# Response to December 15, 2021 Data Request

## Wild Grains Solar Project

Hoaglin Township, Van Wert County, Ohio

## Case No. 21-0823-EL-BGN

Prepared by:

**Wild Grains Solar, LLC**
a subsidiary of Avangrid Renewables, Inc.
1125 NW Couch Street, Suite 600
Portland, OR 97209

## December 28, 2021

# WILD GRAINS SOLAR, LLC'S RESPONSE TO STAFF'S December 15, 2021, DATA REQUEST

## Aesthetics

1. **Provide a large-scale map which depicts participating and non-participating residences that have a direct line of sight to the facility boundary. This map should be superimposed upon the Applicant's proposed landscaping mitigation map. Identify and label nearby adjacent roads, recreational facilities, schools, cemeteries, and any other sensitive land uses.**

A map depicting residences with a direct line of sight to the facility boundary is attached. Direct line of sight was determined based on aerial imagery, and it should be noted that actual views from residences to the project may vary based on the time of year and any changing conditions in the vicinity of the Project.

As described in Exhibit V, the Visual Resource Assessment, visual screening may be implemented in the form of direct payment or reimbursement to affected residences so that they can install their preferred vegetation or other screening, at their choosing. As such, specific locations for mitigation plantings have not been determined.

As an alternative to the above strategy, the use of mitigation plantings at select locations along the perimeter of the PV arrays may be used to lessen the visual impact of the Project when viewed from non-participating residences with a direct line of sight of the Facility from near-foreground distances. These planting locations, if any, would be determined after conversations with potentially affected residences.

2. **Please describe the Applicant's best management practices regarding setbacks and aesthetic mitigation for non-participating residents. Is the Applicant willing to commit to enhanced vegetative screening mitigation efforts for non-participating residences?**

Aesthetic mitigation plans are described in Exhibit V, the Visual Resource Assessment. Additionally, a conceptual landscape mitigation plan is included with Exhibit V as Appendix C. Information on Facility fenceline setbacks can be found on page 27 of the Certificate Application, in Section 4906-04-04.

Prior to commencement of construction, the Applicant intends to work with individual landowners to develop a mutually agreeable approach to mitigate potential visual impacts to adjacent residences. It is anticipated that mitigation developed through this approach would be installed off-site and therefore was not included in the mitigation plan that was presented in the Visual Resource Assessment (Exhibit V). To the extent that it is not possible to reach such an agreement with certain landowners prior to the commencement of construction, Wild Grains will prepare a final landscape and lighting plan in consultation with a landscape architect licensed by the Ohio Landscape Architects Board that addresses the aesthetic and lighting impacts of the facility with an emphasis on any locations where an adjacent nonparticipating parcel contains a residence with a direct line of sight to the project area and also include a plan describing the methods to be used for fence repair. The final plan will include measures such as fencing, vegetative screening, and good neighbor agreements.

## Socioeconomics

3. **There are a five population centers with population densities higher than the state average (282 people per square mile) within the 5-mile study area. Has the Applicant studied any potential impacts related to adjacent population centers with higher population densities (i.e., greater than the state average of 282 persons per square mile)? For example, expected increases or decreases in traffic volume and congestion, aesthetic impacts, or public safety concerns?**

The Socioeconomic Report (Exhibit H) discusses the impact of the Facility on surrounding communities, including five jurisdictions with population densities of over 282 persons per square mile: the Village of Haviland, Pleasant Township, the Village of Middle Point, the Village of Scott, and the City of Van Wert (Exhibit H, Table 1). The Socioeconomic Report concludes that the Facility will have "a positive impact on the communities within the Study Area" (pg. 16), which would include these jurisdictions. For additional detail, please see Exhibit H. Impacts related to traffic volume and congestion are discussed in the Traffic Study (Exhibit K). Routes used for construction include major roads and the anticipated number of construction vehicles on all roadway segments is small in comparison to the roadway capacities (pg. 12). The Traffic Study concludes that "very little impact to roads associated with construction vehicles and material delivery is anticipated during the project" (pg. 12). Construction routes do not include any local road segments that run through population centers in the Study Area such as the Village of Haviland or the Village of Scott.

Aesthetic impacts from the Facility are discussed in the Visual Resource Assessment (Exhibit V). Additionally, there are no public safety concerns associated with the construction of this facility.

4. **Does Applicant have any experience in an area with similar or greater population density than now exists in this project area? Please provide examples, if any, along with corresponding regulatory dockets, if available**

The Applicant is a wholly owned subsidiary of Avangrid Renewables, LLC. Avangrid Renewables, LLC owns and operates the Blue Creek Wind Farm, which consists of area in and around the Wild Grains Project Area, and also extends north into Paulding County. The Blue Creek Wind Farm is an example of a project in the same location as the proposed Facility. The Blue Creek Wind Farm case number is 09-1066-EL-BGN.

## Wind Velocity

5. **In accordance with the Rule 4906-4-08 (A)(6), please provide a tabulation of wind velocities and frequency or probability of occurrence for the Project area. A tabulation of observed wind speeds and their frequencies or probabilities of occurrence obtained from nearby airports or weather stations, would be suitable. Actual wind speeds are much more useful and desirable than average wind speeds.**

A table and a graph of wind speed distribution data are attached. The information provided is derived from a compilation of hourly wind speed measurements from December 31, 1996, through March 31, 2020. Because of the size of this dataset, it will have to be provided electronically, if Staff desires to review it. The source of the data is Vaisala 2.1.3, which is a satellite-based solar irradiance dataset (see: https://www.3tier.com/en/support/solar-online-tools/what-vaisala-21-dataset/). Vaisala uses a particular

atmospheric analysis model called MERRA2 that was developed by NASA (https://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/) to derive wind speed data at any given location.

6. **What is the height of the tallest structure at the solar farm, including project substation?**

The tallest structure at the Facility will be the lightning mast within the collection substation. The lightning mast will stand approximately 65 feet tall, as described on page 12 of the Certificate Application.

7. **What efforts or precautions will be taken to assure that the facility will not be negatively impacted by the maximum wind speeds.**

Structural load calculations will be performed and reviewed by Ohio licensed professional engineers and meet all necessary code requirements, including ASCE 7-16 Risk Category I: 100 mph wind loading. The tracker is designed to support modules such that module loads are kept within their structural design limits. The tracker has undergone independent third-party wind tunnel testing to confirm that the module mounting design meets the structural load requirements.

8. **Would the meteorological data collection system monitor wind speed?**

Yes, the meteorological data collection system will monitor wind speed.

9. **What is the stow mode for the panels during high wind occurrences?**

The STi Norland Tracker relies on an active wind stow technology that uses weather stations with wind sensors, communications systems, battery back-up, and a chain of sensors and distributed motor operations to prevent catastrophic failure during extreme wind (and snow) events. Active stow technology will stow multiple MW size blocks of the array whether all rows need to stow or not. Once in wind stow, the array relies on the same instrumentation and communication links to determine that wind speeds are low enough to return the tracker to service. These systems employ redundancy for fail safe operation and they will be tested for performance during the project commissioning.

10. **Page 60 of the Application mentions " … Risk Category I factors from the building code … ". Would this be referring to the ACSE 7-10?**

Risk Category I is referring to ASCE 7-16 standards.

11. **What loads or forces would be expected on the panels, racking, pilings, and tracking mechanisms for the maximum wind velocities?**

All applicable loading cases and combinations per ASCE 7 as well as loading resulting from any undulating terrain and above grade wire management systems (if applicable) are considered in the for the final design.

12. **What stresses would be induced in these various components and how do these stresses compare to the maximum allowable stresses of the panels and supporting structures?**

Axial, horizontal, and lateral stresses are transferred into the racking components (racking structure, posts, hardware) and absorbed by these components. The maximum allowable stress is engineered to a 1.5 factor of safety above measured loads from geotechnical investigations, mechanical pull tests, and structural analysis of racking components designed by an Ohio licensed professional structural engineer.

**13. What different designs of trackers are yet under consideration?**

Wild Grains has no current plans to use a different tracker than what was originally submitted in the draft project plans. Wild Grains notes that global supply chain disruptions could cause a change in the project's tracker supplier. If the unlikely event that a tracker supplier change is required, Wild Grains would use another tier one one-in-portrait tracker that closely resembles the current tracker design.

## Public Comments

**14. Please provide a copy of any public comment(s) received by the Applicant during and since the Applicant's public informational meeting.**

Two written comments were received during the public informational meeting, both of which consisted of general statements in support of solar development and are included as an Attachment. Three emails have been received by the project email address. One was a request for information, and the other two were solicitations from vendors seeking to submit a bid for a contract for project development. The information request is included as an Attachment, the two vendor solicitations are not included in this response, out of concern for any potentially confidential material those companies may have included. The Applicant has also received letters of support from local landowners, which have been made available on the public docket.

## Solar Panels

**15. What solar panel manufacturers are Wild Grains Solar, LLC considering for this project.**

Wild Grains is presently considering Longi LR5 solar modules. In the event that the PV module market is disrupted by global supply chain issues and requires a change in supplier; Wild Grains is looking at several other Bloomberg Tier One modules with similar characteristics for the project. Wild Grains will use bifacial mono PERC crystal silicon modules at the Project. Thin film module technology is not being considered for this project.

**16. Does Wild Grains Solar, LLC anticipate using more than one solar panel manufacturer for this project.**

Avangrid intends on using only one PV module manufacturer at the Project if at all possible

**17. Will Wild Grains Solar, LLC select a solar panel that is listed as a Bloomberg New Energy Finance tier 1 solar panel supplier/manufacturer?**

Yes, Wild Grains Solar, LLC will select a panel listed as Bloomberg New Energy FinanceTier 1.

**18. Have the solar panels under consideration by Wild Grains Solar, LLC passed the US EPA's Toxicity Characteristic Leaching Procedure (TCLP) test?**

Leaching of toxic substances generally is not a concern for solar panels. Final selection of panels to use for the Project has not yet been made. However, the Applicant intends to select panels that pass US EPA's TCLP test.

## Substation

**19. How many acres will the collection substation occupy?**

The collection substation for the Facility is anticipated to occupy approximately 2.5 acres of space. The entirety of the collection substation will be located within the existing fenceline of the Blue Creek Wind substation area.

## Ecological

**20. Has the Applicant performed a desktop assessment for potential bat hibernacula within a 0.25-mile radius of the project, as recommended by ODNR in their environmental review of the project? This is in reference to OAC 4906-4-08(B)(2)(a):**

> **2) Ecological impacts. The applicant shall provide information regarding potential impacts to ecological resources during construction. (a) Provide an evaluation of the impact of construction on the resources surveyed in response to paragraph (B)(1) of this rule. Include the linear feet and acreage impacted, and the proposed crossing methodology of each stream and wetland that would be crossed by or within the footprint of any part of the facility or construction equipment. Specify the extent of vegetation clearing, and describe how such clearing work will be done so as to minimize removal of woody vegetation. Describe potential impacts to wildlife and their habitat.**

Desktop review performed by Environmental Solutions & Innovations (ESI) as part of Exhibit Q, the Ecological Assessment, did not reveal any potential or known hibernacula noted by ODNR within 0.25 mile of the Project. In field assessments performed by ESI, no potential hibernacula or portals were identified in the Project Area. Details on the results of field surveys are provided in Exhibit Q.

## Geology

**21. Karst geology exists throughout the project area. No karst features have been identified by ODNR within 50 miles of the project site. The Design Level Geotechnical Engineering Report (DLGER) by Terracon speaks to the karst potential, but indicates a karst assessment survey and site reconnaissance could be performed to further evaluate the possible concern of karst. The application goes on to speak about the areas of shallow bedrock that will likely require predrilling of the bedrock prior to pile driving. In order to determine the bedrock competency in these areas, has the Applicant considered bedrock coring and analysis to fully characterize site conditions?**

Rock coring was performed at locations B-21-43 and B-21-44. The carbonate bedrock geology encountered at the site may be vulnerable to dissolution due to the presence of water as evidenced by the vuggy zones present in the bedrock at the site. However, based on the review of historic karst activity mapping, no historical karst activity was noted within 50 miles of the site. In addition, no karst features were observed on site during the geotechnical investigation. No additional karst investigation is planned.

22. **Page 59 of the application indicates the site soils are characterized to have moderate to high corrosion potential for buried metals. Please provide examples of how this potential issue may be addressed through the project design phase.**

To account for potential corrosion loss on steel piles, a corrosion evaluation is performed based on field and lab electrical resistivity data as well as soil parameters such as chlorides and sulfates, per the Geotechnical Report. The corrosion evaluation determines an estimated thickness of steel loss that is used to reduce pile section capacity at the end of the project life. This reduced section property is then used in calculating the resultant stresses in the member

23. **Please provide Staff with an unanticipated discovery plan. This plan would account for course/s of action to be taken in the event previously unidentified subsurface features which are or could be considered hazards are encountered during the proposed construction. e.g. oil and gas well infrastructure, abandoned mines, contaminated soils, etc.**

An unanticipated discovery plan will be developed prior to construction. The plan will incorporate requirements included in the OPSB Certificate. The Applicant anticipates that the plan will include requirements that, in general, if an unanticipated subsurface feature is encountered during construction, work will be halted in the vicinity of the subsurface feature until an appropriate process to proceed is determined. Depending on the type of feature encountered, responses could include avoidance of the feature or implementation of corrective actions that would make it unnecessary to avoid the feature. Implementation details will be included in the unanticipated discovery plan when it is completed prior to commencement of construction.

24. **Please confirm the total acreage where highly erodible soils or steep slopes are present. Please present this delineation on a map showing these areas, proposed solar infrastructure, and the project area boundary.**

No highly erodible soils or steep slopes are present. As noted in the Groundwater, Hydrogeological and Geotechnical Desktop Review report (Exhibit P), the site is relatively flat. The Erosion Hazard figure contained in Appendix C of this report shows the erosion hazards of the site. The total acreage of highly erodible soils is 0 acres. The total acreage of steep slopes greater than 12% is also 0 acres.

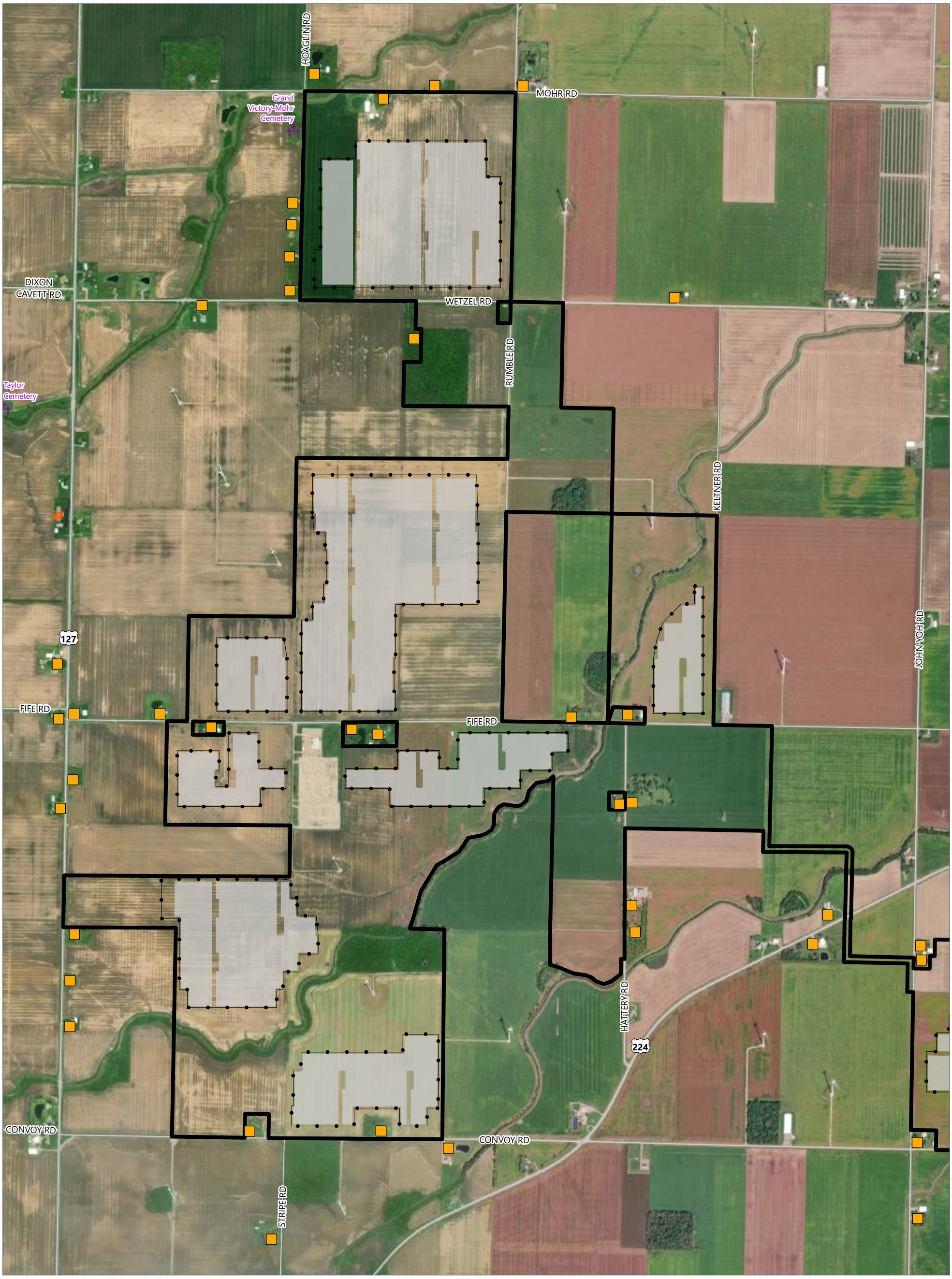
25. **Page 58 of the application indicates test pits being part of the geotechnical exploration conducted to date. However, the DLGER doesn't appear to include test pit data/discussion. Please clarify.**

No test pits were performed during the geotechnical investigation. The Bedrock Layer Depth map in the Geotechnical Engineering Report (Exhibit C) mistakenly labels test bore sites as "Test Pits," this error is being corrected.

# Attachment 1

## Map of Residences with Direct Line of Sight

# Residences with a Direct Line of Sight




## Wild Grains Solar Project

Hoaglin Township, Van Wert County, Ohio

- Residence with Direct Line of Sight to Project Boundary
- OGS Cemetery
- Place of Worship
- Fenceline
- Public Road
- Project Area
- PV Panel Area

Wild Grains SOLAR PROJECT

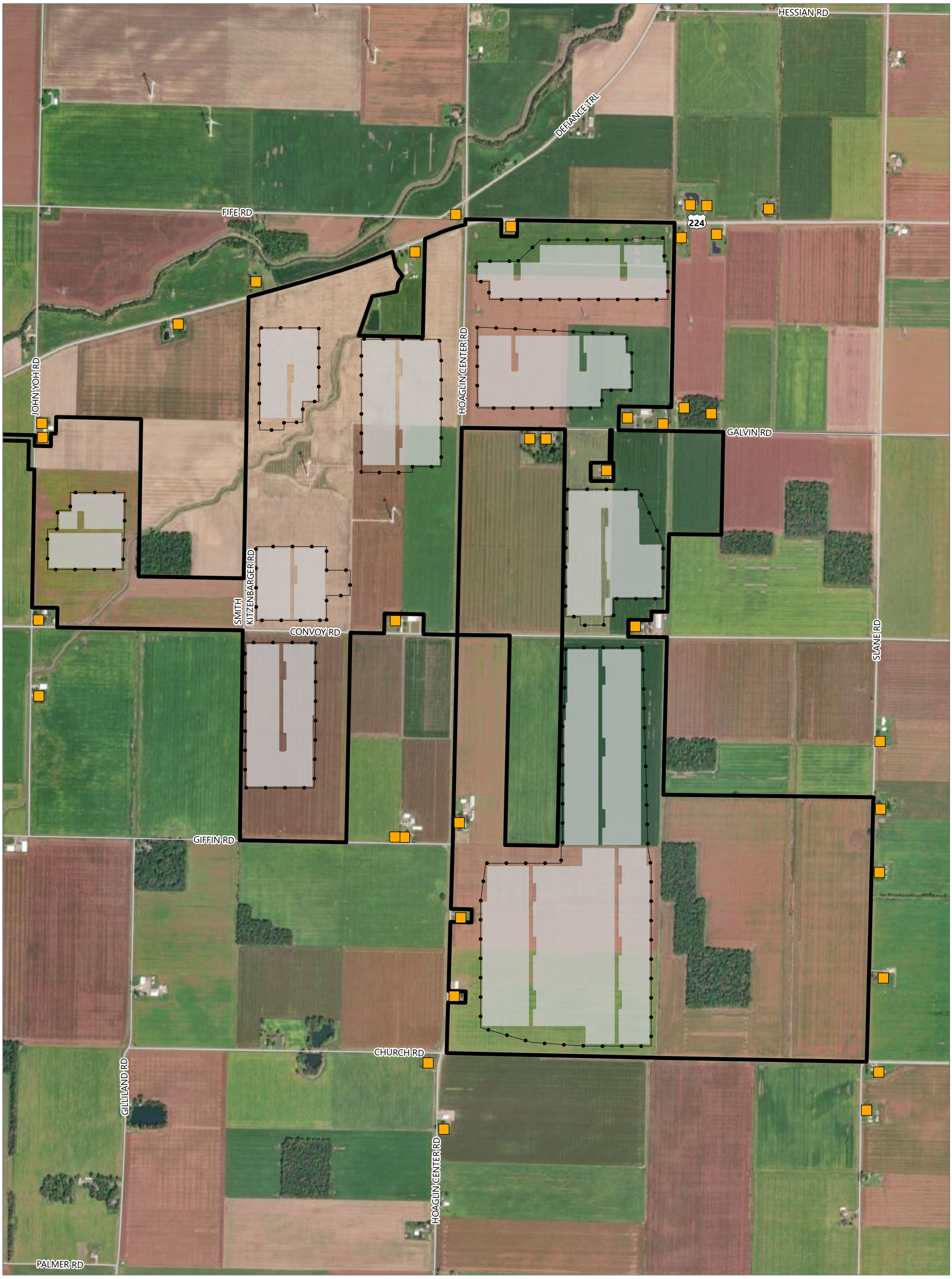
0 500 1,000 2,000

Feet

Prepared December 22, 2021

Basemap: Esri Online "World Imagery" map service

# Residences with a Direct Line of Sight

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Wild Grains SOLAR PROJECT

0 500 1,000 2,000

Feet

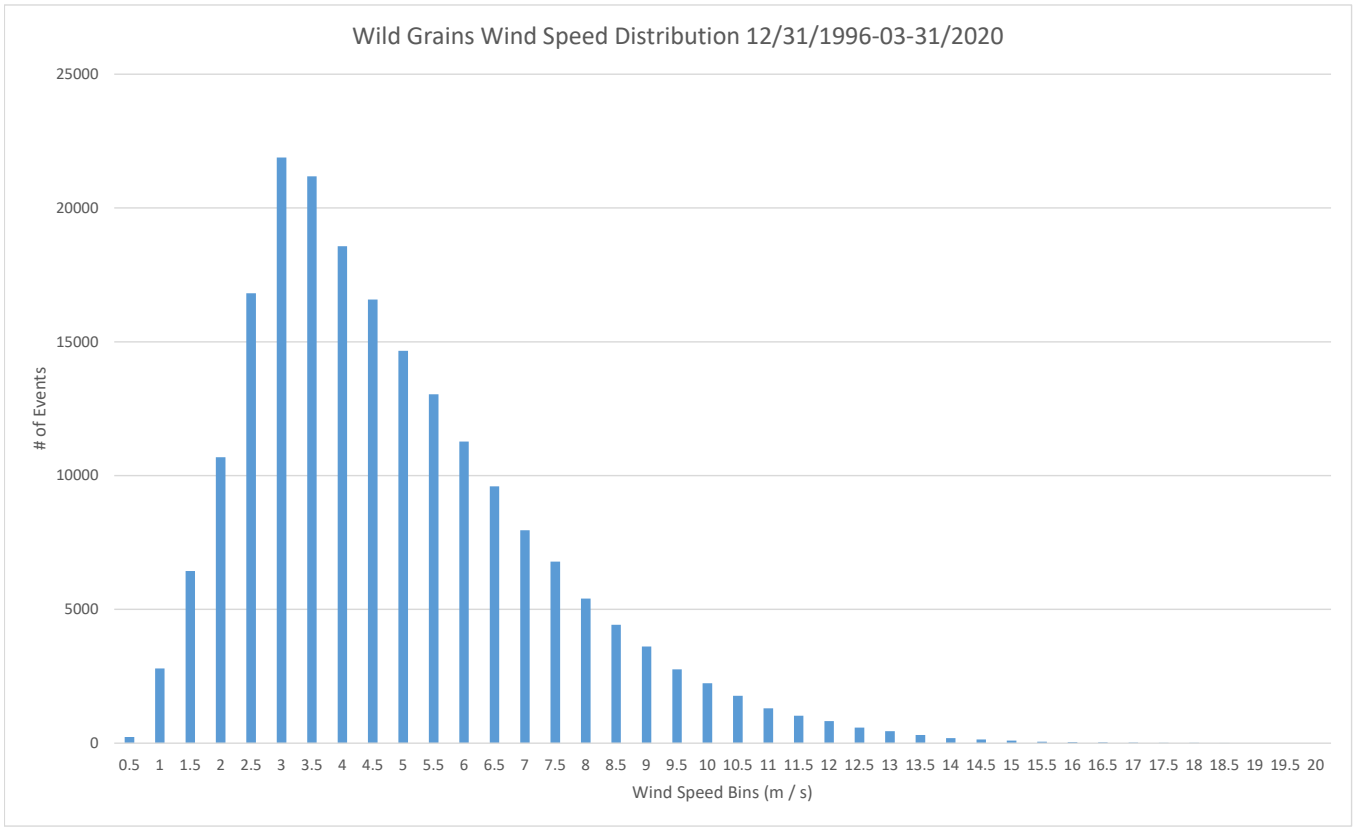
Prepared December 22, 2021

Basemap: Esri Online "World Imagery" map service

EDR

# Attachment 2

## Distribution of Wind Speed Data

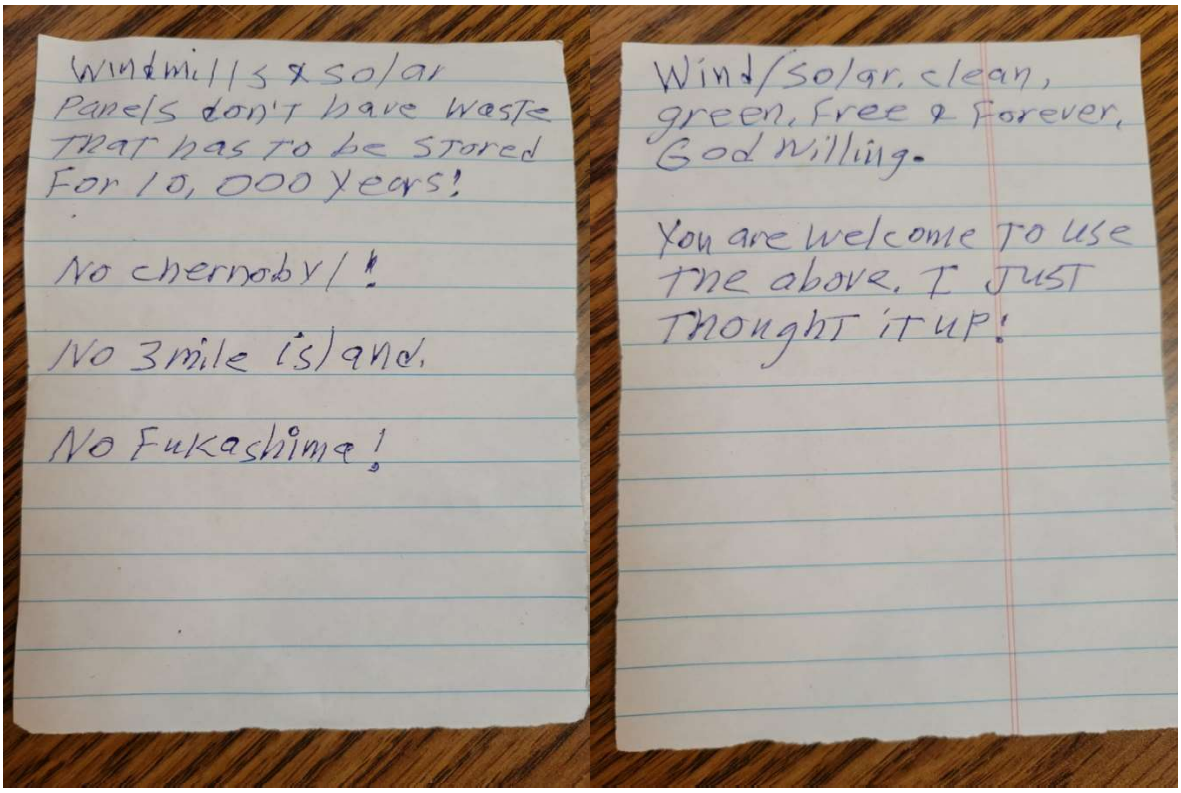

Wild Grains Wind Speed Distribution 12/31/1996-03-31/2020
25000
20000
15000
10000
5000
0
# of Events
0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5 8 8.5 9 9.5 10 10.5 11 11.5 12 12.5 13 13.5 14 14.5 15 15.5 16 16.5 17 17.5 18 18.5 19 19.5 20
Wind Speed Bins (m / s)

Wild Grains Wind Speed Distribution

| Date Range: 12/31/1996-3/31/2020 | | | |
|---|---|---|---|
| Wind Speeds Between (m / s) | | # of Events | Percentage % |
| 0 | 0.5 | 230 | 0.11% |
| 0.5 | 1 | 2789 | 1.37% |
| 1 | 1.5 | 6437 | 3.16% |
| 1.5 | 2 | 10686 | 5.24% |
| 2 | 2.5 | 16813 | 8.25% |
| 2.5 | 3 | 21885 | 10.74% |
| 3 | 3.5 | 21186 | 10.40% |
| 3.5 | 4 | 18574 | 9.11% |
| 4 | 4.5 | 16581 | 8.14% |
| 4.5 | 5 | 14666 | 7.20% |
| 5 | 5.5 | 13042 | 6.40% |
| 5.5 | 6 | 11269 | 5.53% |
| 6 | 6.5 | 9597 | 4.71% |
| 6.5 | 7 | 7957 | 3.90% |
| 7 | 7.5 | 6787 | 3.33% |
| 7.5 | 8 | 5402 | 2.65% |
| 8 | 8.5 | 4426 | 2.17% |
| 8.5 | 9 | 3609 | 1.77% |
| 9 | 9.5 | 2756 | 1.35% |
| 9.5 | 10 | 2244 | 1.10% |
| 10 | 10.5 | 1768 | 0.87% |
| 10.5 | 11 | 1299 | 0.64% |
| 11 | 11.5 | 1027 | 0.50% |
| 11.5 | 12 | 823 | 0.40% |
| 12 | 12.5 | 581 | 0.29% |
| 12.5 | 13 | 448 | 0.22% |
| 13 | 13.5 | 307 | 0.15% |
| 13.5 | 14 | 185 | 0.09% |
| 14 | 14.5 | 138 | 0.07% |
| 14.5 | 15 | 96 | 0.05% |
| 15 | 15.5 | 58 | 0.03% |
| 15.5 | 16 | 42 | 0.02% |
| 16 | 16.5 | 27 | 0.01% |
| 16.5 | 17 | 18 | 0.01% |
| 17 | 17.5 | 13 | 0.01% |
| 17.5 | 18 | 11 | 0.01% |
| 18 | 18.5 | 6 | 0.00% |
| 18.5 | 19 | 0 | 0.00% |
| 19 | 19.5 | 0 | 0.00% |
| 19.5 | 20 | 0 | 0.00% |

# Attachment 3

## Public Comments Received by Wild Grains




The two above comments were both received in writing at the Wild Grains Public Informational Meeting at the Van Wert County fairgrounds on August 18th, 2021.

From: [redacted]
Date: Tue, Aug 17, 2021 at 8:40 AM
Subject: Public Meeting
To: <info@wildgrainssolar.com>
Cc: <[redacted]>

Hello Mr. Jeffery Reinkemeyer,

We cannot attend the public community meeting on Wednesday, August 18, 2021, at the Van Wert Fairgrounds. Therefore, we are requesting information via email or mail about the project and project area.

We appreciate your timely response,

David and Laurie Bladen

The above comment was received by the Project's email address on August 17th.

Summary: Response of Wild Grains Solar Project, LLC to OPSB Staff First Data Request Dated December 15, 2021 electronically filed by Teresa Orahood on behalf of Herrnstein, Kara