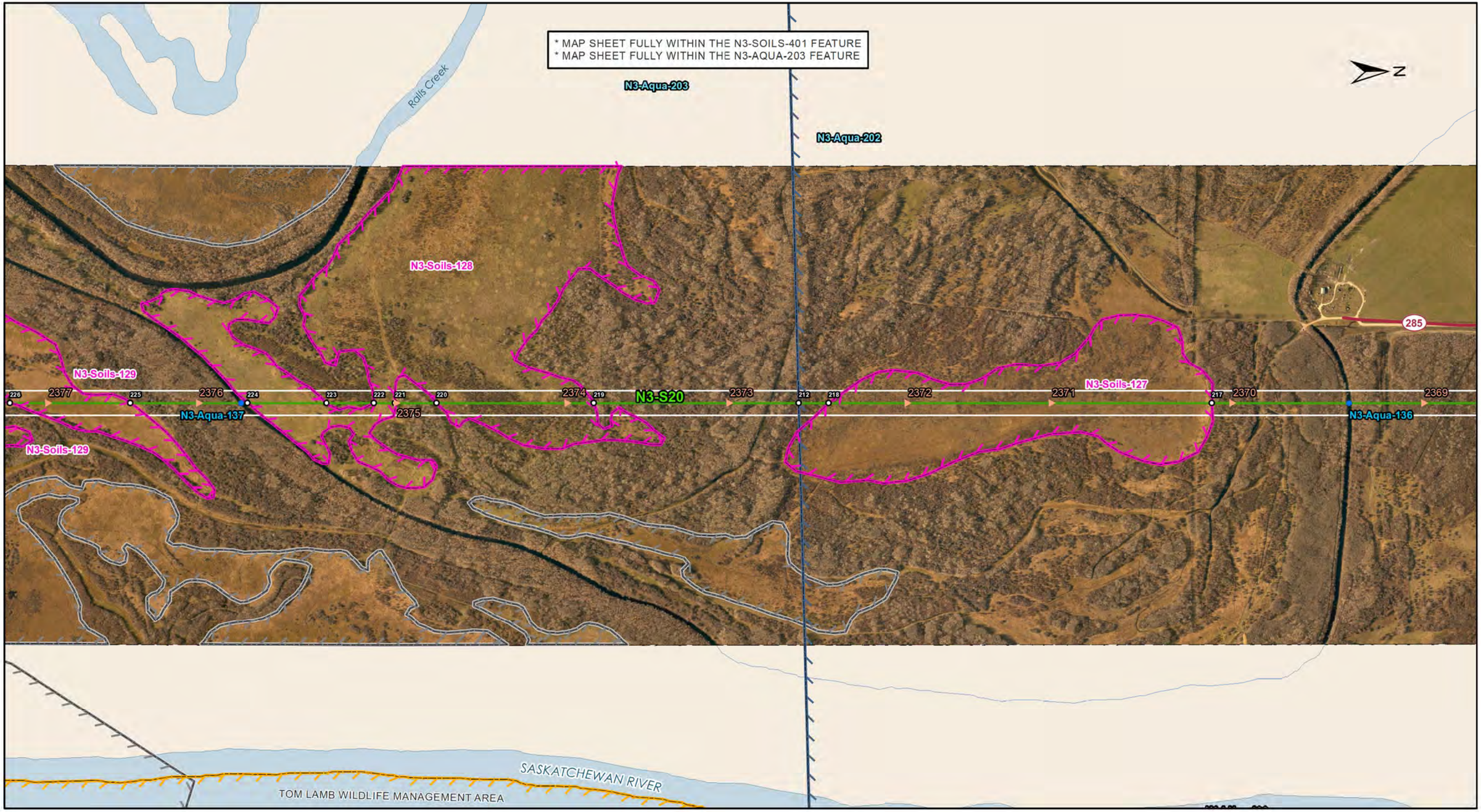

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Manitoba Hydro

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Data Source: MB Hydro, ProvMB, NRCAN
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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
Land Use
- Conservation
Soils and Terrain
- Terrain
- Permafrost
Water
- Groundwater

Bipole III Transmission Project
Construction Environmental Protection Plan
Construction Section N3
Environmentally Sensitive Site Locations

Map 155

ESS Group: Water Crossing

Sec-Seg ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
N3-S20	N3-Aqua-136	Unnamed tributary of Saskatchewan River	363524	5967184	14N	9m	9m	Moderate	Important
N3-S20	N3-Aqua-137	Unnamed tributary of Saskatchewan River	363449	5964181	14N	N/A	N/A	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
- 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: Groundwater

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S20	N3-Aqua-203	Aquifers Vulnerable to contamination	Site: 202 to 214	E-363617 N-5971038	E-363395 N-5962364	14N	8676 m

Potential Effects:

Potential groundwater contamination from a contingency event (e.g., spill)

Specific Mitigation:

- Marshalling yards will be located on upland sites where possible.
- An Emergency Preparedness and Spill Response Plan will be developed and an emergency response spill kit will be kept on-site at all times in case of fluid leaks or spills from machinery.
- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions.
- Emergency response plans for sealing/grouting and pumping will be implemented as required.

ESS Group: Groundwater

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S20	N3-Aqua-202	Freshwater artesian areas	Site: 201 to 212	E-363617 N-5971038	E-363480 N-5965689	14N	5350 m

Potential Effects:

Wetting the surficial environment near potential discharge from tower foundation drill hole (ground saturation); Also, potential level drop in the aquifer.

Specific Mitigation:

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions.
- Emergency response plans for sealing/grouting and pumping will be implemented as required.
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture.

ESS Group: Terrain

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S20	N3-Soils-401	Enduring Features (Unique Terrain/Soil Features)	Site: 203 to 213	E-363617 N-5971038	E-363395 N-5962364	14N	8676m

Potential Effects:

Impairment or loss of approximately 67 ha (0.18 %) of single occurrence PAI enduring feature from right-of-way establishment.

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Avoid development of new borrow areas, access routes and other activities within enduring features
- Maintain 100m setback around feature outside of ROW
- Minimize movement of vehicles, machinery and equipment during construction
- Prevent off-ROW activities and equipment use within terrain feature, during construction

ESS Group: Permafrost

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S20	N3-Soils-127	Permafrost	Site: 217 to 218	E-363509 N-5966812	E-363482 N-5965771	14N	1041 m
N3-S20	N3-Soils-128	Permafrost	Site: 219 to 220	E-363466 N-5965132	E-363455 N-5964705	14N	427 m
N3-S20	N3-Soils-128	Permafrost	Site: 221 to 222	E-363452 N-5964592	E-363451 N-5964534	14N	57 m
N3-S20	N3-Soils-128	Permafrost	Site: 223 to 224	E-363447 N-5964405	E-363442 N-5964191	14N	214 m
N3-S20	N3-Soils-129	Permafrost	Site: 225 to 226	E-363434 N-5963873	E-363426 N-5963547	14N	326 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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Manitoba Hydro

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- 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

Heritage
- Archaeological

Water
- Water Crossing

Land Use
- Conservation

Heritage
- Cultural

Soils and Terrain
- Terrain
- Permafrost

Water
- Groundwater

Bipole III Transmission Project
Construction Environmental Protection Plan
Construction Section N3
Environmentally Sensitive Site Locations

Map 156

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ESS Group: Archaeological

Sec-Seg ID	ESS ID	ESS Name	Easting	Northing	UTM Zone
N3-S21	N3-Hert-105	Ralls Creek	363228	5962271	14N

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Identify and flag prior to start of work
- Conduct site investigation with Archaeologist post clearing and prior to construction
- Minimize surface disturbance around the site to the extent possible
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation

ESS Group: Water Crossing

Sec-Seg ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
N3-S21	N3-Aqua-138	Rall's Creek	363244	5962285	14N	15m	15m	Low	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
- 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: Water Crossing

Sec-Seg ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
N3-S21	N3-Aqua-139	Unnamed pond	362527	5961909	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

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: Groundwater

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S21	N3-Aqua-203	Aquifers Vulnerable to contamination	Site: 202 to 214	E-363617 N-5971038	E-363395 N-5962364	14N	8676 m
N3-S21	N3-Aqua-203	Aquifers Vulnerable to contamination	Site: 229 to 232	E-363395 N-5962364	E-362316 N-5961798	14N	1218 m

Potential Effects:

Potential groundwater contamination from a contingency event (e.g., spill)

Specific Mitigation:

- Marshalling yards will be located on upland sites where possible.
- An Emergency Preparedness and Spill Response Plan will be developed and an emergency response spill kit will be kept on-site at all times in case of fluid leaks or spills from machinery.
- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions.
- Emergency response plans for sealing/grouting and pumping will be implemented as required.

ESS Group: Permafrost

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S20	N3-Soils-129	Permafrost	Site: 227 to 228	E-363424 N-5963503	E-363403 N-5962663	14N	839 m
N3-S21	N3-Soils-130	Permafrost	Site: 235 to 236	E-363115 N-5962217	E-363009 N-5962161	14N	120 m
N3-S21	N3-Soils-130	Permafrost	Site: 239 to 240	E-362895 N-5962102	E-362550 N-5961921	14N	389 m
N3-S21	N3-Soils-130	Permafrost	Site: 241 to 242	E-362508 N-5961899	E-362105 N-5961688	14N	454 m
N3-S21	N3-Soils-131	Permafrost	Site: 243 to 244	E-360848 N-5961029	E-360713 N-5960958	14N	152 m
N3-S21	N3-Soils-131	Permafrost	Site: 245 to 246	E-360650 N-5960925	E-360613 N-5960906	14N	41 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

ESS Group: Cultural

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S21	N3-Hert-200	Gathering Area	Site: 233 to 234	E-363228 N-5962276	E-354918 N-5957921	14N	9382m

Potential Effects:

Potential Loss of Heritage Resources

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Identify and flag prior to start of work
- Burn clearing debris during winter months only and ensure that all fires are extinguished prior to spring break-up
- Conduct site investigation with Archaeologist post clearing and prior to construction
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Terrain

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S20	N3-Soils-401	Enduring Features (Unique Terrain/Soil Features)	Site: 203 to 213	E-363617 N-5971038	E-363395 N-5962364	14N	8676 m
N3-S21	N3-Soils-401	Enduring Features (Unique Terrain/Soil Features)	Site: 230 to 231	E-363395 N-5962364	E-363014 N-5962164	14N	431 m

Potential Effects:

Impairment or loss of approximately 67 ha (0.18 %) of single occurrence PAI enduring feature from right-of-way establishment

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Avoid development of new borrow areas, access routes and other activities within enduring features
- Maintain 100m setback around feature outside of ROW
- Minimize movement of vehicles, machinery and equipment during construction
- Prevent off-ROW activities and equipment use within terrain feature, during construction

ESS Group: Terrain

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S21	N3-Soils-402	Enduring Features (Unique Terrain/Soil Features)	Site: 237 to 238	E-363014 N-5962164	E-360904 N-5961058	14N	2381 m

Potential Effects:

Impairment or loss of approximately 16 ha (0.63 %) of rare occurrence PAI enduring feature from right-of-way establishment

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Avoid development of new borrow areas, access routes and other activities within enduring features
- Maintain 100m setback around feature outside of ROW
- Minimize movement of vehicles, machinery and equipment during construction
- Prevent off-ROW activities and equipment use within terrain feature, during construction

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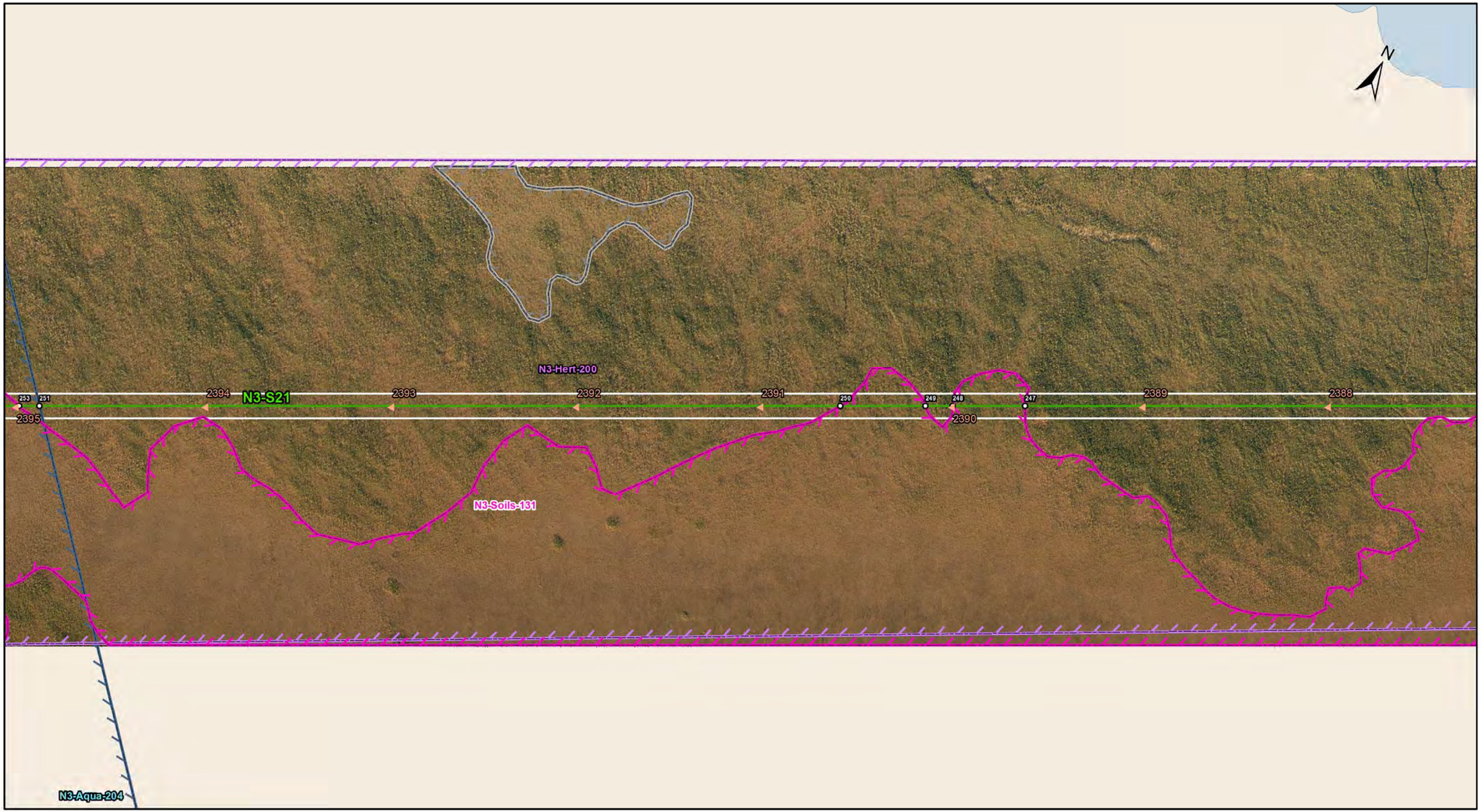

Manitoba Hydro

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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
Heritage
- Cultural

Soils and Terrain
- Permafrost

Water
- Groundwater

Bipole III Transmission Project
Construction Environmental Protection Plan
Construction Section N3
Environmentally Sensitive Site Locations

Map 157

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ESS Group: Groundwater

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S21	N3-Aqua-204	Aquifers Vulnerable to contamination	Site: 251 to 252	E-357107 N-5959068	E-354918 N-5957921	14N	2471 m

Potential Effects:

Potential groundwater contamination from a contingency event (e.g., spill)

Specific Mitigation:

- Marshalling yards will be located on upland sites where possible.
- An Emergency Preparedness and Spill Response Plan will be developed and an emergency response spill kit will be kept on-site at all times in case of fluid leaks or spills from machinery.
- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions.
- Emergency response plans for sealing/grouting and pumping will be implemented as required.

ESS Group: Cultural

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S21	N3-Hert-200	Gathering Area	Site: 233 to 234	E-363228 N-5962276	E-354918 N-5957921	14N	9382m

Potential Effects:

Potential Loss of Heritage Resources

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Identify and flag prior to start of work
- Burn clearing debris during winter months only and ensure that all fires are extinguished prior to spring break-up
- Conduct site investigation with Archaeologist post clearing and prior to construction
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Permafrost

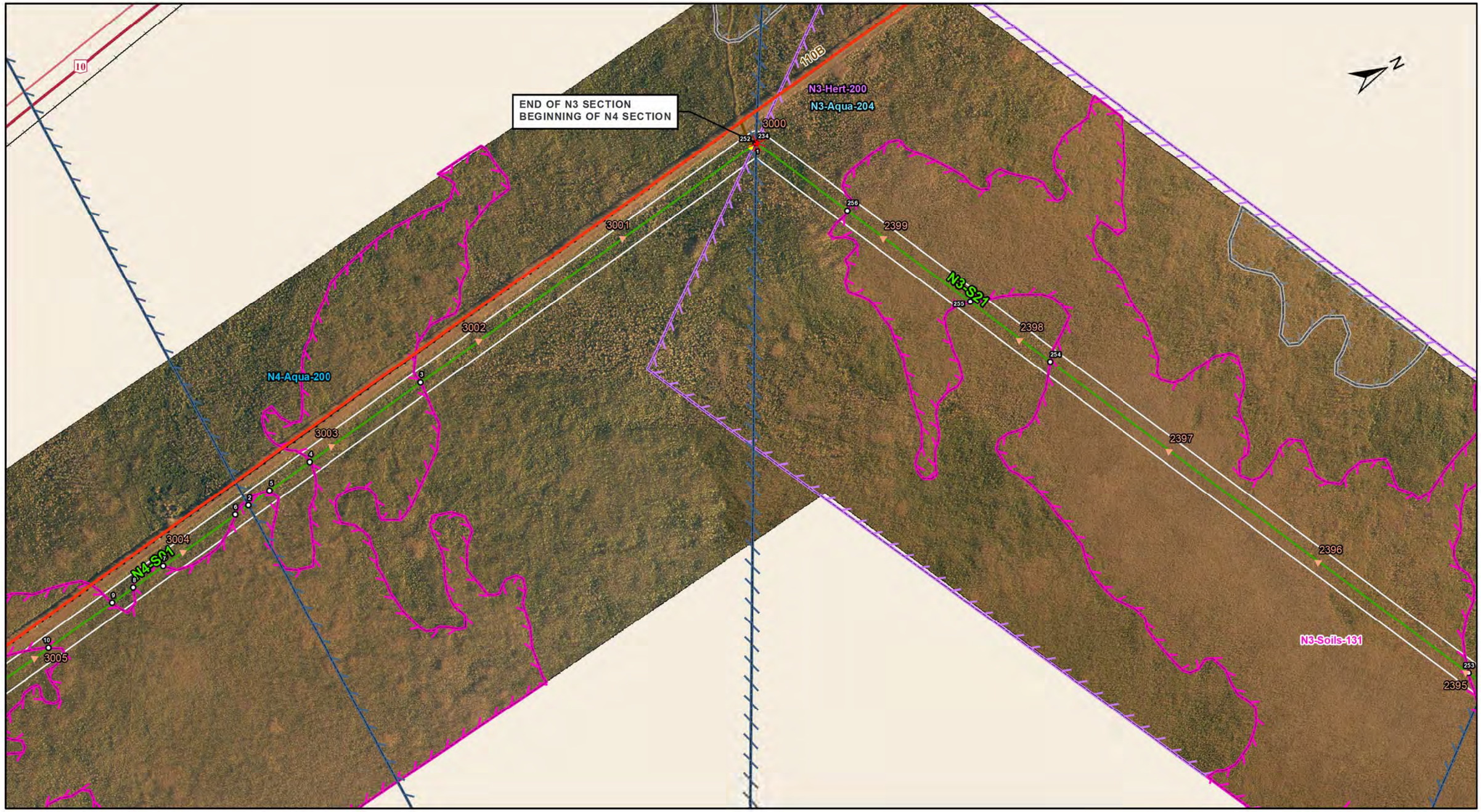
Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S21	N3-Soils-131	Permafrost	Site: 247 to 248	E-359478 N-5960311	E-359304 N-5960220	14N	195 m
N3-S21	N3-Soils-131	Permafrost	Site: 249 to 250	E-359238 N-5960185	E-359033 N-5960078	14N	231 m
N3-S21	N3-Soils-131	Permafrost	Site: 253 to 254	E-357058 N-5959042	E-355801 N-5958384	14N	1418 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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- Rail Crossing
- Transmission Line Crossing
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- Approved Access Route

ESS Features
RecUse
- Intersection
Heritage
- Cultural
Soils and Terrain
- Permafrost
Water
- Groundwater

Bipole III Transmission Project
Construction Environmental Protection Plan
Construction Section N3
Environmentally Sensitive Site Locations

Map 158

ESS Group: Groundwater

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S21	N3-Aqua-204	Aquifers Vulnerable to contamination	Site: 251 to 252	E-357107 N-5959068	E-354918 N-5957921	14N	2471 m

Potential Effects:

Potential groundwater contamination from a contingency event (e.g., spill)

Specific Mitigation:

- Marshalling yards will be located on upland sites where possible.
- An Emergency Preparedness and Spill Response Plan will be developed and an emergency response spill kit will be kept on-site at all times in case of fluid leaks or spills from machinery.
- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions.
- Emergency response plans for sealing/grouting and pumping will be implemented as required.

ESS Group: Cultural

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S21	N3-Hert-200	Gathering Area	Site: 233 to 234	E-363228 N-5962276	E-354918 N-5957921	14N	9382m

Potential Effects:

Potential Loss of Heritage Resources

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Identify and flag prior to start of work
- Burn clearing debris during winter months only and ensure that all fires are extinguished prior to spring break-up
- Conduct site investigation with Archaeologist post clearing and prior to construction
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Permafrost

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N3-S21	N3-Soils-131	Permafrost	Site: 253 to 254	E-357058 N-5959042	E-355801 N-5958384	14N	1418 m
N3-S21	N3-Soils-131	Permafrost	Site: 255 to 256	E-355561 N-5958258	E-355192 N-5958064	14N	416 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