Appendix 13.2: Photomontage Methodology

The photomontages were made by combining images with renders of three dimensional (3D) models.

The first step in the photomontage process was to verify and examine the proposed viewpoints by placing virtual cameras in 3D landscape models. The Russian landscape model was generated using available elevation data (rough data) supplemented with more detailed local Digital Terrain data obtained from surveys.

Landscape features were used to match specific reference points between photos and 3d model. A 12 sq km landscape model was used which covers almost the complete landscape visible in the photos. The landscape models are based on elevation data provided by Intecsea.

All single images were taken with a full-frame camera and a 24 mm lens with a horizontal field of view of 74°. The camera was equipped with a GPS receiver for tagging the images with geo-location information (called Geotags). From these Geotags, viewpoint locations, elevations and viewing directions were used to generate virtual cameras in the 3D landscape models. To confirm the accuracy of the Geotag information, the landscape models were projected on top of each image. If necessary, the virtual cameras were adjusted until they aligned the 3D landscape model with the images taken on location.

With reference to the landscape model, the landfall facilities, shore crossing and microtunnel site were modelled according to the Proposed Development, as set out in **Chapter 5 Project Description**. These models were incorporated into the landscape model so that visibility from specific viewpoints could be verified utilising Zone of Theoretical Visibility analysis. For both photomontages and the ZTV analysis the vent stack, being the tallest element of the Project, has been modelled at 30 m to represent a worse-case scenario (the height of 21 m as described in Chapter 5 may present a minor reduction in the ZTVs and a slightly reduced visual impact compared to that shown on the photomontages).

From the selected viewpoints, computer generated images were generated to represent the Construction and Pre-Commissioning Phase, as well as at Operation at year one and year five. These were combined with baseline photographic images. The rendered montaged components of the image were further blended into the image by colour corrections.

For some viewpoints, multiple images were stitched together into a panorama. Cylindrical projection was used for stitching the panoramas. Panoramas were used in preference to single images, in some cases, in order to represent the wider landscape and surrounding features, therefore there is not a specified field of view for these images.