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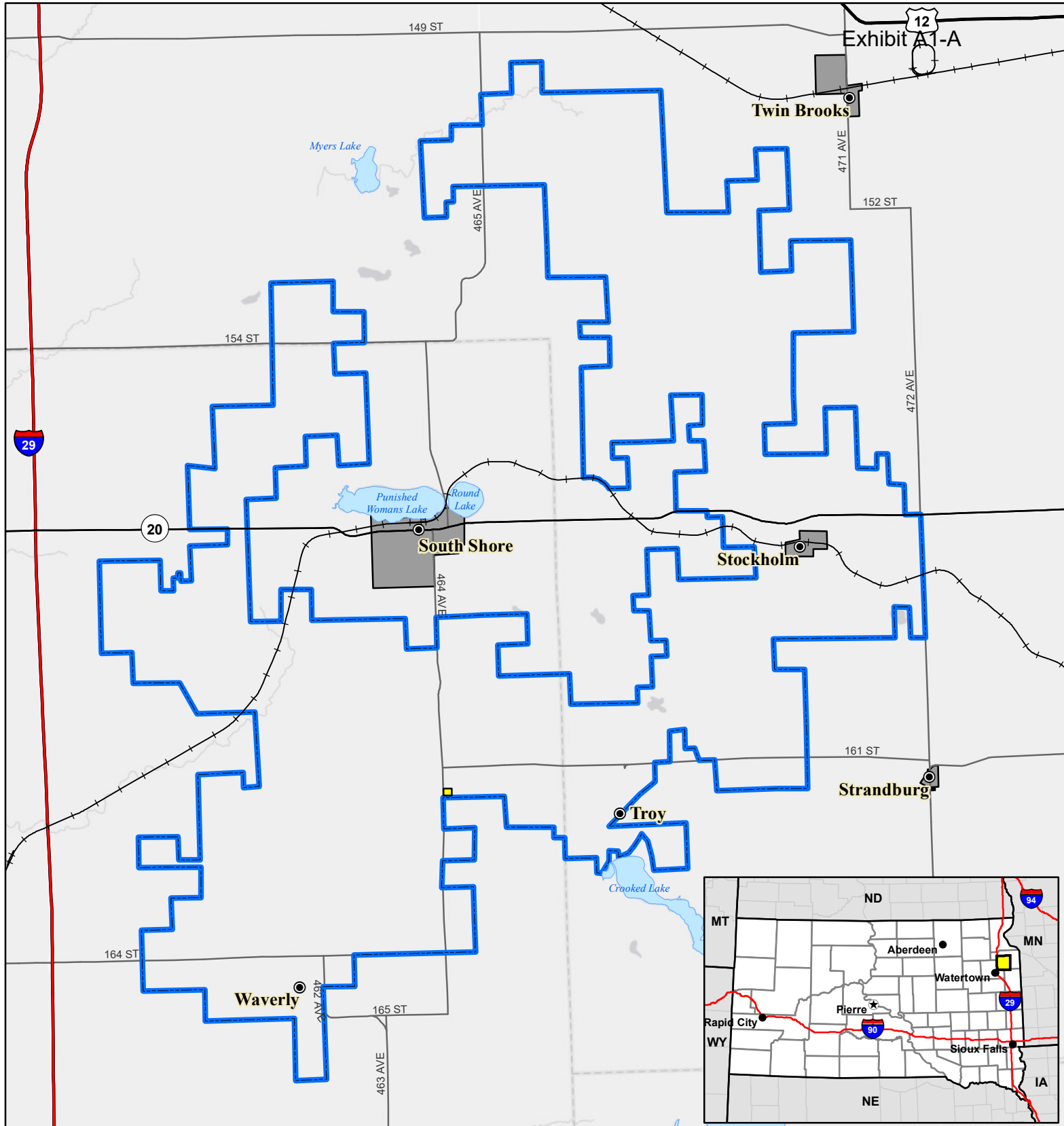
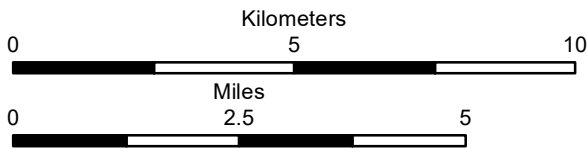


Figure 1. Project Area

Crowned Ridge Wind Farm

- City
- County Road
- +— Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- Waterbody
- Substation
- Town Boundary
- Project Boundary



Base Map: World Light Gray Canvas Base
 Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community
 Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N



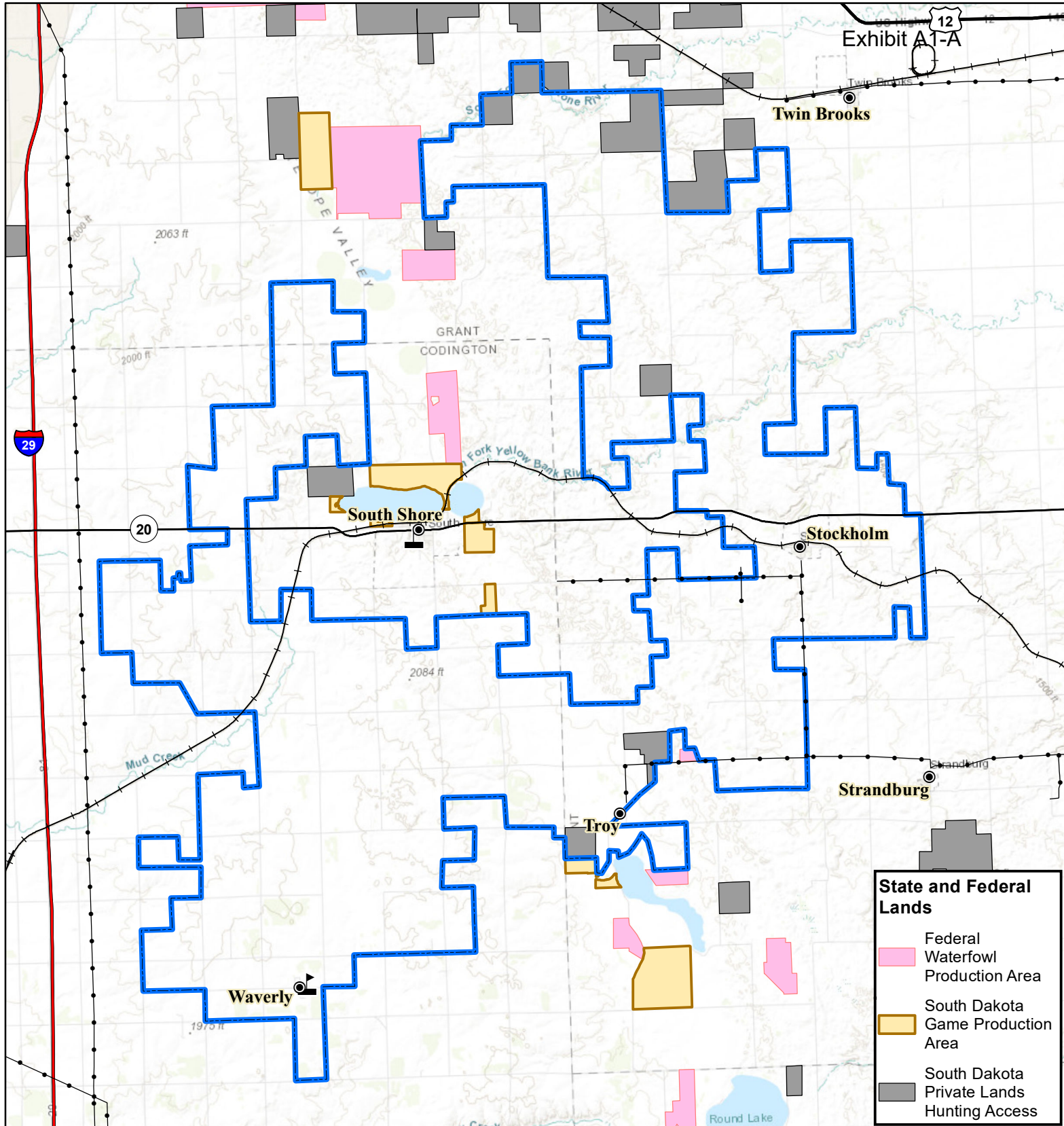
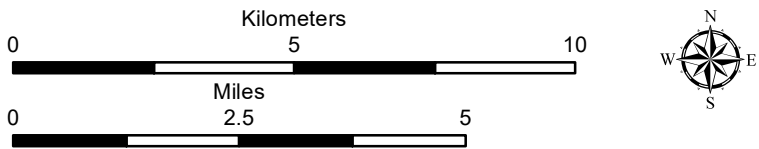


Figure 2. Public Land and Facilities
Crowned Ridge Wind Farm

- City
- ▲ School
- Electrical Line
- +— Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- Project Boundary



Base Map: World Topographic Map
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp.,
 GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL,
 Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong),
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 Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N



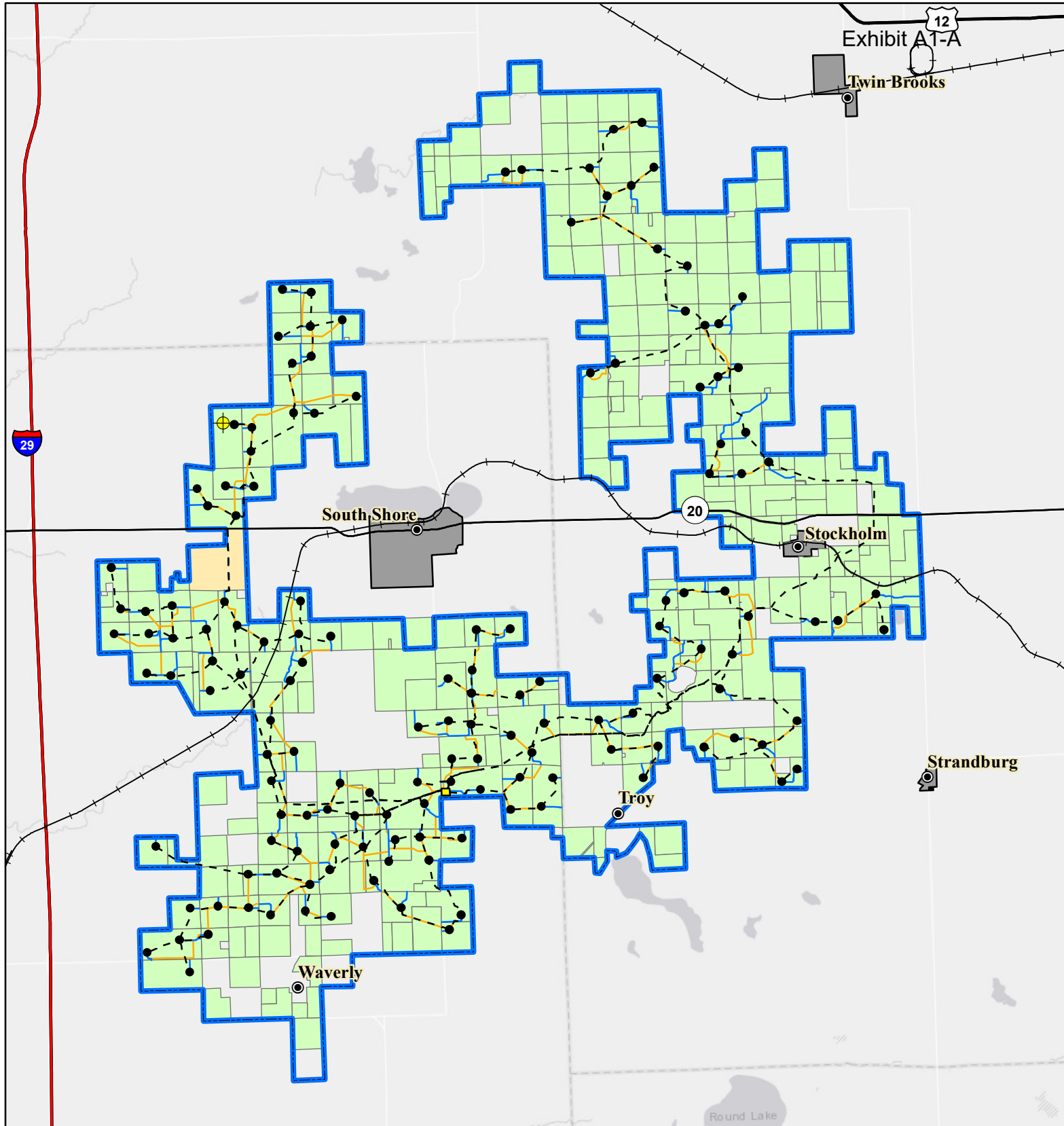
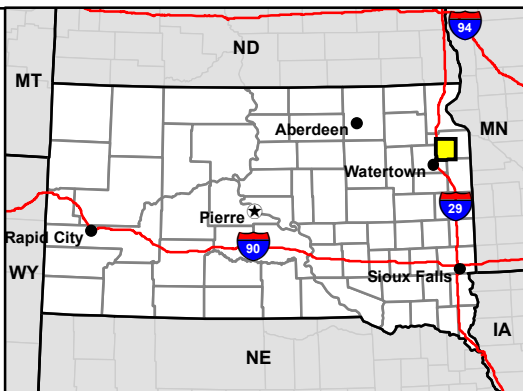


Figure 3. Project Map
Crowned Ridge Wind Farm

- MET Tower
- Turbine
- City
- Proposed Turbine Access Road
- Collector Line
- Crane Path
- Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- O&M Facility/Substation
- Town Boundary
- Project Boundary
- Lease Status**
- Lease, Signed
- Pending Approval



Kilometers

0 2.5 5

Miles

0 2.5 5

Base Map: World Light Gray Canvas Base
Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community
Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N

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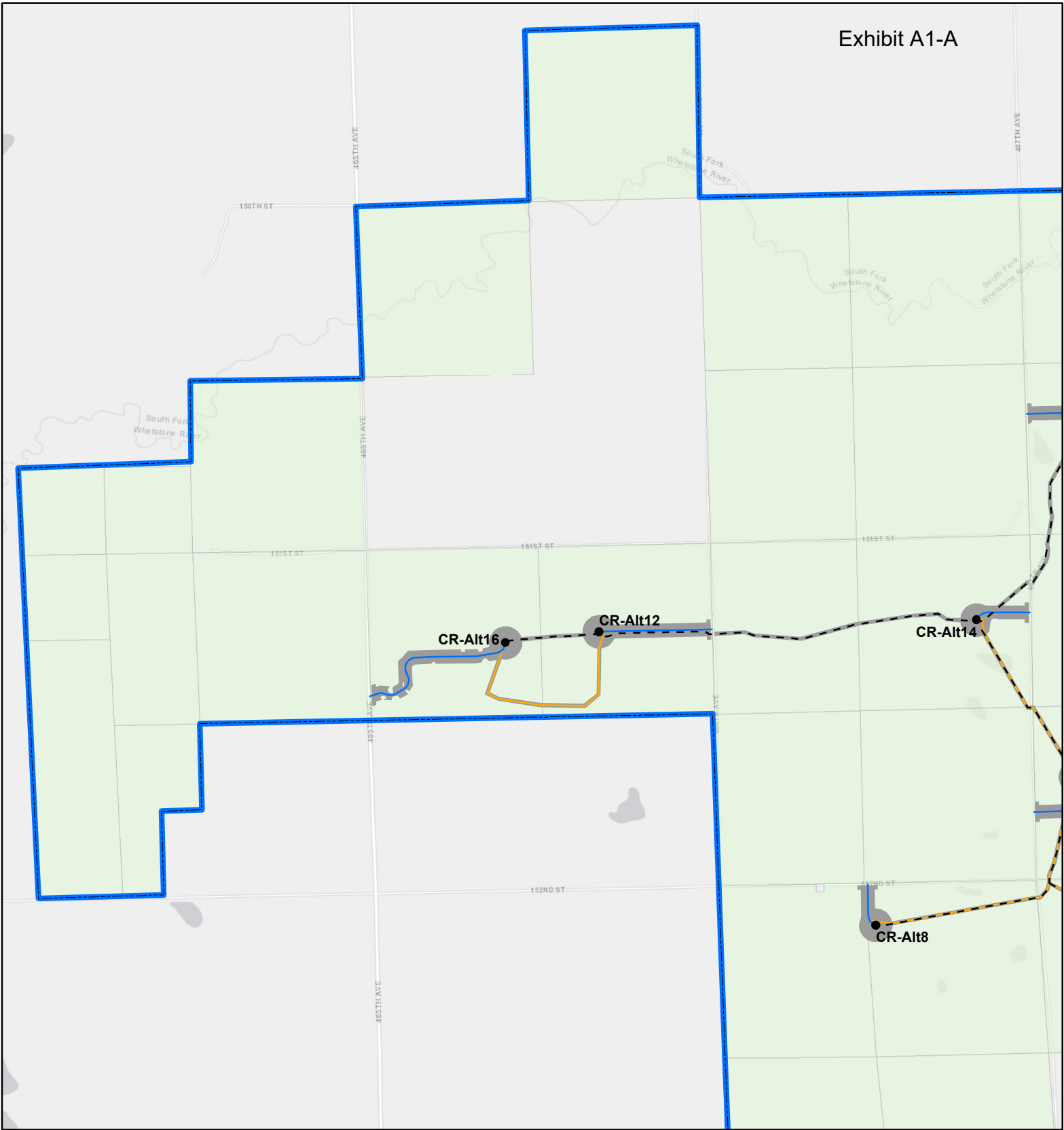
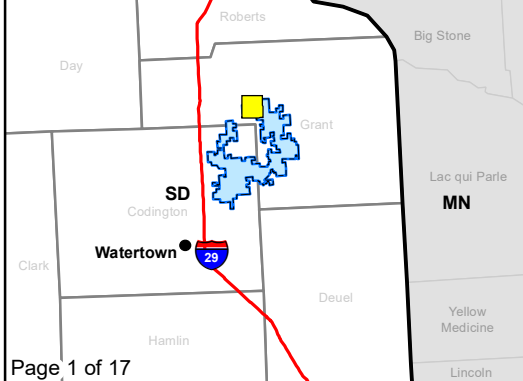


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- | | |
|-----------------------------------|-------------------------------|
| ● Turbine | — State Highway |
| ⊕ MET Tower | ■ O&M Facility/
Substation |
| ⊙ City | ■ Construction Easement |
| — Railroad | ■ Batch Plant |
| - - - Collector Line | ■ Laydown Yard |
| — Proposed Turbine
Access Road | □ Town Boundary |
| — Crane Path | ■ Participating
Landowner |
| — Interstate Highway | □ Project Boundary |
| — U.S. Highway | |



Kilometers
0 0.5 1

Miles
0 0.25 0.5

Service Layer Credits: Esri, HERE, Garmin,
© OpenStreetMap contributors, and the GIS user
community
Quadrangle: Antelope Valley (1973),
Twin Brooks (1973)
Township/Range: T120N, R51W,
T120N, R50W
Grant County, South Dakota

Projection: NAD 1983 UTM Zone 14N

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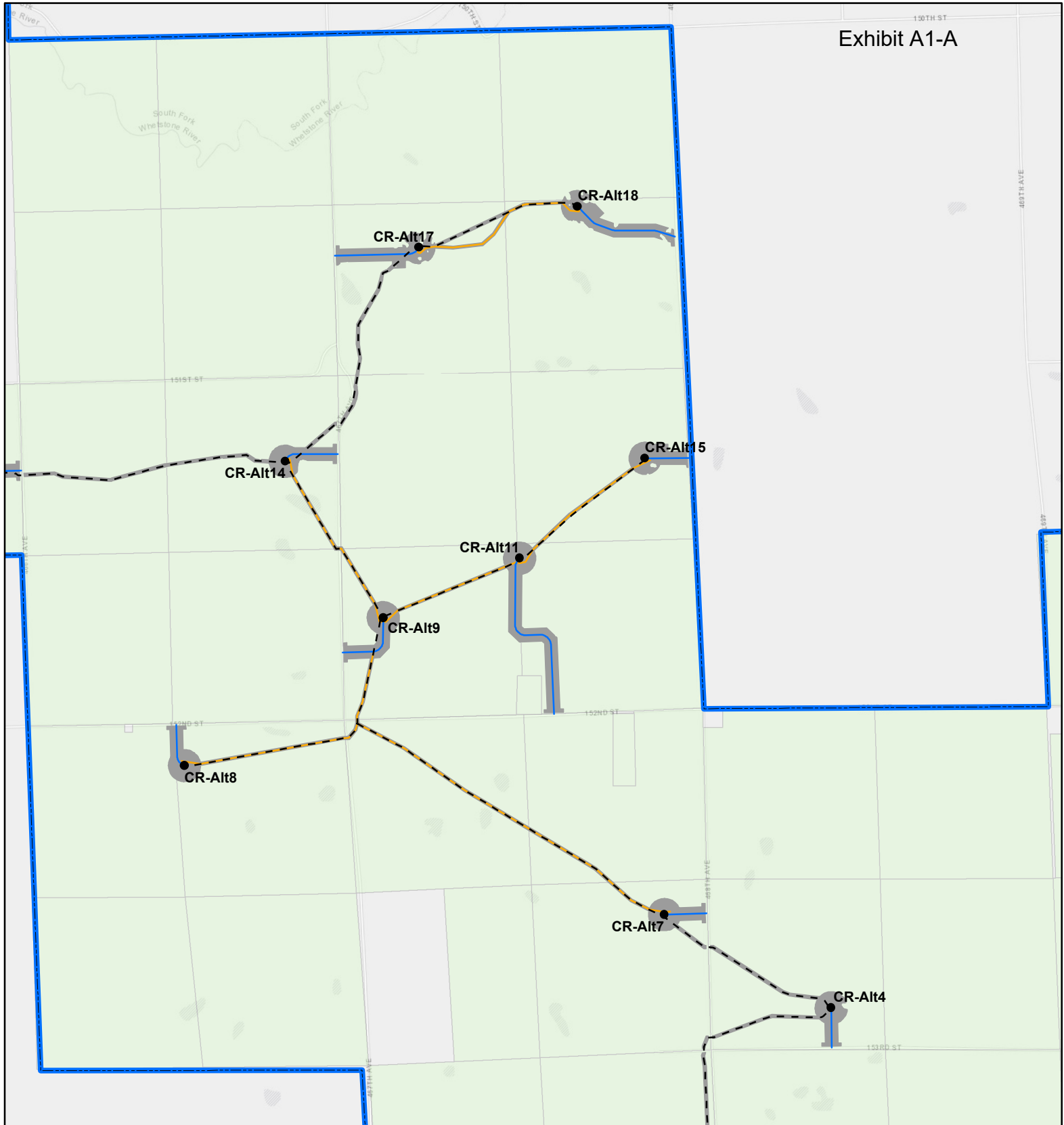
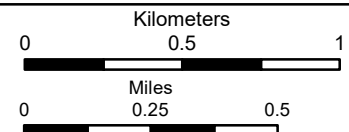
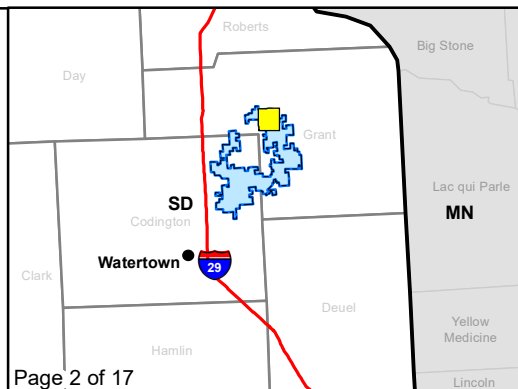


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- | | |
|-----------------------------------|-------------------------------|
| ● Turbine | — State Highway |
| ⊕ MET Tower | ■ O&M Facility/
Substation |
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| — Railroad | ■ Batch Plant |
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| — Proposed Turbine
Access Road | □ Town Boundary |
| — Crane Path | ■ Participating
Landowner |
| — Interstate Highway | ■ Project Boundary |
| — U.S. Highway | |



Service Layer Credits: Esri, HERE, Garmin,
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Twin Brooks (1973)
Township/Range: T120N, R50W

Grant County, South Dakota

Projection: NAD 1983 UTM Zone 14N

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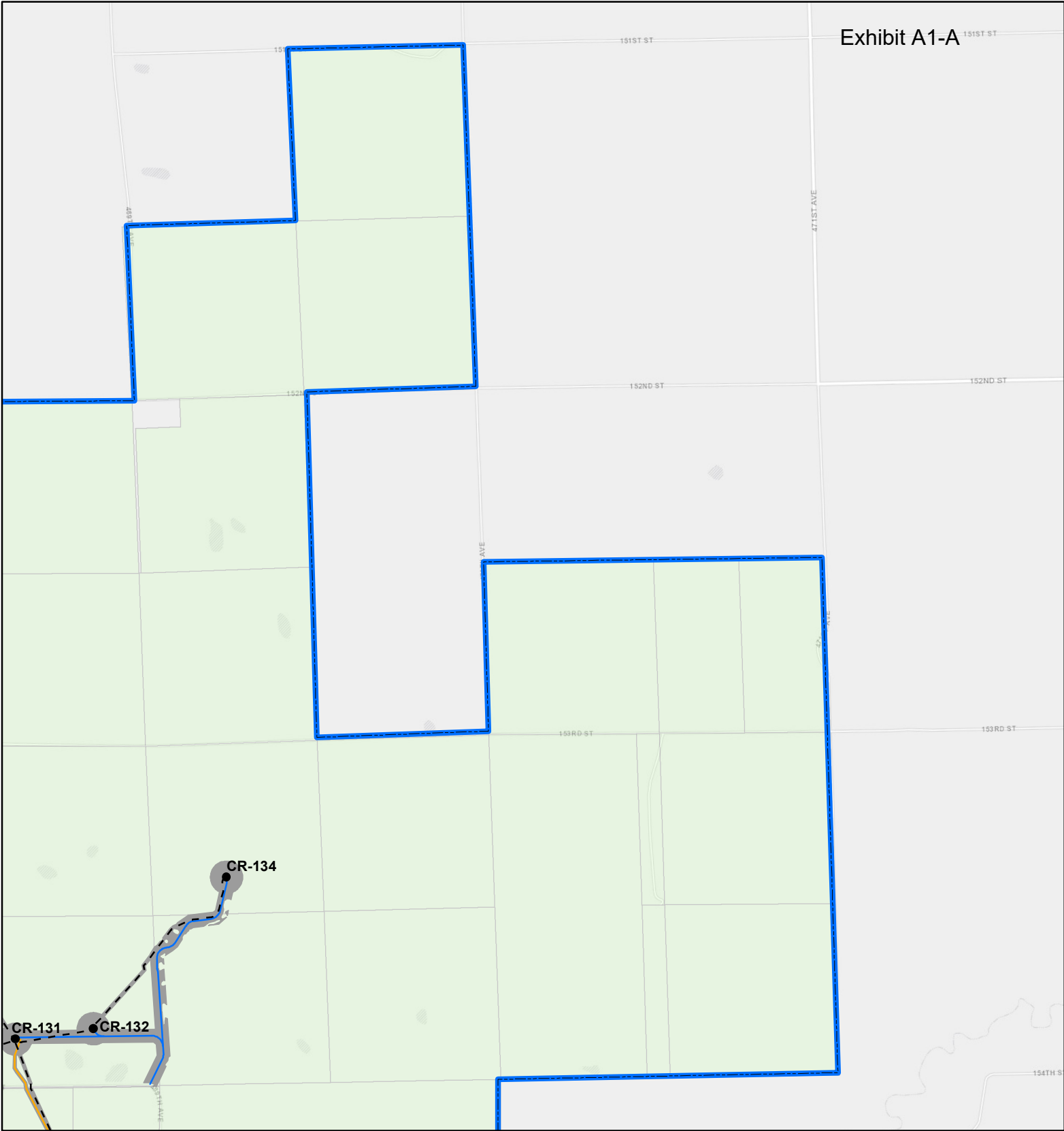
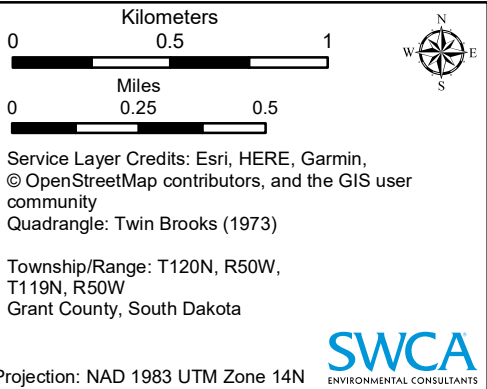


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- | | |
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| ● Turbine | — State Highway |
| ⊕ MET Tower | ■ O&M Facility/
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Access Road | □ Town Boundary |
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Landowner |
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| — U.S. Highway | |



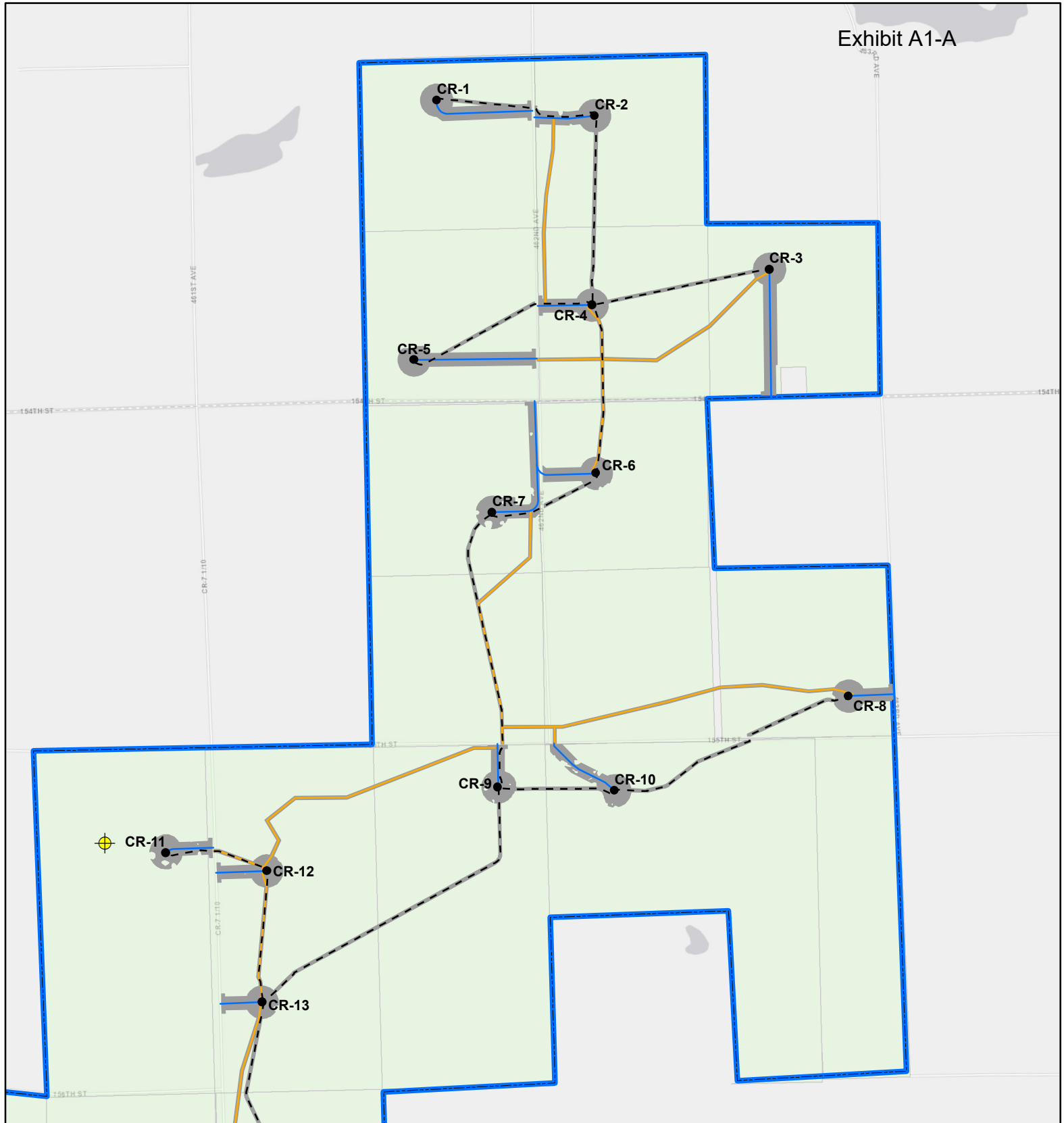
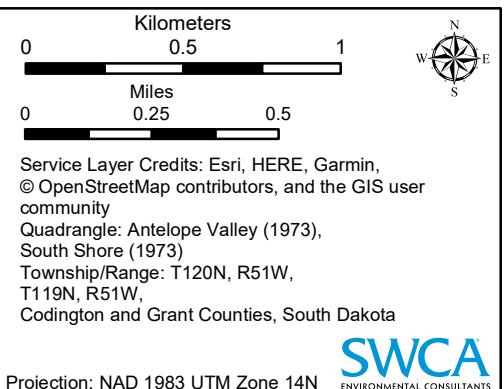
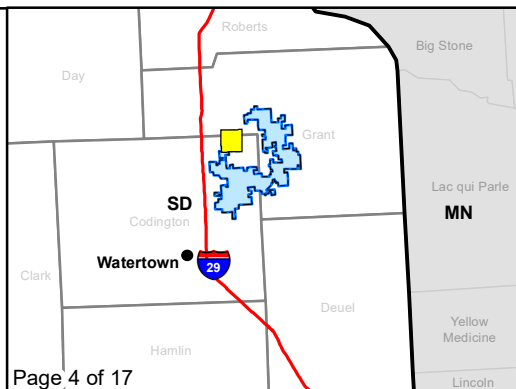


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- Turbine
- ⊕ MET Tower
- ⊙ City
- Railroad
- - - Collector Line
- Proposed Turbine Access Road
- Crane Path
- Interstate Highway
- U.S. Highway
- State Highway
- O&M Facility/Substation
- Construction Easement
- Batch Plant
- Laydown Yard
- Town Boundary
- Participating Landowner
- Project Boundary



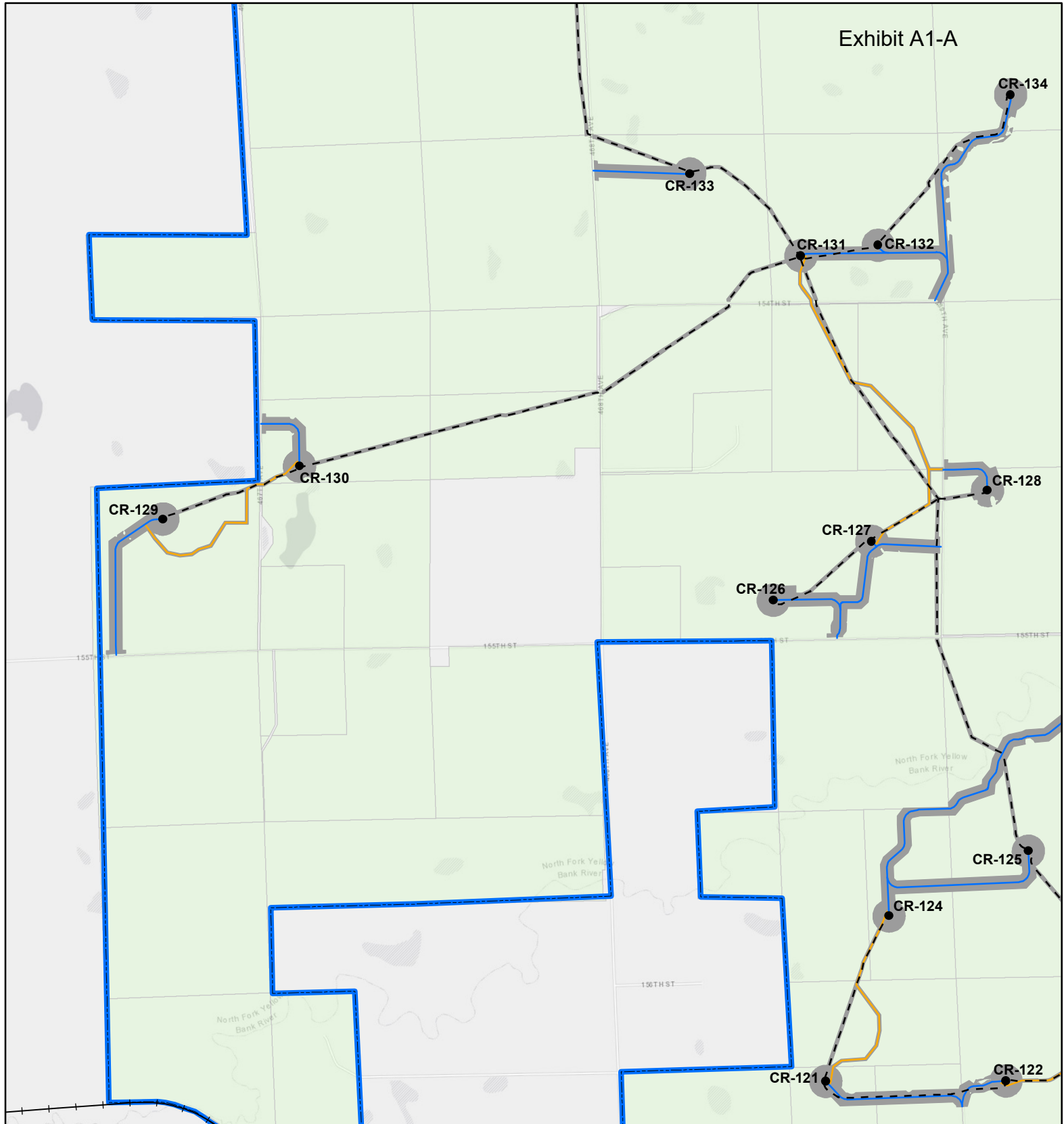
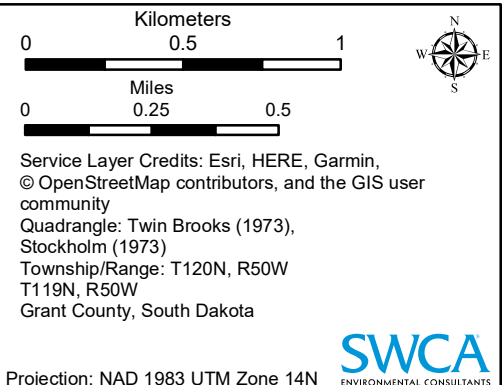
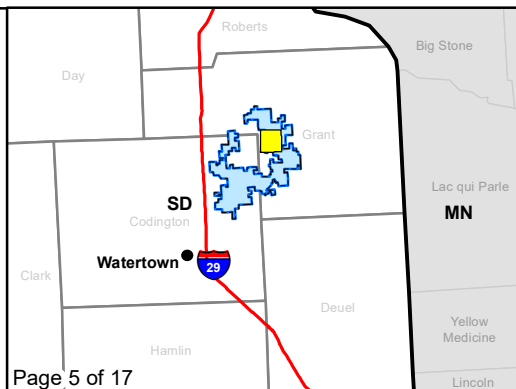


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- | | |
|-----------------------------------|-------------------------------|
| ● Turbine | — State Highway |
| ⊕ MET Tower | ■ O&M Facility/
Substation |
| ⊙ City | ■ Construction Easement |
| — Railroad | ■ Batch Plant |
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| — Proposed Turbine
Access Road | □ Town Boundary |
| — Crane Path | ■ Participating
Landowner |
| — Interstate Highway | □ Project Boundary |
| — U.S. Highway | |



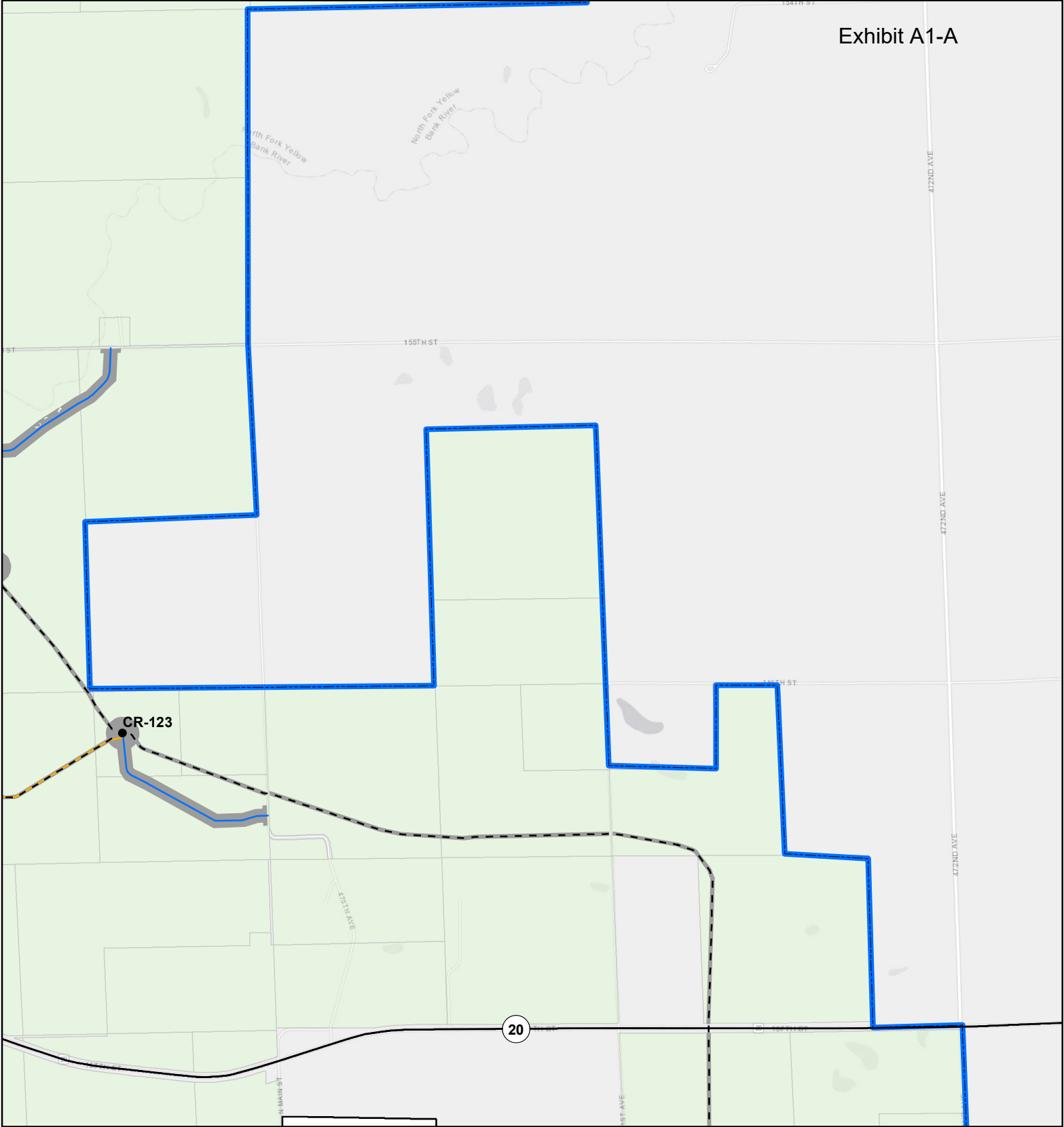
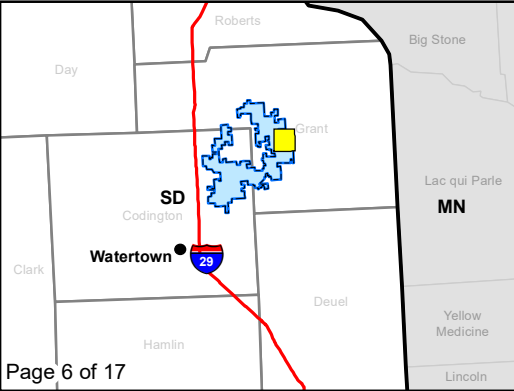


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- | | |
|--------------------------------|----------------------------|
| ● Turbine | — State Highway |
| ⊕ MET Tower | ■ O&M Facility/ Substation |
| ⊙ City | ■ Construction Easement |
| — Railroad | ■ Batch Plant |
| - - - Collector Line | ■ Laydown Yard |
| — Proposed Turbine Access Road | □ Town Boundary |
| — Crane Path | ■ Participating Landowner |
| — Interstate Highway | □ Project Boundary |
| — U.S. Highway | |



Kilometers
0 0.5 1

Miles
0 0.25 0.5

Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community
Quadrangle: Twin Brooks (1973), Stockholm (1973)
Township/Range: T119N, R50W

Grant County, South Dakota

Projection: NAD 1983 UTM Zone 14N

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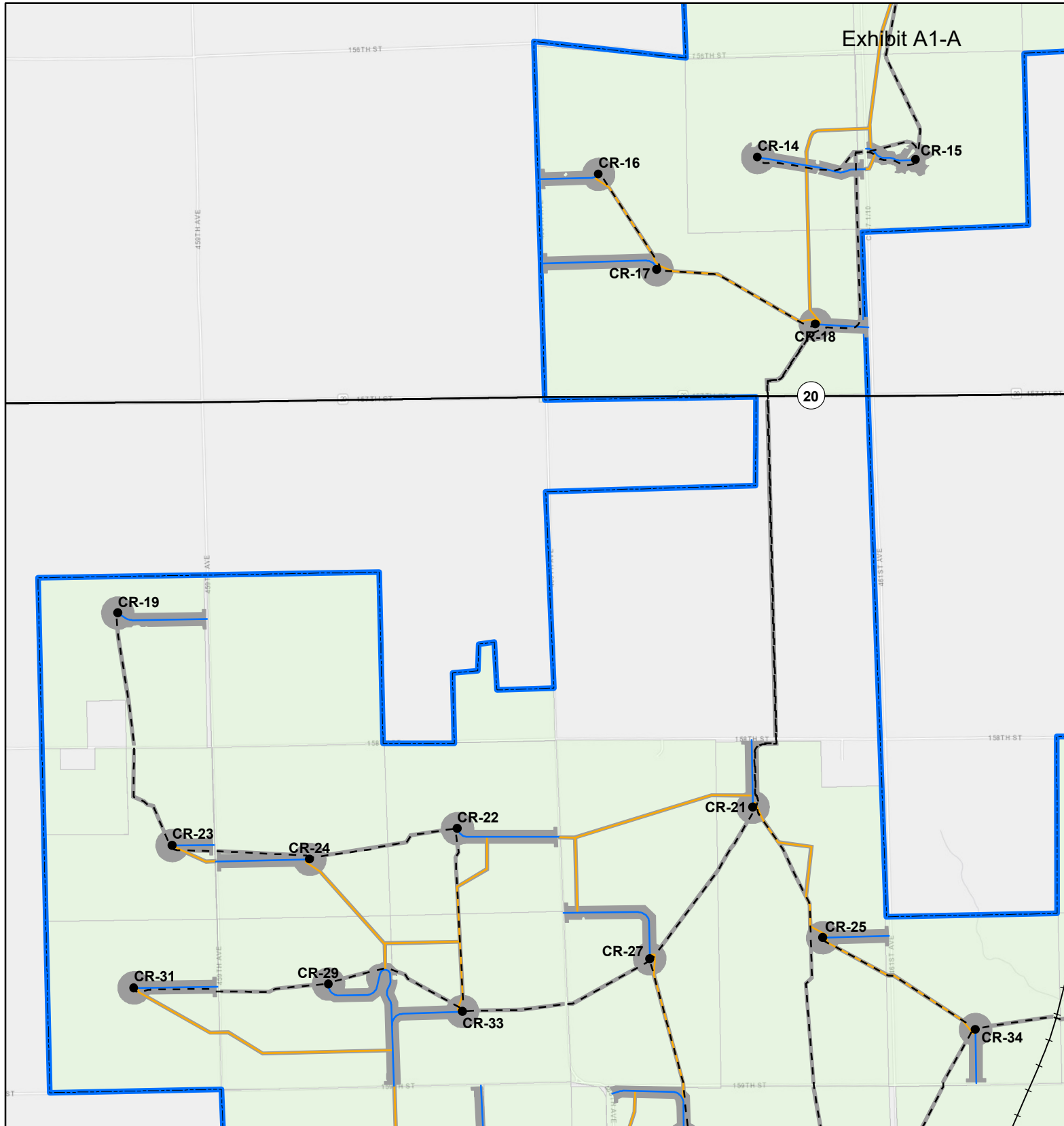


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- Turbine
- ⊕ MET Tower
- ⦿ City
- Railroad
- - - Collector Line
- Proposed Turbine Access Road
- Crane Path
- Interstate Highway
- U.S. Highway
- State Highway
- O&M Facility/ Substation
- Construction Easement
- Batch Plant
- Laydown Yard
- Town Boundary
- Participating Landowner
- Project Boundary



Kilometers

0 0.5 1

Miles

0 0.25 0.5

Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Quadrangle: Still Lake SE (1970), South Shore (1973)

Township/Range: T119N, R52W, T119N, R51W, Codington County, South Dakota

Page 7 of 17

Projection: NAD 1983 UTM Zone 14N

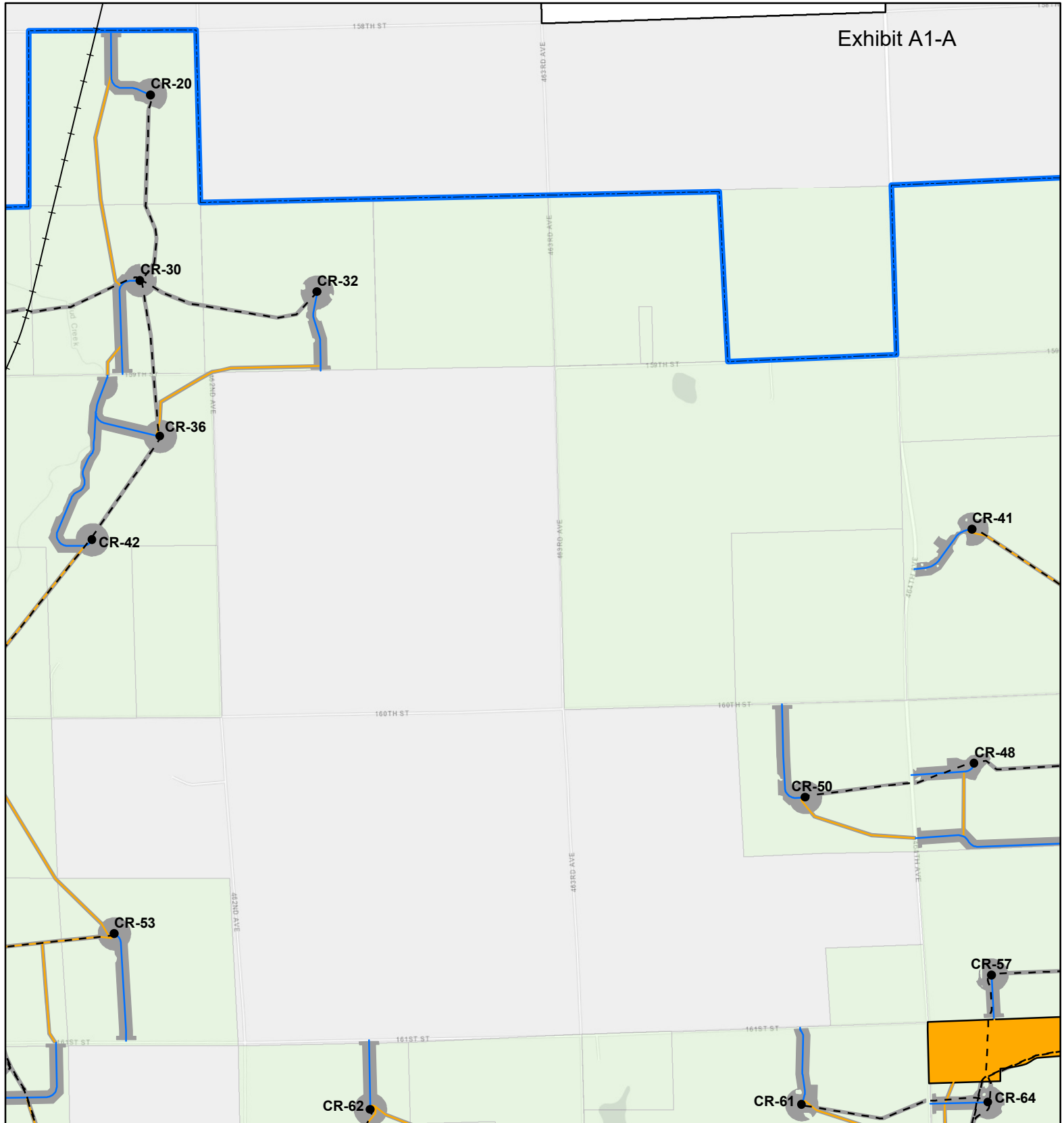
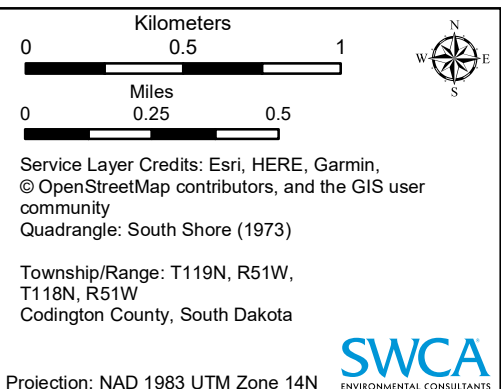
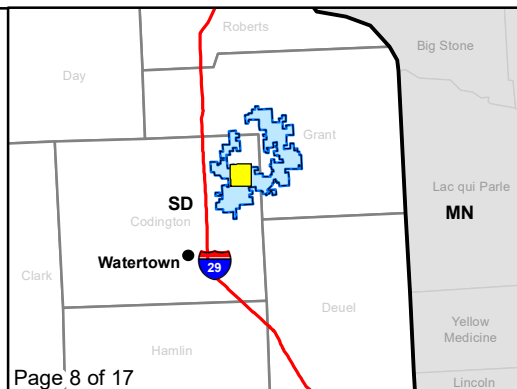


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- | | |
|-----------------------------------|-------------------------------|
| ● Turbine | — State Highway |
| ⊕ MET Tower | ■ O&M Facility/
Substation |
| ⊙ City | ■ Construction Easement |
| — Railroad | ■ Batch Plant |
| - - - Collector Line | ■ Laydown Yard |
| — Proposed Turbine
Access Road | □ Town Boundary |
| — Crane Path | ■ Participating
Landowner |
| — Interstate Highway | □ Project Boundary |
| — U.S. Highway | |



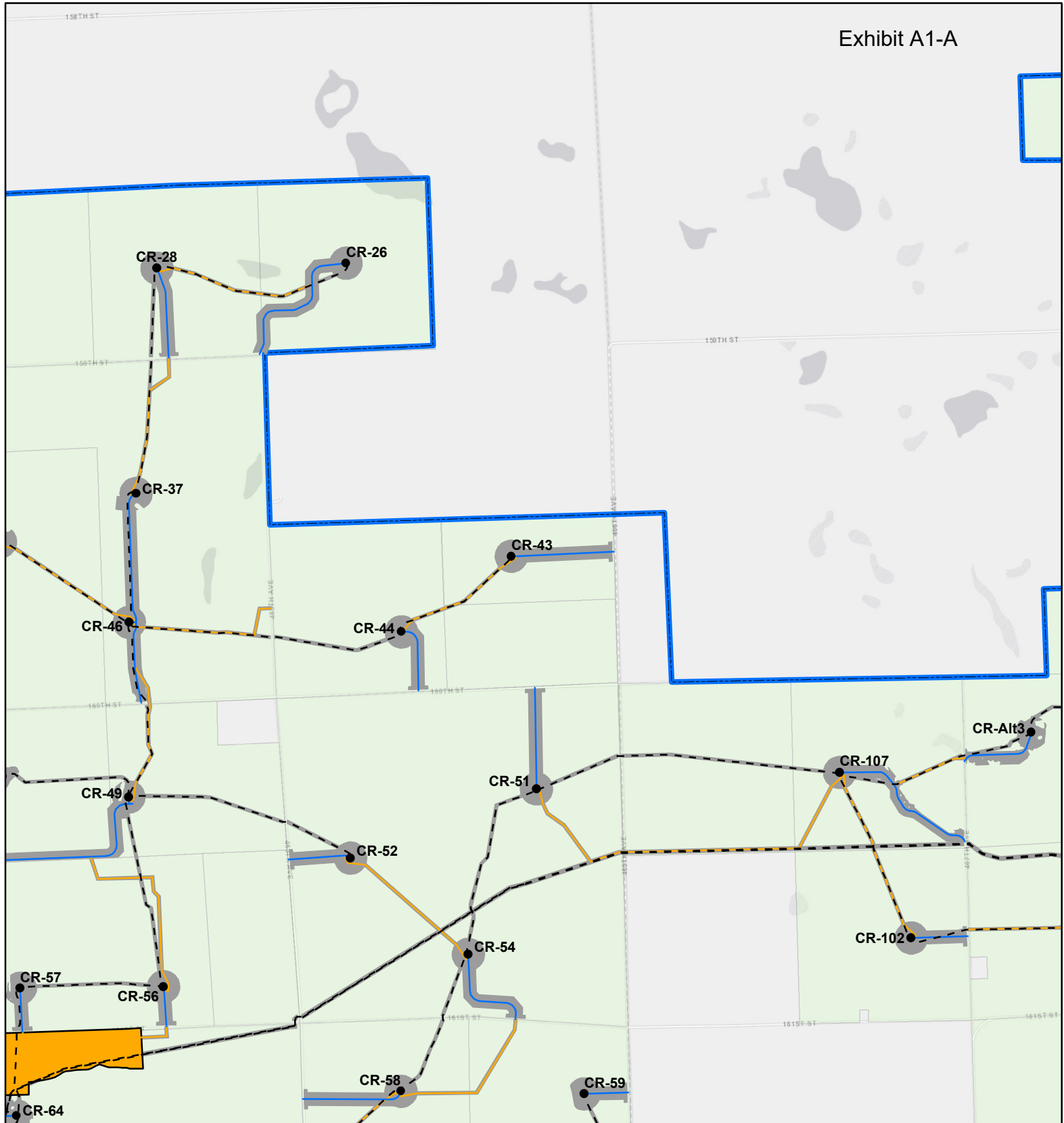
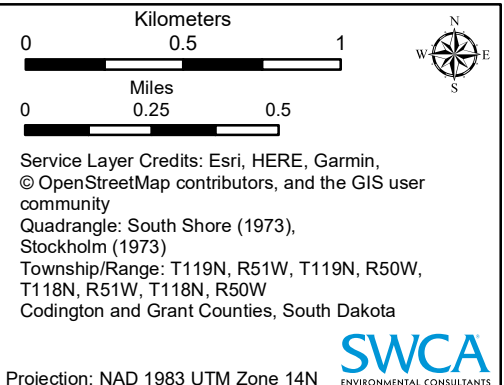
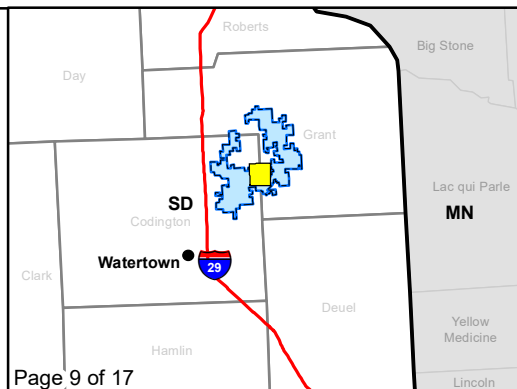


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- | | |
|-----------------------------------|-------------------------------|
| ● Turbine | — State Highway |
| ⊕ MET Tower | ■ O&M Facility/
Substation |
| ⊙ City | ■ Construction Easement |
| — Railroad | ■ Batch Plant |
| - - - Collector Line | ■ Laydown Yard |
| — Proposed Turbine
Access Road | □ Town Boundary |
| — Crane Path | ■ Participating
Landowner |
| — Interstate Highway | □ Project Boundary |
| — U.S. Highway | |



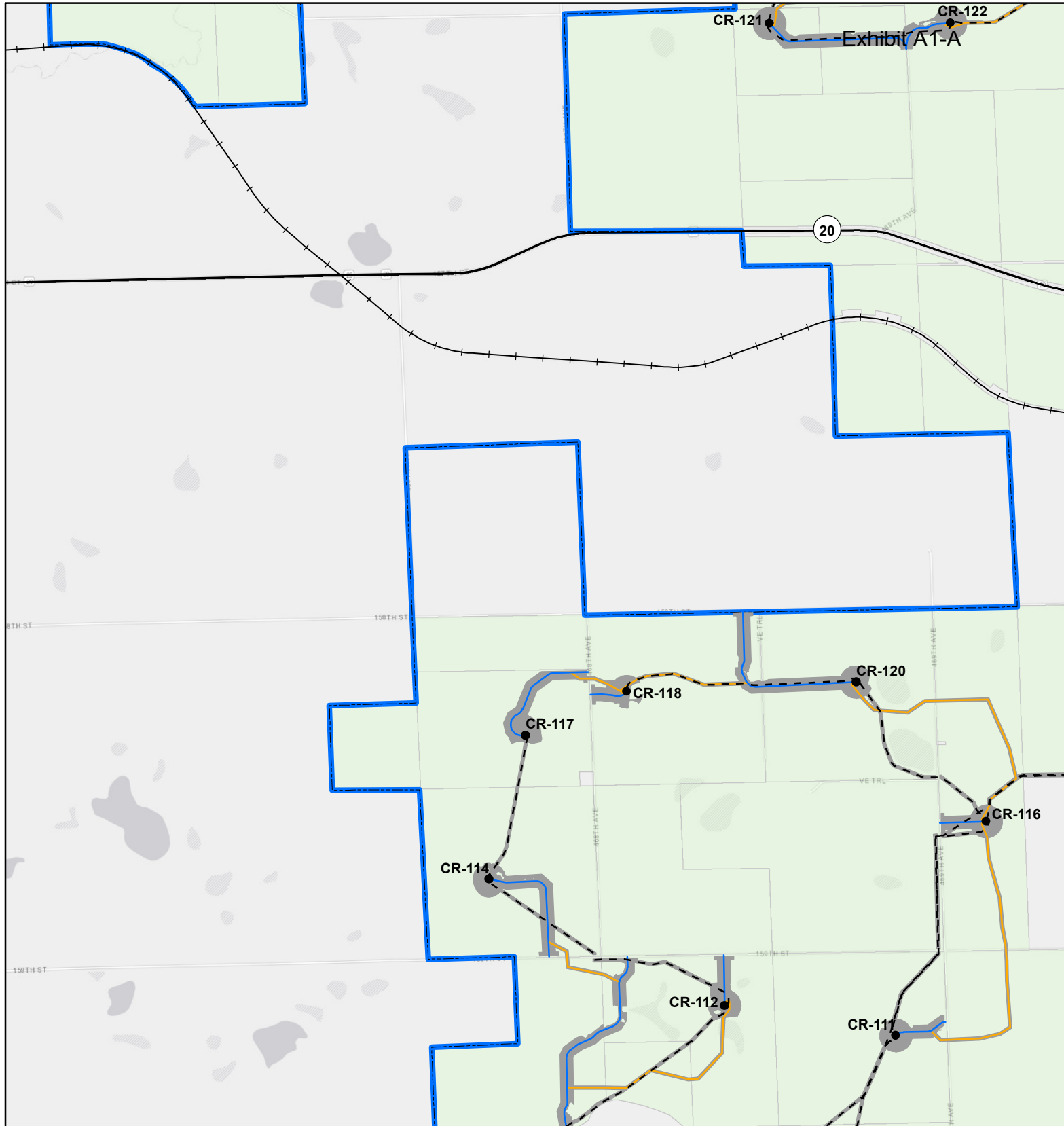
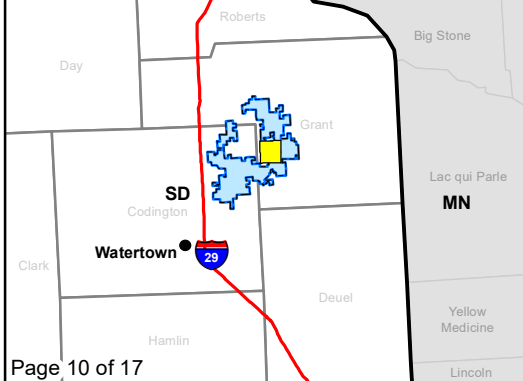


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- Turbine
- ⊕ MET Tower
- ⦿ City
- Railroad
- - - Collector Line
- Proposed Turbine Access Road
- Crane Path
- Interstate Highway
- U.S. Highway
- State Highway
- O&M Facility/ Substation
- Construction Easement
- Batch Plant
- Laydown Yard
- Town Boundary
- Participating Landowner
- Project Boundary



Scale

Kilometers: 0, 0.5, 1

Miles: 0, 0.25, 0.5

Compass

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Quadrangle: Stockholm (1973)

Township/Range: T119N, R50W

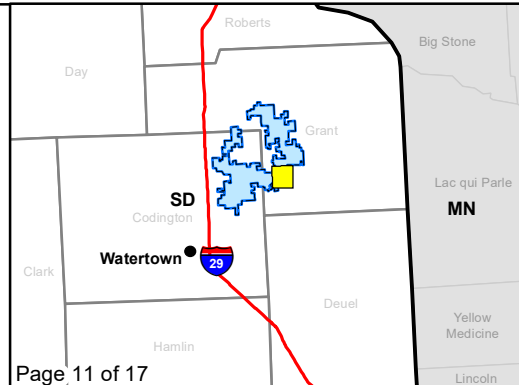
Grant County, South Dakota

Projection: NAD 1983 UTM Zone 14N



Legend:

- Turbine
- MET Tower
- City
- Railroad
- Collector Line
- Proposed Turbine Access Road
- Crane Path
- Interstate Highway
- U.S. Highway
- State Highway
- O&M Facility/Substation
- Construction Easement
- Batch Plant
- Laydown Yard
- Town Boundary
- Participating Landowner
- Project Boundary




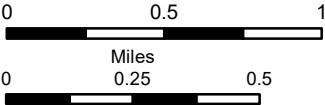

0 0.5 1
Kilometers

0 0.25 0.5
Miles

Service Layer Credits: Esri, HERE, Garmin,
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community
Quadrangle: Stockholm (1973)

Township/Range: T119N, R50W,
T118N, R50W
Grant County, South Dakota

Projection: NAD 1983 UTM Zone 14N



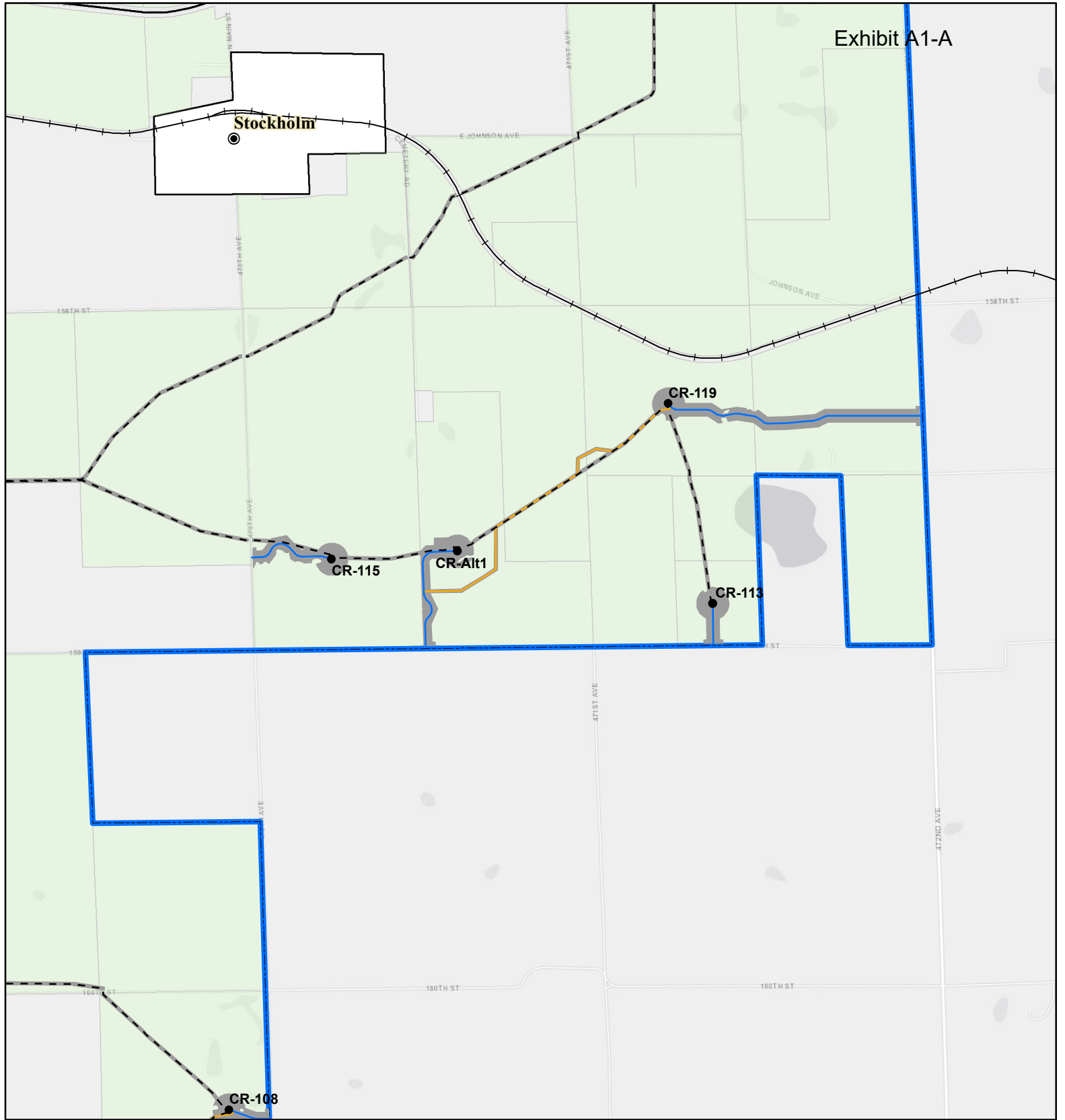
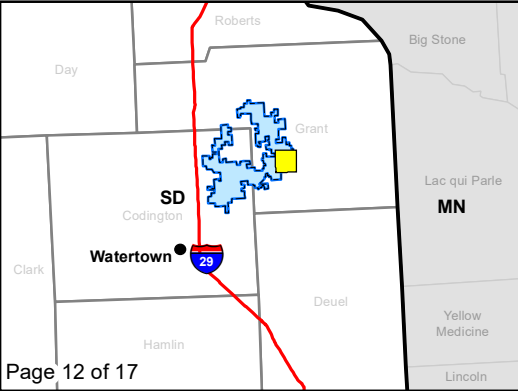


Exhibit A1-A

Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- Turbine
- ⊕ MET Tower
- ⊙ City
- Railroad
- - - Collector Line
- Proposed Turbine Access Road
- Crane Path
- Interstate Highway
- U.S. Highway
- State Highway
- O&M Facility/ Substation
- Construction Easement
- Batch Plant
- Laydown Yard
- Town Boundary
- Participating Landowner
- Project Boundary



0 0.5 1

Kilometers

0 0.25 0.5

Miles

Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Quadrangle: Stockholm (1973)

Township/Range: T119N, R50W, T118N, R50W

Grant County, South Dakota

Projection: NAD 1983 UTM Zone 14N



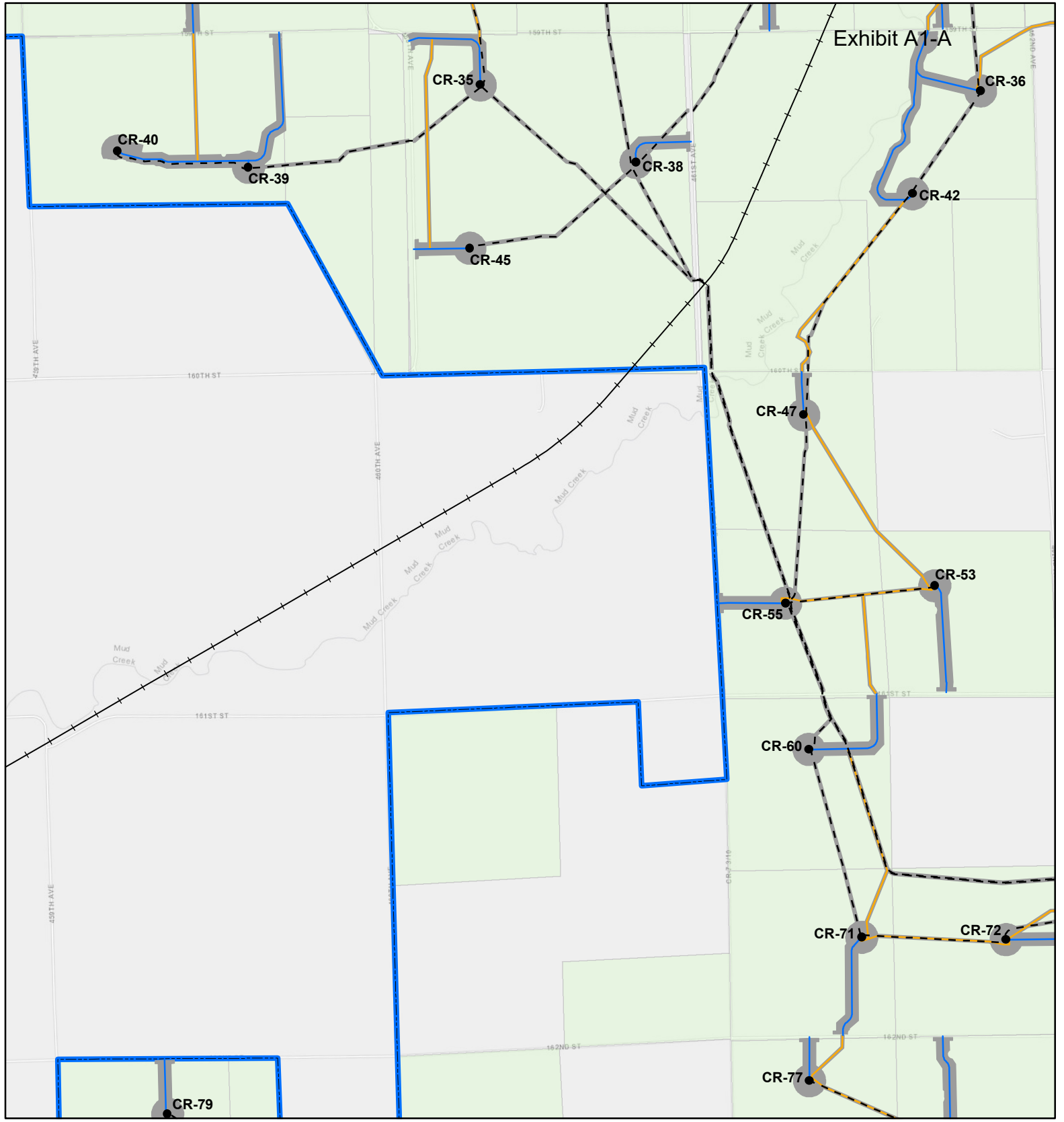
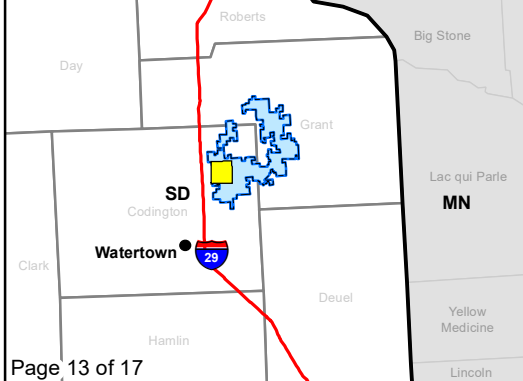


Exhibit A1-A

Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- Turbine
- ⊕ MET Tower
- ⦿ City
- Railroad
- - - Collector Line
- Proposed Turbine Access Road
- Crane Path
- Interstate Highway
- U.S. Highway
- State Highway
- O&M Facility/ Substation
- Construction Easement
- Batch Plant
- Laydown Yard
- Town Boundary
- Participating Landowner
- Project Boundary



0 0.5 1

Kilometers

0 0.25 0.5

Miles

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Quadrangle: Still Lake SE (1970), South Shore (1973)

Township/Range: T119N, R52W, T119N, R51W, T118N, R52W, T118N, R51W

Codington County, South Dakota

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Projection: NAD 1983 UTM Zone 14N

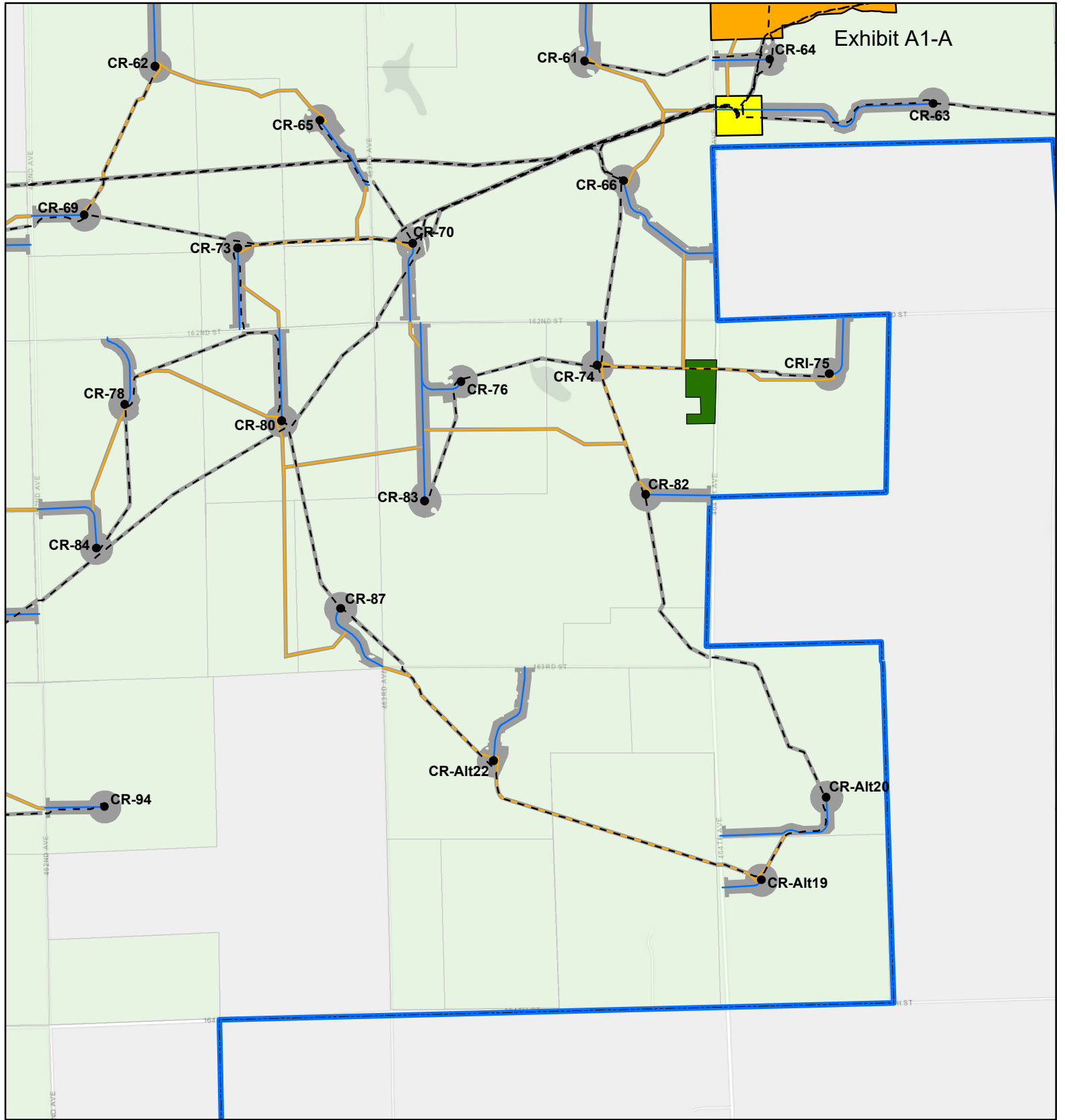
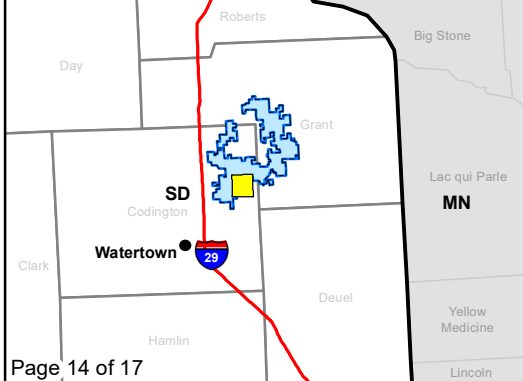


Exhibit A1-A

Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- Turbine
- ⊕ MET Tower
- ⦿ City
- Railroad
- - - Collector Line
- Proposed Turbine Access Road
- Crane Path
- Interstate Highway
- U.S. Highway
- State Highway
- O&M Facility/ Substation
- Construction Easement
- Batch Plant
- Laydown Yard
- Town Boundary
- Participating Landowner
- Project Boundary



Kilometers

0 0.5 1

Miles

0 0.25 0.5

Service Layer Credits: Esri, HERE, Garmin,
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Quadrangle: South Shore (1973)

Township/Range: T118N, R51W

Codington County, South Dakota

Projection: NAD 1983 UTM Zone 14N

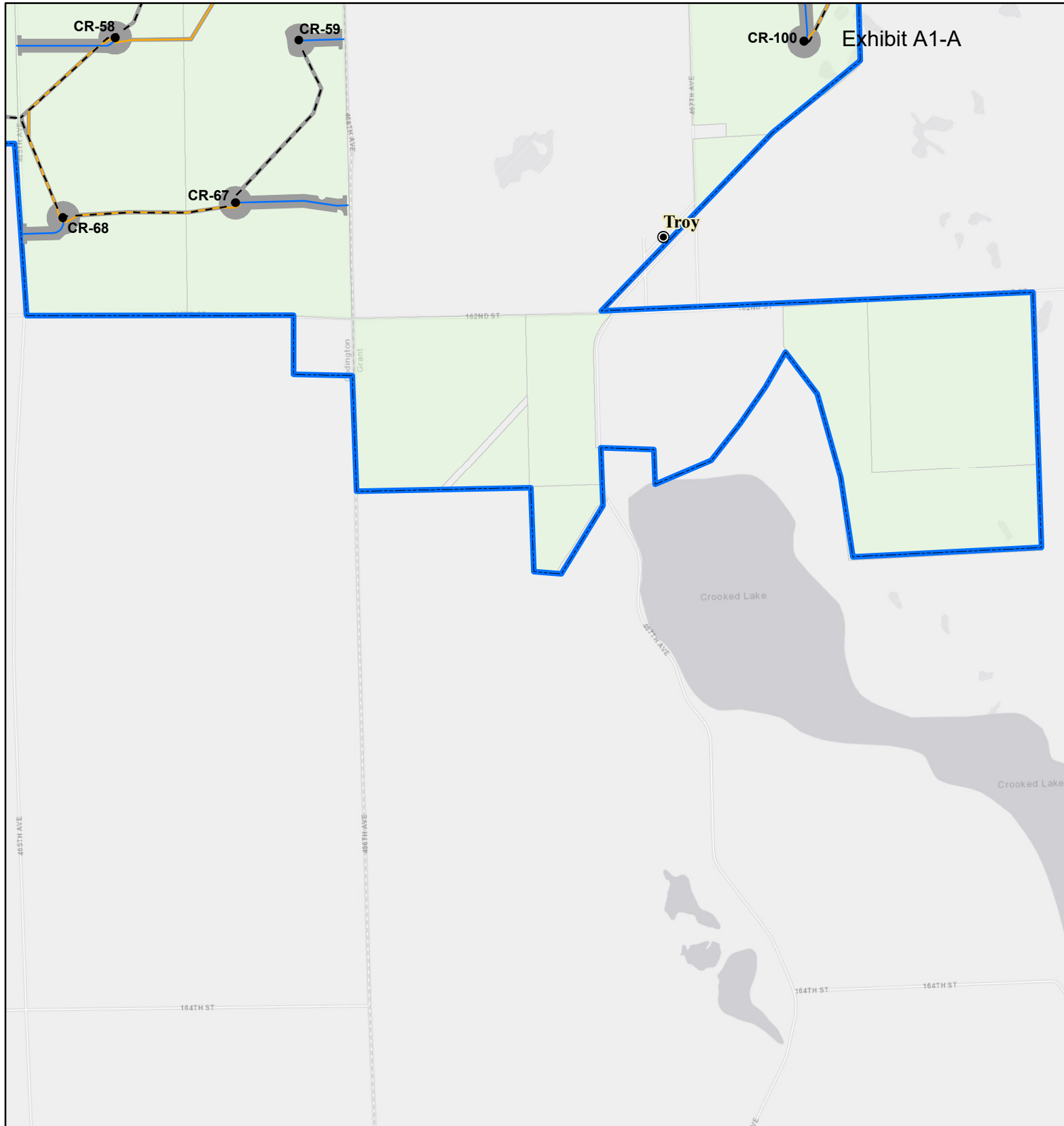
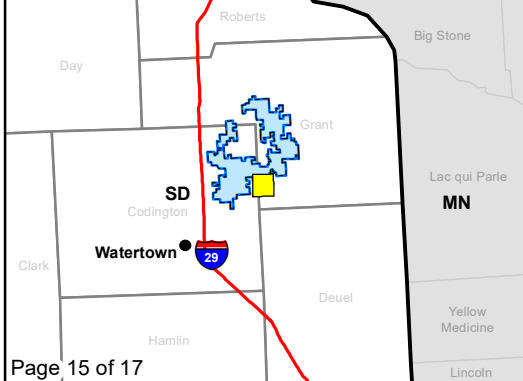


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- | | |
|-----------------------------------|-------------------------------|
| ● Turbine | — State Highway |
| ⊕ MET Tower | ■ O&M Facility/
Substation |
| ⊙ City | ■ Construction Easement |
| — Railroad | ■ Batch Plant |
| - - - Collector Line | ■ Laydown Yard |
| — Proposed Turbine
Access Road | □ Town Boundary |
| — Crane Path | ■ Participating
Landowner |
| — Interstate Highway | □ Project Boundary |
| — U.S. Highway | |



0 0.5 1
Kilometers

0 0.25 0.5
Miles

Service Layer Credits: Esri, HERE, Garmin,
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 Quadrangle: South Shore (1973),
 Stockholm (1973)
 Township/Range: T118N, R51W,
 T118N, R50W
 Codington and Grant Counties, South Dakota

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Projection: NAD 1983 UTM Zone 14N

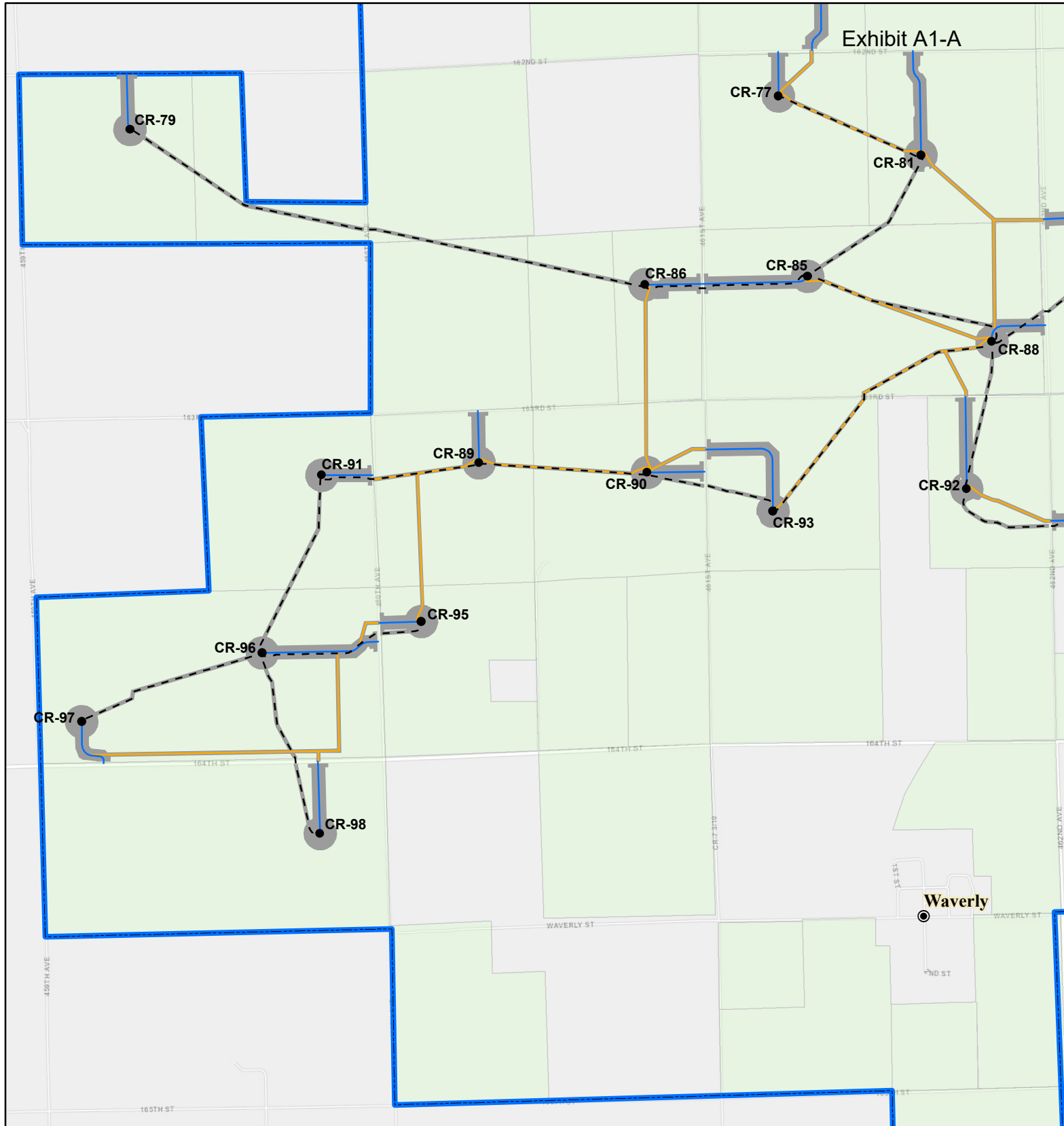
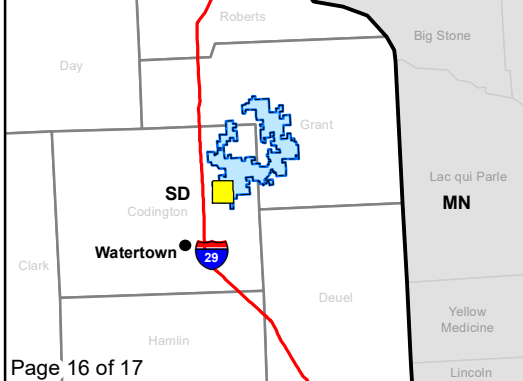


Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

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- Railroad
- - - Collector Line
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- Town Boundary
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- Project Boundary



Kilometers

0 0.5 1

Miles

0 0.25 0.5

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Watertown East (1969), Kranzburg (1970)
Township/Range: T118N, R52W, T118N, R51W
Codington County, South Dakota

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Projection: NAD 1983 UTM Zone 14N

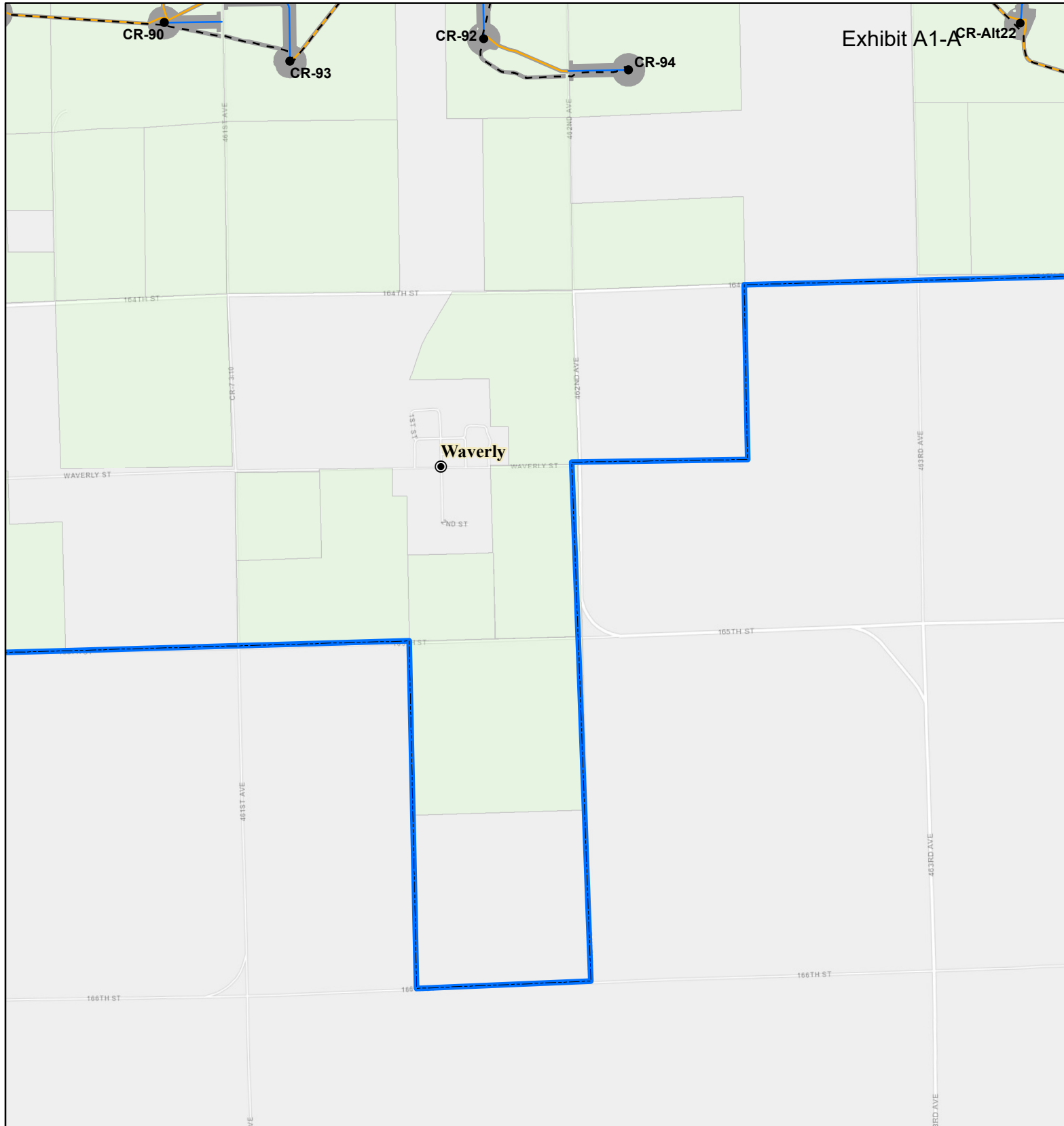
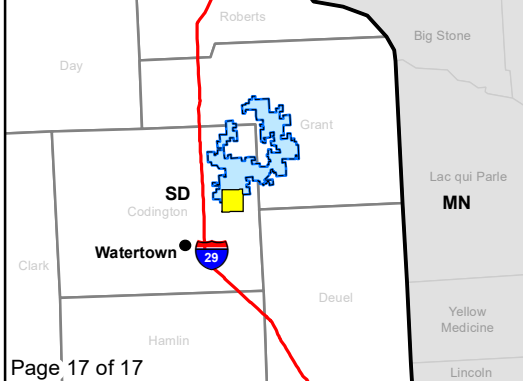


Exhibit A1-A

Figure 2. Project Map & Facilities
Crowned Ridge Wind Farm

- Turbine
- ⊕ MET Tower
- ⦿ City
- Railroad
- - - Collector Line
- Proposed Turbine Access Road
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- O&M Facility/ Substation
- Construction Easement
- Batch Plant
- Laydown Yard
- Town Boundary
- Participating Landowner
- Project Boundary



Kilometers

0 0.5 1

Miles

0 0.25 0.5

Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Quadrangle: South Shore (1973), Kranzburg (1970)

Township/Range: T118N, R51W

Codington County, South Dakota

Projection: NAD 1983 UTM Zone 14N

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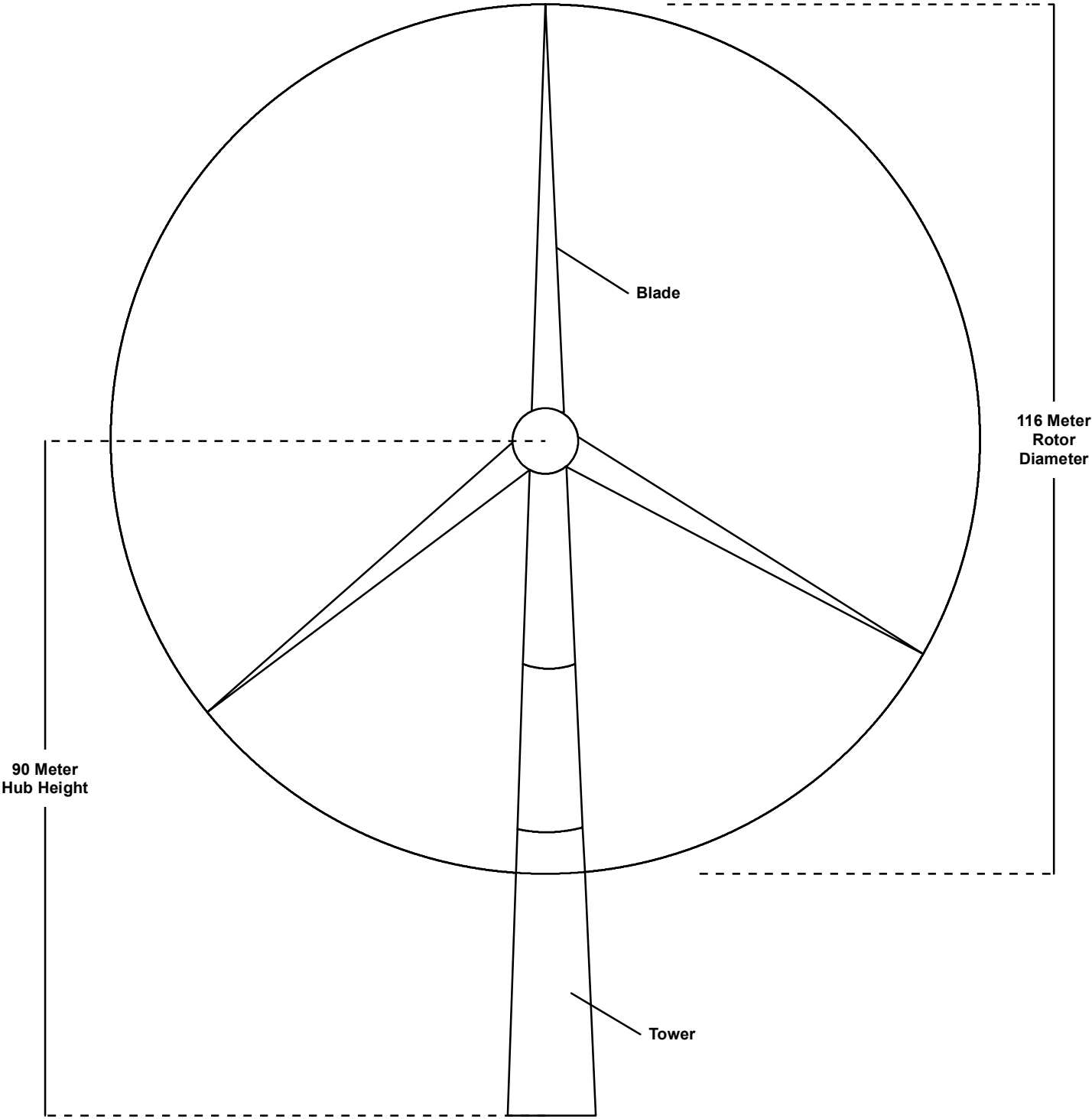


Figure 4a. Typical Wind Turbine Diagram

GE 2.3 MW Turbine

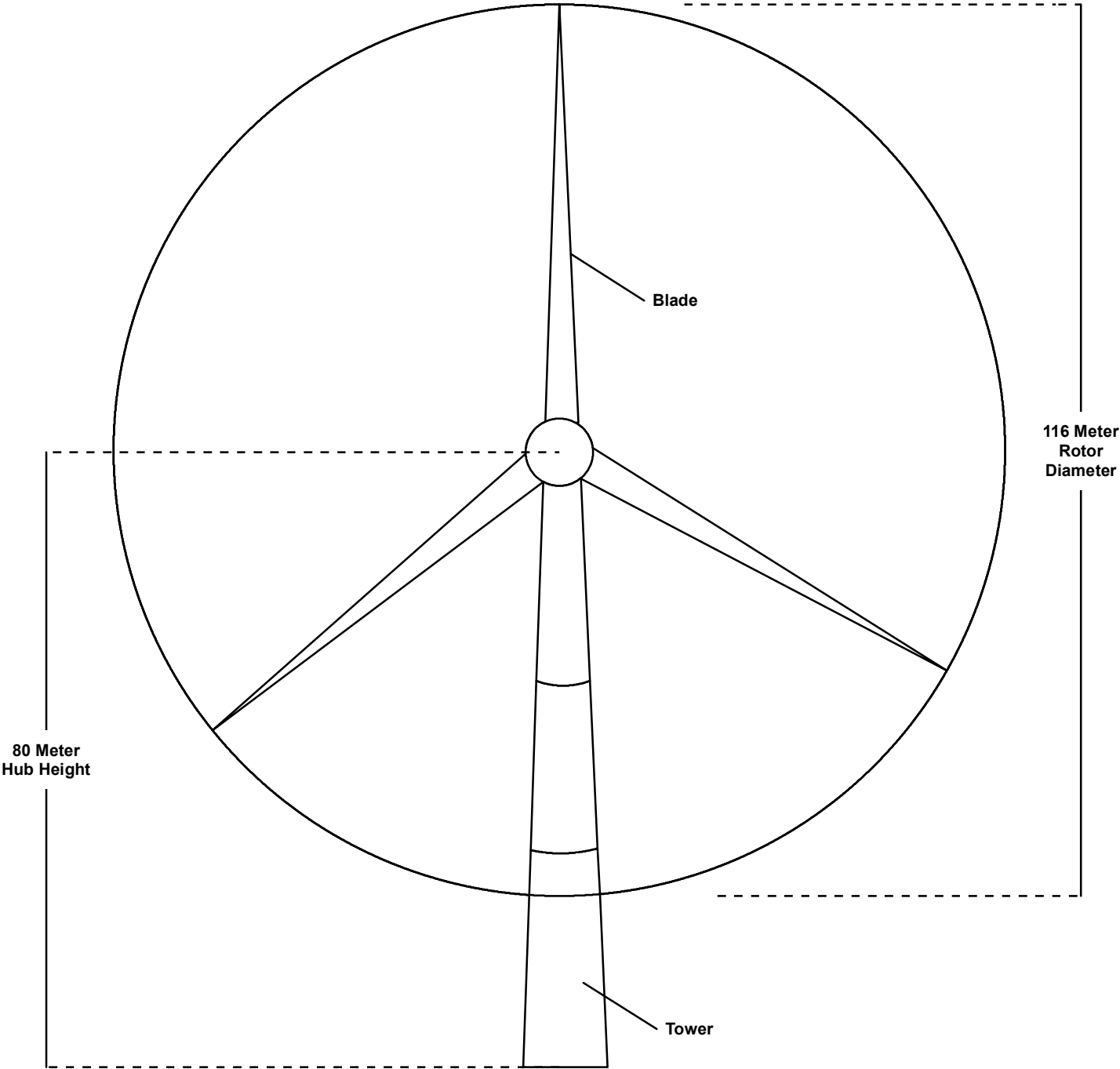


Figure 4b. Typical Wind Turbine Diagram

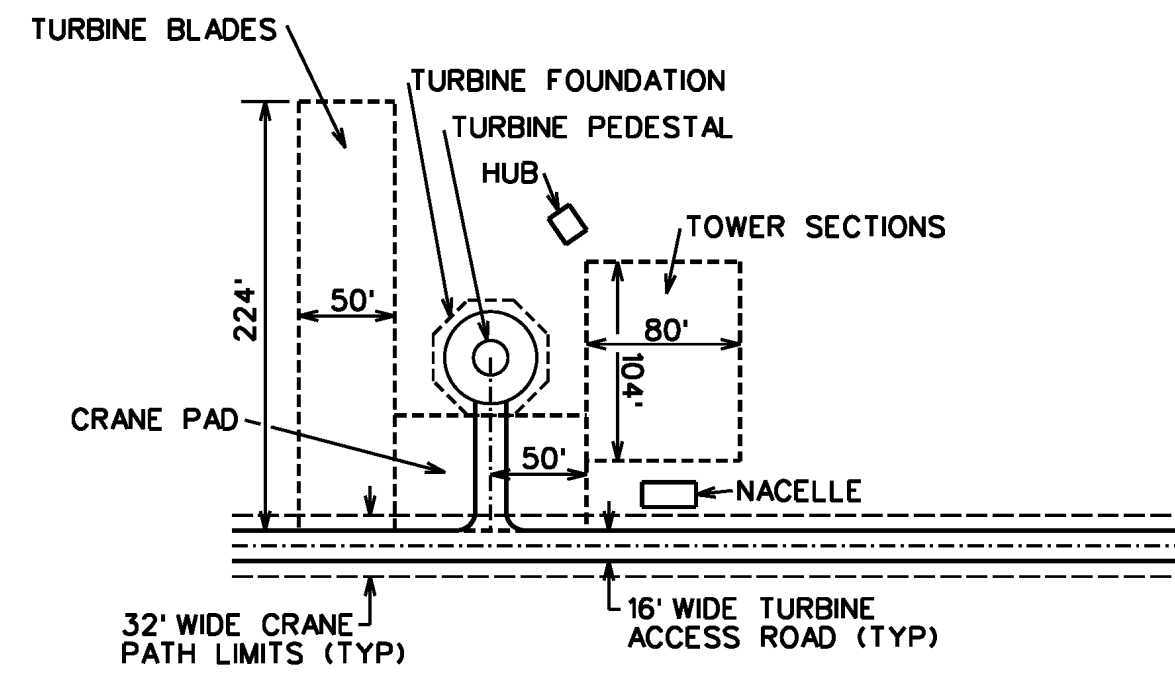
Safe Harbor
GE 2.3 MW Turbine

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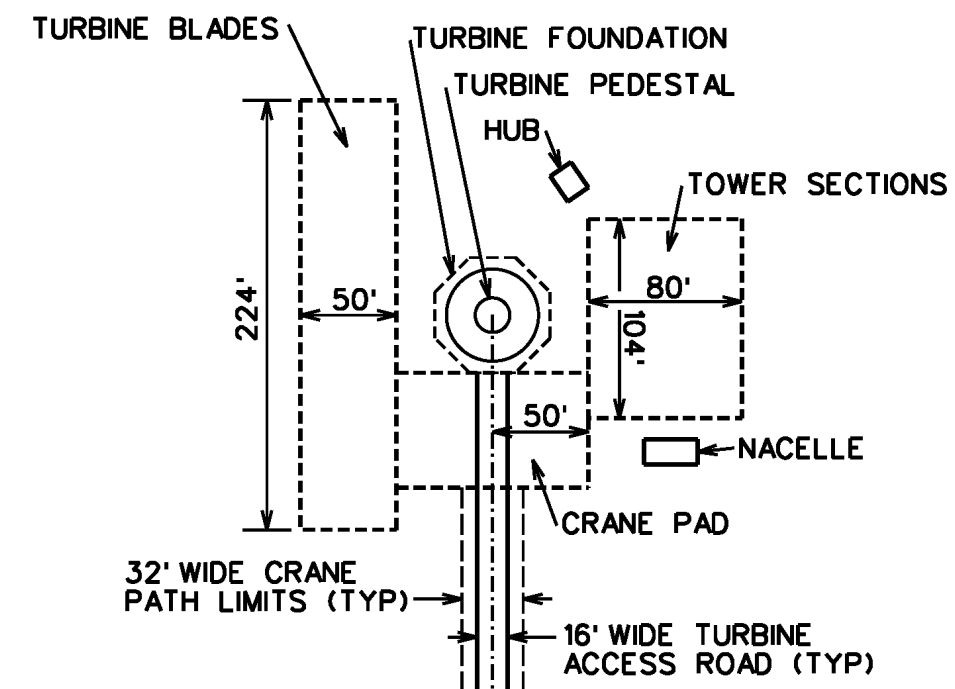
Snyder
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11/20/2018
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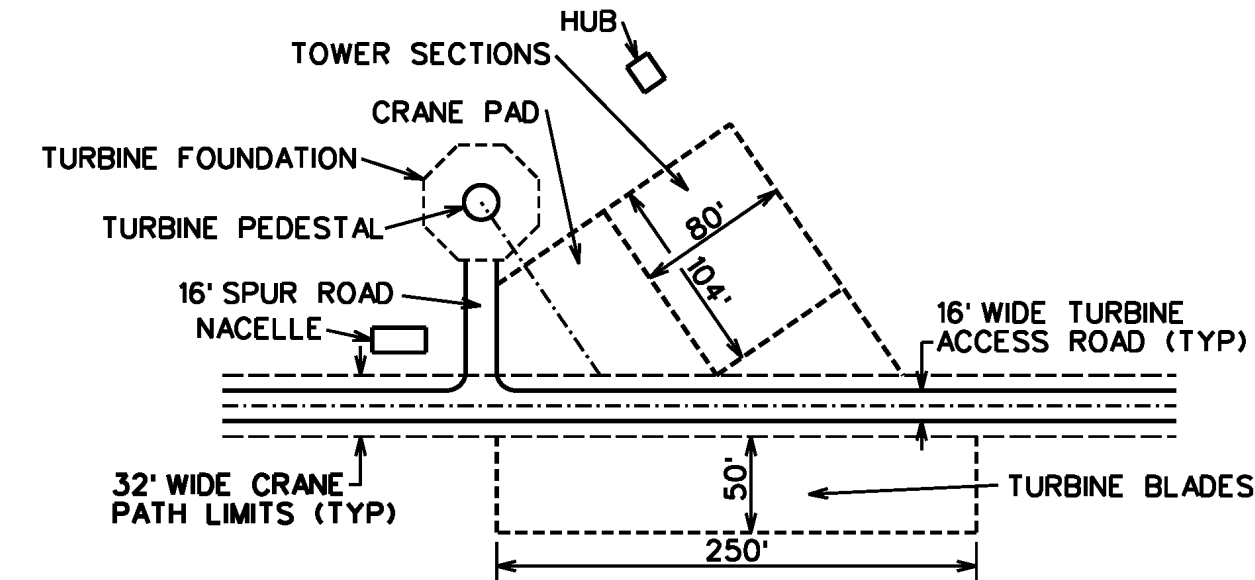
D:\DWEDMEYER
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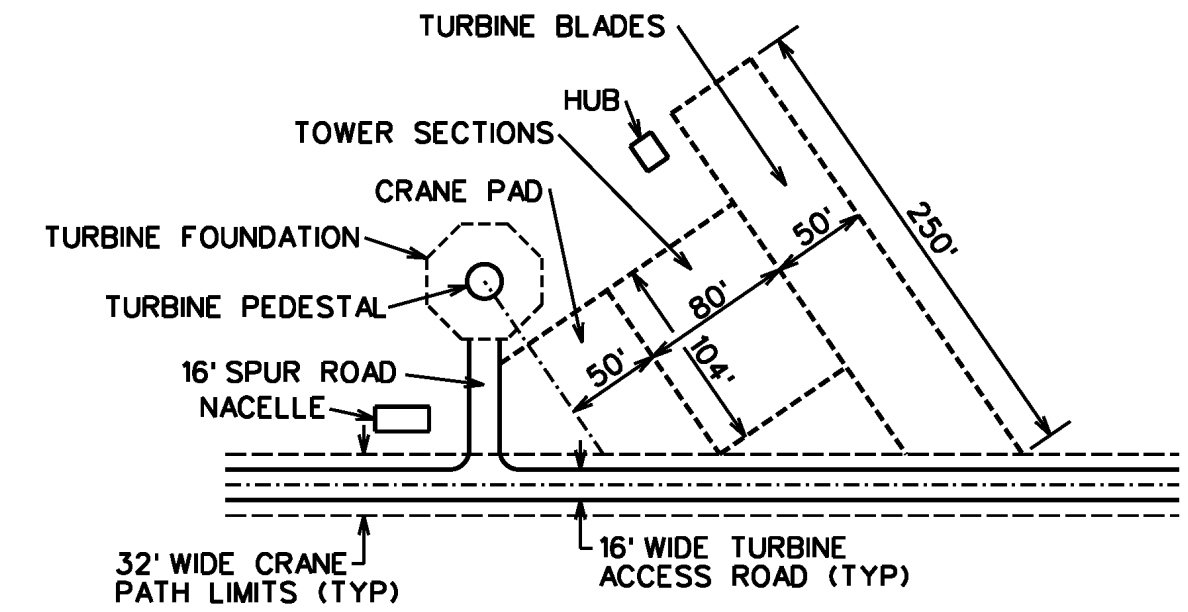
CRANE PAD LOCATIONS TO BE DETERMINED BY CONTRACTOR BASED ON FIELD CONDITIONS
TYPICAL WIND TURBINE SITE LAYOUT WITH COMPONENTS (LAYOUT 1)



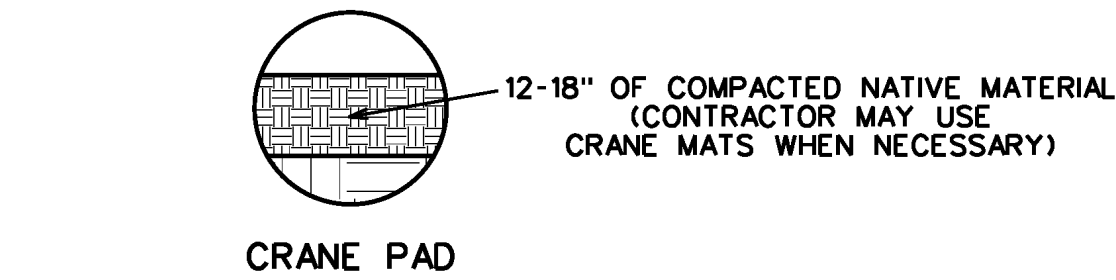
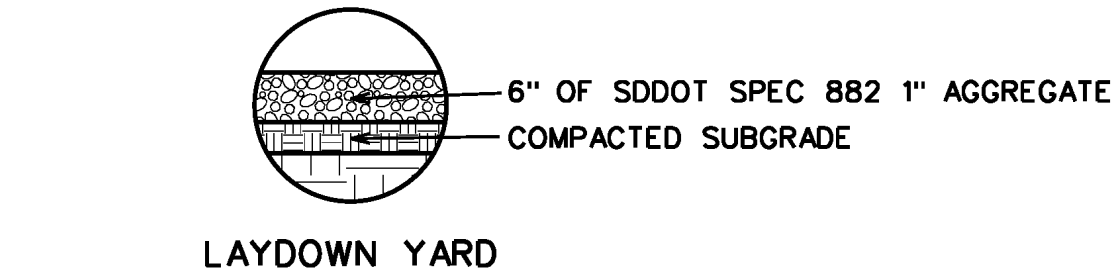
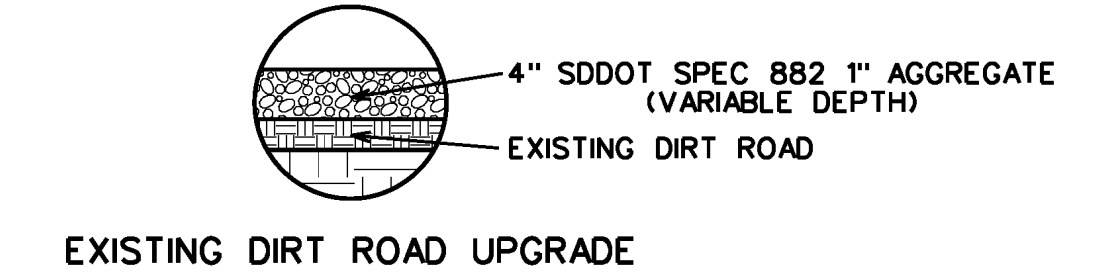
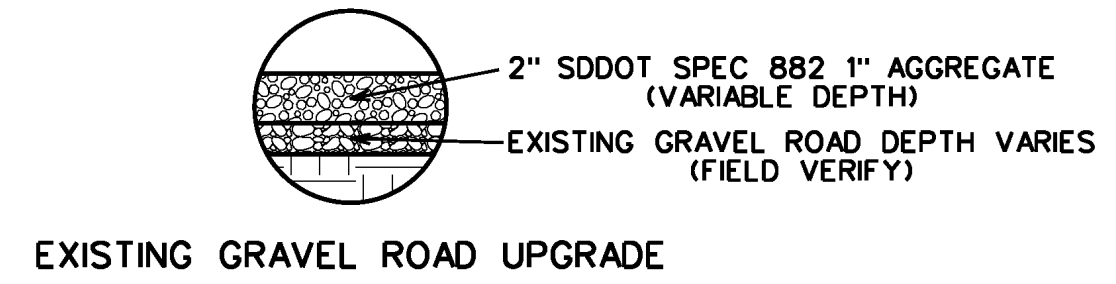
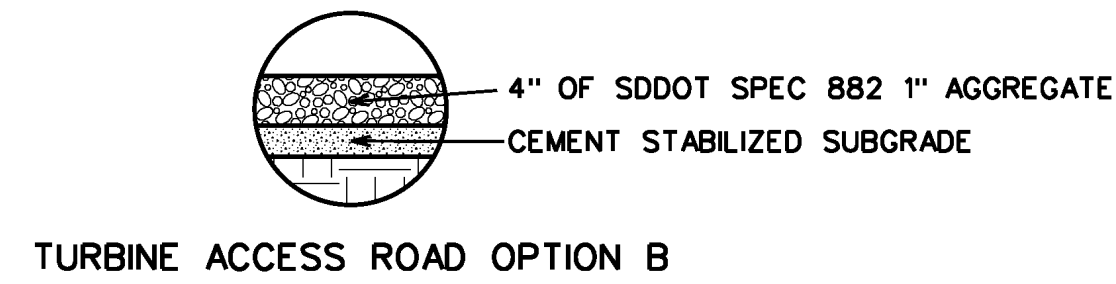
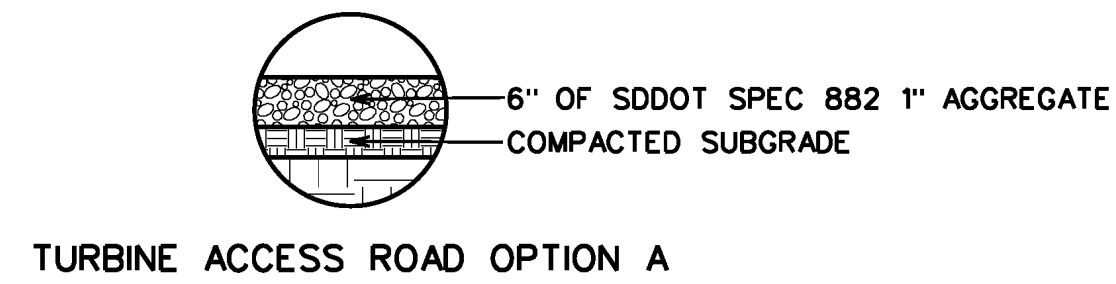
CRANE PAD LOCATIONS TO BE DETERMINED BY CONTRACTOR BASED ON FIELD CONDITIONS
TYPICAL WIND TURBINE SITE LAYOUT WITH COMPONENTS (LAYOUT 2)



CRANE PAD LOCATIONS TO BE DETERMINED BY CONTRACTOR BASED ON FIELD CONDITIONS
TYPICAL WIND TURBINE SITE LAYOUT WITH COMPONENTS (LAYOUT 3)

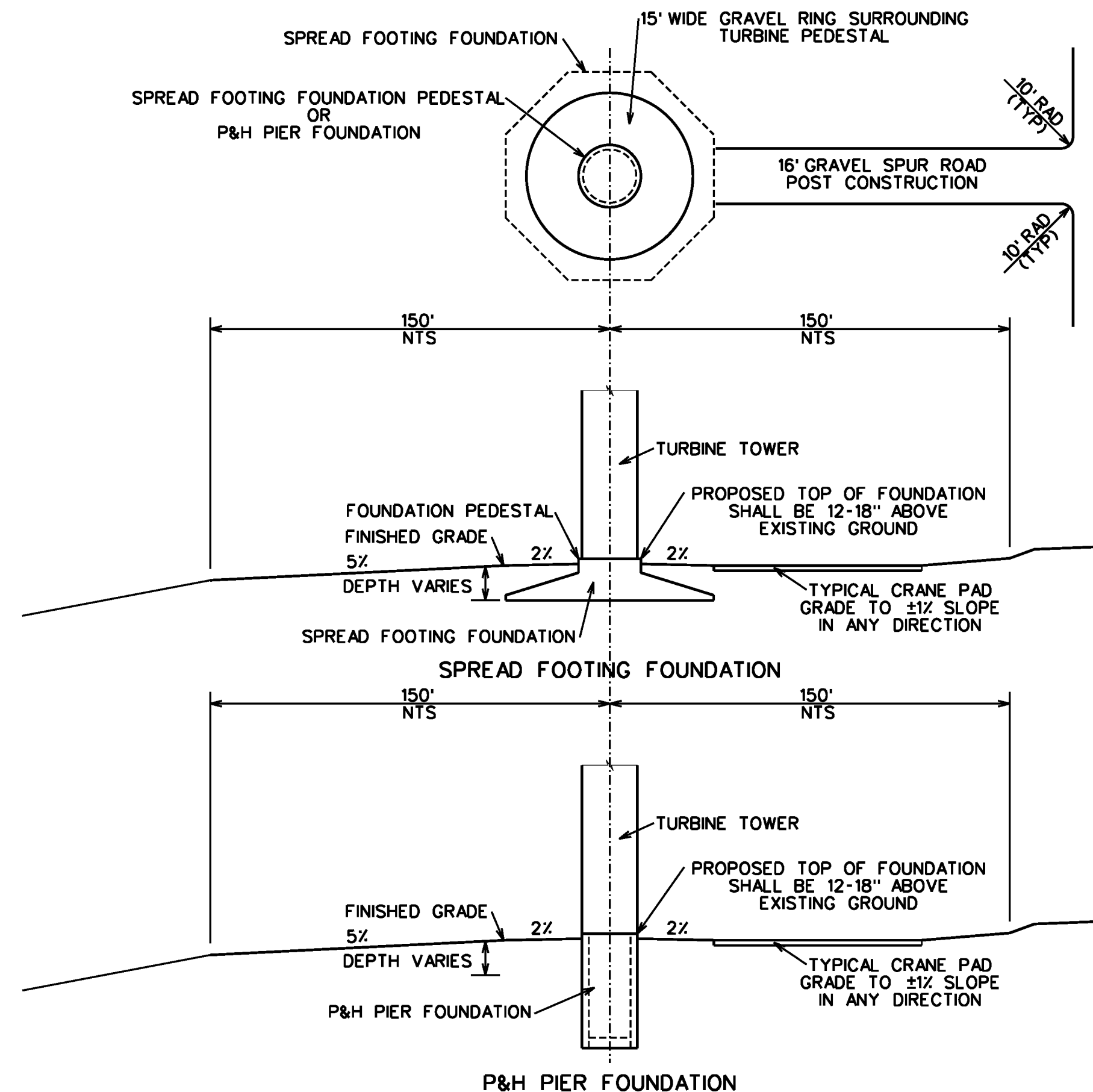


CRANE PAD LOCATIONS TO BE DETERMINED BY CONTRACTOR BASED ON FIELD CONDITIONS
TYPICAL WIND TURBINE SITE LAYOUT WITH COMPONENTS (LAYOUT 4)



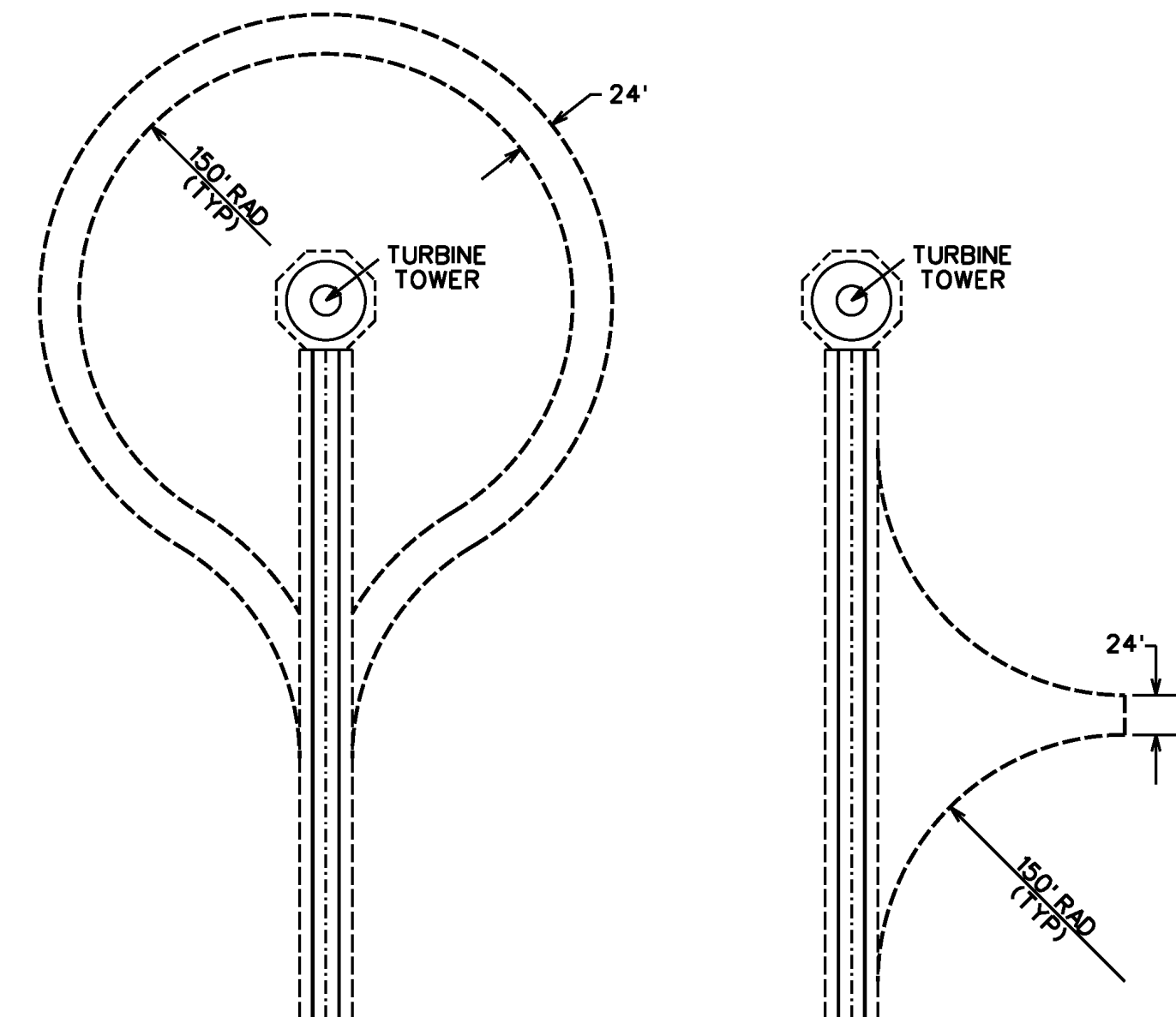
STRUCTURAL SECTIONS SHOWN ARE THE MINIMUM THICKNESS REQUIREMENTS DURING NORMAL FIELD CONDITIONS. THE SECTIONS MAY NEED TO BE INCREASED BASED ON ACTUAL FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. CONDITIONS INCLUDE BUT ARE NOT LIMITED TO THE CONSTRUCTION DURING THE FREEZE/THAW CYCLE, UNUSUALLY WET PERIODS, OR IN LOW/WET AREAS.

TYPICAL CROSS SECTIONS



TYPICAL POST CONSTRUCTION DISTURBANCE AREA, FOUNDATION, SPUR ROAD FOR TURBINES AND PROFILE VIEW

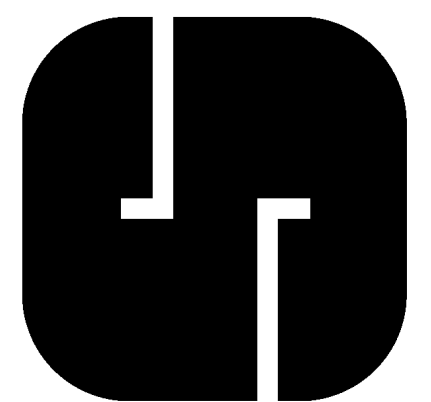
FOUNDATION TYPE AND DIMENSIONS TO BE DETERMINED BY CONTRACTOR BASED ON FIELD CONDITIONS AND GEOTECH REPORT



COMPONENT DELIVERY TRUCK TURNAROUND OPTIONS

Figure 5

CROWNED RIDGE I & II, LLC



Project No: 1140140
Sheet 1 of 1

TYPICAL TURBINE CONSTRUCTION SITE LAYOUT

CODINGTON, DEUEL & GRANT COUNTIES, SOUTH DAKOTA

SNYDER & ASSOCIATES, INC. | 1751 MADISON AVENUE
COUNCIL BLUFFS, IA 51503
712-322-3202 | www.snyder-associates.com

MARK	REVISION	DATE	BY
BJF	MGG	07-21-15	1140140
DW		11-19-2018	

Engineer	Checked By	Date	Field Bk.	Project No.	Sheet
BJF	MGG	07-21-15	1140140	1140140	1 of 1

ISSUE DATE: 11-19-2018

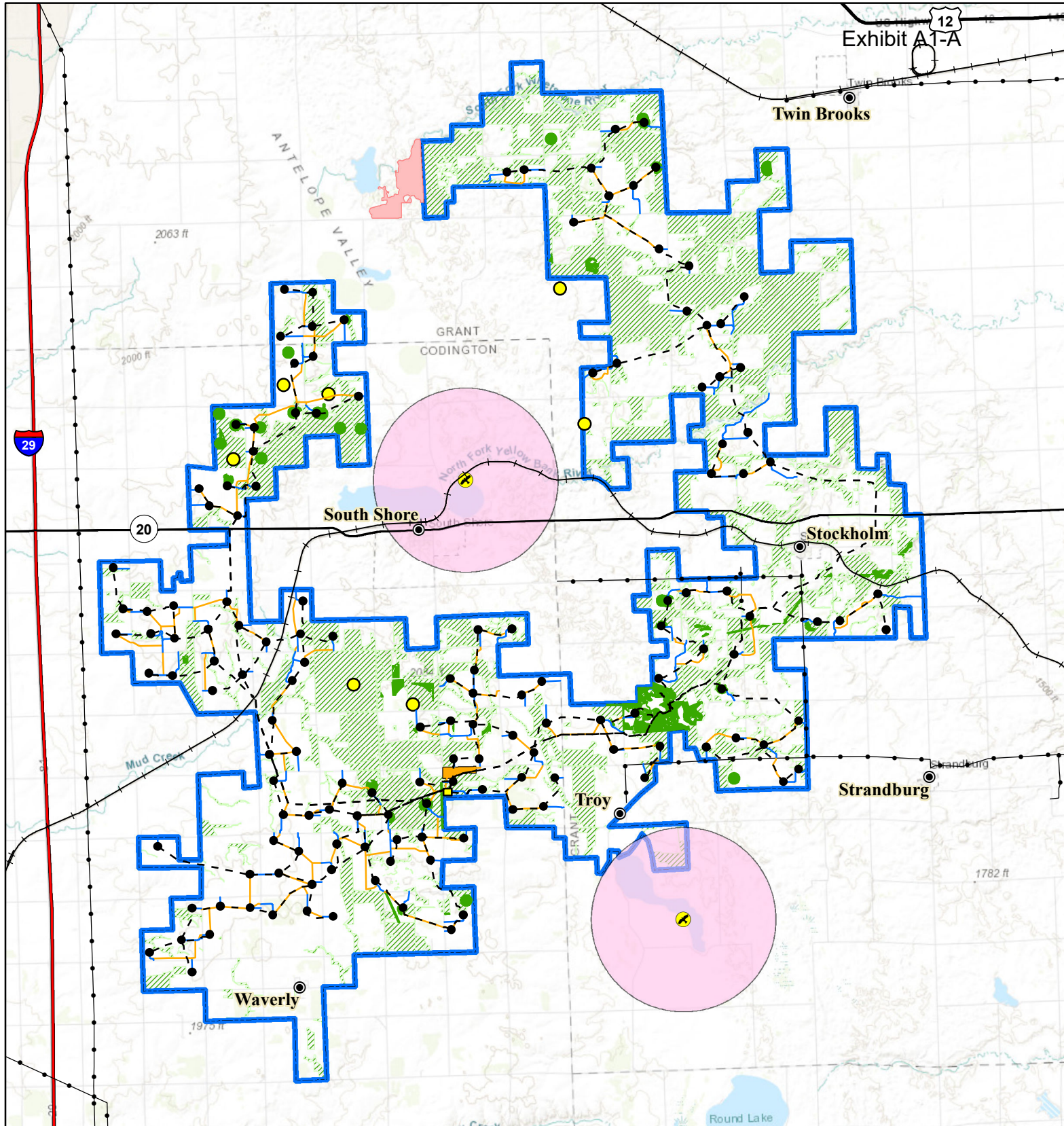
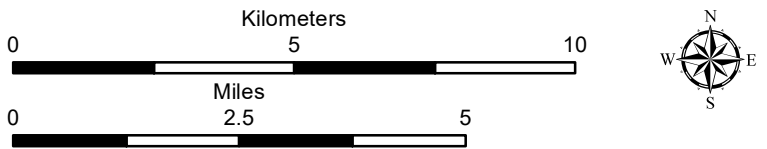


Figure 6. Environmental Constraints
Crowned Ridge Wind Farm

- | | | |
|------------------------------|-------------------------|---|
| Bald Eagle Nest Location | Electrical Line | Field Assessed Dakota Skipper Habitat |
| Lek Location | Railroad | 1.5-mile Bald Eagle Nest Buffer |
| Turbine | Interstate Highway | USFWS Critical Habitat |
| City | U.S. Highway | Undisturbed Native Grasslands (Bauman 2013) |
| Collector Line | State Highway | Project Boundary |
| Proposed Turbine Access Road | O&M Facility/Substation | |
| Crane Path | Laydown Yard | |



Base Map: World Topographic Map
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community
Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N

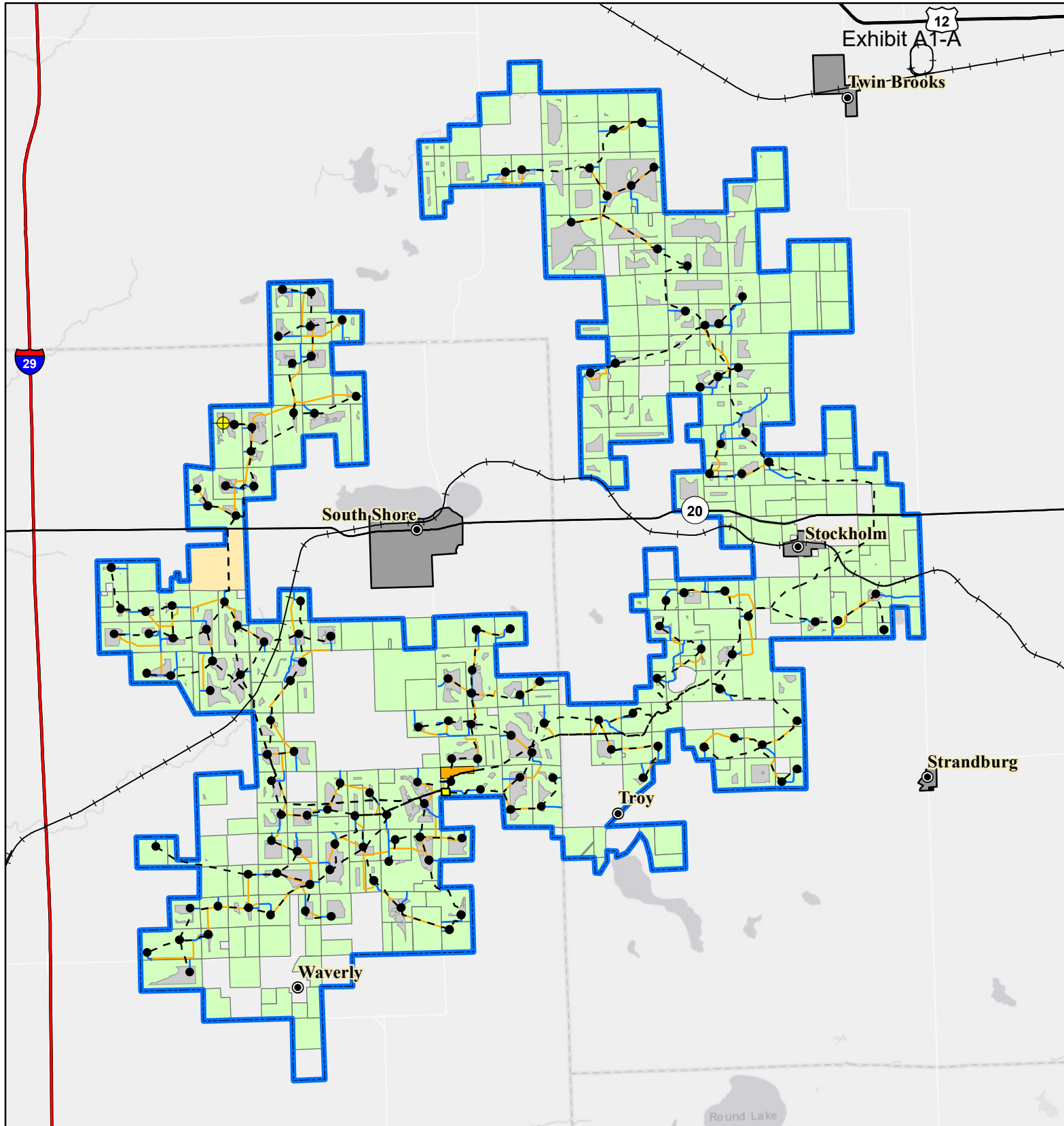
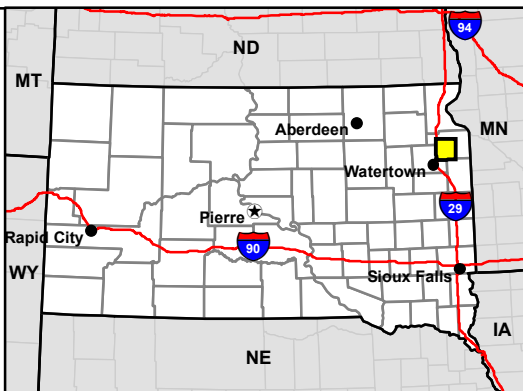


Figure 7. Constraints Map
Crowned Ridge Wind Farm

- MET Tower
- Turbine
- City
- Proposed Turbine Access Road
- Collector Line
- Crane Path
- Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- O&M Facility/Substation
- Laydown Yard
- Available Land
- Town Boundary
- Project Boundary
- Lease Status**
- Lease, Signed
- Pending Approval



Kilometers

0 2.5 5

Miles

0 2.5 5

Base Map: World Light Gray Canvas Base
Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community
Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N

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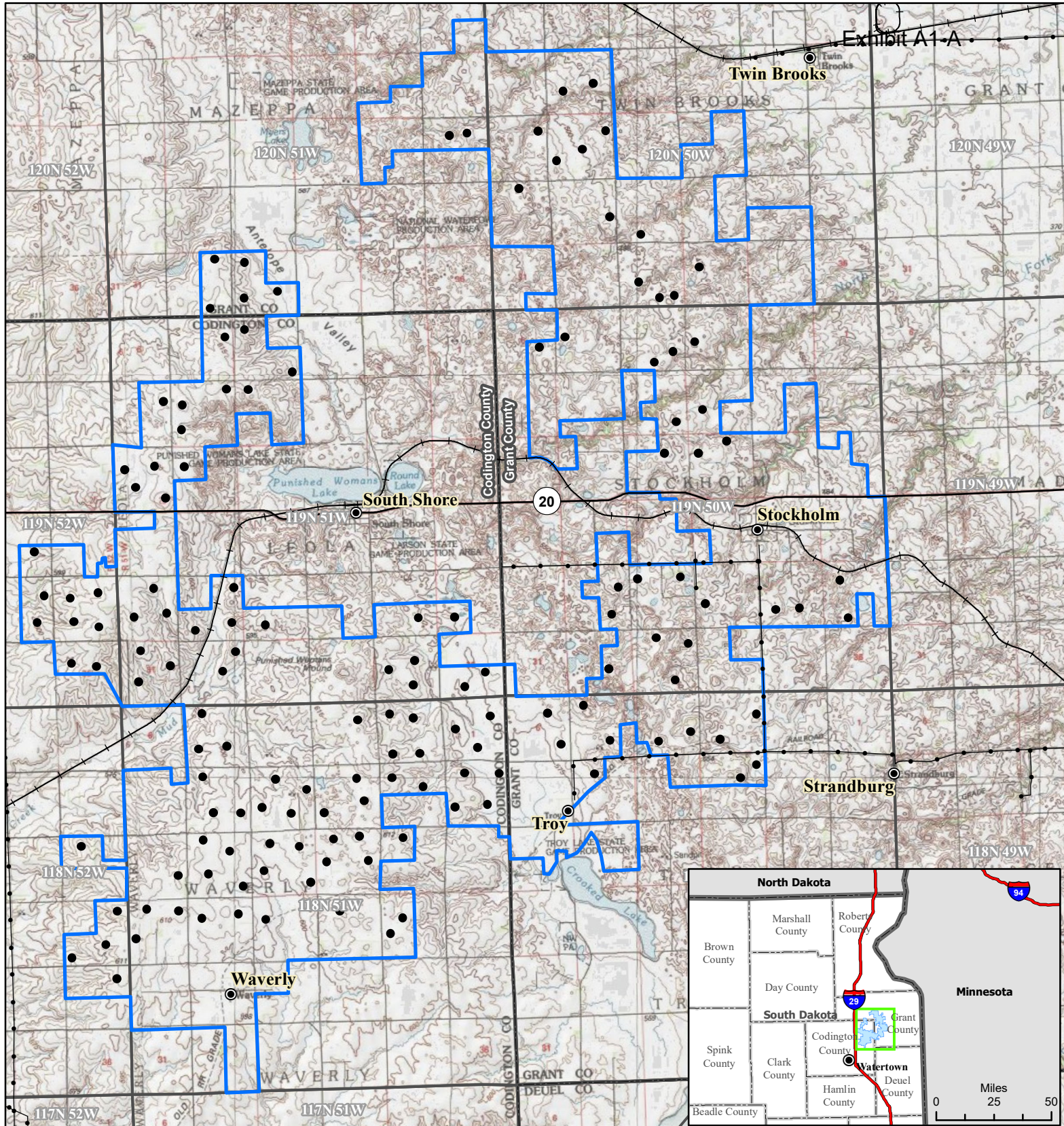
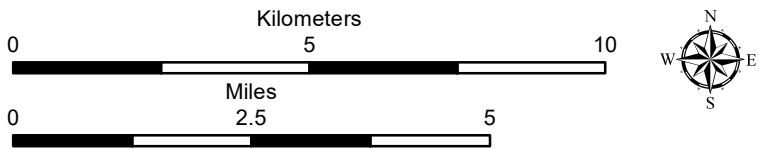


Figure 8. Topographic Map
 Crowned Ridge Wind Farm

- Turbine Location
- City
- +—+— Railroad
- Electrical Line
- State Highway
- Project Boundary
- County Boundary
- Township/Range Boundary



Base Map: USGS 7.5' Topographic Map
 Source: Copyright: ©2014 National Geographic Society, i-cubed
 Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N



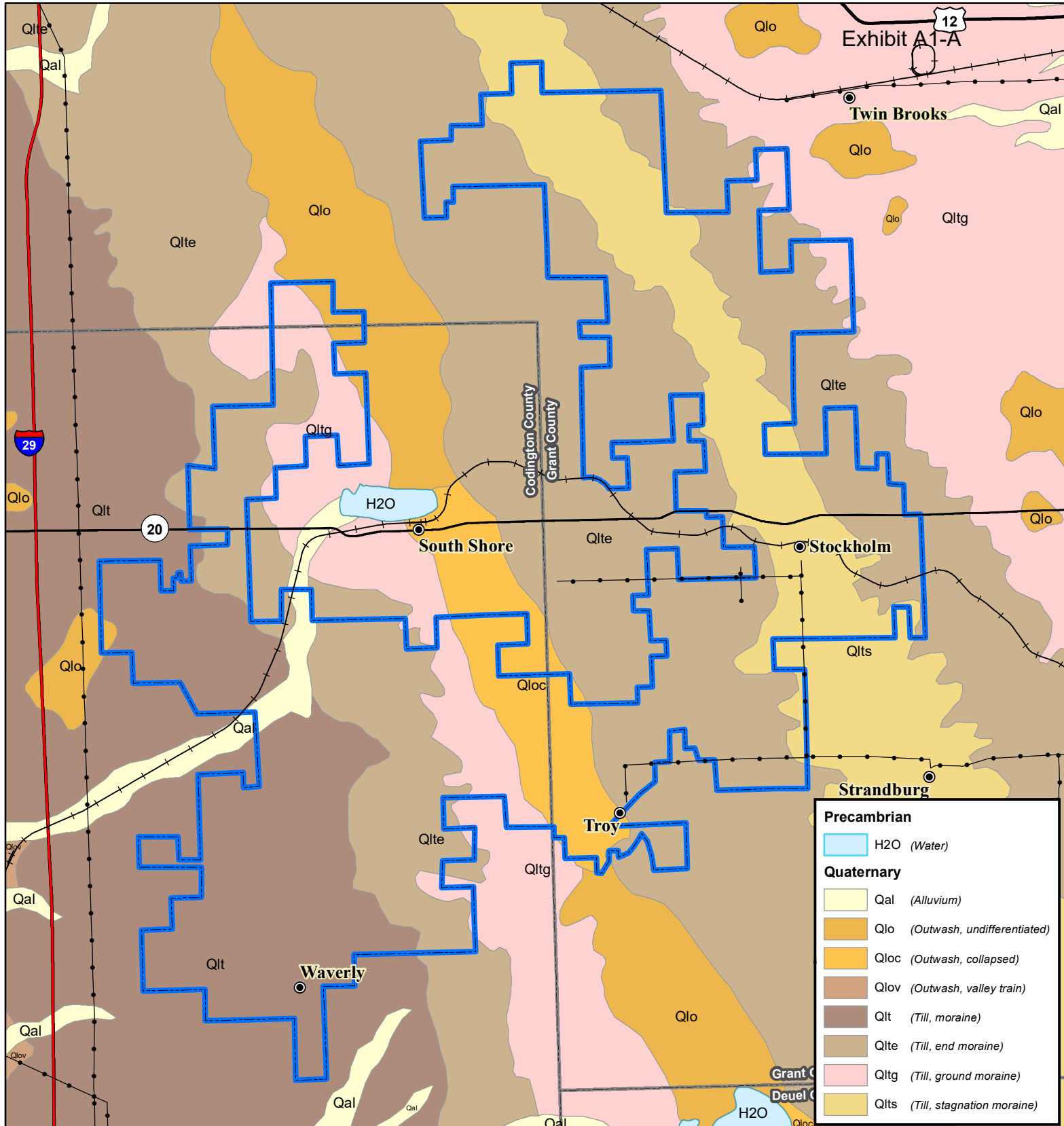


Figure 9a. Surficial Geology
Crowned Ridge Wind Farm

● City	— State Highway
—●— Electrical Line	 Project Boundary
—+— Railroad	 County Boundary
— Interstate Highway	
— U.S. Highway	

Kilometers

0 5 10

Miles

0 2.5 5

Base Map: Surficial Geology
Source: South Dakota Geological Survey via
State of South Dakota GIS
Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N



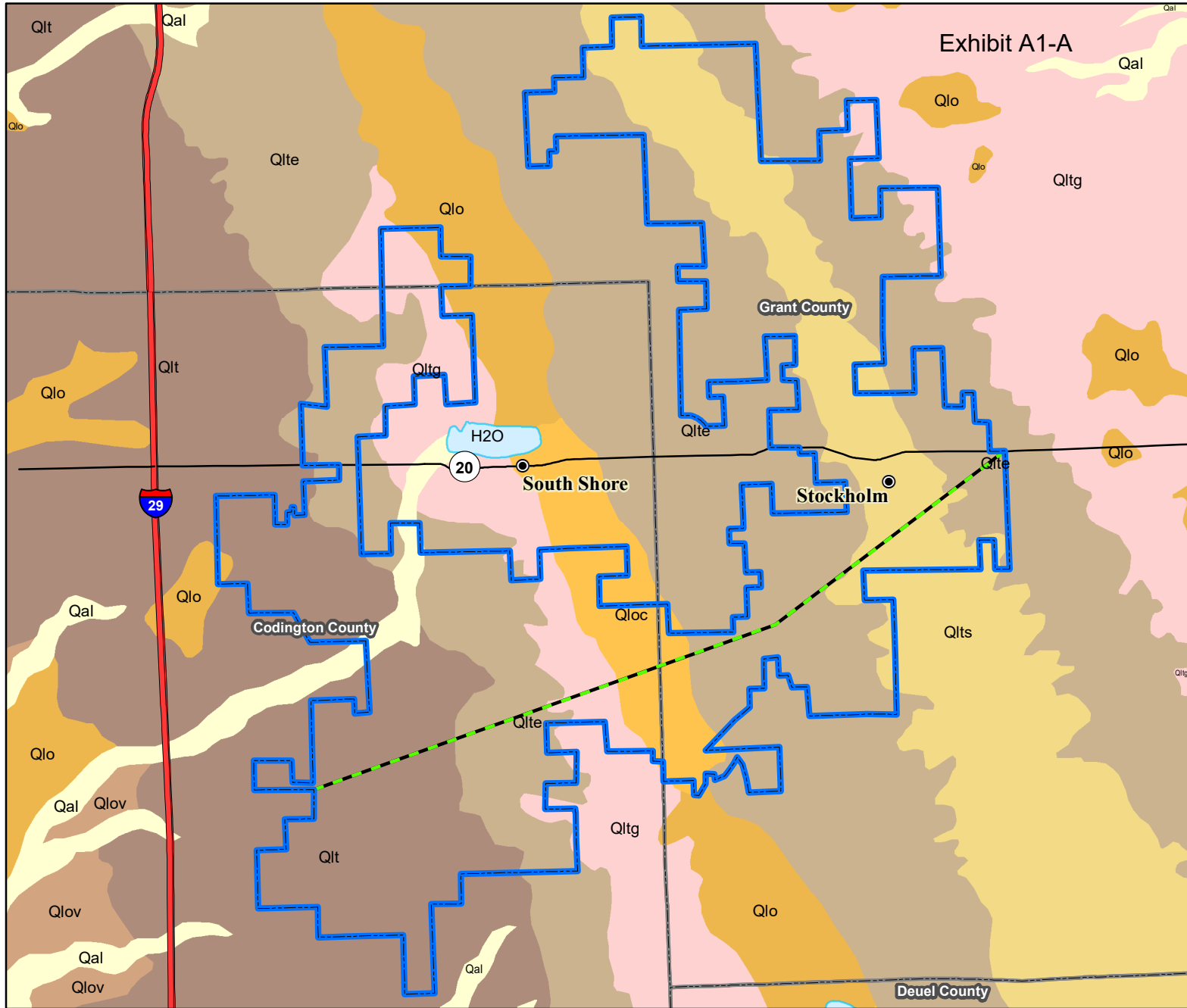
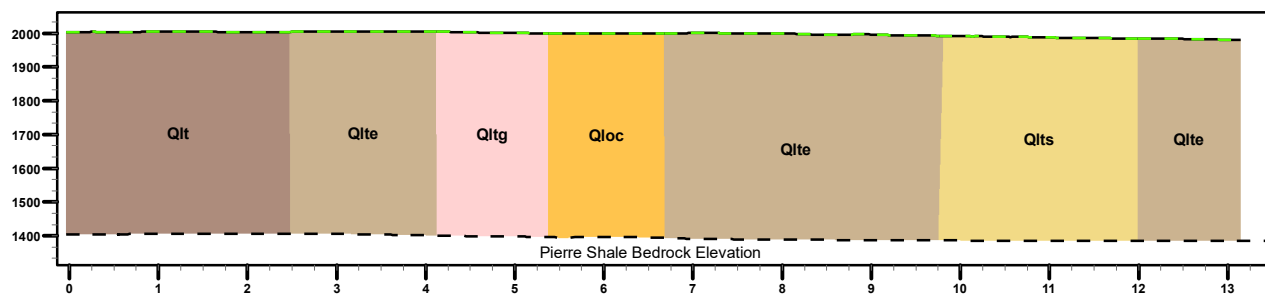


Exhibit A1-A

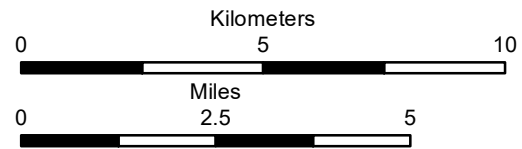


*Vertical axis in feet above sea level; Horizontal axis in miles

Figure 9b. Geology Cross Sections

Crowned Ridge Wind Farm

- City
 - Cross Section
 - Interstate Highway
 - State Highway
 - ▭ Project Boundary
 - ▭ County Boundary
- Surficial Geology**
- Qal (Alluvium)
 - Qlo (Outwash, undifferentiated)
 - Qloc (Outwash, collapsed)
 - Qlov (Outwash, valley train)
 - Qlt (Till, moraine)
 - Qlte (Till, end moraine)
 - Qltg (Till, ground moraine)
 - Qlts (Till, stagnation moraine)
- Precambrian**
- H2O (Water)



Base Map: Surficial Geology
 Source: South Dakota Geological Survey via
 State of South Dakota GIS
 Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N



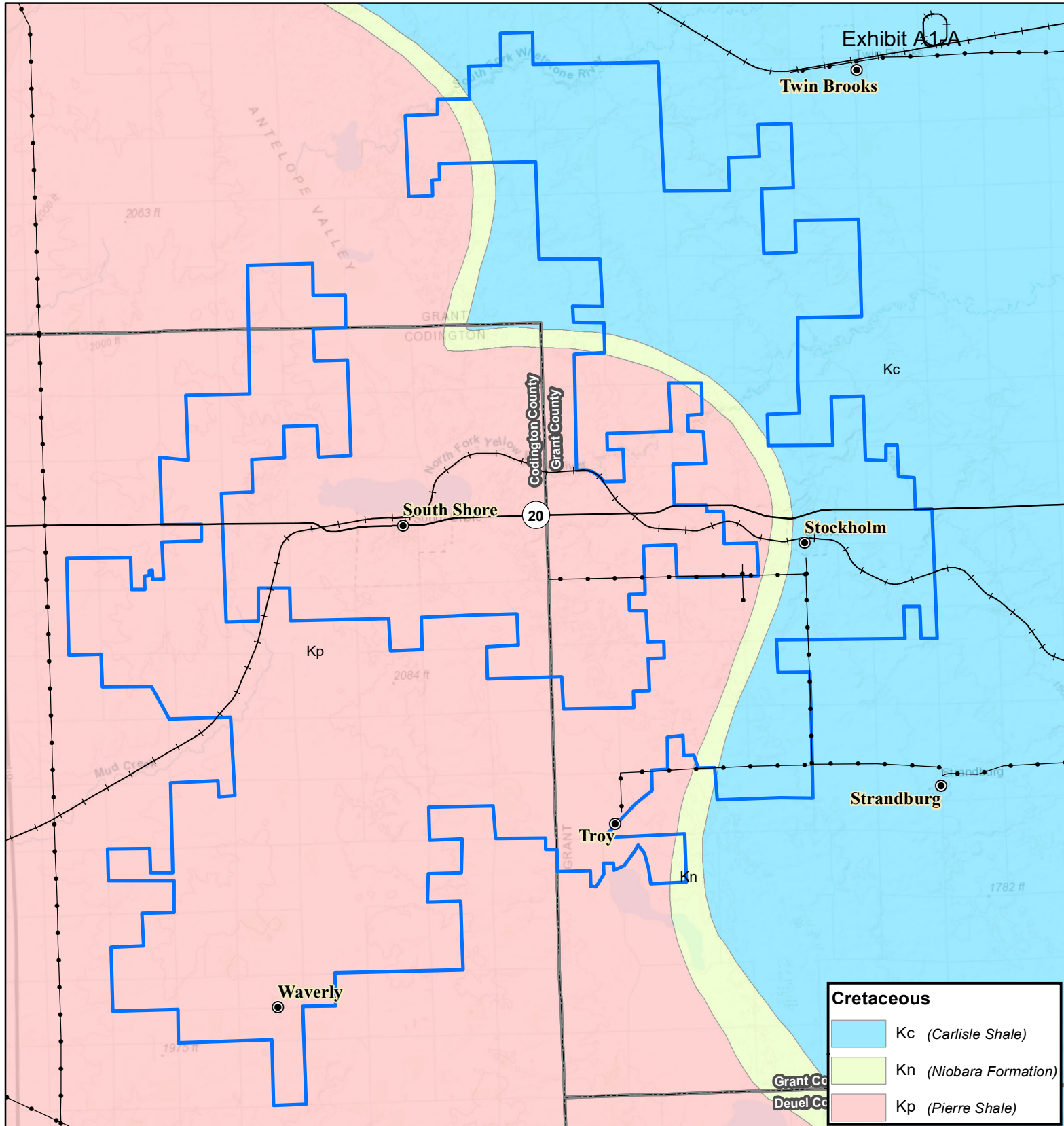


Figure 10. Bedrock Geology
 Crowned Ridge Wind Farm

- City
- County Boundary
- +— Railroad
- Electrical Line
- State Highway
- Project Boundary

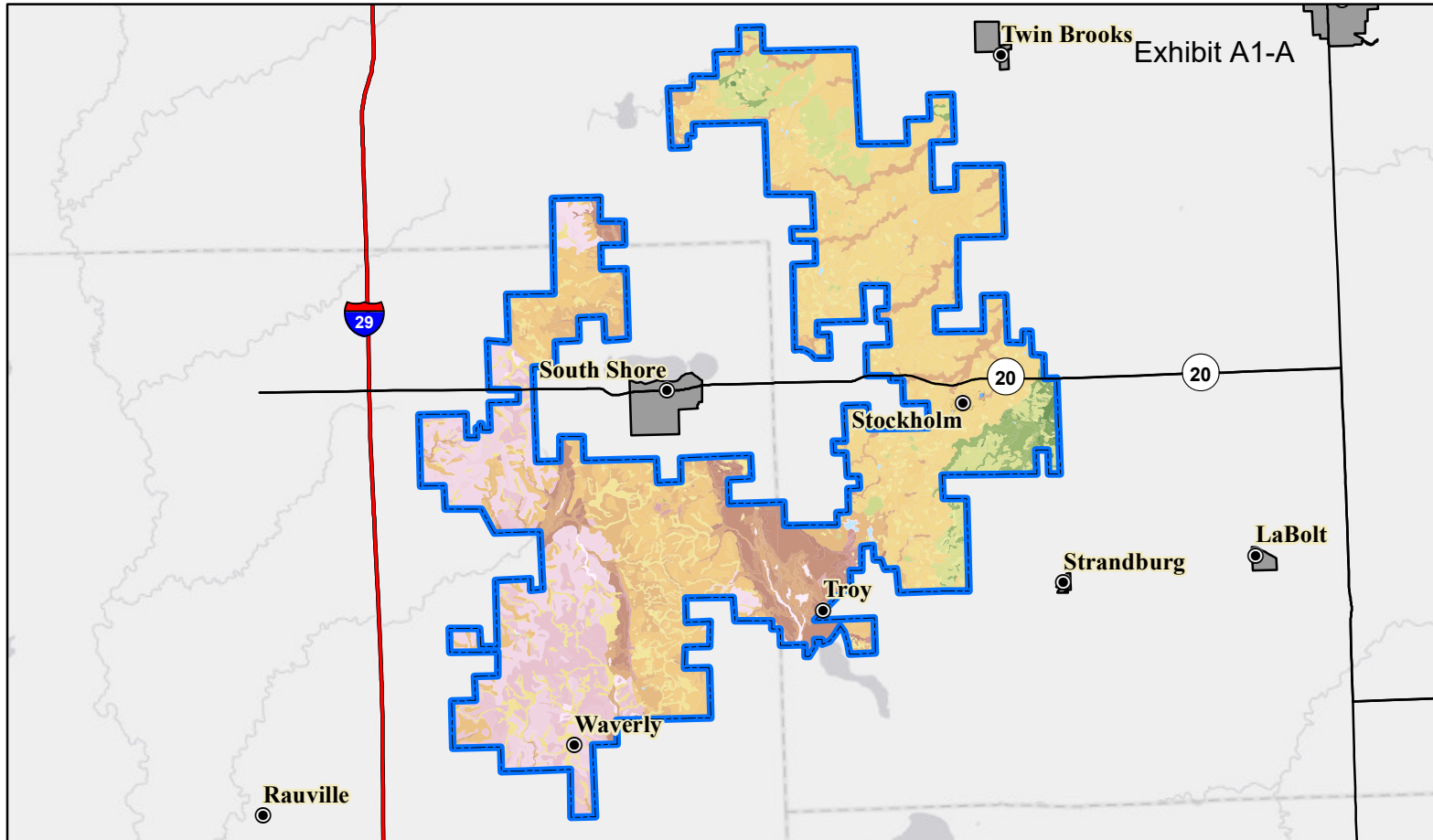
0 5 10
 Kilometers

0 2.5 5
 Miles

Base Map: World Topographic Map
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp.,
 GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL,
 Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong),
 swisstopo, © OpenStreetMap contributors, and the GIS
 User Community
 Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N

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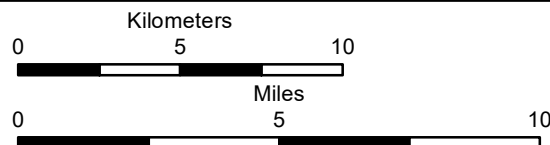
MUSYM (Soil Type)

BeF (Buse-Forman loams, 25-40% slopes)	PeB (Peevler clay loam, 2 to 6% slopes)	Z132B (Forman-Buse-Aastad loams, coteau, 1 to 6% slopes)	Z152A (Lamoure silty clay loam, coteau, occasionally flooded, 0 to 1% slopes)	Z176C (Arville-Sandberg sandy loams, coteau, 6 to 9% slopes)
BfD (Buse-Forman-Aastad loams, 4-15% slopes)	Ph (Playmoor silty clay loam)	Z132C (Forman-Buse-Aastad loams, coteau, 2 to 9% slopes)	Z153A (Lamoure-Rauville silty clay loams, channeled, frequently flooded, 0 to 2% slopes)	Z177 (Udorthents, coteau (gravel pits))
Fa (Flom Clay loam)	Ta (Tonka silty clay loam, 0 to 1% slopes)	Z132D (Forman-Buse-Aastad loams, coteau, 2 to 15% slopes)	Z157A (Fairdale loam, channeled, frequently flooded, 0 to 2% slopes)	Z178A (Rentill loam, coteau, 0 to 2% slopes)
FdB (Forman-Aastad loams, 1-6% slopes)	Vb (Vallers-Parnell complex)	Z135D (Forman-Buse loams, very stony, 2 to 15% slopes)	Z158A (Marysland loam, occasionally flooded, 0 to 1% slopes)	Z179F (Sioux-Renshaw complex, very stony, 15 to 40% slopes)
FdC (Forman-Aastad loams, 3-9% slopes)	W (Water)	Z136F (Buse-Langhei complex, very stony, 9 to 40% slopes)	Z159A (Divide loam, occasionally flooded, 0 to 2% slopes)	Z184E (Maddock loamy fine sand, 9 to 25% slopes)
FdD (Forman-Aastad loams, 4-15% slopes)	Z101A (Tonka silty clay loam, 0 to 1% slopes)	Z137F (Buse-Forman loams, very stony, 15 to 40% slopes)	Z160A (Moritz, occasionally flooded-Lamoure, frequently flooded, complex, 0 to 2% slopes)	Z185A (Egeland-Embsen complex, coteau, 0 to 2% slopes)
FgC (Forman-Buse loams, 6-9% slopes)	Z102A (Badger-Tonka silty clay loam, 0 to 1% slopes)	Z140F (Buse-Langhei complex, coteau, 15 to 40% slopes)	Z161A (Spottswood loam, occasionally flooded, 0 to 2% slopes)	Z185B (Egeland-Embsen complex, coteau, 2 to 6% slopes)
FgE (Forman-Buse loams, 15-25% slopes)	Z105A (Oldham silty clay loam, coteau, 0 to 1% slopes)	Z141A (Barnes-Svea loams, coteau, 0 to 2% slopes)	Z162A (La Prairie loam, coteau, occasionally flooded, 0 to 2% slopes)	Z186B (Maddock-Egeland sandy loams, coteau, 2 to 6% slopes)
FhE (Forman-Buse extremely stony loams, 9-40% slopes)	Z106A (Southam silty clay loam, 0 to 1% slopes)	Z141B (Barnes-Svea loams, coteau, 1 to 6% slopes)	Z166A (Fordtown loam, rarely flooded, 0 to 2% slopes)	Z186C (Maddock-Egeland sandy loams, coteau, 6 to 9% slopes)
HaD (Hattie clay loam, 9 to 15% slopes)	Z107A (Parnell silty clay loam, coteau, 0 to 1% slopes)	Z142B (Barnes-Buse-Svea loams, coteau, 1 to 6% slopes)	Z167A (Renwash loam, rarely flooded, 0 to 2% slopes)	Z190A (Brookings silty clay loam, 0 to 2% slopes)
HaE (Hattie clay loam, 15 to 40% slopes)	Z110A (Vallers loam, coteau, 0 to 1% slopes)	Z142C (Barnes-Buse-Svea loams, coteau, 2 to 9% slopes)	Z171A (Renshaw-Fordville loams, coteau, 0 to 2% slopes)	Z192A (Vienna-Brookings complex, coteau, 0 to 2% slopes)
J119E (Buse-Sioux complex, 9 to 40% slopes)	Z112A (Vallers-Hamerly loams, coteau, 0 to 2% slopes)	Z143C (Barnes-Buse loams, coteau, 6 to 9% slopes)	Z171B (Renshaw-Fordville loams, coteau, 2 to 6% slopes)	Z192B (Vienna-Brookings complex, coteau, 1 to 6% slopes)
J136A (Great Bend-Beotia silt loams, 0 to 2% slopes)	Z113A (Vallers-Parnell complex, coteau, 0 to 2% slopes)	Z144E (Buse-Barnes loams, coteau, 9 to 20% slopes)	Z172A (Renshaw loam, coteau, 0 to 2% slopes)	Z193C (Vienna-Buse complex, coteau, 6 to 9% slopes)
J225B (Forman-Aastad complex)	Z114A (Hamerly-Tonka complex, coteau, 0 to 2% slopes)	Z145D (Buse-Barnes loams, coteau, very stony, 2 to 15% slopes)	Z172B (Renshaw loam, coteau, 2 to 6% slopes)	Z194A (Barnes clay loam, coteau, 0 to 2% slopes)
Lb (LaDelle silt loam, channeled)	Z115A (Hamerly-Badger complex, coteau, 0 to 2% slopes)	Z145F (Buse-Barnes loams, coteau, very stony, 9 to 40% slopes)	Z173B (Renshaw-Sioux complex, coteau, 2 to 6% slopes)	Z194B (Barnes clay loam, coteau, 2 to 6% slopes)
Lc (Ludden silty clay)	Z116A (McKranz-Hidwood, frequently flooded, silty clay loams, 0 to 2% slopes)	Z146F (Buse-Lamoure, channeled, frequently flooded, complex, 0 to 40% slopes)	Z173C (Renshaw-Sioux complex, coteau, 6 to 9% slopes)	Z198A (Vienna-Forestville loams, coteau, 0 to 2% slopes)
M-W Miscellaneous Water	Z117A (McKranz-Badger silty clay loams, 0 to 2% slopes)	Z148F (Buse very stony-Lamoure, channeled, frequently flooded, complex, 0 to 40% slopes)	Z174D (Sioux-Renshaw complex, coteau, 9 to 15% slopes)	Z199B (Vienna-Barnes-Forestville loams, 1 to 6% slopes)
Pa (Parnell silty clay loam)	Z119A (Hamerly-Balaton loams, coteau, 0 to 3% slopes)	Z149F (Buse-Langhei, very stony-La Prairie, channeled, occasionally flooded, complex, 0 to 60% slopes)	Z174F (Sioux-Renshaw complex, coteau, 15 to 40% slopes)	Z205B (Mauvais silty clay loam, occasionally ponded, extremely stony, 2 to 6% slopes)
Pb (Southam silty clay loam, 0 to 1% slopes)	Z128B (Hettland silty clay loam, 2 to 6% slopes)	Z150A (Rauville silty clay loam, coteau, frequently flooded, 0 to 1% slopes)	Z175D (Renshaw-Sioux complex, very stony, 2 to 15% slopes)	Z217A (McKranz silty clay loam, 0 to 2% slopes)
PcA (Peevler clay loam, coteau, 0 to 2% slopes)	Z131A (Forman-Aastad loams, coteau, 0 to 2% slopes)			Z250A (Rauville mucky silty clay loam, ponded, frequently flooded, 0 to 1% slopes)
PcB (Peevler clay loam, coteau, 2 to 6% slopes)	Z131B (Forman-Aastad loams, coteau, 1 to 6% slopes)			Z252A (Hidewood silty clay loam, frequently flooded, 0 to 2% slopes)
PcC (Peevler clay loam, 6 to 9% slopes)				

Figure 11. Soil Types

Crowned Ridge Wind Farm

- City
- Interstate Highway
- State Highway
- Town Boundary
- Project Boundary



Base Map: World Light Gray Canvas Base
Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community
Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N

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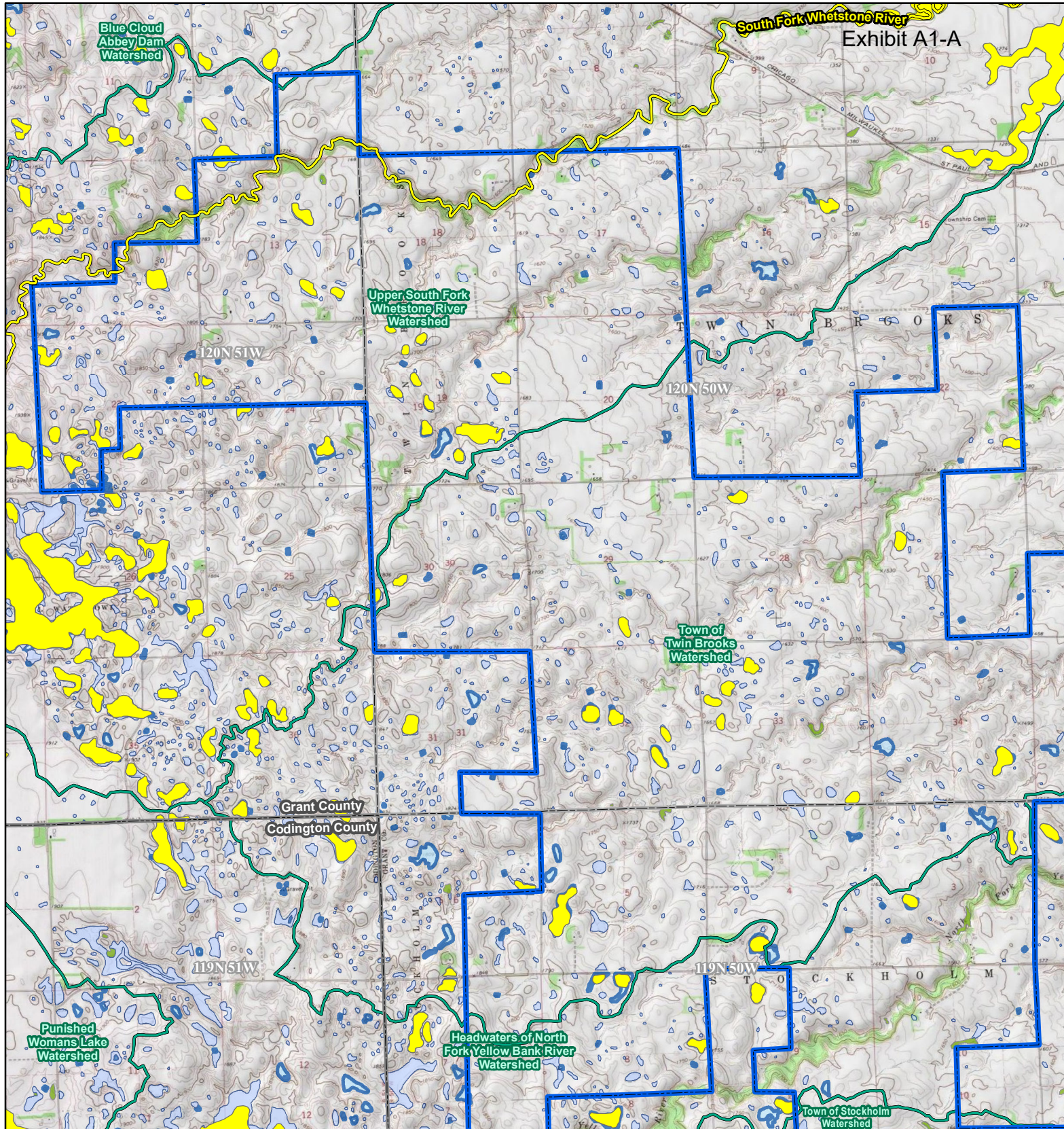
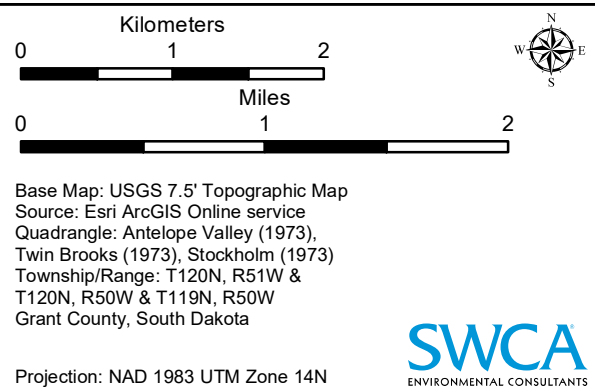
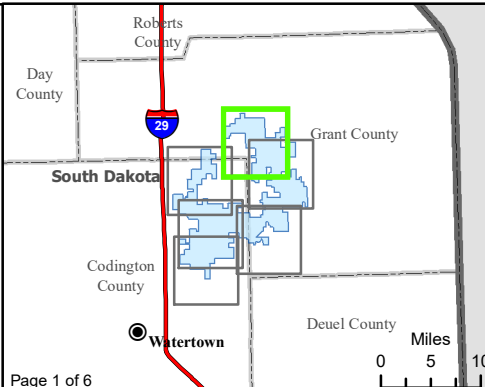
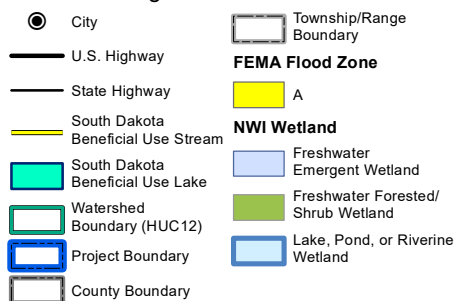


Figure 12. Water Resources
Crowned Ridge Wind Farm



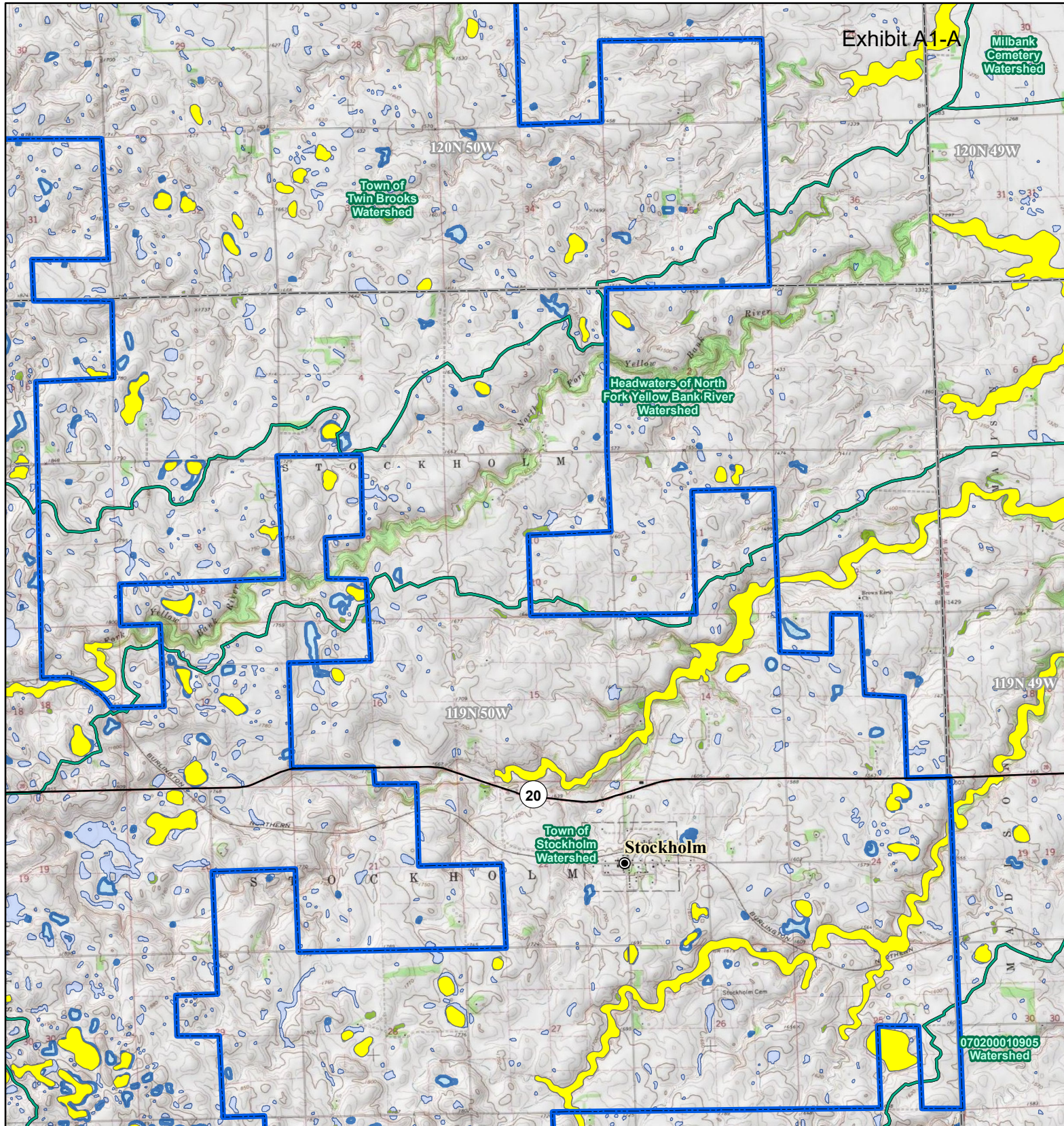
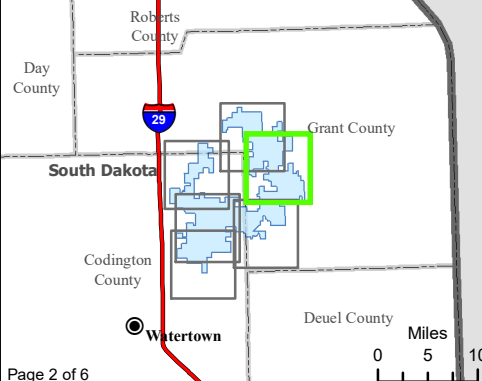


Figure 12. Water Resources
Crowned Ridge Wind Farm

- | | |
|--------------------------------------|-------------------------------------|
| ● City | ▭ Township/Range Boundary |
| — U.S. Highway | FEMA Flood Zone |
| — State Highway | ■ A |
| — South Dakota Beneficial Use Stream | NWI Wetland |
| ■ South Dakota Beneficial Use Lake | ■ Freshwater Emergent Wetland |
| ▭ Watershed Boundary (HUC12) | ■ Freshwater Forested/Shrub Wetland |
| ▭ Project Boundary | ■ Lake, Pond, or Riverine Wetland |
| ▭ County Boundary | |



Kilometers

0 1 2

Miles

0 1 2

N
W E
S

Base Map: USGS 7.5' Topographic Map
 Source: Esri ArcGIS Online service
 Quadrangle: Twin Brooks (1973), Stockholm (1973)
 Township/Range: T120N, R50W & T119N, R50W
 Grant County, South Dakota

Projection: NAD 1983 UTM Zone 14N

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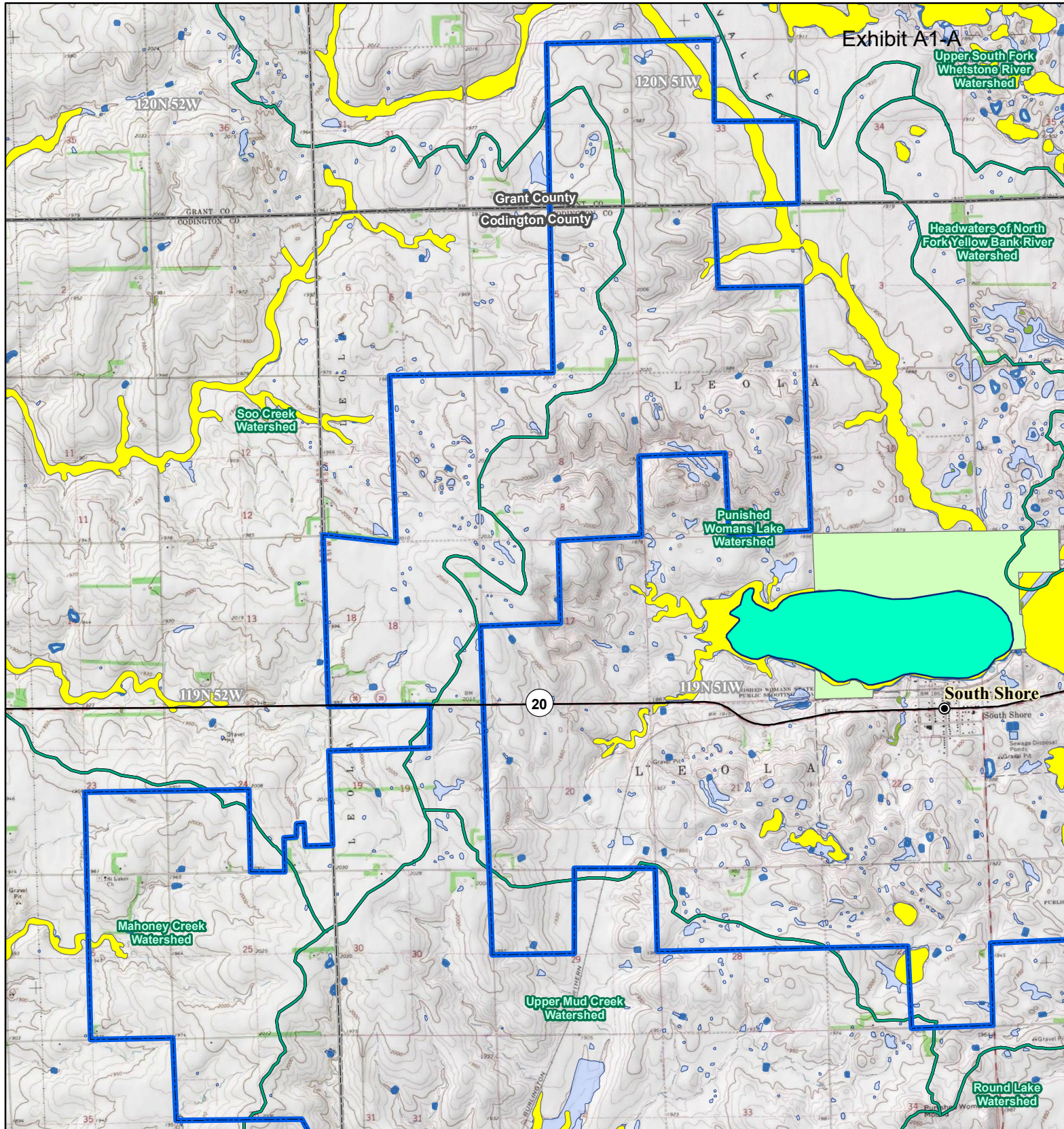
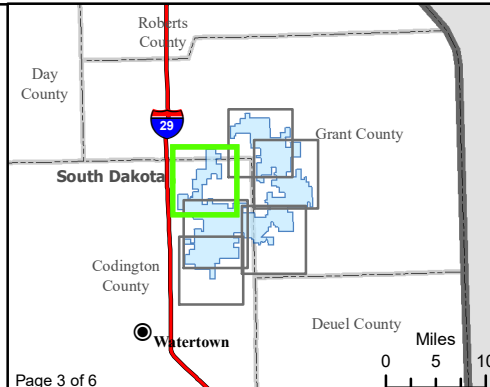


Exhibit A1-A

Figure 12. Water Resources
Crowned Ridge Wind Farm

- City
- U.S. Highway
- State Highway
- South Dakota Beneficial Use Stream
- South Dakota Beneficial Use Lake
- Watershed Boundary (HUC12)
- Project Boundary
- County Boundary
- Township/Range Boundary
- FEMA Flood Zone**
 - A
 - D
- NWI Wetland**
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Lake, Pond, or Riverine Wetland



Kilometers

0 1 2

Miles

0 1 2

Base Map: USGS 7.5' Topographic Map
 Source: Esri ArcGIS Online service
 Quadrangle: Antelope Valley (1973),
 Still Lake SE (1970), South Shore (1973)
 Township/Range: T120N, R51W &
 T119N, R52W & T119N, R51W
 Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N

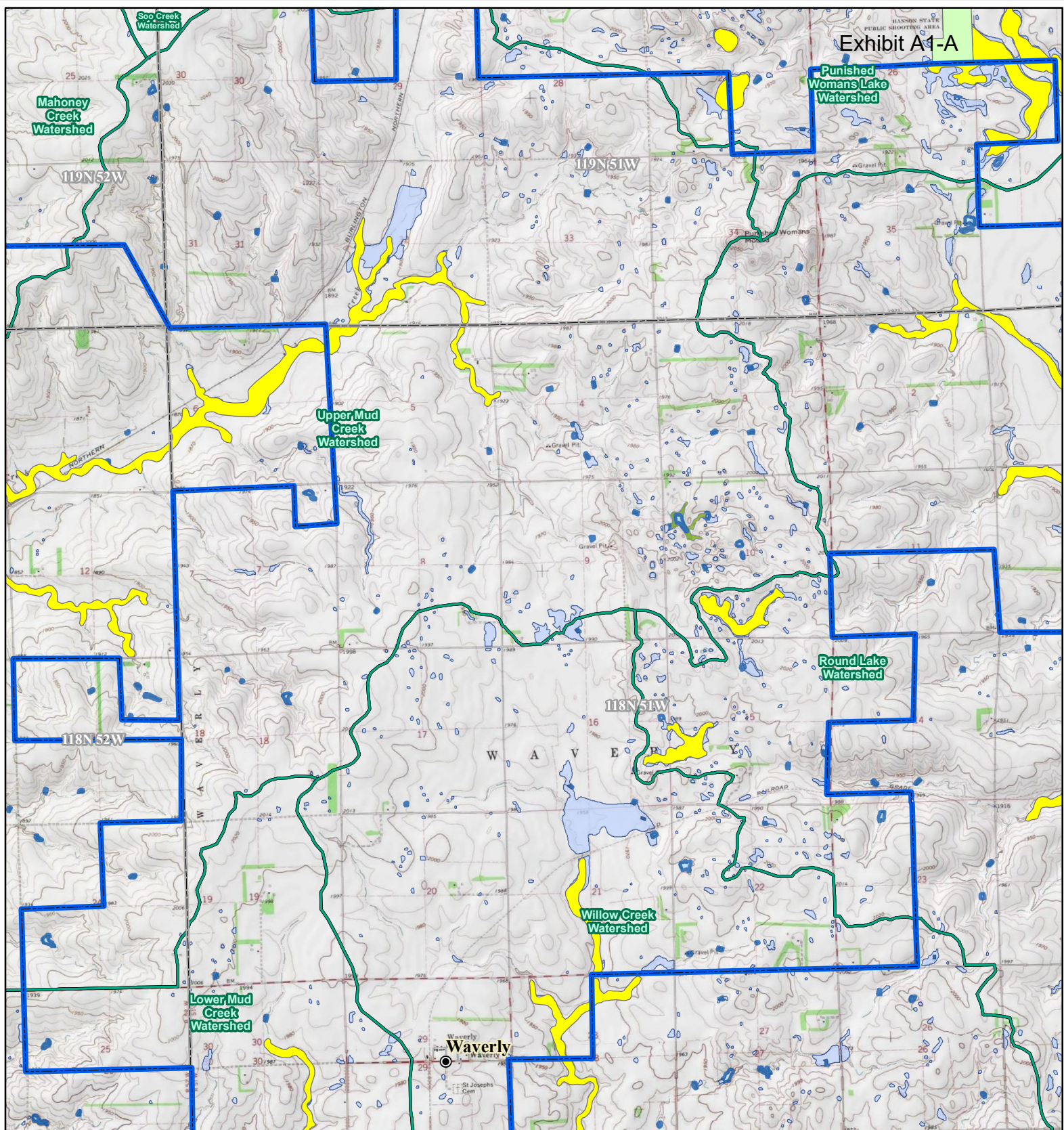
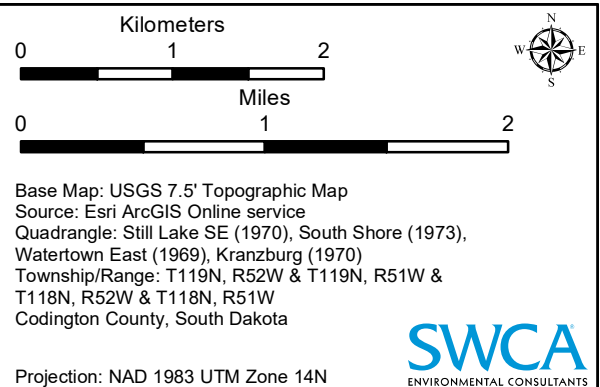
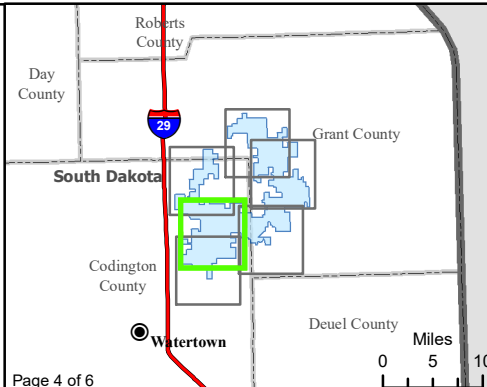
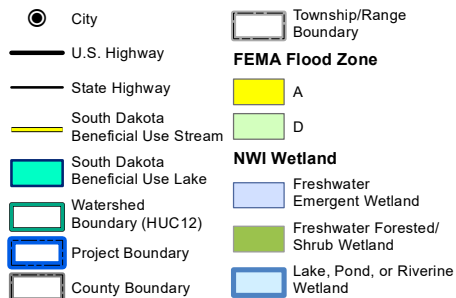


Figure 12. Water Resources
Crowned Ridge Wind Farm



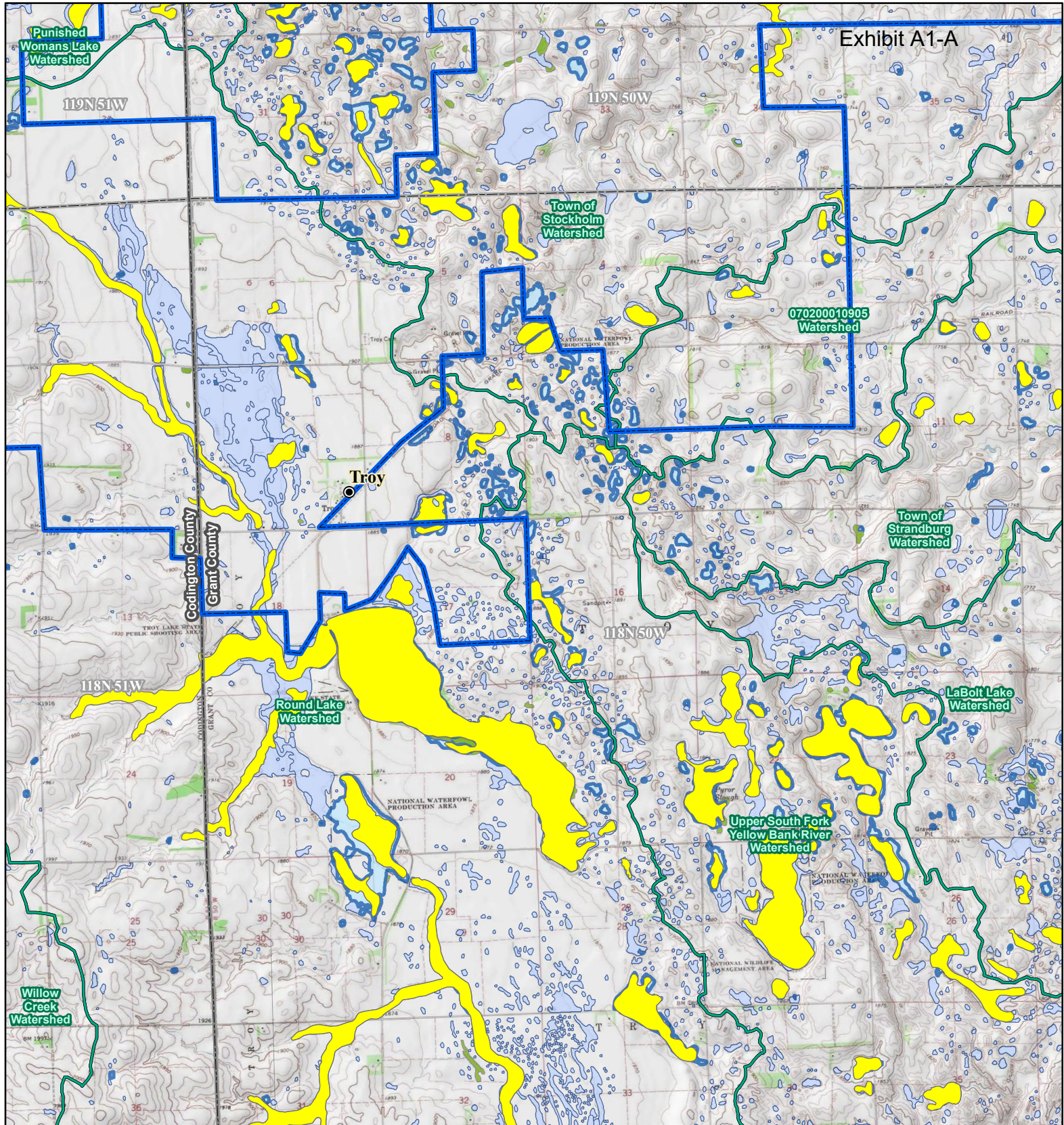
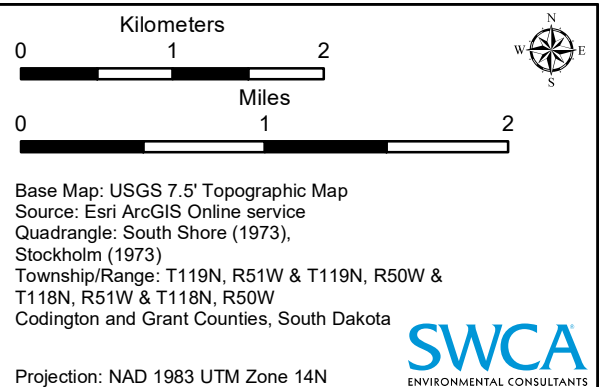
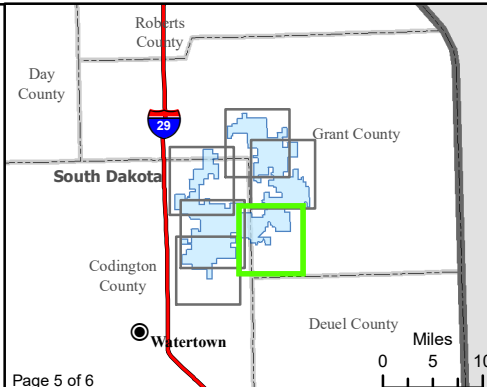
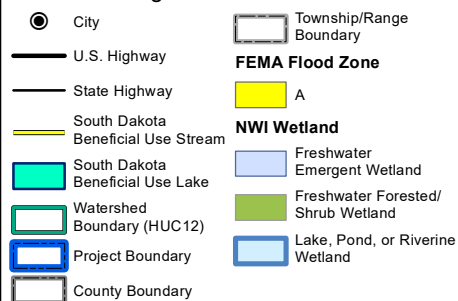


Figure 12. Water Resources
Crowned Ridge Wind Farm



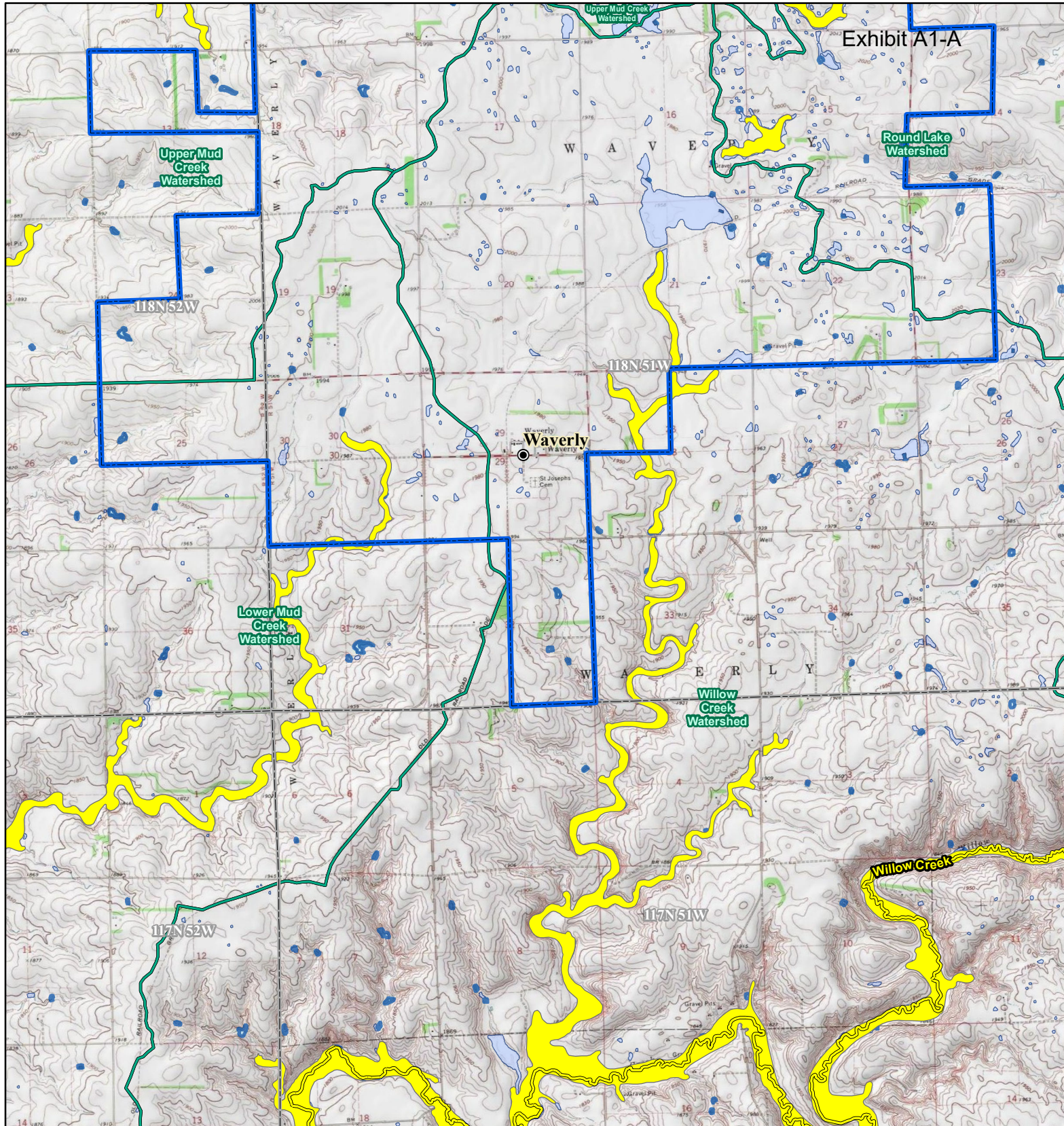
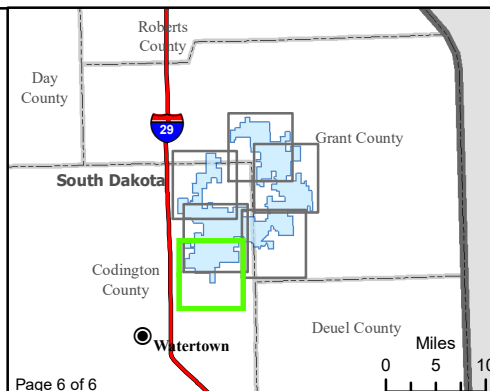


Exhibit A1-A

Figure 12. Water Resources
Crowned Ridge Wind Farm

- City
- U.S. Highway
- State Highway
- South Dakota Beneficial Use Stream
- South Dakota Beneficial Use Lake
- Watershed Boundary (HUC12)
- Project Boundary
- County Boundary
- Township/Range Boundary
- FEMA Flood Zone**
 - A
- NWI Wetland**
 - Freshwater Emergent Wetland
 - Lake, Pond, or Riverine Wetland



Kilometers

0 1 2

Miles

0 1 2

Base Map: USGS 7.5' Topographic Map
 Source: Esri ArcGIS Online service
 Quadrangle: Still Lake SE (1970), South Shore (1973),
 Watertown East (1969), Kranzburg (1970)
 Township/Range: T118N, R52W &
 T118N, R51W
 Codington County, South Dakota

Projection: NAD 1983 UTM Zone 14N

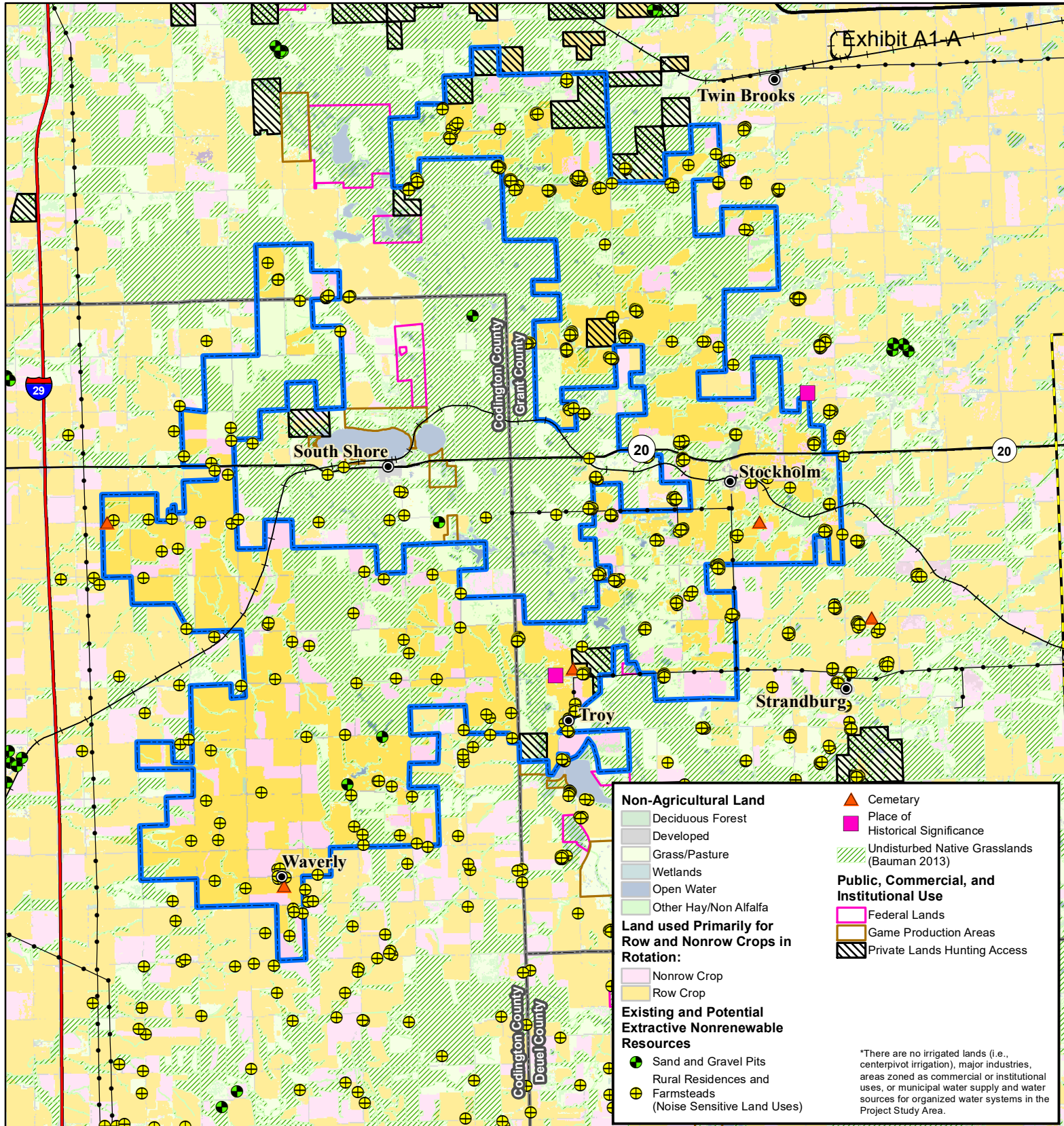


Figure 13. Land Use
Crowned Ridge Wind Farm

- City
- U.S. Highway
- Electrical Line
- State Highway
- Natural Gas Line
- Railroad
- Interstate Highway
- Project Boundary
- County Boundary



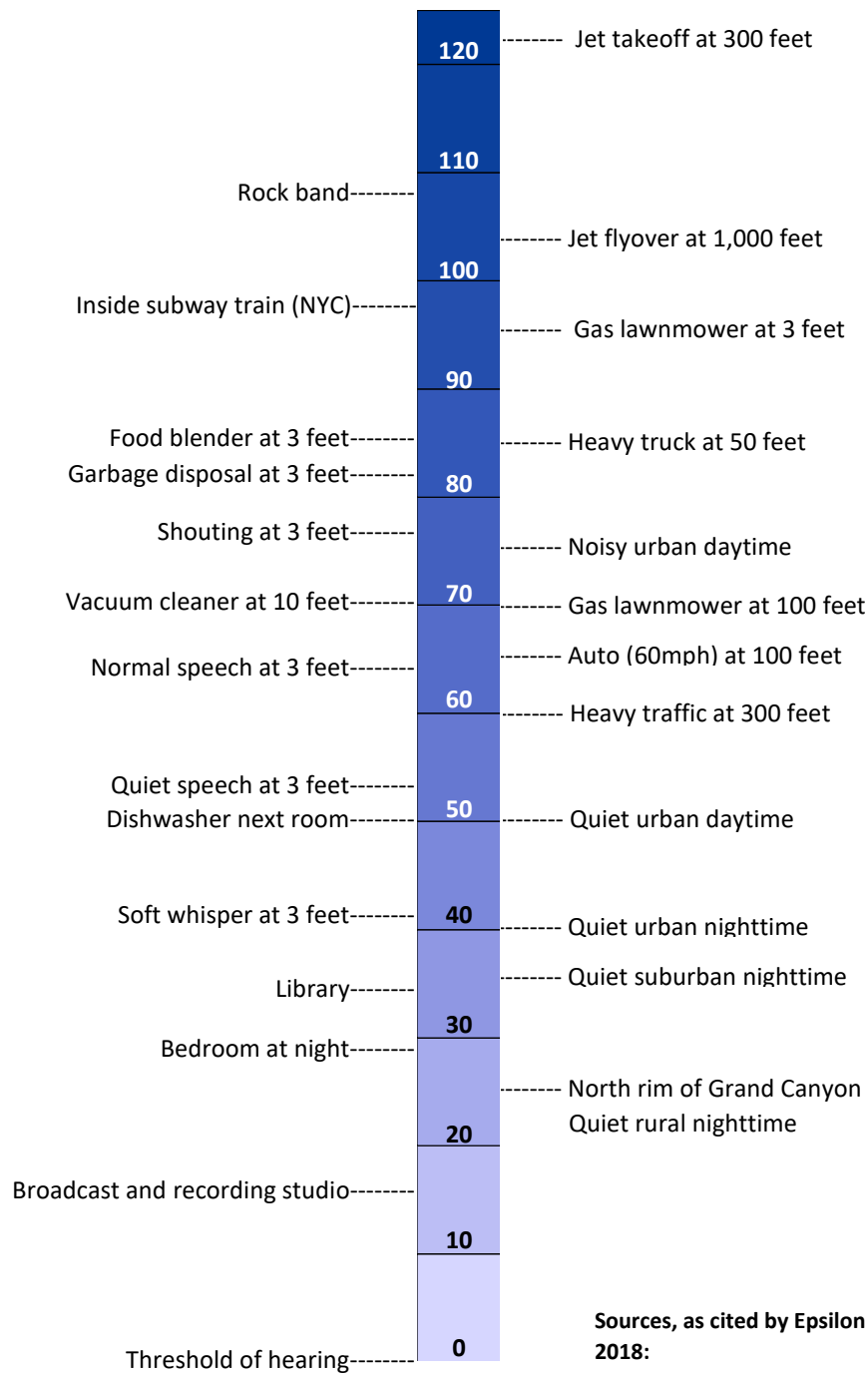
Base Map: 2017 South Dakota Cropland Data Layer | NASS/USDA
Source: United States Department of Agriculture (USDA), National Agricultural Statistics Service (NASS), Research and Development Division (RDD), Geospatial Information Branch (GIB), Spatial Analysis Research Section (SARS); 2017 Edition
Codington County, South Dakota

Projection: NAD 1983 UTM Zone 14N

COMMON INDOOR SOUNDS

Sound Pressure
Level, dba

COMMON OUTDOOR SOUNDS



Sources, as cited by Epsilon Associates Inc, November 19, 2018:

1. Harris, Cyril, "Handbook of Noise Acoustical Measurements and Noise Control", p 1-10., 1998
2. "Controlling Noise", USAF, AFMC, AFDTC, Elgin AFB, Fact Sheet, August 1996
3. California Dept. of Trans., "Technical Noise Supplement", Oct, 1998

FIGURE 14
Common Sound Levels in the Environment