BEFORE THE QUEENSTOWN LAKES DISTRICT COUNCIL HEARINGS PANEL

UNDER	the Resource Management Act 1991
IN THE MATTER	of the review of parts of the Queenstown Lakes District Council's District Plan under the First Schedule of the Act
AND	
IN THE MATTER	of submissions and further submissions by **REMARKABLES PARK LIMITED AND QUEENSTOWN PARK LIMITED**

SUMMARY OF EVIDENCE OF TIM JOHNSON ON BEHALF OF REMARKABLES PARK LIMITED AND QUEENSTOWN PARK LIMITED

(3D VISUALISATION AND VISUAL SIMULATIONS)

STREAM 13 REZONING HEARINGS

4 September 2017

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1. QUALIFICATION

1.1 My name is Timothy William Johnson. I have 12 years work experience in surveying, aerial mapping, computer programming and visualisation. My qualifications and experience is set out in my evidence in chief dated 9 June 2017.

2. METHODOLGY

2.1 The Visual Simulations created by Buildmedia were prepared using best surveying and visualisation practices and involve a series of processes and steps to ensure consistency and accuracy in the development of each image. Buildmedia follow the NZILA Best Practice Guide "NZILA BPG" as a method of producing visual simulations.[1]

3. PHOTOGRAPHY AND SURVEYING

3.1 A series of photographs were taken for viewpoints 1 to 4 and 7 to 8 on the 5th and 6th March 2016 using a Canon EOS 50D digital camera with a 53 mm lens and using a tripod. Viewpoints 5 and 6 were captured on the 25th of April 2017 using a Canon EOS 60D digital camera with a 50 mm lens and using a tripod. Photographs were captured every 5 degrees using a specialist robotic panoramic head to remove parallax error.

3.2 Camera positions were captured by Apex Surveying and used to determine the virtual camera placement.

3.3 Apex Surveying captured tie points where accessible. The 3D tie point position indicators were added into the 3D scene at the actual positions.

3.4 The virtual camera was then altered in direction so that the tie points matched the features in the rectilinear image. Multiple tie points were used across the whole width of the view to ensure consistent accuracy. They were then rendered and overlaid onto the existing panorama.

3.5 For panoramas where no tie points were captured, contour data was generated from Remarkables Park Lidar Data and used to align the photography.

4. 3D MODEL

[1] The visual simulations are **attached** to my supplementary evidence (dated 28 August 2017) and marked "**B**".

4.1 The Gondola towers were modelled using plans and elevations supplied by Lietner Poma. Height, inclination and position were modelled for each tower, the gondola cabins were spaced as per the specifications in the cross sections. Gondola towers and cabins were coloured Half Ironsand N38-005-056.

4.2 The upper Gondola station 3D model was supplied by Aireys Consultants Limited and imported into the overall 3D model. This was coloured Half Ironsand N38-005-056.

4.3 The lower stations were modelled using Lietner Polma's cross sections and architectural designs supplied by Remarkables Park Limited. The stations were coloured Half Ironsand N38-005-056.

4.4 In the 3D model, the sun and environment was simulated at the precise day and time each photograph was captured. This ensures the lighting of the gondola as well as the shadows cast, are accurate representations of how the gondola would appear in the photography.

5. FINAL IMAGE ENHANCEMENTS

5.1 2D image editing software was used to correctly edit what would normally appear in the foreground of the image. Foreground features were transcribed out of the original photograph and placed into their exact position in front of the 3D object.

5.2 Both Rectilinear and Cylindrical image projections were supplied in the final visual simulation layouts.

6. CONCLUSION

6.1 Buildmedia use the best surveying and visualisation practices and involve a series of processes and steps to ensure consistency and accuracy in the development of each visual simulation. These visual simulations accurately represent the proportions and location of the proposed gondola and views from the selected locations as scribed by the design information available.

Tim Johnson

4 September 2017