

*Proposed Wireless
Telecommunications Facility*

38 Maple Street (Route 341)
Kent, Connecticut

Prepared for



Prepared by **VHB**/Vanasse Hangen Brustlin, Inc.
54 Tuttle Place
Middletown, CT 06457

June 2007

Visual Resource Evaluation

Cellco Partnership (dba Verizon Wireless) seeks approval from the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need for the construction of a wireless telecommunications facility ("Facility") to be located on municipally-owned property at 38 Maple Street in the Town of Kent, Connecticut (identified herein as the "host property"). This Visual Resource Evaluation was conducted to evaluate the visibility of the proposed Facility within a two-mile radius ("Study Area").

Project Introduction

The proposed Facility includes the installation of a 150-foot tall monopole with associated ground equipment to be located within a fence-enclosed compound area at the base of the tower. The monopole would be designed to accommodate up to four antenna arrays. Based on information provided the project Engineer, URS Corporation, the proposed project area is located at approximately 393 feet Above Mean Sea Level (AMSL). Access to the Facility would be provided via a proposed gravel driveway extending in a southerly direction from Route 341.

Site Description and Setting

Identified in the Town of Kent Tax Assessors records as Map 4/ Block 12/ Lot 12, the host property consists of 10.19 acres of land and is currently utilized as a municipal solid waste transfer station. The proposed Facility is located on the southern portion of the host property, immediately adjacent to an existing storage building. The Photolog Documentation Map contained in Attachment A depicts the location of the proposed Site. Land use within the general vicinity of the proposed Facility and host property is comprised of the solid waste transfer station; commercial and high-density residential development located to the west and northwest along portions of Route 7 and Route 341; medium-density residential parcels to the northeast and east; and an existing rail line located to the north, directly across from the host property. Segments of Route 7 and Route 341, important regional state numbered routes, are contained within the Study Area. In total, the Study Area features approximately 41 linear miles of roadways. Portions of the Appalachian National Scenic Trail traverse the western half of the Study Area. Segments of the trail contained within the Study Area have been relocated since the publication of the Kent, Connecticut USGS topographic map. The relocated alignment is depicted on the viewshed provided in Attachment B.

The topography within the Study Area is characterized by the Housatonic River Valley, which extends north to south through the central portion of the Study Area, rolling hills and steep ridgelines. Ground elevations within the Study Area range from approximately 360 feet AMSL to nearly 1,400 feet AMSL. The Study Area contains approximately 195 acres of surface water, dominated in large measure by the Housatonic River. The tree cover within the Study Area consists mainly of mixed deciduous hardwood species interspersed with stands of mature evergreens. The tree canopy occupies approximately 7,179 acres of the 8,042-acre study area (89%). During the in-field activities associated with this analysis, an

infrared laser range finder was used to accurately determine the average tree canopy height throughout the Study Area. Numerous trees were selected for measurement and the average tree canopy was determined to be 65 feet.



METHODOLOGY

In order to better represent the visibility associated with the Facility, VHB uses a two-fold approach incorporating both a predictive computer model and in-field analysis. The predictive model is employed to assess potential visibility throughout the entire Study Area, including private property and/or otherwise inaccessible areas for field verification. A "balloon float" and Study Area drive-through reconnaissance are also conducted to obtain locational and height representations, back-check the initial computer model results and provide documentation from publicly accessible areas. Results of both activities are analyzed and incorporated into the final viewshed map. A description of the methodologies used in the analysis is provided below.

Visibility Analysis

Using ESRI's ArcView® Spatial Analyst, a computer modeling tool, the areas from which the top of the Facility is expected to be visible are calculated. This is based on information entered into the computer model, including Facility height, its ground elevation, the surrounding topography and existing vegetation. Data incorporated in the model includes 7.5 minute digital elevation models ("DEMs") and a digital forest layer for the project area. The DEMs were produced by the United States Geological Survey ("USGS") in 1982 at a 30 meter resolution. The forest layer was derived through on-screen digitizing in ArcView® GIS from 2004 digital orthophotos with a 0.5 foot pixel resolution.

Once the data are entered, a series of constraints are applied to the computer model to achieve an estimate of where the Facility will be visible. Initially, only topography was used as a visual constraint; the tree canopy is omitted to evaluate all areas of potential visibility without any vegetative screening. Although this is an overly conservative prediction, the initial omission of these layers assists in the evaluation of potential seasonal visibility of the proposed Facility. A conservative tree canopy height of 50 feet is then used to prepare a preliminary viewshed map for use during the Study Area reconnaissance. The average height of the tree canopy is determined in the field using a hand-held infra-red laser range finder. The average tree canopy height is incorporated into the final viewshed map; in this case, 65 feet was identified as the average tree canopy height. The forested areas within the Study Area were then overlaid on the DEM with a height of 65 feet added and the visibility calculated. As a final step, the forested areas are extracted from the areas of visibility, with the assumption that a person standing among the trees will not be able to view the Facility beyond a distance of approximately 500 feet. Depending on the density of the vegetation in these areas, it is assumed that some locations within this range will provide visibility of at

least portions of the Facility based on where one is standing. This analysis was repeated in approximate 35-foot increments and the results consolidated into a single thematic layer. This provides an estimate of the approximate amount of the tower structure that would be visible above the tree line from those areas where year-round views are anticipated.

Also included on the map is a data layer, obtained from the Connecticut State Department of Environmental Protection ("CTDEP"), which depicts various land and water resources such as parks and forests, recreational facilities, dedicated open space, CTDEP boat launches and other categories. This layer is useful in identifying potential visual impacts to any sensitive receptors that may be located within the Study Area. Lastly, based on both a review of published information and discussions with municipal officials in Kent, it was determined that the approximate 4.35-mile segment of Route 7 contained within the Study Area is a state-designated scenic roadway.

A preliminary viewshed map (using topography and a conservative tree canopy height of 50 feet) is generated for use during the in-field activity in order to confirm that no significant land use changes have occurred since the aerial photographs used in this analysis were produced and to verify the results of the model in comparison to the balloon float. Information obtained during the reconnaissance is then incorporated into the final visibility map.

Balloon Float and Study Area Reconnaissance

On May 22, 2007 Vanasse Hangen Brustlin Inc., (VHB) conducted a "balloon float" at the proposed Facility site to further evaluate the potential viewshed within the Study Area. The balloon float consisted of raising and maintaining an approximate four-foot diameter, helium-filled weather balloon at the proposed site location at a height of 150 feet. Once the balloon was secured at a height of 150 feet, VHB personnel drove the public road system in the Study Area to inventory those locations where the balloon was visible. In addition, VHB staff hiked select portions of the Appalachian Trail in order to identify potential areas of visibility associated with the proposed Facility from this resource. During the balloon float, the temperature was approximately 80 degrees Fahrenheit with calm wind conditions and clear skies. This balloon float was not publicly noticed, but at the request of officials in the Town of Kent, the balloon was released on site at approximately 7:30 AM and remained aloft until 3:00 PM.

Photographic Documentation

Once the balloon was secured at a height of 150 feet, VHB staff conducted a drive-by reconnaissance along the roads located within the Study Area with an emphasis on nearby residential areas and other potential sensitive receptors in order to evaluate the results of the preliminary viewshed map and to verify where the balloon was, and was not, visible above and/or through the tree canopy. The balloon was photographed from several vantage points

in order to document the actual view towards the proposed Facility. The locations of these photographs are described below:

1. View from Route 341 (Maple Street) south of host property.
2. View from Route 341 (Maple Street) at host property.
3. View from Route 341 (Maple Street) north of host property.
4. View from Maple Street Extension.
5. View from Maple Street Extension adjacent to house #9.
6. View from Route 341 (Maple Street) adjacent to Maple Farm Apartments.
7. View from Schaghticoke Road.
8. View from Route 7.
9. View from Route 7 (Main Street) at existing railroad crossing.
10. View from Route 7 (Main Street) north of Route 341.
11. View from Route 7 (Main Street).
12. View from Kent Green adjacent to the post office.
13. View from Route 7 (Main Street).
14. View from Lane Street west of Route 7 (Main Street).
15. View from Elizabeth Street adjacent to house #29.
16. View from Route 341 (entrance to Kent School) north of Skiff Mountain Road.

Photographs from the view points listed above were taken with a Nikon Digital Camera COOLPIX 5700, which has a lens focal length equivalent to a 35 mm camera with a 38 to 115 mm zoom. "The lens that most closely approximates the view of the unaided human eye is known as the normal focal-length lens. For the 35 mm camera format, which gives a 24x36 mm image, the normal focal length is about 50 mm." The optical zoom lens for the Nikon COOLPIX was set at a range of 50 mm to 70 mm for the purposes of this Visual Resource Evaluation.

The locations of the photographic points are recorded in the field using a hand held GPS receiver and are subsequently plotted on the maps contained in the attachments to this document.

Photographic Simulation

A photographic simulation was generated for the representative locations where the balloon was visible during the balloon float. The photographic simulations represent a scaled depiction of the proposed Facility from these locations. The height of the Facility is determined based on the location of the balloon in the photograph and a proportional monopine image is simulated into the photographs. The simulations are contained in Attachment A.

¹ Warren, Bruce. *Photography*, West Publishing Company, Eagan, MN, c. 1993, (page 70).

CONCLUSIONS

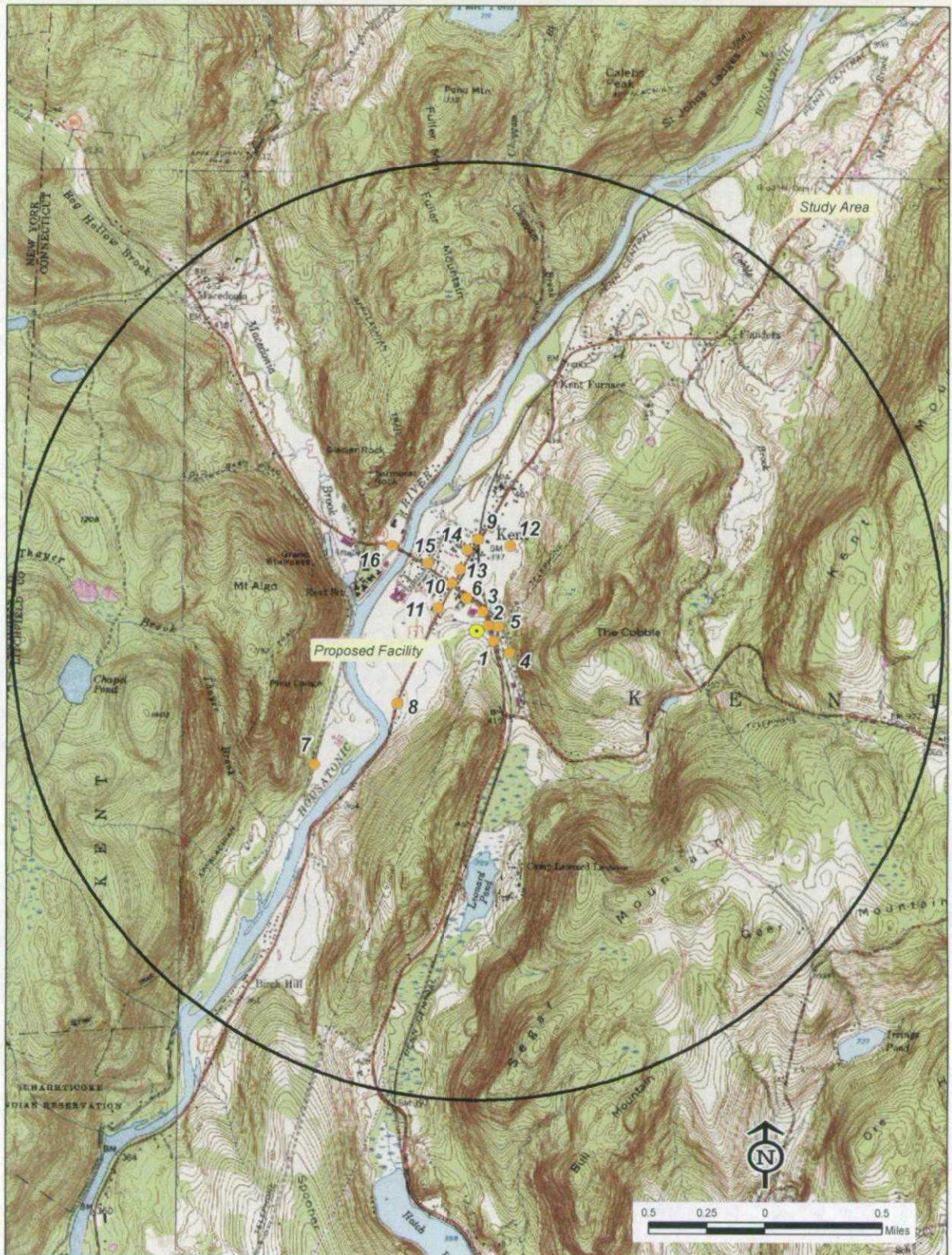
Based on this analysis, areas from where the proposed 150-foot tall Facility would be visible above the tree canopy comprise approximately 73 acres, or less than one percent of the 8,042-acre Study Area. As depicted on the viewshed map (provided in attachment B), much of the visibility associated with the proposed Facility occurs within the immediate vicinity of the project area (typically within 0.25-mile), including portions of the host property and nearby segments of Route 341 (Maple Street) and Maple Street Extension. Potential areas of year-round visibility also extend over open land approximately 0.5-mile to the north and southwest with intermittent or passing views anticipated along isolated segments of Route 7 (Main Street) to the north, northwest and southwest (as photo documented). Passing views may also be achieved along a short stretch of Schaghticoke Road located roughly one mile to the southwest. As evidenced by both the computer-based viewshed analysis and the in-field photographic documentation, areas of potential year round views within the immediate vicinity of the proposed Facility and host property may feature approximately 50% of the monopole structure while potential views further from the project area would mainly be limited to the upper 25%. Overall, the higher elevations that surround the proposed Facility and the intervening vegetation found within the Study Area act to confine anticipated year-round visibility to the areas described above. Land use surrounding the host property is predominantly commercial and as such, the potential for views from residential properties is somewhat limited. In total, VHB estimates that year-round views of at least a portion of the proposed Facility may be achieved from approximately 10 residential properties within the Study Area. These properties are located within the general vicinity of the proposed Facility and include several units within an abutting apartment complex located approximately 0.15-mile to the northwest. No year-round views are anticipated from the segments of the Appalachian Trail contained within the Study Area. However, seasonal (i.e. during "leaf off" conditions) views may be achieved from a small portion of the Appalachian Trail at the summit of Mount Algo to the west. In addition, VHB anticipates potential views from Numeral Rock, an exposed outcrop located adjacent to the Kent School Athletic fields off Skiff Mountain Road approximately 0.65-mile northwest of the proposed Facility. The viewshed map also depicts several additional areas where seasonal views are anticipated. These areas comprise approximately 135 acres and are typically located within the general vicinity of the proposed Facility, adjacent to areas where year-round views are anticipated. This includes select areas along an approximate 0.40-mile segment of Route 7 located south of Route 341 and a small area just north of the existing railroad tracks that cross the roadway in the Kent town center. Other areas of potential seasonal visibility are located along Schaghticoke Road to the west and southwest. VHB estimates that seasonal views of the proposed Facility could be achieved from select portions of approximately 6 additional residential properties within the Study Area. These properties are located along Route 341, Maple Street Extension within the immediate vicinity of the project area and adjacent to the intersection of Elizabeth Street and Meadow Street located approximately 0.35-mile to the northwest.

Attachment A

Site Area Photograph, Photolog Documentation Map, Balloon Float Photographs, and Photographic Simulations

Photolog Documentation

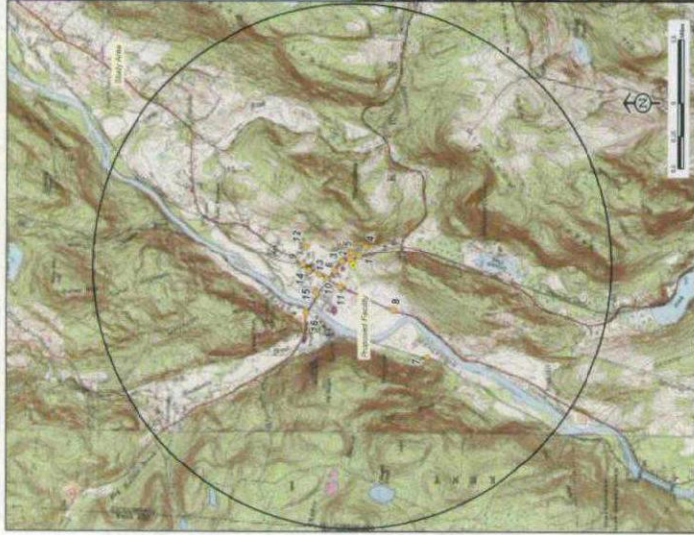
Town of
Kent
Connecticut



cm:\d\p\41240_18\graphics\figures\41240_18_photolog.indd

Photographic Documentation and Simulation View 1

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut
Monopole installation
with 4 carriers



PHOTO TAKEN FROM ROUTE 341 (MAPLE STREET) SOUTH OF HOST PROPERTY, LOOKING NORTHWEST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.09 MILE +/-



Photographic Documentation and Simulation View 2

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut

Monopole installation
with 4 carriers

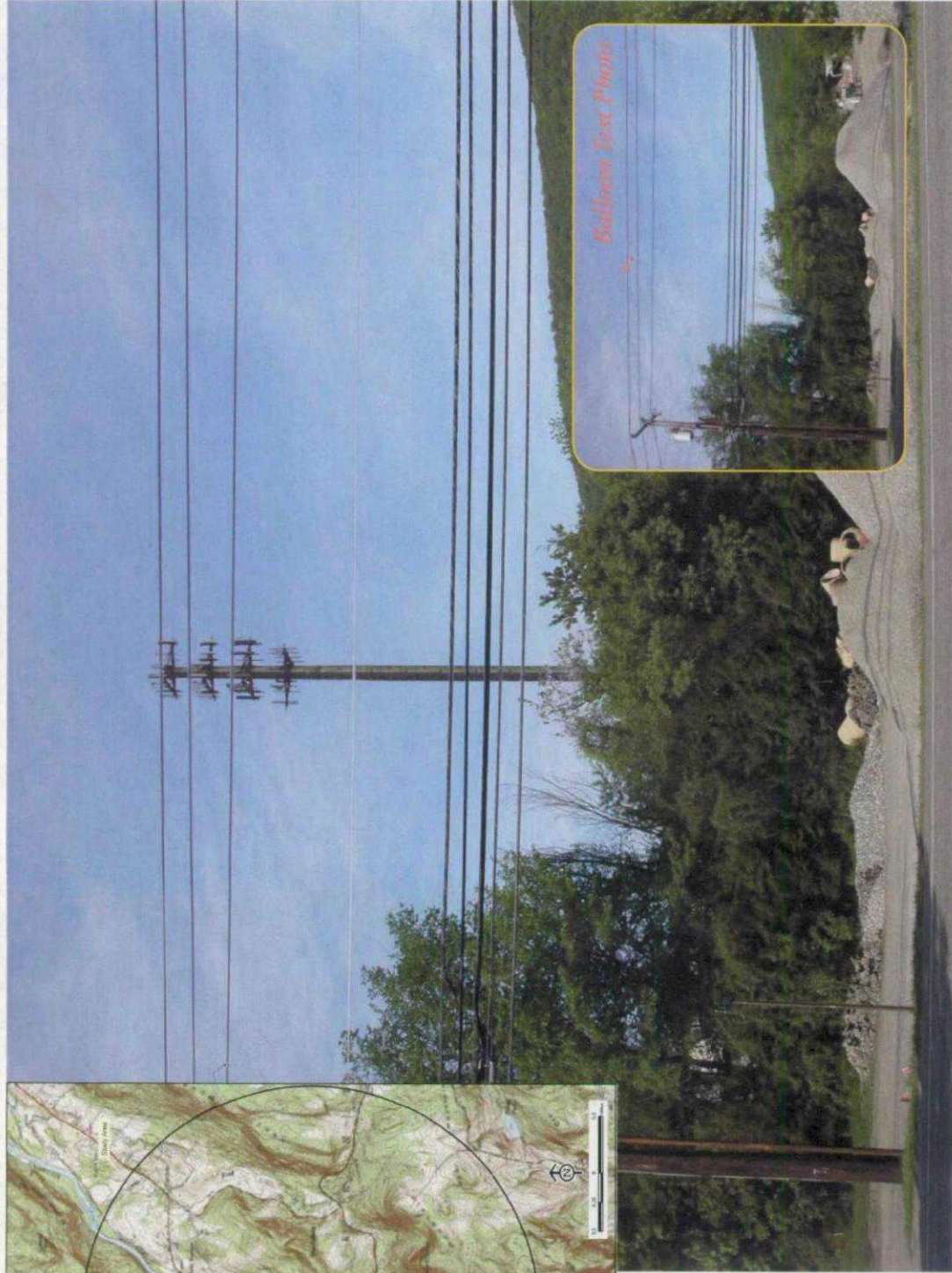
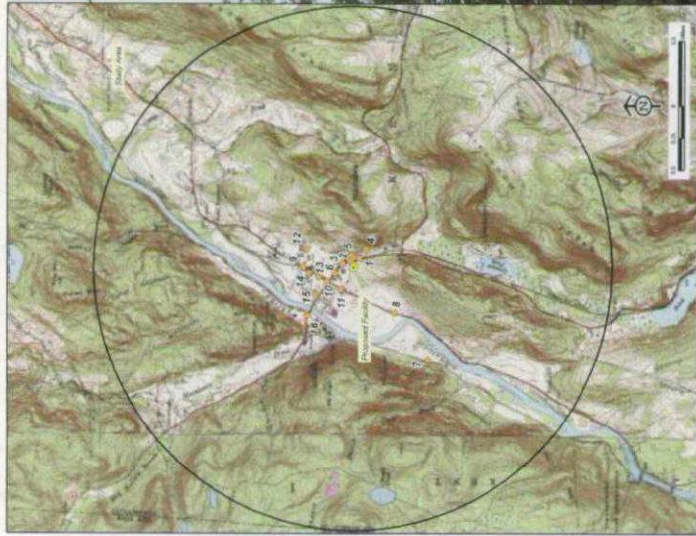


PHOTO TAKEN FROM ROUTE 341 (MAPLE STREET) AT HOST PROPERTY, LOOKING SOUTHWEST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.05 MILE +/-



Photographic Documentation and Simulation View 3



38 Maple Street
Kent, Connecticut

Monopole installation
with 4 carriers

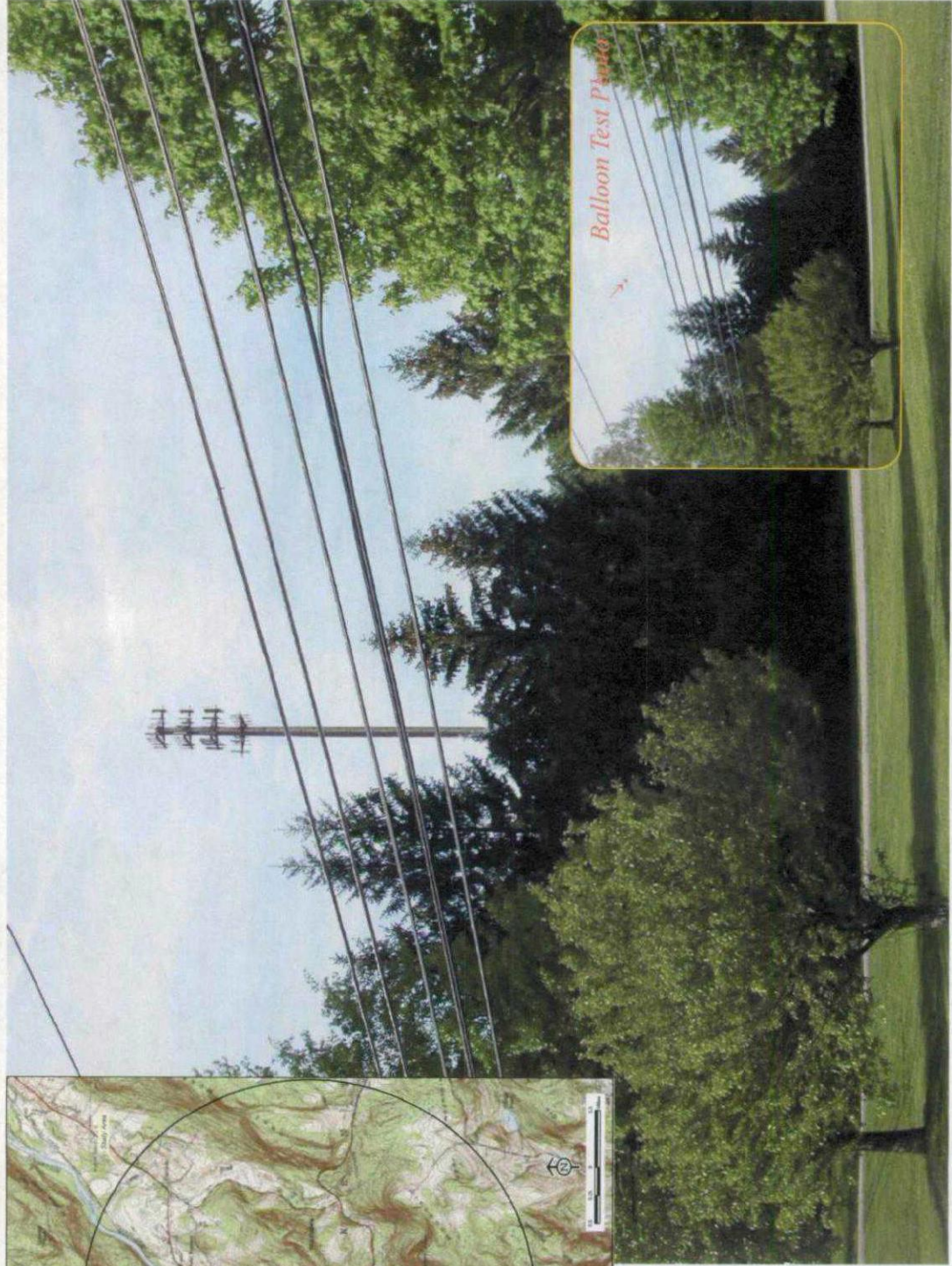
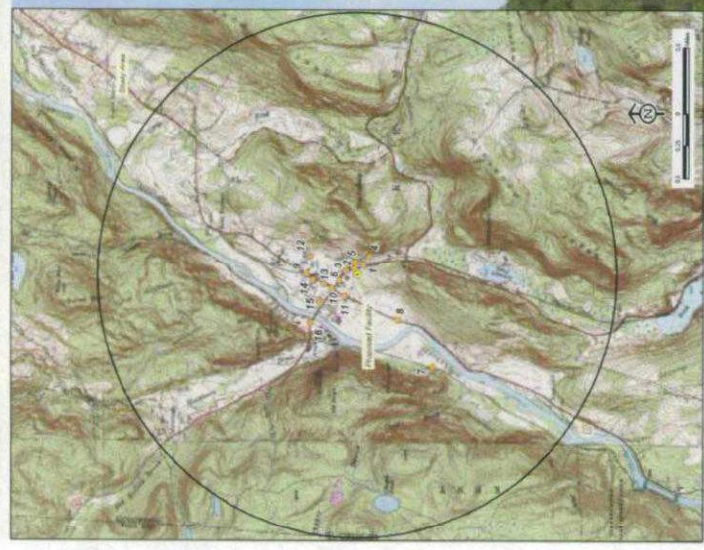


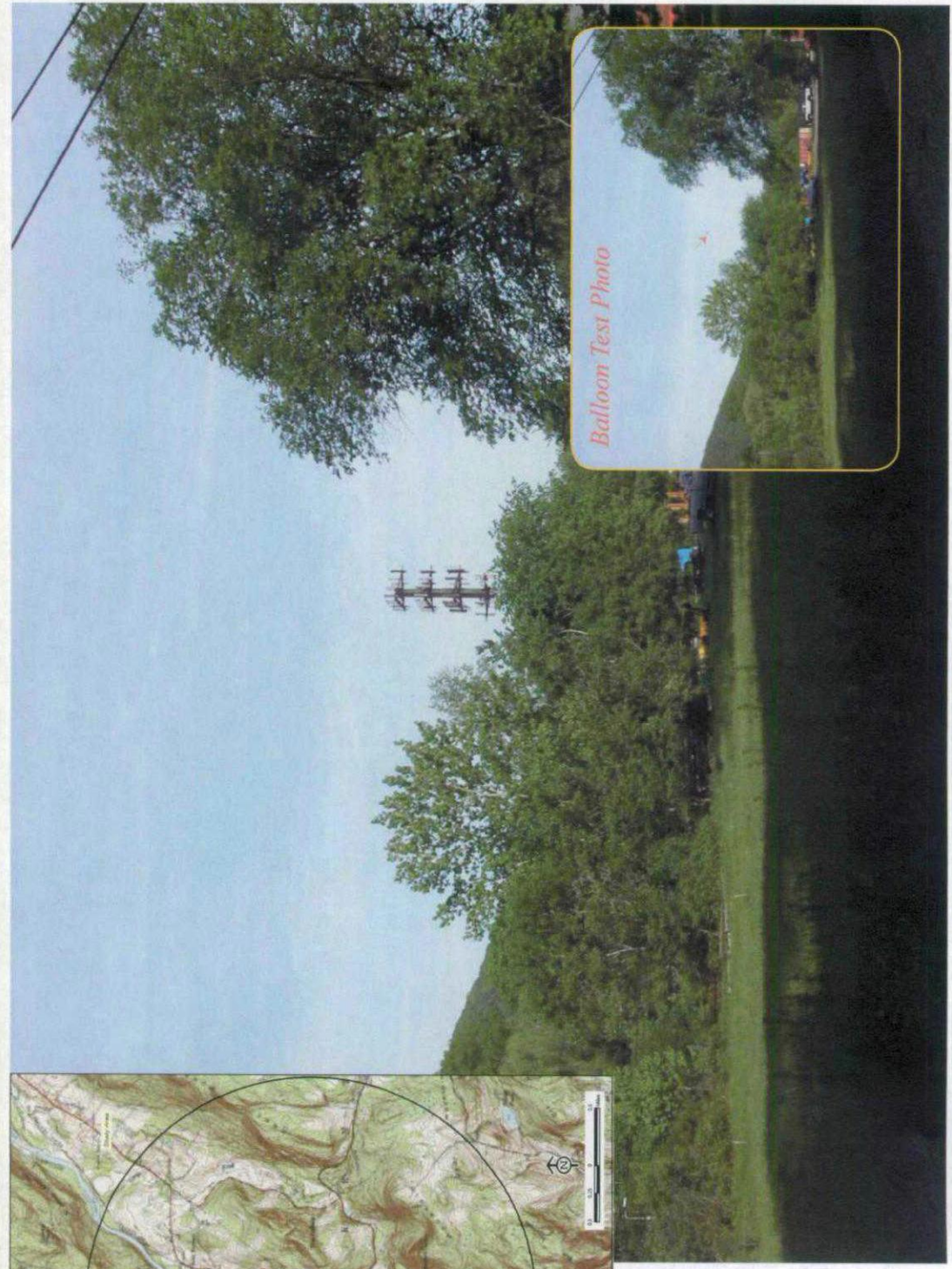
PHOTO TAKEN FROM ROUTE 341 (MAPLE STREET) NORTH OF HOST PROPERTY, LOOKING SOUTHWEST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.22 MILE +/-



Photographic Documentation and Simulation *View 4*



38 Maple Street
Kent, Connecticut
Monopole installation
with 4 carriers



Balloon Test Photo

PHOTO TAKEN FROM MAPLE STREET EXTENSION, LOOKING NORTHWEST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.17 MILE +/-



Photographic Documentation and Simulation View 5



38 Maple Street
Kent, Connecticut

Monopole installation
with 4 carriers



PHOTO TAKEN FROM MAPLE STREET EXTENSION ADJACENT TO HOUSE #9, LOOKING SOUTHWEST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.09 MILE +/-



Photographic Documentation and Simulation View 6

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut

Monopole installation
with 4 carriers

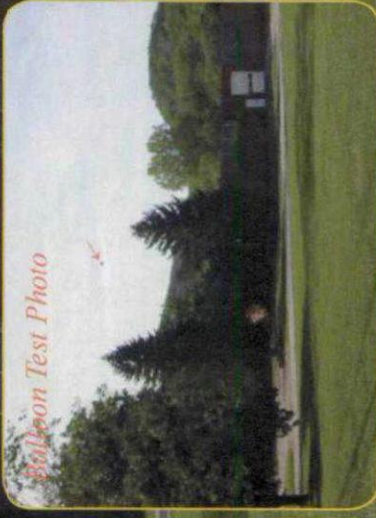
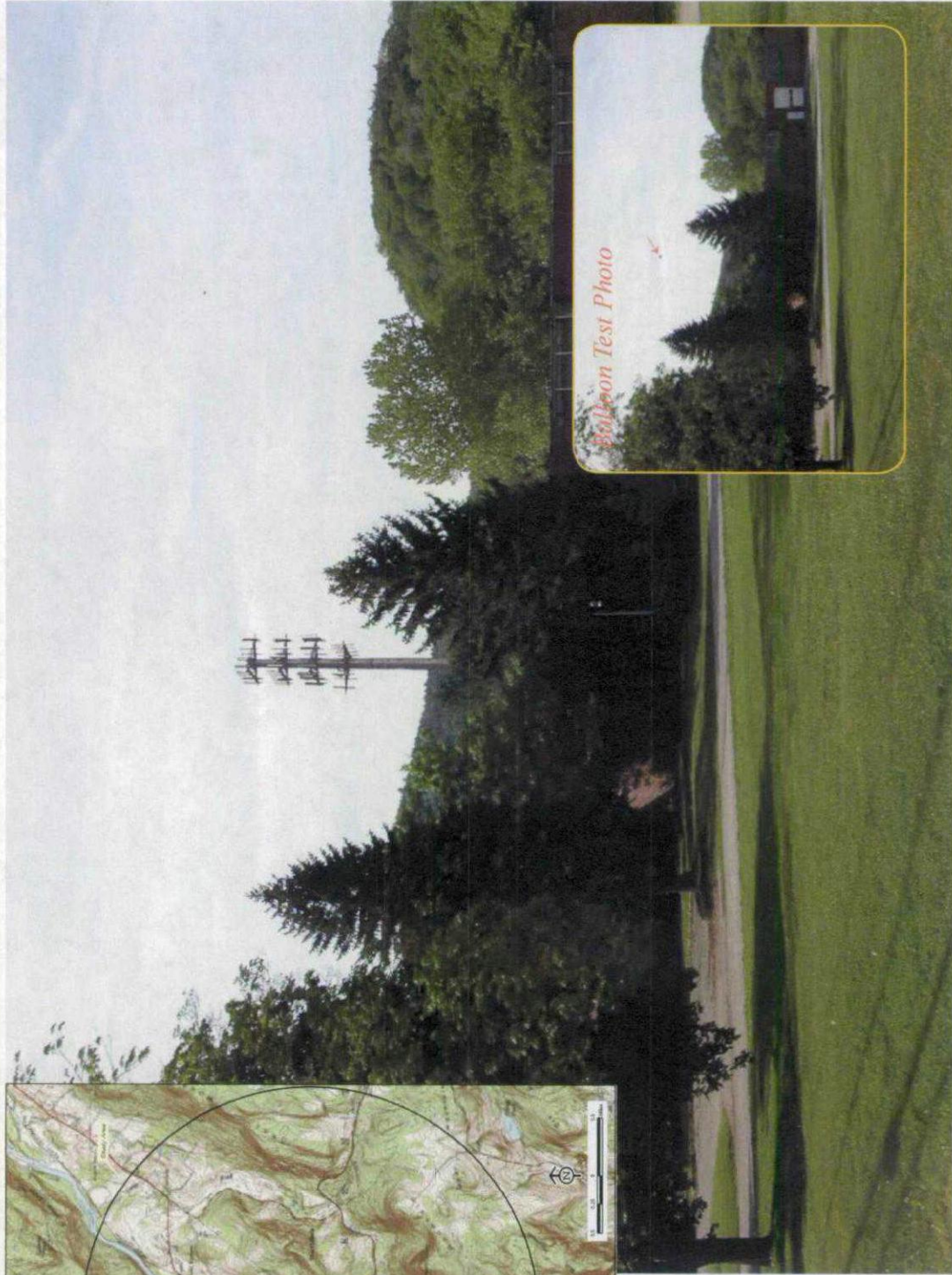
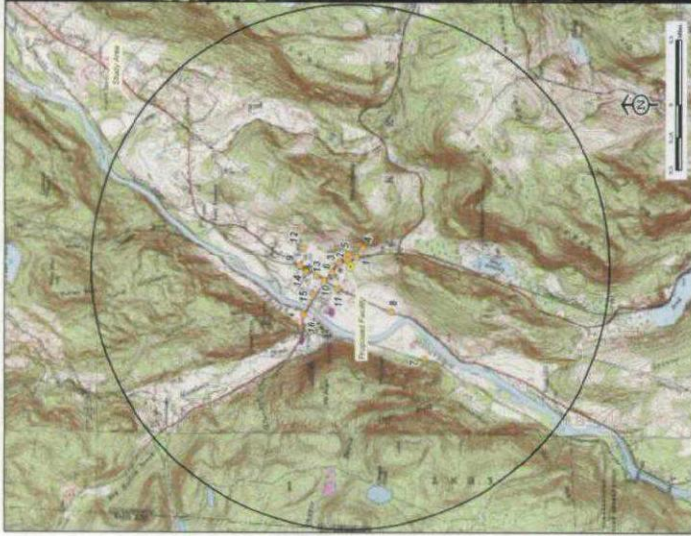


PHOTO TAKEN FROM ROUTE 341 (MAPLE STREET) ADJACENT TO MAPLE FARM APARTMENTS, LOOKING SOUTHEAST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.14 MILE +/-



Photographic Documentation and Simulation View 7

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut
Monopole installation
with 4 carriers

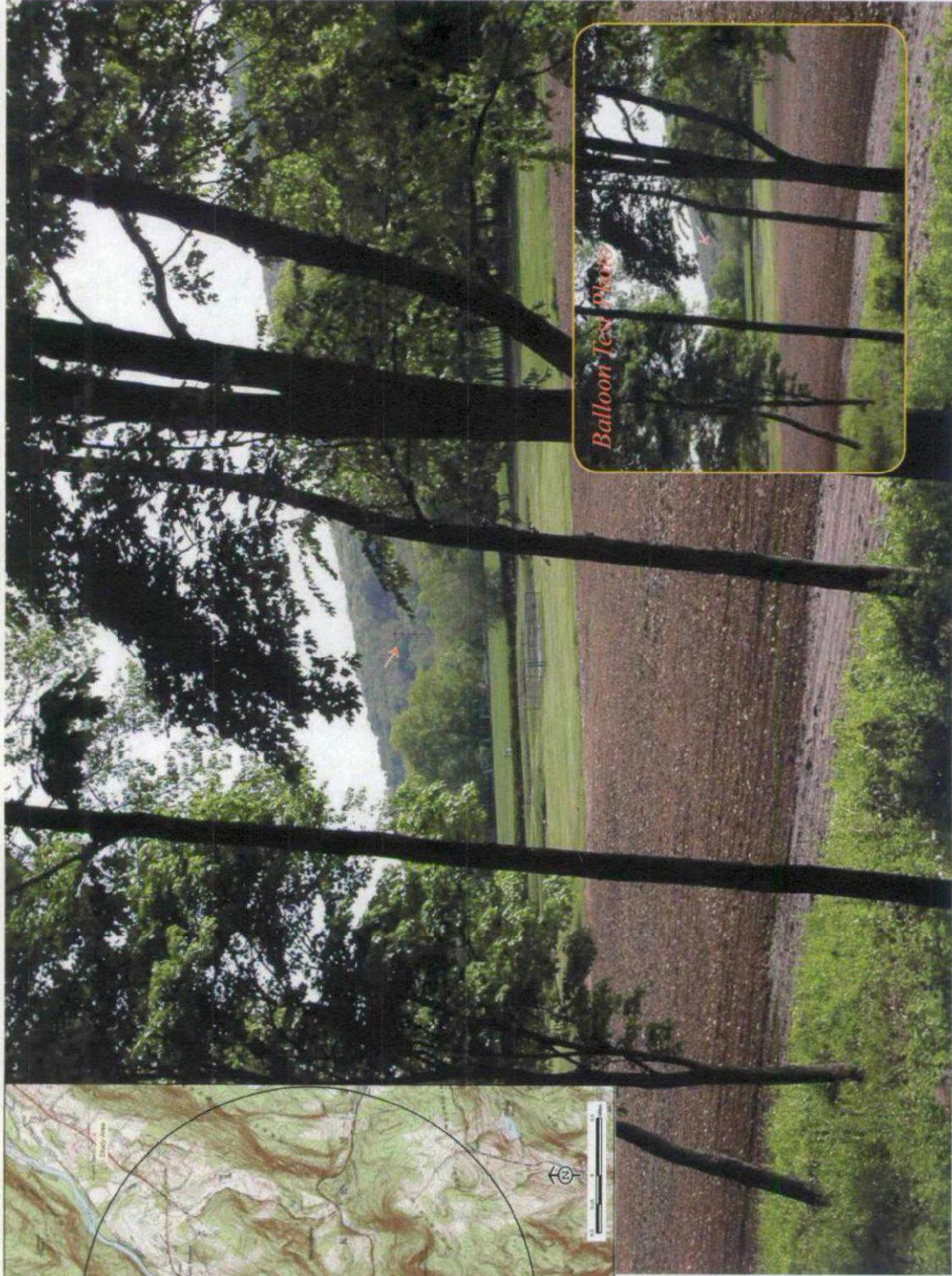


PHOTO TAKEN FROM SCHAGHTICOKE ROAD, LOOKING NORTHEAST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.92 MILE +/-



Photographic Documentation and Simulation View 8

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut
Monopole installation
with 4 carriers

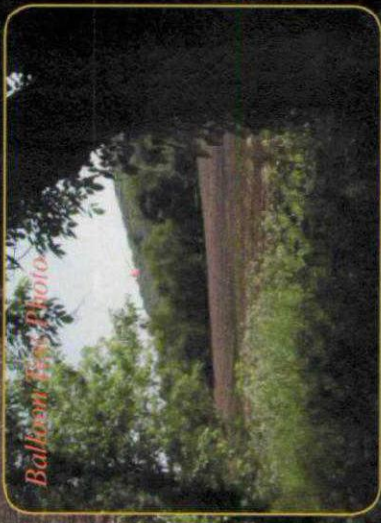
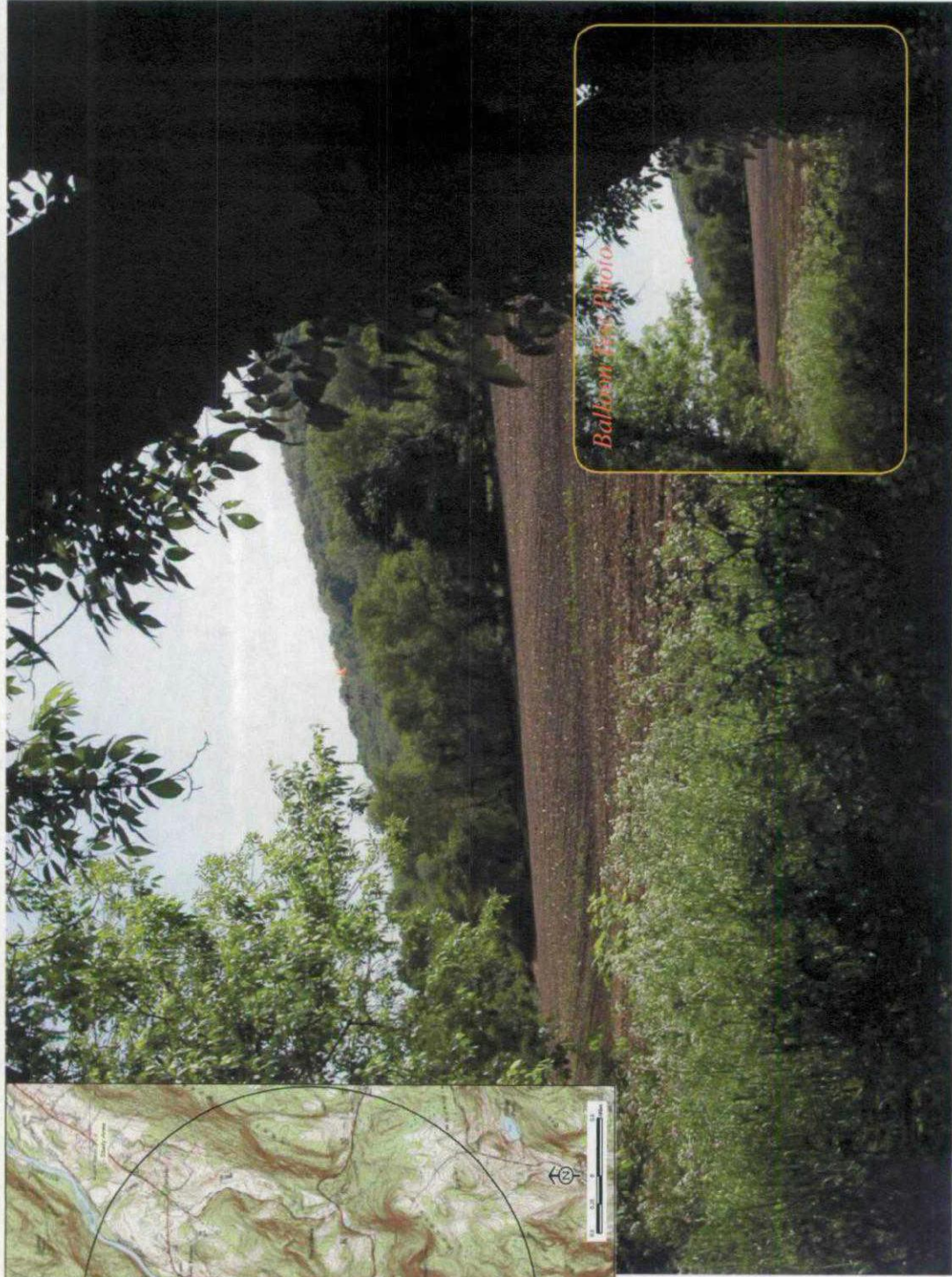
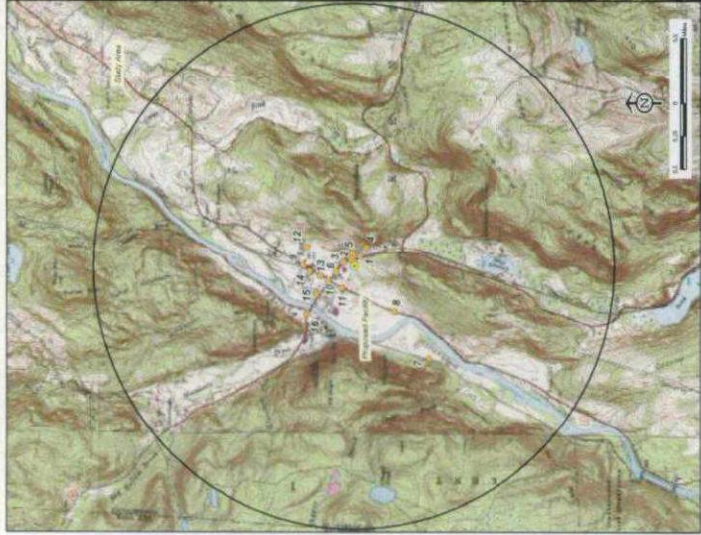


PHOTO TAKEN FROM ROUTE 7, LOOKING NORTHEAST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.47 MILE +/-



Photographic Documentation and Simulation View 9

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut

Monopole installation
with 4 carriers



PHOTO TAKEN FROM ROUTE 7 (MAIN STREET) AT EXISTING RAILROAD CROSSING, LOOKING SOUTH
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.38 MILE +/-



Photographic Documentation and Simulation View 10

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut
Monopole installation
with 4 carriers

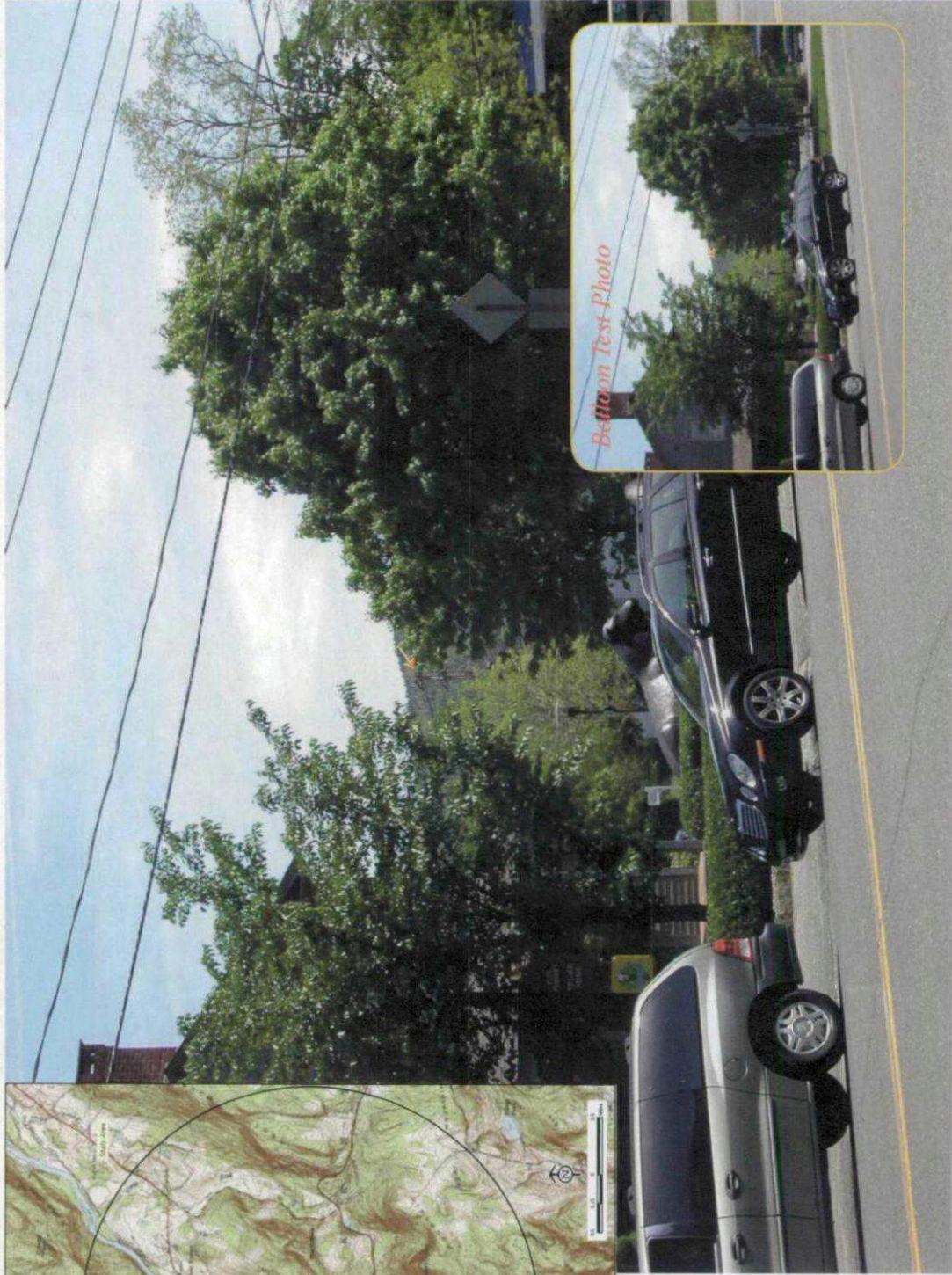


PHOTO TAKEN FROM ROUTE 7 (MAIN STREET) NORTH OF ROUTE 341, LOOKING SOUTHEAST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.23 MILE +/-



Photographic Documentation and Simulation View 11

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut
Monopole installation
with 4 carriers

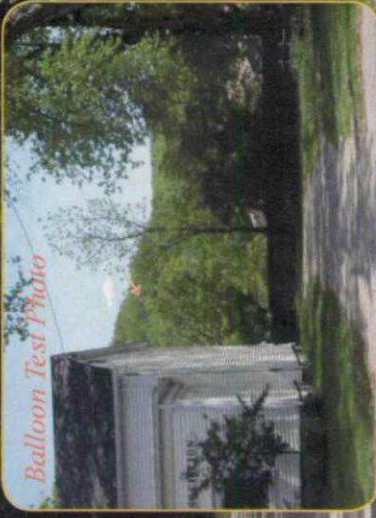
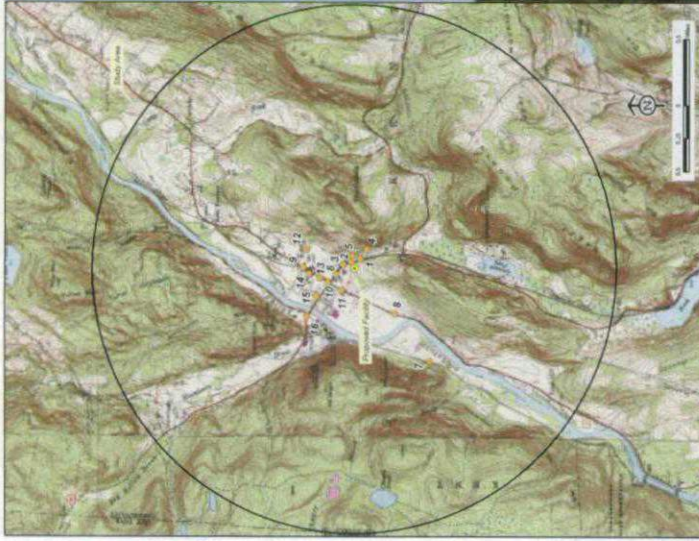


PHOTO TAKEN FROM ROUTE 7 (MAIN STREET), LOOKING SOUTHEAST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.19 MILE +/-

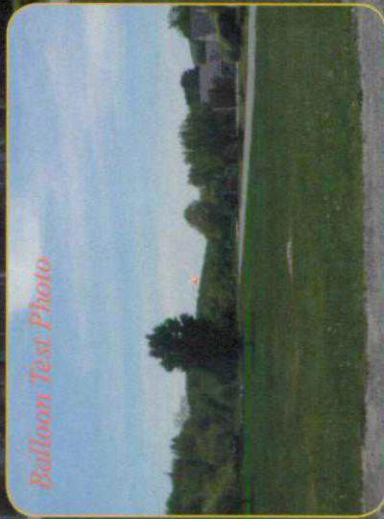
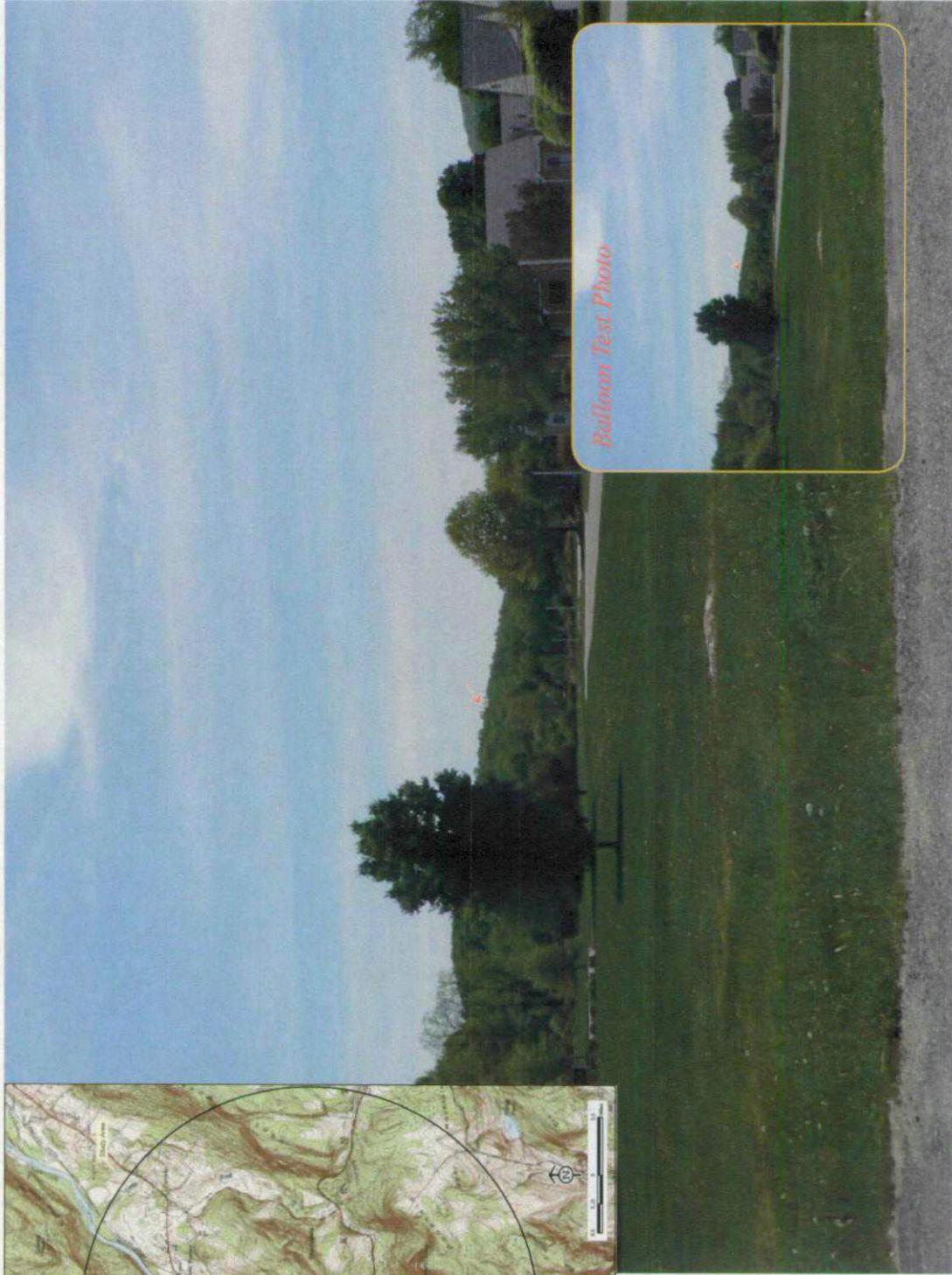


Photographic Documentation and Simulation View 12

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut
Monopole installation
with 4 carriers



Balloon Test Photo

PHOTO TAKEN FROM KENT GREEN ADJACENT TO THE POST OFFICE, LOOKING SOUTH
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.38 MILE +/-



Photographic Documentation and Simulation View 13

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut
Monopole installation
with 4 carriers

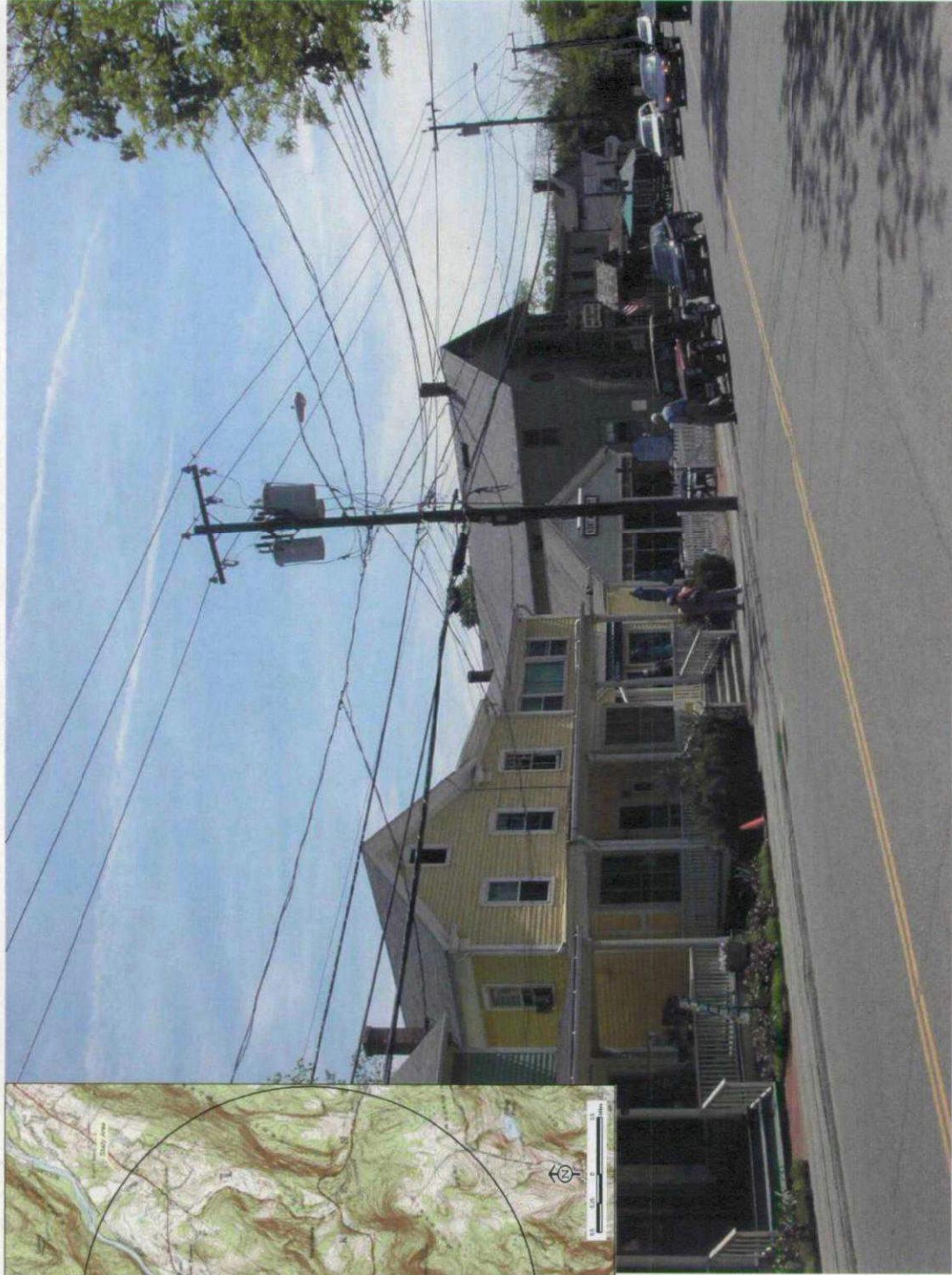
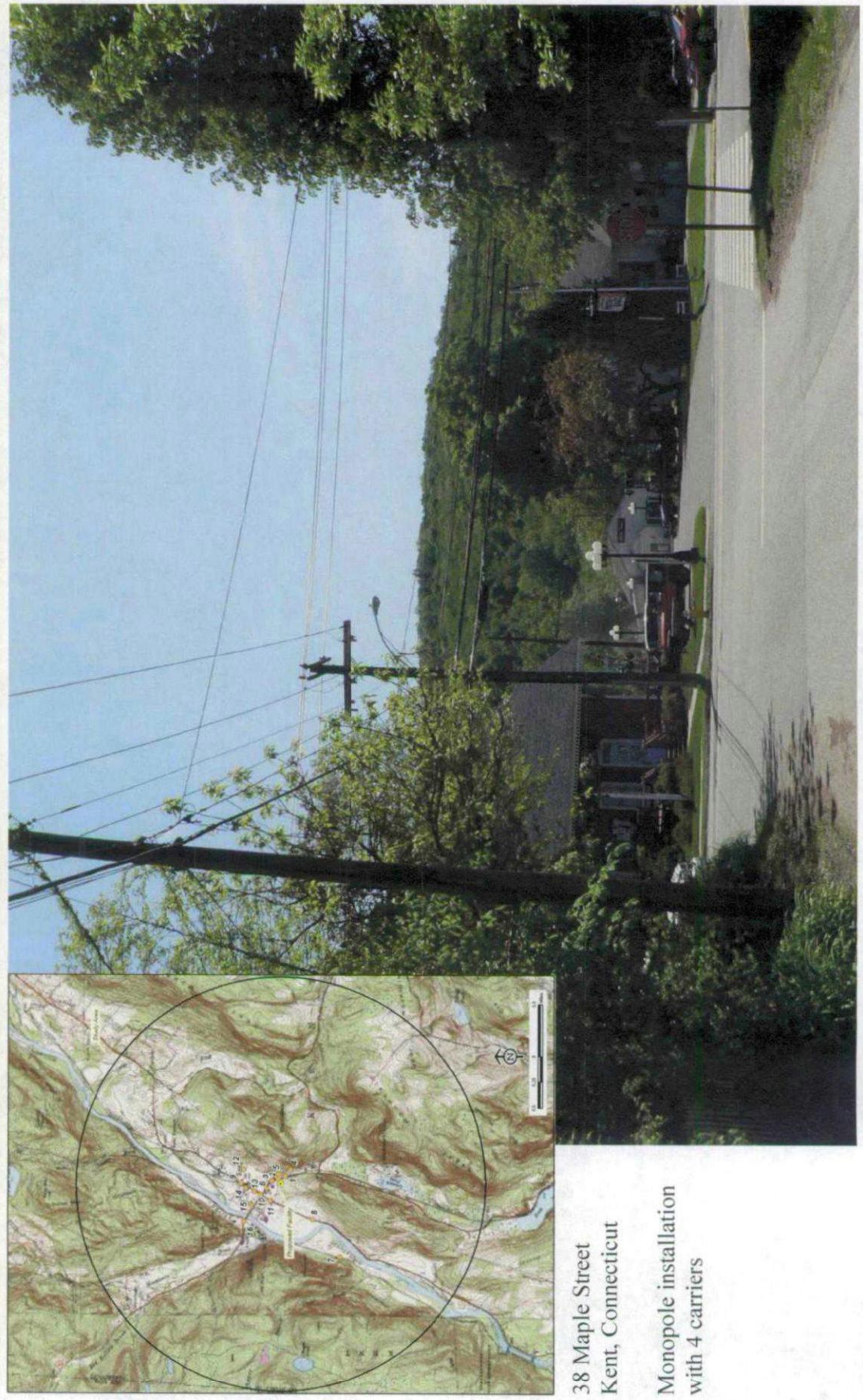


PHOTO TAKEN FROM ROUTE 7 (MAIN STREET), LOOKING SOUTHEAST - BALLOON IS NOT VISIBLE
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.27 MILE +/-



Photographic Documentation and Simulation *View 14*



38 Maple Street
Kent, Connecticut
Monopole installation
with 4 carriers

PHOTO TAKEN FROM LANE STREET WEST OF ROUTE 7 (MAIN STREET), LOOKING SOUTHEAST - BALLOON IS NOT VISIBLE
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.34 MILE +/-



Photographic Documentation and Simulation View 15

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut

Monopole installation
with 4 carriers



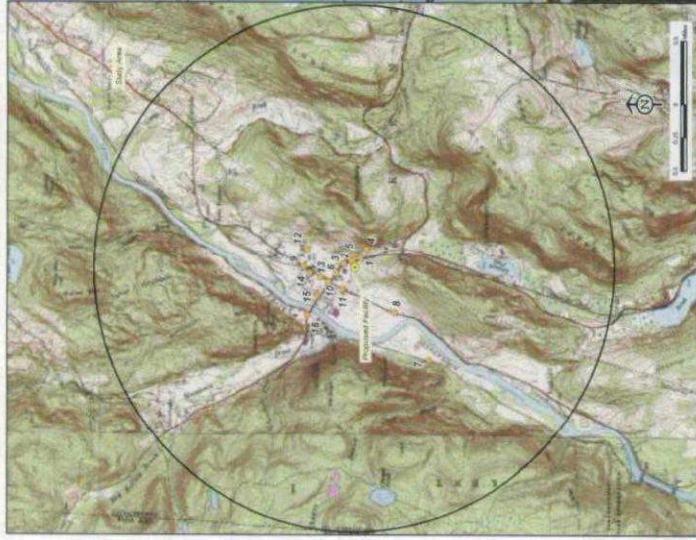
PHOTO TAKEN FROM ELIZABETH STREET ADJACENT TO HOUSE #29, LOOKING SOUTHEAST - BALLOON IS NOT VISIBLE
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.35 MILE +/-



Hanigan Braxton, Inc.

Photographic Documentation and Simulation View 16

Town of
Kent
Connecticut



38 Maple Street
Kent, Connecticut

Monopole installation
with 4 carriers

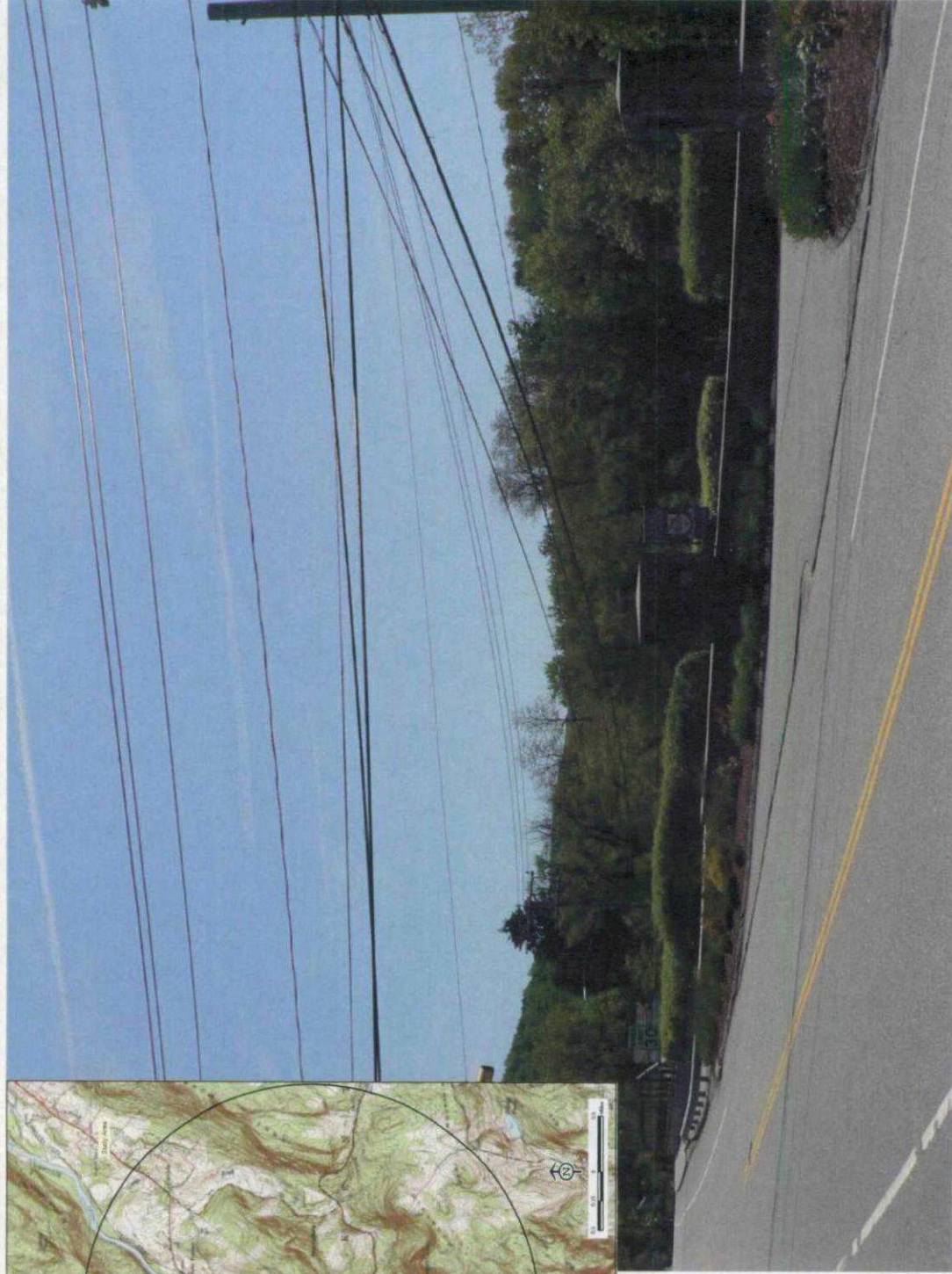


PHOTO TAKEN FROM ROUTE 341 (ENTRANCE TO THE KENT SCHOOL) NORTH OF SKIFF MOUNTAIN ROAD, LOOKING
SOUTHEAST - BALLOON IS NOT VISIBLE
DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.35 MILE +/-



Attachment B

Viewshed Map

Viewshed Map

Topography and Forest Cover as Constraints

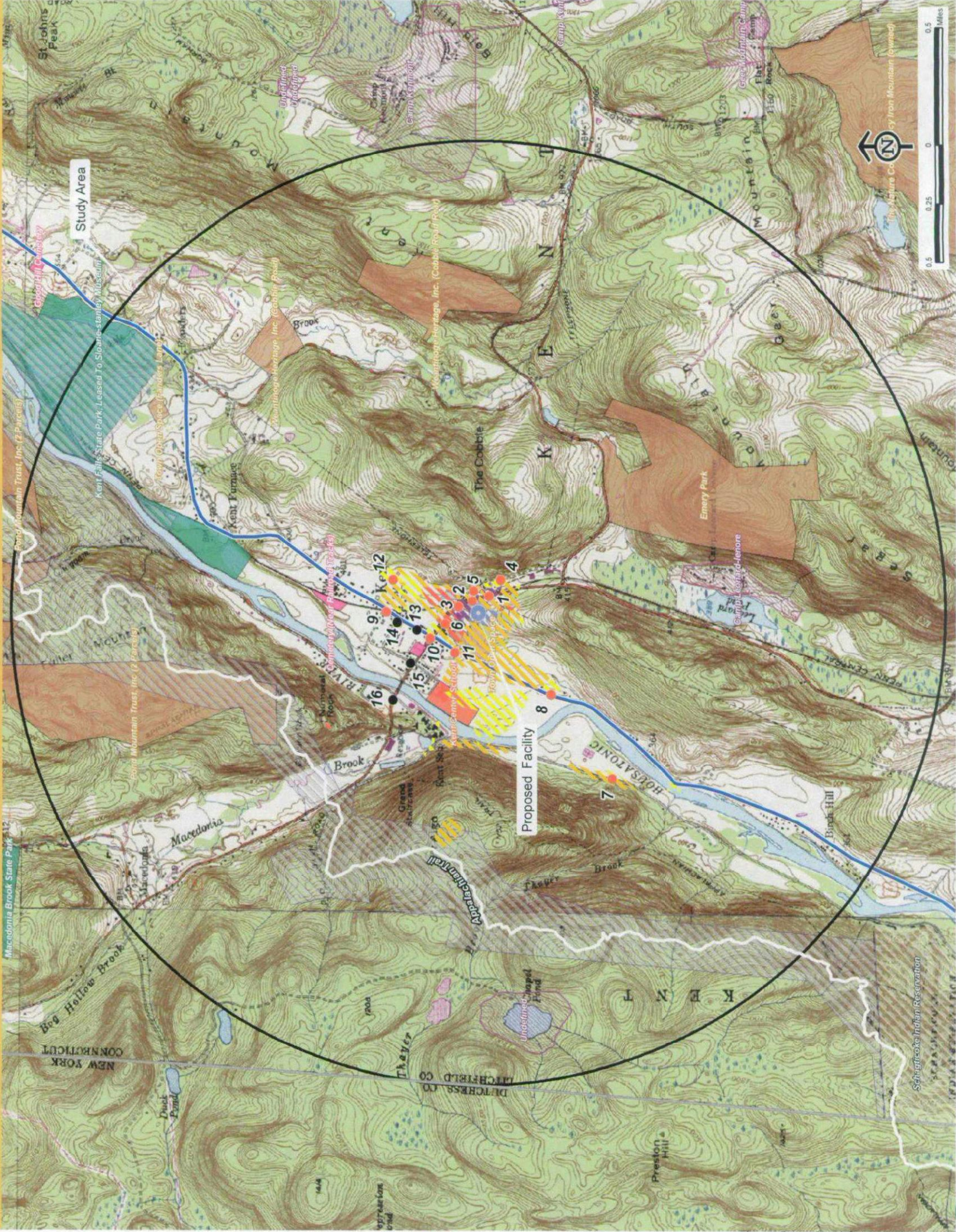
Town of
Kent
Connecticut

Proposed Verizon Wireless Telecommunications Facility Kent 38 Maple Street Kent, Connecticut

NOTE:

- Viewshed analysis conducted using ESRI's Spatial Analyst.
 - Proposed Facility height is 150 feet.
 - Existing tree canopy height estimated at 65 feet.
 - Study Area consists of a two mile radius around the proposed Facility and includes 8,042 acres of land
- DATA SOURCES:**
- 7.5 minute digital elevation model (DEM) with 30 meter resolution produced by the USGS, 1982
 - Forest areas derived from 2004 digital orthophotos with 0.5-foot pixel resolution; digitized by VHB, 2007
 - Base map comprised of Dover Plains and Kent USGS Quadrangle Map
 - Protected properties data layer provided CTDEP, 2003
 - Scenic Roads layer derived from available State and Local listings.

Map Compiled June 2007



Legend

- Proposed Monopole Location (Includes select areas of visibility approximately 500 feet around facility)
- Photographs - May 22, 2007
 - Balloon Not Visible
 - Balloon Visible Above Trees
 - Anticipated Seasonal Visibility (Approximately 135 Acres)
- Approx. % of Tower Visible (Year-Round)
 - Tree Line View to Upper 25% - 48 Acres
 - 50% - 13 Acres
 - 75% - 7 Acres
 - Entire Facility Visible - 5 Acres
- Total Year-Round Visibility Approximately 73 Acres**
- Protected Properties (Municipal)
 - Cemetery
 - Preservation
 - Conservation
 - Existing Preserved Open Space
 - Recreation
 - General Recreation
 - School
 - Uncategorized
- Protected Properties (CT DEP)
 - State Forest
 - State Park
 - DEP Owned Waterbody
 - State Park Scenic Reserve
 - Historic Preserve
 - Natural Area Preserve
 - Fish Hatchery
 - Flood Control
 - Other
 - State Park Trail
 - Water Access
 - Wildlife Area
 - Wildlife Sanctuary
- Protected Properties (Federal)
 - DEP Boat Launches
 - Scenic Road (State and Local)
 - Appalachian Trail
 - Town Line