



Boxworth, Cambridge Services

Landscape and Visual Options Analysis

On behalf of **Newlands Developments Ltd**



Project Ref: 34733 | Rev: AA | Date: July 2023

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Project Name: Boxworth, Cambridge Services

Project Ref: 34733

Report Title: Landscape and Visual Options Analysis

Doc Ref: 34733/A5

Date: July 2023

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Reviewed by:		Landscape Director	MDC	July 2023
Approved by:		Landscape Director	MDC	July 2023
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved

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1 Landscape and Visual Options Analysis

1.1 Background

- 1.1.1 Stantec has been commissioned by Newlands Developments Ltd to provide landscape planning services relating to employment development on land at Boxworth, Cambridge Services ('the Site'), in order to inform a landscape-led rationale for the future design of a commercial development ('the Proposed Development') as part of the emerging Local Plan process.
- 1.1.2 Desktop studies were undertaken, reviewing the adopted and emerging landscape policy and published landscape evidence pertinent to the Site and development of the type proposed. Utilising the desktop appraisal information, a winter visit to the Site and its surroundings was carried out on 01 March 2023, in order to establish the maximum visibility of the Site, which was recorded in a series of panoramic photographs. A range of viewpoints was chosen to represent the character of the Site and its visibility from key locations.
- 1.1.3 The desktop and fieldwork appraisals enabled the identification of sensitive landscape and visual receptors anticipated to have the potential to be subjected to effects that would be considered important from a landscape or visual perspective.
- 1.1.4 The landscape and visual opportunities and constraints relevant to the Site and the type of development proposed have been analysed and have informed the iterative design process from the outset. The landscape and visual considerations have therefore been incorporated into the emerging masterplan process, along with baseline information from the wider design team, including drainage, utilities and ecological experts. Together with those identified by other technical experts, the key principles from a landscape and visual perspective have been used to underpin a robust rationale for future development and the creation of a well-considered landscape strategy for the Site which is appropriate and sympathetic to its specific location.

1.2 Development Proposals and Landscape Strategy

- 1.2.1 The eastern extents of the Site are best suited to development of the scale proposed, since they are the lowest-lying and relate most strongly to the existing infrastructure of commercial and industrial built form at Cambridge Services and Buckingway Business Park, as well as to the A14 interchange. The embankments and recent highway planting associated with the interchange also provide, and are expected to continue to provide, further physical and visual enclosure to this part of the Site, in particular to the lower levels of the proposed built forms. However, as the highway planting and its management is not within the applicant's control, it will not be relied upon in the consideration of likely long term landscape and visual effects. Rather, the Proposed Development has been informed from the outset by a truly landscape-led approach that has been well thought out and comprises a robust landscape strategy.
- 1.2.2 The edges of the developable area (i.e., the area within the eastern extents of the Site) will require a more sensitive and sympathetic treatment in order to reduce the potential for unacceptable adverse effects on the landscape character of the wider context to the south of the A14 and on visual receptors using the bridleways to the south-west (PRoW 27/1) and south-east (PRoW 150/1) of the Site where open views of the built form will be available. These landscape and visual receptors are likely to be the most sensitive and subject to greater magnitudes of change as a result of the Proposed Development.
- 1.2.3 The western extents of the Site are best suited as land reserved for ground-mounted solar arrays, as they are the most elevated and have the strongest visual relationship with the wider landscape context. There are good opportunities in this area for biodiversity enhancements through the creation of wildflower meadows beneath the panels.

- 1.2.4 Recessive colouration of the facades of the development and considered articulation of the roofscape (breaking the perceived 'monolithic' horizontal massing) and volume will help to limit adverse landscape and visual effects.
- 1.2.5 The effect of the surrounding landscape and its relationship with the topographical variation means that the existing tree belt and woodland vegetation in the context of the Site combine to create a 'curtain' effect in longer distance views. The proposed structural vegetation will not fully screen the proposed built form, but will help to soften the lower sections of the proposed built form in near distance views from the bridleway to the south-west (PRoW 27/1) and from Boxworth Road along the south-eastern Site boundary, which will also improve the approach to the village. It will also reinforce the green infrastructure of the locality and assist in providing 'green corridors' which will provide biodiversity enhancements and reinforce the historic field pattern.
- 1.2.6 The landscape strategy includes the retention of all of the existing structural vegetation within the Site and along its boundaries, including the existing hedgerows, except for a very small proportion which will be removed to provide access. The retained hedgerows will, however, be reinforced with additional planting of a suitable native mix.
- 1.2.7 Strategic and sympathetic bunding is proposed to the north-western, western and southern boundaries of the developable area and the area reserved for ground-mounted solar arrays, to be planted with new woodland with a mix of whips, transplants, and semi-mature specimen trees in a mix of locally characteristic species, mixed scrub and wildflower grassland. This will improve the habitat diversity and green infrastructure within the Site, and provide further screening and softening of the proposed built form in views from these directions. In particular it will soften the appearance of the lower levels of the proposed built form that will be experienced as part of the Cambridge gateway on the approach from the west along the A14.
- 1.2.8 The north-eastern and south-eastern boundaries of the Site will be managed for floral diversity to provide biodiversity enhancements of the verges of the adjacent highways.

1.3 Landscape Policy

- 1.3.1 Current policy within the South Cambridgeshire Local Plan (2018) requires that new development responds to and protects the character of the local and wider area and enhances biodiversity and green infrastructure. Public art should be included within development of over 1000m². The setting of heritage assets (Policy NH/14) is a matter to be considered carefully and the character of views from PRoW leading out of historic settlements like Lolworth, Boxworth and Conington will be addressed in an appropriate and sensitive manner. Emerging policy also stresses the importance of improving networks of habitats and green spaces for people and promoting healthy living. Importantly, the Greater Cambridge Local Plan First Proposals requires that development sustains the unique character of South Cambridgeshire, "and complement it with beautiful and distinctive development".

1.4 Published Landscape Character Evidence

- 1.4.1 Published landscape character guidance relevant to the study area includes NCA Profile 88 Bedfordshire and Cambridgeshire Claylands at a national level and South Cambridgeshire District Council (SCDC) Design Guide, 2010 at a local level. The key messages from the published guidelines include consideration of the following throughout the development of design proposals, with which the scheme is considered to comply, as outlined above:
- Integration with local patterns of tree planting, management of existing woodland and creation of new woodland and linkages whilst considering the effects on skylines and landscape patterns;
 - Enhancement planting of mature trees, hedgerows and woodlands at village edges;

- Maintenance of distinctive linear features;
- Response to form, scale and proportions of built form in the locality; and
- Sensitive integration of development and ensuring that key long distance views are unaffected.

1.5 Accurate Visual Representations

- 1.5.1 A number of Accurate Visual Representations (AVRs) have been produced by Realm Communications, a specialist visualisation consultancy, in order to assist in understanding the visual effect of the Proposed Development as it will be seen within the landscape. These visualisations are generated using geometrically accurate photographs and accompanying verifiable data, taken from viewpoints on highways and PRow, camera matched with a 3D digital model of the landscape and the Proposed Development. The Proposed Development is represented on the images as a photorealistic render, testing three cladding colours, two variations of roof shapes, and structural landscaping 15 years post-planting. The AVRs are set out in **Appendix A: Accurate Visual Representations**, and have been created with reference to the Parameters Plan, the Illustrative Masterplan and Generic Elevation Options 3 and 8 as shown in **Appendix B: Plans and Elevations**.
- 1.5.2 The three design options for the buildings are all provided to assist in the integration of the proposed built forms into the landscape taking into account the underlying topography and landscape context of the Site:
- Option 1 – Graduated grey banding to the façade with parapet and conventional pitched roof profile beyond. The darker tones at lower level are intended to merge the buildings into the landscape whilst the fading grey tones at higher level are intended to merge with the skyline backdrop and lower the perceived height of the building.
 - Option 2 – Pixellated banding to the façade with parapet and conventional pitched roof profile beyond. A similar rationale to Option 1, however the pixilation seeks to articulate undulation and natural contours compared to the linear geometry presented in Option 1.
 - Option 3 – Graduated grey cladding with curved roof and overhanging eaves. The introduction of a curved roof is intended to soften the appearance of the elevations and provide a more organic form within the landscape, and the architecture references the agricultural buildings characteristic of the wider landscape. The use of green cladding to the roof helps to assimilate the buildings within the surrounding context when viewed from higher ground.
- 1.5.3 The proposed planting comprises a mix of locally characteristic native species, including oak, field maple, lime and wild cherry. Typical heights of plant specimens at the time of planting are between 0.5m and 4.5m. Whilst species vary considerably, for the purpose of the exercise growth is assumed to be at an average rate of one metre every three years, such that the height of trees at Year 15 is expected to range between 5.5m and 9.5m. The effects of 15 years' growth on the existing planting along the embankment are not shown, as this planting is not within the control of the applicant and therefore its successful management cannot be relied upon.

Accurate Visual Representation 1 (37)

- 1.5.4 Accurate Visual Representation 1 (37) demonstrates the change in views from the southern end of Scotland Drove (bridleway PRow 225/24) immediately north-east of the A14. The roofline of the western portion of the Proposed Development is visible above the canopy line, with the majority of the facade being heavily filtered by the proposed tree planting, and the ground level screened by the proposed bunding. Parts of the eastern extents of the Proposed Development

are screened by the existing embankment associated with the J24 interchange. In all cases where the roofline of the Proposed Development is visible, it appears above the skyline, and both it and the mitigation planting obscure the woodland to the south-east of the Site which currently features in views from this location. Should the existing planting on the J24 embankment be managed successfully in the long term, it is likely to screen the Proposed Development and the longer distance wooded skyline in views from this location at least partially if not entirely.

- 1.5.5 The combination of the flat roof and pale colouration of the upper extents of the façade featured in both Options 1 and 2 are successful in achieving a receding effect with regard to the massing of the built form. The fragmented cladding of Option 2 is slightly more effective as the variation in hues extends further up the façade and as such is more visible over the canopy line, whereas only the top band of the banded cladding of Options 1 and 3 is noticeably visible. The curved roof of Option 3 is more sympathetic to the organic forms of its landscape context, including the canopies of trees in the foreground, but from this low vantage point the darker green colour of the roof gives it a solidity and visual weight that may cause the roofline to be perceived as being more visually prominent than the flat roof of Options 1 and 2, which appears to be more lightweight and subtle in appearance due to its lighter colouration.

Accurate Visual Representation 2 (83)

- 1.5.6 Accurate Visual Representation 2 (83) demonstrates the change in views from Bucking Way End/Boxworth End and Tippler's Road (PRoW 225/16) 1km to the north-east of the Site. The majority of the eastern and central extents of the Proposed Development are screened by the intervening vegetation, although this screening will be less effective in winter. The western extents of the Proposed Development, and part of the central buildings, will be visible breaking the skyline, though it will be seen in the context of the highway infrastructure and other commercial built form already present in the view.
- 1.5.7 From this distance the darker green colour of the roof of Option 3, in combination with the variation in the roof profile and its curved form, allows it to recede within the view, integrating it visually with the existing skyline. The banding and fragmentation of each option is more visible from this location due to the reduced screening effect of the proposed planting, resulting from the slightly higher vantage point compared to AVR 1 (37). As such it has a greater impact on the perceived massing of built form, although the paleness of the white render on the upper levels is more prominent against the overcast skies. From this location the simple banding of Options 1 and 3 is more effective, as the scale of the built form relative to the receiving landscape results in an impression of a low, horizontal object against a low, horizontal skyline. The fragmented cladding of Option 2, on the other hand, implies an undulating form that stands out against the level horizon.

Accurate Visual Representation 3 (103)

- 1.5.8 Accurate Visual Representation 3 (103) demonstrates the change in views from the bridleway 480m to the south of the Site (PRoW 27/01) on the northern outskirts of Boxworth. From this location the Proposed Development will be a prominent feature within the view, but for much of the route it will not break the skyline. Further east along the bridleway, the elevation of the route decreases slightly as it runs closer to the Site.
- 1.5.9 From this elevated vantage point the darker green roof of Option 3 is successful in integrating the Proposed Development within its landscape context, using a hue that helps it to recede into the backdrop within the view, and giving the impression of a lower height and smaller volume of built form. The flat, pale roofs of Options 1 and 2, on the other hand, appear to foreshorten the depth of the Proposed Development and instead extend the built form vertically within the view. The pale roofs also contrast with the landscape beyond and as such they stand out relative to Option 3. As with AVR 2 (83), a greater proportion of the façade is visible than is the case for AVR 1 (37), and as such the colouration has more impact. The simple banding of Options 1 and 3 is again more effective, as the fragmented cladding of Option 2 has an overall undulating

effect, which contrasts with the horizontal lines of features such as hedgerows and tree belts in the surrounding landscape.

Summary

- 1.5.10 Overall, the colouration of the cladding is more effective in longer distance, more elevated views, where the vantage point results in a greater proportion of the façade being visible above the mitigation planting. The banded cladding shown in Options 1 and 3 is more effective than the fragmented cladding of Option 2, particularly in these longer distance views, as it integrates well with the low-lying, horizontal pattern of the landscape. In near distance views the fragmented cladding of Option 2 is more effective than the banded cladding, especially where the façade is not screened or heavily filtered by intervening vegetation and bunding. The flat roof of Options 1 and 2 is more recessive in near distance views, where it appears lightweight, than in longer distance views where the curved, darker roof of Option 3 integrates more successfully within its vegetated landscape context.
- 1.5.11 Therefore, the preferred option for façade and roof treatment depends upon which receptor is considered to take precedence. The landscape character of the Cambridge gateway along the A14 would benefit from the treatment illustrated in Option 1, as the banded cladding and flat roof provide the most recessive effects from a near distance, low lying vantage point. On the other hand, visual receptors on the footpath to the south of the Site would benefit from the treatment illustrated in Option 2, as the green colouration and varied profile of the roof provides the most recessive effects from a longer distance, relatively elevated vantage point.
- 1.5.12 In our opinion, it is the pedestrians on Public Rights of Way within the agricultural landscape surrounding the Site who have the greatest sensitivity to the type of development proposed, and who have the greatest potential to experience significant effects as a result of the Proposed Development. Therefore Option 3 represents our preferred option, as it is the most successful in integrating the proposed built form into its landscape context for these receptors.

Appendix A Accurate Visual Representations



Cambridge Services, Boxworth

Verifiable Photomontages and Methodology

June 2023

Contents

1.0 Overview	Page 3
2.0 Methodology for creation of photomontage views:	Page 3
2.1 Photography	
2.2 Surveying	
2.3 3D building model	
2.4 3D landscape	
2.5 Camera matching	
2.6 Lighting and rendering	
2.7 Post production	
2.8 Recommended viewing distances	
2.9 Caveats	
3.0 Supporting evidence	Page 5
4.0 Final verifiable photomontages	Page 12

1.0 Overview

This document has been prepared by Realm Communications to explain the methodology used to create accurate verifiable photomontages of the proposed development of Boxworth Services, Cambridge. The visual assessment of the scheme 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 scheme 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

Stantec
7 Soho Square
London W1D 3QB
Phone: 0207 446 6819

Photography

Arcminute Ltd
25b Pall Mall Deposit
124-128 Barlby Road
Ladbroke Grove
London W10 6BL
Phone: 0777 485 7627

Survey of existing views and camera locations

Datum Survey Services
Brickfield Business Centre, Brickfield House
High Road, Thornwood, Epping CM16 6TH
Phone: 0797 7111 935

Production and checking of verified images

Realm Communications
The Workshop, Old Barn Cottage, Down Lane
Compton, Guildford GU3 1DQ
Phone: 0148 381 3888

Supply of building CAD and height information, landscape and planting

UMC Architects
Newark Beacon
Cafferata Way Newark
Nottinghamshire NG24 2TN
Phone: 0)1636 653 027

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 May 2023 which form the pictorial basis for verifiable photomontages for 3 views for the proposed development of Boxworth Services, Cambridge.

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). The camera mounts used are custom made designs for both single frame and panoramic capture. These 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 Boxworth Services, Cambridge. Digital files of the 3 views together with camera point locations were provided by the photographer.

Date of surveys May 2023.

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.

Some 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.

2.3 3D building model

The three 3D building models of the scheme (which are superimposed upon the 'existing' views) were modelled by Realm using CAD supplied by UMC Architects. The 3D digital models were 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 UMC and Stantec. Spot height information from the CAD was used to set the model's Z position in metres Above Ordnance Datum (AOD).

Three design options are presented:

- Option 1 – Banded cladding with flat roof
- Option 2 – Fragmented cladding with flat roof
- Option 3 – Banded cladding with Griffin roof

All building options are drawn such that the highest part of the roof is 15m from ground level.

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 UMC, as listed below. 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.

Species – oak, field maple, lime, wild cherry
Height at time of planting – 0.5m to 4.5m
Assumed growth – 1m every 3 years
Height at Year 15 – 5.5m to 9.5m

2.5 Camera matching

The verification process confirms the accuracy of the location and elevation of the virtual camera in the 3D model environment in relation to each view. The camera matching process involves accurately matching the position of the virtual camera in the 3D environment with the real world camera location and elevation based on BNG coordinates and in relation to the location of the 3D model of the Scheme within each (existing) view. This is achieved through aligning the imported cloud of survey points in the 3D environment with the base photograph surveyed features in order to position a virtual camera that replicates the exact location and elevation of the real world camera. This is to produce an image where the survey points match in features in 3D environment 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 over the surveyed feature in the photograph, the virtual camera must therefore be correctly positioned.

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

Block Model views These photomontages show the location, size and massing of the proposed built form, illustrated via textured and shaded models.

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 up to 525mm.

Panoramic Views:

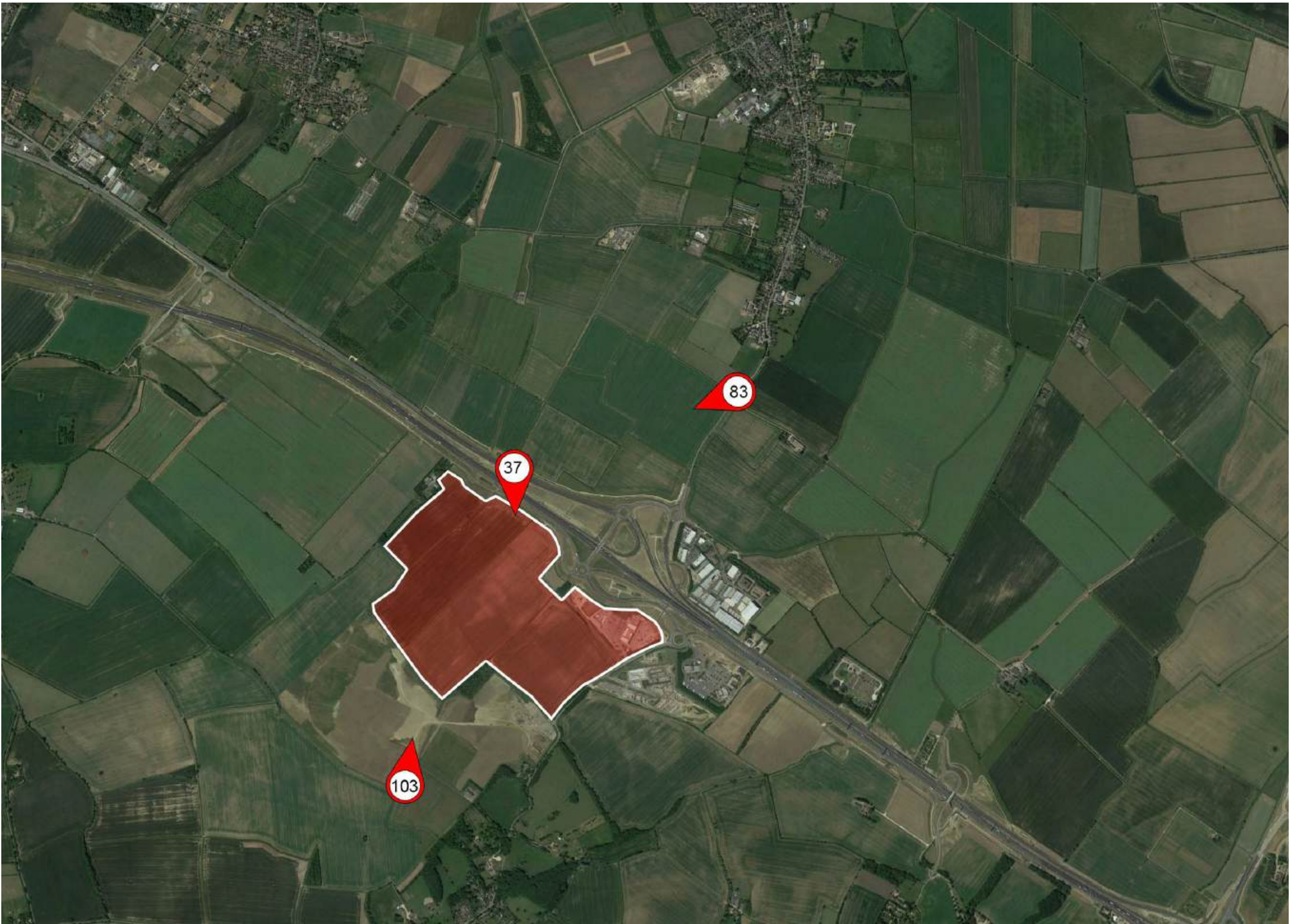
In line with the Landscape Institute's latest guidance (TGN-06-19) full size panoramas will no longer be provided with a specific RVD due to the variables involved (including the need for it to be held in a curve). Therefore, we recommend taking a 40 degree crop (4000 x 2700 pixels) of the full panorama, printing it on A3 paper and viewing it by holding it at comfortable arm's length.

2.9 Caveats

None.

3.0 Supporting evidence

Ordance survey co-ordinates			
View Ref	Eastings	Northings	AOD Height
37	534925.732	266344.801	15.631
83	536026.399	266724.812	14.994
103	534442.100	264776.243	42.840



View 37

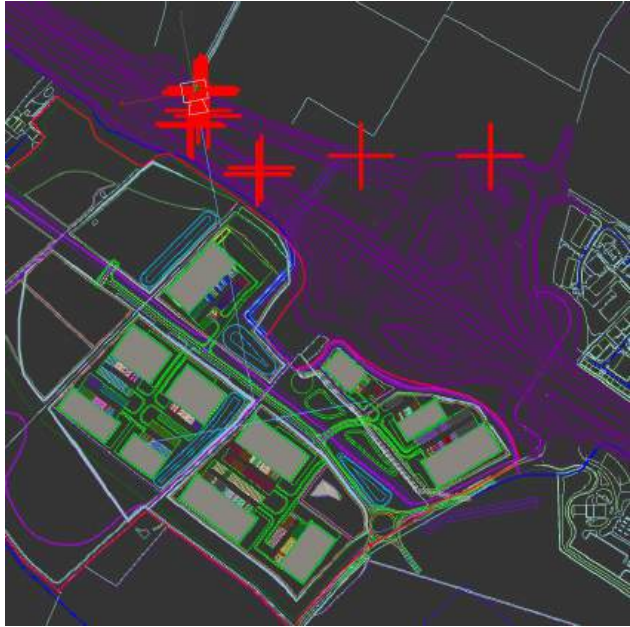
01.1 Ordinance survey co-ordinates			
Point Ref	Eastings	Northings	AOD height
3701	534934.298	266344.818	15.980
3702	534937.206	266342.566	16.086
3703	534941.554	266340.966	16.121
3704	534944.224	266338.296	16.091
3705	534947.353	266337.479	16.482
3706	535301.282	266199.260	23.820
3707	534927.446	266340.699	15.745
3708	535067.472	266157.555	26.514
3709	535076.907	266171.338	31.777
3710	534956.759	266289.518	17.938
3711	534934.010	266301.595	17.793
3712	534919.886	266265.735	19.912
3713	534912.549	266271.533	18.172
3714	534940.351	266352.770	16.612
3715	534946.743	266350.025	16.654
3716	534953.018	266347.039	16.677
3717	535593.523	266198.809	24.232

1.3 View 37 camera location

Eastings 534925.732m
Northings 266344.801m
AOD height 15.631m
Approx distance to centre of site 732m
Approx bearing from North 160°



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 block model matched to photograph



01.8 Final camera matched

View 83

01.1 Ordinance survey co-ordinates

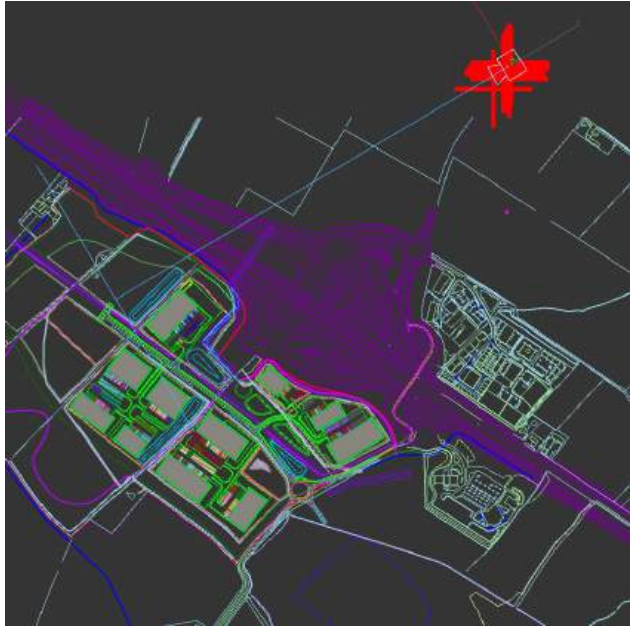
[illegible]

1.3 View 83 camera location

Eastings	536026.399m
Northings	266724.812m
AOD height	14.994m
Approx distance to centre of site	1458m
Approx bearing from North	239°



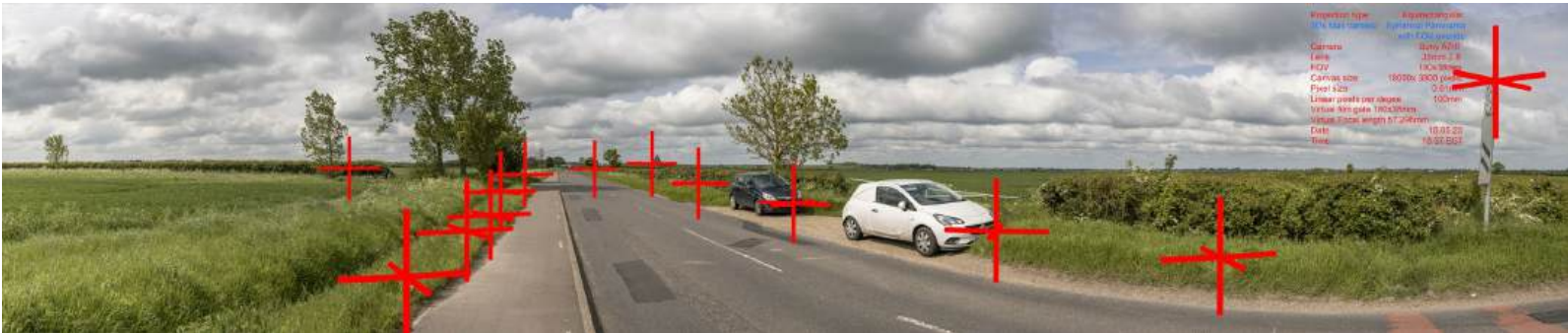
01.2 OS survey points marked on photograph



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 block model matched to photograph



01.8 Final camera matched wireline photomontage

View 103

01.1 Ordinance survey co-ordinates

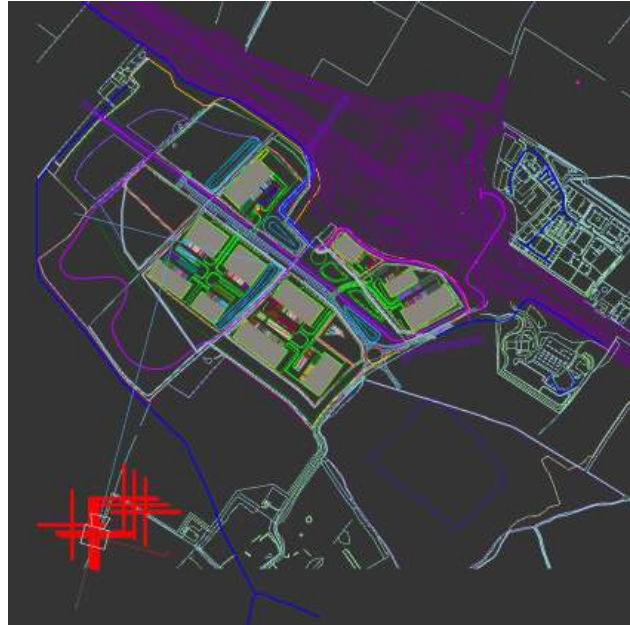
[illegible]

1.3 View 103 camera location

Eastings	534442.100m
Northings	264776.243m
AOD height	42.840m
Approx distance to centre of site	1055m
Approx bearing from North	15°



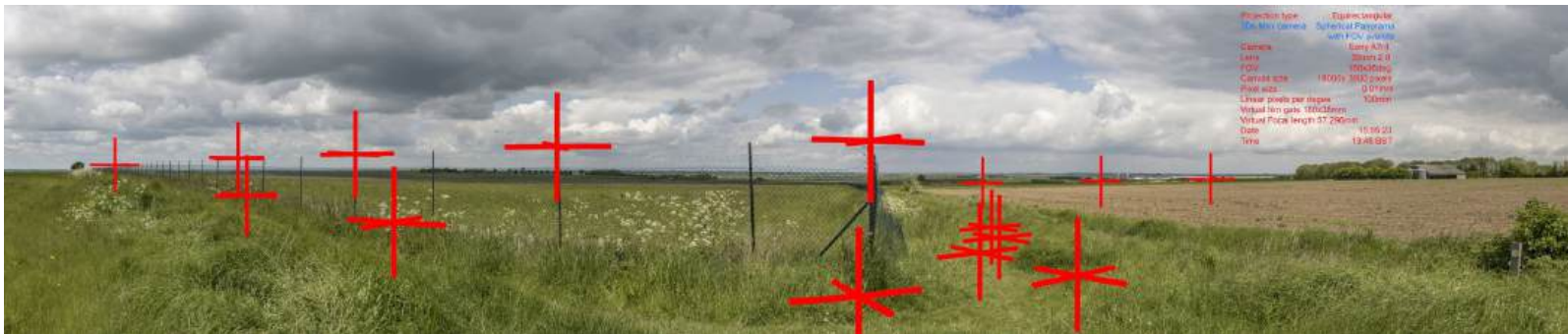
01.2 OS survey points marked on photograph



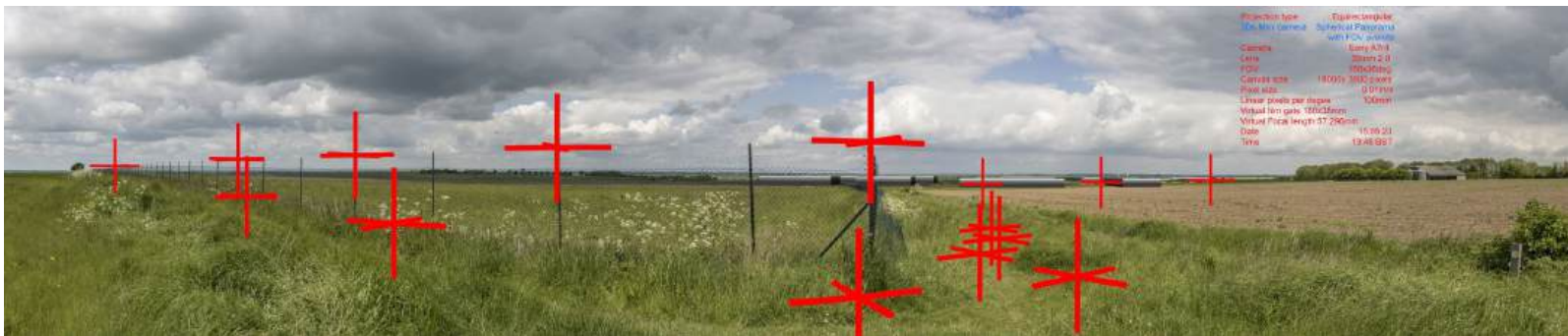
01.4 Screen grab of camera location in 3D Studio Max software



01.5 Screen grab of calculated horizon line



01.6 Screen grab of camera matching to OS data



01.7 Screen grab of block model matched to photograph



01.8 Final camera matched wireline photomontage

4.0 Final verifiable photomontages

View 37 existing

10 frame stitched view | FOV 180 x 38 degrees | Focal Length 35mm | Camera height above survey point 1650mm | Nominal lens rise 0mm | Date 15.05.23 | Time 10:01



View 37 proposed block model photomontage showing option 1



View 37 proposed block model photomontage showing option 2



View 37 proposed block model photomontage showing option 3



View 83 existing

10 frame stitched view | FOV 180 x 38 degrees | Focal Length 35mm | Camera height above survey point 1650mm | Nominal lens rise 0mm | Date 15.05.23 | Time 10:37



View 83 proposed block model photomontage showing option 1



View 83 proposed block model photomontage showing option 2



View 83 proposed block model photomontage showing option 3



View 103 existing

10 frame stitched view | FOV 180 x 38 degrees | Focal Length 35mm | Camera height above survey point 1650mm | Nominal lens rise 0mm | Date 15.05.23 | Time 13:45



View 103 proposed block model photomontage showing option 1



View 103 proposed block model photomontage showing option 2



View 103 proposed block model photomontage showing option 3





Realm Communications

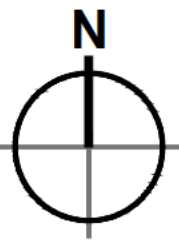
The Workshop, Old Barn Cottage, Down Lane
Compton, Guildford GU3 1DQ

t +44 (0)1483 813888

w wearerealm.co.uk

Appendix B Plans and Elevations

- Dimensions are in millimeters, unless stated otherwise.
- Scaling of this drawing is not recommended.
- It is the recipient's responsibility to print this document to the correct scale.
- All relevant drawings and specifications should be read in conjunction with this drawing.



Key

- Application Boundary
- Zone Boundary
- Development Area [B8]
- Community Hub and Amenity Area [E Class]
- Battery Storage
- Land Reserved for Potential Ground Mounted PV
- Estate Road Infrastructure
[10.5m width with 1.5m verge and 3m combined pedestrian cycleway]
- Structural Landscaping
- Strategic Landscape Screening
[Subject to detailed Survey]
- Proposed new main site access
Via A14 J24 / Boxworth Road
- Combined Pedestrian and Cycles Access
- Gateway Frontage
- Existing Water-main [10m Easement]
[Alignment Subject to Survey]
- Diverted Water-main [7m Easement]
[Subject to Water Authority Agreement]
- Existing Water-main Abandoned
[Subject to Water Authority Agreement]
- Diverted Water-main [Alternative Routing]
[Subject to Water Authority Agreement]
- Existing Gas Main to be Retained
[Alignment subject to detailed survey]

Development Schedule

Zone	Plot Size NDA (ha)	Maximum GIA Floor Space (m ²)	Minimum Finished Floor Level (in meters above ordnance datum) [+1.000m above proposed plateau]	Maximum Building Height Measured to roof ridge / highest point (in meters above ordnance datum)	Clear Internal Height / Ridge Height
Zone 1 [B8]	4.35	16,722	18.100	36.100	15m / 18m
Zone 2 [B8]	1.13	4,645	20.000	38.000	15m / 18m
Zone 3 [B8]	5.16	11,613	20.000	38.000	15m / 18m
Zone 4a [B8]	8.55	31,122	20.500	35.500	12m / 15m
Zone 4b [E Class]	1.25	500	20.500	35.500	12m / 15m
Zone 5 [B8]	9.15	31,122	22.800	37.800	12m / 15m
Zone 6 [Battery Storage]	2.50				
Total	32.08	95,726			

rev | amendments | by | ckd | date

Cambridge Gateway,
Boxworth
Parameters Plan



Newark Beacon Innovation Centre, Catterata Way, Newark, Nottinghamshire NG24 2TN
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Drawing Status:	Feasibility
Drawn / Checked:	RT / MDS
Date:	28/03/2023
Scale:	1:2500 A1
Drawing no:	Revision:
19260 F0050	D

Attenuation and
Infrastructure design
subject to confirmation

50m SCALE 1:2500



Schedule of Accomodation

All figures specified as GIA Unless otherwise stated

Unit 1a			
Warehouse	11,474 m ²	123,500 ft ²	
Mezzanine Office (5%)	604 m ²	6,500 ft ²	
Total	12,077 m ²	130,000 ft ²	

Unit 1b			
Warehouse	4,413 m ²	47,500 ft ²	
Mezzanine Office (5%)	232 m ²	2,500 ft ²	
Total	4,645 m ²	50,000 ft ²	

Unit 2			
Warehouse	4,413 m ²	47,500 ft ²	
Mezzanine Office (5%)	232 m ²	2,500 ft ²	
Total	4,645 m ²	50,000 ft ²	

Unit 3			
Warehouse	11,032 m ²	118,750 ft ²	
2-Storey Office (5%)	581 m ²	6,250 ft ²	
Total	11,613 m ²	125,000 ft ²	

Unit 4a			
Warehouse	10,591 m ²	114,000 ft ²	
Mezzanine Office (5%)	557 m ²	6,000 ft ²	
Total	11,148 m ²	120,000 ft ²	

Unit 4b			
Warehouse	11,032 m ²	118,750 ft ²	
Mezzanine Office (5%)	581 m ²	6,250 ft ²	
Total	11,613 m ²	125,000 ft ²	

Unit 4c			
Warehouse	7,943 m ²	85,500 ft ²	
Mezzanine Office (5%)	418 m ²	4,500 ft ²	
Total	8,361 m ²	90,000 ft ²	

Unit 5a			
Warehouse	8,826 m ²	95,000 ft ²	
Mezzanine Office (5%)	465 m ²	5,000 ft ²	
Total	9,290 m ²	100,000 ft ²	

Unit 5b			
Warehouse	8,826 m ²	95,000 ft ²	
Mezzanine Office (5%)	465 m ²	5,000 ft ²	
Total	9,290 m ²	100,000 ft ²	

Unit 5c			
Warehouse	7,061 m ²	76,000 ft ²	
Mezzanine Office (5%)	372 m ²	4,000 ft ²	
Total	7,432 m ²	80,000 ft ²	

Unit 5d			
Warehouse	4,854 m ²	52,250 ft ²	
Mezzanine Office (5%)	255 m ²	2,750 ft ²	
Total	5,110 m ²	55,000 ft ²	

B8 Total			
	95,226 m ²	1,025,000 ft ²	

Employee Amenity Hub [E Class]	500 m ²	5,380 ft ²	
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Grand Total	95,726 m ²	1,030,380 ft ²	
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- Dimensions are in millimeters, unless stated otherwise.
- Scaling of this drawing is not recommended.
- It is the recipients responsibility to print this document to the correct scale.
- All relevant drawings and specifications should be read in conjunction with this drawing.



Key

- Application Boundary
- Zone Boundary
- Existing Water-main [10m Easement] [Alignment Subject to Survey]
- Diverted Water-main [7m Easement] [Subject to Water Authority Agreement]
- Existing Water-main Abandoned [Subject to Water Authority Agreement]
- Diverted Water-main [Alternative Routing] [Subject to Water Authority Agreement]
- Existing Gas Main to be Retained [Alignment subject to detailed survey]
- Combined Pedestrian and Cycles Access
- Battery Storage
- Land Reserved for Potential Ground Mounted PV
- Strategic Landscape Screening [Subject to detailed Survey]

Attenuation and
Infrastructure design
subject to confirmation

50m SCALE 1:2500

rev	amendments	by	ckd	date
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Cambridge Gateway,
Boxworth
Illustrative Masterplan

newlands
developments

umc
architects

Newark Beacon Innovation Centre, Cafferata Way, Newark, Nottinghamshire NG24 2TN
0 +44 (0)1636 653027 E +44 (0)1636 653010 I info@umcarchitects.com

Drawing Status:	Feasibility
Drawn / Checked:	RT / MDS
Date:	02/04/2023
Scale:	1:2500 A1
Drawing no:	Revision:
19260 F0051	C

Option 8

External View



Aerial View



Gradient Horizontal Cladding:



Composite Panels
Colour: White
RAL 9010
Colorcoat Prisma



Horizontal Cladding
Colour: Goosewing Grey
RAL 080 70 05
Colorcoat Prisma



Horizontal Cladding
Colour: Pure Grey
RAL 000 55 00
Colorcoat Prisma

Office Composite Panels:



Composite Panels
Colour: Anthracite
RAL 7016
Colorcoat Prisma

Timber Panels:



Timber Panels
Colour: Timber

Main Wall Vertical Cladding:



Vertical Cladding
Colour: Anthracite
RAL 7016
Colorcoat Prisma



Vertical Cladding
Colour: Pure Grey
RAL 000 55 00
Colorcoat Prisma

Feature Banding and Panelling:



Feature Banding
Colour: Alaska Grey
RAL 7000
Colorcoat Prisma

Roof Cladding:



Cladding Panels
Colour: Heritage Green
RAL 6002
Colorcoat Prisma

Option 3

External View



Pixelated Horizontal Cladding:

- 
Horizontal Cladding
 Colour: Goosewing Grey
 RAL 080 70 05
 Colorcoat Prisma
- 
Horizontal Cladding
 Colour: Alaska Grey
 RAL 7000
 Colorcoat Prisma
- 
Horizontal Cladding
 Colour: Albatross
 RAL 240 80 05
 Colorcoat Prisma
- 
Horizontal Cladding
 Colour: Pure Grey
 RAL 000 55 00
 Colorcoat Prisma
- 
Horizontal Cladding
 Colour: White
 RAL 9010
 Colorcoat Prisma

Aerial View



Office Composite Panels:

- 
Composite Panels
 Colour: White
 RAL 9010
 Colorcoat Prisma

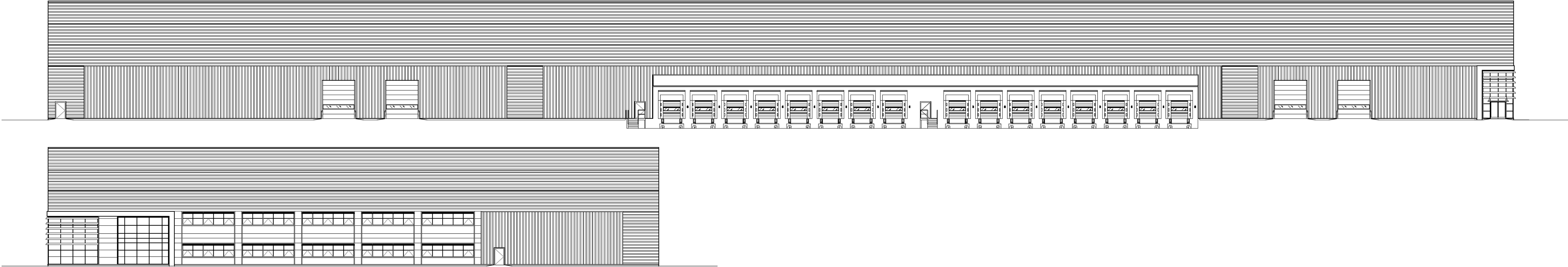
Main Wall Vertical Cladding:

- 
Vertical Cladding
 Colour: Anthracite
 RAL 7016
 Colorcoat Prisma
- 
Vertical Cladding
 Colour: Pure Grey
 RAL 000 55 00
 Colorcoat Prisma

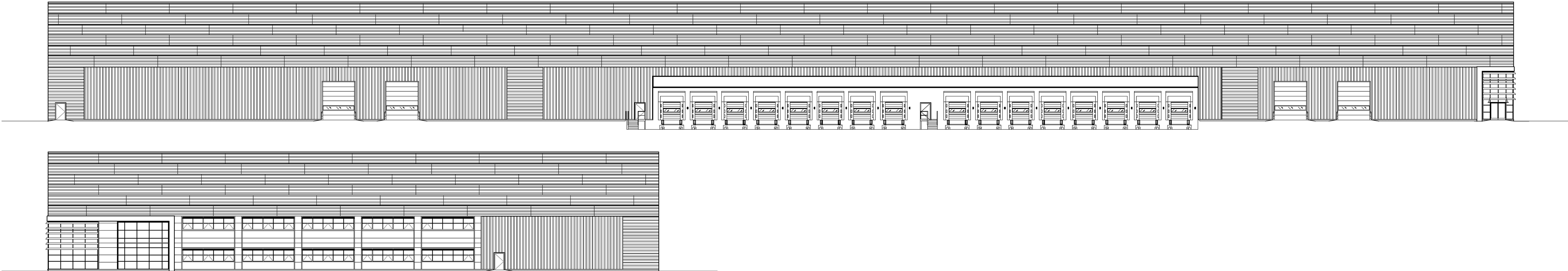
Feature Banding and Panelling:

- 
Feature Banding
 Colour: Alaska Grey
 RAL 7000
 Colorcoat Prisma

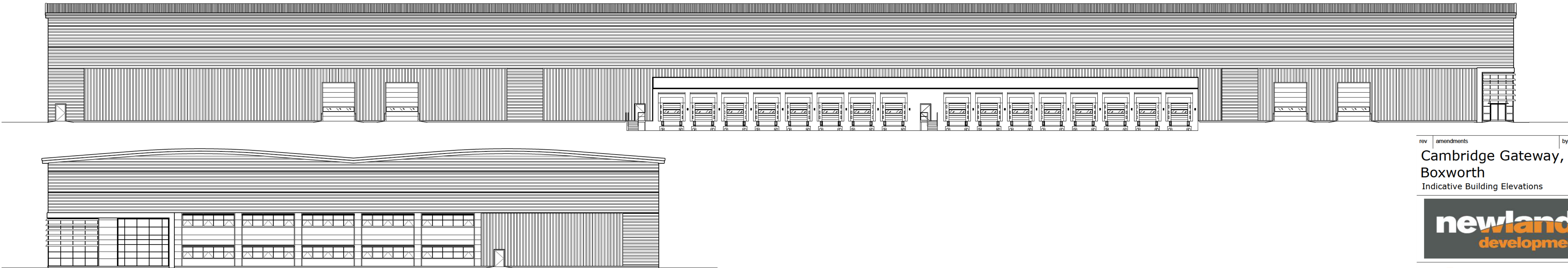
- Dimensions are in millimeters, unless stated otherwise.
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Option 01 - Banded Cladding
15m Building Height



Option 02 - Fragmented Cladding
15m Building Height



Option 03 - Banded Cladding - Griffin Roof
15m Building Height

rev	amendments	by	ckd	date
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Cambridge Gateway,
Boxworth
Indicative Building Elevations



Newark Beacon Innovation Centre, Cafferata Way, Newark, Nottinghamshire NG24 2TN
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Drawing Status:	Feasibility
Drawn / Checked:	DF / MDS
Date:	27/06/2023
Scale:	1:250 A1
Drawing no:	Revision:
19260 F0052	B

5m SCALE 1:250