

	Coordinate System: UTM Zone 14N NAD83 Data Source: MB Hydro, ProvMB, NRCAN	Land Base	Sensitive Site (Polygon)	Wildlife ESS	Water ESS	Wildlife ESS	
	Date Created: January 10, 2018 Version: Draft	Land Parcel	Heritage ESS	Birds and Habitat	C Wetland	C Reptiles/Amphibians Habitat	_
Manitoba	0 50 100 200	Project Infrastructure	 Archaeological 	Heritage ESS	Soil ESS	ESS Start Stop	Constr
Hydro		— Final Preferred Route	Water ESS	Archaeological	C Erosion	 Start/Stop Point 	Envir
	Metres	Project Right Of Way	 Water Crossing 				
	1:5,000						

Birtle Transmission Project truction Environmental Protection Plan ronmentally Sensitive Site (ESS) Locations

ESS Group: Archaeological

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Hert-117	Area of heritage potential	55 to 56	E-332584 N-5598399	E-332513 N-5598401	71

Potential Effects:

Impact to a potential heritgage resource

Specific Mitigation (ID #321):

- 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 Project Archaeologist within the area Project Archaeologist or designate will be present to monitor excavation/subsurface excavations
- (including geo-technical drilling) for heritage resources Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Should heritage resources be discovered during a pre-construction survey the project Archaeologist may prescribe construction matting to be used to protect the area from disturbance

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-113	Area of Heritage Potential	E-331517 - N-5598433

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-107	Bird diverter installation area	L15 to L16	E-331961 N-5598419	E-330503 N-5598466	1458

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-301	Steep terrain	57 to 58	E-332546 N-5598400	E-331835 N-5598423	710

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: Reptiles/Amphibians Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-308	Northern leopard frog site	59 to 60	E-331579 N-5598431	E-331541 N-5598433	38

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

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)	Habitat Sensitivity
Aqua-108	Assiniboine River	E-331539 N-5598433	41.15	21.95	Н

Potential Effects:

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

Specific Mitigation (ID #710):

- ٠ 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

ESS Group: Wetland

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-313	Wetland	61 to 62	E-331233 N-5598443	E-331202 N-5598444	31

Potential Effects:

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

Specific Mitigation (ID #218):

- 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

Version: Draft

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

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Manitoba Hydro	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 Community Pasture	Project Infrastructure Final Preferred Route Project Right Of Way Sensitive Sites Sensitive Site (Point)	Sensitive Site (Polygon) Wildlife ESS Birds and Habitat Ecosystem ESS Habitat	Species of Concern Land Use ESS Conservation Soil ESS Erosion	Wildlife ESS Erss Start Stop Start/Stop Point	Cons ^a Envi
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Birtle Transmission Project struction Environmental Protection Plan rironmentally Sensitive Site (ESS) Locations

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-107	Bird diverter installation area	L15 to L16	E-331961 N-5598419	E-330503 N-5598466	1458

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: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-110	Sharp-tailed grouse lek	67 to 68	E-330148 N-5598478	E-328276 N-5598985	2024

Potential Effects:

Potential disruption of mating success for sharp-tailed grouse

Specific Mitigation (ID #830):

- Do not plan to carry out construction activities within this area between April 15 to June 1st
- If construction activity is required within this area between April 15 to June 1st, contact Manitoba Hydro Environmental Officer to discuss potential mitigation options

ESS Group: Conservation

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Luse-100	Spy Hill-Ellice Community Pasture	69 to 70	E-330143 N-5598478	E-324439 N-5599419	6441

Potential Effects:

Potential loss of habitat for plants of conservation concern and grassland species/communities

Specific Mitigation (ID #215):

- ٠ Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Use existing access roads and trails to the extent possible
- Remove trees by low ground disturbance methods that protect shrubs and understory
- ٠ Confine vehicle traffic to established trails to the extent possible
- ٠ In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan and for mitigation measures
- Marshalling yards and/or worker accommodations will not be developed within in Spy Hill-Ellice **Community Pasture**

ESS Group: Erosion

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Soils-302	Steep terrain	65 to 66	E-330590 N-5598463	E-330166 N-5598477	423

Potential Effects:

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

Specific Mitigation (ID #606):

- ٠ 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
- ٠ 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-103	Spy Hill-Ellice Community Pasture - grassland habitat	71 to 72	E-329348 N-5598503	E-328508 N-5598817	937

Potential Effects:

Potential impact and disruption to rare plant habitat

Specific Mitigation (ID #216):

- Tower foundations that limit disturbance of soil will be utilized within grassland habitat areas within the Spy Hill-Ellice Community Pasture
- Perch deterrents will be installed on transmission line infrastructure within grassland habitat areas as • identified through the environmental monitoring program, and in consultation with Manitoba Sustainable Development

ESS Group: Species of Concern

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-300	Plant - species of concern	63 to 64	E-330675 N-5598461	E-330592 N-5598463	83

Potential Effects:

Potential impact and disruption to rare plant habitat

Specific Mitigation (ID #204):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
 Use existing access roads and trails to the extent possible
 Remove trees by low ground disturbance methods that protect shrubs and understory
 Confine vehicle traffic to established trails to the extent possible

- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan and for ٠ mitigation measures

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Manitobal Output Local Road / Trail Project Right Of Way Habitat ESS Start Stop 0 50 100 200 1 1 1 Community Pasture Sensitive Sites Land Use ESS Start/Stop Point Envir		Coordinate System: UTM Zone 14N NAD83 Data Source: MB Hydro, ProvMB, NRCAN Date Created: January 10, 2018 Version: Draft	Land Base	Project Infrastructure — Final Preferred Route	Sensitive Site (Polygon) Ecosystem ESS	Wildlife ESS	
	Manitoba Hydro	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 Community Pasture	Project Infrastructure Final Preferred Route Project Right Of Way Sensitive Sites Sensitive Site (Point)	 Sensitive Site (Polygon) Ecosystem ESS Habitat Land Use ESS Conservation 	Wildlife ESS Image: Single and Habitat ESS Start Stop • Start/Stop Point	Const Envii

Birtle Transmission Project truction Environmental Protection Plan ironmentally Sensitive Site (ESS) Locations

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-110	Sharp-tailed grouse lek	67 to 68	E-330148 N-5598478	E-328276 N-5598985	2024

Potential Effects:

Potential disruption of mating success for sharp-tailed grouse

Specific Mitigation (ID #830):

- ٠ Do not plan to carry out construction activities within this area between April 15 to June 1st
- ٠ If construction activity is required within this area between April 15 to June 1st, contact Manitoba Hydro Environmental Officer to discuss potential mitigation options

ESS Group: Conservation

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Luse-100	Spy Hill-Ellice Community Pasture	69 to 70	E-330143 N-5598478	E-324439 N-5599419	6441

Potential Effects:

Potential loss of habitat for plants of conservation concern and grassland species/communities

Specific Mitigation (ID #215):

- ٠ Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Use existing access roads and trails to the extent possible
- Remove trees by low ground disturbance methods that protect shrubs and understory
- ٠ Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan and for ٠ mitigation measures
- Marshalling yards and/or worker accommodations will not be developed within in Spy Hill-Ellice Community Pasture

ESS Group: Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-103	Spy Hill-Ellice Community Pasture - grassland habitat	71 to 72	E-329348 N-5598503	E-328508 N-5598817	937
Eco-104	Spy Hill-Ellice Community Pasture - grassland habitat	73 to 74	E-328409 N-5598889	E-327766 N-5599353	792
Eco-105	Spy Hill-Ellice Community Pasture - grassland habitat	75 to 76	E-327619 N-5599422	E-327577 N-5599452	51

Potential Effects:

Potential impact and disruption to rare plant habitat

Specific Mitigation (ID #216):

- ٠ Spy Hill-Ellice Community Pasture
- Perch deterrents will be installed on transmission line infrastructure within grassland habitat areas as Development

Tower foundations that limit disturbance of soil will be utilized within grassland habitat areas within the

identified through the environmental monitoring program, and in consultation with Manitoba Sustainable



	Coordinate System: UTM Zone 14N NAD83 Data Source: MB Hydro, ProvMB, NRCAN	Land Base	Project Infrastructure	Sensitive Site (Polygon)	Land Use ESS	Wildlife ESS	
	Date Created: January 10, 2018	Land Parcel	Final Preferred Route	Water ESS	Conservation	Reptiles/Amphibians Habitat	
Manitoba		Local Road / Trail	Project Right Of Way	Water Crossing	Water ESS	ESS Start Stop	Cons
Hydro		Community Pasture	Sensitive Sites	Ecosystem ESS	C Wetland	 Start/Stop Point 	Envi
	Metres		 Sensitive Site (Point) 	T Habitat			
	1:5,000						

Birtle Transmission Project struction Environmental Protection Plan rironmentally Sensitive Site (ESS) Locations

ESS Group: Conservation

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Luse-100	Spy Hill-Ellice Community Pasture	69 to 70	E-330143 N-5598478	E-324439 N-5599419	6441

Potential Effects:

Potential loss of habitat for plants of conservation concern and grassland species/communities

Specific Mitigation (ID #215):

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Use existing access roads and trails to the extent possible
- Remove trees by low ground disturbance methods that protect shrubs and understory
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan and for mitigation measures
- Marshalling yards and/or worker accommodations will not be developed within in Spy Hill-Ellice **Community Pasture**

ESS Group: Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-105	Spy Hill-Ellice Community Pasture - grassland habitat	75 to 76	E-327619 N-5599422	E-327577 N-5599452	51
Eco-106	Spy Hill-Ellice Community Pasture - grassland habitat	79 to 80	E-327577 N-5599489	E-327324 N-5599672	312
Eco-107	Spy Hill-Ellice Community Pasture - grassland habitat	83 to 84	E-326551 N-5600100	E-326248 N-5600108	303

Potential Effects:

Potential impact and disruption to rare plant habitat

Specific Mitigation (ID #216):

- Tower foundations that limit disturbance of soil will be utilized within grassland habitat areas within the Spy Hill-Ellice Community Pasture
- Perch deterrents will be installed on transmission line infrastructure within grassland habitat areas as identified through the environmental monitoring program, and in consultation with Manitoba Sustainable Development

ESS Group: Reptiles/Amphibians Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-309	Northern leopard frog site	77 to 78	E-327607 N-5599467	E-327577 N-5599489	37

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):

- 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

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)	Habitat Sensitivity
Aqua-316	Spring fed Water Crossing	E-327591 N-5599479	8.0	1.0	Н

Potential Effects:

Potential disturbance to spring from clearing, construction, maintenance and decommissioning activities

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

Version: Draft

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

be installed around the site after a sweep survey and prior to work taking place

ESS Group: Wetland

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-314	Wetland	81 to 82	E-326952 N-5599903	E-326926 N-5599922	33

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 ٠
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Manitoba Hydro	Coordinate System: UTM Zone 14N NAD83 Data Source: MB Hydro, ProvMB, NRCAN	Land Base	Project Infrastructure	Sensitive Site (Polygon)	ESS Start Stop	
	Date Created: January 10, 2018	Land Parcel	— Final Preferred Route	Ecosystem ESS	 Start/Stop Point 	
		Local Road / Trail	Project Right Of Way	Z Habitat		Const
		Community Pasture	Sensitive Sites	Land Use ESS		Envir
	Metres		 Sensitive Site (Point) 	Conservation		
	1:5,000					

Birtle Transmission Project truction Environmental Protection Plan ronmentally Sensitive Site (ESS) Locations

ESS Group: Conservation

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Luse-100	Spy Hill-Ellice Community Pasture	69 to 70	E-330143 N-5598478	E-324439 N-5599419	6441

Potential Effects:

Potential loss of habitat for plants of conservation concern and grassland species/communities

Specific Mitigation (ID #215):

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion Use existing access roads and trails to the extent possible Remove trees by low ground disturbance methods that protect shrubs and understory ٠
- ٠
- ٠
- ٠ Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan and for ٠ mitigation measures
- ٠ Marshalling yards and/or worker accommodations will not be developed within in Spy Hill-Ellice Community Pasture

ESS Group: Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-108	Spy Hill-Ellice Community Pasture - grassland habitat	85 to 86	E-326164 N-5600110	E-325439 N-5600129	725
Eco-109	Spy Hill-Ellice Community Pasture - grassland habitat	87 to 88	E-325406 N-5600105	E-325079 N-5599873	400
Eco-110	Spy Hill-Ellice Community Pasture - grassland habitat	89 to 90	E-325007 N-5599822	E-324932 N-5599769	92
Eco-111	Spy Hill-Ellice Community Pasture - grassland habitat	91 to 92	E-324782 N-5599663	E-324439 N-5599419	420

Potential Effects:

Potential impact and disruption to rare plant habitat

Specific Mitigation (ID #216):

- Tower foundations that limit disturbance of soil will be utilized within grassland habitat areas within the Spy Hill-Ellice Community Pasture
- Perch deterrents will be installed on transmission line infrastructure within grassland habitat areas as ٠ identified through the environmental monitoring program, and in consultation with Manitoba Sustainable Development

Available in accessible formats upon request