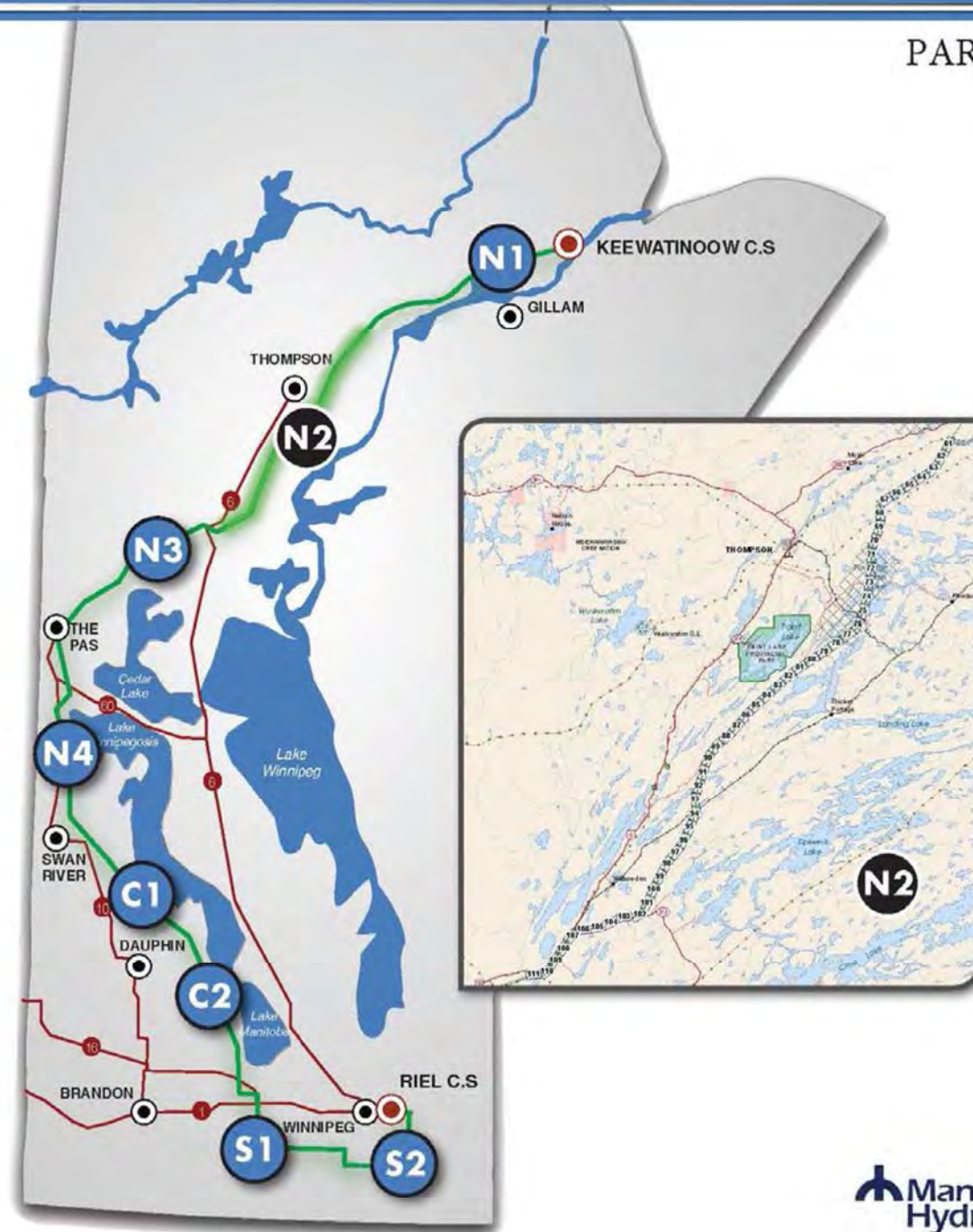


BIPOLE III TRANSMISSION PROJECT
CONSTRUCTION ENVIRONMENTAL PROTECTION
PLAN - SECTION N2 MAPBOOK

PART 2



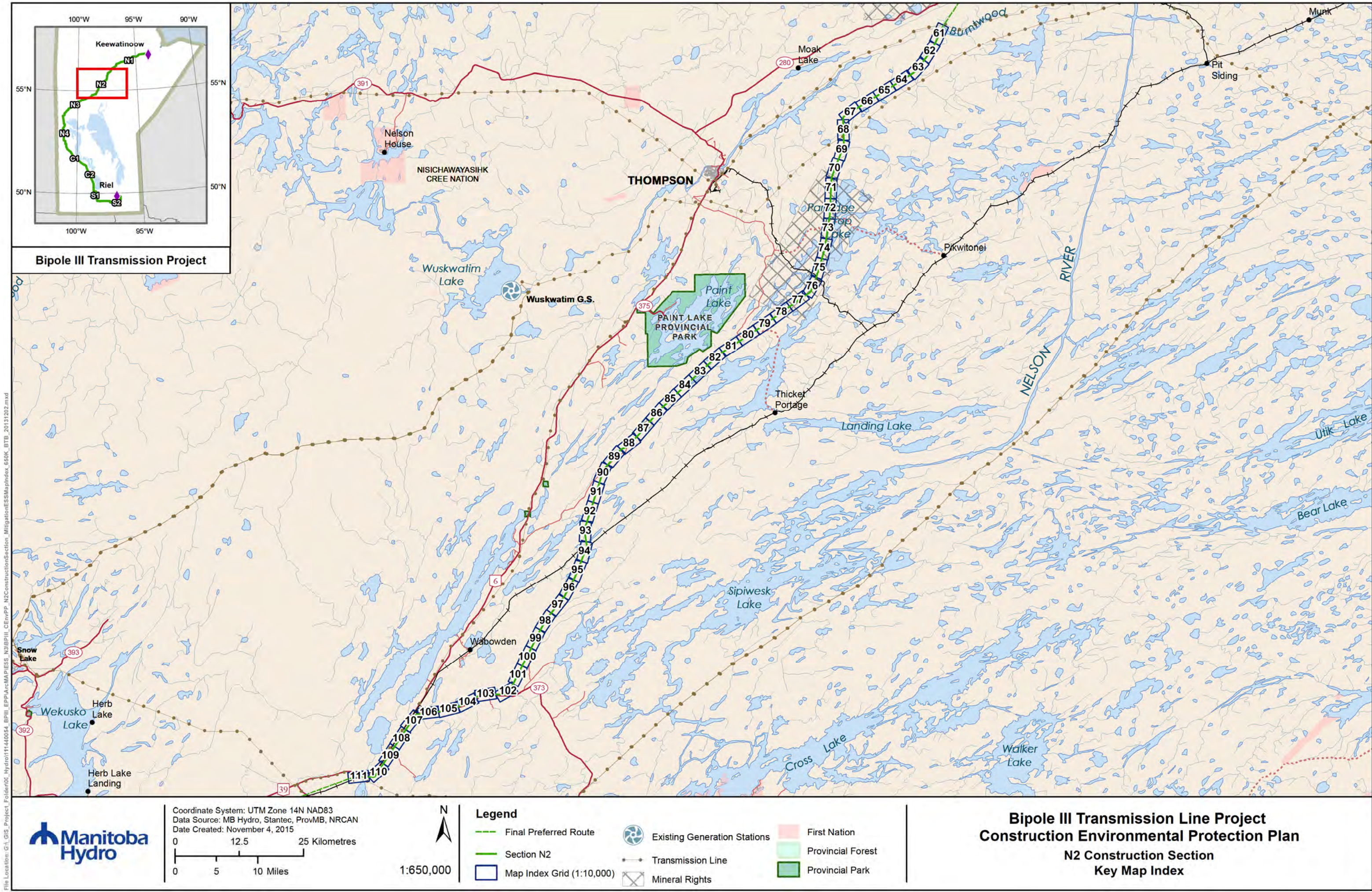
Document Owner:
 Licensing and Environmental Assessment Department
 Transmission Planning and Design Division
 Transmission Business Unit
 Manitoba Hydro

Final 4.0

List of Revisions- BP/III Environmental Protection Plan N2 Section

Number	Nature of Revision	Page/Map #	Revised By	Date
1.01	N2-Aqua-118 was missing from the mitigation table and has been added.	Page 71	Stantec	20140130
1.02	N2-Aqua-164. Aqua was spelt wrong on the Map	Page 104	Stantec	20140130
1.03	N2-Aqua-164a stream crossing was added to both Map and Mitigation table	Page 106	Stantec	20140130
1.04	Ortho Photography was updated on Maps	Pages 102-107	Stantec	20140130
2.01	Due a computer scripting error when the mapbooks were initially produced, Stream Crossing Habitat Classification wasn't populated in the tables. That information has now been added into the mitigation tables where applicable The additional information presented here is considered an addendum to the mapbook, as each stream crossing requires the same mitigation measures regardless of its classification.	Any page that has a stream crossing and that info was available	Stantec	2014-12-10
2.02	Prayer tree was identified on the ROW and it was given an ESS of "N2-Hert-200" with mitigation for protection	Map 106	Kris Watts	2015-03-04
2.03	Added N2-Aqua-158A water crossing	Map 97	Kris Watts	2015-03-04
2.04	Stream Crossing Habitat Classification information missing in previous version due to computer scripting error are now populated in this update	Any page that has a stream crossing and that info was available	Kris Watts	2015-03-05
2.05	Ground Truthing from Inspector (March 8 2014) found N2-Aqua-114 revealed no water crossing, removed this point.	Map 70	Kris Watts	2015-03-05

3.00	Sensitive sites will now be symbolized in grey with white Halos for better visibility	All maps with SS	Stantec	2015-03-27
3.01	Removed Mitigation measure that referred to DFO operational statement as Fisheries and Oceans Canada no longer uses operational statements but rather "Measures to Avoid Causing Harm to Fish and Fish Habitat" These measures are reflected in the text of the CEnvPP	Any mitigation text for stream crossings or water bodies	Manitoba Hydro	2015-03-27
3.02	To help prevent confusion with access trails, recreational trails will be renamed, for example ALL Accss features will now be called RecUse eg "N4-Accss-100" will now be "N4-RecUse-100"	Map 73,82,100,101	Manitoba Hydro	20151103
3.03	Removed the Bird Sensitive timing window mitigation measure statement that indicates a timing window as this is observed throughout the project not just at that specific ESS and indicated in the appendix of the text CEnvPP document	Any map with ESS Group: Birds and Habitat on it	Manitoba Hydro	Oct 6 2015
3.04	Updates to Access trails as well as the addition of Bypass utilized during construction	Any associated map	Manitoba Hydro	20151103
3.05	The addition of Species of Concern Identified by field activities (N2-Eco-300)	Map 88	Manitoba Hydro	20151103
3.06	Removed Bird Sensitivity Area Line features that were used to indicate locations of intended bird diverter installations. This will be indicated to the contractor through engineer drawings	Removed from any associated map	Manitoba Hydro	20151103
3.07	Removed labels from major stream crossings, rail crossing and transmission line crossings, and access route points. Labels for access routes remain.	Any associated Map	Manitoba Hydro	20151103
3.08	Incorporation of additional access routes from the 2014 construction season	Any associated Map	Stantec	20151112
3.09	Mitigation for Caribou: ESS ID N2-Wild-200 and has been updated to refer to a more comprehensive document. The "Moose and Caribou Sensitive Range Delineation and Mitigation Plans" document. The mitigation text pages will be Final 3.09 while the map pages will remain 3.08 until the next major update	Pages 102-111	Manitoba Hydro	20160112
3.10	Mitigation measures for Aqua points have included a timing window statement that considered fall spawning fish "No instream works or fording from September to..." These fish are unlikely to occur in streams and therefore aren't a concern in stream crossings. This statement will be updated in subsequent versions to read "No instream works or fording from April 1 - July 15"	Map/Page 62, 64-83,85-89,93-95,97-99,101-102,104,106,111	Manitoba Hydro	20160122
3.11	Update to digitization of access road 156 found on pages 77-79	Map 77-79	Manitoba Hydro	20160126
4.0	Addition of Bypass N2-BP-14, (between towers 1298 and 1299)	Map 94	Manitoba Hydro	20161031
	Addition of Permafrost Monitoring Sites N2-Eco-200 and N2-Eco-201	Maps 78 and 102	Manitoba Hydro	20161031



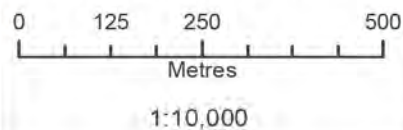
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Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: December 01, 2013



Land Base

- Transmission Line
- Highway
- Major Road
- Local Road
- Winter Road
- Railway (Operational)
- Railway (Discontinued)
- Mining
- Provincial Park

Project Infrastructure

- Angle Tower Locations
- BP/III Final Preferred Route
- 66 m Right of Way

Points of Access*

- Proposed Access Point
- Major Stream Crossing
- Abandoned Rail Crossing
- Rail Crossing
- Transmission Line Crossing
- Proposed Access Route

*Labels correspond to BP/III Access Management Database

ESS Features

Heritage

- Archaeological

Wildlife

- Birds and Habitat

Soils and Terrain

- Permafrost

Water

- Water Crossing

**Bipole III Transmission Project
Construction Environmental Protection Plan
Construction Section N2
Environmentally Sensitive Site Locations**

Map 61

SAMPLE MITIGATION TABLE (see adjacent KEY for additional information)

MAP NUMBER : 61 1

ESS Group : Permafrost 2

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S01	N2-Soils-100	Permafrost	Site: 1 to 2	E- 615921 N- 6206328	E- 615882 N- 6206242	14N	95 m
N2-S01	N2-Soils-102	Permafrost	Site: 13 to 14	E- 614820 N- 6203884	E- 614309 N- 6202749	14N	1244 m

Potential Effects: 4

Melting or loss of permafrost due to disturbance of the active layer

Specific Mitigation: 5

- Carry out construction activities on frozen ground to minimize surface damage and rutting
- Use existing trails, roads or cut lines whenever possible as access routes

ESS Group : Water Crossing

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S01	N2-Aqua-100	Unnamed tributary of Burntwood River	Site: 15 to 16	E- 614778 N- 6203790	E- 614707 N- 6203634	14N	171 m

Potential Effects: 4

Increased erosion and sedimentation, rutting of floodplains, loss of riparian vegetation

Specific Mitigation: 5

- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements. Use existing trails, roads or cut lines whenever possible as access routes

ESS Group : Birds and Habitat

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S01	N2-Wild-100	Waterfowl Sensitivity Area	Site: L1 to L2	E- 614763 N-6203757	E-614708 N-6203636	14N	132 m

Potential Effects: 4

Higher risk of wire collision, disturbance during breeding and nesting, risk of wire collision is localized to the right-of-way while construction disturbance can effect colonies up to 400 meters away

Specific Mitigation: 5

- Adhere to reduced risk timing windows for protection of birds (August 1- April 30)
- Maintain applicable setback during nesting and breeding timing window
- Conduct priority assessment for bird diverters and other measures prior to transmission line stringing
- Install bird diverters or other measures at high priority sites

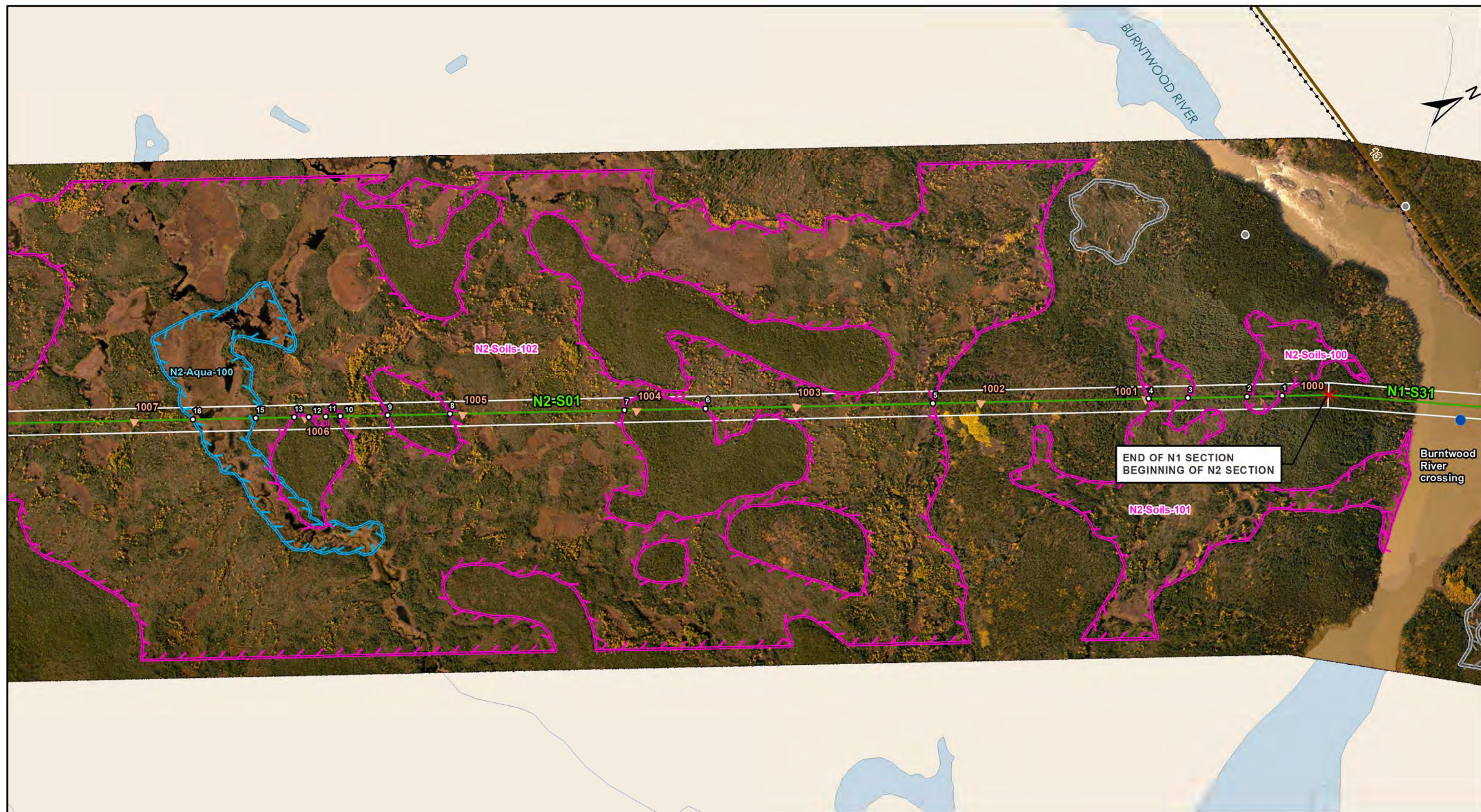
*Mitigation shown includes only a sample of actual mitigation for the ESS features listed; refer to the Construction Environmental Protection plan for all specific mitigation measures recommended

KEY to SAMPLE MITIGATION TABLE

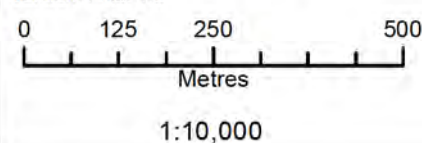
- Map on which ESS listed in the ESS Location Summary tables are illustrated
- ESS Group classification of ESS shown on the map
- ESS location summary; includes the following fields:
 - Sec-Seg - ID of the construction section (i.e. N2) and segment (i.e. S03) for ESS location
 - ESS ID - Site specific ID assigned to each ESS according to **naming convention** listed below
 - ESS Name - Brief name/description of ESS
 - Easting/Northing - UTM coordinates of ESS location (for points only)
 - Location - site identification numbers for the start and stop site points of ESS intersection with the ROW (lines and polygons only)
 - Start/Stop - UTM coordinates of the start/stop identification numbers listed in the "Location" field (lines and polygons only)
 - Characteristics of stream crossings identified in the ESS Location Summary tables (where applicable and as information is available)
- Potential effects identified for ESS listed in the ESS Location Summary table
- Mitigation measures identified for ESS listed in the ESS Location Summary table

ESS NAMING CONVENTION

CATEGORY	GROUP (Number Series Representing Group)	ESS ID (Section ID-Category-Group Number)
Access	Intersection (100)	N2-Acss-100
Ecosystem	Habitat (100)	N2-Eco-100
	Research (200)	N2-Eco-200
	Species of Concern (300)	N2-Eco-300
Heritage	Archaeological (100)	N2-Hert-100
	Cultural (200)	N2-Hert-200
	Historic (300)	N2-Hert-300
Land Use	Conservation (100)	N2-LUse-100
	Crown Land Encumbrance (200)	N2-LUse-200
	Recreation (300)	N2-LUse-300
	Residential (400)	N2-LUse-400
Resource Use	Agriculture (100)	N2-RUse-100
	Food/Medicinal (200)	N2-RUse-200
	Forestry (300)	N2-RUse-300
	Hunting/Fishing (400)	N2-RUse-400
	Trapping (500)	N2-RUse-500
Soils and Terrain	Permafrost (100-200)	N2-Soils-100
	Erosion (300)	N2-Soils-300
	Terrain (400)	N2-Soils-400
Water	Water Crossing (100)	N2-Aqua-100
	Groundwater (200)	N2-Aqua-200
	Wetlands (300)	N2-Aqua-300
Wildlife	Birds and Habitat (100)	N2-Wild-100
	Mammal and Habitat (200)	N2-Wild-200
	Reptiles/Amphibians and Habitat (300)	N2-Wild-300



Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: October 31, 2016
Version: Final 4.0



Land Base

- Transmission Line
- Highway
- Major Road
- Local Road
- Winter Road
- Railway (Operational)
- Railway (Discontinued)
- Mining
- Provincial Park

Project Infrastructure

- Angle Tower Locations*
- Towers (Preliminary)*
- BPIII Final Preferred Route
- 66 m Right of Way

*Towers are subject to change, and are only used as a rough guide

Sensitive Sites*

- Point Features
- Linear Features
- Area Features

*Currently outside the Project footprint

Points of Access*

- Proposed Access Point
- Major Stream Crossing
- Abandoned Rail Crossing
- Rail Crossing
- Transmission Line Crossing
- Bypass Trails
- Approved Access Route

ESS Features

Soils and Terrain

- Permafrost

Water

- Water Crossing

Bipole III Transmission Project **Construction Environmental Protection Plan** **Construction Section N2** **Environmentally Sensitive Site Locations**

ESS Group: Water Crossing

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S1	N2-Aqua-100	Unnamed tributary of Burntwood River	Site: 15 to 16	E-614777 N-6203789	E-614707 N-6203633	14N	170 m

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation

Specific Mitigation:

- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements.
- 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing.

ESS Group: Permafrost

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S1	N2-Soils-100	Permafrost	Site: 1 to 2	E-615920 N-6206328	E-615882 N-6206242	14N	94 m
N2-S1	N2-Soils-101	Permafrost	Site: 3 to 4	E-615815 N-6206095	E-615771 N-6205997	14N	107 m
N2-S1	N2-Soils-102	Permafrost	Site: 5 to 6	E-615532 N-6205465	E-615278 N-6204902	14N	617 m
N2-S1	N2-Soils-102	Permafrost	Site: 7 to 8	E-615187 N-6204700	E-614994 N-6204270	14N	471 m
N2-S1	N2-Soils-102	Permafrost	Site: 9 to 10	E-614924 N-6204115	E-614871 N-6203998	14N	128 m
N2-S1	N2-Soils-102	Permafrost	Site: 11 to 12	E-614855 N-6203962	E-614836 N-6203919	14N	46 m
N2-S1	N2-Soils-102	Permafrost	Site: 13 to 14	E-614820 N-6203883	E-614309 N-6202749	14N	1244 m

Potential Effects:

Melting or loss of permafrost due to disturbance of the active layer

Specific Mitigation:

- Carry out construction activities on frozen ground to minimize surface damage and rutting.
- Use existing trails, roads or cut lines whenever possible as access routes
- Maintain shrub and herbaceous vegetation to the extent possible
- Remove trees by low-disturbance methods
- Confine vehicle traffic to established trails to the extent possible
- Implement erosion protection before commencing construction in accordance with Erosion/Sediment Control Plan



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: October 31, 2016
 Version: Final 4.0

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Land Base

- Transmission Line
- Highway
- Major Road
- Local Road
- Winter Road
- Railway (Operational)
- Railway (Discontinued)
- Mining
- Provincial Park

Project Infrastructure

- Angle Tower Locations*
- Towers (Preliminary)*
- BPIII Final Preferred Route
- 66 m Right of Way

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Sensitive Sites*

- Point Features
- Linear Features
- Area Features

*Currently outside the Project footprint

Points of Access*

- Proposed Access Point
- Major Stream Crossing
- Abandoned Rail Crossing
- Rail Crossing
- Transmission Line Crossing
- Bypass Trails
- Approved Access Route

ESS Features

Water

- Water Crossing

Soils and Terrain

- Permafrost

Bipole III Transmission Project **Construction Environmental Protection Plan** **Construction Section N2** **Environmentally Sensitive Site Locations**

ESS Group: Water Crossing

Sec-Seg ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
N2-S02	N2-Aqua-101	Tributary of Burntwood River	613795	6201863	14N	3m	3m	Moderate	Marginal

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation:

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements.
- 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing.
- No instream works or fording from April 1 - July 15

ESS Group: Permafrost

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S1	N2-Soils-102	Permafrost	Site: 13 to 14	E-614820 N-6203883	E-614309 N-6202749	14N	1244m
N2-S1	N2-Soils-102	Permafrost	Site: 17 to 18	E-614167 N-6202434	E-614131 N-6202355	14N	86m
N2-S2	N2-Soils-102	Permafrost	Site: 19 to 20	E-613954 N-6202088	E-613733 N-6201773	14N	384m
N2-S2	N2-Soils-102	Permafrost	Site: 21 to 22	E-613599 N-6201582	E-613424 N-6201332	14N	305m
N2-S2	N2-Soils-102	Permafrost	Site: 23 to 24	E-613021 N-6200758	E-612568 N-6200111	14N	790m

Potential Effects:

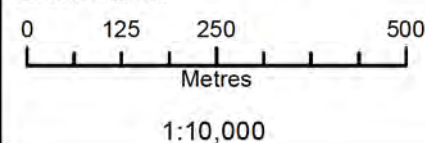
Melting or loss of permafrost due to disturbance of the active layer

Specific Mitigation:

- Carry out construction activities on frozen ground to minimize surface damage and rutting.
- Use existing trails, roads or cut lines whenever possible as access routes
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- Remove trees by low-disturbance methods
- Confine vehicle traffic to established trails to the extent possible
- Implement erosion protection before commencing construction in accordance with Erosion/Sediment Control Plan



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Land Base

- Transmission Line
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- Major Road
- Local Road
- Winter Road
- Railway (Operational)
- Railway (Discontinued)
- Mining
- Provincial Park

Project Infrastructure

- Angle Tower Locations*
- Towers (Preliminary)*
- BPIII Final Preferred Route
- 66 m Right of Way

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- Point Features
- Linear Features
- Area Features

*Currently outside the Project footprint

Points of Access*

- Proposed Access Point
- Major Stream Crossing
- Abandoned Rail Crossing
- Rail Crossing
- Transmission Line Crossing
- Bypass Trails
- Approved Access Route

ESS Features

Water

- Water Crossing

Soils and Terrain

- Permafrost

Bipole III Transmission Project Construction Environmental Protection Plan

Construction Section N2 Environmentally Sensitive Site Locations

ESS Group: Water Crossing

Sec-Seg ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
N2-S02	N2-Aqua-102	Ponded area within wetland	612278	6199698	14N	N/A	N/A	Low	No Fish Habitat

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation:

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements.
- 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing.

ESS Group: Permafrost

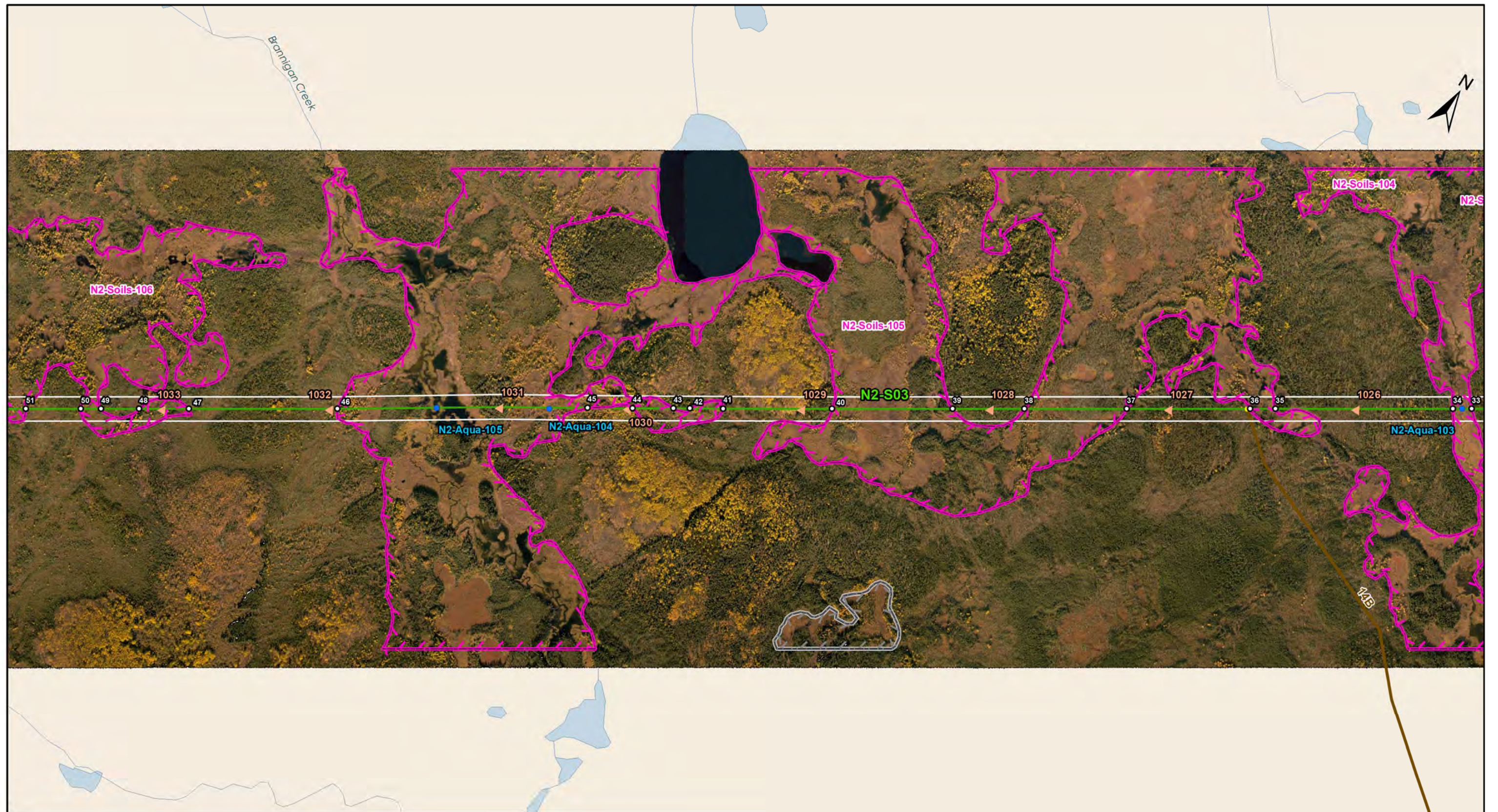
Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S2	N2-Soils-102	Permafrost	Site: 25 to 26	E-612313 N-6199747	E-611841 N-6199075	14N	821 m
N2-S2	N2-Soils-102	Permafrost	Site: 27 to 28	E-611792 N-6199005	E-611791 N-6199004	14N	1 m
N2-S3	N2-Soils-103	Permafrost	Site: 29 to 30	E-610505 N-6197518	E-610477 N-6197501	14N	33 m
N2-S3	N2-Soils-104	Permafrost	Site: 31 to 32	E-610038 N-6197225	E-609855 N-6197110	14N	216 m
N2-S3	N2-Soils-104	Permafrost	Site: 33 to 34	E-609696 N-6197010	E-609653 N-6196983	14N	50 m

Potential Effects:

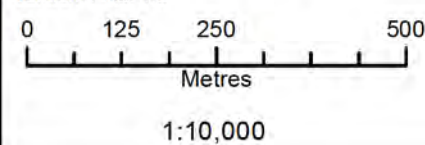
Melting or loss of permafrost due to disturbance of the active layer

Specific Mitigation:

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- Remove trees by low-disturbance methods
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Land Base

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ESS Features

Water

- Water Crossing

Soils and Terrain

- Permafrost

Bipole III Transmission Project

Construction Environmental Protection Plan

Construction Section N2

Environmentally Sensitive Site Locations

ESS Group: Water Crossing

Sec-Seg ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
N2-S03	N2-Aqua-103	Tributary of Brannigan Creek	609674	6196997	14N	2m	2m	Low	Marginal
N2-S03	N2-Aqua-104	Tributary of Brannigan Creek	607580	6195681	14N	3m	3m	Low	Marginal
N2-S03	N2-Aqua-105	Brannigan Creek	607326	6195522	14N	92m	92m	Moderate	Marginal

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation:

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
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- 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing.
- No instream works or fording from April 1 - July 15

ESS Group: Permafrost

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S3	N2-Soils-104	Permafrost	Site: 33 to 34	E-609696 N-6197010	E-609653 N-6196983	14N	50 m
N2-S3	N2-Soils-105	Permafrost	Site: 35 to 36	E-609247 N-6196728	E-609188 N-6196691	14N	69 m
N2-S3	N2-Soils-105	Permafrost	Site: 37 to 38	E-608905 N-6196513	E-608670 N-6196366	14N	277 m
N2-S3	N2-Soils-105	Permafrost	Site: 39 to 40	E-608505 N-6196262	E-608229 N-6196089	14N	326 m
N2-S3	N2-Soils-105	Permafrost	Site: 41 to 42	E-607978 N-6195932	E-607902 N-6195885	14N	89 m
N2-S3	N2-Soils-105	Permafrost	Site: 43 to 44	E-607864 N-6195861	E-607770 N-6195802	14N	110 m
N2-S3	N2-Soils-105	Permafrost	Site: 45 to 46	E-607666 N-6195739	E-607093 N-6195375	14N	678 m
N2-S3	N2-Soils-106	Permafrost	Site: 47 to 48	E-606753 N-6195161	E-606640 N-6195090	14N	134 m
N2-S3	N2-Soils-106	Permafrost	Site: 49 to 50	E-606553 N-6195035	E-606506 N-6195006	14N	54 m
N2-S3	N2-Soils-106	Permafrost	Site: 51 to 52	E-606380 N-6194927	E-606329 N-6194895	14N	60 m

Potential Effects:

Melting or loss of permafrost due to disturbance of the active layer

Specific Mitigation:

- Carry out construction activities on frozen ground to minimize surface damage and rutting.
- Use existing trails, roads or cut lines whenever possible as access routes
- Maintain shrub and herbaceous vegetation to the extent possible
- Remove trees by low-disturbance methods
- Confine vehicle traffic to established trails to the extent possible
- Implement erosion protection before commencing construction in accordance with Erosion/Sediment Control Plan