

Waterside Power Peaking Facility

Visual Aesthetics Assessment

Peaking Power Facility, Stamford, Connecticut

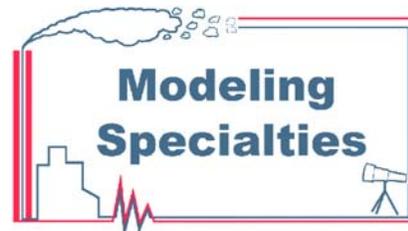
October, 2007

Prepared For:

Rubin & Rudman, LLP
50 Rowes Wharf
Boston, MA 02110

Prepared By:

Modeling Specialties
30 Maple Road
Westford, MA 01886



ENVIRONMENTAL ASSESSMENT

Waterside Power operates a peaking power facility in an industrial park in Stamford Connecticut. The purpose of the facility is to protect the southern Connecticut regional electric power network by supplementing local capacity during emergency and high demand periods. A general area map is provided as Figure 1. The purpose of this study is to address the visual context of the existing facility and to provide a simulated preview of proposed upgrades to the facility.

1. Overview of Project

The project consists of three General Electric TM2500 combustion turbine generator packages and the equipment necessary to support their limited operation. Over the life of the project, the developers have worked with the neighborhood to visually isolate the industrial use of the site from the residential neighbors to the north at Amelia Place and adjacent streets.

Because of the 3 dimensional layout of the equipment, no view of the equipment is currently available from any residential entry. The generating equipment is located at the southern end of the site at an elevation of 55 ft msl. The residences are at approximately 75 ft msl. The north end of the site currently hosts a park area that is accessible by the neighborhood. Just beyond the park area from Amelia Place is an earth berm, topped with a wood screen wall. The plantings and the screen wall work together to provide a park view from the residences with all operating equipment below the sight line.

One exception to the fully screened character of the facility is the emergency access gate located off Betts Avenue. The security fence and gate are made of galvanized chain link. There is a small segment of roadway at the intersection of Betts Avenue and Amelia Place that has a view of support equipment along the west property line of the site. At the rear of the park, along the security fence, the facility equipment can also be seen through the fence. While this is an on-site viewing location, the view is accessible to the neighbors. An overview of the site and surrounding community is shown in Figure 1.

Proposed upgrades to the facility are planned which will include the installation of two new permanent liquid fuel storage tanks along the southwestern property line. As part of this upgrade, the chain link fence will be modified to provide additional visual screening from both the street side and park locations. This will eliminate any community ground-level view of any Waterside Power equipment.

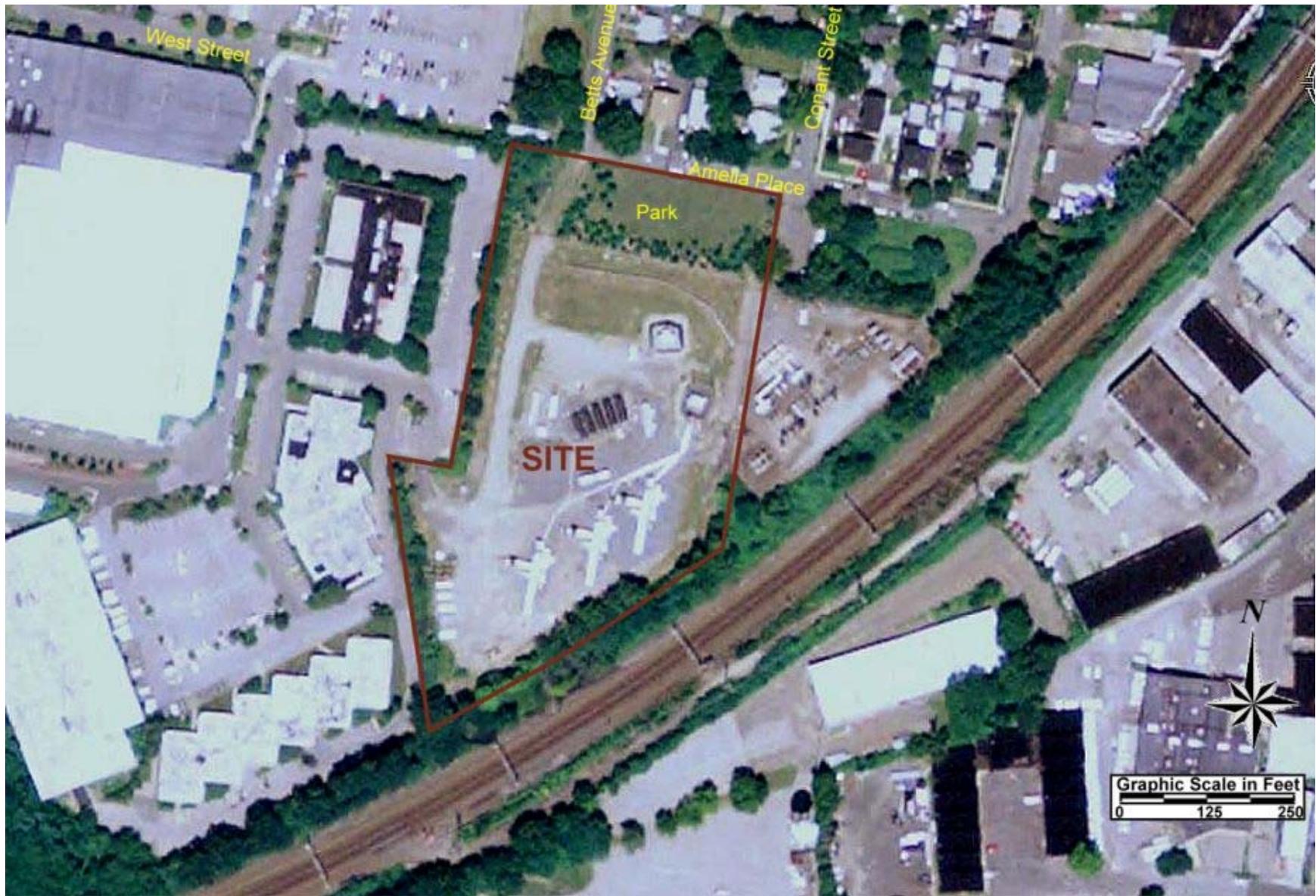


Figure 1: Aerial Photo of the Project Site and Surrounding Community

2. Viewshed Analysis and Selection of Viewing Locations

In order to assess the potential visual impacts associated with the project, a viewshed analysis of the surrounding area was conducted. A walking survey using a hand held optical transit identified all areas from which the existing site equipment or the proposed new liquid fuel storage tanks might be visible, based on interpretation of site plan, available limited topography and the existing screening features. The area to the north of the site is relatively flat, but the site elevation drops off to the south. The berm/screen wall and the plantings work together to eliminate the ground level community view of any site equipment. One exception to the site screening is from the intersection of Betts Avenue and Amelia Place. Vehicles traveling down Betts and turning onto Amelia Place have a fleeting view of the western edge of the main Site.

The visual assessment process was intended to identify public locations in representative directions from the facility, from which the stacks or other structures of the proposed facility might be seen. Only the northern community was analyzed in this study because the other directions were not visually sensitive to the site equipment. The adjacent site to the east is a transformer station. To the southeast are the commuter rail tracks. A buffer of trees also provides visual screening from the tracks and industrial property beyond. To the west of the site is a commercial/industrial park along West Avenue. [A buffer of existing trees and enhanced landscape plantings will provide screening from this commercial/industrial park.] This initial survey resulted in representative viewpoints to characterize the sensitive community views. While the view from the street is not considered sensitive, it was included in this study because it is the only view that currently includes any part of the facility.

Based on the results of the screening survey, 10 photos were selected for presentation. These locations together provide a comprehensive set of vantage points from the community to the project site. The viewpoint locations are numbered starting from the open emergency access gate. Again, this view is not sensitive but was included to provide one view where the facility equipment could be characterized. Numbers follow from west to east along Amelia Place. Then two additional views were added on Betts Avenue and Durant Street, respectively. These last two images were taken at the approximate residential setback from Amelia Place. The facility site plan is shown in Figure 2 with annotations that indicate the location and direction of the analyzed views.



Figure 2: Facility Site Plan Showing Existing and Proposed Equipment and Viewpoints

3. Methodology of Instrument-Assisted Field Verification

Following selection of field locations for detailed visual assessment and photography, a computerized model of the proposed project area was used to determine the angular elevation of the equipment above the reference level based on the receptor elevation, direction and distance from the visual screening features and the Waterside Power equipment. The following formula was employed to determine angular elevation:

$$\text{Angular elevation} = \text{Arctangent} [(S - T)/\text{distance}]$$

Where: S= elevation of Stack top, T= elevation of receptor, and distance= distance from receptor. Because of the minimal equipment heights, no existing or proposed equipment extended above the current site lines of the screening features.

Survey and photographic instrumentation were available to establish visibility at each of the viewing locations, but was not employed because the tallest equipment (stacks) are existing and could not be seen. All photos were taken from a public location at a height of approximately 5 feet. The results thus reflect the view seen by an individual standing (or driving) at that location. Field notations were made in order to document where the stacks would appear on the photographs taken at each location. As already noted, the facility equipment could not be seen at any public locations except near the intersection of Betts Avenue and Amelia Place.

4. Results of Visual Impact Analysis

Figure 3 provides the existing view of the facility from the open North gate which is used only for internal purposes and for emergency access. Figure 4 shows the same view that has been modified to simulate the proposed changes to the facility. The vertical liquid fuel storage tanks are being developed in the southwest corner of the site. The existing horizontal liquid fuel tank system will be removed from the site as shown. Permanent noise walls will also be installed along the combustion turbine exhaust sections.

Figure 5 shows the proposed view of the site from the intersection of Betts and Amelia. The view is unchanged except the chain link fabric of the fence and gate will be modified to provide visual screening. Figures 6 through 11 show the existing view from the community toward the facility that will not be changed. Figure 12 shows the view from Betts Avenue. It shows the visual screening installed on the fence and gate. Figure 13 shows the view from Durant Street which will not be changed.

5. Conclusion

Based on this analysis, the existing Waterside Power facility has a positive visual effect on the residential community to the north along Amelia Place and beyond. The lot has long been part of the industrial park and had a commercial building on the site. After it was removed, the site was abandoned with remnants of industrial development, such as the upper parking lot and terraced terrain. Waterside Power initially installed the berm and screening wall to eliminate the residential view of the industrial equipment. Over the years that Waterside Power has controlled the site, its north end has been converted into a tree lined park. The heavy equipment remains completely screened from the residential neighbors.

The proposed development of the vertical liquid fuel storage tanks in the southwest corner of the site would not introduce any equipment view from the residences, but would allow a fleeting view of the fuel area from southbound traffic on Betts Avenue. As part of the development plan, Waterside Power will add slats in the chain link fabric along the western sections of the security fence and gate to provide the necessary screening to eliminate any ground level viewpoint from the residential community north of the site. The proposed colors of the visual screen will be dark green to blend with the grass and plantings in the park. The context of the additional screening was graphically simulated and presented as a preview to the future conditions.



Figure 3: Existing View of Facility from the Open North Gate (Viewpoint 1)



Figure 4: View of Proposed Facility Features from the Open North Gate (Viewpoint 1)



Figure 5: Proposed View of the Facility from Viewpoint 2



Figure 6: Proposed View of the Facility from Viewpoint 3

No View of Equipment

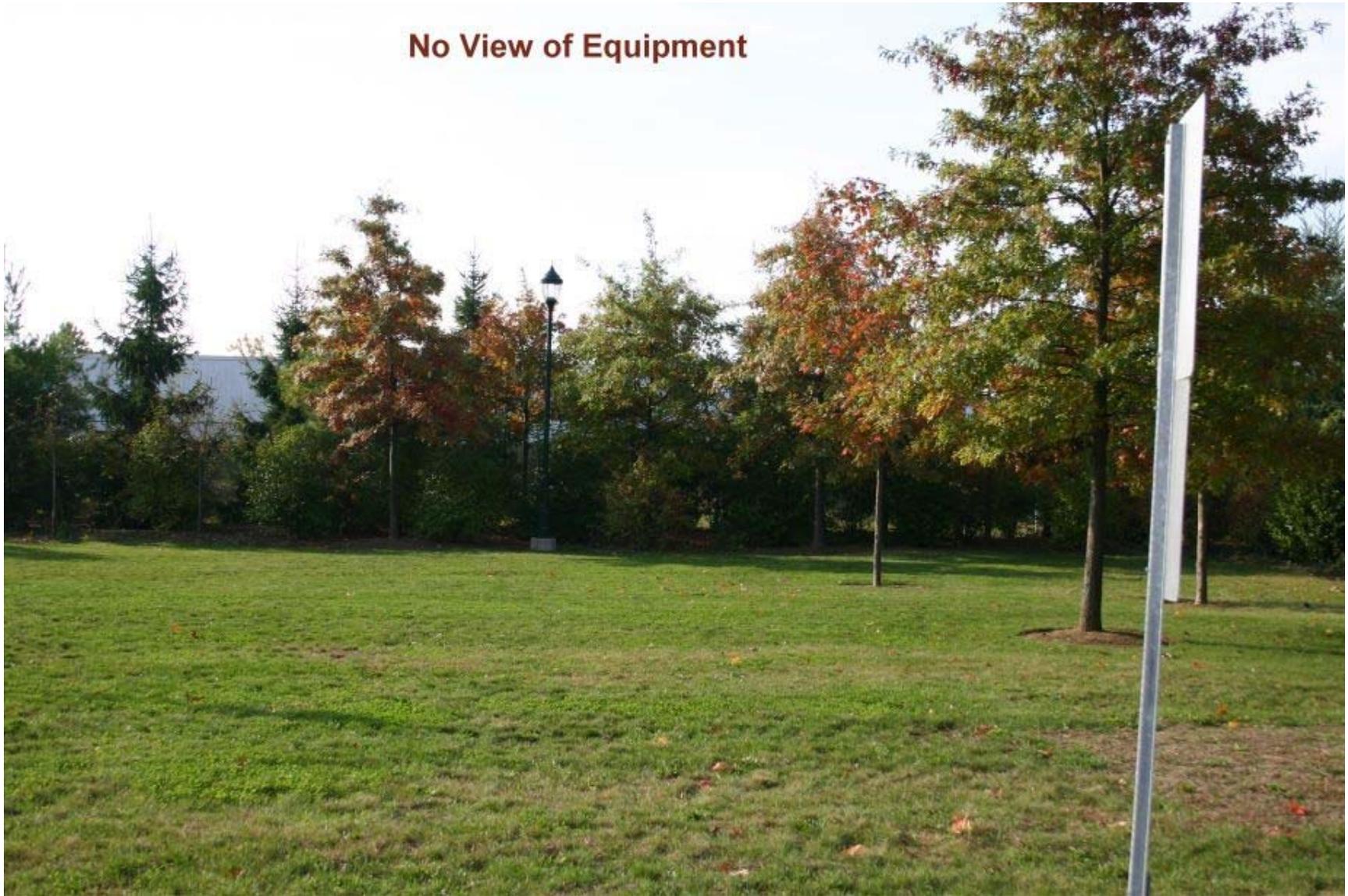


Figure 7: Unchanged View of the Facility from Viewpoint 4

No View of Equipment



Figure 8: Unchanged View of the Facility from Viewpoint 5



Figure 9: Unchanged View of the Facility from Viewpoint 6



Figure 10: Unchanged View of the Facility from Viewpoint 7



Figure 11: Unchanged View of the Facility from Viewpoint 8



Figure 12: Proposed View of the Facility from Viewpoint 9



Figure 13: Unchanged View of the Facility from Viewpoint 10