Hardin Solar Energy III LLC
Case No. 20-1678-EL-BGN

Exhibit Z
Viewshed Analysis and Aesthetic Resources Inventory

TRC Environmental Corporation

January 2021

DICKINSON WRIGHT PLLC

SUMMARY OF THE VIEWSHED ANALYSIS AND AESTHETIC RESOURCES INVENTORY

Hardin Solar III
Energy Center

Hardin County, Ohio

January 2021

TRC Project No. 411311.VIEW.0000

Prepared For:

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CONFIDENTIAL BUSINESS INFORMATION

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ACRONYMS

2D	Two Dimensions/Dimensional
3D	Three Dimensions/Dimensional
ESRI	Earth Systems Research Institute (GIS software company)
GIS	Geographic Information System
GPS	Global Positioning System
HSE III	Hardin Solar Energy III LLC
km	Kilometer
KOP	Key Observation Point
LBRS	Land Based Response System
LiDAR	Light Detection and Ranging
LAS	LiDAR Data File naming convention (i.e. *.las)
MW	Megawatt
m	Meter
NRHP	National Register of Historic Places
OGRIP	Ohio Geographically Referenced Information Program
OPSB	Ohio Power Siting Board
Project	Hardin Solar III Energy Center Project
TRC	TRC Environmental Corporation

1 INTRODUCTION

On behalf of Hardin Solar Energy III LLC (HSE III), TRC Environmental Corporation (TRC) has prepared this *January 2021 Hardin Solar III Energy Center Summary of the Viewshed Analysis and Aesthetic Resources Inventory Report* as part of the environmental studies conducted for the Hardin Solar III Energy Center (Project), located in Hardin County, Ohio. The proposed solar facility will generate up to 300 megawatts (MW) of power. The Project area is the area studied by TRC in support of the Hardin Solar III Energy Center. The Project area totals approximately 1,673 acres (510 hectares). The privately-owned land is located just south of the Villages of Alger and McGuffey in Hardin County, Ohio. The Project area is bisected by State Route 235 and County Road 75 to the east and west and is bound by Township Road 100 to the north and County Road 150 to the south. The current land use / land cover on and surrounding the Project site is primarily cultivate cropland with some smaller areas of forest, hay/pasture and wetlands.

Visual and aesthetic impacts were assessed within a visual study area extending out to a 2 mile (3.2 km) radius from the Project area. Based on desktop review of aerial photography and topographic data and maps, the Project area is primarily rural agricultural with generally flat topography. The Scioto River runs through the visual study area and appears to have been channelized through much of the Project area, likely for irrigation or other agricultural purposes. The Village of McGuffey and the Village of Alger both fall within the Project area. McGuffey has a population of approximately 500, is 0.36 square miles (0.93 km^2) and is primarily residential. The Upper Scioto Valley School campus lies within the Village. The Village of Alger has an approximate population of 850, is 0.28 square miles (0.73 km^2) and is primarily residential.

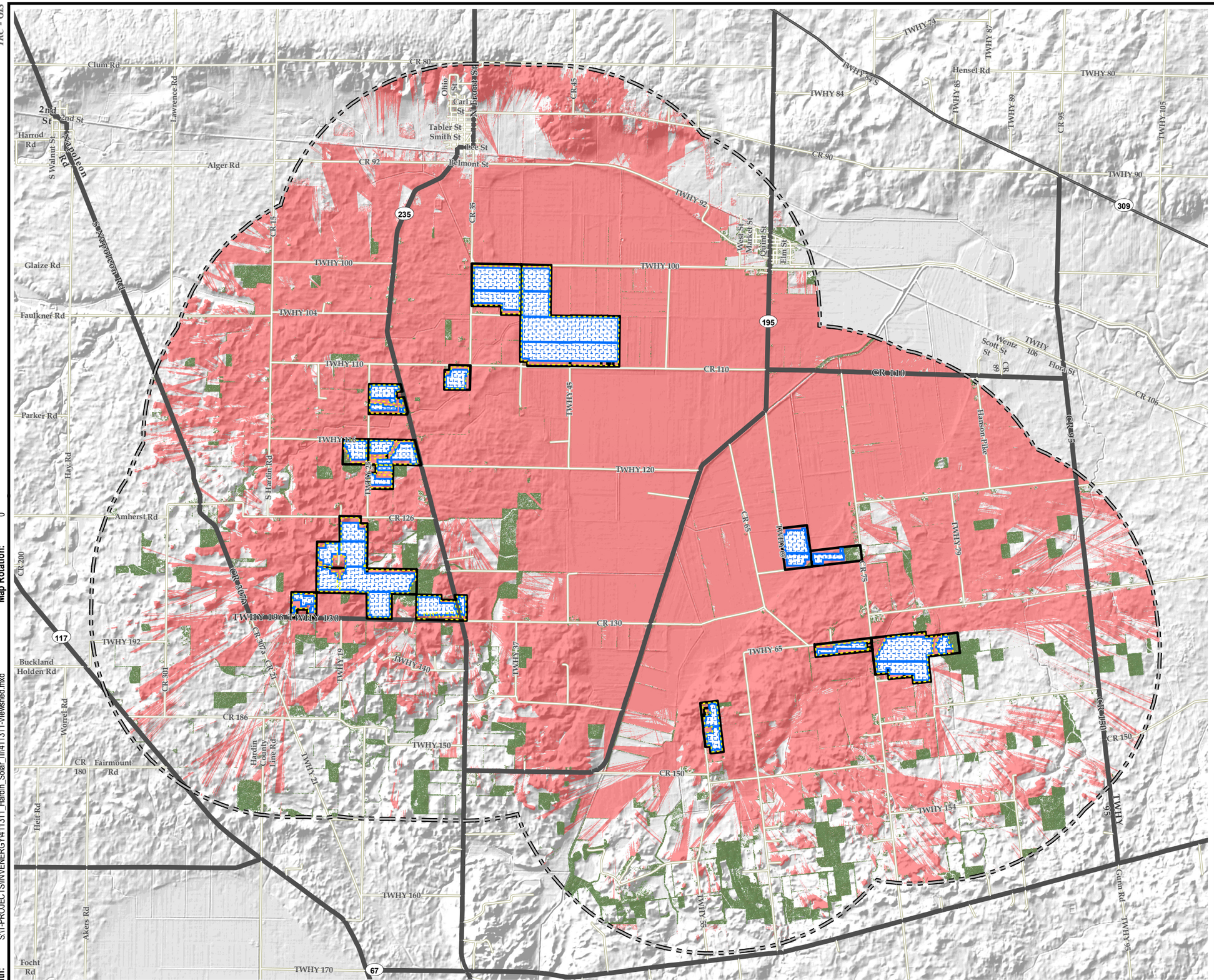
2 VIEWSHED ANALYSIS

A viewshed analysis out to 2 miles (3.2 km) was conducted. Due to the inherent low-profile nature of solar projects it is unlikely that locations shown as visible by the computer model greater than 2 miles from the site are representative of what the human eye can perceive. This analysis is a Geographic Information System (GIS) analytical technique that allows for the determination and location of where Project features, such as solar panels, fences, or substations are likely to be visible in the surrounding area of the Project. The results of the viewshed analysis are combined with other sensitive location information such as historic places, national forests, state parks, or other key observation points (KOPs). The GIS combination of KOP locations and the viewshed analysis information assists in understanding the potential for Project visibility at sensitive resource locations and provides a better understanding of the potential visual impacts the Project may have.

2.1 VIEWSHED METHODOLOGY

Light Detection and Ranging (LiDAR) data provided by the Ohio Geographically Referenced Information Program (OGRIP) was used for the analysis (OGRIP 2017). The LiDAR survey for Hardin County was conducted in 2006. Forested, vegetated areas, and structures were extracted from the first-return subset of the LiDAR data and separated from the bare-earth (topographic) surface information to provide a realistic landscape for the analysis.

Environmental Systems Research Institute, Inc. (ESRI) Spatial Analyst GIS software was used to develop the viewshed model. X, Y and Z data representing the typical height of the solar panels were incorporated into the model with the LiDAR terrain information. The component height information was based on specifications for the LONGi solar panels. Based on information provided by HSE III, a panel height of 17 feet (5.2 meters [m]) and a fence height of 7 feet (2.1 m) was used for this analysis. The results of the 2-mile model including vegetation can be found on **Figure 1**.



LEGEND

- HARDIN SOLAR III ENERGY CENTER AREA
- 2-MILE SETBACK FROM PROJECT AREA
- PROPOSED FENCE LINE
- AREAS WITH POTENTIAL SITE VISIBILITY
- AREAS WITH OBSTRUCTED VIEW OF SITE
- TREE COVER/VEGETATED AREA

NOTES

1. THIS FIGURE SHOWS SOLAR ARRAY AND FENCE VISIBILITY ONLY.
2. TOPOGRAPHIC INFORMATION FROM LIDAR LAS DATA PROVIDED BY OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM (OGRIP 2006).
3. SOLAR ARRAYS ASSUMED TO BE – 17' TALL, FENCE – 7' TALL AND AN OBSERVER HEIGHT OF 6' FOR VIEWSHED ANALYSIS.
4. THE VIEWSHED ANALYSIS ASSUMES THAT VEGETATION IS OPAQUE AND THAT A VIEWER WOULD NOT SEE THE PROJECT IF STANDING IN A STRUCTURE OR AMONGST TREES.
5. VISIBILITY DOES NOT MEAN THE ENTIRETY OF SOLAR ARRAY WILL BE SEEN. THE MODEL DOES NOT ACCOUNT FOR THE LIMITATIONS OF HUMAN VISION AT A GREATER DISTANCE OR ATMOSPHERIC CONDITIONS THAT MAY CAUSE REDUCED VISIBILITY.
6. INFORMATION PRESENTED HERE IS THE RESULTS OF A DESKTOP ANALYSIS AND HAS NOT BEEN GROUND-TRUTHED.

N

0 5,000 10,000 Feet

1 " = 5,000 '
1:60,000

PROJECT:
HARDIN SOLAR ENERGY III, LLC
HARDIN SOLAR III ENERGY CENTER PROJECT
CONFIDENTIAL BUSINESS INFORMATION

TITLE:
VIEWSHED ANALYSIS WITHIN 2 MILES OF PROJECT SITE

DRAWN BY:	A. HORRIE	PROJ. NO.:	411311
CHECKED BY:	A. THOMPSON		**FIGURE 1**
APPROVED BY:	J. PITTS		
DATE:	JANUARY 2021		

TRC
708 Heartland Trail, Suite 3000
Madison, WI 53717
Phone: 608.826.3600
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FILE NO.: 411311-Viewshed.mxd

Plot Date: 1/19/2021, 14:22:38 PM by AHORRIE -- LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\INVENERGY\411311_Hardin_Solar_III\411311-Viewshed.mxd
Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet (Foot US)
Map Rotation: 0
TRC - GIS

2.2 Assumptions and Limitations of the Viewshed Model

The viewshed analysis identifies cells (raster pixels) that contain elevation information and computes the differences along the terrain surface between an observer at any point within the visual study area and a target (e.g. substation component) (ESRI 2017). The analysis is a clear line of sight and therefore certain factors in the interpretation of results need to be considered:

1. The model does not account for the limitations of human vision at greater distances or atmospheric conditions that may cause reduced visibility. Additionally, at increasing distances away from Project features, they will appear smaller and less detailed and will have a reduced visual impact even if shown as visible in the model.

2. Because an area may show visibility, it does not mean the entirety of the area will be seen. In many cases for this Project, the existing tree stands and buildings in the area provide visual impediments for all or lower portions of the facility.

3. The viewshed model assumes that any vegetation is opaque and therefore represents a leaf-on condition. During leaf-off conditions or where ground level vegetation is sparse, visibility may be possible where the model did not indicate.

4. The model was developed with the assumption that a viewer would not see the Project if standing amongst tree groups.

5. Due to the large size of the Project and many panel locations, it was not readily possible to model every individual structure for the viewshed analysis. As a result, equally distributed points placed along the fence line and solar racking were used for conducting the viewshed analysis.

2.3 Viewshed Analysis Results and Discussion

The Project area has minimal topographic relief, with approximately 150 feet (46 m) of elevation change within the 2-mile visual study area based on LiDAR topography. Much of the Project area is a flat, open setting resulting in an increased potential for site visibility. There is less potential for visibility in the southwest and southeast portions of the Project area where changes in elevation are greater and there is a slight increase in forested area. Given the lack of any significant forested land on the proposed Project site, any vegetation clearing for construction should have little impact on the visibility of the Project.

The detailed viewshed analysis utilizing vegetation and other non-terrain obstructions within 2 miles of the site, as described in Section 2.2, is shown in **Figure 1**.

3 VISUAL RESOURCE INVENTORY

An inventory of publicly accessible KOPs was compiled for the area within 2 miles of the proposed Project area. Resources such as recreational areas, listed National Register of Historic Places (NRHP), bikeways, campgrounds, churches, schools, or other community landmark locations were evaluated and shown along with the results of the viewshed analysis in **Figure 2**. This list of resources was generated from a review of public sources, including Ohio Department of Natural Resources GIS Mapping Services (ODNR 2020), Ohio Location Based Response System (LBRS) Landmarks (OGRIP 2020 and Google Earth Pro (Google Earth™ 2020). Architectural Resources listed in **Table 1** are based on points listed by the Ohio History Connection (Ohio Historic Connection 2021), which have not yet been evaluated for listing in the NRHP and may not actually have any significant aesthetic importance. **Table 1** summarizes the findings.

Table 1. Visual Resources Inventory within 2 Miles (3.2 km) of Hardin Solar III Energy Center Project Area

KOP ID	Type	Name	Potential Visibility
1	School	Upper Scioto Valley	Potentially
2	School	West Newton School	Obstructed
3	Cemetery	Cemetery	Obstructed
4	Cemetery	Cemetery	Potentially
5	Cemetery	Cemetery	Potentially
6	Cemetery	Cemetery	Obstructed
7	Cemetery	Cemetery	Potentially
8	Church	Pentecostal Tabernacle	Obstructed
9	Church	Victory Chapel of Praise	Obstructed
10	Church	Quickstep Pentecostal	Potentially
11	Church	Flatbranch Church of Christ	Potentially
12	Church	West Newton Methodist	Obstructed
13	Church	Fellowship Baptist	Obstructed
14	Historic	Architectural Resource	Potentially
15	Historic	Architectural Resource	Obstructed
16	Historic	Architectural Resource	Obstructed
17	Historic	Architectural Resource	Potentially
18	Historic	Architectural Resource	Obstructed
19	Historic	Architectural Resource	Obstructed
20	Historic	Architectural Resource	Obstructed
21	Historic	Architectural Resource	Obstructed
22	Historic	Architectural Resource	Obstructed
23	Historic	Architectural Resource	Potentially
24	Historic	Architectural Resource	Obstructed
25	Historic	Architectural Resource	Potentially
26	Historic	Architectural Resource	Obstructed
27	Historic	Architectural Resource	Potentially
28	Historic	Architectural Resource	Potentially
29	Historic	Architectural Resource	Potentially
30	Historic	Architectural Resource	Potentially
31	Historic	Architectural Resource	Obstructed
32	Historic	Architectural Resource	Obstructed
33	Historic	Architectural Resource	Potentially

KOP ID	Type	Name	Potential Visibility[1]
68	Historic	Architectural Resource	Obstructed
69	Historic	Architectural Resource	Potentially
70	Historic	Architectural Resource	Potentially
71	Historic	Architectural Resource	Obstructed
72	Historic	Architectural Resource	Potentially
73	Historic	Architectural Resource	Obstructed
74	Historic	Architectural Resource	Potentially
75	Historic	Architectural Resource	Obstructed
76	Historic	Architectural Resource	Potentially
77	Historic	Architectural Resource	Obstructed
78	Historic	Architectural Resource	Potentially
79	Historic	Architectural Resource	Obstructed
80	Historic	Architectural Resource	Potentially
81	Historic	Architectural Resource	Potentially
82	Historic	Architectural Resource	Potentially
83	Historic	Architectural Resource	Potentially
84	Historic	Architectural Resource	Potentially
85	Historic	Architectural Resource	Potentially
86	Historic	Architectural Resource	Potentially
87	Historic	Architectural Resource	Potentially
88	Historic	Architectural Resource	Potentially
89	Historic	Architectural Resource	Obstructed
90	Historic	Architectural Resource	Obstructed
91	Historic	Architectural Resource	Obstructed
92	Historic	Architectural Resource	Potentially
93	Historic	Architectural Resource	Potentially
94	Historic	Architectural Resource	Potentially
95	Historic	Architectural Resource	Obstructed
96	Historic	Architectural Resource	Obstructed
97	Historic	Architectural Resource	Potentially
98	Historic	Architectural Resource	Potentially
99	Historic	Architectural Resource	Obstructed
100	Historic	Architectural Resource	Potentially

[1] Potential visibility refers to the likelihood a structure has for site visibility. Potentially indicates potential site visibility from structure and obstructed indicates no potential for site visibility.

KOP ID	Type	Name	Potential Visibility
34	Historic	Architectural Resource	Potentially
35	Historic	Architectural Resource	Obstructed
36	Historic	Architectural Resource	Potentially
37	Historic	Architectural Resource	Obstructed
38	Historic	Architectural Resource	Potentially
39	Historic	Architectural Resource	Obstructed
40	Historic	Architectural Resource	Potentially
41	Historic	Architectural Resource	Potentially
42	Historic	Architectural Resource	Potentially
43	Historic	Architectural Resource	Potentially
44	Historic	Architectural Resource	Potentially
45	Historic	Architectural Resource	Potentially
46	Historic	Architectural Resource	Potentially
47	Historic	Architectural Resource	Potentially
48	Historic	Architectural Resource	Potentially
49	Historic	Architectural Resource	Potentially
50	Historic	Architectural Resource	Potentially
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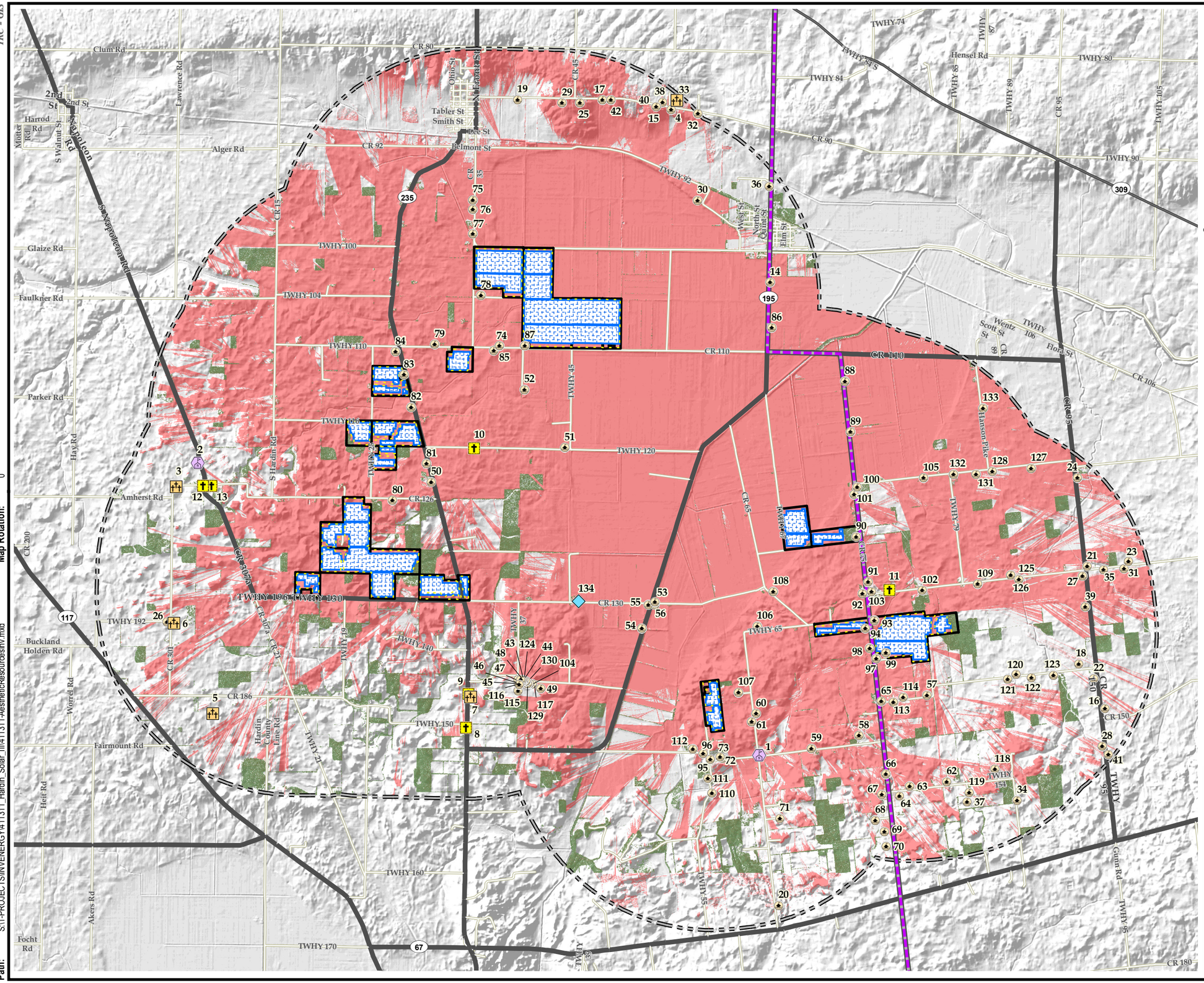
52	Historic	Architectural Resource	Potentially
53	Historic	Architectural Resource	Potentially
54	Historic	Architectural Resource	Potentially
55	Historic	Architectural Resource	Potentially
56	Historic	Architectural Resource	Potentially
57	Historic	Architectural Resource	Potentially
58	Historic	Architectural Resource	Obstructed
59	Historic	Architectural Resource	Potentially
60	Historic	Architectural Resource	Potentially
61	Historic	Architectural Resource	Potentially
62	Historic	Architectural Resource	Obstructed
63	Historic	Architectural Resource	Potentially
64	Historic	Architectural Resource	Obstructed
65	Historic	Architectural Resource	Potentially
66	Historic	Architectural Resource	Obstructed
67	Historic	Architectural Resource	Obstructed

KOP ID	Type	Name	Potential Visibility[1]
101	Historic	Architectural Resource	Potentially
102	Historic	Architectural Resource	Potentially
103	Historic	Architectural Resource	Obstructed
104	Historic	Architectural Resource	Potentially
105	Historic	Architectural Resource	Potentially
106	Historic	Architectural Resource	Potentially
107	Historic	Architectural Resource	Potentially
108	Historic	Architectural Resource	Potentially
109	Historic	Architectural Resource	Potentially
110	Historic	Architectural Resource	Obstructed
111	Historic	Architectural Resource	Potentially
112	Historic	Architectural Resource	Potentially
113	Historic	Architectural Resource	Potentially
114	Historic	Architectural Resource	Obstructed
115	Historic	Architectural Resource	Potentially
116	Historic	Architectural Resource	Potentially
117	Historic	Architectural Resource	Obstructed
118	Historic	Architectural Resource	Potentially
119	Historic	Architectural Resource	Potentially
120	Historic	Architectural Resource	Obstructed
121	Historic	Architectural Resource	Obstructed
122	Historic	Architectural Resource	Obstructed
123	Historic	Architectural Resource	Obstructed
124	Historic	Architectural Resource	Potentially
125	Historic	Architectural Resource	Potentially
126	Historic	Architectural Resource	Potentially
127	Historic	Architectural Resource	Potentially
128	Historic	Architectural Resource	Obstructed
129	Historic	Architectural Resource	Potentially
130	Historic	Architectural Resource	Potentially
131	Historic	Architectural Resource	Potentially
132	Historic	Architectural Resource	Obstructed
133	Historic	Architectural Resource	Potentially
134	Other	York Street Farms	Potentially

[1] Potential visibility refers to the likelihood a structure has for site visibility. Potentially indicates potential site visibility from structure and obstructed indicates no potential for site visibility.



LEGEND

- HARDIN SOLAR III ENERGY CENTER AREA
- 2-MILE SETBACK FROM PROJECT AREA
- PROPOSED SOLAR RACK AREA
- PROPOSED FENCE LINE
- AREAS WITH POTENTIAL SITE VISIBILITY
- AREAS WITH OBSTRUCTED VIEW OF SITE
- TREE COVER/VEGETATED AREA
- STATE BIKE ROUTE

POTENTIAL AESTHETIC RESOURCES/KEY OBS. POINTS (KOP)

- SCHOOL
- CEMETERY
- CHURCH
- HISTORIC STRUCTURE
- OTHER

NOTES

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6. INFORMATION PRESENTED HERE IS THE RESULTS OF A DESKTOP ANALYSIS AND HAS NOT BEEN GROUND-TRUTHED.
7. RESOURCES IDENTIFIED AS KEY OBSERVATION POINTS ARE LISTED IN TABLE 1 OF THE VIEWSHED ANALYSIS AND AESTHETIC RESOURCES INVENTORY REPORT.

0 5,000 10,000 Feet

1 " = 5,000 '
1:60,000

PROJECT:
HARDIN SOLAR ENERGY III, LLC
HARDIN SOLAR III ENERGY CENTER PROJECT
CONFIDENTIAL BUSINESS INFORMATION

TITLE:
VIEWSHED ANALYSIS AND POTENTIAL AESTHETIC RESOURCES

DRAWN BY:	A. HORRIE	PROJ. NO.:	411311
CHECKED BY:	A. THOMPSON		
APPROVED BY:	J. PITTS		
DATE:	JANUARY 2021		

FIGURE 2

TRC
708 Heartland Trail, Suite 3000
Madison, WI 53717
Phone: 608.826.3600
www.trcsolutions.com

FILE NO.: 411311-AestheticResourcesInv.mxd

TRC - GIS
Plot Date: 1/18/2021, 20:48:41 PM by AHORRIE -- LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\INVENERGY\411311_Hardin_Solar_III\411311-AestheticResourcesInv.mxd
Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet (Foot US)
Map Rotation: 0

4 VISUAL SIMULATIONS

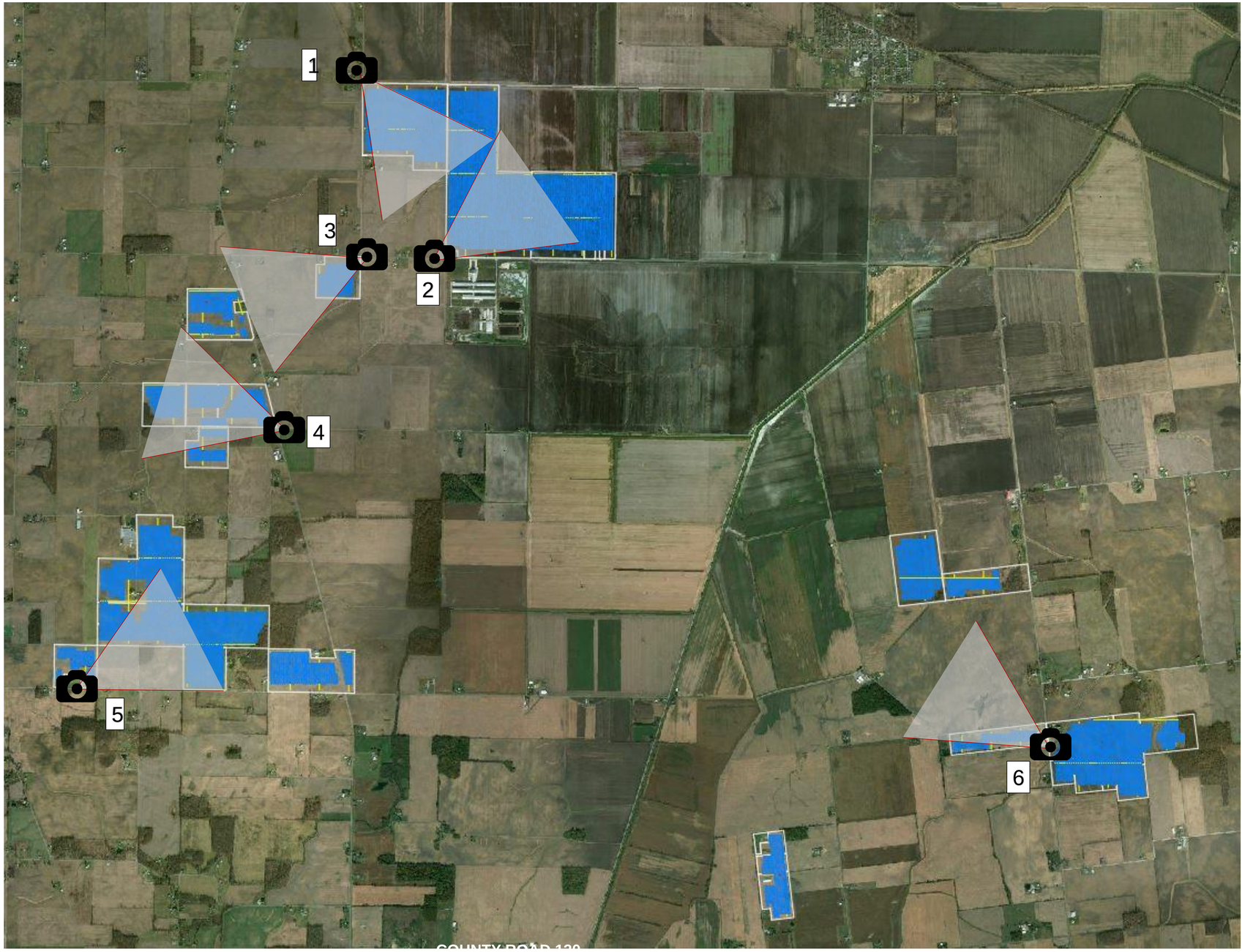
Field surveys were conducted on December 11, 2020 to acquire photographs for simulations. Six (6) photographs are presented as simulations. Photographs were taken to provide the most unobstructed views possible at north, south, east, and west positions and/or in areas where the viewshed maps represent visibility that is proximal to the Project.

4.1 METHODOLOGY

Photographs were taken with a Canon EOS 5D Mark IV digital camera. Coordinates of camera locations intended for simulations were recorded using a sub-meter Global Positioning System unit (GPS), as well as other reference points within the view. These reference locations were later used to refine the placement of the facility within the simulation photographs. Heights of select high reference points were measured with a tape measure or survey rod. The photograph locations are shown on **Figure 3**.

To create visual simulations, 3DS MAX 2016 software was used to correctly dimension a model of the Project into the digital photographic image from each viewpoint location. The 3-Dimensional (D) model of the facility was created by TRC using engineering specifications (NEXTracker, Inc.) along with a 2D solar array and perimeter fencing location provided by HSE III. The simulation model was further developed to position the viewer at the selected vantage point. For a given vantage point, the visualization software is capable of providing and adjusting a camera view that matches that of the actual photograph. From the field effort, the documented camera coordinate (X, Y, and Z) positions were entered into the model. Reference locations, which are existing visible objects in the photograph such as light posts, building corners, trees, gate posts or utility poles were obtained by GPS to assist with refined placement of the proposed Project within the photograph. In some instances, GIS terrain modeling and analysis helped in locking in the 3D facility model within the photograph. Ground point elevations of the camera location and other referenced objects were obtained from the 2006 LiDAR LAS data provided by OGRIP (OGRIP 2017).

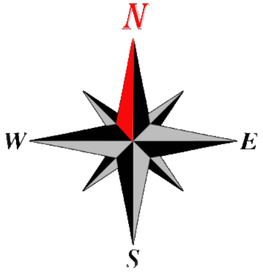
The day and time of the photographs were also recorded and typically exist as electronic information embedded in the respective digital photograph files. This information was used to adjust for sun angle in the simulation software in order to represent shadowing based on light conditions for the time of day and year. Adjustments were also made to account for weather conditions or amount of overcast.



LEGEND

1 PHOTO LOCATION AND NUMBER

DIRECTION OF PHOTO



HARDIN SOLAR ENERGY III, LLC
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FIGURE 3. PHOTO LOCATION MAP

TRC

4.2 Discussion of Simulations

As noted with the viewshed mapping results (**Figures 1 & 2**), views from the southwest and southeast of the Project will have the most obstructed views in the viewshed due to topographic changes and areas of forested land. Photographs used for visual simulations were taken within proximity of the panel locations, resulting in more unobstructed views of Project features. Views that are farther out from the panels are likely to be more obstructed throughout most of the Project area due to proximity, tree lines, changes in topography and forested area. Visual obstructions due to small patches of trees and vegetation may obstruct some views, but the extent of obstructions could minimal and likely to be lessened during leaf-off conditions.

Figures 4 and 5: Photo Location 1: Intersection Township Road 100 & County Road 35, 445 feet (135.6 m) north of the Project

Photo location 1 is from just south of the intersection of Township Road 100 and County Road 35, approximately 354 feet (108 m) from the proposed northeast edge of the solar array. The photo was taken on December 11, 2020 at 11:45am (**Figure 4**). The proposed-conditions simulation (**Figure 5**) shows an unobstructed view at the intersection of Township Road 100 and County Road 35. The view from this vantage point may be representative of views elsewhere along the two roads until they reach Alger and McGuffey where views are likely to be more obstructed due to an increase in vegetation and physical features. Visibility may also be reduced nearer Alger and McGuffey as the vertical size of features will appear smaller than what is seen at this location.

Figures 6 and 7: Photo Location 2: County Road 110, 1,120 feet (341.4 m) west of the Project

Photo location 2 is from the southern edge of County Road 110 just east of a cluster of homes along the road, approximately 1,120 feet (341.4 m) from the proposed southeast edge of the solar array. The photo was taken on December 11, 2020 at 12:23pm (**Figure 6**). The proposed-conditions simulation (**Figure 7**) shows that there is an unobstructed view along County Road 110 and across the adjacent agricultural field. This view is likely representative of the view to the west of this point as well. The vertical size of features should appear smaller for views to the north of this location and could be minimized at times when certain crops are growing.

Figures 8 and 9: Photo Location 3: Intersection County Road 110 & County Road 35, 325 feet (99 m) northeast of the Project

Photo location 3 is from the intersection of County Road 110 and County Road 35, approximately 325 feet (99 m) from the proposed northeaster edge of the solar array. The photo was taken on December 11, 2020 at 12:04pm (**Figure 8**). This location will have unobstructed visibility of the proposed solar facility. This location is approximately 1,600 feet (487.7 m) west of photo location 2 and is therefore has similar visibility

characteristics along County Road 110. The view in the proposed-conditions simulation (**Figure 9**) is likely representative of the view to the north and east of this point. Views to the north and west of CR 35 will be more obstructed due to the distance from the nearest facility in those directions. There are two homes within 1,500 feet (457.2 m) and west of the photo location that will have unobstructed views of the facility to the south.

Figures 10 and 11: Photo Location 4: Intersection Township Road 120 & State Route 235, 260 feet (79.2 m) east of the Project

Photo location 4 is from the intersection of Township Road 120 and State Route 235, approximately 260 feet (79.2 m) slightly southeast of the proposed edge of the solar array. The photo was taken on December 11, 2020 at 1:15pm (**Figure 10**). The proposed-conditions simulation (**Figure 11**) shows that there is an unobstructed view across State Route 235. This view is likely representative of the view along State Route 235 to the north to County Road 110. A forested area directly to the west of the photo location is likely to obstruct facility visibility to the west and southwest during leaf-on conditions. Views to the east and south east are likely to be obstructed due to the distance from the nearest facility in those directions.

Figures 12 and 13: Photo Location 5: Township Road 130, 300 feet (91.4 m) south of the Project

Photo location 5 is from the south side of Township Road 130, approximately 300 feet (91.4 m) south of the proposed edge of the solar array. The photo was taken on December 11, 2020 at 2:00pm (**Figure 12**). The proposed-conditions simulation (**Figure 13**) shows that there is an unobstructed view across State Township Road 130. This view is likely representative of the view along Township Road 130 east until it reaches State Route 235. There are no facilities to the south and southeast of this location. There are a few homes within close proximity to this location that will have unobstructed views of the facility. It is possible that views directly to the east will have limited visibility at times of atmospheric haze or when certain crops are growing.

Figures 14 and 15: Photo Location 6: County Road 75, 700 feet (213.4 m) southeast of the Project

Photo location 6 is from the east side of County Road 75 just south of Flat Branch Stream, approximately 700 feet (213.4 m) southeast of the proposed edge of the solar array. The photo was taken on December 11, 2020 at 2:45pm (**Figure 14**). The proposed-conditions simulation (**Figure 15**) shows that there is an unobstructed view across County Road 75 and the adjacent agricultural field. The facility on the east side of County Road 75 is approximately 125 feet (38.1 m) from photo location 6 and will also have an unobstructed view. Views to the southwest of this location should have limited visibility due to the distance of the nearest facility in that direction. There are no facilities to the south of this location.

VIEWPOINT LOCATION MAP

PROPOSED CONDITIONS

TECHNICAL INFORMATION

Viewpoint Coordinates in	1596361 E
OH NAD83 North State Feet	375696 N
Viewpoint Location	Location 1
Viewer Eye Elevation	979 ft msl
Distance to Project	454 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	50 mm
Date/Time	12-11-2020/11:45 am

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FIGURE 4. PHOTO LOCATION 1: INTERSECTION TWP RD 100/CR 35 - EXISTING CONDITIONS

TRC

VIEWPOINT LOCATION MAP

EXISTING CONDITIONS

TECHNICAL INFORMATION

Viewpoint Coordinates in	1596361 E
OH NAD83 North State Feet	375696 N
Viewpoint Location	Location 1
Viewer Eye Elevation	979 ft msl
Distance to Project	454 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	50 mm
Date/Time	12-11-2020/11:45 am

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FIGURE 5. PHOTO LOCATION 1: INTERSECTION TWP RD 100/CR 35 - PROPOSED CONDITIONS

TRC

VIEWPOINT LOCATION MAP

PROPOSED CONDITIONS

TECHNICAL INFORMATION

Viewpoint Coordinates in	1597938 E
OH NAD83 North State Feet	370072 N
Viewpoint Location	Location 2
Viewer Eye Elevation	982 ft msl
Distance to Project	1128 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	50 mm
Date/Time	12-11-2020/12:23 am

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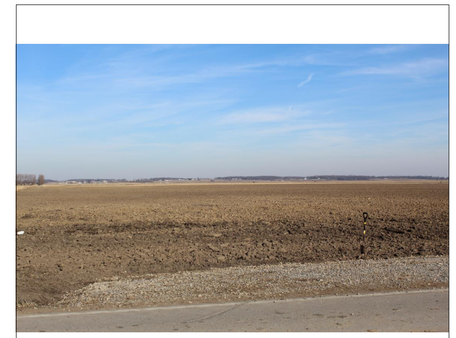
FIGURE 6. PHOTO LOCATION 2: COUNTY ROAD 110 - EXISTING CONDITIONS

TRC

VIEWPOINT LOCATION MAP

EXISTING CONDITIONS



TECHNICAL INFORMATION

Viewpoint Coordinates in	1597938 E
OH NAD83 North State Feet	370072 N
Viewpoint Location	Location 2
Viewer Eye Elevation	982 ft msl
Distance to Project	1128 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	50 mm
Date/Time	12-11-2020/12:23 am

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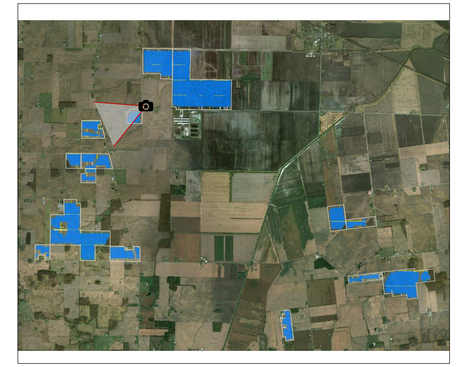
FIGURE 7. PHOTO LOCATION 2: COUNTY ROAD 110 - PROPOSED CONDITIONS

TRC

VIEWPOINT LOCATION MAP



PROPOSED CONDITIONS

TECHNICAL INFORMATION

Viewpoint Coordinates in	1596266 E
OH NAD83 North State Feet	370144 N
Viewpoint Location	Location 3
Viewer Eye Elevation	981 ft msl
Distance to Project	327 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	55 mm
Date/Time	12-11-2020/12:04 pm

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FIGURE 8. PHOTO LOCATION 3: INTERSECTION CR 110/CR 35 - EXISTING CONDITIONS

TRC

VIEWPOINT LOCATION MAP

EXISTING CONDITIONS

TECHNICAL INFORMATION

Viewpoint Coordinates in	1596266 E
OH NAD83 North State Feet	370144 N
Viewpoint Location	Location 3
Viewer Eye Elevation	981 ft msl
Distance to Project	327 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	55 mm
Date/Time	12-11-2020/12:04 pm

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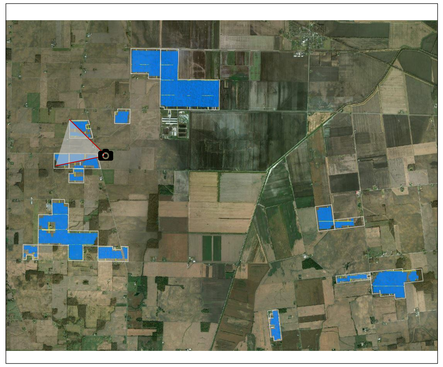
FIGURE 9. PHOTO LOCATION 3: INTERSECTION CR 110/CR 35 - PROPOSED CONDITIONS

TRC

VIEWPOINT LOCATION MAP



PROPOSED CONDITIONS

TECHNICAL INFORMATION

Viewpoint Coordinates in	1593683 E
OH NAD83 North State Feet	364810 N
Viewpoint Location	Location 4
Viewer Eye Elevation	996 ft msl
Distance to Project	241 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	50 mm
Date/Time	12-11-2020/1:15 pm

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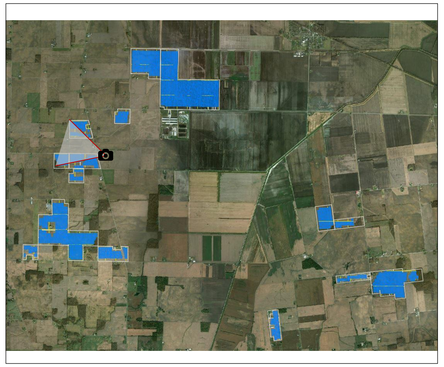
FIGURE 10. PHOTO LOCATION 4: INTERSECTION TWP RD 120/SR 235 - EXISTING CONDITIONS

TRC

VIEWPOINT LOCATION MAP



EXISTING CONDITIONS

TECHNICAL INFORMATION

Viewpoint Coordinates in	1593683 E
OH NAD83 North State Feet	364810 N
Viewpoint Location	Location 4
Viewer Eye Elevation	996 ft msl
Distance to Project	241 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	50 mm
Date/Time	12-11-2020/1:15 pm

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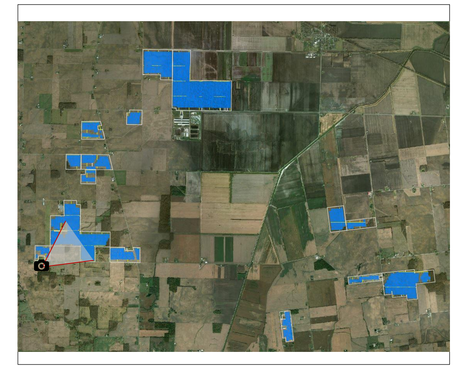
FIGURE 11. PHOTO LOCATION 4: INTERSECTION TWP RD 120/SR 235 - PROPOSED CONDITIONS

TRC

VIEWPOINT LOCATION MAP



PROPOSED CONDITIONS

TECHNICAL INFORMATION

Viewpoint Coordinates in	1587671 E
OH NAD83 North State Feet	356773 N
Viewpoint Location	Location 5
Viewer Eye Elevation	1044 ft msl
Distance to Project	303 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	48 mm
Date/Time	12-11-2020/2:00 pm

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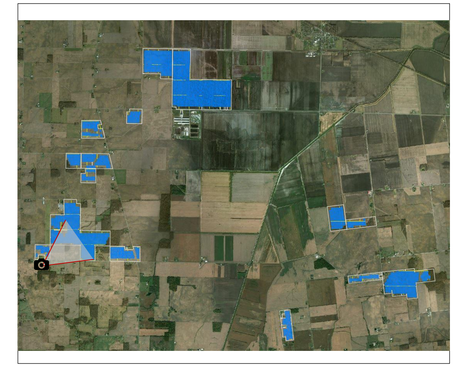
FIGURE 12. PHOTO LOCATION 5: TWP RD 130 - EXISTING CONDITIONS

TRC

VIEWPOINT LOCATION MAP



EXISTING CONDITIONS

TECHNICAL INFORMATION

Viewpoint Coordinates in	1587671 E
OH NAD83 North State Feet	356773 N
Viewpoint Location	Location 5
Viewer Eye Elevation	1044 ft msl
Distance to Project	303 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	48 mm
Date/Time	12-11-2020/2:00 pm

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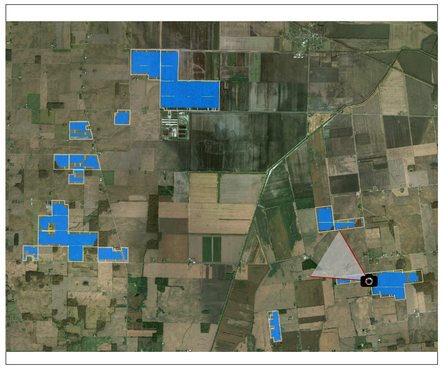
FIGURE 13. PHOTO LOCATION 5: TWP RD 130 - PROPOSED CONDITIONS

TRC

VIEWPOINT LOCATION MAP



PROPOSED CONDITIONS

TECHNICAL INFORMATION

Viewpoint Coordinates in	1617538 E
OH NAD83 North State Feet	354616 N
Viewpoint Location	Location 6
Viewer Eye Elevation	989 ft msl
Distance to Project	644 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	50 mm
Date/Time	12-11-2020/2:45 pm

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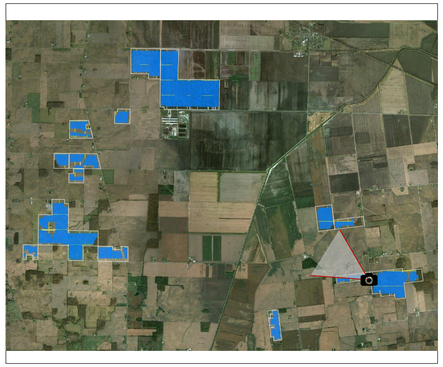
FIGURE 14. PHOTO LOCATION 6: CR 75 - EXISTING CONDITIONS

TRC

VIEWPOINT LOCATION MAP



EXISTING CONDITIONS

TECHNICAL INFORMATION

Viewpoint Coordinates in	1617538 E
OH NAD83 North State Feet	354616 N
Viewpoint Location	Location 6
Viewer Eye Elevation	989 ft msl
Distance to Project	644 ft
Camera Model	Canon EOS Rebel T6
Lens Setting	50 mm
Date/Time	12-11-2020/2:45 pm

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FIGURE 15. PHOTO LOCATION 6: CR 75 - PROPOSED CONDITIONS

TRC

4.3 CONCLUSION OF SIMULATIONS

The overall visual impact of the Project area is affected by factors such as, topography, vegetation, crop type and population density. Topography and vegetation to the west, southwest and southeast of the Project are likely to minimize views of the site from those directions. Certain crop types during the growing season could minimize visibility throughout the Project area. There are two villages that lie completely within the Project area that are located north of the proposed facilities. Viewshed results (**Figure 1**) indicate there are some vegetation buffers that will reduce visibility impact on the Village of Alger and the Village of McGuffey. Additionally, physical features within the villages are likely to reduce visibility. Given the low-profile nature of solar projects and the lack of existing major aesthetic or scenic resources in the visual study area, the aesthetic impacts of views of this Project should be minimal.

5 REFERENCES CITED

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in

Case No(s). 20-1678-EL-BGN

Summary: Application - 33 of 34 (Exhibit Z - Viewshed Analysis and Aesthetic Resources Inventory) electronically filed by Christine M.T. Pirik on behalf of HARDIN SOLAR ENERGY III LLC