

## Enclosure: Provincial Advice Record

Marmora Clean Energy Hub Project  
Agency File: 84597

All comments should be submitted via the **Submit a Comment** feature available on the Project's Canadian Impact Assessment Registry page<sup>1</sup>. Letters and forms can be uploaded using this feature. If you have any difficulties submitting this way, please contact the Agency at [Marmora@iaac-aeic.gc.ca](mailto:Marmora@iaac-aeic.gc.ca).

<b>Ministry/Agency</b>	<a href="#">Ontario Ministry of Mines</a>
<b>Lead Contact</b>	<a href="#">Stephanie Rocca</a> <a href="#">Omerdin Omer</a>
<b>Full Address</b>	<a href="#">933 Ramsey Lake Road</a> <a href="#">Sudbury, ON P3E 6B5</a>
<b>Email</b>	<a href="mailto:Stephanie.rocca@ontario.ca">Stephanie.rocca@ontario.ca</a> <a href="mailto:Omerdin.omer@ontario.ca">Omerdin.omer@ontario.ca</a>
<b>Telephone</b>	<a href="#">705-507-6623</a> <a href="#">705 280 7954</a>
<b>Alternate Contact</b>	

### 1. Expertise

Identify and describe the area of expertise within your ministry that is relevant to an assessment of the Project.

The following program areas of the Mines and Minerals Division, Ministry of Mines have assessed the project details and provided comments.

The **Mine Rehabilitation Section** ensures that mine sites in Ontario are closed out with sound environmental and public closures designs in order to limit public risk and liability. the section is also responsible for functions related to mine rehabilitation and abandoned mines, including the former Marmoraton site.

The **Resident Geologist Program** of the Ontario Geological Survey, Ministry of Mines, maintains and provides public access to geoscience data and other resource materials, monitors and reports on mineral exploration and development activity and issues affecting the minerals sector, provides geoscience information and knowledge for land-use planning, and promotes and stimulates mineral exploration by providing geological consultation and advisory services.

<sup>1</sup> Reference #84597 at <http://iaac-aeic.gc.ca/050/evaluations/document/147660?culture=en-CA>

## 2. Key issues and solutions

Respond to the following **Table 1: Key Issues to inform decision-making** on the last page.

What are the key issues likely to be relevant to the public interest decision, based on the mandate and area(s) of expertise of your ministry or agency, and which should be addressed in an impact assessment of the Project, should the Agency determine that one is required?

For each key issue:

- Describe the effect or the nature of the issue, including any relevant context;
- Provide the rationale and/or evidence for why it is a key issue;
- Identify any clarifications or commitments the Proponent could make in its Detailed Project Description and Response to the Summary of Issues that would build confidence that issues can be addressed and managed without further impact assessment;
- Identify briefly solutions to the issue, including any information or studies that should be required in the Tailored Impact Statement Guidelines, potential mitigation measures, and/or regulatory requirements relevant to the issue;
- Provide a concise, plain-language summary of the issue for inclusion in the Summary of Issues.

The information provided will be used by the Agency to determine if and an impact assessment is required and where appropriate to develop project-specific draft Tailored Impact Statement Guidelines that focus on the key issues likely to be relevant to the public interest decision.

## 3. Provincial policies, operational guidance, and permits and approvals

Within the mandate and area(s) of expertise of your ministry, list, along with a brief description, specific operational policies or guidance documents that could help address issues and manage effects relevant to the project context.

- Comments on the abandoned mine site with respect to mine hazards are guided by Mine closure requirements under the [Mining Act](#) and [Ontario Regulation 240/00](#). Please refer to [Table 1: Comments by the Mine Rehabilitation Section](#)
- **Guidance from Resident Geologist Program – comments on mineral potential:** The Ministry of Mines is responsible, under policies of the Provincial Policy Statement (2020), for the protection of long-term mineral resource supply (Section 2.4 PPS) and for the protection of human health and safety with respect to man-made hazards (Section 3.2 PPS). The Regional Land Use Geologist for southern Ontario has provided comments on the mineral potential of the proposed Marmora Clean Energy Hub project site (the former Marmoraton Iron Mine) – please refer to [Information on Mineral Potential](#) Below (item # 6)

4. The Agency understands that in accordance with the *Electricity Projects Regulation* (O. Reg. 116/01) of Ontario's *Environmental Assessment Act*, new waterpower projects greater than 200 MW in capacity must undergo an Individual Environmental Assessment (EA). Therefore,

based on the Initial Project Description, this project would be subject to an Individual Provincial EA.

When your ministry or agency undertakes the technical analysis (e.g. potential environmental effects) related to this Project, would you be willing to cooperate with the Agency on this analysis?

The Ontario Ministry of Mines would be willing to participate.

5. (a) List and provide a short description of provincial permits or regulatory approvals that might be applicable to the Project.

(b) For each provincial permit or regulatory approval that would be required for the Project, please provide the following information:

- i. Explain any associated framework to address effects on valued components within your mandate.
- ii. Describe any Indigenous consultation activities that would occur, potential timelines for Indigenous participation, and how potential impacts to Indigenous communities are addressed by your ministry.
- iii. Describe any public participation opportunities that would occur, and potential timelines for public participation.

	<p>The project site is subject to the <i>Mining Act and related regulations including:</i></p> <ul style="list-style-type: none"> <li>i. <a href="#">Schedule 2 of Ontario Regulation (O.Reg) 240/00.</a></li> <li>ii. <a href="#">Refer to section 8 of O.Reg. 240/00</a></li> <li>iii. To be determined – pending MINES discussion with IAAC</li> </ul>

*Add rows as needed*

6. Is there any additional information related to the geographic context of the Project (e.g. potential effects to natural heritage features, Indigenous protected and conserved areas, provincial species at risk, provincial policy statements on planning or zoning in the area) for which your ministry has information or authority?

### Information on Mineral Potential of the Site

The Marmoraton Iron Mine deposit was mined by open pit for magnetite ore from 1955 to 1978, producing 28 Mt at 42.8% iron. In addition to high-grade magnetite, the deposit contained sulphides, mainly pyrite and some chalcopyrite, in amounts up to 5% of the ore (Gross, 1967). The final dimensions of the pit at the time of mine closure were 220 m deep, 850 m long and 460 m wide.

The deposit is a magnetite skarn, occurring at the contact between Grenville marble and siliciclastic metasedimentary rocks (1300-1260 Ma) and diorite-syenite intrusive rocks (not dated, but probably about 1240 Ma). The deposit was unconformably overlain by 30-40 m of sub-horizontal Ordovician limestone. Limestone waste rock that was stripped from above the deposit provided a source of aggregate for AECON after mine closure and remains a potential source of limestone aggregate.

The deposit dips steeply northeastward but was near-vertical in the upper portion that was mined by the open pit. The reason for closure of the mine was that, although the deposit extends an additional 200 m below the bottom of the open pit, the waste to ore ratio at the final pit depth was too large to allow economic extraction of the ore at greater depths.

Geochemical studies of the ore and the intrusion by Mathur (2015) indicate that:

1. Cobalt (Co) is enriched to sub-economic concentrations of about 0.1%.
2. Significant gold (Au) and Platinum Group Element (PGE) enrichments do not occur in the skarn.
3. The geochemistry of the intrusion is consistent with Marmoraton being an iron-only skarn.
4. The deposit contains low concentrations of Rare Earth Elements (REE), but the total REE content is not sufficiently high to be considered economically significant.

Due to the depth of the remaining magnetite deposit and the lack of additional, potential by-product mineralization (Co, PGE, Au, REE), the deposit and the adjacent area are considered to have low potential for mineral development under the Mining Act. However, there may be some potential for aggregate production from waste rock piles at the site.

#### References:

Gross, G.A. 1967. *Geology of Iron Deposits in Canada: Iron Deposits in the Appalachian and Grenville Regions of Canada*. Harker, P., Rice, H.M.A and Rafuse, M. (eds.). Geological Survey of Canada, Economic Geology, v. 2, Report no. 22.

Mathur, S. 2015. *The Geochemistry of the Marmoraton Fe Skarn and Associated Syenodiorite Intrusion, Grenville Province, S. Ontario; MSc Thesis, Department of Earth Sciences, University of Toronto.*

Additional Information

The Indigenous Consultation and Partnership Branch (ICPB) has noted the project’s positive impacts for Indigenous communities - beneficial economic opportunities, and no negative impacts to health, social or economic conditions – indicated in the “Initial Project Description Summary. ICPB has also noted the proponents positive engagement with Alderville First Nation, and discussion with other Williams Treaty Communities to support meaningful engagement and consultations throughout the development of the proposed project.

MINES will need to ensure that any duty to consult obligations would be satisfied before authorizing a transfer of tenure to the proponent.

The Ministry has identified a number of mine hazards relating to the former abandoned Marmoraton mine within the proposed project area. Please refer to the following attached Abandoned Mines information system (AMIS) reports for within 1km of the Proposed Project Area the sites:

- Marmoraton Local Study) AMIS
- AMIS\_Reports
- Mine Site Type Class Description\_2023
- AMIS\_Disclaimer\_2023

Marc J. Stewart

---

**Name of Departmental / Agency Responder**

Senior Manager, Mine Rehabilitation Section

---

**Title of Responder**

June 8, 2023

---

**Date**

Table 1: Comments by the Mine Rehabilitation Section

The Agency asks that provincial ministries or agencies align expert advice with the Agency’s approach to tailoring, which focuses on key issues or effects that are likely to be relevant to the public interest decision. In identifying key issues, provincial authorities should be mindful of the Project’s context (size, scope, location), Indigenous knowledge and perspectives, and public concerns. Key issues that may be relevant to the public interest decision include:

- effects that may be significant, based on provincial experts’ knowledge and experience with past projects;
- effects that may impact Indigenous peoples and their rights, based on Indigenous knowledge and perspectives or experience with past projects;
- effects on key species or habitats (e.g. at risk, important to Indigenous communities, commercial importance, provide important ecosystem function);
- issues or effects that may result from novel project activities, components or technology;
- effects with large uncertainties, including in the effectiveness of mitigation measures;
- transboundary effects where mitigation measures are limited;
- positive effects, including where project may support other governmental priorities, including reconciliation with Indigenous peoples; and
- key concerns raised by Indigenous or local communities.

Effects that are anticipated to be minor or which can be managed using well understood mitigation measures, existing guidance, and/or other regulatory processes may have simplified information requirements or may be removed entirely. Measured advice from provincial authorities on key issues and solutions —and on the scope and detail of any required information and studies — will enable the Agency to focus assessments on issues that are important to participants and to decision-makers.

Comment ID	Valued Component or Factor to Consider	Description of Key Issue (Context and Rationale)	Solutions	Plain language summary for inclusion in Summary of Issues
<p>Please identify comments by organization and comment number.</p> <p>e.g.: IAAC-01</p>	<p>Identify valued component(s) or factor to consider—within the mandate of your ministry or agency—to which the effect or issue applies.</p>	<p>Provide a brief description of the issue and rationale for being a key issue.</p> <p>Include, where relevant:</p> <ul style="list-style-type: none"> <li>• the pathway of effects;</li> <li>• social, economic or environmental context which are relevant to it being a key issue;</li> <li>• key uncertainties that should be addressed in the impact assessment;</li> <li>• Indigenous or public concerns or perspective;</li> <li>• potential for differential effects among diverse subgroups;</li> <li>• scientific evidence or traditional knowledge, including from past project experience, which supports inclusion as a key issue.</li> </ul>	<p>Where applicable, briefly identify solutions to address the potential issue or effects including</p> <ul style="list-style-type: none"> <li>• Information or studies required to describe and characterize the effect, should an impact assessment be required; including any guidance for data collection and/or analysis or existing data sources to inform the assessment;</li> <li>• Any powers, duties or functions that your department or agency has that may mitigate, manage, or set conditions related to the effect;</li> <li>• Guidance or policies for mitigating effects or any standard and well-understood mitigation measures that would address the effect, including follow-up monitoring activities; and/or</li> <li>• Commitments the proponent could make to respond to the issue.</li> </ul>	<p>For issues to be included in the Summary of Issues, provide a concise, plain language synopsis of the key issue and any questions or directions for the proponent.</p>
IAAC-01	Mine Hazard	<p>It is noted that MINES is not included as a regulatory consideration in Table 2-1 of the project description. The project description indicates that it is unclear at this time who would be responsible for rehabilitation of the abandoned mine site.</p> <p>The project will be disturbing the following historical mine features (not limited to):</p> <ul style="list-style-type: none"> <li>• Construction of an upper reservoir involving inundation of the waste rock pile surface to a depth of 20 m. At this time, it is unclear from the project description where the displaced material would be relocated to (possibly stockpiled in temporary laydown areas?).</li> <li>• Construction of new access roads/upgrades to existing access roads.</li> </ul>	<p>Recommend further discussion with the Ministry of Mines to determine the best approach to close out the Mine Hazards.</p>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>

Comment ID	Valued Component or Factor to Consider	Description of Key Issue (Context and Rationale)	Solutions	Plain language summary for inclusion in Summary of Issues
		<ul style="list-style-type: none"> <li>Construction of a ground mount solar facility on the waste rock piles and tailings stack</li> <li>Construction of settling ponds/diversions</li> <li>Construction and use of temporary laydown(s), including stockpiles, as needed.</li> <li>Discharge of surplus water accumulated through seepage and precipitation. At this time, installation of a seepage collection system/sampling program is unknown from the project description.</li> </ul>		
IAAC-02	Effluent quality	<ul style="list-style-type: none"> <li>The pit on site has been filled since its use was discontinued in 1977.</li> <li>Due to the depth and shape of the pit, it is common for such water bodies to become “meromictic”, meaning that temperature and density differences due to dissolved solids keeps the deeper regions of the lake from mixing with the total volume due to normal surface agitation, such as winds, seasons, etc.</li> <li>This process is generally favored in closed out pit lakes, as it can effectively sequester contaminants in the bottom layers of the lake, preventing them from entering the greater environment.</li> <li>The use of the pit lake as a receiver for hydroelectric power generation could disturb any sequestered particulate matter, or dissolved materials in lower regions of the pit.</li> <li>This churning may resuspend materials/mix water with different chemical profiles, generating effluent of unknown water quality that may have effects on human health and the environment</li> <li>Pit water and effluent quality will need to be studied and modeled as part of the impact assessment process.</li> </ul>	<ul style="list-style-type: none"> <li>Careful study of the water quality at depth for the entire profile of the pit will be important in estimating and simulating the effect of constant churning. <ul style="list-style-type: none"> <li>The proponent will need to sample the full water column for chemical and temperature profiles during ice free months to determine the stability of water stratification, and the potential effects of the proposed project.</li> </ul> </li> <li>The pit bottom will also need to be investigated for particulate matter, which may become resuspended in the water column. Sediment cores should be retrieved for analysis from several points in the pit.</li> <li>Careful modeling of the fluid dynamics anticipated during operation need to be considered in the context of the resident pit water quality and sediments to estimate effluent quality.</li> <li>FYI – The determination of appropriate effluent parameters will be developed separately by the Ministry of Environment, Conservation and Parks as part of their Environmental Compliance Approval system. <ul style="list-style-type: none"> <li>Effluent levels for the pit at closure shall be defined in the closure plan, for which the rehabilitation code states are either to meet Provincial Water Quality Objectives (PWQO) or a reasonable alternative, usually based on background water quality as determined via multiyear studies.</li> </ul> </li> <li>Mitigation of concerns raised can be addressed by the proponent filing a closure plan that meets the Rehabilitation Code, as set out in O. Reg 240/00, and engaging in multi-year study of the pit, water that drains to and from the pit, in order to establish a scientifically defensible baseline water quality.</li> </ul>	<ul style="list-style-type: none"> <li>The pit lake is largely unstudied as the pit ceased operation before current environmental regulations.</li> <li>The water quality and presence/absence of any potentially harmful sediments/materials within the lake are currently unknown.</li> <li>Careful study of the water at depth, in addition to the study of any material on the pit bottom will be required.</li> <li>Currently the pit is assumed to be in a stable state, the proposed project may alter that stability and cause the release of harmful effluent if not properly studied and modeled. <ul style="list-style-type: none"> <li>If the proponent has materials pertaining to the historic water quality of the area/pit, it should become part of the information made available to the impact assessment reviewers.</li> </ul> </li> <li>The proponent may also choose to develop a closure plan that conforms to the Mine Rehabilitation Code, as laid out in O. Reg 240/00 to present for review during the process to outline potential impacts post closure.</li> </ul>
IAAC-03	Testing/Monitoring	Table 3-1 in the project description provides a brief overview of previous studies conducted on the Marmoraton Site, including tailings and WR	It is recommended that the proponent undertake more testing for the waste rock, tailings, and open pit wall material on site prior to construction and use for onsite-access road construction.	Additional testing of the waste rock, tailings, and open pit wall material prior to construction.

Comment ID	Valued Component or Factor to Consider	Description of Key Issue (Context and Rationale)	Solutions	Plain language summary for inclusion in Summary of Issues
		geochemistry studies. <sup>1</sup> The last geochemistry study appears to have taken place in 2009 and the sample size does not appear to follow the recommendations of MEND (2009).		
IAAC-04	Testing/Monitoring	It is noted that the project will involve drilling, blasting, and excavation. These activities may encounter new material/expose/create new waste material. As per Part 7 s.57 of the Mine Rehabilitation Code, "a program shall be undertaken to sample all materials remaining on site that have been excavated, exposed, or otherwise disturbed by mining activities". At this time, it is unknown from the project description if a material geochemistry sampling program will take place to test existing waste materials and those created throughout the life of the project to inform appropriate material management.	It is recommended that the project test materials that are excavated, exposed, encountered, or otherwise disturbed, as the project proceeds.	Additional testing of newly disturbed materials.
IAAC-05	Testing/Monitoring	The project description indicates that a groundwater monitoring program will be developed and implemented during the detailed design phase of the project and will continue through the construction and operational phases. Currently, the project description does not contain details about the groundwater monitoring programs.	Recommend that the groundwater quality and levels in nearby residential wells be included in the monitoring program developed, in order to monitor changes due to the project (i.e., pit dewatering, etc.).	Groundwater quality and levels in nearby residential wells be included as part of the monitoring program.
IAAC-06	Mine Hazard Stability	Proposed project may impact stability of the waste rock and the open pit.	Recommend geotechnical studies of the mine hazards.	Proposed project may impact stability of the waste rock and the open pit.
IAAC-08	Land Tenure	Complex land tenure of the site	Determine existing land tenure and secure appropriate tenure.	Determine existing land tenure and secure appropriate tenure.
IAAC-09	Site Contaminants	Characterize tailings and determine extent of site contamination.  This site is listed as a contaminated site under the Contaminated Sites Program.	Recommend baseline studies to determine extent of the site contamination, and a Phase II Environmental Site Assessment.	Characterize tailings and determine extent of site contamination.

<sup>1</sup> The studies, methodology, and data were not provided for review, with the project description.