

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE: :
: :
APPLICATION OF CELLCO PARTNERSHIP : DOCKET NO. 368
D/B/A VERIZON WIRELESS FOR A :
CERTIFICATE OF ENVIRONMENTAL :
COMPATIBILITY AND PUBLIC NEED FOR :
THE CONSTRUCTION, MAINTENANCE :
AND OPERATION OF A WIRELESS :
TELECOMMUNICATIONS FACILITY OFF :
STERLING ROAD (ROUTE 14), :
PLAINFIELD, CONNECTICUT : DECEMBER 18, 2008

RESPONSES OF CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS
TO CONNECTICUT SITING COUNCIL POST-HEARING INTERROGATORIES

On December 3, 2008, the Connecticut Siting Council (“Council”) issued Post-Hearing Interrogatories to the Applicant, Cellco Partnership d/b/a Verizon Wireless (“Cellco”), relating to the above-captioned docket. Below are Cellco’s responses.

Question No. 1

If Cellco were to locate its proposed facility between 200 and 600 feet south of the location identified in its application:

- a. Would the increase in ground elevation allow Cellco to reduce the height of the proposed 160-foot monopole tower and still achieve its coverage objectives from this site? Please provide propagation maps to indicate what Cellco’s coverage would be, at different heights as necessary.
- b. How would such a change in location affect the visibility of the tower within the application’s study area?
- c. Would Cellco’s landlord be amenable to such a change in location?

- d. How would such a change in location affect the engineering of the project?
- e. Would such a change in location be amenable to the tribal entities that are interested in this area of Connecticut?
- f. How many additional trees would need to be removed for a change in location?
- g. Would there be any other significant environment impacts such as wetlands disturbance, encroachment on listed species habitat, etc.?

Response

During the December 2, 2008 public hearing, the Council and Cellco discussed the possibility of relocating the proposed Moosup tower site to the south of the location proposed in the Docket No. 368 application (“Application”). By doing so, the Council suggested that Cellco would be able to take advantage of a higher ground elevation on the property; may be able to reduce the height of the proposed tower; and may be able to reduce the visual impact of the proposed tower.

The alternative location selected and investigated by Cellco’s technical consultants is located approximately 660 feet south of the proposed cell site location. Attached behind Tab 1 is a combination aerial photograph and topographic map showing the location of the proposed and alternative cell site location.

a. The ground elevation at the alternative site location is approximately 513’ above mean sea level (“AMSL”), about 60 feet higher than the ground elevation at the proposed tower location (approximately 454’ AMSL). At the alternative site location, Cellco’s RF engineers determined that it would need an antenna centerline height of 147 feet in order to satisfy its coverage objectives in the Moosup area and provide coverage comparable to that achieved at the 157-foot level on the proposed tower. As discussed in the Application and during the Council’s

public hearing, the primary objective for Cellco's proposed Moosup Facility is to provide PCS and, to a lesser extent, cellular coverage along significant portions of Route 14 between Cellco's existing Sterling and Plainfield North 2 cell sites. By relocating the tower approximately 660 feet to the south, Cellco begins to lose valuable coverage along Route 14 to the west due to shadowing caused by topography in the area of Whitney Hill. (See Application Tab 1, p. 2 – USGS Topographic Map). Attached behind Tab 2 of these responses are coverage maps showing Cellco's PCS and cellular coverage from the proposed alternative cell site location with antennas at a centerline height of 147 feet.

Mounting antennas 10 feet lower, at the 137-foot level at the alternative site location, results in the opening of a PCS coverage gap of approximately 0.15 miles along Route 14 to the west, in the Whitney Hill area. This same coverage gap appeared on the coverage plots prepared in response to Council Interrogatory No. 9, showing PCS coverage from the proposed Moosup cell site at a height of 150 feet (147' centerline), ten feet lower than proposed in the Application. Attached behind Tab 3 are PCS and cellular coverage maps for the alternative location at 137 feet.

- b. See Supplemental Visual Evaluation behind Tab 4.
- c. Cellco has contacted its landlord and was told that the alternative cell site location shown on the map behind Tab 1 and discussed in these responses would be acceptable.
- d. The change in location of the cell site compound to the alternative site location would not have a significant affect on site engineering or construction activity. The increased distance of the cell site south of Sterling Road would result in the need to construct an access road approximately 815 feet longer than that required to access the proposed cell site. As discussed during the December 2, 2008 hearing, the access road to the proposed cell site location

maintains a fairly consistent grade from north to south. The construction of an extended site access driveway and new alternative site compound would not pose any significant engineering challenges. The additional work would, however, result in the clearing and grading of an additional 28,000 square feet of the landowner's property.

e. Mr. Harris, Tribal Historic Preservation Officer of the Narragansett Tribe, determined during a site walk on December 17, 2008 that the proposed alternate site location has the potential to include artifacts of significance to the Narragansett Tribe. He indicated that he could provide a conditional clearance for the proposed alternative site location, but would require additional testing prior to any ground disturbance.

f. Locating the tower at the alternative location will require the removal of approximately 40 additional significant trees (trees measuring six inches or greater diameter at breast height); a total of 107 trees. Only 67 trees would need to be removed to construct the proposed cell site.

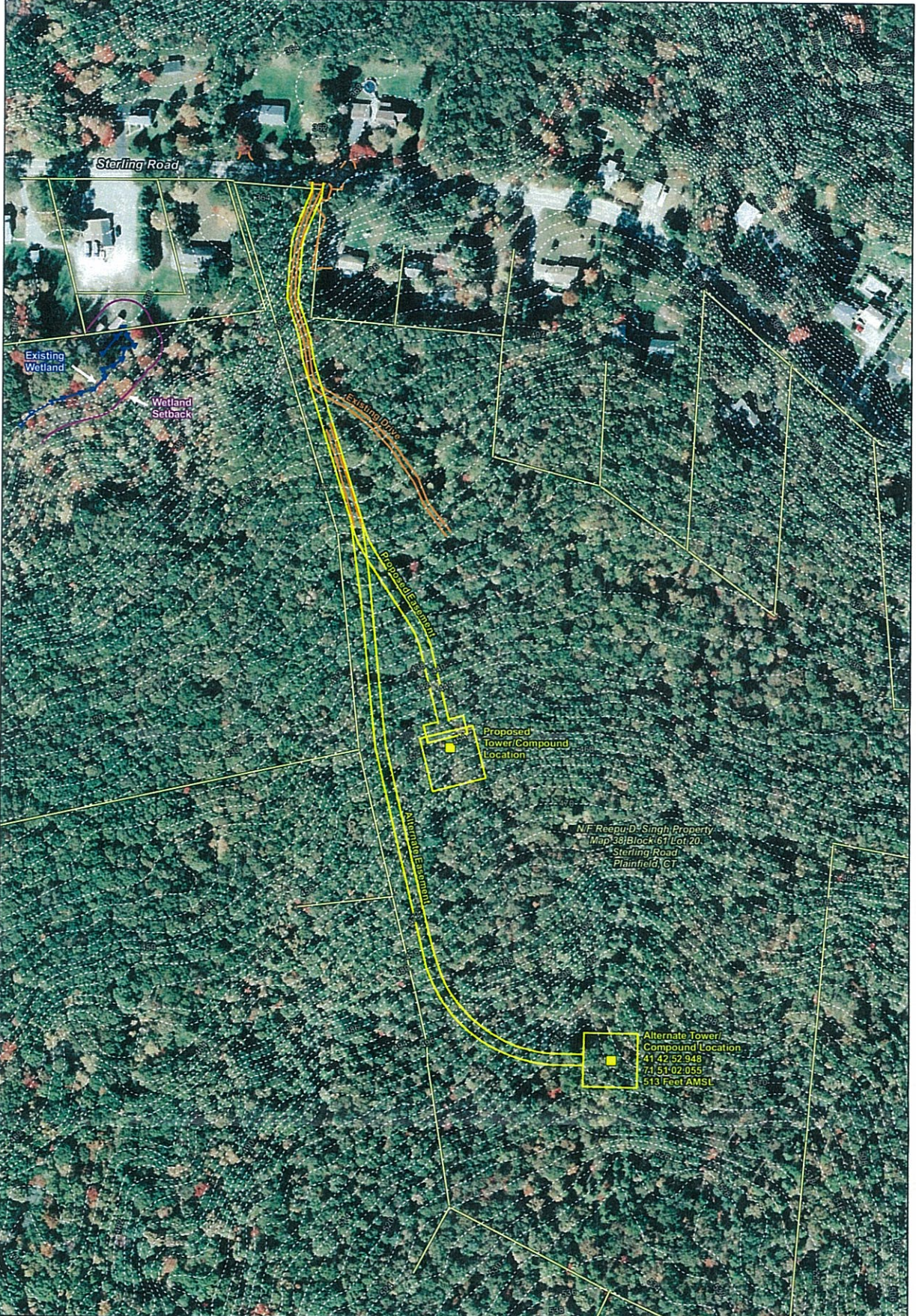
g. Relocating the tower site to the alternative location will not result in any wetland disturbance nor will it impact rare, threatened or endangered species.

Question No. 2

Is the tower identified in the application as Cellco's Sterling cell site, located off Exeter Drive, visible from locations 5 through 8 of VHB's Visual Resource Evaluation Report?

Response

The Sterling cell site is not visible from those locations depicted in Views 5 through 8. Please refer to the attached photo documentation included behind Tab 5. Intervening vegetation and/or topography obstruct potential views of the Sterling Tower from these locations.



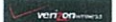
Legend

	Tower		Existing Wetland
	Contours (2-foot)		Wetland Setback
	Existing Drive		Proposed Lease Compound/Easement
	Existing Property Line		

Source: 2006 aerial photograph with a 1-foot pixel resolution.
 Contours generated from 2000 Connecticut LIDar 10-foot DEM data.
<http://clear.uconn.edu/data/lidar/index.htm>

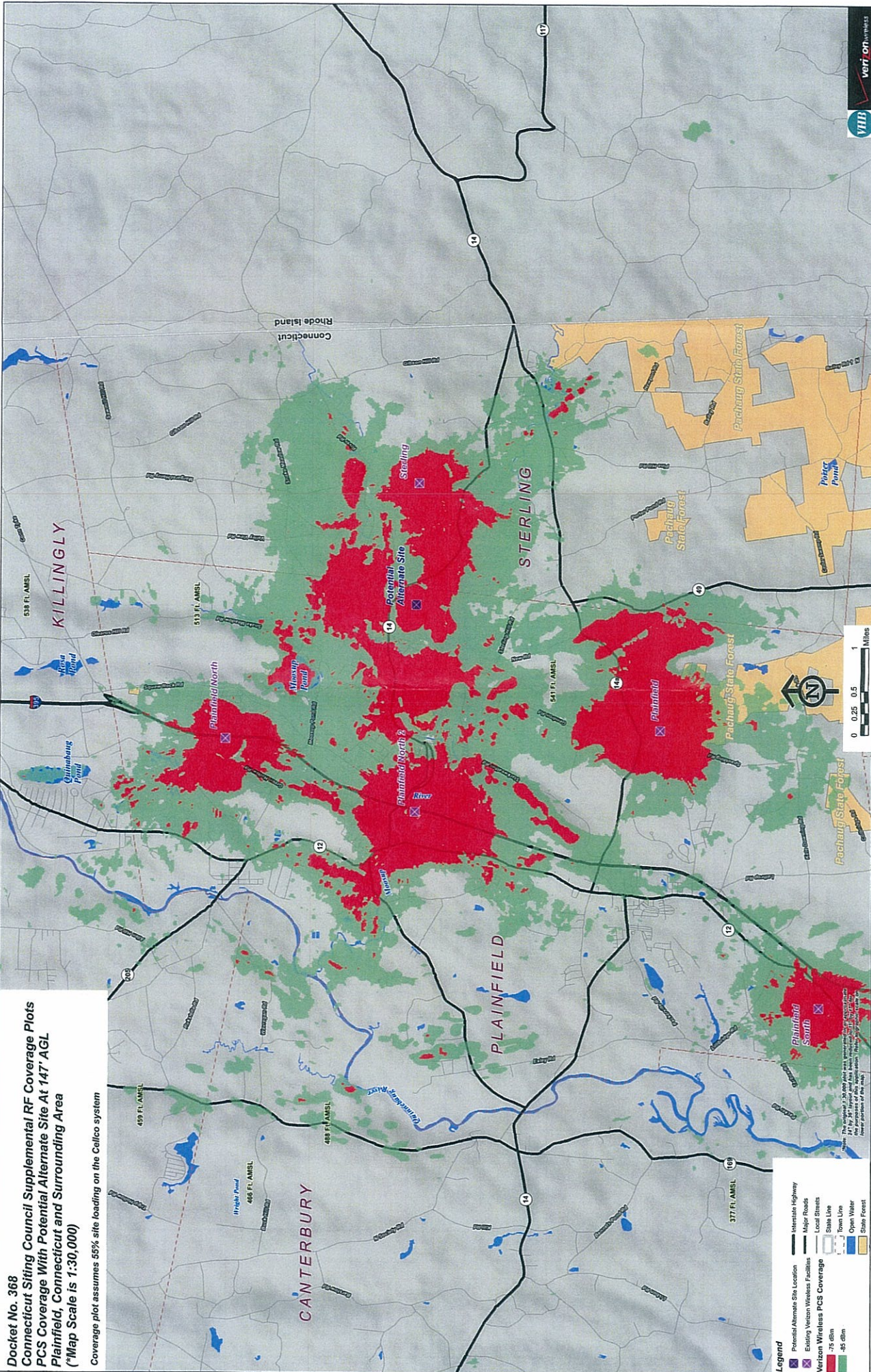
Vanasse Hangen Brustlin, Inc.

**Proposed Verizon Wireless
 Telecommunications Facility
 Alternate Site Location
 Moosup
 Sterling Road
 Plainfield, Connecticut**



Docket No. 368
Connecticut Siting Council Supplemental RF Coverage Plots
PCS Coverage With Potential Alternate Site At 147' AGL
Plainfield, Connecticut and Surrounding Area
 (*Map Scale is 1:30,000)

Coverage plot assumes 55% site loading on the Cellco system



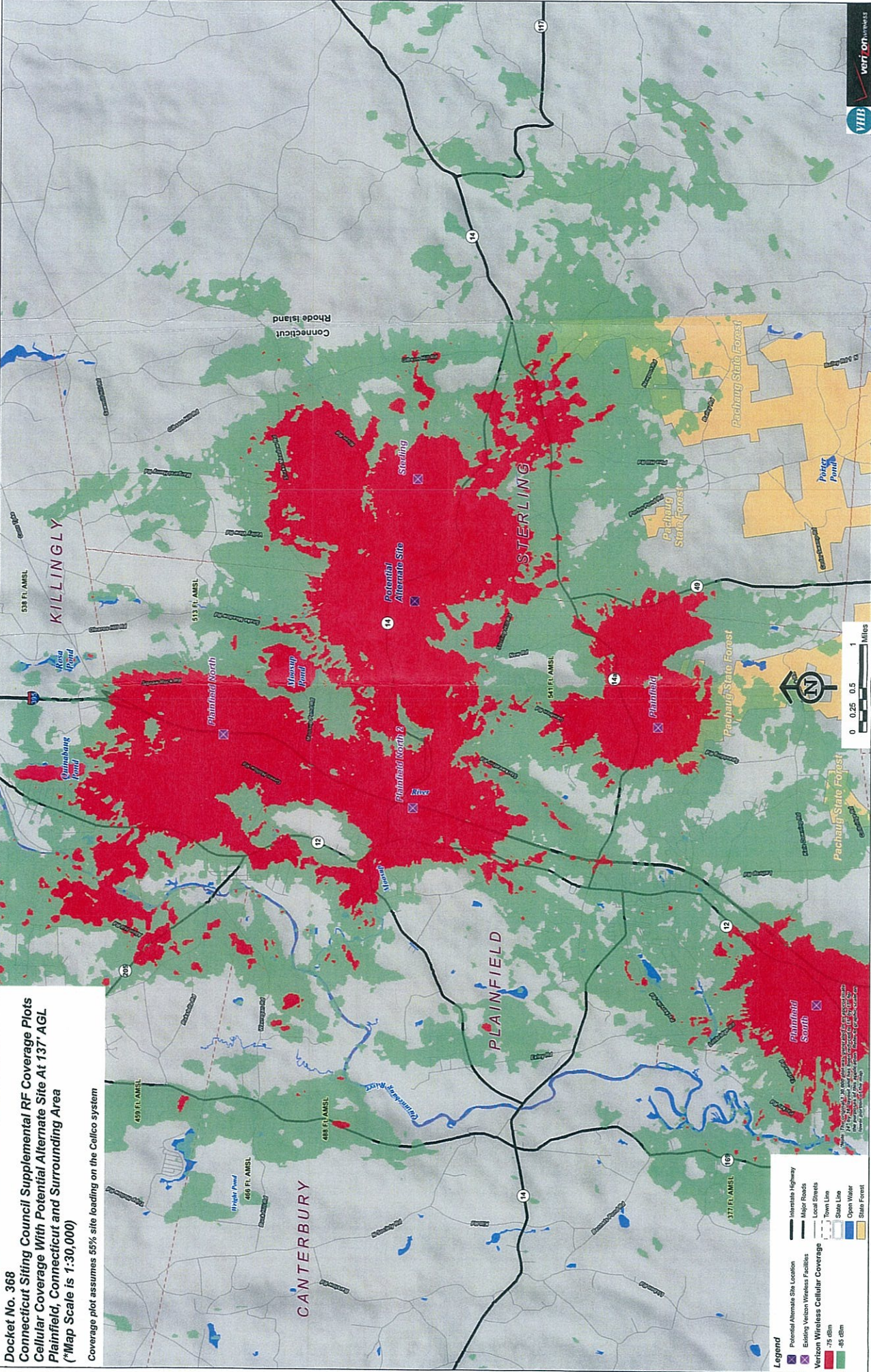
Legend

- Potential Alternate Site Location
- Interstate Highway
- Major Road
- Major Floods
- Local Streets
- State Line
- Town Line
- Verizon Wireless PCS Coverage -75 dBm
- Verizon Wireless PCS Coverage -85 dBm
- Open Water
- State Forest

0 0.25 0.5 1 Miles



Note: The original 1:30,000 scale map was prepared by the State of Connecticut in 1997. The map data is based on the 1997 map and does not reflect any changes in the lower portion of the map.



Docket No. 368
Connecticut Siting Council Supplemental RF Coverage Plots
Cellular Coverage With Potential Alternate Site At 137' AGL
Plainfield, Connecticut and Surrounding Area
 (*Map Scale is 1:30,000)

Coverage plot assumes 55% site loading on the Collico system

- Legend**
- Potential Alternate Site Location
 - Interstate Highway
 - Major Roads
 - Local Streets
 - Town Streets
 - State Line
 - Open Water
 - State Forest
 - Verizon Wireless Cellular Coverage
 - 75 dBm
 - 85 dBm
 - Existing Verizon Wireless Facilities





Vanasse Hangen Brustlin, Inc.

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Middletown, Connecticut 06457
860 632-1500
FAX 860 632-7879

Memorandum

To: Alexandria Carter
Regulatory Manager
Verizon Wireless
99 East River Drive
East Hartford, CT 06108

Date: December 17, 2008

Project No.: 41240.59

From: VHB

Re: Connecticut Siting Council
Docket No. 368 - Moosup
Visual Evaluation
Potential Alternate Site Location
Sterling Road
Plainfield, Connecticut

Cellco Partnership (dba Verizon Wireless) currently has an application pending with 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 property off Sterling Road in the Town of Plainfield, Connecticut (identified herein as the "host property") (Docket No. 368). The proposed Facility includes the installation of a 160-foot tall monopole and associated ground equipment to be located within a fence-enclosed compound. The proposed Site is located at approximately 454 feet Above Mean Sea Level (AMSL).

During the December 2, 2008 Connecticut Siting Council evidentiary hearing, Verizon Wireless was asked to determine whether relocating the proposed Facility to a higher ground elevation on the host property would allow the applicant to provide comparable coverage using a lower tower while potentially, decreasing its visibility. As such, Verizon Wireless identified a potential alternate site located approximately 660 feet to the southeast of the proposed Facility that sits at approximately 513 feet AMSL, representing an increase in ground elevation of roughly 59 feet in comparison to the proposed location. The location of the potential alternate site is depicted on the attached *Site Location and Photolog Map*. Verizon Wireless radio frequency engineers subsequently determined that relocating the monopole to this location would enable them to achieve similar service as the proposed Facility, with a tower height of 150 feet.

Vanasse Hangen Brustlin, Inc. (VHB) assessed the potential viewshed associated with the construction of a 150-foot tall monopole at the alternate site location. In order to determine the specific areas and extent to which a 150-foot tall monopole located at the alternate site may be visible above the existing tree canopy, VHB utilized various computer modeling techniques that both incorporated and expanded upon elements of the methodologies typically contained in our visibility analyses. These modeling techniques included the development of a three-dimensional (3-D) model of the topography within the general vicinity of the host property as well as the preparation of a comparative viewshed model depicting the areas of year-round visibility of the proposed Facility (160-foot tall monopole at the original site location) versus a 150-foot tall monopole at the alternate site location.

The 3-D terrain model was derived from Connecticut LiDAR-based digital elevation data. The LiDAR data was produced by the University of Connecticut Center for Land Use Education and Research (CLEAR) in 2007 and has a horizontal resolution of 10 feet. Based on the elevation values contained within the LiDAR-based DEM, a spatially rectified, 3-D rendering of the topographic features surrounding the two site locations and host property was developed. Once the terrain model was established, 160-foot tall and 150-foot tall three dimensional cylindrical forms were placed at the proposed Facility and potential alternate site, respectively, in order to represent the heights of each monopole. With these objects in place, VHB developed digital views of the tower structures from locations corresponding to select views depicted in VHB's *Visual Resource Evaluation Report* (August 2008). Specifically, these include View 4, View 8 and View 12. These composite images allow for a direct comparison between the proposed Facility and the potential alternate site from the three representative views (see the attached *Photographic Simulations*).

VHB also prepared a comparative viewshed map that depicts the areas of year-round visibility associated with the proposed Facility and the potential alternate location within a two mile radius of the sites ("Study Area"), using the same methodology as the August 2008 *Visual Resource Evaluation Report*.

The results of this analysis suggest that the viewshed associated with the installation of a 150-foot tall monopole at the alternate site location would represent an overall increase in year-round visibility of approximately 43 acres (88 acres versus 131 acres, respectively, for the proposed Facility versus alternate site location). In general, the areas of visibility indicated on the viewshed map for the two locations are generally similar. However, the alternate site location, situated at a ground elevation of 513 feet AMSL, would expand several areas of anticipated year-round visibility common to both sites and would extend potential views to several new areas.

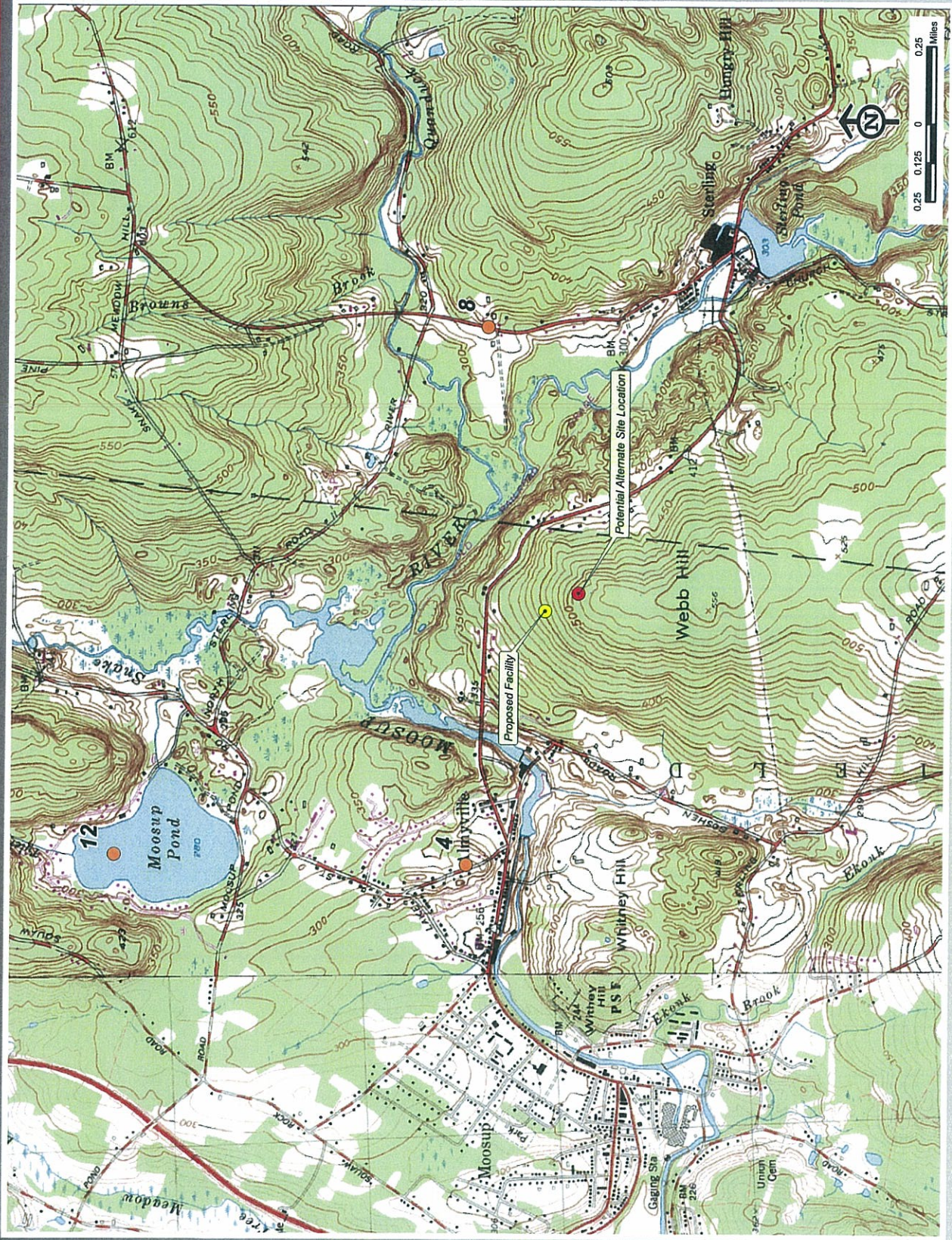
Moreover, the 3-D modeling and composite images indicate that the 150-foot tall monopole would stand slightly taller above the surrounding tree canopy in comparison to the currently proposed Facility in the representative photo locations selected for inclusion in this analysis. This was found to be fairly consistent throughout the Study Area. VHB evaluated the difference in view from each of the photo locations presented in the *Visual Resource Evaluation Report* and determined the following.

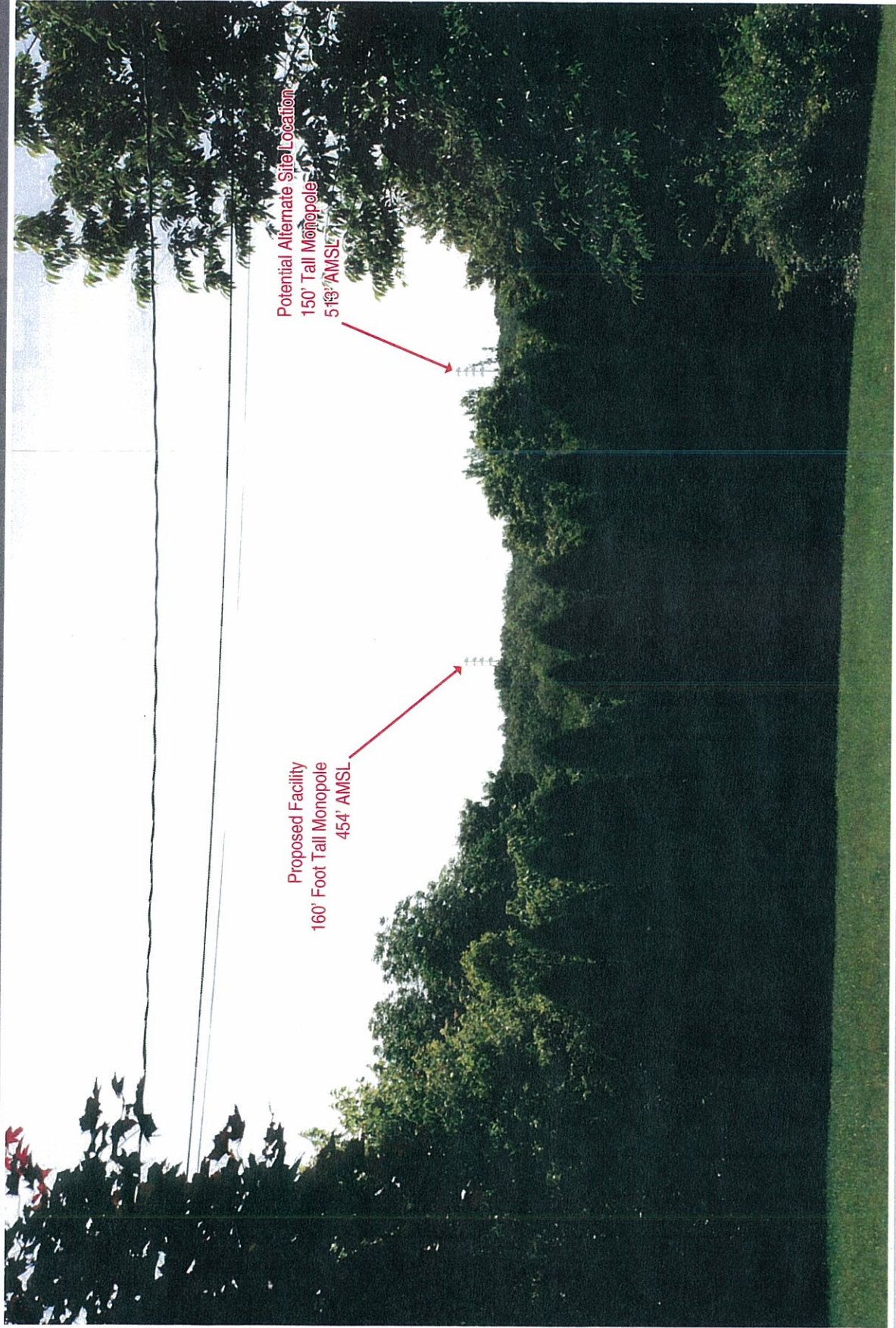
- View 1 represents a very limited area of visibility associated with the proposed Facility. If the tower was relocated to the alternate site (farther to the southeast), it would not be visible from this specific photo point (it would shift to the left if viewing Photo #1). However, it would be visible if the viewer was standing farther westward on Route 14 (or to the right in the photo) which would result in slightly more of the monopole being visible above the tree line.
- Views 2 and 3 were presented to depict the extent of intermittent visibility along Route 14 west of the proposed Site. Relocation of the tower would result in a minor shift of this area of visibility, pushing the view slightly to the right in these photos (potentially obscuring it from direct view by the evergreen on south side of Route 14 in Photo 2).
- The attached View 4 photo simulation was selected as representative of the change of view of the tower if relocated to the alternate site from areas west of the property and proximate to Route 14 (including photo 13). The relocated tower would shift to the right in this photo and extend slightly higher above the tree line.
- Views 5, 6, and 7 are represented in the attached View 8 photo simulation of the relocated tower. These views all face westward towards the facility and Webb Hill. In these instances, the relocated tower would shift to the left, up the ridgeline, and protrude slightly higher above the tree line.

- View 9 would not change significantly if the tower were relocated to the alternate site. The tower would move slightly to the left in this photo with no appreciable change in height above the tree line.
- Visibility from Moosup Pond (including Views 10 and 11) is represented in the attached View 12 photo simulation. From this area, the relocated tower would shift slightly to the right on the horizon and extend further above the tree line.
- Relocation would affect View 13 by shifting the tower to the right and extending it slightly further above the tree line (similar to the attached View 4 photo simulation).

Placing the facility at the alternate location would increase the overall visibility of the tower throughout the Study Area. This increase can be attributed to the alternate site's higher ground elevation in comparison to the proposed Facility (454 feet AMSL vs. 513 feet AMSL), which is not significantly offset by the ten-foot decrease in tower height (the maximum reduction that can be achieved and still provide comparable service coverage). When comparing specific views of the tower from the proposed location and the potential alternate site, there is a general increase of visibility of the monopole above the tree line. Based on our evaluation of visibility associated with a potential relocation, we conclude that no benefit is achieved from placing the facility at the alternate site.

Site Location and Photolog Map



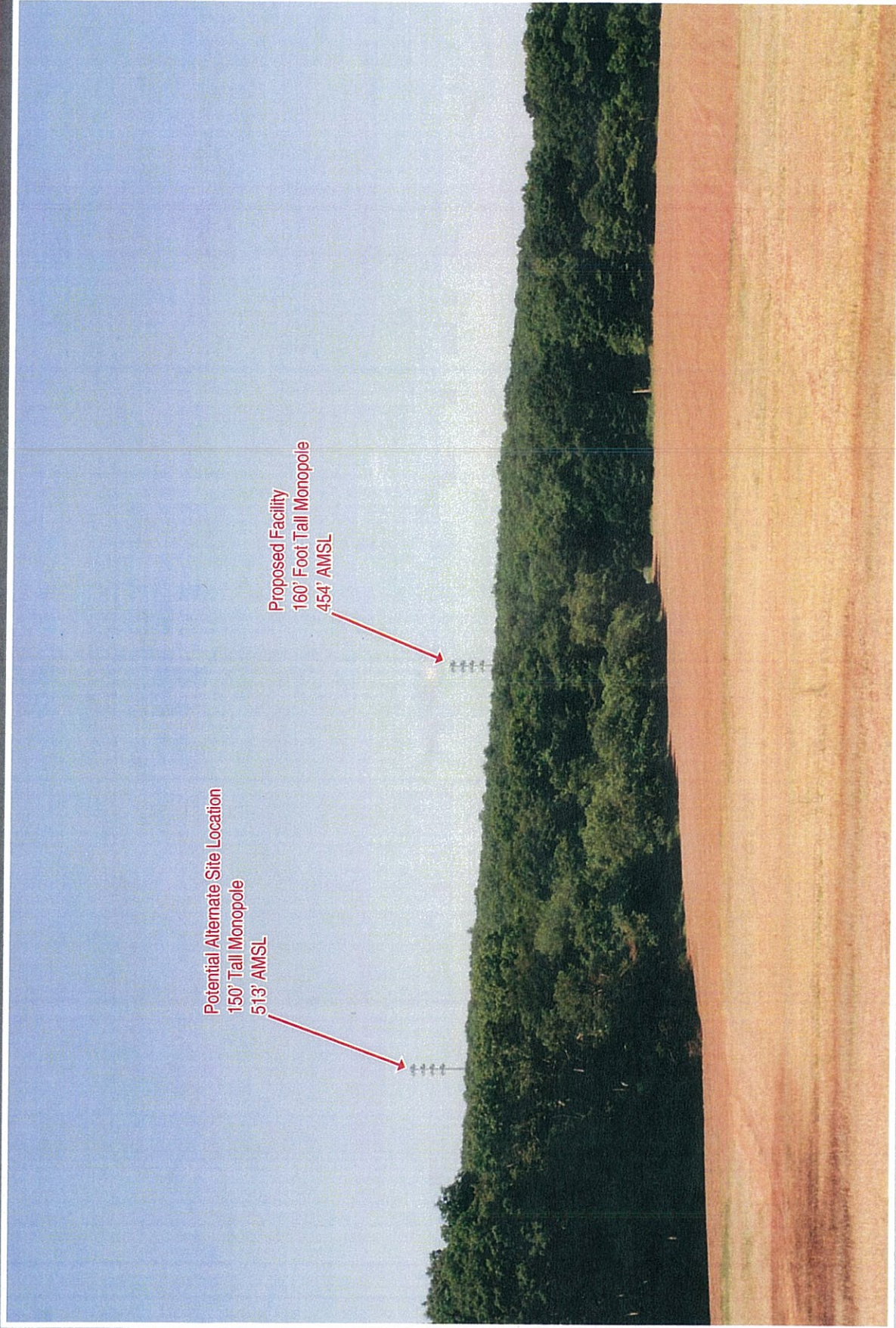


Proposed Facility
160' Foot Tall Monopole
454' AMSL

Potential Alternate Site Location
150' Tall Monopole
513' AMSL

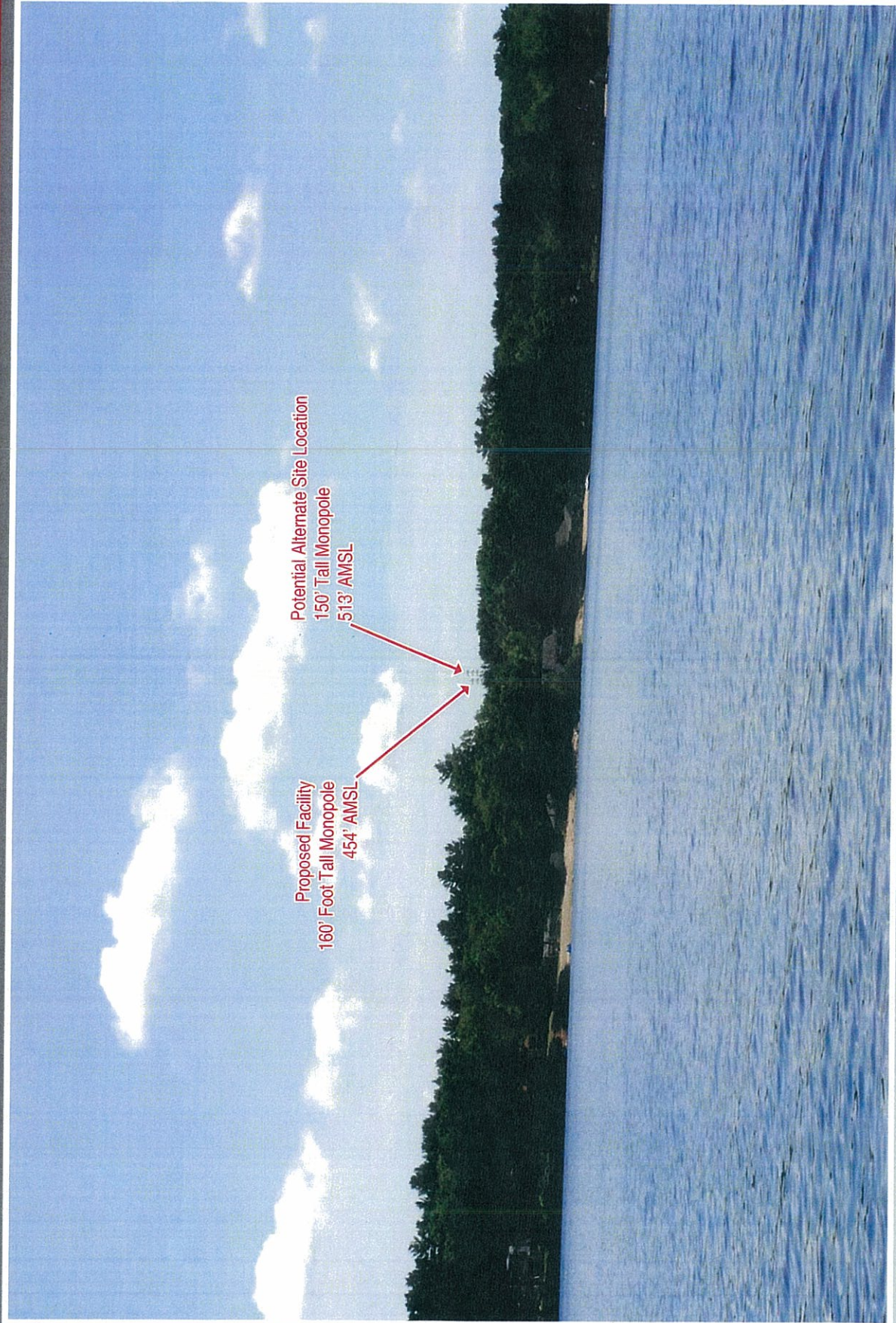
VIEW FROM PARENT HILL ROAD ADJACENT TO HOUSE# 28, LOOKING SOUTHEAST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO PROPOSED SITE LOCATION IS 0.85 MILE +/-
DISTANCE FROM THE PHOTOGRAPH LOCATION TO ALTERNATE SITE LOCATION IS 0.96 MILE +/-

J:\11240_59\graphics\FIGURES\11-084\1240_59_PhotoSim_FEV.indd



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VIEW FROM MAIN STREET ADJACENT TO HOUSE #260, LOOKING SOUTHWEST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO PROPOSED SITE LOCATION IS 0.94 MILE +/-
DISTANCE FROM THE PHOTOGRAPH LOCATION TO ALTERNATE SITE LOCATION IS 0.92 MILE +/-



VIEW FROM VIEW FROM MOOSUP POND, LOOKING SOUTHEAST
DISTANCE FROM THE PHOTOGRAPH LOCATION TO PROPOSED SITE LOCATION IS 1.59 MILES +/-
DISTANCE FROM THE PHOTOGRAPH LOCATION TO ALTERNATE SITE LOCATION IS 1.72 MILES +/-

J:\14240.B9\graphics\FIGURES\12-11-08\1240_59_PhotoSim_REV1.indd

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Proposed Verizon Wireless Facility – Docket No. 368
Assessment of Potential Views of Sterling Tower located on Exeter Drive, Sterling, CT
December 15, 2008



Photo View Location 5 looking east. Exeter tire-to-energy plant in view. Sterling Tower is located approximately 550 feet north of the plant but is obstructed by vegetation.



Photo View Location 6 looking east. Sterling Tower is not visible due to topography and vegetation obstructions.

Vanasse Hangen Brustlin, Inc.
PHOTOLOG DOCUMENTATION
Proposed Verizon Wireless Facility – Docket No. 368
Assessment of Potential Views of Sterling Tower located on Exeter Drive, Sterling, CT
December 15, 2008



Photo View Location 7 looking east. Sterling Tower is not visible due to topography and vegetation obstructions.



Photo View Location 8 looking east. Sterling Tower is not visible due to topography and vegetation obstructions.