



**TALTSON HYDRO – ROW BRUSHING, MAINTENANCE AND ANCHOR  
ASSESSMENT**

**EROSION AND SEDIMENT CONTROL PLAN**

**TALTSON HYDROELECTRIC FACILITY  
TALTSON RIVER, NORTHWEST TERRITORIES**

**AUGUST 2022**



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## TABLE OF CONTENTS

<b><u>SECTION</u></b>	<b><u>PAGE</u></b>
1. INTRODUCTION	5
2. ADDITIONAL PLANS AND RESOURCES	5
3. PROJECT DESCRIPTION	5
3.1. Brushing Within ROW	6
3.2. Transmission Line Maintenance	6
3.3. L-150 Anchor Assessment and Replacement	6
4. Regulatory Requirements and Guidelines	9
5. Erosion and Sediment Control Management	9
5.1. Erosion and Sediment Control Mitigation Measures	9
5.2. Contractor Responsibility	11
5.3. Site Access and Management	11
5.4. Site Access Management	11
5.5. Erosion and Sediment Control Inspection and Monitoring	11
5.6. Emergency Response	11

### **FIGURES**

Figure 1- South Slave Hydroelectrical System

## 1. INTRODUCTION

This Erosion and Sediment Control Plan (ESCP) was prepared by the Northwest Territories Power Corporation (NTPC) to support the NTPC's Land-Use permit application to authorize the use of heavy equipment and machinery within the existing Right of Way (ROW) for the purpose of brushing, maintenance and anchor assessments.

This work will be regulated under the anticipated Mackenzie Valley Land and Water Board (MVLWB) Land Use Permit once issued. This ESCP presents erosion and sediment control measures for all brushing, maintenance and anchor assessment activities taking place within the ROW. This ESCP is not a standalone document, and it must be read in conjunction with the additional plans and resources outlined in Section 2. As site conditions change, continued evaluation and adaptive mitigation measures may be necessary to suit the changing conditions.

## 2. ADDITIONAL PLANS AND RESOURCES

This ESCP is to be used in conjunction with the following references:

- Taltson Hydroelectric Facility Erosion and Sediment Control Plan
- Taltson Hydroelectric Facility Spill Contingency Plan
- Taltson Hydroelectric Facility Waste Management Plan
- ROW Brushing, Maintenance and Anchor Assessment Waste Management Plan

## 3. PROJECT DESCRIPTION

The Taltson Hydroelectric Facility (Taltson Hydro), located within the Taltson River watershed, ~56 km northeast of Fort Smith in the Northwest Territories, was built in 1965 to supply electricity to the Pine Point Mine. Following the mine closure in 1986, Taltson Hydro has continued to supply power to the South Slave communities of Hay River, K'atloodeche First Nation, Fort Smith, Fort Resolution and Enterprise via a 115 kV transmission line (L150 and L350) of approximately 285 km. The Northwest Territories Power Corporation (NTPC) operates part of the South Slave Electrical System (SSES) which is outlined in Figure 1. NTPC owns and operates the transmission and distribution infrastructure from Taltson Dam to Fort Smith, Fort Smith to Pine Point, Pine Point to Fort Resolution and within Fort Smith and Fort Resolution. Infrastructure from Pine Point to Hay River and Hay River to Enterprise is owned and operated by Northland Utilities. NTPC has several Right-of-Way (ROW) agreements within the SSES which contain conditions allowing and regulating the maintenance of the transmission infrastructure within the ROW.

Projects planned for parts of this ROW which include:

- Brushing activities within the existing ROW between Fort Smith and Fort Resolution (both L150 and L350)
- Use of heavy equipment and machinery within the existing ROW for general maintenance and repairs (both L150 and L350)
- An anchor assessment involving a geotechnical study (drilling) and excavation at select tower locations to extract and replace anchors as required between Taltson Hydro and Pine Point within the existing L150 ROW.

NTPC is seeking a Land-Use permit to authorize the use of heavy equipment and machinery within the existing ROW for the purpose of brushing and transmission line maintenance within the ROW, and to carry out an anchor assessment, and drilling operation to identify the main cause(s) of anchor degradation along the Transmission Line.

### **3.1. Brushing Within ROW**

Brushing of vegetation will occur within the existing ROW, most notably in areas affected by forest fire and to widen the ROW's to the original design width regulator standard for three phase line of 30m from center line.

No brushing activities will be conducted outside of the existing ROW. Brushing will be a combination of:

- Manual brushing with chainsaws and brush saws around towers and/or waterways
- Brushing with equipment where possible, including use of bobcat style equipment with rubber tracks and mulchers, or hydro axe attachment which will reduce ground disturbance.
- A feller buncher attachment will be used for removal of select hazard trees that are tall enough to contact lines if they fall.

Keeping the ROW clear will prevent outages resulting from trees contacting the transmission lines and will create safer grazing area for buffalo herds, reducing contact between wildlife and vehicles. Mulching will promote a stronger healthier tree line protecting the park from highway dust and providing a natural barrier for wildlife from roadway.

Regular upkeep will be required once complete. However, completion of this project will result in simpler less invasive maintenance work in the future.

### **3.2. Transmission Line Maintenance**

As a contingency, NTPC is including use of heavy equipment within the ROW of L150 and L350 as part of the LUP application for the purpose of carrying out general maintenance, as well as for emergency response purposes (outages) in which lines and/or structures may need to be repaired quickly. These activities may include, but are not limited to, use of heavy equipment for inspections, repairing damaged lines and/or structures, removal and replacement of existing structures, erecting poles and/or towers, raven nest removal.

Heavy equipment will only be operated within the ROW as a last resort to prevent outages or restore power as needed.

### **3.3. L-150 Anchor Assessment and Replacement**

L-150 is a 115 kV transmission line forming the South Slave Grid. It is comprised of approximately 800 guyed-Y aluminum transmission towers spanning 285 km and is strung with single 3/0 ACSR Pigeon conductor. It was constructed in the 1960s and is currently experiencing widespread issues with its anchors.

NTPC plans to carry out an anchor assessment to identify the main cause(s) of anchor degradation along the Transmission Line, the extent of degradation and replace anchors deemed to be in unsuitable condition. Anchors are used to stabilize towers and power poles along the transmission line.

As part of the anchor assessment, a drilling program is planned to take place starting in the Fall of 2022 between Fort Smith and Pine Point. Prior to the drilling activities, a desktop study will be carried out in to determine the location of the boreholes (estimating 20-30 boreholes within the Park). Based on the results of the desktop study, the locations of the boreholes will be selected.

The boreholes will be drilled with a tracked rig using either 125 mm diameter solid stem augers or 200 mm diameter hollow stem augers. Drilling will be carried out using hollow stem augers only if seepage and sloughing is encountered during drilling, otherwise solid stem augers will be used.

On completion of drilling the test holes will be backfilled to surface using auger cuttings. Any excess cuttings will be left mounded over the test hole. All test holes will be backfilled to surface with cuttings. If additional material is required to get to surface the remainder will be backfilled with bagged bentonite chips.

Based on the results of the borehole logs, recommendations will be made for 8 excavations at towers along the distribution line to extract the anchors for corrosion assessment. The 8 extracted anchors will be sent for testing, and new anchors will be installed in their place. Excavation depths are expected to be 8-10 feet and carried out using small-tracked excavators.



## 4. Regulatory Requirements and Guidelines

All erosion and sediment control measures should be installed and operate as per the standard specifications found in the applicable guidelines and be in accordance with territorial and federal legislation which includes:

- National Guide to Erosion and Sediment Control of Roadway Projects
- DFO Land Development Guidelines for the Protection of Aquatic Habitat
- Federal Fisheries Act
- NWT Forest Management Act
- NWT Wildlife Act
- NWT Mackenzie Valley Resource Management Act
- Northwest Territories Waters Act

## 5. Erosion and Sediment Control Management

### 5.1. Erosion and Sediment Control Mitigation Measures

Brushing, maintenance and anchor assessment activities will follow best practices in accordance with the Northern Land Use Guidelines – Access: Roads and Trails (GNWT, 2015) to protect the ground surface and prevent erosion within the ROW.

The following measures will be taken during brushing, maintenance and anchor assessment activities to minimize the risk of erosion:

- Temporary erosion and sediment control measures will be implemented prior to works commencing, this includes silt fencing or straw wattles in areas in which heavy equipment will be operated (for maintenance, brushing or anchor assessment activities). The measures will remain in place until the equipment has been removed from the area. Erosion and sediment control measures will be implemented in accordance with current industry standards and best management practices.
- To avoid potential risk of soil contamination due to hydrocarbon spills, all equipment and trucks will be maintained in good working order and inspected regularly for hydrocarbon leaks.
- Drip trays will be deployed under all stationary equipment that use fuel, and all equipment and vehicles will be equipped with spill kits.
- There will be no fuel storage or cross-loading within the ROWs. Fueling of equipment shall not be conducted within the ROWs.
- Cleaning, refueling and maintenance of any equipment will be conducted in a designated areas away from any slopes and away from water bodies on impermeable pads (drip tray).
- Clean vehicles before entering site to avoid the spread of invasive and noxious plants.
- Check vehicles and equipment entering or leaving the project for dirt or plant propagules. Reclean vehicles that have travelled through a weed-infested area to minimize spread of noxious and invasive plants.
- Ensure cleaning locations are available on site to enable cleaning of vehicles. Dispose of plant fragments responsibly, ensuring they do not re-enter the environment.
- Remove non-native invasive species when observed to prevent the spread and establishment of such plant species.
- Excavation activities required for the anchor assessment will be suspended during periods of heavy rain.

- No work will be completed within 100 m of any surface water body, including the removal of vegetation, until the appropriate ESC measures have been properly implemented.
- Buffer zones around riparian areas or waterways shall be established prior to clearing, grubbing or stripping activities, and marked using fencing, stakes or flagging. The watercourse & riparian buffer is 100 m of the ordinary high water mark of any watercourse, with the exception of locations where authorization has been granted to work within the 100 m setback
- Damaged or non-functional erosion control measures will be repaired as soon as possible, or operations will cease until repairs are completed.
- Ground disturbance will be avoided where practical to reduce surface erosion processes, and areas with erodible soils will be stabilized following disturbances.
- Only the minimum amount of soil and vegetation necessary for the inspections and maintenance of the transmission poles/towers will be disturbed. No new roads will be created unless an existing road cannot be utilized.
- Where possible, topsoil will be segregated from sub-soils and returned to cover disturbed areas to facilitate re-growth of vegetation.
- Any accumulated materials should either be removed off-site or stockpiled. Any debris or accumulated soils that are stockpiled should be contained within an area surrounded by a silt and covered with tarps to prevent and erosion.
- Salvageable timber from danger tree clearing activities that are not utilized by the end of the work period may be mulched onsite and incorporated into the site reclamation as cover material.
- To reduce changes to soil structure, operation of machinery when soils are highly saturated (primarily during freshet) will be avoided where possible. Where unavoidable, suitable ground equipment will be used to prevent unnecessary soil damage.
- Work will stop if sedimentation issues occur outside of work areas until the cause of sedimentation is identified and properly addressed
- To reduce dust from vehicle traffic, or from wind erosion the following mitigation measures will be implemented:
  - Reduce vehicle traffic from entering and leaving the Site and maintain a reduced speed within the site or work areas.
  - Should dust be created during any activities within the ROW, then they will be suppressed using the appropriate method (i.e., addition of water to soils, tarps)
  - Stockpiles will be covered with tarps and silt fences installed around work areas.
  - Water will be applied daily to exposed soils and stockpiles during dry periods.
  - Dust suppression techniques will be applied as required using the GNWT Guideline for Dust Suppression and the GNWT-INF Erosion and Sediment Control Manual to minimize dust emissions on vegetation and habitat outside of right of way.
- All employees and contractors will be trained on the safe handling, transfers and dispensing of fuels and are required to go through an orientation session to familiarize themselves with the Taltson Hydroelectric Facility Spill Contingency Plan.
- All project personnel and staff are to follow the standard operating procedures and mitigation measures presented in Taltson Hydroelectric Facility Spill Contingency Plan - August 2022.

## 5.2. Contractor Responsibility

The contractor will be responsible for ensuring compliance with all erosion and sediment control measures outlined within this document.

## 5.3. Site Access and Management

Before leaving the project site, all trucks and equipment should be inspected for mud and debris. The following measures will be implemented for this cause:

- The entrance should be constructed with 75mm clean granular soils to reduce tire exposure to mud and dirt.
- Trucks should always be instructed to remain on designated haul roads.
- An employee should be assigned to inspect and clean trucks periodically in designated areas.
- Any mud or debris tracked from the site should be cleaned immediately by sweeping and shoveling and transported to a designated storage area.
- Vehicles will be inspected to prevent tracking sediment onto paved roads.

## 5.4. Site Access Management

The following site access management measures will be used to minimize site disturbance during planned activities:

- Personnel will coordinate travel and use shuttle buses to limit the number of vehicles in the right-of-way (ROW).
- Tracked equipment will be used wherever practical to avoid rutting from tire-mounted equipment.
- The L-150 ROW will be clearly demarcated. Personnel will be instructed to stay within the ROW.
- Heavy equipment will be mobilized during dry conditions as much as possible.

## 5.5. Erosion and Sediment Control Inspection and Monitoring

For the duration of excavation activities, the following monitoring and inspections of work areas will be performed:

- Observe runoff leaving the site during storms checking for turbid water.
- Inspect downslope areas surrounding the site for tracking of sediment.
- Report the results of the inspection and recommended improvements, if any, to the contractor.
- Evaluate the implementation of any specified ESC measures and ensure installation is in accordance with the drawings and manufacturers specifications.

## 5.6. Emergency Response

In the event of a large storm event, the contractor shall immediately control and respond to turbid water discharges and sediment transport outside of the developed site area. Appropriate action includes the following:

- Hazard Assessment - assess the source, extent, and quantity of the discharge.

- Containment and Elimination of Source – contain the discharge with silt fences, pipes, sandbags, or a soil berm down-slope from the affected area.
- Cleanup – when containment is complete, turbid water and sediment will be directed to the most logical location to either infiltrate or settle the suspended particles.
- Notification – all discharges of turbid water to tributaries or natural drainage courses leading to any watercourse should be reported immediately to the ESC Monitor.