Appendix D Plants and Wildlife Species List

Type	Scientific Name	Common Names	CC	CW	SRank	Lrank
Herb	Medicago sativa ssp. sativa	Alfalfa		0	5 SNA	L+
Shrub	Cornus alternifolia	Alternate-leaved Dogwood		6	3 S5	L5
Tree	Fagus grandifolia	American Beech		6	3 S4	L4
Tree	Populus balsamifera	Balsam Poplar		4	-3 S5	L5
Tree	Tilia americana	Basswood		4	3 S5	L5
Herb	Galium sp	Bedstraw Species				
Herb	Lotus corniculatus	Bird's-foot Trefoil		0	3 SNA	L+
Woody Vine	Solanum dulcamara	Bittersweet Nightshade		0	0 SNA	L+
Tree	Fraxinus nigra	Black Ash		7	-3 S3	L4
Tree	Prunus serotina	Black Cherry		3	3 S5	L5
Tree	Robinia pseudo-acacia	Black Locust		0	4 SE5	L+
Shrub	Rubus occidentalis	Black Raspberry		2	5 S5	L5
Tree	Picea mariana	Black Spruce		8	-3 S5	L2
Tree	Juglans nigra	Black Walnut		5	3 S4?	L5
Herb	Rudbeckia hirta	Black-eyed Susan		0	3 S5	L4
Herb	Silene vulgaris	Bladder Campion		0	5 SNA	L+
Herb	Sanguinaria canadensis	Bloodroot		5	3 S5	L5
Shrub	Carpinus caroliniana	Blue Beech		6	0 S5	L4
Fern	Pteridium aquilinum	Bracken Fern		3	3 S5	L4
Shrub	Diervilla lonicera	Bush Honeysuckle		5	5 S5	L5
Herb	Ranunculus sp	Buttercup Species				
Tree	Juglans cinerea	Butternut		6	3 S2?	L3
Herb	Maianthemum canadense	Canada Mayflower		5	3 S5	L4
Herb	Cirsium arvense	Canada Thistle		0	3 SNA	L+
Herb	Typha sp	Cattail Species				
Herb	Cichorium intybus	Chicory		0	5 SNA	L+
Woody Vine	Celastrus scandens	Climbing Bittersweet		3	3 S5	L3
Herb	Tussilago farfara	Coltsfoot		0	3 SNA	L+

Type	Scientific Name	Common Names	CC	CW	SRank	Lrank
Herb	Sagittaria latifolia	Common Arrowhead		4	-5 S5	L4
Shrub	Rhamnus cathartica	Common Buckthorn		0	0 SNA	L+
Herb	Arctium minus	Common Burdock		0	5 SNA	L+
Herb	Oenothera biennis	Common Evening-primrose		0	3 S5	L5
Fern	Athyrium filix-femina	Common Lady Fern		4	0 S5	L5
Herb	Asclepias syriaca	Common Milkweed		0	5 S5	L5
Herb	Verbascum thapsus	Common Mullein		0	5 SNA	L+
Herb	Plantago major	Common Plantain		0	3 SNA	L+
Shrub	Ligustrum vulgare	Common Privet		0	3 SNA	L+
Herb	Ambrosia artemisiifolia	Common Ragweed		0	3 S5	L5
Graminoid	Phragmites australis ssp. australis	Common Reed		0	-3 SNA	L+
Herb	Hypericum perforatum	Common St. John's-wort		0	5 SNA	L+
Herb	Dipsacus fullonum	Common Teasel		0	3 SNA	L+
Herb	Valeriana officinalis	Common Valerian		0	3 SNA	L+
Herb	Achillea millefolium	Common Yarrow		0	3 SNA	L+
Vine	Vicia cracca	Cow Vetch		0	5 SNA	L+
Shrub	Malus sp	Crabapple Species				
Herb	Securigera varia	Crown Vetch		0	5 SNA	L+
Herb	Rumex crispus	Curly Dock		0	0 SNA	L+
Herb	Erigeron annuus	Daisy Fleabane		0	1 S5	L5
Herb	Hesperis matronalis	Dame's Rocket		0	3 SNA	L+
Herb	Lemna sp	Duckweed Species				
Tree	Populus deltoides	Eastern Cottonwood		4	0 S5	L5
Tree	Tsuga canadensis	Eastern Hemlock		7	3 S5	L4
Tree	Thuja occidentalis	Eastern White Cedar		4	-3 S5	L5
Tree	Pinus strobus	Eastern White Pine		4	3 S5	L4
Herb	Inula helenium	Elecampane		0	3 SNA	L+
Herb	Circaea sp	Enchanter's Nightshade Species				

Type	Scientific Name	Common Names	CC	CW	SRank	Lrank
Tree	Populus alba	European White Poplar		0	5 SNA	L+
Herb	Maianthemum racemosum	False Solomon's Seal		4	3 S5	L5
Vine	Convolvulus arvensis	Field Bindweed		0	5 SNA	L+
Herb	Hieracium caespitosum	Field Hawkweed		0	5 SNA	L+
Herb	Nymphaea odorata	Fragrant White Water-lily		5	-5 S5	L3
Herb	Alliaria petiolata	Garlic Mustard		0	0 SNA	L+
Herb	Solidago sp	Goldenrod Species				
Shrub	Crataegus sp	Hawthorn Species				
Herb	Symphyotrichum cordifolium	Heart-leaved Aster		5	5 S5	L5
Herb	Geranium robertianum	Herb Robert		2	3 S5	L+?
Shrub	Viburnum opulus var. americanum	Highbush Cranberry		5	-3 S5	L3
Tree	Gleditsia triacanthos	Honey Locust		8	0 S2?	L+
Shrub	Lonicera sp	Honeysuckle Species				
Fern	Equisetum sp	Horsetail Species				
Herb	Arisaema triphyllum	Jack-in-the-pulpit		5	-2 S5	L5
Herb	Centaurea sp	Knapweed Species				
Tree	Populus grandidentata	Largetooth Aspen		5	5 S5	L4
Herb	Euphorbia esula	Leafy Spurge		0	5 SNA	L+
Tree	Acer negundo	Manitoba Maple		0	-2 S5	L+?
Herb	Tragopogon pratensis	Meadow Goat's-beard		0	5 SNA	L+
Herb	Thalictrum sp	Meadow-rue Species				
Fern	Matteuccia struthiopteris	Ostrich Fern		5	0 S5	L5
Herb	Leucanthemum vulgare	Ox-eye Daisy		0	5 SNA	L+
Herb	Sonchus arvensis	Perennial Sow-thistle		0	3 SNA	L+
Herb	Impatiens glandulifera	Pink Touch-me-not		0	-3 SNA	L+
Herb	Potamogeton sp	Pondweed Species				
Tree	Fraxinus pennsylvanica	Red Ash		3	-3 S4	L5
Herb	Actaea rubra	Red Baneberry		5	5 S5	L5

Type	Scientific Name	Common Names	CC	CW	SRank	Lrank
Herb	Trifolium pratense	Red Clover		0	3 SNA	L+
Shrub	Sambucus racemosa	Red Elderberry		5	3 S5	L5
Tree	Acer rubrum	Red Maple		4	0 S5	L4
Tree	Quercus rubra	Red Oak		6	3 S5	L4
Tree	Pinus resinosa	Red Pine		8	3 S5	L1
Shrub	Cornus stolonifera	Red-osier Dogwood		2	-3 S5	L5
Graminoid	Phalaris arundinacea	Reed Canary Grass		0	-3 S5	L+?
Woody Vine	Vitis riparia	Riverbank Grape		0	0 S5	L5
Herb	Streptopus lanceolatus	Rose Twisted Stalk		7	3 S5	L3
Shrub	Cornus rugosa	Round-leaved Dogwood		6	5 S5	L4
Shrub	Salix interior	Sandbar Willow		1	-3 S5	L5
Tree	Pinus sylvestris	Scots Pine		0	3 SNA	L+
Fern	Equisetum hyemale ssp. affine	Scouring Rush		2	0 S5	L5
Fern	Onoclea sensibilis	Sensitive Fern		4	-3 S5	L5
Herb	Anemone acutiloba	Sharp-lobed Hepatica		6	5 S5	L3
Herb	Pyrola elliptica	Shinleaf		5	5 S5	L3
Tree	Ulmus pumila	Siberian Elm		0	3 SNA	L+
Graminoid	Bromus inermis	Smooth Brome		0	5 SNA	L+
Herb	Polygonatum sp	Solomon's Seal Species				
Shrub	Alnus incana ssp. rugosa	Speckled Alder		6	-5 S5	L3
Fern	Dryopteris carthusiana	Spinulose Wood Fern		5	-3 S5	L5
Herb	Centaurea stoebe	Spotted Knapweed		0	5 SNA	L+
Herb	Impatiens capensis	Spotted Touch-me-not		4	-3 S5	L5
Shrub	Rhus typhina	Staghorn Sumac		1	3 S5	L5
Tree	Acer saccharum ssp. saccharum	Sugar Maple		4	3 S5	L5
Tree	Platanus occidentalis	Sycamore		8	-3 S4	L2
Herb	Tanacetum vulgare	Tansy		0	5 SNA	L+
Woody Vine	Parthenocissus vitacea	Thicket Creeper		4	3 S5	L5

Type	Scientific Name	Common Names	CC	CW	SRank	Lrank
Tree	Populus tremuloides	Trembling Aspen		2	0 S5	L5
Herb	Trillium sp	Trillium Species				
Herb	Echium vulgare	Viper's Bugloss		0	5 SNA	L+
Woody Vine	Parthenocissus quinquefolia	Virginia Creeper		6	3 S4?	L5
Herb	Geum canadense	White Avens		3	0 S5	L5
Tree	Betula papyrifera	White Birch		2	3 S5	L4
Tree	Ulmus americana	White Elm		3	-3 S5	L5
Herb	Prenanthes sp	White Lettuce Species				
Tree	Picea glauca	White Spruce		6	3 S5	L3
Herb	Melilotus albus	White Sweet-clover		0	3 SNA	L+
Herb	Trillium grandiflorum	White Trillium		5	3 S5	L4
Herb	Monarda fistulosa	Wild Bergamot		6	3 S5	L5
Herb	Daucus carota	Wild Carrot		0	5 SNA	L+
Herb	Matricaria chamomila	Wild Chamomile		0	5 SNA	L+
Shrub	Rubus idaeus	Wild Red Raspberry		2	3 S5	L5
Herb	Aralia nudicaulis	Wild Sarsaparilla		4	3 S5	L5
Shrub/Tree	Salix sp	Willow Species				
Fern	Dryopteris sp	Wood Fern Species				
Herb	Fragaria vesca	Woodland Strawberry		4	3 S5	L5
Herb	Geum aleppicum	Yellow Avens		2	0 S5	L5
Herb	Galium verum	Yellow Bedstraw		0	5 SNA	L+
Tree	Betula alleghaniensis	Yellow Birch		6	0 S5	L4
Herb	Clinopodium vulgare	Wild Basil		4	5 S5	L5
Herb	Solidago flexicaulis	Zig-zag Goldenrod		6	3 S5	L5
Tree	Kentucky Coffee-tree	Gymnocladus dioicus		6	5 S2?	L+

Common Name	Scientific Name	SARO Status	Srank	Lrank	Observed in Overall IEA Study Area	Observed in Focal Study Area	New Observation in Technically Preferred Alternative Study Area
Alder Flycatcher	Empidonax alnorum	Not at Risk	S5	L4	Yes	No	No
American Crow	Corvus brachyrhynchos	Not at Risk	S5B	L5	Yes	Yes	No
American Goldfinch	Spinus tristis	Not at Risk	S5B	L5	Yes	Yes	No
American Kestrel	Falco sparverius	Not at Risk	S4	L4	No	Yes	No
American Redstart	Setophaga ruticilla	Not at Risk	S5B	L4	Yes	Yes	No
American Robin	Turdus migratorius	Not at Risk	S5B	L5	Yes	Yes	No
American Woodcock	Scolopax minor	Not at Risk	S4B	L3	No	Yes	No
Baltimore Oriole	Icterus galbula	Not at Risk	S4B	L5	Yes	Yes	No
Barn Swallow	Hirundo rustica	Special Concern	S5B	L4	Yes	Yes	No
Black-capped Chickadee	Poecile atricapillus	Not at Risk	S5	L5	Yes	Yes	No
Black-throated Green Warb	Setophaga virens	Not at Risk	S5	L3	Yes	No	No
Blue Jay	Cyanocitta cristata	Not at Risk	S5	L5	Yes	Yes	No
Bobolink	Dolichonyx oryzivorus	Threatened	S4B	L3	No	Yes	No
Brown-headed Cowbird	Molothrus ater	Not at Risk	S4B	L5	No	Yes	No
Cedar Waxwing	Bombycilla cedrorum	Not at Risk	S5B	L5	Yes	Yes	No
Chipping Sparrow	Spizella passerina	Not at Risk	S5B	L5	No	Yes	No
Clay-coloured Sparrow	Spizella pallida	Not at Risk	S4B	L3	No	Yes	No
Cliff Swallow	Petrochelidon pyrrhonota	Not at Risk	S5	L5	Yes	No	No
Common Grackle	Quiscalus quiscula	Not at Risk	S5B	L5	No	Yes	No
Common Yellowthroat	Geothlypis trichas	Not at Risk	S5B	L4	Yes	Yes	No
Downy Woodpecker	Picoides pubescens	Not at Risk	S5	L5	Yes	Yes	No
Eastern Kingbird	Tyrannus tyrannus	Not at Risk	S4B	L4	Yes	Yes	No
Eastern Meadowlark	Sturnella magna	Threatened	S4B	L3	No	Yes	No
Eastern Phoebe	Sayornis phoebe	Not at Risk	S5	L5	Yes	No	No
Eastern Towhee	Piplio erythrophthalmus	Not at Risk	S4B	L3	No	Yes	No
Eastern Wood-pewee	Contopus virens	Special Concern	S4B	L4	Yes	Yes	No
European Starling	Sturnus vulgaris	Not at Risk	Introduced	L+	Yes	No	No

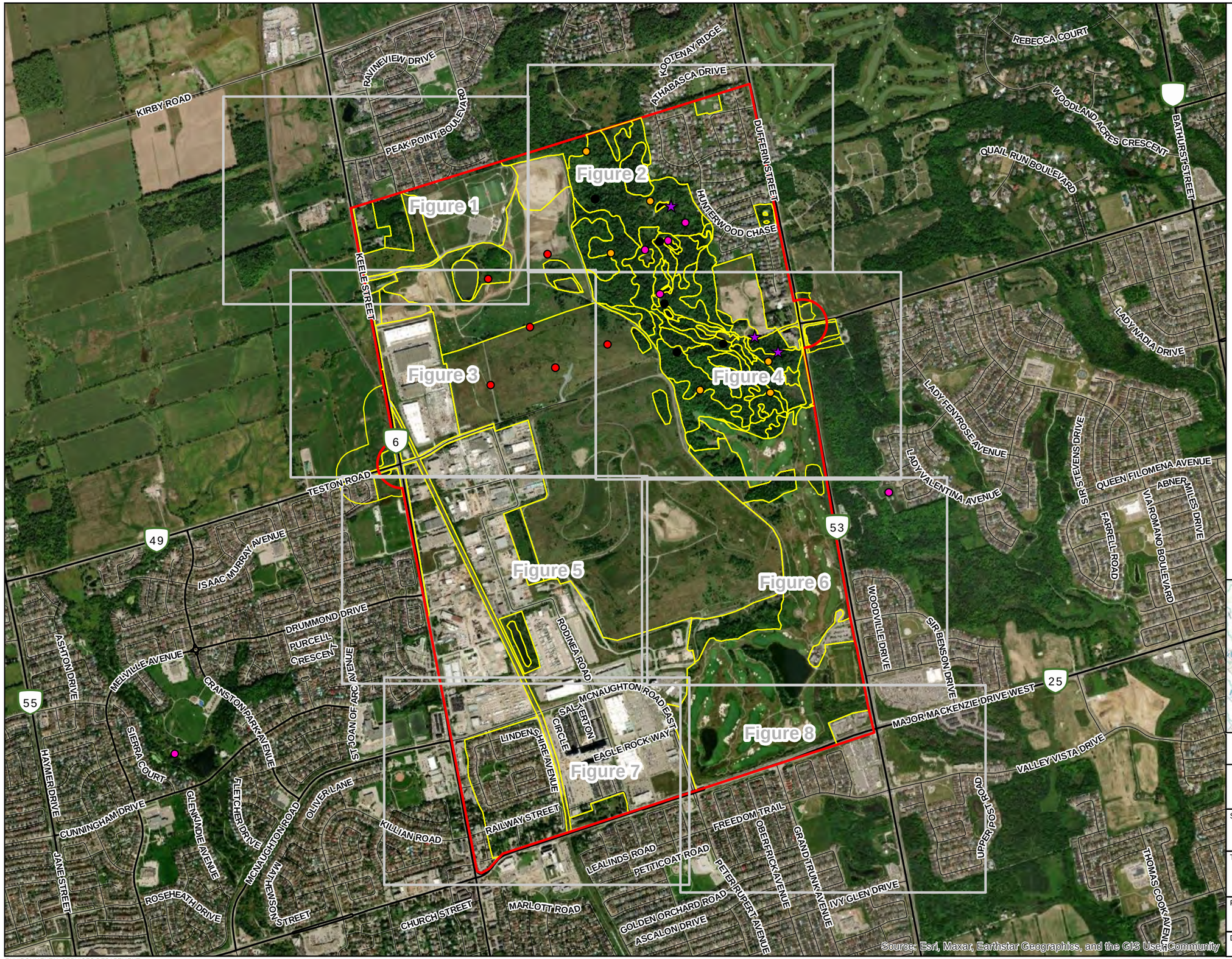
Common Name	Scientific Name	SARO Status	Srank	Lrank	Observed in Overall IEA Study Area	Observed in Focal Study Area	New Observation in Technically Preferred Alternative Study Area
Field Sparrow	Spizella pusilla	Not at Risk	S4B	L4	Yes	Yes	No
Gray Catbird	Dumetella carolinensis	Not at Risk	S4B	L4	No	Yes	No
Great Blue Heron	Ardea herodias	Not at Risk	S4	L3	Yes	Yes	No
Great Crested Flycatcher	Myiarchus crinitus	Not at Risk	S4B	L4	Yes	Yes	No
Gull sp.	Larus sp.	Not at Risk			No	Yes	No
Hairy Woodpecker	Picoides villosus	Not at Risk	S5	L4	Yes	Yes	No
Horned Lark	Eremophila alpestris	Not at Risk	S5B	L3	No	Yes	No
House Sparrow	Passer domesticus	Not at Risk	SNA	L+	No	Yes	No
House Wren	Troglodytes aedon	Not at Risk	S5B	L5	Yes	Yes	No
Indigo Bunting	Passerina cyanea	Not at Risk	S4B	L4	Yes	Yes	No
Killdeer	Charadrius vociferus	Not at Risk	S5B, S5N	L4	Yes	Yes	No
Least Flycatcher	Empidonax minimus	Not at Risk	S4B	L4	No	Yes	No
Magnolia Warbler	Setophaga magnolia	Not at Risk	S5B	L3	No	Yes	No
Mallard	Anas platyrhynchos	Not at Risk	S5	L5	Yes	Yes	No
Mourning Dove	Zenaida macroura	Not at Risk	S5	L5	No	Yes	No
Mourning Warbler	Geothlypis philadelphia	Not at Risk	S4B	L3	No	Yes	No
Northern Cardinal	Cardinalis cardinalis	Not at Risk	S5	L5	Yes	Yes	No
Northern Flicker	Colaptes auratus	Not at Risk	S4B	L4	Yes	Yes	No
Northern Mockingbird	Mimus polyglottos	Not at Risk	S4	L4	No	Yes	No
Orchard Oriole	Icterus spurius	Not at Risk	S4B	L5	No	Yes	No
Osprey	Pandion haliaetus	Not at Risk	S5B	L3	Yes	Yes	No
Pileated Woodpecker	Dryocopus pileatus	Not at Risk	S5	L3	Yes	Yes	No
Pine Warbler	Setophaga pinus	Not at Risk	S5B	L4	No	Yes	No
Red-bellied Woodpecker	Melanerpes carolinus	Not at Risk	S4	L5	No	Yes	No
Red-breasted Nuthatch	Sitta canadensis	Not at Risk	S5	L5	Yes	Yes	No
Red-eyed Vireo	Vireo olivaceus	Not at Risk	S5B	L4	Yes	Yes	No
Red-tailed Hawk	Buteo jamaicensis	Not at Risk	S5	L5	No	Yes	No

Common Name	Scientific Name	SARO Status	Srank	Lrank	Observed in Overall IEA Study Area	Observed in Focal Study Area	New Observation in Technically Preferred Alternative Study Area
Red-winged Blackbird	Agelaius phoeniceus	Not at Risk	S4	L5	Yes	Yes	No
Ring-billed Gull	Larus delawarensis	Not at Risk	S5B, S4N	L4	No	Yes	No
Rose-breasted Grosbeak	Pheucticus ludovicianus		S4/S5	L4	Yes	No	No
Savannah Sparrow	Passerculus sandwichensis	Not at Risk	S4B	L4	Yes	Yes	No
Scarlet Tanager	Piranga olivacea	Not at Risk	S4B	L3	No	Yes	No
Song Sparrow	Melospiza melodia	Not at Risk	S5B	L5	Yes	Yes	No
Spotted Sandpiper	Actitis macularius	Not at Risk	S5	L4	Yes	No	No
Swainson's Thrush	Catharus ustulatus	Not at Risk	S4B	Not listed	No	Yes	No
Swamp Sparrow	Melospiza georgiana	Not at Risk	S5B	L4	Yes	Yes	No
Tree Swallow	Tachycineta bicolor	Not at Risk	S4B	L4	No	Yes	No
Turkey Vulture	Cathartes aura	Not at Risk	S5B	L5	Yes	Yes	No
Vesper Sparrow	Pooecetes gramineus	Not at Risk	S4B	L3	No	Yes	No
Warbling Vireo	Vireo gilvus	Not at Risk	S5B	L5	No	Yes	No
White-breasted Nuthatch	Sitta carolinensis	Not at Risk	S5	L4	Yes	Yes	No
Wild Turkey	Meleagris gallopavo	Not at Risk	S5	L3	Yes	Yes	No
Willow Flycatcher	Empidonax traillii	Not at Risk	S5B	L4	No	Yes	No
Winter Wren	Troglodytes hiemalis	Not at Risk	S5B	L3	Yes	Yes	No
Wood Thrush	Hylocichla mustelina	Special Concern	S4B	L3	Yes	Yes	No
Yellow Warbler	Setophaga petechia	Not at Risk	S5B	L5	Yes	Yes	No
Yellow-rumped Warbler	Setophaga coronata	Not at Risk	S5B	L3	Yes	No	No

Common Name	Scientific Name	SARO Status	Srank	Lrank	Observed in Overall IEA Study Area	Observed in Focal Study Area	New Observation in Technically Preferred Alternative Study Area
Eastern Chipmunk	Tamias striatus	Not at Risk	S5	L4	No	Yes	No
Eastern Cottontail	Sylvilagus floridanus	Not at Risk	S5	L4	No	Yes	No
White-tailed Deer	Odocoileus virginianus	Not at Risk	S5	L4	No	Yes	No
Eastern Gray Squirrel	Sciurus carolinensis	Not at Risk	S5	L5	No	Yes	No
Striped Skunk	Mephitis mephitis	Not at Risk	S5	L5	No	Yes	No
Raccoon	Procyon lotor	Not at Risk	S5	L5	No	No	Yes
Beaver	Castor canadensus	Not at Risk	S5	L4	Yes	No	No
Red Fox	Vulpes vulpes	Not at Risk	S5	L4	Yes	No	No
Spring Peeper	Pseudacris crucifer	Not at Risk	S5	L2	No	Yes	No
Midland Painted Turtle	Chrysemys picta marginata	Not at Risk	S4	L3	Yes	Yes	No
American Toad	Anaxyrus americanus	Not at Risk	S5	L4	Yes	Yes	No
Green Frog	Lithobates clamitans	Not at Risk	S5	L4	Yes	Yes	No
Eastern Gartersnake	Thamnophis sirtalis sirtalis	Not at Risk	S5	L4	No	No	Yes
Gray Treefrog	Hyla versicolor	Not at Risk	S5	L2	Yes	No	No
Wood Frog	Lithobates sylvatica	Not at Risk	S4	L2	Yes	No	No
Snapping Turtle	Chelydra serpentina	Special Conce	S4	L3	Yes	No	No

Common Name	Scientific Name	SARO Status	Srank	Lrank	Observed in Overall IEA Study Area	Observed in Focal Study Area	New Observation in Technically Preferred Alternative Study Area
Black Swallowtail	Papilio polyxenes	Not at Risk	S5	N/A	No	Yes	No
Bluet sp.	Enallagma sp			N/A	No	Yes	No
Brush-footed Butterflies	Nymphalidae			N/A	No	Yes	No
Cabbage White	Pieris rapae	Not at Risk	SNA	N/A	No	Yes	No
Common European Amber Snail	Succinea putris	Not at Risk	SNA	N/A	No	Yes	No
Litter Moths	Zanclognatha sp.			N/A	No	Yes	No
Monarch	Danaus plexippus	Special Conce	S2N,S4B	N/A	No	Yes	No
Narrow-winged Damselflies	Coenagrionidae			N/A	No	Yes	No
Silvery Blue	Glaucopsyche lygdamus	Not at Risk	S5	N/A	No	Yes	No
Stink Bugs	Pentatomidae			N/A	No	Yes	No

Appendix E ELC Mapping



LEGEND

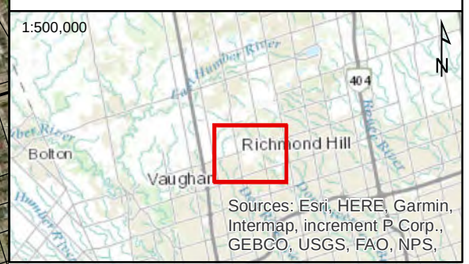
- Focal Study Area (2021)
- Ecological Land Classification
- 2020 SAR Observation Locations
- 2021 Butternut Observation (+/- 12m)

Breeding Bird Survey Locations

- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

Transportation Network

- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR

MORRISON HERSHFIELD

SCALE: 1:18,000

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Meters

TITLE: **Ecological Land Classification, Breeding Bird Survey Locations, and SAR Observations**

PROJECT NO.: 190261800

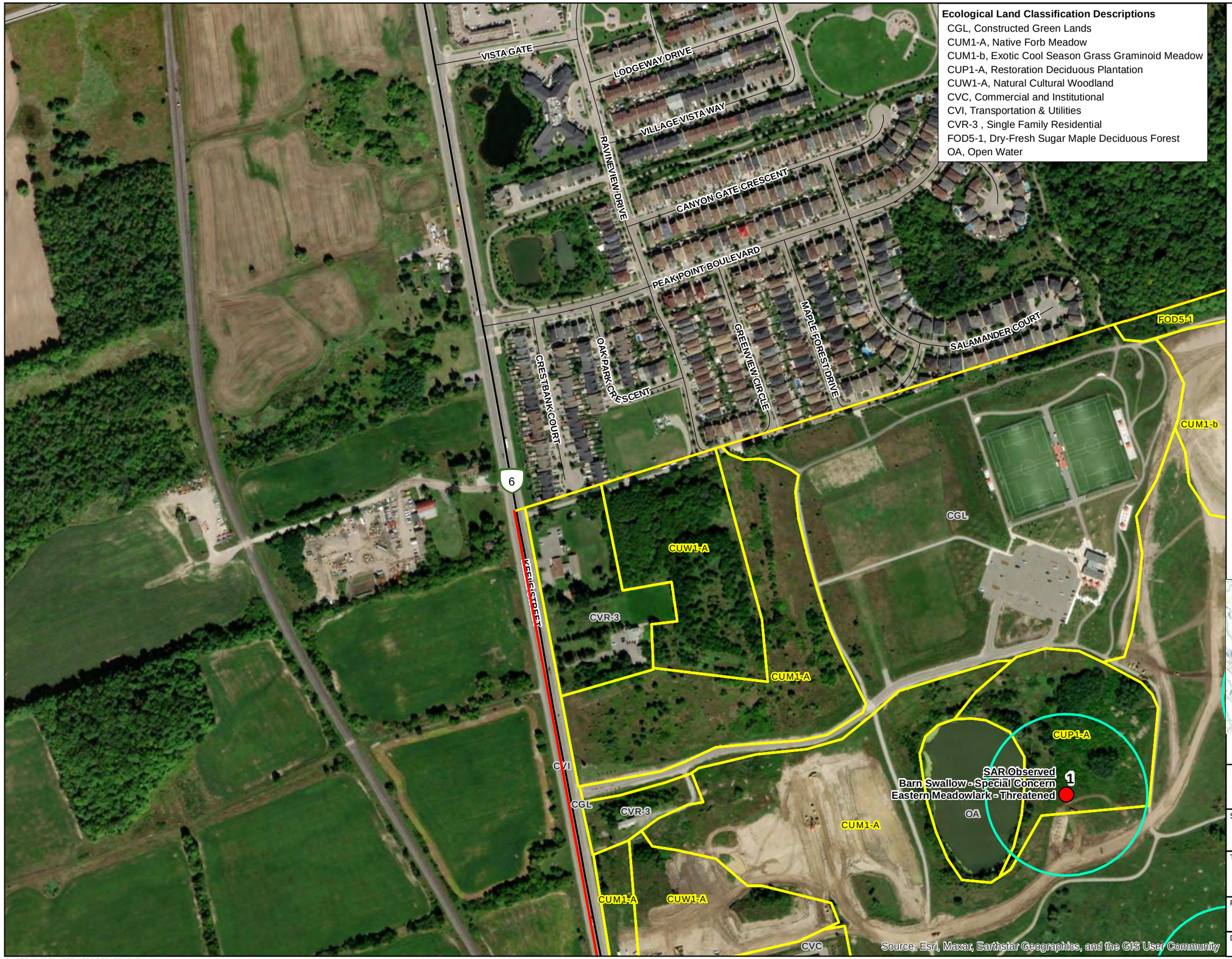
Teston Road

DATE: **March 2024**

Overview

ENVIRONMENTAL SERVICES DEPARTMENT

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Ecological Land Classification Descriptions

CGL, Constructed Green Lands
CUM1-A, Native Forb Meadow
CUM1-b, Exotic Cool Season Grass Graminoid Meadow
CUP1-A, Restoration Deciduous Plantation
CUW1-A, Natural Cultural Woodland
CVC, Commercial and Institutional
CVI, Transportation & Utilities
CVR-3 , Single Family Residential
FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
OA, Open Water

LEGEND

- Focal Study Area (2021)
- Ecological Land Classification
- Approximate Limit of Breeding Bird Survey
- 2020 SAR Observation Locations
- 2021 Butternut Observation (+/- 12m)

Breeding Bird Survey Locations

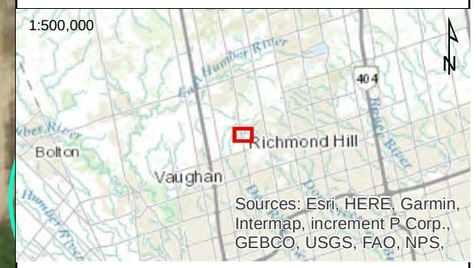
- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

ELC Community L Rank

L2
L3
L4
L+, L5
Not Ranked

Transportation Network

- Expressway / Highway / Freeway
- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR

MORRISON HERSHFIELD

SCALE: 1:4,500
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TITLE: **Ecological Land Classification, Breeding Bird Survey Locations, and SAR Observations**

PROJECT NO.: 190261800

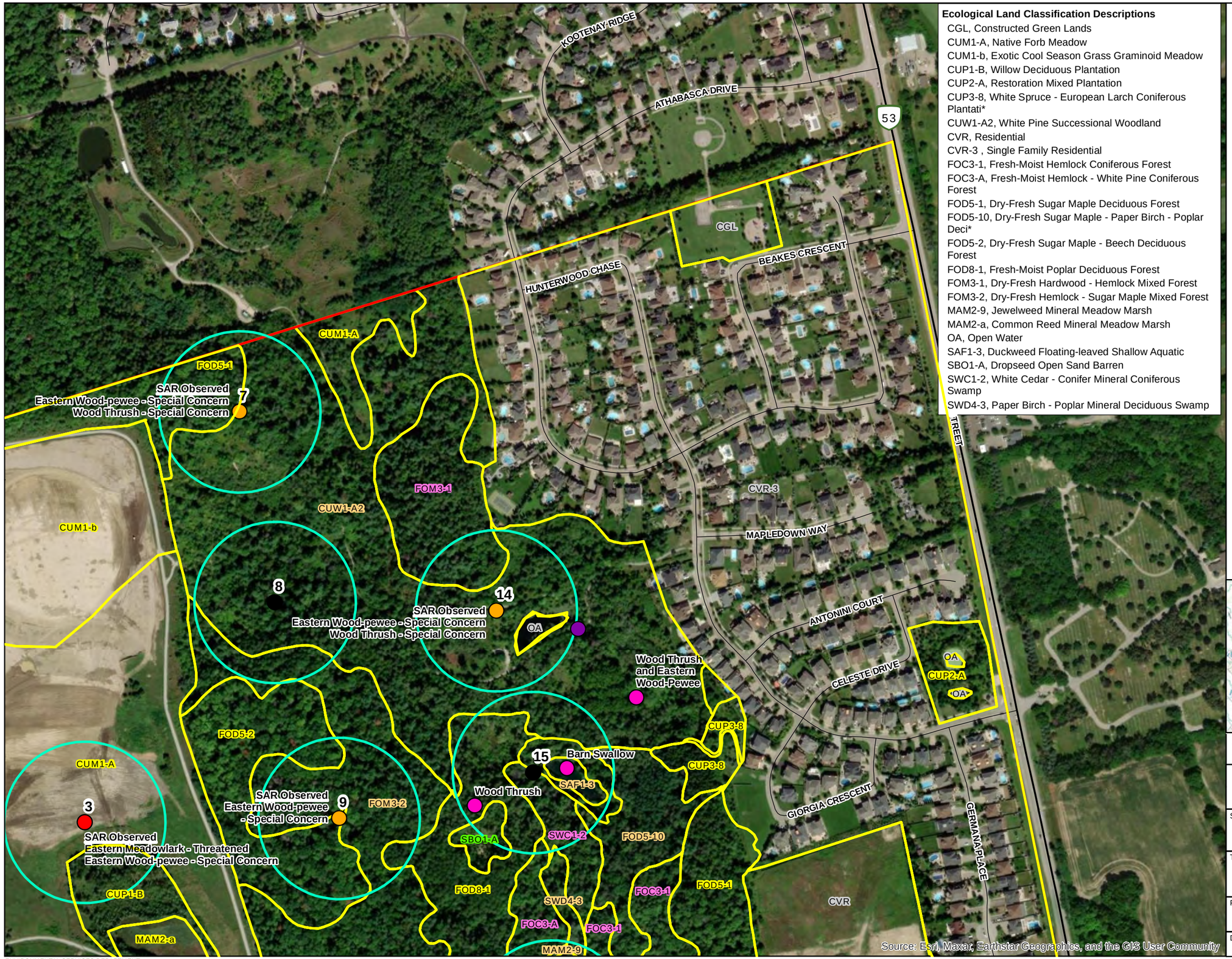
Teston Road

DATE: **March 2024**

Figure 1

ENVIRONMENTAL SERVICES DEPARTMENT

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Ecological Land Classification Descriptions

- CGL, Constructed Green Lands
- CUM1-A, Native Forb Meadow
- CUM1-b, Exotic Cool Season Grass Graminoid Meadow
- CUP1-B, Willow Deciduous Plantation
- CUP2-A, Restoration Mixed Plantation
- CUP3-8, White Spruce - European Larch Coniferous Plantati*
- CUW1-A2, White Pine Successional Woodland
- CVR, Residential
- CVR-3 , Single Family Residential
- FOC3-1, Fresh-Moist Hemlock Coniferous Forest
- FOC3-A, Fresh-Moist Hemlock - White Pine Coniferous Forest
- FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
- FOD5-10, Dry-Fresh Sugar Maple - Paper Birch - Poplar Deci*
- FOD5-2, Dry-Fresh Sugar Maple - Beech Deciduous Forest
- FOD8-1, Fresh-Moist Poplar Deciduous Forest
- FOM3-1, Dry-Fresh Hardwood - Hemlock Mixed Forest
- FOM3-2, Dry-Fresh Hemlock - Sugar Maple Mixed Forest
- MAM2-9, Jewelweed Mineral Meadow Marsh
- MAM2-a, Common Reed Mineral Meadow Marsh
- OA, Open Water
- SAF1-3, Duckweed Floating-leaved Shallow Aquatic
- SBO1-A, Dropseed Open Sand Barren
- SWC1-2, White Cedar - Conifer Mineral Coniferous Swamp
- SWD4-3, Paper Birch - Poplar Mineral Deciduous Swamp

LEGEND

- Focal Study Area (2021)
- Ecological Land Classification
- Approximate Limit of Breeding Bird Survey
- 2020 SAR Observation Locations
- 2021 Butternut Observation (+/- 12m)

Breeding Bird Survey Locations

- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

ELC Community L Rank

L2
L3
L4
L+, L5
Not Ranked

Transportation Network

- Expressway / Highway / Freeway
- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR

MORRISON HERSHFIELD

SCALE: 1:4,500
0 30 60 120 180 240
Meters

TITLE: **Ecological Land Classification, Breeding Bird Survey Locations, and SAR Observations**

PROJECT NO.: 190261800

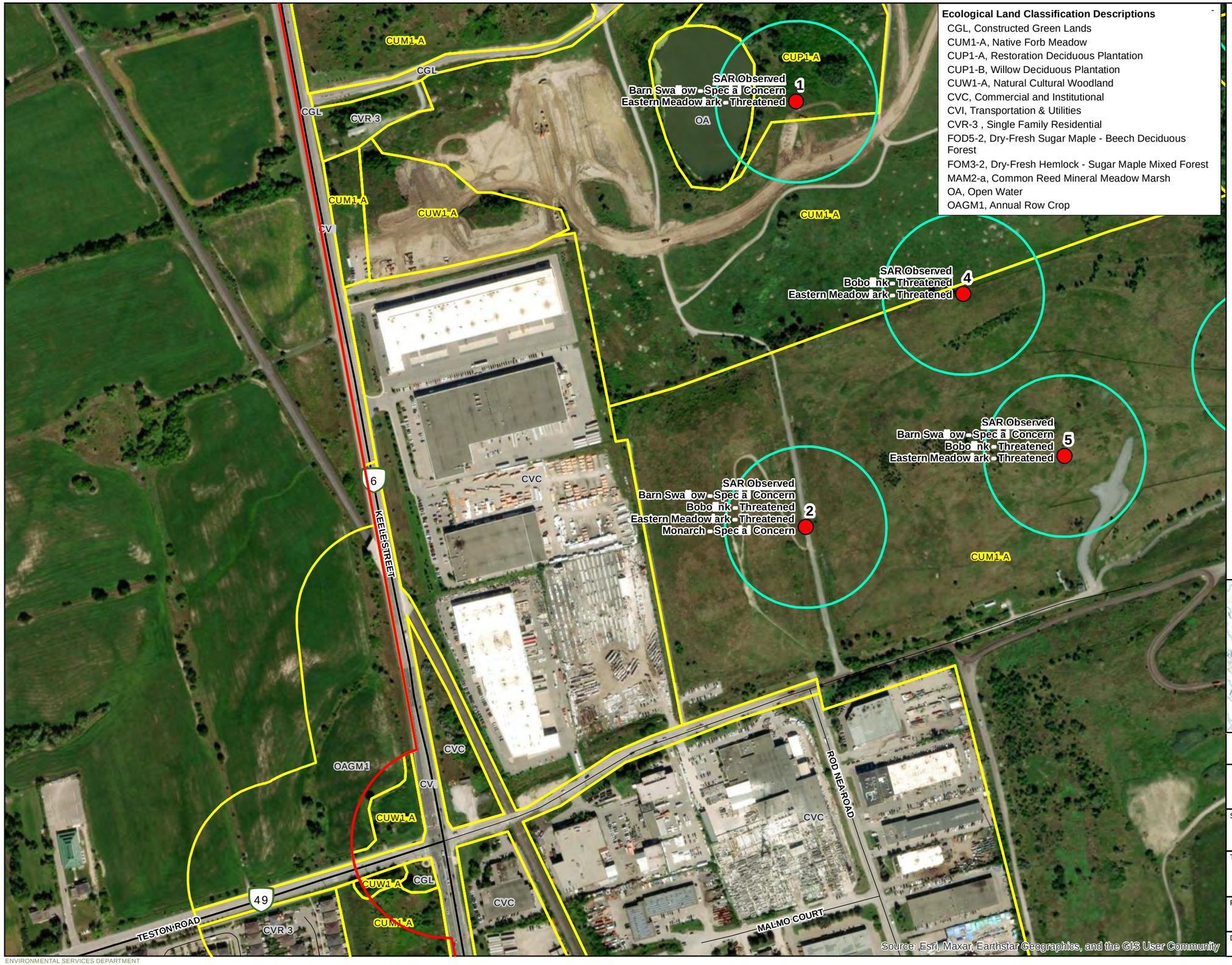
Teston Road

DATE: **March 2024**

Figure 2

ENVIRONMENTAL SERVICES DEPARTMENT

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Ecological Land Classification Descriptions

- CGL, Constructed Green Lands
- CUM1-A, Native Forb Meadow
- CUP1-A, Restoration Deciduous Plantation
- CUP1-B, Willow Deciduous Plantation
- CUW1-A, Natural Cultural Woodland
- CVC, Commercial and Institutional
- CVI, Transportation & Utilities
- CVR-3 , Single Family Residential
- FOD5-2, Dry-Fresh Sugar Maple - Beech Deciduous Forest
- FOM3-2, Dry-Fresh Hemlock - Sugar Maple Mixed Forest
- MAM2-a, Common Reed Mineral Meadow Marsh
- OA, Open Water
- OAGM1, Annual Row Crop

LEGEND

- Focal Study Area (2021)
- Ecological Land Classification
- Approximate Limit of Breeding Bird Survey
- 2020 SAR Observation Locations
- 2021 Butternut Observation (+/- 12m)

Breeding Bird Survey Locations

- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

ELC Community L Rank

- L2
- L3
- L4
- L+, L5
- Not Ranked

Transportation Network

- Expressway / Highway / Freeway
- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR

MORRISON HERSHFIELD

SCALE: 1:4,500
0 30 60 120 180 240
Meters

TITLE: **Ecological Land Classification, Breeding Bird Survey Locations, and SAR Observations**

PROJECT NO.: 190261800

Teston Road

DATE: **March 2024**

Figure 3

ENVIRONMENTAL SERVICES DEPARTMENT

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Ecological Land Classification Descriptions

- CGL, Constructed Green Lands
- CUM1-A, Native Forb Meadow
- CUM1-C, Exotic Forb Old Field Meadow
- CUM1-b, Exotic Cool Season Grass Graminoid Meadow
- CUP1-4, Hybrid Poplar Deciduous Plantation
- CUP2-f, Hybrid Poplar - Conifer Mixed Plantation
- CUP3-H, Mixed Conifer Coniferous Plantation
- CUT1-1, Sumac Deciduous Thicket
- CUW1-A, Natural Cultural Woodland
- CVI, Transportation & Utilities
- CVR, Residential
- CVR-2, High Density Residential
- CVR-3 , Single Family Residential
- CVR-4, Rural Property
- FOC1-2, Dry-Fresh White Pine (- Red Pine) Coniferous Fore*
- FOC3-1, Fresh-Moist Hemlock Coniferous Forest
- FOC3-A, Fresh-Moist Hemlock - White Pine Coniferous Forest
- FOD2-4, Dry-Fresh Oak - Hardwood Deciduous Forest
- FOD3-1, Dry-Fresh Poplar Deciduous Forest
- FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
- FOD5-10, Dry-Fresh Sugar Maple - Paper Birch - Poplar Deci*
- FOD5-2, Dry-Fresh Sugar Maple - Beech Deciduous Forest
- FOD8-1, Fresh-Moist Poplar Deciduous Forest
- FOM3-1, Dry-Fresh Hardwood - Hemlock Mixed Forest
- FOM3-2, Dry-Fresh Hemlock - Sugar Maple Mixed Forest
- FOM5-1, Dry-Fresh Paper Birch Mixed Forest
- MAM2-10, Forb Mineral Meadow Marsh
- MAM2-9, Jewelweed Mineral Meadow Marsh
- SAF1-3, Duckweed Floating-leaved Shallow Aquatic
- SBO1-A, Dropseed Open Sand Barren
- SBO1-B, Flat-stemmed Bluegrass - Forb Open Sand Barren
- SWC1-1, White Cedar Mineral Coniferous Swamp
- SWC1-2, White Cedar - Conifer Mineral Coniferous Swamp
- SWD4-3, Paper Birch - Poplar Mineral Deciduous Swamp
- SWT2-5, Red Osier Dogwood Mineral Thicket Swamp

LEGEND

- Focal Study Area (2021)
- Ecological Land Classification
- Approximate Limit of Breeding Bird Survey
- 2020 SAR Observation Locations
- 2021 Butternut Observation (+/- 12m)

Breeding Bird Survey Locations

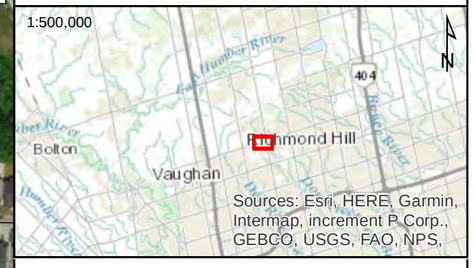
- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

ELC Community L Rank

- L2
- L3
- L4
- L+, L5
- Not Ranked

Transportation Network

- Expressway / Highway / Freeway
- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR

MORRISON HERSHFIELD

SCALE: 1:4,500
0 30 60 120 180 240
Meters

TITLE: **Ecological Land Classification, Breeding Bird Survey Locations, and SAR Observations**

PROJECT NO.: 190261800

Teston Road

DATE: **March 2024**

Figure 4

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Ecological Land Classification Descriptions

CGL, Constructed Green Lands
CUM1-A, Native Forb Meadow
CUP2-A, Restoration Mixed Plantation
CUW1-A, Natural Cultural Woodland
CVC, Commercial and Institutional
CVI, Transportation & Utilities
CVR-3 , Single Family Residential
OA, Open Water
OAGM1, Annual Row Crop

LEGEND

- Focal Study Area (2021)
- Ecological Land Classification
- Approximate Limit of Breeding Bird Survey
- 2020 SAR Observation Locations
- 2021 Butternut Observation (+/- 12m)

Breeding Bird Survey Locations

- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

ELC Community L Rank

L2
L3
L4
L+, L5
Not Ranked

Transportation Network

- Expressway / Highway / Freeway
- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR

MORRISON HERSHFIELD

SCALE: 1:4,500
0 30 60 120 180 240
Meters

TITLE: **Ecological Land Classification, Breeding Bird Survey Locations, and SAR Observations**

PROJECT NO.: 190261800

Teston Road

DATE: **March 2024**

Figure 5

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LEGEND

- Focal Study Area (2021)
- Ecological Land Classification
- Approximate Limit of Breeding Bird Survey
- 2020 SAR Observation Locations
- 2021 Butternut Observation (+/- 12m)

Breeding Bird Survey Locations

- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

ELC Community L Rank

L2
L3
L4
L+, L5
Not Ranked

Transportation Network

- Expressway / Highway / Freeway
- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR

MORRISON HERSHFIELD

SCALE: 1:4,500

0 30 60 120 180 240
Meters

TITLE: **Ecological Land Classification, Breeding Bird Survey Locations, and SAR Observations**

PROJECT NO.: 190261800

Teston Road

DATE: **March 2024**

Figure 6

ENVIRONMENTAL SERVICES DEPARTMENT

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Ecological Land Classification Descriptions

CGL, Constructed Green Lands
CUP2-A, Restoration Mixed Plantation
CVC, Commercial and Institutional
CVI, Transportation & Utilities
CVR-3 , Single Family Residential
OA, Open Water

LEGEND

- Focal Study Area (2021)
- Ecological Land Classification
- Approximate Limit of Breeding Bird Survey
- 2020 SAR Observation Locations
- 2021 Butternut Observation (+/- 12m)

Breeding Bird Survey Locations

- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

ELC Community L Rank

L2
L3
L4
L+, L5
Not Ranked

Transportation Network

- Expressway / Highway / Freeway
- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR

MORRISON HERSHFIELD

SCALE: 1:4,500
0 30 60 120 180 240
Meters

TITLE: **Ecological Land Classification, Breeding Bird Survey Locations, and SAR Observations**

PROJECT NO.: 190261800

Teston Road

DATE: **March 2024**

Figure 7

ENVIRONMENTAL SERVICES DEPARTMENT

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Ecological Land Classification Descriptions
CGL, Constructed Green Lands
CVC, Commercial and Institutional

LEGEND

- Focal Study Area (2021)
- Ecological Land Classification
- Approximate Limit of Breeding Bird Survey
- 2020 SAR Observation Locations
- 2021 Butternut Observation (+/- 12m)

Breeding Bird Survey Locations

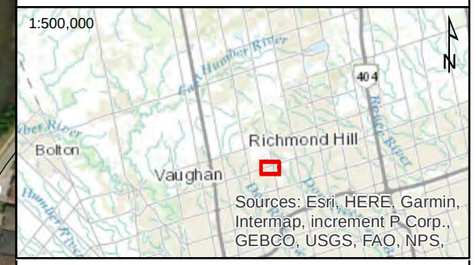
- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

ELC Community L Rank

L2
L3
L4
L+, L5
Not Ranked

Transportation Network

- Expressway / Highway / Freeway
- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR

MORRISON HERSHFIELD

SCALE: 1:4,500
0 30 60 120 180 240
Meters

TITLE: **Ecological Land Classification, Breeding Bird Survey Locations, and SAR Observations**

PROJECT NO.: 190261800

Teston Road

DATE: **March 2024**

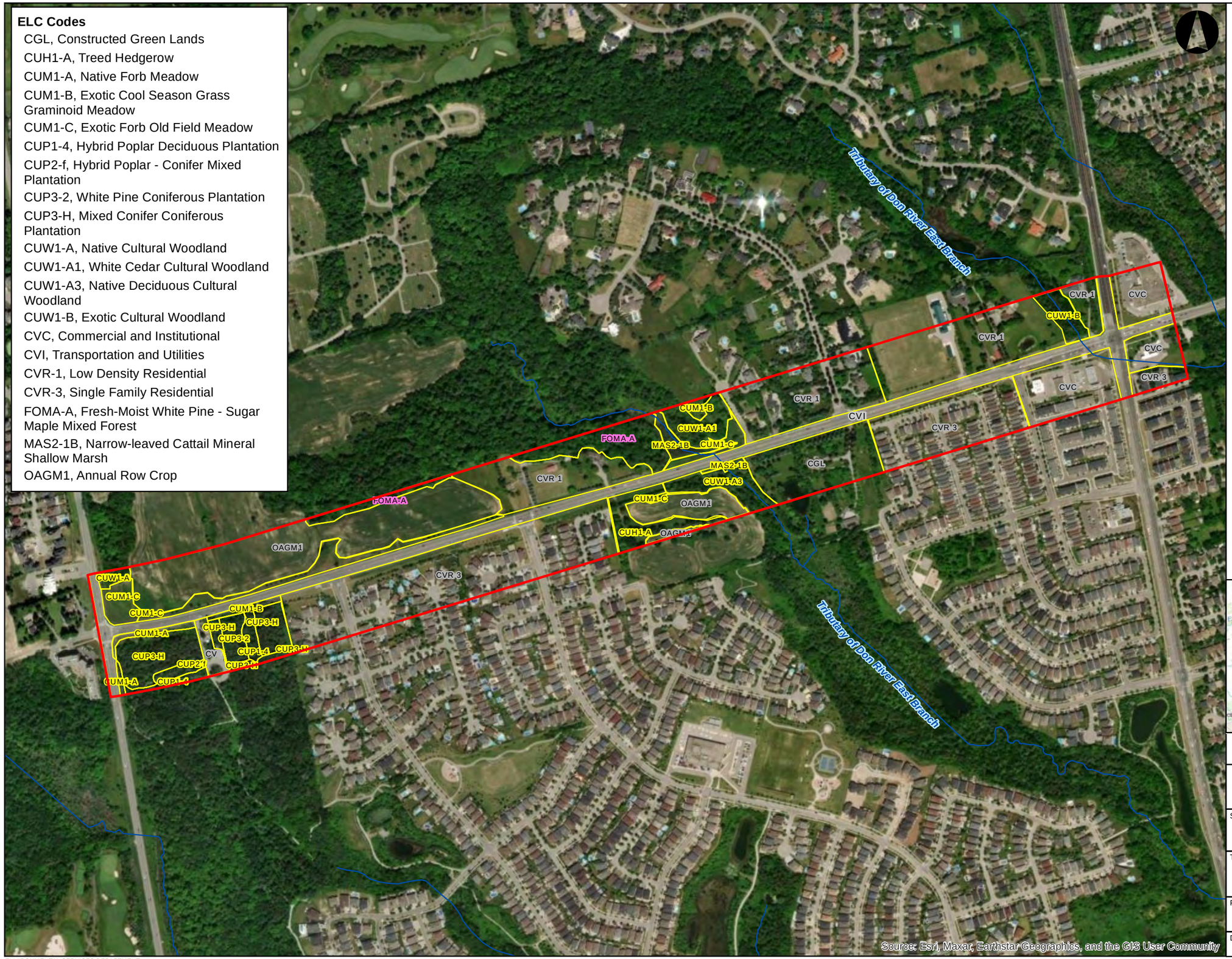
Figure 8

ENVIRONMENTAL SERVICES DEPARTMENT

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ELC Codes

- CGL, Constructed Green Lands
- CUH1-A, Treed Hedgerow
- CUM1-A, Native Forb Meadow
- CUM1-B, Exotic Cool Season Grass Graminoid Meadow
- CUM1-C, Exotic Forb Old Field Meadow
- CUP1-4, Hybrid Poplar Deciduous Plantation
- CUP2-f, Hybrid Poplar - Conifer Mixed Plantation
- CUP3-2, White Pine Coniferous Plantation
- CUP3-H, Mixed Conifer Coniferous Plantation
- CUW1-A, Native Cultural Woodland
- CUW1-A1, White Cedar Cultural Woodland
- CUW1-A3, Native Deciduous Cultural Woodland
- CUW1-B, Exotic Cultural Woodland
- CVC, Commercial and Institutional
- CVI, Transportation and Utilities
- CVR-1, Low Density Residential
- CVR-3, Single Family Residential
- FOMA-A, Fresh-Moist White Pine - Sugar Maple Mixed Forest
- MAS2-1B, Narrow-leaved Cattail Mineral Shallow Marsh
- OAGM1, Annual Row Crop

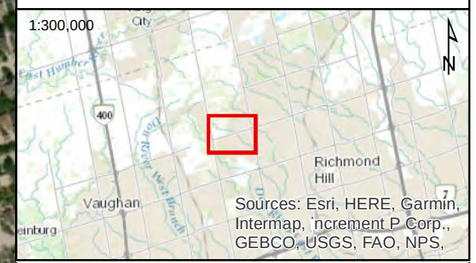


LEGEND

- Study Area (120m)
- Ecological Land Classiciation (ELC)
- Watercourses

ELC Community L Rank

- L3
- L+, L5
- Not Ranked



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF

MORRISON HERSHFIELD

SCALE: 1:7,000

0 40 80 160 240 320

Meters

TITLE:

Ecological Land Classification (ELC)

PROJECT NO.: 190261800

DATE: **March 2024**

ENVIRONMENTAL SERVICES DEPARTMENT

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Appendix F Terrestrial SAR Habitat Assessment

Taxon	Common Name	Scientific Name	ESA Status	Habitat Description (MECP, 2022)	Discussion of Habitat Suitability within Technically Preferred Alternative Study Area	Potential to Occur within Study Area (Yes/No)	Species Observed during MH Field Investigations (Yes/No)
Amphibians	Jefferson Salamander	Ambystoma jeffersonianum	Endangered	They live in deciduous or mixed forests with undisturbed forest floors where they spend their time in moist, loose soil, under logs, or in leaf litter. In early spring, adults travel to breeding ponds. These ponds are generally vernal pools fed by groundwater, snowmelt, or surface water that are unpolluted and do not dry up. Jefferson Salamanders spend the winter underground in mammal burrows, rock crevices or other underground cavities where they can get below the frost line and avoid freezing temperatures.	There is no suitable breeding habitat for this species (i.e., vernal pools). Therefore, this species is not likely to be present. Furthermore, few of the forest communities present might be suitable for this species at any time of year (i.e., mixed or deciduous forests with loose soils and leaf litter).	No	No
Birds	Acadian Flycatcher	Empidonax virescens	Endangered	The Acadian Flycatcher is typically found in mature, shady forests with ravines, or in forested swamps with lots of maple and beech trees. The nest is placed near the tip of a lower limb on a tree, and is loosely woven, with strands of plant material hanging down. In Canada, the Acadian Flycatcher nests only in southwestern Ontario and primarily lives in the warmer climate of southern Ontario's Carolinian forests. It nests in large forests and forested ravines near the shore of Lake Erie and needs large, undisturbed forests, often more than 40 hectares in size. It has also been known to nest at a few sites in the Greater Toronto Area but this is unusual.	This species was not detected during breeding bird surveys in suitable habitat types, or at any other time while on site. Therefore, this species is not likely to be present. Furthermore, few of the ELC communities present might be suitable for this species at any time of year (i.e., mature, shady, deciduous forests or swamps).	No	No
Birds	Bank Swallow	Riparia riparia	Threatened	Bank Swallows nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. They breed in colonies ranging from several to a few thousand pairs.	There is no suitable breeding habitat for this species (i.e., bluffs or vertical faces of exposed soils) and this species was not detected during breeding bird surveys, or at any other time while on site. Therefore, this species is not likely to be present. However, construction activities such as excavation, grading, and stockpiling of soils can create habitat for this species.	Yes, During construction only	No

Taxon	Common Name	Scientific Name	ESA Status	Habitat Description (MECP, 2022)	Discussion of Habitat Suitability within Technically Preferred Alternative Study Area	Potential to Occur within Study Area (Yes/No)	Species Observed during MH Field Investigations (Yes/No)
Birds	Barn Swallow	Hirundo rustica	Threatened	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. The species is attracted to open structures that include ledges where they can build their nests, which are often re-used from year to year. They prefer unpainted, rough-cut wood, since the mud does not adhere as well to smooth surfaces.	This species has been confirmed foraging during breeding bird surveys (at BBS 1, BBS 2, BBS 5, BBS 6, and BBS 17), within wetland and open meadow communities. Potential structures for nesting are also present (e.g., culverts) however, no nests belonging to this species have been observed to date.	Yes	Yes
Birds	Bobolink	Dolichonyx oryzivorus	Threatened	The Bobolink is a medium sized songbird found in grasslands and hayfields. In their summer breeding season, male Bobolinks are black with a white back and yellow collar. By late summer, males lose their breeding plumage to resemble the female's tan colour with black stripes. Bobolinks spend much of their time out of sight on the ground feeding on insects and seeds.	This species has been confirmed to be present and determined to be breeding during breeding bird surveys (at BBS 2, BBS 4, BBS 5, and BBS 6), within open meadow communities.	Yes	Yes
Birds	Canada Warbler	Cardellina canadensis	Special Concern	In Ontario, Canada Warbler is most abundant along the southern Shield. This species breeds in a range of deciduous or mixed, usually wet forest types, all with a well-developed, dense shrub layer. The dense shrub layer is used to conceal nests which are usually located on or near the ground on mossy logs or roots, along stream banks or on hummocks.	This species was not detected during breeding bird surveys in suitable habitat types, or at any other time while on site. Therefore, this species is not likely to be present. Furthermore, few of the ELC communities present might be suitable for this species at any time of year (i.e., mature, dense, deciduous or mixed forests).	No	No
Birds	Cerulean Warbler	Setophaga cerulea	Threatened	Cerulean Warblers spend their summers (breeding seasons) in mature, deciduous forests with large, tall trees and an open under storey. In late summer, they begin their long migration to wintering grounds in the Andes Mountains in South America. In southern Ontario, populations appear to be separated into two distinct bands: one from southern Lake Huron to western Lake Ontario, and further north, the other from the Bruce Peninsula and Georgian Bay area to the Ottawa River.	This species was not detected during breeding bird surveys in suitable habitat types, or at any other time while on site. Therefore, this species is not likely to be present. Furthermore, few of the ELC communities present might be suitable for this species at any time of year (i.e., mature, open, deciduous forests).	No	No

Taxon	Common Name	Scientific Name	ESA Status	Habitat Description (MECP, 2022)	Discussion of Habitat Suitability within Technically Preferred Alternative Study Area	Potential to Occur within Study Area (Yes/No)	Species Observed during MH Field Investigations (Yes/No)
Birds	Chimney Swift	Chaetura pelagica	Threatened	Chimney Swifts are commonly found in urban areas near buildings, and nest and roost in chimneys and other manmade structures. Before European settlement, Chimney Swifts primarily nested on cave walls and in hollow trees and tree cavities in old growth forests. They are highly gregarious and tend to feed over open water where insects congregate.	This species was not detected during breeding bird surveys in suitable habitat types, or at any other time while on site. Therefore, this species is not likely to be present. Furthermore, potential structures for nesting are not present (e.g., chimneys), few trees were suitable for potential Chimney Swift roosting/nesting, and the forested communities are not old growth.	No	No
Birds	Common Nighthawk	Chordeiles minor	Special Concern	Common Nighthawk habitat consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, mine tailings and along gravel roads and railways, they tend to occupy natural sites.	This species was not detected at any time while on site and none of the ELC communities present might be suitable for this species at any time of year (i.e., open areas with little to no ground vegetation). Therefore, this species is not likely to be present.	No	No
Birds	Eastern Meadowlark	Sturnella magna	Threatened	Eastern Meadowlarks breed primarily in moderately tall grasslands, such as pastures and hayfields, but are also found in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Small trees, shrubs or fence posts are used as elevated song perches.	This species has been confirmed to be present and determined to be breeding during breeding bird surveys (at BBS 1 through to BBS 6), within open meadow communities.	Yes	Yes
Birds	Eastern Wood-pewee	Contopus virens	Special Concern	Eastern Wood-Pewees prefer open deciduous, mixed or coniferous forests with little understory. They can also be found in forest clearings and at forest edges, in farm woodlots, or in parks.	This species has been confirmed to be present and determined to be breeding during breeding bird surveys (at BBS 3, BBS 7, BBS 9, BBS 12, BBS 13, BBS 14, and BBS 17), within treed and forest communities.	Yes	Yes

Taxon	Common Name	Scientific Name	ESA Status	Habitat Description (MECP, 2022)	Discussion of Habitat Suitability within Technically Preferred Alternative Study Area	Potential to Occur within Study Area (Yes/No)	Species Observed during MH Field Investigations (Yes/No)
Birds	Evening Grosbeak	Coccothraustes vespertinus	Special Concern	In Ontario, the Evening Grosbeak breeds in northern coniferous forests and as far south as southern Georgian Bay. During the breeding season it is generally found in open, mature mixed-wood forests dominated by fir species, White Spruce, or Trembling Aspen. Its abundance is strongly linked to the cycle of its primary prey, the Spruce Budworm. Outside the breeding season, the species depends mostly on seed crops from tree species in the boreal forest such as firs and spruce. It is also attracted to ornamental trees that have seeds or fruit and may visit bird feeders.	This species was not detected during breeding bird surveys in suitable habitat types, or at any other time while on site. Therefore, this species is not likely to be present. Furthermore, few of the ELC communities present might be suitable for this species at any time of year (i.e., mature, open, forests dominated by fir species, White Spruce, or Trembling Aspen).	No	No
Birds	Golden-winged Warbler	Vermivora chrysoptera	Special Concern	Golden-winged Warblers prefer to nest in areas with young shrubs surrounded by mature forest – locations that have recently been disturbed, such as field edges, hydro or utility right-of-ways, or logged areas.	This species was not detected during breeding bird surveys in suitable habitat types, or at any other time while on site. Therefore, this species is not currently present. Furthermore, few of the ELC communities present might be suitable for this species at any time of year (i.e., shrub dominated communities).	No	No
Birds	Grasshopper Sparrow	Ammodramus savannarum	Special Concern	The Grasshopper Sparrow lives in open grassland areas with well-drained, sandy soil. It will also nest in hayfields and pasture, as well as alvars, prairies and occasionally grain crops such as barley. It prefers areas that are sparsely vegetated. Its nests are well-hidden in the field and woven from grasses in a small cup-like shape. The Grasshopper Sparrow can be found throughout southern Ontario, but only occasionally on the Canadian Shield. It is most common where grasslands, hay or pasture dominate the landscape.	This species was not detected during breeding bird surveys in suitable habitat types, or at any other time while on site. Therefore, this specieswas not present at the time of MH's field investigations. However, there is suitable habitat for this species within the same open meadow communities that Eastern Meadowlark and/or Bobolink were confirmed in.	Yes	No
Birds	Least Bittern	Ixobrychus exilis	Threatened	In Ontario, the Least Bittern is found in a variety of wetland habitats but strongly prefers vast cattail marshes with a mix of open pools and channels. The nests are almost always built near open water, which is needed for	This species was not detected during breeding bird surveys, or at any other time while on site. Therefore, this species is not likely to be present. Furthermore, none of the ELC communities present might be	No	No

Taxon	Common Name	Scientific Name	ESA Status	Habitat Description (MECP, 2022)	Discussion of Habitat Suitability within Technically Preferred Alternative Study Area	Potential to Occur within Study Area (Yes/No)	Species Observed during MH Field Investigations (Yes/No)
				foraging. This species eats mostly frogs, small fish, and aquatic insects.	suitable for this species at any time of year (i.e., expansive marshes with pools of water and emergent vegetation).		
Birds	Red-headed Woodpecker	Melanerpes erythrocephalus	Endangered	The Red-headed Woodpecker lives in open woodland and woodland edges, and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching. A few of these birds will stay the winter in woodlands in southern Ontario if there are adequate supplies of nuts.	This species was not detected during breeding bird surveys, or at any other time while on site. Therefore, this species is not likely to be present. Furthermore, none of the ELC communities present might be suitable for this species at any time of year (i.e., mature woodlands or woodland edges containing large diameter, dead trees).	No	No
Birds	Wood Thrush	Hylocichla mustelina	Special Concern	The Wood Thrush lives in mature deciduous and mixed (conifer-deciduous) forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing perches. This species prefers large forests but will also use smaller stands of trees. They build their nests in living saplings, trees or shrubs, usually in sugar maple or American beech.	This species has been confirmed to be present and determined to be breeding during breeding bird surveys (at BBS 7 and BBS 14), within treed and forest communities.	Yes	Yes
Insects	Monarch	Danaus plexippus	Special Concern	Monarchs use three different types of habitat throughout their life cycle. Monarch caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on the nectar from a variety of wildflowers. During late summer and fall, groups of Monarchs numbering in the thousands, can be seen along the north shores of Lake Ontario and Lake Erie migrating to central Mexico where they spend the winter months.	This species has been confirmed to be present and determined to have breeding habitat within open meadow communities. Nectaring habitat is also present wherever there are flowering plants (e.g., meadow communities, wetland communities, and residential areas).	Yes	Yes

Taxon	Common Name	Scientific Name	ESA Status	Habitat Description (MECP, 2022)	Discussion of Habitat Suitability within Technically Preferred Alternative Study Area	Potential to Occur within Study Area (Yes/No)	Species Observed during MH Field Investigations (Yes/No)
Mammals	Eastern Small-footed Myotis	Myotis leibii	Endangered	In the spring and summer, Eastern Small-footed Myotis will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees (MECP, 2020). This species prefers mountainous terrain in deciduous or coniferous forests, though they can also be found in flat lands (Naughton, 2012). These bats often change their roosting locations every day, and at night hunt for insects to eat, including beetles, mosquitos, moths, and flies (MECP, 2020). From late November to early April, these bats hibernate alone or in small groups within caves and abandoned mines (Naughton, 2012). They tend to choose colder and drier sites for hibernation than similar bat species, and have strong fidelity to hibernation sites (MECP, 2020).	There is confirmed suitable roosting habitat for this species within treed and forest communities, where potential maternity roost trees have been identified. Further surveys (i.e., acoustic monitoring) are required to confirm presence/absence of this species.	Yes	No
Mammals	Little Brown Myotis	Myotis lucifugus	Endangered	During the day they roost in tree cavities and crevices or in buildings such as in barns or attics, which are suitable as day roosts for non-breeding individuals and as maternity roosts for those rearing their young (MECP, 2020). Rock crevices may also be used by both day roosting and maternity roosting Little Brown Bats). Little Brown Myotis is most common close to water and can be found in both forested and urban environments. Most foraging is completed around or over water, therefore aquatic insects make up a large portion of their diet (Naughton, 2012). This species hibernates in abandoned mines or caves from October or November to March or April (MECP, 2020).	There is confirmed suitable roosting habitat for this species within treed and forest communities, where potential maternity roost trees have been identified. Further surveys (i.e., acoustic monitoring) are required to confirm presence/absence of this species.	Yes	No

Taxon	Common Name	Scientific Name	ESA Status	Habitat Description (MECP, 2022)	Discussion of Habitat Suitability within Technically Preferred Alternative Study Area	Potential to Occur within Study Area (Yes/No)	Species Observed during MH Field Investigations (Yes/No)
Mammals	Northern Myotis	Myotis septentrionalis	Endangered	They are associated primarily with boreal forests, and roost under loose bark or in cavities of trees, and occasionally in buildings (MECP, 2020). Although buildings are sometimes used for maternity roosting sites, breeding females most frequently select large diameter cavity trees in which to rear their young. Northern Myotis can consume larger prey than other bats and are opportunistic hunters that can glean insects off of vegetation (Naughton, 2012). Northern Myotis begin hibernation between September and November and emerge between March and May, depending on the climate at the selected hibernation sites. They hibernate alone or in small groups in deep crevices, caves, drilled holes, abandoned mines, and occasionally in basements (Naughton, 2012).	There is confirmed suitable roosting habitat for this species within treed and forest communities, where potential maternity roost trees have been identified. Further surveys (i.e., acoustic monitoring) are required to confirm presence/absence of this species.	Yes	No
Mammals	Tri-colored Bat	Perimyotis subflavus	Endangered	They prefer to forage over water and along forest edges for suitable prey such as beetles, flies, and moths. In the summer, day roost and maternity roost sites are typically within older forests in foliage (such as dead clusters of Maple or Oak leaves), in tangles of Old Man's Beard Lichen, and in tree cavities, however they also occasionally roost within buildings (Naughton, 2012 and MECP, 2018). They have low tolerance to freezing temperatures, and as a result they typically hibernate the longest, from autumn to late spring, and select caves or other underground locations that provide warmer conditions than those required by most other bats. This bat is not a strong long-distance traveler, therefore hibernation and maternity sites are generally less than 100 km apart (Naughton 2012). Tri-colored bats hibernate alone or as part of a small group (MECP, 2020).	There is confirmed suitable roosting habitat for this species within treed and forest communities, where potential maternity roost trees have been identified. Further surveys (i.e., acoustic monitoring) are required to confirm presence/absence of this species.	Yes	No
Plants	American Ginseng	Panax quinquefolius	Endangered	In Ontario, American Ginseng typically grows in rich, moist, but well-drained, and relatively mature, deciduous woods dominated by Sugar Maple (*Acer saccharum*), White Ash (*Fraxinus americana*) and American Basswood	This species was not detected, despite targeted surveys completed to determine its	No	No

Taxon	Common Name	Scientific Name	ESA Status	Habitat Description (MECP, 2022)	Discussion of Habitat Suitability within Technically Preferred Alternative Study Area	Potential to Occur within Study Area (Yes/No)	Species Observed during MH Field Investigations (Yes/No)
				(*Tilia americana*). It usually grows in deep, nutrient rich soil over limestone or marble bedrock.	presence or absence. Therefore, this species is not likely to be present.		
Plants	Black Ash	Fraxinus nigra	Endangered	Black Ash is predominantly a wetland species found in swamps, floodplains and fens.lack Ash occurs throughout most of Ontario, except the Far North, ranging from southern Ontario east to the Quebec border, west to the Manitoba border and north to approximately 51° latitude.	This species has been detected within a swamp community and there is potential habitat elsewhere within riparian areas, adjacent to wetlands, and in swamp or moist forested or treed communotoes communities.	Yes	Yes
Plants	Butternut	Juglans cinerea	Endangered	In Ontario, Butternut usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry rocky soil. This species does not do well in the shade and often grows in sunny openings and near forest edges.	This species has been detected within several forest communities and there is potential habitat elsewhere within treed, forest, savannah, and meadow communities.	Yes	Yes
Reptiles	Blanding's Turtle	Emydoidea blandingii	Threatened	Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with lots of water plants. It is not unusual, though, to find them hundreds of metres from the nearest water body, especially while they are searching for a mate or traveling to a nesting site. Blanding's Turtles hibernate in the mud at the bottom of permanent water bodies from late October until the end of April.	This species has not been observed on site to date. However, this species is not highly detectable without specific surveys. As no targeted surveys for this species have been completed, it is unknown whether this species is present. There is suitable habitat for this species in numerous ELC communities (i.e., wetlands, swamps, and adjacent upland habitats).	Yes	No
Reptiles	Eastern Ribbonsnake	Thamnophis sauritus	Special Concern	The Eastern Ribbonsnake is usually found close to water, especially in marshes, where it hunts for frogs and small fish. A good swimmer will dive in shallow water, especially if it is fleeing from a potential predator. At the onset of cold weather, these snakes congregate in underground burrows or rock crevices to hibernate together.	This species has not been observed on site to date. However, this species is not highly detectable without specific surveys. As no targeted surveys for this species have been completed, it is unknown whether this species occurs. There is suitable habitat for this species in numerous ELC communities (i.e., wetlands, treed areas, forests).	Yes	No

Taxon	Common Name	Scientific Name	ESA Status	Habitat Description (MECP, 2022)	Discussion of Habitat Suitability within Technically Preferred Alternative Study Area	Potential to Occur within Study Area (Yes/No)	Species Observed during MH Field Investigations (Yes/No)
Reptiles	Snapping Turtle	Chelydra serpentina	Special Concern	Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.	This species has been confirmed to be present (near BBS 10) and there is suitable year-round habitat for this species in numerous ELC communities (i.e., wetlands, swamps, and adjacent upland habitats).	Yes	Yes

Appendix G Significant Wildlife Habitat Assessment

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
Rare Vegetation Communities				
Cliffs and Talus Slopes Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO, CLO, TAS, CLS, TAT, CLT	• A Cliff is vertical to near vertical bedrock >3m in height. • A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris. • Most cliff and talus slopes occur along the Niagara Escarpment.	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes.	**Not Present** This rare vegetation community is not present, as determined through ELC.
Sand Barren Rationale: Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.	ELC Ecosites: SBO1, SBS1, SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	• Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. • Vegetation can vary from patchy and barren to tree covered, but less than 60%. • A sand barren area >0.5ha in size.	• Confirm any ELC Vegetation Type for Sand Barrens. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).	**Not Present** This rare vegetation community is not present, within the Technically Preferred Alternative limits as determined through ELC.
Alvar Rationale: Alvars are extremely rare habitats in Eco-Region 6E. Most alvars in Ontario are in Eco-Regions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic- Precambrian contact.	ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2 **Five Alvar Indicator Species:** Carex crawei Panicum philadelphicum Eleocharis compressa Scutellaria parvula Trichostema brachiatum These indicator species are very specific to Alvars within Eco- Region 6E	• An alvar is typically a level, mostly unfractured, calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. • Vegetation cover varies from patchy to barren with a less than 60% tree cover. • An Alvar site > 0.5 ha in size.	Field studies that identify four of the five **Alvar Indicator Species** at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.	**Not Present** This rare vegetation community is not present, as determined through ELC.

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
Old Growth Forest Rationale: Due to historic logging practices, extensive old growth forest is rare in the Eco-Region. Interior habitat provided by old growth forests is required by many wildlife species.	Forest Community Series: FOD, FOC, FOM, SWD, SWC, SWM	• Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris. • Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.	Field Studies will determine: • If dominant trees species of the area are >140 years old, then the area containing these trees is Significant Wildlife Habitat. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present). • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics.	**Not Present** This rare vegetation community is not present, as determined through ELC.
Savannah Rationale: Savannahs are extremely rare habitats in Ontario.	TPS1, TPS2, TPW1, TPW2, CUS2	• A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. • No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH.	Field studies confirm one or more of the Savannah indicator species listed in Appendix N of the SWHTG should be present. Note: Savannah plant spp. list from Eco-Region 6E should be used • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).	**Not Present** These rare vegetation communities are not present, as determined through ELC.
Tallgrass Prairie	TPO1, TPO2	• A Tallgrass Prairie has ground cover dominated by prairie grasses.	Field studies confirm one or more of the Prairie indicator species listed.	**Not Present**
Seasonal Concentration	**Areas of Animals**			
Waterfowl Stopover and Staging Areas (Terrestrial) Rationale: Habitat important to migrating waterfowl.	CUM1 or CUT1 and evidence of annual spring flooding from melt water or run-off within these Ecosites.	• Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available.	Studies carried out and verified presence of an annual concentration of any listed species: • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100-300m radius, dependent on local site conditions and adjacent land use is the significant wildlife habitat.	**Not Present** Suitable flooded fields are not present within the Technically Preferred Alternative limits.

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
		Species: American Black Duck, Wood Duck, Green-winged Teal, Blue-winged Teal, Mallard, Northern Pintail, Northern Shoveler, American Wigeon, Gadwall	• Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	
Waterfowl Stopover and Staging Area (Aquatic) Rationale: Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, SWD1, SWD2, SWD3, SWD4, SWD5, SWD6, SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). Species: Canada Goose, Cackling Goose, Snow Goose, American Black Duck, Northern Pintail, Northern Shoveler, American Wigeon, Gadwall, Green- winged Teal, Blue-winged Teal, Hooded Merganser, Common Merganser, Lesser Scaup, Greater Scaup, Long-tailed Duck, Surf Scoter, White- winged Scoter, Black Scoter, Ring-necked Duck, Common Goldeneye, Bufflehead, Redhead, Ruddy Duck, Red-breasted Merganser, Brant, Canvasback	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. • The combined area of the ELC ecosites and a 100m radius area is the SWH. • Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded).	**Not Present** The impacted watercourses and wetlands are not sizeable enough to accommodate stopover and staging for large aggregations of waterfowl, and no records of large aggregations of waterfowl have been noted in this area.
Shorebird Migratory Stopover Area Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	BBO1, BBO2, BBS1, BBS2, BBT1, BBT2, SDO1, SDS2, SDT1, MAM1, MAM2, MAM3, MAM4, MAM5,	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October.	Studies confirming: • Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period).	**Candidate SWH** The shorelines of watercourses and wetlands are not likely to support large aggregations of shorebirds. However, 3 or more of the listed species may be

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
		• Sewage treatment ponds and storm water ponds do not qualify as a SWH. <u>Species:</u> Greater Yellowlegs, Lesser Yellowlegs, Marbled Godwit, Hudsonian Godwit, Black-bellied Plover, American Golden-Plover, Semipalmated Plover, Solitary Sandpiper, Spotted Sandpiper, Semipalmated Sandpiper, Pectoral Sandpiper, White-rumped Sandpiper, Baird's Sandpiper, Least Sandpiper, Purple Sandpiper, Stilt Sandpiper, Short-billed Dowitcher, Red- necked Phalarope, Whimbrel, Ruddy Turnstone, Sanderling, Dunlin	• Whimbrel stop briefly (<24hrs) during spring migration, any site with • >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	present for >1000 shorebird use days combined, during migration.
Raptor Wintering Area Rationale: Sites used by multiple species, a high number of individuals and used annually are most significant	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class: Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. <u>Bald Eagle:</u> Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering (hawk/owl) sites need to be > 20 ha with a combination of forest and upland. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water and large trees and snags available for roosting. <u>Species:</u> Rough-legged Hawk, Red-tailed Hawk, Northern Harrier, American Kestrel, Snowy Owl Special Concern: Short-eared Owl, Bald Eagle	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One of more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	**Candidate SWH** Large tracts of forest and grassland are present and Red-tailed Hawk and American Kestrel, both listed species under this SWH type, have been observed in the area during the summer field surveys and have the potential to be present during the winter as well.
Bat Hibernacula Rationale: Bat hibernacula are rare habitats in all Ontario landscapes.	Bat Hibernacula may be found in these ecosites: CCR1, CCR2, CCA1, CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations, and Karsts. • Active mine sites should not be considered as SWH. The locations of bat hibernacula are relatively poorly known. <u>Species:</u> Big Brown Bat, Tri-coloured Bat	• All sites with confirmed hibernating bats are SWH. • The area includes 200m radius around the entrance of the hibernaculum for most development types and 1000m for wind farms. • Studies are to be conducted during the peak swarming period (Aug. – Sept.).	**Not Present** Formations suitable for hibernation, such as caves or karsts, are not present within the Technically Preferred Alternative limits.

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
			• Surveys should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”.	
Bat Maternity Colonies Rationale: Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Maternity colonies considered SWH are found in forested ecosites. All ELC Ecosites in ELC Community Series: FOD, FOM, SWD, SWM	• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario. • Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees. • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred. <u>Species:</u> Big Brown Bat, Silver-haired Bat	• Maternity Colonies with confirmed use by: ▪ >10 Big Brown Bats ▪ >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland, or a forest stand ELC ecosite or an eco-element containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitat: Guidelines for Wind Power Projects”.	**Candidate SWH** Both swamp and forest communities are present, and numerous potential maternity roost trees for bats have been documented within the Technically Preferred Alternative limits. Given the abundance and quality of available habitat, it is likely that one or both of the listed species under this SWH type are present.
Turtle Wintering Areas Rationale: Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Snapping and Midland Painted Turtles; ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle: Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. <u>Species:</u> Midland Painted Turtle Special Concern: Northern Map Turtle, Snapping Turtle	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep- water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. May).	**Candidate SWH** Wetlands and watercourses present have the potential to provide overwintering habitat for turtles. Both Snapping Turtles and Midland Painted Turtles have been observed in proximity to the Technically Preferred Alternative limits.

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
			• Congregation of turtles is more common where wintering areas are limited and therefore significant.	
Reptile Hibernaculum Rationale: Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink: ELC Community Series of FOD and FOM and Ecosites: FOC1, FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line, such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined Skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures <u>Species:</u> Eastern Gartersnake, Northern Watersnake, Northern Red-bellied Snake, Northern Brownsnake, Smooth Green Snake, Northern Ring-necked Snake, Milksnake Special Concern: Eastern Ribbonsnake, Five-lined Skink (Southern Shield Population)	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • Note: If there are Special Concern Species present, then site is SWH. • Note: Sites for hibernation possess specific habitat parameters (e.g. • temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • Presence of any active hibernaculum for skink is significant.	**Candidate SWH** There may be numerous opportunities for hibernacula in the area such as in discrete rock piles or fissures, or within wetlands. Two (2) Eastern Gartersnakes were observed basking together in early spring along a pathway running east to west within the Dry-Fresh Hardwood – Hemlock Mixed Forest (FOM3-1). Although this does not meet the threshold for significance, targeted surveys have not been carried out to confirm whether this SWH is present.
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff) Rationale: Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites:	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles.	Studies confirming: • Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season.	**Not Present** No cliff faces, suitable embankments, or eroded areas are present in the area.

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
swallow population are declining in Ontario.	CUM1, CUT1, CUS1, BLO1, BLS1, BLT1, CLO1, CLS1, CLT1	• Does not include a licensed/permitted Mineral Aggregate Operation. Species: • Cliff Swallow • Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	• A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. • Field surveys to observe and count swallow nests are to be completed during the breeding season. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	Therefore, this SWH is not present.
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) Rationale: Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	SWM2, SWM3, SWM5, SWM6, SWD1, SWD2, SWD3, SWD4, SWD5, SWD6, SWD7, FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. Species: • Great Blue Heron, Black-crowned Night-Heron, Great Egret, Green Heron	Studies confirming: • Presence of 5 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the forest ecosite containing the colony or any island <15.0ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells.	**Candidate SWH** Wetlands and forests in the area provide suitable potential nesting habitat for the listed species, particularly Green and Great Blue Herons.
Colonially - Nesting Bird Breeding Habitat (Ground) Rationale: Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer’s Blackbird) MAM1 – 6; MAS1 – 3; CUM, CUT, CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands. <u>Species:</u> Herring Gull, Great Black-backed Gull, Little Gull, Ring-billed Gull, Common Tern, Caspian Tern, Brewer’s Blackbird	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, • >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer’s Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black- backed Gull is significant. • The edge of the colony and a minimum 150m radius area of habitat, or the extent	**Not Present** Nesting habitat for colonies of the listed species under this SWH type are not present.

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
			of the ELC ecosites containing the colony or any island • <3.0ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	
Migratory Butterfly Stopover Areas Rationale: Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Combination of ELC Community Series; need to have present one Community Series from each land class: Field: CUM, CUT, CUS Forest: FOC, FOD, FOM, CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	• A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present and will be located within 5 km of Lake Erie or Lake Ontario. • The habitat is typically a combination of field and forest and provides the butterflies with a location to rest prior to their long migration south. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes. <u>Species:</u> Painted Lady, Red Admiral Special Concern: Monarch	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). • MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral’s is to be considered significant.	**Not Present** The Technically Preferred Alternative is located greater than 5 km from Lake Ontario and Lake Erie, and thus does not meet the criteria for this SWH.
Landbird Migratory Stopover Areas Rationale: Sites with a high diversity of species as well as high numbers are most significant.	All Ecosites associated with These ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD	• Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. • If multiple woodlands are located along the shoreline those Woodlands • <2km from Lake Ontario are more significant. • Sites have a variety of habitats: forest, grassland and wetland complexes. • The largest sites are more significant. • Woodlots and forest fragments are important habitats to migrating birds, these features located	Studies confirm: • Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Apr/May) and fall (Aug/Oct) migration	**Not Present** Although numerous migratory birds have been documented, the Technically Preferred Alternative is located greater than 5 km from Lake Ontario. Therefore, it

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
		along the shore and located within 5km of Lake Ontario are Candidate SWH. <u>Species:</u> All migratory songbirds, All migrant raptors species	using standardized assessment techniques. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects.	does not meet the criteria for this SWH.
Deer Yarding Areas Rationale: Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in “yards” to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an area’s summer range.	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include: FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2, CUP3, FOD3, CUT	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in “Selected Wildlife and Habitat Features: Inventory Manual". • Woodlots with high densities of deer due to artificial feeding are not significant. <u>Species:</u> White-tailed Deer	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered.	**Not Present** The MNRF has not identified any deer yarding areas in proximity to the project.

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Deer Winter Congregation Areas Rationale: Deer movement during winter in the southern areas of Eco-Region 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	All Forested Ecosites with these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots will typically be >100ha in size. Woodlots >100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Eco-Region 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. • If deer are constrained by snow depth, refer to the Deer Yarding Area habitat in the SWH criteria schedule. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant. <u>Species:</u> White-tailed Deer	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by white- tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys, or a pellet count deer density survey. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered.	**Not Present** The MNRF has not identified any deer wintering areas in proximity to the project.
Rare Vegetation Communities				
Cliffs and Talus Slopes Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO, CLO, TAS, CLS, TAT, CLT	• A Cliff is vertical to near vertical bedrock >3m in height. • A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris. • Most cliff and talus slopes occur along the Niagara Escarpment.	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes.	**Not Present** This rare vegetation community is not present, as determined through ELC.
Sand Barren Rationale: Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.	ELC Ecosites: SBO1, SBS1, SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always < 60%.	• Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. • Vegetation can vary from patchy and barren to tree covered, but less than 60%. • A sand barren area >0.5ha in size.	• Confirm any ELC Vegetation Type for Sand Barrens. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).	**Not Present** This rare vegetation community is not present, within the Technically Preferred Alternative limits as determined through ELC.

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
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Alvar Rationale: Alvars are extremely rare habitats in Eco-Region 6E. Most alvars in Ontario are in Eco-Regions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic- Precambrian contact.	ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2 **Five Alvar Indicator Species:** Carex crawei Panicum philadelphicum Eleocharis compressa Scutellaria parvula Trichostema brachiatum These indicator species are very specific to Alvars within Eco- Region 6E	• An alvar is typically a level, mostly unfractured, calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. • Vegetation cover varies from patchy to barren with a less than 60% tree cover. • An Alvar site > 0.5 ha in size.	Field studies that identify four of the five Alvar Indicator Species at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.	**Not Present** This rare vegetation community is not present, as determined through ELC.
Old Growth Forest Rationale: Due to historic logging practices, extensive old growth forest is rare in the Eco-Region. Interior habitat provided by old growth forests is required by many wildlife species.	Forest Community Series: FOD, FOC, FOM, SWD, SWC, SWM	• Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris. • Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.	Field Studies will determine: • If dominant trees species of the area are >140 years old, then the area containing these trees is Significant Wildlife Habitat. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present). • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics.	**Not Present** This rare vegetation community is not present, as determined through ELC.
Savannah Rationale: Savannahs are extremely rare habitats in Ontario.	TPS1, TPS2, TPW1, TPW2, CUS2	• A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. • No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH.	Field studies confirm one or more of the Savannah indicator species listed in Appendix N of the SWHTG should be present. Note: Savannah plant spp. list from Eco-Region 6E should be used • Area of the ELC Ecosite is the SWH.	**Not Present** Although several savannah communities were identified through ELC, none contained indicator species or

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
			• Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).	were restored or naturalized.
Tallgrass Prairie Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1, TPO2	• A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover. • No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH.	Field studies confirm one or more of the Prairie indicator species listed in Appendix N of the SWHTG should be present. Note: Prairie plant spp. list from Eco-Region 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).	**Not Present** This rare vegetation community is not present, as determined through ELC.
Other Rare Vegetation Communities Rationale: Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	• Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps. • ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M of the SWHTG. • The OMNRF/NHIC will have up to date listing for rare vegetation communities.	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWTG. • Area of the ELC Vegetation Type polygon is the SWH.	**Not Present** These rare vegetation communities are not present, as determined through ELC.
Specialized Habitat for Wildlife				
Waterfowl Nesting Area Rationale: Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SWT1, SWT2, SWD1, SWD2, SWD3, SWD4 Note: Includes adjacency to Provincially Significant Wetlands	• A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Species:	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • A field study confirming waterfowl nesting habitat will determine the boundary of the	**Candidate SWH** Wetlands and surrounding upland areas may provide suitable nesting habitat for species such as Wood Duck and Mallards.

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
		American Black Duck, Northern Pintail, Northern Shoveler, Gadwall, Blue-winged Teal, Green-winged Teal, Wood Duck, Hooded Merganser, Mallard	waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest.	
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat Rationale: Nest sites are fairly uncommon in Eco- Region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM, and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	• Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. • Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). <u>Species:</u> Osprey Special Concern: Bald Eagle	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH ccvii, maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid-March to mid-August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	**Candidate SWH** Osprey nesting and foraging habitat is available in proximity to each other, and Ospreys were observed foraging over open water and wetlands along the East Don River during several site visits.
Woodland Raptor Nesting Habitat	May be found in all forested ELC Ecosites.	• All natural or conifer plantation woodland/forest stands >30ha with	Studies confirm:	**Candidate SWH**

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
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Rationale: Nests sites for these species are rarely identified; these area sensitive habitats are often used annually by these species.	May also be found in SWC, SWM, SWD, and CUP3	• >10ha of interior habitat. Interior habitat determined with a 200m buffer. • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to an old nest. Species: Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Barred Owl, Broad-winged Hawk	• Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). • Barred Owl – A 200m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk– A 100m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area.	The continuous forest along the East Don River is large (>30ha) and includes interior habitat, and provides potential suitable habitat for several species listed under this SWH type.
Turtle Nesting Areas Rationale: These habitats are rare and when identified will often be the only breeding site for local populations of turtles	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, BOO1, FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. Species: Midland Painted Turtle Special Concern: Northern Map Turtle, Snapping Turtle	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat.	**Candidate SWH** Lands adjacent to wetlands and watercourses have the potential to provide nesting opportunities for turtles. Snapping Turtle and Midland Painted Turtles have been observed during field surveys, and in Year 1 a Midland Painted Turtle hatchling was observed adjacent to a wetland along a dirt

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
			• Field investigations should be conducted in prime nesting season, typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method.	pathway (north and west of Dufferin Street). Therefore, turtle nesting does occur in the area, though, targeted surveys have not been carried out to confirm the scale of nesting activity.
Seeps and Springs Rationale: Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Seeps/Springs are areas where ground water comes to the surface. Often, they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	• Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species. <u>Species:</u> Wild Turkey, Ruffed Grouse, Spruce Grouse, White-tailed Deer, Salamander spp.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite or an eco-element within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.	**Candidate SWH** Seeps have been recorded in headwater areas within the Technically Preferred Alternative limits. However, targeted surveys have not been carried out to confirm whether 2 or more of these features are present.
Amphibian Breeding Habitat (Woodland) Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	All Ecosites associated with these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) • >500m2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. <u>Species:</u> Eastern Newt, Blue-spotted Salamander, Spotted Salamander, Gray Treefrog, Spring Peeper, Western Chorus Frog, Wood Frog	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands.	**Candidate SWH** Wetland habitats with permanent water adjacent to woodlands are present and may provide suitable breeding habitat. Spring Peeper and Gray Treefrog are both listed species under this SWH type that have been

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
			• The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat.	recorded during field surveys.
Amphibian Breeding Habitat (Wetlands) Rationale: Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	ELC Community Classes SW, MA, FE, BO, OA, and SA. Typically, these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	• Wetlands>500m2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape, and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation. Species: Eastern Newt, American Toad, Spotted Salamander, Four-toed Salamander, Blue-spotted Salamander, Gray Treefrog, Western Chorus Frog, Northern Leopard Frog, Pickerel Frog, Green Frog, Mink Frog, Bullfrog	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. or; Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered.	**Candidate SWH** American Toad, Gray Treefrog, and Green Frog are listed species under this SWH type that have been observed during field surveys. Wetland areas are available and may provide suitable breeding habitat.
Woodland Area- Sensitive Bird Breeding Habitat Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest songbirds.	All Ecosites associated with these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30ha. • Interior forest habitat is at least 200 m from forest edge habitat. Species: Yellow-bellied Sapsucker, Red-breasted Nuthatch, Veery, Blue-headed Vireo, Northern Parula, Black-throated Green Warbler, Blackburnian Warbler, Black-throated Blue Warbler, Ovenbird, Scarlet Tanager, Winter Wren Special Concern: Canada Warbler	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”	**Candidate SWH** Interior forest habitat is present in the forest tract along the East Don River, and 2 of the listed species under this SWH type (Red-breasted Nuthatch and Winter Wren) are probable breeders in this area, based on breeding bird survey

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
		Threatened: Cerulean Warbler		data. Black-throated Green Warblers have also been observed, though it was unknown whether they were breeding. Therefore, the criteria for this SWH have not been confirmed, though this SWH is likely present.
Habitats of Species of Conservation Concern Considered SWH				
Marsh Breeding Bird Habitat Rationale: Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SAS1, SAM1, SAF1, FEO1, BOO1 For Green Heron: All SW, MA, and CUM1 sites.	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds, and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. <u>Species:</u> American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Marsh Wren, Sedge Wren, Common Loon, Sandhill Crane, Green Heron, Trumpeter Swan Special Concern: Black Tern, Yellow Rail	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes; or breeding by any combination of 5 or more of the listed species • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	**Candidate SWH** Marsh and swamp habitat is present in the Technically Preferred Alternative limits and may provide potential breeding habitat for several species listed under this SWH type, primarily Green Heron.
Open Country Bird Breeding Habitat Rationale: This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	CUM1, CUM2	• Large grassland areas (includes natural and cultural fields and meadows) >30 ha. • Grasslands not Class 1 or 2 agricultural lands and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). • Grassland sites considered significant should have a history of longevity, either abandoned fields,	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas.	**Confirmed SWH** Large meadow communities [Native Forb Meadow (CUM1-A)] are present and 2 of the listed species under this SWH type,

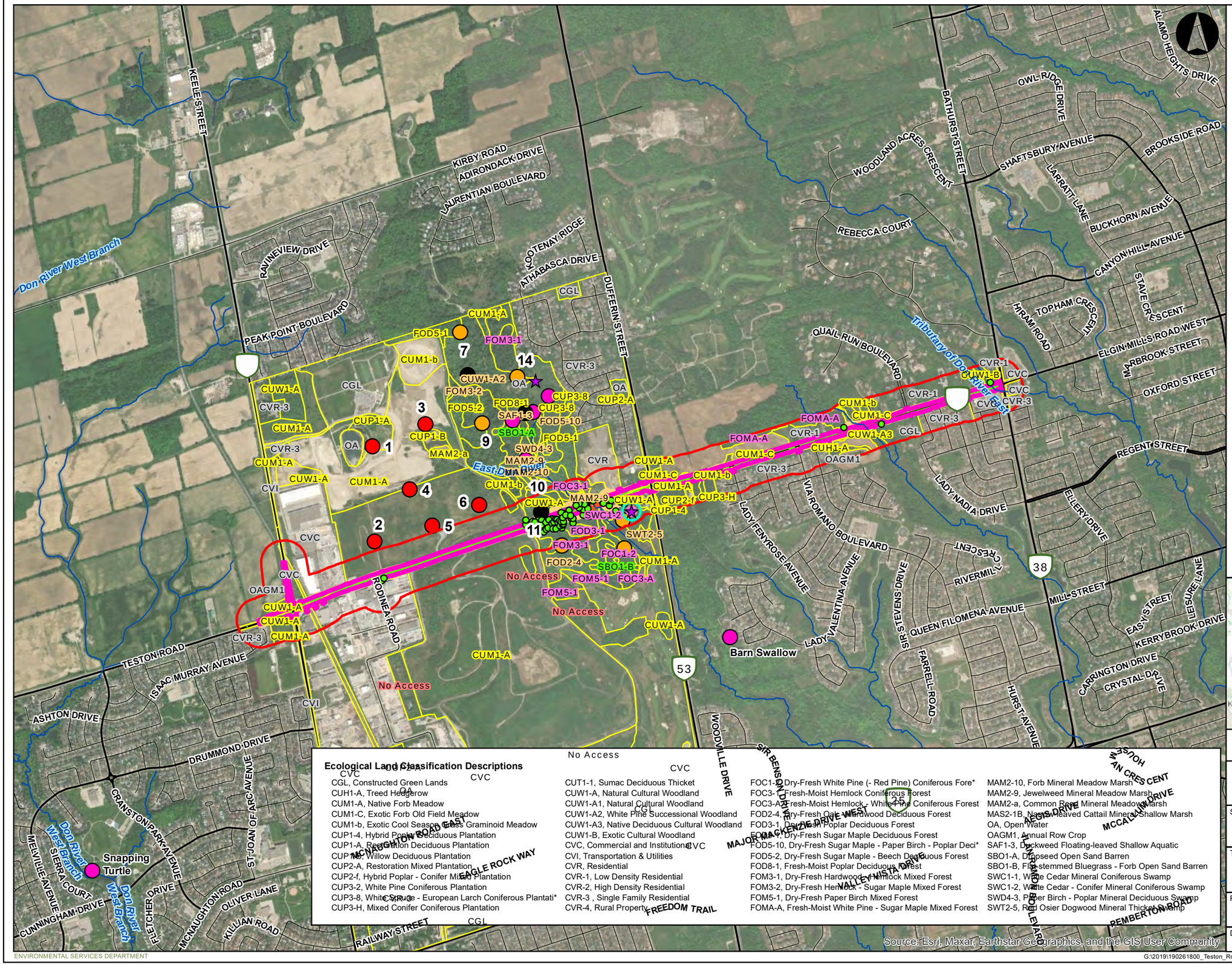
Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
		mature hayfields and pasturelands that are at least 5 years or older. • The indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. Species: Upland Sandpiper, Vesper Sparrow, Northern Harrier, Savannah Sparrow Special Concern: Grasshopper Sparrow, Short-eared Owl	• Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	Savannah Sparrow and Vesper Sparrow, were determined to be probable breeders in this community during breeding bird surveys. Additional species indicating this habitat type is present were also observed, including Bobolink and Eastern Meadowlark.
Shrub/Early Successional Bird Breeding Habitat Rationale: This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	• Large field areas succeeding to shrub and thicket habitats >10ha in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row- cropping, haying or live- stock pasturing in the last 5 years). • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. <u>Species:</u> Indicator Spp.: Brown Thrasher, Clay-coloured Sparrow Common Spp.: Field Sparrow, Black-billed Cuckoo, Eastern Towhee, Willow Flycatcher Special Concern: Golden-winged Warbler Endangered: Yellow-breasted Chat	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”	**Not Present** While several of the listed species under this SWH type were recorded, they were not present in proximity to one another or in the right combinations to meet the criteria for this SWH. Minimal shrub/early successional habitat is present, and is limited to along the margins of the large Native Forb Meadow (CUM1-A) communities.
Terrestrial Crayfish Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, MAS1, MAS2, MAS3, SWD, SWT, SWM	• Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish.	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp, or moist terrestrial sites.	**Not Present** Suitable habitat or habitat conditions for terrestrial crayfish was not observed,

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
	CUM1 with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish.	• Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi- terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually, the soil is not too moist so that the tunnel is well formed. <u>Species:</u> Chimney or Digger Crayfish; (Fallicambarus fodiens) Devil Crayfish or Meadow Crayfish; (Cambarus diogenes)	• Area of ELC ecosite or an eco-element area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult.	and no evidence of terrestrial crayfish was observed.
Special Concern and Rare Wildlife Species Rationale: These species are quite rare or have experienced significant population declines in Ontario.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	• When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites. • Expert advice should be sought as many of the rare spp. have little information available about their requirements. <u>Species:</u> All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre (NHIC).	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat.	**Confirmed SWH** Special concern species observed to date with confirmed habitat include Wood Thrush, Eastern Wood-pewee, Monarch, and Snapping Turtle. No additional provincially rare species (not including species at risk) have been recorded.
Animal Movement Corridors				
Amphibian Movement Corridors Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species.	• Movement corridors between breeding habitat and summer habitat. • Movement corridors must be determined when Amphibian Breeding Habitat is confirmed as SWH. <u>Species:</u> Eastern Newt, American Toad, Spotted Salamander, Four-toed Salamander, Blue-spotted Salamander, Gray Treefrog, Western Chorus Frog, Northern	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant.	**Candidate SWH** The presence of this SWH is only determined after amphibian breeding SWH is confirmed. However, this SWH is likely, given the habitat conditions

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
		Leopard Frog, Pickerel Frog, Green Frog, Mink Frog, Bullfrog	• Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat.	present and the herptofauna observed in the area.
Deer Movement Corridors Rationale: Corridors important for all species to be able to access seasonally important life- cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	• Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH. • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200m wide with gaps >20m and if following riparian area with at least 15m of vegetation on both sides of the waterway. • shorter corridors are more significant than longer corridors	**Not Present** The MNRF has not identified any deer wintering habitat in the area. Therefore, the criteria for this SWH are not met.
Significant Wildlife Habitat	**Exceptions for Eco- Districts**	**within Eco-Region 6E**		
Mast Producing Areas Rationale: The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bears. Eco-District: 6E-14	All Forested habitat represented by ELC Community Series: FOM, FOD	• Black bears require forested habitat that provides cover, winter hibernation sites, and mast-producing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears • Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech) Species: Black Bear	• All woodlands >30ha with a 50% composition of these ELC Vegetation Types are considered significant: FOM1-1, FOM2-1, FOM3-1, FOD1-1, FOD1-2, FOD2-1, FOD2-2, FOD2-3, FOD2-4, FOD4-1, FOD5-2, FOD5-3, FOD5-7, FOD6-5	**Not Present** The project is not located within Eco-District 6E- 14.
Lek Rationale: Sharp-tailed grouse only occur on Manitoulin Island in Eco-	CUM. CUS, CUT	• The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography.	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant.	**Not Present** The project is not located within Eco-District 6E- 17.

Wildlife Habitat	Candidate SWH		Confirmed SWH	Assessment
	ELC Ecosites	Habitat Criteria	Defining Criteria	
region 6E, Leks are an important habitat to maintain their population. Eco-District: 6E-17		• Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated. • Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying). • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting.	• The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat.	

Appendix H Aquatic and Terrestrial Impact Assessment Figures



LEGEND

- Preliminary Design
- Watercourses
- 120m from Preliminary Design
- Ecological Land Classification

ELC Community L Rank

- L2
- L3
- L4
- L+, L5
- Not Ranked

- Other SAR Observation Locations
- Potential Maternity Roost Tree for SAR Bats

Butternuts

- Butternut Observation (+/- 12m)
- Habitat (25 m Radius)
- Habitat (50 m Radius)

Breeding Bird Survey Locations

- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

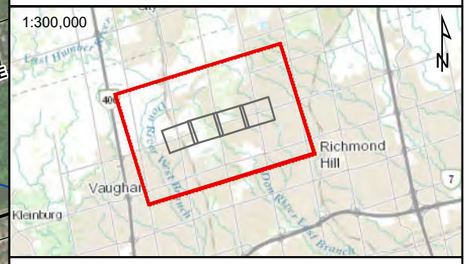
Design Impacts

- Permanent Loss
- Negative Impact
- Harmful Alteration

Transportation Network

- Arterial / Collector
- Local Roads

1:300,000



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF, ESRI

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN,

MORRISON HERSHFIELD

SCALE: 1:20,000

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Meters

TITLE:

Terrestrial Impact Assessment

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario

DATE: May 2024

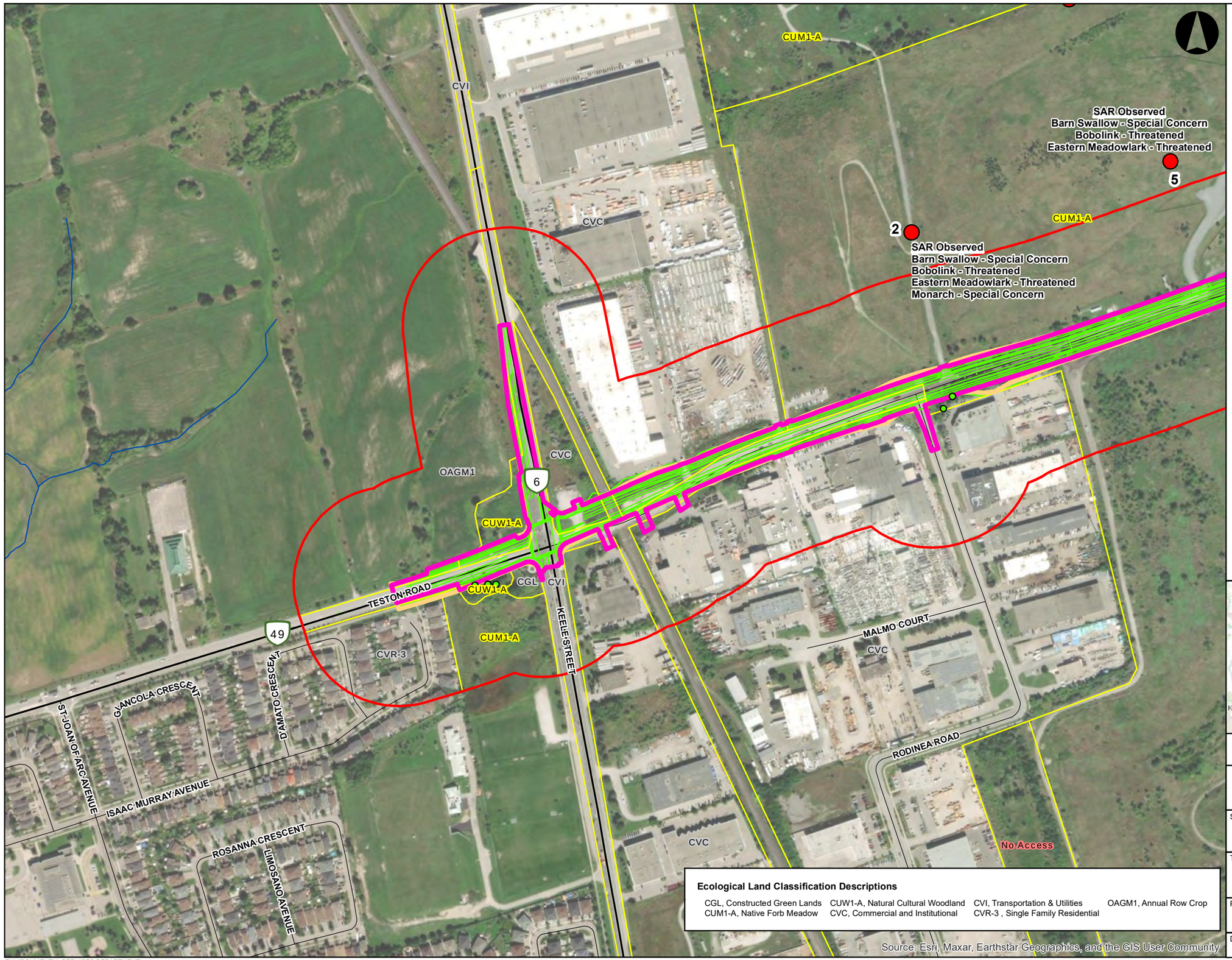
Figure 1 of 5

Ecological Land Classification Descriptions

- CGL, Constructed Green Lands
- CUH1-A, Treed Hedgerow
- CUM1-A, Native Forb Meadow
- CUM1-C, Exotic Forb Old Field Meadow
- CUM1-b, Exotic Cool Season Grass Graminoid Meadow
- CUP1-4, Hybrid Poplar Deciduous Plantation
- CUP1-A, Regeneration Deciduous Plantation
- CUP1-B, Willow Deciduous Plantation
- CUP2-A, Restoration Mixed Plantation
- CUP2-f, Hybrid Poplar - Conifer Mixed Plantation
- CUP3-2, White Pine Coniferous Plantation
- CUP3-8, White Spruce - European Larch Coniferous Plantati*
- CUP3-H, Mixed Conifer Coniferous Plantation
- CUT1-1, Sumac Deciduous Thicket
- CUW1-A, Natural Cultural Woodland
- CUW1-A1, Natural Cultural Woodland
- CUW1-A2, White Pine Successional Woodland
- CUW1-A3, Native Deciduous Cultural Woodland
- CUW1-B, Exotic Cultural Woodland
- CVC, Commercial and Institutional
- CVI, Transportation & Utilities
- CVR, Residential
- CVR-1, Low Density Residential
- CVR-2, High Density Residential
- CVR-3 , Single Family Residential
- CVR-4, Rural Property
- FOC1-2, Dry-Fresh White Pine (- Red Pine) Coniferous Fore*
- FOC3-1, Fresh-Moist Hemlock Coniferous Forest
- FOC3-A, Fresh-Moist Hemlock - White Pine Coniferous Forest
- FOD2-4, Dry-Fresh Oak - Hardwood Deciduous Forest
- FOD3-1, Dry-Fresh Poplar Deciduous Forest
- FOM3-1, Dry-Fresh Sugar Maple Deciduous Forest
- FOD5-10, Dry-Fresh Sugar Maple - Paper Birch - Poplar Deci*
- FOD5-2, Dry-Fresh Sugar Maple - Beech Deciduous Forest
- FOD8-1, Fresh-Moist Poplar Deciduous Forest
- FOM3-1, Dry-Fresh Hardwood - Hemlock Mixed Forest
- FOM3-2, Dry-Fresh Hemlock - Sugar Maple Mixed Forest
- FOM5-1, Dry-Fresh Paper Birch Mixed Forest
- FOMA-A, Fresh-Moist White Pine - Sugar Maple Mixed Forest
- MAM2-10, Forb Mineral Meadow Marsh
- MAM2-9, Jewelweed Mineral Meadow Marsh
- MAM2-a, Common Reed Mineral Meadow Marsh
- MAS2-1B, Narrow-leaved Cattail Mineral Shallow Marsh
- OA, Open Water
- OAGM1, Annual Row Crop
- SAF1-3, Duckweed Floating-leaved Shallow Aquatic
- SBO1-A, Dogwood Open Sand Barren
- SBO1-B, Fine-stemmed Bluegrass - Forb Open Sand Barren
- SWC1-1, White Cedar Mineral Coniferous Swamp
- SWC1-2, White Cedar - Conifer Mineral Coniferous Swamp
- SWD4-3, Paper Birch - Poplar Mineral Deciduous Swamp
- SWT2-5, Red Osier Dogwood Mineral Thicket Swamp

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Ecological Land Classification Descriptions

CGL, Constructed Green Lands	CUW1-A, Natural Cultural Woodland	CVI, Transportation & Utilities	OAGM1, Annual Row Crop
CUM1-A, Native Forb Meadow	CVC, Commercial and Institutional	CVR-3 , Single Family Residential	

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

LEGEND

- Preliminary Design
- Watercourses
- 120m from Preliminary Design
- Ecological Land Classification

ELC Community L Rank

- L2
- L3
- L4
- L+, L5
- Not Ranked

- Other SAR Observation Locations
- Potential Maternity Roost Tree for SAR Bats

Butternuts

- Butternut Observation (+/- 12m)
- Habitat (25 m Radius)
- Habitat (50 m Radius)

Breeding Bird Survey Locations

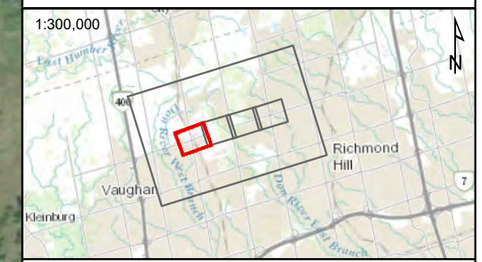
- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

Design Impacts

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- Negative Impact
- Harmful Alteration

Transportation Network

- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF, ESRI

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN,

MORRISON HERSHFIELD

SCALE: 1:4,500

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Meters

TITLE:

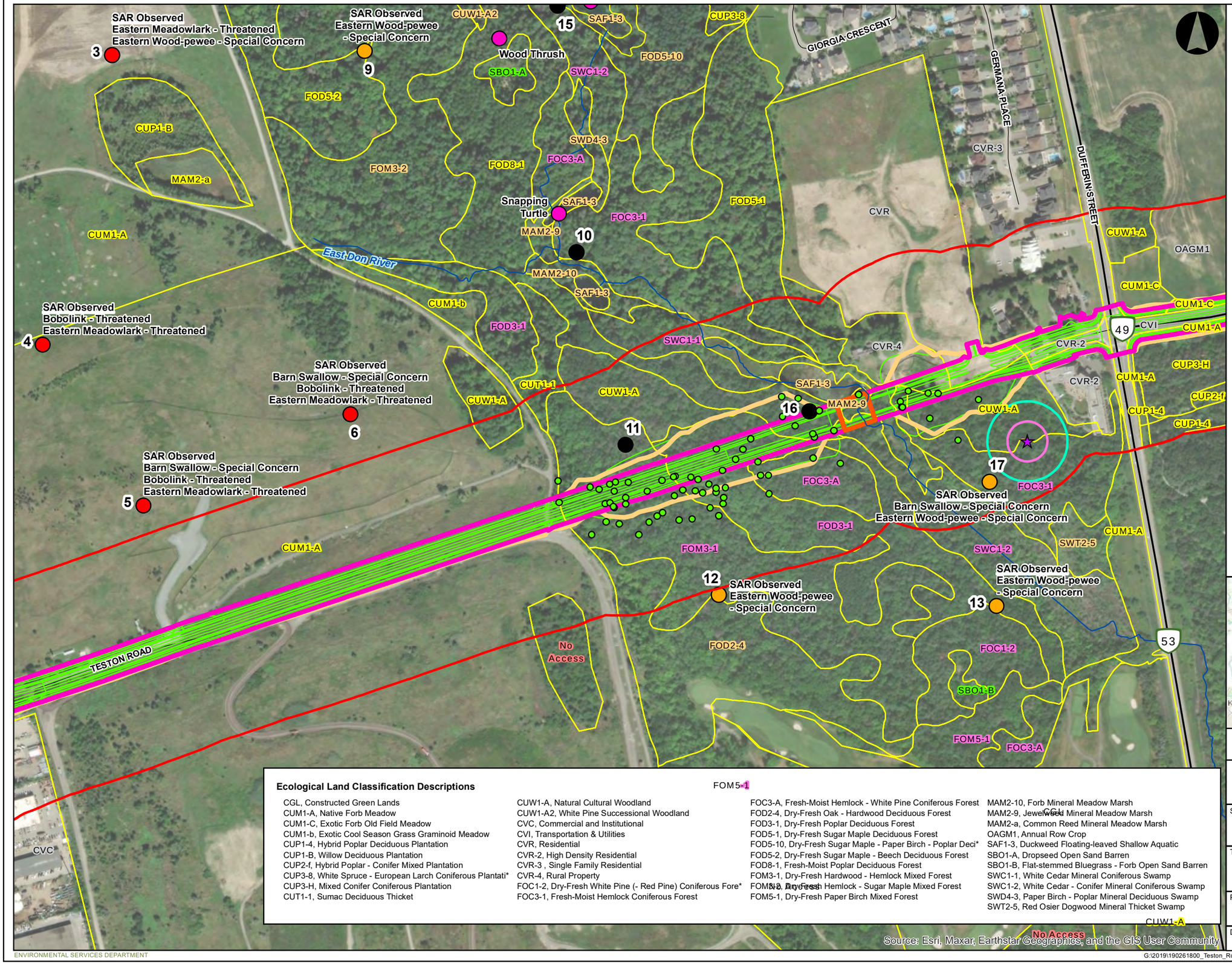
Terrestrial Impact Assessment

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario

DATE: **May 2024**

Figure 2 of 5



Ecological Land Classification Descriptions

FOM5-1

CGL, Constructed Green Lands	CUW1-A, Natural Cultural Woodland	FOC3-A, Fresh-Moist Hemlock - White Pine Coniferous Forest	MAM2-10, Forb Mineral Meadow Marsh
CUM1-A, Native Forb Meadow	CUW1-A2, White Pine Successional Woodland	FOD2-4, Dry-Fresh Oak - Hardwood Deciduous Forest	MAM2-9, Jewelweed Mineral Meadow Marsh
CUM1-C, Exotic Forb Old Field Meadow	CVC, Commercial and Institutional	FOD3-1, Dry-Fresh Poplar Deciduous Forest	MAM2-a, Common Reed Mineral Meadow Marsh
CUM1-b, Exotic Cool Season Grass Graminoid Meadow	CVI, Transportation & Utilities	FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest	OAGM1, Annual Row Crop
CUP1-4, Hybrid Poplar Deciduous Plantation	CVR, Residential	FOD5-10, Dry-Fresh Sugar Maple - Paper Birch - Poplar Deci*	SAF1-3, Duckweed Floating-leaved Shallow Aquatic
CUP1-B, Willow Deciduous Plantation	CVR-2, High Density Residential	FOD5-2, Dry-Fresh Sugar Maple - Beech Deciduous Forest	SBO1-A, Dropseed Open Sand Barren
CUP2-f, Hybrid Poplar - Conifer Mixed Plantation	CVR-3 , Single Family Residential	FOD8-1, Fresh-Moist Poplar Deciduous Forest	SBO1-B, Flat-stemmed Bluegrass - Forb Open Sand Barren
CUP3-8, White Spruce - European Larch Coniferous Plantati*	CVR-4, Rural Property	FOM3-1, Dry-Fresh Hardwood - Hemlock Mixed Forest	SWC1-1, White Cedar Mineral Coniferous Swamp
CUP3-H, Mixed Conifer Coniferous Plantation	FOC1-2, Dry-Fresh White Pine (- Red Pine) Coniferous Fore*	FOM3-2, Dry-Fresh Hemlock - Sugar Maple Mixed Forest	SWC1-2, White Cedar - Conifer Mineral Coniferous Swamp
CUT1-1, Sumac Deciduous Thicket	FOC3-1, Fresh-Moist Hemlock Coniferous Forest	FOM5-1, Dry-Fresh Paper Birch Mixed Forest	SWD4-3, Paper Birch - Poplar Mineral Deciduous Swamp
			SWT2-5, Red Osier Dogwood Mineral Thicket Swamp

CUW1-A

LEGEND

- Preliminary Design
- Watercourses
- 120m from Preliminary Design
- Ecological Land Classification

ELC Community L Rank

- L2
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- Other SAR Observation Locations
- Potential Maternity Roost Tree for SAR Bats

Butternuts

- Butternut Observation (+/- 12m)
- Habitat (25 m Radius)
- Habitat (50 m Radius)

Breeding Bird Survey Locations

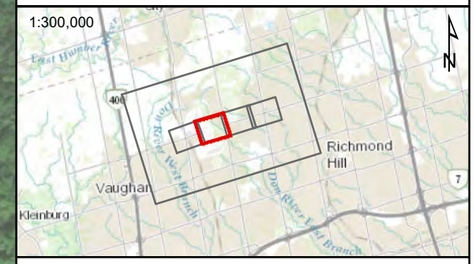
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Design Impacts

- Permanent Loss
- Negative Impact
- Harmful Alteration

Transportation Network

- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF, ESRI

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN,

MORRISON HERSHFIELD

SCALE: 1:4,500

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Meters

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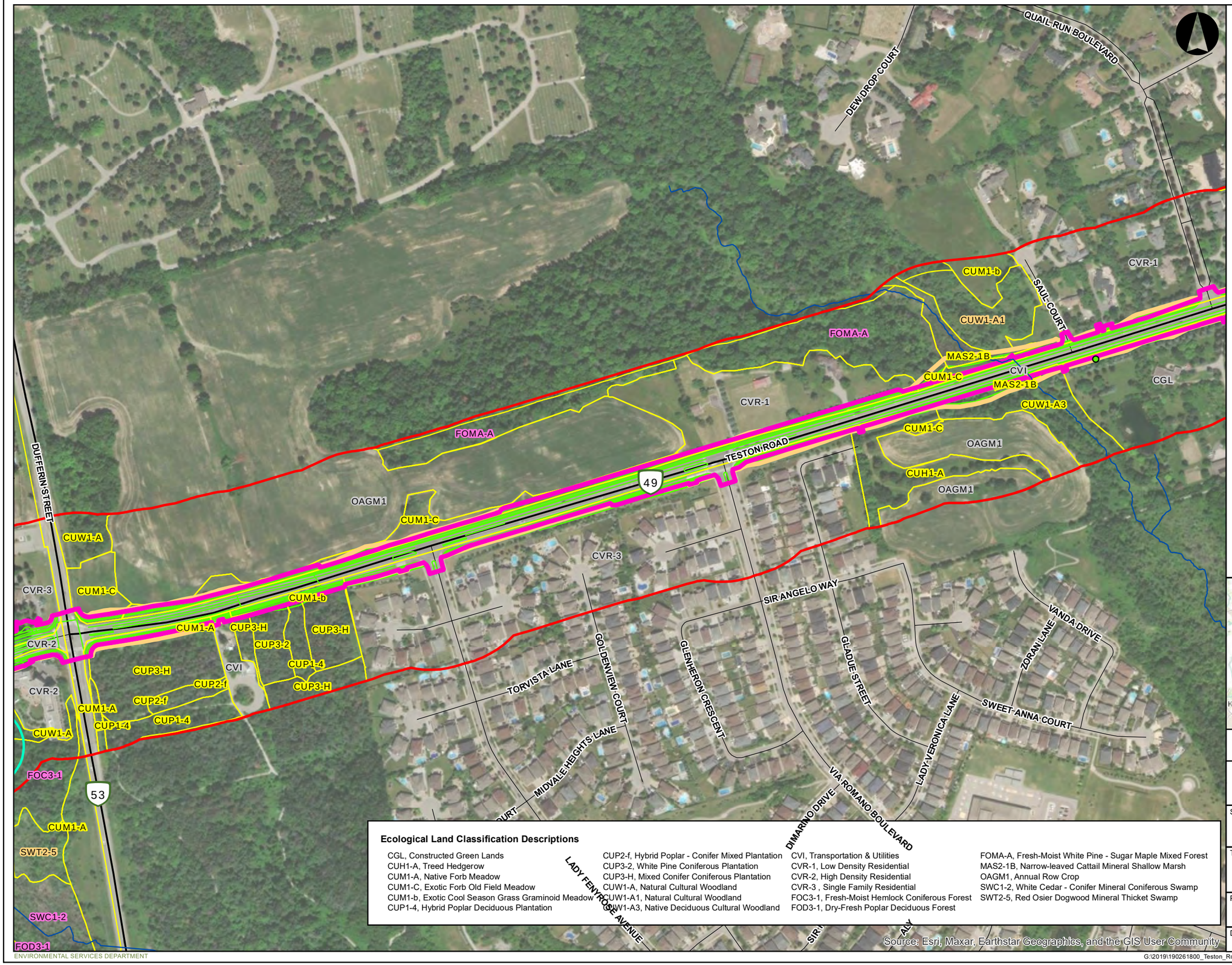
Terrestrial Impact Assessment

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario

DATE: **May 2024**

Figure 3 of 5



LEGEND

- Preliminary Design
- Watercourses
- 120m from Preliminary Design
- Ecological Land Classification

ELC Community L Rank

- L2
- L3
- L4
- L+, L5
- Not Ranked

- Other SAR Observation Locations
- Potential Maternity Roost Tree for SAR Bats

Butternuts

- Butternut Observation (+/- 12m)
- Habitat (25 m Radius)
- Habitat (50 m Radius)

Breeding Bird Survey Locations

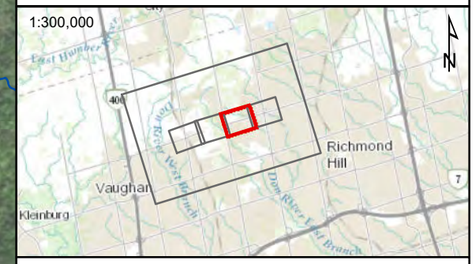
- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

Design Impacts

- Permanent Loss
- Negative Impact
- Harmful Alteration

Transportation Network

- Arterial / Collector
- Local Roads



Ecological Land Classification Descriptions

- CGL, Constructed Green Lands
- CUH1-A, Treed Hedgerow
- CUM1-A, Native Forb Meadow
- CUM1-C, Exotic Forb Old Field Meadow
- CUM1-b, Exotic Cool Season Grass Graminoid Meadow
- CUP1-4, Hybrid Poplar Deciduous Plantation
- CUP2-f, Hybrid Poplar - Conifer Mixed Plantation
- CUP3-2, White Pine Coniferous Plantation
- CUP3-H, Mixed Conifer Coniferous Plantation
- CUW1-A, Natural Cultural Woodland
- CUW1-A1, Natural Cultural Woodland
- CUW1-A3, Native Deciduous Cultural Woodland
- CVI, Transportation & Utilities
- CVR-1, Low Density Residential
- CVR-2, High Density Residential
- CVR-3 , Single Family Residential
- FOC3-1, Fresh-Moist Hemlock Coniferous Forest
- FOD3-1, Dry-Fresh Poplar Deciduous Forest
- FOMA-A, Fresh-Moist White Pine - Sugar Maple Mixed Forest
- MAS2-1B, Narrow-leaved Cattail Mineral Shallow Marsh
- OAGM1, Annual Row Crop
- SWC1-2, White Cedar - Conifer Mineral Coniferous Swamp
- SWT2-5, Red Osier Dogwood Mineral Thicket Swamp

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF, ESRI

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN,

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

MORRIS-SHERRETT

SCALE: 1:4,500

0 25 50 100 150 200 250

Meters

TITLE:

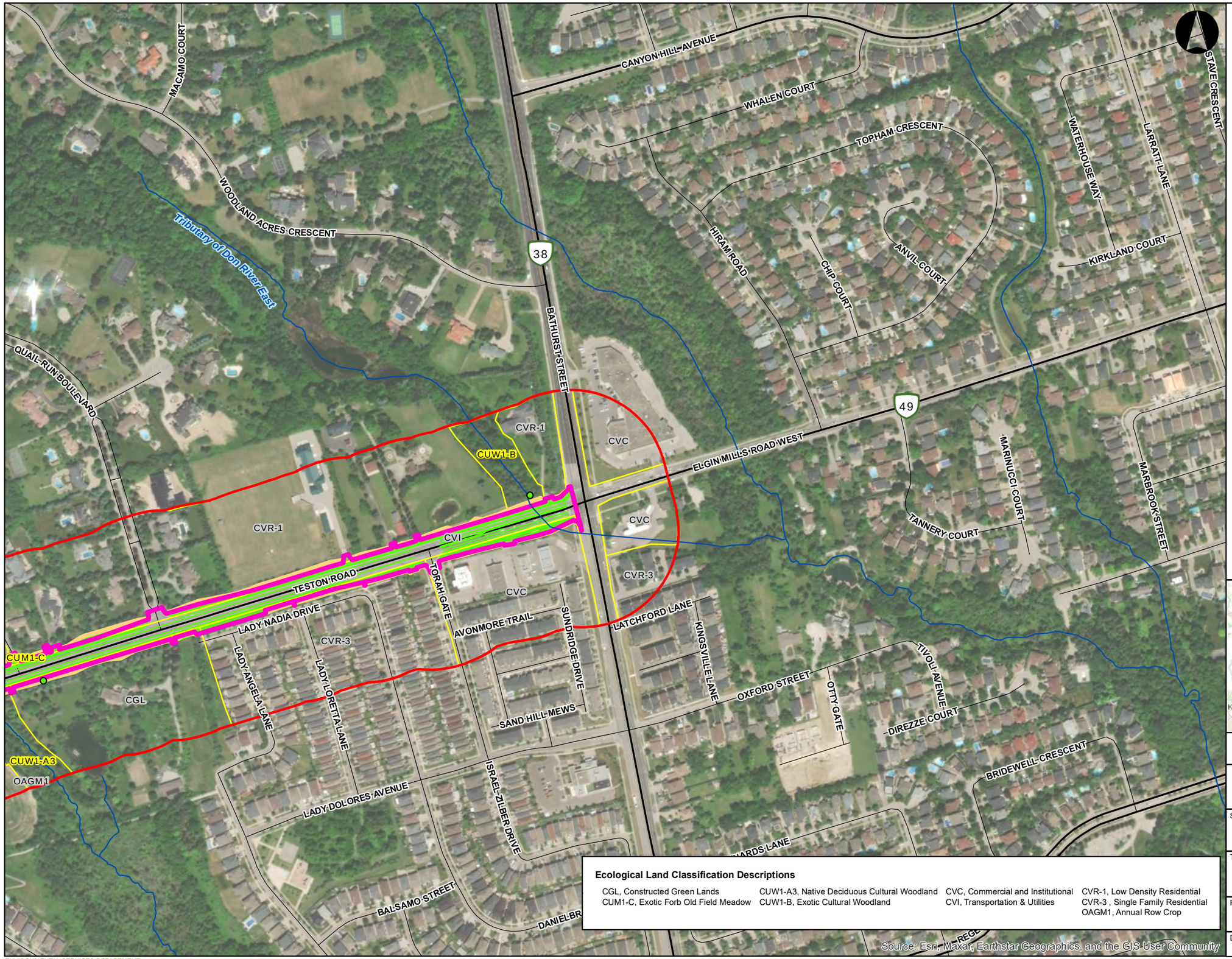
Terrestrial Impact Assessment

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario

DATE: May 2024

Figure 4 of 5



LEGEND

- Preliminary Design
- Watercourses
- 120m from Preliminary Design
- Ecological Land Classification

ELC Community L Rank

- L2
- L3
- L4
- L+, L5
- Not Ranked

- Other SAR Observation Locations
- Potential Maternity Roost Tree for SAR Bats

Butternuts

- Butternut Observation (+/- 12m)
- Habitat (25 m Radius)
- Habitat (50 m Radius)

Breeding Bird Survey Locations

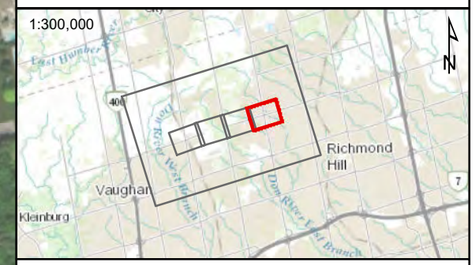
- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

Design Impacts

- Permanent Loss
- Negative Impact
- Harmful Alteration

Transportation Network

- Arterial / Collector
- Local Roads



Ecological Land Classification Descriptions

CGL, Constructed Green Lands	CUW1-A3, Native Deciduous Cultural Woodland	CVC, Commercial and Institutional	CVR-1, Low Density Residential
CUM1-C, Exotic Forb Old Field Meadow	CUW1-B, Exotic Cultural Woodland	CVI, Transportation & Utilities	CVR-3 , Single Family Residential
			OAGM1, Annual Row Crop

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF, ESRI

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN,

MORRISON HERSHFIELD

SCALE: 1:4,500

0 25 50 100 150 200 250

Meters

TITLE:

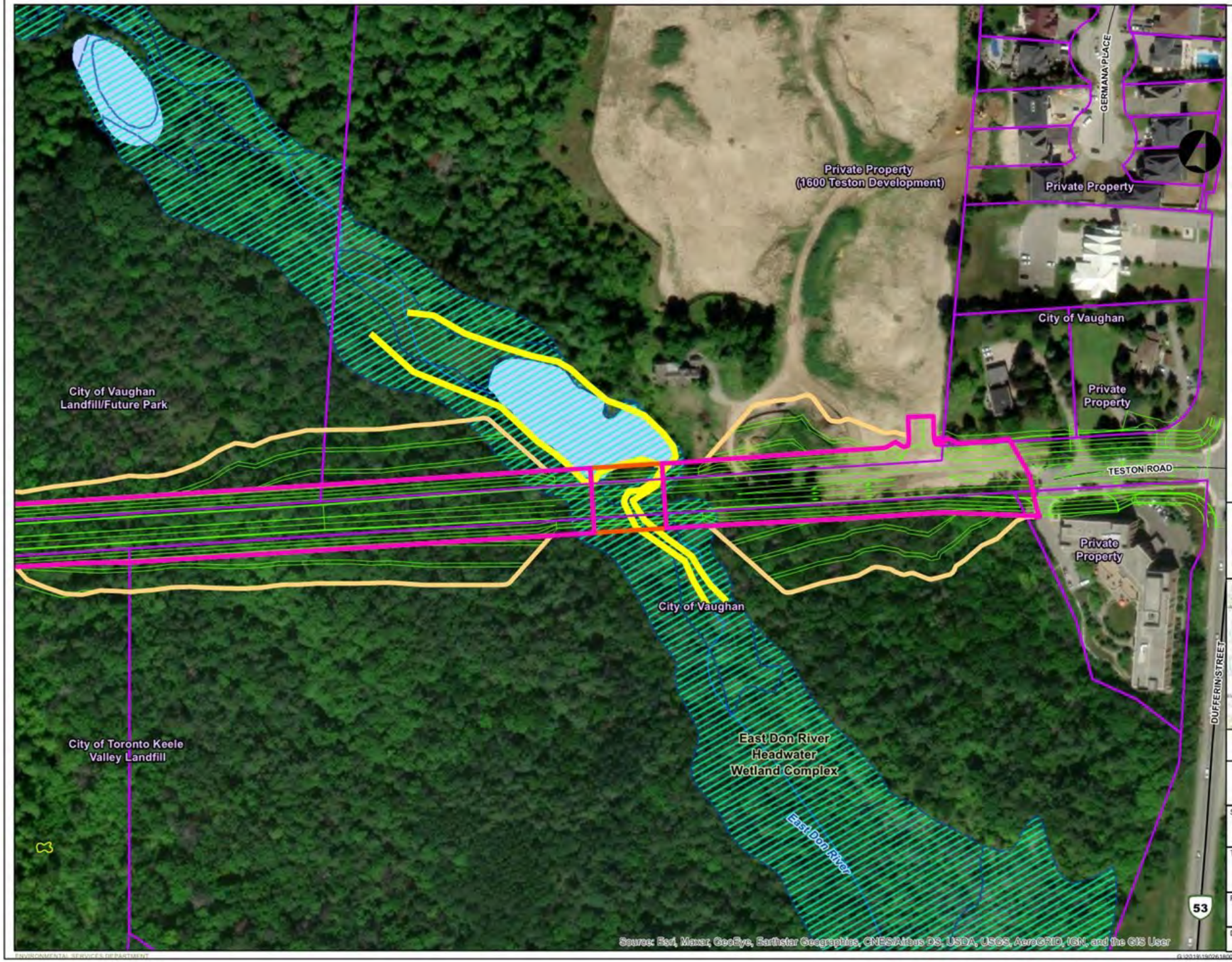
Terrestrial Impact Assessment

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario

DATE: **May 2024**

Figure 5 of 5



Significant Natural Heritage Features

- 2yr Floodline

Land Information Ontario Data

- Watercourses
- Waterbodies
- Evaluated-Provincially Significant Wetlands

Transportation Network

- Arterial / Collector
- Local Roads

Design Elements

- Proposed Design
- Property Boundaries

Design Impacts (Valley)

- Permanent
- Temporary
- Harmful Alteration

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNRF) Aurora District and Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF

MORRISON HERSHFIELD

SCALE: 1:2,000

0 15 30 60 90 120

Meters

TITLE:

Teston IEA Valley Crossing, Aquatic Impacts

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario

DATE: **August 2023**

Figure 1

ENVIRONMENTAL SERVICES DEPARTMENT

G:\2019\190261800_Teston_RdMaps\Aquatic_Maps\Teston_IEA_Valley_Crossing_Constraints_40m_Aquatic.mxd

Appendix I Aquatic Effects Assessment

Aquatic Effects Assessment Summary Table - Don River East Branch, West of Dufferin Street

Waterbody	Pathway of Effect(s)	Stressor (Potential Impact)	Mitigation Measures	Residual Effects
Don River East Branch West of Dufferin Street	Vegetation Clearing	Alteration of riparian vegetation Bank stability and exposed soils Increased erosion potential	Minimize vegetation removal on the waterbody banks where possible in order to maintain shading and bank stability. Stabilize disturbed banks with native seed mixture and/or cover exposed areas with erosion control measures until seeding or planting can occur. Install sediment fence around disturbed areas as per OPSS.MUNI 805. Clearing shall be completed in accordance with the specifications outlined in OPSS.MUNI 201.	Change in habitat structure and cover Change in food supply Change in nutrient concentration (Note: these are anticipated to be minor short- term residual that may occur to riparian areas as seed and natural vegetation (grasses/forbs) will take some time to re-establish along work/staging areas.)
	Grading	Addition or removal of instream organic structure Bank stability and exposed soils	Heavy machinery access and staging will be limited to areas within the new ROW and along the banks of the watercourse. Reinstate and stabilize banks disturbed during construction to pre-construction or better condition. Exposed areas will be revegetated using a seed mix composed of native species that are appropriate for the site conditions, as per OPSS.MUNI 803. Grading operations must be completed as per OPSS.MUNI 206. Topsoil will be replaced after grading operations as per OPSS.MUNI 802. Use of effective erosion and sediment control measures including topsoil and seed, sediment fence barriers, and erosion control blankets as per OPSS.MUNI 804 and OPSS.MUNI 805	Change in habitat structure and cover
	Excavation	Bank stability and exposed soils Dewatering Increased erosion potential Removal of topsoil Spoil/stockpile material	Work will be carried out within the in-water timing window between June 15 –September 15 when water levels are depressed and to avoid harming fish during critical life stages Use of effective erosion and sediment control measures including topsoil and seed, sediment fencing, and erosion control blanket as per OPSS.MUNI 804 and OPSS.MUNI 805. Bridge works will be carried out in the dry, within the confines of cofferdams. Work area dewatering will be directed to a flat vegetated area at least 30 m from the receiving watercourse or ditchline or outlet into a filter bag (also 30 m from surface water features) to allow sediments to settle out before re-entering the watercourse. Reinstate and stabilize banks of watercourse disturbed during construction to pre-construction or better condition. Exposed areas will be revegetated using a seed mix composed of native species that are appropriate for the site conditions, as per OPSS.MUNI 803.	No residual effects following the implementation of appropriate mitigation

Aquatic Effects Assessment Summary Table - Don River East Branch, West of Dufferin Street

Waterbody	Pathway of Effect(s)	Stressor (Potential Impact)	Mitigation Measures	Residual Effects
			All stockpiles shall be placed at minimum of 30m from any waterbody. Excavation will be completed in accordance with OPSS.MUNI 902.	
	Riparian Planting		ESC will be used to contain/isolate the construction zone and to manage site drainage to prevent erosion and sedimentation to the waterbody. ESC measures will be in place until all areas are stabilized. Minimize use of fertilizers to best management or industry standards. Reinstate and stabilize banks of watercourse disturbed during construction to pre-construction or better condition. Exposed areas will be revegetated using a seed mix composed of native species that are appropriate for the site conditions, as per OPSS.MUNI 803. Native tree and shrub species will be planted within the riparian zone and meander belt according to the landscape plan.	No residual effects following the implementation of appropriate mitigation
	Industrial Equipment	Oil, grease and fluid leaks from equipment Bank stability and exposed soils Increased erosion potential Resuspension and entrainment of sediment	Work will be carried out within the in-water timing window between June 15-September 15 when water levels are depressed and to avoid harming fish during critical life stages. Heavy machinery access will be limited to pre-defined areas along the banks of the watercourse. The watercourse will not be crossed or treated as machinery staging at any time. Machinery will be clean and free of fluid leaks, invasive species and noxious weeds on arrival at the construction site and will be maintained in this condition through regular inspections (i.e. daily). Minimize the movement of machinery near waterbody banks and use the lightest equipment possible. Whenever possible, operate machinery on land above the high-water mark in a manner that minimizes disturbance to the banks and bed of the waterbody. Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water. Refueling, maintenance and necessary repairs shall be carried out on a site designated for this purpose located 30m way from any waterbody. Have spill kits onsite and drip pans under all non-mobile machinery. Operation of equipment in waterbodies or on waterbody banks shall be carried out according to OPSS.MUNI 182. Use of effective erosion control measures including topsoil and seed, sediment fence barriers, and erosion control blankets as per OPSS.MUNI 804 and OPSS.MUNI 805. Reinstate and stabilize banks of watercourse disturbed during construction to pre-construction or better condition. Exposed areas will be revegetated using a seed mix composed of native species that are appropriate for the site conditions, as per OPSS.MUNI 803. Bridge works will be carried out in the dry, within the confines of cofferdams.	No residual effects following the implementation of appropriate mitigation

Aquatic Effects Assessment Summary Table - Don River East Branch, West of Dufferin Street

Waterbody	Pathway of Effect(s)	Stressor (Potential Impact)	Mitigation Measures	Residual Effects
			Work area dewatering will be directed to a flat vegetated area at least 30 m from the receiving watercourse or ditchline or outlet into a filter bag (also 30 m from surface water features) to allow sediments to settle out before re-entering the watercourse.	
	Change in Timing, Duration, or Frequency of Flow	Dewatering	Bridge works will be carried out in the dry, within the confines of cofferdams. Work area dewatering will be directed to a flat vegetated area at least 30 m from the receiving watercourse or ditchline or outlet into a filter bag (also 30 m from surface water features) to allow sediments to settle out before re-entering the watercourse. Any in-water channel works, and cofferdam placement will take place within the in-water timing window between June 15-September 15 when water levels are depressed and to avoid harming fish during critical life stages.	No residual effects following the implementation of appropriate mitigation
	Fish Passage	Flow Barriers	Bridge works will be carried out in the dry, within the confines of cofferdams. Any in-water channel works, and cofferdam placement will take place within the in-water timing window between June 15-September 15 when water levels are depressed and to avoid harming fish during critical life stages.	No residual effects following the implementation of appropriate mitigation