

Methodology Report

Prepared for

Barton Willmore

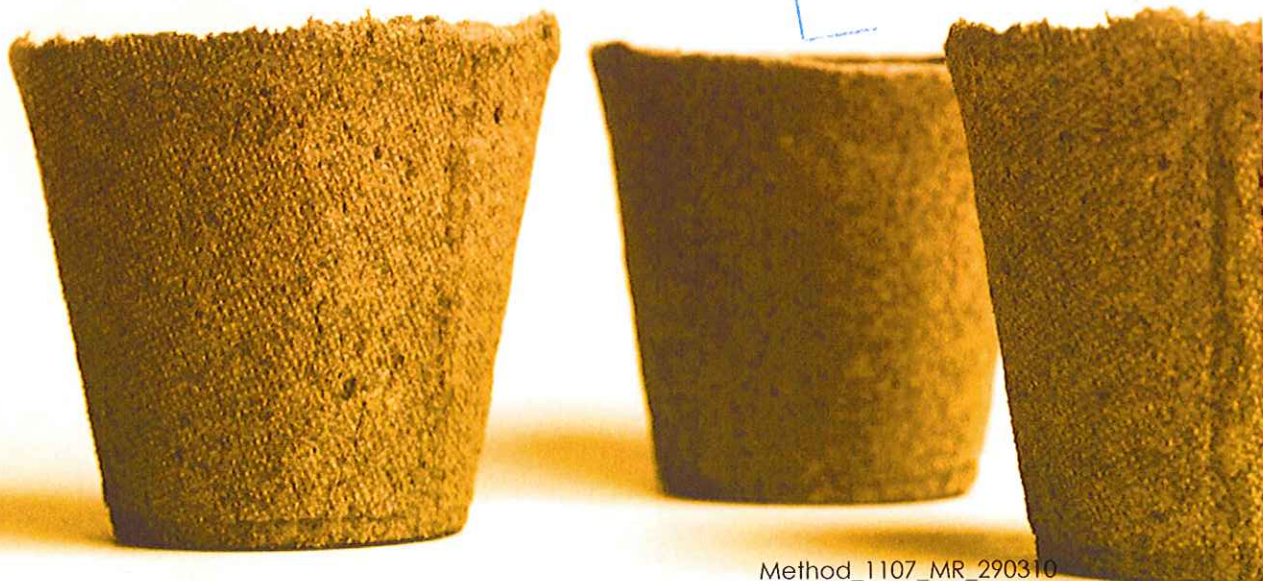
Project Title

Ryedale Gas Project

Prepared by

Mike Rice

2nd September 2010



Method_1107_MR_290310

1. The following methodology was used to produce the photomontage images for 7 views. These views were based on the following locations, all between Thornton le Dale and Wilton in North Yorkshire.

1. 17 metres due north of Hurrell Lane and Longlands Lane junction (**View 01**)
2. Cawcliff Lane in Wilton. (**View 02**)
3. End of Hurrell Lane at Junction of private road (**View 03**)
4. Along the A170 between Thornton le Dale and Wilton (**View 04**)
5. Corner of field between Harrow Cliff Lane and Hurrell Lane (**View 05**)
6. Along Longlands Lane (**View 06**)
7. Along Outgang Lane (**View 07**)

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2. A Nikon D200 digital SLR camera with an 18-200mm lens, mounted on a tripod, was used in order to obtain good quality images. The photographs for views 1, 2 and 3 were taken over the course of one morning and afternoon on the 3rd February 2010 and the photographs for views 4, 5, 6 and 7 were taken over the course of one morning and afternoon on the 26th July 2010.

View 01 DSC_692 = Focal length 18mm (27mm in 35mm film)
Exposure 1/320 @ f/9 ISO 200

View 02 DSC_578 = Focal length 18mm (27mm in 35mm film)
Exposure 1/320 @ f/9 ISO 200

View 03 DSC_703 = Focal length 18mm (27mm in 35mm film)
Exposure 1/250 @ f/8 ISO 200

View 04 DSC_0541 = Focal length 18mm (27mm in 35mm film)
Exposure 1/320 @ f/9 ISO 250

View 05 DSC_0599 = Focal length 18mm (27mm in 35mm film)
Exposure 1/320 @ f/9 ISO 250

View 06 DSC_0567 = Focal length 18mm (27mm in 35mm film)
Exposure 1/400 @ f/10 ISO 250

View 07 DSC_0523 = Focal length 18mm (27mm in 35mm film)
Exposure 1/350 @ f/10 ISO 250

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3. These photographs were downloaded directly to our computer system as .jpeg and .NEF images containing RAW data for extra usability to finely tune contrast, exposure and get the exact time the images were taken, in Photoshop CS4. Some Minor Post Production level adjustments were made to the images within Photoshop and due to overcast skies on the day photos 4, 5, 6 and 7 were taken, clearer skies were added to the photographs. An example of this can be seen below.



Original View 4 as shot



Levels and sky adjusted View 4

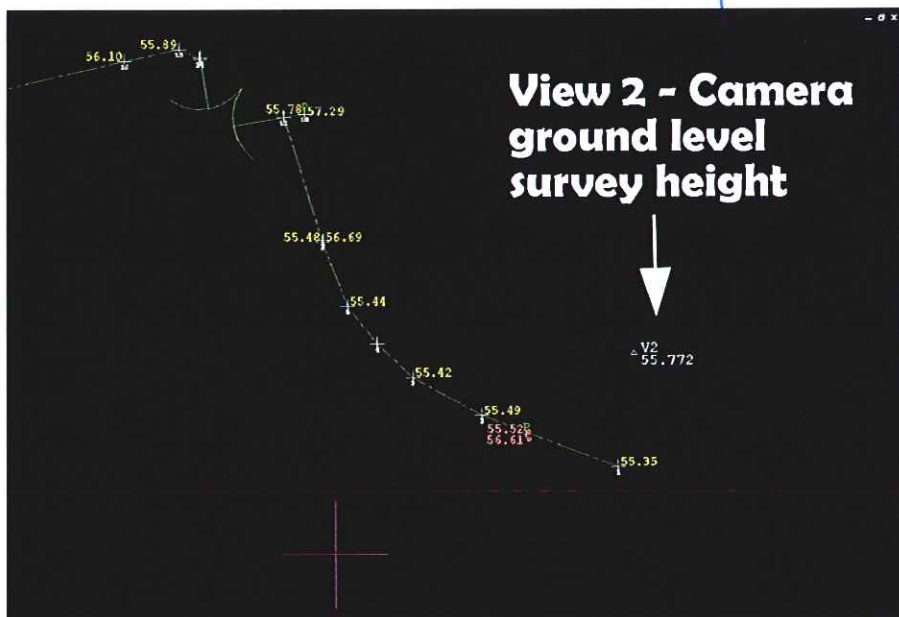
4. These photographs provided accurate base images for the computer generated photomontages.
5. A full GPS and Laser Survey of points within each of the views took place on two separate dates; Views 1, 2 and 3 were carried out on the 3rd February 2010 and Views 4, 5, 6 and 7 were carried out on the 26th July 2010. All survey data was taken by CT Surveys Ltd in the presence of Circle Creative Ltd. In addition to the chosen strategic points within the views, a GPS reading of the position of the camera was recorded for all of the views at the time the photographs were taken. A map was taken on site and the points were marked. Height data was correlated from the OS map provided and the GPS information.

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View 2 - Strategic Points Surveyed in RED to assist in camera matching

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View 2 - Screen grab from AutoCAD Survey drawing to GPS position of photograph position

Height of Camera used to take Photographs

View 01=Ground level: 49.769 + 1.6m camera height above ground = 51.369
View 02=Ground level: 55.772 + 1.6m camera height above ground = 57.372
View 03=Ground level: 22.172m + 1.6m camera height above ground = 23.772
View 04=Ground level: 69.19m + 1.6m camera height above ground = 70.79
View 05=Ground level: 23.15m + 1.6m camera height above ground = 24.75
View 06=Ground level: 55.13m + 1.6m camera height above ground = 56.73
View 07=Ground level: 102.38m + 1.6m camera height above ground = 103.98

Full CAD drawings of the existing site and the proposed development were supplied by Barton Willmore.

7. Software

The software packages used for the photomontage production were:

3D Studio Max 2010 - Autodesk - Used for camera matching, lighting and finishes

AutoCAD 2010 - Autodesk - Used for referencing survey, proposed drawings exporting in to 3DS Max

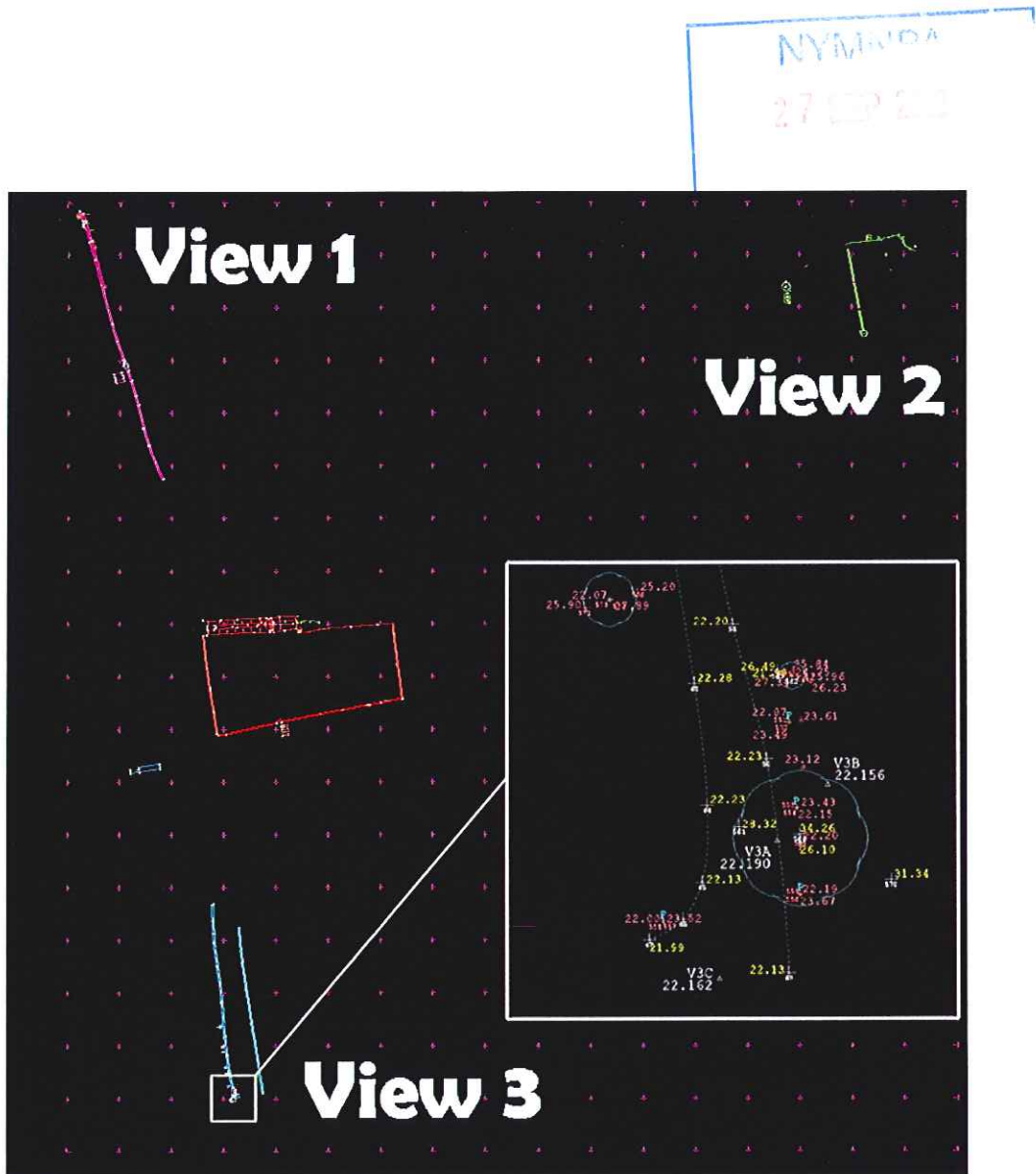
Photoshop CS4 - Adobe - Used for compositing/layering and creating final

The following series of stages were followed in order to produce accurate photomontage images using the stated software.



Stage 1

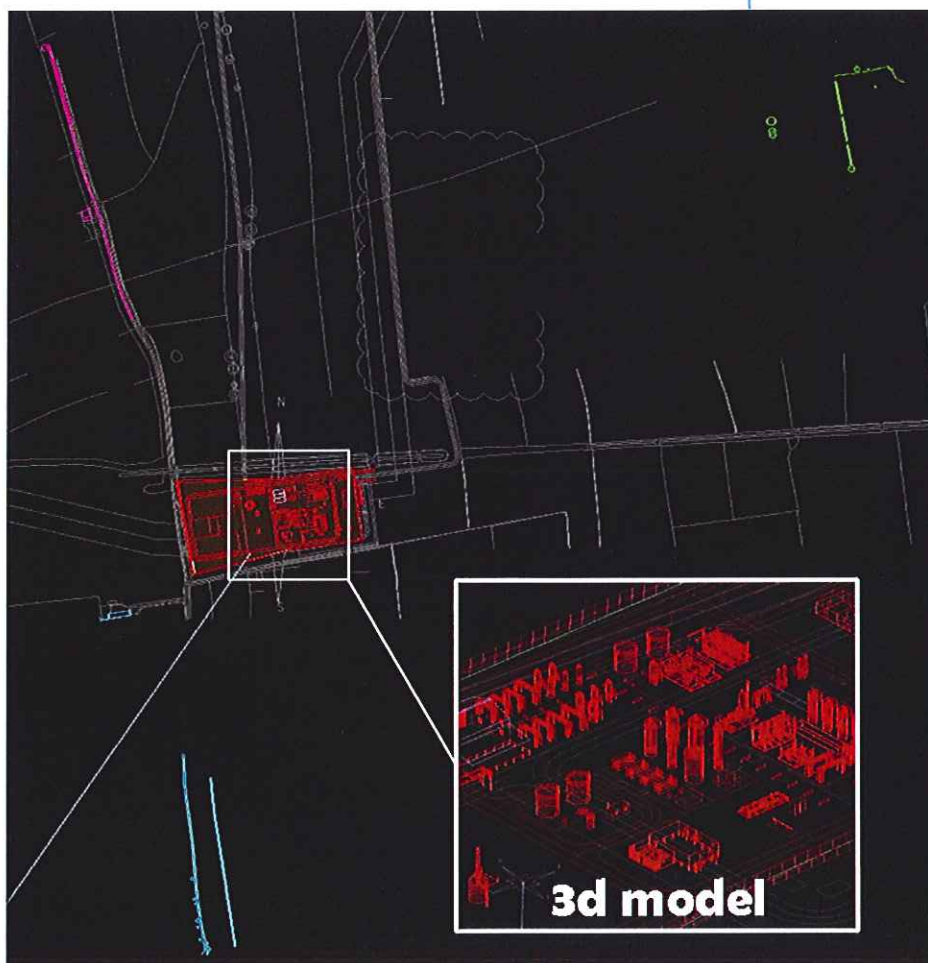
The 3D site survey drawing was provided in CAD format. This showed the strategic points as described in Section 5.



Stage 2

Once the 3D model of the proposed gas project was completed, this was aligned to the OS drawing PP-01 Hurrell Lane Site Location Plan.dwg and the site survey drawing so that it was at the correct longitude, latitude and height. This effectively provided a base 3D model and site plan that matched the real world i.e. creating a 3D Virtual camera that matches the position, focal length and exposure of the real camera used to take the photographs.

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Screen grab from 3DStudio Max 2010 to show aligned CAD Os plan, Survey and 3D model

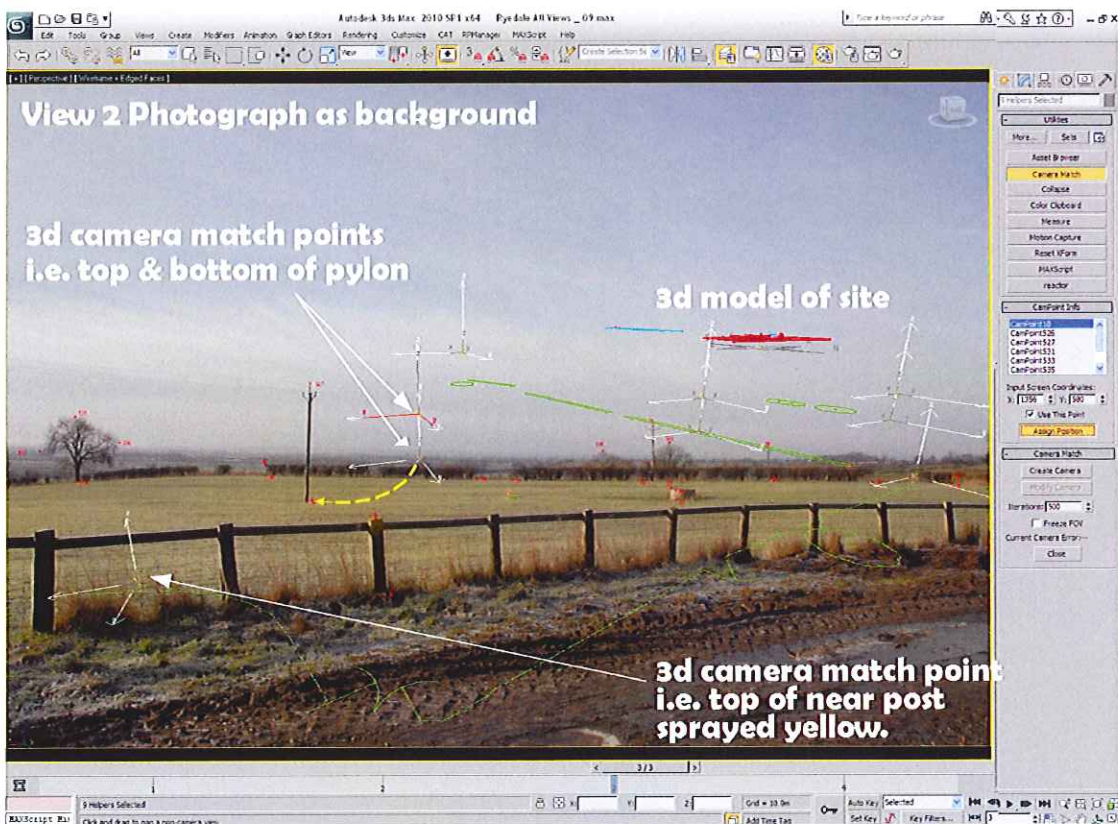
Stage 3

Below shows a screen grab to represent the camera match procedure for **View 2**.

To camera match each view, the background photograph was placed in the viewport background with the 3DSMax 2010 software.

We can clearly see the 3D Virtual model in **RED**, the survey data points and lines in **GREEN**. Within the software, 3D Camera Match points in **WHITE** were created and 'snapped' to the exact X,Y,Z points of the Survey points. In the example below, strategic points were used, i.e. hedge lines, Pylons, Posts and prominent trees.

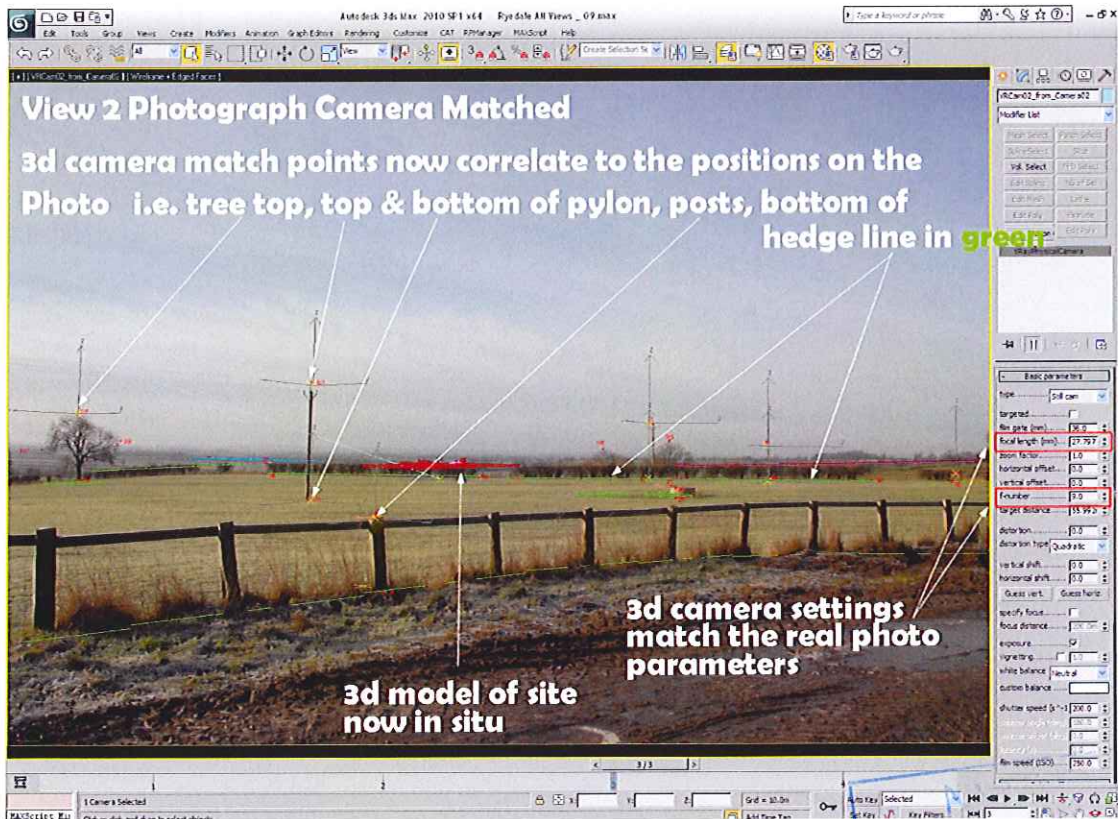
These points are individually selected and assigned to the appropriate **red** numbered points on the photograph.



Once this is done the software generates a 3D Virtual camera that simulates the real **View 2** 3D camera position and focal length.

Stage 3 cont.

The generated 3D camera now clearly shows that an accurate match has been achieved.



As a final check, the 3D Virtual camera that is generated can then be checked by cross referencing 3D camera settings and the photograph parameters show within the red box in the figure above. i.e. The Focal length of 3D camera is 27.772 - the focal length of camera lens when the photo was taken was 27

We can make further checks to see where the camera was generated in plan and the height. These figures closely tie in with the actual GPS position and height of the camera when this view was photographed.



Stage 4

Materials and finishes were applied to the 3D Model of the gas project in line with Barton Wilmore's specifications to ensure a high level of realism.



A true real life sunlight system was added within the 3D software to recreate the shadow angle and lighting effects in each photomontage to match the exact time each picture was taken.

View 1 taken at 14:38 03/02/2010, 17 metres due north of Hurrell Lane and Longlands Lane junction

View 2 taken at 11:19 03/02/2010, Cawcliff Lane in Wilton junction.

View 3 taken at 14:45 03/02/2010, End of Hurrell Lane at Junction of private road

View 4 taken at 12:13 26/07/2010, Along the A170 between Thornton le Dale and Wilton

View 5 taken at 14:14 26/07/2010, Corner of field between Harrow Cliff Lane and Hurrell Lane

View 6 taken at 12:44 26/07/2010, Along Longlands Lane

View 7 taken at 11:00 26/07/2010, Along Outgang Lane

Stage 5

In the Photoshop CS4 software, a series of masks were created which correlated to the outlines of the foreground foliage and trees so that the proposed development would sit in the context of existing environment.

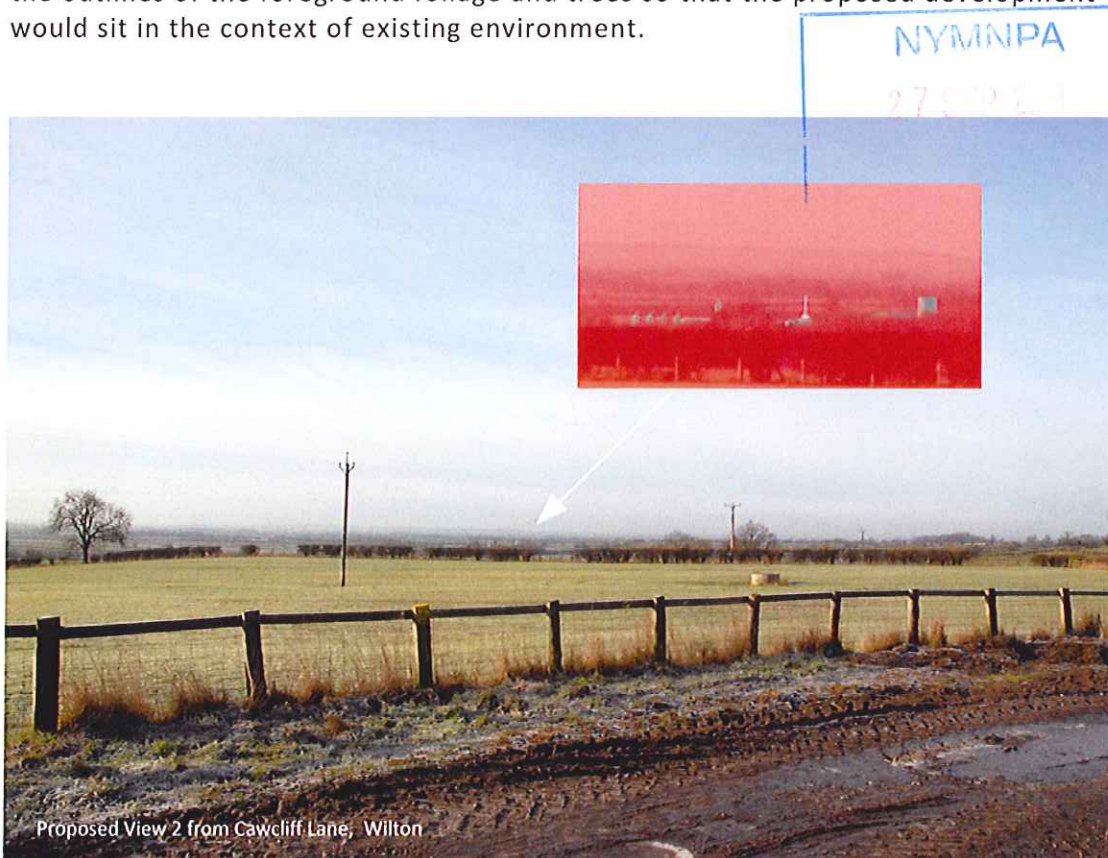


Figure 7

Reference was made to Barton Willmore drawings, which show the relationship of the proposed and surrounding site. This information was use to confirm the correct location of the proposed model within each photograph.