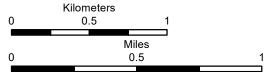


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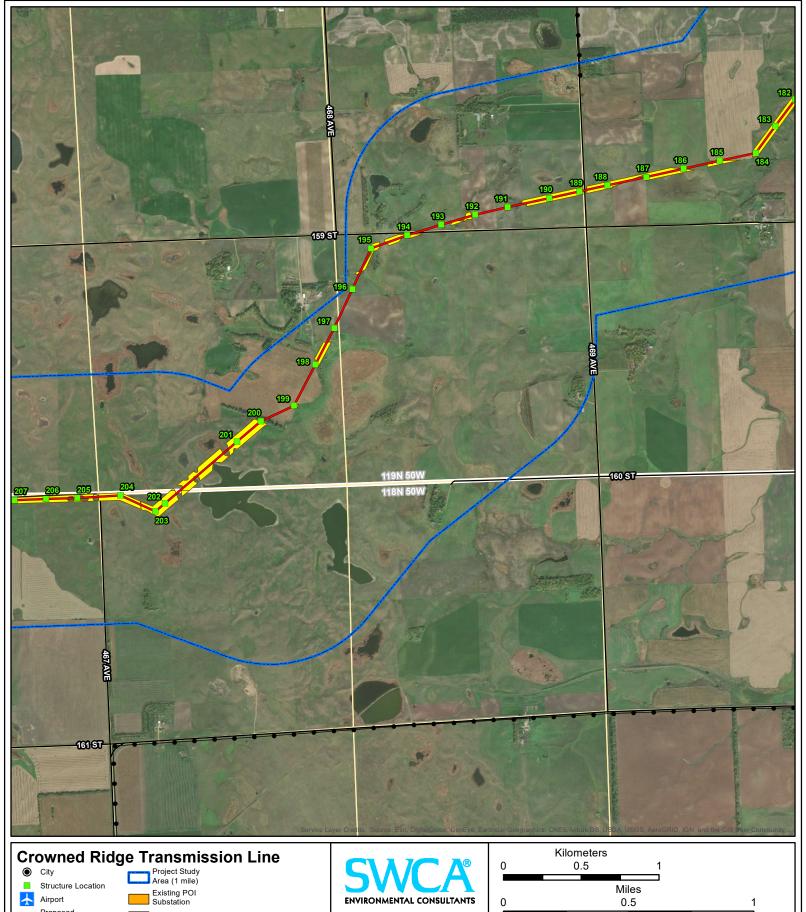
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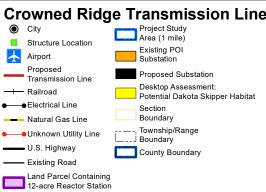
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Base Map: 2016 Aerial Imagery Source: USDA/FSA - Aerial Photography Field Office Quadrangle: South Shore (1973),

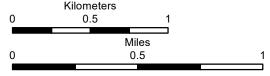
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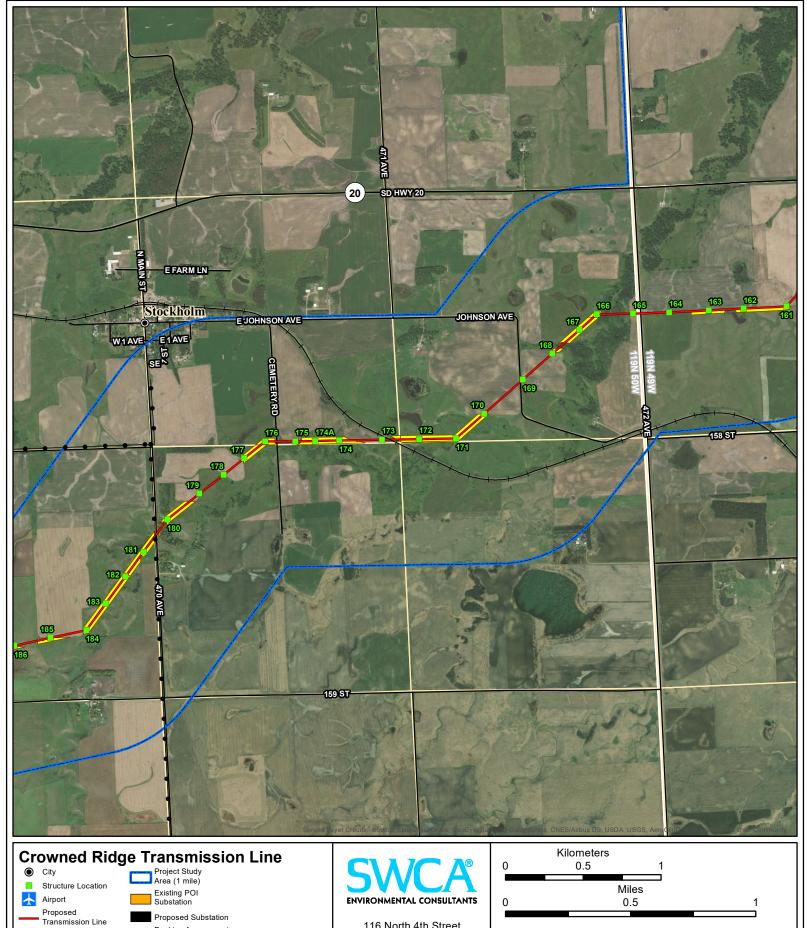
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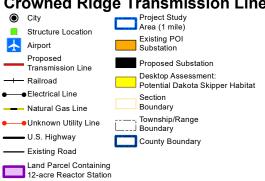
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Base Map: 2016 Aerial Imagery Source: USDA/FSA - Aerial Photography Field Office Quadrangle: Stockholm (1973)

Township/Range: T. 118N, R. 50W & T. 119N, R. 50W Grant County, North Dakota





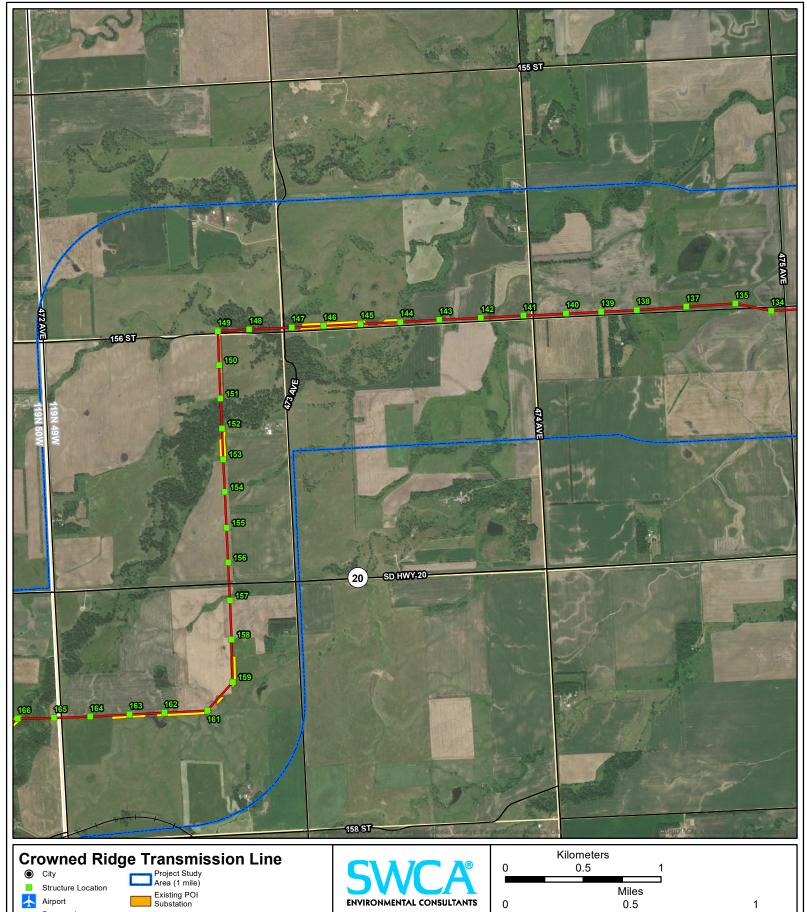
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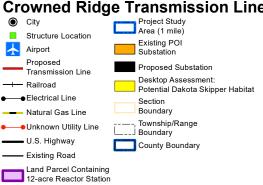
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Base Map: 2016 Aerial Imagery Source: USDA/FSA - Aerial Photography Field Office Quadrangle: Stockholm (1973)

Township/Range: T. 119N, R. 50W & T. 119N, R. 49W

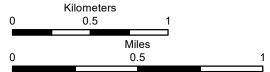
Grant County, North Dakota





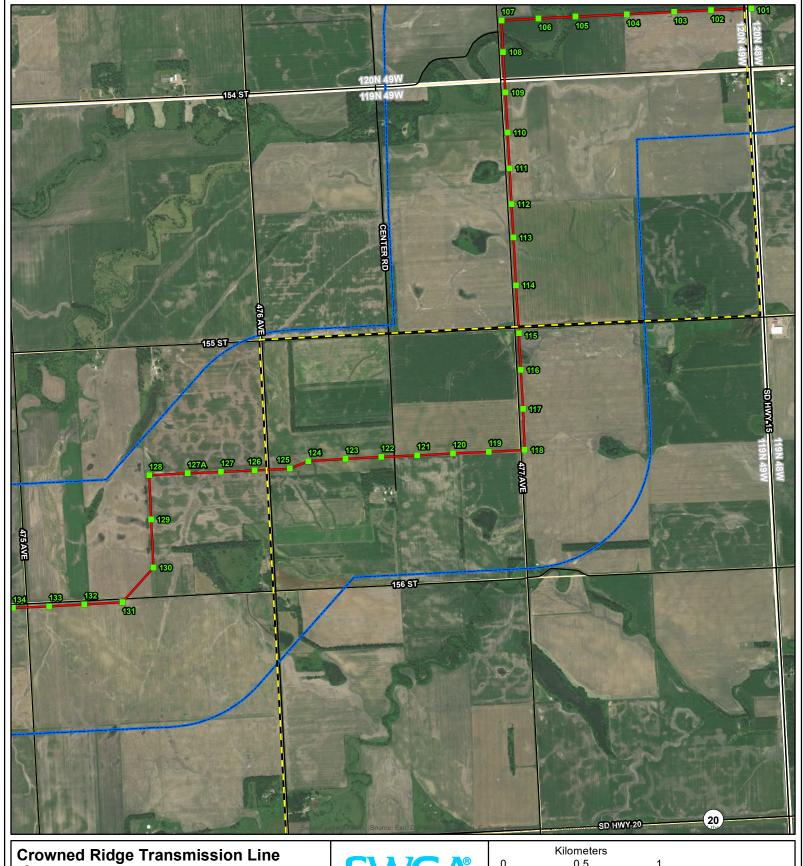
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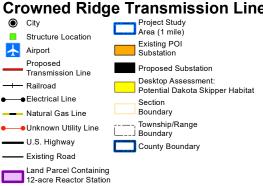
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Base Map: 2016 Aerial Imagery Source: USDA/FSA - Aerial Photography Field Office Quadrangle: Stockholm (1973), LaBolt (1973) Township/Range: T. 119N, R. 50W & T. 119N, R. 49W

Grant County, North Dakota



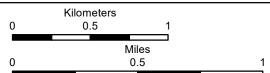


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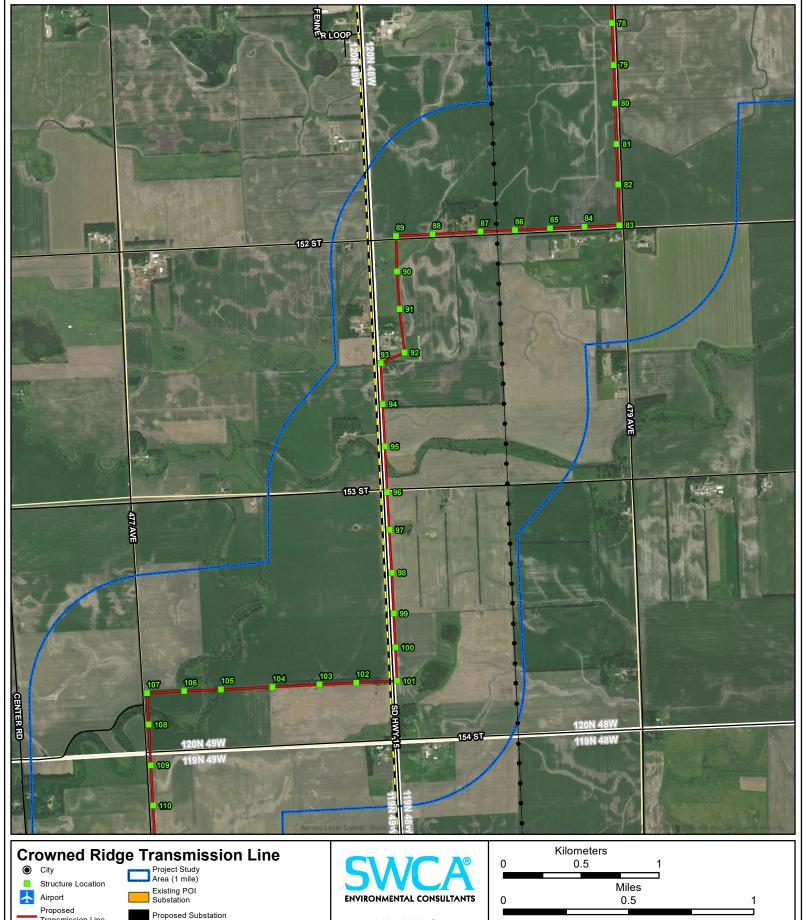
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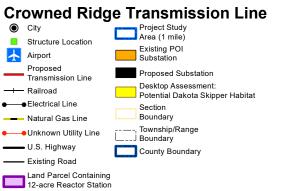
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Base Map: 2016 Aerial Imagery
Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: LaBolt (1973),
Milbank West (1973)
Township/Range: T. 119N, R. 49W &
T. 120N, R. 49W

Grant County, North Dakota





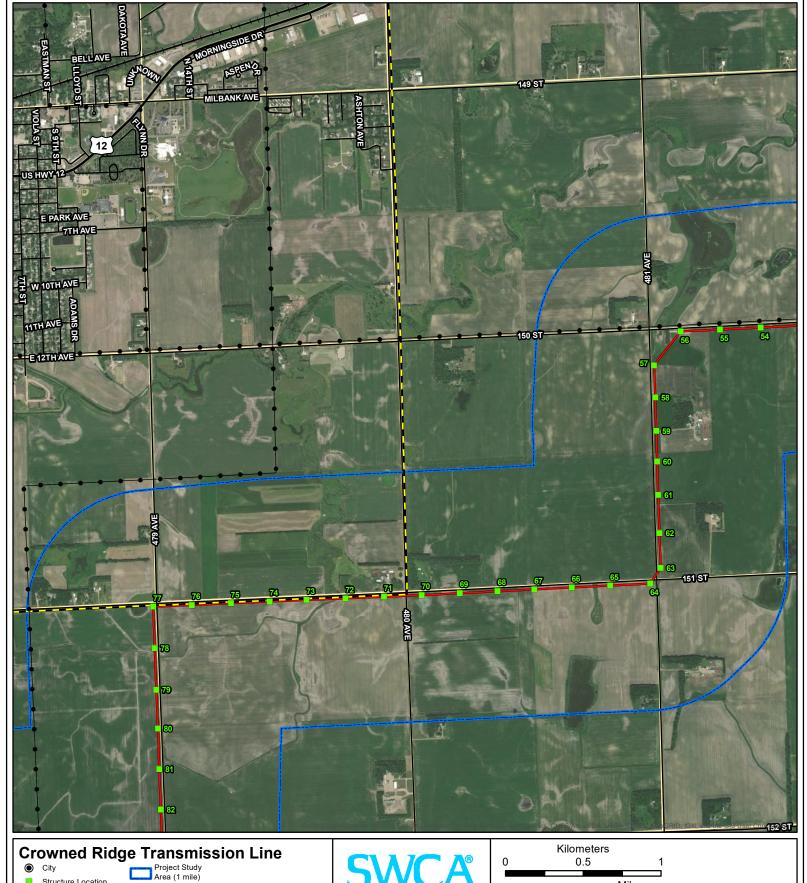
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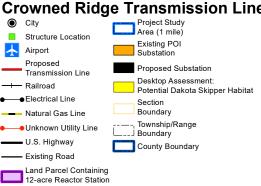
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Base Map: 2016 Aerial Imagery Source: USDA/FSA - Aerial Photography Field Office Quadrangle: Milbank West (1973), Milbank East (1973)

Township/Range: T. 119N, R. 49W & T. 120N, R. 49W

Grant County, North Dakota Projection: NAD 1983 StatePlane South Dakota North



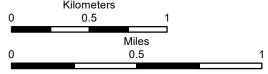


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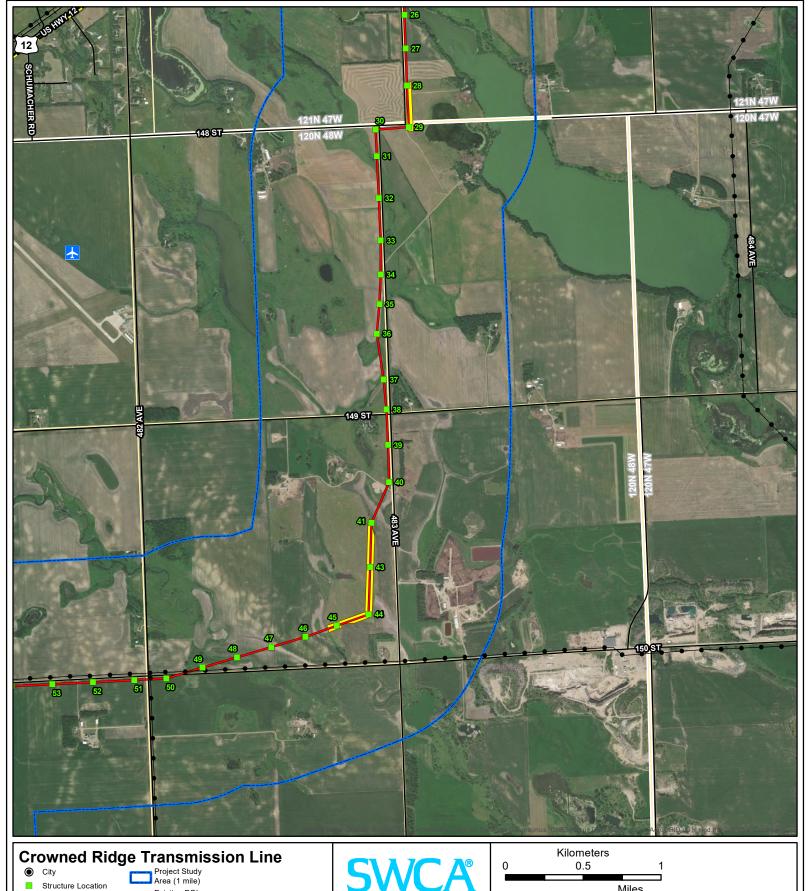
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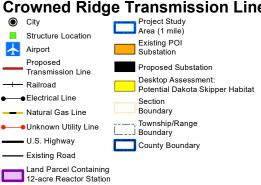


Base Map: 2016 Aerial Imagery Source: USDA/FSA - Aerial Photography Field Office Quadrangle: Milbank East (1973)

Township/Range: T. 120N, R. 48W

Grant County, North Dakota

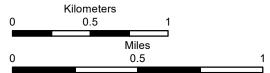




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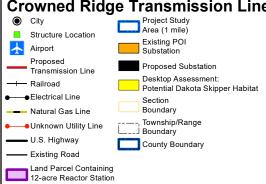
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Base Map: 2016 Aerial Imagery Source: USDA/FSA - Aerial Photography Field Office Quadrangle: Milbank East (1973)

Township/Range: T. 120N, R. 48W & T. 121N, R. 47W Grant County, North Dakota

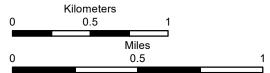




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Base Map: 2016 Aerial Imagery Source: USDA/FSA - Aerial Photography Field Office Quadrangle: Milbank East (1973), Big Stone Lake SE (1971) Township/Range: T. 121N, R. 47W

Grant County, North Dakota

The current Crowned Ridge transmission line reflects changes from our original application in relation to three aspects of infrastructure designed to accommodate landowner requests and minimize conflicting environmental constraints. In general, these changes involve taller and more self-supporting structures. The changes include 1) widening the ROW, 2) increasing pole and structure heights, and 3) increasing the average span length in specific subsections. Each of these areas are described in more detail below.

Widening the ROW

The typical ROW for the Applicant is 150 feet wide that includes all physical infrastructure and any temporary work space needed to construct and operate or maintain the transmission line. In addition, the ROW for land secured also need to include land that is not expected to be physically disturbed or impacted, but that could be affected by conductor blowout during operations. Blowout is a calculated value that estimates that horizontal distance needed absorb conductor movement under different wind speeds that varies by structure type. In general, taller structures require a wider ROW to accommodate the blowout. In this case, the Applicant is proposing specific segments of the line with wider ROWs to accommodate taller structures being used to accommodate landowner preferences and minimize conflicting environmental constraints.

The Applicant requests a ROW widening related to one highly constrained area that would increase the ROW from 150 feet wide at structure 199 to 200 feet wide (an additional 50 feet) at structure 200, then increasing to 250 feet wide from structure 200 to 203 before returning back to 150 feet wide after structure 203. The proposed widening to accommodate conductor blowout occurs over an approximately 2-mile segment of the transmission line, results in a 0.53-mile lateral displacement from the original centerline, and remains within the 1-mile Study Corridor originally described.

Increasing Pole and Structure Heights

The original application filed by Crowned Ridge referenced a range of maximum of pole and structure heights varying from 120 feet for a single circuit to 140 feet for a double circuit. The Applicant is now proposing an increase of maximum pole height for a single circuit to 165 feet. Taller poles and structures are necessary to accommodate landowner preferences and to minimize conflicting environmental constraints. Twenty eight of the 232 poles or structures are now proposed to exceed the height of 120 feet and range up to a maximum height of 165 feet. Of the 28 poles over 120 feet, 19 structures are increasing 10 feet or less (ranging from 120 to 130 feet), 6 structures are increasing between 10 feet to 20 feet (ranging from 131 to 140 feet), and 3 structures are increasing between 20 and 35 feet (ranging from 141 to 165 feet).

Taller structure heights are necessary to address 1) landowner requests (8 of 28 structures), 2) avoidance of environmental constraints such as wetlands and cultural/tribal resources (11 of 28 structures), negotiated placement balancing a combination of landowner preferences and

environmental constraints (6 of 28 structures), and setback maintenance for railroad crossings and utility clearances (3 of 28 structures).

Table 1. Revised structure types and heights proposed for all structures over 120 feet tall.

Structure Number	Structure Type	Height (ft)
	Structure Type	_ ` ` `
204	SS MEDIUM ANGLE SS H-FRAME	130
202	TANGENT	165
202	SS H-FRAME	100
201	TANGENT	165
199	SS MEDIUM ANGLE	130
198	HEAVY TANGENT	125
197	HEAVY TANGENT	125
180	SS LIGHT RA	140
175	LIGHT TANGENT	125
173	LIGHT TANGENT	125
169	HEAVY TANGENT	130
161	SS MEDIUM ANGLE	140
159	SS MEDIUM ANGLE	140
137	HEAVY TANGENT	125
135	SS LIGHT RA	125
91	HEAVY TANGENT	130
90	HEAVY TANGENT	125
87	LIGHT TANGENT	130
86	HEAVY TANGENT	125
57	SS MEDIUM ANGLE	125
56	SS DEADEND	130
50	SS LIGHT RA	125
41	SS MEDIUM ANGLE	140
38	HEAVY TANGENT	125
37	HEAVY TANGENT	130
19	LIGHT TANGENT	125
8	HEAVY TANGENT	135
5	HEAVY TANGENT	150
4	HEAVY TANGENT	135

Increasing Span Length

The original application filed by Crowned Ridge referenced maximum spans of 1,000 feet. Although the average span length of 792 feet is still below the maximum of 1,000 feet previously referenced, the the Applicant is proposing to increase the maximum span from 1,000 feet to 2,005 feet at 12 segments of

the transmission line to accommodate landowner preferences and minimizing conflicting environmental constraints. Of the 12 locations with longer spans proposed, four of these are necessary as a result of landowner preference and eight are the result of a negotiation between landowner preferences and minimizing conflicting environmental constraints.

Table 2. Structure number and span length associated with all spans proposed for over 1,000 feet in length.

Structure Number	Span Length (ft)
202	2005
170	1079
138	1051
137	1031
130	1022
115	1012
114	1012
105	1087
88	1012
6	1018
5	1087
3	1038

Intersection of Proposed Infrastructure Changes

The three sources of change in design proposed by Crowned Ridge are described above, but each of the design factors alone may also interact to generate multiple factors influencing the height of structures or average span length. For example, the Applicant is proposing a ROW expansion between structures 199 to 203 due to conductor blowout. However, six of the structure types over 120 feet tall shown in Table 1 also require an increase in height to balance landowner preferences and environmental constraints. As a result of a combination of these factors, structure 202 shows the longest increase in proposed span of 2,005 feet (Table 2) that also in turn influences structure height and ROW width. In summary, Crowned Ridge believes the changes in design proposed highlight positive developments to accommodate landowner preferences and further minimize environmental constraints.

Substation Location

The substation location in the original application was determined to have poor soil conditions after a geotechnical investigation took place. Geotechnical information revealed that soil conditions were significantly better to the south. After cultural and tribal investigations took place, the location of the substation was move approximately 850 feet south of the original location.