




Figure 6.12

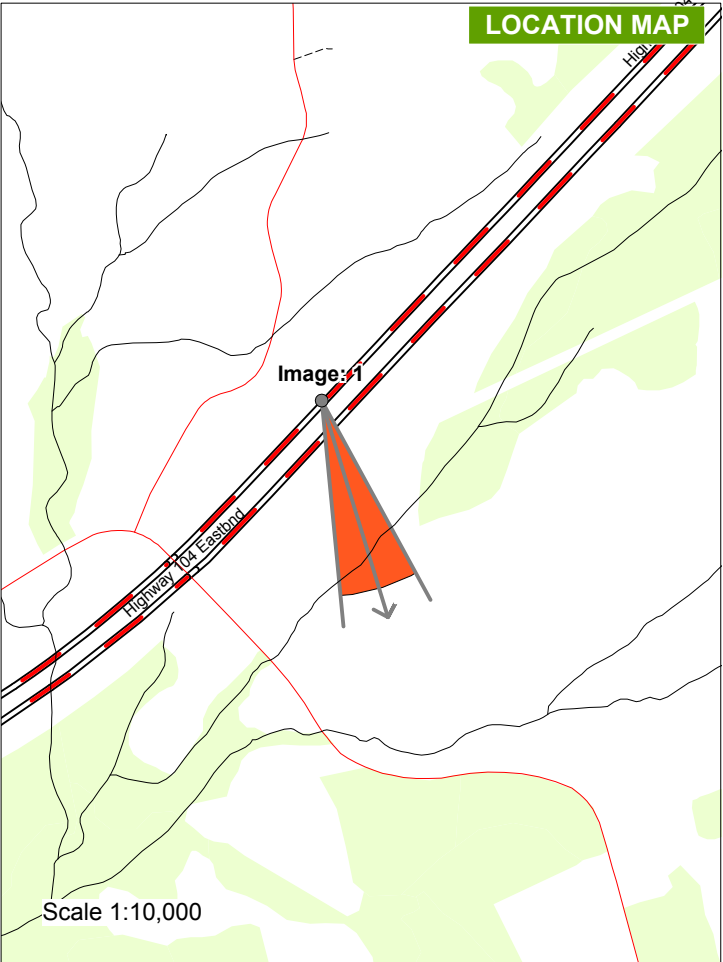
Greenfield Wind Farm
Visual Simulation 1

As viewed from Trans Canada Highway 104

Image Easting: 487,437
 Northing: 5,029,060
 Photograph Date: October 28, 2013
 View Angle: 163 Degrees

Turbine Manufacturer: General Electric
 Model: GE 1.6 82.5
 Hub Height: 80 m
 Rotor Diameter: 82 m
 Rated Power: 1600 kW

Coordinate System	UTM, NAD83, Zone 20	November 6, 2013
Analysis By: AL-PRO Wind Energy Consulting Canada Inc.		





ORIGINAL PHOTOGRAPH



VISUAL SIMULATION

Figure 6.13

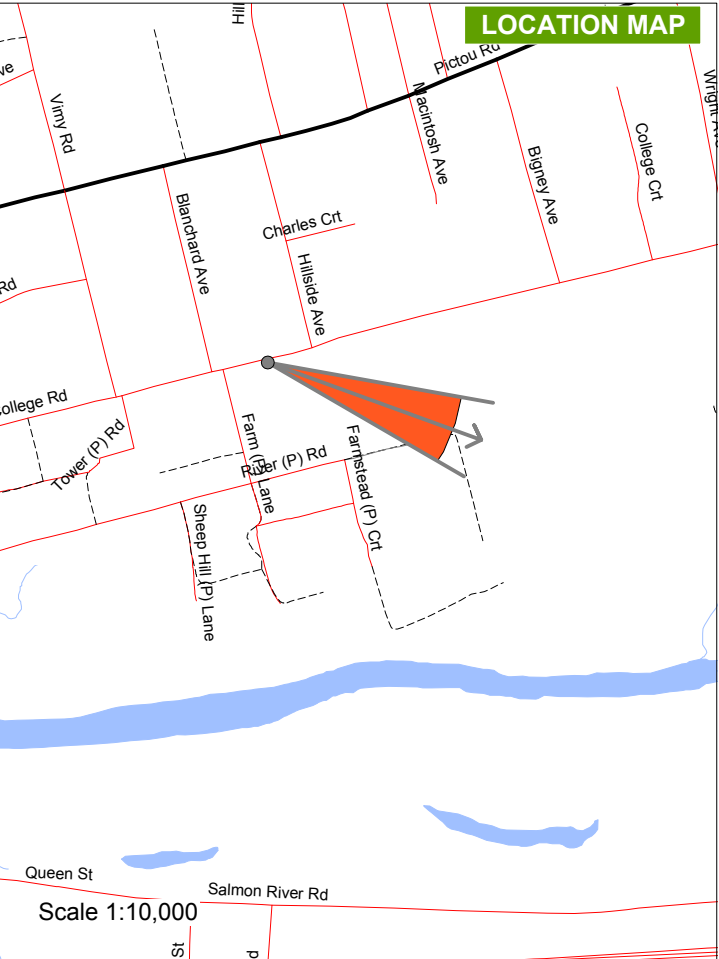
Greenfield Wind Farm
Visual Simulation 2

As viewed from College Road, Bible Hill

Image Easting: 479,764
 Northing: 5,024,466
 Photograph Date: October 28, 2013
 View Angle: 110 Degrees

Turbine Manufacturer: General Electric
 Model: GE 1.6 82.5
 Hub Height: 80 m
 Rotor Diameter: 82 m
 Rated Power: 1600 kW

Coordinate System	UTM, NAD83, Zone 20	November 6, 2013
Analysis By: AL-PRO Wind Energy Consulting Canada Inc.		





ORIGINAL PHOTOGRAPH


Figure 6.14

**Greenfield Wind Farm
 Visual Simulation 3**

As viewed from Old Greenfield Road

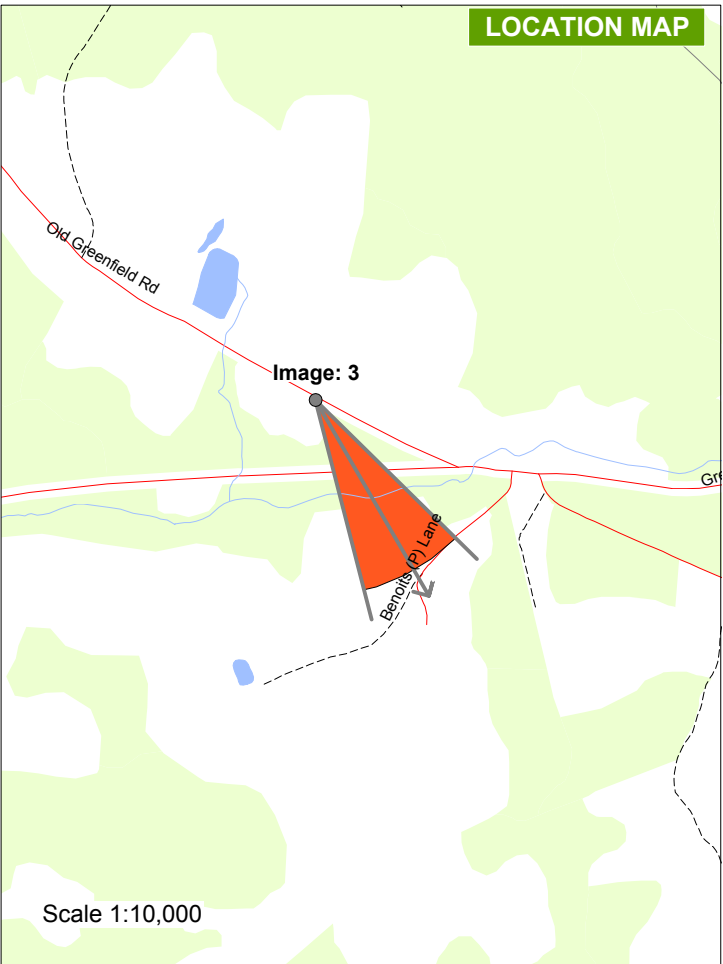
Image Easting: 487,607
 Northing: 5,023,762
 Photograph Date: October 28, 2013
 View Angle: 150 Degrees

Turbine Manufacturer: General Electric
 Model: GE 1.6 82.5
 Hub Height: 80 m
 Rotor Diameter: 82 m
 Rated Power: 1600 kW

Coordinate System	UTM, NAD83, Zone 20	November 6, 2013
Analysis By: AL-PRO Wind Energy Consulting Canada Inc.		



VISUAL SIMULATION





ORIGINAL PHOTOGRAPH



VISUAL SIMULATION


Figure 6.15

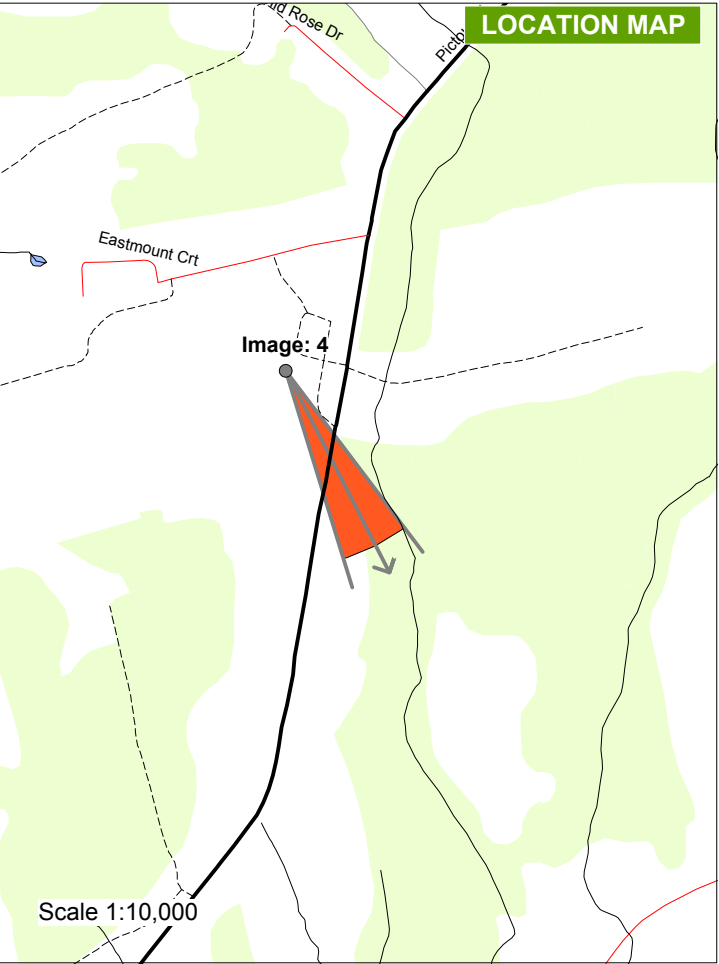
Greenfield Wind Farm
Visual Simulation 4

As viewed from Mountainview Golf Club

Image Easting: 485,340
 Northing: 5,029,164
 Photograph Date: October 28, 2013
 View Angle: 154 Degrees

Turbine Manufacturer: General Electric
 Model: GE 1.6 82.5
 Hub Height: 80 m
 Rotor Diameter: 82 m
 Rated Power: 1600 kW

Coordinate System	UTM, NAD83, Zone 20	November 6, 2013
Analysis By: AL-PRO Wind Energy Consulting Canada Inc.		



Greenfield COMFIT Wind Project: Environmental Assessment

Affinity Wind LP

6.2.1.6 Shadow Flicker

Shadow flicker caused by wind turbines is defined as alternating changes in light intensity due to the moving blade shadows cast on the ground and objects (including through windows of residences). It has the potential to cause health concerns resulting from repeated exposures.

The effects of shadow flicker are more prevalent when the sun is low in the sky at either sunrise or sunset. Therefore it is also more likely to occur during the summer and winter solstices (June 21 and December 21) than during the spring and fall equinoxes (March 21 and Sept 21) when the sun is higher in the sky.

The shadow flicker frequency is related to both the rotor speed and the number of blades on the rotor. In this report shadow flicker was modeled based on the GE 1.6 MW 3 blade wind turbine that has a rotor diameter of 82.5 m and a hub height of 80 m.

The modeling software that Nortek used in this analysis is produced by EMD International (Denmark) and is part of the WindPro 2.8.579 suite of modeling software. The following inputs were used by the software to predict shadow flicker:

- Turbine locations;
- Receptor locations (residences and buildings within the model's analysis extent);
- Topographic elevation within analysis extent (5 m linear contours);
- Turbine details (Rotor diameter and hub height); and
- A 1 x 1 m receptor window is used, with the bottom edge 1 m above ground.

The sun's path calculated from the turbine was predicted based on geographic position of the Project. It should be noted that the model intentionally over predicts shadow flicker effects. The results represents "worse case" scenarios regardless of natural minimizing effects that may occur. These minimizing effects include:

- The reduction of the effects of shadow flicker due to overcast weather (the model assumes that the sun is shining during all daylight hours 365 days per year);
- Wind direction may cause the rotor to rotate parallel to receptor, casting no shadow on that receptor (the model assumes that the wind always comes for the same direction as the sun);
- Natural obstacles (trees, buildings, terrain, etc) occurring between the rotor and the receptor which would block the effects of shadow flicker on that receptor (the model assumes that no such objects exist within the analysis extent area); and
- The model presumes that all turbines are operating continually during daylight hours.

The province of Nova Scotia has no set regulatory limits for exposure to shadow flicker. However the industry commonly uses a combination of 30 hours per year and 30 minutes per