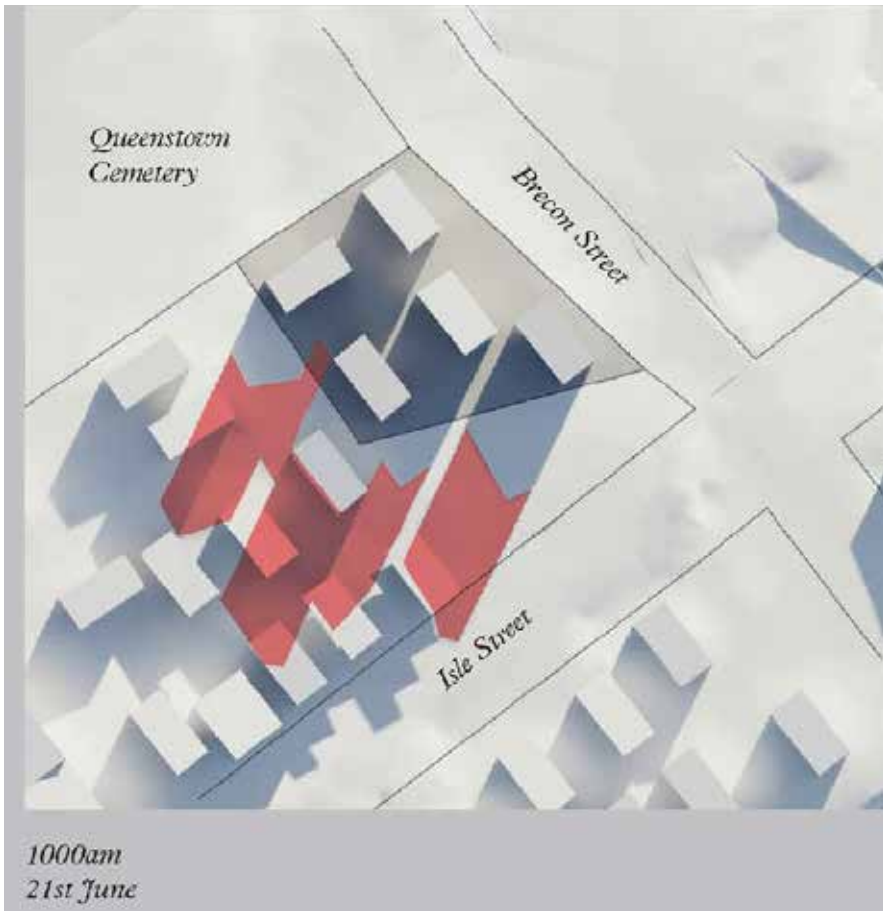


## APPENDICES

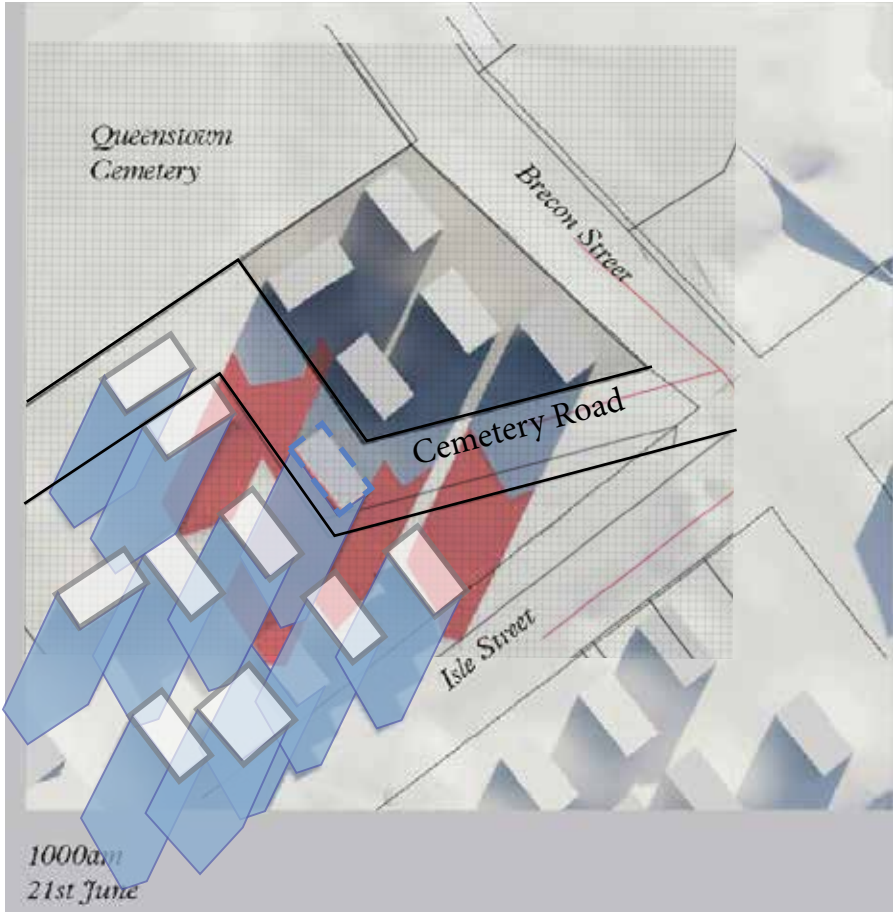
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Before the Hearing Commissioners at Queenstown  
To accompany the Statement of Supplementary Evidence  
of Alexander David Gibbs  
for Brecon Street Partnership Ltd

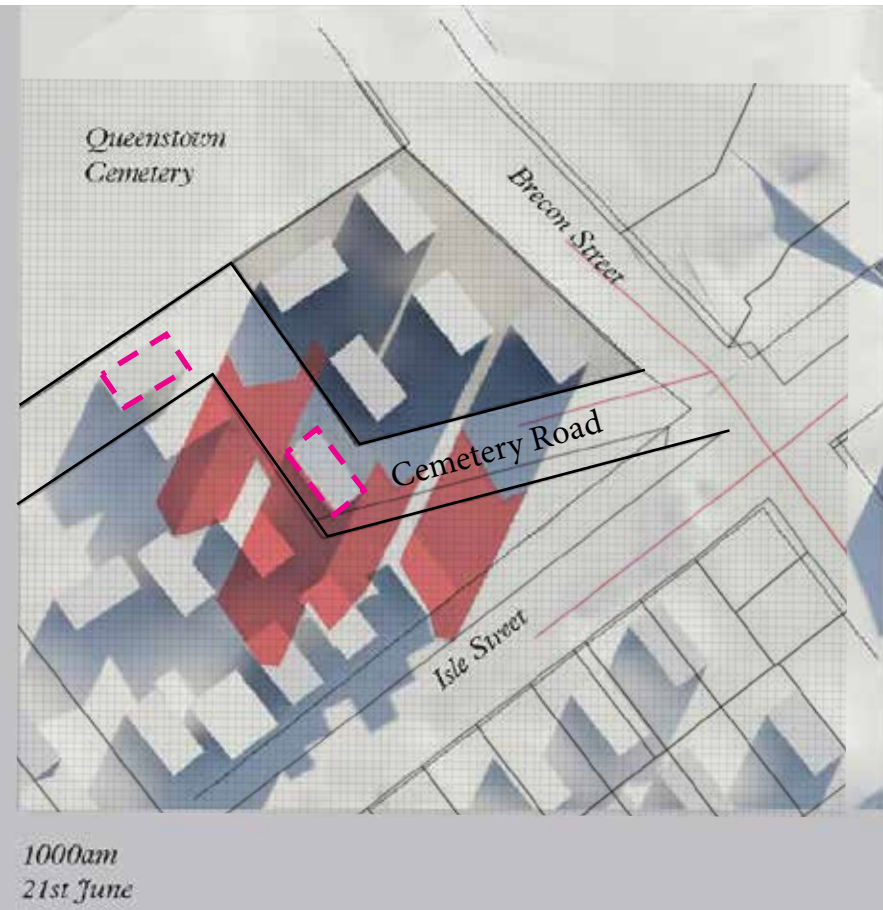
Dated 14 January 2015



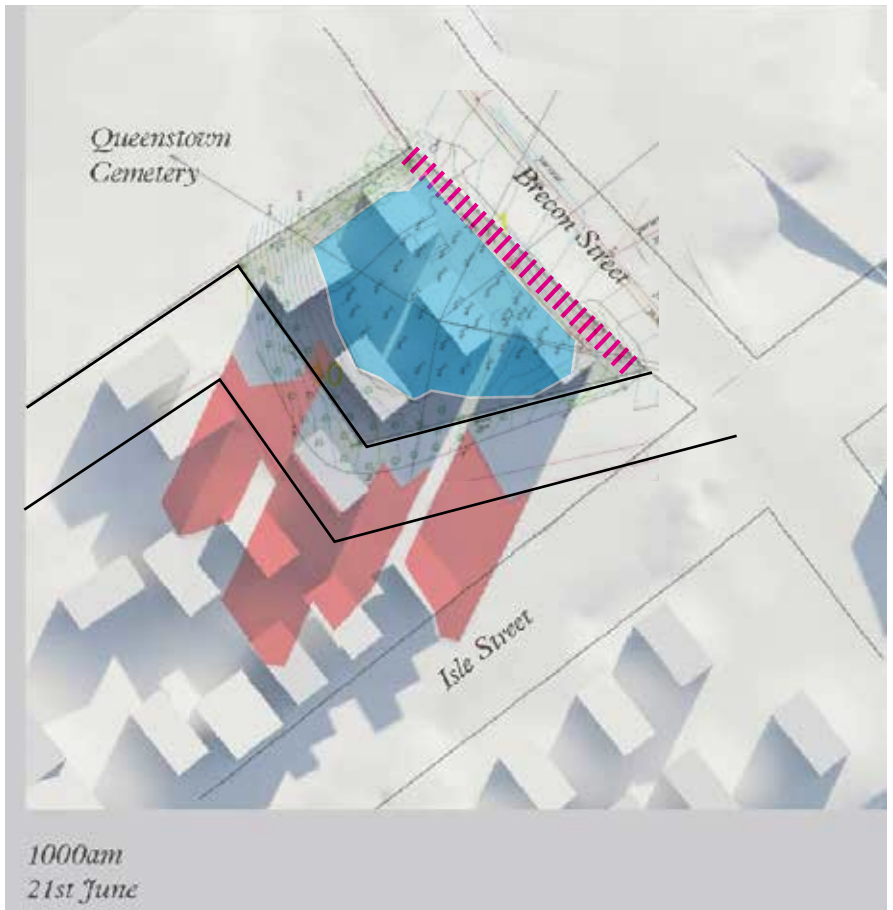
**Diagram 1:** Shadow Diagram used in Mr Bird’s supplementary evidence showing the effect on at 10am June 21, produced by Fearon Hay.



**Diagram 3:** My analysis on their diagram outlined the extent of shadow cast by their proposed buildings on the Campground site.



**Diagram 2:** My analysis on their diagram adding cadastral context, showing that a building they modeled is placed on the existing Cemetery Road.

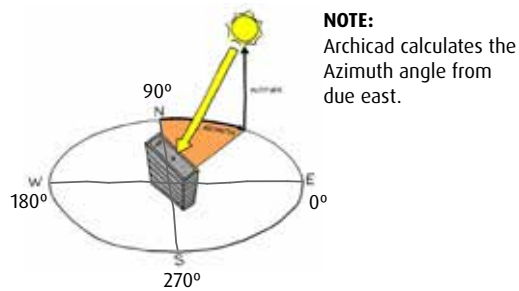


- ||||| Brecon Street frontage
- Approximate building platform area indicated by the site contour/landform

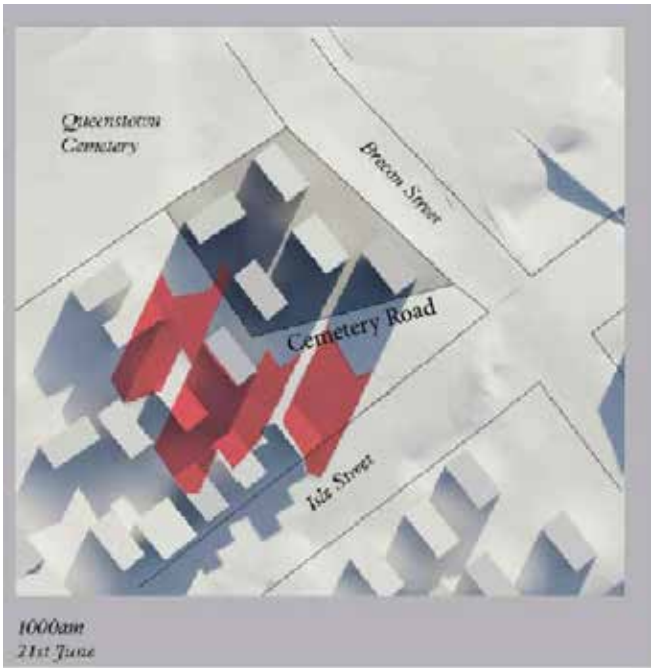
**Diagram 4:** My analysis on their diagram overlaying site survey showing the site topography and existing trees, as well as the Brecon Street Frontage as required by PC50.



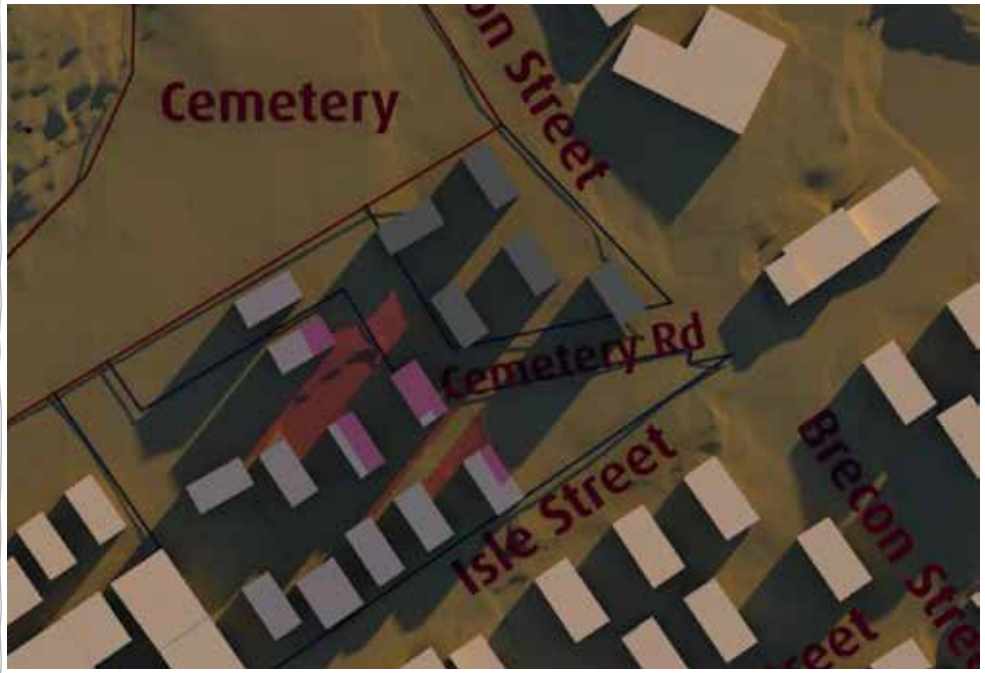
Appendix B



**NOTE:**  
Archicad calculates the Azimuth angle from due east.



Fearon Hay's Shadow Diagram  
10am June 21  
As in Clinton Bird's evidence on page 10, figure 2.



**June 21, 2015, 10am:**  
Sun Altitude = 11.6183°  
Sun Azimuth = 51.4595°  
  
Direct Comparison:  
Comparison between a 12m building and a 24m building on 34 Brecon Street using Fearon Hay's building composition. The additional shadows from 24m building are shown in pink.

Comparison with Fearon Hay's diagram:  
Shadows are at a different angle in an anticlockwise direction, and the shadows are shorter (this can clearly with the shadow impacts on building roofs)

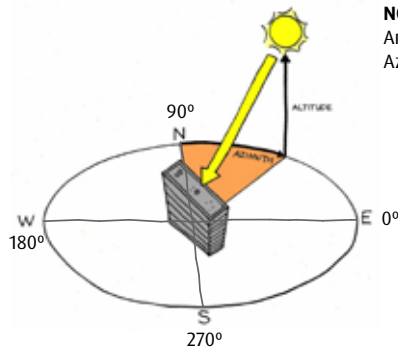


**June 21, 2015, 10am:**  
Sun Altitude = 11.6183°  
Sun Azimuth = 51.4595°  
  
Building Composition Comparison:  
Comparison between a 12m building and a 24m building on 34 Brecon Street using the BSPL building composition and the existing campground. The additional shadows from 24m building are shown in pink.



**Site location Plan**  
Site plan showing site in context with existing campground complex and proposed building footprints for new zoning.

Subject site



**NOTE:**  
Archicad calculates the Azimuth angle from due east.



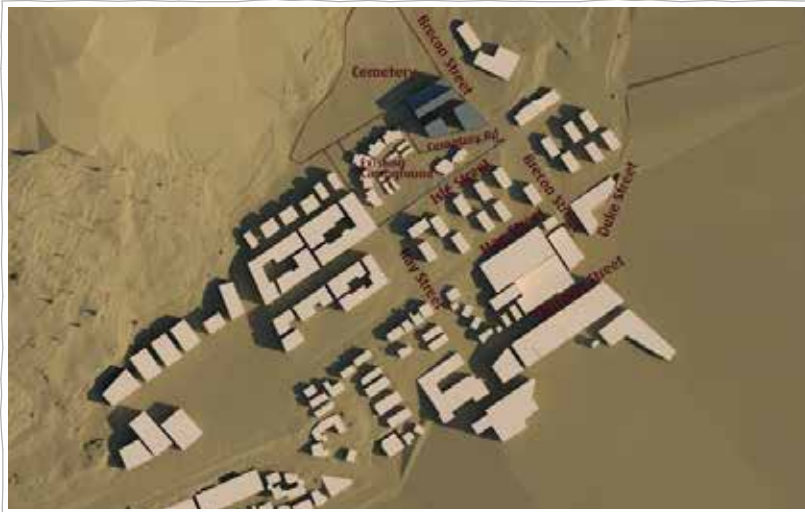
**December 21, 2015, 6am (daylight savings):**  
Sun Altitude = -0.0083°  
Sun Azimuth = 325.4985°

6am:  
The sun is rising. The surrounding mountains overshadow the site.  
  
Comparison to the Fearon Hay diagram:  
Their diagram shows the sun out and deep shadows over the cemetery.



**December 21, 2015, 10am (daylight savings):**  
Sun Altitude = 40.1116°  
Sun Azimuth = 6.0831°

10am:  
The sun is higher. There is a slight shadow over edge of the cemetery.  
  
Comparison to the Fearon Hay diagram:  
The angles of their shadows are slightly different in an anticlockwise direction.



**December 21, 2015, 8am (daylight savings):**  
Sun Altitude = 19.0947°  
Sun Azimuth = 345.4966°

8am:  
The sun has risen. 34 Brecon Street has caused a small shadow over the south-eastern corner of the cemetery.  
  
Comparison to the Fearon Hay diagram:  
The angles of their shadows are slightly different in an anticlockwise direction.

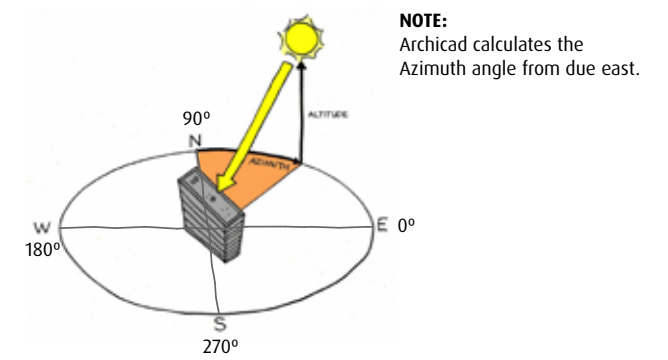


**December 21, 2015, 12pm (daylight savings):**  
Sun Altitude = 59.8147°  
Sun Azimuth = 36.8522°

12pm:  
The sun is high. Shadows are minimal.  
  
Comparison to the Fearon Hay diagram:  
The angles of their shadows are slightly different in an anticlockwise direction.

Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.





**December 21, 2015, 2pm (daylight savings):**  
Sun Altitude = 68.2056°  
Sun Azimuth = 99.8674°

2pm:  
The sun is still high.

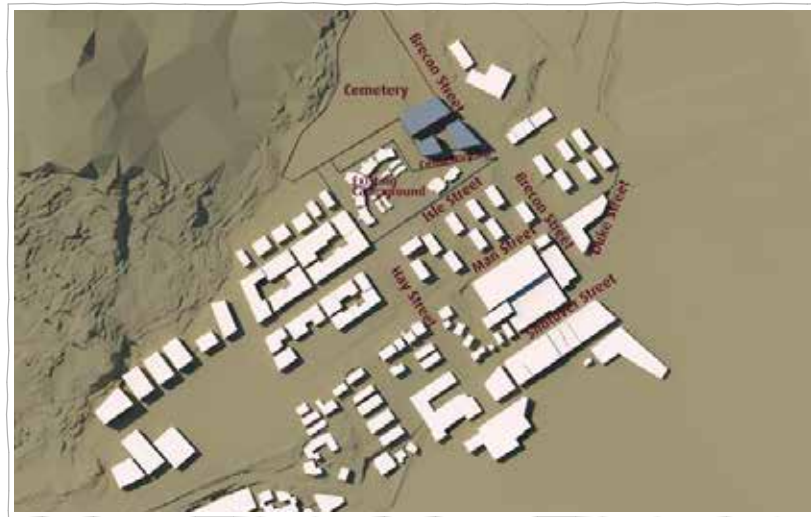
Comparison to the Fearon Hay diagram:  
The angles of their shadows are slightly different in an anticlockwise direction, and they appear larger.



**December 21, 2015, 6pm (daylight savings):**  
Sun Altitude = 34.5011°  
Sun Azimuth = 179.7878°

6pm:  
The sun is still high, and shadows are small.

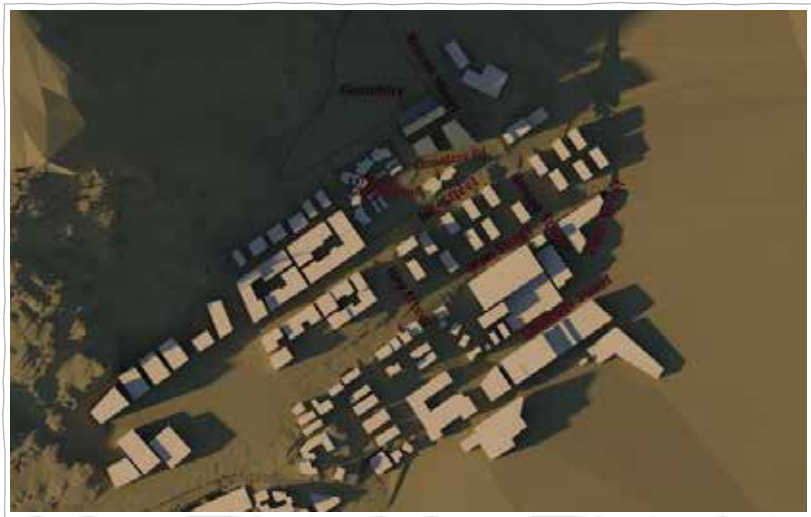
Comparison to the Fearon Hay diagram:  
The angles of their shadows are slightly different in an anticlockwise direction, and they appear to cover a portion of Brecon Street.



**December 21, 2015, 4pm (daylight savings):**  
Sun Altitude = 68.2056°  
Sun Azimuth = 99.8674°

4pm:  
The sun is still high, and shadows are small.

Comparison to the Fearon Hay diagram:  
The angles of their shadows are slightly different in an anticlockwise direction, and they appear to cover a portion of Brecon Street.



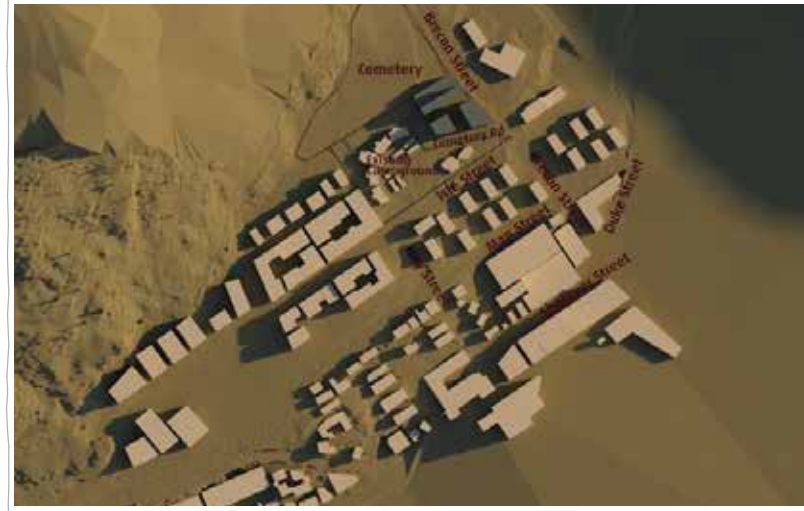
**December 21, 2015, 8pm (daylight savings):**  
Sun Altitude = 13.7230°  
Sun Azimuth = 199.6526°

8pm:  
The sun is now low in the sky, and shadows are growing.

Comparison to the Fearon Hay diagram:  
The angles of their shadows are slightly different in an anticlockwise direction, and they appear to cover a portion of Brecon Street.

Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

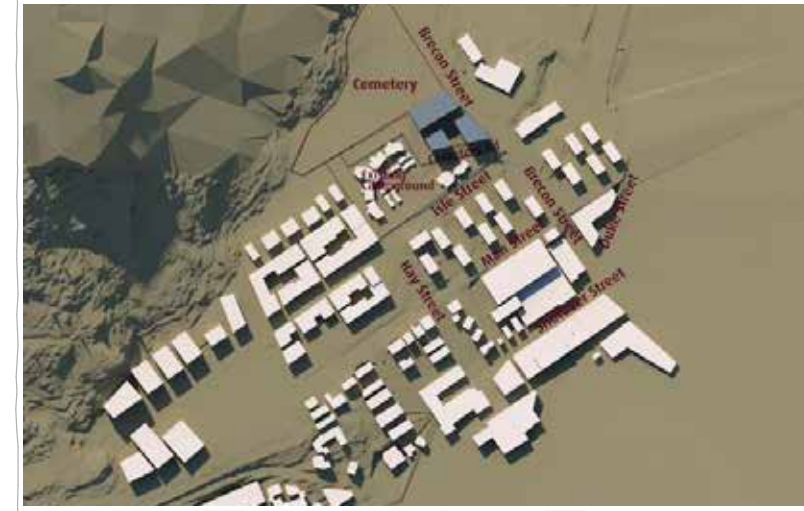




**September 21, 2015, 8am:**  
 Sun Altitude = 13.7233°  
 Sun Azimuth = 15.3278°

8am:  
 The sun is out and shadows caused by 34 Brecon Street are just touching the southern edge of the cemetery.

Comparison to the Fearon Hay diagram:  
 The angles of their shadows are slightly different in an anticlockwise direction.



**September 21, 2015, 2pm:**  
 Sun Altitude = 40.7179°  
 Sun Azimuth = 117.4463°

2pm:  
 The sun is out. 34 Brecon Street overshadows no buildings.

Comparison to the Fearon Hay diagram:  
 34 Brecon Street does not shadow as much of Isle Street. The angles of their shadows are slightly different in an anticlockwise direction.



**September 21, 2015, 10am:**  
 Sun Altitude = 32.3522°  
 Sun Azimuth = 41.0882°

10am:  
 The sun is out. There are no shadows on the cemetery and there is little impact on the surrounding buildings.

Comparison to the Fearon Hay diagram:  
 Their diagram shows a building covered in shadows which has been placed in the middle of Cemetery Road. The angles of their shadows are slightly different in an anticlockwise direction.



**September 21, 2015, 4pm:**  
 Sun Altitude = 26.1200°  
 Sun Azimuth = 149.1689°

4pm:  
 The sun is setting. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.

Comparison to the Fearon Hay diagram:  
 Both are similar.



**September 21, 2015, 12pm:**  
 Sun Altitude = 43.3978°  
 Sun Azimuth = 76.8009°

12pm:  
 The sun is high. 34 Brecon Street overshadows no buildings.

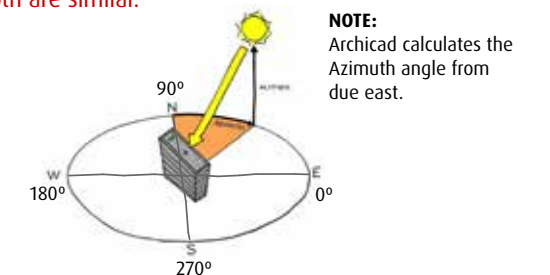
Comparison to the Fearon Hay diagram:  
 The angles of their shadows are slightly different in an anticlockwise direction.



**September 21, 2015, 6pm:**  
 Sun Altitude = 6.11793°  
 Sun Azimuth = 172.6624°

6pm:  
 The sun has set below the mountains. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.

Comparison to the Fearon Hay diagram:  
 Both are similar.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

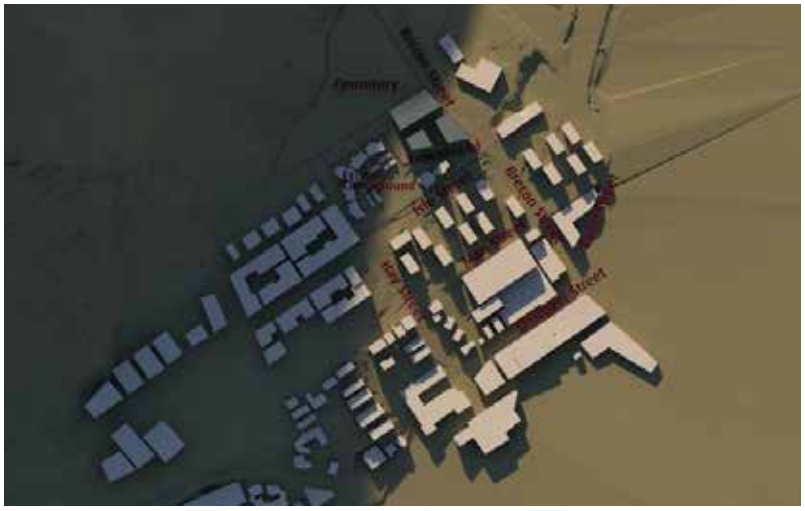




**June 21, 2015, 8am:**  
 Sun Altitude = -4.5301°  
 Sun Azimuth = 29.1303°

8am:  
 It is still night time.

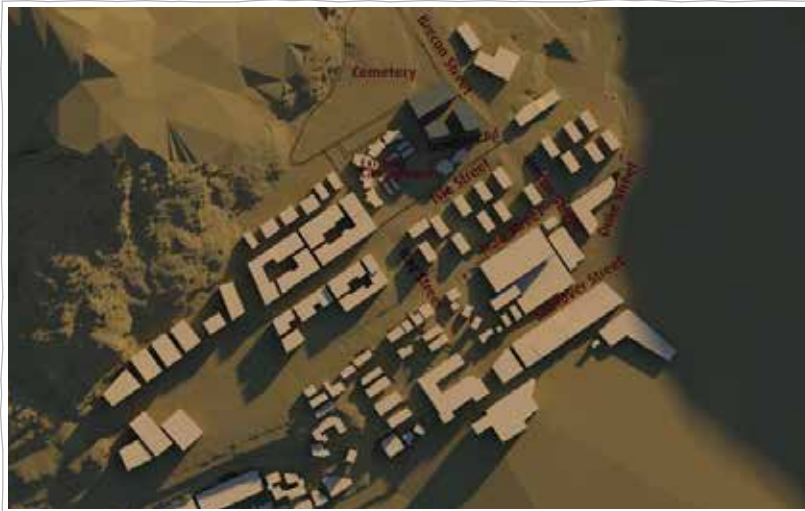
Comparison to the Fearon Hay diagram:  
 They are the same.



**June 21, 2015, 2pm:**  
 Sun Altitude = 19.4511°  
 Sun Azimuth = 107.7613°

2pm:  
 Bobs Peak is starting to overshadow the PC50 area. 34 Brecon Street is partially overshadowing two buildings to the south.

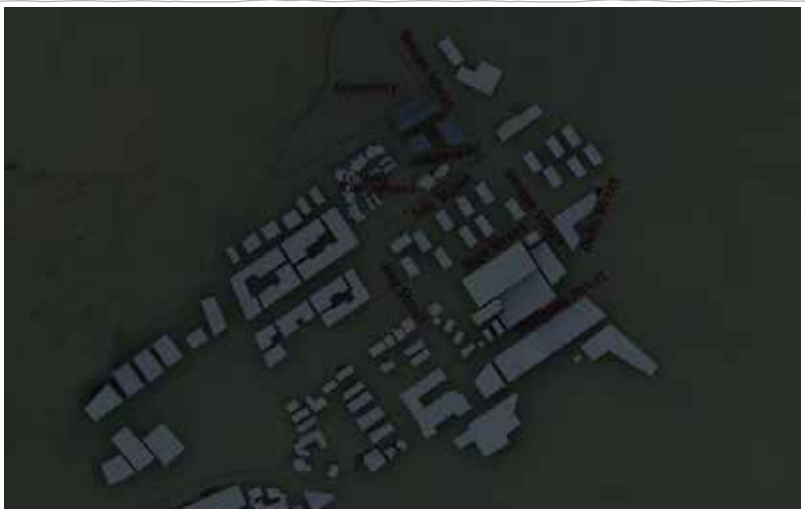
Comparison to the Fearon Hay diagram:  
 Their diagram shows the site completely overshadowed.



**June 21, 2015, 10am:**  
 Sun Altitude = 11.6183°  
 Sun Azimuth = 51.4595°

10am:  
 The buildings at 34 Brecon Street are causing shadows over some of the buildings in the campground site.

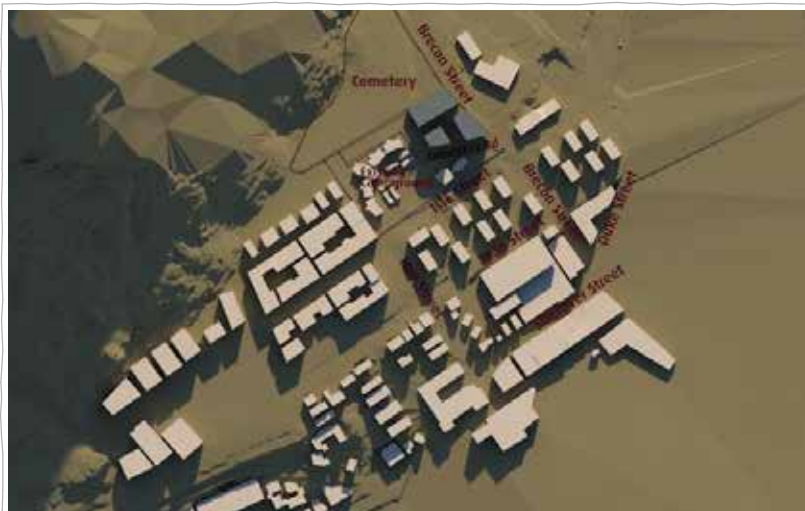
Comparison to the Fearon Hay diagram:  
 The angles of their shadows are slightly different in an anticlockwise direction.



**June 21, 2015, 4pm:**  
 Sun Altitude = 8.5674°  
 Sun Azimuth = 133.8062°

4pm: The site is in darkness.

Comparison to the Fearon Hay diagram:  
 They are the same.



**June 21, 2015, 12pm:**  
 Sun Altitude = 20.6212°  
 Sun Azimuth = 78.5191°

12pm:  
 The buildings at 34 Brecon Street are partially overshadowing some buildings in the campground site.

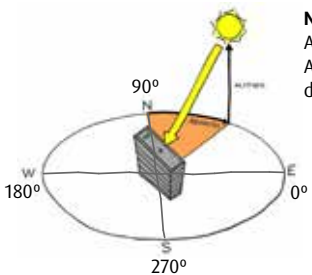
Comparison to the Fearon Hay diagram:  
 The angles of their shadows are slightly different, theirs appear to be vertical and this diagram shows them slightly rotated in a clockwise direction. Their diagram shows a building covered in shadows, which has been placed in the middle of Cemetery Road.



**June 21, 2015, 6pm:**  
 Sun Altitude = -8.6610°  
 Sun Azimuth = 155.2716°

6pm: It is night time.

Comparison to the Fearon Hay diagram:  
 They are the same.



**NOTE:**  
 Archicad calculates the Azimuth angle from due east.

Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

## Shadow Diagram Methodology

The shadow diagrams created by Brecon Street Partnership were produced with the following methodology:

1. Identify the extent of the context to be modelled. Ensure Bobs Peak and other surrounding mountains are included.
2. Receive contour and contextual information in dwg format from the QLDC GIS team. 20m contours were available for Bobs Peak, and 1m contours were available within the Plan Change 50 area. Footprints and parcel boundaries were also provided.
3. Create a 3D terrain model in SketchUp, by using the contour dwg information supplied by QLDC.
4. Open the dwg with footprints, contours, and parcel boundaries in ArchiCAD. Import the terrain into the ArchiCAD file by converting it into an object. Align the terrain to the contextual information.
5. Receive a drawing from Fearon Hay Architects showing the footprints of the buildings they have drawn in the PC50 area.
6. Model the surrounding buildings by using Fearon Hay's building footprints in the PC50 area, refer to the PC50 appendices for the building heights.
7. Model the existing buildings in the surrounding areas by using the QLDC GIS data. Refer to Google street view and the QLDC district plan for heights of existing buildings.
8. Model the 34 Brecon Street site by referencing the parameters set by the Brecon Street Partnership team. Model two heights: 12m as per PC50, and 24m.
9. Ensure the model is scaled, elevated, orientated correctly. Compare it with a survey plan of Brecon Street produced by Clark Fortune McDonald who are registered land surveyors, land development and resource management consultants based in Queenstown. Set project north to align with the surveyor's north arrow.
10. Set the location of the model. Change the settings so the point of origin is in Queenstown (this is a pre-setting in ArchiCAD). The latitude and longitude show as: 45° 3' 0.0000"S and 168° 39' 0.0000"E.
11. Check that the sun settings in ArchiCAD are accurate. Compare the sunrise times between the ArchiCAD settings and the information provided by Metservice. The time difference was within 10 minutes.
12. Produce shadow diagrams using the same timings used by Fearon Hay, allowing for daylight savings in the December diagrams.



## Appendix E



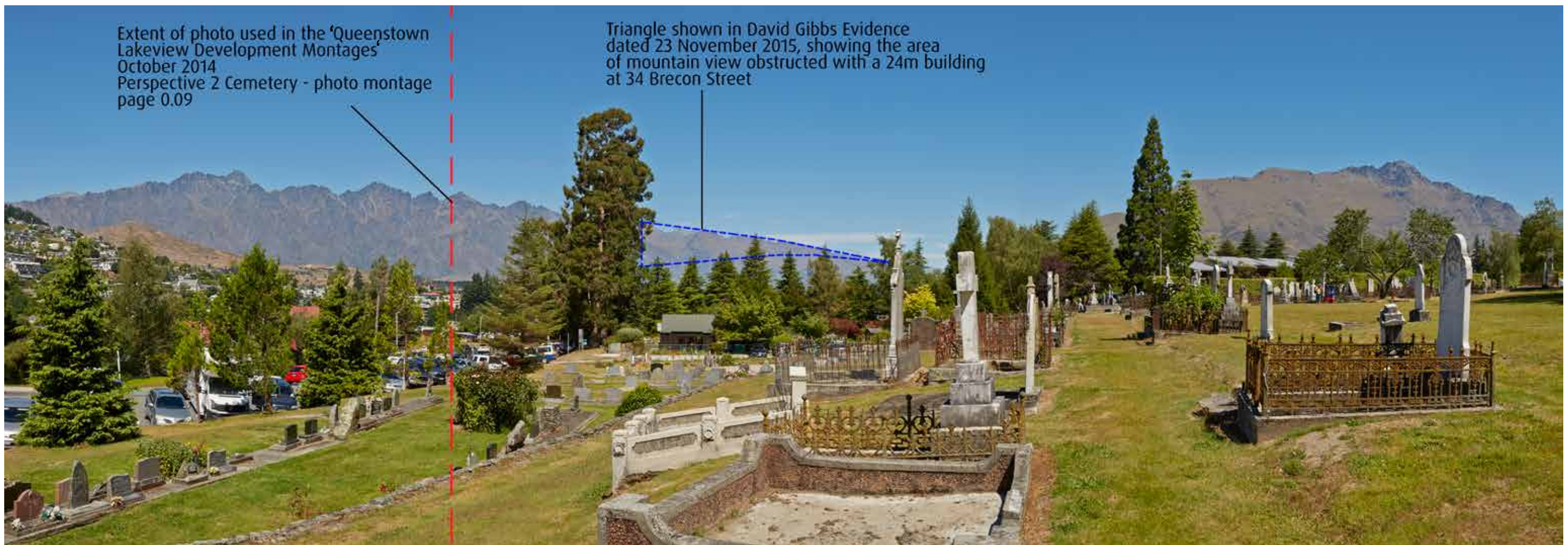
The views from the cemetery look out beyond the image shown in the 'Queenstown Lakeview Development Montages' October 2014 page 0.09.

As photos have their limitations, the image below still fails to depict the wide views out to the mountains around Queenstown.

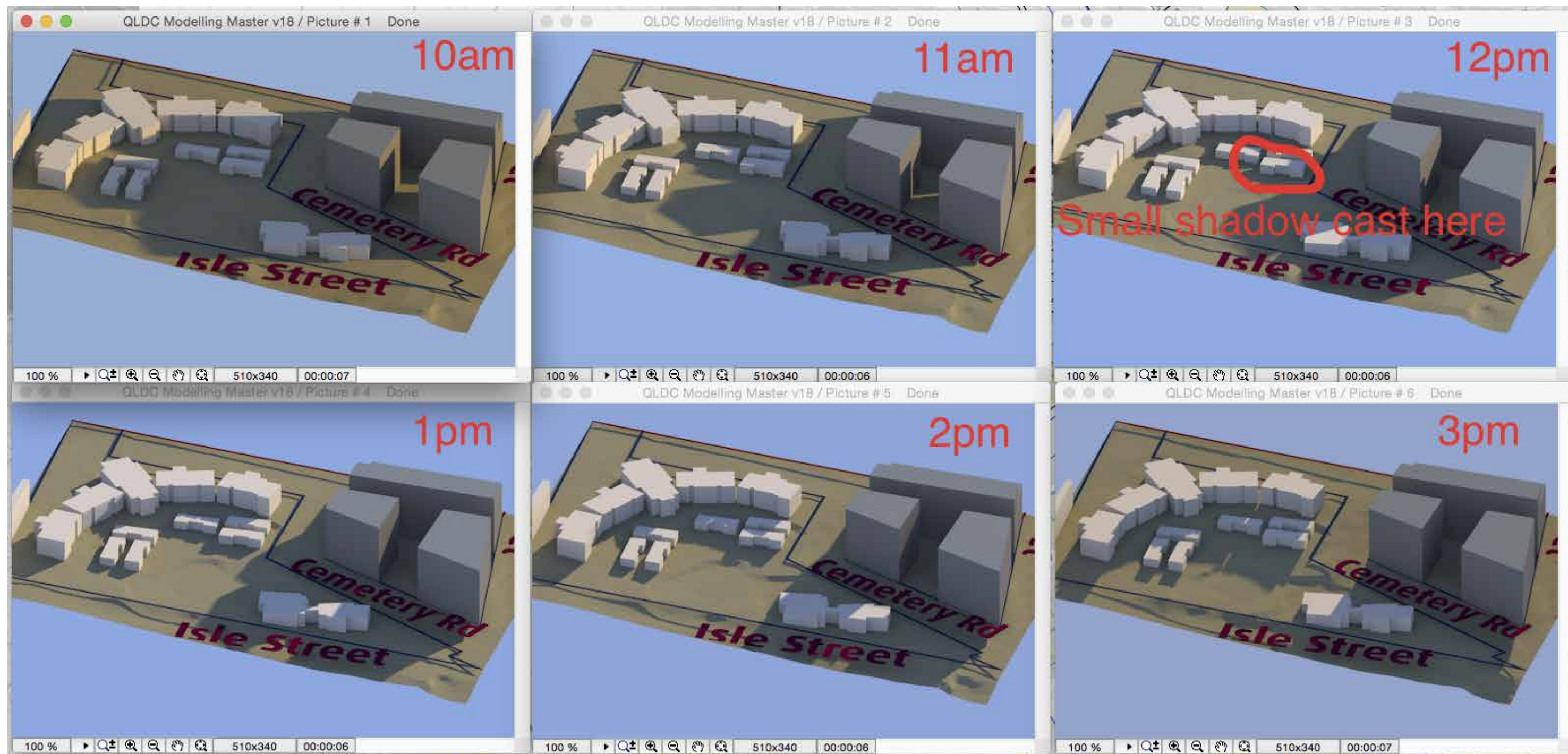
The 24m development at 34 Brecon Street will obstruct the blue dashed triangle that has already been shown in David Gibbs Evidence dated 23 November 2015. The percentage of the Remarkables that it blocks has been calculated to be roughly 13%. This area is located on the flank for the mountain, the iconic peaks are untouched.

**Diagram 5 (left):** Aerial of the cemetery showing the viewpoint of Dr Read's evidence verses visitors primary view as indicated in Mr Brid's evidence sourced from Flickr.

**Diagram 6 (bottom):** Photo of the cemetery. The image was taken on a full frame 35mm sensor @ a focal length of 50mm. It is a composite stitch made up of five separate frames. The combined angle of view is approximately 120 degrees.







**Diagram7:** 3D shadow diagrams showing shadows cast by 34 Brecon Street onto the campground site.