Feedback & Comments

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Welcome

Marmora Hydroelectric Pumped Storage Project

Community Information Session

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Marmora Hydroelectric Pumped Storage Project

About the Project

The proposed Marmora Hydroelectric Pumped Storage Project (Marmora Clean Energy Hub Project) will convert Marmora's former open-pit iron ore mine into a 400-MW facility, feature up to 50-MW of ground-mounted solar and include a 10 km 230-kV transmission line in the Municipality of Marmora and Lake.

This Project is a joint venture between Ontario Power Generation and Northland Power. It is progressing through an approvals process managed by the Independent Electricity System Operator.

Quick Facts

- **Energy storage: Pumped water**
- **Approx. homes powered: 400,000**
- **Pumped storage type: Closed-loop design**
- **Life span: 90+ years**
- **Design: Will follow Canadian Dam Safety Guidelines, internationally recognized best practices and subject to independent peer review**

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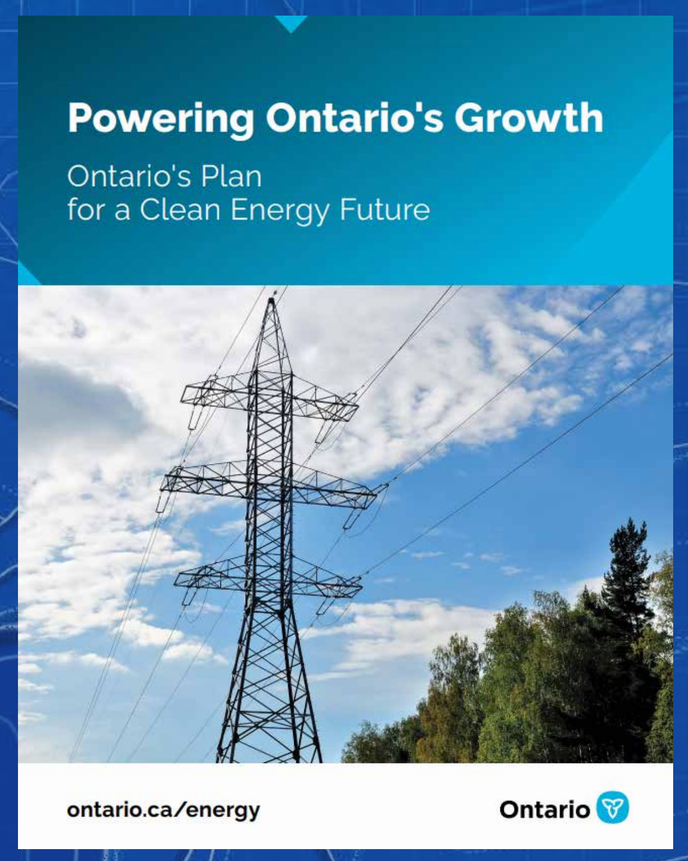
Preparing for the Future

In July 2023, the Ontario Ministry of Energy released Powering Ontario's Growth – an integrated strategy to meet provincial energy demands for 2030 and beyond.

The Report includes a request for the IESO to assess the Marmora Project to improve Ontario's grid efficiency.



Visual concept of potential site layout.

Did You Know?

As a result of electrification and economic growth, Ontario's electricity demand is forecasted to double by 2050.

Source: IESO's Pathways to Decarbonization Report, Dec. 2022

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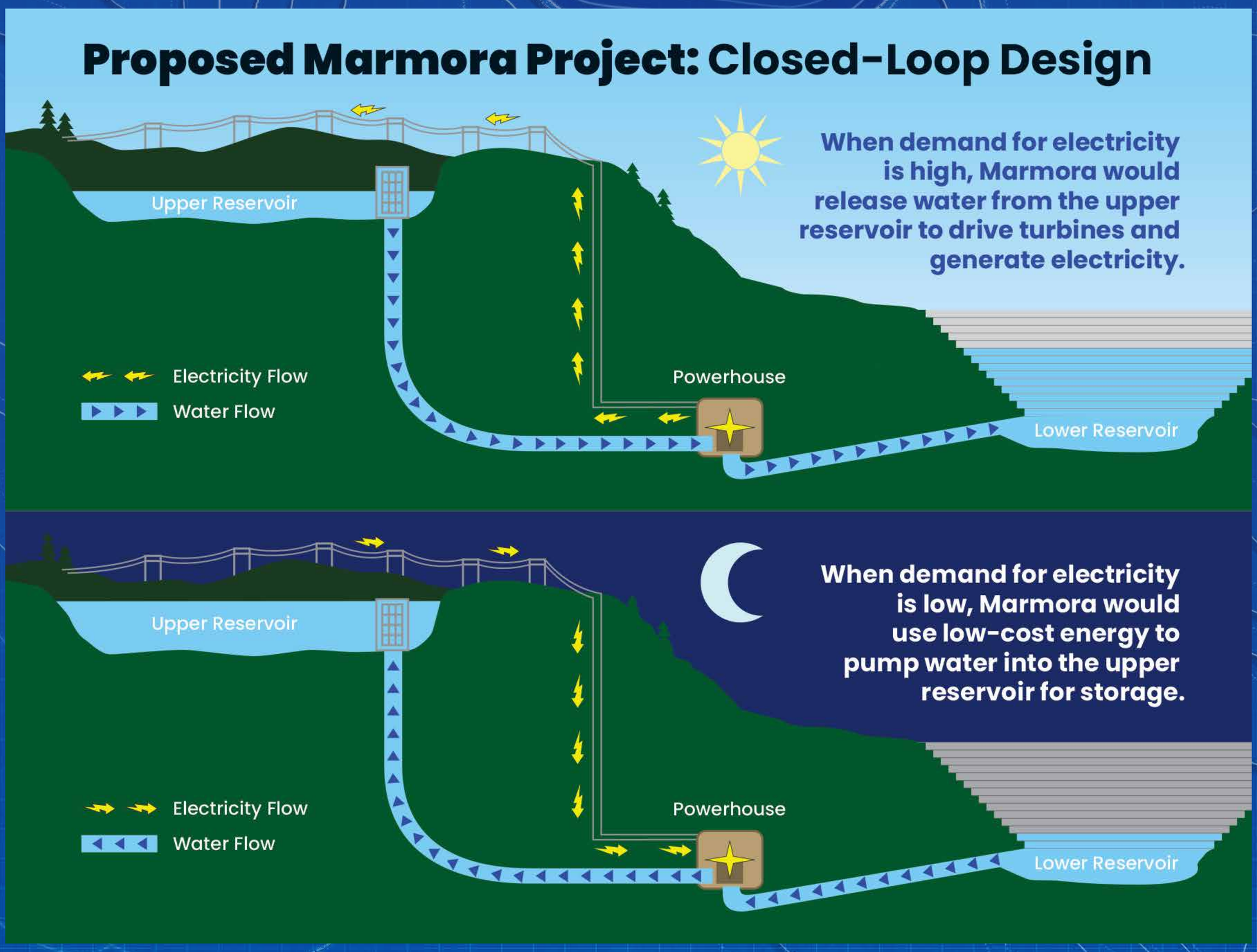
How Does Pumped Storage Work?

Pumped storage produces electricity during high-demand periods by using the flow of water from an upper reservoir to drive turbines as the water flows downwards into a lower reservoir.

When demand is low and the province has surplus electricity, the excess power is used to pump water into the upper reservoir. The water is then stored until the system needs more electricity.

Depending on the size of the reservoirs and electricity demand, this cycle may repeat several times a day.



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Project Benefits

Ontario Electricity System

- Support capacity needs that are forecasted to grow by an additional 15,000 MW by 2035
- Provide clean, reliable electricity storage for 90+ years and support growth in electrification

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Economy

- ~3,500 jobs (direct and indirect) throughout the project
- ~300 long-term, regionally based jobs
- >70% construction costs expected to come from Canadian supply chain

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Environment

- Revitalize local environment and regional economy by transforming abandoned mine site
- Closed-loop system would minimize negative impacts to fisheries, waterways and shorelines
- Between Ontario's two largest load centres (Toronto and Ottawa) and close to existing transmission infrastructure

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Preliminary Preferred Alternative of Hydro One Switchyard

Visual concept of potential switchyard and interconnection study area.

Quick Facts

- A switchyard is required to transmit the electricity from the project site to Ontario's high voltage electricity grid.
- The preliminary preferred location for the switchyard is north of Beaver Creek Road and west of Centre Line Road to meet four existing 230-kV circuits in the Hydro One corridor.

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Environmental Studies 2023

Surface Water

- Water quality investigations completed: March, April, June and August in:
  - Pit (full depth profiles)
  - Crowe Lake & Crowe River
  - Beaver Creek
  - Moira River
  - Mud Lake and Wetlands
  - Wolf Creek
- 80 samples analyzed in 2022/2023, complimenting historical and regional sampling. Preliminary results indicate that water quality within the open pit is consistent with regional water quality.

Would you like to potentially participate in our future water well monitoring plan? Speak with a project representative for details and help us further establish baseline conditions.

Note: Participation is dependent on, but not limited to, modelling requirements for data, i.e. selection of wells to sample depends on proximity to the project site, number of existing data sources, well suitability for testing and required density of sampling, among other factors.

Fish and Fish Habitat

- Habitat characterization of Crowe River
- Benthic macroinvertebrate collection and analysis
- Bathymetry of Crowe River between Marmora Dam and Trent River confluence
- MNRF and Conservation Authority data support studies to-date

Do you fish the Crowe River, Mud Lake or Wolf Creek? Your knowledge can help inform our data collection. We'd like to hear from you.

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Environmental Studies 2023

Wildlife and Habitat Surveys

- Ecological land classification completed
- Grey fox den searches and wildlife cameras installed
- Bat snag surveys and bat acoustic monitoring
- Bird and turtle surveys
- Snake board surveys (20+ boards)
- Amphibian counts (20+ locations)
- Searches for prairie redroot, New Jersey tea, butternut trees, milkweed and monarch butterflies

Initial findings:

- Eastern meadowlark, bobolink, bank swallow, common nighthawk, peregrin falcon, eastern whip-poor-will, least bittern and blandings turtle observed
- Wild rice and prairie redroot confirmed within the study area

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Geology and Soils

- Drilling program began in 2023 to install monitoring wells in vicinity of the open pit to assess groundwater flow and quality.
- Four wells currently installed on site, one on each of the north, south, west and east sides of the pit.

Acoustic Environment (e.g. noise, vibration)

- Sound level meters deployed throughout the study area and near potential receptors to document baseline noise levels.

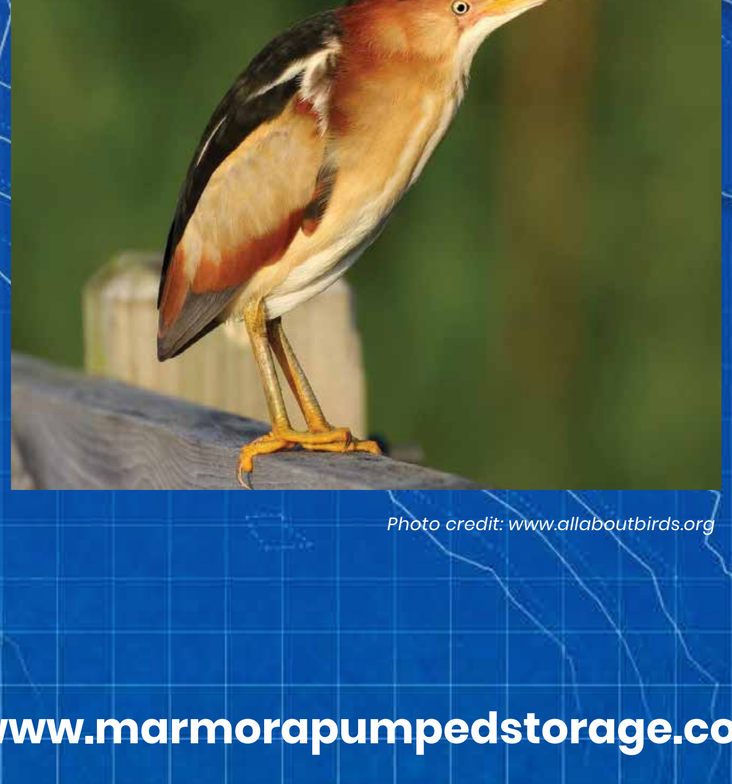

Photo credit: www.allaboutbirds.org

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Environmental Studies 2023

Atmospheric Environment (e.g. air quality)

- Air quality monitoring being conducted at multiple locations throughout the study area to assess baseline conditions of atmospheric environment.

Archaeology & Cultural Heritage

- Stage 1 Archaeological Assessment and Cultural Heritage Assessment completed for mine site and preliminary preferred transmission line and interconnection areas.
- Select portions of the mine site and preliminary preferred transmission line route have archaeological potential and cultural heritage value, Including:
  - Five built heritage resources along transmission line route
  - Ten cultural heritage landscapes along transmission line route
- Further investigations will be undertaken during Stage 2 Archaeological Assessment and Heritage Impact Assessment (Q4 2023)

Photo credit: www.allaboutbirds.org

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EA Process and Ministerial Announcements

The Project currently requires both a Federal Impact Assessment (IA) and a Provincial Environmental Assessment (EA).

Recent activities:

- Notice of Commencement released by OPG/NPI (May 2023)
- Initial Project Description (IPD) submitted by OPG/NPI (May 2023)
- Initial round of federally-led consultation (May - June 2023)
- Federal Summary of Issues received (July 2023)

Upcoming milestones:

- Submission of Provincial EA Draft Terms of Reference (September 2023)
- Submission of Federal Detailed Project Description (December 2023)
- Notice of Commencement for EA and Environmental Impact Statement (Q1 2024)

Close coordination with provincial and federal agencies has been established to minimize duplication through the EA process.

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Current Project Timeline

DATE	MILESTONE
Q3 2022 – Q2 2024	EA Baseline Investigations
Q2 2023	Initial Project Description submitted to IAAC and available for public review
Q3 2022 – Q4 2025	Engineering Design Phase
Q3 / Q4 2023	Provincial Draft Terms of Reference submitted to IAAC and available for public review
Q4 2023	Federal Detailed Project Description
Q4 2023	Federal Detailed Project Description submitted to IAAC and available for public review
Q1 2024	Federal Impact Assessment Decision
Q2 2024 – Q1 2025	Provincial EA Process
Q2 2024 – Q4 2025	Coordinated Provincial and Federal EA/IA
Q4 2025	Engineering Design Complete
Q1-Q2 2026	Construction Approvals Granted
2026 – 2031	Construction Period
2031 – 2100+	Operation Phase

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Public Consultation

Northland and OPG have engaged with the Marmora community since 2011 and will continue through the life of this potential project.

We're looking for your input as we prepare the draft Terms of Reference and Detailed Project Description.

- **Completeness of environmental studies** – other areas of interest?
- **Preliminary transmission layout** – alternative considerations?
- **Federal Summary of Issues** – are your interests reflected?
- **Data collection for fish habitat** – do you fish the Crowe River, Mud Lake or Wolf Creek?
- **Water quality assessments** – do you have a well and information to share?

Do you have other thoughts or information to share?

Please submit a comment, or speak with a member of our project team.

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Indigenous Engagement

- The proposed project lies within two historical First Nation treaties; the northern portion lies in Treaty 27/Treaty 27¼, and the southern portion lies in the Crawford Purchase

- Both treaties and the Crawford Purchase are the traditional and treaty territory of Alderville First Nation and territory covered by the Williams Treaties First Nations Settlement Agreement

- Communities are currently participating in environmental data collection (e.g. species at risk), reviewing preliminary results from environmental studies, and identifying opportunities for further participation.

The project team respects Indigenous perspectives and continues to engage with Williams Treaties First Nations, and other Indigenous rights holders.

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