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	**)**	

NOTICE OF FILING AND
SUPPLEMENTAL RESPONSES TO REQUESTS FOR INFORMATION

Lost City Renewables LLC ("Lost City"), by counsel, hereby provides notice that it is filing the attached Visibility Analysis prepared by Stantec for Lost City. This analysis was prepared in response to Items 13 and 14 of the Staff's Second Request for Information. Based on this analysis, there will be 17 residential structures that may have a view of any portion of the Project. A map is attached to the analysis.

Respectfully submitted,

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ATTORNEYS FOR LOST CITY RENEWABLES LLC

Stantec

Memo

To:	Lost City Renewables LLC	From:	Rose Richelsen Barbara Wagner Stantec Consulting Services Inc. Rochester, NY
Project/File:	2057322000 Lost City Solar Project	Date:	May 9, 2025

Reference: Visibility Analysis, Lost City Solar Project

1 Introduction

Lost City Renewables LLC (Lost City) is proposing the construction of a ground-mounted solar array located in Dunmor, Muhlenburg County, KY 42339. The project, Lost City Solar Project (Project), would encompass approximately 1,413 acres in a residential/agricultural area. Surrounding land uses are generally residential/agricultural or undeveloped. The proposed construction activities involve the installation of a 250 MWAC commercial, ground-mounted solar facility on a portion of the property.

Lost City commissioned a visibility study to identify areas within a 2,000 foot (ft) radius of the Project where the solar array would potentially be visible. The Visibility Study Area (VSA) was identified by (1) applying a 15-ft buffer around the proposed solar arrays (to conservatively allow for minor design changes); and (2) adding the 2,000-ft radius to the solar array area. The 2,000-ft radius was specified by Lost City to be consistent with the extents of other studies for the Project and requirements by the Kentucky Siting Board. The visibility study includes a Geographic Information Systems (GIS) analysis to assess whether and where the solar panels would be seen within a larger regional area, based on the panel height and extent, and given regional topography and vegetation. The results of the visibility analysis are displayed over an aerial photo to elucidate the kinds of visual impacts that may occur within the visibility analysis.

2 Visibility Model Inputs

A survey of the existing topography and proposed grading elevation for the Project site by Lost City was provided as a reference surface for the model. The analysis used a surface combining the surveyed area and Digital Elevation Model (DEM) data outside of the surveyed area.

The visibility analysis of Lost City Solar Project was performed within a 2,000-ft VSA using ESRI ArcGIS® 3.3 software with the Spatial Analyst Extension[1] released on June 27, 2024. Data inputs included:

- Survey data provided by Lost City within the site boundary.

[1] What is the ArcGIS Spatial Analyst extension?—ArcGIS Pro | Documentation, ESRI ArcGIS Pro, April 11, 2024.

- Kentucky's Division of Geographic Information (DGI) 2025 DEM[2] data for the analysis area not within the site boundary. DEM ground surface elevations are derived from the Kentucky Aerial Photography and Elevation Data Program (KYAPED) which uses point cloud data with 5-foot point spacing.
- The proposed layout of the panels, as provided by Lost City and assuming a maximum panel height of 10 feet.
- An assumed observer height of 5.5 feet.

The 2023 National Land Cover Database (NLCD) Land Cover[3] cartographic coverage was utilized to identify areas with forested land (labeled as deciduous, evergreen mixed forest, or woody wetlands in the database). Additional forested land identified by Lost City using light detection and ranging (LiDAR) point cloud data was combined with the NLCD Land Cover. The vegetated visibility map (Figure 1) was created using the following vegetative screening limits:

- Forested vegetation areas using coarse data from the 2023 NLCD and Kentucky's elevation data and aerial photography program[4] LiDAR point cloud data was gathered for the visibility analysis. Aerial imagery was used to validate the locations of forested vegetation. The LiDAR data provided two important variables:
    - Helped confirm locations of vegetation, including filling in gaps where NLCD was too coarse for the scale of the Project. Fencerows (single rows of trees) and single, isolated trees were not included in the vegetation layer. Areas of trees that are approximately 50 to 60 feet wide were included in the vegetation layer (a discussion on this is provided in the assumptions section).
    - Identified a range of vegetation heights to be used for the analysis. The highest and lowest return elevation values were gathered for a variety of locations to estimate overall canopy height. The majority of calculated tree heights ranged from 40 – 80 ft in the areas sampled. A conservative estimation of tree height to be applied across the areas where trees would not be removed would be approximately 60 ft.
- Lost City's proposed screen plantings include sections of standard planting and double planting. The standard planting sections were assumed to be 30 feet wide and the double planting sections were assumed to be 40 feet wide. Both standard and double planting sections were assumed to have an average tree height of 15 feet throughout the Project site. Each of the planned species for planting will reach at least 15 feet for the projected 8-10 year growth height. The mature height of the planned species is anticipated to range from 15 to 80 feet.
- Lost City's proposed vegetative clearing areas within the solar array fence on the Project site.

These limits were incorporated in the analysis to account for vegetative screening of observer views of the solar array. The DEM was vertically offset in tree-covered areas using their assumed average tree

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[2] Kentucky Elevation Data - DEM and DEM Tile Index | ArcGIS Hub, Kentucky's Division of Geographic Information (DGI), February 21, 2025.
[3] Annual National Land Cover Database (NLCD) Collection 1 Products - ScienceBase-Catalog, U.S. Geological Survey (USGS), 2024, Annual NLCD Collection 1 Science Products: U.S. Geological Survey data release, https://doi.org/10.5066/P94UXNTS.
[4] KyFromAbove - Kentucky's Aerial Photography & Elevation Data Program

height listed above. The visibility map also accounts for the height of the existing vegetative screening adjacent to the Project site.

Copperhead identified residences within the 2,000-ft VSA using Kentucky's 911 caller list. These residences were confirmed using both Google Maps and Street View. Figure 2 depicts residences with a view of the solar array based on the vegetation screening limits in Figure 1. Of note, areas with modeled visibility may not see the entirety of the Project at that location. That is, if visibility is occurring in an area, it may only be glimpsing a portion of the Project over undulating treetops or between gaps of trees and not a full-on view. The shaded areas of visibility in Figure 1 identify an approximate range of Project visibility ranges from dark purple (area of maximum array visibility) to light purple/white (area of least array visibility). Maximum array visibility may be less than 100% - i.e. a viewer at the point of maximum visibility may see only a portion of the Project.

3 Visibility Model Assumptions

The visibility analysis inputs are cells (image pixels) containing local elevation information. The model analyzes the differences along the terrain surface between an observer at any point within the study area and all points of the solar arrays. The output at any point in the visibility analysis identifies how much of the arrays are visible at that observation point. The analysis is based on a clear line of sight and therefore certain factors in the interpretation of results need to be considered.

1. The model assumes the viewer to have perfect vision at all distances. Therefore, a certain amount of reasonable interpretation needs to be considered because of the limitations of human vision at greater distances or atmospheric conditions that may cause imperfect vision, such as haze or inclement weather.
2. By nature of the model and available parameters, trees are treated as opaque objects and therefore, leaf-on conditions are assumed. Transparency predictions through bare-branched trees or leaf-off conditions cannot be made. It is assumed that the Project would not be visible to a viewer who is standing amongst trees in a forested area.
3. The tree cover analysis is conservative, in that only areas defined as "forested" in the 2023 NLCD or the areas identified by LiDAR are assumed to provide screening. However, thinner stands of trees, single trees, and hedgerows present onsite or adjacent to the Project may provide additional screening that is not accounted for in the model. Vegetative screening has been designed, within the context of existing wooded areas and parcel use, to provide effective screening at the locations provided in the analysis.
4. Both the horizontal and vertical extents of the arrays were extended in the model, compared to the proposed layout, in order to provide a conservative analysis.
5. The model does not take buildings within the radius of the Project into account. Visibility may be further obstructed for a viewer standing near a building(s).
6. Data from KyFromAbove is the most recent publicly available data for the Project (2022). Any changes made to the vegetation landscape since these data were collected is not reflected in the forested vegetation layer.
7. A width of approximately 50 to 60 feet was considered to provide realistic screening of the Project because of the average height of the mature vegetation. In comparison, the planned landscape plantings will be much lower in height and not provide the same screening.

8. Ground truthing and photos captured by Copperhead biologists along roadways surrounding the Project validate the presence of the forested vegetation, the approximate height of the vegetation, and the potential for screening.
9. Within the Project, buffers that include forested vegetation around jurisdictional streams and wetlands, and the 100-year floodplain were included because no development is planned in these areas.

4 Results and Discussion

The following discussion summarizes general project visibility along roadways and within residential areas under NLCD tree cover conditions.

Figure 1 shows the visibility of the solar array given the 2023 NLCD tree cover condition and Lost City provided inputs in the 2,000-ft VSA.

Figure 2 shows the residential homes identified within the 2,000-ft VSA that have visibility of the solar array given the above conditions.

Table 1 lists the amount of the solar array each residence on Figure 2 can see according to the vegetated visibility areas shown on Figure 1.

Within the vegetated visibility areas (Figure 1), the Project has some degree of visibility to the north, southeast, and southwest. Much of the area of visibility is within agricultural areas. Properties along Free Lane, Bunch Lane, KY-949, and Union Ridge Road to the north would have some visibility. Properties along Forgy Mill Road to the south, and US-431 and Skipworth Lane to the west would have some visibility. These roads and additional side streets may have limited views of the Project. It is expected that partial views would occur in these roadway sections and that they would be transient and of short duration to travelers.

Table 2 lists the 17 residences anticipated to have views of the solar array under the assumed tree cover and landscape conditions. Less than 10% of the solar array are anticipated to be visible to residences R-02 and R-07 through R-12 to the north, and R-16 to the southwest of the Project. The remaining 9 residences are anticipated to see less than 1% of the solar array.

Reference: Visibility Analysis – Lost City Solar Project

Sincerely,

Stantec Consulting Services Inc.

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Attachments: Table 1 – Residences within Visibility Area with View of Solar Array
Figure 1 – Vegetated Visibility 2,000-ft Radius
Figure 2 – Residences within Visibility Area

Tables

Table 1
Residences within Visibility Area with View of Solar Array
Lost City Solar Project
Dunmor, Kentucky
Solar Project Visibility Assessment

Residence	% of Array Visible
R-01	0.07%
R-02	1.32%
R-03	0.29%
R-04	0.17%
R-05	0.34%
R-06	0.87%
R-07	4.21%
R-08	8.16%
R-09	8.21%
R-10	5.91%
R-11	6.72%
R-12	2.77%
R-13	0.33%
R-14	0.51%
R-15	0.06%
R-16	3.36%
R-17	0.07%

Figures

PS-1124
PENROD CUTOFF RD
KY-949
BUNCH LN
UNION RIDGE RD
FREE LN
US-431
MASON POYNER RD
SKIPWORTH LN
PENDLEY MILL LN
GRIMMETT LN
PV-1118
HUGH LN
PR-1107
FORGY MILL RD
JOCKEY CREEK LN
PR-1120
KY-973
SCHOOLHOUSE LN
PINE ST

Legend

- Site Boundary
- Solar Array 15-ft Buffer
- Visibility Study Area
- Roads

Visibility

- More Visible
- Less Visible

0 0.25 0.5 Miles

(At original document size of 11x17)
1:25,000

N

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Project Location	Prepared by RRR on 2025-05-08
Dunmor	TR by ET on 2025-05-08
Muhlenburg County, Kentucky	IR by BW on 2025-05-08
Client/Project	2057322000
Lost City Renewables LLC	
Lost City Solar Project	
Solar Project Visibility Assessment	
Figure No.	
1	
Title	
Vegetated Visibility 2,000-ft Radius	

Notes

1. Coordinate System: NAD 1983 (2011) StatePlane Kentucky South FIPS 1602 (US Feet)
2. Data Sources: KYTC: Roads (2025); Kentucky DGI: 5ft DEM (2024). MRLC NLCD (2023). Solar Array, Fence, Site Boundary, Forest Clearing, Visual Study Area, LiDAR forested areas, Residences, and Proposed Vegetation shp files provided by client. Site survey data ("LostCityCombined") for the proposed grading plan on the site was provided by client.
3. Background: ESRI Imagery and Streets Basemap.
4. Residences from client confirmed using Google Maps and Street View.

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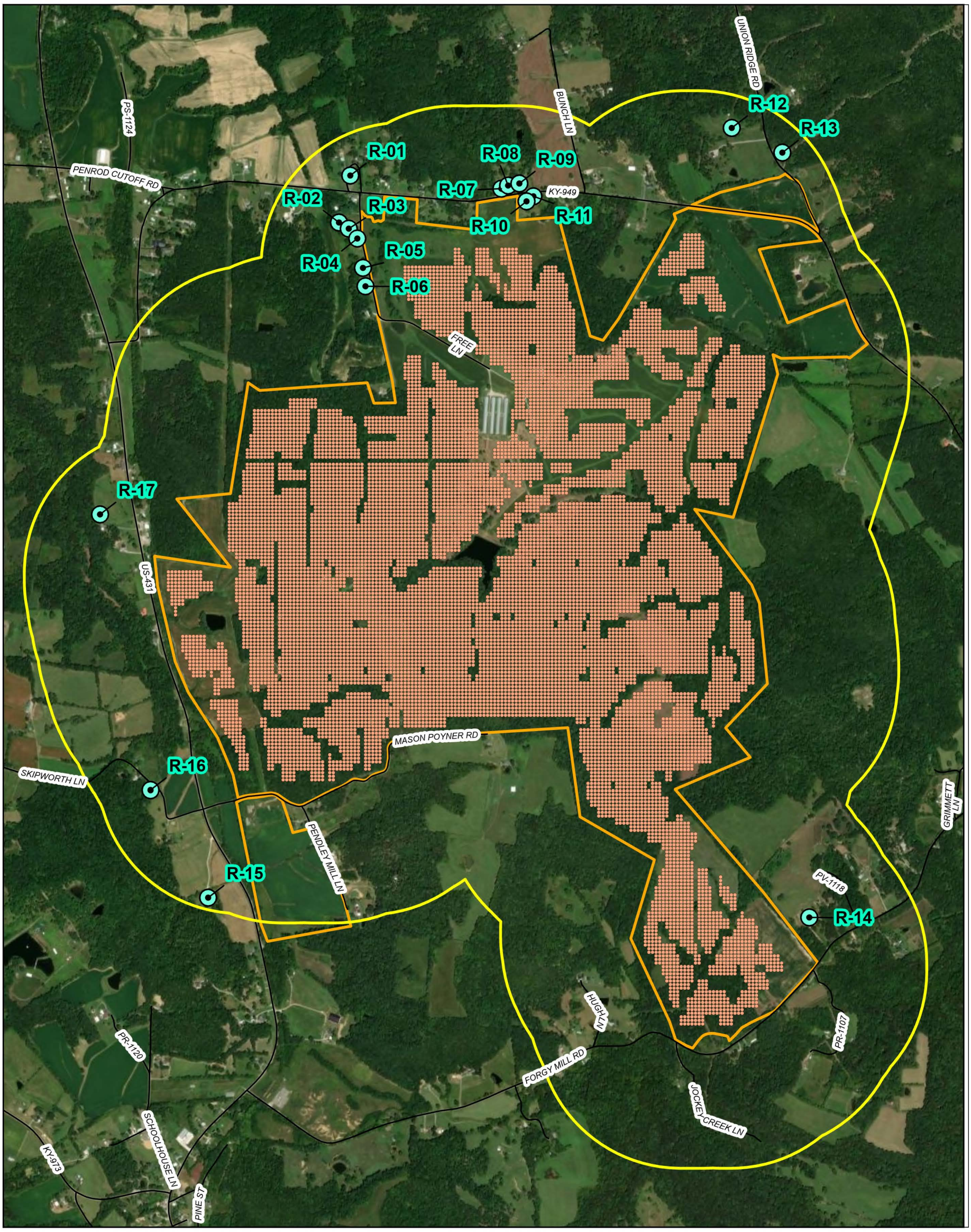

Legend

- Residences within Visbility Area
- Site Boundary
- Solar Array 15-ft Buffer
- Visibility Study Area
- Roads

0 0.25 0.5 Miles

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Muhlenburg County, Kentucky	IR by BW on 2025-05-08
Client/Project	2057322000
Lost City Renewables LLC	
Lost City Solar Project	
Solar Project Visibility Assessment	
Figure No.	
2	
Title	
Residences within Visibility Area	

Notes

1. Coordinate System: NAD 1983 (2011) StatePlane Kentucky South FIPS 1602 (US Feet)
2. Data Sources: KYTC: Roads (2025); Kentucky DGI: 5ft DEM (2024). MRLC NLCD (2023). Solar Array, Fence, Site Boundary, Forest Clearing, Visual Study Area, LiDAR forested areas, Residences, and Proposed Vegetation shp files provided by client. Site survey data ("LostCityCombined") for the proposed grading plan on the site was provided by client.
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