# BORNISH WIND ENERGY CENTRE
# Natural Heritage Assessment
# Addendum Report

Prepared for:
NextEra Energy Canada
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Project No. 1231 Date: July 2012

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project Team:

| Staff | Role |
|---|---|
| Andrew G. Ryckman | Project Manager/Biologist |
| Charlotte Moore | Terrestrial and Wetland Biologist |
| Kaitlin N. Powers | Terrestrial and Wetland Biologist |
| Gerry Schaus | GIS Technician |

Report submitted on July 16, 2012

Andrew G. Ryckman

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## 1.0 Project Description

Natural Resource Solutions Inc. (NRSI) was retained in April 2011 by GL-Garrad Hassan on behalf of NextEra Energy Canada, ULC (NextEra) to conduct a natural environment resource assessment in accordance with the Renewable Energy Approval (REA) Regulation, Ontario Regulation 359/09. This assessment includes a records review, site investigation, evaluation of significance, and impact assessment of any potentially significant natural features or wildlife habitats at a proposed 72.9 MW wind energy generating facility in North Middlesex, Middlesex County Ontario. The analysis of the natural heritage features and biological factors affecting the proposed site is one issue being considered. Other factors, such as land ownership, social impacts, and cultural impacts are also being assessed by other team members, and will be addressed under separate covers as outlined by the REA Regulation.

The Bornish Wind Energy Centre ('the Project') will be owned and operated by Bornish Wind, LP, a wholly-owned subsidiary of NextEra. The Project is located in northwestern Middlesex County in the Township of North Middlesex, Ontario. The Bornish Wind Energy Centre is approximately 3.3km south of the Town of Parkhill, Ontario, with the general project area bound to the north by Nairn/Elginfield Road, to the south by Townsend Line, and to the east and west by Broken Front/Scout Road and Fort Rose Road. A transmission line is proposed to run north along Kerwood Road from the substation to Elginfield Road/Nairn Road. This transmission line is then proposed to continue eastward along Nairn Road to an existing 500 kV line and interconnection point located west of Petty Street. The location of the project area was defined early in the planning process for the proposed wind energy facility, based on the availability of wind resources, approximate area required for the proposed project, and availability of existing infrastructure for connection to the electrical grid.

The Bornish Wind Energy Centre is proposed to consist of up to forty-five GE 1.6-100 (1.62 MW) turbines installed for a total installed capacity of 72.9MW. However, locations for forty-eight turbines will be permitted. The proposed GE 1.6-100 turbine is a 3-bladed, upwind, horizontal-axis turbine. The turbine has a total rotor diameter of 100 m, which results in a swept area of 7,854 $m^2$ and is designed to operate at between 9.75 and 16.18 revolutions per minute (rpm). The turbine rotor and nacelle are mounted on top of

an 80m tubular tower that is manufactured in sections from steel plates. Each turbine is mounted on a steel reinforced concrete foundation and equipped with a transformer, which is located outside the base of the tower.

As identified the REA Regulation, the proposed layout of these features is collectively referred to as the 'project location'. For the purposes of this report, NRSI will refer to the areas within 120m of the project location as the 'project area'.

The records review, site investigation, evaluation of significance, and environmental impact study (EIS) for the Bornish Wind Energy Centre were completed by NRSI over the course of 2011/2012 as part of the Natural Heritage Assessment (NHA). The Bornish Wind Energy Centre NHA (NRSI 2012) confirmation was granted on April 2, 2012 by the Ministry of Natural Resources' Renewable Energy Operations Team. As part of this confirmation, several pre-construction commitments were identified along with the commitment for the proponent to inform the MNR of any changes made to the project that would alter the NHA. This letter of confirmation is provided in Appendix I.

This document identifies and discusses minor layout changes that have been made to the Bornish Wind Energy Centre project location since receiving the NHA confirmation from the MNR, but before ultimate REA submission to the MOE. The updated project layout addressed in this report is provided in Figure 1, with detailed comparative layouts provided in later sections.

**Figure 1**

# Bornish Wind Energy Centre

## Project Area and Natural Features

**Legend**

- Project Area (120m Buffer)
- Turbine
- MET Station
- Access Road
- Collector System
- Interconnection Line
- Project Location
- Staging Area
- Substation
- Existing Transmission Line
- Railroad
- Primary Road
- Secondary Road
- Intermittent Watercourse
- Permanent Watercourse
- Waterbody
- Provincially Significant Wetland (PSW)
- Other Wetland
- Wooded
- ANSI, Life Science
- ANSI, Earth Science


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Project: 1231
Date: July 10, 2012

NAD83 - UTM Zone 17
Scale: 1:50,000 (11x17")

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## 2.0 Staff Roles

The requirements of the REA process indicate that the name and qualifications of all staff participating in the NHA should be provided. This staffing information is provided in the Bornish Wind Energy Centre NHA (NRSI 2012) and the qualifications and roles of key staff participating in the addendum to the Bornish Wind Energy Centre NHA have been outlined below.

Andrew G. Ryckman, B.Sc.
Andrew is a Terrestrial and Wetland Biologist with 7 years of environmental experience. He routinely manages the natural heritage aspects of renewable energy projects, with specific expertise relating to bats and herpetofauna. Andrew is certified in Ecological Land Classification (2010), and has successfully completed a Bat Conservation International (BCI) Acoustic Monitoring Workshop (2008).

Andrew's role was to act as the project manager, overseeing all aspects of the Natural Heritage Assessment, including all associated field work and reporting. He was the main contact point for agency staff and assisted with the preparation of all corresponding reports including this addendum.

Charlotte S. Moore, B.E.S.
Charlotte is a Terrestrial and Wetland Biologist with 3 field seasons of experience in butterfly ecology and various other environmental projects. Charlotte has completed her Bachelor of Environmental Studies and is a candidate for a Master of Environmental Studies (2013) at the University of Waterloo. Other environmental projects Charlotte has worked on include the use of Ecological Land Classification (ELC), bat habitat assessments, breeding bird surveys and reptile studies. Charlotte is certified in the Ontario Wetland Evaluation System (2012).

Charlotte assisted in in coordinating the field work for the project, and was the main author of the NHA. Charlotte also assisted in reviewing the addendums to this project.

Kaitlin N. Powers, B.E.S
Kaitlin is a Terrestrial and Wetland Biologist with over 2 years of experience working as an environmental technician in both public and private sectors. As a graduate in Environment and Resources Studies from the University of Waterloo, Kaitlin specialized in ecological restoration and is a member of the Society for Ecological Restoration of Ontario (SERO). She is certified in Ecological Land Classification (ELC) for northeastern Ontario (2011) and in the Ontario Wetland Evaluation System (2012).

Kaitlin assisted in reviewing the changes to the Bornish Wind Energy Centre's layout and identifying necessary NHA addendums. She was also the main author of this report.

Gerry Schaus, B.A., GIS-AS

Gerry has over 4 years experience in the renewable energy sector and regularly prepares natural heritage mapping for wind, solar, and hydroelectric projects. This work includes mapping of natural features, vegetation communities, and aquatic habitats, terrestrial monitoring locations, constraints and proposed project layouts. Gerry has significant experience working with AutoCAD and (AutoCAD) Map3D.

Gerry's role in the project was as GIS technician. He reviewed and collected all available background mapping resources, digitized information gathered from site investigations, and integrated this information to generate this project's mapping.

## 3.0 Overview of Project Changes

In the time since MNR confirmation was received for the Bornish Wind Energy Centre's NHA, several minor changes have been made to this project layout, resulting in adjustments to the NHA. The types of changes made and addressed in this report include:

- distances from project components to natural features
- transmission line/cabling routes
- sizes of project component disturbance areas (i.e. point of interconnection)
- addition of a MET station

Many changes to the project layout are minor with minimal changes to the overall project area. Layout alterations that resulted in re-positioning project components <5m away from their NHA submission position, that remained within the same land use as described in the NHA, and that did not result in the inclusion of additional natural features, will be considered insignificant and not specifically addressed in this report. Likewise, changes to the layout that resulted in land no longer being included in the project area will not be discussed unless a natural feature or wildlife habitat is no longer within 120m of the project location and no longer requires consideration in the NHA.

Changes made to the Bornish Wind Energy Centre project layout are outlined and discussed in Tables 1 and 2. Figures 2-6 provide a visual overlay of the differences between the NHA submission layout and the layout presented in this addendum, with significant differences highlighted. The Bornish Wind Energy Centre project layout presented in the NHA is provided for reference in Appendix II.

Table 1. Changes to the Bornish Wind Energy Centre Layout

| Project Component | Location | Description/Rationale of Change | Closer to Features or Habitat Within 120m (Y/N) | Affected Natural Features | Reference Figure(s) |
|---|---|---|---|---|---|
| Turbines | All turbines | Footprint of turbines has changed from a circular to square shaped area to accommodate construction activities. | This change in footprint shape has resulted in small changes in the distances between project locations and natural features or habitats. No new features or habitats are included in the project area as a result of this change. | WOD-002<br>WET-002B,C<br>WOD-003<br>WET-003<br>WOD-004<br>WET-004<br>WOD-006<br>WOD-007<br>WOD-008<br>WOD-009<br>WOD-010<br>WET-010<br>WOD-012<br>WOD-014<br>WET-014<br>WOD-015<br>WOD-016<br>WOD-018<br>WET-018<br>WOD-022<br>WOD-023<br>WOD-024<br>WOD-028<br>WOD-029<br>WOD-030<br>WET-030<br>WOD-031 | 3-6 |
| Access Roads and Underground Cabling | Between T16 and T17 | Access road and cabling added between T16 and T17 (removed from between T14 and T15) | There is no new habitat or natural features included in the project area due to this new access road and cabling route. | None | 2 |

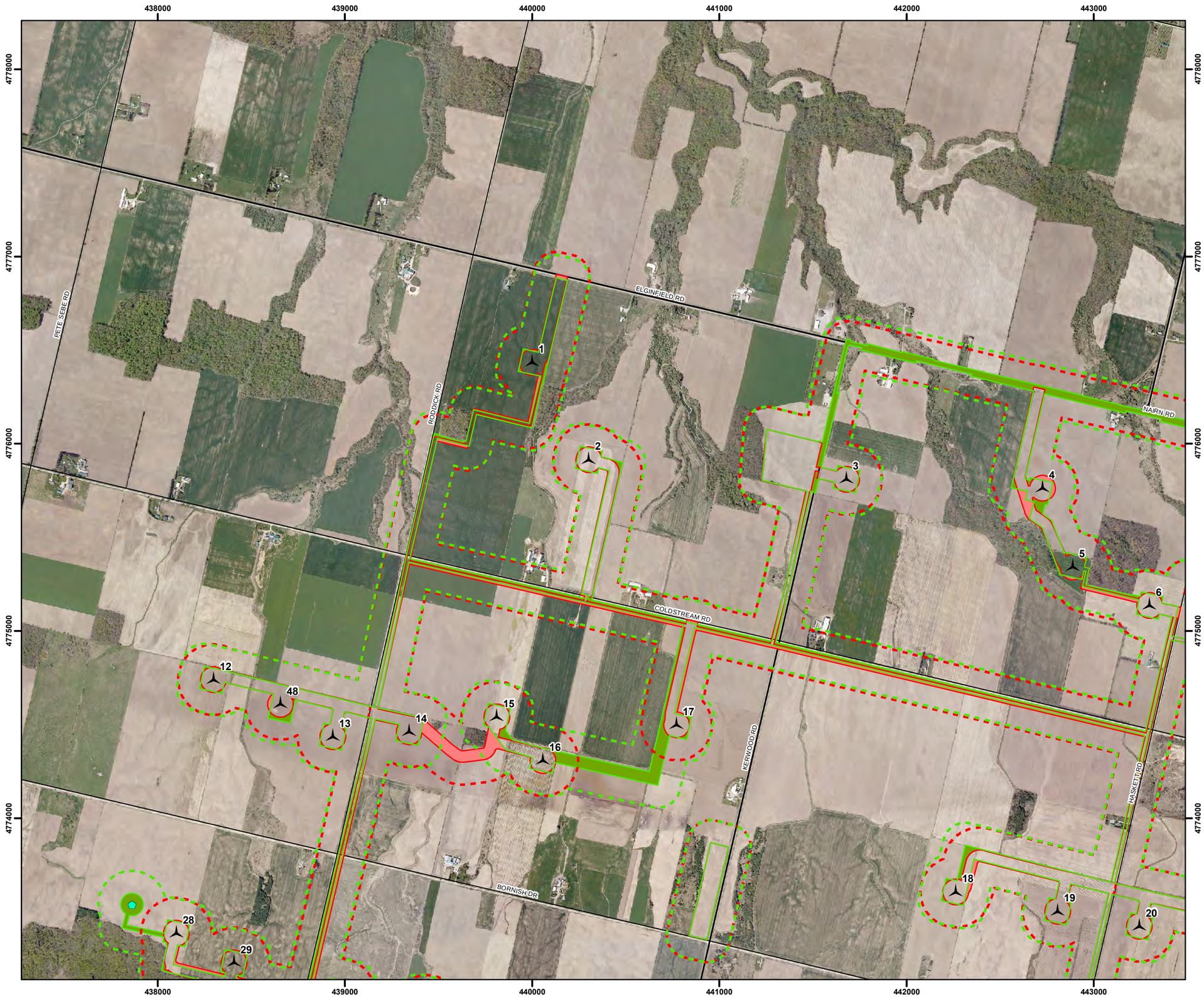
| | | | | | |
|---|---|---|---|---|---|
| | Adjacent T4 | Access road and cabling have been shifted NE towards the turbine location. | No new natural features or habitats are added to the project area. There are no changes in distances between features and project components resulting from this change. | None | 2 |
| | Adjacent T21 | Access road and cabling have been shifted NW towards the turbine location. | No new natural features or habitats are added to the project area. There are no changes in distances between features and project components resulting from this change. | None | 3 |
| | Adjacent T23 | Access road and cabling have been shifted E | This adjustment results in changes in distances between project components and natural features. There are no new natural features that overlap the project area because of this adjustment. | WOD-018<br>WET-018 | 3,5 |
| | Adjacent T24 | Access road and underground cabling has been moved S | This adjustment results in changes in distances between project components and natural features. There are no new natural features that overlap the project area because of this adjustment. | WOD-010<br>WET-010<br>WOD-003<br>WET-003 | 3,5 |
| | Along T30-T33 | Access road and cabling shifted slightly towards the S | No new natural features or wildlife habitats overlap the project area because of this adjustment. There are slight changes in distances between natural features and project components. | WOD-028 | 4 |
| | Adjacent T38 | Access road and cabling shifted slightly towards the S | No new natural features or wildlife habitats overlap the project area because of this adjustment. There are slight changes in distances between natural features and project components. | WOD-002<br>WET-002A<br>WET-002B | 5 |
| | Adjacent T47 | Access road and cabling shifted slightly towards the S | No new natural features or wildlife habitats overlap the project area because of this adjustment. There are also no resulting changes in distances between project components and natural features. | None | 5 |
| Access Roads | N of T10 | Access road area has increased slightly and now extends further towards the NE in order to accommodate construction activities. | This adjustment results in changes in distances between project components and natural features. There are no new natural features that overlap the project area because of this adjustment. | WOD-024 | 3 |
| | Adjacent T8 | Access road widened towards T8 in order to accommodate construction activities. | No new natural features or wildlife habitats overlap the project area because of this adjustment. There are also no resulting changes in distances between project components and natural features. | None | 3 |

| | | | | | |
|---|---|---|---|---|---|
| | Adjacent T43 | Access road widened on the SE corner of the turbine footprint in order to accommodate construction activities. | This adjustment results in slight changes in distances between project components and natural features. There are no new natural features that overlap the project area because of this adjustment. | WOD-014<br>WET-014<br>WOD-030<br>WET-030 | 5 |
| Underground Cabling | East of T22 | Underground cabling route has been shifted slightly towards the N. | This adjustment results in slight changes in distances between project components and natural features. There are no new natural features that overlap the project area because of this adjustment. | WOD-020 | 3 |
| Overhead Cabling | All cabling (except along Nairn Road) | Cabling has been moved closer to the roads they respectively run along but remain in the right-of-way. | This change in position has resulted in small changes in the distances between project locations and natural features or habitats. No new features or habitats are included in the project area as a result of this change. | WOD-025<br>WET-025<br>WOD-023 | 3-6 |
| | Nairn Road cabling | The project location for overhead cabling along Narin Road (and on Kerwood Road north of the substation) has been widened to include the entire right-of-way, but is still within the right-of-way. | No new natural features or wildlife habitats overlap the project area due to this change, but there are resulting changes in distances between this project component and natural features. | WOD-045<br>WOD-046<br>WOD-047<br>VAL-047<br>WOD-004<br>VAL-004<br>WOD-048 | 2,3,6 |
| MET Station | West of T28 | MET station has been added to the project layout. | The addition of this project component does not lead to the inclusion of additional natural features. WOD-006 is not within 120m of the proposed MET station, but is within 120m of the construction area proposed for underground cabling and has already been studied as part of the already submitted NHA. | WOD-006 | 2,4 |
| Point of Interconnection (POI) | North of Nairn Road near Queen Street | POI footprint shifted NW | No new natural features or wildlife habitats overlap the project area due to this change, but there are resulting changes in distances between this project component and natural features. This project component is near WOD-052, which was previously studied in the NHA. | WOD-052 | 6 |

Figure 2

# Bornish Wind Energy Centre

## Comparative Layout - Northwest




**Legend**

- New Project Area (120m Buffer)
- Previous Project Area (120m Buffer)
- New Layout
- Previous Layout
- New Footprint
- Removed Footprint
- Turbine
- MET Station
- Existing Transmission Line
- Railroad
- Primary Road
- Secondary Road

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| Project: 1231<br>Date: July 10, 2012 | NAD83 - UTM Zone 17<br>Scale: 1:20,000 (11x17") |
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0 200 400 600 800 1,000 Metres

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**Figure 3**

# Bornish Wind Energy Centre

## Comparative Layout - Northeast

**Legend**

- New Project Area (120m Buffer)
- Previous Project Area (120m Buffer)
- New Layout
- Previous Layout
- New Footprint
- Removed Footprint
- Turbine
- Existing Transmission Line
- Railroad
- Primary Road
- Secondary Road


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NAD83 - UTM Zone 17
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