## Request No. 1:

Submit a copy of the leases or purchase agreements, including options, separate agreements, or deeds which Hummingbird Solar has entered into in connection with the proposed solar facility, including the agreements for each of the parcels of the project.

Response No. 1:
Due to file size limitations, please find the Project's redacted lease, purchase, and easement agreements attached as separate documents.

## Request No. 2:

Detail any contracts by which Hummingbird Solar has paid, has negotiated to pay, or any compensation paid to non-participating landowners, whether cash or otherwise, near the project. Include the terms of the agreements and which properties are involved in terms of distance to the project boundaries.

## Response No. 2:

Hummingbird has not entered into any negotiations, contracts, or agreements with nonparticipating landowners.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 3:

Explain why Hummingbird Solar has chosen a site with so many noncontiguous parcels.
Response No. 3:
As shown in Hummingbird's parcel map in SAR Exhibit C, the Project site consists of contiguous parcels, though photovoltaic (PV) infrastructure will be situated non-contiguously on the parcels. Project parcels without PV infrastructure will host the Project's feeder lines, secured pursuant to easement agreements with participating landowners, which will collect and deliver the electricity generated by the Project's solar panels to the Point of Interconnection (POI). Hummingbird's final site configuration is based on the location of the participating landowner's properties relative to the Project's POI.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 4 :

Explain how a non-contiguous Project site can be developed and function as a single integrated Project.

## Response No. 4:

As noted in Response No. 3, the Project site consists of contiguous parcels, though PV infrastructure will be situated non-contiguously on the parcels. The Project's parcels with PV infrastructure will be connected together, where applicable, via feeder lines pursuant to easement agreements executed between Hummingbird and participating landowners.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information <br> Case No. 2022-00272 

## Request No. 5:

Explain how power generated within the non-contiguous portions of the Project site will be delivered to the substation.

## Response No. 5:

Pursuant to easement agreements executed between the Project and applicable participating landowners, feeder lines will deliver power generated on participating Project parcels to the Project's POI, located in the central portion of the site.

Responding Witness: Karol Kamasinski

## Request No. 6:

Refer to the Site Assessment Report (SAR), Exhibit A-1, Conceptual Layout Site Map. Explain what the Exclusion Areas are within the Project site.

## Response No. 6:

The exclusion areas depicted on the Conceptual Layout Site Map are areas of a participating landowner property that will not be a part of the Hummingbird Project.

## Request No. 7:

Provide a narrative description of the location of each of the following site features:
a. Each construction entrance.
b. Each entrance to be used in operations.
c. O\&M area.
d. Meteorological station.

## Response No. 7:

a. There will be a single entrance to each parcel/group of parcels, using public roads to get between parcels. Access roads and laydown yards are depicted on the Conceptual Layout Site map.
b. The same access roads used for construction will be used for access during operations. All access roads are depicted on the Conceptual Layout Site map.
c. The exact location of the $\mathrm{O} \& \mathrm{M}$ area will be determined pursuant to future coordination with the EPC firm.
d. The meteorological station is located on a participating Project parcel, with Tax ID 057-00-00-009.00.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 8:

Explain whether the construction and operational entrances will be locked outside of normal working hours.

Response No. 8:
Construction and operational entrances will be locked outside of normal working hours.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 9:

Provide a narrative description of the location of each laydown area to be used during construction.
Response No. 9:
Each group of parcels contains one laydown yard for construction equipment and supplies, including a laydown yard for northeast, northwest, east, central, west, and south parcel groups.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 10:
Refer to SAR, Exhibit A (Project Site Maps). State whether the proposed access roads referred to in the legend as thick orange lines are marked by thick black lines on the site maps. If not, identify on a map the locations of the proposed access roads.

Response No. 10:
The proposed access roads are depicted as thick black lines.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information <br> Case No. 2022-00272 

## Request No. 11:

Provide the security measures for the operations and maintenance ( $O \& M$ ) area and substation.

## Response No. 11:

The Project site, including the O\&M area and the substation, will be secured by chain-link security fencing (minimum 6-foot in height with 1-foot barb wire on top) and locked gates. Once operational, the site will be automated and monitored remotely at all times, with personnel located onsite as needed to perform duties related to operations, maintenance, repairs, and security as needed.

## Request No. 12:

Explain how Hummingbird Solar will coordinate with local law enforcement and fire services regarding security and emergency protocols during construction and operations.

## Response No. 12:

Prior to construction, Hummingbird will coordinate with Fleming County law enforcement and fire services to answer questions regarding security and emergency protocols, and provide first responder training.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 13:
Provide a detailed table listing all residential structures located within 2,000 feet of the Project boundary line. For each structure, provide: the distance to the boundary line; the distance to the closest solar panel; the distance to the nearest inverter; and the distance to the substation.

Response No. 13:
A 1,000 foot radius search for residential structures was utilized for Project analyses. This 1,000 foot radius is based on noise modeling sets with 1,000 feet as the threshold for any Project noise to diminish to 55 dBA and/or EPA-acceptable levels. A revised table that accounts for a 2,000foot boundary line is being produced and will be submitted to the Siting Board by August 25, 2023.

Responding Witness: Adam Peterson, Chad Martin

## Request No. 14:

Provide a detailed table listing all non-residential structures located within 2,000 feet of the Project boundary line. For each structure, provide: a description of the structure (barn, commercial building, warehouse, church, etc.); the distance to the boundary line; the distance to the closest solar panel; the distance to the nearest inverter; and the distance to the substation.

Response No. 14:
See Hummingbird's Response No. 13.

## Request No. 15:

Clarify whether any existing structures on the Project site will be demolished or removed in order to accommodate the Project.

Response No. 15:
Hummingbird is engaged in ongoing communications with participating landowners regarding the potential demolishment or removal of existing structures on each landowner's respective parcel, according to their individual preferences. Please see the attached map, which shows locations of structures currently projected to be demolished or removed from the Project site. This map is subject to change prior to construction of the Project in accordance with landowner preferences.

Responding Witness: Adam Peterson, Chad Martin, Orla Lavender



# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 16:

Describe any utilities that will be required during construction or operations and what utility will provide the service.

Response No. 16:
Electrical, water, and telecommunication utilities will be required during Project construction and operations, and would likely be obtained from Fleming-Mason Electric Cooperative, Fleming County Water Association, and Spectrum or Windstream, respectively, which are the utilities that provide services for the participating landowner properties and surrounding region.

Request No. 17:
Provide any communication with the Fleming County Road Department relating to traffic plans and mitigation measures. If no communication has been initiated, explain when that contact will occur.

Response No. 17:
Assuming Siting Board approval of the Project, Hummingbird will coordinate with the Fleming County Road Department prior to commencing construction.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 18:
Explain the justification for requesting a deviation from the 2,000-foot setback requirement for residential neighborhoods.

Response No. 18:
Please refer to the Motion for Deviation filed July 12, 2023, which details the justification for the setback reduction.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 19:

Explain whether the solar panels and other structures could be reconfigured within the site boundaries to comply with the 2,000-foot setback.

Response No. 19:
The Project would not be able to be reconfigured to account for a 2,000 foot setback and remain viable.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 20:
Refer to the SAR which states that the site consists of 42 parcels secured pursuant to 38 real estate agreements. Confirm that the statement is consistent with the information provided in Exhibit H , Appendix C (Legal Property Description).

Response No. 20:
Please see the attached revised Desktop Survey and Legal Descriptions provided by Westwood. This report documents that the Project is composed of 41 parcels secured pursuant to 38 real estate agreements. The reason for the decrease from 42 to 41 parcels is because a parcel previously identified as $058-00-00-41.02$ has been combined with 058-00-00-035.00 to form one APN (see Pages 3 and 13 of revised report). Additionally, the updated report corrected other minor discrepancies including mislabeled parcel property owners and parcels with missing legal descriptions.

Responding Witness: Orla Lavender

# HUMMINGBIRD SOLAR PROJECT PARCEL CONSTRAINTS MAP 

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Fleming County, Kentucky

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## Hummingbird Solar Project

Fleming County, Kentucky

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## Hummingbird

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## Hummingbird Solar Project

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## Hummingbird Solar Project

Fleming County, Kentucky

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 21:

Explain whether participating landowners will continue to use property not leased to the Applicant for residential or agricultural purchases.

Response No. 21:
Hummingbird has entered into site control agreements with participating landowners, and the portions of each landowner's property committed for Project will be used pursuant thereto. Hummingbird has no knowledge regarding the participating landowners' uses for their lands not included in the Project.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information 

 Case No. 2022-00272Request No. 22:
Refer to the Application, Exhibit G, Property Value Impact Analysis. Also refer to the SAR, Exhibit D, Noise Assessment Report. Explain the discrepancy between Exhibit G that stated the closest adjoining home is 500 feet from the closest solar panel and Exhibit D that stated the nearest residence is approximately 260 feet from the nearest solar panel.

Response No. 22:
Please see the attached letter from Kirkland Appraisals ("Kirkland") dated August 9, 2023. Exhibit G's Property Value Impact Analysis was initially completed during the early stages of designing the Project's site layout, which has since been revised. Hummingbird contacted Kirkland to analyze the Project's impact to the nearest residential structure located 260 feet away from Project infrastructure, and Kirkland concluded that the revised distance does not change the overall assessment described in the Property Value Impact Analysis report.

Responding Witness: Adam Peterson, Chad Martin

August 9, 2023
Chad Martin
Cardno
76 San Marcos Street
Austin, TX 78702

## RE: Hummingbird Solar Project, Fleming County, KY

Mr. Martin,
The purpose of this letter is to address questions from neighbors that were brought to my attention related to the Hummingbird Solar Project, Fleming County, Kentucky.

This letter is a limited report of a real property appraisal consulting assignment and subject to the limiting conditions attached to this letter. This letter should be attached to the original impact study completed with a date of March 15, 2022. My client is Cardno represented to me by Chad Martin. My findings support the Kentucky Siting Board Application. The effective date of this consultation is August 9, 2023.

I was asked to explain a difference in measured distance to the closest home used in the Hummingbird Solar Project Impact Analysis in my report versus what was used in the noise study on the same project. My report identified a closest home at 500 feet, while the noise study identified a mobile home at 260 feet from the nearest panel. The guidelines for the assignment provided to me included a stipulation that once design was complete the closest adjoining home would be 500 feet from the nearest panel. This apparently did not happen.

Given the data included in the original impact study, a separation of 260 feet from the nearest home would not change the outcome or conclusion of that impact study as the paired sales includes a home at 250 feet showing no impact for the Kentucky and adjoining states data. Furthermore, the data for the Southeast shows five sales closer than 260 feet including sales as close as 145 feet from the nearest panel. My larger set of data includes homes as close as 105 feet showing no impact on property value for a stick-built home in a new subdivision.

For these reasons, the change in distance to 260 feet from the 500 feet used in the original impact analysis does not change the conclusion. There remains significant data supporting a finding of no impact on property value.

## Sincerely,



Richard C. Kirkland, Jr., MAI
Kirkland Appraisals, LLC

Request No. 23:
Provide the number of miles between the Hummingbird Solar project and the project in Case No. 2020-00206.

Response No. 23:
The Project will be approximately 4.5 miles away from the solar project in Case No. 2020-00206; please see the attached map which details the distance between the Project and other merchant electric generating facilities located in Fleming County.


# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 24:

Provide the number of miles between the Hummingbird Solar project and the Project in Case No. 2020-00370.

Response No. 24:
Please refer to the map attached to Response No. 23. The Project is approximately 4.5 miles away from the solar project in Case No. 2020-00370.

Request No. 25:
Provide any overlaps in the projected construction schedules of the three projects in Fleming County, Kentucky.

Response No. 25:
Although Fleming Solar, LLC ("Fleming Solar") and AEUG Fleming Solar, LLC ("AEUG Solar") submitted construction schedules in their respective dockets, the projects have not provided construction commencement dates. As such, Hummingbird cannot confirm the degree of overlap between the three projects' construction schedules, if any. Currently, Hummingbird's anticipated construction commencement date is December 2024.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 26:

Describe the potential for cumulative effects on noise from construction activities of the three projects, and any steps to minimize these effects.

Response No. 26:
There would be no cumulative effects from construction or operational noise given the 4.5 mile distance between projects. At 1,000 feet, the noise levels are below EPA-acceptable levels for all proposed projects.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 27:

Describe the potential for cumulative effects on traffic and roadways from construction activities of the three projects, and any steps planned to minimize these effects.

## Response No. 27:

The proposed Fleming Solar LLC (Case No. 2020-00370) and AEUG Fleming Solar (Case No. 2020-00206) projects are located on the west side of Flemingsburg and will utilize north/south and west/southeast major highways, while the Project will be located east of Flemingsburg. There is potential overlap only on the south to northeast section of Highway 57 during peak hours. This section of road is currently operating at level of service (LOS) A and is proposed to continue at LOS A during construction. Additional commuting traffic is not expected to negatively impact traffic below LOS B, which is within the accepted LOS range.

Responding Witness: Chad Martin

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information <br> Case No. 2022-00272 

Request No. 28:
Describe the potential for cumulative effects on property values and land uses from the construction and operation of the three projects.

Response No. 28:
The Property Value Impact Analysis for Hummingbird concluded that there would be no effect to adjoining property values. While the results for similar studies on the other projects are unknown, the distance ( 4.5 miles) between Hummingbird and these projects limits the potential for any cumulative effects.

Responding Witness: Adam Peterson, Chad Martin

## Request No. 29:

Describe what steps have been taken, or will be taken, to communicate with the developers of AEUG Fleming Solar, LLC and Fleming Solar, LLC.

Response No. 29:
There has been no communication between Hummingbird and these two projects, and no communications are planned at this time.

Request No. 30:
Refer to SAR, Exhibit E, Traffic and Road Study, Appendix A. Explain if more recent data is available to analyze peak morning and evening traffic data. If more recent data is not available, explain how traffic patterns have changed since 2009.

Response No. 30:
The most recent data available was utilized to compute the LOS for applicable roadways. In most scenarios, the Annual Average Daily Traffic has decreased from around 2017 to 2022 at chosen Station IDs.

Responding Witness: Chad Martin

Request No. 31:
Refer to SAR Exhibit E, Traffic and Road Study, page 1. Provide a summary data table including AADT, AM Peak, PM peak, lane count, functional class, and posted speed limit for the 15 Kentucky Transportation Cabinet Count Stations listed under 2.0 Data Collection.

Response No. 31:
Please see attached.

| Station ID | Route | Route Description | AADT | AM Peak Vol Average | PM Peak Vol Average | Lane Count | Functional Class | Posted Speed Limit | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 035080 | CR 1027 | Carpenter Road | 358 | 26.00 | 36.50 |  | 2 NA | 25 |  |
| 035150 | CR 1030 | Colgan Road | 88 | 12.50 | 14.00 |  | 2 NA | 25 |  |
| 035049 | CR 1036 | Wilson Run Road | 92 | 15.50 | 15.50 |  | 2 NA | 25 |  |
| 035083 | CR 1037 | Maddox Pike | 178 | 19.00 | 24.50 |  | 2 NA | 25 |  |
| 068811 | KY 57 | FlemingLewis County Line to KY 1237 | 2186 | 168.67 | 205.67 |  | 2 R Major Collector | 35-55 | Speed limit is 35 in Segment 7 (Out of 13 segments) |
| 035002 | KY 57 | KY 344 to KY 3301 | 2263 | 148.50 | 187.00 |  | 2 R Major Collector | 35-55 | Speed limit is 35 in Segment 7 (Out of 13 segments) |
| 035104 | KY 57 | KY 3301 to KY 57 X | 3398 | 281.00 | 394.00 |  | 2 R Major Collector | 35-55 | Speed limit is 35 in Segment 7 (Out of 13 segments) |
| 035001 | KY 344 | KY 57 to KY 989 | 1027 | 75.00 | 117.50 |  | 2 R Minor Collector | 35-55 | Speed limit is 35 in Segment 1 (Out of 10 segments) |
| 035091 | KY 344 | KY 989 to Licking River | 906 | 61.00 | 95.00 |  | 2 R Minor Collector | 35-55 | Speed limit is 35 in Segment 1 (Out of 10 segments) |
| 035054 | KY 559 | Stewart Lane to Dudley Hollow Road | 1039 | 77.00 | 108.00 |  | 2 R Minor Collector | 35-45-55 | Speed limit is 45 in Segment 8,35 in Segment 9 (Out of 9 segments) |
| 068516 | KY 989 | FlemingLewis County Line to KY 1237 | 186 | 16.67 | 27.33 |  | 2 R Local System | 55 |  |
| 068517 | KY 1237 | KY 989 to Ribolt-Epworth Road | 370 | 29.33 | 43.33 |  | 2 R Minor Collector | 55 |  |
| 068761 | KY 1237 | Ribolt-Epworth Road to KY 57 | 729 | 54.33 | 73.00 |  | 2 R Minor Collector | 55 |  |
| 035087 | KY 3301 | KY 57 to Colgan Road | 443 | 43.00 | 52.00 |  | 2 R Minor Collector | 55 |  |
| 035081 | KY 3301 | Colgan Road to KY 559 | 371 | 39.50 | 41.50 |  | 2 R Minor Collector | 55 |  |
|  |  |  |  |  |  |  |  |  | Speed limits in BOLD are the dominant speed limits. |
|  |  |  |  |  |  |  |  |  | Speed limits are based off of existing posted speed limits, not during construction |
|  |  |  |  |  |  |  |  |  | AM/PM Peak volume are averages based off of aggregated data collected from several dates |
|  |  |  |  |  |  |  |  |  | Stations with N/A for functional class do not have it listed on Appendix A, assumed to be R Minor Collectors |

## Request No. 32:

Provide the portion of construction traffic, including workers and delivery trucks, will access roads from the following:
a. The north on State Road 57 from Lewis County.
b. The south on State Road 57 from Flemingsburg.
c. Local roads from State Road 344 from Lewis County.

## Response No. 32:

a. This information will be obtained in coordination with the EPC firm closer to the start of construction.
b. Please see Response No. 32(a).
c. Please see Response No. 32(a).

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 33:

Provide weight limit ratings for each local roadway to be used by Project construction traffic.
Response No. 33:
Please see attached. KY 57 is classified as Class AAA and has an 80,000 Gross Vehicle Weight (GVW) rating. KY 344 and KY 3301 are both classified as Class A, and have a 44,000 GVW rating. Roads not listed with a specific class rating are assumed to be Class A.

## KENTUCKY

TRUCK WEIGHT CLASSIFICATION
__ "AA" 62,000 LBS Gross Vehicle Weight "A" 44,000 LBS Gross Vehicle Weight

Kentucky Revised Statute (KRS) 189.222 requires weight limits on the state-maintained highway system To implement the statute, Kentucky Administrative Regulations (KAR) designating the weight limits are promulgated and updated frequently. the KARs should be consulted as the correct legal authority.

This map is designed for weight classification purposes only. Not all road segments may be labeled or shown due to map size and/or space constraints. A listing of highways by Truck Weight Classification can be obtained by fax to 502-564-3532, by telephone to $502-564-4556$, or by mail to
Kentucky Transportation Cabinet
Division of Maintenance
200 Mero Street
Frankfort, KY 40622
Roads shown on this map should not be confused with those indicated for increased dimension (STAA) trucks on the Designated Truck Network (NN). Information on the NN can be obtained on the internet: http://transportation.ky.gov/Planning/Pages/National-Truck-Network.aspx
by fax to 502-564-2865, by telephone to 502-564-7183, or by mail to
Kentucky Transportation Cabinet
Division of Planning
200 Mero Street
Frankfort, KY 40622
Updated December 2015
See Reverse Side For: Central Kentucky Louisville
Northern Kentucky Paducah

AU Audubon ParkwayMartha Layne Collins Blue Grass Parkway

EB Edward T. Breathitt Edward T. Breathitt
Pennyrile Parkway

HR
Hal Rogers Parkway
JC
Julian M. Carroll
Purchase Parkway
LN
Louis B. Nunn Cumberland Parkway

## MTN Bert T. Combs Mountain Parkway

Wendell H. Ford Western Kentucky ParkwayWilliam H. Natcher Parkway

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 34:

Provide the assumption of the number of workers per vehicle traveling to the Project site during an average construction day.

Response No. 34:
The analysis in the Traffic and Road Study was based on an assumption of one worker per vehicle.

## Request No. 35:

Provide the assumption of how many monthly trips for each type of delivery truck will be needed on average over the Project construction period and during the peak construction period.

## Response No. 35:

The analysis in the Traffic and Road Study was based on a $50 \%$ increase in vehicles during peak hours, which is assumed to be an overestimation. While the analysis did not assume a quantity of monthly trips or type of truck, the analysis did assume a "worst-case" scenario that showed no issues related to traffic.

Responding Witness: Chad Martin

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 36:

Provide the maximum expected load weights for each type of delivery truck, including cement and water trucks, heavy equipment, gravel for access roads, panels, inverters, and the transformer. Response No. 36:

Assuming that the Siting Board approves Hummingbird's application, this information will be obtained in coordination with the EPC firm closer to the construction commencement date. Regardless, the Project will not exceed road weight limit ratings without proper notification and permitting from applicable county and state road authorities.

Responding Witness: Chad Martin

Request No. 37:
Explain whether any oversize or overweight deliveries will require special permits from the Fleming County Road Department of the Kentucky Department of Transportation.

Response No. 37:
The Project anticipates that delivery of the Project's transformer may require a special permit. The Project will not exceed road weight limit ratings without proper notification and permitting from applicable county and state road authorities.

## Request No. 38:

Identify the specific roadways used by heavy trucks, including for delivery of the transformer. Response No. 38:

Hummingbird has identified three roadways that may be potentially utilized by heavy trucks: Foxport Road, Mount Carmel Road, and Carpenter Road.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 39:

Explain any specific mitigation measures to be implemented on Carpenter Road if the road will be utilized for project construction.

Response No. 39:
Assuming that the Siting Board approves Hummingbird's application, this information will be obtained in coordination with the EPC firm closer to the construction commencement date.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 40:
Explain whether Project-related construction traffic is anticipated to cause damage to existing roadways or infrastructure.

Response No. 40:
All vehicular traffic, including traffic related to large-scale construction projects, causes a variable degree of road degradation and the extent of wear and tear on roads is highly variable. Hummingbird does not anticipate any damage to roads and transportation infrastructure. However, given the size and scope of the proposed Project, Hummingbird anticipates some degree of road degradation. Hummingbird will secure any necessary roadway permits related to heavy or oversize loads prior to commencing construction of the Project.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 41:

Explain any specific traffic management strategies to be employed during construction.
Response No. 41:
Assuming that the Siting Board approves Hummingbird's application, this information will be obtained in coordination with the EPC firm closer to the construction commencement date.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 42:
Explain whether any traffic stoppages will be necessary to accommodate large truck deliveries. If yes, provide the expected locations, frequency and length of those stoppages.

## Response No. 42:

Assuming that the Siting Board approves Hummingbird's application, this information will be obtained in coordination with the EPC firm closer to the construction commencement date.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 43:
If applicable, describe odor impacts from diesel fumes or other sources from construction vehicles that may be noticeable to nearby residents.

## Response No. 43:

Hummingbird does not anticipate odor impacts resulting from the Project based on the distance of Project infrastructure to nearby residential receptors. Furthermore, Hummingbird will comply with provisions related to odor set forth in 401 KAR 53:010.

Responding Witness: Chad Martin

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 44:
Refer to SAR, page 18. Provide a copy of the Stormwater Pollution Prevention Plan (SWPPP).
Response No. 44:
Assuming that the Siting Board approves Hummingbird's application, the SWPPP will be compiled by the EPC firm prior to construction and will be based on the final site design.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 45:
Refer to SAR, page 3. Explain if the AC collection system will be underground, aboveground, or both. If the AC collection system will be underground and above ground, provide a map that shows which segments are above ground and which segments are above ground.

Response No. 45:
Assuming the Siting Board approves Hummingbird's application, this information will be obtained in coordination with the EPC firm closer to the construction commencement date. Both aboveground and belowground options will likely be considered, and the final design will depend on a combination of site characteristics and cost estimates at time of construction.

Request No. 46:
Refer to SAR, page 17. Provide a copy of the aeronautical report conducted by the Federal Aviation Administration (FAA) that found that the Project would have no effect on navigable airspace or air navigation.

Response No. 46:
Please see attached.

## Notice Criteria Tool

Notice Criteria Tool - Desk Reference Guide V_2018.2.0

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference CFR Title 14 Part 77.9.

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the FAA Co-location Policy
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.


## Results

You do not exceed Notice Criteria.


## Request No. 47:

Provide any geotechnical reports indicating the location of karst formations within the project boundaries.

## Response No. 47:

Hummingbird has commissioned several geotechnical investigations related to the potential for karst formations. The initial study was a desktop investigation, which is attached. Additional reporting is in progress from completed field studies and will be provided by August 25, 2023.

545 Speedvale Ave. West
Guelph, ON, Canada N1K 1E6
Attn: Mr. Karol Kamasinski - Manager, Development Engineering, EPC
P: (519) 837-1881
E: karol.kamasinski@canadiansolar.com
Re: Karst Survey Desktop Review Letter
Hummingbird Solar
Fleming County, Kentucky
Terracon Project No. 57215138

## INTRODUCTION

The proposed Hummingbird Solar site in Fleming County, Kentucky was assessed for potential karst geohazards underlying the property, which encompasses a total of approximately 2,180 acres. A majority of the property is mapped as underlain by soluble carbonate bedrock forming a regional karst terrain (i.e. a landscape characterized by the presence of sinkholes, caves, sinking and losing streams, and a highly irregular "pinnacled" overburden/bedrock interface). Due to the challenges that karst terrain can present to development projects of this kind, the objective of the desktop review was to identify suspect karst features for characterization and delineation during field reconaissance.

## SETTING AND GEOLOGIC BACKGROUND

Physiography - The Hummingbird Site is located in Fleming County, Kentucky. The site encompasses approximately 2,185 acres. For ease of discussion the site is divided roughly into a western section comprised of parcels 057-3800, 057-0900, 057-0901, 069-2400, 069-2300, 069-2200, 069-4300, 069-4700, 069-4500, 07-0600, 058-1500, 058-3100, 058-2400, 058-00-00041.02, 059-1200. 059-1000, 071-0400, 071-0400; and an eastern section comprised of parcels 08-0300, 08-0800, 069-0200, 08-0500, 081-0100, 07-0100, and 07-0200.

The proposed Hummingbird site is located within the Interior Plains Division of the Physiographic Map of the United States ${ }^{1}$, and in the Lexington Plain Section of the Interior Low Plateaus Province. Referencing the physiographic map of Kentucky, the site is at the northeastern edge of the Outer Bluegrass Physiographic Region². The Outer Bluegrass is bordered by the Inner Bluegrass Region to the west, and the Knobs Region to the east.

[^2]The Outer Bluegrass is underlain by carbonate (limestone and dolomite) units and clastic rock (shale) dated to the Early Paleozoic Era (Ordovician and Silurian geologic periods) which erode more readily than the carbonates of the Inner Bluegrass Region. This has resulted in the formation of a landscape with deeper valleys and less flat land than the Inner Bluegrass. The Knobs Region to the immediate east of the Hummingbird Site is characterized by conical and linear hills capped by erosion resistant sandstone and limestone dated to the Mississippian Geologic Period. The most significant caves in eastern Kentucky are located at Carter Caves State Resort Park in Carter County, in the Mississippian Newman Limestone formation of the Knobs Region.

Topography - Referencing the USGS 7.5-minute topographic quadrangle index, the western portion of the site is mapped within the Flemingsburg 7.5-minute topographic quadrangle (38083D6), and the eastern portion is within the Burtonville 7.5 -minute quadrangle (38083-D5). The western section has an average elevation of EL893 and is deeply dissected along the valleys of the Turkey Run, the Fleming Creek, and the Wilson Run, all three of which have a base level ranging from EL814 to EL825. The steepest slopes in this section are along the valley walls of these three streams, in particular the Fleming Creek. The eastern section has an average elevation of EL858, and is less dissected than the western section, with a high point located at crest of Sugarloaf Mountain (EL1014) located between parcels 081-0100 and 07-0100 of the eastern section.

Geology - The site is mapped ${ }^{3}$ as underlain by a series of geological units dating from the Ordovician through Silurian geologic periods of the Early Paleozoic Era. The geology of each unit from oldest to youngest is summarized as follows.

Bull Fork Formation (Ob) - The Bull Fork Formation is dated to the Late Ordovician Period of the Ordovician System. The unit consists of interbedded limestone and shale. The limestone comprises 40 to 60 percent of the unit, reaching 80 percent near the base but decreasing to 20 percent or less near the top. The limestone interbeds are 1 to 8 inches in thickness, planar and consisting of whole and fragmentary fossils. The shale member can be up to 60 percent of the unit and is dominant mostly in the upper part. The shale is fissile to lumpy, calcareous, and plastic when wetted. This unit is exposed primarily along the steam valley bottoms. The unit ranges from 35 to 195 feet in thickness.

Preachersville Member, Drakes Formation (Odp) - This unit dates to the Late Ordovician Period of the Ordovician System and overlies the Bull Fork Formation. It is composed primarily of mudstone, shale and minor dolomite. The mudstone unit is dolomitic, grayish-green weathering to grayish-yellow. Shale is greenish-gray and calcareous to dolomitic. Calcitic dolomite is present primarily in the lower part of the unit and comprises 10 to 25 percent of the member. The entire

[^3]unit ranges from 30 to 90 feet in thickness in the project area. The Drakes Formation is exposed primarily along the stream valley slopes above the Bull Fork Formation.

Drowning Creek Formation (Sd) - This unit dates to the Early Silurian Period of the Silurian System, and is often classified as the Lower part of the Crab Orchard Group rocks. It contains four individual members, from top to bottom as the Oldham, Dayton Dolomite, Plum Creek Shale and Brassfield Members. These four members are not mapped separately. The Oldham, Dayton and Brassfield members are all dominated by dolomite. The Plum Creek is primarily shale with minor dolomitic interbeds and forms an aquitard within the overall formation. This unit ranges from 35 to 65 feet in thickness

Estill Shale (Se) - The Estill Shale dates to the Middle Silurian Period of the Silurian System and comprises the upper part of the Crab Orchard Group. It is primarily a greenish-gray and gray shale with thin partings of red, brown and yellow shale. The shale is clayey, and partially dolomitic. It is considered impermeable and forms an aquiclude where it contacts the underlying Drowning Creek Formation. The Estill shale is very plastic when wet. The Estill Shale ranges from 80 to 150 feet in thickness.

It is of note that all of the bedrock formations described above are relatively flat-bedded. They dip gently from northwest to southeast, so that the oldest rock is present in the western section of the site, and the youngest in the southern part of the eastern section. There are no mapped faults identified within or between any of the parcels.

Finally, the deeper stream valleys are mapped as floored by Quaternary age alluvium (Qal), consisting of unconsolidated silt, sand, clay and gravel. These alluvial deposits vary in thickness from less than 1 foot to 50 feet in thickness, depending on the size of the stream valley in which they are found. Within the site area the alluvial deposits are the most extensive along the valley bottom of the Fleming Creek in the western section and the Trotter Creek in the northern part of the eastern section.

Karst Geology - Referencing the USGS National Karst Map ${ }^{4}$, the majority of the site parcels are mapped as "carbonate rocks at or near the surface in a humid climate". It should be noted that the National Karst Map does not divide the Crab Orchard Group into its subordinate upper and lower parts, as described in the previous geology section. Thus, the Estill Shale is included in the karst area. However, this unit does not form karst terrain due to it being primarily composed of insoluble clastic rock ${ }^{5}$.

[^4]Karst Survey Desktop Review Letter

Hummingbird Solar $\quad$ Fleming County, Kentucky
December 23, 2021 ■ Terracon Project No. 57215138

Referencing the Kentucky karst sinkhole database ${ }^{6}$, there are no mapped sinkholes within any of the proposed project parcels. There are two sinkholes mapped to the south of parcel 071-0400. In addition, the Kentucky Geological Survey indicates most of Fleming County as having "low karst potential". Based on rock mineralogy and lithology the greatest probability of the presence of karst features at the site would be in those parcels underlain by the Drowning Creek Formation (Sd) of the Crab Orchard Group, and in the Bull Fork (Ob) and lower part of the overlying Preachersville Member of the Drakes Formation (Odp).

## FINDINGS

A review of the LiDAR derived shaded relief map and 2-foot contour interval map across the site resulted in the identification of 42 suspect karst features where 25 are point features and 17 are area features (Exhibit 1). The number of the suspect karst features per parcel are shown in the table below.

| Parcel ID | Suspect Point Karst Features | Suspect Area Karst Features |
| :---: | :---: | :---: |
| $057-0900$ | 1 | 2 |
| $\mathbf{0 5 7 - 0 9 0 1}$ | 0 | 0 |
| $\mathbf{0 5 7 - 3 8 0 0}$ | 1 | 0 |
| $\mathbf{0 5 8 - 0 0 - 0 0 - 0 4 1 . 0 2}$ | 1 | 1 |
| $\mathbf{0 5 8 - 1 5 0 0}$ | 1 | 1 |
| $\mathbf{0 5 8 - 2 4 0 0}$ | 1 | 0 |
| $058-3100$ | 0 | 0 |
| $\mathbf{0 5 9 - 1 0 0 0}$ | 5 | 3 |
| $\mathbf{0 5 9 - 1 2 0 0}$ | 1 | 1 |
| $\mathbf{0 6 9 - 0 2 0 0}$ | 1 | 0 |
| $\mathbf{0 6 9 - 2 2 0 0}$ | 0 | 1 |
| $\mathbf{0 6 9 - 2 3 0 0}$ | 1 | 1 |
| $\mathbf{0 6 9 - 2 4 0 0}$ | 1 | 0 |
| $\mathbf{0 6 9 - 4 3 0 0}$ | 0 | 1 |
| $\mathbf{0 6 9 - 4 5 0 0}$ | 0 | 0 |
| $\mathbf{0 6 9 - 4 7 0 0}$ | 0 | 0 |
| $\mathbf{0 7 - 0 1 0 0}$ | 2 | 0 |
| $\mathbf{0 7 - 0 1 0 0}$ | 0 | 0 |
| $\mathbf{0 7 - 0 2 0 0}$ | 0 | 0 |
| $\mathbf{0 7 - 0 6 0 0}$ | 0 | 2 |
| $\mathbf{0 7 1 - 0 4 0 0}$ | 1 | 0 |
| $\mathbf{0 8 - 0 3 0 0}$ | 4 | 4 |
| $\mathbf{0 8 - 0 5 0 0}$ | 2 | 0 |
| $\mathbf{0 8 - 0 8 0 0}$ | 0 | 0 |
| $\mathbf{0 8 1 - 0 1 0 0}$ | 2 | 0 |

[^5]Karst Survey Desktop Review Letter

Hummingbird Solar $\quad$ Fleming County, Kentucky
December 23, 2021 - Terracon Project No. 57215138

The shaded relief map derived from LiDAR data indicate that the majority of suspect karst features are related to springs and water moving upwards instead of down into the subsurface. In Figure 1 , significant springs were identified at various locations (red arrows), and it is possible that caves or conduits move significant water to these features. In the right image of Figure 1, broad and shallow closed depressions (light blue polygons) were identified upgradient of one of the largest springs identified onsite and may be a source of the aquifer recharge. Although springs are lower risk than karst features that receive water, there are still conduits and a karst network present which is susceptible to negative impacts during construction. It is important to identify and characterize these features (e.g. seeps, major springs, observable cave entrances, etc.) to determine the impact to planning and development.


Image 1. Identified springs located around the same elevation onsite where prominent outfalls lead towards the nearby tributaries (left). Major spring with shallow sinkhole located upgradient (right).


Image 2. (A) Karst features (yellow dashed circles) located along the geologic contact of the Drowning Creek Formation (brown color) and the Preachersville Member and Drakes Formation (pink color). (B) Isolated groups of trees (red arrow) are typically suspect areas for potential karst features.

As stated in the geology section above, the Drowning Creek Formation (brown color) has the most carbonate layers and thus the highest probability to develop karst features (Image 2A). The underlying unit of the Preachersville Member and Drakes Formation (pink color) is predominantly shale. It is possible that water readily flows through karst conduits within the Drowning Creek Formation but cannot proceed deeper than the shale units which function as an aquitard ${ }^{7}$. This relationship results in water coming to the surface along the contact of these units, which is where we observed the majority of the springs and karst features in support of this hypothesis.

The high-resolution imagery of the site also provides further evidence to suggest the presence of sinkholes, even when the LiDAR and 2-foot contour data does not suggest a closed depression. For example, the presence of small groups or single trees in an otherwise developed agricultural field (red arrows), suggests that the landowner avoided these areas for a reason (Image 2B). In karst prone terrains such as this site these avoidance areas are often either karst features or shallow and/or exposed bedrock, which are both important to investigate during the field survey.

## CLOSURE

Our services and any correspondence or collaboration are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical and geological engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

This letter outlines the findings and opinions of our initial step in the proposed preliminary karst survey. Information presented herein is based on the review of publicly available information. No site or project-specific information has been reviewed for the preparation of this memo. Field reconnaissance will be required as the next step to locate and characterize suspect karst features from our desktop review as well as identify other features at the site in the field based on observations from the ground surface. This memo is representative only of surficial indications from remote sensing data observable at the time the data was collected. It should be noted that karst is a dynamic landform and significant changes can occur over time. Absence of a mapped resource does not mean that it is not present.

Our opinions of the site surface and subsurface geologic conditions are very preliminary in nature. Confirmation of opinions stated in this document is essential. These opinions must be validated with site-specific field reconnaissance, exploration, and testing. In order to characterize the subsurface conditions, we recommend geotechnical explorations of the site. Geotechnical explorations will provide the necessary sampling and testing to provide design parameter

[^6]recommendations. In conjunction with borings, a geophysical survey could also correlate depth of rock and offer some reduction to the potential number of necessary explorations, thus reducing our impact on any given site. Additionally, the results of the geophysical survey can be used to more broadly characterize the subsurface conditions and potential karst features.

All parties are advised that any decisions or actions taken by any party based on the information contained herein, including decisions with financial implications are done solely at the risk of that party. By providing this information in this preliminary form, Terracon expressly disclaims any duties or obligations associated with the usage of this information for decision-making or design purposes.

In the event that changes to the nature, design, or location of the project, as outlined in this report, are planned, the preliminary conclusions and recommendations contained in this report shall not be used unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing. As the project moves into the design phase, Terracon should be retained to develop and complete a scope of work that includes site-specific explorations.

Sincerely,
Terracon Consultants, Inc.

Joshua Valentino, PhD, PG
Benjamin W. Taylor, P.E., P.G.
Project Geologist
Principal, Regional Manager

Robert K. Denton Jr., CPG
Senior Geologist

## ATTACHMENTS:

Exhibit 1 - Suspect Karst Feature Map
Exhibit 2 - Topography Map
Exhibit 3 - Geology Map




# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 48:
Explain how construction will be completed and phased for the noncontiguous parcels, i.e., will the construction be completed fully on each parcel before moving to the next, or will each phase of construction occur on each parcel before moving to the next phase of construction.

Response No. 48:
Construction will be conducted via a phased plan. Assuming that the Siting Board approves Hummingbird's application, this information will be obtained in coordination with the EPC firm closer to the construction commencement date.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 49:
Provide the construction timeline for the project that includes each phase of construction, including the anticipated start date.

Response No. 49:
Currently, Hummingbird anticipates that construction will begin approximately December 2024 with a construction period of up to approximately 18 months. Assuming, among other factors, the Siting Board approves Hummingbird's application, the exact timing and phasing of construction will be determined in coordination with the EPC firm.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information <br> Case No. 2022-00272 

## Request No. 50:

Provide when peak construction activity will occur.
Response No. 50:
Hummingbird anticipates construction will commence approximately December 2024, with a construction period lasting up to approximately 18 months. Pending future coordination with the EPC firm, construction is anticipated to proceed in phases and will likely not have a period peak construction.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 51:

Provide the average number of construction workers on-site each day over the course of the construction period.

Response No. 51:
The average number of construction workers on-site each day will be approximately 250.

## Request No. 52:

Provide the number of construction workers on-site each day during the peak period.
Response No. 52:
The projected maximum number of workers at one time onsite will be approximately 300 workers.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information <br> Case No. 2022-00272 

## Request No. 53:

Refer to SAR, Exhibit D. Hummingbird Solar indicated construction related activity is expected to occur mainly between 7 am and 7 pm (sunrise and sunset). Explain what construction related activity includes.

Response No. 53:
Construction related activities are expected to include, but are not limited to, safety meetings, organization and management of trades, site grading, pile driving or other alternate method, PV panel installation, security fence construction, landscape buffer planting, stormwater control installation, and miscellaneous construction and installation of any infrastructure needed for the solar facility.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 54:

Explain if Hummingbird Solar plans for construction, or construction related activities will occur on Saturdays or Sundays.

## Response No. 54:

Once secured, the EPC is likely to determine optimal construction hours. Generally, Hummingbird anticipates that the majority of work shall occur Monday-Friday, but Saturday and Sunday may be utilized to offset construction delays.

## Request No. 55:

Refer to SAR, Exhibit D, Noise Assessment. Provide a map with the construction site outlined and all noise sensitive receptors within 1,500 feet of the project boundaries with ID labels. Also include whether the noise receptors are residences or other types of structures.

Response No. 55:
A 1,000 foot radius search for residential structures was utilized for project analyses. It is Hummingbird's understanding that the 1,000 foot radius is based on noise modeling that sets 1,000 feet as the threshold for any project noise to diminish to 55 dBA and/or EPA-acceptable levels. Any estimate of noise impacts past 1,000 feet would de minimis.

Responding Witness: Chad Martin

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information <br> Case No. 2022-00272 

## Request No. 56:

Provide a chart with the expected noise level during pile driving at each noise receptor within 1,500 feet of the project boundaries.

## Response No. 56:

These would be variable throughout the life of the Project at each receptor and dependent upon natural factors and number of pile drives being used at any one time. Stantec, the Project's noise consultant, modeled one pile driver and three simultaneous pile drivers to create sound contours applicable to the Project. The 1,000 -foot buffer is the approximate 55 dBA sound contour. Receptors outside the 1000-foot buffer would likely not have noise impacts above 55 dBA during daylight construction hours.

Responding Witness: Chad Martin

## Request No. 57:

Detail any communications with members of the public, including neighboring landowners, regarding construction noise.

## Response No. 57:

Hummingbird hosted multiple informational meetings regarding the proposed Project prior to submitting its application and answered questions related to general construction noise. See Exhibit B of the Application that further details the Project's communications with the public.

## Request No. 58:

Provide estimates of existing ambient noise levels, during the daytime and during nighttime at different receptors surrounding the Project site.

## Response No. 58:

The best estimate Stantec found for rural residential ambient noise levels is from ANSI S12.9 Part 3, which provides a daytime noise level of 43 dBA and a nighttime noise level of 37 dBA . Noise levels for quiet urban and normal suburban residential (neighborhoods) are 53 dBA during the day and 47 dBA at night. The Project's noise study modeled daytime noise levels of 40 dBA and nighttime noise levels of 34 dBA .

Responding Witness: Chad Martin

## Request No. 59:

Refer to SAR, Exhibit D, Noise Assessment, Table 5. For each nonresidential receptor, provide a table with operational sound pressure levels similar to Table 5.

Response No. 59:
Hummingbird has contacted Stantec to produce the requested table and will submit the table to the Siting Board by August 25, 2023.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information <br> Case No. 2022-00272 

## Request No. 60:

Refer to SAR, Exhibit D, Noise Assessment, Table 5. Explain whether the sound pressure levels presented in this table reflect both Project facility operations and existing ambient noise levels. If Table 5 represents only Project generated noise, provide a revised table that presents total daytime noise levels at each receptor.

Response No. 60:
Sound levels are presented using Project facility operations only. Ambient noise levels would only affect receptor sound levels that are over 40 dBA ; for example, R105 at 49.7 dBA would change to 50.1 dBA when factoring in ambient sound. This difference is undiscernible to the human ear and would be the same at all receptors with sound levels greater than 40 dBA .

Responding Witness: Chad Martin

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 61:
Refer to SAR, Exhibit D, Noise Assessment, Table 3. Provide the same table with typical noise levels at 250 feet from the source.

## Response No. 61:

A revised table that will extrapolate noise levels to 250 feet will be submitted to the Siting Board by August 25, 2023.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information <br> Case No. 2022-00272 

## Request No. 62:

Refer to SAR, Exhibit D, Noise Assessment, Table 4. Provide additional calculated noise levels reflecting the cumulative levels of construction related and ambient noise for the following noise receptors:
a. R105.
b. R52.
c. R91.

Response No. 62:
The Project's Noise Assessment will be revised to reflect the cumulative levels of construction related and ambient noises for noise receptors R105, R53, and R91 and will be provided to the Siting Board by August 25, 2023.

Responding Witness: Chad Martin

## Request No. 63:

Explain any mitigation measures for time of day and day of the week for pile driving, or other construction activities that produce the same level of sound.

## Response No. 63:

Pursuant to prior Siting Board conditions of approval for similar-sized solar facilities, the Project understands that noise mitigation measures will be required when pile driving occurs within 1,500 feet of a sensitive noise receptor. Assuming that the Siting Board approves Hummingbird's application, Hummingbird will coordinate with the EPC firm to meet this anticipated requirement.

## Request No. 64:

Describe any specific measures to be taken to reduce noise impacts for nearby residents during construction.

Response No. 64:
See Response No. 63.

## Request No. 65:

Refer to SAR, Exhibit F, Visual Resource Assessment and Mitigation Plan. Explain any additional visual impacts or mitigation measures beyond those described in the report that will be used to shield the project from view.

Response No. 65:
Mitigation measures will consist of landscape screening and setbacks for the Project's solar panels.

Request No. 66:
Refer to SAR, Exhibit F, Visual Resource Assessment and Mitigation Plan, Table 3-3. Define the term OGS Cemeteries.

Response No. 66:
The term "OGS Cemeteries" was a typographical error. The correct term is "KGS Cemeteries," which stands for Kentucky Genealogical Society Cemeteries.

## Request No. 67:

Refer to SAR Exhibit F, Visual Resource Assessment and Mitigation Plan, Figure 1-3. Also refer to the SAR, Exhibit F, Visual Resource Assessment, Appendix C. Provide a revised map that labels each of the cemeteries indicated in the graphic that includes all of the cemeteries listed in Appendix C.

Response No. 67:
See attached.


## Request No. 68:

Refer to SAR, Exhibit F, Visual Resource Assessment and Mitigation Plan, Appendix C. Also refer to SAR, Exhibit D, Noise Assessment. Explain the discrepancy between SAR, Exhibit F, Appendix C that stated the Fleming County Cemetery is 3.27 miles from the nearest solar array and SAR, Exhibit D that stated the Mt. Carmel Christian Church, located near the Fleming County Cemetery, is within 1,000 feet of the Project boundary.

Response No. 68:
This reference was in error. The reference to "...Mt. Carmel Christian Church, located near the Fleming County Cemetery" should read "...Mt. Carmel Christian Church, located near Mt. Carmel Cemetery."

Request No. 69:
Refer to SAR, Exhibit G, Landscape Plan, Appendix A. Explain the rationale for proposing screening modules at specific locations.

## Response No. 69:

Modules were screened from structures believed to be residential or commercial, heavily traveled roads, and any areas that may result in glint/glare to adjacent receptors. A map detailing the locations and rationale for the proposed screening modules is attached.







# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information <br> Case No. 2022-00272 

Request No. 70:
Refer to SAR Exhibit G, Landscape Plan, Appendix A. Explain why no landscape screening is proposed for some areas in which no existing buffer is identified.

Response No. 70:
Project infrastructure would not be viewable from public roads or sensitive receptors. In some cases, the distance from viewer to infrastructure is too great to make the Project discernable or topography inhibits a view.

Responding Witness: Chad Martin

Request No. 71:
Refer to SAR, Exhibit F, Visual Resource Assessment and Mitigation Plan, Appendix C, Visually Sensitive Resource Analysis. Also refer to SAR, Exhibit G, Landscape Plan, Appendix A. Explain whether the proposed landscape screening will reduce the view of the Project for each of the visually sensitive resources listed as visible or partially visible.

Response No. 71:
The proposed landscape screening will reduce the view of the Project for each of the visually sensitive resources listed as visible or partially visible.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information <br> Case No. 2022-00272 

Request No. 72:
State the number of years it will take for planted trees and shrubs to reach mature height.
Response No. 72:
The time to maturity varies by species and region and may range from 10 to 30 years. If trees are planted at a height of approximately 6 feet $(\sim 5$ years old) then we assume maturity may be reached within 5 years.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information <br> Case No. 2022-00272 

## Request No. 73:

Describe any other forms of visual barrier to be implemented between the time of vegetation planting and the time when trees and shrubs will reach mature height.

Response No. 73:
No additional visual barrier will be implemented prior to the planted vegetation reaching mature height.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 74:
State whether the Project panels will be coated with an anti-reflective coating.
Response No. 74:
The Project will utilize solar panels with an anti-reflective coating.

Request No. 75:
Refer to SAR, Exhibit F, Appendix D, Glint and Glare Analysis. Explain any mitigation measures to be implemented to reduce glare levels at the small number of structures and roads affected by green glare.

Response No. 75:
Glare along roads will be mitigated using landscape screening. Other occurrences are of short duration during a month-long time of the year.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 76:

Refer to Application, Exhibit B. Provide any documents that have presented to the community that are not included in Exhibit B.

Response No. 76:
Exhibit B to the Application represents all the documents that have been provided to date to the community.

Request No. 77:
Provide any transcripts of the public meetings.
Response No. 77:
The public meetings were conducted as an "open house" to facilitate discussion between the public and Hummingbird staff, consultants, and other $3^{\text {rd }}$ parties. As such, no transcripts are available; however, attendance sign-in sheets for the public meetings are attached.

HUMMINGBIRD ENERGY COMMUNITY MEETING - MAY 24, 2022
LIST OF ATTENDEES

| First Name | Last Name | Phone | Email | Mailing Address |
| :--- | :--- | :--- | :--- | :--- |
| Cheryl | Souder | 6067485063 |  |  |
| Kenneth | Souder |  | ksouder2013@yahoo.com | 68 Souder Lane Flemingsburg KY 41041 |
| Eugene | Schwartz | 6068492136 | codeman845@hotmail.com | 938 Maddox Pike Flemingsburg KY 41041 |
| Keith | Reeder | 6065840056 | keithreederab@hotmail.com | 717 Mount Gillead Rd Maysville KY 41056 |
| Anthony | Suarez | 6062919718 | a.suarez@mqsstructures.com | 7990 Mt Carmel Road Flemingsburg KY 41041 |
| Tim and Puala | Palmer | 6068450022 | n/a | 164 Saunders Road Wallingford KY 41093 |
| Eric | Carpenter | 6068492188 |  | 1423 Carpenter Rd Wallingford KY 41093 |
| Jim and Gerry | Kegley | 6068492516 | ijmgerkeg@windstream.net | 170 Black Diamond Rd Wallingford 41093 |
| Kim | McKisson | 6068450688 |  | 1375 Carpenter Rd. Wallingford 491093 |
| John | Schwartz |  | 1033 Foxport Road Wallingford ky 41093 |  |
| Jacob | Schwartz |  | 1033 Foxport Road Wallingford KY 4193 |  |
| Jane | Mers | 6067484697 | janemers@windstream.net | 7108 Mt. Carmel Road Flemingsburg KY 41041 |
| Kevin | O'Cull | 6063164226 |  | 808 Breeze Road Wallingford KY 41093 |
| Willa and Randell | Meadows | 6068492086 | wmeadows@hotmail.com | 785 Forport Rd Wallingford KY 41093 |
| Terry | Earls | 6068457721 |  | 470 Kendal Lane, Fleminsgburg KY 41041 |
| Gwen | O'Cull | 6063151418 | gdocull@uky.edu | 682 Breeze Road wallingford KY 41093 |
| James | Price |  |  |  |


| First Name | Last Name | Phone | Email | Mailing Address |
| :---: | :---: | :---: | :---: | :---: |
| Wally | Thomas | 606-782-7824 | wallythomas83@gmail.com | PO box 61 ewing 41039 |
| Jerry | Vice | 606-748-9071 |  |  |
| Jeanie | Strode | 606-849-2601 |  | 4699 Mt Carmel Rd. Flemingsburg KY |
| Ervin | Gardner | 606-748-4935 |  | 527 clover rd wallingford 41093 |
| Sam | Schwartz |  |  | 1100 Clover rd wallingford 41093 |
| Matthew | Graber |  |  | 162 Garrett Dr Wallingford 41093 |
| Tom | Skaggs | 606-748-2606 |  | 6582 Mt. Carmel Rd. flemingsburg 41041 |
| Eula | Skaggs |  |  |  |
| Mary Lou | Stephens |  |  |  |
| Eric | Carpenter |  |  |  |
| Leon | Esh | 606-209-1498 |  | 1199 Carpenter rd wallingford 41093 |
| Carolyn \& Gene | Schwartz |  |  | 938 Maddox Pike Flemingsburg 41041 |
| Wendell | Earls |  |  |  |
| Keith | Reeder |  | keithreederab@icloud.com | 710 Mount Gilliad, Maysville, KY 45056 |
| Meadows | Randall and Willow |  |  |  |

Request No. 78:
Provide any written comments, or a summary of oral comments, offered by the public or government agencies.

Response No. 78:
The U.S. Fish and Wildlife Service (Kentucky Ecological Services Field Office) performed a project-specific review at the request of Hummingbird. See attached.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

April 21, 2022

Sam Waltman

Cardno, Inc.
76 San Marcos Street
Austin, Texas 78734
Subject: FWS 22-002873; Hummingbird Solar Facility; Fleming County, Kentucky
Dear Sam Waltman:
The U.S. Fish and Wildlife Service's Kentucky Field Office (KFO) has reviewed your request for site-specific environmental review received on April 6, 2022. The KFO offers the following comments related to federally listed species for your consideration. The Hummingbird Solar Facility proposes to establish a solar facility within an approximate 4,139-acre area in Fleming County, Kentucky.

On behalf of the Hummingbird Solar Facility, Cardno Inc. (Cardno), conducted a habitat assessment. Based on this assessment, Cardno determined that the proposed project will have "no effect" on the gray bat (Myotis grisescens), Short's Goldenrod (Solidago shortii), and Virginia spiraea (Spiraea virginianus) due to lack of suitable habitat within the project area. Cardno also determined that the project will have "no effect" on the Indiana bat (Myotis sodalis), northern long-eared bat (Myotis septentrionalis), Pink Mucket (Lampsilis abrupta), and Snuffbox (Epioblasma triquetra) because the project will not impact suitable habitat for these species. The KFO acknowledges these determinations and has no additional comments or concerns regarding these species.

If the proposed action is subsequently modified or new information indicates that the proposed action may affect listed species or their habitat in a manner not previously considered, we recommend additional coordination with our office.

If you have any questions, please contact Carrie Allison at Carrie_Allison@fws.gov.

Sincerely,
for Virgil Lee Andrew, Jr.
Field Supervisor

Request No. 79:
Explain any plans to coordinate with local landowners or others in case of complaints or other issues that might arise during the course of construction or operations.

Response No. 79:
There will be a clearly defined point of contact from Hummingbird, or via the EPC firm, designated to respond to questions or concerns. This point of contact will be designated as part of the Complaint Resolution Program Hummingbird intends to implement. This point of contact will be shared with representatives from the Fleming County Fiscal Court, Fleming County Fire and Police, and other local stakeholders.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information 

Case No. 2022-00272

## Request No. 80:

Provide any communications, or summary of conversations, with representatives of the Mt Carmel Christian Church, Mt. Carmel Bible Fellowship or other churches or religious facilities in the area. Describe any concerns and the resolution.

Response No. 80:
The Mt. Carmel Bible Fellowship is located at 1061 Carpenter Road and is adjacent to the Project. As such, church members have been invited to Hummingbird's public meetings. While no formal comments from a representative of the church have been received, at the November 15, 2022, public meeting, Mr. Leon Esh of 1199 Carpenter Road attended and stated he was a member of this church. Mr. Esh discussed with Hummingbird staff his concern that the church's viewshed would be affected as the panels are proposed to be placed in a pasture east of the church, across Carpenter Road. Hummingbird staff replied that the Landscape Screening Plan would account for the location of the church and vegetative a buffer of trees and shrubs would be planted on the east side of Carpenter Road, west of the proposed panels. See page 3 of the map attached to Response No. 69 for the Landscape Screening Plan's rationale for this area.

Responding Witness: Jayce Walker

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 81:

Provide a list of permits from other local, state, or federal agencies that have been or will be obtained prior to construction or operations.

## Response No. 81:

See attached list of potential permit and compliance items for federal, state, and local regulatory agencies.

HUMMINGBIRD ENERGY
FLEMING COUNTY, KENTUCKY

## POTENTIAL PERMIT \& COMPLIANCE ITEMS

## Federal

- Federal Energy Regulatory Commission (FERC) Interconnection Service Agreement
- U.S. Environmental Protection Agency (EPA) SPCC
- U.S. Department of Energy (DOE) EIA Form 860 and Extension Form 860-M
- U.S. Army Corps of Engineers Nationwide Permit for Stream/Wetland Crossings
- U.S. Fish and Wildlife Service (potential consultation on recently and upcoming endangered listed bat species.


## State

- KPDES General Permit for Stormwater Discharges Associated with Construction Activity
- Kentucky State Siting Board Certificate of Construction
- Kentucky Transportation Cabinet: Driveway, Utility Crossings, and Oversize/Overweight Permits

Local

- Fleming County Road Department Coordination on Driveways and Road Crossings
- Fiscal Court Approval of Decommissioning Plan


## Request No. 82:

Provide copies of any documents submitted to the other agencies, other than what is provided in the application.

Response No. 82:
In addition to the U.S. Fish and Wildlife Service correspondence detailed in the response to Request No. 78, Hummingbird also submitted a request for a Jurisdictional Determination to the U.S. Army Corps of Engineers (Louisville District). Due to size limitations, please find Hummingbird's Jurisdictional Determination request attached as a separate file.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 83:
Refer to the Application, Exhibit F, Economic \& Fiscal Contribution Report, Table 1 and Table 2. Explain whether the construction phase Employment estimates are full time equivalents.

## Response No. 83:

Yes, the employment estimates applicable to the Project's construction phase listed in Tables 1 and 2 of the referenced report describe full-time equivalent jobs.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 84:
Refer to the Application, Exhibit F, Economic \& Fiscal Contribution Report Table 2. Confirm that the average earnings per construction job will be $\$ 49,000$ over the entire construction period.

## Response No. 84:

Hummingbird has contacted Mangum Economics to revise Table 2 to reflect the average earnings per construction job, and will submit the updated table to the Siting Board by August 25, 2023.

Responding Witness: Ben Kerr

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 85:

Refer to the Application, Exhibit F, Economic \& Fiscal Contribution Report, Table 3. Confirm that the average earnings per operational job will be $\$ 24,120$ per year. Explain whether these are part-time or full-time positions.

Response No. 85:
Hummingbird has contacted Mangum Economics to revise Table 3 to provide the average earnings per operational job and clarify whether the average earnings figure reflects part-time or full-time positions. Hummingbird will submit the updated table to the Siting Board by August 25, 2023.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 86:

Refer to the Application, Exhibit F, Economic \& Fiscal Contribution Report, Table 8 and Table 10. Explain if the net fiscal benefit to Fleming County and Kentucky would be the estimated cumulative tax revenue of the Project shown in Table 8 minus the estimated tax revenue generated under agricultural use shown in Table 10.

Response No. 86:
Hummingbird has contacted Mangum Economics to revise its report to clarify the figures used to calculate the net fiscal benefit to Fleming County and Kentucky through tax revenue generation. An updated figure will be submitted to the Siting Board by August 25, 2023.

Responding Witness: Ben Kerr

Request No. 87:
Explain whether Hummingbird Solar will pursue an Industrial Revenue Bond with Fleming County. If so, explain how that might change the cumulative tax revenues of the Project.

## Response No. 87:

The Project is currently in communication with local stakeholders regarding a potential Industrial Revenue Bond (IRB) and will pursue one if Fleming County officials indicate interest in an IRB for the Project. The impact to the cumulative tax revenues of the Project would depend on the specifics of the IRB.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

Request No. 88:
State the expected operational life of the Project.
Response No. 88:
The operational life of the Project is expected to be 40 years.

# Hummingbird Energy LLC <br> Responses to Siting Board Staff's First Request for Information Case No. 2022-00272 

## Request No. 89:

Explain any commitments regarding infrastructure removal or land restoration during decommissioning included in the landowner lease agreements.

Response No. 89:
Hummingbird has included decommissioning commitments in its lease agreements with participating landowners. Please see Response No. 1 for redacted landowner leases and Exhibit I of the Application for the Decommissioning Plan.


[^0]:    DARE: 08/15/2023
    Shet: $\quad 17$ OF 20

[^1]:    Date: 08/15/2023
    Shet: $\quad 19$ OF 20

[^2]:    ${ }^{1}$ Fenneman, Nevin M. (January 1917). "Physiographic Subdivision of the United States"
    ${ }^{2}$ https://kygeonet.ky.gov/StoryMaps/KyPhysiographicRegions/

[^3]:    ${ }^{3}$ Petersen, C, Sparks, T. N., and W. H. Anderson, 2006, Geologic Map of the Morehead $30 \times 60$ Minute Quadrangle, Northeastern Kentucky, Geologic Map 13, Series XII

[^4]:    ${ }^{4}$ Weary, D.J., and Doctor, D.H., 2014, Karst in the United States: A digital map compilation and database: U.S. Geological Survey Open-File Report 2014-1156, 23 p.
    ${ }^{5} \mathrm{~A}$ landform characterized by the presence of sinkholes, caves, large springs and an irregular "pinnacled" bedrock/soil interface.

[^5]:    ${ }^{6}$ http://kgs.uky.edu/kgsweb/download/karst/kysinks.zip

[^6]:    ${ }^{7}$ A poorly permeable underground layer that limits the flow of groundwater from one aquifer to another.

