Wood Duck Glare Hazard Analysis

Wood Duck Solar Project
Barren County, Kentucky

June 1, 2023

Prepared for:

Wood Duck Solar Project

Prepared by:

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Executive Summary

Stantec Consulting Services, Inc. (Stantec) utilized the web-based ForgeSolar glare hazard analysis program to analyze the potential for glare from the proposed Wood Duck Solar Project (Project), a 100-megawatt (MW) utility-scale solar powered electric generating facility located in Barren County, Kentucky, and depicted in **Figure 1**. The Project will include photovoltaic (PV) solar panels mounted on a racking system to maximize solar energy capture and electric generation of the array. The Project area encompasses approximately 1,920 acres in a rural agricultural and residential area located approximately 5 miles to the northwest of the City of Glasgow in south central Kentucky.

The ForgeSolar program identifies the three following types of glare (no color indicates no glare predicted):

GREEN - Low potential for temporary after-image.
YELLOW - Potential for temporary after-image.
RED - Potential for permanent eye damage.

Based on the solar array parameters provided and the current site design, glare is not predicted from the Project for pilots approaching either runway at the Glasgow Municipal airport or for helicopters hovering over the helipad at the TJ Samson Community Hospital. There is no air traffic control tower associated with the Glasgow Municipal Airport.

The results of the ForgeSolar analysis determined that green and/or yellow glare from the Project is predicted to occur for drivers of vehicles on one of 17 road segments included in the analysis, Oak Grove Church Road. Green glare is also predicted for four of 147 residences that were analyzed within proximity to the Project area.

The analysis was completed at two heights for roadways: 5-ft (cars and small trucks) and 9-ft (semi-trucks) viewing heights. All routes and structures were analyzed using 5-ft panel heights.

Abbreviations

AGL	Above Ground Level
deg	degrees (0 is due north, 180 is due south)
DNI	Direct Normal Irradiance
FAA	Federal Aviation Administration
FP	Flight Path (landing path from threshold to two miles out)
ft	Feet
kW	Kilowatt
kWh	kilowatt hour
m	Meters
mi	Mile
min	Minutes
mrad	Milliradian
MW	Megawatt
MSL	Mean Sea Level
OP	Observation Point (e.g., control tower, structure)
PV	Photovoltaic

Glossary

Correlate Slope Error with Surface Type?	Correlates the slope error value based on the surface material type; default value is 8.43 milliradians (mrads).
Eye Focal Length (m)	Typical distance between the cornea and the retina of the human eye, default is 0.017, though some sources indicate that the typical length is 0.022.
Glide Slope (deg)	Angle at which the plane approaches the runway during landing (default is 3 degrees [deg] from horizontal).
Maximum Tracking Angle (deg)	Rotation limit of panels in either direction. Full rotation is 2*maximum tracking angle. E.g., maximum tracking angle of 60 deg indicates full panel rotation range of 120 deg.
Resting Angle (deg)	Angle modules return to after maximum angle is reached.
Observation Point	A specific location, such as a control tower or structure, from which an observer might experience glare.
Ocular Transmission Coefficient	Related to the ability of the eye to transmit light, set by at 0.5 by Forge Solar.
Offset angle of module (deg)	Additional tilt/elevation angle between the tracking axis and the panel.
Orientation of Tracking Axis (deg)	Azimuthal position of tracking axis measured clockwise from true north. Tracking systems in the northern hemisphere are typically oriented near 180 deg. Tracking systems in the southern hemisphere are typically oriented near 0 deg.
Peak DNI (W/m^2)**	This value is set at 1,000 by ForgeSolar and is the amount of solar radiation per unit surface area by a surface perpendicular to the sun's rays in a straight line from the direction of the sun at its current position in the sky.
Pupil Diameter (m)	Typical pupil diameter for observer, default is 0.002 meters (m).
PV Array Axis Tracking	Panel tracking mode, if any. Panel can be set to track along one (single) or two (dual) axis tracking. This parameter affects the positioning of the panels at every time step when the sun is up.
PV Array Panel Material	Surface material of panels, including use of anti-reflective coating (ARC). Options include: smooth glass without ARC, smooth glass with ARC, light-textured glass without ARC, light-textured glass with ARC, and deeply textured glass.
Rated Power (kW)	Power rating of the solar array - used to estimate the energy output per year of the array (optional).
Slope Error (mrad)	Accounts for beam scatter of sunlight on the array. Default is 8.43 mrads but the value may be adjusted based on the panel material type.
Subtended Angle of Sun (mrad)	The angle above horizontal at which the viewer observes the sun, default value is 9.3 mrad.
Threshold	The physical beginning of the runway. Aircraft are typically expected to be 50 ft above ground at this point.



Time Interval (min)	Time step intervals used by the program for analyses. Default is set to analyze for glare at every one-minute interval throughout the year.
Time zone	Time zone difference from Greenwich Mean Time at the location of the analysis.
Tilt of Tracking Axis (deg)	The elevation angle of the tracking axis upon which panels rotate (e.g., torque tube), measured from flat ground. 0 deg implies the axis is on level, flat ground. Values between 0 and 30 deg are typical.
Vary Reflectivity	Varies panel reflectivity with sun position at each time step.
Maximum Downward Viewing Angle (deg)	The angle extending downward from the horizon indicating the maximum downward viewing angle from the cockpit. Used to determine whether glare is visible by the pilot along the flight path. Default is 30 degrees.

Sources:

Ho, Clifford, K., Cianan A. Sims, Julius E. Yellowhair. 2015. Solar Glare Hazard Analysis Tool (SGHAT) Users Manual v. 2H. Sandia National Laboratories.

ForgeSolar – PV Planning & Glare Analysis. https://www.forgesolar.com/

**Source: http://www.3tier.com/en/support/solar-prospecting-tools/what-direct-normal-irradiance-solar-prospecting/



1.0 INTRODUCTION

On behalf of Wood Duck Solar, Stantec utilized the web based ForgeSolar glare hazard analysis program to complete a glare analysis for the Wood Duck Solar Project (Project) to determine the potential for glint/glare from the PV solar panels to affect pilots and airport operations, residents in the area, and drivers passing through. The Project is located in Barren County, Kentucky (**Figure 1**), approximately 5 miles northwest of the City of Glasgow.

ForgeSolar is an interactive tool that provides a quantified assessment of (1) when and where glare will occur throughout the year for a prescribed solar project and (2) potential effects on the human eye at locations where glare occurs. Glare can occur from the reflection of sunlight on the PV solar panels of utility-scale solar-powered electric generating facilities. While PV solar panels absorb direct sunlight, some reflection can occur when the panels are directed close to horizontal, which predominately occurs during sunset and sunrise when the incidence angle of the panels is highest, as depicted in **Figure 2** below.

ForgeSolar employs an interactive Google map for site location, mapping the proposed PV array(s), and specifying observer locations, vehicular travel routes, or flight paths. Latitude, longitude, and elevation are automatically recorded through the Google interface, providing necessary information for sun position and vector calculations. Additional information regarding the orientation and tilt of the PV solar panels, reflectance, environment, and ocular factors are entered by the user.

If glare is found, the tool calculates the retinal irradiance and subtended angle (size/distance) of the glare source to predict potential ocular hazards ranging from temporary after-image to retinal burn. The results are presented in a plot that specifies when glare will occur throughout the year, with color codes indicating the potential ocular hazard.

This glare study analyzes potential glare for pilots of planes landing at one airport and one helipad in the vicinity of the Project area (**Figure 3**). Glare analyses were conducted for drivers of vehicles at 5-ft above ground level (AGL) (cars and small trucks) and 9-ft AGL (semi-truck) viewing heights on 17 road segments adjacent to the PV panels (**Table 1**, **Figures 4-8**).

The analysis also included a determination of potential glare to viewers at 147 residences in the vicinity of the Project using a 16-ft AGL viewing height, which is a conservative viewing height for one and two-story structures (**Figures 4-8**). All airports, roadways, and structures were analyzed using 5-ft AGL panel heights.

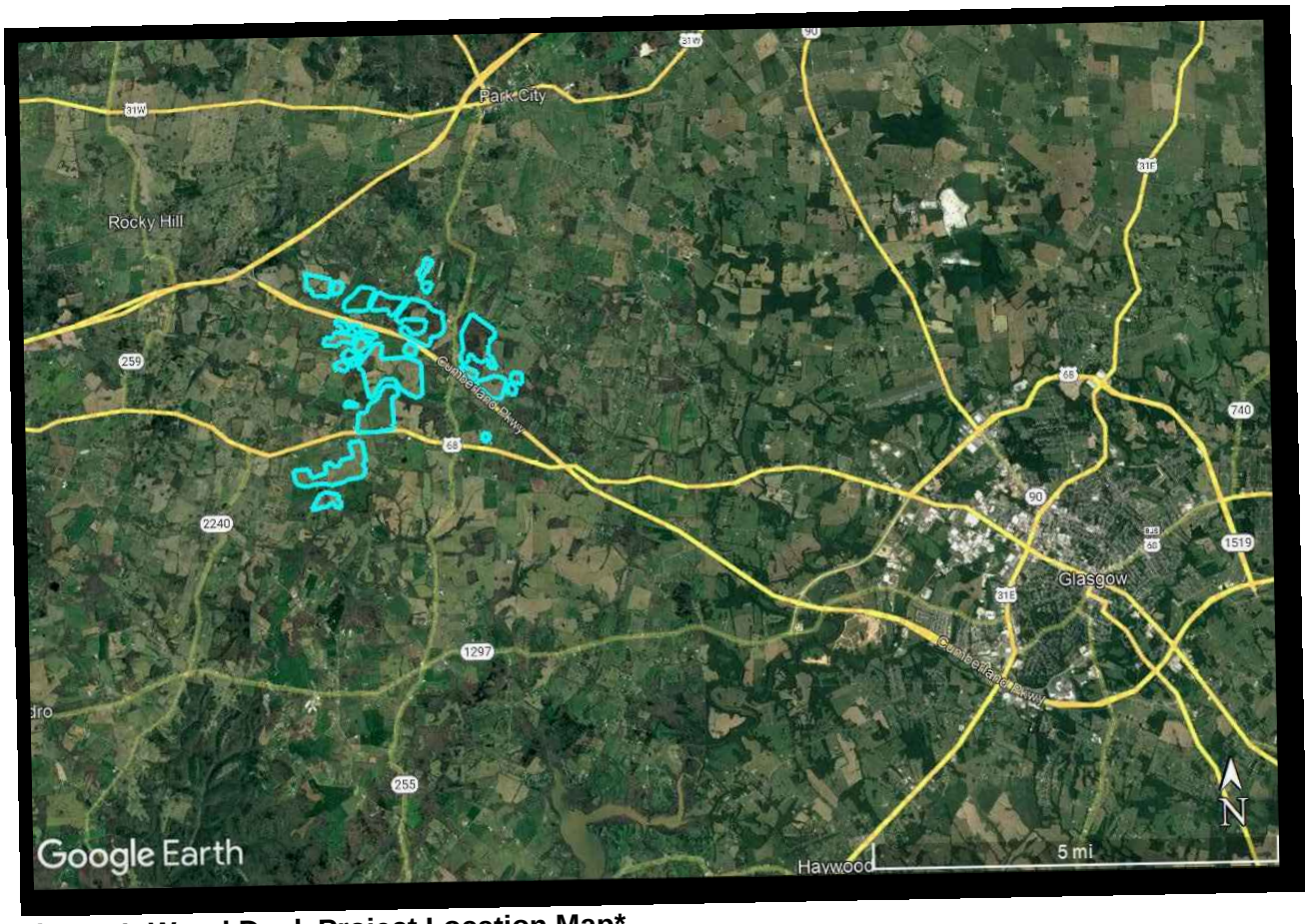


Figure 1. Wood Duck Project Location Map*

***Blue lines represent the PV array. Source: Google Earth Imagery

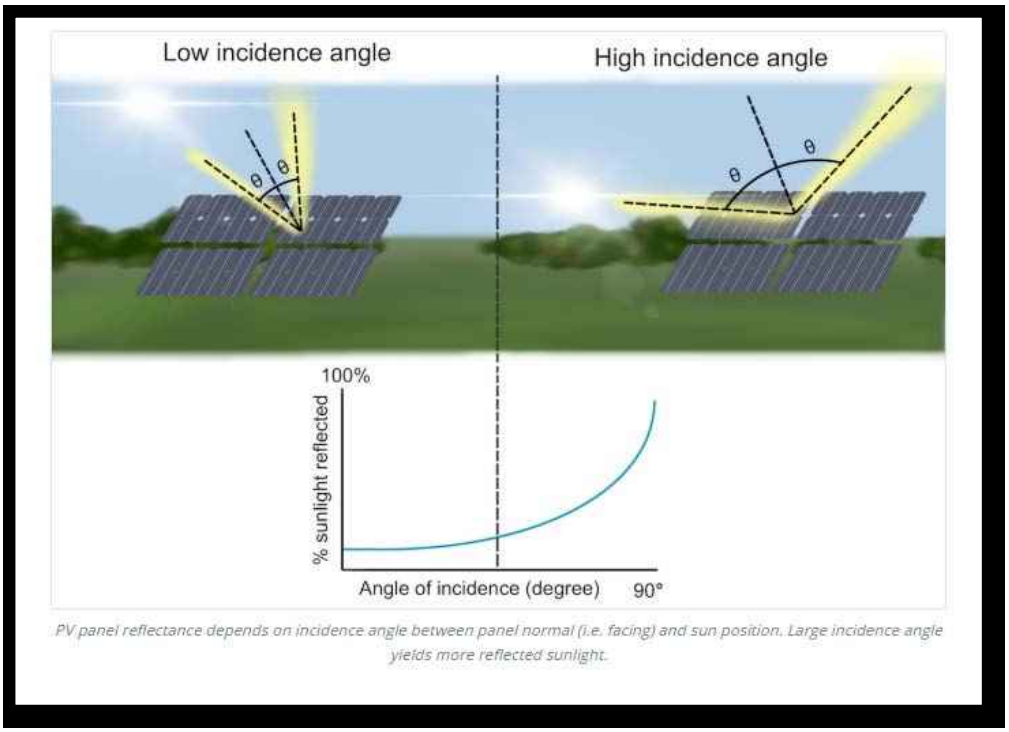


Figure 2. Reflectivity differences between low and high incidence angles.
Source: ForgeSolar.com 2023

Table 1. Road segments included in the glare analysis

Road Segment	Included in Analysis Block
Cumberland Parkway Eastbound	1,2,3,4
Cumberland Parkway Westbound	1,2,3,4
Park City Bon Ayr Road	1,2,4
Millstown Road	1,3,4
R Crump C Bellamy Road	1
Apple Grove Road	1,2
Dripping Springs Road	2
Mayhew Road	2
Disman Road	2
US 68	3,4,5
Oak Grove Church Road	3,4
Payne Loop Road	3
Rick Road	4,5
Fox Chase Street	4
Merry Oaks Railton Road	5
Red Cross Road	5

Road Segment	Included in Analysis Block
Waller Road	5

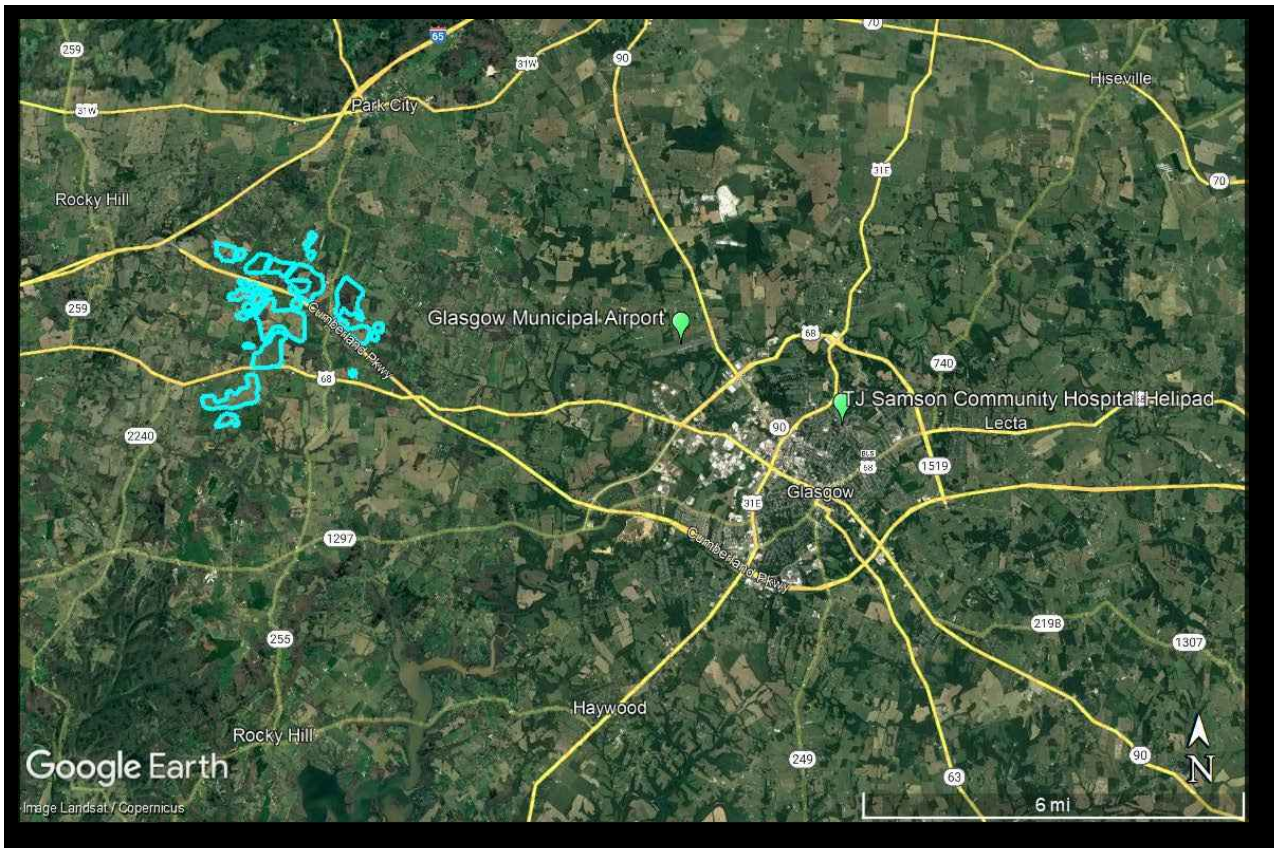


Figure 3. PV Array and analyzed airport and helipad
Source: Google Earth Imagery

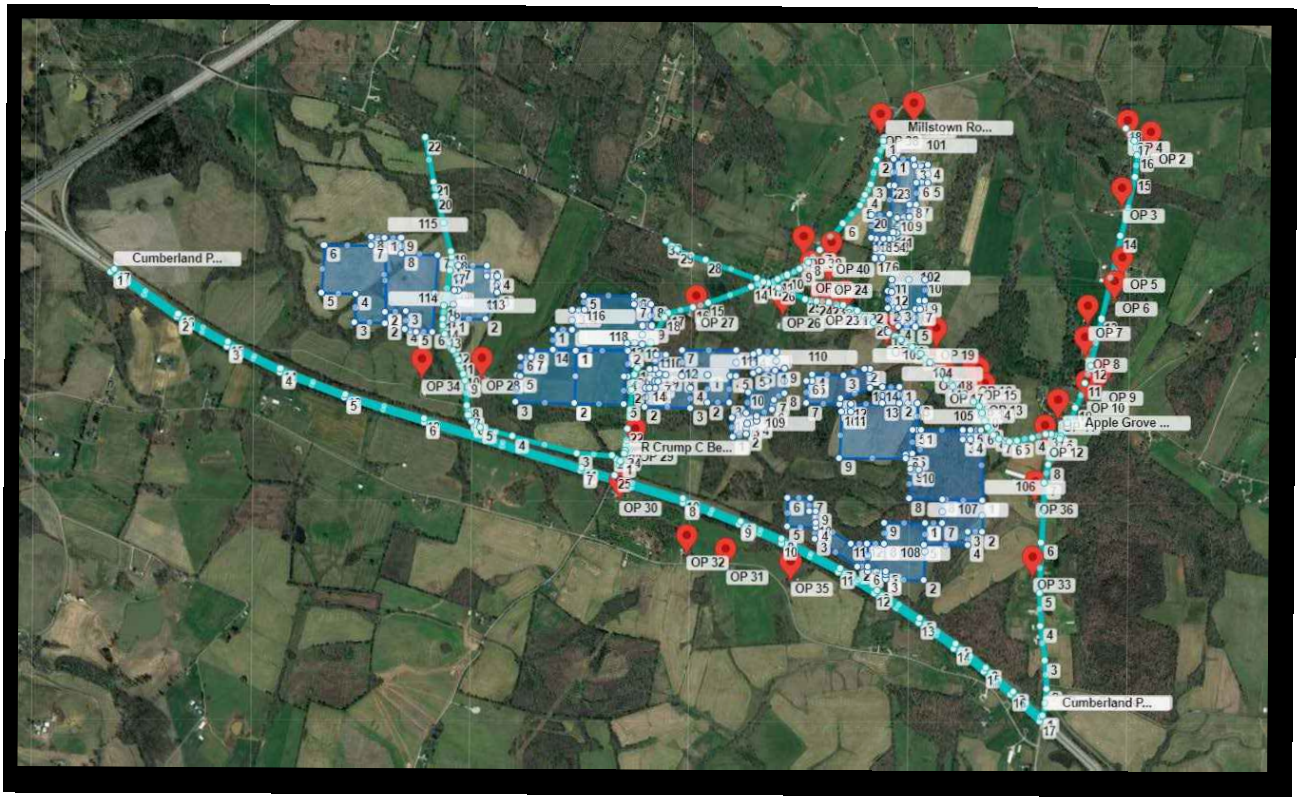


Figure 4. Block 1 analysis area, structures and roadways*
*Red markers indicate structures, turquoise lines indicate roads, and blue polygons indicate PV arrays.
Source: ForgeSolar, Google Earth Imagery.

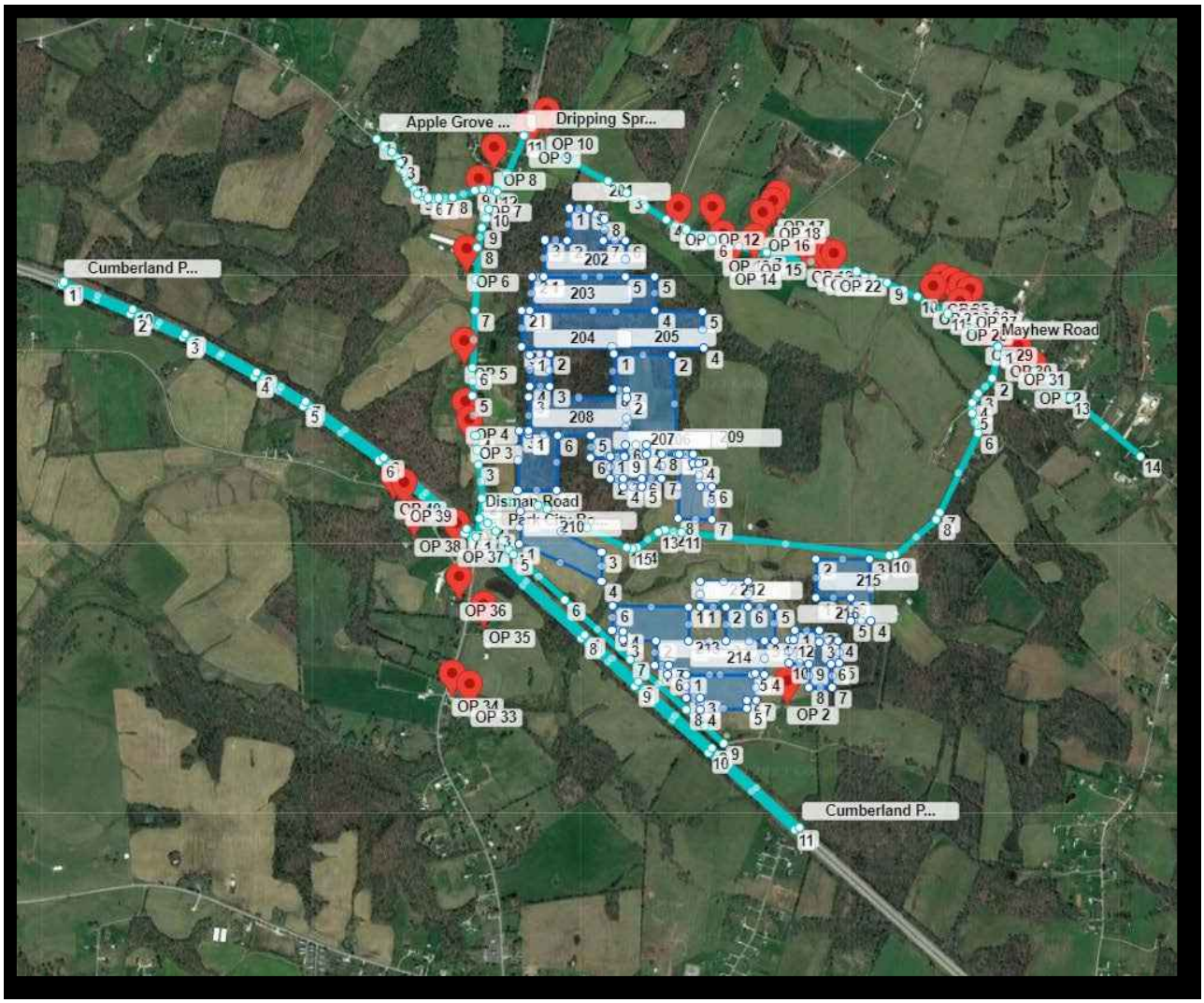


Figure 5. Block 2 analysis area, structures and roadways*
*Red markers indicate structures, turquoise lines indicate roads, and blue polygons indicate PV arrays.
Source: ForgeSolar, Google Earth Imagery.

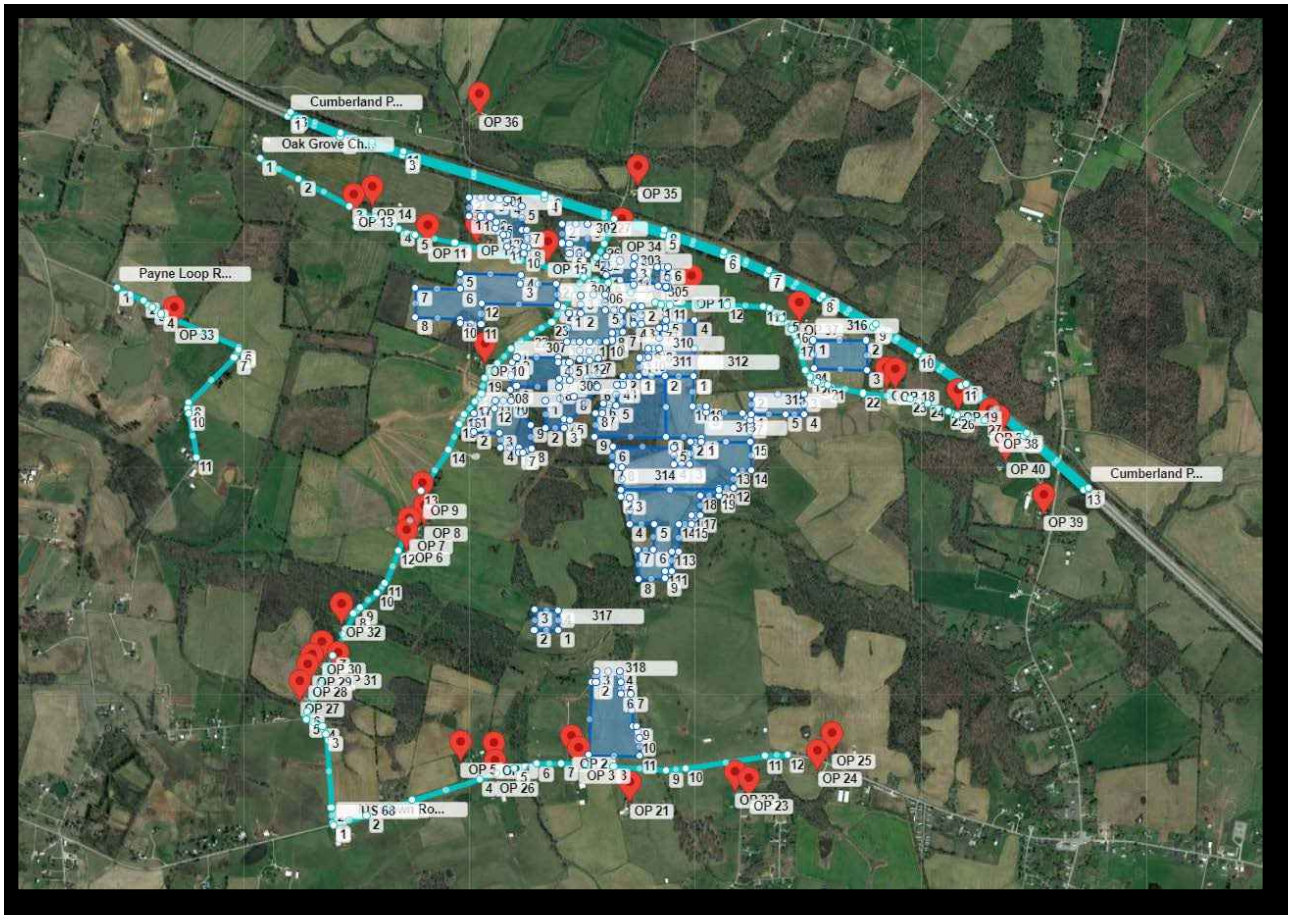


Figure 6. Block 3 analysis area, structures and roadways*
*Red markers indicate structures, turquoise lines indicate roads, and blue polygons indicate PV arrays.
Source: ForgeSolar, Google Earth Imagery.

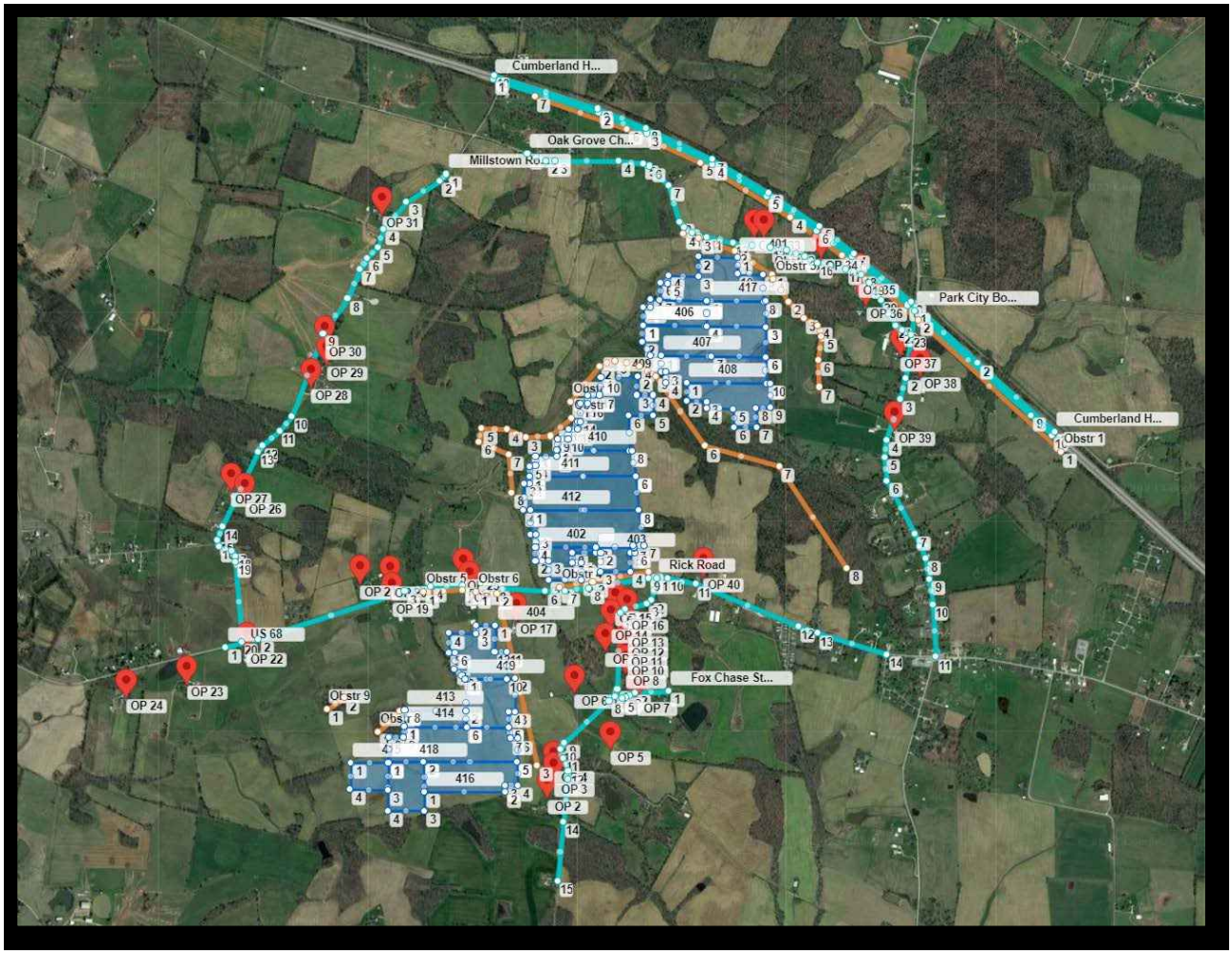


Figure 7. Block 4 analysis area, structures, obstructions and roadways*
*Red markers indicate structures, turquoise lines indicate roads, orange lines indicate obstructions (i.e., trees), and blue polygons indicate PV arrays. Source: ForgeSolar, Google Earth Imagery.

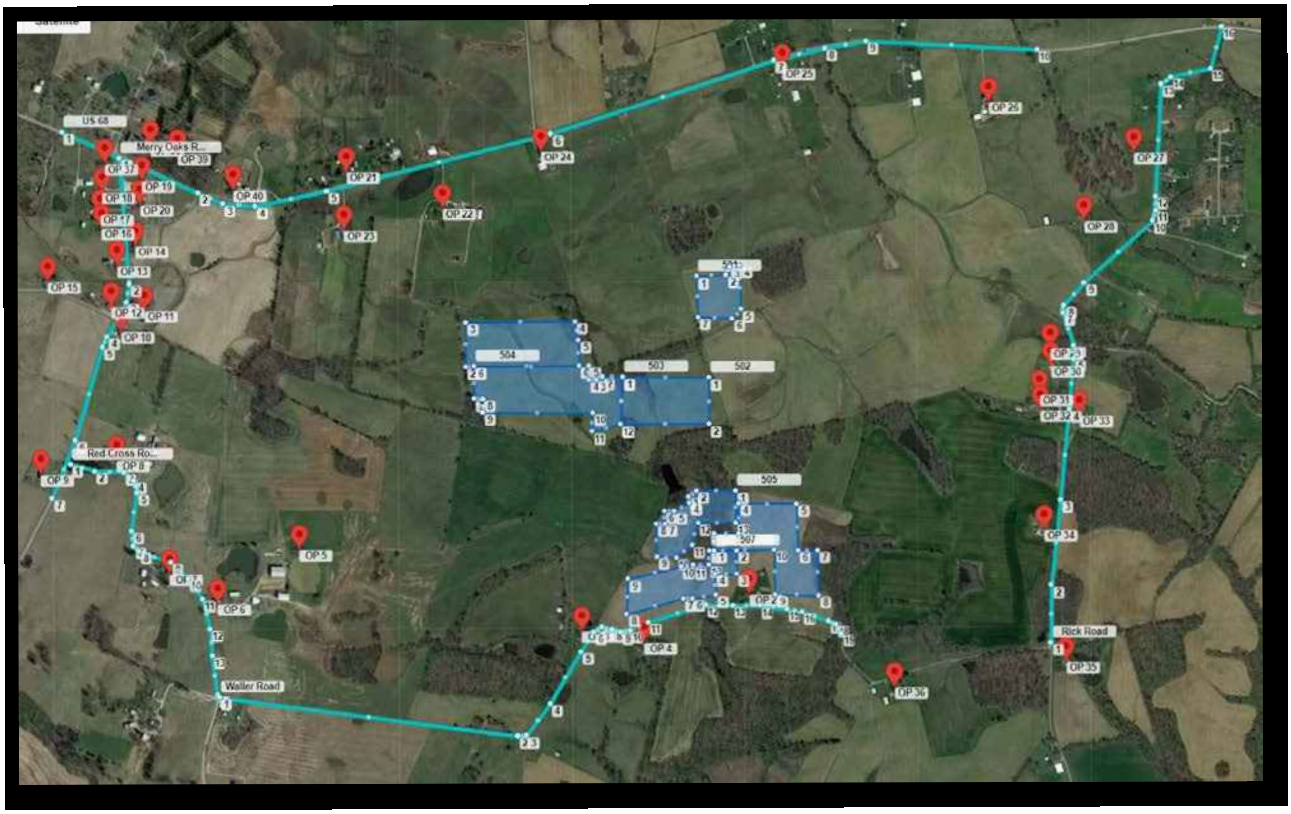


Figure 8. Block 5 analysis area, structures and roadways*
*Red markers indicate structures, turquoise lines indicate roads, and blue polygons indicate PV arrays.
Source: ForgeSolar, Google Earth Imagery.

2.0 DATA INPUT SUMMARY

The parameters used for the analyses are listed in **Table 2** below. "Default" indicates the default parameter value set by ForgeSolar and is generally considered the most conservative value for the parameter. "Chosen" parameters were selected to perform the most conservative analysis with respect to glare potential. "Provided" parameters are Project specific information provided by the client.

2.1 SOLAR ARRAY

The location of the solar array and array parameters used for the analyses are based on information provided by Wood Duck Solar. A detailed description of each parameter is provided in the Glossary.

Table 2: Solar Panel Parameters Used for the Glare Analysis

Parameter	Value Used	Default, Chosen or Provided?
Axis tracking	Single Axis	Provided
Tracking Axis Tilt (deg)	0.0	Provided
Tracking Axis Orientation (deg)	180.0	Provided
Tracking Axis Panel Offset (deg)	0.0	Default
Maximum Tracking Angle (deg)	60.0	Provided
Resting Angle (deg)	60.0	Chosen
Rated Power (kW)	Not Used	NA
Vary reflectivity?	Yes	Default
Panel material	Smooth glass with Anti-Reflective Coating	Provided
Timezone offset	-6	Based on site location
Subtended angle of sun (mrad)	9.3	Default
Peak DNI (W/m^2)	1,000	Default
Ocular transmission coefficient	0.5	Default
Pupil diameter (m)	0.002	Default
Eye focal length (m)	0.017	Default
Time interval (min)	1	Default
Correlate slope error with surface type?	Yes	Default
Slope error (mrad)	8.43	Default

2.2 AIRPORT APPROACH PATHS AND AIR TRAFFIC CONTROL TOWER

One airport and one helipad were included in the glare analyses for this Project. Approach paths were analyzed for both runways in both directions available to pilots. Helicopters were analyzed hovering 500-ft above the helipad since helipads do not have approach paths. This hover location is shown as Observation



Point (OP) 1 in the ForgeSolar output in **Appendix A**. There is no air traffic control tower associated with the airport included in this study.

2.3 ROADWAYS AND PROPERTIES LOCATED ADJACENT TO THE SOLAR ARRAYS

This analysis included potential glare to vehicles travelling on 17 road segments in the vicinity of the Project area (**Table 1**). The ForgeSolar program sets the default viewing angle of the array at 50 degrees from the driver's direct line of sight (when looking forward). The Federal Aviation Administration (FAA) has determined that glare beyond 50 degrees from the line of sight will have no impact on the viewer[1].

Potential glare to drivers was evaluated for both passenger vehicles and semi-trucks, where the passenger vehicles were assumed to have a maximum viewing height of 5-ft AGL while the viewing height for drivers of semi-trucks was assumed to be a maximum of 9-ft AGL. The location of the roadway routes analyzed are shown as blue-green route lines on **Figures 4-8**. Structures, roadways and airports were analyzed for 5-ft panel heights. Potential glare to viewers in 147 structures in the vicinity of the Project was also analyzed at 16-ft AGL viewing heights at the OPs.

Glare is only predicted two be derived from a few of the panels included in Block 4 of this model. As a result, obstructions were added to simulate trees, with a 6-ft height for newly planted trees and a 30-ft height for mature/existing trees. Simulation of proposed and existing trees did reduce the amount of glare slightly but did not completely eliminate glare. The planting plan in **Appendix C**, which includes existing trees, was used to determine placement of the obstructions.

3.0 GLARE ANALYSES RESULTS

The web-based ForgeSolar program was used to analyze glare potential in one-minute increments throughout the year. The program identifies the three following types of glare (no color indicates no glare predicted):

GREEN - Low potential for temporary after-image.
YELLOW - Potential for temporary after-image.
RED - Potential for permanent eye damage.

3.1 AIRPORT APPROACH PATHS

Glare is not predicted for the Glasgow Municipal Airport and the two associated approach paths analyzed or for helicopters hovering 500-ft above the TJ Samson Community Hospital helipad, depicted in **Figure 3**,

[1] Rogers, J. A., et al. (2015). Evaluation of Glare as a Hazard for General Aviation Pilots on Final Approach, Federal Aviation Administration (link)

at any time of the day, any time throughout the year, based on the input parameters described above. Results are shown for each of the approach paths in the ForgeSolar reports in **Appendix A**.

3.2 CONTROL TOWERS

There are no air traffic control towers associated with the airport included in this report and therefore impacts to air traffic controllers are not anticipated.

3.3 ROADWAYS AND PROPERTIES LOCATED ADJACENT TO THE SOLAR ARRAYS

Green glare is predicted for drivers along the one of the 17 road segments analyzed adjacent to the Project area. As shown in the Glare Summary included in **Appendix B**, green glare is predicted for drivers on one road segments for approximately 48 minutes per day maximum, primarily in the late fall and winter months during mid-day hours. Most of the glare predicted for Oak Grove Church Road is predicted for significantly less than 50 minutes per day as shown in the graphics in **Appendix A**.

Green glare is also predicted for four of the 147 structures analyzed at 16-ft viewing heights as shown in **Figures 4-8**. Green glare is predicted for up to 18 minutes per day (October-February) for two of the structures and for 2-5 minutes per day (October and February) for the other two structures. This glare is predicted to occur in the late morning to early afternoon.

4.0 CONCLUSIONS

Based on the solar array parameters provided and the current site design, glare is not predicted from the Project for pilots approaching either runway at the Glasgow Municipal airport or for helicopters hovering over the helipad at the TJ Samson Community Hospital. There is no air traffic control tower associated with the Glasgow Municipal Airport.

The results of the ForgeSolar analysis determined that green glare from the Project is predicted to occur for drivers of vehicles on one of 17 road segments included in the analysis, Oak Grove Church Road. Green glare is also predicted for four of 147 residences that were analyzed within proximity to the Project area for less than 20 minutes per day in the late fall and winter months.

The analysis was completed at two heights for roadways: 5-ft (cars and small trucks) and 9-ft (semi-trucks) viewing heights. All routes and structures were analyzed using 5-ft panel heights. Consideration of trees that may obstruct views of the array reduced but did not eliminate predicted glare from the subarrays in Block 4.

Overall, glare predicted from the project is very minimal and should not prove bothersome to area residents.

APPENDIX A

ForgeSolar Reports

Wood Duck

Block 1 5ft vehicle

Created Apr 26, 2023
Updated Apr 27, 2023
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
Site ID 89180.15739

Project type Advanced
Project status: active
Category 10 MW to 100 MW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

PV Analysis Methodology: **Version 2**
Enhanced subtended angle calculation: **On**

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
101	SA tracking	SA tracking	0	0	-
102	SA tracking	SA tracking	0	0	-
103	SA tracking	SA tracking	0	0	-
104	SA tracking	SA tracking	0	0	-
105	SA tracking	SA tracking	0	0	-
106	SA tracking	SA tracking	0	0	-
107	SA tracking	SA tracking	0	0	-
108	SA tracking	SA tracking	0	0	-
109	SA tracking	SA tracking	0	0	-
110	SA tracking	SA tracking	0	0	-
111	SA tracking	SA tracking	0	0	-
112	SA tracking	SA tracking	0	0	-
113	SA tracking	SA tracking	0	0	-
114	SA tracking	SA tracking	0	0	-
115	SA tracking	SA tracking	0	0	-
116	SA tracking	SA tracking	0	0	-
117	SA tracking	SA tracking	0	0	-
118	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 216.2 acres

Name: 101
Footprint area: 11.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.060192	-86.067809	674.39	5.00	679.39
2	37.060192	-86.066801	688.88	5.00	693.88
3	37.059901	-86.066779	690.63	5.00	695.63
4	37.059927	-86.066076	684.71	5.00	689.71
5	37.059216	-86.066071	700.58	5.00	705.58
6	37.059212	-86.066650	696.61	5.00	701.61
7	37.058377	-86.066640	712.15	5.00	717.15
8	37.058368	-86.066988	710.97	5.00	715.97
9	37.057838	-86.066988	715.27	5.00	720.27
10	37.057829	-86.067584	717.83	5.00	722.83
11	37.057213	-86.067578	720.16	5.00	725.16
12	37.057217	-86.067788	719.29	5.00	724.29
13	37.057003	-86.067788	722.30	5.00	727.30
14	37.057007	-86.067949	721.80	5.00	726.80
15	37.057007	-86.068281	718.14	5.00	723.14
16	37.056215	-86.068297	736.49	5.00	741.49
17	37.056219	-86.068678	733.02	5.00	738.02
18	37.057003	-86.068662	711.82	5.00	716.82
19	37.057011	-86.068909	713.98	5.00	718.98
20	37.057966	-86.068903	710.14	5.00	715.14
21	37.057970	-86.067975	711.47	5.00	716.47
22	37.059122	-86.067981	681.20	5.00	686.20
23	37.059126	-86.067755	686.93	5.00	691.93

Name: 102
Footprint area: 6.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.054888	-86.068037	732.82	5.00	737.82
2	37.054207	-86.068059	742.13	5.00	747.13
3	37.054203	-86.067490	744.45	5.00	749.45
4	37.053484	-86.067495	735.92	5.00	740.92
5	37.053471	-86.066648	726.37	5.00	731.37
6	37.054186	-86.066658	735.49	5.00	740.49
7	37.054190	-86.066444	731.81	5.00	736.81
8	37.054533	-86.066449	731.65	5.00	736.65
9	37.054533	-86.066176	722.46	5.00	727.46
10	37.055363	-86.066154	723.89	5.00	728.89
11	37.055363	-86.067823	728.56	5.00	733.56
12	37.054884	-86.067828	728.32	5.00	733.32

Name: 103
Footprint area: 7.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.051778	-86.068905	733.27	5.00	738.27
2	37.051783	-86.069168	731.94	5.00	736.94
3	37.051522	-86.070241	731.02	5.00	736.02
4	37.051560	-86.071791	734.22	5.00	739.22
5	37.051278	-86.071797	737.59	5.00	742.59
6	37.051278	-86.072097	735.49	5.00	740.49
7	37.050366	-86.072103	726.89	5.00	731.89
8	37.050349	-86.070397	730.25	5.00	735.25
9	37.050571	-86.070391	733.23	5.00	738.23
10	37.050999	-86.068895	769.51	5.00	774.51

Name: 104
Footprint area: 20.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.051016	-86.067398	736.88	5.00	741.88
2	37.050417	-86.067403	739.29	5.00	744.29
3	37.050408	-86.066518	741.11	5.00	746.11
4	37.049325	-86.066513	773.06	5.00	778.06
5	37.049317	-86.066706	762.50	5.00	767.50
6	37.048388	-86.066738	748.85	5.00	753.85
7	37.048371	-86.067060	742.25	5.00	747.25
8	37.048204	-86.067082	741.21	5.00	746.21
9	37.048186	-86.070418	721.49	5.00	726.49
10	37.050053	-86.070322	719.04	5.00	724.04
11	37.050053	-86.069850	725.28	5.00	730.28
12	37.050340	-86.069860	739.02	5.00	744.02
13	37.050370	-86.068272	742.48	5.00	747.48
14	37.051025	-86.068251	752.49	5.00	757.49

Name: 105
Footprint area: 21.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.049325	-86.066336	783.19	5.00	788.19
2	37.049325	-86.064233	781.28	5.00	786.28
3	37.048949	-86.064217	788.33	5.00	793.33
4	37.048944	-86.063863	755.64	5.00	760.64
5	37.049334	-86.063863	759.72	5.00	764.72
6	37.049325	-86.063273	758.53	5.00	763.53
7	37.046504	-86.063187	756.81	5.00	761.81
8	37.046564	-86.066904	736.42	5.00	741.42
9	37.047763	-86.066851	737.62	5.00	742.62
10	37.047754	-86.066416	748.11	5.00	753.11

Name: 106
Footprint area: 9.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.046508	-86.063187	757.02	5.00	762.02
2	37.045249	-86.063208	733.97	5.00	738.97
3	37.045258	-86.063916	738.69	5.00	743.69
4	37.044714	-86.063916	730.91	5.00	735.91
5	37.044723	-86.066105	740.90	5.00	745.90
6	37.045583	-86.066078	755.32	5.00	760.32
7	37.045570	-86.065236	787.68	5.00	792.68
8	37.046534	-86.065220	797.66	5.00	802.66

Name: 107
Footprint area: 12.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.045583	-86.066089	755.13	5.00	760.13
2	37.043322	-86.066105	722.60	5.00	727.60
3	37.043348	-86.068074	726.69	5.00	731.69
4	37.043537	-86.068074	731.31	5.00	736.31
5	37.043656	-86.068074	734.10	5.00	739.10
6	37.043652	-86.068964	733.35	5.00	738.35
7	37.044765	-86.068964	732.37	5.00	737.37
8	37.044753	-86.068133	738.81	5.00	743.81
9	37.045609	-86.068122	737.35	5.00	742.35

Name: 108
Footprint area: 8.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043849	-86.068964	733.14	5.00	738.14
2	37.043849	-86.069479	730.33	5.00	735.33
3	37.044971	-86.071609	733.42	5.00	738.42
4	37.045412	-86.071588	728.13	5.00	733.13
5	37.045450	-86.072988	707.21	5.00	712.21
6	37.046564	-86.072993	694.16	5.00	699.16
7	37.046564	-86.071845	699.94	5.00	704.94
8	37.046054	-86.071861	710.05	5.00	715.05
9	37.046050	-86.071582	708.60	5.00	713.60
10	37.045626	-86.071582	723.74	5.00	728.74
11	37.044774	-86.069817	727.96	5.00	732.96
12	37.044770	-86.068986	732.18	5.00	737.18

Name: 109
Footprint area: 6.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.049013	-86.075788	678.15	5.00	683.15
2	37.049141	-86.075101	680.55	5.00	685.55
3	37.049556	-86.075058	686.33	5.00	691.33
4	37.049651	-86.074592	692.98	5.00	697.98
5	37.049882	-86.074565	696.07	5.00	701.07
6	37.050147	-86.073814	704.21	5.00	709.21
7	37.050507	-86.073739	710.07	5.00	715.07
8	37.050790	-86.073192	721.04	5.00	726.04
9	37.051736	-86.073202	703.06	5.00	708.06
10	37.050815	-86.075026	678.56	5.00	683.56
11	37.049959	-86.075096	687.99	5.00	692.99
12	37.049813	-86.075826	681.04	5.00	686.04

Name: 110
Footprint area: 2.0 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.051688	-86.073664	694.83	5.00	699.83
2	37.052422	-86.073627	717.58	5.00	722.58
3	37.052448	-86.074493	704.38	5.00	709.38
4	37.052351	-86.074735	694.28	5.00	699.28
5	37.051579	-86.074756	688.89	5.00	693.89
6	37.051677	-86.074466	694.66	5.00	699.66

Name: 111
Footprint area: 9.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.051503	-86.077049	702.37	5.00	707.37
2	37.050377	-86.077076	678.28	5.00	683.28
3	37.050366	-86.075947	680.22	5.00	685.22
4	37.051490	-86.075920	696.54	5.00	701.54
5	37.051484	-86.075611	696.39	5.00	701.39
6	37.052516	-86.075606	708.99	5.00	713.99
7	37.052507	-86.078339	707.80	5.00	712.80
8	37.051488	-86.078339	699.49	5.00	704.49

Name: 112
Footprint area: 5.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.050972	-86.080160	673.51	5.00	678.51
2	37.050206	-86.080182	662.08	5.00	667.08
3	37.050182	-86.077878	669.76	5.00	674.76
4	37.050957	-86.077872	685.46	5.00	690.46
5	37.050970	-86.079683	674.08	5.00	679.08
6	37.051248	-86.079667	680.92	5.00	685.92
7	37.051244	-86.079501	677.93	5.00	682.93
8	37.051533	-86.079484	691.85	5.00	696.85
9	37.051524	-86.079125	686.21	5.00	691.21
10	37.052308	-86.079109	706.19	5.00	711.19
11	37.052314	-86.079645	715.40	5.00	720.40
12	37.051717	-86.079686	700.71	5.00	705.71
13	37.051726	-86.079948	698.80	5.00	703.80
14	37.050970	-86.079954	675.30	5.00	680.30

Name: 113
Footprint area: 9.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.053704	-86.089857	670.21	5.00	675.21
2	37.053721	-86.088204	677.81	5.00	682.81
3	37.054757	-86.087636	677.17	5.00	682.17
4	37.055433	-86.087625	679.83	5.00	684.83
5	37.055433	-86.088140	670.13	5.00	675.13
6	37.055818	-86.088151	672.55	5.00	677.55
7	37.055827	-86.089610	664.21	5.00	669.21
8	37.054877	-86.089610	681.80	5.00	686.80
9	37.054859	-86.089781	679.72	5.00	684.72

Name: 114
Footprint area: 17.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.053972	-86.093259	664.99	5.00	669.99
2	37.053963	-86.093248	664.96	5.00	669.96
3	37.053997	-86.092208	675.48	5.00	680.48
4	37.053278	-86.092240	640.15	5.00	645.15
5	37.053175	-86.091714	644.41	5.00	649.41
6	37.053193	-86.090899	657.11	5.00	662.11
7	37.056284	-86.090641	671.63	5.00	676.63
8	37.056309	-86.092444	669.39	5.00	674.39
9	37.056951	-86.092454	665.70	5.00	670.70
10	37.056960	-86.093281	661.73	5.00	666.73

Name: 115
Footprint area: 19.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.056960	-86.093270	661.81	5.00	666.81
2	37.053526	-86.093238	656.54	5.00	661.54
3	37.053578	-86.094772	634.19	5.00	639.19
4	37.054691	-86.094750	647.80	5.00	652.80
5	37.054734	-86.096456	621.60	5.00	626.60
6	37.056652	-86.096349	624.69	5.00	629.69
7	37.056652	-86.093989	650.65	5.00	655.65
8	37.056986	-86.093978	650.81	5.00	655.81

Name: 116
Footprint area: 19.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.053285	-86.084820	666.63	5.00	671.63
2	37.053277	-86.083833	676.60	5.00	681.60
3	37.054065	-86.083854	682.09	5.00	687.09
4	37.054082	-86.083264	694.53	5.00	699.53
5	37.054664	-86.083297	685.44	5.00	690.44
6	37.054647	-86.080759	710.38	5.00	715.38
7	37.054326	-86.080743	714.46	5.00	719.46
8	37.054321	-86.079896	714.30	5.00	719.30
9	37.053457	-86.079874	726.82	5.00	731.82
10	37.053461	-86.080346	728.31	5.00	733.31
11	37.052725	-86.080346	716.90	5.00	721.90
12	37.052746	-86.081081	715.64	5.00	720.64
13	37.052489	-86.081081	713.63	5.00	718.63
14	37.052502	-86.084815	672.33	5.00	677.33

Name: 117
Footprint area: 13.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.052478	-86.083651	685.79	5.00	690.79
2	37.052469	-86.081071	713.13	5.00	718.13
3	37.051412	-86.081076	684.01	5.00	689.01
4	37.051407	-86.081237	686.47	5.00	691.47
5	37.050320	-86.081237	659.49	5.00	664.49
6	37.050333	-86.083732	668.37	5.00	673.37



Name: 118
Footprint area: 14.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.052473	-86.083657	685.44	5.00	690.44
2	37.050350	-86.083727	669.13	5.00	674.13
3	37.050371	-86.086688	643.14	5.00	648.14
4	37.051463	-86.086623	663.95	5.00	668.95
5	37.051454	-86.086425	665.73	5.00	670.73
6	37.052212	-86.086425	658.71	5.00	663.71
7	37.052195	-86.085888	667.48	5.00	672.48
8	37.052486	-86.085867	659.39	5.00	664.39



2-Mile Flight Path Receptor(s)

Name: Glasgow Municipal Airport Runway 26
Description:
Threshold height : 50 ft
Direction: 252.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.033844	-85.946199	714.75	50.00	764.75
2-mile point	37.042702	-85.911682	732.56	585.62	1318.18



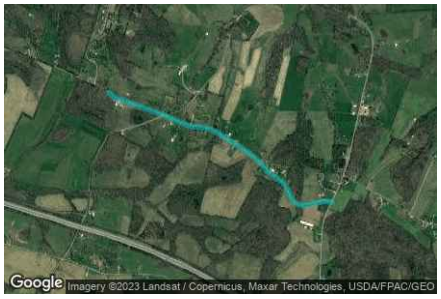
Name: Glasgow Municipal Airport Runway 8
Description:
Threshold height : 50 ft
Direction: 70.5 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.029484	-85.962314	707.66	50.00	757.66
2-mile point	37.019838	-85.996495	701.55	609.54	1311.09



Route Receptor(s)

Name: Apple Grove Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.049113	-86.059294	766.85	5.00	771.85
2	37.049193	-86.059755	771.55	5.00	776.55
3	37.049182	-86.060077	773.15	5.00	778.15
4	37.049058	-86.060713	770.53	5.00	775.53
5	37.048919	-86.061472	760.34	5.00	765.34
6	37.048884	-86.061893	753.94	5.00	758.94
7	37.048961	-86.062379	748.72	5.00	753.72
8	37.049139	-86.062684	755.77	5.00	760.77
9	37.049443	-86.062969	758.73	5.00	763.73
10	37.050008	-86.063261	757.49	5.00	762.49
11	37.050271	-86.063425	761.61	5.00	766.61
12	37.050479	-86.063658	760.41	5.00	765.41
13	37.051102	-86.064728	749.15	5.00	754.15
14	37.051350	-86.065096	744.41	5.00	749.41
15	37.052012	-86.065866	740.01	5.00	745.01
16	37.052369	-86.066364	739.36	5.00	744.36
17	37.052648	-86.066799	737.66	5.00	742.66
18	37.052941	-86.067349	737.97	5.00	742.97
19	37.053249	-86.067968	737.78	5.00	742.78
20	37.053639	-86.068760	730.95	5.00	735.95
21	37.054080	-86.069562	730.20	5.00	735.20
22	37.054315	-86.070297	732.00	5.00	737.00
23	37.054426	-86.070983	728.95	5.00	733.95
24	37.054469	-86.071619	728.15	5.00	733.15
25	37.054574	-86.072179	726.25	5.00	731.25
26	37.055015	-86.073515	727.27	5.00	732.27
27	37.055381	-86.074639	730.25	5.00	735.25
28	37.056117	-86.077203	724.30	5.00	729.30
29	37.056498	-86.078609	720.67	5.00	725.67
30	37.056865	-86.079215	721.43	5.00	726.43

Name: Cumberland Parkway Eastbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.055543	-86.107021	636.32	5.00	641.32
2	37.053745	-86.103705	661.28	5.00	666.28
3	37.052563	-86.101163	669.26	5.00	674.26
4	37.051536	-86.098502	665.21	5.00	670.21
5	37.050542	-86.095262	659.27	5.00	664.27
6	37.049549	-86.091271	659.29	5.00	664.29
7	37.047631	-86.083353	682.24	5.00	687.24
8	37.046372	-86.078235	725.16	5.00	730.16
9	37.045525	-86.075424	730.89	5.00	735.89
10	37.044779	-86.073300	726.90	5.00	731.90
11	37.043641	-86.070392	721.53	5.00	726.53
12	37.042776	-86.068601	718.54	5.00	723.54
13	37.041628	-86.066391	728.45	5.00	733.45
14	37.040600	-86.064577	742.40	5.00	747.40
15	37.039658	-86.063086	743.77	5.00	748.77
16	37.038776	-86.061756	743.53	5.00	748.53
17	37.037689	-86.060232	743.33	5.00	748.33

Name: Cumberland Parkway Westbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037886	-86.060211	743.65	5.00	748.65
2	37.038871	-86.061605	743.44	5.00	748.44
3	37.039821	-86.062968	744.78	5.00	749.78
4	37.040746	-86.064470	743.98	5.00	748.98
5	37.041782	-86.066273	729.30	5.00	734.30
6	37.042913	-86.068493	718.64	5.00	723.64
7	37.043765	-86.070328	723.11	5.00	728.11
8	37.044976	-86.073278	727.38	5.00	732.38
9	37.045670	-86.075349	730.91	5.00	735.91
10	37.046552	-86.078203	725.50	5.00	730.50
11	37.047794	-86.083321	681.04	5.00	686.04
12	37.049720	-86.091249	659.37	5.00	664.37
13	37.050671	-86.095219	659.11	5.00	664.11
14	37.051690	-86.098459	665.27	5.00	670.27
15	37.052734	-86.101130	668.95	5.00	673.95
16	37.053890	-86.103641	661.05	5.00	666.05
17	37.055646	-86.106838	638.97	5.00	643.97

Name: Millstown Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.060884	-86.068319	660.82	5.00	665.82
2	37.060126	-86.068640	667.53	5.00	672.53
3	37.059163	-86.068968	695.01	5.00	700.01
4	37.058722	-86.069198	699.12	5.00	704.12
5	37.058324	-86.069472	710.62	5.00	715.62
6	37.057618	-86.070336	714.88	5.00	719.88
7	37.056513	-86.071500	701.38	5.00	706.38
8	37.056042	-86.072036	720.28	5.00	725.28
9	37.055773	-86.072460	715.53	5.00	720.53
10	37.055516	-86.073077	715.04	5.00	720.04
11	37.055362	-86.073554	724.49	5.00	729.49
12	37.055216	-86.074010	732.32	5.00	737.32
13	37.055238	-86.074262	731.61	5.00	736.61
14	37.055032	-86.074863	724.50	5.00	729.50
15	37.054390	-86.077046	718.38	5.00	723.38
16	37.054202	-86.077814	726.69	5.00	731.69
17	37.053966	-86.079037	721.09	5.00	726.09
18	37.053821	-86.079246	723.60	5.00	728.60
19	37.051770	-86.080565	689.86	5.00	694.86
20	37.051496	-86.080700	684.42	5.00	689.42
21	37.050909	-86.080839	671.34	5.00	676.34
22	37.049312	-86.081043	671.29	5.00	676.29
23	37.048452	-86.081161	679.68	5.00	684.68
24	37.048319	-86.081198	681.40	5.00	686.40
25	37.047471	-86.081676	687.56	5.00	692.56

Name: Park City Bon Ayr Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037903	-86.060125	747.85	5.00	752.85
2	37.038982	-86.059953	756.39	5.00	761.39
3	37.040104	-86.060028	756.22	5.00	761.22
4	37.041508	-86.060254	770.75	5.00	775.75
5	37.042801	-86.060329	762.84	5.00	767.84
6	37.044822	-86.060254	762.04	5.00	767.04
7	37.047246	-86.060103	749.65	5.00	754.65
8	37.047948	-86.059942	751.67	5.00	756.67
9	37.048975	-86.059352	763.66	5.00	768.66
10	37.050260	-86.058558	772.87	5.00	777.87
11	37.051236	-86.058097	764.24	5.00	769.24
12	37.051921	-86.057829	745.11	5.00	750.11
13	37.053796	-86.057303	723.34	5.00	728.34
14	37.057127	-86.056370	693.49	5.00	698.49
15	37.059490	-86.055705	670.94	5.00	675.94
16	37.060372	-86.055576	697.73	5.00	702.73
17	37.060945	-86.055715	715.92	5.00	720.92
18	37.061459	-86.056144	717.32	5.00	722.32

Name: R Crump C Bellamy Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.048054	-86.081402	678.48	5.00	683.48
2	37.048268	-86.081842	671.15	5.00	676.15
3	37.048349	-86.083607	672.99	5.00	677.99
4	37.049000	-86.086794	658.89	5.00	663.89
5	37.049381	-86.088457	660.81	5.00	665.81
6	37.049591	-86.088854	658.77	5.00	663.77
7	37.049852	-86.089031	653.35	5.00	658.35
8	37.050233	-86.089127	640.52	5.00	645.52
9	37.051230	-86.089197	638.23	5.00	643.23
10	37.051500	-86.089283	640.94	5.00	645.94
11	37.052052	-86.089572	642.26	5.00	647.26
12	37.052455	-86.089808	642.63	5.00	647.63
13	37.053071	-86.090254	654.32	5.00	659.32
14	37.053431	-86.090366	668.75	5.00	673.75
15	37.053701	-86.090382	678.07	5.00	683.07
16	37.054244	-86.090297	683.40	5.00	688.40
17	37.055653	-86.090028	666.28	5.00	671.28
18	37.056175	-86.089942	662.57	5.00	667.57
19	37.056398	-86.089964	658.56	5.00	663.56
20	37.058650	-86.090747	652.78	5.00	657.78
21	37.059172	-86.090897	669.54	5.00	674.54
22	37.060953	-86.091327	667.19	5.00	672.19

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	37.011816	-85.904852	831.81	500.00	1331.81
OP 2	37.060481	-86.054912	706.39	16.00	722.39
OP 3	37.058276	-86.056317	681.01	16.00	697.01
OP 4	37.060950	-86.056097	717.72	16.00	733.72
OP 5	37.055491	-86.056306	714.87	16.00	730.87
OP 6	37.054519	-86.056698	730.11	16.00	746.11
OP 7	37.053521	-86.058012	734.81	16.00	750.81
OP 8	37.052271	-86.058130	748.59	16.00	764.59
OP 9	37.050961	-86.057320	766.40	16.00	782.40
OP 10	37.050529	-86.058044	777.61	16.00	793.61
OP 11	37.049762	-86.059460	778.92	16.00	794.92
OP 12	37.048743	-86.060104	769.74	16.00	785.74
OP 13	37.050404	-86.063156	767.86	16.00	783.86
OP 14	37.050238	-86.063763	762.53	16.00	778.53
OP 15	37.051017	-86.063441	767.19	16.00	783.19
OP 16	37.051184	-86.063704	761.41	16.00	777.41
OP 17	37.050863	-86.065114	751.66	16.00	767.66
OP 18	37.051402	-86.065683	752.57	16.00	768.57
OP 19	37.052618	-86.065592	746.94	16.00	762.94
OP 20	37.052759	-86.068108	744.22	16.00	760.22
OP 21	37.054029	-86.070908	738.56	16.00	754.56
OP 22	37.054071	-86.070192	734.63	16.00	750.63
OP 23	37.053971	-86.071412	739.38	16.00	755.38
OP 24	37.055202	-86.070966	740.17	16.00	756.17
OP 25	37.055287	-86.071899	734.62	16.00	750.62
OP 26	37.053874	-86.073321	731.49	16.00	747.49
OP 27	37.053864	-86.077649	735.53	16.00	751.53
OP 28	37.051328	-86.088383	657.38	16.00	673.38
OP 29	37.048539	-86.080661	687.09	16.00	703.09
OP 30	37.046493	-86.081439	701.17	16.00	717.17
OP 31	37.043720	-86.076072	735.07	16.00	751.07
OP 32	37.044272	-86.078060	740.33	16.00	756.33
OP 33	37.043446	-86.060683	767.77	16.00	783.77
OP 34	37.051295	-86.091385	673.75	16.00	689.75
OP 35	37.043270	-86.072800	737.71	16.00	753.71
OP 36	37.046460	-86.060576	768.45	16.00	784.45
OP 37	37.061617	-86.066793	680.64	16.00	696.64
OP 38	37.061176	-86.068477	661.59	16.00	677.59
OP 39	37.056279	-86.072313	716.38	16.00	732.38
OP 40	37.056048	-86.070865	725.34	16.00	741.34

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
101	SA tracking	SA tracking	0	0	-	-
102	SA tracking	SA tracking	0	0	-	-
103	SA tracking	SA tracking	0	0	-	-
104	SA tracking	SA tracking	0	0	-	-
105	SA tracking	SA tracking	0	0	-	-
106	SA tracking	SA tracking	0	0	-	-
107	SA tracking	SA tracking	0	0	-	-
108	SA tracking	SA tracking	0	0	-	-
109	SA tracking	SA tracking	0	0	-	-
110	SA tracking	SA tracking	0	0	-	-
111	SA tracking	SA tracking	0	0	-	-
112	SA tracking	SA tracking	0	0	-	-
113	SA tracking	SA tracking	0	0	-	-
114	SA tracking	SA tracking	0	0	-	-
115	SA tracking	SA tracking	0	0	-	-
116	SA tracking	SA tracking	0	0	-	-
117	SA tracking	SA tracking	0	0	-	-
118	SA tracking	SA tracking	0	0	-	-

PV & Receptor Analysis Results

Results for each PV array and receptor

101 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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102 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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103 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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104 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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105 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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106 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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107 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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108 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

109 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

110 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

111 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

112 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

113 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

114 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

115 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

116 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

117 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

118 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographi obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

Wood Duck

Block 1 9ft vehicle

Created Apr 26, 2023
Updated Apr 27, 2023
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
Site ID 89197.15739

Project type Advanced
Project status: active
Category 10 MW to 100 MW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

PV Analysis Methodology: **Version 2**
Enhanced subtended angle calculation: **On**

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
101	SA tracking	SA tracking	0	0	-
102	SA tracking	SA tracking	0	0	-
103	SA tracking	SA tracking	0	0	-
104	SA tracking	SA tracking	0	0	-
105	SA tracking	SA tracking	0	0	-
106	SA tracking	SA tracking	0	0	-
107	SA tracking	SA tracking	0	0	-
108	SA tracking	SA tracking	0	0	-
109	SA tracking	SA tracking	0	0	-
110	SA tracking	SA tracking	0	0	-
111	SA tracking	SA tracking	0	0	-
112	SA tracking	SA tracking	0	0	-
113	SA tracking	SA tracking	0	0	-
114	SA tracking	SA tracking	0	0	-
115	SA tracking	SA tracking	0	0	-
116	SA tracking	SA tracking	0	0	-
117	SA tracking	SA tracking	0	0	-
118	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 216.2 acres

Name: 101
Footprint area: 11.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.060192	-86.067809	674.39	5.00	679.39
2	37.060192	-86.066801	688.88	5.00	693.88
3	37.059901	-86.066779	690.63	5.00	695.63
4	37.059927	-86.066076	684.71	5.00	689.71
5	37.059216	-86.066071	700.58	5.00	705.58
6	37.059212	-86.066650	696.61	5.00	701.61
7	37.058377	-86.066640	712.15	5.00	717.15
8	37.058368	-86.066988	710.97	5.00	715.97
9	37.057838	-86.066988	715.27	5.00	720.27
10	37.057829	-86.067584	717.83	5.00	722.83
11	37.057213	-86.067578	720.16	5.00	725.16
12	37.057217	-86.067788	719.29	5.00	724.29
13	37.057003	-86.067788	722.30	5.00	727.30
14	37.057007	-86.067949	721.80	5.00	726.80
15	37.057007	-86.068281	718.14	5.00	723.14
16	37.056215	-86.068297	736.49	5.00	741.49
17	37.056219	-86.068678	733.02	5.00	738.02
18	37.057003	-86.068662	711.82	5.00	716.82
19	37.057011	-86.068909	713.98	5.00	718.98
20	37.057966	-86.068903	710.14	5.00	715.14
21	37.057970	-86.067975	711.47	5.00	716.47
22	37.059122	-86.067981	681.20	5.00	686.20
23	37.059126	-86.067755	686.93	5.00	691.93

Name: 102
Footprint area: 6.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.054888	-86.068037	732.82	5.00	737.82
2	37.054207	-86.068059	742.13	5.00	747.13
3	37.054203	-86.067490	744.45	5.00	749.45
4	37.053484	-86.067495	735.92	5.00	740.92
5	37.053471	-86.066648	726.37	5.00	731.37
6	37.054186	-86.066658	735.49	5.00	740.49
7	37.054190	-86.066444	731.81	5.00	736.81
8	37.054533	-86.066449	731.65	5.00	736.65
9	37.054533	-86.066176	722.46	5.00	727.46
10	37.055363	-86.066154	723.89	5.00	728.89
11	37.055363	-86.067823	728.56	5.00	733.56
12	37.054884	-86.067828	728.32	5.00	733.32

Name: 103
Footprint area: 7.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.051778	-86.068905	733.27	5.00	738.27
2	37.051783	-86.069168	731.94	5.00	736.94
3	37.051522	-86.070241	731.02	5.00	736.02
4	37.051560	-86.071791	734.22	5.00	739.22
5	37.051278	-86.071797	737.59	5.00	742.59
6	37.051278	-86.072097	735.49	5.00	740.49
7	37.050366	-86.072103	726.89	5.00	731.89
8	37.050349	-86.070397	730.25	5.00	735.25
9	37.050571	-86.070391	733.23	5.00	738.23
10	37.050999	-86.068895	769.51	5.00	774.51

Name: 104
Footprint area: 20.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.051016	-86.067398	736.88	5.00	741.88
2	37.050417	-86.067403	739.29	5.00	744.29
3	37.050408	-86.066518	741.11	5.00	746.11
4	37.049325	-86.066513	773.06	5.00	778.06
5	37.049317	-86.066706	762.50	5.00	767.50
6	37.048388	-86.066738	748.85	5.00	753.85
7	37.048371	-86.067060	742.25	5.00	747.25
8	37.048204	-86.067082	741.21	5.00	746.21
9	37.048186	-86.070418	721.49	5.00	726.49
10	37.050053	-86.070322	719.04	5.00	724.04
11	37.050053	-86.069850	725.28	5.00	730.28
12	37.050340	-86.069860	739.02	5.00	744.02
13	37.050370	-86.068272	742.48	5.00	747.48
14	37.051025	-86.068251	752.49	5.00	757.49

Name: 105
Footprint area: 21.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.049325	-86.066336	783.19	5.00	788.19
2	37.049325	-86.064233	781.28	5.00	786.28
3	37.048949	-86.064217	788.33	5.00	793.33
4	37.048944	-86.063863	755.64	5.00	760.64
5	37.049334	-86.063863	759.72	5.00	764.72
6	37.049325	-86.063273	758.53	5.00	763.53
7	37.046504	-86.063187	756.81	5.00	761.81
8	37.046564	-86.066904	736.42	5.00	741.42
9	37.047763	-86.066851	737.62	5.00	742.62
10	37.047754	-86.066416	748.11	5.00	753.11

Name: 106
Footprint area: 9.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.046508	-86.063187	757.02	5.00	762.02
2	37.045249	-86.063208	733.97	5.00	738.97
3	37.045258	-86.063916	738.69	5.00	743.69
4	37.044714	-86.063916	730.91	5.00	735.91
5	37.044723	-86.066105	740.90	5.00	745.90
6	37.045583	-86.066078	755.32	5.00	760.32
7	37.045570	-86.065236	787.68	5.00	792.68
8	37.046534	-86.065220	797.66	5.00	802.66

Name: 107
Footprint area: 12.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.045583	-86.066089	755.13	5.00	760.13
2	37.043322	-86.066105	722.60	5.00	727.60
3	37.043348	-86.068074	726.69	5.00	731.69
4	37.043537	-86.068074	731.31	5.00	736.31
5	37.043656	-86.068074	734.10	5.00	739.10
6	37.043652	-86.068964	733.35	5.00	738.35
7	37.044765	-86.068964	732.37	5.00	737.37
8	37.044753	-86.068133	738.81	5.00	743.81
9	37.045609	-86.068122	737.35	5.00	742.35

Name: 108
Footprint area: 8.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043849	-86.068964	733.14	5.00	738.14
2	37.043849	-86.069479	730.33	5.00	735.33
3	37.044971	-86.071609	733.42	5.00	738.42
4	37.045412	-86.071588	728.13	5.00	733.13
5	37.045450	-86.072988	707.21	5.00	712.21
6	37.046564	-86.072993	694.16	5.00	699.16
7	37.046564	-86.071845	699.94	5.00	704.94
8	37.046054	-86.071861	710.05	5.00	715.05
9	37.046050	-86.071582	708.60	5.00	713.60
10	37.045626	-86.071582	723.74	5.00	728.74
11	37.044774	-86.069817	727.96	5.00	732.96
12	37.044770	-86.068986	732.18	5.00	737.18

Name: 109
Footprint area: 6.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.049013	-86.075788	678.15	5.00	683.15
2	37.049141	-86.075101	680.55	5.00	685.55
3	37.049556	-86.075058	686.33	5.00	691.33
4	37.049651	-86.074592	692.98	5.00	697.98
5	37.049882	-86.074565	696.07	5.00	701.07
6	37.050147	-86.073814	704.21	5.00	709.21
7	37.050507	-86.073739	710.07	5.00	715.07
8	37.050790	-86.073192	721.04	5.00	726.04
9	37.051736	-86.073202	703.06	5.00	708.06
10	37.050815	-86.075026	678.56	5.00	683.56
11	37.049959	-86.075096	687.99	5.00	692.99
12	37.049813	-86.075826	681.04	5.00	686.04

Name: 110
Footprint area: 2.0 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.051688	-86.073664	694.83	5.00	699.83
2	37.052422	-86.073627	717.58	5.00	722.58
3	37.052448	-86.074493	704.38	5.00	709.38
4	37.052351	-86.074735	694.28	5.00	699.28
5	37.051579	-86.074756	688.89	5.00	693.89
6	37.051677	-86.074466	694.66	5.00	699.66

Name: 111
Footprint area: 9.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.051503	-86.077049	702.37	5.00	707.37
2	37.050377	-86.077076	678.28	5.00	683.28
3	37.050366	-86.075947	680.22	5.00	685.22
4	37.051490	-86.075920	696.54	5.00	701.54
5	37.051484	-86.075611	696.39	5.00	701.39
6	37.052516	-86.075606	708.99	5.00	713.99
7	37.052507	-86.078339	707.80	5.00	712.80
8	37.051488	-86.078339	699.49	5.00	704.49

Name: 112
Footprint area: 5.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.050972	-86.080160	673.51	5.00	678.51
2	37.050206	-86.080182	662.08	5.00	667.08
3	37.050182	-86.077878	669.76	5.00	674.76
4	37.050957	-86.077872	685.46	5.00	690.46
5	37.050970	-86.079683	674.08	5.00	679.08
6	37.051248	-86.079667	680.92	5.00	685.92
7	37.051244	-86.079501	677.93	5.00	682.93
8	37.051533	-86.079484	691.85	5.00	696.85
9	37.051524	-86.079125	686.21	5.00	691.21
10	37.052308	-86.079109	706.19	5.00	711.19
11	37.052314	-86.079645	715.40	5.00	720.40
12	37.051717	-86.079686	700.71	5.00	705.71
13	37.051726	-86.079948	698.80	5.00	703.80
14	37.050970	-86.079954	675.30	5.00	680.30

Name: 113
Footprint area: 9.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.053704	-86.089857	670.21	5.00	675.21
2	37.053721	-86.088204	677.81	5.00	682.81
3	37.054757	-86.087636	677.17	5.00	682.17
4	37.055433	-86.087625	679.83	5.00	684.83
5	37.055433	-86.088140	670.13	5.00	675.13
6	37.055818	-86.088151	672.55	5.00	677.55
7	37.055827	-86.089610	664.21	5.00	669.21
8	37.054877	-86.089610	681.80	5.00	686.80
9	37.054859	-86.089781	679.72	5.00	684.72

Name: 114
Footprint area: 17.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.053972	-86.093259	664.99	5.00	669.99
2	37.053963	-86.093248	664.96	5.00	669.96
3	37.053997	-86.092208	675.48	5.00	680.48
4	37.053278	-86.092240	640.15	5.00	645.15
5	37.053175	-86.091714	644.41	5.00	649.41
6	37.053193	-86.090899	657.11	5.00	662.11
7	37.056284	-86.090641	671.63	5.00	676.63
8	37.056309	-86.092444	669.39	5.00	674.39
9	37.056951	-86.092454	665.70	5.00	670.70
10	37.056960	-86.093281	661.73	5.00	666.73

Name: 115
Footprint area: 19.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.056960	-86.093270	661.81	5.00	666.81
2	37.053526	-86.093238	656.54	5.00	661.54
3	37.053578	-86.094772	634.19	5.00	639.19
4	37.054691	-86.094750	647.80	5.00	652.80
5	37.054734	-86.096456	621.60	5.00	626.60
6	37.056652	-86.096349	624.69	5.00	629.69
7	37.056652	-86.093989	650.65	5.00	655.65
8	37.056986	-86.093978	650.81	5.00	655.81

Name: 116
Footprint area: 19.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.053285	-86.084820	666.63	5.00	671.63
2	37.053277	-86.083833	676.60	5.00	681.60
3	37.054065	-86.083854	682.09	5.00	687.09
4	37.054082	-86.083264	694.53	5.00	699.53
5	37.054664	-86.083297	685.44	5.00	690.44
6	37.054647	-86.080759	710.38	5.00	715.38
7	37.054326	-86.080743	714.46	5.00	719.46
8	37.054321	-86.079896	714.30	5.00	719.30
9	37.053457	-86.079874	726.82	5.00	731.82
10	37.053461	-86.080346	728.31	5.00	733.31
11	37.052725	-86.080346	716.90	5.00	721.90
12	37.052746	-86.081081	715.64	5.00	720.64
13	37.052489	-86.081081	713.63	5.00	718.63
14	37.052502	-86.084815	672.33	5.00	677.33

Name: 117
Footprint area: 13.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.052478	-86.083651	685.79	5.00	690.79
2	37.052469	-86.081071	713.13	5.00	718.13
3	37.051412	-86.081076	684.01	5.00	689.01
4	37.051407	-86.081237	686.47	5.00	691.47
5	37.050320	-86.081237	659.49	5.00	664.49
6	37.050333	-86.083732	668.37	5.00	673.37



Name: 118
Footprint area: 14.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.052473	-86.083657	685.44	5.00	690.44
2	37.050350	-86.083727	669.13	5.00	674.13
3	37.050371	-86.086688	643.14	5.00	648.14
4	37.051463	-86.086623	663.95	5.00	668.95
5	37.051454	-86.086425	665.73	5.00	670.73
6	37.052212	-86.086425	658.71	5.00	663.71
7	37.052195	-86.085888	667.48	5.00	672.48
8	37.052486	-86.085867	659.39	5.00	664.39



2-Mile Flight Path Receptor(s)

Name: Glasgow Municipal Airport Runway 26
Description:
Threshold height : 50 ft
Direction: 252.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.033844	-85.946199	714.75	50.00	764.75
2-mile point	37.042702	-85.911682	732.56	585.62	1318.18



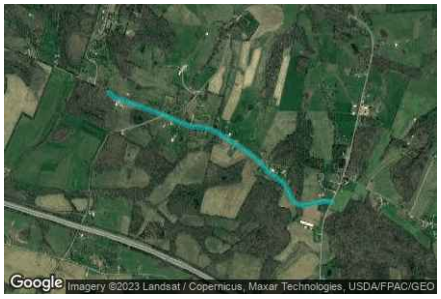
Name: Glasgow Municipal Airport Runway 8
Description:
Threshold height : 50 ft
Direction: 70.5 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.029484	-85.962314	707.66	50.00	757.66
2-mile point	37.019838	-85.996495	701.55	609.54	1311.09



Route Receptor(s)

Name: Apple Grove Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.049113	-86.059294	766.85	9.00	775.85
2	37.049193	-86.059755	771.55	9.00	780.55
3	37.049182	-86.060077	773.15	9.00	782.15
4	37.049058	-86.060713	770.53	9.00	779.53
5	37.048919	-86.061472	760.34	9.00	769.34
6	37.048884	-86.061893	753.94	9.00	762.94
7	37.048961	-86.062379	748.72	9.00	757.72
8	37.049139	-86.062684	755.77	9.00	764.77
9	37.049443	-86.062969	758.73	9.00	767.73
10	37.050008	-86.063261	757.49	9.00	766.49
11	37.050271	-86.063425	761.61	9.00	770.61
12	37.050479	-86.063658	760.41	9.00	769.41
13	37.051102	-86.064728	749.15	9.00	758.15
14	37.051350	-86.065096	744.41	9.00	753.41
15	37.052012	-86.065866	740.01	9.00	749.01
16	37.052369	-86.066364	739.36	9.00	748.36
17	37.052648	-86.066799	737.66	9.00	746.66
18	37.052941	-86.067349	737.97	9.00	746.97
19	37.053249	-86.067968	737.78	9.00	746.78
20	37.053639	-86.068760	730.95	9.00	739.95
21	37.054080	-86.069562	730.20	9.00	739.20
22	37.054315	-86.070297	732.00	9.00	741.00
23	37.054426	-86.070983	728.95	9.00	737.95
24	37.054469	-86.071619	728.15	9.00	737.15
25	37.054574	-86.072179	726.25	9.00	735.25
26	37.055015	-86.073515	727.27	9.00	736.27
27	37.055381	-86.074639	730.25	9.00	739.25
28	37.056117	-86.077203	724.30	9.00	733.30
29	37.056498	-86.078609	720.67	9.00	729.67
30	37.056865	-86.079215	721.43	9.00	730.43

Name: Cumberland Parkway Eastbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.055543	-86.107021	636.32	9.00	645.32
2	37.053745	-86.103705	661.28	9.00	670.28
3	37.052563	-86.101163	669.26	9.00	678.26
4	37.051536	-86.098502	665.21	9.00	674.21
5	37.050542	-86.095262	659.27	9.00	668.27
6	37.049549	-86.091271	659.29	9.00	668.29
7	37.047631	-86.083353	682.24	9.00	691.24
8	37.046372	-86.078235	725.16	9.00	734.16
9	37.045525	-86.075424	730.89	9.00	739.89
10	37.044779	-86.073300	726.90	9.00	735.90
11	37.043641	-86.070392	721.53	9.00	730.53
12	37.042776	-86.068601	718.54	9.00	727.54
13	37.041628	-86.066391	728.45	9.00	737.45
14	37.040600	-86.064577	742.40	9.00	751.40
15	37.039658	-86.063086	743.77	9.00	752.77
16	37.038776	-86.061756	743.53	9.00	752.53
17	37.037689	-86.060232	743.33	9.00	752.33

Name: Cumberland Parkway Westbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037886	-86.060211	743.65	9.00	752.65
2	37.038871	-86.061605	743.44	9.00	752.44
3	37.039821	-86.062968	744.78	9.00	753.78
4	37.040746	-86.064470	743.98	9.00	752.98
5	37.041782	-86.066273	729.30	9.00	738.30
6	37.042913	-86.068493	718.64	9.00	727.64
7	37.043765	-86.070328	723.11	9.00	732.11
8	37.044976	-86.073278	727.38	9.00	736.38
9	37.045670	-86.075349	730.91	9.00	739.91
10	37.046552	-86.078203	725.50	9.00	734.50
11	37.047794	-86.083321	681.04	9.00	690.04
12	37.049720	-86.091249	659.37	9.00	668.37
13	37.050671	-86.095219	659.11	9.00	668.11
14	37.051690	-86.098459	665.27	9.00	674.27
15	37.052734	-86.101130	668.95	9.00	677.95
16	37.053890	-86.103641	661.05	9.00	670.05
17	37.055646	-86.106838	638.97	9.00	647.97

Name: Millstown Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.060884	-86.068319	660.82	9.00	669.82
2	37.060126	-86.068640	667.53	9.00	676.53
3	37.059163	-86.068968	695.01	9.00	704.01
4	37.058722	-86.069198	699.12	9.00	708.12
5	37.058324	-86.069472	710.62	9.00	719.62
6	37.057618	-86.070336	714.88	9.00	723.88
7	37.056513	-86.071500	701.38	9.00	710.38
8	37.056042	-86.072036	720.28	9.00	729.28
9	37.055773	-86.072460	715.53	9.00	724.53
10	37.055516	-86.073077	715.04	9.00	724.04
11	37.055362	-86.073554	724.49	9.00	733.49
12	37.055216	-86.074010	732.32	9.00	741.32
13	37.055238	-86.074262	731.61	9.00	740.61
14	37.055032	-86.074863	724.50	9.00	733.50
15	37.054390	-86.077046	718.38	9.00	727.38
16	37.054202	-86.077814	726.69	9.00	735.69
17	37.053966	-86.079037	721.09	9.00	730.09
18	37.053821	-86.079246	723.60	9.00	732.60
19	37.051770	-86.080565	689.86	9.00	698.86
20	37.051496	-86.080700	684.42	9.00	693.42
21	37.050909	-86.080839	671.34	9.00	680.34
22	37.049312	-86.081043	671.29	9.00	680.29
23	37.048452	-86.081161	679.68	9.00	688.68
24	37.048319	-86.081198	681.40	9.00	690.40
25	37.047471	-86.081676	687.56	9.00	696.56

Name: Park City Bon Ayr Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037903	-86.060125	747.85	9.00	756.85
2	37.038982	-86.059953	756.39	9.00	765.39
3	37.040104	-86.060028	756.22	9.00	765.22
4	37.041508	-86.060254	770.75	9.00	779.75
5	37.042801	-86.060329	762.84	9.00	771.84
6	37.044822	-86.060254	762.04	9.00	771.04
7	37.047246	-86.060103	749.65	9.00	758.65
8	37.047948	-86.059942	751.67	9.00	760.67
9	37.048975	-86.059352	763.66	9.00	772.66
10	37.050260	-86.058558	772.87	9.00	781.87
11	37.051236	-86.058097	764.24	9.00	773.24
12	37.051921	-86.057829	745.11	9.00	754.11
13	37.053796	-86.057303	723.34	9.00	732.34
14	37.057127	-86.056370	693.49	9.00	702.49
15	37.059490	-86.055705	670.94	9.00	679.94
16	37.060372	-86.055576	697.73	9.00	706.73
17	37.060945	-86.055715	715.92	9.00	724.92
18	37.061459	-86.056144	717.32	9.00	726.32

Name: R Crump C Bellamy Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.048054	-86.081402	678.48	9.00	687.48
2	37.048268	-86.081842	671.15	9.00	680.15
3	37.048349	-86.083607	672.99	9.00	681.99
4	37.049000	-86.086794	658.89	9.00	667.89
5	37.049381	-86.088457	660.81	9.00	669.81
6	37.049591	-86.088854	658.77	9.00	667.77
7	37.049852	-86.089031	653.35	9.00	662.35
8	37.050233	-86.089127	640.52	9.00	649.52
9	37.051230	-86.089197	638.23	9.00	647.23
10	37.051500	-86.089283	640.94	9.00	649.94
11	37.052052	-86.089572	642.26	9.00	651.26
12	37.052455	-86.089808	642.63	9.00	651.63
13	37.053071	-86.090254	654.32	9.00	663.32
14	37.053431	-86.090366	668.75	9.00	677.75
15	37.053701	-86.090382	678.07	9.00	687.07
16	37.054244	-86.090297	683.40	9.00	692.40
17	37.055653	-86.090028	666.28	9.00	675.28
18	37.056175	-86.089942	662.57	9.00	671.57
19	37.056398	-86.089964	658.56	9.00	667.56
20	37.058650	-86.090747	652.78	9.00	661.78
21	37.059172	-86.090897	669.54	9.00	678.54
22	37.060953	-86.091327	667.19	9.00	676.19

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	37.011816	-85.904852	831.81	500.00	1331.81
OP 2	37.060481	-86.054912	706.39	16.00	722.39
OP 3	37.058276	-86.056317	681.01	16.00	697.01
OP 4	37.060950	-86.056097	717.72	16.00	733.72
OP 5	37.055491	-86.056306	714.87	16.00	730.87
OP 6	37.054519	-86.056698	730.11	16.00	746.11
OP 7	37.053521	-86.058012	734.81	16.00	750.81
OP 8	37.052271	-86.058130	748.59	16.00	764.59
OP 9	37.050961	-86.057320	766.40	16.00	782.40
OP 10	37.050529	-86.058044	777.61	16.00	793.61
OP 11	37.049762	-86.059460	778.92	16.00	794.92
OP 12	37.048743	-86.060104	769.74	16.00	785.74
OP 13	37.050404	-86.063156	767.86	16.00	783.86
OP 14	37.050238	-86.063763	762.53	16.00	778.53
OP 15	37.051017	-86.063441	767.19	16.00	783.19
OP 16	37.051184	-86.063704	761.41	16.00	777.41
OP 17	37.050863	-86.065114	751.66	16.00	767.66
OP 18	37.051402	-86.065683	752.57	16.00	768.57
OP 19	37.052618	-86.065592	746.94	16.00	762.94
OP 20	37.052759	-86.068108	744.22	16.00	760.22
OP 21	37.054029	-86.070908	738.56	16.00	754.56
OP 22	37.054071	-86.070192	734.63	16.00	750.63
OP 23	37.053971	-86.071412	739.38	16.00	755.38
OP 24	37.055202	-86.070966	740.17	16.00	756.17
OP 25	37.055287	-86.071899	734.62	16.00	750.62
OP 26	37.053874	-86.073321	731.49	16.00	747.49
OP 27	37.053864	-86.077649	735.53	16.00	751.53
OP 28	37.051328	-86.088383	657.38	16.00	673.38
OP 29	37.048539	-86.080661	687.09	16.00	703.09
OP 30	37.046493	-86.081439	701.17	16.00	717.17
OP 31	37.043720	-86.076072	735.07	16.00	751.07
OP 32	37.044272	-86.078060	740.33	16.00	756.33
OP 33	37.043446	-86.060683	767.77	16.00	783.77
OP 34	37.051295	-86.091385	673.75	16.00	689.75
OP 35	37.043270	-86.072800	737.71	16.00	753.71
OP 36	37.046460	-86.060576	768.45	16.00	784.45
OP 37	37.061617	-86.066793	680.64	16.00	696.64
OP 38	37.061176	-86.068477	661.59	16.00	677.59
OP 39	37.056279	-86.072313	716.38	16.00	732.38
OP 40	37.056048	-86.070865	725.34	16.00	741.34

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
101	SA tracking	SA tracking	0	0	-	-
102	SA tracking	SA tracking	0	0	-	-
103	SA tracking	SA tracking	0	0	-	-
104	SA tracking	SA tracking	0	0	-	-
105	SA tracking	SA tracking	0	0	-	-
106	SA tracking	SA tracking	0	0	-	-
107	SA tracking	SA tracking	0	0	-	-
108	SA tracking	SA tracking	0	0	-	-
109	SA tracking	SA tracking	0	0	-	-
110	SA tracking	SA tracking	0	0	-	-
111	SA tracking	SA tracking	0	0	-	-
112	SA tracking	SA tracking	0	0	-	-
113	SA tracking	SA tracking	0	0	-	-
114	SA tracking	SA tracking	0	0	-	-
115	SA tracking	SA tracking	0	0	-	-
116	SA tracking	SA tracking	0	0	-	-
117	SA tracking	SA tracking	0	0	-	-
118	SA tracking	SA tracking	0	0	-	-

PV & Receptor Analysis Results

Results for each PV array and receptor

101 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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102 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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103 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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104 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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105 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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106 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

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107 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

108 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

109 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

110 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

111 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

112 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

113 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

114 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

115 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

116 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

117 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

---

118 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Park City Bon Ayr Road	0	0
Route: R Crump C Bellamy Road	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographi obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

Wood Duck

Block 2 5ft vehicle v2

Created May 31, 2023
Updated May 31, 2023
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
Site ID 91923.15739

Project type Advanced
Project status: active
Category 10 MW to 100 MW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

PV Analysis Methodology: **Version 2**
Enhanced subtended angle calculation: **On**

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
201	SA tracking	SA tracking	0	0	-
202	SA tracking	SA tracking	0	0	-
203	SA tracking	SA tracking	0	0	-
204	SA tracking	SA tracking	0	0	-
205	SA tracking	SA tracking	0	0	-
206	SA tracking	SA tracking	0	0	-
207	SA tracking	SA tracking	0	0	-
208	SA tracking	SA tracking	0	0	-
209	SA tracking	SA tracking	0	0	-
210	SA tracking	SA tracking	0	0	-
211	SA tracking	SA tracking	0	0	-
212	SA tracking	SA tracking	0	0	-
213	SA tracking	SA tracking	0	0	-
214	SA tracking	SA tracking	0	0	-
215	SA tracking	SA tracking	0	0	-
216	SA tracking	SA tracking	0	0	-
217	SA tracking	SA tracking	0	0	-
218	SA tracking	SA tracking	0	0	-
219	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 156.0 acres

Name: 201
Footprint area: 12.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.048564	-86.056397	747.45	5.00	752.45
2	37.047516	-86.056467	748.43	5.00	753.43
3	37.047537	-86.057373	747.19	5.00	752.19
4	37.046347	-86.057406	751.33	5.00	756.33
5	37.046336	-86.054077	747.34	5.00	752.34
6	37.047505	-86.054080	745.38	5.00	750.38
7	37.047501	-86.054943	742.14	5.00	747.14
8	37.048209	-86.054935	747.69	5.00	752.69
9	37.048558	-86.055579	747.93	5.00	752.93

Name: 202
Footprint area: 6.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.045218	-86.053039	760.70	5.00	765.70
2	37.045214	-86.050957	735.33	5.00	740.33
3	37.044019	-86.050931	751.08	5.00	756.08
4	37.044023	-86.053007	768.20	5.00	773.20

Name: 203
Footprint area: 7.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.045227	-86.055635	759.87	5.00	764.87
2	37.045223	-86.053017	760.88	5.00	765.88
3	37.044029	-86.052990	768.20	5.00	773.20
4	37.044037	-86.055645	757.87	5.00	762.87



Name: 204
Footprint area: 2.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043816	-86.057977	757.67	5.00	762.67
2	37.043833	-86.057140	758.97	5.00	763.97
3	37.042780	-86.057151	757.42	5.00	762.42
4	37.042776	-86.057966	760.33	5.00	765.33



Name: 205
Footprint area: 16.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043825	-86.054554	762.85	5.00	767.85
2	37.043812	-86.052183	763.17	5.00	768.17
3	37.040558	-86.051969	751.74	5.00	756.74
4	37.040545	-86.053203	757.44	5.00	762.44
5	37.040849	-86.053208	762.78	5.00	767.78
6	37.040862	-86.054045	761.67	5.00	766.67
7	37.042656	-86.054018	762.16	5.00	767.16
8	37.042660	-86.054587	759.64	5.00	764.64

Name: 206
Footprint area: 14.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.040472	-86.054061	752.33	5.00	757.33
2	37.042386	-86.054034	759.93	5.00	764.93
3	37.042433	-86.057993	764.16	5.00	769.16
4	37.041191	-86.058009	767.92	5.00	772.92
5	37.041153	-86.055488	766.03	5.00	771.03
6	37.040463	-86.055504	751.36	5.00	756.36

Name: 207
Footprint area: 4.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.040472	-86.054705	751.05	5.00	756.05
2	37.039776	-86.054699	741.57	5.00	746.57
3	37.039774	-86.054147	747.38	5.00	752.38
4	37.039477	-86.054131	747.36	5.00	752.36
5	37.039479	-86.053417	746.25	5.00	751.25
6	37.039766	-86.053439	750.80	5.00	755.80
7	37.039770	-86.052591	750.09	5.00	755.09
8	37.040558	-86.052602	757.46	5.00	762.46
9	37.040476	-86.054088	752.50	5.00	757.50

Name: 208
Footprint area: 7.0 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.041194	-86.058015	767.92	5.00	772.92
2	37.041301	-86.058009	765.58	5.00	770.58
3	37.041301	-86.058385	768.44	5.00	773.44
4	37.039378	-86.058497	762.62	5.00	767.62
5	37.039378	-86.056909	750.69	5.00	755.69
6	37.041177	-86.056840	761.92	5.00	766.92

Name: 209
Footprint area: 5.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.040547	-86.051867	751.67	5.00	756.67
2	37.040552	-86.051325	760.19	5.00	765.19
3	37.040239	-86.051330	758.79	5.00	763.79
4	37.040239	-86.051057	760.06	5.00	765.06
5	37.039490	-86.051035	757.36	5.00	762.36
6	37.039481	-86.050531	758.64	5.00	763.64
7	37.038428	-86.050547	752.18	5.00	757.18
8	37.038449	-86.051926	746.14	5.00	751.14

Name: 210
Footprint area: 8.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037636	-86.058417	755.21	5.00	760.21
2	37.038698	-86.058347	762.15	5.00	767.15
3	37.037374	-86.055040	744.59	5.00	749.59
4	37.036402	-86.055043	731.35	5.00	736.35

Name: 211
Footprint area: 8.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.035582	-86.051483	744.88	5.00	749.88
2	37.034452	-86.051491	746.27	5.00	751.27
3	37.034486	-86.054131	732.56	5.00	737.56
4	37.034775	-86.054128	730.92	5.00	735.92
5	37.034794	-86.054619	724.43	5.00	729.43
6	37.035602	-86.054584	714.36	5.00	719.36

Name: 212
Footprint area: 9.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.035567	-86.051022	736.02	5.00	741.02
2	37.035567	-86.049979	746.35	5.00	751.35
3	37.034450	-86.050000	748.58	5.00	753.58
4	37.034467	-86.047978	753.58	5.00	758.58
5	37.035587	-86.048010	752.46	5.00	757.46
6	37.035597	-86.049102	751.12	5.00	756.12
7	37.036405	-86.049096	738.78	5.00	743.78
8	37.036398	-86.051030	739.32	5.00	744.32

Name: 213
Footprint area: 11.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.033672	-86.052867	737.43	5.00	742.43
2	37.034460	-86.052830	742.05	5.00	747.05
3	37.034448	-86.048404	751.54	5.00	756.54
4	37.033364	-86.048404	758.85	5.00	763.85
5	37.033368	-86.048898	754.68	5.00	759.68
6	37.033368	-86.052331	741.42	5.00	746.42
7	37.033655	-86.052320	741.64	5.00	746.64

Name: 214
Footprint area: 6.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.033368	-86.051575	741.46	5.00	746.46
2	37.032610	-86.051580	735.57	5.00	740.57
3	37.032606	-86.050995	740.65	5.00	745.65
4	37.032242	-86.051006	746.42	5.00	751.42
5	37.032255	-86.049107	760.25	5.00	765.25
6	37.032542	-86.049123	760.12	5.00	765.12
7	37.032538	-86.048753	763.83	5.00	768.83
8	37.033377	-86.048785	754.99	5.00	759.99

Name: 215
Footprint area: 8.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.035865	-86.046299	757.54	5.00	762.54
2	37.037124	-86.046299	757.85	5.00	762.85
3	37.037137	-86.044097	773.16	5.00	778.16
4	37.035107	-86.044048	761.61	5.00	766.61
5	37.035109	-86.044864	756.28	5.00	761.28
6	37.035865	-86.044869	763.59	5.00	768.59

Name: 216
Footprint area: 6.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.034792	-86.047168	750.53	5.00	755.53
2	37.034794	-86.046159	756.33	5.00	761.33
3	37.034430	-86.046148	758.18	5.00	763.18
4	37.034445	-86.045381	756.18	5.00	761.18
5	37.033724	-86.045363	757.34	5.00	762.34
6	37.033715	-86.045676	759.72	5.00	764.72
7	37.032949	-86.045650	763.13	5.00	768.13
8	37.032944	-86.046599	765.38	5.00	770.38
9	37.033707	-86.046588	759.67	5.00	764.67
10	37.033732	-86.047401	763.86	5.00	768.86
11	37.034488	-86.047396	755.49	5.00	760.49
12	37.034488	-86.047181	754.02	5.00	759.02

Name: 217
Footprint area: 6.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.046349	-86.057898	747.54	5.00	752.54
2	37.046336	-86.055404	753.89	5.00	758.89
3	37.045227	-86.055409	763.23	5.00	768.23
4	37.045232	-86.057952	751.80	5.00	756.80



Name: 218
Footprint area: 7.0 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.046328	-86.055409	754.32	5.00	759.32
2	37.046362	-86.052861	738.54	5.00	743.54
3	37.045223	-86.052850	762.72	5.00	767.72
4	37.045227	-86.055415	763.23	5.00	768.23



Name: 219
Footprint area: 7.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.045227	-86.058322	755.05	5.00	760.05
2	37.045236	-86.055618	759.98	5.00	764.98
3	37.044046	-86.055629	757.93	5.00	762.93
4	37.044054	-86.058295	758.92	5.00	763.92



2-Mile Flight Path Receptor(s)

Name: Glasgow Municipal Airport Runway 26
Description:
Threshold height : 50 ft
Direction: 252.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.033844	-85.946199	714.75	50.00	764.75
2-mile point	37.042702	-85.911682	732.56	585.62	1318.18



Name: Glasgow Municipal Airport Runway 8
Description:
Threshold height : 50 ft
Direction: 70.5 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.029484	-85.962314	707.66	50.00	757.66
2-mile point	37.019838	-85.996495	701.55	609.54	1311.09



Route Receptor(s)

Name: Apple Grove Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.050811	-86.064229	756.31	5.00	761.31
2	37.050408	-86.063569	761.13	5.00	766.13
3	37.050087	-86.063306	757.86	5.00	762.86
4	37.049385	-86.062947	758.11	5.00	763.11
5	37.049034	-86.062545	751.96	5.00	756.96
6	37.048905	-86.062142	750.65	5.00	755.65
7	37.048892	-86.061713	755.84	5.00	760.84
8	37.048957	-86.061150	765.04	5.00	770.04
9	37.049154	-86.060243	772.82	5.00	777.82
10	37.049188	-86.059895	771.74	5.00	776.74
11	37.049158	-86.059423	767.68	5.00	772.68
12	37.049107	-86.059294	766.85	5.00	771.85

Name: Cumberland Parkway Eastbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.046057	-86.077102	729.40	5.00	734.40
2	37.045124	-86.074269	728.80	5.00	733.80
3	37.044353	-86.072134	726.96	5.00	731.96
4	37.043103	-86.069248	719.99	5.00	724.99
5	37.042118	-86.067242	724.94	5.00	729.94
6	37.040345	-86.064131	743.88	5.00	748.88
7	37.037998	-86.060644	739.69	5.00	744.69
8	37.034556	-86.055870	725.62	5.00	730.62
9	37.032971	-86.053681	730.76	5.00	735.76
10	37.030830	-86.050666	741.27	5.00	746.27
11	37.028295	-86.047136	753.66	5.00	758.66

Name: Cumberland Parkway Westbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.028397	-86.046975	753.58	5.00	758.58
2	37.030950	-86.050537	741.62	5.00	746.62
3	37.033108	-86.053541	731.05	5.00	736.05
4	37.034676	-86.055719	725.50	5.00	730.50
5	37.038110	-86.060526	739.68	5.00	744.68
6	37.040448	-86.063938	743.61	5.00	748.61
7	37.042263	-86.067146	724.91	5.00	729.91
8	37.043222	-86.069141	720.07	5.00	725.07
9	37.044490	-86.072049	727.02	5.00	732.02
10	37.045278	-86.074194	729.51	5.00	734.51
11	37.046185	-86.077005	729.63	5.00	734.63

Name: Disman Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.038475	-86.060023	760.62	5.00	765.62
2	37.038308	-86.059685	757.43	5.00	762.43
3	37.038034	-86.059374	757.41	5.00	762.41
4	37.037447	-86.058822	754.08	5.00	759.08
5	37.037293	-86.058661	751.57	5.00	756.57
6	37.035777	-86.056553	731.85	5.00	736.85
7	37.033859	-86.053881	731.68	5.00	736.68
8	37.032210	-86.051590	739.11	5.00	744.11
9	37.031118	-86.050056	755.19	5.00	760.19

Name: Dripping Springs Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.050921	-86.058187	768.26	5.00	773.26
2	37.049474	-86.054807	761.42	5.00	766.42
3	37.049080	-86.054003	754.84	5.00	759.84
4	37.048206	-86.052404	758.13	5.00	763.13
5	37.047872	-86.051567	752.64	5.00	757.64
6	37.047555	-86.050537	755.57	5.00	760.57
7	37.047144	-86.048327	754.31	5.00	759.31
8	37.046528	-86.044626	729.80	5.00	734.80
9	37.046151	-86.043360	702.02	5.00	707.02
10	37.045689	-86.042137	713.63	5.00	718.63
11	37.045149	-86.040935	731.46	5.00	736.46
12	37.044096	-86.038864	733.46	5.00	738.46
13	37.042409	-86.035903	748.96	5.00	753.96
14	37.040499	-86.033049	761.06	5.00	766.06

Name: Mayhew Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.044062	-86.038854	733.93	5.00	738.93
2	37.043034	-86.039068	726.25	5.00	731.25
3	37.042537	-86.039680	719.93	5.00	724.93
4	37.042246	-86.039905	722.69	5.00	727.69
5	37.041887	-86.039905	728.14	5.00	733.14
6	37.041244	-86.039701	725.78	5.00	730.78
7	37.038658	-86.041235	748.51	5.00	753.51
8	37.038418	-86.041418	751.24	5.00	756.24
9	37.037262	-86.043016	761.52	5.00	766.52
10	37.037245	-86.043306	762.90	5.00	767.90
11	37.038033	-86.051793	741.92	5.00	746.92
12	37.038084	-86.052479	743.91	5.00	748.91
13	37.038024	-86.052715	742.76	5.00	747.76
14	37.037519	-86.053606	726.80	5.00	731.80
15	37.037476	-86.053788	727.85	5.00	732.85
16	37.037493	-86.054035	730.21	5.00	735.21
17	37.038786	-86.057286	751.95	5.00	756.95
18	37.038872	-86.057650	754.53	5.00	759.53
19	37.039146	-86.059957	755.96	5.00	760.96

Name: Park City Bon Ayr Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037836	-86.060150	745.58	5.00	750.58
2	37.039103	-86.059957	756.20	5.00	761.20
3	37.040208	-86.060054	756.96	5.00	761.96
4	37.041167	-86.060204	768.28	5.00	773.28
5	37.042469	-86.060343	762.71	5.00	767.71
6	37.043359	-86.060343	767.39	5.00	772.39
7	37.045235	-86.060236	759.12	5.00	764.12
8	37.047307	-86.060097	749.64	5.00	754.64
9	37.047958	-86.059925	751.68	5.00	756.68
10	37.048532	-86.059625	755.75	5.00	760.75
11	37.050929	-86.058208	768.35	5.00	773.35

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	37.011816	-85.904852	831.81	500.00	1331.81
OP 2	37.032362	-86.047508	779.30	16.00	795.30
OP 3	37.040909	-86.060455	766.88	16.00	782.88
OP 4	37.041464	-86.060640	769.82	16.00	785.82
OP 5	37.043461	-86.060681	767.64	16.00	783.64
OP 6	37.046465	-86.060571	768.52	16.00	784.52
OP 7	37.048740	-86.060088	769.74	16.00	785.74
OP 8	37.049762	-86.059452	778.86	16.00	794.86
OP 9	37.050524	-86.058065	777.04	16.00	793.04
OP 10	37.050952	-86.057331	766.50	16.00	782.50
OP 11	37.047848	-86.051902	761.28	16.00	777.28
OP 12	37.047839	-86.050553	760.27	16.00	776.27
OP 13	37.046966	-86.050129	761.40	16.00	777.40
OP 14	37.046542	-86.049863	762.92	16.00	778.92
OP 15	37.046854	-86.048820	761.17	16.00	777.17
OP 16	37.047647	-86.048477	757.37	16.00	773.37
OP 17	37.048244	-86.047900	754.03	16.00	770.03
OP 18	37.048019	-86.048037	755.04	16.00	771.04
OP 19	37.046623	-86.046741	742.67	16.00	758.67
OP 20	37.046461	-86.046304	738.79	16.00	754.79
OP 21	37.046377	-86.045945	735.98	16.00	751.98
OP 22	37.046321	-86.045548	735.22	16.00	751.22
OP 23	37.045227	-86.041527	731.21	16.00	747.21
OP 24	37.045405	-86.040754	731.84	16.00	747.84
OP 25	37.045536	-86.041186	733.40	16.00	749.40
OP 26	37.045266	-86.040384	733.53	16.00	749.53
OP 27	37.045131	-86.040044	734.77	16.00	750.77
OP 28	37.044726	-86.040414	736.58	16.00	752.58
OP 29	37.044088	-86.039403	737.86	16.00	753.86
OP 30	37.043528	-86.038630	737.54	16.00	753.54
OP 31	37.043307	-86.038070	748.22	16.00	764.22
OP 32	37.042678	-86.037431	752.73	16.00	768.73
OP 33	37.032271	-86.060469	711.51	16.00	727.51
OP 34	37.032611	-86.061204	745.83	16.00	761.83
OP 35	37.034855	-86.059887	762.13	16.00	778.13
OP 36	37.035759	-86.060907	755.37	16.00	771.37
OP 37	37.037502	-86.060993	748.99	16.00	764.99
OP 38	37.037831	-86.062752	739.58	16.00	755.58
OP 39	37.038838	-86.063133	743.84	16.00	759.84
OP 40	37.039056	-86.063557	740.99	16.00	756.99

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
201	SA tracking	SA tracking	0	0	-	-
202	SA tracking	SA tracking	0	0	-	-
203	SA tracking	SA tracking	0	0	-	-
204	SA tracking	SA tracking	0	0	-	-
205	SA tracking	SA tracking	0	0	-	-
206	SA tracking	SA tracking	0	0	-	-
207	SA tracking	SA tracking	0	0	-	-
208	SA tracking	SA tracking	0	0	-	-
209	SA tracking	SA tracking	0	0	-	-
210	SA tracking	SA tracking	0	0	-	-
211	SA tracking	SA tracking	0	0	-	-
212	SA tracking	SA tracking	0	0	-	-
213	SA tracking	SA tracking	0	0	-	-
214	SA tracking	SA tracking	0	0	-	-
215	SA tracking	SA tracking	0	0	-	-
216	SA tracking	SA tracking	0	0	-	-
217	SA tracking	SA tracking	0	0	-	-
218	SA tracking	SA tracking	0	0	-	-
219	SA tracking	SA tracking	0	0	-	-

PV & Receptor Analysis Results

Results for each PV array and receptor

201 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

202 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

203 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

204 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

205 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

206 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

207 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

208 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

209 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

210 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

211 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

212 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

213 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

214 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

215 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

216 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

217 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

218 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

219 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographi obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

Wood Duck

Block 2 9ft vehicle v2

Created May 31, 2023
Updated May 31, 2023
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
Site ID 91926.15739

Project type Advanced
Project status: active
Category 10 MW to 100 MW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

PV Analysis Methodology: **Version 2**
Enhanced subtended angle calculation: **On**

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
201	SA tracking	SA tracking	0	0	-
202	SA tracking	SA tracking	0	0	-
203	SA tracking	SA tracking	0	0	-
204	SA tracking	SA tracking	0	0	-
205	SA tracking	SA tracking	0	0	-
206	SA tracking	SA tracking	0	0	-
207	SA tracking	SA tracking	0	0	-
208	SA tracking	SA tracking	0	0	-
209	SA tracking	SA tracking	0	0	-
210	SA tracking	SA tracking	0	0	-
211	SA tracking	SA tracking	0	0	-
212	SA tracking	SA tracking	0	0	-
213	SA tracking	SA tracking	0	0	-
214	SA tracking	SA tracking	0	0	-
215	SA tracking	SA tracking	0	0	-
216	SA tracking	SA tracking	0	0	-
217	SA tracking	SA tracking	0	0	-
218	SA tracking	SA tracking	0	0	-
219	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 156.0 acres

Name: 201
Footprint area: 12.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.048564	-86.056397	747.45	5.00	752.45
2	37.047516	-86.056467	748.43	5.00	753.43
3	37.047537	-86.057373	747.19	5.00	752.19
4	37.046347	-86.057406	751.33	5.00	756.33
5	37.046336	-86.054077	747.34	5.00	752.34
6	37.047505	-86.054080	745.38	5.00	750.38
7	37.047501	-86.054943	742.14	5.00	747.14
8	37.048209	-86.054935	747.69	5.00	752.69
9	37.048558	-86.055579	747.93	5.00	752.93

Name: 202
Footprint area: 6.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.045218	-86.053039	760.70	5.00	765.70
2	37.045214	-86.050957	735.33	5.00	740.33
3	37.044019	-86.050931	751.08	5.00	756.08
4	37.044023	-86.053007	768.20	5.00	773.20

Name: 203
Footprint area: 7.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.045227	-86.055635	759.87	5.00	764.87
2	37.045223	-86.053017	760.88	5.00	765.88
3	37.044029	-86.052990	768.20	5.00	773.20
4	37.044037	-86.055645	757.87	5.00	762.87



Name: 204
Footprint area: 2.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043816	-86.057977	757.67	5.00	762.67
2	37.043833	-86.057140	758.97	5.00	763.97
3	37.042780	-86.057151	757.42	5.00	762.42
4	37.042776	-86.057966	760.33	5.00	765.33



Name: 205
Footprint area: 16.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043825	-86.054554	762.85	5.00	767.85
2	37.043812	-86.052183	763.17	5.00	768.17
3	37.040558	-86.051969	751.74	5.00	756.74
4	37.040545	-86.053203	757.44	5.00	762.44
5	37.040849	-86.053208	762.78	5.00	767.78
6	37.040862	-86.054045	761.67	5.00	766.67
7	37.042656	-86.054018	762.16	5.00	767.16
8	37.042660	-86.054587	759.64	5.00	764.64

Name: 206
Footprint area: 14.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.040472	-86.054061	752.33	5.00	757.33
2	37.042386	-86.054034	759.93	5.00	764.93
3	37.042433	-86.057993	764.16	5.00	769.16
4	37.041191	-86.058009	767.92	5.00	772.92
5	37.041153	-86.055488	766.03	5.00	771.03
6	37.040463	-86.055504	751.36	5.00	756.36

Name: 207
Footprint area: 4.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.040472	-86.054705	751.05	5.00	756.05
2	37.039776	-86.054699	741.57	5.00	746.57
3	37.039774	-86.054147	747.38	5.00	752.38
4	37.039477	-86.054131	747.36	5.00	752.36
5	37.039479	-86.053417	746.25	5.00	751.25
6	37.039766	-86.053439	750.80	5.00	755.80
7	37.039770	-86.052591	750.09	5.00	755.09
8	37.040558	-86.052602	757.46	5.00	762.46
9	37.040476	-86.054088	752.50	5.00	757.50

Name: 208
Footprint area: 7.0 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.041194	-86.058015	767.92	5.00	772.92
2	37.041301	-86.058009	765.58	5.00	770.58
3	37.041301	-86.058385	768.44	5.00	773.44
4	37.039378	-86.058497	762.62	5.00	767.62
5	37.039378	-86.056909	750.69	5.00	755.69
6	37.041177	-86.056840	761.92	5.00	766.92

Name: 209
Footprint area: 5.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.040547	-86.051867	751.67	5.00	756.67
2	37.040552	-86.051325	760.19	5.00	765.19
3	37.040239	-86.051330	758.79	5.00	763.79
4	37.040239	-86.051057	760.06	5.00	765.06
5	37.039490	-86.051035	757.36	5.00	762.36
6	37.039481	-86.050531	758.64	5.00	763.64
7	37.038428	-86.050547	752.18	5.00	757.18
8	37.038449	-86.051926	746.14	5.00	751.14

Name: 210
Footprint area: 8.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037636	-86.058417	755.21	5.00	760.21
2	37.038698	-86.058347	762.15	5.00	767.15
3	37.037374	-86.055040	744.59	5.00	749.59
4	37.036402	-86.055043	731.35	5.00	736.35

Name: 211
Footprint area: 8.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.035582	-86.051483	744.88	5.00	749.88
2	37.034452	-86.051491	746.27	5.00	751.27
3	37.034486	-86.054131	732.56	5.00	737.56
4	37.034775	-86.054128	730.92	5.00	735.92
5	37.034794	-86.054619	724.43	5.00	729.43
6	37.035602	-86.054584	714.36	5.00	719.36

Name: 212
Footprint area: 9.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.035567	-86.051022	736.02	5.00	741.02
2	37.035567	-86.049979	746.35	5.00	751.35
3	37.034450	-86.050000	748.58	5.00	753.58
4	37.034467	-86.047978	753.58	5.00	758.58
5	37.035587	-86.048010	752.46	5.00	757.46
6	37.035597	-86.049102	751.12	5.00	756.12
7	37.036405	-86.049096	738.78	5.00	743.78
8	37.036398	-86.051030	739.32	5.00	744.32

Name: 213
Footprint area: 11.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.033672	-86.052867	737.43	5.00	742.43
2	37.034460	-86.052830	742.05	5.00	747.05
3	37.034448	-86.048404	751.54	5.00	756.54
4	37.033364	-86.048404	758.85	5.00	763.85
5	37.033368	-86.048898	754.68	5.00	759.68
6	37.033368	-86.052331	741.42	5.00	746.42
7	37.033655	-86.052320	741.64	5.00	746.64

Name: 214
Footprint area: 6.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.033368	-86.051575	741.46	5.00	746.46
2	37.032610	-86.051580	735.57	5.00	740.57
3	37.032606	-86.050995	740.65	5.00	745.65
4	37.032242	-86.051006	746.42	5.00	751.42
5	37.032255	-86.049107	760.25	5.00	765.25
6	37.032542	-86.049123	760.12	5.00	765.12
7	37.032538	-86.048753	763.83	5.00	768.83
8	37.033377	-86.048785	754.99	5.00	759.99

Name: 215
Footprint area: 8.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.035865	-86.046299	757.54	5.00	762.54
2	37.037124	-86.046299	757.85	5.00	762.85
3	37.037137	-86.044097	773.16	5.00	778.16
4	37.035107	-86.044048	761.61	5.00	766.61
5	37.035109	-86.044864	756.28	5.00	761.28
6	37.035865	-86.044869	763.59	5.00	768.59

Name: 216
Footprint area: 6.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.034792	-86.047168	750.53	5.00	755.53
2	37.034794	-86.046159	756.33	5.00	761.33
3	37.034430	-86.046148	758.18	5.00	763.18
4	37.034445	-86.045381	756.18	5.00	761.18
5	37.033724	-86.045363	757.34	5.00	762.34
6	37.033715	-86.045676	759.72	5.00	764.72
7	37.032949	-86.045650	763.13	5.00	768.13
8	37.032944	-86.046599	765.38	5.00	770.38
9	37.033707	-86.046588	759.67	5.00	764.67
10	37.033732	-86.047401	763.86	5.00	768.86
11	37.034488	-86.047396	755.49	5.00	760.49
12	37.034488	-86.047181	754.02	5.00	759.02

Name: 217
Footprint area: 6.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.046349	-86.057898	747.54	5.00	752.54
2	37.046336	-86.055404	753.89	5.00	758.89
3	37.045227	-86.055409	763.23	5.00	768.23
4	37.045232	-86.057952	751.80	5.00	756.80



Name: 218
Footprint area: 7.0 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.046328	-86.055409	754.32	5.00	759.32
2	37.046362	-86.052861	738.54	5.00	743.54
3	37.045223	-86.052850	762.72	5.00	767.72
4	37.045227	-86.055415	763.23	5.00	768.23



Name: 219
Footprint area: 7.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.045227	-86.058322	755.05	5.00	760.05
2	37.045236	-86.055618	759.98	5.00	764.98
3	37.044046	-86.055629	757.93	5.00	762.93
4	37.044054	-86.058295	758.92	5.00	763.92



2-Mile Flight Path Receptor(s)

Name: Glasgow Municipal Airport Runway 26
Description:
Threshold height : 50 ft
Direction: 252.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.033844	-85.946199	714.75	50.00	764.75
2-mile point	37.042702	-85.911682	732.56	585.62	1318.18



Name: Glasgow Municipal Airport Runway 8
Description:
Threshold height : 50 ft
Direction: 70.5 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.029484	-85.962314	707.66	50.00	757.66
2-mile point	37.019838	-85.996495	701.55	609.54	1311.09



Route Receptor(s)

Name: Apple Grove Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.050811	-86.064229	756.31	9.00	765.31
2	37.050408	-86.063569	761.13	9.00	770.13
3	37.050087	-86.063306	757.86	9.00	766.86
4	37.049385	-86.062947	758.11	9.00	767.11
5	37.049034	-86.062545	751.96	9.00	760.96
6	37.048905	-86.062142	750.65	9.00	759.65
7	37.048892	-86.061713	755.84	9.00	764.84
8	37.048957	-86.061150	765.04	9.00	774.04
9	37.049154	-86.060243	772.82	9.00	781.82
10	37.049188	-86.059895	771.74	9.00	780.74
11	37.049158	-86.059423	767.68	9.00	776.68
12	37.049107	-86.059294	766.85	9.00	775.85

Name: Cumberland Parkway Eastbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.046057	-86.077102	729.40	9.00	738.40
2	37.045124	-86.074269	728.80	9.00	737.80
3	37.044353	-86.072134	726.96	9.00	735.96
4	37.043103	-86.069248	719.99	9.00	728.99
5	37.042118	-86.067242	724.94	9.00	733.94
6	37.040345	-86.064131	743.88	9.00	752.88
7	37.037998	-86.060644	739.69	9.00	748.69
8	37.034556	-86.055870	725.62	9.00	734.62
9	37.032971	-86.053681	730.76	9.00	739.76
10	37.030830	-86.050666	741.27	9.00	750.27
11	37.028295	-86.047136	753.66	9.00	762.66

Name: Cumberland Parkway Westbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.028397	-86.046975	753.58	9.00	762.58
2	37.030950	-86.050537	741.62	9.00	750.62
3	37.033108	-86.053541	731.05	9.00	740.05
4	37.034676	-86.055719	725.50	9.00	734.50
5	37.038110	-86.060526	739.68	9.00	748.68
6	37.040448	-86.063938	743.61	9.00	752.61
7	37.042263	-86.067146	724.91	9.00	733.91
8	37.043222	-86.069141	720.07	9.00	729.07
9	37.044490	-86.072049	727.02	9.00	736.02
10	37.045278	-86.074194	729.51	9.00	738.51
11	37.046185	-86.077005	729.63	9.00	738.63

Name: Disman Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.038475	-86.060023	760.62	9.00	769.62
2	37.038308	-86.059685	757.43	9.00	766.43
3	37.038034	-86.059374	757.41	9.00	766.41
4	37.037447	-86.058822	754.08	9.00	763.08
5	37.037293	-86.058661	751.57	9.00	760.57
6	37.035777	-86.056553	731.85	9.00	740.85
7	37.033859	-86.053881	731.68	9.00	740.68
8	37.032210	-86.051590	739.11	9.00	748.11
9	37.031118	-86.050056	755.19	9.00	764.19

Name: Dripping Springs Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.050921	-86.058187	768.26	9.00	777.26
2	37.049474	-86.054807	761.42	9.00	770.42
3	37.049080	-86.054003	754.84	9.00	763.84
4	37.048206	-86.052404	758.13	9.00	767.13
5	37.047872	-86.051567	752.64	9.00	761.64
6	37.047555	-86.050537	755.57	9.00	764.57
7	37.047144	-86.048327	754.31	9.00	763.31
8	37.046528	-86.044626	729.80	9.00	738.80
9	37.046151	-86.043360	702.02	9.00	711.02
10	37.045689	-86.042137	713.63	9.00	722.63
11	37.045149	-86.040935	731.46	9.00	740.46
12	37.044096	-86.038864	733.46	9.00	742.46
13	37.042409	-86.035903	748.96	9.00	757.96
14	37.040499	-86.033049	761.06	9.00	770.06

Name: Mayhew Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.044062	-86.038854	733.93	9.00	742.93
2	37.043034	-86.039068	726.25	9.00	735.25
3	37.042537	-86.039680	719.93	9.00	728.93
4	37.042246	-86.039905	722.69	9.00	731.69
5	37.041887	-86.039905	728.14	9.00	737.14
6	37.041244	-86.039701	725.78	9.00	734.78
7	37.038658	-86.041235	748.51	9.00	757.51
8	37.038418	-86.041418	751.24	9.00	760.24
9	37.037262	-86.043016	761.52	9.00	770.52
10	37.037245	-86.043306	762.90	9.00	771.90
11	37.038033	-86.051793	741.92	9.00	750.92
12	37.038084	-86.052479	743.91	9.00	752.91
13	37.038024	-86.052715	742.76	9.00	751.76
14	37.037519	-86.053606	726.80	9.00	735.80
15	37.037476	-86.053788	727.85	9.00	736.85
16	37.037493	-86.054035	730.21	9.00	739.21
17	37.038786	-86.057286	751.95	9.00	760.95
18	37.038872	-86.057650	754.53	9.00	763.53
19	37.039146	-86.059957	755.96	9.00	764.96

Name: Park City Bon Ayr Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037836	-86.060150	745.58	9.00	754.58
2	37.039103	-86.059957	756.20	9.00	765.20
3	37.040208	-86.060054	756.96	9.00	765.96
4	37.041167	-86.060204	768.28	9.00	777.28
5	37.042469	-86.060343	762.71	9.00	771.71
6	37.043359	-86.060343	767.39	9.00	776.39
7	37.045235	-86.060236	759.12	9.00	768.12
8	37.047307	-86.060097	749.64	9.00	758.64
9	37.047958	-86.059925	751.68	9.00	760.68
10	37.048532	-86.059625	755.75	9.00	764.75
11	37.050929	-86.058208	768.35	9.00	777.35

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	37.011816	-85.904852	831.81	500.00	1331.81
OP 2	37.032362	-86.047508	779.30	16.00	795.30
OP 3	37.040909	-86.060455	766.88	16.00	782.88
OP 4	37.041464	-86.060640	769.82	16.00	785.82
OP 5	37.043461	-86.060681	767.64	16.00	783.64
OP 6	37.046465	-86.060571	768.52	16.00	784.52
OP 7	37.048740	-86.060088	769.74	16.00	785.74
OP 8	37.049762	-86.059452	778.86	16.00	794.86
OP 9	37.050524	-86.058065	777.04	16.00	793.04
OP 10	37.050952	-86.057331	766.50	16.00	782.50
OP 11	37.047848	-86.051902	761.28	16.00	777.28
OP 12	37.047839	-86.050553	760.27	16.00	776.27
OP 13	37.046966	-86.050129	761.40	16.00	777.40
OP 14	37.046542	-86.049863	762.92	16.00	778.92
OP 15	37.046854	-86.048820	761.17	16.00	777.17
OP 16	37.047647	-86.048477	757.37	16.00	773.37
OP 17	37.048244	-86.047900	754.03	16.00	770.03
OP 18	37.048019	-86.048037	755.04	16.00	771.04
OP 19	37.046623	-86.046741	742.67	16.00	758.67
OP 20	37.046461	-86.046304	738.79	16.00	754.79
OP 21	37.046377	-86.045945	735.98	16.00	751.98
OP 22	37.046321	-86.045548	735.22	16.00	751.22
OP 23	37.045227	-86.041527	731.21	16.00	747.21
OP 24	37.045405	-86.040754	731.84	16.00	747.84
OP 25	37.045536	-86.041186	733.40	16.00	749.40
OP 26	37.045266	-86.040384	733.53	16.00	749.53
OP 27	37.045131	-86.040044	734.77	16.00	750.77
OP 28	37.044726	-86.040414	736.58	16.00	752.58
OP 29	37.044088	-86.039403	737.86	16.00	753.86
OP 30	37.043528	-86.038630	737.54	16.00	753.54
OP 31	37.043307	-86.038070	748.22	16.00	764.22
OP 32	37.042678	-86.037431	752.73	16.00	768.73
OP 33	37.032271	-86.060469	711.51	16.00	727.51
OP 34	37.032611	-86.061204	745.83	16.00	761.83
OP 35	37.034855	-86.059887	762.13	16.00	778.13
OP 36	37.035759	-86.060907	755.37	16.00	771.37
OP 37	37.037502	-86.060993	748.99	16.00	764.99
OP 38	37.037831	-86.062752	739.58	16.00	755.58
OP 39	37.038838	-86.063133	743.84	16.00	759.84
OP 40	37.039056	-86.063557	740.99	16.00	756.99

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
201	SA tracking	SA tracking	0	0	-	-
202	SA tracking	SA tracking	0	0	-	-
203	SA tracking	SA tracking	0	0	-	-
204	SA tracking	SA tracking	0	0	-	-
205	SA tracking	SA tracking	0	0	-	-
206	SA tracking	SA tracking	0	0	-	-
207	SA tracking	SA tracking	0	0	-	-
208	SA tracking	SA tracking	0	0	-	-
209	SA tracking	SA tracking	0	0	-	-
210	SA tracking	SA tracking	0	0	-	-
211	SA tracking	SA tracking	0	0	-	-
212	SA tracking	SA tracking	0	0	-	-
213	SA tracking	SA tracking	0	0	-	-
214	SA tracking	SA tracking	0	0	-	-
215	SA tracking	SA tracking	0	0	-	-
216	SA tracking	SA tracking	0	0	-	-
217	SA tracking	SA tracking	0	0	-	-
218	SA tracking	SA tracking	0	0	-	-
219	SA tracking	SA tracking	0	0	-	-

PV & Receptor Analysis Results

Results for each PV array and receptor

201 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

202 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

203 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

204 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

205 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

206 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

207 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

208 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

209 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

210 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

211 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

212 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

213 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

214 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

215 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

216 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

217 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

218 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

---

219 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Apple Grove Road	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Disman Road	0	0
Route: Dripping Springs Road	0	0
Route: Mayhew Road	0	0

Route: Park City Bon Ayr Road	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographi obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

Wood Duck

Block 3 5ft vehicle

Created Apr 26, 2023
Updated Apr 27, 2023
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
Site ID 89204.15739

Project type Advanced
Project status: active
Category 10 MW to 100 MW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

PV Analysis Methodology: **Version 2**
Enhanced subtended angle calculation: **On**

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
301	SA tracking	SA tracking	0	0	-
302	SA tracking	SA tracking	0	0	-
303	SA tracking	SA tracking	0	0	-
304	SA tracking	SA tracking	0	0	-
305	SA tracking	SA tracking	0	0	-
306	SA tracking	SA tracking	0	0	-
307	SA tracking	SA tracking	0	0	-
308	SA tracking	SA tracking	0	0	-
309	SA tracking	SA tracking	0	0	-
310	SA tracking	SA tracking	0	0	-
311	SA tracking	SA tracking	0	0	-
312	SA tracking	SA tracking	0	0	-
313	SA tracking	SA tracking	0	0	-
314	SA tracking	SA tracking	0	0	-
315	SA tracking	SA tracking	0	0	-
316	SA tracking	SA tracking	0	0	-
317	SA tracking	SA tracking	0	0	-
318	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 183.0 acres

Name: 301
Footprint area: 7.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.047387	-86.088859	672.94	5.00	677.94
2	37.048113	-86.088848	668.96	5.00	673.96
3	37.048105	-86.087770	678.35	5.00	683.35
4	37.048002	-86.086970	672.95	5.00	677.95
5	37.047762	-86.086300	675.46	5.00	680.46
6	37.046841	-86.086300	683.66	5.00	688.66
7	37.046841	-86.086016	680.93	5.00	685.93
8	37.046184	-86.086010	693.33	5.00	698.33
9	37.046186	-86.086187	695.44	5.00	700.44
10	37.045930	-86.086190	698.12	5.00	703.12
11	37.046204	-86.087032	691.01	5.00	696.01
12	37.046638	-86.087029	684.21	5.00	689.21
13	37.046640	-86.087204	682.80	5.00	687.80
14	37.046916	-86.087571	689.75	5.00	694.75
15	37.047173	-86.087544	688.56	5.00	693.56
16	37.047368	-86.087858	684.97	5.00	689.97
17	37.047372	-86.088306	678.82	5.00	683.82

Name: 302
Footprint area: 3.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.046326	-86.084334	689.33	5.00	694.33
2	37.047094	-86.084312	688.66	5.00	693.66
3	37.047090	-86.083057	676.77	5.00	681.77
4	37.045910	-86.083057	689.55	5.00	694.55
5	37.045917	-86.083977	694.73	5.00	699.73
6	37.046313	-86.083969	696.85	5.00	701.85

Name: 303
Footprint area: 5.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.045110	-86.082183	708.88	5.00	713.88
2	37.045842	-86.082177	689.42	5.00	694.42
3	37.045487	-86.080844	710.36	5.00	715.36
4	37.045776	-86.080796	700.85	5.00	705.85
5	37.045431	-86.079672	714.15	5.00	719.15
6	37.045418	-86.079171	715.72	5.00	720.72
7	37.044615	-86.079176	727.56	5.00	732.56
8	37.044613	-86.079294	727.58	5.00	732.58
9	37.044671	-86.079297	727.62	5.00	732.62
10	37.044679	-86.079659	726.18	5.00	731.18
11	37.045108	-86.080836	718.38	5.00	723.38
12	37.044724	-86.080858	725.36	5.00	730.36

Name: 304
Footprint area: 19.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043949	-86.084578	708.32	5.00	713.32
2	37.044750	-86.084605	706.68	5.00	711.68
3	37.044750	-86.086364	709.96	5.00	714.96
4	37.045118	-86.086337	709.50	5.00	714.50
5	37.045183	-86.089277	694.91	5.00	699.91
6	37.044545	-86.089309	695.47	5.00	700.47
7	37.044579	-86.091482	673.54	5.00	678.54
8	37.043470	-86.091487	678.16	5.00	683.16
9	37.043397	-86.089283	682.93	5.00	687.93
10	37.043226	-86.089283	682.56	5.00	687.56
11	37.043196	-86.088263	683.58	5.00	688.58
12	37.043997	-86.088231	688.56	5.00	693.56

Name: 305
Footprint area: 0.65 acre
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043862	-86.080839	724.72	5.00	729.72
2	37.043866	-86.080442	725.96	5.00	730.96
3	37.043198	-86.080439	716.24	5.00	721.24
4	37.043194	-86.080836	718.04	5.00	723.04

Name: 306
Footprint area: 9.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043630	-86.084023	706.22	5.00	711.22
2	37.043628	-86.083422	710.98	5.00	715.98
3	37.044333	-86.083417	699.65	5.00	704.65
4	37.044350	-86.082236	718.11	5.00	723.11
5	37.043725	-86.082215	717.93	5.00	722.93
6	37.043725	-86.081378	723.27	5.00	728.27
7	37.042864	-86.081367	717.48	5.00	722.48
8	37.042851	-86.081925	718.02	5.00	723.02
9	37.042556	-86.081904	713.86	5.00	718.86
10	37.042491	-86.082156	716.46	5.00	721.46
11	37.042487	-86.082993	720.74	5.00	725.74
12	37.041798	-86.082993	703.77	5.00	708.77
13	37.041806	-86.083459	710.31	5.00	715.31
14	37.042496	-86.083449	718.98	5.00	723.98
15	37.042491	-86.084087	708.86	5.00	713.86

Name: 307
Footprint area: 7.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.041712	-86.086785	679.62	5.00	684.62
2	37.041922	-86.086533	683.44	5.00	688.44
3	37.041918	-86.084554	707.56	5.00	712.56
4	37.041708	-86.084548	708.24	5.00	713.24
5	37.041708	-86.083958	711.04	5.00	716.04
6	37.041040	-86.083953	691.77	5.00	696.77
7	37.041048	-86.084495	695.23	5.00	700.23
8	37.040749	-86.084489	687.93	5.00	692.93
9	37.040783	-86.086555	672.84	5.00	677.84
10	37.040667	-86.086844	669.86	5.00	674.86

Name: 308
Footprint area: 8.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.039721	-86.088606	682.57	5.00	687.57
2	37.039000	-86.088630	695.76	5.00	700.76
3	37.038985	-86.087348	693.32	5.00	698.32
4	37.038387	-86.087310	696.56	5.00	701.56
5	37.038396	-86.086414	695.59	5.00	700.59
6	37.038210	-86.086417	690.09	5.00	695.09
7	37.038214	-86.086259	689.41	5.00	694.41
8	37.038356	-86.085839	686.67	5.00	691.67
9	37.039298	-86.085846	684.55	5.00	689.55
10	37.040227	-86.086798	675.16	5.00	680.16
11	37.040253	-86.087597	678.62	5.00	683.62
12	37.039943	-86.087608	691.59	5.00	696.59

Name: 309
Footprint area: 6.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.040245	-86.085148	683.09	5.00	688.09
2	37.039163	-86.085132	680.74	5.00	685.74
3	37.039157	-86.084212	686.09	5.00	691.09
4	37.039474	-86.084231	686.95	5.00	691.95
5	37.039472	-86.083928	688.39	5.00	693.39
6	37.040746	-86.082584	717.95	5.00	722.95
7	37.041846	-86.082563	705.07	5.00	710.07
8	37.040377	-86.083759	694.57	5.00	699.57

Name: 310
Footprint area: 11.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.041887	-86.080578	718.83	5.00	723.83
2	37.041167	-86.080615	731.61	5.00	736.61
3	37.041172	-86.077863	713.10	5.00	718.10
4	37.043351	-86.077880	716.97	5.00	721.97
5	37.043368	-86.079317	723.44	5.00	728.44
6	37.043051	-86.079328	723.41	5.00	728.41
7	37.043056	-86.079618	720.34	5.00	725.34
8	37.042272	-86.079612	722.28	5.00	727.28
9	37.042272	-86.080143	716.88	5.00	721.88
10	37.041908	-86.080122	720.76	5.00	725.76

Name: 311
Footprint area: 16.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.041167	-86.080621	731.61	5.00	736.61
2	37.041167	-86.081356	732.38	5.00	737.38
3	37.040812	-86.081356	731.86	5.00	736.86
4	37.040816	-86.081667	731.54	5.00	736.54
5	37.040054	-86.081715	719.65	5.00	724.65
6	37.040097	-86.082353	721.36	5.00	726.36
7	37.039720	-86.082380	712.00	5.00	717.00
8	37.039737	-86.082724	710.14	5.00	715.14
9	37.038846	-86.082761	699.07	5.00	704.07
10	37.038799	-86.079274	705.39	5.00	710.39
11	37.041176	-86.079333	727.75	5.00	732.75

Name: 312
Footprint area: 15.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.041167	-86.077939	714.21	5.00	719.21
2	37.041163	-86.079333	727.68	5.00	732.68
3	37.038799	-86.079280	705.26	5.00	710.26
4	37.038778	-86.077542	718.52	5.00	723.52
5	37.038637	-86.077547	717.88	5.00	722.88
6	37.038628	-86.075154	686.81	5.00	691.81
7	37.039472	-86.075181	683.46	5.00	688.46
8	37.039746	-86.075557	686.45	5.00	691.45
9	37.039776	-86.077311	720.77	5.00	725.77
10	37.039990	-86.077306	720.66	5.00	725.66
11	37.039998	-86.078030	720.57	5.00	725.57

Name: 313
Footprint area: 24.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.038632	-86.077558	717.89	5.00	722.89
2	37.038637	-86.078089	716.06	5.00	721.06
3	37.037742	-86.078126	717.33	5.00	722.33
4	37.037759	-86.078931	721.63	5.00	726.63
5	37.038401	-86.078915	712.36	5.00	717.36
6	37.038427	-86.081887	697.88	5.00	702.88
7	37.037665	-86.081924	709.00	5.00	714.00
8	37.037643	-86.081458	703.81	5.00	708.81
9	37.036770	-86.081463	722.63	5.00	727.63
10	37.036770	-86.076726	678.71	5.00	683.71
11	37.036860	-86.076721	681.04	5.00	686.04
12	37.036851	-86.075986	671.84	5.00	676.84
13	37.037549	-86.076002	678.75	5.00	683.75
14	37.037545	-86.075144	671.83	5.00	676.83
15	37.038624	-86.075160	687.14	5.00	692.14

Name: 314
Footprint area: 18.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.036770	-86.081466	722.49	5.00	727.49
2	37.036517	-86.081490	720.64	5.00	725.64
3	37.036491	-86.081050	722.79	5.00	727.79
4	37.035455	-86.081039	703.50	5.00	708.50
5	37.035442	-86.079870	698.25	5.00	703.25
6	37.034444	-86.079907	693.96	5.00	698.96
7	37.034466	-86.080653	710.71	5.00	715.71
8	37.033297	-86.080642	683.23	5.00	688.23
9	37.033310	-86.079349	660.88	5.00	665.88
10	37.033605	-86.079355	663.70	5.00	668.70
11	37.033605	-86.078995	662.43	5.00	667.43
12	37.034393	-86.078979	670.71	5.00	675.71
13	37.034393	-86.078636	665.21	5.00	670.21
14	37.035438	-86.078641	684.84	5.00	689.84
15	37.035464	-86.078051	672.60	5.00	677.60
16	37.035806	-86.078035	680.16	5.00	685.16
17	37.035806	-86.077633	671.15	5.00	676.15
18	37.036547	-86.077644	685.59	5.00	690.59
19	37.036547	-86.076705	674.29	5.00	679.29
20	37.036774	-86.076705	678.73	5.00	683.73

Name: 315
Footprint area: 4.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.039684	-86.075120	685.40	5.00	690.40
2	37.040463	-86.075118	703.92	5.00	708.92
3	37.040478	-86.072578	691.58	5.00	696.58
4	37.039692	-86.072580	677.61	5.00	682.61
5	37.039690	-86.073471	684.88	5.00	689.88

Name: 316
Footprint area: 7.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.042570	-86.072127	737.14	5.00	742.14
2	37.042559	-86.069544	718.68	5.00	723.68
3	37.041416	-86.069515	696.16	5.00	701.16
4	37.041478	-86.072103	716.05	5.00	721.05

Name: 317
Footprint area: 2.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.031323	-86.084542	656.64	5.00	661.64
2	37.031338	-86.085676	656.37	5.00	661.37
3	37.032115	-86.085660	674.20	5.00	679.20
4	37.032098	-86.084534	686.45	5.00	691.45

Name: 318
Footprint area: 15.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.029314	-86.082911	669.39	5.00	674.39
2	37.029305	-86.082675	671.82	5.00	676.82
3	37.029742	-86.082664	658.47	5.00	663.47
4	37.029734	-86.081538	661.87	5.00	666.87
5	37.029323	-86.081505	664.45	5.00	669.45
6	37.028826	-86.081468	680.16	5.00	685.16
7	37.028830	-86.080964	664.56	5.00	669.56
8	37.027605	-86.080905	683.18	5.00	688.18
9	37.027592	-86.080733	675.73	5.00	680.73
10	37.027117	-86.080567	674.00	5.00	679.00
11	37.026436	-86.080556	677.06	5.00	682.06
12	37.026466	-86.083040	727.73	5.00	732.73

2-Mile Flight Path Receptor(s)

Name: Glasgow Municipal Airport Runway 26
Description:
Threshold height : 50 ft
Direction: 252.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.033844	-85.946199	714.75	50.00	764.75
2-mile point	37.042702	-85.911682	732.56	585.62	1318.18



Name: Glasgow Municipal Airport Runway 8
Description:
Threshold height : 50 ft
Direction: 70.5 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.029484	-85.962314	707.66	50.00	757.66
2-mile point	37.019838	-85.996495	701.55	609.54	1311.09



Route Receptor(s)

Name: Cumberland Parkway Eastbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.051281	-86.097656	664.33	5.00	669.33
2	37.050502	-86.095134	659.04	5.00	664.04
3	37.049748	-86.092066	658.65	5.00	663.65
4	37.048087	-86.085189	673.08	5.00	678.08
5	37.046665	-86.079438	718.86	5.00	723.86
6	37.045869	-86.076488	731.04	5.00	736.04
7	37.045158	-86.074342	730.28	5.00	735.28
8	37.044199	-86.071778	725.10	5.00	730.10
9	37.043086	-86.069192	720.02	5.00	725.02
10	37.042041	-86.067079	725.93	5.00	730.93
11	37.040799	-86.064901	740.54	5.00	745.54
12	37.038881	-86.061886	743.60	5.00	748.60
13	37.036757	-86.058935	735.06	5.00	740.06

Name: Cumberland Parkway Westbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.036843	-86.058742	735.15	5.00	740.15
2	37.038975	-86.061725	743.44	5.00	748.44
3	37.040911	-86.064707	740.72	5.00	745.72
4	37.042161	-86.066961	725.82	5.00	730.82
5	37.043206	-86.069085	720.12	5.00	725.12
6	37.044319	-86.071638	725.78	5.00	730.78
7	37.045278	-86.074256	730.58	5.00	735.58
8	37.046032	-86.076445	731.60	5.00	736.60
9	37.046845	-86.079395	718.78	5.00	723.78
10	37.048232	-86.085189	672.96	5.00	677.96
11	37.049919	-86.092045	658.55	5.00	663.55
12	37.050630	-86.095092	658.83	5.00	663.83
13	37.051418	-86.097548	664.03	5.00	669.03

Name: Millstown Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.023826	-86.095485	698.05	5.00	703.05
2	37.024442	-86.095571	697.40	5.00	702.40
3	37.027286	-86.095807	687.39	5.00	692.39
4	37.027594	-86.095989	685.32	5.00	690.32
5	37.027851	-86.096762	679.29	5.00	684.29
6	37.028160	-86.096740	677.47	5.00	682.47
7	37.030352	-86.095485	676.79	5.00	681.79
8	37.031954	-86.094509	654.34	5.00	659.34
9	37.032202	-86.094155	643.91	5.00	648.91
10	37.032768	-86.093329	644.25	5.00	649.25
11	37.033162	-86.092932	644.10	5.00	649.10
12	37.034412	-86.092288	665.08	5.00	670.08
13	37.036725	-86.091194	682.24	5.00	687.24
14	37.038317	-86.089874	695.81	5.00	700.81
15	37.039311	-86.089348	686.91	5.00	691.91
16	37.039705	-86.089101	681.68	5.00	686.68
17	37.040167	-86.088554	675.53	5.00	680.53
18	37.040484	-86.088286	673.17	5.00	678.17
19	37.041092	-86.088082	667.73	5.00	672.73
20	37.041666	-86.087481	673.58	5.00	678.58
21	37.042248	-86.086816	687.64	5.00	692.64
22	37.042796	-86.085840	702.81	5.00	707.81
23	37.043293	-86.084853	708.86	5.00	713.86
24	37.043833	-86.084263	707.51	5.00	712.51
25	37.045794	-86.082653	692.28	5.00	697.28
26	37.046299	-86.082321	684.21	5.00	689.21
27	37.047258	-86.081774	690.01	5.00	695.01

Name: Oak Grove Church Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.049613	-86.099047	662.89	5.00	667.89
2	37.048851	-86.097159	663.74	5.00	668.74
3	37.047780	-86.094648	672.26	5.00	677.26
4	37.046873	-86.092299	682.95	5.00	687.95
5	37.046658	-86.091472	691.26	5.00	696.26
6	37.046367	-86.089573	688.48	5.00	693.48
7	37.045023	-86.083286	699.73	5.00	704.73
8	37.044783	-86.082106	715.20	5.00	720.20
9	37.044042	-86.079810	730.66	5.00	735.66
10	37.043978	-86.079521	727.64	5.00	732.64
11	37.043940	-86.079065	726.91	5.00	731.91
12	37.043935	-86.076329	730.76	5.00	735.76
13	37.043884	-86.074537	730.38	5.00	735.38
14	37.043815	-86.074221	729.84	5.00	734.84
15	37.043434	-86.073636	734.37	5.00	739.37
16	37.043002	-86.073148	731.63	5.00	736.63
17	37.042514	-86.072885	728.74	5.00	733.74
18	37.041422	-86.072515	718.88	5.00	723.88
19	37.041148	-86.072273	713.86	5.00	718.86
20	37.040947	-86.071903	704.69	5.00	709.69
21	37.040827	-86.071402	697.27	5.00	702.27
22	37.040523	-86.069698	690.17	5.00	695.17
23	37.040296	-86.067413	716.99	5.00	721.99
24	37.040120	-86.066571	723.33	5.00	728.33
25	37.039782	-86.065546	736.00	5.00	741.00
26	37.039671	-86.065080	738.68	5.00	743.68
27	37.039444	-86.063760	740.63	5.00	745.63

Name: Payne Loop Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.044582	-86.105983	678.48	5.00	683.48
2	37.044111	-86.104707	672.18	5.00	677.18
3	37.043854	-86.104277	674.98	5.00	679.98
4	37.043606	-86.103848	682.05	5.00	687.05
5	37.042313	-86.100082	682.92	5.00	687.92
6	37.042184	-86.100061	683.13	5.00	688.13
7	37.041936	-86.100276	686.51	5.00	691.51
8	37.040146	-86.102496	683.80	5.00	688.80
9	37.039923	-86.102561	683.25	5.00	688.25
10	37.039718	-86.102507	679.13	5.00	684.13
11	37.038022	-86.102132	697.95	5.00	702.95

Name: US 68
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.023757	-86.095453	698.48	5.00	703.48
2	37.024134	-86.093833	712.80	5.00	717.80
3	37.024725	-86.091623	712.08	5.00	717.08
4	37.025556	-86.088350	717.33	5.00	722.33
5	37.025967	-86.086698	692.52	5.00	697.52
6	37.026113	-86.085572	692.59	5.00	697.59
7	37.026147	-86.084381	713.16	5.00	718.16
8	37.026036	-86.081827	702.53	5.00	707.53
9	37.025898	-86.079274	689.31	5.00	694.31
10	37.025967	-86.078308	704.21	5.00	709.21
11	37.026447	-86.074435	711.28	5.00	716.28
12	37.026481	-86.073362	719.44	5.00	724.44

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	37.011816	-85.904852	831.81	500.00	1331.81
OP 2	37.026447	-86.083909	732.90	16.00	748.90
OP 3	37.025941	-86.083549	734.65	16.00	750.65
OP 4	37.026156	-86.087685	722.82	16.00	738.82
OP 5	37.026186	-86.089305	725.79	16.00	741.79
OP 6	37.034406	-86.091907	671.64	16.00	687.64
OP 7	37.034860	-86.091786	669.66	16.00	685.66
OP 8	37.035380	-86.091065	680.21	16.00	696.21
OP 9	37.036231	-86.091140	689.76	16.00	705.76
OP 10	37.041631	-86.088099	675.63	16.00	691.63
OP 11	37.046230	-86.090902	694.59	16.00	710.59
OP 12	37.046339	-86.088507	696.97	16.00	712.97
OP 13	37.047442	-86.094478	676.17	16.00	692.17
OP 14	37.047756	-86.093592	679.19	16.00	695.19
OP 15	37.045605	-86.085033	700.58	16.00	716.58
OP 16	37.044278	-86.078043	740.43	16.00	756.43
OP 17	37.040683	-86.068551	715.48	16.00	731.48
OP 18	37.040666	-86.068119	723.29	16.00	739.29
OP 19	37.039865	-86.065083	744.62	16.00	760.62
OP 20	37.039071	-86.063538	741.34	16.00	757.34
OP 21	37.024613	-86.081058	728.52	16.00	744.52
OP 22	37.025046	-86.075935	736.15	16.00	752.15
OP 23	37.024776	-86.075265	730.51	16.00	746.51
OP 24	37.025847	-86.071896	741.18	16.00	757.18
OP 25	37.026523	-86.071215	749.91	16.00	765.91
OP 26	37.025493	-86.087634	723.40	16.00	739.40
OP 27	37.028577	-86.097086	681.21	16.00	697.21
OP 28	37.029206	-86.096700	694.19	16.00	710.19
OP 29	37.029596	-86.096496	696.37	16.00	712.37
OP 30	37.030080	-86.096051	682.14	16.00	698.14
OP 31	37.029647	-86.095249	690.55	16.00	706.55
OP 32	37.031526	-86.095080	677.94	16.00	693.94
OP 33	37.043066	-86.103205	687.48	16.00	703.48
OP 34	37.046487	-86.081460	701.10	16.00	717.10
OP 35	37.048538	-86.080653	687.04	16.00	703.04
OP 36	37.051338	-86.088415	657.16	16.00	673.16
OP 37	37.043272	-86.072816	737.62	16.00	753.62
OP 38	37.038846	-86.063124	743.85	16.00	759.85
OP 39	37.035788	-86.060912	755.52	16.00	771.52
OP 40	37.037856	-86.062768	739.96	16.00	755.96

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
301	SA tracking	SA tracking	0	0	-	-
302	SA tracking	SA tracking	0	0	-	-
303	SA tracking	SA tracking	0	0	-	-
304	SA tracking	SA tracking	0	0	-	-
305	SA tracking	SA tracking	0	0	-	-
306	SA tracking	SA tracking	0	0	-	-
307	SA tracking	SA tracking	0	0	-	-
308	SA tracking	SA tracking	0	0	-	-
309	SA tracking	SA tracking	0	0	-	-
310	SA tracking	SA tracking	0	0	-	-
311	SA tracking	SA tracking	0	0	-	-
312	SA tracking	SA tracking	0	0	-	-
313	SA tracking	SA tracking	0	0	-	-
314	SA tracking	SA tracking	0	0	-	-
315	SA tracking	SA tracking	0	0	-	-
316	SA tracking	SA tracking	0	0	-	-
317	SA tracking	SA tracking	0	0	-	-
318	SA tracking	SA tracking	0	0	-	-

PV & Receptor Analysis Results

Results for each PV array and receptor

301 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

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302 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

303 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

304 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

305 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

306 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

307 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

308 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

309 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

310 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

311 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

312 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

313 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

314 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

315 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

316 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

317 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

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318 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographi obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

Wood Duck

Block 3 9ft vehicle

Created Apr 27, 2023
Updated Apr 27, 2023
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
Site ID 89275.15739

Project type Advanced
Project status: active
Category 10 MW to 100 MW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

PV Analysis Methodology: **Version 2**
Enhanced subtended angle calculation: **On**

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
301	SA tracking	SA tracking	0	0	-
302	SA tracking	SA tracking	0	0	-
303	SA tracking	SA tracking	0	0	-
304	SA tracking	SA tracking	0	0	-
305	SA tracking	SA tracking	0	0	-
306	SA tracking	SA tracking	0	0	-
307	SA tracking	SA tracking	0	0	-
308	SA tracking	SA tracking	0	0	-
309	SA tracking	SA tracking	0	0	-
310	SA tracking	SA tracking	0	0	-
311	SA tracking	SA tracking	0	0	-
312	SA tracking	SA tracking	0	0	-
313	SA tracking	SA tracking	0	0	-
314	SA tracking	SA tracking	0	0	-
315	SA tracking	SA tracking	0	0	-
316	SA tracking	SA tracking	0	0	-
317	SA tracking	SA tracking	0	0	-
318	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 183.0 acres

Name: 301
Footprint area: 7.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.047387	-86.088859	672.94	5.00	677.94
2	37.048113	-86.088848	668.96	5.00	673.96
3	37.048105	-86.087770	678.35	5.00	683.35
4	37.048002	-86.086970	672.95	5.00	677.95
5	37.047762	-86.086300	675.46	5.00	680.46
6	37.046841	-86.086300	683.66	5.00	688.66
7	37.046841	-86.086016	680.93	5.00	685.93
8	37.046184	-86.086010	693.33	5.00	698.33
9	37.046186	-86.086187	695.44	5.00	700.44
10	37.045930	-86.086190	698.12	5.00	703.12
11	37.046204	-86.087032	691.01	5.00	696.01
12	37.046638	-86.087029	684.21	5.00	689.21
13	37.046640	-86.087204	682.80	5.00	687.80
14	37.046916	-86.087571	689.75	5.00	694.75
15	37.047173	-86.087544	688.56	5.00	693.56
16	37.047368	-86.087858	684.97	5.00	689.97
17	37.047372	-86.088306	678.82	5.00	683.82

Name: 302
Footprint area: 3.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.046326	-86.084334	689.33	5.00	694.33
2	37.047094	-86.084312	688.66	5.00	693.66
3	37.047090	-86.083057	676.77	5.00	681.77
4	37.045910	-86.083057	689.55	5.00	694.55
5	37.045917	-86.083977	694.73	5.00	699.73
6	37.046313	-86.083969	696.85	5.00	701.85

Name: 303
Footprint area: 5.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.045110	-86.082183	708.88	5.00	713.88
2	37.045842	-86.082177	689.42	5.00	694.42
3	37.045487	-86.080844	710.36	5.00	715.36
4	37.045776	-86.080796	700.85	5.00	705.85
5	37.045431	-86.079672	714.15	5.00	719.15
6	37.045418	-86.079171	715.72	5.00	720.72
7	37.044615	-86.079176	727.56	5.00	732.56
8	37.044613	-86.079294	727.58	5.00	732.58
9	37.044671	-86.079297	727.62	5.00	732.62
10	37.044679	-86.079659	726.18	5.00	731.18
11	37.045108	-86.080836	718.38	5.00	723.38
12	37.044724	-86.080858	725.36	5.00	730.36

Name: 304
Footprint area: 19.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043949	-86.084578	708.32	5.00	713.32
2	37.044750	-86.084605	706.68	5.00	711.68
3	37.044750	-86.086364	709.96	5.00	714.96
4	37.045118	-86.086337	709.50	5.00	714.50
5	37.045183	-86.089277	694.91	5.00	699.91
6	37.044545	-86.089309	695.47	5.00	700.47
7	37.044579	-86.091482	673.54	5.00	678.54
8	37.043470	-86.091487	678.16	5.00	683.16
9	37.043397	-86.089283	682.93	5.00	687.93
10	37.043226	-86.089283	682.56	5.00	687.56
11	37.043196	-86.088263	683.58	5.00	688.58
12	37.043997	-86.088231	688.56	5.00	693.56

Name: 305
Footprint area: 0.65 acre
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043862	-86.080839	724.72	5.00	729.72
2	37.043866	-86.080442	725.96	5.00	730.96
3	37.043198	-86.080439	716.24	5.00	721.24
4	37.043194	-86.080836	718.04	5.00	723.04

Name: 306
Footprint area: 9.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043630	-86.084023	706.22	5.00	711.22
2	37.043628	-86.083422	710.98	5.00	715.98
3	37.044333	-86.083417	699.65	5.00	704.65
4	37.044350	-86.082236	718.11	5.00	723.11
5	37.043725	-86.082215	717.93	5.00	722.93
6	37.043725	-86.081378	723.27	5.00	728.27
7	37.042864	-86.081367	717.48	5.00	722.48
8	37.042851	-86.081925	718.02	5.00	723.02
9	37.042556	-86.081904	713.86	5.00	718.86
10	37.042491	-86.082156	716.46	5.00	721.46
11	37.042487	-86.082993	720.74	5.00	725.74
12	37.041798	-86.082993	703.77	5.00	708.77
13	37.041806	-86.083459	710.31	5.00	715.31
14	37.042496	-86.083449	718.98	5.00	723.98
15	37.042491	-86.084087	708.86	5.00	713.86

Name: 307
Footprint area: 7.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.041712	-86.086785	679.62	5.00	684.62
2	37.041922	-86.086533	683.44	5.00	688.44
3	37.041918	-86.084554	707.56	5.00	712.56
4	37.041708	-86.084548	708.24	5.00	713.24
5	37.041708	-86.083958	711.04	5.00	716.04
6	37.041040	-86.083953	691.77	5.00	696.77
7	37.041048	-86.084495	695.23	5.00	700.23
8	37.040749	-86.084489	687.93	5.00	692.93
9	37.040783	-86.086555	672.84	5.00	677.84
10	37.040667	-86.086844	669.86	5.00	674.86

Name: 308
Footprint area: 8.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.039721	-86.088606	682.57	5.00	687.57
2	37.039000	-86.088630	695.76	5.00	700.76
3	37.038985	-86.087348	693.32	5.00	698.32
4	37.038387	-86.087310	696.56	5.00	701.56
5	37.038396	-86.086414	695.59	5.00	700.59
6	37.038210	-86.086417	690.09	5.00	695.09
7	37.038214	-86.086259	689.41	5.00	694.41
8	37.038356	-86.085839	686.67	5.00	691.67
9	37.039298	-86.085846	684.55	5.00	689.55
10	37.040227	-86.086798	675.16	5.00	680.16
11	37.040253	-86.087597	678.62	5.00	683.62
12	37.039943	-86.087608	691.59	5.00	696.59

Name: 309
Footprint area: 6.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.040245	-86.085148	683.09	5.00	688.09
2	37.039163	-86.085132	680.74	5.00	685.74
3	37.039157	-86.084212	686.09	5.00	691.09
4	37.039474	-86.084231	686.95	5.00	691.95
5	37.039472	-86.083928	688.39	5.00	693.39
6	37.040746	-86.082584	717.95	5.00	722.95
7	37.041846	-86.082563	705.07	5.00	710.07
8	37.040377	-86.083759	694.57	5.00	699.57

Name: 310
Footprint area: 11.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.041887	-86.080578	718.83	5.00	723.83
2	37.041167	-86.080615	731.61	5.00	736.61
3	37.041172	-86.077863	713.10	5.00	718.10
4	37.043351	-86.077880	716.97	5.00	721.97
5	37.043368	-86.079317	723.44	5.00	728.44
6	37.043051	-86.079328	723.41	5.00	728.41
7	37.043056	-86.079618	720.34	5.00	725.34
8	37.042272	-86.079612	722.28	5.00	727.28
9	37.042272	-86.080143	716.88	5.00	721.88
10	37.041908	-86.080122	720.76	5.00	725.76

Name: 311
Footprint area: 16.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.041167	-86.080621	731.61	5.00	736.61
2	37.041167	-86.081356	732.38	5.00	737.38
3	37.040812	-86.081356	731.86	5.00	736.86
4	37.040816	-86.081667	731.54	5.00	736.54
5	37.040054	-86.081715	719.65	5.00	724.65
6	37.040097	-86.082353	721.36	5.00	726.36
7	37.039720	-86.082380	712.00	5.00	717.00
8	37.039737	-86.082724	710.14	5.00	715.14
9	37.038846	-86.082761	699.07	5.00	704.07
10	37.038799	-86.079274	705.39	5.00	710.39
11	37.041176	-86.079333	727.75	5.00	732.75

Name: 312
Footprint area: 15.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.041167	-86.077939	714.21	5.00	719.21
2	37.041163	-86.079333	727.68	5.00	732.68
3	37.038799	-86.079280	705.26	5.00	710.26
4	37.038778	-86.077542	718.52	5.00	723.52
5	37.038637	-86.077547	717.88	5.00	722.88
6	37.038628	-86.075154	686.81	5.00	691.81
7	37.039472	-86.075181	683.46	5.00	688.46
8	37.039746	-86.075557	686.45	5.00	691.45
9	37.039776	-86.077311	720.77	5.00	725.77
10	37.039990	-86.077306	720.66	5.00	725.66
11	37.039998	-86.078030	720.57	5.00	725.57

Name: 313
Footprint area: 24.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.038632	-86.077558	717.89	5.00	722.89
2	37.038637	-86.078089	716.06	5.00	721.06
3	37.037742	-86.078126	717.33	5.00	722.33
4	37.037759	-86.078931	721.63	5.00	726.63
5	37.038401	-86.078915	712.36	5.00	717.36
6	37.038427	-86.081887	697.88	5.00	702.88
7	37.037665	-86.081924	709.00	5.00	714.00
8	37.037643	-86.081458	703.81	5.00	708.81
9	37.036770	-86.081463	722.63	5.00	727.63
10	37.036770	-86.076726	678.71	5.00	683.71
11	37.036860	-86.076721	681.04	5.00	686.04
12	37.036851	-86.075986	671.84	5.00	676.84
13	37.037549	-86.076002	678.75	5.00	683.75
14	37.037545	-86.075144	671.83	5.00	676.83
15	37.038624	-86.075160	687.14	5.00	692.14

Name: 314
Footprint area: 18.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.036770	-86.081466	722.49	5.00	727.49
2	37.036517	-86.081490	720.64	5.00	725.64
3	37.036491	-86.081050	722.79	5.00	727.79
4	37.035455	-86.081039	703.50	5.00	708.50
5	37.035442	-86.079870	698.25	5.00	703.25
6	37.034444	-86.079907	693.96	5.00	698.96
7	37.034466	-86.080653	710.71	5.00	715.71
8	37.033297	-86.080642	683.23	5.00	688.23
9	37.033310	-86.079349	660.88	5.00	665.88
10	37.033605	-86.079355	663.70	5.00	668.70
11	37.033605	-86.078995	662.43	5.00	667.43
12	37.034393	-86.078979	670.71	5.00	675.71
13	37.034393	-86.078636	665.21	5.00	670.21
14	37.035438	-86.078641	684.84	5.00	689.84
15	37.035464	-86.078051	672.60	5.00	677.60
16	37.035806	-86.078035	680.16	5.00	685.16
17	37.035806	-86.077633	671.15	5.00	676.15
18	37.036547	-86.077644	685.59	5.00	690.59
19	37.036547	-86.076705	674.29	5.00	679.29
20	37.036774	-86.076705	678.73	5.00	683.73

Name: 315
Footprint area: 4.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.039684	-86.075120	685.40	5.00	690.40
2	37.040463	-86.075118	703.92	5.00	708.92
3	37.040478	-86.072578	691.58	5.00	696.58
4	37.039692	-86.072580	677.61	5.00	682.61
5	37.039690	-86.073471	684.88	5.00	689.88

Name: 316
Footprint area: 7.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.042570	-86.072127	737.14	5.00	742.14
2	37.042559	-86.069544	718.68	5.00	723.68
3	37.041416	-86.069515	696.16	5.00	701.16
4	37.041478	-86.072103	716.05	5.00	721.05

Name: 317
Footprint area: 2.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.031323	-86.084542	656.64	5.00	661.64
2	37.031338	-86.085676	656.37	5.00	661.37
3	37.032115	-86.085660	674.20	5.00	679.20
4	37.032098	-86.084534	686.45	5.00	691.45

Name: 318
Footprint area: 15.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.029314	-86.082911	669.39	5.00	674.39
2	37.029305	-86.082675	671.82	5.00	676.82
3	37.029742	-86.082664	658.47	5.00	663.47
4	37.029734	-86.081538	661.87	5.00	666.87
5	37.029323	-86.081505	664.45	5.00	669.45
6	37.028826	-86.081468	680.16	5.00	685.16
7	37.028830	-86.080964	664.56	5.00	669.56
8	37.027605	-86.080905	683.18	5.00	688.18
9	37.027592	-86.080733	675.73	5.00	680.73
10	37.027117	-86.080567	674.00	5.00	679.00
11	37.026436	-86.080556	677.06	5.00	682.06
12	37.026466	-86.083040	727.73	5.00	732.73

2-Mile Flight Path Receptor(s)

Name: Glasgow Municipal Airport Runway 26
Description:
Threshold height : 50 ft
Direction: 252.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.033844	-85.946199	714.75	50.00	764.75
2-mile point	37.042702	-85.911682	732.56	585.62	1318.18



Name: Glasgow Municipal Airport Runway 8
Description:
Threshold height : 50 ft
Direction: 70.5 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.029484	-85.962314	707.66	50.00	757.66
2-mile point	37.019838	-85.996495	701.55	609.54	1311.09



Route Receptor(s)

Name: Cumberland Parkway Eastbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.051281	-86.097656	664.33	9.00	673.33
2	37.050502	-86.095134	659.04	9.00	668.04
3	37.049748	-86.092066	658.65	9.00	667.65
4	37.048087	-86.085189	673.08	9.00	682.08
5	37.046665	-86.079438	718.86	9.00	727.86
6	37.045869	-86.076488	731.04	9.00	740.04
7	37.045158	-86.074342	730.28	9.00	739.28
8	37.044199	-86.071778	725.10	9.00	734.10
9	37.043086	-86.069192	720.02	9.00	729.02
10	37.042041	-86.067079	725.93	9.00	734.93
11	37.040799	-86.064901	740.54	9.00	749.54
12	37.038881	-86.061886	743.60	9.00	752.60
13	37.036757	-86.058935	735.06	9.00	744.06

Name: Cumberland Parkway Westbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.036843	-86.058742	735.15	9.00	744.15
2	37.038975	-86.061725	743.44	9.00	752.44
3	37.040911	-86.064707	740.72	9.00	749.72
4	37.042161	-86.066961	725.82	9.00	734.82
5	37.043206	-86.069085	720.12	9.00	729.12
6	37.044319	-86.071638	725.78	9.00	734.78
7	37.045278	-86.074256	730.58	9.00	739.58
8	37.046032	-86.076445	731.60	9.00	740.60
9	37.046845	-86.079395	718.78	9.00	727.78
10	37.048232	-86.085189	672.96	9.00	681.96
11	37.049919	-86.092045	658.55	9.00	667.55
12	37.050630	-86.095092	658.83	9.00	667.83
13	37.051418	-86.097548	664.03	9.00	673.03

Name: Millstown Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.023826	-86.095485	698.05	9.00	707.05
2	37.024442	-86.095571	697.40	9.00	706.40
3	37.027286	-86.095807	687.39	9.00	696.39
4	37.027594	-86.095989	685.32	9.00	694.32
5	37.027851	-86.096762	679.29	9.00	688.29
6	37.028160	-86.096740	677.47	9.00	686.47
7	37.030352	-86.095485	676.79	9.00	685.79
8	37.031954	-86.094509	654.34	9.00	663.34
9	37.032202	-86.094155	643.91	9.00	652.91
10	37.032768	-86.093329	644.25	9.00	653.25
11	37.033162	-86.092932	644.10	9.00	653.10
12	37.034412	-86.092288	665.08	9.00	674.08
13	37.036725	-86.091194	682.24	9.00	691.24
14	37.038317	-86.089874	695.81	9.00	704.81
15	37.039311	-86.089348	686.91	9.00	695.91
16	37.039705	-86.089101	681.68	9.00	690.68
17	37.040167	-86.088554	675.53	9.00	684.53
18	37.040484	-86.088286	673.17	9.00	682.17
19	37.041092	-86.088082	667.73	9.00	676.73
20	37.041666	-86.087481	673.58	9.00	682.58
21	37.042248	-86.086816	687.64	9.00	696.64
22	37.042796	-86.085840	702.81	9.00	711.81
23	37.043293	-86.084853	708.86	9.00	717.86
24	37.043833	-86.084263	707.51	9.00	716.51
25	37.045794	-86.082653	692.28	9.00	701.28
26	37.046299	-86.082321	684.21	9.00	693.21
27	37.047258	-86.081774	690.01	9.00	699.01

Name: Oak Grove Church Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.049613	-86.099047	662.89	9.00	671.89
2	37.048851	-86.097159	663.74	9.00	672.74
3	37.047780	-86.094648	672.26	9.00	681.26
4	37.046873	-86.092299	682.95	9.00	691.95
5	37.046658	-86.091472	691.26	9.00	700.26
6	37.046367	-86.089573	688.48	9.00	697.48
7	37.045023	-86.083286	699.73	9.00	708.73
8	37.044783	-86.082106	715.20	9.00	724.20
9	37.044042	-86.079810	730.66	9.00	739.66
10	37.043978	-86.079521	727.64	9.00	736.64
11	37.043940	-86.079065	726.91	9.00	735.91
12	37.043935	-86.076329	730.76	9.00	739.76
13	37.043884	-86.074537	730.38	9.00	739.38
14	37.043815	-86.074221	729.84	9.00	738.84
15	37.043434	-86.073636	734.37	9.00	743.37
16	37.043002	-86.073148	731.63	9.00	740.63
17	37.042514	-86.072885	728.74	9.00	737.74
18	37.041422	-86.072515	718.88	9.00	727.88
19	37.041148	-86.072273	713.86	9.00	722.86
20	37.040947	-86.071903	704.69	9.00	713.69
21	37.040827	-86.071402	697.27	9.00	706.27
22	37.040523	-86.069698	690.17	9.00	699.17
23	37.040296	-86.067413	716.99	9.00	725.99
24	37.040120	-86.066571	723.33	9.00	732.33
25	37.039782	-86.065546	736.00	9.00	745.00
26	37.039671	-86.065080	738.68	9.00	747.68
27	37.039444	-86.063760	740.63	9.00	749.63

Name: Payne Loop Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.044582	-86.105983	678.48	9.00	687.48
2	37.044111	-86.104707	672.18	9.00	681.18
3	37.043854	-86.104277	674.98	9.00	683.98
4	37.043606	-86.103848	682.05	9.00	691.05
5	37.042313	-86.100082	682.92	9.00	691.92
6	37.042184	-86.100061	683.13	9.00	692.13
7	37.041936	-86.100276	686.51	9.00	695.51
8	37.040146	-86.102496	683.80	9.00	692.80
9	37.039923	-86.102561	683.25	9.00	692.25
10	37.039718	-86.102507	679.13	9.00	688.13
11	37.038022	-86.102132	697.95	9.00	706.95

Name: US 68
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.023757	-86.095453	698.48	9.00	707.48
2	37.024134	-86.093833	712.80	9.00	721.80
3	37.024725	-86.091623	712.08	9.00	721.08
4	37.025556	-86.088350	717.33	9.00	726.33
5	37.025967	-86.086698	692.52	9.00	701.52
6	37.026113	-86.085572	692.59	9.00	701.59
7	37.026147	-86.084381	713.16	9.00	722.16
8	37.026036	-86.081827	702.53	9.00	711.53
9	37.025898	-86.079274	689.31	9.00	698.31
10	37.025967	-86.078308	704.21	9.00	713.21
11	37.026447	-86.074435	711.28	9.00	720.28
12	37.026481	-86.073362	719.44	9.00	728.44

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	37.011816	-85.904852	831.81	500.00	1331.81
OP 2	37.026447	-86.083909	732.90	16.00	748.90
OP 3	37.025941	-86.083549	734.65	16.00	750.65
OP 4	37.026156	-86.087685	722.82	16.00	738.82
OP 5	37.026186	-86.089305	725.79	16.00	741.79
OP 6	37.034406	-86.091907	671.64	16.00	687.64
OP 7	37.034860	-86.091786	669.66	16.00	685.66
OP 8	37.035380	-86.091065	680.21	16.00	696.21
OP 9	37.036231	-86.091140	689.76	16.00	705.76
OP 10	37.041631	-86.088099	675.63	16.00	691.63
OP 11	37.046230	-86.090902	694.59	16.00	710.59
OP 12	37.046339	-86.088507	696.97	16.00	712.97
OP 13	37.047442	-86.094478	676.17	16.00	692.17
OP 14	37.047756	-86.093592	679.19	16.00	695.19
OP 15	37.045605	-86.085033	700.58	16.00	716.58
OP 16	37.044278	-86.078043	740.43	16.00	756.43
OP 17	37.040683	-86.068551	715.48	16.00	731.48
OP 18	37.040666	-86.068119	723.29	16.00	739.29
OP 19	37.039865	-86.065083	744.62	16.00	760.62
OP 20	37.039071	-86.063538	741.34	16.00	757.34
OP 21	37.024613	-86.081058	728.52	16.00	744.52
OP 22	37.025046	-86.075935	736.15	16.00	752.15
OP 23	37.024776	-86.075265	730.51	16.00	746.51
OP 24	37.025847	-86.071896	741.18	16.00	757.18
OP 25	37.026523	-86.071215	749.91	16.00	765.91
OP 26	37.025493	-86.087634	723.40	16.00	739.40
OP 27	37.028577	-86.097086	681.21	16.00	697.21
OP 28	37.029206	-86.096700	694.19	16.00	710.19
OP 29	37.029596	-86.096496	696.37	16.00	712.37
OP 30	37.030080	-86.096051	682.14	16.00	698.14
OP 31	37.029647	-86.095249	690.55	16.00	706.55
OP 32	37.031526	-86.095080	677.94	16.00	693.94
OP 33	37.043066	-86.103205	687.48	16.00	703.48
OP 34	37.046487	-86.081460	701.10	16.00	717.10
OP 35	37.048538	-86.080653	687.04	16.00	703.04
OP 36	37.051338	-86.088415	657.16	16.00	673.16
OP 37	37.043272	-86.072816	737.62	16.00	753.62
OP 38	37.038846	-86.063124	743.85	16.00	759.85
OP 39	37.035788	-86.060912	755.52	16.00	771.52
OP 40	37.037856	-86.062768	739.96	16.00	755.96

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
301	SA tracking	SA tracking	0	0	-	-
302	SA tracking	SA tracking	0	0	-	-
303	SA tracking	SA tracking	0	0	-	-
304	SA tracking	SA tracking	0	0	-	-
305	SA tracking	SA tracking	0	0	-	-
306	SA tracking	SA tracking	0	0	-	-
307	SA tracking	SA tracking	0	0	-	-
308	SA tracking	SA tracking	0	0	-	-
309	SA tracking	SA tracking	0	0	-	-
310	SA tracking	SA tracking	0	0	-	-
311	SA tracking	SA tracking	0	0	-	-
312	SA tracking	SA tracking	0	0	-	-
313	SA tracking	SA tracking	0	0	-	-
314	SA tracking	SA tracking	0	0	-	-
315	SA tracking	SA tracking	0	0	-	-
316	SA tracking	SA tracking	0	0	-	-
317	SA tracking	SA tracking	0	0	-	-
318	SA tracking	SA tracking	0	0	-	-

PV & Receptor Analysis Results

Results for each PV array and receptor

301 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

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302 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

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303 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

304 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

305 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

306 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

307 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

308 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

309 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

310 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

311 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

312 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

313 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

314 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

315 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

316 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

317 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

---

318 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Parkway Eastbound	0	0
Route: Cumberland Parkway Westbound	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Payne Loop Road	0	0
Route: US 68	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographi obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

Wood Duck

Block 4 5ft vehicle

Created Jun 01, 2023
Updated Jun 01, 2023
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
Site ID 91997.15739

Project type Advanced
Project status: active
Category 10 MW to 100 MW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

PV Analysis Methodology: **Version 2**
Enhanced subtended angle calculation: **On**

Summary of Results

Glare with low potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
401	SA tracking	SA tracking	0	0	-
402	SA tracking	SA tracking	0	0	-
403	SA tracking	SA tracking	1,091	0	-
404	SA tracking	SA tracking	0	0	-
405	SA tracking	SA tracking	0	0	-
406	SA tracking	SA tracking	0	0	-
407	SA tracking	SA tracking	0	0	-
408	SA tracking	SA tracking	0	0	-
409	SA tracking	SA tracking	0	0	-
410	SA tracking	SA tracking	0	0	-
411	SA tracking	SA tracking	0	0	-
412	SA tracking	SA tracking	0	0	-
413	SA tracking	SA tracking	0	0	-
414	SA tracking	SA tracking	0	0	-
415	SA tracking	SA tracking	0	0	-
416	SA tracking	SA tracking	0	0	-
417	SA tracking	SA tracking	0	0	-
418	SA tracking	SA tracking	0	0	-
419	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 249.0 acres

Name: 401
Footprint area: 17.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.039895	-86.069455	691.48	5.00	696.48
2	37.039925	-86.071523	682.23	5.00	687.23
3	37.039111	-86.071518	715.34	5.00	720.34
4	37.039141	-86.073095	679.53	5.00	684.53
5	37.038820	-86.073122	685.58	5.00	690.58
6	37.038854	-86.073492	679.11	5.00	684.11
7	37.038109	-86.073556	695.95	5.00	700.95
8	37.038066	-86.068106	733.63	5.00	738.63
9	37.039184	-86.068154	704.18	5.00	709.18
10	37.039227	-86.069458	715.22	5.00	720.22

Name: 402
Footprint area: 6.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.027785	-86.080053	669.00	5.00	674.00
2	37.027202	-86.080063	671.85	5.00	676.85
3	37.027194	-86.079393	690.22	5.00	695.22
4	37.026401	-86.079403	687.92	5.00	692.92
5	37.026406	-86.077649	720.83	5.00	725.83
6	37.027116	-86.077649	724.35	5.00	729.35
7	37.027134	-86.078127	719.36	5.00	724.36
8	37.027523	-86.078127	712.97	5.00	717.97
9	37.027532	-86.076893	708.62	5.00	713.62
10	37.027780	-86.076909	692.12	5.00	697.12

Name: 403
Footprint area: 3.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.027540	-86.076888	707.90	5.00	712.90
2	37.027540	-86.076657	705.37	5.00	710.37
3	37.026761	-86.076662	716.41	5.00	721.41
4	37.026735	-86.075090	713.29	5.00	718.29
5	37.027523	-86.075080	723.57	5.00	728.57
6	37.027523	-86.074854	726.67	5.00	731.67
7	37.027750	-86.074876	721.48	5.00	726.48
8	37.027763	-86.076898	692.58	5.00	697.58

Name: 404
Footprint area: 12.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.024491	-86.082188	724.09	5.00	729.09
2	37.024500	-86.083201	727.78	5.00	732.78
3	37.024153	-86.083218	723.82	5.00	728.82
4	37.024170	-86.084628	703.83	5.00	708.83
5	37.023360	-86.084618	697.16	5.00	702.16
6	37.023343	-86.084274	703.76	5.00	708.76
7	37.022667	-86.084301	697.48	5.00	702.48
8	37.022380	-86.083920	697.88	5.00	702.88
9	37.022260	-86.083684	698.84	5.00	703.84
10	37.022260	-86.081571	718.20	5.00	723.20
11	37.023373	-86.081560	723.66	5.00	728.66
12	37.023382	-86.082204	722.24	5.00	727.24

Name: 405
Footprint area: 8.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037069	-86.074402	680.06	5.00	685.06
2	37.037822	-86.074402	678.34	5.00	683.34
3	37.037805	-86.074037	686.80	5.00	691.80
4	37.038139	-86.074027	678.88	5.00	683.88
5	37.038088	-86.071044	739.88	5.00	744.88
6	37.037035	-86.071065	727.65	5.00	732.65



Name: 406
Footprint area: 19.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037056	-86.074393	680.20	5.00	685.20
2	37.036362	-86.074468	678.60	5.00	683.60
3	37.035788	-86.074012	673.62	5.00	678.62
4	37.035728	-86.067966	723.65	5.00	728.65
5	37.036979	-86.067956	725.96	5.00	730.96



Name: 407
Footprint area: 14.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.035780	-86.073444	679.05	5.00	684.05
2	37.035095	-86.073460	674.90	5.00	679.90
3	37.035090	-86.073186	675.74	5.00	680.74
4	37.034666	-86.073202	672.25	5.00	677.25
5	37.034628	-86.067945	726.99	5.00	731.99
6	37.035724	-86.067956	723.79	5.00	728.79
7	37.035758	-86.070836	709.21	5.00	714.21

Name: 408
Footprint area: 12.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.034658	-86.072140	685.11	5.00	690.11
2	37.033891	-86.072119	679.21	5.00	684.21
3	37.033879	-86.071121	701.68	5.00	706.68
4	37.033600	-86.071121	695.79	5.00	700.79
5	37.033570	-86.069672	734.38	5.00	739.38
6	37.032808	-86.069635	703.54	5.00	708.54
7	37.032825	-86.068460	719.32	5.00	724.32
8	37.033596	-86.068476	743.19	5.00	748.19
9	37.033617	-86.067773	735.00	5.00	740.00
10	37.034636	-86.067747	727.79	5.00	732.79

Name: 409
Footprint area: 21.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.034906	-86.076646	668.00	5.00	673.00
2	37.034919	-86.074726	672.09	5.00	677.09
3	37.034131	-86.074731	710.06	5.00	715.06
4	37.034135	-86.073894	674.52	5.00	679.52
5	37.033292	-86.073889	708.99	5.00	713.99
6	37.033296	-86.075171	719.87	5.00	724.87
7	37.031832	-86.075123	696.56	5.00	701.56
8	37.031844	-86.078926	670.39	5.00	675.39
9	37.032294	-86.078931	667.08	5.00	672.08
10	37.032298	-86.078352	669.56	5.00	674.56
11	37.032692	-86.078320	668.53	5.00	673.53
12	37.032697	-86.077842	678.14	5.00	683.14
13	37.033013	-86.077853	673.32	5.00	678.32
14	37.033013	-86.077724	677.75	5.00	682.75
15	37.033759	-86.077703	663.54	5.00	668.54
16	37.033763	-86.077322	673.32	5.00	678.32
17	37.034123	-86.077311	664.11	5.00	669.11
18	37.034140	-86.076710	691.41	5.00	696.41

Name: 410
Footprint area: 13.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.031837	-86.078937	670.20	5.00	675.20
2	37.031572	-86.078943	674.35	5.00	679.35
3	37.031572	-86.080064	662.26	5.00	667.26
4	37.031191	-86.080085	664.62	5.00	669.62
5	37.031182	-86.080381	662.42	5.00	667.42
6	37.030737	-86.080375	667.36	5.00	672.36
7	37.030762	-86.074812	711.09	5.00	716.09
8	37.031829	-86.074989	699.45	5.00	704.45

Name: 411
Footprint area: 20.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.030735	-86.080369	667.57	5.00	672.57
2	37.030429	-86.080364	670.20	5.00	675.20
3	37.030433	-86.080656	666.72	5.00	671.72
4	37.029305	-86.080704	665.26	5.00	670.26
5	37.029305	-86.074661	720.07	5.00	725.07
6	37.030769	-86.074811	710.79	5.00	715.79

Name: 412
Footprint area: 20.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.029309	-86.080310	665.54	5.00	670.54
2	37.028281	-86.080310	668.29	5.00	673.29
3	37.028277	-86.080042	674.15	5.00	679.15
4	37.027780	-86.080053	669.00	5.00	674.00
5	37.027763	-86.074892	721.17	5.00	726.17
6	37.027845	-86.074903	718.54	5.00	723.54
7	37.027853	-86.074356	727.78	5.00	732.78
8	37.029318	-86.074661	720.38	5.00	725.38

Name: 413
Footprint area: 5.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.020958	-86.086926	702.84	5.00	707.84
2	37.020915	-86.083708	715.39	5.00	720.39
3	37.020247	-86.083708	717.62	5.00	722.62
4	37.020255	-86.086958	702.97	5.00	707.97

Name: 414
Footprint area: 22.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.020255	-86.086958	702.97	5.00	707.97
2	37.019827	-86.087028	700.65	5.00	705.65
3	37.019840	-86.087763	702.09	5.00	707.09
4	37.018786	-86.087795	696.64	5.00	701.64
5	37.018786	-86.081036	733.92	5.00	738.92
6	37.019767	-86.081020	717.32	5.00	722.32
7	37.019754	-86.081395	719.12	5.00	724.12
8	37.020230	-86.081476	711.14	5.00	716.14

Name: 415
Footprint area: 5.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.018765	-86.089751	690.94	5.00	695.94
2	37.018756	-86.087809	696.84	5.00	701.84
3	37.017600	-86.087820	701.60	5.00	706.60
4	37.017617	-86.089816	712.64	5.00	717.64

Name: 416
Footprint area: 14.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.017523	-86.085907	706.01	5.00	711.01
2	37.017531	-86.081658	747.69	5.00	752.69
3	37.017805	-86.081642	746.17	5.00	751.17
4	37.017797	-86.081031	738.70	5.00	743.70
5	37.018790	-86.081036	733.92	5.00	738.92
6	37.018786	-86.085934	709.11	5.00	714.11

Name: 417
Footprint area: 8.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.038088	-86.071044	739.88	5.00	744.88
2	37.038071	-86.067965	730.80	5.00	735.80
3	37.036992	-86.067965	726.04	5.00	731.04
4	37.037026	-86.071098	727.99	5.00	732.99

Name: 418
Footprint area: 9.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.018773	-86.087809	696.77	5.00	701.77
2	37.018790	-86.085932	709.11	5.00	714.11
3	37.016743	-86.085900	713.75	5.00	718.75
4	37.016726	-86.087831	703.12	5.00	708.12

Name: 419
Footprint area: 12.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.022268	-86.083740	698.20	5.00	703.20
2	37.022277	-86.081143	720.19	5.00	725.19
3	37.020881	-86.081143	724.05	5.00	729.05
4	37.020889	-86.081487	719.60	5.00	724.60
5	37.020247	-86.081487	711.61	5.00	716.61
6	37.020247	-86.083686	717.64	5.00	722.64



2-Mile Flight Path Receptor(s)

Name: Glasgow Municipal Airport Runway 26
Description:
Threshold height : 50 ft
Direction: 252.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.033844	-85.946199	714.75	50.00	764.75
2-mile point	37.042702	-85.911682	732.56	585.62	1318.18



Name: Glasgow Municipal Airport Runway 8
Description:
Threshold height : 50 ft
Direction: 70.5 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.029484	-85.962314	707.66	50.00	757.66
2-mile point	37.019838	-85.996495	701.55	609.54	1311.09



Route Receptor(s)

Name: Cumberland Highway Eastbound
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.047351	-86.082288	682.22	5.00	687.22
2	37.045947	-86.076773	729.39	5.00	734.39
3	37.045108	-86.074220	728.45	5.00	733.45
4	37.043806	-86.070808	723.38	5.00	728.38
5	37.042462	-86.067922	721.94	5.00	726.94
6	37.041040	-86.065293	737.83	5.00	742.83
7	37.039944	-86.063480	743.87	5.00	748.87
8	37.037923	-86.060541	739.70	5.00	744.70
9	37.033281	-86.054082	729.63	5.00	734.63
10	37.032467	-86.052966	733.85	5.00	738.85

Name: Cumberland Highway Westbound
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.032613	-86.052837	734.71	5.00	739.71
2	37.035465	-86.056850	728.82	5.00	733.82
3	37.038034	-86.060380	739.70	5.00	744.70
4	37.040072	-86.063341	745.97	5.00	750.97
5	37.041186	-86.065165	737.69	5.00	742.69
6	37.042590	-86.067836	722.10	5.00	727.10
7	37.043995	-86.070808	723.59	5.00	728.59
8	37.045313	-86.074263	730.35	5.00	735.35
9	37.046118	-86.076795	729.41	5.00	734.41
10	37.047548	-86.082245	680.80	5.00	685.80

Name: Fox Chase Street
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.021731	-86.073061	747.23	5.00	752.23
2	37.021662	-86.074847	726.45	5.00	731.45
3	37.021581	-86.075126	723.11	5.00	728.11
4	37.021469	-86.075357	722.91	5.00	727.91
5	37.021435	-86.075523	722.84	5.00	727.84
6	37.021576	-86.075910	712.96	5.00	717.96

Name: Millstown Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043409	-86.084740	708.63	5.00	713.63
2	37.043135	-86.085094	707.52	5.00	712.52
3	37.042219	-86.086832	686.36	5.00	691.36
4	37.041097	-86.088055	667.78	5.00	672.78
5	37.040361	-86.088345	673.54	5.00	678.54
6	37.039881	-86.088892	679.82	5.00	684.82
7	37.039427	-86.089289	685.76	5.00	690.76
8	37.038194	-86.089944	694.75	5.00	699.75
9	37.036721	-86.091210	681.97	5.00	686.97
10	37.033244	-86.092841	644.88	5.00	649.88
11	37.032636	-86.093484	643.15	5.00	648.15
12	37.032027	-86.094396	649.25	5.00	654.25
13	37.031771	-86.094632	660.63	5.00	665.63
14	37.028619	-86.096488	680.22	5.00	685.22
15	37.028096	-86.096746	677.04	5.00	682.04
16	37.027805	-86.096681	680.45	5.00	685.45
17	37.027616	-86.096027	684.75	5.00	689.75
18	37.027411	-86.095823	686.29	5.00	691.29
19	37.027145	-86.095802	689.12	5.00	694.12
20	37.023788	-86.095480	698.10	5.00	703.10

Name: Oak Grove Church Road
Route type Two-way
View angle: 50.0 deg



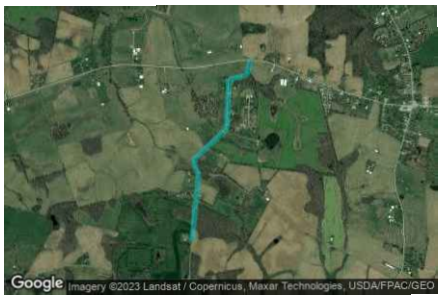
Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.044243	-86.080507	731.01	5.00	736.01
2	37.043952	-86.079509	727.41	5.00	732.41
3	37.043935	-86.079026	726.82	5.00	731.82
4	37.043943	-86.075700	731.92	5.00	736.92
5	37.043823	-86.074392	730.14	5.00	735.14
6	37.043729	-86.074070	730.55	5.00	735.55
7	37.042907	-86.073072	730.10	5.00	735.10
8	37.041408	-86.072514	718.76	5.00	723.76
9	37.041160	-86.072278	714.21	5.00	719.21
10	37.040912	-86.071838	702.66	5.00	707.66
11	37.040766	-86.071076	694.56	5.00	699.56
12	37.040509	-86.069682	689.99	5.00	694.99
13	37.040338	-86.067750	716.39	5.00	721.39
14	37.040192	-86.066892	721.40	5.00	726.40
15	37.039918	-86.065959	732.39	5.00	737.39
16	37.039687	-86.065272	737.21	5.00	742.21
17	37.039413	-86.063770	740.06	5.00	745.06
18	37.039165	-86.062997	741.33	5.00	746.33
19	37.038848	-86.062558	742.07	5.00	747.07
20	37.038103	-86.061914	742.95	5.00	747.95
21	37.037049	-86.061141	747.61	5.00	752.61
22	37.036844	-86.060841	752.17	5.00	757.17
23	37.036672	-86.060369	754.03	5.00	759.03

Name: Park City Bon Ayr Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037663	-86.060177	744.75	5.00	749.75
2	37.034853	-86.060628	744.73	5.00	749.73
3	37.033980	-86.060928	742.73	5.00	747.73
4	37.032267	-86.061647	739.44	5.00	744.44
5	37.031530	-86.061754	715.86	5.00	720.86
6	37.030537	-86.061615	698.69	5.00	703.69
7	37.028327	-86.060177	746.35	5.00	751.35
8	37.027282	-86.059609	759.74	5.00	764.74
9	37.026443	-86.059373	770.56	5.00	775.56
10	37.025389	-86.059212	775.11	5.00	780.11
11	37.023179	-86.059051	756.33	5.00	761.33

Name: Rick Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.026463	-86.073705	717.62	5.00	722.62
2	37.025538	-86.073973	708.35	5.00	713.35
3	37.025401	-86.074231	713.07	5.00	718.07
4	37.025178	-86.075379	728.98	5.00	733.98
5	37.025016	-86.075593	731.68	5.00	736.68
6	37.021838	-86.075776	716.00	5.00	721.00
7	37.021546	-86.075915	713.07	5.00	718.07
8	37.021315	-86.076205	711.76	5.00	716.76
9	37.019585	-86.078565	723.39	5.00	728.39
10	37.019311	-86.078737	723.18	5.00	728.18
11	37.018925	-86.078629	723.54	5.00	728.54
12	37.018394	-86.078372	729.61	5.00	734.61
13	37.018069	-86.078383	734.32	5.00	739.32
14	37.016270	-86.078619	740.04	5.00	745.04
15	37.013794	-86.078919	751.71	5.00	756.71

Name: US 68
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.023594	-86.096332	694.72	5.00	699.72
2	37.023928	-86.094637	705.81	5.00	710.81
3	37.025924	-86.086928	697.17	5.00	702.17
4	37.026129	-86.085550	693.78	5.00	698.78
5	37.026155	-86.083897	719.82	5.00	724.82
6	37.025924	-86.079563	683.42	5.00	688.42
7	37.025958	-86.078522	702.06	5.00	707.06
8	37.026069	-86.077278	702.09	5.00	707.09
9	37.026472	-86.074166	714.62	5.00	719.62
10	37.026480	-86.073104	722.48	5.00	727.48
11	37.026215	-86.071666	743.28	5.00	748.28
12	37.024450	-86.066248	757.36	5.00	762.36
13	37.024168	-86.065272	763.12	5.00	768.12
14	37.023277	-86.061624	758.60	5.00	763.60

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	37.011816	-85.904852	831.81	500.00	1331.81
OP 2	37.017204	-86.079478	748.66	16.00	764.66
OP 3	37.017934	-86.079105	741.07	16.00	757.07
OP 4	37.018429	-86.079137	732.59	16.00	748.59
OP 5	37.019238	-86.076162	754.49	16.00	770.49
OP 6	37.021619	-86.078035	730.64	16.00	746.64
OP 7	37.021341	-86.074773	726.67	16.00	742.67
OP 8	37.022463	-86.075336	730.76	16.00	746.76
OP 9	37.023341	-86.076441	738.99	16.00	754.99
OP 10	37.022887	-86.075283	736.07	16.00	752.07
OP 11	37.023247	-86.075309	738.25	16.00	754.25
OP 12	37.023620	-86.075256	740.18	16.00	756.18
OP 13	37.024039	-86.075250	739.85	16.00	755.85
OP 14	37.024339	-86.076133	737.52	16.00	753.52
OP 15	37.025056	-86.075910	736.24	16.00	752.24
OP 16	37.024799	-86.075283	730.42	16.00	746.42
OP 17	37.024617	-86.081093	728.43	16.00	744.43
OP 18	37.025944	-86.083539	734.68	16.00	750.68
OP 19	37.025486	-86.087613	723.39	16.00	739.39
OP 20	37.026150	-86.087705	722.89	16.00	738.89
OP 21	37.026182	-86.089292	725.74	16.00	741.74
OP 22	37.023394	-86.095282	707.34	16.00	723.34
OP 23	37.021972	-86.098391	714.85	16.00	730.85
OP 24	37.021444	-86.101577	705.11	16.00	721.11
OP 25	37.026463	-86.083888	733.18	16.00	749.18
OP 26	37.029667	-86.095347	690.41	16.00	706.41
OP 27	37.030082	-86.096074	682.02	16.00	698.02
OP 28	37.034426	-86.091887	671.63	16.00	687.63
OP 29	37.035363	-86.091074	679.91	16.00	695.91
OP 30	37.036243	-86.091157	689.61	16.00	705.61
OP 31	37.041639	-86.088140	676.29	16.00	692.29
OP 32	37.040684	-86.068592	715.10	16.00	731.10
OP 33	37.040675	-86.068088	723.96	16.00	739.96
OP 34	37.039866	-86.065105	744.37	16.00	760.37
OP 35	37.038834	-86.063099	743.98	16.00	759.98
OP 36	37.037841	-86.062718	739.60	16.00	755.60
OP 37	37.035772	-86.060948	755.60	16.00	771.60
OP 38	37.034907	-86.059901	762.31	16.00	778.31
OP 39	37.032646	-86.061210	746.33	16.00	762.33
OP 40	37.026518	-86.071273	750.22	16.00	766.22

Obstruction Components

Name: 10 Cumberland Hwy Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.031784	-86.052462	736.33
2	37.037283	-86.060004	749.30
3	37.040006	-86.063963	744.62
4	37.041582	-86.066699	716.24
5	37.043868	-86.071398	729.80
6	37.045273	-86.075260	729.56
7	37.046652	-86.080120	716.08

Name: 1 Planned Vegetation
Upper edge height: 6.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.039176	-86.067675	696.61
2	37.040186	-86.069617	688.26
3	37.040717	-86.071505	694.31
4	37.040905	-86.072321	706.22

Name: 2 Existing Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.039024	-86.067569	699.83
2	37.038065	-86.066765	700.87
3	37.037363	-86.065981	724.00
4	37.037054	-86.065252	708.72
5	37.036600	-86.065037	715.66
6	37.035624	-86.065241	724.62
7	37.034494	-86.065166	728.12

Name: 3 Planned Vegetation
Upper edge height: 6.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.026106	-86.078833	705.51
2	37.026328	-86.077052	713.03
3	37.026757	-86.074134	721.75

Name: 4 Planned Vegetation
Upper edge height: 6.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.025883	-86.085936	681.77
2	37.026003	-86.083876	726.38

Name: 5 Planned Vegetation
Upper edge height: 6.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.025900	-86.083189	728.41
2	37.025815	-86.082073	704.37
3	37.018619	-86.079992	728.38

Name: 6 Existing Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.033189	-86.078200	665.13
2	37.032435	-86.079294	663.40
3	37.032367	-86.080603	663.75
4	37.032692	-86.081569	717.25
5	37.032727	-86.082899	728.49
6	37.032196	-86.083049	699.07
7	37.031630	-86.081505	660.70
8	37.030054	-86.081333	666.17

Name: 7 Existing Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.020015	-86.088371	706.76
2	37.020923	-86.087212	705.87

Name: 8 Existing Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.020975	-86.091010	697.55
2	37.021455	-86.090130	703.02

Name: 9 Existing Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.033866	-86.078221	664.76
2	37.035356	-86.076719	670.87
3	37.035596	-86.075926	671.14
4	37.035339	-86.074617	670.06
5	37.034928	-86.073758	673.74
6	37.032016	-86.071205	683.84
7	37.031159	-86.067278	688.71
8	37.026894	-86.063716	716.50

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
401	SA tracking	SA tracking	0	0	-	-
402	SA tracking	SA tracking	0	0	-	-
403	SA tracking	SA tracking	1,091	0	-	-
404	SA tracking	SA tracking	0	0	-	-
405	SA tracking	SA tracking	0	0	-	-
406	SA tracking	SA tracking	0	0	-	-
407	SA tracking	SA tracking	0	0	-	-
408	SA tracking	SA tracking	0	0	-	-
409	SA tracking	SA tracking	0	0	-	-
410	SA tracking	SA tracking	0	0	-	-
411	SA tracking	SA tracking	0	0	-	-
412	SA tracking	SA tracking	0	0	-	-
413	SA tracking	SA tracking	0	0	-	-
414	SA tracking	SA tracking	0	0	-	-
415	SA tracking	SA tracking	0	0	-	-
416	SA tracking	SA tracking	0	0	-	-
417	SA tracking	SA tracking	0	0	-	-
418	SA tracking	SA tracking	0	0	-	-
419	SA tracking	SA tracking	0	0	-	-

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
403 (green)	127	266	0	0	0	0	0	0	0	241	104	91
403 (yellow)	0	0	0	0	0	0	0	0	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

401 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

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402 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

403 low potential for temporary after-image

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	26	0
OP: OP 32	347	0
OP: OP 33	336	0
OP: OP 34	23	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0

OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	359	0
Route: Park City Bon Ayr Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0

403: Glasgow Municipal Airport Runway 26

No glare found

403: Glasgow Municipal Airport Runway 8

No glare found

403: OP 1

No glare found

403: OP 2

No glare found

403: OP 3

No glare found

403: OP 4

No glare found

403: OP 5

No glare found

403: OP 6

No glare found

403: OP 7

No glare found

403: OP 8

No glare found

403: OP 9

No glare found

403: OP 10

No glare found

403: OP 11

No glare found

403: OP 12

No glare found

403: OP 13

No glare found

403: OP 14

No glare found

403: OP 15

No glare found

403: OP 16

No glare found

403: OP 17

No glare found

403: OP 18

No glare found

403: OP 19

No glare found

403: OP 20

No glare found

403: OP 21

No glare found

403: OP 22

No glare found

403: OP 23

No glare found

403: OP 24

No glare found

403: OP 25

No glare found

403: OP 26

No glare found

403: OP 27

No glare found

403: OP 28

No glare found

403: OP 29

No glare found

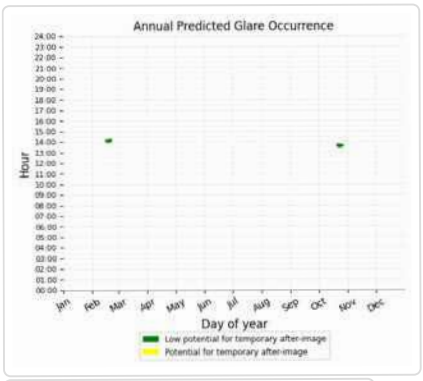
403: OP 30

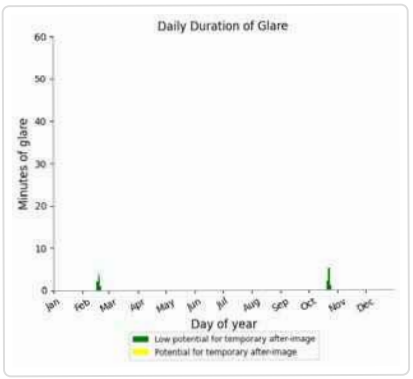
No glare found

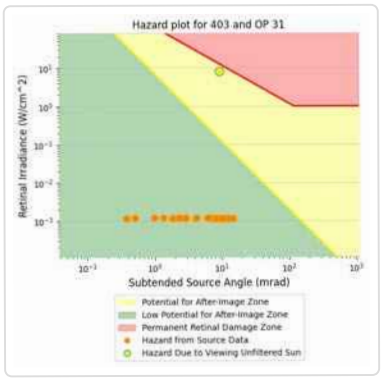
403: OP 31

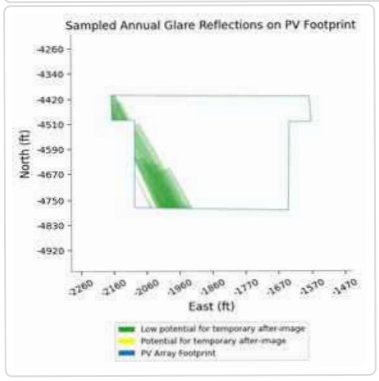
PV array is expected to produce the following glare for this receptor:

- 26 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.







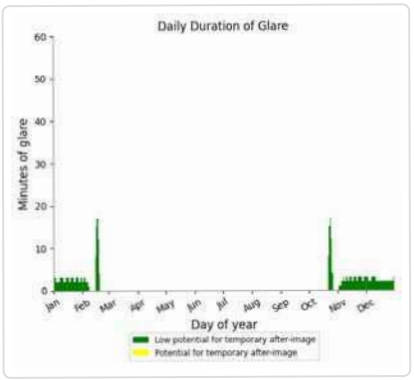


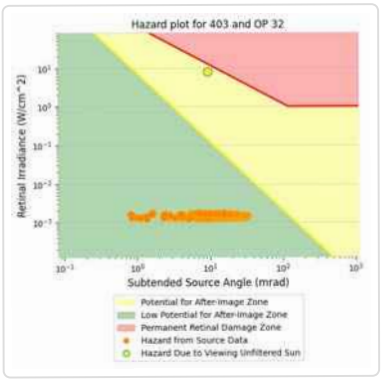
403: OP 32

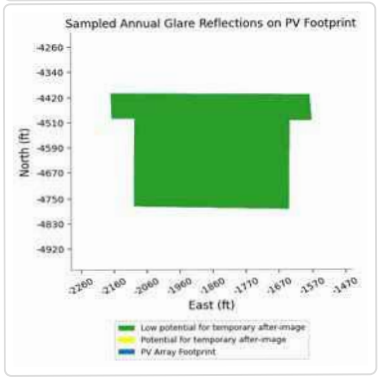
PV array is expected to produce the following glare for this receptor:

- 347 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





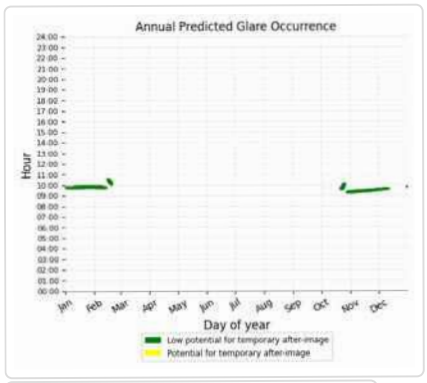


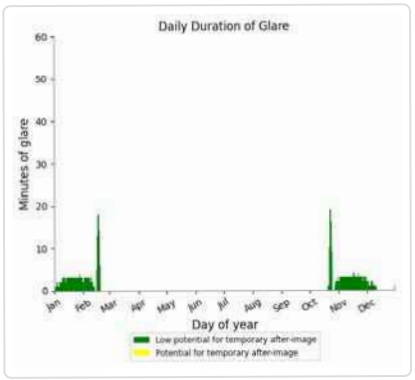


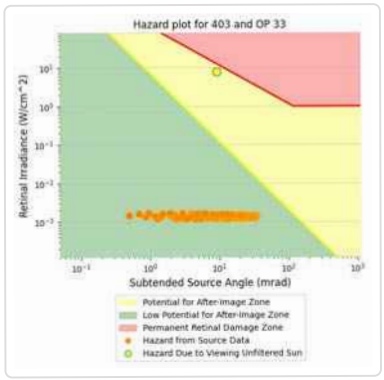
403: OP 33

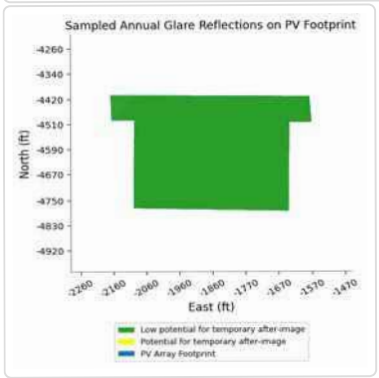
PV array is expected to produce the following glare for this receptor:

- 336 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





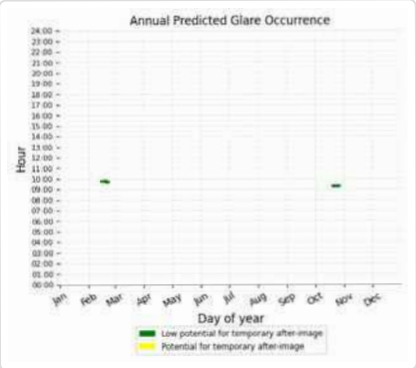


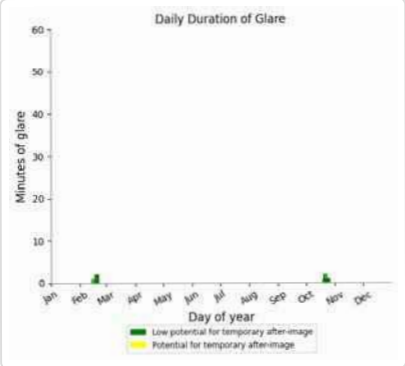


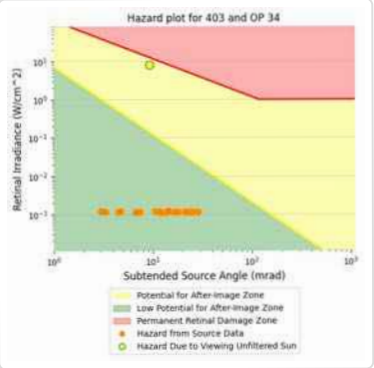
403: OP 34

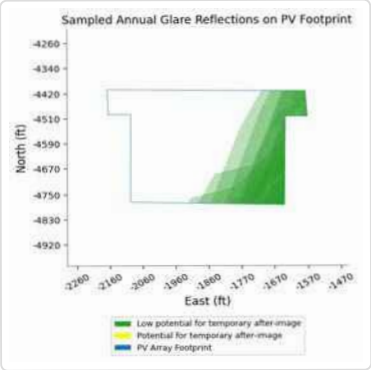
PV array is expected to produce the following glare for this receptor:

- 23 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.









403: OP 35

No glare found

403: OP 36

No glare found

403: OP 37

No glare found

403: OP 38

No glare found

403: OP 39

No glare found

403: OP 40

No glare found

403: Cumberland Highway Eastbound

No glare found

403: Cumberland Highway Westbound

No glare found

403: Fox Chase Street

No glare found

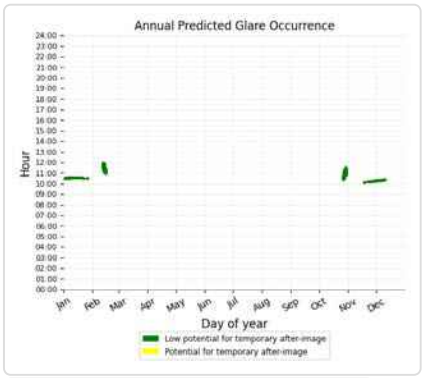
403: Millstown Road

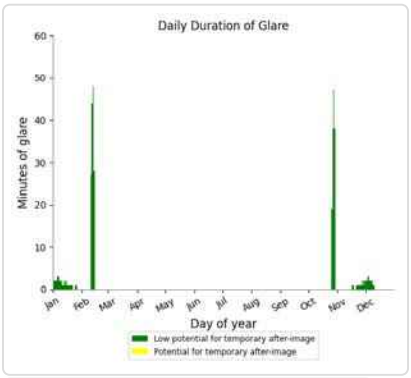
No glare found

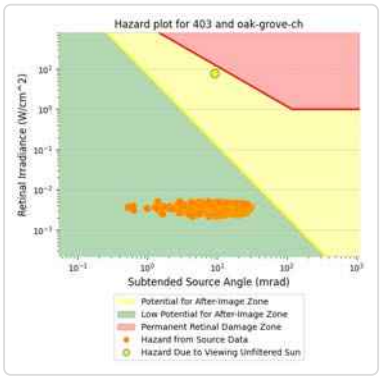
403: Oak Grove Church Road

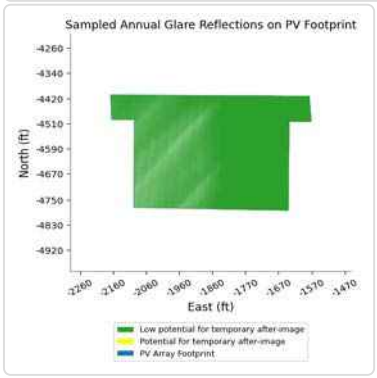
PV array is expected to produce the following glare for this receptor:

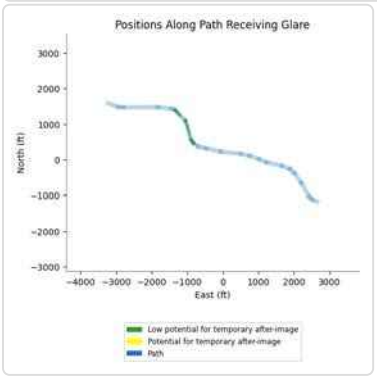
- 359 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.











403: Park City Bon Ayr Road

No glare found

403: Rick Road

No glare found

403: US 68

No glare found

404 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

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405 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

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406 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

407 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

408 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

409 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

410 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

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411 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

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412 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

413 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

414 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

415 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

416 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

417 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

418 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

419 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographi obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

Wood Duck

Block 4 9ft vehicle

Created May 31, 2023
Updated Jun 01, 2023
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
Site ID 91942.15739

Project type Advanced
Project status: active
Category 10 MW to 100 MW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

PV Analysis Methodology: **Version 2**
Enhanced subtended angle calculation: **On**

Summary of Results

Glare with low potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
401	SA tracking	SA tracking	39	0	-
402	SA tracking	SA tracking	0	0	-
403	SA tracking	SA tracking	1,081	0	-
404	SA tracking	SA tracking	0	0	-
405	SA tracking	SA tracking	0	0	-
406	SA tracking	SA tracking	0	0	-
407	SA tracking	SA tracking	0	0	-
408	SA tracking	SA tracking	0	0	-
409	SA tracking	SA tracking	0	0	-
410	SA tracking	SA tracking	0	0	-
411	SA tracking	SA tracking	0	0	-
412	SA tracking	SA tracking	0	0	-
413	SA tracking	SA tracking	0	0	-
414	SA tracking	SA tracking	0	0	-
415	SA tracking	SA tracking	0	0	-
416	SA tracking	SA tracking	0	0	-
417	SA tracking	SA tracking	0	0	-
418	SA tracking	SA tracking	0	0	-
419	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 249.0 acres

Name: 401
Footprint area: 17.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.039895	-86.069455	691.48	5.00	696.48
2	37.039925	-86.071523	682.23	5.00	687.23
3	37.039111	-86.071518	715.34	5.00	720.34
4	37.039141	-86.073095	679.53	5.00	684.53
5	37.038820	-86.073122	685.58	5.00	690.58
6	37.038854	-86.073492	679.11	5.00	684.11
7	37.038109	-86.073556	695.95	5.00	700.95
8	37.038066	-86.068106	733.63	5.00	738.63
9	37.039184	-86.068154	704.18	5.00	709.18
10	37.039227	-86.069458	715.22	5.00	720.22

Name: 402
Footprint area: 6.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.027785	-86.080053	669.00	5.00	674.00
2	37.027202	-86.080063	671.85	5.00	676.85
3	37.027194	-86.079393	690.22	5.00	695.22
4	37.026401	-86.079403	687.92	5.00	692.92
5	37.026406	-86.077649	720.83	5.00	725.83
6	37.027116	-86.077649	724.35	5.00	729.35
7	37.027134	-86.078127	719.36	5.00	724.36
8	37.027523	-86.078127	712.97	5.00	717.97
9	37.027532	-86.076893	708.62	5.00	713.62
10	37.027780	-86.076909	692.12	5.00	697.12

Name: 403
Footprint area: 3.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.027540	-86.076888	707.90	5.00	712.90
2	37.027540	-86.076657	705.37	5.00	710.37
3	37.026761	-86.076662	716.41	5.00	721.41
4	37.026735	-86.075090	713.29	5.00	718.29
5	37.027523	-86.075080	723.57	5.00	728.57
6	37.027523	-86.074854	726.67	5.00	731.67
7	37.027750	-86.074876	721.48	5.00	726.48
8	37.027763	-86.076898	692.58	5.00	697.58

Name: 404
Footprint area: 12.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.024491	-86.082188	724.09	5.00	729.09
2	37.024500	-86.083201	727.78	5.00	732.78
3	37.024153	-86.083218	723.82	5.00	728.82
4	37.024170	-86.084628	703.83	5.00	708.83
5	37.023360	-86.084618	697.16	5.00	702.16
6	37.023343	-86.084274	703.76	5.00	708.76
7	37.022667	-86.084301	697.48	5.00	702.48
8	37.022380	-86.083920	697.88	5.00	702.88
9	37.022260	-86.083684	698.84	5.00	703.84
10	37.022260	-86.081571	718.20	5.00	723.20
11	37.023373	-86.081560	723.66	5.00	728.66
12	37.023382	-86.082204	722.24	5.00	727.24

Name: 405
Footprint area: 8.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037069	-86.074402	680.06	5.00	685.06
2	37.037822	-86.074402	678.34	5.00	683.34
3	37.037805	-86.074037	686.80	5.00	691.80
4	37.038139	-86.074027	678.88	5.00	683.88
5	37.038088	-86.071044	739.88	5.00	744.88
6	37.037035	-86.071065	727.65	5.00	732.65



Name: 406
Footprint area: 19.6 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037056	-86.074393	680.20	5.00	685.20
2	37.036362	-86.074468	678.60	5.00	683.60
3	37.035788	-86.074012	673.62	5.00	678.62
4	37.035728	-86.067966	723.65	5.00	728.65
5	37.036979	-86.067956	725.96	5.00	730.96



Name: 407
Footprint area: 14.2 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.035780	-86.073444	679.05	5.00	684.05
2	37.035095	-86.073460	674.90	5.00	679.90
3	37.035090	-86.073186	675.74	5.00	680.74
4	37.034666	-86.073202	672.25	5.00	677.25
5	37.034628	-86.067945	726.99	5.00	731.99
6	37.035724	-86.067956	723.79	5.00	728.79
7	37.035758	-86.070836	709.21	5.00	714.21

Name: 408
Footprint area: 12.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.034658	-86.072140	685.11	5.00	690.11
2	37.033891	-86.072119	679.21	5.00	684.21
3	37.033879	-86.071121	701.68	5.00	706.68
4	37.033600	-86.071121	695.79	5.00	700.79
5	37.033570	-86.069672	734.38	5.00	739.38
6	37.032808	-86.069635	703.54	5.00	708.54
7	37.032825	-86.068460	719.32	5.00	724.32
8	37.033596	-86.068476	743.19	5.00	748.19
9	37.033617	-86.067773	735.00	5.00	740.00
10	37.034636	-86.067747	727.79	5.00	732.79

Name: 409
Footprint area: 21.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.034906	-86.076646	668.00	5.00	673.00
2	37.034919	-86.074726	672.09	5.00	677.09
3	37.034131	-86.074731	710.06	5.00	715.06
4	37.034135	-86.073894	674.52	5.00	679.52
5	37.033292	-86.073889	708.99	5.00	713.99
6	37.033296	-86.075171	719.87	5.00	724.87
7	37.031832	-86.075123	696.56	5.00	701.56
8	37.031844	-86.078926	670.39	5.00	675.39
9	37.032294	-86.078931	667.08	5.00	672.08
10	37.032298	-86.078352	669.56	5.00	674.56
11	37.032692	-86.078320	668.53	5.00	673.53
12	37.032697	-86.077842	678.14	5.00	683.14
13	37.033013	-86.077853	673.32	5.00	678.32
14	37.033013	-86.077724	677.75	5.00	682.75
15	37.033759	-86.077703	663.54	5.00	668.54
16	37.033763	-86.077322	673.32	5.00	678.32
17	37.034123	-86.077311	664.11	5.00	669.11
18	37.034140	-86.076710	691.41	5.00	696.41

Name: 410
Footprint area: 13.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.031837	-86.078937	670.20	5.00	675.20
2	37.031572	-86.078943	674.35	5.00	679.35
3	37.031572	-86.080064	662.26	5.00	667.26
4	37.031191	-86.080085	664.62	5.00	669.62
5	37.031182	-86.080381	662.42	5.00	667.42
6	37.030737	-86.080375	667.36	5.00	672.36
7	37.030762	-86.074812	711.09	5.00	716.09
8	37.031829	-86.074989	699.45	5.00	704.45

Name: 411
Footprint area: 20.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.030735	-86.080369	667.57	5.00	672.57
2	37.030429	-86.080364	670.20	5.00	675.20
3	37.030433	-86.080656	666.72	5.00	671.72
4	37.029305	-86.080704	665.26	5.00	670.26
5	37.029305	-86.074661	720.07	5.00	725.07
6	37.030769	-86.074811	710.79	5.00	715.79

Name: 412
Footprint area: 20.9 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.029309	-86.080310	665.54	5.00	670.54
2	37.028281	-86.080310	668.29	5.00	673.29
3	37.028277	-86.080042	674.15	5.00	679.15
4	37.027780	-86.080053	669.00	5.00	674.00
5	37.027763	-86.074892	721.17	5.00	726.17
6	37.027845	-86.074903	718.54	5.00	723.54
7	37.027853	-86.074356	727.78	5.00	732.78
8	37.029318	-86.074661	720.38	5.00	725.38

Name: 413
Footprint area: 5.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.020958	-86.086926	702.84	5.00	707.84
2	37.020915	-86.083708	715.39	5.00	720.39
3	37.020247	-86.083708	717.62	5.00	722.62
4	37.020255	-86.086958	702.97	5.00	707.97

Name: 414
Footprint area: 22.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.020255	-86.086958	702.97	5.00	707.97
2	37.019827	-86.087028	700.65	5.00	705.65
3	37.019840	-86.087763	702.09	5.00	707.09
4	37.018786	-86.087795	696.64	5.00	701.64
5	37.018786	-86.081036	733.92	5.00	738.92
6	37.019767	-86.081020	717.32	5.00	722.32
7	37.019754	-86.081395	719.12	5.00	724.12
8	37.020230	-86.081476	711.14	5.00	716.14

Name: 415
Footprint area: 5.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.018765	-86.089751	690.94	5.00	695.94
2	37.018756	-86.087809	696.84	5.00	701.84
3	37.017600	-86.087820	701.60	5.00	706.60
4	37.017617	-86.089816	712.64	5.00	717.64

Name: 416
Footprint area: 14.4 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.017523	-86.085907	706.01	5.00	711.01
2	37.017531	-86.081658	747.69	5.00	752.69
3	37.017805	-86.081642	746.17	5.00	751.17
4	37.017797	-86.081031	738.70	5.00	743.70
5	37.018790	-86.081036	733.92	5.00	738.92
6	37.018786	-86.085934	709.11	5.00	714.11

Name: 417
Footprint area: 8.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.038088	-86.071044	739.88	5.00	744.88
2	37.038071	-86.067965	730.80	5.00	735.80
3	37.036992	-86.067965	726.04	5.00	731.04
4	37.037026	-86.071098	727.99	5.00	732.99



Name: 418
Footprint area: 9.5 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.018773	-86.087809	696.77	5.00	701.77
2	37.018790	-86.085932	709.11	5.00	714.11
3	37.016743	-86.085900	713.75	5.00	718.75
4	37.016726	-86.087831	703.12	5.00	708.12



Name: 419
Footprint area: 12.1 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.022268	-86.083740	698.20	5.00	703.20
2	37.022277	-86.081143	720.19	5.00	725.19
3	37.020881	-86.081143	724.05	5.00	729.05
4	37.020889	-86.081487	719.60	5.00	724.60
5	37.020247	-86.081487	711.61	5.00	716.61
6	37.020247	-86.083686	717.64	5.00	722.64



2-Mile Flight Path Receptor(s)

Name: Glasgow Municipal Airport Runway 26
Description:
Threshold height : 50 ft
Direction: 252.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.033844	-85.946199	714.75	50.00	764.75
2-mile point	37.042702	-85.911682	732.56	585.62	1318.18



Name: Glasgow Municipal Airport Runway 8
Description:
Threshold height : 50 ft
Direction: 70.5 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.029484	-85.962314	707.66	50.00	757.66
2-mile point	37.019838	-85.996495	701.55	609.54	1311.09



Route Receptor(s)

Name: Cumberland Highway Eastbound
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.047351	-86.082288	682.22	9.00	691.22
2	37.045947	-86.076773	729.39	9.00	738.39
3	37.045108	-86.074220	728.45	9.00	737.45
4	37.043806	-86.070808	723.38	9.00	732.38
5	37.042462	-86.067922	721.94	9.00	730.94
6	37.041040	-86.065293	737.83	9.00	746.83
7	37.039944	-86.063480	743.87	9.00	752.87
8	37.037923	-86.060541	739.70	9.00	748.70
9	37.033281	-86.054082	729.63	9.00	738.63
10	37.032467	-86.052966	733.85	9.00	742.85

Name: Cumberland Highway Westbound
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.032613	-86.052837	734.71	9.00	743.71
2	37.035465	-86.056850	728.82	9.00	737.82
3	37.038034	-86.060380	739.70	9.00	748.70
4	37.040072	-86.063341	745.97	9.00	754.97
5	37.041186	-86.065165	737.69	9.00	746.69
6	37.042590	-86.067836	722.10	9.00	731.10
7	37.043995	-86.070808	723.59	9.00	732.59
8	37.045313	-86.074263	730.35	9.00	739.35
9	37.046118	-86.076795	729.41	9.00	738.41
10	37.047548	-86.082245	680.80	9.00	689.80

Name: Fox Chase Street
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.021731	-86.073061	747.23	9.00	756.23
2	37.021662	-86.074847	726.45	9.00	735.45
3	37.021581	-86.075126	723.11	9.00	732.11
4	37.021469	-86.075357	722.91	9.00	731.91
5	37.021435	-86.075523	722.84	9.00	731.84
6	37.021576	-86.075910	712.96	9.00	721.96

Name: Millstown Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.043409	-86.084740	708.63	9.00	717.63
2	37.043135	-86.085094	707.52	9.00	716.52
3	37.042219	-86.086832	686.36	9.00	695.36
4	37.041097	-86.088055	667.78	9.00	676.78
5	37.040361	-86.088345	673.54	9.00	682.54
6	37.039881	-86.088892	679.82	9.00	688.82
7	37.039427	-86.089289	685.76	9.00	694.76
8	37.038194	-86.089944	694.75	9.00	703.75
9	37.036721	-86.091210	681.97	9.00	690.97
10	37.033244	-86.092841	644.88	9.00	653.88
11	37.032636	-86.093484	643.15	9.00	652.15
12	37.032027	-86.094396	649.25	9.00	658.25
13	37.031771	-86.094632	660.63	9.00	669.63
14	37.028619	-86.096488	680.22	9.00	689.22
15	37.028096	-86.096746	677.04	9.00	686.04
16	37.027805	-86.096681	680.45	9.00	689.45
17	37.027616	-86.096027	684.75	9.00	693.75
18	37.027411	-86.095823	686.29	9.00	695.29
19	37.027145	-86.095802	689.12	9.00	698.12
20	37.023788	-86.095480	698.10	9.00	707.10

Name: Oak Grove Church Road
Route type Two-way
View angle: 50.0 deg



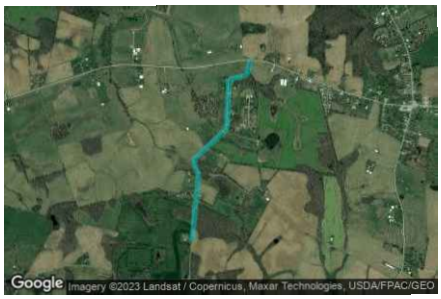
Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.044243	-86.080507	731.01	9.00	740.01
2	37.043952	-86.079509	727.41	9.00	736.41
3	37.043935	-86.079026	726.82	9.00	735.82
4	37.043943	-86.075700	731.92	9.00	740.92
5	37.043823	-86.074392	730.14	9.00	739.14
6	37.043729	-86.074070	730.55	9.00	739.55
7	37.042907	-86.073072	730.10	9.00	739.10
8	37.041408	-86.072514	718.76	9.00	727.76
9	37.041160	-86.072278	714.21	9.00	723.21
10	37.040912	-86.071838	702.66	9.00	711.66
11	37.040766	-86.071076	694.56	9.00	703.56
12	37.040509	-86.069682	689.99	9.00	698.99
13	37.040338	-86.067750	716.39	9.00	725.39
14	37.040192	-86.066892	721.40	9.00	730.40
15	37.039918	-86.065959	732.39	9.00	741.39
16	37.039687	-86.065272	737.21	9.00	746.21
17	37.039413	-86.063770	740.06	9.00	749.06
18	37.039165	-86.062997	741.33	9.00	750.33
19	37.038848	-86.062558	742.07	9.00	751.07
20	37.038103	-86.061914	742.95	9.00	751.95
21	37.037049	-86.061141	747.61	9.00	756.61
22	37.036844	-86.060841	752.17	9.00	761.17
23	37.036672	-86.060369	754.03	9.00	763.03

Name: Park City Bon Ayr Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.037663	-86.060177	744.75	9.00	753.75
2	37.034853	-86.060628	744.73	9.00	753.73
3	37.033980	-86.060928	742.73	9.00	751.73
4	37.032267	-86.061647	739.44	9.00	748.44
5	37.031530	-86.061754	715.86	9.00	724.86
6	37.030537	-86.061615	698.69	9.00	707.69
7	37.028327	-86.060177	746.35	9.00	755.35
8	37.027282	-86.059609	759.74	9.00	768.74
9	37.026443	-86.059373	770.56	9.00	779.56
10	37.025389	-86.059212	775.11	9.00	784.11
11	37.023179	-86.059051	756.33	9.00	765.33

Name: Rick Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.026463	-86.073705	717.62	9.00	726.62
2	37.025538	-86.073973	708.35	9.00	717.35
3	37.025401	-86.074231	713.07	9.00	722.07
4	37.025178	-86.075379	728.98	9.00	737.98
5	37.025016	-86.075593	731.68	9.00	740.68
6	37.021838	-86.075776	716.00	9.00	725.00
7	37.021546	-86.075915	713.07	9.00	722.07
8	37.021315	-86.076205	711.76	9.00	720.76
9	37.019585	-86.078565	723.39	9.00	732.39
10	37.019311	-86.078737	723.18	9.00	732.18
11	37.018925	-86.078629	723.54	9.00	732.54
12	37.018394	-86.078372	729.61	9.00	738.61
13	37.018069	-86.078383	734.32	9.00	743.32
14	37.016270	-86.078619	740.04	9.00	749.04
15	37.013794	-86.078919	751.71	9.00	760.71

Name: US 68
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.023594	-86.096332	694.72	9.00	703.72
2	37.023928	-86.094637	705.81	9.00	714.81
3	37.025924	-86.086928	697.17	9.00	706.17
4	37.026129	-86.085550	693.78	9.00	702.78
5	37.026155	-86.083897	719.82	9.00	728.82
6	37.025924	-86.079563	683.42	9.00	692.42
7	37.025958	-86.078522	702.06	9.00	711.06
8	37.026069	-86.077278	702.09	9.00	711.09
9	37.026472	-86.074166	714.62	9.00	723.62
10	37.026480	-86.073104	722.48	9.00	731.48
11	37.026215	-86.071666	743.28	9.00	752.28
12	37.024450	-86.066248	757.36	9.00	766.36
13	37.024168	-86.065272	763.12	9.00	772.12
14	37.023277	-86.061624	758.60	9.00	767.60

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	37.011816	-85.904852	831.81	500.00	1331.81
OP 2	37.017204	-86.079478	748.66	16.00	764.66
OP 3	37.017934	-86.079105	741.07	16.00	757.07
OP 4	37.018429	-86.079137	732.59	16.00	748.59
OP 5	37.019238	-86.076162	754.49	16.00	770.49
OP 6	37.021619	-86.078035	730.64	16.00	746.64
OP 7	37.021341	-86.074773	726.67	16.00	742.67
OP 8	37.022463	-86.075336	730.76	16.00	746.76
OP 9	37.023341	-86.076441	738.99	16.00	754.99
OP 10	37.022887	-86.075283	736.07	16.00	752.07
OP 11	37.023247	-86.075309	738.25	16.00	754.25
OP 12	37.023620	-86.075256	740.18	16.00	756.18
OP 13	37.024039	-86.075250	739.85	16.00	755.85
OP 14	37.024339	-86.076133	737.52	16.00	753.52
OP 15	37.025056	-86.075910	736.24	16.00	752.24
OP 16	37.024799	-86.075283	730.42	16.00	746.42
OP 17	37.024617	-86.081093	728.43	16.00	744.43
OP 18	37.025944	-86.083539	734.68	16.00	750.68
OP 19	37.025486	-86.087613	723.39	16.00	739.39
OP 20	37.026150	-86.087705	722.89	16.00	738.89
OP 21	37.026182	-86.089292	725.74	16.00	741.74
OP 22	37.023394	-86.095282	707.34	16.00	723.34
OP 23	37.021972	-86.098391	714.85	16.00	730.85
OP 24	37.021444	-86.101577	705.11	16.00	721.11
OP 25	37.026463	-86.083888	733.18	16.00	749.18
OP 26	37.029667	-86.095347	690.41	16.00	706.41
OP 27	37.030082	-86.096074	682.02	16.00	698.02
OP 28	37.034426	-86.091887	671.63	16.00	687.63
OP 29	37.035363	-86.091074	679.91	16.00	695.91
OP 30	37.036243	-86.091157	689.61	16.00	705.61
OP 31	37.041639	-86.088140	676.29	16.00	692.29
OP 32	37.040684	-86.068592	715.10	16.00	731.10
OP 33	37.040675	-86.068088	723.96	16.00	739.96
OP 34	37.039866	-86.065105	744.37	16.00	760.37
OP 35	37.038834	-86.063099	743.98	16.00	759.98
OP 36	37.037841	-86.062718	739.60	16.00	755.60
OP 37	37.035772	-86.060948	755.60	16.00	771.60
OP 38	37.034907	-86.059901	762.31	16.00	778.31
OP 39	37.032646	-86.061210	746.33	16.00	762.33
OP 40	37.026518	-86.071273	750.22	16.00	766.22

Obstruction Components

Name: 10 Cumberland Hwy Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.031784	-86.052462	736.33
2	37.037283	-86.060004	749.30
3	37.040006	-86.063963	744.62
4	37.041582	-86.066699	716.24
5	37.043868	-86.071398	729.80
6	37.045273	-86.075260	729.56
7	37.046652	-86.080120	716.08

Name: 1 Planned Vegetation
Upper edge height: 6.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.039176	-86.067675	696.61
2	37.040186	-86.069617	688.26
3	37.040717	-86.071505	694.31
4	37.040905	-86.072321	706.22

Name: 2 Existing Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.039024	-86.067569	699.83
2	37.038065	-86.066765	700.87
3	37.037363	-86.065981	724.00
4	37.037054	-86.065252	708.72
5	37.036600	-86.065037	715.66
6	37.035624	-86.065241	724.62
7	37.034494	-86.065166	728.12

Name: 3 Planned Vegetation
Upper edge height: 6.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.026106	-86.078833	705.51
2	37.026328	-86.077052	713.03
3	37.026757	-86.074134	721.75

Name: 4 Planned Vegetation
Upper edge height: 6.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.025883	-86.085936	681.77
2	37.026003	-86.083876	726.38

Name: 5 Planned Vegetation
Upper edge height: 6.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.025900	-86.083189	728.41
2	37.025815	-86.082073	704.37
3	37.018619	-86.079992	728.38

Name: 6 Existing Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.033189	-86.078200	665.13
2	37.032435	-86.079294	663.40
3	37.032367	-86.080603	663.75
4	37.032692	-86.081569	717.25
5	37.032727	-86.082899	728.49
6	37.032196	-86.083049	699.07
7	37.031630	-86.081505	660.70
8	37.030054	-86.081333	666.17

Name: 7 Existing Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.020015	-86.088371	706.76
2	37.020923	-86.087212	705.87

Name: 8 Existing Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.020975	-86.091010	697.55
2	37.021455	-86.090130	703.02

Name: 9 Existing Trees
Upper edge height: 30.0 ft



Vertex	Latitude	Longitude	Ground elevation
	deg	deg	ft
1	37.033866	-86.078221	664.76
2	37.035356	-86.076719	670.87
3	37.035596	-86.075926	671.14
4	37.035339	-86.074617	670.06
5	37.034928	-86.073758	673.74
6	37.032016	-86.071205	683.84
7	37.031159	-86.067278	688.71
8	37.026894	-86.063716	716.50

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
401	SA tracking	SA tracking	39	0	-	-
402	SA tracking	SA tracking	0	0	-	-
403	SA tracking	SA tracking	1,081	0	-	-
404	SA tracking	SA tracking	0	0	-	-
405	SA tracking	SA tracking	0	0	-	-
406	SA tracking	SA tracking	0	0	-	-
407	SA tracking	SA tracking	0	0	-	-
408	SA tracking	SA tracking	0	0	-	-
409	SA tracking	SA tracking	0	0	-	-
410	SA tracking	SA tracking	0	0	-	-
411	SA tracking	SA tracking	0	0	-	-
412	SA tracking	SA tracking	0	0	-	-
413	SA tracking	SA tracking	0	0	-	-
414	SA tracking	SA tracking	0	0	-	-
415	SA tracking	SA tracking	0	0	-	-
416	SA tracking	SA tracking	0	0	-	-
417	SA tracking	SA tracking	0	0	-	-
418	SA tracking	SA tracking	0	0	-	-
419	SA tracking	SA tracking	0	0	-	-

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
401 (green)	0	0	0	0	0	0	0	0	0	0	0	39
401 (yellow)	0	0	0	0	0	0	0	0	0	0	0	0
403 (green)	123	264	0	0	0	0	0	0	0	245	96	91
403 (yellow)	0	0	0	0	0	0	0	0	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

401 low potential for temporary after-image

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0

OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	39	0
Route: Park City Bon Ayr Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0

401: Glasgow Municipal Airport Runway 26

No glare found

401: Glasgow Municipal Airport Runway 8

No glare found

401: OP 1

No glare found

401: OP 2

No glare found

401: OP 3

No glare found

401: OP 4

No glare found

401: OP 5

No glare found

401: OP 6

No glare found

401: OP 7

No glare found

401: OP 8

No glare found

401: OP 9

No glare found

401: OP 10

No glare found

401: OP 11

No glare found

401: OP 12

No glare found

401: OP 13

No glare found

401: OP 14

No glare found

401: OP 15

No glare found

401: OP 16

No glare found

401: OP 17

No glare found

401: OP 18

No glare found

401: OP 19

No glare found

401: OP 20

No glare found

401: OP 21

No glare found

401: OP 22

No glare found

401: OP 23

No glare found

401: OP 24

No glare found

401: OP 25

No glare found

401: OP 26

No glare found

401: OP 27

No glare found

401: OP 28

No glare found

401: OP 29

No glare found

401: OP 30

No glare found

401: OP 31

No glare found

401: OP 32

No glare found

401: OP 33

No glare found

401: OP 34

No glare found

401: OP 35

No glare found

401: OP 36

No glare found

401: OP 37

No glare found

401: OP 38

No glare found

401: OP 39

No glare found

401: OP 40

No glare found

401: Cumberland Highway Eastbound

No glare found

401: Cumberland Highway Westbound

No glare found

401: Fox Chase Street

No glare found

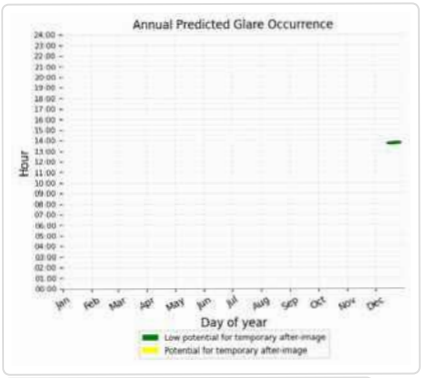
401: Millstown Road

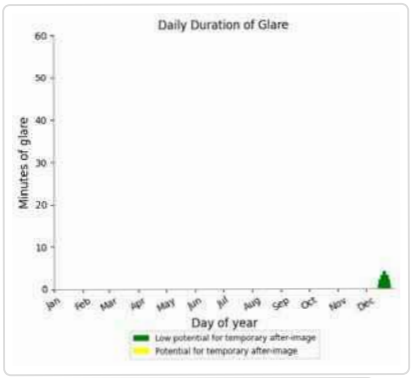
No glare found

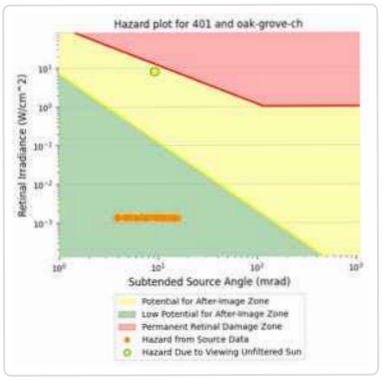
401: Oak Grove Church Road

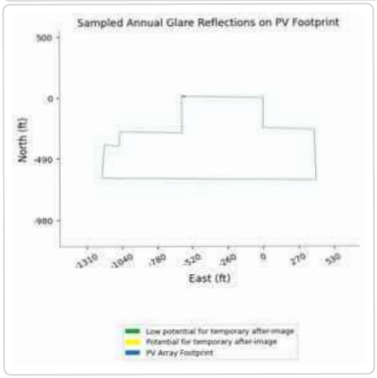
PV array is expected to produce the following glare for this receptor:

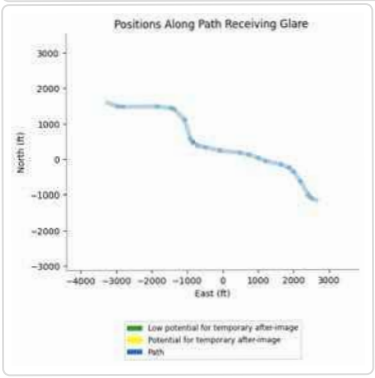
- 39 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.











401: Park City Bon Ayr Road

No glare found

401: Rick Road

No glare found

401: US 68

No glare found

402 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

403 low potential for temporary after-image

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	23	0
OP: OP 32	346	0
OP: OP 33	316	0
OP: OP 34	28	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0

OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	368	0
Route: Park City Bon Ayr Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0

403: Glasgow Municipal Airport Runway 26

No glare found

403: Glasgow Municipal Airport Runway 8

No glare found

403: OP 1

No glare found

403: OP 2

No glare found

403: OP 3

No glare found

403: OP 4

No glare found

403: OP 5

No glare found

403: OP 6

No glare found

403: OP 7

No glare found

403: OP 8

No glare found

403: OP 9

No glare found

403: OP 10

No glare found

403: OP 11

No glare found

403: OP 12

No glare found

403: OP 13

No glare found

403: OP 14

No glare found

403: OP 15

No glare found

403: OP 16

No glare found

403: OP 17

No glare found

403: OP 18

No glare found

403: OP 19

No glare found

403: OP 20

No glare found

403: OP 21

No glare found

403: OP 22

No glare found

403: OP 23

No glare found

403: OP 24

No glare found

403: OP 25

No glare found

403: OP 26

No glare found

403: OP 27

No glare found

403: OP 28

No glare found

403: OP 29

No glare found

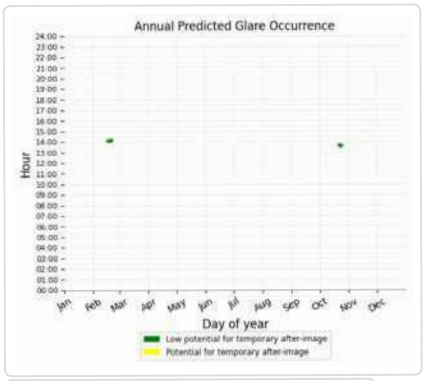
403: OP 30

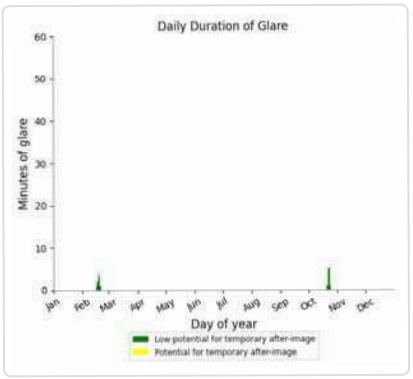
No glare found

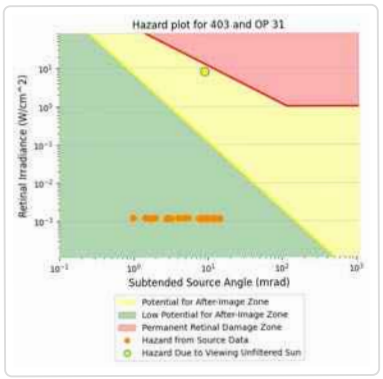
403: OP 31

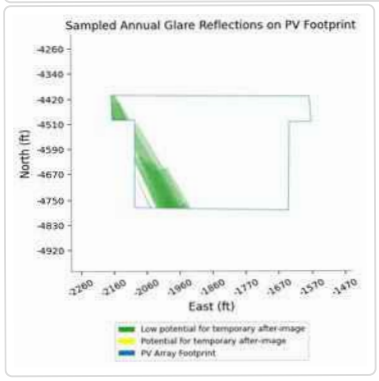
PV array is expected to produce the following glare for this receptor:

- 23 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





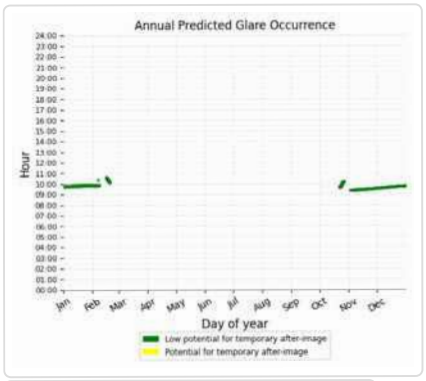


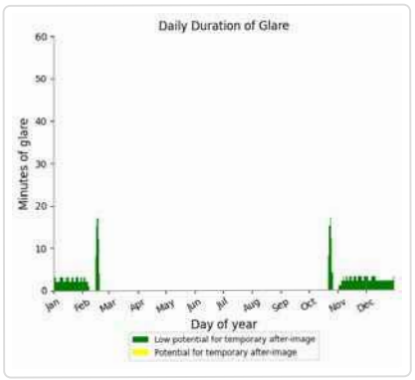


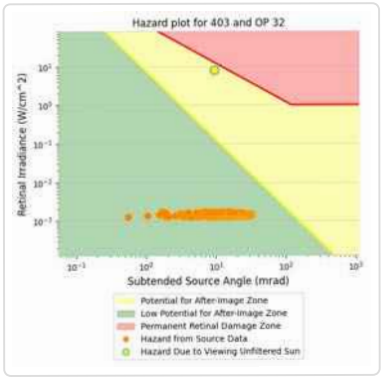
403: OP 32

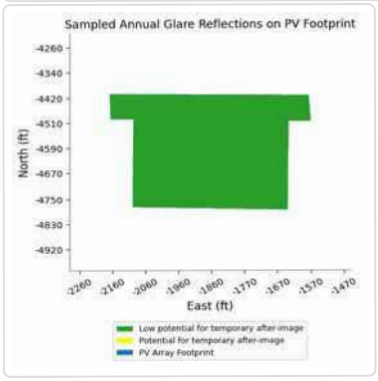
PV array is expected to produce the following glare for this receptor:

- 346 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





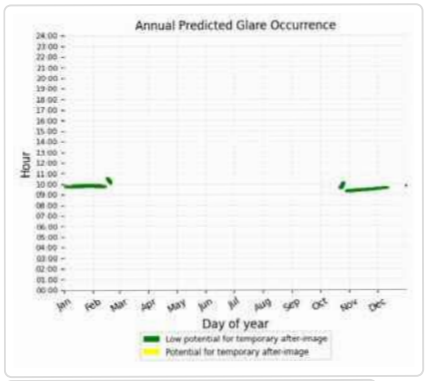


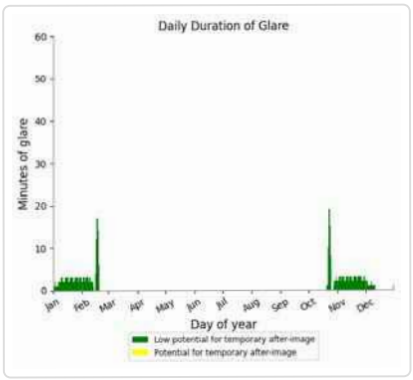


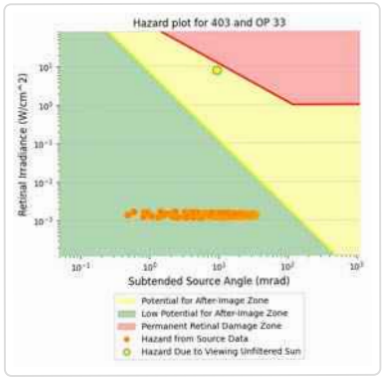
403: OP 33

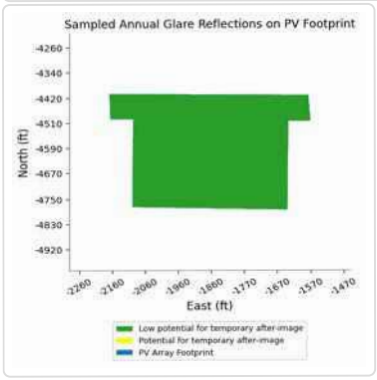
PV array is expected to produce the following glare for this receptor:

- 316 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.





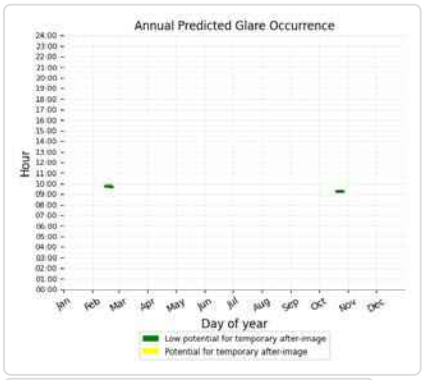


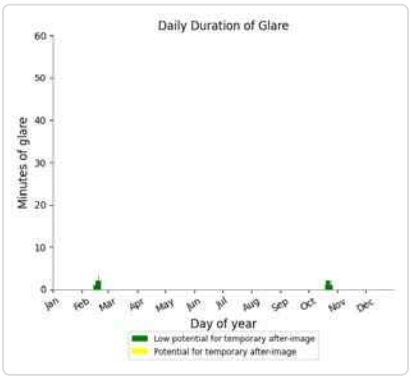


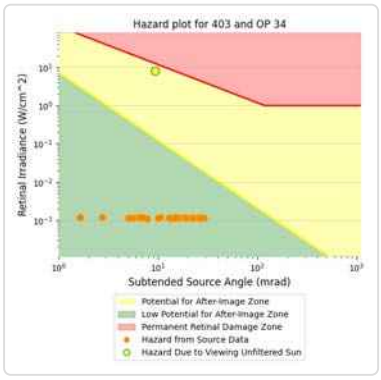
403: OP 34

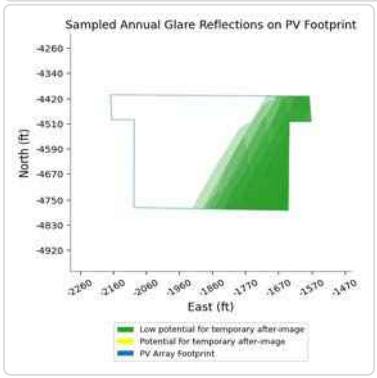
PV array is expected to produce the following glare for this receptor:

- 28 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.









403: OP 35

No glare found

403: OP 36

No glare found

403: OP 37

No glare found

403: OP 38

No glare found

403: OP 39

No glare found

403: OP 40

No glare found

403: Cumberland Highway Eastbound

No glare found

403: Cumberland Highway Westbound

No glare found

403: Fox Chase Street

No glare found

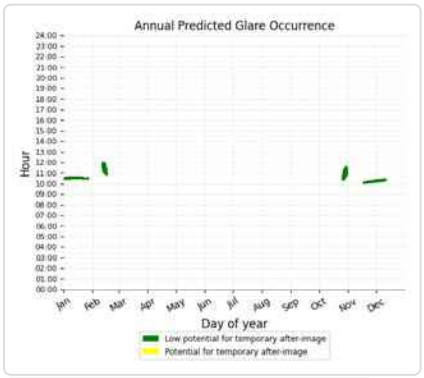
403: Millstown Road

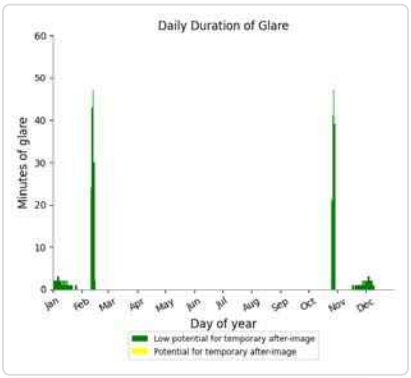
No glare found

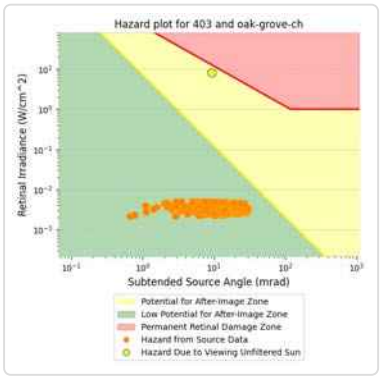
403: Oak Grove Church Road

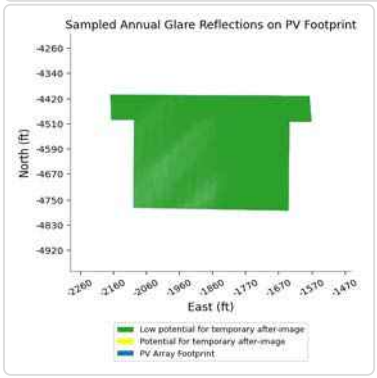
PV array is expected to produce the following glare for this receptor:

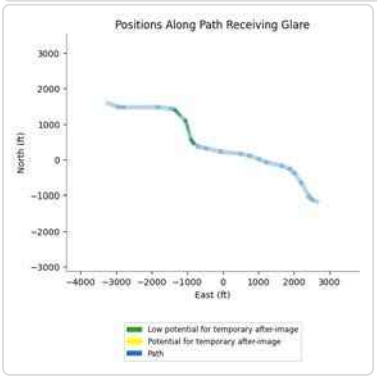
- 368 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.











403: Park City Bon Ayr Road

No glare found

403: Rick Road

No glare found

403: US 68

No glare found

404 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

405 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

406 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

407 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

408 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

409 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

410 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

411 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

412 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

413 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

414 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

415 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

416 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

417 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

---

418 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

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419 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Cumberland Highway Eastbound	0	0
Route: Cumberland Highway Westbound	0	0
Route: Fox Chase Street	0	0
Route: Millstown Road	0	0
Route: Oak Grove Church Road	0	0
Route: Park City Bon Ayr Road	0	0

Route: Rick Road	0	0
Route: US 68	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographi obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

Wood Duck

Block 5 5ft vehicle

Created Apr 27, 2023
Updated Apr 28, 2023
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
Site ID 89292.15739

Project type Advanced
Project status: active
Category 10 MW to 100 MW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

PV Analysis Methodology: **Version 2**
Enhanced subtended angle calculation: **On**

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
501	SA tracking	SA tracking	0	0	-
502	SA tracking	SA tracking	0	0	-
503	SA tracking	SA tracking	0	0	-
504	SA tracking	SA tracking	0	0	-
505	SA tracking	SA tracking	0	0	-
506	SA tracking	SA tracking	0	0	-
507	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 57.3 acres

Name: 501
Footprint area: 3.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.020242	-86.090376	706.88	5.00	711.88
2	37.020274	-86.089429	704.53	5.00	709.53
3	37.020473	-86.089311	704.15	5.00	709.15
4	37.020503	-86.088995	702.69	5.00	707.69
5	37.019398	-86.088944	694.16	5.00	699.16
6	37.019154	-86.089236	692.80	5.00	697.80
7	37.019188	-86.090330	704.68	5.00	709.68



Name: 502
Footprint area: 8.0 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.017659	-86.089990	711.23	5.00	716.23
2	37.016479	-86.089990	713.20	5.00	718.20
3	37.016485	-86.092774	718.13	5.00	723.13
4	37.017685	-86.092731	702.49	5.00	707.49



Name: 503
Footprint area: 13.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.017689	-86.092739	702.42	5.00	707.42
2	37.017698	-86.093364	705.95	5.00	710.95
3	37.017616	-86.093560	704.90	5.00	709.90
4	37.017616	-86.093809	704.24	5.00	709.24
5	37.017970	-86.093798	700.48	5.00	705.48
6	37.017948	-86.097449	682.28	5.00	687.28
7	37.017143	-86.097449	688.56	5.00	693.56
8	37.017134	-86.097181	690.64	5.00	695.64
9	37.016783	-86.097175	690.42	5.00	695.42
10	37.016779	-86.093683	709.82	5.00	714.82
11	37.016303	-86.093699	711.57	5.00	716.57
12	37.016475	-86.092787	717.78	5.00	722.78

Name: 504
Footprint area: 9.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.017965	-86.097449	681.89	5.00	686.89
2	37.017961	-86.097706	681.15	5.00	686.15
3	37.019087	-86.097706	681.15	5.00	686.15
4	37.019109	-86.094236	687.85	5.00	692.85
5	37.018616	-86.094123	691.77	5.00	696.77
6	37.017974	-86.094112	700.93	5.00	705.93

Name: 505
Footprint area: 5.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.014783	-86.089145	722.18	5.00	727.18
2	37.014800	-86.090395	715.70	5.00	720.70
3	37.014650	-86.090641	715.02	5.00	720.02
4	37.014492	-86.090631	714.89	5.00	719.89
5	37.014273	-86.091092	717.08	5.00	722.08
6	37.014286	-86.091414	718.53	5.00	723.53
7	37.013960	-86.091409	718.55	5.00	723.55
8	37.013960	-86.091677	715.22	5.00	720.22
9	37.013117	-86.091666	705.78	5.00	710.78
10	37.013112	-86.091033	707.83	5.00	712.83
11	37.013421	-86.090545	709.88	5.00	714.88
12	37.013973	-86.090352	713.75	5.00	718.75
13	37.013973	-86.089156	719.68	5.00	724.68

Name: 506
Footprint area: 6.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.013273	-86.089990	711.55	5.00	716.55
2	37.013286	-86.089131	721.59	5.00	726.59
3	37.012678	-86.089115	725.11	5.00	730.11
4	37.012673	-86.089807	719.10	5.00	724.10
5	37.012144	-86.089799	729.63	5.00	734.63
6	37.012067	-86.090537	724.26	5.00	729.26
7	37.012067	-86.090821	726.46	5.00	731.46
8	37.011671	-86.092618	720.41	5.00	725.41
9	37.012551	-86.092578	704.67	5.00	709.67
10	37.012875	-86.090883	709.90	5.00	714.90
11	37.012857	-86.090507	712.38	5.00	717.38
12	37.012917	-86.090507	712.28	5.00	717.28
13	37.012922	-86.090006	712.89	5.00	717.89

Name: 507
Footprint area: 9.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.013279	-86.089829	712.25	5.00	717.25
2	37.013710	-86.089840	712.30	5.00	717.30
3	37.013712	-86.089059	721.25	5.00	726.25
4	37.014472	-86.089051	718.55	5.00	723.55
5	37.014464	-86.087222	728.14	5.00	733.14
6	37.013273	-86.087181	723.80	5.00	728.80
7	37.013275	-86.086556	716.16	5.00	721.16
8	37.012138	-86.086524	713.84	5.00	718.84
9	37.012148	-86.087895	739.81	5.00	744.81
10	37.013298	-86.087919	731.80	5.00	736.80

2-Mile Flight Path Receptor(s)

Name: Glasgow Municipal Airport Runway 26
Description:
Threshold height : 50 ft
Direction: 252.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg



Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.033844	-85.946199	714.75	50.00	764.75
2-mile point	37.042702	-85.911682	732.56	585.62	1318.18

Name: Glasgow Municipal Airport Runway 8
Description:
Threshold height : 50 ft
Direction: 70.5 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg



Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.029484	-85.962314	707.66	50.00	757.66
2-mile point	37.019838	-85.996495	701.55	609.54	1311.09

Route Receptor(s)

Name: Merry Oaks Railton Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.023287	-86.108697	675.64	5.00	680.64
2	37.020092	-86.108386	653.46	5.00	658.46
3	37.019638	-86.108483	657.04	5.00	662.04
4	37.018764	-86.109094	665.62	5.00	670.62
5	37.018490	-86.109255	664.25	5.00	669.25
6	37.016126	-86.110124	675.01	5.00	680.01
7	37.014669	-86.110854	678.68	5.00	683.68

Name: Red Cross Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.015517	-86.110285	676.12	5.00	681.12
2	37.015346	-86.109502	687.76	5.00	692.76
3	37.015312	-86.108579	685.56	5.00	690.56
4	37.015098	-86.108257	685.13	5.00	690.13
5	37.014806	-86.108172	685.52	5.00	690.52
6	37.013821	-86.108343	682.85	5.00	687.85
7	37.013444	-86.108279	685.27	5.00	690.27
8	37.013307	-86.108107	687.67	5.00	692.67
9	37.013020	-86.107115	693.05	5.00	698.05
10	37.012605	-86.106551	693.05	5.00	698.05
11	37.012099	-86.106101	692.97	5.00	697.97
12	37.011328	-86.105854	690.78	5.00	695.78
13	37.010634	-86.105790	689.89	5.00	694.89
14	37.009658	-86.105618	688.10	5.00	693.10

Name: Rick Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.010917	-86.079139	729.39	5.00	734.39
2	37.012365	-86.079129	735.56	5.00	740.56
3	37.014524	-86.078828	738.33	5.00	743.33
4	37.016828	-86.078538	753.40	5.00	758.40
5	37.018113	-86.078388	733.16	5.00	738.16
6	37.018447	-86.078388	728.62	5.00	733.62
7	37.019278	-86.078732	723.10	5.00	728.10
8	37.019467	-86.078699	723.08	5.00	728.08
9	37.020023	-86.078045	726.73	5.00	731.73
10	37.021600	-86.075867	713.49	5.00	718.49
11	37.021857	-86.075781	716.58	5.00	721.58
12	37.022216	-86.075770	724.11	5.00	729.11
13	37.025060	-86.075588	732.00	5.00	737.00
14	37.025257	-86.075255	728.37	5.00	733.37
15	37.025463	-86.074022	710.72	5.00	715.72
16	37.026525	-86.073646	718.76	5.00	723.76

Name: US 68
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.023955	-86.110510	662.28	5.00	667.28
2	37.022388	-86.106197	673.50	5.00	678.50
3	37.022114	-86.105403	683.25	5.00	688.25
4	37.022045	-86.104374	696.54	5.00	701.54
5	37.022430	-86.102110	700.53	5.00	705.53
6	37.023870	-86.094975	702.80	5.00	707.80
7	37.025703	-86.087873	714.82	5.00	719.82
8	37.026011	-86.086263	689.06	5.00	694.06
9	37.026182	-86.084954	703.19	5.00	708.19
10	37.025960	-86.079504	684.92	5.00	689.92

Name: Waller Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.009598	-86.105575	688.12	5.00	693.12
2	37.008578	-86.096091	714.28	5.00	719.28
3	37.008595	-86.095823	710.64	5.00	715.64
4	37.009401	-86.095072	697.25	5.00	702.25
5	37.010733	-86.094074	712.41	5.00	717.41
6	37.011217	-86.093671	716.45	5.00	721.45
7	37.011345	-86.093419	716.87	5.00	721.87
8	37.011277	-86.093097	720.91	5.00	725.91
9	37.011225	-86.092813	722.49	5.00	727.49
10	37.011260	-86.092518	727.18	5.00	732.18
11	37.011457	-86.091933	734.42	5.00	739.42
12	37.011902	-86.090104	728.16	5.00	733.16
13	37.011889	-86.089262	733.33	5.00	738.33
14	37.011872	-86.088398	738.78	5.00	743.78
15	37.011791	-86.087529	732.75	5.00	737.75
16	37.011727	-86.087046	724.07	5.00	729.07
17	37.011474	-86.086204	712.70	5.00	717.70
18	37.011393	-86.085968	710.73	5.00	715.73
19	37.011148	-86.085797	706.67	5.00	711.67

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	37.011816	-85.904852	831.81	500.00	1331.81
OP 2	37.012159	-86.088738	744.54	16.00	760.54
OP 3	37.011236	-86.094065	719.92	16.00	735.92
OP 4	37.010949	-86.092088	730.42	16.00	746.42
OP 5	37.013337	-86.103031	699.64	16.00	715.64
OP 6	37.011958	-86.105633	702.09	16.00	718.09
OP 7	37.012729	-86.107141	695.48	16.00	711.48
OP 8	37.015620	-86.108814	692.85	16.00	708.85
OP 9	37.015274	-86.111218	680.91	16.00	696.91
OP 10	37.018884	-86.108680	671.31	16.00	687.31
OP 11	37.019411	-86.107929	666.36	16.00	682.36
OP 12	37.019510	-86.108981	667.90	16.00	683.90
OP 13	37.020568	-86.108782	663.82	16.00	679.82
OP 14	37.021043	-86.108197	674.46	16.00	690.46
OP 15	37.020144	-86.110987	670.21	16.00	686.21
OP 16	37.021506	-86.109265	680.49	16.00	696.49
OP 17	37.021870	-86.109313	674.86	16.00	690.86
OP 18	37.022409	-86.109260	669.69	16.00	685.69
OP 19	37.022709	-86.107977	678.43	16.00	694.43
OP 20	37.022097	-86.108042	677.28	16.00	693.28
OP 21	37.022915	-86.101492	704.92	16.00	720.92
OP 22	37.021987	-86.098436	716.24	16.00	732.24
OP 23	37.021428	-86.101566	705.07	16.00	721.07
OP 24	37.023396	-86.095309	706.97	16.00	722.97
OP 25	37.025486	-86.087631	723.40	16.00	739.40
OP 26	37.024617	-86.081078	728.42	16.00	744.42
OP 27	37.023336	-86.076459	738.83	16.00	754.83
OP 28	37.021610	-86.078042	730.57	16.00	746.57
OP 29	37.018390	-86.079143	733.27	16.00	749.27
OP 30	37.017916	-86.079122	741.02	15.00	756.02
OP 31	37.017195	-86.079497	748.29	16.00	764.29
OP 32	37.016807	-86.079468	751.56	16.00	767.56
OP 33	37.016674	-86.078231	753.27	16.00	769.27
OP 34	37.013775	-86.079357	755.22	16.00	771.22
OP 35	37.010423	-86.078676	735.15	16.00	751.15
OP 36	37.009802	-86.084132	742.60	16.00	758.60
OP 37	37.023153	-86.109167	676.89	16.00	692.89
OP 38	37.023609	-86.107705	689.86	16.00	705.86
OP 39	37.023386	-86.106841	692.88	16.00	708.88
OP 40	37.022468	-86.105098	708.21	16.00	724.21

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
501	SA tracking	SA tracking	0	0	-	-
502	SA tracking	SA tracking	0	0	-	-
503	SA tracking	SA tracking	0	0	-	-
504	SA tracking	SA tracking	0	0	-	-
505	SA tracking	SA tracking	0	0	-	-
506	SA tracking	SA tracking	0	0	-	-
507	SA tracking	SA tracking	0	0	-	-

PV & Receptor Analysis Results

Results for each PV array and receptor

501 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

502 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

503 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

504 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

505 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

506 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

507 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographi obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

Wood Duck

Block 5 9ft vehicle

Created Apr 27, 2023
Updated Apr 28, 2023
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
Site ID 89295.15739

Project type Advanced
Project status: active
Category 10 MW to 100 MW

Misc. Analysis Settings

DNI: **varies (1,000.0 W/m^2 peak)**
Ocular transmission coefficient: **0.5**
Pupil diameter: **0.002 m**
Eye focal length: **0.017 m**
Sun subtended angle: **9.3 mrad**

PV Analysis Methodology: **Version 2**
Enhanced subtended angle calculation: **On**

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
501	SA tracking	SA tracking	0	0	-
502	SA tracking	SA tracking	0	0	-
503	SA tracking	SA tracking	0	0	-
504	SA tracking	SA tracking	0	0	-
505	SA tracking	SA tracking	0	0	-
506	SA tracking	SA tracking	0	0	-
507	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 57.3 acres

Name: 501
Footprint area: 3.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.020242	-86.090376	706.88	5.00	711.88
2	37.020274	-86.089429	704.53	5.00	709.53
3	37.020473	-86.089311	704.15	5.00	709.15
4	37.020503	-86.088995	702.69	5.00	707.69
5	37.019398	-86.088944	694.16	5.00	699.16
6	37.019154	-86.089236	692.80	5.00	697.80
7	37.019188	-86.090330	704.68	5.00	709.68



Name: 502
Footprint area: 8.0 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.017659	-86.089990	711.23	5.00	716.23
2	37.016479	-86.089990	713.20	5.00	718.20
3	37.016485	-86.092774	718.13	5.00	723.13
4	37.017685	-86.092731	702.49	5.00	707.49



Name: 503
Footprint area: 13.3 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.017689	-86.092739	702.42	5.00	707.42
2	37.017698	-86.093364	705.95	5.00	710.95
3	37.017616	-86.093560	704.90	5.00	709.90
4	37.017616	-86.093809	704.24	5.00	709.24
5	37.017970	-86.093798	700.48	5.00	705.48
6	37.017948	-86.097449	682.28	5.00	687.28
7	37.017143	-86.097449	688.56	5.00	693.56
8	37.017134	-86.097181	690.64	5.00	695.64
9	37.016783	-86.097175	690.42	5.00	695.42
10	37.016779	-86.093683	709.82	5.00	714.82
11	37.016303	-86.093699	711.57	5.00	716.57
12	37.016475	-86.092787	717.78	5.00	722.78

Name: 504
Footprint area: 9.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.017965	-86.097449	681.89	5.00	686.89
2	37.017961	-86.097706	681.15	5.00	686.15
3	37.019087	-86.097706	681.15	5.00	686.15
4	37.019109	-86.094236	687.85	5.00	692.85
5	37.018616	-86.094123	691.77	5.00	696.77
6	37.017974	-86.094112	700.93	5.00	705.93

Name: 505
Footprint area: 5.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.014783	-86.089145	722.18	5.00	727.18
2	37.014800	-86.090395	715.70	5.00	720.70
3	37.014650	-86.090641	715.02	5.00	720.02
4	37.014492	-86.090631	714.89	5.00	719.89
5	37.014273	-86.091092	717.08	5.00	722.08
6	37.014286	-86.091414	718.53	5.00	723.53
7	37.013960	-86.091409	718.55	5.00	723.55
8	37.013960	-86.091677	715.22	5.00	720.22
9	37.013117	-86.091666	705.78	5.00	710.78
10	37.013112	-86.091033	707.83	5.00	712.83
11	37.013421	-86.090545	709.88	5.00	714.88
12	37.013973	-86.090352	713.75	5.00	718.75
13	37.013973	-86.089156	719.68	5.00	724.68

Name: 506
Footprint area: 6.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.013273	-86.089990	711.55	5.00	716.55
2	37.013286	-86.089131	721.59	5.00	726.59
3	37.012678	-86.089115	725.11	5.00	730.11
4	37.012673	-86.089807	719.10	5.00	724.10
5	37.012144	-86.089799	729.63	5.00	734.63
6	37.012067	-86.090537	724.26	5.00	729.26
7	37.012067	-86.090821	726.46	5.00	731.46
8	37.011671	-86.092618	720.41	5.00	725.41
9	37.012551	-86.092578	704.67	5.00	709.67
10	37.012875	-86.090883	709.90	5.00	714.90
11	37.012857	-86.090507	712.38	5.00	717.38
12	37.012917	-86.090507	712.28	5.00	717.28
13	37.012922	-86.090006	712.89	5.00	717.89

Name: 507
Footprint area: 9.7 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 60.0 deg
Resting angle: 60.0 deg
Ground Coverage Ratio: 0.5

Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.013279	-86.089829	712.25	5.00	717.25
2	37.013710	-86.089840	712.30	5.00	717.30
3	37.013712	-86.089059	721.25	5.00	726.25
4	37.014472	-86.089051	718.55	5.00	723.55
5	37.014464	-86.087222	728.14	5.00	733.14
6	37.013273	-86.087181	723.80	5.00	728.80
7	37.013275	-86.086556	716.16	5.00	721.16
8	37.012138	-86.086524	713.84	5.00	718.84
9	37.012148	-86.087895	739.81	5.00	744.81
10	37.013298	-86.087919	731.80	5.00	736.80

2-Mile Flight Path Receptor(s)

Name: Glasgow Municipal Airport Runway 26
Description:
Threshold height : 50 ft
Direction: 252.2 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg



Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.033844	-85.946199	714.75	50.00	764.75
2-mile point	37.042702	-85.911682	732.56	585.62	1318.18

Name: Glasgow Municipal Airport Runway 8
Description:
Threshold height : 50 ft
Direction: 70.5 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg



Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	37.029484	-85.962314	707.66	50.00	757.66
2-mile point	37.019838	-85.996495	701.55	609.54	1311.09

Route Receptor(s)

Name: Merry Oaks Railton Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.023287	-86.108697	675.64	9.00	684.64
2	37.020092	-86.108386	653.46	9.00	662.46
3	37.019638	-86.108483	657.04	9.00	666.04
4	37.018764	-86.109094	665.62	9.00	674.62
5	37.018490	-86.109255	664.25	9.00	673.25
6	37.016126	-86.110124	675.01	9.00	684.01
7	37.014669	-86.110854	678.68	9.00	687.68

Name: Red Cross Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.015517	-86.110285	676.12	9.00	685.12
2	37.015346	-86.109502	687.76	9.00	696.76
3	37.015312	-86.108579	685.56	9.00	694.56
4	37.015098	-86.108257	685.13	9.00	694.13
5	37.014806	-86.108172	685.52	9.00	694.52
6	37.013821	-86.108343	682.85	9.00	691.85
7	37.013444	-86.108279	685.27	9.00	694.27
8	37.013307	-86.108107	687.67	9.00	696.67
9	37.013020	-86.107115	693.05	9.00	702.05
10	37.012605	-86.106551	693.05	9.00	702.05
11	37.012099	-86.106101	692.97	9.00	701.97
12	37.011328	-86.105854	690.78	9.00	699.78
13	37.010634	-86.105790	689.89	9.00	698.89
14	37.009658	-86.105618	688.10	9.00	697.10

Name: Rick Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.010917	-86.079139	729.39	9.00	738.39
2	37.012365	-86.079129	735.56	9.00	744.56
3	37.014524	-86.078828	738.33	9.00	747.33
4	37.016828	-86.078538	753.40	9.00	762.40
5	37.018113	-86.078388	733.16	9.00	742.16
6	37.018447	-86.078388	728.62	9.00	737.62
7	37.019278	-86.078732	723.10	9.00	732.10
8	37.019467	-86.078699	723.08	9.00	732.08
9	37.020023	-86.078045	726.73	9.00	735.73
10	37.021600	-86.075867	713.49	9.00	722.49
11	37.021857	-86.075781	716.58	9.00	725.58
12	37.022216	-86.075770	724.11	9.00	733.11
13	37.025060	-86.075588	732.00	9.00	741.00
14	37.025257	-86.075255	728.37	9.00	737.37
15	37.025463	-86.074022	710.72	9.00	719.72
16	37.026525	-86.073646	718.76	9.00	727.76

Name: US 68
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.023955	-86.110510	662.28	9.00	671.28
2	37.022388	-86.106197	673.50	9.00	682.50
3	37.022114	-86.105403	683.25	9.00	692.25
4	37.022045	-86.104374	696.54	9.00	705.54
5	37.022430	-86.102110	700.53	9.00	709.53
6	37.023870	-86.094975	702.80	9.00	711.80
7	37.025703	-86.087873	714.82	9.00	723.82
8	37.026011	-86.086263	689.06	9.00	698.06
9	37.026182	-86.084954	703.19	9.00	712.19
10	37.025960	-86.079504	684.92	9.00	693.92

Name: Waller Road
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	37.009598	-86.105575	688.12	9.00	697.12
2	37.008578	-86.096091	714.28	9.00	723.28
3	37.008595	-86.095823	710.64	9.00	719.64
4	37.009401	-86.095072	697.25	9.00	706.25
5	37.010733	-86.094074	712.41	9.00	721.41
6	37.011217	-86.093671	716.45	9.00	725.45
7	37.011345	-86.093419	716.87	9.00	725.87
8	37.011277	-86.093097	720.91	9.00	729.91
9	37.011225	-86.092813	722.49	9.00	731.49
10	37.011260	-86.092518	727.18	9.00	736.18
11	37.011457	-86.091933	734.42	9.00	743.42
12	37.011902	-86.090104	728.16	9.00	737.16
13	37.011889	-86.089262	733.33	9.00	742.33
14	37.011872	-86.088398	738.78	9.00	747.78
15	37.011791	-86.087529	732.75	9.00	741.75
16	37.011727	-86.087046	724.07	9.00	733.07
17	37.011474	-86.086204	712.70	9.00	721.70
18	37.011393	-86.085968	710.73	9.00	719.73
19	37.011148	-86.085797	706.67	9.00	715.67

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	37.011816	-85.904852	831.81	500.00	1331.81
OP 2	37.012159	-86.088738	744.54	16.00	760.54
OP 3	37.011236	-86.094065	719.92	16.00	735.92
OP 4	37.010949	-86.092088	730.42	16.00	746.42
OP 5	37.013337	-86.103031	699.64	16.00	715.64
OP 6	37.011958	-86.105633	702.09	16.00	718.09
OP 7	37.012729	-86.107141	695.48	16.00	711.48
OP 8	37.015620	-86.108814	692.85	16.00	708.85
OP 9	37.015274	-86.111218	680.91	16.00	696.91
OP 10	37.018884	-86.108680	671.31	16.00	687.31
OP 11	37.019411	-86.107929	666.36	16.00	682.36
OP 12	37.019510	-86.108981	667.90	16.00	683.90
OP 13	37.020568	-86.108782	663.82	16.00	679.82
OP 14	37.021043	-86.108197	674.46	16.00	690.46
OP 15	37.020144	-86.110987	670.21	16.00	686.21
OP 16	37.021506	-86.109265	680.49	16.00	696.49
OP 17	37.021870	-86.109313	674.86	16.00	690.86
OP 18	37.022409	-86.109260	669.69	16.00	685.69
OP 19	37.022709	-86.107977	678.43	16.00	694.43
OP 20	37.022097	-86.108042	677.28	16.00	693.28
OP 21	37.022915	-86.101492	704.92	16.00	720.92
OP 22	37.021987	-86.098436	716.24	16.00	732.24
OP 23	37.021428	-86.101566	705.07	16.00	721.07
OP 24	37.023396	-86.095309	706.97	16.00	722.97
OP 25	37.025486	-86.087631	723.40	16.00	739.40
OP 26	37.024617	-86.081078	728.42	16.00	744.42
OP 27	37.023336	-86.076459	738.83	16.00	754.83
OP 28	37.021610	-86.078042	730.57	16.00	746.57
OP 29	37.018390	-86.079143	733.27	16.00	749.27
OP 30	37.017916	-86.079122	741.02	15.00	756.02
OP 31	37.017195	-86.079497	748.29	16.00	764.29
OP 32	37.016807	-86.079468	751.56	16.00	767.56
OP 33	37.016674	-86.078231	753.27	16.00	769.27
OP 34	37.013775	-86.079357	755.22	16.00	771.22
OP 35	37.010423	-86.078676	735.15	16.00	751.15
OP 36	37.009802	-86.084132	742.60	16.00	758.60
OP 37	37.023153	-86.109167	676.89	16.00	692.89
OP 38	37.023609	-86.107705	689.86	16.00	705.86
OP 39	37.023386	-86.106841	692.88	16.00	708.88
OP 40	37.022468	-86.105098	708.21	16.00	724.21

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
501	SA tracking	SA tracking	0	0	-	-
502	SA tracking	SA tracking	0	0	-	-
503	SA tracking	SA tracking	0	0	-	-
504	SA tracking	SA tracking	0	0	-	-
505	SA tracking	SA tracking	0	0	-	-
506	SA tracking	SA tracking	0	0	-	-
507	SA tracking	SA tracking	0	0	-	-

PV & Receptor Analysis Results

Results for each PV array and receptor

501 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

502 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

503 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

504 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

505 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

506 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

507 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: Glasgow Municipal Airport Runway 26	0	0
FP: Glasgow Municipal Airport Runway 8	0	0
OP: OP 1	0	0
OP: OP 2	0	0
OP: OP 3	0	0
OP: OP 4	0	0
OP: OP 5	0	0
OP: OP 6	0	0
OP: OP 7	0	0
OP: OP 8	0	0
OP: OP 9	0	0
OP: OP 10	0	0
OP: OP 11	0	0
OP: OP 12	0	0
OP: OP 13	0	0
OP: OP 14	0	0
OP: OP 15	0	0
OP: OP 16	0	0
OP: OP 17	0	0
OP: OP 18	0	0
OP: OP 19	0	0
OP: OP 20	0	0
OP: OP 21	0	0
OP: OP 22	0	0
OP: OP 23	0	0
OP: OP 24	0	0
OP: OP 25	0	0
OP: OP 26	0	0
OP: OP 27	0	0
OP: OP 28	0	0
OP: OP 29	0	0
OP: OP 30	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 34	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 37	0	0
OP: OP 38	0	0
OP: OP 39	0	0
OP: OP 40	0	0
Route: Merry Oaks Railton Road	0	0
Route: Red Cross Road	0	0
Route: Rick Road	0	0
Route: US 68	0	0
Route: Waller Road	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographi obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for larg PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, nc discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

APPENDIX B

Glare Summary

Wood Duck Glare Summary

Block 1

Routes	Glare?	Green or Yellow?	Approximate Max. Minutes/day	Approximate time of day	Approximate time of year	Latitude	Longitude
Cumberland Parkway Westbound	No						
Cumberland Parkway Eastbound	No						
Park City Bon Ayr Road	No						
Millstown Road	No						
R Crump C Bellamy Road	No						
Apple Grove Road	No						
Aviation							
Glasgow Airport Runway 8	No						
Glasgow Airport Runway 26	No						
TJ Samson Community Hospital helipad (OP1)	No						
Houses							
OP2	No					37.060481	-86.054912
OP3	No					37.058276	-86.056317
OP4	No					37.060950	-86.056097
OP5	No					37.055491	-86.056306
OP6	No					37.054519	-86.056698
OP7	No					37.053521	-86.058012
OP8	No					37.052271	-86.058130
OP9	No					37.050961	-86.057320
OP10	No					37.050529	-86.058044
OP11	No					37.049762	-86.059460
OP12	No					37.048743	-86.060104
OP13	No					37.050404	-86.063156
OP14	No					37.050238	-86.063763
OP15	No					37.051017	-86.063441
OP16	No					37.051184	-86.063704
OP17	No					37.050863	-86.065114
OP18	No					37.051402	-86.065683
OP19	No					37.052618	-86.065592
OP20	No					37.052759	-86.068108
OP21	No					37.054029	-86.070908
OP22	No					37.054071	-86.070192
OP23	No					37.053971	-86.071412
OP24	No					37.055202	-86.070966
OP25	No					37.055287	-86.071899
OP26	No					37.053874	-86.073321
OP27	No					37.053864	-86.077649
OP28	No					37.051328	-86.088383
OP29	No					37.048539	-86.080661
OP30	No					37.046493	-86.081439
OP31	No					37.043720	-86.076072
OP32	No					37.044272	-86.078060
OP33	No					37.043446	-86.060683
OP34	No					37.051295	-86.091385
OP35	No					37.043270	-86.072800
OP36	No					37.046460	-86.060576
OP37	No					37.061617	-86.066793
OP38	No					37.061176	-86.068477
OP39	No					37.056279	-86.072313
OP40	No					37.056048	-86.070865

Block 2

Routes	Glare?	Green or Yellow?	Approximate Max. Minutes/day	Approximate time of day	Approximate time of year	Latitude	Longitude
Cumberland Parkway Westbound	No						
Cumberland Parkway Eastbound	No						
Park City Bon Ayr Road	No						
Dripping Springs Road	No						
Mayhew Road	No						
Apple Grove Road	No						
Disman Road	No						
Aviation							
Glasgow Airport Runway 8	No						
Glasgow Airport Runway 26	No						
TJ Samson Community Hospital helipad (OP1)	No						
Houses							
OP2	No					37.032362	-86.047508
OP3	No					37.040909	-86.060455
OP4	No					37.041464	-86.060640
OP5	No					37.043461	-86.060681
OP6	No					37.046465	-86.060571

OP7	No					37.048740	-86.060088
OP8	No					37.049762	-86.059452
OP9	No					37.050524	-86.058065
OP10	No					37.050952	-86.057331
OP11	No					37.047848	-86.051902
OP12	No					37.047839	-86.050553
OP13	No					37.046966	-86.050129
OP14	No					37.046542	-86.049863
OP15	No					37.046854	-86.048820
OP16	No					37.047647	-86.048477
OP17	No					37.048244	-86.047900
OP18	No					37.048019	-86.048037
OP19	No					37.046623	-86.046741
OP20	No					37.046461	-86.046304
OP21	No					37.046377	-86.045945
OP22	No					37.046321	-86.045548
OP23	No					37.045227	-86.041527
OP24	No					37.045405	-86.040754
OP25	No					37.045536	-86.041186
OP26	No					37.045266	-86.040384
OP27	No					37.045131	-86.040044
OP28	No					37.044726	-86.040414
OP29	No					37.044088	-86.039403
OP30	No					37.043528	-86.038630
OP31	No					37.043307	-86.038070
OP32	No					37.042678	-86.037431
OP33	No					37.032271	-86.060469
OP34	No					37.032611	-86.061204
OP35	No					37.034855	-86.059887
OP36	No					37.035759	-86.060907
OP37	No					37.037502	-86.060993
OP38	No					37.037831	-86.062752
OP39	No					37.038838	-86.063133
OP40	No					37.039056	-86.063557

Block 3

Routes	Glare?	Green or Yellow?	Approximate Max. Minutes/day	Approximate time of day	Approximate time of year	Latitude	Longitude
Cumberland Parkway Westbound	No						
Cumberland Parkway Eastbound	No						
US 68	No						
Millstown Road	No						
Oak Grove Church Road	No						
Payne Loop Road	No						
Aviation							
Glasgow Airport Runway 8	No						
Glasgow Airport Runway 26	No						
TJ Samson Community Hospital helipad (OP1)	No						
Houses							
OP2	No					37.026447	-86.083909
OP3	No					37.025941	-86.083549
OP4	No					37.026156	-86.087685
OP5	No					37.026186	-86.089305
OP6	No					37.034406	-86.091907
OP7	No					37.034860	-86.091786
OP8	No					37.035380	-86.091065
OP9	No					37.036231	-86.091140
OP10	No					37.041631	-86.088099
OP11	No					37.046230	-86.090902
OP12	No					37.046339	-86.088507
OP13	No					37.047442	-86.094478
OP14	No					37.047756	-86.093592
OP15	No					37.045605	-86.085033
OP16	No					37.044278	-86.078043
OP17	No					37.040683	-86.068551
OP18	No					37.040666	-86.068119
OP19	No					37.039865	-86.065083
OP20	No					37.039071	-86.063538
OP21	No					37.024613	-86.081058
OP22	No					37.025046	-86.075935
OP23	No					37.024776	-86.075265
OP24	No					37.025847	-86.071896
OP25	No					37.026523	-86.071215
OP26	No					37.025493	-86.087634
OP27	No					37.028577	-86.097086
OP28	No					37.029206	-86.096700

OP29	No					37.029596	-86.096496
OP30	No					37.030080	-86.096051
OP31	No					37.029647	-86.095249
OP32	No					37.031526	-86.095080
OP33	No					37.043066	-86.103205
OP34	No					37.046487	-86.081460
OP35	No					37.048538	-86.080653
OP36	No					37.051338	-86.088415
OP37	No					37.043272	-86.072816
OP38	No					37.038846	-86.063124
OP39	No					37.035788	-86.060912
OP40	No					37.037856	-86.062768

Block 4 - New 6' Tree Plantings and Existing Trees

Routes	Glare?	Green or Yellow?	Approximate Max. Minutes/day	Approximate time of day	Approximate time of year	Latitude	Longitude
Cumberland Parkway Westbound							
Cumberland Parkway Eastbound							
US 68							
Rick Road							
Fox Chase Street							
Oak Grove Church Road	yes	green	4	evening	Dec		
Park City Bon Ayr Road							
Millstown Road							
Aviation							
Glasgow Airport Runway 8							
Glasgow Airport Runway 26							
TJ Samson Community Hospital helipad (OP1)							
Houses							
OP2						37.017204	-86.079478
OP3						37.017934	-86.079105
OP4						37.018429	-86.079137
OP5						37.019238	-86.076162
OP6						37.021619	-86.078035
OP7						37.021341	-86.074773
OP8						37.022463	-86.075336
OP9						37.023341	-86.076441
OP10						37.022887	-86.075283
OP11						37.023247	-86.075309
OP12						37.023620	-86.075256
OP13						37.024039	-86.075250
OP14						37.024339	-86.076133
OP15						37.025056	-86.075910
OP16						37.024799	-86.075283
OP17						37.024617	-86.081093
OP18						37.025944	-86.083539
OP19						37.025486	-86.087613
OP20						37.026150	-86.087705
OP21						37.026182	-86.089292
OP22						37.023394	-86.095282
OP23						37.021972	-86.098391
OP24						37.021444	-86.101577
OP25						37.026463	-86.083888
OP26						37.029667	-86.095347
OP27						37.030082	-86.096074
OP28						37.034426	-86.091887
OP29						37.035363	-86.091074
OP30						37.036243	-86.091157
OP31	yes	green	48	late monring, mid afternoon	Oct and Feb	37.041639	-86.088140
OP32	yes	green	18	late morning	Oct-Feb	37.040684	-86.068592
OP33	yes	green	18	late morning	Oct-Feb	37.040675	-86.068088
OP34	yes	green	2	late morning	Oct and Feb	37.039866	-86.065105
OP35						37.038834	-86.063099
OP36						37.037841	-86.062718
OP37						37.035772	-86.060948
OP38						37.034907	-86.059901
OP39						37.032646	-86.061210
OP40						37.026518	-86.071273

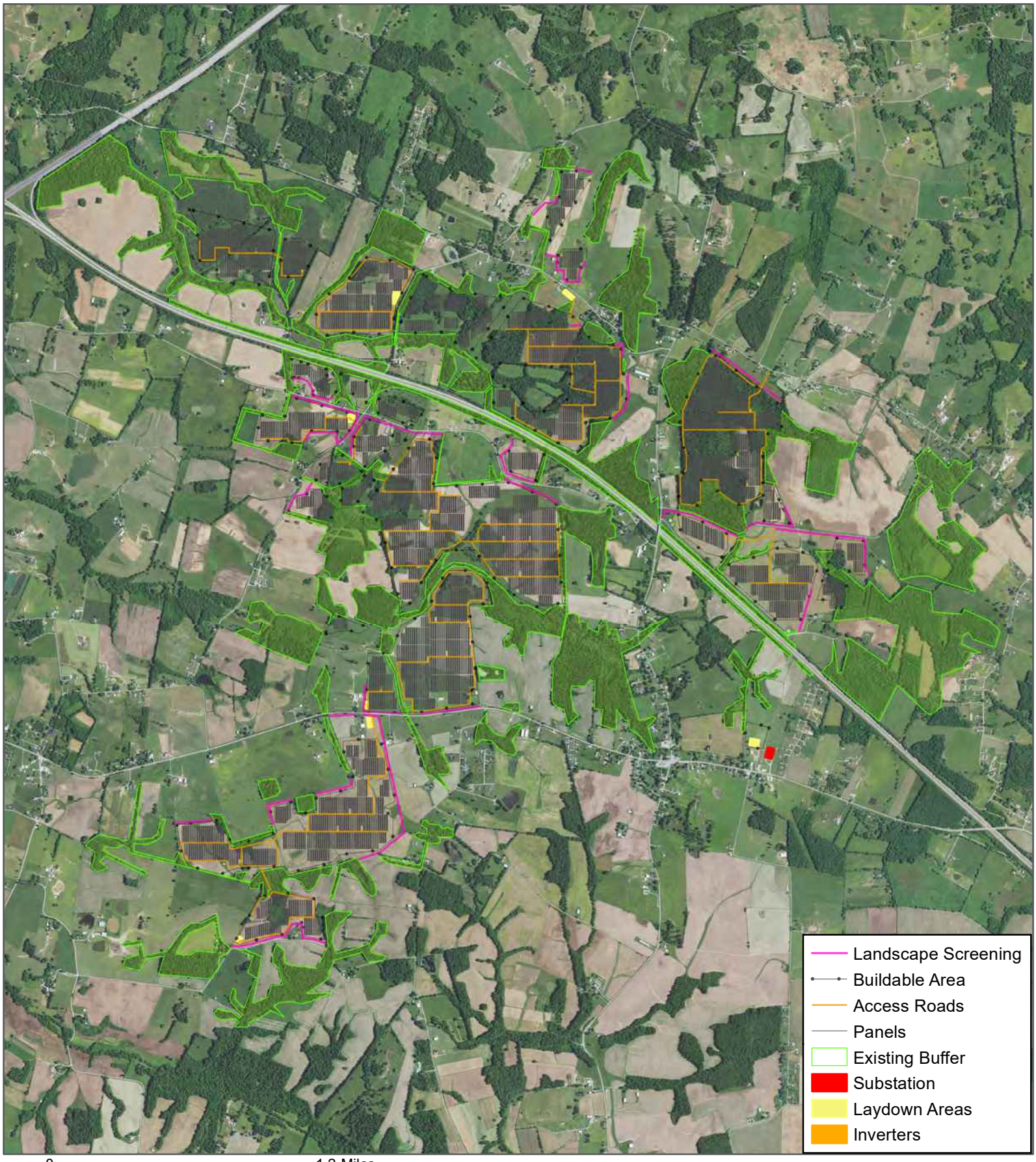
Block 5

Routes	Glare?	Green or Yellow?	Approximate Max. Minutes/day	Approximate time of day	Approximate time of year	Latitude	Longitude
US 68	No						
Merry Oaks Railton Road	No						

Red Cross Road	No						
Waller Road	No						
Rick Road	No						
Aviation							
Glasgow Airport Runway 8	No						
Glasgow Airport Runway 26	No						
TJ Samson Community Hospital helipad (OP1)	No						
Houses							
OP2	No					37.012159	-86.088738
OP3	No					37.011236	-86.094065
OP4	No					37.010949	-86.092088
OP5	No					37.013337	-86.103031
OP6	No					37.011958	-86.105633
OP7	No					37.012729	-86.107141
OP8	No					37.015620	-86.108814
OP9	No					37.015274	-86.111218
OP10	No					37.018884	-86.108680
OP11	No					37.019411	-86.107929
OP12	No					37.019510	-86.108981
OP13	No					37.020568	-86.108782
OP14	No					37.021043	-86.108197
OP15	No					37.020144	-86.110987
OP16	No					37.021506	-86.109265
OP17	No					37.021870	-86.109313
OP18	No					37.022409	-86.109260
OP19	No					37.022709	-86.107977
OP20	No					37.022097	-86.108042
OP21	No					37.022915	-86.101492
OP22	No					37.021987	-86.098436
OP23	No					37.021428	-86.101566
OP24	No					37.023396	-86.095309
OP25	No					37.025486	-86.087631
OP26	No					37.024617	-86.081078
OP27	No					37.023336	-86.076459
OP28	No					37.021610	-86.078042
OP29	No					37.018390	-86.079143
OP30	No					37.017916	-86.079122
OP31	No					37.017195	-86.079497
OP32	No					37.016807	-86.079468
OP33	No					37.016674	-86.078231
OP34	No					37.013775	-86.079357
OP35	No					37.010423	-86.078676
OP36	No					37.009802	-86.084132
OP37	No					37.023153	-86.109167
OP38	No					37.023609	-86.107705
OP39	No					37.023386	-86.106841
OP40	No					37.022468	-86.105098

APPENDIX C

Landscaping Plan



0 1.2 Miles

0 1.6 Kilometers

7.5' Quadrangles

PLSS: unsectioned

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C202: Preliminary Landscape Plan

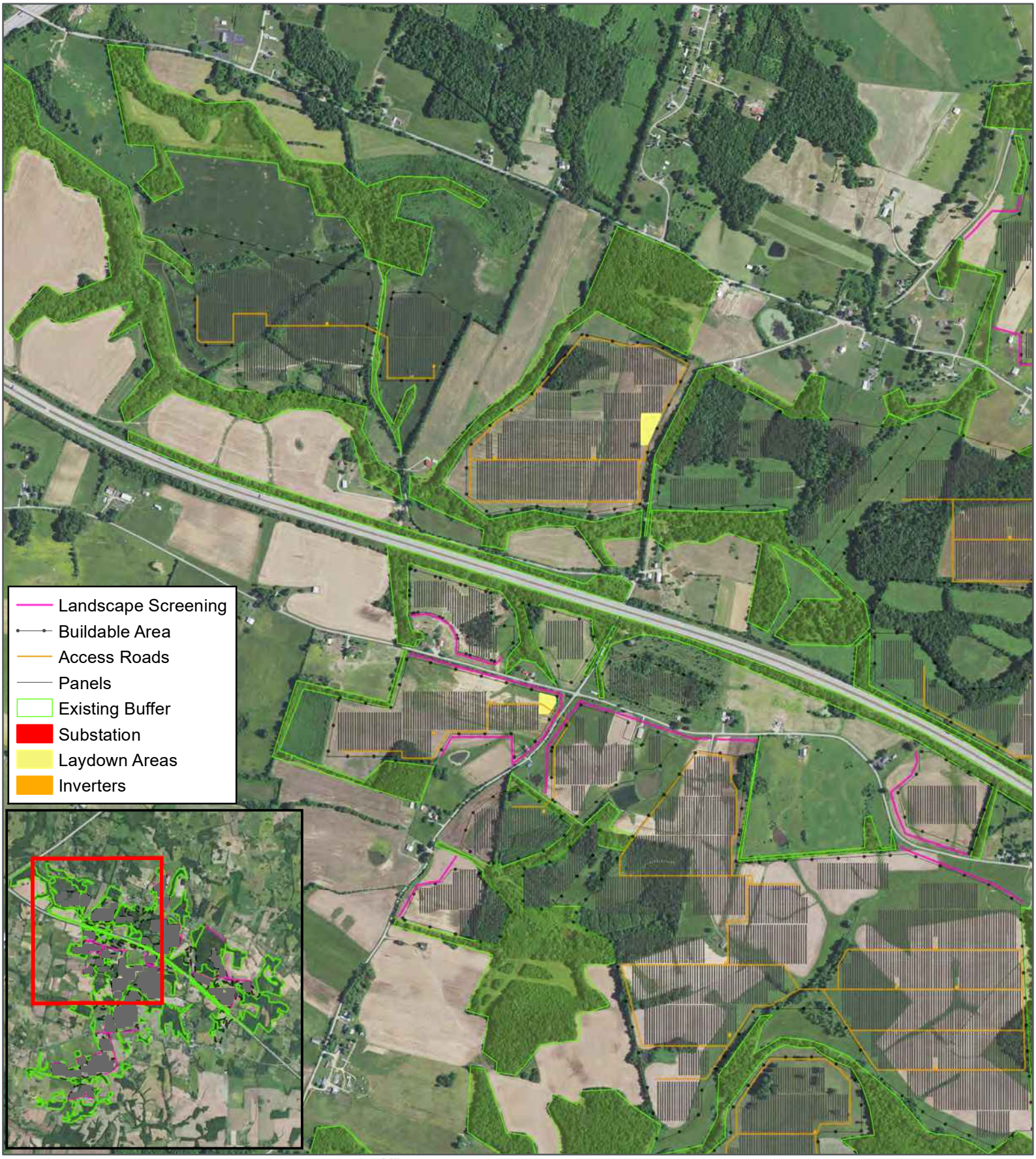
Visual Resource Assessment for the Wood Duck Solar Project
Geenex Solar, LLC
Barren County, Kentucky

Stantec
76 San Marcos Street
Austin, TX 78702 USA
Phone (+1) 512.745.8129
www.stantec.com

Basemap: Esri, USDA Farm Service Agency

File Path: U:\237801898\03_data\gis_cad\gis\C202-Landscaping Final_Updated.mxd

GIS Analyst: swaltman



0 0.6 Miles

0 0.6 Kilometers

7.5' Quadrangles

PLSS: unsectioned

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C202: Preliminary Landscape Plan

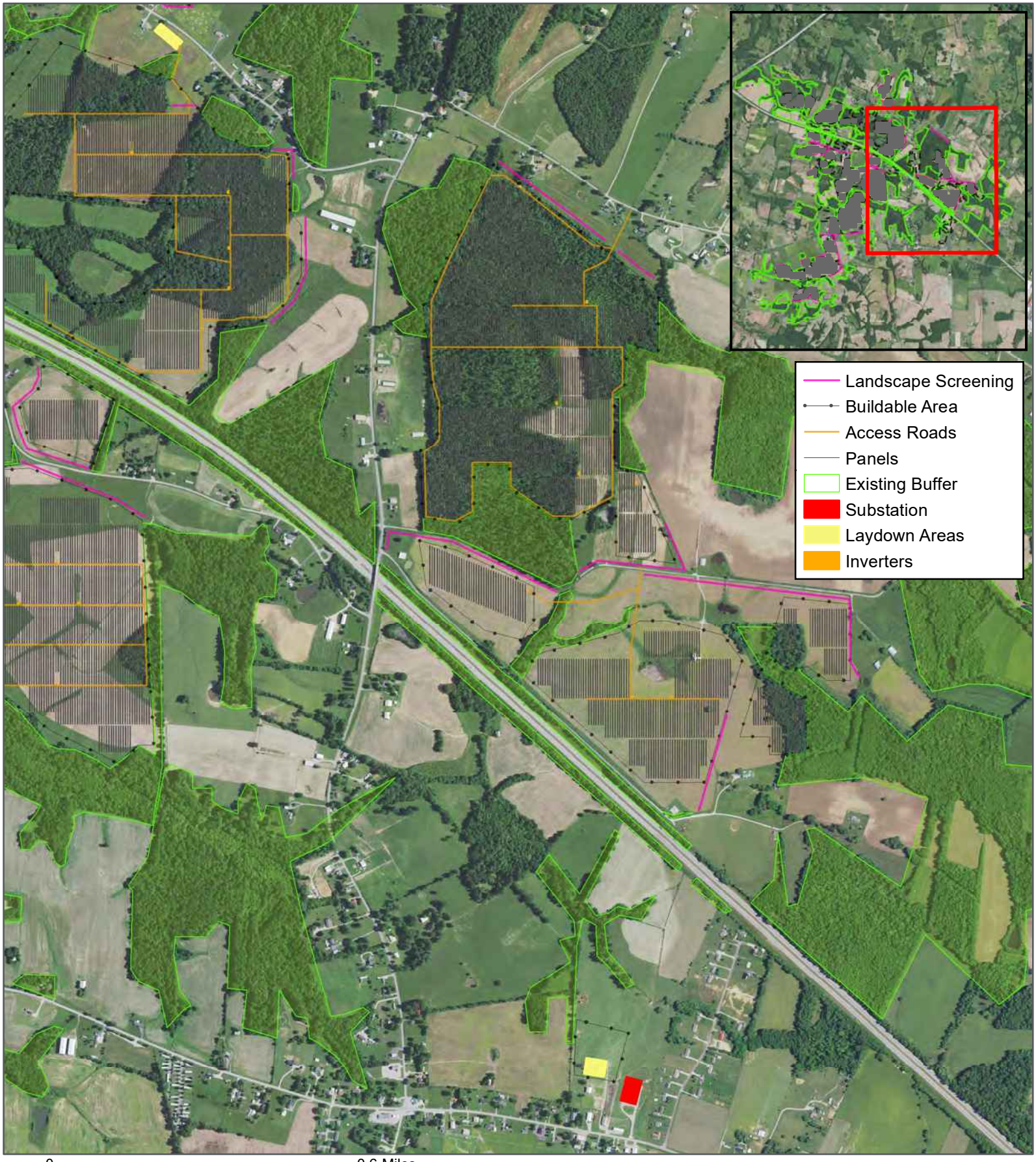
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GIS Analyst: swaltman



7.5' Quadrangles

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C202: Preliminary Landscape Plan

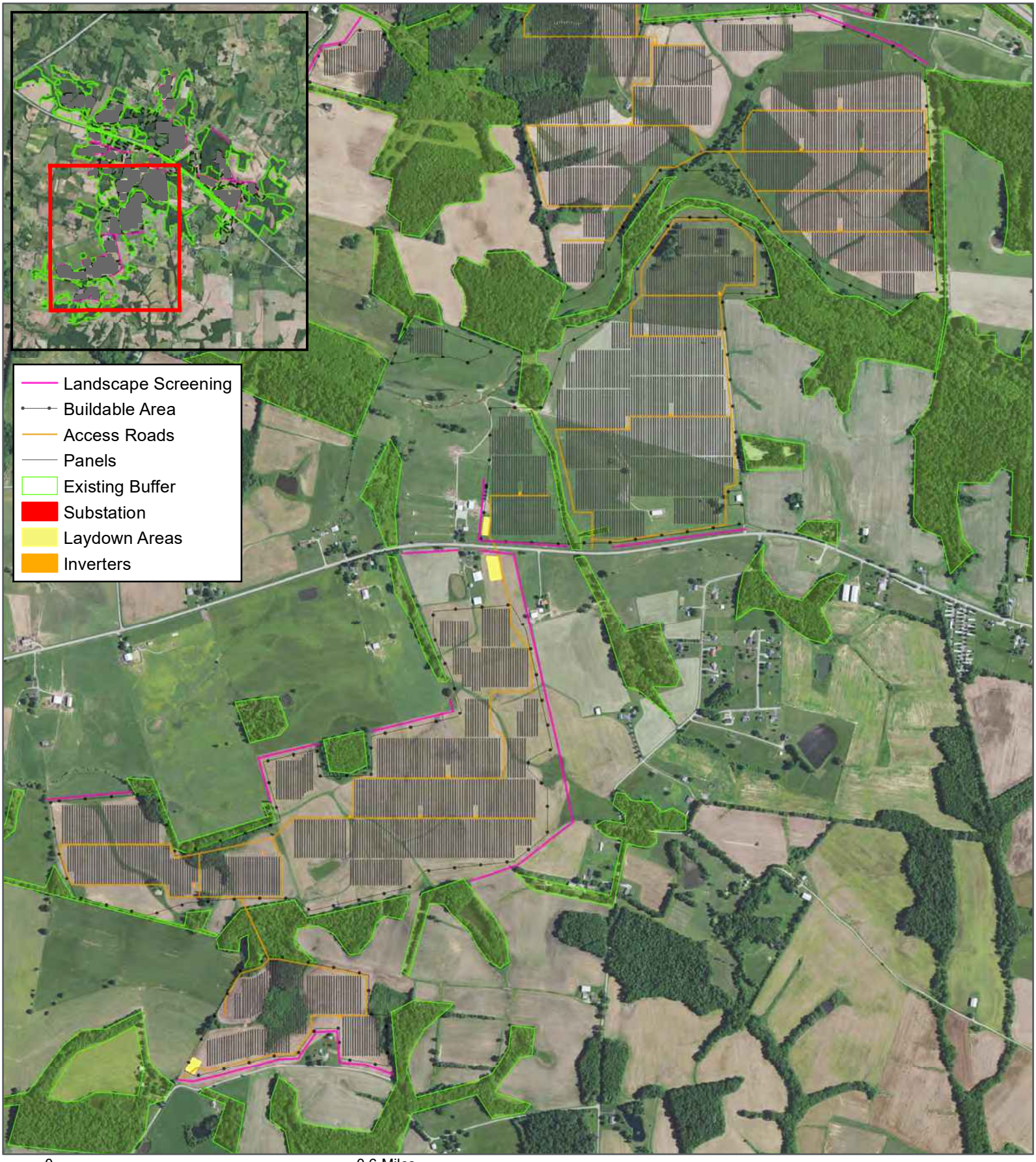
Visual Resource Assessment for the Wood Duck Solar Project
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Barren County, Kentucky

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Basemap: Esri, USDA Farm Service Agency

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GIS Analyst: swaltman



7.5' Quadrangles

PLSS: unsectioned

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C202: Preliminary Landscape Plan

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GIS Analyst: swaltman

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

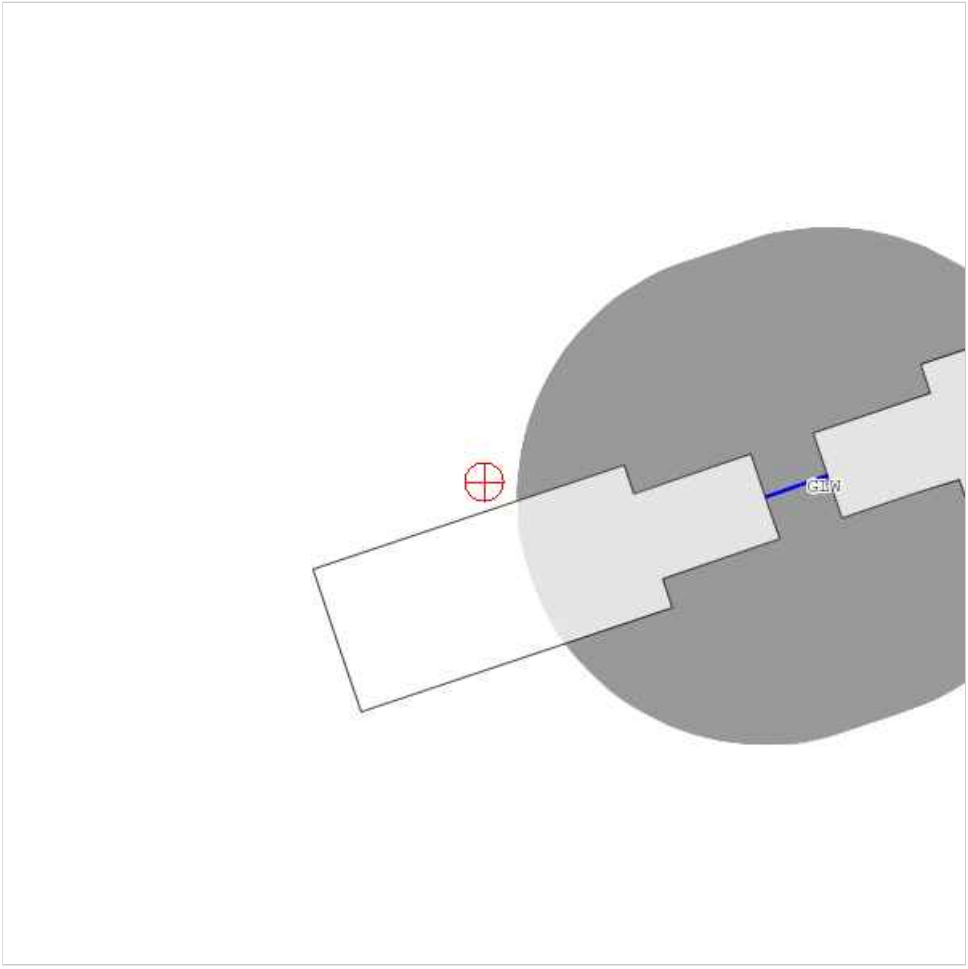
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport 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 1 M 56.69 S N
Longitude:	86 Deg 2 M 24.82 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	800 (nearest foot)
Structure Height :	15 (nearest foot)
Is structure on airport:	(•) No ( ) Yes

Results

You do not exceed Notice Criteria.


GLW

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

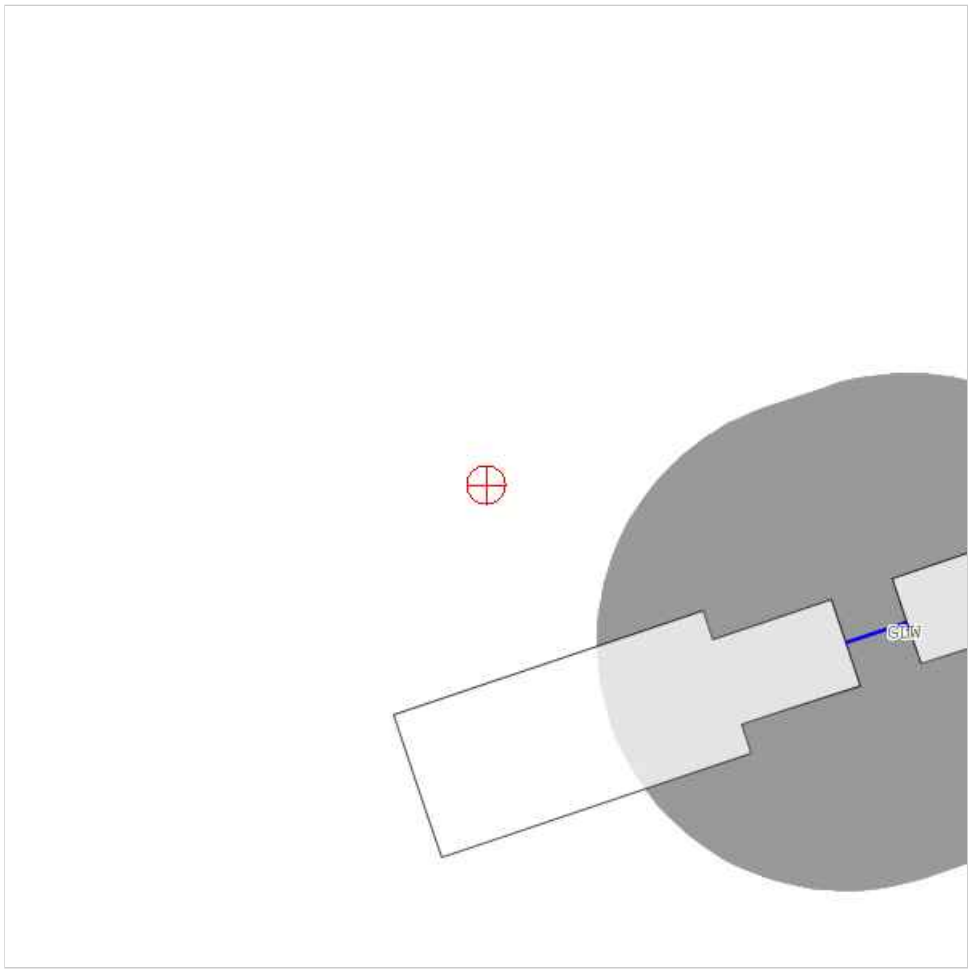
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport 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 3 M 50.93 S N
Longitude:	86 Deg 3 M 42.45 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	700 (nearest foot)
Structure Height :	15 (nearest foot)
Is structure on airport:	(•) No ( ) Yes

Results

You do not exceed Notice Criteria.


GUN

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
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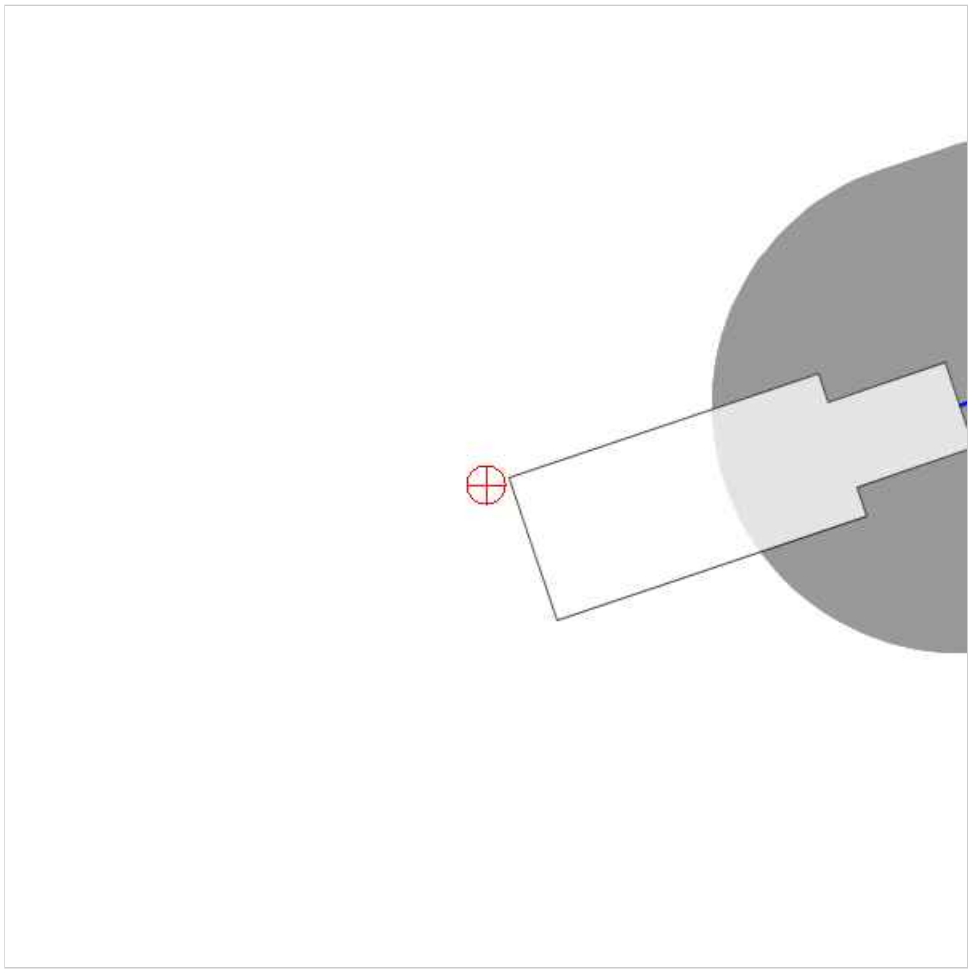
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport 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 0 M 41.06 S N
Longitude:	86 Deg 5 M 36.96 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	730 (nearest foot)
Structure Height :	15 (nearest foot)
Is structure on airport:	(•) No ( ) Yes

Results

You do not exceed Notice Criteria.



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

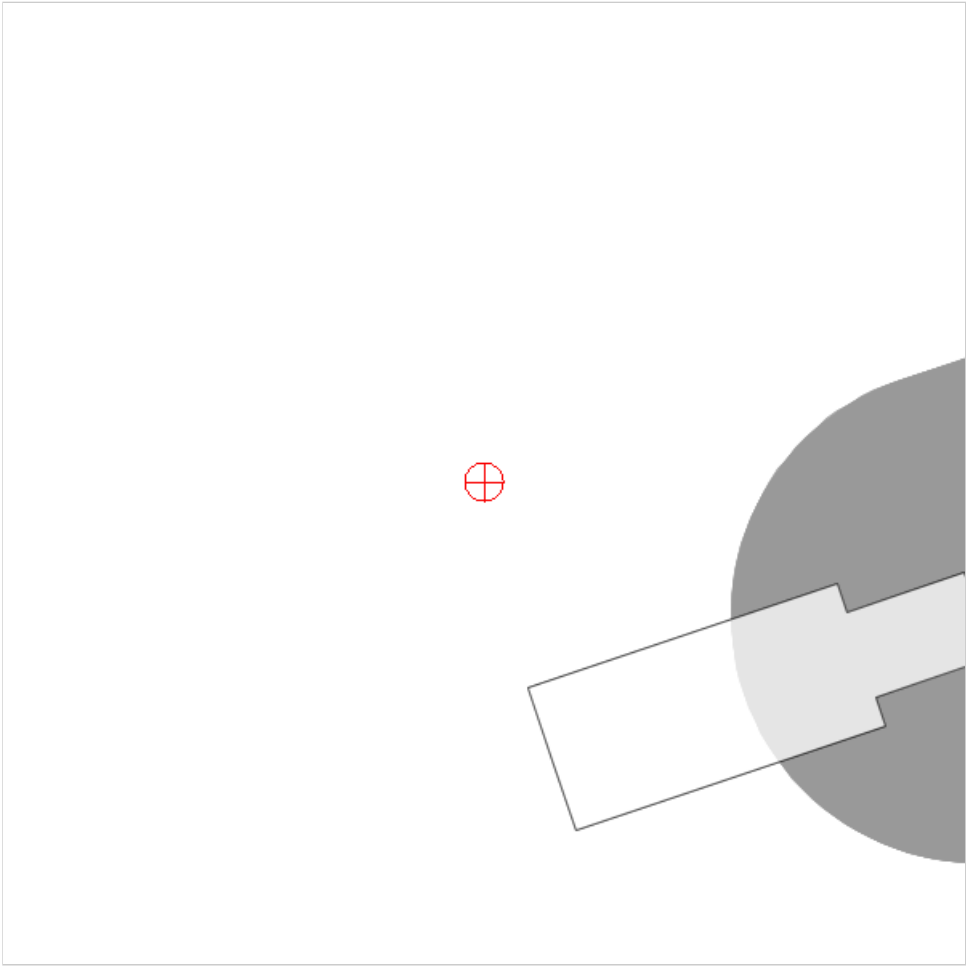
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport 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 3 M 31.50 S N
Longitude:	86 Deg 5 M 57.76 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	615 (nearest foot)
Structure Height :	15 (nearest foot)
Is structure on airport:	(•) No ( ) Yes

Results

You do not exceed Notice Criteria.



Critical Issues Analysis

Wood Duck Solar Project

Barren County, Kentucky



Cardno

now

Stantec

Document Information

Prepared for	Geenex Solar
Project Name	Wood Duck Solar Project
Project Number	E3222500600
Project Manager	Chad Martin
Date	November 27, 2022

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Appendices

Appendix A USFWS IPaC Official Species List

Appendix B Permit Matrix

Acronyms

AJD Approved Jurisdictional Determination

CHU Critical Habitat Unit

CIA Critical Impacts Analysis

CWA Clean Water Act

FEMA Federal Emergency Management Agency

FIRM Flood Insurance Rate Map

GIS Geographic information systems

IPaC Information for Planning and Consultation

HUC Hydrologic Unit Code

KHC Kentucky Heritage Council

KYNHP Kentucky Natural Heritage Program

NHD National Hydrography Dataset

NLCD National Land Cover Dataset

NOI Notice of Intent

NRCS Natural Resources Conservation Service

NRHP National Register of Historic Places

NWP Nationwide Permit

NWI National Wetland Inventory

OSA Office of State Archaeology

PEM Palustrine Emergent Wetland

PFO Palustrine Forested Wetland

PUB Palustrine Unconsolidated Bottom

SHPO State Historic Preservation Office

SWPPP Stormwater Pollution Prevention Plan

T&E Threatened and Endangered

TNW Traditionally Navigable Waterway

USACE U.S. Army Corps of Engineers

USDA U.S. Department of Agriculture

USEPA U.S. Environmental Protection Agency

USFWS U.S. Fish and Wildlife Service

USGS U.S. Geological Service

WOTUS Waters of the U.S.

1 Executive Summary

Cardno, now Stantec (Cardno) was contracted by Geenex Solar (Geenex) to conduct a Critical Impact Analysis (CIA) on approximately 2,308 acres, referenced to as the Wood Duck Solar Project (Project). The Project consists of multiple parcels in Barren County, Kentucky, and was evaluated for the potential presence of environmental and cultural resources by Cardno in May 2022. The tasks performed as part of this assessment included a review of threatened and endangered (T&E) species, a cultural resources literature review, and a desktop review of potential waters of the United States (WOTUS). The methodology, results, and recommendations of the review as it pertains to the Project are contained within and summarized below.

Cardno conducted a threatened and endangered species review utilizing the The U.S. Fish & Wildlife Service (USFWS) Information for Planning and Consultation (IPaC), the Kentucky Natural Heritage Program (KYNHP), and the Office of Kentucky Nature Preserves databases. In total, Cardno identified **two (2)** federally endangered species, **seventeen (17)** state-endangered species, **twenty (20)** state-threatened species, and **one (1)** federal candidate species that have the potential to occur within the Project area. Additionally, the Project area is within two critical habitat units for the Indiana bat.

In compliance with Section 404 of the Clean Water Act (CWA), this report contains a preliminary desktop evaluation of potential wetland features that may fall under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Cardno reviewed the USFWS National Wetland Inventory (NWI) database and the National Hydrography Dataset (NHD) to determine the potential for wetlands and waterbodies to exist within the Project area.

Cardno scientists identified **eleven (11)** forested (PFO) wetlands, **eight (8)** emergent (PEM) wetlands and **thirty-four (34)** ponded (PUB) wetlands totaling 46.85 acres within the Project area. **Two (2)** perennial streams, **two (2)** intermittent streams, and **eighteen (18)** ephemeral drainages were identified, totaling 63,254.99 feet of waterways within the Project area.

There are two named streams within the Project area: Little Sinking creek and Gardner creek. From the perspective of observable aerial imagery, both streams and their tributaries are entirely within the Little Sinking Creek sub watershed (HUC 051100020702), which does not have significant surface connection to any major waterway or traditional navigable water (TNW). The Little Sinking Creek is self-contained and water that falls within this watershed percolates through soil to the karst features below. Though there is no superficial hydrological connection, water within the Project area eventually drains north to tributaries of Mammoth Cave National Park, which eventually drains to the Green River, a TNW. Due to this connection, it is Cardno's determination that the streams and associated wetlands within the Project area would be classified as WOTUS under the current regulations, and therefore would likely be classified as jurisdictional by the USACE. If construction activities will impact WOTUS, then coordination with the USACE Louisville District Office to obtain a jurisdictional determination (JD) for the streams, wetlands, and ponds identified onsite is recommended.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) FM21061C0275B, 21009C0150C, 21009C0255C, and 21009C0260C indicate the 100-year floodplain is present on approximately 81.4 acres of the Project, concentrated along Gardner Creek and Little Sinking Creek.

If any drainages and/or ponds are deemed 'jurisdictional' by the USACE, the proposed Project could be completed under a Nationwide Permit (NWP) 51 and/or 57. Additionally, the Project would need to develop a Storm Water Pollution Prevention Plan (SWPPP) and provide Notice of Intent (NOI) prior to Project construction. As stated in the text of the NWPs, the discharge of dredged or fill material into wetlands and non-tidal WOTUS must not cause the loss of greater than ½-acre of wetlands and non-tidal WOTUS. If impacts from the construction of the energy generation facility and associated infrastructure including roads,

parking lots, stormwater management facilities, and pipelines permanently impact less than ½-acre then the Project may proceed under a NWP. Permanent impacts which exceed the ½-acre threshold for NWPs will require an Individual Permit.

Cardno's cultural resource specialists reviewed information regarding known archeological and historic sites, as well as prior cultural resources studies, available through the Kentucky Office of State Archaeology and Kentucky Heritage Council. Cardno also reviewed USGS topographic maps, current, and historic aerial imagery for evidence of historic use within the Project area**. One** archaeological site was recorded within the Project boundary and was determined ineligible for the NRHP by the SHPO. **Three** historic structures have been recorded within the Project area. Reassessment of these features is recommended to determine potential eligibility in the NRHP. There are also **three** historic cemeteries within the Project area. A 100-foot avoidance buffer is recommended around these resources to minimize the impact of development as the project moves forward.

Due to the presence of known archeological sites within proximity of the Project area, and because previous cultural resource surveys have not been conducted on the majority of the Project area, the SHPO may request that a Phase I survey be conducted within federally jurisdictional areas within the Project area.

2 Introduction

Cardno was contracted by Geenex to perform a preliminary desktop review for potential listed species habitat, cultural resources, and potential WOTUS that exist within the Project area in Barren and Edmonson Counties, Kentucky (**Figure 2-1**). The Project consists of approximately 2,308 acres of land that was reviewed via desktop by Cardno in May 2022.

This report contains a desktop review of all resources that potentially fall under the jurisdiction of the USACE.

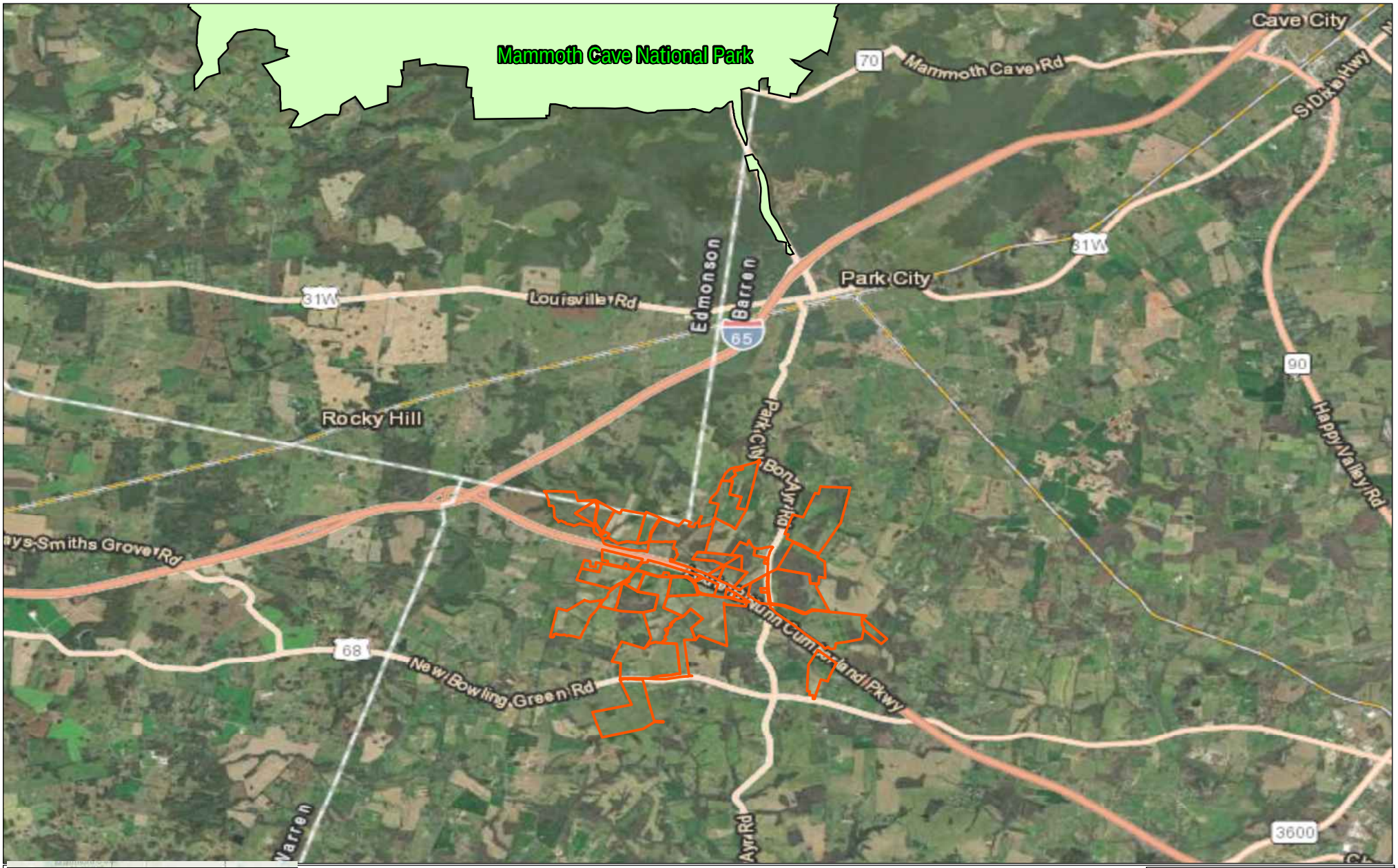
Cardno conducted desktop investigations to:

> Identify potential environmental permits that may be required to construct the Project,

> identify potential waters of the U.S. and presence of listed species and/or habitat; and

> Review and document cultural resources that may be located within or in close proximity to the Project area that may be impacted by Project activities.

The results of the desktop investigations are provided in this report. A permitting matrix is provided in ***Appendix B***.





ProjectBoundary

National park or forest

N

0 1

Miles

Cardno now Stantec

Critical Impact Analysis
Wood Duck Solar
Barren County, Kentucky

Project Area Overview

Date:	Project No:	Figure:
April 2022	E321201503	2-1

Date Created: 5/6/2022 Date Revised: 5/10/2022 File Path: \\usauscfs08.cardno.corp\AUO04Data-AFS\PROJECTS\Geenex Solar\E322500600 - Wood Duck Solar\GIS\Overview.mxd

GIS Analyst: kelsey.a.anderson

Data Source: Basemap: Bing Maps Aerial (2020)

3 Site Location

The Project area is located in a rural setting approximately five miles northwest of Glasgow, Kentucky in Barren County. According to the United States Environmental Protection Agency (USEPA) Ecoregions of Kentucky map, the Project area falls within the Western Pennyroyal Karst Plain (71e) of the Interior Plateau (71). The Interior Plateau has extensive plains interrupted in places by dissected uplands, knobs, deeply incised master streams, and large areas of karst. The Western Pennyroyal Karst Plain is weakly dissected, underlain by Middle Mississippian limestones, and is extensively farmed. Sinkholes, ponds, springs, sinking streams and dry valleys occur. Underground drainage is well developed, stream density is low. Potential natural vegetation is mapped as a mosaic of bluestem prairie and oak-hickory forest. Tobacco, livestock, corn, soybean and grain farming are most frequent (Woods, et al., 2002).

3.1 Hydrology

The Project is located within the Little Sinking Creek sub-watershed (Hydrologic Unit Code 12 [HUC12] – 051100020702) portion of the Barren watershed (HUC8 - 05110002) (FEMA, 2022). FEMA FIRM panels FM21061C0275B, 21009C0150C, 21009C0255C, and 21009C0260C indicate the 100-year floodplain is present on approximately 81.4 acres of the Project, concentrated along Gardner and Little Sinking Creek (**Figure 3-1**). The NHD maps Gardner and Little Sinking Creeks within the Project area which flows west and sink, percolating through the ground to tributaries of the Mammoth Cave and thus the Green River. Topography is mostly flat to lightly hilled and utilized for crops or livestock.

3.2 Land Use

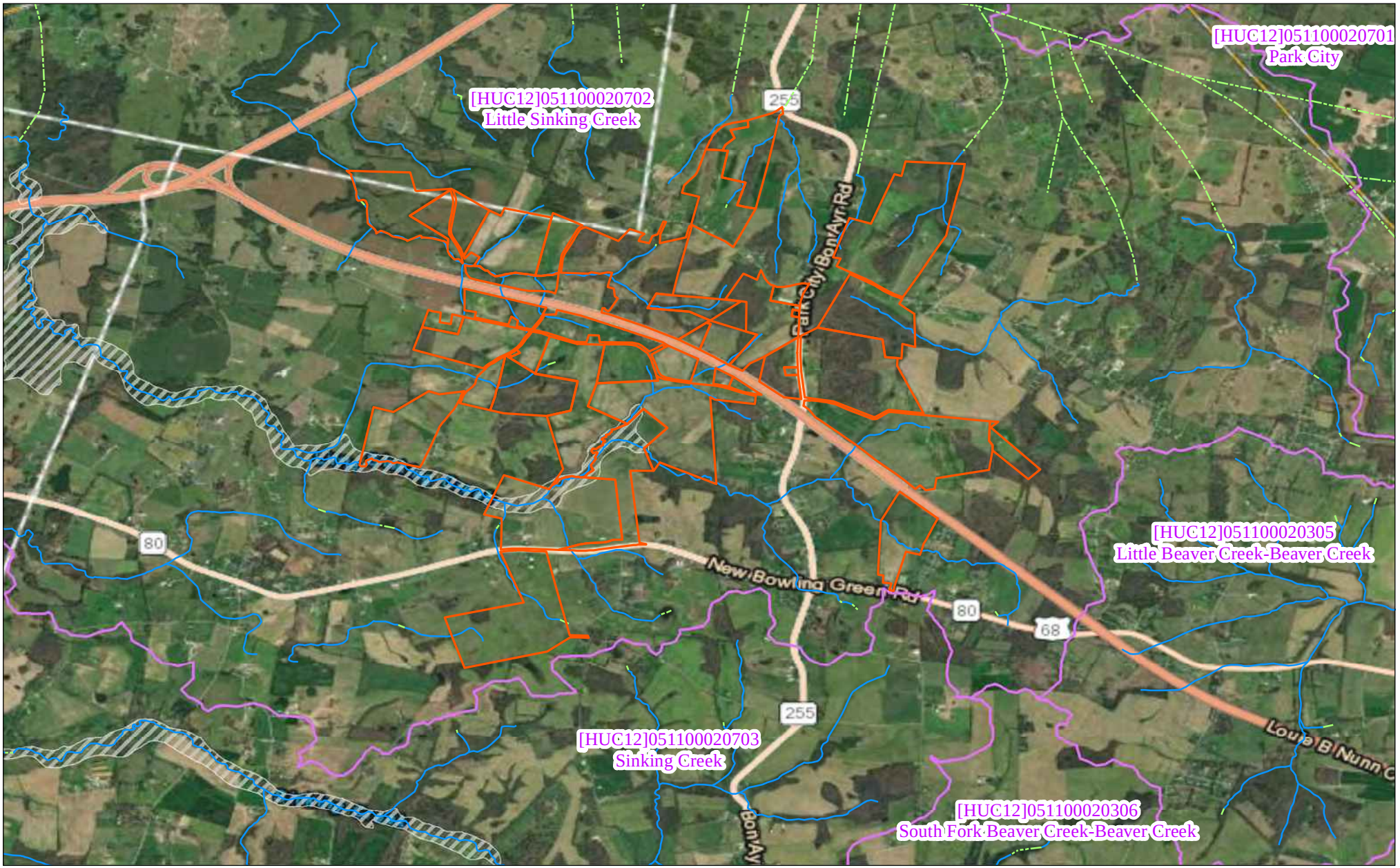
The Project and surrounding areas consist mainly of pasture and crops, with tracts of undeveloped riparian forested areas. The entire Project area is located on private land and is bisected by Cumberland Parkway, running east to Glasgow. Additionally, the Project area is 10 miles south of Mammoth Cave National Park and within critical habitat for Indiana bat. The U.S. Geological Service (USGS) National Structures Dataset (NSD) maps eight churches and six cemeteries within one mile of the Project (USGS, 2022); sensitive features are depicted in **Figure 3-2**.

The National Land Cover Dataset (NLCD) maps the vast majority of the Project area as Pasture/Hay, comprising of 46.45% of the Project area (**Figure 3-3**). Nine additional cover land types are mapped within the Project area (**Table 3-1**).

Table 3-1 NLCD Land Cover Types Within the Project area

NLCD Land Cover Type	Acres within Project area	Percentage of Project area
Developed, Open Space	8.29	0.39
Developed, Low Intensity	1.25	0.06
Developed, High Intensity	0.31	0.01
Deciduous Forest	449.37	21.30
Mixed Forest	46.88	2.22
Shrub/Scrub	8.66	0.41
Pasture/Hay	980.21	46.45
Cultivated Crops	610.92	28.95
Woody Wetlands	3.70	0.18
Open Water	0.60	0.03
Total	**1,732.9**	**100%**

(USGS, 2019)





Project Boundary

Other hydrologic connections

Streams and Rivers

100-year Floodplain

Watersheds

0 0.6

Miles

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Critical Impact Analysis
Wood Duck Solar
Barren County, Kentucky

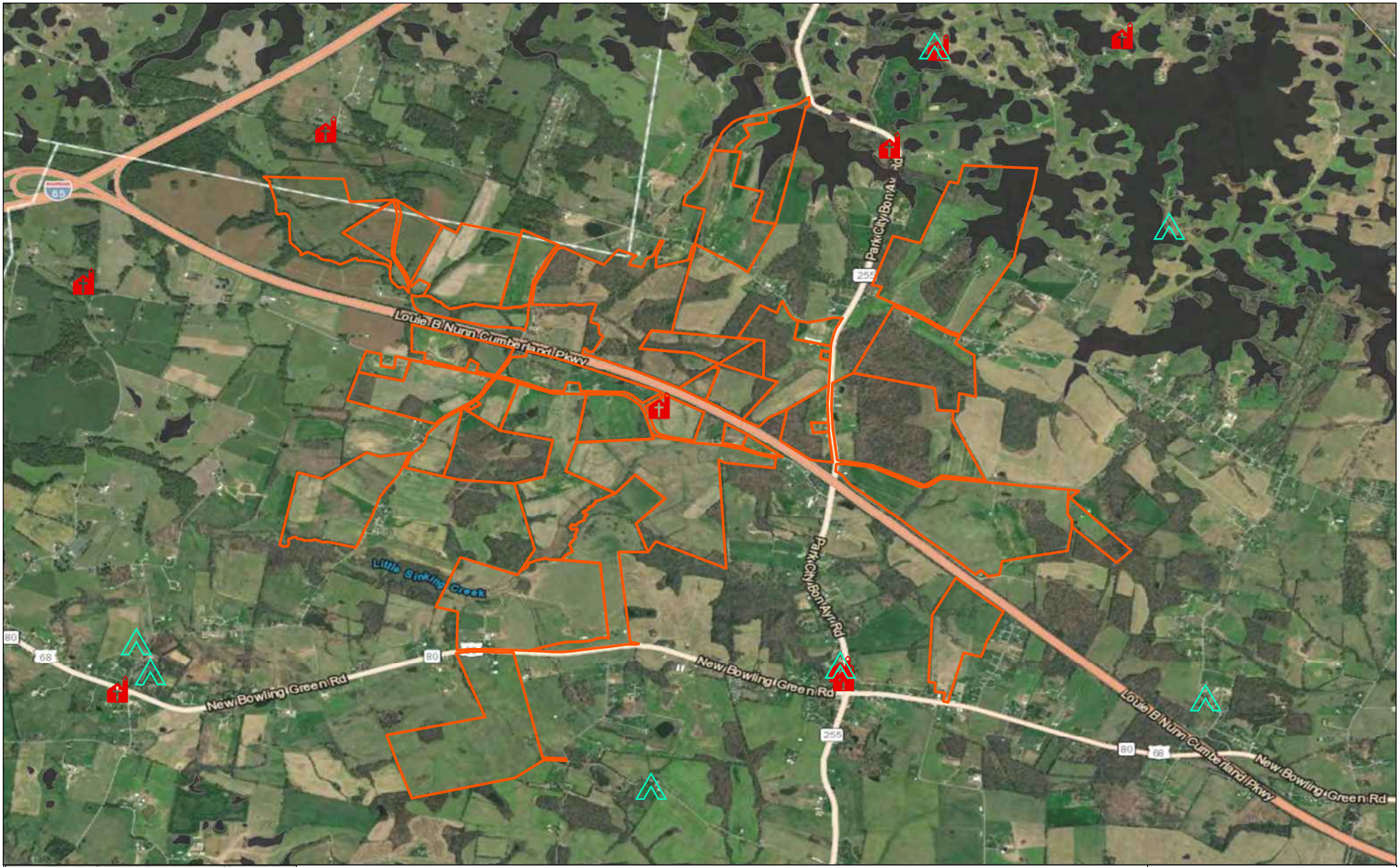
Project Area Overview

Date:	Project No:	Figure:
April 2022	E321201503	3-1

Date Created: 5/10/2022 Date Revised: 5/10/2022 File Path: \\usauscfs08.cardno.corp\AUO04Data-AFS\PROJECTS\Geenex Solar\E322500600 - Wood Duck Solar\GIS\Overview.mxd

GIS Analyst: kelsey.a.anderson

Data Source: Basemap: Bing Maps Aerial (2020)





Cemetery

Church

Project Area

Kentucky Sinkholes

N

0 2,600

Feet

Cardno now Stantec

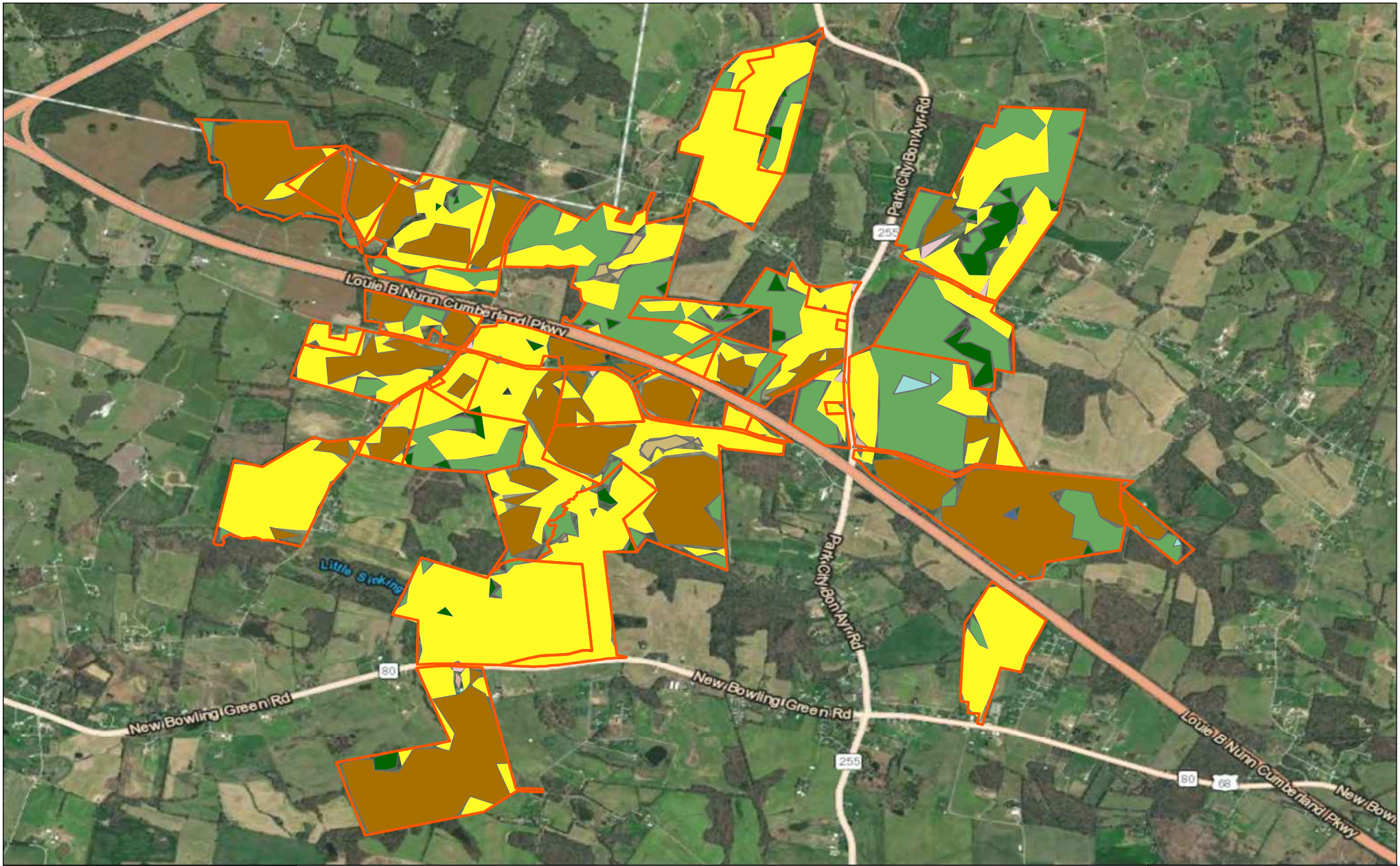
Critical Issues Analysis
Wood Duck Solar
Barren County, Kentucky

Sensitive Resources within One Mile

Date:	Project No:	Figure No:
May 2022	E321201503	3-3

Date Created: 5/19/2022 Date Revised: 5/19/2022 File Path: S:\PROJECTS\Geenex Solar\E322500600 - Wood Duck Solar\GIS\nlcd.mxd
GIS Analyst: kelsey.a.anderson

Data Source: Basemap: Bing Maps Aerial (2020)





Project Area
Open Water
Developed, Open Space
Developed, Low Intensity
Developed, Medium Intensity
Developed, High Intensity
Deciduous Forest
Evergreen Forest
Shrub/Scrub
Grassland/Herbaceous
Pasture/Hay
Cultivated Crops
Woody Wetlands

N

0 2,250
Feet

Cardno now Stantec

Critical Issues Analysis
Wood Duck Solar
Barren County, Kentucky

NLCD within Project Area

Date:	Project No:	Figure No:
May 2022	E321201503	3-3

Date Created: 5/6/2022 Date Revised: 5/6/2022 File Path: \\usauscfs08.cardno.corp\AUO04Data-AFS\PROJECTS\Geenex Solar\E322500600 - Wood Duck Solar\GIS\nlcd.mxd
GIS Analyst: kelsey.a.anderson

Data Source: Basemap: Bing Maps Aerial (2020)

3.3 Soil Series

Soils within the Project can be generally described as well drained soils, permeable soils located on hilly positions with Mississippian limestone and shales of Mississippian age (Kentucky Geological Survey, 2007) According to the U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) website, the Project is located within thirty-nine soil map units, which are listed below (**Table 3-2**). There were four soil types within the Project boundaries that met the criteria as described by the National Technical Committee for Hydric Soils (**Figure 3-4**). Ten of the soils are considered prime farmland, eleven are farmland of statewide importance and eleven are not prime farmland. Seven are prime farmland only if drained or managed in some manner.

Table 3-2 Characteristics of Soil Mapping Units within the Project area

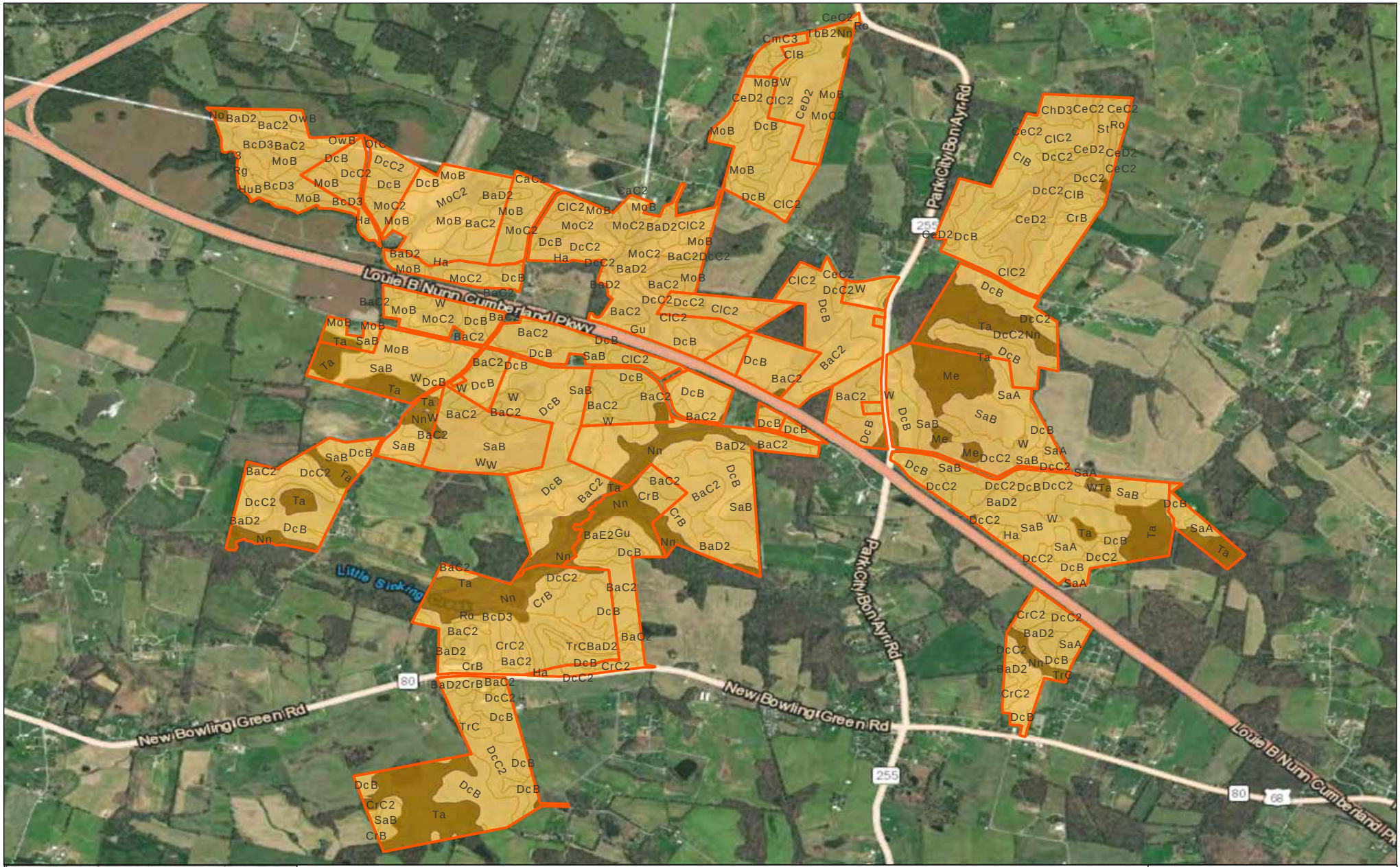
Soil Name	Soil Symbol	Drainage Class	Permeability	Surface Runoff	Meets Prime Farmland	Meets Hydric Criteria	% of Project area
Soil Survey: Barren County Area, Kentucky (KY646)							
Baxter gravelly silt loam, 6 to 12 percent slopes, eroded	BaC2	Well drained	Moderately high to high	Medium	Farmland of statewide importance	No	11.60%
Baxter gravelly silt loam, 12 to 20 percent slopes, eroded	BaD2	Well drained	Moderately high to high	Medium	Not prime farmland	No	3.80%
Baxter gravelly silt loam, 20 to 30 percent slopes, eroded	BaE2	Well drained	Moderately high to high	High	Not prime farmland	No	0.40%
Baxter cherty silty clay loam, 12 to 20 percent slopes, severely eroded	BcD3	Well drained	Moderately high to high	High	Not prime farmland	No	1.10%
Christian cherty loam, 6 to 12 percent slopes, eroded	CeC2	Well drained	Moderately high to high	Medium	Farmland of statewide importance	No	0.50%
Christian cherty loam, 12 to 20 percent slopes, eroded	CeD2	Well drained	Moderately high to high	High	Not prime farmland	No	4.20%
Christian cherty sandy clay loam, 12 to 20 percent slopes, severely eroded	ChD3	Well drained	Moderately high to high	High	Not prime farmland	No	0.30%
Christian silt loam, 2 to 6 percent slopes	ClB	Well drained	Moderately high to high	Low	All areas are prime farmland	No	0.70%
Christian silt loam, 6 to 12 percent slopes, eroded	ClC2	Well drained	Moderately high to high	Medium	Farmland of statewide importance	No	6.90%
Christian silty clay loam, 6 to 12 percent slopes, severely eroded	CnC3	Well drained	Mod high to high	Medium	Not prime farmland	No	0.10%
Crider silt loam, 2 to 6 percent slopes	CrB	Well drained	Very low to moderately high	--	All areas are prime farmland	No	1.70%

Crider silt loam, 6 to 12 percent slopes, eroded	CrC2	Well drained	Very low to moderately high	--	Farmland of statewide importance	No	1.30%
Dickson silt loam, 2 to 6 percent slopes	DcB	Moderately well drained	Moderately low to moderately high	Low	All areas are prime farmland	No	22.30%
Dickson silt loam, 6 to 12 percent slopes, eroded	DcC2	Moderately well drained	Moderately low to moderately high	Medium	Farmland of statewide importance	No	7.20%
Gullied land	Gu	--	--	---	Not prime farmland	No	0.20%
Hamblen silt loam	Ha	Moderately well drained	Moderately high to high	Very low	Prime farmland if protected from flooding or not frequently flooded during the growing season	No	1.80%
Humphreys cherty silt loam, 2 to 6 percent slopes	HuB	Well drained	High	Low	All areas are prime farmland	No	0.10%
Melvin silt loam	Me	Poorly drained	Moderately high to high	Very low	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	**Yes**	2.30%
Mountview silt loam, 2 to 6 percent slopes	MoB	Well drained	Moderately high to high	Low	All areas are prime farmland	No	4.20%
Mountview silt loam, 6 to 12 percent slopes, eroded	MoC2	Well drained	Moderately high to high	Medium	Farmland of statewide importance	No	4.20%
Newark silt loam	Nn	Somewhat poorly drained	Moderately high to high	Very low	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Yes	4.50%
Robinsonville gravelly silt loam (sensabaugh)	Rg	Well drained	Moderately high to high	Very low	Prime farmland if protected from flooding or not frequently flooded during the growing season	No	0.40%
Rock land	Ro	--	--	--	Not prime farmland	No	0.10%
Sango silt loam, 0 to 2 percent slopes	SaA	Moderately well drained	Moderately low to moderately high	Very low	All areas are prime farmland	No	1.30%
Sango silt loam, 2 to 6 percent slopes	SaB	Moderately well drained	Moderately low to moderately high	Low	All areas are prime farmland	No	9.70%
Staser silt loam	St	Well drained	Moderately high to high	Very low	Prime farmland if protected from flooding or not frequently flooded during the growing season	No	0.60%
Taft silt loam	Ta	Somewhat poorly drained	Moderately low to moderately high	Very low	Prime farmland if drained	**Yes**	6.80%
Talbott cherty silty clay loam, 2 to 6 percent slopes, eroded (vertrees)	TbB2	Well drained	Moderately high to high	Low	All areas are prime farmland	No	0.00%

Talbott cherty silty clay, 6 to 12 percent slopes, severely eroded (vertrees)	TcC3	Well drained	Moderately high	Medium	Not prime farmland	No	0.20%
Tarklin gravelly silt loam, 6 to 12 percent slopes	TrC	Moderately well drained	Very low to moderately high	Medium	Farmland of statewide importance	No	0.40%
Water	W	--	--	--	Not prime farmland	No	0.30%
Soil Survey: Edmonson County Area, Kentucky (KY646)							
Baxter gravelly silt loam, 6 to 12 percent slopes, eroded	BaC2	Well drained	Moderately high to high	Medium	Farmland of statewide importance	No	0.20%
Baxter gravelly silt loam, 12 to 20 percent slopes, eroded	BaD2	Well drained	Moderately high to high	Medium	Not prime farmland	No	0.10%
Caneyville silt loam, 6 to 12 percent slopes, eroded	CaC2	Well drained	Moderately high	Medium	Farmland of statewide importance	No	0.00%
Crider silt loam, 2 to 6 percent slopes	CrB	Well drained	Very low to moderately high	--	All areas are prime farmland	No	0.00%
Crider silt loam, 6 to 12 percent slopes, eroded	CrC2	Well drained	Very low to moderately high	--	Farmland of statewide importance	No	0.00%
Nolin silt loam, 0 to 2 percent slopes, frequently flooded	No	Well drained	Moderately high to high	Low	Prime farmland if protected from flooding or not frequently flooded during the growing season	**Yes**	0.10%
Otwell silt loam, 6 to 12 percent slopes, rarely flooded	OtC	Moderately well drained	Very low to moderately low	Medium	Farmland of statewide importance	No	0.10%
Otwell silt loam, 2 to 6 percent slopes, occasionally flooded	OwB	Moderately well drained	Very low to moderately low	Low	All areas are prime farmland	No	0.30%

(NRCS, 2022)

It should be noted that caution must be used when comparing the list of hydric components to soil survey maps. Many of the soil lists have ranges in water table depths that allow the soil component to range from hydric to non-hydric depending on the location of the soil within the landscape as described in the map unit. Lists of hydric soils along with soil survey maps are good off-site ancillary tools to assist in wetland determinations, but they are not a substitute for observations made during onsite investigations.





Project Area

Hydric

Non-Hydric

N

0 2,100

Feet

Cardno now Stantec

Critical Issues Analysis
Wood Duck Solar
Barren County, Kentucky

Soils within Project Area

Date:	Project No:	Figure No:
May 2022	E321201503	3-4

Date Created: 5/6/2022 Date Revised: 5/6/2022 File Path: \\usauscfs08.cardno.corp\AUO04Data-AFS\PROJECTS\Geenex Solar\E322500600 - Wood Duck Solar\GIS\Soils.mxd

GIS Analyst: kelsey.a.anderson

Data Source: Basemap: Bing Maps Aerial (2020)

4 Assessment Methodology

Cardno conducted a desktop review of the Project area utilizing local and federal Geographic information systems (GIS) data to identify potential habitat for listed species, wetlands, hydric soils, floodplains, and cultural resources that could affect the Project development process.

Federal and state resources were reviewed to identify potential habitat that may be found for listed species in the Project area. Results of the threatened and endangered species review are provided in **Section 5.1.**

Cardno conducted a desktop environmental assessment of the Project area utilizing local and federal GIS data to identify potential wetlands, waterbodies, hydric soils, and floodplains that could affect the Project development process. Potential WOTUS were identified from the USFWS NWI GIS data layer, USGS topographic maps, and floodplain data. Results of the WOTUS analysis are provided in **Sections 5.2- 5.4**.

Cardno's cultural resource specialists reviewed information regarding known archeological and historic sites, available through the Kentucky Heritage Council (KHC), Office of State Archaeology (OSA), and other various sources. Cardno also reviewed USGS topographic maps, current, and historic aerial photographs for evidence of historic use of the proposed Project area. The results of this literature review are provided in **Section 5.5.**

5 Results of Findings

5.1 Threatened and Endangered Species Review

Cardno conducted desktop environmental assessments for listed species within the Project area. **Table 5-1** lists the 79 federal and state-listed species identified by the USFWS IPaC (USFWS, 2022) and the KNP (Office of Kentucky Nature Preserves, 2018) databases as having the potential to occur within or be affected by the Project. A copy of the IPaC is provided in ***Appendix A***. The Project is located entirely within two Indiana Bat Critical Habitat Unit (CHU), with a majority of the Project being in CHU 13, and a minority of the most northwest portion in Edmonson County being within CHU 14. Only those species with a moderate to high likelihood of occupying the Project area are discussed below.

Table 5-1 Barren and Edmonson County Listed Threatened and Endangered Species

Group	Common Name	Scientific Name	Likelihood of Occupance	Federal Status	State Status
Birds	Short-eared Owl[2]	*Asio flammeus*	**Moderate**	--	E
	Least Flycatcher[2]	*Empidonax minimus*	**Moderate**	--	E
	Peregrine Falcon[2]	*Falco peregrinus*	Low	--	E
	Bachman's Sparrow[2]	*Peucaea aestivalis*	**Moderate**	--	E
	Pied-billed Grebe[2]	*Podilymbus podiceps*	Low	--	E
	Vesper Sparrow[2]	*Pooecetes gramineus*	**Moderate**	--	E
	Red-breasted Nuthatch[2]	*Sitta canadensis*	Low	--	E
	Golden-winged Warbler[2]	*Vermivora chrysoptera*	**Moderate**	--	E
	Northern Shoveler[2]	*Spatula clypeata*	Low	--	E
	Great Egret[2]	*Ardea alba*	Low	--	T
	Brown Creeper[2]	*Certhia americana*	Low	--	T
	Northern Harrier[2]	*Circus hudsonius*	**Moderate**	--	T
	Least Bittern[2]	*Ixobrychus exilis*	Low	--	T
	Hooded Merganser[2]	*Lophodytes cucullatus*	Low	--	T
	Yellow-crowned Night-heron[2]	*Nyctanassa violacea*	Low	--	T
	Blackburnian Warbler[2]	*Setophaga fusca*	**Moderate**	--	T
	American Coot[2]	*Fulica americana*	Low	--	E

Table 5-1 Barren and Edmonson County Listed Threatened and Endangered Species					
	Blue-winged Teal[2]	*Spatula discors*	Low	--	T
Molluscs	Fanshell[2]	*Cyprogenia stegaria*	Low	E	E
	Northern Riffleshell[2]	*Epioblasma rangiana*	Low	E	E
	Snuffbox 1,2	*Epioblasma triquetra*	Low	E	E
	Pink Mucket[2]	*Lampsilis abrupta*	Low	E	E
	Pocketbook[2]	*Lampsilis ovata*	Low	--	E
	Kentucky Creekshell[2]	*Leaunio ortmanni*	Low	--	E
	Spectaclecase[2]	*Margaritifera monodonta*	Low	E	E
	Ring Pink[2]	*Obovaria retusa*	Low	E	E
	Sheepnose[2]	*Plethobasus cyphyus*	Low	E	E
	Clubshell[2]	*Pleurobema clava*	Low	E	E
	Rough Pigtoe[2]	*Pleurobema plenum*	Low	E	E
	Pyramid Pigtoe[2]	*Pleurobema rubrum*	Low	--	E
	Rabbitsfoot[2]	*Theliderma cylindrica*	Low	T	E
	Elktoe[2]	*Alasmidonta marginata*	Low	--	T
	Little Spectaclecase[2]	*Leaunio lienosus aquilonius*	Low	--	T
	Round Hickorynut[2]	*Obovaria subrotunda*	Low	--	T
	A Terrestrial Snail) [2]	*Helicodiscus notius specus*	Low	--	T
Mammals	Northern Myotis [1,2]	*Myotis septentrionalis*	**Moderate**	T	E
	Indiana Bat [1,2]	*Myotis sodalis*	**High**	E	E
	Gray Myotis [1,2]	*Myotis grisescens*	**Moderate**	E	T
	Eastern Small-footed Myotis[2]	*Myotis leibii*	**Moderate**	--	T
	Little Brown Bat[2]	*Myotis lucifugus*	**Moderate**	--	T
	Eastern Pipistrelle[2]	*Perimyotis subflavus*	**Moderate**	--	T
Fish	Western Sand Darter[2]	*Ammocrypta clara*	Low	--	E
	Longhead Darter[2]	*Percina macrocephala*	Low	--	E

Table 5-1 Barren and Edmonson County Listed Threatened and Endangered Species					
	Spotted Darter[2]	*Nothonotus maculatus*	Low	--	T
Reptiles	Scarlet Kingsnake[2]	*Lampropeltis elapsoides*	Low	--	E
	Northern Pinesnake[2]	*Pituophis melanoleucus melanoleucus*	Low	--	E
	Coal Skink[2]	*Plestiodon anthracinus*	**Moderate**	--	E
	Eastern Slender Glass Lizard[2]	*Ophisaurus attenuatus longicaudus*	**Moderate**	--	T
	Southeastern Crowned Snake[2]	*Tantilla coronata*	**Moderate**	--	T
Insects	Monarch Butterfly [1,2]	*Danaus plexippus 1*	**Moderate**	C	--
	Double-ringed Pennant[2]	*Celithemis verna*	Low	--	E
	Elusive Clubtail[2]	*Stylurus notatus*	**Moderate**	--	E
	Elfin Skimmer[2]	*Nannothemis bella*	Low	--	E
	A Geometrid Moth[2]	*Lytrosis permagnaria*	Low	--	E
	Surprising Cave Beetle[2]	*Pseudanophthalmus inexpectatus*	Low	--	T
	A Cave Obligate Beetle[2]	*Pseudanophthalmus pubescens intrepidus*	Low	--	T
Other Arthropods	Kentucky Cave Shrimp [1,2]	*Palaemonias ganteri*	**Moderate**	E	E
	An Ectocommensal Ostracod[2]	*Sagittocythere stygia*	**Moderate**	--	T
	An Amphipod[2]	*Crangonyx longidactylus*	**Moderate**	--	T
	A Cave Obligate Springtail[2]	*Arrhopalites altus*	**Moderate**	--	T
	A Cave Obligate Springtail[2]	*Arrhopalites bimus*	**Moderate**	--	T
Flatworms	A Cave Obligate Planarian[2]	*Sphalloplana buchanani*	**Moderate**	--	T
Plants	Epiphytic Sedge[2]	*Carex decomposita*	**Moderate**	--	T
	Prairie Gentian[2]	*Gentiana puberulenta*	Low	--	E
	Plains Frostweed[2]	*Helianthemum bicknellii*	**Moderate**	--	E
	Eggert's Sunflower[2]	*Helianthus eggertii*	**Moderate**	--	T
	Western Dwarf Dandelion[2]	*Krigia occidentalis*	Low	--	E
	Crossleaf Milkwort[2]	*Polygala cruciata*	Low	--	E

Table 5-1 Barren and Edmonson County Listed Threatened and Endangered Species

	Spotted Pondweed[2]	*Potamogeton pulcher*	**Moderate**	--	T
	Grassleaf Arrowhead[2]	*Sagittaria graminea*	Low	--	T
	Sessile-fruited Arrowhead[2]	*Sagittaria rigida*	Low	--	E
	Fringed Nutrush[2]	*Scleria ciliata*	**Moderate**	--	E
	Buffalo Clover[2]	*Trifolium reflexum*	**Moderate**	--	E
	Wood's Bunchflower[2]	*Veratrum woodii*	**Moderate**	--	T
	American Chestnut[2]	*Castanea dentata*	**Moderate**	--	E
	Sharp-scaled Manna-grass[2]	*Glyceria acutiflora*	**Moderate**	--	E
	Hairy Ludwigia[2]	*Ludwigia hirtella -*	**Moderate**	--	E
	Rough Dropseed[2]	*Sporobolus clandestinus*	**Moderate**	--	T
	Narrowleaved Bluecurls[2]	*Trichostema setaceum*	**Moderate**	--	E

[1] = identified by USFWS IPaC, [2] = identified by state sources for counties
C = Candidate, E = Endangered, T = Threatened
Source (USFWS 2022); (MNHP 2022); (KNP 2018)

Of the 79 species identified within Barren and Edmonson County, 40 have a moderate to high potential to occupy the Project area: **two (2)** federally endangered species, **seventeen (17)** state-endangered species, **twenty (20)** state-threatened species, and **one (1)** federal candidate species. The Project area is vast in size and includes a variety of habitat, including openings, cropland and pasture, deciduous forest, riparian areas, and ponds. The Project area is 10 miles south of Mammoth Cave National Park and is within Little Sinking Creek watershed. Headwater streams within the Project area have no obvious superficial connection, indicating that there is high likelihood of karst drainage features, including sinkholes and seeps, within the Project area which drain to the cave system and aquifer beneath. Additionally, dye tests show that water from the Little Sinking Creek drainage does drain to the Turnhole Spring Basin in Mammoth Cave. The USFWS lists the Kentucky cave shrimp as a species which may potentially occupy the Project area and while the area is within habitat for the shrimp, designated critical habitat is restricted to Mammoth Cave. Given this, Cardno determined that this species and all additional cave invertebrates listed by the state database should also be given a determination of moderate likelihood to occur within the Project area.

The short-eared owl, Bachman's sparrow, and vesper sparrow prefer flat, treeless and open countryside, fields, and pasture for nesting, while the least flycatcher occupy openings and breeds in mixed woodlands or deciduous trees around clearings. Golden-winged warblers breed in brush areas where cleared fields are regrowing to woods and occupy open woodlands and undergrowth which are likely present. The deciduous forest patches may also support blackburnian warblers. These species have a moderate chance of occurring within the Project area.

Streams within the Project area are unlikely to provide suitable habitat for listed mussels or fish due to their size and lack of superficial hydrologic connectivity. However, there is high to moderate potential for several bat species to find suitable foraging habitat and maternity or roosting habitat along the riparian corridors within the Project area, especially due to relatively close distance to the more significant cave features of Mammoth Cave and potential for karst features within the Project area. Bats which have potential to occupy

the area include the northern long-eared bat, Indiana, gray, little brown, eastern pipistrelle, and eastern small-footed bat. Additionally, there is known hibernaculum for Indiana bats at Coach Cave in Edmonson County.

The eastern glass lizards burrow in grassy areas, dry rocky hillsides, open forest, and prairies. Deciduous woodlands, meadows, and dry oak woodlands may support the southeastern crown snake. Pasture, openings, roadways, and cropland may contain milkweeds for monarch butterflies. The elfin skimmer and double-ringed pennant dragonflies may find suitable foraging plants along waterways and streams within the Project area.

Sinkhole ponds, seeps, or openings may support epiphytic sedge and spotted pondweed while dry woodlands, glades, and prairies may support plains frostweed, and fringed nutrush. Open forest may have suitable habitat for Eggert's sunflower and the disturbed openings may support buffalo clover. American chestnut has been reported recently from these counties and their mesic forests. Wood's bunchflower can also occupy this same habitat. Sharp-scaled manna-grass prefers slow and shallow water, wet pastures, ad pond margins which may be present. Barrens, savannas, and prairies may host hairy ludwigia and rough dropseed. Finally, narrowleaved bluecurls can occupy both dry upland oak-hickory forest, dry to moist old fields, and disturbed areas which are present.

5.2 Wetlands

Potential WOTUS were identified from the NWI GIS data layer (USFWS, 2022). Cardno's desktop investigations identified **eleven (11)** forested wetland (PFO), **eight (8)** emergent wetland and **thirty-four (34)** ponded wetlands (PUB) (**Table 5-2**) totaling 46.85 acres within the Project area (**Figure 5-1**).

Table 5-2 Identified Wetlands within the Project area

Wetland ID	Type	Acreage	Potentially Jurisdictional
WET-01	PFO	2.88	Not likely
WET-02	PFO	0.88	Likely
WET-02	PFO	0.14	Likely
WET-02	PFO	3.06	Likely
WET-03	PFO	3.22	Likely
WET-04	PFO	3.94	Likely
WET-05	PFO	0.06	Likely
WET-06	PFO	4.08	Not likely
WET-07	PFO	0.15	Not likely
WET-08	PFO	4.05	Likely
WET-09	PUB	1.52	Likely
WET-10	PEM	1.31	Likely
WET-11	PEM	0.30	Likely
WET-12	PEM	0.90	Likely
WET-13	PEM	0.43	Likely
WET-14	PEM	0.46	Likely
WET-15	PEM	0.15	Not likely
WET-16	PEM	0.21	Likely
WET-17	PUB	0.24	Likely
WET-18	PUB	0.58	Likely
WET-19	PUB	2.70	Likely

WET-20	PUB	0.43	Likely
WET-21	PUB	0.83	Not likely
WET-22	PUB	0.24	Not likely
WET-23	PUB	0.37	Not likely
WET-24	PUB	0.28	Not likely
WET-25	PUB	0.54	Not likely
WET-26	PUB	1.09	Likely
WET-27	PUB	0.56	Likely
WET-28	PUB	0.25	Likely
WET-29	PUB	0.22	Not likely
WET-30	PUB	0.74	Not likely
WET-31	PUB	0.44	Not likely
WET-32	PUB	1.79	Not likely
WET-33	PUB	0.65	Likely
WET-34	PUB	0.92	Not likely
WET-35	PUB	0.29	Not likely
WET-36	PUB	0.19	Likely
WET-37	PUB	0.01	Likely
WET-38	PUB	0.18	Likely
WET-39	PUB	0.18	Not likely
WET-40	PUB	0.02	Not likely
WET-41	PUB	0.22	Not likely
WET-42	PUB	0.23	Likely
WET-43	PUB	0.19	Not likely
WET-44	PUB	0.18	Likely
WET-45	PUB	0.34	Not likely
WET-46	PUB	0.88	Likely
WET-47	PUB	0.21	Not likely
WET-48	PUB	0.34	Likely
WET-49	PUB	0.20	Not likely
WET-50	PUB	0.16	Not likely
WET-51	PFO	2.18	Likely
WET-52	PEM	0.26	Not likely
Total Non-jurisdictional		**15.70**	
Total Jurisdictional		**31.15**	
TOTAL		**46.85**	

5.3 Waterbodies

Two (2) perennial streams, **two (2)** intermittent, and **eighteen (18)** ephemeral streams were identified within the Project boundary and are listed below in **Table 5-3** and **Figure 5-1.**

Table 5-3 Identified Streams within the Project area

Stream ID	Flow Type	Stream Length (feet)	Potentially Jurisdictional
S-1 (Gardner Creek)	Perennial	8,477.15	Likely
S-2 (Little Sinking Creek)	Perennial	13,668.65	Likely
S-3	Ephemeral	4,115.56	Likely
S-4	Ephemeral	613.91	Likely
S-5	Ephemeral	3,870.04	Likely
S-6	Intermittent	2,082.64	Likely
S-7	Ephemeral	1,419.12	Likely
S-8	Ephemeral	5,546.11	Likely
S-9	Ephemeral	13.71	Likely
S-10	Ephemeral	2,426.44	Likely
S-11	Ephemeral	908.84	Likely
S-12	Ephemeral	1,551.01	Likely
S-13	Ephemeral	1,880.23	Likely
S-14	Ephemeral	2,269.91	Likely
S-15	Intermittent	2,173.59	Likely
S-16	Ephemeral	2,216.70	Likely
S-17	Ephemeral	476.87	Likely
S-18	Ephemeral	177.34	Likely
S-19	Ephemeral	2,056.99	Likely
S-20	Ephemeral	1,325.35	Likely
S-21	Ephemeral	2,196.47	Likely
S-22	Intermittent	3,788.38	Likely
Total Jurisdictional		**63,254.99**	
Total Non-Jurisdictional		**0.00**	
Total		**63,254.99**	

5.4 Jurisdictional Summary

While Cardno cannot formally determine the jurisdictional status of a waterbody or wetland, features in the Project area have evaluated for potential federal jurisdiction from the desktop perspective. Our interpretation is made based on available documentation from the USEPA, including guidance on the "Current Implementation of Waters of the United States" which refers to the original 1986/1988 promulgation and subsequent Supreme Court cases which further defined the term, with the most current definition determined by the 2008 ruling following the Rapanos v. United States case (USEPA, 2021).

The agencies will assert jurisdiction over the following waters:

- Traditional navigable waters (TNW),

- Wetlands adjacent to TNWs,
- Non-navigable tributaries of TNWs that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and,
- Wetlands that directly abut such tributaries.

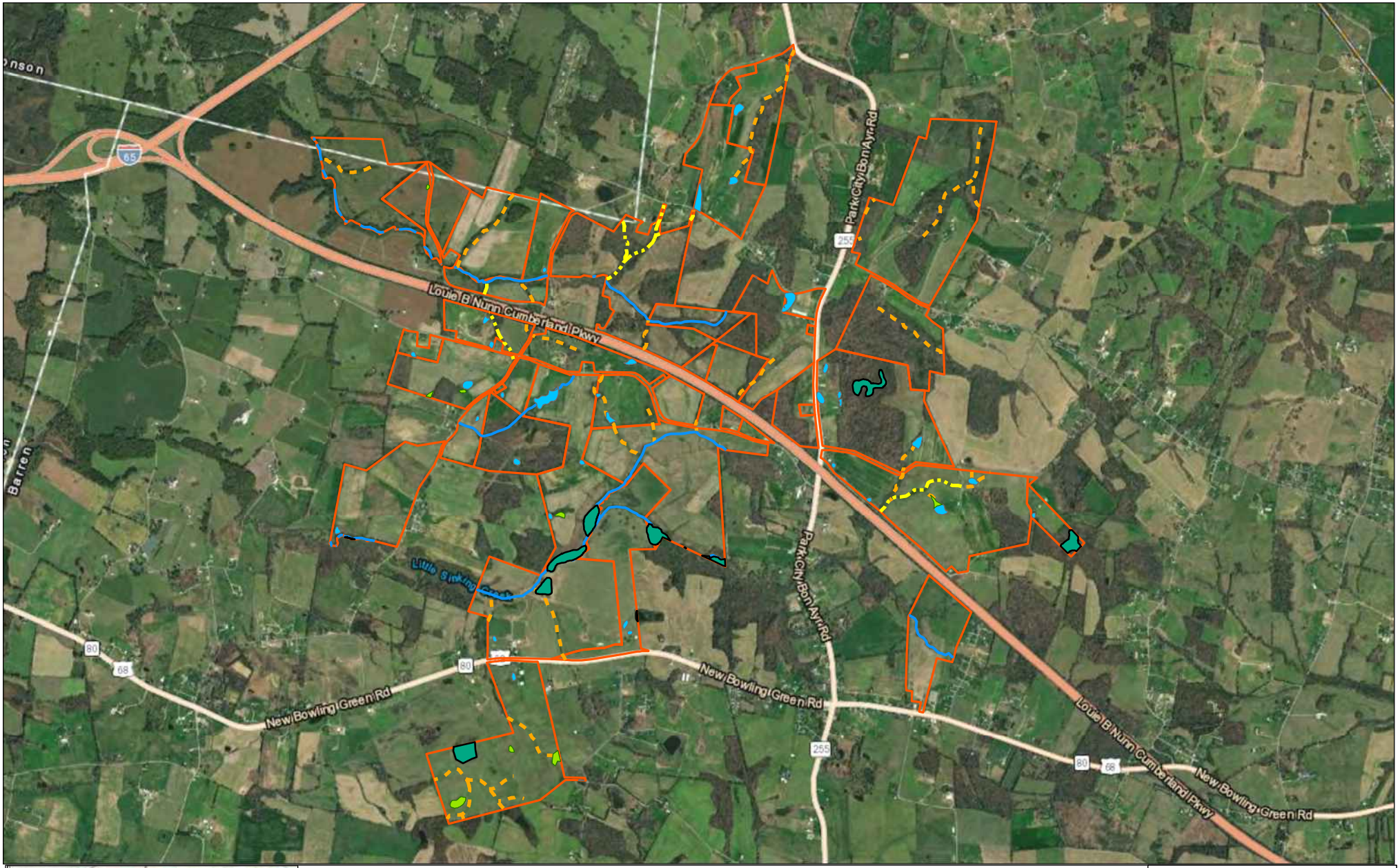
The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

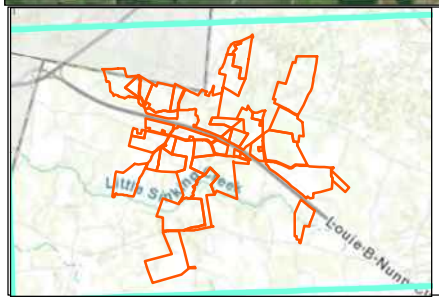
- Non-navigable tributaries that are not relatively permanent,
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent, and,
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow), and
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

From the perspective of observable aerial imagery, the identified streams and wetlands appear to lack surface connection to major waterways or waterbodies but likely percolate and drain beneath the ground to a greater karst system, including Mammoth Cave and greater Green River (see **Section 3.1** for more information). Based on these observations, it was Cardno's determination that streams and associated wetlands within the Project area would be classified as WOTUS under the current WOTUS regulations, and therefore would likely be classified as jurisdictional by the USACE.





Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond

Ephemeral Stream
Intermittent
Perennial
ProjectBoundary

N

0 2,300
Feet

Cardno now Stantec

Critical Impact Analysis
Wood Duck Solar
Barren County, Kentucky

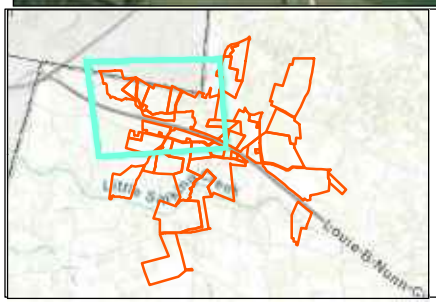
Wetlands and Waterbodies Overview

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GIS Analyst: kelsey.a.anderson

Data Source: Basemap: Bing Maps Aerial (2020)





Ephemeral Stream

Intermittent Stream

Perennial Stream

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

ProjectBoundary

N

0 1,000

Feet

Cardno now Stantec

Critical Impact Analysis
Wood Duck Solar
Barren County, Kentucky

Wetlands and Waterbodies Overview

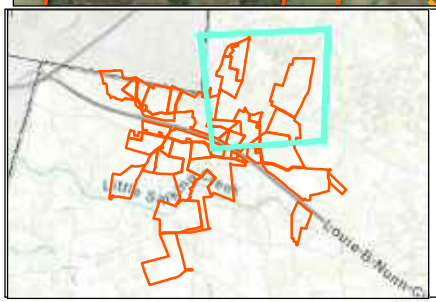
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GIS Analyst: kelsey.a.anderson

Data Source: Basemap: Bing Maps Aerial (2020)





Ephemeral Stream

Intermittent Stream

Perennial Stream

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

ProjectBoundary

N

0 1,250

Feet

Cardno now Stantec

Critical Impact Analysis
Wood Duck Solar
Barren County, Kentucky

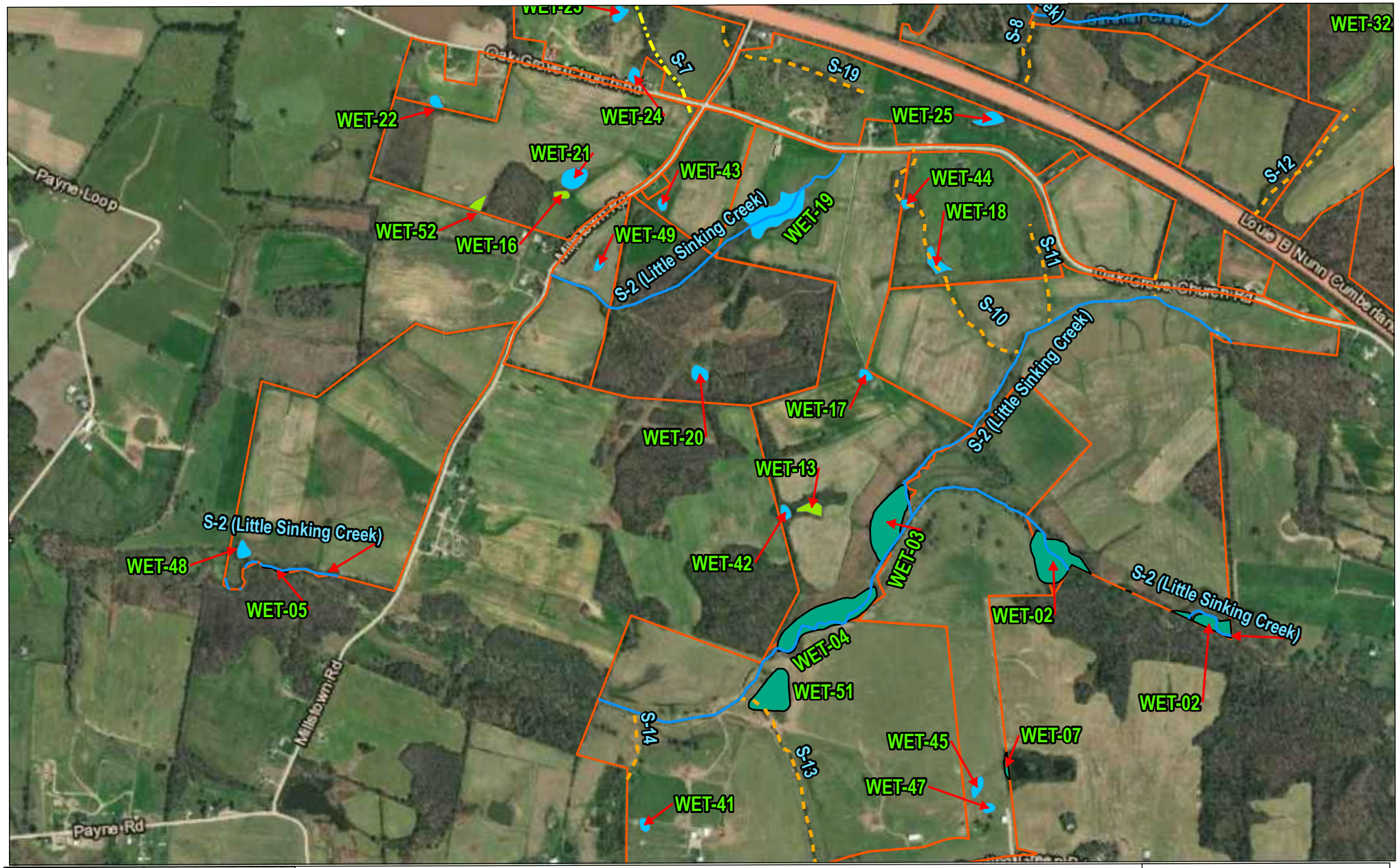
Wetlands and Waterbodies Overview

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GIS Analyst: kelsey.a.anderson

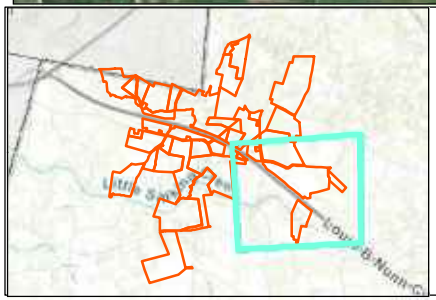
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GIS Analyst: kelsey.a.anderson

Data Source: Basemap: Bing Maps Aerial (2020)





Ephemeral Stream

Intermittent Stream

Perennial Stream

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

ProjectBoundary

N

0 1,200

Feet

Cardno now Stantec

Critical Impact Analysis
Wood Duck Solar
Barren County, Kentucky

Wetlands and Waterbodies Overview

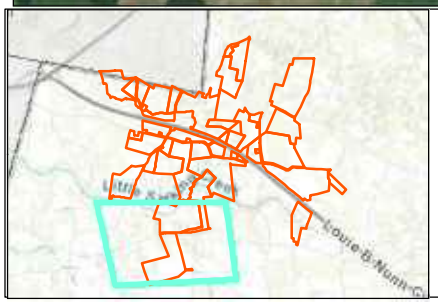
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GIS Analyst: kelsey.a.anderson

Data Source: Basemap: Bing Maps Aerial (2020)





Ephemeral Stream
Intermittent Stream
Perennial Stream
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
ProjectBoundary

0 970
Feet

Cardno now Stantec

Critical Impact Analysis
Wood Duck Solar
Barren County, Kentucky

Wetlands and Waterbodies Overview

Date:	Project No:	Figure:
April 2022	E321201503	5-6

Date Created: 11/27/2022 Date Revised: 11/27/2022 File Path: \\usauscfs08.cardno.corp\AUO04Data-AFS\PROJECTS\Geenex Solar\E322500600_237801898 - Wood Duck Solar\GIS\WETLANDS AND WATERBODIES.mxd
GIS Analyst: kelsey.a.anderson

Data Source: Basemap: Bing Maps Aerial (2020)

5.5 Cultural Resources

Cardno's cultural resource specialists reviewed previously recorded architectural resources, archaeological sites, cemeteries, and other cultural resources that may pose critical issues to the proposed project. Cardno focused on previously recorded resources within 2 km (1.2 mi) of the APE, but also examined the larger region where appropriate. For the literature review the following resources were consulted:

- National Historic Landmark List and National Register of Historic Places (NRHP);
- Kentucky Office of State Archaeology (OSA) Site files;
- Kentucky Heritage Council (KHC) Site files
- Cultural Resources Management Reports;
- County Maps and Atlases

No National Historic Landmarks or NRHP listed resources are located within 2 km of the proposed APE.

Due to a policy change, the OSA only provided data for the area if direct Impact (APE). These data indicate that two previous archaeological surveys have been completed within portions of the proposed project APE. In 2011 Arnold et.al completed an archaeological survey for the Beckton-Bon Ayer substation and transmission line in Barren County (Arnold et. al 2011). In 2012 Kelley and Calhoun completed a Phase I survey for the proposed Cave City-Bon Ayr 69kv transmission line in Barren County (Kelley and Calhoun 2012) (Figure 5-2). These surveys intersect a portion of the southeastern section of the current project area.

The OSA data also indicate that one site identified within Kelley and Calhoun's survey area is located partially within the current project Area. The OSA GIS database lists Site 15Bn160 as a historic farm/residence dating to the first half of the 20th century (Figure 5-3). The site was recommended as not eligible for nomination to the NRHP. Given this assessment, Site 15Bn160 should not be a critical issue for the proposed solar farm.

Data provided by the KHC architectural resources database indicates that 27 surveyed architectural resources are located within 1 mile of the proposed APE (Figures 5-2 and 5-3; Table 5-4)). All are located in Barren County. These resources comprise 64 individual structures, including barns, silos, sheds, and other out buildings). Portions of three resources (eight total structures), BN 536 (n=2), BN 544 (n=3), BN 546 (n=3), are located within the proposed project area. The individual structures include six barns, one outbuilding, and one cemetery. All of these resources are located in the southeastern portion of the proposed project area. The NRHP status of these resources has not been determined. Survey and reassessment of these resources to determine their NRHP eligibility is recommended. In addition to the resources within the proposed APE, two additional structures, a machine shed from Resource BN 536 and a barn from Resource BN 547 (see Table 5-4) are located outside of, but immediately adjacent to the proposed APE. The remaining 23 resources are situated within one mile of the proposed APE. Of these structures, only the house at Resource BN 211 has been determined to meet NRHP criteria. This structure is located more than 1 km from northeastern boundary of the APE and should not pose a critical issue for the proposed solar farm.

Figure 5-2 Previously Identified Cultural Resources

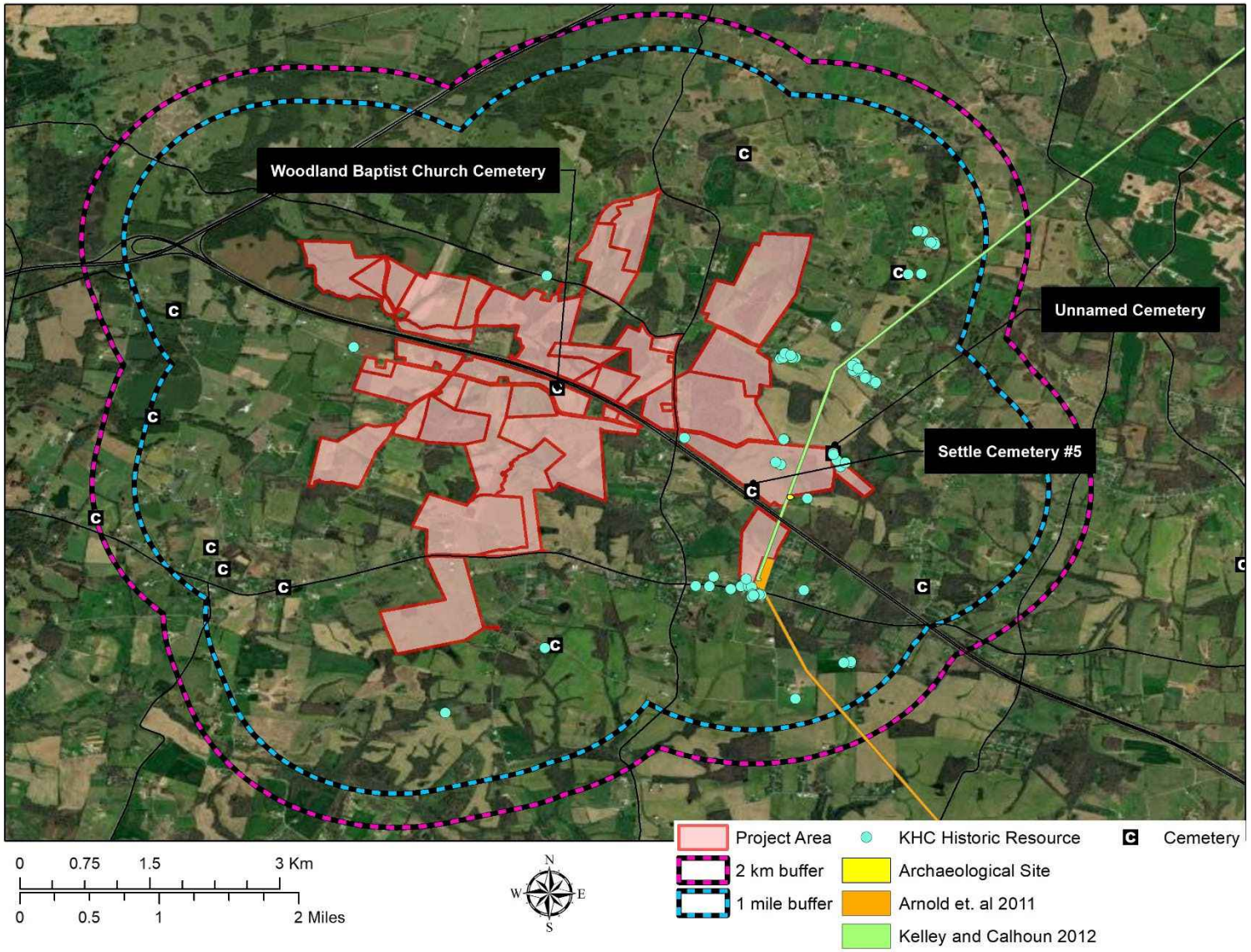


Figure 5-3 Architectural and Archaeological Resources identified within the Project Area

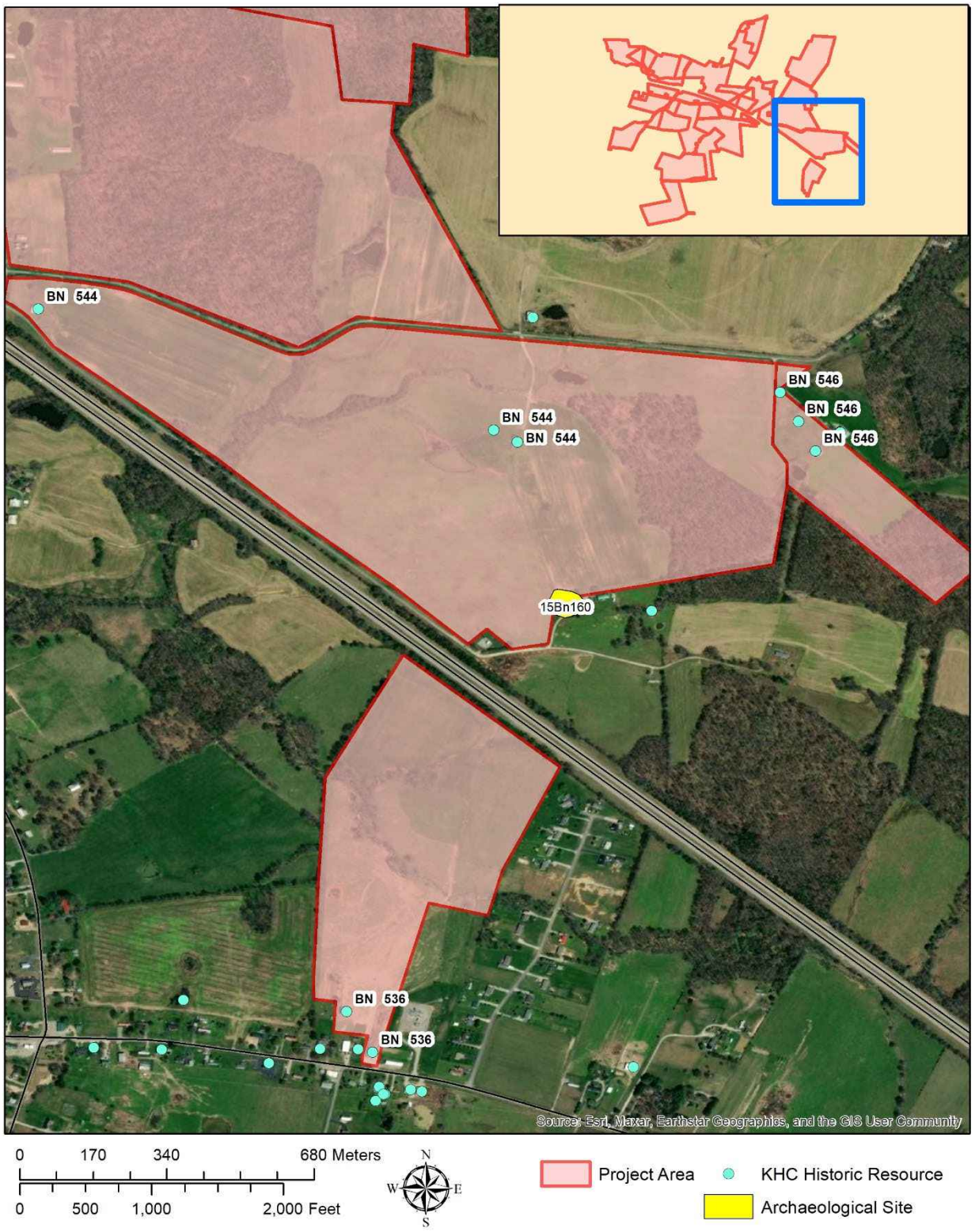


Table 5-4 KHC Survey Structures (note gray highlighted structures fall within APE).

Site	Site Sub #	Resource	Location	NRHP Status
BN 199		HOUSE	RICK RD	UNDETERMINED
BN 200		HOUSE	RICK RD	UNDETERMINED
BN 203		TENANT HOUSE	BON AYR - CROSSROADS HWY 68-	UNDETERMINED
BN 210		HOUSE (BURNED 1982)	AT APPLE GROVE	DEMOLISHED
BN 211		HOUSE	314 J MARTIN RD	MEETS N/R CRITERIA
BN 211	1	SHED	314 J MARTIN RD	UNDETERMINED
BN 211	2	OUTBUILDING	314 J MARTIN RD	UNDETERMINED
BN 211	3	OUTBUILDING	314 J MARTIN RD	UNDETERMINED
BN 211	4	BARN	314 J MARTIN RD	UNDETERMINED
BN 211	5	BARN	314 J MARTIN RD	UNDETERMINED
BN 212		HOUSE #MISSING#	FLOWERS RD	UNDETERMINED
BN 476		ONE-ROOM SCHOOL	2109 OAK GROVE CHURCH ROAD	UNDETERMINED
BN 534		HOUSE	316 FURLONG RD	UNDETERMINED
BN 534	1	MACHINE SHED	316 FURLONG RD	UNDETERMINED
BN 534	2	BARN	316 FURLONG RD	UNDETERMINED
BN 535		BARN	7938 NEW BOWLING GREEN RD	UNDETERMINED
BN 536		HOUSE	8230 AND 8180 NEW BOWLING GREEN RD	UNDETERMINED
BN 536	1	MACHINE SHED	8230 AND 8180 NEW BOWLING GREEN RD	UNDETERMINED
BN 536	2	BARN	8230 AND 8180 NEW BOWLING GREEN RD	UNDETERMINED
BN 536	3	BARN	8230 AND 8180 NEW BOWLING GREEN RD	UNDETERMINED
BN 537		BARN	8137A NEW BOWLING GREEN RD	UNDETERMINED
BN 537	1	GARAGE	8137A NEW BOWLING GREEN RD	UNDETERMINED
BN 538		HOUSE	8157 NEW BOWLING GREEN RD	UNDETERMINED
BN 538	1	CARPORT	8157 NEW BOWLING GREEN RD	UNDETERMINED
BN 538	2	CARPORT	8157 NEW BOWLING GREEN RD	UNDETERMINED
BN 538	3	SHED	8157 NEW BOWLING GREEN RD	UNDETERMINED
BN 539		BARN	DEARING RD	UNDETERMINED

BN	540	BON AYR MISSIONARY BAPTIST CHURCH	8285 NEW BOWLING GREEN RD	UNDETERMINED
BN	541	BARN	8347 NEW BOWLING GREEN RD	UNDETERMINED
BN	542	BARN	86 BON AYR RD	UNDETERMINED
BN	543	BARN	844 DISMAN RD	UNDETERMINED
BN	544	BARN	MAYHEW RD	UNDETERMINED
BN	544 1	BARN	MAYHEW RD	UNDETERMINED
BN	544 2	BARN	MAYHEW RD	UNDETERMINED
BN	545	BARN	MAYHEW RD	UNDETERMINED
BN	546	BARN	595 MAYHEW RD	UNDETERMINED
BN	546 1	OUTBUILDING	595 MAYHEW RD	UNDETERMINED
BN	546 2	CEMETERY	595 MAYHEW RD	UNDETERMINED
BN	547	BARN	447 MAYHEW RD	UNDETERMINED
BN	548	BARN	5951 DRIPPING SPRINGS RD	UNDETERMINED
BN	548 1	SHED	5951 DRIPPING SPRINGS RD	UNDETERMINED
BN	548 2	SHED	5951 DRIPPING SPRINGS RD	UNDETERMINED
BN	548 3	HOUSE	5951 DRIPPING SPRINGS RD	UNDETERMINED
BN	548 4	MOBILE HOME	5951 DRIPPING SPRINGS RD	UNDETERMINED
BN	549	HOUSE	6039 DRIPPING SPRINGS RD	UNDETERMINED
BN	549 1	GARAGE	6039 DRIPPING SPRINGS RD	UNDETERMINED
BN	549 2	OUTBUILDING	6039 DRIPPING SPRINGS RD	UNDETERMINED
BN	549 3	SHED	6039 DRIPPING SPRINGS RD	UNDETERMINED
BN	550	HOUSE	6107 DRIPPING SPRINGS RD	UNDETERMINED
BN	550 1	SHED	6107 DRIPPING SPRINGS RD	UNDETERMINED
BN	551	BARN	6100 & 6132 DRIPPING SPRINGS RD	UNDETERMINED
BN	551 1	BARN	6100 & 6132 DRIPPING SPRINGS RD	UNDETERMINED
BN	551 2	SHED	6100 & 6132 DRIPPING SPRINGS RD	UNDETERMINED
BN	551 3	MOBILE HOME	6100 & 6132 DRIPPING SPRINGS RD	UNDETERMINED
BN	551 4	MOBILE HOME	6100 & 6132 DRIPPING SPRINGS RD	UNDETERMINED
BN	552	BARN	6499 DRIPPING SPRINGS RD	UNDETERMINED

BN 552	3	MILK HOUSE	6499 DRIPPING SPRINGS RD	UNDETERMINED
BN 552	4	SILO	6499 DRIPPING SPRINGS RD	UNDETERMINED
BN 552	2	BARN	6499 DRIPPING SPRINGS RD	UNDETERMINED
BN 552	5	BARN	6499 DRIPPING SPRINGS RD	UNDETERMINED
BN 552	6	CEMETERY	6499 DRIPPING SPRINGS RD	UNDETERMINED
BN 552	1	RETAINING WALL	6499 DRIPPING SPRINGS RD	UNDETERMINED
BN 553		BARN	151 J. MARTIN RD	UNDETERMINED
BN 553	1	HOUSE RUINS	151 J. MARTIN RD	UNDETERMINED

Within the Project Boundary

Cemetery records indicate that 13 historic cemeteries are located within 2 km of the proposed project APE. Ten are located well outside of the APE boundary and do not pose critical issues for the proposed solar farm. Three cemeteries; Woodland Baptist Church Cemetery, Settle Cemetery #5, and an unnamed cemetery (KHC Resource BN 546 002) Are all located within the proposed APE. A 100-foot avoidance buffer is recommended around all of these resources to minimize the impact of development as the project moves forward.

Due to the presence of known archeological sites within proximity of the Project area, and because previous cultural resource surveys have not been conducted on the majority of the Project area, the SHPO may request that a Phase I survey be conducted within federally jurisdictional areas within the Project area.

6 Conclusion

Cardno reviewed current and historic mapping, as well as local, state, and federal GIS data layers as part of a desktop investigation during its natural and cultural resources assessment.

The USFWS IPaC and state natural heritage databases listed some concern for impacts to federally listed species within the Project area. **Two (2)** federally endangered species, **seventeen (17)** state-endangered species, **twenty (20)** state-threatened species, and **one (1)** federal candidate species. The Project area is within two critical habitat units for the Indiana bat.

Cardno scientists identified potentially **two (2)** perennial streams, **two (2)** intermittent, and **eighteen (18)** ephemeral streams were identified within the Project Area**. Eleven (11)** PFO wetlands, **eight (8)** PEM wetlands, and **thirty-four (34)** PUB ponds, totaling 46.85 acres, were identified within the Project Area. The FIRMs FM21061C0275B, 21009C0150C, 21009C0255C, and 21009C0260C indicate the 100-year floodplain is present on approximately 81.4 acres of the Project, concentrated along Gardner and Little Sinking Creek.

From the perspective of observable aerial imagery, while there is no surface connection to any major waterway or TNW, the Little Sinking Creek is self-contained and water that falls within this watershed percolates through soil to the karst features below north to tributaries of Mammoth Cave National Park, which eventually drains to the Green River. Due to this connection, it is Cardno's determination that the streams and associated wetlands within the Project area would be classified as WOTUS under the current regulations, and therefore would likely be classified as jurisdictional by the USACE. Coordination with the USACE Louisville District Office to obtain an approved jurisdictional determination (AJD) for the streams, wetlands, and ponds identified onsite is recommended if the Project would impact these areas.

Only the USACE may issue determinations on the jurisdictional status of the streams and wetlands identified within the Project. If any of the identified streams or wetlands are deemed jurisdictional by the USACE, the Project may proceed under a NWP 51, 14 and/or 57. Nationwide 51 requires a pre-construction notification to the USACE for loss of WOTUS over 1/10 acres and allows for construction, expansion or modification of land-based renewable energy production facilities, including attendant features. For Electric Utility Line and Telecommunications Activities, each separate and distant crossing of waters of the United States may be covered by its own NWP authorization. If the only activity requiring USACE authorization is the construction, maintenance, repair, and removal of electrical utility lines, then a NWP 57 may be used. As stated in the text of the NWPs, the discharge of dredged or fill material into wetlands and non-tidal WOTUS must not cause the loss of greater than ½-acre of wetlands and non-tidal WOTUS. Permanent impacts which exceed the ½-acre threshold for NWPs will require an Individual Permit.

The results of the cultural review identified **one** archaeological site within the Project boundary, which was determined ineligible for the NRHP by the SHPO. **Three** historic structures have been recorded within the Project area. Reassessment of these features is recommended to determine potential eligibility in the NRHP. There are also **three** historic cemeteries within the Project area. A 100-foot avoidance buffer is recommended around these resources to minimize the impact of development as the project moves forward.

Due to the presence of known archeological sites within proximity of the Project area, and because previous cultural resource surveys have not been conducted on the majority of the Project area, the SHPO may request that a Phase I survey be conducted within federally jurisdictional areas within the Project area.

7 References

Arnold, George, Brian DelCastello, and Jennifer Faberson (2011)
An Archaeological Survey of the Proposed Beckton-Bon Ayr Substation and Transmission Line in Barren County, Kentucky. Report on file at Kentucky Office of State Archaeology, Lexington.

FEMA. (2022, February). *NFHL ArcGIS Viewer*. Retrieved from National Flood Hazard Layer: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd

Kelley, Lisa and Emily Calhoun (2012)
An Archaeological Survey of the Proposed East Kentucky Power Cooperative Cave City-Bon Ayr 69KV Transmission Line in Barren County, Kentucky. Report on file at Kentucky Office of State Archaeology, Lexington.

Kentucky Geological Survey. (2007). Retrieved from Generalized Geologic Map for Land-Use Planning: Barren County, Kentucky.

NRCS. (2022). *Web Soil Survey*. Retrieved from https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Office of Kentucky Nature Preserves (2018, November). *Kentucky Rare Plant Database*. Retrieved from http://eppcapp.ky.gov/nprareplants/

USEPA. (2021). *Current Implementation of Waters of the United States*. Retrieved from https://www.epa.gov/wotus/current-implementation-waters-united-states

USFWS. (2022). *Information for Planning and Consultation*. Retrieved from ECOS - Environmental Conservation Online System: https://ecos.fws.gov/ipac/

USFWS. (2022, February). *Wetlands Mapper*. Retrieved from National Wetland Inventory: https://fws.gov/wetlands/data/Mapper.html

USGS (1954 [1955)] 7.5', 1:24000 Park City, KY Topographic Quadrangle Map.

USGS (1954 [1966]) 7.5', 1:24000 Preston, KY Topographic Quadrangle Map.

USGS (2013) 7.5', 1:24000 Park City, KY Topographic Quadrangle Map (USA Topo version.

USGS. (2019). National Land Cover Database.

USGS. (2022). *National Structures Dataset (NSD)*. Retrieved from https://cmerwebmap.cr.usgs.gov/catalog/item/4f70b240e4b058caae3f8e1b

Woods, A. J., O, Omernick, J. M., Martin, W. H., Pond, G. J., Andrews, W. M., . . . Taylor, D. D. (2002). *Ecoregions of Kentucky*. Retrieved from http://ecologicalregions.info/data/ky/ky_front.pdf

Wood Duck Solar Project
Critical Issues Analysis

APPENDIX A

USFWS IPAC OFFICIAL SPECIES LIST

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) 695-0468 Fax: (502) 695-1024
http://www.fws.gov/frankfort/

In Reply Refer To:
Project Code: 2022-0040301
Project Name: Wood Duck Solar

May 06, 2022

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 ECOS-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 ECOS-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:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.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/birds/policies-and-regulations.php.

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/birds/bird-enthusiasts/threats-to-birds.php.

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/birds/policies-and-regulations/executive-orders/e0-13186.php.

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) 695-0468

Project Summary

Project Code: 2022-0040301
Event Code: None
Project Name: Wood Duck Solar
Project Type: Power Gen - Solar
Project Description: Cardno, now Stantec (Cardno) is pleased to submit our proposal for a Critical Issues Analysis (CIA) and Permit Matrix on approximately 2,308 acres near Glasgow, Kentucky. This proposal is based on scoping information provided via email on April 20, 2022 between Ms. Amanda Corll and Chad Martin. A complete report will be provided to Geenex that will describe the results of the critical issues analysis and preliminary permitting assessment.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.0356555,-86.07457231069537,14z



Counties: Barren and Edmonson counties, Kentucky

Endangered Species Act Species

There is a total of 6 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 3 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.

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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* Endangered

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/TTTEV46RU5D3JH4N2O2OWSCXRU/documents/generated/6422.pdf

Indiana Bat *Myotis sodalis* Endangered

There is **final** critical habitat for this species. Your location overlaps the critical habitat.

This species only needs to be considered under the following conditions:

- The project area includes known 'swarming 1' habitat.
- The project area includes known 'swarming 2' habitat.

Species profile: https://ecos.fws.gov/ecp/species/5949

General project design guidelines:
https://ipac.ecosphere.fws.gov/project/TTTEV46RU5D3JH4N2O2OWSCXRU/documents/generated/6422.pdf

Northern Long-eared Bat *Myotis septentrionalis* Threatened

No critical habitat has been designated for this species.

This species only needs to be considered under the following conditions:

- The specified area includes areas in which incidental take would not be prohibited under the 4(d) rule. For reporting purposes, please use the "streamlined consultation form," linked to in the "general project design guidelines" for the species.

Species profile: https://ecos.fws.gov/ecp/species/9045

General project design guidelines:
https://ipac.ecosphere.fws.gov/project/TTTEV46RU5D3JH4N2O2OWSCXRU/documents/generated/6422.pdf

Clams

NAME STATUS

Snuffbox Mussel *Epioblasma triquetra* Endangered

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/4135

Insects

NAME STATUS

Monarch Butterfly *Danaus plexippus* Candidate

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/9743

Crustaceans

NAME	STATUS
Kentucky Cave Shrimp *Palaemonias ganteri*	Endangered

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/5008

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Indiana Bat *Myotis sodalis*	Final

https://ecos.fws.gov/ecp/species/5949#crithab

IPaC User Contact Information

Agency: Cardno, now Stantec
Name: Kelsey Anderson
Address: 76 San Marcos Street
City: Austin
State: TX
Zip: 78702
Email kelsey.a.anderson@cardno.com
Phone: 5126052640

Species Information

Species observations for selected counties

Linked life history provided courtesy of NatureServe Explorer .
Records may include both recent and historical observations.
US Status Definitions Kentucky Status Definitions

List Species observations in 2 selected counties.
Selected counties are: Barren, Edmonson.

Scientific Name and Life History	Common Name and Pictures	Class	County	US Status	KY Status	WAP	Reference
Accipiter cooperii		Cooper's Hawk	Barren	N	N		Reference
Accipiter cooperii		Cooper's Hawk	Edmonson	N	N		Reference
Accipiter striatus	Yes	Sharp-shinned Hawk	Aves	Edmonson	N	S	Reference
Accipiter striatus	Yes	Sharp-shinned Hawk	Aves	Barren	N	S	Reference
Acris crepitans		Eastern Cricket Frog	Aves	Barren	N	N	Reference
Acris crepitans		Eastern Cricket Frog	Aves	Edmonson	N	N	Reference
Actinonaias ligamentina		Mucket	Aves	Edmonson	N	N	Reference
Aegolius acadicus		Northern Saw-whet Owl	Aves	Barren	N	N	Reference
Agelaius phoeniceus		Red-winged Blackbird	Aves	Barren	N	N	Reference
Agelaius phoeniceus		Red-winged Blackbird	Aves	Edmonson	N	N	Reference
Agkistrodon contortrix		Eastern Copperhead	Aves	Edmonson	N	N	Reference

Agkistrodon contortrix		Eastern Copperhead	Aves	Barren	N	N	Reference
Aix sponsa		Wood Duck	Aves	Edmonson	N	N	Reference
Aix sponsa		Wood Duck	Aves	Barren	N	N	Reference
Alasmidonta marginata	Yes	Elktoe	Bivalvia	Edmonson	N	T	Reference
Alasmidonta viridis	Yes	Slippershell Mussel	Bivalvia	Edmonson	N	S	Reference
Alasmidonta viridis	Yes	Slippershell Mussel	Bivalvia	Barren	N	S	Reference
Alosa chrysochloris		Skipjack Herring	Bivalvia	Barren	N	N	Reference
Alosa chrysochloris		Skipjack Herring	Bivalvia	Edmonson	N	N	Reference
Amblema plicata		Threeridge	Bivalvia	Edmonson	N	N	Reference
Amblema plicata		Threeridge	Bivalvia	Barren	N	N	Reference
Ambloplites rupestris		Rock Bass	Bivalvia	Barren	N	N	Reference
Ambloplites rupestris		Rock Bass	Bivalvia	Edmonson	N	N	Reference
Amblyopsis spelaea	Yes	Northern Cavefish	Actinopterygii	Edmonson	N	S	Reference
Ambystoma jeffersonianum		Jefferson Salamander	Actinopterygii	Edmonson	N	N	Reference
Ambystoma jeffersonianum		Jefferson Salamander	Actinopterygii	Barren	N	N	Reference
Ambystoma maculatum		Spotted Salamander	Actinopterygii	Barren	N	N	Reference
Ambystoma maculatum		Spotted Salamander	Actinopterygii	Edmonson	N	N	Reference
Ambystoma opacum		Marbled Salamander	Actinopterygii	Edmonson	N	N	Reference
Ambystoma opacum		Marbled Salamander	Actinopterygii	Barren	N	N	Reference

Ambystoma texanum		Small-mouthed Salamander	Actinopterygii	Edmonson	N	N	Reference
Ambystoma tigrinum		Eastern Tiger Salamander	Actinopterygii	Edmonson	N	N	Reference
Ambystoma tigrinum		Eastern Tiger Salamander	Actinopterygii	Barren	N	N	Reference
Ameiurus catus		White Catfish	Actinopterygii	Barren	N	N	Reference
Ameiurus melas		Black Bullhead	Actinopterygii	Barren	N	N	Reference
Ameiurus melas		Black Bullhead	Actinopterygii	Edmonson	N	N	Reference
Ameiurus natalis		Yellow Bullhead	Actinopterygii	Edmonson	N	N	Reference
Ameiurus natalis		Yellow Bullhead	Actinopterygii	Barren	N	N	Reference
Ameiurus nebulosus		Brown Bullhead	Actinopterygii	Edmonson	N	N	Reference
Ammocrypta clara	Yes	Western Sand Darter	Actinopterygii	Edmonson	N	E	Reference
Ammocrypta pellucida		Eastern Sand Darter	Actinopterygii	Edmonson	N	N	Reference
Ammodramus savannarum	Yes	Grasshopper Sparrow	Aves	Edmonson	N	N	Reference
Ammodramus savannarum	Yes	Grasshopper Sparrow	Aves	Barren	N	N	Reference
Anas acuta		Northern Pintail	Aves	Barren	N	N	Reference
Anas crecca		Green-winged Teal	Aves	Barren	N	N	Reference
Anas platyrhynchos		Mallard	Aves	Barren	N	N	Reference
Anas platyrhynchos		Mallard	Aves	Edmonson	N	N	Reference
Anas rubripes	Yes	American Black Duck	Aves	Edmonson	N	N	Reference
Anas rubripes	Yes	American Black Duck	Aves	Barren	N	N	Reference
Anaxyrus americanus		American Toad	Aves	Barren	N	N	Reference
Anaxyrus americanus		American Toad	Aves	Edmonson	N	N	Reference

Anaxyrus fowleri		Fowler's Toad	Aves	Edmonson	N	N	Reference
Anaxyrus fowleri		Fowler's Toad	Aves	Barren	N	N	Reference
Anguilla rostrata	Yes	American Eel	Actinopterygii	Edmonson	N	N	Reference
Anser albifrons		Greater White-fronted Goose	Actinopterygii	Barren	N	N	Reference
Anser albifrons		Greater White-fronted Goose	Actinopterygii	Edmonson	N	N	Reference
Anser caerulescens		Snow Goose	Actinopterygii	Edmonson	N	N	Reference
Anser caerulescens		Snow Goose	Actinopterygii	Barren	N	N	Reference
Anser rossii		Ross's Goose	Actinopterygii	Barren	N	N	Reference
Anthus rubescens		American Pipit	Actinopterygii	Barren	N	N	Reference
Antigone canadensis		Sandhill Crane	Actinopterygii	Barren	N	N	Reference
Antigone canadensis		Sandhill Crane	Actinopterygii	Edmonson	N	N	Reference
Antroselates spiralis	Yes	Shaggy Cavesnail	Gastropoda	Edmonson	N	S	Reference
Antrostomus carolinensis	Yes	Chuck-will's-widow	Aves	Edmonson	N	N	Reference
Antrostomus carolinensis	Yes	Chuck-will's-widow	Aves	Barren	N	N	Reference
Antrostomus vociferus	Yes	Eastern Whip-poor-will	Aves	Barren	N	N	Reference
Antrostomus vociferus	Yes	Eastern Whip-poor-will	Aves	Edmonson	N	N	Reference
Apalone spinifera spinifera		Eastern Spiny Softshell	Aves	Barren	N	N	Reference
Apalone spinifera spinifera		Eastern Spiny Softshell	Aves	Edmonson	N	N	Reference
Aphredoderus sayanus		Pirate Perch	Aves	Edmonson	N	N	Reference
Aplodinotus grunniens		Freshwater Drum	Aves	Edmonson	N	N	Reference

Aplodinotus grunniens		Freshwater Drum	Aves	Barren	N	N	Reference
Archilochus colubris		Ruby-throated Hummingbird	Aves	Edmonson	N	N	Reference
Archilochus colubris		Ruby-throated Hummingbird	Aves	Barren	N	N	Reference
Arcidens confragosus		Rock Pocketbook	Aves	Edmonson	N	N	Reference
Ardea alba	Yes	Great Egret	Aves	Barren	N	T	Reference
Ardea herodias		Great Blue Heron	Aves	Barren	N	N	Reference
Ardea herodias		Great Blue Heron	Aves	Edmonson	N	N	Reference
Arrhopalites altus		A Cave Obligate Springtail	Aves	Edmonson	N	T	Reference
Arrhopalites bimus		A Cave Obligate Springtail	Aves	Barren	N	T	Reference
Asio flammeus	Yes	Short-eared Owl	Aves	Edmonson	N	E	Reference
Asio flammeus	Yes	Short-eared Owl	Aves	Barren	N	E	Reference
Aspidoscelis sexlineata	Yes	Six-lined Racerunner	Reptilia	Barren	N	S	Reference
Aspidoscelis sexlineata	Yes	Six-lined Racerunner	Reptilia	Edmonson	N	S	Reference
Aythya affinis	Yes	Lesser Scaup	Aves	Barren	N	N	Reference
Aythya americana		Redhead	Aves	Barren	N	N	Reference
Aythya americana		Redhead	Aves	Edmonson	N	N	Reference
Aythya collaris		Ring-necked Duck	Aves	Edmonson	N	N	Reference
Aythya collaris		Ring-necked Duck	Aves	Barren	N	N	Reference
Aythya marila	Yes	Greater Scaup	Aves	Barren	N	N	Reference
Aythya valisineria		Canvasback	Aves	Barren	N	N	Reference

Baeolophus bicolor		Tufted Titmouse	Aves	Barren	N	N	Reference
Baeolophus bicolor		Tufted Titmouse	Aves	Edmonson	N	N	Reference
Barbicambarus cornutus	Yes	Bottlebrush Crayfish	Malacostraca	Barren	N	S	Reference
Barbicambarus cornutus	Yes	Bottlebrush Crayfish	Malacostraca	Edmonson	N	S	Reference
Bartramia longicauda	Yes	Upland Sandpiper	Aves	Barren	N	H	Reference
Batrisodes henroti		A Cave Obligate Beetle	Aves	Barren	N	H	Reference
Batrisodes henroti		A Cave Obligate Beetle	Aves	Edmonson	N	H	Reference
Batrisodes hubrichti		A Cave Obligate Beetle	Aves	Barren	N	H	Reference
Belba bulbipedata		A Cave Obligate Mite	Aves	Edmonson	N	H	Reference
Blarina brevicauda		Northern Short-tailed Shrew	Aves	Edmonson	N	N	Reference
Blarina brevicauda		Northern Short-tailed Shrew	Aves	Barren	N	N	Reference
Bombycilla cedrorum		Cedar Waxwing	Aves	Barren	N	N	Reference
Bombycilla cedrorum		Cedar Waxwing	Aves	Edmonson	N	N	Reference
Botaurus lentiginosus	Yes	American Bittern	Aves	Barren	N	H	Reference
Branta canadensis		Canada Goose	Aves	Barren	N	N	Reference
Branta canadensis		Canada Goose	Aves	Edmonson	N	N	Reference
Bubo virginianus		Great Horned Owl	Aves	Edmonson	N	N	Reference
Bubo virginianus		Great Horned Owl	Aves	Barren	N	N	Reference

Bubulcus ibis	Yes	Cattle Egret	Aves	Barren	N	S	Reference
Bucephala albeola		Bufflehead	Aves	Barren	N	N	Reference
Buteo jamaicensis		Red-tailed Hawk	Aves	Barren	N	N	Reference
Buteo jamaicensis		Red-tailed Hawk	Aves	Edmonson	N	N	Reference
Buteo lagopus		Rough-legged Hawk	Aves	Edmonson	N	N	Reference
Buteo lagopus		Rough-legged Hawk	Aves	Barren	N	N	Reference
Buteo lineatus		Red-shouldered Hawk	Aves	Barren	N	N	Reference
Buteo lineatus		Red-shouldered Hawk	Aves	Edmonson	N	N	Reference
Buteo platypterus		Broad-winged Hawk	Aves	Edmonson	N	N	Reference
Buteo platypterus		Broad-winged Hawk	Aves	Barren	N	N	Reference
Butorides virescens	Yes	Green Heron	Aves	Barren	N	N	Reference
Butorides virescens	Yes	Green Heron	Aves	Edmonson	N	N	Reference
Calcarius lapponicus		Lapland Longspur	Aves	Barren	N	N	Reference
Calidris alba	Yes	Sanderling	Aves	Barren	N	N	Reference
Calidris alpina	Yes	Dunlin	Aves	Barren	N	N	Reference
Calidris himantopus	Yes	Stilt Sandpiper	Aves	Barren	N	N	Reference
Calidris melanotos		Pectoral Sandpiper	Aves	Barren	N	N	Reference
Calidris melanotos		Pectoral Sandpiper	Aves	Edmonson	N	N	Reference
Calidris minutilla		Least Sandpiper	Aves	Barren	N	N	Reference
Cambarus tenebrosus		Cavespring Crayfish	Aves	Barren	N	N	Reference

Cambarus tenebrosus		Cavespring Crayfish	Aves	Edmonson	N	N	Reference
Campostoma oligolepis		Largescale Stoneroller	Aves	Edmonson	N	N	Reference
Campostoma oligolepis		Largescale Stoneroller	Aves	Barren	N	N	Reference
Canis latrans		Coyote	Aves	Barren	N	N	Reference
Canis latrans		Coyote	Aves	Edmonson	N	N	Reference
Carassius auratus		Goldfish	Aves	Edmonson	N	N	Reference
Carassius auratus		Goldfish	Aves	Barren	N	N	Reference
Cardellina canadensis	Yes	Canada Warbler	Aves	Edmonson	N	S	Reference
Cardellina pusilla		Wilson's Warbler	Aves	Edmonson	N	N	Reference
Cardellina pusilla		Wilson's Warbler	Aves	Barren	N	N	Reference
Cardinalis cardinalis		Northern Cardinal	Aves	Barren	N	N	Reference
Cardinalis cardinalis		Northern Cardinal	Aves	Edmonson	N	N	Reference
Carphophis amoenus		Common Wormsnake	Aves	Edmonson	N	N	Reference
Carphophis amoenus		Common Wormsnake	Aves	Barren	N	N	Reference
Carpiodes carpio		River Carpsucker	Aves	Edmonson	N	N	Reference
Carpiodes cyprinus		Quillback	Aves	Edmonson	N	N	Reference
Carpiodes cyprinus		Quillback	Aves	Barren	N	N	Reference
Carpiodes velifer	Yes	Highfin Carpsucker	Actinopterygii	Edmonson	N	N	Reference
Castor canadensis		American Beaver	Actinopterygii	Edmonson	N	N	Reference
Castor canadensis		American Beaver	Actinopterygii	Barren	N	N	Reference

Cathartes aura		Turkey Vulture	Actinopterygii	Edmonson	N	N	Reference
Cathartes aura		Turkey Vulture	Actinopterygii	Barren	N	N	Reference
Catharus fuscescens		Veery	Actinopterygii	Edmonson	N	N	Reference
Catharus guttatus		Hermit Thrush	Actinopterygii	Edmonson	N	N	Reference
Catharus guttatus		Hermit Thrush	Actinopterygii	Barren	N	N	Reference
Catharus minimus		Gray-cheeked Thrush	Actinopterygii	Edmonson	N	N	Reference
Catharus ustulatus		Swainson's Thrush	Actinopterygii	Edmonson	N	N	Reference
Catharus ustulatus		Swainson's Thrush	Actinopterygii	Barren	N	N	Reference
Catostomus commersonii		White Sucker	Actinopterygii	Barren	N	N	Reference
Catostomus commersonii		White Sucker	Actinopterygii	Edmonson	N	N	Reference
Celithemis verna		Double-ringed Pennant	Actinopterygii	Edmonson	N	E	Reference
Cemophora coccinea	Yes	Scarletsnake	Reptilia	Edmonson	N	S	Reference
Cemophora coccinea	Yes	Scarletsnake	Reptilia	Barren	N	S	Reference
Centronyx henslowii	Yes	Henslow's Sparrow	Aves	Barren	N	S	Reference
Centronyx henslowii	Yes	Henslow's Sparrow	Aves	Edmonson	N	S	Reference
Certhia americana		Brown Creeper	Aves	Barren	N	T	Reference
Certhia americana		Brown Creeper	Aves	Edmonson	N	T	Reference
Chaetura pelagica		Chimney Swift	Aves	Edmonson	N	N	Reference
Chaetura pelagica		Chimney Swift	Aves	Barren	N	N	Reference
Charadrius vociferus		Killdeer	Aves	Barren	N	N	Reference
Charadrius vociferus		Killdeer	Aves	Edmonson	N	N	Reference

Chelydra serpentina		Snapping Turtle	Aves	Barren	N	N	Reference
Chelydra serpentina		Snapping Turtle	Aves	Edmonson	N	N	Reference
Chlidonias niger	Yes	Black Tern	Aves	Barren	N	N	Reference
Chondestes grammacus		Lark Sparrow	Aves	Barren	N	S	Reference
Chordeiles minor		Common Nighthawk	Aves	Barren	N	N	Reference
Chroicocephalus philadelphia		Bonaparte's Gull	Aves	Barren	N	N	Reference
Chroicocephalus philadelphia		Bonaparte's Gull	Aves	Edmonson	N	N	Reference
Chrosomus erythrogaster		Southern Redbelly Dace	Aves	Barren	N	N	Reference
Chrosomus erythrogaster		Southern Redbelly Dace	Aves	Edmonson	N	N	Reference
Chrysemys picta		Painted Turtle	Aves	Edmonson	N	N	Reference
Chrysemys picta		Painted Turtle	Aves	Barren	N	N	Reference
Circus hudsonius	Yes	Northern Harrier	Aves	Edmonson	N	T	Reference
Circus hudsonius	Yes	Northern Harrier	Aves	Barren	N	T	Reference
Cistothorus palustris		Marsh Wren	Aves	Barren	N	N	Reference
Cistothorus platensis	Yes	Sedge Wren	Aves	Edmonson	N	S	Reference
Clangula hyemalis		Long-tailed Duck	Aves	Barren	N	N	Reference
Clinostomus funduloides		Rosyside Dace	Aves	Barren	N	N	Reference
Coccothraustes vespertinus		Evening Grosbeak	Aves	Edmonson	N	N	Reference
Coccyzus americanus	Yes	Yellow-billed Cuckoo	Aves	Barren	N	N	Reference
Coccyzus americanus	Yes	Yellow-billed Cuckoo	Aves	Edmonson	N	N	Reference

Coccyzus erythropthalmus		Black-billed Cuckoo	Aves	Edmonson	N	N	Reference
Coccyzus erythropthalmus		Black-billed Cuckoo	Aves	Barren	N	N	Reference
Colaptes auratus		Northern Flicker	Aves	Barren	N	N	Reference
Colaptes auratus		Northern Flicker	Aves	Edmonson	N	N	Reference
Colinus virginianus	Yes	Northern Bobwhite	Aves	Edmonson	N	N	Reference
Colinus virginianus	Yes	Northern Bobwhite	Aves	Barren	N	N	Reference
Coluber constrictor		North American Racer	Aves	Barren	N	N	Reference
Coluber constrictor		North American Racer	Aves	Edmonson	N	N	Reference
Columba livia		Rock Pigeon	Aves	Edmonson	N	N	Reference
Columba livia		Rock Pigeon	Aves	Barren	N	N	Reference
Contopus cooperi		Olive-sided Flycatcher	Aves	Barren	N	N	Reference
Contopus cooperi		Olive-sided Flycatcher	Aves	Edmonson	N	N	Reference
Contopus virens		Eastern Wood-Pewee	Aves	Edmonson	N	N	Reference
Contopus virens		Eastern Wood-Pewee	Aves	Barren	N	N	Reference
Coragyps atratus		Black Vulture	Aves	Barren	N	N	Reference
Coragyps atratus		Black Vulture	Aves	Edmonson	N	N	Reference
Corbicula fluminea		Asian Clam	Aves	Barren	N	N	Reference
Corbicula fluminea		Asian Clam	Aves	Edmonson	N	N	Reference
Corvus brachyrhynchos		American Crow	Aves	Edmonson	N	N	Reference
Corvus brachyrhynchos		American Crow	Aves	Barren	N	N	Reference

Corynorhinus rafinesquii	Yes	Rafinesque's Big-eared Bat	Mammalia	Barren	N	S	Reference
Corynorhinus rafinesquii	Yes	Rafinesque's Big-eared Bat	Mammalia	Edmonson	N	S	Reference
Cottus bairdii		Mottled Sculpin	Mammalia	Barren	N	N	Reference
Cottus carolinae		Banded Sculpin	Mammalia	Barren	N	N	Reference
Cottus carolinae		Banded Sculpin	Mammalia	Edmonson	N	N	Reference
Crangonyx longidactylus	Yes	An Amphipod (Crangonyx longidactylus)	Malacostraca	Barren	N	T	Reference
Crangonyx packardi		Packard's Cave Amphipod	Malacostraca	Barren	N	N	Reference
Crotalus horridus	Yes	Timber Rattlesnake	Reptilia	Barren	N	N	Reference
Crotalus horridus	Yes	Timber Rattlesnake	Reptilia	Edmonson	N	N	Reference
Cryptobranchus alleganiensis alleganiensis	Yes	Eastern Hellbender	Amphibia	Edmonson	N	S	Reference
Cryptobranchus alleganiensis alleganiensis	Yes	Eastern Hellbender	Amphibia	Barren	N	S	Reference
Cryptotis parva		Least Shrew	Amphibia	Barren	N	N	Reference
Cryptotis parva		Least Shrew	Amphibia	Edmonson	N	N	Reference
Cyanocitta cristata		Blue Jay	Amphibia	Edmonson	N	N	Reference
Cyanocitta cristata		Blue Jay	Amphibia	Barren	N	N	Reference
Cycleptus elongatus	Yes	Blue Sucker	Actinopterygii	Edmonson	N	N	Reference
Cyclonaias nodulata		Wartyback	Actinopterygii	Edmonson	N	N	Reference
Cyclonaias pustulosa		Pimpleback	Actinopterygii	Edmonson	N	N	Reference
Cyclonaias tuberculata		Purple Wartyback	Actinopterygii	Edmonson	N	N	Reference
Cygnus olor		Mute Swan	Actinopterygii	Barren	N	N	Reference

Cyprinella galactura		Whitetail Shiner	Actinopterygii	Barren	N	N	Reference
Cyprinella spiloptera		Spotfin Shiner	Actinopterygii	Barren	N	N	Reference
Cyprinella spiloptera		Spotfin Shiner	Actinopterygii	Edmonson	N	N	Reference
Cyprinella whipplei		Steelcolor Shiner	Actinopterygii	Edmonson	N	N	Reference
Cyprinella whipplei		Steelcolor Shiner	Actinopterygii	Barren	N	N	Reference
Cyprinus carpio		Common Carp	Actinopterygii	Barren	N	N	Reference
Cyprinus carpio		Common Carp	Actinopterygii	Edmonson	N	N	Reference
Cyprogenia stegaria	Yes	Fanshell	Bivalvia	Edmonson	E	E	Reference
Danaus plexippus		Monarch	Bivalvia	Edmonson	N	N	Reference
Danaus plexippus		Monarch	Bivalvia	Barren	N	N	Reference
Dasypus novemcinctus		Nine-banded Armadillo	Bivalvia	Barren	N	N	Reference
Dasypus novemcinctus		Nine-banded Armadillo	Bivalvia	Edmonson	N	N	Reference
Deroceras reticulatum		Gray Fieldslug	Bivalvia	Edmonson	N	N	Reference
Desmognathus fuscus	Yes	Northern Dusky Salamander	Amphibia	Edmonson	N	N	Reference
Desmognathus fuscus	Yes	Northern Dusky Salamander	Amphibia	Barren	N	N	Reference
Didelphis virginiana		Virginia Opossum	Amphibia	Barren	N	N	Reference
Didelphis virginiana		Virginia Opossum	Amphibia	Edmonson	N	N	Reference
Dolichonyx oryzivorus	Yes	Bobolink	Aves	Barren	N	S	Reference
Dorosoma cepedianum		Gizzard Shad	Aves	Barren	N	N	Reference
Dorosoma cepedianum		Gizzard Shad	Aves	Edmonson	N	N	Reference

Dorosoma petenense		Threadfin Shad	Aves	Edmonson	N	N	Reference
Dorosoma petenense		Threadfin Shad	Aves	Barren	N	N	Reference
Dryobates pubescens		Downy Woodpecker	Aves	Barren	N	N	Reference
Dryobates pubescens		Downy Woodpecker	Aves	Edmonson	N	N	Reference
Dryobates villosus		Hairy Woodpecker	Aves	Edmonson	N	N	Reference
Dryobates villosus		Hairy Woodpecker	Aves	Barren	N	N	Reference
Dryocopus pileatus		Pileated Woodpecker	Aves	Barren	N	N	Reference
Dryocopus pileatus		Pileated Woodpecker	Aves	Edmonson	N	N	Reference
Dumetella carolinensis		Gray Catbird	Aves	Barren	N	N	Reference
Dumetella carolinensis		Gray Catbird	Aves	Edmonson	N	N	Reference
Elimia semicarinata		Fine-ridged Elimia	Aves	Edmonson	N	N	Reference
Ellipsaria lineolata	Yes	Butterfly	Bivalvia	Edmonson	N	N	Reference
Elliptio crassidens	Yes	Elephantear	Bivalvia	Edmonson	N	S	Reference
Empidonax alnorum		Alder Flycatcher	Bivalvia	Barren	N	N	Reference
Empidonax flaviventris		Yellow-bellied Flycatcher	Bivalvia	Barren	N	N	Reference
Empidonax flaviventris		Yellow-bellied Flycatcher	Bivalvia	Edmonson	N	N	Reference
Empidonax minimus	Yes	Least Flycatcher	Aves	Edmonson	N	E	Reference
Empidonax minimus	Yes	Least Flycatcher	Aves	Barren	N	E	Reference

Empidonax traillii	Yes	Willow Flycatcher	Aves	Barren	N	N	Reference
Empidonax traillii	Yes	Willow Flycatcher	Aves	Edmonson	N	N	Reference
Empidonax virescens		Acadian Flycatcher	Aves	Edmonson	N	N	Reference
Empidonax virescens		Acadian Flycatcher	Aves	Barren	N	N	Reference
Epioblasma rangiana	Yes	Northern Rifflesheell	Bivalvia	Edmonson	E	E	Reference
Epioblasma triquetra	Yes	Snuffbox	Bivalvia	Edmonson	E	E	Reference
Eptesicus fuscus		Big Brown Bat	Bivalvia	Edmonson	N	N	Reference
Eptesicus fuscus		Big Brown Bat	Bivalvia	Barren	N	N	Reference
Eremophila alpestris		Horned Lark	Bivalvia	Edmonson	N	N	Reference
Eremophila alpestris		Horned Lark	Bivalvia	Barren	N	N	Reference
Erimystax dissimilis		Streamline Chub	Bivalvia	Barren	N	N	Reference
Erimystax dissimilis		Streamline Chub	Bivalvia	Edmonson	N	N	Reference
Erimyzon claviformis		Western Creek Chubsucker	Bivalvia	Edmonson	N	N	Reference
Esox americanus		Grass Pickerel	Bivalvia	Edmonson	N	N	Reference
Esox americanus		Grass Pickerel	Bivalvia	Barren	N	N	Reference
Esox masquinongy		Muskellunge	Bivalvia	Barren	N	N	Reference
Esox masquinongy		Muskellunge	Bivalvia	Edmonson	N	N	Reference
Etheostoma barbouri	Yes	Teardrop Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma barbouri	Yes	Teardrop Darter	Actinopterygii	Barren	N	N	Reference
Etheostoma barrenense		Splendid Darter	Actinopterygii	Barren	N	N	Reference
Etheostoma blennioides		Greenside Darter	Actinopterygii	Barren	N	N	Reference

Etheostoma blennioides		Greenside Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma caeruleum		Rainbow Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma caeruleum		Rainbow Darter	Actinopterygii	Barren	N	N	Reference
Etheostoma flabellare		Fantail Darter	Actinopterygii	Barren	N	N	Reference
Etheostoma flabellare		Fantail Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma jimmycarter		Bluegrass Darter	Actinopterygii	Barren	N	N	Reference
Etheostoma kantuckeense		Highland Rim Darter	Actinopterygii	Barren	N	N	Reference
Etheostoma kennicotti		Stripetail Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma lawrencei		Headwater Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma nigrum		Johnny Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma nigrum		Johnny Darter	Actinopterygii	Barren	N	N	Reference
Etheostoma rafinesquei		Kentucky Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma simoterum		Snubnose Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma simoterum		Snubnose Darter	Actinopterygii	Barren	N	N	Reference
Etheostoma spectabile		Orangethroat Darter	Actinopterygii	Barren	N	N	Reference
Etheostoma spectabile		Orangethroat Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma squamiceps		Spottail Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma squamiceps		Spottail Darter	Actinopterygii	Barren	N	N	Reference

Etheostoma stigmaeum		Speckled Darter	Actinopterygii	Barren	N	N	Reference
Etheostoma stigmaeum		Speckled Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma zonale		Banded Darter	Actinopterygii	Edmonson	N	N	Reference
Etheostoma zonale		Banded Darter	Actinopterygii	Barren	N	N	Reference
Euphagus carolinus	Yes	Rusty Blackbird	Aves	Barren	N	N	Reference
Euphagus carolinus	Yes	Rusty Blackbird	Aves	Edmonson	N	N	Reference
Euphagus cyanocephalus		Brewer's Blackbird	Aves	Barren	N	N	Reference
Eurycea cirrigera		Southern Two-lined Salamander	Aves	Barren	N	N	Reference
Eurycea cirrigera		Southern Two-lined Salamander	Aves	Edmonson	N	N	Reference
Eurycea longicauda		Long-tailed Salamander	Aves	Edmonson	N	N	Reference
Eurycea longicauda		Long-tailed Salamander	Aves	Barren	N	N	Reference
Eurycea lucifuga		Cave Salamander	Aves	Barren	N	N	Reference
Eurycea lucifuga		Cave Salamander	Aves	Edmonson	N	N	Reference
Eurynia dilatata		Spike	Aves	Barren	N	N	Reference
Eurynia dilatata		Spike	Aves	Edmonson	N	N	Reference
Falco columbarius		Merlin	Aves	Edmonson	N	N	Reference
Falco columbarius		Merlin	Aves	Barren	N	N	Reference
Falco peregrinus	Yes	Peregrine Falcon	Aves	Barren	N	E	Reference
Falco sparverius	Yes	American Kestrel	Aves	Barren	N	N	Reference
Falco sparverius	Yes	American Kestrel	Aves	Edmonson	N	N	Reference

Faxonius barrenensis		Barren River Crayfish	Aves	Barren	N	N	Reference
Faxonius compressus		Slender Crayfish	Aves	Barren	N	N	Reference
Faxonius immunis		Calico Crayfish	Aves	Edmonson	N	N	Reference
Faxonius juvenilis		Kentucky River Crayfish	Aves	Barren	N	N	Reference
Faxonius putnami		Phallic Crayfish	Aves	Barren	N	N	Reference
Faxonius putnami		Phallic Crayfish	Aves	Edmonson	N	N	Reference
Forbesichthys agassizii	Yes	Spring Cavefish	Actinopterygii	Edmonson	N	N	Reference
Forbesichthys agassizii	Yes	Spring Cavefish	Actinopterygii	Barren	N	N	Reference
Fulica americana		American Coot	Actinopterygii	Barren	N	E	Reference
Fundulus catenatus		Northern Studfish	Actinopterygii	Barren	N	N	Reference
Fundulus catenatus		Northern Studfish	Actinopterygii	Edmonson	N	N	Reference
Fundulus notatus		Blackstripe Topminnow	Actinopterygii	Edmonson	N	N	Reference
Fusconaia flava		Wabash Pigtoe	Actinopterygii	Edmonson	N	N	Reference
Fusconaia subrotunda	Yes	Longsolid	Bivalvia	Edmonson	N	S	Reference
Galumna alata		A Cave Obligate Mite	Bivalvia	Edmonson	N	H	Reference
Gambusia affinis		Western Mosquitofish	Bivalvia	Edmonson	N	N	Reference
Gastrophryne carolinensis		Eastern Narrow-mouthed Toad	Bivalvia	Edmonson	N	N	Reference
Gastrophryne carolinensis		Eastern Narrow-mouthed Toad	Bivalvia	Barren	N	N	Reference
Gavia immer		Common Loon	Bivalvia	Barren	N	N	Reference

Gavia immer		Common Loon	Bivalvia	Edmonson	N	N	Reference
Gavia pacifica		Pacific Loon	Bivalvia	Barren	N	N	Reference
Gavia stellata		Red-throated Loon	Bivalvia	Barren	N	N	Reference
Geothlypis formosa	Yes	Kentucky Warbler	Aves	Barren	N	N	Reference
Geothlypis formosa	Yes	Kentucky Warbler	Aves	Edmonson	N	N	Reference
Geothlypis philadelphia		Mourning Warbler	Aves	Edmonson	N	N	Reference
Geothlypis philadelphia		Mourning Warbler	Aves	Barren	N	N	Reference
Geothlypis trichas		Common Yellowthroat	Aves	Barren	N	N	Reference
Geothlypis trichas		Common Yellowthroat	Aves	Edmonson	N	N	Reference
Glaucomys volans		Southern Flying Squirrel	Aves	Edmonson	N	N	Reference
Graptemys geographica		Northern Map Turtle	Aves	Edmonson	N	N	Reference
Graptemys geographica		Northern Map Turtle	Aves	Barren	N	N	Reference
Graptemys ouachitensis		Ouachita Map Turtle	Aves	Edmonson	N	N	Reference
Gyrinophilus porphyriticus duryi		Kentucky Spring Salamander	Aves	Barren	N	N	Reference
Haemorhous mexicanus		House Finch	Aves	Barren	N	N	Reference
Haemorhous mexicanus		House Finch	Aves	Edmonson	N	N	Reference
Haemorhous purpureus		Purple Finch	Aves	Edmonson	N	N	Reference
Haemorhous purpureus		Purple Finch	Aves	Barren	N	N	Reference

Haliaeetus leucocephalus	Yes	Bald Eagle	Aves	Barren	N	S	Reference
Haliaeetus leucocephalus	Yes	Bald Eagle	Aves	Edmonson	N	S	Reference
Helicodiscus notius specus		A Terrestrial Snail (Helicodiscus notius specus)	Aves	Barren	N	T	Reference
Helicodiscus punctatellus		Punctate Coil	Aves	Edmonson	N	S	Reference
Helmitheros vermivorum		Worm-eating Warbler	Aves	Edmonson	N	N	Reference
Helmitheros vermivorum		Worm-eating Warbler	Aves	Barren	N	N	Reference
Hemidactylium scutatum		Four-toed Salamander	Aves	Barren	N	N	Reference
Hemidactylium scutatum		Four-toed Salamander	Aves	Edmonson	N	N	Reference
Heterodon platirhinos		Eastern Hog-nosed Snake	Aves	Barren	N	N	Reference
Heterodon platirhinos		Eastern Hog-nosed Snake	Aves	Edmonson	N	N	Reference
Hiodon alosoides		Goldeye	Aves	Edmonson	N	N	Reference
Hiodon alosoides		Goldeye	Aves	Barren	N	N	Reference
Hiodon tergisus		Mooneye	Aves	Edmonson	N	N	Reference
Hirundo rustica		Barn Swallow	Aves	Barren	N	N	Reference
Hirundo rustica		Barn Swallow	Aves	Edmonson	N	N	Reference
Hyalella azteca		No Common Name (Hyalella azteca)	Aves	Barren	N	N	Reference
Hyalella azteca		No Common Name (Hyalella azteca)	Aves	Edmonson	N	N	Reference
Hybopsis amblops		Bigeye Chub	Aves	Edmonson	N	N	Reference
Hybopsis amblops		Bigeye Chub	Aves	Barren	N	N	Reference

Hydroprogne caspia		Caspian Tern	Aves	Barren	N	N	Reference
Hyla chrysoscelis		Cope's Gray Treefrog	Aves	Barren	N	N	Reference
Hyla chrysoscelis		Cope's Gray Treefrog	Aves	Edmonson	N	N	Reference
Hylocichla mustelina	Yes	Wood Thrush	Aves	Barren	N	N	Reference
Hylocichla mustelina	Yes	Wood Thrush	Aves	Edmonson	N	N	Reference
Hypentelium nigricans		Northern Hog Sucker	Aves	Edmonson	N	N	Reference
Hypentelium nigricans		Northern Hog Sucker	Aves	Barren	N	N	Reference
Hypophthalmichthys molitrix		Silver Carp	Aves	Edmonson	N	N	Reference
Ichthyomyzon bdellium		Ohio Lamprey	Aves	Edmonson	N	N	Reference
Ichthyomyzon castaneus	Yes	Chestnut Lamprey	Petromyzontida	Edmonson	N	S	Reference
Ictalurus furcatus		Blue Catfish	Petromyzontida	Barren	N	N	Reference
Ictalurus punctatus		Channel Catfish	Petromyzontida	Barren	N	N	Reference
Ictalurus punctatus		Channel Catfish	Petromyzontida	Edmonson	N	N	Reference
Icteria virens		Yellow-breasted Chat	Petromyzontida	Edmonson	N	N	Reference
Icteria virens		Yellow-breasted Chat	Petromyzontida	Barren	N	N	Reference
Icterus galbula		Baltimore Oriole	Petromyzontida	Barren	N	N	Reference
Icterus galbula		Baltimore Oriole	Petromyzontida	Edmonson	N	N	Reference
Icterus spurius		Orchard Oriole	Petromyzontida	Edmonson	N	N	Reference
Icterus spurius		Orchard Oriole	Petromyzontida	Barren	N	N	Reference
Ictiobus bubalus		Smallmouth Buffalo	Petromyzontida	Edmonson	N	N	Reference

Ictiobus cyprinellus		Bigmouth Buffalo	Petromyzontida	Edmonson	N	N	Reference
Ixobrychus exilis	Yes	Least Bittern	Aves	Barren	N	T	Reference
Junco hyemalis		Dark-eyed Junco	Aves	Barren	N	S	Reference
Junco hyemalis		Dark-eyed Junco	Aves	Edmonson	N	S	Reference
Kinosternon subrubrum	Yes	Eastern Mud Turtle	Chelonia	Edmonson	N	N	Reference
Kleptochthonius cerberus		A Cave Obligate Pseudoscorpion	Chelonia	Edmonson	N	H	Reference
Kleptochthonius hageni		A Cave Obligate Pseudoscorpion	Chelonia	Edmonson	N	S	Reference
Kleptochthonius hubrichti		A Cave Obligate Pseudoscorpion	Chelonia	Barren	N	H	Reference
Labidesthes sicculus		Brook Silverside	Chelonia	Barren	N	N	Reference
Labidesthes sicculus		Brook Silverside	Chelonia	Edmonson	N	N	Reference
Lampetra aepyptera		Least Brook Lamprey	Chelonia	Edmonson	N	N	Reference
Lampetra aepyptera		Least Brook Lamprey	Chelonia	Barren	N	N	Reference
Lampropeltis calligaster		Prairie Kingsnake	Chelonia	Barren	N	N	Reference
Lampropeltis calligaster		Prairie Kingsnake	Chelonia	Edmonson	N	N	Reference
Lampropeltis elapsoides	Yes	Scarlet Kingsnake	Reptilia	Edmonson	N	E	Reference
Lampropeltis nigra		Eastern Black Kingsnake	Reptilia	Edmonson	N	N	Reference
Lampropeltis nigra		Eastern Black Kingsnake	Reptilia	Barren	N	N	Reference

Lampropeltis triangulum		Eastern Milksnake	Reptilia	Barren	N	N	Reference
Lampropeltis triangulum		Eastern Milksnake	Reptilia	Edmonson	N	N	Reference
Lampsilis abrupta	Yes	Pink Mucket	Bivalvia	Edmonson	E	E	Reference
Lampsilis cardium		Plain Pocketbook	Bivalvia	Edmonson	N	N	Reference
Lampsilis fasciola		Wavyrayed Lampmussel	Bivalvia	Edmonson	N	N	Reference
Lampsilis ovata	Yes	Pocketbook	Bivalvia	Edmonson	N	E	Reference
Lampsilis siliquoidea		Fatmucket	Bivalvia	Edmonson	N	N	Reference
Lampsilis siliquoidea		Fatmucket	Bivalvia	Barren	N	N	Reference
Lampsilis teres		Yellow Sandshell	Bivalvia	Edmonson	N	N	Reference
Lanius ludovicianus	Yes	Loggerhead Shrike	Aves	Edmonson	N	S	Reference
Lanius ludovicianus	Yes	Loggerhead Shrike	Aves	Barren	N	S	Reference
Larus argentatus		Herring Gull	Aves	Barren	N	N	Reference
Larus californicus		California Gull	Aves	Barren	N	N	Reference
Larus delawarensis		Ring-billed Gull	Aves	Barren	N	N	Reference
Larus delawarensis		Ring-billed Gull	Aves	Edmonson	N	N	Reference
Larus fuscus		Lesser Black-backed Gull	Aves	Barren	N	N	Reference
Lasionycteris noctivagans	Yes	Silver-haired Bat	Mammalia	Barren	N	N	Reference
Lasionycteris noctivagans	Yes	Silver-haired Bat	Mammalia	Edmonson	N	N	Reference
Lasiurus borealis		Eastern Red Bat	Mammalia	Edmonson	N	N	Reference
Lasiurus borealis		Eastern Red Bat	Mammalia	Barren	N	N	Reference
Lasiurus cinereus		Hoary Bat	Mammalia	Barren	N	N	Reference

Lasiurus cinereus		Hoary Bat	Mammalia	Edmonson	N	N	Reference
Lasiurus seminolus	Yes	Seminole Bat	Mammalia	Edmonson	N	N	Reference
Lasiurus seminolus	Yes	Seminole Bat	Mammalia	Barren	N	N	Reference
Lasmigona complanata		White Heelsplitter	Mammalia	Edmonson	N	N	Reference
Lasmigona costata		Flutedshell	Mammalia	Edmonson	N	N	Reference
Leaunio lienosus aquilonius	Yes	Little Spectaclecase	Bivalvia	Edmonson	N	T	Reference
Leaunio lienosus aquilonius	Yes	Little Spectaclecase	Bivalvia	Barren	N	T	Reference
Leaunio ortmanni	Yes	Kentucky Creekshell	Bivalvia	Barren	N	E	Reference
Leaunio ortmanni	Yes	Kentucky Creekshell	Bivalvia	Edmonson	N	E	Reference
Leiothlypis celata		Orange-crowned Warbler	Bivalvia	Edmonson	N	N	Reference
Leiothlypis celata		Orange-crowned Warbler	Bivalvia	Barren	N	N	Reference
Leiothlypis peregrina		Tennessee Warbler	Bivalvia	Barren	N	N	Reference
Leiothlypis peregrina		Tennessee Warbler	Bivalvia	Edmonson	N	N	Reference
Leiothlypis ruficapilla		Nashville Warbler	Bivalvia	Edmonson	N	N	Reference
Leiothlypis ruficapilla		Nashville Warbler	Bivalvia	Barren	N	N	Reference
Lepisosteus oculatus		Spotted Gar	Bivalvia	Edmonson	N	N	Reference
Lepisosteus osseus		Longnose Gar	Bivalvia	Edmonson	N	N	Reference
Lepisosteus osseus		Longnose Gar	Bivalvia	Barren	N	N	Reference
Lepomis cyanellus		Green Sunfish	Bivalvia	Barren	N	N	Reference
Lepomis cyanellus		Green Sunfish	Bivalvia	Edmonson	N	N	Reference
Lepomis gulosus		Warmouth	Bivalvia	Edmonson	N	N	Reference

Lepomis gulosus		Warmouth	Bivalvia	Barren	N	N	Reference
Lepomis humilis		Orangespotted Sunfish	Bivalvia	Barren	N	N	Reference
Lepomis humilis		Orangespotted Sunfish	Bivalvia	Edmonson	N	N	Reference
Lepomis macrochirus		Bluegill	Bivalvia	Edmonson	N	N	Reference
Lepomis macrochirus		Bluegill	Bivalvia	Barren	N	N	Reference
Lepomis megalotis		Longear Sunfish	Bivalvia	Barren	N	N	Reference
Lepomis megalotis		Longear Sunfish	Bivalvia	Edmonson	N	N	Reference
Lepomis microlophus		Redear Sunfish	Bivalvia	Edmonson	N	N	Reference
Lepomis microlophus		Redear Sunfish	Bivalvia	Barren	N	N	Reference
Leptodea fragilis		Fragile Papershell	Bivalvia	Edmonson	N	N	Reference
Leucophaeus atricilla		Laughing Gull	Bivalvia	Barren	N	N	Reference
Leucophaeus pipixcan		Franklin's Gull	Bivalvia	Barren	N	N	Reference
Limnothlypis swainsonii	Yes	Swainson's Warbler	Aves	Edmonson	N	N	Reference
Lithasia obovata		Shawnee Rocksnail	Aves	Edmonson	N	N	Reference
Lithasia obovata		Shawnee Rocksnail	Aves	Barren	N	N	Reference
Lithobates catesbeianus		American Bullfrog	Aves	Edmonson	N	N	Reference
Lithobates catesbeianus		American Bullfrog	Aves	Barren	N	N	Reference
Lithobates clamitans		Green Frog	Aves	Barren	N	N	Reference

Lithobates clamitans		Green Frog	Aves	Edmonson	N	N	Reference
Lithobates palustris		Pickerel Frog	Aves	Edmonson	N	N	Reference
Lithobates palustris		Pickerel Frog	Aves	Barren	N	N	Reference
Lithobates sphenocephalus		Southern Leopard Frog	Aves	Barren	N	N	Reference
Lithobates sphenocephalus		Southern Leopard Frog	Aves	Edmonson	N	N	Reference
Lithobates sylvaticus		Wood Frog	Aves	Edmonson	N	N	Reference
Lithobates sylvaticus		Wood Frog	Aves	Barren	N	N	Reference
Lontra canadensis		Northern River Otter	Aves	Barren	N	N	Reference
Lontra canadensis		Northern River Otter	Aves	Edmonson	N	N	Reference
Lophodytes cucullatus	Yes	Hooded Merganser	Aves	Edmonson	N	T	Reference
Lophodytes cucullatus	Yes	Hooded Merganser	Aves	Barren	N	T	Reference
Loxia leucoptera		White-winged Crossbill	Aves	Barren	N	N	Reference
Luxilus chrysocephalus		Striped Shiner	Aves	Barren	N	N	Reference
Luxilus chrysocephalus		Striped Shiner	Aves	Edmonson	N	N	Reference
Lynx rufus		Bobcat	Aves	Edmonson	N	N	Reference
Lynx rufus		Bobcat	Aves	Barren	N	N	Reference
Lythrurus fasciolaris		Scarlet Shiner	Aves	Barren	N	N	Reference
Lythrurus fasciolaris		Scarlet Shiner	Aves	Edmonson	N	N	Reference
Lythrurus fumeus		Ribbon Shiner	Aves	Edmonson	N	N	Reference
Lytrosis permagnaria		A Geometrid Moth	Aves	Edmonson	N	E	Reference

Macrhybopsis hyostoma	Yes	Shoal Chub	Actinopterygii	Edmonson	N	N	Reference
Macrhybopsis hyostoma	Yes	Shoal Chub	Actinopterygii	Barren	N	N	Reference
Macrhybopsis storeriana		Silver Chub	Actinopterygii	Edmonson	N	N	Reference
Macrocheles troglodytes		A Cave Obligate Mite	Actinopterygii	Edmonson	N	H	Reference
Mareca americana		American Wigeon	Actinopterygii	Barren	N	N	Reference
Mareca strepera		Gadwall	Actinopterygii	Barren	N	N	Reference
Mareca strepera		Gadwall	Actinopterygii	Edmonson	N	N	Reference
Margaritifera monodonta	Yes	Spectaclecase	Bivalvia	Edmonson	E	E	Reference
Marmota monax		Woodchuck	Bivalvia	Barren	N	N	Reference
Megaceryle alcyon		Belted Kingfisher	Bivalvia	Edmonson	N	N	Reference
Megaceryle alcyon		Belted Kingfisher	Bivalvia	Barren	N	N	Reference
Megalonaias nervosa		Washboard	Bivalvia	Edmonson	N	N	Reference
Megascops asio		Eastern Screech-Owl	Bivalvia	Barren	N	N	Reference
Megascops asio		Eastern Screech-Owl	Bivalvia	Edmonson	N	N	Reference
Melanerpes carolinus		Red-bellied Woodpecker	Bivalvia	Edmonson	N	N	Reference
Melanerpes carolinus		Red-bellied Woodpecker	Bivalvia	Barren	N	N	Reference
Melanerpes erythrocephalus	Yes	Red-headed Woodpecker	Aves	Barren	N	N	Reference
Melanerpes erythrocephalus	Yes	Red-headed Woodpecker	Aves	Edmonson	N	N	Reference
Melanitta americana		Black Scoter	Aves	Barren	N	N	Reference

Melanitta deglandi		White-winged Scoter	Aves	Barren	N	N	Reference
Melanitta perspicillata		Surf Scoter	Aves	Barren	N	N	Reference
Meleagris gallopavo		Wild Turkey	Aves	Barren	N	N	Reference
Meleagris gallopavo		Wild Turkey	Aves	Edmonson	N	N	Reference
Melospiza georgiana		Swamp Sparrow	Aves	Barren	N	N	Reference
Melospiza georgiana		Swamp Sparrow	Aves	Edmonson	N	N	Reference
Melospiza lincolnii		Lincoln's Sparrow	Aves	Edmonson	N	N	Reference
Melospiza lincolnii		Lincoln's Sparrow	Aves	Barren	N	N	Reference
Melospiza melodia		Song Sparrow	Aves	Barren	N	N	Reference
Melospiza melodia		Song Sparrow	Aves	Edmonson	N	N	Reference
Mephitis mephitis		Striped Skunk	Aves	Edmonson	N	N	Reference
Mephitis mephitis		Striped Skunk	Aves	Barren	N	N	Reference
Mergus merganser		Common Merganser	Aves	Barren	N	N	Reference
Mergus serrator		Red-breasted Merganser	Aves	Barren	N	N	Reference
Mesodon thyroidus		White-lip Globe	Aves	Barren	N	N	Reference
Mesodon thyroidus		White-lip Globe	Aves	Edmonson	N	N	Reference
Mesodon zaletus		Toothed Globe	Aves	Edmonson	N	N	Reference
Micromenetus dilatatus		Bugle Sprite	Aves	Barren	N	N	Reference
Micropterus dolomieu		Smallmouth Bass	Aves	Barren	N	N	Reference
Micropterus dolomieu		Smallmouth Bass	Aves	Edmonson	N	N	Reference
Micropterus punctulatus		Spotted Bass	Aves	Edmonson	N	N	Reference

Micropterus punctulatus		Spotted Bass	Aves	Barren	N	N	Reference
Micropterus salmoides		Largemouth Bass	Aves	Barren	N	N	Reference
Micropterus salmoides		Largemouth Bass	Aves	Edmonson	N	N	Reference
Microtus ochrogaster		Prairie Vole	Aves	Edmonson	N	N	Reference
Microtus ochrogaster		Prairie Vole	Aves	Barren	N	N	Reference
Microtus pennsylvanicus		Meadow Vole	Aves	Edmonson	N	N	Reference
Microtus pinetorum		Woodland Vole	Aves	Edmonson	N	N	Reference
Microtus pinetorum		Woodland Vole	Aves	Barren	N	N	Reference
Mimus polyglottos		Northern Mockingbird	Aves	Barren	N	N	Reference
Mimus polyglottos		Northern Mockingbird	Aves	Edmonson	N	N	Reference
Minytrema melanops		Spotted Sucker	Aves	Edmonson	N	N	Reference
Minytrema melanops		Spotted Sucker	Aves	Barren	N	N	Reference
Mniotilta varia		Black-and-white Warbler	Aves	Barren	N	N	Reference
Mniotilta varia		Black-and-white Warbler	Aves	Edmonson	N	N	Reference
Molothrus ater		Brown-headed Cowbird	Aves	Edmonson	N	N	Reference
Molothrus ater		Brown-headed Cowbird	Aves	Barren	N	N	Reference
Morone chrysops		White Bass	Aves	Barren	N	N	Reference
Morone chrysops		White Bass	Aves	Edmonson	N	N	Reference
Morone mississippiensis		Yellow Bass	Aves	Barren	N	N	Reference

Moxostoma anisurum		Silver Redhorse	Aves	Barren	N	N	Reference
Moxostoma anisurum		Silver Redhorse	Aves	Edmonson	N	N	Reference
Moxostoma breviceps		Smallmouth Redhorse	Aves	Edmonson	N	N	Reference
Moxostoma breviceps		Smallmouth Redhorse	Aves	Barren	N	N	Reference
Moxostoma carinatum		River Redhorse	Aves	Barren	N	N	Reference
Moxostoma carinatum		River Redhorse	Aves	Edmonson	N	N	Reference
Moxostoma duquesnei		Black Redhorse	Aves	Edmonson	N	N	Reference
Moxostoma duquesnei		Black Redhorse	Aves	Barren	N	N	Reference
Moxostoma erythrurum		Golden Redhorse	Aves	Barren	N	N	Reference
Moxostoma erythrurum		Golden Redhorse	Aves	Edmonson	N	N	Reference
Mustela frenata	Yes	Long-tailed Weasel	Mammalia	Barren	N	N	Reference
Myiarchus crinitus		Great Crested Flycatcher	Mammalia	Edmonson	N	N	Reference
Myiarchus crinitus		Great Crested Flycatcher	Mammalia	Barren	N	N	Reference
Myotis austroriparius	Yes	Southeastern Myotis	Mammalia	Edmonson	N	S	Reference
Myotis grisescens	Yes	Gray Myotis	Mammalia	Edmonson	E	T	Reference
Myotis grisescens	Yes	Gray Myotis	Mammalia	Barren	E	T	Reference
Myotis leibii	Yes	Eastern Small-footed Myotis	Mammalia	Barren	N	T	Reference
Myotis leibii	Yes	Eastern Small-footed Myotis	Mammalia	Edmonson	N	T	Reference

Myotis lucifugus	Yes	Little Brown Bat	Mammalia	Edmonson	N	T	Reference
Myotis lucifugus	Yes	Little Brown Bat	Mammalia	Barren	N	T	Reference
Myotis septentrionalis	Yes	Northern Myotis	Mammalia	Barren	T	E	Reference
Myotis septentrionalis	Yes	Northern Myotis	Mammalia	Edmonson	T	E	Reference
Myotis sodalis	Yes	Indiana Bat	Mammalia	Edmonson	E	E	Reference
Myotis sodalis	Yes	Indiana Bat	Mammalia	Barren	E	E	Reference
Nannothemis bella		Elfin Skimmer	Mammalia	Edmonson	N	E	Reference
Necturus maculosus		Mudpuppy	Mammalia	Edmonson	N	N	Reference
Neotoma magister	Yes	Allegheny Woodrat	Mammalia	Barren	N	N	Reference
Neotoma magister	Yes	Allegheny Woodrat	Mammalia	Edmonson	N	N	Reference
Neovison vison		American Mink	Mammalia	Edmonson	N	N	Reference
Neovison vison		American Mink	Mammalia	Barren	N	N	Reference
Nerodia sipedon		Common Watersnake	Mammalia	Barren	N	N	Reference
Nerodia sipedon		Common Watersnake	Mammalia	Edmonson	N	N	Reference
Notemigonus crysoleucas		Golden Shiner	Mammalia	Edmonson	N	N	Reference
Notemigonus crysoleucas		Golden Shiner	Mammalia	Barren	N	N	Reference
Nothonotus bellus		Orangefin Darter	Mammalia	Barren	N	N	Reference
Nothonotus bellus		Orangefin Darter	Mammalia	Edmonson	N	N	Reference
Nothonotus maculatus	Yes	Spotted Darter	Actinopterygii	Edmonson	N	T	Reference
Nothonotus tippecanoe		Tippecanoe Darter	Actinopterygii	Edmonson	N	N	Reference

Notophthalmus viridescens		Eastern Newt	Actinopterygii	Edmonson	N	N	Reference
Notophthalmus viridescens		Eastern Newt	Actinopterygii	Barren	N	N	Reference
Notropis ariommus		Popeye Shiner	Actinopterygii	Barren	N	N	Reference
Notropis ariommus		Popeye Shiner	Actinopterygii	Edmonson	N	N	Reference
Notropis atherinoides		Emerald Shiner	Actinopterygii	Edmonson	N	N	Reference
Notropis atherinoides		Emerald Shiner	Actinopterygii	Barren	N	N	Reference
Notropis boops		Bigeye Shiner	Actinopterygii	Barren	N	N	Reference
Notropis buchanani	Yes	Ghost Shiner	Actinopterygii	Edmonson	N	N	Reference
Notropis leuciodus		Tennessee Shiner	Actinopterygii	Barren	N	N	Reference
Notropis micropteryx		Highland Shiner	Actinopterygii	Barren	N	N	Reference
Notropis micropteryx		Highland Shiner	Actinopterygii	Edmonson	N	N	Reference
Notropis photogenis		Silver Shiner	Actinopterygii	Edmonson	N	N	Reference
Notropis photogenis		Silver Shiner	Actinopterygii	Barren	N	N	Reference
Notropis volucellus		Mimic Shiner	Actinopterygii	Barren	N	N	Reference
Notropis volucellus		Mimic Shiner	Actinopterygii	Edmonson	N	N	Reference
Noturus elegans		Elegant Madtom	Actinopterygii	Edmonson	N	N	Reference
Noturus elegans		Elegant Madtom	Actinopterygii	Barren	N	N	Reference
Noturus eleutherus		Mountain Madtom	Actinopterygii	Edmonson	N	N	Reference
Noturus flavus		Stonecat	Actinopterygii	Barren	N	N	Reference
Noturus miurus		Brindled Madtom	Actinopterygii	Barren	N	N	Reference
Noturus miurus		Brindled Madtom	Actinopterygii	Edmonson	N	N	Reference

Noturus nocturnus		Freckled Madtom	Actinopterygii	Edmonson	N	N	Reference
Noturus nocturnus		Freckled Madtom	Actinopterygii	Barren	N	N	Reference
Nyctanassa violacea	Yes	Yellow-crowned Night-heron	Aves	Barren	N	T	Reference
Nycticeius humeralis		Evening Bat	Aves	Barren	N	N	Reference
Nycticeius humeralis		Evening Bat	Aves	Edmonson	N	N	Reference
Obliquaria reflexa		Threehorn Wartyback	Aves	Edmonson	N	N	Reference
Obovaria retusa	Yes	Ring Pink	Bivalvia	Edmonson	E	E	Reference
Obovaria subrotunda	Yes	Round Hickorynut	Bivalvia	Edmonson	N	T	Reference
Ochrotomys nuttalli		Golden Mouse	Bivalvia	Edmonson	N	N	Reference
Ochrotomys nuttalli		Golden Mouse	Bivalvia	Barren	N	N	Reference
Odocoileus virginianus		White-tailed Deer	Bivalvia	Barren	N	N	Reference
Odocoileus virginianus		White-tailed Deer	Bivalvia	Edmonson	N	N	Reference
Oncorhynchus mykiss		Rainbow Trout	Bivalvia	Edmonson	N	N	Reference
Oncorhynchus mykiss		Rainbow Trout	Bivalvia	Barren	N	N	Reference
Ondatra zibethicus	Yes	Muskrat	Mammalia	Barren	N	N	Reference
Ondatra zibethicus	Yes	Muskrat	Mammalia	Edmonson	N	N	Reference
Opheodrys aestivus		Rough Greensnake	Mammalia	Edmonson	N	N	Reference
Opheodrys aestivus		Rough Greensnake	Mammalia	Barren	N	N	Reference
Ophisaurus attenuatus longicaudus	Yes	Eastern Slender Glass Lizard	Reptilia	Barren	N	T	Reference

Ophisaurus attenuatus longicaudus	Yes	Eastern Slender Glass Lizard	Reptilia	Edmonson	N	T	Reference
Oporornis agilis		Connecticut Warbler	Reptilia	Edmonson	N	N	Reference
Opsopoeodus emiliae	Yes	Pugnose Minnow	Actinopterygii	Edmonson	N	N	Reference
Orconectes pellucidus	Yes	Mammoth Cave Crayfish	Malacostraca	Edmonson	N	S	Reference
Orconectes pellucidus	Yes	Mammoth Cave Crayfish	Malacostraca	Barren	N	S	Reference
Oxyura jamaicensis		Ruddy Duck	Malacostraca	Barren	N	N	Reference
Palaemonias ganteri	Yes	Mammoth Cave Shrimp	Malacostraca	Edmonson	E	E	Reference
Pandion haliaetus	Yes	Osprey	Aves	Barren	N	S	Reference
Pandion haliaetus	Yes	Osprey	Aves	Edmonson	N	S	Reference
Pantherophis guttatus	Yes	Red Cornsnake	Reptilia	Barren	N	S	Reference
Pantherophis guttatus	Yes	Red Cornsnake	Reptilia	Edmonson	N	S	Reference
Pantherophis spiloides		Gray Ratsnake	Reptilia	Edmonson	N	N	Reference
Pantherophis spiloides		Gray Ratsnake	Reptilia	Barren	N	N	Reference
Paravitrea lapilla		Gem Supercoil	Reptilia	Edmonson	N	H	Reference
Parkesia motacilla	Yes	Louisiana Waterthrush	Aves	Edmonson	N	N	Reference
Parkesia motacilla	Yes	Louisiana Waterthrush	Aves	Barren	N	N	Reference
Parkesia noveboracensis		Northern Waterthrush	Aves	Barren	N	N	Reference
Parkesia noveboracensis		Northern Waterthrush	Aves	Edmonson	N	N	Reference
Passer domesticus		House Sparrow	Aves	Edmonson	N	N	Reference

Passer domesticus		House Sparrow	Aves	Barren	N	N	Reference
Passerculus sandwichensis	Yes	Savannah Sparrow	Aves	Barren	N	S	Reference
Passerculus sandwichensis	Yes	Savannah Sparrow	Aves	Edmonson	N	S	Reference
Passerella iliaca		Fox Sparrow	Aves	Edmonson	N	N	Reference
Passerella iliaca		Fox Sparrow	Aves	Barren	N	N	Reference
Passerina caerulea		Blue Grosbeak	Aves	Barren	N	N	Reference
Passerina caerulea		Blue Grosbeak	Aves	Edmonson	N	N	Reference
Passerina cyanea		Indigo Bunting	Aves	Edmonson	N	N	Reference
Passerina cyanea		Indigo Bunting	Aves	Barren	N	N	Reference
Pelecanus erythrorhynchos		American White Pelican	Aves	Barren	N	N	Reference
Percina caprodes		Logperch	Aves	Barren	N	N	Reference
Percina caprodes		Logperch	Aves	Edmonson	N	N	Reference
Percina copelandi		Channel Darter	Aves	Edmonson	N	N	Reference
Percina evides		Gilt Darter	Aves	Edmonson	N	N	Reference
Percina evides		Gilt Darter	Aves	Barren	N	N	Reference
Percina macrocephala	Yes	Longhead Darter	Actinopterygii	Barren	N	E	Reference
Percina maculata		Blackside Darter	Actinopterygii	Barren	N	N	Reference
Percina maculata		Blackside Darter	Actinopterygii	Edmonson	N	N	Reference
Percina phoxocephala		Slenderhead Darter	Actinopterygii	Edmonson	N	N	Reference
Percina phoxocephala		Slenderhead Darter	Actinopterygii	Barren	N	N	Reference
Percina sciera		Dusky Darter	Actinopterygii	Barren	N	N	Reference
Percina sciera		Dusky Darter	Actinopterygii	Edmonson	N	N	Reference
Percina shumardi		River Darter	Actinopterygii	Edmonson	N	N	Reference

Percina stictogaster		Frecklebelly Darter	Actinopterygii	Barren	N	N	Reference
Percopsis omiscomaycus	Yes	Trout-Perch	Actinopterygii	Barren	N	S	Reference
Perimyotis subflavus	Yes	Eastern Pipistrelle	Mammalia	Barren	N	T	Reference
Perimyotis subflavus	Yes	Eastern Pipistrelle	Mammalia	Edmonson	N	T	Reference
Peromyscus leucopus		White-footed Mouse	Mammalia	Edmonson	N	N	Reference
Peromyscus leucopus		White-footed Mouse	Mammalia	Barren	N	N	Reference
Peromyscus maniculatus bairdii		Prairie Deermouse	Mammalia	Barren	N	N	Reference
Petrochelidon pyrrhonota		Cliff Swallow	Mammalia	Edmonson	N	N	Reference
Petrochelidon pyrrhonota		Cliff Swallow	Mammalia	Barren	N	N	Reference
Peucaea aestivalis	Yes	Bachman's Sparrow	Aves	Barren	N	E	Reference
Peucaea aestivalis	Yes	Bachman's Sparrow	Aves	Edmonson	N	E	Reference
Phalacrocorax auritus		Double-crested Cormorant	Aves	Barren	N	S	Reference
Phalacrocorax auritus		Double-crested Cormorant	Aves	Edmonson	N	S	Reference
Phenacobius uranops	Yes	Stargazing Minnow	Actinopterygii	Barren	N	S	Reference
Phenacobius uranops	Yes	Stargazing Minnow	Actinopterygii	Edmonson	N	S	Reference
Pheucticus ludovicianus		Rose-breasted Grosbeak	Actinopterygii	Edmonson	N	S	Reference
Pheucticus ludovicianus		Rose-breasted Grosbeak	Actinopterygii	Barren	N	S	Reference

Philomycus carolinianus		Carolina Mantleslug	Actinopterygii	Edmonson	N	N	Reference
Pimephales notatus		Bluntnose Minnow	Actinopterygii	Edmonson	N	N	Reference
Pimephales notatus		Bluntnose Minnow	Actinopterygii	Barren	N	N	Reference
Pimephales promelas		Fathead Minnow	Actinopterygii	Barren	N	N	Reference
Pimephales vigilax		Bullhead Minnow	Actinopterygii	Barren	N	N	Reference
Pimephales vigilax		Bullhead Minnow	Actinopterygii	Edmonson	N	N	Reference
Pipilo erythrophthalmus		Eastern Towhee	Actinopterygii	Edmonson	N	N	Reference
Pipilo erythrophthalmus		Eastern Towhee	Actinopterygii	Barren	N	N	Reference
Piranga olivacea		Scarlet Tanager	Actinopterygii	Barren	N	N	Reference
Piranga olivacea		Scarlet Tanager	Actinopterygii	Edmonson	N	N	Reference
Piranga rubra		Summer Tanager	Actinopterygii	Edmonson	N	N	Reference
Piranga rubra		Summer Tanager	Actinopterygii	Barren	N	N	Reference
Pituophis melanoleucus melanoleucus	Yes	Northern Pinesnake	Reptilia	Barren	N	E	Reference
Pituophis melanoleucus melanoleucus	Yes	Northern Pinesnake	Reptilia	Edmonson	N	E	Reference
Plestiodon anthracinus	Yes	Coal Skink	Reptilia	Edmonson	N	E	Reference
Plestiodon fasciatus		Common Five-lined Skink	Reptilia	Edmonson	N	N	Reference
Plestiodon fasciatus		Common Five-lined Skink	Reptilia	Barren	N	N	Reference

Plestiodon inexpectatus	Yes	Southeastern Five-lined Skink	Reptilia	Edmonson	N	S	Reference
Plestiodon laticeps		Broad-headed Skink	Reptilia	Edmonson	N	N	Reference
Plestiodon laticeps		Broad-headed Skink	Reptilia	Barren	N	N	Reference
Plethobasus cyphyus	Yes	Sheepnose	Bivalvia	Edmonson	E	E	Reference
Plethodon dorsalis		Northern Zigzag Salamander	Bivalvia	Edmonson	N	N	Reference
Plethodon dorsalis		Northern Zigzag Salamander	Bivalvia	Barren	N	N	Reference
Plethodon glutinosus		Northern Slimy Salamander	Bivalvia	Barren	N	N	Reference
Plethodon glutinosus		Northern Slimy Salamander	Bivalvia	Edmonson	N	N	Reference
Pleurobema clava	Yes	Clubshell	Bivalvia	Edmonson	E	E	Reference
Pleurobema plenum	Yes	Rough Pigtoe	Bivalvia	Edmonson	E	E	Reference
Pleurobema rubrum	Yes	Pyramid Pigtoe	Bivalvia	Edmonson	N	E	Reference
Pleurobema sintoxia		Round Pigtoe	Bivalvia	Edmonson	N	N	Reference
Pleurocera alveare	Yes	Rugged Hornsnail	Gastropoda	Barren	N	S	Reference
Podiceps auritus	Yes	Horned Grebe	Aves	Barren	N	N	Reference
Podiceps grisegena		Red-necked Grebe	Aves	Barren	N	N	Reference
Podiceps nigricollis		Eared Grebe	Aves	Barren	N	N	Reference
Podilymbus podiceps	Yes	Pied-billed Grebe	Aves	Edmonson	N	E	Reference
Poecile atricapillus		Black-capped Chickadee	Aves	Edmonson	N	N	Reference
Poecile carolinensis		Carolina Chickadee	Aves	Edmonson	N	N	Reference

Poecile carolinensis		Carolina Chickadee	Aves	Barren	N	N	Reference
Polioptila caerulea		Blue-gray Gnatcatcher	Aves	Barren	N	N	Reference
Polioptila caerulea		Blue-gray Gnatcatcher	Aves	Edmonson	N	N	Reference
Pomoxis annularis		White Crappie	Aves	Edmonson	N	N	Reference
Pomoxis annularis		White Crappie	Aves	Barren	N	N	Reference
Pomoxis nigromaculatus		Black Crappie	Aves	Barren	N	N	Reference
Pomoxis nigromaculatus		Black Crappie	Aves	Edmonson	N	N	Reference
Pooecetes gramineus		Vesper Sparrow	Aves	Barren	N	E	Reference
Porphyrio martinicus		Purple Gallinule	Aves	Edmonson	N	N	Reference
Potamilus alatus		Pink Heelsplitter	Aves	Edmonson	N	N	Reference
Potamilus ohiensis		Pink Papershell	Aves	Edmonson	N	N	Reference
Procambarus acutus		White River Crawfish	Aves	Edmonson	N	N	Reference
Procyon lotor		Northern Raccoon	Aves	Edmonson	N	N	Reference
Procyon lotor		Northern Raccoon	Aves	Barren	N	N	Reference
Progne subis		Purple Martin	Aves	Edmonson	N	N	Reference
Progne subis		Purple Martin	Aves	Barren	N	N	Reference
Protonotaria citrea	Yes	Prothonotary Warbler	Aves	Barren	N	N	Reference
Protonotaria citrea	Yes	Prothonotary Warbler	Aves	Edmonson	N	N	Reference
Pseudacris brachyphona		Mountain Chorus Frog	Aves	Barren	N	N	Reference
Pseudacris brachyphona		Mountain Chorus Frog	Aves	Edmonson	N	N	Reference

Pseudacris crucifer		Spring Peeper	Aves	Edmonson	N	N	Reference
Pseudacris crucifer		Spring Peeper	Aves	Barren	N	N	Reference
Pseudacris feriarum		Upland Chorus Frog	Aves	Barren	N	N	Reference
Pseudacris triseriata		Western Chorus Frog	Aves	Barren	N	N	Reference
Pseudacris triseriata		Western Chorus Frog	Aves	Edmonson	N	N	Reference
Pseudanophthalmus audax		Bold Cave Beetle	Aves	Edmonson	N	H	Reference
Pseudanophthalmus inexpectatus		Surprising Cave Beetle	Aves	Edmonson	N	T	Reference
Pseudanophthalmus pubescens intrepidus		A Cave Obligate Beetle	Aves	Barren	N	T	Reference
Pseudemys concinna		River Cooter	Aves	Edmonson	N	N	Reference
Pseudosinella espanita		A Cave Obligate Springtail	Aves	Edmonson	N	S	Reference
Pseudotriton montanus diastictus	Yes	Midland Mud Salamander	Amphibia	Edmonson	N	N	Reference
Pseudotriton ruber		Red Salamander	Amphibia	Edmonson	N	N	Reference
Ptychobranchus fasciolaris		Kidneyshell	Amphibia	Edmonson	N	N	Reference
Pyganodon grandis		Giant Floater	Amphibia	Edmonson	N	N	Reference
Pyganodon grandis		Giant Floater	Amphibia	Barren	N	N	Reference
Pylodictis olivaris		Flathead Catfish	Amphibia	Barren	N	N	Reference
Pylodictis olivaris		Flathead Catfish	Amphibia	Edmonson	N	N	Reference
Quadrula quadrula		Mapleleaf	Amphibia	Edmonson	N	N	Reference
Quiscalus quiscula		Common Grackle	Amphibia	Edmonson	N	N	Reference

Quiscalus quiscula		Common Grackle	Amphibia	Barren	N	N	Reference
Recurvirostra americana		American Avocet	Amphibia	Barren	N	N	Reference
Regina septemvittata		Queensnake	Amphibia	Barren	N	N	Reference
Regina septemvittata		Queensnake	Amphibia	Edmonson	N	N	Reference
Regulus calendula		Ruby-crowned Kinglet	Amphibia	Edmonson	N	N	Reference
Regulus calendula		Ruby-crowned Kinglet	Amphibia	Barren	N	N	Reference
Regulus satrapa		Golden-crowned Kinglet	Amphibia	Barren	N	N	Reference
Regulus satrapa		Golden-crowned Kinglet	Amphibia	Edmonson	N	N	Reference
Reithrodontomys humulis		Eastern Harvest Mouse	Amphibia	Barren	N	N	Reference
Reithrodontomys humulis		Eastern Harvest Mouse	Amphibia	Edmonson	N	N	Reference
Rhinichthys obtusus		Western Blacknose Dace	Amphibia	Barren	N	N	Reference
Sagittocythere stygia		An Ectocommensal Ostracod	Amphibia	Edmonson	N	T	Reference
Salmo trutta		Brown Trout	Amphibia	Edmonson	N	N	Reference
Sander canadensis		Sauger	Amphibia	Edmonson	N	N	Reference
Sander vitreus		Walleye	Amphibia	Edmonson	N	N	Reference
Sayornis phoebe		Eastern Phoebe	Amphibia	Barren	N	N	Reference
Sayornis phoebe		Eastern Phoebe	Amphibia	Edmonson	N	N	Reference
Scalopus aquaticus		Eastern Mole	Amphibia	Barren	N	N	Reference
Scalopus aquaticus		Eastern Mole	Amphibia	Edmonson	N	N	Reference

Scaphiopus holbrookii	Yes	Eastern Spadefoot	Amphibia	Edmonson	N	N	Reference
Scaphiopus holbrookii	Yes	Eastern Spadefoot	Amphibia	Barren	N	N	Reference
Sceloporus undulatus		Eastern Fence Lizard	Amphibia	Barren	N	N	Reference
Sceloporus undulatus		Eastern Fence Lizard	Amphibia	Edmonson	N	N	Reference
Scincella lateralis		Little Brown Skink	Amphibia	Edmonson	N	N	Reference
Scincella lateralis		Little Brown Skink	Amphibia	Barren	N	N	Reference
Sciurus carolinensis		Eastern Gray Squirrel	Amphibia	Barren	N	N	Reference
Sciurus carolinensis		Eastern Gray Squirrel	Amphibia	Edmonson	N	N	Reference
Sciurus niger		Eastern Fox Squirrel	Amphibia	Edmonson	N	N	Reference
Sciurus niger		Eastern Fox Squirrel	Amphibia	Barren	N	N	Reference
Scolopax minor	Yes	American Woodcock	Aves	Edmonson	N	N	Reference
Scolopax minor	Yes	American Woodcock	Aves	Barren	N	N	Reference
Scoterpes copei		A Cave Obligate Milliped	Aves	Barren	N	N	Reference
Scoterpes copei		A Cave Obligate Milliped	Aves	Edmonson	N	N	Reference
Seiurus aurocapilla		Ovenbird	Aves	Edmonson	N	N	Reference
Seiurus aurocapilla		Ovenbird	Aves	Barren	N	N	Reference
Selasphorus rufus		Rufous Hummingbird	Aves	Barren	N	N	Reference
Semotilus atromaculatus		Creek Chub	Aves	Barren	N	N	Reference

Semotilus atromaculatus		Creek Chub	Aves	Edmonson	N	N	Reference
Setophaga americana		Northern Parula	Aves	Edmonson	N	N	Reference
Setophaga americana		Northern Parula	Aves	Barren	N	N	Reference
Setophaga caerulescens		Black-throated Blue Warbler	Aves	Barren	N	N	Reference
Setophaga caerulescens		Black-throated Blue Warbler	Aves	Edmonson	N	N	Reference
Setophaga castanea		Bay-breasted Warbler	Aves	Edmonson	N	N	Reference
Setophaga castanea		Bay-breasted Warbler	Aves	Barren	N	N	Reference
Setophaga cerulea	Yes	Cerulean Warbler	Aves	Barren	N	N	Reference
Setophaga cerulea	Yes	Cerulean Warbler	Aves	Edmonson	N	N	Reference
Setophaga citrina		Hooded Warbler	Aves	Edmonson	N	N	Reference
Setophaga citrina		Hooded Warbler	Aves	Barren	N	N	Reference
Setophaga coronata		Yellow-rumped Warbler	Aves	Barren	N	N	Reference
Setophaga coronata		Yellow-rumped Warbler	Aves	Edmonson	N	N	Reference
Setophaga discolor	Yes	Prairie Warbler	Aves	Edmonson	N	N	Reference
Setophaga discolor	Yes	Prairie Warbler	Aves	Barren	N	N	Reference
Setophaga dominica		Yellow-throated Warbler	Aves	Barren	N	N	Reference
Setophaga dominica		Yellow-throated Warbler	Aves	Edmonson	N	N	Reference
Setophaga fusca		Blackburnian Warbler	Aves	Edmonson	N	T	Reference

Setophaga fusca		Blackburnian Warbler	Aves	Barren	N	T	Reference
Setophaga magnolia		Magnolia Warbler	Aves	Barren	N	N	Reference
Setophaga magnolia		Magnolia Warbler	Aves	Edmonson	N	N	Reference
Setophaga palmarum		Palm Warbler	Aves	Edmonson	N	N	Reference
Setophaga palmarum		Palm Warbler	Aves	Barren	N	N	Reference
Setophaga pensylvanica		Chestnut-sided Warbler	Aves	Barren	N	N	Reference
Setophaga pensylvanica		Chestnut-sided Warbler	Aves	Edmonson	N	N	Reference
Setophaga petechia		Yellow Warbler	Aves	Edmonson	N	N	Reference
Setophaga petechia		Yellow Warbler	Aves	Barren	N	N	Reference
Setophaga pinus		Pine Warbler	Aves	Barren	N	N	Reference
Setophaga pinus		Pine Warbler	Aves	Edmonson	N	N	Reference
Setophaga ruticilla		American Redstart	Aves	Edmonson	N	N	Reference
Setophaga ruticilla		American Redstart	Aves	Barren	N	N	Reference
Setophaga tigrina	Yes	Cape May Warbler	Aves	Edmonson	N	N	Reference
Setophaga virens	Yes	Black-throated Green Warbler	Aves	Barren	N	N	Reference
Sialia sialis		Eastern Bluebird	Aves	Barren	N	N	Reference
Sialia sialis		Eastern Bluebird	Aves	Edmonson	N	N	Reference
Sitta canadensis		Red-breasted Nuthatch	Aves	Barren	N	E	Reference
Sitta canadensis		Red-breasted Nuthatch	Aves	Edmonson	N	E	Reference

Sitta carolinensis		White-breasted Nuthatch	Aves	Edmonson	N	N	Reference
Sitta carolinensis		White-breasted Nuthatch	Aves	Barren	N	N	Reference
Sorex fumeus	Yes	Smoky Shrew	Mammalia	Barren	N	N	Reference
Sorex longirostris	Yes	Southeastern Shrew	Mammalia	Barren	N	N	Reference
Spatula clypeata		Northern Shoveler	Mammalia	Barren	N	E	Reference
Spatula discors		Blue-winged Teal	Mammalia	Barren	N	T	Reference
Spatula discors		Blue-winged Teal	Mammalia	Edmonson	N	T	Reference
Sphaerium fabale		River Fingernailclam	Mammalia	Edmonson	N	N	Reference
Sphaerium simile		Grooved Fingernailclam	Mammalia	Edmonson	N	N	Reference
Sphalloplana buchanani		A Cave Obligate Planarian	Mammalia	Edmonson	N	T	Reference
Sphyrapicus varius		Yellow-bellied Sapsucker	Mammalia	Edmonson	N	N	Reference
Sphyrapicus varius		Yellow-bellied Sapsucker	Mammalia	Barren	N	N	Reference
Spinus pinus		Pine Siskin	Mammalia	Barren	N	N	Reference
Spinus pinus		Pine Siskin	Mammalia	Edmonson	N	N	Reference
Spinus tristis		American Goldfinch	Mammalia	Edmonson	N	N	Reference
Spinus tristis		American Goldfinch	Mammalia	Barren	N	N	Reference
Spiza americana	Yes	Dickcissel	Aves	Barren	N	N	Reference
Spiza americana	Yes	Dickcissel	Aves	Edmonson	N	N	Reference
Spizella pallida		Clay-colored Sparrow	Aves	Barren	N	N	Reference

Spizella passerina		Chipping Sparrow	Aves	Barren	N	N	Reference
Spizella passerina		Chipping Sparrow	Aves	Edmonson	N	N	Reference
Spizella pusilla	Yes	Field Sparrow	Aves	Edmonson	N	N	Reference
Spizella pusilla	Yes	Field Sparrow	Aves	Barren	N	N	Reference
Spizelloides arborea		American Tree Sparrow	Aves	Barren	N	N	Reference
Spizelloides arborea		American Tree Sparrow	Aves	Edmonson	N	N	Reference
Stelgidopteryx serripennis		Northern Rough-winged Swallow	Aves	Barren	N	N	Reference
Stelgidopteryx serripennis		Northern Rough-winged Swallow	Aves	Edmonson	N	N	Reference
Sterna forsteri		Forster's Tern	Aves	Barren	N	N	Reference
Sterna hirundo		Common Tern	Aves	Barren	N	N	Reference
Storeria dekayi		Dekay's Brownsnake	Aves	Barren	N	N	Reference
Storeria dekayi		Dekay's Brownsnake	Aves	Edmonson	N	N	Reference
Storeria occipitomaculata		Red-bellied Snake	Aves	Edmonson	N	N	Reference
Storeria occipitomaculata		Red-bellied Snake	Aves	Barren	N	N	Reference
Strix varia		Barred Owl	Aves	Edmonson	N	N	Reference
Strix varia		Barred Owl	Aves	Barren	N	N	Reference
Strophitus undulatus		Creeper	Aves	Barren	N	N	Reference
Strophitus undulatus		Creeper	Aves	Edmonson	N	N	Reference
Sturnella magna	Yes	Eastern Meadowlark	Aves	Edmonson	N	N	Reference
Sturnella magna	Yes	Eastern Meadowlark	Aves	Barren	N	N	Reference

Sturnella neglecta		Western Meadowlark	Aves	Barren	N	N	Reference
Sturnus vulgaris		European Starling	Aves	Barren	N	N	Reference
Sturnus vulgaris		European Starling	Aves	Edmonson	N	N	Reference
Stygobromus exilis		Central Kentucky Cave Amphipod	Aves	Barren	N	N	Reference
Stygobromus vitreus	Yes	An Amphipod (Stygobromus vitreus)	Malacostraca	Barren	N	S	Reference
Stygobromus vitreus	Yes	An Amphipod (Stygobromus vitreus)	Malacostraca	Edmonson	N	S	Reference
Stylurus notatus		Elusive Clubtail	Malacostraca	Edmonson	N	E	Reference
Sylvilagus floridanus		Eastern Cottontail	Malacostraca	Edmonson	N	N	Reference
Sylvilagus floridanus		Eastern Cottontail	Malacostraca	Barren	N	N	Reference
Synaptomys cooperi	Yes	Southern Bog Lemming	Mammalia	Barren	N	N	Reference
Synaptomys cooperi	Yes	Southern Bog Lemming	Mammalia	Edmonson	N	N	Reference
Tachycineta bicolor		Tree Swallow	Mammalia	Edmonson	N	N	Reference
Tachycineta bicolor		Tree Swallow	Mammalia	Barren	N	N	Reference
Tamias striatus		Eastern Chipmunk	Mammalia	Edmonson	N	N	Reference
Tantilla coronata	Yes	Southeastern Crowned Snake	Reptilia	Edmonson	N	T	Reference
Terrapene carolina		Eastern Box Turtle	Reptilia	Edmonson	N	N	Reference
Terrapene carolina		Eastern Box Turtle	Reptilia	Barren	N	N	Reference

Thamnophis sirtalis		Common Gartersnake	Reptilia	Barren	N	N	Reference
Thamnophis sirtalis		Common Gartersnake	Reptilia	Edmonson	N	N	Reference
Theliderma cylindrica	Yes	Rabbitsfoot	Bivalvia	Edmonson	T	E	Reference
Theliderma cylindrica	Yes	Rabbitsfoot	Bivalvia	Barren	T	E	Reference
Theliderma metanevra		Monkeyface	Bivalvia	Edmonson	N	N	Reference
Thoburnia atripinnis	Yes	Blackfin Sucker	Actinopterygii	Barren	N	S	Reference
Thryomanes bewickii	Yes	Bewick's Wren	Aves	Edmonson	N	H	Reference
Thryothorus ludovicianus		Carolina Wren	Aves	Edmonson	N	N	Reference
Thryothorus ludovicianus		Carolina Wren	Aves	Barren	N	N	Reference
Toxostoma rufum		Brown Thrasher	Aves	Barren	N	N	Reference
Toxostoma rufum		Brown Thrasher	Aves	Edmonson	N	N	Reference
Trachemys scripta elegans		Red-eared Slider	Aves	Edmonson	N	N	Reference
Trachemys scripta elegans		Red-eared Slider	Aves	Barren	N	N	Reference
Tringa flavipes	Yes	Lesser Yellowlegs	Aves	Barren	N	N	Reference
Tringa melanoleuca		Greater Yellowlegs	Aves	Barren	N	N	Reference
Tringa semipalmata		Willet	Aves	Barren	N	N	Reference
Triodopsis tridentata		Northern Threetooth	Aves	Barren	N	N	Reference
Triodopsis tridentata		Northern Threetooth	Aves	Edmonson	N	N	Reference
Tritogonia verrucosa		Pistolgrip	Aves	Edmonson	N	N	Reference
Troglodytes aedon		House Wren	Aves	Edmonson	N	N	Reference

Troglodytes aedon		House Wren	Aves	Barren	N	N	Reference
Troglodytes hiemalis		Winter Wren	Aves	Barren	N	N	Reference
Troglodytes hiemalis		Winter Wren	Aves	Edmonson	N	N	Reference
Truncilla donaciformis		Fawnsfoot	Aves	Edmonson	N	N	Reference
Truncilla truncata		Deertoe	Aves	Edmonson	N	N	Reference
Turdus migratorius		American Robin	Aves	Edmonson	N	N	Reference
Turdus migratorius		American Robin	Aves	Barren	N	N	Reference
Typhlichthys subterraneus	Yes	Southern Cavefish	Actinopterygii	Barren	N	S	Reference
Typhlichthys subterraneus	Yes	Southern Cavefish	Actinopterygii	Edmonson	N	S	Reference
Tyrannochthonius hypogeus		A Cave Obligate Pseudoscorpion	Actinopterygii	Edmonson	N	S	Reference
Tyrannus tyrannus		Eastern Kingbird	Actinopterygii	Edmonson	N	N	Reference
Tyrannus tyrannus		Eastern Kingbird	Actinopterygii	Barren	N	N	Reference
Tyto alba	Yes	Barn Owl	Aves	Barren	N	S	Reference
Tyto alba	Yes	Barn Owl	Aves	Edmonson	N	S	Reference
Urocyon cinereoargenteus	Yes	Gray Fox	Mammalia	Barren	N	N	Reference
Urocyon cinereoargenteus	Yes	Gray Fox	Mammalia	Edmonson	N	N	Reference
Ursus americanus		American Black Bear	Mammalia	Barren	N	N	Reference
Utterbackia imbecillis		Paper Pondshell	Mammalia	Edmonson	N	N	Reference
Utterbackiana suborbiculata		Flat Floater	Mammalia	Edmonson	N	N	Reference
Vermivora chrysoptera	Yes	Golden-winged Warbler	Aves	Edmonson	N	E	Reference

Vermivora cyanoptera	Yes	Blue-winged Warbler	Aves	Edmonson	N	N	Reference
Vermivora cyanoptera	Yes	Blue-winged Warbler	Aves	Barren	N	N	Reference
Vireo flavifrons		Yellow-throated Vireo	Aves	Barren	N	N	Reference
Vireo flavifrons		Yellow-throated Vireo	Aves	Edmonson	N	N	Reference
Vireo gilvus		Warbling Vireo	Aves	Edmonson	N	N	Reference
Vireo gilvus		Warbling Vireo	Aves	Barren	N	N	Reference
Vireo griseus		White-eyed Vireo	Aves	Barren	N	N	Reference
Vireo griseus		White-eyed Vireo	Aves	Edmonson	N	N	Reference
Vireo olivaceus		Red-eyed Vireo	Aves	Edmonson	N	N	Reference
Vireo olivaceus		Red-eyed Vireo	Aves	Barren	N	N	Reference
Vireo philadelphicus		Philadelphia Vireo	Aves	Barren	N	N	Reference
Vireo philadelphicus		Philadelphia Vireo	Aves	Edmonson	N	N	Reference
Vireo solitarius		Blue-headed Vireo	Aves	Edmonson	N	N	Reference
Vireo solitarius		Blue-headed Vireo	Aves	Barren	N	N	Reference
Virginia valeriae		Smooth Earthsnake	Aves	Barren	N	N	Reference
Virginia valeriae		Smooth Earthsnake	Aves	Edmonson	N	N	Reference
Vulpes vulpes		Red Fox	Aves	Edmonson	N	N	Reference
Vulpes vulpes		Red Fox	Aves	Barren	N	N	Reference
Zenaida macroura		Mourning Dove	Aves	Edmonson	N	N	Reference
Zenaida macroura		Mourning Dove	Aves	Barren	N	N	Reference

Zonotrichia albicollis		White-throated Sparrow	Aves	Barren	N	N	Reference
Zonotrichia albicollis		White-throated Sparrow	Aves	Edmonson	N	N	Reference
Zonotrichia leucophrys		White-crowned Sparrow	Aves	Edmonson	N	N	Reference
Zonotrichia leucophrys		White-crowned Sparrow	Aves	Barren	N	N	Reference

965 species are listed

KY Office of Kentucky Nature Preserves

Rare Plant Observation Form

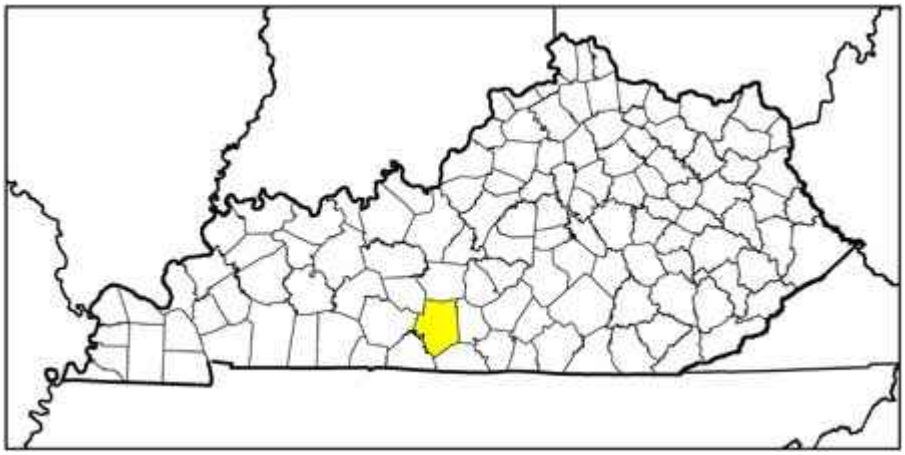
Additional Resources:

U.S. Fish & Wildlife Service ENDANGERED SPECIES PROGRAM

NatureServe Explorer

UNIVERSITY OF TENNESSEE HERBARIUM

Search Results : Barren County



Aureolaria patula - Spreading False Foxglove State S, USFWS --
Castanea dentata - American Chestnut State E, USFWS --
Glyceria acutiflora - Sharp-scaled Manna-grass State E, USFWS --
Helianthemum bicknellii - Plains Frostweed State E, USFWS --
Helianthus eggertii - Eggert's Sunflower State T, USFWS --
Heteranthera limosa - Blue Mud-plantain State S, USFWS --
Lespedeza capitata - Round-head Bush-clover State S, USFWS --
Lespedeza stuevei - Tall Bush-clover State S, USFWS --
Ludwigia hirtella - Hairy Ludwigia State E, USFWS --
Sporobolus clandestinus - Rough Dropseed State T, USFWS --
Symphyotrichum pratense - Barrens Silky Aster State S, USFWS --
Trichostema setaceum - Narrowleaved Bluecurls State E, USFWS --
Trifolium reflexum - Buffalo Clover State E, USFWS --

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Data Last Updated: November 2018

Office of Kentucky Nature Preserves
300 Sower Blvd
Frankfort,KY 40601
Phone: (502) 573-2886
Email: naturepreserves@ky.gov

Kentucky UNBRIDLED SPIRIT

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KY Office of Kentucky Nature Preserves

Rare Plant Observation Form

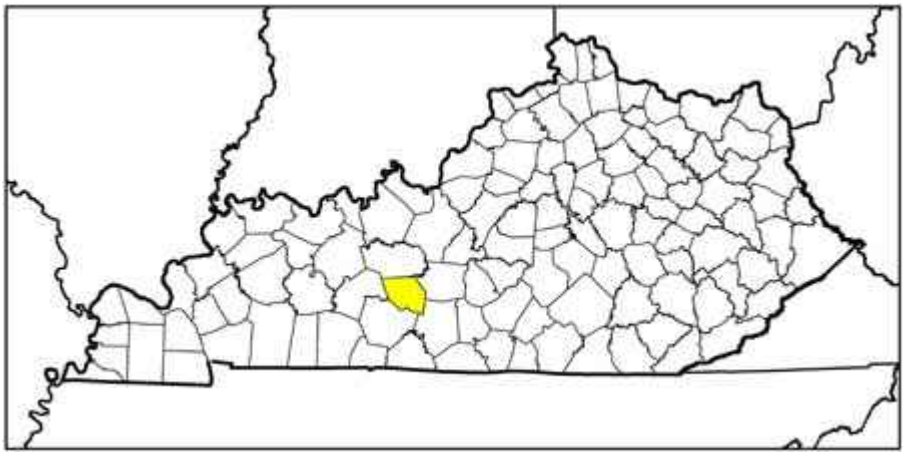
Additional Resources:

U.S. Fish & Wildlife Service ENDANGERED SPECIES PROGRAM

NatureServe Explorer

UNIVERSITY OF TENNESSEE HERBARIUM

Search Results : Edmonson County



Aureolaria patula - Spreading False Foxglove - State: S, USFWS --
Carex decomposita - Epiphytic Sedge - State T, USFWS --
Dodecatheon frenchii - French's Shooting Star State S, USFWS --
Gentiana puberulenta - Prairie Gentian State E, USFWS --
Helianthemum bicknellii - Plains Frostweed State E, USFWS --
Helianthus eggertii - Eggert's Sunflower State T, USFWS --
Heteranthera limosa - Blue Mud-plantain State S, USFWS --
Krigia occidentalis - Western Dwarf Dandelion State E, USFWS --
Lespedeza stuevei - Tall Bush-clover State S, USFWS --
Ludwigia hirtella - Hairy Ludwigia State E, USFWS --
Polygala cruciata - Crossleaf Milkwort State E, USFWS --
Potamogeton pulcher - Spotted Pondweed State T, USFWS --
Sagittaria graminea - Grassleaf Arrowhead State T, USFWS --
Sagittaria rigida - Sessile-fruited Arrowhead State E, USFWS --
Scleria ciliata - Fringed Nutrush State E, USFWS --
Symphyotrichum pratense - Barrens Silky Aster State S, USFWS ---
Trifolium reflexum - Buffalo Clover State E, USFWS --
Veratrum woodii - Wood's Bunchflower State T, USFWS --
Viola septemloba var. egglestonii - Eggleston's Violet State S, USFWS --

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APPENDIX

B

PERMIT MATRIX

Wood Duck Solar (Barren County) - Permit Matrix

Permit	Agency	Level	Est. Application Preparation Time	Typical Agency Review Period	Approximate Preparation Cost	Application Submittal Cost	Description	Notes
Pre-Construction: Ecological								
Clean Water Act Section 404 Permit (Wetlands) - NWP 51 - Land-Based Renewable Energy Generation Facilities	United States Army Corps of Engineers-Louisville District (USACE)	Federal	15 days	45-90 days	$15,000.00	N/A	NWP applies to the discharges of dredged or fill materials into non-tidal waters of the U.S for the construction, expansion or modification of land based renewable energy production facilites, including attendant features. Discharge must not cause the loss of greater than 1/2 acre of non-tidal waters of the U.S. Stream bed loss is limited to no greater than 300 linear feet. Pre-construction notification required for permanent impacts over 1/10 acre. Crossing of waterbodies by electric utility lines may be permitted under NWP 57. Each water body crossing may be permitted as an individual and complete project. See NWP - 57 below.	Onsite wetland delineation required to map features within the Project area. If features are determined to be jurisdictional, avoid impacts to wetlands and streams by implementing buffers within the facility layout.
Clean Water Act Section 404 Permit - NWP 57 - Electric Utility Line and Telecommunications Activities	United States Army Corps of Engineers-Louisville District (USACE)	Federal	15 days	45-90 days (6-9 Months for IP)	$15,000.00	N/A	NWP applies to activities required for the construction, maintenance, repair, and removal of electric utility lines, telecommunication lines and associated facilities in waters of the U.S., provided the activity does not result in the loss of greater than 1/2-acre of waters of the U.S. for each single and complete project. Pre-construction notification may be required.	Onsite wetland delineation required to map features within the Project area. If features are determined to be jurisdictional, avoid impacts to wetlands and streams by implementing buffers within the facility layout.
Federal Endangered Species Act (ESA) Section 7 Consultations, Bald and Golden Eagle Protection Act (BGEPA), and Migratory Bird Treaty Act (MBTA)	United States Fish and Wildlife Service (USFWS)	Federal	2 days	45 days	$1,000.00 to $2,000.00	N/A	The ESA of 1973 protects endangered and threatened animals and plants and their habitats. USFWS regulations prohibit the taking, possession, transportation, or sale of any of the animal species designated by Federal law as endangered or threatened without the issuance of a permit. Protects eagles from commercial exploitation and safeguards their continued survival in the United States. The Migratory Bird Treaty Act prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service.	Avoid impacts to necessary habitat or buffer around established nests. Consultation with the USFWS to document avoidance and minimization of impacts - such as seasonal clearing restrictions – is recommended
State-Listed Species Consultations	Kentucky Department of Fish & Wildlife	State	2 days	14 days	At least $120	TBD	For environmental review planning, the Office of Nature Preserves encourages using their Database for site-specific data of known state and federal concern plant and animal species, ecologically significant sites, and certain conservation managed lands, a review can be completed for a minimum payment of $120 per project.	Listed species may require a certified biologist to survey and a collection permit. Typically defers to USFWS determination.
Spill Prevention, Control, and Countermeasures (SPCC) Plan	United States Environmental Protection Agency	Federal	N/A	1-3 Months	N/A	N/A	Describes measures to prevent oil discharges and to prepare personnel to respond in a safe, effective, and timely manner to mitigate the impacts of a discharge from project facilities or infrastructure. Used as a reference for oil storage information and testing records, as a tool to communicate practices on preventing and responding to discharges with employees, as a guide to facility inspections, and as a resource during emergency response.	May not be required; or under EPC purview

Wood Duck Solar (Barren County) - Permit Matrix

Permit	Agency	Level	Est. Application Preparation Time	Typical Agency Review Period	Approximate Preparation Cost	Application Submittal Cost	Description	Notes
CWA Section 401 Water Quality Certification	Kentucky Energy and Environment Cabinet - Environmental Protection District	State	N/A	N/A	N/A	N/A	A §401 Water Quality Certification from the Commonwealth of Kentucky affirms that the discharge will not violate Kentucky water quality standards. Examples of activities that may require a certification from the Division of Water include: Placement of dredged or fill materials into waters and/or wetlands Structural fill such as culverts and bridge supports Road and utility crossings Gravel mining/removal In-stream basins Dredging, excavation, channel widening, or straightening Flooding, excavating, draining and/or filling a wetland Bank sloping; stabilization Stream channel relocation Water diversions Divert, obstruct or change the natural flow or bed of any surface waters and/or wetlands Construct a barrier across a stream, channel, or watercourse that will create a reservoir: dams, weirs, dikes, levees or other similar structures	Example, the WQC specifies that in-channel work be done during low flow periods, and that stream banks be stabilized as soon as possible. In most cases, if a project is approved for US ACE nationwide permit coverage, there is no need to apply for a separate KDOW WQC – just use the one attached to the USACE permit.
Pre-Construction: Additional Permits								
National Historic Preservation Act, Section 106 Compliance	State Historic Preservation Office (SHPO) -Kentucky Heritage Council	State	30 days	30 days	TBD	TBD	Section 106 review is a consultative process. As the State Historic Preservation Office (SHPO) for Kentucky has specific responsibilities throughout the review process. The federal regulations for implementing Section 106 can be found at 36 CFR 800.	To initiate the Section 106 process, a hard-copy letter must be mailed or delivered to Craig Potts, KHC Executive Director and State Historic Preservation Officer, at the KHC office located at the Barstow House, 410 High Street, Frankfort, KY 40601. This letter should explain the nature of the project and include photographs of the site and a topographic map, with the site indicated on the map Contact information: Casey Lee (615) 253-3163 Casey.Lee@tn.gov
Notification for Underground Storage Tanks	Kentucky Dept. for Environmental Protection		TBD	TBD	TBD	TBD	The KYDEP DUST (Division of Underground Storage Tank) regulations define some requirements for belowground storage tanks, if they will be utilized.	May not be required.
Construction: Stormwater								
Floodplain General Permit	Kentucky Energy and Environment Cabinet - Department of Water (DOW)	State	TBD	TBD	TBD	TBD	The Division of Water is authorized through KRS 151 to manage development in floodplains. Any type of development in, along, or across a stream requires a floodplain permit from the Division. Typical activities requiring a permit include, but are not limited to, residential & commercial structures, stream crossings, fill, stream alterations & relocations, excavation, grading, and small stream impoundments. State floodplain development requirements are outlined in 401 KAR 4:060 of the Kentucky Administrative Regulations. The Division of Water has two types of permits that it issues for floodplain development: 1) General Permit, or 2) Individual Permit.	General Permit required for development along or adjancent to a stream. See Exclusions, Requirements, and Eligiblity within Permit at: https://eec.ky.gov/Environmental-Protection/Water/FloodDrought/Documents/Floodplain%20General%20Permit.pdf

Wood Duck Solar (Barren County) - Permit Matrix

Permit	Agency	Level	Est. Application Preparation Time	Typical Agency Review Period	Approximate Preparation Cost	Application Submittal Cost	Description	Notes
Construction Stormwater Permit	Kentucky Energy and Environment Cabinet - Department of Water (DOW)	State	TBD	7 to 30 days	TBD	TBD	All projects that disturb one acre or more are required to have a Kentucky Pollutant Discharge Elimination System (KPDES) Stormwater Permit. The General Permit (KYR10) can be used if the project does not discharge into a sediment-impaired water with an approved TMDL, cold water aquatic habitat, or outstanding national or state resource water. Individual KPDES permits will be needed for those projects. For information on water body classification and impairment status, visit http://www.water.ky.gov/sw/swmonitor/ 305b/default.htm, or contact the Frankfort Regional Office of KDOW.	NOI will need to be submitted prior to construction
Notice of Intent (NOI) NPDES Construction General Permit No. KYR10	Kentucky Energy and Environment Cabinet - Environmental Protection District	State	TBD	Immediate if submitted electronically or 1-week if submitted by mail	TBD	TBD	Federal law at 40 CFR Part 122 prohibits point source discharges of stormwater associated with industrial activity to a water body of the Commonwealth of Kentucky without a Kentucky Pollutant Discharge Elimination System (KPDES) permit. The operator of an industrial activity that has such a storm water discharge must submit a NOI to obtain coverage under the KPDES Storm Water General Permit. If you have questions about whether you need a permit under the KPDES Storm Water program, or if you need information as to whether a particular program is administered by the state agency, call the Storm Water Contact, Industrial Section, Kentucky Division of Water at (502) 564-3410.	Notice of Intent is filed before the start of construction associated with the NPDES Permit
Notice of Termination (NOT) Construction General Permit No. KYR10	Kentucky Energy and Environment Cabinet - Environmental Protection District	State	TBD	Immediate if submitted electronically or 1-week if submitted by mail	TBD	TBD	At the termination of the construction activities, a submittal is required to notify the state that the owner is no longer authorized to discharge stormwater associated with construction activities associated with the NPDES Permit Number TNR100000.	Termination Request is filed when contsruction is complete
Construction: Department of Transportation								
Oversize & Overload Transportation Permit	Kentucky Transportation Cabinet (KYTC)	State	TBD	TBD	TBD	Pricing and purchasing at https://drive.ky.gov/motor-carriers/Pages/Purchase-Overweight-Over-Dimensional-Permits.aspx	Permit required for transportation if dimensions or weight exceeded limits: Width 8' on non-designated highways. 8'6" on Interstates, Parkways and designated highways. Length 65' overall (truck, trailer & load) on non-designated highways. Max 53' trailer on Interstate, parkways and designated highways. Height 13'6" (Car Haulers 14-ft and 0-in) Weight 80,000 lbs AAA 62,000 lbs AA 44,000 lbs A	
Commercial Driveway Permit	Kentucky Transportation Cabinet (KYTC)	State	TBD	TBD	TBD	TBD	Transportation Cabinet oversees the state law (KRS 177.106) that requires any individual, business, utility company, or governmental agency to file encroachment permits for access to state highways or to work on state right of way.	3 Paper Copies of the Completed Encroachment Permit Application (Form TC 99-1A), Supplemental Documents (Detailed Plans, Drawings, Traffic Control Plan, etc.) and an Electronic Copy (.PDF preferred) of Application and all Supporting Documents. Send to RobertA.Baker@ky.gov.

Wood Duck Solar (Barren County) - Permit Matrix

Permit	Agency	Level	Est. Application Preparation Time	Typical Agency Review Period	Approximate Preparation Cost	Application Submittal Cost	Description	Notes
Permit Agreement for the Accommodation of Utility Facilities on Public Right-of-Way	Kentucky Transportation Cabinet (KYTC)	State	TBD	TBD	TBD	TBD	Utility encorachments, utilities on bridges processed by Permits Staff. Utility use of highway right-of-way is not considered to be a use for a highway purpose. Therefore, Federal-aid highway funds are theoretically not eligible to participate in right-of-way acquired solely for the purpose of accommodating utility facilities in excess of that normally acquired in accordance with standard criteria and procedures. Even so, when a State or locality routinely dedicates or permits a portion of the road and street rightof-way for use by utilities in accordance with established standard criteria pursuant to State law, ordinance, or administrative practice, such right-of-way may be considered eligible for Federal-aid reimbursement as an integral part of the project right-of-way	Kentucky Transportation Cabinet Division of Right of Way and Utilities 200 Mero Street, Frankfort KY 40601 Attn: Director, Division of Right of Way and Utilities

Wood Duck Solar (Barren County) - Permit Matrix

Permit	Agency	Level	Est. Application Preparation Time	Typical Agency Review Period	Approximate Preparation Cost	Application Submittal Cost	Description	Notes
Local Requirements								
Joint City and County Planning Commission (Barren County) - Board of Adjustment Application	Barren County	County	TBD	30 Days	TBD	TBD	For requesting an appeal, Conditional Use Permit (CUP), or variance. Before any variance is granted, the board must find that the granting of the variance will not adversely affect the public health, safety or welfare, will not alter the essential character of the general vicinity, will not cause a hazard or a nuisance to the public, and will not allow an unreasonable circumvention of the requirements of the zoning regulations	https://jccpc-ky.com/wp-content/uploads/2019/12/Board-of-Adjustments-2020.pdf
Joint City and County Planning Commission (Barren County) - Conditional Use Permit (CUP)	Barren County	County	N/A	N/A	N/A	N/A	No CUP is required as the project boundary is outside city limits in unzoned areas of the county.	N/A
Joint City and County Planning Commission (Barren County) - Soil Erosion and Sedimentation Control Ordinance	Barren County	County		N/A	N/A	N/A	Grading, stripping, excavating, filling or otherwise disturbing the natural ground cover during new development, redevelopment or other land disturbing activities shall only be permitted in conformance with this Ordinance.	https://jccpc-ky.com/wp-content/uploads/2015/06/Soil-Erosion-and-Sedimentation-Control-Ordinance.pdf

Wood Duck Solar (Barren County) - Permit Matrix

Permit	Agency	Level	Est. Application Preparation Time	Typical Agency Review Period	Approximate Preparation Cost	Application Submittal Cost	Description	Notes
Joint City and County Planning Commission (Barren County) - Landscape and Buffer Area Minimum Requirements	Barren County	County	TBD	N/A	N/A	N/A	(1) Applicability. The landscaping provisions of this section are applicable to the B-3, Highway Service Business District, I-1, Light Industrial District, and I-2, Heavy Industrial District. (a) New development. No new site development, building, structure, or vehicle use area (VUA) shall hereafter be constructed unless landscaping is provided as required by the provisions of this section	The Project Area is along highways but in non-zoned areas of the county, consult with the JCCP on requirements
Barren County - Floodplain Variance	Barren County	County	TBD	TBD	TBD	TBD	No Building Permit shall be issued by the Building Inspector's Office, except in conformity with the provisions of this resolution, unless there is received a written order from the Board of Zoning Appeals in the form of an administrative review, Special Exceptions, or variance as provided by this resolution. A variance may be granted for a parcel of property with physical characteristics so unusual that complying with the requirements of this chapter would create an exceptional hardship to the applicant or the surrounding property owners. The characteristics must be unique to the property and not be shared by adjacent parcels. The unique characteristic must pertain to the land itself, not to the structure, its inhabitants, or the property owners.	A development permit shall be required in a special flood hazard area based on the FEMA flood insurance study (FIS) for the county, dated May 3, 2011
Barren County - Zone Change Application	Barren County	County	60 days	TBD	TBD	An Application Fee of $500.00, payable to the Joint City-County Planning Commission, is required and of which no part is refundable to the applicant. □$35 Publication Fee and $5 Notice Fee for each	Must be submitted if rezoning is required by the JCCP for the Project.	https://jccpc-ky.com/wp-content/uploads/2015/06/Zone-Change-Application.pdf

Karst Survey and Assessment Report

Wood Duck Solar
Barren and Edmonson Counties, Kentucky
May 9, 2023
Terracon Project No. 57237074

Prepared for:
Geenex Solar
Charlotte, NC

Prepared by:
Terracon Consultants, Inc.
Louisville, KY

May 9, 2023

Geenex Solar
7804-C Fairview Road #257
Charlotte, NC 28226

Attn: Ms. Amanda Corll – Manager Project Development & Permitting
P: (843) 323-9580
E: Amanda.Corll@geenexsolar.com

Re: Karst Survey and Assessment Report
Wood Duck Solar
Barren and Edmonson Counties, Kentucky
Terracon Project No. 57237074

Dear Ms. Corll:

We have completed the Karst Survey and Assessment Report services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. P57225063 dated May 26, 2022 and subsequent change orders dated March 8, 2023 and April 26, 2023. This report presents the findings of the karst survey and assessment from the data review and field study. The report includes recommendations on the feasibility of the planned construction in karst areas, indicates higher or lower risk areas within the project site, and provides recommendations regarding additional studies or investigations for site specific karst features identified during the survey.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Sean Vanderhoff
Senior Staff Geologist

Doug Trusty
Senior Geologist

REPORT TOPICS

INTRODUCTION 1
SCOPE OF SERVICES 1
GEOLOGY AND TERRAIN 3
SURVEY RESULTS AND DISCUSSION 6
KARST RISK RANKINGS 8
KARST RISK RECOMMENDATIONS 13
RECOMMENDATIONS REGARDING ADDITIONAL STUDIES 15
CLOSURE 18

Note: This report was originally delivered in a web-based format. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

APPENDIX A – SITE LOCATION PLANS
- Site Map
- Topography Map
- Geology Map

APPENDIX B – KARST RISK MAPS
- Index Map
- Imagery Maps
- Hillshade Maps

APPENDIX C – KARST FEATURE PHOTOGRAPHY LOG
APPENDIX D – KARST FEATURE CHARACTERSTICS

Note: Refer to each individual Attachment for a listing of contents.

Karst Survey and Assessment Report

Wood Duck Solar

Barren and Edmonson Counties, Kentucky

Terracon Project No. 57237074

May 9, 2023

INTRODUCTION

The proposed Wood Duck Solar site in Barren and Edmonson Counties, Kentucky was assessed for potential karst geohazards underlying the property, which encompasses a total of approximately 2,390 acres. The entire property is mapped as underlain by soluble carbonate bedrock forming a regional karst terrain (i.e.: a landscape characterized by the presence of sinkholes, caves, sinking and losing streams, and a highly irregular "pinnacled" overburden/bedrock interface). Due to the challenges that karst terrain can present to development projects of this kind, the objective of the karst assessment was to identify, locate, and characterize existing karst features with particular emphasis on open throat and/or active sinkhole development.

SCOPE OF SERVICES

Our karst survey and assessment services were performed in two phases: 1) a desktop data review phase, and 2) a field survey phase. Terracon assessed the properties indicated by the ***2022.05.26_WoodDuck_Karst_Desktop.kmz***, ***2022.06.15_WD_Karst_Terracon.kmz***, ***2023.03.02_Karst Study Additional Parcels.kmz, and Joe B Gray.kmz*** files provided to us, hereinafter referred to as the Area of Interest (AOI), shown in Appendix A. It is of note that at the time of AOI reconnaissance, the field survey parcels were identical to the desktop study parcels.

Desktop Data Review

Potential karst features were initially identified remotely. Terracon's karst geologists performed a desktop review of readily available resources to identify suspected or documented karst features (e.g., sinkholes and areas of soil subsidence, cave entrances, closed depressions, and sinking and losing streams) within the AOI, and any features within 0.25 miles of the AOI that were inferred to receive drainage from the site, that were available from the following sources:

- The (proprietary) Cave Database of the Kentucky Speleological Survey (KSS)
- Maps of selected karst areas available from the United States Geological Survey (USGS)
- Maps of selected karst features available from the United States Geological Survey (USGS) and the Kentucky Geological Survey GIS Sinkhole Database (https://www.uky.edu/KGS/gis/sinkpick.htm)

- Digital Elevation Models (DEMs) and LIDAR Data (collected 2014) [1]
- Two-foot contour interval maps[2] for the site and surrounding areas to within 0.25-miles of the parcel boundaries, to determine the presence of surface features not included in the above listed databases based on the presence of closed, descending contours or other suspect karst "fingerprint" features[3];
- Aerial photographs (both recent and historical); and
- USGS Topographic 7.5-minute topographic quadrangles.
- In addition, we have reviewed the readily available geologic literature for bedrock and structural characteristics. We also have relied upon the closest resolution geological mapping that exists for the site.

Field Survey

Upon completion of the data and desktop review, Terracon's karst geologists completed field reconnaissance for the for the 29 parcels which were the same in the desktop review and field survey. Field observations were made by walking the AOI to observe for and delineate zones of karst terrain, with particular emphasis on features that were inferred to have direct communication with the phreatic zone[4] (e.g.: "open-throat" sinkholes, karst windows, cave entrances, abandoned wells, sinking streams, etc.) and areas of high karst activity that could indicate development of pinnacled bedrock. Specifically, the field survey entailed:

- Verification and delineation of visible surface karst features previously identified during the desktop review, and
- Location of uncatalogued or previously unidentified surface features.

The locations and outlines of all relevant features were recorded using a recreational grade GPS device. For this study, the outline (parapet) of a closed depression (sinkhole) was defined as either the last closed descending contour at a 2-foot mapping interval or by the presence of a visible parapet.

Each feature was assigned a unique identifier number consisting of parcel name and succeeding number (subsequent karst feature number, i.e. 001, 002, 003 etc.). Any feature that could not be verified in the field was removed from the final data set. If a cluster of features were identified in close proximity (10-15 feet) to one another within a larger closed depression, they may have been surveyed together as one karst feature.

1 KyFromAbove (https://kyfromabove.ky.gov/)
2 Derived primarily from LIDAR and DEM data.
3 A sinkhole or closed depression is defined as the last closed contour based on 2-foot contours; therefore, we use that interval as a metric for defining closed depressions.
4 The perennial karst aquifer

GEOLOGY AND TERRAIN

Physiography – The AOI is situated within the Northern Highland Rim Subsection of the eastern portion of the Interior Low Plateaus Physiographic Province. The Interior Low Plateaus Province extends from the Greater Cincinnati metropolitan region in the Ohio River Valley southward to the Nashville Region of Tennessee. The Interior Low Plateaus generally range from approximately 380 to 1,200 feet in elevation and predominantly comprise of rolling plains and eroded plateaus. This region is almost completely composed of horizontal beds of sandstone, shale, and limestone dating from the Paleozoic Era (541 to 252 million years ago). The Interior Low Plateaus exist at the southeastern area of the Central Lowlands, the boundary of which marked the maximum extent of the Pleistocene glacial advance.

The Highland Rim subsection of the Interior Low Plateaus Physiographic Province in Kentucky is referred to as the Mississippian Plateaus or the "Pennyrile" (named for the Pennyroyal plant, *Hedeoma puligiodes*). The Mississippian Plateaus wrap around the Western Kentucky Coalfield Province, in a crescent that opens towards the north. The Mississippian Plateaus are divided into the Dripping Springs Escarpment and a lowland area called the Pennyroyal Plateau to its south. The AOI lies within the south-central Pennyroyal Plateau subsection, approximately 3.5 miles south of Park City which is located at the southern edge of the Dripping Springs Escarpment and within an area known as the Glasgow Upland.

Topography – Located entirely within the Park City KY USGS 7.5 Minute Quadrangle (37086-A1, rev. 2016), the AOI grades gradually down towards the northwest, mirroring the gradients of the Gardner Creek in the north, and the Sinking Creek in the southern section, both of which cross the AOI from east to west. The most significant slopes occur along the walls of a series of drainage swales that occur along the course of these two streams, running perpendicular to the main channels. Elevations within the AOI range from a low of EL620 feet where Gardner Creek leaves the northwestern section of the AOI, to high points of EL750 or slightly higher mostly in the east.

Geology – The Highland Rim is underlain primarily by karst-prone carbonate units dated to the Mississippian Geologic Period. Referencing the geologic map of the Park City Quadrangle[5], the following geologic units are mapped within AOI, refer to Exhibit 3, Appendix A:

St. Louis Limestone (Msl)
Dated to the Mississippian Geologic Period, described as a cherty, light to dark-gray and buff, thin to medium-bedded limestone. It is dense to coarse-grained and is generally covered by a thick tan to red clay residuum with abundant chert fragments and nodules containing fossils diagnostic of the St. Louis Limestone. Thin beds of argillaceous (clayey) limestone occur near the top and

5 Haynes, D. D., 1962, Geology of the Park City Quadrangle, Kentucky, USGS, GQ-183.

base of the unit. Thickness of the unit has been estimated at about 290 feet, and it has a gradational contact with the underlying Warsaw Limestone.

Alluvium (Qal)

The Sinking Creek valley is mapped as underlain by alluvium dated to the Quaternary Geologic Period. The alluvium ranges from a thin veneer less than a foot thick in the valleys of secondary streams and creeks, up to 15 feet. The Qal directly overlies the Msl unit within the AOI, and consists of unconsolidated clay, sand and gravel.

Karst Geology – Referencing the USGS National Karst Map[6], the entire AOI is mapped as "carbonate rocks at or near the surface in a humid climate". The entirety of the AOI is reported by the Kentucky Geological Survey (KGS) as having high potential for karst (with the exclusion of the mapped alluvium areas along water bodies) where there are dense concentrations of karst features (sinkholes, closed depressions, and poljes[7]) mapped to the north and east of the site. Yet within the majority of site parcels themselves the Kentucky Sinkhole Database (compiled by the Kentucky Speleological Survey) indicates a near complete lack of features. The only exception to this is in the two northern-most parcels, where several mapped features occur along their northern sides.

The seeming anomalous lack of karst features south and east of the dense sinkhole plains to the north and south has been explained in various geological and speleological studies performed regionally by the National Speleological Society[8,9,10].

The area between the two dense sinkhole plains to the north and west of the project site is referred to as the "Glasgow Upland". The Glasgow Upland is a low plateau, developed on the lower, less soluble facies of the Upper Mississippian St. Louis Limestone formation (formerly known as the Salem Limestone). The upland is crossed by subaerial (i.e., surface) streams, that drain westward from their origin on the central part of the upland, and then pass underground at the western edge of the sinkhole plain lying to the west of the site. It is of note that Both Gardner Creek and Sinking Creek pass underground as they reach the edge of the western sinkhole plain. It has also been suggested that the structural geology may contribute to the development of the sinkholes plains and the lack of features on the Glasgow Upland. The regional bedrock in the western sinkhole plain dips generally towards the northwest at about 30 feet/mile, and it has been inferred that the sinkholes plains may have developed where the bedrock dips towards the various stream valleys.

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6 Weary, D.J., and Doctor, D.H., 2014, Karst in the United States: A digital map compilation and database: U.S. Geological Survey Open-File Report 2014–1156, 23 p.
7 A large, flat-bottomed closed depression formed by the coalescence of a series of sinkholes.
8 Miotke, F, and H. Papenberg, 1972, Geomorphology and Hydrology of the Sinkhole Plain and Glasgow Upland, Central Kentucky Karst: Preliminary Report, Caves and Karst, 14(4), pg. 25-32.
9 Hess, J. W., 1976, A Review of the Hydrogeology of the Central Kentucky Karst, NSS Bulletin, 38(4), pg. 99- 103.
10 Wells, S. G., 1976, Sinkhole Plain Evolution in the Central Kentucky Karst, NSS Bulletin, 38(4), pg. 103 – 106.

However, the bedrock beneath the Glasgow Upland dips towards the southeast, away from the course of the streams.

The sinking creeks, all of which have their headwaters on the silty and cherty facies of the St. Louis Limestone of the Glasgow Upland at the south margin of the Sinkhole Plain, do not sink immediately where they intercept relatively purer limestones because the alluvium they have carried into the limestone area has partially sealed some sinks. At the end of their surface flow course, the creeks sink along a line of swallow holes (Figure 1).

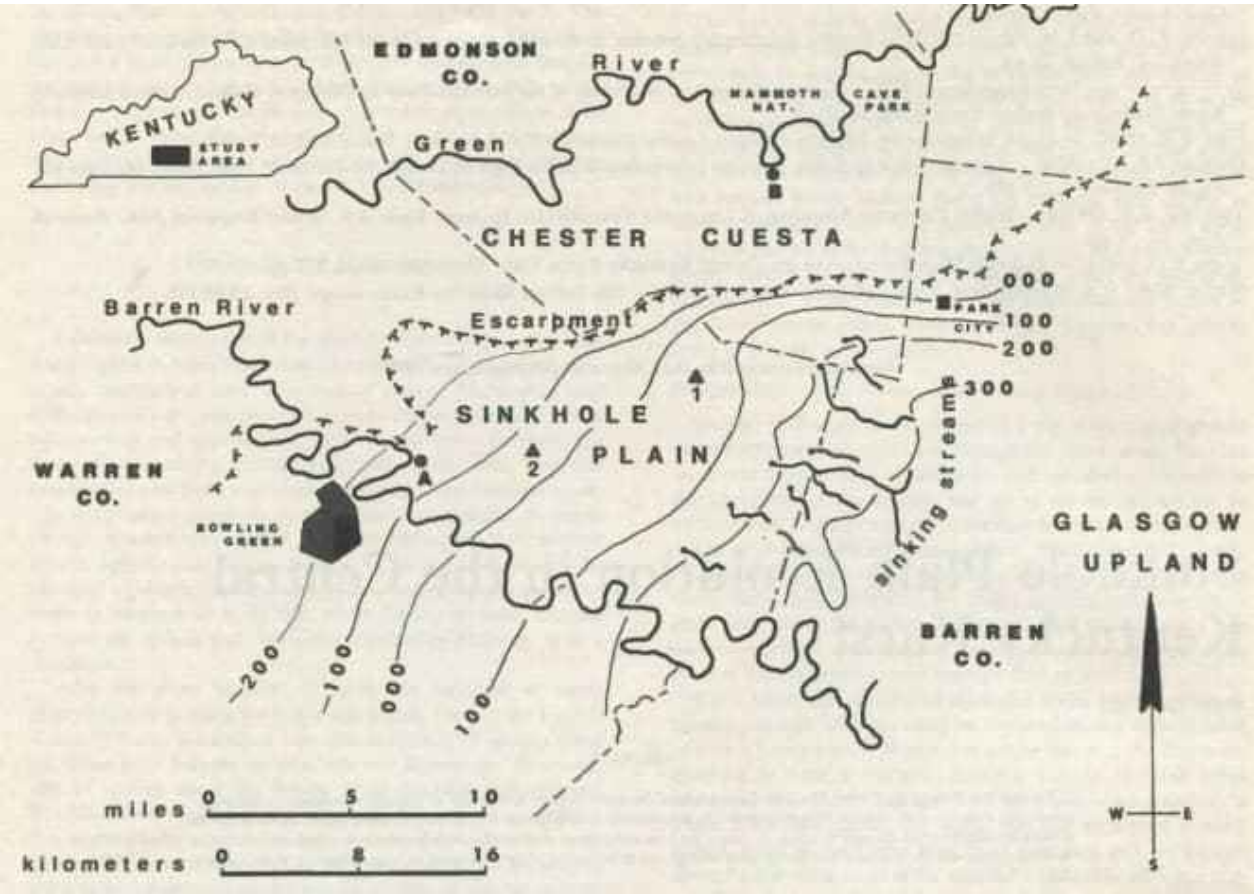


Figure 1. Map of the regional geomorphology showing the significant features of the Glasgow Upland and nearby sinkhole plains. Shaded circles A and B represent Graham Spring and Turnhole Spring, respectively. Triangle 1 and 2 are Smiths Grove Cave and Graham Springs Cave. Structural contours are drawn at the contact with the underlying Chattanooga Shale. Note that the bedrock is mapped as dipping towards the northwest under the sinkhole plain, but towards the southeast in the direction of the Glasgow Upland. This represents the axis of the Chattanooga Arch. (*from*: Wells, S. G., 1976, Sinkhole Plain Evolution in the Central Kentucky Karst, NSS Bulletin, 38(4), pg. 103 – 106.)

The results of dye trace studies conducted by the KSS have demonstrated that the majority of swallets are located at the edge of the sinkhole plain north of the AOI. The results of the dye traces suggest that the bulk of the site is located within the Turnhole Spring drainage basin and any sediment or water-borne contaminants leaving the northern parcels could possibly enter the Turnhole Spring drainage system and aquifer. However, it is also important to note that both the

Gardner and Sinking Spring creeks flow towards the west and are technically connected to the Graham Spring basin, where they plunge into the subsurface at the edge of the western sinkhole plain as mentioned previously. Thus, any sediment or contaminants that enter these streams could also impact the karst aquifer and springs located miles to the west.

SURVEY RESULTS AND DISCUSSION

Data Review

A review of the LiDAR derived shaded relief map and 2-foot contours resulted in the identification of 83 suspect karst features where 72 are point features and 11 are area features (Figure 2). This includes features within 0.25 miles of site boundaries. As alluded above, the most significant suspect karst features are located within and along the northern-most parcels. The drainages within those parcels lead to karst features offsite, where all surface channels vanish into the subsurface (Figure 3).

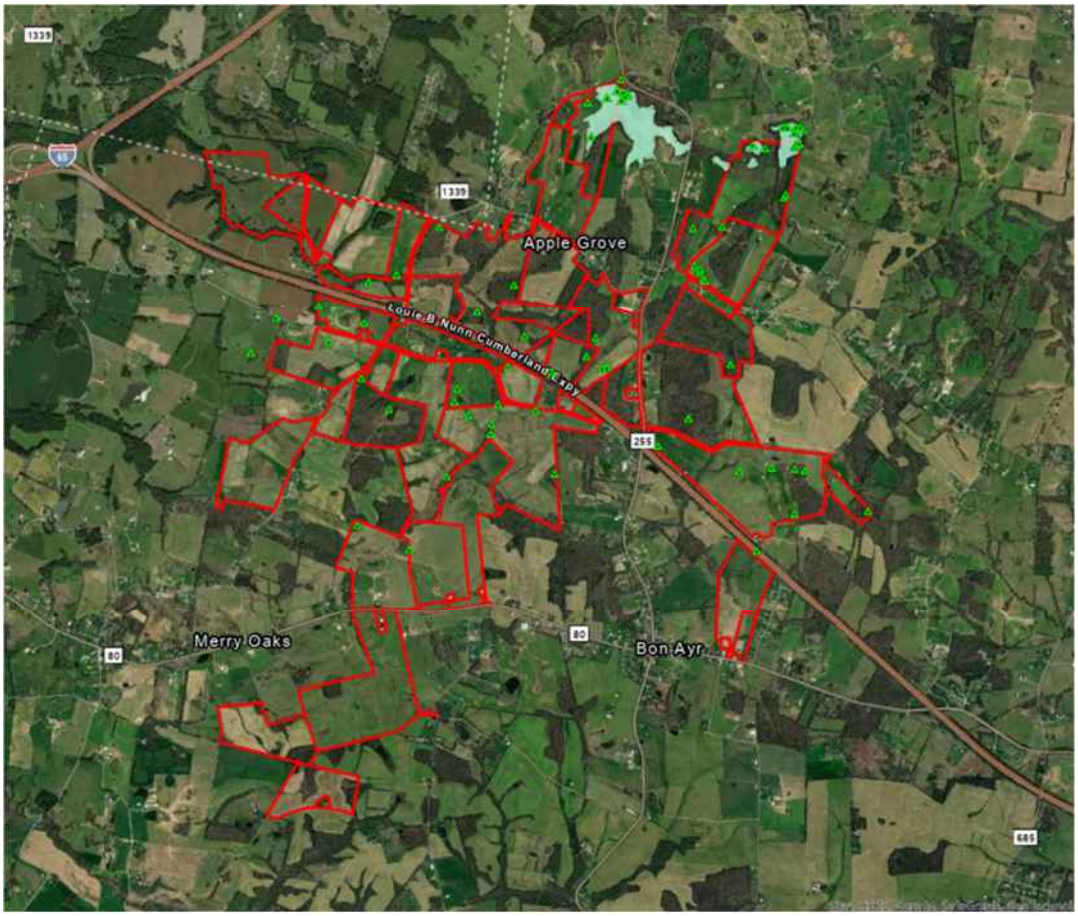


Figure 2. Suspect karst features from the desktop data review shown as point features (green triangles) and larger area features (blue polygons). Additional parcels not shown on map as no features were identified.

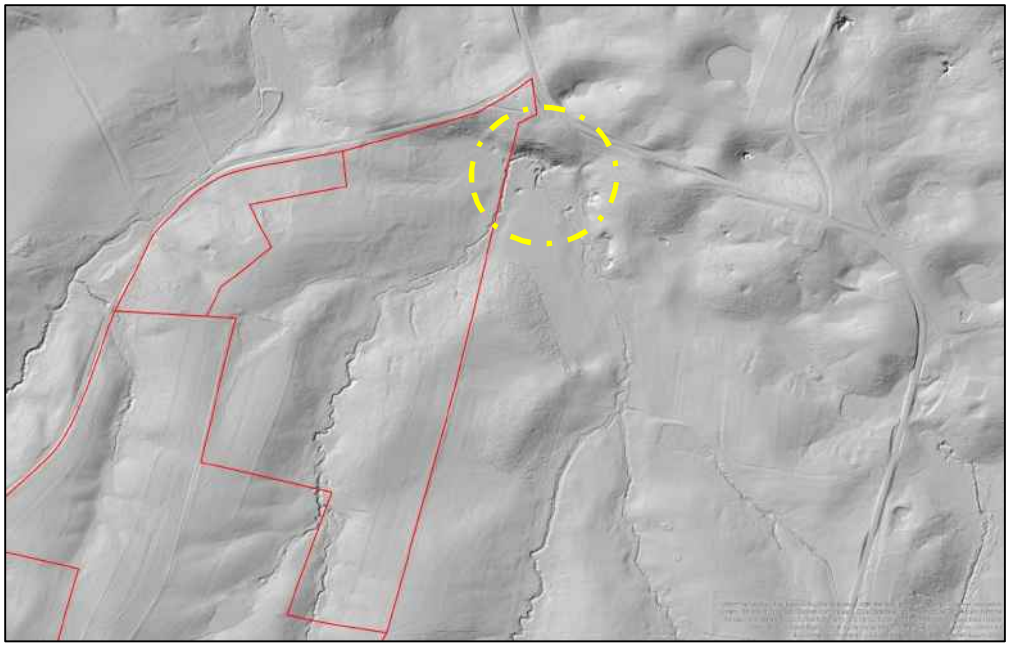


Figure 3. Surface drainage channels originating from within the AOI, sinking into a complex of sinkholes offsite (yellow dashed circle).

In Figure 4A, a subsequent depression (red arrows) indicates the possibility of erosion and growth within a larger closed depression (yellow dashed line). Broad and shallow closed depressions with a smaller subsequent collapse suggest that the originally stable feature has reactivated due to regional or local subsurface trigger. Even when the LiDAR and 2-foot contour data do not suggest a closed depression, aerial imagery may provide indications of the presence of karst features, the presence of small groups or single trees in an otherwise cultivated agriculture field, implies that the farmer has avoided the area (Figure 4B). In karst areas, this is usually due either to karst features or shallow bedrock. A likely spring is shown in Figure 4C, where a drainage channel leads away from the structure and the steeped walls indicate possible soil raveling or bedrock.

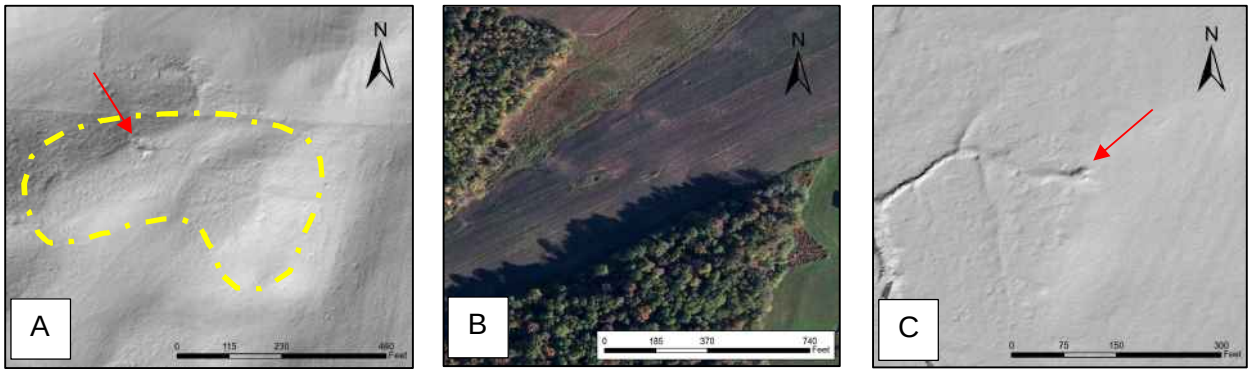


Figure 4. (A) An example of sinkhole with potential soil raveling and growth. **(B)** Example of lone trees/vegetated areas in an agriculture field which are avoided by the property owner. In areas mapped as underlain by karst, this pattern indicates that there may be karst features near these trees or shallow bedrock. **(C)** Possible spring located at the head of a drainage channel (shown by red arrow).

Field Survey

The field survey was performed June 28 through July 1 and July 5 through 8, 2022 and additional parcels were surveyed March 17, 2023 and April 27, 2023 by Sean Vanderhoff, Senior Staff Geologist. A total of 40 karst features were located and delineated in the field survey AOI, of which 33 were point features and 7 were area features. Of the 33 point features, 14 were small collapses with an open throat observed near surface drainage ditches. The remaining 19 karst point features were small shallow depressions and/or did not have observable open throats. Additional parcels surveyed in March and April 2023 observed ponds and possible wetlands within the AOI, but no identifiable karst features.

Several point features were observed within the larger karst area features along the northern portion of the AOI, indicating the features may be active continue to grow due surface drainage channels and runoff/infiltration. Suspect karst features identified in the desktop review that were not field verified were related to fluvial erosion or were subtle depressions likely not related to karst development.

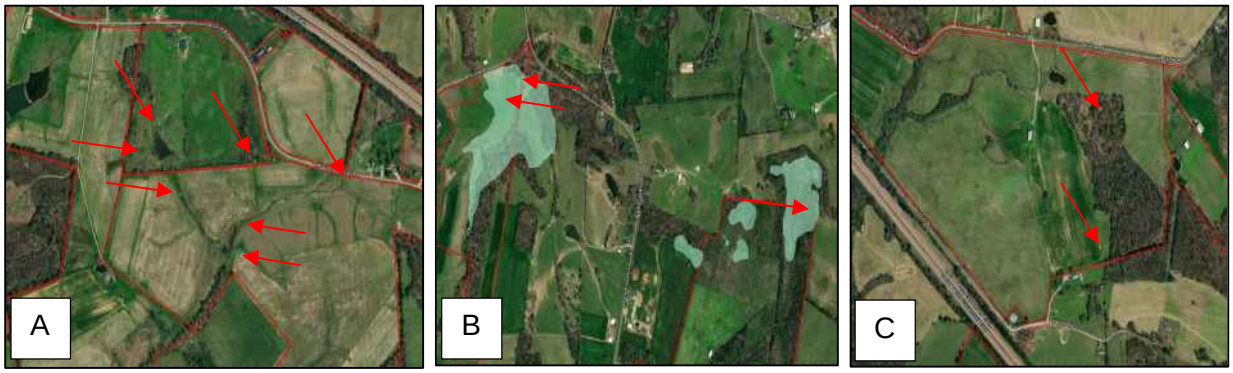


Figure 5. (A) Karst point features (green triangles, shown by red arrow) in or close proximity to surface drainage pathways. **(B)** Point features (green triangles, shown by red arrow) located within larger area features (light blue polygons) indicating active karst features. In areas mapped as underlain by karst, this pattern indicates that there may be karst features near these trees. **(C)** Field verified karst point features (green triangles) and suspect karst features not field verified yellow triangles, shown by red arrow) on the most eastern portion of the AOI.

A summary of the karst feature inventory documented during the field survey is included by the Karst Risk Maps in Appendix B, Photography Log in Appendix C, and Karst Feature Characteristics in Appendix D. Karst Risk Maps in Appendix B do not show additional parcels as no features were identified on those parcels. Appendix A maps show the additional parcels.

KARST RISK RANKINGS

Examples of Identified Features

The following 6 exemplary karst feature "types" are representative of the various types of features identified within the AOI. The feature ID numbers are referenced in the image captions.

Type 1 – Broad and/or shallow depression, ranging in size from tens to hundreds of feet in diameter, often have a roughly circular parapet outline, are bowl shaped, and commonly referred to as a "mature" or a paleokarst sinkhole. These features did not include observable opening to the subsurface (i.e. "throat") or soil raveling or tension cracks around the parapet. Whatever conduit or opening into the underlying karst aquifer that may have functioned to create the structure is likely now soil-clogged, which would act as a filter for water infiltrating from the surface.



Image 1. Two vegetated depressions that do not directly show an open throat but receive surface drainage in the form of sheet flow. Left = 006 and Right = 033.

Type 2 – Broad and/or shallow "mature" sinkhole which has reactivated with an open throat at the base and active erosion along the walls and parapet of the feature. These features' open throats are considered high risk since they appear to be actively growing and may continue to collapse and widen during construction activities and post site development.



Image 2. Mature depression with open throat at the base covered in overgrown vegetation (Left = 037). A collapse feature with open throat within a larger depression (Right = 034).

Type 3 – Soil collapse and possible presence of a small opening; features are typically small (<10 feet) and have a circular shape and a stable parapet and base. It is commonplace to observe multiple features clustered together which may all be feeding into a single opening in the subsurface. These features pose a risk because the karst features may be actively developing; therefore, correct remediation or avoidance is necessary.



Image 3. Left, 010 – Example of a collapse with an open throat fenced off from cattle. Right, 003 – an area of multiple collapses in close proximity to each other in a row crop field.

Type 4 – Shallow depression that does not have an open throat. Rounded parapet shape, abundant vegetative cover, and lack of direct drainage flow to the feature suggest equilibrium.



Image 4. Example of a small shallow depressions with no open throat. Left, 010 – shallow depression on edge of row drop field. Right, 005 – small shallow depression where trash and debris have been placed.

Type 5 – This type of karst feature appears to have been modified by the landowner/farmer. The change in vegetation and apparent raised area indicates the area may have been filled in or modified at some point.



Image 5. This feature may have been filled in by the landowner/farmer to mitigate a depression or open throat, Left = 002. An apparent watering tub placed in a surface drainage channel which is fed by a pipe (top right of tub), Right = 016.

Type 6 – One karst spring was observed within the AOI (karst point feature ID 001). The spring is not listed in the Kentucky Department of Water (DOW) database of springs. The spring was dry at the time of field survey indicating the spring may have a relatively small drainage basin and may only flow during precipitation events, known as a wet weather spring. Modification of the spring was not observed, and the spring appears to flow a short distance to Little Sinking Creek.



Image 6. Left, 001 – The head of an unnamed spring Right, 001 – the surface run of the spring within the AOI.

Risk Character Analysis and Results

The risk for each karst feature was assessed through the compilation of a data matrix comprising 5 karst feature variables or “characters”. These variables were assessed per karst feature by analyzing the field notes, observing the photographs, and considering the overall context and resources from the desktop data review. It is of note that this type of data analysis and reduction is designed to assist in minimizing subjectivity in assessment of karst features for overall risk. The variables (characters) embodied in creating the risk data matrix and resulting risk assessment summary are:

1. Presence of an open throat
2. Parapet characteristics
3. Degree of soil raveling
4. Drainage leading to the karst feature
5. Presence and quality of vegetation

Explanation of the Characters

Character 1 – The presence of an open throat (e.g. an opening into the subsurface, usually at the base of a sinkhole, an opening within a rock outcrop, or a cave entrance) in a karst feature is important since it may allow the unimpeded flow of surface runoff into the subsurface and eventually the groundwater table. This is a serious environmental concern to the groundwater and proper erosion and sediment control and buffering must be utilized during construction around these types of karst features.

Coding: Absent = 0; Small/Unknown = 1; Large/Open = 2

Character 2 - The shape and conformation of the parapet of each karst feature is important because the smoothness of the edge indicates the degree of erosion, growth, and overall activity of the karst feature. Typically, the rougher the parapet edge the more active the karst feature, and hence higher risk for the surface to continue to change.

Coding: Parapet Stable/Circular = 0; Irregular/Unstable = 1

Character 3 - Coeval with parapet shape changes and erosion, soil raveling of the sinkhole walls, throat, and subsidiary channels is a good indicator for sinkhole activity and risk. We further distinguish soil raveling into “minor raveling” and “raveling” to differentiate between levels of erosion and growth inside the karst feature.

Coding: No raveling = 0; Minor raveling = 1; Major/severe raveling = 2

Character 4 - An important factor that we note when assessing karst features, is evidence for surface drainage focused into the karst feature. This is typically manifested as matted down grass/vegetation in the direction of the sinkhole in the case of surface runoff (sheet flow) or distinct erosion and channel development where water commonly drains into the karst features. If the channel leading to the karst feature exhibits signs of erosion and downcutting, then this further supports the notion that the karst feature base level is decreasing and typically growing. **Coding: No evidence of drainage = 0; Sheet flow = 1; Drainage channel = 2**

Character 5 - The presence, type, and state of vegetative cover surrounding and within the karst feature is an indicator for sinkhole development and the existence of a natural buffer. If little to no vegetative cover is present within the sinkhole then this indicates that it is changing fast enough to inhibit plant growth and that it is vulnerable to surface runoff. If the sinkhole is overgrown, then this signifies that the sinkhole is more stable and that a natural vegetated buffer is present, which functions to filter out suspended soil/contamination in surface runoff.

Coding: Fully vegetated = 0; Partially vegetated = 1; Soil/rock = 2

Based on the character analysis, we have assigned a low, moderate, or high-risk category of each of the confirmed karst features present, specifically to this site. If the defined character sum was 0 it is our interpretation that the feature is very low risk to site development. If the sum was 1-2, we believe the feature is a low risk to site development. If the sum was 3-4, we believe the feature is a moderate risk to site development. If the sum was 5-6, we believe the feature is a high risk to site development. If the sum was ≥7 then the feature is very high risk. The tabulation of the data analysis is present in Appendix D. A total of 40 features were risk ranked:

- 0 very high risk,
- 8 high risk,
- 19 moderate risk,
- 13 low risk, and
- 0 very low risk.

The degree of risk we identify for these karst features indicates our professional opinion regarding the likelihood of the karst feature becoming unstable or accelerate its growth. The risk rankings should be used as a planning tool to aid in assessing the overall risk of developing the site. However, it should be clearly understood that even karst features designated as low risk can become unstable and negatively impact the proposed development. It is impossible to eliminate the risk of karst features, but measures can be taken to reduce the risk of karst issues.

For karst feature type 2, described above, instead of applying the higher risk rank of the subsequent collapse to the entire broad and shallow mature sinkhole, we delineated the extent of the higher risk section. The goal of this was to differentiate high risk areas within the large mature features that are better candidates for avoidance, while still allowing for a lesser risk ranking for the remainder of the broad and shallow sinkhole for development.

KARST RISK RECOMMENDATIONS

The recommendations entail a suite of approaches for each karst risk level. These various solutions for karst features will depend upon the type and scope of the project, the amount of cut and fill planned for the AOI, the presence of karst dependent rare threatened and endangered species, and the hydrologic significance of the karst aquifer (e.g. municipal or private drinking water supply). For the specific development of remediation, alternative foundations, or detailed additional studies, it is recommended that a Terracon karst geologist monitor construction activity to ensure that proper protocol is applied and to be available for consultation in the event that new karst features develop during grading activities onsite. The karst avoidance and/or mitigation measures for each karst feature risk level are presented below. Please note that the recommendations from a higher risk category can always be applied to lower features.

Very High Risk (7-9) to High Risk (5-6)

- Avoidance and buffering
- Additional investigations
- Remediation (if necessary)

Moderate (3-4)

- Additional investigations
- Avoidance and/or remediation (if open throats are present)
- Grade and monitor

Low Risk (1-2)

- Span open throat features (points) – to be determined on a case-by-case basis
- Grade and monitor

Very Low Risk (0)

- Grade and monitor

The preferred option is to avoid all karst feature, if possible, since every feature does bring a variable amount of risk to both the project infrastructure and the karst aquifer. In addition, avoidance preserves the vegetated buffer, especially for features which have reached equilibrium naturally. For this avoidance scenario we recommend a minimum buffer of 25 to 50 feet[11] which should remain in an undisturbed natural state[12] through all periods of construction and subsequent facility operations. In addition, a 150-foot activity buffer should be established around each karst feature during construction where vehicles may not be refueled, and stockpiles of equipment or fuel should not be stored. The 150-foot buffer may need to be extended or modified if a significant drainage area has been delineated outside of an open throat feature. This does not mean construction is prohibited within this buffer, only that certain construction related activities, primarily storage of fuel and equipment, should not occur within this area.

In the case where avoidance is not possible then the next steps may include remediation of the karst features (e.g., reverse graded filter, cap grouting, etc.) and conducting additional detailed studies to further define the extent, characteristics, and impact that the karst feature may have on the surface and planned installations. Remediation will vary for each karst feature based on characterization (e.g.: soil type, the architecture of the bedrock, and the local hydrology among

11 It should be noted that the Kentucky Environmental and Public Protection Cabinet - Division of Conservation and Division of Water, guidance document “Best Management Practices for Construction Activities” (2005) recommends a 50-foot vegetated buffer strip for sinkholes.

12The term “undisturbed natural state” means that the existing vegetation within the 25-foot buffer, and extending across the entire sinkhole, should not be cut, trimmed, thinned or disturbed in any way.

many other factors). The type of remediation is typically determined upon subsurface exploration and excavation of the karst feature and identification and characterization of the bedrock bound throat at the soil bedrock interface.

Specifically, for solar field facilities it may be possible to span some of the karst features with the solar arrays, depending upon the length of the arrays and the spacing of the supporting piles. This option is limited to the low and very low risk karst features since their current characteristics do not suggest continued erosion and growth, and instead appear to have reached equilibrium naturally. It is important to note that periodic monitoring of these karst features post-construction is recommended.

It is permissible for the very low risk karst features to be graded per the construction plans, but it is imperative that the locations of these features be marked with survey grade GPS prior to grading activities. These areas should be monitored during construction in case the grading activities cause these features to reactivate.

Please note the risk rankings presented herein are based on the current condition of the site at the time of our study. Changes in the risks and changes in the karst features will occur over time. In addition, changes may occur due to changes in surface grades, surface hydrology, nearby construction activities such as blasting, installation of water supply wells, and other similar changes.

RECOMMENDATIONS REGARDING ADDITIONAL STUDIES

Prior to site development, additional studies are recommended. Non-invasive geophysical investigations should be used for any features other than very low risk. The preferred method would be electrical resistivity investigation (ERI), however other methods such as seismic and gravimetry may be utilized. The primary purpose of the ERI will be to reveal if there are any near-surface voids that could present a risk during construction or operation of the facility.

Other investigation methods including but not limited to drilling (hollow stem, air track probe, etc.), test pits, direct push borings, or other appropriate methods may be utilized to investigate specific karst features. The actual investigation method to be used will be based on the site-specific conditions, access, and the type of the karst features.

We recommend the development of a Karst Monitoring, Mitigation, and Management Plan for construction and operation of the facility (“Karst Plan”). The purpose of this plan is to establish a standard set of monitoring protocols for karst features encompassed by the proposed project. The intent of these protocols is to minimize impact to the subterranean environment, ensure water quality, and protect the integrity of the project infrastructure. The Karst Plan will include inspection protocols regarding the identification and mitigation of karst features that have been previously identified within the project boundaries, or that may be identified during construction. All staff

involved with the construction of this project should become familiar with the karst plan protocols prior to the start of construction.

Avoidance and Setbacks

Avoidance of karst features and installation of physical setbacks is the preferred first order approach to working in a karst terrain and around sinkholes on construction sites. If the design allows for avoidance, this is the most efficient strategy compared to in depth investigations and remediation which are described in detail in later sections of this report. For the sake of simplicity in the report, the term "setback" refers to a physical barrier around the features and "buffer" is for reduction of certain activities but has no physical impact. All setback and buffer dimensions start at the parapet (edge) of the sinkhole, which is the delineated edge of the karst features shown on the maps and GIS resources.

25-Foot Setback

For avoidance, we require a minimum setback with a radius of 25-feet which should remain in an undisturbed natural state[13] through all periods of construction and subsequent facility operations. In addition, during construction all features should derive additional protection by the installation of appropriate sediment and erosion control structures (e.g. silt fences) which should remain in place until the site is fully developed and revegetated. It should be noted that the 25-foot vegetated buffer follows the USDA-NRCS Conservation Practice Standard "Karst Sinkhole Treatment" Code 527 (Appendix D). An example of a 25-foot setback of a sinkhole is shown in the image below.

[13] *An "Undisturbed Natural State" is defined for the purpose of karst conservation as not causing any disturbance to the natural vegetation and soils within the 25-foot buffer of a karst feature. This would include (but not be limited to) activities such as cutting, trimming, stripping and grubbing, grading, use of herbicides and/or insecticides, application of fertilizers or soil amendments, and depositing vegetation cuttings or trash of any kind.*



Figure 3. Properly installed 25-foot setback around a karst feature (yellow dashed polygon).

General grading activities, installation of piles, and construction of other supporting infrastructure may occur adjacent to the edge of the 25-foot setback as long as the interior remains in the undisturbed natural state. In the event that any subsidiary karst conduits or karst features are intercepted during construction then remediation following the protocols apply as described above.

150-Foot Buffer

The 150-foot buffer is an area around karst features where we recommend eliminating or reducing specific activities that can result in the accidental release of liquid-phase contaminates (fuel, oil, hydraulic fluid, herbicides, pesticides, or liquid fertilizers, etc.) that would pose significant harm to the groundwater if it enters into the subsurface through karst features. Specifically, this buffer can be marked onsite by flagging and/or signage and serves to reduce the risk of contaminates through limitation of activities such as refueling, vehicle maintenance, and stock pile storage.

It is important to note that this 150-foot buffer is a recommendation to reduce risk, but is not a mandate that would severely change the location or function of a laydown yard, for example. If the laydown yard is used for storage of construction materials (e.g., piles, electrical conduit, panels, etc.) which are not a source of potential liquid-phase contaminants as described above, then the the 150-foot buffer can be disregarded.

CLOSURE

The information presented herein has been based on the review of both proprietary and publicly available geologic information. However, it should be noted that karst is a dynamic landform and significant changes can occur over time. We understand that a geotechnical investigation will be completed at this site which may reveal additional subsurface karst issues. As indicated herein, karst features may be present below the ground surface that were not identified by this study. These features may not be identified until during construction. Accordingly, Terracon should be engaged during the construction phase of this project to provide oversight of the karst management plan, and to address karst features encountered during construction.

As indicated in this report, the bedrock and overlying soil below the site are susceptible to sinkhole development, and there can be extensive areas of shallow bedrock and shallow groundwater that can pose a risk to the site development process. Risk associated with these factors can be minimized during development with proper planning, design, and the control of site hydrology. Nevertheless, the client must recognize that risk of sinkhole and hydrologic-related damage to foundations, site infrastructure, and pavements does exist

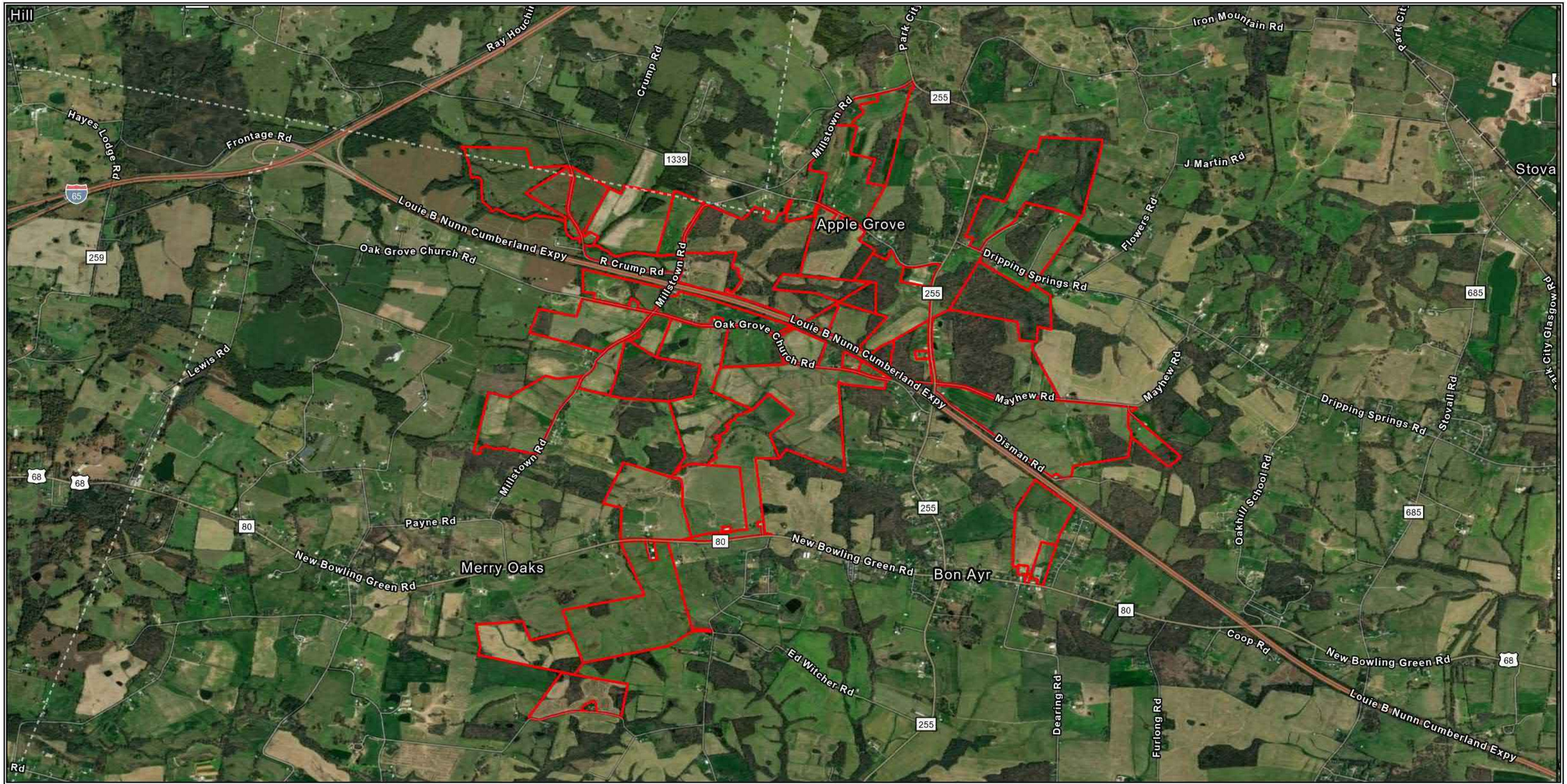
Terracon has conducted these services in accordance with generally accepted geologic practices. No warranties, either expressed or implied, are made as to the professional services and recommendations presented herein.

APPENDIX A – SITE LOCATION PLANS

Contents:

Site Map
Topography
Geology

Note: All attachments are one page unless noted above.





Legend

- Parcels

DATA SOURCES:
ESRI WMS - USGS Topographic Basemap, OpenStreetMap
Solar parcel data received from client

0 0.5 1 Miles

Project No.:	57237074
Date:	Apr 2023
Drawn By:	SMV
Reviewed By:	WDFT

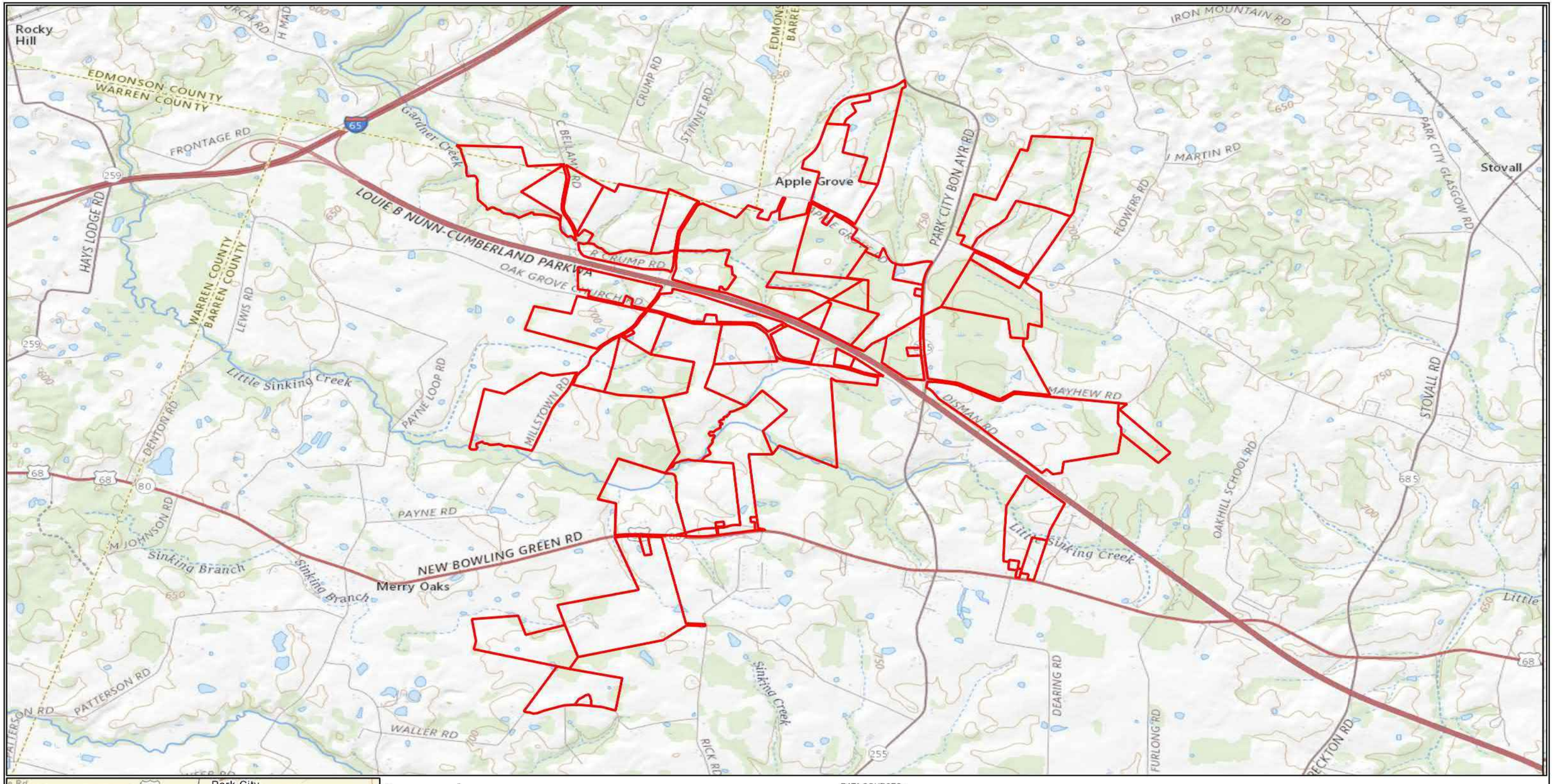
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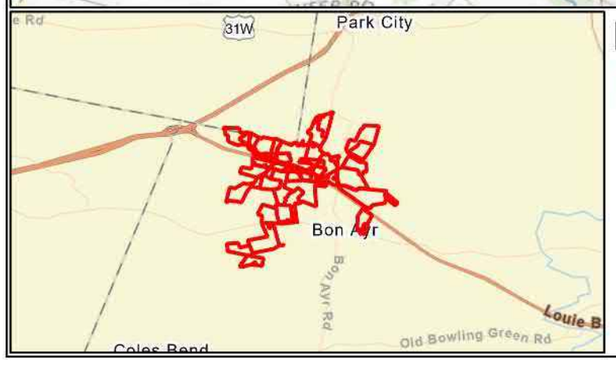
Site Map

Wood Duck Solar
Desktop Karst Survey
Barren and Edmonson Counties

Exhibit

1





Legend

Parcels

DATA SOURCES:
ESRI WMS - USGS Topographic Basemap, OpenStreetMap
Solar parcel data received from client

0 0.5 1 Miles

Project No.:	57237074
Date:	Apr 2023
Drawn By:	SMV
Reviewed By:	WDFT

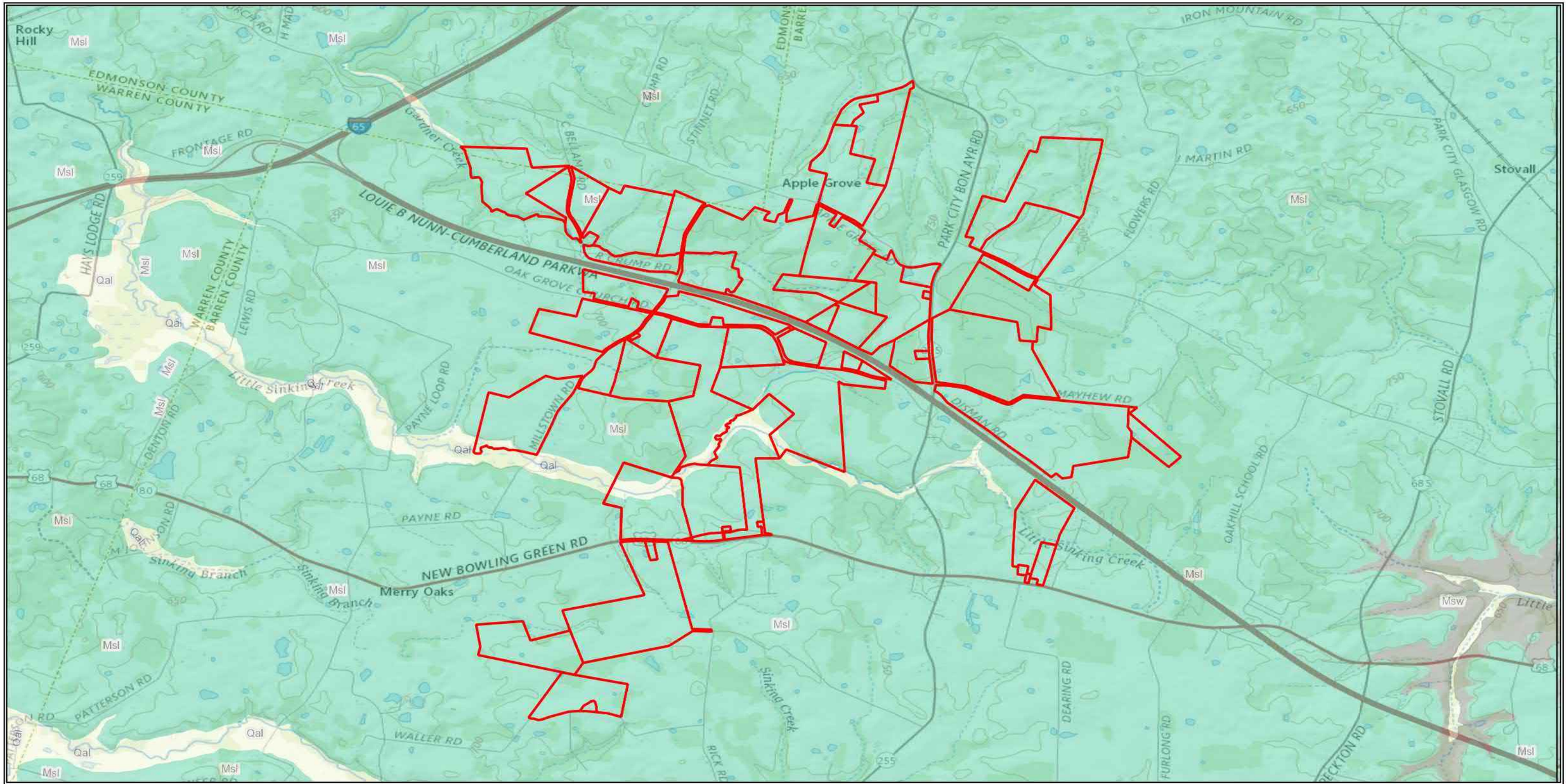
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Topography Map

Wood Duck Solar
Desktop Karst Survey
Barren and Edmonson Counties

Exhibit

2





Legend

- Parcels
- (Qal) Alluvium
- (Msl) St. Louis Limestone
- (Msw) Salem Warsaw

DATA SOURCES:
ESRI WMS - USGS Topographic Basemap, OpenStreetMap
Solar parcel data received from client
Kentucky Geologic Survey 1:24000 Geology Maps

0 0.5 1 Miles

Project No.:	57237074
Date:	Apr 2023
Drawn By:	SMV
Reviewed By:	WDFT

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PH. (502) 456-1256 terracon.com

Geology Map

Wood Duck Solar
Desktop Karst Survey
Barren and Edmonson Counties

Exhibit

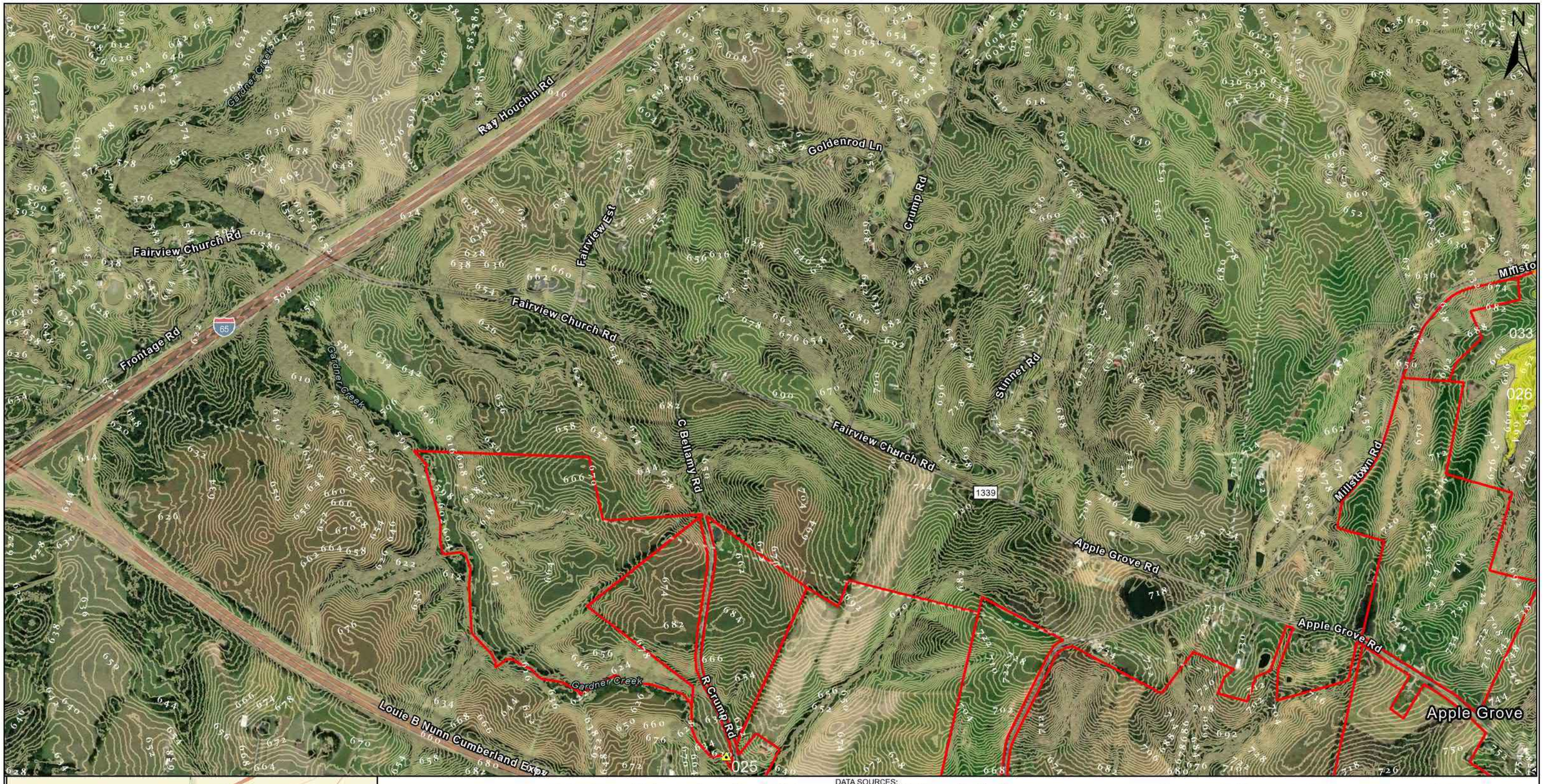
3

APPENDIX B –KARST RISK MAPS

Contents:

Index Map
Imagery Maps
Hillshade Maps

Note: All attachments are one page unless noted above.





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk	Area Karst Risk
Very High	Very High
High	High
Moderate	Moderate
Low	Low
Very Low	Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

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Karst Risk Map - Imagery

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

B1

N

Gardner Creek
R&J Houchin Rd
Goldenrod Ln
Fairview Church Rd
Fairview Est
Crump Rd
Frontage Rd
65
Gardner Creek
Fairview Church Rd
Stinnet Rd
C Bellamy Rd
Fairview Church Rd
1339
Millstown Rd
Apple Grove Rd
Apple Grove Rd
Apple Grove
Gardner Creek
R Crump Rd
Louie B Nunn Cumberland Expy
025
033
026



Legend

Site Boundary

2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

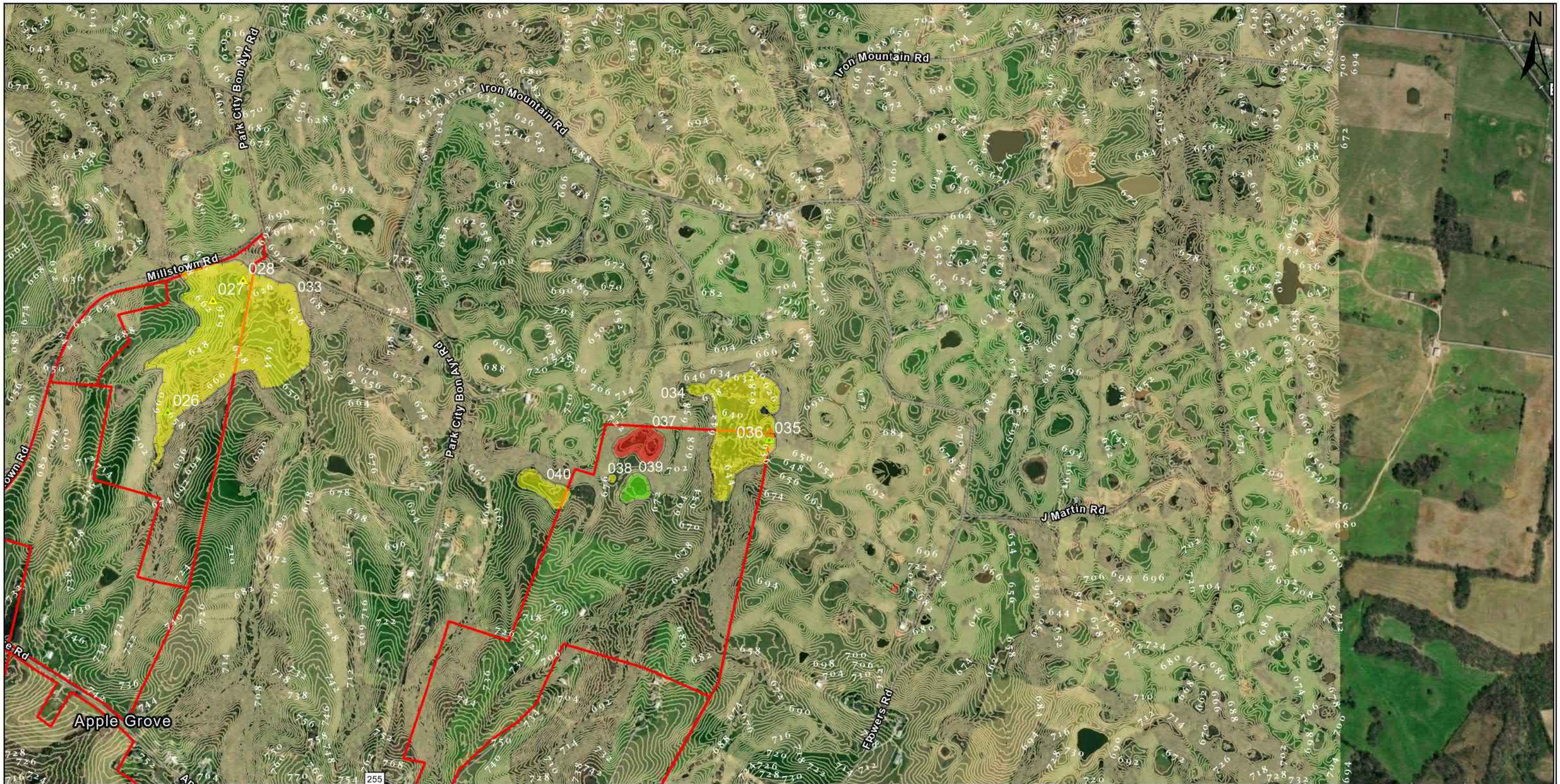
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Karst Risk Map - Hillshade

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

C1





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

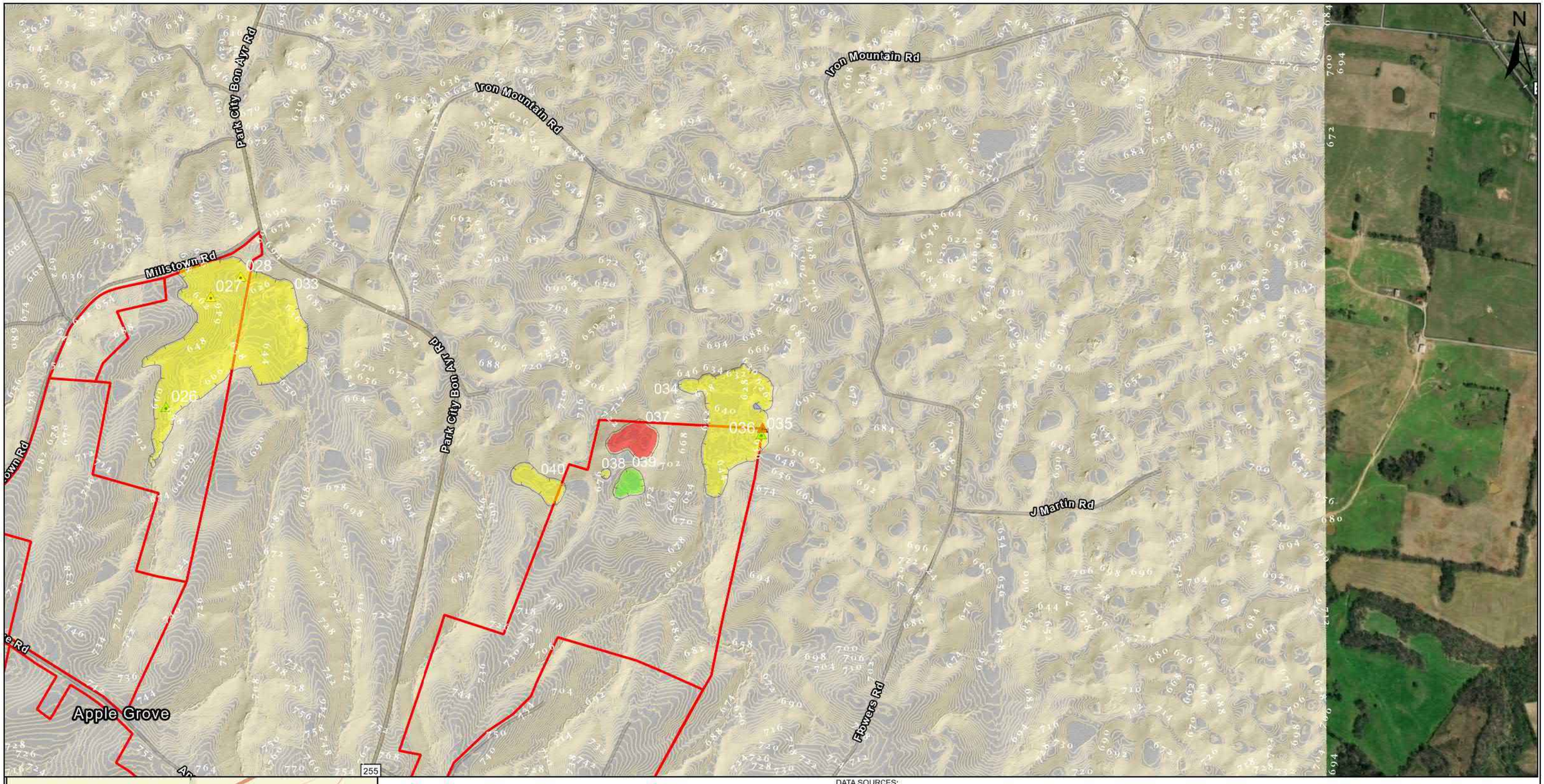
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Karst Risk Map - Imagery

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

B2





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

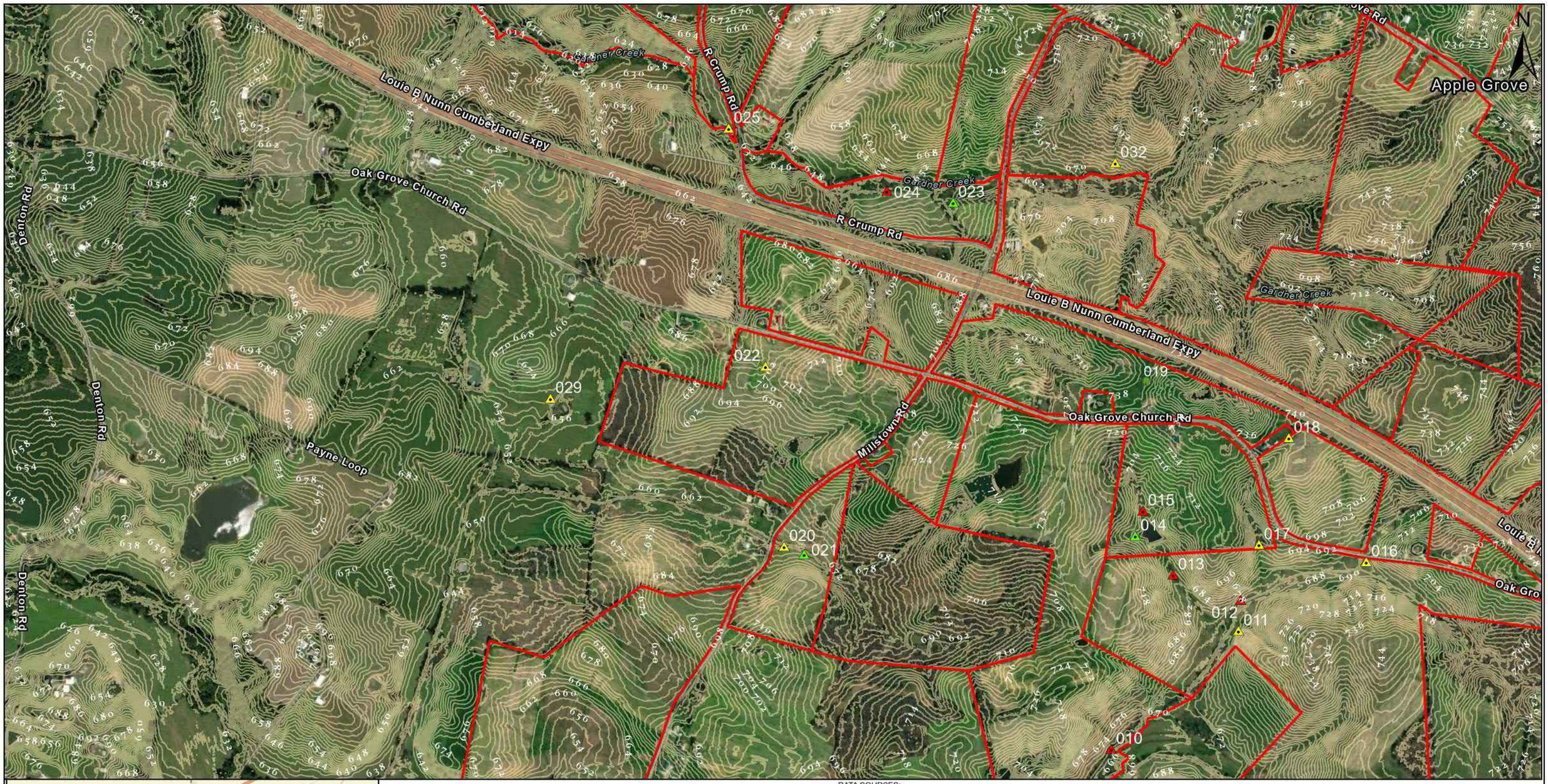
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Karst Risk Map - Hillshade

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

C2





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

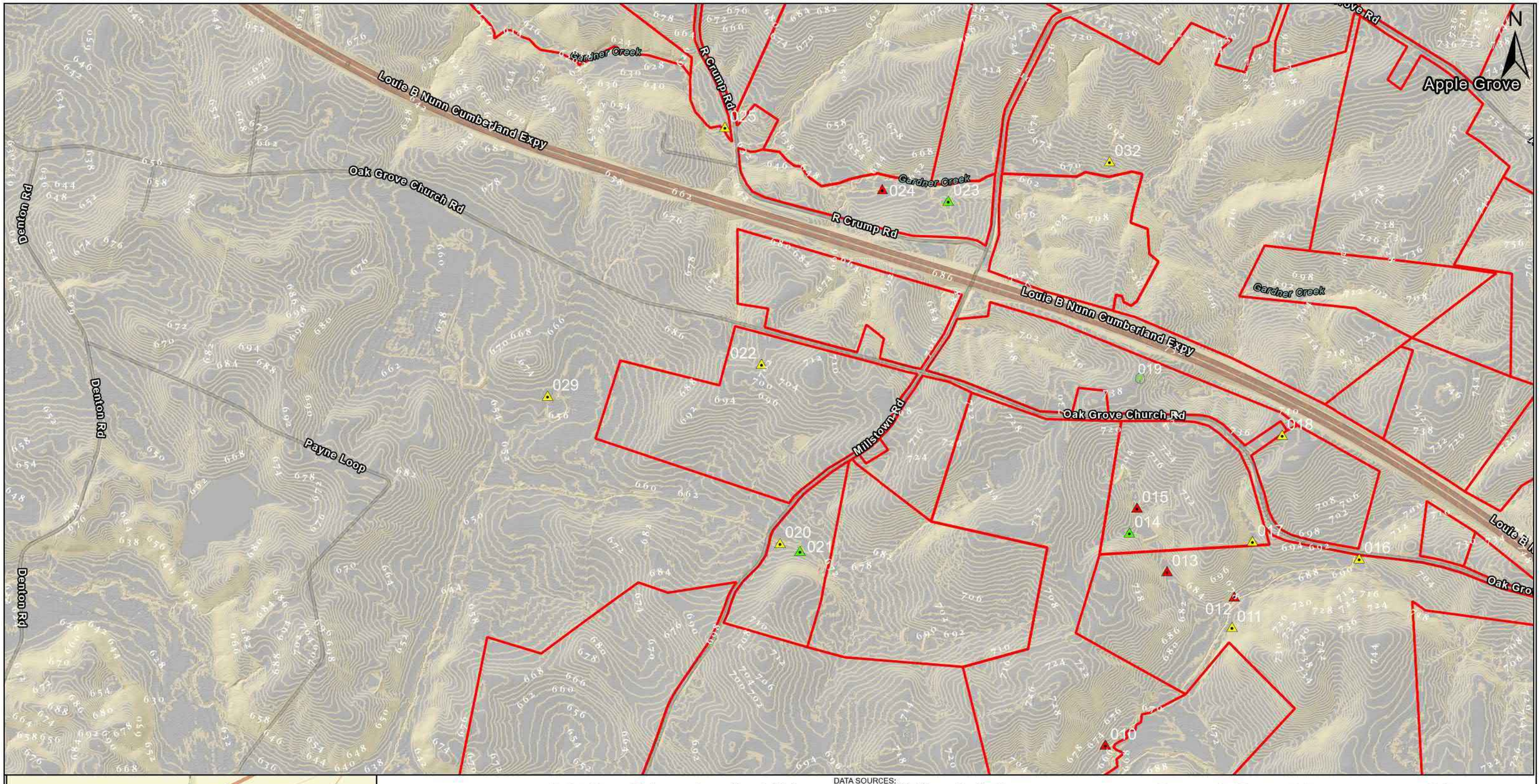
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Karst Risk Map - Imagery

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

B3





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

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Karst Risk Map - Hillshade

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

C3





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

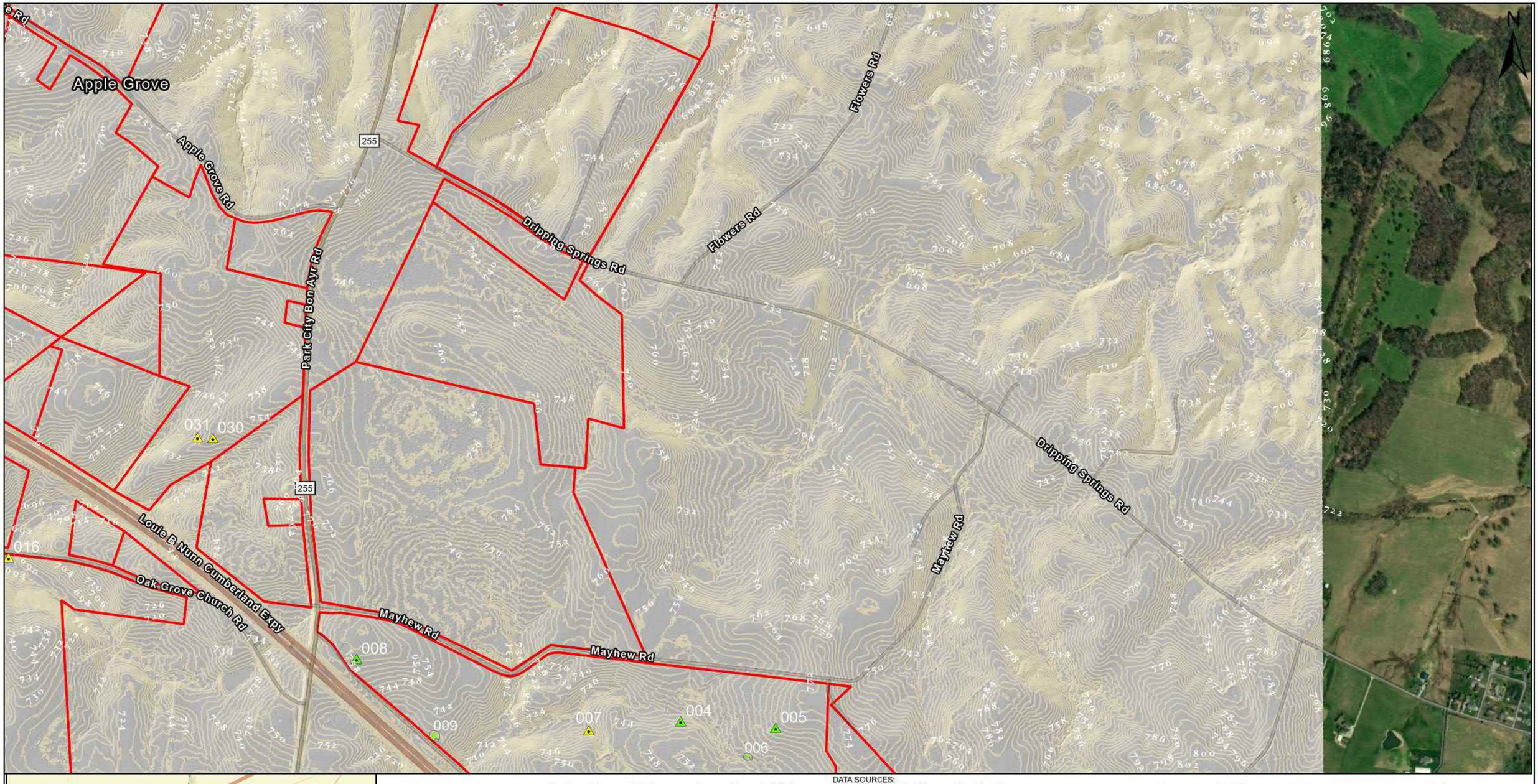
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Karst Risk Map - Imagery

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

B4





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

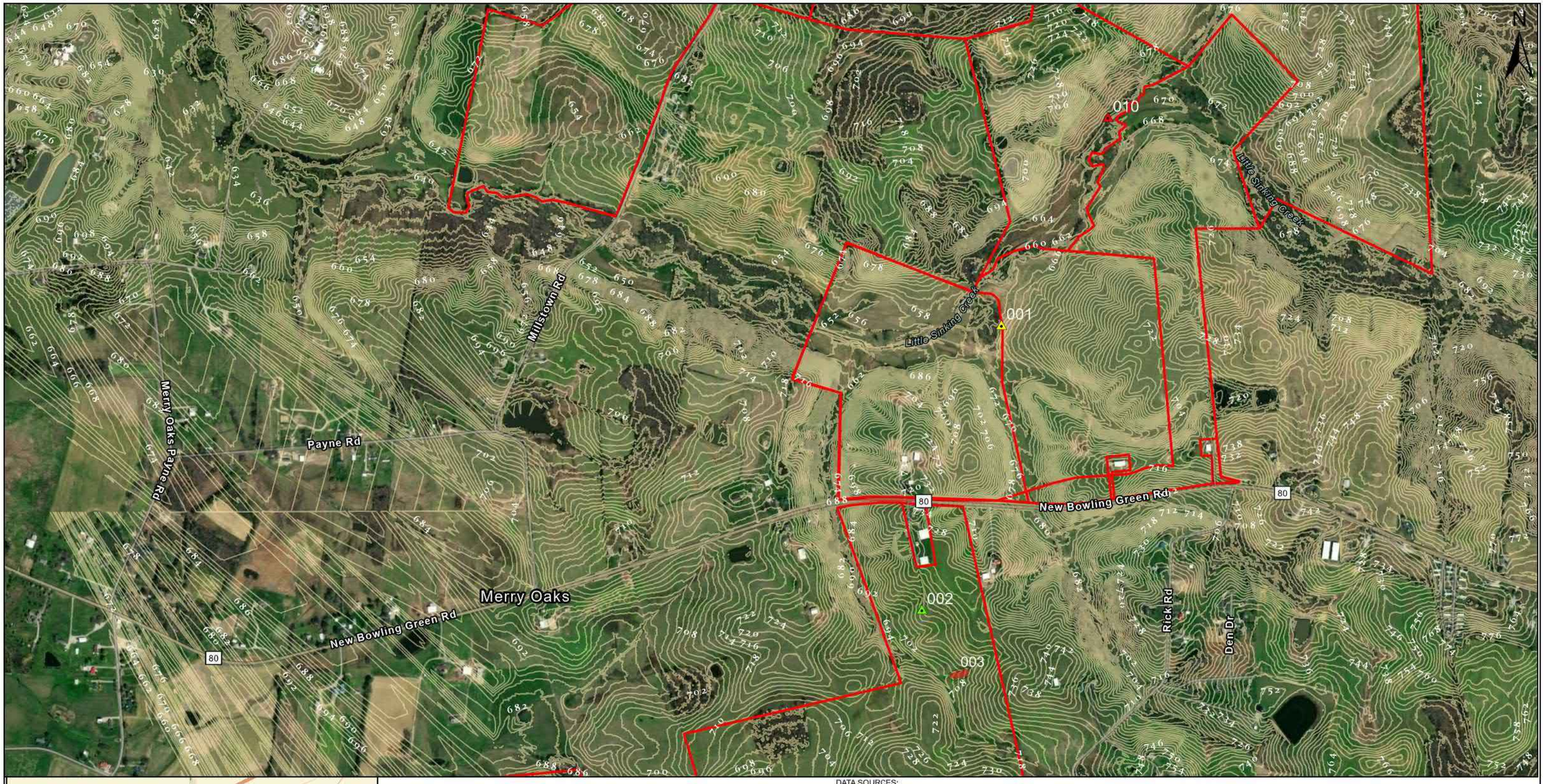
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Karst Risk Map - Hillshade

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

C4





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

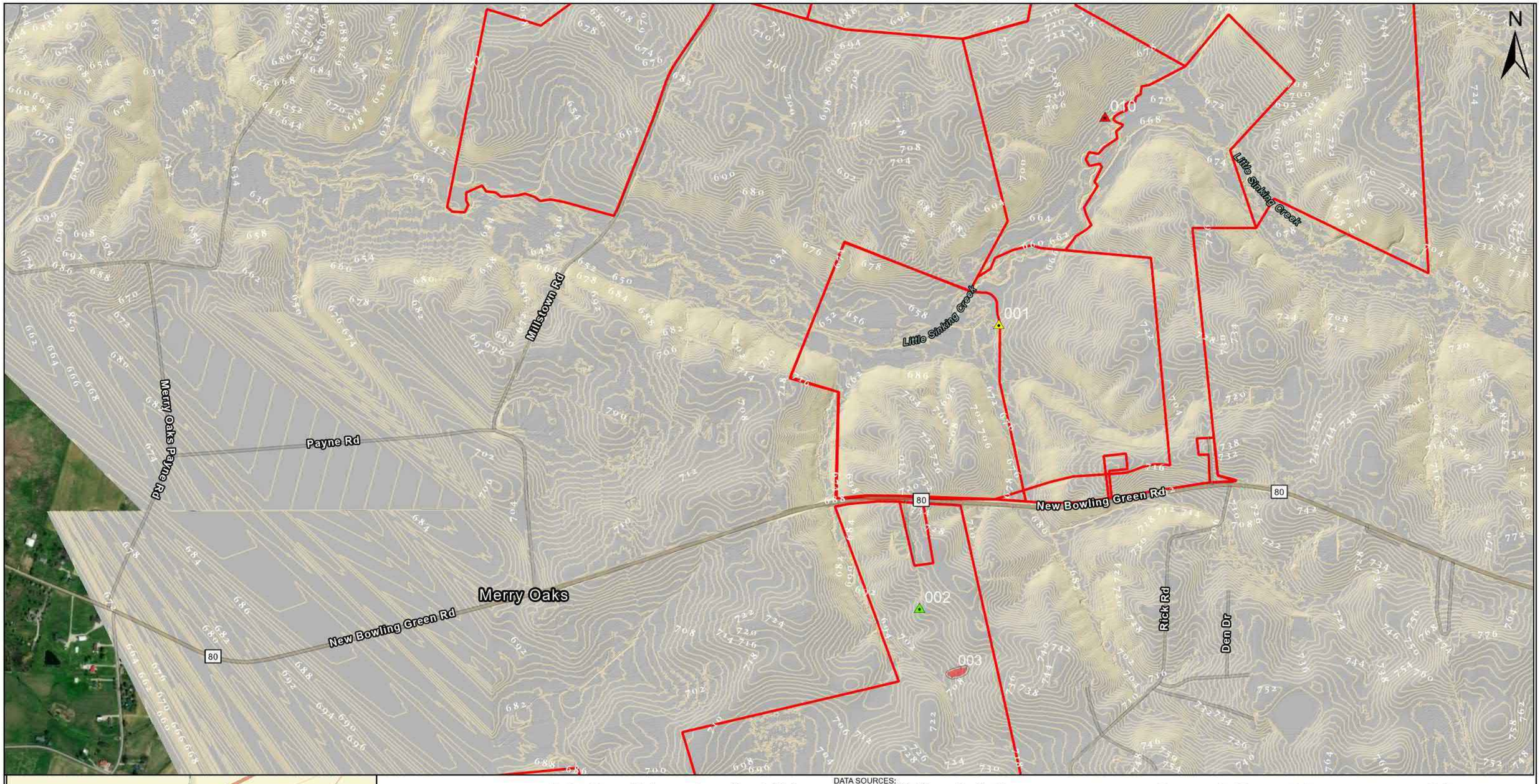
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Karst Risk Map - Imagery

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

B5





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

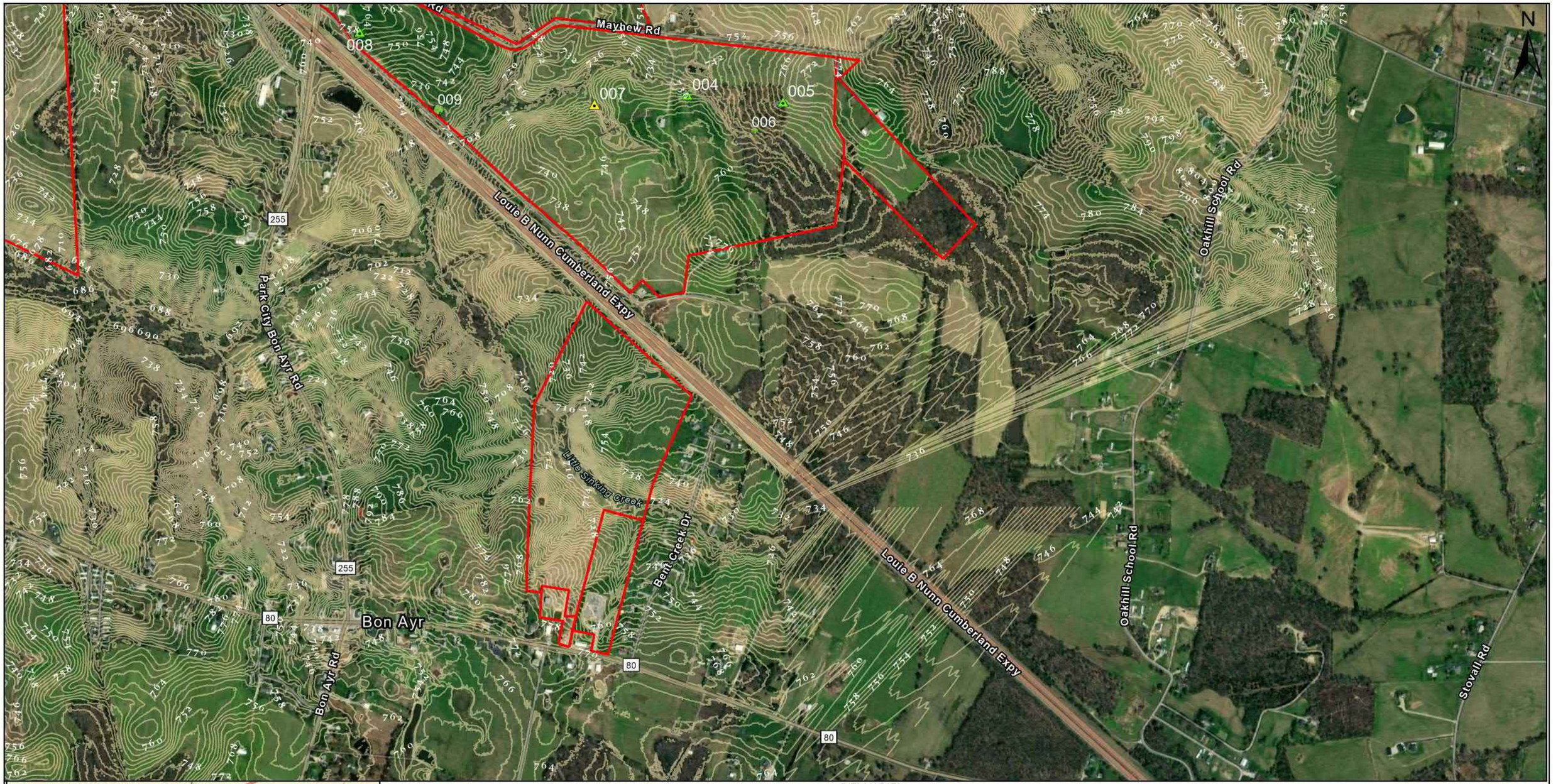
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PH. (502) 456-1256 terracon.com

Karst Risk Map - Hillshade

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

C5





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

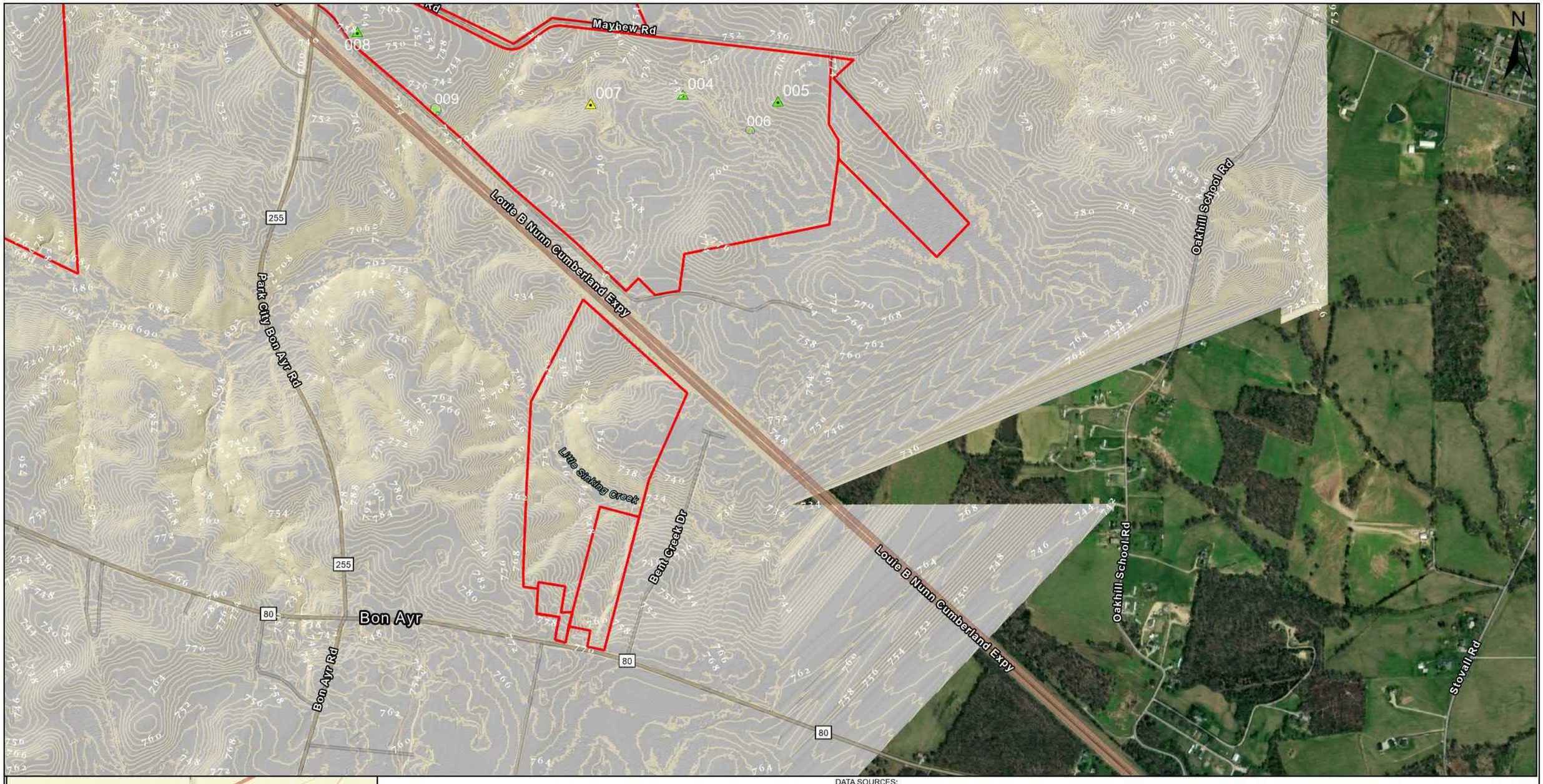
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Karst Risk Map - Imagery

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

B6





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

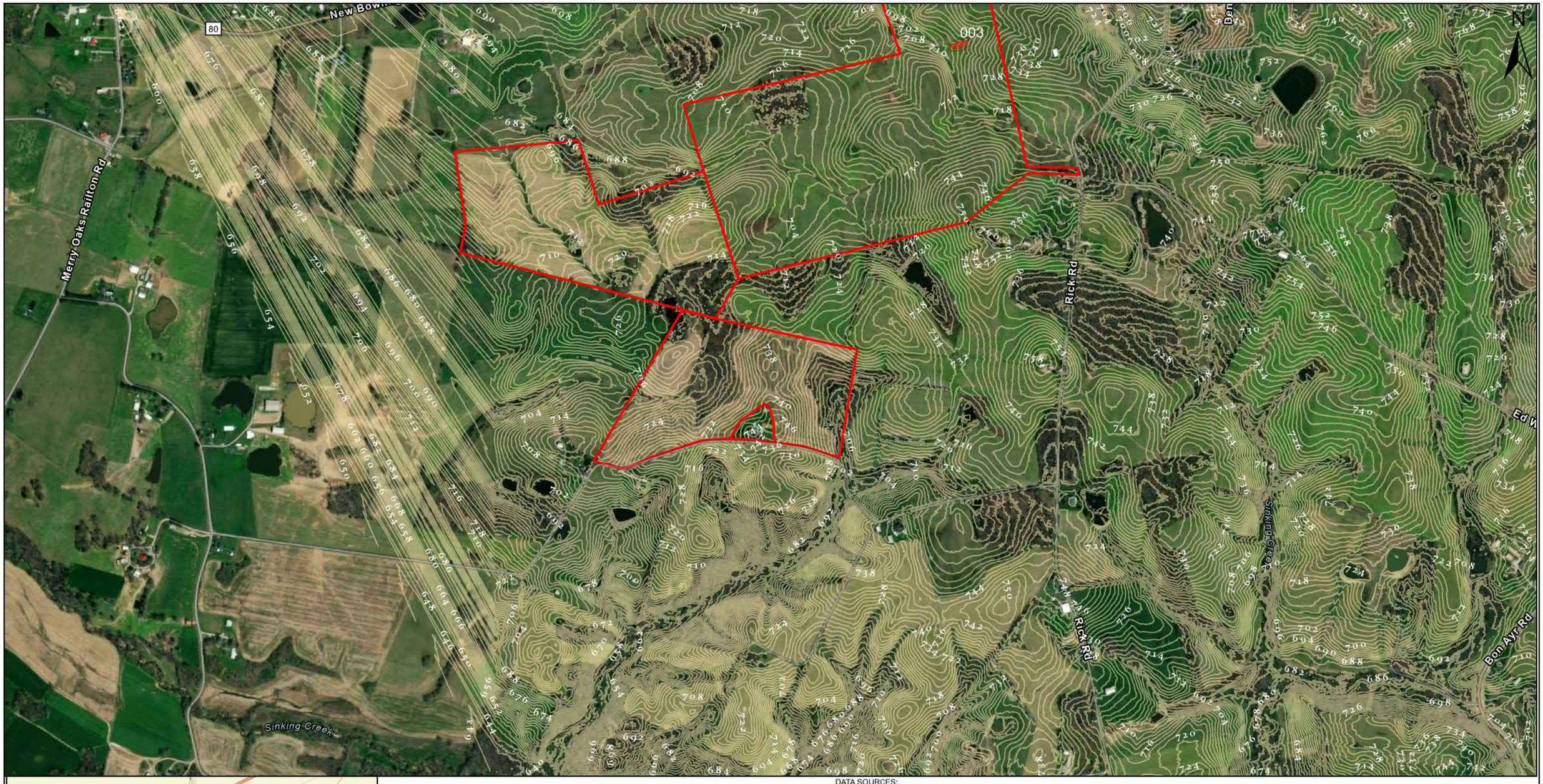
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Karst Risk Map - Hillshade

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

C6





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

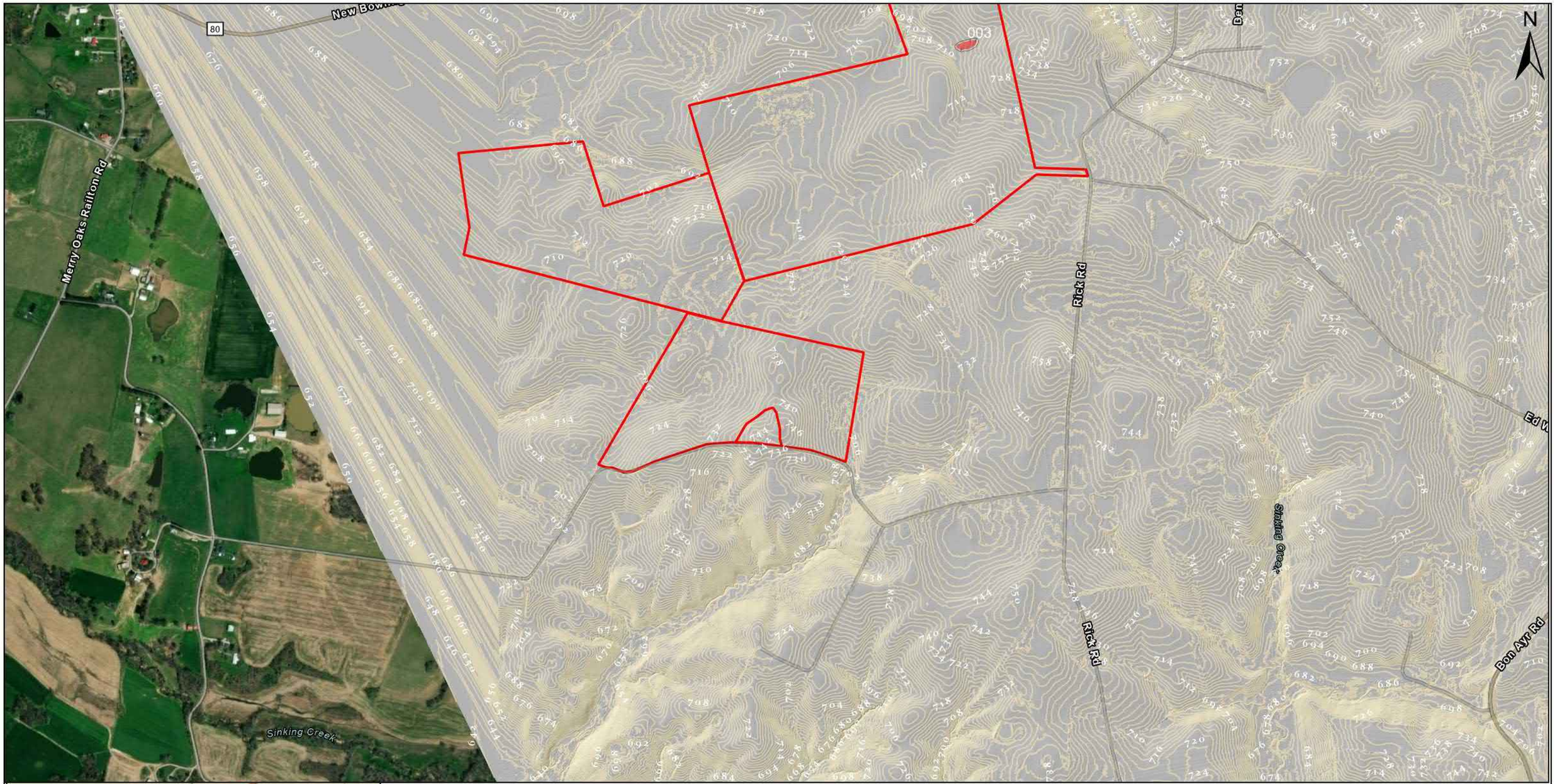
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PH. (502) 456-1256 terracon.com

Karst Risk Map - Imagery

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

B7





Legend

- Site Boundary
- 2 Foot Contour

Point Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

Area Karst Risk

- Very High
- High
- Moderate
- Low
- Very Low

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap
Solar parcel data received from client

0 0.15 0.3 0.6 Miles

Project No.:	57237074
Date:	May 2023
Drawn By:	SMV
Reviewed By:	WDFT

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Karst Risk Map - Hillshade

Wood Duck Solar
Karst Survey and Assessment
Barren and Edmonson Counties

Exhibit

C7

APPENDIX C – KARST FEATURE PHOTOGRAPHY LOG

Karst Feature Name
001

Survey Date
June 28, 2022







Karst Feature Name
002

Survey Date
June 28, 2022





Karst Feature Name
003

Survey Date
June 28, 2022







Karst Feature Name
004

Survey Date
June 28, 2022





Karst Feature Name
005

Survey Date
June 28, 2022





Karst Feature Name
006

Survey Date
June 28, 2022





Karst Feature Name
007

Survey Date
June 28, 2022





Karst Feature Name
008

Survey Date
June 29, 2022





Karst Feature Name
009

Survey Date
June 29, 2022









Karst Feature Name
010

Survey Date
June 29, 2022





Karst Feature Name
011

Survey Date
June 29, 2022







Karst Feature Name
012

Survey Date
June 29, 2022







Karst Feature Name
013

Survey Date
June 29, 2022





Karst Feature Name
014

Survey Date
June 29, 2022





Karst Feature Name
015

Survey Date
June 29, 2022







Karst Feature Name
016

Survey Date
July 1, 2022





Karst Feature Name
017

Survey Date
July 1, 2022





Karst Feature Name
018

Survey Date
July 1, 2022





Karst Feature Name
019

Survey Date
July 1, 2022





Karst Feature Name
020

Survey Date
July 1, 2022





Karst Feature Name
021

Survey Date
July 1, 2022







Karst Feature Name
022

Survey Date
July 1, 2022





Karst Feature Name
023

Survey Date
July 1, 2022





Karst Feature Name
024

Survey Date
July 1, 2022







Karst Feature Name
025

Survey Date
July 1, 2022







Karst Feature Name
026

Survey Date
July 1, 2022



Karst Feature Name
027

Survey Date
July 1, 2022





Karst Feature Name
028

Survey Date
July 1, 2022



Karst Feature Name
029

Survey Date
July 1, 2022





Karst Feature Name
030

Survey Date
July 1, 2022







Karst Feature Name
031

Survey Date
July 1, 2022





Karst Feature Name
032

Survey Date
July 6, 2022





Karst Feature Name
033

Survey Date
July 7, 2022





Karst Feature Name
034

Survey Date
July 7, 2022





Karst Feature Name
035

Survey Date
July 7, 2022







Karst Feature Name
036

Survey Date
July 7, 2022









Karst Feature Name
037

Survey Date
July 7, 2022







Karst Feature Name
038

Survey Date
July 7, 2022





Karst Feature Name
039

Survey Date
July 7, 2022





Karst Feature Name
040

Survey Date
July 7, 2022







APPENDIX D – KARST FEATURE CHARACTERISTICS

KARST FEATURE CHARACTERISTICS

Feature ID	Latitude	Longitude	Geologic Formation	Observed Throat	Risk Characteristic					Risk Score	Risk Category
					Throat	Parapet	Raveling	Drainage	Vegetated		
001	-86.0809	37.0305	Msl	No	0	0	1	2	0	3	Moderate
002	-86.0834	37.0234	Msl	No	0	0	0	1	1	2	Low
003	37.0218	-86.0822	Msl	Yes	1	0	2	1	1	5	High
004	-86.0485	37.0363	Msl	No	0	0	0	1	1	2	Low
005	-86.0455	37.0361	Msl	Yes	0	0	0	2	0	2	Low
006	37.0354	-86.0464	Msl	No	0	0	0	1	0	1	Low
007	-86.0514	37.0360	Msl	Yes	1	0	1	1	1	4	Moderate
008	-86.0587	37.0378	Msl	No	0	0	0	1	1	2	Low
009	37.0359	-86.0562	Msl	No	0	0	0	1	0	1	Low
010	-86.0776	37.0357	Msl	Yes	1	0	2	2	0	5	High
011	-86.0736	37.0387	Msl	Yes	1	0	1	1	0	3	Moderate
012	-86.0736	37.0394	Msl	Yes	1	0	1	2	1	5	High

013	-86.0757	37.0401	Msl	Yes	1	0	2	2	0	5	High
014	-86.0768	37.0410	Msl	No	0	0	1	1	0	2	Low
015	-86.0766	37.0416	Msl	Yes	1	0	2	2	0	5	High
016	-86.0696	37.0404	Msl	No	0	0	1	1	1	3	Moderate
017	-86.0730	37.0408	Msl	No	0	0	1	2	0	3	Moderate
018	-86.0721	37.0435	Msl	Unknown	1	0	1	1	0	3	Moderate
019	37.0449	-86.0765	Msl	No	0	0	0	1	0	1	Low
020	-86.0878	37.0408	Msl	Yes	1	0	2	0	1	4	Moderate
021	-86.0872	37.0406	Msl	No	0	0	0	1	0	1	Low
022	-86.0884	37.0452	Msl	No	0	0	1	2	0	3	Moderate
023	-86.0825	37.0493	Msl	Unknown	0	0	1	1	0	2	Low
024	-86.0846	37.0496	Msl	Yes	1	0	2	2	0	5	High
025	-86.0895	37.0512	Msl	Yes	1	0	1	0	1	3	Moderate
026	-86.0647	37.0599	Msl	No	0	0	0	1	0	1	Low
027	-86.0633	37.0626	Msl	No	0	0	1	2	0	3	Moderate
028	-86.0624	37.0632	Msl	No	0	0	1	2	0	3	Moderate

029	-86.0951	37.0444	Msl	No	0	0	1	1	1	3	Moderate
030	-86.0632	37.0434	Msl	Yes	1	0	1	1	0	3	Moderate
031	-86.0637	37.0434	Msl	No	0	0	1	2	0	3	Moderate
032	-86.0775	37.0503	Msl	Yes	1	0	1	1	0	3	Moderate
033	37.0617	-86.0628	Msl	Yes	1	0	1	2	0	4	Moderate
034	37.0595	-86.0470	Msl	Yes	1	0	1	2	0	4	Moderate
035	-86.0461	37.0592	Msl	Yes	0	0	1	1	0	2	Low
036	-86.0460	37.0594	Msl	Yes	1	0	2	2	1	6	High
037	37.0591	-86.0500	Msl	Yes	1	0	2	2	0	5	High
038	37.0582	-86.0509	Msl	No	1	0	1	1	0	3	Moderate
039	37.0580	-86.0502	Msl	No	0	0	1	1	0	2	Low
040	37.0580	-86.0530	Msl	Yes	1	0	1	1	1	4	Moderate

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					Throat	Parapet	Raveling	Drainage	Vegetated		
001	-86.0809	37.0305	Msl	No	0	0	1	2	0	3	Moderate
002	-86.0834	37.0234	Msl	No	0	0	0	1	1	2	Low
003	37.0218	-86.0822	Msl	Yes	1	0	2	1	1	5	High
004	-86.0485	37.0363	Msl	No	0	0	0	1	1	2	Low
005	-86.0455	37.0361	Msl	Yes	0	0	0	2	0	2	Low
006	37.0354	-86.0464	Msl	No	0	0	0	1	0	1	Low
007	-86.0514	37.0360	Msl	Yes	1	0	1	1	1	4	Moderate
008	-86.0587	37.0378	Msl	No	0	0	0	1	1	2	Low
009	37.0359	-86.0562	Msl	No	0	0	0	1	0	1	Low
010	-86.0776	37.0357	Msl	Yes	1	0	2	2	0	5	High
011	-86.0736	37.0387	Msl	Yes	1	0	1	1	0	3	Moderate
012	-86.0736	37.0394	Msl	Yes	1	0	1	2	1	5	High

013	-86.0757	37.0401	Msl	Yes	1	0	2	2	0	5	High
014	-86.0768	37.0410	Msl	No	0	0	1	1	0	2	Low
015	-86.0766	37.0416	Msl	Yes	1	0	2	2	0	5	High
016	-86.0696	37.0404	Msl	No	0	0	1	1	1	3	Moderate
017	-86.0730	37.0408	Msl	No	0	0	1	2	0	3	Moderate
018	-86.0721	37.0435	Msl	Unknown	1	0	1	1	0	3	Moderate
019	37.0449	-86.0765	Msl	No	0	0	0	1	0	1	Low
020	-86.0878	37.0408	Msl	Yes	1	0	2	0	1	4	Moderate
021	-86.0872	37.0406	Msl	No	0	0	0	1	0	1	Low
022	-86.0884	37.0452	Msl	No	0	0	1	2	0	3	Moderate
023	-86.0825	37.0493	Msl	Unknown	0	0	1	1	0	2	Low
024	-86.0846	37.0496	Msl	Yes	1	0	2	2	0	5	High
025	-86.0895	37.0512	Msl	Yes	1	0	1	0	1	3	Moderate
026	-86.0647	37.0599	Msl	No	0	0	0	1	0	1	Low
027	-86.0633	37.0626	Msl	No	0	0	1	2	0	3	Moderate
028	-86.0624	37.0632	Msl	No	0	0	1	2	0	3	Moderate

029	-86.0951	37.0444	Msl	No	0	0	1	1	1	3	Moderate
030	-86.0632	37.0434	Msl	Yes	1	0	1	1	0	3	Moderate
031	-86.0637	37.0434	Msl	No	0	0	1	2	0	3	Moderate
032	-86.0775	37.0503	Msl	Yes	1	0	1	1	0	3	Moderate
033	37.0617	-86.0628	Msl	Yes	1	0	1	2	0	4	Moderate
034	37.0595	-86.0470	Msl	Yes	1	0	1	2	0	4	Moderate
035	-86.0461	37.0592	Msl	Yes	0	0	1	1	0	2	Low
036	-86.0460	37.0594	Msl	Yes	1	0	2	2	1	6	High
037	37.0591	-86.0500	Msl	Yes	1	0	2	2	0	5	High
038	37.0582	-86.0509	Msl	No	1	0	1	1	0	3	Moderate
039	37.0580	-86.0502	Msl	No	0	0	1	1	0	2	Low
040	37.0580	-86.0530	Msl	Yes	1	0	1	1	1	4	Moderate