

# AN OPERATIONAL PLAN FOR **LINEAR** **RESTORATION**

Plan Submission Template V 2.0

*Alberta*  
Government



PROJECT AREA: COLD LAKE **3D Pilot**

SUBMITTED BY: CARSON INTEGRATED

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

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# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## 1 Plan Submission

### 1.1 Sign-off

Carson Integrated has developed this linear restoration treatment plan in accordance with the Government of Alberta’s Draft Provincial Restoration and Establishment Framework for Legacy Seismic Lines in Alberta and the requirements identified in the FRIAA-CHRP Carson Cold Lake Planning (CHRP-24-01) contract. This plan provides a comprehensive description of the proposed project, treatment prescriptions, and other considerations for operational implementation.

Signature of the Person Responsible for this Plan:



Name: Toni Anderson

Position: Project Manager

Contributing professionals to the development of this plan include:

*Table 1: Professional Sign-off*

NAME OF PROFESSIONAL	PROFESSIONAL CERTIFICATION	SIGNATURE
Drew Howard-Chriss	FIT	
Matthew Coll	FIT	
Lorne Carson	RPF	
Jerome Cranston	RPFT	

# AN OPERATIONAL PLAN FOR LINEAR RESTORATION

## 2 Introduction

### 2.1 Linear Restoration Program Overview

The objective of the Caribou Habitat Recovery Program (CHRP) is to support efforts to improve caribou habitat and support healthy, self-sustaining caribou populations, as part of the Recovery Strategy for the Woodland Caribou Boreal Population in Canada. In December 2017, the province of Alberta announced its strategy for Woodland Caribou through the release of the Provincial Woodland Caribou Range Plan. This draft plan outlines Alberta's commitment to restoring legacy disturbance features. Restoration of legacy features, particularly seismic lines is a key step in restoring habitat in caribou ranges within Alberta.

This Operational Plan is part of the larger linear restoration program in the East Side Athabasca and Cold Lake caribou ranges. The purpose of this plan is to confirm the current linear feature conditions, including, but not limited to, assessing which legacy and low-impact seismic lines require some form of intervention to set them on a path to recovery. **This plan is a pilot project to test different treatment prescriptions to be applied to low-impact-seismic lines that are not meeting the objectives of the CHRP program.** Traditionally these lines have been left to regenerate on their own, however, in many cases, low-impact-seismic still create a linear corridor on the landscape. The challenge with low-impact seismic is that they are often too narrow to move heavy equipment down which is necessary to complete traditional site preparation and plant prescriptions.

### 2.2 Project Area Overview

This project is a small area within the East Side Athabasca River caribou range (Christina herd) that will be used as a pilot area to test the viability of restoring low-impact (3D) seismic lines using different mechanical site preparation methods.

In total, the project area is approximately 3,386 ha and includes 570 km of legacy and 3D seismic lines and trails.

According to the Landscape Analysis Indigenous Relations Report (2024), the compartment overlaps with the traditional territories of seven different First Nation and Metis Settlements. These include:

- Whitefish\Goodfish Lake First Nation
- Heart Lake First Nation
- Fort McMurray First Nation No. 468
- Chipewyan Prairie First Nation
- Beaver Lake Cree Nation
- Kikino Metis Settlement
- Buffalo Lake Metis Settlement

A summary of engagement activities with these communities is in Section 6.6.

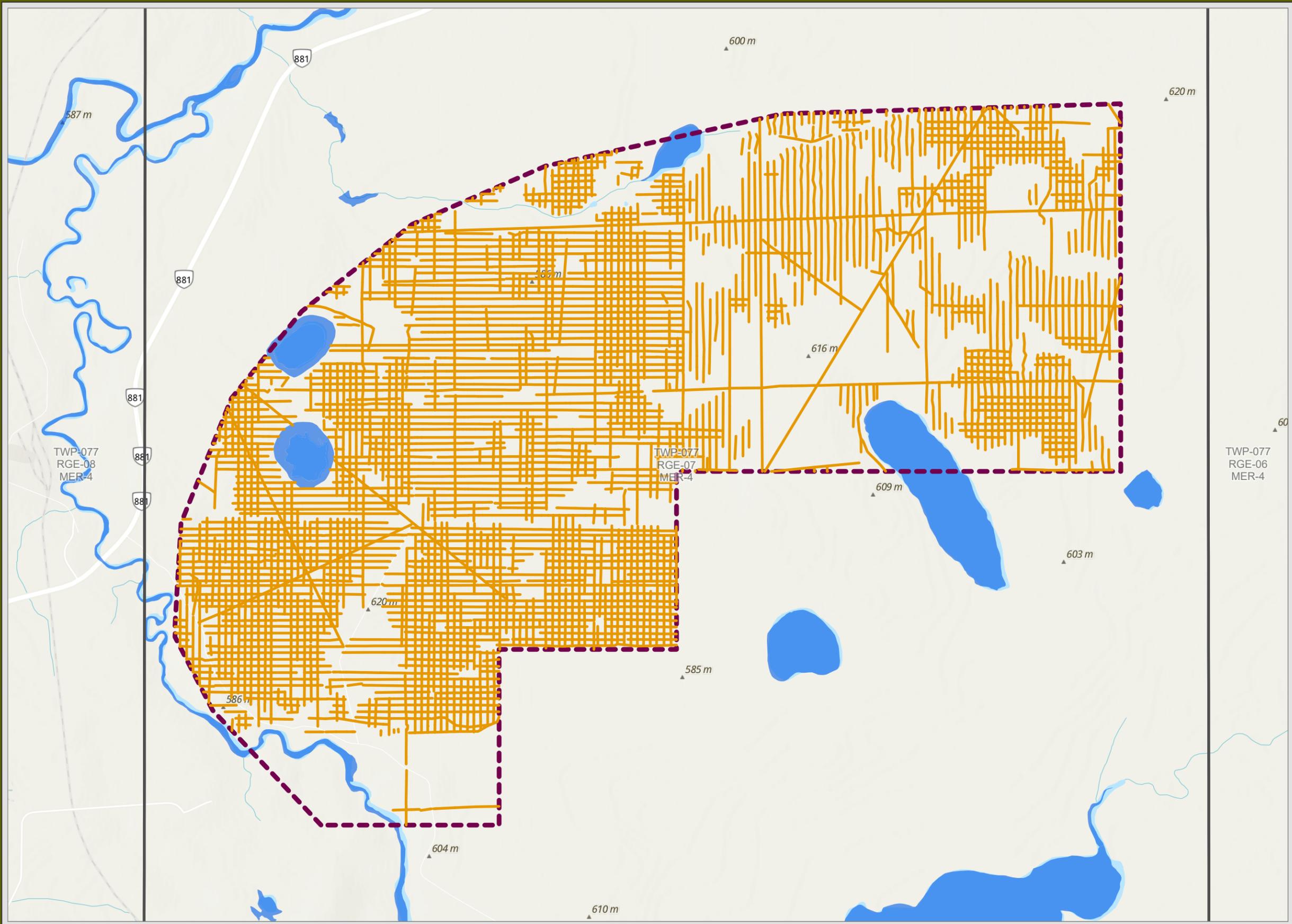
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*Table 2: Project Area description and overview*

ITEM	NAME(S)
Woodland Caribou Range	East Side Athabasca River (Christina Herd)
Municipality	Regional Municipality of Wood Buffalo
Land Use Framework Planning Region	Lower Athabasca
Natural Sub-region	Central Mixedwood
Watershed	Athabasca
Forest Management Agreement Area	Alberta Pacific Forest Industries (L11)

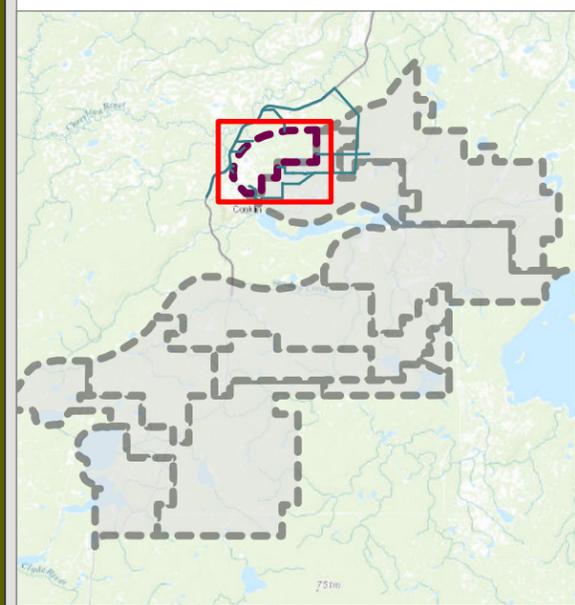


# Caribou Habitat Restoration Program - CHRP 3D Seismic Map 1: Overview



**Legend**

- Cutlines
- Lakes
- Compartments
- Township



Created: 2025-02-06  
Created By: Y. Sroujje  
Projection: UTM 12 NAD83  
Version: 2.0

**Map Scale: 1:35,000**

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# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## 2.3 Habitat Restoration Goals

The goal of this project is to improve caribou habitat to support a healthy, self-sustaining caribou population in a portion of the East Side Athabasca River caribou range. The restoration of seismic lines is an important piece to improve caribou habitat across the province. This Operational Plan outlines the following techniques that will be implemented to ensure seismic lines are on a trajectory to a forested state:

- Site preparation (e.g. screefing, mounding, and/or ripping) & planting of seismic lines that are showing little-to-no natural regeneration
  - Site preparation will be piloted in both frozen and unfrozen conditions with different pieces of equipment.
- Direct planting
  - In areas where seismic lines are too narrow to allow for effective site preparation techniques
- Protection of existing advanced regeneration, wherever possible
- Tree felling/Tree tipping to block access and predator and prey movement down treated seismic lines
- Avoidance of linear features that have existing reclamation liability tied to them (e.g., roads, pipeline rights-of-way, easements, etc., including historic dispositions)

Habitat restoration goals and objectives for this operational plan are outlined in Table 3.

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

Table 3: Habitat Restoration Goals and Objectives

GOAL ESTABLISH POPULATION RECOVERY IN WOODLAND CARIBOU RANGES				
<b>Objective</b>	Seismic lines have been successfully restored to a natural forest trajectory.			
<b>Four Indicators of Success</b>	(1)	(2)	(3)	(4)
	Restoration programs and locations have been selected based on relevance to woodland caribou and contribute to efforts to restore large tracts of woodland caribou habitat.	Where advanced regeneration is not evident, treatment prescriptions have addressed site limiting factors and have established vegetation resembling the adjacent habitat.	Where advanced regeneration is already present, and to the degree feasible, the advanced regeneration has been protected.	The treatments that have been prescribed should effectively limit human and predator movement on the landscape.
<b>Actions Taken to Meet the Objectives</b>	All seismic lines recommended for restoration treatment are located within woodland caribou habitat, specifically, within the Cold Lake caribou range.	Treatments have been recommended based on the site limiting factors in this region which include wet areas, nutrient availability, light, and compaction/high human use.  Re-vegetation treatments were recommended based on dominant vegetation in adjacent ecosites and the probability of survival.	Lines with sufficient advanced regeneration were identified to determine areas potentially in need of protection.  Access control treatments were recommended in areas with sufficient regeneration and non-essential human use.	Line deactivation treatments (tree felling/tree tipping) were prescribed where human and predator movement is not impeded by existing vegetation.
<b>Probability of Achieving the Goal</b>	Treatment prescriptions are based on proven techniques that have already been scaled operationally. This area does have active oil and gas development and it will be imperative that ongoing discussions occur to ensure restoration activities align with upcoming development plans as well as any reclamation and abandonment plans. Alpac has confirmed they do not have any planned harvest blocks in this area.			

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## 2.4 Treatment Plan Summary

Table 4 provides a summary of the treatment plan. Refer to Section 4: Treatment Plan for further details, including equipment specifications.

*Table 4: Treatment Plan Summary for the 3D Seismic Pilot*

ITEM	DESCRIPTION
<b>Compartment Name</b>	<i>3D Seismic Restoration Pilot Area</i>
<b>Prescribed Action</b>	Treatment: 363 km Advanced Regeneration: 50 km Partial Regeneration: 52 km Existing Disposition Project Exclusion: 46 km Historic Resource Potential Exclusion: 0.5 km Non-Operable Project Exclusion: 8 km Isolated: 17 km Non-forested Exclusion: 33 km Other Anthro: 0.5 km
<b>Site Preparation Activities</b>	D4 LGP Dozer + Mini Excavator: 33 km Mini Excavator: 78 km LGP Excavator with Zero Tail Swing: 38 km Tracked Skid-Steer: 44 km D4 LGP Dozer: 25 km Husky 4: 26 km None (Direct Plant): 119 km
<b>Revegetation Activities</b>	Plant ☒ 363 km 233,820 Seedlings
<b>Line Deactivation Activities</b>	Tree Tipping & Mounding ☒ 14 km Mounding ☒ 146 km Intersection Blocking ☒ 34 km
<b>Treatment Timing Considerations</b>	This pilot will test implementation activities in both frozen and unfrozen ground conditions. Timing should consider species at risk timing restrictions and should plan to occur between August 31 and February 14.

## 3 Approach to Operational Planning

### 3.1 Statement of Work

Planning is the first key step towards the restoration of legacy seismic lines to positively impact caribou population recovery. This Treatment Plan outlines the silviculture and deactivation prescriptions required to set legacy seismic lines on a trajectory to a forested state and presents them in a way that can be implemented in the treatment delivery phase.



*Figure 1: Planning is the foundational step in the Draft Restoration and Establishment Framework and the focus of this Project*

### 3.2 Summary of Activities to Develop the Treatment Plan

The project team took the following approach to develop this treatment Plan. This is further detailed in Section 4.

- A. **Preliminary Treatment Prescriptions** included preliminary silviculture prescriptions and identification of advanced regeneration areas. This relied on existing datasets and professional knowledge of the area.
- B. **Indigenous consultation** took place in the form of notification letters and in-person or virtual meetings wherever possible between May 1, 2024, and November 30, 2024.
- C. **Overflight confirmation and ground verification** of the preliminary operational plan were completed on May 16, 2024 – May 28, 2024. This included an assessment of preliminary advanced regeneration areas, prescriptions including deactivation, site preparation, revegetation, and access planning.
- D. **Early engagement with industrial stakeholders.** Letters were mailed to all industrial stakeholders to determine the impacts of industrial and reclamation activity on the implementation of restoration activities.
- E. **Finalized treatment prescriptions** with findings from the field verification, engagement activities, and refinement using aerial imagery and LIDAR tools.

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## 3.2.1 Planning Timeline

The planning for this project took place between April 2024 to December 2024. It relied on the new LiDAR acquired in 2022. When implementation work begins, the following activities should be considered:

- Adequacy assessment from the Aboriginal Consultation Office will be required.
- A temporary field authorization will be required to complete restoration activities.
- Trapper notification must occur at least 10 days before implementation. It is recommended that additional engagement occurs to ensure all modified treatment lines are appropriately identified and protected.
- Road use, pipeline crossings and encroachments, and watercourse crossing notification must be completed before field operations.
- Code of Practice Notifications must be submitted at least 14 days before beginning any work under the Alberta Water Act.
- Water Act approval to complete site prep in wetlands
- Temporary diversion licenses will be needed to assist with freezing in access and building snowfills for winter operations
- Tree seedling orders. Orders are typically required to be placed by the end of October for seedlings to be delivered the following summer.
- Migratory bird restrictions occur from April 19 to August 31
- Caribou timing restrictions occur from February 15 to July 15

## 3.2.2 Key Data Inputs

The ABMI Human Footprint (2021) data was the primary data source used to confirm linear disturbance features within the project area. Only conventional seismic lines and trails were considered as part of this project. Additional data sources are outlined below.

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Table 5: Key Data Inputs

DATA INPUTS		
Category	Data Layer	Data Source
<b>Administrative</b>	<ul style="list-style-type: none"> <li>Alberta Digital Integrated Dispositions (DIDs)</li> <li>ABMI Human Footprint (2021)</li> </ul>	<ul style="list-style-type: none"> <li>Altalis Inc.</li> <li>Alberta Biodiversity Monitoring Institute</li> </ul>
<b>Environmental Considerations</b>	<ul style="list-style-type: none"> <li>ACIMS Non-Sensitive Rare Species Occurrence Inventory</li> <li>Provincially List Species</li> <li>Fire History (2022)</li> <li>Watercourses And Waterbodies</li> <li>Alpac-Derived Stream Layer</li> </ul>	<ul style="list-style-type: none"> <li>Alberta Environment and Protected Areas</li> <li>Fish And Wildlife Management Information System</li> <li>Alberta Environment and Protected Areas</li> <li>Altalis Inc.</li> <li>Al-Pac</li> </ul>
<b>Field Verification</b>	<ul style="list-style-type: none"> <li>Preliminary Treatment Plan</li> </ul>	<ul style="list-style-type: none"> <li>Carson Integrated</li> </ul>
<b>Landcover</b>	<ul style="list-style-type: none"> <li>Alberta Vegetation Inventory</li> <li>12 ppm Lidar (2022)</li> <li>30 cm RGBI Leaf-Off Imagery<sup>1</sup></li> <li>Derived Ecosite Phase (DEP)</li> </ul>	<ul style="list-style-type: none"> <li>Al-Pac</li> <li>Al-Pac</li> <li>Al-Pac</li> <li>Alberta Agriculture and Irrigation</li> </ul>
<b>Indigenous</b>	<ul style="list-style-type: none"> <li>Traditional Access</li> </ul>	<ul style="list-style-type: none"> <li>Trapper Engagement</li> </ul>

<sup>1</sup> Imagery was acquired in 2019

## 4 Treatment Plan

### 4.1 Treatment Line Determination Process

#### 4.1.1 Project Exclusions

The first step in the net-down process was to identify project exclusions. Project exclusions will not receive treatment and will be excluded from any further monitoring requirements under the CHRP program. Excluded line segments were determined in the following priority sequence:

1. Potential treatment lines that overlapped with surface dispositions<sup>2</sup> or were within 10 meters of a disposition were excluded.
2. Inoperable treatment lines which include potential treatment lines that intersect riparian areas, are isolated, or have some other operational consideration.
3. Potential treatment lines that run through non-forested<sup>3</sup> stands were not eligible for treatment.
4. Any potential treatment line that intersected an area with a Historical Resource Value was excluded.

#### 4.1.2 Advanced Regeneration

Advanced regeneration was identified using the 2022 LiDAR data and a canopy height model (CHM). Where the average height of all the pixels in the CHM for each line segment was greater than 2 m, the line was considered stocked. The results of this analysis were further refined during field verification.

#### 4.1.3 Treatment

Each line segment that was remaining in the data was then available for a prescription. Treatment lines received a prescription based on the majority of the area's site type (derived from the Alberta Vegetation Inventory) and all-season access. Table 6 outlines the silviculture prescriptions in more detail.

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<sup>2</sup> Both the active and historical DIDS layers were used to classify seismic lines as exclusions. In the spatial data 'exclusion type' equals 'disposition'. A ten meter buffer was added to each disposition, and this buffered area excluded.

<sup>3</sup> Where the 'Non-Forested Vegetation' field in the AVI is not 'null'

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Table 6 Silviculture Prescriptions

LAYDOWN AREA	MAJORITY SITE TYPE	SITE PREP PRESCRIPTION	RECOMMENDED EQUIPMENT	REVEGETATION PRESCRIPTION
1	Lowland Treed	Rip, then Mound in Frozen Conditions; Direct Plant on lines <3.5 m wide	Lightweight Dozer with Ripper teeth (e.g., D4 LGP) then follow with mini excavator with mounding bucket	Plant Sb; 1800 sph <sup>4</sup>
3	Lowland Low-Density Treed	Rip, then Mound in Frozen Conditions; Direct Plant on lines <3 m wide	Mini Excavator with Frost Ripper & Mounding Bucket (e.g., Cat 308, John Deere 85G)	Plant Sb; 1800 sph
4	Lowland Low-Density Treed	Mound in Frozen Conditions Direct Plant on lines <3.5 m wide	200 Series LGP Excavator with Zero-Tail-Swing	Plant Sb 1800 sph
5	Lowland Low-Density Treed	Screef in <b>Non-Frozen</b> Conditions; Direct Plant on lines <3 m wide	Tracked Skid-Steer with a Mulcher Head	Plant Sb 1800 sph
6	Lowland Low-Density Treed	Mound in Frozen Conditions; Direct Plant on lines <3.5 m wide	200 Series LGP Excavator with Zero-Tail-Swing	Plant Sb 1800 sph
7	Lowland Low-Density Treed	Screef/Small Mounds in Frozen Conditions; Direct Plant on lines <2.5 m wide	Mini Excavator with Mounding Bucket (e.g., Cat 308, John Deere 85G)	Plant Sb 1800 sph
8	Lowland Low-Density Treed	Mound in Frozen Conditions Direct Plant on lines <3.5 m wide	200 Series LGP Excavator with Zero-Tail-Swing	Plant Sb 1800 sph

<sup>4</sup> Stems per hectare

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LAYDOWN AREA	MAJORITY SITE TYPE	SITE PREP PRESCRIPTION	RECOMMENDED EQUIPMENT	REVEGETATION PRESCRIPTION
9	Lowland Treed	Rip, then Mound in Frozen Conditions; Direct Plant on lines <2 m wide	Tracked Skid-Steer with Frost Ripper & Moulder Attachment (e.g., Bobcat T870, Cat 299D)	Plant Sb 1800 sph
10	Upland Transitional	Rip in Frozen Conditions; Direct Plant on lines <2.5 m wide	Mini Excavator with Frost Ripper (e.g., Cat 308, John Deere 85G)	Plant Sw 1800 sph
11	Lowland Low-Density Treed	Rip in <b>Non-Frozen</b> Conditions; Direct Plant on lines <3.5 m wide	D4 LGP Dozer	Plant Sb 1800 sph
12	Lowland Low-Density Treed	None – Direct Plant	None	Plant Sb 1800 sph
13	Lowland Low-Density Treed	Mound in <b>Non-Frozen</b> Conditions; Direct Plant on lines <3 m wide	Husky 4 (Foremost)	Plant Sb 1800 sph
14	Upland Transitional	None – Direct Plant	None	Plant Sb 1800 sph

Part of this pilot is to test different pieces of equipment to see if they will work under fall (not frozen) and winter conditions. Below is a summary of why the pieces were chosen:

- 200 Series LGP Excavator with Zero-Tail-Swing.** The zero-tail-swing design allows the counterweight to remain inside the track width, offering more maneuverability in tight spaces, but it doesn't drastically reduce the overall width of the machine, which is approximately 3 meters, depending on the model. This means it should not be used on lines less than 3.5 m wide.
- Mini Excavator with Frost Ripper & Mounding Bucket (e.g., Cat 308, John Deere 85G).** A Cat 308, or similar machine will be significantly smaller than a 200 series excavator. This will allow travel on lines less than 4 m wide with ease. However, because it is smaller, it is unlikely it will have the ability to break through the frost in one pass down the line. This prescription will test the ability of a frost ripper to break through the frost and then mound the site on a second pass down the line during winter operations.

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- **D4 LGP Dozer with Ripper Attachment & Mini Excavator.** This prescription will test using an LGP D4 to rip the line and break through the frost effectively, followed by a Mini Excavator to mound the line and create raised microsites for the seedlings to be planted in. The limiting factor with this approach is that the blade of a D4 is typically 3.2 meters, so it will not be effective for lines less than 3.5 m wide.
- **Tracked Skid-Steer with Frost Ripper & Moulder Attachment (e.g., Bobcat T870, Cat 299D).** This will be most effective on narrow lines and provides the most maneuverability of all the options.
- **Tracked Skid-Steer with a Mulcher Head (e.g. CAT 299D3 XE, Bobcat T870, or ASV RT-120F).** We recommend a dedicated forestry skid steer, which will have higher ground clearance and better floatation. This is being prescribed for fall site preparation (screefing) so some modifications may be needed to improve performance, including adding wider rubber tracks or bolt-on extensions to spread weight further and planning treatments in drier months to minimize rutting and sinking.
- **Husky 4 (Foremost).** This has been prescribed for fall mounding in lowland sites. It has low ground pressure which will minimize sinking in soil terrain, and its wide rubber tracks will spread weight over a larger area to reduce rutting. Operators should still use caution if the soil is extremely saturated, and in deep organic peat with no mineral layer beneath, getting stuck is still possible. Rig or swamp matting should be on-site at all times in case equipment gets stuck and to reduce rutting as much as possible.

Where mounding has been prescribed in frozen conditions with smaller pieces of equipment, it may be beneficial to dig holes in the adjacent forest and place the soil on the cutline to create a mound. There will likely be less frost in the ground in the adjacent forest, making it easier for smaller equipment to do site preparation in frozen ground.

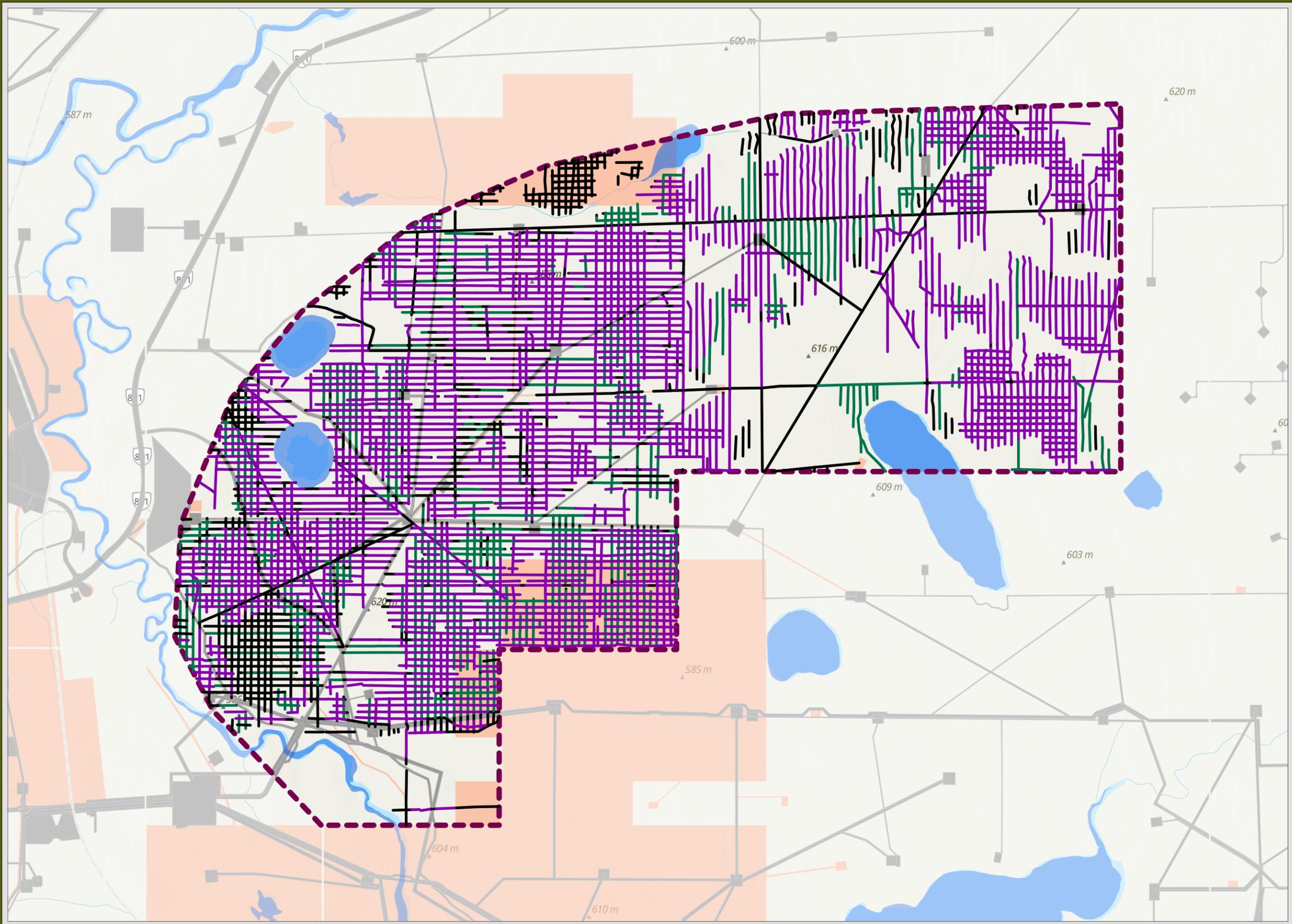
Table 7 summarizes the total kilometers eligible for treatment.

*Table 7: Summary of Treatment Lines within the Project Boundary*

ACTION	TOTAL LENGTH (KM)
Advanced Regeneration	50
Partially Regenerated	52
Project Exclusion	105
Treatment	363
<b>Total</b>	<b>570</b>



# Caribou Habitat Restoration Program - CHRP 3D Seismic Map 2: Line Segment Classification

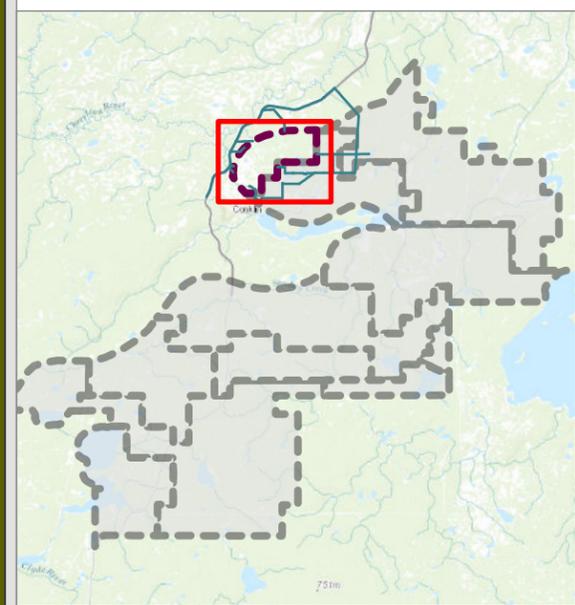


**Legend**

- Compartments
- Lakes
- Dispositions
- Historical

**Cutlines**

- Advanced Regeneration
- Treatment
- Project Exclusion



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Created By: Y. Sroujje  
Projection: UTM 12 NAD83  
Version: 2.0

**Map Scale: 1:35,000**

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## 4.2 Site Limiting Factors

Site limiting factors were identified within the compartment and treatments were prescribed to address these factors. These include:

- **Soil Saturation:** On lowland sites where there is seasonal or permanent water just below the surface and the water table sits high, seedlings were either drowning, which stunted growth or seedlings were unable to survive.
- **Light:** On sites where the adjacent stand leading species was mature aspen or mature Pine, crown closure limited the amount of light reaching the cutline, which limited seedling regeneration.

## 4.3 Deactivation Strategies and Line Treatment Prescriptions

### 4.3.1 Deactivation Strategies

Deactivation strategies will be used to limit and deter access and movement along seismic lines, this will prevent seedlings from being disturbed by human or animal use and will promote uninterrupted growth of planted or natural seedlings. Deactivation strategies will also restrict human and predator movement down cutlines for humans and animals by acting as a physical barrier. Deactivation treatments include:

- **Tree Tipping:** Where adjacent stands have trees tall enough to span the width of the cutline, trees will be tipped over onto the line mechanically to block access.
- **Mounding:** Mounding is used as a deactivation and site preparation technique on lowland sites. Mounding will create microsites for planting, but it will also discourage the use of the line by humans and predators.
- **Tree Transplanting:** For areas that are using a 200 series excavator or the Husky 4, operators should look for opportunities to transplant trees from the side of the treatment line on lowland sites. **It may not be feasible to complete tree transplanting with smaller pieces of equipment.** Trees should be 1-2 m tall, and the operator should take the entire root mass of the tree and place it along the side of a mound (i.e. in the opening of the hole dug to create the mound). Tree transplanting will immediately block the line of sight down the line, and the hope is that some trees will survive the transplant and remain standing for many years while the rest of the line regenerates. Transplanting should occur every 50-100 m down the line, or when the opportunity arises to implement this technique.
- **Intersection Blocking (Tree Tipping):** Where cutlines meet major access routes such as LOCs, aggressive tree tipping will be used on the first 100 meters of the cutline to create blinds and block access and line of sight effectively, whereas, down the length of the cutline, less aggressive tree tipping will be done to enhance microsites for growing and to bring a natural seed bed onto the cutline while still limiting access.
- **Intersection Blocking (Mounding):** This technique has only been prescribed where a 200-series excavator is being recommended. Large ditches/berms will be used to block access from human

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use down cutlines where the adjacent stand does not have tall enough trees to span the width of the line. These berms will be used where cutlines intersect major access routes such as LOCs and where lowland low-density site types intersect any linear feature, this will be applied along the first 100 meters of the cutline, at the intersection, at 50 m, and at 100 m, although it may be longer or shorter based upon line length and discretion should be used in the field. It is intended that these berms have trees stacked on top to create a blind as well. In between the ditch/berm treatment, site preparation and planting should occur as prescribed.

Table 8 summarizes the total kilometers of deactivation treatments.

*Table 8: Summary of Deactivation Strategies*

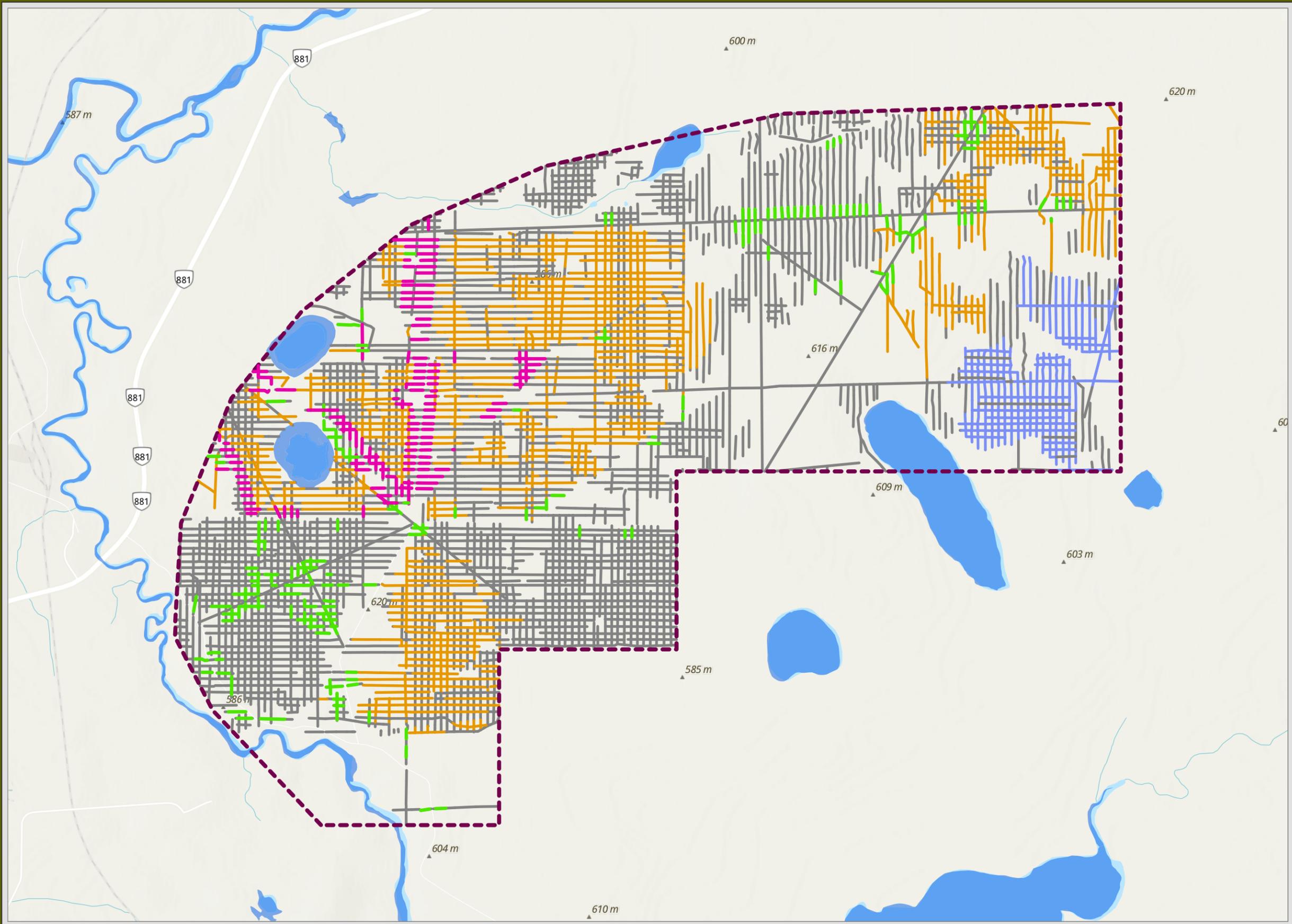
DEACTIVATION STRATEGY	TOTAL LENGTH (KM)
<b>MOUNDING</b>	<b>146</b>
<b>MOUNDING &amp; TREE TIPPING</b>	<b>14</b>
<b>INTERSECTION BLOCKING - MOUNDING</b>	<b>15</b>
<b>INTERSECTION BLOCKING – TREE TIPPING</b>	<b>19</b>
<b>NONE<sup>5</sup></b>	<b>169</b>
<b>TOTAL</b>	<b>363</b>

---

<sup>5</sup> In some cases deactivation treatments were deemed infeasible. For example, tree tipping was only prescribed there the majority site type would likely have trees tall enough to meet this prescription. Similarly, Intersection Blocking – Mounding was only prescribed in areas where the recommended piece of equipment was likely able to implement the prescription.

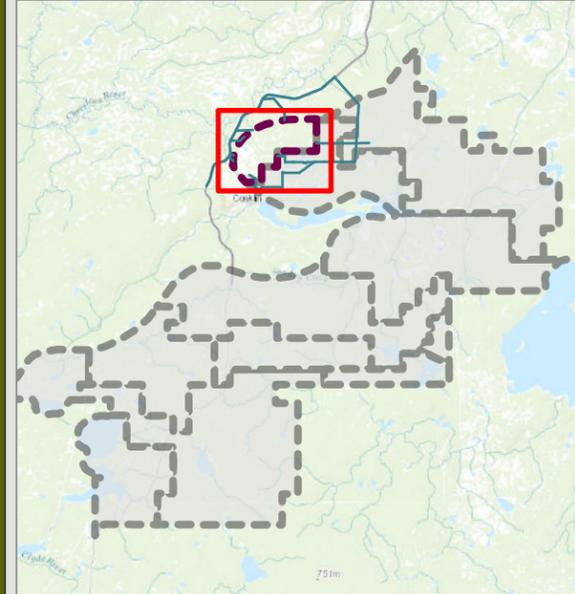


# Caribou Habitat Restoration Program - CHRP 3D Seismic Map 3: Deactivation Treatments



**Legend**

- Compartment (dashed purple line)
- Lakes (blue fill)
- Deactivation Treatment**
  - Intersection Blocking - Mounding (pink line)
  - Intersection Blocking - Tree Tipping (green line)
- Cutlines**
  - Mounding (orange line)
  - Tree Tipping, Mounding (blue line)
  - None (grey line)



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# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## 4.3.2 Line Prescriptions: Site Preparation Treatments

Site preparation is used to improve growing conditions for planted seedlings, and create better conditions for natural ingress. Site preparations include:

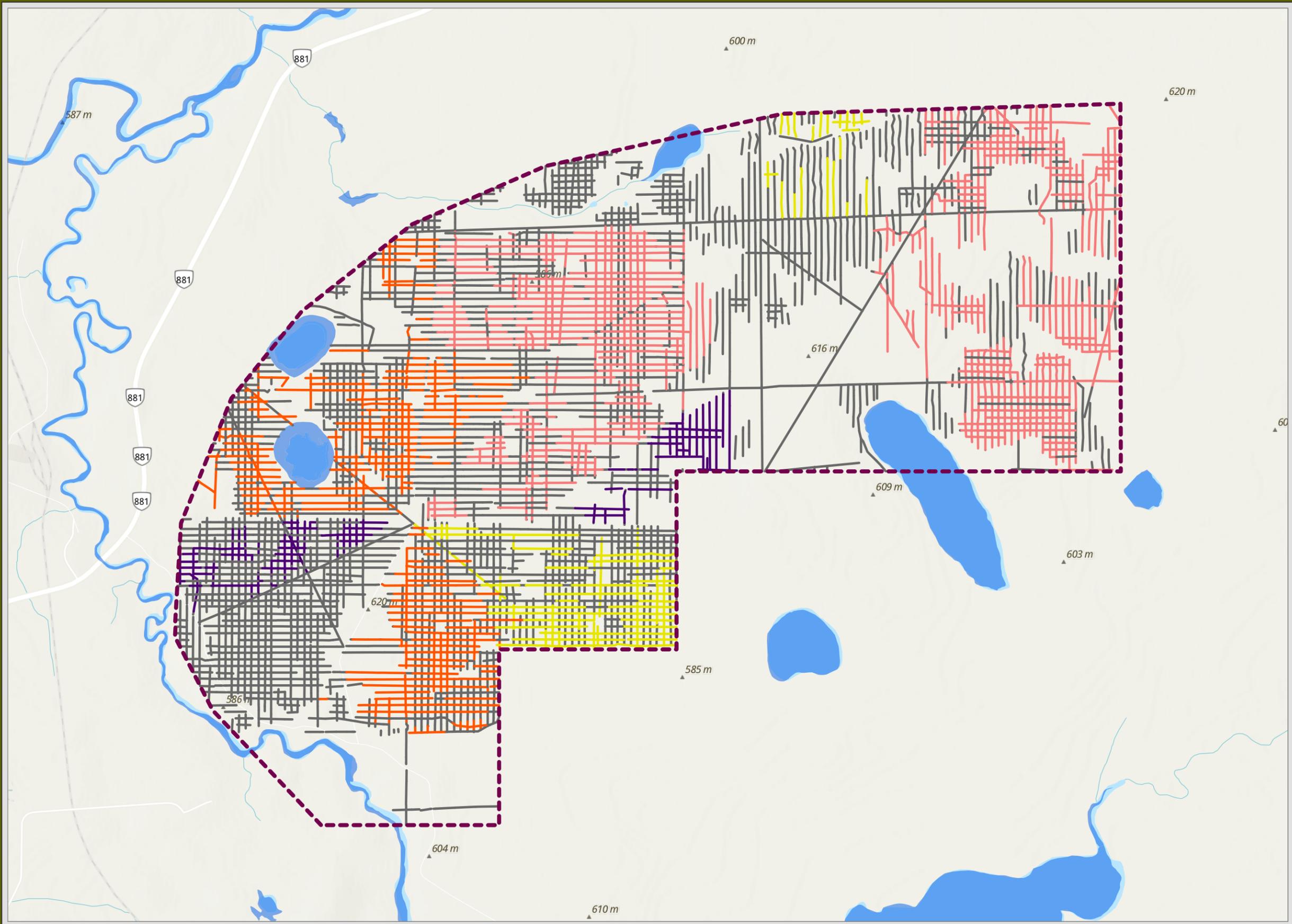
- **Mounding:** In lowland areas where sites are closer to the water table, mounding will create microsites with improved drainage and warmer soil conditions, giving planted seedlings a better chance for survival and growth.
- **Ripping:** Ripping has traditionally been prescribed in upland transitional sites where cutlines may suffer from compaction. Ripping will loosen and raise the soil which will allow for better rooting and drainage of planted seedlings, as well as churn soil to potentially enrich soil nutrition. Ripping has also been prescribed in some lowland areas to test the feasibility of this approach.
- **Ripping & Mounding:** Where site preparation has been prescribed in frozen conditions on lines using smaller pieces of equipment, ripping and mounding have been prescribed. Ripping will be done as the first pass down a line to break through the frost and allow easier ground conditions for mounding during the second pass down the line.
- **Screefing:** Screefing, or the creation of smaller mounds has been prescribed in areas that are using a mini excavator in frozen conditions to test if a mini excavator can break through the frost while still creating a microsite for trees to be planted in. Screefing in non-frozen conditions has also been prescribed in areas that have higher instances of upland transitional sites, where compaction may be a site-limiting factor. In these areas, the goal is to loosen potentially compacted soils and allow for better rooting of seedlings.

*Table 9: Summary of Prescriptions for Site Preparation Treatments by Compartment*

SITE PREPARATION TREATMENT	TOTAL LENGTH (KM)
MOUND	64
RIP	30
RIP & MOUND	130
SCREEF	21
NONE (DIRECT PLANT)	119
<b>TOTAL</b>	<b>363</b>

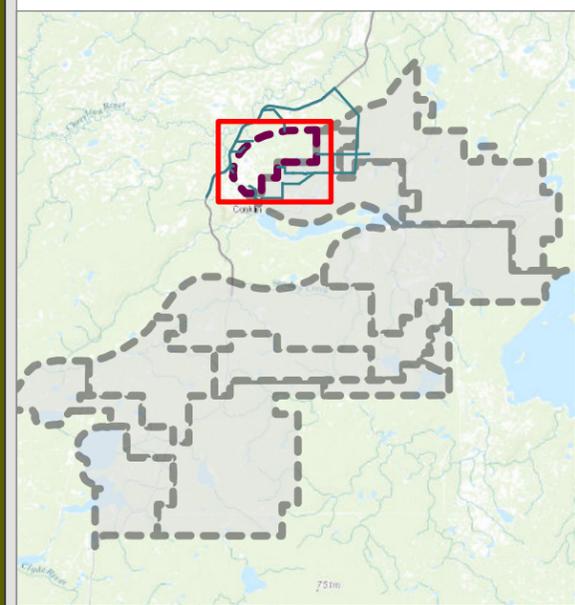


# Caribou Habitat Restoration Program - CHRP 3D Seismic Map 4: Site Preparation



**Legend**

- Compartment (dashed purple line)
- Lakes (blue area)
- Site Preparations**
  - Mound (orange line)
  - Screef (purple line)
  - Rip (yellow line)
  - Rip/Mound (red line)
  - None (black line)



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# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## 4.3.3 Revegetation Treatments

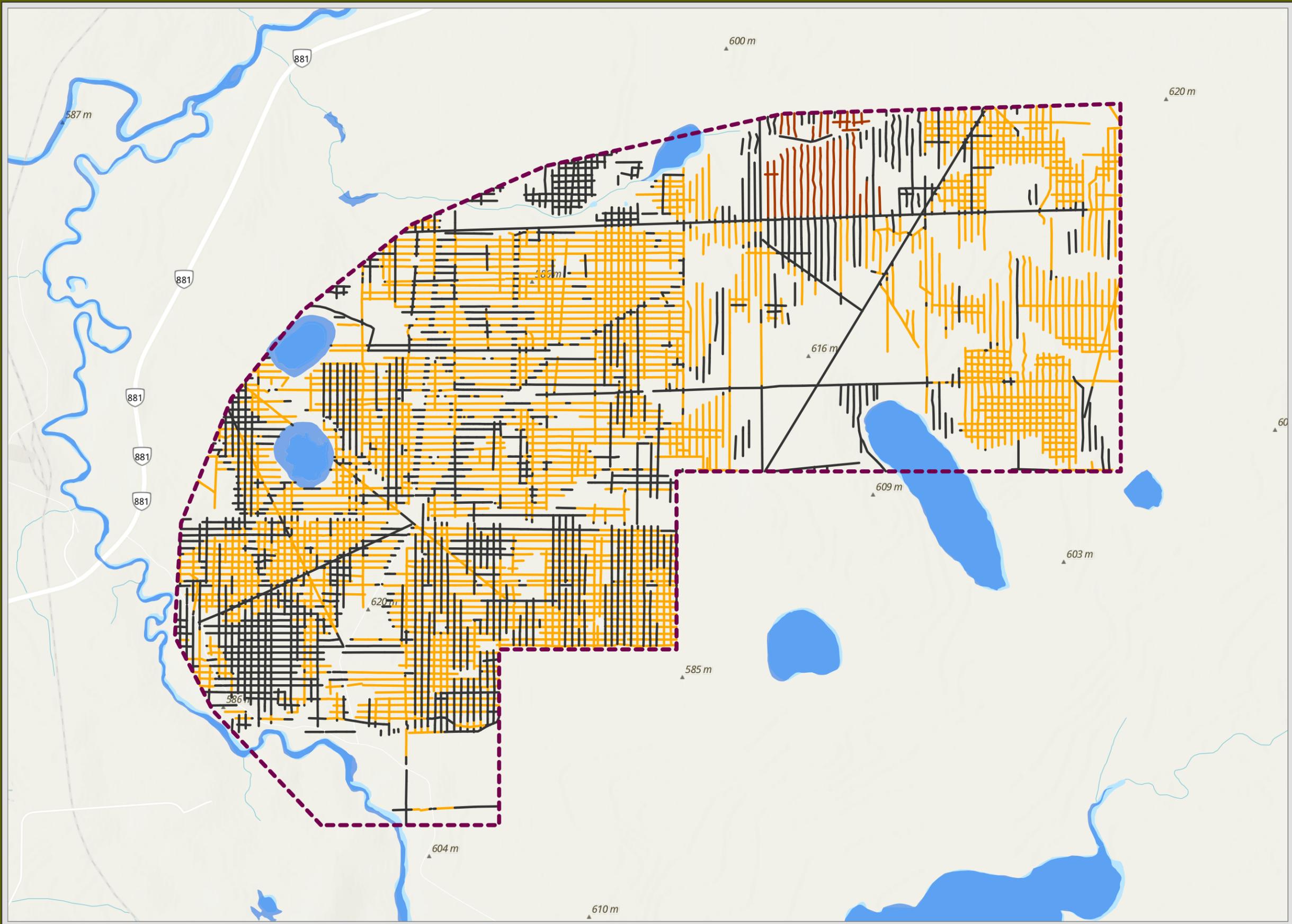
Seedlings will be planted on all site-prepped lines and intersection blocking using large mounds. This is preferred over seed due to seedlings' vigor and age when planted. Planting will be completed on all mechanical site prepped sites.

*Table 10: Summary of Revegetation Prescriptions by Compartment*

REVEGETATION TREATMENT	TOTAL LENGTH (KM)
PLANT (IN MECHANICAL SITE PREPARATION)	244
PLANT (STRAIGHT PLANT)	119
<b>TOTAL</b>	<b>363</b>

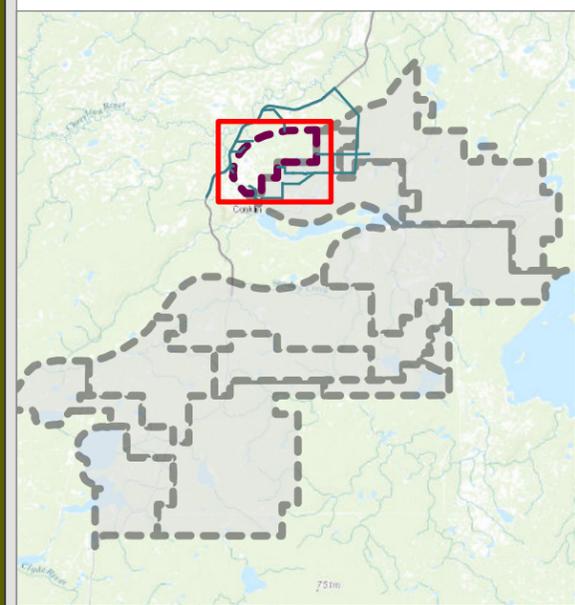


# Caribou Habitat Restoration Program - CHRP 3D Seismic Map 5: Revegetation Treatment



**Legend**

- Compartment (dashed purple line)
- Lakes (blue area)
- Revegetation Treatments**
  - Plant Sb (orange line)
  - Plant Sw (brown line)
  - No Treatment (black line)



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**Map Scale: 1:35,000**

0 0.25 0.5 1 1.5 2 Km

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# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## 4.4 Seedling & Seed Requirements

### 4.4.1 Seed Zone(s)

The seed zone for the restoration compartment is Central Mixedwood CM 3.1.

### 4.4.2 Seedlings

There will be a total of 233,820 seedlings required to plant all prescribed seismic lines. Seedlings include mostly black spruce with some white spruce prescribed where the majority site type leans more heavily towards upland transitional. Seedlings should be 412A 1+0 stock.

Fall planting is recommended for this area. Planters will be flown into the compartment with tree caches being placed along prescribed treatment lines, or driven where access allows along high-grade roads. Prescriptions have accounted for planting considerations, minimizing the number of short prescription segments to ensure efficient planning of tree caches.

Operators will need to source seed and/or seedlings to complete tree planting. Seed must be suitable for the seed zone and will be acquired at the operator's cost or from an in-kind contribution from industry or GoA.

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

Table 11: Seedling Estimates

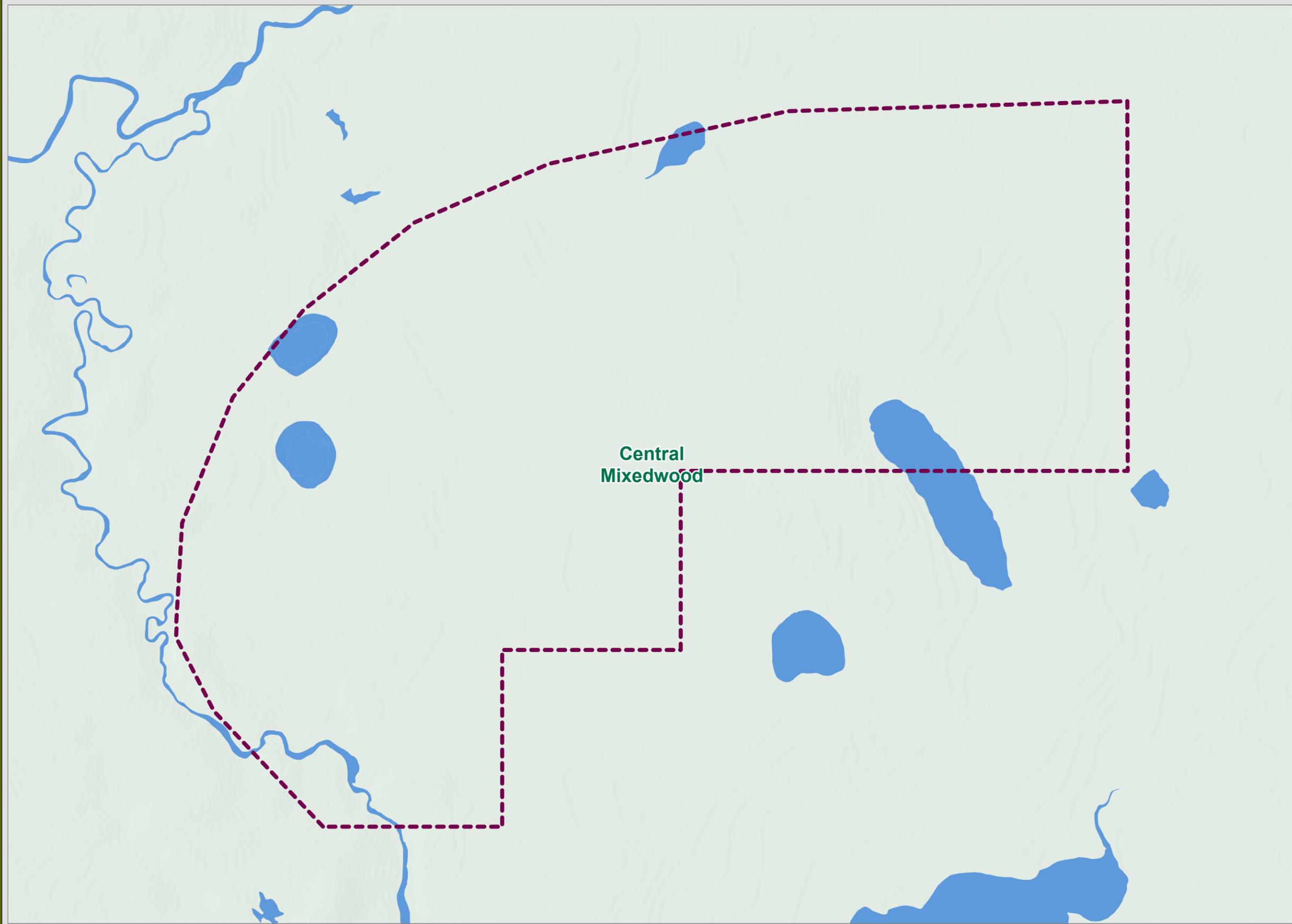
SEED ZONE (CM 3.1)	BLACK SPRUCE (SB)	WHITE SPRUCE (SW)	TOTAL
Laydown Area 1	29,700	0	29,700
Laydown Area 2	0	0	0
Laydown Area 3	53,640	0	53,640
Laydown Area 4	12,600	0	12,600
Laydown Area 5	12,600	0	12,600
Laydown Area 6	14,400	0	14,400
Laydown Area 7	6,480	0	6,480
Laydown Area 8	14,040	0	14,040
Laydown Area 9	20,700	0	20,700
Laydown Area 10	0	6,120	6,120
Laydown Area 111	27,720	0	27,720
Laydown Area 12	7,200	0	7,200
Laydown Area 13	21,600	0	21,600
Laydown Area 14	7,020	0	7,020
<b>Total</b>	<b>227,700</b>	<b>6,120</b>	<b>233,820</b>

### 4.4.3 Seed

No seed is being recommended as part of this operational plan.



# Caribou Habitat Restoration Program - CHRP 3D Seismic Map 6: Seed Zones

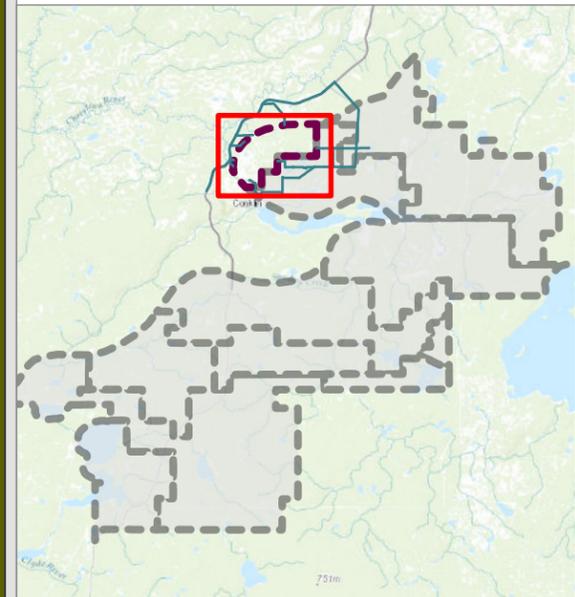


### Legend

 Compartments

### Alberta Seed Zones

 Central Mixedwood



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## 5 Access Plan

### 5.1 Access Constraints and Considerations

Some laydown areas will only be accessible in winter months. Access to these areas will have to be frozen. Temporary diversion licenses may be needed to freeze down access and watercourse crossings. In addition, access along treatment lines in these areas will need to be frozen to ensure machinery can move down them safely. This will be especially true in open wet areas where the ground is highly saturated. Extra freeze-down should be considered in these areas.

Laydown areas that have been identified for fall treatments will use a dry-weather road to access the treatment areas. It is recommended that the implementation contractor confirm the state of the road before mobilizing equipment, as a wet summer may impact the road conditions. It is also recommended that the contractor be prepared with swamp/rig matting in case conditions deteriorate to reduce rutting along main access routes.

### 5.2 To-Compartment Boundary Access Plan

It is recommended that the crew stage out of Conklin. Access to the compartment will be from Highway 881. There are six main ways to gain access to the project area. These are Route, A, B, C, D, E, and J. The remaining routes described below are used to connect between routes or provide alternate access to similar areas of the project.

Route A provides all-season access to the compartment boundary. It uses LOC982336 from Highway 881 heading east towards the project boundary, just after the highway crosses the Jackfish River. This route provides the most direct route from the highway to the project boundary.

Route B provides access directly from Highway 881 as well, however, once you enter the project boundary it turns to winter access only. This route uses LOC130348 from Highway 881 heading east towards the project. The access point from the highway is the same as Route A.

Route C uses LOC002529 from Highway 881 heading east towards the project boundary to access from the northwest. This access point is approximately 4 km from the first access point described in Route A. Access from this route is winter only.

Route D is used to access the northernmost portion of the project area. It uses LOC000769 from Highway 881 heading southeast towards the project boundary. This route is also winter-only.

Route E uses a series of LOCs from Highway 881 heading south and then west to access the project boundary from the east and could be used as an alternative route into laydown area 11 in the winter.

Route F follows the same LOCs as route E to access the project boundary from the east and goes directly to laydown area 1.

Route G connects routes E and F.

## AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

Route H follows the same LOCs as route E heading southwest to access the project boundary from the south.

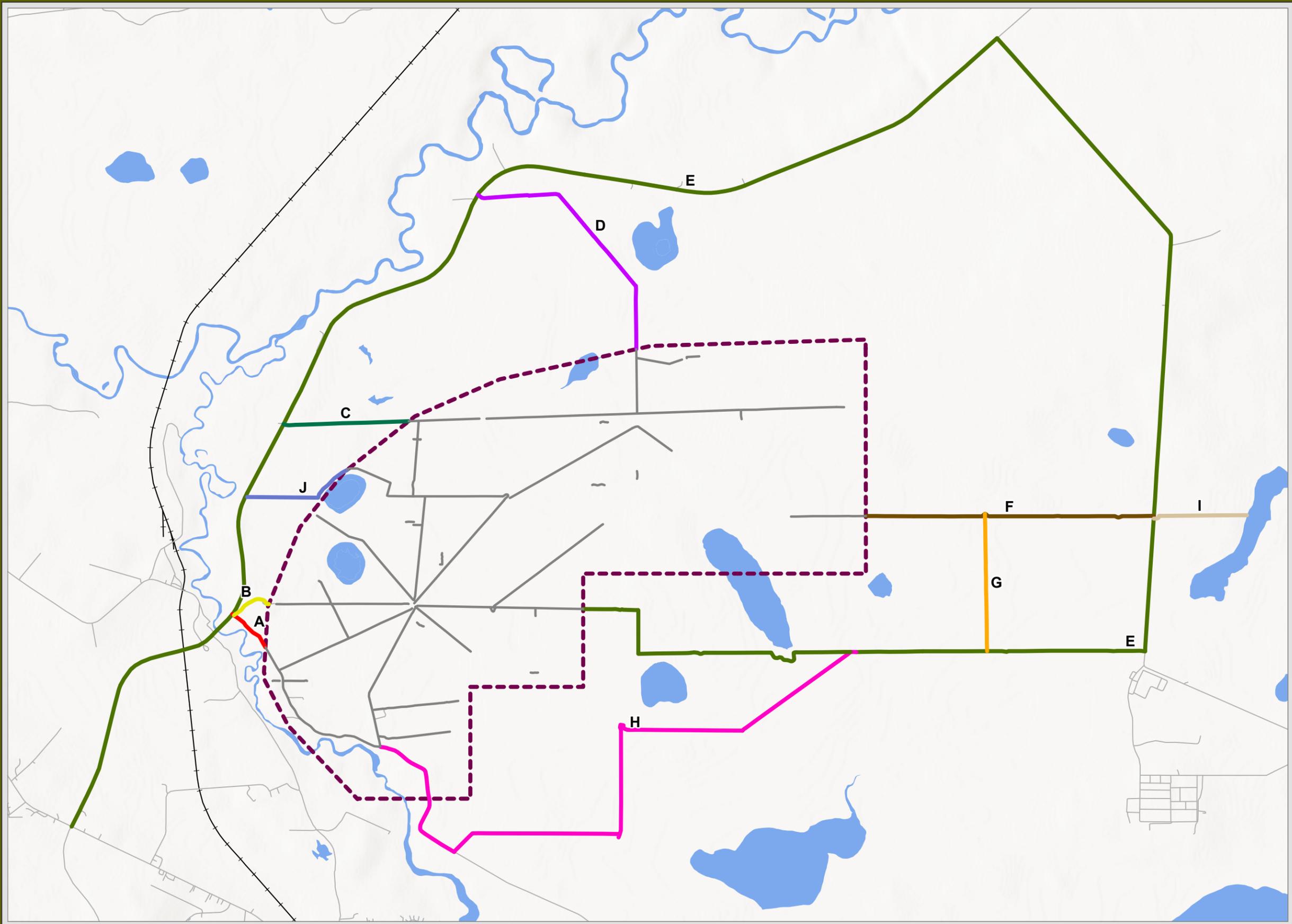
Route I is used to access a water source outside of the project boundary.

Lastly, Route J was added as winter access from Highway 881 to access laydown area 4.



# Caribou Habitat Restoration Program - CHRP 3D Seismic

## Map 7: To Compartment Access

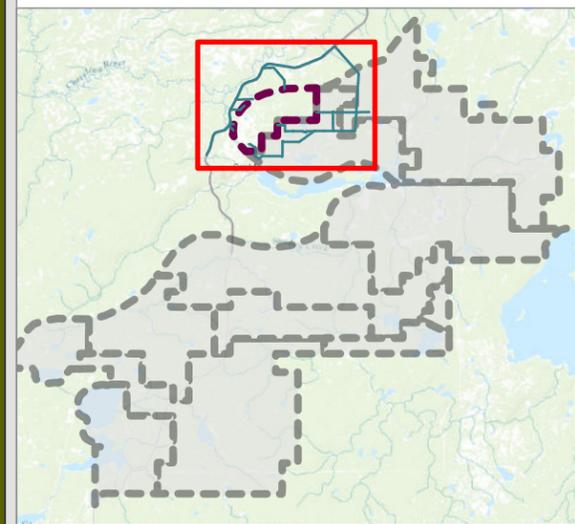


**Legend**

- Compartment (dashed purple line)
- Lakes (blue fill)
- Railway (black line with cross-ticks)
- Access (Altalis) (grey line)
- Access Within Compartment (black line)

**Access To Compartments**

- A (red line)
- B (yellow line)
- C (green line)
- D (purple line)
- E (olive line)
- F (brown line)
- G (orange line)
- H (pink line)
- I (tan line)
- J (blue line)



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# AN OPERATIONAL PLAN FOR LINEAR RESTORATION

## 5.3 Within-Compartment Access Plans

Within-compartment access has been planned on existing roads, well sites, and pipeline right of ways. Owners of these dispositions will have to be contacted to ensure that permission is given to use all planned dispositions. All canceled and replaced dispositions (e.g. historical dispositions) have been excluded from the within-compartment access plan.

All treatment lines and some project exclusions (i.e. nonforested and riparian exclusion types) have been planned to be used as access, with seismic lines that connect large groups of treatment lines being represented within the compartment access plan. A Temporary Field Authorization (TFA) for industrial access will be needed for these lines.

Treatment lines that are tied to laydown areas 5, 11, 13, and 14 are considered “Dry-Weather” access and can be accessed from Highway 881, using LOC982336. This LOC goes directly to laydown area 2, which can be used as a central staging area for fall operations.

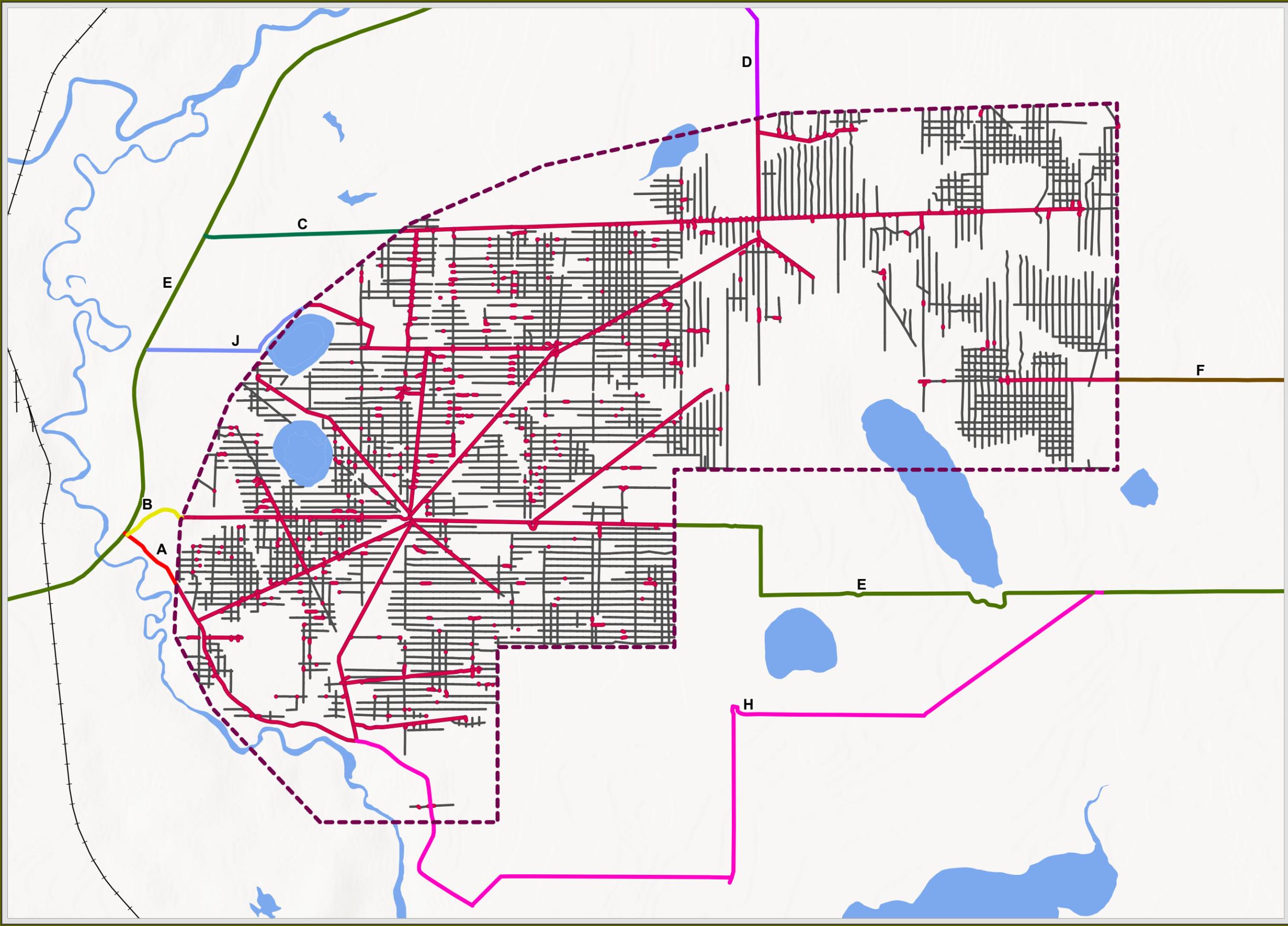
All remaining access is in winter-only and these lines will need to be frozen in to ensure that they can be traveled safely with little impact.

No seismic line that has been prescribed “Advanced Regeneration” should be used for access, the in-compartment access plan reflects this.

All road use requirements are summarized in Table 15. An initial outreach to all industrial stakeholders was completed as part of this plan. No concerns were raised by stakeholders at the time this plan was completed, however, the implementation contractor will be responsible for obtaining all road use and proximity agreements.



# Caribou Habitat Restoration Program - CHRP 3D Seismic Map 8: Within Compartment Access

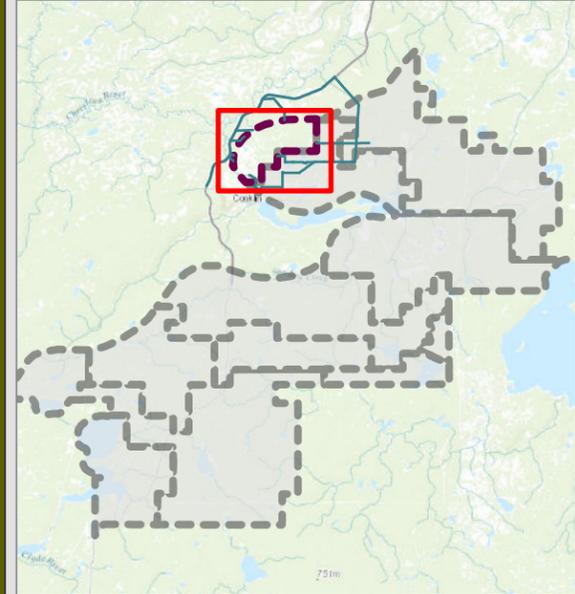


**Legend**

- Compartment
- Lakes
- Railway
- Treatment Lines
- Access Within Compartments

**Access To Compartments**

- A
- B
- C
- D
- E
- F
- H
- J



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## AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

### 5.3.1 Lay-Down Area(s)

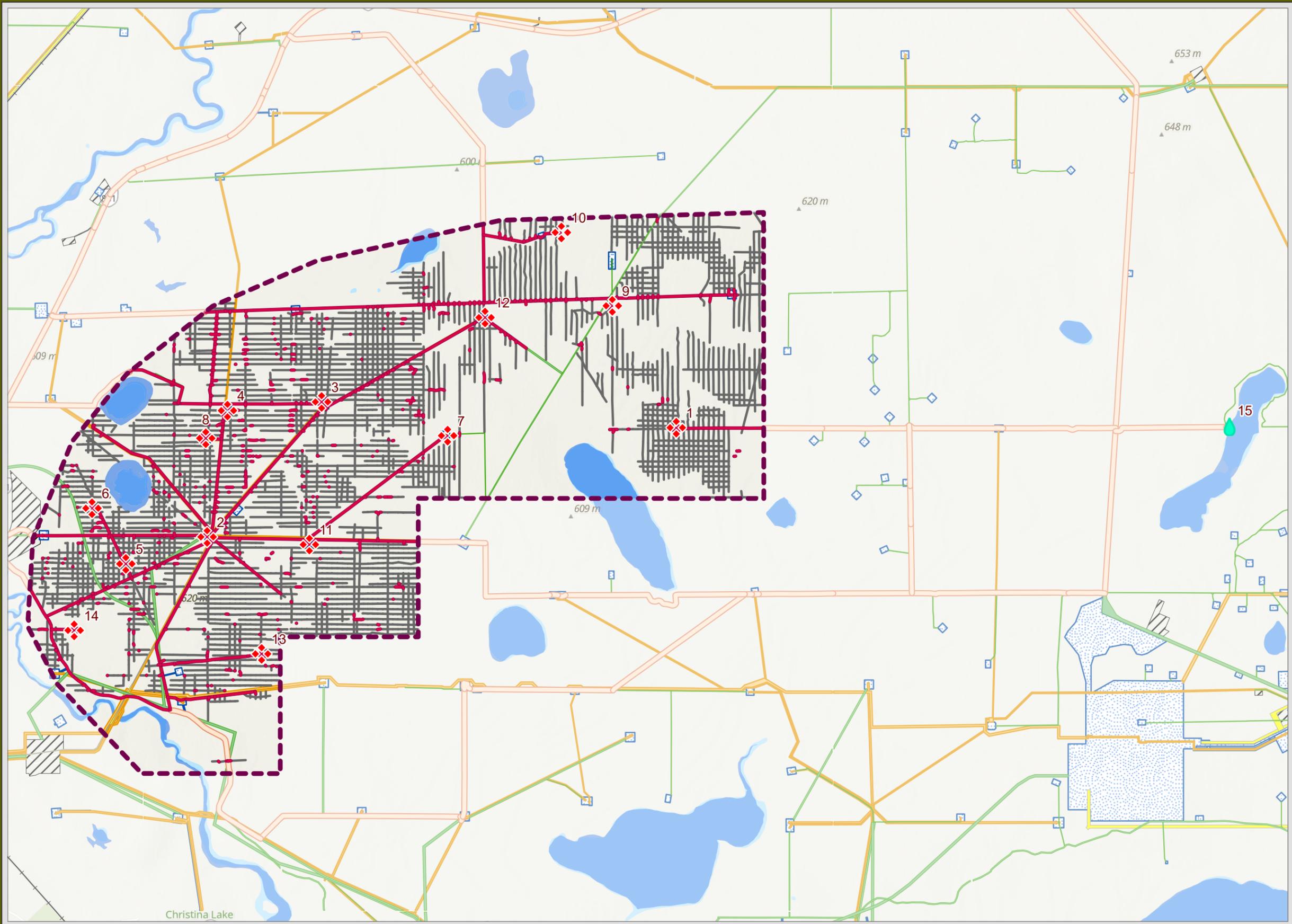
Temporary lay-down areas that could be needed during operations have been identified. Laydown areas will be used to park vehicles and store equipment and supplies such as parts vans, fuel, signage, seedlings, and tools. Laydown areas will also be used during tree-planting activities. Each laydown area has been assigned the total number of boxes of seedlings to be dropped at each location. From there, boxes will be distributed across the treatment lines according to the treatment plan. This will be done by walking boxes down lines, using Argos, where possible, and by dropping boxes via helicopter as needed. Each treatment line has a corresponding laydown area identified so it is clear to the implementation contractor where each box of seedlings should go.

Laydown areas can often be located in existing clearings, though brush removal may be needed for safe helicopter access. Permission will be needed if the site is under disposition and the contractor will be required to obtain this.

One water source has also been identified if needed to freeze down access and watercourse crossings. Map 9 shows where laydown areas and water sources have been planned.



# Caribou Habitat Restoration Program - CHRP 3D Seismic Map 9: Laydown, Helipad, and Water Source Locations



**Legend**

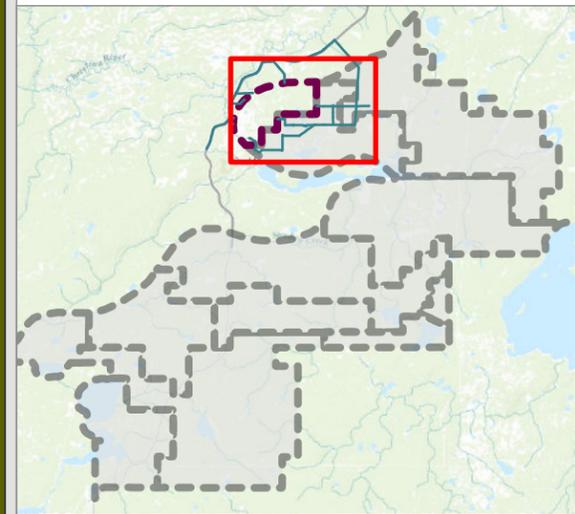
- Compartment
- Lakes
- Railway
- Treatment Lines
- Access Within Compartments
- Access To Compartments

**Helipad and Laydown**

- Laydown
- Water Source

**Dispositions**

- Access - DLO, PLC, LOC
- Camp/Mill/Plant/Misc - DML, MLL, MLP
- Wellsite - DMS, MSL
- Pipeline - PLA, PIL, DPL, DPI
- Powerline / Vegetation Easement - EZE, RVC, VCE;



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# AN OPERATIONAL PLAN FOR LINEAR RESTORATION

## 6 Regulatory Requirements, Approvals, & Safety

Several regulatory requirements must be met before beginning work (Table 12).

*Table 12: List of Regulatory Considerations*

REQUIREMENT	NOTES
<b>Watercourse Crossings</b>	A Code of Practice Notification must be submitted to the Government of Alberta through OneStop at least 14 calendar days prior to the beginning of any work, as required under the Alberta <i>Water Act</i> .
<b>Water Act Approval</b>	Pursuant to the Water Act, R.S.A. 2000, c. W-3, as amended, an approval is issued to the Approval Holder for the following activity: (b) maintaining, removing, or disturbing ground, vegetation, or other material in or on any land, water, or water body;
<b>Road Use Agreements</b>	Road use agreements must be in place prior to using roads under active disposition.
<b>Pipeline or Powerline Crossings</b>	Crossing and/or proximity agreements are needed to traverse or cross pipeline and powerline rights-of-way under disposition. The disposition owner will identify safety requirements to install the crossing which may require an inspection.
<b>Temporary Field Authorization</b>	Temporary Field Authorization needs to be obtained prior to work beginning. This will be issued by AEP under the authority of the Public Lands Act, Mines and Minerals Act, and Exploration Regulation. Applications must include consent from the Forest Management Agreement holders (AI-Pac), consent from other occupants of the land, a Public Land Standing Report, and a list of Land Use Historical Resources. Indigenous consultation may be required.
<b>Temporary Diversion Licence</b>	A Temporary Diversion Licence will need to be obtained before work begins.
<b>ACO Adequacy Assessment</b>	The Aboriginal Consultation Office must provide an adequacy assessment prior to beginning any work.
<b>Caribou Restricted Activity Period</b>	February 15 to July 15
<b>Migratory Birds Convention Act: Nesting Zone B5</b>	April 19 to August 31

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## 6.1 Land Standing Conflicts

Table 13 outlines the land-standing conflicts in the project area boundaries.

There is one RFMA holder in the area, who received a notification package in 2024 outlining the program and requesting feedback. No feedback was received.

Alberta Pacific is the FMA holder in this area. There are no planned harvest blocks identified in the treatment plan.

CNOOC and Cenovus are the active oil and gas companies in this area. Unfortunately, Cenovus did not respond to information requests during the development of the treatment plan. Further engagement is recommended. CNOOC International has plans to develop TWP-077 RGE-07 W4M in the future, however, they were unable to give a timeline for when development is expected, and it is not an AER-approved development project at this time. In addition, the following dispositions are currently undergoing or recently received their reclamation certificate:

- LOC030370
- MSL030509
- MSL050855
- MSL080854

LOC030790 has been included in the within-compartment access plan as it is one of the main LOCs that runs east-west through the compartment. If CNOOC has reclaimed this road prior to implementation, access will need to be planned on cutlines to reach the northern edge of the compartment. Treatment lines should still be accessible regardless of the status of this LOC; however, implementation contractors should keep this in mind when planning access in the area.

MSL050855 is also needed to access some treatment lines. Access has been planned to use the edge of the MSL to reduce disturbance to planted seedlings on the well site.

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

*Table 13: Land Standing Conflicts*

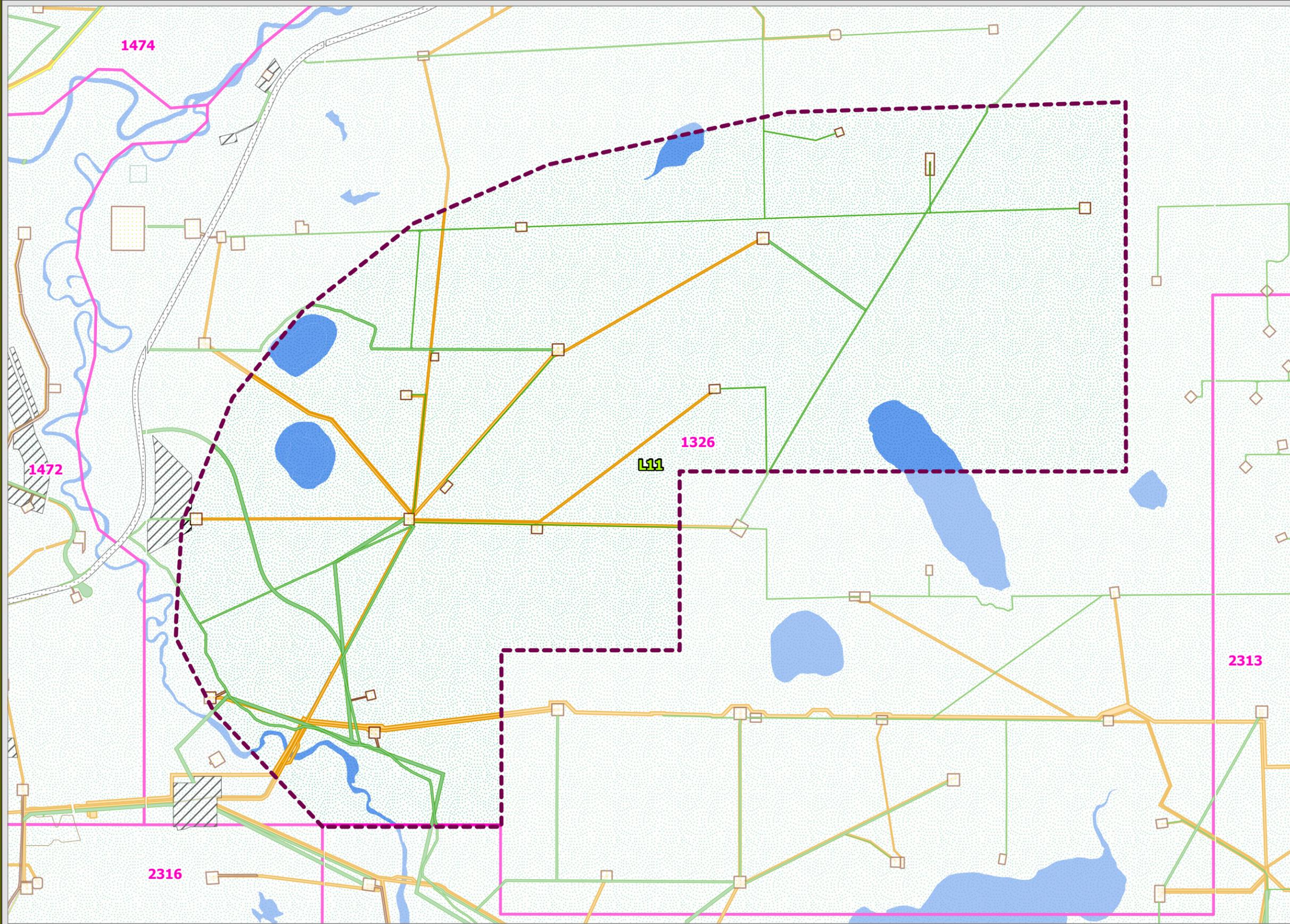
DISPOSITION/ RFMA HOLDER	TOTAL DISPOSITIONS / DISPOSITION NUMBER <sup>6</sup>
ALBERTA-PACIFIC FOREST INDUSTRIES INC.	FMA9100029
GARY YORK	RFMA 1326
CENOVUS ENERGY INC.	32
CNOOC PETROLEUM NORTH AMERICA ULC	12
FORTISALBERTA INC.	1
MILESTONE MAINTENANCE LTD.	1

---

<sup>6</sup> Disposition numbers were only provided for RFMA holders and quota holders given how busy an area this project area is

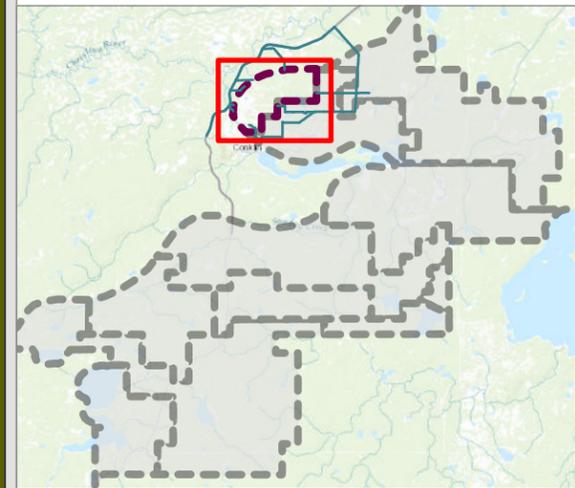


# Caribou Habitat Restoration Program - CHRP 3D Seismic Map 10: Land Standing Conflicts



### Legend

- Compartments
  - Lakes
  - CrownLandReservations
  - FMU
  - Registered Fur Management Area
- ### Dispositions
- Access - DLO, PLC, LOC
  - Camp/Mill/Plant/Misc - DML, MLL, MLP
  - Wellsite - DMS, MSL
  - Roadway - RRD, RDS, FRD
  - Pipeline - PLA, PIL, DPL, DPI
  - Powerline / Vegetation Easement - EZE, RVC, VCE;
  - Gravel Pit - SMC, SML
  - Gravel Exploration - SME
  - Government Disposition - DRS
  - Other Dispositions - PLS, REC



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# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## 6.2 Watercourse Crossings

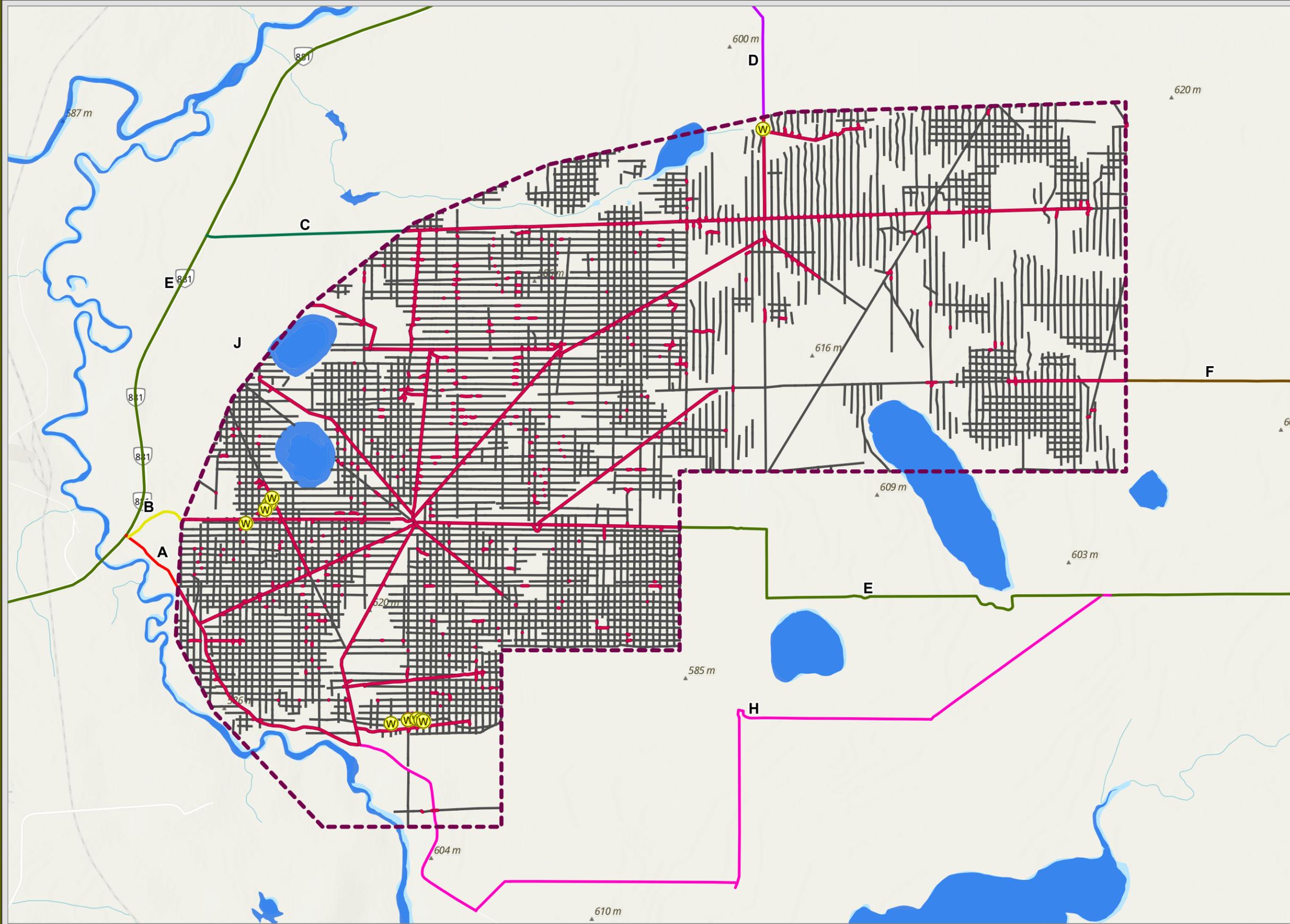
Watercourse crossings will need to be established on access lines and treatment lines where crossings do not already exist. Crossings were identified using the 20K Base Data. Watercourses exist in laydown areas 5, 6, 10 and 13, and all have been classified as Ephemeral. Laydown areas 5 and 13 are fall access areas and these must respect the Class C restricted activity period of April 16 to July 15.

*Table 14: Potential Watercourse Crossings*

COMPARTMENT ID	CROSS-ING ID	FEATURE TYPE	LOCATION (ALBERTA TOWNSHIP SYSTEM DESCRIPTOR)	WATER-COURSE TYPE	WATER-BODY CLASS	SPECIAL NOTES (CODE OF PRACTICE)	RESTRICTED PERIOD
3D Seismic Pilot	1	Treatment	LSD-11 SEC-08 TWP-077 RGE-07 MER-4	STR-INDEF	Class C		April 16 to July 15
3D Seismic Pilot	4	Treatment	LSD-10 SEC-08 TWP-077 RGE-07 MER-4	STR-INDEF	Class C		April 16 to July 15
3D Seismic Pilot	6	Treatment	LSD-10 SEC-08 TWP-077 RGE-07 MER-4	STR-INDEF	Class C		April 16 to July 15
3D Seismic Pilot	15	Access	LSD-14 SEC-27 TWP-077 RGE-07 MER-4	STR-INDEF	Class C		April 16 to July 15
3D Seismic Pilot	18	Treatment	LSD-10 SEC-08 TWP-077 RGE-07 MER-4	STR-INDEF	Class C		April 16 to July 15
3D Seismic Pilot	20	Treatment	LSD-11 SEC-08 TWP-077 RGE-07 MER-4	STR-INDEF	Class C		April 16 to July 15
3D Seismic Pilot	22	Access	LSD-15 SEC-18 TWP-077 RGE-07 MER-4	STR-INDEF	Class C		April 16 to July 15
3D Seismic Pilot	29	Access	LSD-10 SEC-18 TWP-077 RGE-07 MER-4	STR-INDEF	Class C		April 16 to July 15
3D Seismic Pilot	31	Access	LSD-15 SEC-18 TWP-077 RGE-07 MER-4	STR-INDEF	Class C		April 16 to July 15
3D Seismic Pilot	34	Access	LSD-15 SEC-18 TWP-077 RGE-07 MER-4	STR-INDEF	Class C		April 16 to July 15
3D Seismic Pilot	36	Treatment	LSD-11 SEC-08 TWP-077 RGE-07 MER-4	STR-INDEF	Class C		April 16 to July 15



# Caribou Habitat Restoration Program - CHRP 3D Seismic Map 11: Watercourse Crossings

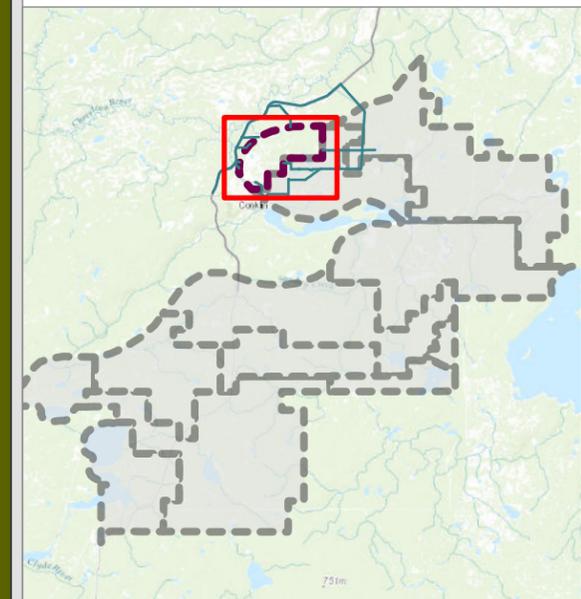


### Legend

- Watercourse Crossings
- Compartments
- Lakes
- Cutlines
- Access Within Compartments

### Access To Compartments

- A
- B
- C
- D
- E
- F
- H



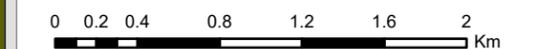
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Version: 2.0

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# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## 6.3 Land Use Requirements

### 6.3.1 Road Use Agreements

Many high-grade roads, winter roads, and pipeline dispositions will be required to access the treatment lines. Road use agreements and proximity agreements will be needed to gain access to treatment lines. Disposition holders should be informed of the reason for use to potentially minimize road use costs. Given the ever-changing nature of this project area, it is recommended this analysis be completed during the implementation phase, as dispositions may change hands many times before restoration of these project areas occurs.

*Table 15: Potential Road Use Agreements<sup>7</sup>*

COMPARTMENT ID	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	LOC002529	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	LOC030532	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	LOC050550	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	LOC071935	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	LOC080295	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	LOC080666	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	LOC130348	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	LOC6324	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	LOC760963	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	LOC770985	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

<sup>7</sup> Includes any dispositions required to access the compartment boundary as well.

## AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	LOC770985	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	LOC930081	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	LOC930082	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	LOC941912	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	LOC982336	CENOVUS ENERGY INC.	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	LOC982336	CENOVUS ENERGY INC.	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	LOC982336	CENOVUS ENERGY INC.	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	MSL003589	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	MSL050855	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	MSL072816	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	MSL080434	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	MSL11865	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	MSL761524	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	MSL771472	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	MSL842256	CENOVUS ENERGY INC.	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	MSL930097	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	MSL983139	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	PLA850765	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	PLA982615	CENOVUS ENERGY INC.	LETTER OF AUTHORITY

## 6.3.2 Land Use Crossings

There is a significant amount of land use crossings within the project area, and all disposition holders will need to be contacted before the implementation of this plan. If permission to cross any disposition cannot be given, certain areas of the compartment will have to be altered or dropped due to inaccessibility. The implementation contractor will need to indicate the type of road use being requested, i.e., OHV or pickup only, vs. heavy equipment. Any crossing inspection or construction fees will be the responsibility of the contractor.

Crossings have been identified strategically on main access routes. The implementation contractor will have to plan to treat seismic lines in a way to avoid crossing pipelines, and only crossing at specified locations to reduce crossing costs.

*Table 16: Potential Land Use Crossings*

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	564	Access	LSD-05 SEC-25 TWP-077 RGE-07 MER-4	MSL072816	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	607	Access	LSD-06 SEC-27 TWP-077 RGE-07 MER-4	MSL11865	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	618	Access	LSD-06 SEC-27 TWP-077 RGE-07 MER-4	MSL11865	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	636	Access	LSD-11 SEC-17 TWP-077 RGE-07 MER-4	MSL761524	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	647	Access	LSD-06 SEC-20 TWP-077 RGE-07 MER-4	MSL930097	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	659	Access	LSD-06 SEC-25 TWP-077 RGE-07 MER-4	MSL072816	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	703	Access	LSD-05 SEC-28 TWP-077 RGE-07 MER-4	MSL003589	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	705	Access	LSD-10 SEC-16 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	706	Access	LSD-12 SEC-16 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	708	Access	LSD-10 SEC-17 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	709	Access	LSD-12 SEC-16 TWP-077 RGE-07 MER-4	PLA930398	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	710	Access	LSD-11 SEC-17 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	711	Access	LSD-14 SEC-17 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	712	Access	LSD-11 SEC-17 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	713	Access	LSD-12 SEC-17 TWP-077 RGE-07 MER-4	PLA850765	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	714	Access	LSD-09 SEC-18 TWP-077 RGE-07 MER-4	PLA850765	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	715	Access	LSD-12 SEC-08 TWP-077 RGE-07 MER-4	PLA130483	CENOVUS ENERGY INC.	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	716	Access	LSD-12 SEC-08 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	717	Access	LSD-11 SEC-08 TWP-077 RGE-07 MER-4	MSL782161	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	718	Access	LSD-15 SEC-17 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	720	Access	LSD-15 SEC-17 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	721	Access	LSD-15 SEC-17 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	722	Access	LSD-02 SEC-20 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	723	Access	LSD-02 SEC-20 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	724	Access	LSD-10 SEC-20 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	725	Access	LSD-07 SEC-29 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	727	Access	LSD-04 SEC-20 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	728	Access	LSD-07 SEC-19 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	729	Access	LSD-10 SEC-19 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	730	Access	LSD-09 SEC-07 TWP-077 RGE-07 MER-4	PLA890654	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	731	Access	LSD-09 SEC-07 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	732	Access	LSD-09 SEC-07 TWP-077 RGE-07 MER-4	PLA130483	CENOVUS ENERGY INC.	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	733	Access	LSD-07 SEC-18 TWP-077 RGE-07 MER-4	LOC131913	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	735	Access	LSD-08 SEC-18 TWP-077 RGE-07 MER-4	LOC760963	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	736	Access	LSD-05 SEC-17 TWP-077 RGE-07 MER-4	LOC790294	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	737	Access	LSD-13 SEC-08 TWP-077 RGE-07 MER-4	LOC790294	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	738	Access	LSD-13 SEC-08 TWP-077 RGE-07 MER-4	LOC790294	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	739	Access	LSD-05 SEC-08 TWP-077 RGE-07 MER-4	LOC790294	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	740	Access	LSD-09 SEC-07 TWP-077 RGE-07 MER-4	LOC790294	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	741	Access	LSD-11 SEC-07 TWP-077 RGE-07 MER-4	LOC790294	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	742	Access	LSD-11 SEC-07 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	743	Access	LSD-10 SEC-18 TWP-077 RGE-07 MER-4	LOC131913	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	744	Access	LSD-03 SEC-19 TWP-077 RGE-07 MER-4	LOC131913	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	745	Access	LSD-11 SEC-20 TWP-077 RGE-07 MER-4	LOC080295	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	751	Access	LSD-06 SEC-26 TWP-077 RGE-07 MER-4	LOC4880	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	752	Access	LSD-04 SEC-26 TWP-077 RGE-07 MER-4	LOC4880	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	753	Access	LSD-06 SEC-26 TWP-077 RGE-07 MER-4	LOC4880	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	754	Access	LSD-05 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	755	Access	LSD-05 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	761	Access	LSD-06 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	762	Access	LSD-06 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	763	Access	LSD-05 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	764	Access	LSD-06 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	765	Access	LSD-06 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	766	Access	LSD-06 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	768	Access	LSD-08 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	769	Access	LSD-08 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	770	Access	LSD-07 SEC-26 TWP-077 RGE-07 MER-4	LOC071935	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	771	Access	LSD-07 SEC-26 TWP-077 RGE-07 MER-4	LOC071935	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	772	Access	LSD-07 SEC-26 TWP-077 RGE-07 MER-4	LOC071935	CNOOC PETROLEUM	LETTER OF AUTHORITY

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
					NORTH AMERICA ULC	
<b>3D Seismic Pilot</b>	773	Access	LSD-07 SEC-26 TWP-077 RGE-07 MER-4	LOC071935	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
<b>3D Seismic Pilot</b>	775	Access	LSD-05 SEC-26 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
<b>3D Seismic Pilot</b>	776	Access	LSD-07 SEC-26 TWP-077 RGE-07 MER-4	LOC071935	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
<b>3D Seismic Pilot</b>	777	Access	LSD-05 SEC-25 TWP-077 RGE-07 MER-4	LOC071935	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
<b>3D Seismic Pilot</b>	778	Access	LSD-10 SEC-20 TWP-077 RGE-07 MER-4	LOC770985	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
<b>3D Seismic Pilot</b>	779	Access	LSD-13 SEC-20 TWP-077 RGE-07 MER-4	LOC770985	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
<b>3D Seismic Pilot</b>	780	Access	LSD-07 SEC-29 TWP-077 RGE-07 MER-4	LOC080295	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
<b>3D Seismic Pilot</b>	781	Access	LSD-07 SEC-29 TWP-077 RGE-07 MER-4	LOC080295	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
<b>3D Seismic Pilot</b>	782	Access	LSD-02 SEC-29 TWP-077 RGE-07 MER-4	LOC080295	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	783	Access	LSD-02 SEC-29 TWP-077 RGE-07 MER-4	LOC080295	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	784	Access	LSD-02 SEC-29 TWP-077 RGE-07 MER-4	LOC080295	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	785	Access	RA LSD-02 SEC-29 TWP-077 RGE-07 MER-4	LOC080295	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	786	Access	LSD-15 SEC-20 TWP-077 RGE-07 MER-4	LOC080295	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	787	Access	LSD-15 SEC-20 TWP-077 RGE-07 MER-4	LOC080295	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	788	Access	LSD-14 SEC-20 TWP-077 RGE-07 MER-4	LOC080295	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	790	Access	LSD-07 SEC-20 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	791	Access	LSD-07 SEC-20 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	792	Access	LSD-07 SEC-20 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	793	Access	LSD-10 SEC-20 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	794	Access	LSD-10 SEC-20 TWP-077 RGE-07 MER-4	MSL080434	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	795	Access	LSD-10 SEC-20 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	796	Access	LSD-10 SEC-20 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	797	Access	LSD-10 SEC-20 TWP-077 RGE-07 MER-4	PLA840005	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	798	Access	LSD-11 SEC-21 TWP-077 RGE-07 MER-4	MSL771472	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	799	Access	LSD-11 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	800	Access	LSD-14 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	801	Access	LSD-13 SEC-08 TWP-077 RGE-07 MER-4	LOC790294	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	802	Access	LSD-11 SEC-17 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	803	Access	LSD-02 SEC-21 TWP-077 RGE-07 MER-4	PLA982615	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	804	Access	LSD-08 SEC-20 TWP-077 RGE-07 MER-4	PLA810198	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY FOR AMENDMENT

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	805	Access	LSD-15 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	806	Access	LSD-15 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	807	Access	LSD-15 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	808	Access	LSD-15 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	809	Access	LSD-15 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	810	Access	LSD-15 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	811	Access	LSD-15 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	812	Access	LSD-16 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	813	Access	LSD-16 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	814	Access	LSD-16 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	815	Access	LSD-16 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	816	Access	RA LSD-01 SEC-28 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	817	Access	RA LSD-04 SEC-27 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	818	Access	LSD-11 SEC-21 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	819	Access	LSD-05 SEC-21 TWP-077 RGE-07 MER-4	PLA810198	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	820	Access	LSD-12 SEC-21 TWP-077 RGE-07 MER-4	PLA810198	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	821	Access	LSD-12 SEC-21 TWP-077 RGE-07 MER-4	PLA810198	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	822	Access	LSD-11 SEC-21 TWP-077 RGE-07 MER-4	PLA810198	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	823	Access	LSD-01 SEC-20 TWP-077 RGE-07 MER-4	PLA810198	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	824	Access	LSD-01 SEC-20 TWP-077 RGE-07 MER-4	PLA810198	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	825	Access	LSD-15 SEC-17 TWP-077 RGE-07 MER-4	PLA810198	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	826	Access	LSD-09 SEC-18 TWP-077 RGE-07 MER-4	PLA850765	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	827	Access	LSD-06 SEC-17 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	828	Access	LSD-05 SEC-22 TWP-077 RGE-07 MER-4	PLA982615	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	829	Access	LSD-06 SEC-27 TWP-077 RGE-07 MER-4	PLA830697	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	830	Access	LSD-06 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	831	Access	LSD-06 SEC-27 TWP-077 RGE-07 MER-4	LOC030370	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	834	Access	LSD-02 SEC-29 TWP-077 RGE-07 MER-4	LOC080295	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	836	Access	LSD-09 SEC-18 TWP-077 RGE-07 MER-4	PLA850765	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	837	Access	LSD-01 SEC-21 TWP-077 RGE-07 MER-4	PLA982615	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	838	Access	LSD-06 SEC-22 TWP-077 RGE-07 MER-4	LOC982425	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	840	Access	LSD-12 SEC-17 TWP-077 RGE-07 MER-4	PLA850765	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	841	Access	LSD-12 SEC-17 TWP-077 RGE-07 MER-4	PLA850765	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

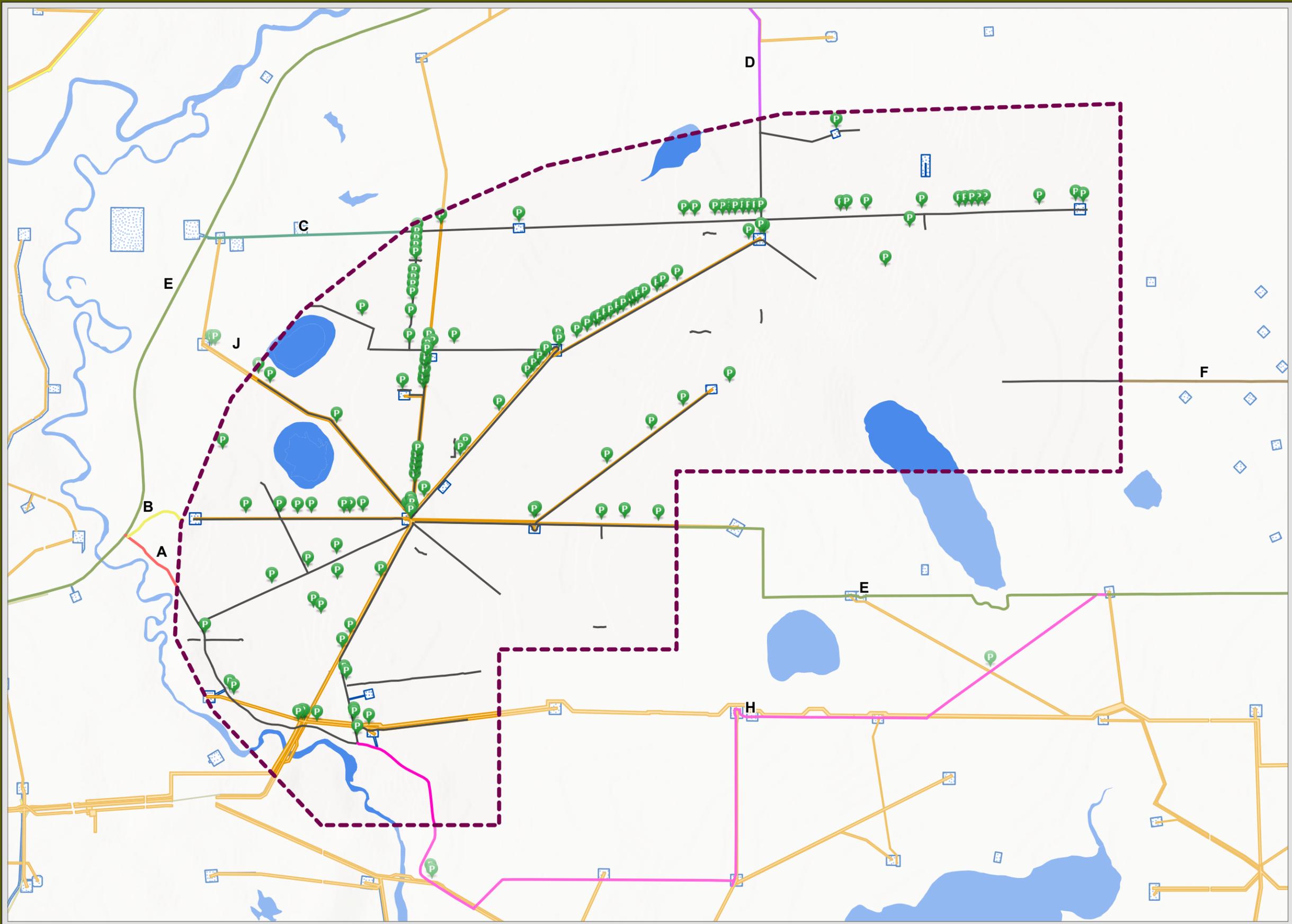
COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	842	Access	LSD-09 SEC-18 TWP-077 RGE-07 MER-4	PLA850765	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	843	Access	LSD-04 SEC-17 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	845	Access	LSD-10 SEC-16 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	846	Access	LSD-09 SEC-16 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	847	Access	LSD-01 SEC-18 TWP-077 RGE-07 MER-4	LOC131913	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	848	Access	LSD-01 SEC-18 TWP-077 RGE-07 MER-4	LOC131913	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	849	Access	LSD-05 SEC-17 TWP-077 RGE-07 MER-4	LOC790294	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	850	Access	LSD-03 SEC-18 TWP-077 RGE-07 MER-4	LOC982336	CENOVUS ENERGY INC.	LETTER OF AUTHORITY FOR AMENDMENT
3D Seismic Pilot	851	Access	LSD-16 SEC-27 TWP-077 RGE-07 MER-4	MSL050855	CNOOC PETROLEUM NORTH AMERICA ULC	LETTER OF AUTHORITY
3D Seismic Pilot	852	Access	LSD-16 SEC-11 TWP-077 RGE-07 MER-4	PLA000152	CENOVUS ENERGY INC.	LETTER OF AUTHORITY
3D Seismic Pilot	853	Access	LSD-11 SEC-19 TWP-077 RGE-07 MER-4	PLA810198	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	854	Access	LSD-11 SEC-19 TWP-077 RGE-07 MER-4	PLA982615	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

COMPARTMENT ID	ID	FEATURE TYPE	LOCATION (ATS DESCRIPTOR)	DISPOSITION NUMBER	DISPOSITION HOLDER	DISPOSITION STATUS
3D Seismic Pilot	855	Access	LSD-10 SEC-05 TWP-077 RGE-07 MER-4	PLA890654	CENOVUS ENERGY INC.	ACTIVE/DISPOSED
3D Seismic Pilot	856	Access	LSD-10 SEC-05 TWP-077 RGE-07 MER-4	PLA790576	CENOVUS ENERGY INC.	ACTIVE/DISPOSED

# Caribou Habitat Restoration Program - CHRP 3D Seismic

## Map 12: Land Use Crossings and Encroachments



**Legend**

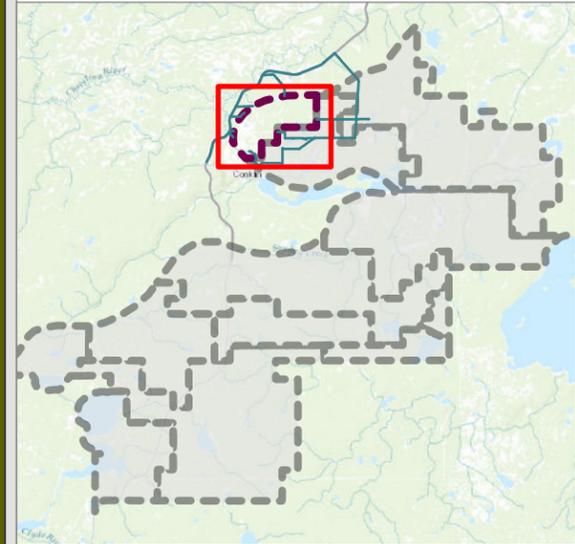
- Compartments
- LU Crossings
- Access Within Compartments

**Access To Compartments**

- A
- B
- C
- D
- E
- F
- H

**Dispositions**

- Pipeline - PLA, PIL, DPL, DPI
- Powerline / Vegetation Easement - EZE, RVC, VCE;
- Wellsite - DMS, MSL



Created: 2025-02-07  
 Created By: Y. Sroujje  
 Projection: UTM 12 NAD83  
 Version: 2.0

**Map Scale: 1:35,000**

N

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# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## 6.3.3 Land Use Encroachments

No site preparation should occur within 30 m of a pipeline. If site preparation does occur within 30 m of a pipeline, the contractor will require a proximity agreement. Encroachments are not required for seismic lines determined to be project exclusions or advanced regeneration as no site prep will occur on these lines.

## 6.3.4 Other

There are five crown land reservations in the project area. These are summarized in Table 17.

*Table 17: Crown Land Reservations*

RESERVATION	DESCRIPTION	RESTRICTION
CLR020007	Company Notation	Referral; CNOOC PETROLEUM NORTH AMERICA ULC
CLR060014	Access Right of Way-Provincial	Clearance; TRANSPORTATION
CLR080005	Community FireSmart	Notification; LAC LA BICHE OFFICE - FORESTRY DEPT. OF SUSTAINABLE RESOURCE DEV
CLR150001	Company Notation	Referral; CENOVUS ENERGY INC.
CLR240206	Sub-Regional Plans	As per Approved Plan; EDMONTON OFFICE - POLICY AND PLANNING DIVISION, DEPT. OF ENVIRONMENT AND PARKS

## 6.4 Historical Resources

Historical resources include mapped historic trails, cabins, and areas of special interest. In an effort to avoid disturbing any potential historic resource, all high-potential land was removed from the treatment prescriptions (i.e., moved to a project exclusion).

In compliance with Section 31 of the HRA, any chance encounters with historical resources made during the Project activities must be reported to Alberta Culture and Status of Women (ACSW).

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

Table 18: Historic Resource Value

LOCATION (ALBERTA TOWNSHIP SYSTEM)	HISTORIC RESOURCE VALUE	HISTORIC RESOURCE CATEGORY
W4-R07-T077-S08-LSD3	4	a
W4-R07-T077-S08-LSD4	5	a
W4-R07-T077-S14-LSD3-7,9-16	5	a
W4-R07-T077-S14-LSD1,7-10,16	5	a

## 6.5 Environmental Considerations

### 6.5.1 Species at Risk

A review of the Fish and Wildlife Management Information System database indicated that 13 provincially listed species are present within the compartment (Table 19). Due to the species found, including caribou, breeding birds, and amphibians, activities should be planned to occur between August 31 and February 14. Additionally, with the historical occurrence of pileated woodpeckers in the project area, and recent updates to the *Migratory Birds Convention Act Regulations* (July 2022), trees with pileated woodpecker cavities will need to be avoided during felling.

Table 19: Species at Risk

SCIENTIFIC NAME	COMMON NAME	SOURCE	RATING
<b>Wildlife Inventory</b>			
<i>Lynx canadensis</i>	Canada Lynx	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Not listed Federal: Not listed
<i>Martes pennanti</i>	Fisher	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Not listed Federal: Not listed
<i>Lasiurus cinereus</i>	Hoary bat	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Endangered Federal: Endangered
<i>Dryocopus pileatus</i>	Pileated woodpecker	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Secure Federal: Not listed
<i>Lasiurus borealis</i>	Red bat	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Secure Federal: Endangered

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

SCIENTIFIC NAME	COMMON NAME	SOURCE	RATING
<i>Grus canadensis</i>	Sandhill crane	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Secure Federal: Not listed
<i>Lasionycteris noctivagans</i>	Silver-haired bat	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Secure Federal: Endangered
<i>Rangifer tarandus caribou</i>	Woodland caribou	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Threatened Federal: Threatened
<b>Fish Inventory</b>			
<i>Culaea inconstans</i>	Brook Stickleback	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Secure Federal: Not listed
<i>Chrosomus neogaeus</i>	Finescale Dace	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Not Listed Federal: Not listed
<i>Catostomus commersonii</i>	White Sucker	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Not Listed Federal: Not Listed
<i>Esox lucius</i>	Northern Pike	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Secure Federal: Not listed
<i>Thymallus arcticus</i>	Arctic Grayling	Provincial: AEP 2015 Federal: GOC 2021	Provincial: Special Concern Federal: Not listed

## 6.5.2 Rare Plants

The following rare plants were identified in the Alberta Conservation Information Management System (ACIMS) database within the project area. Some of the instances were found outside the compartment boundaries, but within the corresponding township, so the likelihood of occurrence within the project area is still high, and therefore listed here. It is recommended that a search of the ACIMS database is completed prior to implementation to ensure no new occurrences are identified. Avoidance of these plants must be maintained.

- Canada waterweed

## 6.5.3 Soil and Vegetation Management

Site preparation and deactivation will have to be implemented during frozen ground conditions due to the dominance of lowland sites throughout the project area.

The use of existing disturbances was planned for access to minimize the amount of new disturbance in the area. This includes avoiding seismic lines that were identified as having advanced regeneration.

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

To minimize the spread of weed species all equipment should be cleaned prior to showing up on site.

## 6.5.4 Waste Management

Contractors working on this project are required to have processes in place to address the following:

- Fuel management – transportation, storage, and spill response
- Hazardous waste – transportation, storage, and spill response for used oils and other fluids used in machinery
- General waste – the storage and disposal of waste produced on the project
- Tree planting – a process for the removal of all waste from tree boxes and wrappers
- Human waste – if required, what washroom facilities will be provided, and how the waste will be removed from the site?

In all instances, contractors working on the project will be required to meet all legislative requirements associated with waste management.

## 6.6 Stakeholder Engagement

Initial engagement with stakeholders was carried and preliminary feedback was captured from engagement activities with local Indigenous communities. Before commencing implementation of this operational plan, an application to the Alberta Consultation Office (ACO) will need to be completed. However, initial engagement has taken place with Indigenous communities. The results of this engagement process are summarized below.

### ***Whitefish/Goodfish Lake First Nation***

An introductory letter was mailed to Darryl Steinhauer on April 29, 2024, explaining the purpose of the CHRP program. No feedback was received from the community.

### ***Heart Lake First Nation***

An introductory letter was mailed to Cameron Knutson on April 29, 2024, explaining the purpose of the CHRP program. A follow-up email was sent on May 16<sup>th</sup>, 2024. A second and third follow-up email was sent on June 6<sup>th</sup> and July 18<sup>th</sup>, respectively. No feedback was received from the community.

### ***Chipewyan Prairie First Nation***

A portion of this project area falls within Chipewyan Prairie First Nation's traditional territory. They would like to work with the GoA to create reliable, long-term access routes (2m wide that alternate every 20m) using legacy seismic lines (or creating new access) that can be used by CPFN to support the practice of their Section 35 rights into the future. This should be reviewed with CPFN prior to implementation to determine how best to achieve these results.

### ***Beaver Lake Cree Nation***

An introductory letter was mailed to Darlene Paradis and Peter Mahowich from Beaver Lake First Nation on April 29, 2024, explaining the project and the purpose of the operational planning phase. An in-

## AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

person meeting was held on May 10th with Peter and Chris Swan where the project was explained in more detail and maps were provided. While another meeting was proposed, due to capacity within the community, a follow-up meeting was not scheduled. It was, however, noted that they would like to be kept up to date on how the project progresses. in the treatment modifier field.

### ***Fort McMurray First Nation No. 468***

An introductory letter was mailed to Velma Whittington and Petrina Fudge on April 29, 2024, explaining the purpose of the CHRP program. On May 9<sup>th</sup>, an in-person meeting was attended by Harry Cheecham, Land Consultation Manager, and Anne Simpson, Environmental Manager. FMFN noted that they do not have trails mapped that they would like to keep open and would likely need to start from scratch. Maps of the project area were reviewed with the nation, and another meeting was scheduled for later in the summer. In the meantime, PDF maps were provided to the nation in preparation for a second meeting where they would:

- Gather input from Elders, land users, harvesters, and trappers on which seismic lines should be left as is, or partially treated.
- Complete a mapping exercise on the hard copy maps (pen, sharpies) or the digital maps to identify seismic lines to be removed entirely or partially removed from the plans.
- Bring awareness of the project to the First Nation and Trappers who are the primary users of the land.
- Provide recommendations to the AB Gov't on other possible options to restore the landscape for the health and population of the caribou.

Unfortunately, the follow-up meeting was postponed due to limited capacity within the community and was not rescheduled. It will be important for the implementation contractor to meet with the FN to ensure all traditional use trails have been captured before beginning work.

### ***Kikino & Buffalo Lake Metis Settlements***

Introductory letters were mailed to Timothy Patenaude of Buffalo Lake Metis Settlement, Nolan Cardinal of Buffalo Lake Metis Settlement, and Sharron Blyan of Kikino Metis Settlement on April 29, 2024, explaining the project and the purpose of the operational planning phase. An in-person meeting was scheduled for May 27 to review the project in more detail. Representatives from Buffalo and Kikino were present for this meeting. Concerns raised during this meeting included:

- Maintaining/creating access to Winefred Lake
- They would like to be involved during the implementation phase and have community members working on the project.

Following the meeting, shapefiles and maps of the project area were provided via email to Timothy Patenaude. Additional attempts were made to schedule a meeting to review the project area in more detail with community members and elders, however, no response was obtained from the communities, and no further concerns or feedback was provided at this time.

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## 6.7 Safety Requirements

Each prime contractor working on the project will be expected to meet all legal requirements for the management of health and safety. Additionally, they will be required to have a project-specific safety plan in place before commencing operations. This project-specific safety plan will be expected to identify hazards and prescribe methods to manage the hazards to an acceptable level and will include a method for the ongoing identification and management of hazards throughout the project duration. An emergency response plan will also be required.

The following are some hazards that have been identified during the operational planning process that will have to be addressed.

- Site preparation in proximity to existing dispositions, especially pipelines.
- Helicopter use and slinging small bundles into remote areas
- Road safety on narrow roads
- Vehicle/equipment breakdowns while implementing site prep in remote areas, in cold weather, with low-grade access
- Use of pipeline and powerline right of way for access
- Wildlife for planters who will be planting in small groups in isolated areas
- Emergency response complications due to the fact that the project is isolated.

# AN OPERATIONAL PLAN FOR LINEAR RESTORATION

## Appendix A Metadata Tables

### Access to Compartments

FIELD NAME	DESCRIPTION	FIELD VALUES	VARIABLE TYPE
<b>compartment_id</b>	Compartment name access is to		String
<b>object_id</b>	Unique identifier		Numeric
<b>road_segment_id</b>	Concatenated field Compartment ID + Object ID		String
<b>planning_contractor</b>	Name of planning company		String
<b>plan_submission_date</b>	Date that the plan is submitted.		String
<b>last_verified</b>	The last year that access was verified		String
<b>road_name</b>	Road name, if one exists based on the 20K base data		String
<b>road_type</b>	Road type based on the 20K base data		String
<b>road_width</b>	Estimated road width based on road type	Metres	Numeric
<b>disposition_number</b>	Disposition number based on DIDs +		String
<b>disposition_status</b>	Disposition status based on DIDs +		String

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

<b>disposition_owner</b>	Company listed in DIDs +		String
<b>disposition_type</b>	Disposition type according to DIDs +		String
<b>access_considerations</b>	Access Limiting Factors	Bridge Installation	String
		Crossing Upgrade	
		Wet Areas	
		Steep Slopes	
		Gate Access	
<b>shape_length</b>	Geometry	Metres	Numeric

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## Access Within Compartments

FIELD	DEFINITION	FIELD VALUES	VARIABLE TYPE
<b>compartment_id</b>	Compartment access is within		String
<b>planning_contractor</b>	Name of planning company		String
<b>plan_submission_date</b>	Date that the plan is submitted.		String
<b>last_verified</b>	The last year that access was verified		String
<b>road_width</b>	Road width	Metres	Numeric
<b>disposition_number</b>	Disposition number based on DIDs +		String
<b>disposition_status</b>	Disposition status based on DIDs +		String
<b>disposition_owner</b>	Company listed in DIDs +		String
<b>disposition_type</b>	Disposition type according to DIDs +		String
<b>seasonality</b>	Season of accessibility	All season	String
		Summer	
		Winter	
<b>shape_length</b>	Geometry	Metres	Numeric
<b>notes</b>	Any field notes		String

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## Inaccessible Routes

FIELD	DEFINITION	FIELD VALUES	VARIABLE TYPE
<b>compartment_id</b>	Compartment access is within		String
<b>planning_contractor</b>	Name of planning company		String
<b>plan_submission_date</b>	Date that the plan is submitted.		String
<b>last_verified</b>	The last year that access was verified		String
<b>disposition_number</b>	Disposition number based on DIDs +		String
<b>disposition_status</b>	Disposition status based on DIDs +		String
<b>disposition_owner</b>	Company listed in DIDs +		String
<b>disposition_type</b>	Disposition type according to DIDs +		String
<b>restoration</b>	Whether or not restoration will occur on access segment after use	Yes/No	String
<b>reason</b>	Why the segment is inaccessible	Advanced Regen	String
		No Permission	
		Sensitive Area	
		Wet Area	
<b>shape_length</b>	Geometry	Metres	Numeric
<b>notes</b>	Any field notes		String

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## Helipad Locations

FIELD NAME	DESCRIPTION	FIELD VALUES	VARIABLE TYPE
<b>compartment_id</b>	New compartment ID		String
<b>helipad_id</b>	Unique helipad identifier		String
<b>planning_contractor</b>	Name of planning company		String
<b>plan_submission_date</b>	Date that the plan is submitted.		String
<b>dms_x</b>	X coordinate in degrees, minutes, and seconds		String
<b>dms_y</b>	Y coordinate in degrees, minutes, and seconds		String
<b>dd_x</b>	X coordinate in decimal degrees		String
<b>dd_y</b>	Y coordinate in decimal degrees		String
<b>ats_location</b>	Alberta township system descriptor for crossing location including LSD	LSD-XX SEC-XX TWP-XXX RGE-XX MER-X	String
<b>helipad_size</b>	Estimated clearing size	Hectares	Numeric
<b>disposition_number</b>	Disposition number according to DIDs +		String
<b>disposition_status</b>	Disposition status according to DIDs +		String
<b>disposition_owner</b>	Disposition holder according to DIDs +		String
<b>disposition_type</b>	Disposition type according to DIDs +		String
<b>seasonality</b>	Which seasons the location can be used	All season	String
		Summer	
		Winter	
<b>notes</b>	Field notes		String

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## Land Use Crossings

FIELD NAME	DESCRIPTION	FIELD VALUES	VARIABLE TYPE
<b>compartment_id</b>	Compartment ID		String
<b>planning_contractor</b>	Name of planning company		String
<b>plan_submission_date</b>	Date that the plan is submitted.		String
<b>crossing_id</b>	Concatenated field of line number & line segment ID + Unique crossing identifier		String
<b>crossing_reason</b>	Type of feature making the crossing	Treatment Line Access Road	String
<b>ats_location</b>	Alberta township system descriptor for crossing location including LSD	LSD-XX SEC-XX TWP-XXX RGE-XX MER-X	String
<b>dms_x</b>	X coordinate in degrees, minutes, and seconds		String
<b>dms_y</b>	Y coordinate in degrees, minutes, and seconds		String
<b>dd_x</b>	X coordinate in decimal degrees		String
<b>dd_y</b>	Y coordinate in decimal degrees		String
<b>disposition_number</b>	Disposition number according to DIDs +		String
<b>disposition_status</b>	Disposition status according to DIDs +		String

## AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

<b>disposition_owner</b>	Disposition holder according to DIDs +		String
<b>disposition_type</b>	Disposition type according to DIDs +		String
<b>notes</b>	Field Notes		String

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## Watercourse Crossings

FIELD NAME	DESCRIPTION	FIELD VALUES	VARIABLE TYPE
<b>compartment_id</b>	Compartment ID		String
<b>planning_contractor</b>	Name of planning company		String
<b>plan_submission_date</b>	Date that the plan is submitted.		String
<b>crossing_id</b>	Concatenated field of line number & line segment ID + Unique crossing identifier		String
<b>crossing_reason</b>	Why crossing is needed	Access Treatment	String
<b>water_body_name</b>	If applicable	Little Smoky, etc.	String
<b>ats_location</b>	Alberta township system descriptor for crossing location including LSD	LSD-XX SEC-XX TWP-XXX RGE-XX MER-X	String
<b>dms_x</b>	X coordinate in degrees, minutes, and seconds		String
<b>dms_y</b>	Y coordinate in degrees, minutes, and seconds		String
<b>dd_x</b>	X coordinate in decimal degrees		String
<b>dd_y</b>	Y coordinate in decimal degrees		String

## AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

<b>watercourse_type</b>	Stream type as identified form 20 K Base data	STR-INDEF	String
		STR-RECUR	
		STR-PER	
		FLOW-ARB-MANUAL	
<b>cop_water_body_class</b>	Code of Practice for Watercourse Crossings classification	A	String
		B	
		C	
		D	
<b>ogr_watercourse_classification</b>	Classification as per the operating ground rules	Large Permanent	String
		Small Permanent	
		Transitional	
		Intermittent	
		Ephemeral	
<b>channel_width</b>	Width of the watercourse from bank to bank	metres	Numeric
<b>class_notes</b>	Species listed	Artic Grayling (etc.)	String
<b>restricted_period</b>	Code of Practice for Watercourse Crossings restricted activity period.	Date range	String
<b>notes</b>	Field Notes		String

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## Land Use Encroachments (Treatment Lines Only)

FIELD NAME	DESCRIPTION	FIELD VALUES	VARIABLE TYPE
<b>compartment_id</b>	Compartment ID		String
<b>encroachment_id</b>	Unique encroachment identifier		String
<b>planning_contractor</b>	Name of planning company		String
<b>plan_submission_date</b>	Date that the plan is submitted.		String
<b>distance</b>	Distance to feature		Numeric
<b>disposition_number</b>	Disposition number according to DIDs +		String
<b>disposition_status</b>	Disposition status according to DIDs +		String
<b>disposition_owner</b>	Disposition holder according to DIDs +		String
<b>disposition_type</b>	Disposition type according to DIDs +		String

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

## Treatment Prescriptions

FIELD NAME	DESCRIPTION	FIELD VALUES	VARIABLE TYPE
<b>footprint_id</b>	A unique identifier for the feature, obtained from AEP	Positive Integers	Numeric
<b>compartment_id</b>	Compartment boundary		String
<b>planning_contractor</b>	Name of planning company		String
<b>plan_submission_date</b>	Date that the plan is submitted.		String
<b>fma</b>	Which FMA intersects the treatment line		String
<b>fmu</b>	Which FMU intersects the treatment line		String
<b>line_number</b>	Updated unique line ID	Numeric	Numeric
<b>line_segment</b>	Updated unique line segment	Numeric	Numeric
<b>action</b>	Field describing high-level treatment call	Treatment	String
		Advanced Regeneration	
		Project Exclusion	
<b>moisture_regime</b>	Moisture regime as captured through ecosite phase	Xeric	String
		Subxeric	
		Submesic	

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

		<ul style="list-style-type: none"> <li>Mesic</li> <li>Subhygric</li> <li>Hygric</li> <li>Subhydric</li> <li>Hydric</li> <li>“Not Available”</li> </ul>	
<b>site_type</b>	<p>Site type as identified by the planner during field verification and/or desktop review. Should be applied to all lines, except project exclusions.</p>	<ul style="list-style-type: none"> <li>Upland Dry</li> <li>Upland</li> <li>Transitional</li> <li>Lowland Treed</li> <li>Lowland Low Density Treed</li> <li>“Treatment Not Required”</li> <li>“Not Available”</li> </ul>	String
<b>site_limiting_factors</b>	<p>Concatenated field of multiple site limiting factors identified through field verification</p>	<ul style="list-style-type: none"> <li>Anthropogenic Activity</li> <li>Browsing</li> <li>Soil Compaction</li> <li>Wet Areas</li> <li>Nutrient Availability</li> <li>Competing Vegetation</li> <li>Light</li> <li>Moisture Retention</li> </ul>	String

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

		None	
		“Not Available”	
<b>site_preparation</b>	Site preparation prescription	Mounding	String
		Screening	
		Inversion	
		Ripping	
		None	
		Not Available	
<b>revegetation_treatment</b>	Revegetation prescription	Plant	String
		Seed	
		Natural Regeneration	
		None	
<b>tree_species1</b>	Tree species assigned where planting or seeding revegetation treatment has been prescribed. SW (White Spruce) SB (Black Spruce) LT (Larch) P (Pine) FB (Fir)	P	String
		SW	
		SB	
		LT	
		FB	
<b>tree_species2</b>	Tree species assigned where planting or seeding revegetation treatment has been prescribed. SW (White Spruce) SB (Black Spruce) LT (Larch)	P	String
		SW	
		SB	
		LT	
		FB	

# AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

	P (Pine) FB (Fir)		
<b>tree_species3</b>	Tree species assigned where planting or seeding revegetation treatment has been prescribed. SW (White Spruce) SB (Black Spruce) LT (Larch) P (Pine) FB (Fir)	P	String
		SW	
		SB	
		LT	
		FB	
<b>seed_zone</b>	Seed Zone ID		String
<b>planting_density</b>	Trees per hectare prescribed	Numeric	Numeric
<b>seedlings</b>	Estimated number of seedlings required	Numeric	Numeric
<b>line_deactivation</b>	Line deactivation required to limit predator and human movement	Yes	String
		No	
<b>deactivation_treatment</b>	Prescription for line deactivation, if required	Rollback & Coarse Woody Material	String
		Tree Felling	
		Tree Tipping	
		Intersection Blocking	
		Mounding	
		Hand Felling	
		“Deactivation Not Required”	
<b>cwm_application</b>		Yes	String

## AN OPERATIONAL PLAN FOR **LINEAR RESTORATION**

	CWM application required	No	
<b>treatment_modifier1</b>	Alternative sub-treatments	Leap Frog	String
		Trapper Access	
		Bar Mounds	
<b>treatment_modifier2</b>	Alternative sub-treatments	Leap Frog	String
		Trapper Access	
		Bar Mounds	
<b>treatment_contractor</b>	Name of contractor who carries out the prescribed treatment		String
<b>treatment_date</b>	Date of treatment		String
<b>line_width</b>	Line width identified by the planner	Metres	Numeric
<b>shape_length</b>	Length of the line segment	Metres	Numeric