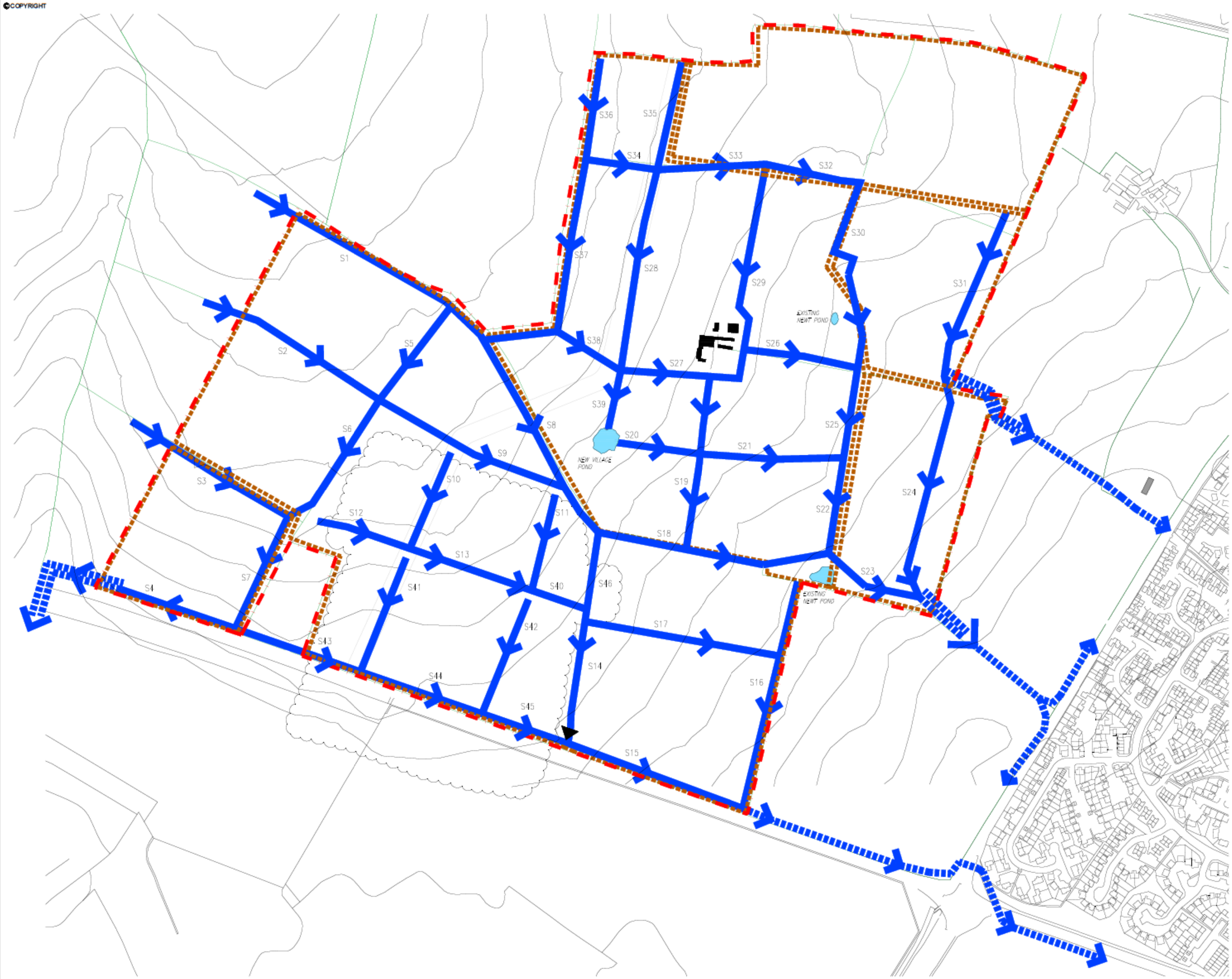


notes

1. KEY.

SITE BOUNDARY.

CATCHMENT AREA.

PRIMARY SWALES AND DIRECTION OF FLOW.

DISCHARGE INTO EXISTING WATERCOURSE.

2. APPROX. SWALE ATTENUATION VOLUME FOR EACH CATCHMENT TO BE DISTRIBUTED IN PROPORTION TO THE AREA DRAINED FOR THE 1 IN 100 YEAR RAINFALL EVENT AND TO BE DISCHARGED AT THE SURFACE WATER OUTLETS AT A RATE OF 2 l/S/ha.

3. TO BE READ IN CONJUNCTION WITH TABLE SHOWING STORAGE ATTENUATION VOLUMES OF PRIMARY SWALES.

FOR INFORMATION ONLY

B	01.09.15	FOLLOWING MEETING WITH ARCHITECT AND FARMER HUXLEY, SWALE NETWORK PARTLY RECONFIGURED TO SHOW NEW SWALES S10, S11, S41 AND S42. ALSO S12, S13, S40 TO S46 SWALE NUMBERS ADDED TO SUIT NEW CONFIGURATION.	MT
A	11.05.15	SWALES AMENDED TO AVOID NEWT PONDS. SWALE REFS AND NEW VILLAGE POND ADDED. NOTE ADDED.	MT
	28.04.15	ISSUED FOR INFORMATION.	MT

job
HIMLEY VILLAGE

title
SUDS PARAMETER PLAN

drawn	checked
KM	MT
date	**scale (original - A1)**
APR'15	1:2500

Alan Baxter

75 Cowcross Street London EC1M 6EL
tel 020 7250 1555
email aba@alanbaxter.co.uk

www.alanbaxter.co.uk

drg no.	rev.
1665/75/05	B

APPENDICES

Appendix 6.2 Verified Photomontages

Himley Farm, Bicester

Verified Photomontages:
Methodology and Supporting Evidence
Technical Appendix 6.2

September 2015

Contents

1.0 Overview

This document has been prepared by Realm Communications to explain the methodology used to create accurate visual representations (AVRs) of the proposed development of Himley Farm, Bicester.

The visual assessment of the proposed development reflects current best practice in relation to the verification of images, a process which is constantly being refined and improved with advances in technology and industry experience.

The purpose of the photomontages is to present an accurate overview of the proposed development which enables its effect on the landscape and views to be objectively evaluated. Every image contained within this document is verified unless otherwise stated. Final images should not be used as a standalone tool to assess the suitability of a development, but should be used in conjunction with a site visit.

In this document, you will be guided through a step-by-step description of how Realm has produced an accurate representation of the maximum envelope of built form in accordance with development parameters, in pictorial form, to explain the processes used (including statements from the photographer and survey team). The methodologies described in this document are based on current best practice and follow recommendations from The Landscape Institute's "Guidelines for Landscape and Visual Impact Assessment" (3rd Edition 2013) and their supplementary Advice Note "Photography and Photomontage in Landscape and Visual Impact Assessment" (Jan 2011).

This document includes an audit trail to demonstrate the key stages of production (see Section 3.0) that can, if required, be checked by a third party. This document sets out the methodologies used for the photography, surveying, 3D modelling and camera matching processes - all critical to ensuring the accuracy of the final photomontages.

A number of viewpoints were considered. In relationship with Turley Planning Consultants, these viewpoints were discussed and agreed with Cherwell Council via phone and email on the the 28th October 2014. The viewpoints that inform the assessment take into account representative views of key visual receptors including people living in the area, people passing through on roads and people engaged in recreation of different types such as use of public rights of way. Viewpoints are summarised below:

1. Middleton Stoney Road to SW corner of the site on roadside verge opposite side of road
2. Middleton Stoney Road, to east of Lovelynch House on roadside verge opposite side of road
3. Middleton Stoney Road, to east of Himley Farm track entrance on roadside verge opposite side of road
4. Middleton Road on roadside verge to gated entrance of the field
5. Middleton Road on roadside verge to gated entrance to bridle path
6. From bridleway south of Crowmarsh Farm
7. From bridleway/Aldershot Farm track to gated entrance of the field

The entities responsible for the preparation of the views that are set out in the following pages comprise:

Photography
Arcminute Ltd
62 Grove Park Terrace
London W4 3QE
Phone: 07774 857627

Survey of existing views and camera locations
Datum Survey Services Ltd
Brickfield Business Centre, Brickfield House
High Road, Thornwood, Epping CM16 6TH
Phone: 07977 111935

Production and checking of verified images
Realm Communications
The Workshop, Old Barn Cottage, Down Lane
Compton, Guildford GU3 1DQ
Phone: 01483 813888

Supply of building/landscape CAD plus spot height information
Penoyre & Prasad
28-42 Banner Street
London EC1Y 8QE
Phone: 020 7250 3477

Team engineers
Alan Baxter & Associates
75 Cowcross Street
London EC1M 6EL
Phone: 020 7250 1555

2.0 Methodology

2.1 Photography

The professional architectural photographer employed on this project was briefed by Realm to work to a methodology which conforms to the principles specified in section 1.0 Overview.

The following methodology statement has been supplied by Arcminute:

Photography brief The following methodology applies to the production of photographic images originated in November 2014 which form the pictorial basis for visual impact assessment photomontages for 7 views for Himley Farm, Bicester.

Equipment Images are captured on a 36mm x 24mm 21 megapixel digital sensor in combination with the following shift lenses:

- Focal length 24mm | Horizontal FOV 74° (for close views in built-up streetscapes)
- Focal length 35mm | Horizontal FOV 55° (for close views requiring selective framing)
- Focal length 50mm | Horizontal FOV 40° (for long distance views)

Lenses outside these parameters are also available for use in certain circumstances but these 3 lenses have been found to cover the vast majority of situations required in this type of work.

Choice of lens We prefer to replicate (as far as possible) what may have already been provided in terms of preliminary view studies as typically these would have been generated using pre-considered factors as to what each view would need to illustrate e.g. context, key visual receptors etc. In the absence of a definitive steer, we will generally use a 74° HFOV lens for medium to close views in an urban environment and a 40° HFOV lens for long distance views. However, the actual size and nature of a scheme (single building or large multibuilding development) and its location will also be considered before lens selection. The Landscape Institute's latest guidelines have been relaxed with regard to lens choice and they are no longer insistent that a 'standard' lens be used wherever possible.

Photography The camera is mounted on a tripod at eye level which on level ground is 1.65m within a +/- 100mm tolerance. The camera is then levelled in roll and pitch to a tolerance of 30mm per 100m using a precision spirit level. The point on the lens which coincides with the virtual render camera is horizontally referenced to a survey mark (nail or paint) to +/- 2mm using a survey standard procedure and the height above this is measured using a steel tape measure to the same tolerance. A photograph is taken of the tripod in its location, the survey point on the ground and the tape measure reading against a reference point on the camera mount. During image capture particular emphasis is placed on the following:

- Rendering all points in the scene as sharply as possible to avoid any sense of selective focus.
- Capturing all tonal detail in the scene and avoiding 'blown out' highlights and 'blocked up' shadows.

Where a scene's brightness range exceeds that of the sensors dynamic capture range it may be necessary to combine two or more different exposures to create a final image to overcome this limitation and to maintain a realistic tonal rendering closer to that of the human eye.

Post production The camera images are captured using a native camera or RAW format and a software application is used to turn these into universally accessible RGB raster images. At this conversion stage colour and tonal adjustments are made to recreate as honestly as possible the scene as was presented to the photographer at the time of capture. RGB images are corrected using specialist software to remove non-perspectival optical distortion in order to create a geometrically accurate 2D projection which can be precisely aligned with CGI renderings and survey data. The image is then placed in a standard sized image template and the calibrated lens axis position is aligned with the documents centre. This accounts for both deliberate offset through lens shift and manufacturing tolerances in lens to camera body alignment. A text file in the image document records camera height above the survey point, lens focal length, film gate, date and time, nominal lens offset and document pixel dimensions. All images are also accompanied with photographic evidence of camera location, survey point location and height above survey point.

Where temporary survey targets have been set up in the scene the before and after images are included as separate TIFF layers to enable both accurate camera alignment and seamless removal of the targets for final output.

2.2 Survey

All of the baseline photographs were taken by a professional architectural photographer. Each viewpoint location is surveyed and identified by Ordnance Survey co-ordinates. The heights and distances of significant points within each view that are easily distinguishable have also been recorded as Ordnance Survey grid and level datum and their accuracy has been checked relative to the fixed camera position. The survey points for each view provide an effective check for ensuring that the 3D model and existing views are accurately merged together.

The following methodology statement has been supplied by Datum Survey Services:

Survey brief We were commissioned to survey and record co-ordinates (Eastings, Northings and AOD Height) of known points of detail located around the study site known as Himley Farm, Bicester. Digital files of the 7 views together with camera point locations were provided by the photographer.

Date of surveys November 2014.

Camera point positioning Network RTK solutions were established using a Leica GPS + GLONASS SmartRover receiver. The equipment was set-up directly over the camera position (survey nail) and multiple observations were recorded. A second (reference) point was taken approximately 100m away from the camera position using the same method.

Data capture Traditional survey techniques were employed to record the points of detail within each view. A Leica TCRA TS15 Total Station with long range reflector-less distance measurement capabilities was set-up directly over the camera point and orientated to Ordnance Survey National Grid using the two sets of co-ordinates determined by the SmartRover receiver.

Several views lacked sufficient clearly defined detail to survey. In these instances retro targets mounted on ranging rods were introduced to act as 'artificial' points within the field of view.

Deliverables The completed survey data was issued as follows:

- Microsoft Excel Spreadsheet comprising point numbers, coordinate data and descriptions
- PDF copies of each photo with point locations and view specific point numbers clearly marked
- AutoCAD DWG file containing 3D survey points with view specific point numbers.

2.3 3D building model

The 3D computer models of the development (which are superimposed upon the 'existing' views) are based upon revised CAD as supplied by Penoyre & Prasad. The 2D drawings of the proposed development supplied by the architect were initially imported into 3DS Max and then traced over using snap tools (within 3DS Max) to create an accurate 1:1 scale model of the proposed development. The minimum and maximum parameter models were made using the terrain surface as detailed in 2.4 below, 'cutting out' each footprint and extruding the surface to the storey heights specified (as no AOD heights were available). As a consequence, in some of the views, the vertical lines of the buildings are not vertical but are angled to the terrain surface.

The energy centre chimneys are incorporated into the 3D model to their maximum height of 20m.

A manual crosscheck of heights was carried out by Designhive across all buildings working with a range of spot height information as supplied by the architect. Once the 3D model had been approved by the architect, a corresponding issue number was recorded.

The 3D models are based on the minimum and maximum block dimensions set out in the parameter plans.

2.4 3D landscape

The landscape was developed in 3D using 2D 1m topographic contours as supplied by Penoyre & Prasad. These 2D contours were set to the correct heights, and a detailed mesh surface generated. This surface forms the basis of the buildings.

Alan Baxter & Associates advised on the 20m expanse of proposed hedgerow and hedgerow tree removal either side of the existing road junction and new road access of the B4030 (exiting north). The removal of the hedgerow and hedgerow trees has been factored in when generating the keylines to indicate the proposed visibility of the scheme. In relation to this, in images 2 and 3 the keyline changes from solid (i.e. visible) to dotted (i.e. not visible) half way along a hedge.

2.5 Camera matching

The verification process confirms the accuracy of the 3D model in relation to each view. The camera matching process involves accurately matching the position of the virtual camera with the real world camera in OS space, and the location of the 3D model of the proposed development within each (existing) view. This is achieved through aligning the imported 3D cloud of survey points within the base photo and 3D environment, creating a virtual camera that replicates the exact position and height of the real world camera to produce an image where the rendered survey points match in visual location those recorded by the survey team and photographer.

The specifications of the lens type relating to each existing view is also entered into 3DS Max to help guide with alignment. An alignment is deemed correct only when all survey points sit exactly over the pixel in the photo that corresponds with the marked-up survey photo. If all points match, the virtual camera must therefore be correctly aligned.

For each view we measure the distance from camera to target and apply respective equations to establish the potential adjustment necessary to compensate for both curvature of the earth and light refraction. Typically, when the real world camera is positioned within 1.5km from the target, the effects of curvature of the earth and light refraction are deemed to be negligible in terms of their visual impact and therefore no adjustment is made to the Z axis of the building model within the view.

2.6 Lighting and rendering

To accurately light the 3D model, 3DS Max's 'daylight system' is set to replicate the solar time, date and geographic location (longitude and latitude) as recorded in the base photograph. The settings used for each base photograph (F stop, shutter speed etc) are replicated in both this 'daylight system' and the virtual camera set-up. This process mimics the virtual sun so that the lighting falls upon the 3D model as it would in real life at the point when the photograph was captured. Fine tuning is sometimes necessary to better match the resultant lighting and shadows to the base photograph.

Once the camera matching and lighting processes are complete, the render of the 3D model is output to the same pixel resolution as per each respective base photograph.

2.7 Post production

The render of the 3D models (minimum and maximum parameter versions) are superimposed on the existing still views in Photoshop. A red keyline is generated to replicate the outline of the minimum parameter and a blue keyline to represent the maximum parameter of the building (both shown as a solid line where the scheme is visible, and a dotted line where obscured by foreground items like trees, other buildings, lamp posts etc).

The energy centre chimneys have been incorporated into the 3D model to their maximum height of 20m and therefore appear in the photomontages (for both minimum and maximum options) as an extension to the blue keyline.

2.8 Recommended viewing distances

It is recommended that final images are viewed at an optimum viewing distance (in relation to the size of printed photomontage) to give a correct sense of scale. We recommend that images are printed to a size that creates a comfortable viewing distance of between 300 to 500mm. The recommended viewing distance for each image is specified within Section 4.0 of this document.

2.9 Caveats

None.

3.0 Supporting evidence

Ordance survey co-ordinates			
View Ref	Eastings	Northings	AOD Height
1	455059.563	223216.007	89.539
2	455457.018	223085.545	91.986
3	455839.891	222949.497	90.076
4	455508.244	225248.359	106.031
5	455027.288	224736.563	104.914
6	455893.099	224392.149	93.737
7	456784.411	223998.576	89.310

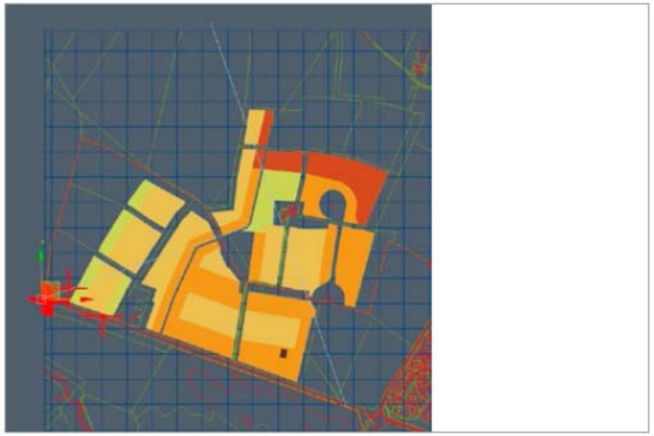
View 1 Middleton Stoney Road to SW corner of the site on roadside verge opposite side of road

01.1 Ordinance survey co-ordinates			
Point Ref	Eastings	Northings	AOD height
1.1	455169.934	223261.206	98.455
1.2	455169.236	223259.296	98.458
1.3	455065.33	223222.950	88.444
1.4	455071.262	223221.319	88.336
1.5	455078.03	223219.269	88.377
1.6	455085.437	223217.173	88.407
1.7	455093.340	223214.921	88.490
1.8	455101.882	223212.520	88.501
1.9	455303.341	223150.318	97.693
1.10	455064.961	223218.755	88.066
1.11	455071.300	223216.963	88.044
1.12	455079.784	223214.522	88.052
1.13	455088.266	223212.078	88.111
1.14	455096.732	223209.650	88.195
1.15	455105.236	223207.199	88.364
1.16	455081.372	223211.749	93.120

3.2 OS survey points marked on photograph

3.3 View 1 camera location

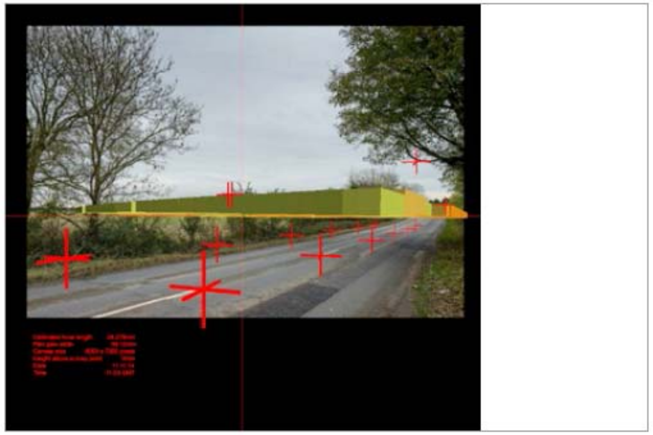
Eastings	455059.563m
Northings	223216.007m
AOD height	89.539m
Approx distance to site	114m
Bearing from North	70.5°



01.4 Screen grab of camera location in 3D Studio Max software

01.5 Screen grab of calculated horizon line

01.6 Screen grab of camera match to survey data



01.7 Screen grab of model matched to base photograph

01.8 Final camera matched photomontage (showing both minimum and maximum parameter options)

View 2 Middleton Stoney Road, to east of Lovelynch House on roadside verge opposite side of road

01.1 Ordinance survey co-ordinates			
Point Ref	Eastings	Northings	AOD height
2.1	455461.556	223092.653	90.641
2.2	455465.060	223091.296	90.703
2.3	455467.373	223090.439	90.770
2.4	455471.780	223089.285	90.818
2.5	455480.459	223086.138	90.836
2.6	455487.381	223083.478	90.672
2.7	455464.580	223087.419	90.340
2.8	455472.434	223084.634	90.323
2.9	455467.381	223084.794	90.298
2.10	455462.208	223089.084	90.333
2.11	455462.895	223086.367	90.299

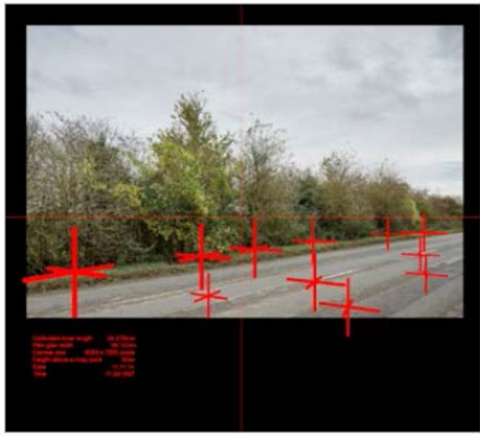
3.2 OS survey points marked on photograph

3.3 View 2 camera location

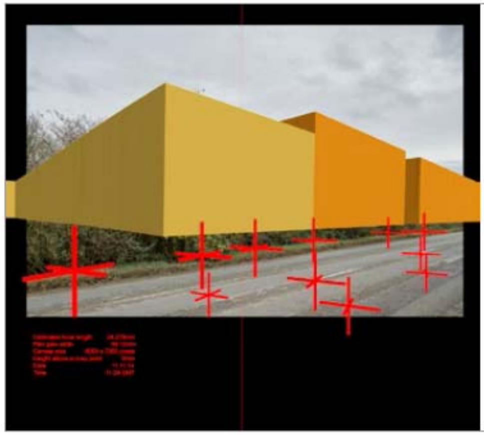
Eastings 455457.018m
Northings 223085.545m
AOD height 91.986m
Approx distance to site 23m
Bearing from North 62.2°

01.4 Screen grab of camera location in 3D Studio Max software

01.5 Screen grab of calculated horizon line



01.6 Screen grab of camera match to survey data



01.7 Screen grab of model matched to base photograph

01.8 Final camera matched photomontage (showing both minimum and maximum parameter options)

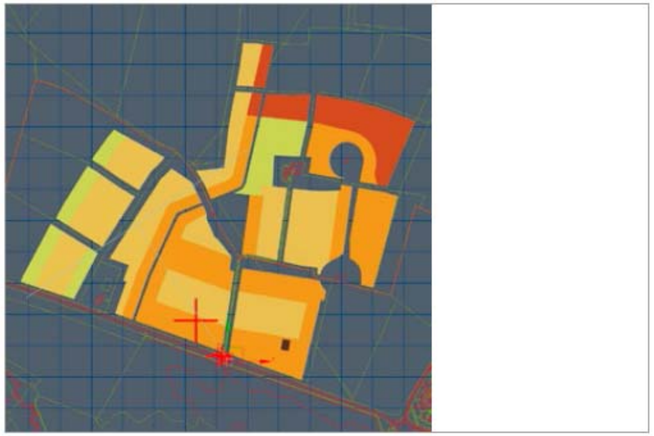
View 3 Middleton Stoney Road, to east of Himley Farm track entrance on roadside verge opposite side of road

01.1 Ordinance survey co-ordinates			
Point Ref	Eastings	Northings	AOD height
3.1	455839.342	222958.927	88.798
3.2	455834.457	222960.671	88.987
3.3	455829.743	222962.808	89.126
3.4	455819.684	222970.198	88.964
3.5	455815.208	222967.801	89.034
3.6	455806.835	222970.295	89.202
3.7	455818.624	222970.233	95.529
3.8	455818.548	222970.142	90.502
3.9	455735.137	223080.275	98.129
3.10	455818.729	222976.297	90.305
3.11	455837.252	222956.145	88.512
3.12	455831.593	222956.631	88.558
3.13	455822.856	222959.709	88.647
3.14	455828.523	222955.637	88.531
3.15	455806.889	222965.845	88.813

3.2 OS survey points marked on photograph

3.3 View 3 camera location

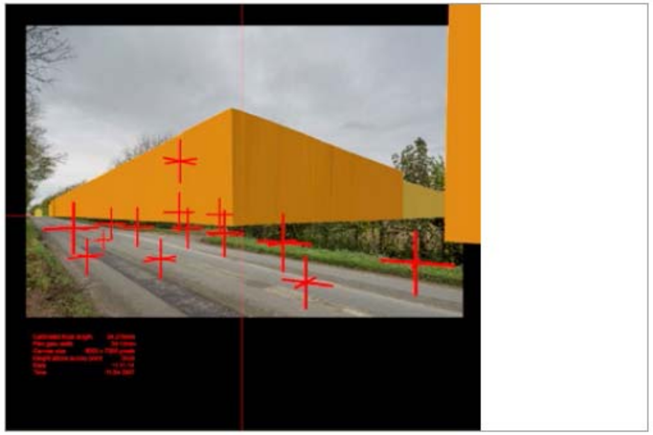
Eastings	455839.891m
Northings	222949.497m
AOD height	90.076m
Approx distance to site	23m
Bearing from North	326.1°



01.4 Screen grab of camera location in 3D Studio Max software

01.5 Screen grab of calculated horizon line

01.6 Screen grab of camera match to survey data



01.7 Screen grab of model matched to base photograph

01.8 Final camera matched photomontage (showing both minimum and maximum parameter options)

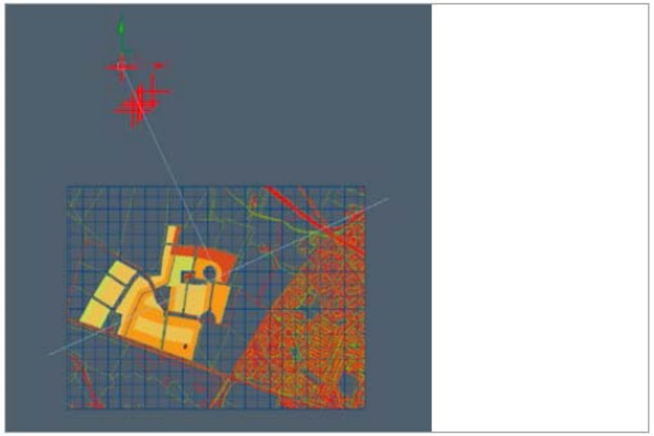
View 4 Middleton Road on roadside verge to gated entrance of the field

01.1 Ordinance survey co-ordinates			
Point Ref	Eastings	Northings	AOD height
4.1	455511.645	225242.467	104.712
4.2	455513.110	225232.819	104.897
4.3	455644.932	224931.115	102.367
4.4	455672.979	224957.830	102.413
4.5	455762.229	225043.800	102.910
4.6	455507.307	225239.967	105.896
4.7	455601.153	224889.173	101.993

3.2 OS survey points marked on photograph

3.3 View 4 camera location

Eastings 455508.244m
Northings 225248.359m
AOD height 106.031m
Approx distance to site 1336m
Bearing from North 155.3°



01.4 Screen grab of camera location in 3D Studio Max software

01.5 Screen grab of calculated horizon line

01.6 Screen grab of camera match to survey data

01.7 Screen grab of model matched to base photograph

01.8 Final camera matched photomontage (showing both minimum and maximum parameter options)

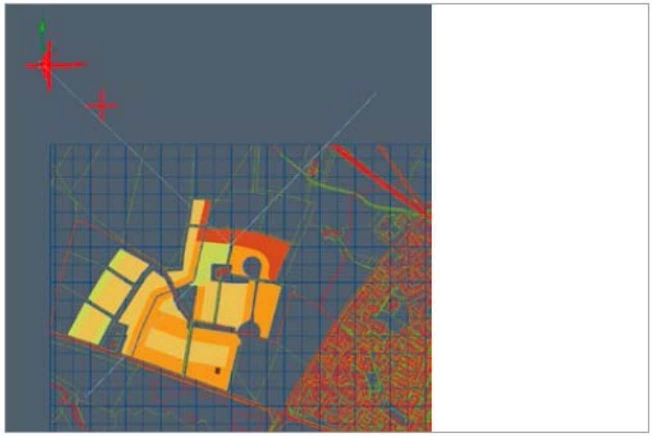
View 5 Middleton Road on roadside verge to gated entrance to bridle path

01.1 Ordinance survey co-ordinates			
Point Ref	Eastings	Northings	AOD height
5.1	455036.393	224733.802	103.175
5.2	455043.549	224731.431	102.929
5.3	455055.025	224727.641	102.758
5.4	455046.648	224727.406	103.105
5.5	455039.918	224725.527	102.907
5.6	455032.809	224729.733	102.976
5.7	455068.312	224727.455	110.434
5.8	455067.896	224729.129	107.113
5.9	455365.792	224503.705	106.199

3.2 OS survey points marked on photograph

3.3 View 5 camera location

Eastings 455027.288m
Northings 224736.563m
AOD height 104.914m
Approx distance to site 1118m
Bearing from North 133.7°



01.4 Screen grab of camera location in 3D Studio Max software

01.5 Screen grab of calculated horizon line

01.6 Screen grab of camera match to survey data

01.7 Screen grab of model matched to base photograph

01.8 Final camera matched photomontage (showing both minimum and maximum parameter options)

View 6 From bridleway south of Crowmarsh Farm

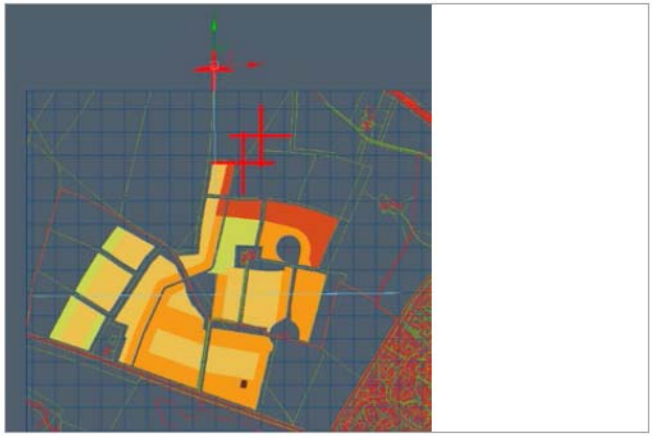
01.1 Ordinance survey co-ordinates

Point Ref	Eastings	Northings	AOD height
6.1	455896.558	224386.179	92.498
6.2	455896.199	224377.574	92.527
6.3	455892.091	224366.627	92.839
6.4	455892.976	224379.494	92.657
6.5	455890.301	224375.229	92.685
6.6	455890.008	224385.866	92.493
6.7	456096.926	224082.601	101.956
6.8	456019.096	223966.296	104.432

3.2 OS survey points marked on photograph

3.3 View 6 camera location

Eastings	455893.099m
Northings	224392.149m
AOD height	93.737m
Approx distance to site	425m
Bearing from North	179.5°



01.4 Screen grab of camera location in 3D Studio Max software

01.5 Screen grab of calculated horizon line

01.6 Screen grab of camera match to survey data

01.7 Screen grab of model matched to base photograph

01.8 Final camera matched photomontage (showing both minimum and maximum parameter options)

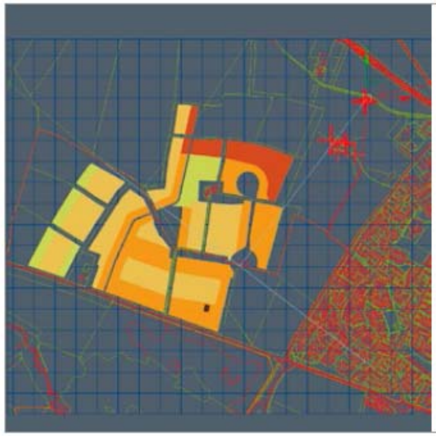
View 7 From bridleway/Aldershot Farm track to gated entrance of the field

01.1 Ordinance survey co-ordinates			
Point Ref	Eastings	Northings	AOD height
7.1	456783.748	223991.150	87.896
7.2	456780.248	223976.644	87.824
7.3	456775.246	223977.789	87.785
7.4	456772.765	223985.152	87.763
7.5	456775.777	223993.310	87.814
7.6	456728.807	223727.791	93.633
7.7	456694.772	223791.612	93.257
7.8	456645.739	223742.853	97.932
7.9	456616.838	223799.872	89.186
7.10	456682.119	223783.780	94.129

3.2 OS survey points marked on photograph

3.3 View 7 camera location

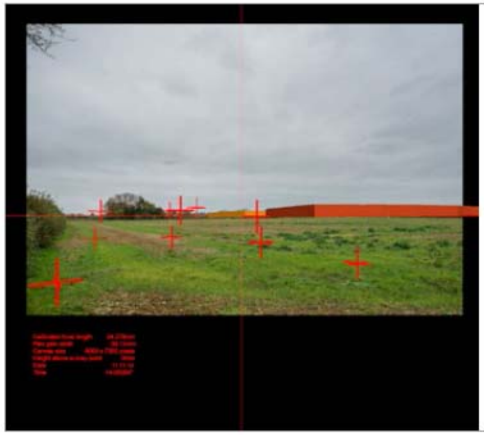
Eastings 456784.411m
Northings 223998.576m
AOD height 89.310m
Approx distance to site 447m
Bearing from North 217.2°



01.4 Screen grab of camera location in 3D Studio Max software

01.5 Screen grab of calculated horizon line

01.6 Screen grab of camera match to survey data



01.7 Screen grab of model matched to base photograph

01.8 Final camera matched photomontage (showing both minimum and maximum parameter options)

4.0 Final verified photomontages

View 1 existing Middleton Stoney Road to SW corner of the site on roadside verge opposite side of road

Single frame image | Lens 24.278mm | Camera height above survey point 1600mm | Nominal lens rise 0mm | Date 11.11.14 | Time 11:03