



Waadookawaad Amikwag

Those Who Help Beaver

WaadookawaadAmikwag@gmail.com

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To: Office of the Attorney General Keith Ellison
Minnesota Department of Natural Resource Commissioner Strommen
Minnesota Pollution Control Agency Commissioner Kessler
Minnesota Public Utilities Commission Chair Sieben

Re: Waadookawaad Amikwag and Partners with the State of Minnesota

Whereas:

We share interest in protecting Minnesota's greatest asset: its waters and water dependent ecological systems and resources. We recognize water as the foundation of life within our communities and surrounding ecosystems.

Protecting Minnesota's water is recognized as an essential practice that connects us all.

From citizens, to scientists, to agencies, to beavers we all share a significant responsibility, to knowingly and actively protect water.

WA partners:

White Earth Reservation,

Honor the Earth,

R.I.S.E. Coalition,

MN350,

Sierra Club,

Scientists and field monitors.

Partners have collected and compiled aerial and field data exhibiting past, ongoing, and potential future damages to our lands and waters. We show scientific and documentary evidence of substantial hydrological and ecological damage from Enbridge Line 3 construction.

The distribution and use of our data shall not be constrained by our agreement to make our data public through State Agencies.



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Data is composed of the following:

- 2020-2022 Ground and aerial video and imagery:
 - Drone videos including photographic and infrared data of select areas along Line 3 from multiple operators.
 - High-resolution aerial thermal imaging of the entire line acquired on Nov 27 and 28, 2021.
 - Resolution = 0.25m at +/- 0.3°C.
 - Ground truthing video, imagery and sampling data from January through August 2022.
- Data analysis correlated with pre-construction conditions has a sub meter accuracy based on:
 - Proprietary high-resolution thermal imaging.
 - Public access air photos, and property record data.
 - Site photographs and video with quantitative field data sheets.
 - Field site monitoring with conductivity, temperature, and pH.
 - Lab analysis of collected water samples collected and delivered under chain of custody to a certified water quality laboratory.

We believe that the data clearly shows:

Waadookawaad Amikwag are investigating over 40 high priority sites along Line 3 where construction has damaged the natural water connections, impaired natural environments, and threatens the sustainability of the Headwaters from the following construction practices:

- Uncontrolled flow from numerous shallow aquifers.
- Ecological damage to northern Minnesota water resources, water dependent ecosystems, and uplands.
- Unpermitted water appropriation.
- Violation of wetland protection standards and violations of surface and groundwater water quality standards.



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The aerial thermal imagery and optical imagery show many wetland and surface water impacts. These suspect sites also require further investigation to identify any adverse impacts and permit requirements.

The purpose of this MOA is to jointly agree upon the following:

1. Do No More Hydrologic or Ecological Harm along the Line 3 Right of Way.
2. Protect the water and water-dependent ecosystems from further damage.

Waadookawaad Amikwag believes that we need to move forward with a greater sense of trust and prescribed purpose in protecting our water and to advance the goal of “No Further Damages”.

We seek an agreement to jointly make our proprietary data available and usable to responsible Minnesota state agencies including the MNDNR, MPCA, Attorney General, and Public Utilities Commission.

We will work cooperatively between WA, WA partners, the Office of the Attorney General, and State Agencies for outcomes agreed upon and defined by both parties based on the available data.

We are seeking agreement regarding the data transfer, including mutual agreement for the schedules, formats of the data sharing, definitions of technical terms, and the measures necessary to give us assurance that agencies have the experience, expertise, and capacity to review the data.

As part of this agreement, WA agrees to the following with the attached conditions:

WA will make public the data and documentation identified below that is derived from and owned by WA partners. WA will provide the totality of the data directly to the Minnesota State Agencies subject to the terms below:

Release of drone, thermal imaging and ground truthing data will be executed as follows:

- a) Stage 1: An initial review of the over 40 high priority sites WA has identified via video conference, open to the public, and



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providing Power Point slides and PDF formatted data that reveals the location and specific concerns.

- b) Stage 2: A mandatory 2-to-4-hour work-group session and thermal imaging tutorial with qualified State Agency representatives will precede full data sharing. The session will be led by qualified professional analysts. The purpose of the tutorial is to have the experts familiar with the data to demonstrate the data use to the State, and to detail the power of the tools employed by WA partners to discern emergent groundwater and other natural features.

The accumulated data includes approximately 2 Terabytes of data from aerial thermal imaging and drone videos (including publicly available imagery from Google Earth Pro and the Minnesota Natural Resources Atlas). All the data will be made available electronically to the State Agencies.

As part of this agreement Minnesota Agencies agree to the following conditions:

In order to gain full use of the data in accordance with our mutual interests the State agrees to:

- Retain qualified professionals including those certified as:
 - American Society for Photogrammetry and Remote Sensing (asprs.org), Certified Photogrammetrist, and/or Mapping Scientist (Remote Sensing) to identify the level of certification and experience with optical and thermal sensors by those receiving and managing the data.
- Confirm the intended management of data.
- Mutually agree on definitions with legal and technical terms for hydrological and ecological impacts.
- Consult directly with Indigenous Tribes when investigating impacts or proposing mitigation to Wild Rice corridors and Wild Rice Lakes along Line 3.



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- Commit to conduct or acquire two more high-resolution thermal data flights for the entire pipeline, and share the data publicly, including:
 - Fall 2022 flight to collect high-resolution thermal imaging to confirm the persistence of uncontrolled flow from shallow aquifers that were first documented by thermal imaging in November 2021.
 - Summer 2023 flight to collect high-resolution thermal imaging to identify the points of upwelling groundwater and show evidence of hydrologic disruptions during the growing season from the construction of Line 3.
- Commission a non-profit geospatial organization to create a joint, protected, non-proprietary (open source) geospatial aerial image and ground samples data warehouse via a cloud computing for all parties to the MOU to jointly monitor Minnesota's utility corridors such as Line 3 and to make improved recommendations to the PUC for future utility routes.
- Commit to initiate and complete a joint Tribal/State/University/Federal assessment of the full range of construction impacts to hydrology and ecology of the Line 3 ROW. This technical engineering and scientific analysis would be designed to rapidly provide insights into construction-induced damages to surface waters, groundwater, and ecological function.¹
- Commit to prepare a “rapid response report” to sort through the known details and define a scope for future studies. An assessment should start with detailing documented impacts including:

¹ According to the US Army Corps of Engineers Research and Development Center
“Civil works infrastructure is subject to multiple forms of deterioration, and forensic analysis is often necessary to identify what type of deterioration is occurring or why a material or component has failed in service...New tools and techniques for forensic investigations are needed to identify forms of deterioration and the cause of failures. These forensic investigations provide insights into fundamental deterioration and failure mechanisms that guide the development of repair and retrofit strategies for infrastructure”



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- Documentation of uncontrolled release of perennial water systems from artesian groundwater aquifers
- Frac-outs, lost circulation and permanent mud loss from horizontal directional drilling (HDD)
- Deep excavations breaching shallow aquitards resulting in emergent groundwater and aquifer breach.
- Sheet pile installation and removal occurrence causing emergent groundwater from the breach of shallow aquifers
- Peatland disturbances
- Wetland and surface water impacts
- A tabulated analysis of damages, both temporary and permanent, to water dependent ecosystems and their associated sensitive uplands, on the following timeline:
 - ★ Complete the Rapid Response Report and scoping document before January 1, 2023
 - ★ Complete the investigation before June 30, 2023
- Commit to prepare an After the Fact analysis of Line 3 construction damage to identify past deficiencies in design, permitting, construction, inspection, and enforcement across the Headwaters. The report shall make recommendations to refine pre-design/pre-permitting tools to document risks and avoid impacts to hydrologic and ecological systems. Recommendations shall address necessary geotechnical/hydrological investigations, drone imaging and other remote sensing, thermal imaging, water flow and water level measurements.
- Finally, commit to report investigative results to the public, to the Governor's office and to the Public Utilities Commission.



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White Earth Reservation Line 3 Legal

Date

Honor the Earth Executive Director

Date

R.I.S.E. Coalition Executive Director

Date

MN350 Executive Director

Date

Sierra Club Director

Date

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Date



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Minnesota Attorney General

Date

MN Department of Natural Resources Commissioner

Date

MN Pollution Control Agency Commissioner

Date

MN Public Utilities Commission Chair

Date

DRAFT