

**EXHIBIT C**  
**Engineering Specifications for an Overhead Transmission Line**  
**Segment 3 of 3**

PRINCIPAL CIRCUIT

1. Name of Petitioner: ITC Midwest, LLC
2. Name or Circuit Number of Line: Hiawatha - LaFayette
3. Length of Segment: 0.12 miles
4. Segment is located in the following sections, townships, and ranges: Section 28 in T85N, R7W
5. Segment will be constructed in 2013.
6. Segment will be constructed and maintained in accordance with the Iowa Electrical Safety Code and the 2007 Edition of the National Electrical Safety Code.
7. Maximum *Capable of Operating* Voltage: 72.5 kVAC      Nominal Operating Voltage: 69 kVAC
8. Construction Grade: B      Typical Span: 275 ft.      Maximum Span: 300 ft.

**Vertical Overhead Clearance Requirement\* for the Phase Conductors**

	<i>Surface</i>	<i>Basic Clearance</i>	+	<i>Voltage Adder</i>	+	<i>Additional Adders</i>	=	<i>Clearance</i>
9.	<i>Open Ground</i>	18.5 ft.	+	0.7 ft.	+	ft.	=	19.2 ft.
10.	<i>Roads</i>	18.5 ft.	+	0.7 ft.	+	ft.	=	19.2 ft.
11.	<i>(no RR crossings)</i>	ft.	+	ft.	+	ft.	=	ft.
12.	<i>(no water surfaces)</i>	ft.	+	ft.	+	ft.	=	ft.

\* The Iowa Electrical Safety Code and the applicable edition of the NESC should both be referenced to determine the conditions at which the above clearances apply.

**Phase Conductors:**

13. Code Word: T2 Penguin    Size: 2-4/0    Stranding: 2-6/1    Material: ACSR

**Shield Wire(s):**

14. Size: 3/8"    Stranding: 7    Material: EHS Steel
15. Frequency of Shield Wire Grounding (if applicable): At each structure

**Typical Insulators**

	<i>Post Type</i>	<i>Suspension Type</i>	
		<i>Tan. / Ang.</i> N/A	<i>Strain</i> <i>Single Piece Unit</i>
16.	<i>Manufacturer</i>		
17.	Ohio Brass		Ohio Brass
18.	<i>Catalog number</i>		
	80S0690600 or Equivalent		S025030H2010 or Equivalent
19.	<i>Dry Flashover</i>	230 kV	kV
20.	<i>Wet Flashover</i>	180 kV	kV
21.	<i>Impulse Flashover, +</i>	360 kV	kV
22.	<i>Impulse Flashover, -</i>	415 kV	kV

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Rev. 04/20/10

**Typical Structures:**

- 23. Structures Typically are: Wood Poles
- 24. Typical Height After Installation: 56.5 ft.

**Typical Wood Pole:**

- 25. Species: Pacific Coast Douglas Fir Treatment: Penta Class: 1 Length: 65 ft.

**Steel Structures:**

- 26. Steel Pole or Tower Material: N/A
- 27. H-Frame Structure Bracing Type: N/A Spacing Between H-Frame Poles: N/A ft.
- 28. Support Arm Type: N/A Material: N/A Dimensions: N/A
- 29. Guys are: Insulated Guy Markers are: Orange

**SECOND TRANSMISSION CIRCUIT (if applicable)**

- 30. Name of Owner: N/A
- 31. Name or Circuit Number of Line: \_\_\_\_\_
- 32. If Franchised Separately, Docket Number of Order Granting Franchise: \_\_\_\_\_
- 33. Maximum *Capable of Operating* Voltage: \_\_\_\_\_ Nominal Operating Voltage: \_\_\_\_\_

**Vertical Overhead Clearance Requirement\* for the Phase Conductors**

	<i>Surface</i>	<i>Basic Clearance</i>	+	<i>Voltage Adder</i>	+	<i>Additional Adders</i>	=	<i>Clearance</i>
34.	<i>Open Ground</i>	ft.	+	ft.	+	ft.	=	ft.
35.	<i>Roads</i>	ft.	+	ft.	+	ft.	=	ft.
36.	<i>Railroads</i>	ft.	+	ft.	+	ft.	=	ft.
37.	<i>Water</i>	ft.	+	ft.	+	ft.	=	ft.

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**Phase Conductors:**

- 35. Code Word: \_\_\_\_\_ Size: \_\_\_\_\_ Stranding: \_\_\_\_\_ Material: \_\_\_\_\_

**Typical Insulators**

	<i>Post Type</i>	<i>Suspension Type</i>	
		<i>Tan. / Ang.</i> ( <i>select</i> )	<i>Strain</i> ( <i>select</i> )
36.	<i>Manufacturer</i>		
37.	<i>Catalog number</i>		
38.	<i>Dry Flashover</i>	kV	kV
39.	<i>Wet Flashover</i>	kV	kV
40.	<i>Impulse Flashover, +</i>	kV	kV
41.	<i>Impulse Flashover, -</i>	kV	kV
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- 43. Support Arm Type: \_\_\_\_\_ Material: \_\_\_\_\_ Dimensions: \_\_\_\_\_

**E-20994**  
**(Amendment No. 10)**

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DISTRIBUTION UNDERBUILD (if applicable)

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44. Name of Owner: Interstate Power and Light Company
45. Nominal Voltage: 12.5 kV
46. Number of Distribution Phase Conductors: 3
47. Neutral is Multi-grounded Multi-Grounding Frequency: At each structure except dead ends

**Vertical Overhead Clearance Requirement\* for the Phase Conductors**

	<i>Surface</i>	<i>Basic Clearance</i>	+	<i>Additional Adders</i>	=	<i>Clearance</i>
48.	<i>Open Ground</i>	18.5 ft.	+	0.0 ft.	=	18.5 ft.
49.	<i>Roads</i>	18.5 ft.	+	0.0 ft.	=	18.5 ft.
50.	<i>(no RR crossings)</i>	ft.	+	ft.	=	ft.
51.	<i>(no water surfaces)</i>	ft.	+	ft.	=	ft.

\* The Iowa Electrical Safety Code and the applicable edition of the NESC should both be referenced to determine the conditions at which the above clearances apply.

**Vertical Overhead Clearance Requirement\* for the Neutral Conductor (if applicable)**

	<i>Surface</i>	<i>Basic Clearance</i>	+	<i>Additional Adders</i>	=	<i>Clearance</i>
52.	<i>Open Ground</i>	15.5 ft.	+	0.0 ft.	=	15.5 ft.
53.	<i>Roads</i>	15.5 ft.	+	0.0 ft.	=	15.5 ft.
54.	<i>(no RR crossings)</i>	ft.	+	ft.	=	ft.
55.	<i>(no water surfaces)</i>	ft.	+	ft.	=	ft.

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56. Support Arm Type: Crossarm Material: Wood Dimensions: 12' x 4.75" x 3.75"

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TYPICAL STRUCTURE DRAWING

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57. A drawing of a typical tangent structure, as described in the instructions, has been attached.

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ADDITIONAL DRAWINGS REQUIRED FOR NEW CONSTRUCTION

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58. Angle structures will not be used in this segment of line. A drawing of a typical angle structure, as described in the instructions, has not been attached.
59. Dead-end structures will be used in this segment of line. A drawing of a typical dead-end structure, as described in the instructions, has been attached.
60. There are no grain bins along this segment of line. Drawings showing the clearance envelope for each grain bin in relation to the proposed line are not required.

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