



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

0 125 250 500
Metres
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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

*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

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

ESS Group: Permafrost

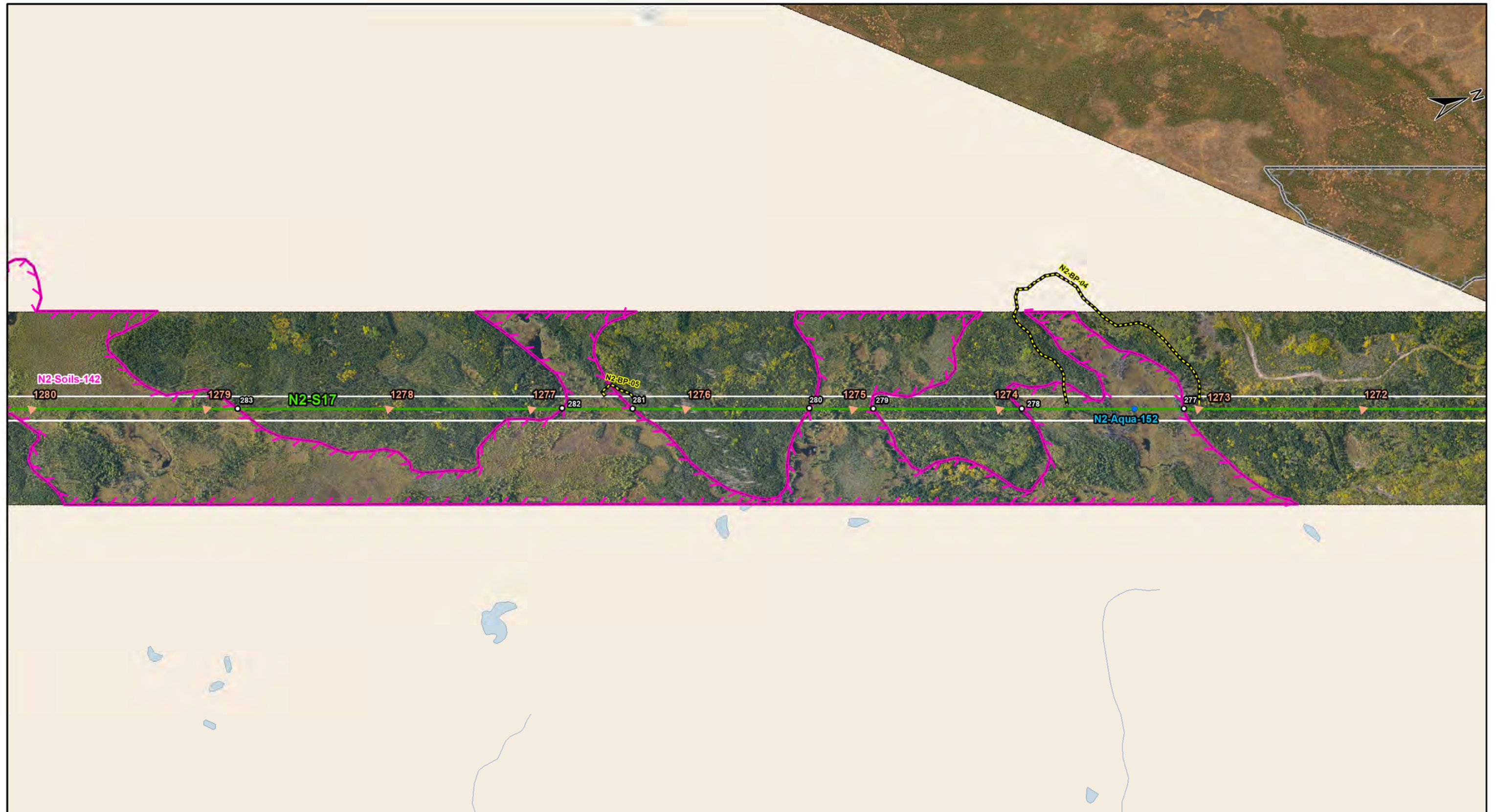
Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S16	N2-Soils-139	Permafrost	Site: 269 to 270	E-550485 N-6120754	E-550115 N-6120316	14N	573 m
N2-S16	N2-Soils-139	Permafrost	Site: 271 to 272	E-550002 N-6120182	E-549781 N-6119921	14N	341 m
N2-S17	N2-Soils-139	Permafrost	Site: 273 to 274	E-549781 N-6119921	E-549449 N-6118880	14N	1092 m
N2-S17	N2-Soils-141	Permafrost	Site: 275 to 276	E-549217 N-6118155	E-549119 N-6117846	14N	324 m

Potential Effects:

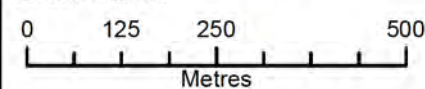
Melting or loss of permafrost due to disturbance of the active layer

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



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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-S17	N2-Aqua-152	Unnamed tributary of Patrick Lake	548641	6116351	14N	N/A	2m	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

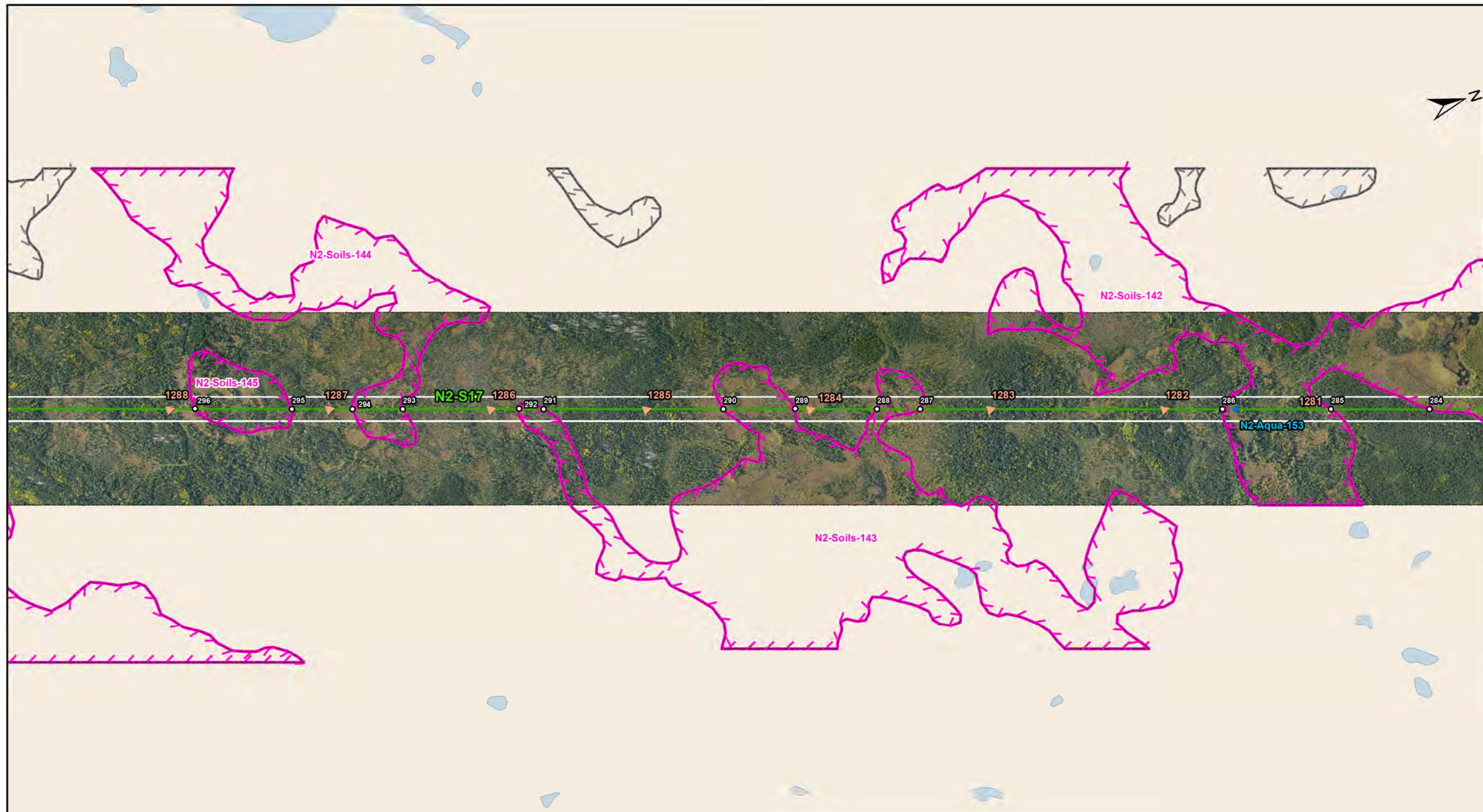
Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S17	N2-Soils-142	Permafrost	Site: 277 to 278	E-548682 N-6116479	E-548549 N-6116060	14N	439m
N2-S17	N2-Soils-142	Permafrost	Site: 279 to 280	E-548427 N-6115678	E-548374 N-6115513	14N	173m
N2-S17	N2-Soils-142	Permafrost	Site: 281 to 282	E-548229 N-6115058	E-548171 N-6114876	14N	190m
N2-S17	N2-Soils-142	Permafrost	Site: 283 to 284	E-547904 N-6114040	E-547681 N-6113343	14N	732m

Potential Effects:

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

Specific Mitigation:

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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-S17	N2-Aqua-153	Unnamed tributary of Thicket Creek	547522	6112844	14N	34m	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

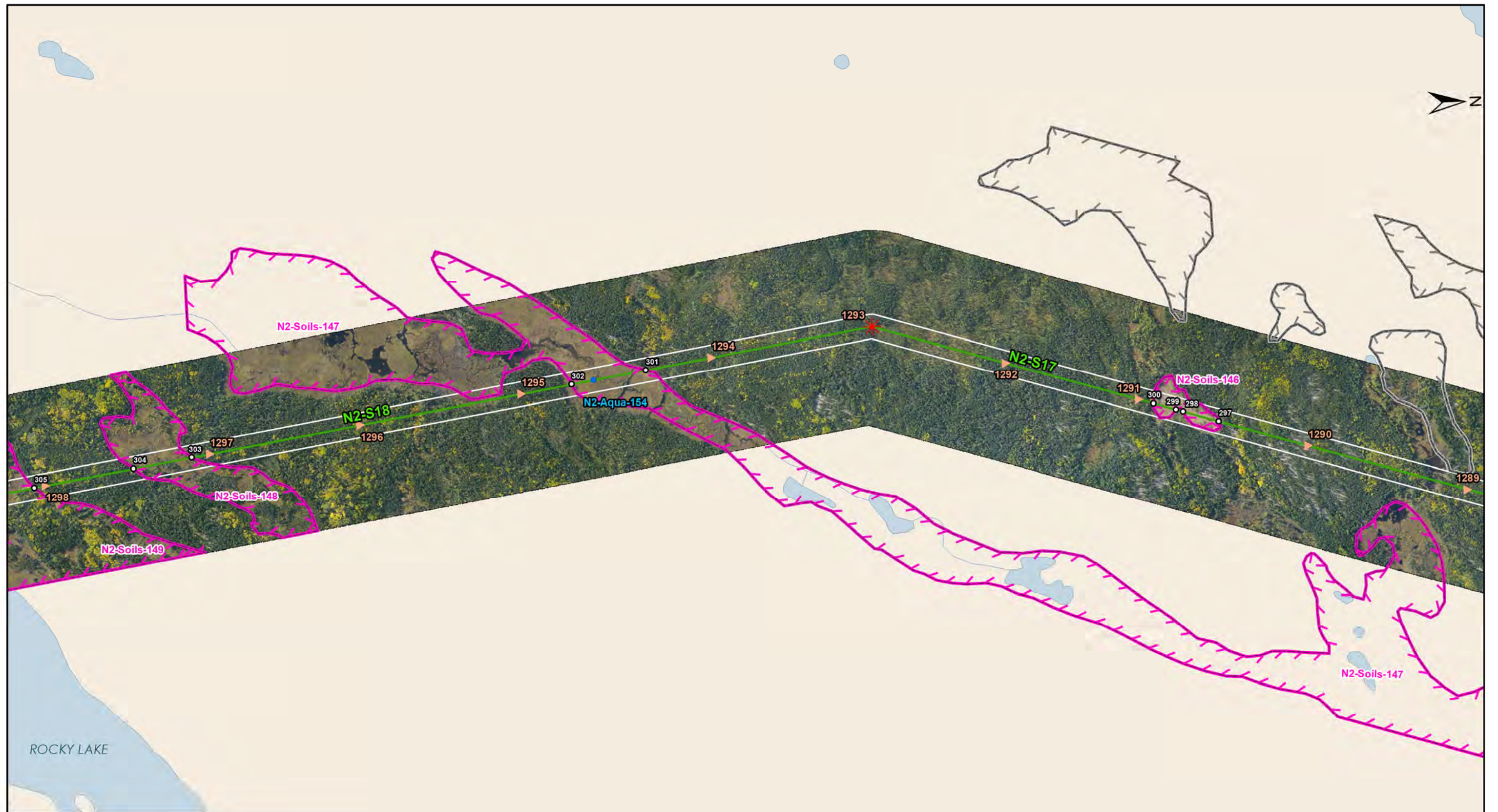
Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S17	N2-Soils-142	Permafrost	Site: 283 to 284	E-547904 N-6114040	E-547681 N-6113343	14N	732 m
N2-S17	N2-Soils-142	Permafrost	Site: 285 to 286	E-547600 N-6113089	E-547511 N-6112810	14N	293 m
N2-S17	N2-Soils-143	Permafrost	Site: 287 to 288	E-547262 N-6112030	E-547226 N-6111917	14N	117 m
N2-S17	N2-Soils-143	Permafrost	Site: 289 to 290	E-547159 N-6111708	E-547100 N-6111521	14N	196 m
N2-S17	N2-Soils-143	Permafrost	Site: 291 to 292	E-546952 N-6111058	E-546932 N-6110994	14N	66 m
N2-S17	N2-Soils-144	Permafrost	Site: 293 to 294	E-546836 N-6110694	E-546794 N-6110564	14N	136 m
N2-S17	N2-Soils-145	Permafrost	Site: 295 to 296	E-546744 N-6110407	E-546665 N-6110159	14N	260 m

Potential Effects:

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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-S18	N2-Aqua-154	Unnamed tributary of Clarke Creek	546115	6107319	14N	N/A	15m	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
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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-S17	N2-Soils-146	Permafrost	Site: 297 to 298	E-546297 N-6109008	E-546267 N-6108913	14N	99 m
N2-S17	N2-Soils-146	Permafrost	Site: 299 to 300	E-546261 N-6108894	E-546242 N-6108833	14N	64 m
N2-S18	N2-Soils-147	Permafrost	Site: 301 to 302	E-546093 N-6107462	E-546123 N-6107259	14N	204 m
N2-S18	N2-Soils-148	Permafrost	Site: 303 to 304	E-546278 N-6106224	E-546301 N-6106065	14N	160 m
N2-S18	N2-Soils-149	Permafrost	Site: 305 to 306	E-546341 N-6105795	E-546453 N-6105047	14N	755 m

Potential Effects:

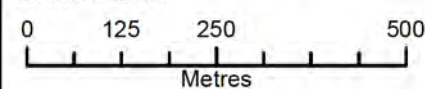
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Bipole III Transmission Project Construction Environmental Protection Plan Construction Section N2 Environmentally Sensitive Site Locations

Map 94

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-S18	N2-Aqua-155	Unnamed tributary of Clarke Creek	546383	6105516	14N	N/A	9m	Moderate	Important

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:

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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-S18	N2-Soils-149	Permafrost	Site: 305 to 306	E-546341 N-6105795	E-546453 N-6105047	14N	755 m
N2-S19	N2-Soils-150	Permafrost	Site: 307 to 308	E-546253 N-6104226	E-546110 N-6103853	14N	399 m
N2-S19	N2-Soils-151	Permafrost	Site: 309 to 310	E-545869 N-6103223	E-545859 N-6103198	14N	27 m
N2-S19	N2-Soils-152	Permafrost	Site: 312 to 313	E-545664 N-6102688	E-545624 N-6102586	14N	110 m

Potential Effects:

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

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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-S19	N2-Aqua-156	Unnamed tributary of Clarke Creek	545255	6101624	14N	N/A	8m	Moderate	Marginal
N2-S19	N2-Aqua-157	Unnamed tributary of Clarke Creek	544730	6100255	14N	N/A	5m	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

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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-S19	N2-Soils-153	Permafrost	Site: 314 to 315	E-545269 N-6101659	E-545210 N-6101507	14N	163 m
N2-S19	N2-Soils-154	Permafrost	Site: 316 to 317	E-544768 N-6100352	E-544666 N-6100088	14N	282 m
N2-S19	N2-Soils-155	Permafrost	Site: 318 to 319	E-544511 N-6099684	E-544482 N-6099609	14N	80 m
N2-S19	N2-Soils-155	Permafrost	Site: 320 to 321	E-544435 N-6099484	E-544339 N-6099235	14N	266 m
N2-S19	N2-Soils-155	Permafrost	Site: 322 to 323	E-544320 N-6099184	E-544302 N-6099139	14N	48 m
N2-S19	N2-Soils-156	Permafrost	Site: 324 to 325	E-544226 N-6098939	E-544211 N-6098901	14N	40 m
N2-S20	N2-Soils-156	Permafrost	Site: 326 to 327	E-544211 N-6098901	E-544182 N-6098847	14N	62 m

Potential Effects:

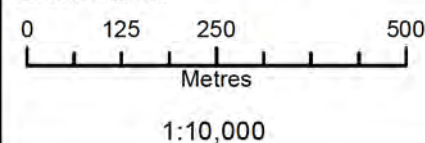
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- Permafrost

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

ESS Group: Permafrost

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S20	N2-Soils-157	Permafrost	Site: 328 to 329	E-543734 N-6098025	E-543711 N-6097984	14N	46 m
N2-S20	N2-Soils-157	Permafrost	Site: 330 to 331	E-543685 N-6097935	E-543625 N-6097826	14N	124 m
N2-S20	N2-Soils-158	Permafrost	Site: 332 to 333	E-543381 N-6097379	E-543098 N-6096860	14N	590 m
N2-S20	N2-Soils-158	Permafrost	Site: 334 to 335	E-542962 N-6096610	E-542939 N-6096567	14N	48 m
N2-S20	N2-Soils-159	Permafrost	Site: 336 to 337	E-542656 N-6096049	E-542369 N-6095524	14N	598 m
N2-S20	N2-Soils-160	Permafrost	Site: 338 to 339	E-542135 N-6095095	E-542039 N-6094918	14N	201 m
N2-S21	N2-Soils-160	Permafrost	Site: 340 to 341	E-542039 N-6094918	E-541592 N-6094360	14N	715 m

Potential Effects:

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Bipole III Transmission Project
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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-S21	N2-Aqua-158	Clarke Creek	541943	6094799	14N	11m	11m	Moderate	Important

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
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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: Water Crossing

Sec-Seg ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
N2-S21	N2-Aqua-158A	Unnamed Pond	477084	5690959	14N	N/A	N/A	None	None

Potential Effects:

Habitat loss & contamination from structure foundations & installations; Increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation

Specific Mitigation:

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ESS Group: Permafrost

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S21	N2-Soils-160	Permafrost	Site: 340 to 341	E-542039 N-6094918	E-541592 N-6094360	14N	715 m
N2-S21	N2-Soils-161	Permafrost	Site: 342 to 343	E-541023 N-6093650	E-540811 N-6093386	14N	337 m
N2-S21	N2-Soils-161	Permafrost	Site: 344 to 345	E-540600 N-6093123	E-540154 N-6092567	14N	713 m
N2-S21	N2-Soils-162	Permafrost	Site: 346 to 347	E-540066 N-6092457	E-539933 N-6092291	14N	211 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

*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

- 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-S22	N2-Aqua-159	Lumgair Creek	538328	6090113	14N	N/A	9m	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

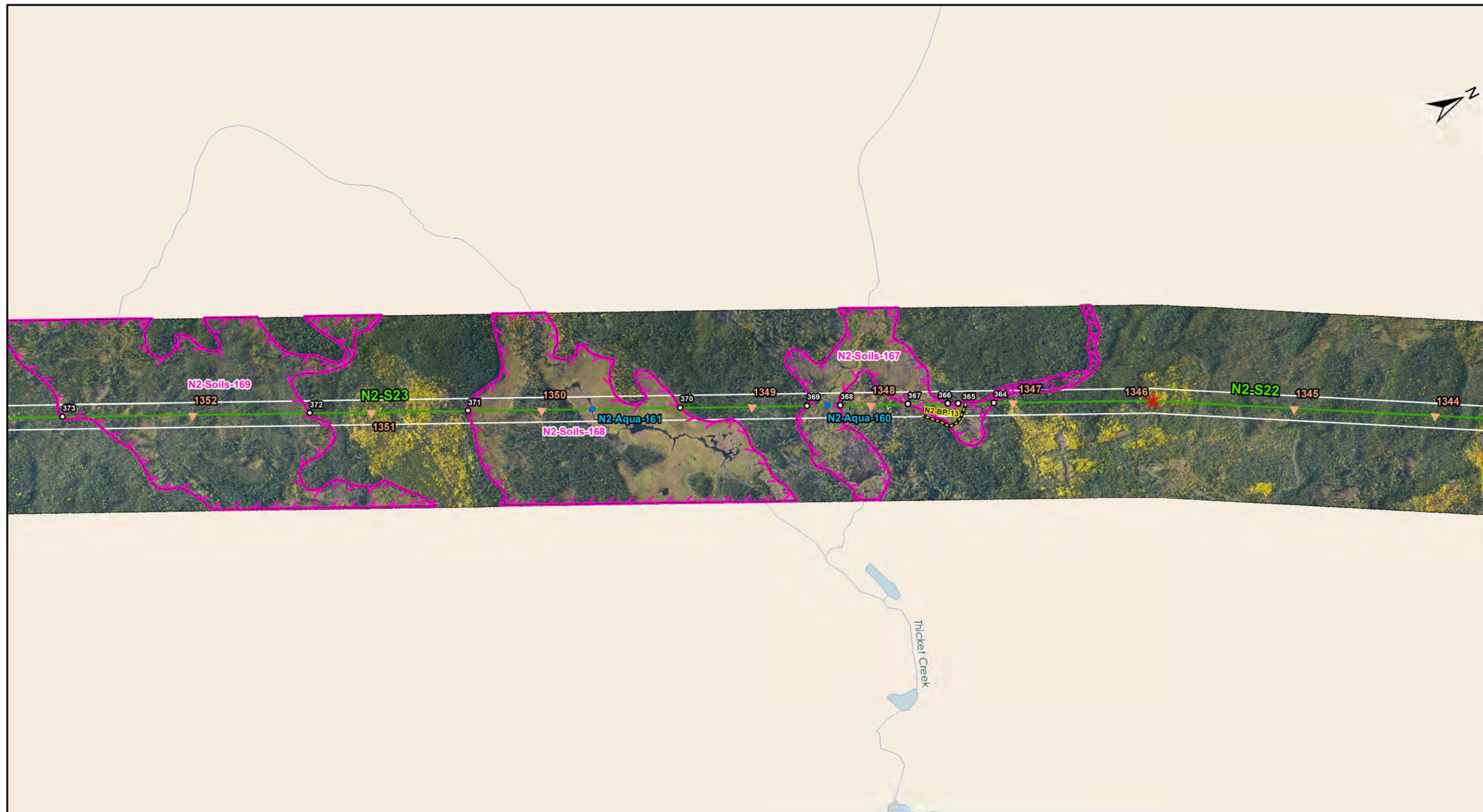
Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S21	N2-Soils-163	Permafrost	Site: 348 to 349	E-539161 N-6091328	E-538972 N-6091092	14N	303 m
N2-S22	N2-Soils-164	Permafrost	Site: 350 to 351	E-538618 N-6090614	E-538602 N-6090587	14N	31 m
N2-S22	N2-Soils-165	Permafrost	Site: 352 to 353	E-538437 N-6090301	E-538252 N-6089981	14N	369 m
N2-S22	N2-Soils-165	Permafrost	Site: 354 to 355	E-538139 N-6089787	E-538110 N-6089736	14N	57 m
N2-S22	N2-Soils-166	Permafrost	Site: 358 to 359	E-537889 N-6089354	E-537875 N-6089330	14N	27 m
N2-S22	N2-Soils-166	Permafrost	Site: 360 to 361	E-537860 N-6089304	E-537772 N-6089151	14N	176 m
N2-S22	N2-Soils-166	Permafrost	Site: 362 to 363	E-537574 N-6088810	E-537547 N-6088762	14N	55 m
N2-S22	N2-Soils-166	Permafrost	Site: 356 to 357	E-538038 N-6089611	E-537957 N-6089472	14N	160 m

Potential Effects:

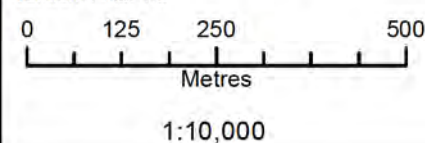
Melting or loss of permafrost due to disturbance of the active layer

Specific Mitigation:

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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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- Point Features
- Linear Features
- Area Features

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Points of Access*

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- Major Stream Crossing
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- 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-S23	N2-Aqua-160	Unnamed pond	536577	6086970	14N	N/A	N/A	Moderate	Marginal
N2-S23	N2-Aqua-161	Unnamed tributary of Tooth Lake	536296	6086398	14N	N/A	9m	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
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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

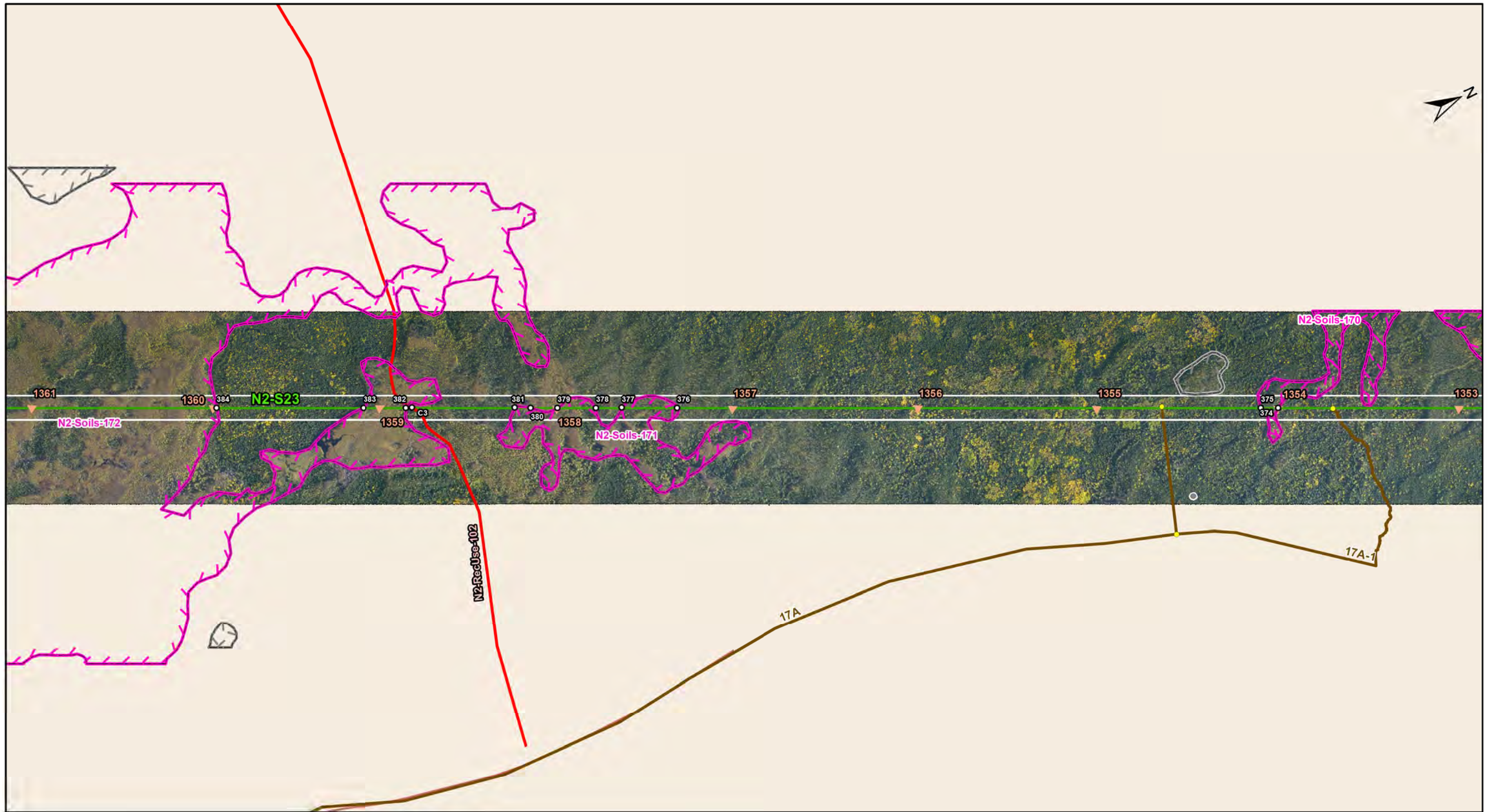
Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S23	N2-Soils-167	Permafrost	Site: 364 to 365	E-536777 N-6087374	E-536734 N-6087287	14N	97 m
N2-S23	N2-Soils-167	Permafrost	Site: 366 to 367	E-536722 N-6087263	E-536674 N-6087166	14N	107 m
N2-S23	N2-Soils-167	Permafrost	Site: 368 to 369	E-536593 N-6087001	E-536553 N-6086921	14N	89 m
N2-S23	N2-Soils-168	Permafrost	Site: 370 to 371	E-536401 N-6086612	E-536147 N-6086096	14N	575 m
N2-S23	N2-Soils-169	Permafrost	Site: 372 to 373	E-535957 N-6085711	E-535662 N-6085111	14N	668 m

Potential Effects:

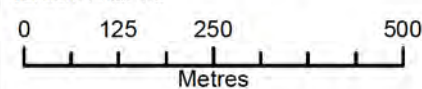
Melting or loss of permafrost due to disturbance of the active layer

Specific Mitigation:

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ESS Features

- Access
- RecUse
- Soils and Terrain
- Permafrost

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

Map 100

ESS Group: Intersection

Sec-Seg ID	ESS ID	Location	ESS Name	Crossing Coordinates	UTM Zone
N2-S23	N2-RecUse-102	C3	Winter Road/Access trail	E-534340 N-6082428	14N

Potential Effects:

Potential interference with road traffic; safety issues

Specific Mitigation:

- Identify and flag prior to start of work
- Notify Manitoba Infrastructure and Transportation (MIT)/winter road operator and local authorities regarding construction activities and schedule, and address concerns prior to construction
- Avoid surface damage to and obstruction of access route
- Ensure that access road/trail are visible from RoW
- Provide warning signage for vehicle traffic and public safety

ESS Group: Permafrost

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N2-S23	N2-Soils-170	Permafrost	Site: 374 to 375	E-535377 N-6084534	E-535357 N-6084492	14N	46 m
N2-S23	N2-Soils-171	Permafrost	Site: 376 to 377	E-534657 N-6083072	E-534591 N-6082938	14N	149 m
N2-S23	N2-Soils-171	Permafrost	Site: 378 to 379	E-534561 N-6082875	E-534515 N-6082782	14N	104 m
N2-S23	N2-Soils-171	Permafrost	Site: 380 to 381	E-534482 N-6082716	E-534463 N-6082678	14N	42 m
N2-S23	N2-Soils-172	Permafrost	Site: 382 to 383	E-534333 N-6082413	E-534282 N-6082310	14N	115 m
N2-S23	N2-Soils-172	Permafrost	Site: 384 to 385	E-534106 N-6081953	E-533356 N-6080429	14N	1698 m

Potential Effects:

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