Cultural Resources Records Review

Willowbrook Solar Project

White Oak and Concord Townships, Highland County, Ohio
Eagle Township, Brown County, Ohio

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MANAGEMENT SUMMARY

Relevant State and Federal Agencies:	Ohio Power Siting Board (OPSB) Ohio Historic Preservation Office (OHPO)
Phase of Survey:	Cultural Resources Records Review
Location Information:	White Oak and Concord Townships, Highland County Eagle Township, Brown County
Project Area:	Project Area: Approximately 2,030 acres 2-mile Cultural Resources Study Area: 22,240 acres
USGS 7.5-Minute Quadrangle Maps:	*Sugar Tree Ridge, Ohio (2-mile Cultural Resources Study Area also extends into Sardinia and Winchester, Ohio)*
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1.0 INTRODUCTION

1.1 Purpose and Goals of the Investigation

Willowbrook Solar I, LLC (hereafter referred to as the Applicant), is proposing to construct the Willowbrook Solar Project, an up-to 150 megawatt (MW) photovoltaic (PV) solar project to be located in White Oak and Concord Townships, Highland County, and in Eagle Township, Brown County (hereafter referred to as the Project). The Applicant is currently in the process of preparing an Application for a Certificate of Environmental Compatibility and Public Need (the Application), which is being prepared in compliance with Section 4906.06 of the Ohio Revised Code. This Application will be prepared in accordance with Chapter 4906-4-01 through 4906-4-08 of the Ohio Administrative Code (OAC), with support from Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) of Syracuse, New York.

On behalf of the Applicant, EDR prepared this cultural resources records review in support of environmental review and permitting for the Project. The materials contained and attached to this report constitute a cultural resources records review for the Project. This cultural resources records review has been prepared by a Registered Professional Archaeologist (RPA) who meets the Secretary of the Interior's Standards for Archaeology (36 C.F.R. Part 61) and a qualified architectural historian who meets the U.S. Secretary of Interior's Standards for Historic Preservation (36 C.F.R. Part 61). The cultural resources records review is designed to satisfy portions of the requirements of Ohio Administrative Code Chapter 4906-04-08(D) for the Ohio Power Siting Board (OPSB).

1.2 Project Location and Description

The Project is a proposed up-to 150 MW PV solar electric generation plant to be located in White Oak and Concord Townships, Highland County, and Eagle Township, Brown County, Ohio (see Figure 1). The Project will consist of the construction and operation of a utility-scale solar power project, including the installation and operation of solar panels, inverters to convert direct current (DC) electricity to alternating current (AC) electricity, transformers to increase electric voltage, a network of buried cables to collect the electricity, a Project-level substation, a very short (approximately 100-foot long) transmission line (gen-tie), access roads, and solar energy measuring installations (pyranometers).

The following terms are used throughout this document to describe the proposed action:

Project:	Collectively refers to all components of the Willowbrook Solar Project and associated infrastructure (such as solar panels, collection lines, substations and equipment) in White Oak and Concord Townships, Highland County and Eagle Township, Brown County.
Project Area:	Those parcels within a contiguous geographic boundary that contain all components of the Project, associated setbacks, and properties under lease or agreement.

Cultural Resources Study Area:	The area within two miles of the Project, which is defined in Section 1.3 of this report as the appropriate study area for indirect (visual) effects on cultural resources.[1] The Cultural Resources Study Area includes portions of Highland, Brown and Adams Counties.
APE for Direct Effects:	The Area of Potential Effects (APE) for Direct Effects is the area containing all proposed soil disturbance associated with the Project.
APE for Indirect Effects:	The APE for Indirect Effects includes those areas where the Project may result in indirect effects on cultural resources, such as visual impacts. As presently envisioned, the APE for Indirect (Visual) Effects for the Project is the area within 2 miles of the Project Area (the Cultural Resources Study Area) which are within the potential viewshed (based on topography, structures and vegetation) of the Project.

The Project will occupy up to 1,710 acres of private land within a larger Project Area of approximately 2,030 acres (see Figure 2). The Project Area is rural and is largely characterized by medium- to large-sized farms with interspersed pockets of trees. Undeveloped land includes actively cultivated fields, small blocks and rows of trees and other vegetation, and old fields. Developed features in the Project Area include two electric transmission lines (one 345 kilovolts [kV] and the other 138 kV), an electric substation (the Utility Substation), communication towers, public roads, single family homes and farm buildings, as well as a large aggregate mine immediately to the south.

1.3 Area of Potential Effect

The Area of Potential Effect (APE) for Direct Effects for the Project is defined as all areas where potential soil disturbance (or other direct, physical impacts) is anticipated during construction of the Project. Preliminary design of the Project is underway, but the final layout will occupy less than the Project Area (see Figure 2). Therefore, the actual extent of soil disturbance within the Project Area will be less than 2,030 acres. The solar panels will be mounted on racks with a relatively small footprint (in terms of soil disturbance), typically consisting of small I-beam posts driven into the ground. In addition, relatively minor ground disturbance will occur during installation and construction of Project's electrical collection cables (which will be buried in trenches), the substation, access roads, and other components. However, the Project Area is located in an area with very flat topography, which will require minimal (if any) grading during construction. Therefore, the total ground disturbance during construction is anticipated to be minimal relative to the overall size of the Project Area.

The APE for Indirect Effects on historic resources includes those areas where the Project may result in indirect effects on cultural resources, such as visual or auditory impacts. The Project's potential indirect effect on historic resources

[1] Because of the Project's low-profile, as well as screening afforded by existing vegetation and structures, visibility of the planned components is anticipated to be limited to the immediate vicinity of the Project. Therefore, due to the nature of the technology and the setting specific to the Project, the effects on landmarks outside of the immediate Project Area were studied and considered within a 2-mile radius.

would be a change (resulting from the introduction of solar panels or other Project components) in the historic resource's setting. This could theoretically consist of auditory and/or visual impacts; however, utility-scale solar facilities produce minimal noise, so auditory impacts resulting from the Project are not considered a significant type of impact to the setting of historic resources. Therefore, potential visual impacts associated with the Project are the most significant consideration for defining an APE for Indirect Effects.

The proposed solar panels likely would be a significant new feature in the visual landscape; however, visibility and the visual effect of the solar panels will be limited to the areas immediately adjacent to the Project. The tallest components of the generating portion of the Project will be the solar panels and inverter equipment, which have a relatively low profile, and are not expected to be more than 15 feet (5 meters) above grade, which is less than a single-story residence. Therefore, the nature of the technology is such that visibility is anticipated to be relatively limited to those areas located adjacent to the Project.

In order to determine Project visibility for a given resource, a viewshed analysis was conducted for the Project. The viewshed analysis is based on a digital surface model (DSM) viewshed, which takes into account topography as well as the screening effects of existing buildings and vegetation derived from Light Detection and Ranging (lidar) data for Brown, Highland, and Adams Counties. The analysis assumes a maximum solar panel height of 15 feet (which is conservative; solar panels typically are less than 15 feet tall) and an assumed viewer height of 6 feet. The viewshed analysis was generated using ESRI ArcGIS® software with the Spatial Analyst extension based on sample points (representing solar panels) placed 200 feet apart in a grid pattern throughout all developable areas within the Project Area.

The analysis illustrates the potential screening effect of existing structures and vegetation, as captured in lidar data for the three counties. A DSM of the Cultural Resources Study Area was created from these lidar data, which includes the elevations of buildings, trees, and other objects large enough to be recognized by lidar technology. Transmission lines that are reflected in these lidar data were removed from the resulting DSM to avoid introducing artificial screening by these features. This DSM was then used as a base layer for the viewshed analysis, as described above. Once the viewshed analysis was completed, a conditional statement was used to set PV panel visibility to zero in locations where the DSM elevation exceeds the bare earth elevation by six feet or more. This was done for two reasons; 1) because in locations where trees or structures are present in the DSM, the viewshed would reflect visibility from the vantage point of 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 (see Figure 3). Because it accounts for the screening provided by structures and trees, this analysis is a reasonably accurate representation of potential Project visibility. However, it is worth noting that because

characteristics of the proposed solar panels that influence visibility (color, low profile, distance from viewer, etc.) are not into taken consideration in the viewshed analyses, areas of predicted visibility within the DSM viewshed do not necessarily equate to areas that will experience actual Project visibility. In some areas, the viewshed analysis may overstate actual Project visibility.

As shown in Figure 3, the viewshed analysis indicates that because of the Project's low-profile, as well as screening afforded by vegetation and existing structures, visibility of the planned components is anticipated to be limited to the immediate vicinity of the Project. Therefore, due to the nature of the technology and the setting specific to the Project, the Applicant is proposing that the APE for Indirect Effects be defined as those areas of predicted visibility of the Project (per the viewshed analysis) within a 2-mile (3.2-km) radius from (and including) all Project components. The APE for Indirect Effects, then, consists of all areas within a 2-mile radius of the Project from which Project components are predicted to be visible (see Figure 3).

It is also worth noting that following construction, it is anticipated that each section of the Project will be surrounded by fencing and that selected sections may include landscape buffering/vegetative screening outside the fence. Additionally, the Project will not generate air emissions of any type and, as previously noted, will not generate noise audible outside the fence. Additional evaluation of indirect (visual) effects from the Project is found below in Section 2.3.2.

2.0 RECORDS REVIEW AND IMPACT ASSESSMENT

2.1 Methodology

This section summarizes previously collected cultural and archaeological resources data for the area within a 2-mile (3.2-km) radius of the Project Area. Per the requirements of Ohio Administrative Code Chapter 4906-04-08(D), the cultural resources records review prepared by EDR included the following records available from the Ohio State Historic Preservation Office (OHPO):

- National Register of Historic Places (NRHP)
- NRHP Determination of Eligibility (DOE)
- National Historic Landmarks (NHL)
- Ohio Historic Inventory (OHI)
- Ohio Department of Transportation (ODOT) Historic Bridge Inventory
- Ohio Archaeological Inventory (OAI)
- Ohio Genealogical Society (OGS) cemetery files
- Mills *Archaeological Atlas of Ohio* (1914)
- OHPO previous Phase I, II, and III cultural resources surveys

2.2 Cultural Resources Records Review

Archives and repositories consulted during EDR's research for the Project included the online Geographic Information Systems (GIS) mapping system of the OHPO, the David Rumsey map collection, Ancestry.com, and EDR's in-house collection of reference materials. The results of the cultural resources records review for the Cultural Resources Study Area associated with the Project are described below and depicted on Figure 4.

2.2.1 National Register of Historic Places (NRHP)

No properties previously determined eligible for the NRHP have been recorded within 2 miles of the Project Area.

2.2.2 NRHP Determination of Eligibility (DOE)

No properties previously determined eligible for the NRHP have been recorded within 2 miles of the Project Area.

2.2.3 National Historic Landmarks (NHL)

No designated National Historic Landmarks are located within 2 miles of the Project Area.

2.2.4 Ohio Historic Inventory (OHI)

The records review of the OHPO online GIS mapping identified two OHI properties recorded within 2 miles of the Project Area. See Figure 4 and Table 1 below.

Table 1. Ohio Historic Inventory Sites within 2 miles of the Project Area

OHI ID	Building Name	Location	Distance from Project Area (Miles)
HIG0028614	Glen A. Carter House	Mowrystown	1.5
HIG0028714	Orval Hawkins House	Mowrystown	1.6

2.2.5 Historic Bridge Inventory

The records review of the ODOT GIS mapping identified no historic bridges listed on the Ohio Historic Bridge Inventory within 2 miles of the Project Area.

2.2.6 Ohio Archaeological Inventory (OAI)

The records review of the OHPO online GIS mapping identified 10 OAI properties that have been recorded within 2 miles of the Project Area (see Table 2). The locations of these properties are depicted on Figure 4. None of the 10 OAI properties occur within the Project Area.

Table 2. Ohio Archaeological Inventory Sites within 2 miles of the Project Area

OAI ID	Site Name	Period	Site Type	Distance from Project Area (Miles)
HI0333	Not Specified	Prehistoric	Reoccupied habitation site	1.5
HI0307	Not Specified	Prehistoric	Unknown	1.6
HI0308	Not Specified	Prehistoric	Unknown	1.6
HI0309	Not Specified	Prehistoric	Unknown	1.7
HI0311	Not Specified	Prehistoric	Unknown	1.7
HI0312	Unnamed Mound	Prehistoric	Earthen Mound	1.7
HI0313	Not Specified	Prehistoric	Unknown	1.7
HI0314	Unnamed Mound	Prehistoric	Earthen Mound	1.7

OAI ID	Site Name	Period	Site Type	Distance from Project Area (Miles)
HI0306	Not Specified	Prehistoric	Reoccupied habitation site	1.8
HI0315	Not Specified	Prehistoric	Unknown	1.8

2.2.7 Ohio Genealogical Society (OGS)

The records review of the OHPO online GIS mapping identified 19 OGS cemeteries that have been recorded within 2 miles of the Project Area (see Table 3). The locations of these cemeteries are depicted on Figure 4. None of the 19 cemeteries are located within the Project Area.

Table 3. Ohio Genealogical Society Cemeteries within 2 miles of the Project Area

OGS ID	Cemetery Name	Township	County	Distance from Project Area (Miles)
5360	Roberts Cemetery #2	White Oak	Highland	0.1
5371	Winkle Cemetery	White Oak	Highland	0.6
5174	Nichols-Noble-Petithory Cemetery	Concord	Highland	0.7
5177	Wesley Creek Cemetery	Concord	Highland	0.9
5170	Hart-New Light Cemetery	Concord	Highland	0.9
5354	Fenwick-Mowrystown Cemetery	White Oak	Highland	1.0
5364	Surber Cemetery	White Oak	Highland	1.1
5358	Malcolm Cemetery	White Oak	Highland	1.1
117	Burris Cemetery	Eagle	Brown	1.1
5171	Igo-Methodist-Sugartree Ridge Cemetery	Concord	Highland	1.3
5368	Unnamed Cemetery #4	White Oak	Highland	1.3
5369	Unnamed Cemetery #5	White Oak	Highland	1.3
5169	Green Mound-Knob Cemetery	Concord	Highland	1.3
5356	Kibler Cemetery	White Oak	Highland	1.6
1075	Fincastle-Eagle Township-Arel Cemetery	Eagle	Brown	1.7
13217	Burba Cemetery	Winchester	Adams	1.7
5172	Lewis Cemetery	Concord	Highland	1.8
5363	Sonner Cemetery	White Oak	Highland	1.9
5359	Petithory Cemetery	White Oak	Highland	2.0

2.2.8 Mills Archaeological Atlas of Ohio (1914)

A review of the 1914 Mills *Archaeological Atlas of Ohio* (see Figure 5) indicates the following for the counties included in the 2-mile Cultural Resources Study Area:

- Adams County: According to Mills (1914), Adams County contained numerous mounds, earthworks, and petroglyphs, especially along the Ohio River and its major tributaries such as Brush Creek in the central and southern parts of the county (between 10 and 25 miles [16 and 40 km] south of the Project). Mills (1914:1) depicts one mound and one circular enclosure on the southeastern border of the 2-mile Cultural Resources Study Area for the Project. The Project Area itself does not extend into Adams County.
- Brown County: According to Mills (1914), Brown County is characterized by numerous earthworks spread throughout the County, as well as a clearly defined tradition of stone-covered burials present along the Ohio River in the southern part of the County. Mills (1914:8) depicts no previously recorded archaeological sites within the Project Area or within the 2-mile Cultural Resources Study Area.
- Highland County: According to Mills (1914), Highland County contained 61 recorded prehistoric earthworks at the time of his writing. One mound is depicted adjacent to the Project Area, as well as three mounds and one crescent enclosure in the western portion of the 2-mile Cultural Resources Study Area and one crescent enclosure in the eastern portion of the 2-mile Cultural Resources Study Area (Mills, 1914:36).

2.2.9 Previous Cultural Resources Surveys

Four cultural resource surveys have been previously completed within 2 miles of the Project Area (see Table 4). Three of these surveys were stand-alone archaeological investigations and one was a combination archaeology/architecture survey. No stand-alone architectural resource surveys, nor Phase III archaeological investigations have been recorded within 2 miles of the Project Area.

Table 4. Previous Cultural Resource Surveys within 2 miles of the Project Area

National Archaeological Database (NADB) ID	Title	Author	Year	Distance from Project Area (Miles)
12662	A Phase I and II Archaeological Reconnaissance of the Stivers Road Widening and Improvement Project Near Fincastle in Brown County, Ohio	DeRegnaucourt, Tony	1993	0.3
17016	Phase I Cultural Resource Management Survey of a Proposed 12.1 ha (30 a.) Mowrystown Sewer Project, in White Oak Township, Highland County, Ohio.	Keener, Craig S.	2006	1.2

National Archaeological Database (NADB) ID	Title	Author	Year	Distance from Project Area (Miles)
17019	Phase II Archaeological Assessment of Site 33 HI 306 for the Mowrystown Sewer Project in White Oak Township, Highland County, Ohio.	Keener, Craig S.	2006	1.3
19154	Phase I Cultural Resource Management Survey of a Proposed Cell Tower (OH2418/ Mowrystown) in White Oak Township, Highland County, Ohio.	Nye, Kevin A. and Keener, Craig S.	2013	1.4

2.2.10 Historic Map Review

Historic maps depict nineteenth-century settlement and twentieth-century expansion within the Cultural Resources Study Area. An excerpt from the 1872 Gray, Lloyd and Walling *Topographical Atlas of Adams, Brown, Highland, Pike and Scioto Counties, Ohio* (see Figure 6) identifies the Project Area within White Oak and Concord Townships in Brown County and Eagle Township in Brown County, with the Cultural Resources Study Area extending southeast into Winchester Township, Adams County; northeast into Washington Township, Highland County; north into New Market Township, Highland County; and northwest into Hamer Township, Highland County. Population centers within the Cultural Resources Study Area were concentrated around the settlements that had formed at crossroads. Fincastle, Mowrey Town, New Carwin, Taylorsville and Sugar Tree Ridge were the most significant commercial centers in the area, as identified by their multiple structures. Some of the larger parcels were subdivided into smaller lots ranging from one-half square mile to one square mile, laid perpendicular to the diagonal stagecoach roads connecting the aforementioned hamlets.

The 1914 Mills *Archaeological Atlas of Ohio* was also reviewed during background research for the current Project and discussed in Section 2.2.8 of this report. However, in addition to archaeological sites, the Mills atlas also depicts the state of development throughout Ohio in 1914 (see Figure 5). At that time, Fincastle, Mowrystown, Taylorsville and Sugar Tree Ridge were the most developed settlements in the vicinity, with New Carwin no longer appearing on the map. Early carriage roads that radiated out from these population centers in 1872 were replaced by a more formalized and defined network of orthogonal roads for automobiles that aligned with subdivided lot lines. Roads in the 1914 Mills atlas are approximately in their modern alignment.

The USGS 1918 *Seaman,* 1944 *Sardinia,* 1944 *Hillsboro, and* 1931 *Higginsport Ohio* topographic 15-minute quadrangles (see Figure 7) show similar conditions to the 1914 Mills atlas, with the addition of numerous map-documented structures within the Cultural Resources Study Area. Settlement is most dense along the primary paved north-south route, Fincastle Road (U.S. Route 62). There are two secondary roads along which settlements are also

dense: the east-west Ohio Route 321 extending to Mowrystown and the north-south Winchester Road (Ohio Route 136) from Sugartree Ridge to Emerald. Concentrated growth in the early-twentieth century occurred in the Villages of Mowrystown and unincorporated communities of Fincastle, and Sugartree Ridge. The unincorporated community Emerald, though extant on the 1872 atlas, had grown sufficiently by the 1940s to have extended west into the Cultural Resources Study Area. Development is relatively sparse in the remainder of the Cultural Resources Study Area, as most of the roads were gravel and dirt, though several schools are depicted throughout the vicinity.

2.3 Impact Assessment

Per the requirements of 4906-4-08(D) of the Ohio Administrative Code, EDR assessed the potential impact(s) on cultural resources that could result from construction and operation of the Project. The results of this impact assessment are discussed below.

2.3.1 Potential Direct Effects

There will be no direct impacts to aboveground cultural resources (i.e., cemeteries or historic structures) from construction of the Project. Indirect impacts to such resources are addressed below in Section 2.3.2.

The Project Area has not been systematically surveyed for archaeological resources. After the final layout of the Project is determined, it is recommended that a limited archaeological survey be conducted for those portions of the Project where substantial, direct ground disturbance is proposed, as described below.

Project components will be constructed entirely on relatively level ground and within areas presently or historically used as agricultural fields. Due to the flat relief, very little grading is expected to be necessary for the Project, except for the Project substation which may require significant grading and excavation. In general, no large areas of excavation or soil removal/disturbance are anticipated. Construction of the Project will be accomplished via use of machines that are consistent in terms of size, weight, and tread with the agricultural machines that are currently used on these properties.

Only very minimal, on-site ground disturbance (outside of the substation) will be required by the design of the Project. Installation of the solar panels will not include disturbance of large surface areas. Instead, the solar panels will be installed by driving or rotating a series of relatively narrow posts into the ground, to a depth of no more than eight to ten feet. However, the Project will include on-site access roads wide, and up to approximately 22 acres of temporary laydown areas for construction activities, in 1 to 5 acre blocks. The access roads, as well as parking areas for maintenance vehicles within the Project, will be constructed with compacted gravel but are not anticipated to require significant excavation or grading.

Therefore, based on the limited ground disturbance associated with the construction of the Project, as described above, a Phase 1 archaeological survey is recommended only in areas of significant ground disturbance, such as major grading/leveling (if any) for the proposed substation (which will disturb up to 3 acres), excavation of stormwater drainage features (if any), and similar activities.

2.3.2 Potential Indirect Effects

The Project has the potential to cause indirect (visual) impacts to aboveground historic resources within the Cultural Resources Study Area. The potential visibility of the Project, as indicated by the viewshed analysis, is illustrated in Figure 3 and summarized in Table 5.

Table 5. Viewshed Results Summary within 2 miles of the Project Area

	Project Area	Distance from Project Area				Comprehensive 2-Mile Study Area
		0-0.5 Mile	0.5-1.0 Mile	1.0-1.5 Mile	1.5-2.0 Mile	
	Percent (%)					
Not Visible	16	50	87	98	99	79
0-5% of PV Panels Visible	16	37	13	2	1	12
5-10% of PV Panels Visible	24	9	0	0	0	4
10-15% of PV Panels Visible	25	3	0	0	0	3
15-26% of PV Panels Visible[1]	19	1	0	0	0	2
Total Visibility	84	50	13	2	1	21
	Area (Square Miles)					
Total Area	3.5	6.1	6.9	8.4	9.9	34.8
Total Area of Visibility	3.0	3.1	0.9	0.2	0.1	7.2

[1]Viewshed results indicate that no more than approximately 26% of the proposed PV panels will be visible from any location within the 2-Mile Cultural Resources Study Area.

This analysis indicates that the proposed solar panels could potentially be visible from approximately only 21% of the 2-mile Cultural Resources Study Area (see Figure 3). Visibility is concentrated within the Project Area and adjacent open fields. Long distance views are commonly screened by woodlots and windrows as well as by the combination of topographic depressions associated with stream valleys that occur in the outer portions of the 2-Mile Cultural Resources Study Area. The viewshed analysis indicates that there will be essentially no visibility of the Project from areas located more than 2 miles away. One exception to this is the ridge along the top of the western valley wall of the Little West Fork Ohio Brush Creek near the Highland County/Adams County boundary, where limited visibility is indicated from approximately 3 miles east of the Project Area. Overall, as indicated in Table 5, PV panel visibility decreases sharply with increasing distance from the Project Area. This decrease in visibility occurs both in terms of

the number of PV panels visible and in terms of the geographic area from which views are available. Based on this viewshed analysis, the Project will potentially be visible from four OGS cemeteries: Lewis, Fenwick-Mowrystown, Fincastle-Eagle Township-Arel, and Unnamed #4 (see Figure 4).

A complete Visual Resources Assessment will be prepared in support of the Certificate Application for the Project. A Visual Assessment includes viewshed analyses and photographic simulations and assess the potential visual impacts of the Project within a 10-mile study area. However, based on the relatively limited potential visibility of the Project (see Figure 3) and low density of reported historic resources within the APE for Indirect Effects (see Figure 4), neither construction nor operation of the Project is anticipated to result in significant adverse effects on aboveground historic resources.

3.0 SUMMARY AND CONCLUSIONS

3.1 Summary of Cultural Resources Records Review

The results of the Cultural Resources Records Review for the proposed Willowbrook Solar Project can be summarized as follows:

- No NRHP-listed properties have been recorded within 2 miles of the Project Area.
- No properties previously determined eligible for the NRHP have been recorded within 2 miles of the Project Area.
- No National Historic Landmarks have been recorded within 2 miles of the Project Area.
- A total of two OHI properties have been recorded within 2 miles of the Project Area (see Table 1).
- No historic bridges within the ODOT inventory have been recorded within 2 miles of the Project Area.
- A total of 10 OAI properties have been recorded within 2 miles of the Project Area (see Table 2).
- A total of 19 OGS cemeteries have been recorded within 2 miles of the Project Area (see Table 3).
- A total of four Phase I and II OHPO cultural resources surveys have been conducted within 2 miles of the Project Area (see Table 4).
- No Phase III archaeological investigations have been conducted within 2 miles of the Project Area.
- No stand-alone architectural historic resources surveys have been conducted within 2 miles of the Project Area.
- The 1914 Mills *Archaeological Atlas of Ohio* depicts one prehistoric mound within the southern portion of the Project Area in Highland County. Additionally, four mounds, one crescent enclosure, and one circular enclosure are depicted within the 2-mile Cultural Resources Study Area.

3.2 Conclusions and Recommendations

The Project will not directly (physically) impact any known cultural resources. The mound identified within the Project Area by Mills (1914) will be avoided by all Project-related impacts, if it remains extant.

The Project has the potential to cause indirect (visual) impacts to aboveground historic resources within 2 miles of the Project Area. There are two OHI buildings, and 19 OGS cemeteries within the 2-mile APE for Indirect Effects. Viewshed analysis indicates that the Project has potential visibility from four previously identified OGS cemeteries located within 2 miles of the Project Area (see Figure 4).

Based on review of historic maps, there may be several nineteenth-century and/or early-twentieth-century map-documented structures within the 2-mile APE for Indirect Effects. To determine if there are additional historic resources

that could be affected by the Project, a reconnaissance survey for aboveground historic resources would need to be conducted throughout the Project Area as well as the 2-mile Cultural Resources Study Area.

The construction of the Project will require relatively minimal ground disturbance and will be accomplished via the use of machines that are consistent in terms of size, weight, and tread with the agricultural machines currently used on these properties. Therefore, based on the limited ground disturbance associated with the construction of the Project, Phase 1 archaeological survey is recommended only in areas of significant ground disturbance, such as major grading/leveling (if any) for the proposed substation (which will disturb up to three acres), excavation of stormwater drainage features (if any), and similar activities.

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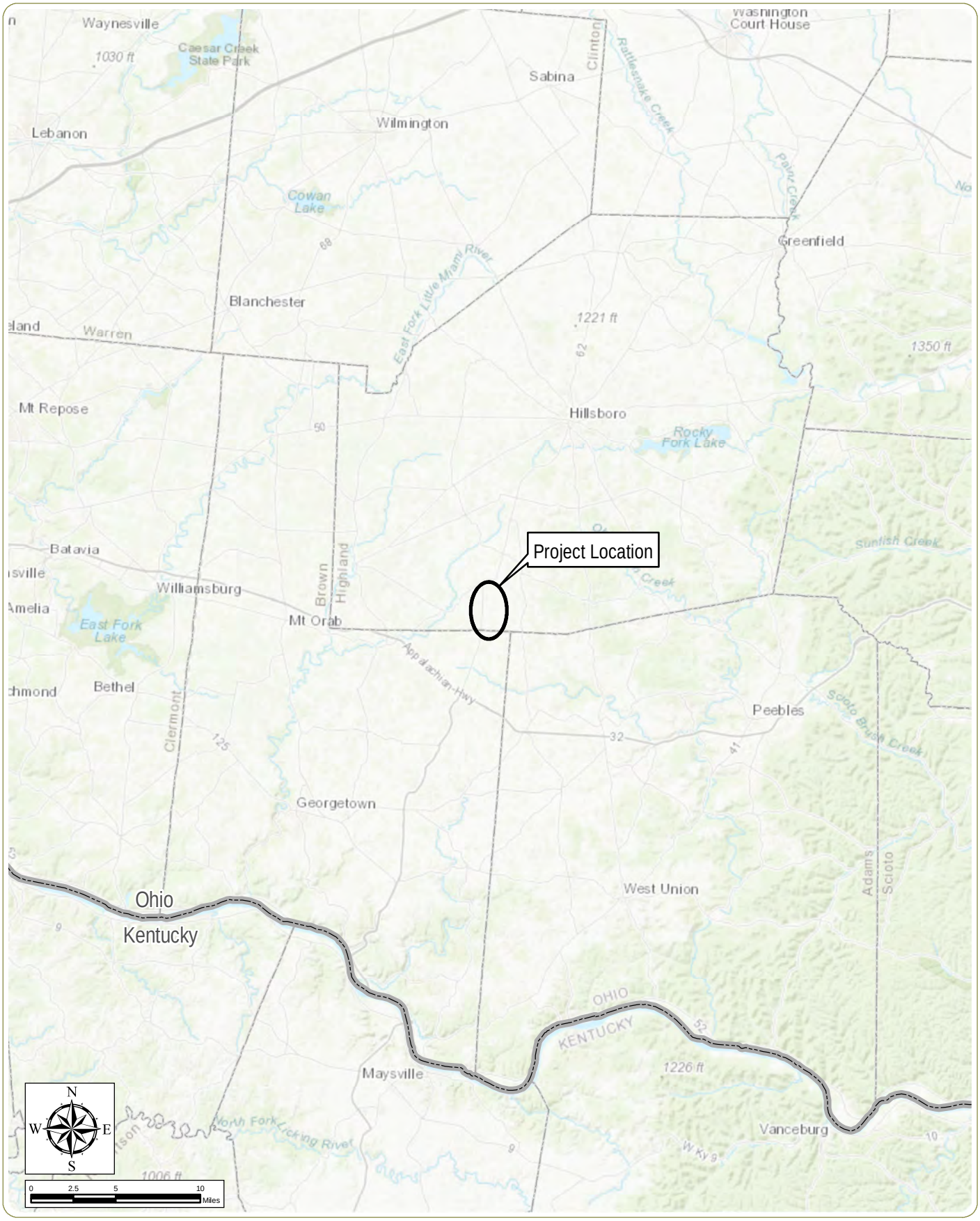
FIGURES



Willowbrook Solar Project

Concord and White Oak Townships, Highland County
and Eagle Township, Brown County, Ohio

Figure 1: Regional Project Location

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap on August 22, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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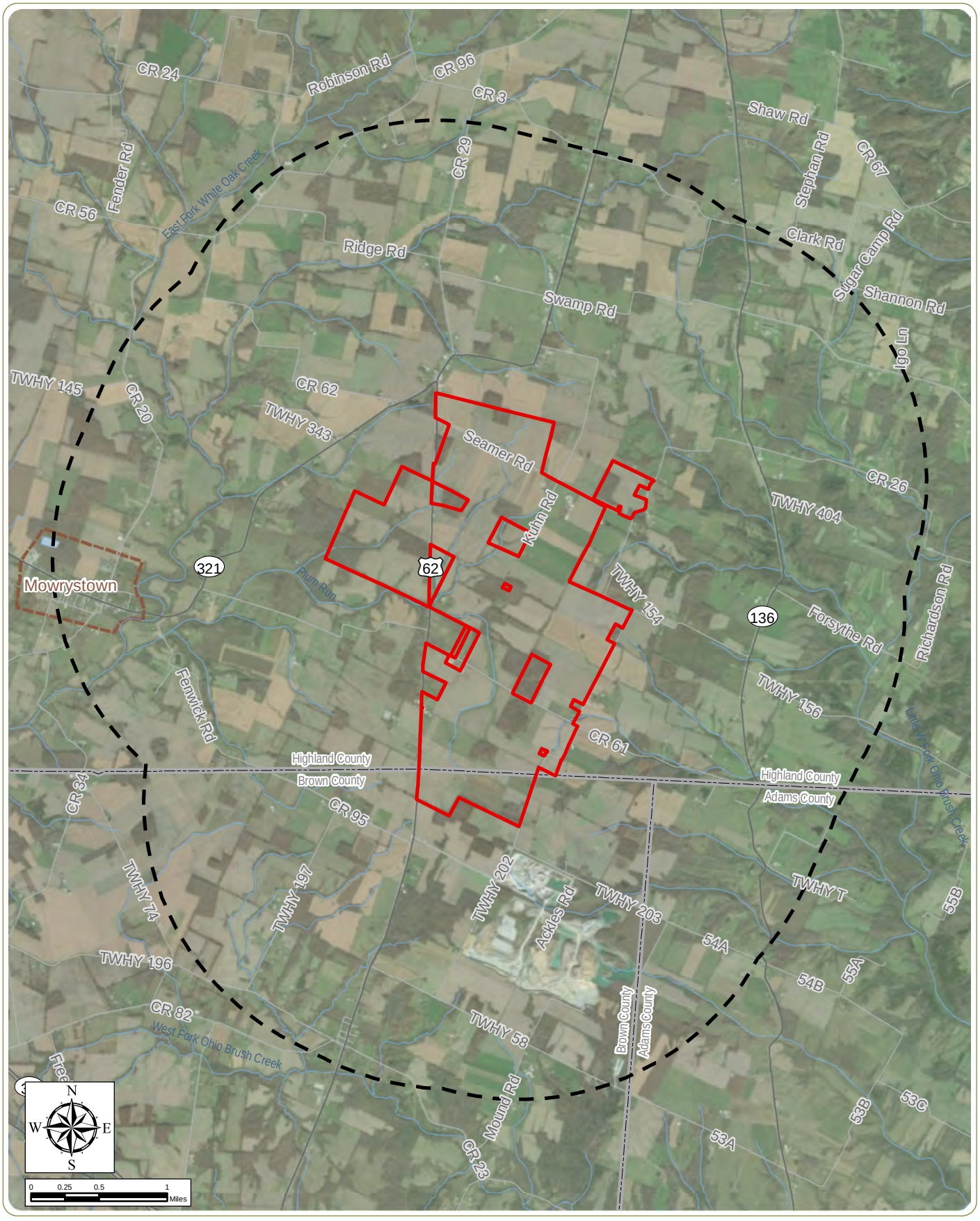

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Figure 2: Project Area and Study Area

Project Area
2-Mile Study Area
Village Boundary
County Boundary

Notes: 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. 2. This map was generated in ArcMap on August 22, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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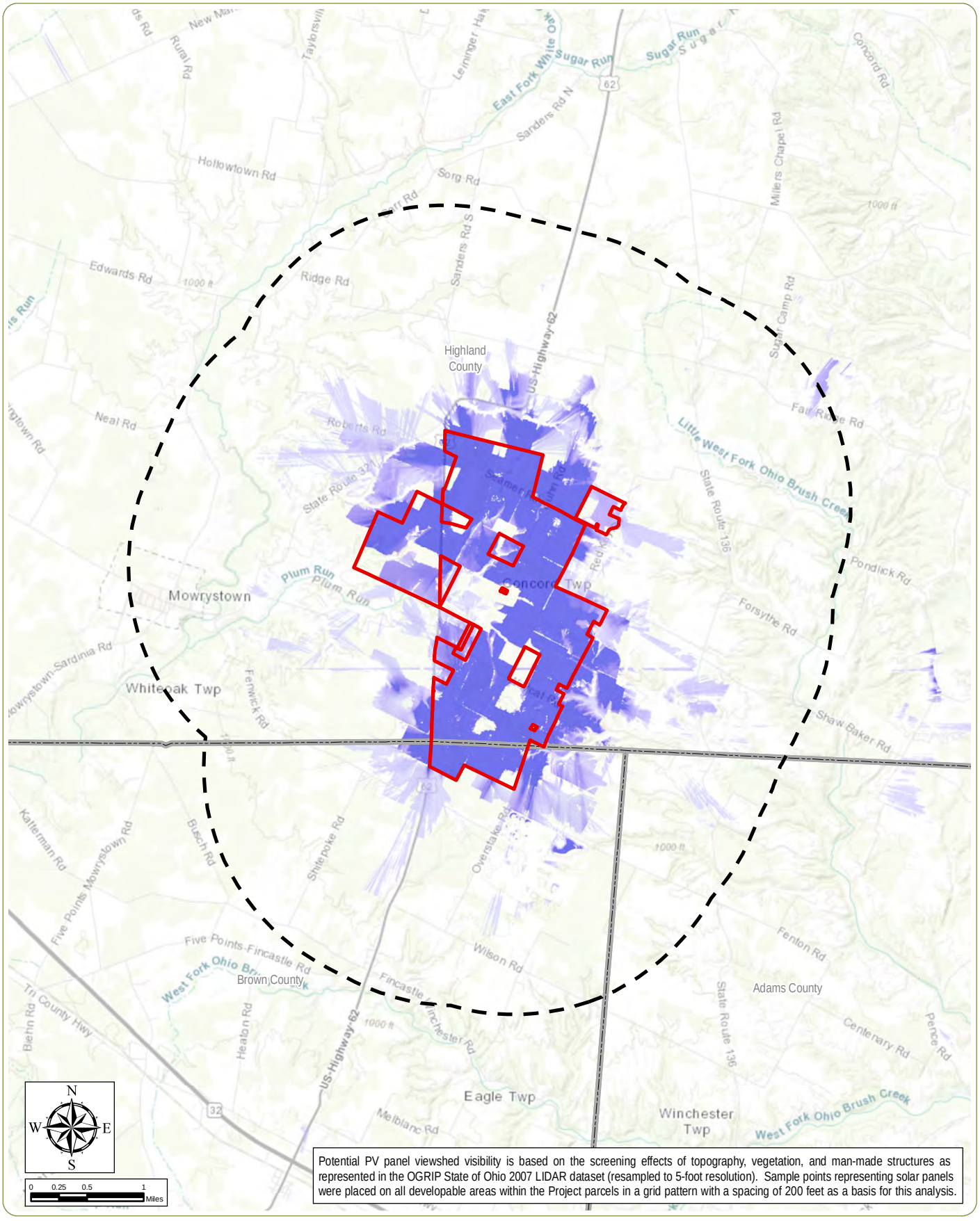

Potential PV panel viewshed visibility is based on the screening effects of topography, vegetation, and man-made structures as represented in the OGRIP State of Ohio 2007 LIDAR dataset (resampled to 5-foot resolution). Sample points representing solar panels were placed on all developable areas within the Project parcels in a grid pattern with a spacing of 200 feet as a basis for this analysis.

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Figure 3: Viewshed Map

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap on August 22, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Potential PV Panel Visibility
- Many Panels Visible
- Few Panels Visible

- Project Area
- 2-Mile Study Area
- County Boundary

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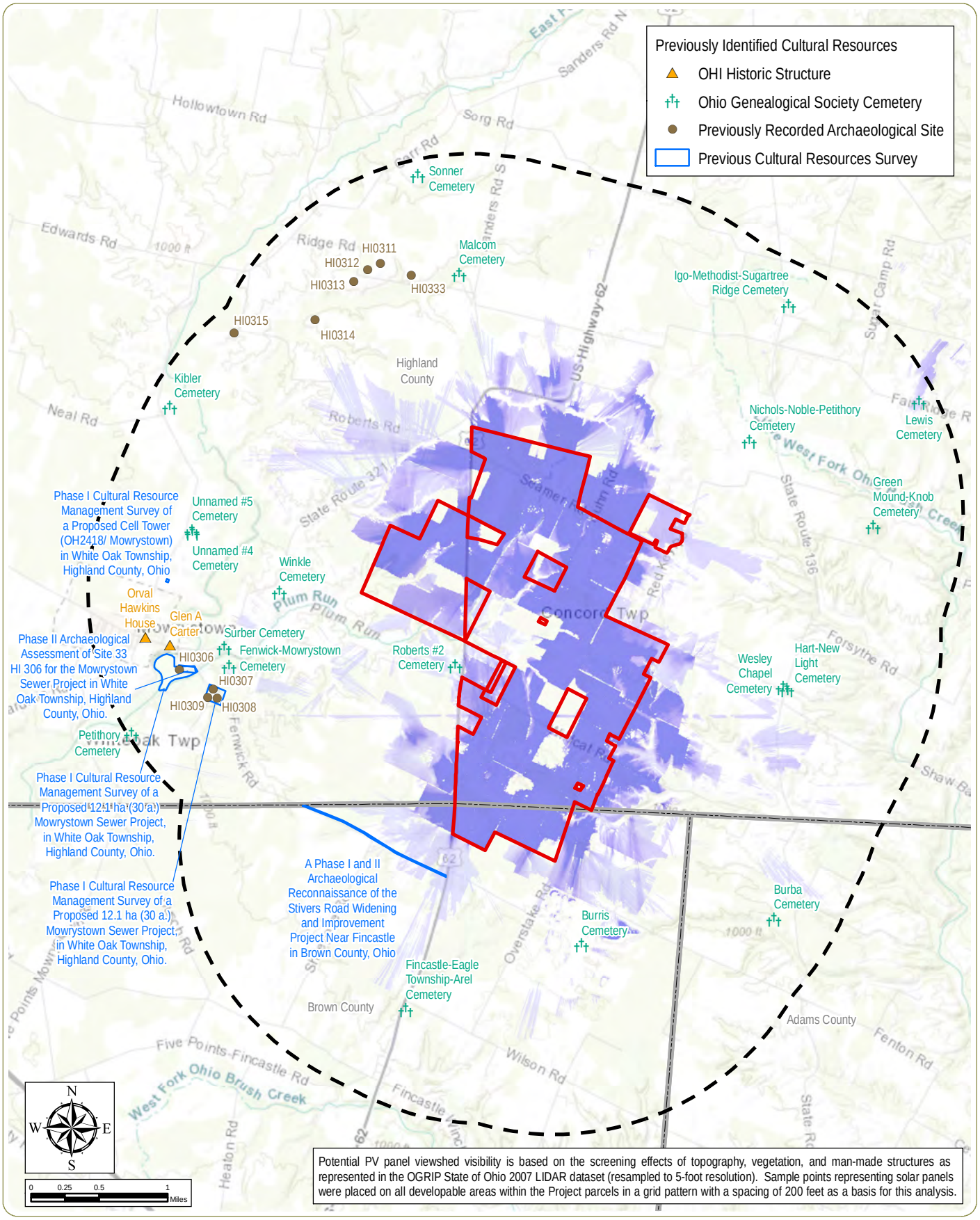

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Figure 4: Previously Identified Cultural Resources

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap on August 22, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Area of Potential Effect (APE) for Indirect (Visual) Effects
- Many Panels Visible
- Few Panels Visible

- Project Area
- 2-Mile Study Area
- County Boundary

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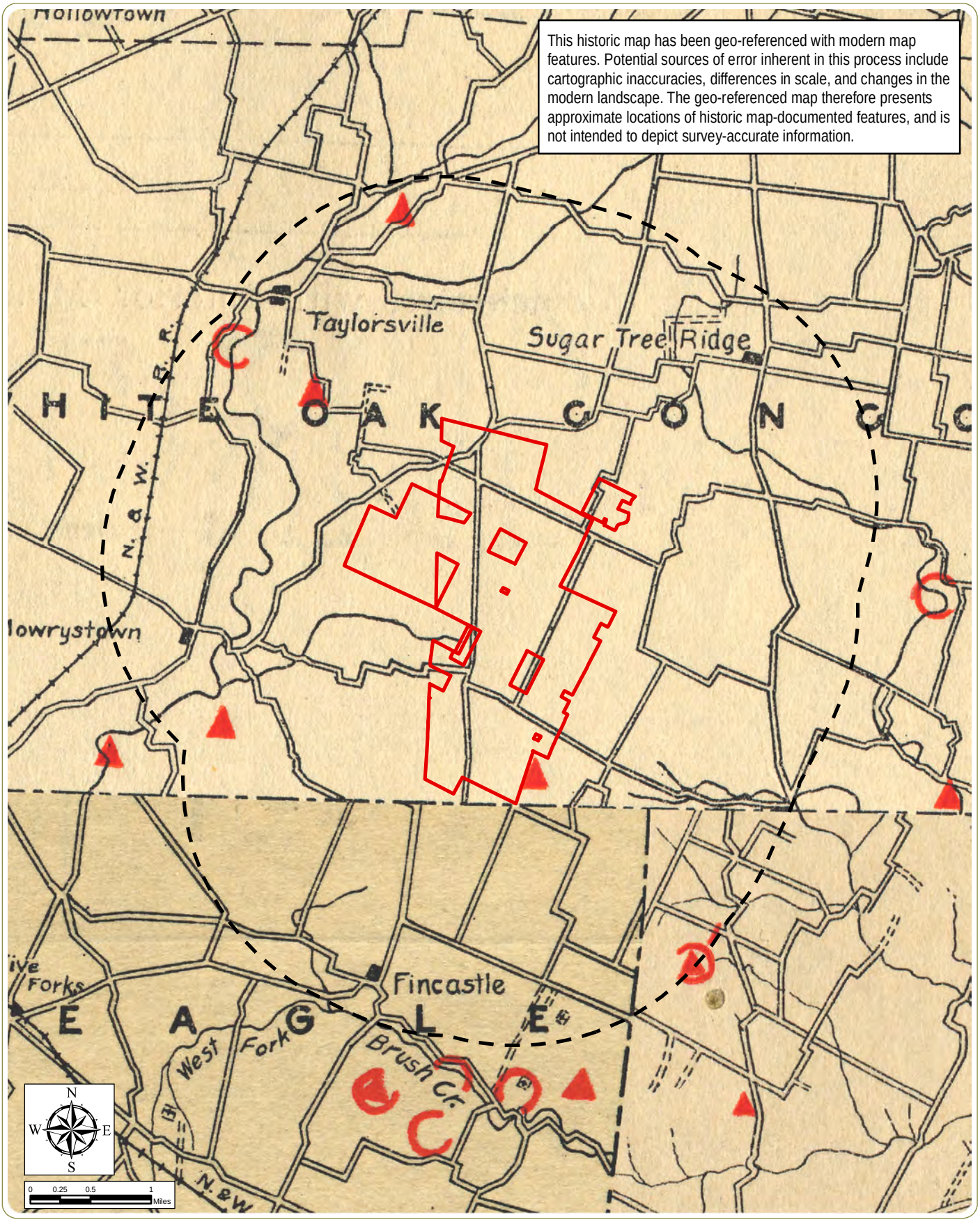

Willowbrook Solar Project

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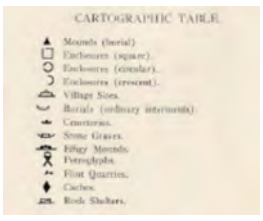
Project Area

2-Mile Study Area

Figure 5. 1914 Mills Archaeological Atlas of Ohio

Notes: 1. Basemap: 1914 Mills Archaeological Atlas of Ohio, Adams, Brown, and Highland Counties. 2. This map was generated in ArcMap on August 22, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



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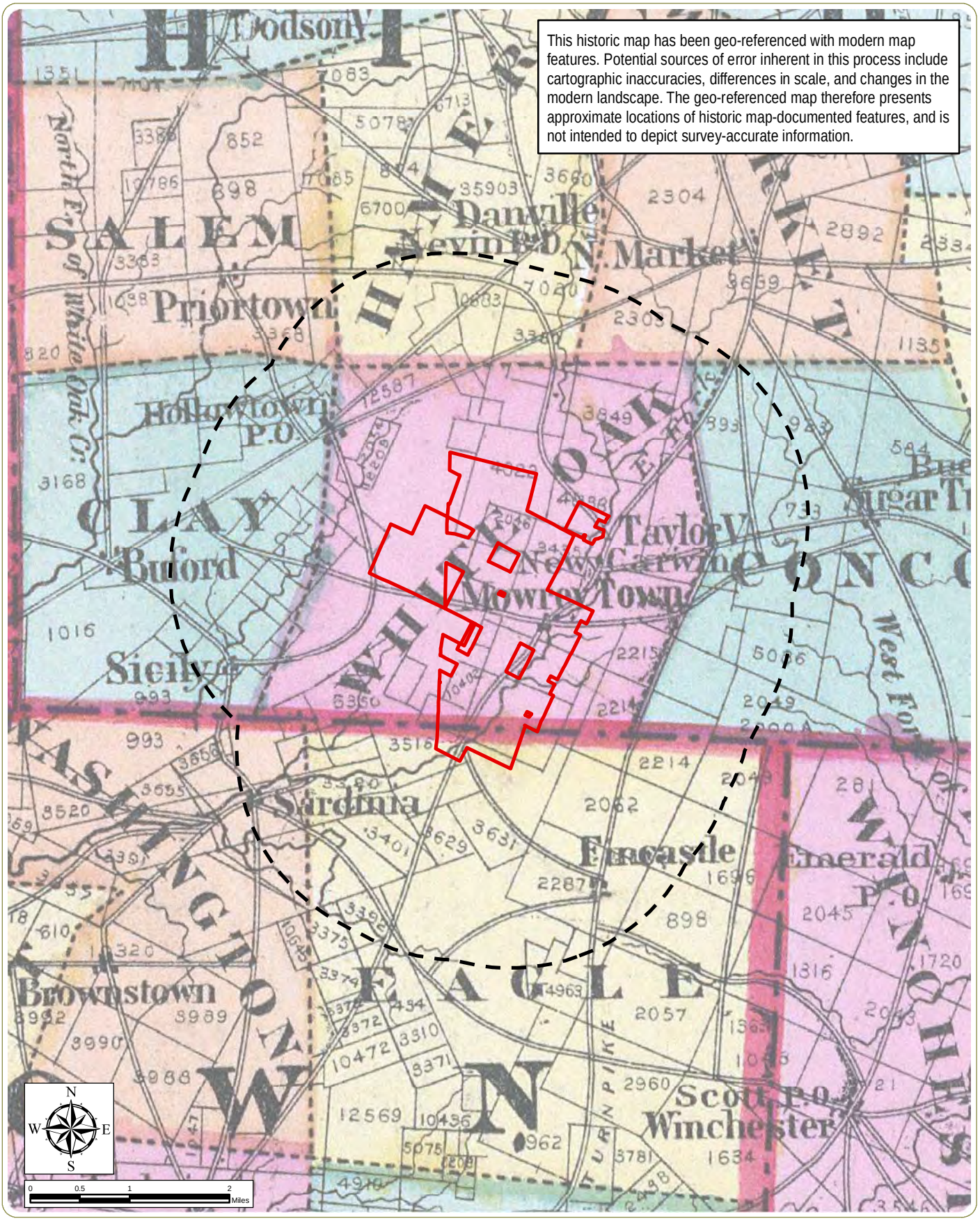

Willowbrook Solar Project

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Figure 6. 1872 Gray Topographical Atlas of Ohio

Project Area

2-Mile Study Area

Notes: 1. Basemap: 1872 Gray Topographical Atlas of Ohio. 2. This map was generated in ArcMap on August 22, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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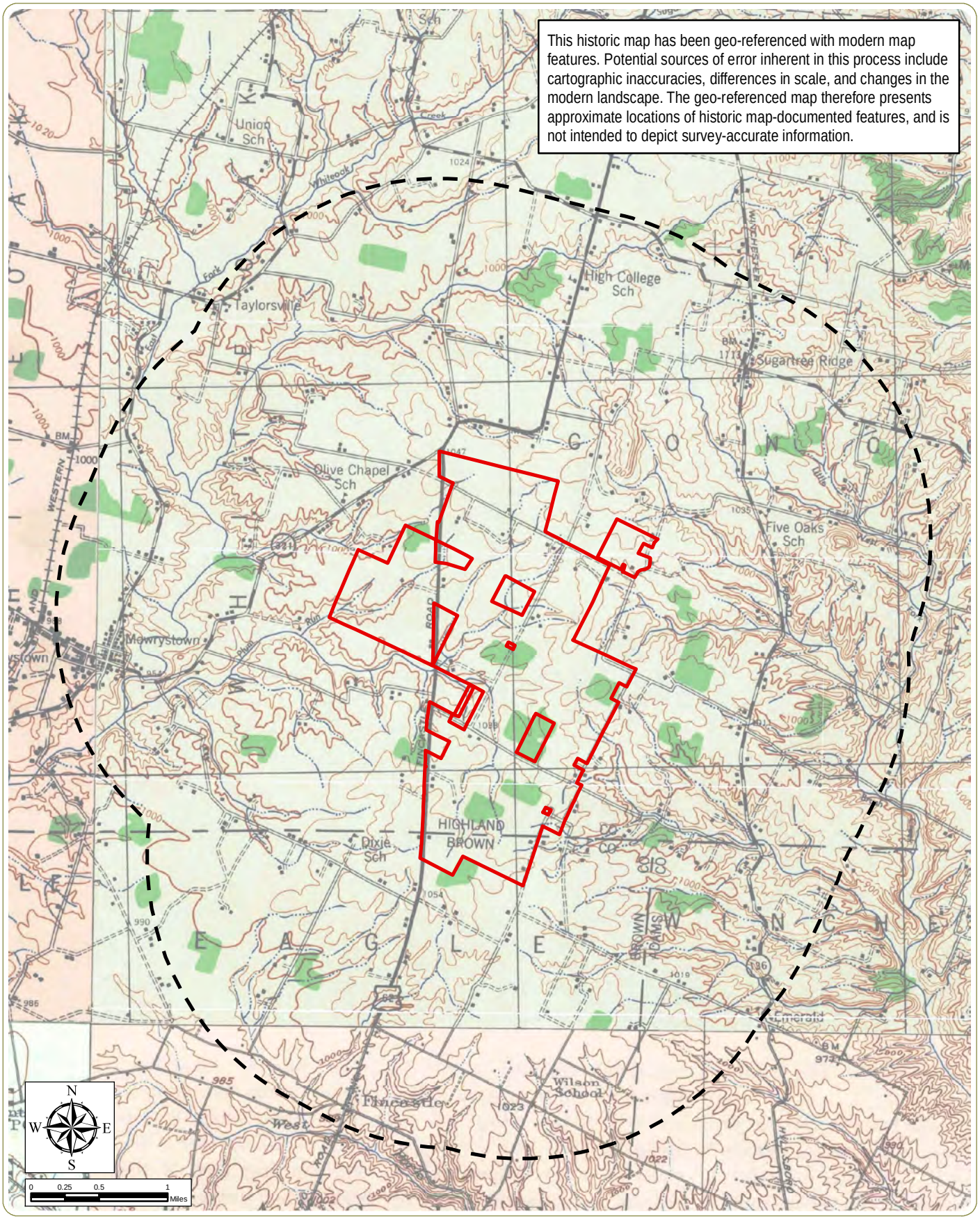

Willowbrook Solar Project

Concord and White Oak Townships, Highland County
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Project Area

2-Mile Study Area

Figure 7. Seaman (1918), Sardinia (1944), Hillsboro (1944), and Higginsport (1931), Ohio USGS Topographic Quadrangle Maps

Notes: 1. Basemap: Seaman (1918), Sardinia (1944), Hillsboro (1944), and Higginsport (1931), Ohio USGS Topographic Quadrangle Maps.
2. This map was generated in ArcMap on August 22, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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Summary: Application Exhibit H electronically filed by Mr. MacDonald W Taylor on behalf of Willowbrook Solar I, LLC