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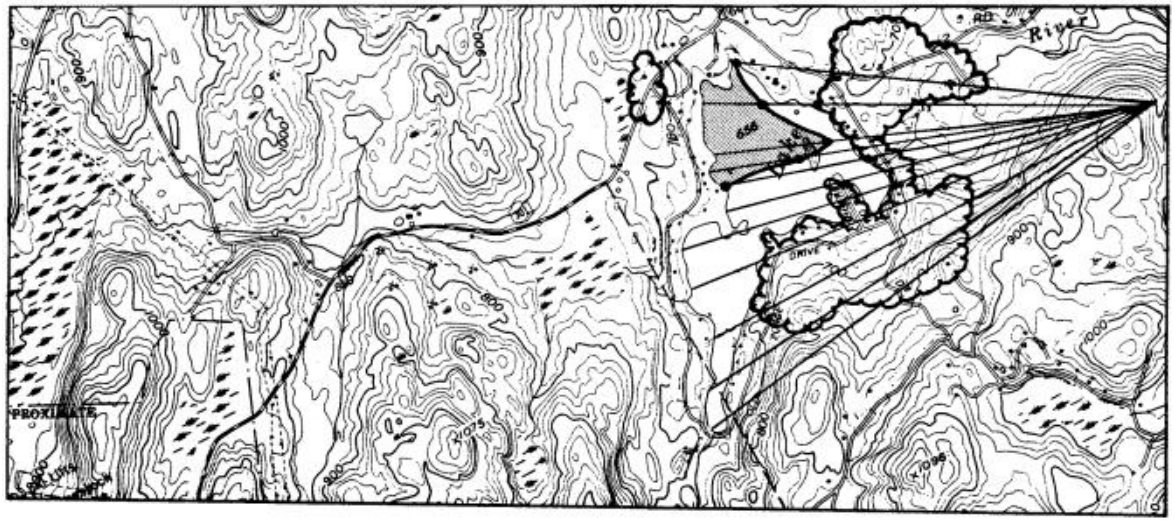
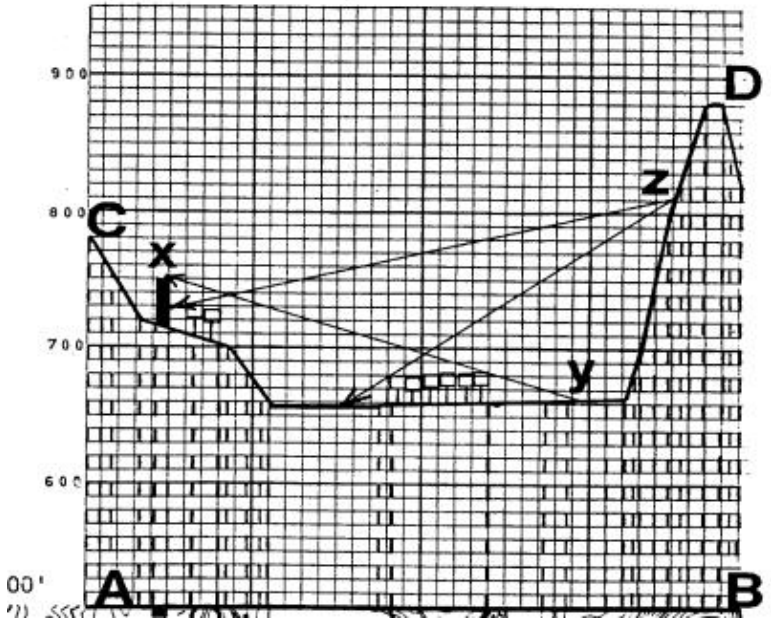
Assessing Visual Impacts under SEQR
and
Hudson Solar Application

George M. Janes, AICP
April, 17, 2018

SEQR does not require photosimulations for the assessment of impacts on visual resources



Our 20-year old guidance documents describe a viewshed map (above) and a line-of-sight profile (right)

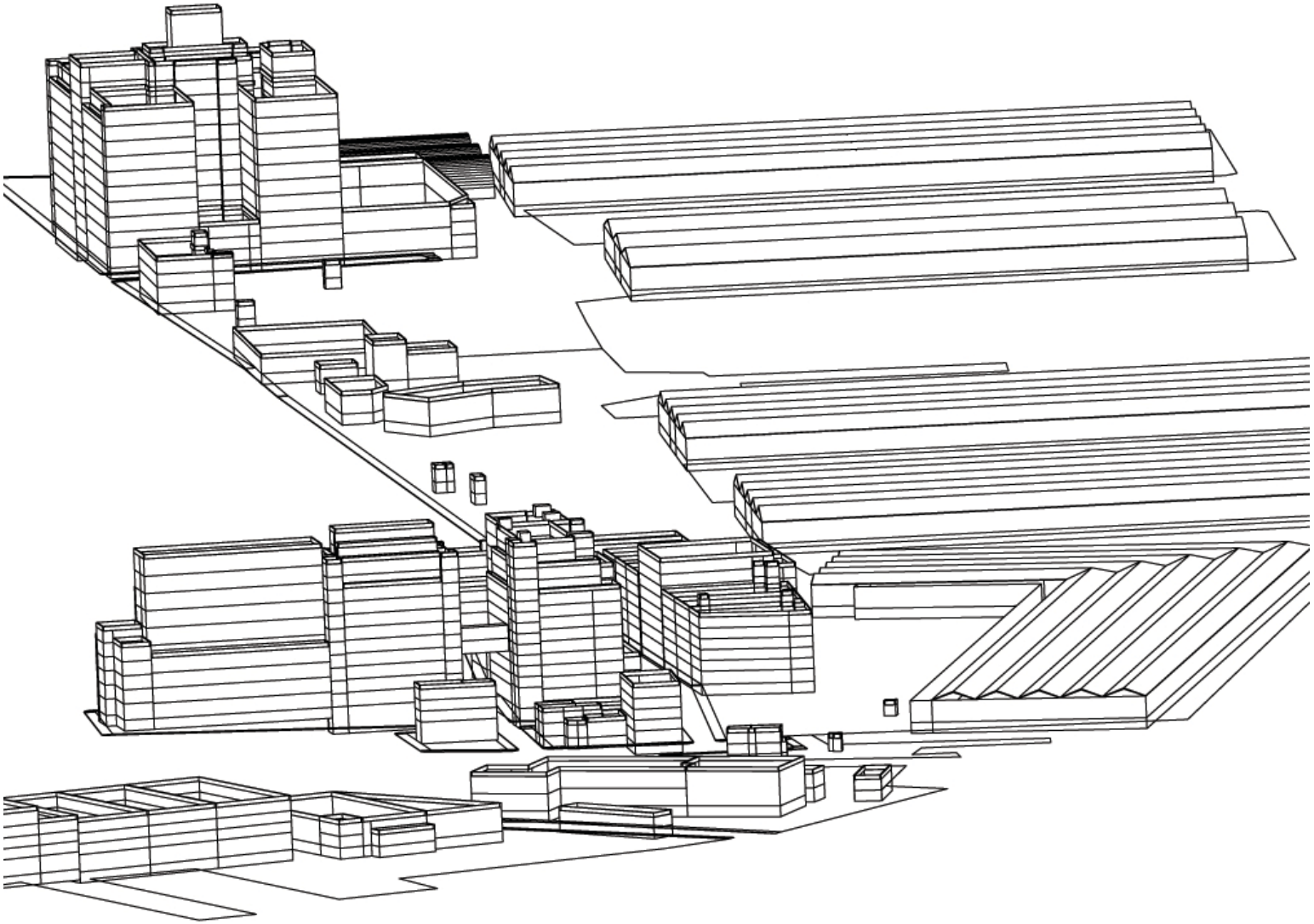


Most people cannot understand these drawings, which is why most planning boards require “photosimulations”

- What is a photosimulation?
- How should they be performed?
- What do they need to show?

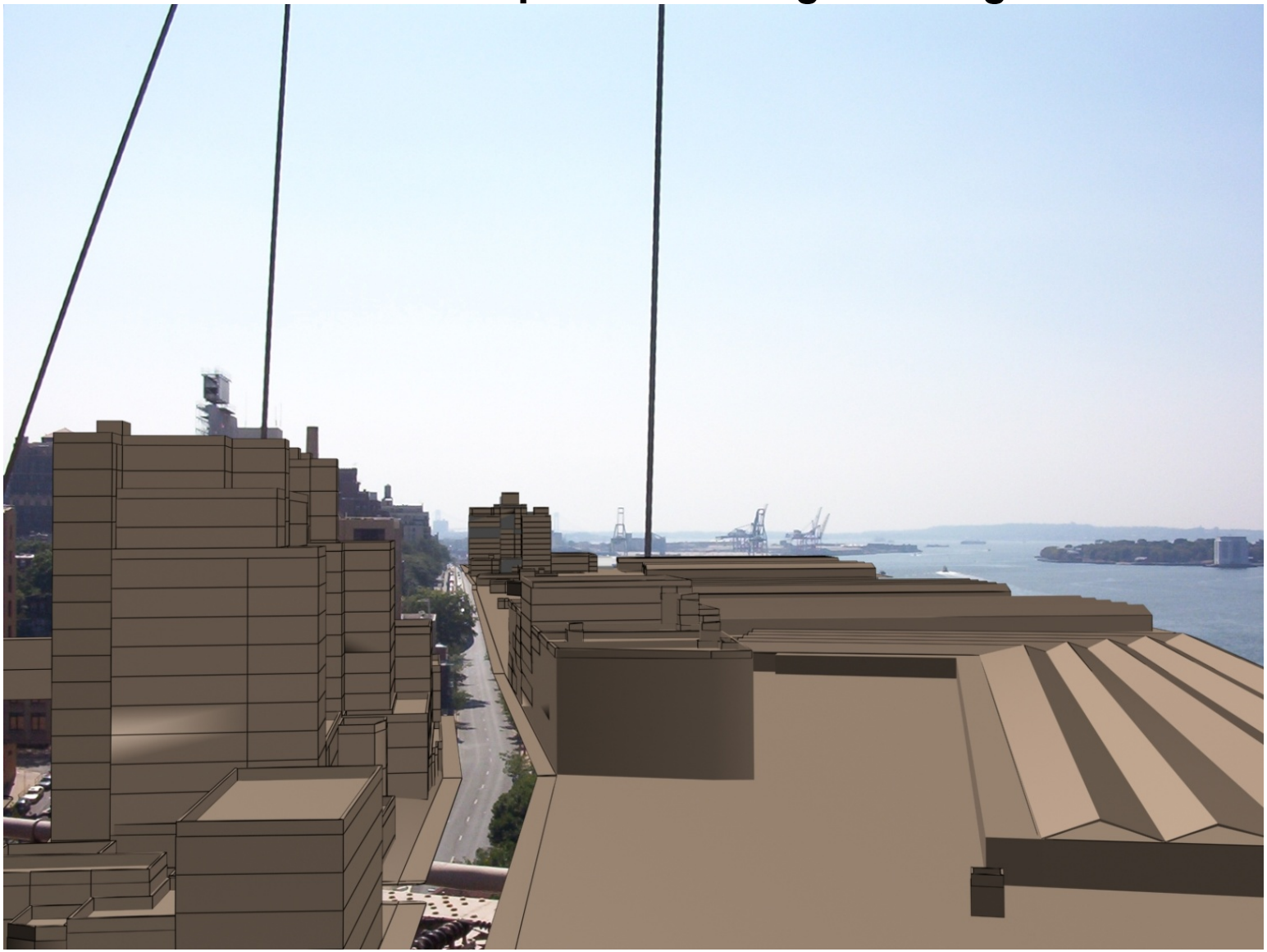
Simply, a photosimulation combines an "existing conditions" photograph . . .

…with a 3D CAD model of buildings or structures within that photograph.

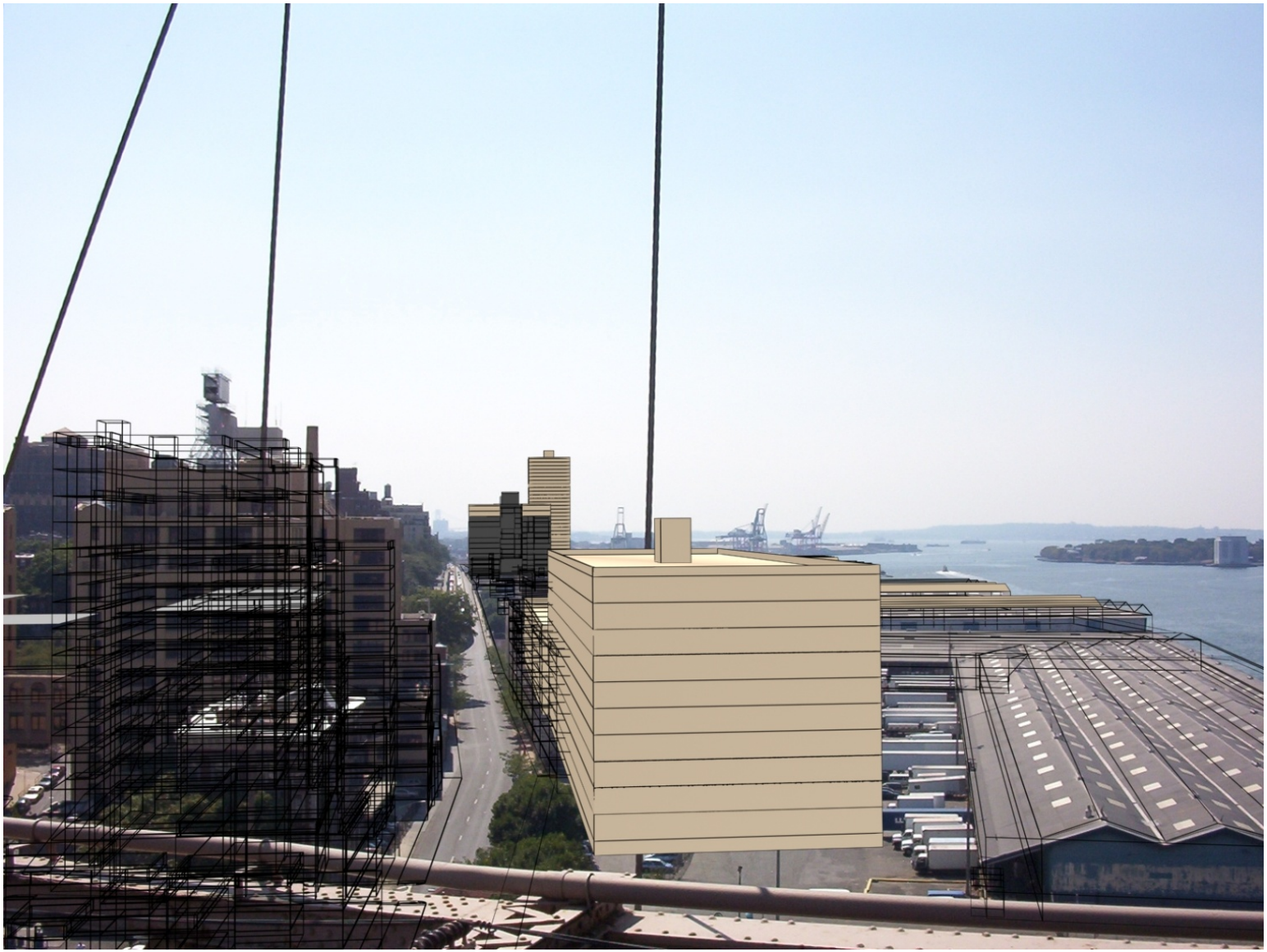


Using match points that are common in both the 3D model and the photograph…

…a virtual camera is created within the rendering software to simulate the camera that captured the original image.



Proposed conditions are then modeled and incorporated into the scene…



. . . to create a visual simulation of the proposal.

Photosimulations can be photorealistic . . .

Photosimulations can be photorealistic . . .

Or can be represented as massing models . . .

Or can be represented as massing models . . .

Or, with generic facades

Camera lenses are important

The human eye perceives distance approximately equal to the image captured by a **50mm lens:** The so-called “normal lens”

- 28 and 35mm lenses are wide-angle: Objects appear further away
- An 80 or 105mm lens are telephoto lenses: Objects appear closer
- Most simulations are performed using 50mm lenses, but other lenses can also be used
- Knowing the lens used in a photograph is an essential part of accurate photosimulations

28mm view looking north on Broadway, just north of 39th St.

Taken with a Canon EOS Kiss Camera using Fuji 400 speed film

35mm view looking north on Broadway, just north of 39th St.

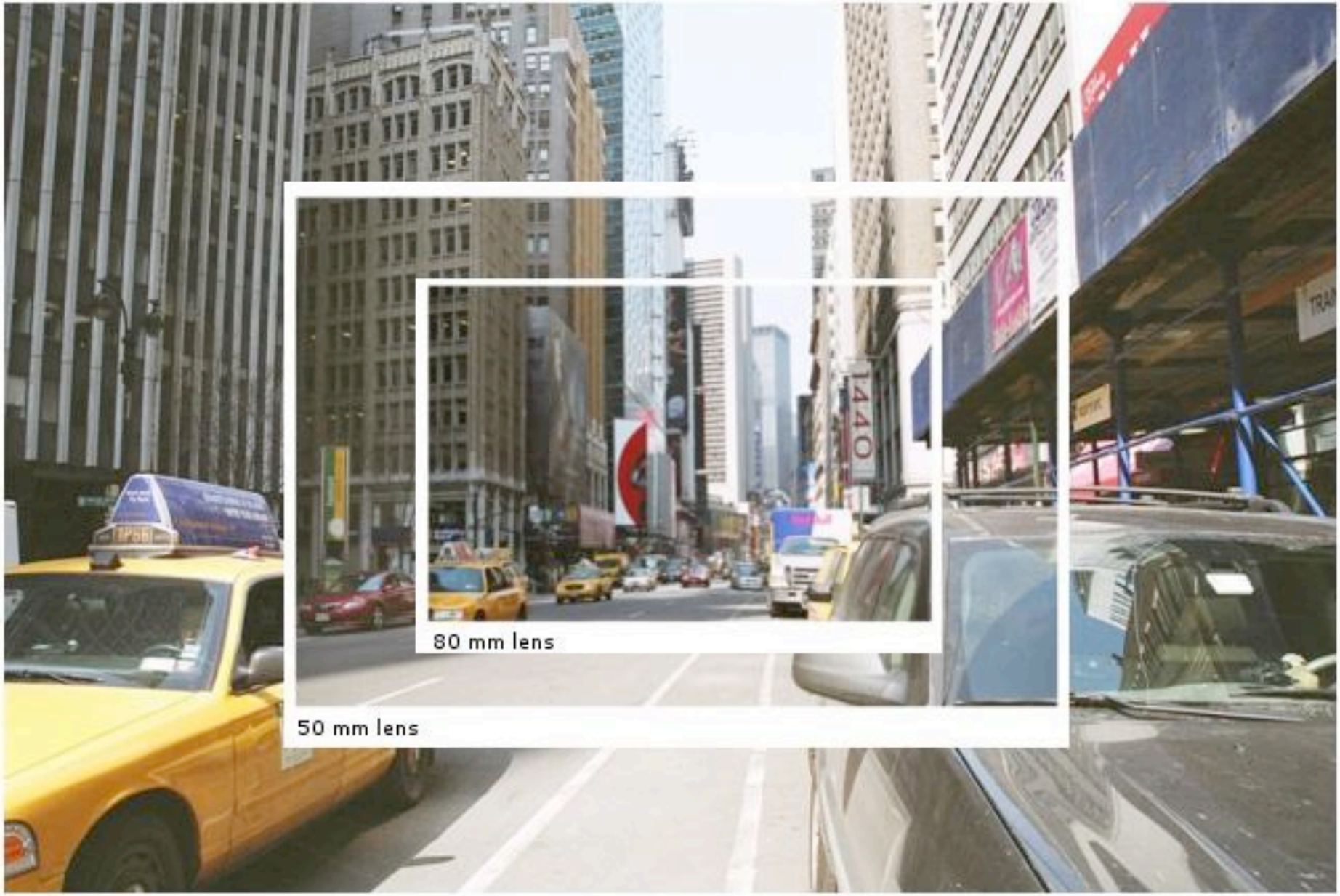
Taken with a Canon EOS Kiss Camera using Fuji 400 speed film

50mm view looking north on Broadway, just north of 39th St.

Taken with a Canon EOS Kiss Camera using Fuji 400 speed film

80mm view looking north on Broadway, just north of 39th St.

Taken with a Canon EOS Kiss Camera using Fuji 400 speed film


1440
80 mm lens
50 mm lens
28 mm lens

Photographs should show reasonable worst case conditions!

Which is usually . . .

- Leaf-off, no snow
- Clear atmospheric conditions
- Close to midday

Regardless of the reason, if a photograph doesn't look right, it probably isn't.

Photograph published in a PDEIS. Image quality is affected by print quality or atmospheric conditions

Photograph taken during a later site visit shows clear views from this viewpoint

We see a lot of very bad photography

Photosimulations should represent all parts of an action

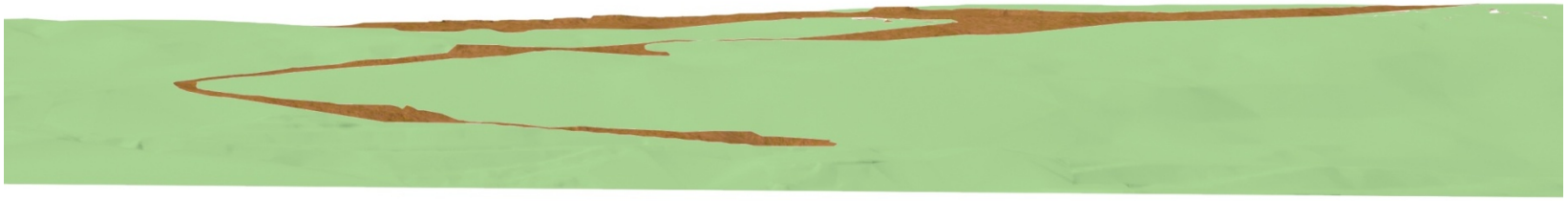
- Buildings
- Grading
- Landscaping
- Roads and retaining walls
- Activities

The following series attempts to show how the components of the action get incorporated into a single photosimulation.

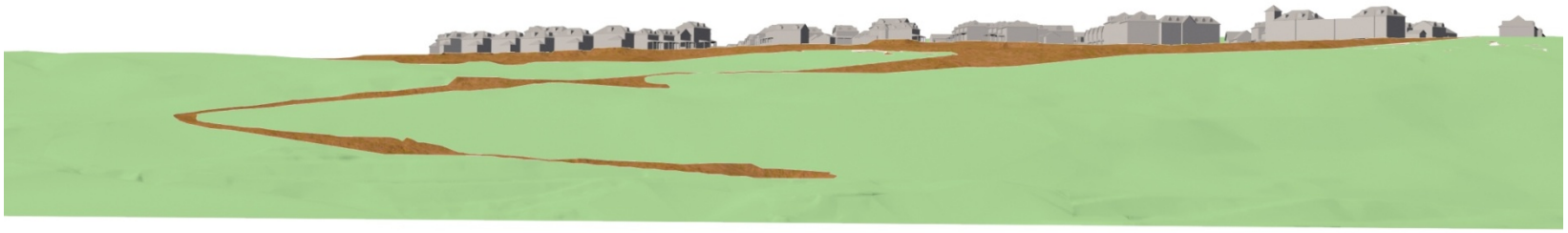
Existing conditions photograph 50mm view

Digital model of existing terrain, viewed by computer camera

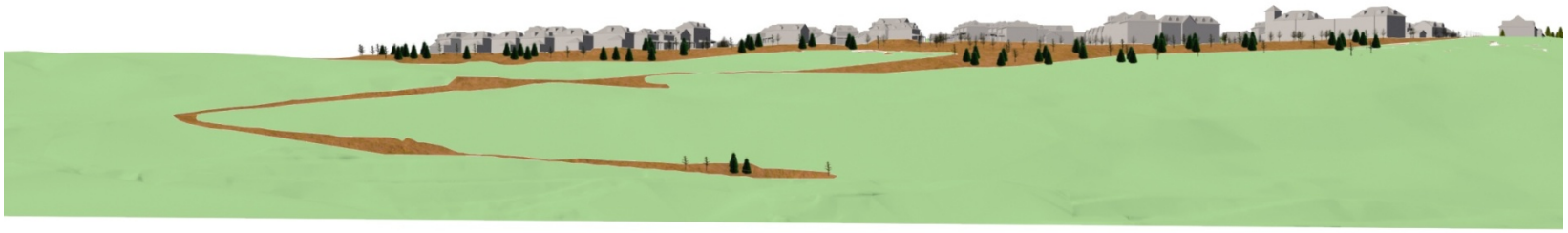
Proposed site grading



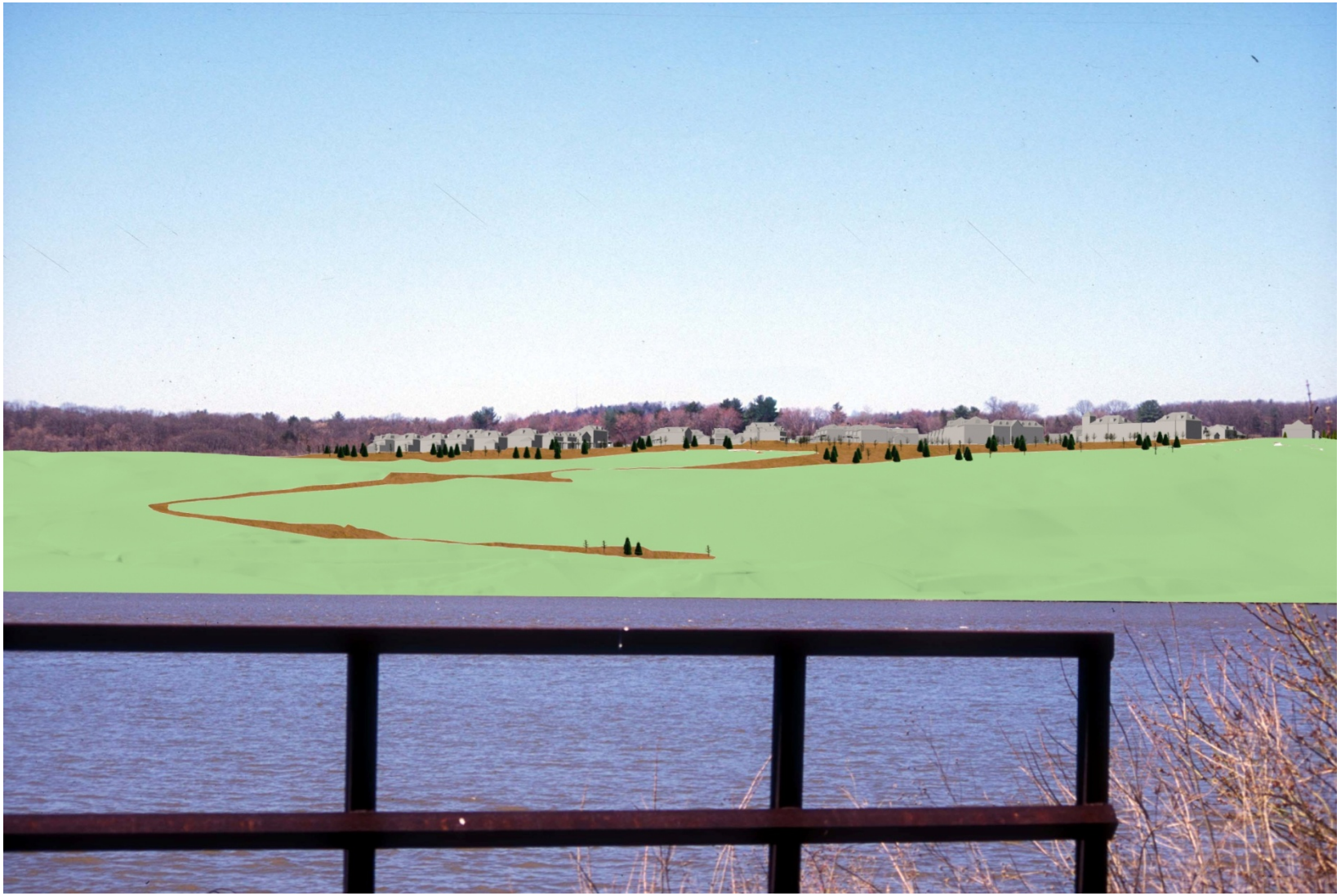
Proposed site grading with 3D articulated massing of action



Proposed site grading with 3D articulated massing of action with proposed landscaping at size of planting (the Action)



The Action shown with existing photograph



The Action shown with existing photograph

Graded areas expanded to show worst-case vegetation loss

Allow for existing vegetation to remain to screen the Action, add retaining walls

To show future year screening, grow the proposed landscaping

Color the buildings according to available color choices

Dark roofs are proposed in the final, future year photosimulation

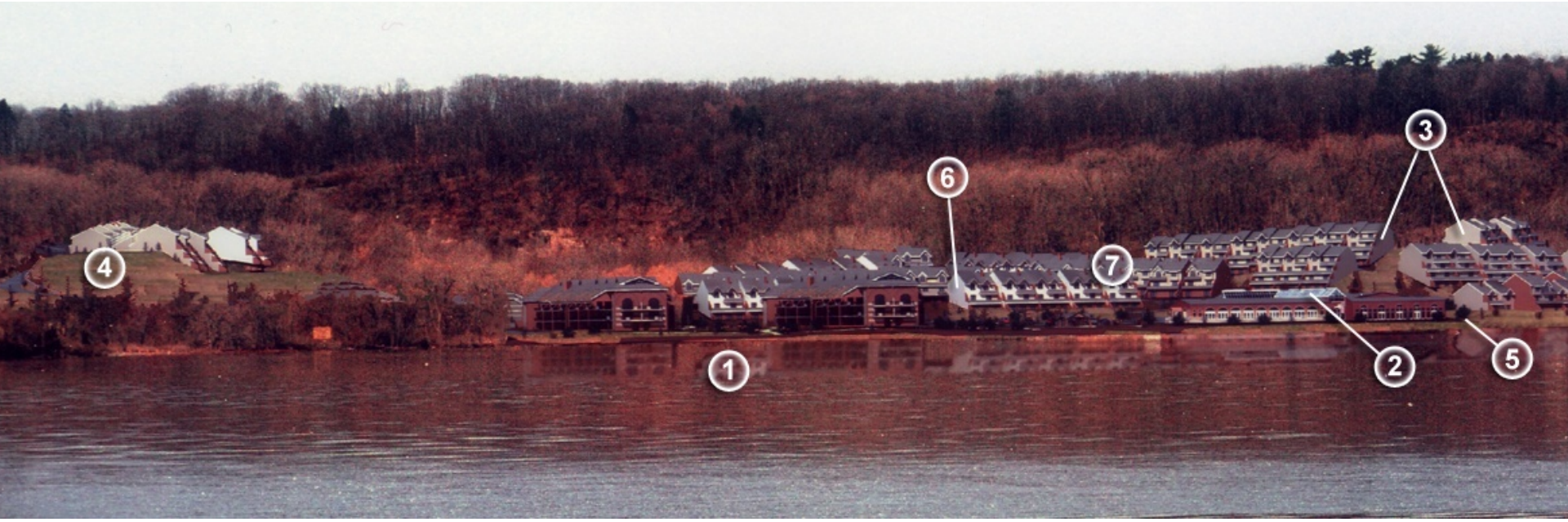
Existing conditions photograph 50mm view

There are excellent simulations

Proposed conditions

Proposed conditions annotated

1. Reflection of the action off the water
2. Reflection of light off an angled skylight
3. Proper sun and shadow that considers the time of day the photograph was taken
4. Photoreal lawns, when they replace natural vegetation, can create a significant contrast
5. Trees represented using size at time of planting
6. Use of light colors on the non-brick portions of the action to represent reasonable worst-case visibility
7. Use of realistic models with architectural articulation proposed



Saratoga's assessment of Hudson Solar

- Includes line-of-sight profiles
- Does not include a viewshed map
- Does not include photosimulations: includes computer simulated views

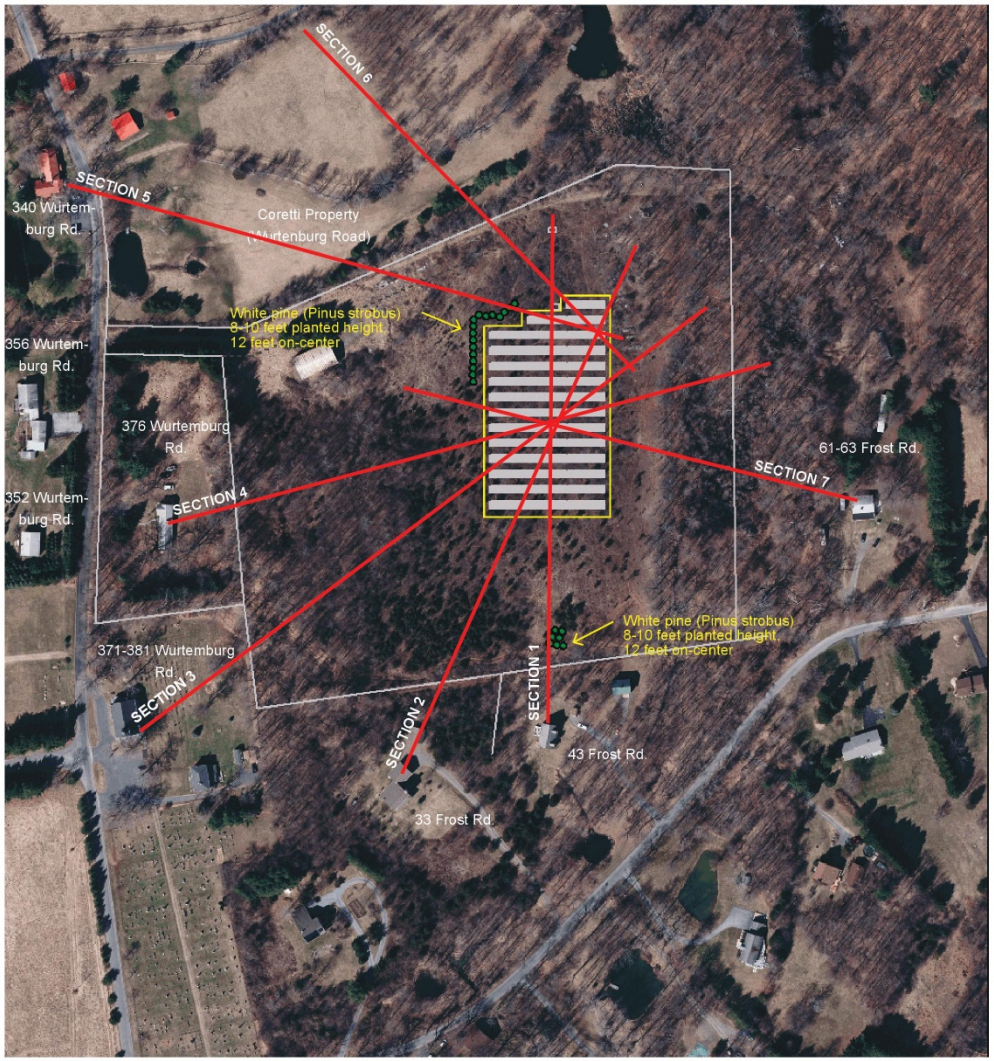
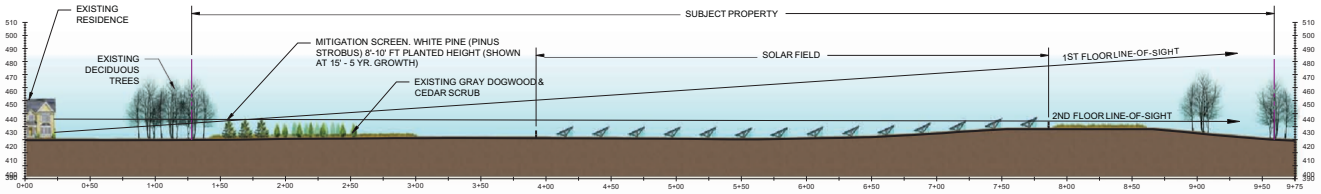


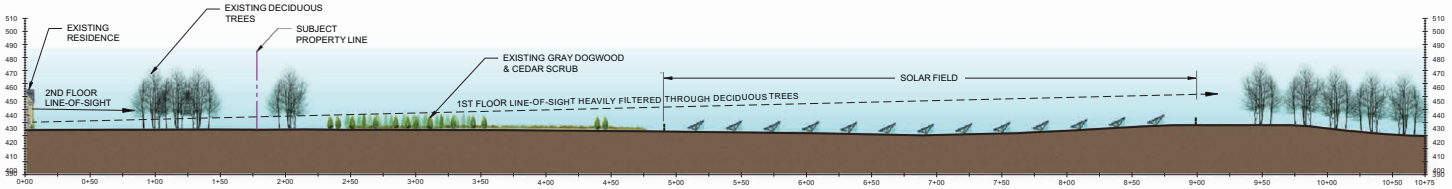
Figure 1
LINE-OF-SIGHT PROFILE LOCATION MAP
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

SARATOGA ASSOCIATES

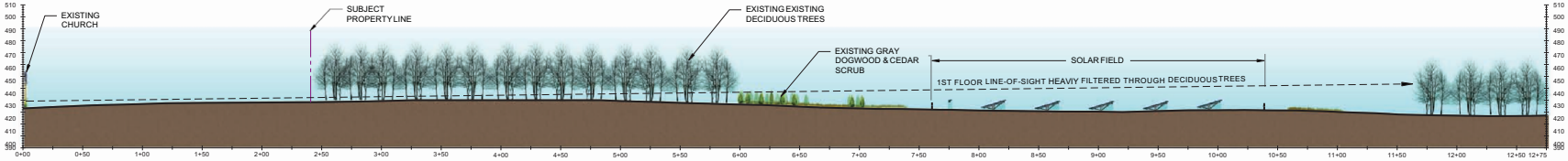
HUDSON SOLAR



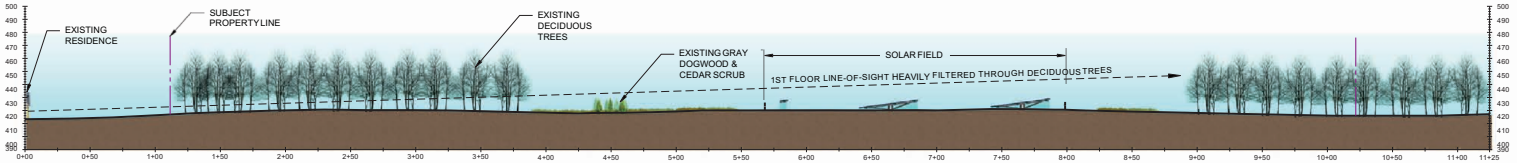
Profile View at Section 1 - Station: 0+00 to 9+75



Profile View at Section 2 - Station: 0+00 to 10+75



Profile View at Section 3 - Station: 0+00 to 12+75



Profile View at Section 4 - Station: 0+00 to 11+25

Figure 2
Line-of-Sight Profiles
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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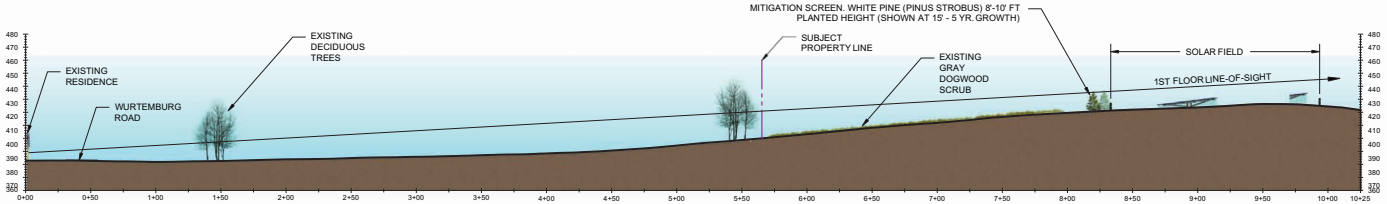
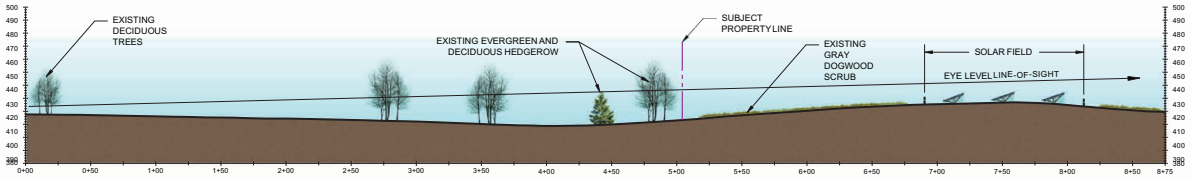
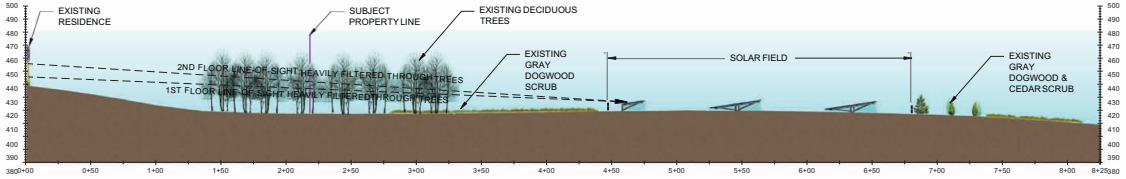


Profile View at Section 5 - Station: 0+00 to 10+25



Profile View at Section 6 - Station: 0+00 to 8+75



Profile View at Section 7 - Station: 0+00 to 8+25

Figure 3
Line-of-Sight Profiles
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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HUDSON SOLAR

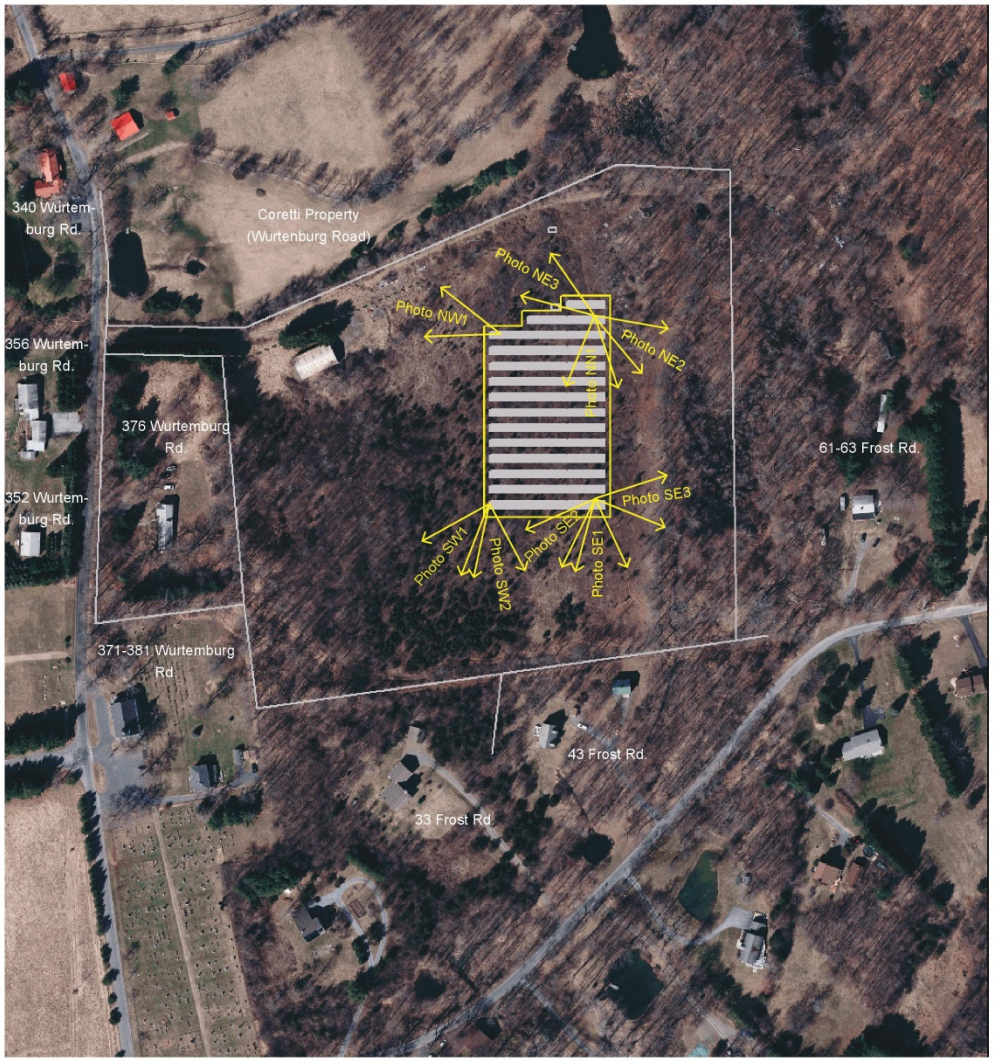

Figure 4
ON-SITE PHOTO LOCATION MAP
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

SARATOGA ASSOCIATES

HUDSON SOLAR

Photo NW1 - Solar Field Northwest Corner - Looking Northwest

Photo SW1 - Solar Field Southwest Corner - Looking Southwest

Figure 5
PHOTOGRAPHS
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

SARATOGA ASSOCIATES

HUDSON SOLAR

Photo SW2- Solar Field Southwest Corner - Looking South

Photo SE1 - Solar Field Southeast Corner - Looking South

Figure 6
PHOTOGRAPHS
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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Photo SE2 - Solar Field Southeast Corner - Looking West

Photo SE3 - Solar Field Southeast Corner - Looking East

Figure 7
PHOTOGRAPHS
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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Photo SE2 - Solar Field Southeast Corner - Looking West

Photo SE3 - Solar Field Southeast Corner - Looking East

Figure 7
PHOTOGRAPHS
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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HUDSON SOLAR

Photo NE1 - Solar Field Northeast Corner - Looking South

Photo NE2 - Solar Field Northeast Corner - Looking East

Figure 8
PHOTOGRAPHS
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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HUDSON SOLAR

Photo NE3 - Solar Field Northeast Corner - Looking West

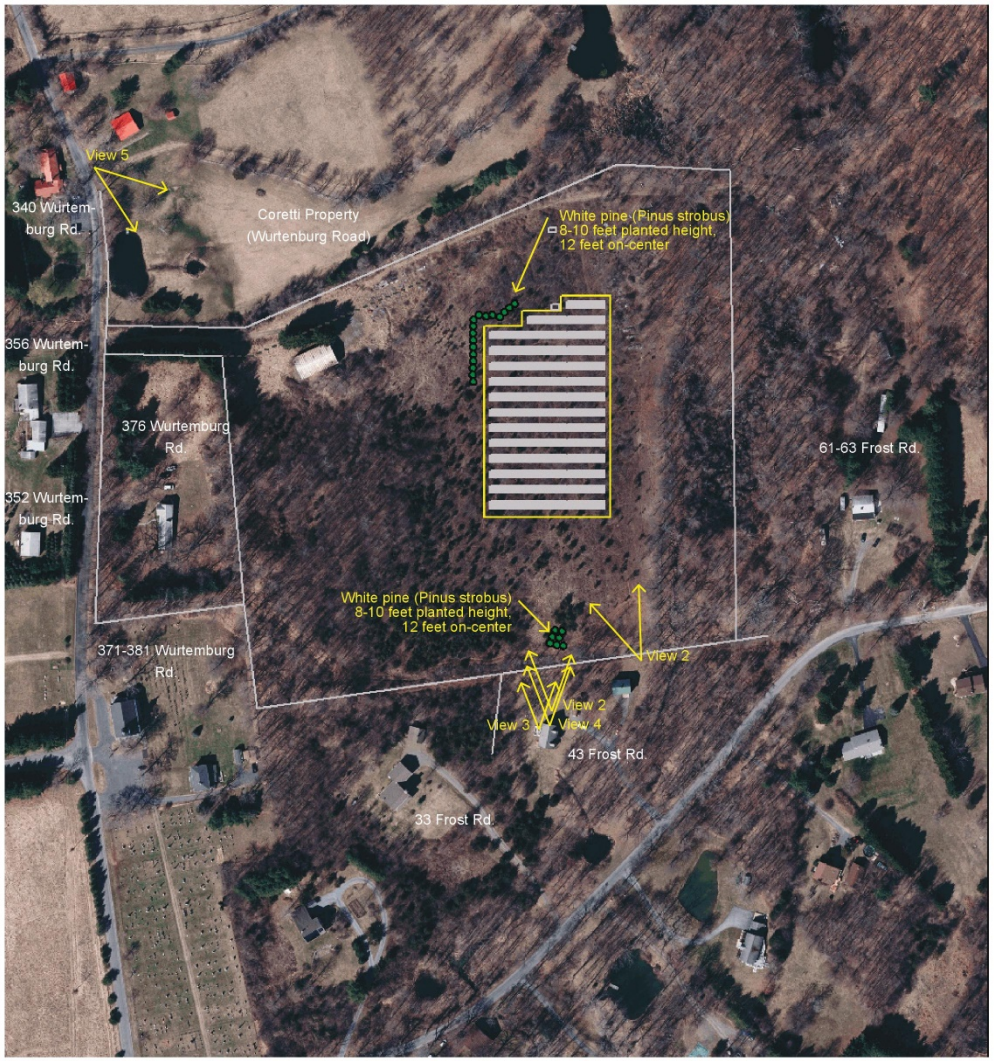

Figure 10
PHOTO LOCATION MAP
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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View 1 - 43 Frost Road, North Side of House at side entrance

Photo 2 - 43 Frost Road, North Property Line

Figure 11
PHOTOGRAPHS
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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View 3 Existing Condition - 43 Frost Road, Backyard Deck

Figure 12
PHOTOGRAPHS
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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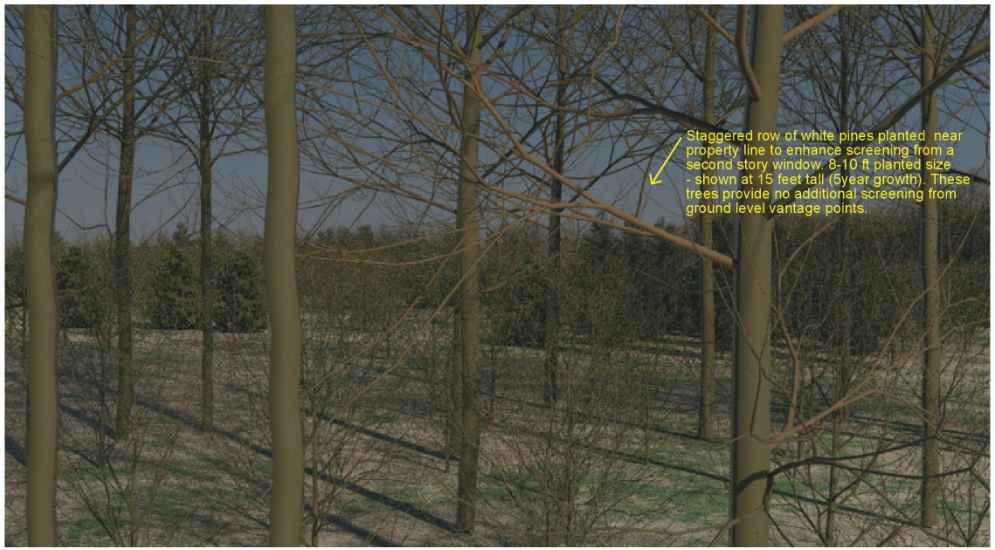
View 3 Simulated Condition - 43 Frost Road, Backyard Deck (without mitigation planting)



View 3 Simulated Condition - 43 Frost Road, Backyard Deck (with mitigation planting)

Figure 13
PHOTOGRAPHS
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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View 4 Existing Condition - 43 Frost Road, Second Floor Window

View 4 Simulated Condition - 43 Frost Rd, 2nd Floor Window (w/o mitigation planting)

View 4 Simulated Condition - 43 Frost Rd, 2nd Floor Window (with mitigation planting)

Figure 15
PHOTOGRAPHS
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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View 5 Existing Condition - 340 Wurtemburg Road

Figure 16
PHOTOGRAPHS
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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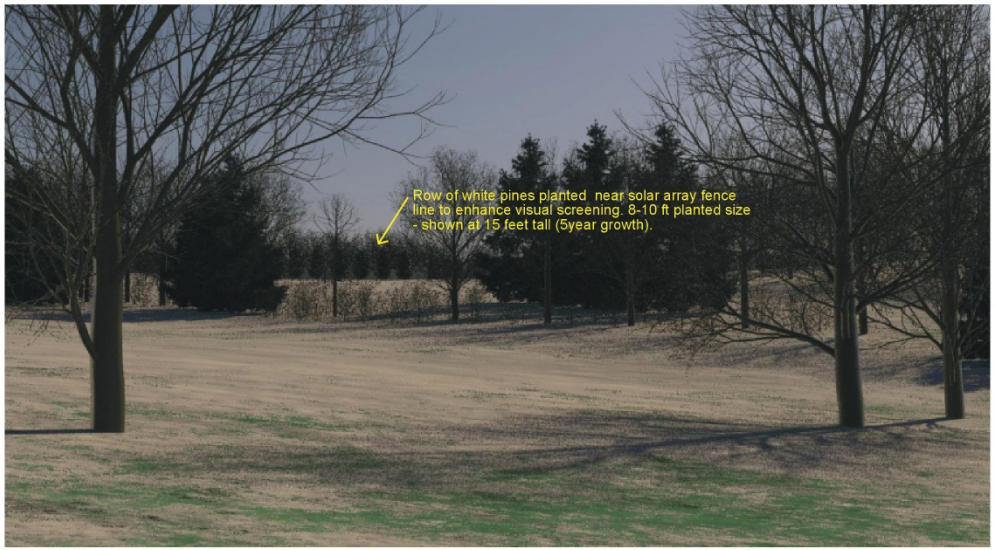
HUDSON SOLAR

View 5 Simulated Condition - 340 Wurtemburg Road (w/o mitigation planting)



View 5 Simulated Condition - 340 Wurtemburg Road (with mitigation planting)

Figure 17
PHOTOGRAPHS
Visual Impact Assessment
Photovoltaic (Solar Electric) Facility

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HUDSON SOLAR

View 5 Existing Condition - 340 Wurtemburg Road

Landscape orientation one photo per page

View 5 Simulated Condition - 340 Wurtemburg Road (w/o mitigation planting)

Landscape orientation one photo per page

Simulated views through remaining trees are the most difficult simulations to perform

- Operator must make judgement of what stays and what goes
- Extremely time-consuming
- When in doubt, take it out!

Assumptions matter: Existing Conditions

Reasonable worst-case simulation

Best-case simulation

Recommendations

- Viewshed map. Will any other areas have potential views?
- Photosimulations for Viewpoint 4 and 5 (if they are of concern)
- Are there other viewpoints the PB wants studied?
- Landscape orientation, one photo per page
- Descriptive information (lens, date and time photos were taken, approximate distance to action)
- Hard copy and digital delivery

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