ALL-POINTS
TECHNOLOGY CORPORATION

VISIBILITY ANALYSIS

BROADBROOK RELO CT
11 CHAMBERLAIN ROAD
EAST WINDSOR, CT

PREPARED FOR:

verizon

PREPARED BY:
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VISUAL ASSESSMENT & PHOTO-SIMULATIONS

Cellco Partnership, d/b/a Verizon Wireless ("Verizon Wireless") is seeking approval for the development of a new wireless communications facility (the "Facility") at 11 Chamberlain Road in the Broad Brook section of East Windsor, Connecticut (the "Host Property"). All-Points Technology Corporation, P.C. ("APT") completed this assessment to evaluate the potential visual effects of the proposed Facility from within a two-mile radius (the "Study Area"). The Study Area also includes a portion of the neighboring municipality of Ellington to the east.

Project Setting

The Host Property is a ±10.9-acre parcel that is developed with numerous structures associated with an agricultural product distribution business. A water tank hosts multiple wireless service providers, including Verizon Wireless antennas and appurtenances. A rail line abuts the western property boundary, with a gravel pit beyond. The Gravel Pit Solar electric generating facility[1] is under development to the south, across Apothecaries Hall Road. Residential development is located farther to the north, east, and west.

The topography within the Study Area consists of relatively level terrain. Ground elevations range from approximately 20 feet above mean sea level ("AMSL") approximately 2 miles southwest of the Site to approximately 309 feet AMSL approximately 2 miles southeast of the Site. Tree cover within the Study Area (consisting of mixed deciduous hardwoods and conifers) occupies approximately 3,770 acres (or ±46.87%) of the 8,042-acre Study Area.

Project Undertaking

Based on information contained in CT Siting Council Tech Report Drawings (prepared by Centek Engineering, dated April 14, 2023), the proposed Facility would be located in the northeastern portion of the Host Property (the "Site") within a wooded area at a ground elevation of approximately 177 feet AMSL. The Facility would include a 120-foot-tall monopole enclosed within an approximately 50-foot by 50-foot gravel-based compound surrounded by an 8-foot-high chain link fence. Associated ground-mounted equipment would be placed within the compound. Verizon Wireless would install antennas at a centerline of 115' above ground level ("AGL"). The Facility has been designed to accommodate multiple service providers. Once the Facility is constructed, Verizon Wireless will remove its existing equipment from the water tank, which is of similar height as the proposed monopole and separated by approximately 600 feet.

[1] The Gravel Pit Solar project was approved by the Connecticut Siting Council in Docket No. 492 (Decision, 3/1/21).

Methodology

APT used the combination of a predictive computer model, in-field analysis, and a review of various data sources to evaluate the visibility associated with the proposed Facility on both a quantitative and qualitative basis. The predictive model provides a measurable assessment of visibility throughout the entire Study Area, including private properties and other areas inaccessible for direct observations. The in-field analysis consisted of a balloon float and field reconnaissance of the Study Area to record existing conditions, verify results of the model, inventory areas of visibility, and provide photographic documentation from publicly accessible areas. A description of the procedures used in the analysis is provided below.

Preliminary Computer Modeling

To conduct this assessment, a predictive computer model was developed specifically for this project using ESRI's ArcMap GIS[2] software and available GIS data. The predictive model incorporates Project- and Study Area-specific data, including the Site location, its ground elevation and the proposed Facility height, as well as the surrounding topography, existing vegetation, and structures (the primary features that can block direct lines of sight).

A digital surface model ("DSM"), capturing both the natural and built features on the Earth's surface, was generated for the extent of the Study Area utilizing State of Connecticut 2016 LiDAR[3] LAS[4] data points. LiDAR is a remote-sensing technology that develops elevation data by measuring the time it takes for laser light to return from the surface to the instrument's sensors. The varying reflectivity of objects also means that the "returns" can be classified based on the characteristics of the reflected light, normally into categories such as "bare earth," "vegetation," "road," "surface water" or "building." Derived from the 2016 LiDAR data, the LAS datasets contain the corresponding elevation point data and return classification values. The Study Area DSM incorporates the first return LAS dataset values that are associated with the highest feature in the landscape, typically a treetop, top of a building, and/or the highest point of other tall structures.

Once the DSM was generated, ESRI's Viewshed Tool was utilized to identify locations within the Study Area where the proposed Facility may be visible. ESRI's Viewshed Tool predicts visibility by identifying those cells[5] within the DSM that can be seen from an observer location. Cells where visibility was indicated were extracted and converted from a raster dataset to a polygon feature which was then overlaid onto aerial photograph and topographic base maps. Since the

[2] ArcMap is a Geographic Information System desktop application developed by the Environmental Systems Research Institute for creating maps, performing spatial analysis, and managing geographic data.

[3] Light Detection and Ranging

[4] An LAS file is an industry-standard binary format for storing airborne LiDAR data.

[5] Each DSM cell size is 1 square meter.

DSM includes the highest relative feature in the landscape, isolated "visible" cells are often indicated within heavily forested areas (e.g., from the top of the highest tree) or on building rooftops during the initial processing. It is recognized that these areas do not represent typical viewer locations and overstate visibility. As such, the resulting polygon feature is further refined by extracting those areas. The viewshed results are also cross-checked against the most current aerial photographs to assess whether significant changes (a new housing development, for example) have occurred since the time the LiDAR-based LAS datasets were captured.

The results of the preliminary analysis are intended to provide a representation of those areas where portions of the Facility may potentially be visible to the human eye without the aid of magnification, based on a viewer eye-height of five (5) feet above the ground and the combination of intervening topography, trees and other vegetation, and structures. However, the Facility may not necessarily be visible from all locations within those areas identified by the predictive model, which has its limitations. For instance, the computer model cannot account for mass density, tree diameters and branching variability of trees, or the degradation of views that occurs with distance. As a result, some areas depicted on the viewshed maps as theoretically offering potential visibility of the Facility may be over-predictive because the quality of those views is not sufficient for the human eye to recognize the Facility or discriminate it from other surrounding or intervening objects.

Seasonal Visibility

Visibility also varies seasonally with increased, albeit obstructed, views occurring during "leaf-off" conditions. Beyond the variabilities associated with density of woodland stands found within any given Study Area, each individual tree also has its own unique trunk, pole timber and branching patterns that provide varying degrees of screening in leafless conditions which, as introduced above, cannot be precisely modeled. Seasonal visibility is therefore estimated based on a combination of factors including the type, size, and density of trees within a given area; topographic constraints; and other visual obstructions that may be present. Considering these dynamics, areas depicting seasonal visibility on the viewshed maps are intended to represent locations from where there is a potential for views through intervening trees, as opposed to indicating that leaf-off views will exist from within an entire seasonally-shaded area.

Balloon Test and Field Reconnaissance

To supplement the results of the computer modeling efforts, APT completed in-field verification activities consisting of a balloon test, vehicular and pedestrian reconnaissance, and photo-documentation. The balloon test consisted of raising a brightly-colored (red), approximately 4-

foot diameter, helium-filled balloon tethered to a string height of ±120 feet AGL[6] at the proposed Site. Weather conditions were favorable for the in-field activities with calm winds and sunny skies. APT conducted a field reconnaissance by driving along roads and other publicly accessible locations within the Study Area to document and inventory where the balloon could be seen. The balloon test and field reconnaissance were completed on May 18, 2022, during leaf-on conditions.[7]

Photographic Documentation and Simulations

Visual observations from the reconnaissance were used to evaluate the results of the preliminary visibility mapping, including identifying any overt discrepancies in the initial modeling, and to obtain photo-documentation from representative locations within the Study Area. Photographs were taken with a Canon EOS 6D digital camera body[8] and Canon EF 24 to 105 millimeter ("mm") zoom lens. The coordinates of the proposed tower location were entered as a "waypoint" into a handheld global positioning system ("GPS") device, with the "find" tool on the GPS unit then used to provide the distance and orientation to the balloon position. The geographic coordinates of each photo location were recorded as meta data using GPS technology internal to the camera.

APT typically uses a standard focal length of 50 mm to present a consistent field of view. On occasion, photos are taken at lower focal lengths to provide a greater depth of field and to provide context to the scene by including surrounding features within the photograph. During this evaluation, five (5) photographs presented in the attached photo-documentation were taken at a 35 mm focal length and seven (7) photographs were taken at a 24 mm focal length, as noted in Table 1 – Photo Locations (provided as an attachment to this report).

Photographic simulations were generated to portray scaled renderings of the proposed Facility from 14 locations presented herein where the Facility will be recognizable above the trees. Using field data, site plan information and 3-dimensional (3D) modeling software, spatially referenced models of the Site and Facility were generated and merged. The geographic coordinates obtained in the field for the photograph locations were incorporated into the model to produce virtual camera positions within the spatial 3D model. Photo-simulations were then created using a combination of renderings generated in the 3D model and photo-rendering software programs, which were ultimately composited and merged with the existing conditions photographs (using Adobe Photoshop image editing software). The scale of the subjects in the

[6] The bottom of the balloon represented the top of the monopole.

[7] The field reconnaissance occurred after leaves were on the deciduous trees; therefore, seasonal views could not be photo-documented as part of this evaluation.

[8] The Canon EOS 6D is a full-framed camera which includes a lens receptor of the same size as the film used in 35 mm cameras. As such, the images produced are comparable to those taken with a conventional 35 mm camera.

photograph (the balloon) and the corresponding simulation (the Facility) is proportional to their surroundings.

For presentation purposes in this report, the photographs were produced in an approximate 7-inch by 10.5-inch format. When reproducing the images in this format size, we believe it is important to present the largest view while providing key contextual landscape elements (existing developments, street signs, utility poles, etc.) so that the viewer can determine the proportionate scale of each object within the scene. Photo-documentation of the field reconnaissance and photo-simulations of the proposed Facility are presented in the attachment at the end of this report. The field reconnaissance photos that include the balloon in the view provide visual reference points for the approximate height and location of the proposed Facility relative to the scene. The corresponding photo-simulations depict the proposed monopole and antennas. The photo-simulations are intended to provide the reader with a general understanding of the different view characteristics associated with the Facility from various locations. Photographs were taken from publicly accessible areas and unobstructed view lines were chosen wherever possible.

Table 1 – Photo Locations summarizes the photographs and simulations presented in the attachment to this report, and includes a description of each location, view orientation, distance from where the photo was taken relative to the Site, and the general characteristics of the view. The photo locations are depicted on the photolog and viewshed maps provided as attachments to this report.

Final Visibility Mapping

Information obtained during the field reconnaissance was incorporated into the mapping data layers, including observations of the field reconnaissance, the photograph locations, areas that experienced recent land use changes and those places where the initial model was found to over or under-predict visibility. Once the additional data was integrated into the model, APT recalculated the visibility of the proposed Facility within the Study Area.

Conclusions

As presented on the attached viewshed maps, year-round visibility will generally occur in open fields within 1 mile of the Site. Photos 20, 21, 23, and 28 depict representative year-round views of the Facility. Seasonal visibility is expected to extend no more than 1 mile from the Site.

The combined predicted visibility associated with the proposed Facility totals ±354 acres, or ±4.4% of the 8,042-acre Study Area. Seasonal visibility (±276 acres) accounts for

approximately 78% of predicted visibility. Overall, the results of this analysis demonstrate that visibility of the Facility is expected over a small portion of the Study Area.

Proximity to Schools And Commercial Child Day Care Centers

No schools or commercial child day care centers are located within 250 feet of the proposed Facility. Broad Brook Elementary School is approximately 0.8-mile north/northeast of the Site at 14 Rye Street in Broad Brook. The closest Commercial Child Day Care Centers are the Work & Play School located at 20 Phelps Road in East Windsor and Cyd's Kids Family Child Care located at 465 Niederwerfer Road in South Windsor, both approximately 2.8 miles from the Site to the west and southeast, respectively. The Facility will not be visible from any of these locations.

Limitations

The viewshed maps presented in the attachment to this report depict areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of five (5) feet above the ground and intervening topography, tree canopy, and structures. This analysis may not account for all visible locations, as it is based on the combination of computer modeling, incorporating aerial photographs, and in-field observations from publicly accessible locations. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.

The photo-simulations provide a representation of the Facility under similar settings as those encountered during the field review and reconnaissance. Views of the Facility can change throughout the seasons and the time of day, and are dependent on weather and other atmospheric conditions (e.g., haze, fog, clouds); the location, angle, and intensity of the sun; and the specific viewer location. Weather conditions on the day of the field review included calm winds and sunny skies.

ATTACHMENTS

Table 1 - Photo Locations

Photo	Location	Orientation	Distance	Visibility
1	APOTHECARIES HALL ROAD	NE	+/- 0.37 MILE	NOT VISIBLE
2	APOTHECARIES HALL ROAD*	NNE	+/- 0.28 MILE	NOT VISIBLE
3	APOTHECARIES HALL ROAD	NNE	+/- 0.26 MILE	VISIBLE
4	APOTHECARIES HALL ROAD	N	+/- 0.24 MILE	VISIBLE
5	APOTHECARIES HALL ROAD*	NNW	+/- 0.25 MILE	NOT VISIBLE
6	APOTHECARIES HALL ROAD**	NNW	+/- 0.33 MILE	NOT VISIBLE
7	APOTHECARIES HALL ROAD	NW	+/- 0.49 MILE	VISIBLE
8	APOTHECARIES HALL ROAD*	NW	+/- 0.50 MILE	NOT VISIBLE
9	WINDSORVILLE ROAD**	WNW	+/- 0.49 MILE	NOT VISIBLE
10	WINDSORVILLE ROAD**	W	+/- 0.50 MILE	NOT VISIBLE
11	CHAMBERLAIN ROAD**	WSW	+/- 0.84 MILE	NOT VISIBLE
12	CHAMBERLAIN ROAD	WSW	+/- 0.68 MILE	VISIBLE
13	WINDSORVILLE ROAD**	SW	+/- 0.56 MILE	NOT VISIBLE
14	WINDSORVILLE ROAD	SW	+/- 0.55 MILE	VISIBLE
15	WINDSORVILLE ROAD AT CHAMBERLAIN ROAD	WSW	+/- 0.50 MILE	VISIBLE
16	COBBLESTONE DRIVE**	W	+/- 0.40 MILE	VISIBLE
17	COBBLESTONE DRIVE AT CHAMBERLAIN ROAD	WSW	+/- 0.41 MILE	NOT VISIBLE
18	CHAMBERLAIN ROAD	WSW	+/- 0.27 MILE	VISIBLE
19	CHAMBERLAIN ROAD**	W	+/- 0.24 MILE	NOT VISIBLE
20	CHAMBERLAIN ROAD*	W	+/- 0.14 MILE	VISIBLE
21	CHAMBERLAIN ROAD*	NNE	+/- 0.13 MILE	VISIBLE
22	RYE STREET	ESE	+/- 0.27 MILE	NOT VISIBLE
23	RYE STREET	SE	+/- 0.25 MILE	VISIBLE

**Photograph was taken at 35 mm focal length.*
***Photograph was taken at 24 mm focal length.*

Table 1 - Photo Locations Continued

Photo	Location	Orientation	Distance	Visibility
24	ST. CATHERINE CEMETERY	SSE	+/- 0.42 MILE	NOT VISIBLE
25	RYE STREET	SSW	+/- 0.71 MILE	NOT VISIBLE
26	WINDSORVILLE ROAD	SSW	+/- 0.94 MILE	NOT VISIBLE
27	STILES ROAD AT OLD ELLINGTON ROAD	SSE	+/- 0.81 MILE	NOT VISIBLE
28	OLD ELLINGTON ROAD AT NORTON ROAD	SSE	+/- 0.86 MILE	VISIBLE
29	NORTON ROAD	SSE	+/- 0.85 MILE	NOT VISIBLE
30	NORTON ROAD	SSE	+/- 0.61 MILE	NOT VISIBLE
31	NORTON ROAD	SE	+/- 0.46 MILE	VISIBLE
32	NORTON ROAD AT HAYFIELD LANE	SE	+/- 0.42 MILE	VISIBLE

**Photograph was taken at 35 mm focal length.*
***Photograph was taken at 24 mm focal length.*

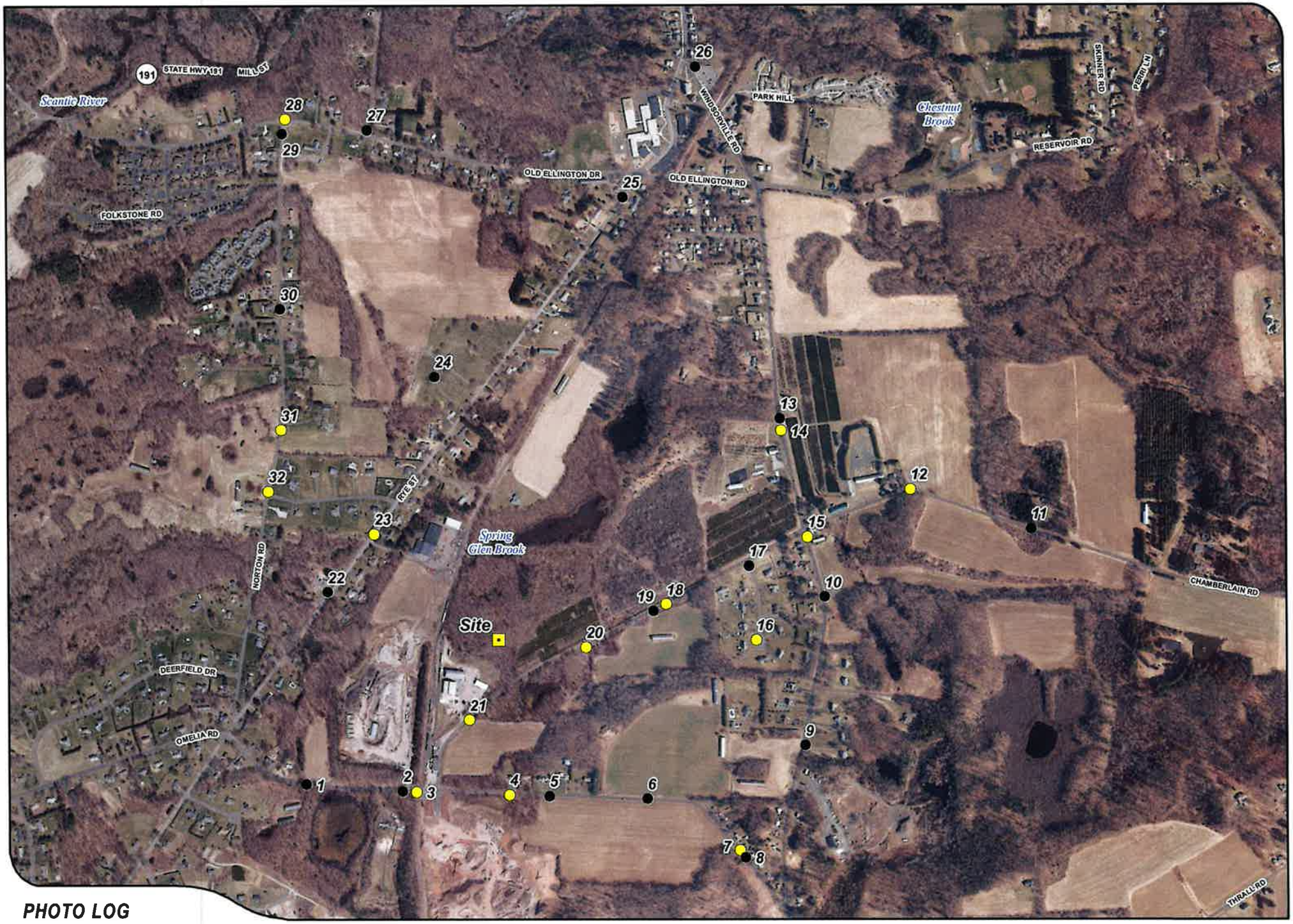


PHOTO LOG

Legend

Site ● Not Visible ○ Visible

N
W E

1 inch = 1,000 feet

1,000 500 0 1,000

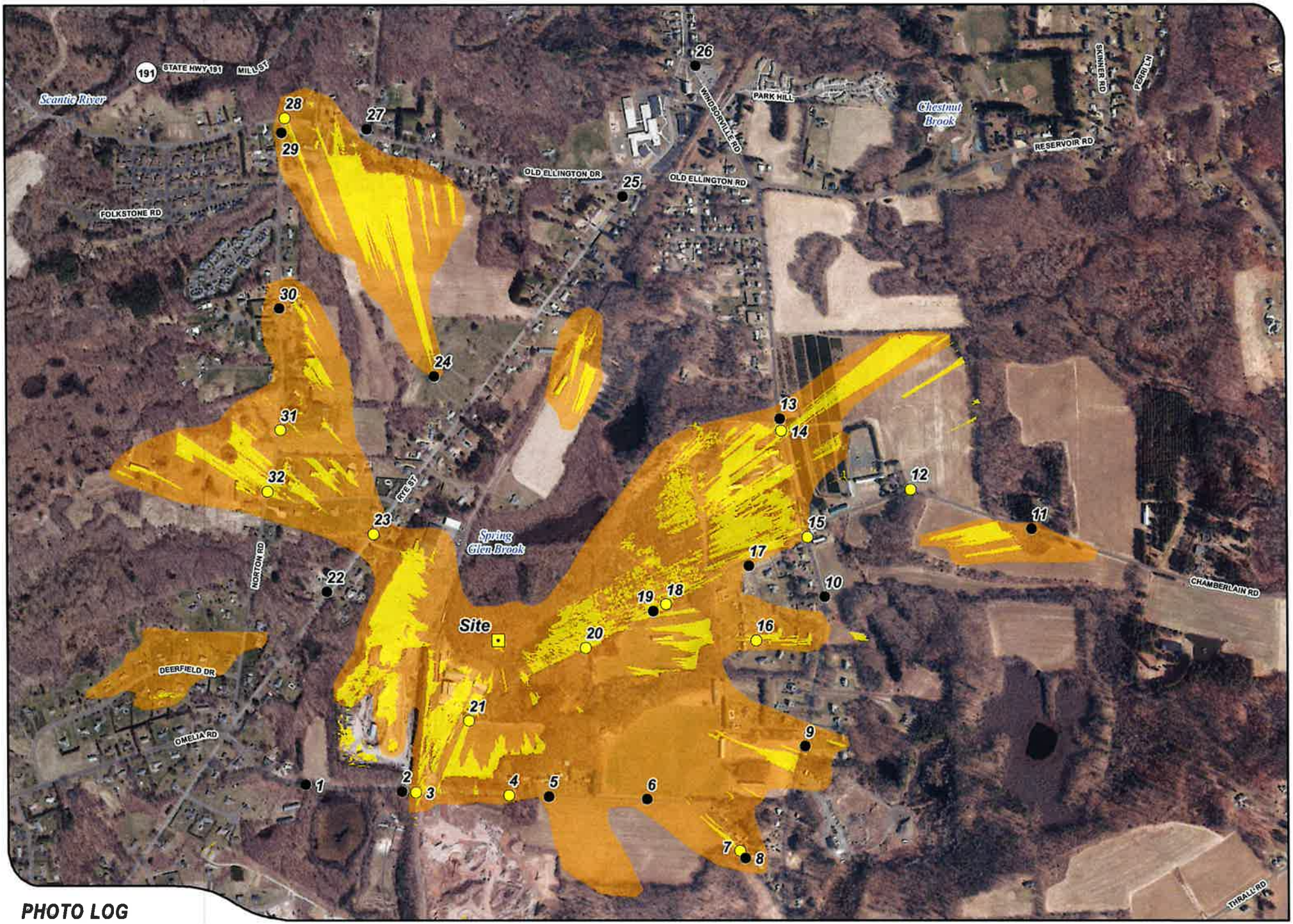


PHOTO LOG

Legend

- Site
- Not Visible
- *Predicted Year-Round Visibility
- *Areas of Potential Seasonal Visibility

*Visibility layers obtained from viewshed analysis mapping contained in this document

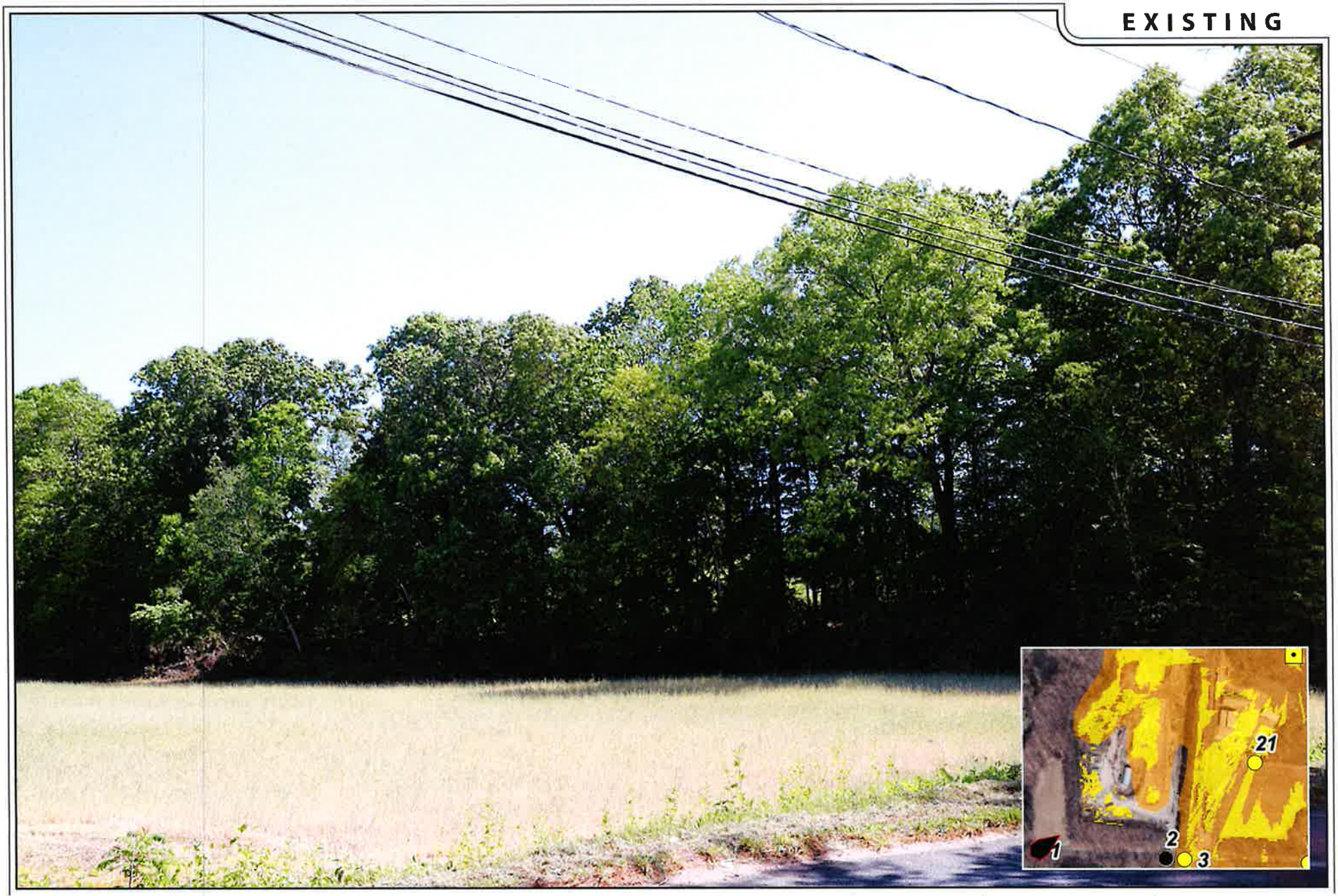
N
W E

1 inch = 1,000 feet

1,000 500 0 1,000

verizon

EXISTING



PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	**APOTHECARIES HALL ROAD**	**NE**	**+/- 0.37 MILE**	**NOT VISIBLE**

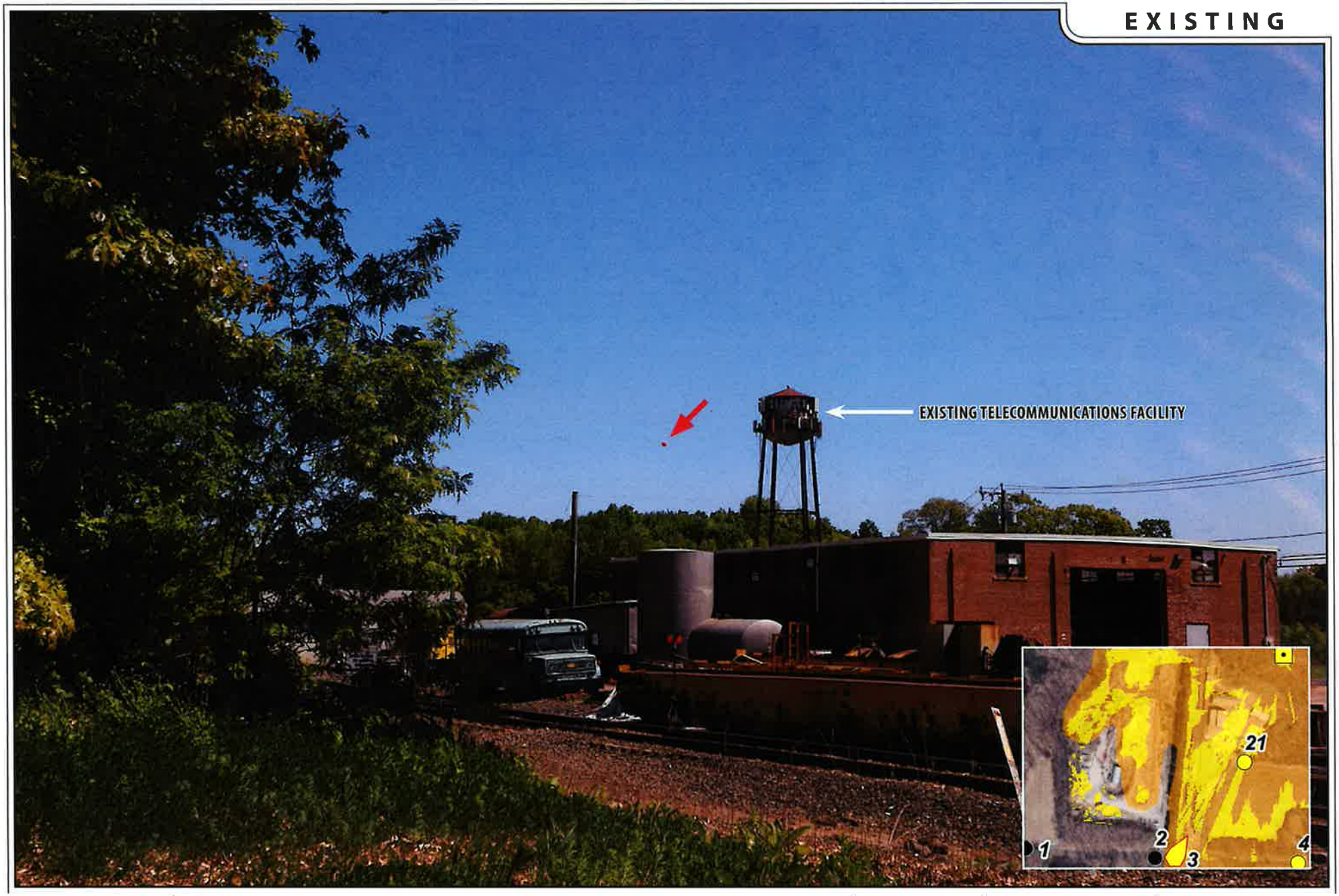
EXISTING

35mm Focal Length

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	APOTHECARIES HALL ROAD	NNE	+/- 0.28 MILE	NOT VISIBLE

EXISTING



PHOTOGRAPHED ON 5/19/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**APOTHECARIES HALL ROAD**	**NNE**	**+/- 0.26 MILE**	**VISIBLE**

PROPOSED

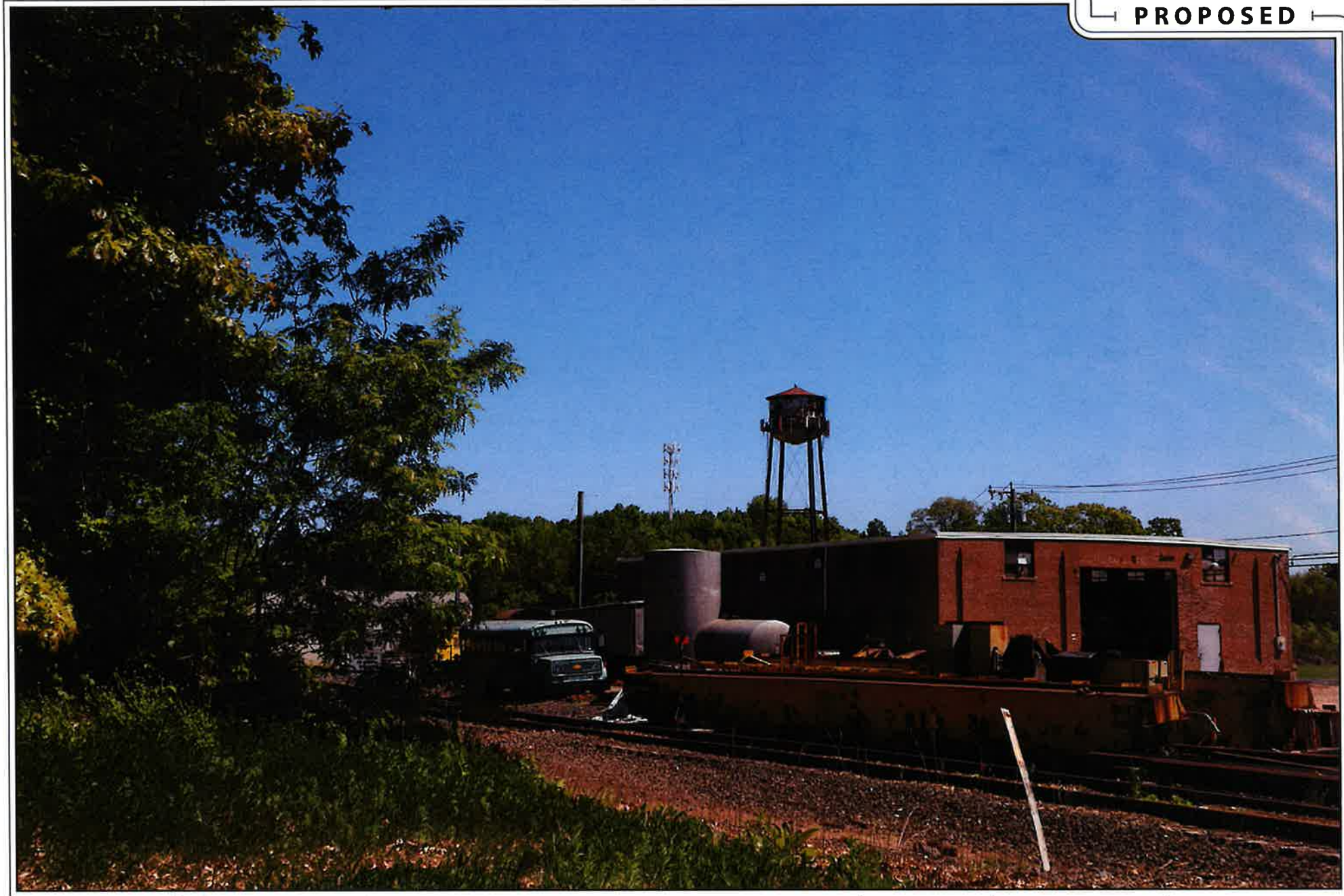
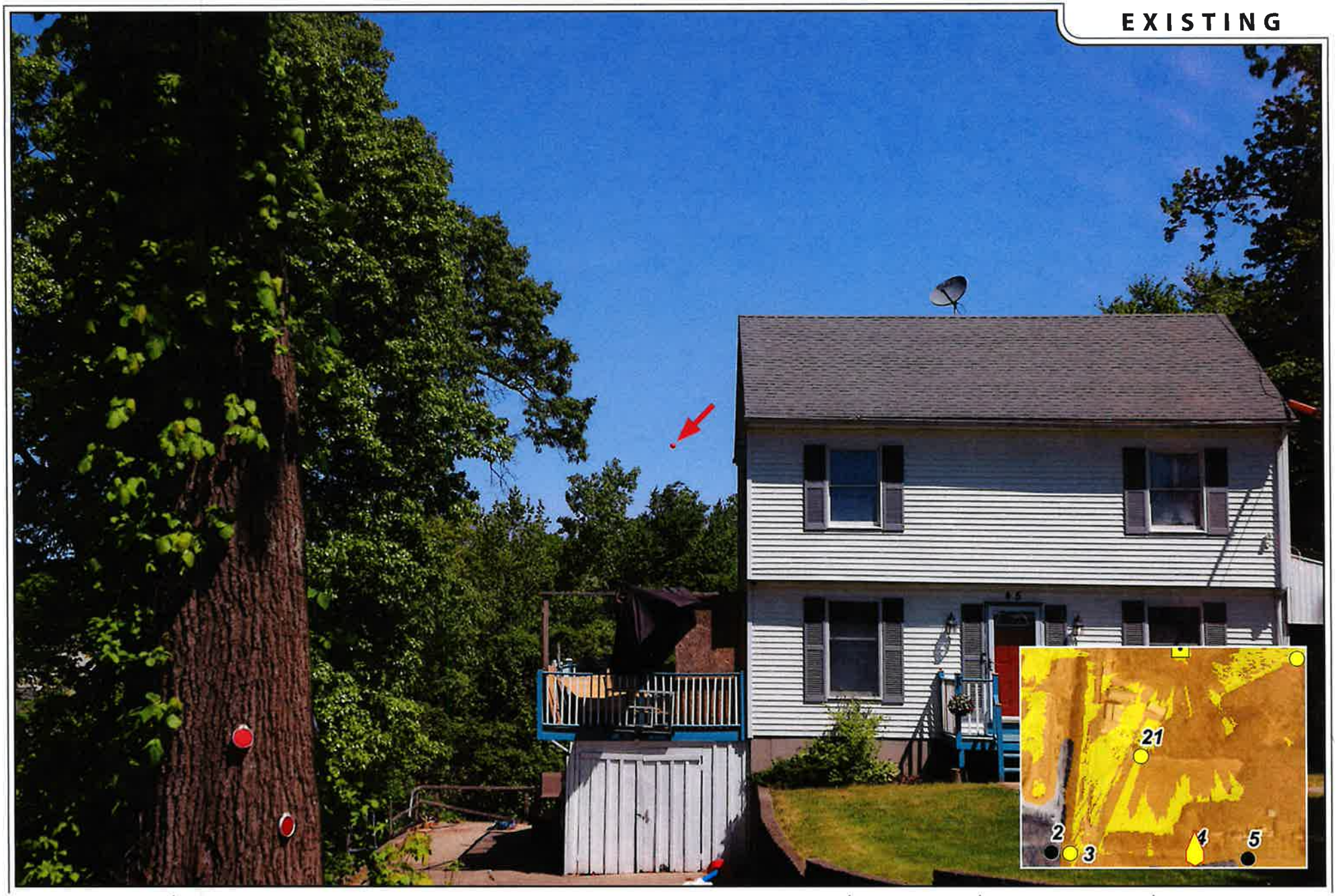


PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	APOTHECARIES HALL ROAD	NNE	+/- 0.26 MILE	VISIBLE

EXISTING



PHOTOGRAPHED ON 5/19/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	APOTHECARIES HALL ROAD	N	+/- 0.24 MILE	VISIBLE

PROPOSED

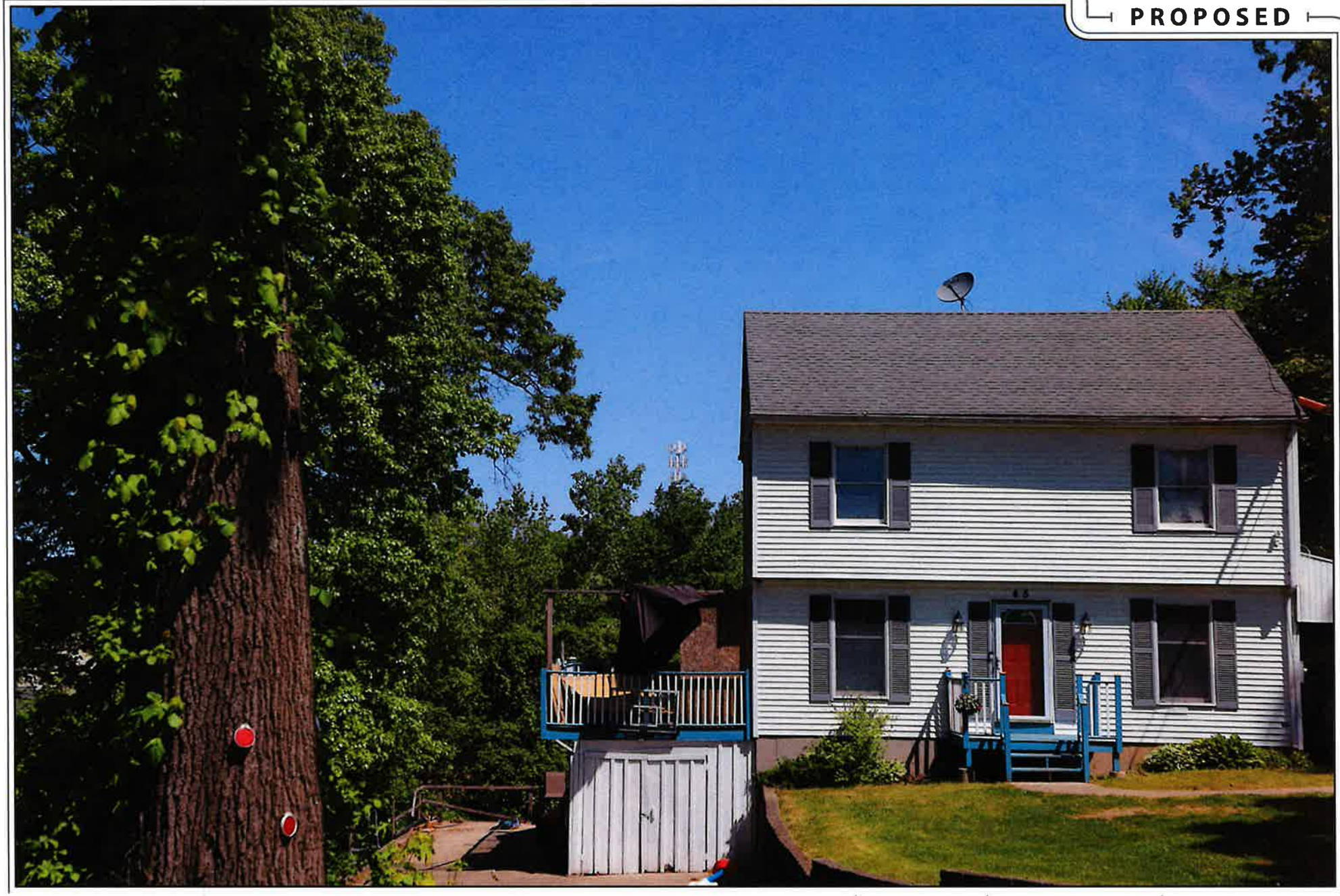


PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	**APOTHECARIES HALL ROAD**	**N**	**+/- 0.24 MILE**	**VISIBLE**

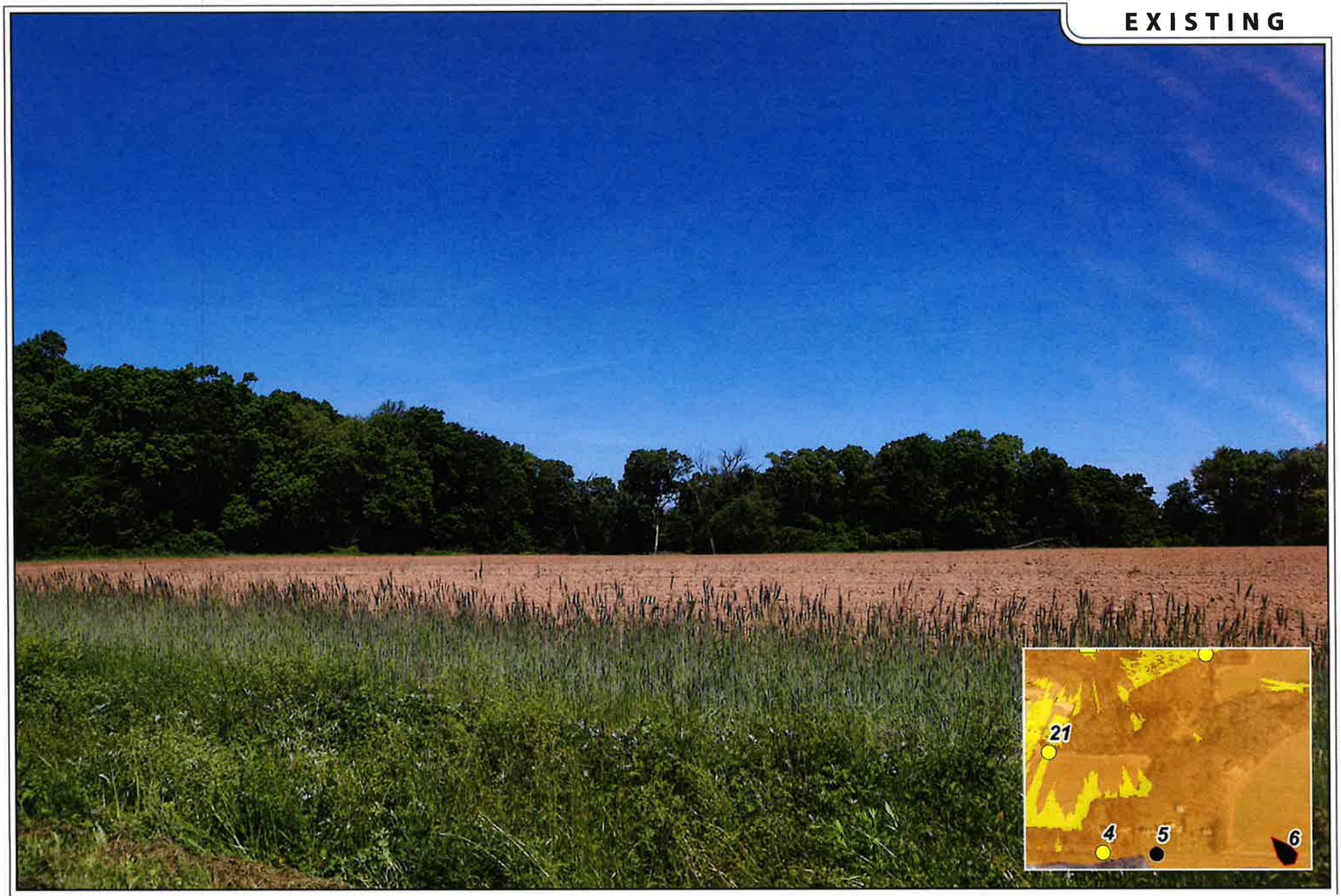
EXISTING

PHOTOGRAPHED ON 5/18/2023

35mm Focal Length

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	APOTHECARIES HALL ROAD	NNW	+/- 0.25 MILE	NOT VISIBLE

EXISTING



PHOTOGRAPHED ON 5/18/2023 24mm Focal Length

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	APOTHECARIES HALL ROAD	NNW	+/- 0.33 MILE	NOT VISIBLE

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	APOTHECARIES HALL ROAD	NW	+/- 0.49 MILE	VISIBLE

PROPOSED

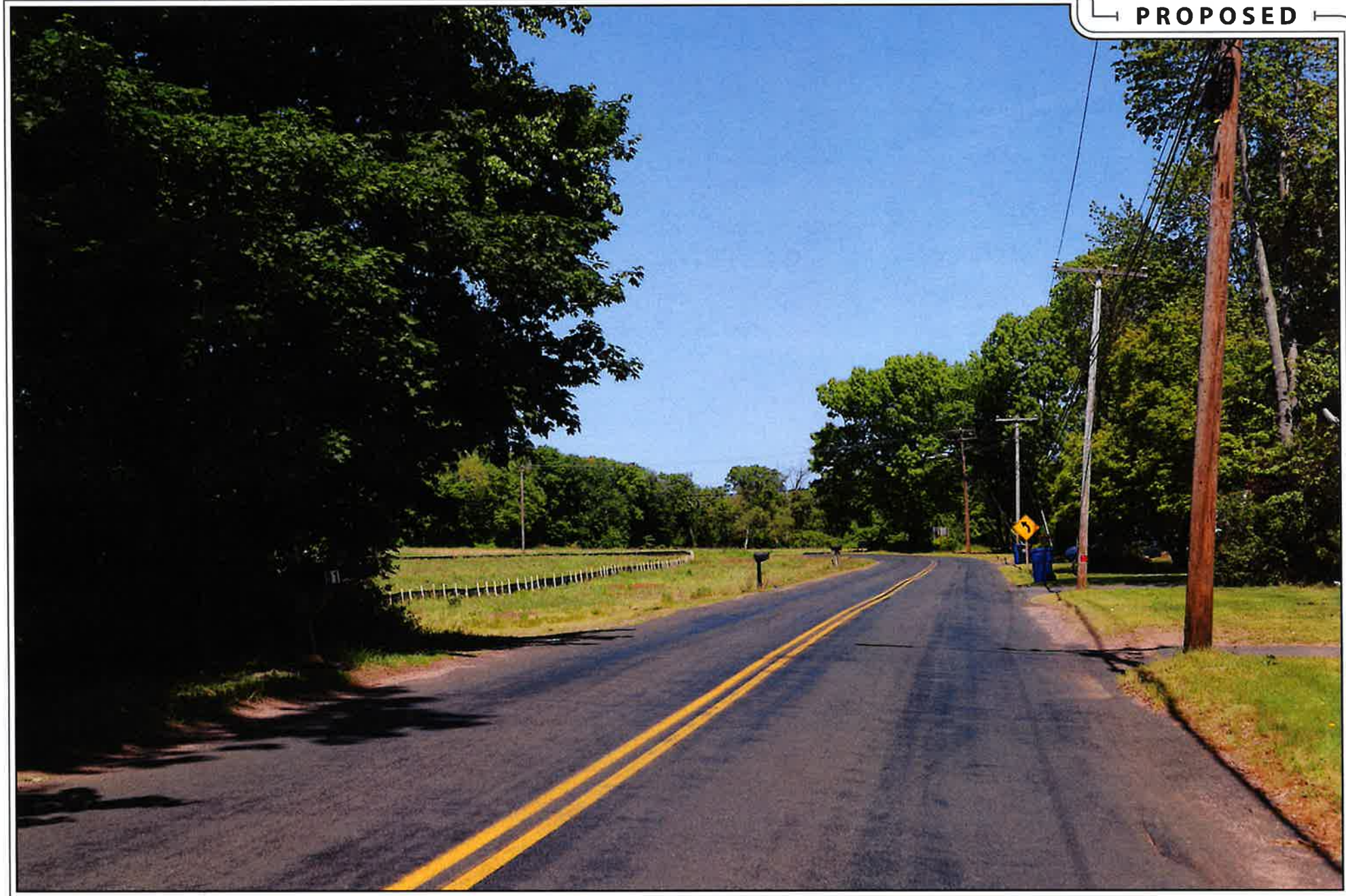
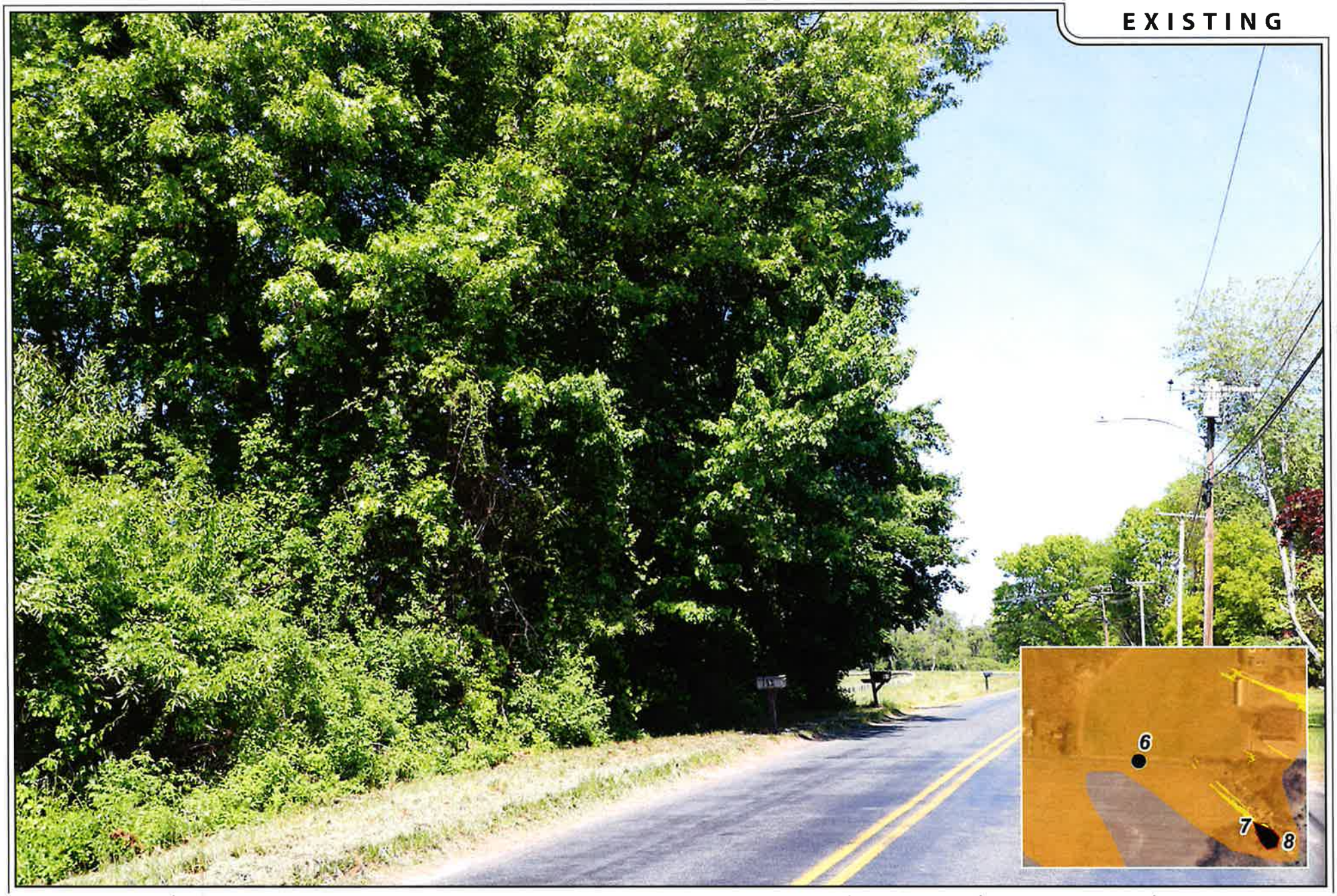


PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	APOTHECARIES HALL ROAD	NW	+/- 0.49 MILE	VISIBLE

EXISTING

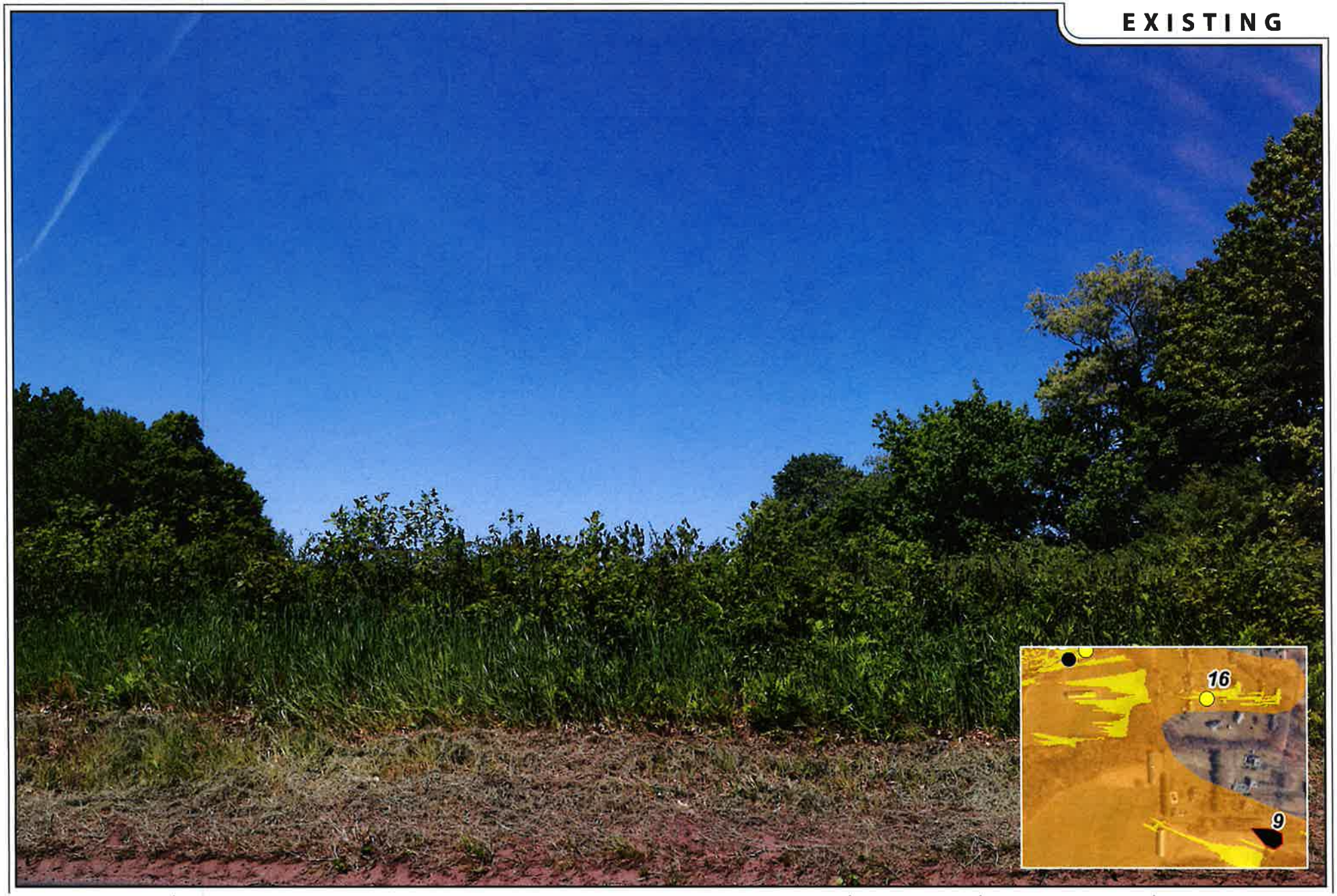


PHOTOGRAPHED ON 5/18/2023

35mm Focal Length

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	APOTHECARIES HALL ROAD	NW	+/- 0.50 MILE	NOT VISIBLE

EXISTING



PHOTOGRAPHED ON 5/18/2023

24mm Focal Length

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	WINDSORVILLE ROAD	WNW	+/- 0.49 MILE	NOT VISIBLE

EXISTING

PHOTOGRAPHED ON 5/18/2023

24mm Focal Length

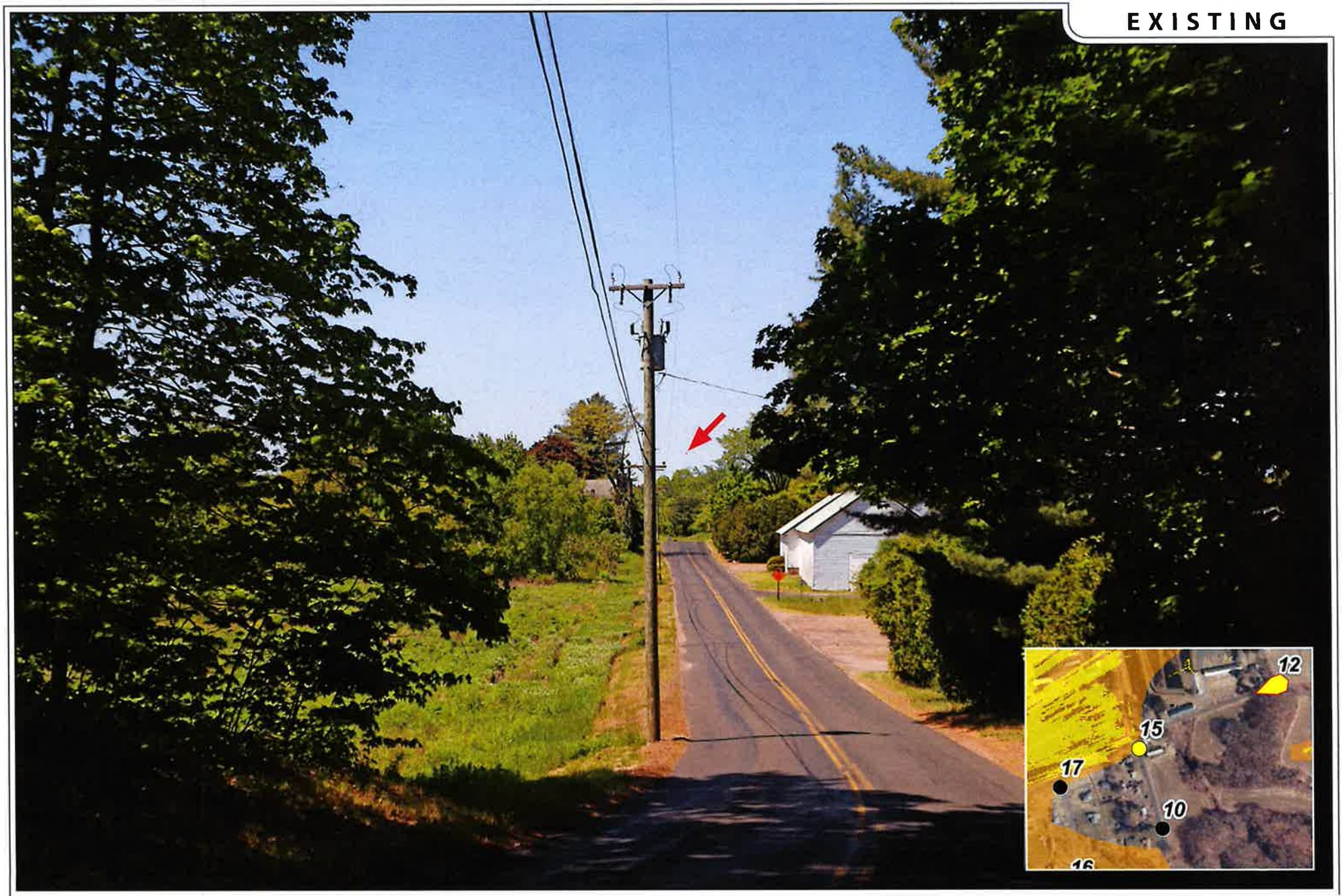
PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	**WINDSORVILLE ROAD**	**W**	**+/- 0.50 MILE**	**NOT VISIBLE**

EXISTING

PHOTOGRAPHED ON 5/18/2023 24mm Focal Length

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	CHAMBERLAIN ROAD	WSW	+/- 0.84 MILE	NOT VISIBLE

EXISTING



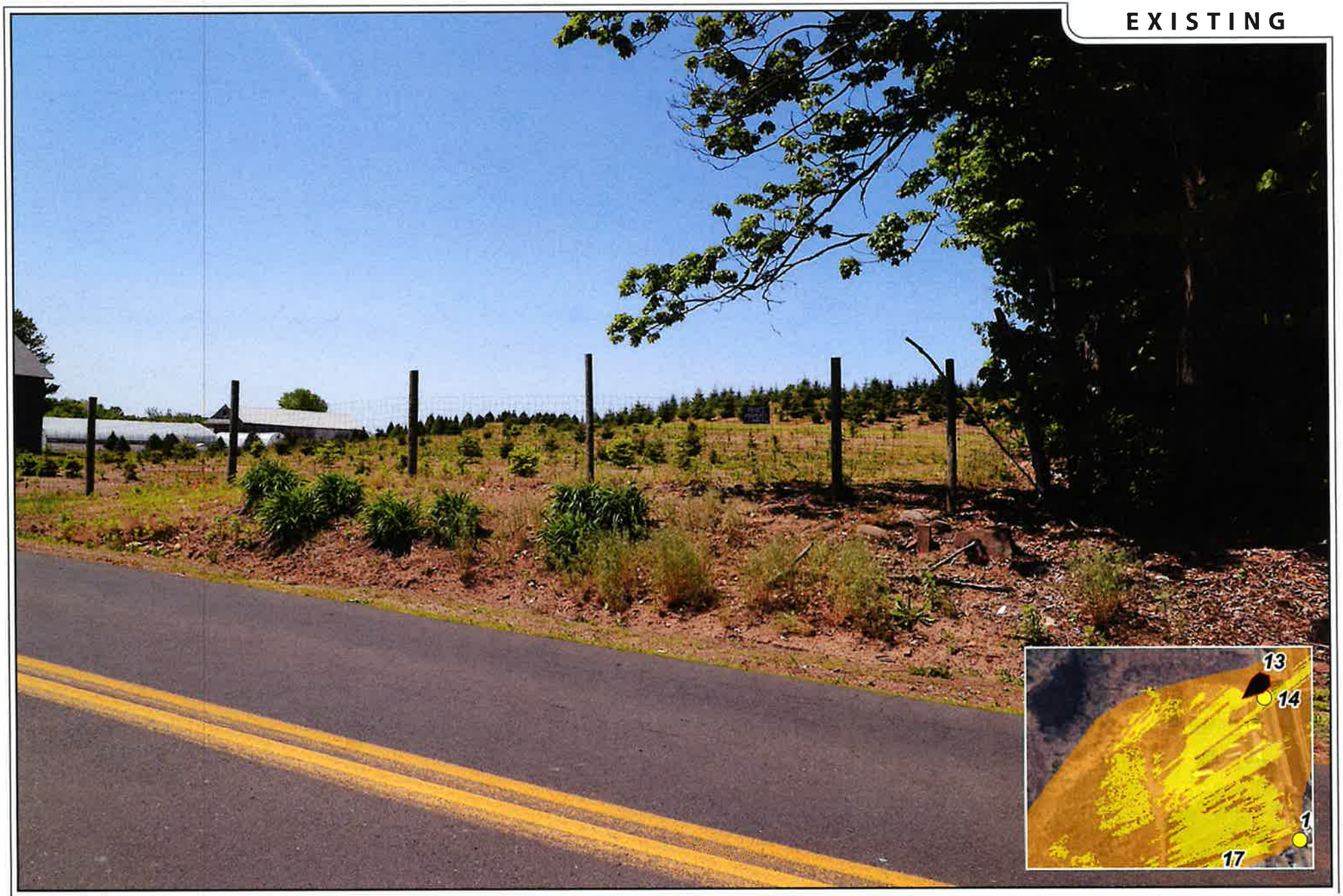
PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	CHAMBERLAIN ROAD	WSW	+/- 0.68 MILE	VISIBLE

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	CHAMBERLAIN ROAD	WSW	+/- 0.68 MILE	VISIBLE

EXISTING



PHOTOGRAPHED ON 5/18/2023

24mm Focal Length

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	**WINDSORVILLE ROAD**	**SW**	**+/- 0.56 MILE**	**NOT VISIBLE**

EXISTING

PHOTOGRAPHED ON 5/8/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	WINDSORVILLE ROAD	SW	+/- 0.55 MILE	VISIBLE

PROPOSED

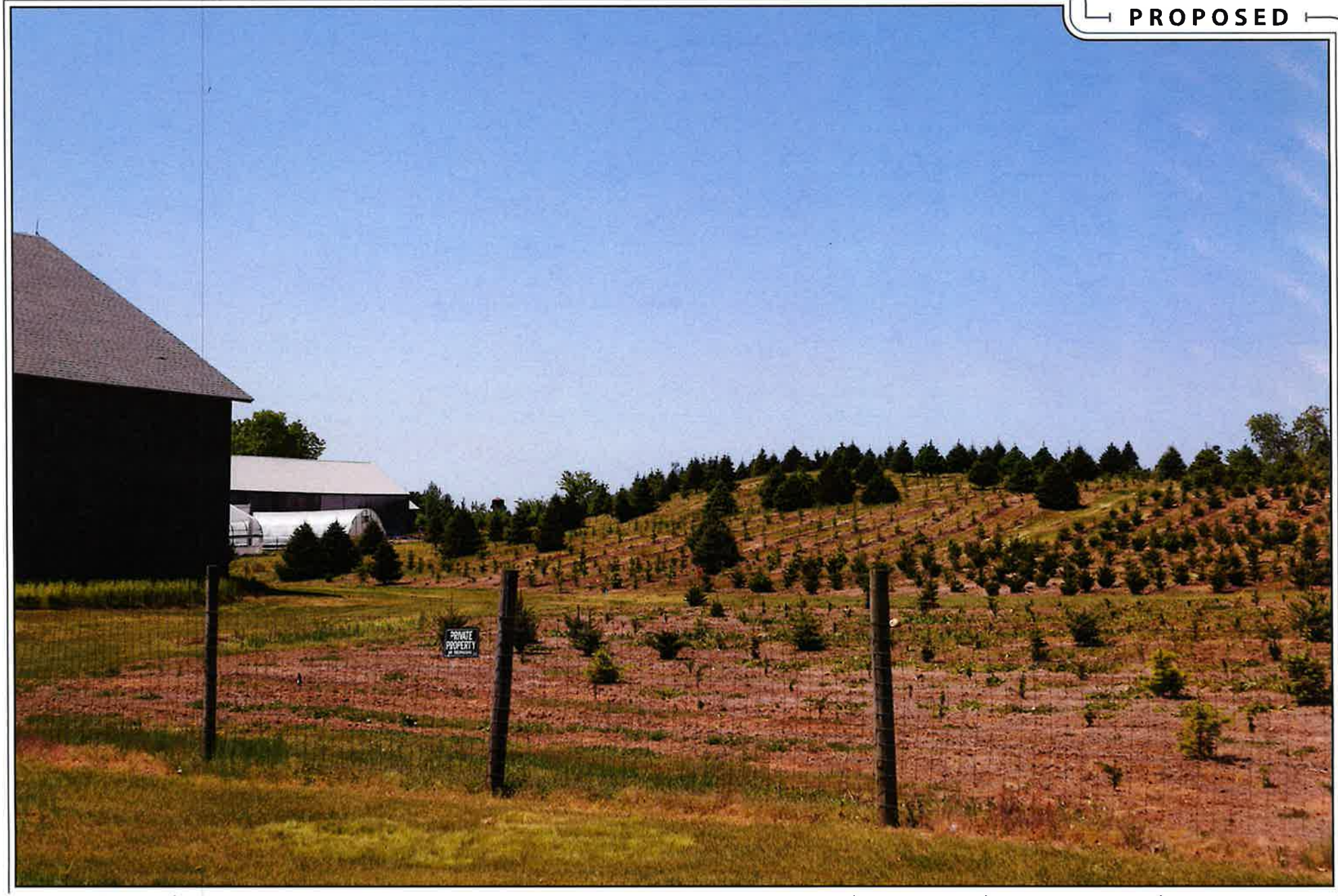


PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	**WINDSORVILLE ROAD**	**SW**	**+/- 0.55 MILE**	**VISIBLE**

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
15	WINDSORVILLE ROAD AT CHAMBERLAIN ROAD	WSW	+/- 0.50 MILE	VISIBLE

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
15	WINDSORVILLE ROAD AT CHAMBERLAIN ROAD	WSW	+/- 0.50 MILE	VISIBLE

EXISTING

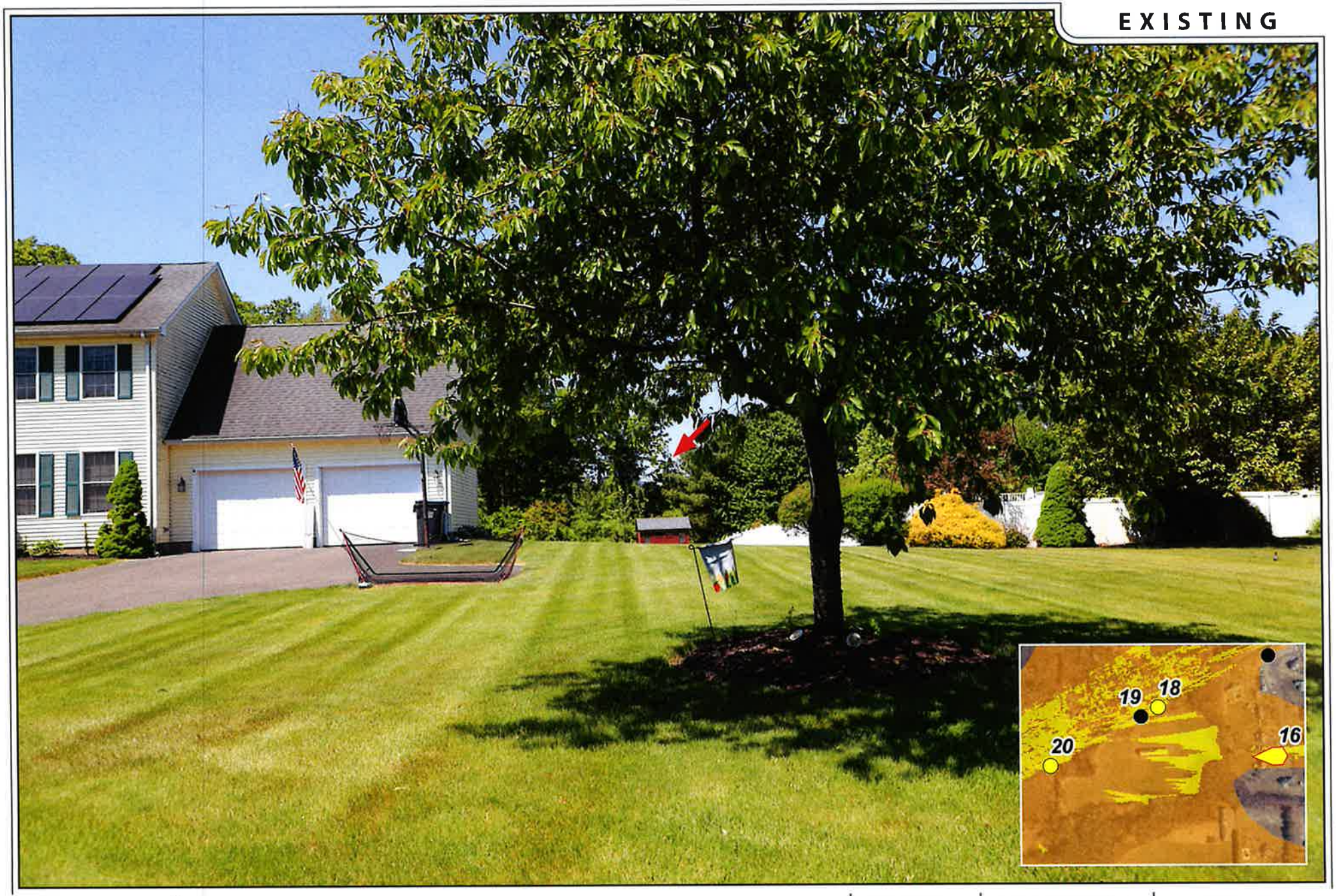


PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	COBBLESTONE DRIVE	W	+/- 0.40 MILE	VISIBLE

PHOTOGRAPHED ON 5/16/2023 24mm Focal Length

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	COBBLESTONE DRIVE	W	+/- 0.40 MILE	VISIBLE

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	COBBLESTONE DRIVE AT CHAMBERLAIN ROAD	WSW	+/- 0.41 MILE	NOT VISIBLE

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	CHAMBERLAIN ROAD	WSW	+/- 0.27 MILE	VISIBLE

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	CHAMBERLAIN ROAD	WSW	+/- 0.27 MILE	VISIBLE

EXISTING

PHOTOGRAPHED ON 5/18/2023 24mm Focal Length

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
19	**CHAMBERLAIN ROAD**	**W**	**+/- 0.24 MILE**	**NOT VISIBLE**

EXISTING

35mm Focal Length

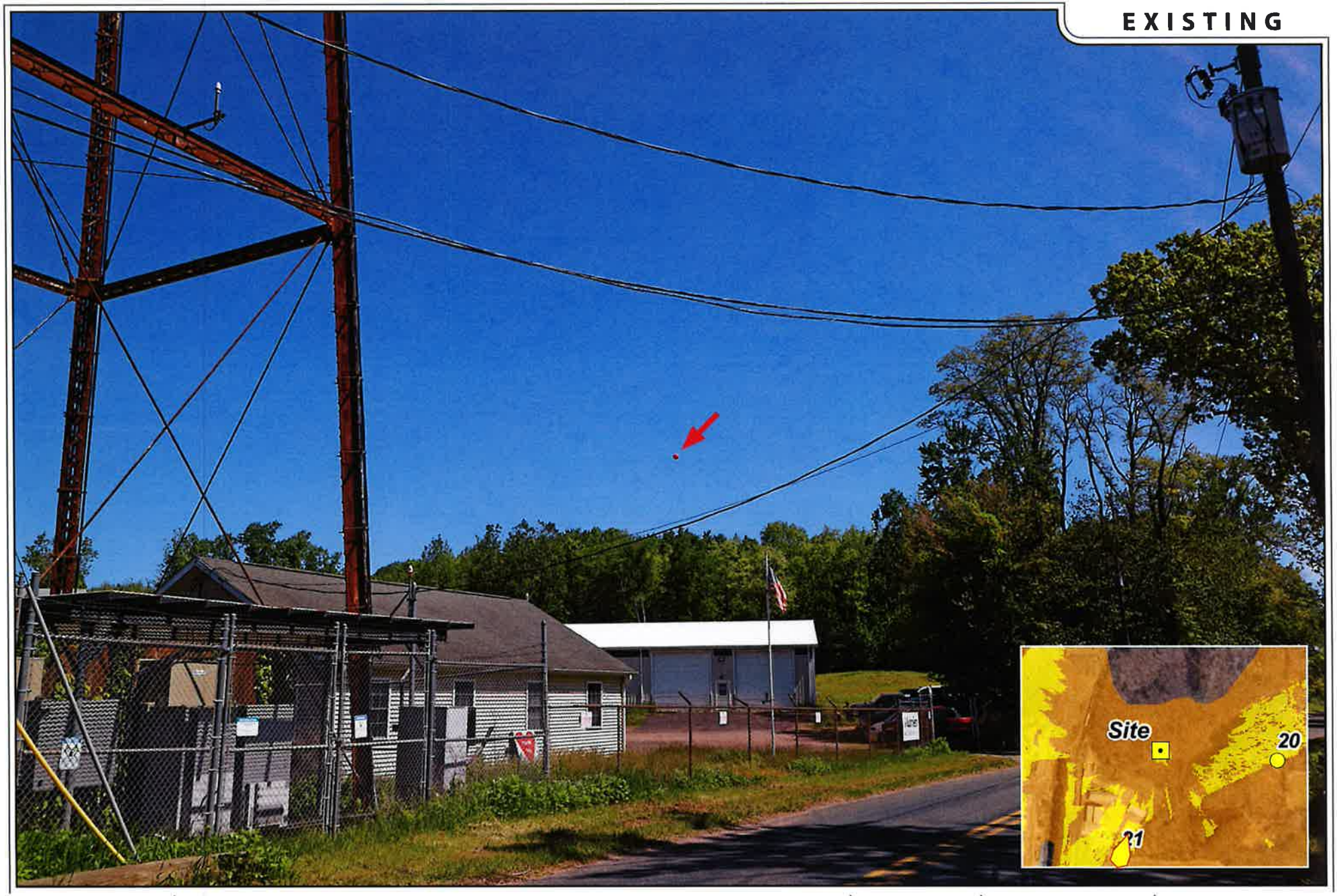
PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
20	CHAMBERLAIN ROAD	W	+/- 0.14 MILE	VISIBLE

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
20	**CHAMBERLAIN ROAD**	**W**	**+/- 0.14 MILE**	**VISIBLE**

EXISTING



PHOTOGRAPHED ON 5/19/2023 35mm Focal Length

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
21	CHAMBERLAIN ROAD	NNE	+/- 0.13 MILE	VISIBLE

PROPOSED

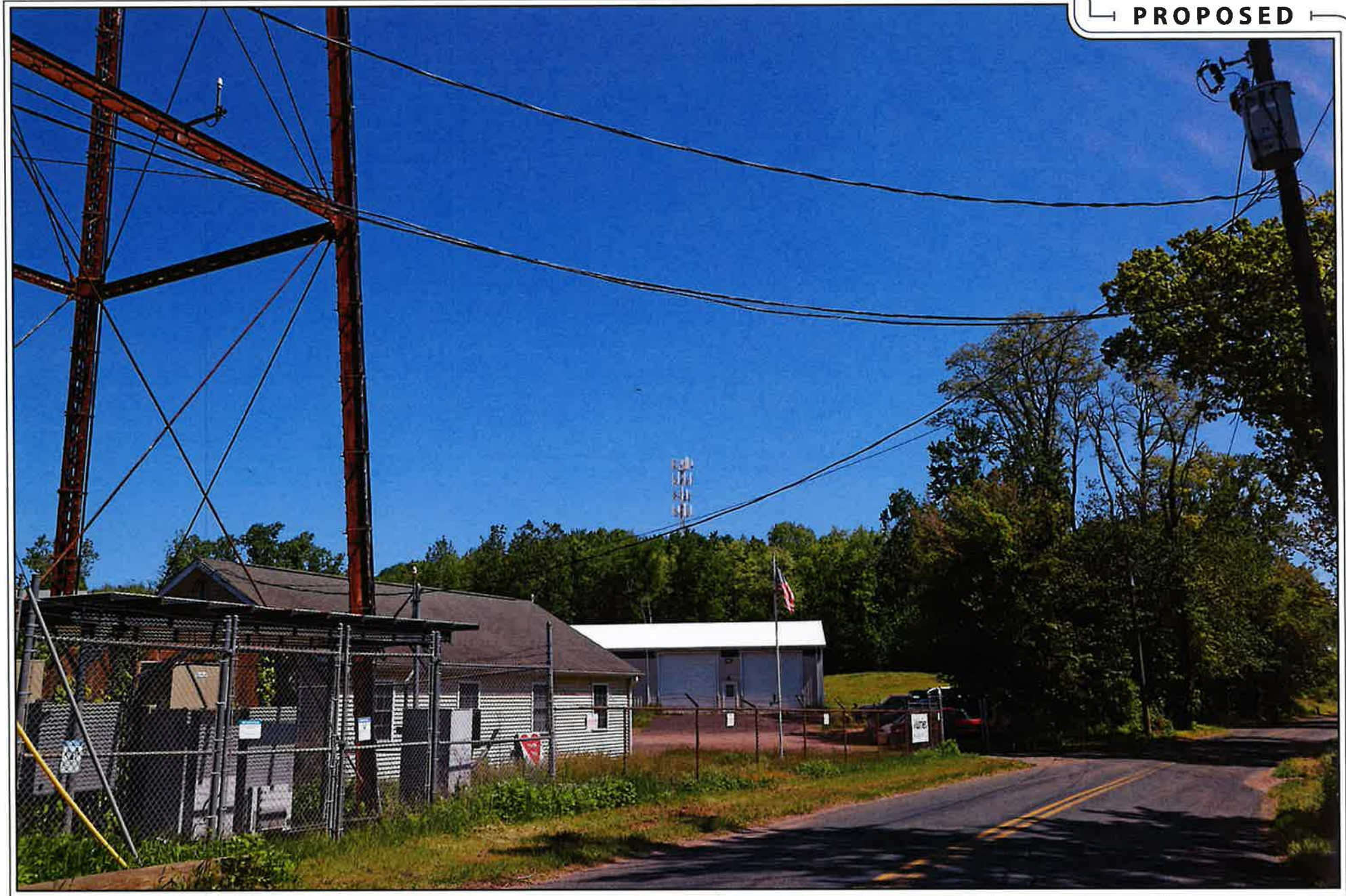


PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
21	**CHAMBERLAIN ROAD**	**NNE**	**+/- 0.13 MILE**	**VISIBLE**

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
22	**RYE STREET**	**ESE**	**+/- 0.27 MILE**	**NOT VISIBLE**

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
23	RYE STREET	SE	+/- 0.25 MILE	VISIBLE

PROPOSED

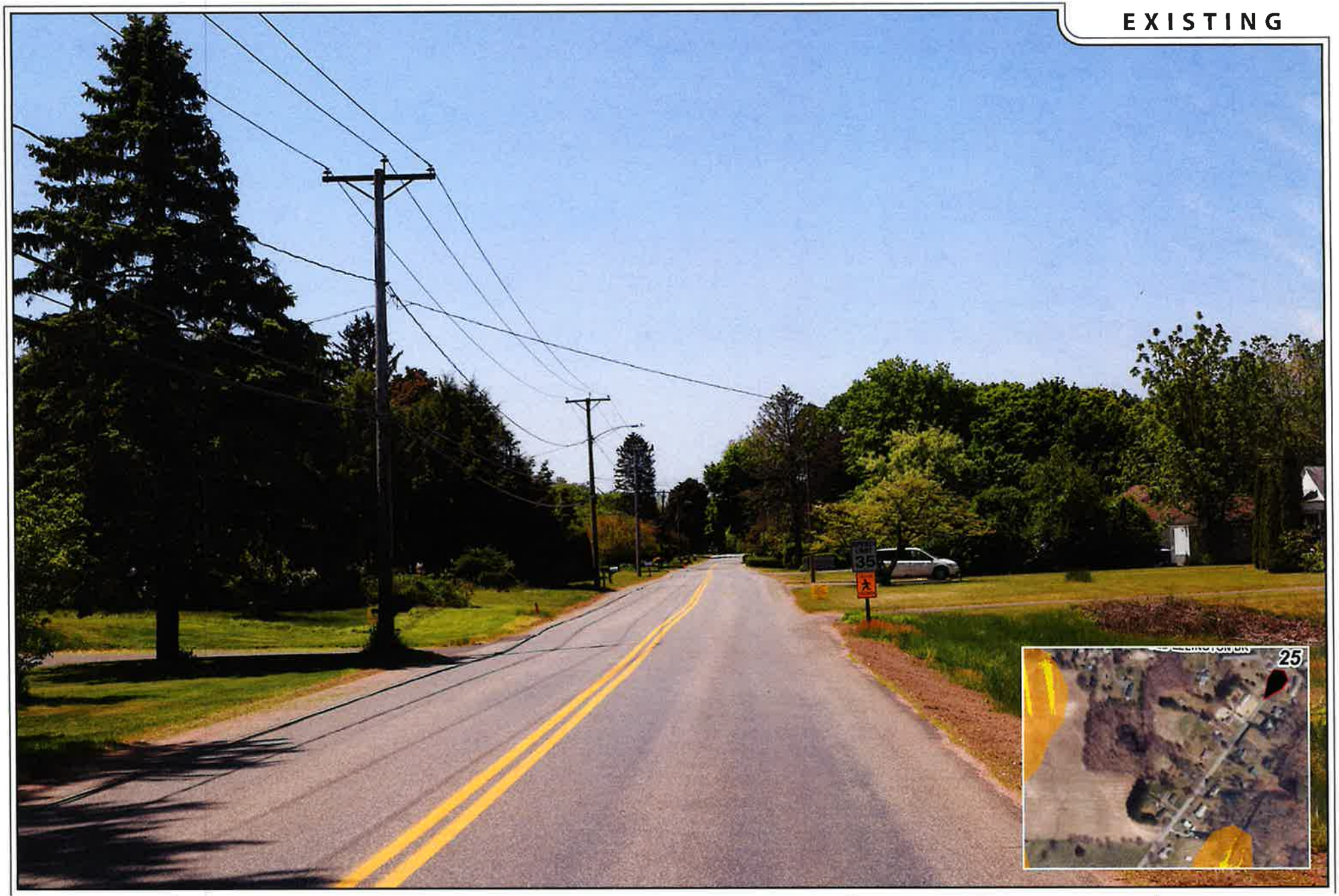
PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
23	**RYE STREET**	**SE**	**+/- 0.25 MILE**	**VISIBLE**

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
24	**ST. CATHERINE CEMETERY**	**SSE**	**+/- 0.42 MILE**	**NOT VISIBLE**

EXISTING



PHOTOGRAPHED ON 5/19/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
25	**RYE STREET**	**SSW**	**+/- 0.71 MILE**	**NOT VISIBLE**

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
26	**WINDSORVILLE ROAD**	**SSW**	**+/- 0.94 MILE**	**NOT VISIBLE**

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
27	**STILES ROAD AT OLD ELLINGTON ROAD**	**SSE**	**+/- 0.81 MILE**	**NOT VISIBLE**

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
28	OLD ELLINGTON ROAD AT NORTON ROAD	SSE	+/- 0.86 MILE	VISIBLE

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
28	OLD ELLINGTON ROAD AT NORTON ROAD	SSE	+/- 0.86 MILE	VISIBLE

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
29	**NORTON ROAD**	**SSE**	**+/- 0.85 MILE**	**NOT VISIBLE**

EXISTING

PHOTOGRAPHED ON 5/16/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
30	**NORTON ROAD**	**SSE**	**+/- 0.61 MILE**	**NOT VISIBLE**

EXISTING

PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
31	NORTON ROAD	SE	+/- 0.46 MILE	VISIBLE

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
31	NORTON ROAD	SE	+/- 0.46 MILE	VISIBLE

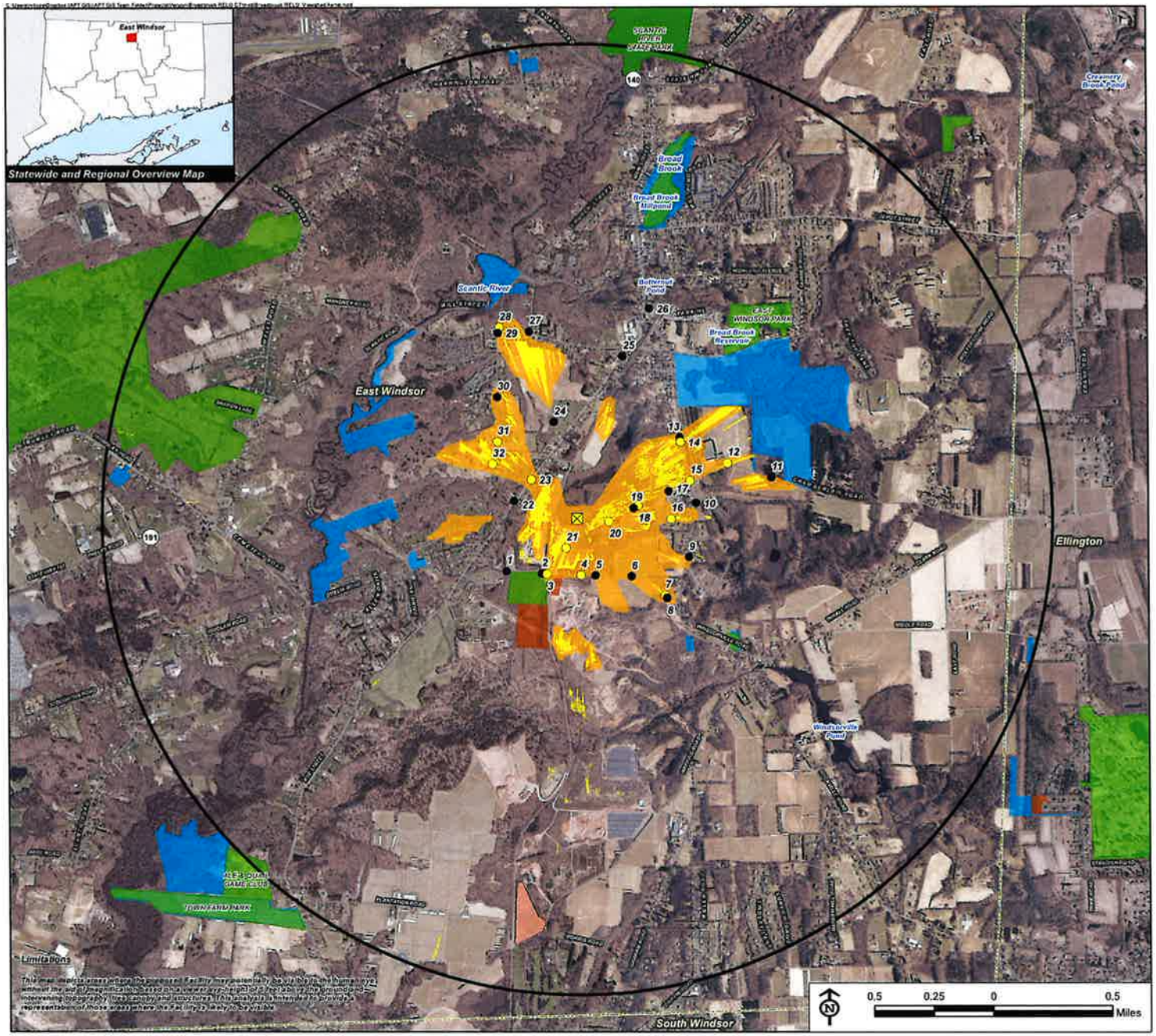
EXISTING

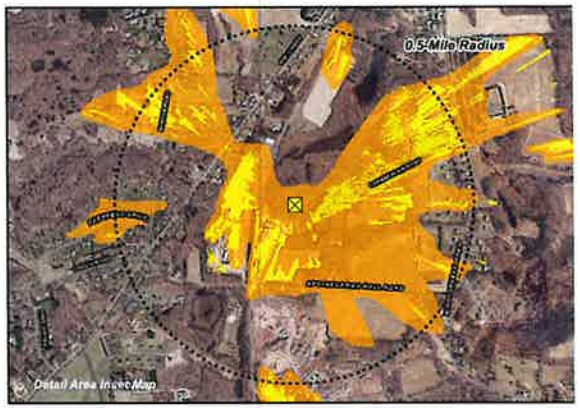
PHOTOGRAPHED ON 5/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
32	NORTON ROAD AT HAYFIELD LANE	SE	+/- 0.42 MILE	VISIBLE

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
32	NORTON ROAD AT HAYFIELD LANE	SE	+/- 0.42 MILE	VISIBLE





Viewshed Analysis Map

Proposed Wireless Telecommunications Facility
Broadbrook RELO CT
11 Chamberlain Road
East Windsor, Connecticut

Proposed facility height is 120 feet AGL.
Forest canopy height is derived from LIDAR data.
Study area encompasses a two-mile radius and includes 8,042 acres.
Existing conditions field verified by APT on May 18, 2023 during leaf-on conditions
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Date: July 2023

Legend

- Proposed Site
- Study Area (2-Mile Radius)

Photo Locations (May 18, 2023)

- Not Visible
- Year-Round Visibility

- Predicted Year-Round Visibility (78 Acres)
- Areas of Potential Seasonal Visibility (276 Acres)
- Municipal Boundary
- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
- State Forest/Park

Protected Open Space Property

- Federal
- Land Trust
- Municipal
- Private
- State

Data Sources:

Physical Geography / Background Data

A digital surface model (DSM) was created from the State of Connecticut 2015 LIDAR LAS data points. The DSM captures the natural and built features on the Earth's surface.

Municipal Open Space, State Recreation Areas, Trails, County Recreation Areas, and Town Boundary data obtained from CT DEEP
Scenic Roads: CTDOT State Scenic Highways (2015); Municipal Scenic Roads (compiled by APT)

Dedicated Open Space & Recreation Areas

Connecticut Department of Energy and Environmental Protection (DEEP): DEEP Property (May 2007; Federal Open Space (1997); Municipal and Private Open Space (1997); DEEP Boat Launches (1994)

Connecticut Forest & Parks Association, Connecticut Walk Books East & West

Other

CTDOT Scenic Strips (based on Department of Transportation data)

Notes

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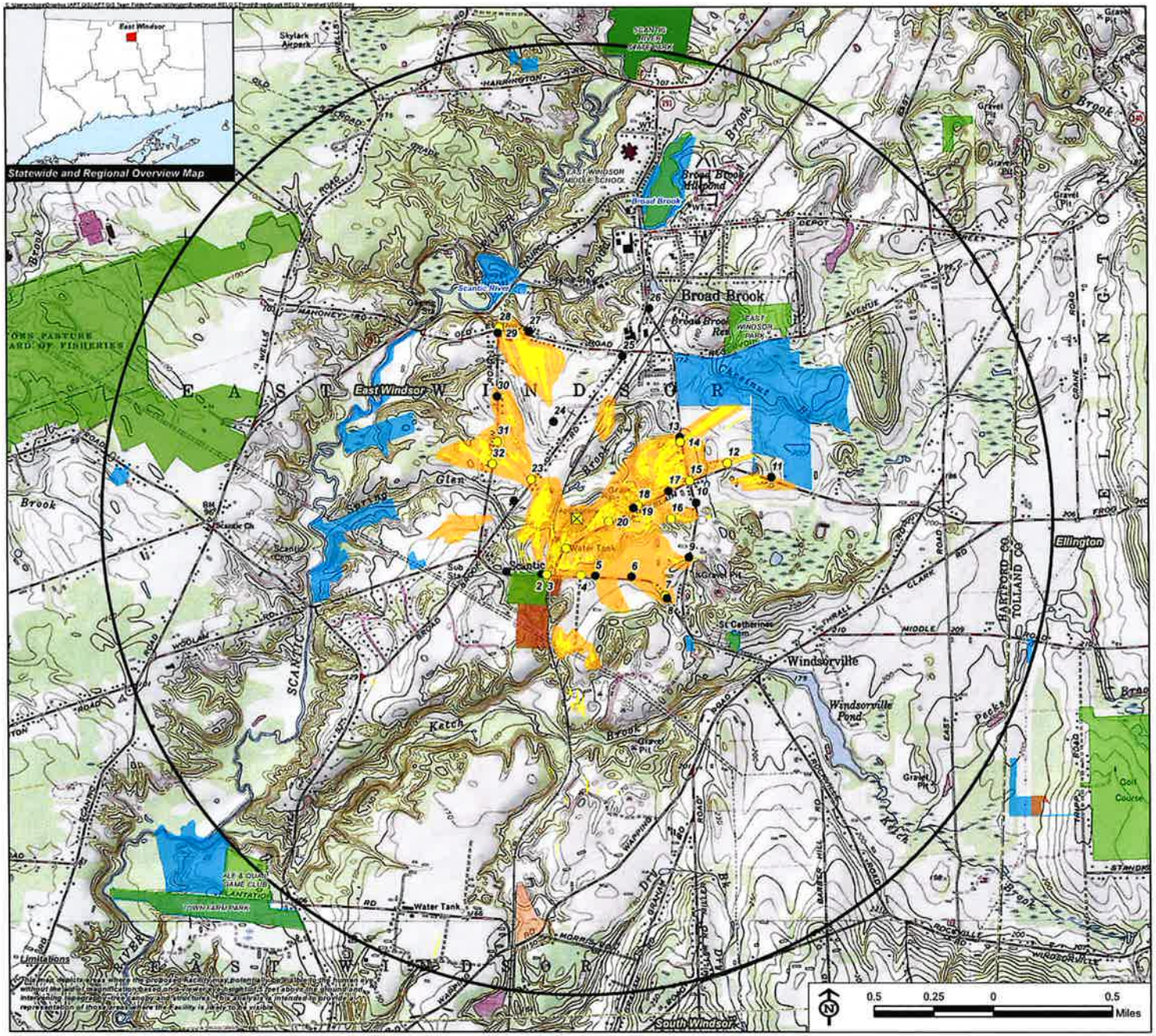
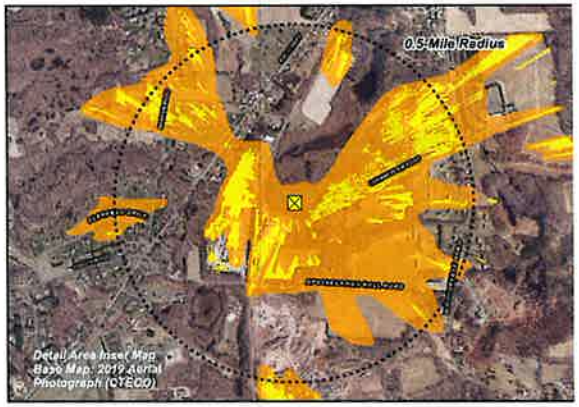
verizon

All-Points Technology Corporation





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Quadrangle Map, Broad Brook, CT (1984) and Manchester, CT (1992)
Map Date: July 2023

Legend

- Proposed Site
- Study Area (2-Mile Radius)

Photo Locations (May 18, 2023)

- Not Visible
- Year-Round Visibility

- Predicted Year-Round Visibility (78 Acres)
- Areas of Potential Seasonal Visibility (276 Acres)
- Municipal Boundary
- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
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verizon

ALL-POINTS TECHNOLOGY CORPORATION

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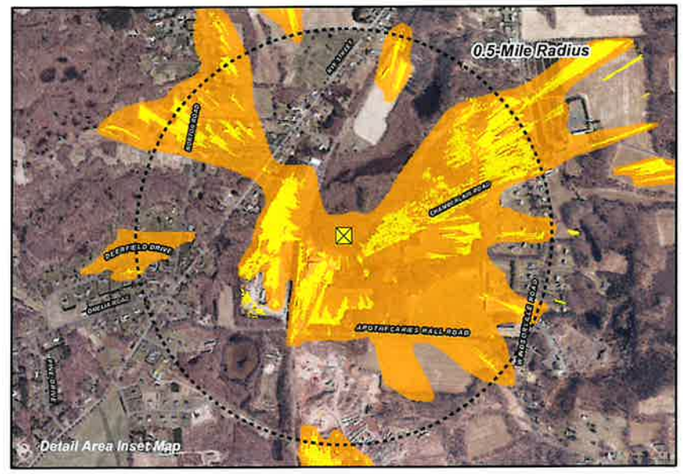
Statewide and Regional Overview Map



Detail Area Inset Map

Viewshed Analysis Map

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Base Map Source: 2019 Aerial Photograph (CTECO)
Map Date: July 2023

Legend

- Proposed Site
- Study Area (2-Mile Radius)

Photo Locations (May 18, 2023)

- Not Visible
- Year-Round Visibility
- Predicted Year-Round Visibility (76 Acres)
- Areas of Potential Seasonal Visibility (276 Acres)
- Municipal Boundary
- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
- State Forest/Park

Protected Open Space Property

- Federal
- Land Trust
- Municipal
- Private
- State

Data Sources:

Physical Geography / Background Data

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Connecticut Department of Energy and Environmental Protection (DEEP): DEEP Property (May 2007; Federal Open Space (1997); Municipal and Private Open Space (1997); DEEP Boat Launches (1994)

Connecticut Forest & Parks Association, Connecticut Walk Books East & West

Other

CTDOT Scenic Strips (based on Department of Transportation data)

Notes

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Limitations

This map depicts areas where the proposed Facility may potentially be visible to the human eye, without the aid of magnification based on a viewer eye-height of 5 feet above the ground and intervening topography, tree canopy and structures. This analysis is intended to provide a representation of those areas where the Facility is likely to be visible.

0.5 0.25 0 0.5 Miles

verizon

ALL-POINTS TECHNOLOGY CORPORATION

C:\Users\mapper\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Verizon\Broadbrook RELO CT\mxd\Broadbrook RELO_Viewshed USGS.mxd

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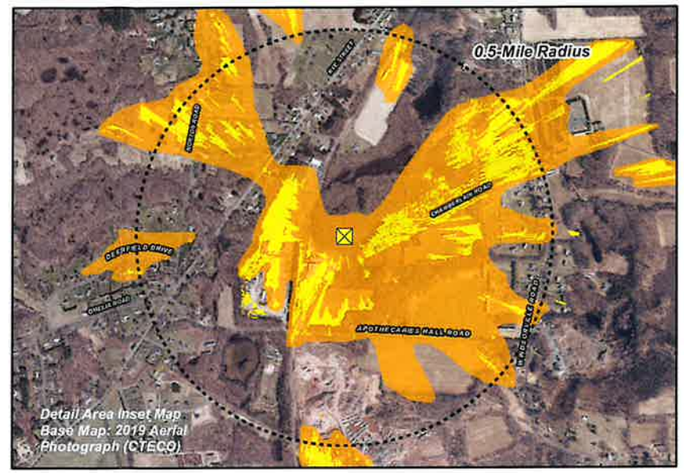

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verizon

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