MUNICIPAL ENTERPRISES LTD

MUNICIPAL ENTERPRISES LIMITED
MCINTYRES MOUNTAIN QUARRY EXPANSION PROJECT,
486 MCINTYRES MOUNTAIN ROAD, KINGSVILLE,
INVERNESS COUNTY
NOVA SCOTIA

Registration Document for a Class 1 Undertaking Under Section 9 (1) of the Nova Scotia Environmental Assessment Regulations

MAY 2025

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EXECUTIVE SUMMARY

Municipal Enterprises Limited (MEL) of Bedford, Nova Scotia, is proposing to expand the existing McIntyres Mountain quarry located in the Kingsville area of Inverness County, Nova Scotia. The existing quarry is located at 486 McIntyres Mountain Road, approximately 5 km west of Kingsville in Inverness County, Nova Scotia. The quarry is currently operating under an Industrial Approval (IA), No. 2011-076964-01 issued to MEL, for a quarry of less than four (4) hectares.

MEL proposes to expand the working footprint of the existing McIntyres Mountain quarry to produce aggregate, primarily used in the local highway and construction industry. The proposed undertaking ("*the quarry")* involves the expansion of the existing NSECC approved quarry from a less than four-hectare quarry to a 20.39-hectare quarry. Other than the proposed increase in operating footprint, it is expected that continued use of the site will be identical, or very similar, to historic use of the quarry. Following EA Approval, MEL will apply to amend the existing Industrial Approval to allow for the proposed expansion.

MEL has engaged the public and the Mi'kmaq of Nova Scotia in preparing the Environmental Assessment Registration Document. Community and First Nations engagement to date has focused on notifying local elected officials and community representatives. Engagement efforts have included email correspondence and in-person meetings. It is expected that a Mi'kmaq Communication Plan and a Complaint Resolution Procedure will be developed as part of the subsequent Industrial Approval process.

An Archaeological Resources Impact Assessment (ARIA) was completed for the land proposed for the quarry expansion. The ARIA concluded that the proposed quarry expansion has low potential for encountering pre-contact and/or early historic First Nation or European archaeological resources (CRM, 2025).

Aggregate extracted from the site is not sulphide-bearing material. A rock sample from the quarry was analyzed for sulphur content. The results of this analysis yielded a sulphur concentration of < 0.001% (< 0.03 kg H_2SO_4/tonne), which is below the minimum (0.4 % S; 12.51 kg H_2SO_4/tonne) defined by NSECC as sulphide-bearing material.

A Water Balance Assessment was completed for the proposed quarry expansion. The Water Balance Assessment concluded that the proposed quarry expansion is not expected to significantly change flows in local watercourses or drainage features. (Fraser, 2025; **Appendix F**).

Several small wetlands are present within the study area, none of which contain plant species of conservation concern or are considered wetlands of special significance. All wetlands found at the study site are located inside the proposed expansion area and may need to be removed to facilitate practical development of the quarry. Prior to physical disturbance, the wetland dimensions will be confirmed and any wetlands larger than 100m^2 will require alteration approvals and appropriate compensation for the loss will be arranged.

Surface water monitoring will be conducted as per the terms and conditions of the Industrial Approval (IA) granted by the Province and will include both background (upstream) and downstream water quality in watercourses potentially affected by quarry operations. It is expected that a condition of EA approval will be to develop a surface water management plan for the site. A surface water monitoring program will be included with the surface water management plan. Surface water monitoring locations will be identified and monitored to establish baseline surface

water quality. The surface water monitoring network will allow for on-going monitoring to verify that surface water runoff from the quarry does not have an impact on downgradient receptors.

Groundwater monitoring will be conducted as per the terms and conditions of the IA. It is expected that a condition of EA approval will be to develop a groundwater monitoring program for the site under the IA process, and a network of groundwater monitoring wells will be constructed to establish baseline groundwater quality as well as existing groundwater table elevations. The monitoring well network is expected to include three industry standard monitoring wells. The monitoring well network will allow for on-going monitoring to ensure that potential groundwater impacts are identified.

There are no structures located within 800 meters of the proposed quarry expansion area. Blast monitoring will be conducted as per the terms and conditions of the IA. Blast monitoring is required for all blasting events and includes measurement of air concussion and ground vibration at the nearest structures located around the quarry. Additionally, seismographs may be setup at other selected locations in the surrounding community to ensure that the blast parameters meet with those dictated by the stipulations in the IA.

All monitoring results are maintained by MEL and provided to NSECC as part of an Annual Report for the Quarry. If a monitored parameter exceeds a limit noted in the IA, MEL is required to immediately notify NSECC of the exceedance.

Development of the McIntyres Mountain quarry will have minimal cumulative effects on most environmental features (Valued Environmental Components, VECs), in part because of the small size of the development, and because the quarry will be reclaimed at the end of its useful life. Other than the gradual increase in the total operational footprint of the site, site activities are not planned to change in scope or increase in frequency from past use.

1.0 INTRODUCTION

Municipal Enterprises Limited (herein referred to as "MEL") of Bedford, Nova Scotia is proposing to expand the existing McIntyres Mountain quarry located in the Kingsville area of Inverness County, Nova Scotia. The existing quarry is located at 486 McIntyres Mountain Road, approximately 5 km west of Kingsville in Inverness County, Nova Scotia at approximately NAD83 UTM Zone 20, Easting 627323 and Northing 5071175 and is located on PID 50019975. The quarry is currently operating under an Industrial Approval (IA), No. 2011-076964-01 issued to MEL, for a quarry of less than four (4) hectares. An approval to expand the footprint of the site is required under the Nova Scotia Environmental Assessment Regulations. The registration of this Environmental Assessment ("EA") is in response to Schedule A of the Environmental Assessment Regulations, Undertaking B.2., "*A pit or quarry that is larger than 4 ha in area for extracting building or construction stone*."

MEL is a private Canadian company. It is incorporated under the laws of Nova Scotia and registered to do business in Nova Scotia under the Nova Scotia Corporations Registration Act. MEL's Company Profile Report from the Nova Scotia Registry of Joint Stock Companies is attached in **Appendix A** "Property Information." Dexter Construction Company Limited is an affiliated company of MEL and therefore references to Dexter and MEL in this document are interchangeable.

Proponent Address:

927 Rocky Lake Drive,
P.O. Box 48100
Bedford, NS, B4A 3Z2
Phone: 902-835-3381

Proponent Contact:

Gary Rudolph, P. Eng.
Director of Aggregates and Pavement Rehabilitation
927 Rocky Lake Drive,
P. O. Box 48100
Bedford, NS, B4A 3Z2
Phone: 902-835-3381

Consultant Contact:

Mr. J. H. Fraser, M. A. Sc., P. Geo.
Consulting Hydrogeologist
Phone: 772-812-1981 (Cell)

The McIntyres Mountain quarry operates under an existing Nova Scotia Environment and Climate Change (NSECC) IA (Approval No. 2011-076964-01), which has a current expiry date of July 30, 2031. A copy of the IA is attached in **Appendix A** "Property Information".

2.0 THE UNDERTAKING

2.1 Description of the Undertaking

MEL proposes to expand the working footprint of the existing McIntyres Mountain quarry to produce aggregate, primarily used in the local highway and construction industry. The proposed

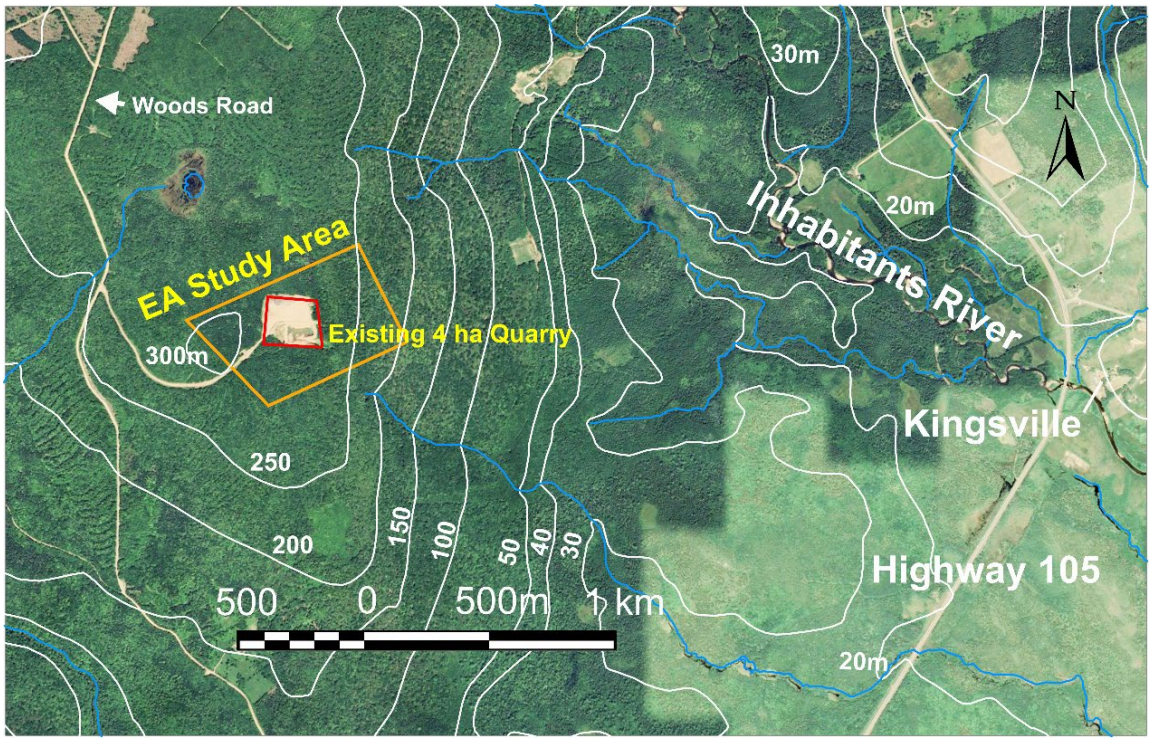
undertaking ("*the quarry")* involves the expansion of the existing NSECC approved quarry from a less than four-hectare quarry to a 20.39-hectare quarry. Other than the proposed increase in size, it is expected that continued use of the site will be identical, or very similar, to historic use of the quarry. A plan showing the existing NSECC approved quarry permit area, and the 20.39-hectare boundary of the proposed quarry expansion area is illustrated in **Appendix B**.

2.2 Location

The quarry is located on MEL owned lands (PID # 50019975). MEL land holdings in the area total approximately 126 ha. across five properties, of which the proposed quarry expansion will encompass a maximum of 20.39 hectares. The quarry is located at 486 McIntyres Mountain Road near Kingsville, Inverness County, Nova Scotia, NAD83 UTM ZONE 20, 5071175 Northing, 627323 Easting. The site is shown in **Figures 1 & 2** (below) and **Drawing 1, Appendix B**). There is no designated municipal zoning in this area of Kingsville, Inverness County.

Figure 1 – Project Location

Figure 2 – Site Location and Adjacent Land Use.



3.0 SCOPE OF THE UNDERTAKING

MEL proposes to expand the working footprint of the existing McIntyres Mountain quarry for the continuing purpose of extracting and supplying aggregate for the local construction industry. Other than the proposed increase in size, it is expected that continued use of the site will be identical, or very similar, to historic use of the quarry.

The existing quarry was originally developed by MEL in 2008 and has been operated as a NSECC approved quarry since 2011. A working quarry highwall has been developed in the western portion of the property and will be advanced to the northwest. When active, the site is operated periodically during the road construction season to provide construction aggregates for local projects as well as Nova Scotia Department of Public Works (NSDPW) projects in the area. The quarry is currently operating under a NSECC Industrial Approval (2011-076964-01) for a less than four-hectare quarry. The scope of this application is for expansion of the existing site footprint to a maximum of 20.39 ha. Existing and future quarry activities will include clearing and grubbing of vegetation and overburden, drilling and blasting of bedrock, use of a portable crusher and/or screener for crushing and screening of aggregate products, stockpiling of aggregate products, operation of a portable truck scale and scale house, trucking of aggregate products and the operation of a portable asphalt plant (with separate a NSECC approval). The existing quarry highwall is approximately 10 meters high. The quantity of aggregate produced at the site each year will be dependent on demand and activity within the local construction industry. Site access is via a gated, private 900-meter gravel road off McIntyres Mountain Road. There are no off-site related support facilities, other than the provincial highway network.

It is anticipated that future operations will involve the extraction of up to 50,000 tonnes/year during years in which the quarry is active. However, the annual quantity may vary depending on local demand and associated project requirements.

3.1 Purpose/Need of the Undertaking

MEL proposes to expand the existing McIntyres Mountain quarry to produce aggregate, primarily used in the road and local construction industry. Continued development and operation of the site will ensure that a quality aggregate supply is available to support local infrastructure needs in the future. The primary benefit will be to the people of Nova Scotia via the continued construction and maintenance of the Provincial highway system.

Table 1. Summary of Benefits.

Benefit Type	Description of Benefit
Environmental	Reduced habitat disruption: The proposed quarry expansion would support the continued operation of an existing facility, reducing the need to develop a new aggregate quarry nearby. This limits the need to clear undisturbed land elsewhere, helping preserve untouched habitats and biodiversity.
Environmental	Environmental protection products: The quarry supplies specialty aggregate products used in environmental applications such as shoreline stabilization and erosion control. Continued operation ensures a reliable local source for these materials.
Environmental	Reduced emissions: Sourcing aggregate from a nearby quarry reduces the distance materials must be trucked, lowering transportation-related emissions. Continued quarry operations will reduce haul distances for local projects, resulting in decreased environmental impact.
Economic	Support for local construction: Continued availability of local aggregate reduces construction costs for public and private projects by lowering material and transportation expenses.
Economic	Infrastructure development: Reliable access to aggregate supports timely infrastructure improvements (e.g., roads, bridges), which are critical for economic growth and public safety.

3.2 Consideration of Alternatives

Quarries are established where quality aggregate reserves are identified, and applicable environmental and logistical considerations are satisfied. MEL maintains a strategic network of NSECC approved aggregate quarries around the province to support local infrastructure projects. The development of an aggregate quarry is an important asset to the local community. An alternative to the proposed quarry expansion is to develop a new quarry nearby. Considering quality, environmental, and logistical constraints, it is preferred to proceed with an expansion of the existing site rather than the development of a new quarry nearby.

MEL operates rock quarries throughout Nova Scotia and Atlantic Canada and uses modern, industry standard methodologies in all phases of the extraction, processing, and delivery of

aggregates. Alternative processes are considered in terms of their efficiency, cost effectiveness and environmental mitigation advantages. Operations at the McIntyres Mountain quarry will be assessed on an on-going basis to ensure that the best available techniques are being utilized in all phases of operations.

3.3 Scope of the Environmental Assessment

The scope of the environmental assessment is in keeping with the NSECC document entitled "Guide to Preparing an EA Registration Document for Pit and Quarry Developments in Nova Scotia" as well as MEL's experience with respect to similar projects over the past several decades. The NSECC guidance document states that an "Environmental Assessment (EA) is a planning and decision-making tool used to promote sustainable development. By predicting and evaluating the environmental effects of an undertaking before it begins there is the opportunity to mitigate potential impacts of the undertaking on the environment".

The scope takes into consideration that the quarry is already developed and subject to an existing IA (**Appendix A**). It is noted that the existing IA includes conditions related to operational sound levels, separation distances, particulate emissions, surface water quality, groundwater management, reclamation, regulatory reporting as well as site-specific conditions. Prior to quarry expansion, the existing IA will be amended based on the results derived from the various studies and assessments that form this EA Registration Document, and the resulting EA Approval conditions. The amended IA will outline the operational requirements of the future quarry operation.

It is also noted that the proposed quarry expansion will not change the scope of operations at the site. Other than the proposed increase in operating footprint, it is expected that continued use of the quarry will be very similar to historic use of the site

The following sections of this document provide a description of the project and an overview of the human uses and biophysical features of the local environment; outline the key "Valued Environmental Components" addressed by the EA document; and present an evaluation and summary of the benefits and potential impacts to the environment during all phases of the proposed undertaking. A Biophysical Assessment (**Appendix D**); an Archaeological Resource Impact Assessment (ARIA) (a letter from Nova Scotia Communities, Culture, Tourism and Heritage concerning findings is presented in **Appendix E**); and a Water Balance Assessment (**Appendix F)** were conducted.

Envirosphere Consultants Limited (Envirosphere) was retained by MEL to undertake a Biophysical Assessment as part of the proposed expansion of the McIntyres Mountain quarry. Information for the Biophysical Assessment (**Appendix D**) was obtained from consultants' personal knowledge, from various field surveys, from reviews of available information and knowledge of typical quarry operations. The Biophysical Assessment follows *A Proponent's Guide to Environmental Assessment (NSECC 2017)* and *Guide to Preparing an EA Registration Document for Pit and Quarry Developments in Nova Scotia* (NSECC September 2009) and uses assessment methodology typical for environmental assessment screenings of this kind. For this assessment a list of Valued Environmental Components (VECs), and project activities and outcomes for the expansion of the existing quarry were developed. Potential for interactions of these activities with VECs was identified. Where interactions were identified, and there was potential for significant impacts, mitigating actions or activities have been suggested that will avoid the impact or reduce it to acceptable levels before the project proceeds. The process ensures that all potentially significant impacts on VECs are identified and all potential impacts on them

have been considered, and sufficient mitigation planned. These aspects of the project are fully dealt with in Section 6 – Valued Environmental Components and Effects Management.

Cultural Resource Management Group Limited (CRM Group) was retained by MEL to undertake an ARIA as a part of the proposed expansion of the McIntyres Mountain quarry. The assessment involved background research, Mi'kmaw engagement and field reconnaissance to identify, document, interpret and make management recommendations for potential cultural resources within the proposed impact area.

The ARIA was conducted according to the terms of Heritage Research Permit A2023NS210 (Category "C") issued to CRM through the Special Places Program of the NS Department of Communities, Cultural, Tourism and Heritage. The report describes the ARIA of the McIntyres Mountain quarry expansion study area, presents the results of these efforts and offers cultural resource management recommendations. Based on these results, CRM provided the following specific recommendations for the study area:

1. It is recommended that the study area, as defined in the CRM report be cleared of any requirement for future archaeological investigation.
2. If any further changes are made to the layout of the study area beyond the area assessed in this report, it is recommended that those proposed areas be subjected to an Archaeological Resource Impact Assessment.
3. In the event that archaeological deposits or human remains are encountered during construction activities associated with the McIntyres Mountain Quarry, all work in the associated area(s) should be halted and immediate contact made with the Special Places Program (John Cormier: 902-424-4542).

A letter from Nova Scotia Communities, Culture, Tourism and Heritage accepting the findings of the ARIA and recommendations is presented in **Appendix E.**

Consulting Hydrogeologist J. H. Fraser prepared a Water Balance Assessment for the proposed McIntyres Mountain Quarry Expansion Project. This Water Balance Assessment presents an assessment of the estimated effects on the surrounding water features resulting from the proposed quarry expansion. The analysis is intended to identify potential changes in the surface and groundwater flow regime and to provide input for the design and implementation of surface water control infrastructure as the site is further developed. The Water Balance Assessment for the McIntyres Mountain Quarry is included as **Appendix F**.

Table 2. EARD Concordance Table with Section 9 of the Environmental Assessment Regulations - Minimum Requirements for Registration.

Environmental Assessment Regulations Requirement	Reference Section
9 (1A) (b) (i) the name of the proposed undertaking,	Cover Page
9 (1A) (b) (ii) the location of the proposed undertaking,	Section 2.2
9 (1A) (b) (iii) the name, address and identification of the proponent,	Section 1.0

9 (1A) (b) (iv) a list of contact persons for the proposed undertaking and their contact information,	Section 1.0
9 (1A) (b) (v) the name and signature of the Chief Executive Officer or a person with signing authority, if the proponent is a corporation,	Section 14.0
9 (1A) (b) (vi) details of the nature and sensitivity of the area surrounding the proposed undertaking,	Section 6.0 Appendix D
9 (1A) (b) (vii) the purpose and need for the proposed undertaking,	Section 3.1
9 (1A) (b) (viii) the proposed construction and operation schedules for the undertaking,	Section 5.2
9 (1A) (b) (ix) a description of the proposed undertaking	Section 2.1
9 (1A) (b) (x) environmental baseline information	Section 6.0 Appendix D
9 (1A) (b) (xi) a list of licenses, certificates, permits, approvals and other forms of authorization that will be required for the proposed undertaking,	Section 3.4
9 (1A) (b) (xii) all sources of public funding for the proposed undertaking,	Section 13.0
9 (1A) (b) (xiii) all steps taken by the proponent to identify the concerns of the public and the Mi'kmaq of Nova Scotia about the adverse effects or the environmental effects of the proposed undertaking,	Section 4.1
9 (1A) (b) (xiv) a list of all concerns expressed by the public and the Mi'kmaq of Nova Scotia about the adverse effects or the environment effects of the proposed undertaking,	Section 4.1
9 (1A) (b) (xv) all steps taken or proposed to be taken by the proponent to address concerns of the public and the Mi'kmaq of Nova Scotia identified under subclause (xiv),	Section 4.1 Section 4.2 Section 10.0
9 (1A) (b) (xvi) an assessment of climate-change-related environmental effects, including positive and adverse effects,	Section 6.3.1

9 (1A) (b) (xvii) a plain-language summary of the undertaking, its environmental effects, including both positive and adverse effects, and any efforts to mitigate its environmental effects, to be posted on the government's website,	Plain Language Summary (provided separately)
9 (1A) (b) (xviii) the environmental effects of the undertaking, including both positive and adverse effects.	Table 1 Section 6.0

3.4 Other Approvals Required

The existing McIntyres Mountain quarry is subject to an existing Industrial Approval (**Appendix A**), which includes conditions related to operational sound levels, separation distances, particulate emissions, surface water quality, groundwater management, reclamation, regulatory reporting as well as several site-specific conditions. Prior to quarry expansion, the existing IA will be amended based on the results derived from the various studies and assessments that form this Environment Assessment, and the EA Approval conditions. The amended IA will outline the operational requirements of the future quarry operation. It is expected that the amended IA will include additional conditions for specific surface water monitoring and groundwater monitoring. Environmental monitoring information that is collected from the site will be provided to NSECC as part of an annual report.

It is understood that additional environmental approvals, permits, and/or authorizations may be required in the future. Wetland alteration approvals will be obtained prior to the removal of wetland habitat identified within the proposed quarry expansion area. At this time, no other approvals, permits, and/or authorizations are expected to be required in support of this application.

4.0 PUBLIC CONSULTATION AND FIRST NATIONS ENGAGEMENT

4.1 Methods of Involvement

MEL has engaged the public and the Mi'kmaq of Nova Scotia, as outlined below. Community and First Nations engagement to date has focused on notifying local elected officials and community representatives. Engagement efforts have included email correspondence and in person meetings, when requested.

MEL has followed guidance from the "Proponent's Guide: The Role of Proponents in Crown Consultation with the Mi'kmaq of Nova Scotia". In this regard, MEL sent an early engagement letter to the nearest First Nation communities, the Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO), and the Native Council of Nova Scotia (NCNS) summarizing the Project and advising of the tentative timeline to register the Project for Environmental Assessment. The Nova Scotia Office of L'nu Affairs was copied on all correspondence. A follow-up notification letter was also sent to all noted First Nation representatives, advising of the EA registration date, public viewing locations, and timelines for the submission of comments. A copy of First Nations correspondence is included in **Appendix H**.

Table 3. McIntyres Mountain Quarry Environmental Assessment - Public, First Nations, and Regulatory Engagement Summary.

First Nations Contact	Description of Engagement	Summary of Engagement
Kwilmu'kw Maw-klusuaqn Negotiation Office Ms. Twila Gaudet Director of Consultation Mr. Shawn Taylor Consultation Projects Support Officer	August 14, 2024 Virtual Meeting (with Shawn Taylor)	• Meeting to discuss the McIntyres Mountain Quarry expansion project. • Discussed the scope of existing operations and the proposed expansion. Noted that surrounding area is mostly Crown lands. • Reviewed select constraint mapping (property boundaries, provincial wetlands and watercourses, and species of interest) and site photos. Proposed expansion area TBD following environmental field studies. • Noted that a Wildlife Assessment has been completed for the study area. No species at risk identified at the site. Wood turtle habitat nearby, but no suitable habitat within the study area. Nearest recorded occurences for lynx (7+ km), american marten (38km), and bats (9km) are all significant distance from the site. • Discussed ARIA and noted that CRM Group completed the draft ARIA, which is currently under review by CCTH Special Places. KMKNO requested a copy of the ARIA. • Dexter to provide a copy of the ARIA once approved by CCTH Special Places. • Noted that early engagement letters will be sent out to various First Nation representatives in the coming weeks. • KMK noted that they will be requesting a Mi'kmaq Ecological Knowledge Study for the project. • Anticipated timeline for EA registration is 2025-Q1. • Agreed to meet in November to discuss on-going and future projects.
	September 6, 2024 Engagement Letter – forwarded via email	• Forwarded copies of Wagmatcook First Nation and We'koqma'q L'nue'kati early engagement letters. • Provided a copy of the CCTH accepted ARIA for the project.
	June 5, 2025 Notification Letter – forwarded via email	• Forwarded Wagmatcook First Nation and We'koqma'q L'nue'kati notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss.
Wagmatcook First Nation Chief Norman Bernard	September 6, 2024 Engagement Letter – forwarded via email	• Engagement letter, including Project Summary, anticipated timeline, and offer to discuss the project. Commitment to send follow up notification letter prior to EA registration.
	June 5, 2025 Notification Letter – forwarded via email	• Notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss.
We'koqma'q L'nue'kati Interim Chief John Leonard Bernard	September 6, 2024 Engagement Letter – forwarded via email	• Engagement letter, including Project Summary, anticipated timeline, and offer to discuss the project. Commitment to send follow up notification letter prior to EA registration.
	June 5, 2025 Notification Letter – forwarded via email	• Notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss.
Membertou First Nation Chief Terrance Paul	September 6, 2024 Engagement Letter – forwarded via email	• Engagement letter, including Project Summary, anticipated timeline, and offer to discuss the project. Commitment to send follow up notification letter prior to EA registration.
	June 5, 2025 Notification Letter – forwarded via email	• Notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss.
Native Council of Nova Scotia Chief Lorraine Augustine	September 6, 2024 Engagement Letter – forwarded via email	• Engagement letter, including Project Summary, anticipated timeline, and offer to discuss the project. Commitment to send follow up notification letter prior to EA registration.

First Nations Contact	Description of Engagement	Summary of Engagement
Ms. Vanessa Mitchell Executive Director, MAARS & Projects Ms. Christina Davis Habitat Impact Advisor	October 2, 2024 Meeting (with Vanessa Mitchell and Christina Davis)	• Meeting to discuss McIntyres Mountain Quarry Expansion Project. Reviewed site maps and photos. • Discussed the scope of existing operations and the scope of the proposed expansion. • Discussed key findings of completed environmental studies (no known wetlands, watercourses, or SAR). • Other discussion topics included RAP storage and use at quarry, site drainage, surrounding habitats, and nearby receptors. • Confirmed that Dexter will follow up with a Notification Letter when environmental studies have been complete and EA registration date has been confirmed.
	June 5, 2025 Notification Letter – forwarded via email	• Notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss.
Office of L'Nu Affairs Ms. Gillian DesRoche Consultation Advisor	August 14, 2024 Email	• Proposed early engagement approach for the McIntyre Mountain Quarry Expansion Project
	September 6, 2024 Engagement Letter – forwarded via email	• Forwarded copies of Wagmatcook First Nation and We'koqma'q L'nue'kati early engagement letters.
	June 5, 2025 Notification Letter – forwarded via email	• Forwarded Wagmatcook First Nation and We'koqma'q L'nue'kati notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss.

Public Stakeholder	Description of Engagement	Summary of Engagement
Municipality of Inverness Ms. Catherine Gillis Councilor - District 6	April 8, 2025 Email	• Email to notify of Project and upcoming EA Registration, including an offer to meet to discuss.
	June 9, 2025 Email	• Forwarded copy of public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments.
Provincial Representative Mr. Kyle MacQuarrie MLA, Inverness	April 8, 2025 Email	• Email to notify of Project and upcoming EA Registration, including an offer to meet to discuss.
	June 9, 2025 Email	• Forwarded copy of public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments.

Regulatory Stakeholder	Description of Engagement	Summary of Engagement
NSECC ICE Division David Fougere Inspector Specialist **NSECC ICE Division** Natalie MacPhee Regional Engineer	October 10, 2024 Site Visit	• Site visit and tour of the McIntyres Mountain Quarry (site inactive). Site visit offered to EA Branch and regulatory review stakeholders. • Provided details on the history of the site, the quarrying process, surface water management, wetlands and significant habitat, and the status of EA registration.
NSECC EA Branch Jeremy Higgins EA Officer **NSECC** Paula Francis Business Relationship Manager	May 12, 2025 Virtual Meeting	• Meeting to discuss the McIntyres Mountain Quarry expansion project. • Discussed the scope of existing operations and the proposed expansion. • Reviewed select mapping and site photos to provide context for the site. • Confirmed environmental studies conducted in support of the project. • Discussed registration logistics.

Stakeholder Comments

No written stakeholder feedback regarding the project has been received to date. General questions regarding the project have been discussed with local elected officials, First Nations representatives, and regulatory stakeholders. MEL will document any concerns received during the public consultation portion of the EA process and provide a copy to NSECC.

4.2 Future Steps

On the date of Registration, the public will be notified of the EA Registration by a Notice in the Chronicle Herald and Cape Breton Post. A copy of the Notice is included in **Appendix H.**

As part of the subsequent Industrial Approval Amendment process, MEL will develop a Mi'kmaq Communication Plan and a Complaint Resolution Procedure.

5.0 DESCRIPTION OF THE UNDERTAKING

5.1 Existing Quarry Operations

Existing quarry operations involve clearing and grubbing, drilling and blasting, excavation of blasted rock, crushing and stockpiling of aggregate, and associated trucking on an as required basis. The quarry is operated in accordance with an existing IA (Approval No. 2011-076964-01). A copy of the IA is attached in **Appendix A.** The quarry operates in accordance with applicable environmental laws and regulations, including the Nova Scotia Pit and Quarry Guidelines. These Guidelines apply to all pit and quarry operations in the province and provide separation distances for operations, including blasting limits, surface water discharge limits, suspended particulate matter limits, sound level limits and requirements for a reclamation plan and security bond. MEL is committed to using Best Management Practices in all phases of their operations, including the on-site management of air quality, greenhouse gas emissions, noise, dust, and water quality, and will operate in accordance with applicable Federal and Provincial legislation and standards.

Operation of the quarry occurs on an as-required basis when MEL has contract work in the area. Off-site activities and facilities that support the McIntyres Mountain quarry include the use of the provincial highway network. The existing quarry highwall is approximately 10 m in height.

Site operations and historic excavation has not encountered the water table as evidenced by the lack of water ponding on the quarry floor and no upwelling of water through the quarry floor.

With respect to the characteristics of the future quarry bedrock, a rock sample from the quarry was analysed for sulphur content to determine if the material was sulphide bearing. The results of this analysis yielded a sulphur concentration of < 0.001% (< 0.03 kg H_2SO_4/tonne), which is below the minimum (0.4 % S; 12.51 kg H_2SO_4/tonne) defined by NSECC as sulphide bearing material. The laboratory results of this sample are included in **Appendix C.**

5.2 Future Quarry Operations

MEL proposes to expand the McIntyres Mountain quarry for the extraction, production, storage, and removal of aggregate, primarily used in the road and local construction industry. MEL is proposing to expand the existing quarry to a maximum 20.39 hectares, which includes the existing production and operational footprint, set-up and storage (stockpiles) areas, and provisions for surface water control.

Although totally dependent on local market conditions, it is anticipated that future development will involve the production of up to approximately 50,000 tonnes of aggregate per year, during

years in which the site is active. **Drawing # 2, Appendix B** identifies the proposed 20.39-hectare expansion area.

Quarry operations will generally coincide with the road construction season; therefore, it is reasonable to anticipate periodic, seasonal operations within a similar time frame (April – December). The quarry will operate when and as required within the typical 32-week construction season, depending on local demand and project requirements. A typical project (often an NSDPW Contract) will require crushing activities at the quarry for a period of two to three weeks at a time. Although uncommon, during crushing activities the site may be operated 24 hours per day, possibly 7 days per week. Following crushing activities, aggregate products would be loaded and hauled from the quarry for several weeks, or as required by the project. During load and haul activities the site is typically operated during daylight hours (approximately 12 hours per day), possibly 7 days per week. MEL is committed to using Best Management Practices in all phases of their operations, including the on-site management of air quality, greenhouse gas emissions, noise, dust, and water quality, and will operate in accordance with applicable Federal and Provincial legislation and standards.

Aggregate production would commence with drilling and blasting, utilizing a qualified blasting contractor to conduct this work. The blasting contractor would be responsible for blast designs and methods in accordance with the General Blasting Regulations contained in the Nova Scotia Occupational Health and Safety Act, 1996. Blasting would also be conducted in accordance with the Pit and Quarry Guidelines. Blasting restrictions for time of day, and day of the week will be followed, and blast monitoring will be conducted for every blast event. The forthcoming revised IA will stipulate blasting control and monitoring requirements.

The blasted rock will be transported by a wheel loader to a portable crushing spread for processing. Produced aggregate products will be stockpiled in designated areas within the quarry. Material within the quarry will be hauled and moved with a front-end loader. Products will be transported from the quarry by tandem and tractor trailer trucks approximately 900 metres via a gravel road to the McIntyres Mountain Road and will be routed as necessary through the provincial highway and roadway network to support local projects. The number of trucks hauling aggregate will be determined on a job-by-job basis; however as the site is not expected to increase in level of activity, trucking activity is not expected to increase from past use.

Excavation will not take place below the deep bedrock water table. If extraction below the groundwater table is required in the future, a Hydrological Study will be completed and an application to amend the IA will be submitted to NSECC. Prior to quarry expansion, a network of groundwater monitoring wells will be installed around the quarry to confirm the local groundwater quality, baseline elevations and flow direction.

6.0 VALUED ENVIRONMENTAL COMPONENTS AND EFFECTS MANAGEMENT

6.1 Evaluation and Categorization of VEC's

The Environmental Assessment for this project involved review of the IA for the existing quarry (**Appendix A**); testing for Potential Acid Rock Production (**Appendix C**); preparation of a Biophysical Assessment (**Appendix D**); an Archaeological Resource Impact Assessment and letter of approval from Nova Scotia Communities, Culture, Tourism and Heritage **(Appendix E**); preparation of a Water Balance Assessment (**Appendix F**); and Stakeholder Engagement as outlined in **Table 1** and **Appendix G**. The environmental assessment follows the "Guide to Preparing an EA Registration Document for Pit and Quarry Developments in Nova Scotia"

(NSECC September 2009). For this assessment a list of VECs and project activities for the proposed quarry expansion were developed and the potential for interactions of these activities with VECs were identified. Where interactions were identified and there was potential for significant impacts, mitigating actions or activities have been identified that will avoid the impact or reduce it to acceptable levels before the project proceeds. This process ensures that potentially significant impacts on VECs are identified and potential impacts on them have been considered and sufficient mitigation planned and implemented.

The list of Valued Environmental Components considered for the assessment are presented in **Table 4**. The environmental effects and potential impacts of the project along with their significance and suggested mitigations are outlined in the following sections.

Table 4. Valued Environmental Components (VECs) for McIntyres Mountain Quarry Expansion.

BIOPHYSICAL	SOCIO-ECONOMIC
Air Quality, Noise and Light Groundwater Hydrology Water Quality Freshwater Aquatic Environments Wetlands Fish and Fish Habitat Flora and Fauna Habitat Species at Risk Natural Areas and Wilderness Climate Change	Mi'kmaq Human Health Recreational Activities Tourism and Viewscape Recreational, Commercial & Mi'kmaq Fishing Archaeological, Cultural and Historical Land Use Transportation Residential Use Commercial/Industrial Use Water Supplies & Residential Wells Parks & Protected Areas Forestry, Hunting and Trapping

6.2 Socio-economic Components

6.2.1 Mi'kmaq

Background

The Mi'kmaq maintain a general interest in all lands in Nova Scotia. As co-owners of the land and its resources, they expect that any potential impacts to rights and title be addressed. Mi'kmaq occupied much of Nova Scotia prior to European contact, and lands were used to varying degrees for habitation, hunting and fishing. In more recent times, treaties made with the British and continued through Canadian law have maintained their rights.

The Mi'kmaq used access to the Atlantic Coast and large waterways, both as a source of food and as transportation corridors, none of which are within the immediate vicinity of the study site. Overall, there is low potential for occurrence of Mi'kmaq archaeological resources at the site (CRM, 2025).

Two First Nations (We'koqma'q at Whycocomagh and Wagmatcook located near Nyanza) are located 28 and 48 km from the study area respectively along the coast of the Bras d'Or Lakes, but no First Nation activities are expected to be directly affected by activities at the McIntyres

Mountain quarry. Best management practices used at the site will reduce potential impacts quarry activities may have on water quality and quantity, fish habitat, or use of adjacent areas for recreation. The amended IA for the project is expected to include measures to manage and monitor the quality of surface waters in the vicinity of the site. Land around the McIntyres Mountain quarry may be used by Mi'kmaq living in the area and/or other residents for nature-based activities such as walking, ATV use, bird watching and hunting or fishing (either recreationally or for subsistence). The land area affected is small in relation to the available wildlife habitat in the area and would not likely affect wildlife or fish populations, potentially used by Mi'kmaq. Activities are seasonal and therefore would not interfere with other uses such as hunting, trapping and snowmobile and recreational vehicle use during the winter and spring. Since site operations are not expected to change in scope or increase in frequency from past use, there is unlikely to be a change in the cumulative effects of other activities in the area; consequently, none of these effects are considered significant.

Significance and Mitigation

There is low potential for occurrence of Mi'kmaq archaeological resources within the quarry site as outlined in the ARIA (CRM, 2025). In the unlikely event that artifacts are uncovered at the site, all work will stop, and discoveries will be reported to the appropriate authorities and mitigation will be enacted to the satisfaction of all parties involved. There is also a low potential for impacts to surface water or groundwater that may affect fish resources or water quality. The quarry will use Best Management practices to avoid accidental release of contaminants as well as vehicle accidents. Surface and groundwater monitoring programs will be established. The proponent will continue to engage with the Mi'kmaq as the quarry operates in the future.

6.2.2 Recreational Activities

Background

Recreational use of the environment in the vicinity of the study area, includes use by locals of roads for walking, ATVs and snowmobiling. Recreational uses such as tourist traffic and cycling on Highway 105 would interact with truck traffic originating in and destined to the quarry, which, however would likely be only a small portion of traffic already present. Residents of the area also have the opportunity to live in a relatively untouched natural environment with a low population density leading to local uses such as hunting and fishing, walking/hiking and home-based recreation (e.g. gardening) concentrated around roads in the area.

The principal effects of the quarry on tourists and locals using the area for recreation would be from truck and vehicle traffic and noise associated with the operation of heavy equipment; however, these interactions are a small component of a range of other industrial activities including logging trucks and equipment, and in particular, traffic along Highway 105, which is a major travel route, and the busiest in Cape Breton. Unlike other activities, the effects of the quarry would occur principally when the quarry is operating, while other activities in the area could occur year-round. Operations at the quarry would be cyclic, likely occupying several weeks to months during the construction season during the years in which the site is active. The site is regulated and monitored through an Industrial Approval issued by the Province. Although quarry operations would likely be heard near the quarry and residents would experience truck traffic and other effects of the quarry operations, the frequency and scope of the quarry is not expected to increase from past use and any impact on normal activities of residents as a result of the proposed quarry expansion are expected to be negligible.

Significance and Mitigation

Although quarry operations may be heard and residents may experience truck traffic and other effects of quarry operations, the frequency and scope of activities within the quarry is not expected to increase from past use, and any impact on normal activities of residents because of the proposed quarry expansion are expected to be negligible.

Signage will be in place at the entrance to the quarry during periods of site activity to ensure that passersby are aware of on-going activities. Road users will be informed of temporary increased trucking activity by signage placed along the McIntyres Mountain Road, in accordance with NSDPW requirements.

6.2.3 Tourism and Viewscape

Background

Expansion of the existing McIntyres Mountain quarry is not expected to have a significant impact on tourism and viewscape. The principal interactions with tourists would be noise and truck traffic transporting aggregate to job sites. Some operations at the quarry may be heard along McIntyres Mountain Road, on Highway 105, and on the ATV trails that are adjacent to the quarry. Blasting, which may be heard at greater distances, is of short duration and occurs infrequently – one to two times a year during years in which the site is active. The expansion will not result in a change in the frequency of activity, or visibility of the quarry, which cannot be seen from Highway 105 or McIntyres Mountain Road. Truck and equipment traffic accessing and exiting the site onto McIntyres Mountain Road, and Highway 105, is expected to be the main interaction with tourists. The traffic is expected to be seasonal and occasional and will be similar in character and levels of activity to that in the past and therefore would likely be only a minor impediment to tourist vehicle traffic in the area. The quarry will not be visible from adjacent roads and in particular Highway 105, which is an important tourist route, and for which scenic value of the area is important. Overall, the impacts on viewscape and tourism are expected to be negligible.

Significance and Mitigation

Overall, the effects on tourism and viewscape are expected to be negligible. The quarry is remote and cannot be seen from the McIntyres Mountain Road or Highway 105. Signage will be in place during periods of site activity to ensure that residents are aware of seasonal quarry activities and associated trucking and transportation routes.

Other on-site mitigation to control and mitigate potential nuisance impacts will include Best Management Practices, including dust and noise control, and the on-going progressive rehabilitation of quarry areas no longer required for activity and/or future development.

6.2.4 Recreational, Commercial, and Mi’kmaq Fishing

Background

Recreational fishing in watercourses near the quarry is not expected to be affected by activities at the quarry. River Inhabitants is the only major watercourse located within 2 km of the site, and the amount of runoff from the quarry is small and will have a negligible impact on the local surface waters. River Inhabitants and several tributaries arising from the slopes of McIntyres Mountain have trout populations in their lower reaches, which will not be impacted by the quarry. Surface waters at the site have high quality, including low turbidity and neutral pH, which would lead to

good water quality downstream for fish. Vehicle accidents along roads in the area, particularly Highway 105, pose a small potential risk in the vicinity of road crossings, which will be mitigated by safe driving practices of truck and equipment operators. In addition, the proposed quarry expansion is not expected to significantly change flows in local watercourses based on a Water Balance Assessment (Fraser, 2025; **Appendix F**). Overall, a negligible impact of the quarry on recreational, commercial and Mi'kmaq fishing is expected.

Significance and Mitigation

The effects of the quarry expansion are expected to have a negligible impact on recreational, commercial and Mi'kmaq fishing. Mitigation will include the use of Best Management Practices (i.e., pollution prevention, emergency response procedures, dust control, progressive rehabilitation). It is expected that a condition of EA approval will be to develop a surface water management plan for the site. A surface water management plan will be developed as part of the Industrial Approval process and will include specific surface water controls. Surface water, groundwater, and blasting will be monitored as per the Terms and Conditions of the amended IA.

6.2.5 Archaeological / Cultural / Historical

Background

The land proposed for the quarry expansion has low potential for pre-contact and/or early historic First Nation or European archaeological resources (CRM, 2025). The site is not expected to have been a prime area used by Mi'kmaq pre-contact.

Significance and Mitigation

The impact of the proposed quarry expansion on archaeological, cultural, or historical features is expected to be negligible. If an archaeological, cultural, or historical feature of significance is encountered during quarry activities, the impact will be reduced by halting operations and consulting with the Province and experts in the field to ensure the artifact or feature is not disturbed and is adequately documented and preserved. If the feature is suspected to be of Mi'kmaq origin, the appropriate Mi'kmaq authorities will be contacted.

6.2.6 Land Use, and Value

Background

Activities at the McIntyres Mountain quarry and in the proposed quarry expansion area are fully located on private lands and do not restrict forestry in the area except by removing available forest lands on the property. During the proposed life of the quarry, most of the existing forest will be harvested at least once, if not more and the rehabilitated parts of the quarry will also allow replanting and future harvesting. Aggregate from the quarry is used in projects in the area at a competitive cost due to the proximity of the quarry. The quarry may intensify the competitive environment for aggregate provided by other quarries in the vicinity, which may lead to lower prices. When the quarry is operating, construction crews will typically use local accommodations and services as well as local trucks. The existing quarry has been operating at the site for 13 years with little or no impact, while providing economic development and a source of aggregate for local construction projects. Overall, the proposed quarry expansion is expected to have a negligible impact on land use and value.

Significance and Mitigation

Overall, due to the small land area affected relative to the total land area available in the vicinity, the suitability of quarries as industrial activities and low numbers in the area, as well as no expected change in traffic levels, the proposed quarry expansion is expected to have a negligible impact on land use and value. Mitigation including minimizing the quarry footprint within the NSECC approved quarry permit area, and the progressive rehabilitation of areas no longer required for aggregate production or site related activities, will minimize impacts on land use and value.

6.2.7 Transportation

Background

During its previous operations, the McIntyres Mountain quarry has generated a low level of truck traffic on highways in the area, and activity levels are not expected to increase from historic levels as the expanded operation will be servicing approximately the same level of demand for aggregate as in the past. Existing traffic volumes on the McIntyres Mountain Road are low and vehicle traffic from the quarry would not constrain local traffic significantly. Transport of production and mobile equipment to and from the site prior to and after periods of site activity may lead to short term delays in traffic caused by the often-slower moving transport trucks; however, the duration will be less than experienced during typical roadwork projects and will be therefore insignificant. Heavy trucks moving through the area and trucks turning can be a hazard to local traffic. The intersection of McIntyres Mountain Road and Highway 105 has good sightlines to provide the safe exchange of vehicles.

Significance and Mitigation

Overall, the impact of the project on transportation is expected to be minimal, with little or no change from previous operations at the site. During periods of site operation, signage for truck and equipment operators, as well as the surrounding communities, will be placed to help inform the public that the quarry is active. Safe use of the road and avoidance of accidents is essential, both for human impacts and the potential impacts of vehicle accidents and spills on the local watercourses and environments. When the site is active, warning signs and speed limits can be placed in areas leading to the quarry. Equipment and truck operators for the quarry will be given instruction on safe procedures.

6.2.8 Residential Use

Background

Residents in the immediate vicinity of the quarry including McIntyres Mountain Road and along Highway 105 may be affected by noise from quarry operations, principally noise from heavy equipment operation such as loaders and trucks and periodic blasting; operation of crushers; and ground vibration from blasts, as well as dust and noise from truck traffic and accidental spillage of aggregate products from trucks during transport. Residents along Highway 105 already experience high levels of noise from vehicle traffic, including both private and industrial/commercial vehicles.

Blasting will be heard by local residents but would be instantaneous and infrequent (e.g. one to two times per year), when the quarry is operating. Increasing distance from residents reduces the noise and ground vibration and consequently the potential effect on groundwater wells or

impacts of blasting on building structures are likely negligible. There are no permanent residences within 800 meters of the proposed expanded quarry.

Truck traffic generates noise and dust and increases the potential for vehicle accidents and accidental loss of gravel and rock products from trucks during transport, which can be hazardous. Although quarry operations could likely be heard near the quarry and residents would experience truck traffic and other effects of quarry operations, the frequency and scope of activities at the quarry is expected to continue at present levels and any impact on normal activities of residents as a result of the proposed quarry expansion are expected to be negligible.

Skyshine from the quarry, on rare occasions when the quarry may be operated at night, will likely not be seen by local residents, and would be controlled by proper environmental management practices such as the use of downward direction lighting. The temporary effects of the quarry would occur principally when the quarry is operating during the construction season, not year-round. Operations at the quarry would be cyclic, likely occupying several weeks to months during the construction season during the years in which the site is active.

The quarry occupies a small area in relation to the local groundwater aquifer and will have a negligible impact on groundwater supply to local residents

Significance and Mitigation

Overall, the impact of the project on residential use is expected to be minimal, with little or no change from previous operations at the quarry. However, mitigation measures such as maintaining appropriate operational buffers, controlling vehicle speed and engine braking, securing equipment to prevent banging (e.g., doors and chains), covering loads, wetting working areas, etc. will be implemented, ensuring that quarry operations comply with applicable noise and dust limits. Attention will be given to dust management through standard dust mitigation strategies (water spray, reducing speeds, gravelling working areas, etc.). Noise and dust monitoring will be conducted as per the terms and conditions of the Industrial Approval. Portable light towers, if required, may be seen by immediate residents, but would be controlled by proper environmental management practices (i.e., downward directional lighting).

Quarry activities such as blasting, are not expected to impact residential water supplies, as homes are located at a significant distance from the site. All blasting events will be monitored for concussion and ground vibration to ensure blasting limits are achieved as per the Industrial Approval. It is expected that a condition of EA approval will be to develop a groundwater monitoring program for the site. As part of the subsequent IA process, a groundwater monitoring program will be developed, and a network of groundwater monitoring wells will be constructed to establish baseline groundwater quality as well as existing groundwater table elevations. The monitoring well network will allow for on-going monitoring to ensure that any potential groundwater impacts are identified.

The quarry will include signage with company contact information. A complaint resolution procedure will be put in place by MEL to address any complaints and concerns received.

6.2.9 Commercial and Industrial Use

Background

Apart from commercial logging, there is negligible industrial activity in the vicinity of the McIntyres Mountain quarry. Wind farms are becoming more commonplace in suitable areas of Nova Scotia;

the quarry is 4 km from an area proposed for long-term expansion of the Rhodena Wind Farm, approved in 2024, and 10 km from the first six turbines of the project to be installed near Craigmore. The proposed quarry will introduce competition for the supply of aggregate products in the general vicinity. The quarry contributes to the net economic benefit in the community through supporting local trucking operations and providing access to aggregate and other quarry products.

Significance and Mitigation

The impact of the project on commercial and industrial use is expected to be minimal, with little or no change from previous operations at the quarry. The continued use of Best Management Practices as well as strict adherence to the terms and conditions of the Industrial Approval will ensure that a non-impacting environment is maintained through future operations.

6.2.10 Water Supplies and Residential Wells

Background

The nearest residence to the proposed quarry expansion area is approximately 1 kilometre away. The next closest residence is over 2 kilometres away. Drinking water wells associated with the nearest residences along McIntyres Mountain Road and at the foot of McIntyres Mountain in the same aquifer as the quarry are unlikely to be affected by periodic blasting. Groundwater recharge generated by the quarry is likely to be of high quality (low conductivity and dissolved solids and neutral in pH).

Significance and Mitigation

The impact of the project on water supplies and residential wells is expected to be minimal, with little or no change from previous operations at the quarry. Best management practices and Industrial Approval conditions for all operations, including blasting will be followed. Established operational procedures for fuelling will be followed and a contingency plan will be maintained to mitigate reasonable impacts on aquifers at the site. It is expected that a condition of EA approval will be to develop a groundwater monitoring program for the site. As part of the subsequent IA process, an on-site groundwater monitoring program will be developed, and a network of groundwater monitoring wells will be constructed to establish baseline groundwater quality as well as groundwater table elevations prior to expansion. The monitoring well network will allow for on-going monitoring to ensure that any potential groundwater impacts are identified.

6.2.11 Parks and Protected Areas

Background

Apart from noise from operations and occasional blasting, which may occasionally be heard in remote natural sites and parks and protected areas in the region, the McIntyres Mountain quarry will have a negligible effect on Parks and Protected areas. Other than the gradual increase in the total operational footprint of the site, site activities are not planned to change in scope or increase in frequency from past use. The proposed expansion of the McIntyres Mountain quarry site will not increase overall levels of noise beyond those historically experienced during periods of previous activity. There are few Parks or Protected areas in the general area, with the nearest park being the River Inhabitants Nature Reserve, which is 4.4 km from the site, and will experience

minimal noise impacts in general. The expanded quarry area will not be visible to visitors travelling by road; or to ATV enthusiasts using parks and protected areas. Road traffic activity associated with the quarry is expected to be consistent with historic levels. Occasional blasting (one to two times per year, during which the quarry is active), are brief and infrequent, and not likely to be a significant concern to visitors/users of those areas. The quarry will be reclaimed at the end of its useful life. Expansion of the quarry will not affect the integrity of any nearby protected areas.

Significance and Mitigation

The impact of the project on parks and protected areas is expected to be negligible, with little or no change from previous operations at the quarry. Mitigation will include the use of Best Management Practices for all aspects of the quarry operation. Monitoring of surface water, groundwater, and blasting events will be conducted as per the terms and conditions of the IA.

6.2.12 Resource Use – Forestry, Hunting, and Trapping

Background

The proposed quarry expansion is located on private lands. Use of the land in the proposed expansion area will remove the potential for future forestry use of the site, at least until after the quarry is closed and rehabilitated in future; however, the area occupied by the quarry is relatively small in relation to the available forest resources in the area, and the overall impact on economic return is expected to be small. The quarry will occupy a relatively small area of habitat for furbearing and game species and will not have a significant impact on hunting and trapping.

Industrial operations, including quarries, generate low-level releases to the environment including vehicle and equipment exhaust and dust, although at typically low levels and comparable to effects of equipment use elsewhere and which have been acknowledged and managed.

Significance and Mitigation

The impact of the project on resource use such as forestry, hunting and trapping is expected to be minimal, with little or no change from previous operations at the quarry. Mitigation will involve the minimization of the footprint of the quarry footprint within the NSECC approved quarry permit area, and the progressive rehabilitation of areas no longer required for aggregate production or site related activities.

6.2.13 Human Health

Background

Many aspects of modern industrial society have the potential for impacting human health. Effects range from impacts of contaminants in the food supply, trace metals and organic pollutants in water, pesticides in the environment and on food, atmospheric emissions of smoke and volatile organic compounds, wood preservatives in everyday use, fuels, flame retardants, etc. Industrial operations, including quarries, generate low-level releases to the environment including vehicle and equipment exhaust, dust and emissions, although at extremely low levels, and comparable

to the effects of heavy equipment use elsewhere, and which have been acknowledged and managed.

In contrast, operations at the McIntyres Mountain quarry are not expected to result in impacts on human health. Dust, which is derived from the source rock, aggregate and activities at the quarry, does not contain toxic components and exposure to residents along McIntyres Mountain Road will be low. Residual dust associated with the quarry after control measures, will be largely localized in the immediate vicinity of the quarry. Emissions from operation of an asphalt plant, which may take place from time to time at the site, are regulated under separate provincial approvals. Noise from activities at the quarry and transport of product may disturb residents, which if prolonged could be considered a health concern, but management plans will be put in place to minimize noise levels. Other air-borne emissions such as vehicle exhaust are not unique to quarry activities and would also be derived from other traffic along roads in the area.

Significance and Mitigation

The impact of the project on human health is expected to be negligible, with little or no change from previous operations at the quarry. Mitigation will include the use of Best Management Practices for all aspects of the quarry operation. Monitoring of surface water, groundwater, and blasting events will be conducted as per the terms and conditions of the IA.

6.3 Biophysical Components

6.3.1 Air Quality, Noise, and Light

Background

Other than the gradual increase in the total operational footprint resulting from the expansion, quarry activities are not expected to change from the existing scope of operations. The expansion of the McIntyres Mountain quarry area is not expected to result in an increase in traffic, noise, dust and light from operations over those previously experienced at the site. Various project activities have the potential to generate dust, emissions, noise, and light. The operation of heavy equipment (e.g., earth movers, crushers), rock drilling and blasting, as well as onsite routine operations contribute to noise, dust, and particulate levels. Dust emissions are expected to be localized and short term and are expected to be minimal from routine operations. Exhaust emissions will occasionally be generated by the operation of vehicles and equipment.

As the amount of site activity at the site is not expected to increase, noise, dust, and emission levels from the expanded quarry are expected to be similar to those already produced at the site. Blasting is expected to occur infrequently (1-2 times per year during years in which the site is active).

Occasional night-time operations may be required. Light during night-time operations—particularly during times of low-hanging cloud and fog—can attract migrating birds and divert them from movements towards the rest of the mainland of Nova Scotia.

Significance and Mitigation

Overall, the impact of the project on air quality, noise and light is expected to be similar to the existing operation, with little or no change from previous operations at the quarry. With appropriate mitigation applied, potential impacts on air quality, noise, and light are expected to be minimal.

Dust management will be achieved through the use of water spray systems designed to reduce air borne dust originating from crushing operations and construction vehicle movement, by gravelling working areas, and reducing vehicle and equipment speed. Monitoring of airborne particulate emissions will be conducted at the request of NSECC and in accordance with the Pit and Quarry Guidelines and the Industrial Approval for the quarry. Industry standards and best practices will be followed during all phases of operations.

Noise mitigation will include maintaining appropriate operational buffers, maintaining vehicles and heavy equipment, and giving attention to traffic patterns around the site to reduce the need for heavy equipment to use back-up beepers, when possible. The operation will ensure that heavy equipment does not exceed the noise limits specified in the Nova Scotia Pit and Quarry Guidelines. Blasting is expected to occur infrequently (1-2 times year, during years in which the site is active). All blasting events will be monitored for concussion (noise) and ground vibration. Noise monitoring will be conducted at the request of NSECC, in accordance with the terms and conditions of the IA.

Vehicles and heavy equipment will follow efficient operating procedures such as not idling unnecessarily when not in use and avoiding use of engine braking. Given the location of the quarry and the scope of the planned operations, emissions will be minimal (i.e., restricted to several pieces of heavy equipment, earth movers, trucks etc. as well as operation of portable crushers) and will be localized and similar in type and amount to those produced during previous operations. Ambient air quality monitoring will be conducted at the request of NSECC, in accordance with the terms and conditions of the IA.

With respect to light emanating from the site during infrequent night-time operations, measures will be taken to ensure use of directional lighting, which minimizes emanation of light upward and laterally over the horizon, and reduces impacts on wildlife.

6.3.2 Groundwater

Background

Activities associated with the project including forest clearing, grubbing and removal of overburden, and blasting, can influence groundwater flow locally in the vicinity of the quarry, but are not expected to influence groundwater aquifers over a broader area. The amount of recharge area involved in project activities is moderate in relation to the overall size of the aquifers in the general vicinity. The quarry floor will continue to add recharge in approximately the same amount as at present. Groundwater can potentially be impacted by spills and/or leaks from operating equipment; however, activities will be managed to reduce the likelihood of spills.

Site operations and historic aggregate excavation has not encountered the deep bedrock water table as evidenced by the lack of water ponding on the quarry floor and no upwelling of water through the quarry floor. Development of the quarry excavation has established a depression that collects and retains small amounts of surface water from precipitation events and spring melt from within the quarry operating area.

Future excavation is not expected to take place below the deep bedrock water table, so there will be no pumping of groundwater and therefore no dewatering of the associated bedrock aquifer.

Significance and Mitigation

Overall, the impact of the project on groundwater is expected to be similar to the existing operation, with little or no change from previous operations at the quarry. With appropriate mitigation applied, potential impacts on groundwater are expected to be negligible.

The quarry excavation will not enter the groundwater table, so on-going pumping of groundwater will not be required. If aggregate extraction below the groundwater water table is required in the future, a Hydrological Study will be completed and an application to amend the IA will be submitted to NSECC.

It is expected that a condition of EA approval will be to develop a groundwater monitoring program for the site. As part of the subsequent Industrial Approval process, an on-site groundwater monitoring program will be developed, and a network of groundwater monitoring wells will be constructed to establish baseline groundwater quality as well as existing groundwater table elevations. The monitoring well network will allow for on-going monitoring to ensure that any potential groundwater impacts are identified. MEL has developed a Contingency Plan for pit and quarry operations. The Contingency Plan includes procedures and processes for responding to environmental emergencies including spill or release occurrences that could potentially impact groundwater in the area. Spill response, clean-up, and reporting will be in accordance with applicable NSECC Regulations. The Contingency Plan will be included with subsequent IA applications for review by NSECC.

6.3.3 Hydrology / Water Quality

Background

Expansion of the quarry will modify the existing hydrology at the site, resulting in an artificial though managed regime of surface water movement and runoff at the site. The proposed expansion area and its potential effect on flow to local surface water will be minimal, as noted in the Water Balance Assessment (Fraser, 2025 – **Appendix F**) which estimated the change in surface water flows resulting from the proposed expansion. The Assessment estimated that the change in runoff for the main catchment affected by the quarry from existing conditions to full quarry development ranges from increases of 15.7% (Impervious quarry floor) to 7.8% (Pervious quarry floor).

If aggregate washing is required, wash water will be managed within the site itself such that all wash water is retained on-site and can be re-used in the aggregate washing process. Surface water runoff from the quarry is inherently intermittent and is not expected to affect overall flow characteristics in downstream areas significantly.

With respect to the characteristics of the quarry bedrock, a rock sample from the quarry was analysed for sulphur content to determine if the material was sulphide bearing. The results of this analysis yielded a sulphur concentration of <0.001 % (<0.03 kg H_2SO_4/tonne), which is below the minimum (0.4 % S; 12.51 kg H_2SO_4/tonne) defined by NSECC as sulphide bearing material. The laboratory results of this sample are included in **Appendix C**. The quarry rock to be excavated is not acid producing and therefore will not have a negative effect on surface water or groundwater quality.

Significance and Mitigation

Overall, the impact of the proposed quarry expansion on the local hydrology (i.e., flow and quality) is expected to be similar to the existing operation. With appropriate mitigation applied, potential impacts on local hydrology are expected to be minimal.

The Water Balance Assessment estimates that the proposed quarry expansion will generate a minimal increase in runoff volume. It is expected that a condition of EA approval will be to develop a surface water management plan for the site, which will include consideration for a progressive increase in the amount of runoff from the quarry. The surface water management plan will be developed as part of the subsequent IA process and will include specific surface water controls and erosion and sediment control strategies. A monitoring program will be included with the surface water management plan. Surface water monitoring locations will be identified and monitored to establish baseline surface water quality. The surface water monitoring network will allow for on-going monitoring to ensure that any potential hydrology impacts are identified. Water usage will be primarily for dust control via spray systems on crushing spreads and application of water on roads. Water will either be sourced onsite through retained surface water in the fractured quarry floor or imported from offsite. The application of water for dust control will be at a rate that does not produce significant amounts of runoff that need to be managed. Anticipated water usage at the site is not expected to be at a frequency or volume that would require a water withdrawal approval.

6.3.4 Freshwater Aquatic Environments

Background

There are no natural surface waters to be impacted by the project, and there is significant separation of the proposed expansion from headwaters of intermittent watercourses originating on the slopes of McIntyres Mountain to ensure they will not be affected by quarry activities. Quantities of runoff arising from the site in future from the outer slopes of berms and grubbings piles will be approximately the same as at present and will remain in the same watershed. The quarry is unlikely to generate significant quantities of contaminants or suspended sediments that could impact any freshwater habitat.

Significance and Mitigation

Overall, the impact of the project on the local freshwater aquatic environments is expected to be negligible.

Potential impacts to local freshwater aquatic environments will be mitigated by maintenance of forested buffer zones and using surface water and sediment control and monitoring procedures as outlined in the Hydrology and Water Quality Section. MEL has developed a Contingency Plan for pit and quarry operations. The Contingency Plan includes procedures and processes for responding to environmental emergencies including spill or release occurrences that could potentially impact surface water and groundwater in the area. Spill response, clean-up, and reporting will be in accordance with applicable NSECC Regulations. The Contingency Plan will be included with subsequent IA applications for review by NSECC.

6.3.5 Wetlands

Several small wetlands (100m^2 – 200 m^2) are present within the study area, none of which contain plant species of conservation concern or are considered wetlands of special significance. All wetlands found at the study site are located inside the proposed expansion area and may need to be removed to facilitate practical development of the quarry. Prior to physical disturbance, the wetland dimensions will be confirmed and any wetlands larger than 100m^2 will require alteration approvals and appropriate compensation for the loss will be arranged.

Significance and Mitigation

Overall, the impact of the project on the local wetlands is expected to be negligible.

Potential impacts to local wetlands will be mitigated via the maintenance of forested buffer zones and using surface water and sediment control and monitoring procedures as outlined in the Hydrology and Water Quality Section. Prior to any physical disturbance, separate wetland alteration approvals will be obtained for each wetland and appropriate compensation for the loss will be arranged.

MEL has developed a Contingency Plan for pit and quarry operations. The Contingency Plan includes procedures and processes for responding to environmental emergencies including spill or release occurrences that could potentially impact surface water and groundwater in the area. Spill response, clean-up, and reporting will be in accordance with applicable NSECC Regulations. The Contingency Plan will be included with subsequent IA applications for review by NSECC.

6.3.6 Fish and Fish Habitat

Background

None of the proposed project activities will physically impact fish habitat. Intermittent drainage down the steep slope of McIntyres Mountain is not fish habitat and the nearest potential fish habitat is approximately 400m west and 800m east and southeast of the proposed quarry expansion area. Most precipitation is expected to infiltrate the quarry floor and not directly reach watercourses as runoff. The Water Balance Assessment for the project indicates that the development will not reduce the supply of water to adjacent areas (Fraser, 2025 – **Appendix F**).

Significance and Mitigation

It is expected that a condition of EA approval will be to develop a surface water management plan for the site. The surface water management plan will be developed as part of the subsequent Industrial Approval process and will include specific surface water controls. A monitoring program will be included with the surface water management plan. Surface water monitoring locations will be identified and monitored to establish baseline surface water quality. The surface water monitoring network will allow for on-going monitoring to ensure that runoff from the quarry meets guidelines for maintenance of Freshwater Aquatic Life and the limits stipulated in the IA.

MEL has developed a Contingency Plan for pit and quarry operations. The Contingency Plan includes procedures and processes for responding to environmental emergencies including spill or release occurrences that could potentially impact fish and fish habitat in the area. Spill response, clean-up, and reporting will be in accordance with applicable NSECC Regulations. The Contingency Plan will be included with subsequent IA applications for review by NSECC. In addition, safe driving practices for all vehicle operators will be implemented to minimize the potential of accidents, especially in the vicinity of key quarry intersections.

6.3.7 Flora and Fauna Habitat

Background

Development of the McIntyres Mountain quarry will progressively remove the existing terrestrial ecosystem (plants and animals) from the footprint of the quarry. The quarry footprint is relatively small in relation to larger surrounding forested areas and the effect on the overall distribution and quality of forests will be minor. Most of the area proposed for the quarry have second or third generation forest, having previously experienced stages of logging, and no terrestrial habitats

which have conservation significance occur at the site. With time, areas no longer suitable for quarry operations will be remediated following a site reclamation plan. Plant and animal communities that arise in the remediated areas will likely differ to some degree from those at present; however, a goal of remediation will be to restore conditions (soil types and topography) that are reasonably similar to pre-existing conditions, to allow natural communities to re-establish. During recovery and revegetation of abandoned areas, the seeding in and succession of forest species will provide habitat for a moderate diversity of species which will change with time.

Removal of forest cover is a feature that quarry development shares with logging activities, which affects local ecosystems to a moderate degree, and is allowed in Nova Scotia. Development of the McIntyres Mountain quarry will result in only a comparatively small change in the coverage of natural and mature forest stands in the area and is expected to have comparatively small impact on interior forest birds and wildlife. During operations, modified areas of the quarry offer potential nesting sites for certain species of birds and other wildlife, including hunting spaces for species such as owls and nesting for ground nesting birds such as nighthawks. Night operations and use of lights have various effects, including attracting insects which otherwise would need darkness to mate and reproduce. Other quarry activities such as blasting and vehicular operation and movement are not expected to interact significantly with wildlife and therefore are not a concern.

Significance and Mitigation

The effects of quarry construction and operation on flora and fauna habitat with appropriate mitigation are expected to be negligible, and any potential impacts will be mitigated.

Areas no longer required for quarry operations will be progressively remediated. A Reclamation Plan has been established and updating the Plan every three years is a condition of the quarry Industrial Approval. Normal management practices regarding forest clearing, such as avoidance of cutting or major clearing activities during critical breeding periods of songbirds from mid-April to mid-September, will reduce loss of nesting birds in forest areas. Quarry employees will be educated on the need to check areas for activity and nests including both ground- and tree-nesting birds, before undertaking activities which would disturb established surfaces. Lighting used at the site should focus downward and below the normal horizon, to limit visibility by birds and insects from a distance.

It is expected that a condition of the EA Approval for the quarry will be to develop a Wildlife Management Plan for the site. The Wildlife Management Plan will establish appropriate mitigation measures to manage wildlife resources (avian species and their nests, species at risk, non-native plant species, select species of interest, etc.). MEL has also developed a Contingency Plan for its pit and quarry operations. The Contingency Plan includes procedures and processes for responding to environmental emergencies including spill or release occurrences that could potentially impact flora and fauna in the area. Spill response, clean-up, and reporting will be in accordance with applicable NSECC Regulations. The Contingency Plan will be included with subsequent IA applications for review by NSECC.

6.3.8 Species at Risk

Background

No federally or provincially-listed species at risk, or species more sensitive than S3 ranking (vulnerable), were found in the study area. No provincially listed plant species, lichen species or fur-bearing mammals of conservation importance have been recorded within the study site and

only Canada Lynx (Provincially listed as endangered) has potential to occur at the site. The quarry is not expected to have a significant potential for impacting fur-bearing mammals or their habitat.

Common Nighthawk, a ground-nesting bird species, which potentially could nest in grubbed and marginal but open areas of the quarry, was not detected at the site; periodic nighthawk surveys during operation of the quarry would aid in mitigating potential impacts. Lights during night operations during migration periods (April – June, August – September) would attract various bird species and insects, which could include species at risk. Blasting events, although infrequent (1-2 times/year during years in which the quarry is active) are also of concern to species at risk.

Significance and Mitigation

Overall, the effects of the quarry construction and operations on species at risk are expected to be negligible. Potential impacts will be mitigated as outlined below.

Employees will be made aware of the need to check areas for activity and nests before undertaking activities which would disturb established surfaces. Activities such as logging, and site clearing should be scheduled outside the April to mid-September nesting period for breeding birds. Lighting used at the site should focus downward and below the normal horizon, to limit visibility from a distance. Blasting will be minimized (i.e. 1-2 blasts per year, during years in which the site is active) planned for the spring and fall (if possible) when species are generally absent (i.e., outside breeding and migratory periods).

It is expected that a condition of EA approval will be to develop a Wildlife Management Plan through the Industrial Approval process. The Wildlife Management Plan will establish appropriate mitigation measures to manage interactions with wildlife resources, avian species and their nests, species at risk, non-native plant species, etc. If wildlife and/or species at risk concerns arise for which potential mitigation is unknown, MEL staff will liaise with the appropriate regulatory groups and knowledgeable consultants to determine appropriate action.

6.3.9 Natural Areas and Wilderness

Background

Natural areas in the vicinity of the site, such as the River Inhabitants Nature Reserve or Bornish Hills Nature Reserve, are important for conservation of a wide range of species and ecosystem types and the comparative absence of development is appreciated by locals, tourists and Nova Scotians with an interest in conservation and outdoor experiences. The proposed development of the McIntyres Mountain quarry is located on private lands and will only affect a small proportion of the natural landscape at the site, in an area that has been actively logged and is not in any protected area. Consequently, it will have a negligible effect both on ecosystems and on human use and interests in adjacent environments, including tourists passing through the area on Highway 105. The proposed expansion of the McIntyres Mountain quarry will affect a small proportion of the natural landscape at the site and will have a limited effect on visitors to the area who are looking for nature experiences. Site operations nonetheless will generate noise and dust and will thus have some, but limited, effects on natural areas and wilderness.

Significance and Mitigation

Overall, the effects of the quarry construction and operations on natural areas and wilderness are expected to be negligible. Potential impacts will be mitigated as outlined below.

Mitigation to reduce potential impacts of the quarry on Air Quality, Noise, and Light, will be applied to reduce potential impacts on Natural Areas and Wilderness. This will include routine procedures and best management practices such as dust control and light management. A quarry Reclamation Plan will be maintained, including provisions for progressive reclamation where appropriate, to rehabilitate areas no longer required for aggregate production. In addition, quarry reclamation will also consider values important in conservation of biological communities and ecosystems, such as connectivity with existing undeveloped natural environments, as well as changes in physical conditions that could affect those communities.

6.3.10 Climate Change

Background

Canada as a developed nation is a highly industrialized society and relies on industrial products to maintain the high standard of living on which Canadians depend. The predominant source of energy for industrial activity in modern society is the burning of fossil fuels, which leads to emissions—carbon dioxide in particular— which leads to global warming and various associated climate side effects such as extreme and changing weather. Quarries both contribute to, and are important in helping to, reduce our reliance on fossil fuel consumption.

The main market for aggregate and other quarry products is the construction industry, in particular the construction and maintenance of roads and paved highways. Highway transportation is one of the main sources of fossil fuel emissions in today's Society and good highways are important in safe and efficient transportation of goods and people. High quality roads reduce the fuel consumption of commercial traffic; and although high quality roads tend to encourage travel by the public, they improve fuel consumption and will lead to increased benefits during an energy transition to electrically-powered vehicles. Asphalt-based roads in addition have a lower greenhouse gas emissions profile that those made of concrete.

Quarries are one of several resource industries, for example forestry, road-building, the fishing industry, etc. that rely heavily on heavy equipment which is almost solely powered by fossil fuels. Nonetheless, quarry activities are not exceptional producers of greenhouse gases leading to climate change. They are below the lower end of industrial emitters. Quarries normally operate with a view to minimizing fuel consumption and equipment maintenance expenses, and therefore already minimize their greenhouse gas emissions. Nonetheless, improvements can be made to fuel requirements by site management, maintaining equipment in peak operating condition, avoidance of idling etc. Using synthetic or bio-based diesel in future may reduce overall impact slightly.

Another impact of quarrying is local heating of the atmosphere through exposed land surfaces. Although a small contribution compared with other cleared surfaces such as road networks, cities, parking lots, etc., local heating of quarries can be reduced by minimizing the work area footprint; taking measures to avoid clearing unneeded areas of forest; and rehabilitation and revegetating areas no longer used. Protecting natural ecosystems on quarry sites also helps mitigate climate change by maintaining carbon sinks (Lutham et al. 2023)

Practices used by the mining industry—which has a similar equipment profile to quarry operations—to minimize fossil fuel use include planning for climate change impacts, which affect quarries as much as they do communities and countries. Among the impacts to be expected from

global warming are increased instances of extreme temperatures, which affect not only equipment performance, but employee health and efficiency, fire and forest fire risk. These effects are projected to intensify in the future. High temperatures and periods of drought also reduce the availability of key operational resources such as availability of water for industrial processes and dust control. Warming temperatures will increase water scarcity in some locations, inhibiting water-dependent operations, complicating site rehabilitation and bringing companies into direct conflict with communities for water resources (Nelson and Schuchard, undated). In this case, advance planning for water recycling, including storage, and collaboration with local communities (Mining Association of Canada 2021) is an important step in optimizing operations and need for fossil fuels.

Extreme weather can impact operations at quarries, leading to additional outputs of financial resources and energy (Lutham et al 2023). Design of quarry sites and management of surface water to anticipate climate extremes, such as exceptional rainfall events, will potentially eliminate the risk of disastrous failure and human safety. Management plans which take into account the potential for extreme rainfall events, can anticipate situations where equipment is placed at risk of loss, for example.

Ultimately, awareness of the importance of understanding climate change, and both the contributions of the quarry operations to it, and how they are affected by it, will allow continued operations at least at the current level, and if possible, at one that is improved vis a vis climate change in future.

Significance and Mitigation

Overall, the project is expected to have a negligible impact on Climate Change. The proposed expansion will not result in a significant change in site activities (either in scope or frequency) from past use. Where the amount of site activity will not change as a result of the expansion, it is expected that vehicle and equipment emissions will remain approximately the same.

7.0 IMPACTS OF THE ENVIRONMENT ON THE PROJECT

The McIntyres Mountain quarry will be affected in general by weather, including extreme weather events expected to occur more frequently as a result of climate change. This may potentially lead to erosion and high flows in adjacent watercourses; high winds leading to resuspension of dust and elevated temperatures. Quarry design, which includes site water management will allow flows generated from extreme rainfall events to be managed accordingly. Aggregate products produced and stockpiled at the site are stable under varying conditions of rainfall and wind.

As will be required by the Industrial Approval of the expanded quarry, a surface water management plan and Erosion and Sediment Control Plan will be developed for the site, which will include consideration for extreme rainfall events. Integrity of any runoff management structures at the site will be inspected on a regular basis, in particular following major weather events. Corrective action will be undertaken, if needed, in a timely manner. Dry conditions, if encountered, however, may require access to outside water sources for dust control which will be sourced and will not impact the water balance assessment conclusions or the adjacent wetlands.

Changing climate may increase the operating season for transportation projects, and the need for aggregates produced by the quarry.

8.0 POTENTIAL CUMULATIVE IMPACTS

Cumulative impacts are effects of the project that may result in combination with other physical activities that have been or will be conducted (IAA 2023). Relative importance of particular cumulative effects is determined using similar criteria to those of individual impacts of projects, which are often socially perceived limits, such as acceptable geographic extent of the effect relative to available land or habitat type in a particular area.

Development of the McIntyres Mountain quarry will have minimal cumulative effects on most environmental features (Valued Environmental Components, VECs), in part because of the small size of the development relative to other similar uses of the area and because the quarry will be reclaimed at the end of its useful life. Other than the gradual increase in the total operational footprint of the site, site activities are not planned to change in scope or increase in frequency from past use. Reduction in forest cover at the site will compound the overall effects of forestry and land-clearing for the area. Planned restoration of the quarry site to natural conditions after its useful life will, in the long term, counteract the effect of present forest loss.

At the proposed 20.39 ha maximum size of the McIntyres quarry, it will occupy less than 0.22% of the land within 10 km, and would represent approximately 16% of the 107.5 ha already developed for industrial purposes within a 10 km radius of the site (e.g. gravel pits, quarries, gypsum mines or other areas which involve modifying the landscape for industrial development) (Nova Scotia Forest Inventory, 2013). The development area would remove previously clear-cut and regenerating forest, which will result in a reduction of about 0.1% of the approximately 26,808 ha of forest (natural or clear-cut) occurring within the same 10 km radius (NS Forest Inventory 2013). There are no other pits or quarries within 1 km of the study area. The total occupancy for quarries and pits in the area is 107.5 ha, which is a small total overall. In comparison, land developed for agriculture, which includes Christmas trees, sugar bush and plantations occupy 1,001 ha, and the proposed quarry expansion area is 1.7% of this area. Apart from the increased footprint of the proposed quarry, the combined operations would be at current activity levels and associated impacts on air quality, noise and traffic experience by residents on McIntyres Mountain Road and Highway 105 will be small. Therefore, the cumulative effect of the quarry expansion and other local activity is not expected to change and will be negligible.

9.0 INDUSTRIAL APPROVAL CONDITIONS, MONITORING, AND REPORTING

Environmental monitoring is dictated by the Pit and Quarry Guidelines and the Industrial Approval (IA) for the site. Typical monitoring at quarry sites includes surface water monitoring, groundwater monitoring, and blast monitoring (concussion and vibration). Noise and dust monitoring is typically conducted at the request of NSECC.

Surface water monitoring will be conducted as per the terms and conditions of the IA and is expected to include both background (upstream) and downstream water quality in watercourses potentially affected by quarry operations. It is expected that a condition of EA approval will be to develop a surface water management plan for the site, through the IA process. A surface water monitoring program will be included with the surface water management plan. Surface water monitoring locations will be identified and monitored to establish baseline surface water quality. The surface water monitoring network will allow for on-going monitoring to verify that surface water runoff from the quarry does not have an impact of downgradient receptors.

Groundwater monitoring will be conducted as per the terms and conditions of the IA. It is expected that a condition of EA approval will be to develop a groundwater monitoring program for the site,

and a network of groundwater monitoring wells will be constructed to establish baseline groundwater quality as well as existing groundwater table elevations. The monitoring well network is expected to include three industry standard monitoring wells. The monitoring well network will allow for on-going monitoring to ensure that potential groundwater impacts are identified.

Blast monitoring will be conducted as per the terms and conditions of the IA. Blast monitoring is required for all blasting events and includes measurement of air concussion and ground vibration at the nearest structures located around the quarry. Additionally, seismographs may be setup at other selected locations in the surrounding community to ensure that the blast parameters meet those dictated by the stipulations in the IA.

Other specific parameters that may be monitored will be included in the amended IA.

All monitoring results are maintained by MEL and provided to NSECC as part of an Annual Report for the Quarry. If a monitored parameter exceeds a limit noted in the IA, MEL is required to immediately notify NSECC of the exceedance.

10.0 FUTURE PUBLIC AND FIRST NATIONS INVOLVEMENT

Public consultation and First Nation engagement efforts undertaken to date are documented in Section 4 of this EA Registration Document. Project stakeholders, the general public, and the Mi'kmaq of Nova Scotia will have an opportunity to provide feedback on the proposed quarry expansion project by providing written comments to the NSECC EA Branch during the project review period.

It is expected that a condition of EA approval will be to develop a Complaint Resolution Procedure for receiving, documenting, and responding to feedback received related to the quarry.

Quarry approvals typically include provisions to implement a Community Liaison Committee (CLC) at the request of NSECC. If a CLC is required, MEL will seek participation from the local community as well as First Nations representatives.

11.0 PROJECT CLOSURE / RECLAMATION

The quarry will be reclaimed in accordance with NSECC requirements and industry standards. MEL maintains a Reclamation Plan for the quarry. As per the Terms and Conditions of the Industrial Approval, the Reclamation Plan is updated every three years and submitted to NSECC for review. The Reclamation Plan includes provisions for progressive reclamation of areas that are no longer required for aggregate production or supporting activities. A quarry permit bond which reflects the total disturbed area of the site is maintained. The value of the bond is updated every three years in accordance with the updated Reclamation Plan to ensure that the bond value reflects the size and scope of future reclamation efforts at the site.

12.0 APPROVAL OF UNDERTAKING

MEL will comply with all provisions of the Nova Scotia Environment Act and Regulations. Following successful EA approval, an application for an amendment to the existing Industrial Approval will be submitted to NSECC.

13.0 FUNDING

No public or other government funding is involved in the execution of this undertaking. All costs are borne by MEL.

14.0 PROPONENT SIGNATURE

June 5, 2025 Gary Rudolph

Date

Gary Rudolph, P.Eng.
Director of Aggregates and Pavement Rehabilitation
Municipal Enterprises Limited

15.0 REFERENCES

Lulham, N., F.J. Warren, K.A. Walsh and J. Szwarc. 2023. Canada in a Changing Climate: Synthesis Report; Government of Canada, Ottawa.

Mining Association of Canada. 2021. Guide on Climate Change Adaptation for the Mining Sector. https://mining.ca/resources/guides-manuals/guide-on-climate-change-adaptation-for-the-mining-sector/

Nelson, J. and R. Schuchard, undated. Adapting to Climate Change: A Guide for the Mining Industry http://www.bsr.org/adaptation

APPENDIX A
PROPERTY INFORMATION

Environmental Assessment Registration Document:
McIntyres Mountain Quarry Expansion
Kingsville, Inverness County
Nova Scotia

NOVA SCOTIA

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Sydney NS
Canada B1P 5P6

902-563-2100 P
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www.novascotia.ca

APPROVAL

Province of Nova Scotia
Environment Act, S.N.S. 1994-95, c.1 s.1

APPROVAL HOLDER: MUNICIPAL ENTERPRISES LIMITED

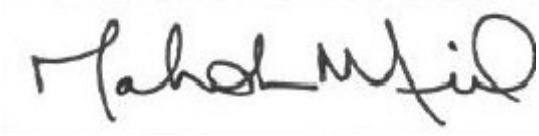
SITE PID: 50019975

APPROVAL NO: 2011-076964-01

EXPIRY DATE: July 30, 2031

Pursuant to Part V of the *Environment Act*, S.N.S. 1994-95, c.1 s.1 as amended from time to time, approval is granted to the Approval Holder subject to the Terms and Conditions attached to and forming part of this Approval, for the following activity:

Industrial - Construction - Quarry



Administrator: Malcolm MacNeil

Effective Date: July 30, 2021

The Minister's powers and responsibilities under the Act with respect to this Approval have been delegated to the Administrator named above. Therefore, any information or notifications required to be provided to the Minister under this Approval can be provided to the Administrator unless otherwise advised in writing.

TERMS AND CONDITIONS OF APPROVAL

Nova Scotia Environment

Approval Holder: MUNICIPAL ENTERPRISES LIMITED

Project: MacIntyre Mountain Road Quarry

Site:

PID	Civic #	Street Name	Street Type	Community	County
50019975				GLENDALE	INVERNESS COUNTY

Approval No: 2011-076964-01

File No: 92100-30-POR-2011-076964

Reference Documents

- Application submitted May 3, 2021 and attachments.

1. Definitions

a. Abandonment means cessation of production of aggregate for a period of 36 months or notification of abandonment has been received by the Department in accordance with the Approval and Notification Procedures Regulations.

b. Act means Environment Act. 1994-95, c.1, s.1 , and includes, unless the context otherwise requires, the regulations made pursuant to the Act, as amended from time to time.

c. Active Area means the area occupied by the working face, disturbed areas, rehabilitated areas, any structure, processing facility, pollution abatement system, settling pond, aggregate stockpile and/or overburden associated with the Quarry and Quarry activities. The active area excludes the scale, scale house, and access roads.

d. Department means the Nova Scotia Department of Environment and Climate Change, and the contact for the Department for this approval is:
Nova Scotia Department of Environment and Climate Change
Eastern Region, Port Hawkesbury Office
218 MacSween Street, Suite 12
Port Hawkesbury, Nova Scotia B9A 2J9

Phone: (902) 625-0791
Fax: (902) 625-3722

e. Disturbed Area means an area in an unnatural state, affected by human activity associated with the Quarry.

f. Minister means the Minister of Environment and Climate Change and includes any person delegated the authority of the Minister.

g. Overburden means material, including organics, overlying a deposit of aggregate.

h. Site means a place where a designated activity and/or undertaking is occurring or may occur.

i. Surface Watercourse means a watercourse as defined in the Environment Act, excluding groundwater.

j. Undisturbed means in a natural state, unaffected by human activity, or rehabilitated to the satisfaction of the Department.

2. Scope

a. This Approval (the "Approval") relates to the Approval Holder(s) and their application and all documentation submitted to the Department prior to the issuance of this approval for the Quarry situated at or near MacIntyre Mountain Road Quarry.

b. The Approval Holder(s) shall ensure the designated activity is carried out in accordance with this Approval and reference documents, including the application and supporting documentation.

3. General

a. The Approval Holder(s) shall conduct the Designated Activity in accordance with the following provisions:

i. The Act, as amended from time to time;

ii. Any standard adopted by the Department, as amended from time to time, which includes but is not limited to the following:

iii. Nova Scotia Environment and Labour Pit and Quarry Guidelines, 2003, as amended from time to time.

b. Nothing in this Approval relieves the Approval Holder(s) of the responsibility for obtaining and paying for all licenses, permits, approvals or authorizations necessary for carrying out the work authorized to be performed by this Approval which may be required by municipal by-laws, provincial or federal legislation, or other organizations. The Minister does not warrant that such licenses, permits, approvals or other authorizations will be issued.

c. No authority is granted by this Approval to enable the Approval Holder(s) to commence or continue the designated activity on lands which are not in the control or ownership of the Approval Holder(s). It is the responsibility of the

Approval Holder(s) to ensure that such a contravention does not occur. The Approval Holder(s) shall provide, to the Department, proof of such control or ownership upon expiry of any relevant lease or agreement. Failure to retain said authorization may result in this Approval being cancelled or suspended.

d. If there is a discrepancy between the reference documents and the terms and conditions of this Approval, the terms and conditions of this Approval shall apply.

e. Any request for renewal or amendment of this Approval is to be made in writing, to the Department, at least ninety (90) days prior to the Approval expiry.

f. The Approval Holder(s) shall not transfer, sell, lease, assign or otherwise dispose of this Approval without the written consent of the Minister. The sale of a controlling interest of a business or a transfer of the approval from a parent company to a subsidiary or an affiliate is deemed to be a transfer requiring consent.

g. If the Minister cancels or suspends this Approval, the Approval Holder(s) remains subject to the penalty provisions of the Act.

h. The Approval Holder(s) shall advise the Department in writing prior to any proposed extensions or modifications to the Activity and/or the Site. An amendment to this Approval may be required before implementing any extension or modification.

i. The Approval Holder(s) shall immediately notify the Department of any incidents of non-compliance with this Approval.

j. The Approval Holder(s) shall bear all expenses incurred in carrying out the environmental monitoring required under the terms and conditions of this Approval.

k. Unless specified otherwise in this Approval, all samples required to be collected by this Approval shall be collected, preserved and analysed, by qualified personnel, in accordance with recognized industry standards and procedures that are all deemed acceptable to the Department.

l. Unless written authorization is received otherwise from the Minister, all samples required by this Approval shall be analyzed by a laboratory that meets the requirements of the Department's "Policy on Acceptable Certification of Laboratories" as amended from time to time.

m. The Approval Holder(s) shall ensure that this Approval, or a copy, is present on Site while personnel are on Site.

n. The Approval Holder(s) shall ensure that personnel directly involved in the designated activity are made fully aware of the terms and conditions of this Approval.

o. Upon any changes to the Registry of Joint Stock Companies information, the Approval Holder(s) shall provide a copy to the Department within five business days.

4. Separation Distances

a. The Approval Holder(s) shall not conduct the designated activity within the following separation distances unless otherwise exempted or varied by conditions of this approval:

   i. Public or common highway - 30 m

   ii. Watercourse (top of watercourse bank) or Wetland (boundary) - 30 m undisturbed

   iii. Property line (of PID) including property lines abutting a public or common highway - 30 m undisturbed

   iv. Dug or Drilled well not including site monitoring wells or non-potable process water wells located on the site - 90 m

b. The Approval Holder(s) shall not blast within the following separation distances unless the Approval Holder(s) has obtained written letters of permission from the property owner of the structure on or before the date of Approval:

   i. All water supply wells and other off-site structures - 800 m

5. Air Quality

a. The Approval Holder(s) shall ensure that air emissions from the designated activity do not contribute to an exceedance of the maximum permissible ground level concentrations of contaminants specified in Schedule A of the Air Quality Regulations.

b. Monitoring of ambient air contaminants shall be conducted at the request of the Department. The number and location of the monitoring station(s) shall be established by a qualified person retained by the Approval Holder(s) and the proposed plan submitted to the Department for acceptance; this may include point(s) beyond the property boundary of the Site.

c. The use of oil as a dust suppressant is prohibited.

d. If so directed by the Department, the Approval Holder(s) shall retain a qualified person to develop a plan to monitor ambient total suspended particulate matter at the request of the Department, in accordance with the EPA standard: EPA/625/R-96/010a, "Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air, Method IO-2.1 Sampling of Ambient Air for Total Suspended Particulate Matter (SPM) and PM10 Using High Volume (HV) Sampler", as amended from time to time.

   i. The plan shall be deemed acceptable by the Department and implemented upon request.

e. When required by the Department, the Approval Holder(s) shall conduct source testing in accordance with a standard deemed acceptable to the Department.

6. Noise

a. The Approval Holder(s) shall ensure that noise generated from the designated activity complies with the equivalent sound level criteria identified in the Nova Scotia Environment and Labour "Guidelines for Environmental Noise Measurement and Assessment" dated May 18, 2005, as amended from time to time.

b. The Approval Holder(s) shall monitor noise at the request of the Department. The number and location of the monitoring station(s) for noise measurement shall be established by a qualified person retained by the Approval Holder(s). The proposed plan must be deemed acceptable by the Department.

7. Surface Water

a. The Approval Holder(s) shall ensure the Site is developed and maintained to prevent contaminants from being discharged into a water resource or beyond the property boundary.

b. The Approval Holder(s) shall carry out a program for monitoring surface water discharges from Site and shall include, at a minimum, what is outlined in the Operational Surface Water Monitoring Table found in this Approval.

c. Monitoring during construction: The Approval Holder(s) shall ensure that the following water quality limits are met in the water resource downstream of construction activities:

   i. Total Suspended Solids, Clear Flows (Normal Background Conditions):

      (a) Maximum increase of 25 mg/l from background levels for any short term exposure (24 hour or less);

      (b) Maximum average increase of 5 mg/l from background levels for longer term exposure (inputs lasting between 24 hours and 30 days);

   ii. Total Suspended Solids, High Flow (Spring Freshets and Storm Events)

      (a) Maximum increase of 25 mg/l from background levels at any time when background levels are between 25 mg/l and 250 mg/l ;

      (b) Maximum increase of 10% over background levels when background is >250 mg/l;

d. Additional surface water monitoring may be required at the request of the Department.

e. No authority is granted by this Approval to enable the Approval Holder(s) to discharge surface water onto adjoining lands without the authorization of the affected landowner(s).

f. The Approval Holder(s) shall install and maintain erosion and sediment controls in line with industry best practices (e.g., Nova Scotia Environment Erosion and

Sediment Control Handbook for Construction Sites) with the following considerations:

i. The controls shall be installed prior to the commencement of the construction activities;

ii. The controls shall remain in place until areas disturbed by construction activities are stabilized so that the risk of release of sediment to a water resource has been mitigated;

iii. Control features shall be installed as per applicable product specifications or manufacturer's directions; and

iv. Control materials shall be clean, non-erodible, non-ore-bearing, non-watercourse derived and non-toxic.

g. The Approval Holder(s) shall immediately contact the Department should sulphide bearing material be encountered on the Site.

h. The Approval Holder(s) shall ensure that surface water runoff that may be impacted by petroleum hydrocarbons from the Site is collected and directed for necessary treatment prior to discharge from Site.

i. Erosion and sediment controls shall be inspected daily, at a minimum, and prior to and after precipitation or flow events. These inspections shall confirm the erosion and sediment controls are working as designed and intended. Records outlining results of these inspections and actions taken to correct any deficiencies shall be kept for the duration of the approval and made available to the Department upon request.

j. Work at the site shall only take place when erosion and sediment controls are functional. Contingency erosion and sediment control materials shall be kept on Site in case of failure.

k. Any silted water pumped from work areas shall be directed to vegetated areas, settling ponds, or other treatment devices that mitigate the risk of release of sediment to a water resource.

l. The Approval Holder(s) shall limit the size of the disturbed area and the removal of riparian vegetation to the area of construction activities as outlined in the supporting documentation.

m. The Approval Holder(s) shall ensure that the following activities take place at a distance of a minimum of 30 metres from a surface watercourse or wetland in an area such that a release will not enter a surface watercourse or wetland:

i. Fuel storage, refueling, and/or lubrication of equipment;

ii. Washing of machinery or equipment; and

iii. Storage of equipment, excavated/stockpiled materials, and potential contaminants.

8. Groundwater

a. The Approval Holder(s) shall replace, at their expense, any water supply which has been lost or damaged as a result of the designated activity, as authorized and required by the Department.

b. The Approval Holder shall not excavate within 0.5 metres above the measured maximum annual water table elevation unless an amendment to this Approval is received, or unless otherwise authorized in writing by the Department.

c. The Approval Holder(s) shall contact the Department prior to excavating below the water table, including but not limited to the shallow groundwater table. An amendment to this approval and/or written authorization from the Minister may be required prior to excavating below the water table.

d. If so directed by the Department, the Approval Holder(s) shall be required to prepare and implement a groundwater monitoring program.

9. Operation

a. The Approval Holder(s) shall ensure that legible signage is posted at the entrance to the Site that includes, but is not limited to,

   i. emergency contact information.

b. The Approval Holder(s) shall cease site work and contact the Department immediately if it is determined that an area of historical, archaeological or paleontological importance may exist or is discovered at the site.

c. The boundaries of the Active Area shall be either:

   i. Marked with permanent visible markers placed at changes in direction, with no more than 100 metres between the permanent markers; or

   ii. mapped on a scale drawing with a list of UTM NAD83 coordinates (with sub-meter accuracy) for each corner of the Site.

10. Blasting

a. The Approval Holder(s) shall have a technical blast design prepared by a qualified person which ensures the ground vibration and air concussion limits in this Approval can be achieved.

b. At the request of the Department, the Approval Holder(s) shall submit a copy of the blast design.

c. At the direction of the Department, the Approval Holder(s) shall modify or cease blasting.

d. The Approval Holder(s)shall conduct a pre-blast survey of all structures within 800 metres of the point of blast including a water quality analysis of any wells serving these structures. The survey shall be conducted in accordance with the Department's "Procedure For Conducting a Pre-Blast Survey" and the results of

this survey sent to the Department prior to blasting on the Site. Additional water quality parameters may be required by the Department staff.

e. No blasting will be performed if thermal inversion conditions are anticipated at the time of the proposed blast.

f. No blasting shall occur on Sunday, on a statutory holiday prescribed by the Province, or on any day between 1800 and 0800 hours.

g. The Approval Holder(s) shall ensure that all blasts are monitored for concussion and ground vibration to ensure that the limits in the Blasting Limits Table are not exceeded.

h. The Approval Holder(s)shall provide the Department with UTM NAD83 coordinates for the blast monitoring stations prior to the initial blast and again if the blast monitoring station locations change.

i. The monitoring station for blasting shall be as indicated in the Blasting Limits Table. Additional monitoring stations for blasting may be specified as required by the Department.

j. Records of individual blast results shall be maintained by the Approval Holder(s) and made available to the Department upon request.

11. Reporting

a. The Approval Holder(s) shall provide an Annual Report summarizing the following information, as required by the terms and conditions of this Approval, for each calendar year:

   i. all groundwater and surface water monitoring data and reports;

   ii. a description of any complaints received and the follow up actions taken;

   iii. a summary and interpretation of analytical results obtained in accordance with this Approval;

   iv. a summary and interpretation of any instances of non-compliance with this approval and corrective action taken.

   v. hectares disturbed and rehabilitated to date;

   vi. estimates of hectares planned for disturbance or rehabilitation in the upcoming year;

   vii. a summary of any communication with the Mi'kmaq of Nova Scotia;

   viii. any other information requested by the Department.

b. The annual report described herein shall be submitted to the Department on or before May 1 of the following year.

   i. laboratory certificates of analysis, as applicable; and

ii. the identification of any adverse impacts to groundwater as a result of site activities and associated recommendations, as applicable.

c. All monitoring results shall include interpretation by a qualified person deemed acceptable by the Department.

12. Rehabilitation and Closure

a. The Approval Holder(s) shall review the most recent version of the rehabilitation plan for the designated activity at a minimum of every three years and update the plan accordingly based on current conditions. Updates to the rehabilitation plan must be acceptable to the Department. As a minimum, the next update to the Rehabilitation Plan shall be April 28, 2024.

b. The Approval Holder(s) shall review the amount of financial security provided to the Department at a minimum of every three years and adjust the amount accordingly based on the estimated costs of rehabilitation provided in the most recent version of the rehabilitation plan.

c. The amount of financial security shall be equal to the cost estimate of the site rehabilitation plan as amended from time to time and shall be no less than $6,250 per hectare of actual and planned disturbed area.

d. The Approval Holder(s)shall maintain for the site a financial security in a form and amount acceptable to the Department.

e. The Approval Holder(s) shall have completed rehabilitation of the designated activity within twelve (12) months of abandonment and in accordance with the final rehabilitation plan unless an alternate time frame has been provided and/or accepted by the Department.

f. The Approval Holder(s) shall submit a final rehabilitation plan to the Department for approval at least sixty (60) days prior to abandonment of the designated activity.

g. The rehabilitation plan shall include but not be limited to the following:

i. objectives for final land use;

ii. contouring and drainage patterns;

iii. soil stabilization methods including but not limited to revegetation and slope grades;

iv. objectives for existing structures and access roads; and

v. a detailed cost estimate including unit cost breakdown of labor, equipment, supplies, and services to perform the rehabilitation activities as completed by an outside service provider (third party).

h. The rehabilitation plan shall be implemented by the Approval Holder(s) once deemed acceptable by the Department.

i. Unless otherwise approved by the Department, updated rehabilitation plans shall meet the following criteria :

i. The site shall be contoured and stabilized:

(a) for long term erosion control;

(b) to mitigate impacts of offsite drainage to adjacent lands, wetlands, and watercourses; and

(c) to blend with natural topography.

ii. Except for engineered features (i.e., wetlands, ponds), all disturbed areas shall be returned to at least one metre above the water table.

iii. If an open pond is to remain on the site, at least 2 exit ramps shall be constructed, on opposite sides of the pond with maximum slope of 5:1 to enable safe exit.

13. Site Specific

a. The Approval Holder(s) shall be required to establish a Community Liaison Committee (CLC) at the direction of the Department.

14. Air Emissions

a. When required by the Department, the Approval Holder(s) shall conduct source testing in accordance with a standard deemed acceptable to the Department.

Construction Activities Surface Water Monitoring Table			
Parameter:	**Criteria:**	**Monitoring Location(s):**	**Monitoring Frequency:**
pH	6.5 - 9.0	As requested by the Department	As requested by the Department
Total Suspended Solids	In accordance with Section 7(c)	Site Discharge	As requested by the Department

Blasting Limits			
Parameters	**Maximum**	**Monitoring Frequency**	**Monitoring Station**
Concussion (Air Blast)	128 dBL	Every Blast	Within 7 m of the nearest structure not located on the Site
Ground Vibration	0.5 in/sec (12.5 mm/s)	Every Blast	Below grade or less than 1 m above grade in any part of the nearest structure not located on the Site

NOVA SCOTIA
Registry of Joint Stock Companies

Electronically signed by:
Office of the Registrar of Joint Stock Companies
Date: 05 June 2025 14:40 ADT
Location: Nova Scotia, Canada
Contact: rjsc@novascotia.ca

Profile Report

Entity details

Information as of	05 June 2025
Registry ID	3043952
Business/Organization Name	MUNICIPAL GROUP OF COMPANIES
Registration Date	03 May 2000
Annual Return due Date	31 May 2026
Type	Business Name
Status	Active
Registered Office	927 ROCKY LAKE DR., BEDFORD, NOVA SCOTIA, B4A 3Z2, CANADA
Mailing Address	PO BOX 48100 , BEDFORD, NOVA SCOTIA, B4A 3Z2, CANADA

People

Name	Position	Civic Address	Mailing Address
MUNICIPAL ENTERPRISES LIMITED	Business Name Owner	927 ROCKY LAKE DRIVE BEDFORD NOVA SCOTIA B4A 3Z2 CANADA	927 ROCKY LAKE DRIVE BEDFORD NOVA SCOTIA B4A 3Z2 CANADA

Recognized Agent

Name	Position	Civic Address	Mailing Address
CHRISTINE C. POUND	Recognized Agent	600-1741 LOWER WATER STREET HALIFAX NOVA SCOTIA B3J 0J2 CANADA	PO BOX 997 HALIFAX NOVA SCOTIA B3J 2X2 CANADA

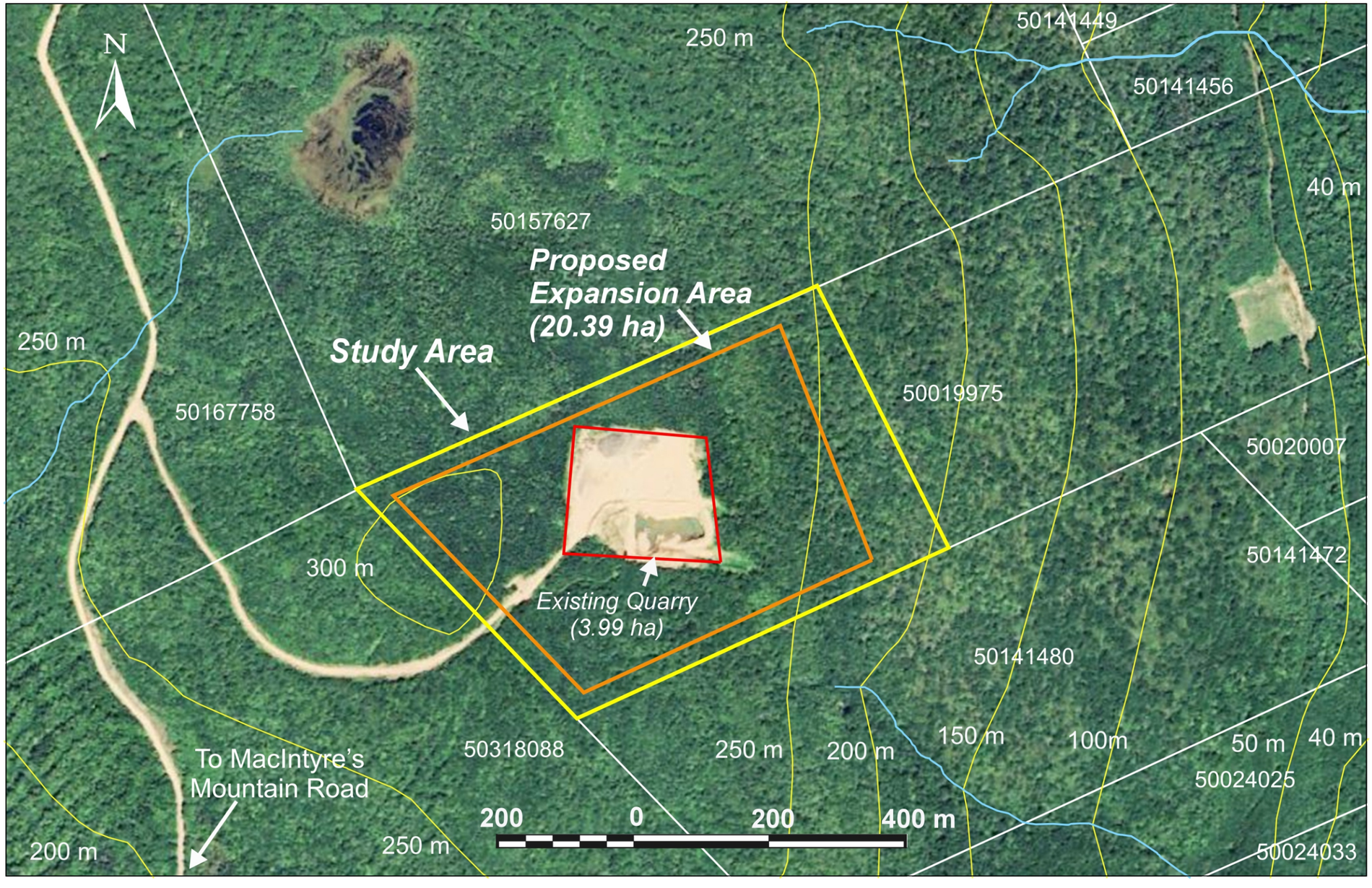
Activity

Activity	Date
Business Name Renew My Registration	30 May 2025
Business Name Renew My Registration	26 June 2024
Business Name Renew My Registration	05 June 2023
Business Name Renew My Registration	26 May 2022
Business Name Renew My Registration	19 July 2021
Annual Renewal	02 June 2020
Annual Renewal	30 May 2019

Renewal Information Update	30 May 2018
Annual Renewal	30 May 2018
Annual Renewal	05 May 2017
Annual Renewal	30 June 2016
Appoint an Agent	16 May 2016
Renewal Information Update	05 June 2015
Annual Renewal	05 June 2015
Renewal Information Update	22 May 2014
Annual Renewal	22 May 2014
Annual Renewal	08 May 2013
Renewal Information Update	13 April 2012
Annual Renewal	13 April 2012
Renewal Information Update	04 July 2011
Annual Renewal	16 May 2011
Annual Renewal	10 May 2010
Renewal Information Update	10 May 2010
Annual Renewal	12 May 2009
Renewal Information Update	12 May 2009
Annual Renewal	11 April 2008
Renewal Information Update	11 April 2008
Annual Renewal	17 May 2007
Annual Renewal	24 April 2006
Annual Renewal	19 April 2005
Annual Renewal	07 April 2004
Renewal Information Update	07 April 2004
Annual Renewal	11 April 2003
Annual Renewal	30 May 2002
Annual Renewal	07 May 2001
Renewal Information Update	07 May 2001
Registered	03 May 2000

APPENDIX B
DRAWINGS

Environmental Assessment Registration Document:
McIntyres Mountain Quarry Expansion
Kingsville, Inverness County
Nova Scotia



MUNICIPAL ENTERPRISES LIMITED

MACINTYRE MOUNTAIN

QUARRY EXPANSION

Kingsville,

Inverness County

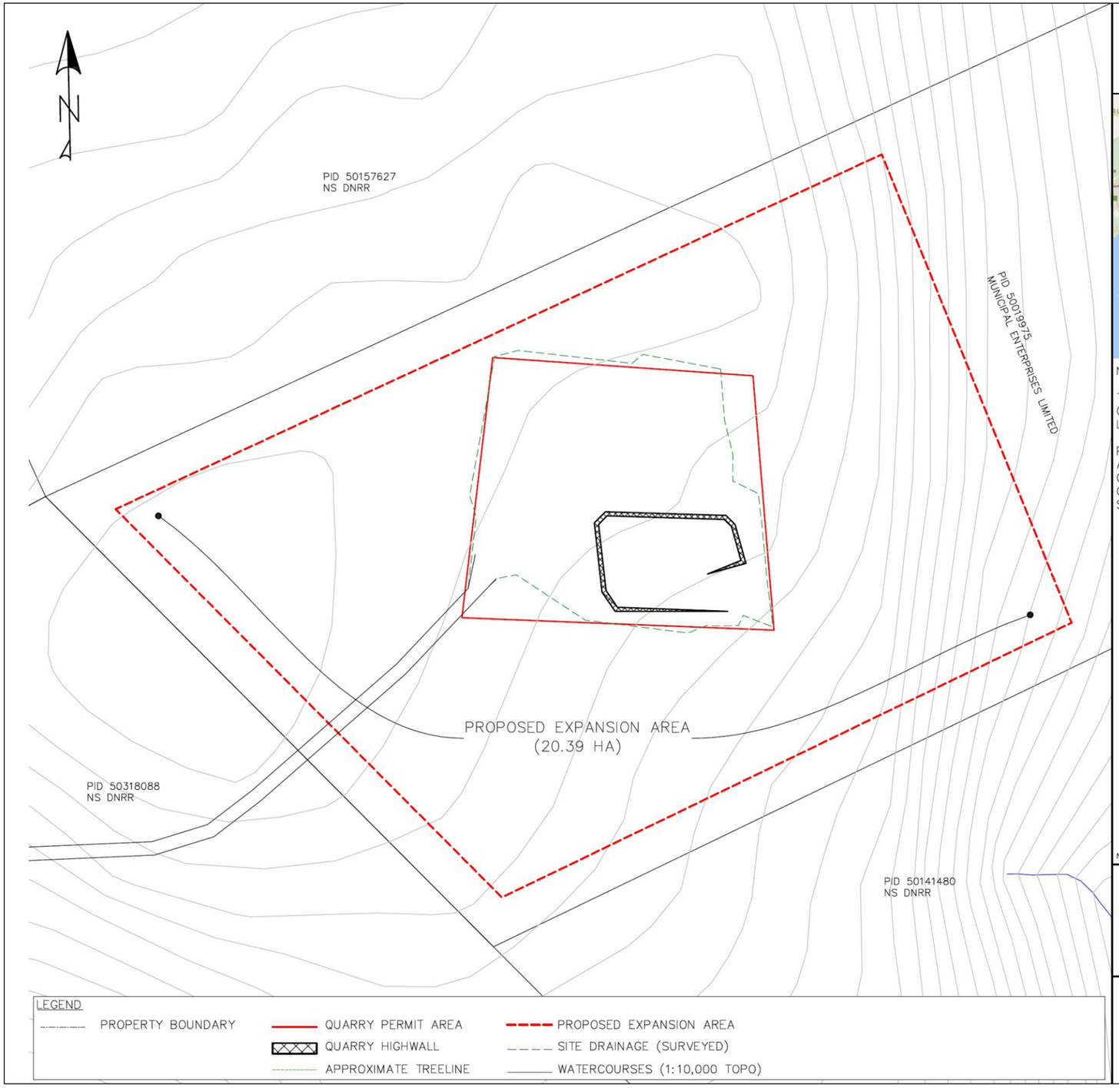
Cape Breton Island

SITE DETAILS & PROPOSED

EXPANSION AREA

MUNICIPAL ENTERPRISES LTD

Appendix B - Drawing 1

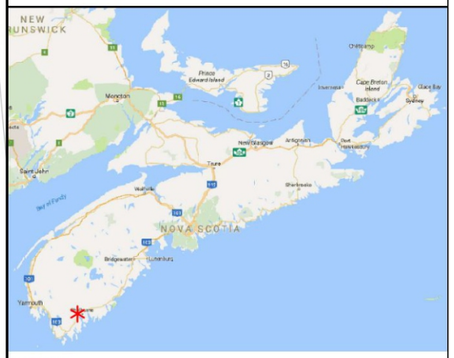


MCINTYRE MTN QUARRY

SITE PLAN

INVERNESS COUNTY, NOVA SCOTIA

DATE: MAY 22, 2025 DRAWN BY: RHETT THOMPSON, P.ENG

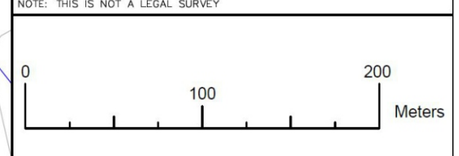


NOTES:

TOPOGRAPHIC DATA OBTAINED FROM NS GEOMATICS CENTER 1:10,000 TOPOGRAPHIC MAP. TOPOGRAPHY LINES ARE AT 5 METER INTERVALS

PROPERTY BOUNDARIES SHOWN ARE AN APPROXIMATE GEOGRAPHICAL REPRESETNATION ONLY, OBTAINED FROM NOVA SCOTIA PROPERTY ONLINE, AND ARE SUBJECT TO A LEGAL BOUNDARY SURVEY FOR VERIFICATION.

NOTE: THIS IS NOT A LEGAL SURVEY



MUNICIPAL ENTERPRISES LIMITED

MACINTYRE MOUNTAIN

QUARRY EXPANSION

Kingsville,

Inverness County

Cape Breton Island

SITE PLAN

MUNICIPAL ENTERPRISES LTD

Appendix B - Drawing 2

APPENDIX C
ROCK SULPHUR CONTENT ANALYSIS RESULTS

Environmental Assessment Registration Document:
McIntyres Mountain Quarry Expansion
Kingsville, Inverness County
Nova Scotia

DALHOUSIE UNIVERSITY
Inspiring Minds

Minerals Engineering Laboratory

Dalhousie University
1360 Barrington Street
5273 DaCosta Row
Chemical Engineering Bldg. Rm. 3305
PO Box 15000, Halifax, NS
B3H 4R2

minerals.engineering.dal.ca
Tel: 902.497.3958
Email: mec@dal.ca

16-May-25

Dexter Construction
927 Rocky Lake Drive
P.O. Box 48100
Bedford, NS
B4A 3Z2
Atten: Chris Mullins

Re: Results of analysis on submitted samples.
Acid producing potential based on total sulphur, or sulphide sulphur content if available.

Project :
PN# 2501033-7610
PO#

	Wt. %			kg H2SO4/t
Sample	S(Total)	Sulphate	Sulphide	Acid Prod. Potential
MacIntyre Mtn Pit	<0.001			<0.03

	Wt. %
Certified Ref. Sa.	S(Total)
KZK-1 (0.80% S)	0.802

Daniel Chevalier, MASc
Manager, Minerals Engineering Laboratory

APPENDIX D
BIOPHYSICAL ASSESSMENT REPORT
(Envirosphere Consultants Limited, 2025)

Environmental Assessment Registration Document:
McIntyres Mountain Quarry Expansion
Kingsville, Inverness County
Nova Scotia

Biophysical Assessment:
McIntyre Mountain Quarry Expansion, Inverness County, Nova Scotia – 486 McIntyre's Mountain Road, Kingsville, Nova Scotia PID 50019975

March 2025

Prepared for:

Municipal Enterprises Limited
Bedford, Nova Scotia

Prepared by:

Envirosphere Consultants Limited
P.O. 130| Unit 5 – 120 Morison Drive
Windsor, Nova Scotia B0N 2T0
Tel: (902) 798-4022 | Fax: (902) 798-2614
www.envirosphere.ca

Envirosphere Consultants Limited

P.O. 130, Unit 5 – 120 Morison Drive
Windsor, Nova Scotia B0N 2T0
Tel: (902) 798-4022
Fax: (902) 798-2614
Email: enviroco@ns.sympatico.ns.ca
www.envirosphere.ca

Table of Contents

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1 INTRODUCTION

Municipal Enterprises Limited (Municipal), the parent company of Dexter Construction Company Limited (Dexter), is proposing to expand its McIntyre[1] Mountain Quarry located off McIntyre's Mountain Road, near Kingsville, Inverness County, Nova Scotia. The existing quarry currently operates with a Nova Scotia Environment and Climate Change (NSECC) approved area of 3.99 hectares. The proposed expansion area will encompass 20.39 hectares including the present quarry site. Other than the proposed increase in the total footprint of the site, site activities are not planned to increase in scope or frequency from past use. Municipal Enterprises Limited contracted Envirosphere Consultants Limited of Windsor, Nova Scotia, to prepare a biophysical and socio-economic overview and assessment for the proposed expansion in support of an Environmental Assessment Approval application. This report contains the results of the overview and assessment and is consistent with accepted standards for quarry expansion projects in Nova Scotia. It presents a description of the methodology and scope, existing environment, environmental effects, cumulative effects, discussion, and conclusions. The assessment provides a sufficient level of detail to ensure that all information necessary to allow adequate review of the project is provided; to demonstrate how the assessment was conducted; and to document the information on which the conclusions were based.

2 INFORMATION SOURCES

Information for the biophysical and socio-economic overview and assessment was collected from various sources, including interviews with representatives of the Nova Scotia Department of Natural Resources and Renewables (NSDNRR); contacts with organizations, businesses and individuals in the area; review of published information including soil surveys, reports on geology, archaeology, and natural history (e.g. *Natural History of Nova Scotia*); use of relevant websites and databases (e.g. Nova Scotia Open Data Portal; NSNRR Significant Habitat and Wetland Databases, Atlantic Canada Conservation Data Centre, and Nova Scotia Museum of Natural History); and use of maps, digital data on land use, and property ownership, aerial photos, and 1:50,000 topographic maps.

Site visits and walkovers by project personnel were conducted on:

- April 26, 2024: Patrick Stewart (M.Sc.) – preliminary site reconnaissance;
- May 20, 2024, and June 7 & 29, 2024: Fulton Lavender and Richard Hatch for owl and breeding bird surveys;
- June 12, 2024: Mark Pulsifer (M.Sc.) for the wildlife survey;
- June 25, 2024, and September 23 and 24, 2024: Ruth Newell (M.Sc.) for late spring/summer and fall botany surveys;
- July 22 and 23, 2024: Kyra Scott (B.Sc.), and Johannah Eisnor, (B.Sc. student) for site reconnaissance and wetland, water quality and fish habitat assessments; and
- July 23, 2024: Chris Pepper for lichen surveys.

[1] McIntyre Mountain was a previously accepted name for McIntyre's Mountain, which is currently accepted name.

3 SITE LOCATION AND STUDY AREA

The McIntyre Mountain Quarry is located at 486 McIntyre Mountain Rd, Inverness County, Nova Scotia, at approximately UTM Zone 20, NAD83, Easting 627317 and Northing 5071201. The study area for the assessment encompasses the current quarry and the proposed expansion area as shown on Figures 1 and 2; and on Map A-1 (Appendix A), and shown in Figures 3 and 4. The proposed quarry expansion area will be located within the property lot (PID 50019975) and expand the operational area of the quarry to a total 20.39 ha.

Figure 1. Project location.

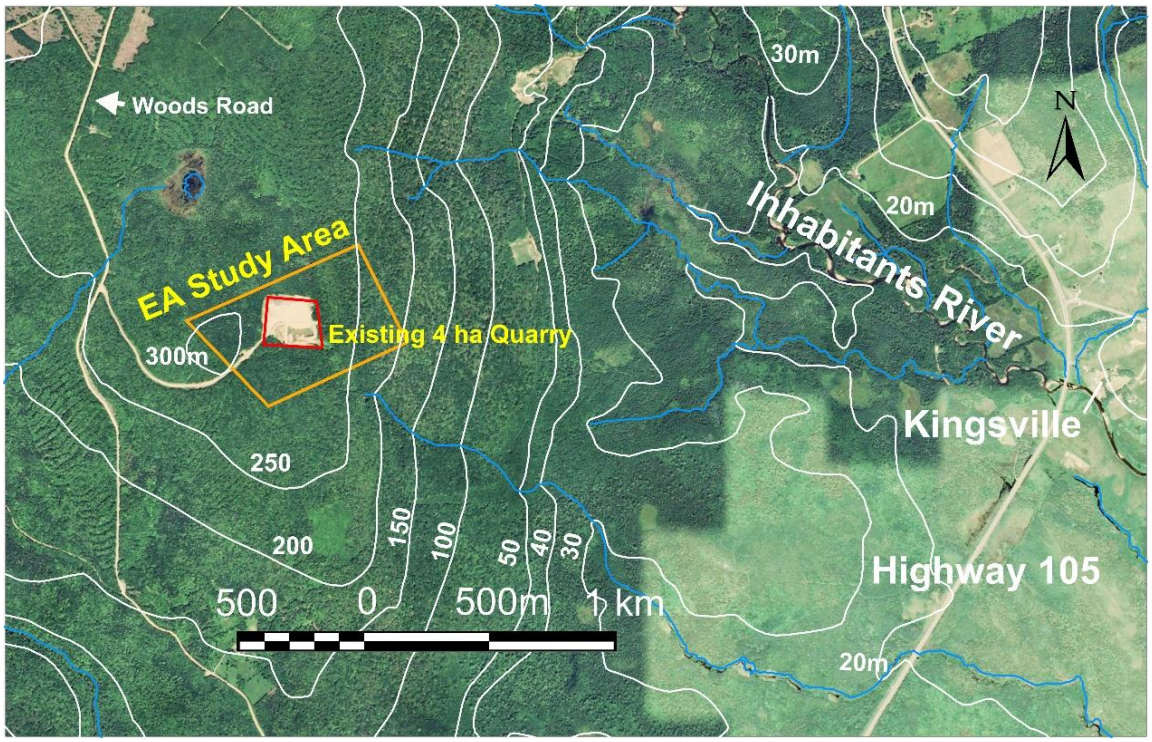

Figure 2. Location details.

Figure 3. View of the McIntyre Mountain Quarry working area facing east, June 29, 2024.

Figure 4. View of stockpiles at McIntyre Mountain Quarry, facing North, July 22, 2024.

4 EXISTING ENVIRONMENT

4.1 PHYSICAL ENVIRONMENT

4.1.1 Climate and Winds

Local climate is affected by the high elevation and position of the McIntyre Mountain Quarry at the height of land between the Gulf of St. Lawrence (Northumberland Strait), which provides a marine influence, and the Bras d'Or Lakes and lowland which provides an interior continent influence. Proximity to the ocean results in a cool, humid, temperate climate in which the weather displays variability during all seasons. Winters are cold with high snowfall, springs are late, cool, and cloudy, and summers are warm and humid. Highest levels of precipitation which arrives as rain, are experienced in the fall.

Average temperatures range from -5.8 °C. in February to 18.5 °C. in August (Figure 5) and total annual precipitation is moderate to high at 1,534.7 millimeters. Winds are influenced by conditions from both the Atlantic Ocean and the Gulf of St. Lawrence, and are generally strongest in winter, predominantly from the west and south, occurring mainly from the west in winter (November to February), shifting to north and northwest (February to April), and south (spring to late summer, May to August), and returning to the west in September-October (TDC 1991). Southeast winds ahead of low-pressure systems are violent over the Cape Breton Highlands, including the study site, which is located near the south extent, due to mountain waves developing off the highlands. Snow showers and heavier precipitation associated with low pressure

weather systems occur in Highland areas. Fog and low stratus cloud frequently forms over the Bras d'Or Lakes especially in the spring and fall (NavCan 2013).

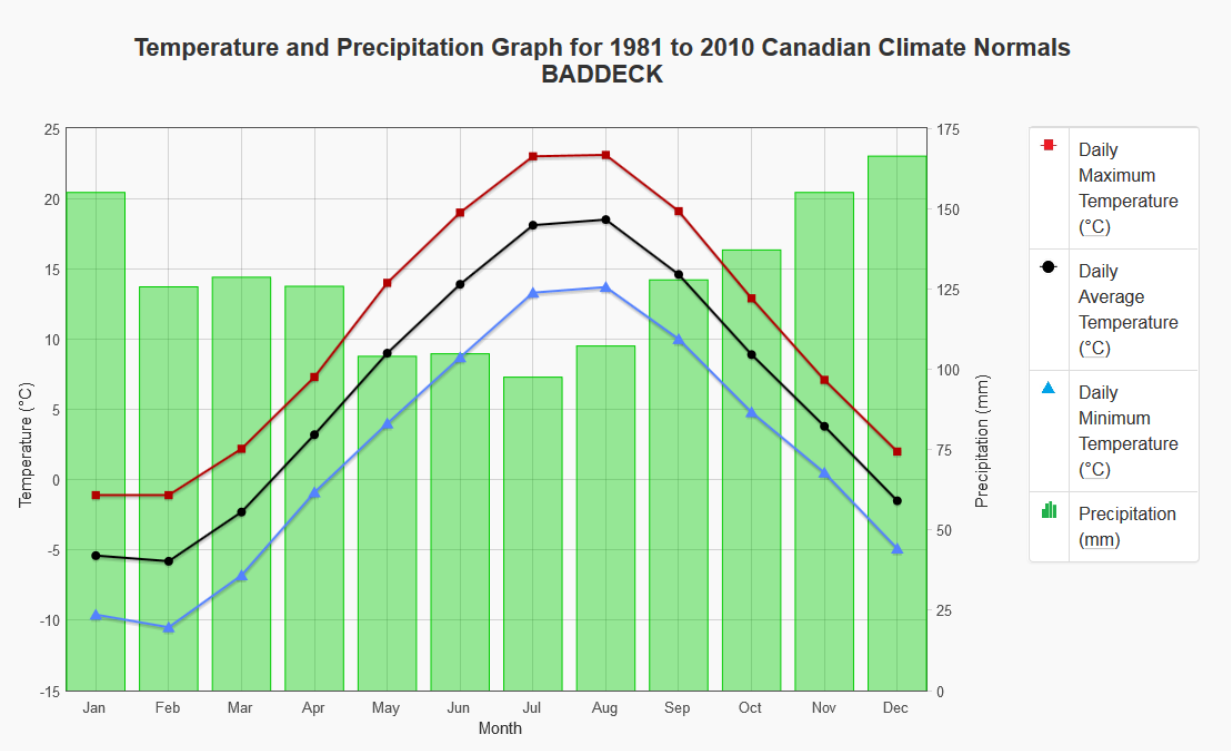

Figure 5. Temperature and precipitation cycle for McIntyre Mountain Quarry using observations from Baddeck (2010) located about 59 km northeast of the site (Canadian Climate Normals 2024).

4.1.2 Topography and Geology

4.1.2.1 Landscape

The McIntyre Mountain Quarry and associated study area are located in the Cape Breton Hills Ecodistricts 310, a large subdivision of the regional landscape that covers parts of four counties—Inverness, Victoria, Richmond, and Cape Breton Regional Municipality (Bush and Baldo 2019). This area is characterised by hardwood forested hills and steep slopes, covering an area of about 3,702 square km. Higher, steeper slopes are underlain by older resistant rock formations covered by well-drained, relatively textured soils. Lower more gradually sloping hills are underlain by coarse carboniferous sediments that tend to be imperfectly-drained, creating seepage sites on slopes. Elevations are generally 150 to 300 m above sea level, with some of the highest elevations for this ecodistrict occurring at the McIntyre Mountain Quarry (303.8 m above sea level).

Hardwood forest cover predominates (about 85%), with smaller amounts of mixed forest, softwood forest, and a small proportion (0.4%) occupied by wetlands. Predominant hardwoods are Sugar Maple, Yellow Birch, White Ash, American Beech and Ironwood that can be located on hilly topography and slopes with well-drained soils. Softwood dominants are Black Spruce, White Pine, Balsam Fir, with some scattered Tamarack and Red Maple on hummocky terrain and plateaus with imperfectly-drained soils (Bush and

Figure 6. Mature deciduous woodland on the slope east of the quarry (*top left*), patches of mature Balsam Fir exhibiting windthrow to the west (*top right*), one of several small wetlands located on the edge of the existing woodland (*bottom left*), and a coniferous woodland located southwest of the quarry pit (*bottom right).* July 22-23, 2024.

Baldo 2019). Mixed woods include all the species present in the hardwood and softwood forests and typically occupy hummocky uplands.

The quarry site near the top of McIntyre's Mountain is comparatively level, before a sharp descent (approximately 24-29% slope) eastward off the property for about 1000 m, to meet the level lowland floor of the Inhabitants River valley. The typical landscape within the study area is illustrated in Figure 6. Forested areas surrounding the quarry are dominated by mixed woodland, softwood and hardwood stands. The western half of the survey area includes a mixture of 20-year-old regenerating cutover consisting of mainly of hardwood species with patches of softwood. The eastern portion of the study area is predominantly composed of tolerant hardwood overstorey and an understorey dominated by Balsam Fir with the mature tolerant hardwood canopy extending eastward off property down the eastern facing slope. Several small wetlands all approximately 100 to 200 m^2, including small herb-dominated swamps, and a seasonal pond are scattered around the property within or on the edges of the existing woodland surrounding the quarry (see Section 4.2.4). Soils in the area are well- to moderately-well-drained. Hardwood, softwood, and mixed wood are the predominant land cover in the general area of the study site. There are no watercourses directly on the property, however a headwater stream originates about 200 m southeast.

4.1.2.2 Bedrock Geology

The McIntyre Mountain Quarry is located within the granite bedrock of the Creignish Hills Pluton (Figure 7), which is at the surface and frequently exposed in the vicinity. The pluton is overlain by the conglomerates and sandstones of the Creignish Formation to the west and is in faulted contact with the sandstones, siltstones, shales, and limestones of the Ainslie and Strathlorne formations to the east. The

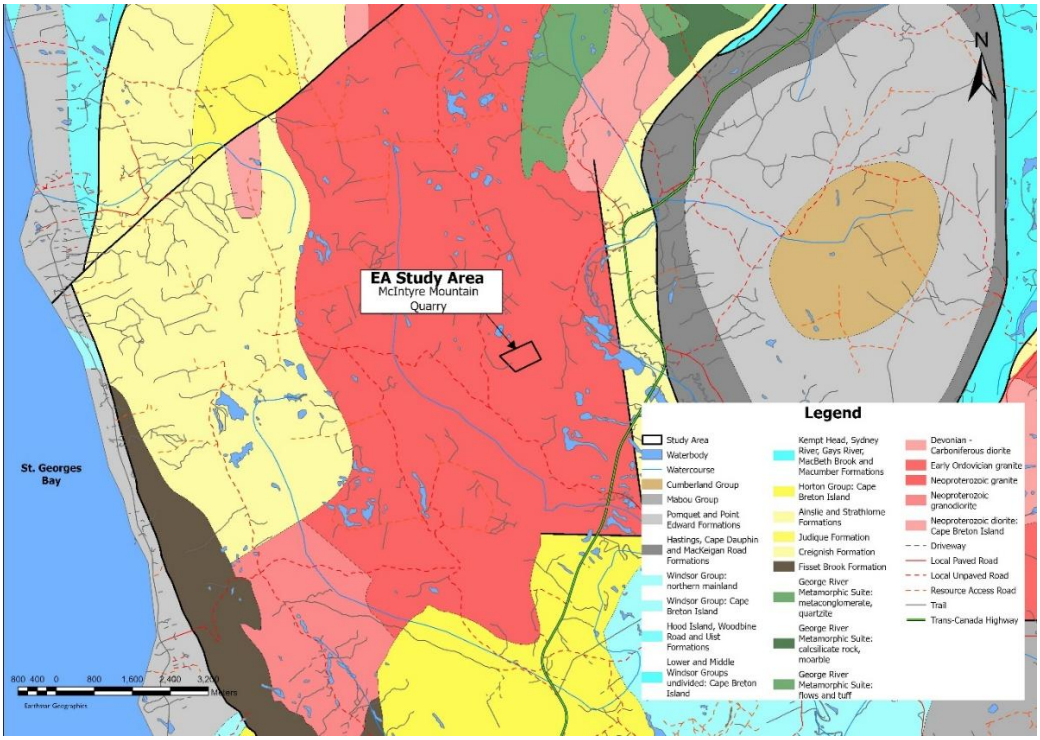

Figure 7. Bedrock geology in the vicinity of the McIntyre Mountain Quarry (Keppie 2000).

Ainslie and Strathlorne formations are overlain by the sedimentary rocks of the Hastings, Cape Dauphin, and MacKeigan Road formations. These are overlain in turn by the sedimentary rocks of the Pomquet and Point Edwards formations (Keppie 2000).

4.1.2.3 Surficial Geology

Bedrock near the peak of McIntyre's Mountain (Figure 8) and which predominates in the proposed expansion area, is largely covered by a thin layer of stony basal till derived from local bedrock with lesser amounts of thicker, silty basal till derived from more distant sources. The stony basal till is typically poorly-drained and nutrient-poor with limited agricultural potential, whereas the silty basal till is typically richer in nutrients (Stea *et al.,* 1992). Locally, there are surficial deposits remaining from the last glaciation during which subglacial rivers modified the till to produced kame and esker deposits of sand and gravel, and glacial lakes have produced deposits of silt and clay overlying the till. In some areas, these glacial deposits have been reworked to form more modern sediments. Along watercourses tills and soils have been modified to produce modern fluvial deposits. Colluvial deposits are complex mixtures of fractured rock, till, soil, and organic material resulting from mass wasting or downslope rotation. Organic deposits such as peat and gytja (organic ooze) are present beneath wetlands and lakes.

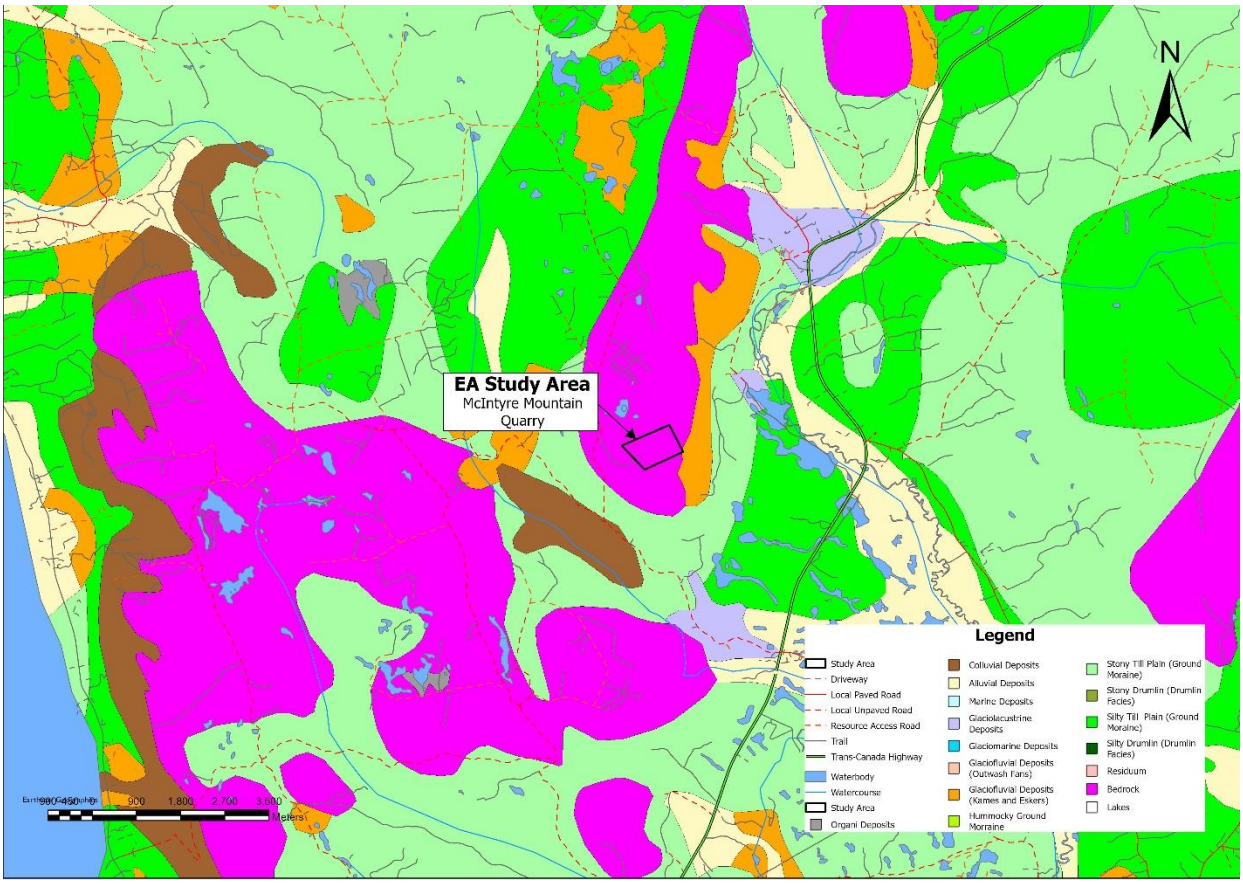

Figure 8. Surficial geology in the vicinity of the McIntyre Mountain Quarry (Stea *et al.,* 1992).

4.1.3 Air Quality, Noise, and Light

Due to its relative isolation, and lack of development, land in the vicinity of McIntyre's Mountain experiences low levels of artificial light, high air quality, and low levels of ambient noise. No large urban centres occur in the area which could be a source for artificial light although at times skyshine from Port Hawkesbury is expected to be visible. The Port Hawkesbury weather station reports an air quality rating of 2 (low risk for the area), and air quality is expected to be good due to the remote rural location and predominantly natural setting (Environment Canada 2025). Ambient noise levels at the quarry reflect local traffic which includes logging trucks along the McIntyre's Mountain Road, as well as temporary noise from traffic and operations of the quarry during periods of operation.

Vehicle lights from nearby Highways 105, McIntyre's Mountain Road, adjacent quarry pits, logging sites, and yard lights from residences in the vicinity, would be the main sources of artificial light at the area. Due to the low population density surrounding the study site, light levels are expected to be low. If lighting was used at the quarry for nighttime operations, 'sky shine' from operations when low cloud occurs might be seen from adjacent communities of area (e.g. Kingsville).

The surrounding area of the study site is expected to have a relatively high natural baseline air quality typical of areas with a high proportion of natural landscapes such as neighboring forested areas. Low levels of human activity, including vehicle traffic along Highways 105, McIntyre's Mountain Road, as well as that associated with pit/quarry as well as logging activities in the area, have little impact on overall air quality at the site. Dust and vehicle exhaust emissions from occasional pit and quarry activities as well as regular residential and other vehicle traffic are the main contributors to particulates and exhaust emissions, which are expected to be at low levels as a result of these activities.

The quarry and associated movement of trucks and equipment would continue to provide a minor and periodic source of noise in the area during operational periods. Operations at the quarry will be temporary and occasional, when Municipal has work in the local area. Operational noise may be heard but at low levels in the closest communities such as Kingsville in the area. Blasting is expected to occur one to two times per year during years in which the quarry is active.

Operation of a portable crusher, asphalt plant, and heavy equipment will occur periodically and temporarily add to noise levels when the quarry is in operation. Trucks are used to transport aggregate products and move the portable equipment as required. Typical noise includes blasting and sounds from the crusher, asphalt plant and other heavy equipment operations (e.g. motors, generators, back-up signals etc.). Other than the gradual increase in the total operational footprint, site activities are not planned to change in scope or increase in frequency. Ambient noise levels in general are expected to be low due to the relatively isolated location of the quarry. All trucks leaving the site are required to follow best operational practices established by Truckers Association of Nova Scotia (TANS) and the Nova Scotia Road Builders Association (NSRBA). Noise levels arising from the quarry in the future will continue to meet the limits established in the Nova Scotia Pit and Quarry Guidelines and are expected to be consistent with those produced by existing quarry operations at the site.

4.1.4 Hydrology

The proposed quarry expansion area mostly will influence three catchment areas which ultimately discharge into Inhabitants River (A, B and D, Fraser 2025) (Figure 9). A fourth catchment area (C on Figure 9) discharges into Rough Brook. Two intermittent watercourses (Unnamed Watercourse 1 and Unnamed

Watercourse 2) occur in the main catchments, A and B respectively. The watercourses originate in ravines on the slopes of McIntyre's Mountain east of the quarry, and both discharge into Inhabitants River. A small, dry gully was observed near the southeastern edge of the study area. The upper end of the gully containing the main watercourse (Watercourse 2) was dry during field surveys in July 2024. Inhabitants River is the largest permanent surface water feature, which originates in the hills northeast of Kingsville and flows to meet Inhabitants Bay, near the community of Lower River Inhabitants.

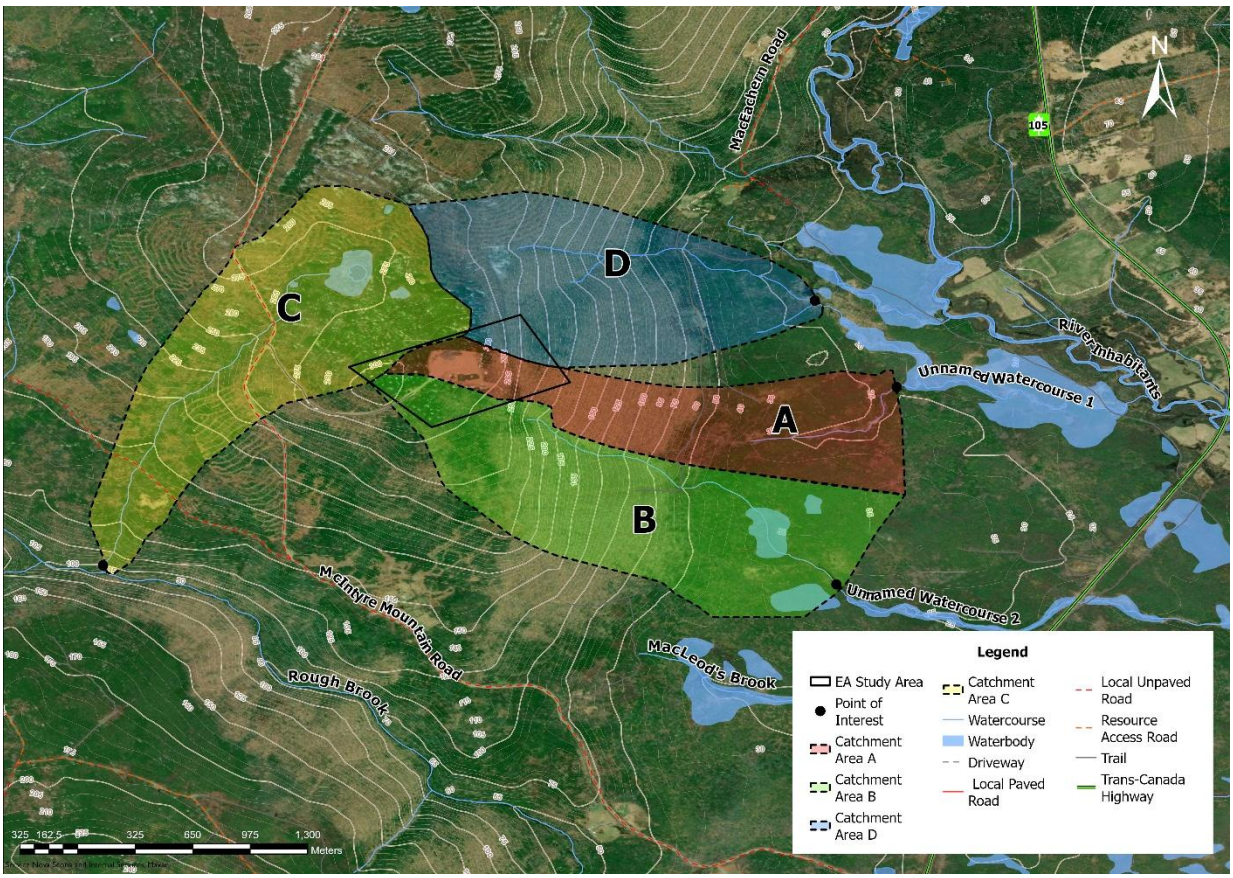

Figure 9. Watercourses and catchment areas for proposed McIntyre Mountain Quarry Expansion. Most runoff from the study area is expected to flow through "Catchment A". "Point of Interest" = discharge point of catchment.

4.1.5 Hydrogeology

The site is underlain predominantly by arkose sandstone, conglomerate grey sands, red siltstone, and sandstones of Creignish Hills Pluton (Cote, 1964), and covered by well-drained, moderately coarse-textured tills. Groundwater develops mainly in cracks and fractures on horizontal surfaces between strata in bedrock, as well as in shallow till and deeper surficial sand and gravel at the site. The bedrock water table at the site is below the floor of the existing quarry based on site observations and the current understanding of drainage characteristics of the study area. The actual depth of the bedrock water table at the quarry site is not known, but it has not been encountered during previous operations, and it is not anticipated that the quarry expansion will reach the bedrock water table. Surficial and shallow groundwater flow is anticipated to mirror the topographic slope that flows predominantly east.

Precipitation reaching the quarry is expected to accumulate based on the balance between input and limited infiltration into the quarry floor, while drainage from surrounding cleared and work areas will leave via ditches and outflows towards the Unnamed Watercourse 1 (Figure 9). Only a small percentage of precipitation is expected to enter groundwater as seepage through cracks and fractures.

4.1.6 Soils

McIntyre's Mountain is within Ecodistrict 310, the Cape Breton Hills. This area is characterised by rolling hills, high points typically underlain by resistant rocks, and surficial cover by well-drained, moderately coarse-textured tills. Low elevations tend to hold coarse carboniferous sediments, and the slopes are typically composed of imperfectly drained, fine textured tills. Seepage sites are common on the slopes, creating effective sites for vegetation growth (Bush and Baldo 2019). The McIntyre Mountain Quarry site in particular sits on the edge of 95% Podzolic soils upslope and 55% Gleysolic downslope. These soils support well- to moderately-well-drained upslopes, and poor to very-poorly-drained downslopes (AgCanada 2020).

Podzolic soils are common overlaying igneous rock bodies, such as the granites of the Creignish Hills Pluton which underlie the site, and are sourced from sandy parent materials (Sanborn *et al.*, 2011). The podzol present on site is a Humo-Ferric Podzol which tend to be acidic, and contain significant amounts of iron and aluminum (Agriculture and Agri-Food Canada 2013). Gleysolic soils are produced in waterlogged conditions that lack oxygen and tend to be grey-blue in color. Gleysolic soils are the dominant soil type downslope of the quarry site; however other documentable soil types downslope include Organic (15%), Regosolic (15%), and Luvisolic (10%) (AgCanada 2020).

4.2 Biological Resources and Habitat

4.2.1 Terrestrial Environment

Primary terrestrial habitats within the study area include mixed woodland, and mature deciduous woodland. A 20-year-old regenerating clear-cut mixed woodland occupies the western end of the study area; and mature deciduous woodland occupies the east end, including the east-facing slopes. Other habitats include work areas of the quarry and edges including berms; the existing quarry; and several small ~100 to 200 m^2 wetlands located within or along the edges of the existing woodland surrounding the quarry (Map A-3).

No invasive species were present in terrestrial habitats, and the majority of species found at the study site consisted of both native species with secure populations in Nova Scotia, as well as two exotic species. No invasive species or species of conservation of concern were found in wetland habitats (see Section 4.2.4). Plant species found at the site during June 25, 2024 (early summer) and September 23-24, 2024 (early fall) botany surveys, are presented in the survey report (Appendix B).

Woodlands present within the survey area consist of mixed stands (a relatively common habitat surrounding the quarry, Figure 10); a mature deciduous stand (Figure 11); and a small primarily coniferous stand (Figure 12). Vascular plant species observed within mixed woodland include: Yellow Birch (*Betula alleghaniensis),* White Birch *(Betula papyrifera*), Red Maple (*Acer rubrum)*, Sugar Maple (*Acer saccharum)* and Moose Maple *(Acer pensylvanicum*), Red Spruce (*Picea rubens*), Cinnamon Fern (*Osmundastrum cinnamomeum*), Tall White Aster (*Doellingeria umbellata*), Bunchberry (*Cornus canadensis*), Goldthread (*Coptis trifolia*), Wood Aster (*Oclemena acuminata*), Hay-scented Fern (*Dennstaedtia punctilobula*), Wild

Lily-of-the-Valley (*Maianthemum canadense*), Northern Starflower (*Lysimachia borealis*), Twinflower (*Linnaea borealis*), Spinulose Wood Fern (*Dryopteris carthusiana*). Within this habitat there are also occasional, small, dense stands of Balsam Fir (*Abies balsamea*) (Appendix B).

Figure 10. Mixed woodland immediately southeast of the entrance road (20T 0627207 5071004, 20T 0627386 5071267, 20T 0627386 5071267). Photos by R. Newell, 2024.

Vascular plant species observed within the mature deciduous stand (Figure 13) east of the quarry, include Red Maple (*Acer rubrum*), Sugar Maple (*Acer saccharum*), Yellow Birch (*Betula alleghaniensis*), White Birch (*Betula papyrifera*), Balsam Fir (*Abies balsamea*), American Mountain Ash (*Sorbus americana*) and Pin Cherry (*Prunus pensylvanica*). A variety of ferns are also present including Cinnamon Fern (*Osmundastrum cinnamomeum*), Hay-scented Fern (*Dennstaedtia punctilobula*), Northern Beech Fern (*Phegopteris connectilis*), Evergreen Wood Fern (*Dryopteris intermedia*) and New York Fern (*Amauropelta noveboracensis*) (Appendix B).

Figure 11. Mature deciduous woodland located east of the quarry pit. (20T 0627494 5071115; 20T 0627531 5071108). Photos by R. Newell, 2024.

There are three main areas of primarily coniferous woodland (Figure 12) within the survey area. These are located immediately adjacent to the existing quarry in three locations: southwest of the quarry, the upper west side of the quarry, and the northeast corner of the quarry. Trees present within these areas are generally small in diameter and closely packed. It is possible that these areas are plantations however, on the ground it was generally not evident that the trees had been planted in rows.

Dominant tree species present within these three areas are Balsam Fir (A*bies balsamea*) and Red Spruce (*Picea rubens*). Other tree species present to a much lesser degree include Yellow Birch (*Betula allegheniensis*), White Birch (*Betula papyrifera*) and Red Maple (*Acer rubrum*). Shrub and herbaceous species present include Mountain Holly (*Ilex mucronata*), Velvet-leaved Blueberry (*Vaccinium myrtilloides*), Low Bush Blueberry (*V. angustifolium*), Starflower (*Trientalis borealis*), Bunchberry (*Cornus canadensis*), Goldthread (*Coptis trifolia*), Mayflower (*Epigaea repens*), Twinflower (*Linnaea borealis*), Wild sarsaparilla (*Aralia nudicaulis*), Snowberry (*Gaultheria hispidula*) (Appendix B).

Figure 12. Coniferous woodland located southwest of the quarry pit (20T 0627184 5071114). Photos by R. Newell, 2024.

4.2.2 Aquatic Environment

No natural standing or flowing water within the study area was observed during Envirosphere's July 2024 reconnaissance survey. Areas of standing water were mainly observed in work areas and in the excavated area of the quarry—a small pool of retained water by the quarry scale house (~5 m x 5m); retained precipitation in the excavated quarry (Figure 3), occupying an area of ~31 m x 87 m; and a shallow pool (~1 m x 0.5 m) between the access road and forest that is associated with a small <100m^2 wetland (see WL1, Figure 14). A small dry vernal pool (3 m x 7 m) was observed with no standing water during the wildlife survey. All of these features likely arose from precipitation, and provide seasonal habitat for animals, such as Wood Frog tadpoles, which were observed in the scale house pool and the quarry during the wildlife survey.

4.2.3 Water Quality

Water samples and water quality measurements were taken at various locations on and off property where standing or flowing water was present, on July 22, 2024 (Figure 13). Within the study area, water quality was only taken from the quarry. Temperatures were warm and characteristic of the time of year (18.4 – 23.5°C). Specific conductivity at all sites was low to moderate and ranged from 49.1 – 641.0 µS/cm. Water was clear at all sites except for unnamed Tributary 2 that feeds into MacLeods Brook, and Total Suspended Solids (TSS) levels were low ranging from <1.0 mg/L to 4.5 mg/L the latter with elevated levels of natural organic particulate matter present (Table 1). pH values were slightly below neutral and ranged from 5.38

to 6.98 mg/L with the lower values (i.e., most acid conditions) occurring in wetland-influenced areas, as is typical for such areas. Bolded values in Table 1 indicate where the CCME Guidelines for Protection of Freshwater Aquatic Life were exceeded.

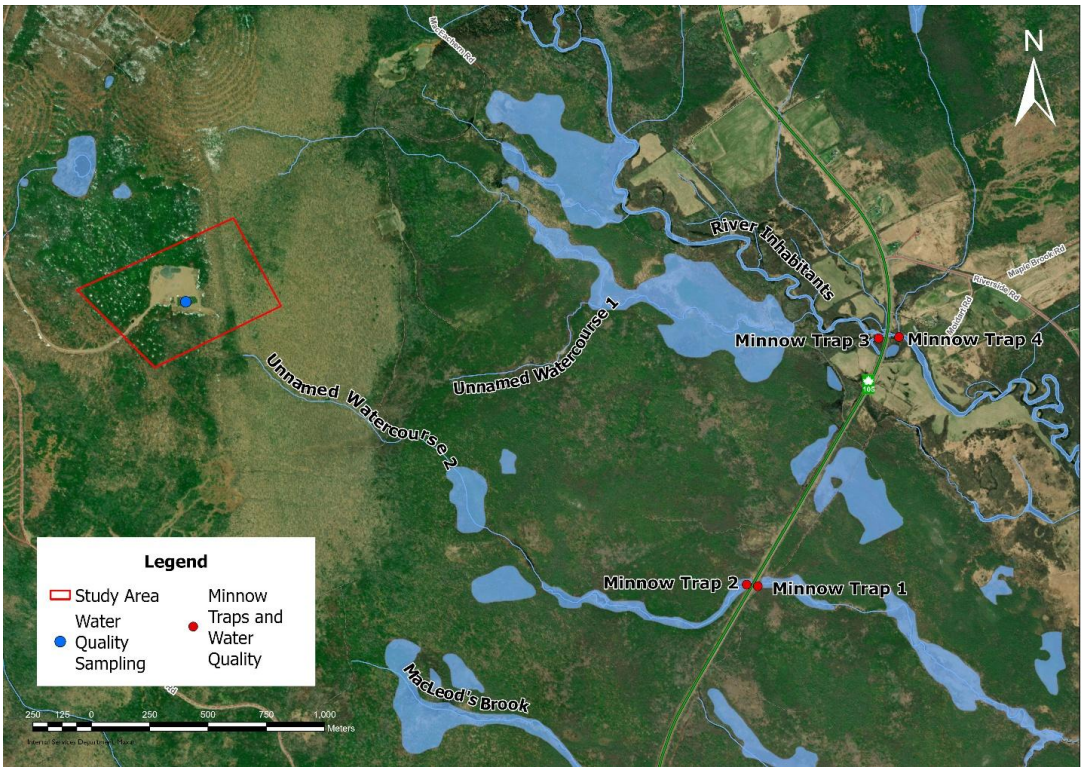

Figure 13. Water Quality and Fish Sampling Locations for McIntyre Mountain Quarry.

Table 1. Water quality measurements in surface waters located at or near the McIntyre Mountain Quarry site on July 22, 2024. Locations shown in Figure 14.

	SAMPLING LOCATION[1]					Freshwater Aquatic Life Guideline
	Unnamed Tributary 1 Downstream of Hwy 105 Minnow Trap 1 45.7703, -61.3303	Unnamed Tributary 1 Upstream of Hwy 105 Minnow Trap 2 45.7704, -61.3309	Inhabitants River Upstream of Hwy 105 Minnow Trap 3 45.7798, -61.3233	Inhabitants River Downstream of Hwy 105 Minnow Trap 4 45.7799, -61.3221	Retained Water on Quarry Floor 45.7817, -61.3613	
Temperature °C	18.6	18.4	19.1	19.6	**23.5**	<20°C*
Dissolved Oxygen (%)	33	45	99	97	68	-
Dissolved Oxygen (mg/L)	**3.1**	**4.2**	9.0	8.9	**5.7**	>6.5; >9.5
Conductivity (µs/cm)	335.4	336.3	562	575	47.7	-
Specific Conductivity (25°) (µs/cm)	380.8	386.3	629	641	49.1	-
pH	**5.37**	**5.38**	6.79	6.88	6.98	6.5 to 9†
TSS (mg/L)	4.5	1.5	<1.0	<1.0	2.5	<25 mg/L†

* Thresholds of 20° C are used as indicators of stress to aquatic species, particularly salmonids (Breau 2013).
† CCME, Canadian Council of Ministers of the Environment. 1999. 1.Locations shown in Figure 13.

4.2.4 Wetlands

Wetlands are areas of land that are either periodically or permanently flooded, characterized by unique soils and vegetation that are specially adapted to these environments. The current quarry site and the area proposed for development are generally level to slightly sloping from the northwest towards the east and southeast, transitioning into a steeper slope along the eastern edge, in alignment with surface water drainage patterns. The soils in the area are well to moderately well-drained, and offer few opportunities for accumulation of surface water. Several small (100 to 200 m^2) wetlands have formed either within or along the edges of the existing woodland surrounding the quarry (Figure 14, Table 2); and a small, dry vernal pool (3 m x 7 m) was observed with no standing water during the wildlife survey in June 2024. During the surveys, no invasive plant species or species of conservation concern were observed in any of the wetlands (Appendix B).

The wetlands on the site are seasonal and have nearly 100% cover of herbaceous or woody vegetation. A wetland area identified during the botany survey as a potential seasonal pond was located on the eastern edge of the open working quarry pit, and which was dry during the spring and fall botany surveys (WL6, Figures 14 and 17). This area was also dry in April 2024 when it was identified as an outwash area from surface water drainage from work areas of the quarry, and also for meltwater from winter snowfall accumulation (Figure 18). It is likely this seasonal surface water outwash area doesn't have prolonged periods of standing water through the year.

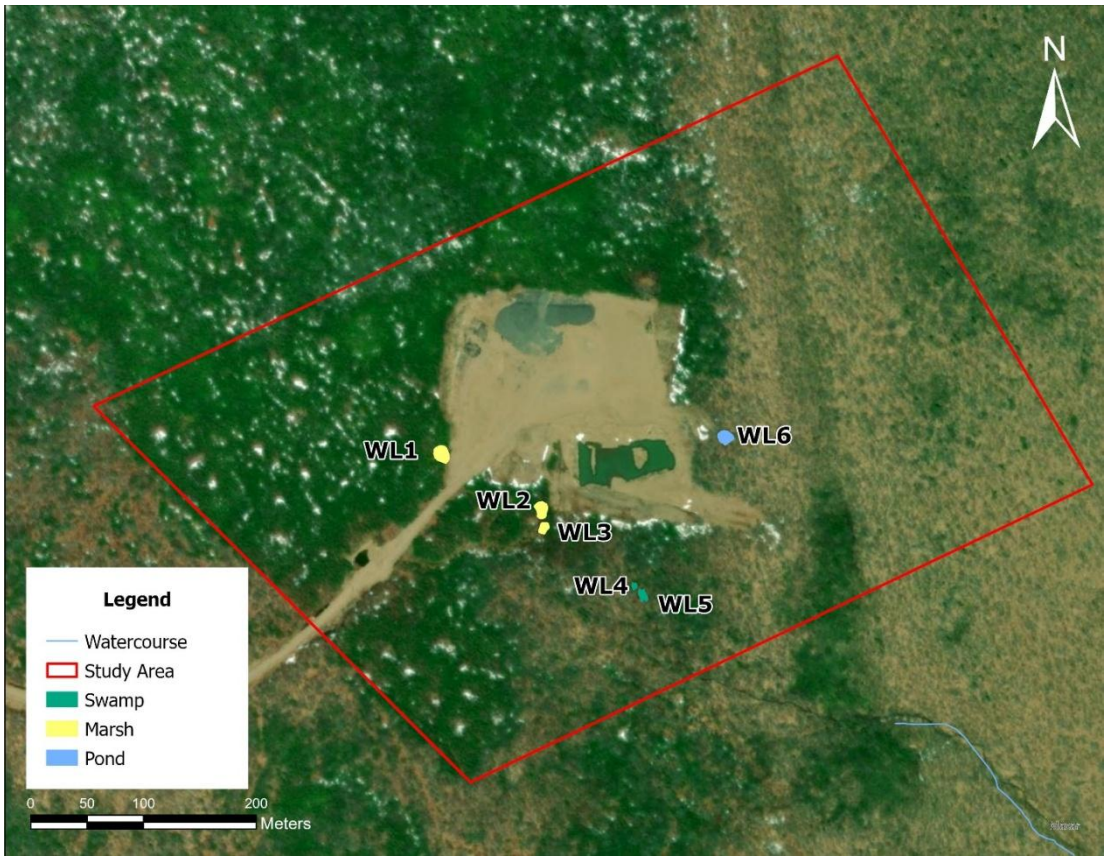

Figure 14. Wetlands at the Municipal Construction Limited, McIntyre Mountain Quarry.

Table 2. Wetlands, McIntyre Mountain Quarry Expansion. Locations shown in Figure 15.

Wetland	Area (ha)[4]	Wetland Type and Comments
WL1	0.01-0.02 ha	Marsh[1]
WL2	0.01-0.02 ha	Marsh[1]
WL3	0.01-0.02 ha	Marsh[1]
WL4	0.01-0.02 ha	Swamp[2]
WL5	0.01-0.02 ha	Swamp[2]
WL6	0.01-0.02 ha	Seasonal Pond[3]

1. Seasonally flooded area containing predominantly herbaceous vegetation.
2. Seasonally flooded area containing predominantly woody vegetation.
3. Outwash area from work area and snowfall accumulation.
4. Estimated.

The small wetlands are in depressions and are fed by seasonal accumulation of rainfall and snow melt, with no inlets or outlets observed. Herbaceous vascular plant species present within the marshes (Figures 14 and 15) [defined as seasonally flooded areas with herbaceous vegetation] include New York Fern (*Amauropelta noveboracensis*), Cinnamon Fern (*Osmundastrum cinnamomeum*), Hay-scented Fern (*Dennstaedtia punctilobula*), Evergreen Wood Fern (*Dryopteris intermedia*), Beech Fern (*Phegopteris connectilis*), Bog Aster (*Oclemena nemoralis*), Tall White Aster (*Doellingeria umbellata*), Pink Lady's-slipper (*Cypripedium acaule*), Twinflower (*Linnaea borealis*), Rough Goldenrod (*Solidago rugosa*) Field Horsetail (*Equisetum arvense*). Shrub and tree species present include Moose Maple (*Acer pensylvanicum*), Red Maple (*Acer rubrum*), Sugar Maple (*Acer saccharum*), Yellow Birch (*Betula allegheniensis*) and American Mountain Ash (*Sorbus americana*)(Appendix B).

Figure 15. One of several small marshes scattered within the survey area (20T 0627301 5071072; 20T 0627303 5071059 ; 20T 0627215, 5071121). Photos by R. Newell, 2024.

Vascular plant species occurring within the swamps (Figure 16) [defined as seasonally flooded areas containing predominantly woody vegetation] include Bladder Sedge (*Carex intumescens*), Red Maple (*Acer rubrum*), Sugar maple (*Acer saccharum*), Yellow Birch (*Betula alleghaniensis*), Skunk currant (*Ribes glandulosum*), Black Sedge (*Carex arctata*), Brownish Sedge (*Carex brunnescens*) and Bebb's Willow (*Salix bebbiana*). Trees and herbs present around the edges of these wetlands include Red Maple (*Acer rubrum*), Moose Maple (*Acer* pensylvanicum), Yellow Birch (*Betula alleghaniensis*), Balsam Fir (*Abies balsamea*), Twinflower (*Linnaea borealis*), Northern Beech Fern (*Phegopteris connectilis*) (Appendix B).

Figure 16. One of several swamps located south of the quarry pit (20T 0627384, 5071004; 20T 0627390 5070999). Photos by R. Newell, 2024.

The seasonal surface water outwash area (Figures 17 and 18) occurs on the east edge of the open pit (WL6, Figure 14). Vascular plant species present here include Field Horsetail (*Equisetum arvense*), Tall White Aster (*Doellingeria umbellata*), Rough Goldenrod (*Solidago rugosa*), Narrow-leaved Goldenrod (*Solidago graminifolia*), Cinnamon Fern (*Osmundastrum cinnamomeum*), Bulrush (*Scirpus* sp.), willows (*Salix* spp.).

Figure 17. Seasonal wetland on the east side of the quarry pit (20T 0627464 5071138). The dominant plant in the photo is Field Horsetail (*Equisetum arvense*). Photos by R. Newell, 2024.

Figure 18. Same seasonal wetland from Figure 17 shown in late April 2024.

4.2.5 Fish and Fish Habitat

No fish habitat exists within the study area or its immediate vicinity. The upper headwaters of two unnamed watercourses (Figure 13), originate off the quarry site and flow southeast from McIntyre's Mountain, eventually discharging into Inhabitants River. The source of these streams is groundwater and precipitation, and is seasonally intermittent. However, they may provide fish habitat in downstream regions.

A gully on the southeastern edge of the study area is the likely source of the headwaters of Unnamed Watercourse 2 that flows east into Inhabitants River (Figure 13), but was found dry in July 2024. The gully at the headwaters of Unnamed Watercourse 1 on the slope of McIntyre's Mountain are presumed to be dry most of the year, responding only to periodic surface water runoff, and is not fish habitat.

Downstream sections of Unnamed Watercourse 1 and Unnamed Watercourse 2 in the lowlands surrounding Inhabitants River, may provide nursery habitat for fish; conditions were suitable for salmonids such as Brook Trout (*Salvelinus fontinalis*). Access to these areas from Inhabitants River may occur during high-flow periods. Several Brook Trout were captured in four 24-hr sets of minnow traps in both Inhabitants River and Tributary 2 during the field reconnaissance survey (Table 3).

Table 3. Fish species, number, and size recorded in minnow traps in surface waters for <24 hrs, located at or near the McIntyre Mountain Quarry, Inverness County. July 22-23, 2024. Locations are shown in Figure 14.

Site Location	Time In	Time Out	Fish Species	Number and Size (Total Length-cm)	Relation to study area
Unnamed Tributary 2 Downstream of Hwy 105 Minnow Trap 1	12:00	9:47	-	-	Southeast of study site.
Unnamed Tributary 2 Upstream of Hwy 105 Minnow Trap 2	12:17	10 :49	Unidentified, damaged.	1 (6.2 cm)	Southeast of study site.
			Brook Trout	1 (13 cm)	
Inhabitants River Upstream of Hwy 105Minnow Trap 3	12:40	10 :05	Brook Trout	1 (6.2 cm)	Inhabitants River east of study site.
Inhabitants River Upstream of Hwy 105Minnow Trap 4	12:59	10:09	Brook Trout	-	Inhabitants River east of study site
Total	**Brook trout (2)** **Indeterminate (1)**				

4.2.6 Birds

4.2.6.1 Background

The field survey for owls was conducted on May 20, 2024, and the survey for breeding birds on June 7, 2024, and June 29, 2024, by birders Fulton Lavender and Richard Hatch[2,3]. Conditions during the owl survey

[2] Surveys were consistent with protocols for point-count surveys in Ralph et al. (1993) and Huff et al (2000).

were calm, clear, and quiet with a light breeze and air temperatures of 8°C. Conditions during both breeding bird surveys were calm with no precipitation and with air temperatures ranging between 9°C and 10°C.

Owls were surveyed by a combination of both a taped playback of owl calls and silent listening at the site, in the late evening and early morning hours. The Birds Canada Nocturnal Owl Survey Protocol for Atlantic Canada (Birds Canada 2022) was employed from 2130 hours to 2220 hrs on May 20, 2024, at four points within the study area (Figure 21). This protocol involves playing a standard tape-recording containing calls of Barred Owl, followed by Boreal Owl, with a listening period following the taped calls. The observers also listened for owls incidentally in the early morning while on site for approximately two hours before the breeding bird surveys, during which any additional owls and species of interest, including Common Nighthawk, which might be present, would be detected.

Breeding bird surveys were conducted on June 7, 2024 and June 29, 2024 from 0500 to 0638 hrs[3]. The survey team was typically on site 1.5 to 2 hrs before the start of the surveys. A focus of the study was listening for Common Nighthawk, which would have been heard in this early morning period, as well as during daytime reconnaissance of the site, which was undertaken during both site reconnaissance and point-count surveys.

4.2.6.2 Bird Species of Conservation Concern

No species of conservation concern were found in either the owl survey or breeding bird surveys. Common Nighthawk were not observed during surveys. American Woodcock were heard during the owl survey reconnaissance at the site on May 20, 2024, but the species was likely to be migrating through the area and is not likely to be nesting at the site. American Woodcock is a species of national/continental concern, but is not listed in federal or provincial legislation despite low population numbers in North America (Government of Canada 2015). American Woodcock typically inhabits mixed woods and early successional forests but typically is not found in either coniferous or deciduous forests which are the primary habitat types within the Study Area, although it is found in shrub habitat. The species has been affected by pesticides, habitat loss, and shifts in habitat due to climate change (Government of Canada 2015).

4.2.6.3 Owl Survey

Both Barred Owl and Long-Eared Owl were observed at the site during the breeding bird and owl surveys. A Long-Eared Owl was heard 50 m northwest, and a Barred Owl further than 500 m northeast of Site 1 (Figure 21) in the early morning of June 7, 2024 during breeding bird surveys. During site reconnaissance for the owl survey on May 19, 2024, a single Barred Owl was heard northeast of observation point (OWL1) at 2000 hrs (Figure 21) but no owls were heard during the formal survey the following day. Observation conditions for the May 20, 2024 owl survey were ideal, including quiet with a light breeze and clear sky with a ¾ moon (air temperature 8°C). Four sites (Figure 21) were surveyed from 2130 to 2220 hours using the Birds Canada Atlantic Owl Survey audio playback survey protocol. No owls were heard at any of the observation sites, including during a period of passive listening after the survey protocol was completed.

[3] All birds heard in a 10-minute period, and approximate distance (0-50, 50-100 and > 100m) and direction, were noted. Weather conditions for the surveys were calm with air temperatures ranging from 9°C. to 10°C.

4.2.6.4 Species Composition of Bird Communities

Various species of birds occur in the general vicinity of the site, documented by the Maritime Breeding Bird Survey and summarized for the study area in Table 4, and Figures 19 and 20.

Table 4. Birds potentially breeding in the McIntyre Mountain area of Inverness County (Maritime Breeding Bird Atlas-Online 2010). Map 20PR27.

PHEASANTS, GROUSE, TURKEYS & LOONS (GALLIFORMES, PHASIANIDAE)	
Ruffed Grouse	
HAWKS & FALCONS (FALCONIFORMES: ACCIPITRIDAE, FALCONIDAE)	
Bald Eagle ¤	Red-tailed Hawk
SHOREBIRDS PLOVERS, SANDPIPERS, SNIPES & GULLS (CHARADRIIFORMES, SCOLOPACIDAE)	
Spotted Sandpiper	
SWIFT (APODIFORMES, APODIDAE) AND HUMMINGBIRDS (APODIFORMES, TROCHILIDAE)	
Ruby-throated Hummingbird	
WOODPECKERS (ORDER PICIFORMES, PICIDAE)	
Downy Woodpecker	Northern Flicker
Pileated Woodpecker	
SONGBIRDS (PASSERIFORMES)	
Olive-Sided Flycatcher †	Black-and-white Warbler
Least Flycatcher	Nashville Warbler
Blue-headed Vireo	Mourning Warbler
Red-eyed Vireo	Common Yellowthroat
Gray Jay	Northern Parula
Blue Jay	Magnolia Warbler
American Crow	Yellow Warbler
Black-capped Chickadee	Black-throated Green Warbler
Red-breast Nuthatch	Song Sparrow
Winter Wren	White-throated Sparrow
Golden-crown Kinglet	Dark-eyed Junco
Ruby-crown Kinglet	Rusty Blackbird †
Hermit Thrush	Purple Finch
American Robin	American Goldfinch
Cedar Waxwing	

This list includes all species found during the Maritimes Breeding Bird Atlas (1st atlas: 1986-1990, 2nd atlas: 2006-2010) in the region #24 (Southwest Cape Breton Island).
Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), † (rare in the Maritimes) or ¤ (rare in the Maritimes, documentation only required for confirmed records). Current as of 16/05/2022. 20PR49.

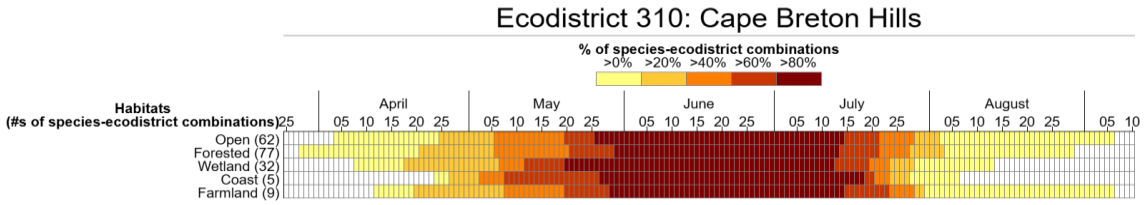

Figure 19. Nesting periods for various habitats in the Cape Breton Hills Ecodistrict (310) (Rousseu and Drolet 2015).

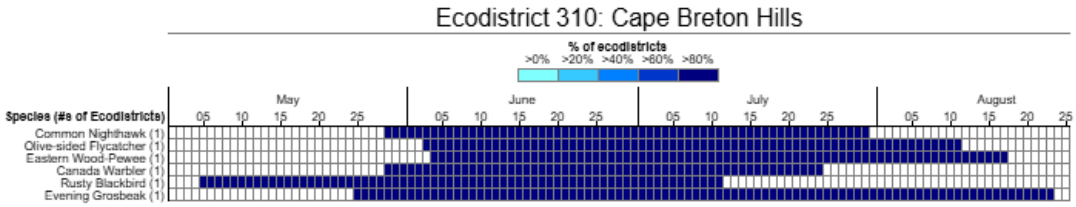

Figure 20. Nesting periods for bird Species of Concern found within 5 km of McIntyre Mountain Quarry (Rousseu and Drolet 2015).

The breeding bird surveys conducted at the site documented a suite of species typical of the types of habitats encountered at the site, summarized in Table 5. The songbird community in softwood forest areas at the quarry during the June 7, 2024 survey (Sites 1 and 2, Figure 21) was dominated by Blue-Headed Vireo, Magnolia Warbler, Hermit Thrush, Black-Throated Green Warbler, Dark-Eyed Junco, and Swainson's Thrush, each of which occurred at both sites in low abundance. Low numbers overall can be attributed to the sampling date which was early in the migration period, and also to cool temperatures encountered, although most of the species expected for the area are represented. The June 29, 2024 survey at the same sites (Site 1 and 2, Figure 21) was dominated by Swainson's Thrush, Hermit Thrush, American Robin, Dark-Eyed Junco, Black and White Warbler, Red-Eyed Vireo, Mourning Warbler, Magnolia Warbler, Ovenbird, and Black-Capped Chickadee which each appeared at both sites in low abundance.

The songbird community in mixed deciduous forest areas at the quarry during the June 7, 2024 survey (Sites 3 and 4, Figure 21) was dominated by American Robin, Red-Eyed Vireo, Ovenbird, Black-Capped Chickadee, Dark-Eyed Junco, Magnolia Warbler, Mourning Warbler, and White-Throated Sparrow, each of which occurred at both sites in low abundance. Low numbers overall can be attributed to the sampling date which was early in the migration period, and also cool temperatures encountered, although most of the species expected for the area are represented. The June 29, 2024 survey at the same sites (Site 3 and 4, Figure 21) was dominated by Swainson's Thrush, Magnolia Warbler, Red-Eyed Vireo, American Robin, Black and White Warbler, Cedar Waxwing, Dark-Eyed Junco, Hermit Thrush, and Ovenbird which each appeared at both sites in low abundance.

The remaining parts of the proposed expansion area contain open mixed woodland, represented by Site 5, (Figure 21), which during the June 7, 2024 survey was occupied by a community dominated by American Robin, Black and White Warbler, Blue-Headed Vireo, Black-Throated Green Warbler, Hermit Thrush, Magnolia Warbler, Ovenbird, Red-Eyed Vireo, Swainson's Thrush, White-Throated Sparrow, and Yellow-Rumped Warbler, each of which occurred in low abundance. American Robin and Blue-Headed Vireo were most abundant, reaching 3 individuals per 10-minute observation period. During the June 29, 2024 survey, the open mixed woodland site (Site 5), was dominated by Blue Jay, Black-Throated Green Warbler, Dark-Eyed Junco, American Goldfinch, and Magnolia Warbler each of which occurred typically in low abundance (i.e. 2 individuals per 10-minute survey period). Swainson's Thrush was the most abundant, reaching 5 individuals/10-minute observation period.

Other species observed at the site included an American Bald Eagle which, flew over the site during site reconnaissance on the evening of May 19, 2024; Ruby-Crowned Kinglet and American Woodcock on June 7, 2024; and a Tree Swallow on June 29, 2024.