



150 E. GAY STREET, SUITE 2400
COLUMBUS, OH 43215-3130
TELEPHONE: 614-744-2570
FACSIMILE: 844-670-6009
<http://www.dickinsonwright.com>

April 20, 2021

Ms. Tanowa Troupe, Secretary
Ohio Power Siting Board
Docketing Division
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3797

Re: Case No. 20-1680-EL-BGN

In the Matter of the Application of Yellow Wood Solar Energy LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Clinton County, Ohio.

Response to Second Data Request from Staff of the Ohio Power Siting Board

Dear Ms. Troupe:

Attached please find Yellow Wood Solar Energy LLC's ("Applicant") Response to the Second Data Request from the staff of the Ohio Power Siting Board ("OPSB Staff"). The Applicant provided this response to OPSB Staff on April 20, 2021.

We are available, at your convenience, to answer any questions you may have.

Respectfully submitted,

/s/ Christine M.T. Pirik

Christine M.T. Pirik (0029759)

(Counsel of Record)

William V. Vorys (0093479)

Matthew C. McDonnell (0090164)

Dickinson Wright PLLC

150 East Gay Street, Suite 2400

Columbus, Ohio 43215

(614) 591-5461

cpirik@dickinsonwright.com

wvorys@dickinsonwright.com

mmcdonnell@dickinsonwright.com

(Counsel agree to receive service by email.)

Cc: Andrew Conway
Theresa White
Randall Schumacher
Jonathan Pawley

Attorneys for Yellow Wood Solar Energy LLC

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CERTIFICATE OF SERVICE

The Ohio Power Siting Board's e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to these cases. In addition, the undersigned certifies that a copy of the foregoing document is also being served upon the persons below this 20th day of April, 2021.

/s/ Christine M.T. Pirik

Christine M.T. Pirik (0029759)

Counsel:

jodi.bair@ohioattorneygeneral.gov
chelsea.fletcher@ohioattorneygeneral.gov

Administrative Law Judge:

daniel.fullin@puco.ohio.gov

4845-2248-2406 v1 [39579-47]

**BEFORE
THE OHIO POWER SITING BOARD**

In the Matter of the Application of Yellow Wood Solar)
Energy LLC for a Certificate of Environmental)
Compatibility and Public Need to Construct a Solar-) Case No: 20-1680-EL-BGN
Powered Electric Generation Facility in Clinton)
County, Ohio.)

**YELLOW WOOD SOLAR ENERGY LLC 'S
RESPONSE TO THE SECOND DATA REQUEST
FROM THE STAFF OF THE OHIO POWER SITING BOARD**

On February 24, 2021, Yellow Wood Solar Energy LLC (“Applicant” or “Yellow Wood”) filed an application (“Application”) with the Ohio Power Siting Board (“OPSB”) proposing to construct a solar-powered electric generation facility in Clinton County, Ohio.

On April 16, 2021, the Staff of the OPSB (“OPSB Staff”) provided the Applicant with OPSB Staff’s Second Data Request. Now comes the Applicant providing the following response to the Second Data Request from the OPSB Staff.

Geotechnical

1. **In Answer 26, Yellow Wood Solar Energy, LLC states “If localized karst Features are encountered during construction, measures will be developed based on observed conditions to mitigate and remediate the exposed conditions.” In order for Staff to fully understand the impacts of construction options likely to be employed if karst features are encountered, please more fully explain if the karst feature would be avoided and what specific measures (e.g. grouting, alternative foundation system) Yellow Wood use if the feature won’t be avoided.**

Response: Typically when, or if, karst is discovered during the construction phase geotechnical exploration, and it is found that the most appropriate course of action for the Project is to not avoid the karst feature but to mitigate, the Applicant will likely employ a remediation measure known as a ‘reverse filter’. A ‘reverse filter’ is a measure in which the area would be excavated to understand the extent of the karst subsurface opening, and then aggregate would be applied as structural fill over this excavation with more coarse or larger aggregate being located close to the karst feature and finer aggregate being applied as the elevation increases from the exposed karst opening. Other than avoidance, this measure is

preferred as the structural fill used to remediate the karst feature does not change the subsurface hydrology whereas other techniques like grouting might.

2. **Please more fully describe what is meant by and what was encountered by Terracon as it reported “cave-in” as referenced in Exhibit L. Terracon’s Preliminary Geotechnical Engineering Report dated August 26, 2020.**

Response: When geotechnical investigation is performed, auger borings drill down to obtain soil samples. When the augers are subsurface, the side walls of the borings are supported by the auger and loose material. When the auger is removed to complete the boring and geotechnical staff takes ground water measurements, soil side wall material may fall to the fresh boring hole. For example, if a 20-foot boring is planned, and when the auger is removed from this depth, the geotechnical staff may then insert a distance measuring device to record groundwater information. Sometimes the soil side walls fall into the original boring hole and so a higher elevation final depth is recorded as due to a ‘cave-in’, in this example, something less than 20 feet.

This workflow is standard practice for geotechnical site staff and is common to note this on boring logs. This element of research does not affect the structural geotechnical recommendations of a solar project, especially as this Project is utilizing driven piles and not any other type of foundation such as a pier system. If for some reason, a solar project was using an aggregate pier type of foundation and soil stabilization, which is a foundations system for buildings or bridges, then this element of study findings would be relevant.

3. **Does the cave-in as encountered by Terracon suggest any geologic incompatibly with any portion of the project area? If so, what construction measures would Yellow Wood employ to avoid, mitigate, or minimize this impact?**

Response: No. See response to Question 2 above.

4. **If driven piles are used as the foundation system for solar panels, does the pile driving process introduce an opportunity for a cave-in? If so please fully explain how Yellow Wood would avoid, mitigate, or minimize a cave-in during the pile driving process as referenced in Exhibit L.**

Response: No. See response to Question 2 above. The pile driving process does not introduce a spatial void into the subsurface and the ‘cave-in’ occurrences noted on boring logs are not directly applied to structural soil recommendations.

5. To obtain a better understanding of the pile driving process, please provide any photo sequence, video, etc. of the pile driving process?

Response: Please follow this link for an example equipment video:
<https://www.vermeer.com/em/pile-drivers>

6. Pertaining to bedrock features, question 28 asked “how will the engineering design be modified to adequately address these conditions?” Answer 28 stated “appropriate recommendations for pile design and construction will be developed if necessary.” In order for Staff to fully understand the impacts of engineering/construction options likely to be employed if bedrock features are encountered, please more fully explain if the bedrock feature would be avoided and what specific measures (e.g. pre-drill, an alternative foundation support system) would Yellow Wood use if the bedrock feature won’t be avoided.

Response: The concern over shallow bedrock originates from ‘adfreeze,’ which is the term to describe the freeze and thaw cycles potentially applying an upward force to a driven pile. Over time, the pile can be lifted out of its driven position due to adfreeze and the pile not reaching a proper embedment depth. To remediate and resolve this concern, when shallow bedrock is discovered, pre-drilling of the bedrock to achieve a suitable embedment depth is the mitigation measure that will take place. This measure provides for enough stabilization with the bedrock to counter adfreeze.

Respectfully submitted,

/s/ Christine M.T. Pirik

Christine M.T. Pirik (0029759)

William Vorys (0093479)

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Dickinson Wright PLLC

150 East Gay Street, Suite 2400

Columbus, Ohio 43215

(614) 591-5461

cpirik@dickinsonwright.com

wvorys@dickinsonwright.com

mmcdonnell@dickinsonwright.com

Attorneys for Yellow Wood Solar Energy LLC

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Summary: Response to Second Data Request from Staff of the Ohio Power Siting Board
electronically filed by Christine M.T. Pirik on behalf of Yellow Wood Solar Energy LLC