APPENDIX B

PUBLIC COMMENTS AND AGENCY RESPONSES

PUBLIC COMMENTS AND AGENCY RESPONSES

The Notice of Availability for the Badger State Solar Draft EIS was published in the Federal Register on March 4, 2022, beginning the 45-day public and agency review period. The availability of the Draft EIS was also announced in the *Daily Jefferson County Union* and *Watertown Daily Times*. The list of stakeholders notified regarding the availability of the Draft EIS is included in Appendix B. The Draft EIS was available for review on the RUS and Badger State Solar websites (https://www.rd.usda.gov/resources/environmental-studies/impact-statements, https://badgerstatesolar.consultation.ai, and https://www.badgerstatesolar.com) and also at the following locations (Jefferson Public Library in Jefferson, WI; the Cambridge Community Library in Cambridge, WI and the Lake Mills Library in Lake Mills, WI). Public comments received during the 45-day review period, by April 18, 2022, were considered and addressed in the Final EIS and are summarized here.

RUS received two comment letters, one from the Environmental Protection Agency and one from the Department of the Interior. Additionally, RUS received comments from Badger State Solar. Responses to comments raised during the comment period are provided below. A copy of each of the comment submissions is included at the end of this appendix.

1. **Comment: Movement of Large Mammals**

We appreciate the interagency discussion in the March 24, 2022, Interagency Meeting regarding movement of animals through and/or around the proposed project areas. We commend RUS for proposing to install exclusion fencing that will allow smaller animals to freely transit through the project areas. We recommend RUS consider allowing large mammals to be able to transit between the two large tracts of the proposed project located between U.S. Highway18, Highway G, and Highway 89, by separating the boundaries of the two tracts to leave a small, unfenced area between them (*Submitted by: Environmental Protection Agency*).

> **Response:** Section 3.5.3.2 of the Final EIS has been updated to address the movement of large mammals and the spacing of the exclusion fencing.

2. **Comment: Ice Age National Scenic Trail**

Within the DEIS currently on review, the document states in relationship to visual resources:

> ‘Overall, there would be minor temporary direct and indirect impacts to visual resources during the construction and decommissioning. During operation minor visual impacts would continue to occur in the immediate vicinity due to a

> combination of changes to the visual attributes of the area, and the existing general local character.' (ES-6 of EIS)

The DEIS was reviewed by the National Park Service (NPS) on behalf of the Department, and while the NPS does not disagree with the above statement, there is a concern that this project may be visible beyond its immediate vicinity, specifically from higher vantage points along the Ice Age Trail (IATR), a national scenic trail managed by the NPS.

The trail, in proximity to the project area, roughly follows the spine of the interlobate moraine area of the Southern Kettle Moraine in a Southwest/Northeast alignment. This includes the tower at Lapham Peak State Park and higher points along the trail going south near the cities of Palmyra and Whitewater, WI.

Due to the many geologic features, the NPS is concerned that placing solar panels at this location has the potential to impact visual resources and requests additional information about project location and reflection be provided so that additional analysis can be undertaken to determine potential affects. The DEIS currently does not contain a map displaying the location of the IATR in relationship to the project area; such a map should be included as part of the final EIS.

The Department requests that the Rural Utility Service (RUS) engage in further informal consultation with NPS to ensure viewsheds are considered as part of the project and that affects to these visual resources are mitigated or eliminated wherever possible. The Department appreciates the Rural Utility Service for the opportunity to comment on this DEIS and looks forward to working cooperatively to preserve America's natural and cultural resources (*Submitted by: United States Department of the Interior*).

> **Response:** In response to this comment from the Department of the Interior, Section 3.7.2.2 of the Final EIS has been updated to address the potential visual impacts to the Ice Age National Scenic Trail. Based on the viewshed analysis, the Project site is not anticipated to be visible from the Trail. On June 1, 2022, RUS shared the additional analysis and findings related to the viewshed impacts to the Ice Age Trail as a result of the proposed solar facility with the Department of the Interior in response to the request for consultation. The Department responded on June 10, 2022 and concurred with the finding of minimal impacts and requested that the Ice Age Trail be included in a future public documentation for information purposes.

3. Comment: Future NEPA Documents

EPA's NEPA Compliance Division has fully transitioned to a paperless record system, and we no longer require paper copies of NEPA documents. Please notify us if future

NEPA documents are available in electronic format (such as on the project's website or on the lead agency's website) (*Submitted by: Environmental Protection Agency*).

> **Response:** Comment noted. In the future, RUS will provide EPA the location and link to available NEPA documents in electronic format.

4. **Comment: Overhead Transmission Line Height**

The height of the overhead span over U.S. Highway 18 will be over 40 feet. The 17 foot height described in Section 1.1.1.5 of the Draft EIS is the Wisconsin Department of Transportation minimum (*Submitted by: Badger State Solar*).

> **Response:** Section 1.1.1.5 of the Draft EIS, and all corresponding additional references to the height of the overhead transmission line, have been updated to more than 40 feet.

5. **Comment: Beneficial Impacts of Converting Farmland on Soils, Wildlife, Aquatics, and Wetlands**

In Table 2.6-1, there is no mention of the beneficial impact of converting farmland to permanent vegetation from a soil erosion, wildlife perspective, and aquatic resources perspective or with regard to vegetating farmed wetland areas (*Submitted by: Badger State Solar*).

> **Response:** Table 2.6-1 was updated to include potential beneficial impacts to soils, wildlife, aquatic resources, and wetlands.

6. **Comment: Beneficial Impacts of Converting Farmland on Land Resources**

Table 2.6-1 has no mention of beneficial impacts associated with the change from farming to perennial resources for Land Resources.

> **Response:** The beneficial impact associated with the conversion from farming to perennial vegetation is addressed in the Vegetation section. The Land Resources section is focused on land use and the conversion of agricultural land to a solar facility results in a minor, adverse impact to land use as it makes prime farmland unavailable.

7. **Comment: Beneficial Impacts of Soil Humification**

The beneficial aspects of 30 to 40 years of soil humification should be addressed in Section 3.1.2.2. Documented benefits to reversing and stopping soil erosion experienced within the FSA CRP program and interpolated to the 30 to 40 year solar lease should be mentioned here.

> **Response:** Section 3.1.2.2 was updated to note the potential beneficial impacts to soils over time.

8. **Comment: Dates of Bat Spring Roosting Season**

Is this recommendation [page 4-49 of the Draft EIS which states USFWS recommended that the spring and summer roosting periods of March 15 through August 15 be avoided] from the USFWS Programmatic Biological Opinion referenced correctly? Northern long eared bats are still hibernating in March. The Broad Incidental Take Authorization recommends tree clearing be avoided June 1 – August 15. The primary nesting season for migratory birds is May 15 – August 1 in Wisconsin. Is March 15 a typo and meant to be May 15 – August 15 to avoid roosting bats and nesting birds?

> **Response:** The March 15-August 15 dates are from consultation with the USFWS on the EIS, not from the Programmatic Biological Opinion. During consultation on the EIS, the USFWS recommended the spring and summer (March 15 – August 15) seasons be avoided when feasible. The consultation is described at the end of Section 3.5.5.2 of the EIS. The consultation letters with USFWS are included in Appendix J. The northern long eared bat sections within Sections 3.5.5.1 and 3.5.5.2 were revised to clarify the WDNR recommendations and the USFWS recommendations regarding potential tree clearing.

9. **Comment: Land Cover Classes**

In Table 3.6-1 of the EIS, do you want to include the rest of the land cover classes reported in Table 5.3-1 in the CPCN (i.e. non-forested and forested wetlands, residential, and commercial)?

> **Response:** Table 3.6-1 was updated to include all of the land cover classes reported in Table 5.3-1 of the CPCN.

10. **Comment: Land Cover Figure Readability**

In Figure 3.6-1, at this scale some of the non-forested wetlands appear to be mapped as open water since the symbol of the green diagonal lines do not show up.

Response: The color of open water in Figure 3.6-1 was changed to provide greater distinction between open water and non-forested wetlands.

11. Comment: Drainage Setback

Add the 40-foot setback to fences from the drainage district regulated drainages to Table 3.7-1.

Response: The drainage ditches row of Table 3.7-1 was updated to include the 40-foot fence setback.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

April 14, 2022

REPLY TO THE ATTENTION OF:
Mail Code RM-19J

Peter Steinour
U.S. Department of Agriculture
Rural Utilities Service
Mail Stop 1570, WEP/EES
1400 Independence Avenue SW
Washington, DC 20250

Re: Draft Environmental Impact Statement for the Badger State Solar Project, Jefferson County, Wisconsin – CEQ No. 20220027

Dear Mr. Steinour:

The U.S. Environmental Protection Agency (EPA) has reviewed the referenced Draft Environmental Impact Statement (DEIS), which was prepared by AECOM, consultant to the Rural Utilities Service (RUS) and the project proponent, Badger State Solar, LLC. Our comments are made pursuant to our authorities under the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act.

Badger State Solar, LLC proposes to construct, install, operate, and maintain a 149-megawatt (MW) photovoltaic (PV) Alternating Current solar energy generating facility on a 1200-acre site in Jefferson County, Wisconsin. Construction involves the installation of 487,848 single-axis tracking PV panels. The PV panels would be mounted on a steel racking frame. Supporting facilities include an electrical substation. The lease agreement allows for an operating period of 40 years. A power purchase agreement has been executed with Dairyland Power Cooperative for the entire output of the proposed project.

Two alternatives have been proposed:

- *Proposed Action Alternative.* Construct, install, operate, and maintain a 149-megawatt (MW) photovoltaic (PV) Alternating Current solar energy generating facility with 487,848 single-axis tracking PV panels on a 1200-acre site in Jefferson County, Wisconsin.
- *No Action Alternative.* The proposed project would not be constructed, installed, or operated, as described in the DEIS.

RUS has selected the Proposed Action Alternative as the proposed project's preferred alternative. We appreciate RUS committing to implementing best management practices for this proposed project for pollinators and native plant species, erosion control, vehicle anti-idling, and avoidance and minimization of impacts to wetlands and streams. Based on our review of the DEIS, we offer the following recommendations.

Movement of Large Mammals

We appreciate the interagency discussion in the March 24, 2022, Interagency Meeting regarding movement of animals through and/or around the proposed project areas. We commend RUS for proposing to install exclusion fencing that will allow smaller animals to freely transit through the project areas. We recommend RUS consider allowing large mammals to be able to transit between the two large tracts of the proposed project located between U.S. Highway18, Highway G, and Highway 89, by separating the boundaries of the two tracts to leave a small, unfenced area between them.

Future NEPA Documents

EPA's NEPA Compliance Division has fully transitioned to a paperless record system, and we no longer require paper copies of NEPA documents. Please notify us if future NEPA documents are available in electronic format (such as on the project's website or on the lead agency's website).

Please send us an electronic version of the Final Environmental Impact Statement (FEIS) when it becomes available. If you have any questions, please contact me at 312-886-2910 or westlake.kenneth@epa.gov or Mike Sedlacek of my staff, lead project reviewer, at 312-886-1765 or sedlacek.michael@epa.gov.

Sincerely,

Kenneth A. Westlake
Deputy Director, Tribal and Multimedia Programs Office
Office of the Regional Administrator

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904

IN REPLY REFER TO:

April 14, 2022

4112.1
ER 22/0080

Peter Steinour
Rural Utilities Service, WEP/EES
1400 Independence Ave., SW
Washington, DC 20250

Re: DEIS USDA RUS Badger State Solar LLC's Alternating Current Solar Project, Jefferson County Wisconsin.

Dear: Peter Steinour:

The Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement (DEIS) for the proposed Rural Utility Service (RUS) Badger State Solar LLC's Alternating Current Solar Project. Badger State Solar proposes to construct, install, operate, and maintain a 149- megawatt (MW) photovoltaic (PV) Alternating Current solar energy generating facility on a site in the Townships of Jefferson and Oakland, in Jefferson County, Wisconsin.

Cultural Resource Comments

Within the DEIS currently on review, the document states in relationship to visual resources:

'*Overall, there would be minor temporary direct and indirect impacts to visual resources during the construction and decommissioning. During operation minor visual impacts would continue to occur in the immediate vicinity due to a combination of changes to the visual attributes of the area, and the existing general local character*.' (ES-6 of EIS)

The DEIS was reviewed by the National Park Service (NPS) on behalf of the Department, and while the NPS does not disagree with the above statement, there is a concern that this project may be visible beyond its immediate vicinity, specifically from higher vantage points along the Ice Age Trail (IATR), a national scenic trail managed by the NPS.

The trail, in proximity to the project area, roughly follows the spine of the interlobate moraine area of the Southern Kettle Moraine in a Southwest/Northeast alignment. This includes the tower at Lapham Peak State Park and higher points along the trail going south near the cities of Palmyra and Whitewater, WI.

Due to the many geologic features, the NPS is concerned that placing solar panels at this location has the potential to impact visual resources and requests additional information about project location and reflection be provided so that additional analysis can be undertaken to determine potential affects. The DEIS currently does not contain a map displaying the location of the IATR in relationship to the project area; such a map should be included as part of the final EIS.

The Department requests that the Rural Utility Service (RUS) engage in further informal consultation with NPS to ensure viewsheds are considered as part of the project and that affects to these visual resources are mitigated or eliminated wherever possible.

The Department appreciates the Rural Utility Service for the opportunity to comment on this DEIS and looks forward to working cooperatively to preserve America's natural and cultural resources. The Department requests the project proponent reach out to either Eric Gabriel, Superintendent, Ice Age National Trail (Eric_Gabriel@nps.gov) or Chris Buczko, Regional Energy Specialist, (Chris_Buczko@nps.gov), in regard to the issues related to visual resources contained in this letter.

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Sincerely,

John Nelson
Regional Environmental Officer

Electronic distribution: BadgerStateSolarEIS@usda.gov

United States Department of Agriculture

5/16/2022

Rural Development
Rural Utilities Service
1400 Independence Ave SW, Room 4018
Stop 1570,
Washington, DC, 20250
Voice 202.205.9756

John Nelson
Regional Environmental Officer
United States Department of the Interior
Office of the Secretary
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904

Re: DEIS USDA RUS Badger State Solar LLC's Alternating Current Solar Project
Jefferson County Wisconsin

Dear Mr. Nelson:

Thank you for submitting comments from the National Park Service (NPS) on behalf of the United States Department of the Interior on the Draft Environmental Impact Statement for the proposed Badger State Solar LLC Alternating Current Solar Project on a site in Jefferson County, Wisconsin.

The NPS expressed concern about the Project's potential visibility, specifically from higher vantage points along the Ice Age National Scenic Trail (IATR) which is managed by the NPS. The IATR "roughly follows the spine of the interlobate moraine area of the Southern Kettle Moraine in a Southwest/Northeast alignment." The observation tower at Lapham Peak State Park is one of the higher vantage points along the trail with additional high points near the cities of Palmyra and Whitewater, WI.

The NPS requested additional information about the Project location and reflection and additional analysis regarding potential effects. The NPS also requested that a map displaying the location of the IATR in relation to the proposed Badger State Solar Project be included as part of the Final EIS. Finally, NPS requested additional consultation with RUS to ensure the viewsheds from the IATR and potential impacts to visual resources are considered and mitigated or eliminated if possible.

The Rural Utilities Service (RUS) appreciates the NPS input regarding the proposed Badger State Solar Project. RUS has expanded the viewshed analysis in the EIS to evaluate whether the proposed Badger State Solar Project would be visible from the IATR. The IATR is located approximately 12 to 20 miles to the east, southeast, and south of the proposed Project site, and at an overall higher elevation than the Project Site. The attached Figure 1 shows the location of the IATR in relation to the proposed Project site, and the results of the viewshed analysis. While the Project Site would potentially be visible from select locations in the vicinity of the IATR, it should not be visible from any point on the IATR itself. The attached Figure 2 shows the location of the observation tower at Lapham State Park and a viewshed analysis looking outward from the tower. As shown on the inset map, a few small and isolated portions of the Project Site may be visible from the top of the tower. The distance from the tower to the nearest portion of the Project site that might be visible from the tower is 23.6 miles. These areas would represent a negligible portion of the viewshed.

Badger State Solar, LLC conducted a Glare Hazard Analysis in 2019. Based on the glare hazard analysis, the Proposed Action would not interfere with local road transportation or with airplanes landing at any of the eight airports within 10 miles of the Project. Glare was identified as a potential issue should the solar panels be rested at a 0 degree position (with the panels horizontal to the ground and “facing up”) at sunrise or sunset. Badger State Solar, LLC has committed to not rest the panels in this position at these times of day, therefore, glare would not be an issue. As a result of this analysis, RUS has determined that potential visual impacts to the IATR would not be anticipated.

RUS invites NPS and Department of the Interior input regarding the viewshed analysis described above and the assessment of visual impacts to the IATR. RUS agrees with the Department of the Interior regarding the importance of working cooperatively to preserve America’s natural and cultural resources. For additional discussion regarding this proposed Project, please contact Peter Steinour at 202-961-6140 (peter.steinour@usda.gov).

Sincerely,

Basia Howard
Acting Federal Preservation Officer, Archaeologist
Environmental & Historic Preservation Division
Rural Utilities Service, Rural Development, USDA

Enclosures
Figure 1: Viewshed Analysis for the Proposed Badger State Solar Project Site
Figure 2: Viewshed Analysis for Lapham State Park Observation Tower

CC:

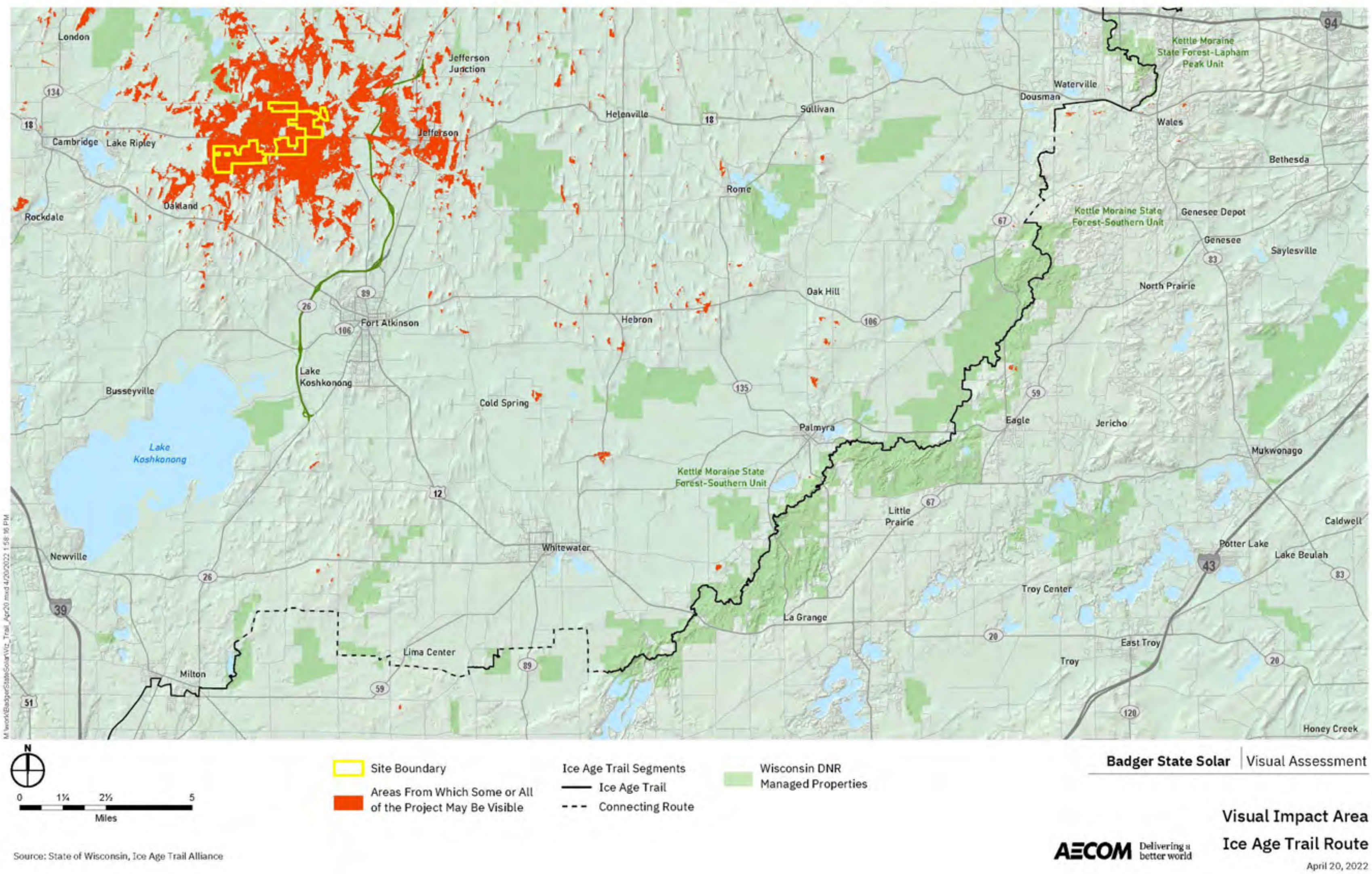

Figure 1. Viewshed Analysis for the Proposed Badger State Solar Project Site

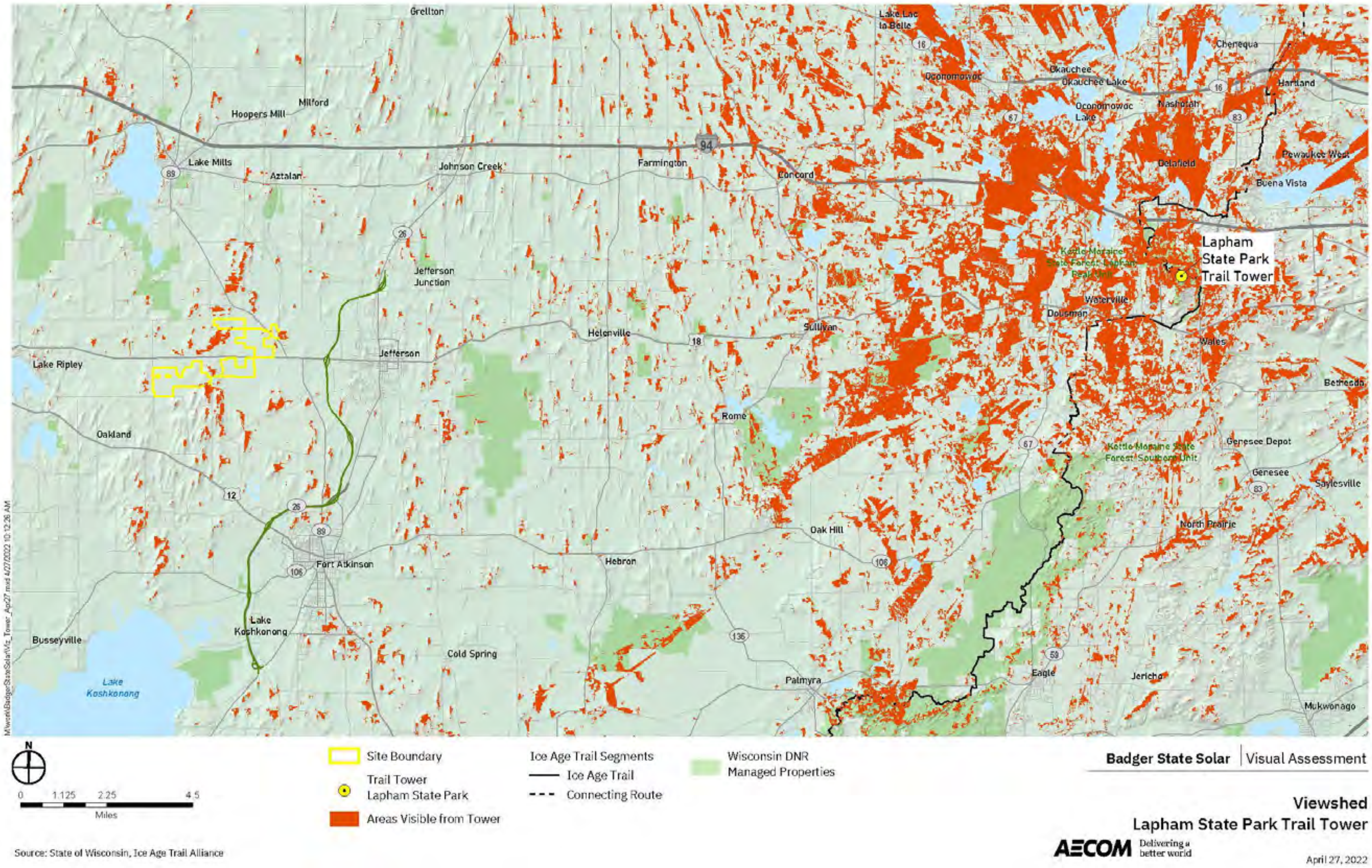

Figure 2. Viewshed Analysis for Lapham State Park Observation Tower

Comments received from Badger State Solar

would be placed between sections or groups of sections to allow maintenance personnel to access the entire site. The individual trackers and supporting piles would be oriented in rows from north to south. Approximately 63,306 foundation piles installed 6 to 10 feet deep would be used for the Proposed Action. The solar trackers are anticipated to be self-powered, although some tracker systems currently available require external power from an auxiliary power source.

1.1.1.4 Access Roads

Existing public roadways would be used to access the site. Internal roads on the solar facility site are expected to be between 12 and 15 miles in length. Construction matting may be used to a limited extent in areas with soil strength limitations. The existing soil surface would remain intact, planted in perennial vegetation, and maintained during operation and maintenance once construction is completed.

Aggregate materials would be used at roadway approaches to the site and/or in areas with frequent vehicle traffic to support construction vehicles when needed based on soil limitations. Topsoil would be removed and stored for reclamation during decommissioning. Geotextile matting would be installed prior to placement of aggregate to prevent mixing with native subsoil. The aggregate would be maintained for the life of the Proposed Action where needed.

1.1.1.5 Collector Circuits and Substation

The solar facility would include underground collector circuits and a substation. Approximately 25 miles of collector cable would be directly buried cables or cables in buried ducts. There would be approximately 10.5 miles of collector circuits installed by trenching and approximately 0.4 miles installed by directional boring.

The underground collector system would be buried at a depth of 36 inches to the top of the cables in 1-foot-wide trenches. Where multiple cables are installed parallel to each other, the width of the trench would vary based on the number of collector circuits within the trench.

There would be an overhead crossing spanning a distance of 375 feet to avoid boring under US 18. The overhead span would be 17 feet above the roadway supported by two to four poles with a minimum of 15 lines.

The Proposed Action would include a collector substation with a 138/34.5 kV main transformer. The substation footprint is expected to be 280 feet by 195 feet. The substation would generally contain switching gear, metering and instrumentation, circuit breakers, and supporting equipment. There would be a protection and control building, internal access roads, security fencing, buried power cables, lightning protection masts, and yard lighting for use during maintenance or emergency activities.

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Author: bkarczewski Subject: Sticky Note Date: 4/12/2022 11:16:31 AM

The 17 foot height is a minimum requirement from the WI DOT for overhead crossings of USH18. The height of this overhead span will be much greater (>40 feet) to span over 40 feet high distribution lines located on the north side of USH 18

Table 2.6-1. Comparison of Alternatives

Environmental Resource		No Action	Proposed Action		
			Construction	Operation	Decommission
Soils and Geology	Soils	Minor, direct, long-term	Minor, direct, short-term	Minor, direct, long-term	Minor, direct, short-term
	Geology	No impact	Minor, direct, short -term	No impact	No impact
Groundwater		Minor, indirect, long-term	Negligible	Minor, direct, long-term, and potentially indirect beneficial	Negligible
Surface Water		Minor, direct, long-term	Minor, direct, short-term	Minor, direct, short-term, and potentially indirect beneficial	Minor, direct, short-term
Air Quality		No impact	Minor, direct, short-term	Minor, direct, long-term, and beneficial	Minor, direct, short-term
Acoustic Environment		No impact	Minor, direct, short-term	Negligible	Minor, direct, short-term
Biological Resources	Vegetation	No impact	Negligible	Minor, long-term, direct, and potentially beneficial	Negligible
	Wetlands / Riparian Areas / Floodplains	No impact	Minor, direct, short-term wetlands/ riparian areas; No impact to floodplains	No impact	Minor, direct, short-term wetlands/ riparian areas; No impact to floodplains
	Wildlife	Minor, indirect, long-term	Minor, direct, short-term	Minor, direct, long-term	Minor, direct, short-term
	Aquatic Resources	Minor, direct, long-term	Minor, direct and indirect, short-term	Minor, direct and indirect, long-term, and potentially beneficial	Minor, direct and indirect, short-term
	Special Status Species	No effect	No effect to not likely to adversely affect	No effect	No effect
Land Resources		No impact	Minor, direct, long-term, adverse	Minor, direct, long-term, adverse	No impact
Visual Resources		No impact	Minor, direct, short-term	Minor, direct, long-term	Minor, direct, short-term
Transportation	Roads / Traffic	No impact	Minor, direct, short-term	Negligible	Minor, direct, short-term
	Airports	No impact	No impact	No impact	No impact
Cultural Resources		Minor, long-term	No adverse effect	No adverse effect	No adverse effect
Public Health and Safety		No impact	Minor, direct, short-term	Minor, direct, short-term	Minor, direct, short-term
Socioeconomics	Economics	No impact	Minor, direct, short-term, and beneficial	Minor, direct, long-term, and beneficial	Minor, direct, short-term, and beneficial
	Environmental Justice	No impact	No impact	No impact	No impact
Cumulative Impact		No impact	Minor, direct and indirect, short-term	Minor, direct and indirect, long-term	Minor, direct and indirect, short-term

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Author: bkarczewski Subject: Sticky Note Date: 3/17/2022 12:15:50 PM
No mention of beneficial impact of converting farmland to permanent veg from a soil erosion or wildlife perspective.

Author: bkarczewski Subject: Sticky Note Date: 3/17/2022 12:16:14 PM
No mention of beneficial impacts with vegetating farmed wetland areas.

Author: bkarczewski Subject: Sticky Note Date: 3/17/2022 12:16:59 PM
No mention of beneficial apsects

Author: bkarczewski Subject: Sticky Note Date: 3/17/2022 1:52:09 PM
No mention of beneficial impacts associated with change from farming to perrenial vegetation

little to impede percolation into the soil. And the relatively small footprint of the panel foundation posts is a minute portion of the larger Project area. Runoff from the panels would infiltrate into the planted and maintained perennials over the approximately 1,200-acre site.

A Storm Water Pollution Prevention Plan (SWPPP) would be developed for disturbance over this approximately 1,200-acre site as part of the required National Pollutant Discharge Elimination System (NPDES) Permit for stormwater discharges associated with construction. The site-specific SWPPP would document the Project and the measures employed to prevent and minimize pollutants from reaching stormwater runoff. Measures would include BMPs utilized during construction, site development, operations, and decommissioning to control runoff and sediment. BMPs would include measures to slow runoff and increase infiltration; thereby decreasing erosion and sediment transport. Therefore, overall, impacts to soils as a result of construction would be minor.

Soil disturbance during operations would be minimal with a perennial cover maintained at less than 2 feet in height and module washing would be limited to two events per year. The perennial cover maintenance may also employ selective herbicides to control weeds and noncompliant volunteer foliage. Overall, no adverse impacts to soils are anticipated from Project operations.

Soil impacts at the decommissioning of the Project in 25 to 40 years are anticipated to be similar to construction impacts. Previously removed topsoil would be reclaimed and the site would be returned to its previous agricultural usage. Adverse impacts to soil would be minor.

3.2 Water Resources

3.2.1 Groundwater

3.2.1.1 Affected Environment – Groundwater

Groundwater beneath the Project site occurs in unconsolidated and consolidated water-bearing deposits (aquifers). The USGS has broadly classified and grouped the distinct geologic units comprising these aquifers into the surficial aquifer system and the Cambrian-Ordovician aquifer system (Olcott 1992). Neither of these systems contains sole-source aquifers.

The surficial aquifer system is the most widespread system across Wisconsin and bordering States. Across Jefferson County, it predominantly comprises Pleistocene-age glacial sediments and younger alluvial sediments that lie atop the bedrock surface (Olcott 1992). At the Project site, the local surficial aquifer comprises glacial outwash, a mixture of poorly graded sand and of sand and gravel (Stantec 2018, Zaporozec 1982). Groundwater was encountered at depths ranging from 3 feet (0.91 meters) to 21 feet (6.4 meters) in the test borings. The surficial aquifer is recharged locally from

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Author: bkarczewski Subject: Sticky Note Date: 3/17/2022 4:32:10 PM
Beneficial aspects of 30-40 years of soil humification should be represented here?

Author: bkarczewski Subject: Sticky Note Date: 3/17/2022 4:31:59 PM
Documented benefits to reversing and stopping soil erosion experienced within the FSA CRP program and interpolated to the 30-40 year solar lease should be mentioned here?

height may be used as a roost; therefore, any forested areas within the Project site may support northern long-eared bat populations.

The northern long-eared bat 4(d) rule prohibits incidental take that may occur from tree removal activities within 150 feet of a known occupied maternity roost tree during the pup season (June 1 to July 31) or within 0.25 mile of a hibernation site, year round. Winter tree removal may be acceptable for some projects, to be determined by the USFWS. USFWS concurred that the Proposed Action is consistent with activities analyzed in the Programmatic Biological Opinion for the northern long-eared bat. USFWS recommended helping to ensure that bat habitat is adequately protected by minimizing the removal of forested habitat and protecting forested hedgerows or other forested corridors connecting areas of suitable bat habitat. If impacts to bats cannot be avoided, an incidental take permit would be required. If any trees within the Project site are planned to be removed, WDNR recommended it would be beneficial to conduct tree removal outside of the summer avoidance period of June 1 through August 15, depending on assessment of the likelihood of bat roosting in the Project area. USFWS recommended that the spring and summer roosting periods (March 15 through August 15) be avoided. If removal cannot be avoided during these periods, surveys may be required to confirm species presence and other mitigation may also be required.

Black tern
The Wisconsin-endangered Black tern is a slender, semi-colonial waterbird with long pointed wings, a black head and breast and light under-wings (USFWS n.d.). They are often associated with coastal environments but can be found inland in freshwater marshes and lakes. They forage by picking insects from the water's surface and while in flight (WDNR 2021b).

Whooping crane
The Federally-listed whooping crane is the tallest American bird at 5 feet (1.5 meters). It is snowy white with long neck and legs. Adults have a red crown and a patch of black feathers below the eye. The whooping crane travels between its summer habitat in central Canada and wintering grounds on the Texas coast in the spring and fall of each year. Food includes insects, frogs, small birds, rodents, minnows, and waste grains (USFWS 2011).

Winter habitat includes salt flats and upland forest, while nesting grounds consist of wetland communities (USFS 2021). Whooping cranes typically use shallow wetlands, marshes, the margins of ponds and lakes, sandbars, shorelines of shallow rivers, wet prairies and crop fields near water (ODWC 2021). The WDNR, along with other members of the Whooping Crane Eastern Partnership, is working to restore an eastern migratory population of whooping cranes that migrates annually between its Wisconsin breeding grounds and its wintering habitat in the southern United States (WDNR 2020d).

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Author: bkarczewski Subject: Sticky Note Date: 3/18/2022 10:57:48 AM
Jennifer is this March date correct? I thought it was May 15.

Author: jkamm Subject: Sticky Note Date: 3/18/2022 11:19:53 AM
Is this recommendation from the USFWS Programmatic Biological Opinion referenced correctly? NLEB are still hibernating in March. The Broad Incidental Take Authorization recommends tree clearing be avoided June 1 - August 15. The primary nesting season for migratory birds is May 15 - August 1 in WI. Is March 15 a typo and meant to be May 15 - August 15 to avoid roosting bats and nesting birds?

sedimentation. Additionally, Badger State Solar would avoid the spring and summer roosting periods (March 15 through August 15) to the extent possible. With the use of BMPs, avoidance of the higher-quality foraging habitat, similarly suitable foraging habitat in the surrounding landscape, and timing of project activities, the Project would have no measurable effect on foraging bats and birds. Impacts to bat and bird species from tree removal or habitat loss would be minimal.

On December 21, 2021, USFWS concurred that the Proposed Action is consistent with activities analyzed in the Programmatic Biological Opinion for the northern long-eared bat.

Whooping Crane

Whooping cranes currently exist in the wild at only three locations and in captivity at 12 locations, with total wild populations estimated at 383 individuals and captive populations of 152 individuals, as of 2010 (USFWS 2021d). Three non-essential experimental populations of whooping crane have been introduced throughout the US, one of which was initiated in 2001 that migrates between Wisconsin and Florida and is the population with the potential for species to occur in the Project area (USFWS 2021d). There is only one self-sustaining wild population; it nests in Wood Buffalo National Park in northern Alberta, Canada and winters in coastal marshes in Aransas, Texas. Whooping cranes breed and nest in shallow pothole wetland habitat in Wood-Buffalo National Park. During migration, whooping cranes use a variety of habitats; wetland mosaics appear to be the most suitable (USFWS 2021d).

There are no confirmed records of Whooping crane nests in Wisconsin (USFWS 2021d). Whooping cranes adhere to ancestral breeding areas, migration routes, and wintering locations, so expansion into new territory is unlikely. The only wild, self-sustaining breeding population is not expected to expand outside of its current nesting location (USFWS 2021d). Whooping cranes primarily feed in shallow, semi permanently flooded palustrine wetlands and roost in cropland and emergent wetlands (USFWS 2021d). The Proposed Action has been designed to avoid higher-quality foraging habitat, and similarly suitable foraging and roosting habitat exists in the surrounding landscape. As such, the Proposed Action is expected to have no measurable effect on migrating whooping cranes. On December 21, 2021, USFWS concurred that the Proposed Action may affect, but is not likely to adversely affect whopping crane. The USFWS concurred that Proposed Action minimization measures during constriction are expected to avoid or minimize disturbance to the whopping cranes and that minor loss of stopover and feeding habitat would not be likely to negatively impact the species (Appendix J).

Black Tern

The Black tern breeds in marshes, sloughs, rivers, lakeshores, and wet meadows, typically in sites with both emergent vegetation and open water. Cattails, bulrushes, bur-reed, and/or phragmites are the dominant plant species occurring in nesting areas (WDNR 2021b). The Black tern is listed as occurring in Wisconsin Natural Heritage

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Is March 15 correct?

- For federally listed species, plan to avoid impacts to suitable habitat. If habitat impacts cannot be avoided, conduct appropriate surveys to confirm species presence.
- Plan the site to provide habitat for pollinators, including a water source (e.g. ephemeral pool or low area to provide additional resources for pollinators and bats.
- When removing wildlife habitat, avoid spring and summer (March 15-August 15 when feasible).
- Consider voluntary mitigation to offset the loss of forested areas, wetlands, or native grasslands.
- Use construction techniques and materials (wildlife friendly erosion control materials) that are unlikely to cause additional harm to wildlife.
- Implement measures to reduce the chances that equipment will exacerbate the spread of invasive species into natural habitats (e.g., cleaning equipment prior to accessing the site, post-site restoration monitoring, and invasive plant treatments, as necessary).
- Select a site with the least wildlife value practicable. If low wildlife sites are not feasible, avoid or minimize to the greatest degree practicable the conversion of forest areas, native grasslands, and wetlands.

Badger State Solar will comply with the majority of the recommendations. Regarding the final recommendation to select a site with the least wildlife value practicable, environmental constraints such as presence of trees, critical habitat, and endangered species was a factor considered during the site selection process described in Sections 2.1.2 and 2.2. Therefore, this recommendation was previously addressed as part of the identification of the Project site in Jefferson County.

3.6 Land Resources

This section describes an overview of the existing land use at and surrounding the Project site and potential impacts to land use associated with the Proposed Action and No Action Alternative. The Proposed Action is located on a site in the Townships of Jefferson and Oakland, west of the City of Jefferson, in Jefferson County, Wisconsin (Figure 1.1-1). The site is crossed from east to west by US 18, bordered on the northeast by State Highway 89, and bisected north-south by County Road J.

3.6.1 Affected Environment – Land Resources

3.6.1.1 Land Use and Zoning

Land use is defined as the way people use and develop land, including categories such as undeveloped, agricultural, residential, and industrial. Many municipalities develop

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check.

zoning ordinances and planning documents to control the direction of development and to keep similar land uses together. The Proposed Action would be located on the north and south sides of US 18, approximately 2 miles west of State Highway 89. The Proposed Action would be located approximately 2 miles west of the City of Jefferson. Zoning and land use permit requirements are currently available for Jefferson County (Jefferson County Wisconsin 2021b).

The Project site is mostly agricultural land with scattered residences and actively farmed and small shrubby and forested areas present. The regional character is mostly rural, with agricultural fields, forested areas, and generally small towns. Figure 3.6-1 and Table 3.6-1 present the results of a combined aerial photography and direct field observation analysis conducted by Badger State Solar in the summer of 2018. Figure 3.6-2 and Table 3.6-2 present the 2019 National Land Cover Database (NCLD) classifications for the land cover within the Project site. While there are some differences in the classification of land cover, both analyses demonstrate that a majority of the site is agricultural in current land use (Badger State Solar 2019b).

Table 3.6-1. 2018 Badger State Solar Land Cover Classifications

Land Cover Classification	Total Land Cover	Primary Project Area
Agriculture		
Row Crops	1258.9	926.8
Hay/Pasture/Old field	7.9	7.1
Other Agriculture	363.2	189.4
Non-Agricultural Upland		
Prairie/Grassland	7.1	6.8
Upland Woods	56.6	30.3

Source: (Badger State Solar 2019b)

Table 3.6-2. 2019 National Land Cover Database Classifications at the Project Site

2019 NLCD Land Cover Class	Acreage on Project Site
Developed, Open Space	4.74
Developed, Low Intensity	15.66
Developed, Medium Intensity	0.96
Deciduous Forest	7.24
Evergreen Forest	1.84
Hay / Pasture	9.61
Cultivated Crops	1130.73
Woody Wetlands	7.38
Emergent Herbaceous Wetlands	21.58
Total	1199.74

Source: (MRLC).

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Do you want to include the rest of the land cover classes reported in Table 5.3-1 in the CPCN (i.e. non-forested and forested wetlands, residential and commercial)?

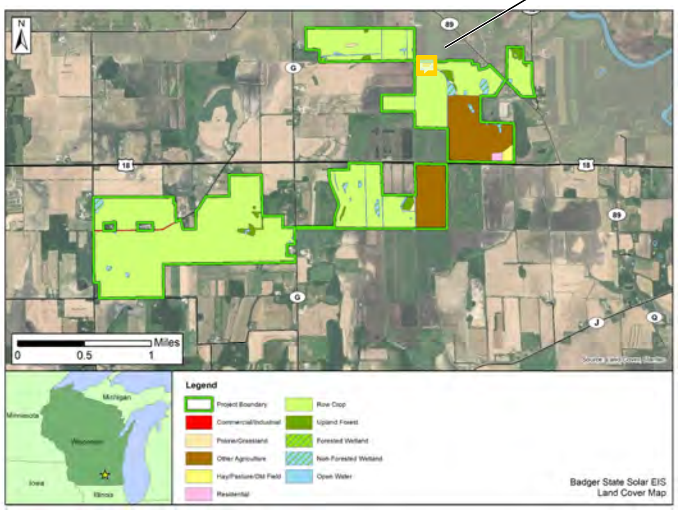

Figure 3.6-1. Badger State Solar 2018 Land Cover Map

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At this scale some of the non-forested wetlands appear to be mapped as open water since they symbol of the green diagonal lines do not show up.

Table 3.7-1. Design Setbacks

Setback Description	Setback Distance
Residences	100-foot setback from solar components
Property Lines (side and rear)	Minimum of 20-foot setback in the Agricultural Zoning District. No Setback at internal property lines.
Public Road Right-of-way (ROW)	Class B: 70-foot setback from edge of ROW or 140-foot setback from roadway Centerline, whichever is greater. Class D: 50-foot setback from edge of ROW or 85-foot setback from roadway Centerline, whichever is greater.
Drainage Ditches	20-foot setback from top of bank of ditch.
Potentially Navigable Waterways	75-foot Shoreland Zoning setback for structures
Overhead Communication and Electrical Lines (not including lines to individual houses or outbuildings)	20-foot setback to allow overhead line maintenance activities.
Overhead Utility Service Lines (lines to individual houses or outbuildings)	Easement area

During the operation phase of the Proposed Action, minor visual impacts would continue to occur. Disturbed areas would be revegetated with appropriate native species as soon as possible after construction is complete to prevent weed establishment and managed to keep vegetation below 2 feet. New electrical lines would continue to be visible and dirt roads would be apparent throughout the Project site. Deer fence would surround the panel arrays. Photo 3.7-5 shows typical solar panel arrays.

Visually, the scenery with PV panels would be dramatically different from the current scenery on the Project site. As part of the visual resource analysis, Badger State Solar created renderings of what the PV solar power plant would look like from four vantage points adjacent to the proposed panel arrays. No sensitive receptors were identified during the selection of the KOPs.

The visual simulations for the photo locations show the baseline photos and the renderings of the likely appearance of the PV panels from these photo locations. Figure 3.7-1 shows the key observation points from which the photos were taken for the renderings.

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Add 40-foot setback to fences from the Drainage District regulated drainages.