LVIA Note of Clarification (Sept 2022)
Chiswell Green: Outline Planning Application Ref: 5/2022/0927
Response to Hertfordshire County Council Landscape Officer Comments
Herts Landscape Planning Advisory Service dated 5th August 2022

"The description of the development within the LVIA doesn't refer to the proposed building heights parameters…Confirmation of the building heights assessed by the LVIA is therefore required."	The LVIA was undertaken based on as assessment of the Parameters Plan: • Access and Movement Parameter Plan REDC01-MCB-ZZ-ZZ-DR-A-0021-DS-P2 • Building Height Parameter Plan • REDC01-MCB-ZZ-ZZ-DR-A-0022-DS-P2 • Land Use Parameter Plan REDC01-MCB-ZZ-ZZ-DR-A-0023-DS-P2 The assessment of effects at Year 1 reflects the proposed building heights set out on the Building Height Parameter Plan. Explicit confirmation can be added to the LVIA if required.
"The LVIA doesn't appear to provide any assessment of the school site…[and] there doesn't appear to be any reference to testing potential options for the location of the school site within the overall development area."	The school is explicitly referenced in the description of the proposed development, and identified on the Parameters Plan, although not explicitly mentioned in the commentary for each of the landscape and visual receptors. The LVIA is based on the Parameters Plans, in particular the Building Height Parameter Plan, which sets out the extent of the development parcels and the height. The school development parcel is identified as being at a maximum height of 15.5m. The Illustrative Masterplan and Landscape Strategy do not show the proposals for a school in any more illustrative detail, as the proposals for a school would be brought forward by others; and has therefore been assessed generically, based on precedent proposals which have been consented in the locality. The proposals for a school will be the subject of a separate planning application and will be required to conform with the Parameters Plans: the location, scale, massing, and design can therefore be considered through the Outline and Reserved Matters stages. Table 8.1: Summary of Landscape and Visual Effects includes the assessment of a school on the Site, in accordance with the Building Height Plan Parameter Plan. Proving the school comes forward in conformity with the Parameter Plans, the landscape and visual effects should be no greater than set out in the LVIA. The number of receptors which are most influenced by any school proposals are residents of properties on the

Chiswell Green: Outline Planning Application Ref: 5/2022/0927
Response to Hertfordshire County Council Landscape Officer Comments
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	western settlement edge along Chiswell Green Lane and users of Chiswell Green Lane.
"Despite [some] concern[s], the conclusions of the landscape assessment is broadly supported, providing that effective mitigation is delivered…[However,] the planting shown along [the western] edge is very poor and is not considered sufficient. A much more robust landscape response is therefore required along the western edge of the site."	The existing vegetative buffer along the western site boundary is proposed to be reinforced to a minimum width of 5m, tying into the width of the existing boundary vegetation which in some places is substantially wider. This is secured in the Land Use Parameter Plan.
"At the pre-application stage it was suggested that photomontages should be provided to illustrate proposed views, however none have been provided."	An addendum with the verified wireline will be provided. A Verified Wireline has been created, due to the Outline nature of the Planning Application and Proposed Development. The verified wireline has been created based on the Building Height Parameter Plan, and therefore accounts for a school building of up to 15.5m anywhere within the area of the Site identified for a school. (See Page 7)
"[The] approach [in the Landscape Opportunities and Constraints Plan] to densities is not reflected in the emerging masterplan that appears to be of a relatively consistent density throughout."	The approach to densities would be addressed at the Reserved Matters stage, and could be secured by condition.
"The proposal to provide a new north to south pedestrian/cycle route is welcomed, however it is not clear how it branches out into each of the four sub-development areas to provide maximum permeability and priority for pedestrians and cyclists."	The Outline Application refers to the Parameters Plans and an Illustrative Masterplan. The details requested would be addressed at Reserved Matters stage.
"[In the Landscape Framework Plan and Landscape Structure Plan in the DAS] there does not appear to be any meaningful green infrastructure (GI) networks permeating throughout each of the sub-development blocks…There needs to be a much greater balance of structural planting within the public realm and the streetscene, that is not at risk of removal by residents."	The Outline Application refers to the Parameters Plans and an 'Illustrative' Masterplan. The details requested within the development parcels would be addressed at Reserved Matters stage.
"The principle public open spaces, appear to be dominated by SuDS attenuation/retention features."	The Outline Application refers to the Parameters Plans and an 'Illustrative' Masterplan. The preparation of a detailed refined masterplan would be prepared at the Reserved Matters stage. These comments can be addressed at the Reserved Matters stage.
"The 'community amenity area'…is physically and visually isolated and could be subject to anti-social behaviour, raising issues of security."	The Outline Application refers to the Parameters Plans and an 'Illustrative' Masterplan. The details requested would be addressed at Reserved Matters stage.

Chiswell Green: Outline Planning Application Ref: 5/2022/0927
Response to Hertfordshire County Council Landscape Officer Comments
Herts Landscape Planning Advisory Service dated 5th August 2022

"The [community play] area is enclosed by highways, and there is concern for the potential conflict between people and vehicles crossing the space…This area is not positively fronted or well-overlooked and therefore lacks passive surveillance and security."	The Outline Application refers to the Parameters Plans and an 'Illustrative' Masterplan. The preparation of a detailed refined masterplan would be prepared at the Reserved Matters stage. These comments can be addressed at the Reserved Matters stage.
"It is not clear where [the proposed orchards] or the food production areas are."	The Outline Application refers to the Parameters Plans and an 'Illustrative' Masterplan. The preparation of a detailed refined masterplan would be prepared at the Reserved Matters stage. These comments can be addressed at the Reserved Matters stage.

LVIA Addendum (Sept 2022)

Chiswell Green, St Albans

Photomontage methodology and supporting evidence

September 2022

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 at Chiswell Green, St Albans. 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.

This audit trail demonstrates the key stages of production (that can, if required, be checked by a third party) including photography, surveying, 3D modelling and camera matching processes - all critical to ensuring the accuracy of the final photomontages. These methodologies are in accordance with current best practice and follow recommendations from The Landscape Institute's Technical Guidance Note (TGN 06/19) : Visual Representation of Development Proposals.

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

Selection of viewpoints
Barton Willmore
7 Soho Square
London W1D 3QB
Phone: 020 7446 6888

Photography
Arcminute Ltd
25b Pall Mall Deposit
124-128 Barlby Road
Ladbroke Grove
London W10 6BL
Phone: 07774 857627

Survey of existing views and camera locations
Datum Survey Services
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 parameter CAD and spot height information
Barton Willmore
7 Soho Square
London W1D 3QB
Phone: 020 7446 6888

Supply of landscape CAD and planting information
Barton Willmore
7 Soho Square
London W1D 3QB
Phone: 020 7446 6888

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 February 2022 which form the pictorial basis for visual impact assessment photomontages for 1 view at Chiswell Green, St Albans.

Overview The Arcminute system is designed to create geometrically accurate photography and verifiable data for all its associated parameters and is fully compliant with all guidelines covering images required to be aligned with survey data for use in planning applications.

Equipment Images are captured on a 36mm x 24mm 61 megapixel digital sensor in combination with the following lenses: 17mm, 24mm, 35mm, 52mm and 80mm with shift capability (specially selected for best in class resolution and customised to conform to the high precision focal length and optical axis settings required in the process). Re camera mounts, custom made designs for both single frame and panoramic capture are used to obtain high precision camera positioning and orientation tolerances.

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 set up at eye level (1.55-1.75m) and orientated to within 0.02 deg of pitch and roll to the horizon. The point on the camera that coincides with the origin of perspective is positioned in relation to a survey marker to within 2mm in XYZ. The scene is then captured in a RAW format using standard high quality architectural photographic practice.

For panoramic images the camera is setup in portrait orientation and rotated around the camera coordinate capturing sequential frames with a 50% overlap. Each frame has the same orientation tolerance as a single frame capture.

For every view, a photographic record is made of the tripod location, the survey mark and the height reading of the camera above it.

Post production Standard image processing for dealing with RAW files is undertaken to create a TIFF image that honestly represents the scene in terms of tonality and colour. This image is then processed to remove lens distortion and identify the XY position on the image of the optical axis. Using an image that is fully corrected for distortion enables all the survey points in the image to be used for alignment and not just those confined to the so-called central 'safe area'.

For panoramic images the sequence of tiff images are assembled into a seamless and accurate equirectangular projection using specialist panoramic software. Due to the large size of any image created this way the final image is down sampled to a more manageable size based on 100 pixels per degree. For example, a 120 deg x 40 deg panorama has a pixel size of 12000 x 4000 or 48 megapixels. The image is then placed in a larger background where the optical axis is aligned with it's center in order to present the end users rendering application with a 'non shifted' image.

The following data is recorded on a text layer:

- Date and time
- Lens focal length (to nearest 0.001mm)
- Image size in pixels and mm
- Height above survey point (to nearest 0.001m)
- Lens shift (nominal figure to nearest mm)

The survey points are marked up on a separate layer by the survey team. This layer can be set in a blending mode so that the precise point on the image below the marked dot can be seen.

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.

Issued files The following files were issued to Realm:

- A layered TIFF containing the image and all of the above data.
- A flattened JPEG showing the survey points for use in the alignment process
- A photo of the tripod setup
- Any other supporting evidence deemed relevant to the end user such as a KMZ file of camera locations and other supplementary photography.

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 Chiswell Green, St Albans. Digital files of the 1 view together with camera point locations were provided by the photographer.

Date of surveys February 2022.

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.

Deliverables The completed survey data was issued as follows:

- 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.

The view lacked sufficient clearly defined detail to survey. In this instance, retro targets mounted on ranging rods were introduced to act as 'artificial' points within the field of view.

2.3 3D building model

The 3D building model of the proposed parameters (which is superimposed upon the 'existing' views) was created by Realm using CAD supplied by Barton Willmore. The 3D digital model was located into OS space (the survey used for the camera matching is in this coordinate system) using a combination of OS extracts, local site surveys and the site plans as provided by the architects. Spot height information from the architect's CAD was used to set the model's Z position in metres Above Ordnance Datum (AOD).

2.4 3D landscape

The landscape was developed in 3D using topographic survey information, planting plan, tree/shrub removal plan and species/heights lists as supplied by Barton Willmore. In collaboration with the landscape architect, all new trees/shrubs added to the terrain were selected based on the most appropriate model from our library to give an impression of the proposed landscape. All planting is indicative only.

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 are 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

Wireline views These photomontages show the outline of the maximum envelope of built form in accordance with development parameters as a red line for the building and a green line for landscape (a solid line where visible, a dotted line when obscured by foreground objects).

Winter planting has been shown in the views as a dotted green line with an overlay of actual winter tree branches.
Summer planting has been shown in the views as a dotted green line with a solid colour fill.

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
2	512443.875	204014.312	94.396

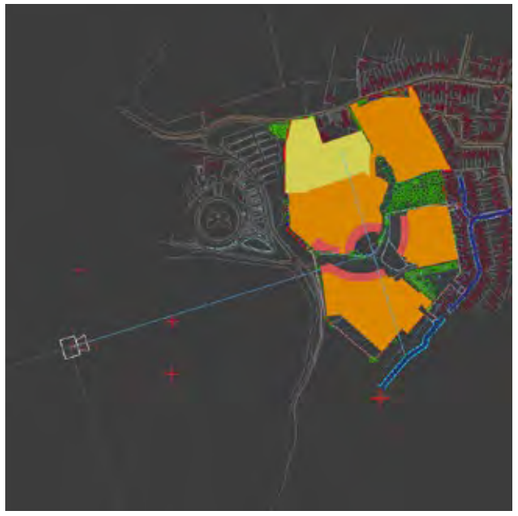
View 2

01.1 Ordinance survey co-ordinates			
Point Ref	Eastings	Northings	AOD height
201	512448.638	204021.138	93.124
202	512448.613	204021.170	93.558
203	512448.807	204017.244	92.989
204	512448.809	204017.241	93.443
205	512449.490	204013.452	92.904
206	512449.498	204013.448	93.350
207	512459.274	204014.190	93.469
208	512457.772	204019.809	93.648
209	512454.169	204026.064	93.914
210	512462.210	204031.807	94.205
211	512466.372	204023.085	93.874
212	512467.975	204016.862	93.546
213	512468.017	204009.906	94.580
214	512502.550	204017.154	95.133
215	512661.389	203956.926	90.207
216	512663.853	204069.610	92.612
217	513107.779	203905.560	93.054
218	512461.311	204178.429	100.804

1.3 View 2 camera location

Eastings	512443.875m
Northings	204014.312m
AOD height	94.396m
Approx distance to centre of site	717m
Approx bearing from North	73°

01.2 OS survey points marked on photograph



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 matching to OS data

01.7 Screen grab of wireline model matched to photograph

01.8 Final camera matched photomontage

4.0 Final verified photomontages

View 2 existing

10 frame stitched view | FOV 180 x 38 degrees | Camera height above survey point 1650mm | Nominal lens rise 0mm | Date 22.02.22 | Time 11:42

View 2 proposed at year 0 planting (winter)

To achieve the optimum viewing distance of between 300-500mm (as per The Landscape Institute's guidelines), we recommend printing this image edge to edge on A0 landscape and viewing it from a distance of 370mm. Please refer to section 2.8 on page 4 of this document for further information.

View 2 proposed at year 15 planting (winter)

To achieve the optimum viewing distance of between 300-500mm (as per The Landscape Institute's guidelines), we recommend printing this image edge to edge on A0 landscape and viewing it from a distance of 370mm. Please refer to section 2.8 on page 4 of this document for further information.

View 2 proposed at year 15 planting (summer)

To achieve the optimum viewing distance of between 300-500mm (as per The Landscape Institute's guidelines), we recommend printing this image edge to edge on A0 landscape and viewing it from a distance of 370mm. Please refer to section 2.8 on page 4 of this document for further information.

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