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September 4, 2008

Ted Fink  
Greenplan  
302 Pells Rd.  
Rhinebeck, NY 12572

RE: SEQRA  
Review of Visual Resource Assessment,  
Depot Hill  
Town of Amenia  
Dutchess County, New York

Dear Mr. Fink:

On behalf of the Town of Amenia, you have asked me to review the Preliminary Draft Environmental Impact Statement (PDEIS) produced for Depot Hill, specifically focusing on the Section 3.7, Visual Resources. I had reviewed a previous version of this PDEIS and found it incomplete, as documented in my letter of June 11, 2008.

This review is of the version dated July 17, 2008. The focus of this letter is completeness regarding impacts on visual resources. It does not attempt to make any substantive comment.

### **Summary**

An EIS is a disclosure document that must clearly disclose the impacts of the action it describes. While better than the PDEIS submitted earlier this year, it is my opinion that materials published in the PDEIS still do not adequately disclose impacts of the proposed action on visual resources, and does not accurately describe the action's impact on visual resources. The Lead Agency should find this PDEIS incomplete and instruct the Applicant to produce both new and additional materials that are designed to disclose the action's impacts on visual resources.

### **Completeness Issues**

#### *Inventory of Visual Resources*

The PDEIS now includes an inventory of visual resources, but it appears to omit several resources, some of which are quite close to the project site. Parks including Beekman Park, Borden Park, Wassaic Park and the Wassaic State Multiple Use Area are not listed. Beekman Park is of particular concern because it is quite close to the project site. In fact, several viewpoints analyzed (at least Viewpoints 1, 2 and 3) are further away from the development than Beekman Park. Oddly, all of these missing resources have been inventoried on Figure 23.A

in Section 3.14 (*Parks, Recreation, Open Space Resources, Library and Cultural Resources and Tourism*).

Further, the PDEIS states:

“There are many structures and places within the established five mile radius of the development that fall into one of [the aesthetic resources] categories, with the majority of these National Register-Nominated properties, however the Depot Hill development will not impact any of these structures and places, as the Depot Hill Development is not visible from their respective locations.”

There is no doubt that many of the resources inventoried will not have line of sight to the project site. However, the Harlem River Rail Trail, which is in the inventory, should, at least in places, have visibility to the development. It is also likely that Beekman Park will have visibility. Other resources, both those listed in the inventory and those omitted, may also be visible. The assertion that there is no visibility to these sites should be supported by evidence, like a viewshed map. Until the inventory of visual resources is completed and the potential visual impact on these resources evaluated, Section 3.7 cannot be considered complete.

#### *Cumulative Impacts*

There is no discussion of cumulative impacts on visual resources. While this was not an observation in my initial June 2008 letter, a DEIS should have a discussion of cumulative impacts if there are other projects nearby that will also make environmental impacts. This is especially true of visual resources, where there is not necessarily a linear relationship between the amount and concentration of development and impacts on visual resources. A discussion of cumulative impacts on visual resources should be added.

### **Workmanship and Methodological Issues**

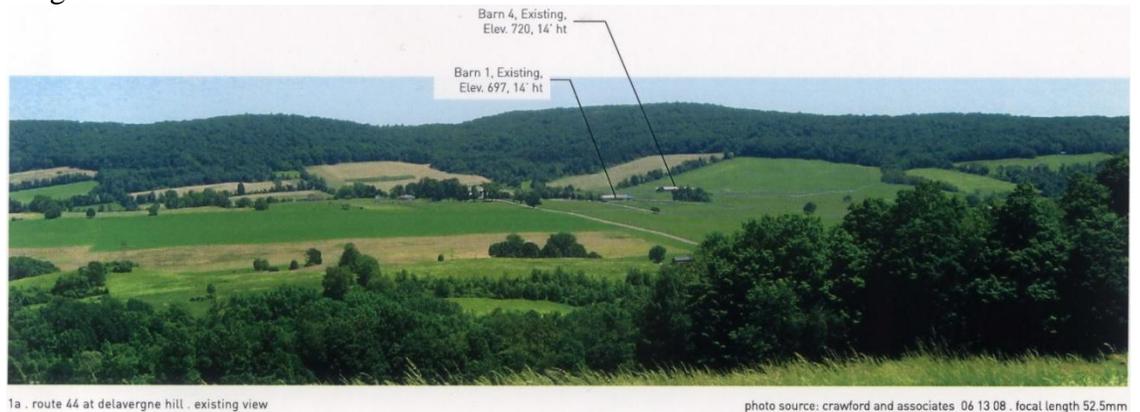
#### *Photographs and Photosimulation*

The PDEIS contains new photographs from the viewpoints analyzed. These photographs are much clearer than the photographs previously published and they correctly capture the character of the area as perceived by the human eye. They remain in leaf-on conditions, which is contrary to generally accepted practice in visual resource assessment. Leaf-off conditions are considered best conditions to assess reasonable worst-case conditions. As the new photographs were taken in June, project schedule affected leaf conditions seen in the photographs.

Despite the improvement of the images, some questions remain. Page 160 states:

“Several photos are ‘stitched’ together to create the panoramic view. Photos in Viewpoint 2, 3, 5, 9 and 10 are stitched from 2 or more photos to create the image in the viewpoint.”

If these images are uncropped, their aspect ratio indicates that all photographs are panoramic images<sup>1</sup>. The Canon PowerShot A550 camera used to take these photographs can produce images with an aspect ratio (width to height) of 3 to 2, or 4 to 3. None of the images seen in the PDEIS have these aspect ratios. They are all much wider than they are tall, which means they are all panoramic images.



**Figure 1: Reproduction of Viewpoint 1. It has an aspect ratio of a panoramic image.**

Figure 1 shows Viewpoint 1. As published, this image is 9.8125 inches wide by 2.6875 inches tall, which is an aspect ratio of about 11 to 3. This means it was stitched together out of at least three separate photographs.

The Canon PowerShot A550 has the ability to stitch multiple images together internally and produce a single panoramic image, but the image produced is still a panorama made from separate photographs. The distinction between panoramic and non-panoramic images is important in the production of photosimulations. In a photosimulation, a single virtual computer camera is created to simulate the camera that was used to take the original photo. This camera is then used to take a digital snapshot of a 3D model representing the action. The digital snapshot is then merged with the original photograph using image processing software. Because panoramic images have two (or more) unique focal points, it is impossible to create a single virtual computer camera to simulate the lens of the camera used to take the photograph. Instead, the operator develops a photosimulation on each image that makes up the panorama and then performs the photo-stitching on each component of the panorama to develop the final panoramic photosimulation. It is not clear if this is how these simulations were performed.

In my previous letter I expressed some concern over the methods used to produce the simulations.

Most professionals currently use software produced by Autodesk called 3D StudioViz (formerly called 3D Studio Max) because it has functions required [to produce

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<sup>1</sup> A cropped and enlarged image can have virtually any aspect ratio, but then they should not be used in photosimulation as this process would render the lens meaningless.

photosimulations]. The photosimulations for the Depot Hill PDEIS were developed using software called Sketch-Up. Sketch-Up does not have an auto-match function for references that exist in both the photograph and the 3D model. The operator has to “eyeball” the match between the photograph and the 3D model. By “eyeball” I mean, the operator attempts to minimize the errors that exist between the references in the photograph and the references in the 3D model by making small adjustments to the virtual camera set up to match the camera that took the photograph. The camera match function in 3D Studio does this automatically and much more precisely than a human operator ever could. . . .

I do not believe that Scoping Documents and Lead Agencies should dictate tools that should be used, but the use of Sketch-Up as the tool used to match the photograph to the 3D model begs certain questions. What were the references used to do the camera match? How many were there in each photosimulation? Some photographs have limited hard references (e.g. existing buildings), were soft references like forested ridgelines used to produce the camera match? The Lead Agency should know the answers to these questions and if the answers are unacceptable (e.g. solely using GPS positioning on the camera) then the photosimulations cannot be considered acceptably complete for the purposes of commencing public review.

The simulations in the revised version are still performed using the same methods. Had the operator tried to switch tools and use 3DStudio to perform the simulations, the camera match function would have failed because a single camera (virtual or real) cannot replicate an image that was originally created from multiple references using multiple focal points. Since the Sketch-Up computer camera is merely “eyeballed” to match points in the photograph by the operator, it is possible that these simulations contain errors in the match between the computer model and the photograph. This could result in buildings being in the wrong place, buildings that are either systematically too small or too big, buildings that would otherwise not be seen, showing in the photosimulation, or buildings that are screened in the photosimulation that in reality would be visible.

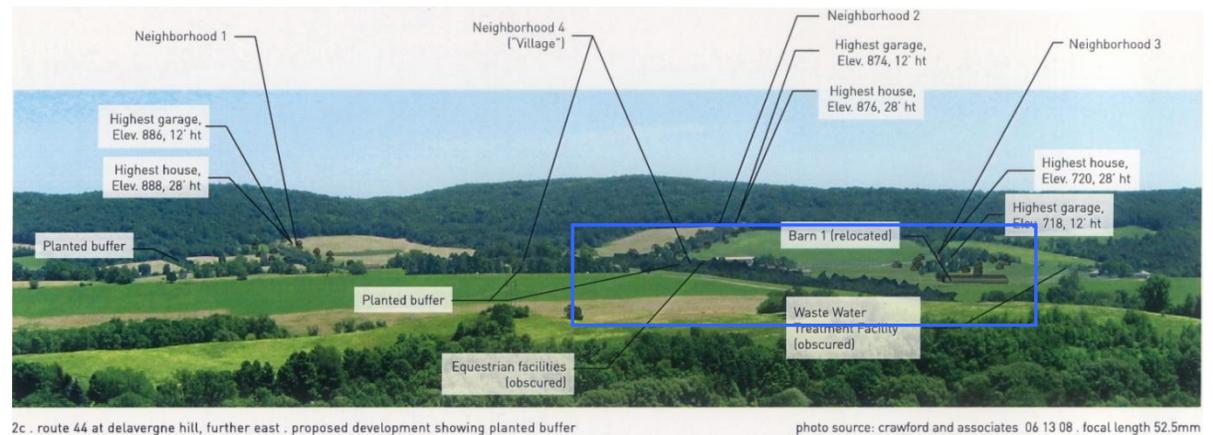
My concern over the quality of the photosimulations is then compounded by the use of Google Earth topographic to help “position the viewpoint relative to the 3D model.” Topography in photosimulations is always taken from a site survey, grading plans, USGS surveys, or some combination of these. It is my understanding that Google does not produce topographic data. They simply repackage information produced by others, so it is unclear as to the original source or quality of this information. In my experience, while Google Earth is impressive in the breadth of information it brings to the user, the data provided therein can be incorrect, sometimes grossly so. No argument has been made in the text to justify the use of this non-standard data provider.

Further, my concern over references or match points expressed in the second paragraph of my initial letter remains, and the added documentation of the methods used to produce the simulations has not assuaged my concerns. One way for the applicant to have addressed these concerns was to identify their references specifically (e.g. Viewpoint 1 used Barn 1, 2, 3 and 4, and the existing house). No specific references have been identified. The text notes that “heights of

existing trees, structures, and distances between roadways and paddocks, . . .” were used to orient the photograph. Knowing the number of references and their quality would go a long way to increasing confidence in the accuracy of the simulations.

### *Screening vegetation and mitigation*

Most of photosimulations are produced in pairs. The first photosimulation shows the action without mitigating screening vegetation. The second shows the action with screening vegetation. A close look at this second viewpoint shows problems with how these screening trees have been added.



**Figure 2: Reproduction of Viewpoint 2, with planted buffer**



**Figure 3: Detail of Viewpoint 2 highlighted in blue, showing added screening vegetation**

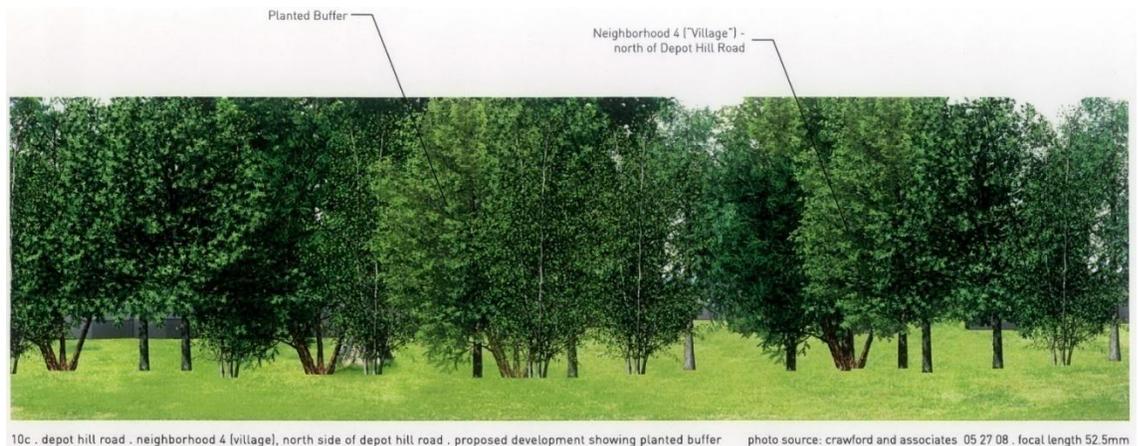
The trees labeled as planted buffer appear to have been “photoshopped,” which means that images of trees in full leaf have been added to the photograph using image processing software like Photoshop. This is not how mitigating vegetation should be represented in photosimulation. Trees to be added should be a part of the 3D model of the action—as they are part of the action—and be represented as they would appear at time of planting. The screening vegetation as it is shown screens most of the 28 foot tall buildings in the development. The screening vegetation is also shown in leaf-on conditions, which while consistent with the season of the photograph, is not representative of a reasonable worst-case representation of the effectiveness of the screening vegetation. A reasonable worst-case representation would show them without leaves even though this is

contrary to the season in which the photographs are taken. Such an inconsistency is preferable under SEQR as it allows an assessment of the effectiveness of mitigation efforts in reasonable worst-case conditions.

Libraries of 3D trees of various species and ages have been developed just for this purpose and are available from several on-line sources. Such trees will allow views through and over the planted buffer, as would be expected, and the development would be more visible from many viewpoints. The issue with vegetative buffers is probably best illustrated by Viewpoint 10, which is nearly a full simulation, rather than a photosimulation, as so much of the photograph is removed in this viewpoint:



**Figure 4: Reproduction of Viewpoint 10b, unmitigated**



**Figure 5: Reproduction of Viewpoint 10c, mitigated**

The planted buffer as simulated is very effective at screening the view from this viewpoint. Of course, it will not look like this in late autumn, winter and early spring and is unlikely to look like this at time of planting. One of the reasons the buffer is so effective is that it is a 2D image overlaid on top of Figure 4. Instead of 2D trees in bushy, full leaf conditions the planted buffer should show leaf-off 3D trees that might look like the following:



**Figure 6: 3D trees that could be a part of a planted buffer**

Even these trees are taller than what are typically planted. Clearly, they will offer only partial screening in leaf off season and will be much less effective than those used in the simulation at screening the development. The second set of photosimulations showing the planted buffers should either be eliminated from the PDEIS, or they should be corrected so that they show reasonable worst-case conditions.

#### *Clarity*

The practice of annotating the simulations with text boxes that actually obscure parts of the photograph is very distracting and detract from the effectiveness of the photosimulations. For example, consider the reproduction of Viewpoint 2 shown as Figure 2. The photosimulations include white boxes and arrows that describe objects in the image where the viewer is looking. Photosimulations work best when the only change shown in an image is attributable to the action being studied. This allows the viewer to easily and immediately assess the magnitude of the change on the viewpoint. These text boxes actually obscure much of the photograph, and while some of the information provided by these boxes is useful, the simulations would be much more effective in assessing impacts on visual resources if they were allowed to speak for themselves, without annotation. If there is some critical information or object that must be communicated or identified, a text box annotating the object should be oriented outside the frame of the photograph, leaving only small black arrows referencing the object's location that would show on the photograph itself.

#### *Assessment of Impacts*

The PDEIS still does not have a substantial discussion of the impacts of the action on visual resources. My original comments, as reproduced below, stand:

“Photosimulations provide quantitative information regarding impacts on visual resources. For example, a photosimulation shows how much of an action is visible from a viewpoint. It may

also show views that are blocked or ridgelines that are broken. By themselves, however, they do not evaluate the qualitative aspects of a project's impact. The text descriptions of the photosimulations and their visual impacts are nearly entirely quantitative and simply describe what is seen in photosimulations. The Scoping Document requires a fairly typical, "description of the changes in *visual character* of the site and surrounding areas" (emphasis added). Consequently, the text descriptions should include qualitative measures along with the quantitative.

While there is flexibility in the manner in which this evaluation is done, at minimum the text of the DEIS should describe how action will impact the existing visual character. Visual character of a landscape is most often evaluated by analyzing the project's impact on the elements that compose the landscape. These elements include form, line, color, texture, and scale/dominance, and/or other criteria as it suits the specifics of the location. Regardless of definition, the EIS needs some kind of detailed analysis of the qualitative impacts of the action; the graphic materials simply cannot speak for themselves on the issue of visual character."

### **Conclusions**

It is my opinion that the Visual Resources chapter is not complete. Items noted under completeness need to be added. Workmanship and methodological issues should be addressed by performing new simulations, or by demonstrating that the methods and the data sources used produce results that can be relied upon. Finally, there needs to be a more qualitative assessment of the projects impact on visual resources; the photosimulations and the quantitative discussions of them are not an acceptable assessment of impacts. The Lead Agency should require the Applicant to produce additional materials before this PDEIS could be found complete for the purposes of commencing public review.

I appreciate the opportunity to comment on this PDEIS. Should you or the Applicant have any questions or comments, please feel free to contact me directly at 917-612-7478.

Sincerely,

A handwritten signature in black ink, appearing to read 'G. M. Janes', written in a cursive style.

George M. Janes, AICP  
Principal