VIEW 7: VIEW SOUTH FROM THE JUNCTION OF FITZJOHN'S AVENUE AND LYNDHURST ROAD

EXISTING

PROPOSED

APPENDIX 2: AVR METHODOLOGY

39A FITZJOHN'S AVENUE & LAND ADJACENT TO 46 MARESFIELD GARDENS, NW3

2121 - 39 FITZJOHN AVENUE
AVR IMAGES METHOD STATEMENT

PREPARED FOR 23.11.2023

Method Statement

1 STANDARDS

1.1 The AVR images contained in this document have been produced in accordance with the best practices and advice taken from the following documents:

a) Revised Supplementary Planning Guidance, London View Management Framework, March 2012, henceforth LVMF

b) 2015 Erratum to the LVMF 2012 SPG

c) Landscape Institute: "Visual Representation of Development Proposals, Technical Guidance Note 06/19", henceforth TGN06/19

d) Landscape Institute/IEMA: Guidelines for Landscape and Visual Impact Assessment (GLVIA3)", henceforth GLVIA3.

e) Scottish Natural Heritage: "Visual Representation of Wind Farms v2.2 February 2017", henceforth SNH 2017

2 SCOPE OF WORK

2.1 Rock Hunter Ltd. were appointed as imaging consultant, producers of AVRs and computer generated view study images on behalf of Buro Four Project Services Limited. The architects are Sergison Bates Architects LLP. Rock Hunter Ltd. are an architectural visualisation company with 20 years of experience in creation of 3D computer models, rendering and digital imaging.

3 AFFILIATION AND PLACE OF WORK

3.1 Rock Hunter Ltd. is not affiliated with any party involved in the planning, consultation or design of the 39 Fitzjohn Avenue project and is acting as an independent consultant on the project. Photography, survey and camera matching has been carried out by ArcMinute Ltd. Survey data, camera matches and proof have been supplied to Rock Hunter Ltd.

4 COMPUTER MODEL

4.1 Rock Hunter received a 3d computer model of the proposed development from Sergison Bates Architects LLP as well as selected architectural drawings and a site survey. The computer model was adapted to work with Rock Hunter's 3d modelling software and design changes were undertaken on instruction from Sergison Bates Architects LLP on the basis of supplied architectural drawings to reflect the latest design. All AVRs in this document are based on this computer model.

5 PHOTOGRAPHY

5.1 The Photography was carried out by ArcMinute Ltd. A digital 35mm format mirrorless Camera, mounted on a tripod, was used throughout the project. The details of each photo (Camera, Lens, Date, Time, as well the position are listed in the **Technical Methodology**). Unless otherwise specified, the camera is positioned 1.65m above ground level, and the positions permanently marked on the ground. Alternatively, where marking of the ground is impractical or not permanent, an existing, distinct feature on the ground was chosen, or the point marked with temporary markings and surveyed within a few days of the photograph taken.

6 SURVEY

6.1 A professional surveyor was commissioned to survey the marked camera location and a set of camera control points for each viewpoint. This is used to determine the location of the camera position and for camera control points, a set of survey points within each photograph that are used to demonstrate the accuracy of the camera match. The survey is carried out using a mix of GNSS and laser total station and are tied into OS coordinates.

7 TYPE OF AVR SHOWN

7.1 Based on the above mentioned information and our computer model, Rock Hunter then generated a set of AVRs for each viewpoint. The set includes the baseline photograph, one montage showing baseline + proposed development, and a "baseline + proposed development + cumulative schemes". Depending on what type of visualisation has been agreed with the local authority, the proposed development will be shown as AVR1 or AVR3 (LVMF) / Visualisation Types 3 or 4 (TGN 06/19).

8 VERIFICATION

8.1 Rock Hunter publishes in this document in the **Technical Methodology** all relevant details of the recorded photographs and the source information of all computer models as well as the working methods used in the creation of the AVRs to which will allow independent verification of the AVRs.

9 METHOD STATEMENT

9.1 This document was created by Rock Hunter Ltd., and shows visual representations of the proposed development in accordance with LVMF "Accurate Visual Representation" standards and TGN06/19 "Survey-verified" standards.

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a) The LVMF defines an AVR as: *"An AVR is a static or moving image which shows the location of a proposed development as accurately as possible; it may also illustrate the degree to which the development will be visible, its detailed form or the proposed use of materials. An AVR must be prepared following a well-defined and verifiable procedure so that it can be relied upon by assessors to represent fairly the selected visual properties of a proposed development. AVRs are produced by accurately combining images of the proposed building (typically created from a three-dimensional computer model) with a representation of its context; this usually being a photograph, a video sequence, or an image created from a second computer model built from survey data. AVRs can be presented in a number of different ways, as either still or moving images, in a variety of digital or printed formats."*

b) The TGN06/19 defines Survey-verified as: " *Survey-verified photography involves using a surveyor, or survey equipment, to capture camera locations and relevant target points within the scene, which are then recreated in the 3D-model and used to match the camera image with a high degree of precision. Surveying equipment allows the camera location and fixed target points in the view to be calculated down to centimetre accuracy. Highly accurate visualisations may be produced by correctly matching the 3D model camera position and geometry of the view to the original photograph, using pixel level data, resulting in a survey-verified photomontage.*"

10 CHOICE OF VIEWS

10.1 Rock Hunter was provided with location maps for photography for each view by Montagu Evans LLP. ArcMinute Ltd took the photographs from supplied positions and with knowledge of the proposed development to frame views aesthetically and in line with best practices as set out in TGN06/19.

11 FIELD OF VIEW

11.1 The TGN06/19 (p5, para 2.2) states that *"Baseline Photography should:*

- *include the extent of the site and sufficient context;"*

and that (p21, para 4.5.3) "*Baseline photography should be carried out with a Full Frame Sensor (FFS) camera and 50mm Focal Length prime lens, unless there are exceptional conditions where wider-angle lenses are required to fully capture the scene (e.g. tall tower blocks - see below). In such cases, any departures from FFS +50mm FL should be explained and agreed with the competent authority.",*

and that (p.28, para 1.1.7) "*If a 50mm FL lens cannot capture the view in landscape or portrait orientation (for example, if the highest point of the development is approaching 18° above horizontal) the use of wider-angled prime lenses should be considered, working through the following sequence of fixed lenses in this order: 35mm FL > 28mm FL > 24mm FL > 24mm FL Tilt-Shift.*"

and that (p.35, para 4.1.5) "V*iews should include the full extent of the site / development and show the effect it has upon the receptor location. Additional photographs may illustrate relevant characteristics, such as the degree and nature of intervening cover along a highway or footpath, without showing the site / proposal.*"

and that (p.36, para 4.2.1.) "*The proposal under consideration and its relevant landscape context will determine the FoV (horizontal and vertical) required for photography and photomontage from any given viewpoint.",*

and that (p.54, para 13.1.1) "*The 24mm tilt shift is typically used for visualisation work where viewpoints are located close to a development and the normal range of prime lenses will not capture the proposed site*"

11.2 The preference for a 50mm prime lens, or to use a prime lens in portrait mode often does not satisfy the para 1.17, para 4.1.5 or para 4.21 for confined urban contexts, and as such a compromise has to be found that produces a wide enough HFoV, as well as including the full height of the proposed development. The reason for each choice of lens that deviates from the "FFS +50mm FL" approach has been noted in **Table "Viewpoint figure notes"**.

12 SCALE VERIFIABLE

12.1 The images are shown 325mm wide if the document is printed at it's correct size of A3. Using the viewing distance reference (TGN06/19 p.14 para 3.8.4 of 542mm) this results in a viewing scale of 90% for 50mm FL landscape views, and 41% for 24mm FL landscape views.
To view them between 100-150% as per TGN06/19, prints of 50mm FL views can either be viewed at a slightly reduced viewing distance, or if printed at A2 at 118%, in the middle of the recommended range.
24mm FL views have to be printed at A0 for a 117% scale representation.

12.2 To allow views to be assessed when viewed on screens, which can have a wide variety of sizes and thus unpredictable scale, a graticule overlay has been created for each view. This shows an angle grid for the HfoV and acts as a comparative ruler for the image assessors. The graticule also shows the centre of the view on the top and bottom bars, as well as an indicator for the calculated horizon level on the left and right bars. This helps to assess the amount of vertical shift that used in a photograph that was captured with a Tilt and Shift Lens.

13 EYE LEVEL, OPTICAL DISTORTION AND LEVEL

13.1 The camera was mounted on a tripod, centred over the surveyed camera locations, so that the camera is vertically positioned 1.65m above ground level (measured to the centre of the lens). This can reasonably be considered eye level, and is an accepted common practice for creating AVRs.

13.2 The RAW image is converted into a tiff image and remapped to remove all lens distortion using a sophisticated lens calibration and rectification system. The image is then placed into a background template and single frame images are further positioned so that the calculated position of the image's optical axis is aligned with the centre of the background. In both single frame and panoramic images the resultant image is a geometrically accurate 2d reproduction of the scene.

13.3 The camera is levelled horizontally with an accuracy <0.02deg in any direction.

14 CAMERA MATCH

14.1 Camera Control Points provided by the surveyor are used to establish a camera match. The survey points are easily identifiable, static objects in the view such as corners of windows, roofs, bases of street lights, chimney tops or road-markings. ArcMinute Ltd calculates the camera match independent of 3d Software packages and uses the result to script the creation of the virtual cameras. A two stage verification system is in place for quality assurance.

14.2 For distances of more than 2000m ArcMinute Ltd. use a combined formula for compensating the curvature of the earth and atmospheric refraction to produce the correct Z offset for camera survey points. The results are confirmed by capturing local reference coordinates near the site.

14.3 For views over 5km from a scheme compensation theoretically has to be made for the deviation of the local survey grid (Cartesian) from the (ellipsoidal) OS grid i.e.. curvature of the earth and refraction through the atmosphere. The practical reason however is to ensure that any small angular error resulting from a camera survey alignment is not multiplied out over a long distance to create a large error at the scheme so it is our standard operating procedure to always capture local reference coordinates near to the site with which this error can be accurately corrected.

15 FRAMING VIEWS/ PANORAMAS

15.1 No photographs were cropped in this document. Where indicated for the inclusion of vertical extents of the proposed development a shift lens was used to capture more context above the horizon line than below.

15.2 The TGN06/19 makes a case for panoramas (p.36, para 4.2.1-4.2.5) for a variety of reasons. In Appendix 8 (pp.45-47)(para 8.4.1) it confirms the SNH 2017 approach to re-projecting rectangular projections from panoramas. (p.25, para 113).
Where panoramic images are required the individual frames are stitched together to create a seamless image to the specified horizontal field of view in an equirectangular projection having a 38-54 degree vertical FOV. The image is then placed into a background template. The resultant image is a geometrically accurate 2d reproduction of the scene.

16 COMPOSITING

16.1 Compositing aims to blend the computer generated content with the source photograph into a consistent montage. The proposed scheme will often be partially occluded by urban context. In long and medium distance views this will typically be buildings and terrain topography, for close views it may also include street lighting, signs, vegetation and movable objects like vehicles. The visualiser will determine the degree to which the proposed development will be visible by identifying its urban context in the photograph from site visits and notes as well as combining information from maps, camera survey data, a 3D context model, aerial and ground level photographs of the site and its surroundings. For close distance views the visualiser will determine the local context from general observations.

16.2 The proposed scheme may in places reveal context in the photograph that is hidden from the “existing” view when the existing buildings have a different massing to the proposed building. Where necessary, the revealed context was visually reconstructed from additional photography.

17 LIGHT AND MATERIALS

17.1 For fully rendered views the 3D software package uses a simulation of the sun which is set to the same date, time and geographic coordinates as the photograph. With these settings the software simulates angle and lighting of the sun and the 3D model is rendered in a virtual environment that presents a close match to the conditions in the photograph. Some differences may remain, due to haze, clouds and other atmospheric conditions at the time of the photograph, which the visualisation artist will correct using his/her experience and observations from the photograph.

17.2 The computer model itself is augmented with simulations of materials as specified by the architect. Using his/her experience and libraries of materials the visualiser will closely match these virtual materials to colour, reflectivity, refraction and light behaviour to their real-world behaviour. Such approximations are generally satisfactory in their appearance, however where directed by the design team or based on the visualiser’s experience and judgement the appearance of materials may be adjusted when the AVR montage is assembled. Such alterations are generally holistic across the material and can include addition of environmental reflections. The final appearance of materials will be adjusted as directed and is at the discretion of the architect.

18 COMPUTER MODEL

18.1 Rock Hunter combines the computer model as well as the camera survey data and maps into a common, **unified coordinate system**. This unified system allows schemes and cameras to appear correctly in relation to each other and is based on OS mapping information with datum point defined near the proposed site. Choosing a local datum alleviates inherent numerical tolerances that occur in 3D software packages.

19 CUMULATIVE SCHEMES

19.1 Computer models for cumulative schemes where produced by Rock Hunter Ltd. based on electronic or paper planning application drawings publicly available from respective local authorities, come from our library of 3D models, or where provided by the project architect. Table **List of cumulative schemes** lists the sources for each scheme. The computer models were placed in the **unified coordinate system**, using any information contained in the original planning application documents. Some planning documents contain obvious errors or no relevant OS map information. In these cases the respective architects were contacted for more information (and where made available, used) or models were placed using a “best fit” by cross referencing information from other documents, maps and available sources.

19.2 Cumulative schemes are shown using a constant thickness wire outline. The line is generated from computer renderings of each scheme and represents an “inside stroke”. This means that the outer edge of the line touches the massing of cumulative schemes from the inside.

19.3 Where schemes are not directly visible in a view, the outline is represented with a dotted line that also uses the “inside stroke” principle. Visibility of a development is determined by permanent visual boundaries such as a buildings, infrastructure, terrain and street furniture that obscure the development and by temporary visual borders such as vegetation, people, vehicles or temporary hoardings. We treat the visibility of the proposed development based on a best judgement. A single tree in leaf does not obstruct the development as seasonal or maintenance measures affect the opacity over time, a number of trees behind each other can obscure a development even without leaves. Where the visibility changes across a small section of image, we aim for clarity of the diagram.

20 LIMITATIONS

20.1 Rock Hunter strives to work accurately and fairly throughout the creation of AVR images and employs a selection of advanced software packages and working methods. Despite all advances in computer simulations, rendering techniques and care taken in the process, no simulation is currently able to take into account all physical properties of camera equipment and all lighting effects inside the software package. The purpose of these AVRs is to allow a fair representation of the proposed scheme in it’s photographic context as described in the LVMF and LI documents. Adjustments to the proposed scheme’s appearance are done to the judgement and experience of the visualisation artist to allow for lighting and atmospheric conditions of the photograph, they are not however a scientific simulation.

21 OS INFORMATION AND LIMITING FACTORS

21.1 The basis of the 3D computer model and survey information are Ordnance Survey Sitemap® digital maps, at a 1:1250 survey scale. OS define their tolerances as follows:

Survey Scale	Absolute accuracy compared with the National Grid. Absolute error – root mean square error (RMSE)	Absolute accuracy 99% confidence level	Relative accuracy Distance between points taken from the map. Relative error	Relative accuracy 99% confidence level
1:1250 (urban)	0.5 metres	<0.9 metres	+/- 0.5 metres (60 metres)	<+/- 1.1 metres (60 metres)

Source: Ordnance Survey “os-sitemap-user-guide.pdf”

21.2 Camera locations which are positioned on bridges are typically subject to greater tolerances than camera locations which are positioned on stable ground. Bridges are flexible structures and can be subject to movement caused by vibration, loading and wind. This is especially noticeable on suspension bridges.

21.3 Camera locations reshot for winter and summer views can contain obstacles such as new vehicles or roadworks, making the view impossible to replicate. These views are looked at and adjusted using best practice and knowledge to achieve a similar view despite a slightly altered location, this is fairly common when doing winter and summer views on areas under constant development. The TGN-06-19 (p.52, para 11.5.2) “*Regarding positional accuracy, the LI takes the view that a proportionate approach is required.*” and also TGN-06-19 (p.36, para 4.2.1) “*Views may appear different in winter compared to summer, which may affect the exact location selected*”
Camera locations revisited months later, despite using a surveyor can lead to slight deviation in location or image , these are within tolerances specified above and in the GLVIA3, and a proportionate approach has been taken as stated above to achieve a position/shot as close to the original as possible. Furthermore, as part of the verification process a table in the Technical Methodology section of this document displays the camera locations and data pertinent to the views.

Technical Methodology

22 VIEWPOINT FIGURE NOTES

Job ID	Description	Easting/ Northing	Date/Time	Bearing	Distance	Camera	Lens	HFov	Accuracy	Chosen Lens Justification
VP01	Junction Between Netherhall Gardens and Maresfield Gardens	526431.3 , 185230.3	27.03.2023, 13:31	170.7°	256.3m	Canon 5D MK IV	24mm TS/E	77°	Better than 1m	Inclusion of local context
VP02	Maresfield Gardens Looking South	526438.1 , 185101.5	27.03.2023, 13:17	154.9°	129.5m	Canon 5D MK IV	24mm TS/E	77°	Better than 1m	Inclusion of local context
VP03	Nutley Terrace Looking East	526382.7 , 184921.3	20.03.2023, 12:48	63.6°	111.6m	Canon 5D MK IV	24mm TS/E	77°	Better than 1m	Inclusion of local context
VP04	Maresfield Gardens Looking North	526447.6 , 184843.5	27.03.2023, 12:19	17.2°	138.4m	Canon 5D MK IV	24mm TS/E	77°	Better than 1m	Inclusion of local context
VP05	Corner Of Maresfield Gardens Looking North	526457.6 , 184626.6	27.03.2023, 12:01	5.3°	352.4m	Canon 5D MK IV	24mm TS/E	77°	Better than 1m	Inclusion of local context
VP06	Nutley Terrace Looking West	526631.3 , 184988.3	27.03.2023, 14:35	271.4°	153m	Canon 5D MK IV	24mm TS/E	77°	Better than 1m	Inclusion of local context
VP07	Junction Of Lyndhurst Road and Fitsjohn's Avenue	526577.1 , 185208.7	27.03.2023, 14:10	198.2°	250.4m	Canon 5D MK IV	24mm TS/E	77°	Better than 1m	Inclusion of local context

23 CAMERA LOCATIONS

24 Top row:
VP01 Junction Between Netherhall Gardens and Maresfield Gardens
VP02 Maresfield Gardens Looking South
VP03 Nutley Terrace Looking East

24.1 Second row:
VP04 Maresfield Gardens Looking North
VP05 Corner Of Maresfield Gardens Looking North
VP06 Nutley Terrace Looking West

24.2 Third row:
VP07 Junction Of Lyndhurst Road and Fitsjohn's Avenue

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