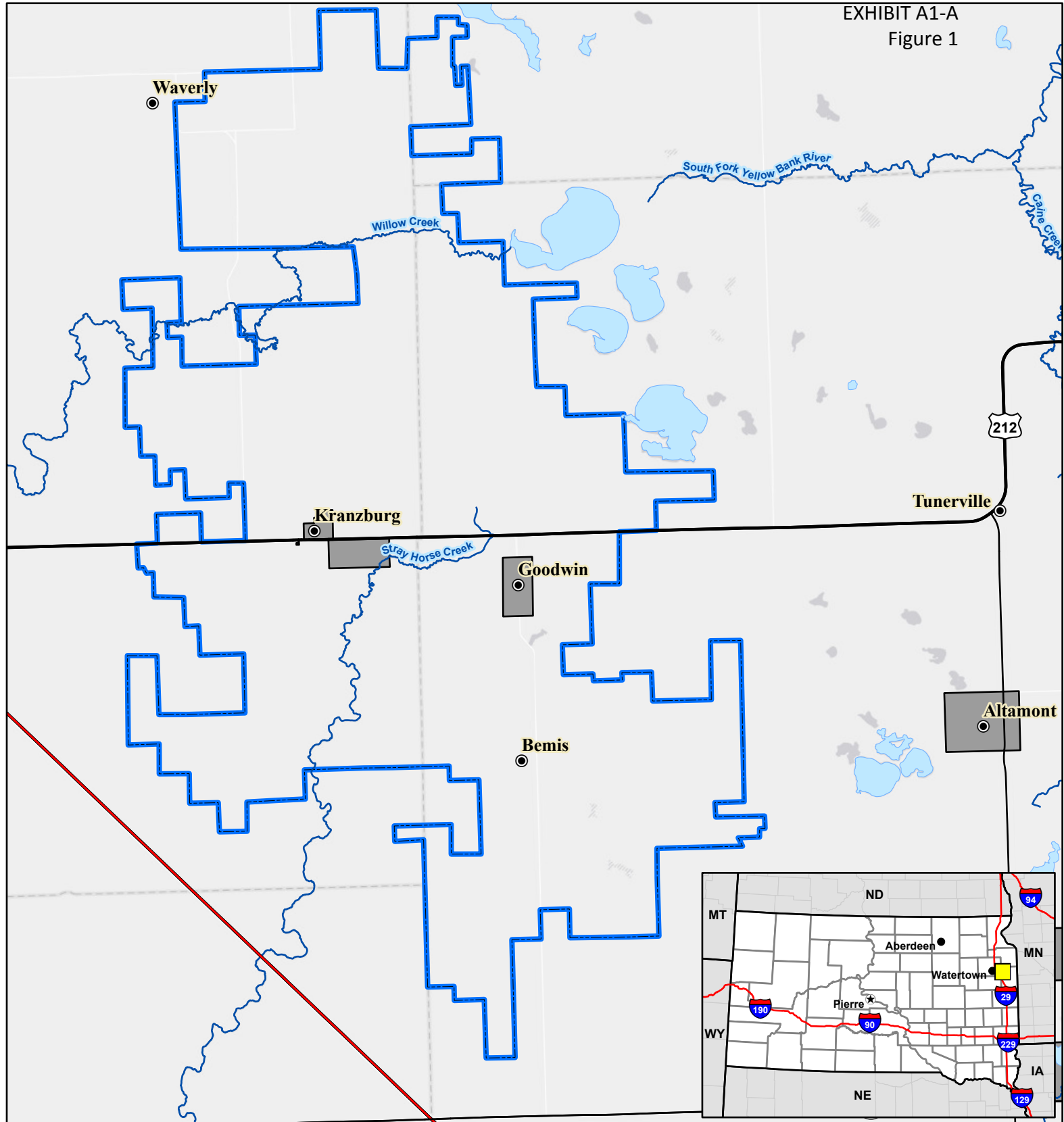
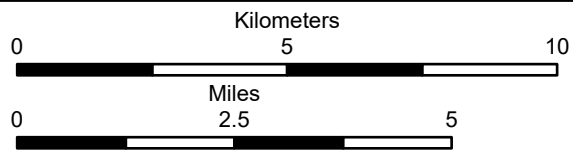




## Figure 1. Project Area

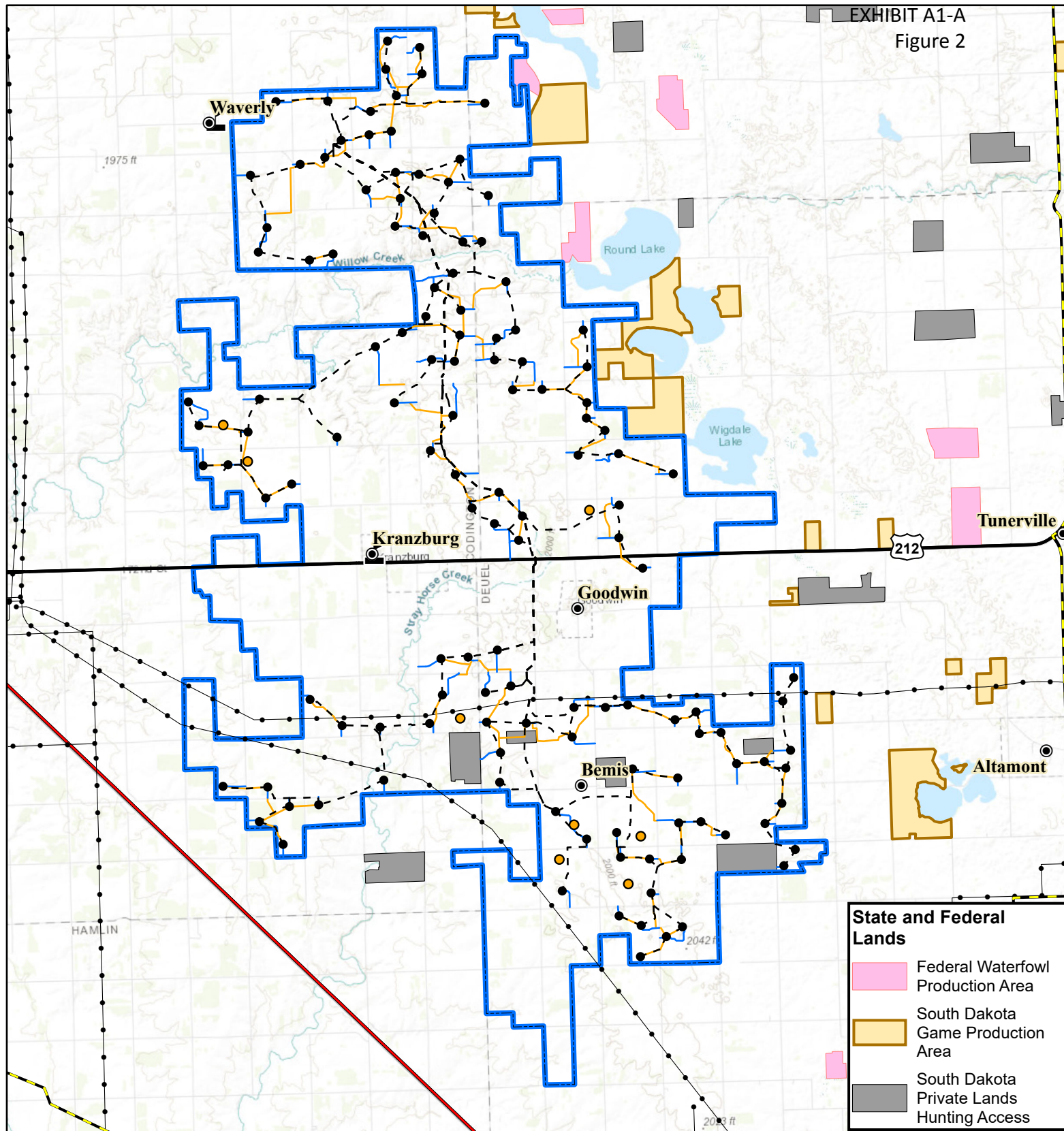
Crowned Ridge II Wind Farm

- City
- River
- Interstate Highway
- U.S. Highway
- State Highway
- Waterbody
- Town Boundary
- Project Boundary



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

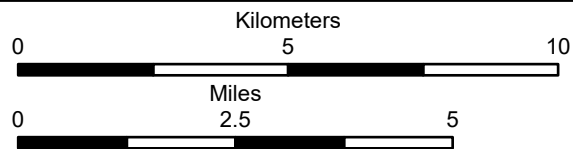
Projection: NAD 1983 UTM Zone 14N



### Figure 2. Public Land and Facilities

#### Crowned Ridge II Wind Farm

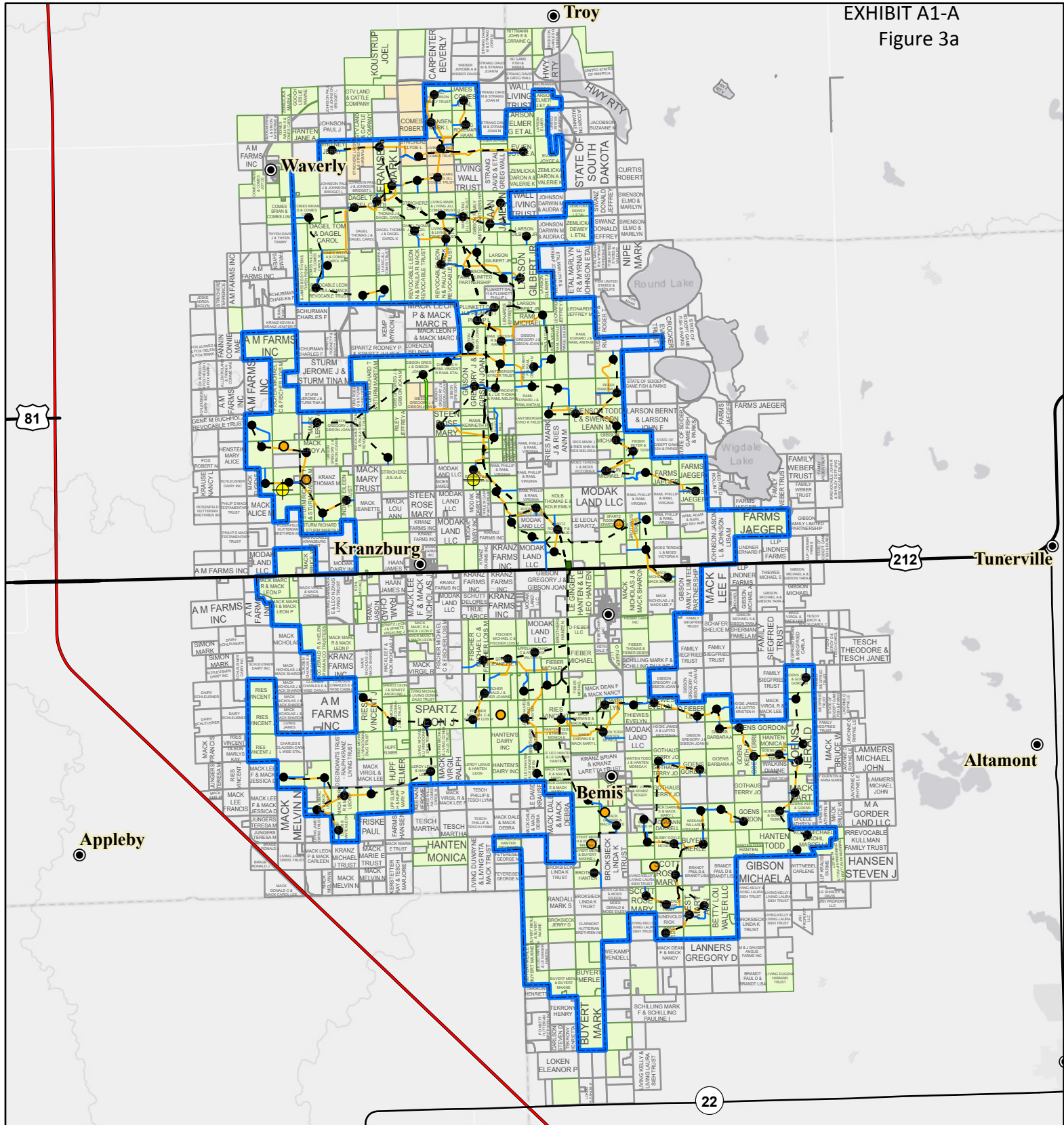
- City
- School
- Turbine
- Alternate Turbine Location
- - - Collector Line
- Proposed Turbine Access Road
- Crane Path
- Electrical Line
- Natural Gas Line
- Interstate Highway
- U.S. Highway
- State Highway
- Project Boundary



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),  
 swisstopo, © OpenStreetMap contributors, and the GIS  
 User Community  
 Codington, Deuel, and Grant Counties, South Dakota

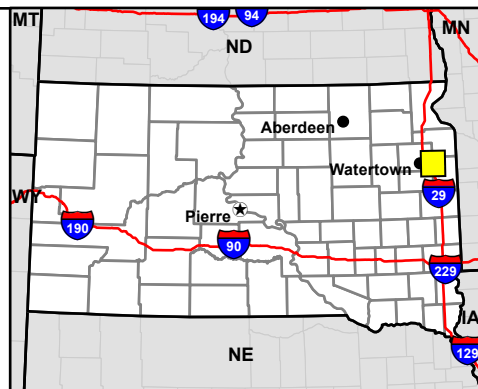
Projection: NAD 1983 UTM Zone 14N



**Figure 3a. Project Map**

Crowned Ridge II Wind Farm

- MET Tower
- City
- Turbine
- Alternate Turbine Location
- Proposed Turbine Access Road
- Collection Line
- Crane Path
- Temporary Construction Easement (Needed for Construction)
- Interstate Highway
- U.S. Highway
- State Highway
- Substation
- O&M Facility
- Batch Plant
- Project Boundary
- Lease Status**
  - Lease, Signed
  - Pending Approval
  - Parcel Boundary



Kilometers

0 2.5 5

Miles

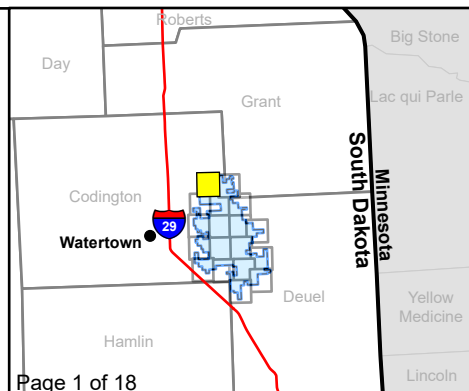
0 2.5 5



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

Projection: NAD 1983 UTM Zone 14N

**SWCA**  
 ENVIRONMENTAL CONSULTANTS



| Miles |     |
|-------|-----|
| 0.25  | 0.5 |

Base Map: World Light Gray Canvas Base  
Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
Quadrangle: South Shore (1973),  
Kranzburg (1970)  
Township/Range: T118N, R51W

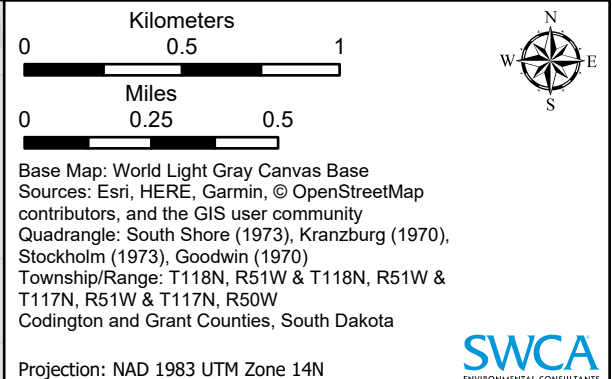
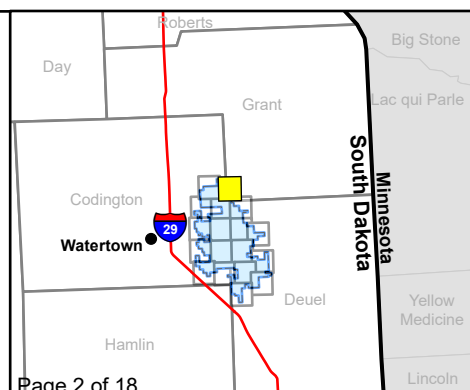
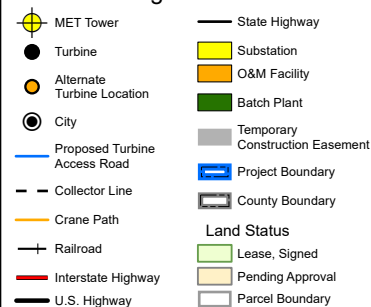
Codington County, South Dakota

Projection: NAD 1983 UTM Zone 14N

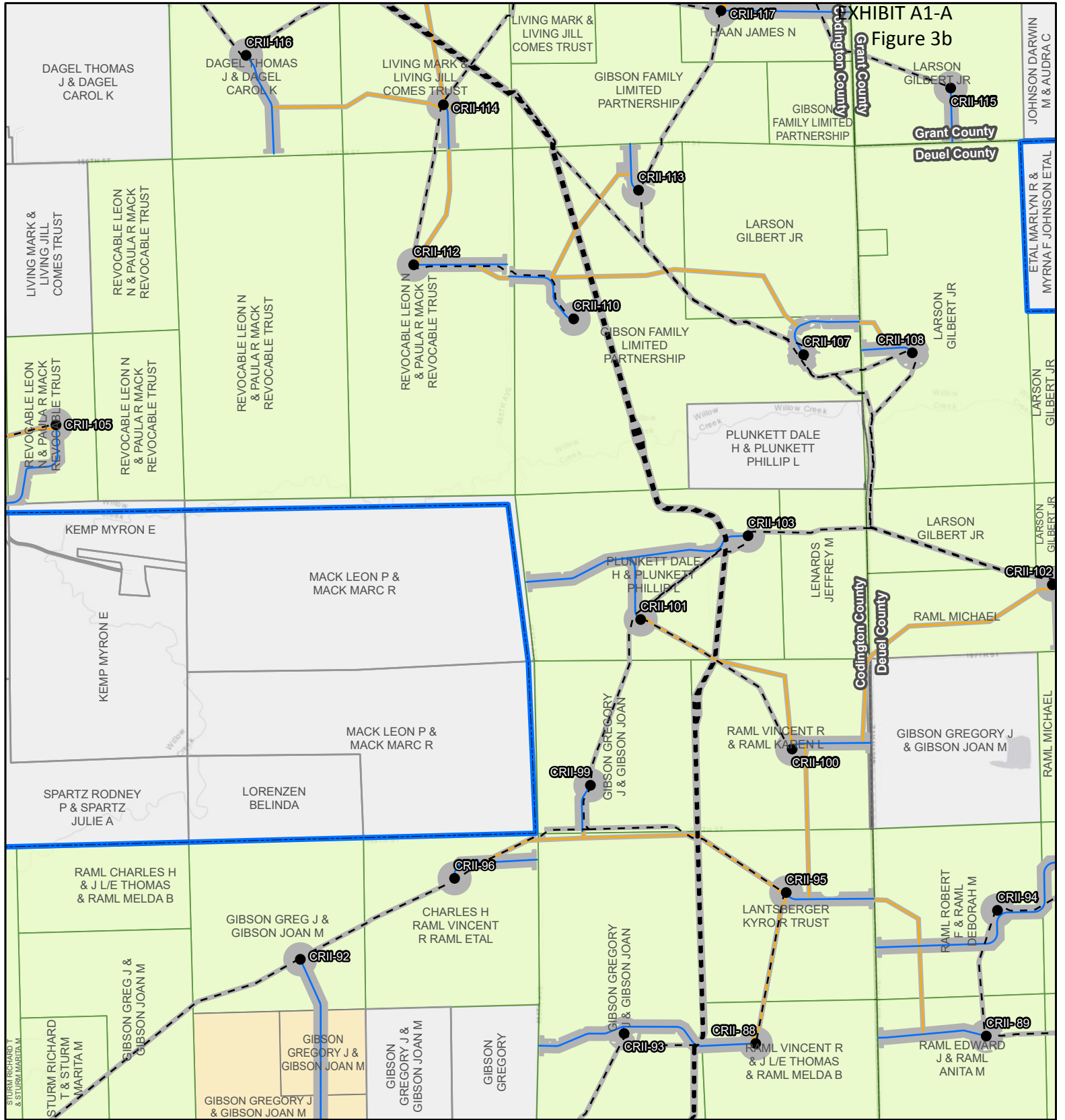




Crowned Ridge II Wind Farm

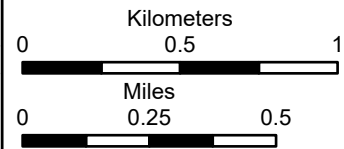
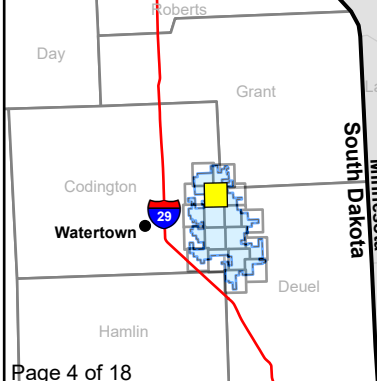






**Figure 3b. Project Map**  
**Crowned Ridge II Wind Farm**

- MET Tower
- Turbine
- Alternate Turbine Location
- City
- Proposed Turbine Access Road
- Collector Line
- Crane Path
- Railroad
- U.S. Highway
- State Highway
- Substation
- O&M Facility
- Batch Plant
- Temporary Construction Easement
- Project Boundary
- County Boundary
- Land Status**
- Lease, Signed
- Pending Approval
- Parcel Boundary



Base Map: World Light Gray Canvas Base  
 Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
 Quadrangle: Kranzburg (1970), Goodwin (1970)  
 Township/Range: T118N, R51W & T118N, R51W & T117N, R51W & T117N, R50W  
 Codington, Deuel, and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N





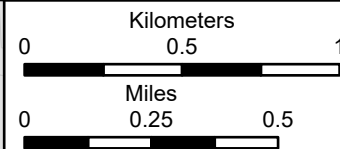


**Legend**

- MET Tower
- Turbine
- Alternate Turbine Location
- City
- Proposed Turbine Access Road
- Collector Line
- Crane Path
- Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- Substation
- O&M Facility
- Batch Plant
- Temporary Construction Easement
- Project Boundary
- County Boundary

**Land Status**

- Lease, Signed
- Pending Approval
- Parcel Boundary



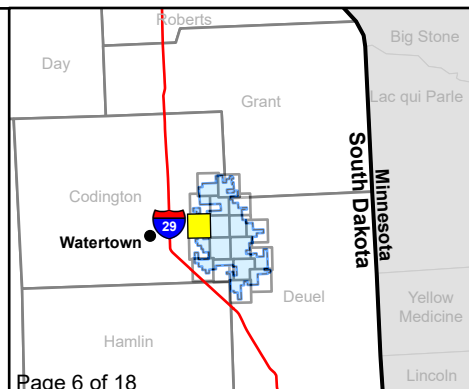
Base Map: World Light Gray Canvas Base  
Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
Quadrangle: Kranzburg (1970),  
Goodwin (1970)  
Township/Range: T118N, R50W &  
T117N, R50W  
Codington County, South Dakota

Projection: NAD 1983 UTM Zone 14N





Crowned Ridge II Wind Farm



| Age Group | Proportion |
|-----------|------------|
| 18-24     | 0.1        |
| 25-34     | 0.2        |
| 35-44     | 0.3        |
| 45-54     | 0.2        |
| 55-64     | 0.1        |
| 65-74     | 0.05       |
| 75-84     | 0.05       |
| 85+       | 0.05       |

| Miles |     |
|-------|-----|
| 0.25  | 0.5 |



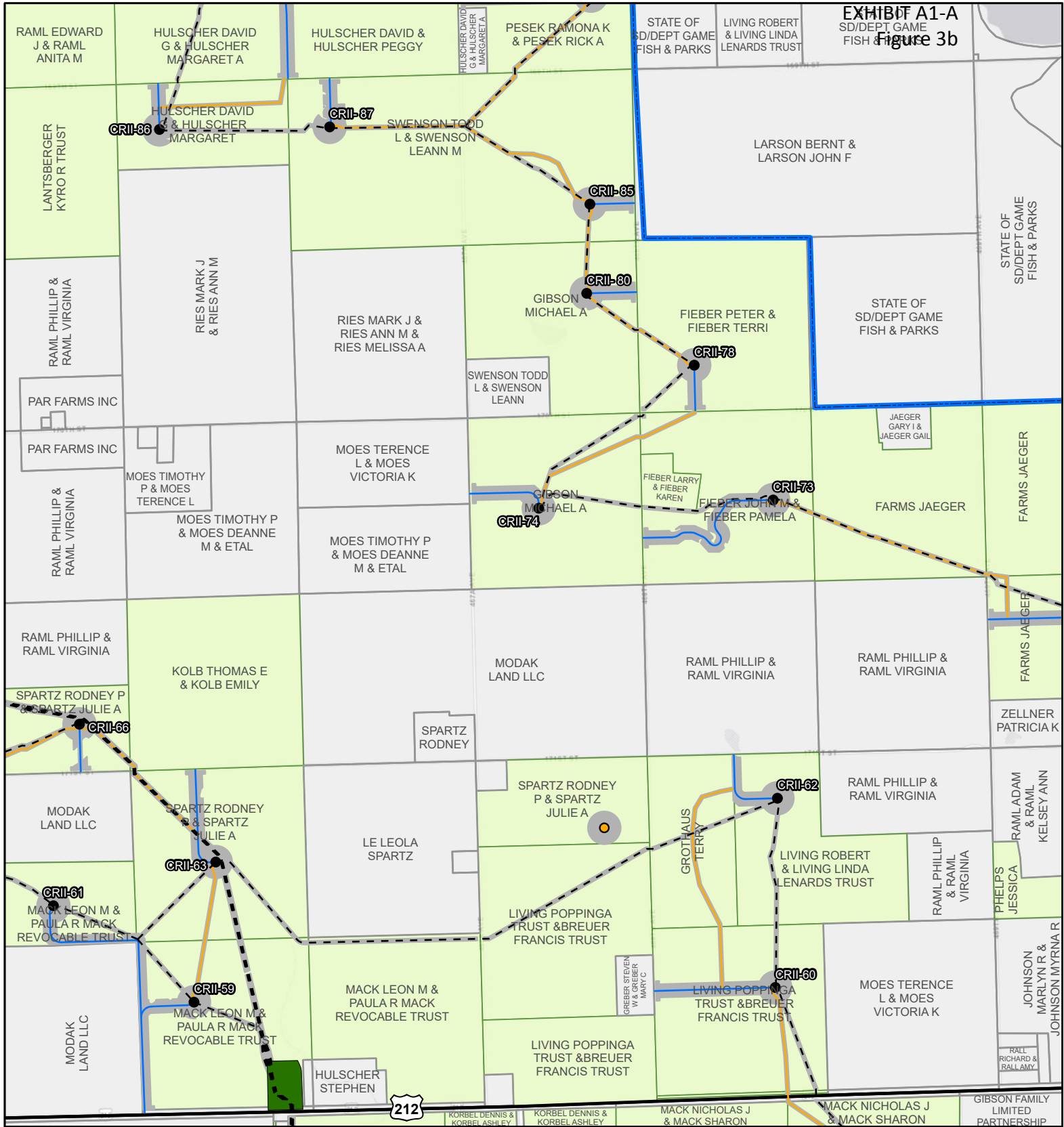
Base Map: World Light Gray Canvas Base  
Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
Quadrangle: Kranzburg (1970),  
Kranzburg (1970)  
Township/Range: T117N, R51W

Codington County, South Dakota

Projection: NAD 1983 UTM Zone 14N

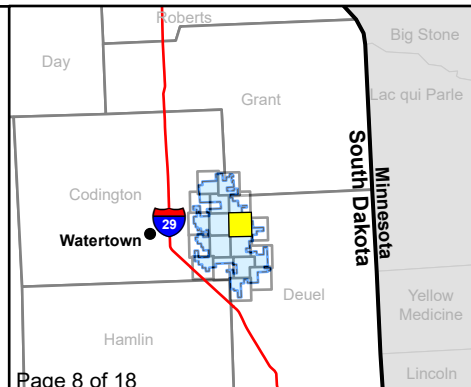
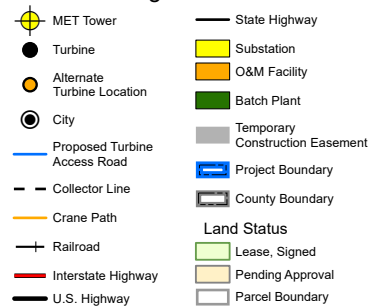






### Figure 3b. Project Map

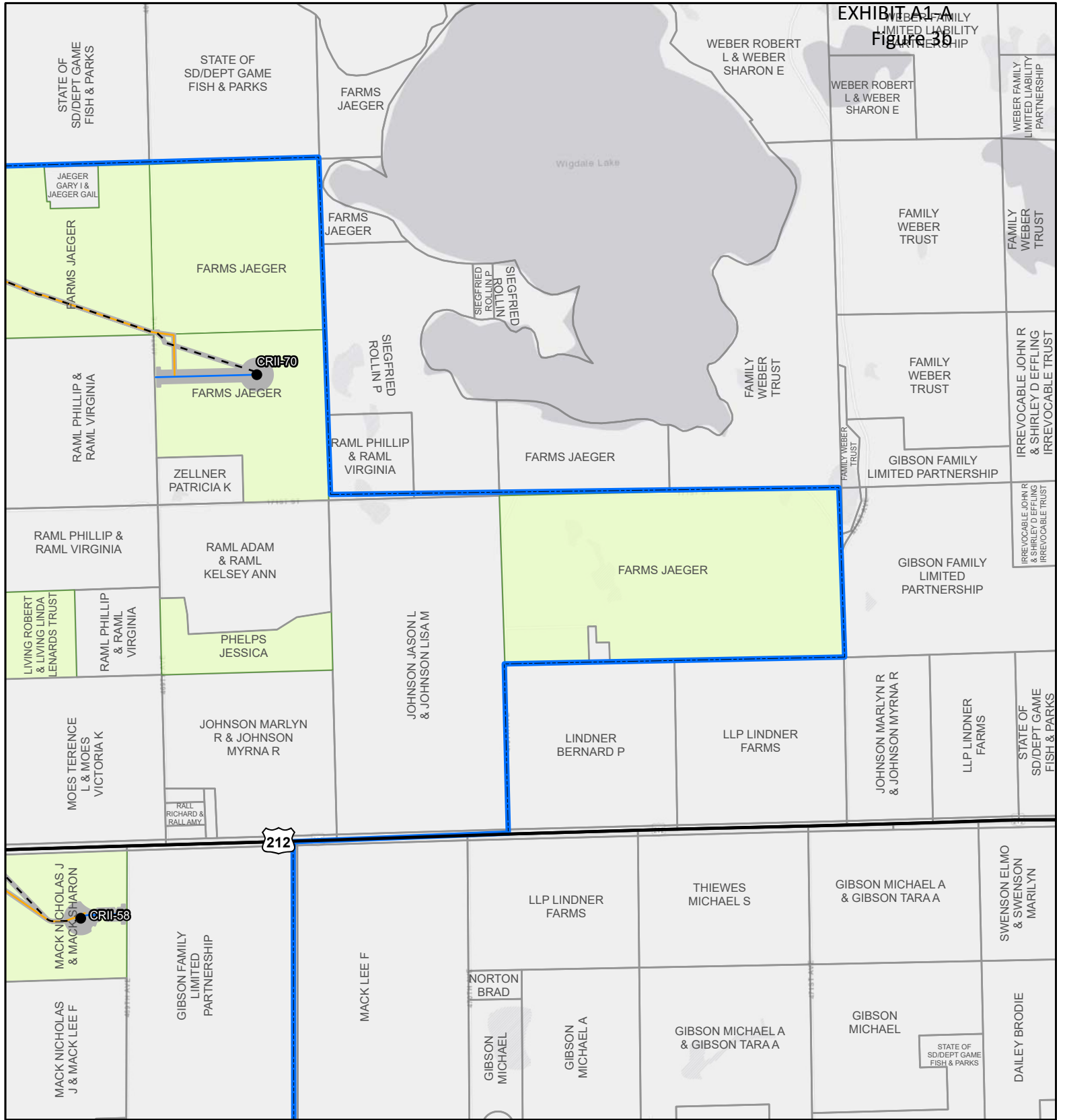
Crowned Ridge II Wind Farm



Base Map: World Light Gray Canvas Base  
Sources: Esri, HERE, Garmin, © OpenStreetMap  
contributors, and the GIS user community  
Quadrangle: Kranzburg (1970),  
Goodwin (1970)  
Township/Range: T117N, R50W

Deuel County, South Dakota

Projection: NAD 1983 UTM Zone 14N

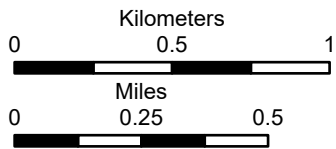
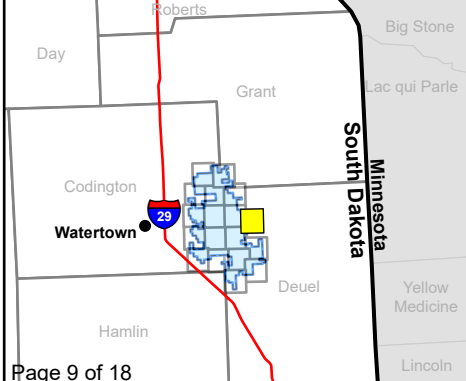


**EXHIBIT A1-A**  
**Figure 3b**

**Figure 3b. Project Map**

**Crowned Ridge II Wind Farm**

- MET Tower
- Turbine
- Alternate Turbine Location
- City
- Proposed Turbine Access Road
- Collector Line
- Crane Path
- Railroad
- U.S. Highway
- State Highway
- Substation
- O&M Facility
- Batch Plant
- Temporary Construction Easement
- Project Boundary
- County Boundary
- Land Status**
- Lease, Signed
- Pending Approval
- Parcel Boundary



Base Map: World Light Gray Canvas Base  
Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
Quadrangle: South Shore (1973), Kranzburg (1970)  
Township/Range: T117N, R50W & T116N, R50W  
Deuel County, South Dakota

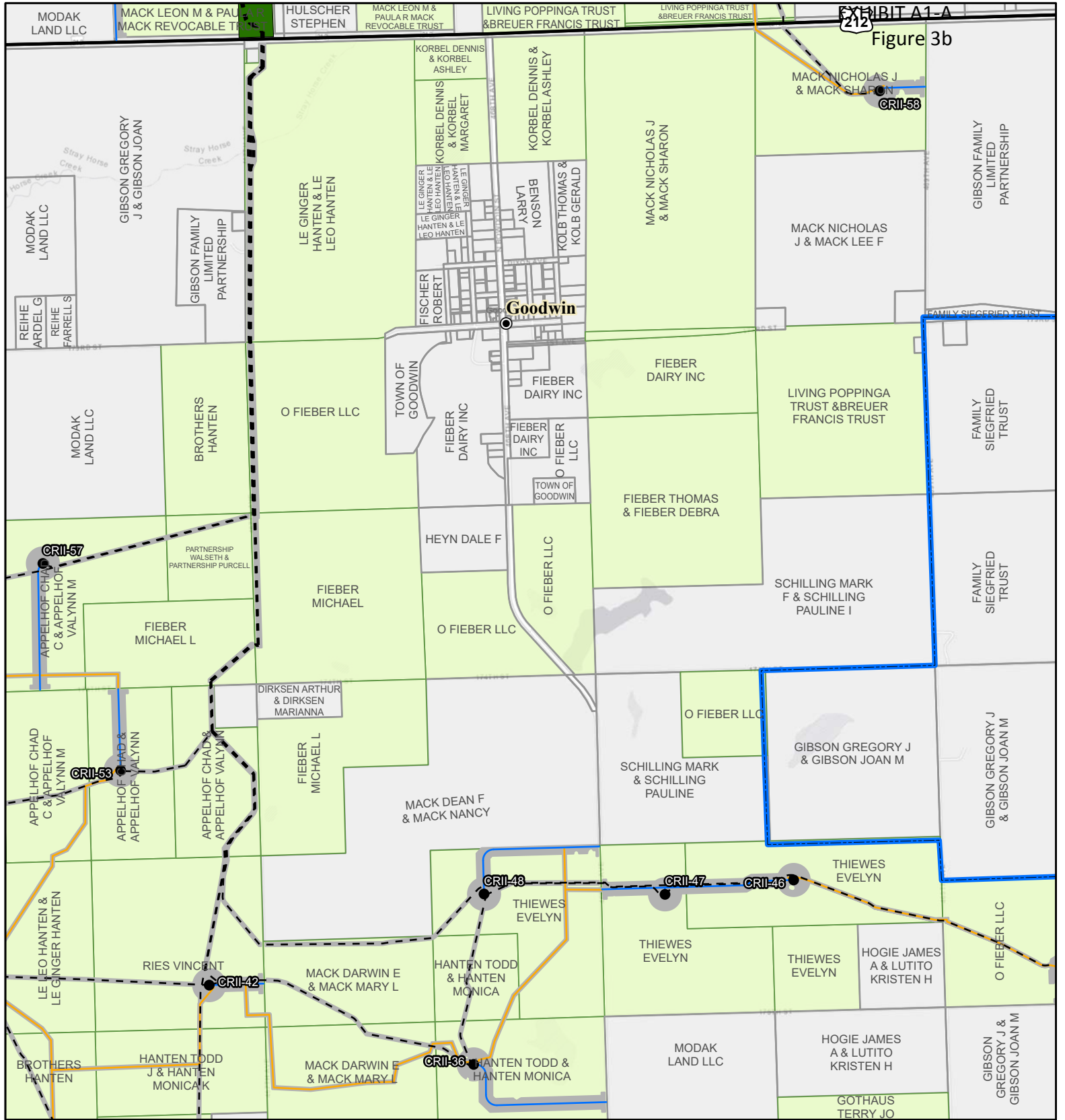
Projection: NAD 1983 UTM Zone 14N





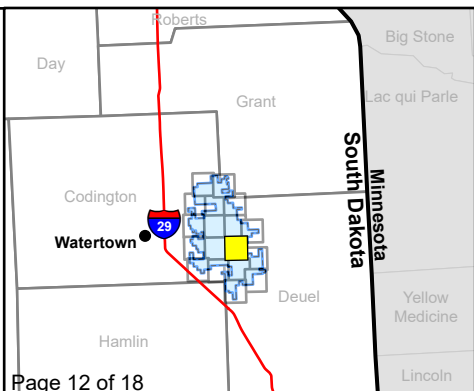






**Figure 3b. Project Map**  
Crowned Ridge II Wind Farm

- |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>MET Tower</li> <li>Turbine</li> <li>Alternate Turbine Location</li> <li>City</li> <li>Proposed Turbine Access Road</li> <li>Collector Line</li> <li>Crane Path</li> <li>Railroad</li> <li>U.S. Highway</li> </ul> | <ul style="list-style-type: none"> <li>State Highway</li> <li>Substation</li> <li>O&amp;M Facility</li> <li>Batch Plant</li> <li>Temporary Construction Easement</li> <li>Project Boundary</li> <li>County Boundary</li> </ul> |
| <p><b>Land Status</b></p> <ul style="list-style-type: none"> <li>Lease, Signed</li> <li>Pending Approval</li> <li>Parcel Boundary</li> </ul>                                                                                                             |                                                                                                                                                                                                                                |



**Kilometers**

0 0.5 1

**Miles**

0 0.25 0.5

Base Map: World Light Gray Canvas Base  
Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
Quadrangle: Kranzburg (1970), Goodwin (1970), Kranzburg SW (1981), Bemis (1978)  
Township/Range: T117N, R50W & T116N, R50W  
Deuel County, South Dakota

Projection: NAD 1983 UTM Zone 14N

**SWCA**  
ENVIRONMENTAL CONSULTANTS

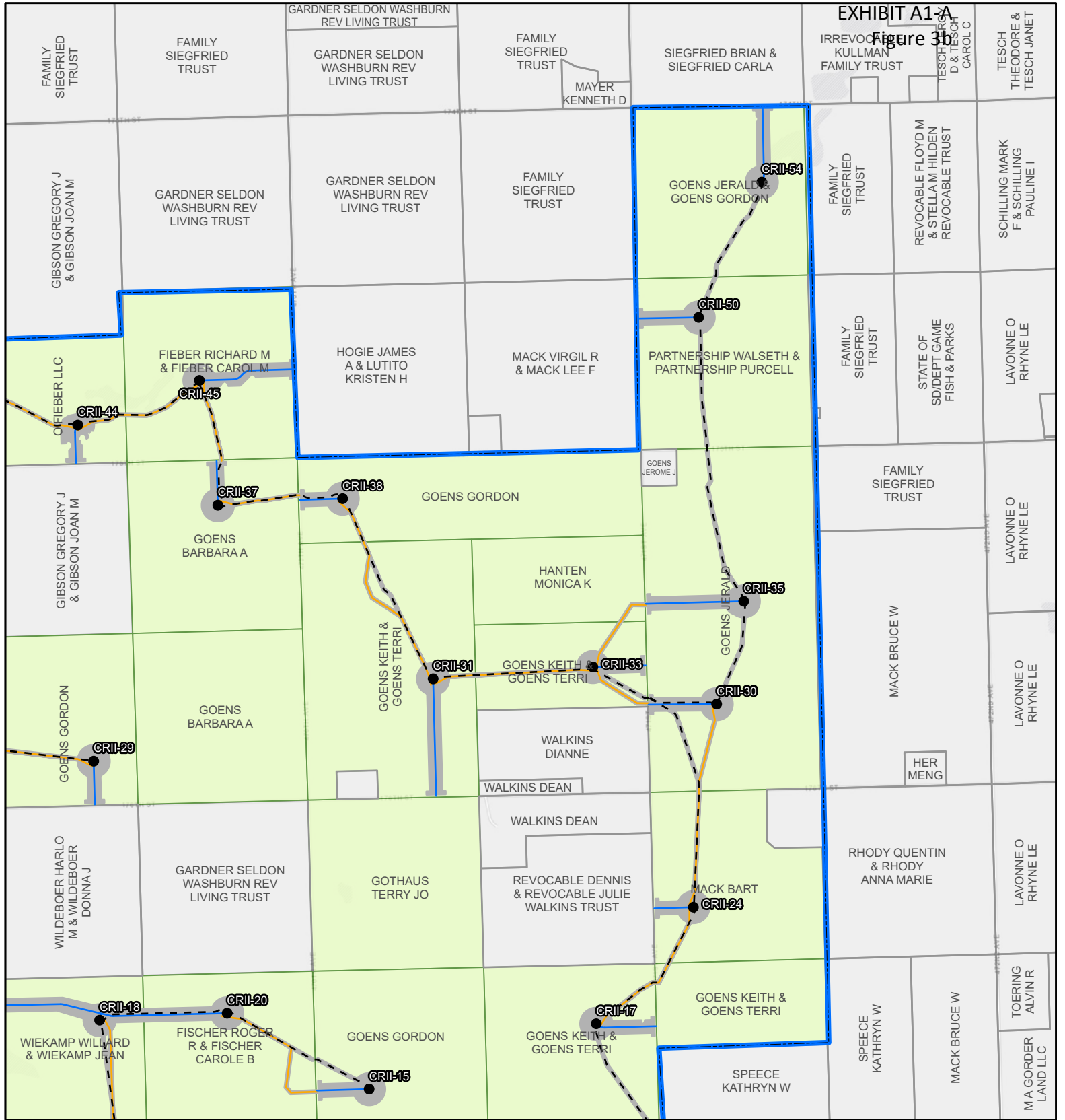
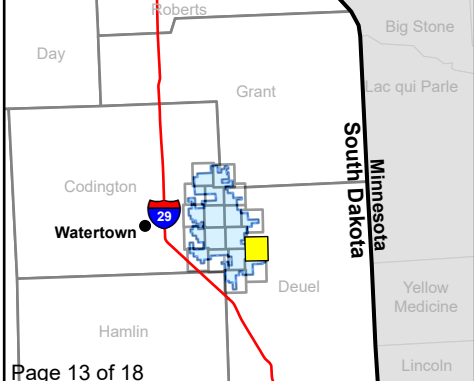


EXHIBIT A1-A  
Figure 3b

**Figure 3b. Project Map**

Crowned Ridge II Wind Farm

- MET Tower
- Turbine
- Alternate Turbine Location
- City
- Proposed Turbine Access Road
- Collector Line
- Crane Path
- Railroad
- U.S. Highway
- State Highway
- Substation
- O&M Facility
- Batch Plant
- Temporary Construction Easement
- Project Boundary
- County Boundary
- Land Status**
- Lease, Signed
- Pending Approval
- Parcel Boundary



**Kilometers**

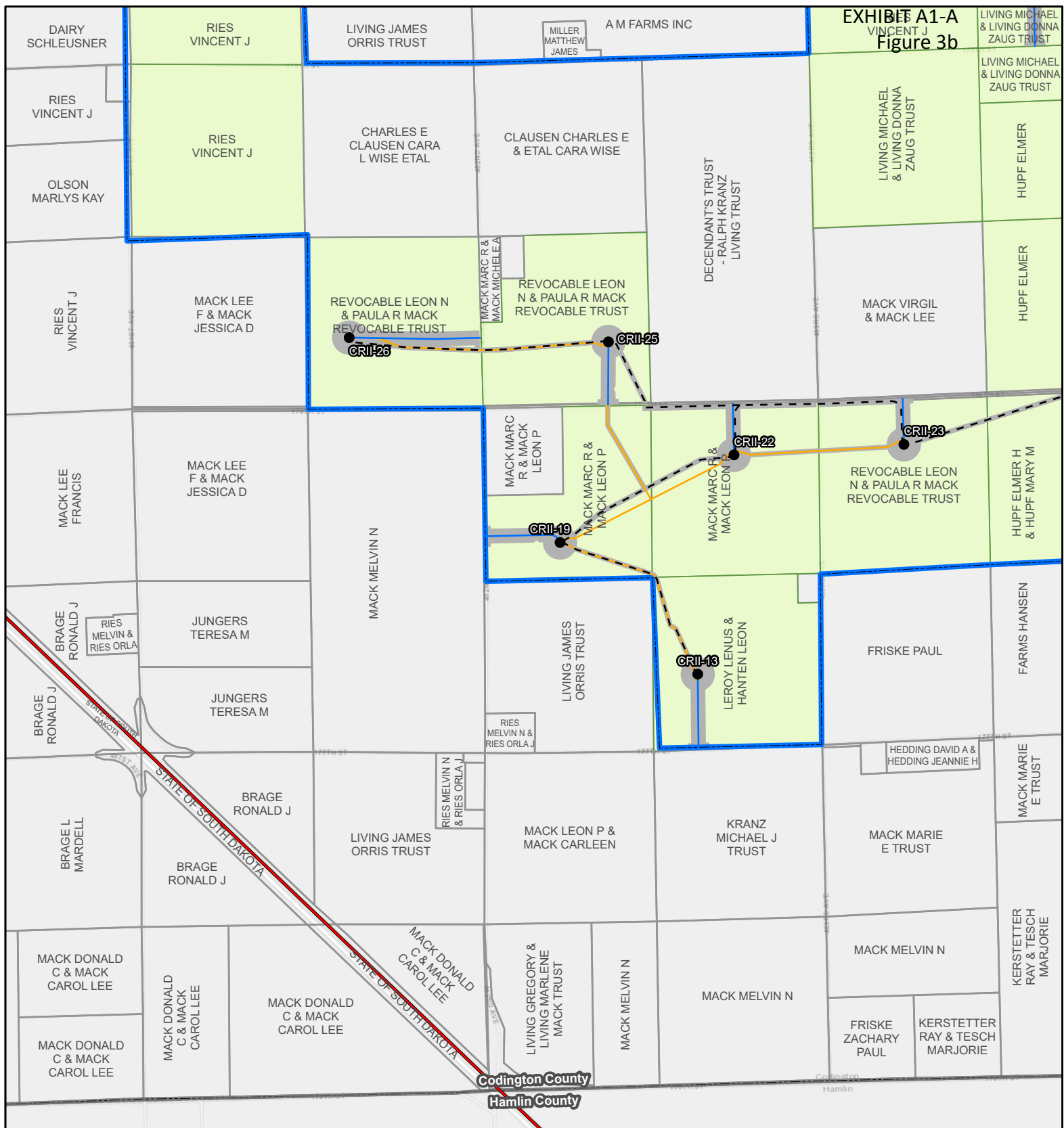
0 0.5 1

**Miles**

0 0.25 0.5

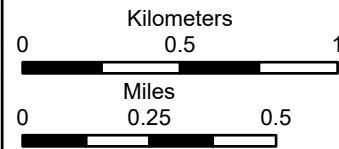
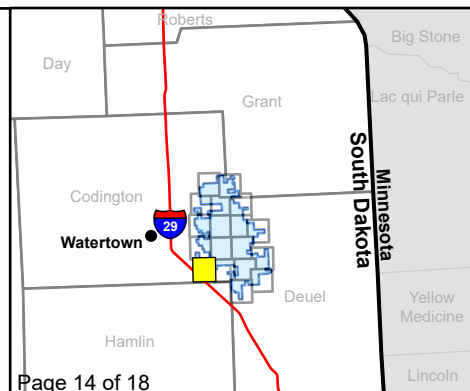
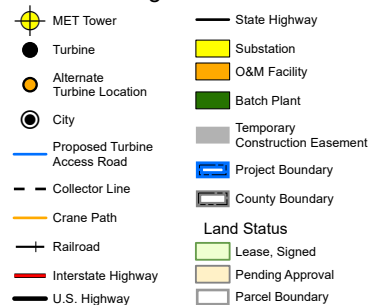
Base Map: World Light Gray Canvas Base  
 Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
 Quadrangle: Bemis (1978)

Township/Range: T118N, R51W  
 Deuel County, South Dakota  
 Projection: NAD 1983 UTM Zone 14N



## Figure 3b. Project Map

### Crowned Ridge II Wind Farm



Base Map: World Light Gray Canvas Base  
Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
Quadrangle: Kranzburg SW (1981), Kranzburg (1970)  
Township/Range: T116N, R51W

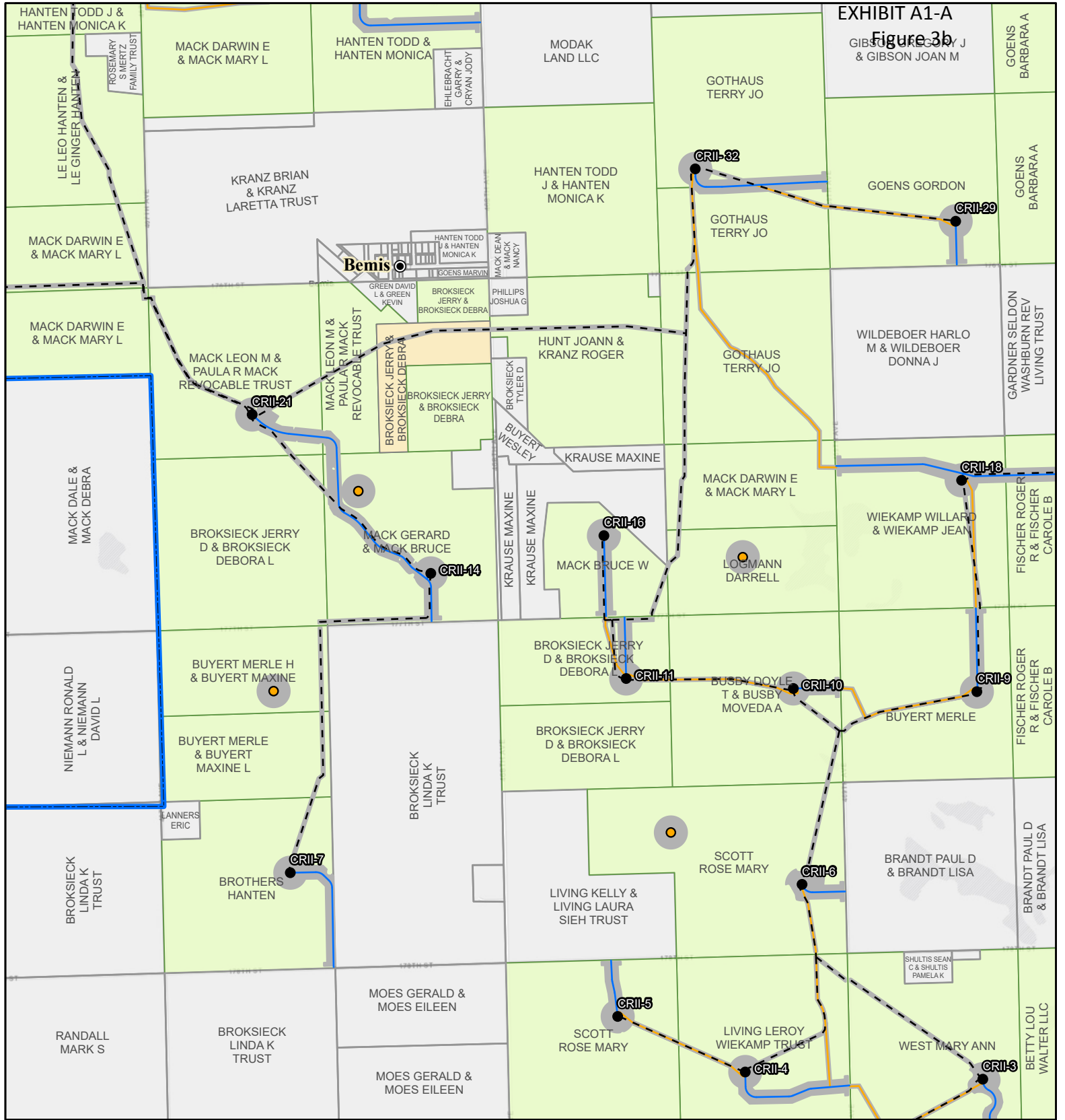
Codington County, South Dakota

Projection: NAD 1983 UTM Zone 14N

**SWCA**  
ENVIRONMENTAL CONSULTANTS



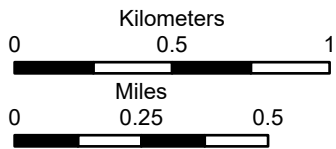
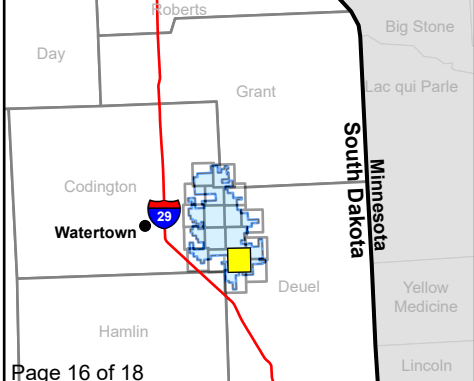




**Figure 3b. Project Map**

Crowned Ridge II Wind Farm

- MET Tower
- Turbine
- Alternate Turbine Location
- City
- Proposed Turbine Access Road
- Collector Line
- Crane Path
- Railroad
- U.S. Highway
- State Highway
- Substation
- O&M Facility
- Batch Plant
- Temporary Construction Easement
- Project Boundary
- County Boundary
- Land Status**
  - Lease, Signed
  - Pending Approval
  - Parcel Boundary



Base Map: World Light Gray Canvas Base  
 Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
 Quadrangle: Bemis (1978)

Township/Range: T116N, R50W & T115N, R50W  
 Deuel County, South Dakota

Projection: NAD 1983 UTM Zone 14N





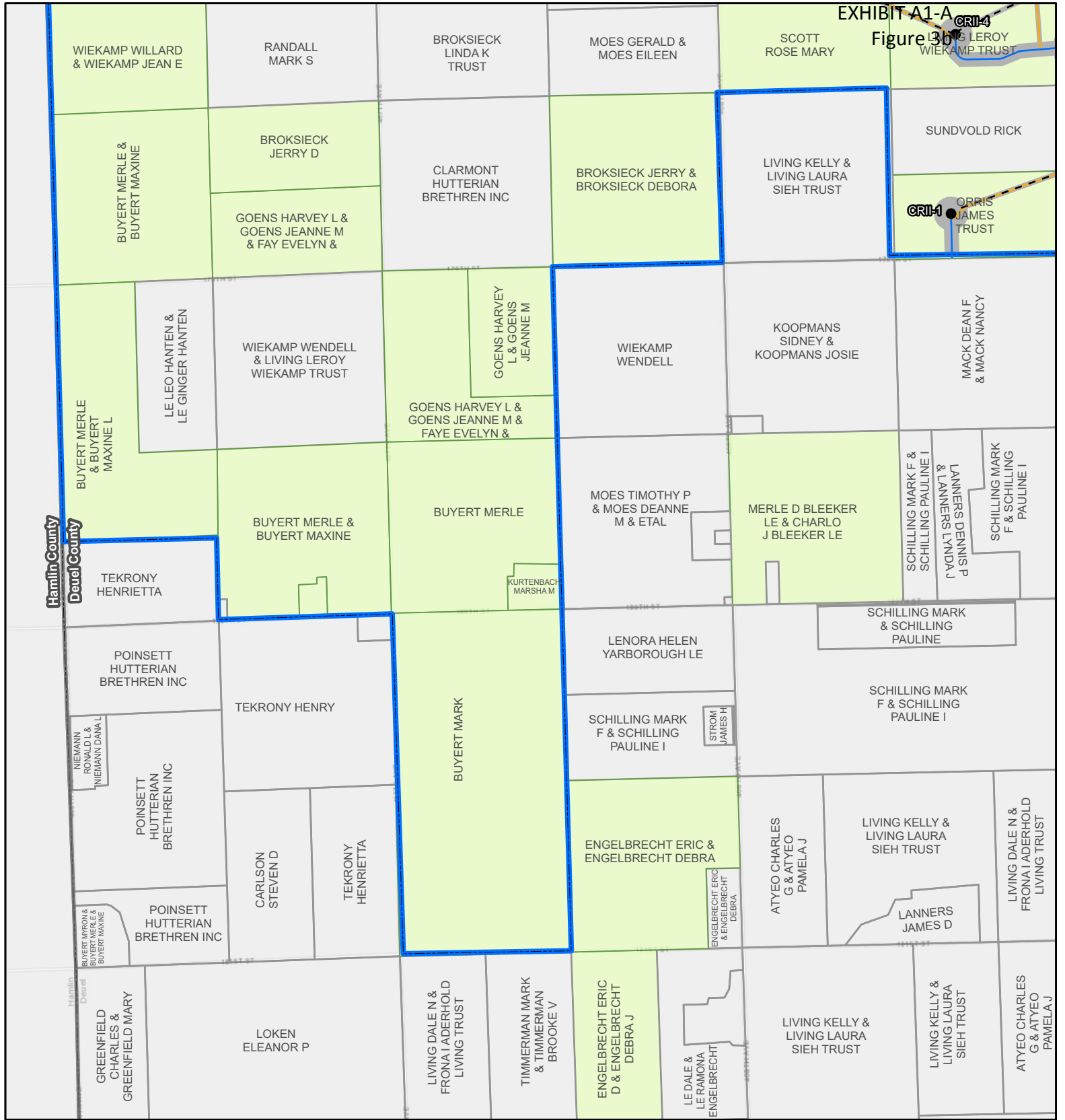
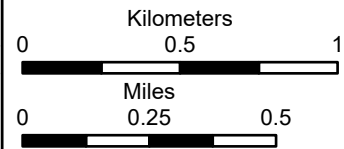
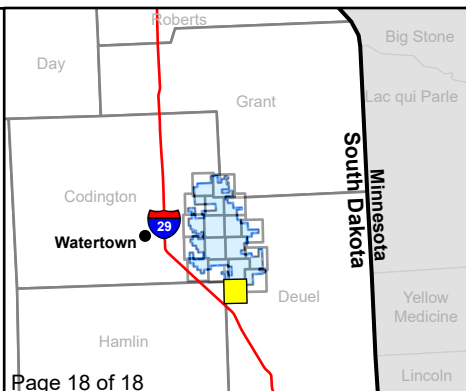


EXHIBIT A1-A  
Figure 3b

**Figure 3b. Project Map**  
Crowned Ridge II Wind Farm

- MET Tower
- Turbine
- Alternate Turbine Location
- City
- Proposed Turbine Access Road
- Collector Line
- Crane Path
- Railroad
- U.S. Highway
- State Highway
- Substation
- O&M Facility
- Batch Plant
- Temporary Construction Easement
- Project Boundary
- County Boundary
- Land Status
  - Lease, Signed
  - Pending Approval
  - Parcel Boundary



Base Map: World Light Gray Canvas Base  
Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
Quadrangle: Kranzburg SW (1981), Bemis (1978)  
Township/Range: T115N, R50W  
Deuel County, South Dakota  
Projection: NAD 1983 UTM Zone 14N





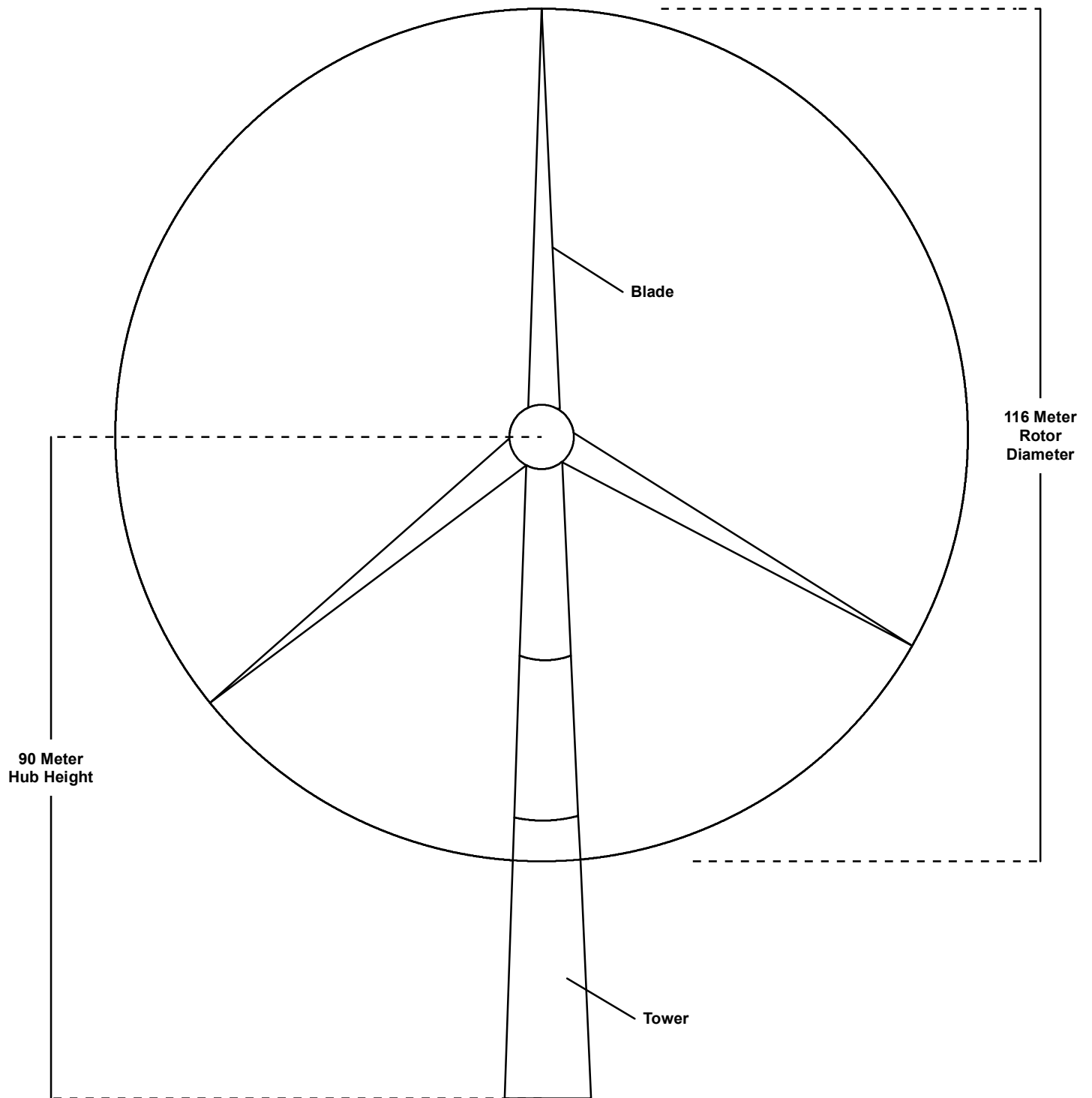


Figure 4a. Typical Wind Turbine Diagram

GE 2.3 MW Turbine

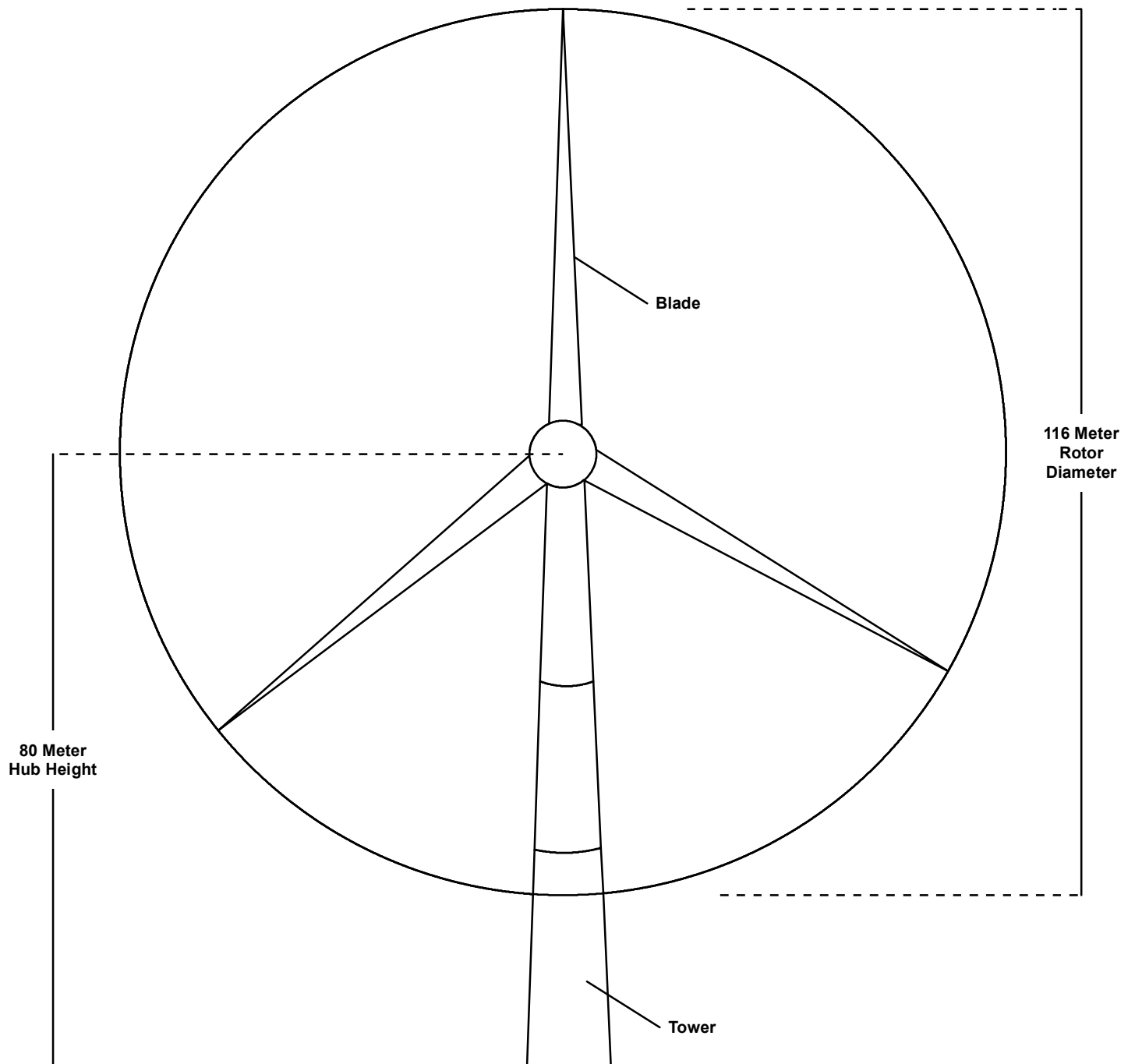


Figure 4b. Typical Wind Turbine Diagram

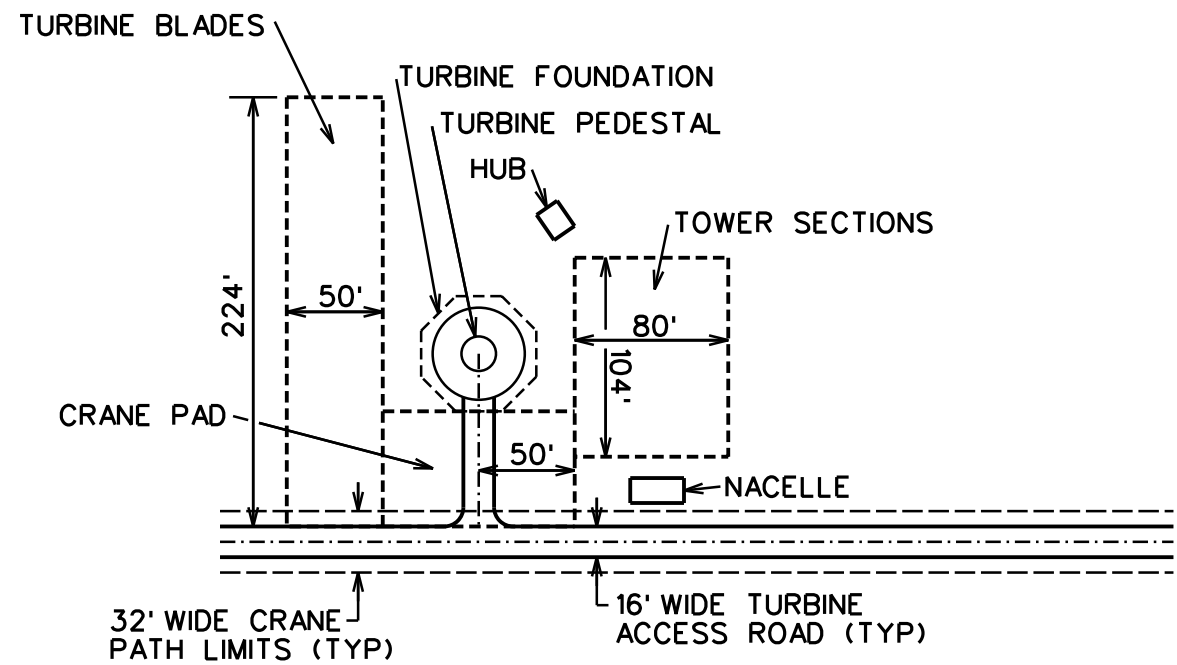
Safe Harbor  
GE 2.1 MW Turbine

V:\RefLib\Library\CADDStandards\WorkSpace\Standards\Printing\Pen-Tables\Date.tbl  
V:\RefLib\Library\CADDStandards\WorkSpace\Standards\Printing\Pen-Tables\Color.tbl

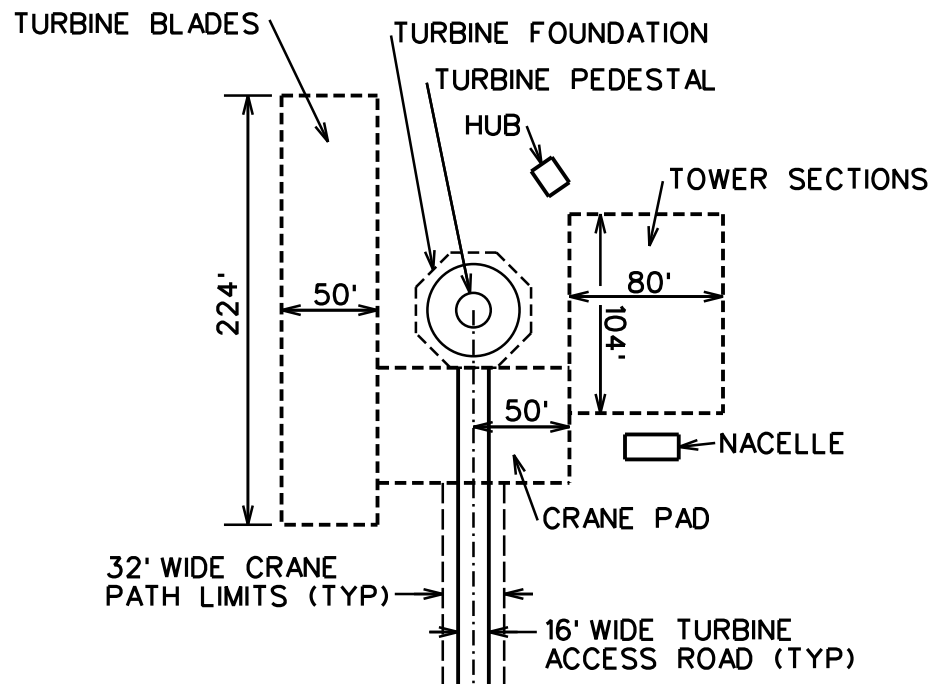
Snyder  
1:100

11/20/2018  
6:49:02 AM

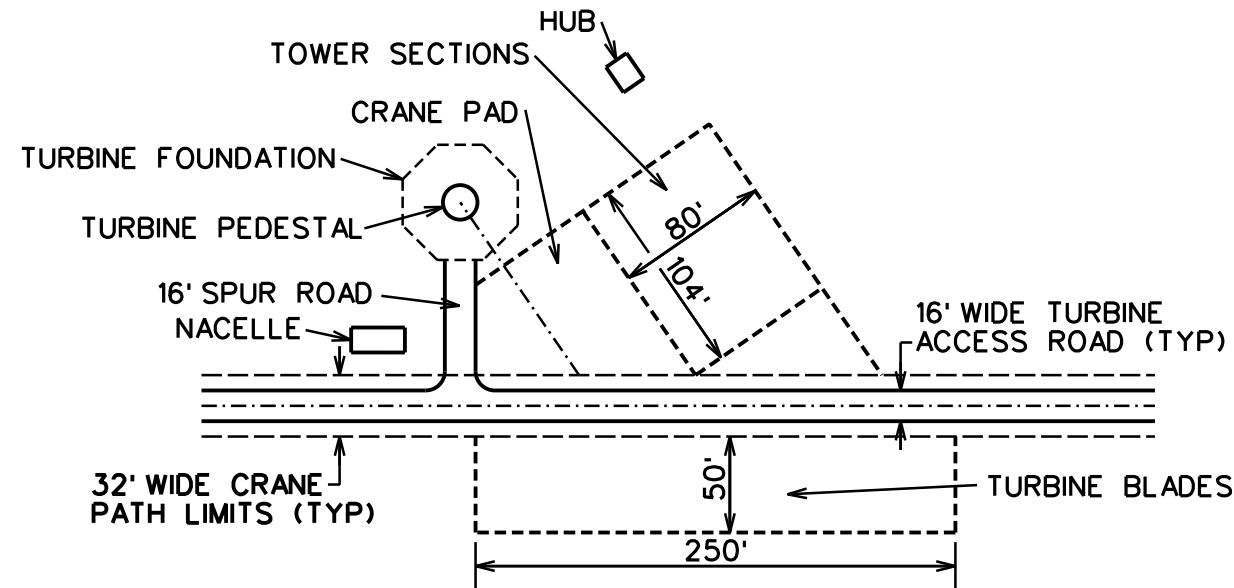
D:\DWG\DWG\1140140\1140140 TYPICAL TURBINE CONSTRUCTION SITE LAYOUT.dgn



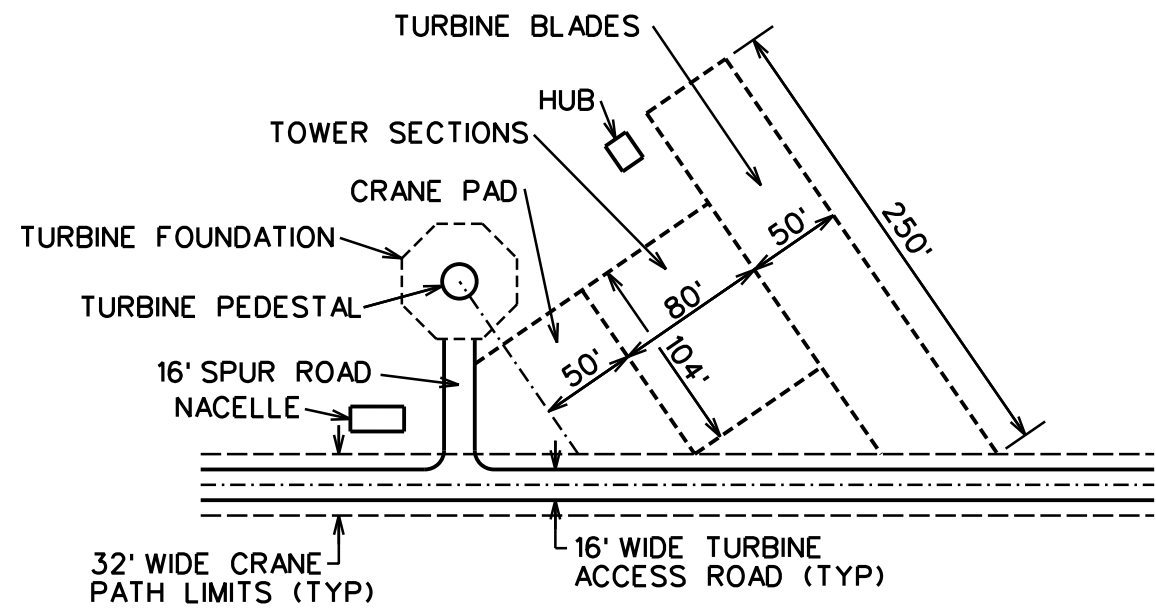
CRANE PAD LOCATIONS TO BE DETERMINED BY CONTRACTOR BASED ON FIELD CONDITIONS  
TYPICAL WIND TURBINE SITE LAYOUT WITH COMPONENTS (LAYOUT 1)



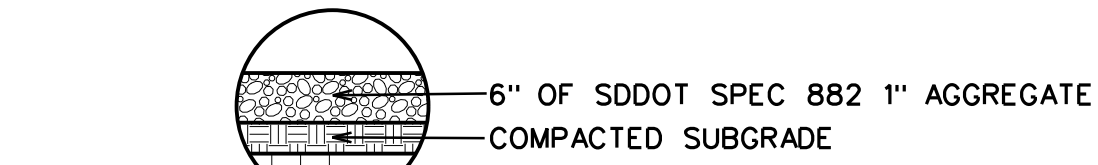
CRANE PAD LOCATIONS TO BE DETERMINED BY CONTRACTOR BASED ON FIELD CONDITIONS  
TYPICAL WIND TURBINE SITE LAYOUT WITH COMPONENTS (LAYOUT 2)



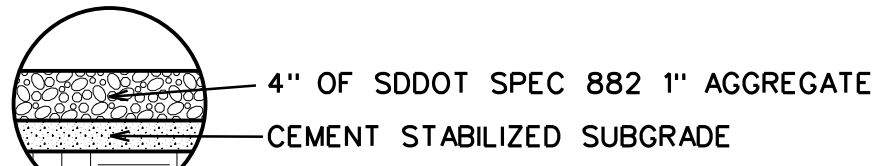
CRANE PAD LOCATIONS TO BE DETERMINED BY CONTRACTOR BASED ON FIELD CONDITIONS  
TYPICAL WIND TURBINE SITE LAYOUT WITH COMPONENTS (LAYOUT 3)



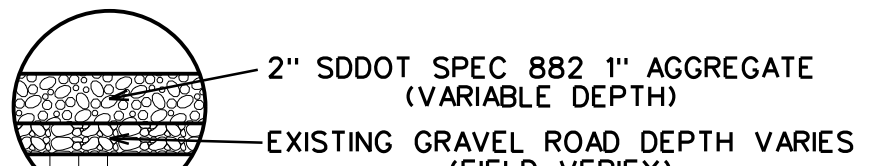
CRANE PAD LOCATIONS TO BE DETERMINED BY CONTRACTOR BASED ON FIELD CONDITIONS  
TYPICAL WIND TURBINE SITE LAYOUT WITH COMPONENTS (LAYOUT 4)



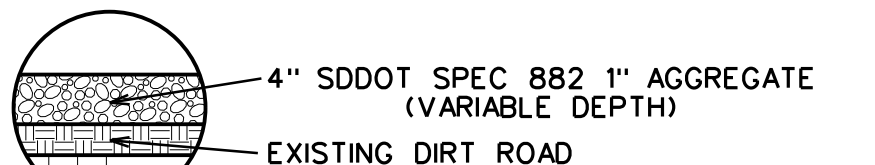
TURBINE ACCESS ROAD OPTION A



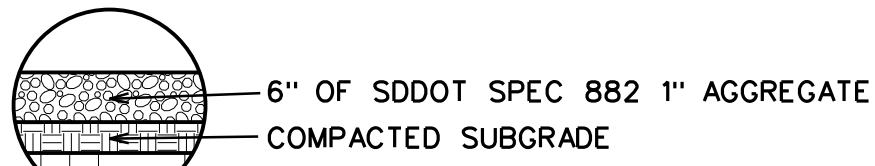
TURBINE ACCESS ROAD OPTION B



EXISTING GRAVEL ROAD UPGRADE



EXISTING DIRT ROAD UPGRADE



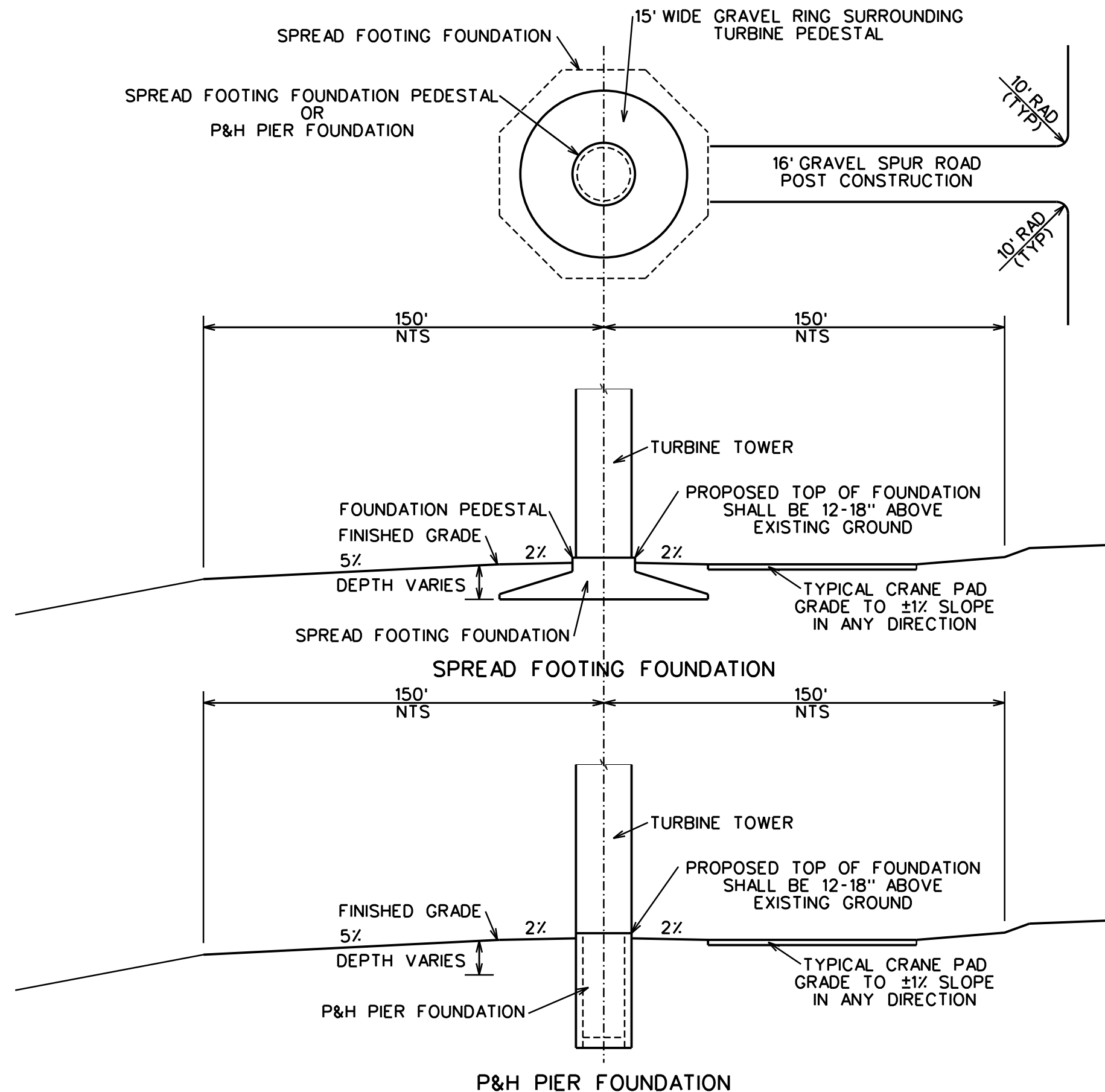
LAYDOWN YARD



CRANE PAD

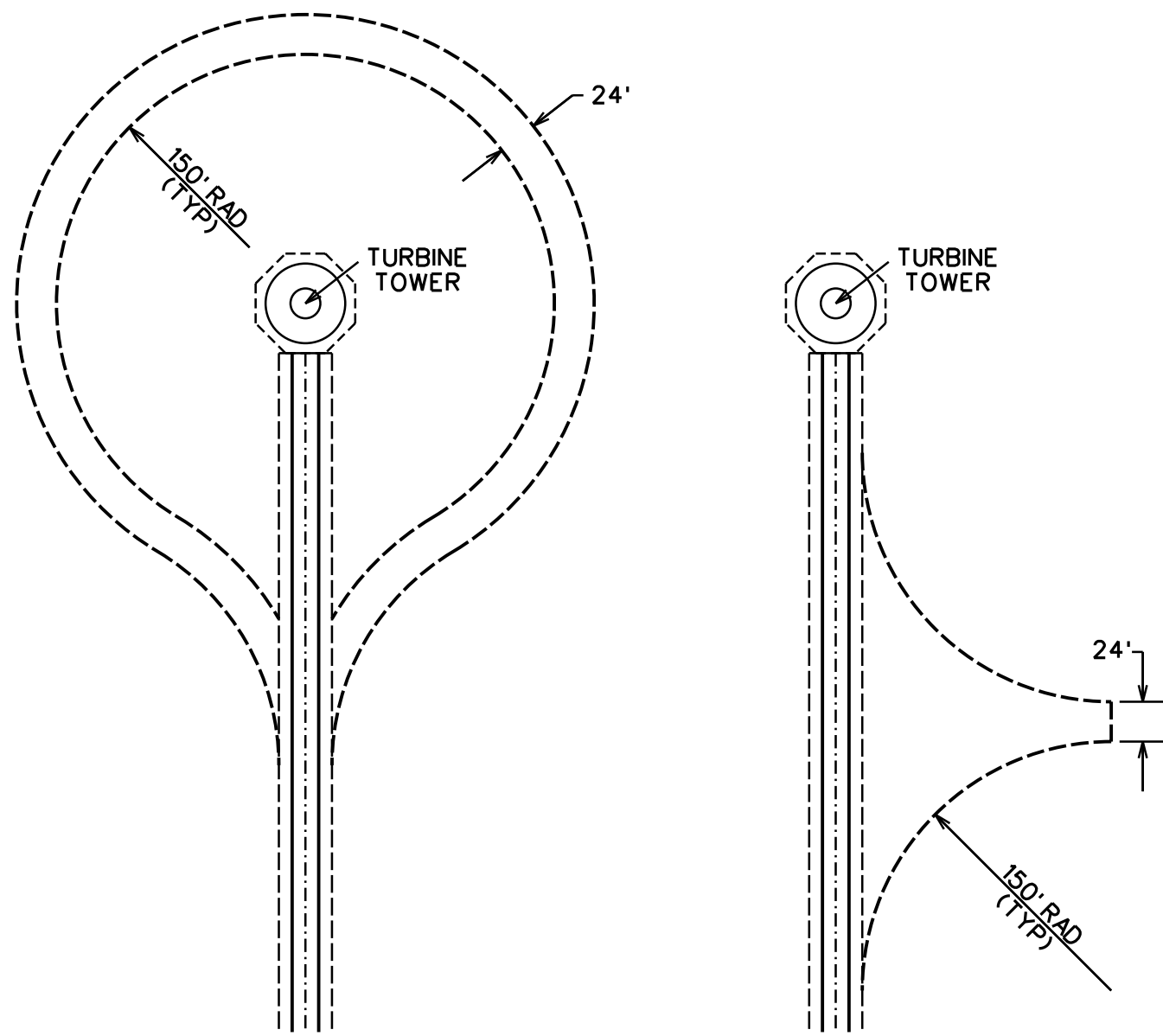
STRUCTURAL SECTIONS SHOWN ARE THE MINIMUM THICKNESS REQUIREMENTS DURING NORMAL FIELD CONDITIONS. THE SECTIONS MAY NEED TO BE INCREASED BASED ON ACTUAL FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. CONDITIONS INCLUDE BUT ARE NOT LIMITED TO THE CONSTRUCTION DURING THE FREEZE/THAW CYCLE, UNUSUALLY WET PERIODS,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

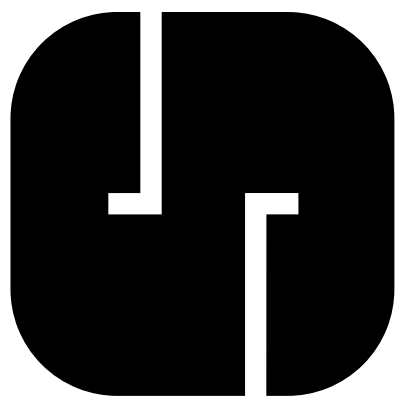
CROWNED RIDGE I & II, LLC

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

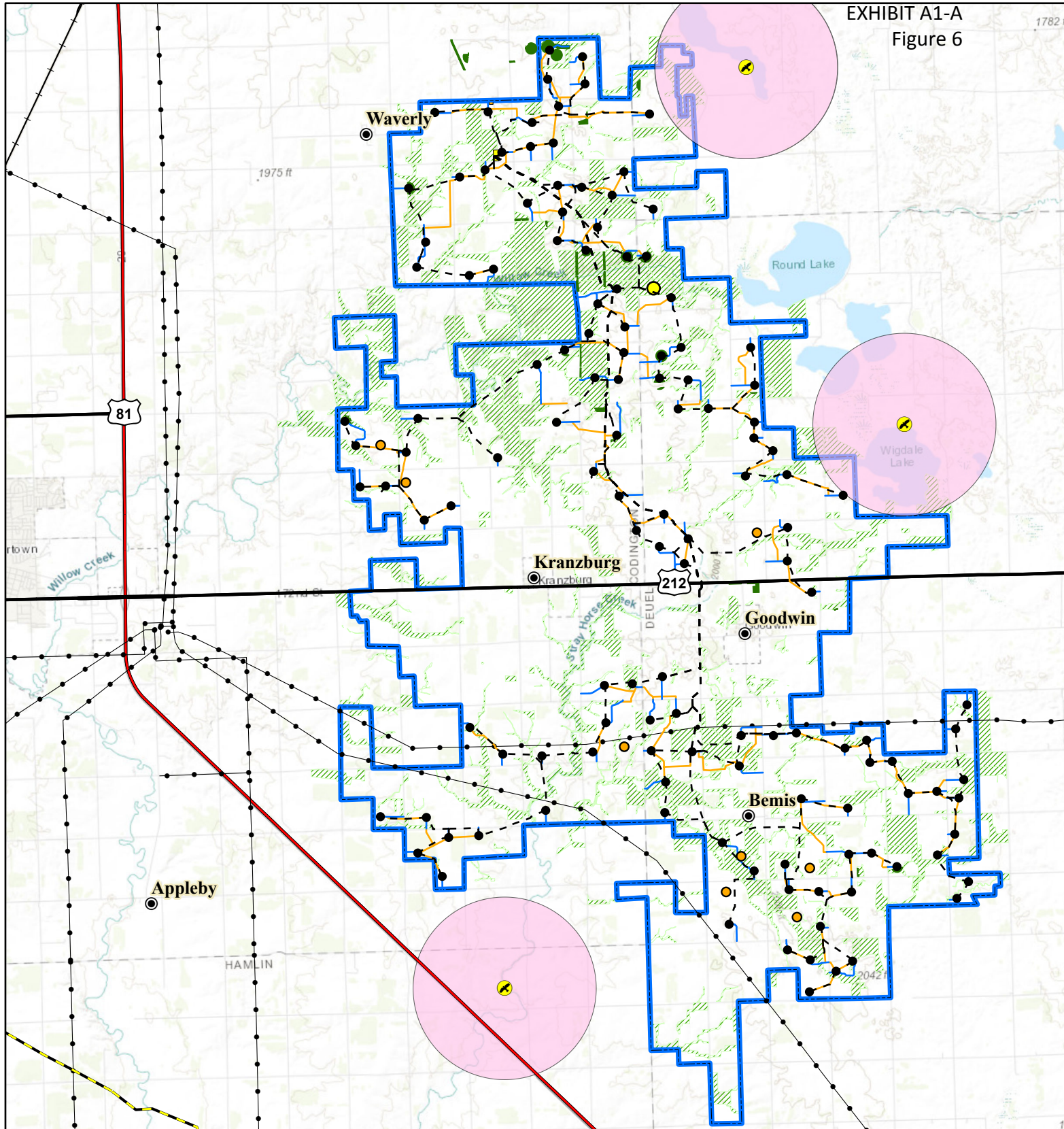


Project No: 1140140

Sheet 1 of 1

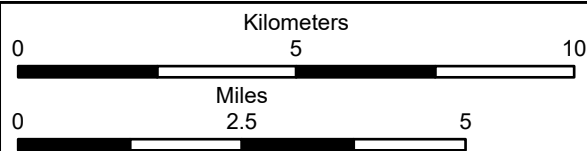
ISSUE DATE: 11-19-2018

| MARK           | REVISION        | DATE            | BY                  |
|----------------|-----------------|-----------------|---------------------|
| Engineer: BJJ  | Checked By: MGG | Scale: 1"= 100' | Pg:                 |
| Technician: DW | Date: 07-21-15  | Field Bk:       | Project No: 1140140 |
| Sheet 1 of 1   |                 |                 |                     |



**Figure 6. Environmental Constraints**  
Crowned Ridge II Wind Farm

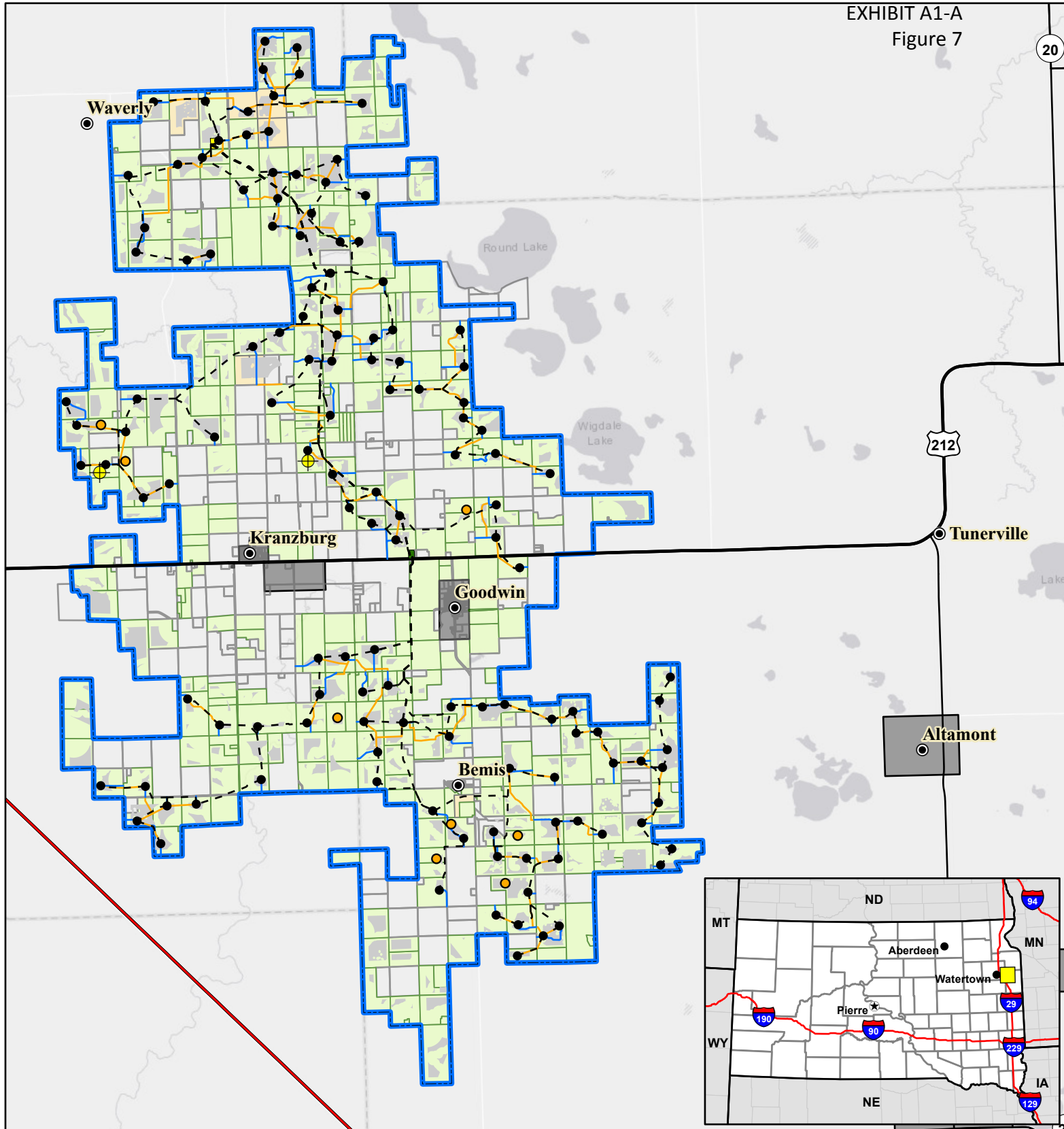
- Bald Eagle Nest Location
- Lek Location
- City
- Turbine
- Alternate Turbine Location
- Collector Line
- Proposed Turbine Access Road
- Crane Path
- Electrical Line
- Natural Gas Line
- Railroad
- Interstate Highway
- U.S. Highway
- Substation
- O&M Facility
- Field Assessed Dakota Skipper Habitat
- 1.5-mile Bald Eagle Nest Buffer
- Undisturbed Native Grasslands (Bauman 2013)
- 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), swisstopo, © OpenStreetMap contributors, and the GIS User Community  
Codington, Deuel, and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N

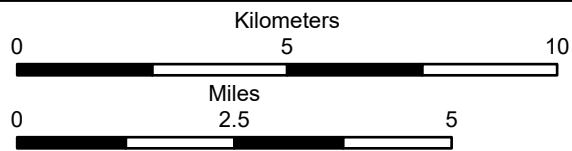




### Figure 7. Constraints Map

Crowned Ridge II Wind Farm

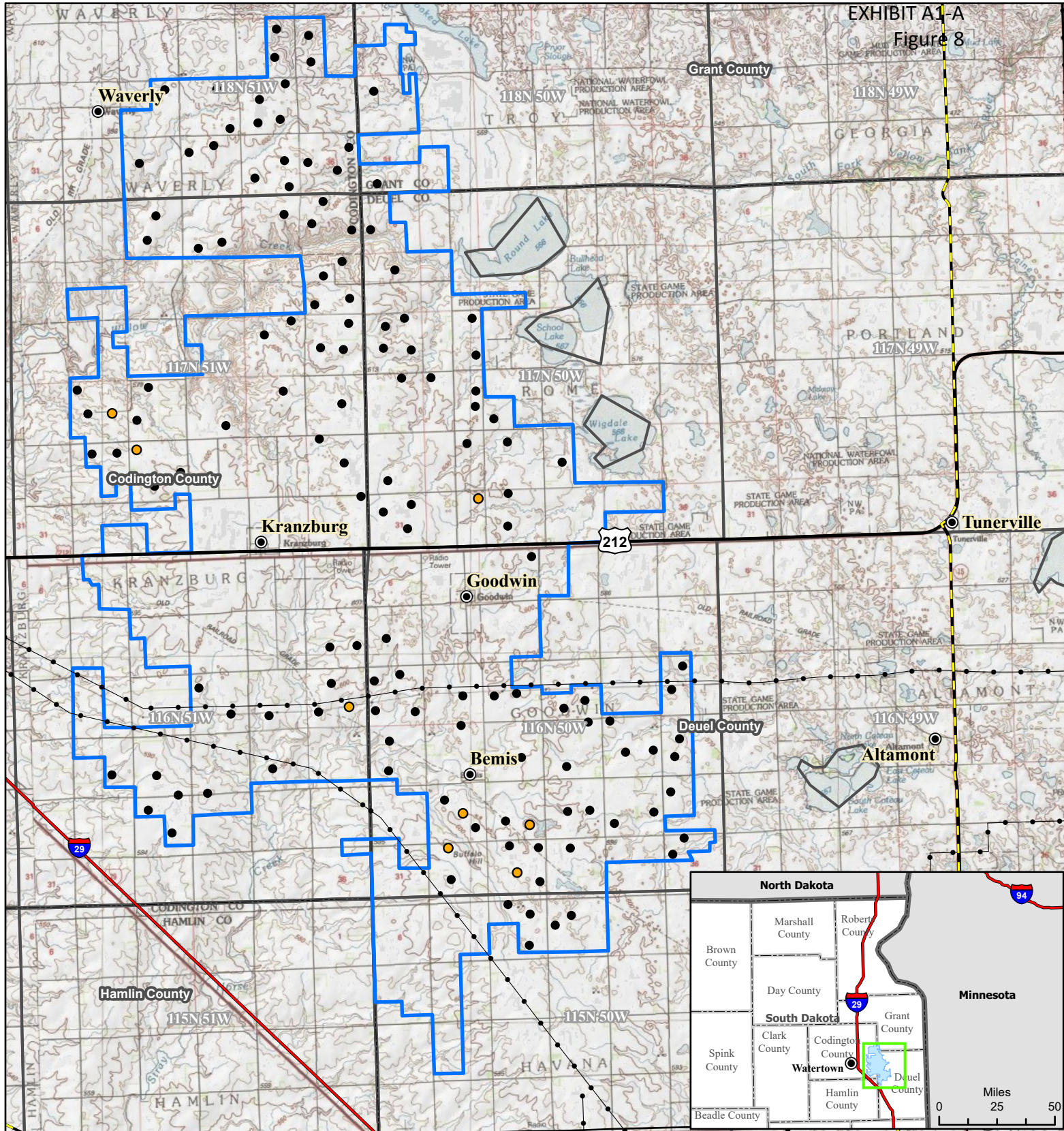
- |                                |                      |                    |
|--------------------------------|----------------------|--------------------|
| ● MET Tower                    | — Crane Path         | ■ Town Boundary    |
| ● Turbine                      | — Interstate Highway | ■ Project Boundary |
| ● Alternate Turbine Location   | — U.S. Highway       | ■ Land Status      |
| ● City                         | — State Highway      | ■ Lease, Signed    |
| — Collector Line               | ■ Substation         | ■ Pending Approval |
| — Proposed Turbine Access Road | ■ O&M Facility       | ■ Parcel Boundary  |
|                                | ■ Batch Plant        |                    |
|                                | ■ Available Land     |                    |



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

Projection: NAD 1983 UTM Zone 14N

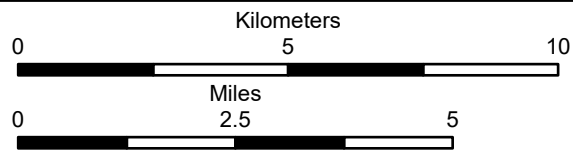




# Figure 8. Topographic Map

Crowned Ridge II Wind Farm

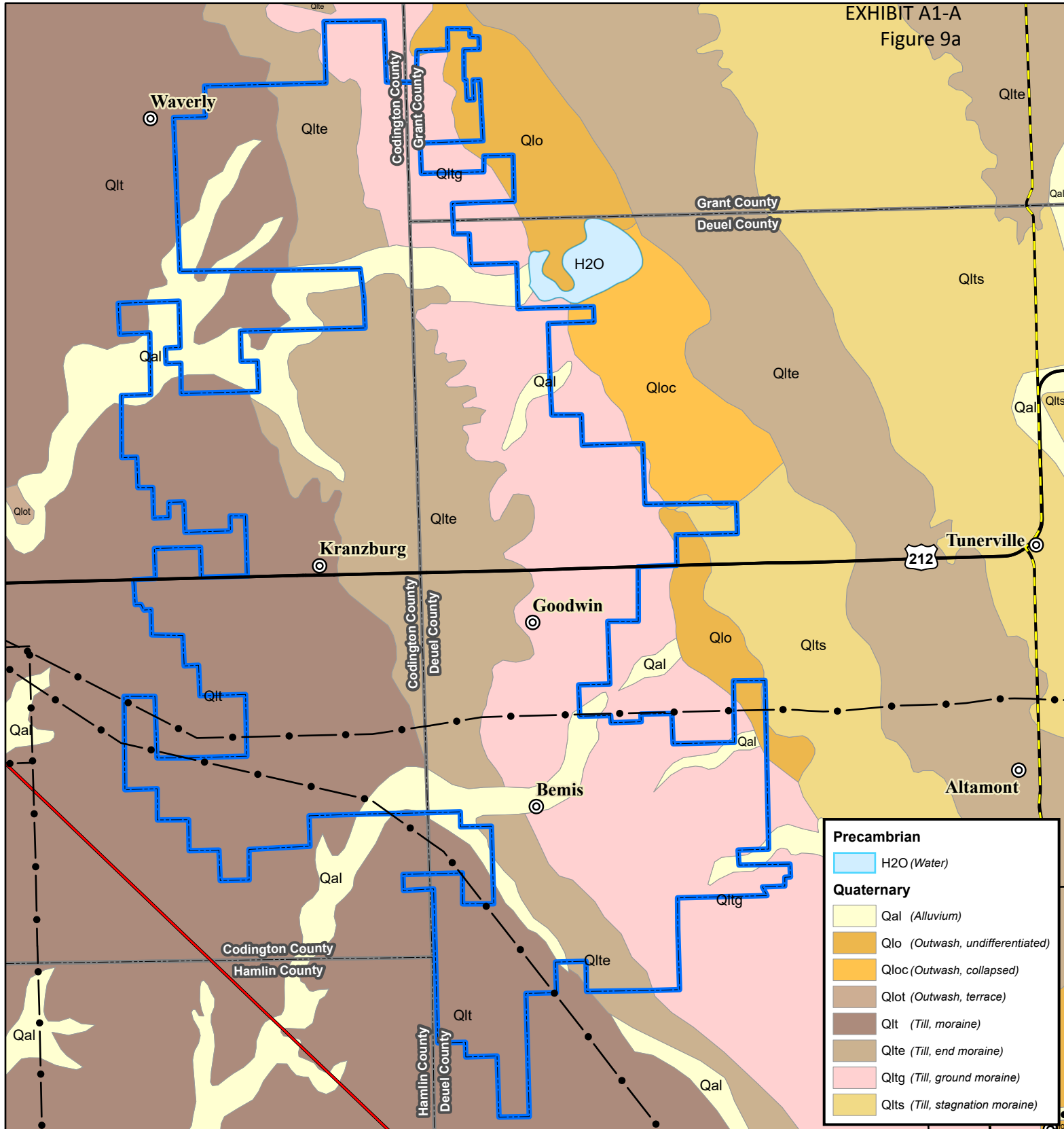
- |                              |                           |
|------------------------------|---------------------------|
| ● City                       | — U.S. Highway            |
| ● Turbine                    | — State Highway           |
| ● Alternate Turbine Location | ▭ Project Boundary        |
| — Electrical Line            | ▭ County Boundary         |
| — Natural Gas Line           | ▭ Township/Range Boundary |
| — Interstate Highway         |                           |



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

Projection: NAD 1983 UTM Zone 14N

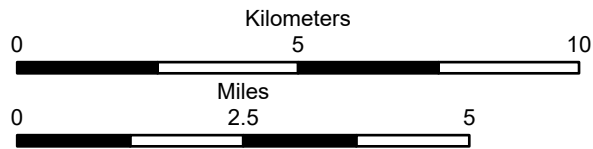




**Figure 9a. Surficial Geology**

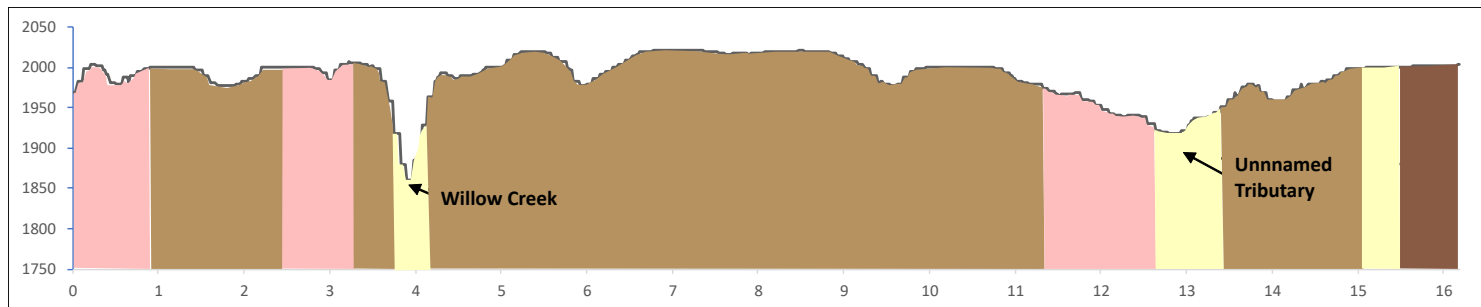
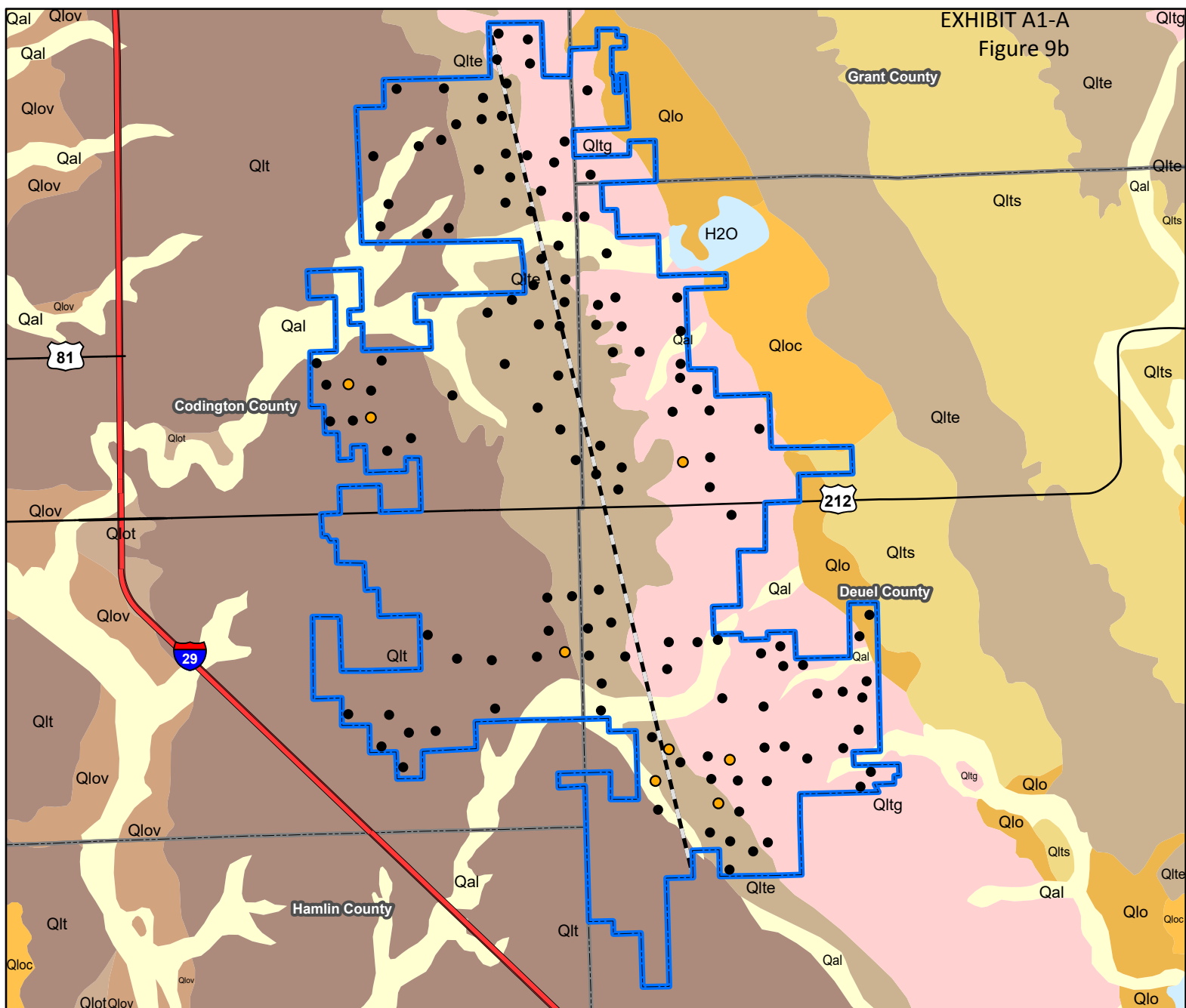
Crowned Ridge II Wind Farm

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



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

Projection: NAD 1983 UTM Zone 14N

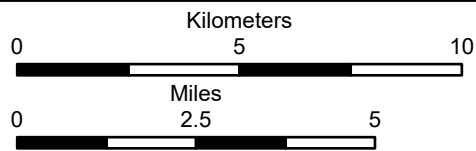


\*Vertical axis in feet above sea level; Horizontal axis in miles

## Figure 9b. Geology Cross Sections

### Crowned Ridge II Wind Farm

- Turbine
- Alternate Turbine Location
- Cross Section
- Interstate Highway
- U.S. Highway
- Project Boundary
- County Boundary
- H<sub>2</sub>O (Water)
- Qal (Alluvium)
- Qlo (Outwash, undifferentiated)
- Qloc (Outwash, collapsed)
- Qlot (Outwash, terrace)
- Qlov (Outwash, valley train)
- Qlt (Till, moraine)
- Qlte (Till, end moraine)
- Qltg (Till, ground moraine)
- Qlts (Till, stagnation moraine)

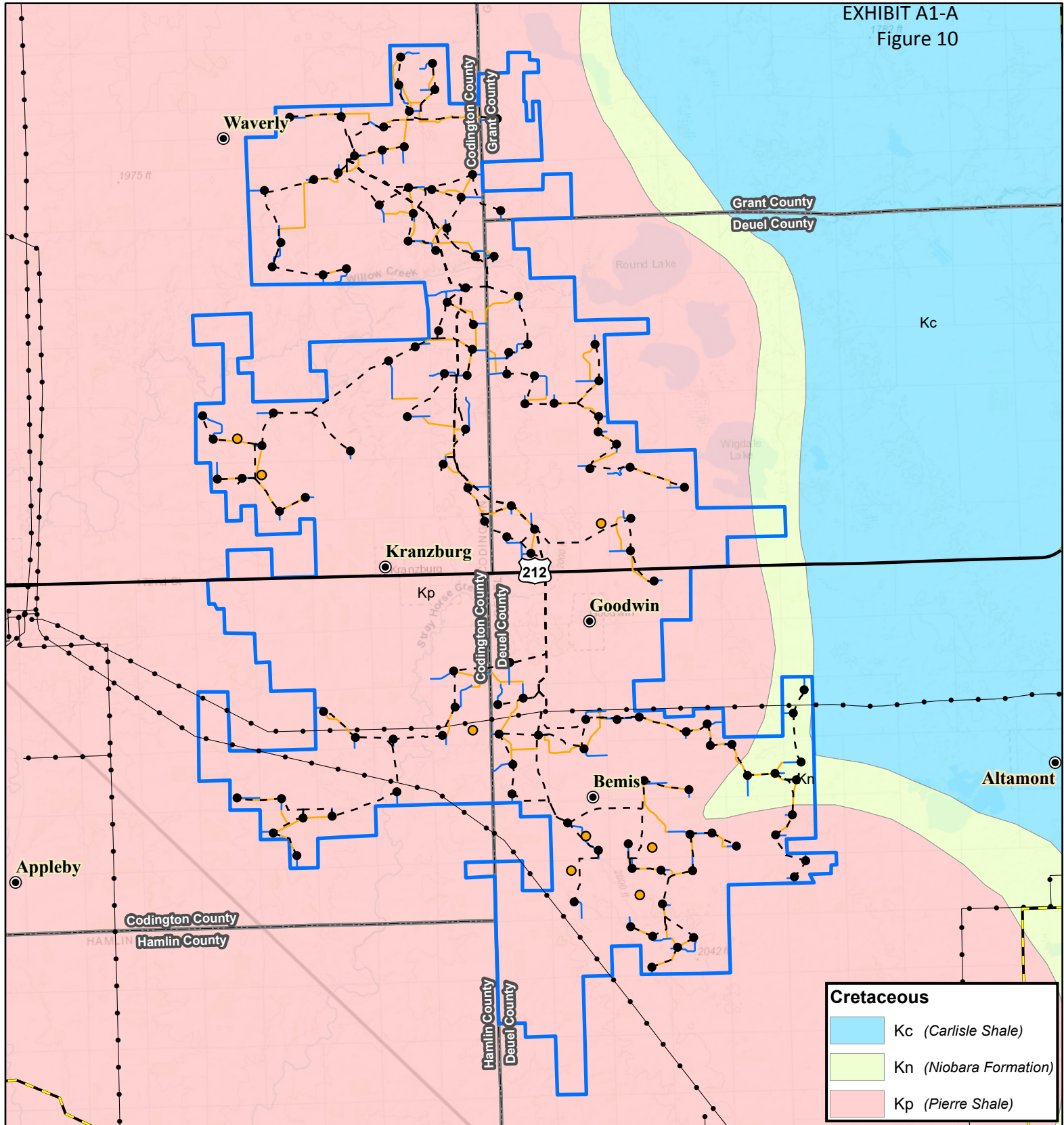


Base Map: Surficial Geology  
 Source: South Dakota Geological Survey via  
 State of South Dakota GIS  
 Codington, Deuel, and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N

**SWCA**  
 ENVIRONMENTAL CONSULTANTS

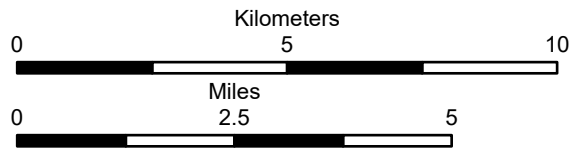




**Figure 10. Bedrock Geology**

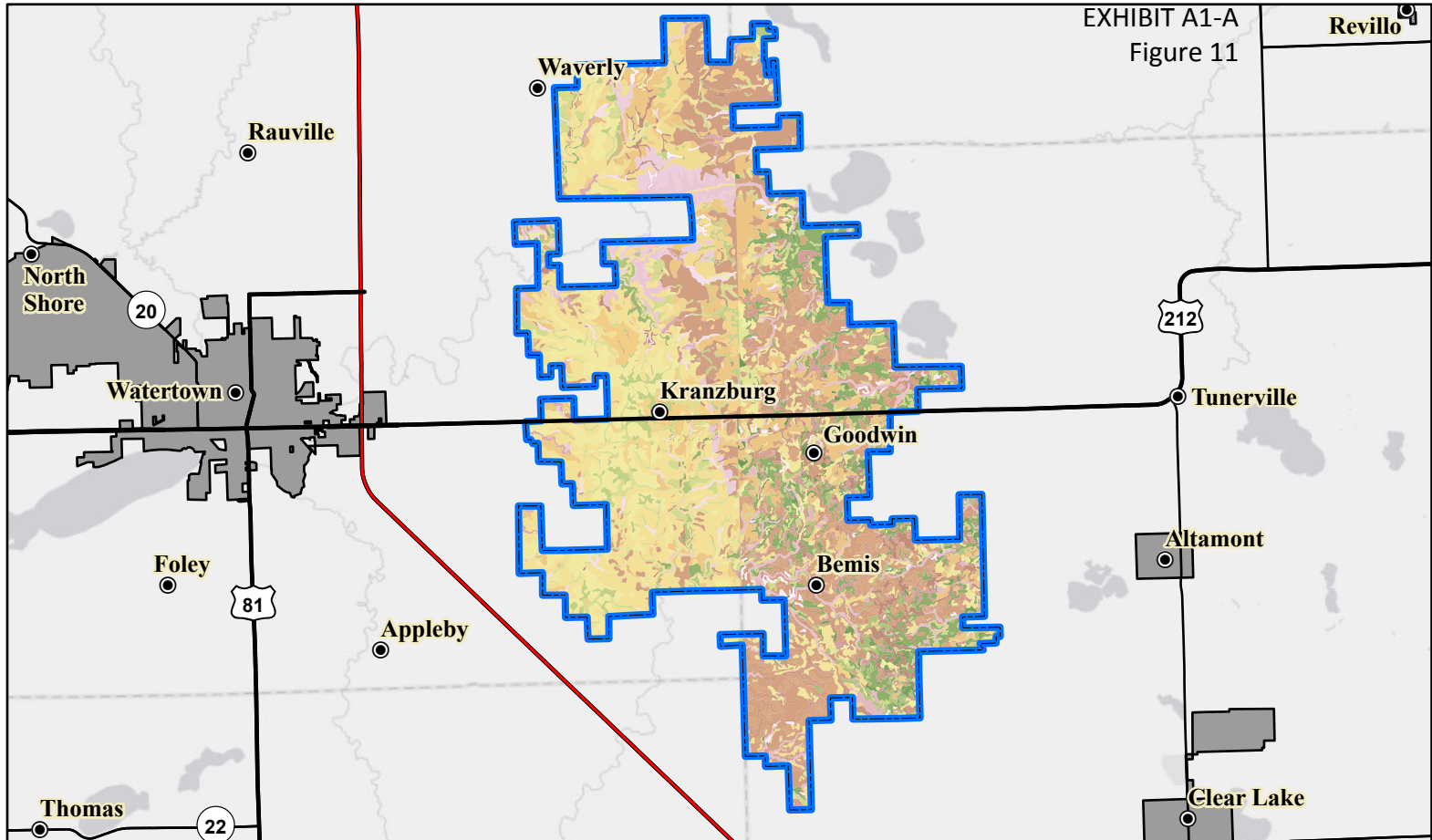
Crowned Ridge II Wind Farm

- City
- Turbine
- Alternate Turbine Location
- - - Collector Line
- Proposed Turbine Access Road
- Crane Path
- Electrical Line
- Natural Gas Line
- U.S. Highway
- Project Boundary
- County 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), swisstopo, © OpenStreetMap contributors, and the GIS User Community  
Codington, Deuel, and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N


**Mapunit Name - Mapunit Symbol**

Arvida silt loam, 0 to 3 percent slopes - ArA  
 Arvilla sandy loam, 2 to 9 percent slopes - ArB  
 Arvilla sandy loam, 2 to 9 percent slopes - ArC  
 Arvilla-Sioux complex, 6 to 15 percent slopes - ArD  
 Arvilla-Sioux complex, coteau, 6 to 15 percent slopes - Z276D  
 Baca silty clay loam, 2 to 6 percent slopes - BaB  
 Badger-Tonka silty clay loams, coteau, 0 to 1 percent slopes - Z102A  
 Barnes clay loam, coteau, 0 to 6 percent slopes - BaB  
 Barnes clay loam, coteau, 0 to 6 percent slopes - BcC  
 Barnes-Buse loams, 15 to 25 percent slopes - BcE  
 Barnes-Buse loams, coteau, 6 to 9 percent slopes - Z143C  
 Barnes-Buse-Svea loams, 1 to 15 percent slopes - BcC  
 Barnes-Buse-Svea loams, 1 to 15 percent slopes - BgD  
 Barnes-Buse-Svea loams, coteau, 1 to 9 percent slopes - Z142B

Barnes-Buse-Svea loams, coteau, 1 to 9 percent slopes - Z142C  
 Barnes-Svea loams, 0 to 6 percent slopes - BkA  
 Barnes-Svea loams, 0 to 6 percent slopes - BkB  
 Barnes-Svea loams, coteau, 0 to 6 percent slopes - Z141A  
 Barnes-Svea loams, coteau, 0 to 6 percent slopes - Z141B  
 Barnes-Svea-Buse loams, 2 to 9 percent slopes - BmC  
 Brandt silty clay loam, 0 to 2 percent slopes - Z181A  
 Brookings silty clay loam, 0 to 2 percent slopes - Br  
 Brookings silty clay loam, 0 to 2 percent slopes - Z190A  
 Bryant-Sutley silt loams, 2 to 6 percent slopes - BgB  
 Bullock-Slickspots-Rock outcrop complex, 0 to 40 percent slopes - BvE  
 Buse-Barnes loams, 9 to 20 percent slopes - BnD  
 Buse-Barnes loams, coteau, 2 to 40 percent slopes, very stony - Z145D  
 Buse-Barnes loams, coteau, 2 to 40 percent slopes, very stony - Z145F  
 Buse-Barnes loams, coteau, 9 to 20 percent slopes - Z144E  
 Buse-Lamoure, channeled, frequently flooded, complex, 0 to 40 percent slopes - Z146F

Buse-Langhei complex, coteau, 15 to 40 percent slopes - Z140F  
 Buse-Sioux complex, 9 to 40 percent slopes - BxE  
 Buse-Sioux complex, 9 to 40 percent slopes - J119E  
 Buse-Sioux stony complex, 9 to 40 percent slopes - BIE  
 Castlewood clay - Dv  
 Colvin silty clay loam, till substratum, 0 to 1 percent slopes - J121A  
 Cubden silty clay loam, 0 to 2 percent slopes - Cu  
 Darnen loam, coteau, 2 to 6 percent slopes - Z165B  
 Darnen loam, stratified substratum, 0 to 2 percent slopes - J245A  
 Dickey fine sandy loam, 2 to 6 percent slopes - DcB  
 Divide loam, 0 to 2 percent slopes, occasionally flooded - Z159A  
 Egeland-Embsen complex, 2 to 6 percent slopes - EgB  
 Egeland-Embsen complex, coteau, 2 to 6 percent slopes - Z185B  
 Estelline silt loam, coteau, 0 to 6 percent slopes - EsA  
 Estelline silt loam, coteau, 0 to 6 percent slopes - EsB  
 Estelline silt loam, coteau, 0 to 6 percent slopes - Z182A

Estelline-Kampeska silt loams, 2 to 6 percent slopes - Z282B  
 Estelline-Sioux complex, coteau, 2 to 6 percent slopes - Z183B  
 Fordtown loam, 0 to 2 percent slopes, rarely flooded - Z166A  
 Fordville loam, coteau, 0 to 2 percent slopes - FeA  
 Fordville loam, coteau, 0 to 2 percent slopes - Z170A  
 Fulda silty clay loam - Fy  
 Goldsmith silty clay loam, coteau, 0 to 2 percent slopes - Z180A  
 Hamerly-Badger complex - Hm  
 Hamerly-Badger complex, coteau, 0 to 2 percent slopes - Z115A  
 Hamerly-Balaton loams, coteau, 0 to 3 percent slopes - Z119A  
 Hamerly-Tonka complex, coteau, 0 to 2 percent slopes - Z114A  
 Havrelon loam, terrace - Hn  
 Hiwood silty clay loam, 0 to 2 percent slopes, frequently flooded - Z252A  
 Kranzburg-Brookings silty clay loams, 0 to 9 percent slopes - J143A  
 Kranzburg-Brookings silty clay loams, 0 to 9 percent slopes - J143B

Kranzburg-Brookings silty clay loams, 0 to 9 percent slopes - KrC  
 Kranzburg-Brookings-Buse complex, 1 to 6 percent slopes - KrB  
 Kremling-Archon complex, 0 to 3 percent slopes - KrA  
 La Prairie loam, 0 to 2 percent slopes, occasionally flooded - Lp  
 La Prairie loam, coteau, 0 to 2 percent slopes, occasionally flooded - Z162A  
 LaDelle silt loam, 0 to 2 percent slopes - Ld  
 Lallie silty clay loam - La  
 Lamoure silty clay loam, coteau, 0 to 1 percent slopes, occasionally flooded - Z152A  
 Lamoure-Rauville silty clay loams, channeled - Lr  
 Lamoure-Rauville silty clay loams, channeled, 0 to 2 percent slopes, frequently flooded - Z153A  
 Mahoney silt loam, 0 to 2 percent slopes - Z259A  
 Marysland loam - Mg  
 Marysland loam, 0 to 1 percent slopes, occasionally flooded - Z158A  
 McKenzie clay - Mn  
 McKranz silty clay loam, 0 to 2 percent slopes - Z217A

McKranz-Hidewood, frequently flooded, silty clay loams, 0 to 2 percent slopes - Z116A  
 McKranz-Badger silty clay loams, 0 to 2 percent slopes - Mk  
 McKranz-Badger silty clay loams, 0 to 2 percent slopes - Z117A  
 Moritz, occasionally flooded-Lamoure, frequently flooded, complex, 0 to 2 percent slopes - Z160A  
 Oldham silty clay loam - Od  
 Orthents, gravelly - Ok  
 Parnell silty clay loam, coteau, 0 to 1 percent slopes - Z107A  
 Parshall fine sandy loam, 0 to 6 percent slopes - Pa  
 Playmoor silty clay loam - Pc  
 Playmoor silty clay loam - Pm  
 Poinsett-Rusklyn silty clay loams, 6 to 9 percent slopes - PoC  
 Poinsett-Waubay silty clay loams, 0 to 6 percent slopes - PwA  
 Poinsett-Waubay silty clay loams, 0 to 6 percent slopes - PwB  
 Rauville mucky silty clay loam, ponded, 0 to 1 percent slopes, frequently flooded - Z250A

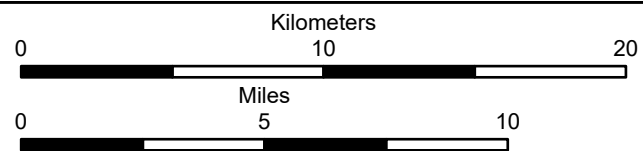
Rauville silty clay loam, coteau, 0 to 1 percent slopes, frequently flooded - Z150A  
 Renshaw-Fordville loams, coteau, 0 to 6 percent slopes - Z171A  
 Renshaw-Fordville loams, coteau, 0 to 6 percent slopes - Z171B  
 Renshaw-Sioux complex, coteau, 2 to 6 percent slopes - RbB  
 Renshaw-Sioux complex, coteau, 2 to 6 percent slopes - Z173B  
 Renshaw-Sioux complex, coteau, 6 to 9 percent slopes - Z173C  
 Rentill loam, 0 to 2 percent slopes - Rta  
 Rentill loam, coteau, 0 to 2 percent slopes - Z178A  
 Renwash loam, 0 to 2 percent slopes, rarely flooded - Z167A  
 Sage-Hisle variant complex, 0 to 2 percent slopes - SbA  
 Shambo loam - So  
 Sioux-Renshaw complex, coteau, 9 to 15 percent slopes - Z174D  
 Spottswood loam, 0 to 2 percent slopes, occasionally flooded - Z161A

Tonka silty clay loam, 0 to 1 percent slopes - Z101A  
 Udorthents, coteau (gravel pits) - Z177  
 Udorthents, loamy, coteau (cut and fill land) - Z139  
 Vailers-Hamerly loams, coteau, 0 to 2 percent slopes - Z112A  
 Vailers-Tonka complex - Vc  
 Vienna-Barnes-Forestville complex, 1 to 6 percent slopes - VzB  
 Vienna-Barnes-Forestville loams, 1 to 6 percent slopes - Z199B  
 Vienna-Brookings complex, 0 to 6 percent slopes - VvA  
 Vienna-Brookings complex, 0 to 6 percent slopes - VvB  
 Vienna-Brookings complex, 0 to 6 percent slopes - Z192A  
 Vienna-Brookings complex, 0 to 6 percent slopes - Z192B  
 Vienna-Buse complex, 6 to 9 percent slopes - VwC  
 Vienna-Buse complex, coteau, 6 to 9 percent slopes - Z193C  
 Vienna-Forestville loams, 0 to 2 percent slopes - VzA  
 Vienna-Forestville loams, coteau, 0 to 2 percent slopes - Z198A  
 Water - W

**Figure 11. Soil Types**

Crowned Ridge II Wind Farm

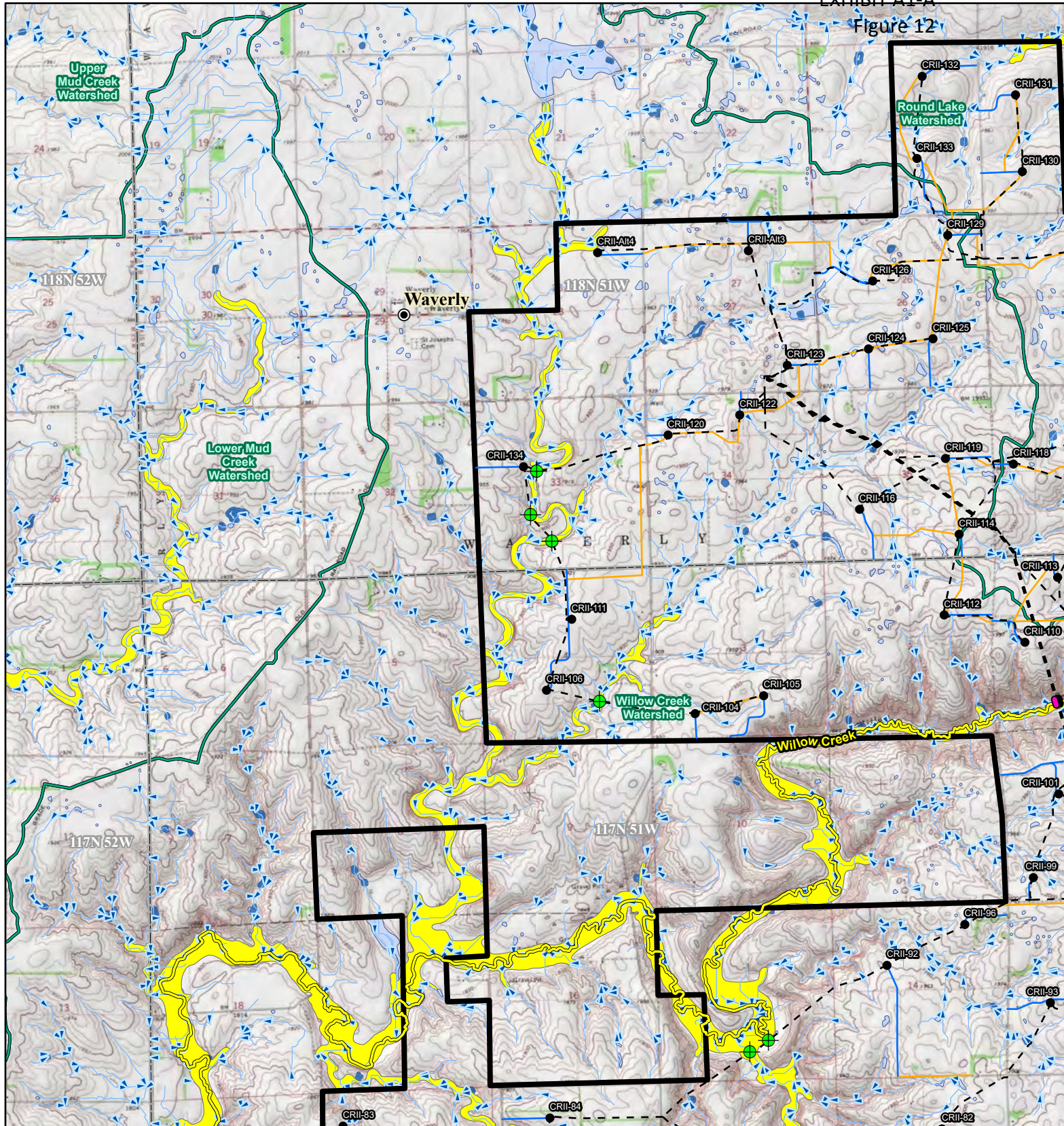
- City
- Interstate Highway
- U.S. Highway
- State Highway
- Town Boundary
- Project Boundary



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

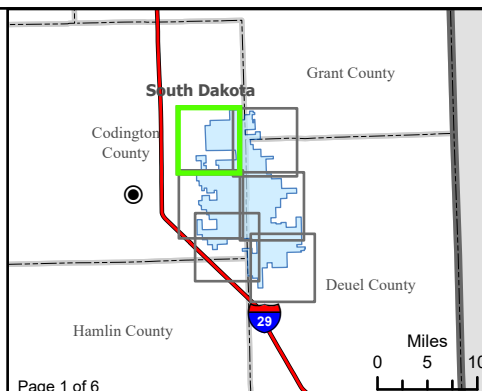
Projection: NAD 1983 UTM Zone 14N





**Figure 12. Water Resources**

- Crowned Ridge II Wind Farm**
- Intersection of Floodplain and Project Infrastructure
  - Watershed Boundary (HUC12)
  - Turbine
  - Alternate Turbine Location
  - City
  - - Collector Line
  - - Proposed Turbine
  - - Access Road
  - - Crane Path
  - - Bore Path
  - - Flow Direction
  - - South Dakota
  - - Beneficial Use Stream
  - Project Boundary
  - County Boundary
  - Township/Range Boundary
  - FEMA Flood Zone**
  - A
  - NWI Wetland**
  - Freshwater Emergent Wetland
  - Freshwater Forested/Shrub Wetland
  - Lake, Pond, or Riverine Wetland



**Kilometers**

0 1 2

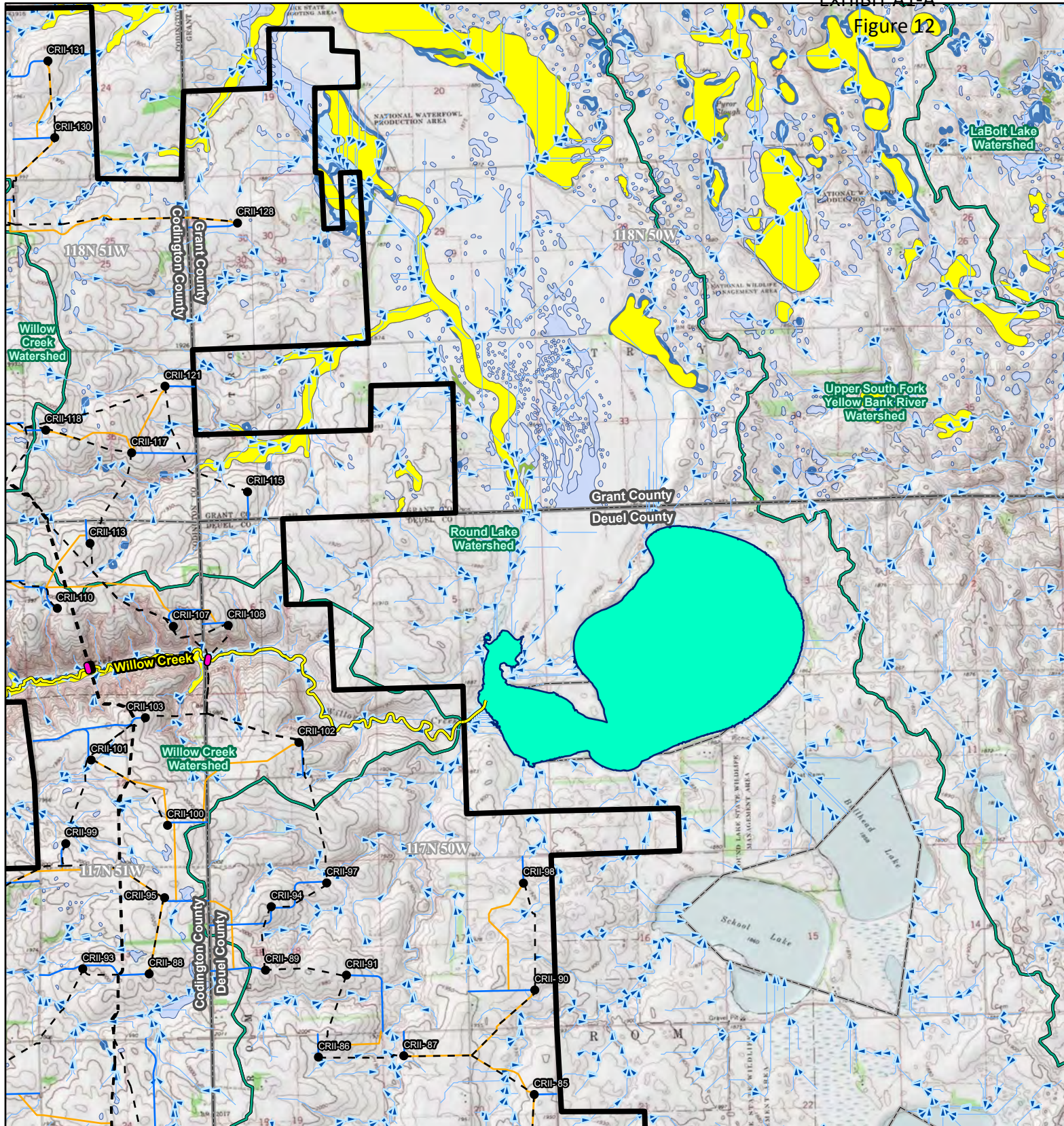
**Miles**

0 1 2

Base Map: USGS 7.5' Topographic Map  
 Source: Copyright:© 2013 National Geographic Society, i-cubed  
 Quadrangle: South Shore (1973),  
 Kranzburg (1970)  
 Township/Range: T118N, R51W &  
 T117N, R51W  
 Codington County, South Dakota

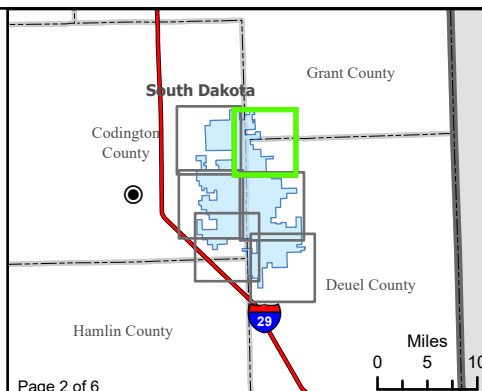
Projection:





**Figure 12. Water Resources**

- Crowned Ridge II Wind Farm**
- Turbine
  - Alternate Turbine Location
  - Collector Line
  - Proposed Turbine Access Road
  - Crane Path
  - Bore Path
  - Flow Direction
  - 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
  - Freshwater Forested/Shrub Wetland
  - Lake, Pond, or Riverine
  - Wetland



**Kilometers**  
0 1 2

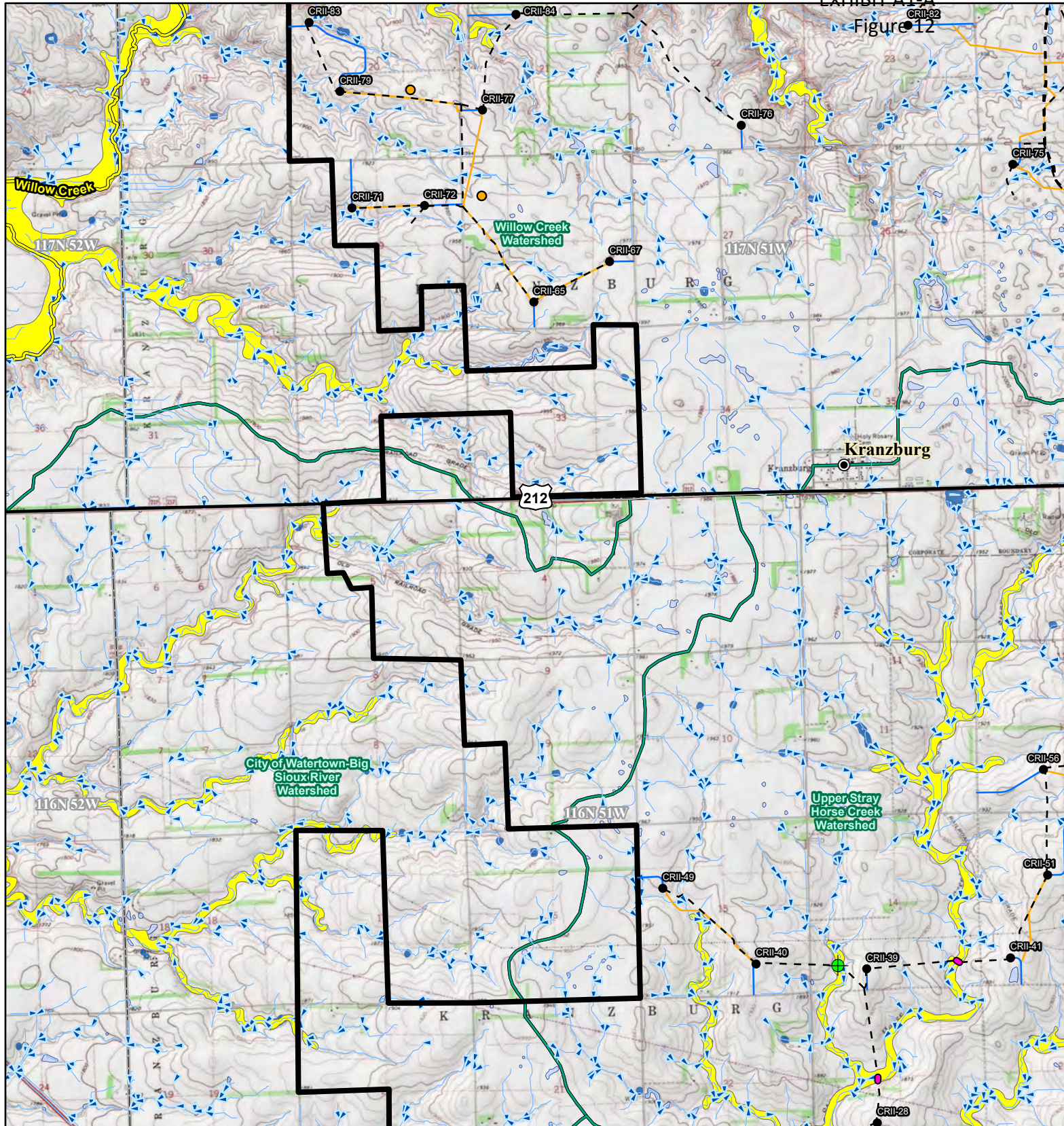
**Miles**  
0 1 2

Base Map: USGS 7.5' Topographic Map  
Source: Copyright:© 2013 National Geographic Society, i-cubed  
Quadrangle: South Shore (1973), Stockholm (1973), Kranzburg (1970), Goodwin (1970)  
Township/Range: T118N, R51W & T118N, R50W & T117N, R51W & T117N, R50W  
Codington, Deuel, and Grant Counties, South Dakota

Projection:

**SWCA**  
ENVIRONMENTAL CONSULTANTS

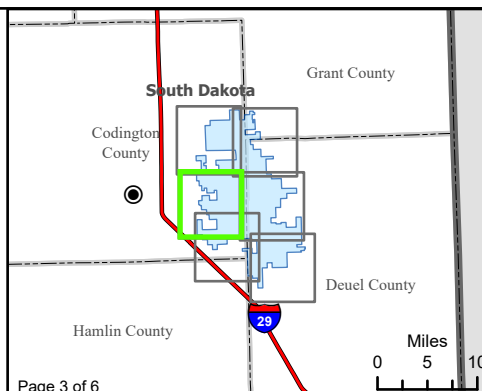




**Figure 12. Water Resources**

**Crowned Ridge II Wind Farm**

- Intersection of Floodplain and Project Infrastructure
- Turbine
- Alternate Turbine Location
- City
- Collector Line
- Proposed Turbine Access Road
- Crane Path
- Bore Path
- U.S. Highway
- Flow Direction
- South Dakota Beneficial Use Stream
- Watershed Boundary (HUC12)
- Project Boundary
- County Boundary
- Township/Range Boundary
- FEMA Flood Zone**
  - A
- 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: Copyright:© 2013 National Geographic Society, i-cubed  
Quadrangle: Kranzburg (1970),  
Kranzburg SW (1981)  
Township/Range: T117N, R51W & T116N, R51W  
Codington County, South Dakota

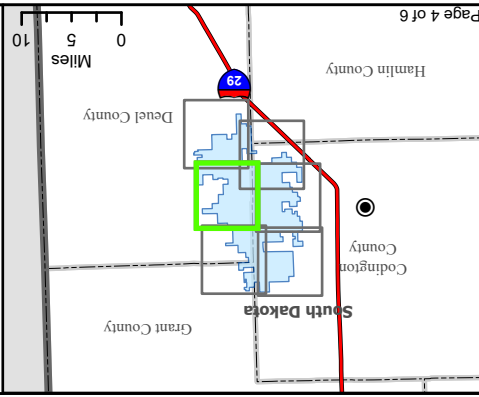
Projection:

**SWCA**  
ENVIRONMENTAL CONSULTANTS



**Figure 12. Water Resources**

- Turbine
- Alternate Turbine Location
- Collector Line
- Proposed Turbine
- Access Road
- Boundary
- Township/Range
- County Boundary
- Project Boundary
- Watershed Boundary (HUC12)
- U.S. Highway
- Flow Direction
- Wetland
- Lake, Pond, or Riverine
- Freshwater
- Emergent Wetland
- Bore Path
- Crane Path
- A
- FEMA Flood Zone
- NWI Wetland



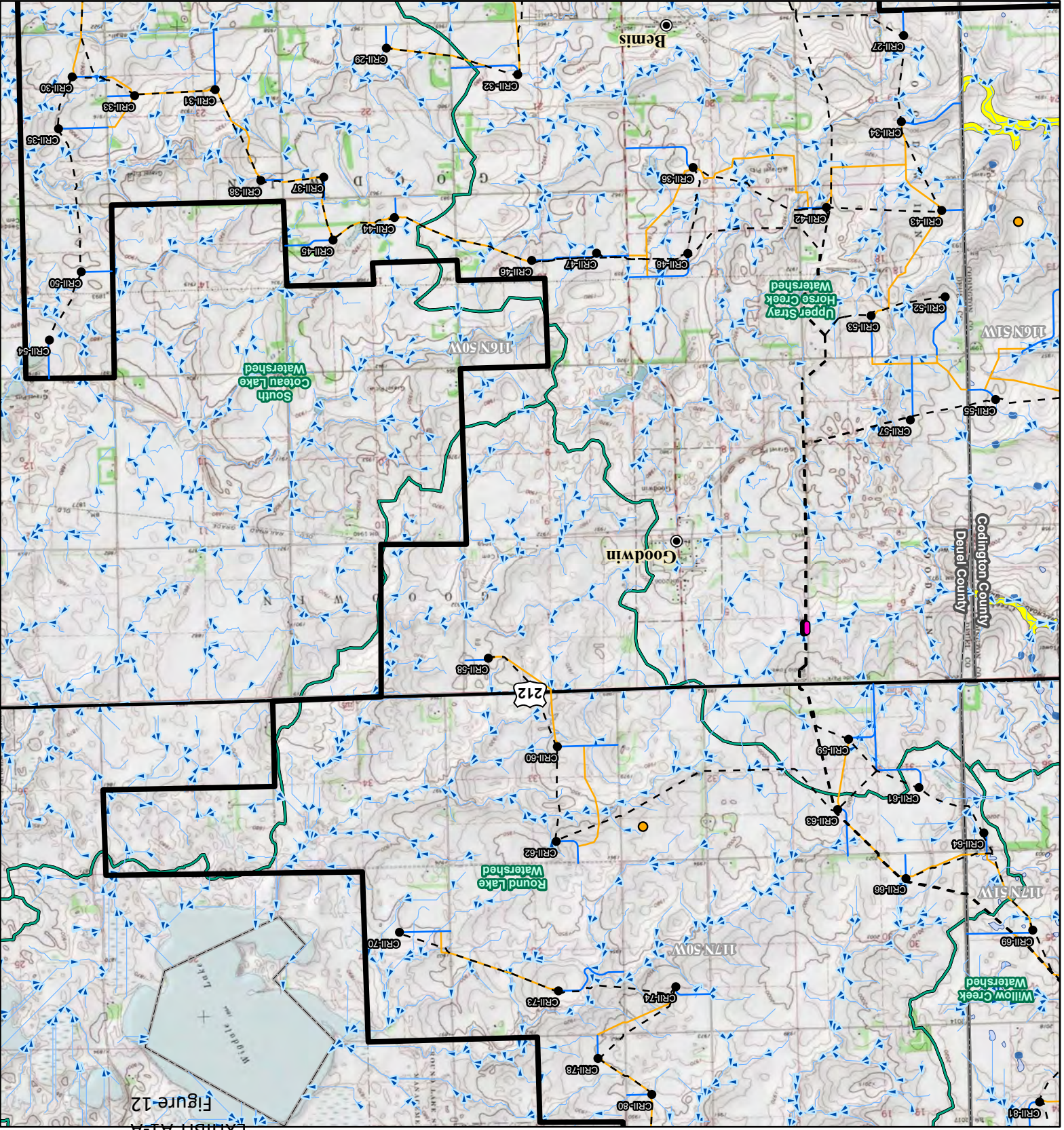
Base Map: USGS 7.5' Topographic Map  
 Source: Copyright © 2013 National Geographic Society, i-cubed  
 Quadrangle: Kranzburg (1970), Goodwin (1970), Kranzburg SW (1981), Bemis (1978)  
 Township/Range: T117N, R50W & T116N, R51W & T117N, R50W & T116N, R50W  
 Codington and Deuel Counties, South Dakota

Projection:

0 1 2 Miles

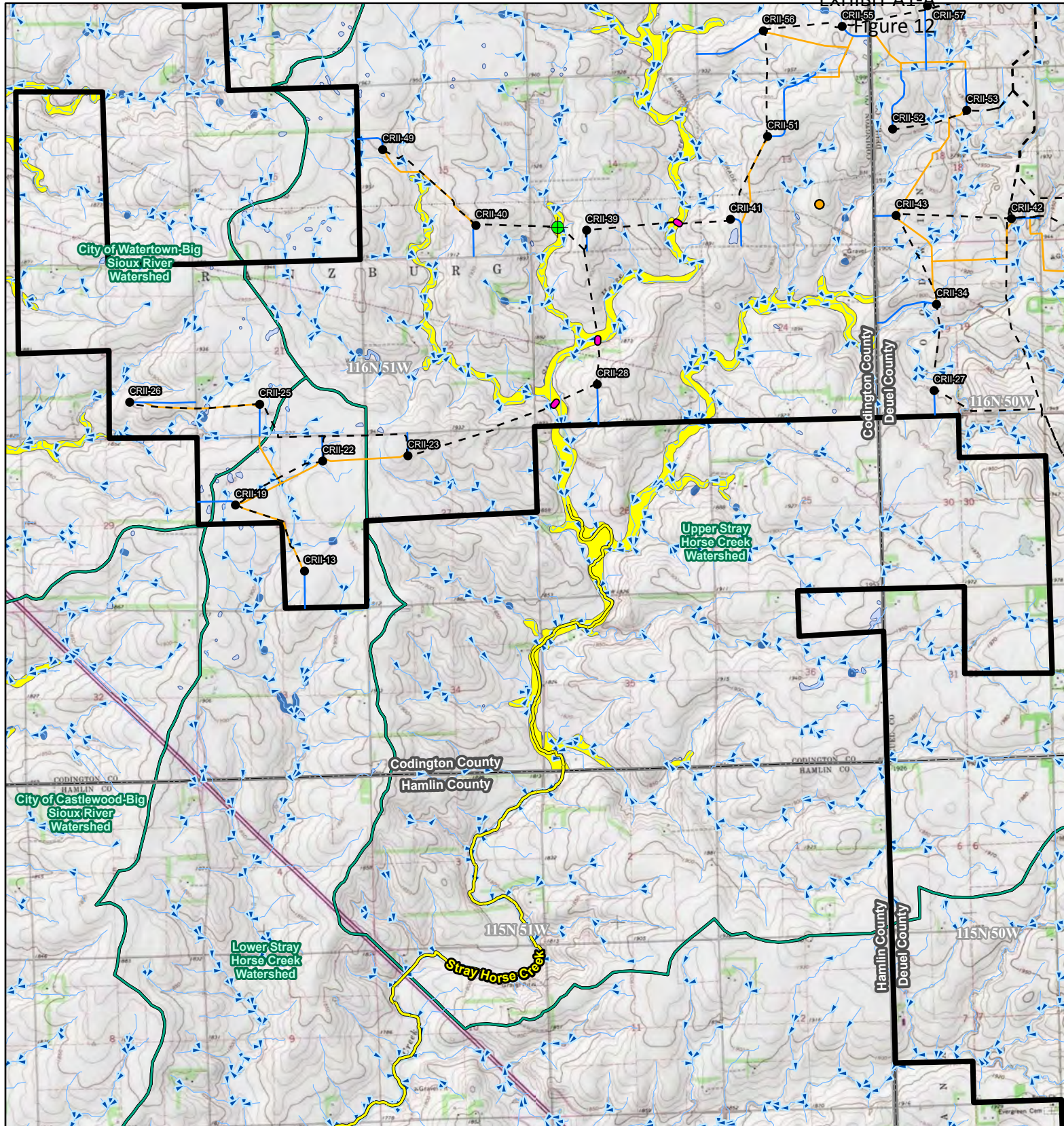
0 1 2 Kilometers

SWCA ENVIRONMENTAL CONSULTANTS



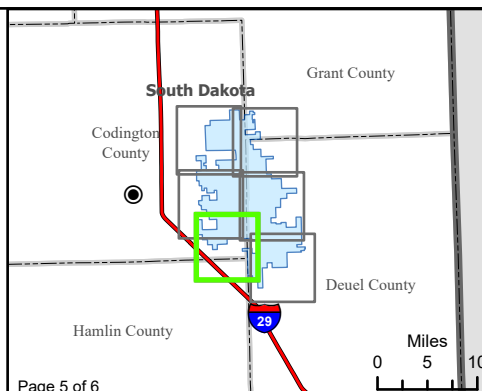
**Figure 12**  
**EXHIBIT A1-A**





**Figure 12. Water Resources**

- Crowned Ridge II Wind Farm**
- Intersection of Floodplain and Project Infrastructure
  - Turbine
  - Alternate Turbine Location
  - Collector Line
  - Proposed Turbine Access Road
  - Crane Path
  - Bore Path
  - Flow Direction
  - South Dakota
  - Beneficial Use Stream
- 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**

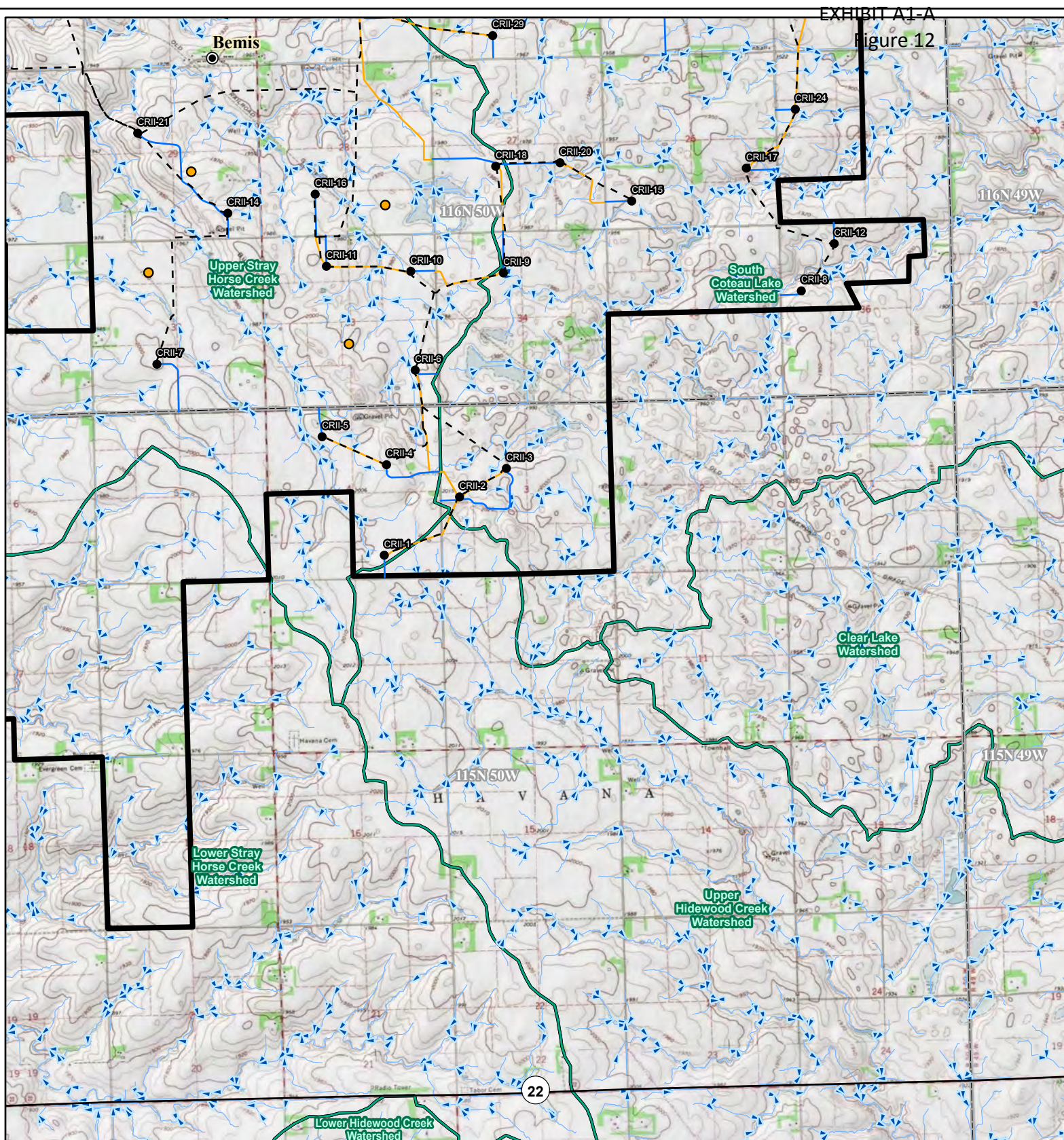
0 1 2

Base Map: USGS 7.5' Topographic Map  
Source: Copyright:© 2013 National Geographic Society, i-cubed  
Quadrangle: Kranzburg SW (1981), Bemis (1978)  
Township/Range: T116N, R51W & T116N, R50W & T115N, R50W  
Codington and Deuel Counties, South Dakota

Projection:

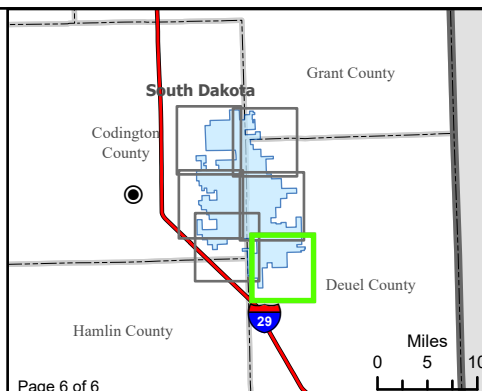
**SWCA**  
ENVIRONMENTAL CONSULTANTS





**Figure 12. Water Resources**

- Crowned Ridge II Wind Farm**
- Turbine
  - Alternate Turbine Location
  - City
  - - Collector Line
  - Proposed Turbine Access Road
  - Crane Path
  - Bore Path
  - State Highway
  - Flow Direction
  - Watershed Boundary (HUC12)
  - Project Boundary
  - County Boundary
  - Township/Range Boundary



Kilometers  
0 1 2

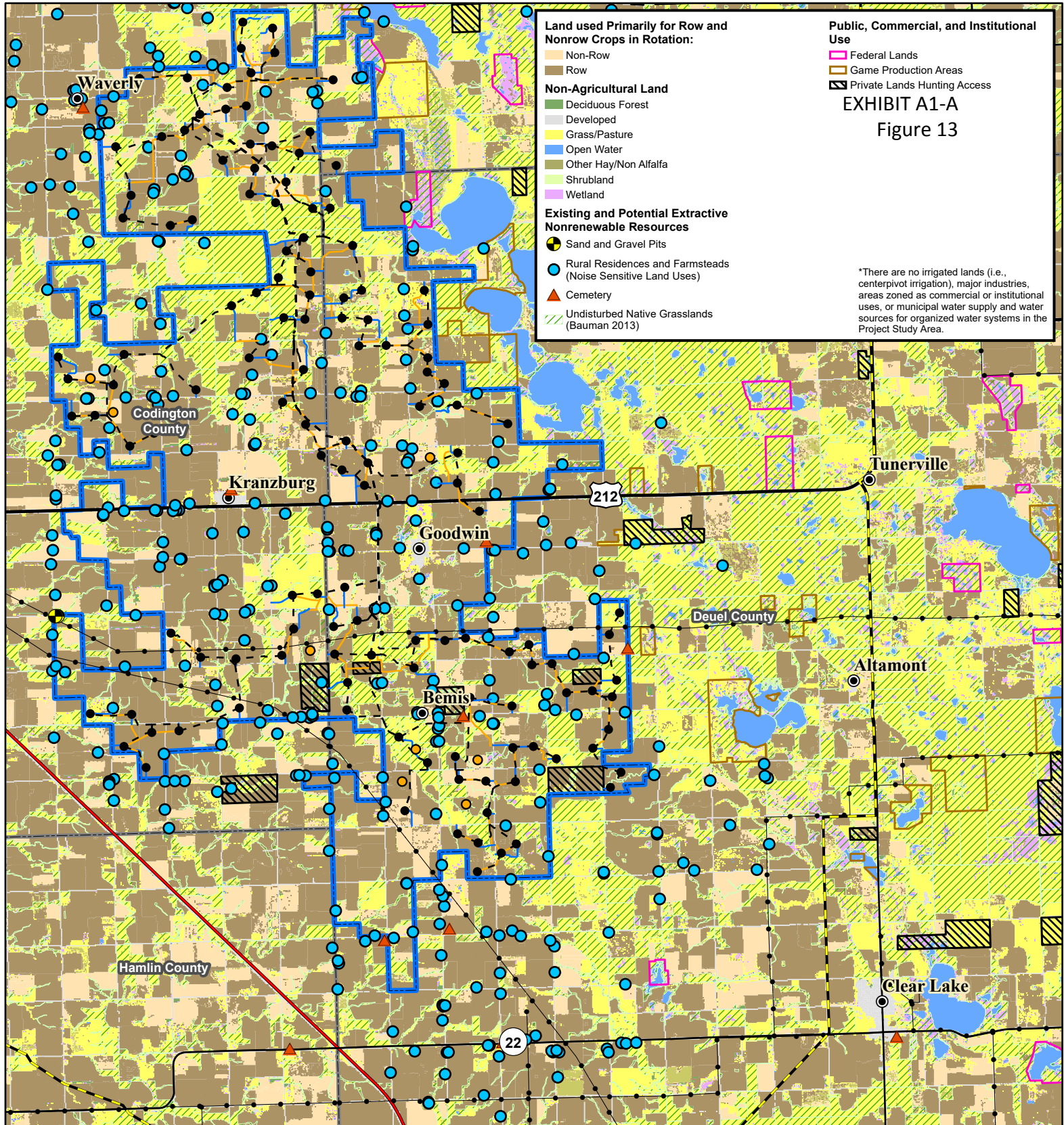
Miles  
0 1 2

Base Map: USGS 7.5' Topographic Map  
Source: Copyright:© 2013 National Geographic Society, i-cubed  
Quadrangle: Kranzburg SW (1981), Bemis (1978)  
Township/Range: T116N, R50W & T115N, R50W  
Deuel County, South Dakota

Projection:

SWCA  
ENVIRONMENTAL CONSULTANTS

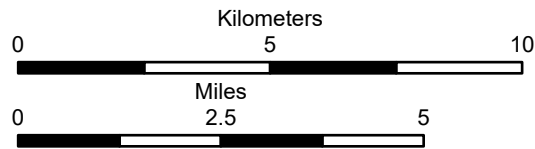




**Figure 13. Land Use**

Crowned Ridge II Wind Farm

- City
- Turbine
- Alternate Turbine Location
- - - Collector Line
- Proposed Turbine Access Road
- Crane Path
- Electrical Line
- Natural Gas Line
- Interstate Highway
- U.S. Highway
- State 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, Deuel, and Grant Counties, South Dakota

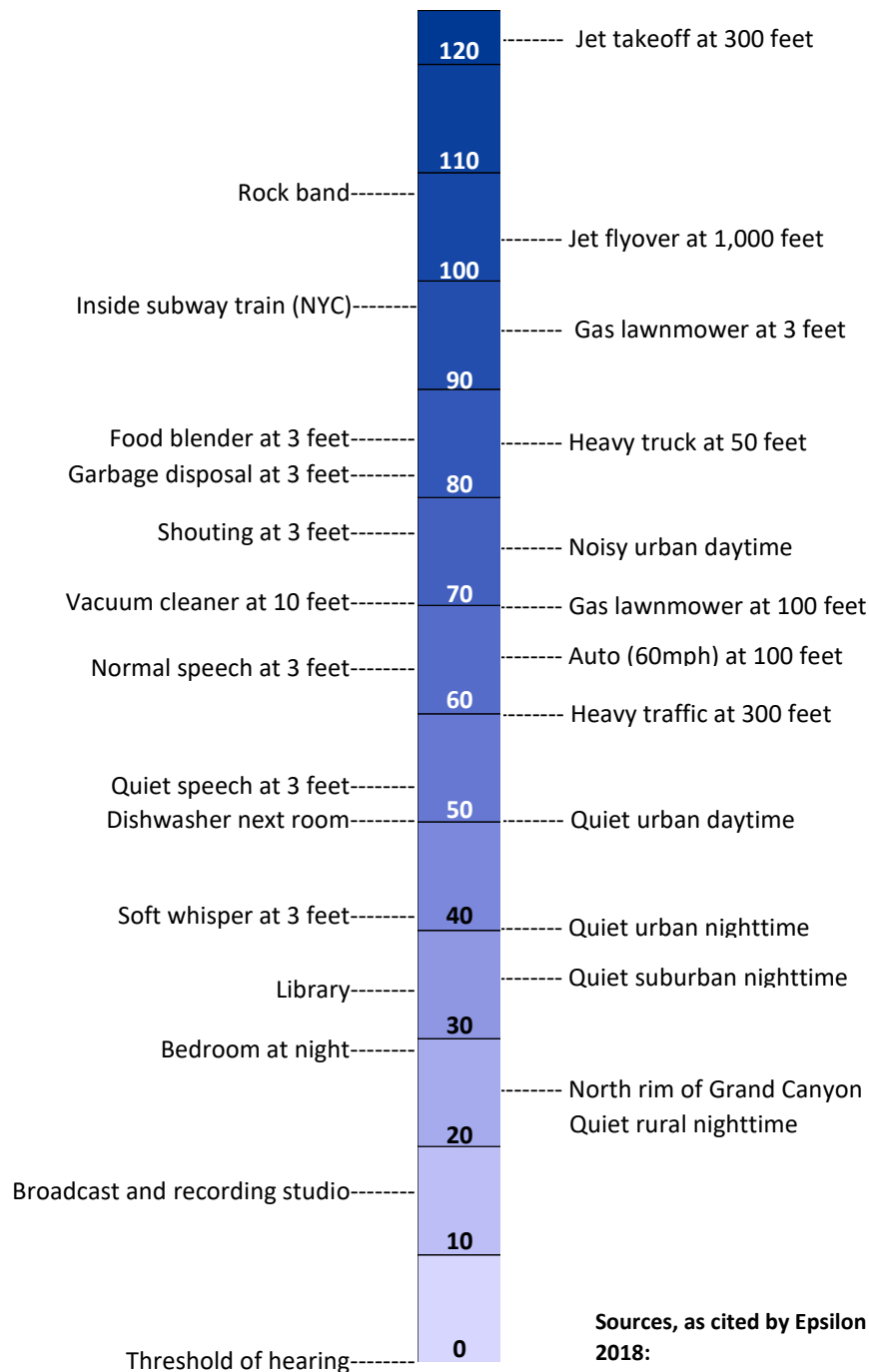
Projection: NAD 1983 UTM Zone 14N

**SWCA**  
 ENVIRONMENTAL CONSULTANTS

**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**