

Methodology for Preparation of Photo Simulations

- 1 The main objective of a photo simulation is to provide an image that, as realistically as possible, conveys the modification or change of a proposed activity. The most appropriate technical methodology has been applied to ensure the accuracy of what is depicted, in terms of its relative position, elevation, scale, and appearance. Photo simulations can never replace the real experience of being at a location, but they are a useful tool to assist in the decision making process.
- 2 Virtual View Ltd was engaged to produce photo simulations of the proposed Te Kuha Mine.
- 3 To achieve a photo simulation, a 3D model is rendered into a series of 2-dimensional photographs.
- 4 Rough & Milne Landscape Architects Ltd chose the photo point positions and Virtual View Ltd took the relevant panoramic photos from the designated positions.
- 5 A surveyor from Chris J Coll Surveying Ltd then survey marked the positions of the camera and reference points.
- 6 The photos were then colour matched to ensure consistency throughout the image and manually stitched together to form a photo panoramic.
- 7 To create the 3D model Virtual View Ltd firstly imported the digital landform data that was supplied by Chris J Coll Surveying Ltd. Within the 3D software – 3D Studio Max, a digital terrain mode was created with the contour data supplied.
- 8 Mine Stage models were supplied by Avery Consulting Ltd, then imported and the specified colours and textures were applied.
- 9 A series of 3D computer cameras within the simulation software were then created. They were positioned accurately to the corresponding survey marked photo position from which the photos were taken. The camera used depicts a real world camera, including matching the focal length of the 50mm lens.
- 10 Markers were then positioned at the reference point co-ordinates. To duplicate the view through the real world camera, it was necessary to match the reference markers and landform data to their respective physical objects in the photo - thus ensuring an

accurate horizontal and vertical alignment. In general the reference points may consist of existing ground features in the environment such as power poles, light stands, signs, fence posts and/or prominent trees. The reference points were also required to be of varying heights and varying distances to the camera.

- 11 A sunlight system was then created which uses light in a system that follows the geographically correct angle and movement of the sun over the earth at a given location. Location, date, time, and compass orientation are able to be chosen. The simulations Virtual View Ltd prepared, depict the proposed factory the same, time and date as specified, and are simulated to resemble the natural lighting.
- 12 Within the 3D software, the new image was then rendered containing the accurately positioned 3D model over top of the original photograph.
- 13 Vegetation in the foreground was overlaid using photo-editing software and was then checked against aerial photography from the site to ensure correct placement.
- 14 Virtual View simulations comply with the Best Practice Guide - Visual Simulations.
- 15 For the resulting photograph simulations, the viewing scale is 50cm from the eye when printed at large scale by Virtual View Ltd (refer to Figure 2 below).

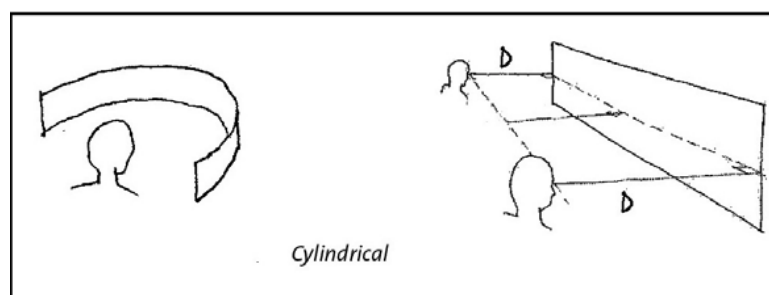


Figure 2: Viewing Scale for Photo Simulations

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Virtual View Ltd