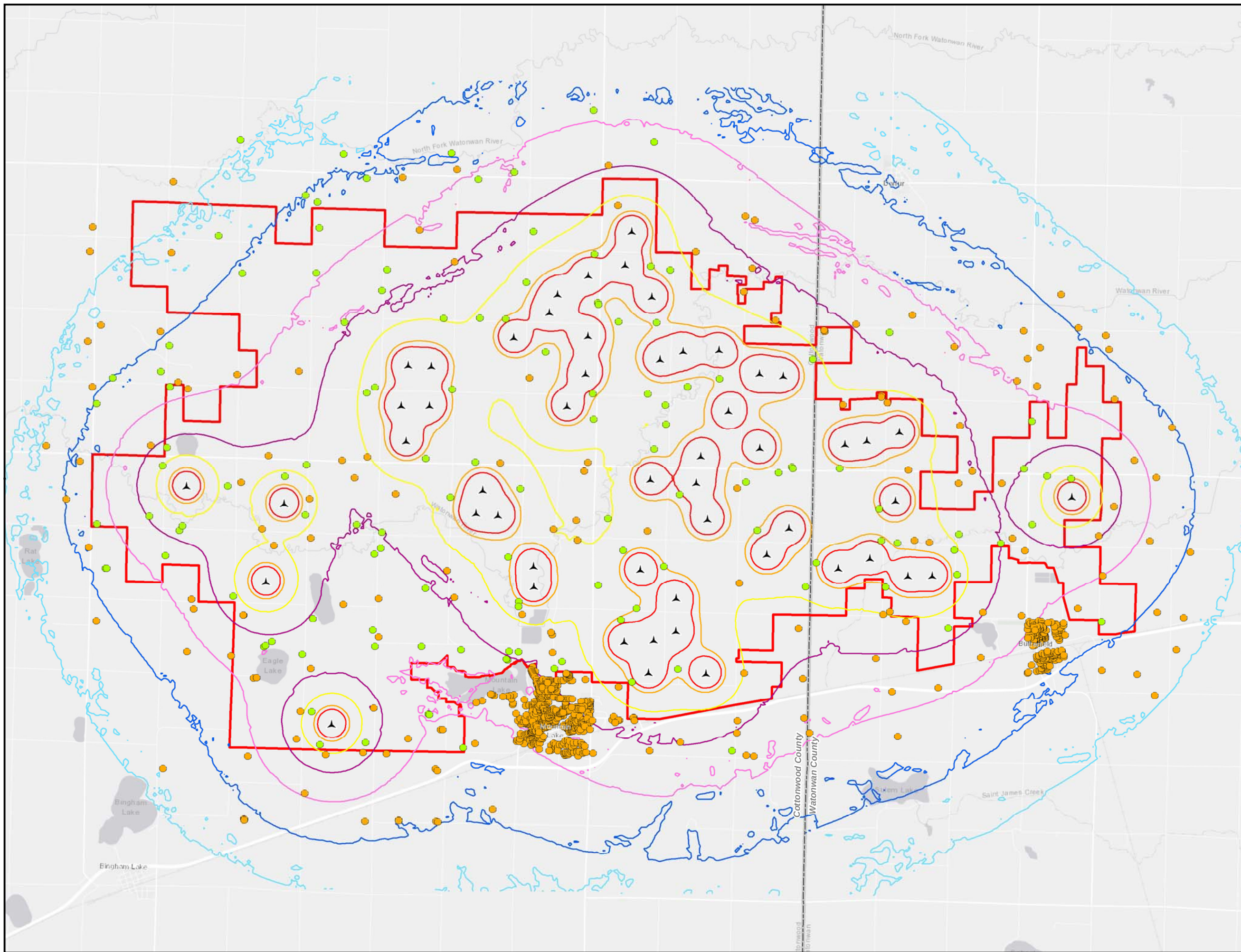


Data Source: Apex Energy, US Census, MDOT, FSA 2017 Imagery

- ▲ V162 Proposed Turbine
- Project Area Boundary
- Participant**
 - Non-Participating (within 1 mile of Project Area)
 - Participating (within 1 mile of Project Area)
- Sound Pressure Levels (Turbine Only)**
 - 20 dBA
 - 25 dBA
 - 30 dBA
 - 35 dBA
 - 40 dBA
 - 45 dBA
 - 47 dBA

*Turbines not to scale

Figure 7b
Sound/Noise
Vestas V162

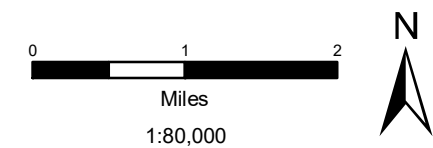
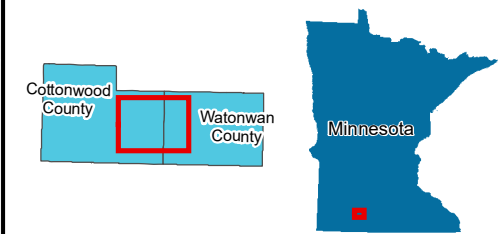
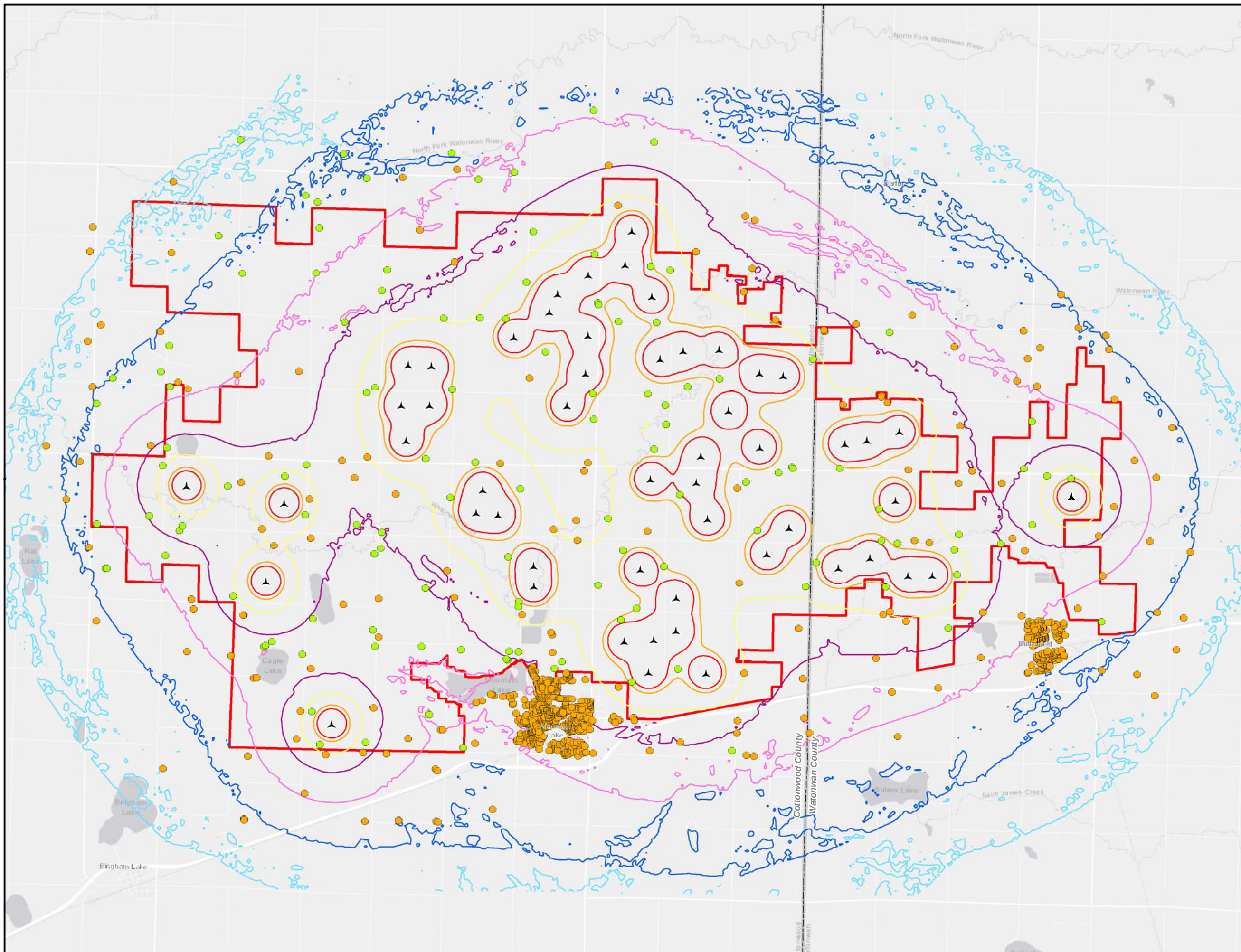
Big Bend Wind Project

Cottonwood and Watonwan
Counties, Minnesota



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Date: (9/17/2021) Source: Z:\Clients\VA_D\Apex\Big Bend\Sites_Permit\Figures\Fig07b_V162_BB_Sound_Noise.mxd



Data Source: Apex Energy, US Census, MDOT, FSA 2017 Imagery

- ▲ GE158 Proposed Turbine
- ▭ Project Area Boundary
- Participant**
 - Non-Participating (within 1 mile of Project Area)
 - Participating (within 1 mile of Project Area)
- Sound Pressure Levels (Turbine Only)**
 - 20 dBA
 - 25 dBA
 - 30 dBA
 - 35 dBA
 - 40 dBA
 - 45 dBA
 - 47 dBA

*Turbines not to scale

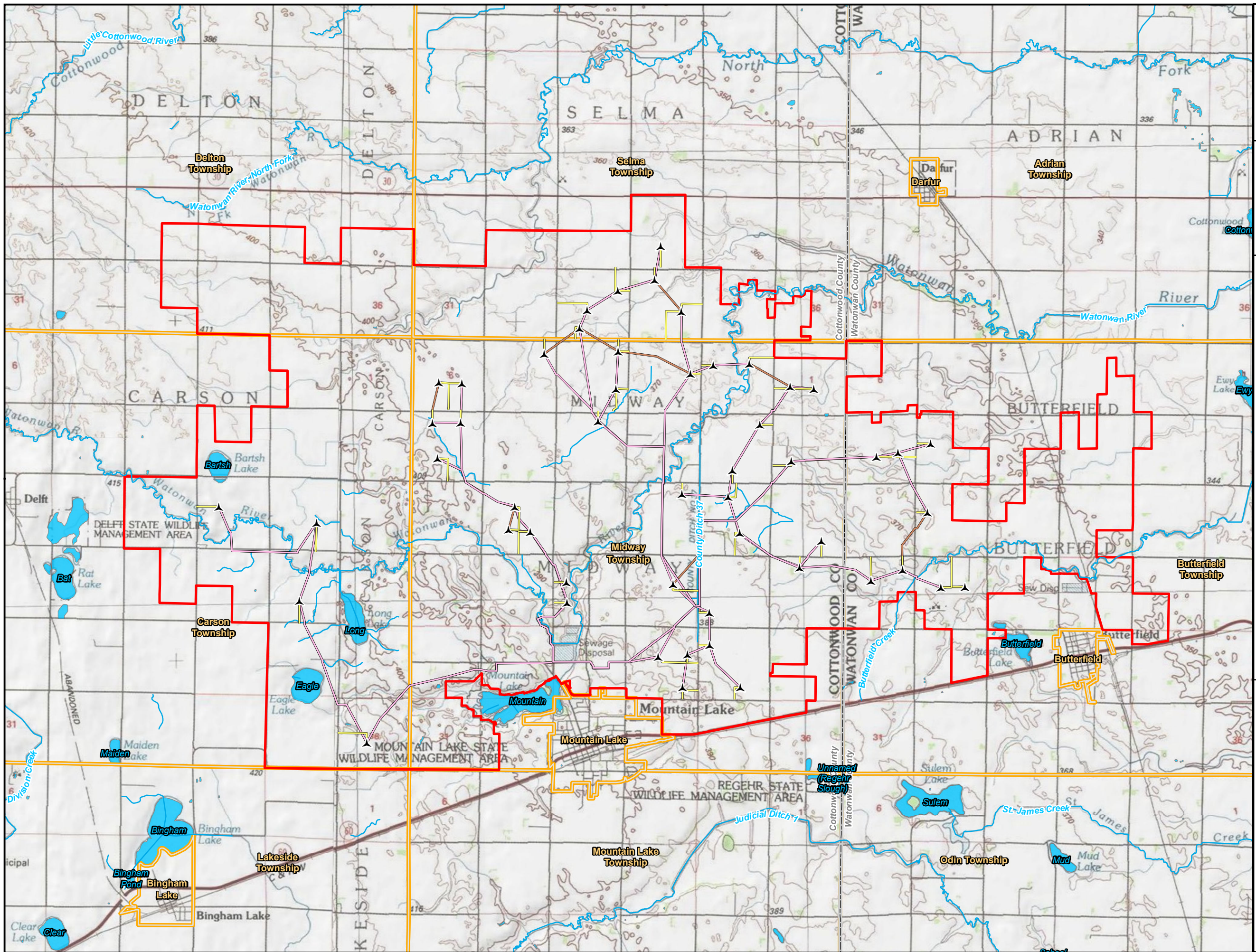
Figure 7c
Sound/Noise
GE-158

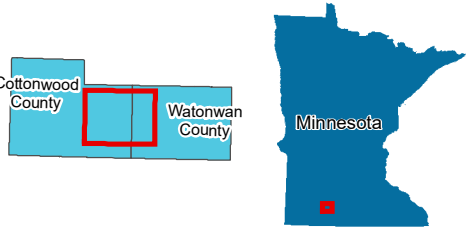
Big Bend Wind Project
Cottonwood and Watonwan
Counties, Minnesota



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0 1 2
Miles
1:80,000

▲ Proposed Turbine
— Access Road
— Collection Line
— Crane Path
▭ Project Area Boundary
▭ City/Township
▭ County Boundary
~ River/Stream
● Lake, Pond, or Reservoir

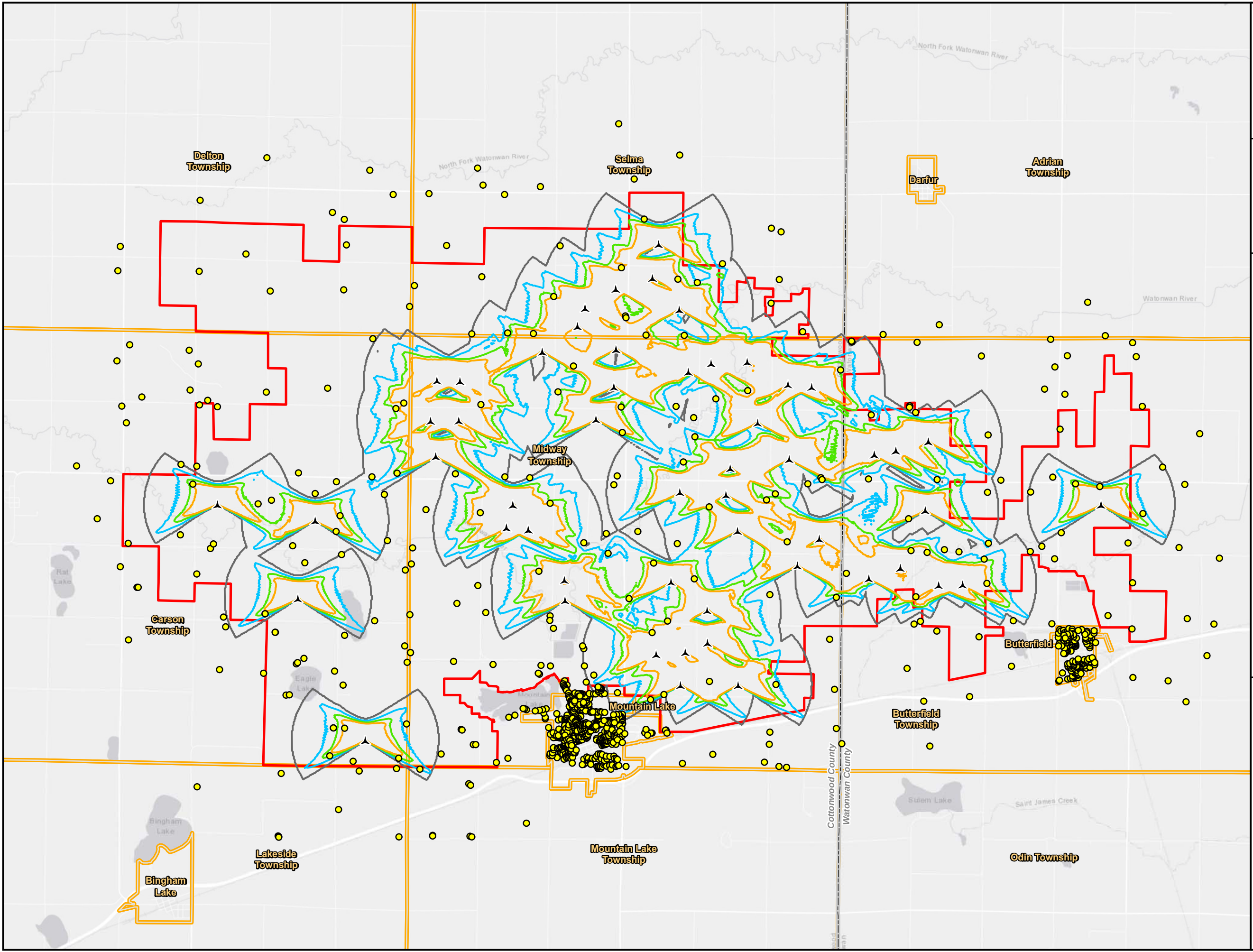
*Turbines not to scale

Figure 8
Topographic Map
Big Bend Wind Project
Cottonwood and Watonwan Counties, Minnesota



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Date: (9/9/2021) Source: Z:\Clients\A_D\Apex\Big_Bend\Site_Permit\Figures\Fig08_BB_Topographic_Map.mxd





Cottonwood County

Watonwan County

Minnesota

0 1 2

Miles

1:80,000

N

Data Source: Apex Energy, US Census, MDOT, FSA 2017 Imagery

▲ N163 Proposed Turbine (Primary)

● Residential Structure (within 1 mile of Project Area)

▭ Project Area Boundary

▭ City/Township

▭ County Boundary

Shadow Hours Per Year

— 0

— 10

— 20

— 30

*Turbines not to scale

Figure 9a

Shadow Flicker

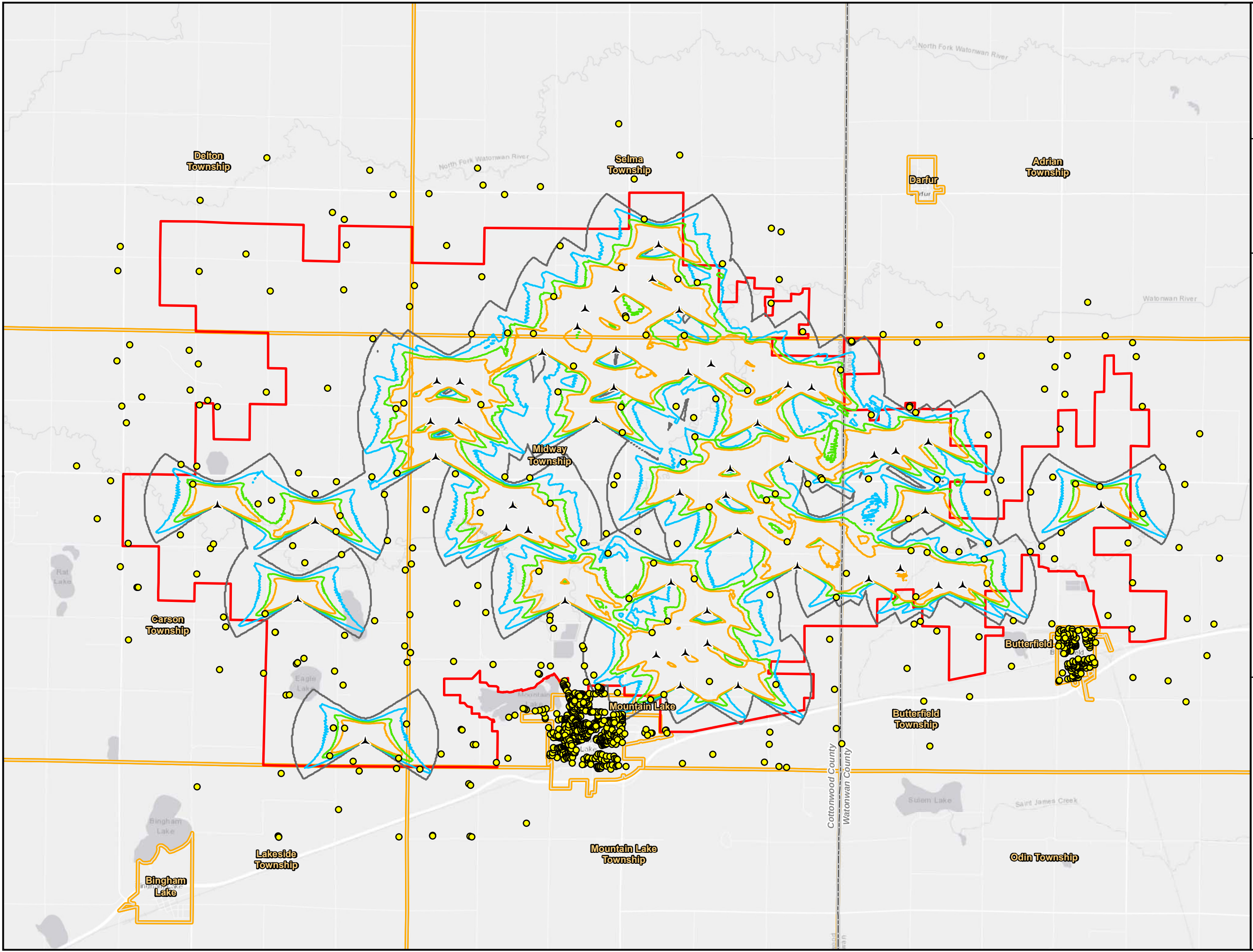
Nordex N-163

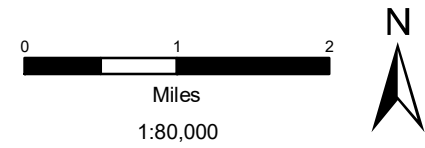
Big Bend Wind Project

Cottonwood and Watonwan Counties, Minnesota



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0 1 2
Miles
1:80,000

North Arrow

Data Source: Apex Energy, US Census, MDOT, FSA 2017 Imagery

- ▲ V162 Proposed Turbine (Primary)
- Residential Structure (within 1 mile of Project Area)
- ▭ Project Area Boundary
- ▭ City/Township
- ▭ County Boundary

Shadow Hours Per Year

- 0
- 10
- 20
- 30

*Turbines not to scale

Figure 9b
Shadow Flicker
Vestas V162

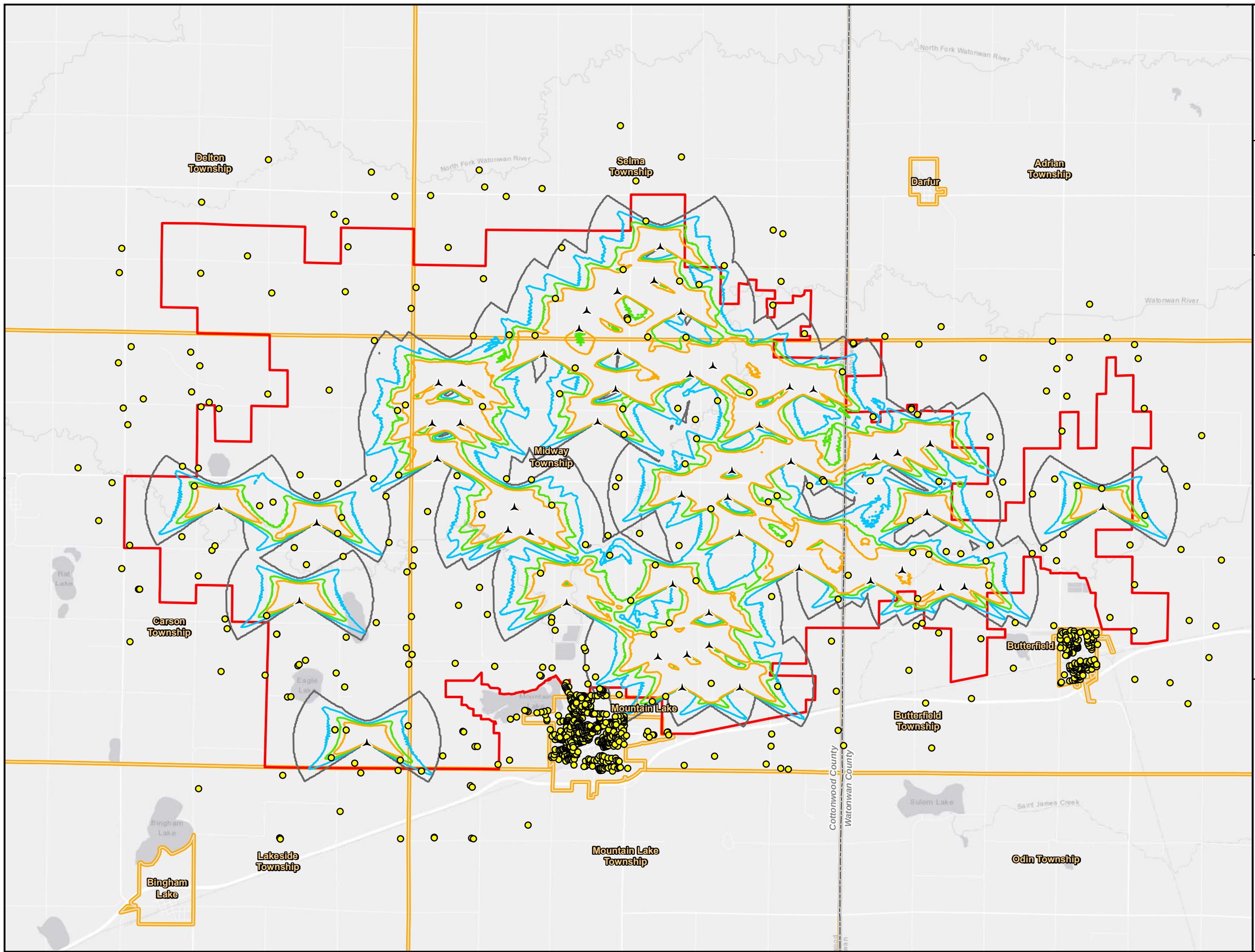
Big Bend Wind Project

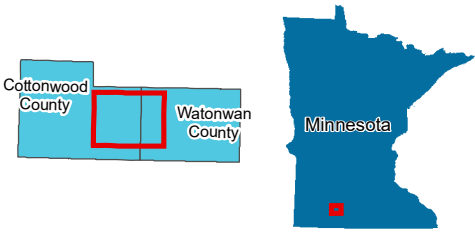
Cottonwood and Watonwan Counties, Minnesota



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Date: (9/17/2021) Source: Z:\Clients\VA_D\Apex\Big Bend\Sites_Permit\Figures\Fig9b_V162_BB_Shadow_Flicker.mxd





Cottonwood County
Watonwan County
Minnesota

0 1 2
Miles
1:80,000

N

Data Source: Apex Energy, US Census, MDOT, FSA 2017 Imagery

▲ GE158 Proposed Turbine (Primary)

● Residential Structure (within 1 mile of Project Area)

▭ Project Area Boundary

▭ City/Township

▭ County Boundary

Shadow Hours Per Year

— 0

— 10

— 20

— 30

*Turbines not to scale

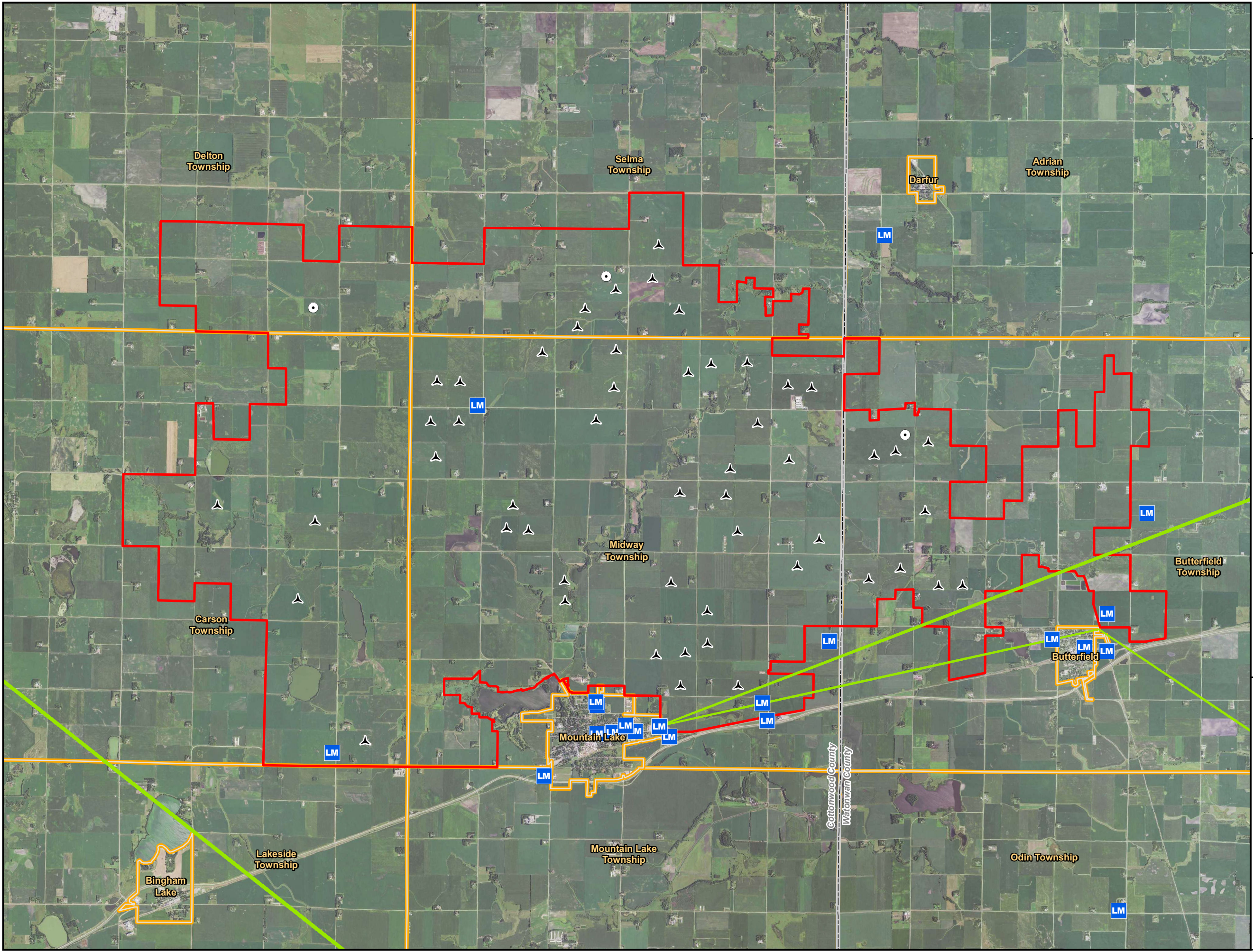
Figure 9c
Shadow Flicker
GE-158

Big Bend Wind Project

Cottonwood and Watonwan Counties, Minnesota

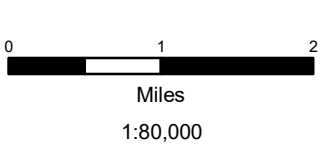


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Cottonwood County Watonwan County



0 1 2
Miles
1:80,000

Data Source: Apex Energy, US Census, MDOT, FSA 2017 Imagery

-  Proposed Turbine
-  Met Tower
-  Land Mobile
-  Project Area
-  City/Township
-  County Boundary
-  Microwave Beam Path

*Turbines not to scale

Figure 10
Microwave Beam Path
Big Bend Wind Project
Cottonwood and Watonwan Counties, Minnesota



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