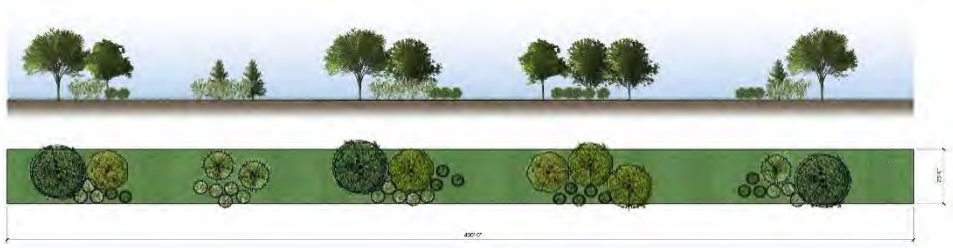
APPENDIX R

VISUAL IMPACT ASSESSMENT

Part 1 of 3

www.haleyaldrich.com

VISUAL IMPACT ASSESSMENT FOR
SOUTH BRANCH SOLAR
HANCOCK COUNTY, OHIO



by
Haley & Aldrich, Inc.

for
South Branch Solar, LLC

File No. 0135392-002
July 2021

Table of Contents

List of Tables iii

List of Figures iii

List of Attachments iv

List of Acronyms and Abbreviations v

1. Introduction 1

2. Visual Characteristics of South Branch Solar 2

2.1 DESCRIPTION OF THE PROJECT AREA 2
2.2 VISUAL CHARACTERISTICS OF SOUTH BRANCH SOLAR 2

3. Visual Assessment Methodology 4

4. Inventory of Visually Sensitive Resources 6

4.1 PUBLIC LANDS AND RECREATIONAL AREAS AND TRAILS 6
4.2 DESIGNATED SCENIC RESOURCES 7
4.3 PROPERTIES OF HISTORIC SIGNIFICANCE 7
4.4 HIGH-USE PUBLIC AREAS 8

5. Landscape and Viewer Characteristics 9

5.1 TOPOGRAPHIC RELIEF AND VEGETATION 9
5.2 LANDSCAPE CHARACTER 9
5.3 LANDSCAPE SIMILARITY ZONES 10
5.4 VIEWER GROUP 11

6. Visual Impact Assessment 13

6.1 PV ARRAY AND O&M BUILDING VIEWSHED ANALYSIS 13
6.2 PROJECT SUBSTATION AND UTILITY SWITCHYARD VIEWSHED ANALYSIS 15
6.3 FIELD VERIFICATION 16
6.4 VIEWS FROM VISUALLY SENSITIVE AREAS 17

7. Representative Visual Simulations 18

7.1 VISUAL SIMULATION METHODOLOGY 18
7.2 VISUAL SIMULATION RESULTS 18
7.2.1 Viewpoint 1 – Monroe Street 18
7.2.2 Viewpoint 2 – Township Road 109 19
7.2.3 Viewpoint 3 – Township Road 249 20

Table of Contents

7.2.4 Viewpoint 4 – Township Road 256 21
7.3 SUMMARY 22

8. Potential for Glare 23

9. Planned Mitigation and Minimization 24

10. Conclusions 25

List of Tables

Table 1. Public Lands and Recreational Areas and Trails within the VSA 6

Table 2. Properties of Historic Significance within the VSA 7

Table 3. High Use Public Areas within the VSA 8

Table 4. Landscape Types Within the Visual Study Area 9

Table 5. Distance Zones by Landscape Type 10

Table 6. Panel Viewshed Analysis Results Summary 14

Table 7. Landscape Types Viewshed Analysis Results Summary 14

List of Figures

1 Project Area

2 Preliminary Project Layout

3 Panel Viewshed Analysis: Bare Earth

4 Panel Viewshed Analysis: Vegetated

5 Visual Study Area

6 Visually Sensitive Resources

7 Landscape Character

8 Project Substation and Utility Switchyard Viewshed Analysis

Table of Contents

List of Attachments

A	Photograph Log
B	Visual Simulations
C	Solar Glare Analysis
D	Landscape and Lighting Plan

Table of Contents

List of Acronyms and Abbreviations

3D	three-dimensional
AC	alternating current
amsl	above mean sea level
the Applicant	South Branch Solar, LLC
DC	direct current
DSM	digital surface model
gen-tie	generation tie
kV	kilovolt
MW	megawatt
NLCD	National Land Cover Database
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
OAC	Ohio Administrative Code
ODNR	Ohio Department of Natural Resources
OSIP	Ohio Statewide Imagery Program
the Project	South Branch Solar
the Project Area	an approximately 1,000-acre area within Hancock County, Ohio within which South Branch Solar is proposed
PV	photovoltaic
SHPO	State Historic Preservation Office
the Study Area	the area within a 5-mile radius of the Project Area
USDOT	U.S. Department of Transportation
VIA	Visual Impact Assessment
VSA	Visual Study Area

1. Introduction

This Visual Impact Assessment (VIA) has been prepared to evaluate the potential visual effects of South Branch Solar, an up to 205-megawatt (MW) solar photovoltaic (PV) facility (the Project) proposed by South Branch Solar, LLC (the Applicant). Landmarks and potential visibility within a 5-mile radius have been considered; however, given the low profile of Project-related features and character of the surrounding area, a considerably smaller area was found to have the potential for visual effect.

The Project is proposed to be located within an approximately 1,000-acre area (the Project Area) in Washington Township, Hancock County, Ohio (see Figure 1). The following sections reflect the requirements of Ohio Administrative Code (OAC) 4906-4-08(D)(4), as modified in accordance with the Project's waiver request to evaluate a 5-mile Visual Study Area (VSA), as well as established VIA methodologies, that have been prepared by and under the direction of professionals with experience in completing such assessments.

The following sections address:

- The visual components and characteristics of the Project;
- The character and visual quality of the VSA;
- An inventory and evaluation of visually sensitive resources within the VSA;
- An evaluation of the potential visibility of the Project within the VSA;
- Presentation of visual simulations from select locations within the VSA;
- An assessment of the potential visual impacts anticipated to be associated with the Project; and
- A discussion of measures proposed to minimize the potential visual impacts of the Project.

2. Visual Characteristics of South Branch Solar

2.1 DESCRIPTION OF THE PROJECT AREA

The Project Area encompasses approximately 1,000 acres of land predominantly in active agricultural use. As shown on Figure 1, agricultural areas with scattered woodlots and fencerow vegetation surround the majority of the Project Area. Two high-voltage electric transmission corridors traverse the Project Area.

The Project Area is located in Washington Township in Hancock County, Ohio. Several residences are located in the vicinity of the Project Area, with considerably higher residential density located on the opposite side of active rail lines to the southwest in the Village of Arcadia; the City of Fostoria (3 miles to the northeast); and the City of Findlay (5 miles to the southwest).

Active rail lines generally bound the Project Area to the southeast. The Village of Arcadia, with its associated neighborhood roads, bounds the Project Area to the south. Township Road 218 generally bounds the Project Area to the north, with only one Project parcel located north of this road. Township Road 243 generally bounds the Project Area to the west, with only one Project parcel located west of this road. Township Road 256 generally bounds the Project Area to the east, with only one Project parcel located east of the road. Several other local roads cross the Project Area, connecting the larger transportation corridors.

There are 29 residences within 250 feet of the Project Area, reflecting approximately 13 residences per square mile, as is typical for the area, with the nearest located over 160 feet from the solar array. Landscaping and woodlots on abutting properties provide a significant degree of existing visual screening.

The Project Area has moderate relief, with an approximate high elevation of 805 feet above mean sea level (amsl) in the southeastern portion, and a low elevation of 780 feet amsl in the western portion. Most of the Project Area is flat, with the most topographic variation along the riparian corridors within which the South Brand Portage River and its tributaries flow. Within 5 miles of the Project Area, terrain is similar, with minimal variance in grades except in locations immediately proximate to water features, such as the South Branch Portage River.

2.2 VISUAL CHARACTERISTICS OF SOUTH BRANCH SOLAR

The Project is a solar-powered electric generating facility that will provide renewable energy to the bulk power transmission system to support the needs of electric utilities and their customers. The Project will consist of up to approximately 500,000 PV solar panels within the Project Area; the layout evaluated in this VIA is shown on Figure 2. The panels will be ground-mounted on metal racking supported by piles that are driven into the ground and will be configurated in long rows or “arrays.” The arrays will be grouped in clusters throughout the Project Area, with each contiguous area enclosed by fencing and gated for security and public safety. The selected fencing is anticipated to be 7-foot-tall woven wire, rather than chain link topped with barbed wire, to maintain consistency with the agricultural character of the surrounding area.

The arrays will generally follow the existing topography of the Project Area, with only minimal grading proposed. The PV arrays proposed for the Project will include a single axis “tracking” style racking system. Using this system, the arrays will be oriented in a roughly north-south direction and equipped to rotate the panels from east to west to maintain an approximately 90-degree angle with the direction of sunlight. Tracking arrays will face east at sunrise, rotate throughout the day, and end up facing west at sunset. At their maximum tilted height, the panels are expected to be no more than 15 feet tall.

The arrays will be connected to inverters, which will convert the direct current (DC) electricity generated by the solar panels to alternating current (AC), and then to a series of predominantly belowground interconnecting electric cables (collector lines) that will deliver the energy to a new Project Substation and Utility Switchyard, located in the eastern central portion of the Project layout, east of Township Road 254 and adjacent to the existing approximately 100-foot-tall, 138-kilovolt (kV) overhead electric transmission line that extends through the Project Area. Equipment within the substation and switchyard is anticipated to average 50 feet, with the tallest component (the lightning mast) at a height of 70 feet.

As noted, most of the collector lines are anticipated to be belowground. One segment, located along Township Road 218, may be aboveground, sharing structures with existing electrical lines that currently extend within the road right-of-way. Because all collector lines will either be belowground or sharing structures where existing overhead features currently exist, these have not been a focus of the VIA. The voltage will be increased (stepped up) from 34.5-kV to 138-kV to allow for the generation tie (gen-tie) between the Project and the existing, adjacent aboveground 138-kV electric transmission line.

Other aboveground components of the Project include: five meteorological stations, which will each occupy no more than 400 square feet and be no taller than 15 feet; an operations and maintenance building (approximately 15 feet tall), proposed adjacent to the Project Substation; small inverter pads, interspersed with the arrays, upon which the integrated inverters/transformers (each less than 10 feet tall) will be constructed; and gravel roads that will provide access to the Project Area during construction and operation. The preliminary layout of the Project is provided as Figure 2.

3. Visual Assessment Methodology

OAC 4906-04-08(D) requires that potential visual impacts from a proposed generating facility be evaluated for recreational, scenic, and historic resources within a 10-mile radius. However, the Applicant has requested a waiver from the 10-mile radius requirement based on the generally low profile of the Project, and the results of the visibility assessment for a 5-mile radius are presented herein.

A preliminary viewshed analysis was conducted using United States Geological Survey three-dimensional (3D) Elevation Program 1/3 arc-second digital elevation models as a preliminary tool to consider the potential visual effect of the Project. The use of this conservative tool is expected to considerably overstate the potential for visibility. An initial screening using "bare earth" topographic information is provided as Figure 3 and reflects the relatively flat terrain within 5 miles of the Project Area. However, considerable vegetation and other features exist that would screen or block line-of-sight views toward the Project.

Figure 4 refines the area of potential visibility by adding information derived from the Ohio Statewide Imagery Program's (OSIP) 2007 light detection and ranging (LiDAR) data for Hancock, Seneca, and Wood counties. As can be seen in Figure 4, the incorporation of the available LiDAR data for the areas surrounding the Project Area indicates a reduced potential for visibility of the Project. To the south, existing structures and vegetation in the Village of Arcadia will limit the potential for views of the Project. To the north, views are limited due to the heavily treed lands located along the South Branch Portage River. Figure 4 shows the potential for views of the Project may be slightly more expansive to the east and west, with only limited views indicated as possible beyond 3 miles from the Project Area.

None of these results take into consideration the influence of distance and atmospheric conditions on apparent visibility, nor the manner in which structures, vegetation, and other features have the potential to block line-of-sight from a given location beyond what is indicated in the National Land Cover Database (NLCD) vegetation data.

In terms of apparent visibility, well-established distance zones have been defined, including agency protocols published by the U.S. Forest Service, Bureau of Land Management and U.S. Department of Transportation (USDOT), as a guide for identifying distances from which landscape detail can be perceived by a viewer. Using appropriate adjustments associated with Ohio's landscape types, the following distance zones have been defined for use in this VIA:

- Near-Foreground Views: 0 to 0.5-mile. At this distance, a viewer is able to perceive details of an object with clarity. Surface textures, small features, and the full intensity and value of color can be seen on foreground objects.

- Foreground Views: 0.5 to 1.5 miles. At this distance, elements in the landscape tend to retain visual prominence, but detailed textures become less distinct. Larger scale landscape elements remain as a series of recognizable and distinguishable landscape patterns, colors, and textures.

- Middle-Ground Views: 1.5 to 4.0 miles. The middle-ground is usually the predominant distance at which landscapes are seen. At these distances, a viewer can perceive individual structures and trees, but not in great detail. This is the zone where the parts of the landscape start to join together; individual hills become a range, individual trees merge into a forest, and buildings appear as simple geometric forms. Colors will be distinguishable but subdued by a bluish cast and softer tones than those in the foreground. Contrast in texture between landscape elements will also be reduced.

- Background Views: Over 4.0 miles. The background defines the broader regional landscape within which a view occurs. Within this distance zone, the landscape is simplified; only broad landforms are discernable, and atmospheric conditions often render the landscape an overall bluish color. Texture has generally disappeared, and color has flattened, but large patterns of vegetation are discernable. Silhouettes of one land mass set against another and/or the skyline are often the dominant visual characteristics in the background. The background contributes to scenic quality by providing a softened backdrop for foreground and middle-ground features, an attractive vista, or a distant focal point.

Although actual views are truncated to much shorter distances, based upon the results of the 5-mile screening models and these distance zones, evaluating the full 5-mile radius allows for assessment within each of the distance zones and consideration of the potential for sensitive viewers to see the Project. The 5-mile VSA encompasses an area of approximately 118 square miles and includes the Village of Arcadia and parts of the Cities of Fostoria and Findlay.

Additional information will be presented within the 5-mile VSA to provide the following:

- An inventory of potentially visually sensitive resources, along with information regarding anticipated potential for visibility;
- An evaluation of general landscape character (land use types and anticipated viewers within the VSA);
- An assessment of anticipated visual impacts, including ground-truthing to verify anticipated visual assumptions;
- Representative photographic simulations;
- Consideration for the potential for glare; and
- Information regarding planned mitigation measures, including details regarding planned landscaping.

It should be noted that a Phase I Architectural History Survey has been conducted in coordination with the Ohio State Historic Preservation Office (SHPO). Although no indication of potential impact to such resources has been identified, the Applicant will work with the SHPO to confirm that understanding.

4. Inventory of Visually Sensitive Resources

Visually sensitive resources within the VSA were identified per the requirements of OAC 4906-04-08(D). Figure 6 shows the location, within the 5-mile VSA, of the following:

- Formally adopted land and water recreation areas;
- Recreational trails;
- Scenic rivers;
- Scenic routes or byways; and
- Registered landmarks of historic, religion, archaeological, scenic, natural, or other cultural significance (those districts, sites, buildings, structures, and objects that are recognized by, registered with, or identified as eligible for registration by the national registry of natural landmarks, the state historical preservation office or Ohio Department of Natural Resources (ODNR).

File review was conducted using resources available from the Ohio SHPO Online Mapping System. The database included review of the Ohio Archaeological Inventory, the Ohio History Inventory, National Register of Historic Places (NRHP) files, the Historic Bridge Inventory, previous cultural resource surveys, and information on cemeteries maintained by the Ohio Genealogical Society. Recreational areas were identified based on resources provided by the U.S. Fish and Wildlife Service, ODNR, United States Forest Service, National Park Service, Bureau of Land Management, and local municipalities, including the Village of Arcadia and the Cities of Fostoria and Findlay. The resources that occur within the VSA are addressed below, along with a discussion of the potential for viewshed impact to the resource category. Resources within the VSA are shown assigned to respective visibility distance zone categories.

4.1 PUBLIC LANDS AND RECREATIONAL AREAS AND TRAILS

As shown in Table 1, there are 18 recreational areas and trails that were identified within the 5-mile VSA of the Project. Of these, the conservative screening modeling indicated that three resources would have the potential for view of the Project. Each of these three resources (the Fostoria Reservoir, the Veterans Memorial Reservoir, and the Veterans Memorial Park) are located within the middle-ground distance zone of the VSA (1.5 to 4.0 miles). Ground-truthing was conducted to indicate whether visibility was likely. For all three features, intervening topography, vegetation, and structures were observed that prevented views of the existing overhead transmission lines that extend across the Project Area. Therefore, based on distance and existing features (predominantly wooded vegetation, as well as intervening structures), the Project is not expected to alter the existing visual landscape of these resources.

Table 1. Public Lands and Recreational Areas and Trails within the VSA

ID[1]	Resource	Type	Distance Zone	Visibility[2]
1	Arcadia Community Center	Recreational Area	Near-Foreground	No
2	Aeraland Recreational Area	Recreational Area	Foreground	No
3	City Park	Recreational Area	Middle-Ground	No
4	Daugherty Lake	Recreational Area	Middle-Ground	No
5	Fostoria City Park	Recreational Area	Middle-Ground	No
6	Fostoria Country Club	Recreational Area	Middle-Ground	No

ID[1]	Resource	Type	Distance Zone	Visibility[2]
7	Fostoria Reservoir	Recreational Area	Middle-Ground	Possible
8	Fostoria Reservoir Park	Recreational Area	Middle-Ground	No
9	Gray Park	Recreational Area	Middle-Ground	No
10	Lakeland Golf Course	Recreational Area	Middle-Ground	No
11	Lumberjack Lake	Recreational Area	Middle-Ground	No
12	Meadowlark Park	Recreational Area	Middle-Ground	No
13	Mosier Lake	Recreational Area	Middle-Ground	No
14	Mottram Lake	Recreational Area	Middle-Ground	No
15	Portage Park	Recreational Area	Middle-Ground	No
16	Red Hawk Run Golf Course	Recreational Area	Middle-Ground	No
17	Veterans Memorial Reservoir	Recreational Area	Middle-Ground	Possible
18	Veterans Memorial Reservoir Park	Recreational Area	Middle-Ground	Possible

[1] As shown on Figure 6.
[2] Model results based on both topographic and vegetative screening.

4.2 DESIGNATED SCENIC RESOURCES

As shown on Figure 6, there are no designated scenic resources within the 5-mile VSA for the Project.

4.3 PROPERTIES OF HISTORIC SIGNIFICANCE

As shown in Table 2, there are eight known properties of historic significance within the 5-mile VSA for the Project. The conservative screening model indicates that the Project will not be visible from any of these resources. Note that each of these resources is located within the more densely settled areas of Arcadia and Fostoria, where existing structures and vegetation block the potential for line-of-sight to the Project.

Table 2. Properties of Historic Significance within the VSA

ID[1]	Resource	Type	Distance Zone	Visibility[2]
19	Washington Township Cemetery	Cemetery	Near-Foreground	No
20	Knollcrest Cemetery	Cemetery	Foreground	No
21	Fountain Cemetery	Cemetery	Middle-Ground	No
22	St. Wendelin Cemetery	Cemetery	Middle-Ground	No
23	Fostoria Downtown Historic District	NRHP Site	Middle-Ground	No
24	Fostoria Mausoleum	NRHP Site	Middle-Ground	No
25	Dana, Marcus, House	NRHP Site	Middle-Ground	No
26	Cory, Ambrose, House – “Tanglewood”	NRHP Site	Background	No

[1] As shown on Figure 6.
[2] Model results based on both topographic and vegetative screening.

4.4 HIGH-USE PUBLIC AREAS

As shown in Table 3, there are 27 high-use public areas within the 5-mile VSA for the Project. However, the conservative screening model indicates that the Project would not have the potential to be visible from any of these identified areas. Each of these resources are located within the more densely settled areas within the VSA, the Village of Arcadia and portions of the cities of Fostoria and Findlay. Intervening structures and vegetation block the potential for line-of-sight to the Project.

Table 3. High Use Public Areas within the VSA

ID[1]	Resource	Type	Distance Zone	Visibility[2]
27	Arcadia School	School	Foreground	No
28	Diebleys Airport	Air Navigation	Middle-Ground	No
29	Encounter Church	Place of Worship	Middle-Ground	No
30	Enon Valley Presbyterian Church	Place of Worship	Middle-Ground	No
31	First Christian Church	Place of Worship	Middle-Ground	No
32	Fostoria High School	School	Middle-Ground	No
33	Fostoria Intermediate School	School	Middle-Ground	No
34	Kaubisch Public Library	Library	Middle-Ground	No
35	Living Hope Foursquare Church	Place of Worship	Middle-Ground	No
36	Open Door Family Worship Center	Place of Worship	Middle-Ground	No
37	Revival Center	Place of Worship	Middle-Ground	No
38	Saint Wendelin Catholic Church	Place of Worship	Middle-Ground	No
39	Saint Wendelin Catholic School	School	Middle-Ground	No
40	Salem United Methodist Church	Place of Worship	Middle-Ground	No
41	Trinity Episcopal Church	Place of Worship	Middle-Ground	No
42	Wesley United Methodist Church	Place of Worship	Middle-Ground	No
43	Bethel Baptist Church	Place of Worship	Background	No
44	Christ Community Church	Place of Worship	Background	No
45	First Church of the Nazarene	Place of Worship	Background	No
46	Higher Ground Ministries	Place of Worship	Background	No
47	Parkview Christian Church	Place of Worship	Background	No
48	Riley Elementary School	School	Background	No
49	St. Catherine's Manor of Fostoria	Place of Worship	Background	No
50	StoneBridge Church of God	Place of Worship	Background	No
51	Trinity United Brethren Church	Place of Worship	Background	No
52	Rutter	Air Navigation	Middle-Ground	No
53	Arcadia United Methodist Church	Place of Worship	Middle-Ground	No

[1] As shown on Figure 6.
[2] Model results based on both topographic and vegetative screening.

5. Landscape and Viewer Characteristics

5.1 TOPOGRAPHIC RELIEF AND VEGETATION

The eastern portion of the VSA is largely composed of relatively flat area with only significant relief changes along stream corridors. These streams generally drain north and west to the South Branch Portage River. The western portion of the VSA shows more prominent relief than the eastern portion. The soils in the west are generally gently sloping to steep. The South Branch Portage River and several tributaries flow generally northwest through the VSA. This river is deeply entrenched, and downcutting has produced limestone gorges and deeply cut tributaries. Elevations in the VSA range from approximately 705 feet amsl along the South Branch Portage River, north of the Project Area, to approximately 910 feet amsl southeast of the Project Area, near the edge of the VSA.

Forested areas in proximity to the Project Area tend to be reflected by scattered woodlots amongst active agricultural areas, as well as roadside vegetation. Within the broader VSA, densely forested areas occur along riparian areas such as the South Branch Portage River. Pasture and cropland comprise a significant percentage of the vegetation within the VSA.

5.2 LANDSCAPE CHARACTER

The landscape character within a given VSA can provide a useful framework for the assessment of a facility's potential visual effects. Landscape types within the Project's VSA were categorized based on the similarity of various features, including landform, vegetation, water, and/or land cover patterns, in accordance with established visual resource assessment methodologies (Smardon et al., 1988; USDA Forest Service, 1995; USDOT Federal Highway Administration, 1981; and USDI Bureau of Land Management, 1980). The USGS NLCD was used to help define the character and location of various landscape types within the VSA (see Figure 7). The landscape types defined within the VSA are presented in Table 4. As can be seen, the most significant landscape type is reflective of the agricultural nature of the area and comprises pasture and cropland. Forested area, as noted above, is characteristic of certain areas within the VSA, with density of forested areas in each given location varying as shown on Figure 7. However, the Village of Arcadia and the cities of Fostoria and Findlay present distinctly different landscape character from the more generalized surrounding area due to their more densely settled nature.

Table 4. Landscape Types Within the Visual Study Area

Landscape Type	Total Area of Landscape Type within the VSA (acres)	% of Landscape Type within the VSA
Pasture and Cropland	61,520	81.6
Forest	4,030	5.3
Developed	8,740	11.6
Wetland	300	0.4
Open Water	517	0.7
Grassland	162	0.2
Scrub/Shrub	112	0.2
TOTAL	75,381	100.0

Because visibility is influenced considerably by distance, an evaluation of each landscape type has also been assessed to determine where it falls within each distance zone within the VSA, as summarized in Table 5.

Table 5. Distance Zones by Landscape Type

Landscape Type	Landscape Type by Distance Zone			
	Near-Foreground (0 – 0.5-mile)	Foreground (0.5 – 1.5 miles)	Middle-Ground (1.5 – 4.0 miles)	Background (4.0 – 5.0 miles)
TOTAL	4,716	8,851	39,376	22,437
Pasture and Cropland	4,138 (87.7%)	7,691 (86.9%)	32,959 (83.7%)	16,732 (74.5%)
Forest	171 (3.6%)	581 (6.6%)	1,692 (4.3%)	1,586 (7.1%)
Developed	390 (8.3%)	524 (5.9%)	4,038 (10.2%)	3,788 (16.8%)
Wetland	4.6 (0.1%)	37.9 (0.4%)	139 (0.4%)	119 (0.5%)
Open Water	2.9 (0.1%)	3.5 (0%)	469 (1.2%)	41.4 (0.2%)
Grassland	8.2 (0.2%)	7.6 (0.1%)	62.5 (0.2%)	83.6 (0.4%)
Scrub/Shrub	1.8 (0%)	6.4 (0.1%)	16.8 (0%)	87.2 (0.4%)

As can be seen, the near-foreground is dominated by the pasture and cropland landscape type as well as other low-vegetation communities, with smaller areas of forest interspersed throughout. However, within these areas also extend existing overhead electric transmission lines and an active rail line, as well as scattered residences and farming structures. Portions of the Village of Arcadia (which is separated from the Project Area by the active rail line) are within the near-foreground, where more densely populated areas reflect the majority of the developed landscape type; roads extending through the area also contribute to the developed area.

The foreground includes the balance of the Village of Arcadia, and otherwise continues with similar landscape characteristics. Once reaching the middle-ground, at distances between 1.5 and 4 miles from the Project Area, portions of Fostoria and some other smaller developed areas are incorporated into the landscape character. At the background distance, another significant portion of Fostoria is incorporated, and the fringes of Findlay can be seen, again with some smaller developed areas.

5.3 LANDSCAPE SIMILARITY ZONES

Within the VSA, consideration was given to landscape similarity, as determined through an evaluation of topography, vegetation, water, land use, and anticipated user activities. The VSA was determined to encompass six landscape similarity zones, as described below.

- Rural Residential/Agricultural – This category reflects the most prevalent landscape type within the VSA, as can be seen on Figure 7. Within these areas, where vegetation or structures block the line-of-sight, visibility would be obstructed; however, where limited vegetation exists, the relatively flat terrain results in the potential for views. Many of the residential properties within the VSA are vegetated by fencerows or other plantings. As distance increases, the potential visibility would be expected to become considerably less pronounced.

- Settlements – Within the VSA there are several areas of denser residential settlement, such as Arcadia, Findlay, and Fostoria, as can be seen on Figure 7. Viewers located within the settlement, where existing structures would obstruct external views, would not have the potential to see the Project, while possible views could exist along the nearer edges of the settlements. It is not expected the Project would be visible from either Findley or Fostoria, due to distance and intervening elements that would block the potential for line-of-sight.

- Recreational Areas – This category encompasses the scattered recreational areas within the VSA, as detailed in Section 4 and shown on Figure 6, including the state-designated resources, public parks, and private recreational facilities. Note that none of the identified resources are expected to have views of the Project.

- Transportation Corridors – This category encompasses the various roadways (state, county, and township) that extend within the VSA (shown as developed corridors on Figure 7). While the majority of the roadways most proximate to the Project Area are local roads, several county and other more heavily traveled roadways exist. This category also includes railroad transportation infrastructure. Notably, an active rail line extends between the Project Area and the Village of Arcadia.

- Open Water – The South Branch Portage River and several local reservoirs are the most significant open water bodies within the VSA (as shown on Figure 7) and are not expected to have views of the Project. Other smaller streams and features located throughout the VSA may offer recreational activities but tend to be surrounded by denser areas of vegetation.

- Utility Corridors – In addition to local distribution lines and the 138-kV electric transmission line into which the Project will interconnect, a 345-kV electric transmission line also extends across the Project Area in a west-east orientation, as shown on Figure 2. These provide existing visual elements within the immediate landscape within and surrounding the Project Area.

5.4 VIEWER GROUP

Possible viewer groups within the VSA were identified. These groups were determined based on the frequency and duration of exposure to views of the Project, the viewer's position in the landscape, and the viewer's activity and presumed sensitivity to changes in the visual landscape. Viewer groups identified are described below.

- Local Residents: Local residents have views that are likely to be stationary. They have knowledge of the local landscape and are sensitive to alterations to particular views that are important to them. Residences are scattered throughout the area immediately surrounding the Project Area in most directions, with denser settlements located to the south, in the Village of Arcadia, and farther from the Project.

- Through Travelers: These individuals are traveling through the area on roadways. These viewers, because they are driving, are typically focused on the road and immediate surroundings and would experience only transitory views of their surroundings. Consequently, their views of the surrounding landscape will generally be peripheral and relatively brief in duration.

- Tourists and Recreational Users: These individuals include recreational users visiting from out of the local area, as well as residents engaged in seasonal recreational activities. Due to the limited view potential from designated recreational areas, this category is not anticipated to be significant for the Project.

6. Visual Impact Assessment

6.1 PV ARRAY AND O&M BUILDING VIEWSHED ANALYSIS

The viewshed analysis provided in this study was conducted to incorporate the screening effects of topography, vegetation, and structures (as shown in Figure 4). A viewshed analysis discussion based on topography alone (as reflected in Figure 3) is not provided because the results of such an analysis do not accurately represent conditions within the VSA.

Viewshed maps were prepared using a digital surface model (DSM) derived from the Ohio Statewide Imagery Program's (OSIP) 2007 LiDAR data for Hancock, Seneca, and Wood counties; a 200-foot by 200-foot point grid representing the proposed PV panel locations; a PV panel and operations and maintenance (O&M) building height of 15 feet; an observer height of 6 feet; and ESRI ArcGIS® software with the Spatial Analyst extension. Because the O&M building is in a discrete location, while the arrays are located throughout the Project Area, the focus of this analysis is on the solar arrays.

The DSM used for the viewshed was created from the LiDAR data, which includes the elevations of buildings, trees, and any other objects in the landscape that are detected by laser light pulses during the data collection process (the average point spacing in the LiDAR point cloud obtained from OSIP is approximately 7 feet). Because LiDAR data for narrow, vertical landscape features such as overhead utility lines and roadside hedgerows can be interpreted by the software as solid objects and introduce artificial screening into the viewshed analysis, such features were filtered out of the LiDAR point cloud when creating the DSM. Vegetation apparent within the LiDAR data inside the Project fence lines was also filtered out of the LiDAR data to reflect the bare-earth elevation in these locations. The resulting DSM was then used as an input surface for the viewshed analysis. Because such features have been removed, the resulting viewshed is expected to overstate the potential for visibility.

Once the viewshed analysis was completed, PV panel visibility was eliminated in areas where line-of-sight would be blocked for the viewer because the DSM elevation exceeded the bare-earth elevation by 6 feet or more. Changes to the modeled visibility in these areas is required for two reasons: 1) in locations where trees or structures are present in the DSM, the initial viewshed reflects visibility from the vantage point of a person standing on the tree top or building roof, which is not the intent of this analysis; and 2) to reflect the fact that ground-level vantage points within buildings or areas of vegetation exceeding 6 feet in height will generally be screened from views of the Project.

Because it accounts for the screening provided by structures and many of the trees located in the surroundings, the DSM viewshed analysis is a reasonable representation of Project visibility. However, it should be noted that certain characteristics of the Project and VSA are not modeled and may further restrict visibility (e.g., the vegetation removed from the model, color, distance from viewer, and atmospheric/weather conditions). As a result, there may be some areas where visibility indicated by the viewshed does not necessarily equate to actual Project visibility.

Based on the viewshed analysis, potential visibility of the proposed solar panels within the VSA is illustrated in Figure 4 and summarized in Table 6. The model indicates that views of the Project will be screened from approximately 88 percent of the VSA by intervening topography and vegetation; actual visibility is expected to be even less due to additional vegetation and other site-specific factors.

Table 6. Panel Viewshed Analysis Results Summary

Analysis	VSA	Modeled Visibility by Distance Zone			
		Near-Foreground (0 – 0.5-mile)	Foreground (0.5 – 1.5 miles)	Middle-Ground (1.5 – 4.0 miles)	Background (4.0 – 5.0 miles)
Total Area	75,381	4,716	8,852	39,376	22,437
Viewshed Visibility	9,281 (12.3%)	3,732 (79.1%)	3,278 (37.0%)	2,244 (5.7%)	27.6 (0.1%)
Note: All values are approximate and provided in acres.					

PV panel visibility is concentrated within the near-foreground distance zone, with 79 percent of the area within 0.5-mile from the Project Area indicated as having potential views of some portion of the Project. View potential from areas beyond the near-foreground and into the foreground distance zone (0.5 to 1.5 miles) is considerably reduced, with only 37 percent of the foreground distance zone indicated as having the potential for views of the PV panels, and middle-ground and background viewing potential is significantly less.

Ground-truthing (as discussed in Section 6.2) indicates that no areas beyond the foreground distance, and only limited areas within that distance, were currently observed to have views of the approximately 140-foot and approximately 100-foot existing overhead transmission lines that extend through the Project Area. The Project (with a maximum panel height of 15 feet) is also not expected to be visible except in relative proximity.

Potential PV panel visibility within the various Landscape Types, as predicted by the viewshed analysis, is summarized in Table 7.

Table 7. Landscape Types Viewshed Analysis Results Summary

Analysis	VSA	Landscape Type			
		Pasture/Cropland/ Grassland/Scrub-Shrub	Forest	Developed	Wetland/Open Water
Total Area	75,381	61,794	4,029	8,740	818
Viewshed Visibility	9,281 (12.3%)	8,701 (14.1%)	5.6 (0.1%)	487 (5.6%)	87 (10.6%)
Modeled Viewshed Visibility – Near Foreground (0 – 0.5-mile)	4,716	3,518	3.4	209	1
Modeled Viewshed Visibility – Foreground (0.5 – 1.5 miles)	8,851	3,104	1.5	172	0.2
Modeled Visibility – Middle-Ground (1.5 – 4.0 miles)	39,376	2,051	0.7	106	86
Modeled Visibility – Background (4.0 – 5.0 miles)	22,437	28	0	0.1	0
Note: All values are approximate and provided in acres.					

The Pasture/Cropland/Grassland/Scrub-Shrub Landscape Type, which makes up 82 percent of the VSA, has the greatest potential for visibility (14 percent) of the proposed solar arrays. As noted above,

ground-truthing via field reconnaissance indicates that areas more distant than the foreground are extremely unlikely to have views of the Project, and that views even at that distance will be limited.

The viewshed map (Figure 4) also illustrates how potential views of the Project would become more limited to smaller portions of the proposed PV panel arrays as distance increases from the Project in certain directions.

6.2 PROJECT SUBSTATION AND UTILITY SWITCHYARD VIEWSHED ANALYSIS

A DSM viewshed analysis was also conducted for aboveground electrical components, consisting of the Project Substation and Utility Switchyard. This viewshed analysis was based on the conservative assumption that related components will be 50 feet tall. While lightning masts associated with each will be approximately 70 feet tall, they will be individual, slender elements that are similar in height to the existing 138-kV overhead transmission lines. Other elements of the Project Substation and Utility Switchyard are expected to generally be at lower elevations than 50 feet; however, they were conservatively assigned an average of this height to reflect the potential variability of structures within the fence lines.

Potential modeled visibility of the Project Substation and Utility Switchyard is illustrated in Figure 8 and summarized in Table 8. As indicated by this analysis, these Project components will be screened from approximately 93 percent of the VSA by intervening landforms, vegetation, and structures.

Table 8. Project Substation and Utility Switchyard Viewshed Analysis Results Summary

Analysis	VSA	Modeled Visibility by Distance Zone			
		Near-Foreground (0 – 0.5-mile)	Foreground (0.5 – 1.5 miles)	Middle-Ground (1.5 – 4.0 miles)	Background (4.0 – 5.0 miles)
Total Area	75,381	4,716	8,852	39,376	22,437
Viewshed Visibility	5,357 (7.1%)	2,328 (49.4%)	1,598 (18.1%)	1,386 (3.5%)	45 (0.2%)
Note: All values are approximate and provided in acres.					

Potential modeled visibility of the Project Substation and Utility Switchyard within the various Landscape Types, as predicted by the viewshed analysis, is summarized in Table 9.

Table 9. Landscape Types Viewshed Analysis Results Summary

Analysis	VSA	Landscape Type			
		Pasture/Cropland/ Grassland/Scrub-Shrub	Forest	Developed	Wetland/Open Water
Total Area	75,381	61,794	4,029	8,740	818
Viewshed Visibility	5,357 (7.1%)	5,000 (8.1%)	2 (0.0%)	273 (3.1%)	82 (10.0%)
Modeled Viewshed Visibility – Near Foreground (0 – 0.5-mile)	2,328	2,201	1	125	1
Modeled Viewshed Visibility – Foreground (0.5 – 1.5 miles)	1,598	1,504	0	94	0

Analysis	VSA	Landscape Type			
		Pasture/Cropland/ Grassland/Scrub-Shrub	Forest	Developed	Wetland/Open Water
Modeled Visibility – Middle-Ground (1.5 – 4.0 miles)	1,386	1,251	1	53	81
Modeled Visibility – Background (4.0 – 5.0 miles)	45	44	0	1	0
Note: All values are approximate and provided in acres.					

The model results indicate the potential for visibility within the Project Area, and for limited areas within the foreground view, with modeled visibility were even further limited as distances radiate out from the Project Area. The model indicates the potential for views where line-of-sight is reflected by the presence of open fields; the Village of Arcadia, for example, would not be expected to have views of these features both due to distance and the effect of intervening structures.

As noted above, ground-truthing (as discussed in Section 6.2) indicates that no areas beyond the foreground distance, and only limited areas within that distance, were currently observed to have views of the approximately 140-foot-tall and approximately 100-foot-tall existing overhead transmission lines that extend through the Project Area. For this reason, these features are also not expected to be visible. Note that non-participating residences surrounding the Project Area are at least 1,200 feet from the Project Substation and Utility Switchyard. That distance and their location within the interior of the Project layout are expected to limit visibility of these structures. Although the Project Substation and Utility Switchyard may be visible from some location in close proximity to the Project, they will be viewed against the backdrop of the existing, taller, overhead transmission infrastructure that extends across the Project site; therefore, they will not result in a meaningful change in visual character.

6.3 FIELD VERIFICATION

Haley & Aldrich conducted field verification to consider potential visibility of the Project as suggested by the viewshed analysis. During the various site visits, staff members drove public roads and visited public vantage points within the VSA and obtained photographs from 43 individual viewpoints; field photographs have been supplemented with GoogleEarth street view photographs. Those viewpoints and associated photographs are shown in Attachment A. The existing overhead 345-kV and 138-kV electrical corridors that traverse the Project Area (approximately 140 and 100 feet tall, respectively) were used as one point of reference to gauge the potential for visibility.

Field review confirmed that the Project will be a considerably less visible than suggested by the viewshed analysis due to existing vegetative screening such as residential landscaping and woodlots (even during winter leaf-off conditions), and the effects of distance. In addition, during the growing season, visibility of the Project from residences and roadways may also be limited by crop growth (particularly for taller crops such as corn) where foreground agricultural fields exist. The combination of relatively low panel height, existing vegetation, gentle variations in topography, the addition of proposed landscaping, and the atmospheric effects of distance will limit visibility of the Project from the majority of the VSA.

6.4 VIEWS FROM VISUALLY SENSITIVE AREAS

As discussed in Section 4, detailed consideration was given to public lands, recreational areas and trails, designated scenic resources, resources of historic significance, and high-use public areas within the VSA. From most of these resources, distance and existing screening by vegetation, topography, or intervening structures is expected to screen the Project from view. Where visibility may be possible, the viewing context and distance would be unlikely to materially change the character of the landscape from visually sensitive resources; therefore, no impact is anticipated. Although the Fostoria Reservoir, the Veterans Memorial Reservoir, and the Veterans Memorial Park were indicated as having the potential for views of the Project, ground-truthing indicated that this is unlikely.

7. Representative Visual Simulations

Visual simulations from four representative locations were produced to illustrate the appearance of the Project and to evaluate its potential visual impact on the existing landscape and viewers within the VSA. An overview of the locations selected for visual simulations is provided in Attachment B.

7.1 VISUAL SIMULATION METHODOLOGY

Visual simulations of the proposed Project were developed by constructing a 3D computer model of the proposed PV arrays and full Project layout based on specifications, dimensions, and locations provided by the Applicant. Next, the camera specifications used to take the selected photographs in the field were replicated in the 3D model. This is done by positioning the 3D camera in the same real-world coordinate system as the Project model using GPS coordinates collected at each photo location. The camera is then aligned, and the camera's target position (view direction) adjusted until the modeled 3D elements align exactly with the elements in the photograph. Once this step is complete, the Project is included in the photograph at the correct location, perspective, and scale. At this point, the appropriate sun angle is simulated based on the specific date, time, and location (latitude and longitude) at which the photograph was taken. This information allows the program to realistically illustrate highlights, shading, and shadows for all Project components shown in the view. All PV panel simulations include single-axis tracker arrays with the panels oriented perpendicular to the sun, on an east-west axis, on north-south aligned arrays. Details of the Project components are rendered using Photoshop to indicate their visual characteristics within the view context. Landscape features were then added to reflect the identified mitigation strategy.

7.2 VISUAL SIMULATION RESULTS

The visual simulations are provided in Attachment B, with a discussion of the potential visual effects associated with the Project are summarized below. An inset image is provided for each to depict the location of the photographer relative to the evaluated Project layout. For each viewpoint, the existing view is depicted, followed by a view representing conditions with the Project in place, showing a 3D simulation of the Project. Where landscaping is proposed (a landscaped photograph, showing the 3D simulation of the Project and any proposed landscaping is also provided). As discussed in Section 9, landscaping is proposed in certain areas that will soften and screen potential views of Project elements still further.

7.2.1 Viewpoint 1 – Monroe Street

7.2.1.1 Existing Conditions

This view is taken from Monroe Street, just east of its intersection with Ambrose Street, looking north toward the Project Area. This view represents potential views from the northernmost portion of the Village of Arcadia, which lies south of the Project Area.

The existing foreground review reflects lawns associated with single family residences located along Monroe Street. Utility poles and wires, as well as trees of varying ages and sizes can be seen within the mown portion of the lawn areas. The location of the Project Area relative to the residential properties is demarcated clearly by the taller herbaceous plantings on the agricultural fields further north. Existing

views include an expanse of those fields, with other residential and farm structures, overhead electric distribution and transmission lines, and forested areas visible in the distance.

There are several locations throughout the Project Area where Project features will be set back similar distances from nearby roads and/or other viewers. This location was selected as a relatively heavily traveled roadway that offers this perspective on potential Project visibility.

7.2.1.2 Proposed Project

With the simulated Project in place, the foreground does not change. Although the Project Area is located immediately along the area of taller herbaceous vegetation, the Project layout has incorporated an approximately 160-foot buffer from the closest residence and has eliminated the potential for panels in much of this area.

The panels are shown tilted at their maximum tilt, which would only happen at certain times of the day; the panels would be at a lesser tilt angle throughout the rest of the day. The arrays are surrounded by 7-foot-tall agricultural-style security fencing, which is designed to match the existing character of the area, with wooden posts and woven wire fencing. As can be seen, the panels are visible behind the residences located on the north side of Monroe Street at a distance of approximately 550 feet.

7.2.1.3 Landscaped Simulation

In response to feedback from nearby residents, the Applicant plans to install robust landscaping along the outside of the security fence. This simulation incorporates the proposed Level 3 Landscape Buffer, which is a mixture of deciduous and evergreen vegetation, with varying heights and textures. Although views of the panels are not completely obstructed, the integration of a diversity of species is intended to soften and screen views of the panels. Low-growing grasses and pollinator-friendly vegetation are also incorporated in the landscape plan to provide additional color and enhance the habitat within the Project Area. Grasses are expected to be maintained within the intervening fields, which will also contribute to softening and screening of Project views.

7.2.2 Viewpoint 2 – Township Road 109

7.2.2.1 Existing Conditions

This view is taken from Township Road 109, at a location that is central to the Project Area, looking to where the Project would be located to the southeast. County Route 109 is one of only two locations where panels are proposed on both sides of a road; Township Road 243 is the other. Since there are several residences proximate to this location, it was selected as representative of this type of view. This represents a location where panels will be set back by approximately 300 feet from the viewer to reflect the manner in which views of the Project will be influenced by distance. Viewers from this location would include travelers driving along County Route 109, as well as residents with potential views. The photograph is taken approximately 250 feet northwest from the location of the closest array.

The existing foreground and midground of the view are of agricultural fields, with roadside grasses and relatively open fields with no growth visible in this leaf-off picture. During the growing season, especially if corn were to be planted, the crop growth would likely block line-of-sight to the south. In the

background, trees are visible across much of the view, with several residential and farming structures also present, as well the Village of Arcadia water tower.

7.2.2.2 Proposed Project

With the simulated Project in place, the foreground does not change. Although the Project Area is located immediately across County Road 109, the Project layout has incorporated an approximately 160-foot buffer from the closest residence and has eliminated the potential for panels in the foreground.

The panels are shown tilted at their maximum tilt, which would only happen at certain times of the day; the panels would be at a lesser tilt angle throughout the rest of the day. The arrays are surrounded by 7-foot-tall agricultural-style security fencing, which is designed to match the existing character of the area, with wooden posts and woven wire fencing. As can be seen, the panels are visible behind the residences located on the north side of Monroe Street at a distance of approximately 550 feet.

7.2.2.3 Landscaped Simulation

In response to feedback from nearby residents, the Applicant plans to install robust landscaping along the outside of the security fence. This simulation incorporates the proposed Level 3 Landscape Buffer, which is a mixture of deciduous and evergreen vegetation, with varying heights and textures. Although views of the panels are not completely obstructed, the integration of a diversity of species is intended to soften and screen views of the panels. Low-growing grasses and pollinator-friendly vegetation are also incorporated in the landscape plan to provide additional color and enhance the habitat within the Project Area. Grasses are expected to be maintained within the intervening fields, which will also contribute to softening and screening of Project views.

7.2.3 Viewpoint 3 – Township Road 249

7.2.3.1 Existing Conditions

Throughout the Project Area, most views will be set back similar distances from nearby roads and/or other viewers. This location was selected as it lies near several residences located along Township Road 249, approximately 2,000 feet west of the Project Area. This view illustrates how quickly the profile of the Project will dissipate with distance.

The existing near-foreground of the view is of open agricultural fields, with corn stubble visible in this leaf-off picture. Several mature trees are located in the middle-ground, beyond which the Project will be located. In the background, agricultural fields and structures are visible across much of the view, with several visible residential and forested areas. The existing 138-kV overhead electric transmission line structures can be seen in the background of this view, traversing the area amongst the open agricultural fields and the treed areas. With mature crops planted in the fields in the foreground, the Project will be further obscured from view.

7.2.3.2 Proposed Project

With the simulated Project in place, the foreground and middle-ground of the image does not change. As is the case in this photograph, more direct views of the Project will be possible during the winter season. During the growing season, crop growth would soften and likely obscure Project views to the south. With even low crop growth, the distantly viewed panels are expected to be obscured. This foreground agricultural field is not a part of the Project Area and is expected to continue its current agricultural use.

The panels are shown tilted toward the viewer at their maximum tilt, which would happen only at certain times of the day; a lesser tilt would occur at other times of the day, reducing the visual height of the panels. Details of the fencing surrounding the panels are difficult to discern; however, the panels are visible in the distance as a low horizontal feature set behind the existing mature trees.

The tops of the trees are visible beyond the panels and the existing 138-kV overhead transmission lines are still visible, although other shorter structures in the distance are obscured.

7.2.3.3 Landscaped Simulation

Landscaping is not planned for locations such as this, where the panels are set back a considerable distance, no residences are in immediate proximity, and existing agricultural fields are expected to effectively screen potential views of the Project. Low-growing grasses and pollinator-friendly vegetation are incorporated along the outer edge of the security fence to provide additional color and enhance the habitat within the Project Area. Grasses are also expected to be maintained within the intervening fields, which will also contribute to softening and screening of Project views.

7.2.4 Viewpoint 4 – Township Road 256

7.2.4.1 Existing Conditions

This location was selected as it lies near several residences located along Township Road 218 and is representative of views from roadways that traverse the Project Area. There are several locations throughout the Project Area where Project features will be set back similar distances from nearby roads and/or other viewers.

The existing foreground has electric distribution infrastructure, with corn stubble visible in the middle-ground and background in this leaf-off picture. In the background, agricultural fields and structures are visible across much of the view, with several visible residential and forested areas. The existing 345-kV overhead electric transmission lines can be seen in the background of this view, traversing the area amongst the agricultural fields.

7.2.4.2 Proposed Project

With the simulated Project in place, the panels are visible in the foreground of the image, set back approximately 140 feet from the viewer.

The panels are shown at their maximum tilt, which would happen only at certain times of the day; a lesser tilt angle would occur at other times of the day, reducing the visual height of the panels. Details of

the fencing surrounding the array area are visible in front of the panels. The existing 345-kV overhead transmission lines are still visible in the background, towering over the 15-foot-tall panels.

7.2.4.3 Landscaped Simulation

The Applicant plans to install robust landscaping along the outside of the security fence. This simulation incorporates the proposed Level 3 Landscape Buffer, which is a mixture of deciduous and evergreen vegetation, with varying heights and textures. Although views of the panels are not completely obstructed, the integration of a diversity of species is intended to soften and screen views of the panels. Low-growing grasses and pollinator-friendly vegetation are also incorporated in the landscape plan to provide additional color and enhance the habitat within the Project Area. Grasses are expected to be maintained within the intervening fields, which will also contribute to softening and screening of Project views.

7.3 SUMMARY

In summary, the visual simulations illustrate that visibility of the solar array quickly dissipates with distance and proposed landscaping will soften and screen much of the Project from view.

In limited locations where panels are directly adjacent to roads and residences, the fence and panels may be visible. However, the effect of that visibility on scenic quality or existing landscape character will be very particular to the individual viewing experience. None of the visually sensitive resources identified in Section 4 are expected to have unmitigated, direct views of the Project; therefore, potential visual impacts from the Project will primarily be on nearby non-participating residences and local roads that extend through and immediately around the Project Area. Proposed landscaping to reduce visual effects is not shown on these simulations and is discussed further in Section 9.

The aboveground electrical facilities are consolidated in a location where existing, taller electrical infrastructure, such as the approximately 100-foot-tall 138-kV transmission line, is currently present. Although their higher profile could enhance their visibility, their discrete location limits the viewers who would experience a material change. The effect of that change is limited by being co-located with the existing 138-kV overhead transmission line, which is approximately 100 feet tall.

8. Potential for Glare

At times, glare has been raised as a potential concern for PV solar facility installations. Glare is defined as a continuous source of bright light and is a common phenomenon in our everyday lives. Both the sun and artificial light sources can cause glare either directly (such as from a sunset when driving westbound) or indirectly (such as from the sun's reflections off a lake or glass window). Potential concerns associated with glare may include:

- Safety impacts, such as the potential to disorient motorists when driving or pilots when taking off or landing; or
- Annoyance impacts, such as distraction, after-image in the viewer's vision, or temporary avoidance of a view due to the presence of reflected light.

PV panels, such as those proposed for the Project, are designed to absorb as much sunlight as possible and, in most conditions, reflect very little light. In fact, the PV panels being contemplated include anti-reflective coatings to further maximize energy absorption. Modern PV modules reflect as little as two percent of incoming sunlight, about the same as water and less than soil or even wood shingles (Sandia 2014).

PV facilities with panels mounted on single-axis trackers (such as the Project) rotate to follow the course of the sun to optimize the incident angle of sunlight on their surface. In addition to this optimization producing more energy, this design has the added benefit of generally minimizing glare, which is much more likely to occur at less optimal incident angles.

In considering the potential for glare effects associated with the Project, the extent to which panels will be visible due to such factors as topography or vegetation was considered; the types of potential viewers potentially subject to consideration of such effects was also identified. Details are provided in Attachment C. No glare impacts were modeled in association with the Project.

9. Planned Mitigation and Minimization

No visual impacts are anticipated for any of the designated scenic resources evaluated within 5 miles of the Project Area, although some nearby residences will have views of portions of the Project. To offset visual impacts for local viewers from individual non-participating residences and travelers along local roadways, landscaping will be implemented in locations as shown in the Landscape and Lighting Plan (Attachment D).

The use of fencing compatible with the agricultural character of the surrounding area and the implementation of a landscaping plan will provide for softening of the horizontal lines to lessen potential impacts associated with near-foreground views. The Landscape and Lighting Plan, provided as Attachment D, outlines the methods to be employed by the Applicant to blend the Project into the existing landscape. The Landscape Plan indicates locations where added screening is currently proposed in the form of landscape plantings, and detail regarding the anticipated vegetative screening scenarios. Note that these specific locations may be adjusted based on final design refinements, coordination with landowners regarding preference, and/or other factors.

10. Conclusions

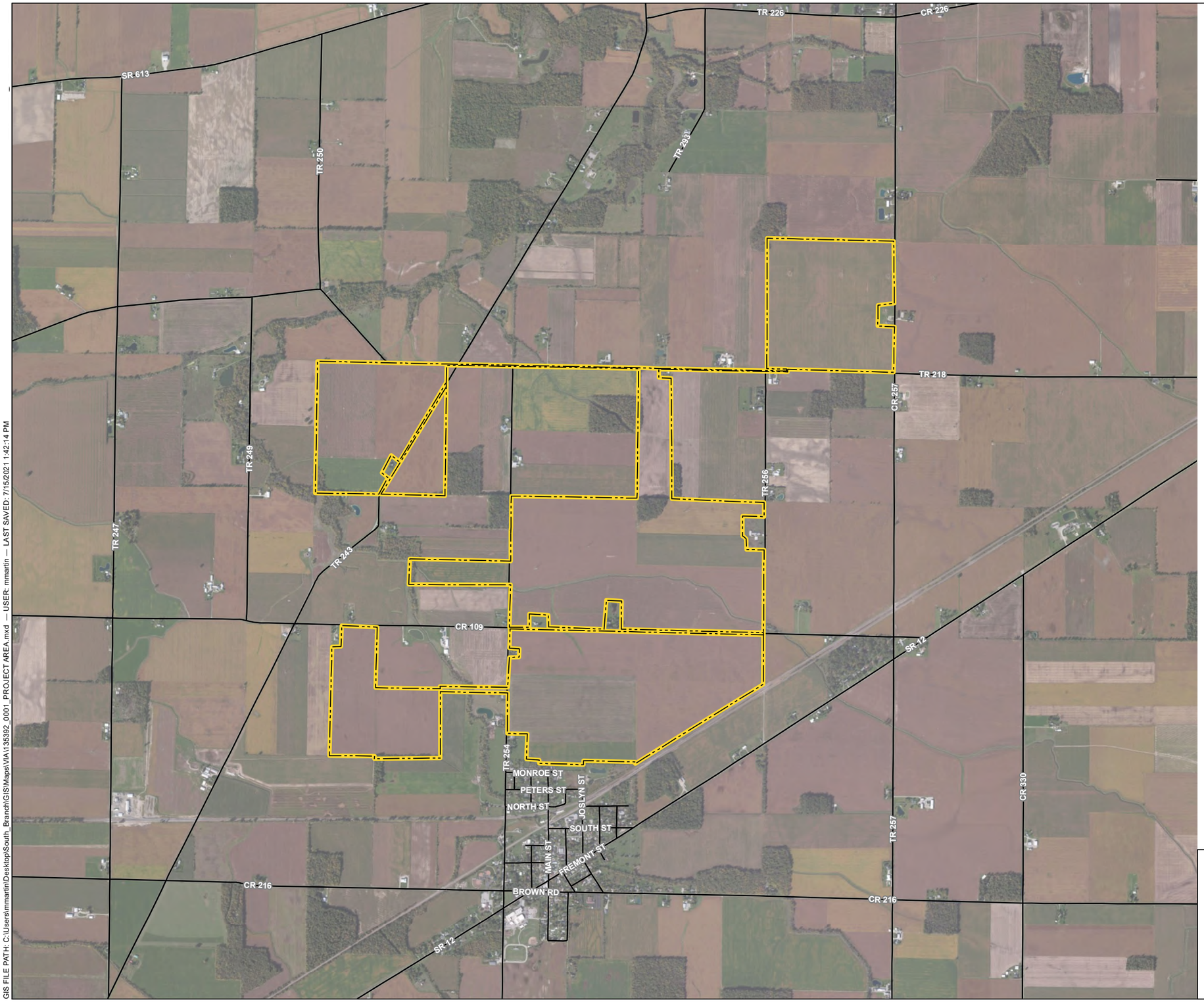
Based upon the analyses described above, the Project is not expected to be visible from any of the identified visually sensitive viewing resources. Visibility of significant portions of the Project is concentrated within the Project Area itself and the open fields located immediately adjacent to the Project. PV panel visibility is higher within the near-foreground distance zone (up to 0.5-mile) and diminishes significantly at the foreground and middle-ground distances. Although modeling indicates that potential visibility could extend between the foreground distance, ground-truthing, as documented in Attachment A, indicated this potential for visibility is overstated. Beyond 0.5-mile, screening provided by existing vegetation and wooded stream corridors, in combination with the low height of the solar panels, will significantly limit Project visibility.

The aboveground electrical components associated with the Project are taller but more compact and are located immediately proximate to other electrical structures of a similar height, such as the approximately 100-foot-tall 138kV transmission line. Although the substation features may be visible from some locations, the impacts of the visibility are expected to be diminished due to the narrow profile of the tallest elements and the neutral color of components, as they blend with the background vegetation and sky.

As illustrated in the visual simulations, the Project will result in varying levels of visual impact when viewed from adjacent roads and residences. This impact may be mitigated by the presence of seasonal crops in actively farmed fields; however, during the rest of the year, the Project will introduce areas of low-lying structures that will alter the existing agricultural character of the landscape. However, as demonstrated in the simulations, this visibility and potential visual impact diminishes rapidly as the Project is viewed from greater distances and landscaping is proposed to further mitigate potential views from sensitive receptors. It is anticipated that impacts will be limited to areas directly adjacent to the Project.

As discussed in Section 9 and Attachment D, the use of landscaping in certain locations (to be revised based upon final design, drain tile locations, and landowner considerations) along certain perimeters of the Project fence line is expected to mitigate the visual impact of the Project when viewed at near-foreground distances. The plantings will serve to break up the horizontal lines created by the array and fence line and help the Project blend with the existing landscape, providing aesthetic as well as ecological benefits.

FIGURES



LEGEND

ROAD

PROJECT AREA

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ROADS DATA SOURCE: OHIO LOCATION BASED RESPONSE SYSTEM (LBRS)
3. AERIAL IMAGERY SOURCE: ESRI

N

0 2,000 4,000

SCALE IN FEET

HALEY ALDRICH

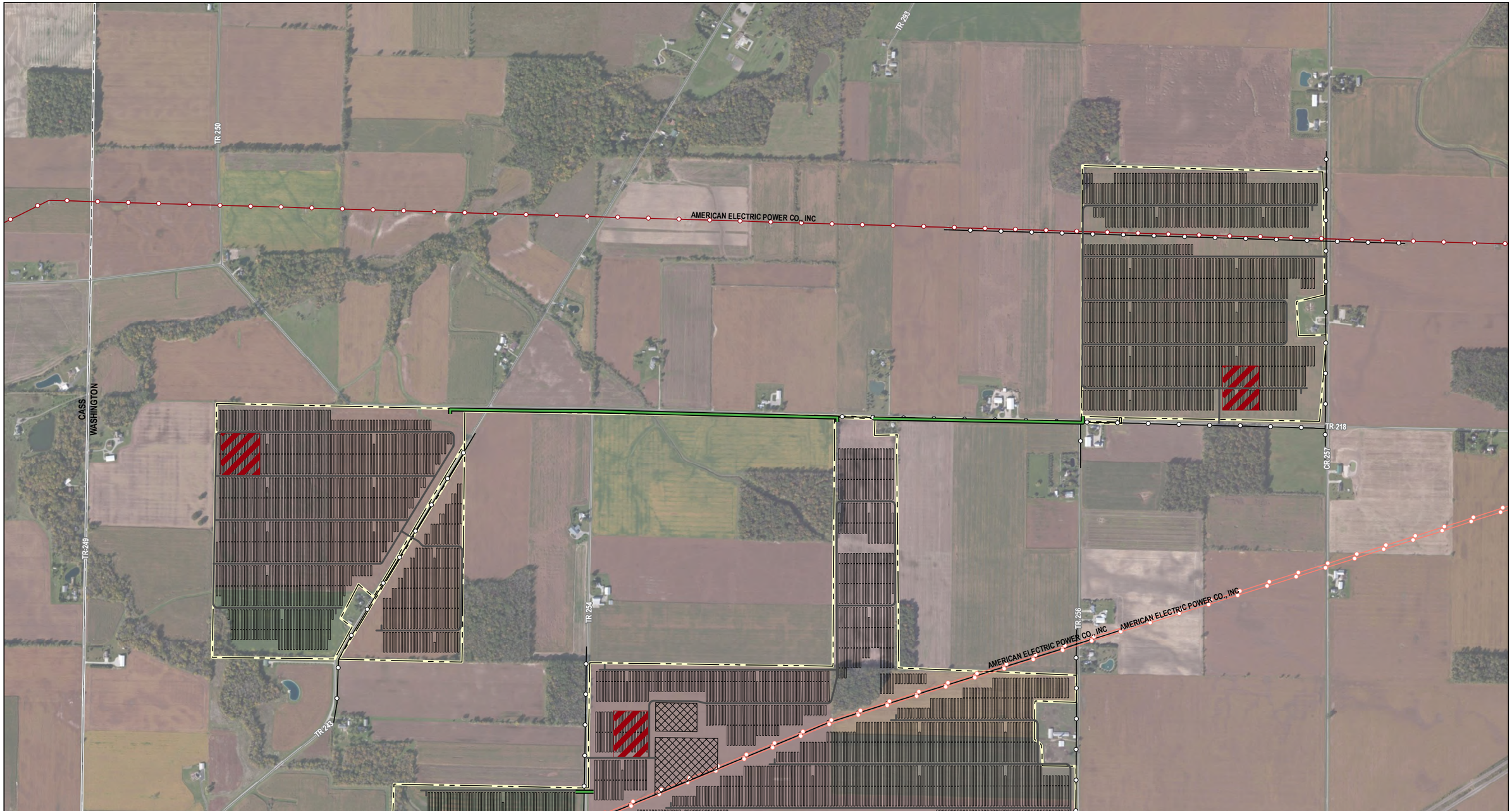
SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

PROJECT AREA

JULY 2021

FIGURE 1

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0001_PROJECT AREA.mxd — USER: mmartin — LAST SAVED: 7/15/2021 1:42:14 PM



LEGEND

- POTENTIAL COLLECTION LINE
- POTENTIAL GRAVEL ROAD
- 138 kV TRANSMISSION LINE
- 345kV TRANSMISSION LINE
- TRANSMISSION LINE, UNKNOWN VOLTAGE
- ROAD
- POTENTIAL SOLARY ARRAY
- LAYDOWN AREA
- SUBSTATION
- PROJECT AREA
- TOWNSHIP BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. kV = KILOVOLTS
3. ELECTRIC TRANSMISSION LINES DATA SOURCE: DEPARTMENT OF HOMELAND SECURITY (DHS) HOMELAND INFRASTRUCTURE FOUNDATION-LEVEL DATA (HIFLD) AND CLIENT
4. ROADS DATA SOURCE: OHIO DEPARTMENT OF TRANSPORTATION (ODOT)
5. TOWNSHIP BOUNDARIES DATA SOURCE: OHIO EMERGENCY MANAGEMENT AGENCY (OEMA)
6. AERIAL IMAGERY SOURCE: ESRI

HALEY ALDRICH

N

0 1,000 2,000

SCALE IN FEET

SHEET INDEX

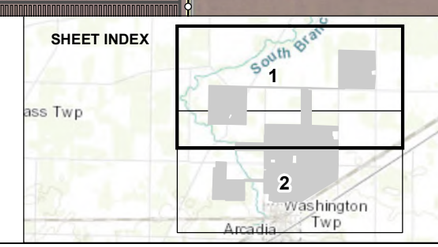
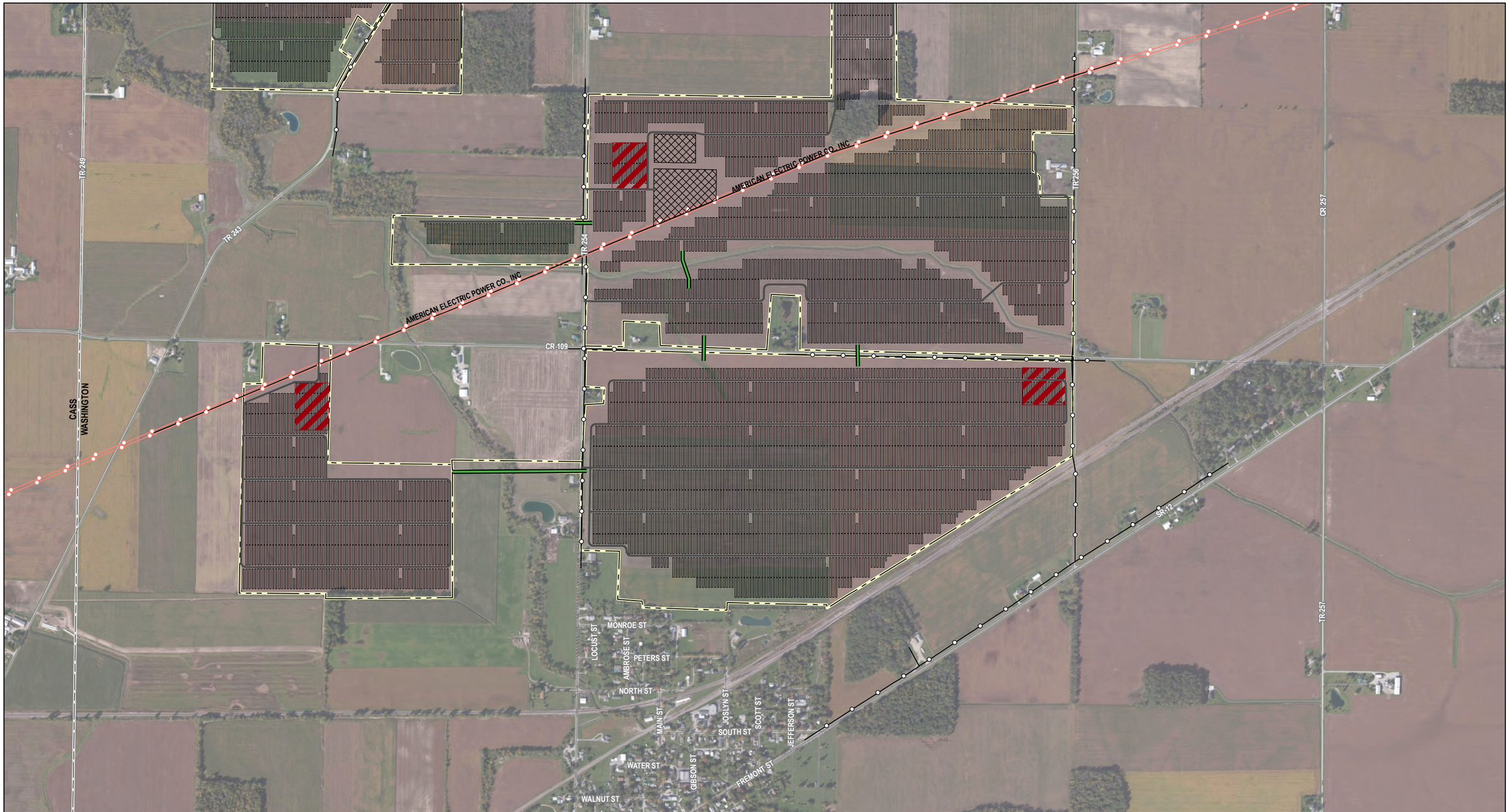


Figure 2 Preliminary Project Layout

Sheet 1 of 2

South Branch Solar
Hancock County, Ohio



LEGEND

- POTENTIAL COLLECTION LINE
- POTENTIAL GRAVEL ROAD
- 138 kV TRANSMISSION LINE
- 345kV TRANSMISSION LINE
- TRANSMISSION LINE, UNKNOWN VOLTAGE
- ROAD
- POTENTIAL SOLARY ARRAY
- LAYDOWN AREA
- SUBSTATION
- PROJECT AREA
- TOWNSHIP BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. kV = KILOVOLTS
3. ELECTRIC TRANSMISSION LINES DATA SOURCE: DEPARTMENT OF HOMELAND SECURITY (DHS) HOMELAND INFRASTRUCTURE FOUNDATION-LEVEL DATA (HIFLD) AND CLIENT
4. ROADS DATA SOURCE: OHIO DEPARTMENT OF TRANSPORTATION (ODOT)
5. TOWNSHIP BOUNDARIES DATA SOURCE: OHIO EMERGENCY MANAGEMENT AGENCY (OEMA)
6. AERIAL IMAGERY SOURCE: ESRI

HALEY ALDRICH

N

0 1,000 2,000

SCALE IN FEET

SHEET INDEX

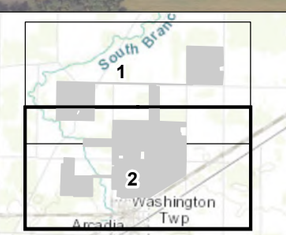
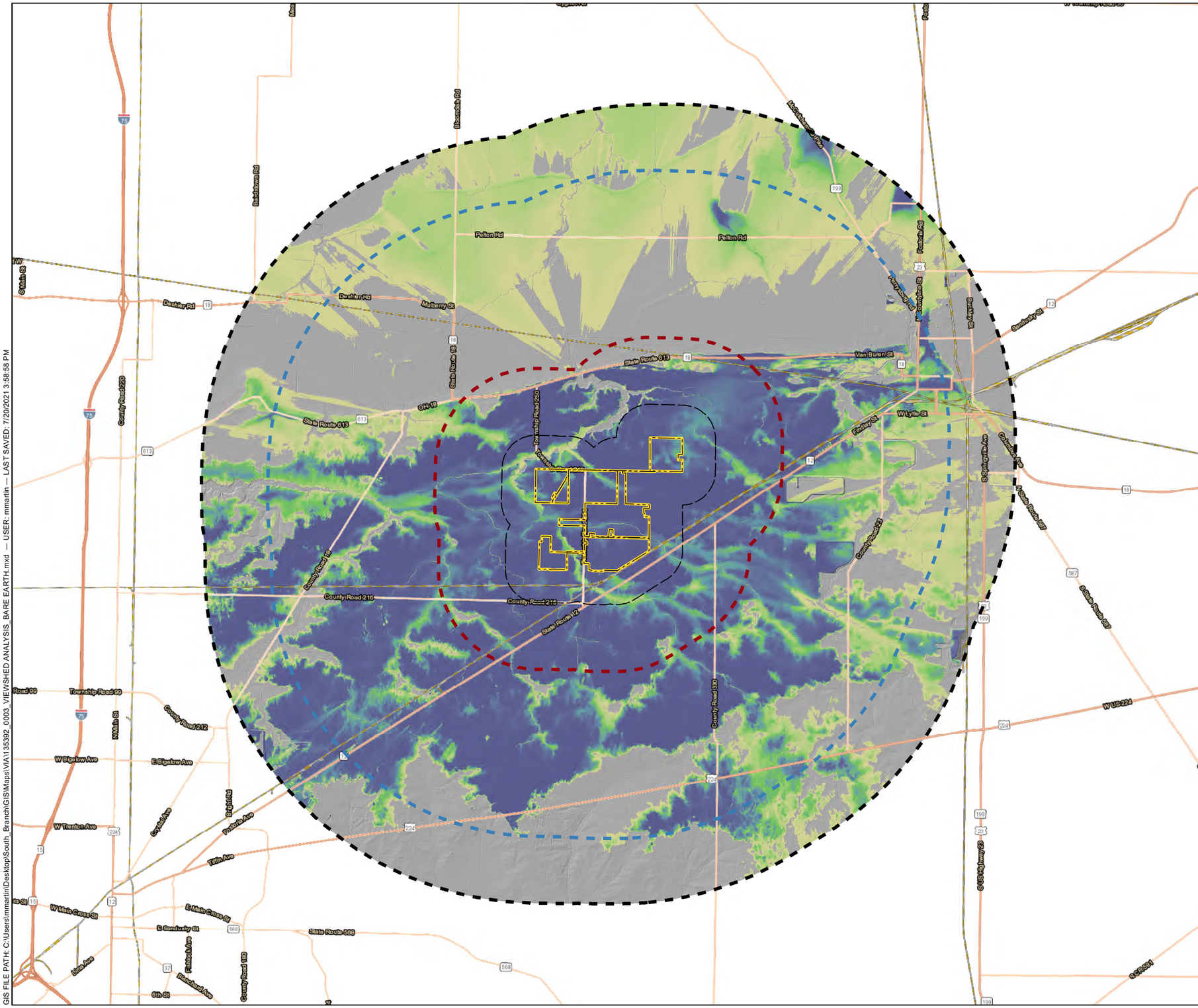


Figure 2 Preliminary Project Layout

Sheet 2 of 2

South Branch Solar
Hancock County, Ohio



LEGEND

- PROJECT AREA
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER

PANEL VISIBILITY

- MORE PANELS POTENTIALLY VISIBLE
- FEWER PANELS POTENTIALLY VISIBLE

NOTES

1. VIEWSHED ANALYSIS BASED ON OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM (OGRIP) LIDAR DATA USING BARE EARTH ELEVATIONS ONLY. OBSERVER HEIGHT WAS ASSUMED TO BE 6 FEET AND PANEL HEIGHT WAS ASSUMED TO BE 15 FEET.

2: BASEMAP: ESRI WORLD TRANSPORTATION AND OGRIP LIDAR HILLSHADE.

N

0 1 2
Miles

HALEY ALDRICH

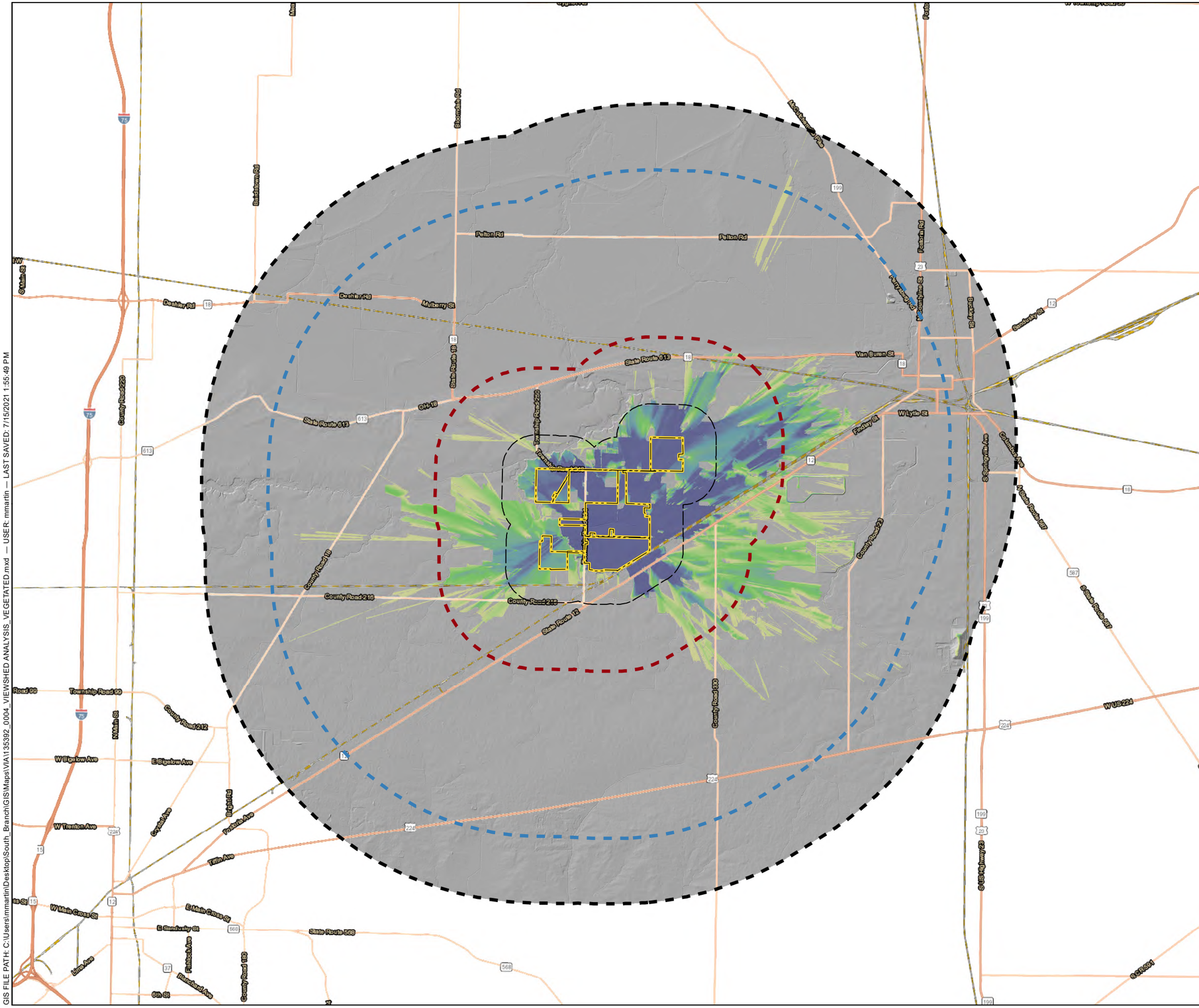
SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

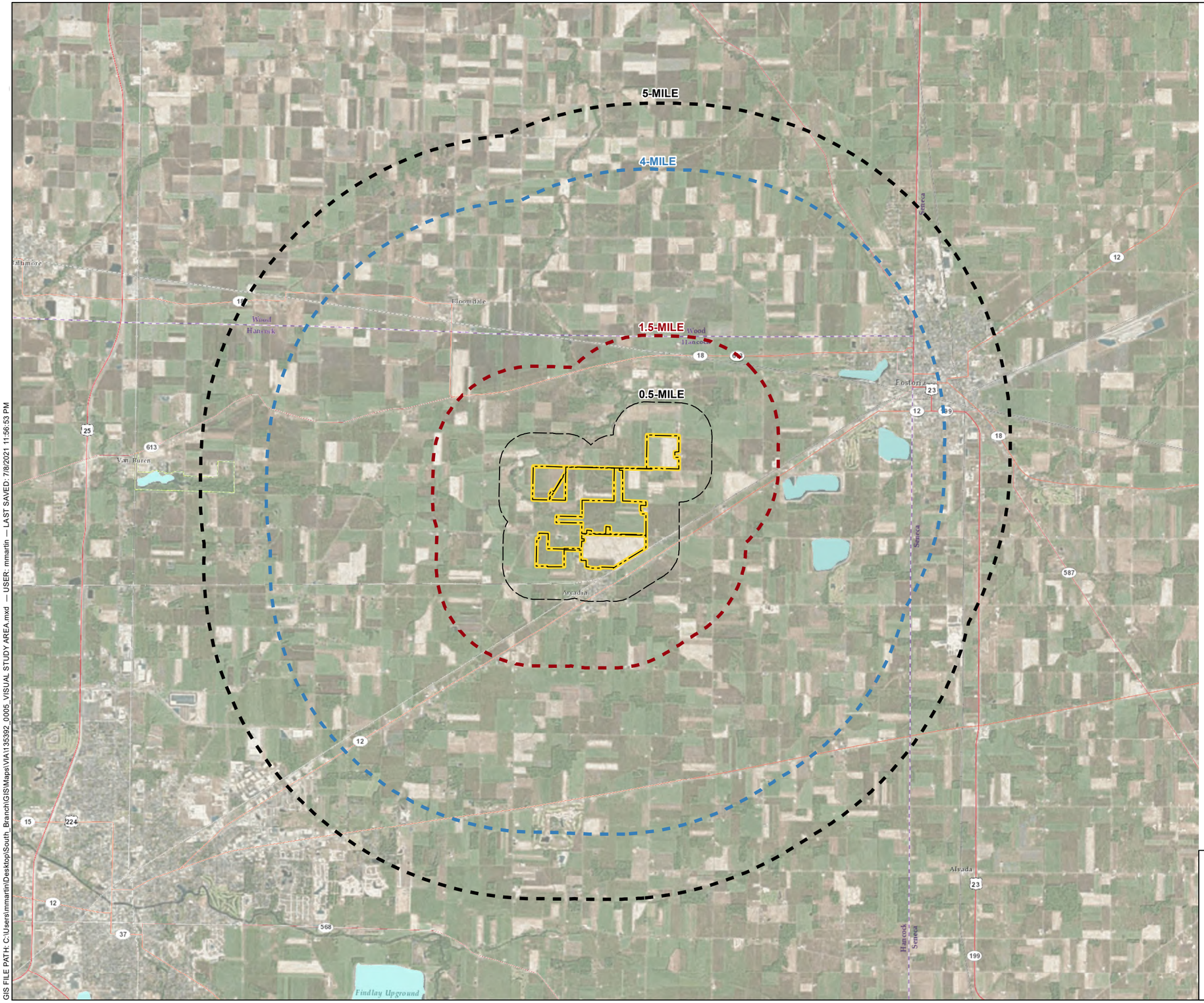
PANEL VIEWSHED ANALYSIS:
BARE EARTH

JULY 2021

FIGURE 3

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VA\135392_0003_VIEWSHED ANALYSIS_BARE EARTH.mxd — USER: mmartin — LAST SAVED: 7/20/2021 3:58:58 PM


Fulton Rd
Deshler Rd
Mulberry St
State Route 613
OH-18
Van Buren St
W Lytle St
Findlay St
County Road 216
County Road 212
State Route 12
County Road 139
W US 224
W Bigelow Ave
E Bigelow Ave
W Trenton Ave
Trifle Ave
W Main Cross St
E Main Cross St
E Sandusky St
State Route 568
Sandusky St
S Main St
S Cory St
S Blanchard St
S Eighth St
S Cedar St
Township Road 66
County Road 212
County Road 139
County Road 25
County Road 19
County Road 220
Township Road 236
Baltimore Rd
Blanchard St
Cory St
Fostoria Ave
Lincoln Ave
Rutherford Ave
6th St
Columbus St
S Springworth Ave
S US Highway 68
S State Route 587
S State Route 67
S CR 501
Ohio Ave
Fostoria Rd
Mt Blanchard Rd
Mt Cory Rd
Mt Vernon Rd
Mt Springworth



LEGEND

- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA

NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI REFERENCE LAYER.

0 1 2
Miles

HALEY ALDRICH

SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUAL STUDY AREA

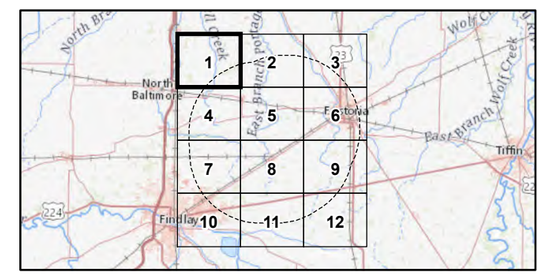
JULY 2021

FIGURE 5

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0005_VISUAL STUDY AREA.mxd — USER: mmartin — LAST SAVED: 7/8/2021 11:56:53 PM

LEGEND

- AIR NAVIGATION FACILITY
- CEMETERY
- SCENIC RESOURCE
- LIBRARY
- PLACE OF WORSHIP
- RECREATIONAL AREA
- SCHOOL
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA



NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI WORLD TRANSPORTATION

N

0 2,000 4,000

SCALE IN FEET

HALEY ALDRICH

SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUALLY SENSITIVE RESOURCES

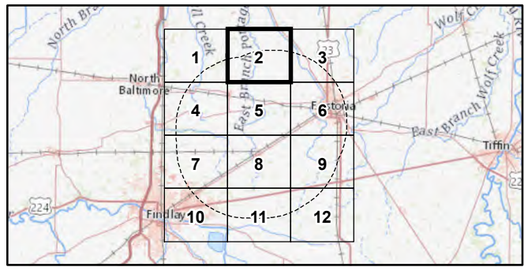
JULY 2021

FIGURE 6
SHEET 1 OF 12

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0006_VISUALLY SENSITIVE RESOURCES.mxd — USER: mmartin — LAST SAVED: 7/9/2021 12:04:17 AM

LEGEND

- AIR NAVIGATION FACILITY
- CEMETERY
- SCENIC RESOURCE
- LIBRARY
- PLACE OF WORSHIP
- RECREATIONAL AREA
- SCHOOL
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA



NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI WORLD TRANSPORTATION

0 2,000 4,000
SCALE IN FEET

HALEY ALDRICH

SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUALLY SENSITIVE RESOURCES

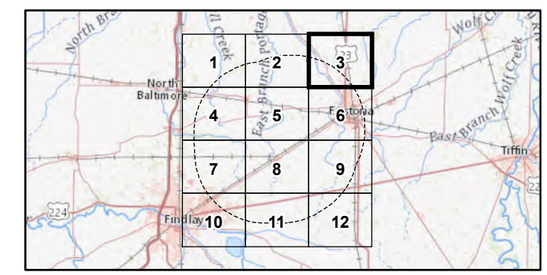
JULY 2021

FIGURE 6
SHEET 2 OF 12

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0006_VISUALLY SENSITIVE RESOURCES.mxd — USER: mmartin — LAST SAVED: 7/9/2021 12:04:17 AM

LEGEND

- AIR NAVIGATION FACILITY
- CEMETERY
- SCENIC RESOURCE
- LIBRARY
- PLACE OF WORSHIP
- RECREATIONAL AREA
- SCHOOL
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA



NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI WORLD TRANSPORTATION

N

0 2,000 4,000

SCALE IN FEET

HALEY ALDRICH

SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUALLY SENSITIVE RESOURCES

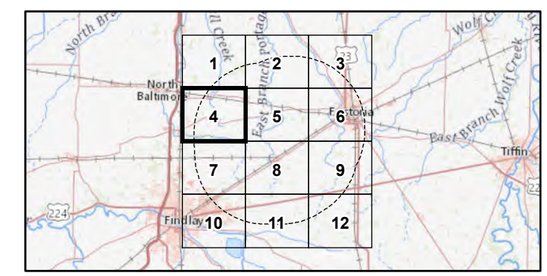
JULY 2021

FIGURE 6
SHEET 3 OF 12

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0006_VISUALLY SENSITIVE RESOURCES.mxd — USER: mmartin — LAST SAVED: 7/9/2021 12:04:17 AM

LEGEND

- AIR NAVIGATION FACILITY
- CEMETERY
- SCENIC RESOURCE
- LIBRARY
- PLACE OF WORSHIP
- RECREATIONAL AREA
- SCHOOL
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA



NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI WORLD TRANSPORTATION

N

0 2,000 4,000

SCALE IN FEET

HALEY ALDRICH

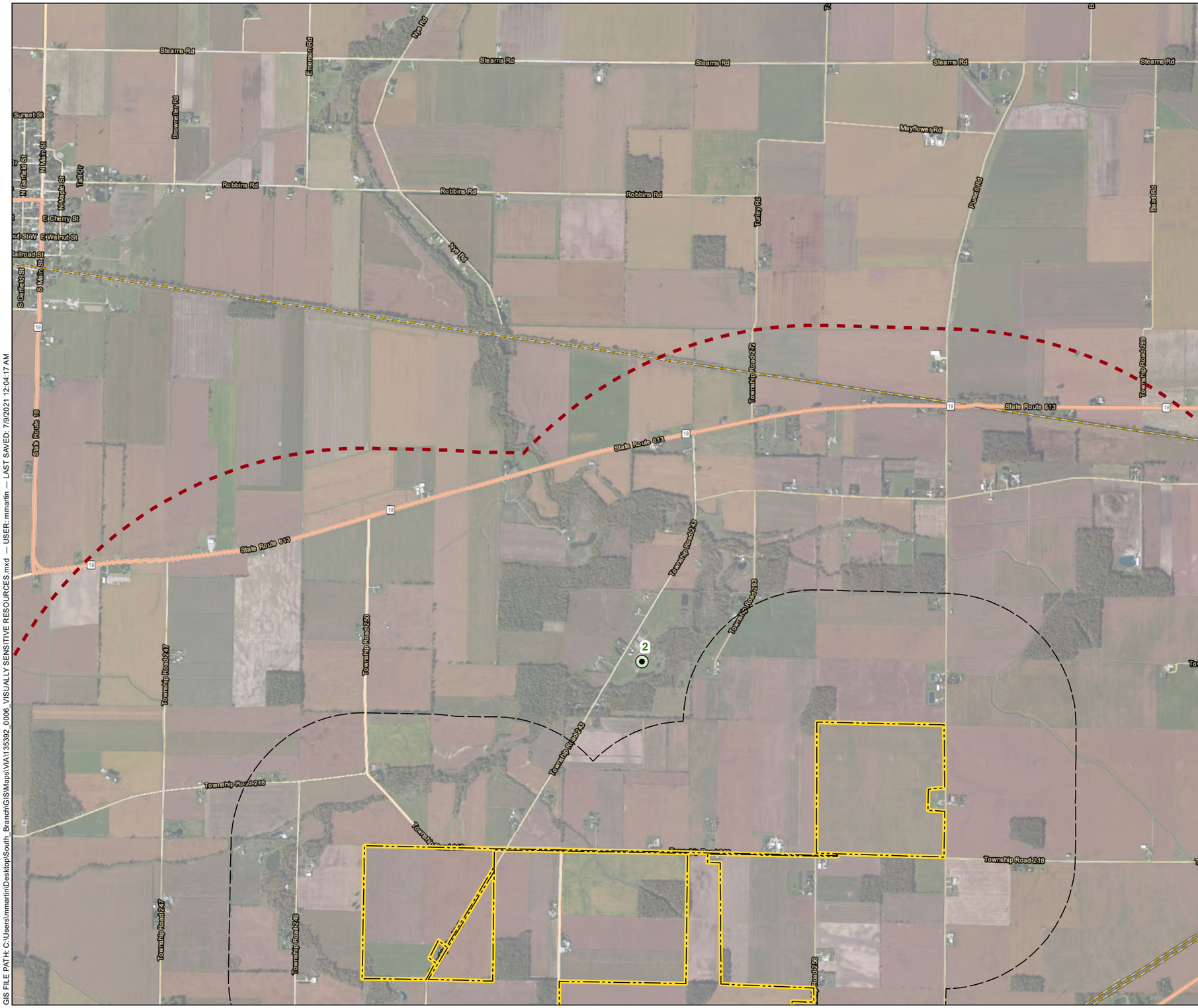
SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUALLY SENSITIVE RESOURCES

JULY 2021

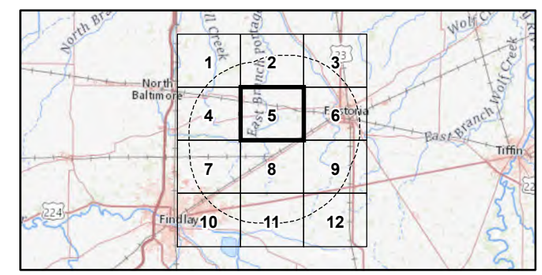
FIGURE 6
SHEET 4 OF 12

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0006_VISUALLY SENSITIVE RESOURCES.mxd — USER: mmartin — LAST SAVED: 7/9/2021 12:04:17 AM



LEGEND

- AIR NAVIGATION FACILITY
- CEMETERY
- SCENIC RESOURCE
- LIBRARY
- PLACE OF WORSHIP
- RECREATIONAL AREA
- SCHOOL
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA



NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI WORLD TRANSPORTATION

N

0 2,000 4,000

SCALE IN FEET

HALEY ALDRICH

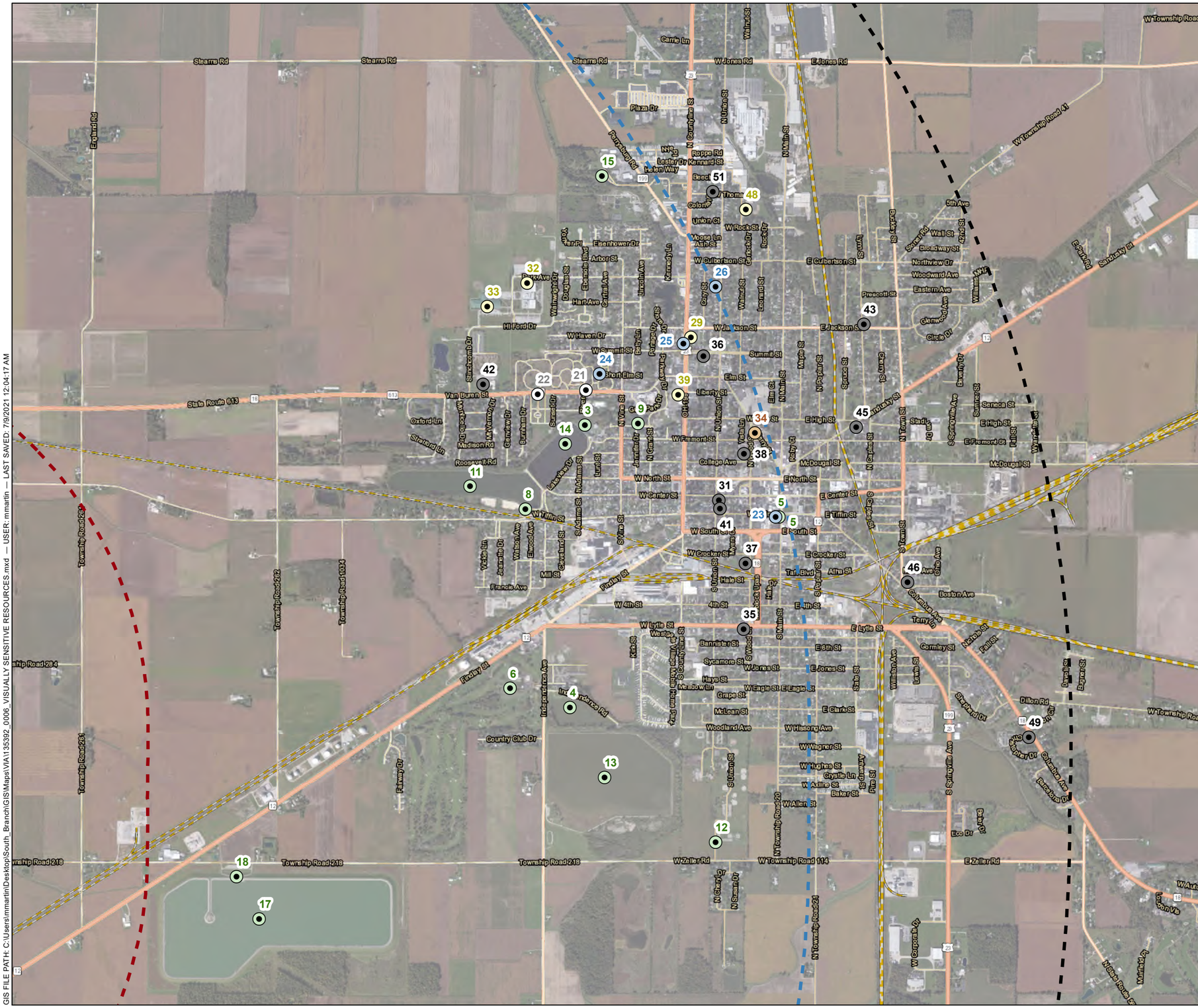
SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUALLY SENSITIVE RESOURCES

JULY 2021

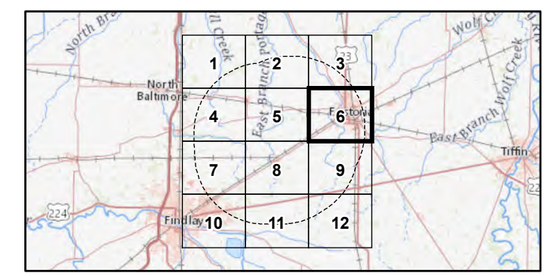
FIGURE 6
SHEET 5 OF 12

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0006_VISUALLY SENSITIVE RESOURCES.mxd — USER: mmartin — LAST SAVED: 7/9/2021 12:04:17 AM



LEGEND

- AIR NAVIGATION FACILITY
- CEMETERY
- SCENIC RESOURCE
- LIBRARY
- PLACE OF WORSHIP
- RECREATIONAL AREA
- SCHOOL
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA



NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI WORLD TRANSPORTATION

0 2,000 4,000
SCALE IN FEET

HALEY ALDRICH

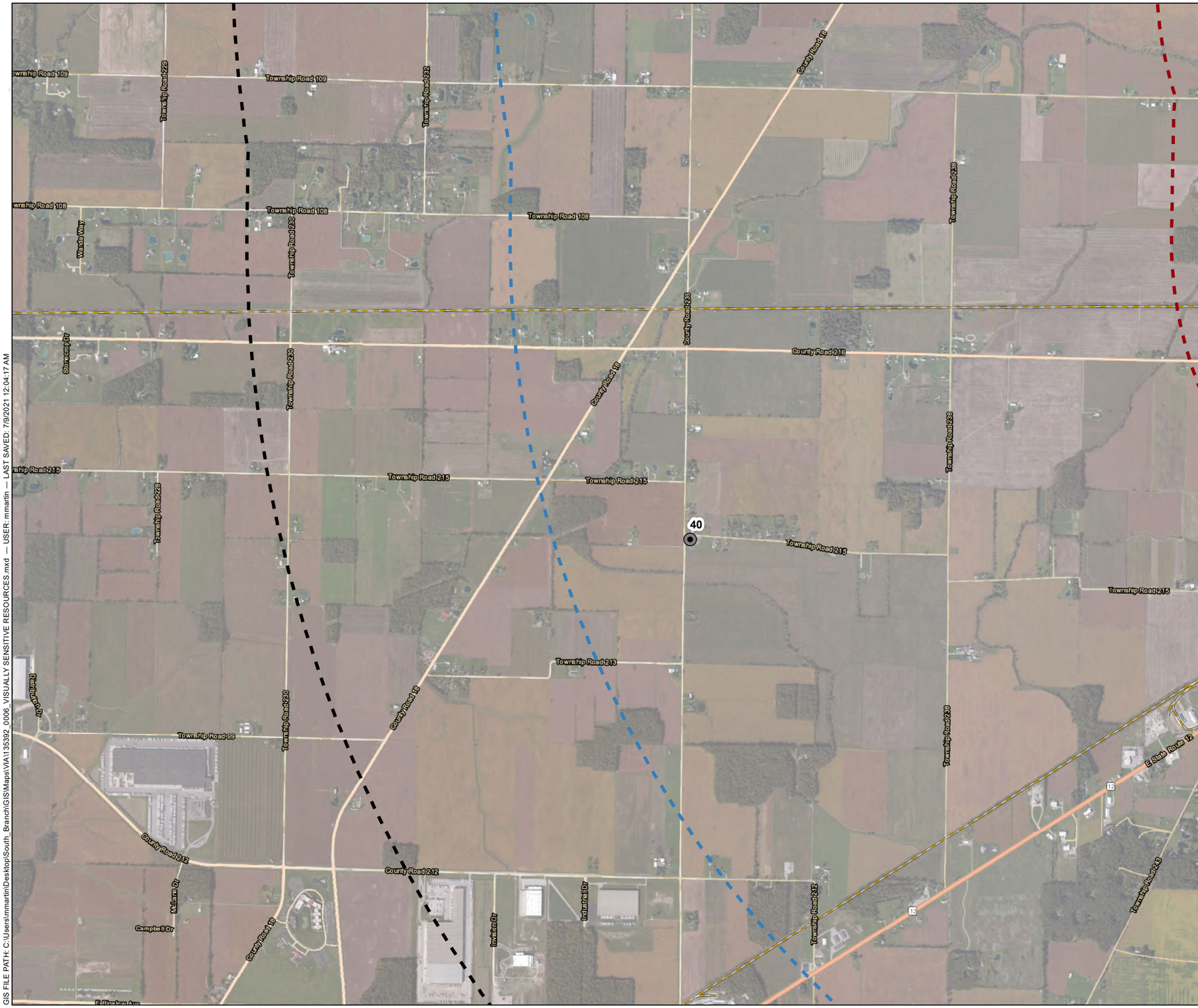
SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUALLY SENSITIVE RESOURCES

JULY 2021

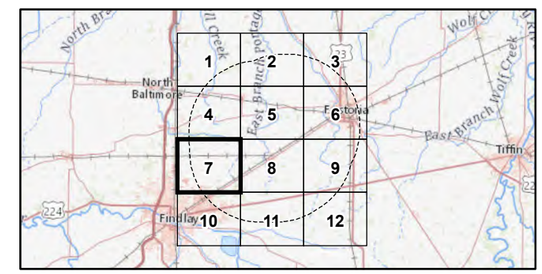
FIGURE 6
SHEET 6 OF 12

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0006_VISUALLY SENSITIVE RESOURCES.mxd — USER: mmartin — LAST SAVED: 7/9/2021 12:04:17 AM



LEGEND

- AIR NAVIGATION FACILITY
- CEMETERY
- SCENIC RESOURCE
- LIBRARY
- PLACE OF WORSHIP
- RECREATIONAL AREA
- SCHOOL
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA



NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI WORLD TRANSPORTATION

0 2,000 4,000
SCALE IN FEET

HALEY ALDRICH

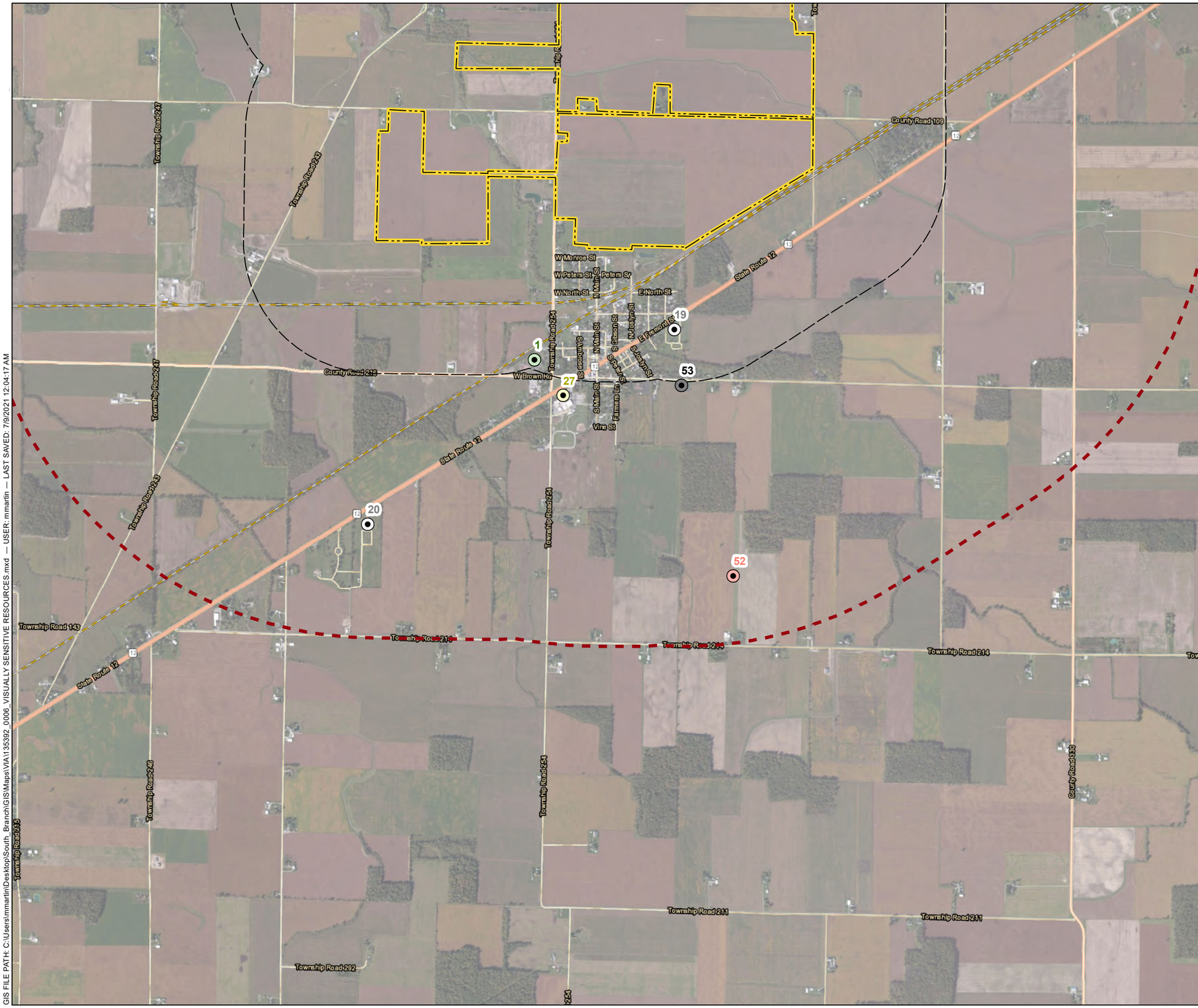
SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUALLY SENSITIVE RESOURCES

JULY 2021

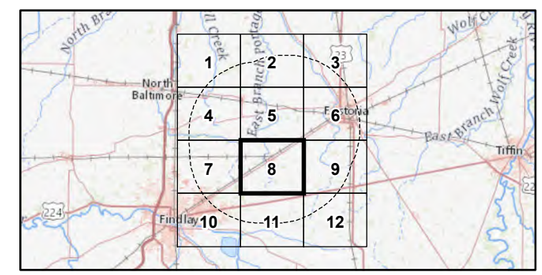
FIGURE 6
SHEET 7 OF 12

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0006_VISUALLY SENSITIVE RESOURCES.mxd — USER: mmartin — LAST SAVED: 7/9/2021 12:04:17 AM



LEGEND

- AIR NAVIGATION FACILITY
- CEMETERY
- SCENIC RESOURCE
- LIBRARY
- PLACE OF WORSHIP
- RECREATIONAL AREA
- SCHOOL
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA



NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI WORLD TRANSPORTATION

N

0 2,000 4,000

SCALE IN FEET

HALEY ALDRICH

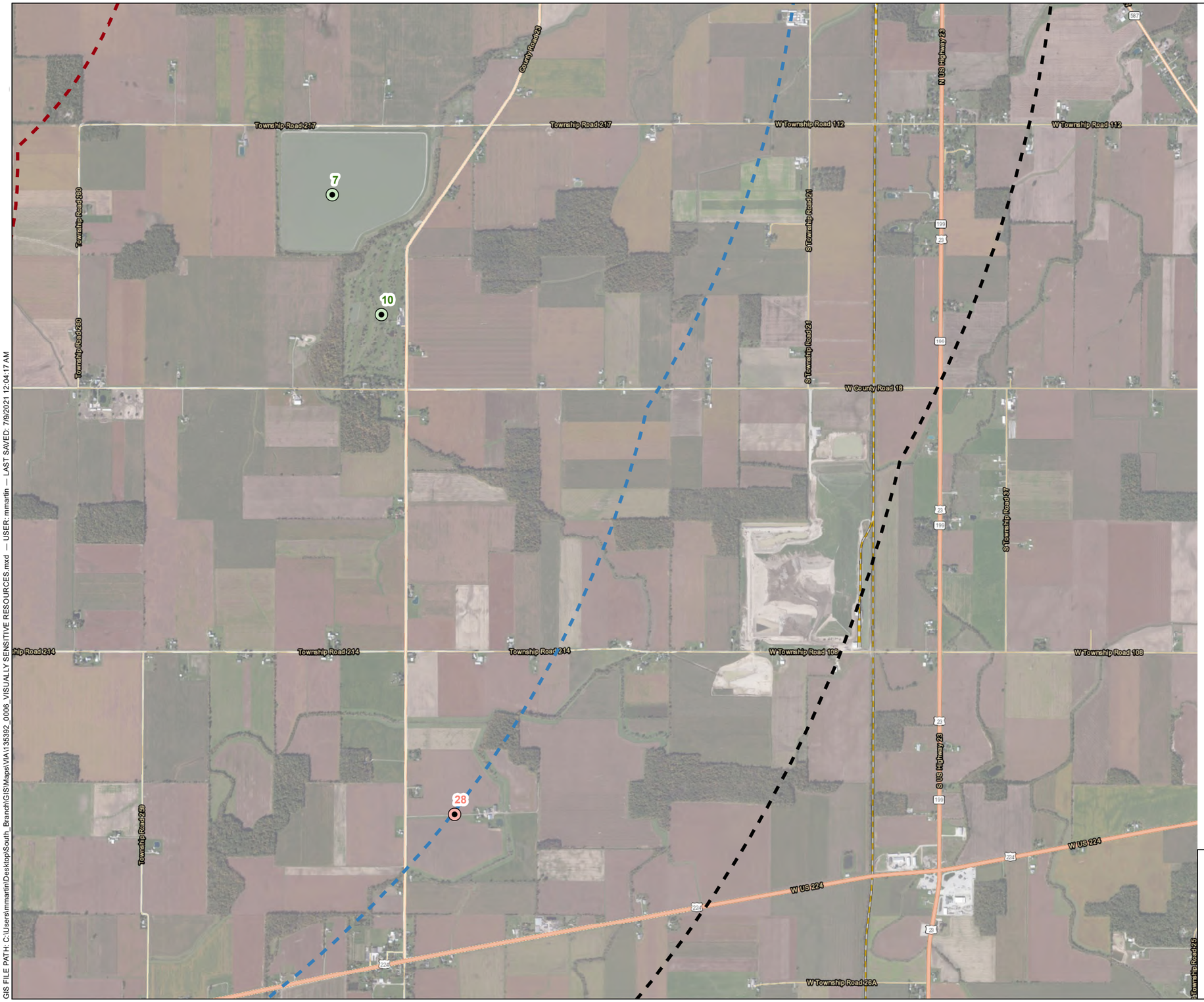
SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUALLY SENSITIVE RESOURCES

JULY 2021

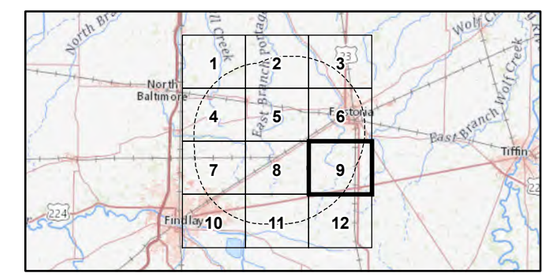
FIGURE 6
SHEET 8 OF 12

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0006_VISUALLY SENSITIVE RESOURCES.mxd — USER: mmartin — LAST SAVED: 7/9/2021 12:04:17 AM



LEGEND

- AIR NAVIGATION FACILITY
- CEMETERY
- SCENIC RESOURCE
- LIBRARY
- PLACE OF WORSHIP
- RECREATIONAL AREA
- SCHOOL
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA



NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI WORLD TRANSPORTATION

N

0 2,000 4,000

SCALE IN FEET

HALEY ALDRICH

SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUALLY SENSITIVE RESOURCES

JULY 2021

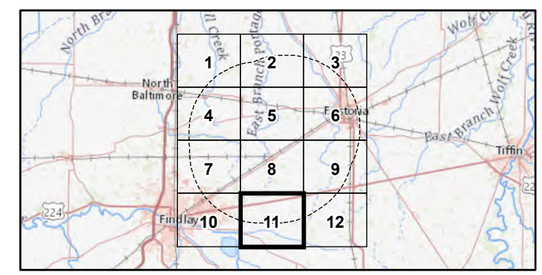
FIGURE 6
SHEET 9 OF 12

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0006_VISUALLY SENSITIVE RESOURCES.mxd — USER: mmartin — LAST SAVED: 7/9/2021 12:04:17 AM

47
50
E State Route 47
E US Route 224
State Route 568
Township Road 208
Township Road 207
County Road 139
Tiffin Ave
E Sandusky St
Bright Rd
Flag City Dr
Milestone Dr
Meijer Dr
Silversteine Dr
Bluestone Dr
Southshore Dr
Foxmoor Rd
Windsor Dr
Saratoga Dr
Arbors Pkwy
Beechwood Rd
Forest Ln
Forest Edge Dr
Sherwood Rd
Wolf Run
Cain Ridge Ln
Bent Tree Dr
Brookstone Dr
Township Road 242
Township Road 243
Township Road 227
Township Road 237
County Road 238
Township Road 234
Marion Township Rd 207
Cranberry Ln
Autumn Dr
Windermere Dr
Kennington Dr
Timberwood Dr
Cranberry Creek Dr
Pine Creek Dr
Country Club Dr
Hemphill Blvd
E Main Cross St
Cross Ave
Wedgewood Dr
Hawthorne Rd
Production Dr
Waterloo Dr
Omaha Dr
Gold Dr
Tod Cir
River Birch Ct
Beckwith Ln
Eastern Woods Pkwy
Hickory Ln
Wildwood Rd
Wildwood Pl
Township Road 242
Township Road 243
Township Road 208
Township Road 207
Township Road 234
Township Road 237
Township Road 227
Township Road 242
Township Road 243
Township Road 208
Township Road 207
Township Road 207
Township Road 207

LEGEND

- AIR NAVIGATION FACILITY
- CEMETERY
- SCENIC RESOURCE
- LIBRARY
- PLACE OF WORSHIP
- RECREATIONAL AREA
- SCHOOL
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA



NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI WORLD TRANSPORTATION

N

0 2,000 4,000

SCALE IN FEET

HALEY ALDRICH

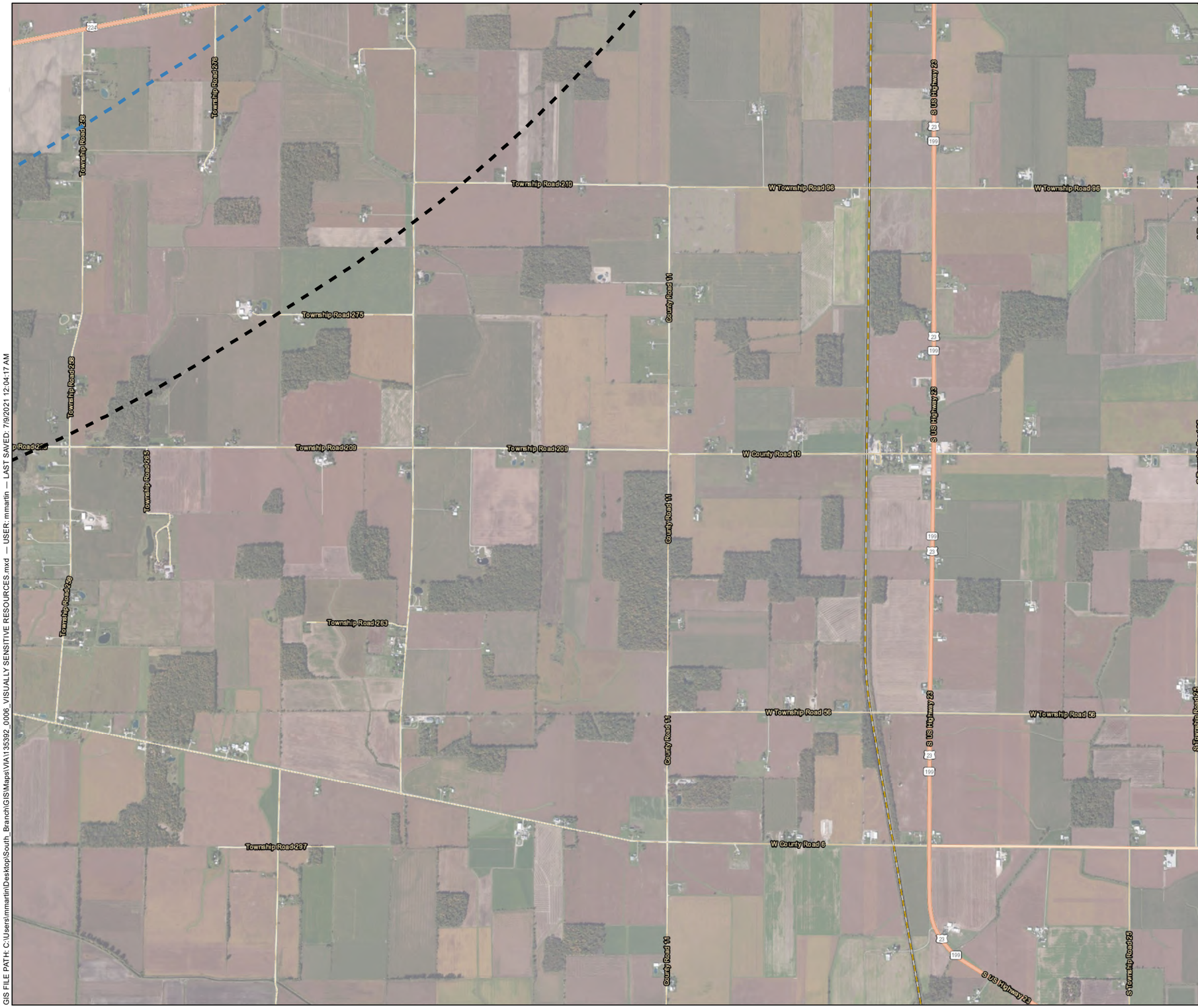
SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUALLY SENSITIVE RESOURCES

JULY 2021

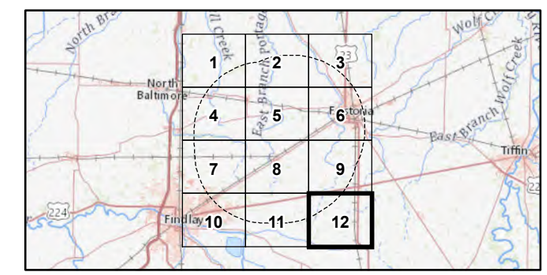
FIGURE 6
SHEET 11 OF 12

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0006_VISUALLY SENSITIVE RESOURCES.mxd — USER: mmartin — LAST SAVED: 7/9/2021 12:04:17 AM



LEGEND

- AIR NAVIGATION FACILITY
- CEMETERY
- SCENIC RESOURCE
- LIBRARY
- PLACE OF WORSHIP
- RECREATIONAL AREA
- SCHOOL
- 0.5-MILE BUFFER
- 1.5-MILE BUFFER
- 4-MILE BUFFER
- 5-MILE BUFFER
- PROJECT AREA



NOTES

1. BASEMAP: CLARITY WORLD IMAGERY AND ESRI WORLD TRANSPORTATION

0 2,000 4,000
SCALE IN FEET

HALEY ALDRICH

SOUTH BRANCH SOLAR PROJECT
HANCOCK COUNTY, OHIO

VISUALLY SENSITIVE RESOURCES

JULY 2021

FIGURE 6
SHEET 12 OF 12

GIS FILE PATH: C:\Users\mmartin\Desktop\South_Branch\GIS\Maps\VIA\135392_0006_VISUALLY SENSITIVE RESOURCES.mxd — USER: mmartin — LAST SAVED: 7/9/2021 12:04:17 AM

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

7/22/2021 1:00:48 PM

in

Case No(s). 21-0669-EL-BGN

Summary: Application Appendix R – Visual Impact Assessment Part 1 of 3 electronically filed by Ms. Megan Zemke on behalf of Borchers, Dylan F