MUNICIPAL
ENTERPRISES LTD

MUNICIPAL ENTERPRISES LIMITED
MIDDLE RIVER PIT EXPANSION,
MIDDLE RIVER, VICTORIA COUNTY
NOVA SCOTIA

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

JUNE 2023

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1.0 INTRODUCTION

Municipal Enterprises Limited (herein after referred to as "Municipal") of Bedford, Nova Scotia is proposing to expand the existing aggregate pit located at 71 McIntyre Road, Middle River, Victoria County, Nova Scotia. An approval to expand the pit 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*."

Municipal 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. Municipal's Company Profile Report from the Nova Scotia Registry of Joint Stock Companies is attached in **Appendix A** "Property Information." Dexter Construction Company Limited (Dexter) is an affiliated company of Municipal and may be referred to within the appendices.

Proponent Address:

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

Proponent Contact & Representative with Signing Authority:

Gary Rudolph, P. Eng.
Director of Aggregates
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 Middle River Pit operates under an existing Nova Scotia Environment and Climate Change (NSECC) Industrial Approval (Approval No. 2011-078985-01), which has a current expiry date of January 24, 2032. A copy of the Industrial Approval is also attached in **Appendix A** "Property Information".

2.0 THE UNDERTAKING

2.1 Description of the Undertaking

Municipal proposes to expand its existing Middle River Pit to produce aggregate, primarily used in the local highway and construction industry. The proposed undertaking ("*the pit")* involves the expansion of an existing NSECC approved pit from a less than four-hectare to a 14.83-hectare pit. Other than the proposed increase in size, it is expected that continued use of the pit will be very similar to historic use of the site. A plan showing the existing NSECC approved permit area is included in **Appendix A**. The boundaries of the proposed pit expansion area are illustrated in **Appendix B**.

2.2 Location

The pit is located on Company owned land (PID# 85009397) on MacIntyre Road off NS-Route 30 in the community of Middle River, Victoria County, Nova Scotia, 5114230 Northing, 660550 Easting, UTM Zone 20, NAD 83. The site is shown in Google Earth satellite imagery from July 2019 (**Figures 1 & 2 (below) and Drawing 1, Appendix B**). There is no designated Municipal zoning in this area of Middle River / Victoria County.

Figure 1. Project Location

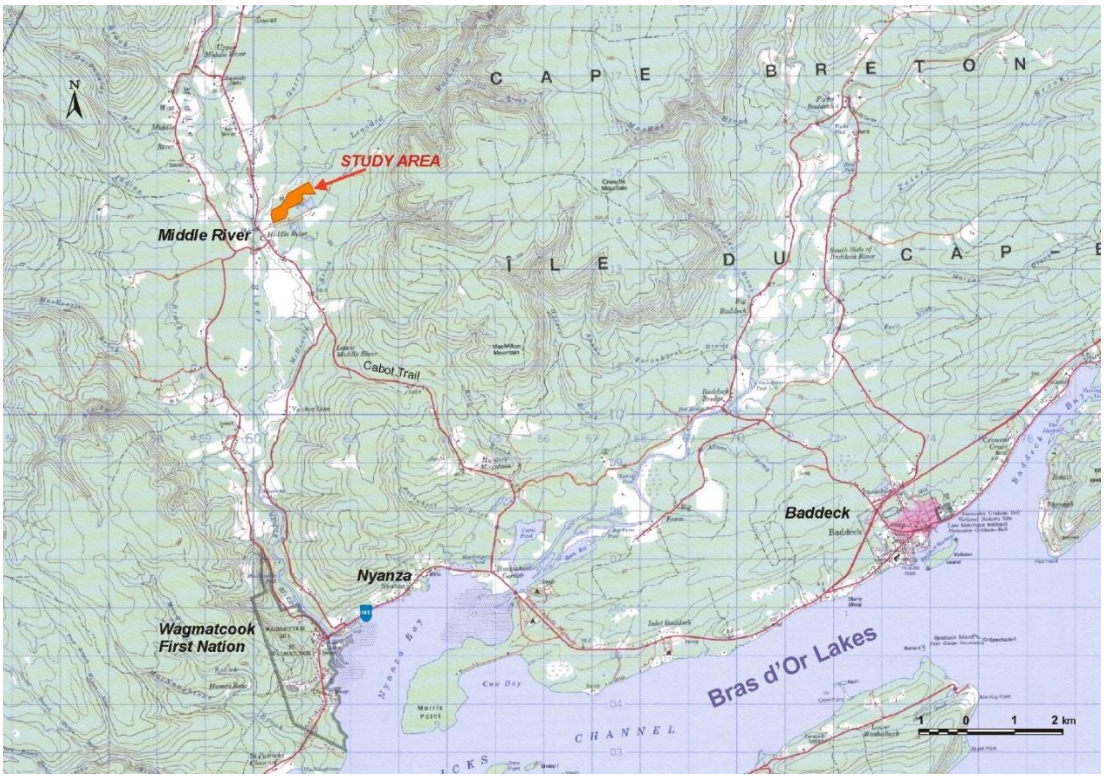
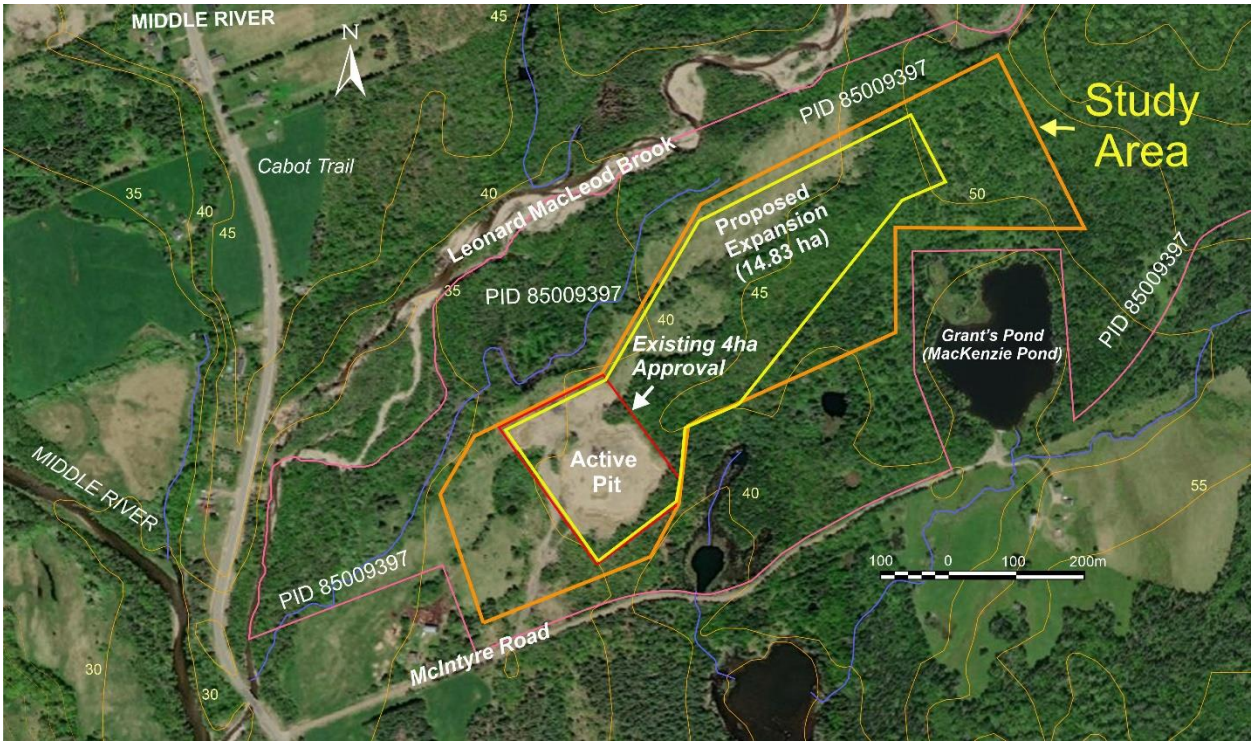


Figure 2. Site Location and Adjacent Land Use



3.0 SCOPE OF THE UNDERTAKING

Municipal intends to expand the existing Middle River Pit 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 pit will be very similar to historic use of the site.

The existing pit was developed by Municipal and has been operated as a NSECC approved pit since 2010. A working pit slope has been developed in the south-western portion of the property and is intended to advance to the north-east. 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 (NSPW) projects in the area. The quantity of aggregate produced at the site each year is dependent on demand and activity within the local construction industry. The pit is currently operating under a NSECC IA (2011-078985-01) for a less than four-hectare pit. The scope of this application is for expansion of the existing pit to a 14.83-hectare permit area.

The existing active area and activities include clearing and grubbing of vegetation and overburden; the use of a portable crusher and/or screener for crushing and screening aggregate products; stockpiling of aggregate products; operation of a portable truck scale and scalehouse and the associated trucking of aggregate products. During past operations, Municipal has extracted an average of approximately 25,000 tonnes of aggregate per year from the pit during years in which it was active. There are no off-site related support facilities, other than the provincial highway network. Site access is via a gated, 300-meter gravel road from MacIntyre Road to the pit.

It is Municipal's intent to continue operations on the property. It is anticipated that future operations will continue to involve the extraction of approximately 25,000 tonnes/year during years in which the pit is active. However, the annual quantity may vary depending on local demand and associated project requirements.

3.1 Purpose/Need of the Undertaking

Municipal proposes to expand the existing Middle River Pit to produce aggregate, primarily used in the road and local construction industry. The primary benefit will be to the people of Nova Scotia via the continued construction and maintenance of the Provincial highway system.

3.2 Consideration of Alternatives

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

Municipal operates rock quarries and pits throughout Nova Scotia and Atlantic Canada and uses modern industry standard methodologies in all phases of the extraction, processing, and delivery processes. Alternative processes are always being considered in terms of their efficiency, cost effectiveness and environmental mitigation advantages. Operations at the Middle River Pit will be assessed on an on-going basis to ensure that the best available techniques are being utilized during all phases of the project.

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 Municipal'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 also takes into consideration that the pit is, at present, operational, 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. It is understood that prior to pit expansion, the existing IA will be amended based on the results derived from the various studies and assessments that form this EA, and potential EA Approval. The amended IA will outline the operational requirements of the future pit operation.

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

The following sections of this document provide a description of the project, 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. In support of the EA, a Biophysical Assessment (**Appendix D**), an Archaeological Resource Impact Assessment (ARIA) (summarized in a letter from NS Communities, Culture and Heritage) **(Appendix E**), a Water Balance Assessment (**Appendix F)**, and a Karst Investigation and Summary Report (Appendix G) were completed.

Envirosphere Consultants Limited (Envirosphere) was retained by Municipal to undertake a Biophysical Assessment as part of the proposed expansion of the Middle River Pit. Information for the Biophysical Assessment (**Appendix D**) was obtained from consultants' personal knowledge, from reviews of available information and knowledge of the purpose and proposed design of the project. The environmental assessment follows the *Guide to Preparing an EA Registration Document for Pit and Quarry Developments in Nova Scotia* (NSE September 2009) and uses assessment methodology typical for environmental assessment screenings of this kind. For this assessment a list of VECs, and project activities and outcomes for the expansion of the existing pit were developed. 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 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 Municipal to undertake an ARIA as a part of the proposed expansion of the Middle River Pit. 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. A letter from Nova Scotia Communities, Culture and Heritage summarizing the results of the ARIA is presented in **Appendix E**, following a government policy of non-release of the primary ARIA document through the EA process.

The ARIA was conducted according to the terms of Heritage Research Permit A2021NS046 (Category "C") issued to CRM (Emily Redden) through the Special Places Program of the NS Department of Communities, Cultural and Heritage (Special Places). The report describes the ARIA of the Middle River Pit 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. Should the ground disturbance extent beyond the current proposed study area, further archaeological assessment must be conducted as the surrounding area retains archaeological potential.
3. In the unlikely event that archaeological deposits or human remains are encountered during activities associated with the development of the pit, all work in the associated area should be halted and immediate contact made with the Special Places Program (John Cormier at (902) 424-6475).

Consulting Hydrogeologist J. Fraser prepared a Water Balance Assessment for the proposed Middle River Pit expansion area. This Water Balance presents an assessment of the estimated effects on the surrounding water features resulting from the proposed pit expansion. The analysis is intended to identify any potential changes in the surface and groundwater flow regime and to provide input into the design and implementation of surface water control infrastructure as the site is further developed. The Water Balance Assessment for the Middle River Pit is included as **Appendix F**.

Municipal undertook a drilling program to investigate the potential occurrence of Karst within the proposed expansion area. Consulting Hydrogeologist J. Fraser prepared a Karst Summary Report to summarize the investigative work. The investigation was intended to assess the potential for Karst within the proposed expansion area and identify recommendations related to Karst or future expansion activities. The Karst Summary Report for the Middle River Pit is included in **Appendix G.**

3.4 Other Approvals Required

The existing Middle River Pit is subject to an existing IA (**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 site-specific conditions. It is understood that prior to pit 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 potential EA Approval. The amended IA will outline the operational requirements of the future pit 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 any wetland habitat associated with the proposed pit expansion. At this time, no other approvals, permits, and/or authorizations are expected to be required in support of this application.

In addition to the respective site approvals, Municipal also operates the pit in accordance with applicable environmental laws and regulations, including the NSECC Pit and Quarry Guidelines. If Municipal fails to comply with the conditions of approval, the IA may be suspended or revoked. Failure to comply may also result in penalties as set out in the *Nova Scotia Environment Act* and associated regulations.

Municipal is required to notify NSECC of any adverse effect or the potential for adverse effect which the Company becomes aware of while operating under the IA and must notify NSECC if any of the conditions specified in the IA are violated or exceeded.

Municipal is required to bear all costs associated with meeting the requirements of the approval; no cost is borne by the Nova Scotia taxpayer.

4.0 PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT

4.1 Methods of Involvement

Municipal has engaged various project stakeholders, as outlined below. Community and First Nations engagement to date has focussed on notifying local elected officials and community representatives. Engagement efforts have included email correspondence and in person meetings. As part of the Biophysical Assessment, local community members in the immediate vicinity of the Pit were contacted by Envirosphere to provide comments on their interactions with the pit over the years.

A site visit was held on June 21, 2021, with regulatory stakeholders, including those from the NSECC EA Branch, NSECC Regional Office, and the Nova Scotia Department of Natural Resources and Renewables. The site tour provided an opportunity for stakeholders to explore the pit, gain an understanding of the scope of the operation, and ask questions about general pit operations and site management.

With respect to the First Nations Community, Municipal has followed the Proponent's Guide: The Role of Proponents in Crown Consultation with the Mi'kmaq of Nova Scotia. In this regard Municipal has advised Chief Norman Bernard (Wagmatcook First Nation) of its intent to file the Registration Document for a Class 1 Undertaking under Section 9 (1) of the NS Environmental Assessment Regulations. Municipal also sent this letter to Ms. Twila Gaudet, Director of Consultation with the Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO), Chief Lorraine Augustine of the Native Council of Nova Scotia, and Ms. Gillian Fielding, Consultation Advisor with the Nova Scotia Office of L'Nu Affairs. A follow up letter was sent to all noted First Nation representatives on June 9, 2023, 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**.

Tables 1 and 2 includes a summary of Stakeholder and First Nation Engagement efforts conducted to date.

Table 1. Middle River Pit Environmental Assessment - First Nations Engagement Summary

	Description of Engagement	Summary of Engagement
Wagmatcook First Nation Chief Norman Bernard	January 29, 2021 - Early Engagement Letter	• Early engagement letter, including brief description of project and anticipated timeline, offer to discuss the project, and commitment to send a follow up notification letter prior to EA registration. • No response received
	June 9, 2023 - Notification Letter	• 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
Kwilmu'kw Maw-klusuaqn Negotiation Office Ms. Twila Gaudet	January 29, 2021 - Early Engagement Letter	• Copied KMKNO on early engagement letter to Wagmatcook First Nation • No response received
	June 9, 2023 - Notification Letter	• 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	January 29, 2021 - Early Engagement Letter	• Early engagement letter, including brief description of project and anticipated timeline, offer to discuss the project, and commitment to send a follow up notification letter prior to EA registration.
	January 29, 2021 - Email	• Forwarded a copy of early engagement letter via email to Jesse MacDonald (NCNS). • Email response received. Meeting scheduled.
	February 18, 2021 - Virtual Meeting (Jesse MacDonald, NCNS; Rhett Thompson, Dexter; Gary Rudoloh, Dexter)	• High level discussion of typical Industrial Approval requirements and the requirement for an EA to expand the site. • Explained the scope of existing operations and the scope of proposed expansion. • NCNS questions included; - What is the proposed size of the expansion? - How is water managed at the site? - How is dust controlled? - Have archaeological studies been completed / and features identified? • NCNS noted the suceptibiility of aggregate sites to invasive species and the importance of implementing mitigation measures when possible. • Confirmed that Dexter will follow up with a Notification Letter when environmental studies have been complete and EA registration date has been confirmed.
	June 9, 2023 - Notification Letter	• 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
	June 9, 2023 - Email	• Forwarded copy of Notification Letter via email to Jesse MacDonald (NCNS)
Office of Aboriginal Affairs Ms. Gillian Fielding Consultation Advisor	January 20, 2021 - Email	• Dexter request to OAA for recommended First Nations stakeholders for project. OAA responded via email on January 26, 2021 with recommended First Nation stakeholders (Wagmatcook First Nation, KMKNO)
	January 29, 2021 - Early Engagement Letter	• Copied OAA on early engagement letter to We'koqma'q First Nation
	January 29, 2021 - Email	• Forwarded a copy of early engagement letter via email
Office of L'Nu Affairs Ms. Melissa Slauenwhite Consultation Advisor	June 9, 2023 - Notification Letter	• 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
	June 9, 2023 - Email	• Forwarded copy of Notification Letter via email to Jesse MacDonald (NCNS)

Table 2. Middle River Pit Environmental Assessment - Stakeholder Engagement Summary

Stakeholder	Description of Engagement	Summary of Engagement
Victoria County Ms. Perla MacLeod District 2 Councillor Mr. Bruce Morrison Warden	May 11, 2023 - Email	• Dexter email to notify of Project and upcoming EA Registration, including an offer to meet to discuss.
Provincial Representative Mr. Keith Bain MLA Victoria - The Lakes	June 14, 2023 - Meeting	• Provided general information on quarries around the province, including rehabilitation requirements, and typical approval terms and conditions. • Reviewed the EA process, public consultation requirements, First Nations engagement, and the EA public comment timeline. • Provided background information on the existing pit, and the scope of biophysical assessment and archaeology studies completed as part of the EA process.

4.2 Stakeholders Comments

No stakeholder comments regarding the project have been received to date. General questions regarding the project have been discussed with local elected officials. Municipal will document any concerns received during the public consultation portion of the EA process and provide a copy to NSECC.

No comments regarding the project have been received from the First Nations Community to date. Municipal will continue to liaison with the First Nation Community when appropriate, and forward any comments received regarding the Project to NSECC.

4.3 Future Steps

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

5.0 DESCRIPTION OF THE UNDERTAKING

5.1 Existing Pit Operations

The existing active area and activities include clearing and grubbing of vegetation and overburden; the use of a portable crusher and/or screener for crushing and screening aggregate products; stockpiling of aggregate products; operation of a portable truck scale and scalehouse and the associated trucking of aggregate products. During past operations, Municipal has extracted an average of approximately 25,000 tonnes of aggregate per year from the pit during years in which the pit was active. There are no off-site related support facilities, other than the provincial highway network. Site access is via a gated, 300-meter gravel road from MacIntyre Road to the pit.

The pit is operated in accordance with an existing IA (Approval No. 2011-078985-01). A copy of the IA is included in **Appendix A.** The pit 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, liquid effluent discharge limits, suspended particulate matter limits, sound level limits and requirements for a reclamation plan and security bond. Municipal is committed to the utilization of 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 pit occurs on an as-required basis. Blasting is not required at the pit. Surface water controls are maintained, and associated surface water monitoring is conducted as per the Industrial Approval.

Site operations and historic aggregate excavation have not encountered the groundwater table. At the request of NSECC during the Industrial Approval renewal process in 2021, Municipal retained Dillon Consulting to conduct an initial hydrogeological investigation to evaluate potential impacts to both groundwater levels and water quality, including the effects of groundwater-surface water interactions on nearby wells, watercourses, wetlands, and groundwater resources. The investigation concluded that site conditions indicate that the operation of the pit is not likely to impact the hydrological regime of the surface water nearby, and that the previous pit excavations appear to be approaching, but not extracting below the water table (Dillon Consulting, 2022).

With respect to the characteristics of the pit material, a sample from the pit 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% S(total) (<0.03 kg H_2SO_4/tonne), which is below the minimum (0.4 % S; 12.51 kg H_2SO_4/tonne) defined by NSE as sulphide bearing material. The laboratory results of this sample are included in **Appendix C.**

5.2 Future Pit Operations

Municipal proposes to expand the Middle River Pit for the extraction, storage, and removal of aggregate, primarily used in the road and local construction industry. Municipal is proposing to expand the existing pit to a maximum 14.83-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, at this time, that future development will involve the production of up to approximately 25,000 tonnes of aggregate per year, during years in which the site is active. The pit will initially advance in a north-east direction from the existing pit slope. **Drawing # 2, Appendix B** identifies the proposed 14.83-hectare expansion area.

Pit operations will coincide with the road construction season; therefore, it is reasonable to anticipate periodic, seasonal operations within a similar time frame (April – December). The pit 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 NSPW Contract) will require crushing and/or screening activities at the pit for a period of several 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 pit for several weeks, or as required by the project. During load and haul activities the site is typically operated during daylight hours (approx. 12 hours per day), possibly 7 days per week. Municipal is committed to the utilization of 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. It is noted that blasting is not required at this location.

Aggregate will be excavated with an excavator and transported to a portable crushing spread or screener for processing. The various aggregate products will be stockpiled in designated areas within the pit. Material within the pit will be hauled and moved with a front-end loader. Products will be transported from the pit via tandem and tractor trailer trucks via a 300 m private gravel driveway to the MacIntyre 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 scope of the site is not expected to change, trucking activity is not expected to increase from past use.

Aggregate excavation will not take place below the groundwater table. If aggregate extraction below the groundwater is required in the future, a Hydrological Study will be completed and an application to amend the IA will be submitted to NSECC. A network of groundwater monitoring wells has already been installed around the pit and will be used to establish baseline groundwater quality and elevations prior to the proposed expansion, and for on-going compliance monitoring.

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 Industrial Approval for the existing pit (**Appendix A**), testing for Potential Acid Rock Production (**Appendix C**), the preparation of a Biophysical Assessment (**Appendix D**), an Archaeological Resource Impact Assessment **(Appendix E**), Water Balance Assessment (**Appendix F**), Karst Summary Report (Appendix G), and a variety of Stakeholder Engagements as outlined in **Table 1** and **Appendix H**. The environmental assessment follows the "Guide to Preparing an EA Registration Document for Pit and Quarry Developments in Nova Scotia (NSE September 2009). For this assessment a list of VECs and project activities for the proposed pit 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, and interactions with project components, are presented in **Table 2**. The environmental effects and potential impacts of the project along with their significance and suggested mitigations are outlined in the following sections.

Table 3. Valued Environmental Components (VECs) for Middle River Pit Expansion.

BIOPHYSICAL	SOCIO-ECONOMIC
Air Quality, Noise and Light	Mi'kmaq First Nation
Groundwater	Recreational Activities Tourism & Viewscape
Hydrology	Recreational, Commercial & Mi'kmaq Fishing
Water Quality	Archaeological, Cultural and Historical
Freshwater Aquatic Environments and Wetlands	Economy, Land Use and Value
Terrestrial Environments	Transportation

Karst Topography	
Fish & Fish Habitat	Residential Use
Flora & Fauna & Habitat	Commercial /Industrial Use
Species at Risk	Water Supplies & Residential Wells
Natural Areas & Wilderness	Parks & Protected Areas
	Forestry, Hunting & Trapping

6.2 Socio-economic Components

6.2.1 Mi'kmaq First Nation

Background

The Mi'kmaq maintain interest in all lands in Nova Scotia and claim they have never surrendered, ceded, or sold the Aboriginal title, and that they claim all of 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.

Coastal areas of the Bras d'Or Lakes and rivers, including Middle River, were likely used by Mi'kmaq, including as a transportation route inland and to the Gulf of St. Lawrence as Mi'kmaq moved throughout the province, however, there is low potential for occurrence of Mi'kmaq archaeological resources within the proposed pit expansion area (CRM 2022).

The eight (8) km distance between the pit and the Wagmatcook Reserve is sufficient separation to make activities at the pit unnoticeable. Transport trucks and equipment moving along the Cabot Trail likely can be heard there and traffic can be experienced by residents using the roads in the area. Products from the pit, which may include sand and gravel may be used for construction and road building on the Reserve. The pit is some distance from Middle River and would not have significant impacts on fish resources.

In addition, it is noted that the land around the existing Middle River pit which is proposed for expansion may be used by Mi'kmaq for activities such as nature walks, bird watching and hunting or fishing, either recreational or for subsistence.

Significance and Mitigation

Although there is low potential for occurrence of Mi'kmaq archaeological resources within the pit site as outlined in the ARIA (CRM, 2022), in the unlikely event that artefacts are uncovered at the site, all work will stop, discoveries will be reported to the appropriate authorities, and mitigation will be enacted to the satisfaction of all parties involved.

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. Since pit operations are not expected to change in scope or increase in frequency from past use, there is unlikely to be a change in the overall impact of the pit or the cumulative effects of other activities in the area. Consequently, none of these effects are considered significant. Engagement with the local Mi'kmaq has occurred as part of this EA process and will continue on an as required basis throughout the lifespan of the project. Best management practices used at the site will reduce potential impacts that the pit activities may have on water quality/quantity and fish habitat. This

will be validated via the implementation of surface water management plans and associated monitoring that will be established through the subsequent IA process.

6.2.2 Recreational Activities

Background

Recreational use and nature appreciation in the vicinity of the site consists principally of walking/hiking and home-based recreation (e.g., gardening) concentrated around the Cabot Trail and local residences. The pit will temporarily increase truck traffic on the Cabot Trail when the pit is operating. Operations at the pit would be cyclic, likely occupying several weeks during the construction season during the years in which the site is active.

Significance and Mitigation

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

Signage will be in place at the entrance to the pit during periods of site activity to ensure that visitors to the pit are aware of on-going activities. Road users will be informed of temporary increased trucking activity by signage placed along NS-Route 30, in accordance with NSDPW requirements.

6.2.3 Tourism and Viewscape

Background

Expansion of the existing Middle River pit is not expected to impact tourism and viewscape. The Cabot Trail is perhaps the most important tourist route in Cape Breton and an important commercial route linking Highway 105 to Western Cape Breton. Truck and equipment traffic accessing and exiting the site from the Cabot Trail is expected to be the main interaction with tourists. This traffic is expected to be occasional, and would likely be only a minor impediment to tourist vehicle traffic in the area. The intersection of MacIntyre Road and the Cabot Trail is narrow and has reduced view planes, which would require extra diligence from truck drivers and traffic signage (e.g., Trucks Turning). The pit is not visible from the highway and would not interfere with viewscape for tourists.

Significance and Mitigation

Overall, the effects on tourism and viewscape are expected to be negligible. Signage will be in place during periods of site activity to ensure that residents are aware of seasonal pit activities and associated trucking. This may include truck turning signage at the intersection of MacIntyre Road and the Cabot Trail during periods of site activity.

Other mitigation to control potential nuisance impacts will include Best Management Practices, including dust and noise control, and the on-going progressive rehabilitation of pit areas no longer required for activity and/or future development. Overall, the proposed pit expansion is not expected to have an impact on the tourist experience and the use of the Cabot Trail for tourism.

6.2.4 Recreational, Commercial, and Mi'kmaq Fishing

Background

Recreational fishing in Middle River and its tributaries in the area, as well as in ponds located south of the study area, is not expected to be affected by activities at the pit. A small amount of surface water leaves the pit via surface flow, but most precipitation will infiltrate through the porous sand and gravel material in the pit, resulting in negligible impact on the watercourses and fish habitat downstream. Surface waters at the site have high quality, including low turbidity and neutral pH, which would lead to good quality of waters downstream for fish.

Significance and Mitigation

The effects of the proposed pit expansion are expected to have a negligible impact on recreational, commercial and Mi'kmaq fishing. Mitigation will include the use of Best Management Practices on-site (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 subsequent IA process and will include specific surface water controls. Surface water and groundwater 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 pit expansion has low potential for pre-contact and/or early historic native or European archaeological resources (CRM 2022). The site itself has been occupied by European settlers but development of the existing pit and modifications to the land due to other activities such as forestry have removed all traces. The site may have been used by Mi'kmaq pre-contact due to its proximity to the Middle River which provided access to adjacent lands.

Significance and Mitigation

The impact of the proposed pit expansion on archaeological, cultural, or historical features is expected to be negligible. If an archaeological, cultural, or historical feature of significance is encountered during on-site activities, the impact will be reduced by halting operations and consulting with experts in the field to ensure the artefact 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 Economy, Land Use, and Value

Background

The community of Middle River has a mix of commercial and economic activities including agriculture, but is not a major centre. Activities at the Middle River Pit will not restrict or negatively impact industrial activity in the area. The pit supports construction activities using aggregate from the site for projects in the area. When the pit is operating, construction crews will typically use local accommodations and services as well as local trucking resources. The existing pit has been operating at the site for many years with little or no impact, while providing economic development and a source of aggregate for local construction projects.

Significance and Mitigation

Overall, due to the small area affected relative to the total land area available in the area as well as the current low traffic levels, which will not increase due to pit expansion the proposed expansion is expected to have a negligible impact on economy, land use and value. Mitigation will include the minimization of the pit footprint within the NSECC approved permit area, and the progressive rehabilitation of areas no longer required for aggregate production or site related activities.

6.2.7 Transportation

Background

During periods of operation the pit will generate a comparatively low level of truck traffic on highways in the area. Activity at the pit is not expected to increase from historic levels, and consequently traffic volumes are not expected to increase significantly from historic levels. The intersection of MacIntyre Road with the Cabot Trail is narrow with limited sightlines and trucks turning onto the highway at low speed may lead to traffic slowdowns.

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 pit. During periods of site operation, signage for truck and equipment operators, as well as the surrounding communities will be placed (in consultation with the local Nova Scotia Department of Public Works) to help inform the public that the pit is active and to mitigate concerns at the MacIntyre Road/Cabot Trail intersection. Safe use of the road and avoidance of accidents is essential, both for human impacts and the potential impacts of vehicle accidents and spills to the local watercourses and environments. Warning signs and speed limits can be placed in areas leading to the pit, when in operation, to improve safety. Equipment and truck operators for the pit will be given instruction on safe procedures.

6.2.8 Residential Use

Background

Pit activities can potentially interfere with normal use and enjoyment of nearby residential properties by creating background noise, dust, light, and through truck and equipment traffic which some residents may find objectionable. No residential structures are located within the required 90-meter setback distance for pit operations. The residence and farm located on MacIntyre Road may experience noise, dust and light as a result of the continued operation of the pit. Traffic volumes from the site would be moderate when the pit is in use and a high frequency of truck traffic would be an irregular occurrence and depend on the supply requirements for individual projects. There will not be blasting at the site, and pit activities are not expected to impact residential water supplies. Nearby homes use primarily drilled wells which are unlikely to be impacted by activities at the pit.

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 pit. 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.

Operations will comply with noise and dust limits according to the Pit and Quarry Guidelines and applicable legislation and regulations. 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 for the pit. Temporary lighting, if required, may be seen by immediate residents, but would be controlled by proper environmental management practices (e.g. downward directional lighting).

Future development at this location will not include blasting, however it is expected that a condition of EA approval and subsequent IA process would be to develop a groundwater monitoring program for the site. As part of a Karst investigation at the site, 4 groundwater monitoring wells have been drilled. These groundwater monitoring wells will become part of the groundwater monitoring program and will be used to establish baseline groundwater quality and groundwater table elevations prior to the proposed expansion. The monitoring well network will allow for on-going monitoring to confirm that groundwater elevations and quality, are not impacted by the proposed pit expansion.

The pit will include signage with phone numbers and contact persons should members of the community have inquiries. A complaint resolution procedure will be put in place by Municipal to address complaints and concerns received.

6.2.9 Commercial / Industrial Use

Background

Middle River is not a commercial centre although there are several small local businesses, churches and the Middle River Consolidated School as well as cottage rentals in the local area. Historic operations at the Middle River pit have been compatible with other commercial undertakings in the area. The Middle River pit has been operating alongside other local businesses safely and without interference for many years.

The pit contributes to net economic benefit in the community through supporting local trucking operations and providing access to high quality aggregate and other industrial 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 pit. The continued use of Best Management Practices as well as strict adherence to the terms and conditions of the Industrial Approval will ensure that this is maintained through future operations.

6.2.10 Water Supplies and Residential Wells

Background

Nearby residents use drilled wells and dug surface wells for potable water supply accessed via a substantial aquifer beneath the area. The recharge area for the aquifer will not be affected significantly by continued operations. Groundwater recharge generated within the pit is likely to be of high quality (low conductivity and dissolved solids and neutral in pH). The pit floor is expected to remain at approximately the current elevation across the proposed expansion area. A hydrogeological study and approval from NSECC would be required before extraction could occur below the groundwater table.

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 pit. Best management practices and Industrial Approval conditions for all operations will be followed. Established operational procedures for fuelling will be followed and a contingency plan will be maintained to mitigate 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 a Karst investigation at the site, 4 groundwater monitoring wells have been drilled. These groundwater monitoring wells will become part of the groundwater monitoring program and will be used to establish baseline groundwater quality and groundwater table elevations prior to the proposed expansion. The monitoring well network will allow for on-going monitoring to confirm that groundwater elevations and quality, are not impacted by the proposed pit expansion.

6.2.11 Parks and Protected Areas

Background

The proposed expansion of the Middle River pit is not expected to be visible by tourists traveling by road. With no change in the scope or frequency of pit activity, road traffic due to the operation is not expected to increase or be high enough in volume to disrupt tourist traffic.

Wilderness areas near the pit are large in relation to the proposed expansion and features of the pit are not likely to interfere with wildlife use. The pit will be reclaimed at the end of its useful life. Expansion of the pit 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 minimal, with little or no change from previous operations at the pit. Mitigation will include the use of Best Management Practices for all aspects of the operation. Monitoring of surface water, groundwater, and other aspects of the operation will be conducted as per the terms and conditions of the IA.

6.2.12 Resource Use – Forestry, Hunting, and Trapping

Background

Use of the land for the pit will remove the potential for future forestry use of the site, at least until after the pit is closed and rehabilitated in future; however, the area occupied by the future development 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 pit will occupy a relatively small area of habitat for furbearing and game species and will not have a significant impact on hunting and trapping.

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 pit. Mitigation will involve minimizing the footprint of the pit within the NSECC approved permit area, and the progressive rehabilitation of areas no longer required for aggregate production or site related activities.

6.3 Biophysical Components

6.3.1 Air Quality, Noise, and Light

Background

Pit activities are not expected to change from the previous scope of operations. Various project activities have the potential to generate dust, emissions, noise, and light. The operation of heavy equipment (e.g., earth movers, crushers, screens), as well as 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.

Noise, dust, and emission levels from the expanded pit are expected to be similar to those already produced at the site, since there is not anticipated change in the scope of the pit. Blasting will not be a part of site operations.

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 traveling over land 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 pit. With appropriate mitigation applied, potential impacts on air quality, noise, and light are expected to be minimal.

Dust management will be achieved using 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 site IA. 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 in operational order, and giving attention to traffic patterns around the site to reduce the need for heavy equipment to use back-up beepers. Noise limits specified in the Nova Scotia Pit and Quarry Guidelines will be followed. Blasting will not occur at the site.

Vehicles and heavy equipment will follow efficient operating procedures such as not idling unnecessarily. Given the relatively small size of the pit and the scope of the planned operations, these 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 NSE, in accordance with the terms and conditions of the Industrial Approval.

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.

6.3.2 Groundwater

Background

Activities associated with the project including forest clearing, grubbing and removal of overburden can influence groundwater flow locally in the vicinity of the pit, but are not expected to influence groundwater aquifers over a broader area, as the project footprint is small. 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 pit 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

Site operations and historic aggregate excavation have not encountered the water table.. At the request of NSECC during the Industrial Approval renewal process in 2021, Municipal retained Dillon Consulting to conduct an initial hydrogeological investigation to evaluate potential impacts to both groundwater levels and water quality, including the effects of groundwater-surface water interactions on nearby wells, watercourses, wetlands, and groundwater resources. The investigation concluded that site conditions indicate that the operation of the pit is not likely to impact the hydrological regime of the surface water nearby, and that the previous pit excavations appear to be approaching, but not extracting below the water table (Dillon Consulting, 2022).

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 pit. With appropriate mitigation applied, potential impacts on groundwater are expected to be negligible.

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

It is expected that a condition of the EA approval will be to develop a groundwater monitoring program for the site. As part of a Karst investigation at the site, 4 groundwater monitoring wells have been drilled. These groundwater monitoring wells will become part of the groundwater monitoring program and will be used to establish baseline groundwater quality and groundwater table elevations prior to the proposed expansion. The monitoring well network will allow for on-going monitoring to confirm that groundwater elevations and quality, are not impacted by the proposed pit expansion.

Municipal 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

A Water Balance Assessment (**Appendix F**) has been prepared to assess the estimated effects of pit expansion on local hydrology. Expansion of the pit is expected to have negligible effects on the existing surface water regime at the site, since virtually all precipitation falling on the site

infiltrates into the groundwater system. A small amount of surface water runoff may enter the intermittent watercourse located along the north margin of the expansion area, but the overall impact is expected to be small. The proposed expansion area is small and consequently the effect on flow to local surface water will be minimal and therefore not significantly disrupted. 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 pit is inherently intermittent and is not expected to affect overall flow characteristics in downstream areas significantly.

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

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 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 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 and Wetlands

Background

There are no permanent streams within the study area and the expansion area has been selected to minimize and avoid direct impacts on wetlands. A buffer zone of a minimum of 30-meters will be maintained between the expanded pit and the adjacent wetlands / pond system to the south. Wetlands have been identified and any planned loss of wetland habitat will follow the established Wetland Alteration Approval process, including compensation requirements. 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 pit is unlikely to generate significant quantities of contaminants or suspended sediments that could impact freshwater or wetland habitat.

Significance and Mitigation

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

Potential impacts to local freshwater aquatic environments and wetlands will be mitigated via the maintenance of forested buffer zones and using surface water control and monitoring procedures as outlined in the Hydrology and Water Quality Section and according to terms and conditions of the EA and IA approvals.

6.3.5 Terrestrial Environments

Background

The proposed pit expansion will utilize areas which are wholly regenerated medium-aged deciduous and mixed forest types which are common in the general vicinity, and locally at the site. The pit will not remove a large proportion of either type. No unique habitats were identified at the site. Suspected sink holes were observed, but did not support unique plant communities. Dust from operations may affect adjacent forest communities although the impacts are likely to be negligible. Other potential impacts include releases of chemicals in runoff from materials stored at the site, accidental spills from vehicles during pit operations, grubbing, road construction, and pit preparation, damage to the natural forest ecosystem and associated species, changes to runoff patterns locally, and associated effects to the local surface water and groundwater regimes.

Significance and Mitigation

Overall, the impact of the project on the local terrestrial environments is expected to be minimal. Mitigation to address the potential effects noted above will include the provision of pollution prevention and emergency control procedures; the use and maintenance of vegetated buffer zones; the removal of forest cover in small stages according to a site development plan and clearing vegetation outside of the breeding seasons for birds.

6.3.6 Karst Topography

Background

The occurrence of sink holes in the study area is a relatively uncommon landscape feature which is known as Karst. Karst topography typically occurs over bedrock consisting of limestone, gypsum and anhydrite (Baechler, 2017). The suspected sink holes at the site are infrequent and thus the site is not a good example of this type of landscape. Based on the Karst Investigation Summary Report (Jim Fraser, Consulting Hydrogeologist, 2022), subsurface karst features have not been identified within the proposed expansion area and the surficial deposit is consistently alluvial in nature. Karst features are unlikely to influence groundwater and surface water flow and/or quality at the site.

Significance and Mitigation

The potential for sinkhole development exists. This potential will be considered during further development via routine operations and regular inspections of the working area as well as the future areas of development. However, since the project is not anticipated to cause a significant change to the subsurface flow regime it is expected that the proposed expansion will have a negligible impact on the potential for future sinkhole development.

6.3.7 Fish and Fish Habitat

Background

There is no fish habitat in the proposed study area and none of the proposed project activities will physically impact potentially fish bearing streams or surface waters. The pit will not influence surface or groundwater levels significantly and therefore will not have indirect effects on surface water conditions. The ponds south of the pit and Grants Pond to the east are important and productive fish habitat; however the project provides a buffer of at least 30 metres from these water bodies and associated wetlands. The pit will allow normal recharge to the water table at the site which is expected to be important in the maintenance of the water levels in the ponds, so will not affect them significantly.

A Water Balance Assessment (**Appendix F**) has been completed as part of the EA process, which estimates that the changes in infiltration and runoff due to pit expansion are expected to be minimal and within the anticipated range of seasonal variance. This suggests that there will be only minor changes in the quantity of runoff from the pit, possibly contributing flow to fish bearing streams and ponds. Fish and fish habitat could potentially be impacted by accidental hydrocarbon spills. Possible accidental spills into local watercourses because of vehicle collisions off site are highly unlikely, and of minor concern.

Significance and Mitigation

Overall, the effects of the pit expansion and operations on fish and fish habitat are expected to be negligible.

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 subsequent IA 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 prior to expansion. The surface water monitoring network will allow for on-going monitoring to confirm that runoff from the pit meets guidelines for maintenance of Freshwater Aquatic Life and the limits stipulated in the IA.

Municipal 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 pit intersections.

6.3.8 Flora and Fauna Habitat

Background

Expanding the Middle River Pit will progressively remove existing terrestrial ecosystem (plants and animals) in the footprint of the expansion. Removal of forest cover is a feature that pit development shares with logging activities, which affects local ecosystems to a moderate degree, and is allowed in Nova Scotia. Normal management practices regarding forest clearing, such as the 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.

Expansion of the Middle River Pit 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 pit 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; light pollution is considered to be an important factor globally in the decline of songbird populations, through declines in populations of some insects. Other pit activities such as vehicular operation and movement are also considered to be of some concern.

Significance and Mitigation

Overall, the effects of the pit construction and operations on flora and fauna habitat are expected to be minor.

Areas no longer suitable for pit operations will be progressively remediated. A Reclamation Plan has been established and updating the Plan every three years is a condition of the pit Industrial Approval. Plant and animal communities that arise in remediated areas will likely differ to some degree from those at present; however, a goal of remediation will be to ensure that conditions (e.g., soil types and topography) are reasonably restored to pre-existing conditions, to allow natural communities to regenerate. During recovery and revegetation of progressively rehabilitated areas, the forest succession will provide habitat for a moderate diversity of species. 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. Pit 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. Temporary 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 EA approval will be to develop a Wildlife Management Plan for the site. As part of the subsequent IA process, a Wildlife Management Plan will be developed, to establish appropriate mitigation measures to manage wildlife resources (avian species and their nests, species at risk, non-native plant species, etc.). Municipal 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 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.

6.3.9 Species at Risk

Background

Collema leptaleum, a jelly lichen species with a sub-national ranking of S2S3 was observed in two locations within the study area. The location of this species was excluded from the proposed expansion area and will not be physically disturbed by the Project. No other federally or provincially listed species at risk, or species more sensitive than S3 ranking (vulnerable), were found in the proposed expansion area. American Marten and Canada Lynx (both provincially listed as Endangered) are known to occur in the general area of the study site. Common

Nighthawk, a ground-nesting species, potentially could nest in grubbed and marginal but open areas of the pit and Spotted Sandpiper was observed in surveys to be nesting at the site. Wood Turtle and Snapping Turtle may be found in areas near adjacent watercourses. Lights during night operations during migration periods (April – June, August – September) would attract various bird species and insects, which could include species at risk.

Significance and Mitigation

Overall, the effects of the pit construction and operations on species at risk are expected to be negligible.

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.

It is expected that a condition of EA approval will be to develop a Wildlife Management Plan for the site. As part of the subsequent IA process, a Wildlife Management Plan will be developed to establish appropriate mitigation measures to manage 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, Municipal staff will liaise with the appropriate regulatory groups and knowledgeable consultants to determine appropriate action.

6.3.10 Natural Areas and Wilderness

Background

Natural areas in the vicinity of the site such as the Middle River Wilderness Area are appreciated by locals and tourists alike, and this region of Cape Breton Island is dominated by natural environments, including some of the most remote and wild areas of Nova Scotia. The proposed expansion of the Middle River Pit 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. It is noted that site operations which generate noise and dust will have some, but limited, effects on natural areas and wilderness.

Significance and Mitigation

Overall, the effects of the pit construction and operations on natural areas and wilderness are expected to be negligible.

Mitigation noted in the Air Quality, Noise, and Light section will be applied to reduce potential impacts on Natural Areas and Wilderness.

A Pit Reclamation Plan will be maintained, including provisions for progressive reclamation where appropriate, to rehabilitate areas no longer required for aggregate production. In addition, pit reclamation will also consider values important in conservation of biological communities and ecosystems, as well as changes in physical conditions that could affect those communities.

Normal procedures and best management practices such as dust control and light management will help to minimize impacts on natural and wilderness values at the site.

7.0 IMPACTS OF THE ENVIRONMENT ON THE PROJECT

The pit will not be impacted in general by weather, including high rainfall and precipitation. Aggregate products produced and stockpiled at the site are stable under varying conditions of rainfall and wind. Changing climate may increase the operating season for transportation related projects and the need for aggregates produced by the pit.

As part of the subsequent IA process, a surface water management 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.

Potential occurrence of subsurface hazards in the underlying Windsor Group bedrock should continue to be assessed during ongoing expansion activities to identify potential safety and environmental risks associated with the potential development of sinkholes.

8.0 POTENTIAL CUMULATIVE IMPACTS

Because of the remoteness of the location, all the potential impacts of the pit operation (dust, noise, lights, blasting, traffic volume) are unlikely to be compounded by other development or human activity. Other aggregate extraction operations are located in the area, however considering that site operations are not expected to increase in frequency or scope from past use, and the amount of construction and roadwork in the area is not anticipated to increase significantly, the cumulative effect of these other aggregate sources (and other local activity) is not expected to change from past levels.

9.0 INDUSTRIAL APPROVAL CONDITIONS, MONITORING, AND REPORTING

Monitoring is an integral part of the operation of the Middle River Pit and is dictated by the Pit and Quarry Guidelines and the IA for the site. Typical monitoring at pit sites includes surface water and groundwater monitoring. 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 pit 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 management plan will be developed as part of the subsequent 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 prior to expansion. The surface water monitoring network will allow for on-going monitoring to verify that surface water runoff from the pit 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, which has already been established. As part of the subsequent IA process, a groundwater monitoring program will be developed. The four new groundwater monitoring wells at the site will become part of the groundwater monitoring program and will be used to establish baseline groundwater quality and groundwater table elevations prior to the proposed expansion. The monitoring well network will allow for on-going monitoring to confirm that groundwater elevations and quality, are not impacted by the proposed pit expansion.

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

10.0 FUTURE PUBLIC, STAKEHOLDER, AND FIRST NATIONS INVOLVEMENT

Public consultation and stakeholder engagement efforts undertaken to date are documented in Section 4 of this EA Registration Document. Project stakeholders, the general public, and First Nations will have an opportunity to provide feedback on the proposed pit 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 pit.

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

11.0 PROJECT CLOSURE / RECLAMATION

The pit will be reclaimed in accordance with NSECC requirements and industry standards. Municipal maintains a Reclamation Plan for the pit. As per the Terms and Conditions of the IA, 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 pit permit bond which reflects the total site disturbed area 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

Municipal 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 Municipal.

14.0 SIGNATURE OF CEO AND DATE

JUNE 15, 2023
Date

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

Municipal Enterprises Limited