

# **EXHIBIT U: Visual Impact Assessment Report**

# **VISUAL IMPACT ASSESSMENT**

**The Ohio State University  
Combined Heat and Power Facility  
Franklin County, Ohio**

**June 2019**

TRC Project No. 314315.0000.0000

Prepared By:

TRC Environmental Corporation



**CONFIDENTIAL BUSINESS INFORMATION**

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## ACRONYMS

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2D	Two Dimensions/Dimensional
3D	Three Dimensions/Dimensional
CHP	Combined Heat and Power (Plant)
ESRI	Earth Systems Research Institute (GIS software company)
Ft	Feet
GIS	Geographic Information System
GPS	Global Positioning System
KOP	Key Observation Point
LBRS	Land Based Response System
LiDAR	Light Detection and Ranging
LAS	LiDAR Data File naming convention (i.e. *.las)
MW	Megawatt
m	Meter
mm	Millimeter
NRHP	National Register of Historic Places
OAC	Ohio Administration Code
OGRIP	Ohio Geographically Referenced Information Program
OSEP	Ohio State Energy Partnership
OPSB	Ohio Power Siting Board
TRC	TRC Environmental Corporation
U.S.	United States
USGS	United States Geological Survey



# 1 INTRODUCTION

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On behalf of ENGIE, and The Ohio State University, TRC Environmental Corporation (TRC) has prepared this Visual Impact Assessment as part of the environmental studies conducted for the Ohio State Combined Heat and Power Project (Project). The SmartCampus<sup>E</sup> Project is the heart of the Agreement between the University and the Ohio State Energy Partnership (OSEP). As part of the SmartCampus<sup>E</sup> Project, a Combined Heat and Power (CHP) major utility facility is proposed to be installed on the Columbus, Ohio campus of The Ohio State University. Two gas-fired combustion turbine generators, two heat recovery steam generators, and one steam turbine generator are proposed for installation. The CHP will produce efficient thermal energy while introducing electric generation on campus. The CHP will be the primary source of heating to the Main and Midwest campuses and with the addition of a centralized chiller facility it will provide cooling to Midwest campus.

The CHP site is 1.35 acres on an area previously disturbed for the Howlett Greenhouse operations on the campus of the University. The site is on the corner of John H. Herrick Drive and Vernon L. Tharp Street adjacent to the Galbreath Equine Center, Parker Food and Science Technology Building, Howlett Greenhouses, and Howlett Hall. All equipment will be housed within a building that is 60 feet high. Cooling towers will extend 30 feet above the roof. Two steel stacks will extend to a total height of 115 feet. The maximum output of the proposed two Siemens SGT 700 combustion turbine generators with one Siemens SST-400 steam turbine generator to be installed at the facility is 105.5 MW. The site is a gravel pad within a chain link fence that contains greenhouses and related structures (e.g. composting bins). “Associated facilities” as defined by the OPSB rules will consist of buried lines except where the natural gas line will be attached to the footbridge crossing the Olentangy River between Sisson Hall and the Drake Performance and Events Center. The buried lines will be located in previously disturbed areas through lawns, streets, roads, sidewalks and parking lots within the urbanized area developed for the campus.

Visual and aesthetic impacts were assessed within a visual study area extending out to a 2-mile (3.2 km) radius from the proposed site boundary. The results of this study show that the visual impacts are minimal and at distances of more than 2 miles from the facility will be minimal or unlikely.

The visual nature in the study area is composed of nearly exclusively built landscapes. Much of the study area is the Ohio State University campus, consisting of structures and buildings typical of a university campus, as well as open space parks and agricultural areas. Far eastern and southern portions of the study area are the city of Columbus, typical urban built landscapes. The far western portion is built residential areas with views of the campus and city skyline.

## 2 VIEWSHED ANALYSIS

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A viewshed analysis out to 2 miles (3.2 km) was conducted. This analysis is a GIS analytical technique that allows for the determination and location of where project features, such as building walls, stacks, or cooling towers will be likely to be visible in the surrounding area of the site. The results of the viewshed analysis are combined with other sensitive location information such as places of public gathering, places of cultural interest, parks, schools, and other key observation points (KOPs) that are identified and are typically displayed over a topographic map or aerial photo. The GIS combination of KOP locations and the viewshed analysis information assists in understanding the potential for project visibility at sensitive resource locations and provides a better understanding of the potential visual impacts the Project may have.

### 2.1 VIEWSHED METHODOLOGY

Light Detection and Ranging (LiDAR) data provided by the Ohio Geographically Referenced Information Program (OGRIP) was used for the analysis (Ohio, 2007). The LiDAR survey for Franklin County was conducted in 2007. Forested, vegetated areas, and structures were extracted from the first-return subset of the LiDAR data and was separated from the bare-earth (topographic) surface information. Based on the geographic landscape of the project being predominantly urban in nature most of these features in the project study area are permanent above ground buildings and other structures; thus, the first-return surface model was used to conduct a viewshed analysis.

Environmental Systems Research Institute, Inc. (ESRI) Spatial Analyst GIS software was used to develop the viewshed model. X, Y and Z data representing the heights of the plant, stacks, and cooling tower features were incorporated into the model with the LiDAR terrain information. The plant and feature height information is based on specifications provided by the client. An assumed stack height of 115' (35.1 m), a 90' (27.4 m) cooling stack height, and a 60' (18.3 m) roof height, was used for this analysis. For the analysis a ground observer was assumed to be 5.5' (1.7 m) above the ground surface to approximate a standing observer. It is assumed that an observer located within a building or vegetated area with a height of greater than 6.6' (2.0 m), based on the difference of the first-return surface and the ground surface, would have no visibility of the project. The results of the 2-mile model can be found on **Figure 1**.

### 2.2 ASSUMPTIONS AND LIMITATIONS OF THE VIEWSHED MODEL

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

1. The model does not account for the limitations of human vision at greater distances or atmospheric conditions that may cause reduced visibility. Additionally, at increasing distances away from project features, they will appear smaller and less detailed and will have a reduced visual impact even if shown as visible in the model.
2. Because an area may show visibility, it does not mean the entirety of a power station component will be seen. In many cases for this project, the existing tree stands and buildings in the area provide visual impediments for all or lower portion of the facility.
3. The viewshed model assumes that any vegetation is opaque and therefore represents a leaf-on condition. During leaf-off conditions or where ground level vegetation is sparse, visibility may be possible where the model did not indicate.
4. The model was developed with the assumption that a viewer would not see the Project if standing amongst tree groups.
5. Due to the large size of the Project and many panel locations, it was not readily possible to model every individual structure for the viewshed analysis, as such perimeter and high feature points were used for conducting the viewshed analysis.

## 2.3 VIEWSHED ANALYSIS RESULTS AND DISCUSSION

The Project study area is composed of several general landscape types. There is approximately 200 feet (61.0 m) of elevation change across the study area, making this a generally flat landscape throughout. A large component of the study area is the Ohio State University (University) campus. OSU is a member of the Ohio State Energy Partnership (OSEP) that is driving this proposed project. Much of the landscape aesthetic is related to activities on and around this campus. Given the partnership with the University it is assumed that visual impacts to the campus area are of minimal concern. Aside from the University agricultural and other open space use on campus the rest of the study area is either residential or urban in nature.

Given the developed nature in the landscape throughout the study area, the resulting views are obstructed to a large degree by existing structures and obstructions, even with the relatively tall nature of the proposed stacks. Project visibility is most common closer to the site and in the open areas surrounding the site. Beyond one mile (1.6 km) from the site most visibility has been obstructed. At two miles (3.2 km) the only significant Project visibility is through highway corridors, other visibility is sporadic and minimal, model results of only a few pixels each.

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

### 3 VISUAL RESOURCE INVENTORY

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An inventory of publicly accessible KOPs was compiled for the area within two miles of the site boundary. Resources such as recreational areas, churches, schools, or other community landmark locations were evaluated and shown along with the results of the viewshed analysis in **Figure 2**. This list of resources was generated from a review of public sources including: USGS National Structures Dataset (NSD) (USGS 2019) and City of Columbus Public Places (Columbus 2019). **Table 1** summarizes the findings.

These datasets were filtered and generalize the general KOP types of: Cemetery, Church, Community Center, Entertainment, Park, School, or Other. 181 locations were identified for review in the study area. Two methods were used to determine potential visibility at these locations. Both methods used the ground observer results from the viewshed analysis to make the determinations.

The first method compared the KOP point location with the viewshed results. Locations that were on a model cell indicating visibility were classified as having Potential Visibility, the others were classified as Obstructed. This method resulted in 1 of the 181 locations (0.6%) being identified as potentially visible.

The second method used the same logic but applied to anywhere within an 82' (25 m) diameter of the feature location. This is designed to better represent the area a single point feature may cover on the ground. The maximum model result in that area was used to classify the locations as Potentially Visible or Obstructed. This method resulted in 10 of the 181 locations (5.5%) having potential visibility of the project.

## 4 VISUAL SIMULATIONS

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Field surveys were conducted on May 6, 2019 to acquire photographs for aesthetic review and simulations. Attempts were made to take photographs that provided the most unobstructed views possible at north, south, east, and west positions and/or in areas where the viewshed maps represent visibility that is proximal to the Project. Twelve photograph locations were captured for review. After review, four photographs were selected to be presented as simulations. These photos were selected to present the visibility of the Project from the best range of visual landscapes captured by the full set of photographs.

### 4.1 METHODOLOGY

Photographs were taken with a Canon EOS Rebel T6 digital camera. The focal length was set to ~30mm, which after adjusting for the camera crop factor is effectively ~48mm, a close approximation to the human eye. Coordinates of camera locations intended for simulations were recorded using a sub-meter Global Positioning System unit (GPS), as well as other reference points within the view. These reference locations were later used to refine the placement of the facility within the simulation photographs. Heights of select high reference points were measured with a tape measure or survey rod. The photograph locations are shown on **Figure 3**.

To create visual simulations, 3DS MAX 2016 software was used to correctly dimension a model of the CHP into the digital photographic image from each viewpoint location. The 3d model of the facility was created by TRC using specifications available for the Project design. The simulation model was further developed to position viewport to match the selected vantage point. For a given vantage point, the visualization software is capable of providing and adjusting a camera view that matches that of the actual photograph. From the field effort, the documented camera coordinate (x, y, z) positions were entered into the model. Reference locations, which are existing visible objects in the photograph such as light posts, building corners, trees, gate posts or utility poles were obtained by GPS to assist with refined placement of the proposed Project within the photograph. In some instances, GIS terrain modeling and analysis helped in locking in the 3D facility model within the photograph. Ground point elevations of the camera location and other referenced objects were obtained from the 2007 LiDAR LAS data provided by Ohio Geographically Referenced Information Program (OGRIP) (Ohio 2007).

The day and time of the photographs were also recorded and typically exist as electronic information embedded in the respective digital photograph files. This information was used to adjust for sun angle in the simulation software in order to represent lighting conditions for the time of day and year.

## 4.2 DISCUSSION OF SIMULATIONS

As noted with the viewshed mapping results (**Figures 1 through 3**), views from the northwest and south of the Project will have the least obstructed views in the viewshed. For most of the study area views will be limited due to existing infrastructure, buildings, and vegetation. Intermittent views may be possible in areas not indicated in the study area between or through buildings and other features that may not have been captured by the resolution of the viewshed model. Visibility potential will increase during leaf-off conditions, where vegetation plays a part in visual obstruction.

### **Figures 4 & 5: Photo Location #1: Woody Hayes Drive, 1,079 feet (329 m) northeast of the Project**

Photo location #1 is the nearest photo selected for a simulation. The photo was taken on May 6, 2019 at 1:42pm. The proposed-conditions simulation (Figure 5) shows that the facility is likely to be seen from this perspective between the gaps in buildings and vegetation. The view is intended to be representative of views elsewhere on the campus. As stated previously, areas nearer the project will have more visual exposure to the project than areas farther out, but the near areas are predominately campus. This view is somewhat closer to the facility than the other locations mentioned, thus the visual vertical size of features will be larger than from locations farther away.

### **Figures 6 & 7: Photo Location #2: Adjacent to Ohio Stadium, 2,213 feet (675 m) east of the Project**

Photo location #2 is from an area just outside of the Ohio Stadium. The photo was taken on May 6, 2019 at 2:22pm. This vantage point is representative of what ground observers may see from the areas around Ohio Stadium, one of the more significant public gathering areas in the study area. The viewshed analysis indicated some areas of seating in the stadium may also experience views, which would be significantly more elevated than a ground observer. As can be seen on Figure 6, the upper portion of the Project will be visible over existing vegetation as are other campus buildings.

### **Figures 8 & 9: Photo Location #3: Fred Beekman Park, 3,518 feet (1,072 m) northwest of the Project**

Photo location #3 is from behind Fred Beekman Park. The photo was taken on May 6, 2019 at 12:34pm. This view is representative of some of the open space in the study area. This view overlooks the baseball diamond and presents a view of the Columbus skyline. At this distance (approximately 0.66 miles, 1.1 km) from the site the Project can be seen along the existing city skyline. Other buildings are more predominant features from this distance and vantage point causing the project to blend into the existing skyline.

**Figures 10 & 11: Photo Location #4: N Star Road and Northam Rd, 1.14 miles (1.83 km) northwest of the Project**

Photo location #4 is from the intersection of N Star Road and Northam Road. The photo was taken on May 6, 2019 at 12:50pm. This vantage point is near the edge of the residential area on the western portion of the study area and is along the same sightline as Photo #3. This view is repetitive of the aesthetic changes that may be seen from the residential area and also demonstrates the diminishing impact of the Project with distance along a sightline. As can be seen a viewer is overlooking open agricultural space with a clear view of the campus and Columbus skyline. While visible the Project is not providing a significant visual component of the view. Other buildings and features are more visually predominant, including campus buildings, city buildings, the stadium, and other stacks and towers which all contribute to the scene and many of which are more predominant features than the Project. The Project design selection of exterior finish that matches the local building styles aides in having this blend in to the existing views.

### **4.3 CONCLUSION OF SIMULATIONS**

Given the predominantly built landscape of the study area and the fact that the Ohio State University is to the Owner of the project, the overall visual impact of the proposed facility is minimal. The clearest views of the project will be located on campus property and may be of aesthetic concern if the University was not involved in the project. It is assumed that the on-campus views are of a lessened concern due to this fact. The viewshed model shows limited views of the Project in the surrounding area and nearly no visibility at the 2-mile edge of the study area. The photo simulations in this report demonstrate what the Project may look like upon completion, and demonstrate the diminishing visual impact with distance, particularly when considering the existing built landscape and campus and city skylines into which the Project will blend.

Visual and aesthetic mitigation is primarily focused on the planned exterior materials of the building. As of the time of the report, and reflected in the photo simulations, the plan for the building exterior is to match the brick color and other materials of nearby campus buildings. This should aid in the scenic blending of the building to better match surrounding buildings and structures both near to the Project and as part of the visual skyline. Due to the height of the building and stacks, other visual mitigation is not being planned at this time.



## 5 REFERENCES CITED

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Columbus. 2019. City of Columbus/ColumbusOhioGIS. *Public Places*, GIS shapefile dataset. Published 9/10/2017, revised 1/17/2019.

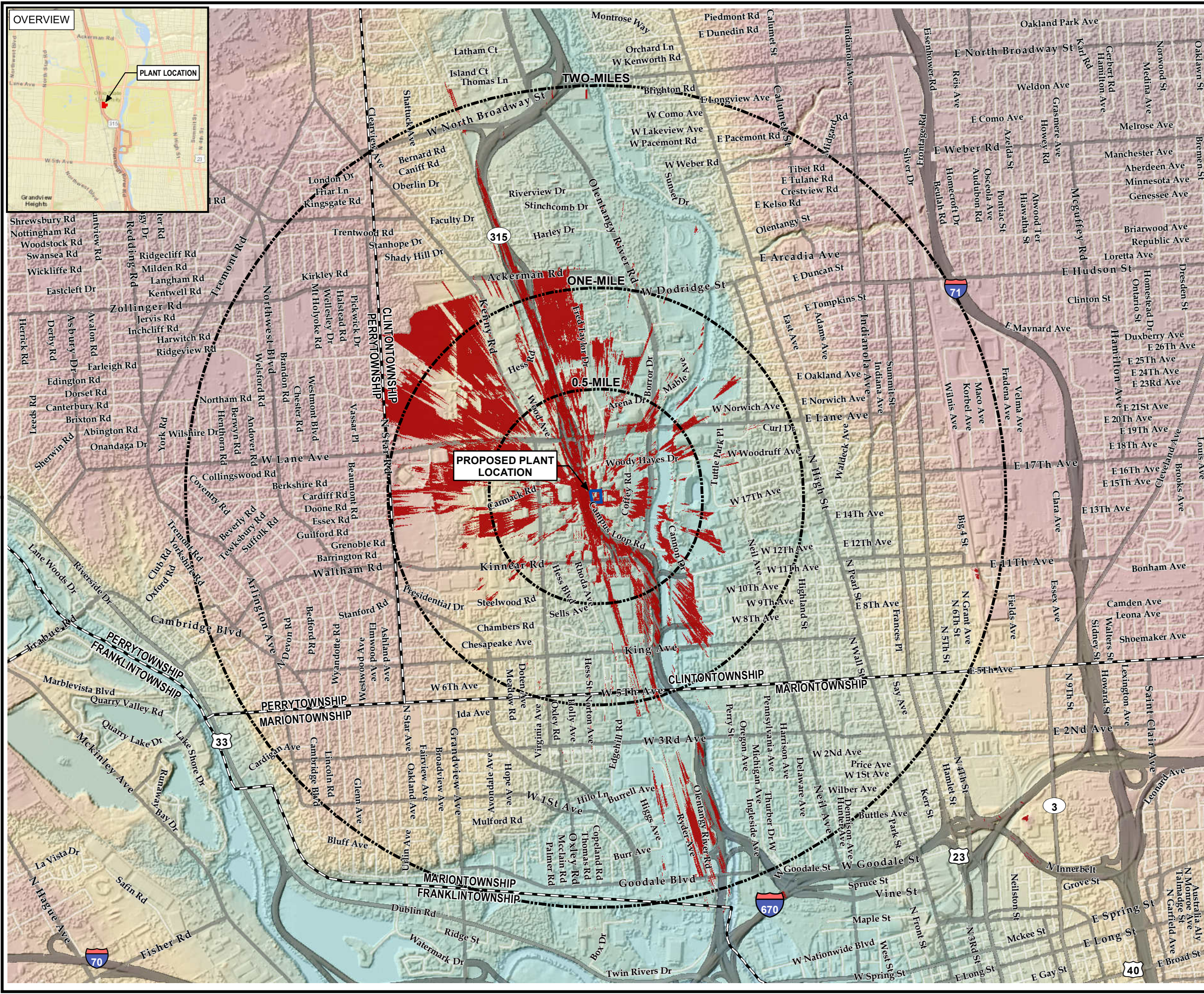
ESRI 2017. Environmental Systems Research Institute. Retrieved May 09, 2017, from <http://desktop.arcgis.com/en/arcmap/10.3/tools/spatial-analyst-toolbox/using-viewshed-and-observer-points-for-visibility.htm>

OGRIP 2007. State of Ohio Office of Information Technology, Ohio Geographically Referenced Information Program (OGRIP). *Ohio Statewide Imagery Program, Product 1 (OSIP I)*, LiDAR LAS Tiled digital data.

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**LEGEND**

- PROPOSED PLANT
- BUFFERS AROUND PROPOSED PLANT
- TOWNSHIP
- AREAS WITH POTENTIAL VISIBILITY

**REGION TERRAIN**

- HIGH ELEVATION: 890' MSL
- LOW ELEVATION: 690' MSL

**NOTES**

- TOPOGRAPHIC INFORMATION FROM LIDAR LAS DATA PROVIDED BY OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM (OGIP), 2007.
- THE VIEWSHED ANALYSIS WAS CONDUCTED USING THE DATA EXTRACTED FROM THE LIDAR DATA. NON-GROUND AREAS ARE REPRESENTED AS THE DIFFERENCE BETWEEN THE FIRST-RETURN SURFACE AND THE BARE-EARTH SURFACE. AN OBSERVER HEIGHT OF 5.5' WAS USED FOR THE ANALYSIS.
- HEIGHTS OF PLANT FEATURES VARIED AND WERE BASED ON THE CURRENT DESIGN INFORMATION AT THE TIME OF MAPPING, MAXIMUM STACK HEIGHT IN THE MODEL IS 115'.
- INFORMATION PRESENTED HERE IS THE RESULT OF A DESKTOP ANALYSIS AND HAS NOT BEEN GROUND-TRUTHED.

1" = 2,500'

1:30,000

PROJECT: THE OHIO STATE UNIVERSITY  
COMBINED HEAT AND POWER PROJECT  
COLUMBUS, OH

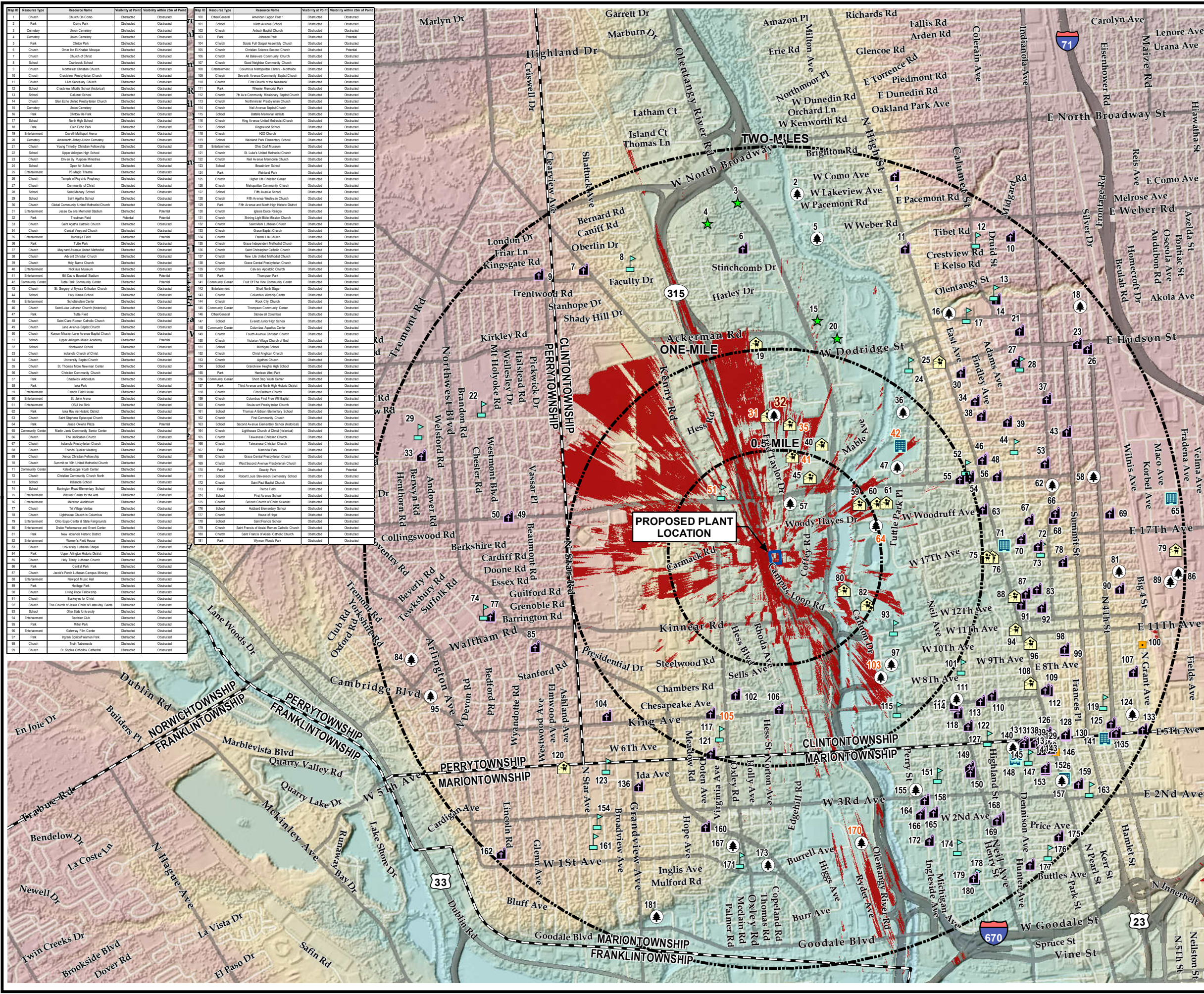
TITLE: WITHIN 2 MILES OF PROJECT SITE

DRAWN BY: J. PAPEZ	PROJ. NO.: 314315
CHECKED BY:	FIGURE 1
APPROVED BY:	
DATE: MAY 2019	

670 Morrison Rd, Suite 220  
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FILE NO.: 314315-003\VS.mxd





### LEGEND

PROPOSED PLANT

BUFFERS AROUND PROPOSED PLANT

TOWNSHIP

AREAS WITH POTENTIAL VISIBILITY

#### REGION TERRAIN

HIGH ELEVATION: 890' MSL

LOW ELEVATION: 690' MSL

### VISUAL RESOURCE INVENTORY LOCATIONS

Cemetery

Church

Community Center

Entertainment

Park

School

Other/General

### NOTES

1. TOPOGRAPHIC INFORMATION FROM LIDAR LAS DATA PROVIDED BY OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM (OGIP), 2007.

2. THE VIEWSHED ANALYSIS WAS CONDUCTED USING THE DATA EXTRACTED FROM THE LIDAR DATA. NON-GROUND AREAS ARE REPRESENTED AS THE DIFFERENCE BETWEEN THE FIRST-RETURN SURFACE AND THE BARE-EARTH SURFACE. AN OBSERVER HEIGHT OF 5.5' WAS USED FOR THE ANALYSIS.

3. VISUAL RESOURCE INVENTORY POINTS ARE BASED ON INFORMATION FROM USGS NATIONAL STRUCTURES DATASET (NSD), 2019, AND PUBLIC PLACES FROM THE CITY OF COLUMBUS, 2019. FEATURE TYPES LIKELY TO BE VISUAL RECEPTORS WERE SELECTED FROM EACH AND GENERALIZED FOR USE IN THIS MAP.

4. INFORMATION PRESENTED HERE IS THE RESULT OF A DESKTOP ANALYSIS AND HAS NOT BEEN GROUND-TRUTHED.

02,5005,000

1" = 2,500'

1:30,000

PROJECT:

THE OHIO STATE UNIVERSITY  
COMBINED HEAT AND POWER PROJECT  
COLUMBUS, OH

TITLE:

RESOURCE IMPACTS

DRAWN BY: J. PAPEZ

CHECKED BY:

APPROVED BY:

DATE: MAY 2019

PROJ. NO.: 314315

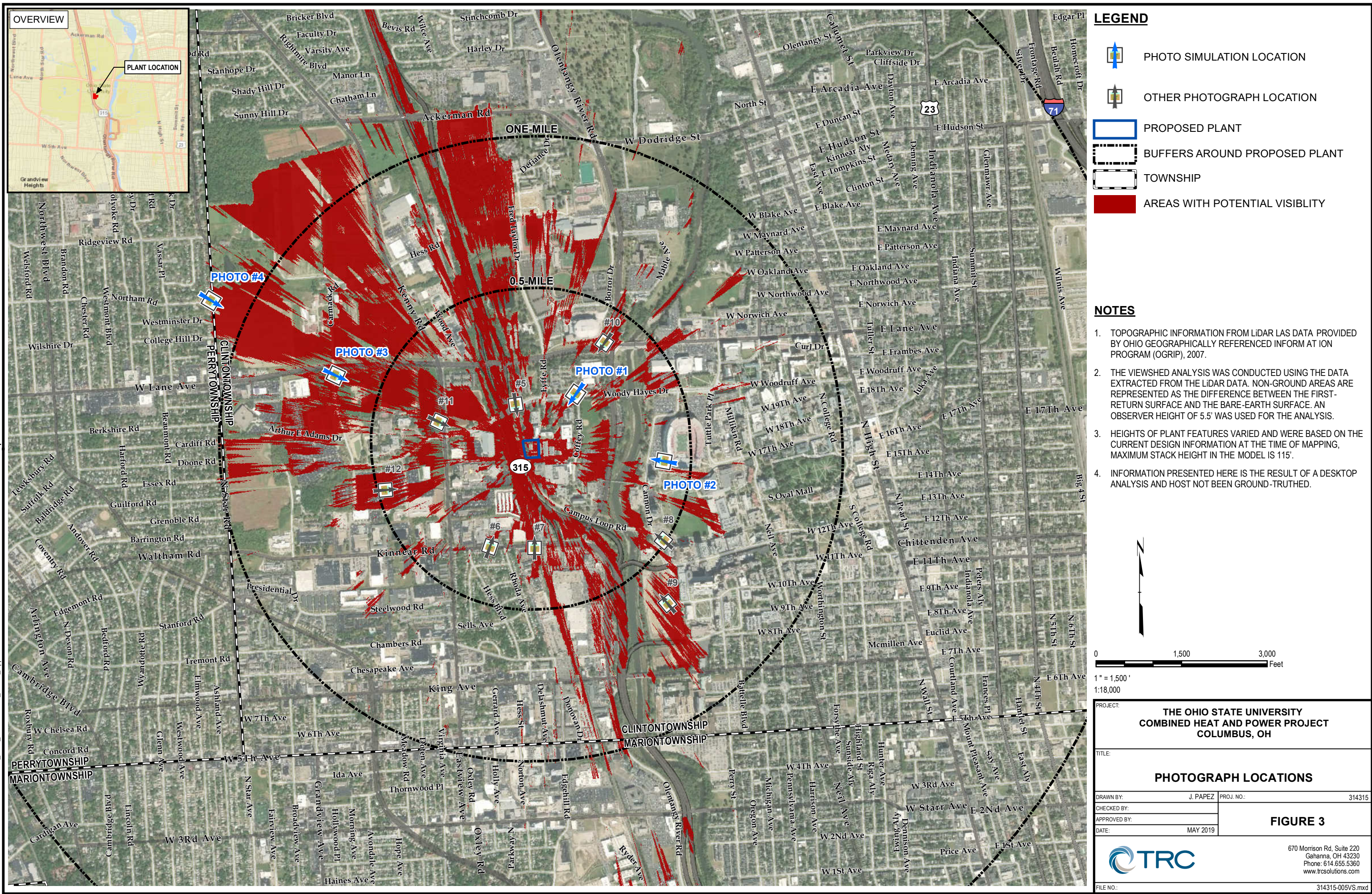
FIGURE 2

TRC

670 Morrison Rd, Suite 220  
Gahanna, OH 43230  
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FILE NO.: 314315-004\VS.mxd

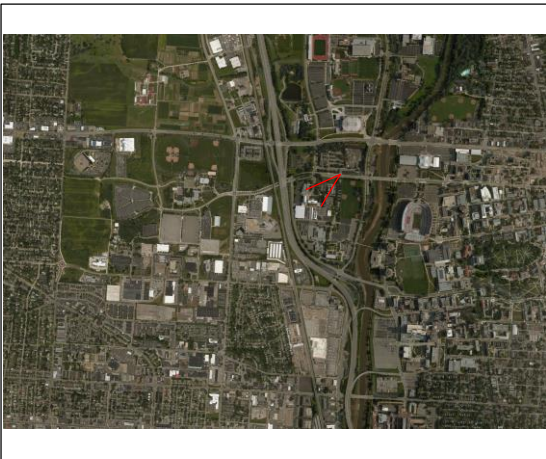








VIEWPOINT LOCATION MAP



PROPOSED CONDITIONS



TECHNICAL INFORMATION

<i>Viewpoint Coordinates in OH South State Plane feet</i>	18211441 E 730523 N
<i>Viewpoint Location</i>	Location 1
<i>Viewer Eye Elevation</i>	736 ft msl
<i>Distance to Project</i>	1079 feet
<i>Camera Model</i>	Canon EOS Rebel T6
<i>Lens Setting</i>	48.3 mm
<i>Date/Time</i>	5-6-2019 1:42pm

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COLUMBUS, OH

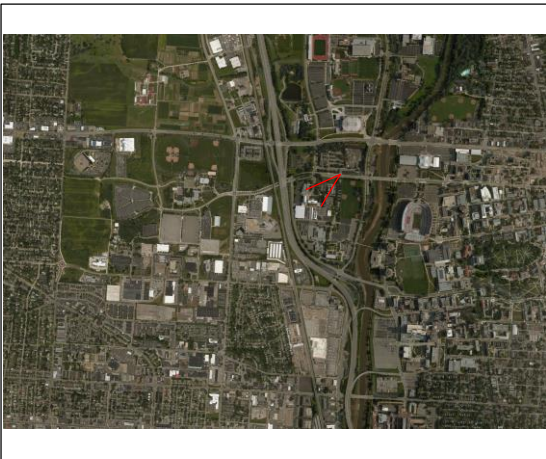
FIGURE 4 - PHOTO LOCATION 1: EXISTING CONDITIONS







VIEWPOINT LOCATION MAP



EXISTING CONDITIONS



TECHNICAL INFORMATION

<i>Viewpoint Coordinates in OH South State Plane feet</i>	18211441 E 730523 N
<i>Viewpoint Location</i>	Location 1
<i>Viewer Eye Elevation</i>	736 ft msl
<i>Distance to Project</i>	1079 feet
<i>Camera Model</i>	Canon EOS Rebel T6
<i>Lens Setting</i>	48.3 mm
<i>Date/Time</i>	5-6-2019 1:42pm

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COLUMBUS, OH

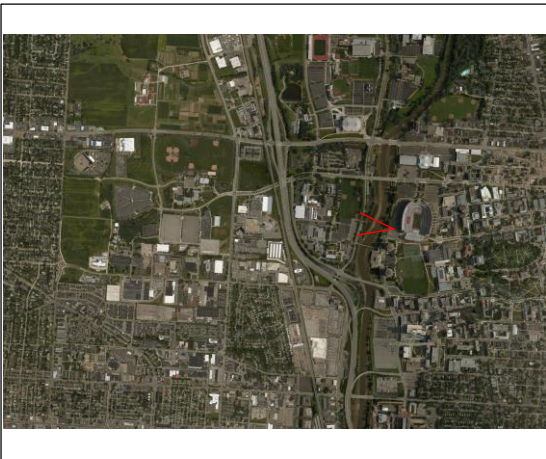
FIGURE 5 - PHOTO LOCATION 1: PROPOSED CONDITIONS



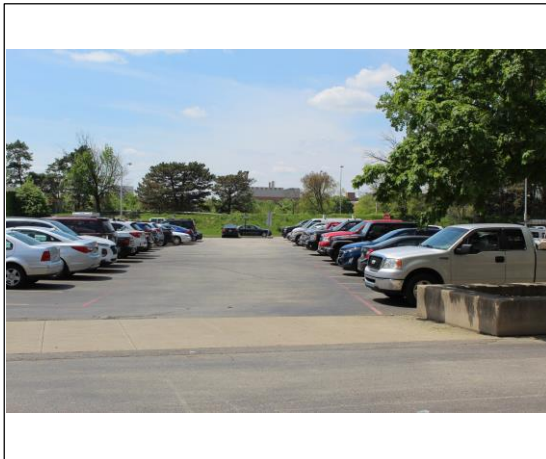




VIEWPOINT LOCATION MAP



PROPOSED CONDITIONS



TECHNICAL INFORMATION

Viewpoint Coordinates in	1820091 E
OH South State Plane feet	730471 N
Viewpoint Location	Location 2
Viewer Eye Elevation	723 ft msl
Distance to Project	2213 feet
Camera Model	Canon EOS Rebel T6
Lens Setting	48.3 mm
Date/Time	5-6-2019 2:22pm

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COMBINED HEAT AND POWER PROJECT  
COLUMBUS, OH

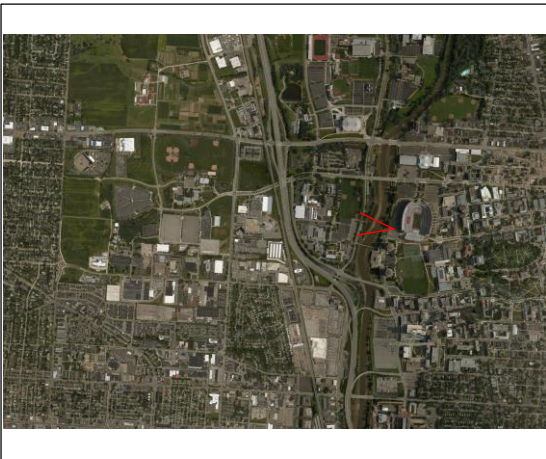
FIGURE 6 - PHOTO LOCATION 2: EXISTING CONDITIONS



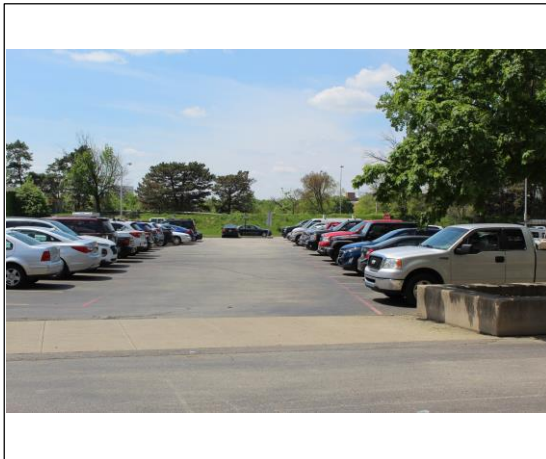




VIEWPOINT LOCATION MAP



EXISTING CONDITIONS



TECHNICAL INFORMATION

<i>Viewpoint Coordinates in OH South State Plane feet</i>	1820091 E 730471 N
<i>Viewpoint Location</i>	Location 2
<i>Viewer Eye Elevation</i>	723 ft msl
<i>Distance to Project</i>	2213 feet
<i>Camera Model</i>	Canon EOS Rebel T6
<i>Lens Setting</i>	48.3 mm
<i>Date/Time</i>	5-6-2019 2:22pm

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COLUMBUS, OH

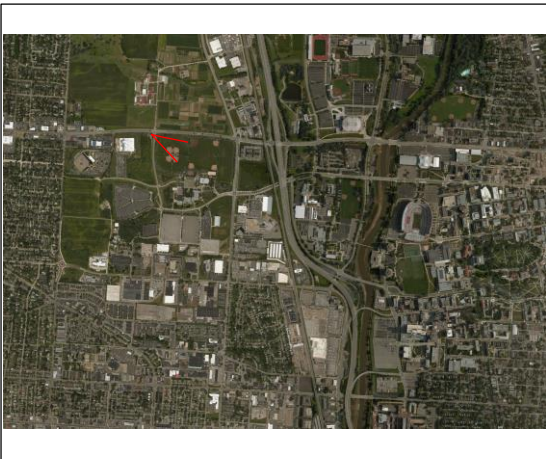
FIGURE 7 - PHOTO LOCATION 2: PROPOSED CONDITIONS







VIEWPOINT LOCATION MAP



PROPOSED CONDITIONS



TECHNICAL INFORMATION

Viewpoint Coordinates in	1820091 E
OH South State Plane feet	730471 N
Viewpoint Location	Location 3
Viewer Eye Elevation	795 ft msl
Distance to Project	3518 feet
Camera Model	Canon EOS Rebel T6
Lens Setting	48.3 mm
Date/Time	5-6-2019 12:44pm

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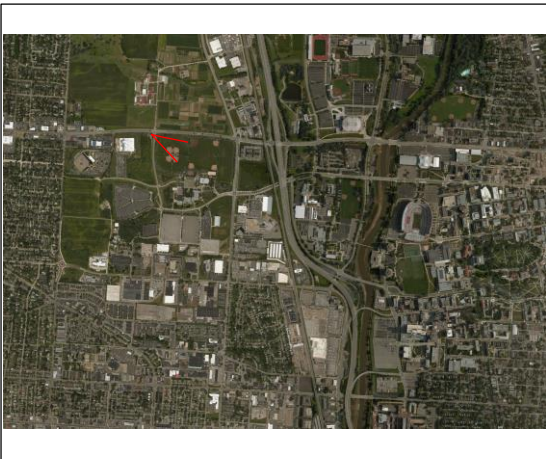
FIGURE 8 - PHOTO LOCATION 3: EXISTING CONDITIONS







VIEWPOINT LOCATION MAP



EXISTING CONDITIONS



TECHNICAL INFORMATION

<i>Viewpoint Coordinates in OH South State Plane feet</i>	1820091 E 730471 N
<i>Viewpoint Location</i>	Location 3
<i>Viewer Eye Elevation</i>	795 ft msl
<i>Distance to Project</i>	3518 feet
<i>Camera Model</i>	Canon EOS Rebel T6
<i>Lens Setting</i>	48.3 mm
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THE OHIO STATE UNIVERSITY  
COMBINED HEAT AND POWER PROJECT  
COLUMBUS, OH

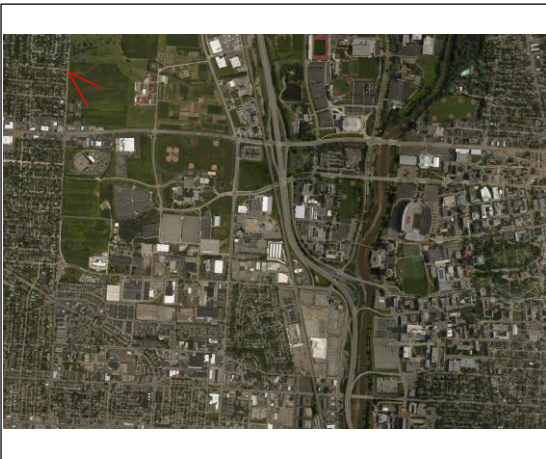
FIGURE 9 - PHOTO LOCATION 3: PROPOSED CONDITIONS







VIEWPOINT LOCATION MAP



PROPOSED CONDITIONS



TECHNICAL INFORMATION

<i>Viewpoint Coordinates in OH South State Plane feet</i>	1820091 E 730471 N
<i>Viewpoint Location</i>	Location 4
<i>Viewer Eye Elevation</i>	829 ft msl
<i>Distance to Project</i>	6016 feet
<i>Camera Model</i>	Canon EOS Rebel T6
<i>Lens Setting</i>	48.3 mm
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COMBINED HEAT AND POWER PROJECT  
COLUMBUS, OH

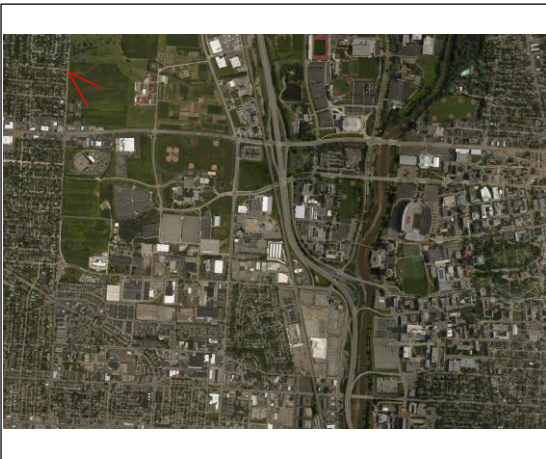
FIGURE 10 - PHOTO LOCATION 4: EXISTING CONDITIONS







VIEWPOINT LOCATION MAP



EXISTING CONDITIONS



TECHNICAL INFORMATION

<i>Viewpoint Coordinates in OH South State Plane feet</i>	1820091 E 730471 N
<i>Viewpoint Location</i>	Location 4
<i>Viewer Eye Elevation</i>	829 ft msl
<i>Distance to Project</i>	6016 feet
<i>Camera Model</i>	Canon EOS Rebel T6
<i>Lens Setting</i>	48.3 mm
<i>Date/Time</i>	5-6-2019 12:50pm

THE OHIO STATE UNIVERSITY  
COMBINED HEAT AND POWER PROJECT  
COLUMBUS, OH

FIGURE 11 - PHOTO LOCATION 4: PROPOSED CONDITIONS





**Table 1. Visual Resources Inventory within Two Miles (3.2 km) of Project Site**

Map ID	Resource Type	Resource Name	Visibility at Point	Visibility within 25m of Point	Map ID	Resource Type	Resource Name	Visibility at Point	Visibility within 25m of Point
1	Church	Church On Como	Obstructed	Obstructed	100	Other/General	American Legion Post 1	Obstructed	Obstructed
2	Park	Como Park	Obstructed	Obstructed	101	School	Ninth Avenue School	Obstructed	Obstructed
3	Cemetery	Union Cemetery	Obstructed	Obstructed	102	Church	Antioch Baptist Church	Obstructed	Obstructed
4	Cemetery	Union Cemetery	Obstructed	Obstructed	103	Park	Johnson Park	Obstructed	Potential
5	Park	Clinton Park	Obstructed	Obstructed	104	Church	Scioto Full Gospel Assembly Church	Obstructed	Obstructed
6	Church	Omar Ibn El-Khattab Mosque	Obstructed	Obstructed	105	Church	Christian Science Second Church	Obstructed	Potential
7	Church	Church of Christ	Obstructed	Obstructed	106	Church	All Believers Community Church	Obstructed	Obstructed
8	School	Cranbrook School	Obstructed	Obstructed	107	Church	Good Neighbor Community Church	Obstructed	Obstructed
9	Church	Northwest Christian Church	Obstructed	Obstructed	108	Entertainment	Columbus Metropolitan Library - Northside	Obstructed	Obstructed
10	Church	Crestview Presbyterian Church	Obstructed	Obstructed	109	Church	Seventh Avenue Community Baptist Church	Obstructed	Obstructed
11	Church	I Am Sanctuary Church	Obstructed	Obstructed	110	Church	First Church of the Nazarene	Obstructed	Obstructed
12	School	Crestview Middle School (historical)	Obstructed	Obstructed	111	Park	Wheeler Memorial Park	Obstructed	Obstructed
13	School	Calumet School	Obstructed	Obstructed	112	Church	7th Ave Community Missionary Baptist Church	Obstructed	Obstructed
14	Church	Glen Echo United Presbyterian Church	Obstructed	Obstructed	113	Church	Northminster Presbyterian Church	Obstructed	Obstructed
15	Cemetery	Union Cemetery	Obstructed	Obstructed	114	Church	Neil Avenue Baptist Church	Obstructed	Obstructed
16	Park	Clintonville Park	Obstructed	Obstructed	115	School	Battelle Memorial Institute	Obstructed	Obstructed
17	School	North High School	Obstructed	Obstructed	116	Church	King Avenue United Methodist Church	Obstructed	Obstructed
18	Park	Glen Echo Park	Obstructed	Obstructed	117	School	Kingswood School	Obstructed	Obstructed
19	Entertainment	Covelli Multiport Arena	Obstructed	Obstructed	118	Church	H2O Church	Obstructed	Obstructed
20	Cemetery	Amaranth Abbey-Union Cemetery	Obstructed	Obstructed	119	School	Weinland Park Elementary School	Obstructed	Obstructed
21	Church	Young Timothy Christian Fellowship	Obstructed	Obstructed	120	Entertainment	Ohio Craft Museum	Obstructed	Obstructed
22	School	Upper Arlington High School	Obstructed	Obstructed	121	Church	St. Luke's United Methodist Church	Obstructed	Obstructed
23	Church	Driven By Purpose Ministries	Obstructed	Obstructed	122	Church	Neil Avenue Mennonite Church	Obstructed	Obstructed
24	School	Open Air School	Obstructed	Obstructed	123	School	Broadview School	Obstructed	Obstructed
25	Entertainment	P3 Magic Theatre	Obstructed	Obstructed	124	Park	Weinland Park	Obstructed	Obstructed
26	Church	Temple of Psychic Prophecy	Obstructed	Obstructed	125	Church	Higher Life Christian Center	Obstructed	Obstructed
27	Church	Community of Christ	Obstructed	Obstructed	126	Church	Metropolitan Community Church	Obstructed	Obstructed
28	School	Saint Medary School	Obstructed	Obstructed	127	School	Fifth Avenue School	Obstructed	Obstructed
29	School	Saint Agatha School	Obstructed	Obstructed	128	Church	Fifth Avenue Wesleyan Church	Obstructed	Obstructed
30	Church	Global Community United Methodist Church	Obstructed	Obstructed	129	Park	Fifth Avenue and North High Historic District	Obstructed	Obstructed
31	Entertainment	Jesse Owens Memorial Stadium	Obstructed	Potential	130	Church	Iglesia Dulce Refugio	Obstructed	Obstructed
32	Park	Trautman Field	Potential	Potential	131	Church	Shining Light Bible Mission Church	Obstructed	Obstructed
33	Church	Saint Agatha Catholic Church	Obstructed	Obstructed	132	Church	Saint Mark Lutheran Church	Obstructed	Obstructed
34	Church	Central Vineyard Church	Obstructed	Obstructed	133	Church	Grace Baptist Church	Obstructed	Obstructed
35	Entertainment	Buckeye Field	Obstructed	Potential	134	Church	Eternal Life Church	Obstructed	Obstructed
36	Park	Tuttle Park	Obstructed	Obstructed	135	Church	Grace Independent Methodist Church	Obstructed	Obstructed
37	Church	Maynard Avenue United Methodist	Obstructed	Obstructed	136	Church	Saint Christopher Catholic Church	Obstructed	Obstructed
38	Church	Advent Christian Church	Obstructed	Obstructed	137	Church	New Life United Methodist Church	Obstructed	Obstructed
39	Church	Holy Name Church	Obstructed	Obstructed	138	Church	Grace Central Presbyterian Church	Obstructed	Obstructed
40	Entertainment	Nicklaus Museum	Obstructed	Obstructed	139	Church	Calvary Apostolic Church	Obstructed	Obstructed
41	Entertainment	Bill Davis Baseball Stadium	Obstructed	Potential	140	Park	Thompson Park	Obstructed	Obstructed
42	Community Center	Tuttle Park Community Center	Obstructed	Potential	141	Community Center	Fruit Of The Vine Community Center	Obstructed	Obstructed
43	Church	St. Gregory of Nyssa Orthodox Church	Obstructed	Obstructed	142	Entertainment	Short North Stage	Obstructed	Obstructed
44	School	Holy Name School	Obstructed	Obstructed	143	Church	Columbus Worship Center	Obstructed	Obstructed
45	Entertainment	Schottenstein Center	Obstructed	Obstructed	144	Church	Rock City Church	Obstructed	Obstructed
46	Church	Saint Luke Lutheran Church (historical)	Obstructed	Obstructed	145	Community Center	Thompson Community Center	Obstructed	Obstructed
47	Park	Tuttle Field	Obstructed	Obstructed	146	Other/General	Stonewall Columbus	Obstructed	Obstructed
48	Church	Saint Clare Roman Catholic Church	Obstructed	Obstructed	147	School	Everett Junior High School	Obstructed	Obstructed
49	Church	Lane Avenue Baptist Church	Obstructed	Obstructed	148	Community Center	Columbus Aquatics Center	Obstructed	Obstructed
50	Church	Korean Mission Lane Avenue Baptist Church	Obstructed	Obstructed	149	Church	Fourth Avenue Christian Church	Obstructed	Obstructed
51	School	Upper Arlington Music Academy	Obstructed	Potential	150	Church	Victorian Village Church of God	Obstructed	Obstructed
52	School	Northwood School	Obstructed	Obstructed	151	School	Michigan School	Obstructed	Obstructed
53	Church	Indianola Church of Christ	Obstructed	Obstructed	152	Church	Christ Anglican Church	Obstructed	Obstructed
54	Church	University Baptist Church	Obstructed	Obstructed	153	Church	Agathos Church	Obstructed	Obstructed
55	Church	St. Thomas More Newman Center	Obstructed	Obstructed	154	School	Grandview Heights High School	Obstructed	Obstructed
56	Church	Christian Community Church	Obstructed	Obstructed	155	Park	Harrison West Park	Obstructed	Obstructed
57	Park	Chadwick Arboretum	Obstructed	Obstructed	156	Community Center	Short Stop Youth Center	Obstructed	Obstructed
58	Park	Iuka Park	Obstructed	Obstructed	157	Park	Third Avenue and North High Historic District	Obstructed	Obstructed
59	Entertainment	French Field House	Obstructed	Obstructed	158	Church	First Brethren Church	Obstructed	Obstructed
60	Entertainment	St. John Arena	Obstructed	Obstructed	159	Church	Columbus First Free Will Baptist	Obstructed	Obstructed
61	Entertainment	OSU Ice Rink	Obstructed	Obstructed	160	Church	Boulevard Presbyterian Church	Obstructed	Obstructed
62	Park	Iuka Ravine Historic District	Obstructed	Obstructed	161	School	Thomas A Edison Elementary School	Obstructed	Obstructed
63	Church	Saint Stephens Episcopal Church	Obstructed	Obstructed	162	Church	First Community Church	Obstructed	Obstructed
64	Park	Jesse Owens Plaza	Obstructed	Potential	163	School	Second Avenue Elementary School (historical)	Obstructed	Obstructed
65	Community Center	Martin Janis Community Senior Center	Obstructed	Obstructed	164	Church	Lighthouse Church of Christ (historical)	Obstructed	Obstructed
66	Church	The Unification Church	Obstructed	Obstructed	165	Church	Taiwanese Christian Church	Obstructed	Obstructed
67	Church	Indianola Presbyterian Church	Obstructed	Obstructed	166	Church	Taiwanese Christian Church	Obstructed	Obstructed
68	Church	Friends Quaker Meeting	Obstructed	Obstructed	167	Park	Memorial Park	Obstructed	Obstructed
69	Church	Xenos Christian Fellowship	Obstructed	Obstructed	168	Church	Grace Central Presbyterian Church	Obstructed	Obstructed
70	Church	Summit on 16th United Methodist Church	Obstructed	Obstructed	169	Church	West Second Avenue Presbyterian Church	Obstructed	Obstructed
71	Community Center	Kaleidoscope Youth Center	Obstructed	Obstructed	170	Park	Gowdy Park	Obstructed	Potential
72	Church	Christian Community Church North	Obstructed	Obstructed	171	School	Robert Louis Stevenson Elementary School	Obstructed	Obstructed

**Table 1. Visual Resources Inventory within Two Miles (3.2 km) of Project Site**

Map ID	Resource Type	Resource Name	Visibility at Point	Visibility within 25m of Point
73	School	Indianola School	Obstructed	Obstructed
74	School	Barrington Road Elementary School	Obstructed	Obstructed
75	Entertainment	Wexner Center for the Arts	Obstructed	Obstructed
76	Entertainment	Mershon Auditorium	Obstructed	Obstructed
77	Church	Tri Village Venitas	Obstructed	Obstructed
78	Church	Lighthouse Church In Columbus	Obstructed	Obstructed
79	Entertainment	Ohio Expo Center & State Fairgrounds	Obstructed	Obstructed
80	Entertainment	Drake Performance and Event Center	Obstructed	Obstructed
81	Park	New Indianola Historic District	Obstructed	Obstructed
82	Entertainment	Women's Field House	Obstructed	Obstructed
83	Church	University Lutheran Chapel	Obstructed	Obstructed
84	Park	Upper Arlington Historic District	Obstructed	Obstructed
85	Church	Holy Trinity Lutheran Church	Obstructed	Obstructed
86	Park	Central Park	Obstructed	Obstructed
87	Church	Jacob's Porch Lutheran Campus Ministry	Obstructed	Obstructed
88	Entertainment	Newport Music Hall	Obstructed	Obstructed
89	Park	Heritage Park	Obstructed	Obstructed
90	Church	Living Hope Fellowship	Obstructed	Obstructed
91	Church	Buckeyes for Christ	Obstructed	Obstructed
92	Church	The Church of Jesus Christ of Latter-day Saints	Obstructed	Obstructed
93	School	Ohio State University	Obstructed	Obstructed
94	Entertainment	Barrister Club	Obstructed	Obstructed
95	Park	Miller Park	Obstructed	Obstructed
96	Entertainment	Gateway Film Center	Obstructed	Obstructed
97	Park	Ingram Spirit of Women Park	Obstructed	Obstructed
98	Church	Truth Tabernacle	Obstructed	Obstructed
99	Church	St. Sophia Orthodox Cathedral	Obstructed	Obstructed

Map ID	Resource Type	Resource Name	Visibility at Point	Visibility within 25m of Point
172	Church	Saint Paul Baptist Church	Obstructed	Obstructed
173	Park	Pierce Field	Obstructed	Obstructed
174	School	First Avenue School	Obstructed	Obstructed
175	Church	Second Church of Christ Scientist	Obstructed	Obstructed
176	School	Hubbard Elementary School	Obstructed	Obstructed
177	Church	House of Hope	Obstructed	Obstructed
178	School	Saint Francis School	Obstructed	Obstructed
179	Church	Saint Francis of Assisi Roman Catholic Church	Obstructed	Obstructed
180	Church	Saint Francis of Assisi Catholic Church	Obstructed	Obstructed
181	Park	Wyman Woods Park	Obstructed	Obstructed

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**11/6/2019 11:44:41 AM**

**in**

**Case No(s). 19-1641-EL-BGN**

Summary: Application Application Part 17 of 17 - Exhibit U electronically filed by Ms. Kari D  
Hehmeyer on behalf of Alexander, Trevor Mr. and THE OHIO STATE UNIVERSITY