

**ONTARIO ENERGY BOARD**

**IN THE MATTER OF** the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15 (Sched. B);

**AND IN THE MATTER OF** an application by Suncor Energy Products Inc. for an Order or Orders pursuant to Section 92 of the *Ontario Energy Board Act, 1998* (as amended) granting leave to construct transmission facilities in the Municipality of Lambton Shores, Lambton County, Ontario.

**APPLICATION FOR LEAVE TO CONSTRUCT**

**SUNCOR ENERGY PRODUCTS INC.**

January 21, 2014

## **EXHIBIT LIST**

**EXHIBIT LIST**

<b><u>Exh.</u></b>	<b><u>Tab</u></b>	<b><u>Sch.</u></b>	<b><u>Title</u></b>
<b>A - INDEX</b>			
A	1	1	Exhibit List
<b>B - APPLICATION</b>			
B	1	1	Application
		2	Procedural Orders, Correspondence and Notices
	2	1	Summary of the Application
		2	Description of the Applicant
		3	Project Location
		4	Maps
		5	Drawings and Illustrations
	3	1	Need for the Project
	4	1	Transmission Alternatives Considered
<b>C- PROJECT PLANNING</b>			
C	1	1	Construction and In-Service Schedule
<b>D - PROJECT DETAILS</b>			
D	1	1	Physical Design Features
<b>E - DESIGN SPECIFICATIONS AND OPERATIONAL DATA</b>			
E	1	1	Operational Details

	2	1	Codes, Standards and Other Regulatory Approvals
<b>F - LAND MATTERS</b>			
F	1	1	Land Matters
	2	1	Forms of Land Agreements
<b>G - COMMUNITY AND STAKEHOLDER CONSULTATION</b>			
G	1	1	Community and Stakeholder Consultation
<b>H - IMPACT ASSESSMENTS</b>			
H	1	1	Overview of Impact Assessments
	2	1	System Impact Assessment
	3	1	Customer Impact Assessment



**EXHIBIT B - APPLICATION**

## ONTARIO ENERGY BOARD

**IN THE MATTER OF** the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15 (Sched. B);

**AND IN THE MATTER OF** an application by Suncor Energy Products Inc. for an Order or Orders pursuant to Section 92 of the *Ontario Energy Board Act, 1998* (as amended) (the "**Act**") granting leave to construct transmission facilities in the Municipality of Lambton Shores, Lambton County, Ontario.

### APPLICATION

1. Suncor Energy Products Inc., a company incorporated under the laws of Ontario ("**Suncor**" or the "**Applicant**") is applying for leave to construct Transmission Facilities that will enable Suncor to convey electricity to the Independent Electricity System Operator ("**IESO**") controlled grid from its proposed Cedar Point II Wind Energy Project ("**Cedar Point Project**").
2. Suncor is a wholly-owned subsidiary of Suncor Energy Inc., which is a leading Canadian energy company.
3. Suncor is a leading renewable energy developer in Canada. It owns and operates six wind generation facilities in Ontario, Alberta and Saskatchewan, with total capacity of 255 MW. Two of these facilities are in Ontario, the Kent Wind Power Project and the Ripley Wind Power Project. Suncor is also developing several other wind energy generation facilities in Ontario, two of which, Cedar Point and the Adelaide Wind Power Project, have received FIT contracts.
4. Suncor is developing the 100 MW Cedar Point Project, pursuant to a FIT contract issued in July 2011 (FIT Contract F-002175-WIN-130-601). The wind turbines and the related transmission facilities are located in the Town of Plympton-Wyoming, Warwick Township, and Municipality of Lambton Shores, all in Lambton County.
5. Suncor hereby applies to the Ontario Energy Board (the "**Board**") pursuant to Section 92 of the *Ontario Energy Board Act, 1998* (the "**Act**") for an order or orders granting leave to construct the following transmission and interconnection facilities:

- (a) a collector/transformer station located on Parcel PIN 430310087, Partial Lot 8 Concession 16 Township of Bosanquet, in the Municipality of Lambton Shores, at which power from the 34.5 kV collection system, which gathers the electricity from Cedar Point wind turbines will be stepped up from 34.5 kV to 115 kV for the power transfer to the transmission line (the "**Transformer Station**");
  - (b) an approximately 15 km single circuit 115 kV transmission line (the "**Transmission Line**"), connecting the Transformer Station with a station to be built as part of NextEra's Jericho Wind Energy Centre (the "**Jericho Substation**" or "**Substation**"), the subject of an application before the Board (EB-2013-0361). The Transmission Line will connect to the high voltage side of the Substation through a 115 kV circuit breaker and related equipment, located within the Substation.
6. The Suncor facilities described in paragraph 6 are collectively referred to in this Application as the "**Proposed Transmission Facilities**".
7. Suncor further requests the approval of the Board pursuant to Section 97 of the Act for the forms of land agreements included in Exhibit F, Tab 2, Schedule 1.
8. Suncor also requests the approval of the Board pursuant to Section 101 of the Act or pursuant to the Board's powers under Section 92 of the Act for authority to construct portions of the Proposed Transmission Facilities upon, under or over a highway, utility line or ditch.
9. Suncor requires the Proposed Transmission Facilities to connect the Cedar Point Project to the IESO-controlled grid. The Proposed Transmission Facilities, together with Suncor's contractual arrangements with NextEra and its affiliates described below, will enable Suncor to supply renewable energy to the IESO-controlled grid, consistent with its obligations under the FIT contract, the objectives of the FIT Program and the renewable energy policies of the Province of Ontario.
10. Suncor will connect the Cedar Point Project to the IESO-controlled grid via the Substation. The electricity produced from the Cedar Point Project will be conveyed to the IESO-controlled grid through the Jericho Substation. The Substation, together with the Jericho Shared Transmission Facilities (the "**Jericho Facilities**"), are the subject of a section 92 application by NextEra Energy Canada, through its wholly-owned subsidiary, Jericho Wind Inc., now before the Board (the "**Jericho Application**"); EB-2013-0361. From the Jericho Substation, the electricity will be conveyed via the Jericho Facilities to the NextEra-owned Bornish TS Switching Station and then through the Shared Transmission Facilities to the Hydro One grid. The Shared Transmission Facilities are described in the Bornish Wind L.P. Kenwood Wind Inc., and Jericho Wind Inc. (all NextEra subsidiaries) Application for Leave to Construct Transmission Facilities (EB-2013-0040), which was approved by the Board on November 12 (the "**Bornish Application**"). A schematic diagram of the pathway from the Cedar Point Collection

Station to the Hydro One grid can be found at Exhibit B, Tab 2, Schedule 5 of the Application. The point of interconnection between the Cedar Point Transmission Line and the Jericho Substation is also shown and noted in the single line diagram in the Jericho Application at Exhibit B, Tab 2, Schedule 5, and discussed at Exhibit D, Tab 1, Schedule 1, page 4 of that Application. The possibility of Suncor utilizing the Shared Transmission Facilities is noted in the Bornish Application (EB-2013-0040), and the impacts of its doing so were considered and approved in the Addendum to the Customer Impact Assessment and the System Impact Assessment, included in that Application.

11. In order to secure this pathway to the Hydro One grid, Suncor has obtained an option from NextEra to interconnect with, and to utilize as licensee, the Jericho Substation, Jericho Shared Transmission Line, and the Shared Transmission Facilities. These arrangements will provide Suncor with capacity on those facilities sufficient to convey the electricity from the Cedar Point Project to the IESO-controlled grid for the term of the FIT Contract. Suncor plans to exercise that option once it has received the required approvals for its project.
12. As noted in the Bornish Application (EB-2013-0040), to accommodate the connection of the Shared Transmission Facilities to the IESO-controlled grid, Hydro One Networks Inc. ("**Hydro One**") will construct, own and operate a 500 kV switching station located on Part Lot 18, Concession 17 in the Municipality of North Middlesex (the "**Evergreen Switching Station**" or "**Evergreen SS**"), through which power from the Shared Transmission Facilities will be conveyed to Hydro One's existing 500 kV circuit B562L at a point that is adjacent to the Evergreen SS and approximately 36.5 km from Longwood TS.
13. Suncor proposes to locate the Transformer Station on privately owned lands. To this end, Suncor has secured the necessary private land rights for the proposed station.
14. Suncor will locate the entire Transmission Line on privately owned lands. Suncor has signed options to lease the required land from each landowner from whom it requires such rights.
15. Suncor received a final System Impact Assessment ("**SIA**") Report from the IESO in the form of an SIA Addendum Report on December 12, 2012 for the Cedar Point Project. The SIA Report was issued an addendum to the SIA issued for the Shared Transmission Facilities in the Bornish Application. The addendum report concludes that the proposed inclusion of the Cedar Point project in the "cluster" of generation projects is expected to have no material adverse impacts on the reliability of the integrated power system. The IESO therefore recommended that a Notification of Conditional Approval for Connection be issued. The Notification was issued to Suncor concurrently with SIA Addendum Report.
16. Suncor received a final Customer Impact Assessment ("**CIA**") Report "Addendum, Wind Energy Power Project, Adelaide/Bornish/Jericho Wind Energy Centres" on June 8, 2012

from Hydro One in respect of the Proposed Transmission Facilities. This report concludes that electricity from the Cedar Point generation facilities can be conveyed to the IESO-controlled grid through the proposed Transmission Facilities and the Shared Transmission Facilities without adverse impacts on area customers. The CIA Report was issued in the form of an Addendum to the previously issued (in the Bornish Application) Customer Impact Assessment for the Shared Transmission Facilities.

17. The Cedar Point Project is subject to the requirements of the Renewable Energy Approval (“**REA**”) process set out in Ontario Regulation 359/09 to the *Environmental Protection Act*. The final REA package was submitted by Suncor to the Ministry of the Environment on April 16, 2013. The application was deemed complete on December 5, 2013. Based on the Ministry’s six-month service guarantee, Suncor anticipates that the REA will be issued in the second quarter of 2014.
18. Suncor has carried out a comprehensive stakeholder consultation program as part of the REA process. Throughout these consultations, Suncor has provided notices and information to potentially interested stakeholders, including the public, affected landowners, municipalities, and aboriginal communities, and held public meetings at which Suncor received feedback and information from stakeholders. Suncor has taken this input into consideration in planning and designing the Proposed Transmission Facilities.
19. Subject to receipt of the REA approval, as well as other necessary permits and approvals, Suncor plans to commence construction of the Proposed Transmission Facilities in September 2014. Construction is expected to take approximately seven months to complete. The Proposed Transmission Facilities would then be commissioned and be placed in service in May 2015.
20. Since the cost of the Proposed Transmission Facilities will be borne by Suncor, the Proposed Transmission Facilities will not affect electricity transmission rates in Ontario.
21. The evidence in support of this Application has been prepared in accordance with the requirements set out in Chapter 4 of the Board’s *Minimum Filing Requirements for Transmission and Distribution Rate Applications and Leave to Construct Projects*, as amended May 17, 2012.
22. Suncor requests that copies of all documents filed with or issued by the Board in connection with this Application be served on Suncor and Suncor’s counsel as follows:
  - (a) Suncor:  
Suncor Energy Products Inc.  
P.O. Box 38  
112-4<sup>th</sup> Avenue S.W.  
Calgary, Alberta  
T2P 2V5

Attention: Mr. Chris Brett  
Tel: (403) 296-7125  
Fax: (403) 724-3626  
Email: [chbrett@suncor.com](mailto:chbrett@suncor.com)


(b) Suncor's Counsel:  
Fogler, Rubinoff LLP  
P.O. Box 95  
3000-77 King Street West  
Toronto, Ontario  
M5K 1G8

Attention: Mr. Tom Brett  
Tel: (416) 941-8861  
Fax: (416) 941-8852  
Email: [tbrett@foglers.com](mailto:tbrett@foglers.com)

23. Additional written evidence, as required, may be filed in support of this Application, which may be amended from time to time prior to the Board's final decision.
24. Suncor requests that the Board proceed by way of written hearing, pursuant to Section 34.01 of the Board's *Rules of Practice and Procedure*.

Dated at Toronto, Ontario, this 21<sup>st</sup> day of January, 2014.

**SUNCOR ENERGY PRODUCTS INC.**  
**By their counsel, Fogler, Rubinoff LLP**

  
\_\_\_\_\_  
Tom Brett

**Exhibit B, Tab 1, Schedule 2**  
**Procedural Orders, Correspondence, and Notices**

**PROCEDURAL ORDERS, CORRESPONDENCE & NOTICES**

This tab is provided as a placeholder for any Procedural Orders, correspondence and notices that may be filed in connection with the Application



**Exhibit B, Tab 2, Schedule 1  
Summary of the Application**

## SUMMARY OF THE APPLICATION

### 1. **The Applicant**

Suncor Energy Products Inc. ("**Suncor**") is the owner of the project. Suncor is applying for leave to construct the Proposed Transmission Facilities that will enable Suncor to convey electricity from its proposed Cedar Point Project to the Independent Electricity System Operator ("**IESO**") controlled grid. It will do this by conveying the electricity to the Jericho Substation, from which it will be conveyed through the Jericho Shared Transmission Line and NextEra's Shared Transmission Facilities to the IESO-controlled grid. NextEra's Bornish Application, which described the Shared Transmission Facilities, was recently approved by the Board (EB-2013-0040). NextEra's Jericho Wind, Inc.'s Application (EB-2013-0361), which seeks approval for, inter alia, the Jericho Substation and the Jericho Shared Transmission Facilities, which will connect the Jericho generation facilities to NextEra's Shared Transmission Facilities is currently before the Board. A line diagram, showing the locations of the Cedar Point Project, the Jericho Project, and the facilities that are the subject of the Bornish Application, can be found at Attachment 1.

### 2. **Approvals Sought**

In the Application, Suncor is applying to the Ontario Energy Board (the "**Board**") pursuant to Section 92 of the *Ontario Energy Board Act, 1998* (the "**Act**") for an order or orders granting leave to construct the following transmission and interconnection facilities:

- (a) a Transformer Station, located on Parcel PIN 430310087 Partial Lot 8 Concession 16 Township of Bosanquet, in the Municipality of Lambton Shores, Lambton County, at which power from the 34.5 kV collection system, which gathers the electricity from Cedar Point Project will be stepped up from 34.5 kV to 115 kV for the power transfer to the Transmission Line;
- (b) approximately 15 km single circuit 115 kV Transmission Line, connecting the Transformer Station to the high voltage side of the Jericho Station;
- (c) approval of the Board pursuant to Section 97 of the Act for the forms of land agreements included in Exhibit F, Tab 2, Schedule 1;
- (d) approval of the Board either pursuant to Section 101 of the Act or pursuant to the Board's powers under Section 92 of the Act for authority to construct portions of the Proposed Transmission Facilities upon, under or over a highway, utility line or ditch, as further described in Exhibit F, Tab 1, Schedule 1.

3. Suncor is an indirect subsidiary of Suncor Energy Inc., a leading Canadian energy company.

Suncor is developing the Cedar Point Project, located approximately 20 miles northeast of Sarnia. Suncor has been developing this project since 2006. The project will consist of up to 46 wind turbines, with up to 100 MW capacity, electrical collection stations, meteorological towers, access roads, temporary construction facilities, the Transformer Station, and the Transmission Line.

The Transformer Station and the Transmission Line are the subject of this application. These facilities are collectively referred to as the Proposed Transmission Facilities.

#### 4. **Need for the Project**

In July 2011, the OPA awarded Suncor a contract under the FIT Program in respect of the Cedar Point Project for 100 MW of electricity (FIT Contract F-002175-WIN-130-601). The Proposed Transmission Facilities are needed to enable electricity to be conveyed from the Cedar Point Project to the IESO-controlled grid. The electricity will be conveyed to the Jericho Station, through the Jericho Shared Transmission Line and the Shared Transmission Facilities to the IESO Grid, as described above. Suncor has options to licence capacity on each of the Jericho Shared Transmission Facilities and the Shared Transmission Facilities for the term of the FIT Agreement. As the development of the projects promotes the use of renewable energy sources in a manner consistent with the policies of the Government of Ontario, Suncor's Proposed Transmission Facilities are in the public interest pursuant to paragraph 96(2)2 of the Act.

#### 5. **Description of the Project**

The Cedar Point Project will consist of up to 46 Siemens SWT 2.3-113 MW wind turbine generators, for a total installed capacity of up to 100 MW, on privately-owned agricultural lots in the Town of Plympton-Wyoming, the Municipality of Lambton Shores and Warwick Township, all within Lambton County, Ontario.

Suncor has options to lease the properties on which it proposes to locate the Transmission Line. The Transmission line starts at Suncor Cedar Point Substation and runs north for approximately 425m. The line then travels East approximately 950m to Fuller road where it travels 200m North and then turns East, crosses Fuller Road and travels to the back lot line (approximately 1000m). The Transmission line then turns North and travels north along the back of several parcels (sometimes referred to herein as "**private lands**") for approximately 1000m, crossing Proof Line at approximately 1000m. After crossing Proofline the Line then turns East and travels along the edge of parcels for approximately 1000m to Rawlings Road where it turns North and travels along Rawlings Road for approximately 800m. The line turns East, crosses Rawlings Road and then continues East for approximately 1400m. The Line turns North and crosses two parcels until Thompson Line where it turns East. The Transmission Line then travels east, on lots adjacent to and parallel to Thompson Line for approximately 2600m. At Army Camp Road the Transmission Line turns North along and travels parallel to Army Camp Road for 420m at which point it turns East and crosses Army Camp Road and continues along private lot boundaries for 2600m,

crossing Jericho Road at approximately 2000m. The Line then turns South for approximately 425m to Thompson Line where it turns East and travels parallel to Thompson Line on private land for approximately 375m where it turns South and crosses Thompson Line onto the parcel where the Jericho Substation is located. A map of the route is provided at Exhibit B, Tab 2, Schedule 4.

## **6. Community and Stakeholder Consultations**

Suncor has carried out a thorough stakeholder consultation, primarily as part of the REA process. Suncor has consulted with the public, affected municipalities, potentially affected Aboriginal communities and relevant provincial and federal regulatory authorities. Suncor has provided notices and information to potentially interested stakeholders and held a number of public meetings at which Suncor received feedback and information from stakeholders. Suncor has taken this input into consideration in planning and designing the Proposed Transmission Facilities.

## **7. Construction and In-Service Schedule**

Subject to receipt of the REA, as well as other necessary permits and approvals, the Applicants plan to commence construction of the Proposed Transmission Facilities in September 2014. Construction is expected to take approximately seven months to complete. The Proposed Transmission Facilities would be placed in-service in June 2015.

## **8. Impact Assessments**

Suncor received a final System Impact Assessment (“SIA”) Report, as an SIA Addendum Report on December 12, 2012 for the Cedar Point Project. This report concluded that the proposed connection of the Cedar Point Project to the shared transmission facilities, approved by the IESO in a SIA dated June 4, 2012, is expected to have no material adverse impacts on the reliability of the integrated power system. The IESO therefore recommended that a Notification of Conditional Approval for Connection be issued. The Notification was issued to Suncor concurrently with SIA Addendum Report. These reports are found at Exhibit H, Tab 2, Schedule 2.

Suncor received a final Customer Impact Assessment (“CIA”) Report on June 8, 2012 from Hydro One in respect of the Proposed Transmission Facilities. This report concludes that electricity from the Cedar Point generation facilities can be conveyed to the IESO-controlled grid through the proposed Transmission Facilities and the Shared Transmission Facilities without adverse impacts on area customers. The CIA Report was issued in the form of an Addendum to the previously issued Customer Impact Assessment for the Shared Transmission Facilities. These reports are found at Exhibit H, Tab 3, Schedule 1.

## 8. **Other Approvals**

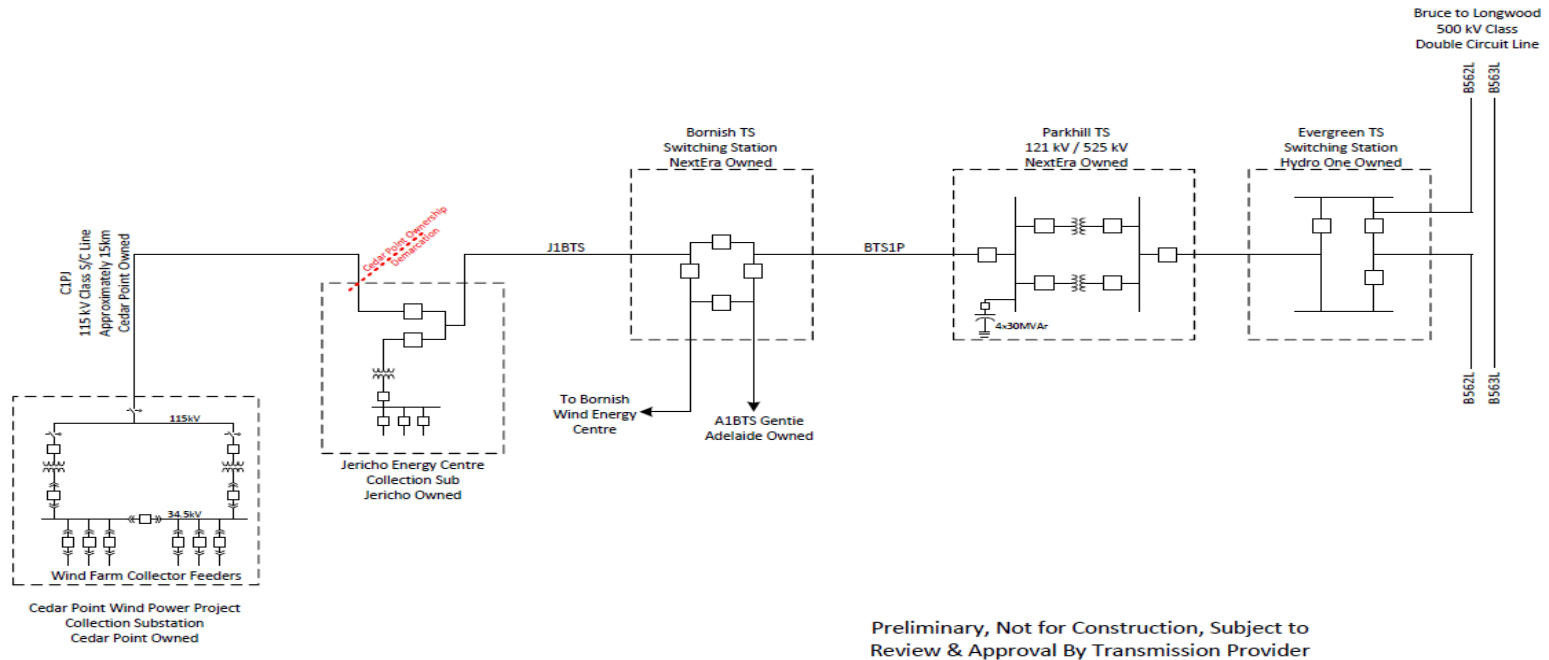
A list of all approvals required or potentially required for the Proposed Transmission Facilities is provided in Exhibit E, Tab 2, Schedule 1. Of particular note, Suncor filed its Renewable Energy Approval application with the Ministry of the Environment on April 16, 2013. The application was deemed complete on December 5, 2013. Based on the Ministry's six-month service guarantee, Suncor anticipates that the REA will be issued in the second quarter of 2014. The Renewable Energy Approval will include the Proposed Transmission Facilities.

## 9. **Project Costs**

The costs of the Proposed Transmission Facilities will be borne by Suncor and, as such, the Proposed Transmission Facilities will not affect electricity transmission rates in Ontario.

**ATTACHMENT 1**  
**Line Diagram**

**Cedar Point Wind Power Project (100MW)**  
**Conceptual One Line Diagram**



Preliminary, Not for Construction, Subject to Review & Approval By Transmission Provider

**Exhibit B, Tab 2, Schedule 2  
Description of the Applicant**

## **DESCRIPTION OF THE APPLICANT**

Suncor Energy Products Inc. ("**Suncor**") is a corporation incorporated under the laws of Ontario and is a wholly-owned subsidiary of Suncor Energy Inc., a Canadian corporation.

Suncor develops, owns and operates renewable generation projects in Canada.



**Exhibit B, Tab 2, Schedule 3  
Project Location**

## **PROJECT LOCATION**

The Proposed Transmission Facilities are being developed to enable electricity from the Cedar Point Wind Project to be transmitted to the IESO-controlled grid. The discussion below is focused on the location of the Proposed Transmission Facilities. We also describe, for clarity, the locations of proposed facilities that will be located between the Cedar Point Project and the IESO-controlled grid, the Jericho Substation, the Jericho Shared Transmission Line, and the Shared Transmission Facilities. These facilities will be owned, constructed and operated by NextEra through its subsidiaries and related entities.

### **1. The Generation Projects**

The Cedar Point Project is located in southwestern Ontario, approximately 20 miles northeast of Sarnia. The general location of the Proposed Transmission Facilities is presented in Figure 1 of Exhibit B, Tab 2, Schedule 4.

### **2. The Proposed Transmission Facilities**

As noted above, the main components of the Proposed Transmission Facilities are the Transformer Station, and the Transmission Line.

#### **(a) The Transformer Station**

The Transformer Station will be located at Parcel PIN 430310087, Partial Lot 8 Concession 16 Township of Bosanquet in the Municipality of Lambton Shores, as shown in Figure 1 of Exhibit B, Tab 2, Schedule 4. The purpose of the Transformer Station is to collect the electricity from the wind turbines, and step-up the voltage of the 34.5 kV collector system to the 115 kV Transmission Line voltage. The Transformer Station will contain two transformers, each will have a nominal voltage rating of 115 kV/34.5 kV. Other standard ancillary equipment, including circuit breakers, buswork, outdoor switches, surge protectors, instrument transformers, protection and control equipment, and telecommunication equipment will also be installed at the site. The station will have an area of approximately 23,600 square meters.

#### **(b) The Transmission Line**

An approximately 15 km single circuit 115 kV transmission line (the "**Transmission Line**") will run from the Transformer Station to the Jericho Substation. The Transmission Line will connect to the high voltage side of that Substation.

As noted above, in addition to flowing through the Proposed Transmission Facilities for which Suncor is seeking approval in this Application, the electricity from the Cedar Point Project will flow through the Jericho Substation and the Jericho Shared Transmission Line, which will be owned by Jericho Wind Inc., a subsidiary of NextEra, for which a section 92 application was recently filed with the Board (EB-2013-0361). It will then flow through the Shared Transmission Facilities, jointly owned by three NextEra subsidiaries, and a step up transformer jointly owned by the same three entities (EB-2013-0040), to enter the Hydro One grid at the Evergreen Switching Station. NextEra's Shared Transmission Facilities application (the "Bornish Application") was recently approved by the Board (EB-2013-0040).

For convenience, Suncor has included in Attachment 1, two paragraphs from the Bornish Application (EB-2013-0040; Ex B, Tab 2, Sch 3, pp3-4), which describes the interconnection between the Shared Transmission Facilities and the Hydro One Transmission Line.

## **ATTACHMENT 1**

### **Parkhill Customer Transformer Station**

The Joint Transmission Facilities will connect to a 500 kV transformer station that will be located on Part Lot 18, Concession 17 in the Municipality of North Middlesex (the “**Parkhill Customer Transformer Station**” or “**Parkhill CTS**”), as shown in Figures 1 and 2(j) of Exhibit B, Tab 2, Schedule 4. Parkhill CTS will have an area of approximately 13 acres. At the Parkhill CTS, electricity transmitted from the Bornish CSS along the Transmission Line will be transformed from 115 kV to 500 kV by means of two 500/115 kV 135/180/225 MVA transformers. The Parkhill CTS will be jointly owned by the Co-owners (all subsidiaries of NextEra) as tenants in common. (our addition)

### **Hydro One Transmission Facilities**

NextEra's Parkhill Customer Transformer Station will be connected to a new 500 kV switching station that will be constructed, owned and operated by Hydro One on Part Lot 18, Concession 17 in the Municipality of North Middlesex (the “**Evergreen Switching Station**” or “**Evergreen SS**”), as shown in Figures 1 and 2 (j) of Exhibit B, Tab 2, Schedule 4. The Evergreen SS will include a 500 kV 3-breaker ring bus that will split Hydro One's existing 500 12 kV circuit B562L from Bruce A TS to Longwood TS into two sections: Bruce A TS x Evergreen 13 SS and Evergreen SS x Longwood TS. This sectionalizing will occur approximately 36.5 km from Longwood TS, near tower #563 on Hydro One's existing circuit B562L. Evergreen SS will be located adjacent to the proposed Parkhill CTS and to Hydro One's existing transmission ROW for circuit B562L. The Evergreen Switching Station is ancillary to and does not form part of NextEra's Proposed Transmission Facilities.

**Exhibit B, Tab 2, Schedule 4  
Maps**

**MAPS**

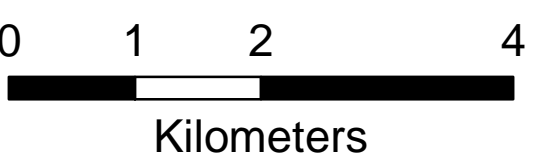
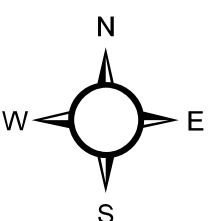
- (1) General Project Location Maps.
- (2) Proposed Transmission Facilities.
- (3) Transmission Plan and Profile.



Cedar Point Interconnection Route

Legend

- Existing HONI Transmission Lines
- Suncor Transmission Lines
- NetEra Transmission Lines



Date created: 1/9/2014

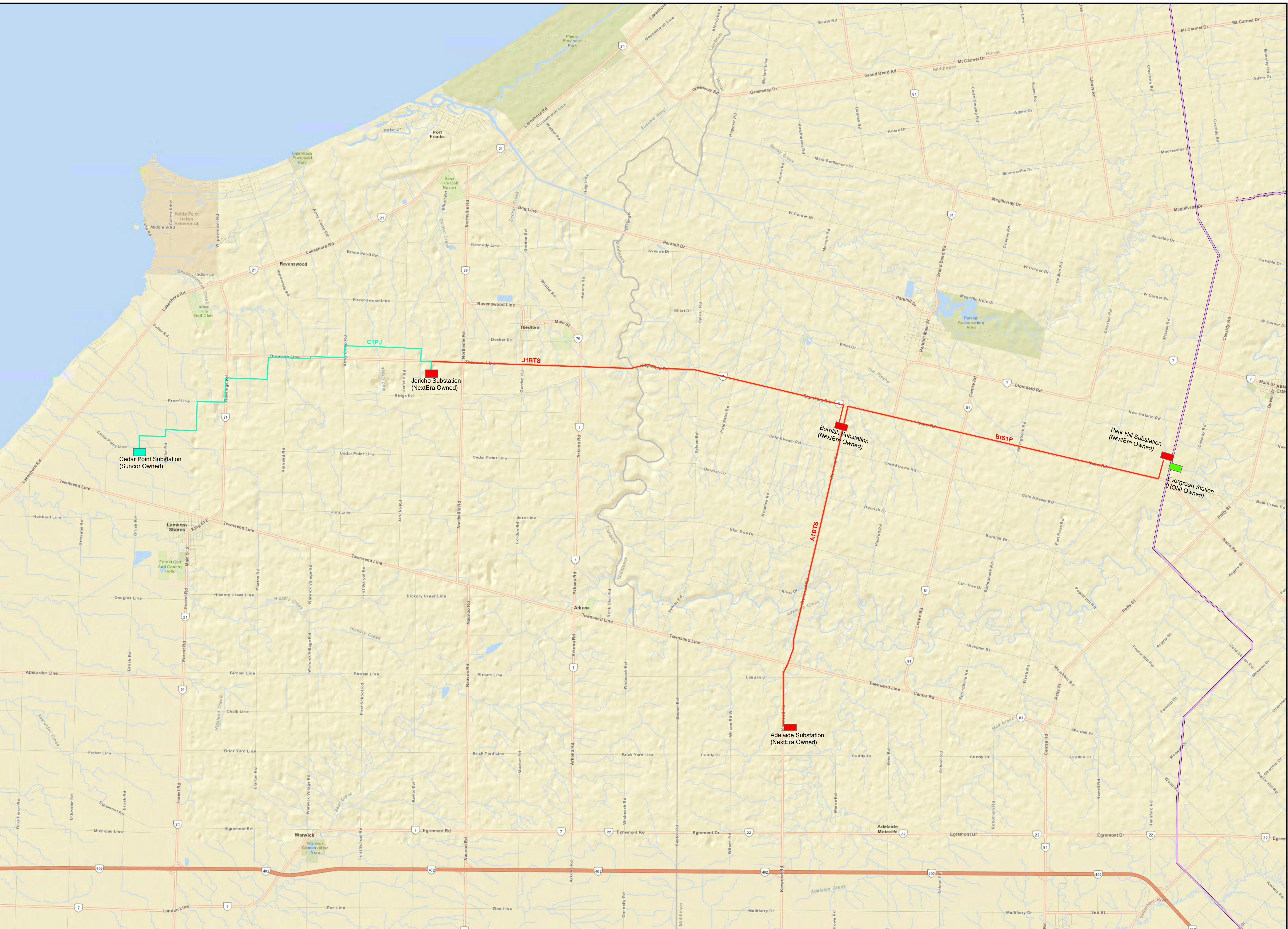
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Notes:  
Route information provided as general routing for informational purposes only.  
Not exact and subject to change.

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Projection: Transverse Mercator  
Datum: North American 1983



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The boundaries and locations on this map are approximate and subject to change.





Cedar Point Interconnection Route

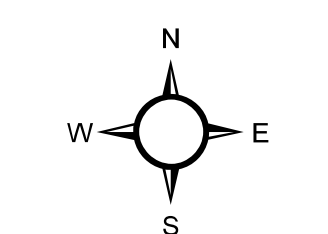
Route Tile 1

**Legend**

- Map Tiles
- Suncor Transmission Lines
- NetEra Transmission Lines
- Jericho Substation Area
- Cedar Point Substation

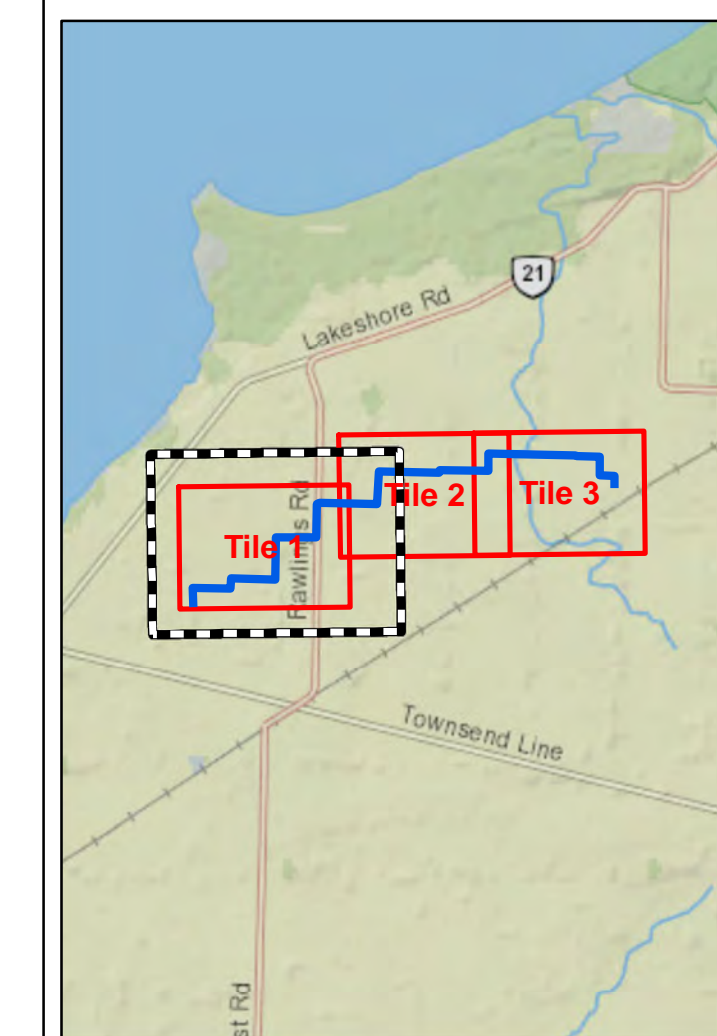
**Suncor Turbine Locations**

- Suncor Turbine Locations
- Suncor Project Lands
- Parcel Information
- Pin Fabric

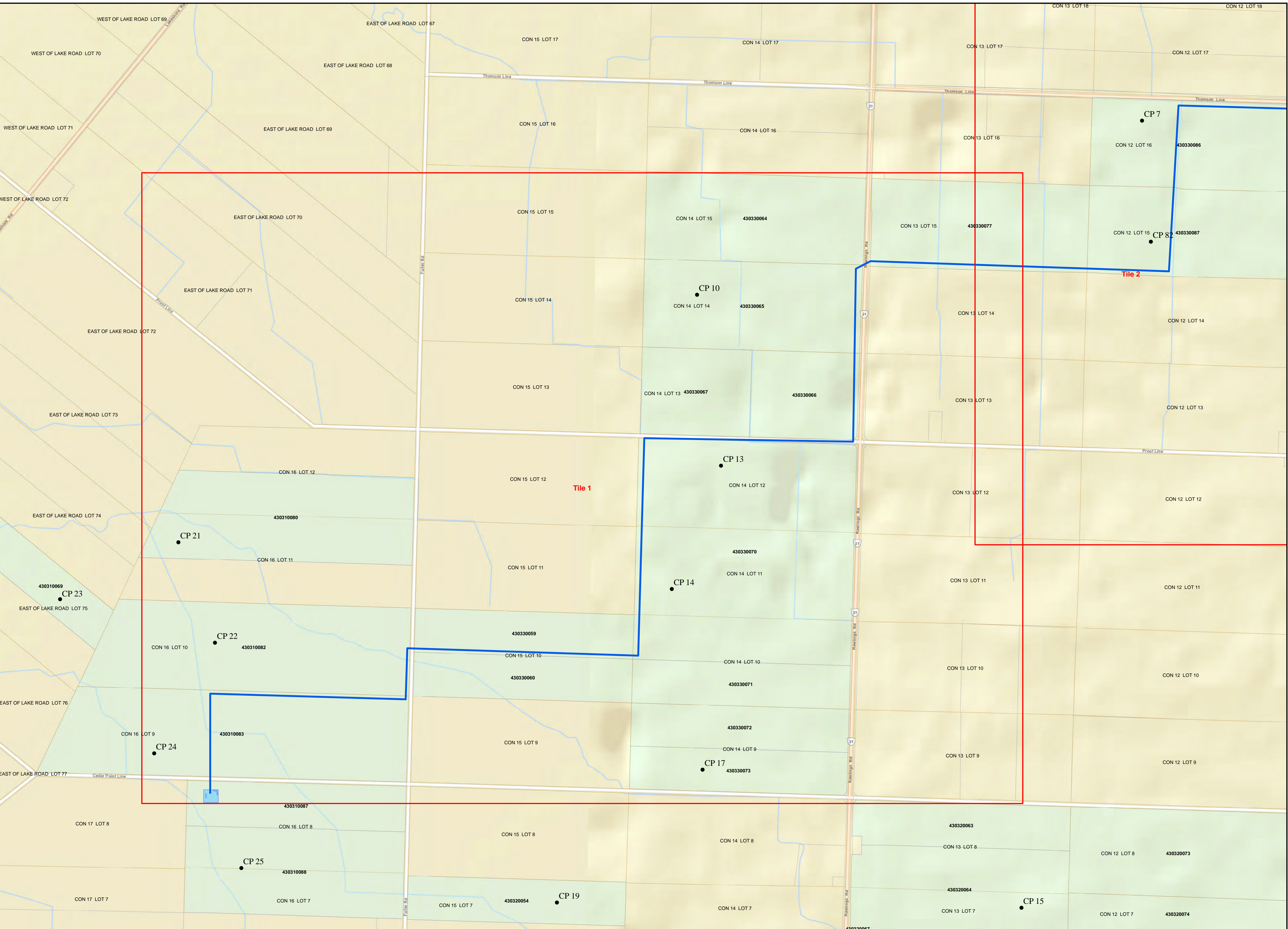


Date created: 1/9/2014
Scale: 1:8,000
Notes: Route information provided as general routing for informational purposes only. Not exact and subject to change.

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Coordinate: NAD 1983 UTM Zone 17N  
Projection: Transverse Mercator  
Datum: North American 1983



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The boundaries and locations on this map are approximate and subject to change.



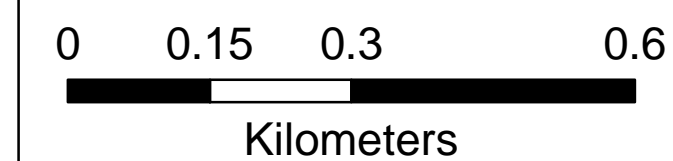
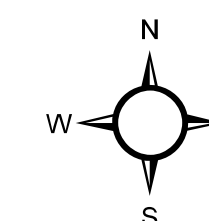


Cedar Point Interconnection Route

Route Tile 2

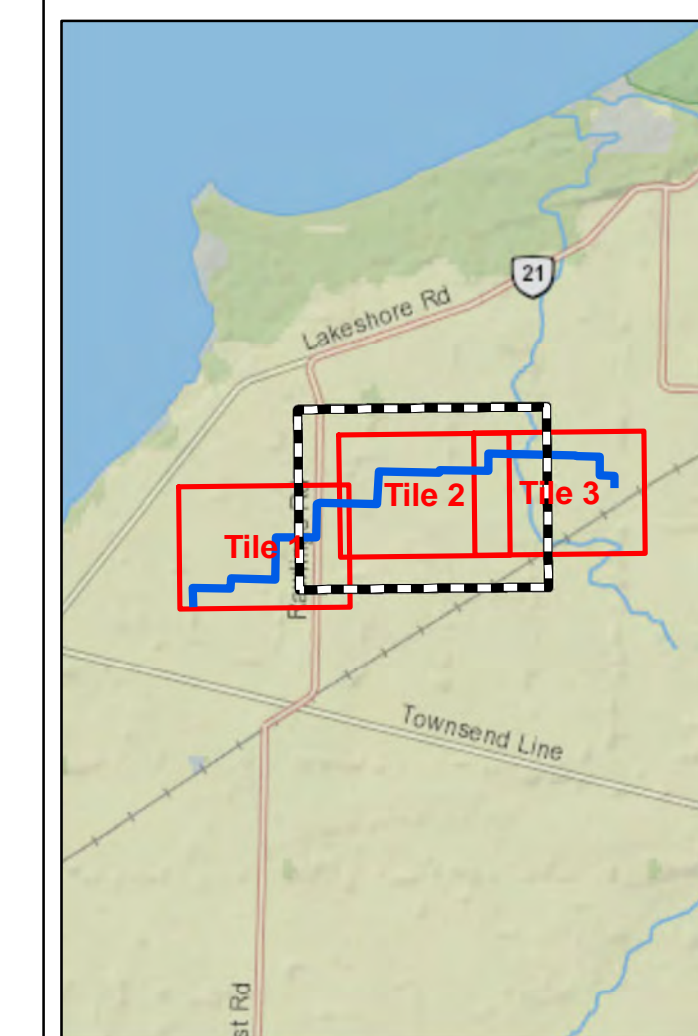
**Legend**

- Map Tiles
- Suncor Transmission Lines
- NetEra Transmission Lines
- Jericho Substation Area
- Cedar Point Substation
- Suncor Turbine Locations**
- Suncor Turbine Locations
- Suncor Project Lands
- Parcel Information
- Pin Fabric

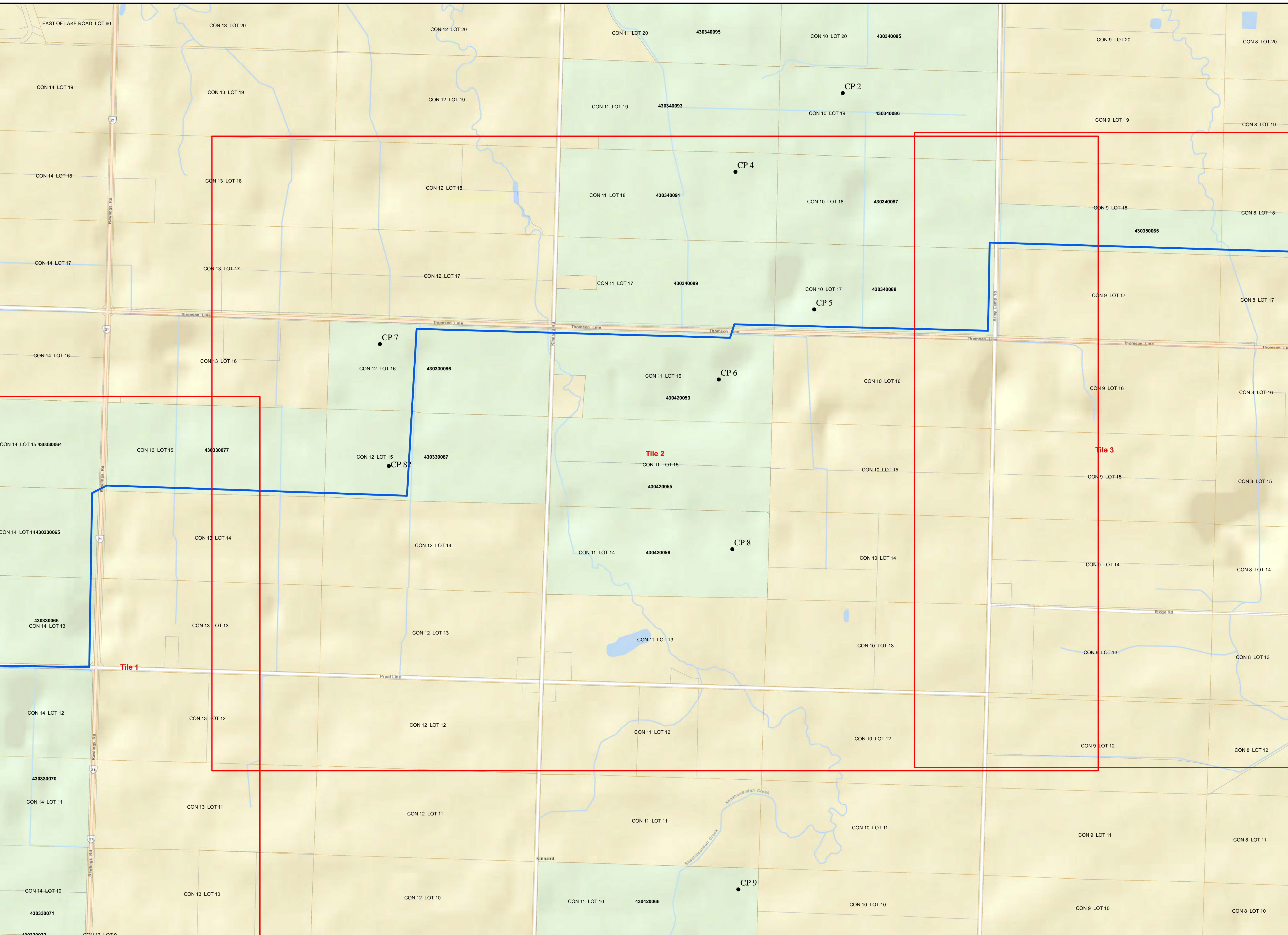


Date created: 1/9/2014  
 Scale: 1:8,000  
 Notes:  
 Route information provided as general routing for informational purposes only.  
 Not exact and subject to change.

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 Coordinate: NAD 1983 UTM Zone 17N  
 Projection: Transverse Mercator  
 Datum: North American 1983



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 The boundaries and locations on this map are approximate and subject to change.



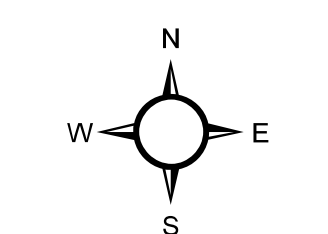


Cedar Point Interconnection Route

Route Tile 3

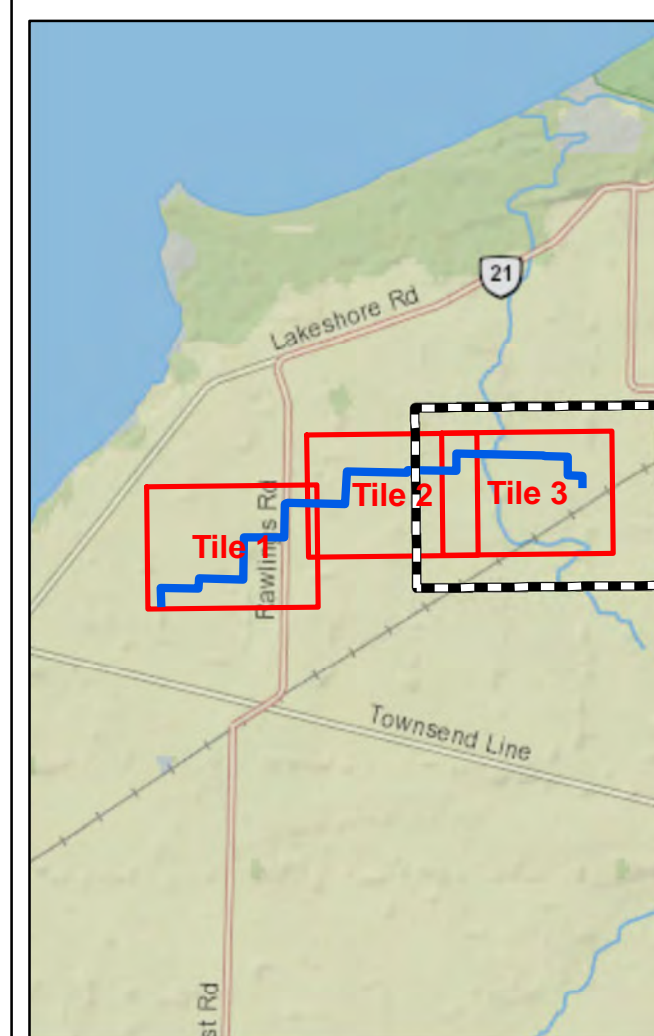
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- Map Tiles
- Suncor Transmission Lines
- NetEra Transmission Lines
- Jericho Substation Area
- Cedar Point Substation
- Suncor Turbine Locations**
- Suncor Turbine Locations
- Suncor Project Lands
- Parcel Information
- Pin Fabric

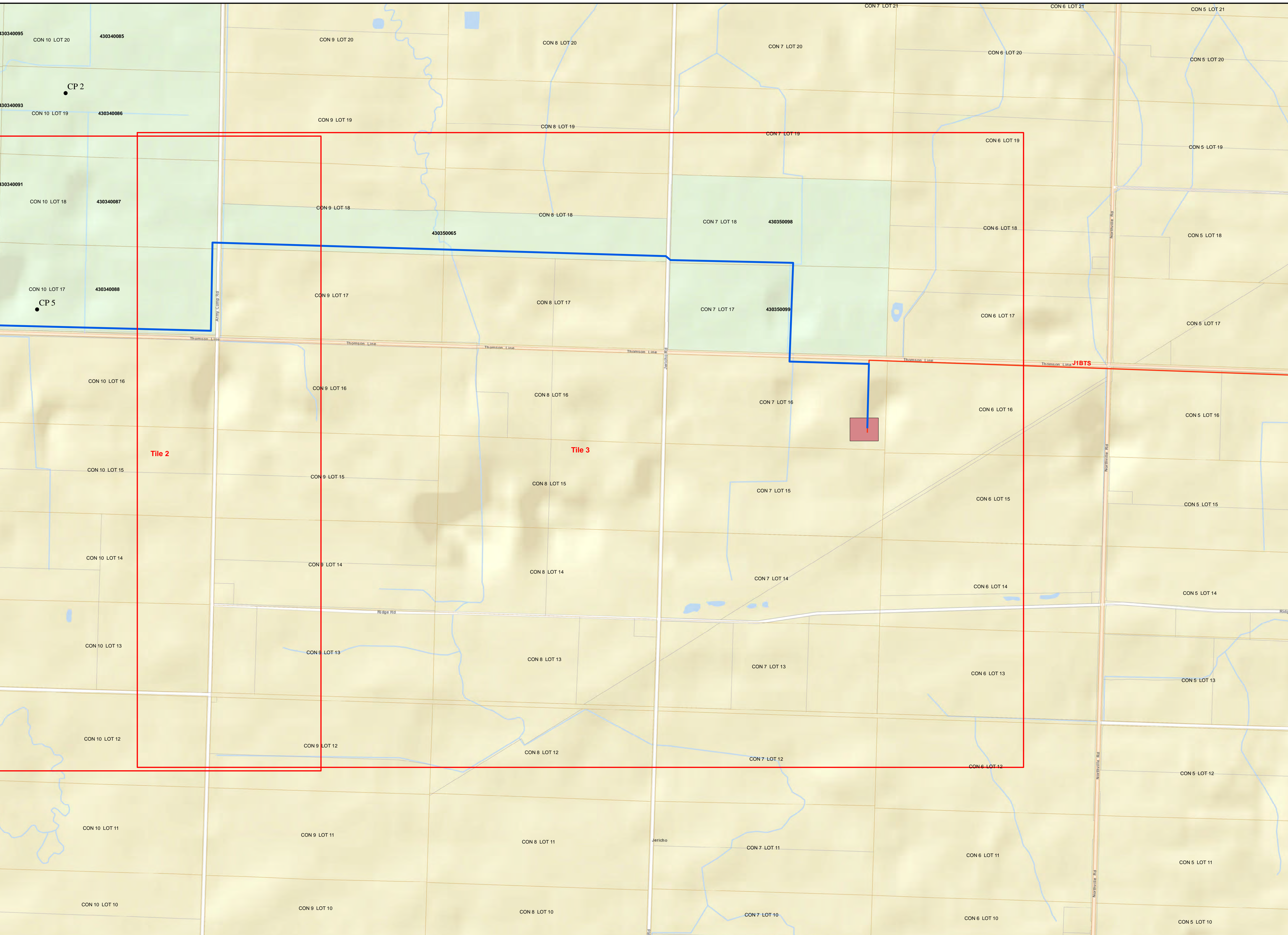


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 Route information provided as general routing for informational purposes only.  
 Not exact and subject to change.

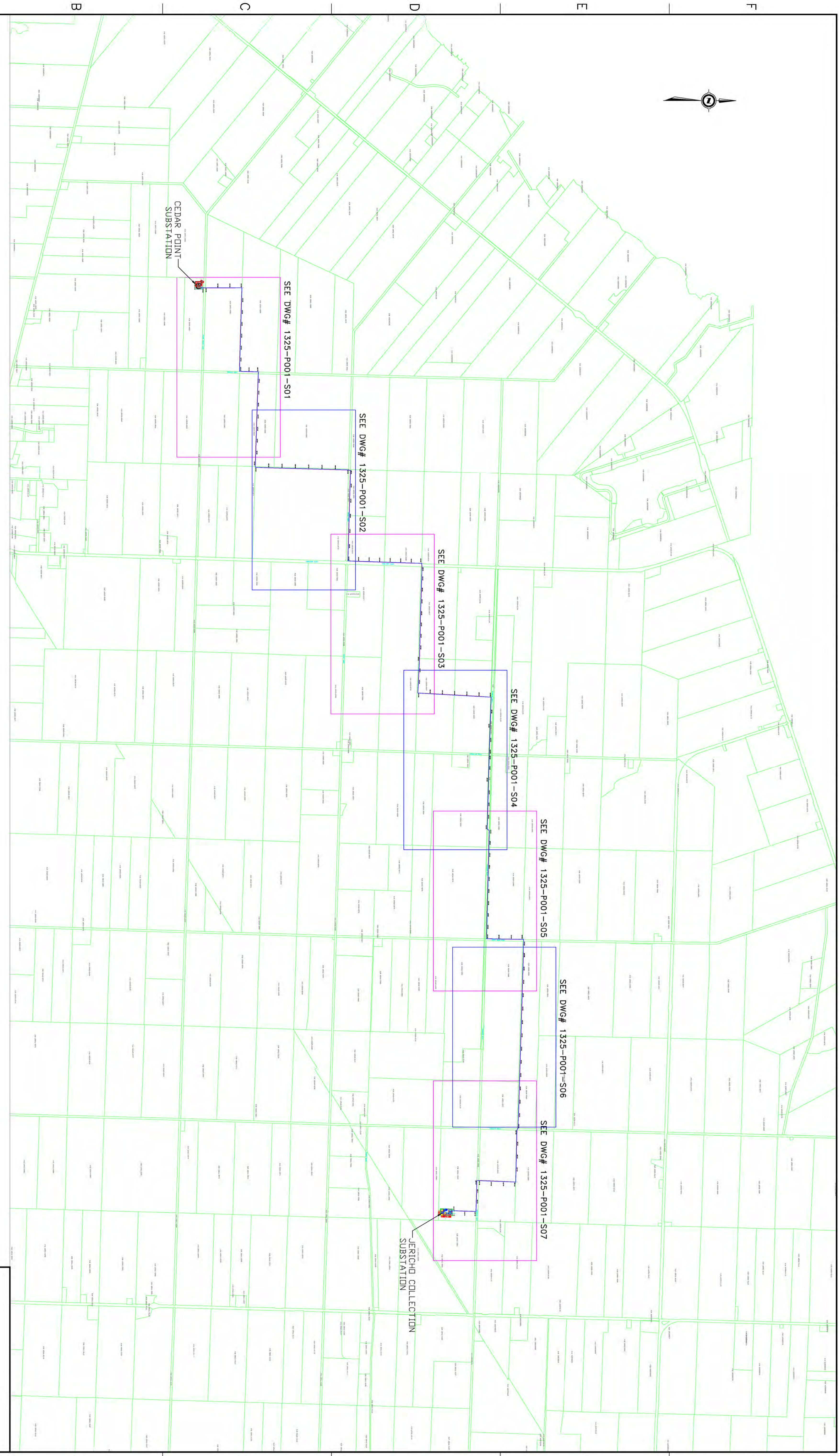
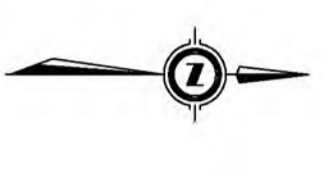
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 Coordinate: NAD 1983 UTM Zone 17N  
 Projection: Transverse Mercator  
 Datum: North American 1983



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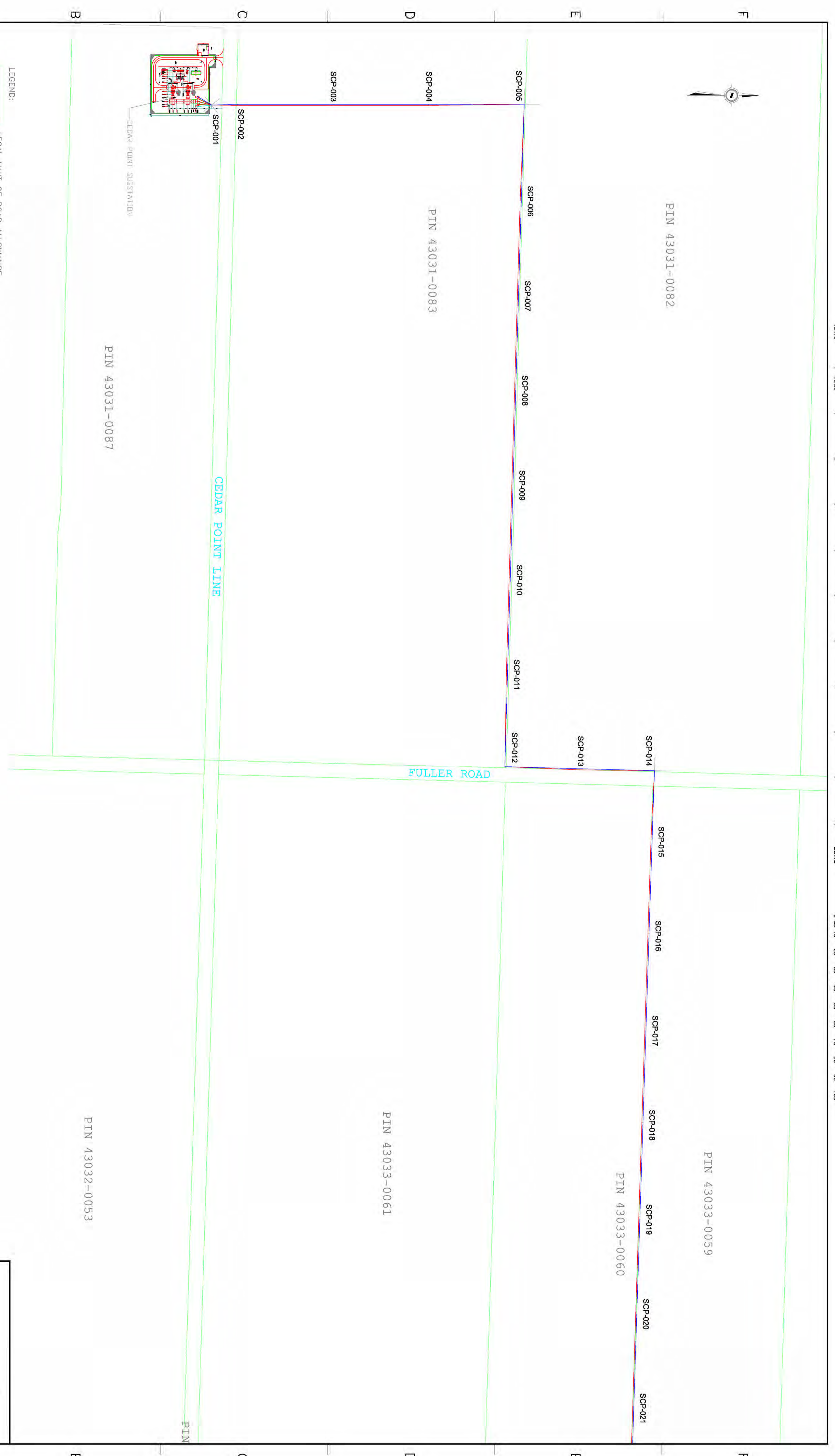
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 3500 Rockwell Blvd., Suite 606  
 Alexandria, VA 22304  
 703.428.0400  
 Email: sales@chimax.com

9 8 7 6 5 4 3 2 1  
 A B C D E F





- LEGEND:
- LEGAL LIMIT OF ROAD ALLOWANCE
  - PROPOSED TRANSMISSION STRUCTURE
  - PROPOSED 115KV CLASS TRANSMISSION CONDUCTOR
  - PROPOSED OPGW / SHIELDWIRE

REV.	D/W/Y	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION	REV.	CHK.	APP.	ISS.	D/W/Y	ISSUED FOR	REV.	NUMBER	TITLE
A	15/01/2014	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				A	15/01/2014	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION			

STAMP/SEAL
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CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
PROJECT NO.	ACTIVITY NO.	AREA
SCALE	PACKAGE CODE	SUBJECT
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		CEDAR POINT WIND PROJECT
		SUNCOR ENERGY

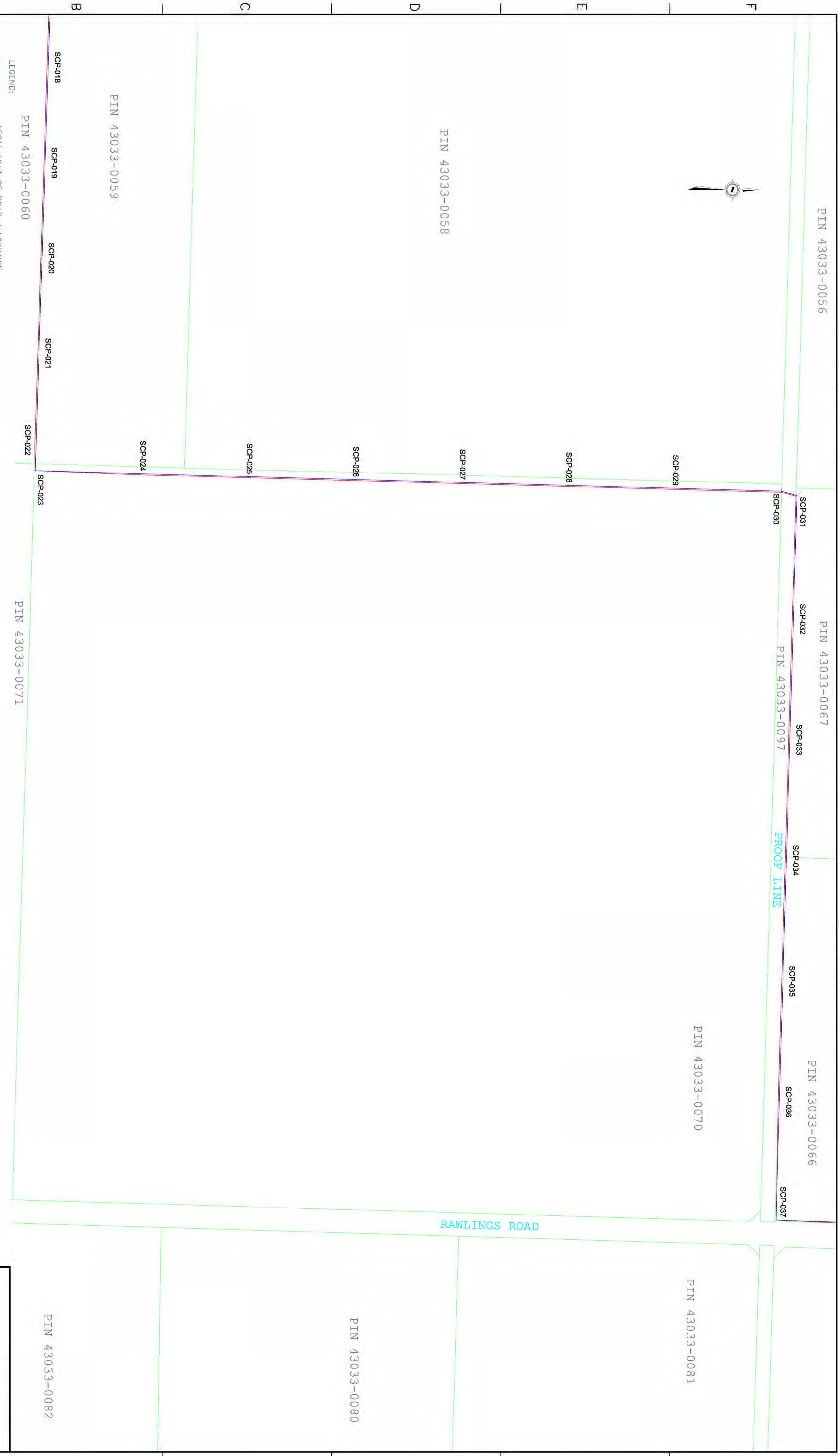
**Chimax Inc.**  
2500 Rouseaux Blvd., Suite 400  
Markham, ON L3R 0A9  
Canada 416-490-8888

CLIENT DWG. NO.

DRAWING NO.  
1325-P001-S01

REV.	A
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- LEGEND:
- LEGAL LIMIT OF ROAD ALLOWANCE
  - PROPOSED TRANSMISSION STRUCTURE
  - PROPOSED 115KV CLASS TRANSMISSION CONDUCTOR
  - PROPOSED OPGW / SHIELDWIRE

REV. D/M/Y	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION	REV. D/M/Y	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION	REV. D/M/Y	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION
9		8		7	
6	REV. D/M/Y	5	REV. D/M/Y	4	REV. D/M/Y
3	REV. D/M/Y	2	REV. D/M/Y	1	REV. D/M/Y

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.	AREA	SUBJECT	CLIENT DWG. NO.
PROJECT NO.	ACTIVITY NO.	PROJECT MGR.	SUNCOR ENERGY	CEDAR POINT WIND PROJECT	1325-P001-S02
SCALE	PACKAGE CODE	BY	DATE		
NIS		DRN	14/01/14		
		CHK	14/01/14		
		APP			

STAMP/SEAL	REFERENCES	TITLE
		10CT 115KV TRANSMISSION LINE OVERALL SITE PLAN DRAWINGS SHEET 2

DRAWING NO.	REV.
1325-P001-S02	A























- LEGEND:
- LEGAL LIMIT OF ROAD ALLOWANCE
  - PROPOSED TRANSMISSION STRUCTURE
  - PROPOSED 115KV CLASS TRANSMISSION CONDUCTOR
  - PROPOSED OPGW / SHIELDWIRE

REV.	D/M/Y	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION	REV.	CHK.	LAPP.	APP.	ISS.	D/M/Y	APP.	ISSUED FOR	REF. NUMBER	TITLE
A	15/01/2014	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION	DR	CHK	LAPP	APP	ISS	15/01/2014	APP	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION		

STAMP/SEAL
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CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.
PROJECT NO.	ACTIVITY NO.	SCALE
PACKAGE CODE	DRN	CHK
APP	BY	D/M/Y

AREA	SUBJECT
SUNCOR ENERGY CEDAR POINT WIND PROJECT	10CT 115KV TRANSMISSION LINE OVERALL SITE PLAN DRAWINGS SHEET 7

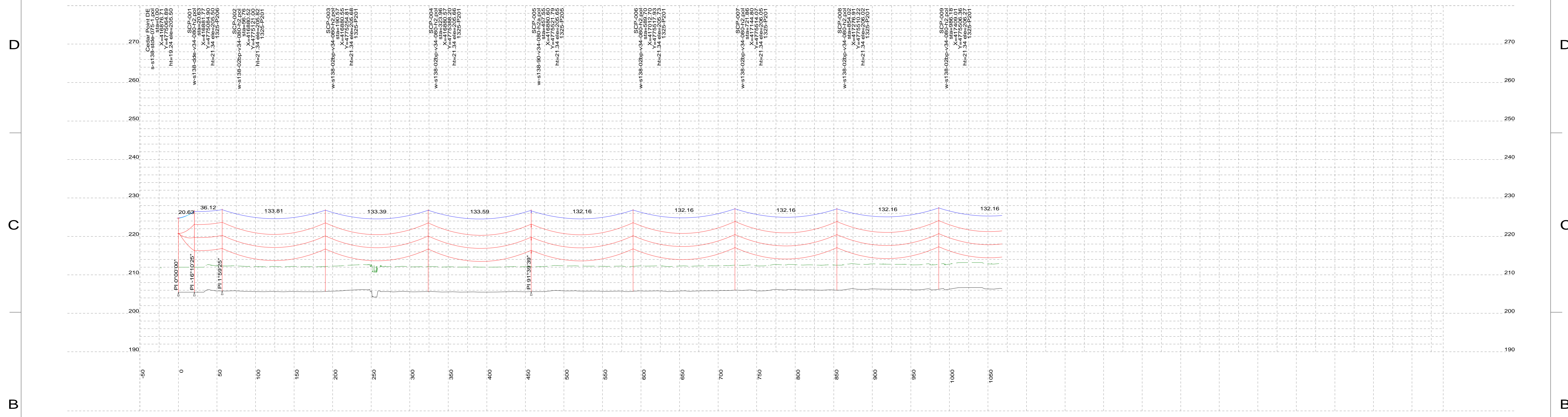
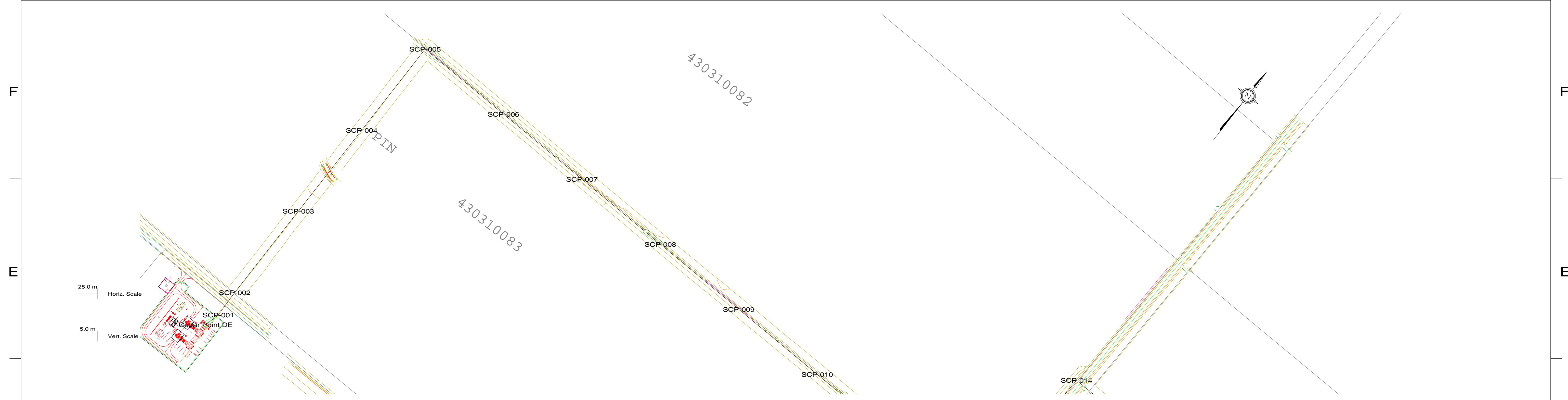
CLIENT DWG. NO.	DRAWING NO.	REV.
	1325-P001-S07	A



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 770.428.0444  
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9 8 7 6 5 4 3 2 1





**PLAN & PROFILE LEGEND:**  
 — 115kV TRANSMISSION LINE CONDUCTOR (795MCM ACSR DRAKE)  
 — SHIELD WIRE  
 — GROUND CLEARANCE LINE  
 — EXISTING HYDRO LINE

**STRUCTURE DESCRIPTION LEGEND:**  
 w-s138-02bp-v34-080-h1.pol  
 sta  
 X  
 Y  
 ht  
 ele  
 SCP-002  
 1325-P201

**PLS-POLE FILE IDENTIFICATION**  
 STATION CHAINAGE  
 UTM EASTING  
 UTM NORTHING  
 STRUCTURE HEIGHT ABOVE GROUND (M)  
 GROUND ELEVATION (M)  
 STRUCTURE NO.  
 FRAMING DRAWING NO.

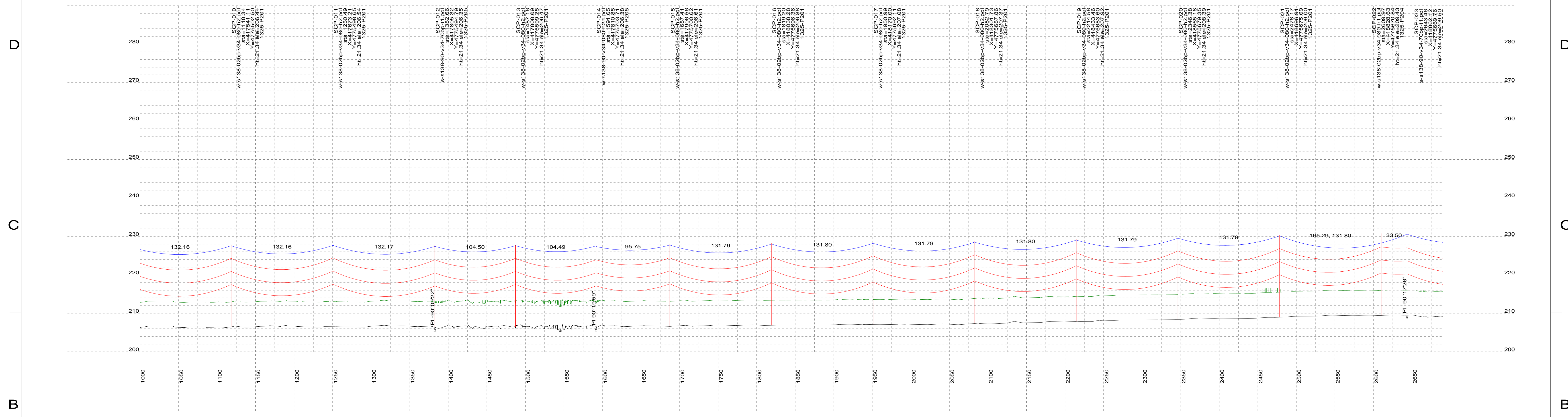
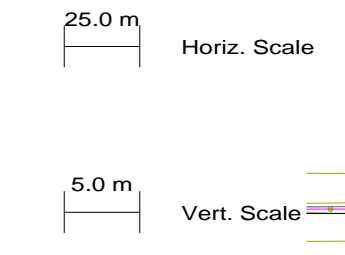
**NOTES:**  
 1. GROUND CLEARANCE LINE SHOWN AT 6.5M (FOR VEHICULAR TRAFFIC).  
 2. CONDUCTOR (795MCM ACSR DRAKE) SAG AT 75°C.  
 3. OPGW & SHIELD WIRE SAG AT 40°C.  
 4. ALL DIMENSIONS ARE IN METERS U.N.O.



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 Email: chimax@chimax.ca

REV	DDMMYY	REVISION	DR	CHK	APP	APP	APP	ISS	DDMMYY	APP	ISSUED FOR	REF	NUMBER	TITLE	REFERENCES
B	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION							B	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				
A	11/15/13	ISSUED FOR REVIEW							A	11/15/13	ISSUED FOR INTERNAL REVIEW				

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.	AREA	SUNCOR ENERGY CEDAR POINT WIND PROJECT
PROJECT NO.	ACTIVITY NO.	BY	DDMMYY	SUBJECT
		DSN	E.KWONG	11/12/13
		DRN	R.YIP	11/12/13
		CHK		
		APP		
SCALE	PACKAGE CODE	PLAN & PROFILE DRAWINGS SHEET 1 of 10		
N.T.S.		CLIENT DWG. NO.		
		DRAWING NO. 1325-P002-S1		
		REV. B		



**PLAN & PROFILE LEGEND:**  
 — 115kV TRANSMISSION LINE CONDUCTOR  
 — (795MCM ACSR DRAKE)  
 — OPGW  
 — SHIELD WIRE  
 — GROUND CLEARANCE LINE  
 — EXISTING HYDRO LINE

**STRUCTURE DESCRIPTION LEGEND:**  
 w-s138-02bp-v34-080-h1.pol  
 sta  
 X  
 Y  
 ht  
 ele  
 SCP-002  
 1325-P201

**PLS-POLE FILE IDENTIFICATION**  
 STATION CHAINAGE  
 UTM EASTING  
 UTM NORTHING  
 STRUCTURE HEIGHT ABOVE GROUND (M)  
 GROUND ELEVATION (M)  
 STRUCTURE NO.  
 FRAMING DRAWING NO.

**NOTES:**  
 1. GROUND CLEARANCE LINE SHOWN AT 6.5M (FOR VEHICULAR TRAFFIC).  
 2. CONDUCTOR (795MCM ACSR DRAKE) SAG AT 75°C.  
 3. OPGW & SHIELD WIRE SAG AT 40°C.  
 4. ALL DIMENSIONS ARE IN METERS U.N.O.

REV	DDMMYY	REVISION	R.Y.	E.K.	APP	APP	APP	APP	ISS	DDMMYY	APP	ISSUED FOR	REF	NUMBER	TITLE
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A	11/15/13	ISSUED FOR INTERNAL REVIEW								A	11/15/13	ISSUED FOR INTERNAL REVIEW			

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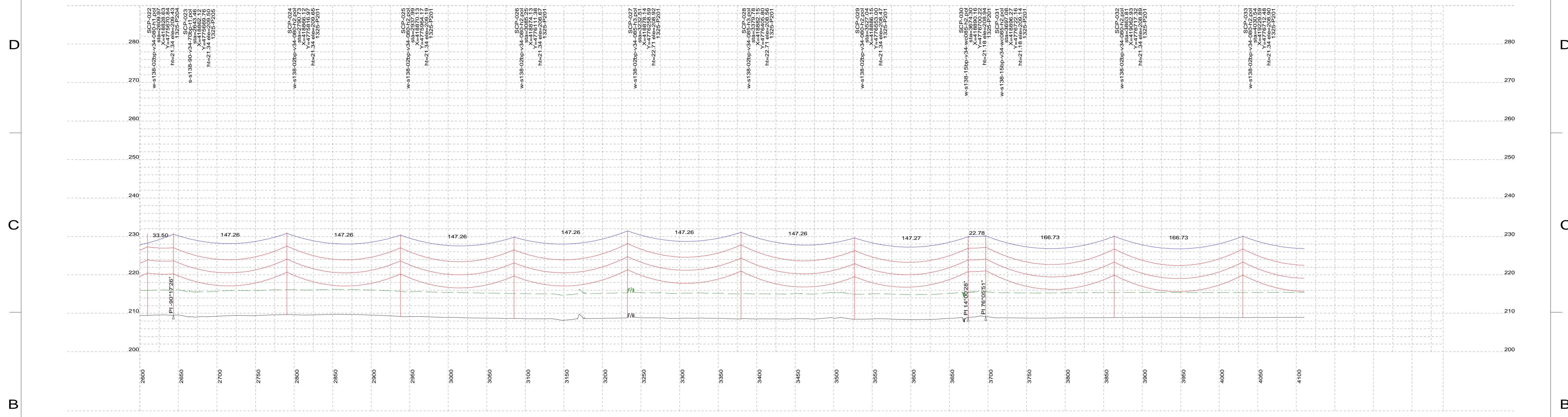
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PROJECT NO.	ACTIVITY NO.	BY	DDMMYY	SUBJECT
		DSN	E.KWONG	11/12/13
		DRN	R.YIP	11/12/13
SCALE	PACKAGE CODE	CHK		
N.T.S.		APP		



PLAN & PROFILE DRAWINGS  
 SHEET 2 of 10

CLIENT DWG. NO.	
DRAWING NO.	1325-P002-S2
REV.	B





**PLAN & PROFILE LEGEND:**  
 — 115kV TRANSMISSION LINE CONDUCTOR (795MCM ACSR DRAKE)  
 — OPGW  
 — SHIELD WIRE  
 — GROUND CLEARANCE LINE  
 — EXISTING HYDRO LINE

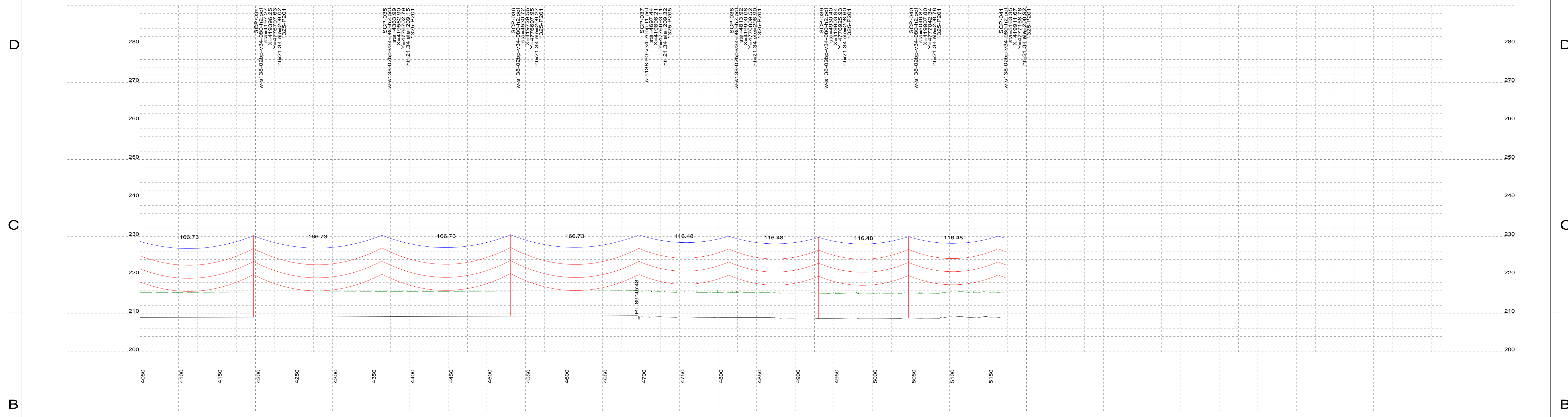
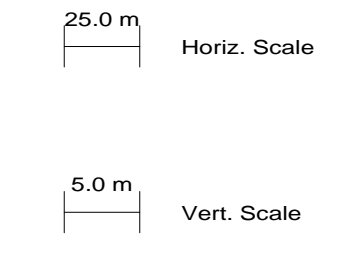
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 sta  
 X  
 Y  
 ht  
 ele  
 SCP-002  
 1325-P201

**NOTES:**  
 1. GROUND CLEARANCE LINE SHOWN AT 6.5M (FOR VEHICULAR TRAFFIC).  
 2. CONDUCTOR (795MCM ACSR DRAKE) SAG AT 75°C.  
 3. OPGW & SHIELD WIRE SAG AT 40°C.  
 4. ALL DIMENSIONS ARE IN METERS U.N.O.



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CLIENT PROJECT MGR.		DEPARTMENT MGR.		PROJECT MGR.		AREA		SUNCOR ENERGY CEDAR POINT WIND PROJECT	
PROJECT NO.		ACTIVITY NO.		BY	DDMMYY	SUBJECT			
SCALE		PACKAGE CODE		DSN	E.KWONG	11/12/13	PLAN & PROFILE DRAWINGS SHEET 3 of 10		
N.T.S.				DRN	R.YIP	11/12/13	CLIENT DWG. NO.		
				CHK			DRAWING NO. 1325-P002-S3		
				APP			REV. B		



**PLAN & PROFILE LEGEND:**  
 - 115kV TRANSMISSION LINE CONDUCTOR (795MCM ACSR DRAKE)  
 - OPGW  
 - SHIELD WIRE  
 - GROUND WIRE  
 - EXISTING HYDRO LINE

**STRUCTURE DESCRIPTION LEGEND:**  
 w-s138-02bp-v34-080-h1.pol  
 sta  
 X  
 Y  
 ht  
 ele  
 SCP-002  
 1325-P201

**NOTES:**  
 1. GROUND CLEARANCE LINE SHOWN AT 6.5M (FOR VEHICULAR TRAFFIC).  
 2. CONDUCTOR (795MCM ACSR DRAKE) SAG AT 75°C.  
 3. OPGW & SHIELD WIRE SAG AT 40°C.  
 4. ALL DIMENSIONS ARE IN METERS U.N.O.

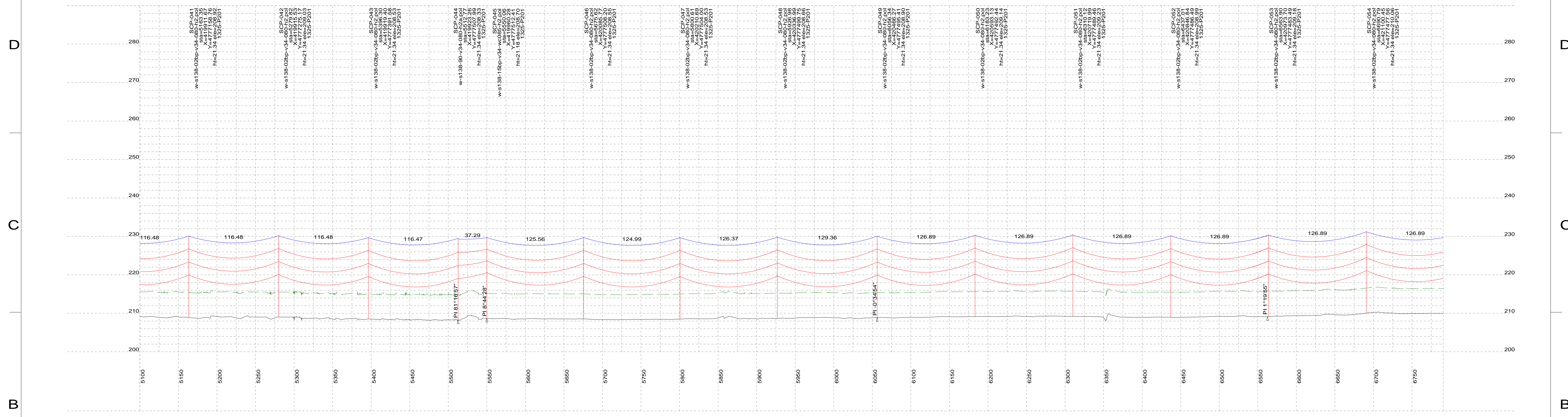
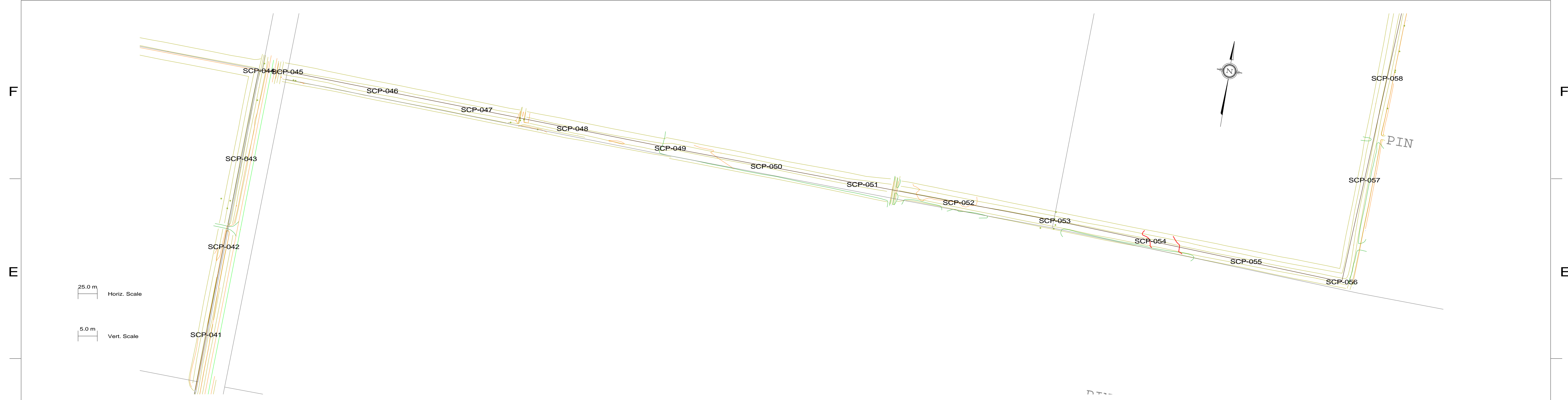


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REV	DDMMYY	REVISION	R.Y.	E.K.	APP	APP	APP	APP	ISS	DDMMYY	APP	ISSUED FOR	REF	NUMBER	TITLE	REFERENCES
B	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION								B	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				
A	11/15/13	ISSUED FOR REVIEW								A	11/15/13	ISSUED FOR INTERNAL REVIEW				

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.	AREA	SUNCOR ENERGY CEDAR POINT WIND PROJECT
PROJECT NO.	ACTIVITY NO.	BY	DDMMYY	SUBJECT
		DSN	E.KWONG	11/12/13
		DRN	R.YIP	11/12/13
		CHK		
		APP		
SCALE	PACKAGE CODE	PLAN & PROFILE DRAWINGS SHEET 4 of 10		
N.T.S.		CLIENT DWG. NO.		
		DRAWING NO. 1325-P002-S4		
		REV. B		





**PLAN & PROFILE LEGEND:**  
 - 115kV TRANSMISSION LINE CONDUCTOR (795MCM ACSR DRAKE)  
 - OPGW  
 - SHIELD WIRE  
 - GROUND CLEARANCE LINE  
 - EXISTING HYDRO LINE

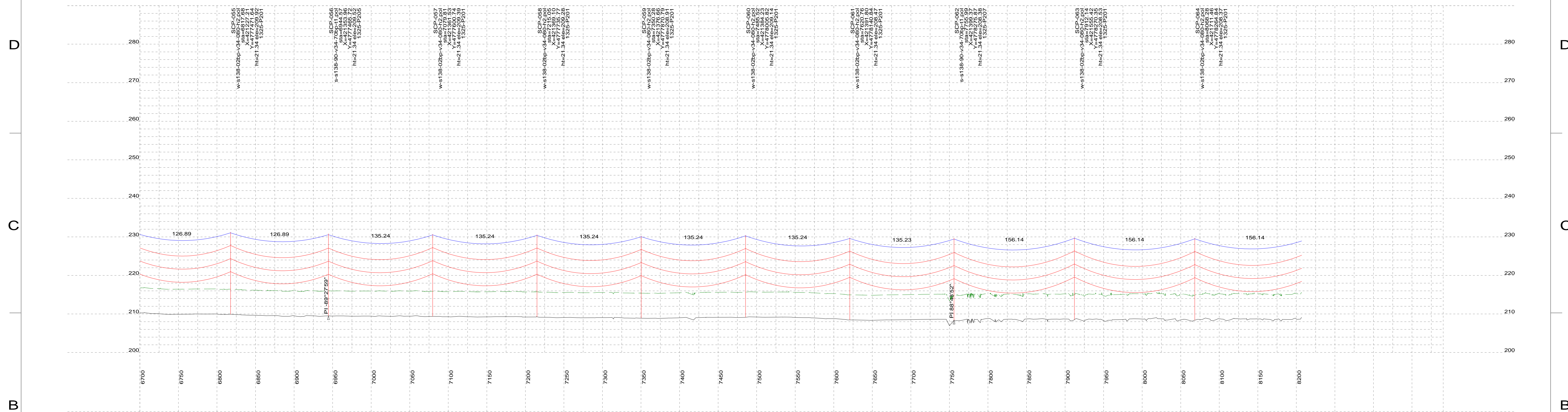
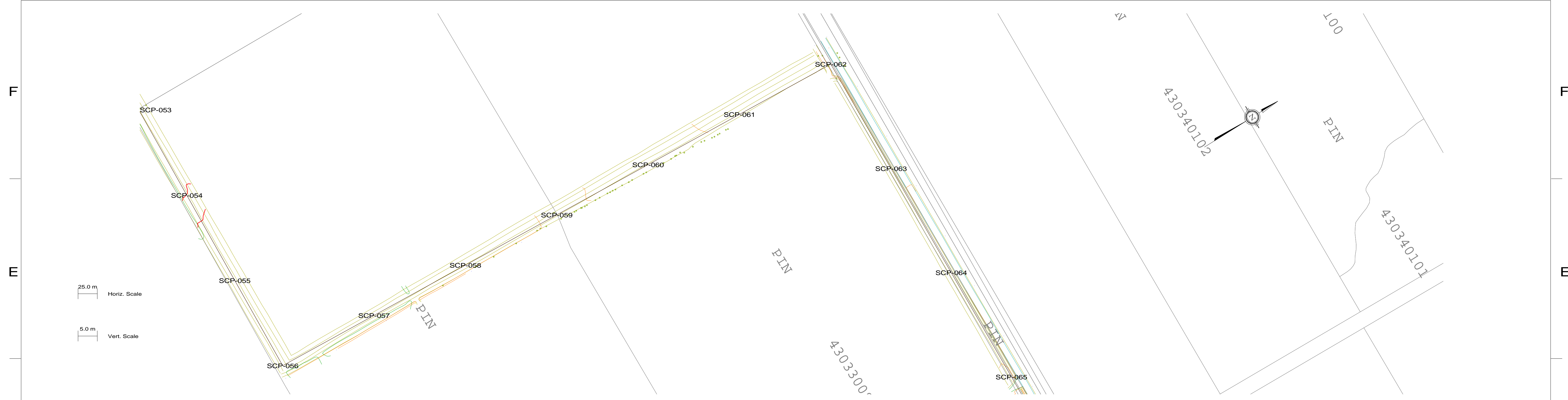
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 ele  
 SCP-002  
 1325-P201

**NOTES:**  
 1. GROUND CLEARANCE LINE SHOWN AT 6.5M (FOR VEHICULAR TRAFFIC).  
 2. CONDUCTOR (795MCM ACSR DRAKE) SAG AT 75°C.  
 3. OPGW & SHIELD WIRE SAG AT 40°C.  
 4. ALL DIMENSIONS ARE IN METERS U.N.O.

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CLIENT PROJECT MGR.		DEPARTMENT MGR.		PROJECT MGR.		AREA		SUNCOR ENERGY CEDAR POINT WIND PROJECT	
PROJECT NO.		ACTIVITY NO.		BY	DDMMYY	SUBJECT			
SCALE		PACKAGE CODE		DSN	11/12/13	PLAN & PROFILE DRAWINGS SHEET 5 of 10			
N.T.S.				DRN	11/12/13	CLIENT DWG. NO.			
				CHK		DRAWING NO.			
				APP		1325-P002-S5			
						REV.		B	





**PLAN & PROFILE LEGEND:**

- 115kV TRANSMISSION LINE CONDUCTOR (795MCM ACSR DRAKE)
- SHIELD WIRE
- GROUND CLEARANCE LINE
- EXISTING HYDRO LINE

**STRUCTURE DESCRIPTION LEGEND:**

w-s138-02bp-v34-080-h1.pol  
sta  
X  
Y  
ht  
ele  
SCP-002  
1325-P201

PLS-POLE FILE IDENTIFICATION  
STATION CHAINAGE  
UTM EASTING  
UTM NORTHING  
STRUCTURE HEIGHT ABOVE GROUND (M)  
GROUND ELEVATION (M)  
STRUCTURE NO.  
FRAMING DRAWING NO.

**NOTES:**

1. GROUND CLEARANCE LINE SHOWN AT 6.5M (FOR VEHICULAR TRAFFIC).
2. CONDUCTOR (795MCM ACSR DRAKE) SAG AT 75°C.
3. OPGW & SHIELD WIRE SAG AT 40°C.
4. ALL DIMENSIONS ARE IN METERS U.N.O.

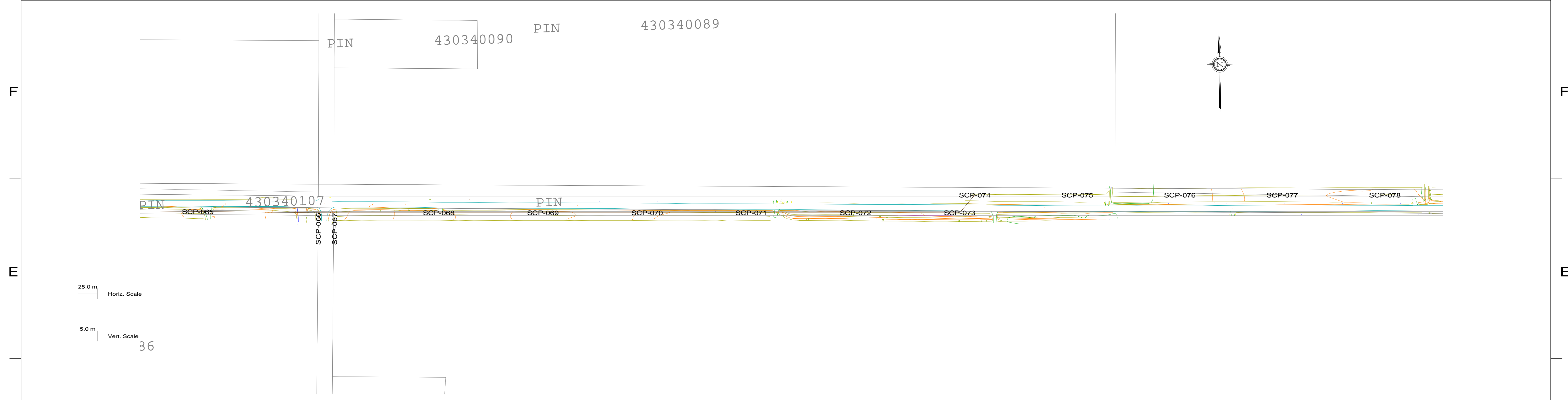
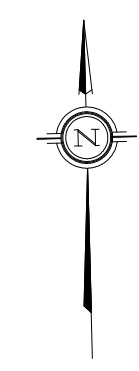
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B	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION								B	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION			
A	11/15/13	ISSUED FOR INTERNAL REVIEW								A	11/15/13	ISSUED FOR INTERNAL REVIEW			

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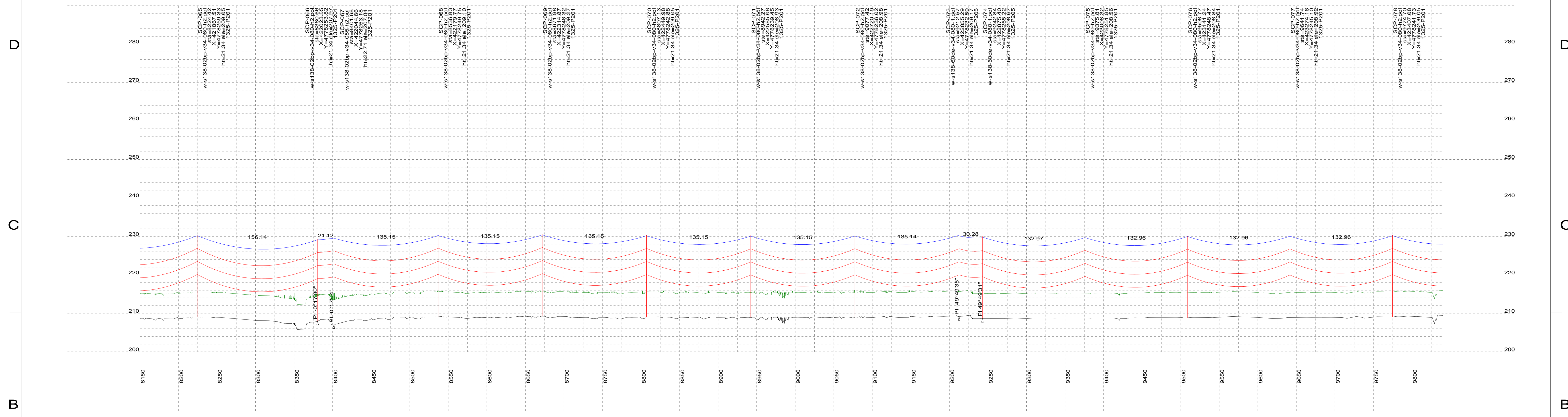
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PROJECT NO.	ACTIVITY NO.	BY	DDMMYY	SUBJECT
		DSN	E.KWONG	11/12/13
		DRN	R.YIP	11/12/13
		CHK		
		APP		
SCALE	PACKAGE CODE	PLAN & PROFILE DRAWINGS SHEET 6 of 10		
N.T.S.		CLIENT DWG. NO.		
		DRAWING NO. 1325-P002-S6		
		REV. B		







25.0 m Horiz. Scale  
5.0 m Vert. Scale  
36



**PLAN & PROFILE LEGEND:**  
 - 115kV TRANSMISSION LINE CONDUCTOR (795MCM ACSR DRAKE)  
 - OPGW  
 - SHIELD WIRE  
 - GROUND CLEARANCE LINE  
 - EXISTING HYDRO LINE

**STRUCTURE DESCRIPTION LEGEND:**  
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 sta  
 X  
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 1325-P201

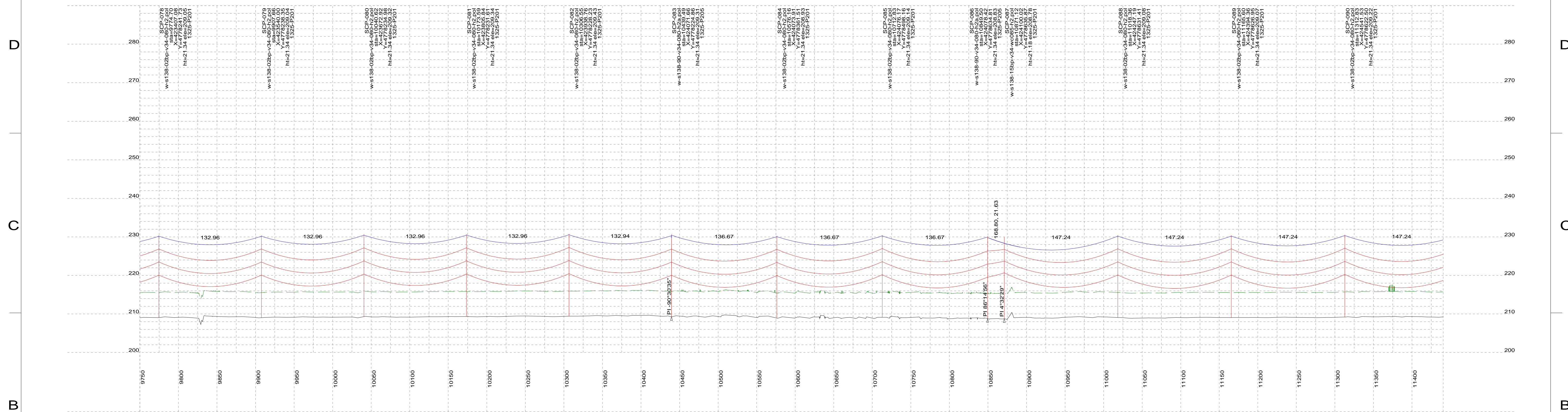
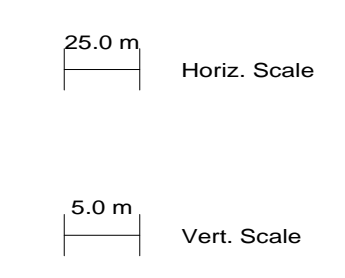
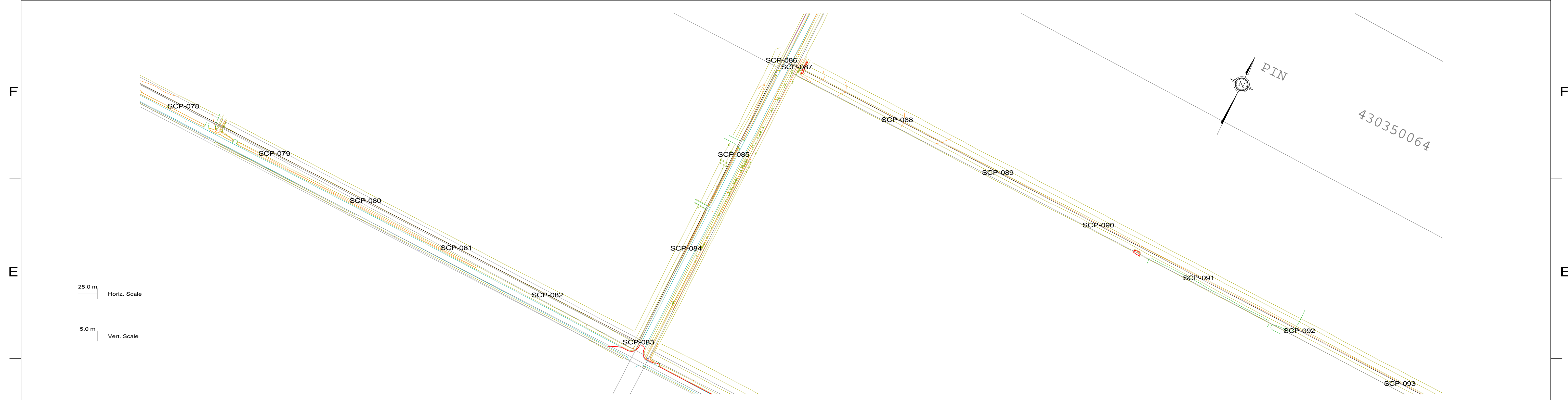
**NOTES:**  
 1. GROUND CLEARANCE LINE SHOWN AT 6.5M (FOR VEHICULAR TRAFFIC).  
 2. CONDUCTOR (795MCM ACSR DRAKE) SAG AT 75°C.  
 3. OPGW & SHIELD WIRE SAG AT 40°C.  
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 Markham, On. L3R 0A9  
 Email: chimax@chimax.ca

REV	DDMMYY	REVISION	DR	CHK	APP	APP	APP	ISS	DDMMYY	APP	ISSUED FOR	REF	NUMBER	TITLE	REFERENCES
B	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION						B	15/01/14		ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				
A	11/15/13	ISSUED FOR INTERNAL REVIEW						A	11/15/13		ISSUED FOR INTERNAL REVIEW				

CLIENT PROJECT MGR.			DEPARTMENT MGR.			PROJECT MGR.			AREA		SUNCOR ENERGY CEDAR POINT WIND PROJECT		CLIENT DWG. NO.	
PROJECT NO.			ACTIVITY NO.			BY			DDMMYY			SUBJECT		
SCALE			PACKAGE CODE			DRN			R.YIP			PLAN & PROFILE DRAWINGS SHEET 7 of 10		
N.T.S.						CHK			11/12/13			DRAWING NO. 1325-P002-S7		
						APP						REV. B		
STAMP/SEAL												CAD FILE: PLS-CADD 1325-P002		
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**PLAN & PROFILE LEGEND:**  
 - 115kV TRANSMISSION LINE CONDUCTOR (795MCM ACSR DRAKE)  
 - OPGW  
 - SHIELD WIRE  
 - GROUND CLEARANCE LINE  
 - EXISTING HYDRO LINE

**STRUCTURE DESCRIPTION LEGEND:**  
 w-s138-02bp-v34-080-h1.pol  
 sta  
 X  
 Y  
 ht  
 ele  
 SCP-002  
 1325-P201

**PLS-POLE FILE IDENTIFICATION**  
 STATION CHAINAGE  
 UTM EASTING  
 UTM NORTHING  
 STRUCTURE HEIGHT ABOVE GROUND (M)  
 GROUND ELEVATION (M)  
 STRUCTURE NO.  
 FRAMING DRAWING NO.

**NOTES:**  
 1. GROUND CLEARANCE LINE SHOWN AT 6.5M (FOR VEHICULAR TRAFFIC).  
 2. CONDUCTOR (795MCM ACSR DRAKE) SAG AT 75°C.  
 3. OPGW & SHIELD WIRE SAG AT 40°C.  
 4. ALL DIMENSIONS ARE IN METERS U.N.O.

REV	DDMMYY	REVISION	R.Y.	E.K.	APP	APP	APP	APP	ISS	DDMMYY	APP	ISSUED FOR	REF	NUMBER	TITLE	REFERENCES
B	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION								B	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				
A	11/15/13	ISSUED FOR REVIEW								A	11/15/13	ISSUED FOR INTERNAL REVIEW				

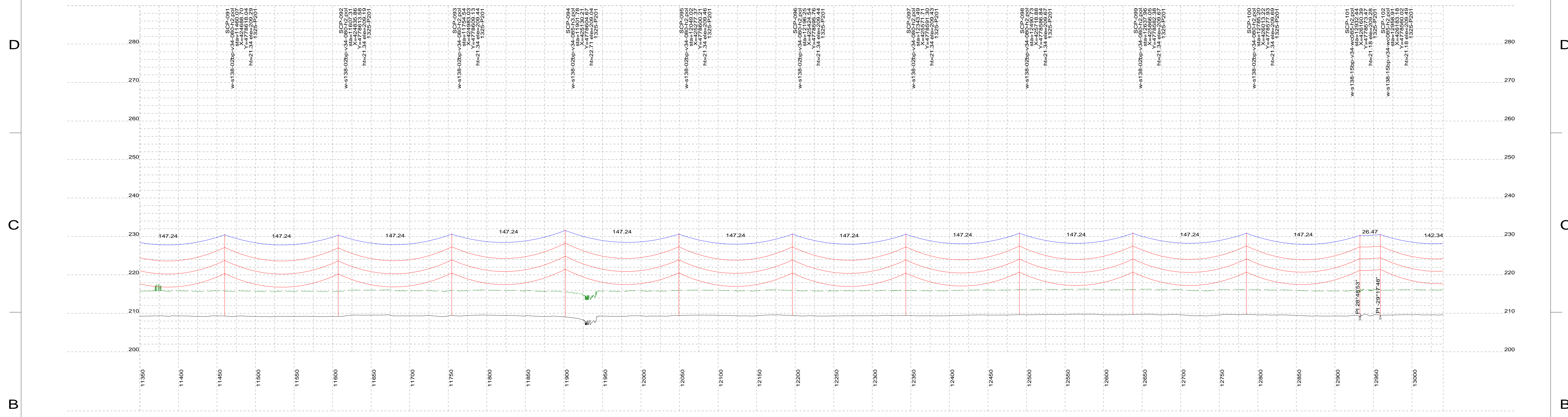
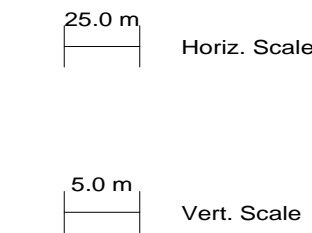
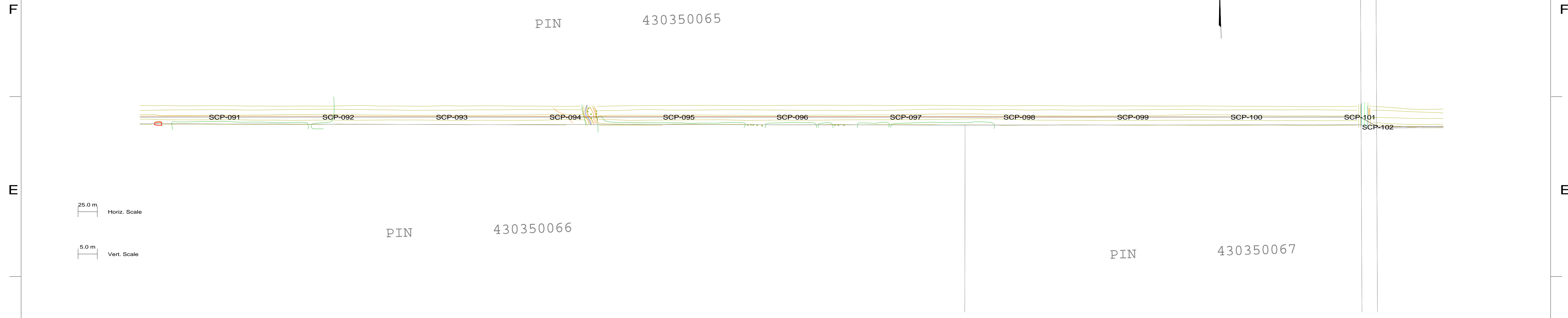
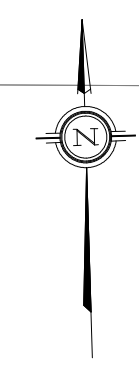
**STAMP/SEAL**  
 PROPRIETARY INFORMATION:  
 THIS DRAWING IS THE PROPERTY OF CHIMAX INC.  
 AND IS NOT TO BE LOANED OR REPRODUCED IN ANY WAY  
 WITHOUT THE PERMISSION OF CHIMAX INC.

CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.	AREA	SUNCOR ENERGY CEDAR POINT WIND PROJECT
PROJECT NO.	ACTIVITY NO.	BY	DDMMYY	SUBJECT
		DSN	E.KWONG	11/12/13
		DRN	R.YIP	11/12/13
		CHK		
		APP		
SCALE	PACKAGE CODE			
N.T.S.				

**amec**  
 Engineering Company  
 3950 Fourteenth Ave. East, Suite 506  
 Markham, On. L3R 0A9  
 Email: chimax@chimax.ca

**Chimax Inc.**  
 CLIENT DWG. NO.  
 DRAWING NO. 1325-P002-S8  
 REV. B





**PLAN & PROFILE LEGEND:**  
 - 115kV TRANSMISSION LINE CONDUCTOR  
 - 795MCM ACSR DRAKE  
 - OPGW  
 - SHIELD WIRE  
 - GROUND CLEARANCE LINE  
 - EXISTING HYDRO LINE

**STRUCTURE DESCRIPTION LEGEND:**  
 w-s138-02bp-v34-080-h1.pol  
 sta  
 X  
 Y  
 ht  
 ele  
 SCP-002  
 1325-P201

**PLS-POLE FILE IDENTIFICATION**  
 STATION CHAINAGE  
 UTM EASTING  
 UTM NORTHING  
 STRUCTURE HEIGHT ABOVE GROUND (M)  
 GROUND ELEVATION (M)  
 STRUCTURE NO  
 FRAMING DRAWING NO.

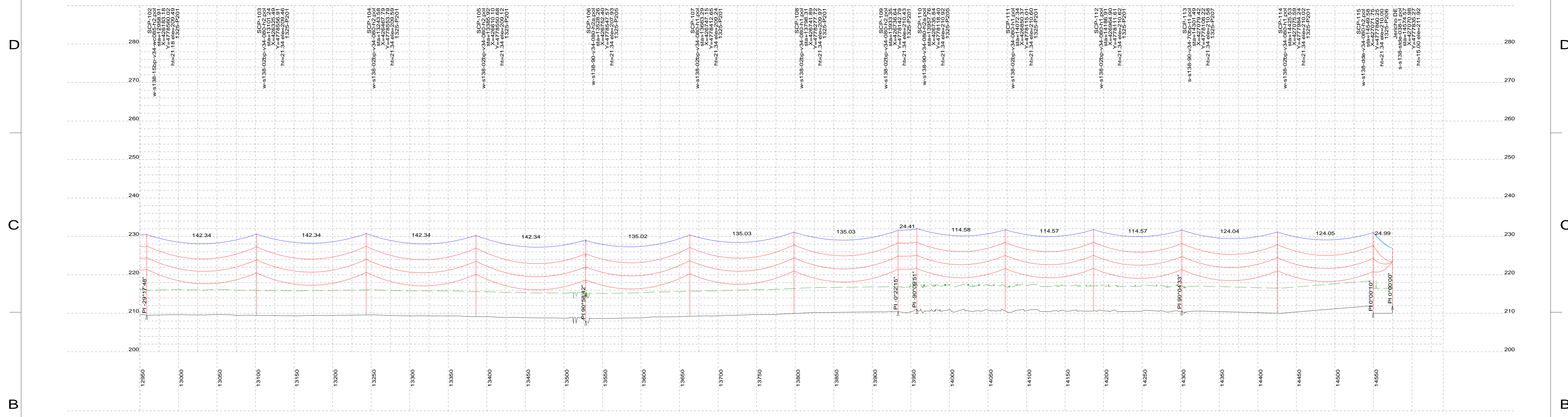
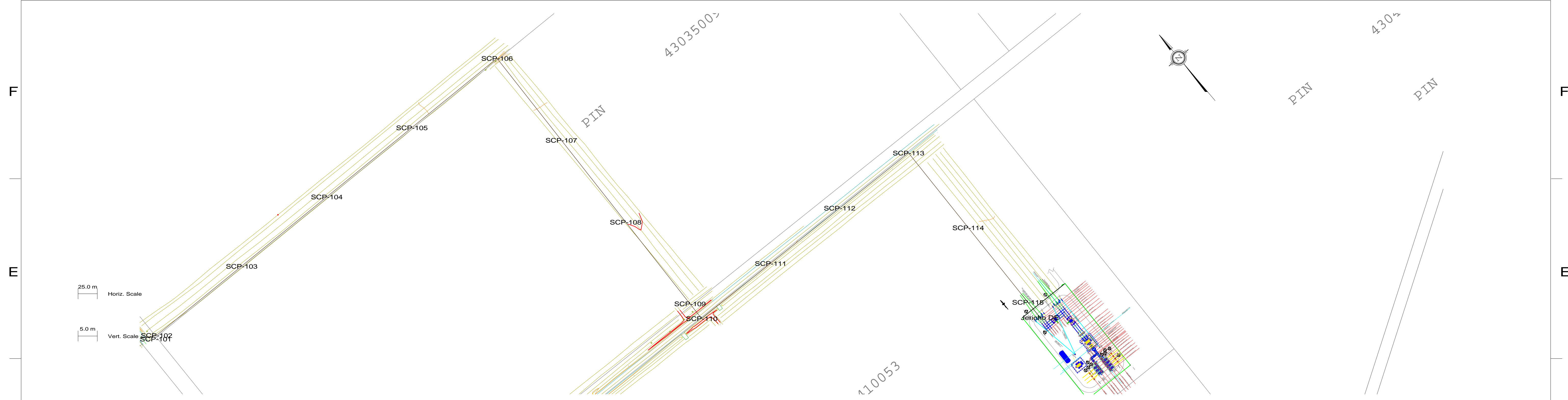
**NOTES:**  
 1. GROUND CLEARANCE LINE SHOWN AT 6.5M (FOR VEHICULAR TRAFFIC).  
 2. CONDUCTOR (795MCM ACSR DRAKE) SAG AT 75°C.  
 3. OPGW & SHIELD WIRE SAG AT 40°C.  
 4. ALL DIMENSIONS ARE IN METERS U.N.O.



**Chimax Inc.**  
 Engineering Company  
 3950 Fourteenth Ave. East, Suite 506  
 Markham, On. L3R 0A9  
 Email: chimax@chimax.ca

REV	DDMMYY	REVISION	R.Y.	E.K.	APP	APP	APP	APP	ISS	DDMMYY	APP	ISSUED FOR	REF	NUMBER	TITLE
B	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION								B	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION			
A	11/15/13	ISSUED FOR INTERNAL REVIEW								A	11/15/13	ISSUED FOR INTERNAL REVIEW			

STAMP/SEAL			PROPRIETARY INFORMATION: THIS DRAWING IS THE PROPERTY OF CHIMAX INC. AND IS NOT TO BE LOANED OR REPRODUCED IN ANY WAY WITHOUT THE PERMISSION OF CHIMAX INC.		
CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.	AREA	SUNCOR ENERGY CEDAR POINT WIND PROJECT	
PROJECT NO.	ACTIVITY NO.	BY	DDMMYY	SUBJECT	
		DSN	E.KWONG	11/12/13	PLAN & PROFILE DRAWINGS SHEET 9 of 10
		DRN	R.YIP	11/12/13	
		CHK			
SCALE	PACKAGE CODE	CHK			CLIENT DWG. NO.
N.T.S.		APP			DRAWING NO.
					1325-P002-S9
					REV.
					B



**PLAN & PROFILE LEGEND:**  
 — 115kV TRANSMISSION LINE CONDUCTOR  
 — (795MCM ACSR DRAKE)  
 — OPGW  
 — SHIELD WIRE  
 — GROUND CLEARANCE LINE  
 — EXISTING HYDRO LINE

**STRUCTURE DESCRIPTION LEGEND:**  
 w-s138-02bp-v34-080-h1.pol  
 sta  
 X  
 Y  
 ht  
 ele  
 SCP-002  
 1325-P201

**PLS-POLE FILE IDENTIFICATION**  
 STATION CHAINAGE  
 UTM EASTING  
 UTM NORTHING  
 STRUCTURE HEIGHT ABOVE GROUND (M)  
 GROUND ELEVATION (M)  
 STRUCTURE NO.  
 FRAMING DRAWING NO.

**NOTES:**  
 1. GROUND CLEARANCE LINE SHOWN AT 6.5M (FOR VEHICULAR TRAFFIC).  
 2. CONDUCTOR (795MCM ACSR DRAKE) SAG AT 75°C.  
 3. OPGW & SHIELD WIRE SAG AT 40°C.  
 4. ALL DIMENSIONS ARE IN METERS U.N.O.

B		15/01/14		ISSUED FOR LEAVE TO CONSTRUCT APPLICATION		B		15/01/14		ISSUED FOR LEAVE TO CONSTRUCT APPLICATION		STAMP/SEAL		PROPRIETARY INFORMATION: THIS DRAWING IS THE PROPERTY OF CHIMAX INC. AND IS NOT TO BE LOANED OR REPRODUCED IN ANY WAY WITHOUT THE PERMISSION OF CHIMAX INC.	
A		11/15/13		ISSUED FOR REVIEW		A		11/15/13		ISSUED FOR INTERNAL REVIEW		REV		NUMBER	
REV		DDMMYY		REVISION		R.Y.		E.K.		APP		APP		APP	
9		8		7		6		5		4		3		2	
CAD FILE:		PLS-CADD		1325-P002		1		SCALE		N.T.S.		PACKAGE CODE		CHK	
CLIENT PROJECT MGR.		DEPARTMENT MGR.		PROJECT MGR.		AREA		SUNCOR ENERGY CEDAR POINT WIND PROJECT		SUBJECT		PLAN & PROFILE DRAWINGS SHEET 10 of 10		CLIENT DWG. NO.	
PROJECT NO.		ACTIVITY NO.		BY		DDMMYY		DSN		E.KWONG		11/12/13		DRAWING NO.	
SCALE		PACKAGE CODE		DRN		R.YIP		CHK		11/12/13		1325-P002-S10		REV.	
N.T.S.				APP								B			



**Chimax Inc.**  
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 Email: chimax@chimax.ca

DRAWING NO. 1325-P002-S10  
 REV. B

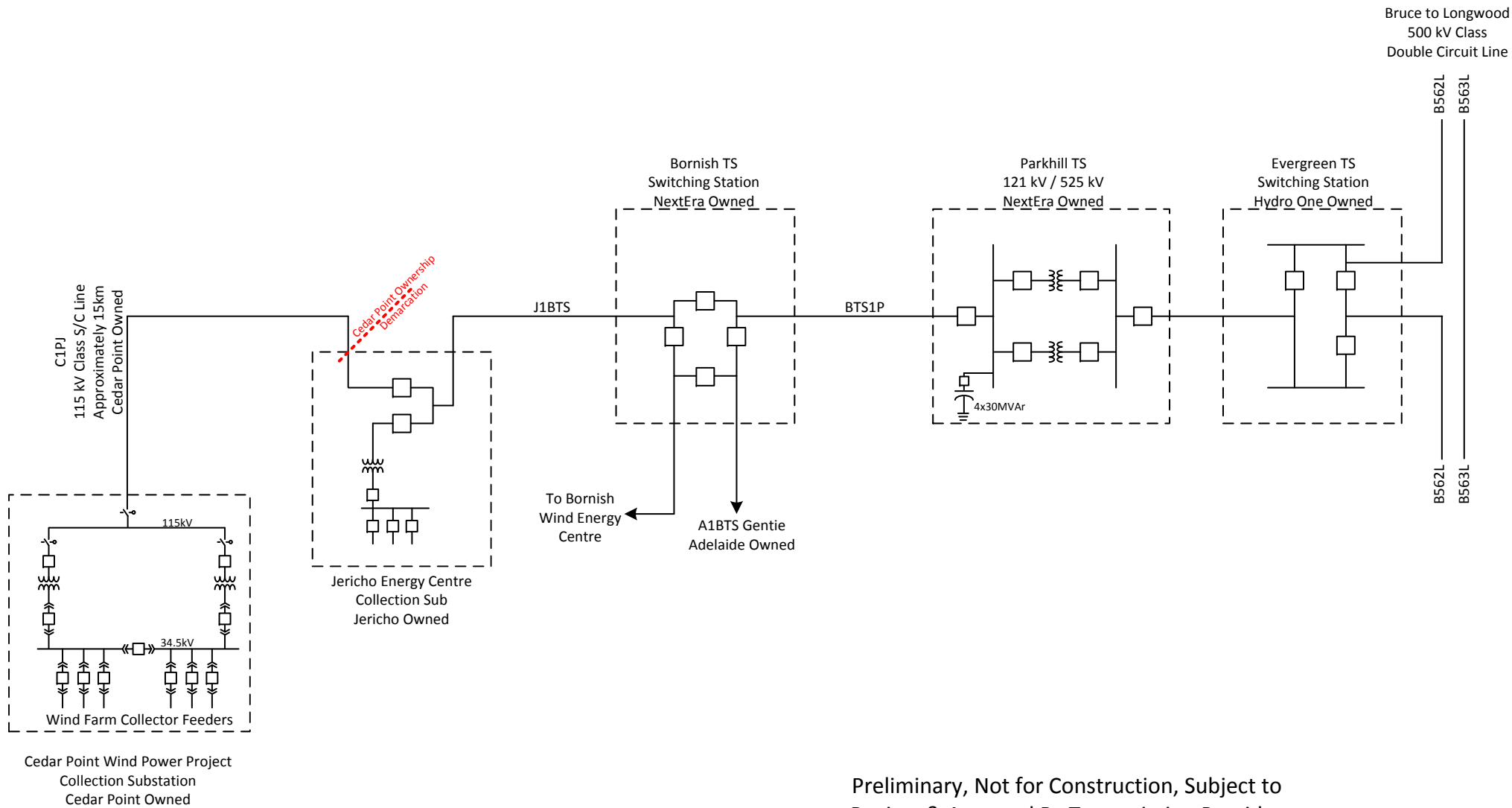
**Exhibit B, Tab 2, Schedule 5**  
**Drawings and Illustrations**

**DRAWINGS AND ILLUSTRATIONS**

- (1) Figure 1 - Single Line Diagram.
- (2) Figure 2 - Station Layout - Cedar Point Transformer Station.
- (3) Pole Structures and Framing.



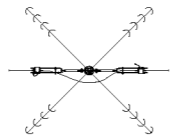
# Cedar Point Wind Power Project (100MW) Conceptual One Line Diagram



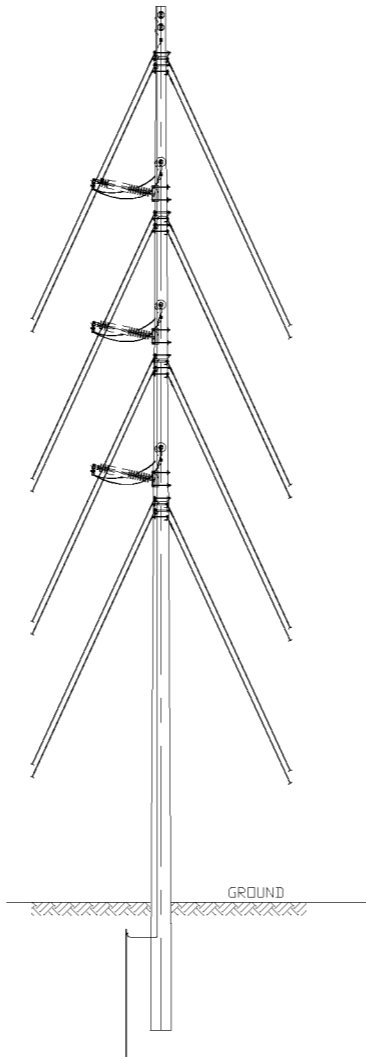
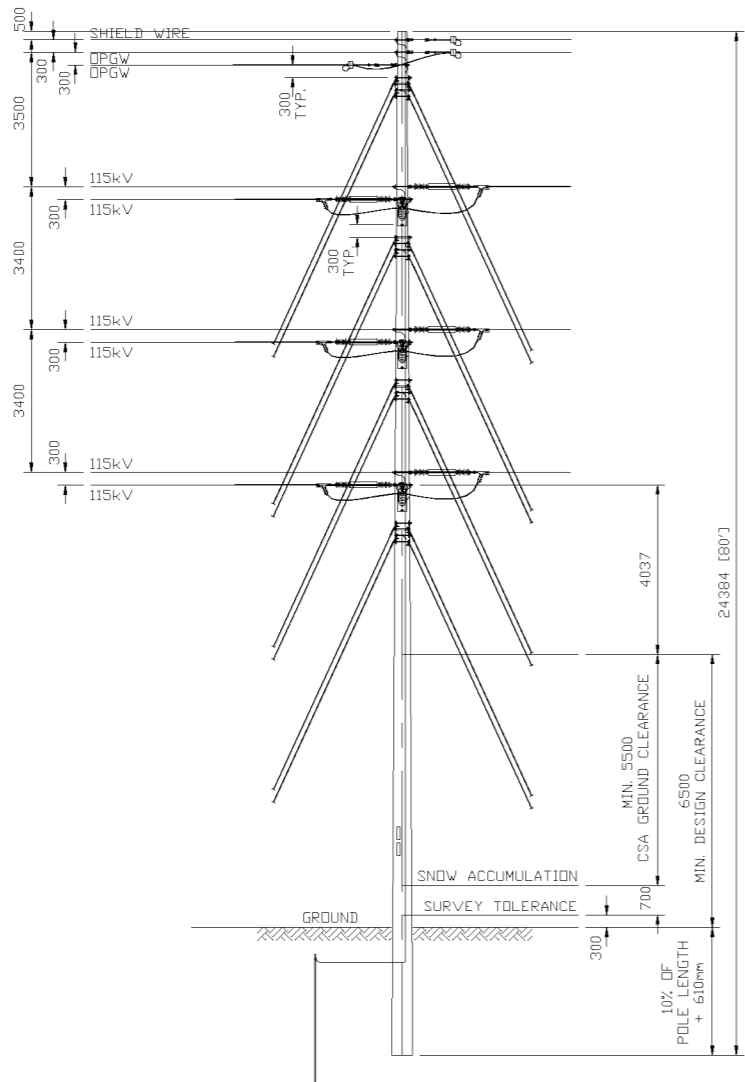
Preliminary, Not for Construction, Subject to  
Review & Approval By Transmission Provider







PLAN VIEW



1CCT 115kV TRANSMISSION LINE  
DOUBLE DEADEND FRAMING  
(FOR STATION TAP)

**DESIGN NOTES:**

THE PROPOSED STRUCTURE FRAMING, POLE REQUIREMENT AND RECOMMENDATION STANDARD SPAN ARE BASED ON THE FOLLOWING DESIGN DATA:

**A. DESIGN CRITERIA**

- 1. METEOROLOGICAL LOCATION: FOREST/GODERICH
- 2. MINIMUM DESIGN LOADING
  - 2.1. CSA 22.3 No.1 (LIMIT STATE DESIGN) - CSA HEAVY CONDITION
    - HOURLY WIND: 400 Pa
    - RADIAL ICE THICKNESS: 12.7 mm (1/2")
    - CONDUCTOR TEMPERATURE: -20°C
  - 2.2. CSA 22.3 No.60826 (IEC RELIABILITY DESIGN) - 1/50 PERIOD
    - (i) IEC ICE (1/50): 22 mm @ -10°C
    - (ii) IEC WIND (1/50): 111 km/h (582.77 Pa) @ -10°C
    - (iii) COMBINED ICE (85%) & WIND (60%): 18.7 mm & 210 Pa @ -10°C

**B. CLEARANCE CRITERIA**

- 1. MEAN ANNUAL SNOW ACCUMULATION: 0.7 m
- 2. ADDITIONAL SURVEY TOLERANCE: 0.3 m
- 3. VERTICAL GROUND CLEARANCE:
  - 3.1. MINIMUM CSA 22.3 No.1 VERTICAL GROUND CLEARANCE: 5.50 m
  - 3.2. DESIGN VERTICAL GROUND CLEARANCE: 6.50 m
- 4. VERTICAL GROUND CLEARANCE LOADING CONDITIONS
  - 4.1. PHASE CONDUCTOR
    - (i) MAXIMUM CONDUCTOR TEMPERATURE: 100°C
    - (ii) DESIGN CONDUCTOR TEMPERATURE (AS PER IEEE STD. 738): 75°C
    - (iii) RADIAL ICE THICKNESS (CLEARANCE): 12.7 mm (1/2")
- 5. PHASE CLEARANCE CONDITIONS:
  - (i) HOURLY WIND (NATIONAL BUILDING CODE 1/50): 520 Pa (~104 km/hr)
  - (ii) HOURLY WIND (NATIONAL BUILDING CODE 1/30): 480 Pa (~100 km/hr)
  - (iii) GALLOPING
    - GALLOPING SWING: 290 Pa
    - GALLOPING ICE: 12.7 mm (1/2")

**C. WIND POWER PROJECT CIRCUITS DATA**

- 1. MERCHANT CIRCUIT(S)
  - 1.1. NOMINAL SYSTEM VOLTAGE: 124 kV
  - 1.2. NUMBER OF PHASES: 3 (THREE)
  - 1.3. SYSTEM FREQUENCY: 60 Hz
  - 1.4. SYSTEM GROUNDING: LOW IMPEDANCE
  - 1.5. NUMBER OF CIRCUIT: 1 (ONE)
  - 1.6. MAXIMUM CIRCUIT CURRENT: 560A PER CIRCUIT
  - 1.7. PHASE CONDUCTOR SIZE: 795 MCM ACSR (DRAKE)
  - 1.8. DESIGN CONDUCTOR TEMPERATURE: 75°C



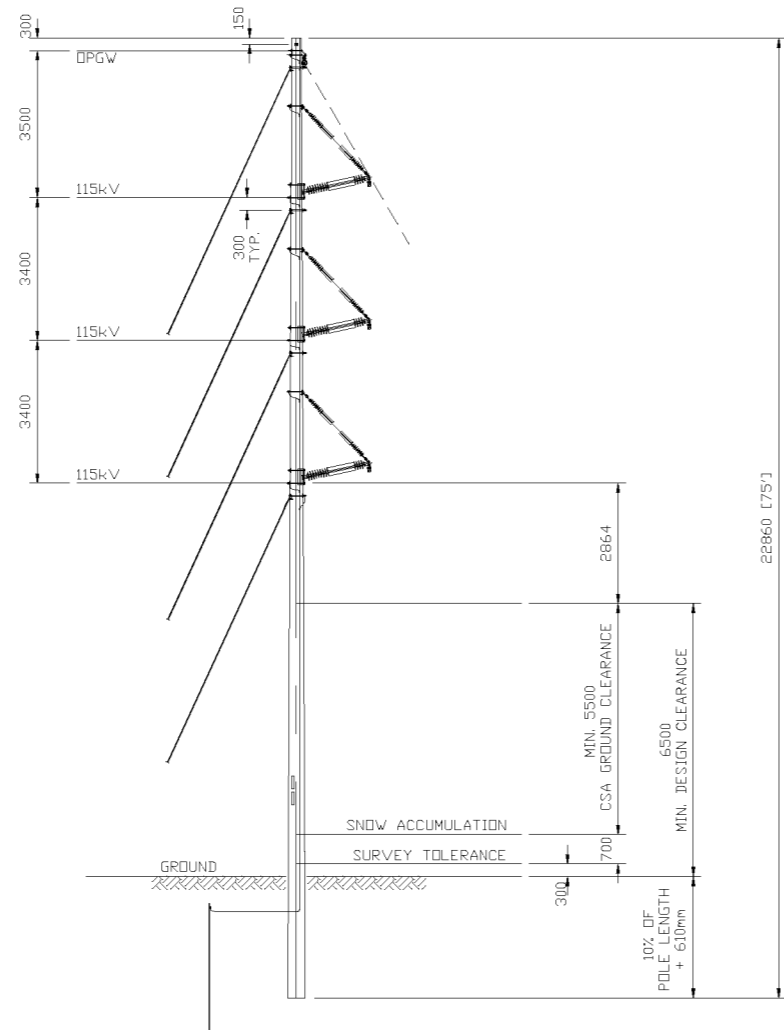
REV	D/M/Y	REVISION	DR	CHK	APP	APP	APP	ISS	D/M/Y	APP	ISSUED FOR	REF	NUMBER	TITLE	REFERENCES
A	15/01/14	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION						A	15/01/14		ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				

APPROVED FOR CONSTRUCTION		CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.		AREA		SUNCOR ENERGY CEDAR POINT WIND PROJECT	
PROJECT NO.		ACTIVITY NO.		PACKAGE CODE		SUBJECT	
N.T.S. (11"x17")		BY		D/M/Y		1CCT 115kV TRANSMISSION LINE	
SCALE		DRN. R.YIP		23/10/13		DOUBLE DEADEND FRAMING (FOR STATION TAP)	
STAMP/SEAL		PROPRIETARY INFORMATION: THIS DRAWING IS THE PROPERTY OF CHIMAX INC. AND IS NOT TO BE LOANED OR REPRODUCED IN ANY WAY WITHOUT THE PERMISSION OF CHIMAX INC.		CLIENT DWG. NO.		DRAWING NO. 1325-P208	
						REV. A	
				CADD FILE ADDRESS		1325-P208-A	

F  
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9 8 7 6 5 4 3 2 1



1CCT 115kV TRANSMISSION LINE  
LIGHT ANGLE (2 - 15°) FRAMING

**DESIGN NOTES:**

THE PROPOSED STRUCTURE FRAMING, POLE REQUIREMENT AND RECOMMENDATION STANDARD SPAN ARE BASED ON THE FOLLOWING DESIGN DATA:

**A. DESIGN CRITERIA**

- |  |                              |
|--|------------------------------|
| 1. METEOROLOGICAL LOCATION:  | FOREST/GODERICH              |
| 2. MINIMUM DESIGN LOADING  |                              |
| 2.1. CSA 22.3 No.1 (LIMIT STATE DESIGN) - CSA HEAVY CONDITION        |                              |
| HOURLY WIND  | 400 Pa                       |
| RADIAL ICE THICKNESS   | 12.7 mm (1/2")               |
| CONDUCTOR TEMPERATURE  | -20°C                        |
| 2.2. CSA 22.3 No.60826 (IEC RELIABILITY DESIGN) - 1/50 PERIOD        |                              |
| (i) IEC ICE (1/50)   | 22 mm @ -10°C                |
| (ii) IEC WIND (1/50)   | 111 km/h (582.77 Pa) @ -10°C |
| (iii) COMBINED ICE (85%) & WIND (60%)                                | 18.7 mm & 210 Pa @ -10°C     |
| WIRE ADJUSTMENT MODELS & MATERIAL FACTORS AS PER CSA 22.3 No. 60826. |                              |

**B. CLEARANCE CRITERIA**

- |  |                     |
|--|---------------------|
| 1. MEAN ANNUAL SNOW ACCUMULATION:                        | 0.7 m               |
| 2. ADDITIONAL SURVEY TOLERANCE:                          | 0.3 m               |
| 3. VERTICAL GROUND CLEARANCE:                            |                     |
| 3.1. MINIMUM CSA 22.3 No.1 VERTICAL GROUND CLEARANCE     |                     |
| 115kV / 138kV CONDUCTOR                                  | 5.50 m              |
| 3.2. DESIGN VERTICAL GROUND CLEARANCE                    |                     |
| 115kV / 138kV CONDUCTOR                                  | 6.50 m              |
| 4. VERTICAL GROUND CLEARANCE LOADING CONDITIONS          |                     |
| 4.1. PHASE CONDUCTOR                                     |                     |
| (i) MAXIMUM CONDUCTOR TEMPERATURE                        | 100°C               |
| (ii) DESIGN CONDUCTOR TEMPERATURE (AS PER IEEE STD. 738) | 75°C                |
| (iii) RADIAL ICE THICKNESS (CLEARANCE)                   | 12.7 mm (1/2")      |
| 5. PHASE CLEARANCE CONDITIONS:                           |                     |
| (i) HOURLY WIND (NATIONAL BUILDING CODE 1/50)            | 520 Pa (-104 km/hr) |
| (ii) HOURLY WIND (NATIONAL BUILDING CODE 1/30)           | 480 Pa (-100 km/hr) |
| (iii) GALLOPING  |                     |
| GALLOPING SWING  | 290 Pa              |
| GALLOPING ICE  | 12.7 mm (1/2")      |

**C. WIND POWER PROJECT CIRCUITS DATA**

- |                                   |                      |
|-----------------------------------|----------------------|
| 1. MERCHANT CIRCUIT(S)            |                      |
| 1.1. NOMINAL SYSTEM VOLTAGE       | 124 kV               |
| 1.2. NUMBER OF PHASES             | 3 (THREE)            |
| 1.3. SYSTEM FREQUENCY             | 60 Hz                |
| 1.4. SYSTEM GROUNDING             | LOW IMPEDANCE        |
| 1.5. NUMBER OF CIRCUIT            | 1 (ONE)              |
| 1.6. MAXIMUM CIRCUIT CURRENT      | 560A PER CIRCUIT     |
| 1.7. PHASE CONDUCTOR SIZE         | 795 MCM ACSR (DRAKE) |
| 1.8. DESIGN CONDUCTOR TEMPERATURE | 75°C                 |



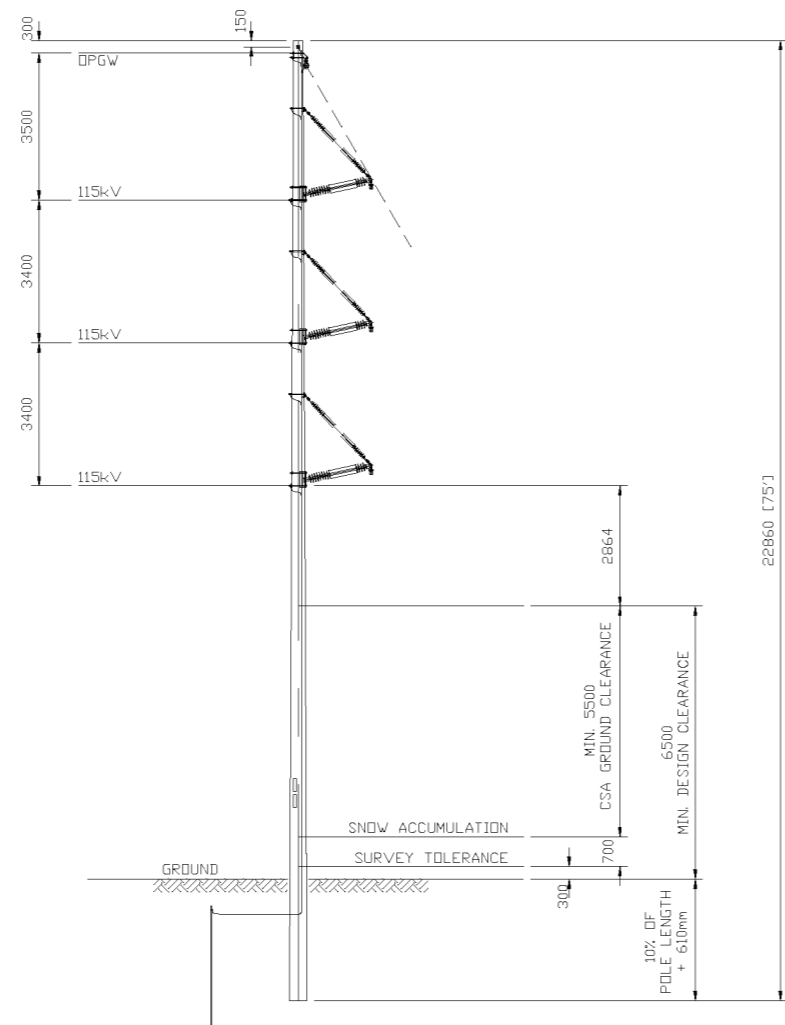
**Chimax Inc.**  
Engineering Company  
3050 Fourteenth Ave. East, Suite 508  
Markham, On. L3R 0A9  
Email: chimax@chimex.ca

REV	D/M/Y	REVISION	DR	CHK	APP	APP	APP	ISS	D/M/Y	APP	ISSUED FOR	REF	NUMBER	TITLE	REFERENCES
B	15/01/13	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION						B	15/01/13		ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				
A	15/11/13	CONCEPTUAL ISSUE						A	15/11/13		ISSUED FOR REVIEW				

APPROVED FOR CONSTRUCTION		CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.		AREA		SUNCOR ENERGY CEDAR POINT WIND PROJECT	
PROJECT PHASE		PROJECT NO.		ACTIVITY NO.		PACKAGE CODE	
SUBJECT		SCALE		BY		D/M/Y	
1CCT 115kV TRANSMISSION LINE		N.T.S. (11"x17")		E.KWONG		23/10/13	
LIGHT ANGLE (2 - 15°) FRAMING				R.YIP		23/10/13	
STAMP/SEAL		PROPRIETARY INFORMATION:		CLIENT DWG. NO.		DRAWING NO.	
THIS DRAWING IS THE PROPERTY OF CHIMAX INC. AND IS NOT TO BE LOANED OR REPRODUCED IN ANY WAY WITHOUT THE PERMISSION OF CHIMAX INC.		1325-P202		1325-P202		REV. B	
		CADD FILE ADDRESS		1325-P202-B			

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A

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E  
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C  
B  
A



1CCT 115kV TRANSMISSION LINE  
TANGENT (0 - 2°) FRAMING

**DESIGN NOTES:**

THE PROPOSED STRUCTURE FRAMING, POLE REQUIREMENT AND RECOMMENDATION STANDARD SPAN ARE BASED ON THE FOLLOWING DESIGN DATA:

**A. DESIGN CRITERIA**

- 1. METEOROLOGICAL LOCATION: FOREST/GODERICH
- 2. MINIMUM DESIGN LOADING
  - 2.1. CSA 22.3 No.1 (LIMIT STATE DESIGN) - CSA HEAVY CONDITION
    - HOURLY WIND: 400 Pa
    - RADIAL ICE THICKNESS: 12.7 mm (1/2")
    - CONDUCTOR TEMPERATURE: -20°C
  - 2.2. CSA 22.3 No.60826 (IEC RELIABILITY DESIGN) - 1/50 PERIOD
    - (i) IEC ICE (1/50): 22 mm @ -10°C
    - (ii) IEC WIND (1/50): 111 km/h (582.77 Pa) @ -10°C
    - (iii) COMBINED ICE (85%) & WIND (60%): 18.7 mm & 210 Pa @ -10°C

**B. CLEARANCE CRITERIA**

- 1. MEAN ANNUAL SNOW ACCUMULATION: 0.7 m
- 2. ADDITIONAL SURVEY TOLERANCE: 0.3 m
- 3. VERTICAL GROUND CLEARANCE:
  - 3.1. MINIMUM CSA 22.3 No.1 VERTICAL GROUND CLEARANCE: 5.50 m
  - 3.2. DESIGN VERTICAL GROUND CLEARANCE: 6.50 m
- 4. VERTICAL GROUND CLEARANCE LOADING CONDITIONS
  - 4.1. PHASE CONDUCTOR
    - (i) MAXIMUM CONDUCTOR TEMPERATURE: 100°C
    - (ii) DESIGN CONDUCTOR TEMPERATURE (AS PER IEEE STD. 738): 75°C
    - (iii) RADIAL ICE THICKNESS (CLEARANCE): 12.7 mm (1/2")
- 5. PHASE CLEARANCE CONDITIONS:
  - (i) HOURLY WIND (NATIONAL BUILDING CODE 1/50): 520 Pa (~104 km/hr)
  - (ii) HOURLY WIND (NATIONAL BUILDING CODE 1/30): 480 Pa (~100 km/hr)
  - (iii) GALLOPING
    - GALLOPING SWING: 290 Pa
    - GALLOPING ICE: 12.7 mm (1/2")

**C. WIND POWER PROJECT CIRCUITS DATA**

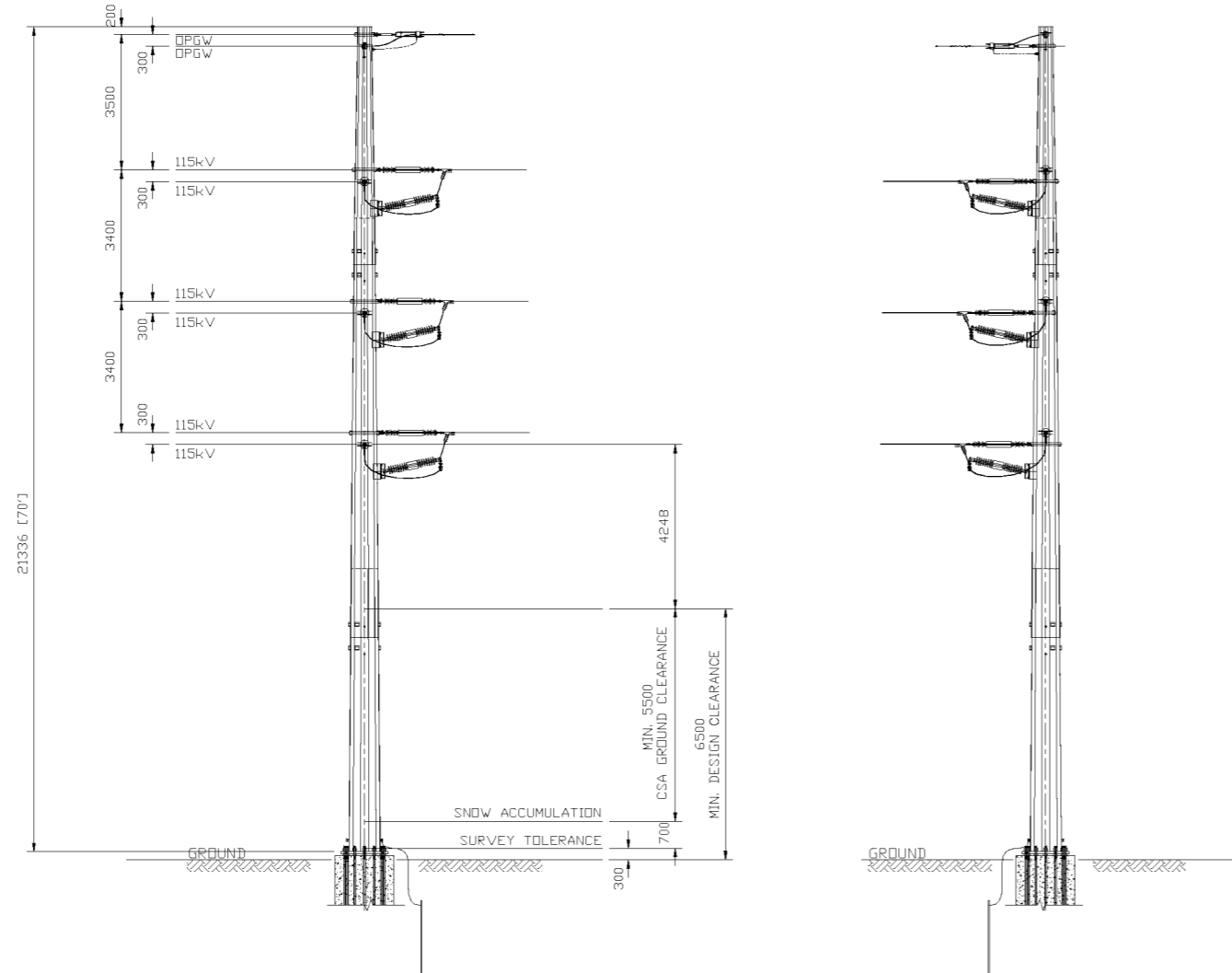
- 1. MERCHANT CIRCUIT(S)
  - 1.1. NOMINAL SYSTEM VOLTAGE: 124 kV
  - 1.2. NUMBER OF PHASES: 3 (THREE)
  - 1.3. SYSTEM FREQUENCY: 60 Hz
  - 1.4. SYSTEM GROUNDING: LOW IMPEDANCE
  - 1.5. NUMBER OF CIRCUIT: 1 (ONE)
  - 1.6. MAXIMUM CIRCUIT CURRENT: 560A PER CIRCUIT
  - 1.7. PHASE CONDUCTOR SIZE: 795 MCM ACSR (DRAKE)
  - 1.8. DESIGN CONDUCTOR TEMPERATURE: 75°C



REV	D/M/Y	REVISION	DR	CHK	APP	APP	APP	ISS	D/M/Y	APP	ISSUED FOR	REF	NUMBER	TITLE	REFERENCES
B	15/01/13	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION						B	15/01/13		ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				
A	15/11/13	CONCEPTUAL ISSUE						A	15/11/13		ISSUED FOR REVIEW				

APPROVED FOR CONSTRUCTION		CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.		AREA		SUNCOR ENERGY CEDAR POINT WIND PROJECT	
PROJECT NO.		ACTIVITY NO.		PACKAGE CODE		SUBJECT	
1CCT 115kV TRANSMISSION LINE		TANGENT (0 - 2°) FRAMING				CLIENT DWG. NO.	
SCALE		BY		D/M/Y		DRAWING NO.	
N.T.S. (11"x17")		DSN. E.KWONG		23/10/13		1325-P201	
		DRN. R.VIP		23/10/13		REV. B	
						CADD FILE ADDRESS	
						1325-P201-B	

F  
E  
D  
C  
B  
A



1CCT 115kV TRANSMISSION LINE  
STEEL POLE HEAVY ANGLE (60 - 90°) FRAMING

**DESIGN NOTES:**  
THE PROPOSED STRUCTURE FRAMING, POLE REQUIREMENT AND RECOMMENDATION STANDARD SPAN ARE BASED ON THE FOLLOWING DESIGN DATA:

- A. DESIGN CRITERIA**
- METEOROLOGICAL LOCATION: FOREST/GODERICH
  - MINIMUM DESIGN LOADING
    - CSA 22.3 No.1 (LIMIT STATE DESIGN) - CSA HEAVY CONDITION
      - HOURLY WIND: 400 Pa
      - RADIAL ICE THICKNESS: 12.7 mm (1/2")
      - CONDUCTOR TEMPERATURE: -20°C
    - CSA 22.3 No.60826 (IEC RELIABILITY DESIGN) - 1/50 PERIOD
      - (i) IEC ICE (1/50): 22 mm @ -10°C
      - (ii) IEC WIND (1/50): 111 km/h (582.77 Pa) @ -10°C
      - (iii) COMBINED ICE (85%) & WIND (60%): 18.7 mm & 210 Pa @ -10°C
- B. CLEARANCE CRITERIA**
- MEAN ANNUAL SNOW ACCUMULATION: 0.7 m
  - ADDITIONAL SURVEY TOLERANCE: 0.3 m
  - VERTICAL GROUND CLEARANCE:
    - MINIMUM CSA 22.3 No.1 VERTICAL GROUND CLEARANCE: 5.50 m
    - DESIGN VERTICAL GROUND CLEARANCE: 6.50 m
  - VERTICAL GROUND CLEARANCE LOADING CONDITIONS
    - PHASE CONDUCTOR
      - (i) MAXIMUM CONDUCTOR TEMPERATURE: 100°C
      - (ii) DESIGN CONDUCTOR TEMPERATURE (AS PER IEEE STD. 738): 75°C
      - (iii) RADIAL ICE THICKNESS (CLEARANCE): 12.7 mm (1/2")
  - PHASE CLEARANCE CONDITIONS:
    - (i) HOURLY WIND (NATIONAL BUILDING CODE 1/50): 520 Pa (-104 km/hr)
    - (ii) HOURLY WIND (NATIONAL BUILDING CODE 1/30): 480 Pa (-100 km/hr)
    - (iii) GALLOPING: 290 Pa
    - GALLOPING SWING: 12.7 mm (1/2")
    - GALLOPING ICE: 12.7 mm (1/2")
- C. WIND POWER PROJECT CIRCUITS DATA**
- MERCHANT CIRCUIT(S)
    - NOMINAL SYSTEM VOLTAGE: 124 kV
    - NUMBER OF PHASES: 3 (THREE)
    - SYSTEM FREQUENCY: 60 Hz
    - SYSTEM GROUNDING: LOW IMPEDANCE
    - NUMBER OF CIRCUIT: 1 (ONE)
    - MAXIMUM CIRCUIT CURRENT: 560A PER CIRCUIT
    - PHASE CONDUCTOR SIZE: 795 MCM ACSR (DRAKE)
    - DESIGN CONDUCTOR TEMPERATURE: 75°C

REV	D/M/Y	REVISION	DR	CHK	APP	APP	APP	ISS	D/M/Y	APP	ISSUED FOR	REF	NUMBER	TITLE	REFERENCES
B	15/01/13	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION						B	15/01/13		ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				
A	15/11/13	CONCEPTUAL ISSUE						A	15/11/13		ISSUED FOR REVIEW				

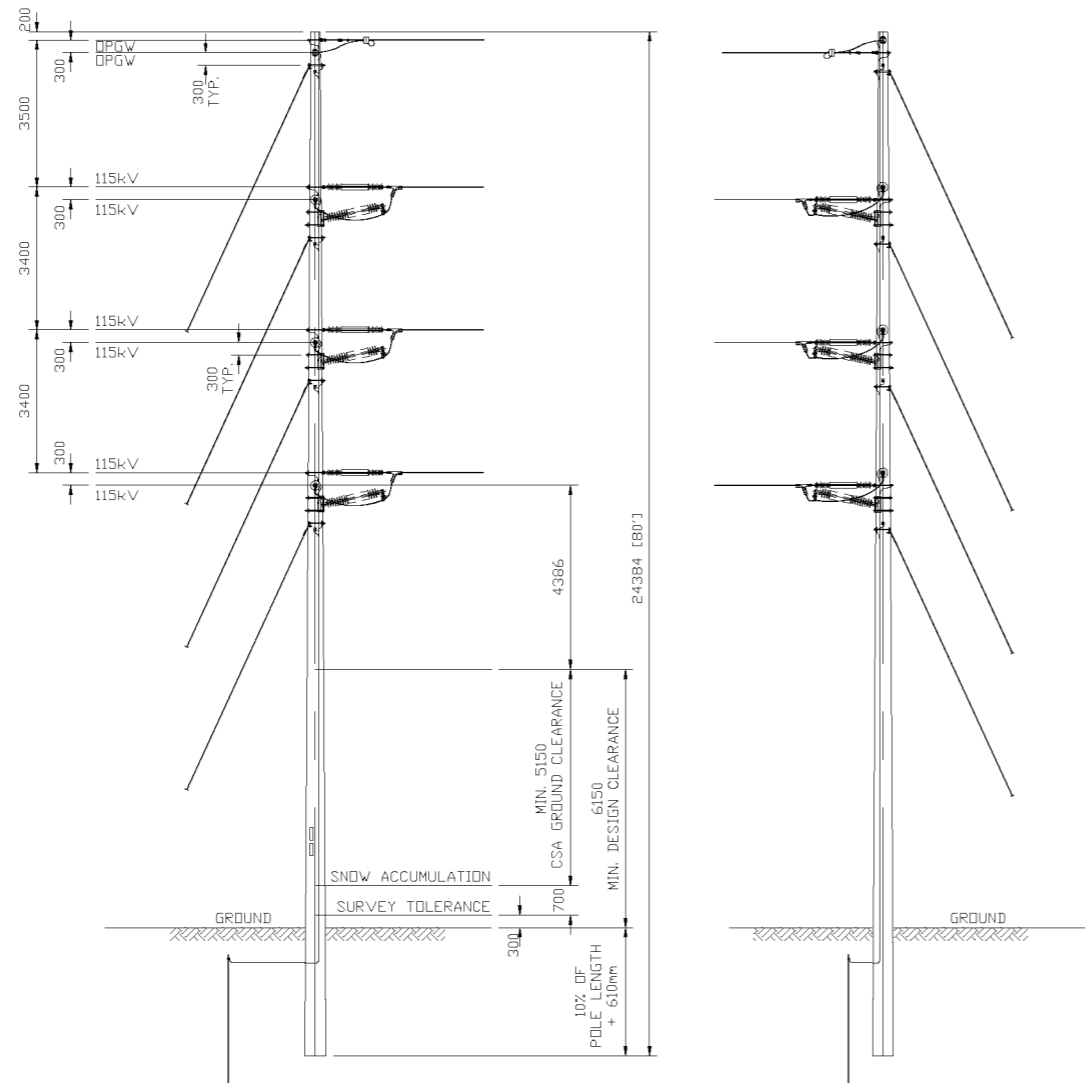
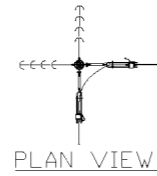
STAMP/SEAL  
PROPRIETARY INFORMATION:  
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WITHOUT THE PERMISSION OF CHIMAX INC.

APPROVED FOR CONSTRUCTION			CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.		AREA	SUNCOR ENERGY CEDAR POINT WIND PROJECT	CLIENT DWG. NO.
PROJECT NO.	ACTIVITY NO.	PACKAGE CODE	SUBJECT		1CCT 115kV TRANSMISSION LINE HEAVY ANGLE (60 - 90°) STEEL POLE FRAMING		
SCALE	BY		D/M/Y		DRAWING NO.		
N.T.S. (11"x17")	DSN.	E.KWONG	23/10/13		1325-P207		
	DRN.	D.MAO	23/10/13		CADD FILE ADDRESS		
					1325-P207-B		

**Chimax Inc.**  
Engineering Company  
3050 Fourteenth Ave. East, Suite 508  
Markham, On. L3R 0A9  
Email: chimax@chimex.ca







1CCT 115kV TRANSMISSION LINE  
HEAVY ANGLE (60 - 90°) DEADEND FRAMING

**DESIGN NOTES:**

THE PROPOSED STRUCTURE FRAMING, POLE REQUIREMENT AND RECOMMENDATION STANDARD SPAN ARE BASED ON THE FOLLOWING DESIGN DATA:

**A. DESIGN CRITERIA**

- 1. METEOROLOGICAL LOCATION: FOREST/GODERICH
- 2. MINIMUM DESIGN LOADING
  - 2.1. CSA 22.3 No.1 (LIMIT STATE DESIGN) - CSA HEAVY CONDITION
    - HOURLY WIND: 400 Pa
    - RADIAL ICE THICKNESS: 12.7 mm (1/2")
    - CONDUCTOR TEMPERATURE: -20°C
  - 2.2. CSA 22.3 No.60826 (IEC RELIABILITY DESIGN) - 1/50 PERIOD
    - (i) IEC ICE (1/50): 22 mm @ -10°C
    - (ii) IEC WIND (1/50): 111 km/h (582.77 Pa) @ -10°C
    - (iii) COMBINED ICE (85%) & WIND (60%): 18.7 mm & 210 Pa @ -10°C

**B. CLEARANCE CRITERIA**

- 1. MEAN ANNUAL SNOW ACCUMULATION: 0.7 m
- 2. ADDITIONAL SURVEY TOLERANCE: 0.3 m
- 3. VERTICAL GROUND CLEARANCE:
  - 3.1. MINIMUM CSA 22.3 No.1 VERTICAL GROUND CLEARANCE: 5.50 m
  - 3.2. DESIGN VERTICAL GROUND CLEARANCE: 6.50 m
- 4. VERTICAL GROUND CLEARANCE LOADING CONDITIONS
  - 4.1. PHASE CONDUCTOR
    - (i) MAXIMUM CONDUCTOR TEMPERATURE: 100°C
    - (ii) DESIGN CONDUCTOR TEMPERATURE (AS PER IEEE STD. 738): 75°C
    - (iii) RADIAL ICE THICKNESS (CLEARANCE): 12.7 mm (1/2")
- 5. PHASE CLEARANCE CONDITIONS:
  - (i) HOURLY WIND (NATIONAL BUILDING CODE 1/50): 520 Pa (~104 km/hr)
  - (ii) HOURLY WIND (NATIONAL BUILDING CODE 1/30): 480 Pa (~100 km/hr)
  - (iii) GALLOPING: 290 Pa
  - GALLOPING SWING: 12.7 mm (1/2")
  - GALLOPING ICE: 12.7 mm (1/2")

**C. WIND POWER PROJECT CIRCUITS DATA**

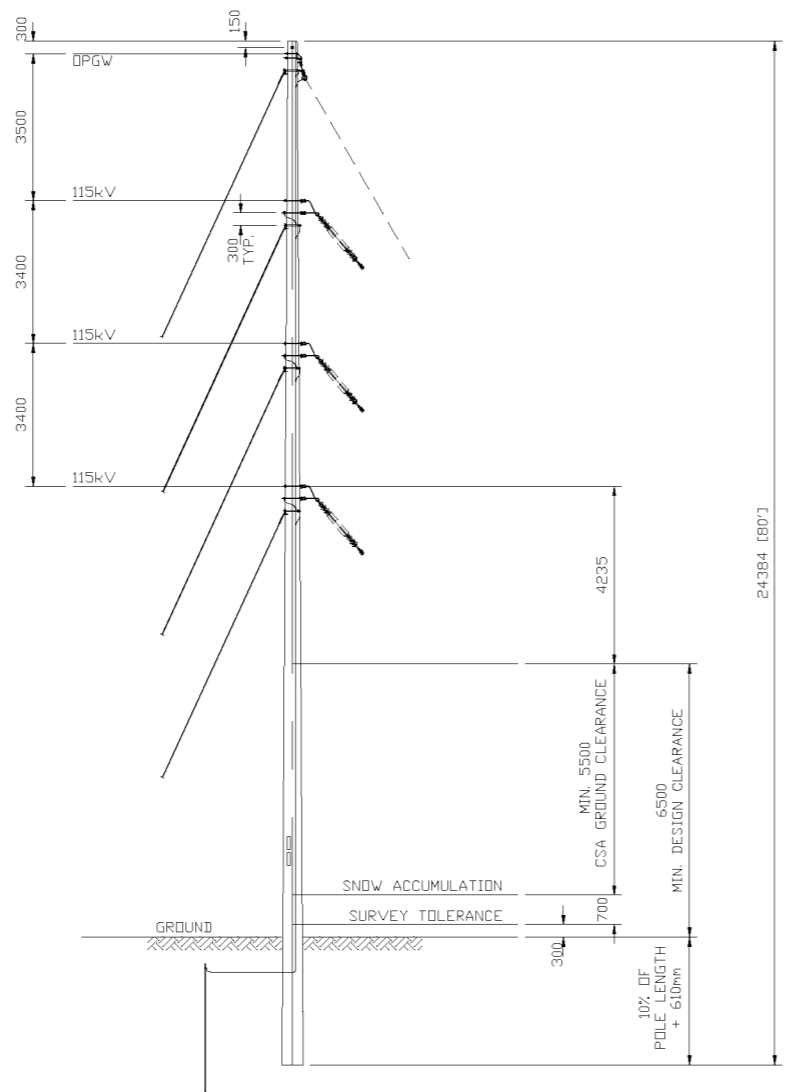
- 1. MERCHANT CIRCUIT(S)
  - 1.1. NOMINAL SYSTEM VOLTAGE: 124 kV
  - 1.2. NUMBER OF PHASES: 3 (THREE)
  - 1.3. SYSTEM FREQUENCY: 60 Hz
  - 1.4. SYSTEM GROUNDING: LOW IMPEDANCE
  - 1.5. NUMBER OF CIRCUIT: 1 (ONE)
  - 1.6. MAXIMUM CIRCUIT CURRENT: 560A PER CIRCUIT
  - 1.7. PHASE CONDUCTOR SIZE: 795 MCM ACSR (DRAKE)
  - 1.8. DESIGN CONDUCTOR TEMPERATURE: 75°C



**Chimax Inc.**  
Engineering Company  
3050 Fourteenth Ave. East, Suite 508  
Markham, On. L3R 0A9  
Email: chimax@chimex.ca

REV	D/M/Y	DESCRIPTION	DR	CHK	APP	APP	APP	ISS	D/M/Y	APP	ISSUED FOR	REF	NUMBER	TITLE	REFERENCES
B	15/01/13	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION						B	15/01/13		ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				
A	15/11/13	CONCEPTUAL ISSUE						A	15/11/13		ISSUED FOR REVIEW				

APPROVED FOR CONSTRUCTION			CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.		AREA	SUNCOR ENERGY CEDAR POINT WIND PROJECT	CLIENT DWG. NO.
PROJECT NO.	ACTIVITY NO.	PACKAGE CODE	SUBJECT		1CCT 115kV TRANSMISSION LINE		
SCALE		BY	D/M/Y	HEAVY ANGLE (60 - 90°) DEADEND FRAMING			
N.T.S. (11"x17")		DSN. E.KWONG	23/10/13	DRAWING NO. 1325-P205			
		DRN. R.VIP	23/10/13	REV. B			
		STAMP/SEAL		CADD FILE ADDRESS 1325-P205-B			



1CCT 115kV TRANSMISSION LINE  
MEDIUM ANGLE (15 - 30°) FRAMING

**DESIGN NOTES:**

THE PROPOSED STRUCTURE FRAMING, POLE REQUIREMENT AND RECOMMENDATION STANDARD SPAN ARE BASED ON THE FOLLOWING DESIGN DATA:

**A. DESIGN CRITERIA**

- |  |                              |
|--|------------------------------|
| 1. METEOROLOGICAL LOCATION:  | FOREST/GODERICH              |
| 2. MINIMUM DESIGN LOADING  |                              |
| 2.1. CSA 22.3 No.1 (LIMIT STATE DESIGN) - CSA HEAVY CONDITION        |                              |
| HOURLY WIND  | 400 Pa                       |
| RADIAL ICE THICKNESS   | 12.7 mm (1/2")               |
| CONDUCTOR TEMPERATURE  | -20°C                        |
| 2.2. CSA 22.3 No.60826 (IEC RELIABILITY DESIGN) - 1/50 PERIOD        |                              |
| (i) IEC ICE (1/50)   | 22 mm @ -10°C                |
| (ii) IEC WIND (1/50)   | 111 km/h (582.77 Pa) @ -10°C |
| (iii) COMBINED ICE (85%) & WIND (60%)                                | 18.7 mm & 210 Pa @ -10°C     |
| WIRE ADJUSTMENT MODELS & MATERIAL FACTORS AS PER CSA 22.3 No. 60826. |                              |

**B. CLEARANCE CRITERIA**

- |  |                     |
|--|---------------------|
| 1. MEAN ANNUAL SNOW ACCUMULATION:                        | 0.7 m               |
| 2. ADDITIONAL SURVEY TOLERANCE:                          | 0.3 m               |
| 3. VERTICAL GROUND CLEARANCE:                            |                     |
| 3.1. MINIMUM CSA 22.3 No.1 VERTICAL GROUND CLEARANCE     |                     |
| 115kV / 138kV CONDUCTOR                                  | 5.50 m              |
| 3.2. DESIGN VERTICAL GROUND CLEARANCE                    |                     |
| 115kV / 138kV CONDUCTOR                                  | 6.50 m              |
| 4. VERTICAL GROUND CLEARANCE LOADING CONDITIONS          |                     |
| 4.1. PHASE CONDUCTOR                                     |                     |
| (i) MAXIMUM CONDUCTOR TEMPERATURE                        | 100°C               |
| (ii) DESIGN CONDUCTOR TEMPERATURE (AS PER IEEE STD. 738) | 75°C                |
| (iii) RADIAL ICE THICKNESS (CLEARANCE)                   | 12.7 mm (1/2")      |
| 5. PHASE CLEARANCE CONDITIONS:                           |                     |
| (i) HOURLY WIND (NATIONAL BUILDING CODE 1/50)            | 520 Pa (~104 km/hr) |
| (ii) HOURLY WIND (NATIONAL BUILDING CODE 1/30)           | 480 Pa (~100 km/hr) |
| (iii) GALLOPING  |                     |
| GALLOPING SWING  | 290 Pa              |
| GALLOPING ICE  | 12.7 mm (1/2")      |

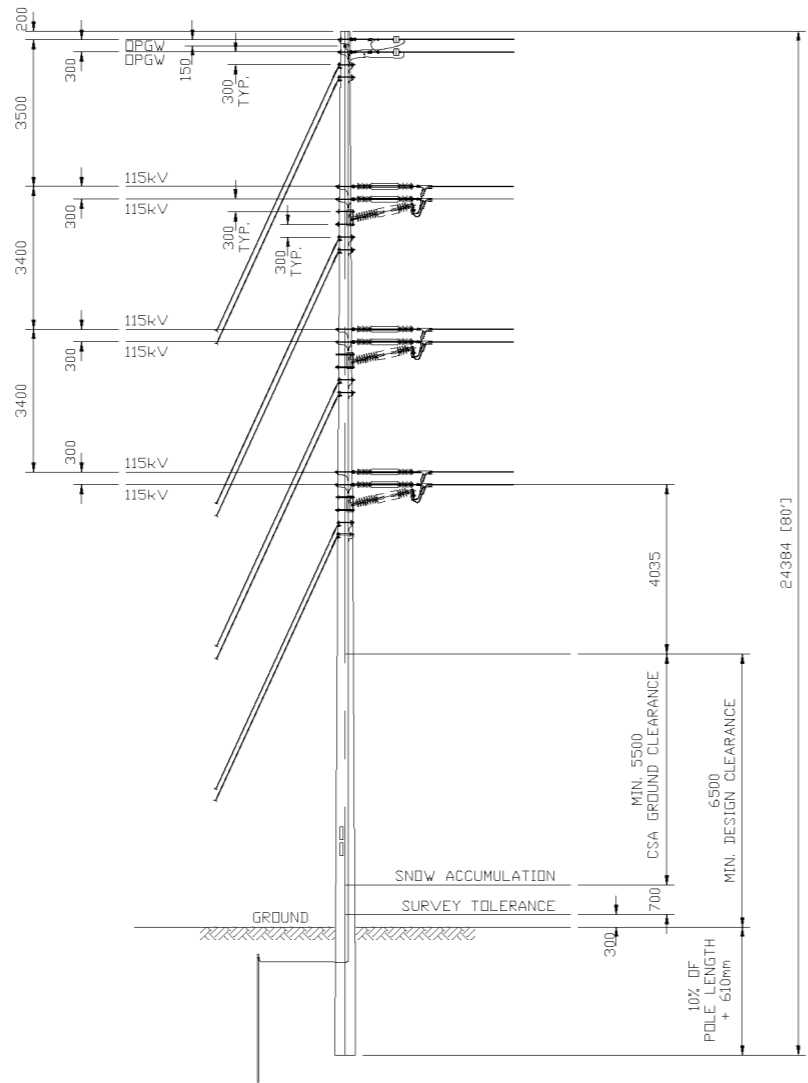
**C. WIND POWER PROJECT CIRCUITS DATA**

- |                                   |                      |
|-----------------------------------|----------------------|
| 1. MERCHANT CIRCUIT(S)            |                      |
| 1.1. NOMINAL SYSTEM VOLTAGE       | 124 kV               |
| 1.2. NUMBER OF PHASES             | 3 (THREE)            |
| 1.3. SYSTEM FREQUENCY             | 60 Hz                |
| 1.4. SYSTEM GROUNDING             | LOW IMPEDANCE        |
| 1.5. NUMBER OF CIRCUIT            | 1 (ONE)              |
| 1.6. MAXIMUM CIRCUIT CURRENT      | 560A PER CIRCUIT     |
| 1.7. PHASE CONDUCTOR SIZE         | 795 MCM ACSR (DRAKE) |
| 1.8. DESIGN CONDUCTOR TEMPERATURE | 75°C                 |



REV	D/M/Y	DESCRIPTION	DR	CHK	APP	APP	APP	ISS	D/M/Y	ISSUED FOR	REF	NUMBER	TITLE	REFERENCES
B	15/01/13	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION						B	15/01/13	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				
A	15/11/13	CONCEPTUAL ISSUE						A	15/11/13	ISSUED FOR REVIEW				

APPROVED FOR CONSTRUCTION		CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.		AREA		SUNCOR ENERGY CEDAR POINT WIND PROJECT	
PROJECT PHASE		PROJECT NO.		ACTIVITY NO.		PACKAGE CODE	
SUBJECT		SCALE		BY		D/M/Y	
1CCT 115kV TRANSMISSION LINE		N.T.S. (11"x17")		E.KWONG		23/10/13	
TANGENT (15 - 30°) FRAMING				R.YIP		23/10/13	
CLIENT DWG. NO.		DRAWING NO.		REV.			
		1325-P203		B			
CADD FILE ADDRESS		1325-P203-B					



10CT 115kV TRANSMISSION LINE  
MEDIUM ANGLE (30 - 60°) DEADEND FRAMING

**DESIGN NOTES:**

THE PROPOSED STRUCTURE FRAMING, POLE REQUIREMENT AND RECOMMENDATION STANDARD SPAN ARE BASED ON THE FOLLOWING DESIGN DATA:

**A. DESIGN CRITERIA**

- |  |                              |
|--|------------------------------|
| 1. METEOROLOGICAL LOCATION:  | FOREST/GODERICH              |
| 2. MINIMUM DESIGN LOADING  |                              |
| 2.1. CSA 22.3 No.1 (LIMIT STATE DESIGN) - CSA HEAVY CONDITION        |                              |
| HOURLY WIND  | 400 Pa                       |
| RADIAL ICE THICKNESS   | 12.7 mm (1/2")               |
| CONDUCTOR TEMPERATURE  | -20°C                        |
| 2.2. CSA 22.3 No.60826 (IEC RELIABILITY DESIGN) - 1/50 PERIOD        |                              |
| (i) IEC ICE (1/50)   | 22 mm @ -10°C                |
| (ii) IEC WIND (1/50)   | 111 km/h (582.77 Pa) @ -10°C |
| (iii) COMBINED ICE (85%) & WIND (60%)                                | 18.7 mm & 210 Pa @ -10°C     |
| WIRE ADJUSTMENT MODELS & MATERIAL FACTORS AS PER CSA 22.3 No. 60826. |                              |

**B. CLEARANCE CRITERIA**

- |  |                     |
|--|---------------------|
| 1. MEAN ANNUAL SNOW ACCUMULATION:                        | 0.7 m               |
| 2. ADDITIONAL SURVEY TOLERANCE:                          | 0.3 m               |
| 3. VERTICAL GROUND CLEARANCE:                            |                     |
| 3.1. MINIMUM CSA 22.3 No.1 VERTICAL GROUND CLEARANCE     |                     |
| 115kV / 138kV CONDUCTOR                                  | 5.50 m              |
| 3.2. DESIGN VERTICAL GROUND CLEARANCE                    |                     |
| 115kV / 138kV CONDUCTOR                                  | 6.50 m              |
| 4. VERTICAL GROUND CLEARANCE LOADING CONDITIONS          |                     |
| 4.1. PHASE CONDUCTOR                                     |                     |
| (i) MAXIMUM CONDUCTOR TEMPERATURE                        | 100°C               |
| (ii) DESIGN CONDUCTOR TEMPERATURE (AS PER IEEE STD. 738) | 75°C                |
| (iii) RADIAL ICE THICKNESS (CLEARANCE)                   | 12.7 mm (1/2")      |
| 5. PHASE CLEARANCE CONDITIONS:                           |                     |
| (i) HOURLY WIND (NATIONAL BUILDING CODE 1/50)            | 520 Pa (~104 km/hr) |
| (ii) HOURLY WIND (NATIONAL BUILDING CODE 1/30)           | 480 Pa (~100 km/hr) |
| (iii) GALLOPING  |                     |
| GALLOPING SWING  | 290 Pa              |
| GALLOPING ICE  | 12.7 mm (1/2")      |

**C. WIND POWER PROJECT CIRCUITS DATA**

- |                                   |                      |
|-----------------------------------|----------------------|
| 1. MERCHANT CIRCUIT(S)            |                      |
| 1.1. NOMINAL SYSTEM VOLTAGE       | 124 kV               |
| 1.2. NUMBER OF PHASES             | 3 (THREE)            |
| 1.3. SYSTEM FREQUENCY             | 60 Hz                |
| 1.4. SYSTEM GROUNDING             | LOW IMPEDANCE        |
| 1.5. NUMBER OF CIRCUIT            | 1 (ONE)              |
| 1.6. MAXIMUM CIRCUIT CURRENT      | 560A PER CIRCUIT     |
| 1.7. PHASE CONDUCTOR SIZE         | 795 MCM ACSR (DRAKE) |
| 1.8. DESIGN CONDUCTOR TEMPERATURE | 75°C                 |



REV	D/M/Y	DESCRIPTION	DR	CHK	APP	APP	APP	ISS	D/M/Y	APP	ISSUED FOR	REF	NUMBER	TITLE	REFERENCES
B	15/01/13	ISSUED FOR LEAVE TO CONSTRUCT APPLICATION						B	15/01/13		ISSUED FOR LEAVE TO CONSTRUCT APPLICATION				
A	15/11/13	CONCEPTUAL ISSUE						A	15/11/13		ISSUED FOR REVIEW				

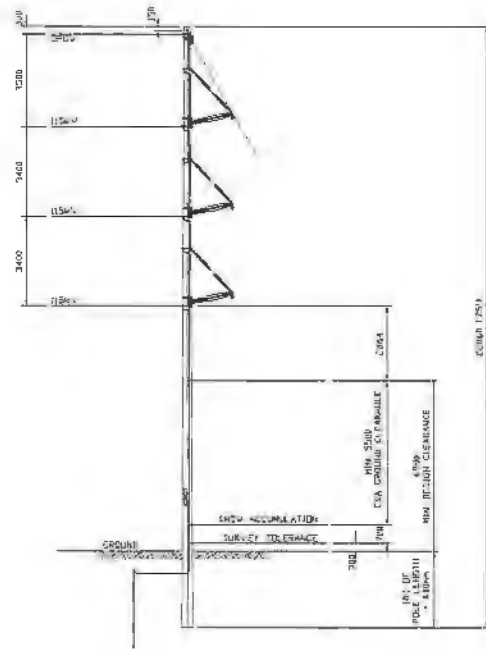
APPROVED FOR CONSTRUCTION		CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.		AREA		SUNCOR ENERGY CEDAR POINT WIND PROJECT		CLIENT DWG. NO.	
PROJECT NO.		ACTIVITY NO.		PACKAGE CODE		SUBJECT		DRAWING NO.	
N.T.S. (11"x17")		BY		D/M/Y		10CT 115kV TRANSMISSION LINE		1325-P204	
		DRN. R.VIP		23/10/13		MEDIUM ANGLE (30 - 60°) FRAMING		REV. B	
		DGN. E.KWONG		23/10/13				CADD FILE ADDRESS	
								1325-P204-B	

F  
E  
D  
C  
B  
A

F  
E  
D  
C  
B  
A







100' 115KV TRANSMISSION LINE  
TANGENT (0 - 2) FRAMING

**DESIGN NOTES**

THE PROPOSED STRUCTURE FRAMING, POLE REQUIREMENT AND RECOMMENDATION STANDARD SPAN ARE BASED ON THE FOLLOWING DESIGN DATA:

**A. DESIGN CRITERIA**

- |   |                              |
|---|------------------------------|
| 1. METEOROLOGICAL LOCATION:   | FORSTÜDDEBERG                |
| 2. MINIMUM DESIGN LOADING:  |                              |
| 2.1. CSA 22.3 No. 1 (LIMIT STATE DESIGN) - CSA HEAVY CONDITION      |                              |
| HOURLY WIND   | 400 Pa                       |
| RADIAL ICE THICKNESS  | 12.7 mm (1/2")               |
| CONDUCTOR TEMPERATURE   | -20°C                        |
| 2.2. CSA 22.3 No. 6026 (IEC RELIABILITY DESIGN) - 1/50 PERIOD       |                              |
| (I) IEC WIND (1/50)   | 22 mm @ -10°C                |
| (II) IEC WIND (1/50)  | 111 mm @ (582.77 Pa) @ -10°C |
| (III) COMBINED ICE (60%) & WIND (60%)                               | 18.7 mm @ 210 Pa @ -10°C     |
| WIRE ADJUSTMENT MODELS & MATERIAL FACTORS AS PER CSA 22.3 No. 6026. |                              |

**B. CLEARANCE CRITERIA**

- |   |                     |
|---|---------------------|
| 1. MEAN ANNUAL SNOW ACCUMULATION:                       | 0.7 m               |
| 2. ADDITIONAL SURVEY TOLERANCE:                         | 0.3 m               |
| 3. VERTICAL GROUND CLEARANCE:                           |                     |
| 3.1. MINIMUM CSA 22.3 No. 1 VERTICAL GROUND CLEARANCE   |                     |
| 115KV / 138KV CONDUCTOR                                 | 5.50 m              |
| 3.2. CUSTOM VERTICAL GROUND CLEARANCE                   |                     |
| 115KV / 138KV CONDUCTOR                                 | 6.50 m              |
| 4. VERTICAL GROUND CLEARANCE LOADING CONDITIONS:        |                     |
| 4.1. PHASE CONDUCTOR                                    |                     |
| (I) MAXIMUM CONDUCTOR TEMPERATURE                       | 100°C               |
| (II) DESIGN CONDUCTOR TEMPERATURE (AS PER IEEE STD 739) | 25°C                |
| (III) RADIAL ICE THICKNESS (CLEARANCE)                  | 12.7 mm (1/2")      |
| 5. PHASE CLEARANCE CONDITIONS:                          |                     |
| (I) HOURLY WIND (NATIONAL BUILDING CODE 1/30)           | 520 Pa (-104 mm/hr) |
| (II) HOURLY WIND (NATIONAL BUILDING CODE 1/30)          | 480 Pa (-96 mm/hr)  |
| (III) GALLOPING   |                     |
| (IV) GALLOPING SWING                                    | 280 Pa              |
| (V) GALLOPING ICE                                       | 12.7 mm (1/2")      |

**C. WIND POWER PROJECT CIRCUITS DATA**

- |                                    |                      |
|------------------------------------|----------------------|
| 1. MERCHANT CIRCUITS:              |                      |
| 1.1. NOMINAL SYSTEM VOLTAGE        | 124.5V               |
| 1.2. NUMBER OF PHASES              | 3 (THREE)            |
| 1.3. SYSTEM FREQUENCY              | 60 Hz                |
| 1.4. SYSTEM GROUNDING              | LOW IMPEDANCE        |
| 1.5. NUMBER OF CIRCUIT             | 1 (ONE)              |
| 1.6. MAXIMUM CIRCUIT CURRENT       | 500A PER CIRCUIT     |
| 1.7. PHASE CONDUCTOR SIZE          | 795 MCM ACSR (DRAKE) |
| 1.8. DESIGN CONDUCTOR TEMPERATURE: | 25°C                 |

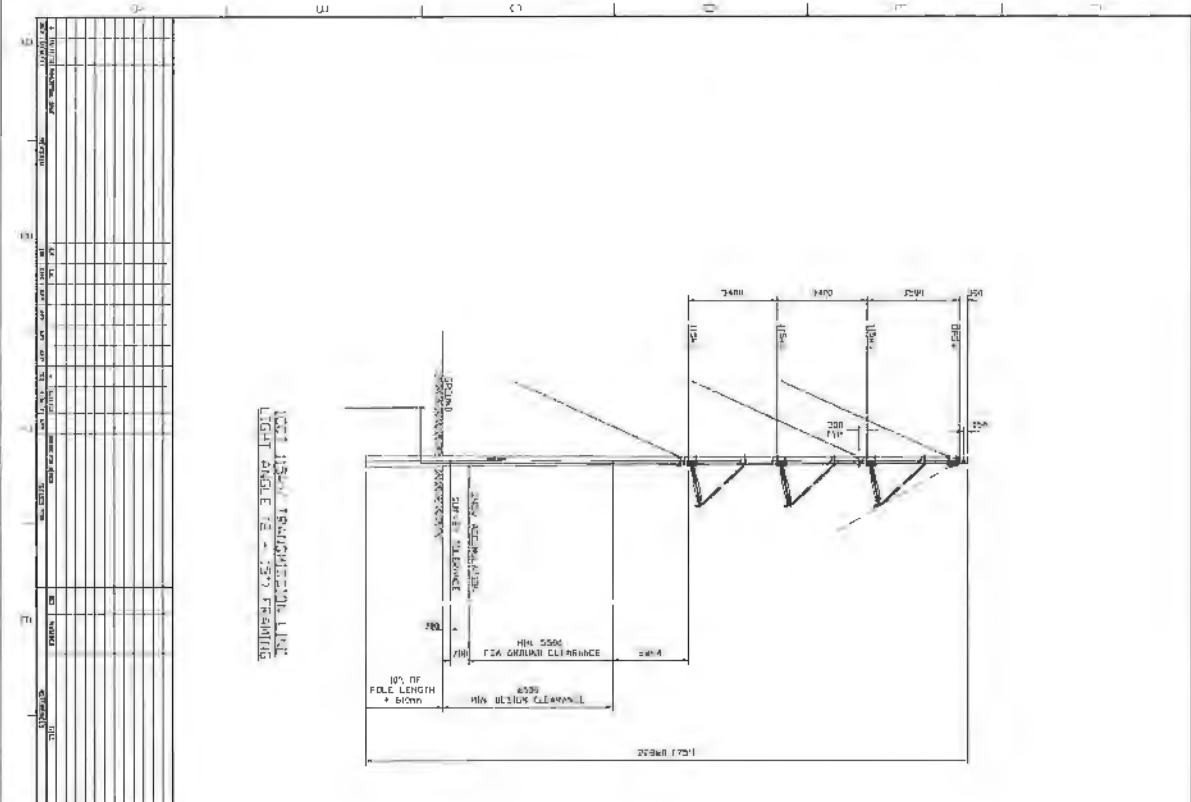
NO.	REVISION	DATE	BY	CHKD	APP'D	DESCRIPTION
1						
2						
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REVISIONS FOR CONSTRUCTION			
NO.	DATE	DESCRIPTION	BY
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4			
5			
6			
7			

**amec**

**Chimex Inc.**  
Engineering Company  
2500 TOWNSHIP RD. SW. SUITE 200  
CALGARY, ALBERTA T2C 1K5

PROJECT NO: 1325-F20  
DATE: 11/11/11



NOTE: LIGHT TRANSMISSION LINE  
LIGHT ANGLE = 157° FROM HORIZ.

NO.	DESCRIPTION	UNIT	VALUE
1	HEIGHT	FT	100
2	BASE WIDTH	FT	100
3	...	...	...

DESIGN NOTES:  
THE PROPOSED STRUCTURE FRAMING, POLE PROVISIONS AND RECOMMENDATIONS STANDARD SPAN ARE BASED ON THE FOLLOWING DESIGN DATA.

**A. DESIGN CRITERIA**

1. METEOROLOGICAL LOCATION: FOREST/ROCKWOOD
2. NOMINAL DESIGN LOADS:
  - 2.1. CSA 22.3 (60) STATE DESIGN - CSA BELAY CONDUITS
  - 2.2. CSA 22.3 (60) STATE DESIGN - CSA BELAY CONDUITS
  - 2.3. CSA 22.3 (60) STATE DESIGN - 150 PERCENT
  - 2.4. CSA 22.3 (60) STATE DESIGN - 150 PERCENT
  - 2.5. CSA 22.3 (60) STATE DESIGN - 150 PERCENT
  - 2.6. CSA 22.3 (60) STATE DESIGN - 150 PERCENT
  - 2.7. CSA 22.3 (60) STATE DESIGN - 150 PERCENT
  - 2.8. CSA 22.3 (60) STATE DESIGN - 150 PERCENT
  - 2.9. CSA 22.3 (60) STATE DESIGN - 150 PERCENT
  - 2.10. CSA 22.3 (60) STATE DESIGN - 150 PERCENT
3. COMBINED ICE (65%) & WIND (65%)
4. WIND ADJUSTMENT MODELS & WIND FACTORS AS PER CSA 22.1 (6) 8.8.2.1

**B. CLIMATE CRITERIA**

1. MEAN ANNUAL SNOW ACCUMULATION: 0.7 m
2. MEAN ANNUAL SNOW ACCUMULATION: 0.3 m
3. MEAN ANNUAL SNOW ACCUMULATION: 2.50 m
4. MEAN ANNUAL SNOW ACCUMULATION: 4.50 m
5. MEAN ANNUAL SNOW ACCUMULATION: 1.00 m
6. MEAN ANNUAL SNOW ACCUMULATION: 1.17 m (1.27)
7. MEAN ANNUAL SNOW ACCUMULATION: 5.0 m (1.64 m)
8. MEAN ANNUAL SNOW ACCUMULATION: 4.0 m (1.27 m)
9. MEAN ANNUAL SNOW ACCUMULATION: 3.0 m (0.91 m)
10. MEAN ANNUAL SNOW ACCUMULATION: 1.27 m (0.42 m)

**C. WIND POWER PROPERT CIRCUITS DATA**

1. WIND POWER PROPERT CIRCUITS DATA: 1345'
2. WIND POWER PROPERT CIRCUITS DATA: 3 (THREE)
3. WIND POWER PROPERT CIRCUITS DATA: 60 (SIXTY)
4. WIND POWER PROPERT CIRCUITS DATA: 1.00 (ONE)
5. WIND POWER PROPERT CIRCUITS DATA: 560A (FIVE SIX HUNDRED)
6. WIND POWER PROPERT CIRCUITS DATA: 795MVA (SEVEN HUNDRED FIFTY NINE)

**ameco**

**ChinaX Inc.**

1355-1320



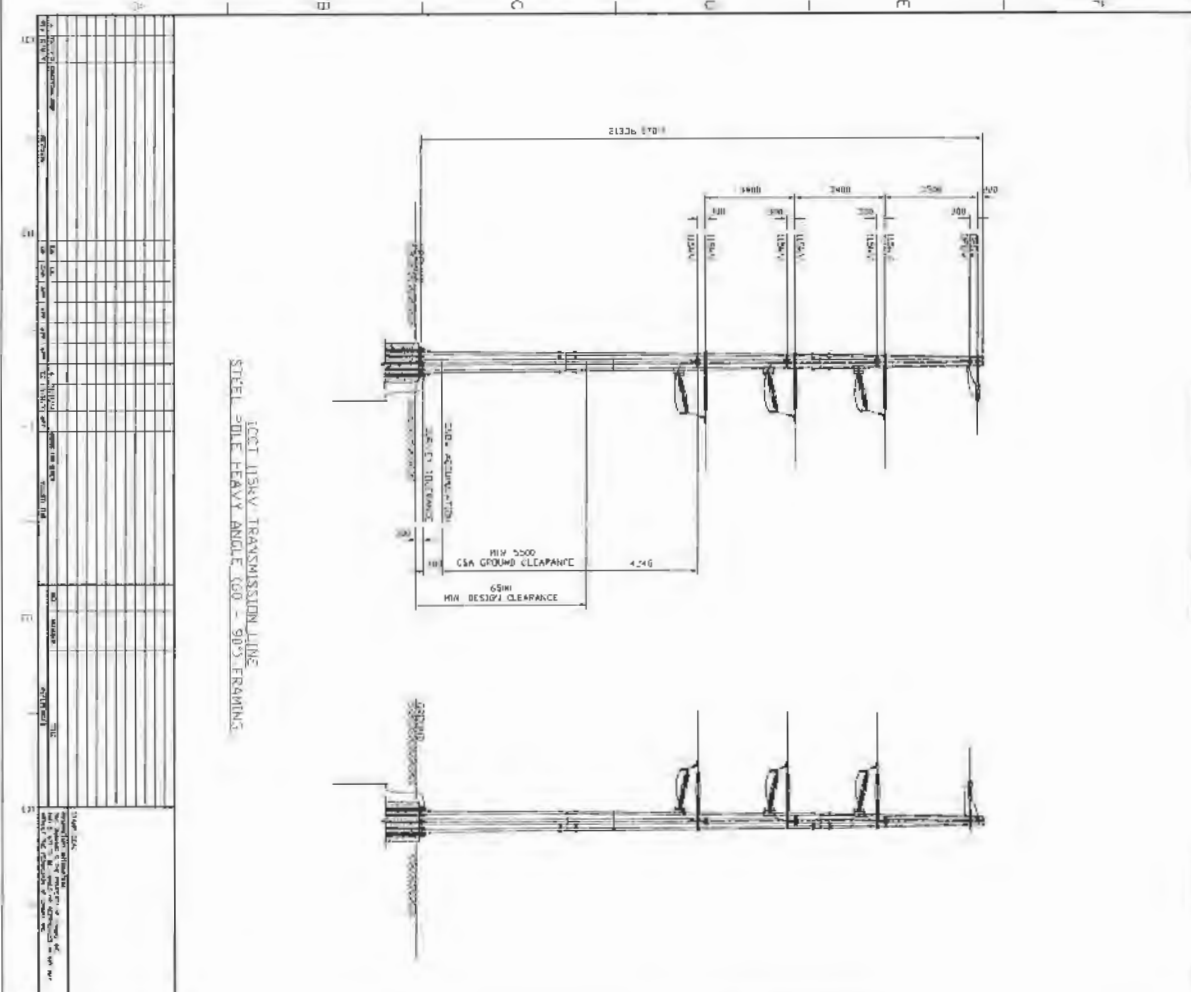












100 FT HEAVY TRANSMISSION LINE  
STEEL POLE HEAVY ANGLE (90 - 90) FRAMING

**DESIGN NOTES:**  
THE PROPOSED STRUCTURE FRAMEWORK REQUIREMENT AND RECOMMENDATION STANDARD SHALL BE BASED ON THE FOLLOWING DESIGN DATA.

**A. DESIGN CRITERIA**

DESCRIPTION	REQUIREMENT
1. METEOROLOGICAL LOCATION	FOREST/URBANA
2. ANEMOMETER DESIGN LOCATION	40 FT
3. ANEMOMETER DESIGN LOCATION	12.7 mm (1/2")
4. MODERATE WIND	-20°C
5. CONDUCTOR TEMPERATURE	21 mm @ -10°C
6. ICE WIND (1.5g)	11 mm @ 152.77 Pa @ -10°C
7. EXPOSED ICE WIND (1.5g)	137 mm @ 210 Pa @ -10°C
8. WIND ADJUSTMENT MODEL & WIND SPEED FACTORS AS PER CSA S23.1	NO WIND

**B. CLEARANCE CRITERIA**

DESCRIPTION	REQUIREMENT
1. MINIMUM ANNUAL SNOW ACCUMULATION	0.2 m
2. MINIMUM ANNUAL SNOW ACCUMULATION	0.2 m
3. VERTICAL GROUND CLEARANCE	5.30 m
4. MINIMUM CSA 22.3 NO. 1 VERTICAL GROUND CLEARANCE	6.97 m
5. MINIMUM VERTICAL GROUND CLEARANCE	1.90 m
6. MINIMUM VERTICAL GROUND CLEARANCE	1.27 mm (1/2")
7. MINIMUM VERTICAL GROUND CLEARANCE	12.7 mm (1/2")
8. MINIMUM VERTICAL GROUND CLEARANCE	152 Pa (1.5g) Snow
9. MINIMUM VERTICAL GROUND CLEARANCE	480 Pa (1.5g) Snow
10. MINIMUM VERTICAL GROUND CLEARANCE	202 Pa
11. MINIMUM VERTICAL GROUND CLEARANCE	171 mm (1/2")

**C. WIND POWER PRODUCT CIRCUITS DATA**

DESCRIPTION	REQUIREMENT
1. NOMINAL SYSTEM VOLTAGE	115 kV
2. NUMBER OF PHASES	3 PH
3. SYSTEM FREQUENCY	60 Hz
4. NUMBER OF CIRCUITS	1 CIRCUIT
5. NUMBER OF CONDUCTORS	5664 PER CIRCUIT
6. PHASE CONDUCTOR SIZE	5664 PER CIRCUIT
7. PHASE CONDUCTOR TYPE	5664 PER CIRCUIT
8. PHASE CONDUCTOR TENSION	5664 PER CIRCUIT
9. PHASE CONDUCTOR TENSION	5664 PER CIRCUIT

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**Exhibit B, Tab 3, Schedule 1  
Need for the Project**

## **NEED FOR THE PROJECT**

In July 2011, the OPA awarded Suncor a FIT contract in respect of the Cedar Point Wind Power Project. This project will further the Government of Ontario's policy objective of increasing the amount of renewable energy generation that forms part of Ontario's energy supply mix. In particular, the Cedar Point Project will contribute approximately 100 MW of renewable energy capacity towards this objective. The Proposed Transmission Facilities are needed to connect the generation plant to the IESO-controlled grid. As the development of the projects promotes the use of renewable energy sources in a manner consistent with the policies of the Government of Ontario, the Proposed Transmission Facilities are in the public interest pursuant to paragraph 96(2)2 of the *Ontario Energy Board Act, 1998*, which provides as follows:

**96.(2)** In an application under section 92, the Board shall only consider the following when, under subsection (1), it considers whether the construction, expansion or reinforcement of the electricity transmission line or electricity distribution line, or the making of the interconnection, is in the public interest:

1. The interests of consumers with respect to prices and the reliability and quality of electricity service.
2. Where applicable and in a manner consistent with the policies of the Government of Ontario, the promotion of the use of renewable energy sources.



**Exhibit B, Tab 4, Schedule 1**  
**Transmission Alternatives Considered**

## **TRANSMISSION ALTERNATIVES CONSIDERED**

This Schedule discusses the process that Suncor undertook in selecting the route for the Proposed Transmission Facilities, as well as in reviewing potential alternative routes that were ultimately rejected. At a high level, the location of Suncor's Cedar Point Project, and NextEra's Bornish, Jericho, and Adelaide projects, relative to the IESO grid, suggested that the most economic, least intrusive path for electricity generated by the Cedar Point Project to the IESO grid was through NextEra's proposed transmission facilities, including the Shared Transmission Facilities, and the Jericho Shared Transmission Line.

Suncor has obtained an option from NextEra to interconnect with the Jericho Substation, the Jericho Shared Transmission Line and the Shared Transmission Facilities, as well as an option to licence capacity on those facilities sufficient to convey the electricity output from the Cedar Point Project to the IESO controlled grid for the term of the FIT Agreement.

### **1. Selection Process**

With respect to the best route for the transmission line from Cedar Point Transformer Station to the Jericho Station, Suncor identified and considered two alternative routes. Suncor selected its preferred route, following extensive consultations with members of the community, municipal officials, Hydro One and other stakeholders, as well as comprehensive technical and environmental reviews. As part of its Renewable Energy Approval (“**REA**”) process, Suncor issued notices, delivered presentations, participated in public meetings, and met with local government officials. A discussion of Suncor's community and aboriginal, agency and municipal consultations is found in Exhibit G, Tab 1, Schedule 1. During the course of these consultations, Suncor shared information and received feedback concerning the potential routes for the transmission facilities needed to connect the Cedar Point Project to the Jericho Station. This feedback was considered, together with Suncor's technical and environmental reviews, in order to help identify the range of transmission options available to Suncor and any relevant concerns.

Through this process, as noted below, Suncor identified several potential transmission routes, as well as various constraints on these potential routes. Suncor then evaluated the two most attractive route options in detail (see below) and the related constraints and determined that the preferred Transmission Line route is that proposed for the Proposed Transmission Facilities. For reason of cost-effectiveness and ease of service, Suncor has chosen to use an overhead transmission line.

Suncor considered several alternatives for the Transmission Line. The principal alternative had the Transmission Line starting at the same substation location, travelling East along the Cedar Point Line Right of way for approximately 6100m to an abandoned and removed rail line where the line would travel North East across private land for approximately 4800m . This rail line has split the land parcels in the area and runs past the Jericho Substation location. This alternative route would have followed a natural property line boundary and been a very direct route

(approximately 11,000m) compared to the preferred path of approximately 15,000m. However, Suncor does not have property control along the abandoned rail line. The alternative placement would also impact farming operations as the Transmission Line would require crossing lands at an angle and structures would interrupt farming operations significantly.

Minor deviations from the Preferred Transmission Line path were also considered, these including routing the line along road Right of Way on Rawlings Road to Proof Line. However in all cases a path was chosen that routed the Transmission Line along Suncor-controlled lands to minimize the amount of Road Right Of Way required.