

HWY4 Lithium Ltd

A subsidiary of



**Erosion Management
Plan**

for the

Hidden Lake Lithium Project

Prepared for the

Mackenzie Valley Land and Water Board

13 October 2023

Document Maintenance and Control

HWY4 Lithium Limited is responsible for the distribution, maintenance and updating of this document. This document will be reviewed at a minimum annually, and more frequently to include any changes to the Project, best practices, guidelines, advice from the Inspector, contact information or environmental factors. Revised versions of this document will be provided to the Mackenzie Valley Land and Water Board for approval and circulated accordingly.

Revision History

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Table of Contents

1	INTRODUCTION	1
1.1	Background	1
1.2	Project Contacts	1
1.3	Roles and Responsibilities	1
1.4	Legislation and Guidelines.....	2
2	PROJECT DETAILS	2
3	PREVENTATIVE MEASURES	3
4	EROSION CONTROL MEASURES AND INSPECTION	4
4.1	Erosion Control Measures.....	4
4.2	Inspections	4
4.3	Erosion Control Removal	5
4.4	Reclamation	5
4.5	HWY4 Lithium Additional - Policy and Procedures.....	6
5	REFERENCES	9

LIST OF APPENDICES

Appendix A: Erosion Control Inspection and Maintenance Form

1 INTRODUCTION

1.1 Background

This Erosion Management Plan (EMP) has been developed for the HWY4 Lithium Limited (“HWY4” or “The Company”) Hidden Lake Lithium Project (“Project”). The Project involves surface and sub-surface exploration for lithium and other minerals within the Project mineral claims.

Erosion is the displacement of surface soil by naturally occurring processes that cause the detachment (entrainment) and transport of soil materials from one location to another. The natural processes (e.g., rain, flowing water, wind, and frost) responsible for erosion can be accelerated through human activities. Sedimentation is the deposition of soil particles by moving water (GNWT 2013).

This EMP outlines how HWY4 will reduce the risk for erosion resulting from Project overland drill moves in snow-free conditions and light vehicles travelling on roads. This EMP aims to:

- Preserve the natural environment, particularly soils, permafrost, and water
- Preserve aesthetic and land use values, including potential indigenous harvest areas within and surrounding the Project
- Demonstrate how the Project will comply with all applicable acts, regulations, and Land Use Permit conditions

1.2 Project Contacts

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1.3 Roles and Responsibilities

The Site Manager is responsible for implementing this Plan, approving any changes, and reporting. All Project staff and contractors are required to be aware of this Plan and contribute to its implementation.

1.4 Legislation and Guidelines

Various Federal and Territorial acts, regulations and guidelines are applicable to sediment and erosion control, including:

- The federal *Mackenzie Valley Resource Management Act* and the Mackenzie Valley Land Use Regulations
- The federal *Fisheries Act*
- The territorial *Waters Act* and the Waters

Regulations Relevant guidelines include:

Erosion and Sediment Control Manual (GNWT 2013)

Northern Land Use Guidelines. Access: Roads and Trails (GNWT 2015)

2 PROJECT DETAILS

HWY4 Lithium Limited is planning the Hidden Lake Lithium Project to further investigate potential lithium resources within the Mineral Claim areas. The Project will include drill programs over the permit's duration. It is expected drilling will start consecutively in four locations during the winter of 2023, using a maximum of only two drills. The first drilling program is anticipated to require six to eight weeks to complete, starting in December/January 2023 and finishing in February 2024. The drills will be transported to the drill sites by helicopter or moved in winter on the winter TL trail and pioneered roads on skids when there is appropriate access from the Ingraham Trail. Clearing of vegetation will be required on drill pads and on pioneered skid trails, but not on the ATV trail, which is already fully cleared for access to the Hidden Lake Cabins. Water for drilling will be drawn from local proximal water sources. Water use will be below 99 cubic meters per day, so a water license is not necessary. Project staff during drilling will include up to six people, working days, returning to Yellowknife each night. A Heli-portable self-contained camp facility, with an approximate size of 10m² width, is sought in this permit application. Also, a survival tent or small portable structure with a generator, Starlink and survival kit will be placed adjacent to an operating drill rig. The temporary mobile camp will be for drillers, so that if only one drill rig is operating then only two people will be on site. The mobile camp will be removed from site during shutdowns. There is an extremely low risk of erosion due to the Heli-mobile self-contained camp, but the location of the unit will be continually monitored, and any risks and effects of the camp will be logged in the Site logbook and well as mitigated, removed or erosion control measures implemented. Additional drilling may occur after the first drilling program is over the duration of the permit.

The highest risk for erosion is during overland drill moves, but most will be completed by helicopter. The scope of work may include scouting and clearing a route to access the drill sites from the Ingraham Trail, mounting a drill on a skid,

and towing by small dozer or snowcat. Several trips may be required to provide fuel, remove drill core, and demobilize the drill. Streams and stream crossings will be avoided during drill moves. Transport of eroded material and downstream sedimentation is unlikely as routes will be taken where solid bedrock occurs and in winter when the landscape is covered in ice and snow.

Overland drill moves are considered because they are more cost effective than by helicopter and create less noise. They may also be required when helicopters are not available, for example when inclement weather occurs so that flights cannot occur or are available. Overland drill moves will only be considered if a route can be found that is relatively flat and provides durable ground as is proposed in the pioneered roads that have been used historically on the property to access the pegmatite sites.

The Project area is in the Taiga shield high boreal ecoregion and is characterized by discontinuous taiga forest with bedrock outcrops. The forest is primarily spruce forest and mixed forest, with shallow soils and some muskeg. Rolling hills are relatively flat with only a 20m range between topographic lows and highs. The southern boundary of the claims is bisected by the Ingraham Trail, which is mostly outside the claims area and the Cameron River which is not within the claims area.

Minimal impact exploration methods will be used to prepare drill pads, with little to no grubbing and vegetation cut as far above ground as possible to maintain root structure, with soils replaced on exploration sites to encourage natural revegetation establishment (where are soils encountered, but most of the drill pad areas are on outcropping rock). Travel of equipment or vehicles will be suspended at the first sign of rutting (not a high-risk issue in winter).

3 PREVENTATIVE MEASURES

The following measures are proposed to prevent erosion.

- Routes from the Ingraham Trail to the drill sites will be inspected by foot or snowmobile to determine if suitable overland drill moves are feasible. Route selection will be based on identifying routes with the following characteristics (GNWT 2015):
 - Flat terrain that is less likely to erode
 - Stable and durable land that can withstand repeated use
 - Presence of rock outcrops with minimal or no soils
 - Presence of existing trails that can be used
 - Minimal requirement to remove vegetation
 - Absence of permafrost and muskeg that may degrade if disturbed
 - Absence of stream crossings that can transport sediment
 - Absence of obstacles that require sharp turns
 - The shortest route as possible
- Once a suitable route is identified, it will be reviewed by the Lands Inspector (as per Permit conditions).
- Overland drill moves will occur all year round but most often will be in winter when the ground is concealed by snow and ice.
- Vegetation will be cut above ground level, to preserve root masses and encourage regrowth.
- Trail width will be limited to 5 meters (as per Permit conditions).
- Natural drainages will not be obstructed (as per Permit conditions).
- Specified erosion control and mitigation measures will be installed when inspection determines that there is the potential for erosion and maintained for the duration of the Project (as per Permit conditions).
- The routes may be prepared to prevent rutting or gouging of the ground surface (as per Permit conditions), such as by laying mulch, trees, or wood beams across the travel route in areas with erosion potential.
- Overland drill moves will be suspended at the first sign of rutting or gouging (as per Permit conditions).

4 EROSION CONTROL MEASURES AND INSPECTION

4.1 Erosion Control Measures

If erosion is observed or there is considered a risk of occurrence, the following Erosion Control Best Management Practices will be followed. Details are available in GNWT 2013.

- Scheduling (BMP #25) is the timing of activities to limit soil disturbance. Drill moves will be completed in November to April when the soil is frozen.
- Sediment Fence (BMP #1) is the temporary installation of a sediment fence perpendicular to flowing water. Sediment fences are effective and commonly used but require maintenance and eventual removal.
- Mulching (BMP #16) is the application of organic material (typically chipped trees) as a protective layer to the soil surface for protection and to encourage plant growth. This method is simple and uses locally available materials but is less effective on slopes.
- Live Staking (BMP #20a) consists of installing woody plant cuttings (willow, aspen and poplar are effective), to develop a root matrix within the soil, increasing subsurface soil strength and stabilizing slopes. The advantage of this approach is the use of local materials that provide permanent erosion control but is most effective only if the cuttings take root and begin to grow.

The most suitable BMP will be selected in consultation with the Inspector.

4.2 Inspections

Inspections of overland drill move routes will be completed daily while the trails are in use and following heavy rainfall events. Inspections must verify that:

- There is no sign of rutting or gouging.
- Any preventative measures undertaken to prepare the route are intact and functioning as required.
- Any Erosion Control Measures are intact and functioning as required.

Inspections will be documented, and records retained in a site logbook. Where non-conformances are noted during inspection, corrective action must be taken, and a record of completion retained. An Inspection and Maintenance Form is provided in Appendix A.

4.3 Erosion Control Removal

Of the BMPs suggested, only the Sediment Fence (BMP #1) will require removal. Sediment fences will only be removed if (GNWT 2013):

- Revegetation of bare soil is successful.
- No obvious erosion scour is observed.
- No obvious bed load of silt and sediment laden runoff is observed.
- The Inspector agrees that the sediment fence may be removed.

4.4 Reclamation

Reclamation of disturbed soil will be completed upon demobilization from the site. This will include restoration of any soil impairment, recontouring if necessary, and laying of cut timber.

4.5 HWY4 Lithium Additional - Policy and Procedures

HWY4 Lithium Limited desires to be a leader in natural resource management exploration for lithium, to transform the world's energy systems and contribute to the reduction in greenhouse gas emissions. The Company's views its role as assisting the NWT (Northwest Territories) community to obtain maximum benefit from its limited natural mineral resources. The Company expects to realize its vision -- to achieve healthy and productive environments for present and future generations -- through integrated catchment management and the coordinated and sustainable management of GNWT's natural mineral resources.

Work programs on HWY4's claims aim to minimize impact to the ground cover flora and soil by reducing disturbance below surface, leaving flora undisturbed and using areas of barren rock outcrop (potentially covered only with lichen) when available. Accidental disturbance producing unconsolidated soil or broken vegetation on access roads or drill pads will be removed at the end of each day's work. Materials will be contained in an area beside the road/pad and prevention measures implemented to stop entry of materials into the drainage system, such as covering in erosion matting or bunding around the materials. Following storms, the roadways, drill pads and sediment controls will be inspected and any excessive sediment residues restabilized.

All areas disturbed by vehicles (helicopter, ATV, light, and heavier vehicles) will be promptly stabilized (e.g., revegetated, erosion matting, ground barriers) so that they can no longer act as a source of sediment. Sediment control devices will be left in place until 70% revegetation cover has been established, or other

measures installed or as instructed by the Inspector. Proper maintenance of erosion and sediment controls is vital to their success. After a storm event the effectiveness of the established controls can deteriorate.

Best practice includes anticipating potential risks, being prepared for repairs, or ensuring soil control is in place and effective at controlling soil erosion.

The Site Manager or their representative will inspect the operation of all erosion and sediment controls each day and initiate repair or maintenance if required. An effective maintenance program will include ongoing modification to plans as the drilling program progresses. These plans will be based on a specific landform, but as programs proceed, changes can occur in slope gradients and drainage paths.

- ✓ The entry/exit to drill pad are some of the highest impact areas and will require close examination and remedial work if excessive sediment build-up occurs.
- ✓ Clean any drains to drill sumps or around drill holes.
- ✓ Erosion in drainage channels will be repaired with rock or erosion control matting.
- ✓ Sediment fences will be replaced if the fabric is ripped or otherwise damaged. Retrenching may also be needed. Sediment fences work well if they are maintained on a weekly basis and/or after every storm event.
- ✓ Keep a close eye on the weather and impact of weather events.

Datasets to be used in Erosion Mitigation and Risk Identification

Historical reprocessed satellite datasets are assisting in identifying areas with minimal risk of erosion and the geomorphology of the claim areas and proposed drilling areas. New high precision digital terrain models created from new LIDAR captured data and very high resolution orthophotography will be used to identify; preexisting sites where bedrock outcrops and no soil is present; as well as drainage and water/swamp locations.

5 REFERENCES

GNWT. 2013. Government Of The Northwest Territories, Department Of Transportation - Erosion And Sediment Control Manual. https://www.inf.gov.nt.ca/sites/inf/files/resources/dot_erosion_and_sediment_co

[n_trol_manual_-_mar_31_16.pdf](#)

GNWT 2015. Northern Land Use Guidelines. Access: Roads and Trails.
https://www.lands.gov.nt.ca/sites/lands/files/resources/nlug_roadstrails_2015_english_16_sept_2015.pdf

Appendix A: Erosion Control Inspection and Maintenance Form

Hidden Lake Lithium Project Erosion Control Inspection and Maintenance Form

Note: Complete one sheet for each erosion control installed.

Date	
Name	
Current Activities on Site	
BMP Type	
Location	
Intended Function	
Sediment Levels (circle one)	None - 1/4 - 1/2 - 3/4 - Full - Not applicable
General Condition (circle one)	Poor - Fair - Good
General Performance (circle one)	Poor - Fair - Good
Is maintenance required? Describe.	
Was maintenance completed? Describe.	
Date that maintenance was completed.	
Photo numbers	