Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: January 10, 2018
Version: Draft

0 50 100 200
Metres
1:5,000

Land Base
- Land Parcel
- Local Road / Trail
- Project Right Of Way

Heritage ESS
- Archaeological

Project Infrastructure
- Final Preferred Route

Water ESS
- Water Crossing

Wildlife ESS
- Birds and Habitat

Ecosystem ESS
- Habitat

Soil ESS
- Erosion

Wildlife ESS
- Reptiles/Amphibians Habitat

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 8

ESS Group: Archaeological

**Features represented as points*

ESS ID	ESS Name	Location
Hert-104	Area of Heritage Potential	E-343438 - N-5584825
Hert-116	Area of Heritage Potential	E-343313 - N-5585122

Potential Effects:
Impact to a potential heritage resource

Specific Mitigation (ID #322):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during nonfrozen ground conditions
- Confine traffic to established trail
- Hand-clearing or other low disturbance clearing approved by the Project Archaeologist within the area
- Identify and flag a 30m buffer around site, if not within designated riparian buffer
- In the event of a discovery stop work in area and contact the Project Archaeologist immediately. Refer to Cultural and Heritage Resources Protection Plan for further guidance
- Should heritage resources be discovered during a pre-construction survey the project Archaeologist may prescribe additional mitigation measures

ESS Group: Birds and Habitat

**Features represented as lines*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-103	Bird diverter installation area	L7 to L8	E-343463 N-5584766	E-343315 N-5585117	381

Potential Effects:
Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID #827):

- As per industry standards, bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the two skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Erosion

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Soils-300	Steep terrain	33 to 34	E-343460 N-5584772	E-343311 N-5585127	384

Potential Effects:
Potential impact to soil structure and increased soil erosion on disturbed surfaces due to steep terrain

Specific Mitigation (ID #606):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Maintain shrub and herbaceous vegetation to the extent possible
- Confine vehicle traffic to established trails to the extent possible
- Implement erosion protection before commencing construction in accordance with Erosion and Sediment Control Management Plan
- Stabilize sites immediately after construction and re-vegetate disturbed areas in accordance with the Rehabilitation and Invasive Species Management Plan

ESS Group: Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-101	Grassland habitat	31 to 32	E-343572 N-5583376	E-343457 N-5584779	1432
Eco-102	Grassland habitat	37 to 38	E-343319 N-5585108	E-343186 N-5585375	299

Potential Effects:
Potential impact and disruption to rare plant habitat

Specific Mitigation (ID #217):

- Marshalling yards, borrow sites and worker accommodations will not be developed within the grassland habitat areas
- Conduct site investigation with vegetation specialist prior to construction to verify the existence of natural grassland habitat

ESS Group: Reptiles/Amphibians Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-306	Northern leopard frog site	35 to 36	E-343452 N-5584790	E-343317 N-5585113	350

Potential Effects:
Habitat loss and contamination from structure foundations & installations; wetland contamination and loss of breeding and summering habitat from loss/deterioration of riparian vegetation

Specific Mitigation (ID #832):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during nonfrozen ground conditions
- Identify and flag buffer by follwing the edge of agricultural crop
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible
- If construction activity is required within this area between April 15 to June 1st all lifestages of amphibian will be captured and removed during a sweep survey
- If construction activity is required within this area between April 15 to June 1st exclusion fencing needs to be installed around the site after a sweep survey and prior to work taking place

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)	Habitat Sensitivity
Aqua-105	Snake Creek	E-343389 N-5584942	8.0	3.5	H

Potential Effects:
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID #710):

- 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
- Identify and flag buffers and no machine zones prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway with shrub and herbaceous understory maintained along with trees that do not violate Manitoba Hydro's vegetation clearance requirements
- 7m no machine zone will prohibit equipment in close proximity to the waterbody except at the trail crossing

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Manitoba Hydro

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Land Base
- Land Parcel
- Highway
- Local Road / Trail

Project Infrastructure
- Final Preferred Route
- Project Right Of Way

Sensitive Sites
- Sensitive Site (Point)

Ecosystem ESS
- Habitat

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 9

ESS Group: Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-102	Grassland habitat	37 to 38	E-343319 N-5585108	E-343186 N-5585375	299

Potential Effects:
Potential impact and disruption to rare plant habitat

Specific Mitigation (ID #217):

- Marshalling yards, borrow sites and worker accommodations will not be developed within the grassland habitat areas
- Conduct site investigation with vegetation specialist prior to construction to verify the existence of natural grassland habitat

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Metres

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Land Base
- Land Parcel
- Highway
- Major Road
- Local Road / Trail

Project Infrastructure
- Final Preferred Route
- Project Right Of Way

Sensitive Sites
- Sensitive Site (Point)

Water ESS
- Wetland

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 10

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-306	Wetland	39 to 40	E-342401 N-5586513	E-342385 N-5586537	29

Potential Effects:
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation

Specific Mitigation (ID #218):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during nonfrozen ground conditions
- Identify and flag buffer by follwing the edge of agricultural crop
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited within buffer

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Metres

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Land Base

- Land Parcel
- Highway
- Local Road / Trail

Project Infrastructure

- Final Preferred Route
- Project Right Of Way
- Sensitive Site (Polygon)

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 11

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Manitoba Hydro

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Land Base
- Land Parcel
- Highway
- Major Road
- Local Road / Trail

Project Infrastructure
- Final Preferred Route
- Project Right Of Way
- Sensitive Site (Polygon)

Wildlife ESS
- Birds and Habitat

Water ESS
- Wetland

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 12

ESS Group: Birds and Habitat

**Features represented as lines*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-104	Bird diverter installation area	L9 to L10	E-342115 N-5589556	E-342148 N-5590684	1127

Potential Effects:
Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID #827):

- As per industry standards, bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the two skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-307	Wetland	41 to 42	E-342107 N-5589290	E-342108 N-5589306	15

Potential Effects:
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation

Specific Mitigation (ID #218):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during nonfrozen ground conditions
- Identify and flag buffer by follwing the edge of agricultural crop
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited within buffer

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Metres

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Land Base
- Land Parcel
- Major Road
- Local Road / Trail

Project Infrastructure
- Final Preferred Route
- Project Right Of Way
- Sensitive Site (Polygon)

Wildlife ESS
- Birds and Habitat

Wildlife ESS
- Reptiles/Amphibians Habitat

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 13

ESS Group: Birds and Habitat

**Features represented as lines*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-104	Bird diverter installation area	L9 to L10	E-342148 N-5590684	E-342115 N-5589556	1127

Potential Effects:
Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID #827):

- As per industry standards, bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the two skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Reptiles/Amphibians Habitat

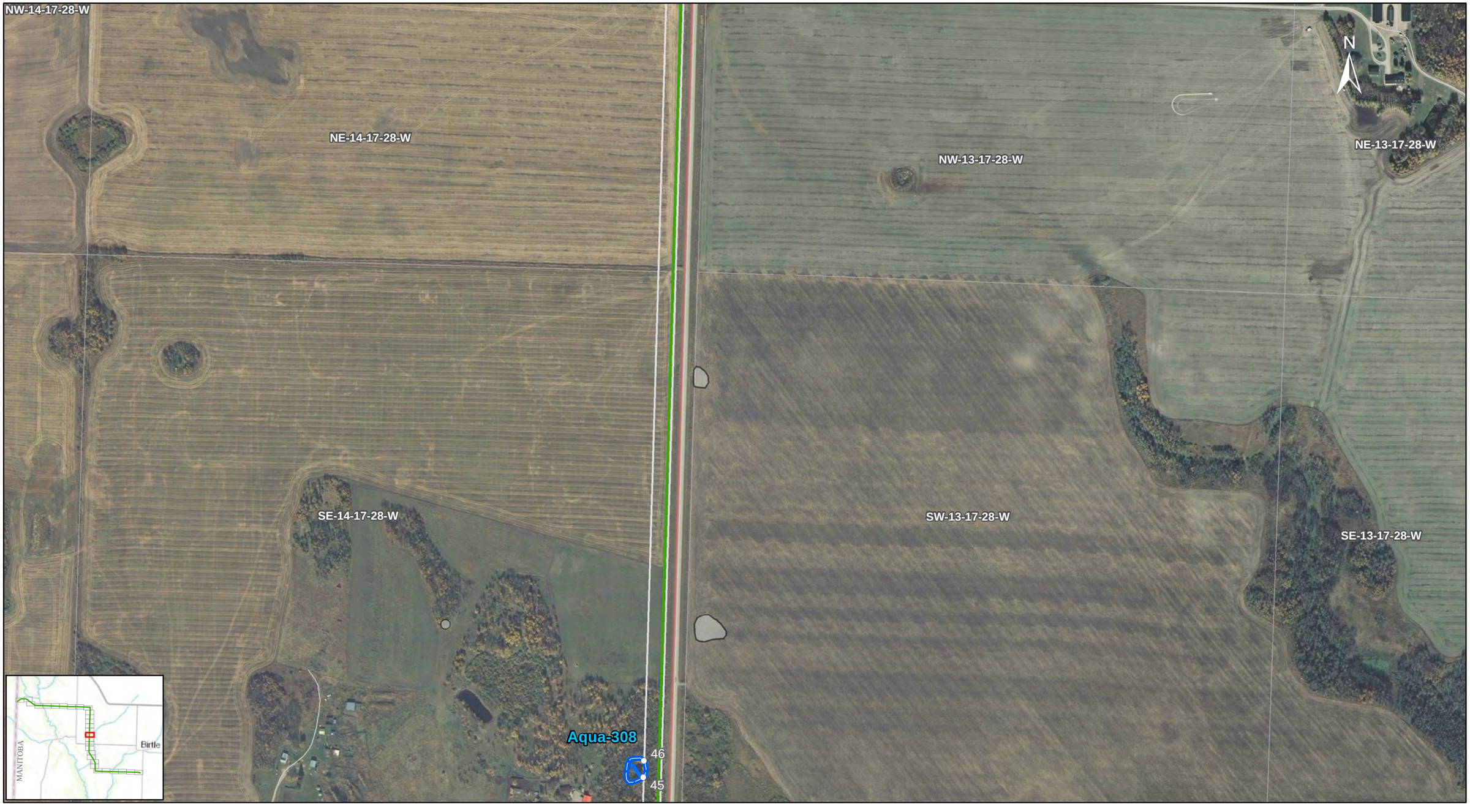
**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-307	Northern leopard frog site	43 to 44	E-342126 N-5589929	E-342132 N-5590122	193

Potential Effects:
Habitat loss and contamination from structure foundations & installations; wetland contamination and loss of breeding and summering habitat from loss/deterioration of riparian vegetation

Specific Mitigation (ID #831):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during nonfrozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible
- If construction activity is required within this area between April 15 to June 1st all lifestages of amphibian will be captured and removed during a sweep survey
- If construction activity is required within this area between April 15 to June 1st exclusion fencing needs to be installed around the site after a sweep survey and prior to work taking place



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Land Base
- Land Parcel
- Major Road
- Local Road / Trail

Project Infrastructure
- Final Preferred Route
- Project Right Of Way

Sensitive Sites
- Sensitive Site (Point)
- Sensitive Site (Polygon)

Water ESS
- Wetland

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 14

ESS Group: Wetland

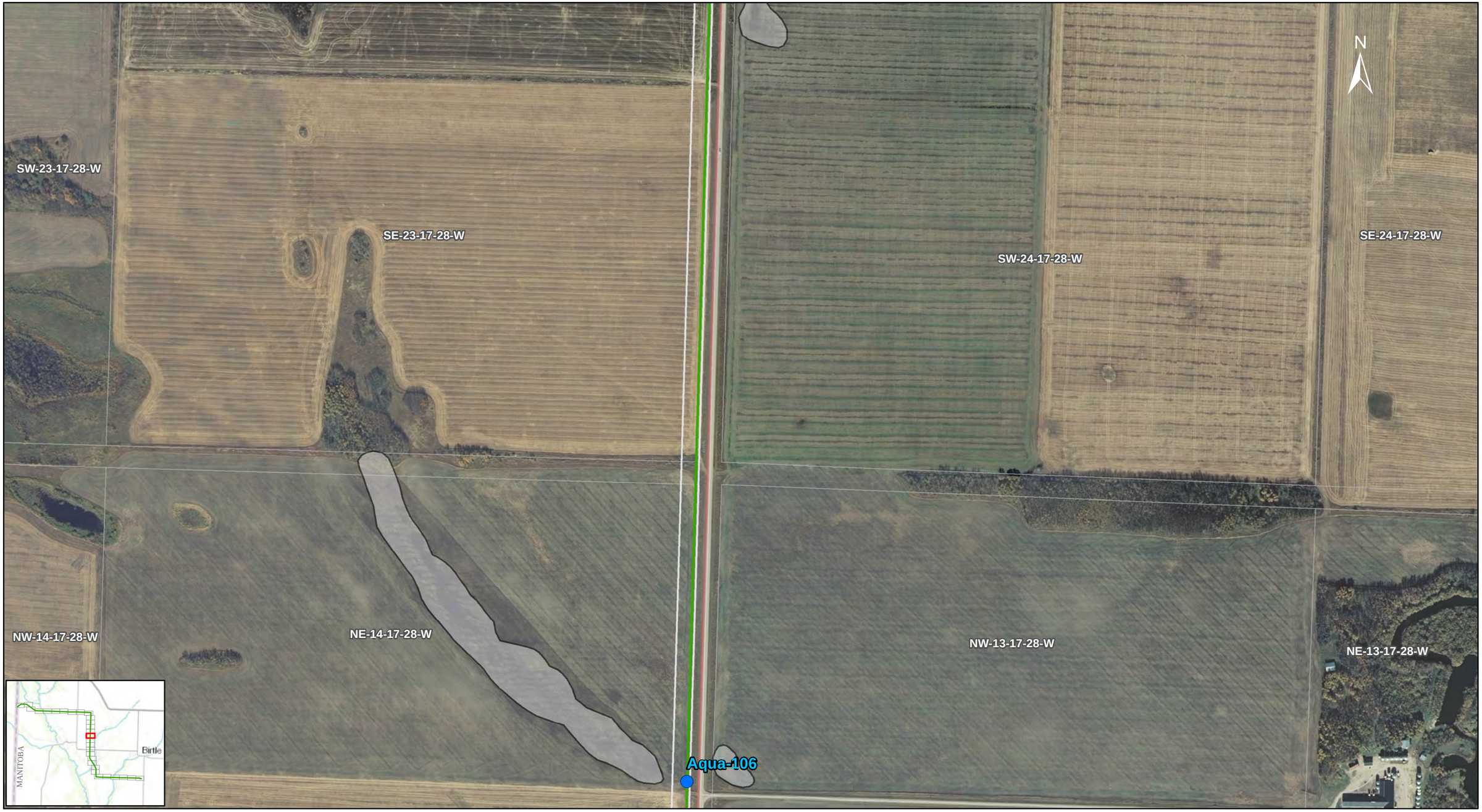
**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-308	Wetland	45 to 46	E-342132 N-5590817	E-342132 N-5590840	22

Potential Effects:
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID #205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during nonfrozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible



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Metres
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Land Base
- Land Parcel
- Major Road
- Local Road / Trail

Project Infrastructure
- Final Preferred Route
- Project Right Of Way
- Sensitive Site (Polygon)

Water ESS
- Water Crossing

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 15

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)	Habitat Sensitivity
Aqua-106	Unnamed Tributary of Snake Creek (Ephemeral)	E-342183 N-5591915	N/A	N/A	L

Potential Effects:
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID #710):

- 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
- Identify and flag buffers and no machine zones prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway with shrub and herbaceous understory maintained along with trees that do not violate Manitoba Hydro's vegetation clearance requirements
- 7m no machine zone will prohibit equipment in close proximity to the waterbody except at the trail crossing

Available in accessible formats upon request