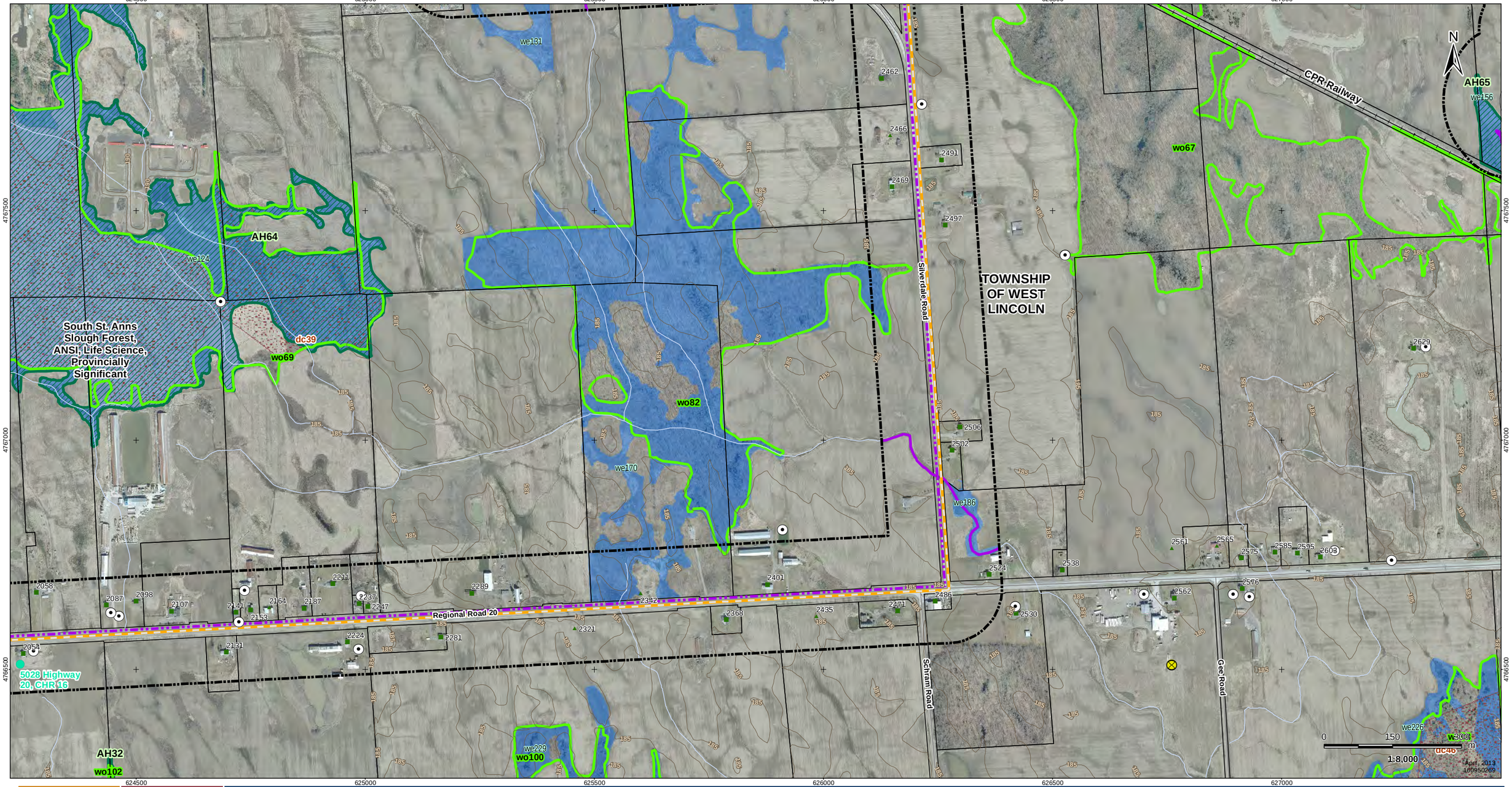

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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components
- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features
- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat
- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features
- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features
- Protected Property
- Cultural Heritage Resource

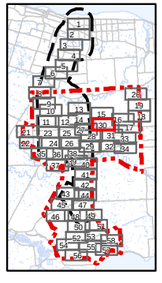
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]
- Occupied
- Vacant

Participating Noise Receptors [5]
- Occupied
- Vacant

Notes

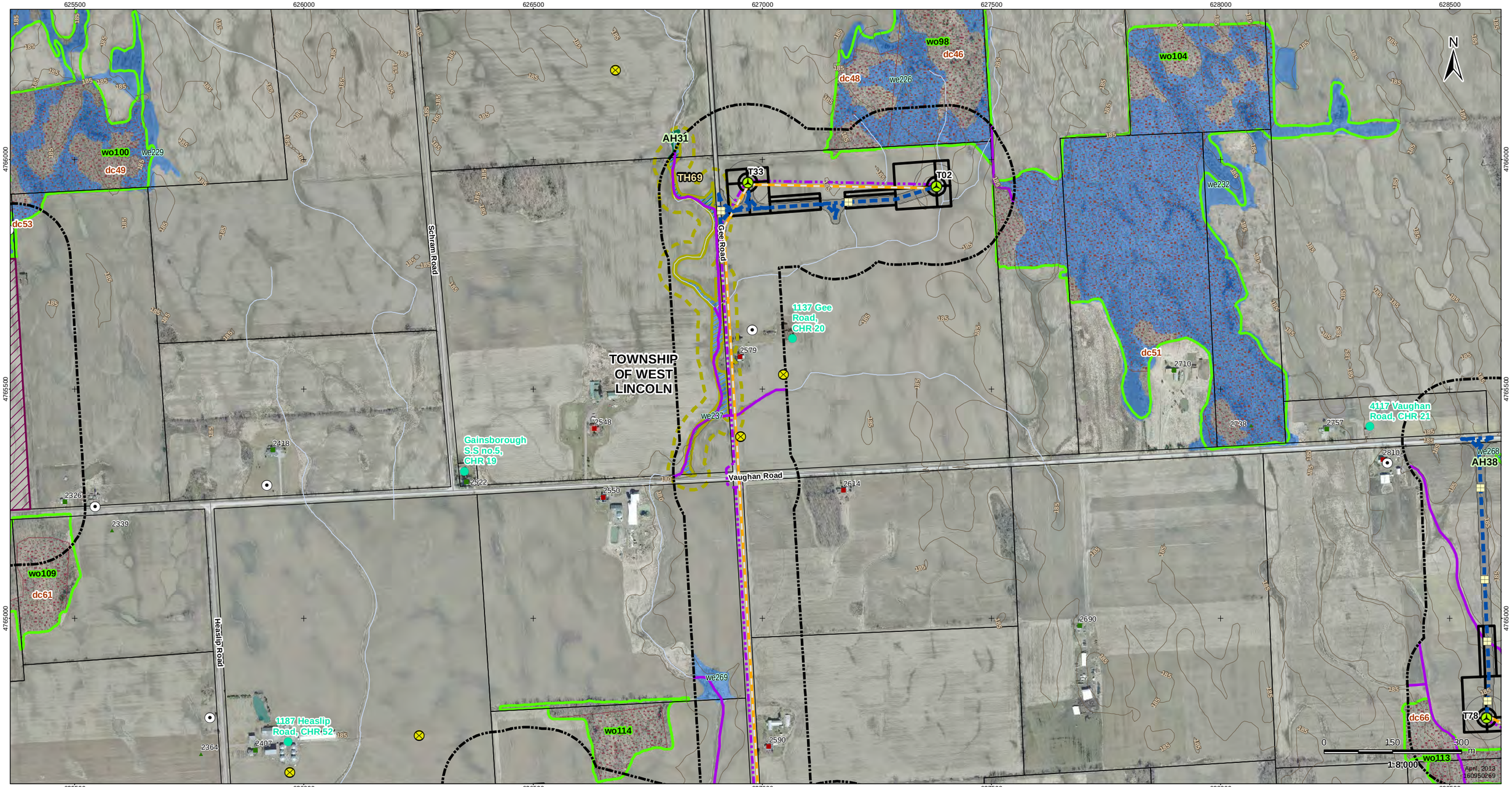
1. Coordinate System: NAD 1983 UTM Zone 17N).
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2011.
3. Orthoimagery source: First Base Solutions, Date Spring 2010.
4. Petroleum Well source: © Ontario Oil, Gas and Salt Resource Library, 2010.
5. MOE Water well locations are approximate and have been positioned based on published UTM coordinates © Queen's Printer for Ontario, 2012.
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.30

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.30



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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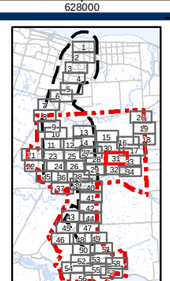
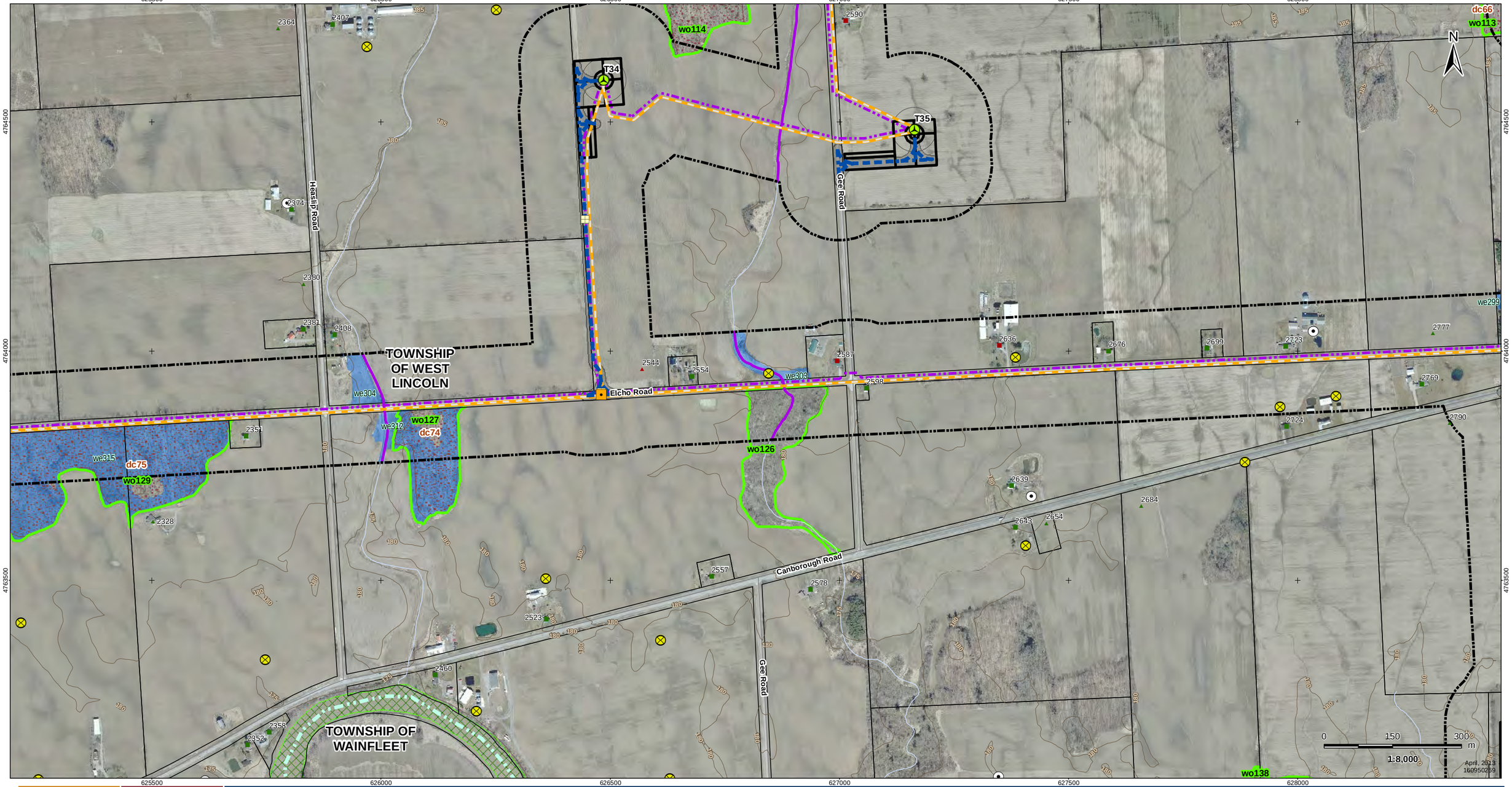
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.31

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.31



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Revised: 2013-04-18 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Protected_Property_point

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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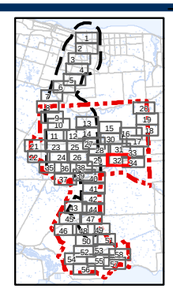
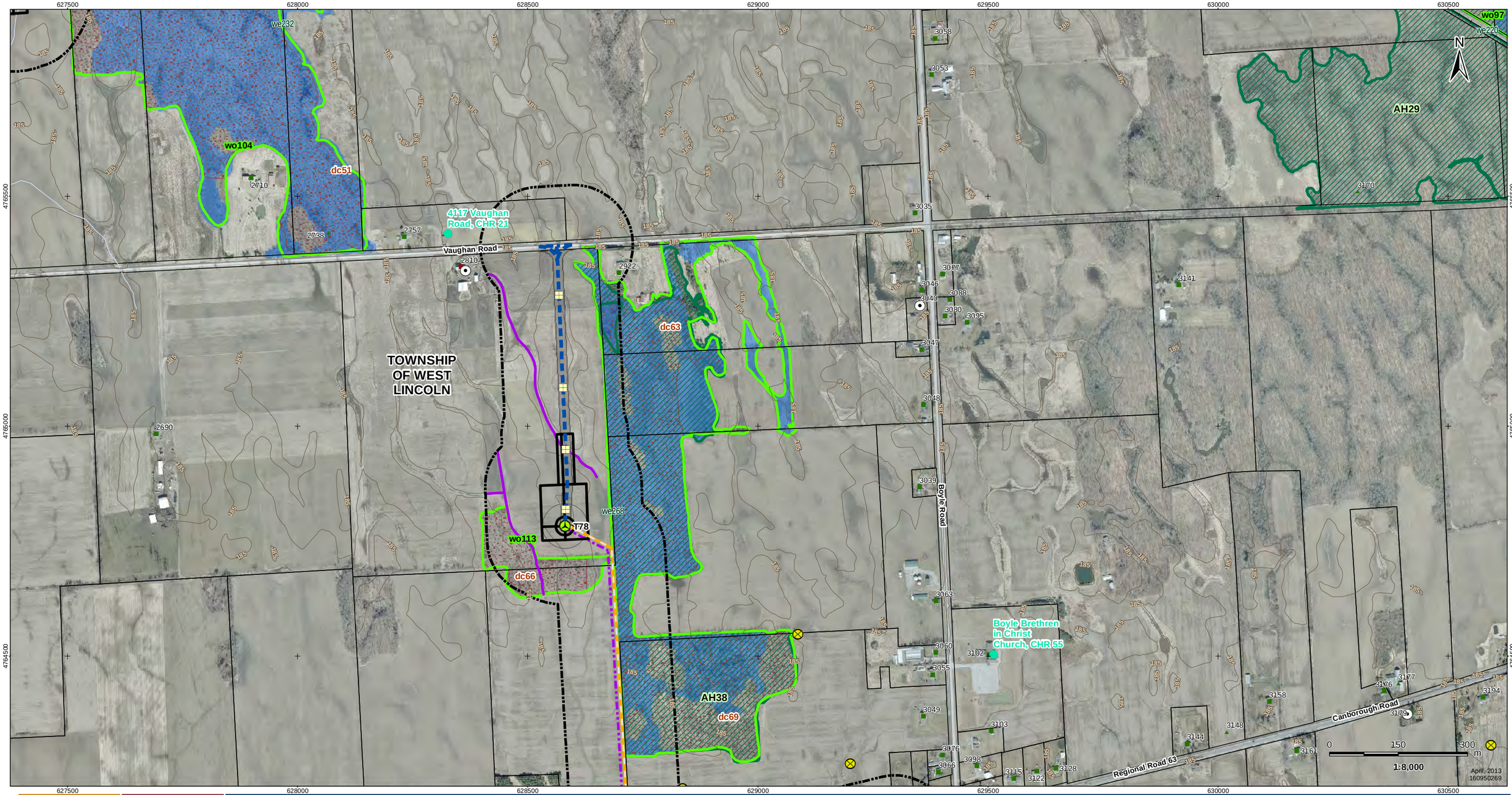
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.32

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.32



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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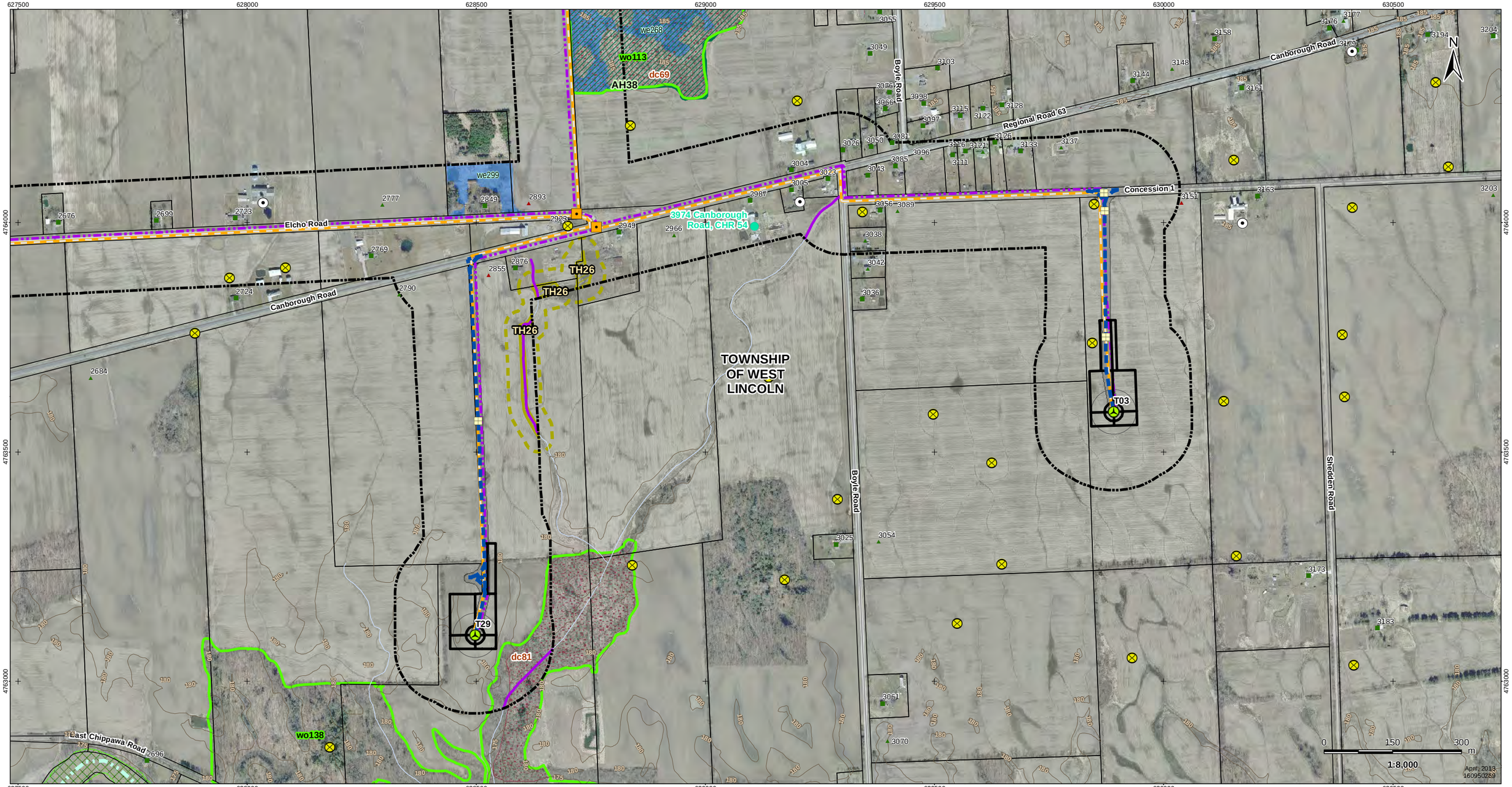
6. Noise receptors are identified within 1500m of any wind turbine.

Client/Project
Niagara Region Wind Corporation

Figure No.
2.33

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.33



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components
- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features
- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat
- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features
- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features
- Protected Property
- Cultural Heritage Resource

- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]
- Occupied
- Vacant

Participating Noise Receptors [5]
- Occupied
- Vacant

Notes

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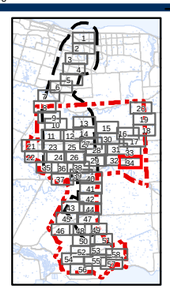
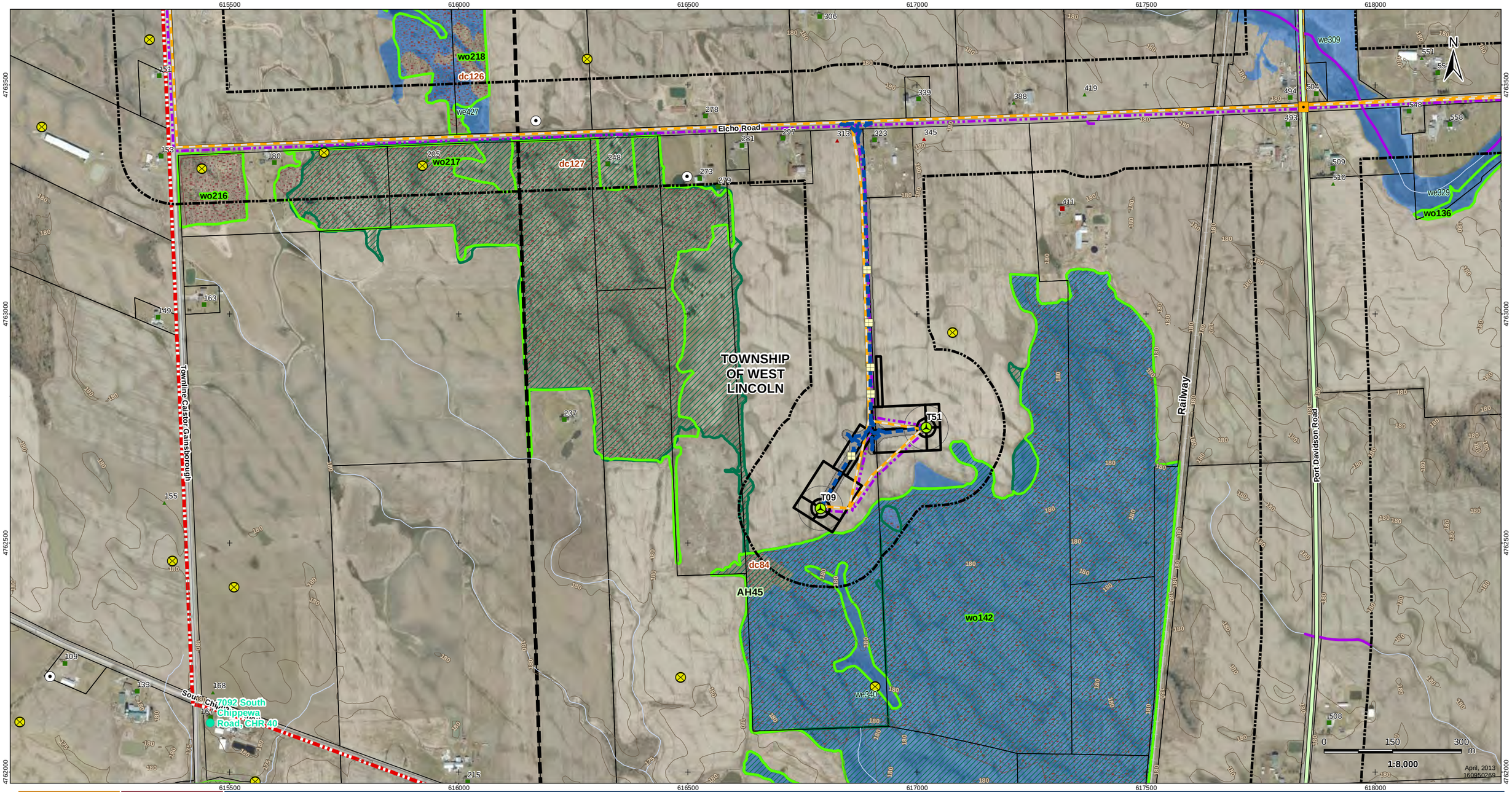


Client/Project
Niagara Region Wind Corporation

Figure No.
2.34

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.34



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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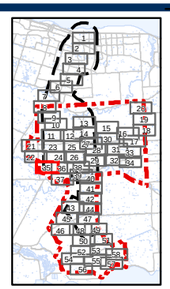
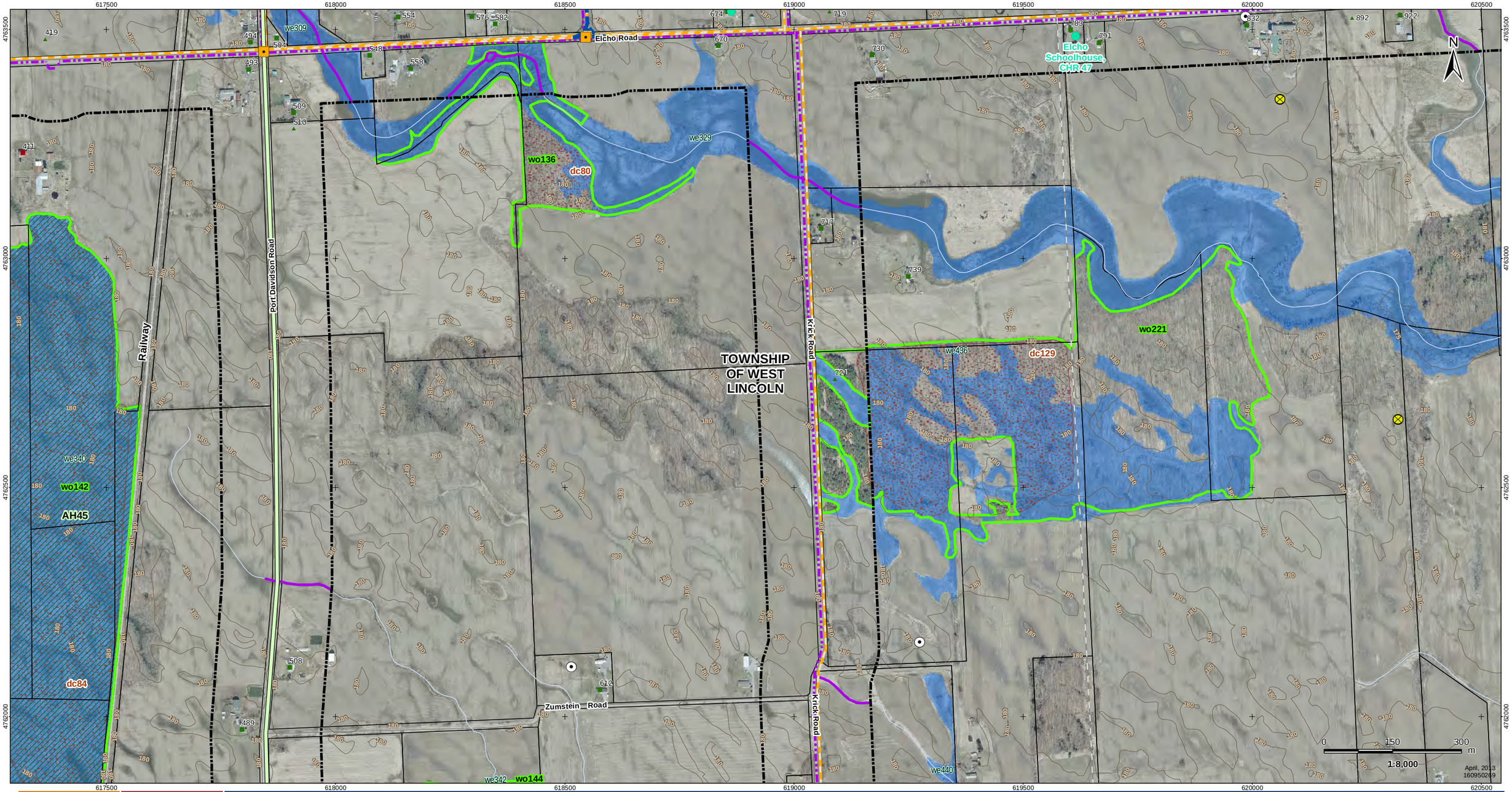


Client/Project
Niagara Region Wind Corporation

Figure No.
2.35

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.35



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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4. Petroleum Well source: © Ontario Oil, Gas and Salt Resource Library, 2010.
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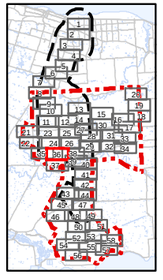
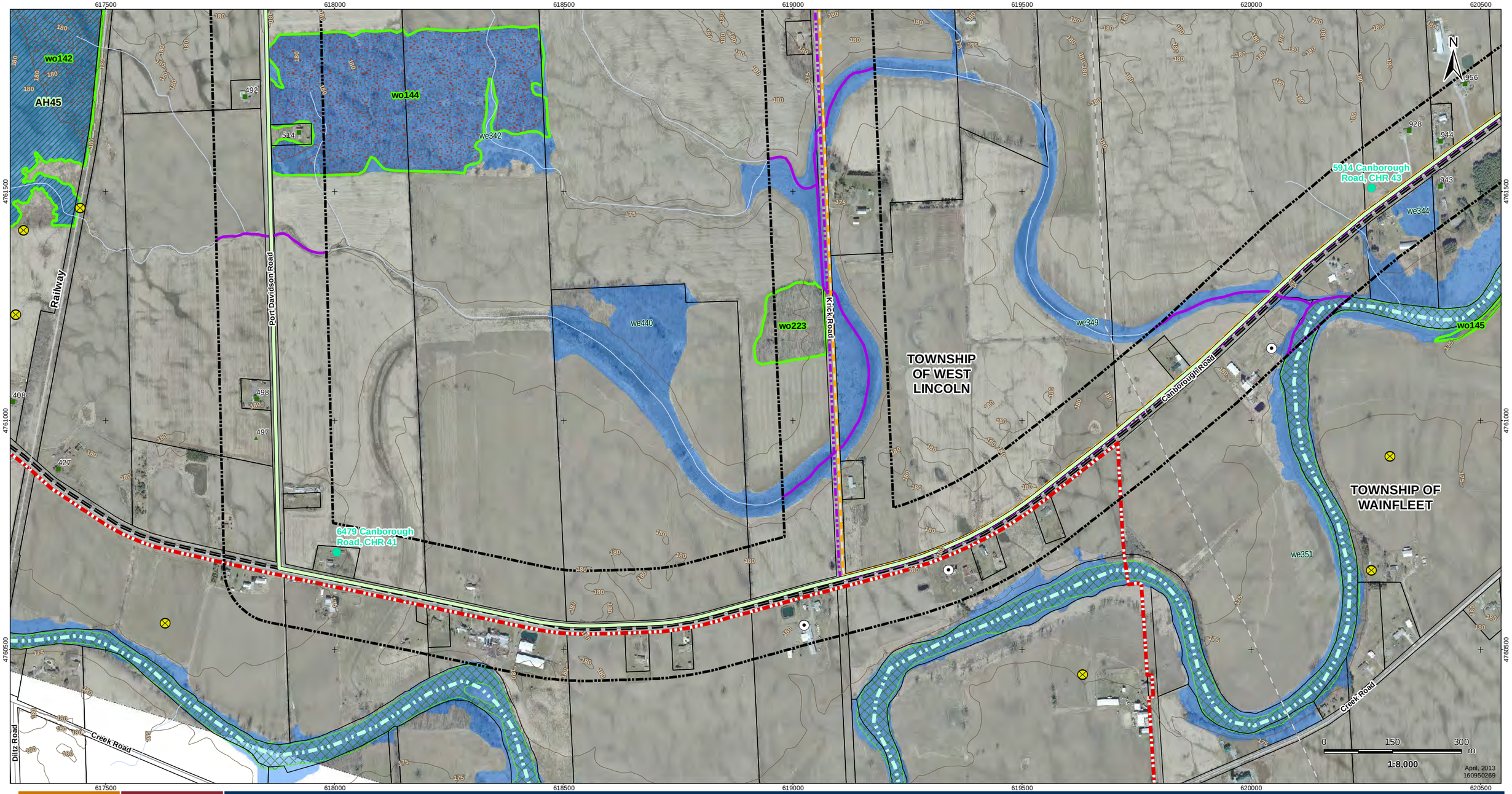


Client/Project
Niagara Region Wind Corporation

Figure No.
2.36

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.36



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

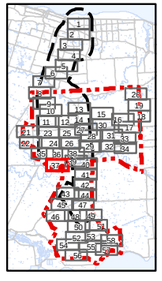
- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

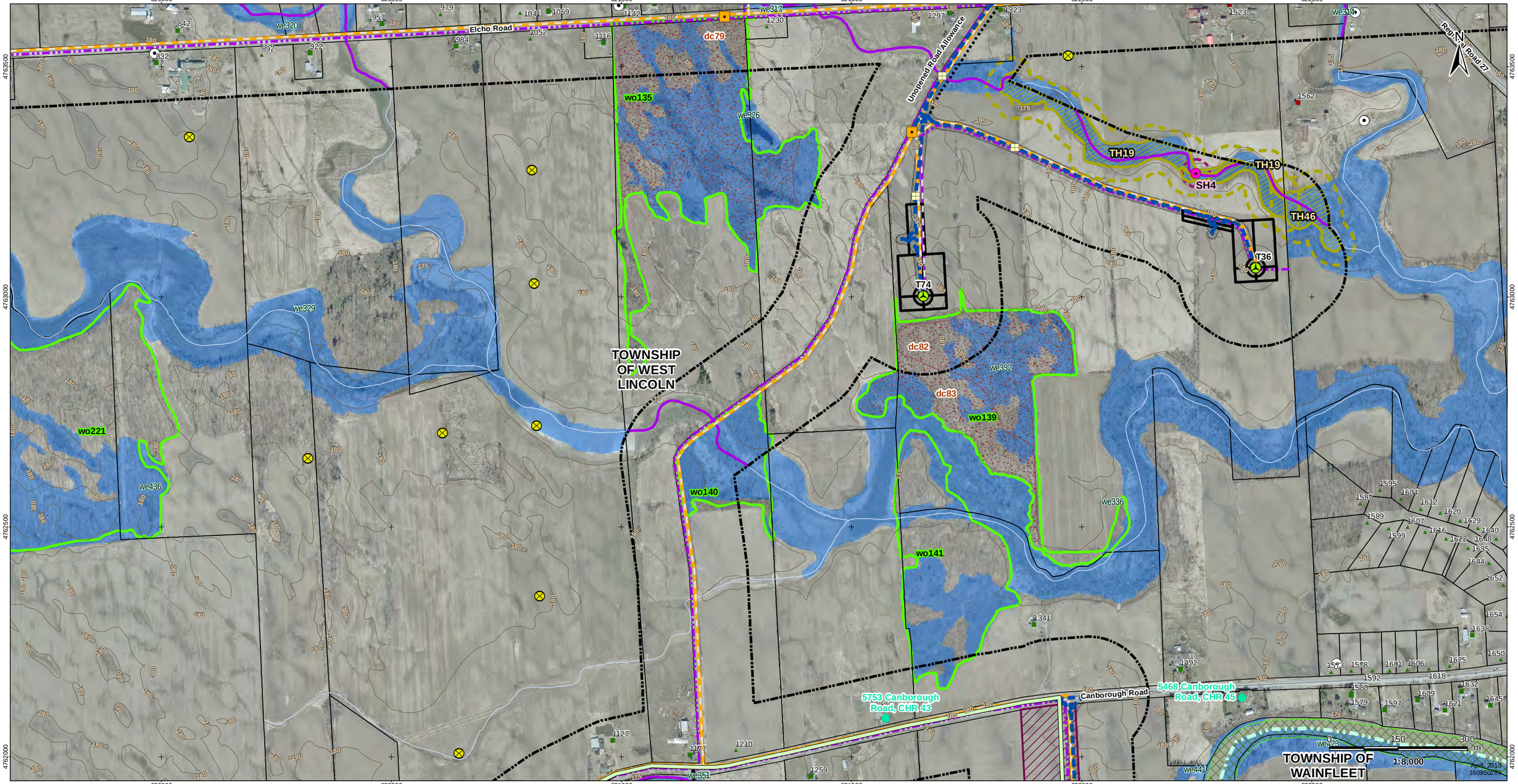
1. Coordinate System: NAD 1983 UTM Zone 17N).
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2011.
3. Orthoimagery source: First Base Solutions, Date Spring 2010.
4. Petroleum Well source: © Ontario Oil, Gas and Salt Resource Library, 2010.
5. MOE Water well locations are approximate and have been positioned based on published UTM coordinates © Queen's Printer for Ontario, 2012.
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.37

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.37



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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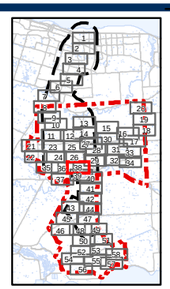
6. Noise receptors are identified within 1500m of any wind turbine.



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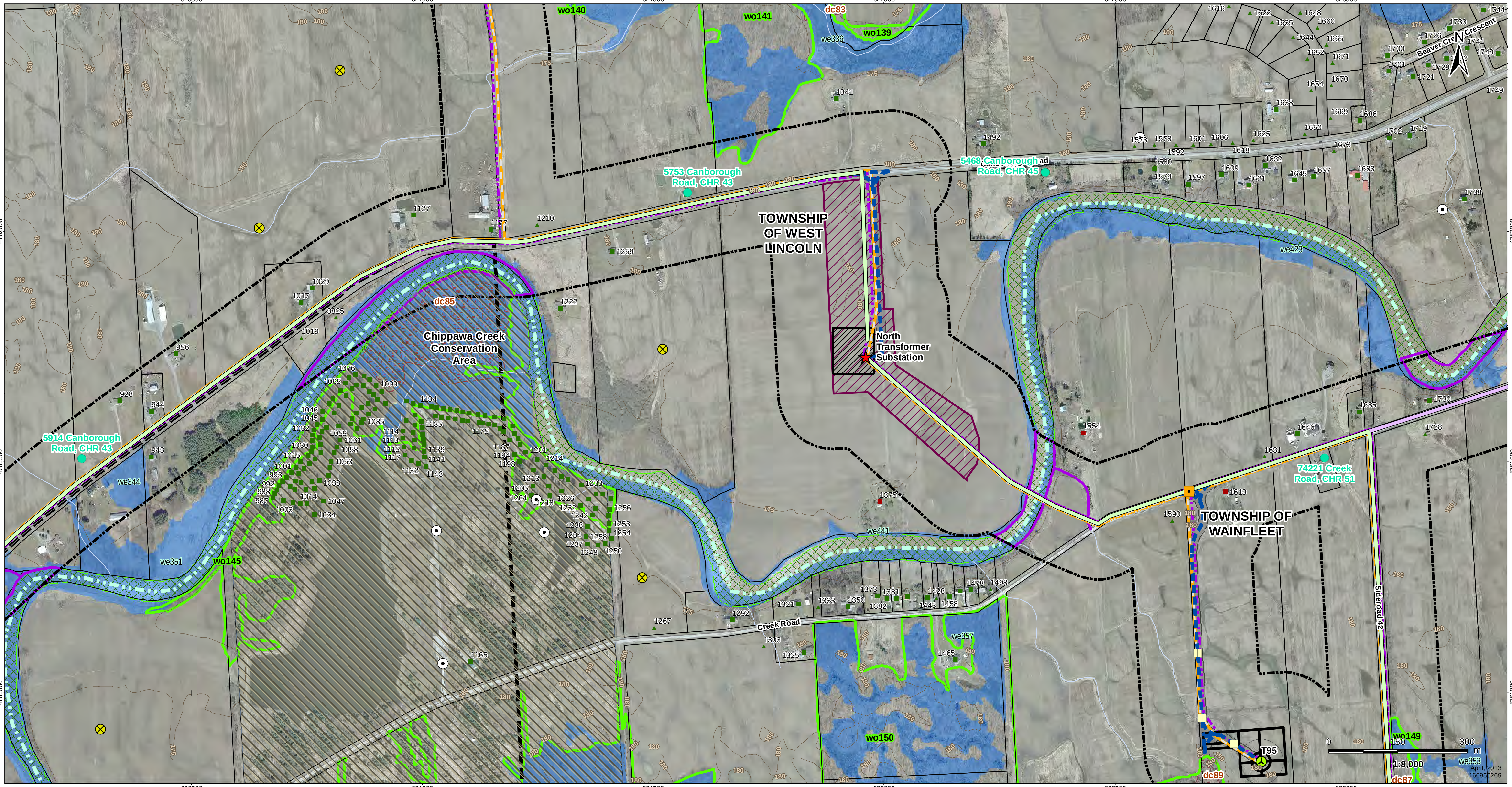
Niagara Region Wind Corporation

Figure No.
2.38

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.38



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Revised: 2013-04-02 By: bcswyer

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components
- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features
- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat
- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features
- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features
- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]
- Occupied
- Vacant

Participating Noise Receptors [5]
- Occupied
- Vacant

Notes

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5. MOE Water well locations are approximate and have been positioned based on published UTM coordinates © Queen's Printer for Ontario, 2012.
6. Noise receptors are identified within 1500m of any wind turbine.

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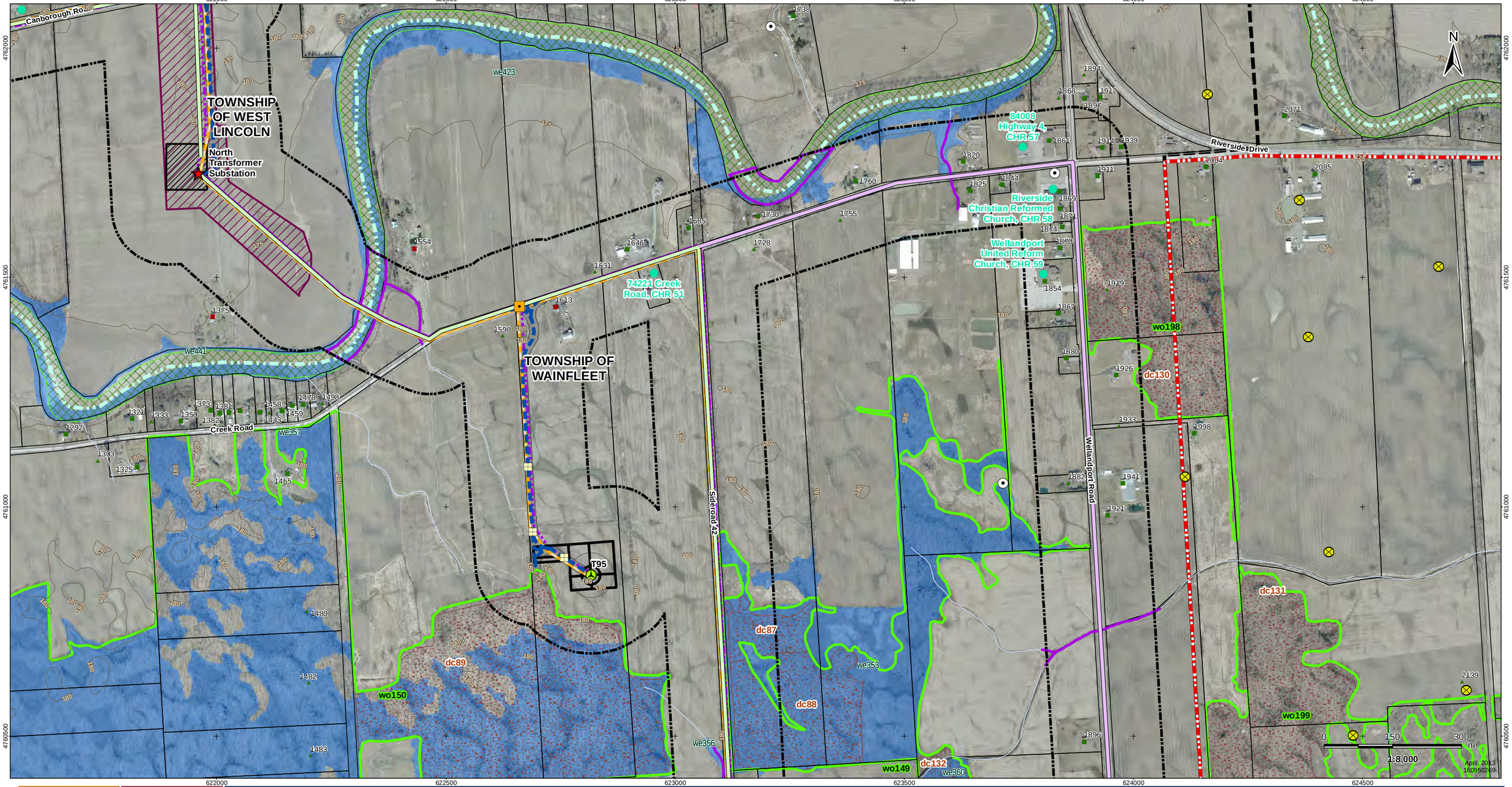
Niagara Region Wind Corporation

Figure No.
2.39

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies
Figure 2.39



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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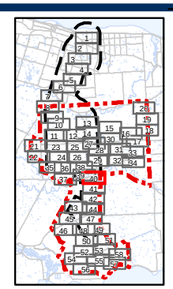
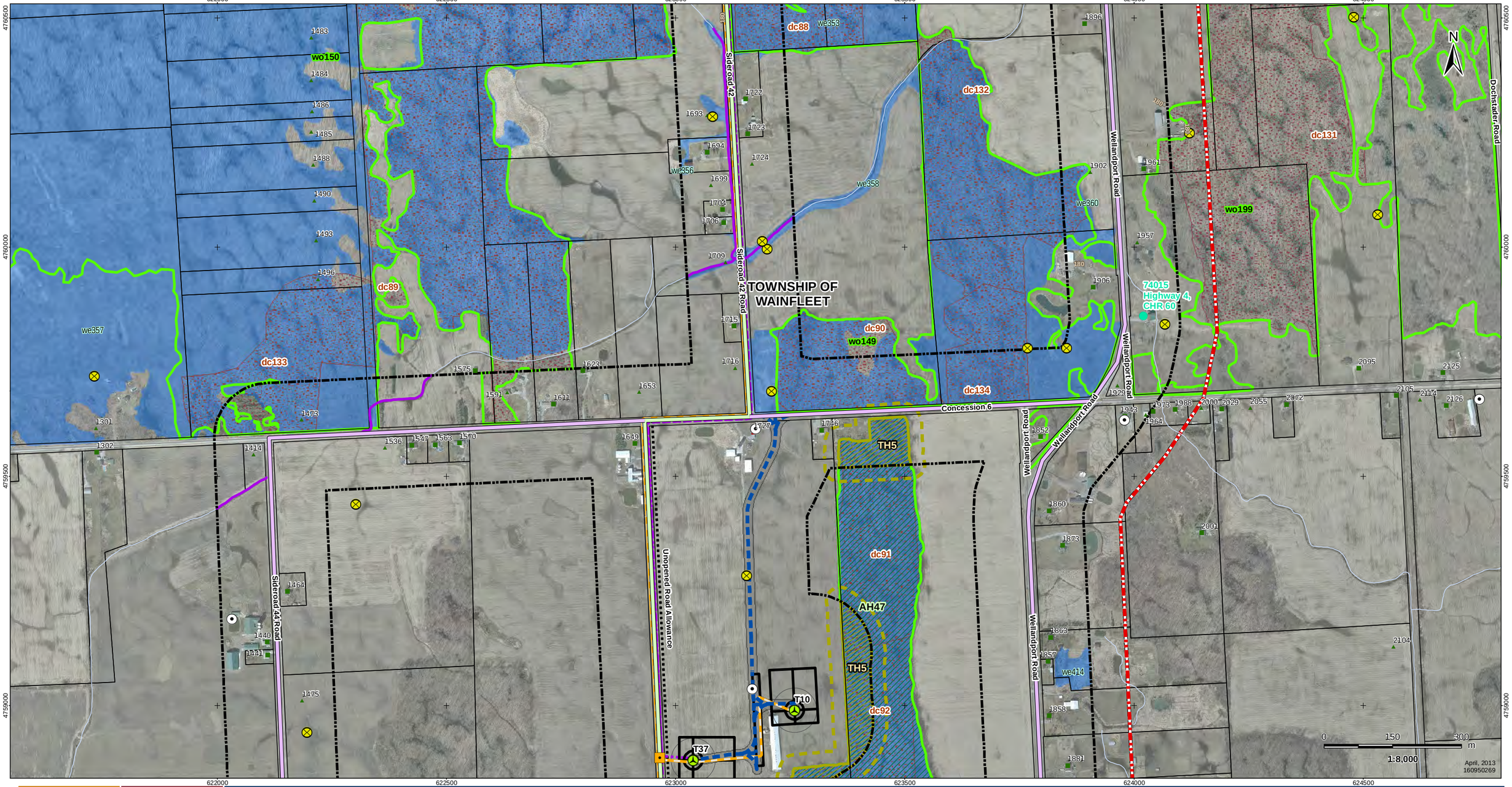


Client/Project
Niagara Region Wind Corporation

Figure No.
2.40

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.40



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components
- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features
- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat
- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features
- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features
- Protected Property
- Cultural Heritage Resource

- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]
- Occupied
- Vacant

Participating Noise Receptors [5]
- Occupied
- Vacant

Notes

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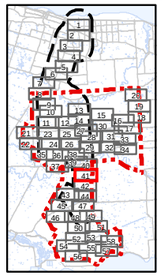

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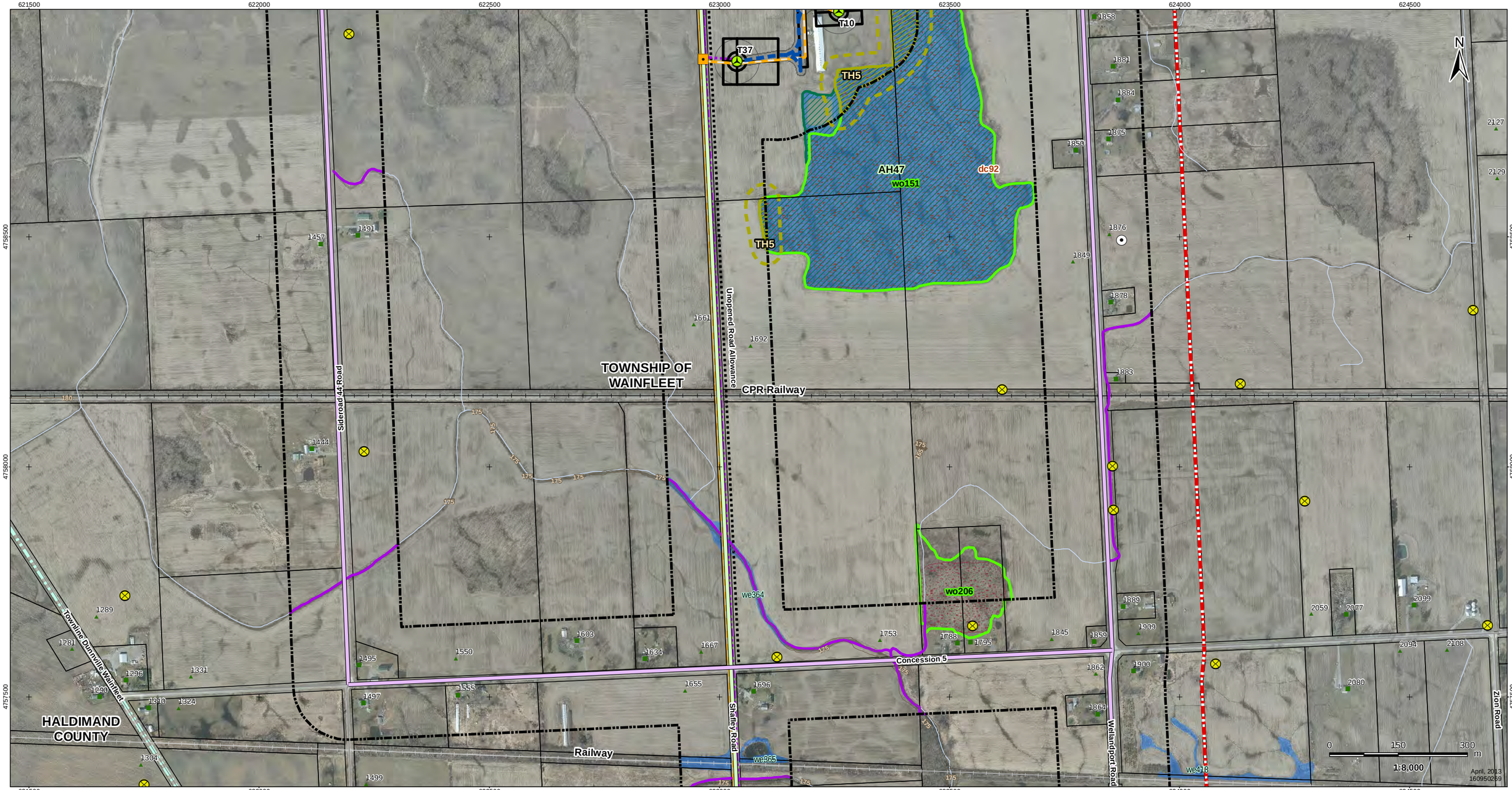
Niagara Region Wind Corporation

Figure No.
2.41

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.41



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Revised: 2013-04-02 By: bcowper

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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6. Noise receptors are identified within 1500m of any wind turbine.

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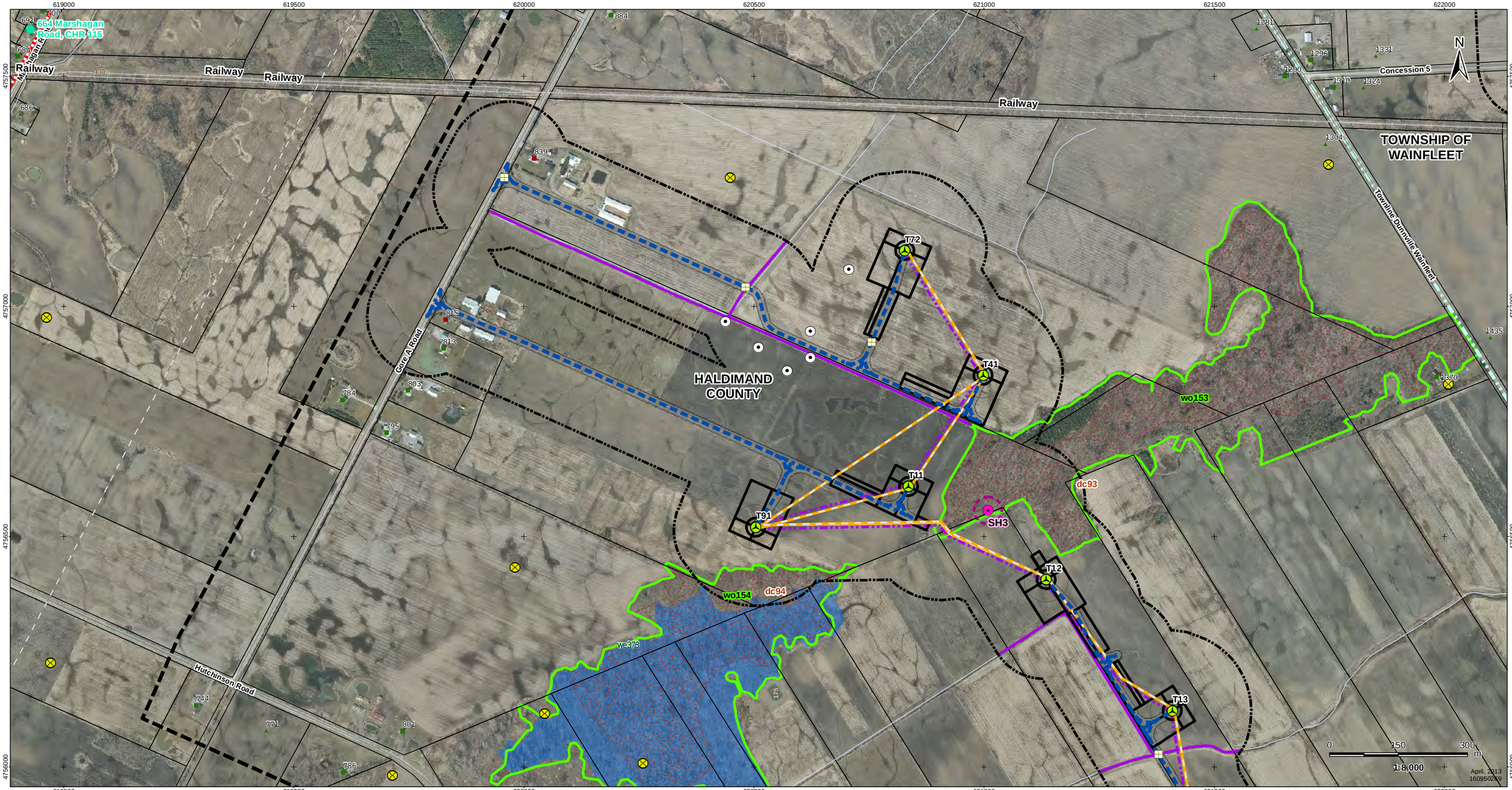
Niagara Region Wind Corporation

Figure No.
2.42

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.42



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Revised: 2013-04-02 By: bcowper

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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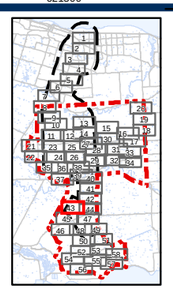
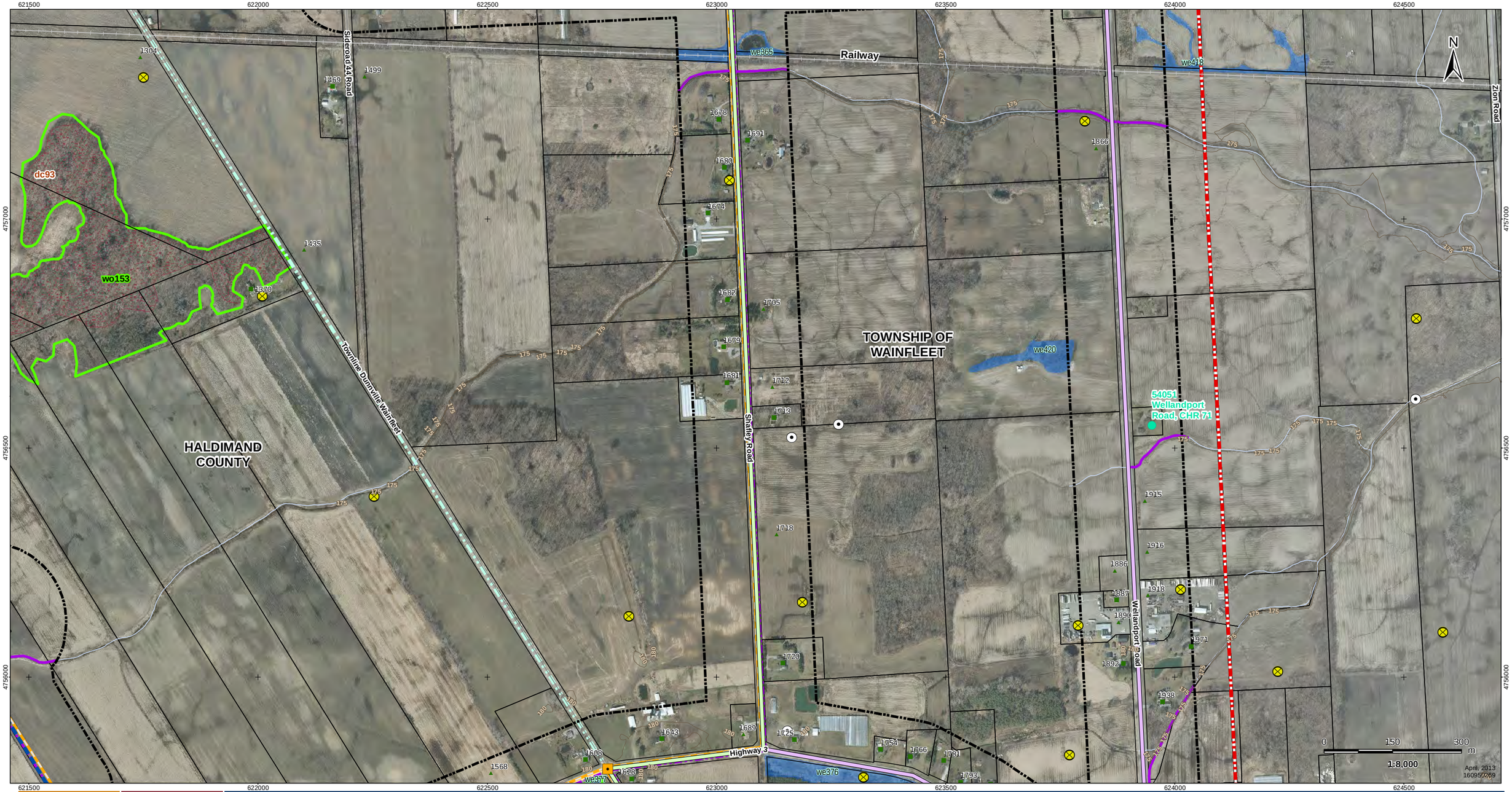


Client/Project
Niagara Region Wind Corporation

Figure No.
2.43

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.43



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components
- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features
- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat
- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features
- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features
- Protected Property
- Cultural Heritage Resource

- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]
- Occupied
- Vacant

Participating Noise Receptors [5]
- Occupied
- Vacant

Notes

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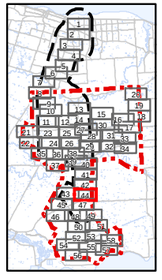
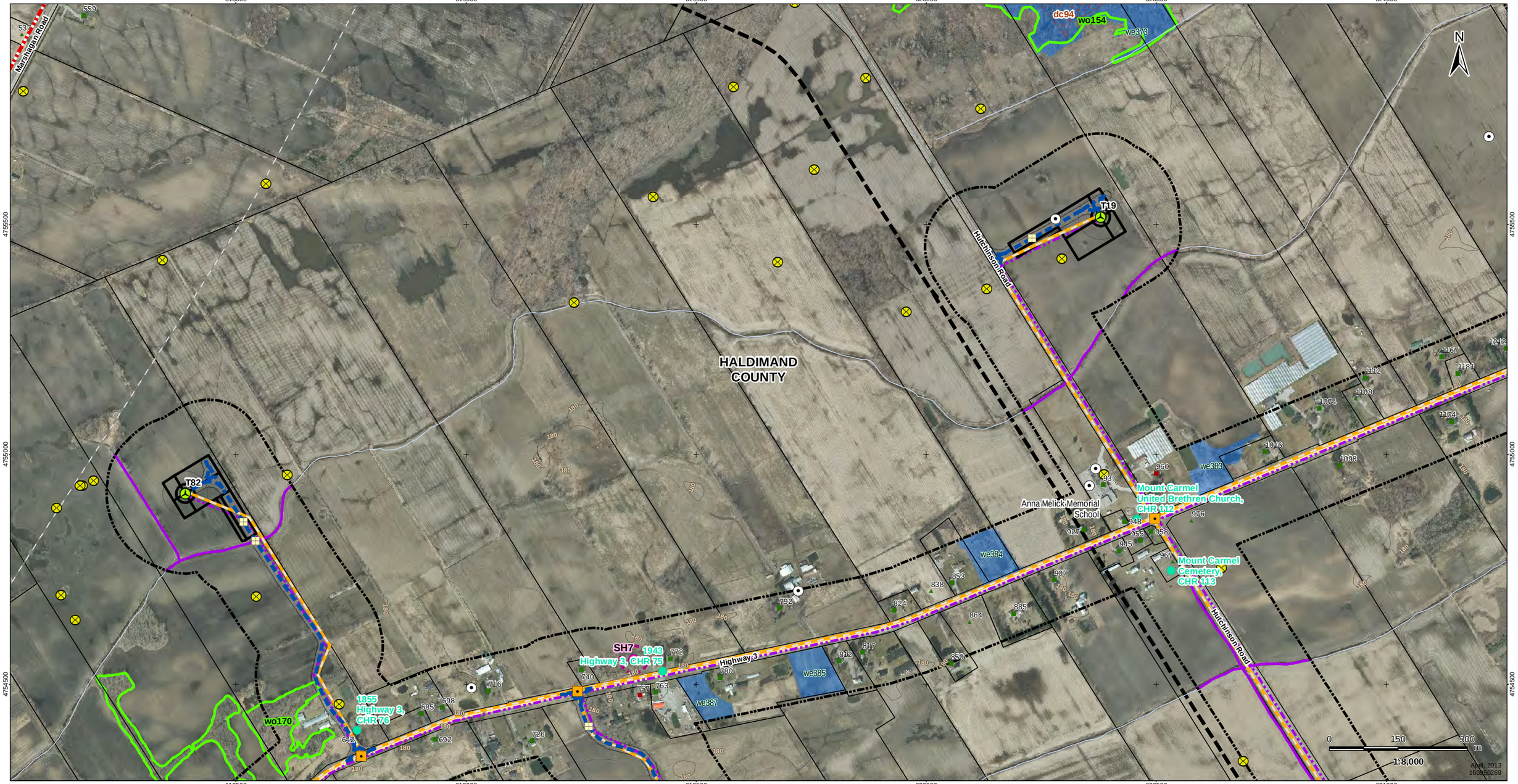


Client/Project
Niagara Region Wind Corporation

Figure No.
2.44

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.44



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components
- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features
- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat
- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features
- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features
- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]
- Occupied
- Vacant

Participating Noise Receptors [5]
- Occupied
- Vacant

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N).
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2011.
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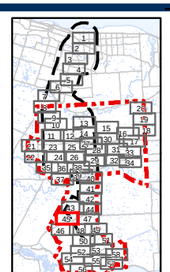
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.45

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.45

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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components
- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features
- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat
- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features
- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features
- Protected Property
- Cultural Heritage Resource

- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]
- Occupied
- Vacant

Participating Noise Receptors [5]
- Occupied
- Vacant

Notes

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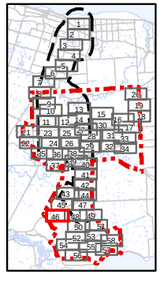
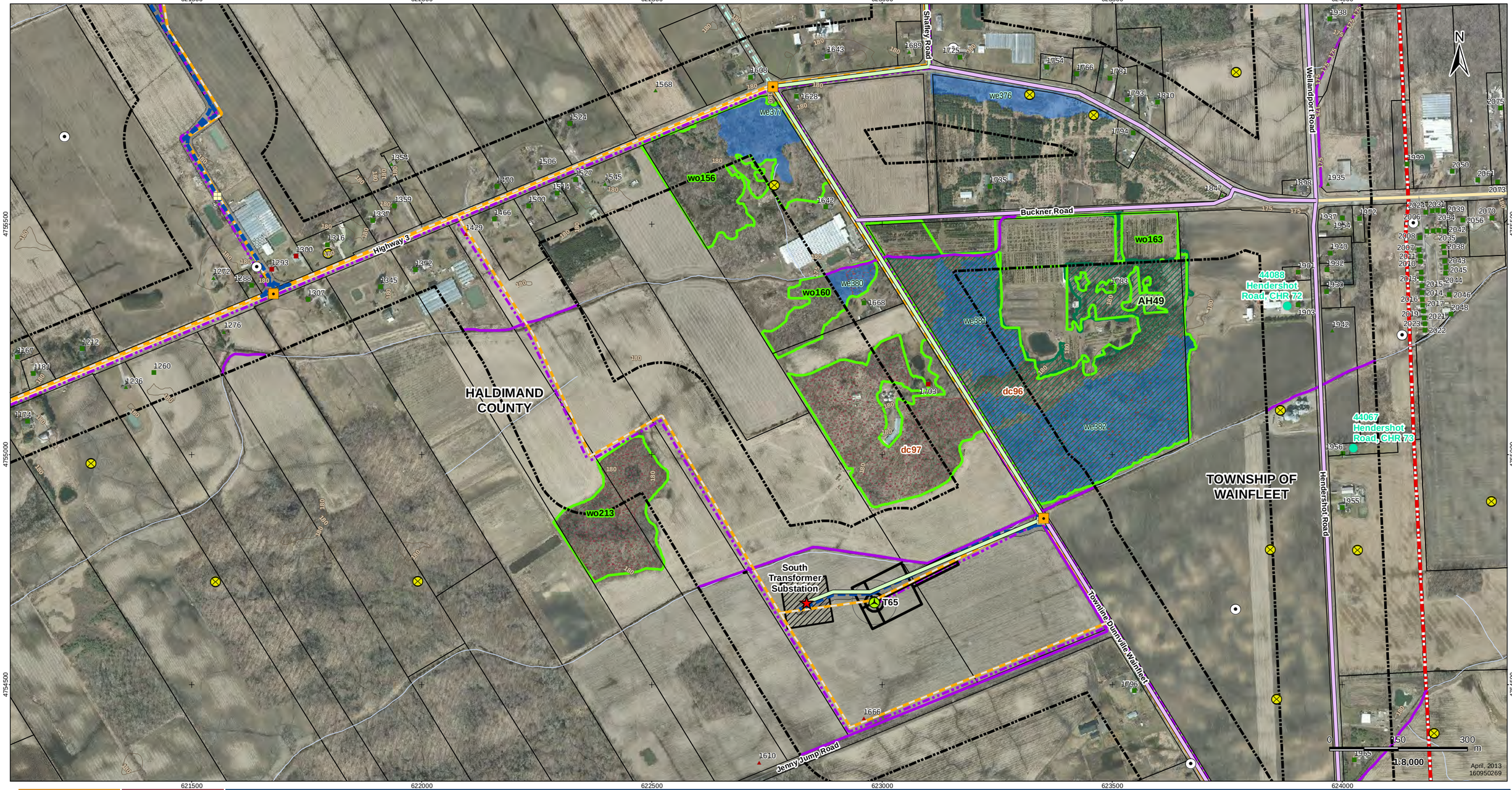
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.46

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.46



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components
- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features
- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat
- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features
- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features
- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]
- Occupied
- Vacant

Participating Noise Receptors [5]
- Occupied
- Vacant

Notes

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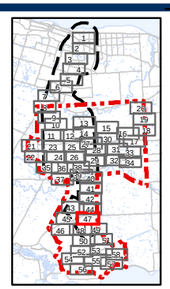
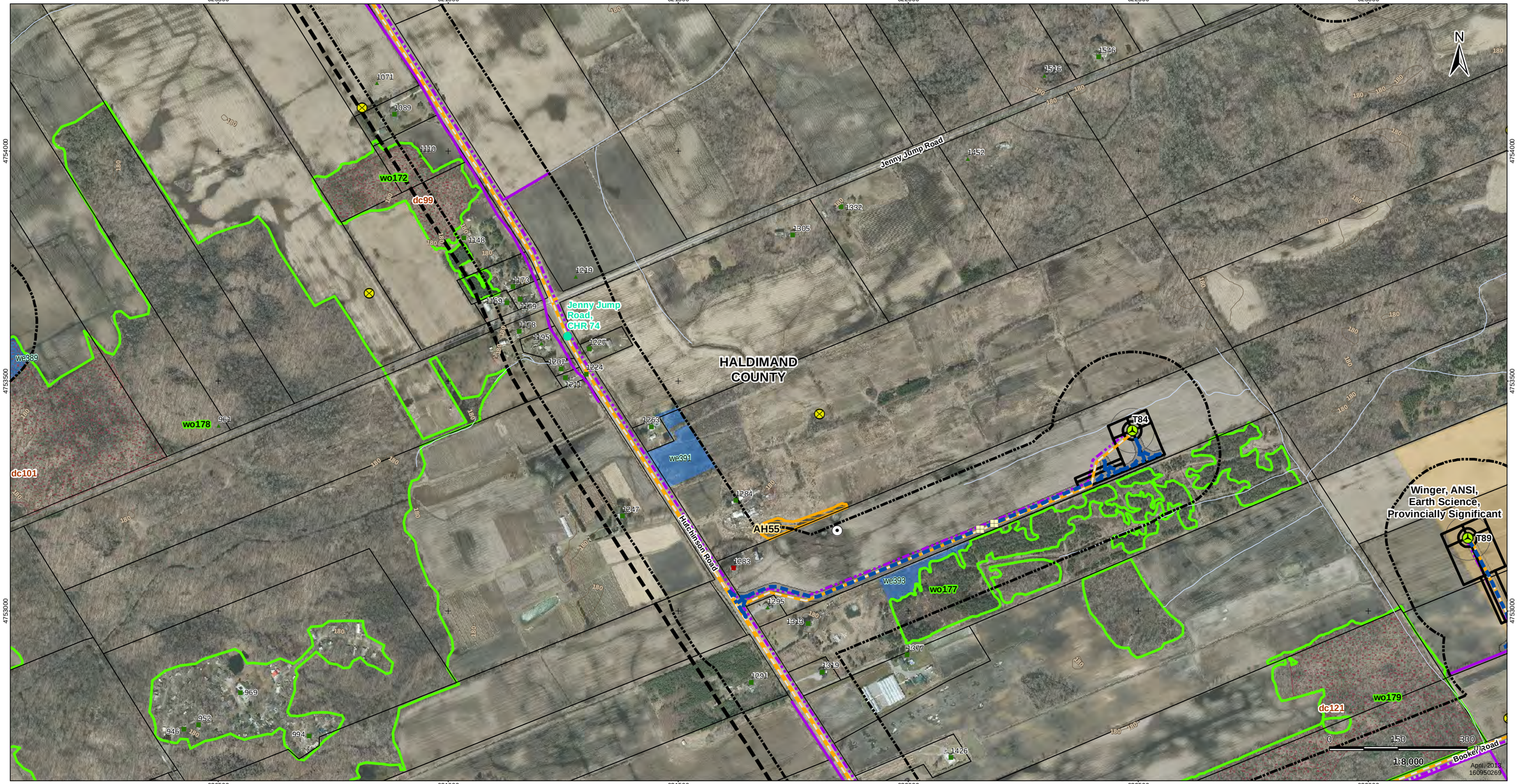
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.47

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.47



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Revised: 2013-04-02 By: bowpper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource

- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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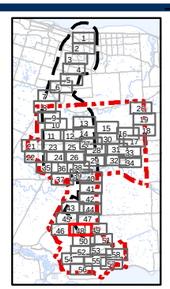
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.48

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.48

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Revised: 2013-04-02 By: bcowper

622500 623000 623500 624000 624500 625000 625500

4754000 4753500 4753000

Jenny Jump Road
Hendershot Road
Townline Dunnville Wainfleet
Flanagan Road
Bell Road
Booker Road

HALDIMAND COUNTY
TOWNSHIP OF WAINFLEET

Winger, ANSI, Earth Science, Provincially Significant

T84 T89

wo173 wo176 wo177 wo179 wo208
we392
dc121 dc122
SH6
62 Booker Road, CHR 78

1610 1546 1885 1965 1976 1851 1925 1885 1921 1948 1960 1975 1994 2064 2032 2030 2065 2168 2190 2197 2175 3660 2272 2215 2101 2235 2225 2259 2116 2117 2118 1908 1853 1856

180

0 150 300 m
1:8,000
April, 2013
160950269

N

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components
- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features
- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat
- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features
- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features
- Protected Property
- Cultural Heritage Resource

- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]
- Occupied
- Vacant

Participating Noise Receptors [5]
- Occupied
- Vacant

Notes

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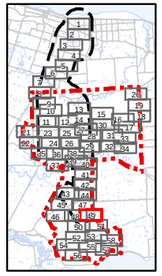
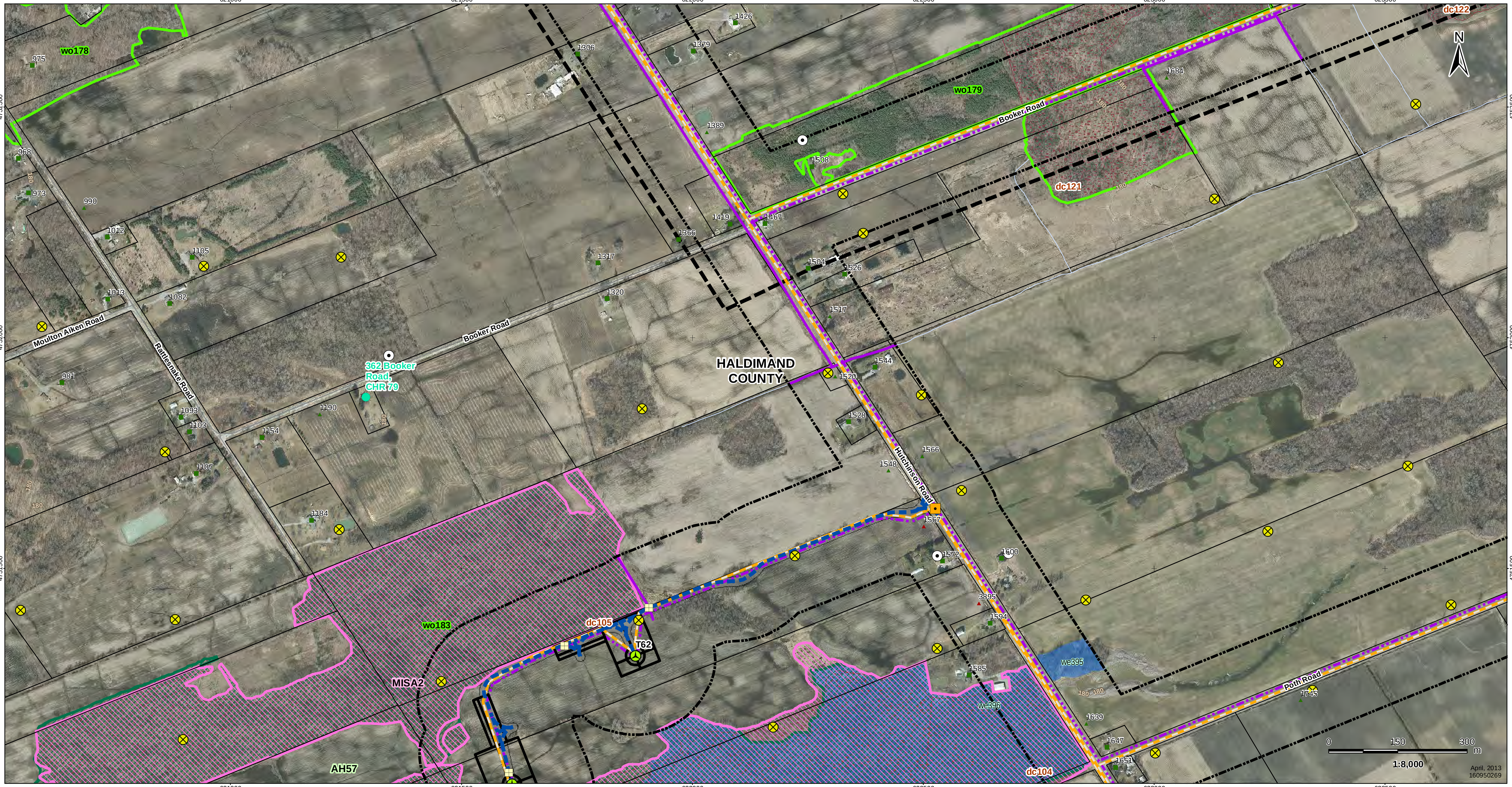


Client/Project
Niagara Region Wind Corporation

Figure No.
2.49

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.49



Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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4. Petroleum Well source: © Ontario Oil, Gas and Salt Resource Library, 2010.
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6. Noise receptors are identified within 1500m of any wind turbine.

Client/Project

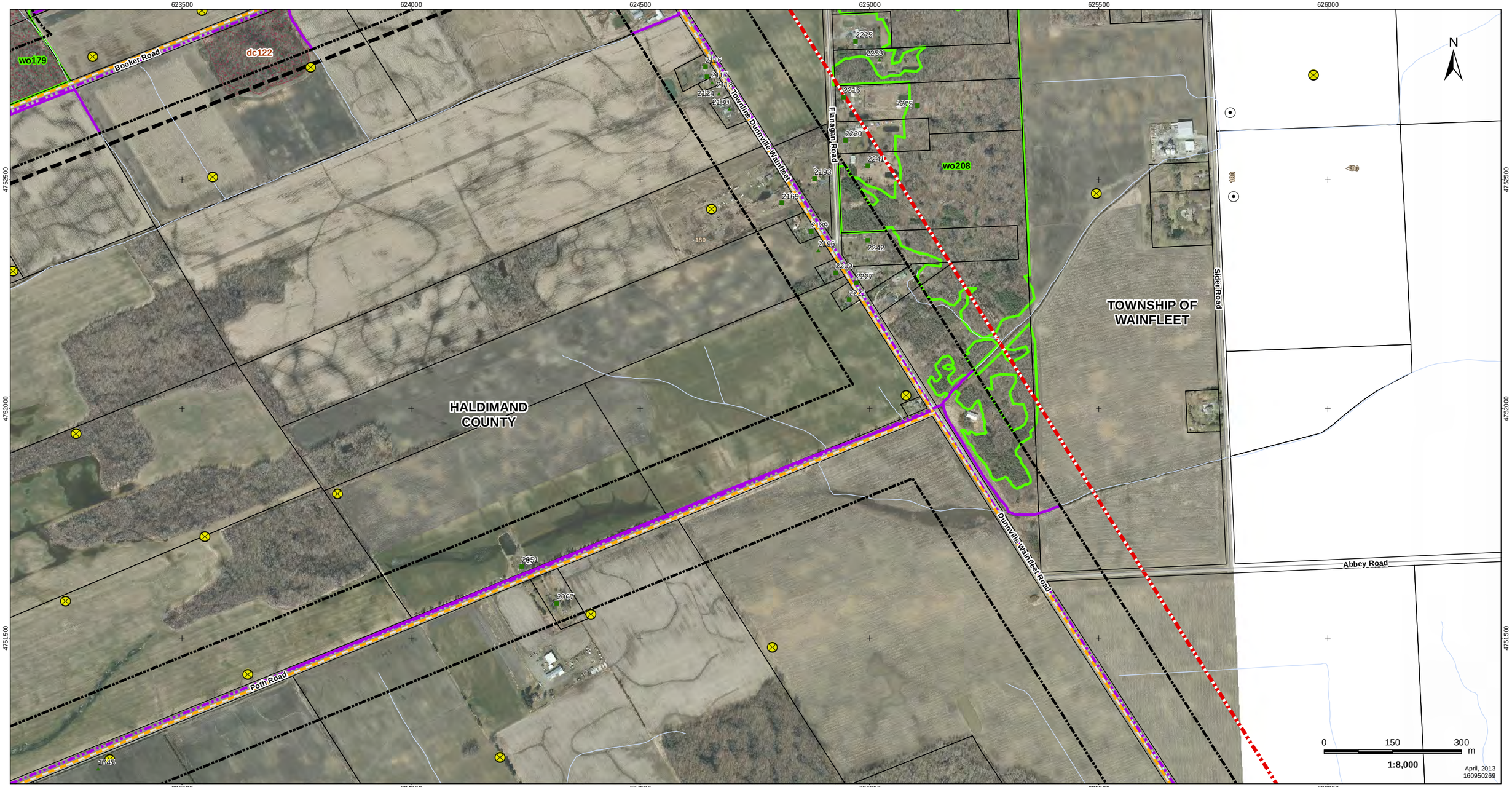
Niagara Region Wind Corporation

Figure No.

2.50

Title

Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.50



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource

- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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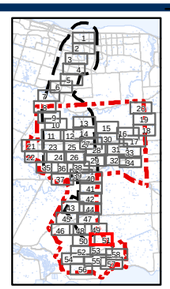
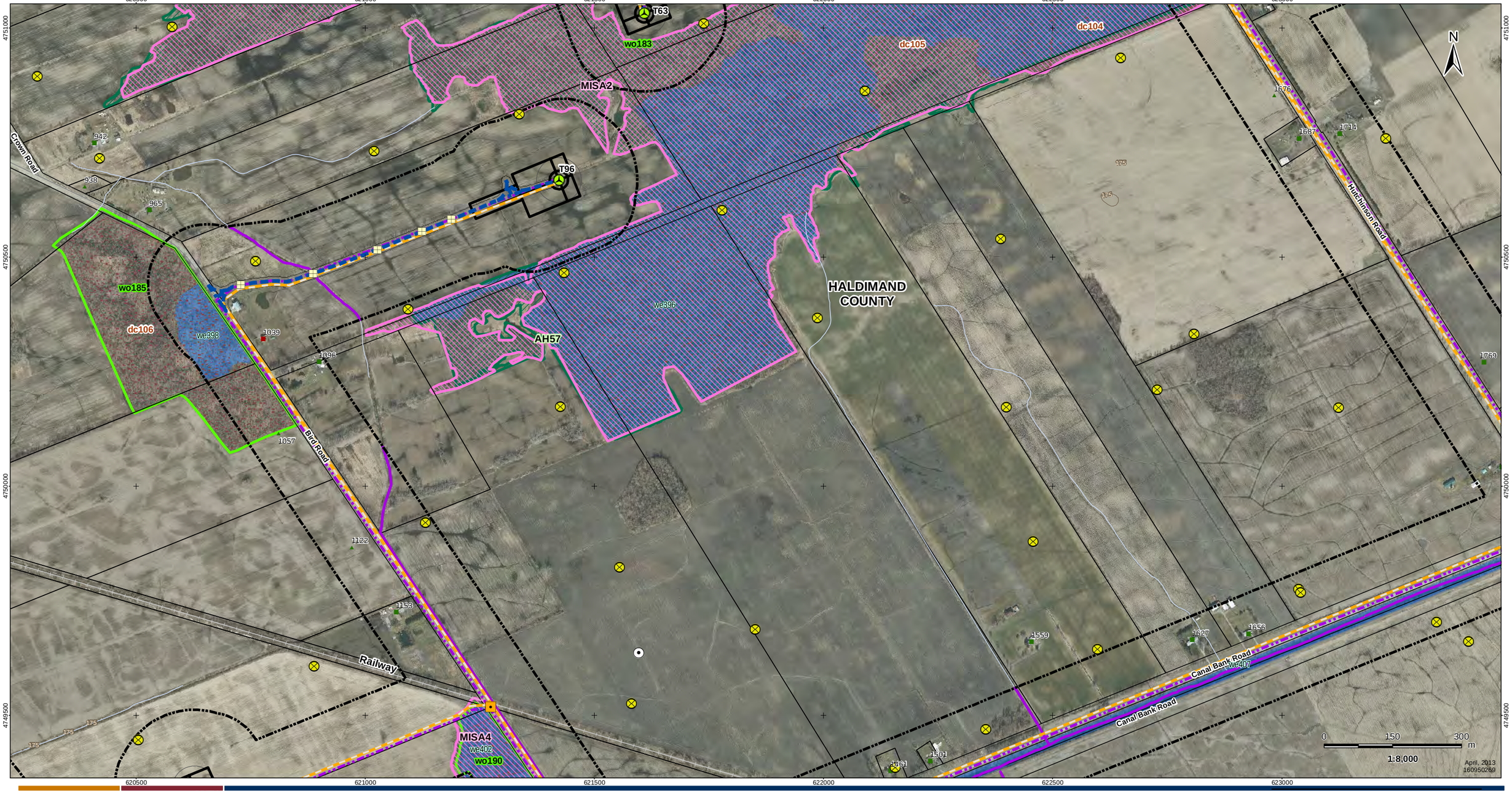
4. Petroleum Well source: © Ontario Oil, Gas and Salt Resource Library, 2010.
5. MOE Water well locations are approximate and have been positioned based on published UTM coordinates © Queen's Printer for Ontario, 2012.
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.51

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.51



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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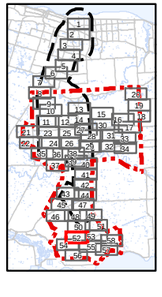

Client/Project
Niagara Region Wind Corporation

Figure No.
2.52

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.52

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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource

- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

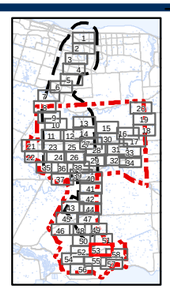
- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

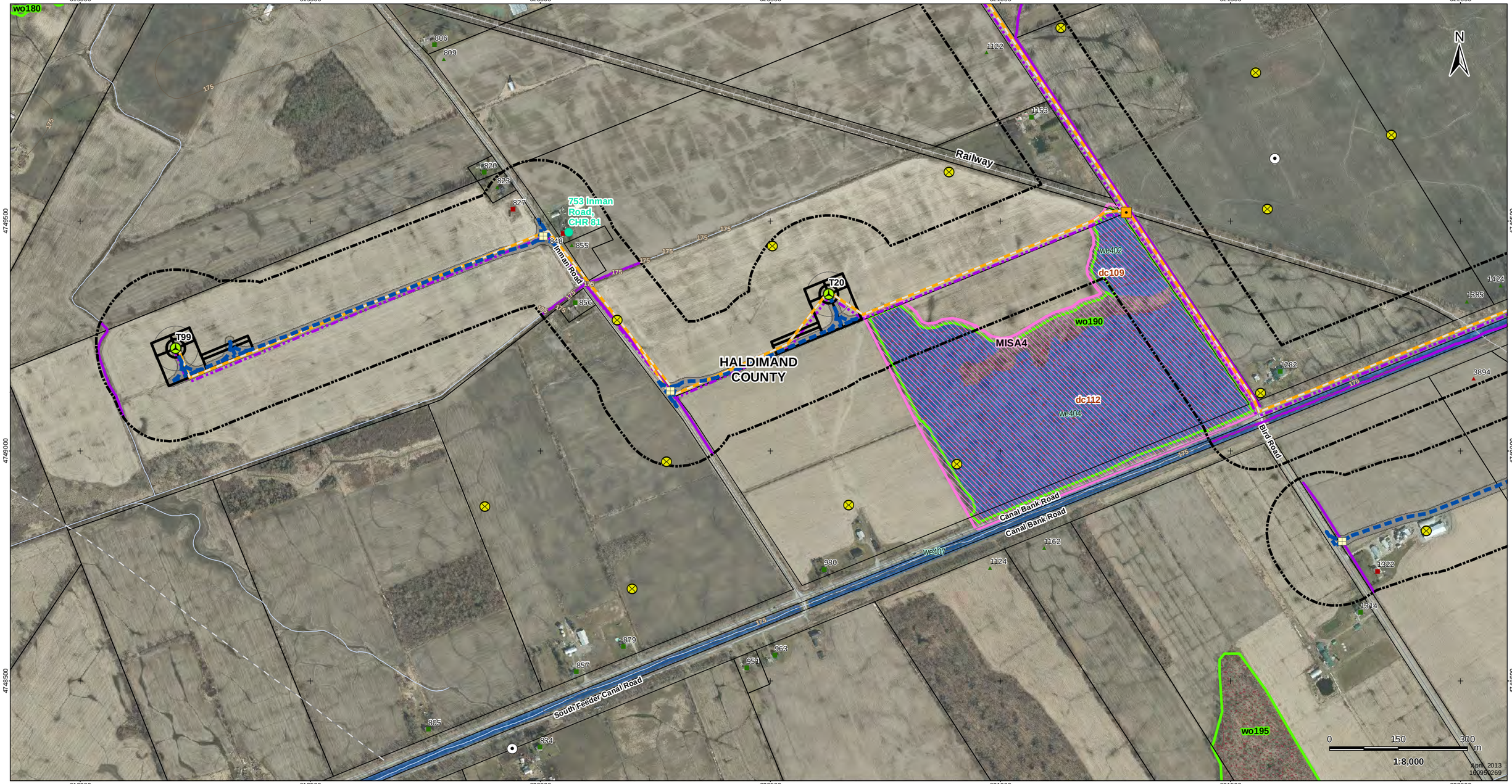
1. Coordinate System: NAD 1983 UTM Zone 17N).
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2011.
3. Orthoimagery source: First Base Solutions, Date Spring 2010.
4. Petroleum Well source: © Ontario Oil, Gas and Salt Resource Library, 2010.
5. MOE Water well locations are approximate and have been positioned based on published UTM coordinates © Queen's Printer for Ontario, 2012.
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.53

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.53



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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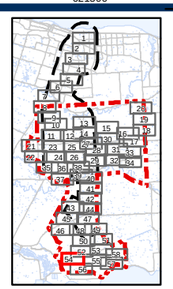
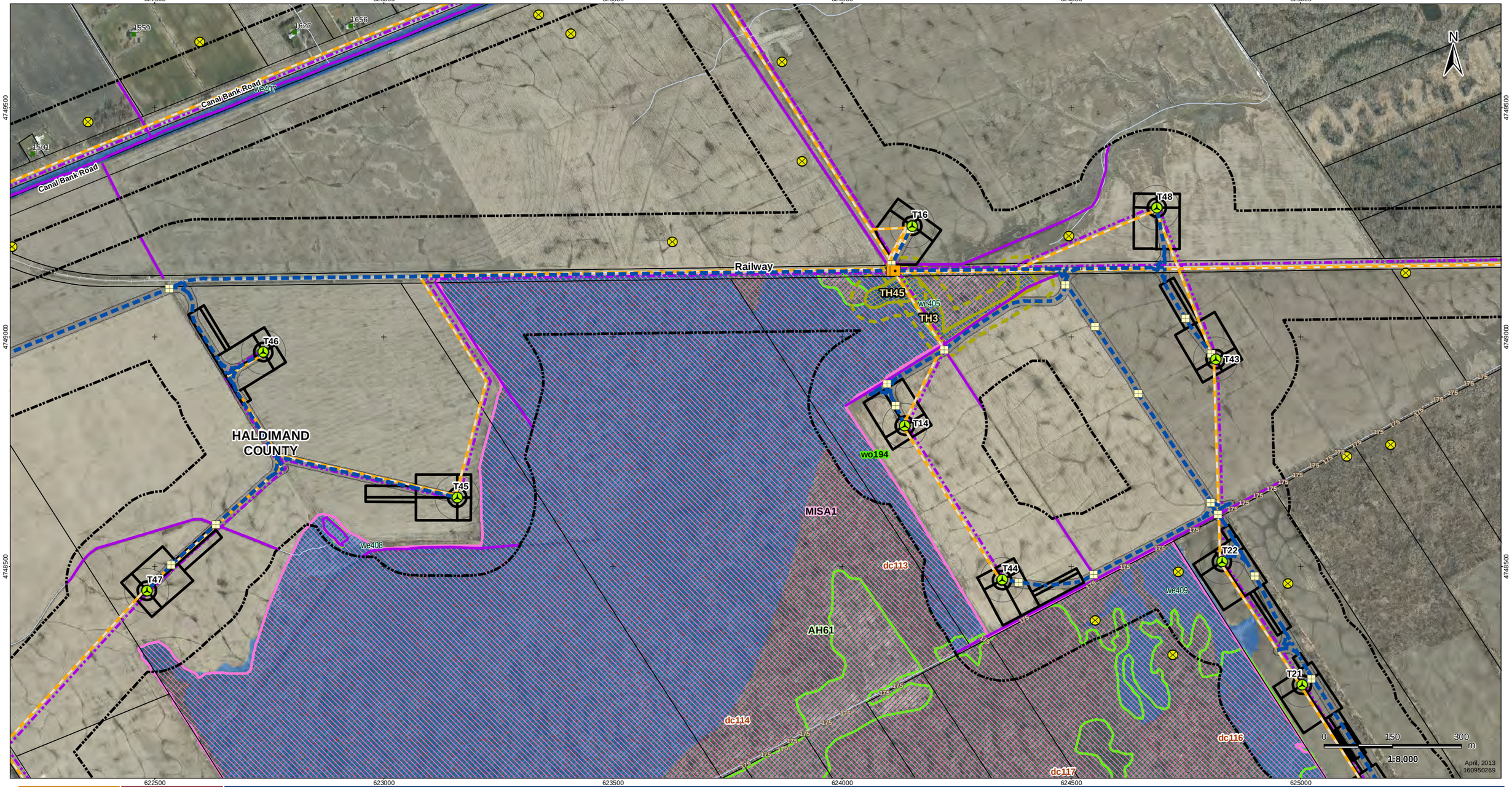
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.54

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.54



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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components
- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features
- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat
- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features
- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features
- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]
- Occupied
- Vacant

Participating Noise Receptors [5]
- Occupied
- Vacant

Notes

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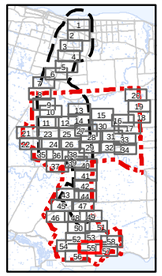
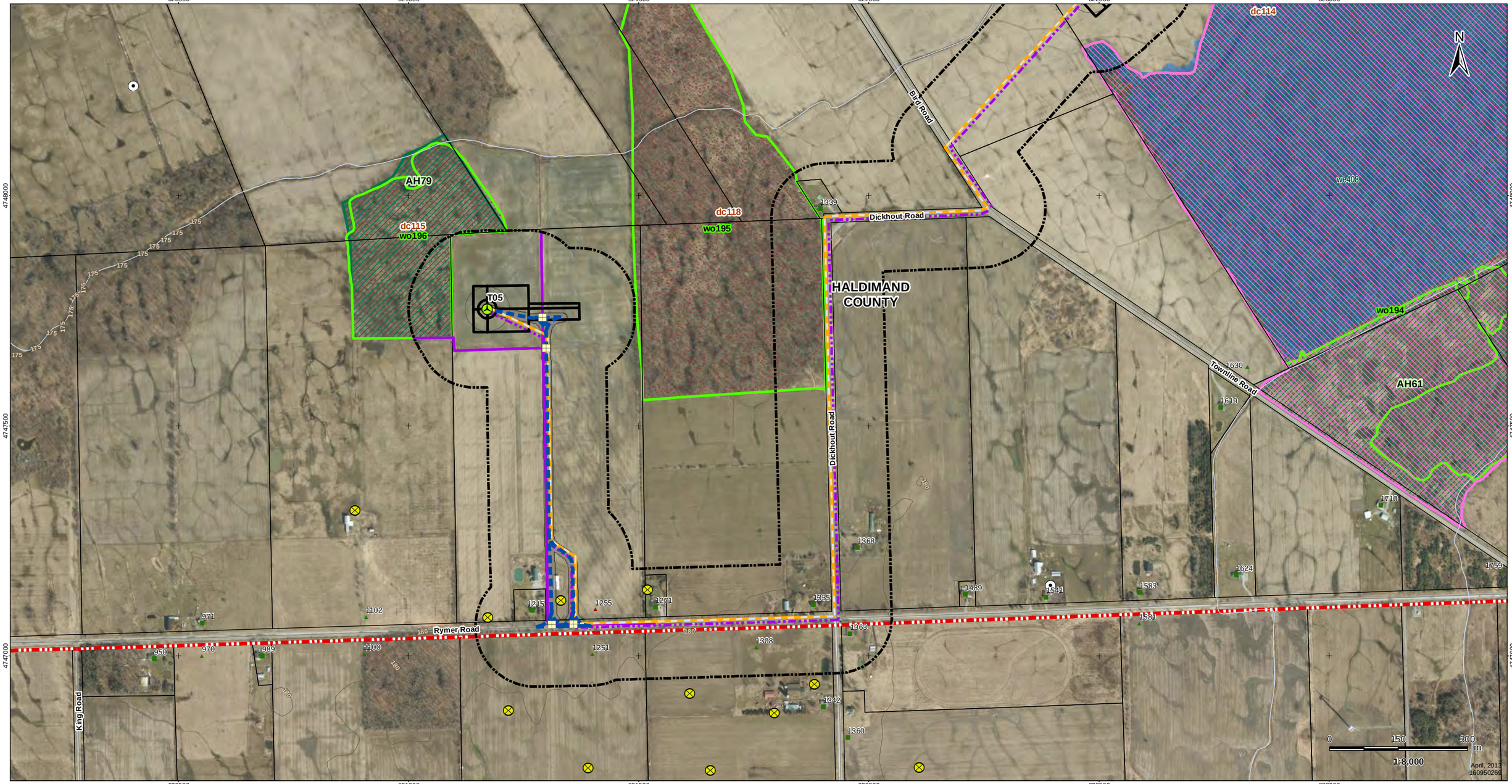
4. Petroleum Well source: © Ontario Oil, Gas and Salt Resource Library, 2010.
5. MOE Water well locations are approximate and have been positioned based on published UTM coordinates © Queen's Printer for Ontario, 2012.
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.55

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.55



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Revised: 2013-04-02 By: bowpier

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource

- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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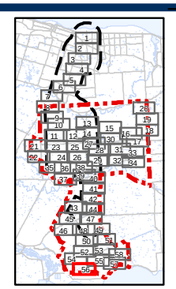
6. Noise receptors are identified within 1500m of any wind turbine.



Client/Project
Niagara Region Wind Corporation

Figure No.
2.56

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.56

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Revised: 2013-04-02 By: bcowper

Stantec

Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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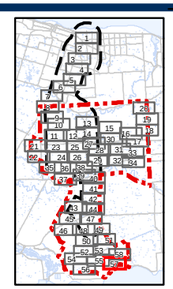

Client/Project
Niagara Region Wind Corporation

Figure No.
2.57

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.57

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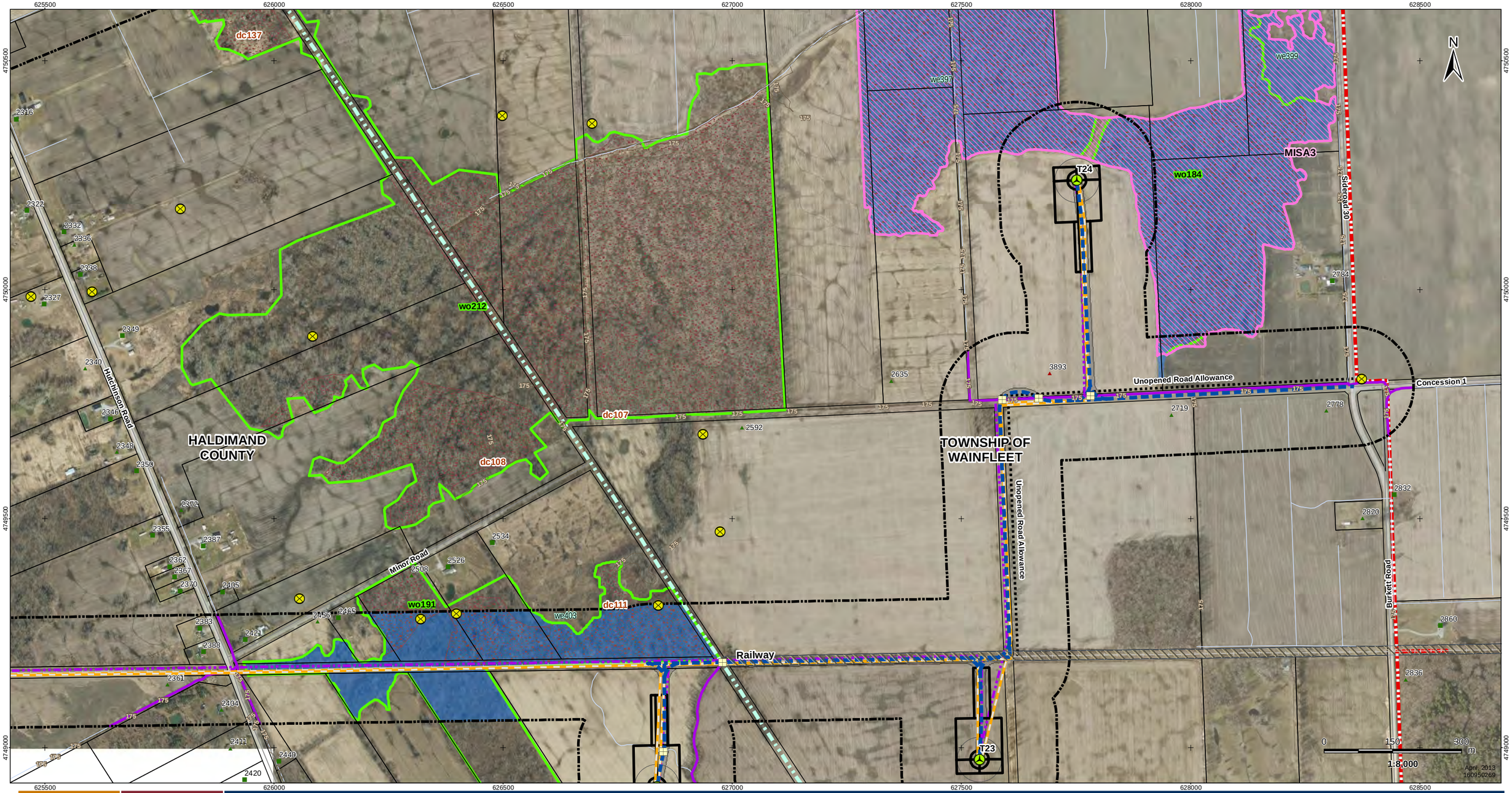
Revised: 2013-04-02 By: bcowper



Legend

- Project Study Area
- Interconnector Study Area
- 120m Zone of Investigation

Proposed Project Components

- Proposed Turbine Location
- Turbine Blade Length
- Tap-in Location
- Transformer Substation Location
- Junction Box
- Proposed Culvert
- Preferred Transmission Line Route
- Alternate Transmission Line Route
- Temporary Laydown Area
- Collector Lines – Underground or Overhead
- Fibre Optic Line
- Potential Access Road
- Access Road 20m Construction Area
- Potential Construction Laydown Area
- Transformer Substation

Existing Features

- Road
- Expressway / Highway
- Unopened Road Allowance
- Active Railway
- Abandoned Railway
- Existing Transmission Line
- Pipeline
- Topographic Contour (mAMSL)
- Watercourse (MNR)
- Waterbody (Stantec)
- Property Boundary
- Municipality Lower Tier
- Niagara Escarpment Plan Area (NEC)
- Greenbelt Natural Heritage System
- Conservation Areas (NPCA)
- Greenbelt Plan Area (MMAH)

Significant Wildlife Habitat

- Snake Hibernacula
- Snake Hibernacula 30m Buffer
- Raptor Wintering Areas
- Deer Congregation Areas (MNR) (Generalized)
- Wetland Amphibian Breeding Habitat
- Woodland Amphibian Breeding Habitat
- Other Rare Vegetation Community
- Landbird Migratory Stopover
- Turtle Nesting Habitat/ Snapping Turtle Habitat
- Turtle Habitat 30m Buffer
- Turtle Wintering Area

Significant Natural Features

- Woodland Communities
- Wetland Communities
- ANSI, Earth Science, Provincially Significant (MNR)
- ANSI, Life Science, Provincially Significant (MNR)

Cultural Heritage Features

- Protected Property
- Cultural Heritage Resource
- Landfill - Active (MOE)
- Landfill - Closed (MOE)
- Petroleum Well (OGSR) [4]
- Water Well (MOE) [5]

Non-participating Receptors [5]

- Occupied
- Vacant

Participating Noise Receptors [5]

- Occupied
- Vacant

Notes

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5. MOE Water well locations are approximate and have been positioned based on published UTM coordinates © Queen's Printer for Ontario, 2012.
6. Noise receptors are identified within 1500m of any wind turbine.

Client/Project
Niagara Region Wind Corporation

Figure No.
2.58

Title
Site Plan with Socio-Economic Features, Significant Natural Heritage Features and Water Bodies Figure 2.58

Appendix B

Legal Parcel Descriptions

Legal Property Description - Participating Properties of the Niagara Region Wind Farm
PIN 46080-0022 (LT) BEING PT LT 16-17 CON 3 GAINSBOROUGH,PT 1 30R13293; WEST LINCOLN
PIN 46073-0060 (LT) BEING PT LT 4 CON 2 GAINSBOROUGH AS IN GA14673 W OF RAILWAY EXCEPT RO337111; WEST LINCOLN
PIN 46080-0068 (LT) BEING PT LT 20 CON 2 GAINSBOROUGH AS IN RO693251 S/T SPOUSAL INTEREST IN RO647331; WEST LINCOLN
PIN 46081-0148 (LT) BEING PT LT 23 CON 1 GAINSBOROUGH; PT LT 23 CON BROKEN FRONT GAINSBOROUGH AS IN RO794179; WEST LINCOLN
PIN 46080-0047 (LT) BEING PT LT 15 CON 2 GAINSBOROUGH AS IN RO697887 (FIRSTLY); WEST LINCOLN
PIN 46080-0048 (LT) BEING PT LT 15 CON 2 GAINSBOROUGH AS IN RO511431; WEST LINCOLN
PIN 46080-0045 (LT) BEING PT N1/2 LT 14 CON 2 GAINSBOROUGH AS IN RO697887 (THIRDLY); WEST LINCOLN
PIN 46080-0014 (LT) BEING PT LT 14 CON 3 GAINSBOROUGH AS IN RO697887 (SECONDLY); WEST LINCOLN
PIN 46080-0012 (LT) BEING PT S1/2 LT 13 CON 3 GAINSBOROUGH AS IN RO697887 (FOURTHLY); WEST LINCOLN
PIN 46074-0042 (LT) BEING PT LT 11 CON 2 GAINSBOROUGH PT 1, 30R6232; WEST LINCOLN
PIN 38103-0084 (LT) BEING PT LT 5-6 CON GORE A MOULTON AS IN HC159030, PT LT 6 CON GORE A MOULTON PT 2 18R5947; E 1/2 LT 4 CON N OF FORKS RD MOULTON EXCEPT PT 3 18R1052, PT 1 18R3246; HALDIMAND COUNTY
PIN 46063-0127 (LT) BEING PT N1/2 OF LT 2 CON 4 & PT N1/2 LT 3 CON 4 CAISTOR & PT S1/2 LT 2 CON 4 CAISTOR ALL AS IN RO820248 ; WEST LINCOLN
PIN 46063-0046 (LT) BEING PT LT 2 CON 3 CAISTOR AS IN RO771022; WEST LINCOLN
PIN 46072-0114 (LT) BEING PT LT 11-12 CON 1 GAINSBOROUGH AS IN RO628804; WEST LINCOLN
PIN 46082-0003 (LT) BEING PT LT 20 CON 3 GAINSBOROUGH AS IN RO647629; S/T GA14073; WEST LINCOLN
PIN 46080-0187 (LT) BEING PT LT 17 CON 2 GAINSBOROUGH , PT 1 30R4337 ; S/T INTEREST IN RO509625 ; PT LT 17 CON 2 GAINSBOROUGH PT 2 30R4337 & PT LT 16 CON 2 GAINSBOROUGH AS IN RO808679 EXCEPT PT 1 30R10788 ; WEST LINCOLN
PIN 46074-0132 (LT) BEING PT LT 9 CON 3 GAINSBOROUGH AS IN RO552575, EXCEPT PT 1 30R11598; WEST LINCOLN
PIN 46074-0065 (LT) BEING PT LT 8 CON 3 GAINSBOROUGH AS IN RO793572; WEST LINCOLN
PIN 46081-0199 (LT) BEING PT LT 26 CON 1 GAINSBOROUGH AS IN RO691393; S/T GA14170; WEST LINCOLN
PIN 46073-0078 (LT) BEING PT LT 6 CON 2 GAINSBOROUGH AS IN RO264611; WEST LINCOLN
PIN 46083-0160 (LT) BEING PT LT 21-22 CON 4 GAINSBOROUGH AS IN RO690684 N OF THE TORONTO HAMILTON AND BUFFALO RAILWAY; WEST LINCOLN
PIN 46083-0166 (LT) BEING PT LT 21-22 CON 4 GAINSBOROUGH AS IN RO629563; WEST LINCOLN
PIN 46079-0095 (LT) BEING PT LT 13 CON 4 GAINSBOROUGH AS IN RO241313 EXCEPT PT 1 30R3152; S/T GA14181; WEST LINCOLN

PIN 38103-0081 (LT) BEING PT LT 3-5 CON GORE A MOULTON AS IN HC215058; HALDIMAND COUNTY
PIN 46082-0045 (LT) BEING PT LT 23 CON 2 GAINSBOROUGH AS IN RO429771; S/T GA14093, GA14116; WEST LINCOLN
PIN 64001-0108 (LT) BEING PT LT 41 CON 6 WAINFLEET AS IN RO570195 ; WAINFLEET
PIN 38100-0394 (LT) BEING PT LT 6 SECOND CON FROM LAKE ERIE MOULTON; PT LT 7 SECOND CON FROM LAKE ERIE MOULTON; PT LT 8 SECOND CON FROM LAKE ERIE MOULTON; PT LT 9 SECOND CON FROM LAKE ERIE MOULTON; PT LT 10 SECOND CON FROM LAKE ERIE MOULTON; PT LT 11 SECOND CON FROM LAKE ERIE MOULTON; PT LT 12 SECOND CON FROM LAKE ERIE MOULTON; PT LT 13 SECOND CON FROM LAKE ERIE MOULTON; PT LT 14 SECOND CON FROM LAKE ERIE MOULTON PT 1 18R5298; HALDIMAND COUNTY
PIN 38100-0076 (LT) BEING PT LT 4 FIRST CON FROM LAKE ERIE MOULTON; PT LT 6 SECOND CON FROM LAKE ERIE MOULTON; PT LT 7 SECOND CON FROM LAKE ERIE MOULTON; PT LT 8 SECOND CON FROM LAKE ERIE MOULTON; PT LT 9 SECOND CON FROM LAKE ERIE MOULTON; PT LT 10 SECOND CON FROM LAKE ERIE MOULTON; PT LT 11 SECOND CON FROM LAKE ERIE MOULTON; PT LT 12 SECOND CON FROM LAKE ERIE MOULTON; PT LT 13 SECOND CON FROM LAKE ERIE MOULTON; PT LT 14 SECOND CON FROM LAKE ERIE MOULTON; PT LT 5 W/S BOULTON DITCH RD PL 67 PT 2 18R5298; HALDIMAND COUNTY
PIN 38100-0397 (LT) BEING PT LT 12 SECOND CON FROM LAKE ERIE MOULTON; PT LT 13 SECOND CON FROM LAKE ERIE MOULTON; PT LT 14 SECOND CON FROM LAKE ERIE MOULTON; PT LT 15 SECOND CON FROM LAKE ERIE MOULTON PT 4 18R5298; HALDIMAND COUNTY
PIN 38100-0395 (LT) BEING PT LT 6 SECOND CON FROM LAKE ERIE MOULTON; PT LT 7 SECOND CON FROM LAKE ERIE MOULTON; PT LT 8 SECOND CON FROM LAKE ERIE MOULTON; PT LT 9 SECOND CON FROM LAKE ERIE MOULTON PT 3 18R5298; HALDIMAND COUNTY
PIN 46082-0024 (LT) BEING PT N1/2 LT 24 CON 3 GAINSBOROUGH; PT LT 25 CON 3 GAINSBOROUGH; PT RDAL BTN LOTS 24 & 25 CON 3 GAINSBOROUGH AS IN RO491384 LYING N OF THE TORONTO HAMILTON & BUFFALO RAILWAY COMPANY EXCEPT PT 1 30R5672; S/T INTEREST OF THE MUNICIPALITY; WEST LINCOLN
PIN 46083-0016 (LT) BEING PT LT 12 CON 5 GAINSBOROUGH AS IN RO786013; WEST LINCOLN
PIN 46079-0287 (LT) BEING PT LT 22 CON 5 GAINSBORO AS IN RO690040 ; PT RDAL BTN LOTS 21 & 22 CON5 GAINSBORO AKA KENNEDY RD AKA COMFORT RD BTN SIXTEEN RD & FOURTH CONCESSION RD, PT 1 30R10776 ; WEST LINCOLN
PIN 46082-0039 (LT) BEING PT LT 21 CON 2 GAINSBOROUGH AS IN RO665561; S/T SPOUSAL INTEREST IN RO665561; S/T DEBTS IN RO665561; WEST LINCOLN
PIN 46079-0056 (LT) BEING PT LT 17 CON 5 GAINSBOROUGH AS IN RO727565; WEST LINCOLN
PIN 46072-0018 (LT) BEING PT LT 3-4 CON 1 GAINSBOROUGH; PT LT 4 CON BROKEN FRONT GAINSBOROUGH AS IN RO791645; WEST LINCOLN
PIN 46072-0225 (LT) BEING PT LT 3 CON 1 GAINSBOROUGH PT 2, 30R9752 EXCEPT PT 1, 30R10172; WEST LINCOLN
PIN 46083-0181 (R) BEING PT RDAL BTN LOTS 24 & 25 CON 4 GAINSBOROUGH CLOSED BY RO182087; PT LT 24-25 CON 4 GAINSBOROUGH; WEST LINCOLN

PIN 38104-0114 (LT) BEING PT LT 12-13 CON S OF FORKS RD MOULTON AS IN HC242843; EXCEPT PT 1, 18R5184; S/T HC32133; S/T M10410, M10771; HALDIMAND COUNTY
PIN 64012-0025 (LT) BEING PT LT 32 & 33 CON 1 WFLT, AS IN RO624670; DESCRIPTION MAY NOT BE ACCEPTABLE IN FUTURE AS IN RO624670; WAINFLEET
PIN 38100-0162 (LT) BEING PT LT 1 FIRST CON FROM LAKE ERIE MOULTON; PT LT 2 FIRST CON FROM LAKE ERIE MOULTON PT 1 18R6307; HALDIMAND COUNTY
PIN 64012-0117 (LT) being PT LTS 30 & 31 CON 2 WAINFLEET, PTS 1 & 2 59R2377; PT LT 31 CON 2 WAINFLEET PT 1 59R4045, EXCEPT PT 1 59R13923; WAINFLEET
PIN 38100-0322 (LT) BEING PT LT 7 FIRST CON FROM LAKE ERIE MOULTON; PT LT 8 FIRST CON FROM LAKE ERIE MOULTON AS IN M11652 EXCEPT HC83669; HALDIMAND COUNTY
PIN 38103-0107 (LT) BEING PT LT 8 CON N OF FORKS RD MOULTON AS IN HC129238; HALDIMAND COUNTY
PIN 38101-0059 (LT) BEING PT LT 7 SECOND CROSS CON MOULTON AS IN HC254970; HALDIMAND COUNTY
PIN 38104-0089 BEING PT LT 14-15 CON N OF FORKS RD MOULTON AS IN HC188834; S/T HC62947; HALDIMAND COUNTY
PIN 46076-0110 (LT) BEING PT LT 2 CON 4 GAINSBOROUGH AS IN RO415827; WEST LINCOLN
PIN 46084-0070 (R)
PIN 46075-0031 (LT) BEING PT LT 30 CON 5 GAINSBOROUGH AS IN RO483439; S/T GA14137, GA14301; WEST LINCOLN
PIN 46076-0007 (LT) BEING PT LT 38 CON 6 GAINSBOROUGH; PT RDAL BTN LOTS 37 & 38 CON 6 GAINSBOROUGH CLOSED BY GA13432, AS IN RO720338 EXCEPT 30R2483; S/T RO76478 ; WEST LINCOLN
PIN 38102-0107 (LT) BEING PT LT 3 THIRD CROSS CON MOULTON AS IN HC260264 EXCEPT PT 1, 18R5925; HALDIMAND COUNTY
PIN 38102-0133 (LT) BEING N 1/2 LT 2 THIRD CROSS CON MOULTON SAVE AND EXCEPT PTS 1 & 2 18R6837; HALDIMAND COUNTY
PIN 38103-0117 (LT) BEING PT LT 2-3 CON S OF FORKS RD MOULTON AS IN HC214918; S/T M9148; S/T M10192; HALDIMAND COUNTY
PIN 46075-0100 (LT) BEING PT LT 6 CON 4 GAINSBOROUGH AS IN RO276789; S/T DEBTS IN RO276789; WEST LINCOLN
PIN 38101-0074 (LT) BEING PT LT 6 FIRST CROSS CON MOULTON AS IN HC136799; HALDIMAND COUNTY
PIN 38103-0098 (LT) BEING PT LT 4 CON N OF FORKS RD MOULTON AS IN HC171089; HALDIMAND COUNTY
PIN 64001-0059 (LT) BEING PT LT 42 CON 7 WAINFLEET AS IN RO211844, LYING S OF CREEK RD ; WAINFLEET
PIN 38108-0183 (LT) BEING PT LT 25 SECOND RANGE FROM GRAND RIVER MOULTON; PT LT 26 SECOND RANGE FROM GRAND RIVER MOULTON BEING PT 4 18R5694 SAVE AND EXCEPT PT 1 18R6596; HALDIMAND COUNTY
PIN 38102-0096 (LT) BEING LT 1 FOURTH CROSS CON MOULTON; S/T HC29287; HALDIMAND COUNTY
PIN 38107-0138 BEING PT LT 18-19 CON S OF FORKS RD MOULTON AS IN HC163705, PT 1 18R2523, PT 2 18R3977, S/T HC29711, HC29718, HC29963 PARTIALLY SURRENDERED BY HC165533, S/T INTEREST IN HC203868; HALDIMAND COUNTY

PIN 46073-0026 (LT) BEING PT LT 3-4 CON 3 GAINSBOROUGH AS IN RO622572 EXCEPT HWP 377; WEST LINCOLN
PIN 38108-0155 (LT) BEING PT LT 25 FIRST RANGE FROM GRAND RIVER MOULTON; PT LT 26 FIRST RANGE FROM GRAND RIVER MOULTON PT 5 & 6 18R5694; HALDIMAND COUNTY
PIN 46075-0030 (LT) BEING PT LT 30 CON 5 GAINSBOROUGH AS IN RO468285, S OF HYDRO LANDS EXCEPT EASEMENT THEREIN; S/T GA14139, GA14302; WEST LINCOLN
PIN 46080-0067 (LT) BEING PT LT 20 CON 2 GAINSBOROUGH AS IN RO708415; WEST LINCOLN
PIN 46082-0040 (LT) BEING PT LT 21 CON 2 GAINSBOROUGH; PT S1/2 LT 22 CON 2 GAINSBOROUGH AS IN RO625032; WEST LINCOLN
PIN 46072-0223 (LT) BEING PT LT 11-12 CON 1 GAINSBOROUGH PT 1 & 2 30R10082; WEST LINCOLN
PIN 46080-0186 (LT) BEING PT LT 14 CON 3 GAINSBOROUGH, PT 1 30R10147; WEST LINCOLN
PIN 46080-0045 (LT)
PIN 46080-0047 (LT)
PIN 46080-0048 (LT)
PIN 46074-0016 (LT) BEING PT LT 10 CON 3 GAINSBOROUGH AS IN RO436589; WEST LINCOLN
PIN 46080-0019 (LT) BEING PT LT 15 CON 3 GAINSBOROUGH AS IN RO314613; WEST LINCOLN
PIN 46074-0130 (LT) BEING PT LT 11 CON 2 GAINSBOROUGH; PT S 1/2 LT 12 CON 2 GAINSBOROUGH, PT 1 30R10630 EXCEPT PT 1 30R11303; WEST LINCOLN
PIN 46080-0070 (LT) BEING PT LT 20 CON 2 GAINSBOROUGH PT 1 30R1710 EXCEPT PT 1 30R2328; WEST LINCOLN
PIN 46082-0047 (LT) BEING PT LT 23 CON 2 GAINSBOROUGH AS IN RO231443; S/T GA14116; WEST LINCOLN
PIN 46073-0078 (LT) BEING PT LT 6 CON 2 GAINSBOROUGH AS IN RO264611; WEST LINCOLN
PIN 46079-0057 (LT) BEING PT LT 16 CON 5 GAINSBOROUGH AS IN RO423182 (SECONDLY); WEST LINCOLN
PIN 46082-0038 (LT) BEING PT LT 21 CON 2 GAINSBOROUGH AS IN RO474356; S/T GA14086; WEST LINCOLN
PIN 46074-0013 (LT) BEING PT LT 9 CON 3 GAINSBOROUGH AS IN RO403679; WEST LINCOLN
PIN 46072-0040 (LT) BEING PT LT 4 CON 1 GAINSBOROUGH AS IN RO334950; S/T & T/W RO329375; WEST LINCOLN
PIN 46083-0182 (R) BEING PT RDAL BTN LOTS 24 & 25 CON 4 GAINSBOROUGH CLOSED BY RO182086; PT LT 25 CON 4 GAINSBOROUGH; WEST LINCOLN
PIN 46080-0034 (LT) BEING PT LT 19 CON 3 GAINSBOROUGH AS IN RO458919; S/T GA14074; WEST LINCOLN
PIN 38103-0111 (LT) BEING PT LT 1 CON S OF FORKS RD MOULTON AS IN HC214916; HALDIMAND COUNTY
PIN 64001-0055 (LT) BEING PT LT 43 CON 7 WAINFLEET AS IN RO211845, LYING N OF CREEK RD; T/W EASEMENT AS IN SN235163; WAINFLEET

PIN 64001-0059 (LT) BEING PT LT 42 CON 7 WAINFLEET AS IN RO211844, LYING S OF CREEK RD ; WAINFLEET
PIN 46075-0030 (LT) BEING PT LT 30 CON 5 GAINSBOROUGH AS IN RO468285, S OF HYDRO LANDS EXCEPT EASEMENT THEREIN; S/T GA14139, GA14302; WEST LINCOLN

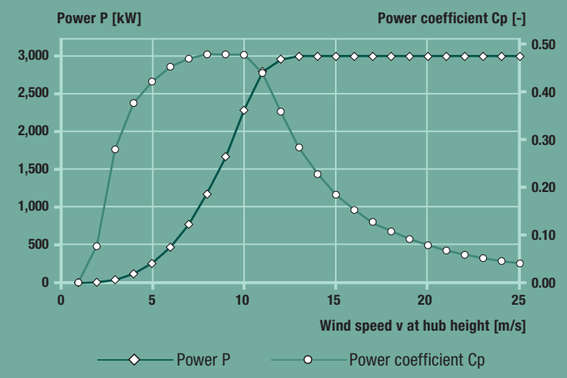
Appendix C

Turbine Specifications

E-101

3,000 kW

Calculated power curve



Wind [m/s]	Power P [kW]	Power coefficient Cp [-]
1	0.0	0.000
2	3.0	0.076
3	37.0	0.279
4	118.0	0.376
5	258.0	0.421
6	479.0	0.452
7	790.0	0.469
8	1,200.0	0.478
9	1,710.0	0.478
10	2,340.0	0.477
11	2,867.0	0.439
12	3,034.0	0.358
13	3,050.0	0.283
14	3,050.0	0.227
15	3,050.0	0.184
16	3,050.0	0.152
17	3,050.0	0.127
18	3,050.0	0.107
19	3,050.0	0.091
20	3,050.0	0.078
21	3,050.0	0.067
22	3,050.0	0.058
23	3,050.0	0.051
24	3,050.0	0.045
25	3,050.0	0.040

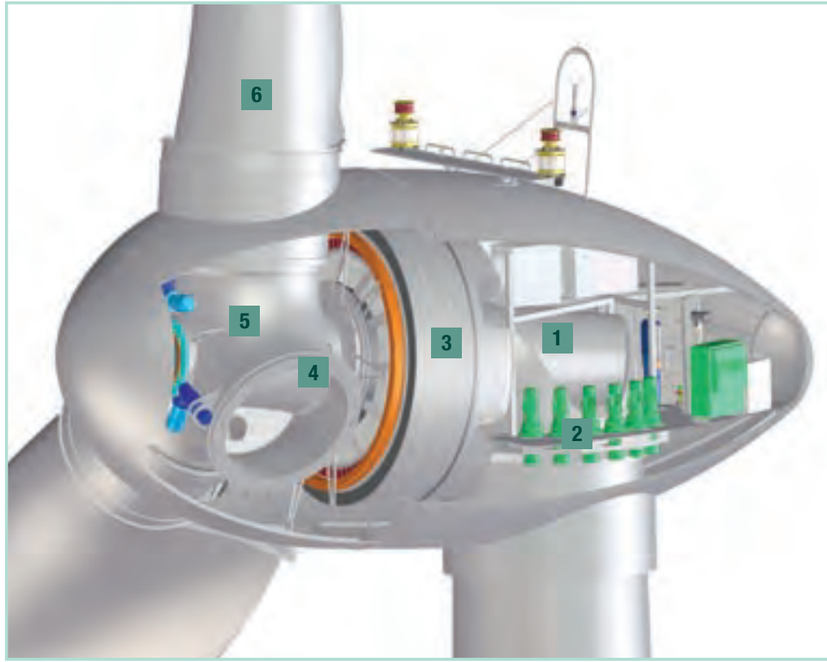
ρ = 1.225 kg/m³

For more information on the ENERCON power curve, please see the last page.

Technical specifications E-101

Rated power:	3,000 kW
Rotor diameter:	101 m
Hub height:	99 m / 135 m
Wind zone (DIBt):	WZ III
Wind class (IEC):	IEC/NVN IIA
WEC concept:	Gearless, variable speed Single blade adjustment
Rotor	
Type:	Upwind rotor with active pitch control
Rotational direction:	Clockwise
No. of blades:	3
Swept area:	8,012 m²
Blade material:	GRP (epoxy resin); Built-in lightning protection
Rotational speed:	Variable, 4–14.5 rpm
Pitch control:	ENERCON single blade pitch system; one independent pitch system per rotor blade with allocated emergency supply
Drive train with generator	
Hub:	Rigid
Main bearing:	Double-row tapered/cylindrical roller bearings
Generator:	ENERCON direct-drive annular generator
Grid feed:	ENERCON inverter
Brake systems:	– 3 independent pitch control systems with emergency power supply – Rotor brake – Rotor lock, latching (15°)
Yaw system:	Active via yaw gear, load-dependent damping
Cut-out wind speed:	28–34 m/s (with ENERCON storm control*)
Remote monitoring:	ENERCON SCADA

*For more information on the ENERCON storm control feature, please see the last page.



1 Main carrier
2 Yaw drive
3 Annular generator
4 Blade adapter
5 Rotor hub
6 Rotor blade

WIND ENERGY CONVERTER CHARACTERISTICS E-101

Rotor	
Type	E-101
Rotor diameter	101 m
Swept area	8012 m^2
Power regulation	Pitch
RPM	4 –14,5 min^{-1}
Cut in wind	2,5 m/s
Cut out wind	28 – 34 m/s
Survival wind speed	59,5 m/s

Gear Box	
Not applicable	No gearbox

Blades	
Manufacturer	ENERCON
Blade length	48,5 m
Material	GRP (Epoxy)
Lightning protection	included

Generator	
Manufacturer	ENERCON
Nominal Power	3000 kW
Type (model)	Synchronous, direct-drive ringgenerator
Protection classification	IP 23
Insulation class	F

Yaw System	
Type	electrical motors
Yaw control	Active (based on wind vane signal)
Yaw rate	0,5°/sec

Controller	
Manufacturer	ENERCON
Type	microprocessor
Grid connection	Via ENERCON inverter
Remote communication	ENERCON Remote Monitoring System
UPS	included

Braking System	
Aerodynamic brake	- three independent blade pitch systems with emergency supply - rotor brake - rotor lock, locking at 30°

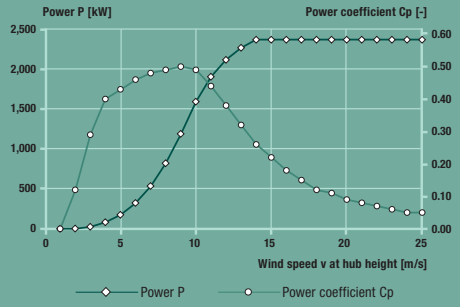
Tower			
Hub heights	99 m	135 m	
Tower	Prefab concrete	Prefab concrete	
Design Wind Class	**IIA**	**IIA**	

Sources: Design Assessment

E82

2,300 kW

Calculated power curve



Wind [m/s]	Power P [kW]	Power coefficient Cp [-]
1	0.0	0.00
2	3.0	0.12
3	25.0	0.29
4	82.0	0.40
5	174.0	0.43
6	321.0	0.46
7	532.0	0.48
8	815.0	0.49
9	1,180.0	0.50
10	1,580.0	0.49
11	1,890.0	0.44
12	2,100.0	0.38
13	2,250.0	0.32
14	2,350.0	0.26
15	2,350.0	0.22
16	2,350.0	0.18
17	2,350.0	0.15
18	2,350.0	0.12
19	2,350.0	0.11
20	2,350.0	0.09
21	2,350.0	0.08
22	2,350.0	0.07
23	2,350.0	0.06
24	2,350.0	0.05
25	2,350.0	0.05

ρ = 1.225 kg/m³

For more information on the ENERCON power curve, please see the last page.

Technical specifications E-82 E2

Rated power:	2,300 kW
Rotor diameter:	82 m
Hub height:	78 m / 85 m / 98 m / 108 m / 138 m
Wind zone (DIBt):	WZ III
Wind class (IEC):	IEC/NVN IIA
WEC concept:	Gearless, variable speed Single blade adjustment
Rotor	
Type:	Upwind rotor with active pitch control
Rotational direction:	Clockwise
No. of blades:	3
Swept area:	5,281 m²
Blade material:	GRP (epoxy resin); Built-in lightning protection
Rotational speed:	Variable, 6–18 rpm
Pitch control:	ENERCON single blade pitch system; one independent pitch system per rotor blade with allocated emergency supply
Drive train with generator	
Hub:	Rigid
Main bearing:	Double-row tapered/cylindrical roller bearings
Generator:	ENERCON direct-drive annular generator
Grid feed:	ENERCON inverter
Brake systems:	– 3 independent pitch control systems with emergency power supply – Rotor brake – Rotor lock
Yaw system:	Active via yaw gear, load-dependent damping
Cut-out wind speed:	28–34 m/s (with ENERCON storm control*)
Remote monitoring:	ENERCON SCADA

*For more information on the ENERCON storm control feature, please see the last page.

1 Main carrier
2 Yaw drive
3 Annular generator
4 Blade adapter
5 Rotor hub
6 Rotor blade

WIND ENERGY CONVERTER CHARACTERISTICS

E-82 E2 2.3MW

Rotor	
Type	E82 E2
Rotor diameter	82 m
Swept area	5281 m^2
Power regulation	Pitch
RPM	6 –18 min^{-1}
Cut in wind	2,5 m/s
Cut out wind	28 – 34 m/s
Survival wind speed	59,5 m/s

Gear Box	
Not applicable	No gearbox

Blades	
Manufacturer	ENERCON
Blade length	38,8 m
Material	GRP (Epoxy)
Lightning protection	included

Generator	
Manufacturer	ENERCON
Nominal Power	2300 kW
Type (model)	Synchronous, direct-drive ringgenerator
Protection classification	IP 23
Insulation class	F

Yaw System	
Type	6 electrical motors
Yaw control	Active (based on wind vane signal)
Yaw rate	0,5°/sec

Controller	
Manufacturer	ENERCON
Type	microprocessor
Grid connection	Via ENERCON inverter
Remote communication	ENERCON Remote Monitoring System
UPS	included

Braking System	
Aerodynamic brake	- three independent blade pitch systems with emergency supply - rotor brake - rotor lock, locking at 30°

Tower					
Hub heights	78 m	85 m	98 m	108 m	138 m
Tower	Steel (4 + FS)	Steel + Prefab concrete (2 + 15)	Steel + Prefab concrete (2 + 18)	Steel + Prefab concrete (2 + 21)	Steel + Prefab concrete (2 + 21)
Design Wind Class	**II**	**II**	**II**	**II**	**II**

Weights	
Nacelle, excl. Rotor and hub	Approx. 18 to
Rotor incl. Hub/Main pin	Approx. 55 to
Generator	Approx. 62 to
Total Weight	**Approx. 135 to**

Sources: Design Assessment, Manufacturers Certificate

Appendix D

Summary of Potential Environmental Effects, Mitigation Strategies and Monitoring Plans

Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
Heritage and Archaeological Resources[1]					
Protected Properties	• 12 features were identified in the Protected Properties Assessment. • Construction will affect the property on which the Comfort Barn (**Figure 2.16)** is located through the installation of collector lines, access roads and two wind turbines. • No potential for alteration to the Comfort Barn itself. • Township of West Lincoln Heritage Committee reviewed the proposal and determined that the cultural heritage values of the Comfort Barn would not be negatively affected (See **Consultation Report**).	• Avoid alteration to the Comfort Barn structure.	• Closest turbines to the Comfort Barn are at a distance of 665m and 1000m. Closest access roads and collector lines are 150m from the Comfort Barn.	• N/A	• With mitigation measures, no direct or indirect impacts are anticipated.
Heritage Resources	• Although 119 cultural heritage resources were identified within the Project Study Area in the Heritage Impact Assessment, the only potential direct construction-related impact was the damage or removal of heritage attributes along cultural heritage landscapes (i.e. fencing, trees, etc.) • Potential indirect construction-related negative impacts were identified for 52 cultural heritage resources, including: o Construction vibrations have potential to indirectly impact structural integrity of the built heritage resources. o Transportation of over-sized loads has potential to cause accidental or indirect damage to high concentration of narrowly setback cultural heritage resources and landscapes in Smithville, St. Ann's, Bismark, Elcho, Wellandport and Stromness.	• Minimize removal of heritage attributes along cultural heritage landscapes. • Reduce vibrations at built heritage resources. • Minimize impacts to built heritage resources and cultural heritage landscapes.	• Avoid, where possible, removal or damage to identified heritage attributes (i.e., fencing, trees, etc). • A 50 m no-construction buffer is recommended around the 52 identified heritage resources or else monitoring/contingency measures must be enforced. • Avoid, where possible, transportation of over-sized equipment from the listed areas. Where avoidance is not possible, ensure that transportation through these areas avoids any removal or damage to identified heritage attributes (i.e., root systems and above ground vegetation of cultivated plants, canal infrastructure, landscape features, and built components of rail landscapes). • Junction box at the intersection of Hutchinson Road and Highway 3 will be located on the northwest corner of the intersection to minimize visual impacts on the Mount Carmel Cemetery. • Install transmission line poles on east side of Port Davidson Road (opposite side of road from the West Lincoln McCaffrey Cemetery).	• If construction will be within 50 m of the 52 built heritage resources, the maximum acceptable vibration or peak particle velocity levels will be monitored by a qualified engineer with experience with built heritage resources in a similar circumstance to ensure that maximum levels are not exceeded as coordinated by the Construction Contractor. • Where damage to heritage attributes is unavoidable, plantings and built features should be restored to their pre-construction state immediately following construction. • A construction monitor will confirm whether any removal or damage of character-defining attributes occurs along Hutchinson Road.	• Indirect effects to cultural heritage landscapes will be spatially and temporally limited. • No significant effects are anticipated to built heritage resources.
Archaeological Resources	• Encounter non-documented archaeological resources.	• Document and/or remove (as appropriate) archaeological resources from the Project Location prior to construction.	• If a new archaeological resource was discovered, work within the vicinity of the archaeological find would be suspended and a Ministry of Tourism, Culture and Sport archaeologist and aboriginal communities would be contacted. • For construction works within 50 m from an identified resource that has not completed a Stage 3 AA, an archaeological monitor will be on site to supervise construction works. • No construction works permitted within 20 m of an identified archaeological resource that has not completed a Stage 3 AA.	• In the event that human remains are encountered or suspected of being encountered before or during construction, all work would stop immediately. Notification would then be made to the Ontario Provincial Police or local police.	• No anticipated significant effects to known archaeological resources during the construction.

[1] Niagara Region Wind Farm – Stage 1 and 2 Archaeological Assessments, Protected Properties Assessment Report and Heritage Assessment Report (Stantec, 2013)

Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
Natural Heritage Resources[2]					
Wetlands	• Degradation of wetland through changes in water flow, surface water contamination or sedimentation. • Wetland desiccation or drying from removal of riparian or buffering vegetation. • Contamination through accidental spills.	• Prevent contamination through surface flow during construction and spills. • Maintain existing surface water flow patterns. • Minimize removal of riparian and buffering vegetation. • Prevent contamination by sediment and erosion.	• No project development within significant wetlands. • Boundaries of wetlands within 30m of the proposed construction area will be flagged/staked by a qualified ecologist. • Silt barriers will be erected along the edge of all wetland boundaries within 30m of construction areas. • All refueling activities or fuel storage will occur greater than 30m from all wetlands. • Maintain surface flow patterns to wetlands by installing properly designed and sited culverts under access roads including at swales. • Stake limits of vegetation clearing. • All disturbed areas will be re-vegetated as soon as possible. • Construction contractor to ensure no work occurs outside of the limits of construction envelope. • Minimal alteration to surface water drainage patterns and installation of culverts as required to maintain flows. • Stockpiling of materials will not occur within 30m of wetland boundary. • Stockpiles left for longer than 30 days will be covered or stabilized by seeding, sodding, mulching or equivalent. • Horizontal directional drill (HDD) under the wetland boundaries for installation of collector lines. • Erosion control devices will be installed at the HDD location and drill cuttings will be collected and removed from the site for disposal in an approved and appropriate manner • No clearing of trees in or near any of wetlands that could result in wetland desiccation or drying.	• Inspectors will ensure construction vehicles and personnel stay within the construction envelope, thereby limiting the disturbance of wetlands. • Inspection of the erosion and sediment controls. • Inspection of culvert installations to ensure flow conveyance with no restrictions or ponding. • See “Spills” • Ensure that seed establishes in areas of disturbance within one growing season (once after seeding and once in late spring the year after seeding). Reseed if seed does not stabilize. • Inspect all erosion and sedimentation control measures regularly and after extreme weather events. • If siltation of surface water is identified, the source of siltation will be isolated, contained, and controlled and sediment control measures increased as required to prevent additional sedimentation. • Stockpile covers to be regularly monitored and if covers are found not to be effectively preventing sediment transport, additional E&S control measures employed as necessary. • Disturbance monitoring will be conducted weekly in and adjacent to work areas to visually assess hydrological conditions. • Hydrological conditions will be monitored once seasonally in each of spring and summer during the first year of post-construction.	• No direct loss of wetland habitat. • No anticipated disruption of wetland function.
Areas of Natural and Scientific Interest (ANSI’s)	• No impacts to Life Science ANSIs (St. Ann’s Slough Forest) as no components are located in the feature. • Potential erosion, alteration, destruction or loss of part of an Earth Science ANSI. 2.43 ha of the Winger Earth Science ANSI will be disrupted by construction. No loss of the feature or loss of function of the feature are expected.	• Minimize impacts to the Earth Science ANSI.	• No significant grading, cutting or filling will occur within the ANSI. • The width of the access road and limits of construction in proximity to the sand dune formations within the Earth Science ANSI will be minimized beyond the typical 20 m constructible area. • The limit of construction within the ANSI will be staked or fenced (i.e. silt fence) prior to	• A topographic survey of existing elevations within the ANSI will be completed prior to construction activities to document the shape of the sand dunes. • The project components within the ANSI will be identified on the topographic plan and provided to the MNR prior to construction:	• The significant features for which the Winger Earth Science ANSI has been identified are being protected. • While disturbance to existing conditions will occur during

[2] A more detailed assessment of potential effects, mitigation and monitoring is provided in “Niagara Region Wind Farm – Natural Heritage Assessment / Environmental Impact Study” (Stantec, 2013).

Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			construction to assist with the demarcation of the construction area, to ensure construction activities minimize disturbance to the ANSI and to assist with the proper field installation of erosion and sediment control measures. • Any material excavated during the construction of the turbine will be disposed of off-site, while topsoil removed to accommodate the construction of the access road will be stabilized and stored on-site until the site is restored following completion of construction; • Prior to construction of the access road, the existing topsoil will be removed and a layer of geotextile fabric installed beneath the access road to assist in removal of the access roads during decommissioning. Topsoil will be replaced at grade for all access roads and constructible areas • No blasting will occur within the ANSI. • Standard mitigation measures for vegetation removal, sedimentation and erosion control and dewatering will be applied.	• Photographs taken during construction of the access road, buried collector lines, fibre optic lines and temporary construction area associated with Turbine 89 will be submitted to the MNR following construction to illustrate compliance with the proposed mitigation measures and pre-construction survey information. • Upon completion of construction, the topographic survey will be used to assist in restoring any disturbed areas to restore existing topography.	construction, appropriate mitigation measures have been employed to protect existing topography and soil conditions, limit the extent of disturbance within the ANSI boundaries and to avoid the more pronounced sand dune formations on site. • As a result, the significant features and provincially significant earth science values associated with the Winger Earth Science ANSI would be protected.
Significant Woodlands	• Potential damage to root zones and limbs during construction or loss of trees to accommodate delivery of project components. • Contamination through accidental spills.	• Prevent damage to critical root zones and prevent accidental loss of trees or limbs. • Minimize accidental spills.	• No project development within significant woodlands. • Clearly delineate work area using a barrier such as a silt fence to avoid accidental encroachment on the feature that would lead to damage of trees or root zones. • Workers will be advised not to trespass beyond the boundary of the marked area. • Erect silt fencing to prevent sedimentation within critical root zones. Fencing should be located no closer than the drip-line. • Implement standard erosion and control measures. • Stockpile materials greater than 30m from woodland edge. • Stockpiles left for longer than 30 days will be covered or stabilized by seeding, sodding, mulching or equivalent. • Re-vegetate disturbed areas with fast growing native species as soon as construction activity is complete. • All maintenance activities, vehicle refueling or washing and chemical storage will be located more than 30m from significant woodlands. • See “Spills”	• Inspectors will ensure construction vehicles and personnel stay within the construction envelope, thereby limiting the disturbance of woodland vegetation. • Inspection of the erosion and sediment controls, including silt fencing regularly and daily during inclement weather. Any build up of sediment beyond the silt fence will be cleaned up and removed to avoid risk of further spread of sediment. • Disturbance monitoring of woodlands will be conducted weekly in and adjacent to work areas to visually assess hydrological conditionss • All covers on stockpiles to be put in place and inspected when inclement weather is anticipated. • Any tree limbs or root zones that are accidentally damaged will be pruned using proper aboricultural techniques. • Inspection of reseeded areas within one growing season to confirm that seed is growing. Replant areas where seed has not grown. • Accidental damage to trees, or unexpected tree removal, may require replanting of similar native species. • A Certified Arborist will undertake an evaluation of health of pruned trees	• No direct loss of woodlands. • Minimal if any anticipated negative impacts to woodlands.

Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
				within one year of pruning. • Hydrological conditions will be monitored once seasonally in each of spring and summer during the first year of post-construction. • See “Spills”	
Provincial Parks and Conservation Reserves	• As no Provincial Parks and Conservation Reserves were identified, there are no anticipated impacts.	• N/A	• N/A	• N/A	• None
Significant Wildlife and Wildlife Habitat (includes birds, bats, amphibians and other wildlife)	• Disturbance to species during construction from traffic, noise and dust. • Habitat removal (0.33 ha of grassland temporarily removed and 0.18 ha of grassland permanently removed). • Degradation of habitat through erosion and sedimentation. • Contamination through accidental spills. • Shifts in species abundance, avoidance and behavior during construction. • Degradation of habitat through changes in water flow, surface water drainage patterns or surface flow contamination. • Direct mortality of snakes from construction vehicles.	• Avoid and minimize removal of habitat. • Prevent contamination. • Prevent habitat avoidance and disturbance. • Prevent vehicle strikes. • Maintain existing surface water flow patterns.	• Only scattered trees and grassland habitat are to be removed for the Project. • Minimize construction disturbance during sensitive migratory periods (April/May and Sept/Oct). • Implement standard vegetation removal measures. • Implement standard sedimentation and erosion control measures. • Implement a Replanting and Restoration Plan as per **NHA/EIS**. • Construction activities within 120m of any Raptor Wintering Areas will be avoided during Dec, Jan and Feb. • No development is permitted within identified significant turtle overwintering habitat, turtle nesting habitat, snake hibernacula and amphibian breeding habitat. • Avoid construction within 120m of turtle overwintering habitat and snake hibernacula during sensitive periods for turtles (April/May and Late September to early October). • Barrier fencing will be installed around all construction zones within 120m of turtle nesting habitat. • Construction works will be made aware of potential occurrence of turtles and will avoid interactions with turtles. • If turtles are found within the construction area, the use of standard care protocols for the removal of the species will be used. • Silt barriers will be erected along the edge of amphibian breeding habitat. • Construction vehicles and personnel will stay within the construction envelope. • Horizontal direction drill entry/exit pits will be located at least 30m from any significant natural feature and a frac-out plan will be in place prior to directional drilling. • All refueling activities should occur more than 30m from any identified habitats. • Install properly designed and sited culverts in water crossings.	• Environmental Effects Monitoring Plan outlines disturbance and mortality monitoring requirements and adaptive management plan for birds, bats, wintering raptors and migratory birds. • If clearing of vegetation occurs beyond defined limits, the area should be rehabilitated to pre-disturbance conditions. • Any build-up of sediment beyond the erosion and sedimentation control points will be cleaned up and removed. • See “Spills” • Construction Supervisor to regularly visually monitor culvert installations to ensure flow conveyance, with no restrictions or ponding. • Should a turtle nest be encountered during construction, a buffer will be established and the rest will be protected from construction activities (i.e, via a wire cage or similar). The nest will be monitoring until the nest is no longer active. • Silt barriers will be monitored, especially after a rain event and until vegetation has become re-established. • Water levels within significant amphibian habitat will be monitored during active dewatering to ensure there are no decreases or temporary loss of habitat.	• No significant effects are anticipated. • No loss of habitat or alteration of groundwater or surface water flow is anticipated from the Project. • No fragmentation of habitat is anticipated.

Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			• Any vegetation clearing to occur outside breeding bird window, if possible, otherwise a bird nest survey to be completed immediately prior to vegetation clearing. • See “Wetlands”, “Woodlands” and “Spills”.		
Other Wildlife and Wildlife Habitat	• Degradation of habitat through erosion and sedimentation. • Contamination through accidental spills. • Shifts in species abundance, avoidance and behavior during construction. • Degradation of habitat through changes in water flow, surface water drainage patterns or surface flow contamination.	• Avoid and minimize removal of habitat. • Prevent contamination. • Prevent habitat avoidance and disturbance. • Prevent vehicle strikes. • Maintain existing surface water flow patterns.	• All new access road in previously cleared agricultural lands. • Minimal alteration to surface water drainage patterns and installation of culverts as required to maintain flows. • Restriction of construction activities primarily to daytime hours when breeding amphibian movement is less likely. • Vehicle speeds should be restricted to 30 km/h or less on access roads. • Any vegetation clearing to occur outside breeding bird window, if possible, otherwise a bird nest survey to be completed immediately prior to vegetation clearing.	• See ‘Local Traffic’. • See ‘Environmental Noise’.	• No significant net effects are anticipated.
Significant Flora and Vegetation Communities	• Degradation of habitat through erosion and sedimentation. • Accidental damage to vegetation. • Contamination through accidental spills. • Changes in soil moisture and compaction.	• Prevent contamination from erosion, sedimentation or accidental spills. • Prevent accidental damage to vegetation.	• No development will occur within rare vegetation communities. • Construction vehicles and personnel will stay within the construction envelope. • Refueling activities will occur far from woodland features. • See “Spills”. • Tree pruning will be minimized to the greatest extent possible and any tree limbs or roots that are accidentally damaged will be pruned using proper arboricultural techniques. • Accidental damage to trees, or unexpected vegetation removal, may require replanting of similar native species. • Pruning will be avoided during leaf fall (approx. September to November). • As appropriate, the limits of tree pruning will be marked in the field prior to construction. • Horizontal direction drill entry/exit pits will be located at least 30m from any significant natural feature and a frac-out plan will be in place prior to directional drilling. • Clearly delineate the work area using silt fencing to avoid accidental damage to vegetation. • Implement standard erosion and control measures (see “Wetland”, “Woodland” and “Surface Water, Fish and Fish Habitat”. • Stockpile material greater than 30 m from the edge of rare vegetation communities or, where not possible, cover the piles when not in use.	• See “Spills” • Daily monitoring of erosion and sedimentation control measures during when inclement weather is anticipated. • All covers on stockpiles to be put in place and checked when inclement weather is anticipated. • Inspection of reseeded areas within one growing season to confirm that seed is growing. Replant areas where seed has not grown. • Any tree limbs or root zones that are accidentally damaged by construction activities will be pruned using proper arboricultural techniques. • A Certified Arborist will undertake an evaluation of the health of the pruned trees within one year after pruning. Trees that die or are in poor health as a result of tree pruning will be replaced and the survivability of the trees monitored for a minimum of one year after planting.	• No significant net effects are anticipated.

Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			• Stockpiles left for longer than 30 days will be covered or stabilized by seeding, sodding, mulching or equivalent. • Re-vegetate disturbed areas with fast growing native species as soon as construction activity within the disturbed area is complete. • Any vegetation clearing to occur outside migratory breeding bird window (May 1 to July 31), to the extent practical, otherwise a bird nest survey to be completed immediately prior to vegetation clearing. If a nest is located, a designated buffer will be marked off within which no construction activity will be allowed while the nest is active.		
Other Flora and Vegetation Communities	• Indirect effect from dust emissions.	• Minimize dust emissions.	• See “Dust and Odour Emissions”	• See “Dust and Odour Emissions”	• No net effects are anticipated.
Water Bodies and Aquatic Resources					
Groundwater	• Encounter groundwater during excavations. • Potential groundwater seepage. • Potential for accidental spills infiltrating groundwater supplies. • Based on MOE water well data, there are 24 domestic and livestock water wells within 500m of a turbine. The closest well is approximately 92 m (from T01) (See **Figure 2.1 to 2.58**). • Based on MOE water well data, there are 56 domestic and livestock water wells within 120m of the preferred transmission line route at both underground and overhead sections. The closest well is approximately 9m from the preferred transmission line route (see **Figure 2.1 to 2.58**).	• No impacts to private residential wells. • No effects on groundwater quality.	• Site-specific geotechnical investigations will be completed prior to constructin. • Seepage is anticipated to be nominal and controllable with standard sump pumps. • Any water pumped from excavated areas will be directed away from natural features, including wetlands. • Withdrawal amounts are anticipated to be below the threshold of 50,000 L/day. • If groundwater is encountered during excavations, good construction practices will be used such as minimizing the length of time that the excavation is open and monitoring seepage into the excavation. • Discharge piping will be free of leaks and will be properly anchored. • The area to be used for dewatering will be clearly marked with flagging, snow fencing or equivalent.	• Adherence to Complaint Response Protocol. • All dewatering sediment control structures will be inspected immediately prior to and following commencement of pumping activities. • NRWC will undertake a pre- and post-groundwater monitoring program at any residential well within 120m of a buried transmission line and any residential well of a home within 500m of a wind turbine (with landowner permission). Additional monitoring may be required if complaints are received from surrounding landowners regarding water well quality during construction. In the event of a well interference complaint, NRWC will: o resample groundwater quality and document groundwater levels at monitoring well; o collect a water quality sample from private well(s), as applicable; and o Retain a third party consultant to review available data and determine if adverse effects have occurred as a result of construction activity. • If Private water quality or quantity is disturbed as result of construction, NRWC will provide a temporary potable water supply until corrective measures are taken and will comply with MOE Guideline B-9: Resolution of Groundwater Interference Problems.	• It is anticipated any potential effects would be short term in nature and have little to no effect on groundwater quality and adjacent private water wells.

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Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
Surface Water, Fish, and Fish Habitat[3]	General construction-related potential impacts: • Short-term increase in turbidity from run-off and soil erosion. • Loss of shade. • Reduced bank stability. • Reduced allochthonous inputs. • Water quality and habitat disturbance to aquatic habitat. Culvert and access road potential construction-related impacts: • Disturbance to aquatic biota and habitat during installation. • Permanent enclosure of portions of a watercourse. • Changes to riparian vegetation within road allowance. • Barrier to fish passage to upstream. • Erosion at inlets and outlets. • Overhead lines potential construction-related impacts: • Loss of riparian vegetation and resulting increased turbidity • Removal of shade, cover and food production. Underground collector lines potential construction-related impacts: • Erosion and sedimentation from site disturbance and dewatering. • Collapse of the punch or bore hole under the stream. • Disturbing riparian vegetation and reducing shoreline cover, shade and food production areas. • Disturbance to bottom of bank substrates, sensitive fish stages and introduction of deleterious substances. • Transformer substation construction-related potential impacts: • Soil erosion resulting from removal of stabilizing vegetation cover which can cause sediment transport, increase in turbidity. • Release of fuel, lubricating oils and other fluids associated with electrical equipment.	• No impediment. • No spills. • No erosion, sediment transport or surface water turbidity. • Vegetation removal on the slopes of watercourses to be minimized to the extent possible. • Minimize the risk of slope failure and siltation. • Minimize impacts to fish and fish habitat. • Minimize amount of in-water work.	• No wind turbines have been located within 30 m of the average annual high water mark of a lake or a permanent or intermittent watercourse • All in-water work would be completed within MNR timing windows. • All materials and equipment used shall be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) from entering the water: • Any stockpiled materials should be stored and stabilized away from the water; • Stockpiles left for longer than 30 days will be covered or stabilized by seeding, sodding, mulching or equivalent; • Refuelling and maintenance of construction equipment should occur a minimum of 100 m from a water body; • As appropriate, spills should be reported to the MOE Spills Action Centre; • Any part of equipment entering the water should be free of fluid leaks and externally cleaned/degreased to prevent any deleterious substance from entering the water; • Only clean material, free of fine particulate matter should be placed in the water. • Sediment and erosion control measures should be implemented prior to construction and maintained during the construction phase to prevent entry of sediment into the water: • Silt fencing and/or barriers should be used along all construction areas adjacent to natural areas; • No equipment should be permitted to enter any natural areas beyond the silt fencing during construction; • No more than 50,000 L/day will be extracted from surface water resources. • See ‘Spills’.	• All sediment and erosion control measures should be inspected at least weekly and during and immediately following rainfall events to ensure that they are functioning properly and are maintained. • If the sediment and erosion control measures are not functioning properly, no further work should occur until the sediment and/or erosion problem is addressed; • Sediment and erosion control measures should be left in place until all areas of the construction site have been stabilized. • Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance. • The Construction Contractor will: • Perform routine checks of all erosion and sediment control measures • Monitor flow conveyance during in-water works where culvert replacements are required • Visually inspect access/exit pits and directional drill line for frac-outs • Inspect drilling equipment and materials for spills/leaks • Ensure that bank, bed and floodplain conditions are restored to pre-construction conditions after construction. • Additional monitoring requirements as may be identified in Conservation Authority permits. • Compensation strategies and/or permits from Fisheries and Oceans Canada and/or conservation authorities, as applicable, would likely include conditions of approval such as construction and post-construction monitoring.	• Effects to surface water and water bodies would be both spatially and temporally limited. • No significant negative construction effects are anticipated to surface water, water bodies and fish and fish habitat.
Air Quality and Environmental Noise					
Dust & Odour Emissions	• Emissions from construction equipment. • Short-term nuisance dust effects	• Minimize duration and magnitude of emissions.	• Operate vehicles in a manner that reduces air emissions to the extent practical, including:	• Adherence to Complaint Response Protocol. • All vehicles identified through the	• Any net effects are expected to be short-term in

[3] A more detailed assessment of potential effects, mitigation and monitoring is provided in “Niagara Region Wind Farm – Water Assessment and Water Body Report” (Stantec, 2013).

Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			o Using multi-passenger vehicles as possible; and o Avoid idling vehicles. o Equipment and vehicles would be maintained in a manner that reduces air emissions. o Protect stockpiles of friable material with a barrier or windscreen and in the event of dry conditions and excessive dust. o Dust suppression (e.g. water).	monitoring program that fail to meet the minimum emission standards would be repaired immediately or replaced as soon as practical.	duration and highly localized.
Environmental Noise	• There are 2,667 receptors within 1.5 km of any turbine. • Noise emitted from construction equipment.	• Minimize noise emissions to a reasonable extent • Noise levels arising from equipment to be compliant with sound levels established by the MOE and County/Township guidelines (if applicable).	• All engines associated with maintenance equipment would be equipped with mufflers and/or silencers in accordance with MOE and/or MTO guidelines and regulations. • Routine maintenance to ensure equipment is operating properly and efficiently. • To the greatest extent possible, activities that could create excessive noise would be restricted to normal construction hours, when residents are less sensitive to noise, and adhere to any local noise by-laws.	• Adherence to Complaint Response Protocol. • If construction activities that cause excessive noise must be completed outside of normal time frames, adjacent residents will be notified in advance and by-law conformity will occur, as required.	• Any net effects are expected to be limited to short-term, intermittent noise increases during daylight hours at the work areas and/or along the haul routes.
Land Use and Socio-Economic Resources					
Agricultural Lands	• Change in use from agricultural to renewable energy development on lands used during construction. • Adverse effects to artificial drainage. • Soil erosion or crop loss on adjacent lands due to flooding as a result of temporary or permanent disruption to water flow. • Encounter and disruption of contaminated soils.	• Minimize disturbance to agricultural lands and operations. • Minimize land required for the Project. • Avoid impacting artificial tile drains. • Minimize disturbance to drainage patterns. • Properly manage contaminated soils if encountered.	• Landowners are being financially compensated for the lease of the private lands and thus offset the effect of removing the land from agricultural production. • Efforts have been made to site the turbines, access roads and collector lines in such a way as to minimize disturbances to existing agricultural lands and operations. • The location of artificial tile drainage and associated drains would be confirmed with each landowner on a site-specific basis prior to construction activities. • Should tile drains be damaged, locations should be recorded and flagged and repaired. If a main drain, header tile, or large diameter tile is severed, a temporary repair should be made to maintain field drainage and prevent flooding of the work area and adjacent lands. • If contaminated soil is encountered, the contaminated material will be disposed of in accordance with the current appropriate provincial legislation, such as Ontario Regulation 347, the General – Waste Management Regulation.	• Following the completion of construction, as appropriate, temporary workspaces would be graded and de-compacted (if required), the topsoil replaced, and the area left as close to pre-existing condition as possible.. • An agricultural tile drainage contractor would carry out any re-alignment works as well as repair tiles and/or drains that may experience construction related damage.	• No anticipated significant net effects. Any net effects are expected to be short-term until mitigation and corrective actions are completed. • The Project provides positive income to participating landowners through land lease agreements for agricultural lands.
Mineral, Aggregate, and Petroleum Resources	• Impacts to petroleum resources operations. • The transmission line crosses three different pipelines owned by Enbridge and TransCanada. • Collector lines and fibre optic lines cross three different pipelines. • Nearest transmission pipeline to a turbine is	• Project construction does not require the creation of a new pit or quarry to provide the required aggregate materials	• The source of the required aggregate will be determined prior to construction, however it is planned that local sources will be used to the greatest extent possible. • On-site surveying will take place prior to construction to identify petroleum resources	• An Engineer's Report will be prepared for all petroleum resources operations within 75 m of the Project Location. The purpose of the Engineer's Report will be to demonstrate that there are no effects to the petroleum resources operations as a result of the construction of the	• No anticipated significant net effects. • Project will not require the creation of a new

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Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
	654m.	for construction. • No impacts to petroleum resources operations.	operations within 75 m of the Project Location. • MNR will be consulted through the Approvals and Permitting Requirements Document (APRD) to confirm if any permits are required relating to petroleum resources. • Locate all pipelines prior to construction. • Consult with Enbridge and TransCanada prior to construction of transmission line and collector line at pipeline crossings.	Project. • If a potential effect to the petroleum resources operations is identified, construction methods may be altered (staying within the Project Location) to minimize or eliminate any potential effects.	pit or quarry to provide the required aggregate materials and as such a licence of permit under the *Aggregate Resources Act* will not be sought for the Project.
Game And Fishery Resources	• Disturbance to game species from construction activities. • Limiting access to lands for hunting and fishing. • Individuals who previously used the lands for hunting and fishing purposes are likely to relocate to a new area during construction.	• Minimize disturbance to game and fishery resources. • Minimize length of time that lands are inaccessible.	• Routine maintenance to ensure equipment is operating properly and efficiently, thus limiting noise and potential disturbance to game resources. • Hunting and other recreational uses will not be permitted on lands required during construction (unless permitted by NRWC and/or the construction contractor) as it would be unsafe due to the large construction equipment on-site.	• N/A	• The net effect of limiting access to land due to safety concerns and potential disturbance to game resources will be temporary.
Areas Protected Under Provincial Plans and Policies	• No project components within the Oak Ridges Moraine Conservation Plan or the Lake Simcoe watershed.	• N/A	• N/A	• N/A	• N/A
	• A portion of the transmission line is located within existing road rights-of-way within the Protected Countryside of the Greenbelt Area Plan • Long term tree trimming and vegetation removal adjacent to the transmission line for lifetime of the project.	• Avoid and/or minimize negative impacts to key natural heritage features and key hydrologic features. • Optimize coordination with different infrastructure services.	• Transmission line is located outside of all natural features and habitats. • Design the transmission line with monopole structures, minimize pole structure height and maximize pole structure spacing. • Follow existing municipal road right of way to avoid cross-country routes and minimize disturbance to natural features. • Route alignment through Greenbelt Area minimizes length traversed by the transmission line.	• See ‘Natural Heritage Resources’	• No anticipated significant net effects.
	• A portion of the transmission line is located within the Niagara Escarpment Plan Area within existing road rights-of-way. • Underground transmission line construction has potential to: o Impact contours or create steep grades. o Negatively impact water quality from erosion and sedimentation. o Some tree and vegetation removal during construction and site clearing. o Negatively impact quality or quantity of top soils. o Disturb wildlife. o Disruption to public enjoyment of the Mountainview Conservation Area and Bruce	• Minimize impacts on natural heritage features. • Minimize visual impacts. • Ensure no impacts to contours or creation of steep grades. • Minimize impacts to water quality. • Minimize vegetation removal. • Minimize disturbance to wildlife. • Minimize disruption to	• Compliance with Development Permit (N/S/2012-2013/191) obtained from the NEC prior to REA submission to the MOE. • Transmission line is located outside of all natural features and habitats. • Follow existing municipal road right of way to avoid cross-country routes and minimize disturbance to natural features • The transmission line within the Niagara Escarpment Plan Area will be installed underground within an existing right of way. • The transmission line trench will be located within the travelled portion of Mountainview Road, or as close as possible to the pavement or roadside to minimize	• Adherence to Complaints Monitoring Protocol. • Continued consultation with the Niagara Escarpment Commission and neighbouring landowners. • Pre- and post-construction monitoring of the water quality and availability in existing residential wells within 120 m of the proposed transmission line will be completed (where access is permitted by landowners) • See ‘Groundwater’ • See ‘Other Wildlife and Wildlife Habitat’. • See ‘Natural Heritage Features’. • See ‘Dust & Odour Emissions’	• No anticipated significant net effects.

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Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
	Trail. o Temporary lane closures and traffic slowdowns during construction. o Dust generation and noise emissions during construction.	recreational areas. • Minimize dust generation.	vegetation removal. • No blasting during installation will ensure grades are maintained. • Erosion and sedimentation controls to be installed and maintained during construction and disturbed areas to be stabilized and revegetated immediately after construction. • Design transmission line to minimize tree and vegetation removal (avoid new crossings through woodlands and maintain line entirely within the road right of way). • Tree trimming will be undertaken at the direction of a qualified arborist, using tree-cutting methods that minimize environmental impacts, protects tree health and minimizes disruption to plant and animal species. • Construction timing planned to minimize impact on local wineries. • See ‘Other Wildlife and Wildlife Habitat’. • See ‘Natural Heritage Features’. • See ‘Dust & Odour Emissions’ • See ‘Surface Water, Fish and Fish Habitat” • See ‘Other Flora and Vegetation Communities’. • See ‘Agricultural Lands’. • See ‘Recreation Areas and Features’. • See ‘Local Traffic’. • See ‘Spills’.	• See ‘Surface Water, Fish and Fish Habitat” • See ‘Other Flora and Vegetation Communities’. • See ‘Agricultural Lands’. • See ‘Recreation Areas and Features’. • See ‘Local Traffic’.	
Recreation Areas and Features	• Land within 120 m of the Project Location is used for recreation purposes such as hunting, fishing, hiking and off-roading including the Mountainview Conservation Area, Wainfleet Rail Trail (Gord Harry Trail) and Bruce Trail. Consultation with the NPCA confirmed that the portion of the Wainfleet Rail Trail which is proposed to host access roads is not currently maintained as part of the active trail, but that future expansion of the trail is possible. • Potential disruption to visitors to the Mountainview Conservation Area. • Construction works along the Wainfleet Rail Trail will require temporary closure of the west end of the trail from Elgin Road to Townline Road due to the presence of construction equipment, vehicles and disturbed land. Potential impacts to the trail east of Elgin Road are disturbance from dust and noise. • Disruption to Bruce Trail access points due to visual and physical obstacles.	• Minimize impacts to access and enjoyment of Bruce Trail, Wainfleet Rail Trail and Mountainview Conservation Area.	• Notify the Bruce Trail Conservancy in advance of any construction within 300 m of the Bruce Trail. • Notify the Niagara Peninsula Conservation Authority in advance of any construction within 300 m of the Mountainview Conservation Area and Wainfleet Rail Trail. • Ensure that access to the Bruce Trail is not obstructed by construction equipment or works, where possible – in extreme cases, provide signage for hikers to access the trail via safe alternate route. • Coordinate with NPCA to identify preferred dates/times for Wainfleet Rail Trail closure. • Minimize time of Wainfleet Rail Trail closure by focusing construction resources within the area and completing all works before moving resources to the next site. • Ensure that walking and car entry into the Mountainview Conservation Area is not obstructed by any construction equipment or works. Provide traffic control guidance so access is never limited. • See “Dust & Odour Emissions” and	• Follow-up with Bruce Trail Conservancy and Niagara Peninsula Conservation Authority of any project changes, schedule changes and recommendations for minimizing impacts.	• Net effects are short term and spatially limited.

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Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			"Environmental Noise"		
Local Traffic	• Increase in traffic. • Temporary road/lane closures.	• Minimize disturbance to local traffic.	• There may be instances where excess loads (e.g. turbine components) will require special traffic planning. • Construction Contractor will implement a Transportation and Traffic Management Plan. • Understanding local school bus routes and timing to avoid traffic congestion.	• Permits will be obtained from the County/Township and/or MTO to implement road work activities once final transportation routes and requirements have been finalized. • Community Liaison Committee will have ability to comment on the Transportation and Traffic Management Plan.	• A limited, short term effect on local traffic, but will be managed through the implementation of a Transportation and Traffic Management Plan.
Local Economy	• Increase in direct, indirect and induced employment. • Local economic benefits from land lease payments, local expenditures, municipal taxes, etc. • Disruptions to local businesses.	• Create positive effects on local economy. • Minimize disruptions to local businesses.	• To the extent possible, NRWC would source required goods and services from qualified local suppliers. • ENERCON has announced that it will build two new manufacturing facilities in the region to support the Project including a tower manufacturing facility and a converter and control panel manufacturing facility. One facility is already operational. • NRWC will be contributing over $20million to local communities through community vibrancy funds. • Disruptions in the vicinity of local businesses would be largely due to an increase in traffic, and would be short term and are not expected to affect use of these businesses.	• None required.	• A positive net effect is anticipated on the local economy during construction of the Project. • The new ENERCON Facilities are expected to create over 50 new jobs. • Community vibrancy fund will support local projects and will be managed by local citizens. • Construction and planning phases of the Project are expected to create 770 jobs annually over the four years of development and construction. • A Niagara Community employment and contractors seminar is being discussed for Spring 2013. • NRWC has engaged several Aboriginal communities to identify employment opportunities.
Viewscape	• Viewscape from areas surrounding the Project Location will be altered due to the presence of construction equipment and personnel along with changes to the physical landscape.	• Minimize potential for visual disturbance.	• Minimal mitigation measures are available to address concerns related to visual changes to the area during the construction of the Project.	• Adherence to Complaint Response Protocol.	• Will be a net effect (either positive or negative based on perceptions) due to the change in

Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
					viewscape of the surrounding area.
Existing Infrastructure					
Provincial, municipal, and other major infrastructure	• The proposed transmission line crosses several HONI transmission line corridors and will be installed either underground or overhead as determined during detailed design. • Transmission line and collector line infrastructure cross three railways (CP and CN owned) and will be installed either underground or overhead as determined through detailed design. • Abnormal wear and/or road upgrades on local roads. • Damage to municipal drains. • Temporary impacts to existing utilities.	• Minimize impacts to local roads. • Minimize impacts to municipal drains. • Minimize disruptions/impacts to other existing utilities.	• Consultation with MTO regarding any necessary agreements related to use of roads for transportation of Project materials in addition to obtaining the required permits for use of provincial highways. • Detailed plans or agreements regarding maintenance and/or repairs of the local roads and road rights-of-way damaged during construction will be developed with the County/Township. • Agreements would be developed for use of the municipal road allowance for routing of the collector lines. • Where there are existing distribution lines within the municipal road allowance, NRWC will work with the Local Distribution Company to develop shared pole user agreements (if reasonable to do so). • Drains superintendents from the County/Township will be requested to attend site visits and be part of the discussions with the Conservation Authorities during the *Fisheries Act* permitting process for the Project. • Locate all utilities within municipal road allowances prior to construction • Pre and post construction photos will be completed prior to any works starting. • Consultation with HONI during construction of transmission line crossings. • Consultation with CP Rail and CN Rail during construction of transmission line and collector line crossings.	• Pre and post construction road surveys will be conducted and NRWC will be responsible for any required upgrades/repairs directly associated with Project construction as per agreements with the Township/County. • Local roads would be restored to their pre-construction conditions to the satisfaction of local authorities as applicable to the agreements with County/Township. Some municipal roads requiring structural enhancement/upgrades may be left in their upgraded form if requested. • Permits and approvals will be obtained from the County/Township and/or MTO to implement road work activities once final transportation routes and requirements have been finalized. • Approvals will be obtained from HONI, CN Rail and CP Rail for installation of transmission line and collector line crossings. • In the event that utilities within municipal road allowances are damaged as a result of the construction of the Project, NRWC would rectify damages. • Affected roadside ditches and drains would be repaired if required and monitored to ensure that they are functioning properly.	• Abnormal wear on local roads may be unavoidable. However, the effect of constructing the various Project components is anticipated to have a limited, short term effect on local roads given NRWC's commitment to developing maintenance and/or repair plans or agreements with the County/Township. • No effects on railway or HONI transmission lines are expected.
Navigable Waters	• Temporary barrier due to crossings.	• Avoid navigable waterways. • Minimize length of disturbance to navigable waterways.	• Confirmation of the presence of these waters will be obtained from Transport Canada and permits (if required) will be obtained prior to construction.	• To be identified as part of any permits (if required).	• None
Telecommunication and Radar Systems	• Potential to interfere with telecommunication and radar systems	• Minimize interference with telecommunication and radar systems	• NRWC has consulted with relevant agencies and licensed providers to identify any likely effects to telecommunication and radar systems. • In the unlikely event that signal disruption is experienced, NRWC will meet with owner of system to discuss potential options for mitigation.	• Adherence to Complaint Response Protocol. • NRWC would review potential incidents of telecommunications interference on a case by case basis. •	• No anticipated significant effects to telecommunication / radar systems.
Aeronautical Systems	• Aeronautical obstruction.	• Minimize potential	• Once the turbines are erected (and prior to	• None	• No anticipated

Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
		hazard to low flying aircraft.	operation), turbine lighting will conform to Transport Canada standards. • Nav Canada would be responsible for updating all aeronautical charts with the turbine locations. • Nav Canada will be informed of the start date for construction.		significant effects to aeronautical systems.
Public Health and Safety					
Public Health and Safety	• Potential traffic safety hazards. • Accidents and malfunctions.	• Minimize traffic safety hazards. • Minimize potential for accidents or malfunctions.	• As appropriate, for public safety all non-conventional loads would have front and rear escort or “pilot” vehicles accompany the truck movement on public roads. May provide notification of non-conventional load movements. • Implementation of a Transportation and Traffic Management Plan and a detailed Health and Safety/Emergency Response Plan. • The Construction Contractor to employ good site safety practices.	• Design and approval of the Emergency Response Plan with local emergency services personnel. • If required, NRWC would participate in a training session for these workers.	• With adherence to safety policies and procedures, there is minimal increased or new risk to public health and safety.
Waste Management and Contaminated Lands					
Waste Generation	• Improper disposal of waste material may result in contamination to soil, groundwater, and/or surface water resources on and off the Project sites. • Litter may become a nuisance to nearby residences if not appropriately contained and allowed to blow off the site.	• Ensure proper disposal of waste.	• Implementation of a site-specific waste collection and disposal management plan, which may include good site practices such as: - Contractors will be required to remove all waste materials from the Project sites after construction; - All waste materials and recycling would be transported off-site by private waste material collection contractors licensed with a Certificate of Approval – Waste Management System; and, - Labeling and proper storage of liquid waste. • As appropriate, spill kits will be provided on-site. • Dumping or burying wastes within the Project sites will be prohibited. • Disposal of non-hazardous waste at a registered waste disposal site(s). • Implementation of an on-going waste management program consisting of reduction, reuse, and recycling of materials. • See ‘Spills’	• See ‘Spills’.	No anticipated significant effects.
Spills	• Potential contamination from accidental spills.	• No spills. • Minimize impacts from accidental spills.	• Refueling, equipment maintenance, and other potentially contaminating activities would occur in designated areas. • Spills will be reported immediately to the MOE Spills Action Centre, as applicable.	• Monitoring would be required following the unlikely event of contamination from an accidental spill or leak (method for monitoring may be developed in consultation with the Spills Action	No anticipated significant effects.

Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction					
Environmental Feature	**Potential Effect**	**Performance Objective**	**Mitigation Strategy**	**Monitoring Plan and Contingency Measures**	**Net Effects**
			• Development of Emergency Response Plan. • Construction Contractor will develop a Frac-Out Response Plan which outlines required actions in the case of inadvertent return of drilling lubricant (i.e., a “frac-out”) during directional drilling.	Centre of the MOE). • Contaminated soils would be removed and replaced as appropriate. • Emergency Response Plan will address procedures for response to spills including containment and clean-up materials and their storage locations. • Internal audits will be completed to confirm compliance with Monitoring and Emergency Response Plans.	