1.0 US Geological Maps (View Shed Maps)

Using Geographic Information Systems (GIS)
To Calculate the Theoretical Visibility of the Silo Ridge Resort Community Master Development Plan

I. Overview

Geographic Information Systems (GIS) technology was used to calculate the theoretical visibility of the proposed buildings of the Silo Ridge Resort Community Master Development Plan. The site is located just west of NYS Route 22 near the intersection of Route 22 and Lake Amenia Road in the Town of Amenia, Dutchess County, New York. A GIS-based visibility analysis was conducted for the land located within a 5 mile radius of the site following the guidelines documented in the NYSDEC publication, "Assessing and Mitigating Visual Impacts" (2000).

The visibility analysis took into account the following factors: the location, finished floor elevation and height of all proposed buildings; the on-site vegetation to be cleared for the construction of the proposed buildings, and vegetation cover and existing topographic conditions within the 5 mile radius analysis zone.

The analysis utilized Environmental Systems Research Institute's (ESRI's) ArcMap 9.2 with the 3-D Analyst Extension. The results of the visibility analysis yielded a digital raster dataset, that is, a digital grid of uniform cell size, in which the value of each grid cell is the number of buildings that are visible from that particular grid cell. A map was produced showing the areas from which the buildings are theoretically visible on a USGS 7.5' topographic base map, and including important recreational, historic and aesthetic resources (e.g., parks, bike trails, historic sites) within the 5 mile analysis zone to illustrate which resources may be impacted by the proposed development.

II. Datasets Used In the Visibility Analysis

This section describes the datasets that were used to conduct the visibility analysis and discusses the function of each:

1. USGS National Elevation Dataset (NED) 1/3 Arc Second – The National Elevation Dataset (NED) 1/3 Arc Second is a 10 meter resolution raster product assembled by the U.S. Geological Survey (USGS). NED is designed to provide elevation data in a seamless form with a consistent datum, elevation

unit, and projection. This dataset was the source of the existing topography surrounding the proposed development within the 5 mile radius visibility analysis zone. Within the project boundary, the NED topographic information was replaced by more detailed, 2-foot contour interval topographic survey data.

2. Digital Topographic Survey - A topographic survey of the proposed development was created by professional surveyors and stored in AutoCAD format. The topographic survey delineates the existing topography within the project boundary at a 2-foot contour interval level of detail. This AutoCAD file was geo-referenced and converted directly to GIS format for incorporation into the GIS analysis. Since this topographic information is more accurate than that obtained from the USGS NED datasets, the 2-foot contour interval topographic data was substituted for the NED topographic data within the project boundary. This improved topographic dataset was used in the visibility analysis.

3. Digital Site Plan– The Master Development Plan (MDP), prepared by the design team was stored in AutoCAD format. The MDP delineates the scale and location of features such as building footprints, parking lots, and roads. This AutoCAD file was geo-referenced and converted directly to GIS format for incorporation into the GIS analysis. This dataset was used to define the location of the proposed buildings that were used in the analysis. Three distinct points on the Hotel structure were represented in the analysis, given the relatively large size of this building.

4. Vegetation Cover – Vegetation cover within a 5 mile radius of the project site was derived from 30-meter resolution land cover data produced by the National Oceanic and Atmospheric Administration (NOAA) Coastal Change Analysis mapping program. This information was used to take into account the effects of vegetation on the visibility of the proposed buildings. The following assumptions were made regarding vegetation heights: deciduous forest, evergreen forest and mixed forest were coded as 60 feet tall, and palustrine forested wetlands were coded as 40 feet tall. Furthermore, it was assumed that the site was not visible from these vegetated areas.

Methodology and Assumptions

The visibility analysis was conducted for all proposed buildings on the site. The finished floor elevation and height of the highest point of each building was used as the "observer" locations for the analysis. In addition, the analysis accounted for the vegetation cover within the five-mile radius analysis area and for the removal of vegetation required for the construction of the proposed buildings. It is assumed that the site is not visible from vegetated areas. Vegetated areas consist of deciduous forest, evergreen forest, mixed forest and palustrine forested wetland as defined in the 2005 Land Cover dataset produced by NOAA.

This map depicts the areas from which one or more of the proposed buildings are potentially visible. In addition, the map shows the aesthetic resources within the five-mile radius analysis area. Per the guidelines provided by the NYSDEC for assessing visual impacts (Assessing and Mitigating Visual Impacts, 2000), the inventory of aesthetic resources for this visual analysis consisted of: State Parks, State and National Register Listed Historic Sites, NYSDEC lands, Recreation Areas (Federal, State, County and Municipal), State Campgrounds, Scenic Areas of Statewide Significance, State Heritage Areas, State Designated Scenic Byways, National Natural Landmarks, and NYSDEC designated Wild, Scenic or Recreational Rivers.

Data Sources for the Inventory of Aesthetic Resources:

1. State Parks – New York State Parks; NYS Office of Parks Recreation and Historic Preservation, 2008. Online: http://www.nysgis.state.ny.us/gisdata/inventories/details.cfm?DSID=430

2. State and National Register Listed Historic Sites – New York State Parks; NYS Office of Parks Recreation and Historic Preservation, 2008. Online: http://www.nysgis.state.ny.us/gisdata/inventories/details.cfm?DSID=430

3. NYSDEC Lands – NYSDEC Lands, NYSDEC, May 2008. Online: http://www.nysgis.state.ny.us/gisdata/metadata/nysdec.lands.html

4. Public Land Boundaries – New York State Office of Cyber Security & Critical Infrastructure Coordination (CSCIC), 2008. Online: http://www.nysgis.state.ny.us/gisdata/inventories/details.cfm?DSID=931

   This dataset includes Federal, State, County and Local recreation areas (parks, forests, boat launches, etc.) and State Campgrounds.

5. Scenic Areas of Statewide Significance – New York State Department of State, Division of Coastal Resources, 1995. Online: http://www.nysgis.state.ny.us/gisdata/metadata/dos.scenic_dos.html

6. Trails
   New York State Multi-Use Trails; NYS Office of Cyber Security and Critical Infrastructure Coordination, 2008. Online: http://www.nysgis.state.ny.us/gisdata/metadata/cscic.nytrail.html

7. State Heritage Area – http://nysparks.state.ny.us/heritage/herit_area.asp

8. State Designated Scenic Byways – NYSDOT, 2008. Online: https://www.nysdot.gov/portal/page/portal/programs/scenic-byways

9. National Natural Landmark – None are within 5 miles of the site. Online: http://www.nature.nps.gov/nnl/

10. Wild, Scenic or Recreational Rivers - None are within 5 miles of the site. Per information from NYSDEC Division of Environmental Permits, 2008.

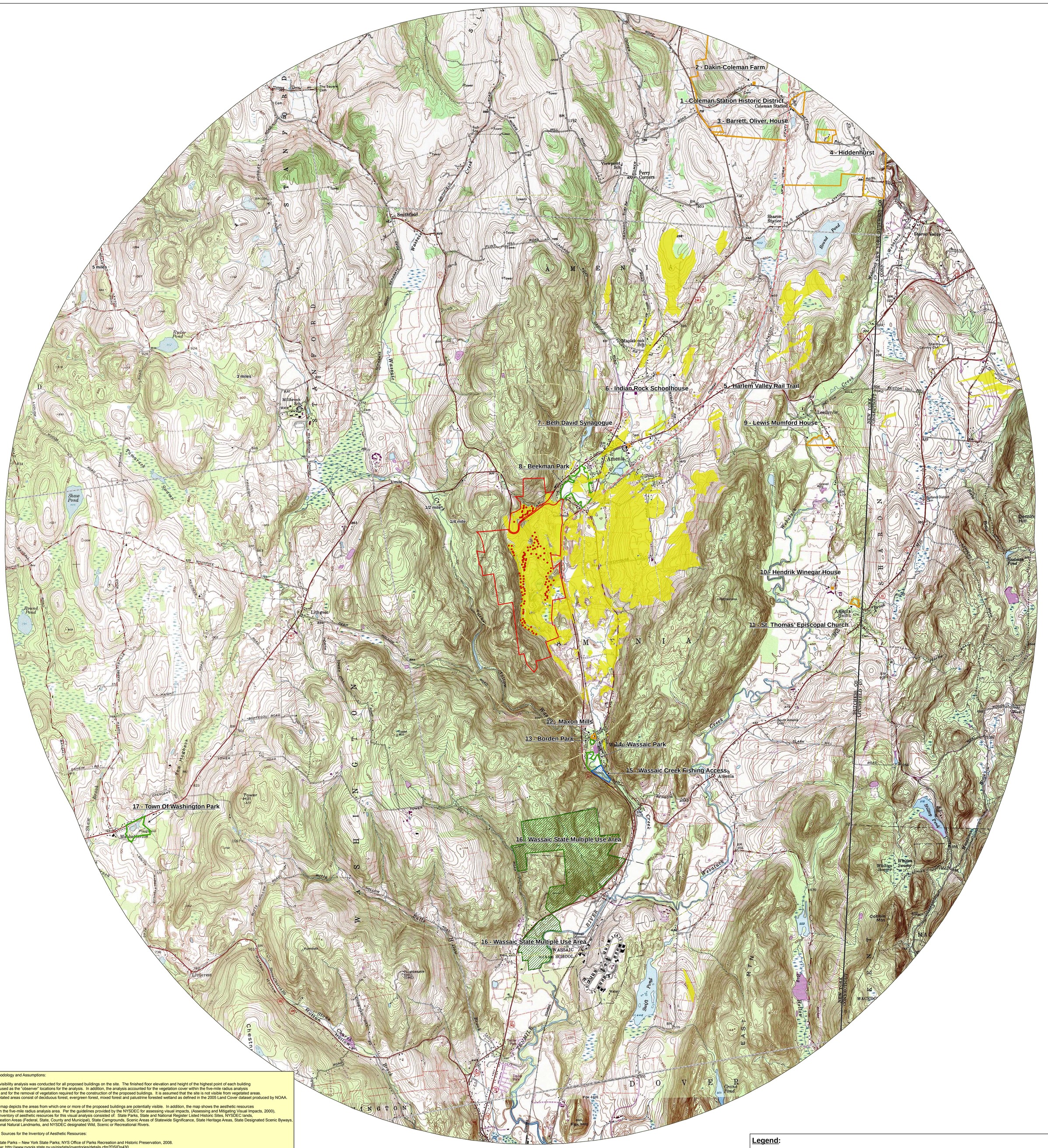
Other Information Reviewed:
Town of Amenia Recreation Master Plan
http://www.ameniany.gov/recmasterplan.asp

Data Sources for the Visual Analysis

1. Topography is based upon a combination of 2-foot contour interval topographic survey data for the site location and USGS 10 meter resolution DEM data for the remainder of the five mile radius area.

2. Vegetation coverage is derived from 2005 NOAA Land Cover data, 30 meter resolution satellite imagery. Deciduous forest, evergreen forest and mixed forest are assumed to be 60 feet tall; palustrine forested wetland is assumed to be 40 feet tall. The original vegetation coverage was modified to account for the removal of vegetation required for the construction of the proposed buildings.

3. The location, finished floor elevation and height of the highest point of each proposed building is based upon the Master Development Plan, June 2008.



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11. Town of Amenia Recreation Master Plan - http://www.ameniany.gov/recmasterplan.asp

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Aesthetic Resources Within the 5-Mile Radius Analysis Area

Label on Map	Name	Type	Buildings Potentially Visible
1	Coleman Station Historic District	Historic Site	2
2	Dakin-Coleman Farm	Historic Site	0
3	Barrett, Oliver, House	Historic Site	0
4	Hiddenhurst	Historic Site	3
5	Harlem Valley Rail Trail	Scenic Trail	51
6	Indian Rock Schoolhouse	Historic Site	0
7	Beth David Synagogue	Historic Site	0
8	Beekman Park	Municipal Park	15
9	Lewis Mumford House	Historic Site	0
10	Hendrik Winegar House	Historic Site	0
11	St. Thomas' Episcopal Church	Historic Site	0
12	Maxon Mills	Historic Site	0
13	Borden Park	Municipal Park	0
14	Wassaic Park	Municipal Park	0
15	Wassaic Creek Fishing Access	State Fishing Access	0
16	Wassaic State Multiple Use Area	State Forest	0
17	Town Of Washington Park	Municipal Park	0

Legend:

- Site Boundary
- Distance From Site
- County Boundary
- Town Boundary
- Location of Proposed Buildings
- Unvegetated areas from which one or more proposed buildings are potentially visible

Visual Resources

- Harlem Valley Rail Trail
- State Forest
- Fishing Access
- Municipal Parks
- Historic Sites

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Silo Ridge Resort Community

Visibility Analysis Depicting the Potential Visibility of the Silo Ridge Resort

Town of Amenia
Dutchess County, New York

Drawn:	CLC
Date:	08/18/2008
Scale:	1:21,000
Project:	10454.02
Figure:	X

Map Document: (R:\1\10400-10499\10454.00\GIS\maps\10454_Visibility_AllBuildings_UsingExistingSurveyTopo+VegClearing_36x48.mxd) 8/18/2008 - 1:03:39 PM