST PREFERRED	LEAST PREFERRED	LEAST PREFERRED	MODERATELY PREFERRED	MODERATELY PREFERRED	MODERATELY PREFERRED	LEAST PREFERRED	LEAST PREFERRED	MOST PREFERRED (SELECTED)	Alternatives 1, 2 and 3: are least preferred as a result of their moderate effect to the natural environment, highest capital costs (although lowest operating costs), lower operational efficiency from operating two locations, and could be less preferred by investors as a result of the tailings storage (slurry) method Alternatives 4, 5 and 6: are moderately preferred on balance of the greatest surface area but lowest capital costs (and moderate operating costs), lower operational efficiency from operating two locations, and could be less preferred by investors as a result of the tailings storage (slurry) method Alternatives 7 and 8: are least preferred as a result of their moderate effect to the natural environment, moderate capital but highest operating costs and lower operational efficiency from operating two locations, although the alternatives may be looked at favourably by investors as a result of the tailings storage (filtered) method Alternatives 9: is most preferred on balance of moderate effect to the natural environment, best operational efficiency, moderate capital, high operating costs, and is expected to be considered favourably by investors as a result of the mine rock and tailings storage (co-disposal) method

Notes:
Con: construction phase; Op: operations phase; Cl: closure phase.
1. Detailed descriptions and assessments of each alternative are provided in the Mine Waste Alternative Assessment provided in Appendix C.



LEGEND

- ★ OPEN PIT CENTROID
- KEY MINE FEATURE (AEX, PROCESSING PLANT, OPEN PIT, OPEN PIT DYKE, OVERBURDEN STOCKPILE AND ORE STOCKPILE)
- ⬢ OPEN PIT CENTROID BUFFER (LABELLED ON MAP)
- ▭ PROPERTY BOUNDARY
- ⊙ TOWN / COMMUNITY
- ⦿ FIRST NATION COMMUNITY
- MINE ROCK STORAGE FACILITY CANDIDATE LOCATIONS
- TAILINGS STORAGE FACILITY CANDIDATE LOCATIONS
- ▨ CONSERVATION RESERVE
- PROVINCIAL PARK
- HIGHWAY
- LOCAL ROAD
- RAILWAY
- CONTOURS (10 M INTERVAL)
- WATERCOURSE
- WATERBODY

0 0.5 1 2 3 4
1:85,000 KILOMETRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. WATERBODIES AND WATERCOURSE EXTRACTED FROM LIO, MNRF AND MODIFIED TO MATCH SITE PLAN LAYOUT PROVIDED BY AGNICO EAGLE MINES; TO BE FIELD CONFIRMED.
3. SITE PLAN PROVIDED BY AGNICO EAGLE, FEBRUARY / DECEMBER 2025.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
AGNICO EAGLE MINES

PROJECT
UPPER BEAVER GOLD PROJECT

TITLE
PRELIMINARY MINE WASTE STORAGE SITING RESULTS

CONSULTANT	YYYY-MM-DD	2026-06-08
DESIGNED	---	
PREPARED	MD	
REVIEWED	---	
APPROVED	---	



PROJECT NO.
CA0042150.6518

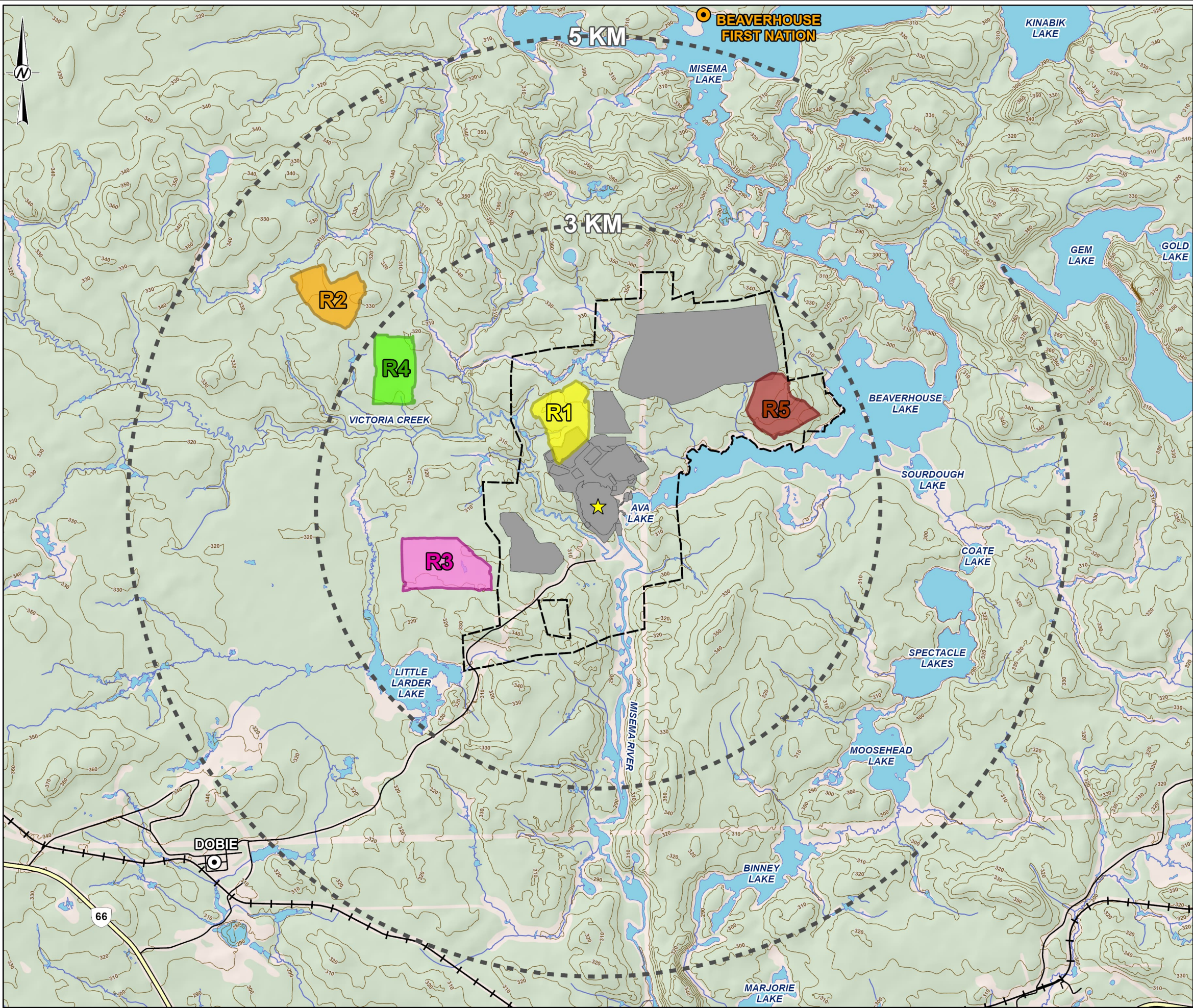
CONTROL
0028

REV.
A

FIGURE
3.7-1

PATH: S:\Client\Agnico_Eagle\Upper_Beaver\99_PROJ\CA0042150_6518\99_PROJ\CA0042150_6518_0026_0000\CA0042150_6518_0026_0000.apr PRINTED ON: AT 12:55:28 PM

25mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



LEGEND

- ★ OPEN PIT CENTROID
- KEY MINE FEATURE (AEX, PROCESSING PLANT, OPEN PIT, OPEN PIT DYKE, OVERBURDEN STOCKPILE, ORE STOCKPILE AND TAILINGS STORAGE FACILITY)
- ⊞ OPEN PIT CENTROID BUFFER (LABELLED ON MAP)
- ▭ PROPERTY BOUNDARY
- TOWN / COMMUNITY
- FIRST NATION COMMUNITY
- ▬ HIGHWAY
- ▬ LOCAL ROAD
- ✚ RAILWAY
- CONTOURS (10 M INTERVAL)
- WATERCOURSE
- WATERBODY

MINE ROCK STORAGE LOCATION ALTERNATIVES

- CANDIDATE ALTERNATIVE LOCATION R1
- CANDIDATE ALTERNATIVE LOCATION R2
- CANDIDATE ALTERNATIVE LOCATION R3
- CANDIDATE ALTERNATIVE LOCATION R4
- CANDIDATE ALTERNATIVE LOCATION R5

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. WATERBODIES AND WATERCOURSE EXTRACTED FROM LIO, MNRF AND MODIFIED TO MATCH SITE PLAN LAYOUT PROVIDED BY AGNICO EAGLE MINES; TO BE FIELD CONFIRMED.
3. SITE PLAN PROVIDED BY AGNICO EAGLE, FEBRUARY / DECEMBER 2025.
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT

AGNICO EAGLE MINES

PROJECT

UPPER BEAVER GOLD PROJECT

TITLE

MINE ROCK STORAGE LOCATION ALTERNATIVES

CONSULTANT	YYYY-MM-DD	2026-07-06
DESIGNED	----	
PREPARED	KB	
REVIEWED	----	
APPROVED	----	

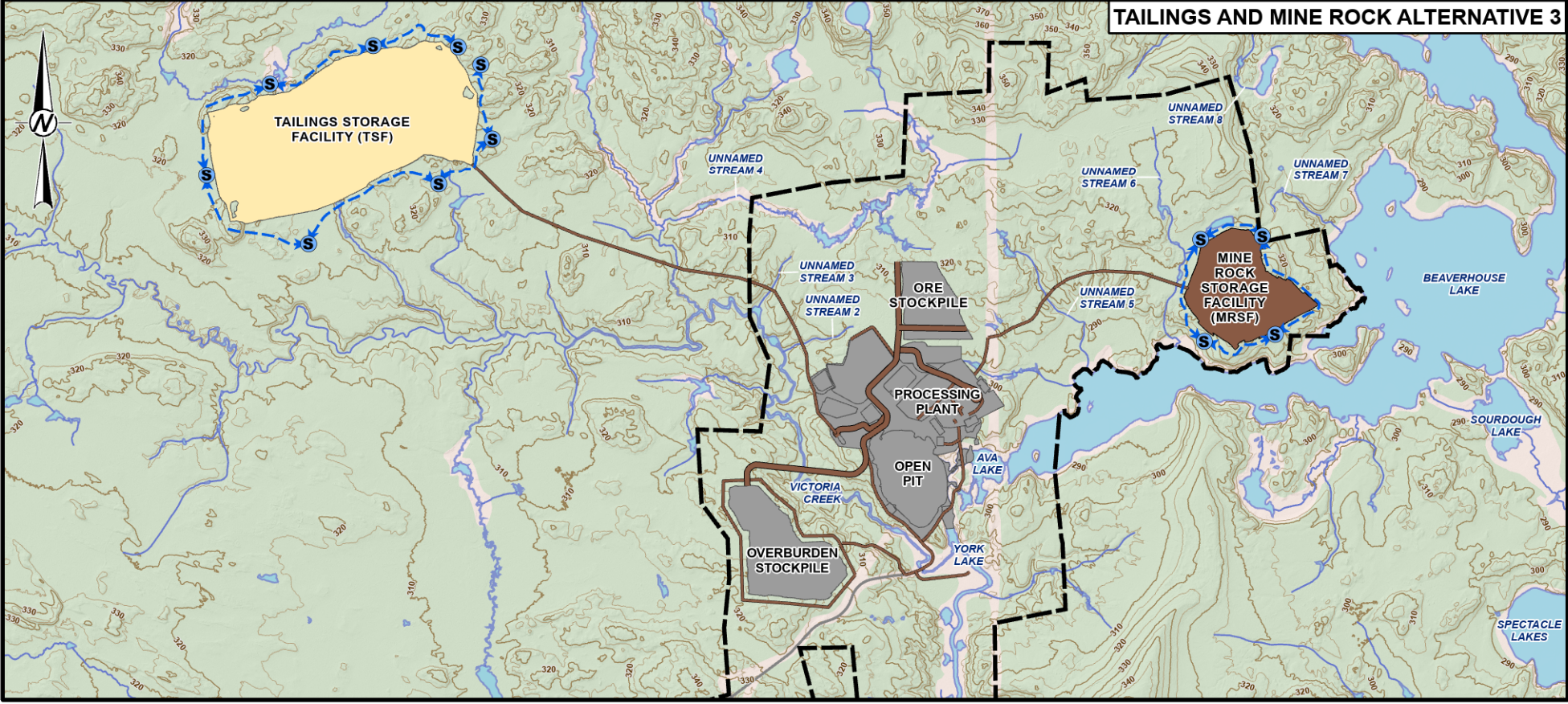
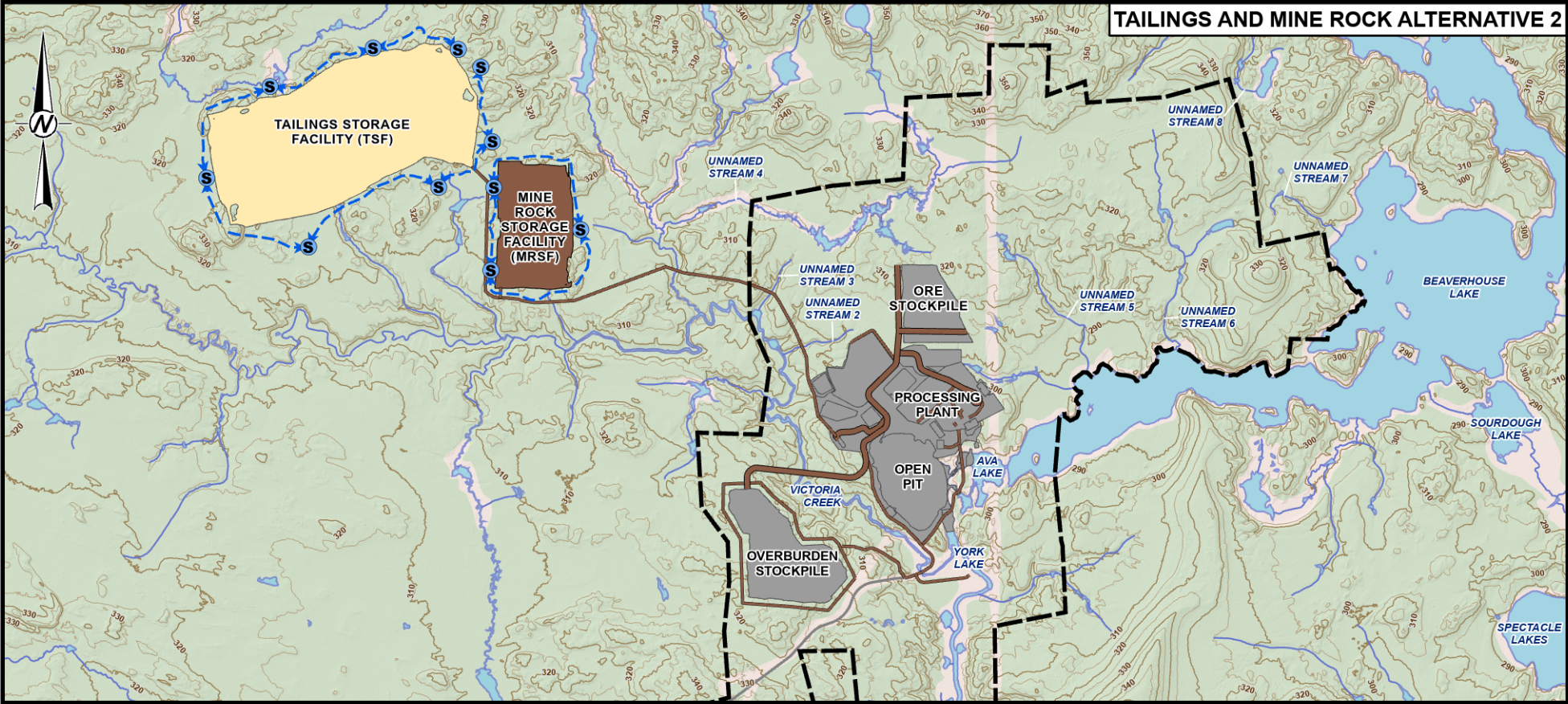
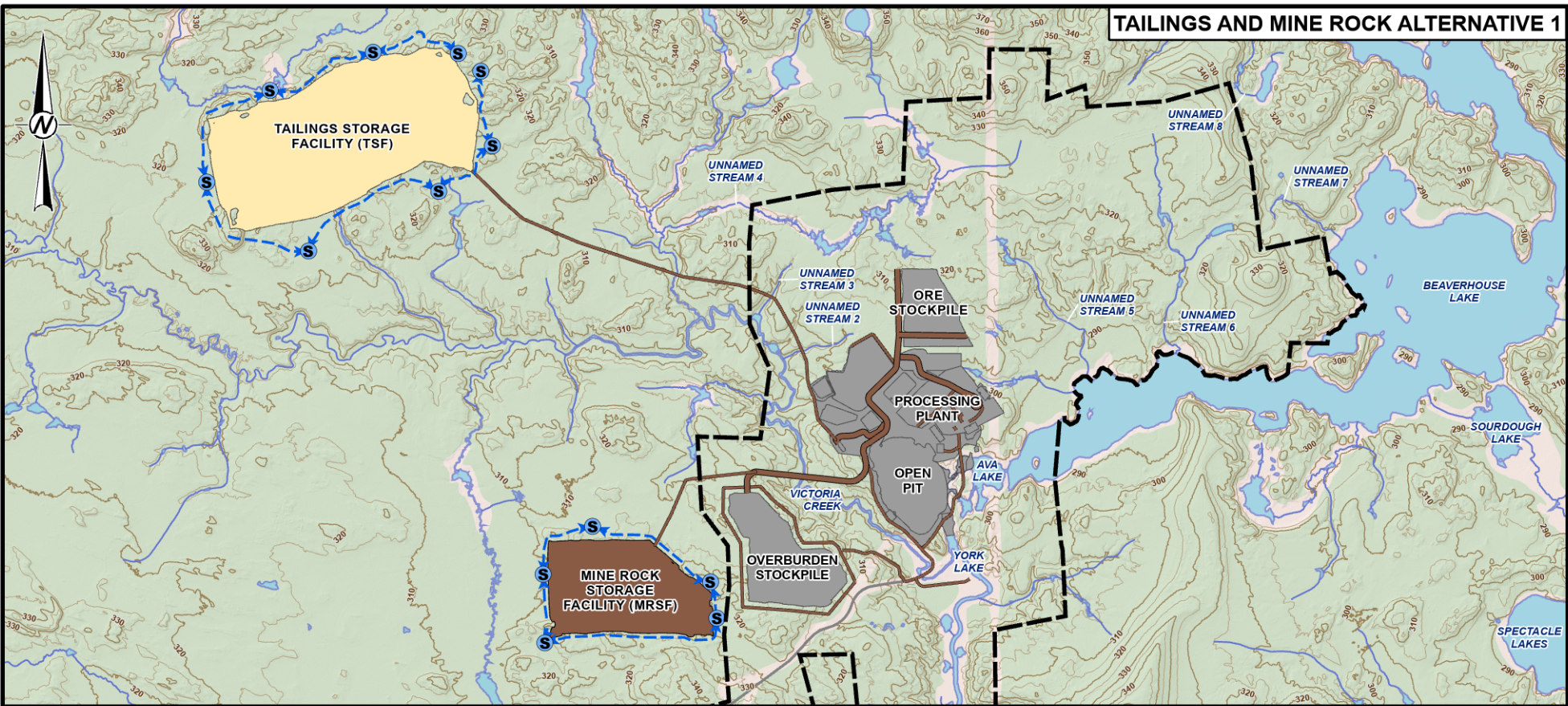


PROJECT NO.
CA0042150.6518

CONTROL
0028

REV.
A

FIGURE
3.7-3



- LEGEND**
- KEY MINE FEATURE**
(AEX, PROCESSING PLANT, OPEN PIT, OPEN PIT DYKE, OVERBURDEN STOCKPILE AND ORE STOCKPILE)
- PROPERTY BOUNDARY**
- LOCAL ROAD**
- MAJOR CONTOURS**
(10 M INTERVAL)
- MAJOR CONTOURS**
(5 M INTERVAL)
- WATERCOURSE**
- WATERBODY**
- TAILINGS AND MINE ROCK ALTERNATIVE**
- TAILINGS STORAGE FACILITY (TSF)**
- MINE ROCK STORAGE FACILITY (MRSF)**
- SUMP**
- COLLECTION DITCH**
- ACCESS ROAD**
- HAUL ROAD**



NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. CONTOURS EXTRACTED FROM LIDAR, PROVIDED BY AGNICO EAGLE MINES, 2021
3. SITE PLAN, PROPERTY BOUNDARY AND 115 KV TRANSMISSION LINE PROVIDED BY AGNICO EAGLE, FEBRUARY / DECEMBER 2025
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
AGNICO EAGLE MINES

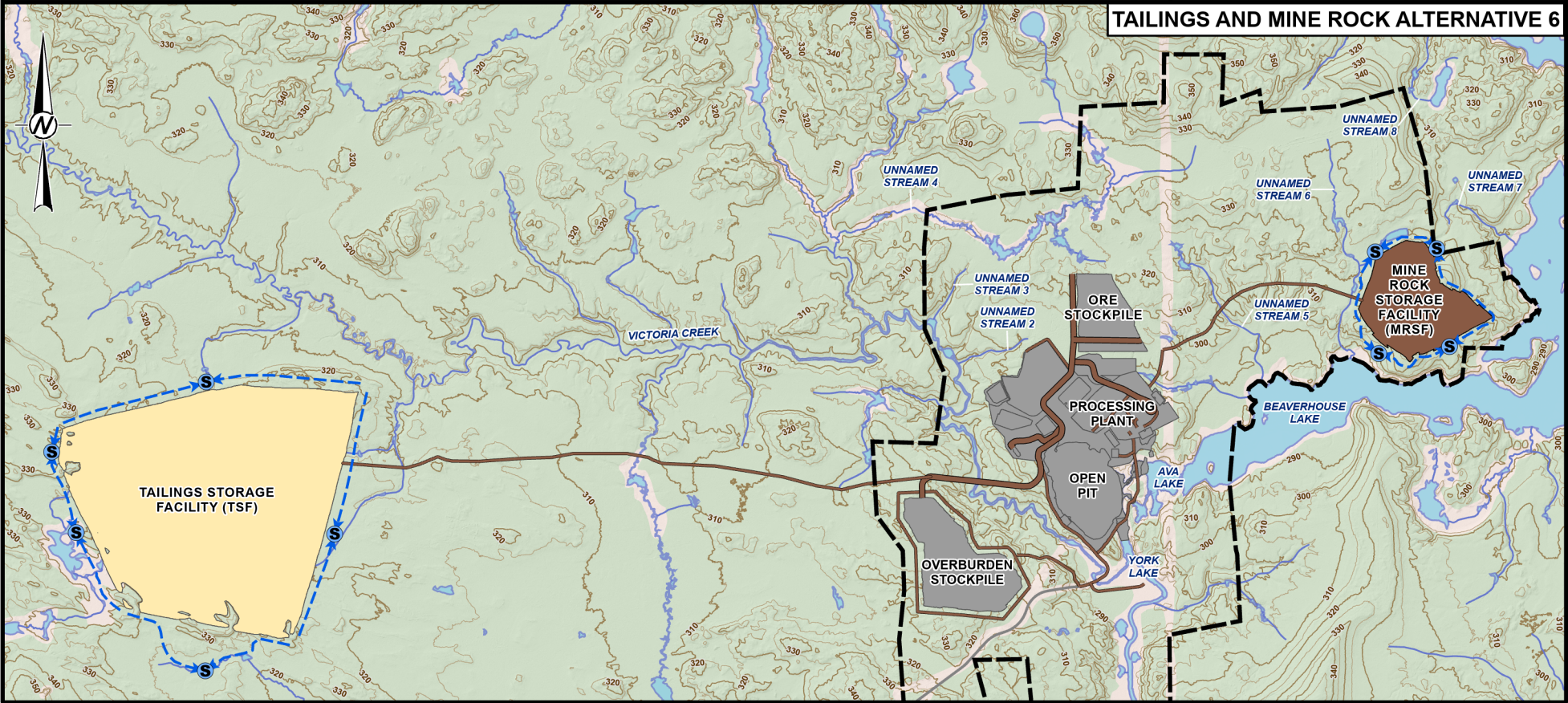
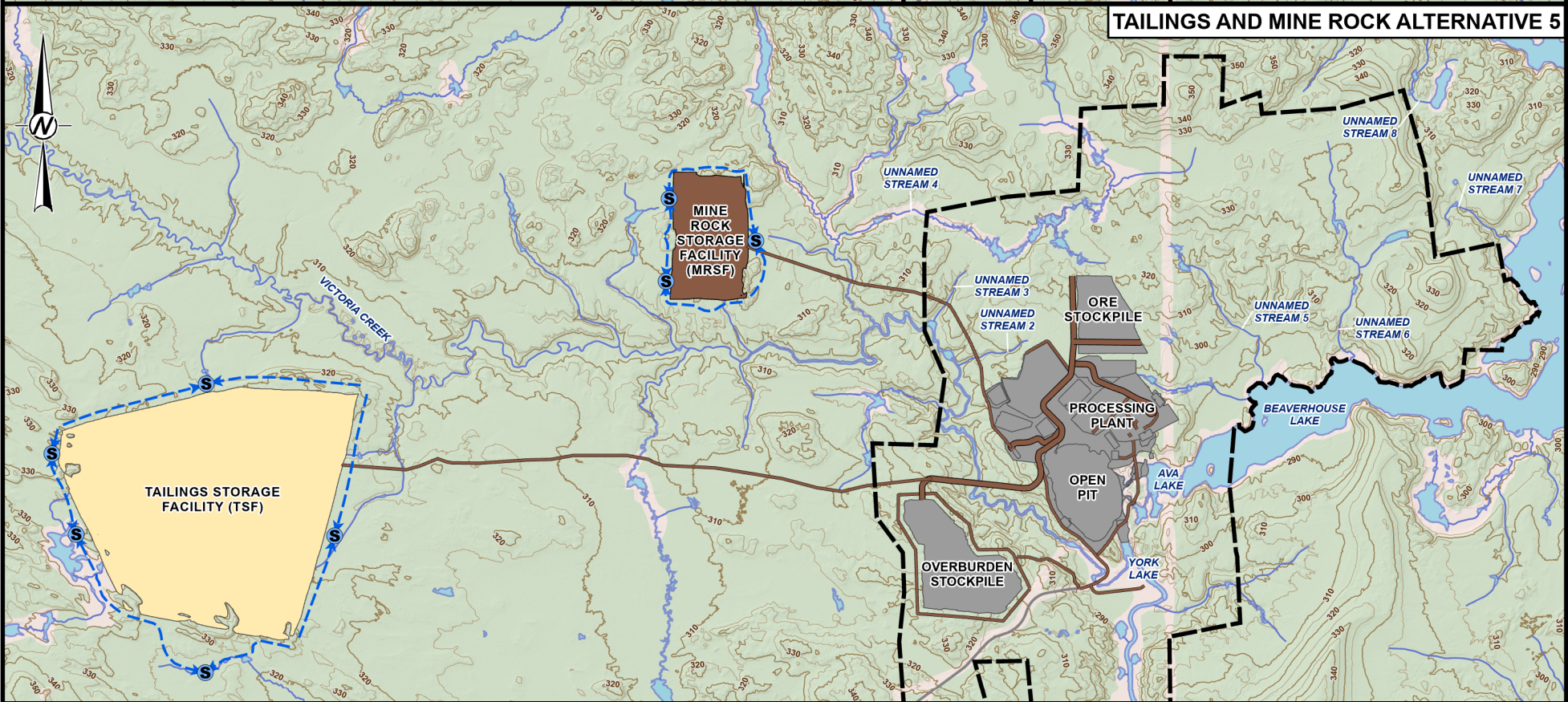
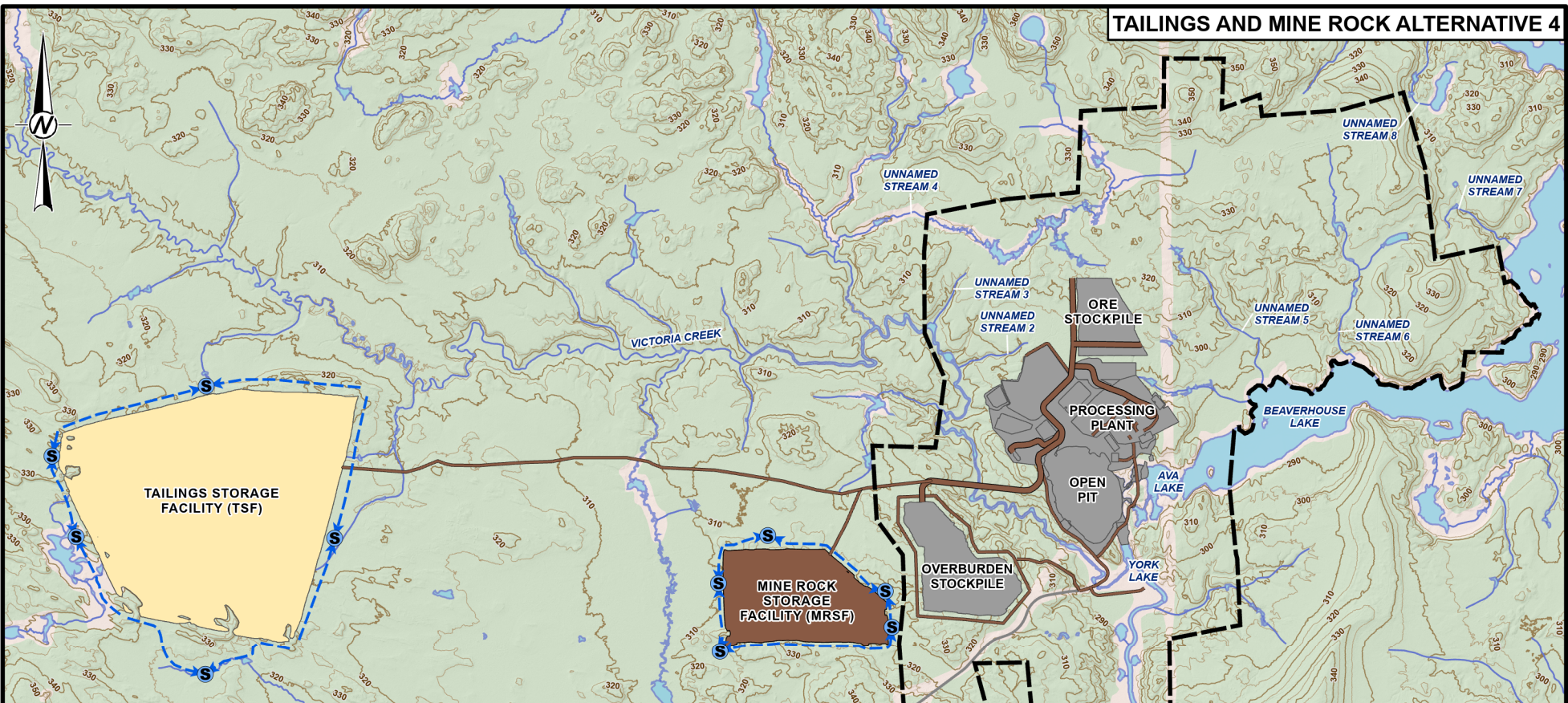
PROJECT
UPPER BEAVER GOLD PROJECT

TITLE
TAILINGS AND MINE ROCK ALTERNATIVES (1, 2 AND 3)

CONSULTANT	YYYY-MM-DD	2026-06-08
DESIGNED	----	
PREPARED	MD	
REVIEWED	----	
APPROVED	----	

PROJECT NO. CA0042510.6518 CONTROL 0028 REV. A

FIGURE
3.7-4



LEGEND	
	KEY MINE FEATURE (AEX, PROCESSING PLANT, OPEN PIT, OPEN PIT DYKE, OVERBURDEN STOCKPILE, AND ORE STOCKPILE)
	PROPERTY BOUNDARY
	LOCAL ROAD
	MAJOR CONTOURS (10 M INTERVAL)
	MAJOR CONTOURS (5 M INTERVAL)
	WATERCOURSE
	WATERBODY
	TAILINGS STORAGE FACILITY (TSF)
	MINE ROCK STORAGE FACILITY (MRSF)
	SUMP
	COLLECTION DITCH
	ACCESS ROAD
	HAUL ROAD



NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. CONTOURS EXTRACTED FROM LIDAR, PROVIDED BY AGNICO EAGLE MINES, 2021.
3. SITE PLAN, PROPERTY BOUNDARY AND 115 KV TRANSMISSION LINE PROVIDED BY AGNICO EAGLE, FEBRUARY / DECEMBER 2025
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

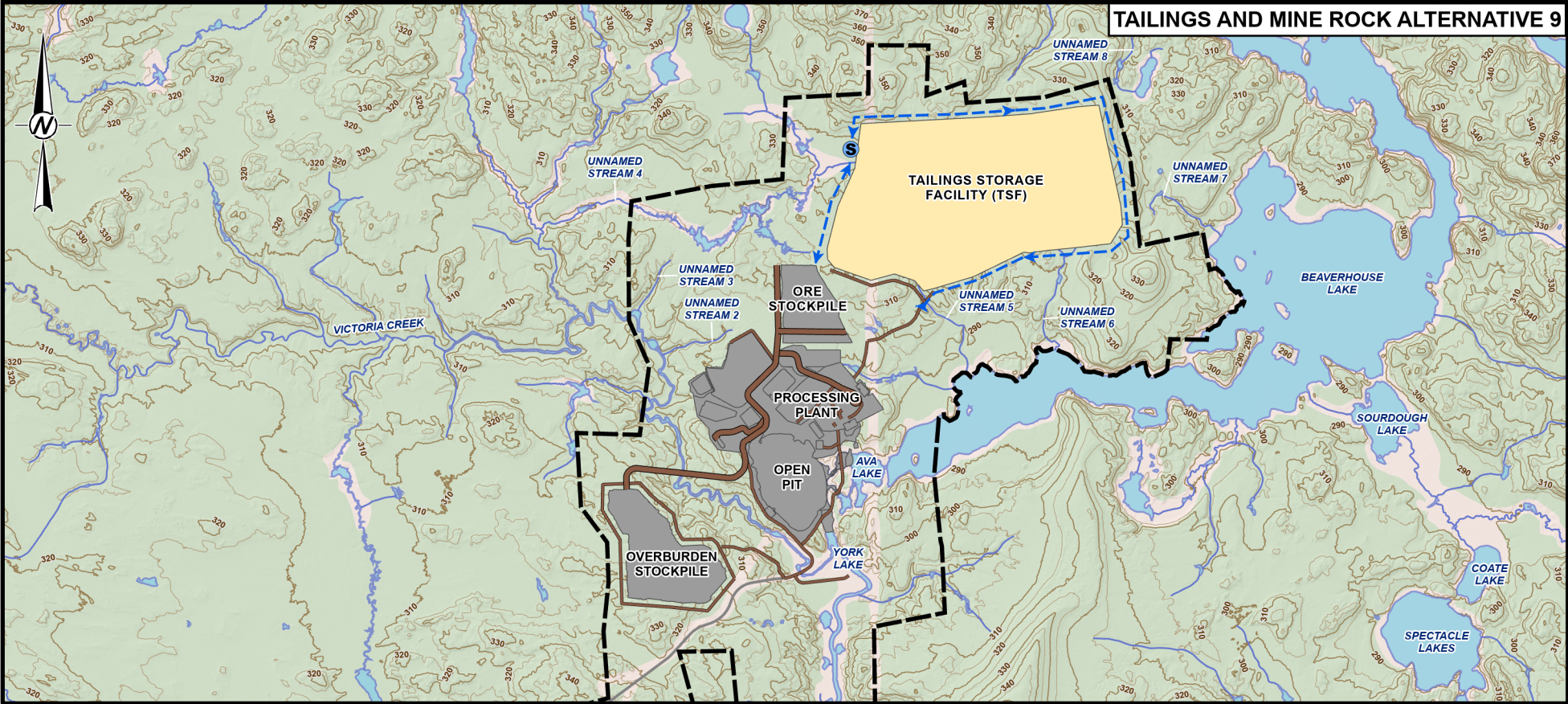
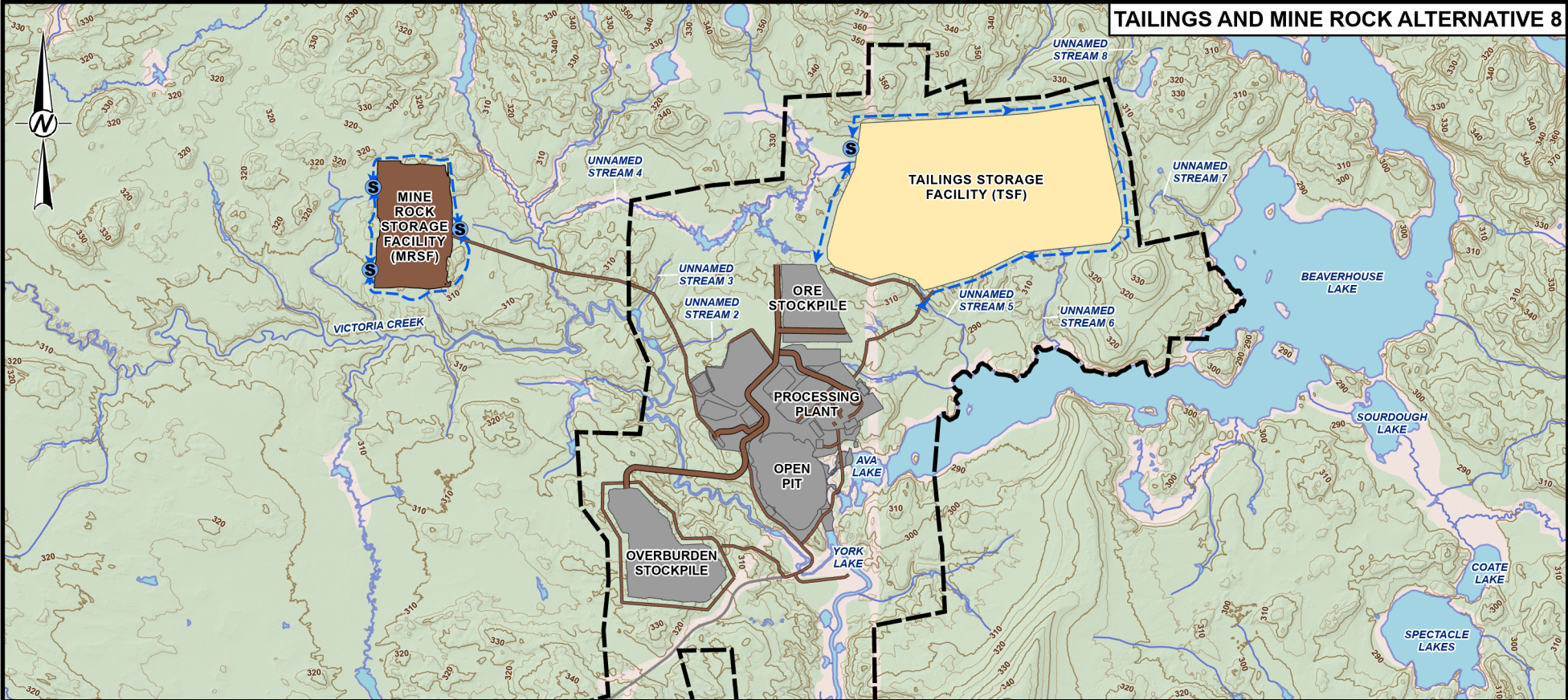
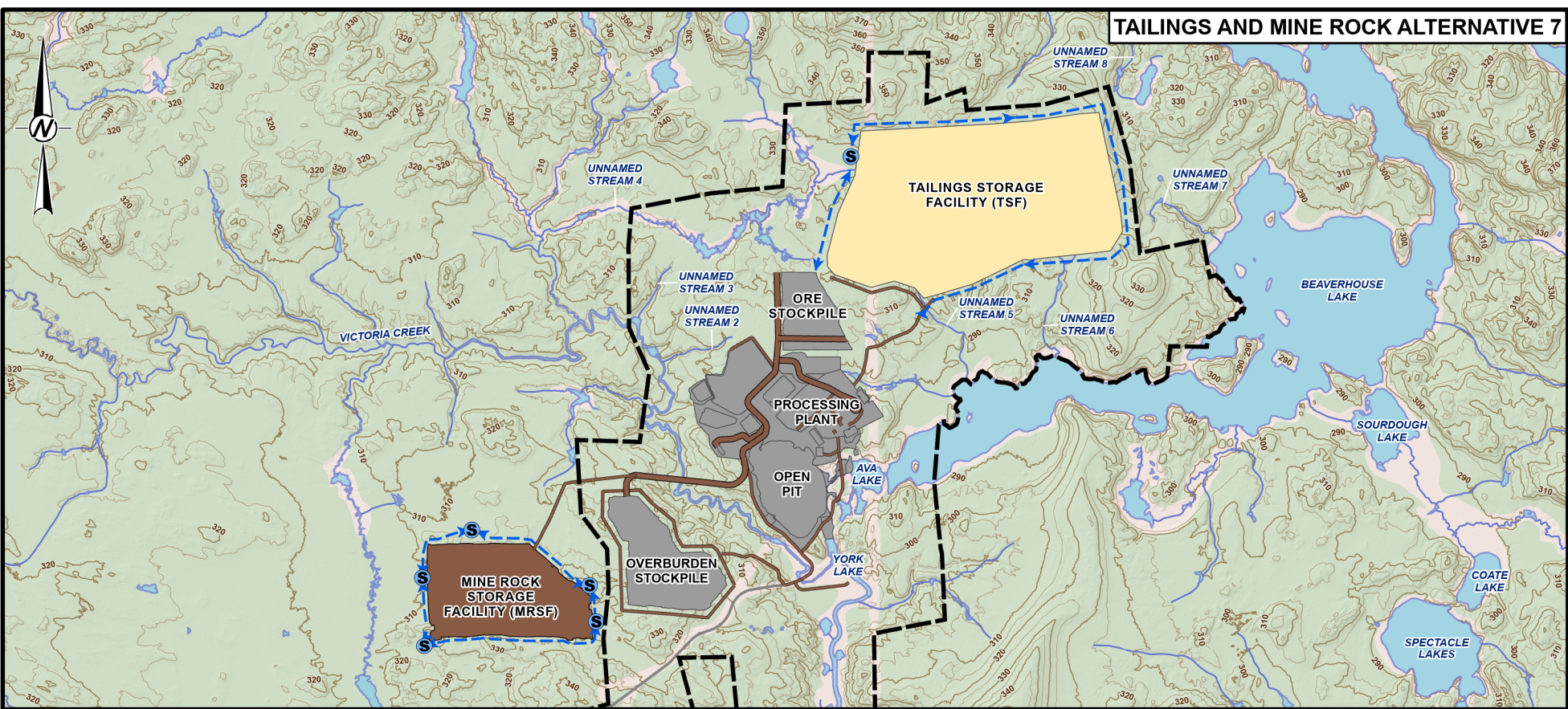
CLIENT
AGNICO EAGLE MINES

PROJECT
UPPER BEAVER GOLD PROJECT

TITLE
TAILINGS AND MINE ROCK ALTERNATIVES (4, 5 AND 6)

CONSULTANT	YYYY-MM-DD	2026-06-08
DESIGNED	----	
PREPARED	MD	
REVIEWED	----	
APPROVED	----	

PROJECT NO. CA0042510.6518	CONTROL 0028	REV. A	FIGURE 3.7-5
-------------------------------	-----------------	-----------	-----------------



LEGEND	
	KEY MINE FEATURE (AEX, PROCESSING PLANT, OPEN PIT, OPEN PIT DYKE, OVERBURDEN STOCKPILE AND ORE STOCKPILE)
	PROPERTY BOUNDARY
	LOCAL ROAD
	MAJOR CONTOURS (10 M INTERVAL)
	MAJOR CONTOURS (5 M INTERVAL)
	WATERCOURSE
	WATERBODY
TAILINGS AND MINE ROCK ALTERNATIVE	
	TAILINGS STORAGE FACILITY (TSF)
	MINE ROCK STORAGE FACILITY (MRSF)
	SUMP
	COLLECTION DITCH
	ACCESS ROAD
	HAUL ROAD



NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. CONTOURS EXTRACTED FROM LIDAR, PROVIDED BY AGNICO EAGLE MINES, 2021.
3. SITE PLAN, PROPERTY BOUNDARY AND 115 KV TRANSMISSION LINE PROVIDED BY AGNICO EAGLE, FEBRUARY / DECEMBER 2025
4. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
AGNICO EAGLE MINES

PROJECT
UPPER BEAVER GOLD PROJECT

TITLE
TAILINGS AND MINE ROCK ALTERNATIVES (7, 8 AND 9)

CONSULTANT	YYYY-MM-DD	2026-06-08
DESIGNED	----	
PREPARED	MD	
REVIEWED	----	
APPROVED	----	

PROJECT NO. CA0042510.6518	CONTROL 0028	REV. A	FIGURE 3.7-6
-------------------------------	-----------------	-----------	-----------------

3.8 Mine Closure - Open Pit

3.8.1 Background

The primary intent of closing open pits in Ontario is to achieve a physically safe and chemically stable environment. The open pit must be closed out in accordance with the Mine Rehabilitation Code under Ontario Regulation 35/24, Rehabilitation of Lands of the *Mining Act* (or future equivalent). Section 21 of the Code provides for the following potential strategies for reclamation and closure of open pits in order of the Ministry preference:

- Fully backfilling with mineral waste
- Filling with water
- Sloping if backfilling with mineral waste or filling with water are not appropriate
- Boulder fencing or berms if all of the above are impractical, retained as an open excavation
- Chain link fencing if none of the above is practical, retained as an open excavation.

As the open pit is situated at York Lake, closure of the open pit should also consider the local hydrology, and potential ability to return the Misema River system to its current natural flow path, assuming water quality and other requirements are met. The selected alternative will be detailed further in the certified Closure Plan required under the *Mining Act*.

3.8.2 Identification of Alternatives for Assessment

The following candidate alternatives were identified for reclamation and closure of the open pit that are consistent with Section 21 of the Mine Rehabilitation Code:

- Candidate Alternative A: completely fill with a mineral waste to create a terrestrial landform, with Ava Lake continuing to flow through the constructed channels to Misema River downstream.
- Candidate Alternative B: passively fill with water with or without partial filling with mineral waste, followed by partial or complete removal of dykes and blockage of diversion channels, to establish surface water flow from Ava Lake through the pit lake to the Misema River.
 - After general reclamation activities, the pit would be allowed to fill through a combination of direct precipitation, surface runoff and groundwater inflows; water quality would be monitored during the filling and reconnection of the filled pit lake to the Misema River system would only occur after all regulatory requirements are met.
- Candidate Alternative C: active filling with water with or without partial filling with mineral waste, followed by partial or complete removal of dykes and blockage of diversion channels, to establish surface water flow from Ava Lake through the pit lake to the Misema River.
 - After general reclamation activities, the pit would be actively filled with water pumped or diverted from a local water source, in addition to direct precipitation, surface runoff and groundwater inflows; water quality would be monitored during the filling and reconnection of the filled pit lake to the Misema River system would only occur after all regulatory requirements are met.

- Candidate Alternative D: Sloping of pit walls if backfilling with mineral waste or filling with water are not appropriate.
- Candidate Alternative E: Boulder fencing or berms around the pit perimeter if all of the above are impractical, retained as an open excavation.
- Candidate Alternative F: Chain link fencing around the pit perimeter if none of the above is practical, retained as an open excavation.

The open pit will naturally fill with water once dewatering ceases, through a combination of groundwater inflow, direct precipitation and runoff without action by Agnico Eagle. It can only be maintained in a dry condition through active pumping of water out of the excavation. Retaining a dewatered open pit after mining ceases in the long term, would not provide an environmental benefit and would not be economically viable. It is also not considered acceptable as it would pose an ongoing public safety hazard. Accordingly, Candidate Alternative D, Candidate Alternative E and Candidate Alternative F are not viable alternatives.

Pit backfilling (Candidate Alternative A) is the process of refilling an excavated pit with mining waste materials, such as tailings, mine rock or overburden, either progressively during operations or with double-handling after closure. Approximately 2.6 Mm³ of mineral materials (tailings, mine rock or overburden) would be required to fill the open pit to surface.

Mining of the open pit will operate for approximately four years, followed by an additional approximately ten or more years of underground mining (Section 4.3). After open pit mining ceases, the tailings could be stored in the open pit rather than in the TSF, provided that there were no connections to the underground workings or they could be effectively sealed. There are potential safety concerns and worker perceptions of safety with this approach, as the underground mine will continue to operate beneath the open pit after open pit mining ceases. As there would be insufficient tailings to fill the open pit fully, and the open pit is naturally part of a hydrologic system, this approach is not preferred by Agnico Eagle, including given the history of uncontained tailings deposition in the historic York Lake.

As the Project only includes one open pit, concurrent filling of the open pit with mine rock or overburden during open pit operations is not possible. There is insufficient mine rock (and no overburden) produced from the underground mining only phase of production to fill the open pit. Excavating, transporting and backfilling of the material in the open pit after it is already stored in the TSF (tailings and mine rock) or overburden stockpile after open pit mining ceases would cost in excess of \$100 million based only on bulk movement costs for about 43 Mt of material. This cost cannot be supported by the Project, and the Candidate Alternative of backfilling the open pit with mineral waste at closure is not an economically viable alternative. The Project may look at opportunities to retain or directly place mine rock in the open pit during operations to minimize on-surface storage requirements.

Passive filling with water (Candidate Alternative B) is defined as filling of the open pit with water that will naturally enter the open pit through direct precipitation, groundwater inflow and surface runoff. It does not include pumping from external watercourses or waterbodies, or adjustment of the operational water management practices (such as pumping of runoff from other site areas). It will take approximately 12 to 14 years (average to dry conditions) for the open pit to fill with water passively, and stabilize at the natural water table level elevation with only these water inputs (assuming that the underground mine is also filled). Passive filling of the open pit with water is an economically and technically viable Candidate Alternative that satisfies the requirements of the Mine Rehabilitation Code.

The length of time until the open pit is filled with water could be reduced through active water filling (Candidate Alternative C) by pumping water from a local water source, in addition to the natural filling processes. The only watercourses or waterbodies nearby that could supply the volume of water required to make a material difference to the filling time is the Misema River system upstream of the open pit (Ava Lake or Beaverhouse Lake). It is assumed that water will be transferred from Ava Lake to fill the open pit, and that up to 10% of the outflow from Ava Lake can be used for this purpose (and potentially a higher amount during high flow periods subject to regulatory approval), which is expected to have a low probability of detectable negative effects (DFO 2013). It would take about six months to fill the open pit actively. Active filling of the open pit with water from the Misema River system is economically and technically viable.

Two alternatives were identified for closure of the open pit that are expected to satisfy the provincial requirements as described in the Mine Rehabilitation Code, and are technically and economically viable:

- Alternative 1 (Candidate Alternative B): passive filling of the pit with natural runoff, groundwater inflow and direct precipitation
- Alternative 2 (Candidate Alternative C): supplementation of passive filling with active pumping of water from the Misema River system.

3.8.3 Assessment of Alternatives

All alternative assessment performance objectives and criteria were considered in the comparative analysis as summarized in Table 3.8-1. The alternatives are approximately equivalent, with limited differentiators. The following key differentiators were identified:

- Natural environment performance:
 - Water
 - Change to groundwater flow direction and level
- Technical and economic performance:
 - Ability to service the site effectively
 - Proven effectiveness and ability to consistently meet Project needs
 - Cost effectiveness
 - Potential effect on Project financing resulting from investor attractiveness or risk
 - Degree to which alternative provides a competitive or acceptable return on investment.

Based on the detailed evaluation, the following summary of advantages and disadvantages is provided for each alternative:

Alternative 1 (passive water filling)

- Advantages: this alternative meets the requirements of the *Mining Act* for closure and has a lower overall cost as there would be no additional pumping or revision to existing site infrastructure to support pumping of water from the Misema River to fill the pit although there could be a longer period of site maintenance.

- Disadvantages: it will take longer to fill the open pit passively with water, which would delay recovery of the local groundwater and surface water levels, may result in poorer pit lake quality at least in the near term which could limit the potential for fish habitat creation at closure, would delay site reclamation and result in an increased closure liability for ongoing maintenance.

Alternative 2 (passive and active water filling)

- Advantages: this presents the best technical solution as it will meet the requirements of the *Mining Act* for closure sooner. It will also expedite potential establishment of fish habitat within the pit lake / reconnection to the Misema River system, and a reduction in Project closure liability sooner.
- Disadvantages: there will be additional power consumption and other costs associated with pumping freshwater from the Misema River to fill the open pit. The costs are not limiting to the Project.

3.8.4 Summary of Results and Selected Alternative

Alternative 2 (passive and active water filling) is the selected alternative for closure of the open pit that is carried forward in the Project design described in Section 4 (Project Description).

Table 3.8-1: Alternatives Assessment – Pit Closure Methods

Criteria	Indicators	Alternative 1 Passive Filling	Alternative 2 Active (and Passive) Filling	Advantages and Disadvantages
Natural Environment				
Air quality	Change in air quality	Equally preferred	Equally preferred	No material air emissions would result from either alternative. There are no differentiating advantages or disadvantages for either approach.
Sound	Change in sound level	Equally preferred	Equally preferred	No material noise generation would result from either alternative. There are no differentiating advantages or disadvantages for either approach.
Water	Change to groundwater flow direction and level	Least preferred	Most preferred	- Alternative 1 (CI): passive filling with water will take longer for the groundwater level to return to a steady state. - Alternative 2 (CI): active filling with water will take less time for the groundwater level to return to a steady state.
	Change in flows (watercourses), and areas and levels (waterbodies)	Equally preferred	Equally preferred	- Alternative 1 (CI): would not affect surface water levels or flows, but would take longer from groundwater levels and groundwater baseflow for local watercourses to return to a steady state. - Alternative 2 (CI): would require pumping of water from the Misema River to expedite filling of the open pit; the rate of pumping would be regulated (anticipated to be less than 10% of flow) and would be sufficiently low to remain within natural flow variations; would reduce time until baseflow returns to steady state conditions.
	Change in quality of groundwater and surface water	Equally preferred	Equally preferred	There is no differentiating advantage or disadvantage for either approach. The filled pit lake will be required to meet regulatory requirements prior to reconnection to the Misema River system.
Fish and fish habitat	Area and functionality of fish habitat that would be displaced or altered	Least preferred	Most preferred	There are no differentiating advantages or disadvantages for either approach in terms of area; however, Alternative 2 provides the ability to restore fish habitat years earlier, and re-connect to the Misema River system. The rate of water withdrawal for Alternative 2 would be established at a rate that would avoid effects to fish habitat.
Wildlife and habitat	Area, type and functionality of habitat that would be displaced or altered	Neutral	Neutral	This indicator does not apply to this alternative closure method.
	Change in the level of sensory disturbance	Equally preferred	Equally preferred	No material changes to sensory disturbance would result from either alternative. There are no differentiating advantages or disadvantages for either approach.
	Ability to maintain wetland connectivity	Least preferred	Most preferred	Alternative 2 provides the ability to restore groundwater and surface water levels years earlier, supporting wetland re-development.
SAR	Area, type and functionality of habitat that would be displaced or altered	Neutral	Neutral	This indicator does not apply to this alternative closure method.
	Change in the level of sensory disturbance	Equally preferred	Equally preferred	No material changes to sensory disturbance would result from either alternative. There are no differentiating advantages or disadvantages for either approach.
	Natural Environment Summary	Least preferred	Most preferred	Alternative 1: filling the open pit with water at closure would meet the requirements of the <i>Mining Act</i> for closure. Alternative 2: filling the open pit with water at closure would meet the requirements of the <i>Mining Act</i> for closure; however, faster refilling with water provides the opportunity for recreation of naturalized habitat sooner.
Human Environment				
Land and resource use	Change to local land and resource use opportunities	Least preferred	Most preferred	Alternative 2 provides the ability to use the re-connected pit lake levels years earlier.
Cultural heritage	Causes damage or disturbance to known cultural heritage sites or landscapes	Neutral	Neutral	This indicator does not apply to this alternative closure method.
Archaeology	Causes damage or disturbance to known archaeological sites	Neutral	Neutral	This indicator does not apply to this alternative closure method.
Local and regional economy	Change to local business and economic opportunities	Neutral	Neutral	This indicator does not apply to this alternative closure method.



Criteria	Indicators	Alternative 1 Passive Filling	Alternative 2 Active (and Passive) Filling	Advantages and Disadvantages
Indigenous Peoples	• Maintains access to traditional lands for current traditional land uses except as otherwise agreed to with local Indigenous communities	Neutral	Neutral	• This indicator does not apply to this alternative closure method.
	• Causes damage or disturbance to known spiritual and ceremonial sites, or implements preservation	Neutral	Neutral	• This indicator does not apply to this alternative closure method.
	• Change to Indigenous Peoples' social conditions (community services and infrastructure, and wellbeing) and health	Neutral	Neutral	• This indicator does not apply to this alternative closure method.
	Human Environment Summary	Neutral	Neutral	Alternatives 1 and 2: Neither alternative closure method would be anticipated to have an effect on the human environment. There are no differentiating advantages or disadvantages to the human environment for either approach.
Technical and Economic				
Ability to service the site effectively	• Proven effectiveness and ability to consistently meet Project needs	Least preferred	Most preferred	• Alternative 1 (CI): filling the open pit with water at closure meets the requirements of the <i>Mining Act</i> for closure. • Alternative 2 (CI): active filling of the open pit with water at closure meets the requirements of the <i>Mining Act</i> for closure and would reduce the length of time for complete filling of the pit which is preferred.
	• Potential for accidents or malfunctions that may have a material effect on the environment	Least preferred	Most preferred	• Alternative 1 (CI): the dykes and channels would remain in place longer for this alternative, potentially providing an increased risk • Alternative 2 (CI): active filling would provide for earlier removal of dykes and channels, potential providing a decreased risk.
Supportive of net-zero GHG emissions by 2050	• Change to GHG emissions released to the environment	Equally preferred	Equally preferred	• No material GHG emissions would result from either alternative. There are no differentiating advantages or disadvantages for either approach.
Cost effectiveness	• Potential effect on Project financing resulting from investor attractiveness or risk	Least preferred	Most preferred	• Alternative 1 (CI): filling the open pit with water at closure would meet the requirements of the <i>Mining Act</i> for closure and reduces the Project closure liability. • Alternative 2 (CI): active filling of the open pit with water at closure would meet the requirements of the <i>Mining Act</i> for closure and expedites reduction of the Project closure liability.
	• Degree to which alternative provides a competitive or acceptable return on investment	Equally preferred	Equally preferred	• Alternative 1 (CI): there would be no additional costs for filling the pit with water passively although it would extend the period of time until closure could be completed, and the cost for ongoing site maintenance. • Alternative 2 (CI): comparatively higher cost that would not be limiting to the Project, associated primarily with development of the required infrastructure and the energy costs for pumping water from the Misema River. • There are no differentiating advantages or disadvantages for either location.
	Technical and Economic Summary	Least preferred	Most preferred	Alternative 1: filling the open pit with water at closure would meet the requirements of the <i>Mining Act</i> for closure. Alternative 2: active filling of the open pit with water at closure would meet the requirements of the <i>Mining Act</i> for closure and reduce the closure liability sooner.
OVERALL ASSESSMENT		LEAST PREFERRED	MOST PREFERRED (SELECTED)	Alternative 1: filling of the open pit with water at closure would meet the requirements of the <i>Mining Act</i> for closure. Alternative 2: active filling of the open pit with water at closure would meet the requirements of the <i>Mining Act</i> for closure and reduce the length of time for closure to be completed at a cost that is not limiting to the Project, and would provide for re-creation of naturalized habitat sooner.

Note:
CI: closure phase

3.9 Mine Closure – Misema River Diversion

3.9.1 Background

The Misema River will be temporarily diverted away from York Lake during the construction and operations phases to support open pit mining activities (Section 3.6). The preferred method for closure of the open pit is active filling with water (Section 3.8). A determination is required whether the water-filled open pit (pit lake) will be fully hydrologically connected to the Misema River system (i.e., surface flow through pit lake), or whether it will be left in partial isolation, with surface water flow bypassing around the pit lake through the diversion channel established during the construction phase.

Specifically, a decision is required whether at closure the following and related infrastructure (named for the purposes of discussion in this section in the same manner as in Section 3.6) remain in place and are maintained in perpetuity, or are lowered or removed during closure (Figure 3.9-1) after pit lake water quality meets regulatory requirements:

- Main dyke (D-1 on Figure 4.3)
- Southern channel dyke (at the existing southern channel from Ava Lake to York Lake, southern channel dyke; D-2 on Figure 4.3)
- York Lake dyke (southern end of York Lake required to control backflow from the residual York Lake / Misema River into the open pit; D-3 on Figure 4.3)
- Shorter (about 25 m long) diversion channel between the two southern embayments of Ava Lake
- Longer (about 125 m long) diversion channel from the southernmost embayment of Ava Lake to the remnant York Lake / Misema River.

The dykes are constructed of a zoned embankment shell on the waterbed with an engineered hydraulic barrier as needed, and the main dyke supported by a wave berm. The diversion channels will be designed to mimic natural hydraulic conditions so that water is not held back and for free passage of fish.

3.9.2 Screening to Identify Alternatives for Assessment

The following candidate alternatives were identified for reclamation and closure of these dykes and diversion channels that are consistent with Section 21 of the Mine Rehabilitation Code:

- Candidate Alternative A: route surface flow around the open pit lake in perpetuity, maintaining constructed dykes and diversion channels (as identified in Section 3.9.1) and required infrastructure
- Candidate Alternative B: return the natural, pre-existing flow path (i.e., from Ava Lake to the pit lake) by blocking the diversion channels, and lowering or fully removing the dykes to allow for free surface water flow through the pit lake.

Whether the dykes are partially removed or fully removed will be determined during the approvals stage or during preparation of the final closure plan amendment during the operations phase prior to closure initiation. Full removal of the dykes and full backfilling of the diversion channels may be more disruptive to the aquatic and terrestrial environment that will have

naturalized during the construction and operations phases, than lowering the dykes to allow free surface flow and plugging the ends of the diversion channels.

3.9.3 Assessment of Alternatives

All alternative assessment performance objectives and criteria were considered in the comparative analysis as summarized in Table 3.9-1. The following are the key differentiators between the two closure alternatives:

- Natural environment performance:
 - Water
 - Change in flows (watercourses), and areas and levels (waterbodies)
 - Change in quality of groundwater and surface water
 - Fish and fish habitat
 - Area and functionality of fish habitat that would be displaced or altered
- Technical and economic performance:
 - Ability to service the site effectively
 - Potential for accidents or malfunctions that may have a material effect on the environment.

Based on the detailed evaluation, the following summary of advantages and disadvantages is provided for each alternative:

Alternative 1 (diversion infrastructure maintained)

- Advantages: this may meet the requirements of the *Mining Act* for closure, although final closure solutions that require ongoing maintenance are generally not preferred by the Province.
- Disadvantages: this alternative would require ongoing maintenance of the dykes and channels in perpetuity, including for erosion from wave action (dykes) and beaver dam inspection and removal (channels). Retaining the refilled open pit basin separated from Ava Lake and the Misema River after filling with water and once water quality meets requirements, will minimize the benefit of pit lake creation.

Alternative 2 (dykes lowered and channels plugged)

- Advantages: this presents the best natural environment and human environment solution, as it will meet the requirements of the *Mining Act*, will support a higher water quality in the pit lake through ongoing surface water mixing and flow through, enhanced fish habitat within the pit lake, and opportunities for re-use of the lake such as for boating.
- Disadvantages: there will be additional power consumption and other costs associated with pumping freshwater from the Misema River to fill the open pit. The costs are not limiting to the Project.

3.9.4 Summary of Results and Selected Alternative

The most preferred and selected alternative for the closure of the Misema River diversion system is Alternative 2 (dykes lowered and channels plugged), based on an evaluation of the assessment criteria. This alternative is carried forward in the Project design described in Section 4 (Project Description).

Table 3.9-1: Alternatives Assessment – Mine Closure, Misema River Diversion

Criteria	Indicators	Alternative 1 Diversion Infrastructure Maintained	Alternative 2 Dykes Lowered and Channels Plugged	Advantages and Disadvantages
Natural Environment				
Air quality	Change in air quality	Equally preferred	Equally preferred	- Alternative 1 (CI): limited air emissions would be generated from ongoing maintenance activities - Alternative 2 (CI): limited air emissions would be generated from heavy equipment use during reclamation - There are no differentiating advantages or disadvantages for either approach
Sound	Change in sound level	Equally preferred	Equally preferred	- Alternative 1 (CI): limited noise would be generated from ongoing maintenance activities - Alternative 2 (CI): limited noise would be generated from heavy equipment use during reclamation - There are no differentiating advantages or disadvantages for either approach
Water	Change to groundwater flow direction and level	Neutral	Neutral	- All alternatives (CI): no anticipated additional effects to groundwater flows or levels - There are no differentiating advantages or disadvantages for either approach
	Change in flows (watercourses), and areas and levels (waterbodies)	Least preferred	Most preferred	- Alternative 1 (CI): pit lake will be filled but will be retained as an isolated lake, and will not have a direct, flow through surface water connection to the Misema River downstream; diversion channels will continue to operate to bypass surface water flow around the pit lake - Alternative 2 (CI): surface water flows will be returned to pre-mining paths
	Change in quality of groundwater and surface water	Least preferred	Most preferred	- All alternatives (CI): reclamation will not proceed until regulatory requirements for pit lake water quality are met - Alternative 1 (CI): ongoing dyke and channel operation would not have an effect on water quality; however, there will be less frequent mixing and potential for eventual reduced pit lake water quality - Alternative 2 (CI): no material change to water quality anticipated with the application of standard construction and decommissioning practices to control sediment release during reclamation activities; ongoing natural mixing and addition of water from upstream would improve water quality; monitoring would be completed to confirm with application of additional mitigation measures if needed
Fish and fish habitat	Area and functionality of fish habitat that would be displaced or altered	Least preferred	Most preferred	- Alternative 1 (CI): reduced the benefits of pit lake development as there will be no direct connection for fish colonization and movement through the Misema River system, and the less frequent mixing may produce lower pit lake water quality - Alternative 2 (CI): improved habitat for fish in the pit lake with opportunity for full colonization; naturalized habitat in the diversion channels will become isolated ponds or terrestrial / wetland habitat in the longer term
Wildlife and habitat	Area, type and functionality of habitat that would be displaced or altered	Least preferred	Most preferred	- Alternative 1 (CI): wetland habitat may be created along the pit lake margins after re-filling of the pit with water during closure - Alternative 2 (CI): wetland habitat may be created along the pit lake margins after re-filling of the pit with water during closure; naturalized habitat in the blocked diversion channels will become isolated ponds or terrestrial / wetland habitat in the longer term
	Change in the level of sensory disturbance	Equally preferred	Equally preferred	- Alternative 1 (CI): limited sensory disturbance would be generated from ongoing maintenance activities - Alternative 2 (CI): limited sensory disturbance would be generated from heavy equipment use during reclamation - There are no differentiating advantages or disadvantages for either approach
	Ability to maintain wetland connectivity	Neutral	Neutral	- Alternative 1 (CI): wetland habitat may be created along the pit lake margins, but no changes to wetland connectivity - Alternative 2 (CI): no changes to wetland connectivity, although limited new wetlands may arise through the blocking of the diversion channels - There are no differentiating advantages or disadvantages for either approach
SAR	Area, type and functionality of habitat that would be displaced or altered	Neutral	Neutral	- All alternatives (CI): no changes to SAR habitat - There are no differentiating advantages or disadvantages for either approach
	Change in the level of sensory disturbance	Equally preferred	Equally preferred	- All alternatives (CI): no material differences to sensory disturbances - There are no differentiating advantages or disadvantages for either approach
	Natural Environment Summary	Least preferred	Most preferred	Alternative 1 (CI): would retain the pit lake at an isolated lake, which reduces the value of the lake for fish habitat, and may lead to longer term water quality issues results from a lack of freshwater input and natural mixing actions Alternative 2 (CI): allows development of enhanced fish habitat within the pit lake and improved pit lake water quality
Human Environment				
Land and resource use	Change to local land and resource use opportunities	Least preferred	Most preferred	- Alternative 1 (CI): pit lake will be filled but will be retained as an isolated lake, reducing ability to access by boat for recreational purposes or fishing - Alternative 2 (CI): surface water flows will be returned to pre-mining paths and will allow boat access to the pit lake from downstream
Cultural heritage	Causes damage or disturbance to known cultural heritage sites or landscapes	Neutral	Neutral	- All alternatives (CI): no damage or disturbance to known cultural heritage sites or landscapes - There are no differentiating advantages or disadvantages for either approach
Archaeology	Causes damage or disturbance to known archaeological sites	Neutral	Neutral	- All alternatives (CI): no damage or disturbance to known archaeological sites - There are no differentiating advantages or disadvantages for either approach



Criteria	Indicators	Alternative 1 Diversion Infrastructure Maintained	Alternative 2 Dykes Lowered and Channels Plugged	Advantages and Disadvantages
Local and regional economy	Change to local business and economic opportunities	Neutral	Neutral	- All alternatives (CI): no material opportunities associated with either alternatives - There are no differentiating advantages or disadvantages for either approach
Indigenous Peoples	Maintains access to traditional lands for current traditional land uses except as otherwise agreed to with local Indigenous communities	Least preferred	Most preferred	- All alternatives (CI): maintain equivalent access to traditional lands - Alternative 1 (CI): pit lake will be filled but will be retained as an isolated late, reducing ability to access by boat - Alternative 2 (CI): surface water flows will be returned to pre-mining paths and will allow boat access to the pit lake from downstream
	Causes damage or disturbance to known spiritual and ceremonial sites, or implements preservation	Neutral	Neutral	- All alternatives(CI): no known spiritual and ceremonial sites are present that would be damaged or disturbed - There are no differentiating advantages or disadvantages for either approach
	Change to Indigenous Peoples' social conditions (community services and infrastructure, and wellbeing) and health	Neutral	Neutral	- All alternatives (CI): no known effect to Indigenous Peoples' social conditions - There are no differentiating advantages or disadvantages for either approach
	Human Environment Summary	Least preferred	Most preferred	Alternative 1: retaining the pit lake as an isolated lake has no advantage from the human environment perspective Alternative 2: reconnection of the pit lake to Ava Lake and the Misema River will provide enhanced opportunities for use of the pit lake, including for boat-related activities
Technical and Economic				
Ability to service the site effectively	Proven effectiveness and ability to consistently meet Project needs	Least preferred	Most preferred	- Alternative 1 (CI): will require regular structure inspections into perpetuity and represents sustained potential risk of structure failure - Alternative 2 (CI): returning flow to pre-existing conditions will require less ongoing maintenance
	Potential for accidents or malfunctions that may have a material effect on the environment	Least preferred	Most preferred	- Alternative 1 (CI): retaining dykes as water retaining features represent sustained potential risk of structural failure, particularly as they may be subject to ongoing wave action - Alternative 2 (CI): returning flow to pre-existing conditions will lessen potential risk of structure failure; failure of the diversion channel plug(s) would result in alternative flow paths with lesser flows through each path, but would not affect lake levels upstream
Supportive of net-zero GHG emissions by 2050	Change to GHG emissions released to the environment	Equally preferred	Equally preferred	- Alternative 1 (CI): limited GHG emissions would be generated from ongoing maintenance activities - Alternative 2 (CI): limited GHG emissions would be generated from heavy equipment use during reclamation - There are no differentiating advantages or disadvantages for either approach
Cost effectiveness	Potential effect on Project financing resulting from investor attractiveness or risk	Equally preferred	Equally preferred	Alternatives 1 and 2 (CI): no material cost differences expected across these alternatives
	Degree to which alternative provides a competitive or acceptable return on investment	Equally preferred	Equally preferred	Alternatives 1 and 2 (CI): no material cost differences expected across these alternatives
	Technical and Economic Summary	Least preferred	Most preferred	Alternative 1: is less preferred as a result of the requirement to maintain water holding dykes in perpetuity which present a potential risk for failure Alternative 2: is most preferred as water retaining dykes are no longer present
OVERALL ASSESSMENT		LEAST PREFERRED	MOST PREFERRED	Alternative 1: retaining the pit lake as an isolated lake has no advantage from the natural environment, human environment and technical economic perspectives Alternative 2: reconnection of the pit lake to the Misema River system (once pit lake quality meets all regulatory requirements), provides the greatest benefits to the natural and human environment, and minimizes the potential for structural failure in the long term

Note:
CI: closure phase

3.10 Mine Closure - Demolition Waste

3.10.1 Background

Mine decommissioning and closure must be completed to satisfy the Mine Rehabilitation Code under Ontario Regulation 35/24, Rehabilitation of Lands, of the *Mining Act* or future equivalent. In addition, demolition wastes that are not transported off site for re-use or sale will require permanent disposal in a manner that meets the requirements of the Ontario *Environmental Protection Act* and associated regulations.

Non-hazardous demolition wastes that are not transported off site for re-use or sale will require permanent disposal. These materials will generally require disposal in an approved landfill either on site or off site, similar to solid wastes produced during the construction and operations phase. Disposal of general demolition wastes in the dewatered open pit was not considered, as it is not expected to be acceptable to stakeholders, including provincial regulators and Indigenous Nations.

Hazardous waste from closure will be transported off site for management. Consideration was not given to permanent storage and/or treatment of hazardous wastes on the site, as it is not economically practical or preferred from an environmental perspective, to establish a hazardous waste treatment facility on site for the low quantities that will be produced. Hazardous waste from closure will be transported off site for management, the same as during other Project phases.

Domestic solid waste management during closure is considered in Section 4.13.

3.10.2 Screening to Identify Alternatives for Assessment

The only candidate alternatives available for management of demolition wastes, is permanent storage in an approved landfill either on site or off site. Deposition in an uncontrolled manner, such as in an open pit does not meet provincial environmental regulatory requirements. Establishment of an onsite incinerator for the closure phase is not considered a viable alternative as the majority of the demolition waste cannot be incinerated, and there is a high challenge to obtaining the necessary environmental approvals and meeting strict emissions requirements for incineration.

A demolition landfill could potentially be established on the Property for inert demolition wastes, such as within the perimeter zone of the overburden stockpile or at the TSF. An onsite landfill would need to be operated and closed in accordance with applicable provincial regulations and guidelines. Dedicated landfills have been previously established at mining projects in Ontario because of the lack of capacity present in a large number of municipal landfills across the Province.

The following alternatives were considered:

- Alternative 1: truck demolition waste off site to an existing landfill
- Alternative 2: develop an onsite demolition landfill.

3.10.3 Assessment of Alternatives

All alternative assessment performance objectives and criteria were considered in the comparative analysis as summarized in Table 3.10-1. The following performance objectives and

criteria were identified as the key differentiators in the assessment of demolition waste management alternatives:

- Human environment.
 - Local and regional economy
 - Change to local business and economic opportunities
- Technical and economic performance:
 - Ability to service the site effectively
 - Proven effectiveness and ability to consistently meet Project needs
 - Potential effect on Project financing resulting from investor attractiveness or risk.

Based on the detailed evaluation, the following summary of advantages and disadvantages is provided for each alternative:

Alternative 1 (truck off site to an existing landfill)

- Advantages: this alternative provides financial benefit and economic opportunities to local business(es), with the long term liability for the waste management borne by the landfill operator supported by the tipping fees paid by Agnico Eagle.
- Disadvantages: there is a greater potential for disruption of service, should the existing landfill capacity be fully utilized before the mine closes and additional landfills not be developed in the region.

Alternative 2 (develop an onsite demolition landfill)

- Advantages: this alternative is the best solution for long term availability as it is fully under the control of Agnico Eagle.
- Disadvantages: long-term monitoring management of the site will be required, continuing after the mine closes.

3.10.4 Summary of Results and Selected Alternative

The most preferred and selected alternative on balance of advantages and disadvantages is Alternative 1 (truck off site to an existing landfill). This alternative is carried forward in the Project design described in Section 4 (Project Description). Alternative 2 could be selected in the future should circumstances change (such as an inability to make appropriate commercial arrangements or future lack of capacity at a local offsite landfill). All regulatory requirements would be followed and applicable environmental approval obtained at that time.

Table 3.10-1: Alternatives Assessment - Demolition Waste Alternatives

Criteria	Indicators	Alternative 1 Existing Offsite Landfill	Alternative 2 Onsite Landfill	Advantages and Disadvantages
Natural Environment				
Air quality	Change in air quality	Equally preferred	Equally preferred	- Alternative 1 (CI): air emissions would be generated from transporting demolition waste - Alternative 2 (CI): air emissions would be generated from heavy equipment and transport vehicles associated with the construction, operation and closure of the landfill - There are no differentiating advantages or disadvantages for either location
Sound	Change in sound level	Equally preferred	Equally preferred	- Alternative 1 (CI): limited noise would be generated by transporting demolition waste off site - Alternative 2 (CI): limited noise would be generated from transporting waste and heavy equipment operation including use of backup beepers required for safety - There are no differentiating advantages or disadvantages for either location
Water	Change to groundwater flow direction and level	Neutral	Neutral	- Alternative 1 (CI): groundwater would not be affected by demolition waste transport off site - Alternative 2 (CI): no anticipated effects to groundwater flows or levels - There are no differentiating advantages or disadvantages for either location
	Change in flows (watercourses), and areas and levels (waterbodies)	Neutral	Neutral	- Alternative 1 (CI): no effects from demolition waste transport off site - Alternative 2 (CI): would have a small footprint and would be sited away from existing watercourses and waterbodies, no material effects on surface water are expected - There are no differentiating advantages or disadvantages for either location
	Change in quality of groundwater and surface water	Neutral	Neutral	- Alternative 1 (CI): groundwater would not be affected by demolition waste transport off site - Alternative 2 (CI): the potential for groundwater to be affected would be mitigated through engineering design to meet regulatory requirements, and monitoring and treatment of leachate if needed
Fish and fish habitat	Area and functionality of fish habitat that would be displaced or altered	Neutral	Neutral	- Alternative 1 (CI): fish would not be affected by demolition waste transport - Alternative 2 (CI): fish would not be affected by demolition waste landfilling (landfill would be appropriately sited to avoid fish habitat) - There are no differentiating advantages or disadvantages for either location
Wildlife and habitat	Area, type and functionality of habitat that would be displaced or altered	Equally preferred	Equally preferred	- Alternative 1 (CI): no effects anticipated as the laydown area necessary to support transporting waste would be established within the Project footprint - Alternative 2 (CI): demolition landfill would be sited at an area disturbed by operations, likely adjacent to a remaining stockpile and would not result in additional habitat disturbance - There are no differentiating advantages or disadvantages for either location
	Change in the level of sensory disturbance	Equally preferred	Equally preferred	- Alternative 1 (CI): limited sensory disturbance would be generated by the transport of demolition waste off site - Alternative 2 (CI): activity would be coincident with site reclamation and additional changes to sensory disturbance would be unlikely to result from the transport of demolition waste and landfill heavy equipment operations - There are no differentiating advantages or disadvantages for either location.
	Ability to maintain wetland connectivity	Equally preferred	Equally preferred	- Alternative 1 (CI): wetland connectivity would not be affected by demolition waste transport - Alternative 2 (CI): demolition landfill would be sited at an area disturbed by operations, likely adjacent to a remaining stockpile and wetland connectivity would not be affected - There are no differentiating advantages or disadvantages for either alternative location
SAR	Area, type and functionality of habitat that would be displaced or altered	Equally preferred	Equally preferred	- Alternative 1 (CI): no effects anticipated, as the laydown area necessary to support transporting demolition waste would be established within the Project footprint - Alternative 2 (CI): demolition landfill would be sited at an area disturbed by operations, likely adjacent to a remaining stockpile and would not result in additional habitat disturbance - There are no differentiating advantages or disadvantages for either location
	Change in the level of sensory disturbance	Equally preferred	Equally preferred	- Alternative 1 (CI): limited sensory disturbance would be generated by the transport of demolition waste off site - Alternative 2 (CI): limited changes to sensory disturbance may result from the transport of demolition waste and periodic landfill heavy equipment operations - There are no differentiating advantages or disadvantages for either location

Criteria	Indicators	Alternative 1 Existing Offsite Landfill	Alternative 2 Onsite Landfill	Advantages and Disadvantages
	Natural Environment Summary	Equally preferred	Equally preferred	Alternative 1: limited disruption of the baseline environmental conditions, although transporting waste to an existing landfill off site would require additional transport off site which could result in a limited increased potential for vehicle – wildlife interactions Alternative 2: limited disruption of the baseline environmental conditions, as demolition landfill would be sited at an area disturbed by operations, likely adjacent to a remaining stockpile; effect would be mitigated through reclamation of the area after demolition activities completed
Human Environment				
Land and resource use	Change to local land and resource use opportunities	Equally preferred	Equally preferred	- Alternative 1 (CI): no effects anticipated as the laydown area necessary to support transport of waste would be established within the Project footprint - Alternative 2 (CI): demolition landfill would be sited at an area disturbed by operations, likely adjacent to a remaining stockpile and would not result in additional habitat disturbance - There are no differentiating advantages or disadvantages for either location
Cultural heritage.	Causes damage or disturbance to known cultural heritage sites or landscapes	Neutral	Neutral	- Alternative 1 (CI): cultural heritage sites or landscapes would not be affected by demolition waste transport - Alternative 2 (CI): demolition landfill would be sited at an area disturbed by operations, likely adjacent to a remaining stockpile and would not result in additional habitat disturbance. There are no differentiating advantages or disadvantages for either alternative location
Archaeology	Causes damage or disturbance to known archaeological sites	Neutral	Neutral	- Alternative 1 (CI): archaeology sites would not be affected by demolition waste transport - Alternative 2 (CI): demolition landfill would be sited at an area disturbed by operations, likely adjacent to a remaining stockpile and would not result in additional disturbance - There are no differentiating advantages or disadvantages for either alternative location
Local and regional economy	Change to local business and economic opportunities	Most preferred	Least preferred	- Alternative 1 (CI): provides a potential income opportunity for a third-party to transport demolition wastes off site, as well as tipping fees for the local landfill operator / municipality - Alternative 2 (CI): Project closure would generate local, employment and business opportunities, however there are no material effects associated with this alternative
Indigenous Peoples	Maintains access to traditional lands for current traditional land uses except as otherwise agreed to with local Indigenous communities	Equally preferred	Equally preferred	- Alternative 1 (CI): transport of demolition waste off site is not anticipated to have a material effect on traditional land uses - Alternative 2 (CI): demolition landfill would be sited at an area disturbed by operations, likely adjacent to a remaining stockpile and would not result in additional habitat disturbance; site would be reclaimed after demolition is completed potentially for future use - There are no differentiating advantages or disadvantages for either location.
	Causes damage or disturbance to known spiritual and ceremonial sites, or implements preservation	Equally preferred	Equally preferred	- Alternative 1 (CI): sites would not be affected by demolition waste transport - Alternative 2 (CI): no known spiritual and ceremonial sites are present within the Property; demolition landfill would be sited at an area disturbed by operations, likely adjacent to a remaining stockpile and would not result in additional disturbance - There are no differentiating advantages or disadvantages for either alternative location
	Change to Indigenous Peoples' social conditions (community services and infrastructure, and wellbeing) and health	Equally preferred	Equally preferred	- Alternatives 1 and 2 (CI): no potential for effects as Reserve lands are distant from Project and is not expected to be located along the travel route - There are no differentiating advantages or disadvantages for either location
	Human Environment Summary	Most preferred	Least preferred	Alternative 1: transport of waste to an existing landfill off site would provide limited additional economic opportunities / benefits for local communities and businesses Alternative 2: there are no advantages or disadvantages as the facility would be sited to minimize potential effect (at an area disturbed by operations, likely adjacent to a remaining stockpile)
Technical and Economic				
Ability to service the site effectively	Proven effectiveness and ability to consistently meet Project needs	Least preferred	Most preferred	- Alternative 1 (CI): commercial arrangements would need to be made at the end of operations and capacity confirmed in a local landfill within a reasonable distance; this alternative could pose a schedule risk without proper planning, as design and obtaining regulatory approvals for a new landfill could take years - Alternative 2 (CI): this alternative is expected to be able to consistently meet Project needs as the site would be fully within Agnico Eagle control
	Potential for accidents or malfunctions that may have a material effect on the environment	Equally preferred	Equally preferred	- Alternative 1 (CI): limited potential from effects from a vehicular accident involving demolition waste transport - Alternative 2 (CI): limited potential from effects as design would be required to meet strict provincial regulatory requirements, including ongoing monitoring and report of results



Criteria	Indicators	Alternative 1 Existing Offsite Landfill	Alternative 2 Onsite Landfill	Advantages and Disadvantages
Supportive of net-zero GHG emissions by 2050	Change to GHG emissions released to the environment	Equally preferred	Equally preferred	- Alternative 1 (CI): limited GHG emissions would be generated from transport of the waste - Alternative 2 (CI): limited GHG emissions would be generated from heavy equipment and transport vehicles associated with the construction, operation and closure of the landfill - There are no differentiating advantages or disadvantages for either location
Cost effectiveness	Potential effect on Project financing resulting from investor attractiveness or risk	Most preferred	Least preferred	- Alternative 1 (CI): transport and storage would be under the care and control of a third party with liability presumed to be held by those parties which is an advantage for Agnico Eagle - Alternative 1 (CI): there is a risk a landfill with capacity and willingness to accept demolition wastes may not be available at the end of mine operations - Alternative 2 (CI): establishing a landfill presents an additional potential risk of liability at closure, which would require long-term management and monitoring
	Degree to which alternative provides a competitive or acceptable return on investment	Equally preferred	Equally preferred	- Alternative 1 (CI): comparatively higher operating cost (lower capital costs) but the increased operating costs would not be limiting to the Project - Alternative 2 (CI): comparatively higher capital cost (lower operating costs) but increased capital costs are not limiting to the Project There are no differentiating advantages or disadvantages for either location
	Technical and Economic Summary	Most preferred	Least preferred	Alternative 1: transporting demolition waste to an offsite landfill would minimize the long term liability for Agnico Eagle, but this alternative presents a potential scheduling risk if commercial terms cannot be reached or the landfill capacity is not available at the time of closure Alternative 2: provides greater certainty of being fully available for site needs once approvals are in place, but at an additional cost and long term liability
OVERALL ASSESSMENT		MOST PREFERRED (SELECTED)	LEAST PREFERRED	Alternative 1: is the most preferred and selected alternative on balance of advantages and disadvantages. Alternative 2: is least preferred and could be selected in the future should circumstances changes (such as an inability to make appropriate commercial arrangements or future lack of capacity at local offsite landfill)

Note:
CI: closure phase.

3.11 Summary of Alternatives

The assessment of alternatives completed in Section 3 is intended to provide sufficient information to support an understanding of the rationale for the Project design described in Section 4 (Project Description). The selected alternatives that have become part of the Project design are summarized in Table 3.11-1.

Table 3.11-1: Summary of Selected Alternatives by Project Component

Project Facility or Activity	Selected Alternative	Related Text
Mining		
Method	Combined underground and open pit mining operation	Section 3.4.1.1
Timing	Underground and open pit mining occurring at the same time, with underground mining to continue after open pit mining ceases	Section 3.4.1.2
Misema River Dykes and Diversion	Construction of a main dyke across northwest embayment of Ava Lake, with two supplementary dykes and two channels to route Misema River around the York Lake to support open pit mining	Section 3.6
Ore Processing		
Location	Facility located west of the mine access road	Section 3.4.2.1
Technology	Gold recovery by cyanidation in a process plant	Section 3.4.2.2
Technology	Copper recovery hydrometallurgical processes to produce a concentrate in a process plant	Section 3.4.2.3
Overburden and Rock Management		
Overburden Storage	Primary facility located west of the Victoria Creek	Section 3.4.3
Ore Storage	Northeast of the AEX facilities	Section 3.4.4
Mine Rock Management	Co-disposal with filtered tailings at a location east of the main site area	Section 3.7
Tailings		
Method and Location	Co-disposal with filtered tailings at a location east of the main site area	Section 3.7
Buildings, facilities and general infrastructure	Constrained by major facilities including the open pit, stockpiles, process plant, TSF and local waterbodies, along with a primary goal to minimize the Project footprint	Section 3.4.5
Water and wastewater management		
Contact water management	Development and implementation of an integrated water management system	Section 3.4.6.1

Project Facility or Activity	Selected Alternative	Related Text
In-plant water treatment technology	In-plant cyanide destruction	Section 3.4.6.2
Final effluent treatment technology	Various treatment technologies are considered functionally equivalent in terms of their ability to meet effluent quality objectives, and the specific technology will be determined during engineering design	Section 3.4.6
Treated effluent discharge location	Misema River system (Beaverhouse Lake)	Section 3.4.7
Water crossings	No large watercourse or waterbody crossings with bridges or culverts are planned	Section 3.4.8
Corridors and Access	No new major corridors are proposed to avoid unnecessary environmental disturbance	Section 3.4.9
Domestic waste management		
Domestic solid waste	Transport to existing local municipal landfill subject to commercial agreements	Section 3.4.10.1
Domestic sewage	Package sewage treatment plant	Section 3.4.10.2
Mine closure		
Open pit	Active filling with water from the Misema River	Section 3.8
Misema River diversion	Return the natural, pre-existing flow path by blocking the diversion channels and lowering or fully removing the dykes	Section 3.9
Demolition waste	Transport to existing local municipal landfill subject to commercial agreements	Section 3.10

3.12 References

- Agnico Eagle Mines Limited (Agnico Eagle). 2026. 2025 Sustainability Report, Together, We Make Mining Work. Accessed May 5, 2026 from: https://s205.q4cdn.com/243646470/files/doc_downloads/sd_reports/2025/2025-AgnicoEagle-SustainabilityReportEN.pdf.
- Canadian Dam Association. 2013. Dam Safety Guidelines 2007 (Revised 2013).
- Canadian Dam Association. 2019. Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams (2019 Edition).
- Fisheries and Oceans Canada (DFO). 2013. Framework for Assessing the Ecological Flow Requirements to Support Fisheries in Canada. Canadian Science Advisory Secretariat Science Advisory Report 2013/017. Accessed May 5, 2026 from: [Framework for Assessing the Ecological Flow Requirements to Support Fisheries in Canada](#).
- Government of Canada (Canada). 2026. Canadian Critical Minerals Strategy. Accessed May 5, 2026 from: <https://www.canada.ca/en/campaign/critical-minerals-in-canada/canadas-critical-minerals-strategy.html>.
- Impact Assessment Agency of Canada (IAAC). 2020. Guidance: “Need for”, “Purpose of”, “Alternatives to” and “Alternative means”. Accessed April 6, 2026 from: <https://webarchiveweb.wayback.bac-lac.canada.ca/web/20220430203402/https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/addressing-need-purpose-alternatives-alternative-means-under-canadian-environmental-assessment-act.html>
- Impact Assessment Agency of Canada (IAAC). 2026. Standard mitigation measures Streamlining the impact assessment process. Accessed April 6, 2026 from: <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/standard-mitigation-measures.html#toc003>.
- Mining Association of Canada (MAC). 2025. The Mining Story 2025, Canadian Mining Industry Facts and Figures. Accessed December 19, 2025 from: https://mining.ca/wp-content/uploads/dlm_uploads/2025/05/MAC-Report_2025-final-1.pdf.
- Ministry of the Environment. 2014. Preparing and reviewing environmental assessments in Ontario. Accessed from: <https://www.ontario.ca/document/preparing-and-reviewing-environmental-assessments-ontario-0>.
- Natural Resources Canada (NRCan). 2025a. Minerals and the economy. Accessed May 5, 2026 from: <https://natural-resources.canada.ca/minerals-mining/mining-data-statistics-analysis/minerals-economy>.
- Natural Resources Canada (NRCan). 2025b. Copper Facts. Accessed December 19, 2025 from: <https://natural-resources.canada.ca/minerals-mining/mining-data-statistics-analysis/minerals-metals-facts/copper-facts>.
- Natural Resources Canada (NRCan) 2025c. Minerals and Metals Policy of the Government of Canada. Accessed May 5, 2026 from: <https://natural-resources.canada.ca/minerals-mining/mining-policy-taxation-industry/minerals-metals-policy-government-canada>.

Ontario Mining Association (OMA). 2025. Facts and Figures. Accessed December 19, 2025 from: <https://www.oma.on.ca/ontario-mining/facts-and-figures/>.

Trading Economics. 2026. Gold. Accessed May 5, 2026 from: <https://tradingeconomics.com/commodity/gold>.

World Gold Council. 2026. Gold Demand Trends Q1 2026. Accessed May 5, 2026 from: <https://www.gold.org/goldhub/research/gold-demand-trends/gold-demand-trends-q1-2026>.