Siting Board 1-1:

Refer to the Application, Appendix D, Noise Analysis Report. Provide the type of pile driving equipment and pile-driving method to be used during construction.

Response:

The Project anticipates using a Vermeer PD10 or similar type equipment for pile driving (see Attachment). The Vermeer PD10 is a specialty pile driver often used for solar panel installation.

At this time, the Applicant anticipates using impact driving for pile installation, where a heavy weight or hammer, repeatedly strikes the top of the pile and drives it into the ground. It is a widely used method for construction of utility-scale solar projects. This method is effective for driving piles into dense or compacted soils, ensuring a secure and stable foundation.

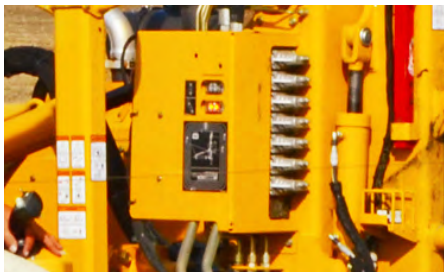
Before any pile driving would begin, the Applicant would conduct geotechnical and soil investigations to better understand ground conditions. These assessments help identify soil composition, groundwater levels, and any potential obstacles or challenges that could impact the pile installation process. Knowing the site's geological characteristics allows engineers to choose the most suitable pile types and driving method, ensuring a stable foundation for the solar project.

The Applicant anticipates conducting geotechnical and soil investigations during the TVA National Environmental Policy Act (NEPA) review process. During pre-NEPA discussions with TVA, TVA requested that no ground-disturbing activities occur until the NEPA review process is initiated.

Witness: Marty Marchaterre

PD10
PILE DRIVER

IMPROVE YOUR ACCURACY. An optional laser receiver integrated into the control system and a GPS-ready design (capable of accepting a number of different systems) can help improve productivity.



REDUCE YOUR CYCLE TIME. Using the auto plumb feature, the PD10 can correct pile angle to be completely vertical without any manual adjustment by the operator. Featuring a hammer which has 80% more impact energy than the original version offered, cycle times have been reduced.

EFFICIENT GROUND DRIVE. Move from pile to pile quickly and accurately with an efficient ground drive, reducing cycle time.

TAKE CONTROL. Conveniently placed dual joystick controls allow the operator to control machine functions including engagement of the hammer, pile placement and ground drive.

LEAVE IT LIKE YOU FOUND IT. The PD10 features a wide track pad to minimize jobsite disturbance in widely varying ground conditions.

AT YOUR FINGERTIPS. An industry-unique integrated control system offers the operator a variety of machine information, including pile angle and height. Display also shows machine maintenance information to help maintain service schedules.

PD10 PILE DRIVER

GENERAL WEIGHTS AND DIMENSIONS 10' (3 M) MAST

Max operating height: 14.9' (4.5 m)
Operating length: 10.2' (3.1 m)
Operating width: 10.1' (3.1 m)
Operating weight: 14,135 lb (6411.5 kg)
Transport height: 108" (274.3 cm)
Transport length: 122" (309.9 cm)
Transport width: 99" (251.5 cm)

GENERAL WEIGHTS AND DIMENSIONS 15' (4.6 M) MAST

Operating height: 19.9' (6.1 m)
Operating length: 10.2' (3.1 m)
Operating width: 10.1' (3.1 m)
Operating weight: 14,320 lb (6495.4 kg)
Transport height: 108" (274.3 cm)
Transport length: 122” (309.9 cm)
Transport width: 99" (251.5 cm)

GENERAL WEIGHTS AND DIMENSIONS 20' (6.1 M) MAST

Operating height: 24.9' (7.6 m)
Operating length: 10.2' (3.1 m)
Operating width: 10.1' (3.1 m)
Operating weight: 15,840 lb (7184.9 kg)
Transport height: 108" (274.3 cm)
Transport length: 122" (309.9 cm)
Transport width: 101" (256.5 cm)

OPERATOR'S STATION

Rollover protective structure (ROPS) rating: 16,300 lb (7393.6 kg)
Seat: Rotating
Controls: Dual joysticks

ENGINE OPTION ONE

Make and model: Deutz D2.9 L4
Gross horsepower: 49 hp (36.5 kW)
Number of cylinders: 4
Cooling medium: Liquid
Fuel type: Diesel
Emissions rating: Tier 4 Final (EU Stage IIIA)

ENGINE OPTION TWO

Make and model: Deutz D2.9 L4
Gross horsepower: 49 hp (36.5 kW)
Number of cylinders: 4
Cooling medium: Liquid
Fuel type: Diesel
Emissions rating: Tier 4i (EU Stage IIIA)

FLUID CAPACITIES

Fuel tank: 18 gal (68.1 L)
Engine crankcase with filter: 2.1 gal (8 L)
Hydraulic tank: 36 gal (136.3 L)
Engine cooling system: 1.5 gal (5.7 L)

GROUND DRIVE

Hydraulic pump type: Danfoss H1 hydrostatic
Max ground drive speed (high): 1.7 mph (2.7 km/h)
Track drive: Steel track with rubber pads

HAMMER

Max angle (direction of tracks): 11 deg (each direction from vertical)
Max angle (perpendicular to tracks): 20 deg away from machine | 55 deg toward machine (from vertical)
Impact drive type: High-frequency hammer
Max hammer impact: 1500 bpm
Max pile dimension (round opening): 9.3 in^2 (23.6 cm^2)
Max pile dimension (square opening): 8.3 in^2 (21.1 cm^2)
Max pile dimension (rectangle opening): 6.7x9.3" (17x23.6 cm)

FEATURES

Auto plumb: Standard
Laser receiver: Optional
Max laser operating distance: 1500' (457.2 m)
Remote Control: Optional
Vermeer Productivity Tools capable
Third party GPS integration available

Vermeer
EQUIPPED TO DO MORE.

Siting Board 1-2:

Refer to the Application, Appendix D, Noise Analysis Report. Explain whether local residents will be notified prior to any pile driving, or other noise producing activity.

Response:

Residents and businesses within 2,400 feet of the project boundary would be notified about the construction plan, the noise potential, any mitigation plans, and the Complaint Resolution Program at least one month prior to the start of construction.

Witness: Marty Marchaterre

Siting Board 1-3:

Refer to the Application, Appendix D, Noise Analysis Report, page 18. Explain the components of the Complaint Resolution Program.

Response:

The Applicant has developed a Complaint Resolution Plan (see Attachment).

Witness: Marty Marchaterre

Lost City Solar Complaint Resolution Plan

Lost City Renewables LLC

Table of Contents

Lost City Solar Complaint Resolution Plan—Introduction

Lost City Renewables LLC (Lost City Renewables) is proposing the construction and operation of the Lost City Solar Project (Project) on approximately 1,413 acres near Penrod and Dunmor, Kentucky. The Project, which will be located on leased private land, will include a commercial-scale solar power project and the associated solar photovoltaic panels, racking systems, electric equipment, a project substation and transformer, a utility switching station, and underground electrical connection lines.

Lost City Renewables endeavors to ensure the Project is constructed and the facility is operated in responsible manners to minimize the Project's impact on nearby residents or those passing through the area.

Lost City Renewables will construct and operate the Project in accordance with all applicable federal, state, and local laws and permits. However, to address concerns of residents that might occur during construction, operation, or decommissioning, a Complaint Resolution Plan (Plan) has been established. The Plan defines a process for receiving, investigating, and addressing complaints.

Purpose of Complaint Resolution Plan

The purpose of this Complaint Resolution Plan is to establish a process and procedures for the public to notify Lost City Renewables if concerns arise during the construction, operation, or decommissioning of the proposed Project. This Plan includes commitments for addressing public complaints, and the Plan includes procedures for dispute resolution during Project construction, operation, or decommissioning activities. The Complaint Resolution Plan includes steps for informing the public about the complaint process, the process for registering a complaint, protocols for gathering and analyzing information regarding complaints, and procedures that may be unique for certain types of complaints (e.g., noise) or for different stages of the Project (e.g., construction and operation). The Plan also describes actions Lost City Renewables would take if a complaint were to remain unresolved after all these steps are followed.

Complaint Filing Process

Individuals wishing to file a complaint can do so by one of the following means:

- Phone: (843) 510-5254
- Email: contact@lostcitysolar.com (Preferred)
- Online Contact Form: https://lostcitysolar.com/

When filing a complaint, please provide the following information to ensure Lost City Renewables can accurately and thoroughly address the complaint:

- Name and contact information of the complainant
- Date of complaint
- Detailed description of the complaint, including, if possible, the location, date(s), and time that the situation occurred, photographs, and any other details that can help identify and resolve the situation.

Complaint Review Process

Complaint Identification: Lost City Renewables will regularly check the phone number, email address, and online contact forms to determine whether any complaints have been received. In the event that Lost City Renewables receives a complaint, a representative of Lost City Renewables will reach out to the complainant within 72 hours to obtain additional information about the complaint.

Complaint Investigation: After receiving the necessary information regarding a complaint, Lost City Renewables will investigate the complaint to determine whether the complaint has merit. Investigations will identify and characterize the nature of the complaint (e.g., traffic, dust, noise, etc.) and to the extent possible, the source (e.g., construction vehicles and equipment, environmental conditions, etc.).

Lost City Renewables will enter a complaint into a complaint log, document the details of the complaint, and assign a point of contact to investigate the complaint. The Site Project Manager will be responsible for initiating the review of complaints received during the construction process. The Site Project Manager and/or Operation and Maintenance (O&M) staff, will be responsible for initiating the review of complaints reported during the operational and decommissioning phases.

Lost City Renewables will first determine whether complaints violate federal, state, or local laws or permit conditions, and whether there are notifications or required steps to address those violations. Lost City Renewables will also determine whether outside resources are necessary to address situations.

Response: After enough information has been obtained to fully understand the nature of the complaint, Lost City Renewables will work with appropriate personnel and/or parties to determine how to best address the complaint and the conditions that are causing the complaint. If the complainant or other parties seek additional information related to the complaint, Lost City Renewables will work with those parties to obtain the necessary information to move forward.

Lost City Renewables will work in good faith to address and/or resolve reasonable complaints as soon as practicable. Lost City Renewables is committed to resolving reasonable complaints within 30 days unless extenuating circumstances necessitate a longer time period or it is determined that the complaint is unresolvable. Lost City Renewables will provide an explanation to the complainant concerning the extended period and the timeline for addressing the complaint should complaint resolution take longer than 30 days. Safety and good community relations are among the highest priorities to Lost City Renewables; as such, speedy resolution of legitimate complaints is essential.

Documentation: Lost City Renewables will keep records of complaints received. The complaint log will include, if available, the date of the complaint, the name of the complainant, contact information for the complainant (including address and phone number), and a detailed description of the complaint. The complaint log will also include a description of the subsequent actions taken to resolve each complaint and complaint resolution if resolution is feasible. The complaint log will be maintained by Lost City Renewables. This log will be available to the Muhlenberg County Fiscal Court for inspection upon request.

In the event that Kentucky state agencies, Muhlenberg County Fiscal Court, or County Departments receive complaints directly about unanticipated effects of Project construction or operation, the

respective State or County representatives will notify Lost City as soon as practicable and provide the details of such a complaint in writing. Muhlenberg County and Lost City Renewables will designate appropriate officials for such communications. Lost City Renewables will then investigate the complaint as outlined above.

Public Notification of Complaint Process: No fewer than (2) weeks prior to the commencement of construction, Lost City Renewables will publish a summary of the Complaint Resolution Plan on the Project's website, and the Plan will be available at the temporary construction office.

Siting Board 1-4:

Explain whether the roadways proposed to be used during the delivery phase of the project have been designated Level of Service (LOS) ratings in the form of a letter grade. If so, provide the rating and the entity that assigned those ratings.

Response:

Based on communication with Tyler Goad (KYTC, District 2) on March 10, 2025, the KYTC has been moving away from using a letter-grade LOS to evaluate, rate, or prioritize roadways for projects. Instead, the Annual Average Daily Traffic (AADT) and the functional class are used in combination to help KYTC determine whether roadway conditions meet expectation. Where available, AADTs and the functional class of each roadway are provided. AADT on the three county routes is not available from KYTC.

Available traffic counts for roadways in the Project vicinity (data source: Kentucky Transportation Cabinet Traffic Count Reporting System).

Route	Station ID	Mileposts	AADT (year)	Functional Class
089-US-0431-000	089255	0 – 2.87	3,332 (2021)	Rural Minor Arterial
089-KY-0949 -000	089287	0 – 2.25	392 (2023)	Rural Minor Collector
089-KY-0949-000	089288	2.25 – 6.78	171 (2021)	Rural Minor Collector
Mason-Poyner Road	N/A	--	N/A	Rural & Urban Local
Forgy Mill Road	N/A	--	N/A	Rural & Urban Local
Free Lane	N/A	--	N/A	Rural & Urban Local

Witness: Marty Marchaterre

Siting Board 1-5:

Refer to Site Assessment Report (SAR), Appendix G, Traffic Impact Study.

a. Describe the current conditions of Foggy Mill Road, Mason-Poyner Road, and Free Lane.

b. Describe how Foggy Mill Road, Mason-Poyner Road, and Free Lane will be utilized during the delivery and construction phase of the project. Provide what type(s) of vehicle(s) will use each particular road.

c. Provide the width and weight limit ratings, by individual road, for Foggy Mill Road, Mason-Poyner Road, and Free Lane.

d. Describe any repairs or upgrades that will need to be made to Foggy Mill Road, Mason-Poyner Road, and Free Lane prior to the delivery and construction phase of the project.

Response:

a. *Forgy Mill Road (County Road (CR) 1149)* is a two-lane public road with a posted speed limit of 35 mph. Based on discussions with the Muhlenberg County Road Department (MCRD), Forgy Mill Road has been recently repaired and repaved. With assistance by the Pennyrile Area Development District, all roads in Muhlenberg County have been evaluated and given a 1-5 rating for current conditions with "1" being the best condition. After the repair and repaving, MCRD considers Forgy Mill Road to have a "1" rating." Currently, the MCRD has repaired and repaved all roads in the County rated "5" and is working to repair/improve all roads rated "4." *Mason-Poyner Road (CR 1162)* is a two-lane road with a posted speed limit of 35 mph that borders the southeastern portion of the Project Site. Mason-Poyner Road is rated a "4" by the County based on current conditions and is on the list to be repaired/repaved.

Free Lane (CR 1603) is a paved road that extends north-south from KY 949 and has a posted speed limit of 25 mph. It is rated "4" by the County based on current conditions.

b. Forgy Mill Road: This road would provide secondary access for construction, and delivery vehicles entering and leaving the Project Site. Typical vehicles would include company pick-up trucks, as well as flatbed trailer trucks delivering equipment and materials. Occasional use by heavy haul trailer trucks would be used for delivery, such as for the transformer.

Mason-Poyner Road: This road would provide secondary access for construction and delivery vehicles entering and exiting the Project Site. Typical vehicles would include company pick-up trucks, as well as flatbed trailer trucks delivering equipment and materials.

Free Lane: No construction, delivery, or worker vehicles would use Free Lane. The Free Lane entrance to the site would be used only for agricultural activities, such as vehicle access to the poultry barns and managing grazing activities.

c. As defined by Kentucky Administrative Regulations, 603 KAR 5:066 Section 1(2): Type 1 is a single unit truck with two single axles; Type 2 is a single unit truck with one steering axle and two axles in tandem arrangement; Type 3 is a single unit truck with one steering axle and three axles in tridem arrangement; Type 4 is a tractor-semitrailer combination truck with five or more axles. According to KYTC (see Attachment), the Gross Vehicle Weight (GVW) for any county road and any truck type listed above is set at maximum of 18 tons.

d. Once an Engineering, Procurement, and Construction (EPC) contractor is selected, the EPC would review whether repairs or upgrades to Forgy Mill Road or Mason-Poyner Road are needed for transporting equipment or materials or worker vehicles.

Witness: Marty Marchaterre

Weight Limits: Roadways

Contents

The full definitions for terms included in this article (listed below) can be found in the HKP Glossary.

- **Gross Vehicle Weight**
- **Posting**

1. Introduction

In the United States, vehicle weight limits are set by laws and regulations enacted at the state and federal levels. Weight restrictions are imposed to protect highway infrastructure from excessive damage and to ensure the integrity of the nation's bridges.

To maintain full eligibility for federal highway funding, states must abide by federal weight limits on the interstate highway system. However, states can establish weight limits for other roads under their authority. These limits are typically based on the maximum gross vehicle weight (GVW) or weight per vehicle axle. States also establish statutes, regulations, and policies that allow some vehicles to exceed legal limits, either through special overweight permits or statutory exemptions.

2. Kentucky's Standard Operational Weight Limits

Since 1942, Kentucky has enacted many statutes and regulations related to vehicle weight limits. The earliest of these – KRS 189.210 – limited vehicles other than motor trucks and semitrailer trucks to no more than 15 tons (with some exceptions). Later statutes and regulations established a road classification system that set varying weight limits on different roads based on the number and spacing of vehicle axles. The GVW for county roads was capped at 18 tons, while state-maintained roads were designated as either A, AA, or AAA, with higher maximum limits. Table 1 lists standard operational weight limits for different road classifications.

Table 1: Kentucky Standard Operational Weight Limits (State-Maintained Roads)

Truck Type	Total Axles	Roadway Classification and Weight Limit (tons)			
		County	A	AA	AAA
Type 1	2	18	20	20	20
Type 2	3	18	22	27	27
Type 3	4	18	22	31	34
Type 4	5+	18	22	31	40

The road classification system provided a relatively straightforward method to determine the maximum weight allowed on a highway for a given type of vehicle. By requiring more axles for higher weights and limiting the weight that could be carried on any single axle, Kentucky's regulatory framework helped ensure the forces from heavy vehicles would not excessively damage pavements and bridges.

The system also facilitated the design of pavements and bridges able to meet traffic demands expected for different road classifications. Specifically, practitioners could determine if it was necessary to post weight limits for bridges that had deteriorated due to aging or damage given the maximum legal weight limit allowed for the given road classification. If a bridge load rating indicated a structure could carry more weight than the road's maximum legal load, no posting was necessary.

Several laws now authorize some vehicles to exceed the standard operational weight limits found in Table 1. These exemptions — described in the next three sections — allow specified vehicles to carry up to 40 tons on local roads and 44 tons on most state roads depending on the type of material being hauled.

Today, when designers make decisions related to road design, bridge design, and bridge load rating analysis they should assume a road will handle loads classified as AAA and proceed on that basis.

3. Exceptions to the Standard Operational Weight Limits

Several industries are exempt from regular operational weight limits defined by the road classification system. How exemptions are applied varies significantly based on the type of material being hauled and the road segment(s) on which a load travels. The types of exemptions allowed include:

1. **Increased allowable weights.** This exemption allows carriers of certain cargo types to treat all state-maintained roadways as if they are AAA – which allows for up to 40 tons GVW. KRS 189.222(1)(f) also allows for weights up to 40 tons for all cargo types on any state highway that is within 15-miles of an interstate or parkway exit.

2. **10% tolerance on the gross weight.** Allows carriers to exceed the allowable GVW by 10% before any penalties are assessed. When combined with exemption 1 above, this allows for a GVW of up to 44 tons on any state-maintained roadway – excluding interstates.

3. **Axle weight exemption.** Typically, loads must be distributed on a truck so that the weight of any axle or group of axles does not exceed specific tolerances. This rule helps to ensure that excessive point stresses aren't applied to bridges and pavements. The exemption allows certain carriers to ignore this requirement.

4. **10% axle weight tolerance.** Like the axle weight exemption, this exemption allows certain carriers to exceed axle weight limits, but only by 10%.

Table 2 lists the various types of cargo to which these exceptions apply.

Table 2: Exceptions to Kentucky's Standard Operational Weight Limits					
Cargo Type	**Description**	**Up to 80k on any state highway**	**10% gross weight tolerance**	**Axle weight exemption**	**10% axle weight tolerance**
Primary Forest Products	Includes (but not limited to): - Sawdust - Wood Chips - Bark - Slabs - Logs	Y	Y	1	2
Agricultural Products	- Meats - Crops - Livestock or Poultry: from origin to first market.	Y	Y	1	Y
Livestock and Poultry Feed	- Feed for livestock or poultry Livestock Poultry and Feed is a subset of Farm Supplies with additional exemptions.	Y	Y	N	Y
Farm Supplies	- Farm Supplies - Materials - Equipment	Y	N	N	N
Building Materials	- Equipment - Materials associated with new home construction	3	N	N	N
Ready-Mixed Concrete	Ready Mixed concrete	N	N	Y	N/A
Garbage Trucks	Vehicles engaged exclusively in the collection and hauling of refuse	N	N	Y	N/A
Other Exceptions	- Crushed Stone - Fill Dirt - Rock - Soil - Bulk Sand - Coal - Phosphate Muck - Asphalt - Concrete - Solid Waste	N	N	N	Y

Table 2: Exceptions to Kentucky's Standard Operational Weight Limits					
	- Tankage - Animal Residues				
Any Other Cargo	Any cargo, including those listed as exceptions above.	4	N	N	N

Table 2 Key:

1. If registered under 186.050(4) (Farm) or 186.050(9) (Limited Commercial), axle weight provisions do not apply.

2. If registered under 186.050(3)(b) (Commercial), a 10% tolerance is allowed on axle weights.

3. Weight must be within the limits of the registration and vehicle must be within 15 miles of a state road classified to carry the registered weight of the vehicle. 96" width limit on single "A" highways.

4. If vehicle is 102" wide or less and within 15 miles from an interstate or parkway exit.

Haulers, vehicle enforcement officers, and other commercial vehicle industry stakeholders often find it difficult to keep track of every aspect of Kentucky's complex regulatory framework. The flowchart in Figure 1 illustrates this framework by showing — from the perspective of motor vehicle carriers travelling a given route — how weight limits are applied and enforced.

For a detailed summary of all statutes and regulations pertaining to weight limits, readers can download Table 3 .

4. Extended Weight Coal Haul Road System

In 1986, KRS 177.9771 established Kentucky's Extended Weight Coal Haul or Coal By-Products Road System (EWCHRS). This system includes:

- All state-maintained Parkways or routes previously part of the Parkway system
- All public highways on which 50,000 tons or more coal or coal by-products were hauled in the previous calendar year.

Except for interstate routes grandfathered into the system based on prior inclusion in the Parkway system, the EWCHRS excludes interstate highways.

On the EWCHRS most vehicles are capped at a GVW of 80,000 pounds. Under KRS 177.9771, however, vehicles using tractor-semitrailer combinations with five or more axles and transporting coal or coal by-products on public highways on the ECWHRS may operate at a GVW of up to 120,000 pounds with a tolerance of five percent (5%).

Each year KYTC's Secretary certifies public highways or highway segments included in the EWCHRS. Routes change each year because the system is designated based on tonnages reported by companies that haul coal or coal by-products. The Secretary can also add or remove roads from the EWCHRS after consulting with stakeholders.

- Parkway and former Parkway routes always remain on the EWCHRS regardless of reported coal or coal by-product hauling tonnages.
- Other routes that do not meet the 50,000-ton threshold during a calendar year are dropped from the next year's EWCHRS.

Coal companies must accurately report tonnages to KYTC to ensure routes are not inadvertently omitted from the system.

5. Extended Weight Unrefined Petroleum Products Haul Road System

KRS 177.985 established the Extended Weight Unrefined Petroleum Products Haul Road System. The system went into effect January 1, 2022, and remains in effect until June 30, 2028. Included on the system are all state-maintained highways on which at least 50,000 tons of unrefined petroleum were transported during the previous calendar year. KYTC must conduct annual inspections of all routes on the system to evaluate the deterioration of roads and bridges.

Vehicles with a registered GVW over 80,000 lbs. that transport unrefined petroleum on the system using approved axle configurations can obtain a permit to operate over weight limits on state or county systems (up to 120,000 lbs. with a 5% gross weight tolerance). KRS 177.985 requires the installation of global positioning system (GPS) technology in each vehicle operating on the system to assist with mileage reporting and to ensure permitted trucks do not operate on roads that are not part of the Extended Weight Unrefined Petroleum Products Haul Road System.

Like the EWCHRS, each year KYTC's Secretary certifies which public highways or highway segments are included on the Extended Weight Unrefined Petroleum Products Haul Road System. Routes may change each year because the system is designated based on self-reported quantities of unrefined petroleum products transported by individuals, producers, or processors. Before adding a route to the system, KYTC's Secretary must take under consideration any concerns expressed by the fiscal court in the county where a route is located.

6. Kentucky Metal Commodities Hauling Network

KRS 189.2713 allows annual and single-trip permits for transporting loads of metal commodities weighing up to 120,000 lbs. on specified state-maintained routes. This includes motor carriers transporting products from metal-producing industries in their most basic and original form from a mill or storage facility to market for processing.

Eligible routes are available online at the Metal Commodities Hauling Network GIS site. Vehicles operating under the provisions of the Metal Commodities permit are not allowed to exceed posted bridge weight limits under any circumstances.

Siting Board 1-6:

Provide the width and weight limit ratings of all bridges and culverts within a two-mile radius of the project.

Response:

The KYTC Bridge Data Miner application provides the following information based on the National Bridge Inventory dataset. Bridges are given ratings of good, fair, and poor, which are defined in accordance with the Pavement and Bridge Condition Performance Measures final rule. The Bridge Condition is based on the conditions ratings provided within the National Bridge Inventory for item 58 (deck), item 59 (superstructure), item 60 (substructure), or item 62 (culvert). If the lowest rating is greater than or equal to 7, the bridge is classified as *good*. If it is less than or equal to 4, the classification is *poor*. Bridges rated 5 or 6 are classified as *fair*. Eight bridges were identified within two miles of the Project Area using the application, four are classified as good and four are classified as fair. No bridges classified as poor were identified in the two-mile area. The table below shows the bridges within a two-mile radius of the Project Site and their ratings.

Where posted, weight limits are defined by four different truck types. As defined by Kentucky Administrative Regulations, 603 KAR 5:066 Section 1(2): Type 1 is a single unit truck with two single axles; Type 2 is a single unit truck with one steering axle and two axles in tandem arrangement; Type 3 is a single unit truck with one steering axle and three axles in tridem arrangement; Type 4 is a tractor-semitrailer combination truck with five or more axles.

Bridge ID	Route ID	Approx. Width (feet)	Weight Limit/Posting	Bridge Classification
089C00063N	089-CR-1141-000	14.7	No Posting	Good
089C00055N	089-CR-1161-000	18.5	No Posting	Good
089C00048N	089-CR-1184-000	22.6	No Posting	Good
089C00060N	089-CR-1189-000	15.7	No Posting	Good
089B00106N	089-KY-0949-000	23.3	No Posting	Fair
089B00083N	089-KY-0973-000	16.1	No Posting	Fair
089B00017N	089-US-0431-000	19.8	Truck Type 1: 37 ton Truck Type 2: 38 ton Truck Type 3: 41 ton Truck Type 4: 44 ton	Fair
089B00016N	089-US-0431-000	19	Truck Type 1: 37 ton Truck Type 2: 38 ton Truck Type 3: 41 ton Truck Type 4: 44 ton	Fair

Witness: Marty Marchaterre

Siting Board 1-7:

Describe any repairs or upgrades that will need to be made to any bridges or culverts prior to the delivery and construction phase of the project.

Response:

At this time, the Applicant does not anticipate repairs or upgrades to bridges or culverts would be needed prior to the delivery and construction phases of the project. However, once an Engineering, Procurement, and Construction (EPC) contractor is selected, the EPC would review whether repairs or upgrades to any bridge or culvert are needed for transporting equipment or materials.

Witness: Marty Marchaterre

Siting Board 1-8:

Provide the maximum expected load weights for each type of delivery truck, including, but not limited to, cement and water trucks, heavy equipment, gravel for access roads, panels, inverters, and the transformer.

Response:

Maximum expected load weights are as follows: cement truck, 80,000 pounds; water truck, 40,000 pounds; tractor trailer, 80,000 pounds; and general delivery trucks, 20,000 pounds.

Witness: Marty Marchaterre

Siting Board 1-9:

Identify the specific roadways used by heavy trucks, by road name, including for delivery of the transformer.

Response:

The EPC will identify the haul routes to be used during construction to determine viable routes for the expected weight and dimensions of vehicles. The haul route plan should be completed in the first quarter of 2026. Even though the haul routes are not known at this time, the Applicant agrees to comply with all state and local requirements for road use and obtain any permits necessary.

Witness: Marty Marchaterre

Siting Board 1-10:

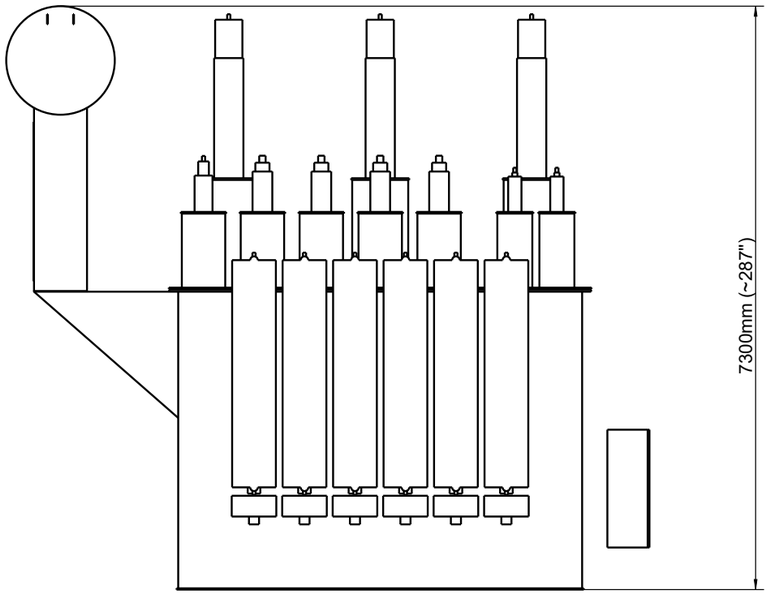
Provide the estimated weight of the project's required substation transformer and the truck class necessary for its delivery.

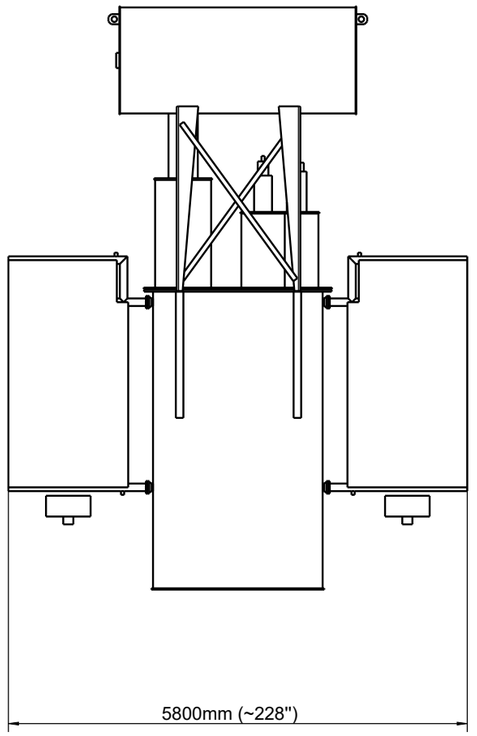
Response:

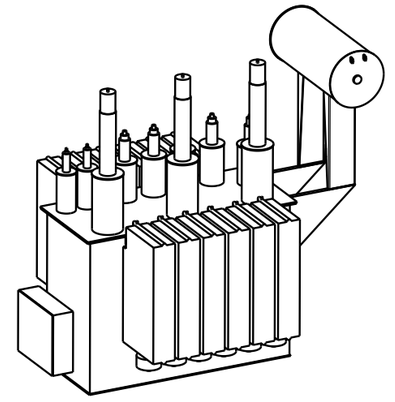
Based on preliminary transformer design and specifications, it is anticipated that the shipping weight of the transformer is approximately 183,000 pounds (91.5 tons) (see Attachment).

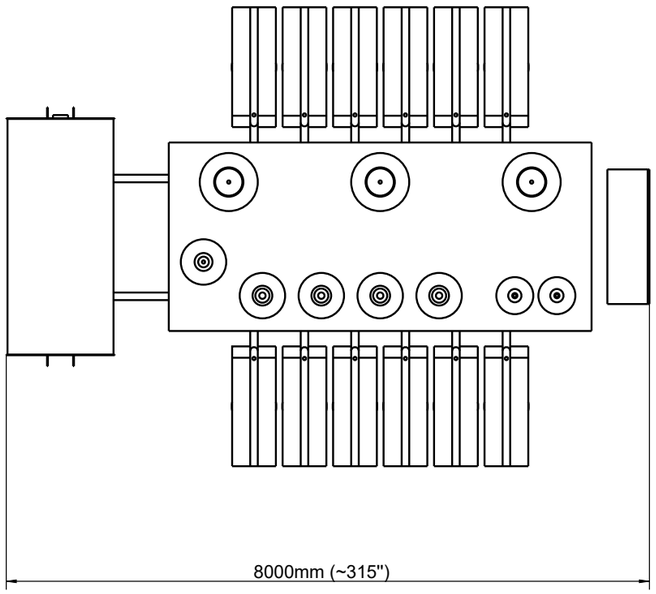
The Applicant anticipates that the truck class needed for the transformer delivery would be a Federal Highway Administration Class 8. A Class 8 is any vehicle 33,001 pounds or larger and includes 18-wheelers and tractor trailers.

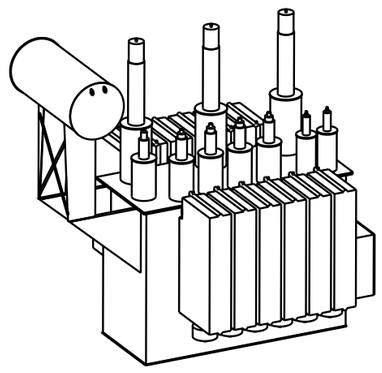
Witness: Marty Marchaterre











PROJECT		
ONLY FOR OFFER		
RATED POWER		90/120/150 MVA
RATED VOLTAGE		161 ±2x2,5% / 34,5 / (13,8) kV
TOTAL MASS WITH OIL	APPROX.	130,0 t (~287.000 lb)
MASS/VOLUME OF OIL	APPROX.	30,5 t (~9.000 USG)
SHIPPING MASS (NO OIL)	APPROX.	83,0 t (~183.000 lb)

General tolerances: -	Scale: -	Size: A3H	Date of issue: 19/12/2024	CAD system: Creo	Projection method
Responsible department: STN	Technical reference:		Document type: Preliminary Layout	Project: CIP Lost City	
SIEMENS energy	Created by: Trentini		Title, Supplementary title: PROPOSAL DRAWING ONAN/ONAF1/ONAF2	Drawing number: 0059-250100A	Order number: 0059-250100A
	Approved by:			Revision: - / Date of revision: / Language: / Sheet: 01	

File name: OFFER__IT250100A.drw

Siting Board 1-11

Explain whether any oversize or overweight deliveries will require special permits from the Muhlenberg County Road Department and the Kentucky Department of Transportation.

Response:

The EPC Contractor would determine delivery routes per the road and bridge capacities when developing the haul routes. The Applicant would ensure that the EPC would work with state and local road departments if any oversized delivery vehicles would be used during construction, to upgrade any roads necessary for oversized vehicles, or repair any damage to local roads.

Witness: Marty Marchaterre

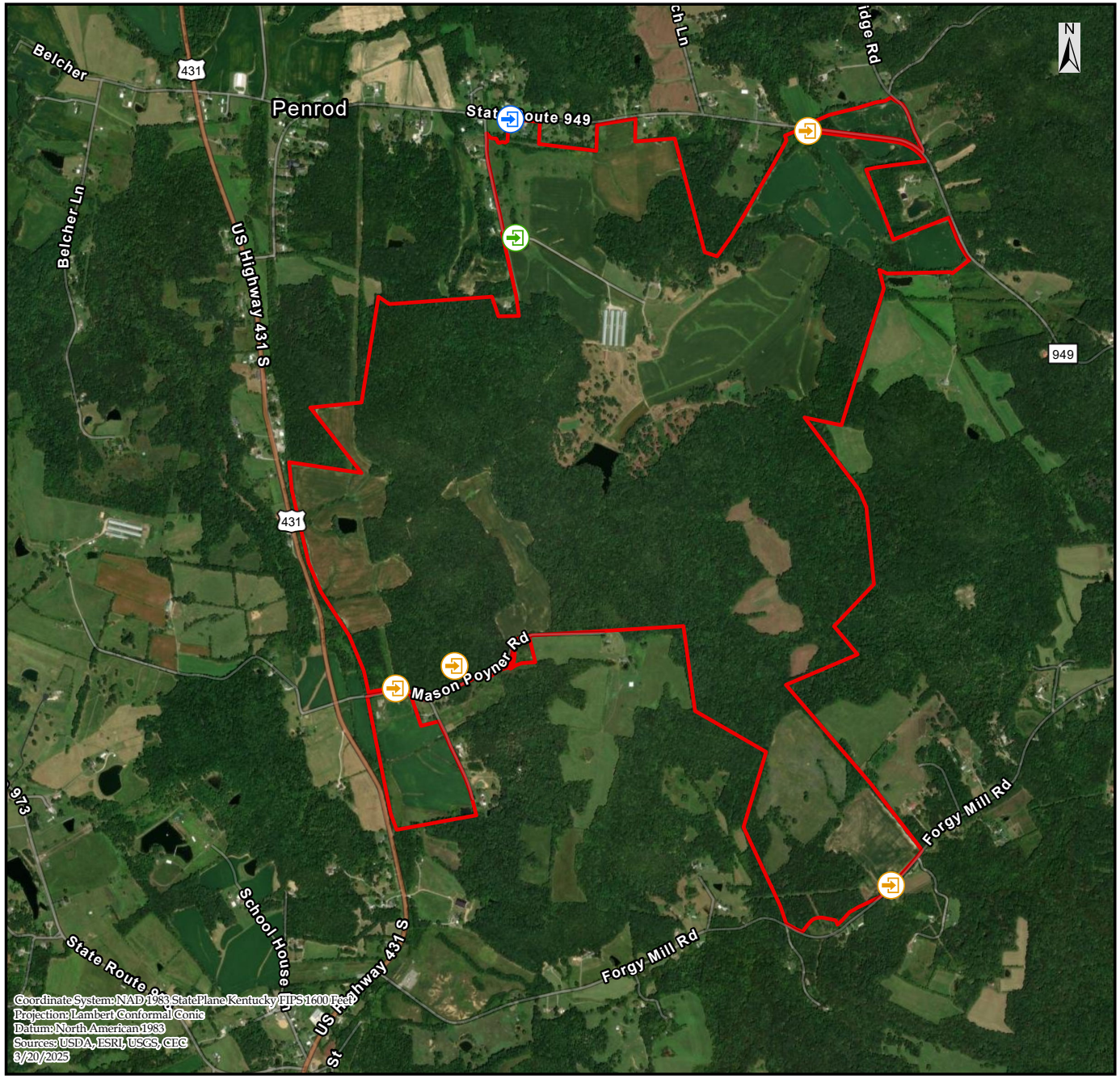
Siting Board 1-12:

Provide a one-page directional map showing the anticipated delivery routes for the project. Include on the map: access roads, access points, existing roads, bridges, electric generation components, and all structures within two miles of the project.

Response:

Project Site maps with primary and secondary access points for both construction and operations are attached (see Attachment). Haul routes for deliveries have not been determined to date. The EPC contractor, once selected, would aid in determining the haul routes and identifying any existing bridges or other road features that could be affected during construction to the Site. The EPC would work with the Applicant to inform and obtain permits from State and local road authorities as needed. The EPC and the Applicant would comply with all permit requirements and will coordinate with proper road officials as needed (Kentucky Transportation Cabinet Encroachment Permit, Overweight/Over-dimensional permits, County and State route permits, etc.).

Witness: Marty Marchaterre



COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Lost City Renewables LLC

FIGURE 1-12a:
Construction Access Points for the Lost City Solar Project, Muhlenberg County, Kentucky

Legend

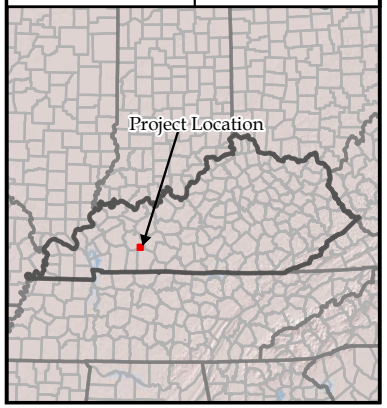
- Agricultural Operations Only - No Construction Access
- Primary Construction Entrance
- Secondary Construction Entrance
- Project Area

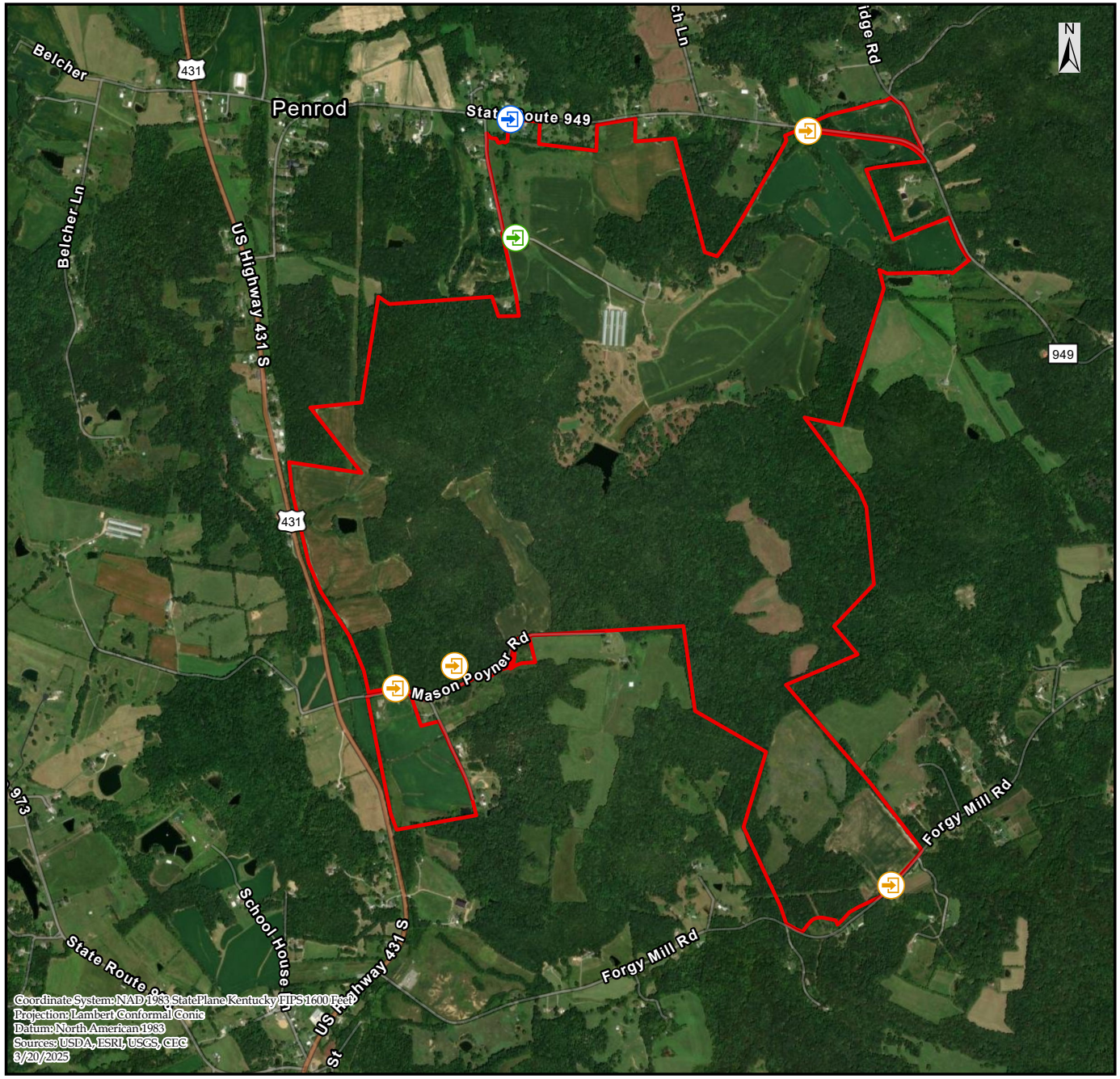
0 1,000 2,000
US Feet

Scale: 1 in = 2,000 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	3/20/2025
Checked by:	MM	Revision:	02





COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Lost City Renewables LLC

FIGURE 1-12b:
Operation Access Points for the Lost City Solar Project, Muhlenberg County, Kentucky

Legend

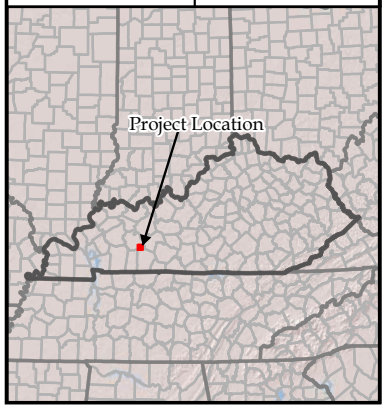
- Agricultural Operations Only
- Main Entrance
- Periodic Maintenance Entrance
- Project Area

0 1,000 2,000
US Feet

Scale: 1 in = 2,000 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	3/20/2025
Checked by:	MM	Revision:	02



Siting Board 1-13:

Refer to SAR, Appendix G, Traffic Impact Study. The study states, "[f]ive access points will spread construction and worker vehicle entering and leaving he Project Area." Explain whether workers will enter and leave specifically designated access points based on construction location each day, or whether workers will enter the site across all access points to avoid traffic congestion.

Response:

It is anticipated that construction vehicles will use all available Project Site entrances, regardless of the construction location, each day to reduce the likelihood of traffic congestion at individual entrances (see figure attached to Request for Information 1-12). The majority of workers would use the Primary Construction Entrance for entering and leaving.

The Applicant is committed to implementing mitigation measures to reduce worker- and construction-vehicle related traffic congestion (as outlined in SAR, Appendix G, Traffic Study) including developing and implementing a traffic management plan and ridesharing between construction workers whenever feasible. The traffic management plan would be developed in coordination with both state and local road departments.

Witness: Marty Marchaterre

Siting Board 1-14:

Refer to SAR, Appendix G, Traffic Impact Study. Explain whether the mitigation measures stated in the study are suggestions from Copperhead Environmental Consulting or pre-determined measures from Lost City Renewables.

Response:

The Applicant has reviewed and determined that the identified Traffic Study mitigation measures would be implemented by the Project. These measures are also included in the Site Assessment Report, Section 6 Mitigation Measures.

Witness: Marty Marchaterre

Siting Board 1-15:

Explain whether vehicles used during the delivery and construction phase of the project will cross the abandoned railroad that parallels US 431.

Response:

No delivery or construction vehicles would cross the remaining 1,840-foot segment of the abandoned railroad bed that parallels US 431. The abandoned railroad bed no longer exists where Mason-Poyner Road and Forgy Mill Road intersect with US 431.

Witness: Marty Marchaterre

Siting Board 1-16:

Refer to the SAR, mitigation measure 5. Describe the "Perimeter firebreak road."

Response:

The Project Site would include a fire break road within the property buffer, just outside the fence line around the perimeter of the Site. The fire break would consist of a 10-foot dirt road located 10 feet outside the project fence. The fire break road would allow access around the perimeter of the site and act as a fire break to help manage or control fire from spreading from or onto the solar facility. This road may be suitable for small vehicles or off-road ATVs for emergency management services.

Witness: Marty Marchaterre

Siting Board 1-17:

Refer to SAR, mitigation measure 16. Provide what experience Lost City Renewables and Sunrise Renewables, LLC have constructing solar projects.

Response:

Lost City Renewables LLC and Sunrise Renewables are a wholly owned affiliate of Copenhagen Infrastructure Partners' (CIP) venture capital fund entity CI V Master DevCo LLC (https://www.cip.com/funds/) (see Attachment). CIP entered the U.S. market in 2016 and is the world's largest dedicated fund manager within greenfield renewable energy investments and a global leader in wind and solar. Since then, CIP has expanded renewable energy projects across 20 U.S. States and in Canada. In North America alone, CIP's total renewable energy nameplate capacity consists of approximately 1.4 GW of operational assets, approximately 815 MW of assets under construction, and approximately 5 GW of assets in development.

CIP has extensive experience taking on sizeable utility-scale development projects, setting up successful development and construction teams, and shepherding them from development to financial close to commercial operation. The firm is known for execution certainty, and CIP's projects have historically been completed on budget and to specification.

Lost City Renewables and Sunrise Renewables use CIP's process templates, including experienced team members, developed and gained through executing renewable projects worldwide. It should also be noted that Stantec (www.stantec.com) and Copperhead (www.copperheadconsulting.com) form the cornerstones of the development team managing all aspects of design, engineering, permitting, and outreach. Stantec continually ranks in the Engineering News-Record (ENR) list of Top 10 Design Firms. Both firms have extensive

experience with successful renewable energy projects ranging from planning and design through construction and operation.

Witness: Sean Joshi

Lost City Renewables LLC (Lost City) is a wholly owned affiliate of Copenhagen Infrastructure Partners' (CIP) venture capital fund entity CI V Master DevCo LLC (CI V Investment Fund).

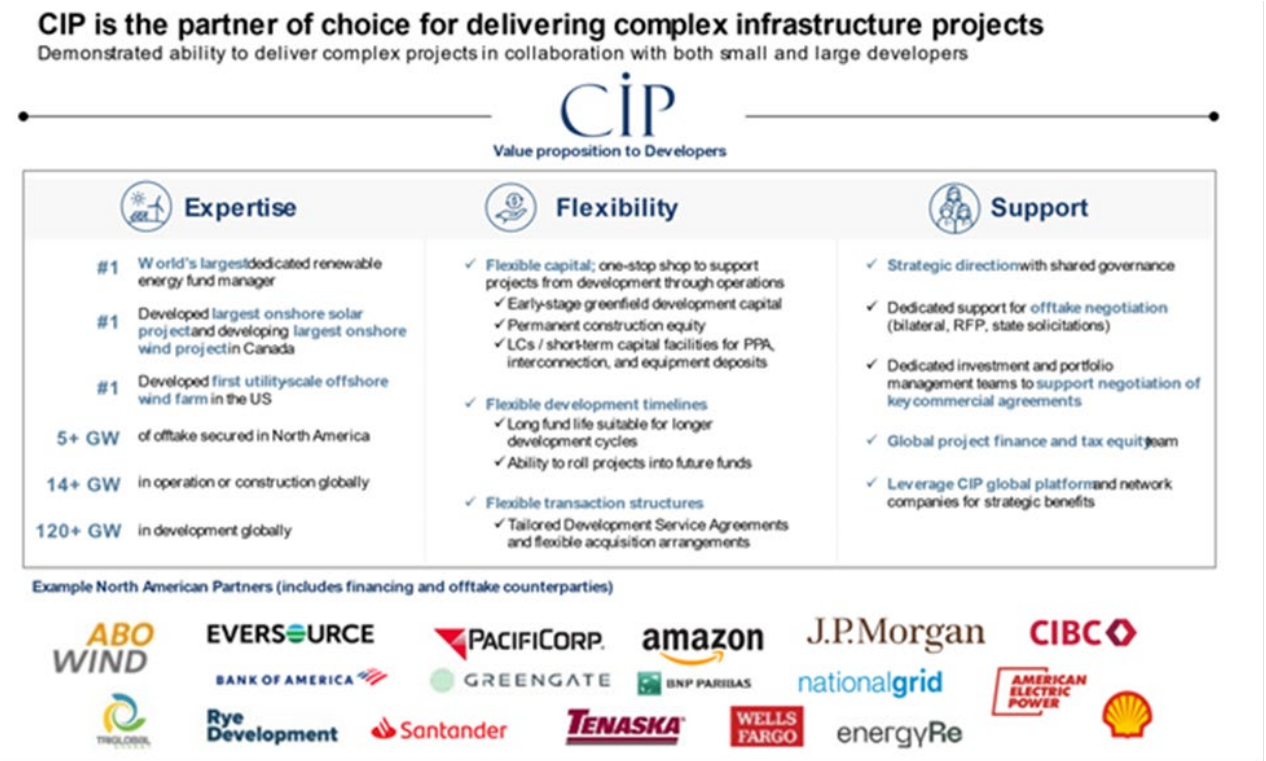
CIP, a global fund management company headquartered in Copenhagen, manages seven funds (including Copenhagen Infrastructure IV K/S) totaling EUR 16 billion from a group of prominent international investors. The company, with approximately 300 full-time employees, has internal technical and asset management capabilities. CIP-managed funds have been used to make more than 20 investments in large-scale energy infrastructure projects across Europe, North America, and Asia within offshore wind, onshore wind, biomass, solar, and transmission. Those projects have a total capacity of more than 8 gigawatts (GW).

CIP is a well-versed investor with broad institutional relationships in the North American renewables sector. Over the past two years alone, the company has arranged financing for seven projects (wind and solar) with seven different investors: Berkshire Hathaway Energy, Bank of America, Citi, State Street, Wells Fargo, US Bank, and SunTrust. CIP's total nameplate capacity in North America consists of approximately 1.4 GW of operational assets, approximately 815 MW of assets under construction, and approximately 5 GW of assets in development.

CIP has experience conducting sizable utility-scale development projects, setting up successful development and construction teams, and guiding them from development to financial close to commercial operation. The experienced CIP development team provides leadership in procurement, offtake, site control, permitting, and engineering.

CIP's value proposition is represented in the following figure. For additional information about CIP, visit the CIP Website.

CIP Value Proposition

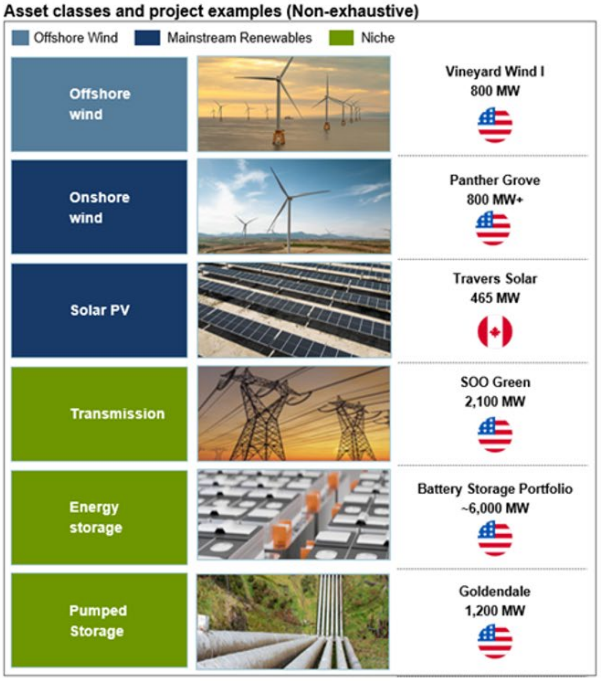


CIP Select US Renewable Investments

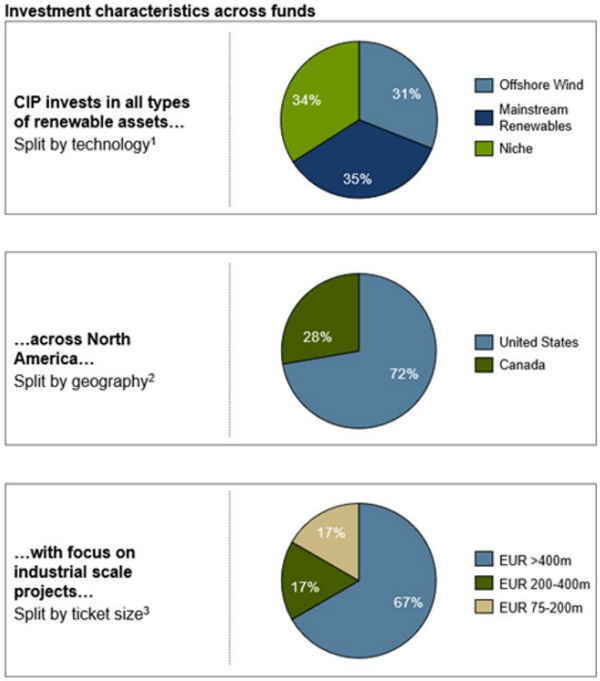
Investments overview

CIP focuses on large-scale energy infrastructure projects across technologies within renewables

Asset classes and project examples (Non-exhaustive)

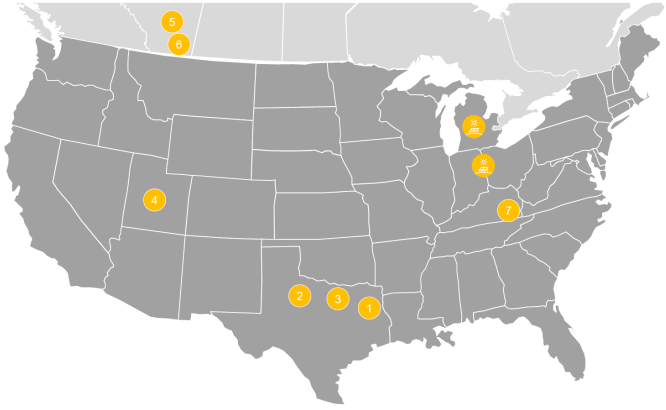


Investment characteristics across funds



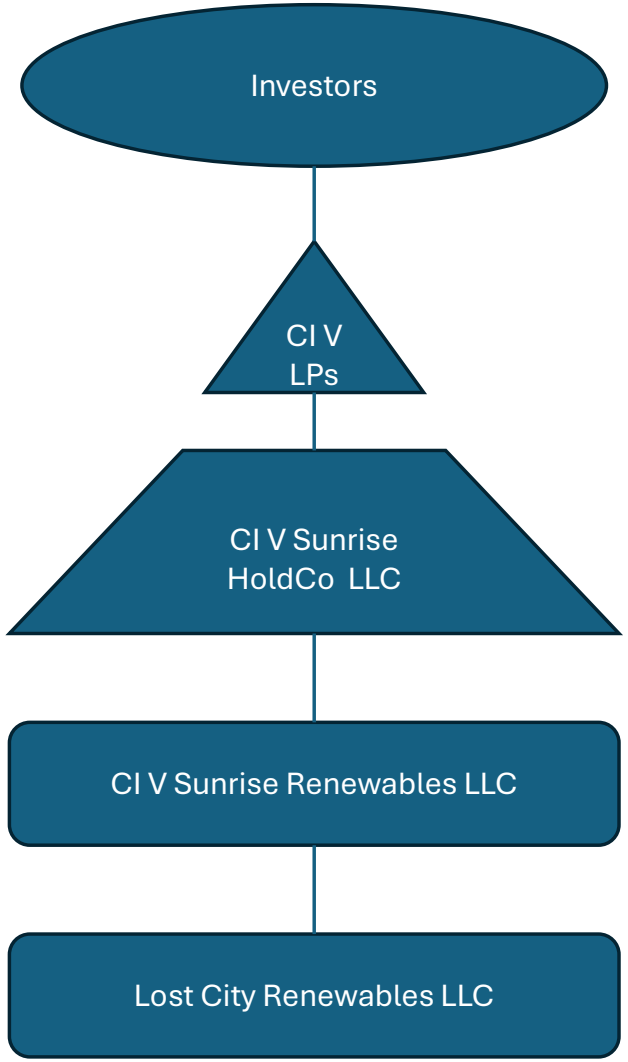
Notes 1) 100% = ~22,800 MW. Includes pre-FID, FID, in-construction, operating and divested capacity in North America. **2)** 100% = EUR 5.3bn. Only includes commitments to projects that have reached FID (Final Investment Decision). **3)** Only including commitments to projects that have reached FID (Final Investment Decision)

List of CIP's solar generation portfolio



CIP Project[1]	Capacity (AC)	Stage	COD
1 Fighting Jays	350 MW	Operations	2022
2 Greasewood	255 MW	Operations	2021
3 Misae	246 MW	Operations	2020
4 Sage	58 MW	Operations	2019
5 Travers (Divested)	465 MW	Operations	2023
6 Aira Solar	450 MW	Development	2026
7 Lost City	250 MW	Development	2029

Project Name	Capacity	Stage	COD	Market	County	Development status			
						Land	Interconnection	Permitting	Offtake
Fighting Jays	$350MW_{AC}$	$273MW_{AC}$ Operational $77MW_{AC}$ Construction	2022	ERCOT	Fort Bend	✓	✓	✓	✓
Greasewood	$255MW_{AC}$	Operations	2021	ERCOT	Childress	✓	✓	✓	✓
Misae	$246MW_{AC}$	Operations	2020	ERCOT	Childress	✓	✓	✓	✓
Sage	$58MW_{AC}$	Operations	2019	WECC	Rich	✓	✓	✓	✓
Travers (Divested)	$465MW_{AC}$	Operations	2023	AESO	Vulcan	✓	✓	✓	✓
Aira Solar	$450MW_{AC}$	Development	2026	AESO	Forty Mile	✓	✓	✓	In progress
Lost City	$250MW_{AC}$	Development	2029	SERC	Muhlenberg	✓	In progress	In progress	In progress


Investors
CI V
LPs
CI V Sunrise
HoldCo LLC
CI V Sunrise Renewables LLC
Lost City Renewables LLC

Siting Board 1-18:

Refer to SAR, Appendix E, Landscape Plan. Imagery shows much of the site is forested. Provide a narrative description of all proposed vegetative clearing. Include in the response the total anticipated acreage of vegetative clearing.

Response:

In total, the Project Site includes approximately 833 forested acres. The Applicant intends to provide a 25-foot buffer around jurisdictional streams and wetlands where trees would not be cleared. As a result, it is anticipated that approximately 609 acres of forestland would be cleared. Another approximately 240 acres of farmland would be taken out of use.

According to the U.S. Geological Survey (USGS) National Land Cover Database (NLCD) and the Project's preliminary design, both the forested and farmland acres to be cleared for the Project represent a small percentage of total acreages in both the Commonwealth and the County (see table below). As part of the Landscape Plan, the Applicant would be adding approximately 26 acres of trees and bushes as part of the screening buffer. The new vegetation buffer would include 2,048 trees and 4,946 shrubs (see SAR, Appendix E, Landscape Plan).

Geography	Forested (acres)	Percent Forest Affected	Farmland (acres)	Percent Farmland Affected
Kentucky	13,642,137	0.004%	8,722,081	0.003%
Muhlenberg County	156,812	0.39%	88,882	0.27%
Project Site	833	73%	485	49%

*Calculations based on USGS NLCD are approximate

Witness: Marty Marchaterre

Siting Board 1-19:

Refer to SAR, Appendix E, Landscape Plan. Provide an explanation for selecting a site that is heavily forested and would require substantial vegetative clearing.

Response:

Site selection is one of the most difficult parts of the development of any project. It requires balancing an understanding of the needs of the development and weighing the site conditions, keeping in mind the permitting requirements for other similar developments in the area.

In the first step of the process, the Project relied on a transmission consultant to perform transmission load studies and identify locations that can accept additional new load without triggering extensive upgrades to the transmission network. Once the location is determined, the next step is to check the availability of sufficient land conducive for solar development. This process involves engaging a land agent with the understanding of the regional conditions and market. Once potential parcel(s) of land are identified, the final step is to check for any publicly known solar development related issues that have been flagged in the region.

Keeping in mind the above, the Applicant identified the current location and site. The Applicant also reviewed the issues raised during the approval process of the Russellville Solar Project in adjoining Logan County. A key takeaway from this review was the public concern with utilization of farmland for solar development. Accordingly, the Applicant tried to minimize utilization of farmland and considered the amount of forested area in the County. The Applicant's study indicated that this parcel(s) of land would provide a good balance of both criteria. According to the USGS NLCD and the Project's preliminary design, it would impact approximately 240 acres of farmland (e.g., available for use for crops, grazing, and raising

poultry) and approximately 609 acres of forested land. In total, there are approximately 833 acres of forest and approximately 485 acres of farmland on the Project Site. Muhlenberg County currently encompasses approximately 88,882 total acres of farmland and 156,812 total acres of forested land. Accordingly, the Project Site development would impact approximately 0.27 percent of farmland and 0.39 percent of forested land in Muhlenberg County. It should also be noted that the Project development would impact approximately 0.003 percent of farmland and 0.004 percent of forested land in the Commonwealth of Kentucky.

Based on the above data, the Project would have a small impact on both forest and farmland in the County and State while maintaining a good balance on both key issues.

Witness: Sean Joshi

Siting Board 1-20:

Confirm if the project has been designed to minimize the amount of vegetative clearing required. If confirmed, identify the design elements that will minimize vegetative clearing and explain how those design elements will reduce vegetative clearing.

Response:

The Project has been designed to minimize the amount of vegetation clearing required. Buffer areas were established where vegetation would not be disturbed including areas outside the security fence; 25 feet on each side of jurisdictional streams; and 25 feet surrounding jurisdictional wetlands. Efforts also were made to avoid clearing vegetation in the 100-year floodplain.

Existing vegetation between solar arrays and nearby roadways and homes would be left in place to the extent feasible to help minimize visual impacts and screen the Project from nearby homeowners and travelers. The Applicant would not remove any existing vegetation except to the extent it must remove such vegetation for the construction and operation of Project components.

Witness: Marty Marchaterre

Siting Board 1-21

Describe and provide information regarding what federal and state agencies that Lost City Renewables is coordinating with in order to plan the tree clearing strategy for protected bats.

Response:

The Applicant has initiated discussions with the TVA, U.S. Fish and Wildlife Service Kentucky Field Office (USFWS), and the Kentucky Department of Fish and Wildlife Resources (KDFWR). Coordination occurred with these agencies prior to initiating bat mistnetting. Copperhead also used the USFWS Information for Planning and Consultation (IPaC), which is a project planning tool that streamlines the USFWS environmental review process. This tool identifies whether any federally listed threatened or endangered species, such as threatened or endangered bat species, or other natural resources may be impacted by the Project. IPaCs Endangered Species Act (ESA) Review process provides a step-by-step consultation process (see Attachment).

As the lead federal agency, TVA is responsible for ESA Section 107 consultation on projects involving a federal approval (NEPA review process). As part of the NEPA process, consultation with the USFWS and KDFWR will occur. Discussions concerning a tree-clearing strategy would occur at that time.

Witness: Marty Marchaterre

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
Phone: (502) 695-0467 Fax: (502) 695-1024
Email Address: kentuckyes@fws.gov

In Reply Refer To: 01/09/2025 14:58:23 UTC
Project Code: 2024-0039738
Project Name: Lost City

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do..

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of

this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

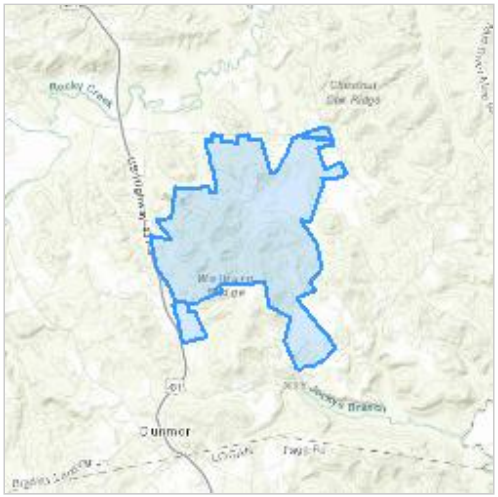
This species list is provided by:

Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
(502) 695-0467

PROJECT SUMMARY

Project Code: 2024-0039738
Project Name: Lost City
Project Type: Power Gen - Solar
Project Description: Lost City Solar
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.0986805,-86.9838072197569,14z



Counties: Muhlenberg County, Kentucky

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ The project area includes potential gray bat habitat. Species profile: https://ecos.fws.gov/ecp/species/6329 General project design guidelines: https://ipac.ecosphere.fws.gov/project/BUTCYYRFNVETDMLFMNZERXONB4/documents/generated/6422.pdf	Endangered
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: ▪ The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/BUTCYYRFNVETDMLFMNZERXONB4/documents/generated/6422.pdf	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045 General project design guidelines: https://ipac.ecosphere.fws.gov/project/BUTCYYRFNVETDMLFMNZERXONB4/documents/generated/6422.pdf	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

CLAMS

NAME	STATUS
Pink Mucket (pearlymussel) *Lampsilis abrupta* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7829 General project design guidelines:	Endangered

NAME	STATUS

https://ipac.ecosphere.fws.gov/project/BUTCYYRFNVETDMLFMNZERXONB4/documents/generated/5639.pdf

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Kim Rhodes
Address: 471 Main St
Address Line 2: PO Box 73
City: Paint Lick
State: KY
Zip: 40461
Email krhodes@copperheadconsulting.com
Phone: 8599259012

Siting Board 1-22:

Explain whether there is a mitigation plan for endangered bats. If so, provide any supporting documentation.

Response:

As part of the ESA Section 107 consultation process, TVA would consult with USFWS on the need for, and any requirements for, a bat mitigation plan.

Witness: Marty Marchaterre

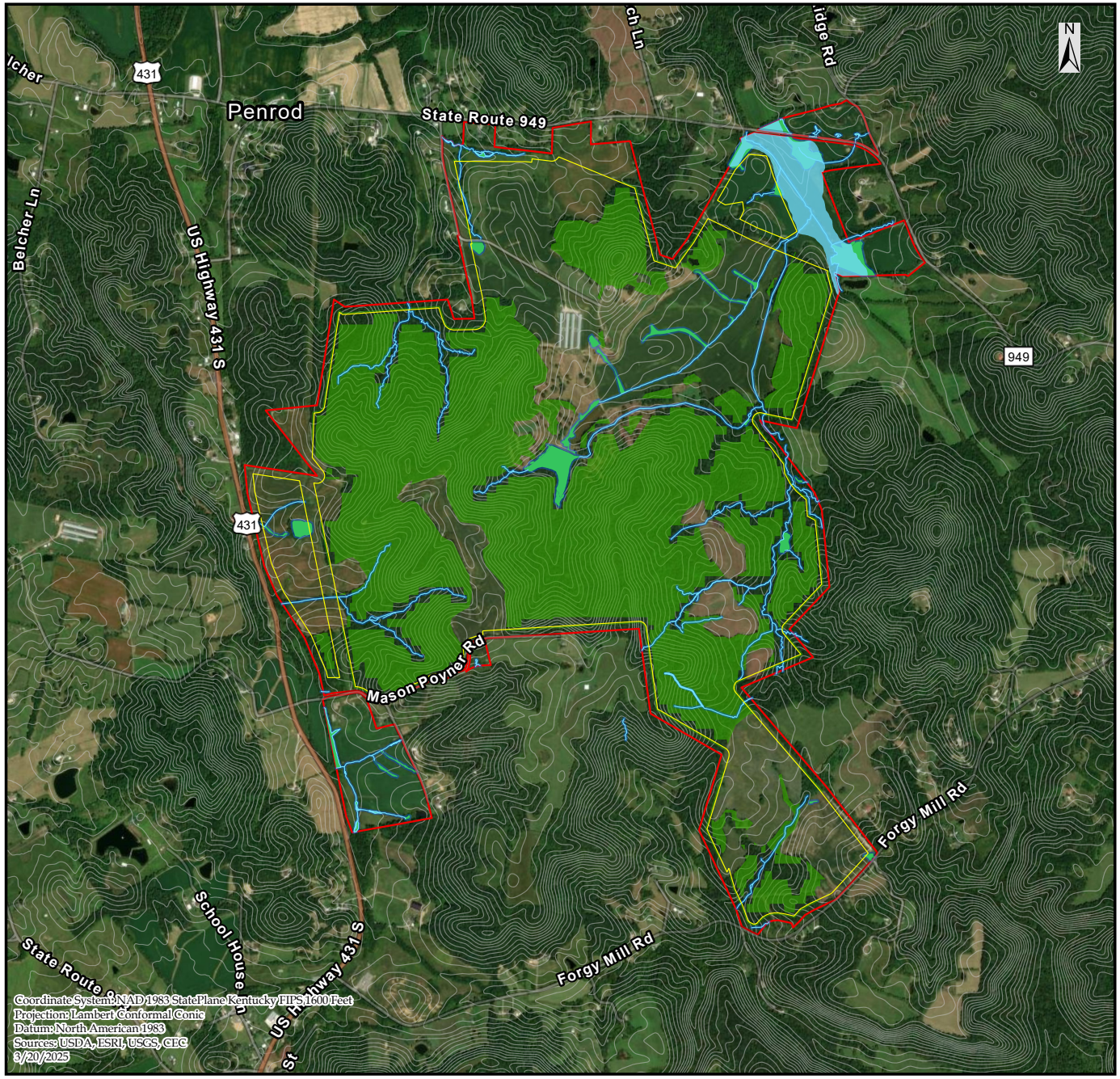
Siting Board 1-23:

Provide a map depicting all planned areas of vegetative clearing. Include on the map satellite imagery, wetland features, and elevation contours.

Response:

The Applicant has prepared a map depicting planned areas of vegetation clearing. As requested, the map contains satellite imagery, wetland features, and elevation contours (see Attachment).

Witness: Marty Marchaterre



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ENVIRONMENTAL CONSULTING

Prepared for:

Lost City Renewables LLC

FIGURE 1-23:
Vegetation Clearing for the
Lost City Solar Project,
Muhlenberg County, Kentucky

Legend

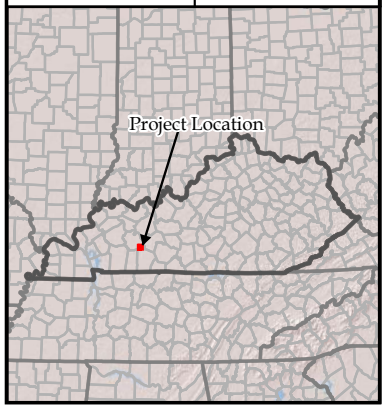
- Elevation Contour
- Jurisdictional Stream
- Jurisdictional Wetland
- Forested Habitat to be Cleared (~609 acres)
- WOTUS 25 ft Buffer
- 100-year Floodplain
- Fence
- Project Area

0 1,000 2,000
US Feet

Scale: 1 in = 2,000 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	3/20/2025
Checked by:	MM	Revision:	02



Siting Board 1-24:

Explain the process of preparing an area for construction after vegetative clearing has occurred.

Response:

Before vegetation clearing, sediment and erosion control measures would be established as per the Stormwater Pollution Prevention Plan (SWPPP) and topsoil set aside from areas of disturbance for re-distribution in applicable areas after sub-grade preparation. The subgrade would be prepared in accordance with civil plan drawing set following site preparation and is within a few feet of final grade. Subgrade preparation would occur for the entrances, access roads, and laydown areas, proceeding into the array and remainder of the site development.

Witness: Shane Kelley

Siting Board 1-25:

Explain how Lost City Renewables plans to mitigate flood risks within the site after vegetative clearing.

Response:

Solar equipment and the security fence would not be located within the FEMA Special Flood Hazard Area (SFHA) (obtained from map panel 21177C0400C, effective October 16, 2013), also referred to as the 100-year floodplain. Buffers around jurisdictional streams and wetlands would be maintained to ensure any existing vegetation would remain and water features would be undisturbed, which would continue to help reduce flooding as it currently does. Prior to vegetative clearing, stormwater runoff controls would be put in place and stormwater would be managed per the SWPPP. The SWPPP utilizes best management practices to reduce flood risks. An access road would be constructed through the edge of the 100-year floodplain; however, this roadway would be designed and planned so as not to reduce flood storage potential. As appropriate stormwater retention basins would be incorporated into the drainage area.

In the long run, the Project Site would be revegetated with native vegetation, which would help to further reduce stormwater runoff and flooding within and near the Project Site. The screening vegetation that would be planted along the Project Site fence and untouched mature vegetation that currently exists would also help reduce runoff and flood potential in the future.

Witness: Shane Kelley

Siting Board 1-26:

Refer to SAR, Appendix K, Stream and Wetland Delineation, Conclusion, page 13:

a. Provide what permits Lost City Renewables will have to acquire for the wetland features considered jurisdictional.

b. Provide what state and federal regulations Lost City Renewables will have to follow for the wetland features considered jurisdictional.

c. Explain whether appropriate setbacks have been applied to all 79 wetland features within the site.

Response:

a. The Applicant may need to obtain a Clean Water Act Section 404 nationwide permit (NWP) from the United States Army Corps of Engineers (USACE) if a jurisdictional wetland would be affected. The USACE Louisville District prefers applicants to use the NWP No. 51: Land-based Renewable Energy Generation Facilities for solar projects.
From the Commonwealth, a Kentucky Section 401 Water Quality Certification (WQC) may be required for impacts to jurisdictional wetlands.

b. Federal regulations for managing jurisdictional wetland features include 33 Code of Federal Regulations (CFR) Parts 320-334.

Kentucky Revised Statutes (KRS) 224.16-050(2) provides authority to issue WQCs. 401 Kentucky Administrative Regulations (KAR) 9:010 and 9:020.

Neither the USACE nor KDOW have regulatory requirements establishing setbacks around jurisdictional wetlands. Based on discussions with KDOW, a 25-foot buffer is recommended.

c. The Applicant is committed to a 25-foot buffer around jurisdictional wetlands.

Witness: Marty Marchaterre

Siting Board 1-27:

Given the extensive vegetative clearing planned for the project, explain how Lost City Renewables will avoid surface runoff into the 79 wetland features that exist within the site.

Response:

The Applicant would obtain a KYR10 Stormwater General Permit for Stormwater Discharges Associated with Construction Activities. This permit establishes several requirements to avoid or minimize stormwater runoff into Waters of the Commonwealth. Requirements include development and implementation of a SWPPP, minimizing the size and duration of construction disturbance, initiating stabilization practices, and adhering to stormwater control measures and best management practices to protect Waters of the Commonwealth.

The draft SWPPP (see SAR Appendix I, Draft SWPPP) would be finalized and best management practices utilized to mitigate risk of surface runoff into wetland features, including physical best management practices (BMPs) (vegetative filter strips, sediment traps and basins, silt fence, rock check dams, temporary and permanent vegetation) and good management/planning BMPs (e.g., construction sequencing to minimize open areas, rapid application of temporary stabilization measures, planning around forecasted weather events, etc.). The Applicant's EPC would conduct regular inspections of erosion control and stormwater control measures.

The Applicant would follow stormwater best management practices such as those identified in the BMPs for Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites (University of Kentucky Transportation Center (2009)) and Kentucky Erosion Prevention and Sediment Control Field Guide.

The Applicant is also committing to 25-foot buffers around all perennial and intermittent streams as well as jurisdictional wetlands to further minimize the potential for stormwater runoff.

Additionally, a stormwater management design would be developed as part of the civil design package to ensure that stormwater runoff would not be increased during operation.

Witness: Shane Kelley

Siting Board 1-28:

Explain how grading will affect surface runoff, particularly on sloped terrain, within the site.

Response:

Site grading generally smooths the project area terrain, resulting in more gradual slopes that increase the potential for solar generation, (i.e., post construction conditions will be less steep than existing). Slopes would be vegetated following final stabilization and existing natural stormwater features (wetlands, streams, swales, etc.) would be protected during construction and manage stormwater runoff during post-construction conditions. A design approach has been undertaken where parameters are analyzed to be within tolerance across the entire array while reducing disturbance and maintaining existing drainage areas where possible.

Witness: Shane Kelley

Siting Board 1-29:

Provide what erosion prevention measures Lost City Renewables will implement during construction of the proposed project.

Response:

The draft SWPPP would be finalized (see SAR Appendix I, Draft SWPPP), including physical BMPs (e.g., vegetative filter strips, sediment traps and basins, silt fence, rock check dams, temporary and permanent vegetation) and good management/planning BMPs (construction sequencing to minimize open areas, rapid application of temporary stabilization measures, planning around forecasted weather events, etc.).

Witness: Shane Kelley

Siting Board 1-30:

Describe how the natural habits that exist within areas that are planned to be deforested will be protected.

Response:

Erosion prevention measures would be implemented on disturbed areas within 24 hours or as soon as practical after completion of disturbance/grading or following cessation of activities. The Applicant is committing to retaining 25-foot buffers around all perennial and intermittent streams as well as jurisdictional wetlands to protect key wildlife habitat and reduce the potential for sedimentation that could result from construction activities. No solar equipment or security fencing would be placed in the 100-year floodplain.

Additionally, the Applicant has proposed at least 2 acres for pollinator areas. Planting vegetation, especially native species, beneath solar panels offers numerous benefits, including erosion control, pollinator habitat, and even potential increases in solar panel efficiency through shading and increased evaporation, while also promoting biodiversity and requiring less maintenance over time than traditional gravel or turf grass. Native vegetation throughout the Project Site would reduce habitat fragmentation for pollinators, which typically occurs in agricultural fields.

Witness: Marty Marchaterre

Siting Board 1-31

Explain how Lost City Renewables will combat the possibility of displaced wildlife as a result of vegetative clearing.

Response:

It is anticipated that initially there would be some wildlife displacement as a result of vegetative clearing and due to human disturbance. This would include deer, coyote, and local game bird populations. However, as discussed in SAR, Appendix M, Wildlife Concerns Analysis, the total deer population estimate for the Project Site is approximately 25 to 42 individuals. Impacts are expected to be temporary because deer dispersion is natural and only the vegetation within the Project Site would be impacted while forest and vegetation directly outside of the Project Site would remain. Additionally, it is estimated there is approximately one coyote for every square mile in Kentucky. Based on the behavior of coyotes including distribution, foraging, breeding, and dispersal, it is unlikely that noticeable impacts would occur. Lastly, revegetation of the site using native grass and forb species and trees and shrubs in buffer areas would increase and diversify habitat availability, which can ultimately lead to increased biodiversity and abundance of birds and other pollinators.

The Applicant has proposed at least 2 acres for pollinator areas. Wildflowers, grasses, and other vegetation native to the Muhlenberg County region would be planted to create a pollinator-friendly habitat. By incorporating native plants and creating habitats for pollinators, these fields would actively promote biodiversity by providing essential food and shelter for bees, butterflies, birds, and other wildlife, helping to counter the decline in pollinator populations. Solar pollinator fields create visually appealing landscapes integrating technology and nature. They contribute to the beautification of the environment. The pollinator areas can help restore natural habitats and ecosystems that may

have been disrupted in the past by conventional agriculture or development. They can also serve as a refuge for native plants and wildlife.

The Applicant is committed to solar grazing on the Project Site. The Applicant would plan and encourage the use of native vegetation and grazing animals for vegetation management, which can benefit wildlife. Using livestock, most often sheep, to help manage vegetation on solar farms can create a more natural habitat for wildlife and reduce the need for mowing or other disruptive activities.

Witness: Marty Marchaterre

Siting Board 1-32:

Provide the total length, in feet, of vegetative screening planned for the project.

Response:

The Applicant plans to provide 30,456 linear feet of vegetation screening consisting of 2,048 trees and 4,946 shrubs (approximately 26 acres of plantings) (see SAR, Appendix E, Landscape Plan). In areas adjacent to a residence, the Applicant would plant a double planting of vegetation (approximately 40 feet wide and 24,309 linear feet) to provide screening.

Witness: Marty Marchaterre

Siting Board 1-33:

A TVA-owned, 69 kV transmission line intersects the project:

a. Provide a copy of all communication with TVA regarding the project and outline any concerns that were raised.

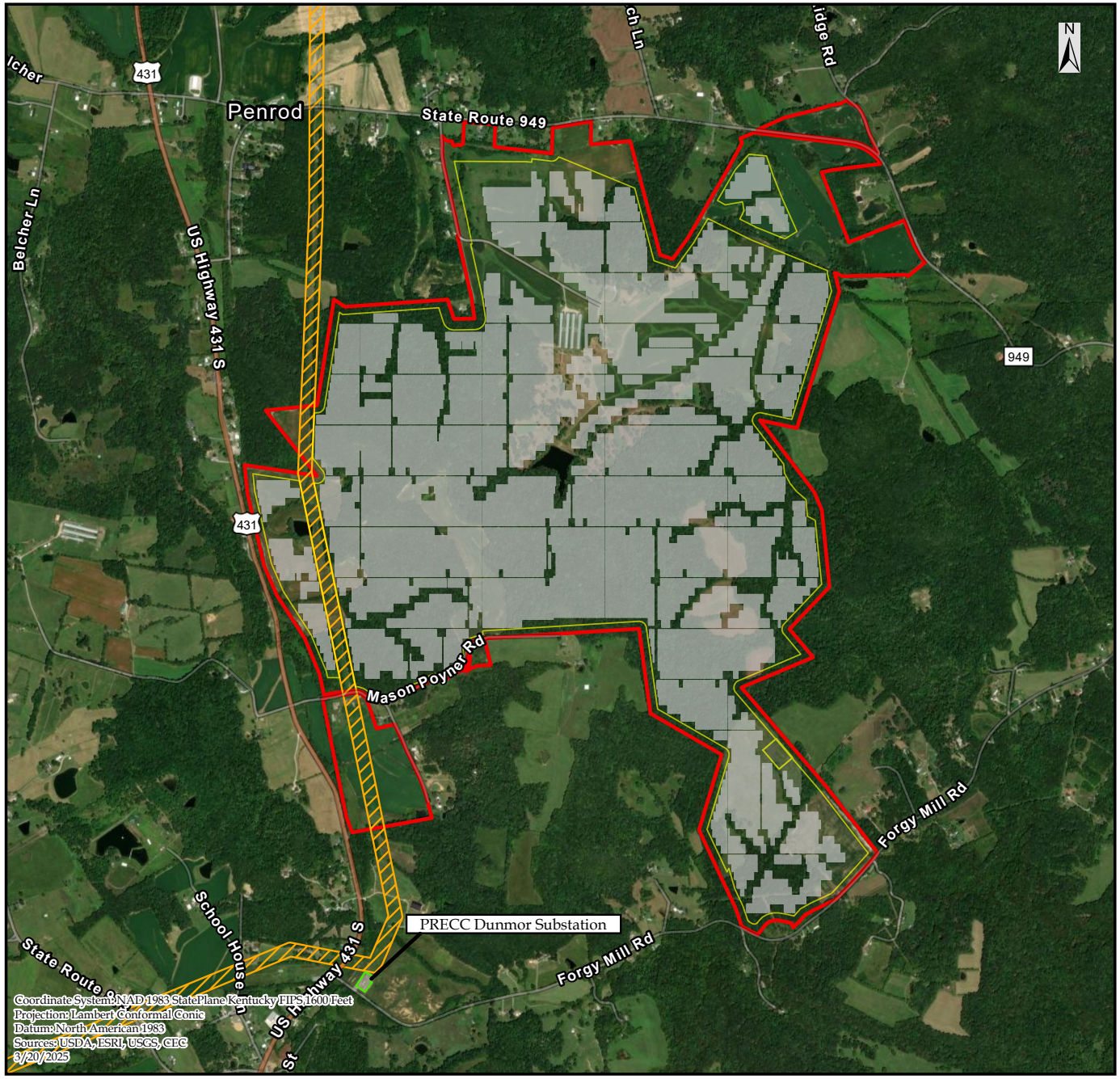
b. Provide the appropriate setbacks, easements, and rights-of-way from the transmission line. Include in the response a map outlining the right of way of the transmission line.

c. Provide a plan for Lost City Renewables to avoid all transmission lines that intersect the proposed project.

Response:

a. The 69kV transmission line is owned by Pennyrile Rural Electric Cooperative Corporation (PRECC), not TVA. The Applicant has not had any communication with PRECC to date.
b. The PRECC 69kV transmission line has a 200-foot easement (see Attachment). No solar panels or inverters will be located in the transmission line easement. The Applicant may seek a crossing agreement during construction and/or a crossing for access for maintenance during operation.
c. Preliminary design plans avoid placement of any equipment in the transmission line easement (see attachment to Request for Information 1-46).

Witness: Marty Marchaterre



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ENVIRONMENTAL CONSULTING

Prepared for:

Lost City Renewables LLC

FIGURE 1-33:
Pennyrile Rural Electric Cooperative Corporation Transmission Line Easement for the Lost City Solar Project, Muhlenberg County, Kentucky

Legend

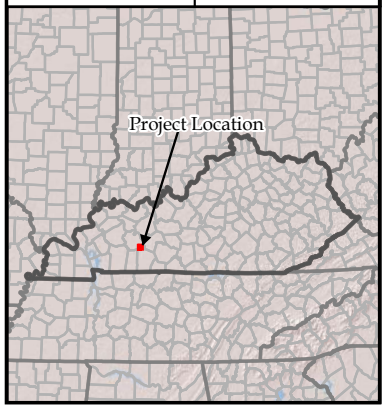
- Fence
- Solar Array
- PRECC Transmission Line – 200 ft Easement
- PRECC Dunmor Substation
- Project Area

0 1,000 2,000
US Feet

Scale: 1 in = 2,000 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	3/20/2025
Checked by:	MM	Revision:	03



Siting Board 1-34:

A 10" interstate natural gas pipeline owned by Texas Gas intersects the project:

a. Provide a copy of all communication with Texas Gas regarding the project and outline any concerns that were raised.

b. Provide the appropriate setbacks from the pipeline, include any contractual setbacks or federal safety guidelines.

c. Provide any agreements or contracts that have been made with or entered into with Texas Gas.

d. Provide how Lost City Renewables proposes to avoid all pipelines, especially with underground components such as the AC collection system.

Response:

Boardwalk Pipelines Holding Company owns the 10-inch natural gas transmission pipeline with an easement crossing the northern section of the Project site. Texas Gas is a subsidiary of Boardwalk Pipelines. The easement was located and surveyed by Hester Precision Surveys. The proposed PV Solar Arrays were arranged to avoid conflicts with the existing natural gas pipeline easement.

a. A copy of correspondence with Boardwalk Pipelines is attached (see Attachment).

b. The pipeline corridor has a 50-foot easement. The easement was located and surveyed by Hester Precision Surveys. Prior to construction, an on-site meeting with Texas Gas representatives will be scheduled where Texas Gas representatives will locate the pipeline in the field.

The Project has been deigned to avoid placement of PV panels/racking system, inverters, or transformers in the pipeline easement. Design plans place the security fence line outside the

easement with an additional minimum 10-foot buffer between the fence line and the nearest PV panels/racking system.

c. No agreements or contracts currently exist with Boardwalk Pipelines/Texas Gas. The Applicant has initiated discussions with Boardwalk Pipelines/Texas Gas concerning an encroachment agreement for an aboveground transmission line and two access roads that would cross the natural gas pipeline easement during construction and operation.

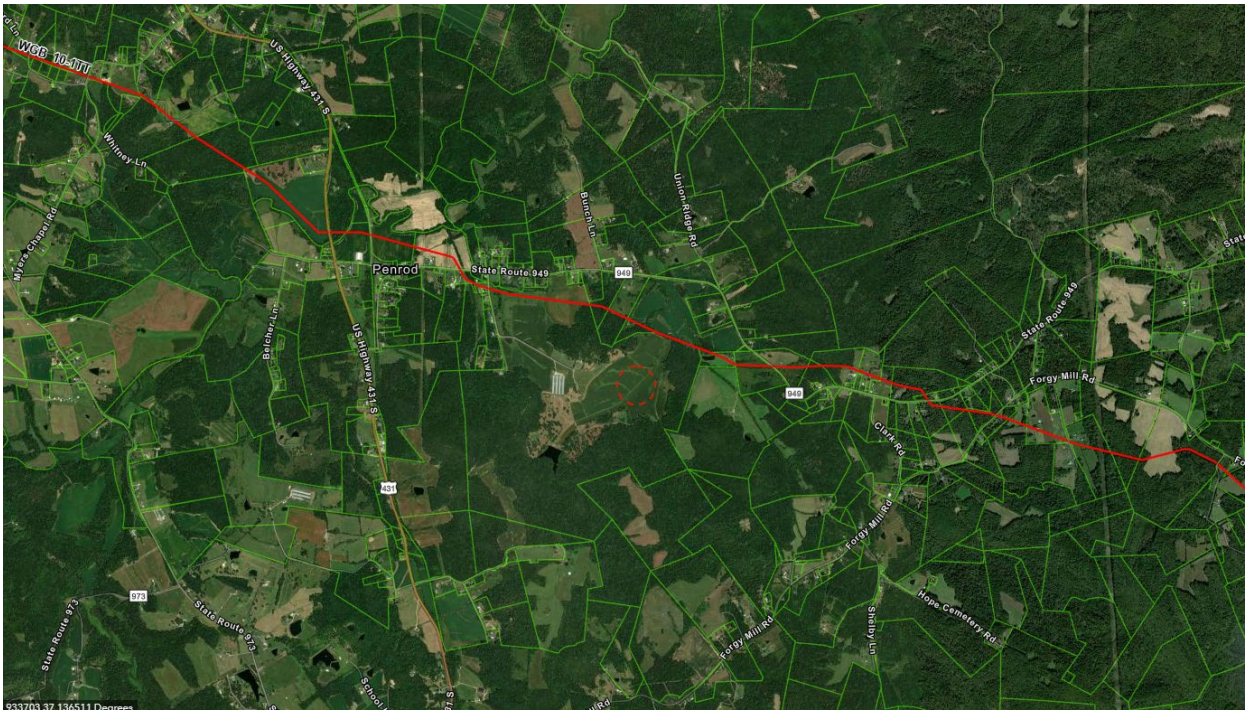
d. An aboveground transmission line would be constructed to connect the AC collection system/inverter in the separated section of the Project with the large Project Area.

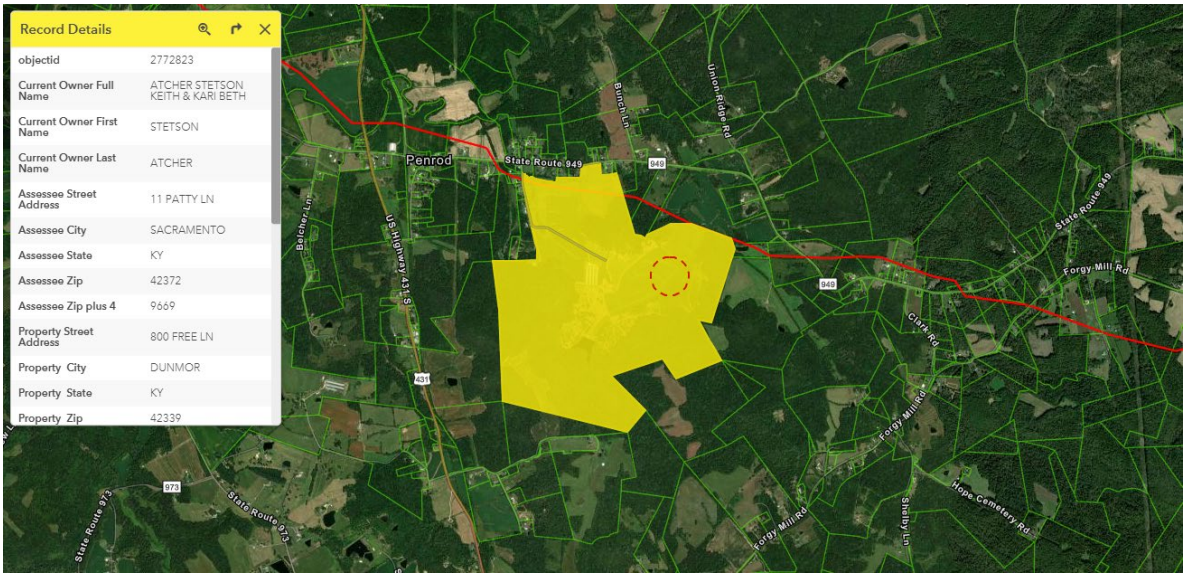
Witness: Marty Marchaterre

From: Carman, Kevin
To: Marty Marchaterre; Simmons, Larry
Cc: Parrott, Joy; Wheeler, Bernice
Subject: RE: Solar Project and Pipeline Easement in Muhlenberg County
Date: Tuesday, March 18, 2025 12:04:17 PM
Attachments: image001.png
image002.png
image003.png

As we discussed on the phone, this affects our WGB 10-1 line in the Penrod, KY area.

Please see the approximate pipeline location below.





Kevin L. Carman
Encroachment Project Manager
Boardwalk Pipelines

Office Location:
Hardinsburg Compressor Station
2332 Hwy. 60 West
Hardinsburg, KY 40143

office: (270) 852-1161
fax: (270) 756-5898

From: Marty Marchaterre <mMarchaterre@copperheadconsulting.com>
Sent: Tuesday, March 18, 2025 10:23 AM
To: Carman, Kevin <Kevin.Carman@bwpipelines.com>; Simmons, Larry <Larry.Simmons@bwpipelines.com>
Cc: Parrott, Joy <Joy.Parrott@bwpipelines.com>; Wheeler, Bernice <Bernice.Wheeler@bwpipelines.com>
Subject: EXT: RE: Solar Project and Pipeline Easement in Muhlenberg County

Kevin,

Thank you for this information as it is very helpful. I am available any time today for a call except 12:00 pm – 12:30 pm.

Thank you for your assistance.

COPPERHEAD ENVIRONMENTAL CONSULTING

Marty Marchaterre
Senior Environmental Planner II/Project Manager
Office: 859.925.9012
Direct: 859.287.0765
Cell: [redacted]
www.copperheadconsulting.com
133 Walton Avenue | Lexington, Kentucky | 40508

From: Carman, Kevin <Kevin.Carman@bwpipelines.com>
Sent: Tuesday, March 18, 2025 10:27 AM
To: Marty Marchaterre <mMarchaterre@copperheadconsulting.com>; Simmons, Larry <Larry.Simmons@bwpipelines.com>
Cc: Parrott, Joy <Joy.Parrott@bwpipelines.com>; Wheeler, Bernice <Bernice.Wheeler@bwpipelines.com>
Subject: RE: Solar Project and Pipeline Easement in Muhlenberg County

Marty,

I have attached our drawing requirements for any encroachment on the pipelines that is a good guideline to follow.

To get the pipeline locations staked out, simply make a design one call for the area and Larry's guys will reach back out to you for scheduling meeting on site and locate the pipelines. This also triggers the Encroachment process to begin by entering all the information into our database.

I'll give you a call this morning to answer any of your questions as well.

Kevin L. Carman
Encroachment Project Manager
Boardwalk Pipelines

Office Location:
Hardinsburg Compressor Station
2332 Hwy. 60 West
Hardinsburg, KY 40143

office: (270) 852-1161
fax: (270) 756-5898

From: Marty Marchaterre <mMarchaterre@copperheadconsulting.com>
Sent: Tuesday, March 18, 2025 8:54 AM
To: Simmons, Larry <Larry.Simmons@bwpipelines.com>
Cc: Carman, Kevin <Kevin.Carman@bwpipelines.com>
Subject: EXT: RE: Solar Project and Pipeline Easement in Muhlenberg County

Larry,

Thanks for the contact information.

Kevin, when it is convenient, would love to have a short call to discuss our solar project near your pipeline. Please let me know of a day or time that would work for you.

Thanks again,

COPPERHEAD ENVIRONMENTAL CONSULTING

Marty Marchaterre
Senior Environmental Planner II/Project Manager
Office: 859.925.9012
Direct: 859.287.0765
Cell: [redacted]
www.copperheadconsulting.com
133 Walton Avenue | Lexington, Kentucky | 40508

From: Simmons, Larry <Larry.Simmons@bwpipelines.com>
Sent: Tuesday, March 18, 2025 9:02 AM
To: Marty Marchaterre <mMarchaterre@copperheadconsulting.com>
Cc: Carman, Kevin <Kevin.Carman@bwpipelines.com>
Subject: RE: Solar Project and Pipeline Easement in Muhlenberg County

Kevin Carman

From: Marty Marchaterre <mMarchaterre@copperheadconsulting.com>
Sent: Tuesday, March 18, 2025 7:48 AM
To: Simmons, Larry <Larry.Simmons@bwpipelines.com>
Subject: EXT: RE: Solar Project and Pipeline Easement in Muhlenberg County

Larry,

I wanted to follow up on the pipeline easement in Muhlenberg County. Is there someone on your encroachment team I should reach to begin discussion about potential encroachment request?

Thanks,

COPPERHEAD ENVIRONMENTAL CONSULTING

Marty Marchaterre
Senior Environmental Planner II/Project Manager
Office: 859.925.9012
Direct: 859.287.0765
Cell: [redacted]
www.copperheadconsulting.com
133 Walton Avenue | Lexington, Kentucky | 40508

From: Simmons, Larry <Larry.Simmons@bwpipelines.com>
Sent: Wednesday, February 5, 2025 9:36 AM
To: Marty Marchaterre <mMarchaterre@copperheadconsulting.com>
Subject: RE: Solar Project and Pipeline Easement in Muhlenberg County

Marty
I'll forward the 1/16 email to our encroachment team so they can advise on how to proceed with this request.

From: Marty Marchaterre <mMarchaterre@copperheadconsulting.com>
Sent: Wednesday, January 29, 2025 2:41 PM
To: Simmons, Larry <Larry.Simmons@bwpipelines.com>
Subject: EXT: Solar Project and Pipeline Easement in Muhlenberg County

Good afternoon Larry,

I wanted to follow up on the 1/16/25 email from a couple weeks ago concerning the pipeline easement crossing the Stetson Asher property in Muhlenberg County to see if you had any questions or needed further information.

Thanks,

COPPERHEAD
ENVIRONMENTAL CONSULTING

Marty Marchaterre
Senior Environmental Planner II/Project Manager
Office: 859.925.9012
Direct: 859.287.0765
Cell: [redacted]
www.copperheadconsulting.com
133 Walton Avenue | Lexington, Kentucky | 40508

From: Simmons, Larry
To: Marty Marchaterre
Subject: RE: Solar Project and Pipeline Easement in Muhlenberg County
Date: Wednesday, February 5, 2025 9:36:21 AM
Attachments: image001.png

Marty
I'll forward the 1/16 email to our encroachment team so they can advise on how to proceed with this request.

From: Marty Marchaterre <mMarchaterre@copperheadconsulting.com>
Sent: Wednesday, January 29, 2025 2:41 PM
To: Simmons, Larry <Larry.Simmons@bwpipelines.com>
Subject: EXT: Solar Project and Pipeline Easement in Muhlenberg County

Good afternoon Larry,

I wanted to follow up on the 1/16/25 email from a couple weeks ago concerning the pipeline easement crossing the Stetson Asher property in Muhlenberg County to see if you had any questions or needed further information.

Thanks,

COPPERHEAD
ENVIRONMENTAL CONSULTING

Marty Marchaterre
Senior Environmental Planner II/Project Manager
Office: 859.925.9012
Direct: 859.287.0765
Cell: [redacted]
www.copperheadconsulting.com
133 Walton Avenue | Lexington, Kentucky | 40508

From: Marty Marchaterre
To: larry.simmons@bwpipelines.com
Subject: Pipeline Easement Questions Related to Stetson Asher Property in Muhlenberg County, KY
Date: Thursday, January 16, 2025 9:41:45 AM
Attachments: Lost_City Image-20250115.pdf
202419_Lost City Layout_REV C.kmz

Larry,

Thanks for talking to me yesterday about your pipeline easement. We are working with the landowner on a potential solar project on his property.

The property in question is owned by Stetson Asher and is located east of Penrod, Muhlenberg County, KY and the pipeline easement crosses the northeast corner of his property on the south side of KY 949.

I attached a PDF and kmz of preliminary site plans for a proposed solar project.

If possible, we would like to obtain information about the size of the pipeline and width of easement. On the preliminary plans we are currently showing a 200-foot easement but based on our conversations, it may not be correct.

Would it be possible to identify the location of the actual pipeline through the easement and actual easement width?

We anticipate 3-4 feet of earth above the pipeline. Is this correct?

Also, we are considering requesting permission to cross the easement for one or two internal access roads.

Could you tell us what is the appropriate process and who we should reach out to initiate discussions about a potential crossing. The Project is anticipated to start construction at the earliest mid- or late-2026.

Thanks for your assistance.

If you have any questions or need further information, please let me know.

Marty Marchaterre
Senior Environmental Planner

Copperhead Environmental Consulting, Inc.
133 Walton Avenue
Lexington, Kentucky 40508
[redacted]
859.925.9816 - Fax
www.copperheadconsulting.com

Boardwalk Pipelines

Encroachment Drawing Requirements

	Plan View for Utility showing Lat/Lon in decimal degrees	Plan View for Road showing beginning and ending Lat/Lon in decimal degrees	Profile View for Road	Profile View for Utility showing clearance to pipeline (2' min for Open Cut)	Profile View for Utility for Conventional Bore (60" Min Clearance)	Profile View for Utility for Horizontal Directional Drill (10' Min Clearance)	Cross Section View for Road	Special Drainage Structure Views	Profile View for Aerial Crossings
Utilities (buried)									
Water - (diameter, material type, and encased in PVC or equivalent)	X			X	X	X			
Sewer Force Main - (diameter, material type and encased in PVC or equivalent)	X			X	X	X			
Sewer Gravity Feed - (diameter, material type and encased in PVC or equivalent)	X			X	X	X			
Gas - (plastic)	X			X	X	X			
Gas - (steel)	X			X	X	X			
Fiber/Communications - (diameter, number, encased in plastic conduit)	X			X	X	X			X
Electrical Power - (provide voltage and encased in plastic conduit)	X			X	X	X			X
Storm Drains - (diameter, material type, circular or arched)	X			X					
Irrigation Lines - (diameter, material type and encased in PVC or equivalent)				X					
Utilities (aerial)									
Fiber/Communications - (minimum 20' clearance)	X								X
Electrical Power - (provide voltage, minimum 30' clearance)	X								X
Pipes in aerial pipe racks - (minimum 20' clearance, product type, material type, number, and diamater)	X								X
Driveway, Roadway, and Parking Areas, etc.									
Driveways - gravel, paved, or concrete		X	X					X	
Roadways - gravel, paved, or concrete		X	X				X	X	
Parking Areas - gravel, paved, or concrete		X	X					X	
Temporary Haul Roads (dirt or timber matted)		X	X						
Permanent Haul Roads		X	X						
Ditches and Swales		X						X	
Fences - (size and material type)	X	X							
Railroad - (main, spur, or side track)		X	X				X	X	

*****Note that drawings must have a number, date of drawing, any revision numbers and revision dates**

Rev 0 2/18/2025

Siting Board 1-35:

Provide a detailed table listing all residential structures located within 2,000 feet of the project boundary line. For each structure, provide:

a. The distance to the boundary line.

b. The distance to the closest solar panel.

c. The distance to the nearest inverter.

d. The distance to the substation.

Response:

A detailed table of all residential structures within 2,000 feet of the Project Site boundary and their distances to the Project Site boundary line, the nearest solar panel, the nearest inverter, and the distance to the substation is attached (see Attachment).

Witness: Marty Marchaterre

#	Structure Type	Distance to Project Boundary (feet)	Distance to Nearest Solar Panel (feet)	Distance to Nearest Inverter (feet)	Distance to Substation (feet)
1	Residence	156.60	1598.22	2188.31	7405.19
2	Residence	210.47	1251.07	1581.76	8260.16
3	Residence	102.23	1668.30	2000.39	8696.68
4	Residence	105.06	1610.13	2207.65	9425.43
5	Residence	299.35	1626.46	2324.05	9673.90
6	Residence	1169.52	2386.38	3157.79	10552.67
7	Residence	832.62	1549.90	2398.94	9971.69
8	Residence	544.93	1137.22	2003.37	9606.68
9	Residence	1843.12	2296.71	3121.49	10588.54
10	Residence	508.75	807.53	1676.26	9189.41
11	Residence	371.08	518.70	1270.91	8673.74
12	Residence	731.86	1295.60	1935.75	9356.33
13	Residence	204.60	861.12	1476.53	9127.23
14	Residence	221.54	770.97	1511.86	9350.72
15	Residence	126.21	679.54	1424.20	9309.22
16	Residence	177.69	916.76	1658.84	9576.19
17	Residence	140.04	863.74	1600.45	9564.95
18	Residence	137.55	838.36	1544.46	9581.75
19	Residence	399.21	868.47	1552.79	9864.66
20	Residence	178.16	605.25	1259.19	9524.73
21	Residence	218.53	520.09	1188.66	9484.61
22	Residence	266.25	695.56	1381.20	9709.76
23	Residence	64.96	687.84	1339.31	9661.46
24	Residence	135.63	940.93	1618.64	9949.20
25	Residence	165.00	1155.81	1948.93	10235.95
26	Residence	203.15	1200.25	2033.85	10300.93
27	Residence	583.43	1584.76	2364.15	10664.68
28	Residence	702.25	1660.63	2535.95	10775.59
29	Residence	512.46	1458.89	2370.85	10571.43
30	Residence	564.25	1524.22	2449.93	10631.41
31	Residence	210.58	1173.33	2117.99	10277.62
32	Residence	342.97	1234.31	2139.79	10269.25
33	Residence	591.39	1572.85	2423.21	10683.42
34	Residence	181.03	933.80	1819.39	9946.57
35	Residence	317.83	1094.88	1972.64	10089.99
36	Residence	74.33	760.24	1637.68	9767.73
37	Residence	81.66	580.39	1284.77	9375.60
38	Residence	141.53	611.03	912.82	8805.69
39	Residence	102.27	564.25	1098.78	9138.59
40	Residence	161.05	357.55	703.93	7824.28
41	Residence	1112.19	1946.12	2770.13	10799.53
42	Residence	930.34	1776.64	2619.20	10677.84
43	Residence	1345.40	2182.61	2995.80	10997.53
44	Residence	1593.16	2370.83	3129.95	11045.27
45	Residence	1288.37	2018.26	2768.41	10706.07
46	Residence	1682.50	2555.59	3381.96	11379.22
47	Residence	1993.63	2336.57	3046.94	11078.48
48	Residence	1874.17	2203.68	2908.14	10961.81
49	Residence	1717.44	2017.24	2704.53	10779.96
50	Residence	1571.04	1837.74	2502.92	10581.91
51	Residence	1843.79	2095.98	2592.18	10515.74
52	Residence	1129.50	1796.23	2290.04	9919.34
53	Residence	900.56	1605.20	2191.54	9696.53
54	Residence	727.57	1435.30	2034.14	9523.69
55	Residence	577.26	1258.82	1968.53	9344.86
56	Residence	957.12	1245.46	2507.58	9589.79
57	Residence	524.49	873.61	1921.36	9070.97
58	Residence	437.90	704.41	2128.21	9073.77
59	Residence	263.20	433.67	1815.23	8776.15
60	Residence	93.30	354.88	1795.64	8719.80
61	Residence	239.85	383.80	1307.64	8420.30
62	Residence	212.72	361.23	957.59	8140.02
63	Residence	208.54	418.60	659.92	7562.69
64	Residence	1151.43	1284.75	1662.24	7933.29
65	Residence	1080.28	1213.93	1574.02	7932.88
66	Residence	1143.68	1280.03	1845.28	7682.38
67	Residence	649.46	1835.58	2580.32	6851.67

68	Residence	216.61	2393.76	2907.53	6323.71
69	Residence	380.87	2629.68	3127.13	6338.84
70	Residence	576.40	2801.15	3313.28	6504.06
71	Residence	1130.92	3052.96	3675.41	7183.09
72	Residence	648.20	2905.47	3396.48	6427.93
73	Residence	827.43	3034.13	3557.44	6692.63
74	Residence	505.88	2710.58	3124.09	5903.60
75	Residence	986.57	3245.72	3733.20	6572.29
76	Residence	1081.83	3346.47	3813.86	6494.07
77	Residence	1391.01	3513.73	3898.31	5695.32
78	Residence	1698.83	3963.48	4426.13	6784.55
79	Residence	1802.71	3545.75	4270.20	7826.41
80	Residence	1764.40	3466.94	4201.80	7810.05
81	Residence	115.04	1822.18	2230.16	4838.13
82	Residence	72.29	1049.48	1436.23	5130.49
83	Residence	780.67	1542.81	2034.84	4224.48
84	Residence	85.30	635.94	1079.17	5604.50
85	Residence	84.39	349.12	736.02	5351.22
86	Residence	151.46	383.33	937.53	3320.39
87	Residence	818.57	959.22	1596.14	2321.25
88	Residence	748.07	892.11	1619.11	2549.51
89	Residence	1241.96	1402.65	2039.54	2894.15
90	Residence	1524.63	1668.97	2369.23	3252.37
91	Residence	1524.63	1668.97	2369.23	3252.37
92	Residence	1268.55	1402.72	2200.94	3130.66
93	Residence	1691.90	1827.97	2605.50	3511.91
94	Residence	517.84	808.42	1806.49	2941.61
95	Residence	1158.67	1442.31	2254.43	3532.04
96	Residence	314.79	533.71	1324.51	2636.52
97	Residence	145.01	348.22	1133.38	2451.86
98	Residence	230.77	371.06	1016.34	2367.37
99	Residence	840.51	1019.59	1598.08	2909.87
100	Residence	744.59	1003.60	1506.53	2704.75
101	Residence	899.82	1184.02	1686.18	2826.03
102	Residence	77.76	373.67	952.14	1992.96
103	Residence	601.42	1052.56	1644.66	2095.13
104	Residence	1157.35	1627.50	2223.87	2604.77
105	Residence	291.27	653.80	1180.84	1356.62
106	Residence	1233.70	1598.97	2139.79	2044.18
107	Residence	1957.21	2313.76	2846.30	2420.81
108	Residence	1216.39	1349.00	1731.43	5491.24
109	Residence	1764.26	2666.01	3012.71	6470.79
110	Residence	1099.16	2408.53	2865.30	7198.78
111	Residence	91.60	1058.30	1591.97	6921.82

Siting Board 1-36:

Provide a detailed table listing all non-residential structures located within 2,000 feet of the project boundary line. For each structure, provide:

a. The distance to the boundary line.

b. The distance to the closest solar panel.

c. The distance to the nearest inverter.

d. The distance to the substation.

Response:

A detailed table of all non-residential structures within 2,000 feet of the Project Site boundary and their distances to the Project Site boundary line, the nearest solar panel, the nearest inverter, and the distance to the substation is attached (see Attachment).

Witness: Marty Marchaterre

#	Structure Type	Distance to Project Boundary (feet)	Distance to Nearest Solar Panel (feet)	Distance to Nearest Inverter (feet)	Distance to Substation (feet)
1	Barn	369.18	945.12	1631.43	9949.39
2	Barn	657.12	1657.08	2465.10	10753.08
3	Barn	679.72	1586.93	2265.42	10595.64
4	Barn	776.46	1719.46	2614.35	10833.63
5	Barn	274.03	988.91	1843.86	9953.35
6	Commercial - Napier's Plumbing	1005.50	1813.91	2630.68	10660.73
7	Barn	1717.00	2600.86	3435.19	11441.46
8	Barn	1738.05	2632.72	3475.87	11493.24
9	Barn	1041.78	1793.44	2577.59	10574.87
10	Barn	1670.95	2049.80	2522.57	10386.17
11	Barn	1934.05	2121.76	2638.16	10585.46
12	Barn	1159.77	1851.53	2383.64	9955.93
13	Commercial	434.05	717.55	1902.59	8964.04
14	Barn	313.58	597.66	1834.58	8870.26
15	Barn	826.59	1102.55	2480.01	9468.76
16	Barn	531.86	691.54	1918.33	8970.06
17	Barn	466.83	619.35	1820.47	8876.31
18	Barn	364.73	518.79	1766.19	8794.48
19	Commercial	195.34	355.24	1049.93	8211.20
20	Utility - Water Utility Building	341.06	478.35	858.47	7433.87
21	Barn	1037.40	1171.21	1531.01	7905.42
22	Barn	1287.07	1415.43	1845.20	7918.27
23	Barn	986.00	1359.88	2369.64	7336.44
24	Barn	1066.77	1430.09	2410.08	7414.18
25	Barn	688.06	2897.45	3417.70	6601.87
26	Barn	1189.35	3432.20	3937.18	6786.22
27	Barn	1225.97	3330.98	3718.50	5543.89
28	Barn	68.85	1165.42	1556.21	5077.54
29	Barn	81.72	613.36	1019.17	5477.82
30	Barn	439.20	664.35	1274.48	2970.38
31	Barn	812.55	1023.94	1372.52	2728.19
32	Barn	805.65	954.04	1643.50	2553.02
33	Barn	1453.40	1618.79	2228.68	3038.48
34	Barn	1388.97	1548.24	2184.29	3030.31
35	Barn	1065.87	1343.97	1844.82	2994.24
36	Barn	927.92	1202.61	1703.66	2862.59
37	Barn	1221.49	1583.98	2110.67	1864.18
38	Barn	868.24	1163.73	2016.19	9470.44
39	Barn	759.08	1066.26	1951.23	9478.49
40	Barn	1925.16	2265.19	3146.77	10606.62
41	Barn	1502.33	2190.25	2902.94	10557.19
42	Barn	51.13	372.28	784.04	4246.31
43	Barn	364.11	1072.33	1414.27	7961.45
44	Barn	543.50	673.49	1399.85	8698.13
45	Barn	1269.76	1901.60	2570.47	10175.79
46	Barn	67.06	776.53	1160.36	5267.78

Siting Board 1-37:

Refer to the Kentucky Geological Survey Oil and Gas Wells Search (https://kgs.uky.edu/kygeode/services/oilgas/):

a. File a map with all active and inactive oil or gas wells on the proposed site. Include any gas-gathering pipelines associated with the wells.

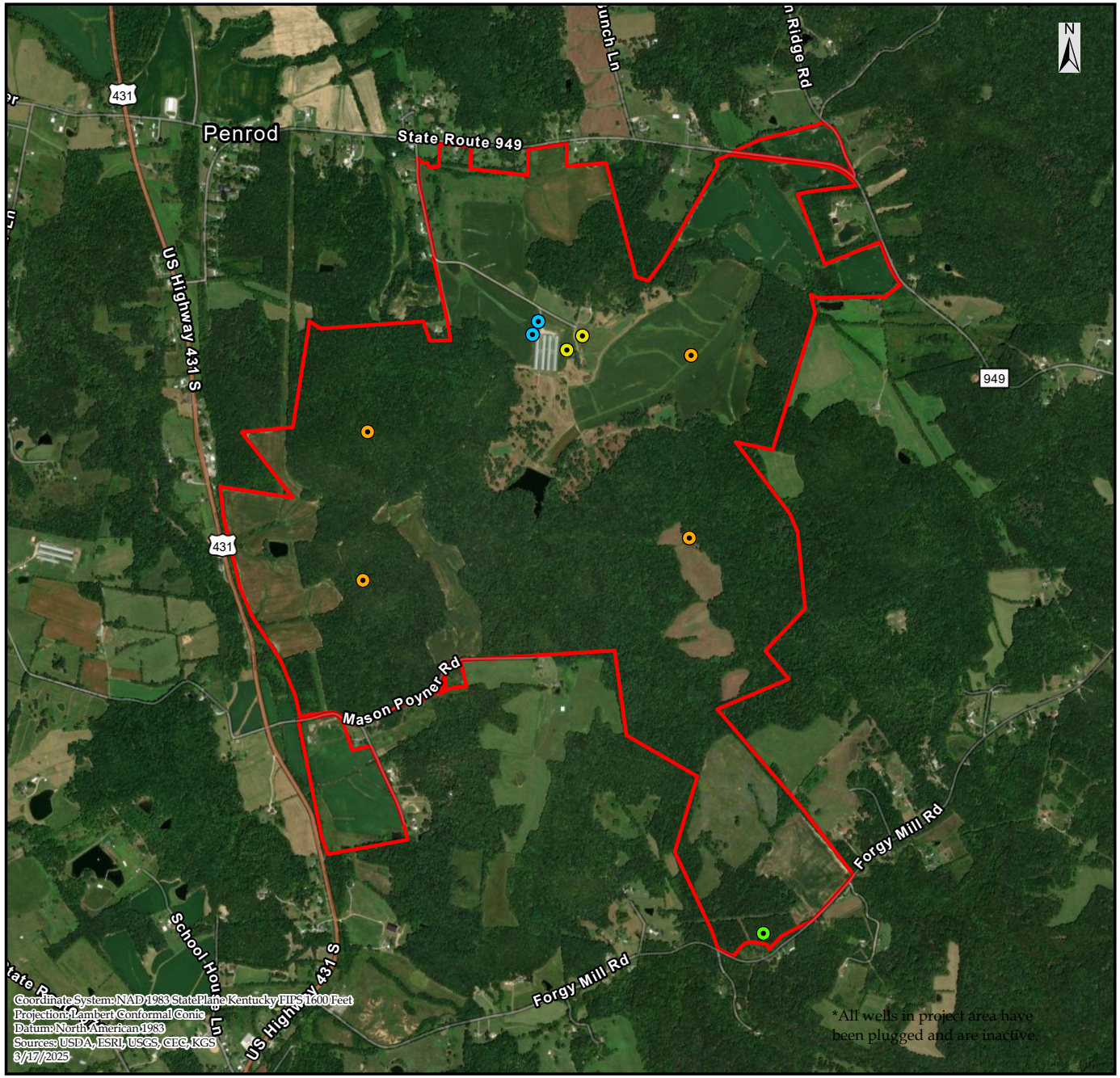
b. Determine and confirm whether any of these wells are currently permitted and active. If the well is not active, designate the well as inactive on the map provided in response to Item 37(a).

c. Confirm whether the existence of oil and gas wells and pipelines will require adjustments to the proposed location of solar panels. If not confirmed, explain the plan to avoid the areas.

Response:

a. The Kentucky Geological Survey Oil and Gas Search Database identified four oil and gas wells on the Project Site that are inactive and have been plugged and abandoned. No information exists concerning potential/former gas-gathering pipelines. Both the current and former landowners confirmed that they are not aware of any gas-gathering pipelines located on the Project Site. The Attachment shows the locations of the inactive oil and gas wells as well as well documentation on the Project Site.
b. None of the four identified oil and gas wells is active.
c. The locations of the four inactive oil and gas wells were considered during preliminary design and proposed location of solar panels. Solar panels and piles would avoid the locations of the four inactive wells.

Witness: Marty Marchaterre



COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Lost City Renewables LLC

FIGURE 1-37:
Kentucky Geological Survey
Inactive Oil and Gas, Water Wells,
and Springs within the
Lost City Solar Project Area
Muhlenberg County, Kentucky

Legend

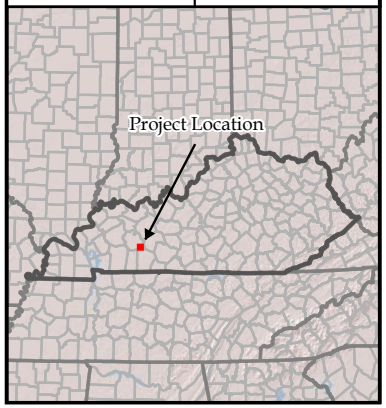
- Spring
- Active Water Well Inactive
- Water Well Inactive Oil and
- Gas Well
- Project Area

0 1,000 2,000
US Feet

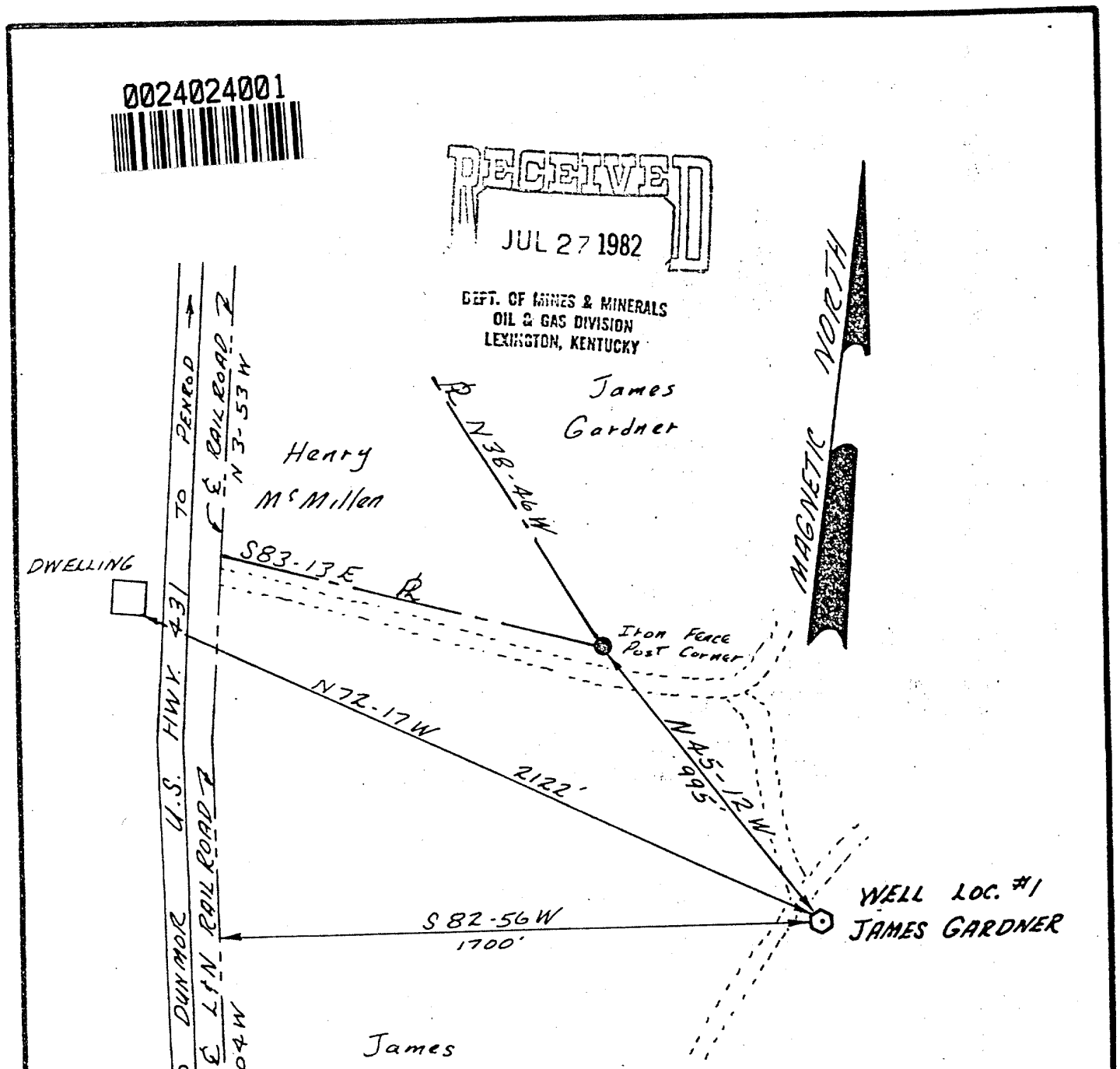
Scale: 1 in = 2,000 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	3/17/2025
Checked by:	MM	Revision:	02

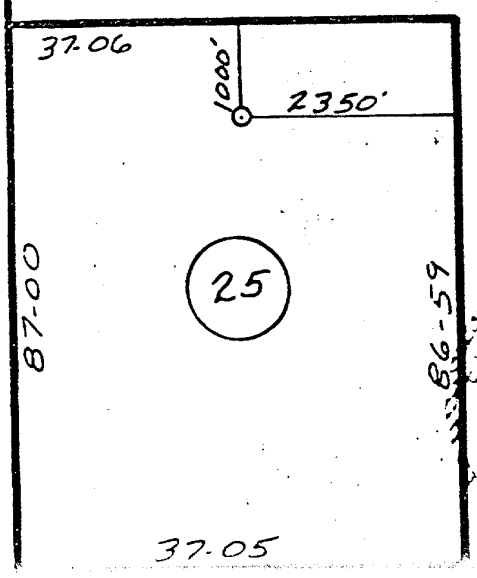


0024024001



PERMIT NO. 5044
LOCATION
ELEVATION
ADDED BY KENTUCKY GEOLOGICAL SURVEY PERSONNEL

TOPO DUNMOR
CARTER COORD. 25-H-31
SCALE: 1"=2000'



STATE OF KENTUCKY
DOUGLAS M. HATFIELD
2212
REGISTERED
LAND SURVEYOR

OPERATOR: JAMES E. SMITH
FARM: JAMES GARDNER
WELL #: 1 ELEVATION 548.07
COUNTY: MUHLENBERG, KENTUCKY
DATE: 4-23-82 SCALE: 1"=400'
DOUGLAS M. HATFIELD
GREENVILLE, KY.

I HEREBY CERTIFY THAT THIS SURVEY WAS MADE UNDER MY SUPERVISION & IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Douglas Hatfield
R.L.S. # 2212

John C. Boyle
P.E. #11151

0024024002

Micro

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
OIL AND GAS DIVISION
P.O. BOX 680
LEXINGTON, KENTUCKY 40586

RECEIVED
SEP 26 1983
DEPT. OF MINES & MINERALS
OIL & GAS DIVISION
LEXINGTON, KENTUCKY

WELL LOG AND COMPLETION REPORT

TO BE FILED IMMEDIATELY AFTER COMPLETION OF WELL
NOTICE: IT IS NECESSARY TO SUBMIT A RECORD FOR EACH PERMIT.

WELL IDENTIFICATION Permit No. 50843

Operator James E. Smith

Farm Name James Gardner

Well No. 1

TYPE OPERATION *(check one)*

Re-Open ☐
New Well ☒
Workover ☐
Deepening ☐

LOCATION

County Muhlenberg

Carter Coordinates 25 (section) H (letter) 31 (number) QUAD.

Footage from Section Lines: 1000' from N line S, 2350' from E line W

ELEVATION 548.7' (ground) (D.F.) (K.B.)

TOTAL DEPTH

Driller's Log 1150' Geophysical Log NONE

OPERATIONAL DATES

Date Commenced 8-9-82 Date Drilling Completed 8-11-82

Date Plugged 8-15-82 *(if dry hole)* Date Placed in Operation *(if producing, injection, etc.)*

Date Shut-in *(if shut-in producer or other temporarily suspended operation)*

DRILLING METHOD

Cable Tools from ____ to ____ *(Depths)*

Rotary Tools air conventional-from ____ to ____ -from 0' to 1150' *(Depths)*

CONTRACTOR(S): James E. Smith

Address: P.O. Box 319
Greenville, Kentucky 42345

TYPE(S) OF GEOPHYSICAL LOGS RUN:
(Electrical, Induction, sonic, gamma ray, neutron, density, etc.)

NONE

TYPE OF COMPLETION *(check one)*

Dry Hole X ☒
Oil ☐
Gas ☐

Shut-in or Producing?

Pressure Maintenance or Secondary Recovery:
Water Injection ☐
Gas Injection ☐
Gas Storage: Injection-Extraction ☐
Observation ☐

SERVICE WELL:
Saltwater Disposal ☐
Water Supply ☐
Observation Well ☐
Other

INITIAL PRODUCTION

Natural NONE Date

After Treatment Date

COMPLETION INTERVAL

Formation Name(s)	Interval(s)
NONE	

WELL TREATMENT *(check applicable boxes)*

			In Open Hole	Thru Perforation
Shot NONE qts.		Interval	☐	☐
Shot ____ qts.		Interval	☐	☐
Acid ____ gals.		Interval	☐	☐
Acid ____ gals.		Interval	☐	☐
Fracture ____ gals. ____ lbs/sand		Interval	☐	☐
Fracture ____ gals. ____ lbs/sand		Interval	☐	☐

Casing Size	Hole Size	Depth	Sks Cement	Csg Pulled
7"	8 3/4	300'	0	Yes

OCCURRENCE OF OIL AND GAS

Interval *(Depths-Top, Base)*	Formation	Remarks *(Shows of Oil and/or Gas, Fill-up Tests, DST'S, Cores, etc.)*
NONE		

THE ABOVE INFORMATION IS COMPLETE AND CORRECT.

Signed James E Smith

Date 9-22-83

Title Co/owner

This form **must be completed and filed for every permit.** Re-Opened wells need not include a driller's log. However, the front side of the form must be completed.

ED-3

FORMATION RECORD

From	To	Rock Type (describe rock types and other materials penetrated and record occurrences of oil, gas and water from surface to total depth)	From	To	Rock Type (describe rock types and other materials penetrated and record occurrences of oil, gas and water from surface to total depth)
0	26	Dirt			
26	330	Sand & Lime & Shale			
330	390	Lime & Sand			
390	420	Lime & Shale			
420	530	Shale & Sand			
530	680	Lime & Shale			
680	730	Jackson Sand (Shale & Lime in between)			
730	870	Paint Creek (Lime & Shale)			
870	980	Renault Lime			
980	1150	McClosky Lime			

0024024003

File

AFFIDAVIT TO TIME AND MANNER OF PLUGGING AND FILLING WELL
As Required by Law

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MINES AND MINERALS
P. O. Box 680
LEXINGTON, KENTUCKY
Oil and Gas Division

James E. Smith, P.O. Box 319, Greenville, Kentucky 42345
Name and address of Last Operator

SAME
Name and address of original Operator who first permitted and drilled this well

NONE
Name and address of Coal Operator

Permit No. 50843, Elevation 548.7', County Muhlenberg

Carter Coordinate Location 25-H-31 1000' FNL X 2350' FEL

Lease Name James Gardner Well No. 1

Affidavit to be made in triplicate, one copy to be mailed to the Department of Mines and Minerals, one copy to be retained by the well operator and the third copy (and extra copies if required) to be mailed by registered mail to each coal operator above named at their respective addresses.

RECEIVED
AUG 29 1983
DEPT. OF MINES & MINERALS
HUSTON KENTUCKY

AFFIDAVIT

STATE OF KENTUCKY,)
County of Muhlenberg) ss:

0024024004

, operator of above captioned well does hereby swear that the plugging of said well was completed according to instructions from the oil and gas inspector and according to Chapter 353 K.R.S. on 8-15, 19 82, record of which is listed below.

Plugged from	350'	to	295'	with	15 Sks.
Plugged from	35'	to	3'	with	12 Sks.
Plugged from	3'	to	0'	with	Dirt
Plugged from		to		with	
Plugged from		to		with	
Plugged from		to		with	
Plugged from		to		with	
Plugged from		to		with	

Indicate below the size and interval of any casing left in well and if and where it was shot off. Size , Shot off at Bottom casing at
Size , Shot off at Bottom casing at

State whether or not other steel or junk was left in well and describe:
NONE

James E Smith
Signature of Contractor responsible for the above plugging, or

James E Smith
Signature of Operator responsible for the above plugging

Sworn to and subscribed before me this 25th day of August 1983

Maxine Hamilton
Notary Public

My Commission expires: My Commission Expires Feb. 22, 1985

55600

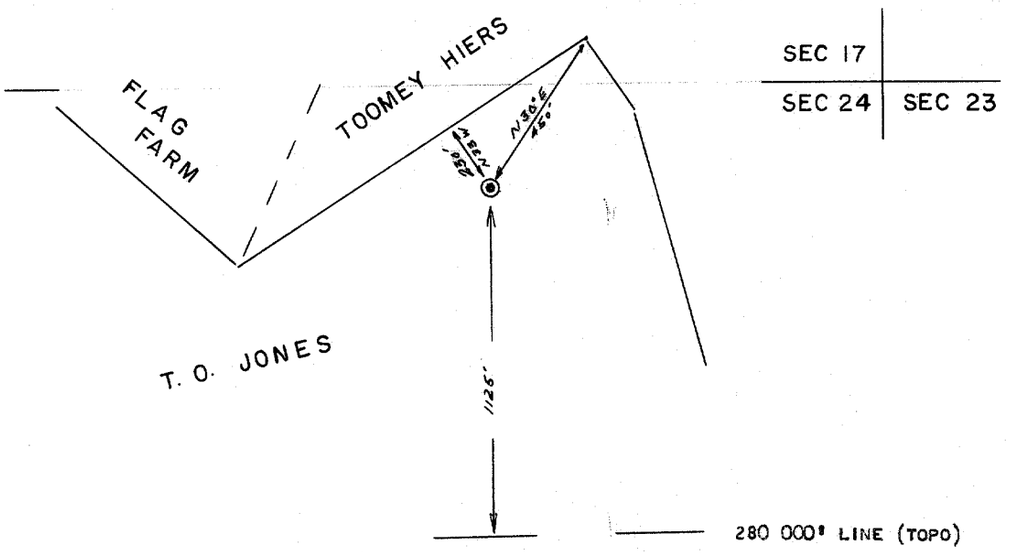
MUHLENBURG COUNTY, KENTUCKY (DUNMORE QUADRANGLE)

SECTION 24 - H -31

~~5280~~

DR. A. J. CHROUSER # 1 T.O. JONES
ELEV. 458' TOPO (HAND LEVEL)

5750 FSL
8460 FWL



SCALE : 1" = 500'

I HEREBY CERTIFY THAT THE ABOVE PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF:

STATE OF KENTUCKY
WILLIAM M. LYON
2491
REGISTERED
PROFESSIONAL ENGINEER

William M. Lyon
REGISTERED ENGINEER

DATED THIS 5-25-62

202998001

24-H-31

D 6544

Muhlenburg Co.

Serial No.

State Co. Sec. 24 T H R 31 Pool

Oper. Dr. A. J. Chrouser Elev. 458' DF 458 Gr.

Farm I. O. Jones No. 1 TD. 530 PB.

LOCATION

Scout see permit

Farm NW NE NE 24-H-31

L.&S. 5750 FSL & 8460 FWL

Comm. 5/31/62 Comp. 6/14/62

Remarks: sample log REG.

CASING RECORD

12"	10"	8"	6"	5"
		21'	97'	

SHOT—ACID RECORD

Date	Qt.-Gal.	From	To

I. P. D & A

DATE	DRILLING RECORD
	show gas @ 345'
6/14/62	T.D. in Jackson @ 530' w/ SALT WATER
	D & A
	Plugged 6/18/62

RECEIVED
JUL 1 1962
Kentucky Geological Survey

TOP	DRILLER OR SAMPLE	ELEC.
Prov. Ls.		
No. 11 Coal		
No. 9 Coal		
Mansfield		
Penn. Sd.		
B. Penn.		
Biehl		
Up. Kincaid		
Lo. Kincaid		
Degonia		
Clore		
Palestine		
Up. Menard		
Menard		
Lo. Menard		
Walt'burg		
"		
Vienna		
T. S. (Jett)		
"		
Up. G. D.		
Lo. G. D.	355	
Hd. (Jones)	397-440	
"		
Golconda	440-496	
Jackson	496- T.D.	
Barlow Ls.		
Cypress		
"		
Up. Pt. Creek		
Pt. Creek Sd.		
Lo. Pt. Creek		
Beth-Ben		
Up. Renault		
Renault		
Aux Vases		
" "		
St. Gen.		
O'hara-Rosi		
Fredonia		
McClosky		
"		
"		
St. Louis		
Chatt		
Dev. Ls.		
Silurian		
Trenton		
St. Peter		

RECEIVED
JUN 29 1962
DEPT. OF MINES AND MINERALS
LEXINGTON, KENTUCKY

Top of Jackson
Roy C. Greenfield
Geologist

2029989002

DEPTH	FORMATION	DEPTH	FORMATION	DEPTH	FORMATION
G					
↓					
50-96	sand (water)				
96-105	sh				
105-125	lg & sh				
125-130	ls w/sh				
130-135	lg				
135-150	sh				
150-60	ls				
160-175	ls w/sh				
175-200	ls				
200-15	sh				
215-20	ls				
220-40	sh				
240-45	ls				
245-60	sh				
260-285	ls				
285-95	sh				
295-310	ls				
310-22	sh				
322-50	ls				
350-55	sh				
355-397	ls				
397-420	gry sh w/stks red				
420-35	red beds				
435-40	gry sh				
440-496	ls		(sandy 450-60)		
496-421	gry-grn sh w/stks red				
421-431	sand		T.D.		
	salt water @ 400' in hole				

WELL RECORD

FARM: JONES, T. O.
WELL NO.: 1 PERMIT NO.:
OPERATOR: Dr. A. J. Choruser
ACRES:
ELEVATION: 458
COMMENCED: 5-31-62
COMPLETED: 6-14462
TOTAL DEPTH: 530
CONTRACTOR:

LOCATION:
Carter Coordinate: S 24 T H R 31
County: MUHLENBERG
Other: 5750 FSL x 8460 FWL

CASING AND TUBING RECORD:
21' of 8"
97' of 6"

PRODUCTION RECORD:

D&A
T. D. in Jackson @ 530' w/ salt water
Plugged 6/18/62

From	To	Formation	From	To	Formation
80	96	Sand, water			
96	105	Shale			
105	125	Shale and limestone			
125	130	Limestone with shale			
130	135	Limestone			
135	150	Shale			
150	160	Limestone			
160	175	Limestone with shale			
175	200	Limestone			
200	215	Shale			
215	220	Limestone			
220	240	Shale			
240	245	Limestone			
245	260	Shale			
260	285	Limestone			
285	290	Shale			
290	295	Shale			
295	310	Limestone			
310	322	Shale			
322	350	Limestone			
350	355	Shale			
355	397	Limestone			
397	420	Gray shale with streaks red			
420	435	Red beds			
435	440	Gray shale			
440	496	Limestone (sandy 450-60)			
496	521	Gray-green shale with streaks red			
521	531	Sand, salt water up 100 in hole			
		355 Lo. G. D.			
		397-440 Hd. (Jones)			
		440-496 Golconda			
		496- TD Jackson			
		Tops by Roy E. Greenfield -Geologist			

2029989004

FILMED ☑

County Muhlenberg State Ky

Sec. 24 T. H R. 31

Loc. 5750 SL, 8460 WL of Quad

Opr. Dr. Alfred J. Chrouser

Farm #1 T. O. Jones

I.P. D&A Date 8/31/62

T.D. 531 M.L. ✓

Fm. Tested Jack S.S.

Elec. Log Core Chips

Samples on File Box No.

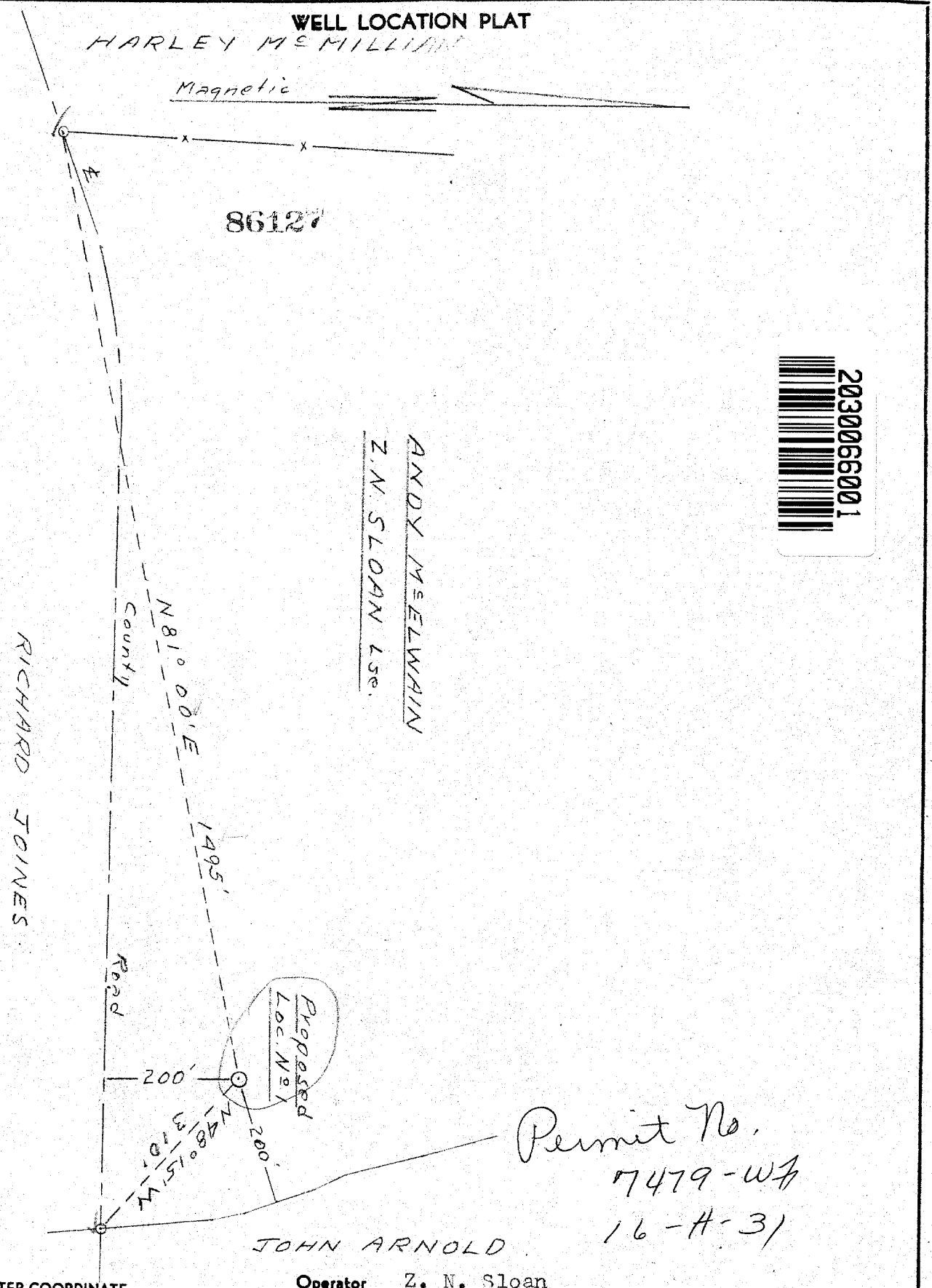
SUB-SEA DATA

SAND RECORD

253 A

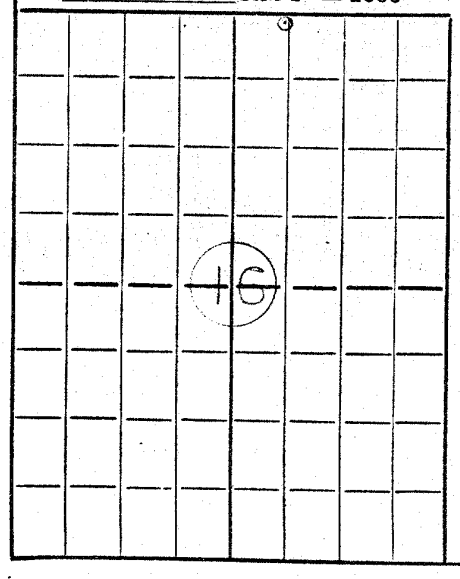
WELL LOCATION PLAT

HARLEY McMILLIAN



Permit No.
7479-WH
16-H-31

CARTER COORDINATE
16-H-31 Scale 1" = 2000'



Operator Z. N. Sloan
Farm Andy McElwain
Well No. 1 Elevation 405 Gr.
County Muhlenberg Kentucky
Date 3-6-56 Scale 1"-200'
Engineer F. E. Moran
Address Damron Bldg., Owensboro, Ky.

I hereby certify that the above plat is correct to the best of my knowledge and belief.

F. E. Moran

Registered Engineer No. 1961

OK. R.L.V.

Serial No. 569

State ____ Co. Mull Sec. 16 T. H R. 3 W Pool ____

Oper. Z. N. Sloan Elev. ____ DF. 405 Gr. surveyed

Farm M. McElwain No. 1 TD 550 PB. ____

N.T. (Kelly)

LOCATION

Scout 1700 S 2550 W of

Farm

L&S.

Comm. 3-12-56 Comp. 4-6-56

Remarks: Wildcat

CASING RECORD

12"	10"	8"	6"	5"
		145		

SHOT—ACID RECORD

Date	Qt.-Gal.	From	To

I. P.

DATE	DRILLING RECORD
3-14-56	@ 160
3-21-56	@ 316
3-28-56	@ 554
4-4-56	SD

TOP	SAMPLE OR ELEC.
Prov. Ls.	
No. 11 Coal	
No. 9 Coal	
Mansfield	
Penn. Sd.	
B. Penn.	
Biehl	
Up. Kincaid	
Lo. Kincaid	
Degonia	
Clore	
Palestine	
Up. Menard	
Menard	
Lo. Menard	
Walt'burg	
"	
Vienna	-298
T. S. (Jett) SDO	307-35
"	
Up. G. D.	335-60
Lo. G. D.	~~262-98~~ 372-407
Hd. (Jones) SDO	~~307-25~~ SDO 437-41
"	NS 441-460
Golconda	~~335-60~~ 460-510
Jackson NS 525-3	SDO 542-49 xw 549-60
Barlow Ls.	590-95
Cypress	
"	
Up. Pt. Creek	625-66
Pt. Creek Sd.	
Lo. Pt. Creek	668-703
Beth-Ben	
Up. Renault	719-65
Renault	-804
Aux Vases ? Lb.	804-12 cool.
" "	
St. Gen.	818-
O'hara-Rosi NS	819-27 cool.
Fredonia	
McClosky NS	845-~~60~~ 50 cool.
"	
"	
St. Louis	
Chatt	
Dev. Ls.	
Silurian	
Trenton	
St. Peter	

2030066002

Muhlenberg County, Kentucky
Z. N. Sloan No. 1
11,700' SL x 2,550' WL Quad.
Comm. 3-12-1956, Comp. 4-16-1956

Section 16-H-31 - Wildcat
M. McElwain
Elev. 405' "Topo"
DRY AND ABANDONED

8" - 98', reset 145' 7" - 578' No samples to 315'

325 sand, gray to brown, coarse, show dead oil
335 sand, gray, fine grained, no show
352 lime, tan hard, oolitic, dark centers
362 lime, gray, crystalline, dolomitic
377 shale, gray
391 lime, crystalline to coarse grained, crinoidal at base
407 lime, light gray, crystalline to fine grained, dolomitic
434 shale, gray
441 sand, coarse, gray to brown, stain, show dead oil
447 sand, same, slight stain, shaly
460 sand, gray
467 lime, tan, coarsely crystalline
480 lime, gray, coarse grained, shaly
510 lime, gray, crystalline to fine grained, dolomitic, cherty at base
525 shale, gray
535 sand, gray, no show
542 shale, gray, sandy, green
549 sand, gray, slight stain, shaly
560 sand, white, coarse, water
575 shale, gray, sandy
590 shale, gray; sand, green; trace lime at 590'
625 shale, red to green
630 lime, brown, dense, slightly oolitic
635 lime, brown, fine grained, dolomitic
640 lime, gray to brown, fine grained, dolomitic
655 lime, gray, dense to fine grained, dolomitic
661 lime, sane, slightly oolitic
667 lime, gray, oolitic, dolomitic, no show
671 lime, gray, coarse grained, shaly
703 lime, brown, very oolitic, dark centers, dense at base
719 shale, gray to green, pyritic
720 lime, brown, slightly oolitic
740 lime, gray to white, dense, dolomitic
744 shale, gray
745 lime, brown to gray, crystalline
765 lime, white, fine grained, tabular gyp.
780 lime, tan, dense
785 lime, white, dense
798 lime, gray to brown, fine grained
802 lime, white, dense, slightly oolitic
804 lime, brown, dense
812 lime, white, oolitic, dolomitic, tight, no show
816 lime, brown, dense, shaly, green
818 lime, white, oolitic, tight, dolomitic, no show
827 lime, tan to brown, oolitic to dense, dolomitic
840 lime, gray, very small oolites
845 lime, brown to gray, dense to oolitic
850 lime, white, tight, oolitic, dolomitic, no show

850 TOTAL DEPTH

Kentucky Muhlenberg	Z N Sloan #1 M McElwain	16-H-31 11,700'SL 2550'WL Q
D&A	Comm 3-12-56 Comp 4-16-56	Elev 405 topo
	TD 850	

E-log _____
D-log _____
S-log _____
Lyn. ct. tck.

X-6069-

(11-44)

KENTUCKY MAGNOLIA PETROLEUM CO. Map No. ✓

MUHLENBURG County,

Sec. 16 Twp. H-31 Rge. Elv. 405

Operator Z. N. Sloan

Well No. 1 Farm M. McElwain

Description 11,700 FSL 2550 FWL Qd.

Wildcat

Perf.	Wind.
Sec.	Dow.

CARRY

CASING RECORD		ACID RECORD	
Size	Set	Gallons	Depth
8	98		
		SHOT RECORD	
		Quarts	Depth
TD	850		
PB			
IP	D & A		

Date	DRILLING DATA 3-12-56
MAR 15 '56	Drlg. 160' MAR 22 '56 ∅ 316
MAR 29 1956	∅ 554
APR 5 1956	500 540
APR 11 1956	APR 19 1956

Drillers ✓	Jeep
Sample X	Schlum.
Bieh	
UKin	
LKin	
Deg	
Cl ss	
Pal ss	
UMen	
LMen	
Walt	
" ss	
Vi -298	
T S 500. 307-35	
" ss	
UGd 335-60	
LGd ~~267-98~~ 372-407	
Hrd ~~500~~ 437-41 ~~335-367~~	
" ss	
Gol ~~402-510~~ 535-60	
BGol ✓ 525-60	
~~Cyp~~ 590-95	
" ss	
P C 625-66	
~~L Pes~~ 668-703	
Bethel	
Ben ss	
URen 719-65	
LRen -804	
A V 804-12	
" ss	
StG 818	
L O 818-27	
Ros	
Frd	
Mc 845-850	
"	
Stl	
Sal	
War	
Keo	
La	
Chat	
Dev	
" pay	
Maq	
Tr	
Kmwk	
850	

FORM 275 REV. 9-55

REASON FOR DRILLING
FIELD WELL—NAME
EXPLORATORY WELL (A-3)

Wildcat
SCOUT SHEET

COUNTY Muhlenberg
STATE Kentucky

ELEVATION 405 Survey
OPERATOR Z N Sloan
FARM M McElwain WELL NO. 1
SEC. 16 QUAD. H COORD. 31
LOCATION FROM LINES 1170 FSL 2550 FWL of Sec

DATE STARTED 3-12-56
DATE COMPLETED
T.D. 855
P.B.
SCHL. REC'D
TOPS BY
WAS ELECT. LOG RUN?

(Cable tools)
I. P. FIRST 24 HOURS D&A

CASING			CASING		
SIZE	SET	SACKS	SIZE	SET	SACKS
7	148				

	SAMPLE	SCHL.		SAMPLE	SCHL.		SAMPLE	SCHL.
PA.			HDS~~SEC~~	~~304-25~~		McCL.	845	50 115
			SEC	437-41				
			GOL.	~~395-406~~	446-510			
			JACK.	525-35	(SEC ~~542-49~~)			
U. KINK.			BAR.	591-95		SAL.		
L. KINK.			CYP.					
DEG.						WAR.		
CL.			U. P. C.	625-66		OSG.		
PAL.			P. C. SD.			RF.		
U. MEN.			L. P. C.	668-703		CHAT.		
M. MEN.			BETH.			DEV.		
L. MEN.			REN.	719-65				
WALT.			L. REN.	~~804~~				
			A. V.			SIL.		
VI.	~~298~~			65	804-12 NS			
T. SD	307-35		STE. G.	818		ORD.		
			L. O'H.	815-27		TREN.		
U. G. D.	335-60		ROSI.					
L. G. D.	~~344-98~~ 372-40		FRED.			ST. P.		

DATE	DRILLING DATA
3-15-56	Drlg 160;
3-22-56	@ 314
MAR 29 1956	@ 554
APR 5 1956	
APR 12 1956	Sdd
APR 19 1956	

County Muhlenberg State Ky.

Sec. 16 T. H R. 31

Loc. 11,700 FSL, 2550 FWL of Qd.

Opr. Z. N. Sloan

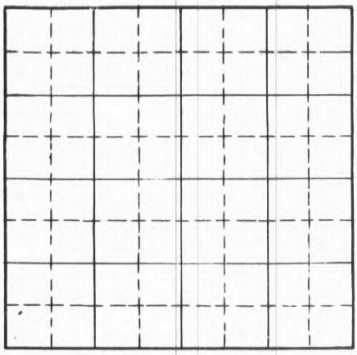
Farm #1 M. McElwain

I. P. D & A

T. D. 850

Fm. Tested Mc.

Elec. Log



SCALE 2" = 1 MILE

Samples on File Box No.

ML

SAND RECORD

Deg.		
Pal.		
Walt.		
T. S.	28'	Sdo
Hard.		
Jack.	28'(2)	S.O bot. sd
Cyp.		
P. C.		
Beth.	NL	
A. V.		

SUN OIL COMPANY

COUNTY Muhlenberg STATE KY K-37

Operator J. M. Sloan Sec. 16 Twp. 14 Rnge. 3W

Farm M. McElwain Well # 1 L. & S. Loc.

Field WC L. & S. Elevation FNL FSL FEL FWL

INITIAL PRODUCTION

Date APR 18 1956

Pump	Flow
D/A	

Gas

T.D. L | D 850

D.D.

P.B.

Form	Pay

Spud 3 | 12 | 56

Date	Progress
3/14	@ 160
3/21	@ 316
3/28	@ 554
4/4	TD

	SAMPLE TOPS	SCH. JEEP TOPS
W.F.		
Prov.		
Coal		
Pa. Sd.		
U. Kin.		
L. Kin.		
Degonia		
Clore Sd.		
Pal.		
Menard.		
L. Menard		
Walt. Sd.		
Vienna.	-298	
Tar Sp. Sd.	307-35 SDO	
OG	335-60	
L. Glen D.	~~367-75~~ 372-407	
Hdbg. Sd.	~~387-~~ 437-41 SDO	
Golconda	~~425-60~~ 460-510	
Jack. Sd.	525-35 NS & 542-49 SDO	
Barlow	590-95	
Cypress		
U. Pcr. Ls.	625-66	
Pcr. Sd.		
L. Pcr. Ls.	668-703	
Bethel		
Renault	719-65	
L. Renault	-804	
Aux Vases	804-12 NS	
Ste. Gen.	818	
L. O'Hara	818-27 NS	
Rosiclare		
Fredonia		
McClosky	845-~~50~~	
St. Louis		
Salem		
Warsaw		
Osage		
La. Ls.		
Chatt. Sh.		
Devonian		
Silurian		
Maquoketa		
Trenton		
St. Peter		

OF

Scout Loc.

Spot

FNL

FSL 1,700

FEL

FWL 2550

OF 90

Elev. 405

E. L. Chkd.

5100 'SE K-2561 (W. G Horton)

60# CASING RECORD

8 at ~~8~~ 145

at

at

at

at

at

TEMPORARY CASING

Sec. at

Sec. at

Sec. at

ACID RECORD

gals.

gals.

gals.

gals.

gals.

gals.

PERFORATION RECORD

at

at

at

at

at

at

SHOT RECORD

qts. at

qts. at

qts. at

qts. at

qts. at

Muhlenberg County, Kentucky
Sam Sharp No. 1
2,400' WL x 2,350' SL Sec.

Section 17-H-31 - Wildcat
C. McPherson
DRY AND ABANDONED

8" - 257'?
6-5/8" - 421'

0-22 mud
37 shale
43 lime
54 shale
61 lime, shale
92 shale
98 lime
110 shale
127 brown lime
160 shale
193 lime
203 slate
206 lime
217 slate
242 lime
247 shale
255 Red rock
290 slate
333 lime
346 shale
349 oil sand
364 shale
372 sand
382 shale
392 sand
415 Jones sand
417 sand, lime
423 " "
427 Red rock
438 shale
464 lime
467 shale
471 lime, sand
478 shale
485 lime
488 sand, lime
490 lime

500 Total Depth.

Kentucky Muhlenberg	S Sharp #1 G McPherson Comm 12-31-47 Comp 3-10-48	17-H-31 2400'WL 2350'SL Sec Elev
Serial No. 12,171	TD 500	

E-log _____
D-log _____
S-log _____

Serial No. 12,171 - old log 1022 MU

State ____ Co. Mulk. Sec. 17 T. 4 R. 3 W Pool WC

Oper. S. Sharp Elev. ____ DF. ____ Gr. ____

Farm G. McPherson No. 1 TD. 500 PB. ____

NT (est.) LOCATION

Scout 7900 S 6575 W Q

Farm

L.&S.

Comm. Comp.

Remarks:

CASING RECORD

12"	10"	8"	6"	5"

SHOT—ACID RECORD

Date	Qt.-Gal.	From	To

I. P.

DATE	DRILLING RECORD

D&A

E-log ____

D-log ____

S-log ____

TOP	DRILLER OR SAMPLE	ELEC.
Prov. Ls.		
No. 11 Coal		
No. 9 Coal		
Mansfield		
Penn. Sd.		
B. Penn.		
Biehl		
Up. Kincaid		
Lo. Kincaid		
Degonia		
Clore		
Palestine		
Up. Menard		
Menard		
Lo. Menard		
Walt'burg		
"		
Vienna		
T. S. (Jett)		
"		
Up. G. D.		
Lo. G. D.		
Hd. (Jones)		
"		
Golconda		
Jackson		
Barlow Ls.		
Cypress		
"		
Up. Pt. Creek		
Pt. Creek Sd.		
Lo. Pt. Creek		
Beth-Ben		
Up. Renault		
Renault		
Aux Vases		
" "		
St. Gen.		
O'hara-Rosi		
Fredonia		
McClosky		
"		
"		
St. Louis		
Chatt		
Dev. Ls.		
Silurian		
Trenton		
St. Peter		

KENTUCKY

X-6069-10-45 (11-44)

MAGNOLIA PETROLEUM CO. Map No. 12

MUHLENBERG County,

Sec. 17 Twp. H-31 Rge. Elv.

Operator Sam Sharp

Well No. 1 Farm C. McPherson

Description 2400' FWL & 2350' FSL Sec.

Wildcat

Perf.	Wind.
Sec.	Dow.

CARRY

CASING RECORD		ACID RECORD	
Size	Set	Gallons	Depth
8	257		
6	421		
		SHOT RECORD	
		Quarts	Depth
TD	500		
PB			
IP	D&A		

Date	DRILLING DATA 12-31-47
JAN 7 '48	Drlg. 80'
JAN 14 '48	Ø285'
JAN 21 '48	Ø330'
JAN 28 '48	SD 352'
FEB 4 '48	✓
FEB 11 '48	✓
FEB 18 '48	Ø417'
FEB 25 '48	SDR 430
MAR 3 '48	Ø 460'
MAR 10 '48	

Drillers	Jeep
Sample	Schlum.
Bieh	
UKin	
LKin	
Deg	
Cl ss	
Pal ss	
UMen 160	
LMen	
Walt	
" ss 346	
Vi 290	
T S	
" ss 346 550 Shy	
UGd 415	
LGd	
Hrd	
" ss ~~346~~ ~~550~~ Shy	
Gol	
BGol	
Cyp	
" ss	
P C	
" ss	
Bethel	
Ben ss	
URen	
LRen	
A V	
" ss	
StG	
L O	
Ros	
Frd	
Mc	
"	
Stl	
Sal	
War	
Keo	
La	
Chat	
Dev	
" pay	
Maq	
Tr	
Kmwk	

WELL RECORD

FARM: McPherson, G.
WELL NO.: 1
OPERATOR: S. Sharp
ACRES:
ELEVATION:
COMMENCED: 12/31/47
COMPLETED: 3/10/48
TOTAL DEPTH: 500'
CONTRACTOR:

LOCATION:
Carter Coordinate: S 17 T H R 31
County: Muhlenberg
Other: 2400 FW 2350 FS of Sec.
Serial No. 12,171 - Wildcat

CASING AND TUBING RECORD:

8" casing at 257'
6 5/8" casing at 421'

PRODUCTION RECORD:

D & A

From	To	Formation	From	To	Formation
		DRILLER'S TOPS			
		Upper Menard 160			
		Vienna 290			
		T. S. (Jett) sso 346			
		U. Glen Dean 415			

County Muhlenbrugh No El State Ky. FILMED

Sec. 17 T. H R. 31

Loc. 2350' FSL, 2400' FWL of Qd.

Opr. S. Sharp

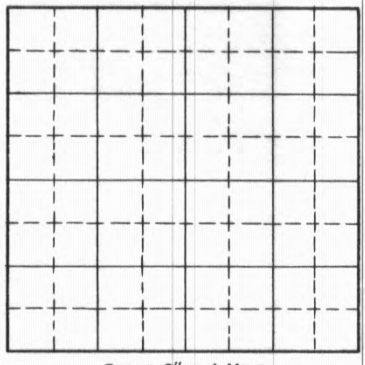
Farm #1 McPherson

I. P. D & A

T. D. 500'

Fm. Tested

Elec. Log



SCALE 2" = 1 MILE

Samples on File Box No.

M.L. INSIDE

Jack Sts

FORM CP-60 PRINTED IN U. S. A.

SUN OIL COMPANY

COUNTY MUHLENBURG STATE KENTUCKY

Operator S. SHARP Sec. 17 Twp. H Rnge. 31

Farm McPHERSON Well # 1

Field WILDCAT L. & S. Elevation

Spot

FNL 2350 FSL

FEL 2400 FWL

OF Qd.

INITIAL PRODUCTION

Date MAR 9 1948

Pump	Flow
D & A	

Gas

T. D. 500

D. D.

P. B.

Form	Pay

Spud	12	31	47
Date	Progress		
1/6	ø 80		
JAN 13 '48	ø 325		
JAN 20 '48	ø 330		
JAN 27 '48	SD 35R		
FEB 3 '48	✓		
FEB 10 '48	✓		
FEB 17 '48	ø 417		
FEB 24 '48	SDR 430		
MAR 2 '48	ø 460		
MAR 9 '48			

SAMPLE TOPS

		SCH.	JEEP	TOPS
S. C.				
W. F.				
Prov.				
Coal				
Pa. Sd.				
Mans.				
Bpt.				
Biehl				
U. Kin.				
L. Kin.				
Degonia				
Clore Ls.				
Clore Sd.				
Pal.				
U. Men.				
Men.	160			
L. Men.				
Walt. Sd.	–			
Vienna	290			
Tar Sp. Sd.	346 550			
U. Glen D.				
L. Glen D.	415			
Hdbg. Sd.	346 550			
Golc.				
Jack. Sd.				
Barlow				
Cypress				
U. Pcr. Ls.				
Pcr. Sd.				
L. Pcr. Ls.				
Bethel				
Renault				
L. Renault				
Aux. Vases				
Ste. Gen.				
L. O'Hara				
Rosiclare				
Fredonia				
McClosky				
St. Louis				
Salem				
Keokuk-Bur.				
Osage				
La. Ls.				
Chatt. Sh.				
Devonian				
Silurian				
Maquoketa				
Trenton				
St. Peter				

ELEC. LOG CHECKED

CASING RECORD

8 at 257

6 at 421

at

at

at

at

at

TEMPORARY CASING

Sec. at

Sec. at

Sec. at

Sec. at

Sec. at

ACID RECORD

gals.

gals.

gals.

gals.

PERFORATION RECORD

at

at

at

at

at

at

SHOT RECORD

qts.-at

qts.-at

qts.-at

qts.-at gals.

qts.-at gals.

qts.-at gals.

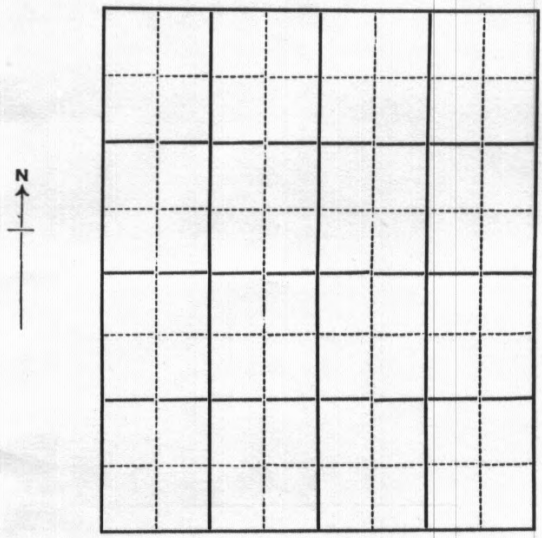
CP-23 REV. 2 PRINTED IN U. S. A.

MAP NO. 48 SEC. 17 LETTER H NO. 31

WELL NO. 1 C. McPherson FARM

Sam Sharp COMPANY

COUNTY Muhlenberg STATE Kentucky



- ☐ OIL WELL
- ☐ GAS WELL
- ☐ CLEANED OUT AND DRILLED DEEPER
- ☑ PLUGGED AT 500 FEET
- ☐ GAS WELL PUT TO PUMPING
- ☐ LOCATION ABANDONED

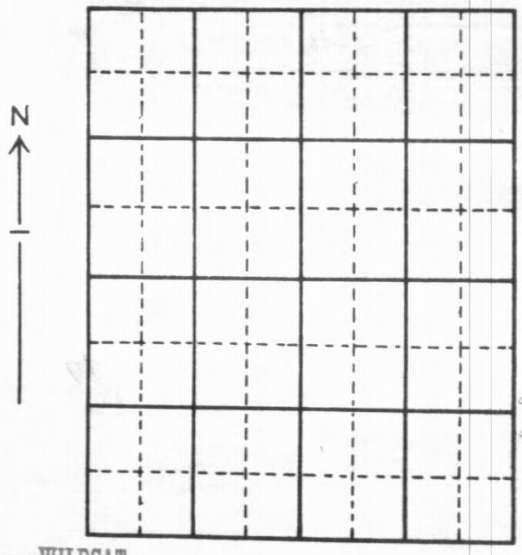
KENTUCKY
WELL RECORD ENV.
GULF T 192 12-44

MAP NO. 48 SEC. 17 LETTER H NO. 31

COMPANY SAM SHARP

WELL NO. 1 C. McPHERSON FARM

COUNTY MUHLENBERG STATE KENTUCKY



WILDCAT

DRILLING AND REMARKS

1/80

2400 W L
2350 S L sec

LOCATION

RIG UP

CASED IN. FT.

TOTAL DEPTH

DATE JAN 7 1948 19

V. S. WALKER, JR. SCOUT

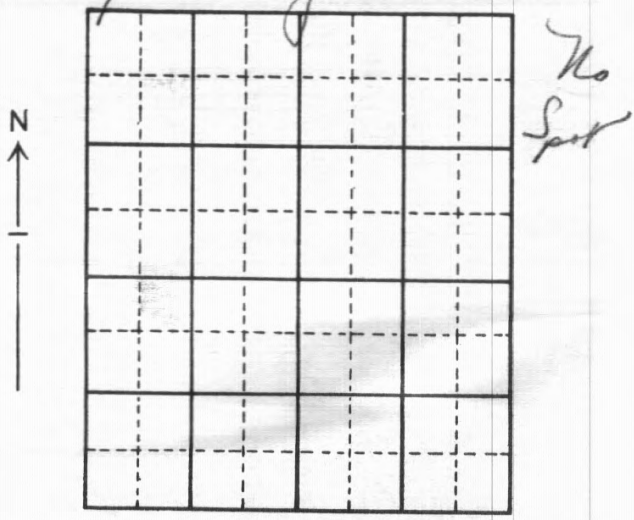
SCOUT TICKET

MAP NO. 48 SEC. 17 LETTER B NO. 31

COMPANY Sapp Sharp

WELL NO. 1 C. McPherson FARM

COUNTY Muhlenberg STATE KENTUCKY



DRILLING AND REMARKS

1275

LOCATION

RIG UP

CASED 8 IN. 257 FT.

TOTAL DEPTH

DATE JAN 14 1949 19 V. S. WALKER, JR. SCOUT

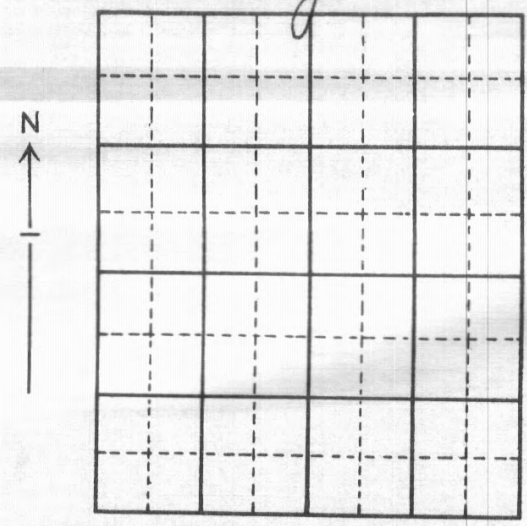
SCOUT TICKET

MAP NO. 48 SEC. 17 LETTER K NO. 31

COMPANY Tom Sharp

WELL NO. 1 C. McPherson FARM

COUNTY Muhlenberg STATE KENTUCKY



DRILLING AND REMARKS

/ 330

LOCATION

RIG UP

CASED IN. FT.

TOTAL DEPTH

DATE JAN 21 1948 19

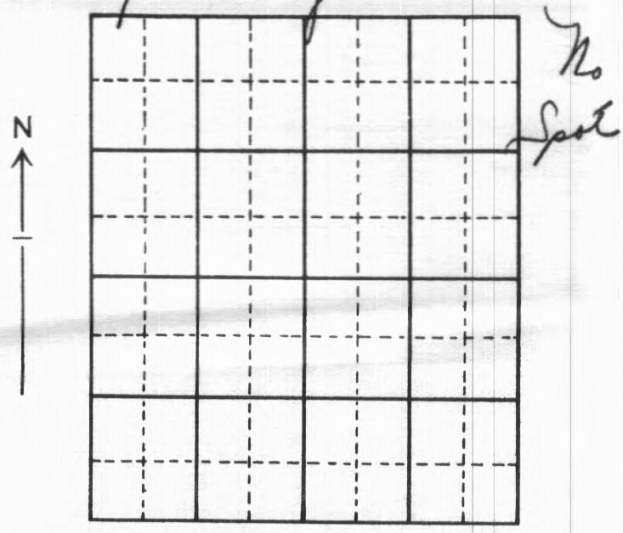
V. S. WALKER, JR. SCOUT

MAP NO. 48 SEC. 17 LETTER H NO. 31

COMPANY. Sam Sharp

WELL NO. 1 C. McPherson FARM

COUNTY Muhlenberg STATE KENTUCKY



DRILLING AND REMARKS

SD-352

LOCATION

RIG UP

CASED IN. FT.

TOTAL DEPTH

DATE JAN 28 1948 19 V. S. WALKER, JR. SCOUT

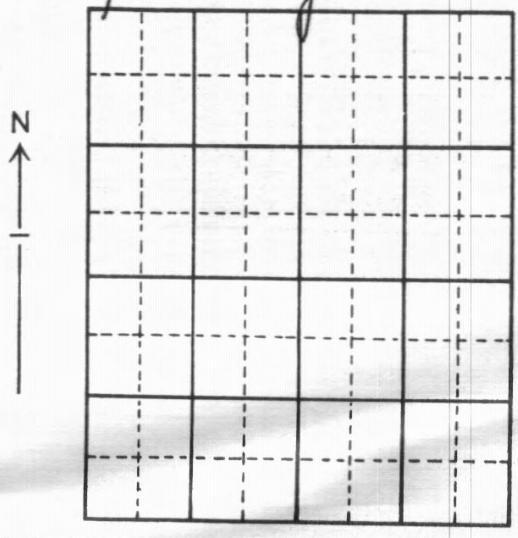
SCOUT TICKET GULF T 139-A 4-46

MAP NO. 48 SEC. 17 LETTER A NO. 31

COMPANY Sam Sharp

WELL NO. 1 C. McPherson FARM

COUNTY Muhlenberg STATE KENTUCKY



No plat

DRILLING AND REMARKS

SD-352

LOCATION

RIG UP

CASED IN. FT.

TOTAL DEPTH

DATE FEB 4 1948 19 V. S. WALKER, JR. SCOUT

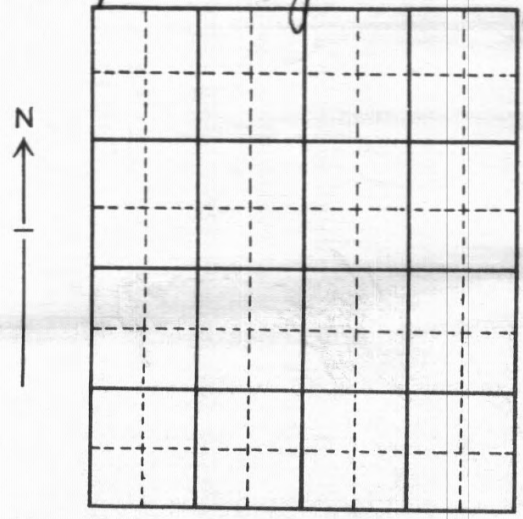
ACCUM TICKET

MAP NO. 48 SEC. 17 LETTER 18 NO. 31

COMPANY Sam Stepp

WELL NO. 1 C. McPherson FARM

COUNTY Muhlenberg STATE KENTUCKY



DRILLING AND REMARKS

SD-352

LOCATION

RIG UP

CASED IN. FT.

TOTAL DEPTH

DATE FEB 1 1 1948 19

V. S. WALKER, JR. SCOUT

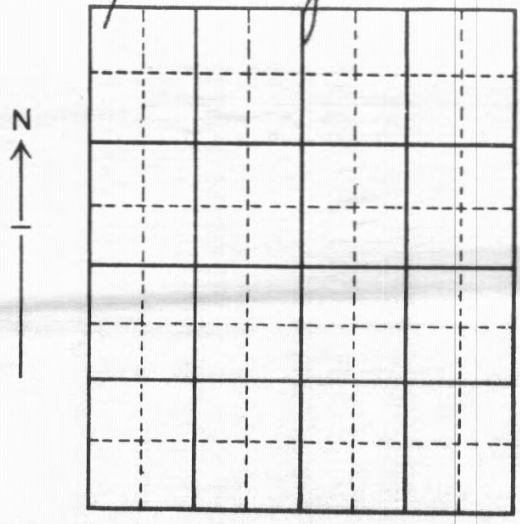
SCOUT TICKET GULF T 139-A 4-46

MAP NO. 48 SEC. 17 LETTER H NO. 31

COMPANY Sam Sharp

WELL NO 1 C. McPherson FARM

COUNTY Muhlenberg STATE KENTUCKY



No Spot

DRILLING AND REMARKS SSO SSA

HARD- 346

D-417

LOCATION

RIG UP

CASED IN. FT.

TOTAL DEPTH

DATE FEB 18 1948 19 V. S. WALKER, JR. SCOUT

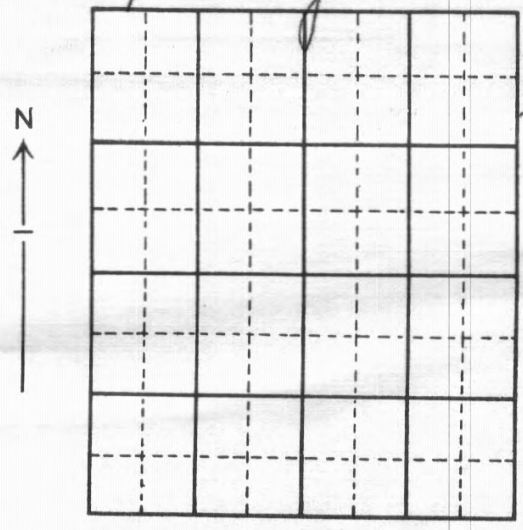
SCOUT TICKET GULF T 139-A 4-46

MAP NO. 48 SEC. 17 LETTER H NO. 31

COMPANY Sam Sharp

WELL NO. 1 C. McPherson FARM

COUNTY Muhlenberg STATE KENTUCKY



DRILLING AND REMARKS

SDR-430

LOCATION

RIG UP

CASED IN. FT.

TOTAL DEPTH

DATE FEB 25 1948 19

V. S. WALKER, JR. SCOUT

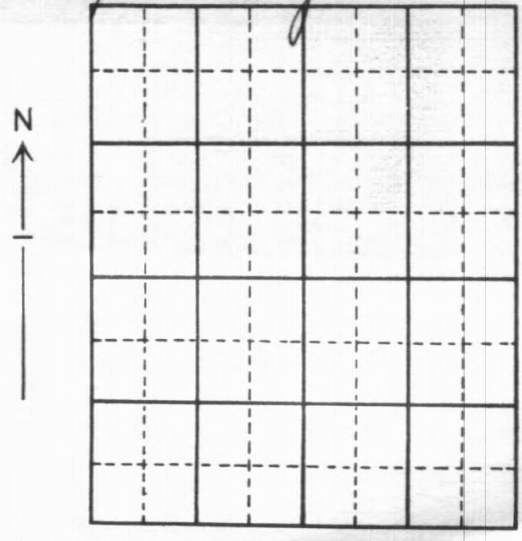
SCOUT TICKET GULF T 139-A 4-46

MAP NO. 48 SEC. 17 LETTER A NO. 31

COMPANY Sam Sharp

WELL NO. 1 C. McPherson FARM

COUNTY Muhlenberg STATE KENTUCKY



DRILLING AND REMARKS

1460

LOCATION

RIG UP

CASED IN. FT.

TOTAL DEPTH

DATE MAR 3 1948 19 V. S. WALKER, JR. SCOUT

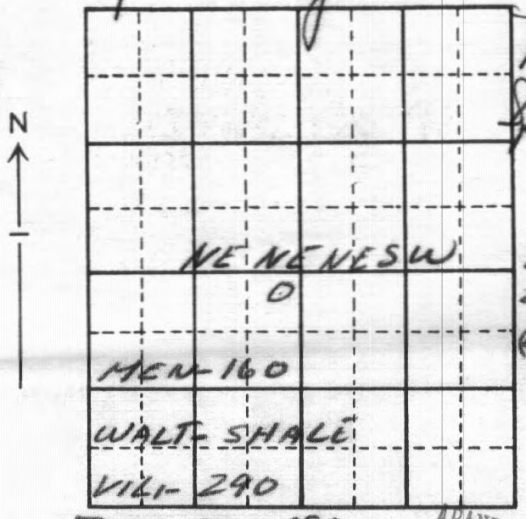
SCOUT TICKET GULF T 139-A 4-46

MAP NO. 48 SEC. 17 LETTER H NO. 31

COMPANY Sam Sharp

WELL NO. 1 C. McPherson FARM

COUNTY Muhlenberg STATE KENTUCKY



TARS 346 550 ABANDONED

DRILLING AND REMARKS

GD-415

D&A

LOCATION

RIG UP

CASED 6 5/8 IN. 421 FT.

TOTAL DEPTH 500

DATE MAR 10 1949 19 V. S. WALKER, JR. SCOUT

SCOUT TICKET GULF T 139-A 4-46

Siting Board 1-38:

Explain how the proposed electric transmission line route was determined.

Response:

The electric transmission route (gen-tie) was determined by reviewing the least impactful pathway from the collector substation to the Point of Interconnection (POI). Some key considerations in route determination were to avoid structures, wetlands, cemeteries, and other features that may potentially raise concerns.

The Applicant utilized the services of three uniquely qualified consultants to support this gen-tie development effort: Right of Way Acquisition Consultant: SelectROW; Environmental Consultant: Copperhead; and Engineering/Design Consultant: Stantec.

SelectROW developed multiple route options utilizing specialized land-based tools and their experience managing similar private gen-tie ROW acquisition projects. This effort considered paths adjoining existing transmission corridors following highways/roads and routes through privately owned parcels. SelectROW's goal was to provide the most direct transmission route agreeable to the private landowners crossed by such.

Copperhead and Stantec reviewed the routing for environmental and engineering concerns, technical/constructability considerations, and other related matters. Following this review, the current gen-tie route was selected.

Thereafter, SelectROW proceeded to engage the individual landowners to support land acquisition and acquire the needed rights-of-way (ROW).

It should be noted that the current route has consent and agreements with the individual landowners in place.

Witness: Sean Joshi

Siting Board 1-39:

Provide the total length of cabling to be used in the projects' collection system.

Response:

Approximately 117,400 linear feet of 3-1/C, 35kV rated, Aluminum, direct buried, MV-105, 133% insulated, TR-XLPE with concentric neutral, triplex cabling would be used in the project's collection system.

Witness: Shane Kelley

Siting Board 1-40:

Explain if the medium voltage (MV) collection system will be underground, above ground, or both. If the MV collection system will be underground and above ground, provide a map that shows which segments are underground and which segments are above ground.

Response:

To the greatest extent possible, the MV collection system would be routed below grade to avoid shading effects. If it's more feasible to go above ground to avoid existing features, such as the pipeline easement, this will be decided during detail design.

Witness: Shane Kelley

Siting Board 1-41

Provide information on any fiber optic or communication network installed as part of the project and any excavation that may be required for the installation.

Response:

Installation of fiber optic and communication network would be required, and like the Medium Voltage, it will be installed below grade. If it is more feasible to go above ground to avoid existing features, such as the pipeline easement, this will be decided during detail design.

Witness: Shane Kelley

Siting Board 1-42:

Explain whether construction activities will occur sequentially or concurrently across the project site.

Response:

Construction activities will occur sequentially across the site.

Witness: Marty Marchaterre

Siting Board 1-43:

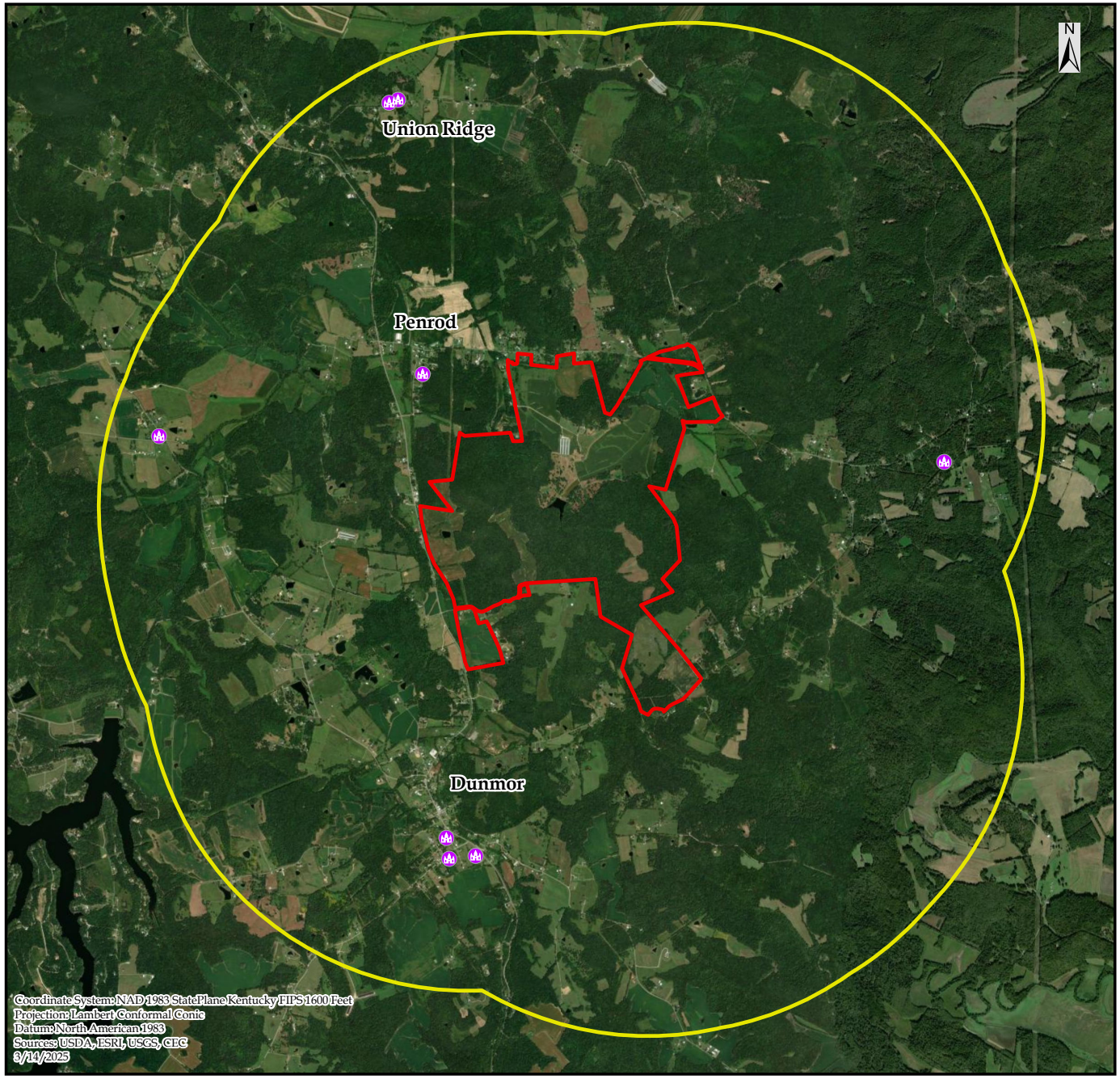
Identify all churches or other religious facilities within a two-mile radius of the project on a map. Provide the corresponding distances from the facility to the closest site boundary.

Response:

A map of religious facilities located within two miles of the Project is attached (see Attachment). The table below displays each location and its distance to the project boundary.

Name	**Address**	**Distance to Project Boundary (feet)**
Hortons Chapel Church of Christ	925 Union Ridge Rd	9220.93
Union Ridge General Baptist Church	857 Union Ridge Rd	9262.23
Penrod Baptist Church	334 State Route 949	2276.53
Dunmor Baptist Church	85 Dunmor Church St	5581.08
Apostolic Faith Mission Church	4849 Dunmor Deer Lick Rd	6252.03
Hillcrest Church of Christ	17495 Lewisburg Rd	6129.30
Myers Chapel	2522 Myers Chapel Rd	8881.90
Mt Moriah Church of Christ	181 Mount Moriah Rd	7438.70

Witness: Marty Marchaterre



COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:
Lost City Renewables, LLC

FIGURE 1-43:
Churches Within Two-mile Vicinity for the Lost City Solar Project, Muhlenberg County, Kentucky

Legend

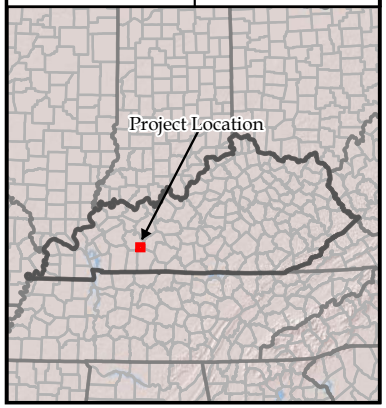
- Church
- Two-mile Buffer
- Project Area

0 2,000 4,000
US Feet

Scale: 1 in = 4,500 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	3/14/2025
Checked by:	MM	Revision:	01



Siting Board 1-44:

Provide any communication with churches or other religious facilities regarding the project. Provide a summary of any concerns that were raised.

Response:

The Applicant's representatives have been in regular contact with Mark Rutherford, Pastor of the Penrod Baptist Church, which is the church closest to the Project Area. The October 29, 2024, public meeting was held at the Penrod Baptist Church's Fellowship Hall. A second public meeting is planned to be held at the Fellowship Hall in April 2025.

Based on personal communication with Mark Rutherford and also in further discussions with the Pastor at the October 29, 2024, public meeting, he did not raise any concerns about the Project on behalf of the church.

Witness: Marty Marchaterre

Siting Board 1-45:

Provide the location of all cemeteries within a two-mile radius of the project on a map and explain whether the project will restrict access to the cemeteries in any way.

Response:

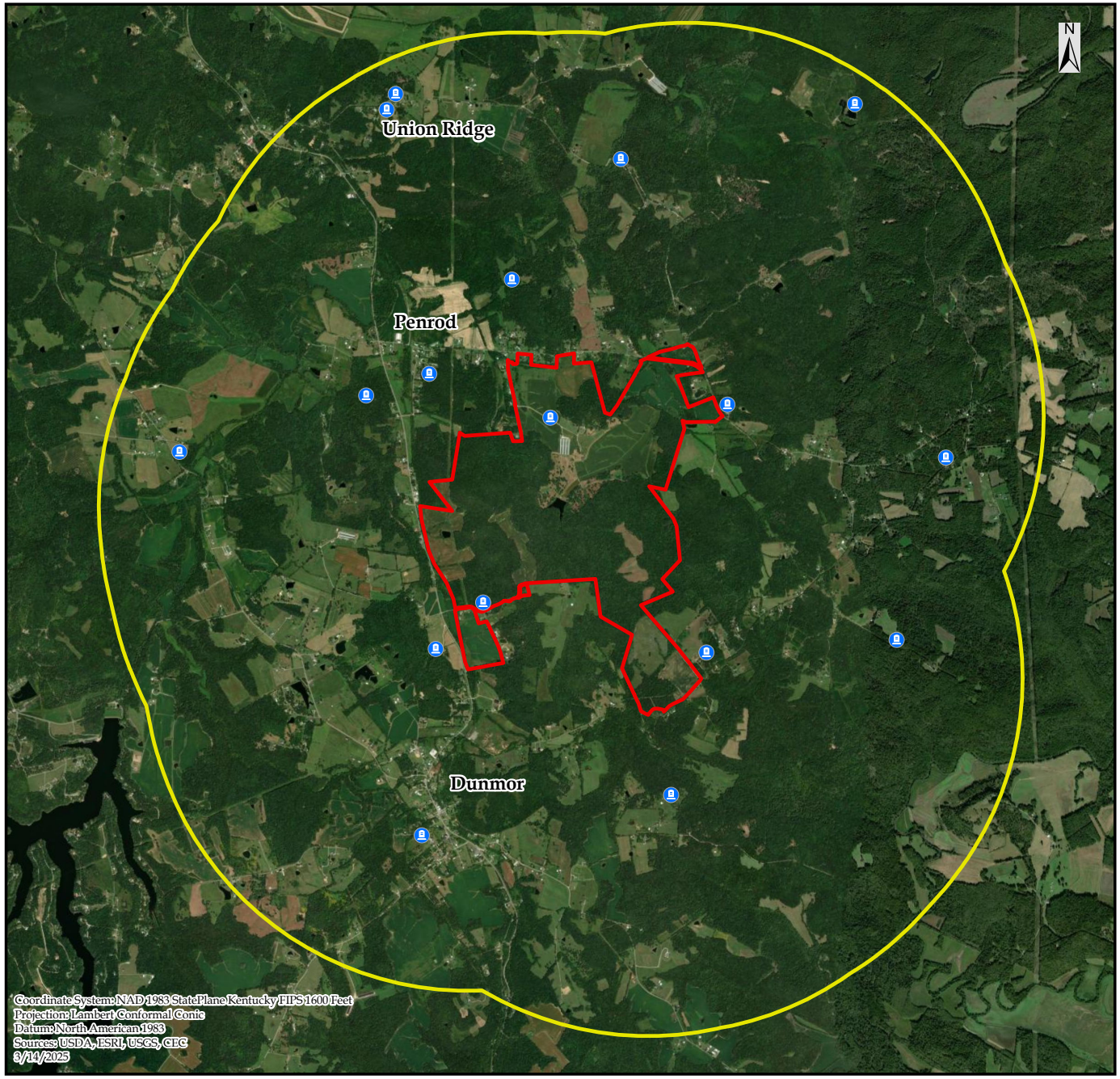
A vicinity map providing the location of known cemeteries within a two-mile radius of the Project Site is attached (see Attachment). Access to the cemeteries would not be restricted. Two private cemeteries occur on the Project Site and design plans include a 50-foot buffer around each of these two cemeteries.

The Gardner Family Cemetery is located northeast of the four poultry barns, and its access off Free Lane would remain unchanged. Free Lane would not be used for construction traffic and would remain open for agricultural operation traffic and cemetery visitors. The Wellborn Cemetery is located north of Mason-Poyner Road, approximately 1,440 feet east-northeast of its intersection with US 431. An unimproved driveway currently provides access to the Wellborn Cemetery from Mason-Poyner Road. This driveway would be improved to provide another access point for construction vehicles. Access to the cemetery would not be restricted during construction, as it is in a buffer zone on the edge of the Project. The improved road would be left in place after construction for cemetery visitor use.

Another cemetery, the Wood Cemetery, is located outside the Project Area off a gravel road on the northeast side of KY 949, approximately 1,400 feet southeast of its intersection with Union Ridge Road. The Project would not restrict access to this cemetery.

The potential exists for additional private family cemeteries within the two-mile buffer and are unmarked on U.S. Geological Survey topographic and Kentucky Department of Highway maps. The Project would have no effect on access to these cemeteries.

Witness: Marty Marchaterre



COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Lost City Renewables, LLC

FIGURE 1-45:
Cemeteries Within Two-mile Vicinity for the Lost City Solar Project, Muhlenberg County, Kentucky

Legend

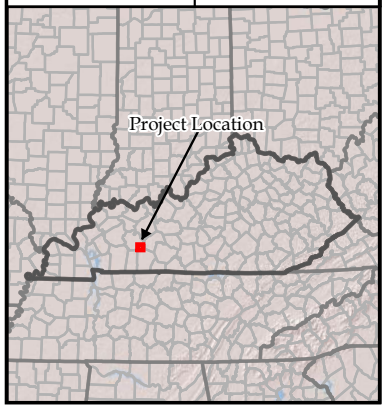
- Cemetery
- Two-mile Buffer
- Project Area

0 2,000 4,000
US Feet

Scale: 1 in = 4,500 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	3/14/2025
Checked by:	MM	Revision:	01



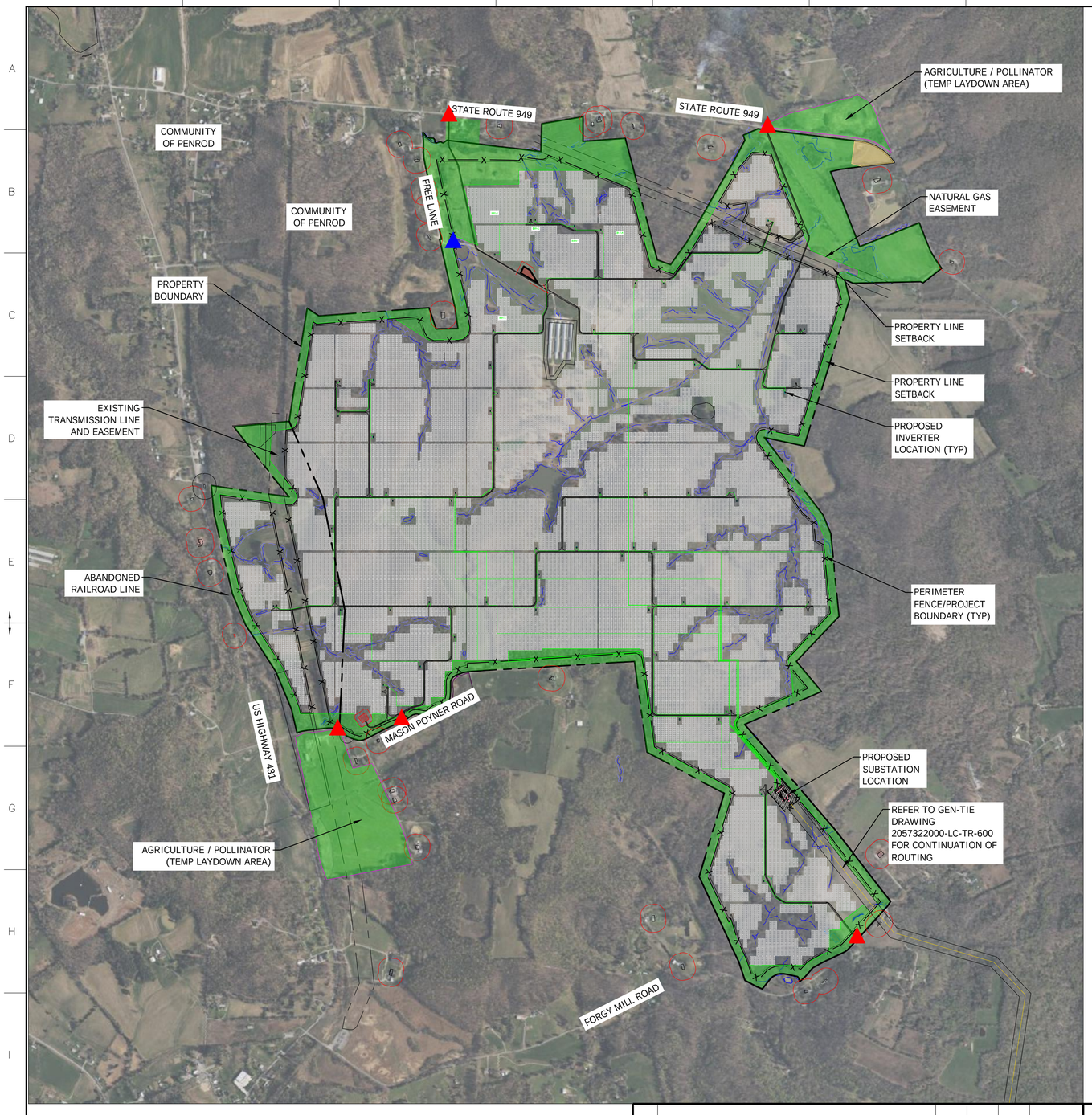
Siting Board 1-46:

Refer to SAR, Appendix B, Preliminary Site Layout. The site layout shows the project boundary line intersects across a proposed solar array area at the top of the most southeastern section; therefore, excluding the proposed substation and surrounding solar arrays from the project boundary. Confirm this is an error and provide an updated site plan with the amended line. If not confirmed, describe the layout and how it complies with all statutory and regulatory requirements as is.

Response:

The drawing has been updated to show the correct Project Site boundary and is attached (see Attachment).

Witness: Shane Kelley



LEGEND

EXISTING	*PROPOSED*
PROPERTY BOUNDARY LINE	PV ARRAYS AND INVERTERS BUILDABLE AREA
100' OR GREATER PROPERTY SETBACK LINE INCLUDING ACCESS ROAD FOR FIRE BREAK	PERIMETER FENCE
JURISDICTIONAL WATERWAY	ACCESS ROAD
25' JURISDICTIONAL WATERWAY BUFFER	PVCASE TRACKERS
150' OCCUPIED RESIDENCE SETBACK LINE	SUBSTATION
	INVERTERS
	MV CABLES
	POLLINATOR AREA
	FACILITY ACCESS
	EXISTING AGRICULTURAL ACCESS

System Size and Equipment Summary Assumptions	
AC System Size @ POI	247.50 MWac
PV Modules	TRINA VERTEX N 710W BIFACIAL MODULES OR EQUIVALENT
Tracking System	NEVADOS ALL TERRAIN TRACKER
GCR	45%
Inverter	SUNGROW SG4400UD-MV-US INVERTER OR EQUIVALENT

N

0 800' 1600'

DRAWING REFERENCE:

EXISTING CONDITIONS REFERENCED FROM DRAWING TITLED "LOST CITY WORKING FILE 01-15-25" DATED 01/15/2025 PROVIDED BY HESTER PRECISION SURVEYS.

PRELIMINARY NOT FOR CONSTRUCTION
03/14/2025

DRAWING REVISIONS

REV.	DESCRIPTION	DRAWN	CHKD	APPRVD	DATE
E	KENTUCKY SITING BOARD COMMENTS	RMA	CMA	DDF	03/14/25
D	ISSUED FOR REVIEW	RMA	CMA	DDF	01/15/25
C	ISSUED FOR REVIEW	RMA	CMA	DDF	12/03/24
B	ISSUED FOR INFORMATION	RMA	CMA	DDF	11/04/24
A	RESIDENTIAL BUFFER SKETCH	RMA	CMA	DDF	10/16/24

Stantec
Stantec Consulting Services Inc.
50 Derby Street Suite 260 Hingham, MA U.S.A. 02043
3052 Beaumont Centre Circle Lexington, KY U.S.A. 40513-1703
www.stantec.com

FILE NAME: Lost City_Eletrical_Permitting.dwg

COA #

SEAL

DRAWN:	CHECKED:	IND. REVIEW
CMA	CMA	DG
DESIGNED:	CHECKED:	APPROVED:
CMA	DDF	DDF
PROJECT NO:		SCALE:
2057322000		AS SHOWN

CLIENT/PROJECT:
LOST CITY RENEWABLES LLC
LOST CITY
MUHLENBERG COUNTY, KENTUCKY

TITLE:
LOST CITY SOLAR
PV SOLAR LAYOUT

SHT	OF	DWG NO:	REV:
1	1	2057322000-LC-E-100.2	D

LEGEND

EXISTING	*PROPOSED*
PROPERTY BOUNDARY LINE	PV ARRAYS AND INVERTERS BUILDABLE AREA
100' OR GREATER PROPERTY SETBACK LINE INCLUDING ACCESS ROAD FOR FIRE BREAK	PERIMETER FENCE
JURISDICTIONAL WATERWAY	ACCESS ROAD
25' JURISDICTIONAL WATERWAY BUFFER	PVCASE TRACKERS
150' OCCUPIED RESIDENCE SETBACK LINE	SUBSTATION
	INVERTERS
	MV CABLES
	POLLINATOR AREA
	FACILITY ACCESS
	EXISTING AGRICULTURAL ACCESS

System Size and Equipment Summary Assumptions	
AC System Size @ POI	247.50 MWac
PV Modules	TRINA VERTEX N 710W BIFACIAL MODULES OR EQUIVALENT
Tracking System	NEVADOS ALL TERRAIN TRACKER
GCR	45%
Inverter	SUNGROW SG4400UD-MV-US INVERTER OR EQUIVALENT

N

0 200' 400'

PRELIMINARY NOT FOR CONSTRUCTION
03/14/2025

REV.	DESCRIPTION	DRAWN	CHKD	APPRVD	DATE
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D	ISSUED FOR REVIEW	RMA	CMA	DDF	01/15/25
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B	ISSUED FOR INFORMATION	RMA	CMA	DDF	11/04/24
A	RESIDENTIAL BUFFER SKETCH	RMA	CMA	DDF	10/16/24

DRAWING REVISIONS

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FILE NAME: Lost City_Eletrical_Permitting.dwg

COA #

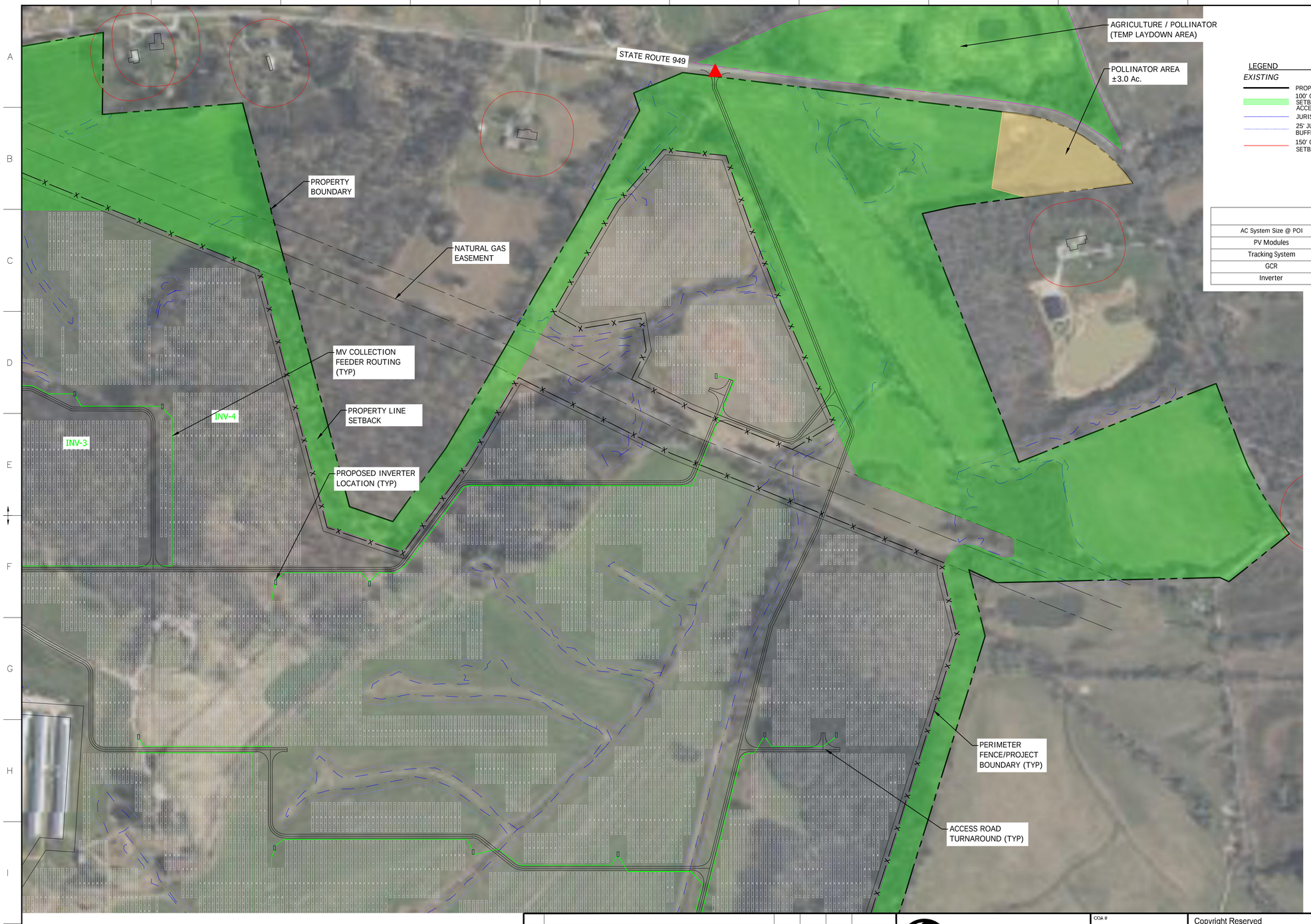
SEAL

DRAWN:	CHECKED:	IND. REVIEW
CMA	CMA	DG
DESIGNED:	CHECKED:	APPROVED:
CMA	DDF	DDF
PROJECT NO:		SCALE:
2057322000		AS SHOWN

CLIENT/PROJECT:
LOST CITY RENEWABLES LLC
LOST CITY
MUHLENBERG COUNTY, KENTUCKY

TITLE:
LOST CITY SOLAR
PV SOLAR LAYOUT

SHT	DWG NO:	REV:
2 OF 1	2057322000-LC-E-100.2	D



LEGEND

EXISTING	*PROPOSED*
PROPERTY BOUNDARY LINE	PV ARRAYS AND INVERTERS BUILDABLE AREA
100' OR GREATER PROPERTY SETBACK LINE INCLUDING ACCESS ROAD FOR FIRE BREAK	PERIMETER FENCE
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25' JURISDICTIONAL WATERWAY BUFFER	PVCASE TRACKERS
150' OCCUPIED RESIDENCE SETBACK LINE	SUBSTATION
	INVERTERS
	MV CABLES
	POLLINATOR AREA
	FACILITY ACCESS
	EXISTING AGRICULTURAL ACCES

System Size and Equipment Summary Assumptions	
AC System Size @ POI	247.50 MWac
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Tracking System	NEVADOS ALL TERRAIN TRACKER
GCR	45%
Inverter	SUNGROW SG4400UD-MV-US INVERTER OR EQUIVALENT

N

0 200' 400'

PRELIMINARY
NOT FOR
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03/14/2025

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B	ISSUED FOR INFORMATION	RMA	CMA	DDF	11/04/24
A	RESIDENTIAL BUFFER SKETCH	RMA	CMA	DDF	10/16/24

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3052 Beaumont Centre Circle Lexington, KY U.S.A. 40513-1703
www.stantec.com

FILE NAME: Lost City_Eletrical_Permitting.dwg

COA #

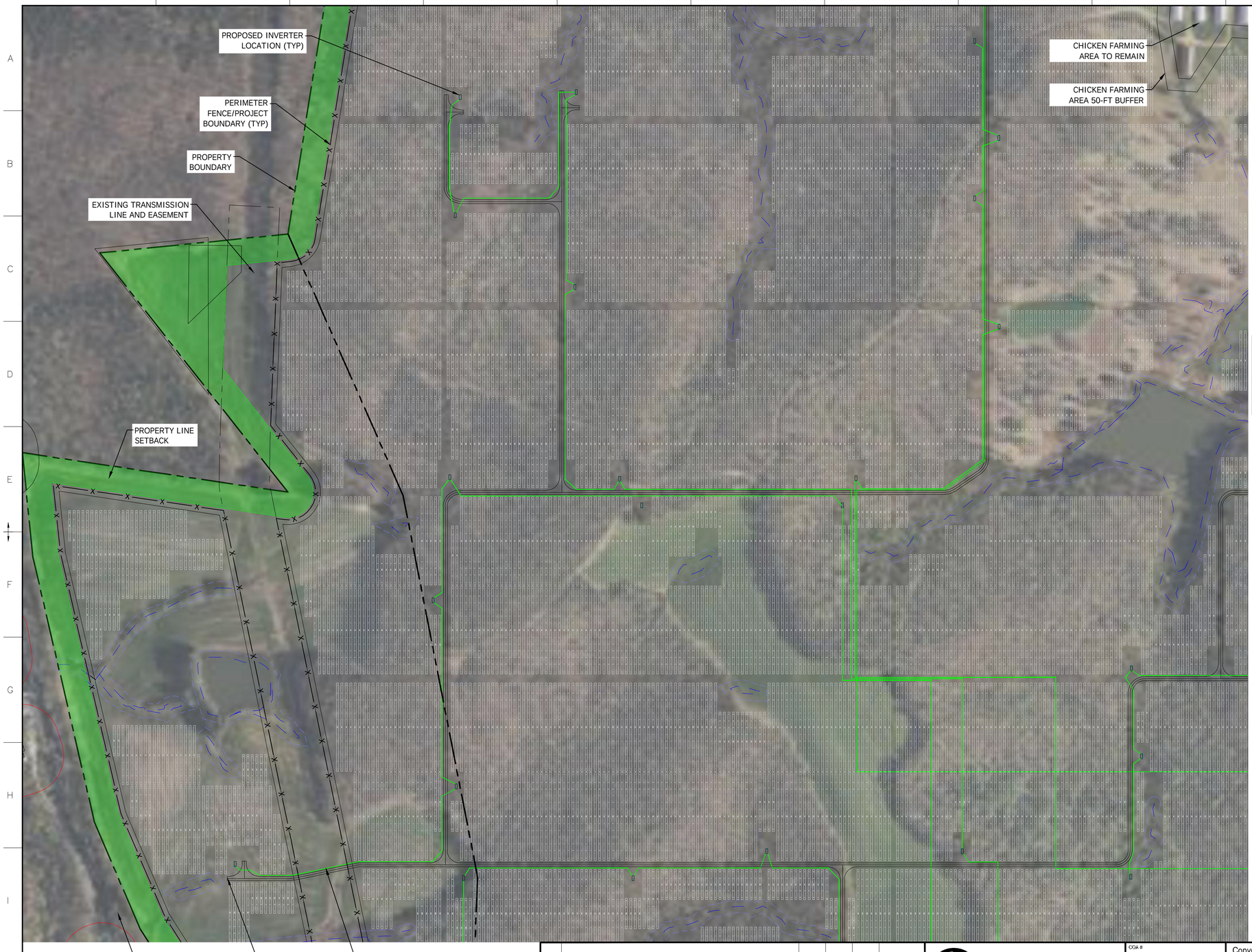
SEAL

DRAWN:	CHECKED:	IND. REVIEW
CMA	CMA	DG
DESIGNED:	CHECKED:	APPROVED:
CMA	DDF	DDF
PROJECT NO:		SCALE:
2057322000		AS SHOWN

CLIENT/PROJECT:
LOST CITY RENEWABLES LLC
LOST CITY
MUHLENBERG COUNTY, KENTUCKY

TITLE:
LOST CITY SOLAR
PV SOLAR LAYOUT

SHT 3 OF 1 | DWG NO: 2057322000-LC-E-100.2 | REV: D



LEGEND

EXISTING	*PROPOSED*
PROPERTY BOUNDARY LINE	PV ARRAYS AND INVERTERS BUILDABLE AREA
100' OR GREATER PROPERTY SETBACK LINE INCLUDING ACCESS ROAD FOR FIRE BREAK	PERIMETER FENCE
JURISDICTIONAL WATERWAY	ACCESS ROAD
25' JURISDICTIONAL WATERWAY BUFFER	PVCASE TRACKERS
150' OCCUPIED RESIDENCE SETBACK LINE	SUBSTATION
	INVERTERS
	MV CABLES
	POLLINATOR AREA
	FACILITY ACCESS
	EXISTING AGRICULTURAL ACCESS

System Size and Equipment Summary Assumptions	
AC System Size @ POI	247.50 MWac
PV Modules	TRINA VERTEX N 710W BIFACIAL MODULES OR EQUIVALENT
Tracking System	NEVADOS ALL TERRAIN TRACKER
GCR	45%
Inverter	SUNGROW SG4400UD-MV-US INVERTER OR EQUIVALENT

N

0 200' 400'

PRELIMINARY NOT FOR CONSTRUCTION
03/14/2025

REV.	DESCRIPTION	DRAWN	CHKD	APPRVD	DATE
E	KENTUCKY SITING BOARD COMMENTS	RMA	CMA	DDF	03/14/25
D	ISSUED FOR REVIEW	RMA	CMA	DDF	01/15/25
C	ISSUED FOR REVIEW	RMA	CMA	DDF	12/03/24
B	ISSUED FOR INFORMATION	RMA	CMA	DDF	11/04/24
A	RESIDENTIAL BUFFER SKETCH	RMA	CMA	DDF	10/16/24

DRAWING REVISIONS

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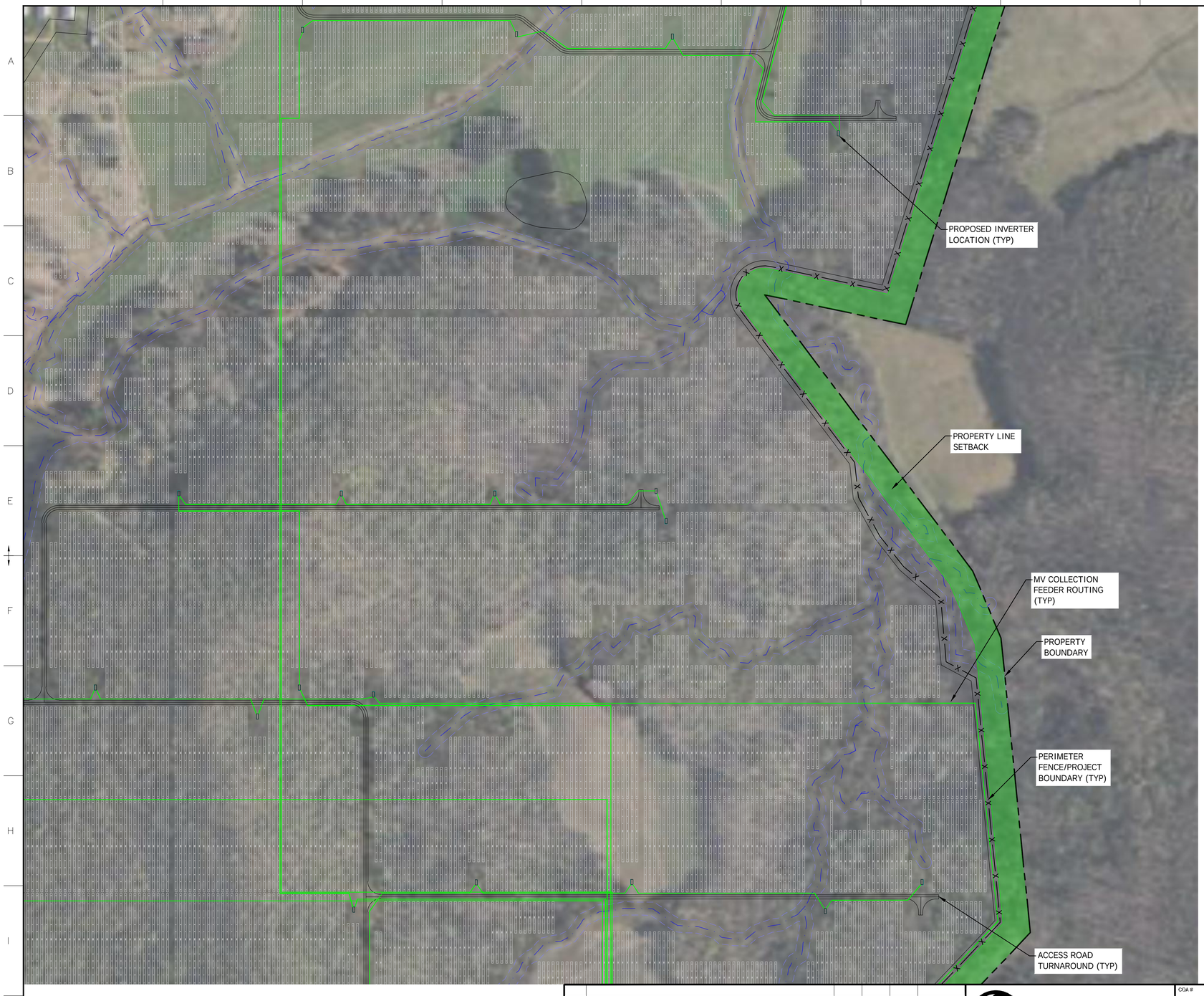

LEGEND

EXISTING

- PROPERTY BOUNDARY LINE
- 100' OR GREATER PROPERTY SETBACK LINE INCLUDING ACCESS ROAD FOR FIRE BREAK
- JURISDICTIONAL WATERWAY
- 25' JURISDICTIONAL WATERWAY BUFFER
- 150' OCCUPIED RESIDENCE SETBACK LINE

PROPOSED

- PV ARRAYS AND INVERTERS BUILDABLE AREA
- PERIMETER FENCE
- ACCESS ROAD
- PVCASE TRACKERS
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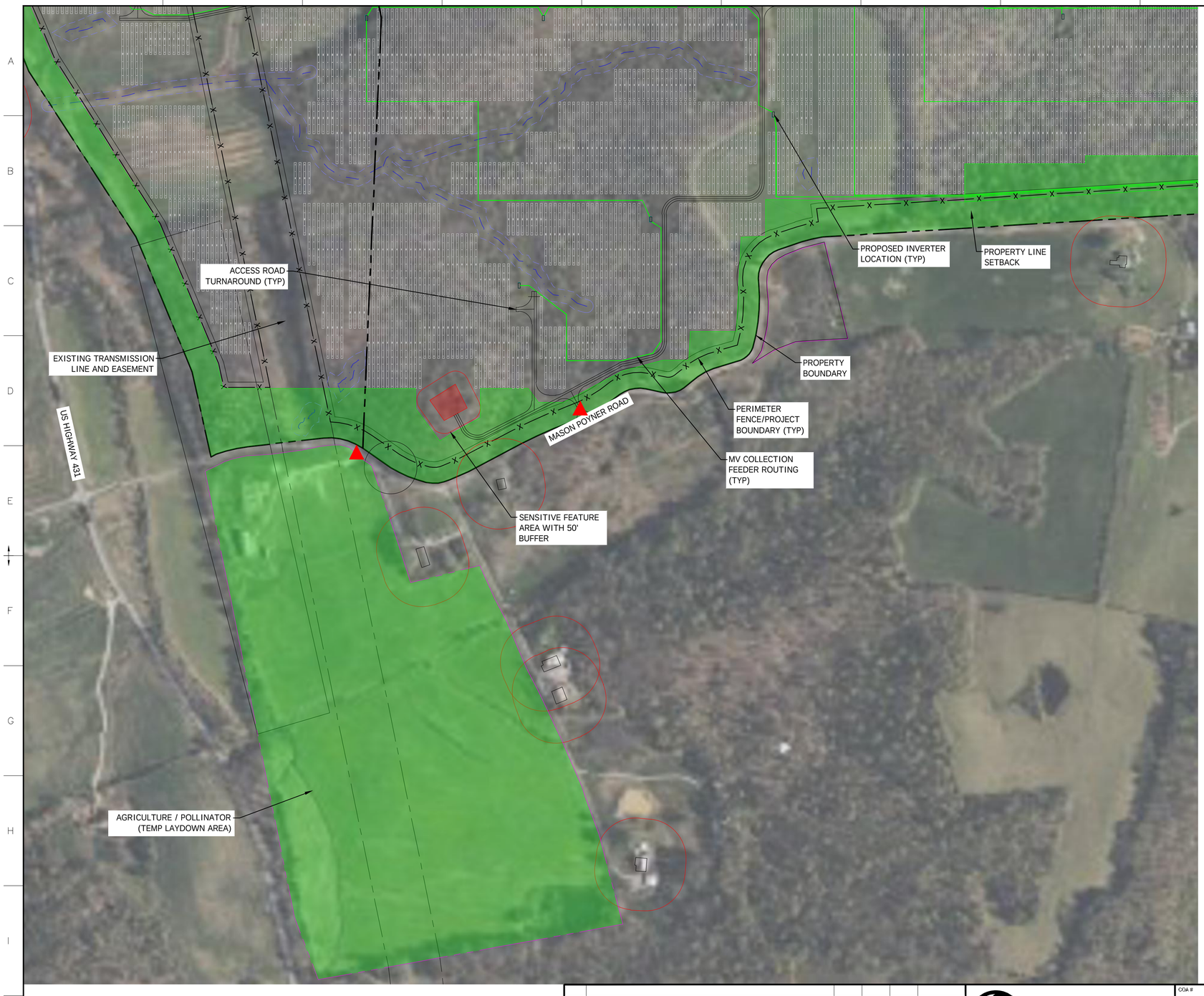

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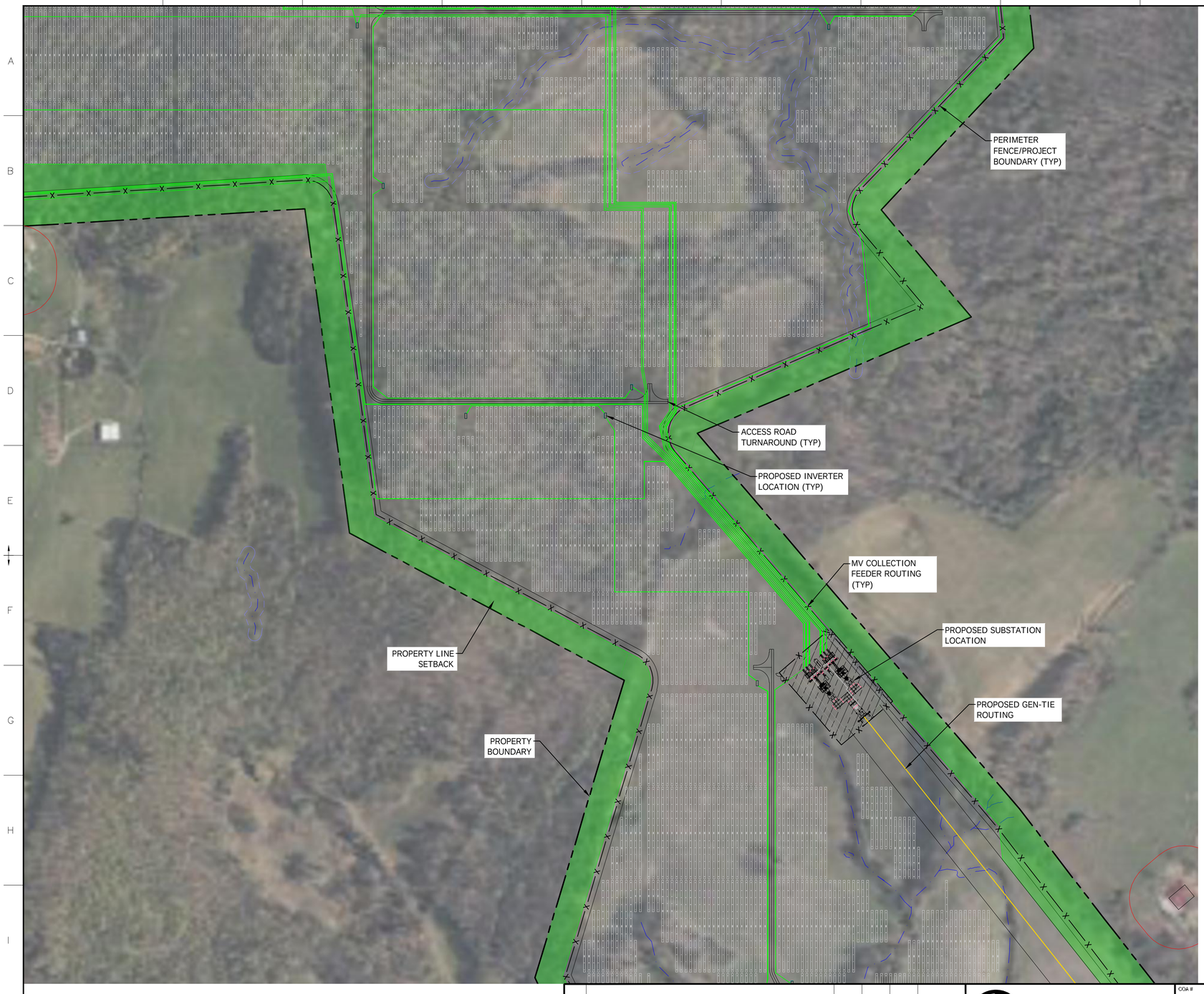

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MUHLENBERG COUNTY, KENTUCKY

TITLE:
LOST CITY SOLAR
PV SOLAR LAYOUT

SHT	DWG NO:	REV:
8 OF 1	2057322000-LC-E-100.2	D

Siting Board 1-47:

Provide a narrative description of the location of each laydown area to be used during construction.

Response:

The Project Site plan identifies areas of laydown in the northeast and southwest quadrants that would be prepared and used as laydown. After the construction phase, these areas may be converted and maintained as pollinator areas. Additionally, the EPC contractor would be responsible for establishing their own laydown areas within the project boundary and would stage the laydown areas to align with their work plans.

Witness: Shane Kelley

Siting Board 1-48:

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. Operation & Maintenance (O&M) area.

d. Each laydown area.

Response:

a. The following entrances will be used for construction (see figure attached to Request for Information 1-12).

State Route 949 West Entrance: Located at the northwestern corner of the Project Site, east of Free Lane. This proposed entrance would be one of the primary entrances used for the construction phase of the project.

State Route 949 East Entrance: Located at the northeastern corner of the Project Site, this proposed entrance would be a secondary access point for the construction phase of the project.

Forgy Mill Road Entrance: This proposed entrance is located at the southeastern end of the Project Site. This entrance would be used during the construction phase as a secondary access and for the exception of the delivery of the transformer.

Two entrances located on Mason-Poyner Road: These proposed entrances are located at the southwestern end of the Project Site, east of US 431 and north of Forgy Mill Road. These entrances would be used as secondary construction entrances during the construction phase of the project.

Note that the entrance on **Free Lane** would only be used for continued or future agricultural operation traffic (e.g., trucks delivering or shipping poultry/poultry products, delivery of cattle or sheep for grazing, or for harvesting crops). It would not be used as an entrance for the construction phase.

b. The following entrances would be used during operation (see figure attached to Request for Information 1-12).

State Route 949 West Entrance: Located at the northwestern corner of the Project Site, east of Free Lane. This proposed entrance would be the main entrance for the operation phase of the project.

State Route 949 East Entrance: Located at the northeastern corner of the Project Site, this proposed entrance would be a periodic maintenance access point during operation.

Forgy Mill Road Entrance: This proposed entrance is located at the southeastern end of the Project Site and would be used as a periodic maintenance access during operation.

Both entrances located on **Mason-Poyner Road:** These proposed entrances are located at the southwestern end of the Project Site, east of US 431 and north of Forgy Mill Road. These entrances would be used for periodic maintenance access during operation.

Note that the entrance on **Free Lane** will only be used for continued or future agricultural operation traffic (e.g., trucks delivering or shipping poultry/poultry products, delivery of cattle or sheep for grazing, or for harvesting crops). It would not be used as an entrance for worker vehicles during the operation phase.

c. An existing mobile home near the KY 949 West Entrance would remain in place and may be used as a construction office. It could be converted into an onsite Operations or Maintenance building. Solar facility operations would be managed primarily remotely.

d. The Project Site plan identifies areas of laydown in the northeast and southwest quadrants that would be prepared and used as laydown. After the construction phase, these areas would be converted and maintained as pollinator areas. Additionally, the EPC contractor would be responsible for establishing their own laydown areas within the project boundary and would stage the laydown areas to align with their work plans.

Witness: Marty Marchaterre

Siting Board 1-49:

Provide a list of permits that will be required from any other local, state, or federal agencies for the project. Include in the response the status of those permits.

Response:

The following is a non-exhaustive list of typical permits that the Applicant assumes is presently required along with an additional like of potential permits the Applicant may be required to obtain for solar projects of similar size and scope. Other permits may be required, and this list is subject to change based upon future analysis, studies, and findings.

Type	Permit	Agency	Status
Federal			
TVA National Environmental Policy Act (NEPA)	NEPA Environmental Impact Statement	TVA	Yet to begin.
Waters of the United States (Wetlands & Streams if impacts <0.5 ac.)	Clean Water Act Section 404 Nationwide Permit No. 51	USACE	Yet to begin.
Threatened and Endangered Species	Endangered Species Act Section 7 Consultation	USFWS	Yet to begin.
Eagle Protection	Bald and Golden Eagle Protection Act	USFWS	Yet to begin.
State			
Kentucky Siting Board on Electric Generation	Siting Board Approval to Construct	KY Siting Board	Underway.
Kentucky Siting Board on Transmission Line	Siting Board Approval to Construct	KY Siting Board	Yet to begin.
Kentucky Water Quality	Clean Water Act Section 401 Water Quality Certificate	EEC/KDOW	Yet to begin.
Construction in a Floodplain	Floodplain Permit	EEC/KDOW	Yet to begin.
Construction In, Along, or Across a Stream	Stream Construction Permit	EEC/KDOW	Yet to begin.

Cultural Resources	National Historic Preservation Act Section 106 Consultation	SHPO	Yet to begin.
Highway Access Permit (Entrance Permit)	Kentucky Access Permit	KYTC	Yet to begin.
Kentucky Overweight/Oversize Vehicle Permit	Overweight or Oversize Vehicles Using State Roadways	KYTC	Yet to begin.
State Stormwater Permits/Land Disturbance	General Permit for Stormwater Discharges Associated with Construction Activities	EEC/KDOW	Yet to begin.
Local			
Muhlenberg County Building Permit	Building Permit for New Commercial Construction	Muhlenberg County	Yet to begin.
Muhlenberg County Road Use and Access	Road Use, Access, Overweight or Oversized Vehicles	Muhlenberg County	Yet to begin.

Witness: Marty Marchaterre

Siting Board 1-50:

Provide copies of any documents submitted to any local, state, or federal agencies not included in the application.

Response:

No other documents not already included in the application have been submitted to local, state, or federal government.

Witness: Marty Marchaterre

Siting Board 1-51

Provide a copy of any communication with the Federal Aviation Administration (FAA) or the Kentucky Airport Zoning Commission regarding the project.

Response:

The nearest airport to the Project Site is the Muhlenberg County Airport, which is approximately 18 miles away. An airspace review by the Federal Aviation Administration (FAA) is required for any "physical incursions of proposed structures into airspace, interference with radar communications, and any other conditions that might negatively impact air traffic" (FAA 2018). However, there are no hard triggers (e.g., project size, type, distance from the airport) for airspace reviews for projects occurring off-airport. The FAA's online Notice Criteria Tool was completed using project design parameters such as location and height of any structures in December 2024 and re-run in March 2025. In both instances, the determination results produced by the Notice Criteria Tool regarding the need for FAA review indicated that the Project did not exceed the Notice Criteria, and no further coordination with the FAA is required (see Attachment).

Witness: Marty Marchaterre

Federal Aviation Administration

« OE/AAA

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

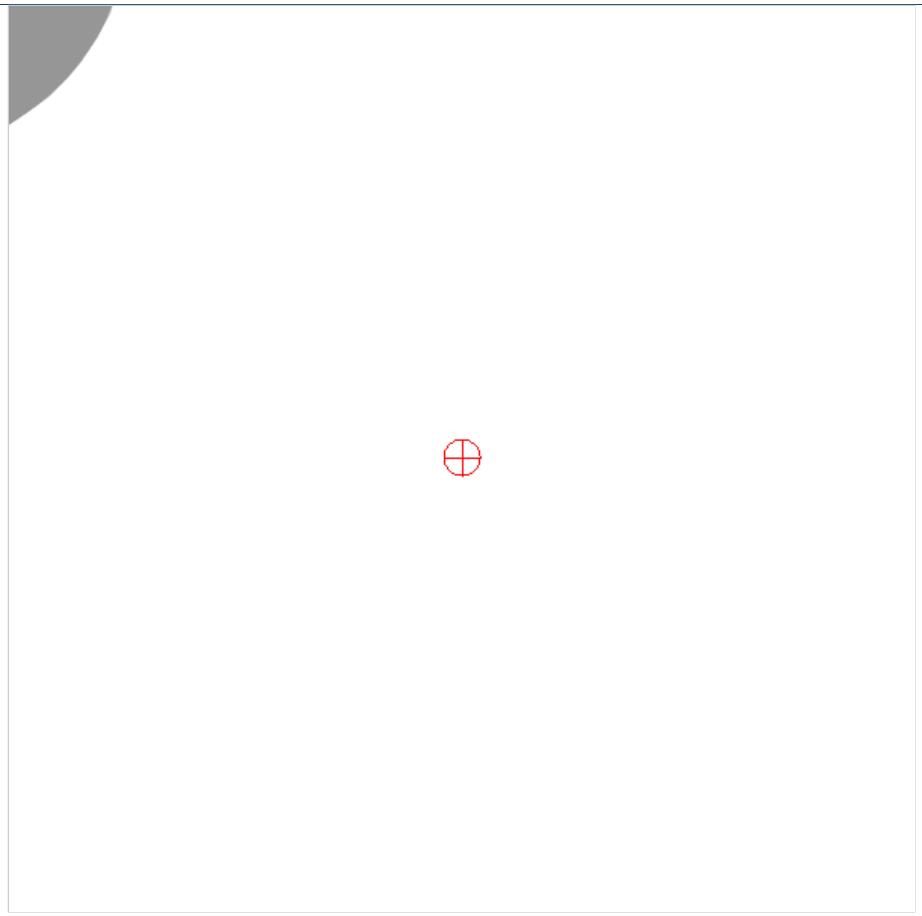
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport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

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

* **Structure Type:**	SOLAR | Solar Panel Please select structure type and complete location point information.
Latitude:	37 Deg 6 M 11.63 S N
Longitude:	86 Deg 58 M 57.10 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	489 (nearest foot)
Structure Height :	15 (nearest foot)
Is structure on airport:	(●) No ( ) Yes

Results

You do not exceed Notice Criteria.



Siting Board 1-52:

Explain whether an Engineering, Procurement, and Construction (EPC) firm has been selected for the project. Provide the request for proposal (RFP) for the EPC contractor.

Response:

At this time, no EPC firm has been selected. Project construction is anticipated to commence in late 2026/2027. The Applicant still needs to complete the TVA National Environmental Policy Act (NEPA) review prior to start of construction.

Witness: Marty Marchaterre

Siting Board 1-53:

Explain whether any existing structures on the project site will be demolished during the construction phase of the project.

Response:

Based on the attached preliminary demolition plan, an unoccupied residential building, three abandoned barns, sheds in disrepair, two grain bins, and several other outbuildings would be demolished during the construction phase of the project. This is a non-exhaustive list of potential existing structures presently known to exist that could be subject to removal or demolition. These structures including foundations, pavement, curbing, lights, transformers, poles, concrete pads and enclosures would be removed and disposed of in accordance with local and state regulations.

According to the Kentucky Geological Survey and the Phase I Environmental Site Assessment, four water supply wells were identified on the Project Site. Of these, two wells are inactive and have been abandoned utilizing a licensed Kentucky water well driller. Two wells remain active on the Project Site (see figure attached to Request for Information 1-37).

The four poultry barns, an adjacent barn, and two adjacent active water wells would remain and be available for agricultural operations, at the landowners' discretion. A mobile home near KY 949 would remain in place and may be used as a construction office.

Witness: Marty Marchaterre

Siting Board 1-54:

Explain and provide documentation for any communication that has occurred between representatives of Lost City Renewables and any of the property owners surrounding the project. Include in the explanation whether any changes have been made to the project based upon these communications.

Response:

The Applicant's local representative is Gaylan Spurlin, who grew up in Muhlenberg County, was the elected County Clerk for 29 years, owns a working farm, and manages two other farms. He attended the public meeting, and on behalf of the Applicant, he has been reaching out and responding to property owners' questions and concerns.

In addition, a local attorney, Ryan Driskill has had discussions with local property owners and interested parties. The Applicant also has reviewed comment letters submitted to the Kentucky Siting Board and provided a summary of public involvement in the January 29, 2025, Application, Section 6 and Attachment E.

Based on concerns raised by nearby property owners, the Applicant has revised preliminary design plans and conducted additional reviews to reduce potential impacts. Changes include:

- Increased distances from the solar panels and the substation to adjacent property owners
- Relocated the substation further into the Project Site
- Increased buffers between project and residences
- Identified construction and operation access locations
- Created a new access to avoid any use of Free Lane
- Left existing forests and vegetation in place, where possible

- Put a 25-foot buffer around jurisdictional streams and wetlands
- Enhanced the landscape plan to increase tree and bush plantings - provides 30,456 linear feet of vegetation screening consisting of 2,048 trees and 4,946 shrubs (approximately 26 acres of plantings)
- Prepared a draft SWPPP
- Developed a Fire Prevention and Management Plan
- Added a firebreak
- Prepared a complaint resolution plan
- Analyzed wildlife impacts

Witness: Marty Marchaterre

Siting Board 1-55:

Explain whether participating landowners will continue to use property not leased to Lost City Renewables for residential or agricultural purchases.

Response:

Participating landowners may continue to use property not used for the Project for agricultural operations at the individual landowner's discretion. It is anticipated that agricultural operations to raise chickens, graze cattle and sheep, and cultivate soybeans and corn would continue.

Witness: Marty Marchaterre

Siting Board 1-56:

Provide if any additional community meetings are planned and the details of those meetings.

Response:

The Applicant anticipates holding another public meeting in April 2025, at the Penrod Baptist Church Community Center. The public meeting will be announced on the Project website, in the local newspaper, and in letters that will be sent to nearby residences.

Witness: Sean Joshi

Siting Board 1-57:

Explain whether the project will have a battery storage system. If a battery storage system is going to be utilized, provide the following:

a. Safety data sheets for the energy storage system.

b. The environmental impact of the battery storage system.

c. Expected life of the batteries.

d. Method to dispose of batteries at the end of the useful life.

e. How the battery storage system installation will comply with National Fire Protection Association Standard 855.

Response:

No battery storage system is planned for the Project.

Witness: Marty Marchaterre

Siting Board 1-58:

Explain steps taken to ensure that runoff from the batteries will not contaminate groundwater.

Response:

No battery storage system is planned for the Project, and therefore, this request is not applicable.

Witness: Marty Marchaterre

Siting Board 1-59:

Provide detailed information on solar panels proposed for the project, including data sheets for the solar panels.

Response:

The preliminary array design is based on the Trina Vertex-N 720 W TOPCon bifacial, monocrystalline silicon solar modules. These panels would be manufactured in Freyr's Wilmer, Texas 5GW facility starting in 2025. One of the primary benefits of TOPCon technology is higher efficiency rates.

This improved efficiency translates to increased energy yield per module area. Additionally, TOPCon panels demonstrate better performance in low-light conditions compared to conventional modules. The advanced cell structure of TOPCon panels allows for more efficient energy conversion, even when sunlight is limited, such as during early mornings, late evenings, or overcast weather. This characteristic makes TOPCon an attractive option for regions with frequent cloud cover or shade patterns. TOPCon modules also boast an improved temperature coefficient, meaning their efficiency degrades less as temperatures rise. This results in better energy production during hot summer months when traditional panels experience more significant output losses due to heat. Furthermore, TOPCon cells exhibit a lower annual degradation rate, ensuring more consistent long-term performance over the system's lifetime. Another key advantage of TOPCon technology is its higher bifacial gain. These panels can generate substantial energy from light hitting both the front and rear surfaces, increasing overall energy yield compared to monofacial modules. Lost City reserves the right to utilize another supplier that offers similar technology and performance.

Technical specifications of the Trina Vertex-N 720 W panel are available in the Attachment.

Witness: Sean Joshi

Vertex N

N-type i-TOPCon bifacial dual glass

Monocrystalline module

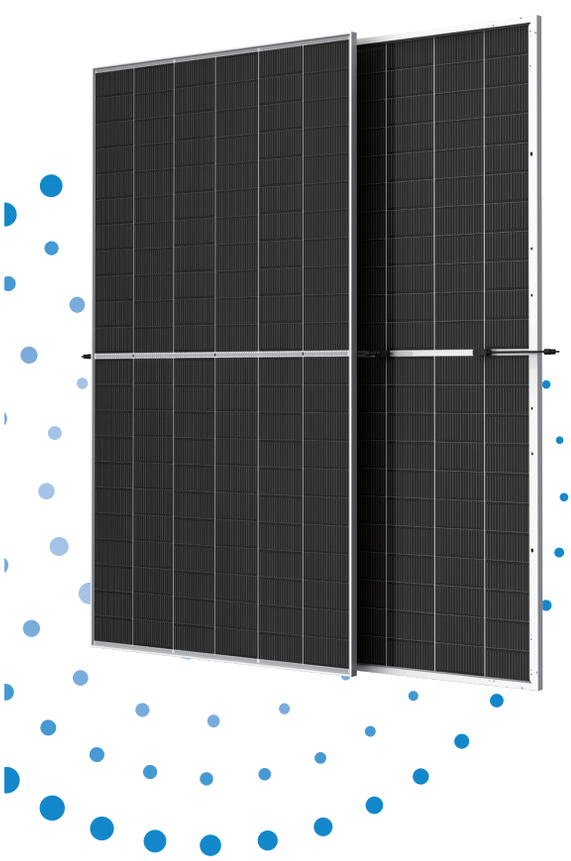
PRODUCT: TSM-NEG21C.20

POWER RANGE: 695-720W

720W
MAXIMUM POWER OUTPUT

0~+5W
POSITIVE POWER TOLERANCE

23.2%
MAXIMUM EFFICIENCY



High customer value

- Standardized module size with flagship module power, 35W higher compared with conventional technology
- Low voltage design with higher string power, effectively reducing BOS (Balance of System) and LCOE (Levelized Cost of Energy) by 2%~6%
- Higher container space utilization effectively reduces the freight cost
- Certified Low-Carbon Footprint
- The Star of LCOE

High power up to 720W

- Up to 23.2% module efficiency , on 210 innovation platform
- Patented i-TOPCon technology with continous efficiency improvement, including contact resistance reduction, rear reflection enhancement and edge quality repairment

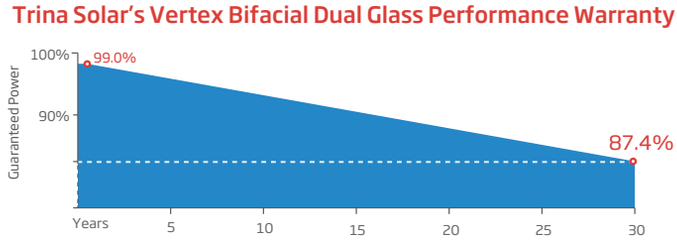
High reliability

- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Certified high resistance against salt, ammonia, sand, PID, LID, LeTID
- Sustainable in harsh environments and extreme weather conditions

High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C)
- Higher bifaciality, with up to 10%~20% additional power gain from back side depending on albedo
- Reliable dual-glass structure with 30-year power guarantee

Trina Solar's Vertex Bifacial Dual Glass Performance Warranty



Comprehensive Products and System Certificates

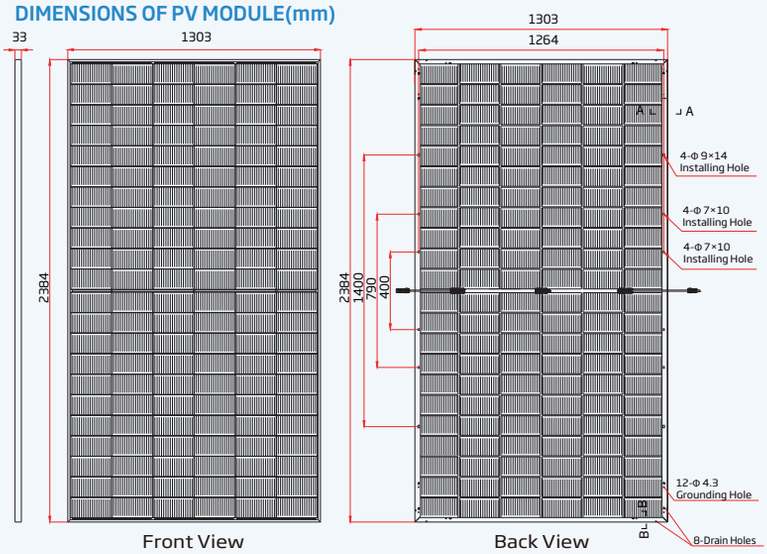
IEC61215/IEC61730/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse Gases Emissions Verification
ISO45001: Occupational Health and Safety Management System
ISO14067: Product Carbon Footprint Limited Assurance

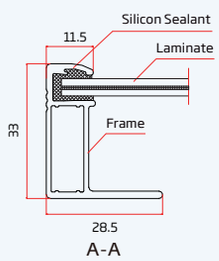
Trinasolar

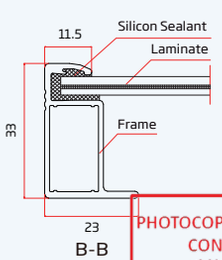
Vertex N

N-type i-TOPCon bifacial dual glass Monocrystalline module

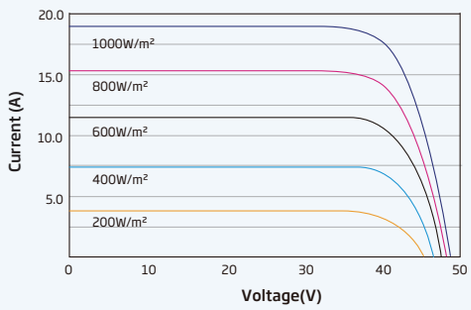
DIMENSIONS OF PV MODULE(mm)



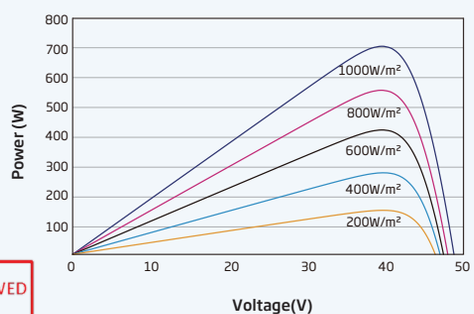




I-V CURVES OF PV MODULE(705 W)



P-V CURVES OF PV MODULE(705 W)



MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	132 cells
Module Dimensions	2384×1303×33 mm (93.86×51.30×1.30 inches)
Weight	38.3 kg (84.4 lb)
Front Glass	2.0 mm (0.08 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	POE/EVA
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)

Frame	33mm(1.30 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm² (0.006 inches²) Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized
Connector	MC4 EVO2 / TS4 Plus / TS4*

*Please refer to regional datasheet for specified connector.

ELECTRICAL DATA (STC & NOCT)

Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak Power Watts-PMAX (Wp)*	695	531	700	534	705	540	710	543	715	547	720	551
Power Tolerance-PMAX (W)	0 ~ +5											
Maximum Power Voltage-VMPP (V)	40.3	37.9	40.5	38.0	40.7	38.3	40.9	38.5	41.1	38.7	41.3	38.8
Maximum Power Current-IMPP (A)	17.25	14.00	17.29	14.04	17.33	14.08	17.36	14.12	17.40	14.14	17.44	14.19
Open Circuit Voltage-VOC (V)	48.3	45.9	48.6	46.1	48.8	46.3	49.0	46.5	49.2	46.7	49.4	46.9
Short Circuit Current-ISC (A)	18.28	14.72	18.32	14.76	18.36	14.80	18.40	14.83	18.44	14.86	18.49	14.90
Module Efficiency η m (%)	22.4		22.5		22.7		22.9		23.0		23.2	

STC: Irrdiance 1000W/m2, Cell Temperature 25°C, Air Mass AM1.5. NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s. *Measuring tolerance: ±3%.

Electrical characteristics with different power bin (reference to 5% & 10% backside power gain)

Backside Power Gain	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%
Total Equivalent power -PMAX (Wp)	730	765	735	770	740	776	746	781	751	787	756	792
Maximum Power Voltage-VMPP (V)	40.3	40.3	40.5	40.5	40.7	40.7	40.9	40.9	41.1	41.1	41.3	41.3
Maximum Power Current-IMPP (A)	18.11	18.98	18.15	19.02	18.20	19.06	18.23	19.10	18.27	19.14	18.31	19.18
Open Circuit Voltage-VOC (V)	48.3	48.3	48.6	48.6	48.8	48.8	49.0	49.0	49.2	49.2	49.4	49.4
Short Circuit Current-ISC (A)	19.19	20.11	19.24	20.15	19.28	20.20	19.32	20.24	19.36	20.28	19.41	20.34

Power Bifaciality:80±5%.

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of PMAX	- 0.29%/°C
Temperature Coefficient of VOC	- 0.24%/°C
Temperature Coefficient of ISC	0.04%/°C

MAXIMUM RATINGS

Operational Temperature	-40~+85° C
Maximum System Voltage	1500V DC (IEC)
	1500V DC (UL)
Max Series Fuse Rating	35A

WARRANTY

12 year Product Workmanship Warranty
30 year Power Warranty
1% first year degradation
0.40% Annual Power Attenuation

(Please refer to product warranty for details)

PACKAGING CONFIGURATION

Modules per box: 33 pieces
Modules per 40' container: 594 pieces

Trinasolar

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.

Version number: TSM_EN_2024_A

www.trinasolar.com

Siting Board 1-60:

Provide detailed information on inverters proposed for the project, including data sheets for the inverters.

Response:

The preliminary design is based on using Sungrow SG44COUD-MV-US inverters. Typical vendor data sheets were used in design development (see Attachment). The final equipment datasheets would be established during final vendor selection and utilized for detail design.

Witness: Shane Kelley

SG4400UD-MV-US

Turnkey Station for 1500 Vdc System MV Transformer Integrated

HIGH YIELD

- Advanced three-level technology, max. inverter efficiency 98.9 %
- Full power operation at 40 ℃ (104 ℉)
- Effective cooling, wide operation temperature

EASY O&M

- Integrated current, voltage and MV parameters monitoring function for online analysis and trouble shooting
- Modular design, easy for maintenance

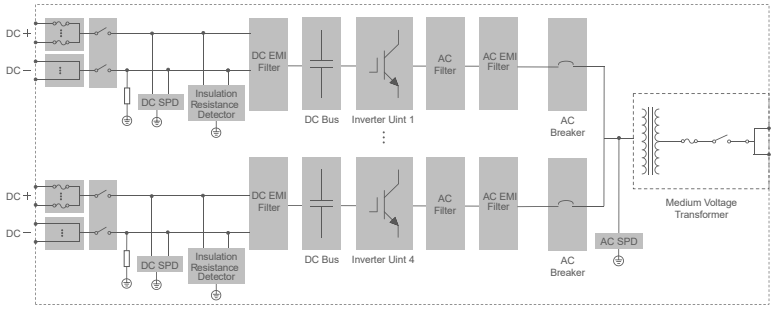
SAVED INVESTMENT

- Low transportation and installation cost due to 20-foot container size design
- DC 1500V system, low system cost
- Integrated MV transformer and LV auxiliary power supply
- Q at night optional

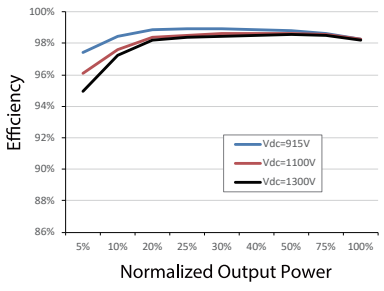
GRID SUPPORT

- Compliance with standards:UL 1741,UL 1741 SA/SB, IEEE 1547, Rule 21 and NEC code
- Low / High voltage ride through (L/HVRT), L/HFRT, soft start / stop
- Active & reactive power control and power ramp rate control

CIRCUIT DIAGRAM



EFFICIENCY CURVE



SUNGROW
Clean power for all

Type Designation	SG4400UD-MV-US
Input (DC)	
Max. PV input voltage	1500 V
Min. PV input voltage / Start-up input voltage	915 V / 955 V
Available DC fuse sizes	250 A, 315 A, 400A, 450 A, 500 A, 630 A
MPP voltage range	915 V – 1500 V
Full power MPP voltage range@40℃	915 V - 1337 V*
No. of independent MPP inputs	4
No. of DC inputs	28 inputs negative grounding (optional: 24 inputs floating)
Max. PV input current	4 * 1226 A
Max. DC short-circuit current	4 * 3528 A
PV array configuration	Negative grounding or floating
Output (AC)	
AC output power	4400 kVA @ 40 ℃ (104 ˚F) ** (Optional: 4400 kVA @ 45 ℃(113 ˚F)) **
Nominal grid frequency / Grid frequency range	60 Hz / 57 Hz – 63 Hz
Harmonic THD	< 3 % (at nominal power)
Power factor at nominal power / Ajustable power factor	> 0.99 / 0.8 leading - 0.8 lagging
Efficiency	
Inverter Max. efficiency	98.9 %
Inverter CEC efficiency	98.5 %
Transformer	
Transformer rated power	4400 kVA
Transformer Max. power	4400 kVA
LV / MV voltage	0.645 kV / 34.5 kV
Transformer vector	Dy 1 (Optional: Dy 11, Yny 0)
Transformer cooling type	KNAN (Optional: ONAN)
Protection	
DC input protection	Load switch + fuse
Inverter output protection	Circuit breaker
AC MV output protection	Load switch + fuse
Surge protection	DC Type II / AC Type II
Grid monitoring / Ground fault monitoring	Yes / Yes
Insulation monitoring	Yes
Overheat protection	Yes
General Data	
Dimensions (W * H * D)	6058 mm * 2896 mm * 2438 mm 238.5'' * 114.0'' * 96.0''
Weight	≤ 36376 lbs
Degree of protection	NEMA 4X (Electronic for Inverter) / NEMA 3R (Others)
Auxiliary power supply	5 kVA, 120 Vac ; Optional : 35 kVA 480 Vac + 5 kVA 120 Vac
Operating ambient temperature range (It refers to the inverter only and the ambient temperature is 1m around the inverter.)	-35 ℃ - 60 ℃ (> 45 ℃ derating) / optional: -40 ℃ - 60 ℃ (> 45 ℃ derating) -31 ˚F - 140 ˚F (> 113 ˚F derating) / optional: -40 ˚F - 140 ˚F (> 113 ˚F derating)
Allowable relative humidity range	0 % - 100 %
Cooling method	Temperature controlled forced air cooling
Max. Operating altitude	1000 m (Standard) / > 1000 m (Customized) (3280.8 ft (Standard) / > 3280.8 ft (Customized))
Display	LED Indicators , WLAN + WebHMI
Night reactive power function	Optional
DC-Coupled storage interface	Optional
Charging power from the grid	Optional
Communication	Standard: RS485, Ethernet;
Compliance	UL1741, UL62109-1,CSA C22.2 No.107.1-16, IEEE1547-2018, IEEE1547.1-2020, UL1741 SA/SB, California Rule21, HECO SRD V2.0, NEC 2020,PRC-024
Grid support	Q at night function (optional), L/HVRT, L/HFRT, Active & reactive power control and power ramp rate control, Volt-var, Frequency-watt

*Full power MPP range is temperature dependent, check the characteristic curve of the inverter for more information.
**For sustained operation above 40°C, an optional 60 °C temperature rise transformer is recommended.

Siting Board 1-61

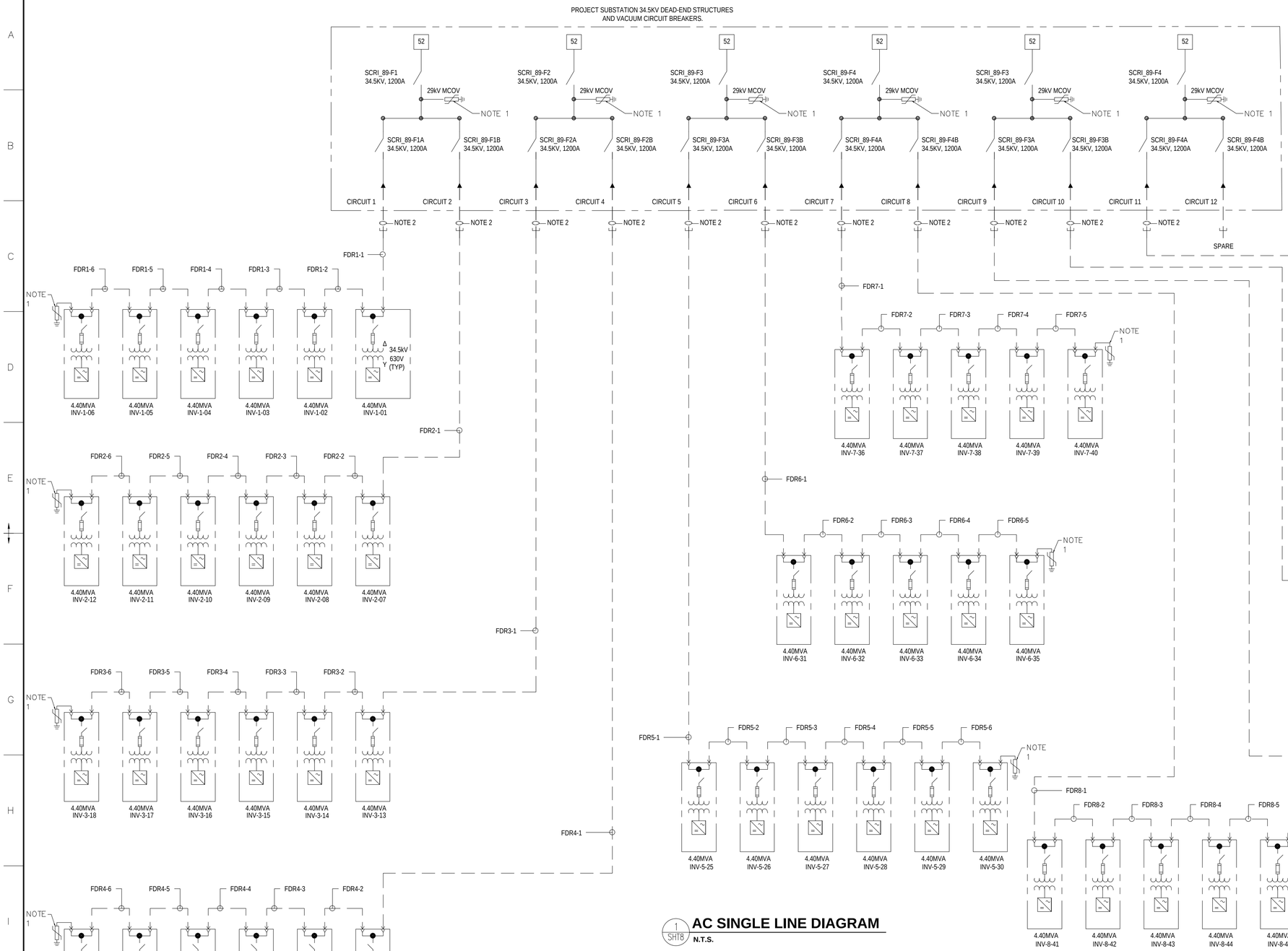
Provide a one line for the project.

Response:

See Attachment for the single line diagram for the Project.

Witness: Shane Kelley

PROJECT SUBSTATION 34.5KV DEAD-END STRUCTURES
AND VACUUM CIRCUIT BREAKERS.



1 SHT8 **AC SINGLE LINE DIAGRAM**
N.T.S.

ELECTRICAL SHEET LEGEND

- UNDERGROUND TO ABOVE GROUND TRANSITION
- UNDERGROUND POWER CABLE (DIRECT BURIED)
- MCOV SURGE ARRESTER. ONE PER PHASE.
- CABLE JUNCTION PEDESTAL
- OH 35KV 1200A KNIFE BLADE SWITCH
- CONDUIT STUB UP

ELECTRICAL SHEET NOTES

1. SURGE ARRESTORS ARE STATION CLASS, 29KV MCOV RATED UNLESS NOTED OTHERWISE. ONE ARRESTER PER PHASE.
2. SUBSTATION CONTRACTOR TO PROVIDE 8" CONDUIT STUBBED OUT BEYOND THE SUBSTATION SECURITY FENCE FROM THE SUBSTATION COLLECTOR CIRCUIT FEEDER DEAD-END STRUCTURE.

ELECTRICAL GENERAL NOTES

1. 3-1/C MV CABLES, 35KV, AL, DIRECT BURIED, MV-105, 133% INSULATED, TR-XLPE W/ CONCENTRIC NEUTRAL UNLESS NOTED OTHERWISE.
2. SINGLE-MODE SINGLE JACKET FIBER OPTIC CABLE ROUTED WITH AC MV CABLES.

PRELIMINARY NOT FOR CONSTRUCTION
03/14/2025

REV.	DESCRIPTION	DRAWN	CHKD	APPRVD	DATE
B	KENTUCKY SITING BOARD COMMENTS	RMA	CMA	DDF	03/14/25
A	ISSUE FOR CLIENT REVIEW	RMA	CMA	DDF	08/22/24

DRAWING REVISIONS

Stantec
Stantec Consulting Services Inc.
50 Derby Street Suite 260 Hingham, MA U.S.A. 02043
3052 Beaumont Centre Circle Lexington, KY U.S.A. 40513-1703
www.stantec.com

FILE NAME: Lost City_Eletrical_SLDs.dwg

COA #

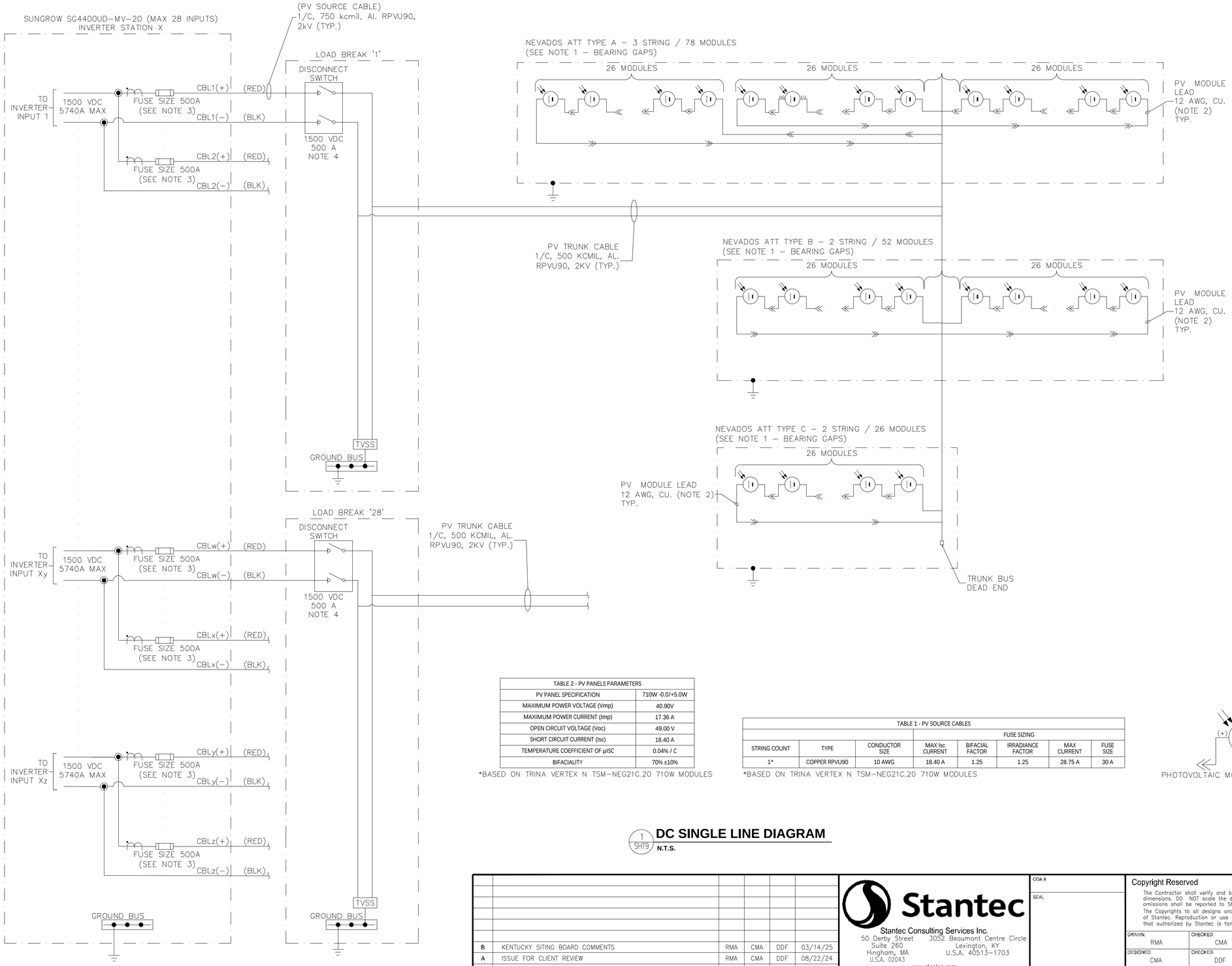
SEAL

DRAWN:	CHECKED:	IND. REVIEW:
RMA	CMA	DG
DESIGNED:	CHECKED:	APPROVED:
CMA	DDF	DDF
PROJECT NO: 2057322000		SCALE: AS SHOWN

CLIENT/PROJECT:
LOST CITY RENEWABLES LLC
LOST CITY
LOGAN COUNTY, KENTUCKY

TITLE:
LOST CITY SOLAR
CONCEPTUAL AC SINGLE LINE DIAGRAM

SHT 1 OF 1 | DWG NO: 2057322000-LC-E-101 | REV: B



ELECTRICAL SHEET LEGEND

CT

FUSE

ELECTRICAL SHEET NOTES

1. BEARING GAPS NOT SHOWN FOR CLARITY, BUT JUMPER IS NEEDED TO JOIN LEADS
2. TYPICAL STRINGING SHOWN. STRINGING DETAILS TO BE PROVIDED AT NEXT PROJECT PHASE.
3. INVERTER FUSE OF 500A APPROX.
4. LOAD BREAK DISCONNECT OF 500A APPROX.

ELECTRICAL GENERAL NOTES

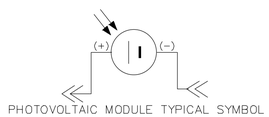
1. MODULE SYMBOLS REVERSED FOR CLARITY.
2. ONLY ONE DIRECTION OF STRINGS SHOWN. RACKING MAY FLIP DEPENDING ON DIRECTION OF STRINGS.
3. DISCONNECT CONTACT SHALL BE ABLE TO SWITCH 1500VDC INDEPENDENTLY. IF THIS CANNOT BE DONE, DUAL CONTACTS SHALL BE USED TO MEET THIS LIMIT.

TABLE 2 - PV PANELS PARAMETERS	
PV PANEL SPECIFICATION	710W -0.0/+5.0W
MAXIMUM POWER VOLTAGE (Vmp)	40.90V
MAXIMUM POWER CURRENT (Imp)	17.36 A
OPEN CIRCUIT VOLTAGE (Voc)	49.00 V
SHORT CIRCUIT CURRENT (Isc)	18.40 A
TEMPERATURE COEFFICIENT OF μISC	0.04% / C
BIFACIALITY	70% ±10%

*BASED ON TRINA VERTEX N TSM-NEG21C.20 710W MODULES

TABLE 1 - PV SOURCE CABLES							
			FUSE SIZING				
STRING COUNT	TYPE	CONDUCTOR SIZE	MAX Isc CURRENT	BIFACIAL FACTOR	IRRADIANCE FACTOR	MAX CURRENT	FUSE SIZE
1*	COPPER RPVU90	10 AWG	18.40 A	1.25	1.25	28.75 A	30 A

*BASED ON TRINA VERTEX N TSM-NEG21C.20 710W MODULES



PHOTOVOLTAIC MODULE TYPICAL SYMBOL

1 / SHT9 **DC SINGLE LINE DIAGRAM**
N.T.S.

PRELIMINARY NOT FOR CONSTRUCTION
03/14/2025

REV.	DESCRIPTION	DRAWN	CHKD	APPRVD	DATE
B	KENTUCKY SITING BOARD COMMENTS	RMA	CMA	DDF	03/14/25
A	ISSUE FOR CLIENT REVIEW	RMA	CMA	DDF	08/22/24

DRAWING REVISIONS

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www.stantec.com
FILE NAME: Lost_City_Eletrical_SLDs.dwg

COA #

SEAL

CLIENT/PROJECT:
LOST CITY RENEWABLES LLC
LOST CITY
LOGAN COUNTY, KENTUCKY

TITLE:
LOST CITY SOLAR
CONCEPTUAL DC SINGLE LINE DIAGRAM

DRAWN:	CHECKED:	IND. REVIEW:
RMA	CMA	DG
DESIGNED:	CHECKED:	APPROVED:
CMA	DDF	DDF

PROJECT NO: 2057322000
SCALE: AS SHOWN
SHT 1 OF 1
DWG NO: 2057322000-LC-E-102
REV: B

Siting Board 1-62:

Provide documentation for any endangered species sampling.

Response:

The Applicant has prepared a listed threatened and endangered species habitat assessment, a threatened and endangered bat survey, and an eagle-raptor nest survey. These documents are attached as Appendices A, B, and C.

Witness: Marty Marchaterre

Siting Board 1-63:

Provide documentation for any research completed for the project, including:

a. Historical research of the project site.

b. Archeological research of the project site.

Response:

The Applicant has prepared a cultural historic desktop review and an archaeological desktop review (attached as Appendices D and E). A site reconnaissance was completed as part of both of these reviews as well. These cultural resource desktop reviews include a 2-kilometer buffer (1.6 miles) around the Project Site as recommended by the Kentucky Heritage Council, which is the State Historic Preservation Office (SHPO). Further cultural resource studies may occur as part of the TVA NEPA process. Based on preliminary discussions with TVA, no ground disturbing activities, including shovel test probes (STPs), augering, etc. should occur until the NEPA process is initiated and consultation with TVA cultural resource staff takes place. The rationale for this limitation is that TVA is the lead federal agency for the National Historic Preservation Act Section 106 consultation.

Witness: Marty Marchaterre

Siting Board 1-64:

Refer to SAR, Mitigation Measure 15. Explain how it was determined that two acres of native pollinator friendly vegetation would be installed.

Response:

The Applicant understands that planting pollinator habitat provides critical habitat and benefits both native pollinator insect species, such as the monarch butterfly, and nearby agriculture. Pollinator areas are important because they attract bees, butterflies, and other pollinators, which play a crucial role in fertilizing plants, including food crops. Solar pollinator fields enhance local pollination services, leading to higher crop yields and better food security. Pollinator areas provide nesting sites and food sources, such as nectar and pollen. The Applicant reviewed previous PSC Orders approving solar projects and ultimately considered at least two acres for pollinator areas to be ideal.

Witness: Marty Marchaterre

Siting Board 1-65:

Refer to SAR, Mitigation Measure 22. Explain how local governments will report damage from construction.

Response:

No fewer than 2 weeks prior to construction, the Applicant would provide the Muhlenberg County Fiscal Court contact information for individuals within the company for reporting damage from construction. The process for investigating and resolving potential damage from construction would be similar to the Complaint Resolution Plan.

Witness: Marty Marchaterre

Siting Board 1-66:

Refer to Application, Exhibit G, Economic Analysis, and Exhibit E, Public Involvement Activities. On page 13 of the Economic Analysis, property taxes are anticipated to be collected over the course of 40 years. On slide 6 of the Public Involvement Activities exhibit, Economic Impacts, $88.8 million in labor income is said to be expected over the course of 30 years. Explain what the lifetime of the project is expected to be and reconcile the apparent discrepancy between the two exhibits.

Response:

The Project lifetime is anticipated to be 30 years. A revised Economic Analysis is attached. Based on the revised March 2025 Economic Analysis, Muhlenberg County's net labor income, including the impacts of construction, would have a net gain of $83.8 million in labor income. The difference between the Economic Impacts exhibit showing $88.8 million and this revised estimate is due to the use of an updated IMPLAN version. The labor income estimate in the January 2025 Economic Analysis showing $44.9 million was incorrect due to a spreadsheet error.

While the economic impacts were analyzed over a 30-year project life, the property tax projections from Stoll Keenon Ogden PLLC were for a 40-year time period. The property tax projections have been pro-rated to 30 years to be made consistent with the economic analysis.

Witness: Paul Coomes

Paul A. Coomes, Ph.D.
Consulting Economist
3604 Trail Ridge Road Louisville KY 40241 502.608.4797 coomes.economics@gmail.com
Emeritus Professor of Economics, University of Louisville

Corrected March 21, 2025

TO: Marty Marchaterre
Copperhead Environmental Consulting
133 Walton Avenue
Lexington, KY 40508
mMarchaterre@copperheadconsulting.com

FROM: Paul Coomes

RE: Estimated economic and fiscal impacts of Lost City solar project

Lost City Renewables LLC, a subsidiary of Copenhagen Infrastructure Partners, is developing a solar farm with 250 MW generating capacity on about 1,400 acres of hilly farm and timber land in Muhlenberg County, Kentucky. The solar site is named Lost City (Project). The developer is expecting to invest nearly $300 million in the Project. This note provides estimates of the new local economic and fiscal activity expected from the development.

There are two primary impacts expected from the project. First, there will be a spike in construction and linked jobs as the site is built out over approximately one year. Using estimates of the construction payroll, I estimate that there will be a total (direct and spinoff) of approximately 739 new jobs in the county in year one, with new labor income around $41.0 million.

The ongoing annual economic impacts from operating the solar farm involve the positive effects of several operational and maintenance jobs plus the effects of the new lease payments to owners of the land. In Appendix 2, these are compared to the negative effects of lost agribusiness activity, revealing a small net annual gain in jobs and labor income over the operating period. Looking out over three decades, and including the impacts of construction, I estimate there is a net gain of approximately 1,467 job-years and $83.8 million in labor income to Muhlenberg County.

According to the 2023 tax bills for the five land parcels at the site, the total real estate property tax payments were $14,500. Under an Industrial Revenue Bond (IRB) and

Payment in Lieu of Taxes (PILOT) agreement, it is anticipated that Muhlenberg County would receive approximately $6 million over 30 years in payments from the Project, or about $199,000 per year. A majority of those revenues would go to the local county school system.

Location, Regional Economy

The Project site is in western Kentucky, south of Drakesboro, and near the town of Penrod, in southern Muhlenberg County. The approximate location of the Project is shown by the red star in Figure 1. It is just east of US Highway 431.

Figure 1

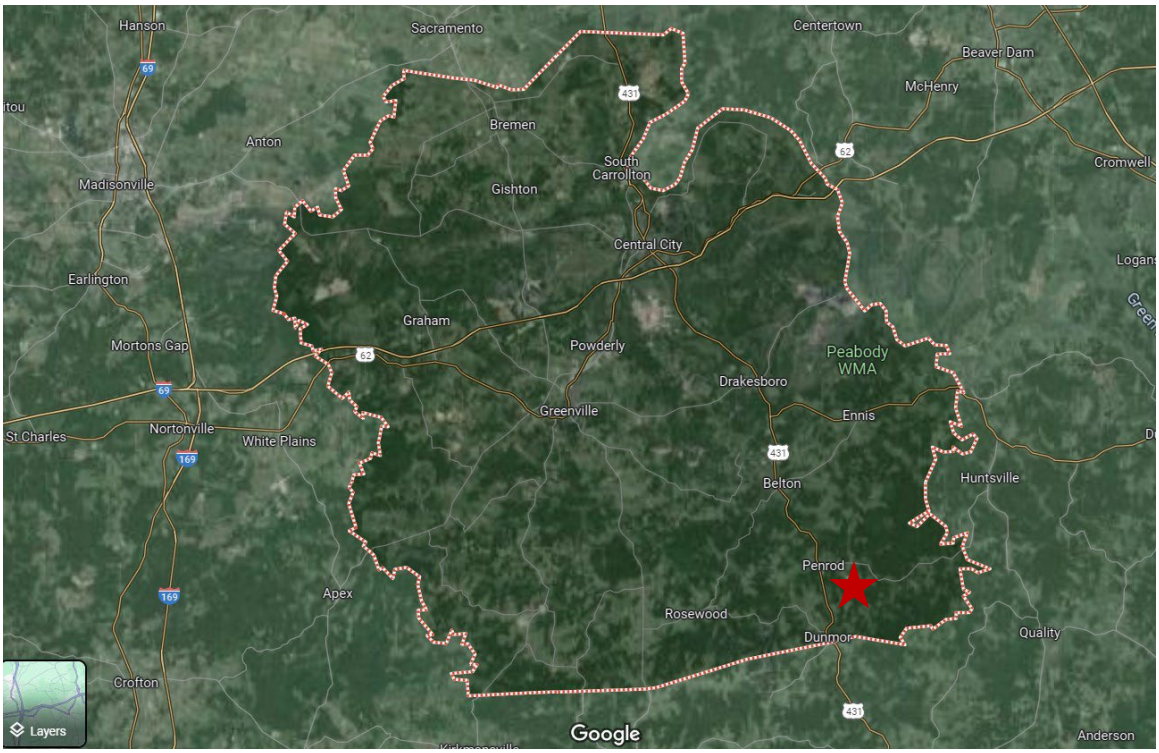
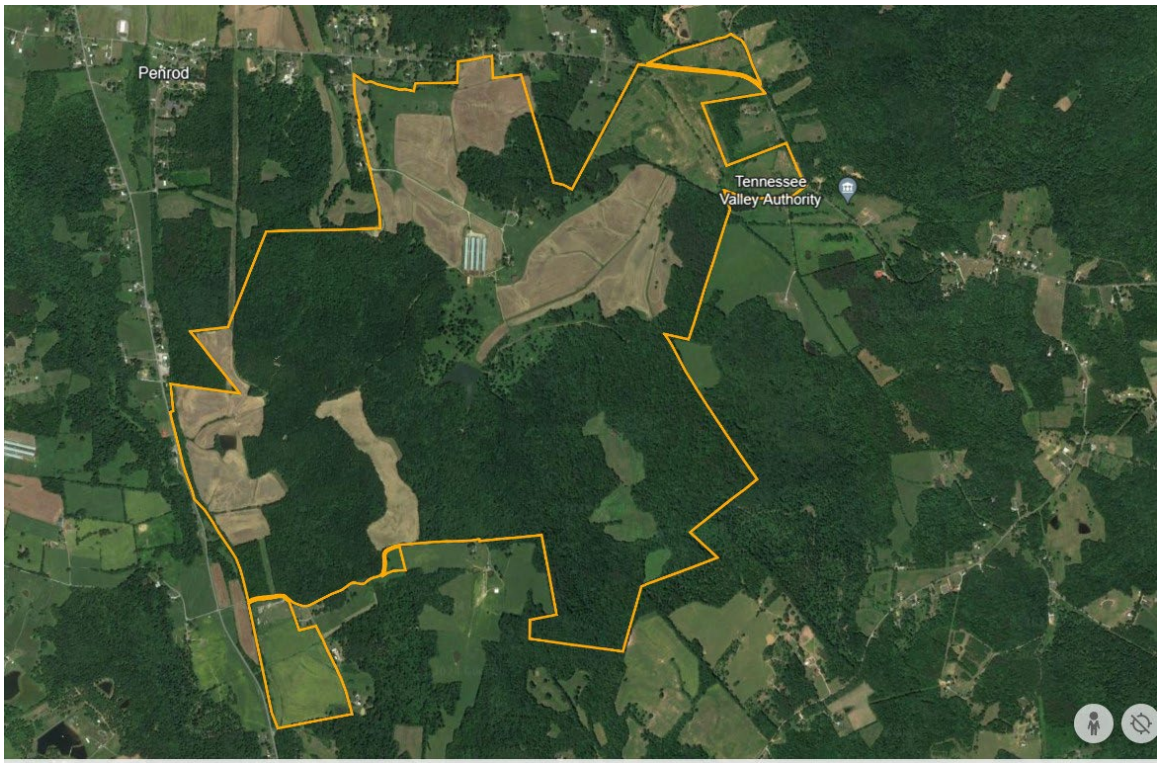


Figure 2 is a site map provided by the developer. The Project will be inside the boundary indicated by the yellow line. see the aerial imagery shows that the site is partially wooded, with some cropland. The building near the northwest corner is a poultry operation that will remain. The developer has estimated that the land use is 59 percent woods, 21 percent soybeans, 14.6 percent grass/pasture, 0.4 percent corn, and 5 percent other (cattle, sheep, goats). And only about 350 acres of current agricultural activity is expected to be displaced.

Figure 2



Newly released results from the U.S. Census Bureau's 2023 American Community Survey (ACS) provide a nice summary of demographic and economic characteristics of Muhlenberg County. Some details are provided in Appendix 1. For many of the measures, the county is similar to the State of Kentucky, for example high school attainment rates, persons per household, and average commute times. However, several things stand out:

- Compared to the Kentucky state average, Muhlenberg County's population is older, more likely to be categorized as white/Caucasian, and has a higher percentage of residents with a disability.
- Few Muhlenberg County adults hold a four-year college degree: 13 percent in the county, compared to 27 percent statewide.
- Median household income in Muhlenberg County was $52,700, significantly lower than the state average of $62,400.
- Over 48 percent of Muhlenberg County adults are not in the labor force, compared to 40 percent statewide.

Muhlenberg County's population has fluctuated around 31,000 for the past three decades (Figure 3). The county had a surge in population in the 1970s as the local coal industry

boomed, reaching a peak of 33,000 residents before falling to its current level. As is evident in Figure 4, population growth is highly correlated with job growth, particularly in mining. Strong employment growth in the 1970s was accompanied by significant population growth.

Figure 3

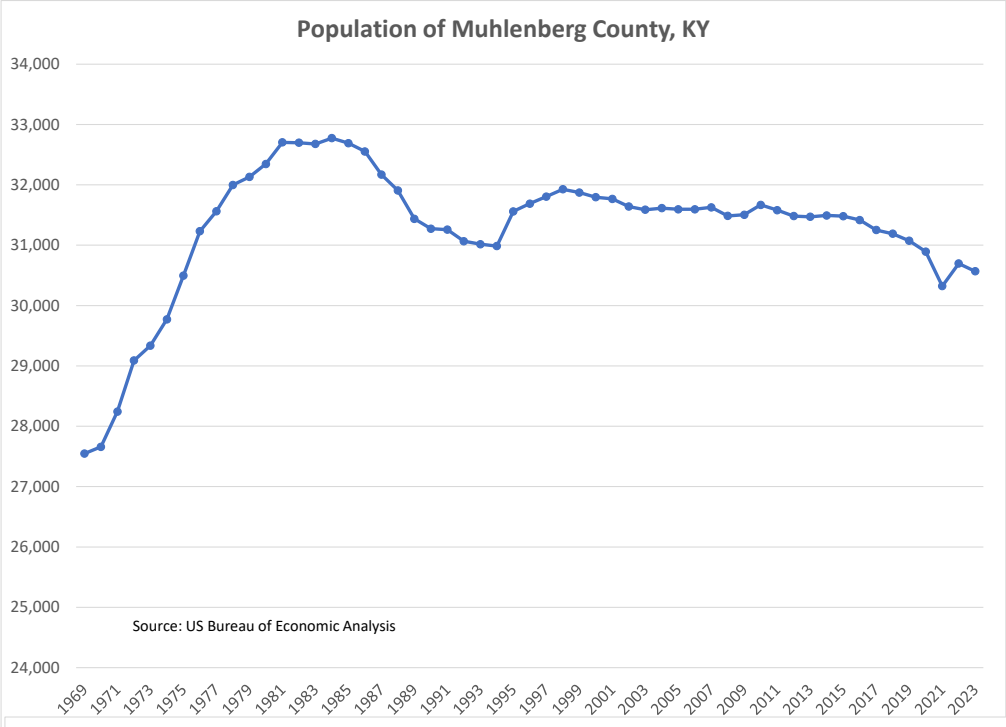


Figure 4

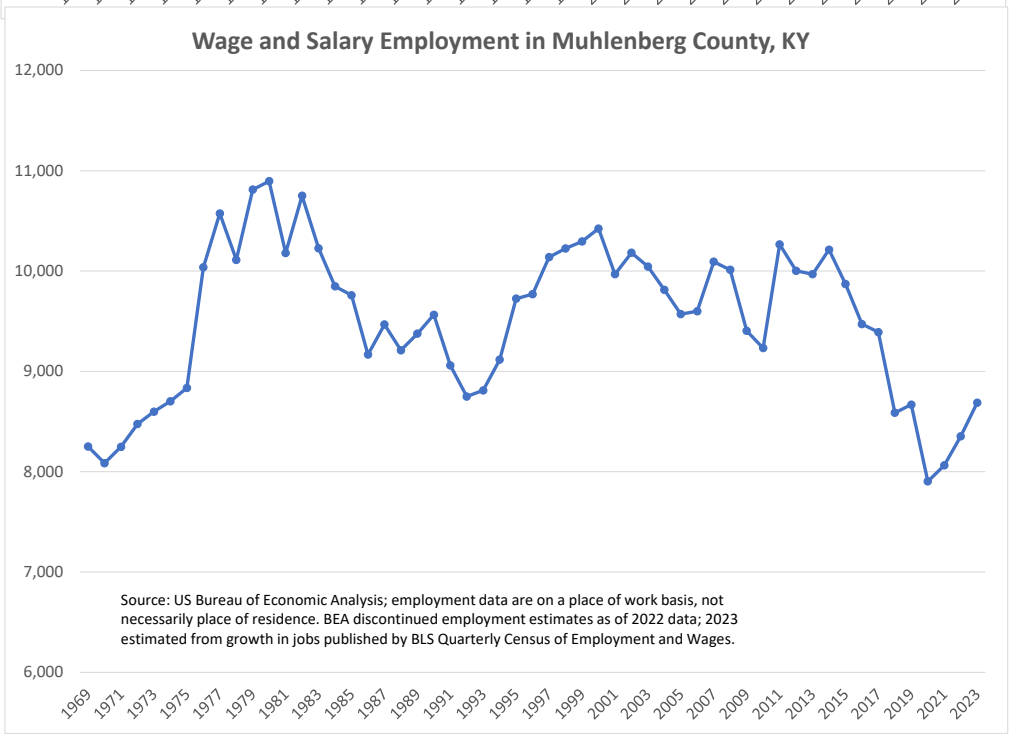


Table 1

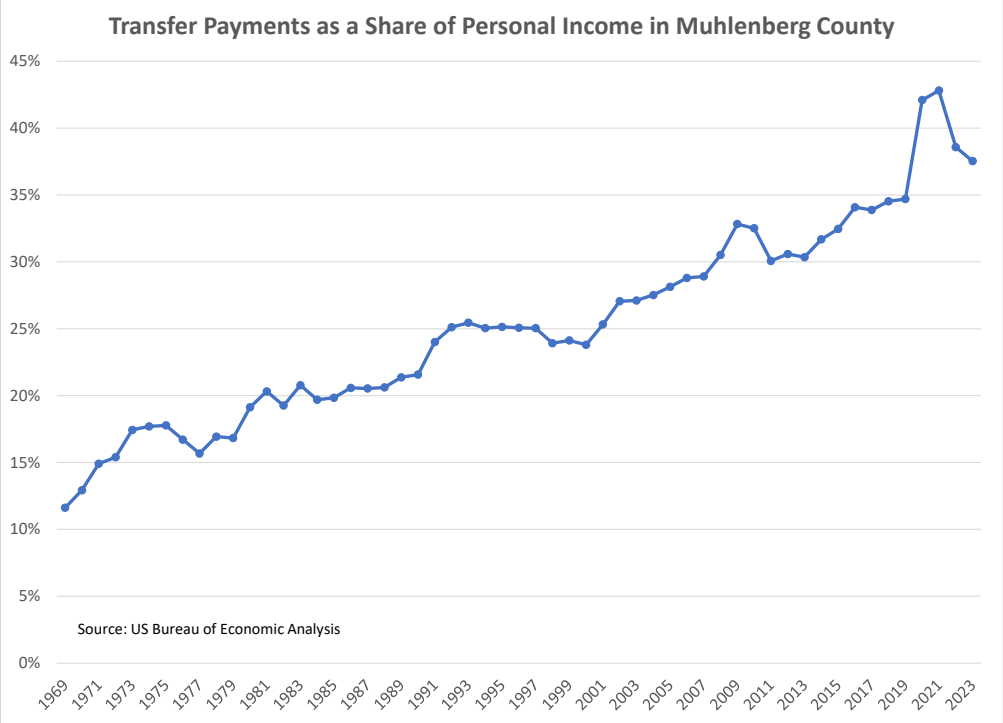
Coal mining was the economic engine of Muhlenberg County in the past, but as of 2024 supports no employment[1]. The mining jobs paid very well, and the modest growth in some other local industries has not been sufficient to replace that payroll. Indeed in 1975, mining accounted for 54 percent of all labor and proprietors' earnings in Muhlenberg County. That share fell to around 6 percent in 2022, and is now presumably zero.

Mining Employment in Muhlenberg County	
1970	1,957
1975	3,075
1980	2,984
1985	2,054
1990	1,131
1995	425
2000	417
2005	614
2010	582
2015	1,014
2020	397

Source: US Bureau of Economic Analysis. Employment data are on a county of work basis, not necessarily county of residence. Estimate for 2015 no disclosed; estimated from other years by author.

The lack of job growth and the aging of the resident population has led to an increased reliance on government transfer payments. In Muhlenberg County, residents received $468 million in payments in 2022. These accounted for 38 percent of total personal income, well above the Kentucky state (26 percent) and United States (18 percent) averages. In 1970, transfer payments accounted for only 13 percent of the county's personal income. Social Security, Medicare and Medicaid are the primary sources of the transfers. Figure 5 reveals the steady upward trend, as well as the spike in payments (across the country) during the onset of the COVID-19 pandemic (2020-21).

Figure 5



Not all working

[1] The last coal mine in Muhlenberg County closed in 2024, with a loss of 200 jobs: www.14news.com/2024/02/29/pride-mine-closing-muhlenberg-co/ .

residents of Muhlenberg County work in Muhlenberg County, and not all workers in the county are residents. The U.S. Census Bureau publishes estimates of county-to-county commuting patterns, and these reveal regional economic linkages. The estimates below, from the 2016-2020 ACS 5-year estimates, are the latest available.

First consider where the workers in Muhlenberg County live. Table 2 shows that there were 9,617 workers in the county. While 78 percent of the workers were residents of Muhlenberg County, there is significant commuting from surrounding counties, including Hopkins, Daviess, Ohio, Warren, McLean, Christian and Logan counties.

Table 2

County of Residence of Workers in Muhlenberg County, KY		
Muhlenberg County	7,494	77.9%
Hopkins County	621	6.5%
Daviess County	304	3.2%
Ohio County	216	2.2%
Warren County	137	1.4%
McLean County	129	1.3%
Christian County	112	1.2%
Logan County	108	1.1%
all other	496	5.2%
Total	9,617	100.0%

Source: US Census Bureau, American Community Survey, Residence County to Workplace County Commuting Flows, 5-Year ACS, 2016-2020

Table 3

County of Work for Residents of Muhlenberg County		
Muhlenberg County	7,494	64.5%
Hopkins County	1,076	9.3%
Logan County	970	8.4%
Ohio County	560	4.8%
Daviess County	292	2.5%
Warren County	215	1.9%
Christian County	211	1.8%
Butler County	201	1.7%
All other	593	5.1%
Total	11,612	100.0%

Source: US Census Bureau, American Community Survey, Residence County to Workplace County Commuting Flows, 5-Year ACS, 2016-2020

Next, consider where residents of Muhlenberg County work (Table 3). Note that there are significantly more working Muhlenberg County residents than there are people working in the Muhlenberg County. In other words, there is a net flow out of the county to work. The destination counties are generally the same as the origin counties in Table 2. We will use these findings to model the impact of the solar farm construction phase on the wider regional economy.

This net outflow of residents to work in surrounding counties shows up in personal income statistics for Muhlenberg County. For 2023, $131 million of residents' total

personal income of $1,302 million was due to the net effect of more residents working outside the county than nonresidents working inside the county.

Modeling the Economic Impacts

I take a conventional approach to modeling the regional economic impacts, using a customized input-output model of Muhlenberg County[2]. I have purchased annual economic data for all 120 Kentucky counties and use these as needed to construct regional models – of a county, a group of counties, or the whole state. The model has detailed information about the linkages among 500+ potential industries in each regional economy, as well as the relationship between household spending and demand for local retail goods and services due to the employee compensation or other forms of income. When there is new industrial activity in a region, the model can predict how much of the supply chain can be met by local businesses and how much the new payroll will result in additional sales (and jobs) by local businesses.

The ratio of the change in total regional economic activity to a change in activity by a regional industry is called a multiplier. For example, if a new manufacturing company adds 100 jobs and the County were to ultimately see another 80 jobs due to related spinoff activity, the employment multiplier would be 1.8 (180 total jobs divided by 100 direct jobs). Similar multiplier effects are generated for business output, employee compensation, and value-added[3].

The relevant sector for the construction phase is number 52, “Construction of new power and communication structures”, which is used to model the initial investment. The employment multiplier for that sector in Muhlenberg County model is 1.243, per the latest release (2023 data). This is a very modest multiplier, due to the fact that almost all the materials used to assemble a solar farm are made outside the county; thus, there are few inter-industry impacts locally.

There will also be some spin-off impacts from ongoing operations. Unfortunately, for the operations phase, the relevant IMPLAN sector, number 42, “Electric Power Generation – Solar”, is empty of data and results for Muhlenberg County. This is because there is no history of solar electricity generation and therefore no basic economic data to construct

[2] For documentation of IMPLAN modeling, see www.implan.com/history/ .

[3] Value-added is a measure of how much economic activity actually ‘sticks’ to a region. For example, if one purchases a new vehicle for $40,000 from a local dealership, only a few thousand dollars actually is captured in the county. Business revenues rise by $40,000, but most of it flows right out to the place where the vehicle was made. Local value-added measures the fraction of the sale that ends up paying workers and owners at the dealership, as well as any local taxes captured as a result of the sale.

industry relationships. However, beginning with its release of 2022 data, IMPLAN does provide activity measures for that sector statewide, and we use that below to model the operations phase.

Construction Payroll and Local Economic Impacts

From an economic perspective, the solar project has two phases, construction and operations. The construction phase is expected to last about one year, while the operations phase will last several decades. Almost all the employment occurs in the construction phase. The regional economic impacts consist of the direct effects of spending by the developer, and any spinoff impacts due to local purchases of supplies and new spending by households as a result of the increased incomes.

Direct effects

The company is likely to invest around $300 million in the solar project. The investment involves land acquisition, site preparation, solar panel and electrical equipment purchase and installation, plus landscaping and security fencing. The company will hire construction companies for this project, so it is not possible to know precisely how many workers will be employed nor their total compensation. For modeling purposes, I use an estimate of average employment over a one-year construction phase. Using the results of a California study of six large photovoltaic projects suggests that there will be an average of 600 direct jobs over a twelve- to eighteen month construction period for this project[4].

Table 4

Construction wages and benefits from 2014 Berkeley study			
	Average annual wage	Average annual benefits	Total compensation
CA Valley & Topaz Combined, Low Wage	$52,736	$24,104	$76,840
Average Across Six Solar Projects	$78,002	$36,880	$114,882
Source: https://laborcenter.berkeley.edu/pdf/2014/building-solar-ca14.pdf			

The California study also provides a range of results for construction wages and benefits, as shown in Table 4. The lowest average annual construction wage reported was $52,736, and the average wage across the six projects was $78,002, as shown in the table.

[4] A University of California-Berkeley study looked at six large PV projects in California, and summarized the economics. The author finds a ratio of 2.4 FTE construction jobs per MW. Applied to Lost City's 250 MW you get 600 direct construction jobs. He also shows the permanent operations jobs per MW, and applied to this project you get about 8 FTEs. See page 28 of *Economic and Environmental Benefits of Building Solar in California*, by Peter Philips, November 10, 2014, https://laborcenter.berkeley.edu/pdf/2014/building-solar-ca14.pdf .

California is, of course, a high wage state, with a much higher cost of living than Kentucky. On the other hand, the wage results are from projects developed a decade ago, and there have been large increases in average wages across the US since.[5]

Occupations include construction managers, earth grader operators, panel installers, electricians, and fencers. I searched the federal database on hundreds of occupations to learn how much these workers are likely to earn on the project (Table 5). The U.S. Bureau of Labor Statistics publishes estimates of employment and wages by occupations for states and metropolitan statistical areas, but not for counties.

Table 5

Kentucky Wages for Related Occupations, 2022

Occupation (SOC code)	Employment	Hourly mean wage	Annual mean wage
Construction Managers(119021)	-	$45.07	$93,740
Operating Engineers and Other Construction Equipment Operators(472073)	6,230	$26.20	$54,490
Electricians(472111)	9,210	$26.85	$55,840
Fence Erectors(474031)	280	$18.91	$39,320
Industrial Engineers(172112)	5,500	$42.29	$87,960
Materials Engineers(172131)	330	$47.57	$98,940
Mechanical Engineers(172141)	2,730	$40.87	$85,010
Heating, Air Conditioning, and Refrigeration Mechanics and Installers(499021)	5,240	$24.43	$50,810
Electrical Power-Line Installers and Repairers(499051)	2,590	$34.63	$72,020
Telecommunications Line Installers and Repairers(499052)	1,090	$26.10	$54,290

Source: US Bureau of Labor Statistics, Occupational Employment Survey, https://data.bls.gov/oes/#/geoOcc/Multiple%20occupations%20for%20one%20geographical%20area

There is no listing in the Kentucky data for "Solar Photovoltaic Installer", but the national average annual wage in 2022 was $47,970,710[6]. Based on these published wages, the construction managers are likely to earn over $90,000, heavy equipment operators and installers over $50,000, electricians around $56,000, and fencers $39,000.

[5] By contrast, a recent union-oriented report on Ohio solar projects claims temp workers there are only making $18 to $20 per hour, implying average annual pay of around $40,000; See https://columbusfreepress.com/article/ohio-solar-panel-farms-are-booming-construction-workers-are-being-exploited-make-it-happen

[6] Source: US Bureau of Labor Statistics, Occupational Employment Survey. For national data on solar photovoltaic installer, see www.bls.gov/oes/current/oes_nat.htm#47-2231 . For Kentucky and MSA data, see www.bls.gov/oes/current/oes_ky.htm County-level estimates are not available.

Assuming an average of $50,000 per construction job over a year leads to a direct payroll of $30 million in the county. The average annual pay for all jobs in Muhlenberg County in 2023 was $51,200[7]. The average fringe benefits, such as employer payments for health insurance, in Kentucky for the construction industry is 18 percent[8]; so, total labor compensation for these jobs is around $35.4 million, or $59,100 per job.

Spin-off impacts in Muhlenberg County

The construction phase will have some spin-off effects in Muhlenberg County. I model this using a custom IMPLAN model of the county. The relevant sector for the construction phase is number 52, "Construction of new power and communication structures", and this can be used to model the initial investment. The direct effect in the County is around 600 jobs over one year, with labor compensation of approximately $35.4 million.

The model has detailed information about the inter-industry linkages in each regional economy, as well as the expected household spending on retail goods and services due to the enhanced employee compensation. When there is new industrial activity in a region, the model can predict how much of the supply chain can be met by local businesses and how much the new payroll will result in additional sales (and jobs) by local businesses. Adding these two effects to the direct effect yields the total effect of a development, and dividing the total effect by the direct effect yields a multiplier. Using the Muhlenberg County multiplier for the relevant construction sector, and the direct construction budget, I project there will be a total of approximately 739 new jobs in the County, and new labor compensation of around $41.0 million[9].

Table 6 illustrates the various impact components across several standard economic measures. The results can be scaled up or down to fit any assumed number of construction jobs[10]. Note that both the indirect and induced effects are quite small. The indirect effect is small due to the lack of local suppliers of solar farm materials. The

[7] Source: US Bureau of Economic Analysis, https://www.bea.gov/data/by-place-county-metro-local , Table CAINC30, average annual wages and salaries in county.

[8] BEA provides estimates of both total compensation and total wages by industry for the state. Dividing total construction industry compensation by wages in 2023 yields 1.18.

[9] IMPLAN estimates a much higher average labor income per employee for this sector than I am assuming. So, I apply the labor income multiplier (1.156) to the assumed employee compensation ($35.4 million) instead of using the IMPLAN total labor income prediction ($51.5 million).

[10] This linear scaling is a feature of IMPLAN and other regional input-output modeling systems. It is reasonable in the case of a solar farm construction project. The feature becomes a problem in cases where an industrial development dramatically changes a local economy, for example, in the case of a large manufacturing plant in rural county. In that case, one could expect complicated and nonlinear effects, such as growth in the local population, much higher wage rates, and growth in support industries.

induced effect is somewhat bigger, though still small due to the lack of retail and service businesses in the county to absorb the new household income linked to the construction jobs.

Table 6

600 Jobs in Sector 47, Construction of new power and communication structures

Impact Type	Employ-ment	Labor Income	Value Added	Output
Direct	600.0	$44,554,116	$70,376,899	$102,530,229
Indirect	37.4	$2,214,087	$4,015,440	$7,425,074
Induced	101.7	$4,726,476	$9,855,086	$16,636,270
Total	739.1	$51,494,678	$84,247,425	$126,591,573
implied multiplier	1.232	1.156	1.197	1.235

Source: IMPLAN model of Muhlenberg County, using 2023 economic data.

Regional impacts from construction

Some readers may wonder why I have focused on impacts in Muhlenberg County as opposed to more widespread regional impacts. Keep in mind that most federal-state statistical agencies and models measure employment on a place of work basis, as opposed to a place of residence basis. So, all construction workers at the site are counted as Muhlenberg County jobs. Nevertheless, clearly there will be some spinoff economic activity in surrounding counties, as supplies are purchased and workers spend their paychecks at retail establishments.

To investigate possible broader regional impacts in Kentucky, I built another IMPLAN model consisting of Muhlenberg County plus the seven other Kentucky counties that supply workers – Hopkins, Daviess, Ohio, Warren, McLean, Christian and Logan. The results are slightly larger that of the Muhlenberg County-only simulation.

The job multipliers for the solar farm construction phase are 1.232 for Muhlenberg County alone, and 1.299 for the eight-county region, for a net change of only 40 total predicted jobs. Other economic multipliers, such as labor income and business output, are also consistently in that range. I also performed a comparable simulation using a

model covering the whole state of Kentucky. The statewide job multiplier for the solar farm is 1.440, larger than that for the eight-county region, due to the inclusion of so many more potential suppliers and retail outlets for household spending. Based on our impact analysis tools, there are not large differences in the predicted regional impacts when zooming out to nearby counties or statewide[11]. In this case, the economic multipliers are relatively small whether one county, two, eight, or 120 counties are modeled. This is primarily due to the lack of industrial linkages in the region to the solar industry.

Ongoing operations

There will also be some spin-off impacts from ongoing operations. The company expects operations to support several jobs. The California PV study cited above found that a ratio of 31.3 MW per permanent operations job. Applied to the Muhlenberg County project, this results in an estimate of 8 permanent operational jobs at the site. The California study also revealed that the operations jobs on average paid $78,000 in wages and salaries, plus $37,000 in fringe benefits. The relevant IMPLAN sector 42, "Electric Power Generation – Solar", is empty of data for the county, but we do have results for the state of Kentucky as a whole. The model predicts an employment multiplier of 2.708 and a labor income multiplier of 1.636. Applying these to the Lost City site results in approximately 22 jobs and $1.34 million in labor income annually.

There are also positive local economic impacts from the annual lease payments to the owners of the land. On the negative side is the annual loss of local economic activity due to taking the land out of agricultural use. This is examined in detail in Appendix 2. I estimate that, beyond the one-time impacts of construction, the annual economic benefits from the solar farm operation more than offset the annual economic losses from reduced agricultural activity in the county.

Local Tax Revenues

Local Tax Rates

Muhlenberg County and the Commonwealth of Kentucky levy property taxes on real estate and tangible property (and the Commonwealth taxes the value of manufacturing machinery). Table 7 provides the latest published tax rates that are applied county-wide, which total about one percent of the assessed value of real property and one and one-third percent of the value of tangible property. The County school systems is by far the largest recipient of property tax revenues. There are several municipal taxing jurisdictions

[11] For other industrial developments around Kentucky it is common for our models to predict job multipliers of 3, 4, or 5, particularly for complicated manufacturing operations such as motor vehicles and parts.

in the county, but the project is outside their city boundaries and thus would not be subject to those property taxes.

Table 7

Muhlenberg County Property Tax Rates, 2023

in cents per $100 valuation

Jurisdiction	Real Estate	Tangible Personal	Manufacturers' Machinery
Airport	1.00	1.00	
Extension Service	2.20	2.57	
Fiscal Court	11.10	10.60	
Health	4.00	4.00	
Library	11.50	18.38	
Soil Conservation	0.52	0.00	
County Public Schools	53.40	53.40	
State of Kentucky	11.40	45.00	15.00
Total, County-wide	95.12	134.95	15.00

Source: Kentucky Department of Revenue
https://revenue.ky.gov/News/Publications/Pages/Property-Tax-Rate-

In addition, the Commonwealth of Kentucky levies rates of 11.5 cents per $100 on real estate, 45 cents on tangible personal property, and 15 cents on manufacturing machinery[12].

Unlike most Kentucky counties, Muhlenberg County does not levy an occupational tax on wages, salaries, and other compensation paid to those working in the County.

Expected Property Tax Revenues

The land purchased and leased for the site, as well as all the equipment installed, would generate much more in property taxes than under its current use. The latest estimate of the taxable value of the investment is $290.1 million, primarily in installed equipment. Most of the real estate is currently valued at its discounted farm value rather than its market value. The conversion to commercial use results in a much higher tax assessment and tax revenues. Similarly, the land that is leased gets re-assessed at its new commercial value. An analysis by Stoll, Keen, Ogden PLLC projects that over 40 years the state of Kentucky would receive $10.2 million, and local jurisdictions would receive $11.7 million in new property tax revenues. (Prorating to 30 years, this amounts to $7.7 million to the state and $8.8 million to local jurisdictions).

[12] To convert these tax rates to percentages, simply multiply by 0.0001.

The developer may pursue an Industrial Revenue Bond (IRB). An IRB is a type of economic incentive that would provide a temporary state and local tax abatement for the Project. IRBs have been used across the Commonwealth for distilleries and warehouses, distribution centers, hotels, greenhouses, steel mills, racetrack upgrades, power plants, and solar projects. The Project would make a Payment in Lieu of Taxes (PILOT) to offset the tax loss to Muhlenberg County. It is anticipated that Muhlenberg County would receive approximately $8 million over 40 years in payments from the Project, or $199,000 per year. (Prorating to 30 years, this amounts to $6.0 million, with the same amount per year).

I looked up the 2023 tax bills for the five land parcels at the site, using the service provided by the Muhlenberg County Sheriff's office[13]. Total real estate property tax payments were $14,500 last year. A majority of those revenues went to local county school system. With an IRB, funding for schools following the state school funding formula would be included in the PILOT. It should be pointed out that solar projects like this require almost no public services from local government. And, because they require so few people to operate, do not add students and expenses to the county public school system.

[13] www.muhlenbergcountysheriffky.com/taxes

Appendix 1

Demographic and Economic Characteristics of Muhlenberg County, KY		
	Muhlenberg County	**State of Kentucky**
Number of residents	*30,712*	*4,510,725*
Median age	42.8	39.1
Percent white	92.5%	83.7%
Percent of noninstitutionalized population w disability	23.0%	17.7%
Percent foreign-born	2.00%	4.40%
Percent 18 and older veteran	7.3%	6.8%
Percent living in same house as a year ago	88.7%	87.1%
High school attainment rate, population aged 25+	84.6%	88.5%
College attainment rate, population aged 25+	13.0%	27.0%
Number of Households	11,937	1,791,991
Median household income	$52,672	$62,417
Persons per household	2.57	2.52
With broadband internet subscription	83.7%	87.2%
Population 16+	*25,021*	*3,605,426*
In the labor force	51.5%	59.6%
Employed civilian	49.4%	56.4%
Unemployed	2.1%	2.9%
Armed forces	0.1%	0.4%
Not in labor force	48.5%	40.4%
Median travel time to work (minutes)	25.9	24.0
Civilian employed population 16 years and over	*12,349*	*2,032,890*
Management, business, science, and arts occupations	31.7%	37.1%
Service occupations	16.1%	15.4%
Sales and office occupations	18.8%	20.3%
Natural resources, construction, and maintenance occupations	11.2%	8.8%
Production, transportation, and material moving occupations	22.1%	18.4%
Industry		
Agriculture, forestry, fishing and hunting, and mining	4.0%	1.8%
Construction	6.9%	6.3%
Manufacturing	15.1%	14.3%
Wholesale trade	1.0%	2.2%
Retail trade	10.4%	11.8%
Transportation and warehousing, and utilities	6.7%	6.9%
Information	0.9%	1.3%
Finance and insurance, and real estate and rental and leasing	4.8%	5.6%
Professional, scientific, and mgmt, and admin and waste mgmt services	7.9%	9.0%
Educational services, and health care and social assistance	28.2%	24.2%
Arts, entertainment, and recreation, and accommodation and food services	4.7%	8.0%
Other services, except public administration	4.3%	4.5%
Public administration	5.1%	4.2%

Source: US Census Bureau, American Community Survey, 5-year profiles, 2019-23, www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/

Appendix 2
Measuring the Net Economic Impact of the Change in Land Use

The conversion of agricultural land to a solar farm involves both positive and negative economic effects on the regional economy. The negative effects involve the reduction in farming activity, and the linkages that has on local suppliers of seed, feed, fertilizer, equipment and labor, summarized by a reduction in business activity employment and personal income. Many of the positive effects are described in the body of the report, including the one-time construction impacts, the several operations and maintenance jobs at the site, plus the increase in property tax payments to local jurisdictions. But there is also another important positive effect to consider – the impact of the annual lease payments to the farmland owners. This involves not only the actual new income, but also the regional spinoff impacts as the income is spent on goods and services in the local economy.

In this appendix, I attempt to account for all these factors and put them together to measure the net economic impact of the change in land use. No direct accounting-type information is available on actual farm operations at the solar site, but rich data are available on farmland activity at the county level. Using county data on crop yields, livestock production and prices provide a reasonable basis to estimate farm output at the solar site. Annual lease payments to the farmland owners, as provided by the solar developer, provides a fairly precise measure of the new income to the owners. If the lease information is not available, national studies can be used to approximate the rate per acres. Then I use a custom IMPLAN model of the county to predict the linkages of both farm output and new lease income to the local economy.

As context, it is useful to remember that many if not most farmers hold a nonfarm job in a nearby city or industrial site, as often do their spouses. The income from nonfarm work is generally much greater than what they can earn from actual farming, and is how the family is able to pay its bills. Because farming is a seasonal activity, farmers of midsize plots can work extra hours during the growing season and hopefully supplement their household incomes. I say hopefully because historical data reveal that net farm income is negative in many years.

Lost Economic Activity From Farming

1. Determine the solar site's share of county farmland. In most Kentucky contexts, the relevant components are acres harvested of corn for grain, acres harvested for soybeans, and inventory of cattle and other livestock. The county totals are published every five years in the Census of Agriculture, with 2022 the latest

available[14]. Farmland use at the solar site is estimated based on visual inspection, as it is not feasible to do an actual acre by acre survey. The distribution of farmland use at the site will be similar to the county distribution, to the extent the topography and soil quality is similar throughout the county.

2. Obtain the yield per acre and the value per bushel for corn and soybeans from the county tables in the Census of Agriculture. Multiply the site acreage by the yield and value to obtain farm revenues (Output) for the site. A similar calculation can be made for any livestock activity.

3. Use IMPLAN to simulate the Output loss in the county from the loss of farm activity. IMPLAN has three sectors that usually apply: Oilseed Farming (#1), Grain Farming (#2), and Beef Cattle Ranching and Farming (#11). If needed, there are also sectors for Dairy Cattle (#12), Poultry and Egg (#13), Other Animal Production (pigs and hogs) (#14). IMPLAN will return a statement of the direct, indirect and induced economic impacts in the county from the loss of the farm activity. It also provides a detailed listing of the impacted sectors in the county, such as farm supplies.

4. Care should be taken at this point to distinguish between Output and Value Added. Output is the total sales, while Value Added measures only the dollars that stick to the county. For example, if farmers purchase $50,000 of fuel most of those dollars go to the refinery in another county or state. Only the portion used to compensate the local distributor results in lost income in the county. Employment and Labor Income impacts are the most useful for our purposes.

New Income from Leasing Land to Solar Company

1. The solar farm developer will have confidential data on the contracted amount they will pay landowners for the use of their land each year. If the company will not release the lease payments, the only recourse is to estimate them based on studies of other places. According to a recent paper, “More rural areas with high land prices and high solar demand may be in the ballpark of $1,000 an acre near a substation with capacity. Areas where land price is much lower, and the land doesn’t offer much in the way of agriculture, may drop rent rates to around $500

[14] The 2022 Census of Agriculture statistics for Kentucky were released in February 2024. See www.nass.usda.gov/Publications/AgCensus/2022/Full_Report/Volume_1,_Chapter_2_County_Level/Kentucky/

per acre"[15]. Below, I use a midpoint estimate of $750 per acre for the solar site. The lease payments rise over time, but I do not have access to the details of the contracts.

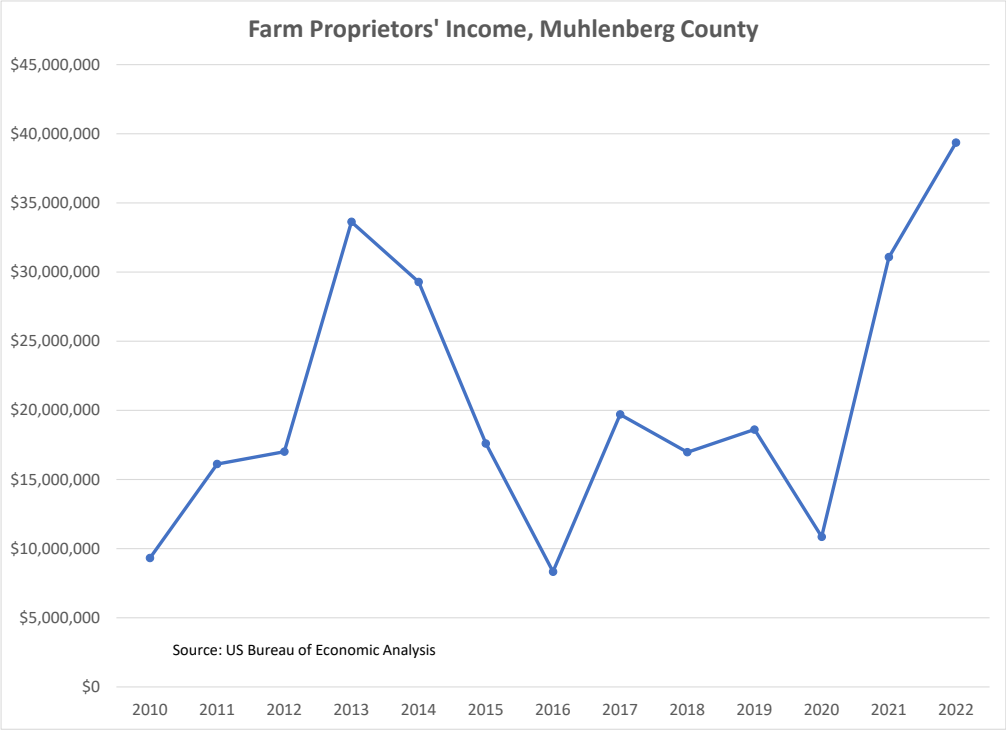
2. To estimate the economic impact of this new income, IMPLAN can be used again. This involves a simulation of new household income and spending, resulting in estimates of the impact on other sectors in the county. Changes to household income have predictable impacts on residential construction, retail sales, health care, insurance, banking, restaurants, entertainment, education and a large range of activities covered by the IMPLAN modeling system. We follow the methods employed in a recent Minnesota study, which allocates one-half the lease payments to net household income and the other half to payments on their real estate mortgage and other debts[16]. The more urbanized the county, the greater the portion of household spending that is captured in the county versus imported from other regions. Again, one should distinguish between Output and Value Added, so the focus is on the new dollars that stick to the county.

[15] These sites have good overviews of the factors involved: https://uslightenergy.com/news/solar-land-lease-rates-how-much-do-solar-companies-pay-to-lease-land/ and www.solarlandlease.com/lease-rates-for-solar-farms-how-valuable-is-my-land

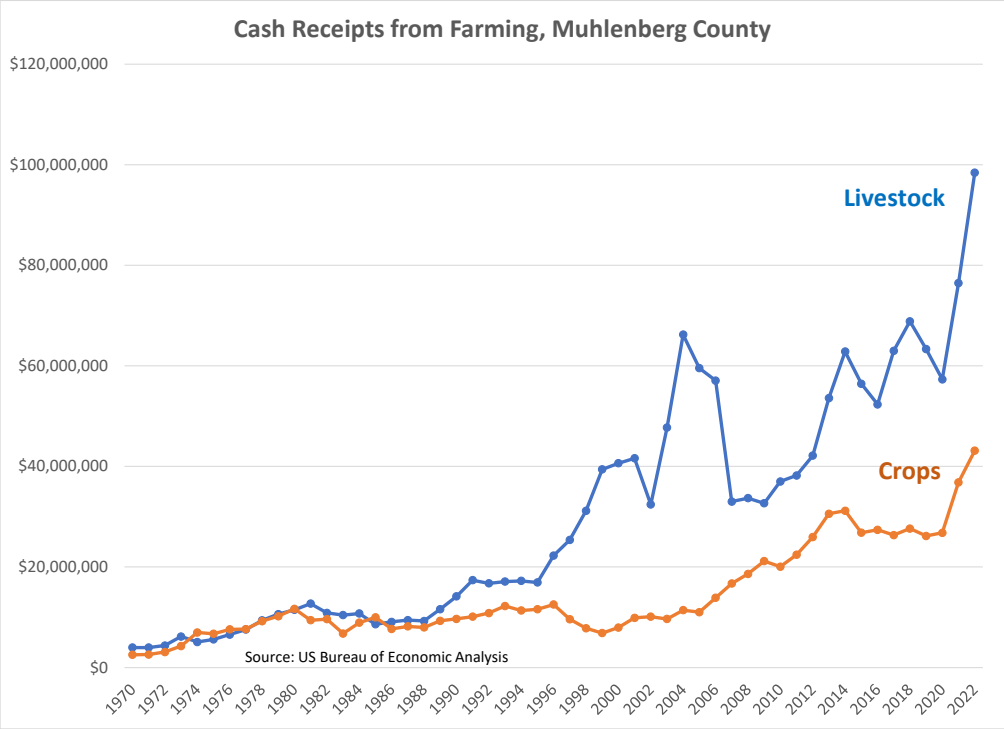
[16] See Economic Impacts of a Proposed Solar Energy Project in Freeborn County, Minnesota, by Brigid Tuck, University of Minnesota Extension, April 2021: https://conservancy.umn.edu/handle/11299/223053

Muhlenberg County

I now apply the method to the Lost City solar site, which is located in Muhlenberg County. Before estimating farm income at the site, it is worth looking briefly at agricultural conditions at the county level. The next chart shows net farm income over the past dozen years. Note the volatility of farm income due to changes in product prices and costs of production. The average over the period shown was about $20 million per year.



In the next chart, we see that livestock revenues are about twice that of crop revenues. The last Census of Agriculture, to be discussed in more detail next, revealed that poultry operations are the greatest source of livestock revenues in Muhlenberg County, followed by hogs and pigs, then cattle and calves. Soybeans are the principal crop, followed by corn and then hay.



A summary of 2022 Census of Agriculture results is provided in the next table. The solar site accounts for one percent of the farmland in Muhlenberg County. Soybeans accounted for about twice as much acreage as corn. Dividing bushels by acreage, we see that Muhlenberg County had an average soybean yield of 52 bushels per acre, For corn, Muhlenberg had a yield of 173 bushels per acre. Hay production averaged 2.1 tons per acre. Soybean revenue per bushel was $14.25, corn revenue per bushel was $7.01, and hay revenue was $59.41 per ton. Cattle sold for $673 per head.

A majority of the 1,400 acres leased for the project is forested, and only about 350 acres is expected to be removed from agricultural activity (with the possibility of adding sheep herds). Using estimated current land use provided by the developer, I am assuming 210 acres of soybeans, and 149 acres of pasture. I have estimated the number of cattle grazing, using the results of a study by the University of Kentucky[17]. They find that beef cows need two to four acres of pasture per head, depending on the soil quality and the amount of hay used as feed. Taking the midpoint value of three acres, this implies that the acreage would support about 47 head of cattle.

[17] https://agecon.ca.uky.edu/sacred-cows-and-stocking-rates

Summary Agricultural Statistics, Muhlenberg County	
Farms	583
Land in farms, acres	129,431
Corn for grain, acres	14,214
Corn for grain, bushels	2,453,120
Soybeans, acres	25,821
Soybeans, bushels	1,344,418
Hay, acres	15,263
Hay, tons dry equivalent	31,544
Broilers and other meat-type chickens sold, farms	11
number sold	7,620,400
Hogs and pigs sold, farms	7
number	140,024
Cattel and calve inventory	12,461
Cattle and calves sold	7,119
Corn, value sold (000)	$17,186
Soybeans, value sold (000)	$19,162
Hay, value (000)	$1,874
Poultry and eggs, value (000)	$66,081
Hogs and pigs, value (000)	$33,602
Cattle and calves sold, market value (000)	$4,788
Farm production expenses (000)	$107,213
Net cash farm income from operations (000)	$46,392
Farms with net gains	221
Farms with net losses	362
Government paymens received (000)	$1,518
Hired farm labor, workers	536
Hired farm labor (000), payroll	$9,706
Source: 2022 Census of Agriculture, Kentucky Sate and County Data, Volume 1, Geographic Area Series, Par 17, February 2024.	
www.nass.usda.gov/Publications/AgCensus/2022/Full_Report/Volume_1,_Chapter_2_County_Level/Kentucky/	

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Applying the countywide yields and prices, results in annual agricultural revenues of $174,000. I simulated this using the Muhlenberg County IMPLAN model, and the results are shown in the next table. The relevant sectors here are #1 Oilseed farming and #12 Cattle and calves. One can see that this method generates an estimate of less than one total job in the county, with labor income of $62,000. This reflects both the direct income from farming plus the income of those in the local supply chain (indirect) and those selling goods and services to households (induced).

Solar Site Agribusiness, Estimated County Impacts

Impact	Employment	Labor Income	Value Added	Output
Direct	0.39	$47,398	$117,913	$173,774
Indirect	0.11	$7,196	$10,007	$19,588
Induced	0.15	$7,142	$14,970	$25,215
Total	0.65	$61,736	$142,890	$218,577

Source: IMPLAN model of Muhlenberg County, using 2023 economic data.

The developer has indicated that they plan to deploy sheep to graze around the solar panels, and any associated income from paying shepherds or selling sheep products would mitigate some of the lost agricultural activity just discussed. However, the sheep grazing would reduce the need for mechanical mowing, which is implicitly included in my estimate of operations and maintenance jobs. I do not have enough information to net these offsetting factors out. Ideally, I would know the size of the sheep herd, as well as the reduction in maintenance budget for mechanical mowing.

These negative farm-related jobs and labor income need to be compared to the positive economic impacts related to the solar farm. Beyond the one-time construction impacts, the solar operation generates two new annual revenue streams – the operation of the solar site and the lease payments to farmland owners.

In the body of the report, I estimated that the operation of the solar farm will support about 22 jobs, with labor income of $1,341,000 annually. I assume the lease payments are $750 per acre, implying new household income of $1,059,750. This can be simulated in two ways, shown in Tables A and B. In Table A, I assume that all the lease income is available for household spending, using the income bracket $70,000 to $100,000 annually. This results in 4.0 jobs and $195,000 in new labor income in the county. The reader may wonder where the rest of the lease dollars went. Taxes and savings reduce

the amount available for spending. More importantly, in a rural county there are fewer goods and services available locally than in an urban county, and thus the dollars leak out of the county in the form of imports[18]. The most impacted sectors in Muhlenberg County are child day care services, hospitals, educational services, offices of dentists, home health care, and offices of physicians.

A. Estimated Annual Impact of Lease Payments

Impact	Employment	Labor Income	Value Added	Output
Direct	0.00	$0	$0	$0
Indirect	0.00	$0	$0	$0
Induced	3.97	$194,863	$379,800	$647,278
Total	3.97	$194,863	$379,800	$647,278

Source: IMPLAN model of Muhlenberg County, using 2023 economic data. All lease income simulated as increase in household income.

In Table B, the results are based on the assumption that one-half of lease income goes unrestricted to households in the income bracket $70,000 to $100,000. The other half is simulated as going to the banking system to pay down real estate mortgage and other debts[19]. The results are shown in the accompanying table. I estimate that the lease payments will support 4.8 jobs in Muhlenberg County, with labor income of $280,000. One can see that the estimated impacts are quite low in both cases. I will use the more conservative one, in Table A, in the net calculations below.

B. Estimated Annual Impact of Lease Payments

Impact	Employment	Labor Income	Value Added	Output
Direct	1.74	$134,652	$270,179	$529,875
Indirect	0.72	$32,334	$49,118	$114,014
Induced	2.33	$113,430	$223,249	$379,943
Total	4.79	$280,417	$542,546	$1,023,831

Source: IMPLAN model of Muhlenberg County, using 2023 economic data. Half the lease income treated as new household income; half as new expenditures in the banking system to pay down debts.

[18] By comparison, the same simulation in Jefferson County (Louisville) results in a total of 7.1 jobs, $455.000 in labor income, value added of $765,000, and total output of $1,294,000.
[19] IMPLAN sector 423 "Monetary authorities and depository credit intermediation".

In the body of the report, I estimated that the operation of the solar farm will support about 22 jobs, with labor income of $1.34 million annually. A quick comparison of the negative agricultural impacts with the positive impacts from operating the solar site reveals a small annual net gain in jobs and labor income, primarily due to the operations and maintenance jobs.

Estimated Net Annual Muhlenberg County Impacts

	Employment	Labor Income
Farming	-0.7	-$61,736
Solar operations	21.7	$1,340,816
Lease payments to landowners	4.0	$194,863
Net	25.0	$1,473,943

Looking out over three decades, and including the impacts of construction, there is a net gain of 1,467 job -years and $83.8 million in labor income to the county.

Estimated Net Economic Impact Over Three Decades

	Year 1 Construction	Years 2 through 29, annual average	Cumulative 30 years
Solar-related employment	743.1	25.6	1486.5
Solar-related labor income	$41,146,553	$1,535,679	$85,681,242
Agricultural-related employment	-0.7	-0.7	-19.5
Agricultural-related labor income	-$61,736	-$61,736	-$123,472
Net employment	742.5	25.0	**1,467.0**
Net labor income	$41,084,817	$1,473,943	**$83,829,163**

Siting Board 1-67:

Refer to the Application, Exhibit G, page 10, Spin-off Impacts in Muhlenberg County. Explain whether recipients of lease payments are included in additional spin-off jobs and employment.

Response:

Dr. Coomes used the same IMPLAN model to examine the regional economic impacts of the annual lease payments, which is discussed on page 23 of his report (Application, Attachment G, Economic Analysis). In this report, lease payments were analyzed in Appendix 2, where he investigated the likely impacts of the change in land use from agriculture to solar energy. The appendix provides a net calculation, showing the expected positive impacts of construction and operation (including lease payments) of the solar facility as well as the expected negative impacts of taking land out of agricultural use.

Witness: Paul Coomes

Siting Board 1-68:

Refer to Application, Exhibit H, Decommission Plan, Page 8, Table 3. Explain whether "Overhead and Management" includes wages, services, and material expenses that would benefit the county, region, and the Commonwealth of Kentucky.

Response:

Overhead and Management includes the cost of managing the contract, permit, and road repair. We anticipate that a part of those dollars would go to local managers, environmental consultants (permitting), and contractors (road repair). Currently it is difficult to associate a number, as it will depend on who completes the final decommissioning.

Witness: Shane Kelley

COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

In the Matter of:	**)**	
	)	
In the Matter of the Application of Lost City	**)**	
Renewables LLC for a Certificate of Construction for	**)**	**Case No. 2024-00406**
an Approximately 250 Megawatt Merchant Electric	**)**	
Solar Generating Facility in Muhlenberg County,	**)**	
Kentucky Pursuant to KRS 278.700 and 807 KAR 5:10	**)**	

CERTIFICATION

This is to certify that I have supervised the preparation of the Lost City Renewables LLC's responses to the Siting Board Staff's First Request for Information and that the responses on which I am identified as a sponsoring witness are true and accurate to the best of my knowledge, information, and belief after reasonable inquiry.

March 21, 2025
Date

Paul Coomes

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BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

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3/21/2025
Date

S. Joshi
Sean Joshi

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BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

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3/21/25
Date

Shane Kelley

COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

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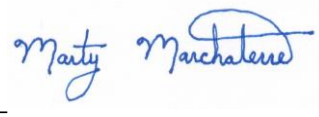

3/20/25
Date

Marty Marchaterre