Updated cumulative

Existing

3462_2601

Proposed

24 London Bridge: upstream - at the City of London bank

Updated cumulative

3462_1501

Existing

Proposed

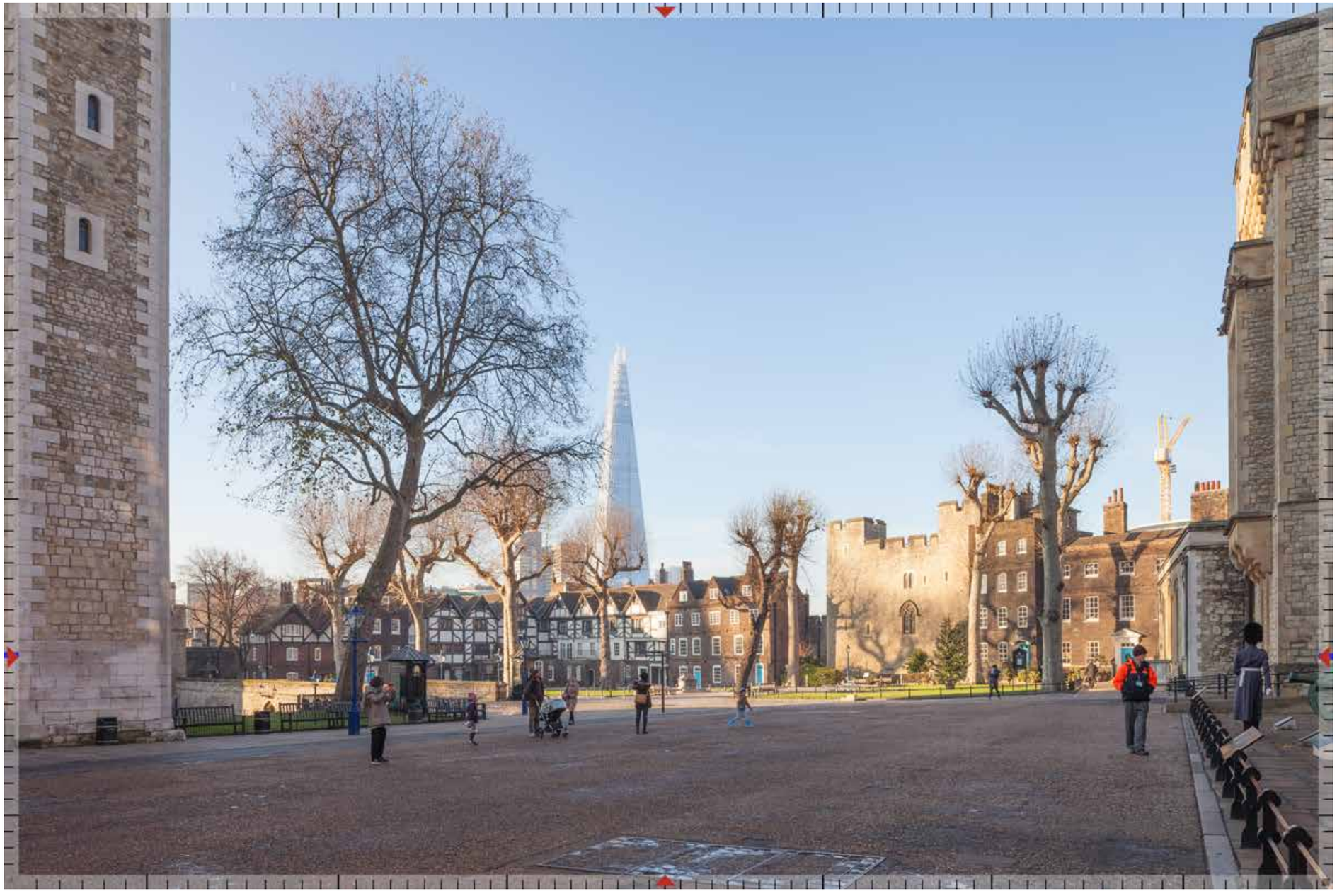
25 Old Billingsgate Walk

Updated cumulative

Existing

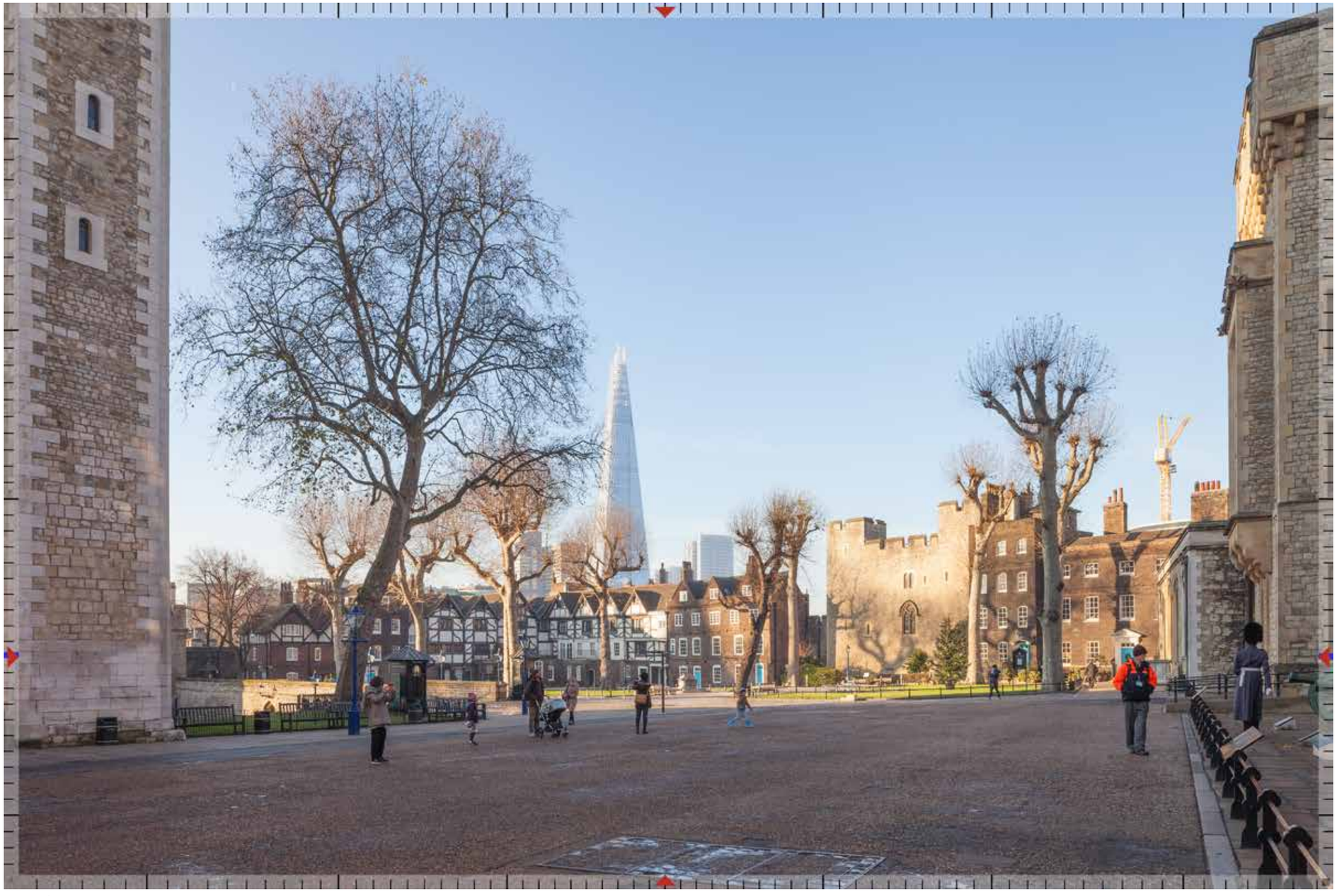
Proposed

Updated cumulative



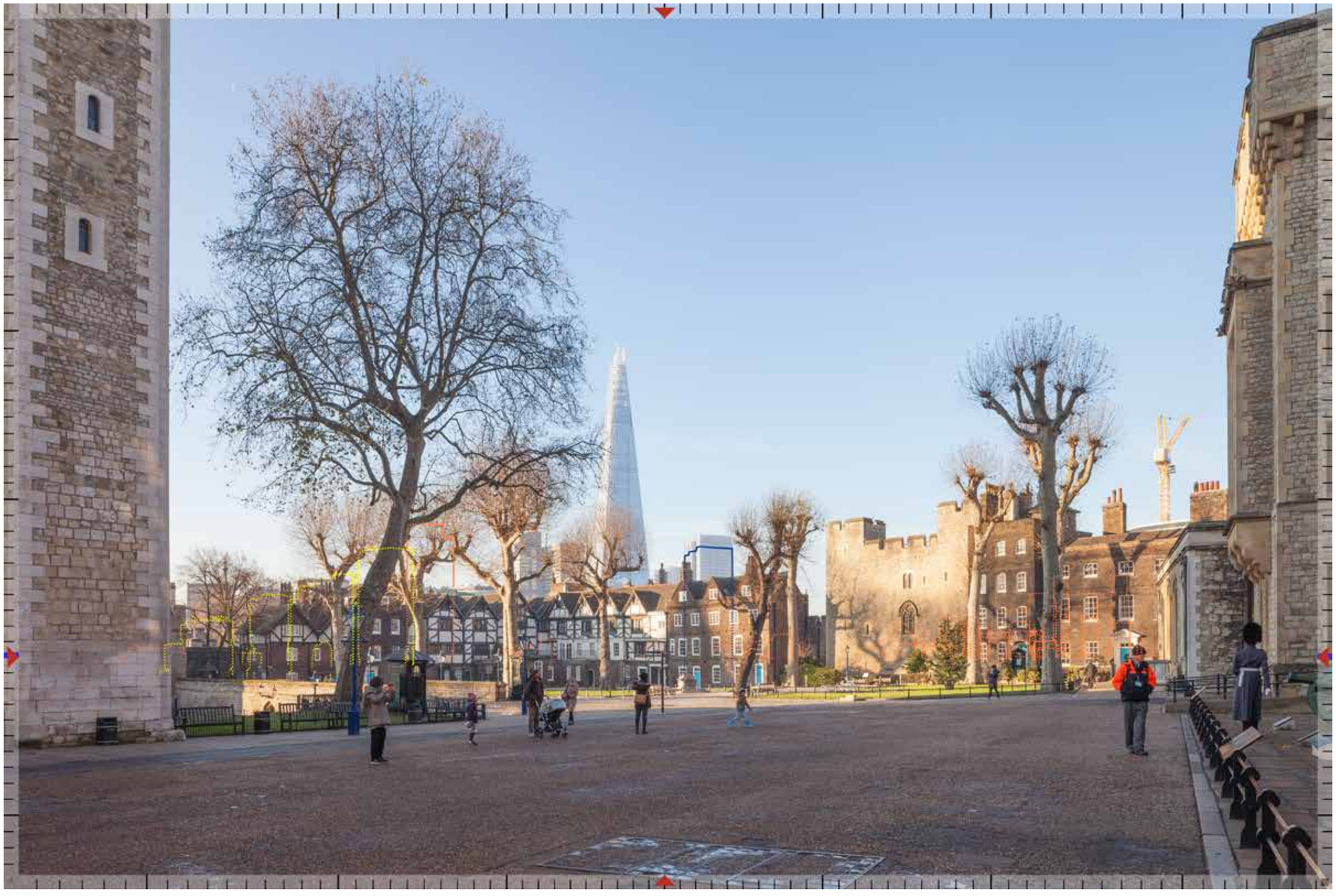
3462_3081

Existing

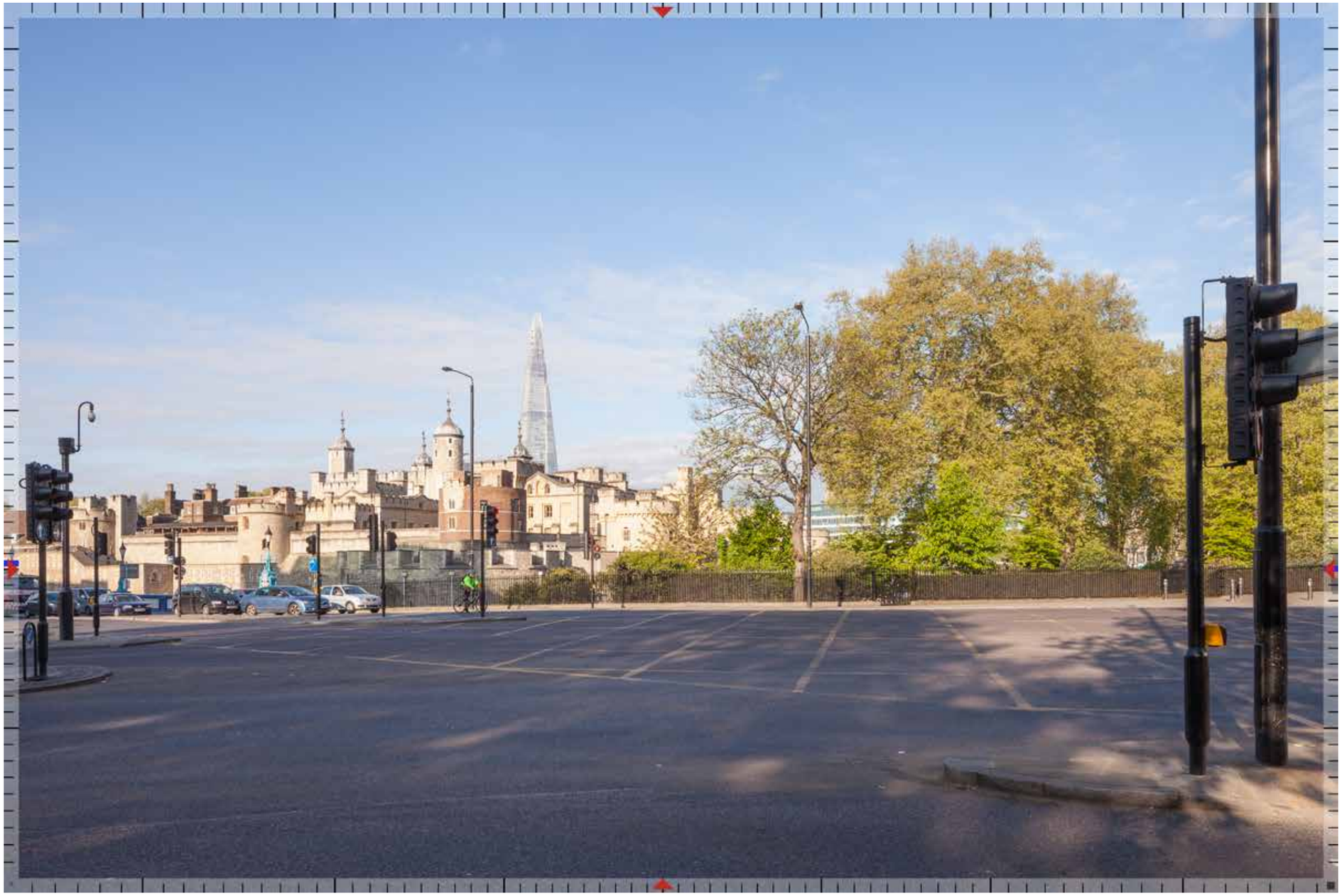


Proposed

27 Tower of London: Inner Ward, north of the White Tower

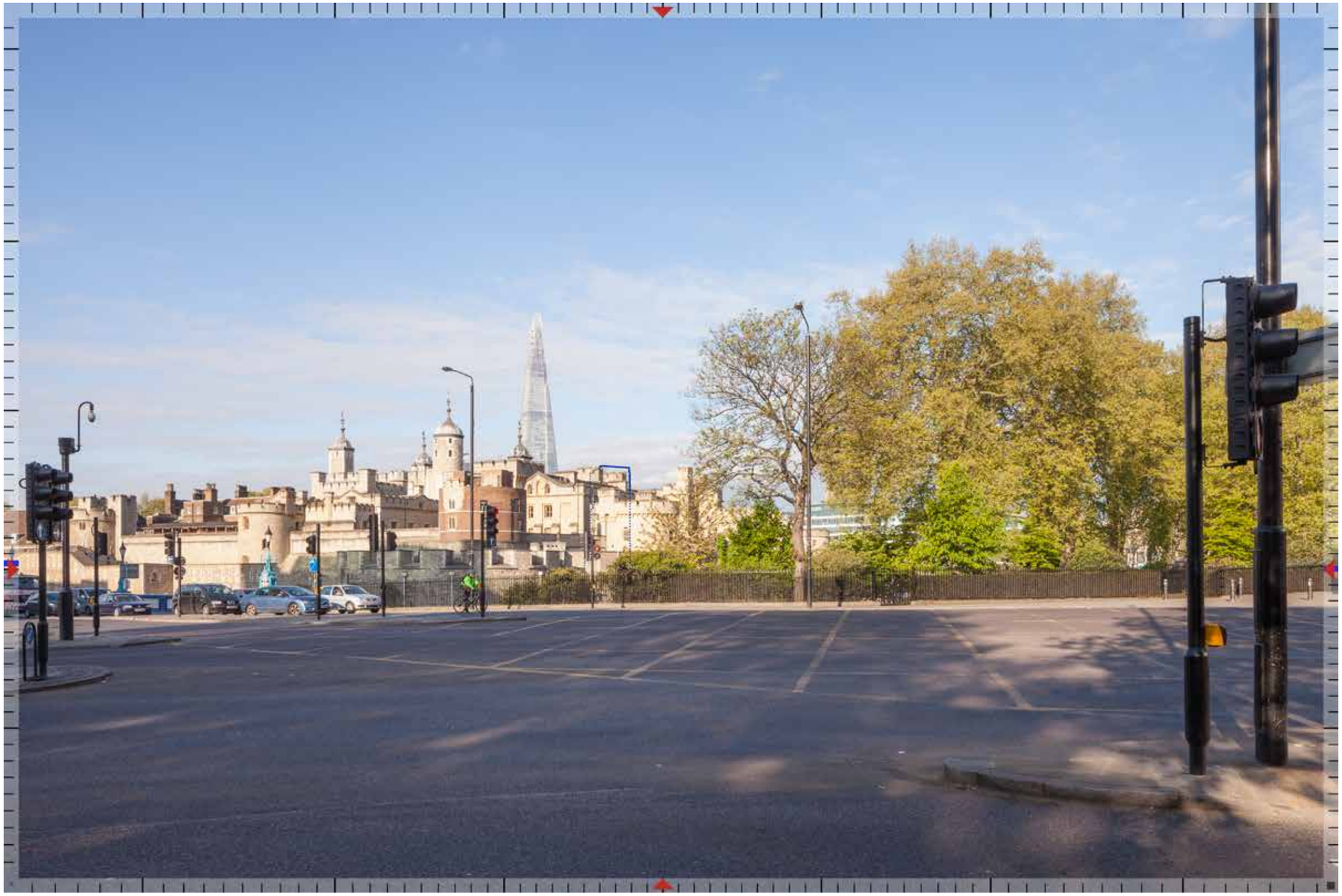


Updated cumulative



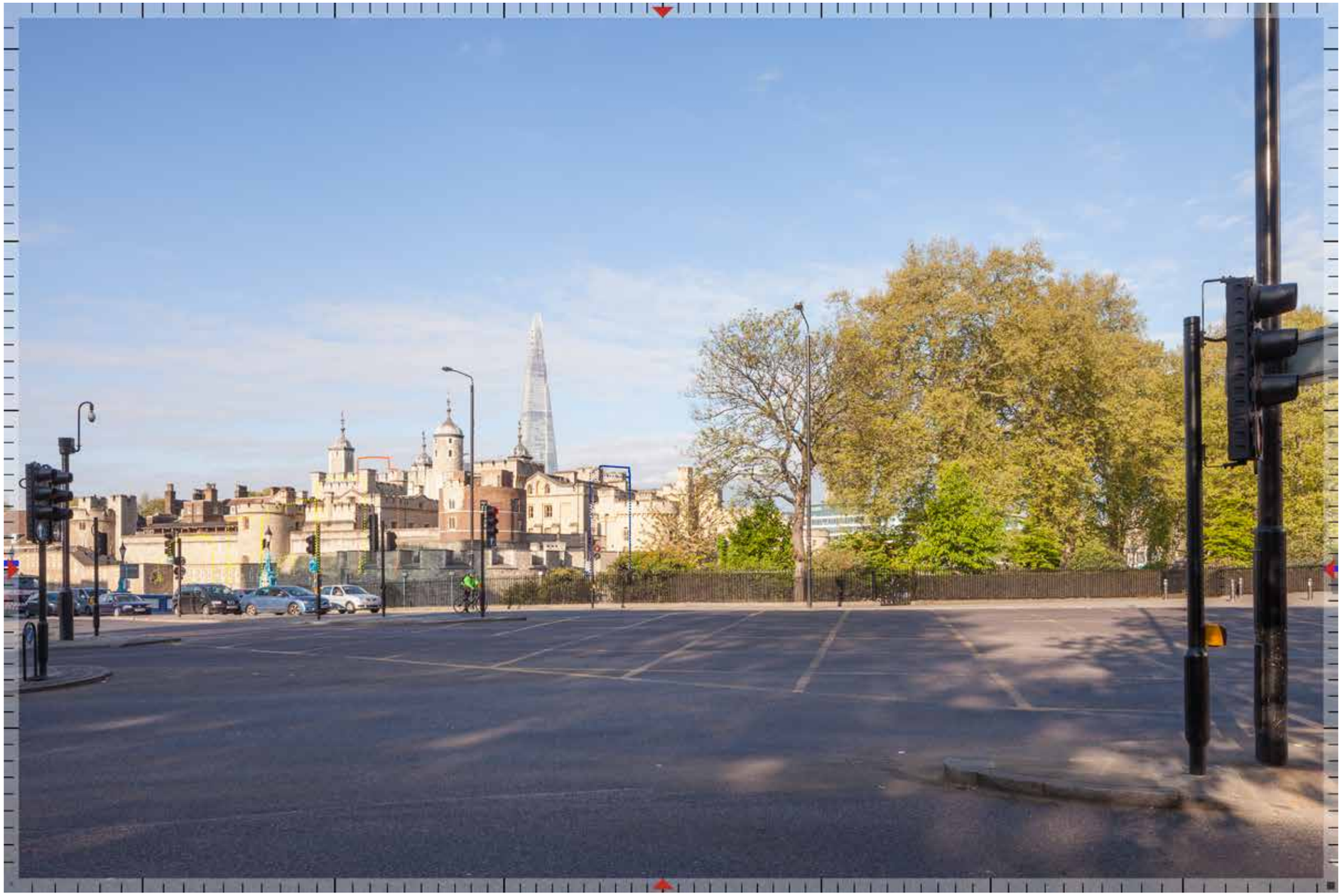
3462_0931

Existing



Proposed

29 Tower of London Local Setting Study View 8: The Royal Mint



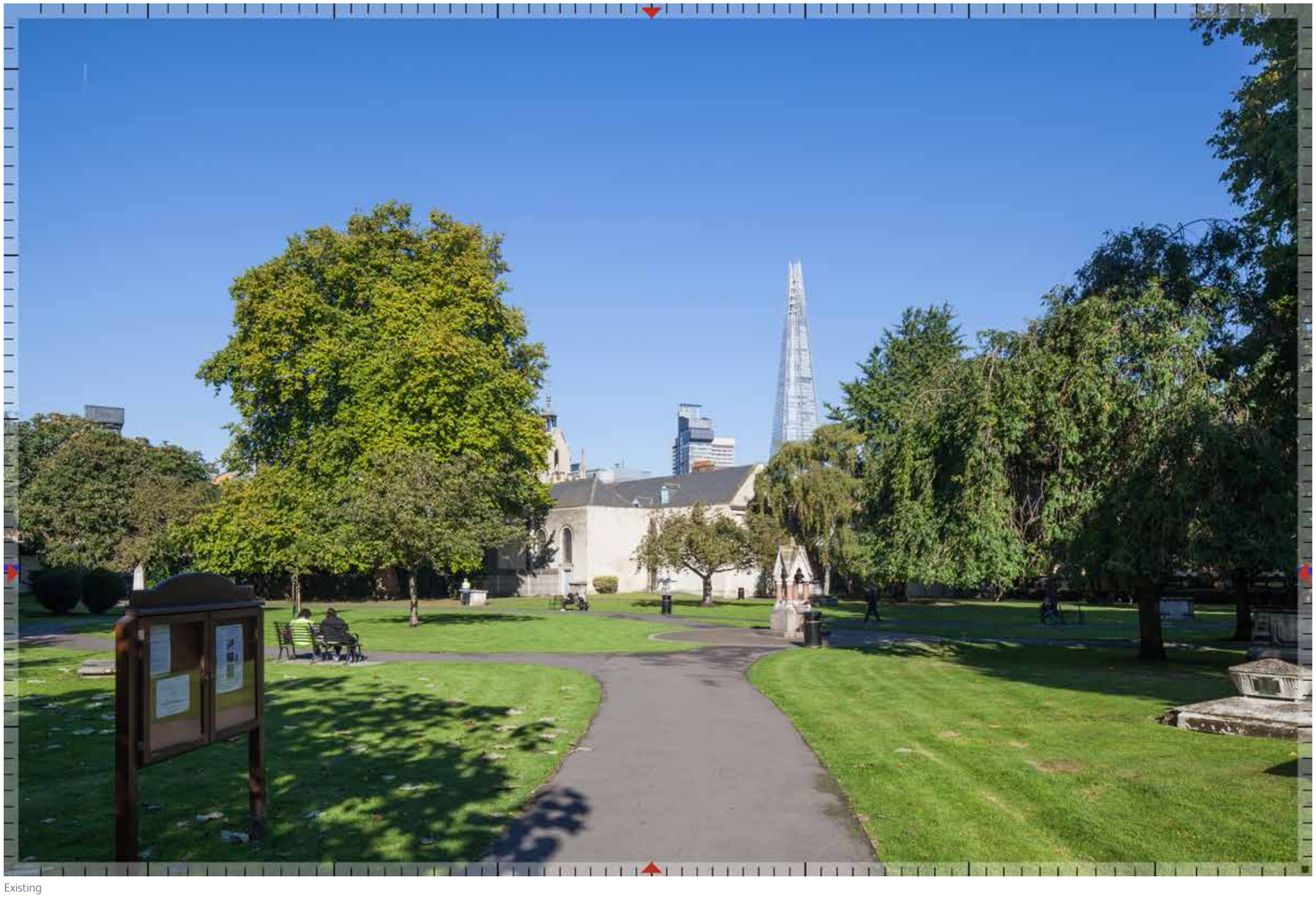
Updated cumulative

Existing

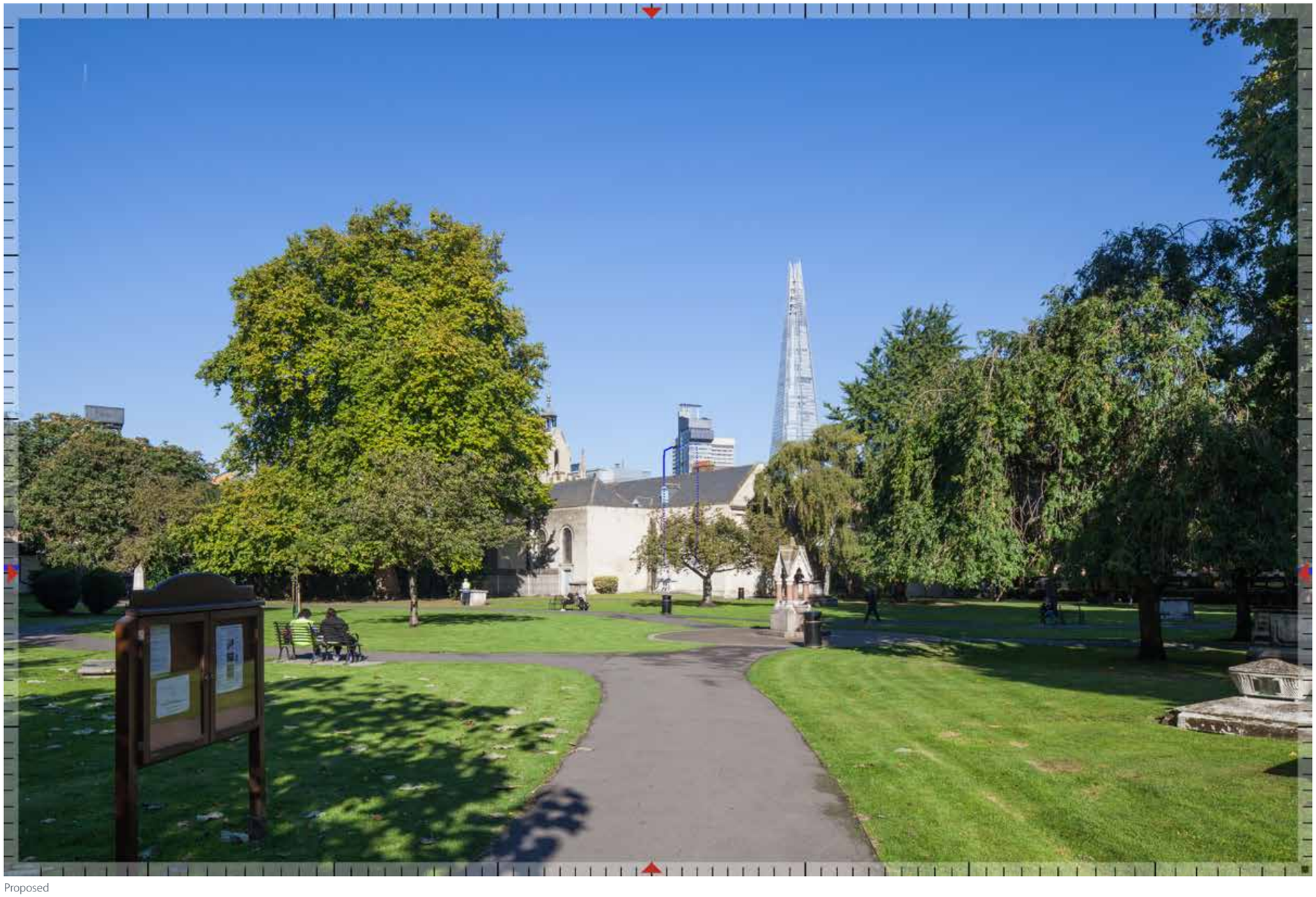
Proposed

31 Tower Bridge Road / Queen Elizabeth Street

Updated cumulative

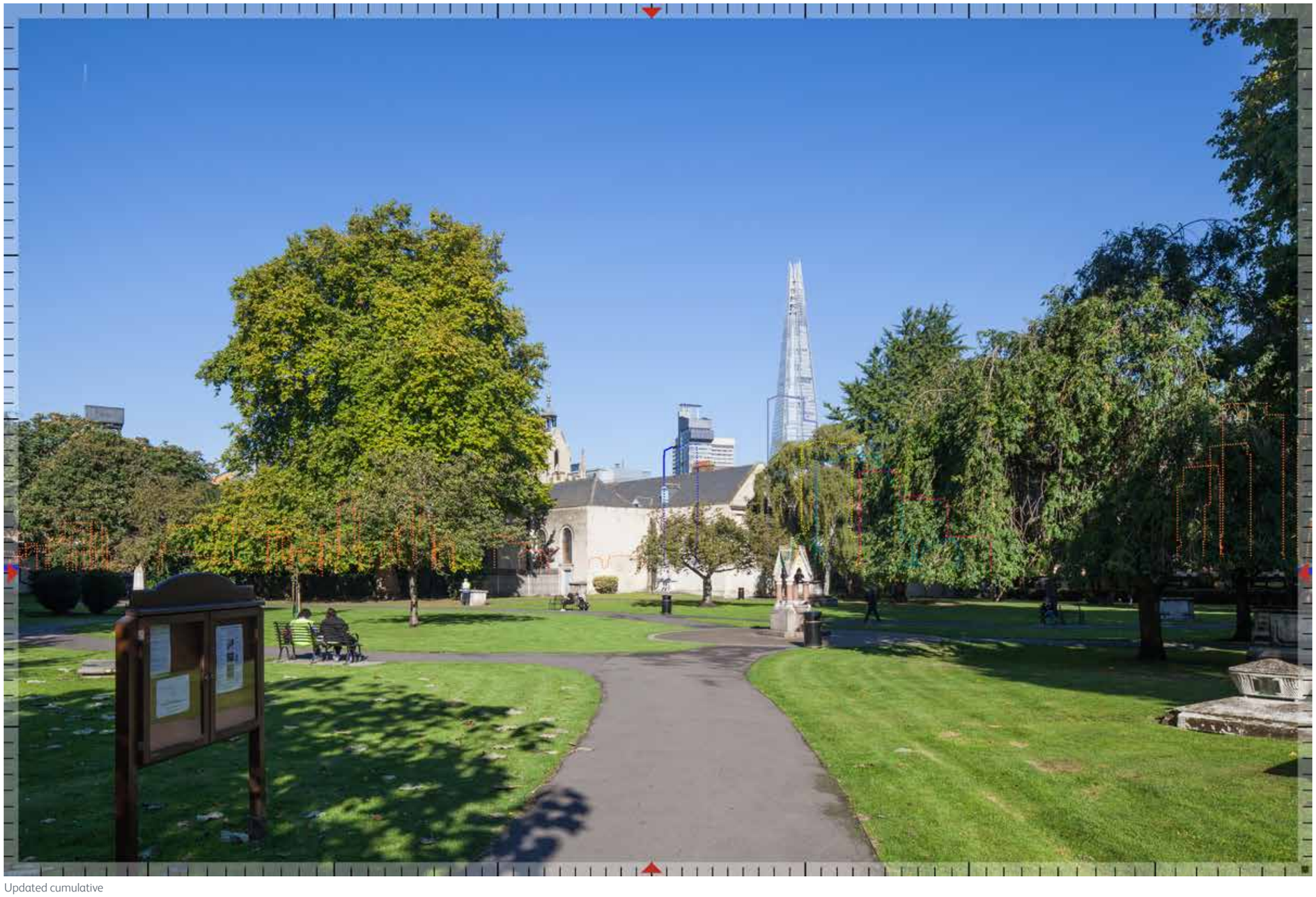


Existing



Proposed

32 Saint Mary Magdalen Churchyard



Updated cumulative

3462_1441

Existing

Proposed

33 Leathermarket Gardens

Updated cumulative

3462_5301

Existing

Proposed

34 Weston Street / Guy Street

Updated cumulative

3462_1421

Existing

Proposed

35 Tabard Gardens

Updated cumulative

3462_2821

Existing


RG SCALES
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Printing & Binding Finishing
0845 345
SOUTHWARK BRIDGE ROAD
CS1
3462_2825

Proposed

37 Southwark Bridge Road outside no.92

Updated cumulative

3462_2831

Existing

Proposed

38 Red Cross Garden (middle)

Updated cumulative

3462_2101

Existing

Proposed

41 Southwark Street / Southwark Bridge Road

Updated cumulative

3462_2401

Existing

Proposed

52 St Thomas Street, outside St. Thomas' Church

Updated cumulative

Existing

3462_1901

3462_1905

Proposed

53 Bedale Street / Borough Market

3462_1906

Updated cumulative

Existing

3462_2001

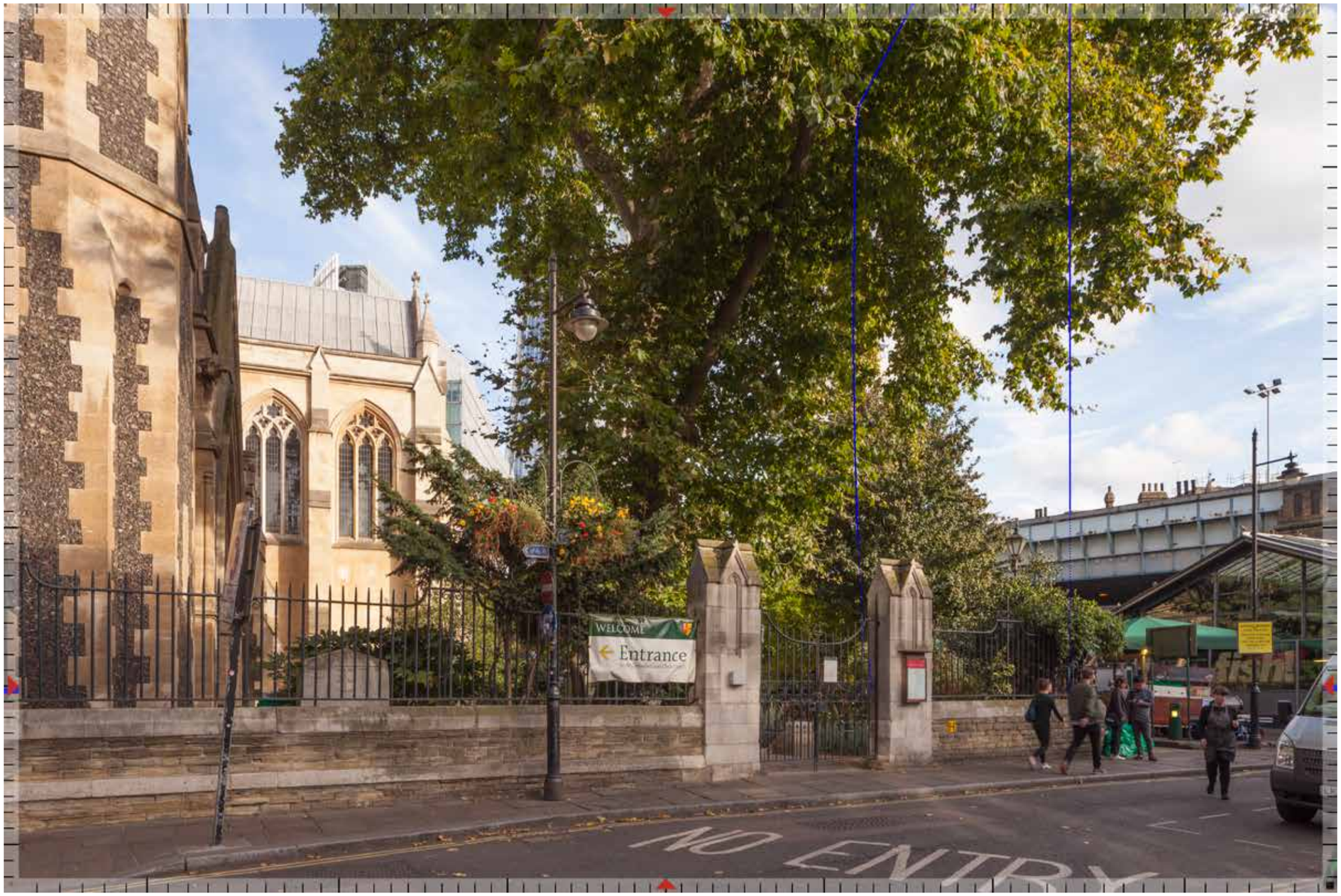
3462_2005

Proposed

3462_2006

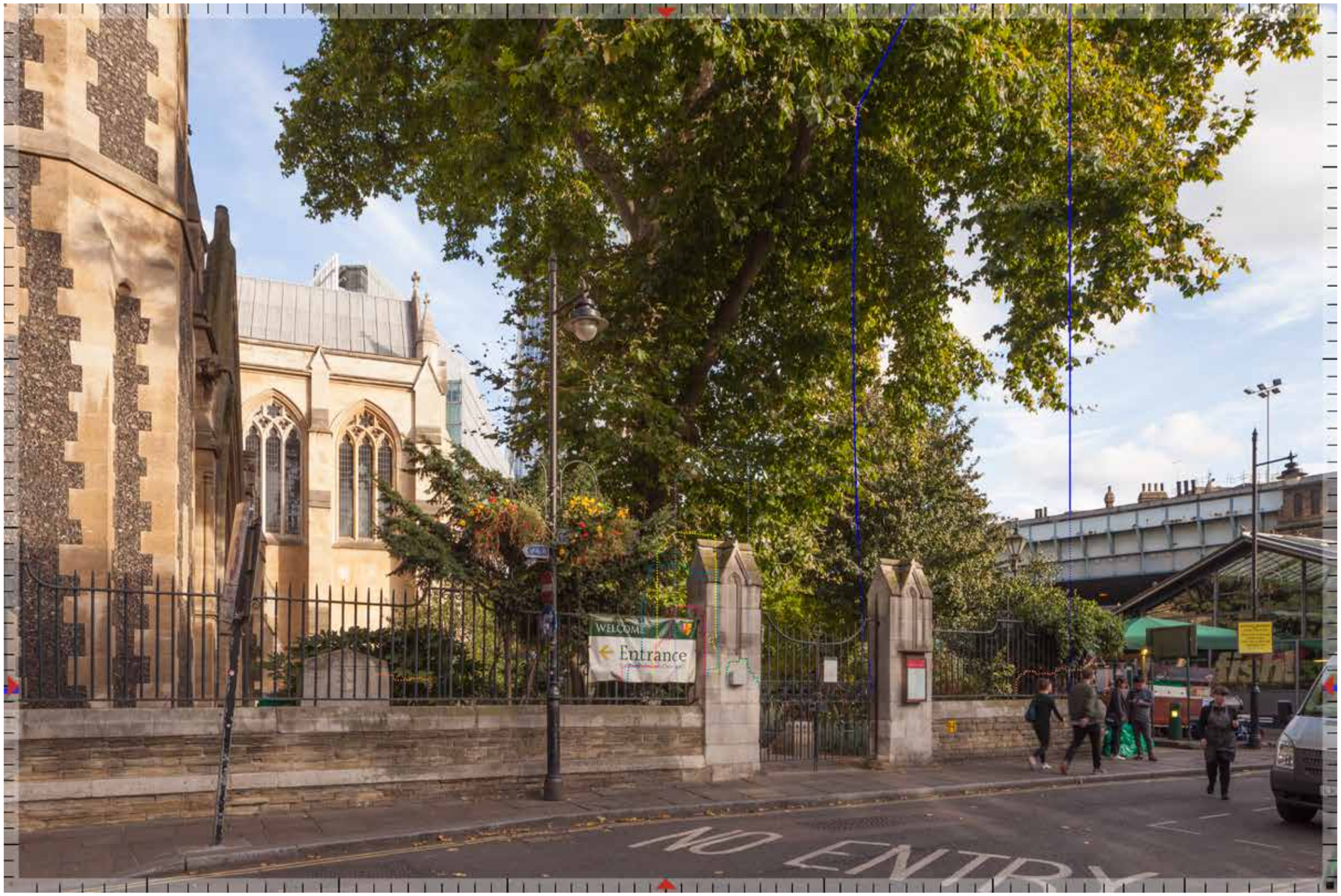
Updated cumulative

Existing



Proposed

55 Cathedral Street / Winchester Walk



Updated cumulative

3462_2521

Existing

Proposed

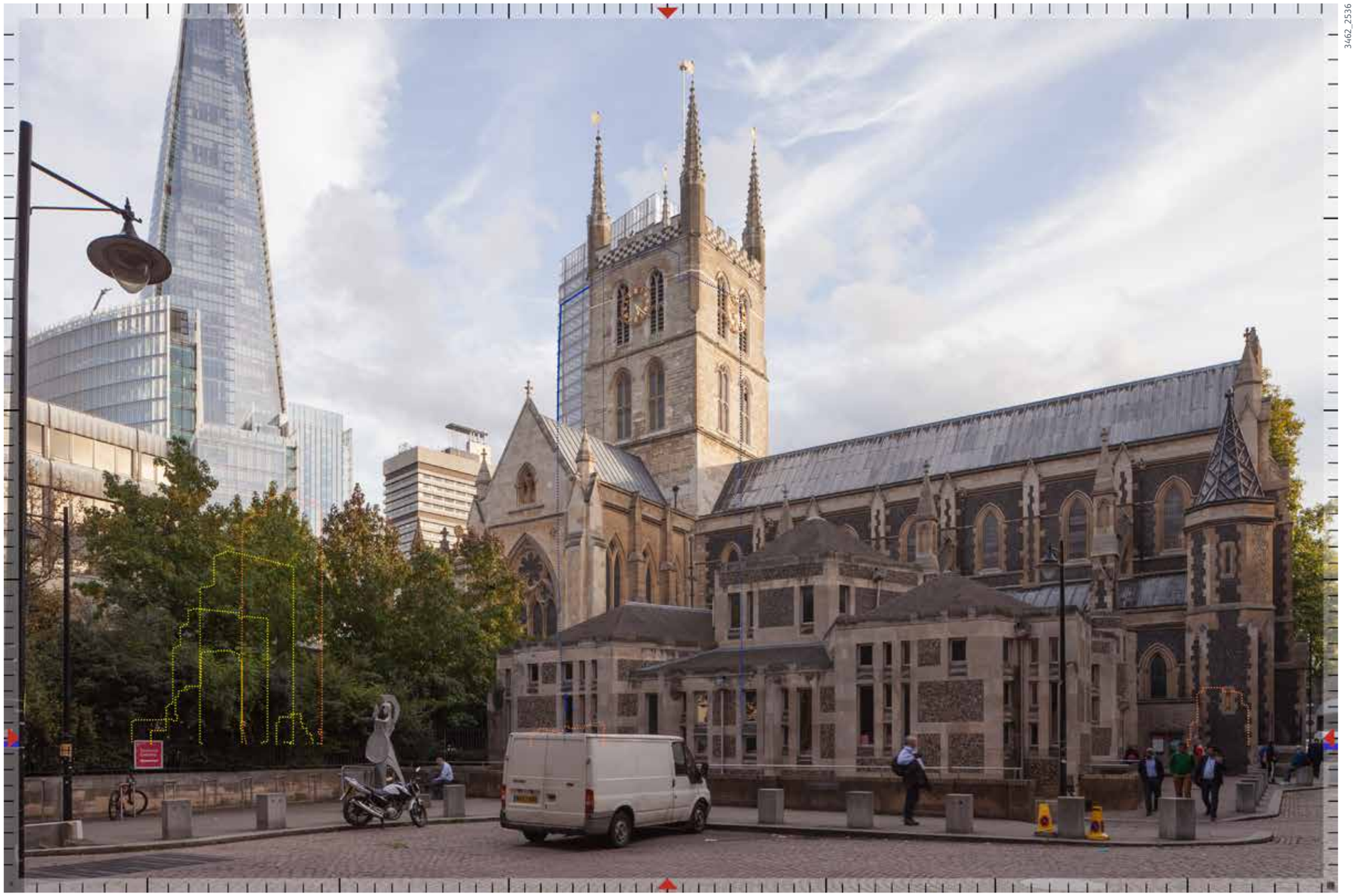
56.2 Southwark Cathedral | north-west corner 1

Updated cumulative

Existing

Proposed

56.3 Southwark Cathedral | north-west corner 2



Updated cumulative

3462_3601

Existing

3462_3605

Proposed

56.6 Southwark Cathedral: Millennium Courtyard | Panorama

3462_3606

Updated cumulative

Existing

3462_2701

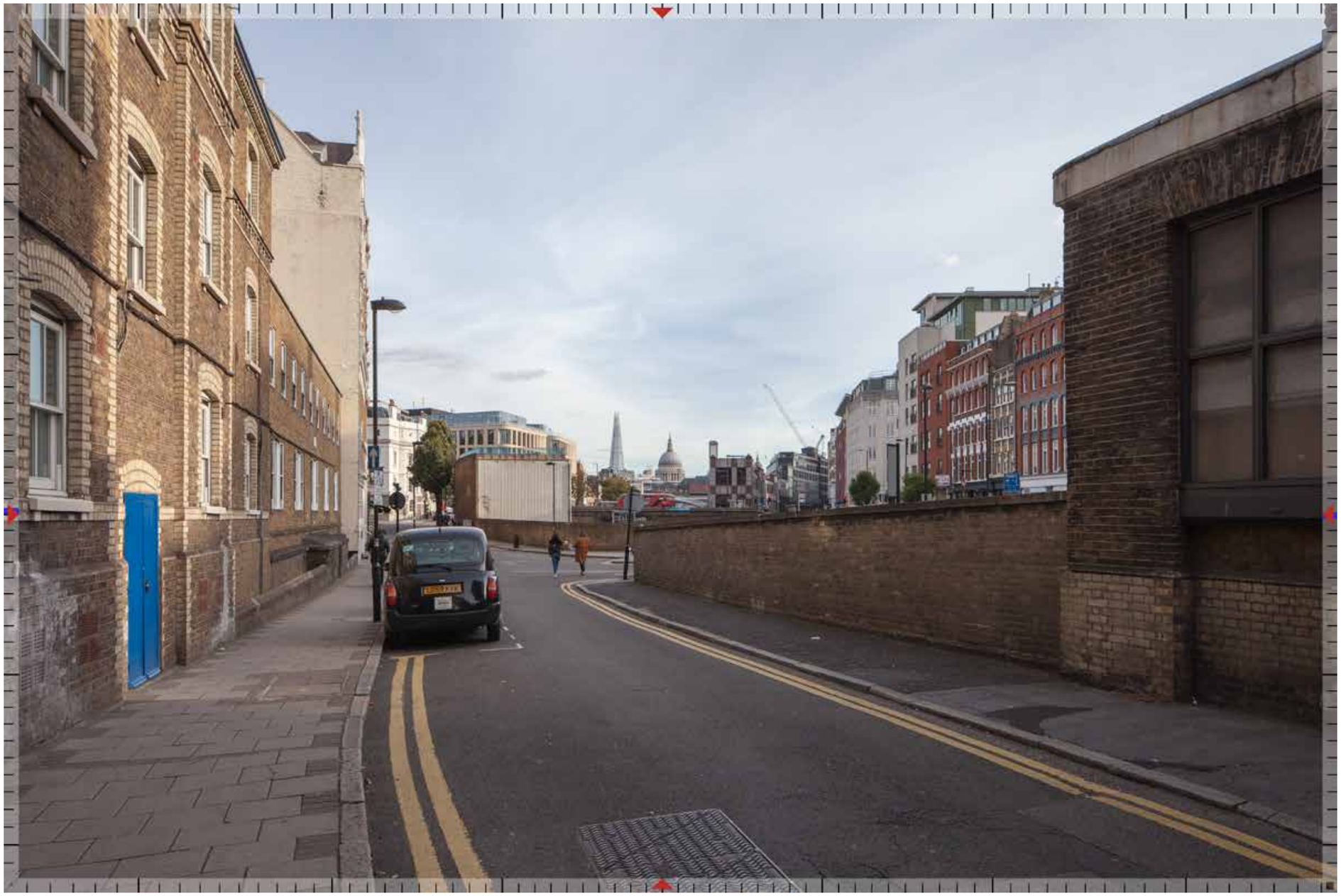
3462_2705

Proposed

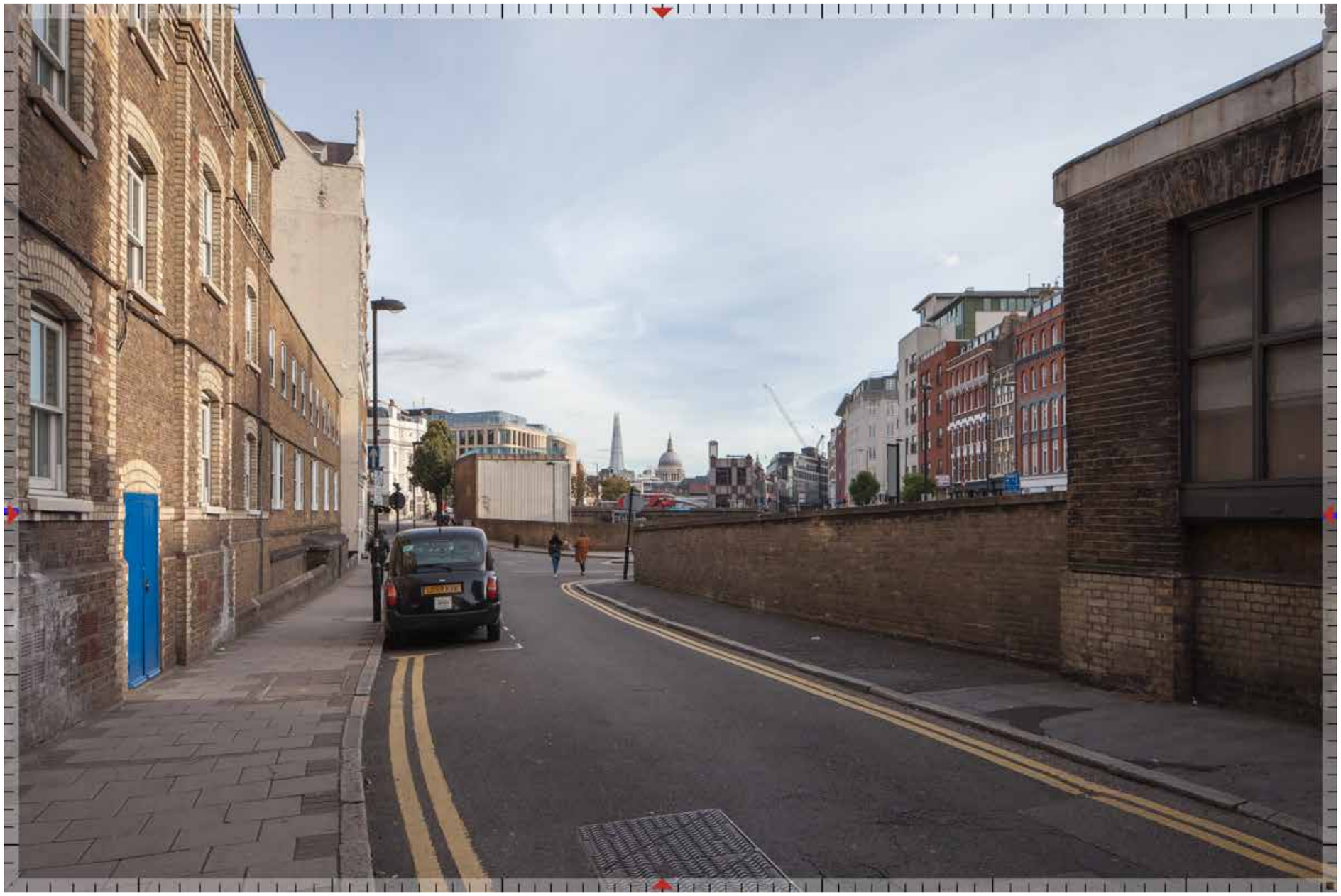
57 London Bridge, outside Glazier's Hall

3462_2706

Updated cumulative

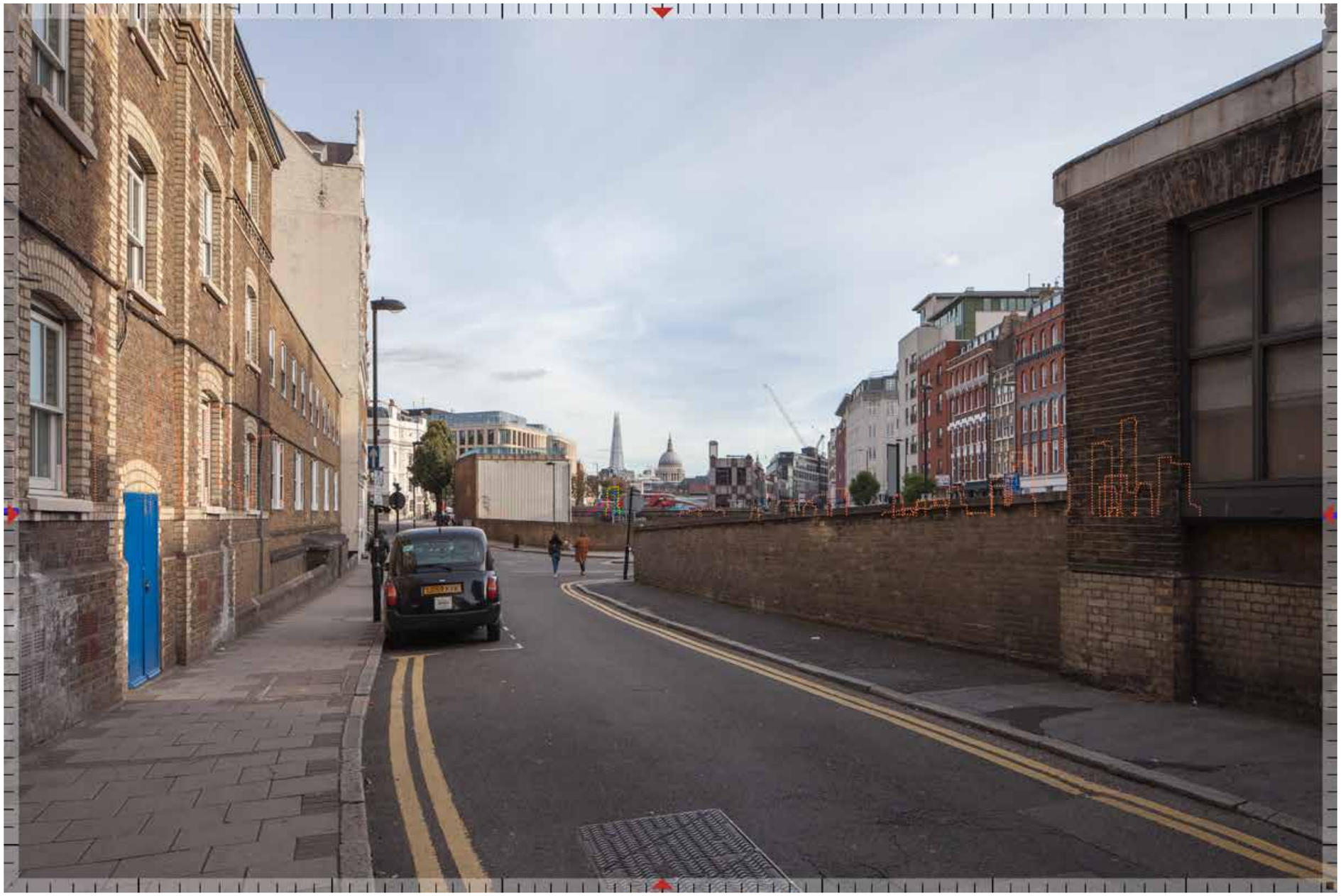


Existing



Proposed

58 Islington Local View 4: Farringdon Lane, near Ray Street Bridge



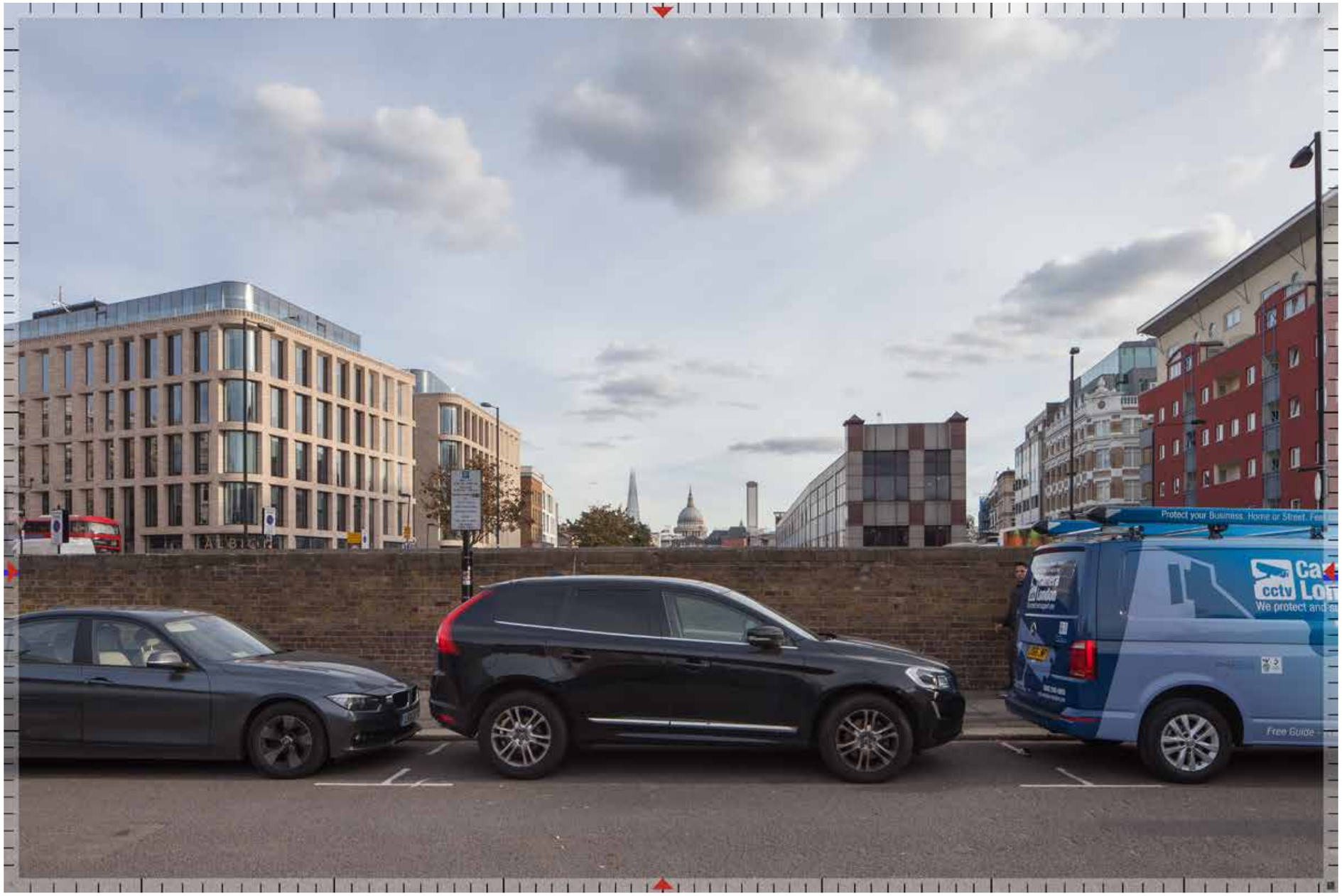
Updated cumulative

Existing

Proposed

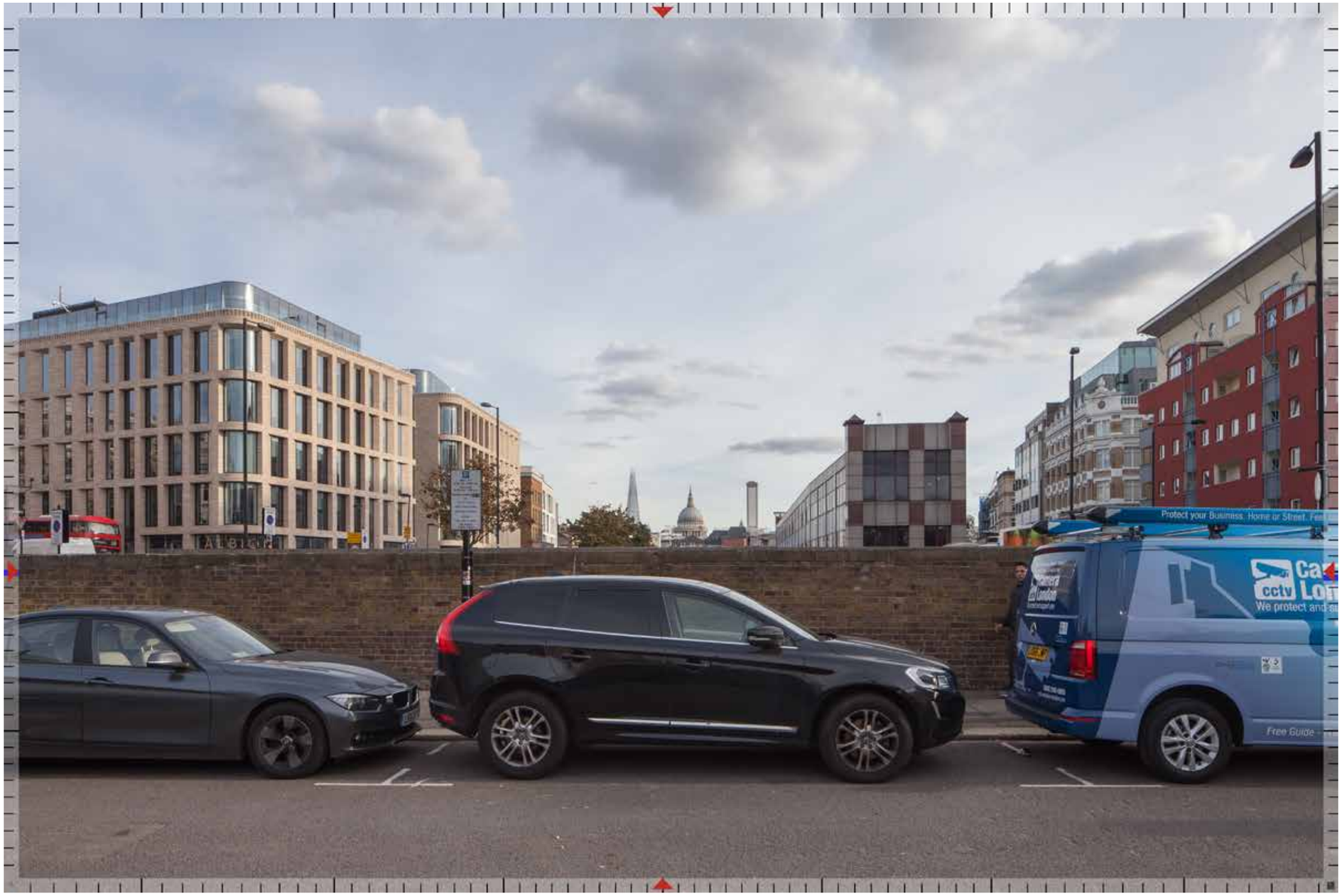
59 Ray Street Bridge, corner with Farringdon Lane

Updated cumulative


3462_1321
Protect your Business, Home or Street. Free
cctv
We protect and
Free Guide

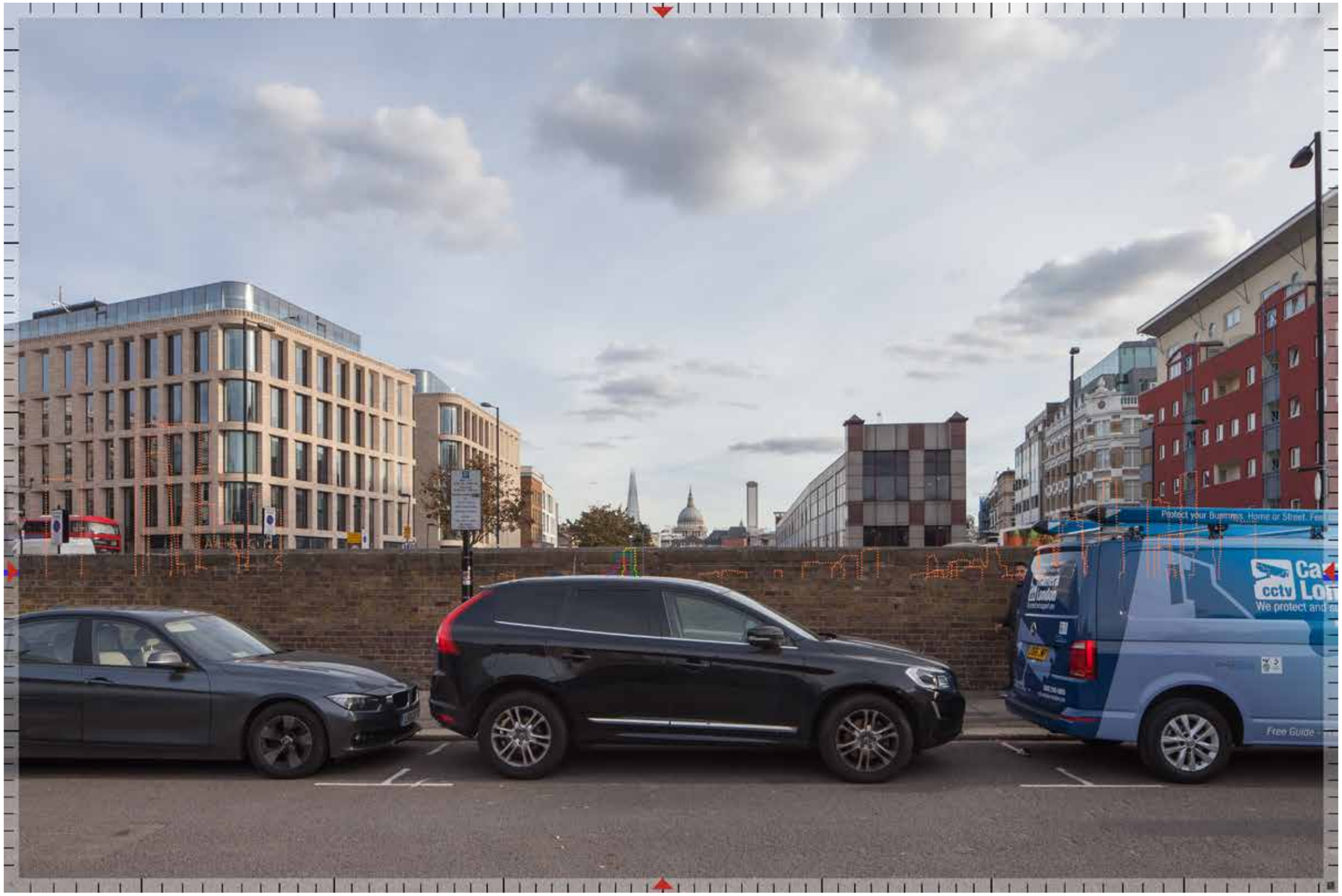

Clerkenw

Existing


3462_1325
Protect your Business, Home or Street. Fast
cctv
We protect and
Free Guide

Proposed

60 Islington Local View 3: Vine Street Bridge



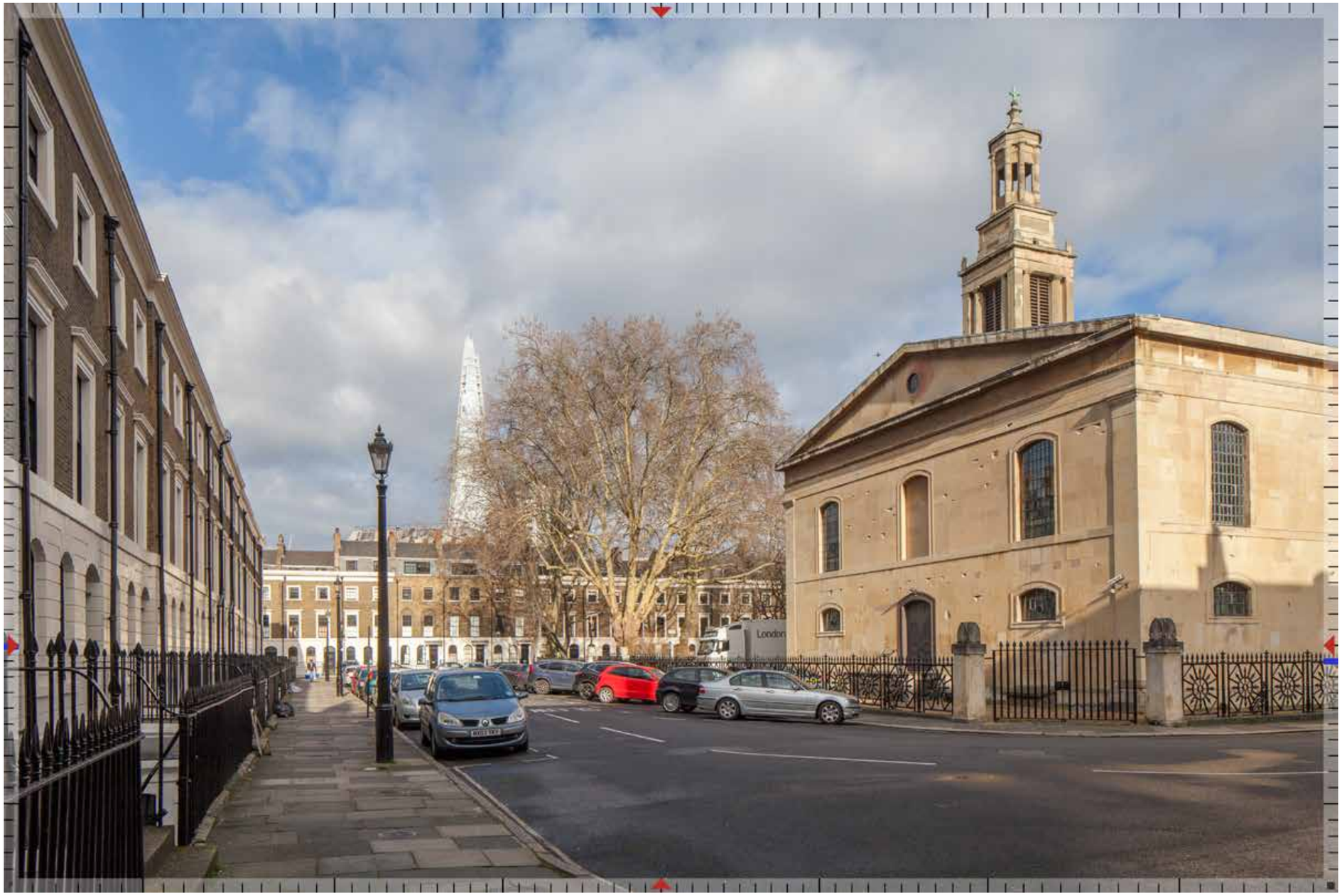
Updated cumulative

Existing

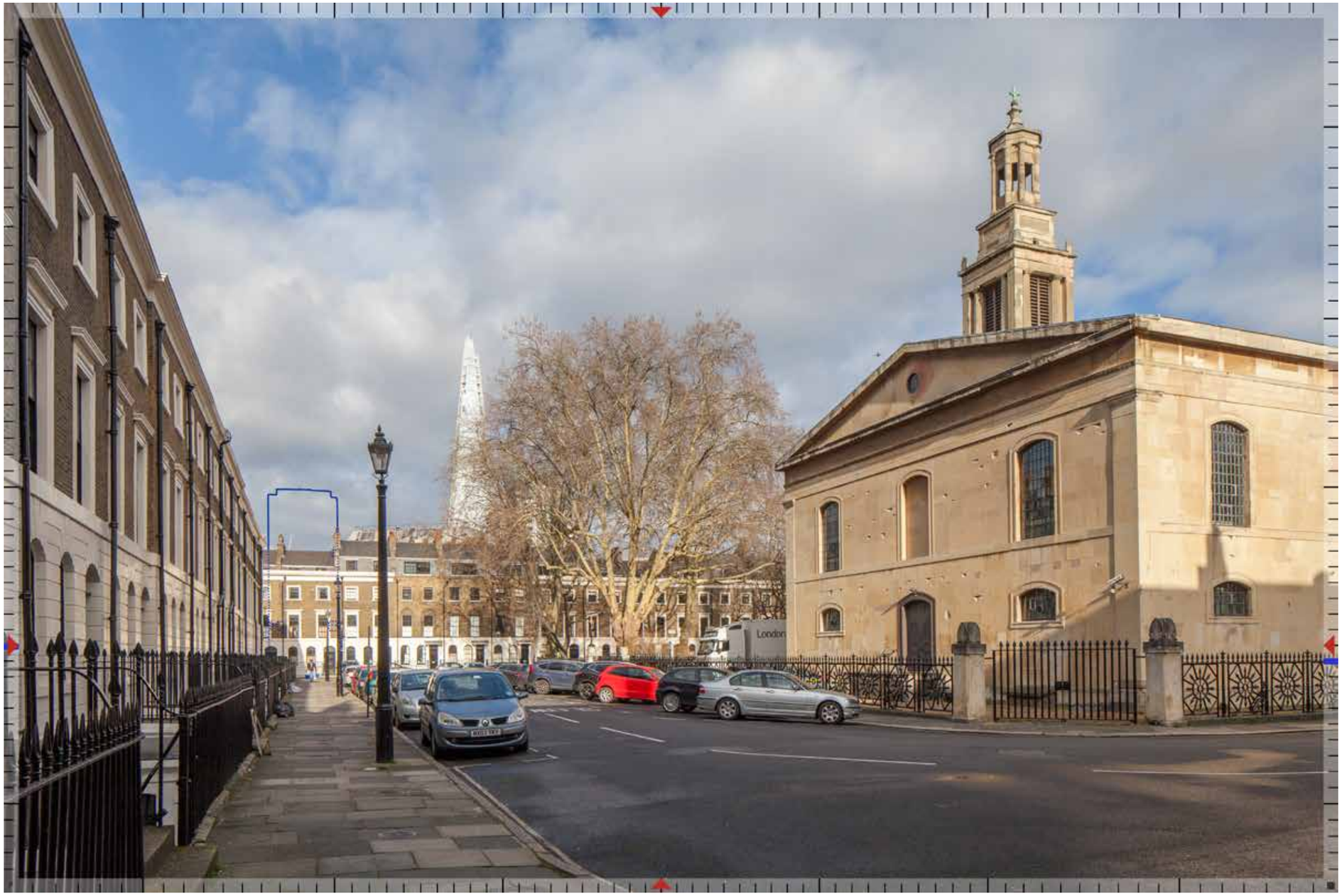
Proposed

61 Islington Local View 1: Clerkenwell Road, bridge across Farringdon

Updated cumulative

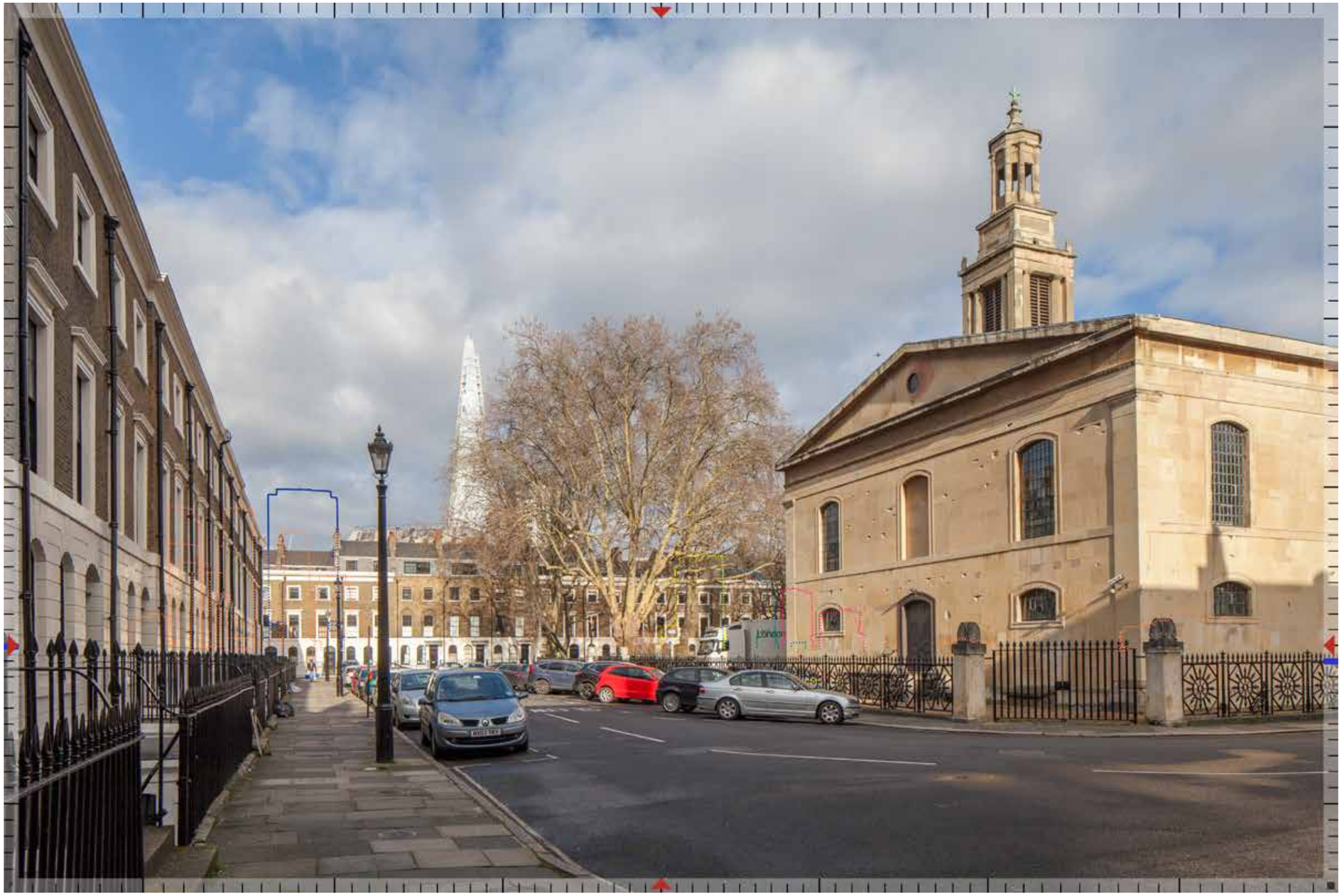


Existing



Proposed

62 Trinity Church Square, south-west corner



Updated cumulative

Views Assessment

2.7 Chapter 5 of the December 2018 TVIBHA set out a description and assessment of the effect of the Development 'as proposed' and 'as proposed with cumulative schemes' for the 67 views contained in that document. As noted in Chapter 1 of this Addendum, no material changes to the Development have been made to date or are currently anticipated that would impact on our assessment. The assessment of the effect of the Development 'as proposed' remains as presented in the December 2018 TVIBHA.

2.8 The effect of the Development has been assessed under the revised cumulative condition, taking into account the additional cumulative schemes.

2.9 The methodology for the assessment is as set out in the December 2018 TVIBHA. As set out at paragraph 3.47 of the TVIBHA, the approach to cumulative assessment is to focus on the additional effects of the Development on top of the cumulative 'future baseline' formed by consented/submitted schemes (i.e. as if the schemes were in place).

2.10 These views demonstrate that, where visible, the additional schemes illustrated in this revised cumulative condition would be seen to represent an eastward extension to, and consolidation of, the existing grouping of large scale and tall modern buildings around London Bridge Station that form the 'foothills' to The Shard.

2.11 Taking into account the additional cumulative schemes, the significance of effect of the Development on the views assessed in the December 2018 TVIBHA would remain as set out in the cumulative assessment carried out in that TVIBHA.

Townscape Assessment

2.12 In terms of townscape, taking into account the additional cumulative schemes illustrated in the preceding views, the significance of effect on townscape would remain as set out in the December 2018 TVIBHA. The effects on the individual TCAs are as follows.

Townscape Character Area 1 – Bankside, Borough and Potters Fields

2.13 The additional cumulative schemes all lie within this TCA. The effect of the Development, under the revised cumulative condition, would bring about a change of **moderate to major** magnitude to a TCA of **medium to high** sensitivity. The significance would be **moderate to major**. The effect would be **beneficial**.

2.14 The effect is at local to regional level and long term.

Townscape Character Area 2 – Newington

2.15 There would be a change of minor magnitude to a TCA of **low to medium** sensitivity. The significance would be **minor**. The effect would be **neutral**.

2.16 The effect is at district level and long term.

Townscape Character Area 3 – Bermondsey

2.17 There would be a change of **minor** magnitude to a TCA of **low to medium** sensitivity. The significance would be **minor**. The effect would be **neutral**.

2.18 The effect is at local to district level and long term.

Townscape Character Area 4 –Tower

2.19 There would be a change of **insignificant to minor** magnitude to a TCA of **high** sensitivity. The significance would be **minor**. The effect would be **neutral**.

2.20 The effect is at regional level and long term.

Townscape Character Area 5 – North Bank

2.21 There would be a change of **minor to moderate** magnitude to a TCA of **medium to high** sensitivity. The significance would be **moderate**. The effect would be **neutral**.

2.22 The effect is at regional level and long term.

Built Heritage Assessment

2.23 With regard to heritage receptors, the effect of the Development on built heritage assets in the context of the revised cumulative condition would be the same as that set out for the Development considered on its own, as assessed in the December 2018 TVIBHA.

3 Mitigation Measures and Likely Residual Effects

3.1 Mitigation measures and likely residual effects for the Development would remain as stated in chapters 6 and 13 of the December 2018 TVIBHA.

4 Conclusions

4.1 The conclusions of the December 2018 TVIBHA remain valid for the purposes of this updated cumulative assessment. As stated in para.6.22 of that assessment *'the Development would transform the Site from a disparate collection of buildings, varied in quality, into a major new development in which the best buildings are retained, a major and substantial new building of high quality is added, and the buildings are brought together into a coherent whole with a significant new contribution to the public realm of the conservation area which provides useful new routes and connections, and a variety of new landscaped spaces open to all. The Development would encourage more use and enjoyment of Kings Head Yard, benefitting the conservation area in which it lies. The Development's office tower would be at a height and scale that would reflect the landmark significance of the Site at the intersection of Borough High Street and St Thomas Street, in close proximity to London Bridge Station. It would take advantage of the townscape opportunities offered by the Site, to the benefit of the local and wider area around it'.*

Views

4.2 The December 2018 TVIBHA noted at para. 7.5 that *'Cumulative development submitted for planning approval at Bankside Yards East and West would change the significance of effect in view 16 from 'minor/insignificant' to 'no effect'. Cumulative development at ITV Studios would change the significance of effect in view 17 from 'minor/insignificant' to 'no effect'. Cumulative development at Doon Street would change the significance of effect in view 18 from 'moderate' to 'minor/insignificant'. Cumulative development at Doon Street and Friars Bridge Court would change the significance of effect in view 19 from 'moderate' to 'minor to moderate'. In all remaining views the significance of effect is unaffected by cumulative development'.* The above statement would also apply to the revised cumulative condition.

Townscape

4.3 The December 2018 TVIBHA noted at para 7.6 *'With regard to TCAs, the overall effect of the Development taking into account cumulative schemes would be unchanged compared to that of the Development considered on its own (as set out in Table 3-2 above), as the visibility, townscape and urban design effects of the Development would not be altered sufficiently by the presence of cumulative schemes to change the overall effect of the Development in respect of each TCA'.* The above conclusions would also apply to the Development under the revised cumulative scenario.

Built Heritage

4.4 The December 2018 TVIBHA noted at para 14.3 that *'With regard to heritage receptors, the effect of the Development on each asset or group of assets in the context of cumulative schemes would be the same as that set out for the Development considered on its own'*. This conclusion would also apply under the revised cumulative scenario.

Appendices

A1 Millerhare's technical notes on the Views

Scope

A1.1 This study tests the visual impact of the Development by GPE (St Thomas Street) Limited at New City Court, 20 St Thomas St, London SE1 9RS. It consists of a series of accurately prepared photomontage images or Accurate Visual Representations (AVR) which are designed to show the visibility and appearance of the Proposed Development from a range of publicly accessible locations around the Site. The views have been prepared by Miller Hare Limited. The technical methodology is consistent with the original TVIBHA.

A1.2 The views included in the study were selected by the project team and they include, where relevant, standard assessment points defined by the Mayor of London and LB Southwark. Where requested, view locations have been refined and additional views added. The full list of views is shown in thumbnail form on the following pages, together with a map showing their location. Detailed co-ordinates for the views, together with information about the source photography are shown in Appendix A2 "View Locations".

A1.3 In preparing each AVR a consistent methodology and approach to rendering has been followed. General notes on the AVRs are given in Appendix A5 "Accurate Visual Representations", and the detailed methodology used is described in Appendix A6 "Methodology for the production of Accurate Visual Representations".

A1.4 From each viewpoint a large format photograph has been taken as the basis of the study image. The composition of this photograph has been selected to allow the Proposed Development to be assessed in a meaningful way in relation to relevant elements of the surrounding context. Typically, photographs have been composed with a horizontal axis of view in order to allow vertical elements of the proposals to be shown vertically in the resulting image. If required in order to show the full extent of the proposals in an natural way the horizon line of the image has been allowed to fall above or below the centre of the image. This has been achieved by applying vertical rise at source using a large format camera or by subsequent cropping of the image. In a limited number of cases the source photograph has been extended vertically to ensure that the full height of the proposals are shown in the images of the future condition. In all cases the horizon line and location of the optical axis are clearly shown by red arrow markers at the edges of the image.

A1.5 The lenses chosen for the source photography have been selected to provide a useful Field of View given the distance of the viewpoint from the site location. The lenses used for each view are listed in Appendix A2 "View Locations".

A1.6 In this study the following groups of views have been defined using the industry standard definitions:

- **Distant views** – typically with a horizontal Field of View approximately 48 degrees (equivalent to a 35mm lens on 35mm film camera). LVMF views in addition have been shown with their wider setting
- **Mid-distance views** – horizontal Field of View approximately 74 degrees (equivalent to a 24mm lens on 35mm film camera)
- **Local views** – horizontal Field of View approximately 74 degrees (equivalent to a 24mm lens on 35mm film camera)

A1.7 For each AVR image, the precise Field of View, after any cropping or extension has been applied is shown clearly using indexed markings running around the edges of the image. These indicate increments of 1, 5 and 10 degrees marked away from Optical Axis. Using this peripheral annotation it is possible to detect optical distortions in parts of the image away from the Optical Axis . It is also possible to simulate a different field of view by masking off an appropriate area of the image. More detailed information on the border annotation is contained in Appendix A5 "Accurate Visual Representations".

Conditions

A1.8 From each selected viewpoint a set of accurate images have been created comparing the future view with the current conditions represented by a carefully taken large format photograph. In this study the following conditions are compared:

- **Existing** – the appearance today as recorded on the specified date and time
- **Proposed** – the future appearance were the Proposed Development to be constructed
- **Cumulative** – the Proposed Development is shown in the context of other significant schemes considered relevant by the project team

Presentation

A1.9 For each view the AVRs have been presented using a double page layout which facilitates desktop study. The layout shows all conditions at the same size and scale on the page and, wherever possible, the assessment text is placed alongside the view being discussed.

Styles

A1.10 For each viewpoint, the Proposed Development is shown in a defined graphical style. These styles comply with the definitions of AVR style defined by the London View Management Framework. The styles used in this study are:

A1.11 For each viewpoint, the Proposed Development is shown in a defined graphical style. These styles comply with the definitions of AVR style defined by the London View Management Framework. The styles used in this study are:

- **AVR 1** – a wireline representation showing the silhouette of the proposals. Where a part of the silhouette would be visible in the view it is shown in blue, where it would be invisible, as a result of being occluded by existing structures or dense vegetation, it is shown dotted.
- **AVR 3** – a fully rendered representation of the building showing the likely appearance of the proposed materials under the lighting conditions obtaining in the selected photograph.

4.5 The style of each viewpoint was based the team's professional judgement.

Schemes

A1.12 In the Cumulative view, the Proposed Development has been shown in the context of other schemes shown in silhouette form (AVR 1) using coloured lines line. Where parts of these schemes would not be visible they are shown as a dotted line. The details of the additional schemes included in the Cumulative view are given in the schedule and overview map included in Appendix A3 "Details of schemes", these include:

- 185 Park Street
- Tower Bridge Magistrates Court
- Harper Road
- Isis House
- 153-159 Borough High Street
- 175-179 Long Lane
- Lavington Street
- 133 Park Street and 105 Sumner Street
- Southwark Fire Station
- Paris Gardens (2018)
- Bankside Yards East - Sampson House
- Bankside Yards West - Ludgate House
- 1 Bank End
- 18 Blackfriars (2016) - Office Tower
- 18 Blackfriars (2016) - Residential Tower
- Friars Bridge Court
- Wedge House (2015)
- ITV Headquarters
- Doon Street
- Elizabeth House
- 100 Bishopsgate (2012)
- 6-8 Bishopsgate (2017)
- 1 Undershaft
- 100 Leadenhall
- 40 Leadenhall
- 22 Bishopsgate (2016)
- 1 Leadenhall (2018)
- 150 Bishopsgate
- King Place (2018)
- Southbank Place Buildings 1, 2, 3, 4A, 4B, 5, 6 & 7
- Capital House (2018)
- St Thomas Street Wast - Vinegar Yard
- St Thomas Street East - Bermondsey Street & Snowsfield
- Arthouse, 2-4 Melior Place
- St Thomas Street East - Becket House

A1.13 The Proposed Development shown in the study has been defined by drawings and specifications prepared by the client's design team issued to Millerhare in August 2018. Computer models reflecting the Proposed Development have been assembled and refined by Millerhare and images from these models have been supplied to the project team to be checked for accuracy against the design intent. An overview of the study model annotated with key heights is illustrated in Appendix A3 "Details of schemes".

A2 View Locations

1 | LVMF 1A.1 | Alexandra Palace: the viewing terrace - south-western section

Camera Location
National Grid Reference 529611.2E 189963.7N
Camera height 94.61m AOD
Looking at Centre of Site
Bearing 164.4°, distance 10.3km
Photography Details
Height of camera 1.60m above ground
Date of photograph 26/04/2018
Time of photograph 18:15
Canon EOS 5D Mark III DSLR
Lens 40mm

2 | LVMF 1A.2 | Alexandra Palace: the viewing terrace - approaching from the north-eastern car park

Camera Location
National Grid Reference 529702.5E 190064.6N
Camera height 94.00m AOD
Looking at Centre of Site
Bearing 165.2°, distance 10.4km
Photography Details
Height of camera 1.60m above ground
Date of photograph 02/03/2015
Time of photograph 17:20
Canon EOS 5D Mark III DSLR
Lens 35mm

3 | LVMF 2A.1 | Parliament Hill: the summit - looking toward St Paul's Cathedral

Camera Location
National Grid Reference 527665.4E 186131.5N
Camera height 98.10m AOD
Looking at Centre of Site
Bearing 138.7°, distance 7.8km
Photography Details
Height of camera 1.60m above ground
Date of photograph 22/06/2018
Time of photograph 17:16
Canon EOS 5D Mark II DSLR
Lens 40mm

3.1 | LVMF 2A.1 | Parliament Hill: the summit - looking toward St Paul's Cathedral | Telephoto

Camera Location
National Grid Reference 527665.4E 186131.5N
Camera height 98.10m AOD
Looking at Centre of Site
Bearing 138.6°, distance 7.8km
Photography Details
Height of camera 1.60m above ground
Date of photograph 22/06/2018
Time of photograph 17:25
Canon EOS 5D Mark II DSLR
Lens 300mm

4 | LVMF 2B.1 | Parliament Hill: east of the summit - at the prominent oak tree

Camera Location
National Grid Reference 528043.1E 186154.5N
Camera height 71.61m AOD
Looking at Centre of Site
Bearing 147.1°, distance 7.6km
Photography Details
Height of camera 1.60m above ground
Date of photograph 06/08/2018
Time of photograph 17:32
Canon EOS 5D Mark II DSLR
Lens 40mm

5 | LVMF 3A.1 | Kenwood: the viewing gazebo - in front of the orientation board

Camera Location
National Grid Reference 527270.1E 187486.2N
Camera height 114.15m AOD
Looking at Centre of Site
Bearing 142.9°, distance 9.1km
Photography Details
Height of camera 1.60m above ground
Date of photograph 06/08/2018
Time of photograph 18:35
Canon EOS 5D Mark II DSLR
Lens 40mm

5.1 | LVMF 3A.1 | Kenwood: the viewing gazebo - in front of the orientation board | Telephoto

Camera Location
National Grid Reference 527270.1E 187486.2N
Camera height 114.15m AOD
Looking at Centre of Site
Bearing 143.0°, distance 9.1km
Photography Details
Height of camera 1.60m above ground
Date of photograph 06/08/2018
Time of photograph 18:39
Canon EOS 5D Mark II DSLR
Lens 300mm

6 | LVMF 4A.1 | Primrose Hill: the summit - looking towards St Paul's Cathedral

Camera Location
National Grid Reference 527657.3E 183893.0N
Camera height 68.29m AOD
Looking at Centre of Site
Bearing 122.0°, distance 6.3km
Photography Details
Height of camera 1.60m above ground
Date of photograph 25/01/2018
Time of photograph 15:43
Canon EOS 5D Mark II DSLR
Lens 40mm

7 | LVMF 5A.2 | Greenwich Park: the General Wolfe statue - north-east of the statue

Camera Location
National Grid Reference 538936.1E 177334.5N
Camera height 48.80m AOD
Looking at Centre of Site
Bearing 299.0°, distance 6.8km
Photography Details
Height of camera 1.60m above ground
Date of photograph 24/02/2017
Time of photograph 09:42
Canon EOS 5D Mark III DSLR
Lens 35mm

8 | LVMF 6A.1 | Blackheath Point - near the orientation board

Camera Location
National Grid Reference 538238.2E 176823.1N
Camera height 47.61m AOD
Looking at Centre of Site
Bearing 304.9°, distance 6.4km
Photography Details
Height of camera 1.60m above ground
Date of photograph 13/06/2018
Time of photograph 11:38
Canon EOS 5D Mark II DSLR
Lens 70mm

9 | LBS Borough View 1 | North facing view from One Tree Hill

Camera Location
National Grid Reference 535430.0E 174189.3N
Camera height 91.88m AOD
Looking at Centre of Site
Bearing 333.6°, distance 6.5km
Photography Details
Height of camera 1.60m above ground
Date of photograph 16/01/2018
Time of photograph 13:16
Canon EOS 5D Mark II DSLR
Lens 24mm

9.1 | LBS Borough View 1 | North facing view from One Tree Hill | Telephoto

Camera Location
National Grid Reference 535430.1E 174189.4N
Camera height 91.88m AOD
Looking at Centre of Site
Bearing 334.1°, distance 6.5km
Photography Details
Height of camera 1.60m above ground
Date of photograph 16/01/2018
Time of photograph 13:08
Canon EOS 5D Mark II DSLR
Lens 300mm

10 | LBS Borough View 2 | St Paul's Cathedral from Nunhead Cemetery

Camera Location
National Grid Reference 535367.0E 175378.2N
Camera height 60.99m AOD
Looking at Centre of Site
Bearing 330.0°, distance 5.5km
Photography Details
Height of camera 1.60m above ground
na
Lens na

10.1 | LBS Borough View 2 | St Paul's Cathedral from Nunhead Cemetery | Telephoto

Camera Location
National Grid Reference 535367.1E 175378.1N
Camera height 60.99m AOD
Looking at Centre of Site
Bearing 330.0°, distance 5.5km
Photography Details
Height of camera 1.60m above ground
Date of photograph 16/01/2018
Time of photograph 10:27
Canon EOS 5D Mark II DSLR
Lens 300mm

12 | LVMF 10A.1 | Tower Bridge: Upstream - The North Bastion

Camera Location
National Grid Reference 533665.0E 180311.4N
Camera height 14.82m AOD
Looking at Centre of Site
Bearing 259.9°, distance 1.0km
Photography Details
Height of camera 1.60m above ground
Date of photograph 06/04/2017
Time of photograph 09:44
Canon EOS 5D Mark III DSLR
Lens 24mm

13 | St Katharine's Dock, at Girl with a Dolphin Fountain

Camera Location
National Grid Reference 533790.0E 180355.1N
Camera height 6.74m AOD
Looking at Centre of Site
Bearing 242.6°, distance 1.1km
Photography Details
Height of camera 1.60m above ground
Date of photograph 22/09/2017
Time of photograph 09:16
Canon EOS 5D Mark II DSLR
Lens 24mm

14 | LVMF 12B.1 | Southwark Bridge: downstream - close to the City of London bank

Camera Location
National Grid Reference 532386.3E 180647.1N
Camera height 13.93m AOD
Looking at Centre of Site
Bearing 138.3°, distance 0.6km
Photography Details
Height of camera 1.60m above ground
Date of photograph 03/04/2017
Time of photograph 17:40
Canon EOS 5D Mark III DSLR
Lens 24mm

15 | Millennium Bridge (centre)

Camera Location
National Grid Reference 532052.5E 180687.5N
Camera height 15.32m AOD
Looking at Centre of Site
Bearing 128.8°, distance 0.9km
Photography Details
Height of camera 1.60m above ground
Date of photograph 28/11/2017
Time of photograph 14:12
Canon EOS 5D Mark II DSLR
Lens 24mm

18 | LVMF 17B.1 | Golden Jubilee/Hungerford Footbridges: downstream - crossing the Westminster bank

Camera Location
National Grid Reference 530470.6E 180325.7N
Camera height 13.58m AOD
Looking at Centre of Site
Bearing 91.6°, distance 2.3km
Photography Details
Height of camera 1.60m above ground
Date of photograph 07/03/2017
Time of photograph 14:45
Canon EOS 5D Mark III DSLR
Lens 24mm

19 | LVMF 17B.2 | Golden Jubilee/Hungerford Footbridges: downstream - close to the Westminster bank

Camera Location
National Grid Reference 530521.7E 180301.9N
Camera height 13.64m AOD
Looking at Centre of Site
Bearing 89.9°, distance 2.2km
Photography Details
Height of camera 1.60m above ground
Date of photograph 07/03/2017
Time of photograph 15:12
Canon EOS 5D Mark III DSLR
Lens 24mm

22 | Victoria Embankment, opposite Temple Gardens

Camera Location
National Grid Reference 531201.9E 180798.4N
Camera height 6.26m AOD
Looking at Centre of Site
Bearing 114.8°, distance 1.7km
Photography Details
Height of camera 1.60m above ground
Date of photograph 10/08/2017
Time of photograph 16:50
Canon EOS 5D Mark II DSLR
Lens 24mm

24 | London Bridge: upstream - at the City of London bank

Camera Location
National Grid Reference 532815.3E 180630.5N
Camera height 15.55m AOD
Looking at Centre of Site
Bearing 183.4°, distance 0.5km
Photography Details
Height of camera 1.60m above ground
Date of photograph 22/09/2017
Time of photograph 08:24
Canon EOS 5D Mark II DSLR
Lens 24mm

25 | Old Billingsgate Walk

Camera Location
National Grid Reference 533086.6E 180586.9N
Camera height 7.16m AOD
Looking at Centre of Site
Bearing 208.8°, distance 0.6km
Photography Details
Height of camera 1.60m above ground
Date of photograph 22/09/2017
Time of photograph 08:53
Canon EOS 5D Mark II DSLR
Lens 24mm

26 | Tower of London: Inner Curtain Wall Walkway

Camera Location
National Grid Reference 533624.9E 180474.1N
Camera height 13.59m AOD
Looking at Centre of Site
Bearing 243.3°, distance 1.0km
Photography Details
Height of camera 1.60m above ground
Date of photograph 07/08/2018
Time of photograph 08:49
Canon EOS 5D Mark II DSLR
Lens 24mm

27 | Tower of London: Inner Ward, north of the White Tower

Camera Location
National Grid Reference 533616.8E 180591.8N
Camera height 13.32m AOD
Looking at Centre of Site
Bearing 239.8°, distance 1.0km
Photography Details
Height of camera 1.60m above ground
Date of photograph 12/12/2017
Time of photograph 09:42
Canon EOS 5D Mark II DSLR
Lens 24mm

29 | Tower of London Local Setting Study View 8: The Royal Mint

Camera Location
National Grid Reference 533794.8E 180690.1N
Camera height 13.65m AOD
Looking at Centre of Site
Bearing 245.7°, distance 1.2km
Photography Details
Height of camera 1.60m above ground
Date of photograph 29/04/2017
Time of photograph 08:02
Canon EOS 5D Mark II DSLR
Lens 24mm

31 | Tower Bridge Road / Queen Elizabeth Street

Camera Location
National Grid Reference 533565.6E 179960.8N
Camera height 7.52m AOD
Looking at Centre of Site
Bearing 267.4°, distance 0.9km
Photography Details
Height of camera 1.60m above ground
Date of photograph 22/09/2017
Time of photograph 10:06
Canon EOS 5D Mark II DSLR
Lens 24mm

32 | Saint Mary Magdalen Churchyard

Camera Location
National Grid Reference 533376.6E 179401.8N
Camera height 6.46m AOD
Looking at Centre of Site
Bearing 317.4°, distance 1.0km
Photography Details
Height of camera 1.60m above ground
Date of photograph 22/09/2017
Time of photograph 10:19
Canon EOS 5D Mark II DSLR
Lens 24mm

33 | Leathermarket Gardens

Camera Location
National Grid Reference 533123.9E 179691.5N
Camera height 4.72m AOD
Looking at Centre of Site
Bearing 320.0°, distance 0.6km
Photography Details
Height of camera 1.60m above ground
Date of photograph 22/09/2017
Time of photograph 10:35
Canon EOS 5D Mark II DSLR
Lens 24mm

34 | Weston Street / Guy Street

Camera Location
National Grid Reference 532967.2E 179777.1N
Camera height 4.92m AOD
Looking at Centre of Site
Bearing 338.2°, distance 0.4km
Photography Details
Height of camera 1.60m above ground
Date of photograph 22/09/2017
Time of photograph 10:58
Canon EOS 5D Mark II DSLR
Lens 24mm

35 | Tabard Gardens

Camera Location
National Grid Reference 532675.1E 179507.1N
Camera height 5.64m AOD
Looking at Centre of Site
Bearing 7.9°, distance 0.6km
Photography Details
Height of camera 1.60m above ground
Date of photograph 22/09/2017
Time of photograph 11:21
Canon EOS 5D Mark II DSLR
Lens 24mm

37 | Southwark Bridge Road outside no.92

Camera Location
National Grid Reference 532171.1E 179917.9N
Camera height 5.81m AOD
Looking at Centre of Site
Bearing 73.2°, distance 0.6km
Photography Details
Height of camera 1.60m above ground
Date of photograph 28/11/2017
Time of photograph 13:32
Canon EOS 5D Mark II DSLR
Lens 24mm

38 | Red Cross Garden (middle)

Camera Location
National Grid Reference 532339.5E 179952.2N
Camera height 5.93m AOD
Looking at Centre of Site
Bearing 72.2°, distance 0.4km
Photography Details
Height of camera 1.60m above ground
Date of photograph 28/11/2017
Time of photograph 13:06
Canon EOS 5D Mark II DSLR
Lens 24mm

41 | Southwark Street / Southwark Bridge Road

Camera Location
National Grid Reference 532253.7E 180156.7N
Camera height 5.48m AOD
Looking at Centre of Site
Bearing 94.8°, distance 0.5km
Photography Details
Height of camera 1.60m above ground
Date of photograph 24/09/2017
Time of photograph 15:38
Canon EOS 5D Mark II DSLR
Lens 24mm

52 | St Thomas Street, outside St. Thomas' Church

Camera Location
National Grid Reference 532755.2E 180177.4N
Camera height 6.28m AOD
Looking at Centre of Site
Bearing 157.1°, distance 0.0km
Photography Details
Height of camera 1.60m above ground
Date of photograph 03/10/2017
Time of photograph 09:07
Canon EOS 5D Mark II DSLR
Lens 24mm

53 | Bedale Street / Borough Market

Camera Location
National Grid Reference 532674.1E 180218.1N
Camera height 7.29m AOD
Looking at Centre of Site
Bearing 138.1°, distance 0.1km
Photography Details
Height of camera 1.60m above ground
Date of photograph 24/09/2017
Time of photograph 16:02
Canon EOS 5D Mark II DSLR
Lens 24mm

54 | Borough High Street / Bedale Street



Camera Location
National Grid Reference 532689.4E 180212.9N
Camera height 7.14m AOD
Looking at Centre of Site
Bearing 130.8°, distance 0.1km
Photography Details
Height of camera 1.60m above ground
Date of photograph 24/09/2017
Time of photograph 16:09
Canon EOS 5D Mark II DSLR
Lens 24mm

55 | Cathedral Street / Winchester Walk



Camera Location
National Grid Reference 532629.3E 180310.1N
Camera height 6.33m AOD
Looking at Centre of Site
Bearing 129.3°, distance 0.2km
Photography Details
Height of camera 1.60m above ground
Date of photograph 28/09/2017
Time of photograph 16:42
Canon EOS 5D Mark II DSLR
Lens 24mm

56.2 | Southwark Cathedral | north-west corner 1



Camera Location
National Grid Reference 532656.5E 180371.3N
Camera height 6.09m AOD
Looking at Centre of Site
Bearing 135.7°, distance 0.2km
Photography Details
Height of camera 1.60m above ground
Date of photograph 28/09/2017
Time of photograph 16:54
Canon EOS 5D Mark II DSLR
Lens 24mm

56.3 | Southwark Cathedral | north-west corner 2



Camera Location
National Grid Reference 532662.2E 180376.0N
Camera height 6.23m AOD
Looking at Centre of Site
Bearing 163.2°, distance 0.2km
Photography Details
Height of camera 1.60m above ground
Date of photograph 28/09/2017
Time of photograph 17:24
Canon EOS 5D Mark II DSLR
Lens 24mm

56.6 | Southwark Cathedral: Millennium Courtyard | Panorama



Camera Location
National Grid Reference 532687.4E 180351.8N
[Estimated]
Camera height 6.29m AOD
Looking at Centre of Site
Bearing 165.0°, distance 0.2km
Photography Details
Height of camera 1.60m above ground
na
Lens na

57 | London Bridge, outside Glazier's Hall



Camera Location
National Grid Reference 532766.0E 180376.0N
Camera height 14.01m AOD
Looking at Centre of Site
Bearing 161.1°, distance 0.2km
Photography Details
Height of camera 1.60m above ground
Date of photograph 22/09/2017
Time of photograph 08:15
Canon EOS 5D Mark II DSLR
Lens 24mm

58 | Islington Local View 4: Farringdon Lane, near Ray Street Bridge

Camera Location
National Grid Reference 531366.6E 182194.2N
Camera height 14.77m AOD
Looking at Centre of Site
Bearing 146.3°, distance 2.5km
Photography Details
Height of camera 1.60m above ground
Date of photograph 06/10/2017
Time of photograph 16:22
Canon EOS 5D Mark II DSLR
Lens 24mm

59 | Ray Street Bridge, corner with Farringdon Lane

Camera Location
National Grid Reference 531386.0E 182169.6N
Camera height 13.99m AOD
Looking at Centre of Site
Bearing 147.5°, distance 2.4km
Photography Details
Height of camera 1.60m above ground
Date of photograph 06/10/2017
Time of photograph 16:15
Canon EOS 5D Mark II DSLR
Lens 24mm

60 | Islington Local View 3: Vine Street Bridge

Camera Location
National Grid Reference 531436.8E 182093.3N
Camera height 15.00m AOD
Looking at Centre of Site
Bearing 145.2°, distance 2.3km
Photography Details
Height of camera 1.60m above ground
Date of photograph 06/10/2017
Time of photograph 16:37
Canon EOS 5D Mark II DSLR
Lens 24mm

61 | Islington Local View 1: Clerkenwell Road, bridge across Farringdon

Camera Location
National Grid Reference 531451.4E 182072.7N
Camera height 15.54m AOD
Looking at Centre of Site
Bearing 146.2°, distance 2.3km
Photography Details
Height of camera 1.60m above ground
Date of photograph 06/10/2017
Time of photograph 16:00
Canon EOS 5D Mark II DSLR
Lens 24mm

62 | Trinity Church Square, south-west corner

Camera Location
National Grid Reference 532356.8E 179453.8N
Camera height 6.07m AOD
Looking at Centre of Site
Bearing 50.8°, distance 0.8km
Photography Details
Height of camera 1.60m above ground
Date of photograph 20/02/2018
Time of photograph 14:34
Canon EOS 5D Mark II DSLR
Lens 24mm

Appendices (continued)

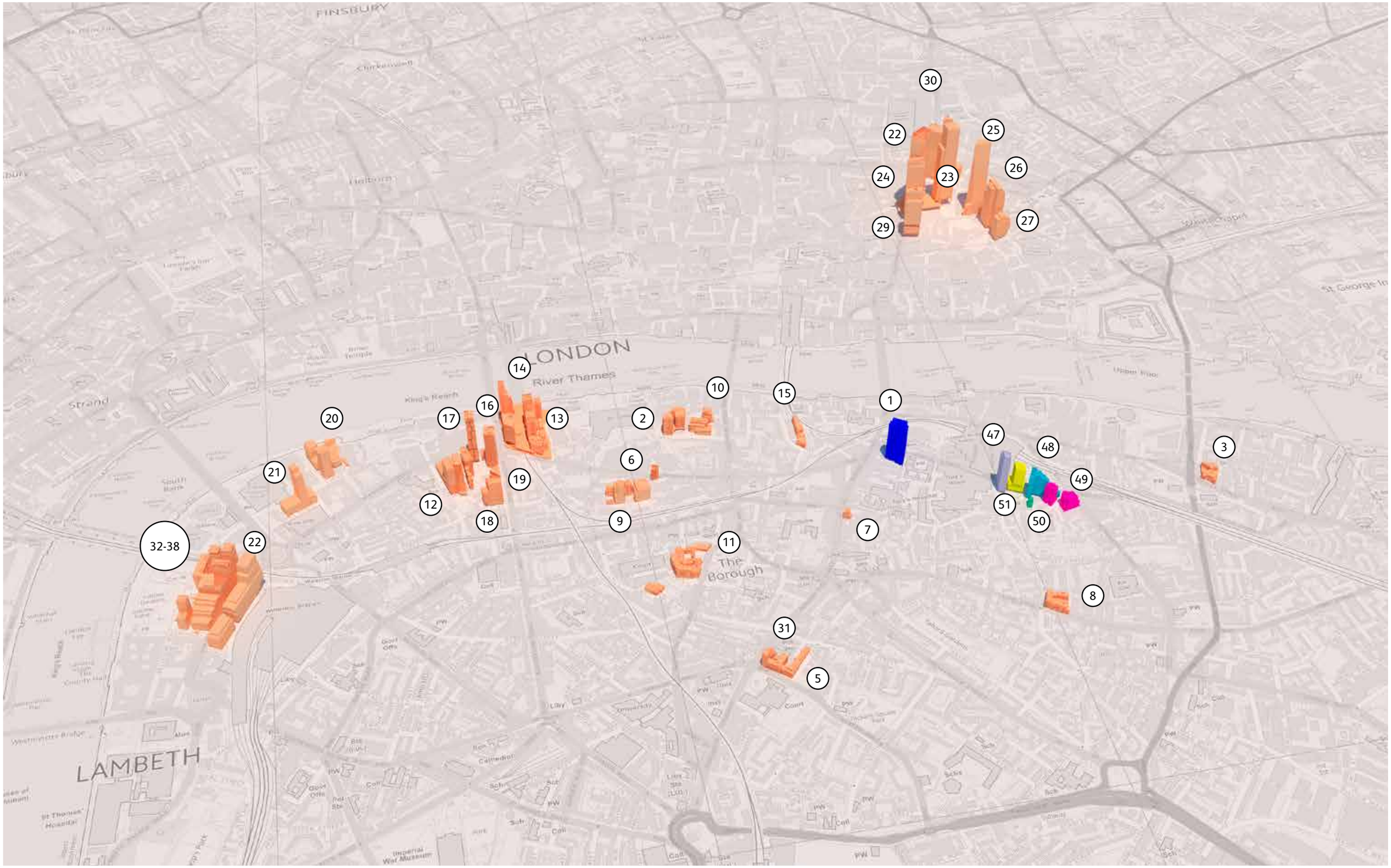
A3 Details of schemes

index	scheme name	address	reference	PA	status	source of model data	positioning method	MH reference	colour
1	New City Court	New City Court, 4-26 St Thomas Street, London SE1 9RS	18/AP/4039	SBC	Submitted for planning	Model supplied by AHMM	Position relative to O.S. supplied by architect	swrk0139-b.detail180828-ahmm-proposed-chalk	Bright Blue
2	185 Park Street (2017)	185 Park Street, Southwark, London, SE1	17/AP/1944	SBC	Legal Consent granted	Model supplied by KPF	Position relative to O.S. supplied by architect	swrk0087.surface150401-nl-consented	Bright Orange
3	Tower Bridge Magistrates Court	Tower Bridge Magistrates Court and Police station, 209-211 Tooley Street, London, SE1 2JY	15/AP/3303	SBC	Legal Consent granted	Paper planning application drawings from local authority	Best fit to Ordnance Survey	swrk0162.mass180813-kt-consented	Bright Orange
4	Capital House (2014)	Captial House, 40-46 Weston Street, London. SE1 3QD	14/AP/4640	SBC	Proposed	Model built by Millerhare based on design specifications from SPPARC	Position relative to O.S. supplied by architect	swrk0292.detail140727-fg-proposed	Bright Orange
5	Harper Road	25-29 Harper Road, London, SE1 6AW and Formet Court Building, Swan Street, London SE1 1DF	15/AP/3886	SBC	Legal Consent granted	Paper planning application drawings from local authority	Best fit to Ordnance Survey	swrk0269-c.mass180821-rb-consented	Bright Orange
6	Isis House	Isis House, 67-69 Southwark Street, London, SE1 0HX	13/AP/2075	SBC	Under Construction	Paper planning application drawings from local authority	Best fit to Ordnance Survey	swrk0081-a.profile160219-am-consented	Bright Orange
7	153-159 Borough High Street	153-159 Borough High Street, London, SE1 1HR	15/AP/4980	SBC	Legal Consent granted	n/a	n/a	swrk0290-g.profile171122-dp-consented	Bright Orange
8	175-179 Long Lane	175-179 Long Lane, London, SE1 4PN	13/AP/4586	SBC	Completed	n/a	n/a	swrk0305-c.profile171122-dp-consented	Bright Orange
9	Lavington Street	Lavington Street, London SE1	16/AP/2668	SBC	Legal Consent granted	n/a	n/a	swrk0102-b.surface170324-am-proposed	Bright Orange
10	133 Park Street and 105 Sumner Street	133 Park Street, London SE1 9EA and 106 Sumner Street, London SE1 9HZ	16/AP/4569	SBC	Legal Consent granted	n/a	n/a	swrk0088-b.mass170717-jh1-consented	Bright Orange
11	Southwark Fire Station	Southwark Fire Station, 94 Southwark Bridge Road, London, SE1 0EG, Grotto Place and Grotto Podiums	17/AP/0367	SBC	Legal Consent granted	n/a	n/a	swrk0263.profile180328-dp-consented	Bright Orange
12	Paris Gardens (2018)	1-5 Paris Gardens and 16-19 Hatfields, London, SE1 8ND	17/AP/4230	SBC	Legal Consent granted	Model supplied by KPF	Position relative to O.S. supplied by architect	swrk0030-c.profile180515-kpf-consented	Bright Orange
13	Bankside Yards East – Sampson House	Sampson House, 64 Hopton Street, London, SE1 9JH	17/AP/2286	SBC	Proposed	n/a	n/a	swrk0079.detail180410-plp-proposed-chalk	Bright Orange
14	Bankside Yards West – Ludgate House	64 Hopton Street, London SE1	17/AP/2286	SBC	Proposed	n/a	n/a	swrk0079.detail170505-plp-proposed	Bright Orange
15	1 Bank End	1 Bank End (site, including Railway Arches and Thames House, bounded by Stoney Street, Clink Street and Park Street	15/AP/3066	SBC	Legal Consent granted	Paper planning application drawings from local authority	Best fit to Ordnance Survey	swrk0105.mass160916-rb-consented	Bright Orange
16	18 Blackfriars (2016) – Office Tower	Land at 18 Blackfriars Road bounded by Stamford Street, Paris Gardens and Christ Church Gardens, London, SE1 8NY	16/AP/5239	SBC	Legal Consent granted	n/a	n/a	swrk0001-b.profile161014-bg-proposed-office	Bright Orange
17	18 Blackfriars (2016) – Residential Tower	Land at 18 Blackfriars Road bounded by Stamford Street, Paris Gardens and Christ Church Gardens, London, SE1 8NY	16/AP/5239	SBC	Legal Consent granted	n/a	n/a	swrk0001-a.profile161014-wea-proposed-resi	Bright Orange
18	Friars Bridge Court	Friars Bridge Court, 41-45 Blackfriars Road, London SE1 8NZ	16/AP/1660	SBC	Legal Consent granted	Model supplied by PLP Architects	Position relative to O.S. supplied by architect	swrk0002-b.detail160309-plp-proposed-chalk	Bright Orange
19	Wedge House (2015)	Wedge House, 32-40 Blackfriars Road, London, SE1 8PB	15/AP/0237	SBC	Under Construction	Paper planning application drawings from local authority	Best fit to Ordnance Survey	swrk0002-a.surface150313-rb-proposed	Bright Orange
20	ITV Headquarters	The London Television Centre, 60 – 72 Upper Ground, London, SE1 9LT	17/03986/FUL	LBC	Legal Consent granted	Model supplied by Hopkins Architects and simplified by Millerhare	Position relative to O.S. supplied by architect	lamb0047.profile170613-hopkins-proposed	Bright Orange
21	Doon Street	Coin Street Site A, Doon Street, London. SE1	11/00996/FUL	LBC	Legal Consent granted	Paper planning application drawings from local authority	Best fit to Ordnance Survey	lamb0057-pa1.surface070620-ru-consented	Bright Orange
22	Elizabeth House	Elizabeth House, 39 York Road, London, SE1 7NQ	12/01327/FUL	LBC	Legal Consent granted	Model supplied by David Chipperfield	Position relative to O.S. supplied by architect	lamb0207.profile120207-fg-proposed	Bright Orange
23	100 Bishopsgate (2012)	100 Bishopsgate, City of London, EC2	12/00129/FULL	CoL	Under Construction	Model supplied by Allies and Morrison and simplified by Millerhare	Position relative to O.S. supplied by architect	city0311-g.surface151105-am-proposed	Bright Orange
24	6-8 Bishopsgate (2017)	6 – 8 Bishopsgate & 150 Leadenhall Street London EC2N 4DA & EC3V 4QT	17/00447/FULEIA	CoL	Legal Consent granted	Model supplied by Wilkinson Eyre Architects and simplified by Millerhare	Position relative to O.S. supplied by architect	city0311-c.profile170321-wea-proposed	Bright Orange
25	1 Undershaft	1 Undershaft, London, EC3P 3DQ	16/00075/FULEIA	CoL	Legal Consent granted	Paper planning application drawings from local authority	Best fit to Ordnance Survey	city0311-f.mass161020-kn-proposed-lower	Bright Orange
26	100 Leadenhall Street	100 Leadenhall Street London EC3A 3BP	18/00152/FULEIA	CoL	Legal Consent granted	Paper planning application drawings from local authority	Best fit to Ordnance Survey	city0310-c.profile180316-dp-proposed	Bright Orange
27	40 Leadenhall Street	Site Bounded By 19-21 & 22 Billiter Street, 49 Leadenhall Street, 108 & 109-114 Fenchurch Street, 6-8 & 9-13 Fenchurch Buildings London EC3	13/01004/FULEIA	CoL	Legal Consent granted	Model supplied by Make Architects and simplified by Millerhare	Position relative to O.S. supplied by architect	city0273.surface150604-fg-proposed-plant	Bright Orange
28	22 Bishopsgate (2016)	22 Bishopsgate London EC2N	16/00849/FULEIA	CoL	Proposed	Model supplied by PLP	Position relative to O.S. supplied by architect	city0311-b.detail180904-plp-proposed-chalk	Bright Orange
29	1 Leadenhall (2018)	Leadenhall Court 1 Leadenhall Street London EC3V 1PP	18/00740/FULEIA	CoL	Legal Consent granted	Model supplied by Make	Position relative to O.S. supplied by architect	city0261-a.surface180607-make-consented	Bright Orange
30	150 Bishopsgate	Site Bounded By Stone House And Staple Hall Bishopsgate Devonshire Row London EC2	14/01151/FULL	CoL	Legal Consent granted	Model supplied by PLP	Position relative to O.S. supplied by architect	city0313-b.profile151012-plp-proposed	Bright Orange

Aerial view of Proposed Development

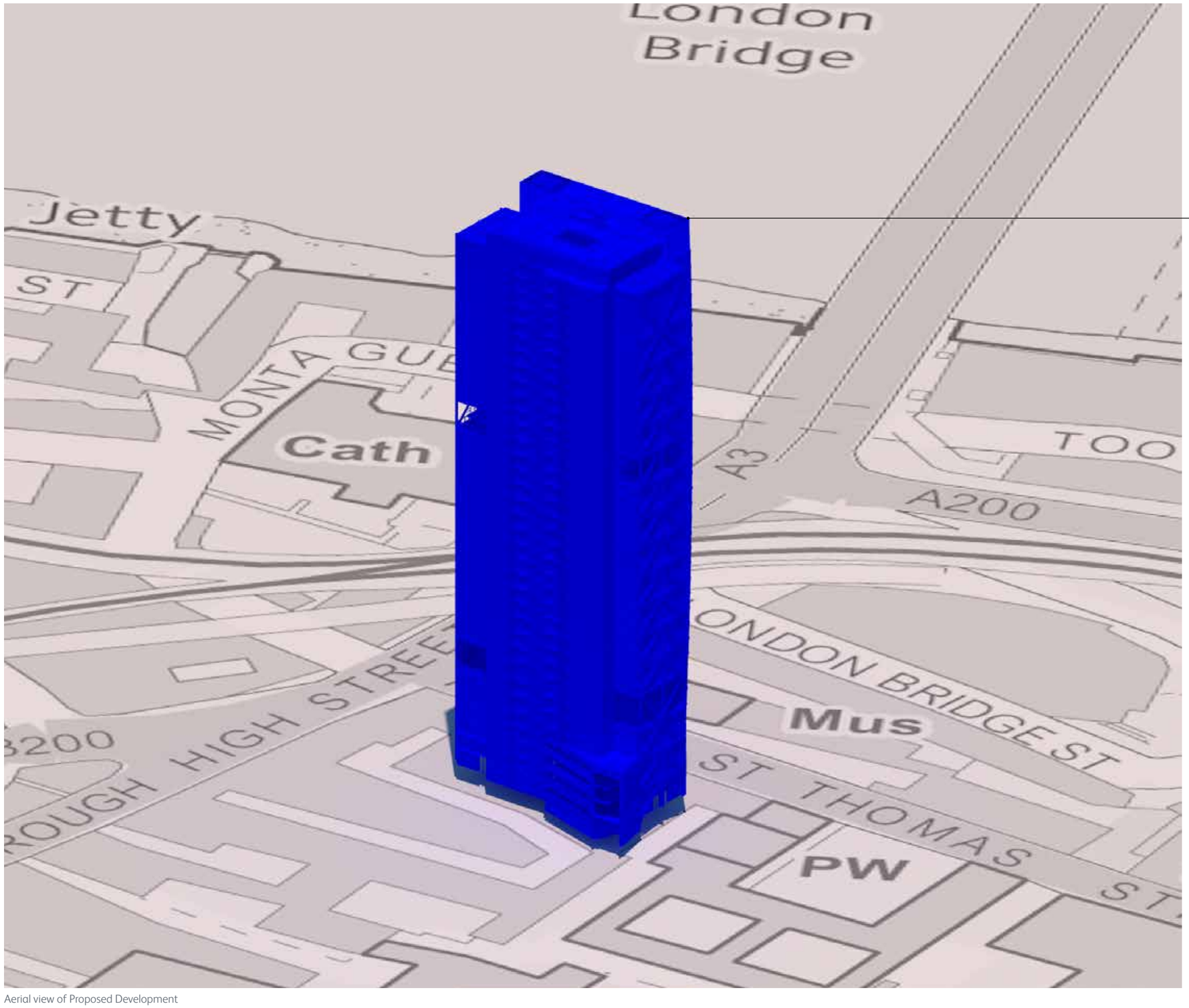
Appendices (continued)

index	scheme name	address	reference	PA	status	source of model data	positioning method	MH reference	colour
31	King's Place (2018)	Land at 19, 21 and 23 Harper Road, 325 Borough High Street, 1-5 and 7-11 Newington Causeway, London, SE1 6AW	18/AP/0657	SBC	Proposed	Paper planning application drawings from local authority	Best fit to Ordnance Survey	swrk0269-a.profile181025-dp-consented	Bright Orange
32	Southbank Place – Building 1 – One Southbank Place	Shell Centre, 2 – 4 York Road, London, SE1	14/04600/NMC	LBC	Under Construction	n/a	n/a	lambsp-1.surface140626-aa-proposed	Bright Orange
33	Southbank Place – Building 2 – Two Southbank Place	Shell Centre, 2 – 4 York Road, London, SE1	14/04600/NMC	LBC	Under Construction	n/a	n/a	lambsp-2.profile180529-dp-existing	Bright Orange
34	Southbank Place – Building 3 – Four Casson Square	Shell Centre, 2 – 4 York Road, London, SE1	14/04600/NMC	LBC	Under Construction	n/a	n/a	lambsp-3.profile180529-pt-existing	Bright Orange
35	Southbank Place – Building 4A – One Casson Square	Shell Centre, 2 – 4 York Road, London, SE1	14/04600/NMC	LBC	Under Construction	Model supplied by Squire and Partners and simplified by Millerhare	Position relative to O.S. supplied by architect	lambsp-4a.profile180529-sp-existing	Bright Orange
36	Southbank Place – Building 4B – Thirty Casson Square	Shell Centre, 2 – 4 York Road, London, SE1	14/04600/NMC	LBC	Under Construction	n/a	n/a	lambsp-4b.profile180529-sp-proposed	Bright Orange
37	Southbank Place – Building 5 – The Belvedere	Shell Centre, 2 – 4 York Road, London, SE1	14/04600/NMC	LBC	Under Construction	n/a	n/a	lambsp-5.profile180529-sw-existing	Bright Orange
38	Southbank Place – Buildings 6-7 – Belvedere Gardens	Shell Centre, 2 – 4 York Road, London, SE1	14/04600/NMC	LBC	Under Construction	n/a	n/a	lambsp-67.surface140626-aa-proposed	Bright Orange
39	Capital House (2018)	Capital House, 42-46 Weston Street, London SE1 3QD	18/AP/0900	SBC	Submitted for planning	Model supplied by KPF	Position relative to O.S. supplied by architect	swrk0292.detail181004-kpf-proposed	Lavender
40	St Thomas Street East – Vinegar Yard	n/a	n/a	SBC	Proposed	n/a	n/a	swrk0348.detail181122-kpf-proposed	Dull Blue
41	St Thomas Street East – Bermondsey Street and Snowsfield Site	n/a	n/a	SBC	Proposed	n/a	n/a	swrk0305-l.detail181211-rpbw-proposed	Bright Pink
42	Arthouse, 2-4 Melior Place	2-4 Melior Place, London, SE1 3SZ	18/AP/3229	SBC	Submitted for planning	Paper planning application drawings from local authority	Best fit to Ordnance Survey	swrk0350.profile190103-jh-proposed	Green
43	St Thomas Street East – Becket House	n/a	n/a	SBC	Proposed	n/a	n/a	swrk0349.surface181129-lds-proposed	Bright Yellow



Aerial diagram showing location of schemes

A4 Model Overview



Aerial view of Proposed Development

A5 Accurate Visual Representations

A5.1 Each of the views in this study has been prepared as an Accurate Visual Representation (AVR) following a consistent methodology and approach to rendering. Appendix C of the London View Management Framework: Supplementary Planning Guidance (March 2012) 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 and can therefore 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."*

A5.2 In this study the baseline condition is provided by carefully taken large format photography. The proposed condition is represented as an accurate photomontage, which combines a computer generated image with the photographic context. In preparing AVRs of this type certain several key attributes need to be determined, including:

- the Field of View
- the representation of the Proposed Development
- documentation accompanying the AVR

Selection of Field of View

A5.3 The choice of telephoto, standard or wide-angle lens, and consequently the Field of View, is made on the basis of the requirements for assessment which will vary from view to view.

A5.4 In the simple case the lens selection will be that which provides a comfortable Viewing Distance. This would normally entail the use of what most photographers would refer to as a "standard" or "normal" lens, which in practice means the use of a lens with a 35mm equivalent focal length of between about 40 and 58 mm.

A5.5 However in a visual assessment there are three scenarios where constraining the study to this single fixed lens combination would not provide the assessor with the relevant information to properly assess the Proposed Development in its context.

Field Of View

The term 'Field Of View' (FOV) or more specifically Horizontal Field of View (HFOV), refers to the horizontal angle of view visible in a photograph or printed image and is expressed in degrees. It is often generally referred to as 'angle of view', 'included angle' or 'view cone angle'.

Using this measure it becomes practical to make a comparison between photographs taken using lens of various focal lengths captured on to photographic film or digital camera sensors of various size and proportions. It is also possible to compare computer renderings with photographic images.

Studies of this type use a range of camera equipment; in recent times digital cameras have largely superseded the traditional film formats of 35mm, medium format (6cm x 6cm) and large format (5in x 4in). Comparing digital and film formats may be achieved using either the HFOV or the 35mm equivalent lens calculation, however quoting the lens focal length (in mm) is not as consistently applicable as using the HFOV when comparing AVRs.

35mm Lens	HFOV degrees	Lens focal length (mm)
Wide angle lens	74.0	24
Medium wide lens	54.4	35
Telephoto lens	28.8	70
Telephoto lens	20.4	100
Telephoto lens	10.3	200
Telephoto lens	6.9	300

The FOV of digital cameras is dependent on the physical dimensions of the CCD used in the camera. These depend on the make and model of the camera. The comparison table uses the specifications for a Canon EOS-5D Mark II which has CCD dimensions of 36.0mm x 22.0mm.

A5.6 Firstly, where the relationship being assessed is distant, the observer would tend naturally to focus closely on it. At this point the observer might be studying as little as 5 to 10 degrees in plan. The printing technology and image resolution of a print limit the amount of detail that can be resolved on paper when compared to the real world, hence in this situation it is appropriate to make use of a telephoto lens.

A5.7 Secondly, where the wider context of the view must be considered and in making the assessment a viewer would naturally make use of peripheral vision in order to understand the whole. A print has a fixed extent which constrains the angle of view available to the viewer and hence it is logical to use a wide angle lens in these situations in order to include additional context in the print.

A5.8 Thirdly where the viewing point is studied at rest and the eye is free to roam over a very wide field of view and the whole setting of the view can be examined by turning the head. In these situations it is appropriate to provide a panorama comprising of a number of photographs placed side by side.

A5.9 For some views two of these scenarios might be appropriate, and hence the study will include two versions of the same view with different fields of view.

Representation of the Proposed Development and cumulative schemes

Classification of AVRs

A5.10 AVRs are classified according to their purpose using Levels 0 to 3. These are defined in detail in Appendix C of the London View Management Framework: Supplementary Planning Guidance (March 2012). The following table is a summary.

AVR level	showing	purpose
AVR 0	Location and size of proposal	Showing Location and size
AVR 1	Location, size and degree of visibility of proposal	Confirming degree of visibility
AVR 2	As level 1 + description of architectural form	Explaining form
AVR 3	As level 2 + use of materials	Confirming the use of materials

A5.11 In practice the majority of photography based AVRs are either AVR 3 (commonly referred to as "fully rendered" or "photoreal") or AVR 1 (commonly referred to as "wire-line"). Model based AVRs are generally AVR 1.

AVR 3 – Photoreal

Example of AVR 3 – confirming the use of materials (in this case using a 'photo-realistic' rendering technique)

A5.12 The purpose of a Level 3 AVR is to represent the likely appearance of the Proposed Development under the lighting conditions found in the photograph. All aspects of the images that are able to be objectively defined have been created directly from a single detailed description of the building. These include the geometry of the building and the size and shape of shadows cast by the sun.

A5.13 Beyond this it is necessary to move into a somewhat more subjective arena where the judgement of the delineator must be used in order to define the final appearance of the building under the specific conditions captured by the photographic and subsequent printing processes. In this area the delineator is primarily guided by the appearance of similar types of buildings at similar distances in the selected photograph. In large scope studies photography is necessarily executed over a long period of time and sometimes at short notice. This will produce a range of lighting conditions and photographic exposures. The treatment of lighting and materials within these images will respond according to those in the photograph.

AVR 1 – Outline

Example of AVR 1 confirming degree of visibility (in this case as an occluded 'wire-line' image)

A5.14 The purpose of a wire-line view is to accurately indicate the location and degree of visibility of the Proposed Development in the context of the existing condition and potentially in the context of other proposed schemes.

A5.15 In AVR1 representation each scheme is represented by a single line profile, sometimes with key edges lines to help understand the massing. The width of the profile line is selected to ensure that the diagram is clear, and is always drawn inside the true profile. The colour of the line is selected to contrast with the background. Different coloured lines may be used in order to distinguish between proposed and consented status, or between different schemes.

A5.16 Where more than one scheme is represented in outline form the outlines will obscure each other as if the schemes where opaque. Trees or other foliage will not obscure the outline of schemes behind them. This is because the transparency of trees varies with the seasons, and the practical difficulties of representing a solid line behind a filigree of branches. Elements of a temporary nature (e.g. cars, tower cranes, people) will similarly not obscure the outlines.

Framing the view

A5.17 Typically AVRs are composed with the camera looking horizontally i.e. with a horizontal Optical Axis. This is in order to avoid converging verticals which, although perspectively correct, appear to many viewers as unnatural in print form. The camera is levelled using mechanical levelling devices to ensure the verticality of the Picture Plane, being the plane on to which the image is projected; the film in the case of large format photography or the CCD in the case of digital photography.

A5.18 For a typical townscape view, a Landscape camera format is usually the most appropriate, giving the maximum horizontal angle of view. Vertical rise may be used in order to reduce the proportion of immediate foreground visible in the photograph. Horizontal shift will not be used. Where the prospect is framed by existing buildings, portrait format photographs may be used if this will result in the proposal being wholly visible in the AVR, and will not entirely exclude any relevant existing buildings.

A5.19 Where the Proposed Development would extend off the top of the photograph, the image may be extended vertically to ensure that the full height of the Proposed Development is shown. Typically images will be extended only where this can be achieved by the addition of sky and no built structures are amended. Where it is necessary to extend built elements of the view, the method used to check the accuracy of this will be noted in the text.

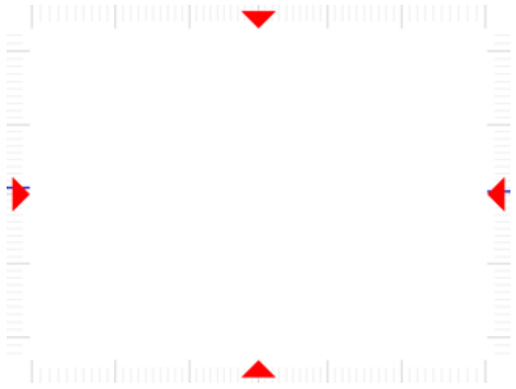
Documenting the AVR

Border annotation

A5.20 A Millerhare AVR image has an annotated border or 'graticule' which indicates the field of view, the optical axis and the horizon line. This annotation helps the user to understand the characteristics of the lens used for the source photograph, whether the photographer applied tilt, vertical rise or horizontal shift during the taking of the shot and if the final image has been cropped on one or more sides.

A5.21 The four red arrows mark the horizontal and vertical location of the 'optical axis'. The optical axis is a line passing through the eye point normal to the projection plane. In photography this line passes through the centre of the lens, assuming that the film plane has not been tilted relative to the lens mount. In computer rendering it is the viewing vector, i.e the line from the eye point to the target point.

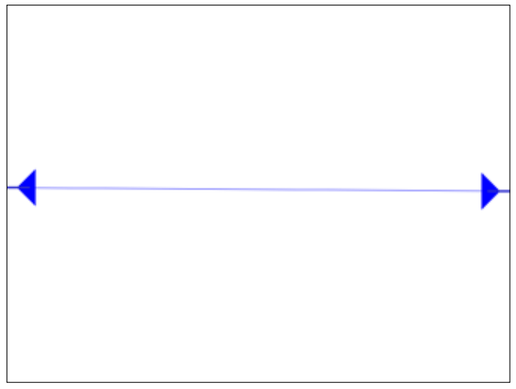
A5.22 If the point indicated by these marks lies above or below the centre of the image, this indicates either that vertical rise was used when taking the photograph or that the image has subsequently been cropped from the top or bottom edge. If it lies to the left or right of the centre of the image then cropping has been applied to one side or the other, or more unusually that horizontal shift was applied to the photograph.



Sample graticule showing optical axis markers

A5.23 The vertical and horizontal field of view of the final image is declared using a graticule consisting of thick lines at ten degree increments and intermediate lines every degree, measured away from the optical axis. Using this graticule it is possible to read off the resultant horizontal and vertical field of view, and thereby to compare the image with others taken using specific lens and camera combinations. Alternatively it can be used to apply precise crops during subsequent analysis.

A5.24 The blue marks on the left and right indicate the calculated location of the horizon line i.e. a plane running horizontally from the location of the camera. Where this line is above or below the optical axis, this indicates that the camera has been tilted; where it is not parallel with the horizontal marking of the optical axis, this indicates that the camera was not exactly horizontal, i.e. that "roll" is present. Note that a small amount of tilt and roll is nearly always present in a photograph, due to the practical limitations of the levelling devices used to align the camera in the field.



Sample graticule showing horizon line markers

Comparing AVRs with different FOVs

A5.25 A key benefit of the index markings is that it becomes practical to crop out a rectangle in order to simulate the effect of an image with a narrower field of view. In order to understand the effect of using a longer lens it is simply necessary to cover up portions of the images using the graticule as a guide.

A6 Methodology for the production of Accurate Visual Representations

Overview of Methodology

A6.1 The study was carried out by Millerhare (the Visualiser) by combining computer generated images of the Proposed Development with either large format photographs or with rendered images from a context model at key strategic locations around the site as agreed with the project team. Surveying was executed by Absolute Survey (the Surveyor).

A6.2 The methodology employed by Millerhare is compliant with Appendix C of the London View Management Framework: Supplementary Planning Guidance (March 2012) and Landscape Institute Advice Note 01/11.

A6.3 The project team defined a series of locations in London where the proposed buildings might have a significant visual effect. At each of these locations Millerhare carried out a preliminary study to identify specific Assessment Points from which a representative and informative view could be taken. Once the exact location had been agreed by the project team, a photograph was taken which formed the basis of the study. The precise location of the camera was established by the Surveyor using a combination of differential GPS techniques and conventional observations.

A6.4 For views where a photographic context was to be used additional surveying was carried out. A number of features on existing structures visible from the camera location were surveyed. Using these points, Millerhare has determined the appropriate parameters to permit a view of the computer model to be generated which exactly overlays the appropriate photograph. Each photograph has then been divided into foreground and background elements to determine which parts of the current context should be shown in front of the Proposed Development and which behind. When combined with the computer-generated image these give an accurate impression of the impact of the Proposed Development on the selected view in terms of scale, location and use of materials (AVR Level 3).

Spatial framework and reference database

A6.5 All data was assembled into a consistent spatial framework, expressed in a grid coordinate system with a local plan origin. The vertical datum of this framework is equivalent to Ordnance Survey (OS) Newlyn Datum.

A6.6 By using a transformation between this framework and the OSGB36 (National Grid) reference framework, Millerhare have been able to use other data sets (such as OS land line maps and ortho-corrected aerial photography) to test and document the resulting photomontages.

A6.7 In addition, surveyed observation points and line work from Millerhare's London Model database are used in conjunction with new data in order to ensure consistency and reliability.

A6.8 The models used to represent consented schemes have been assembled from a variety of sources. Some have been supplied by the original project team, the remainder have been built by Millerhare from available drawings, generally paper copies of the submitted planning application. While these models have not been checked for detailed accuracy by the relevant architects, Millerhare has used its best endeavours to ensure that the models are positioned accurately both in plan and in overall height.

Process – photographic context

Reconnaissance

A6.9 At each Study Location the Visualiser conducted a photographic reconnaissance to identify potential Assessment Points. From each candidate position, a digital photograph was taken looking in the direction of the Proposed Development using a wide angle lens. Its position was noted with field observations onto an OS map and recorded by a second digital photograph looking at a marker placed at the Assessment Point.

A6.10 In the situation where, in order to allow the appreciation of the wider setting of the proposal, the assessor requires more context than is practical to capture using a wide angle lens, multiple photographs may be combined to create a panorama, typically as a diptych or triptych. This will be prepared by treating each panel as a separate AVR and then combining in to a single panorama as a final process.

A6.11 The Visualiser assigned a unique reference to each Assessment Point and Photograph.

Final Photography

A6.12 From each selected Assessment Point a series of large format photographs were taken with a camera height of approximately 1.6m. The camera, lens, format and direction of view are determined in accordance with the policies set out above.

A6.13 Where a panoramic view is specified the camera/tripod head is rotated through increments of 40 degrees to add additional panels to the left and/or right of the main view.

A6.14 The centre point of the tripod was marked and a digital photograph showing the camera and tripod in situ was taken to allow the Surveyor to return to its location. Measurements and field notes were also taken to record the camera location, lens used, target point and time of day.

Surveying the Assessment Points

A6.15 For each selected Assessment Point a survey brief was prepared, consisting of the Assessment Point study sheet and a marked up photograph indicating alignment points to be surveyed. Care was taken to ensure that a good spread of alignment points was selected, including points close to the camera and close to the target.

A6.16 Using differential GPS techniques the Surveyor established the location of at least two intervisible stations in the vicinity of the camera location. A photograph of the GPS antenna in situ was taken as confirmation of the position.

A6.17 From these local survey stations, the requested alignment points were surveyed using conventional observation.

A6.18 The resulting survey points were amalgamated into a single data set by the Surveyor. This data set was supplied as a spreadsheet with a set of coordinates transformed and re-projected into OSGB36 (National Grid) coordinates, and with additional interpreted lines to improve the clarity of the surveyed data.

A6.19 From the point set, the Visualiser created a three dimensional alignment model in the visualisation system by placing inverted cones at each surveyed point.

Photo preparation

A6.20 From the set of photographs taken from each Assessment Point, one single photograph was selected for use in the study. This choice was made on the combination of sharpness, exposure and appropriate lighting.

A6.21 The selected photograph was copied into a template image file of predetermined dimensions. The resulting image was then examined and any artefacts related to the digital image capture process were rectified.

A6.22 Where vertical rise has been used the image is analysed and compensation is applied to ensure that the centre of the image corresponds to the location of the camera's optical axis.

Calculating the photographic alignment

A6.23 A preliminary view definition was created within the visualisation system using the surveyed camera location, recorded target point and FOV based on the camera and lens combination selected for the shot.

A6.24 A lower resolution version of the annotated photograph was attached as a background to this view, to assist the operator to interpret on-screen displays of the alignment model and other relevant datasets.

A6.25 Using this preliminary view definition, a rendering was created of the alignment model at a resolution to match the scanned photograph. This was overlaid onto the background image to compare the image created by the actual camera and its computer equivalent. Based on the results of this process adjustments were made to the camera definition. When using a wide angle lens observations outside the circle of distortion are given less weighting.

A6.26 This process was iterated until a match had been achieved between the photograph and alignment model. At this stage, a second member of staff verified the judgements made. An A3 print was made of the resulting photograph overlaid with the alignment model as a record of the match. This was annotated to show the extents of the final views to be used in the study.

Example of alignment model overlaid on the photograph

Preparing models of the Proposed Development

A6.27 A CAD model of the Proposed Development was supplied by the Architect. The level of detail applied to the model is appropriate to the AVR type of the final images.

A6.28 Models of the Proposed Development and other schemes are located within the spatial framework using reference information supplied by the Architect or, when not available, by best fit to other data from the spatial framework reference database . Study renders of the model are supplied back to the Architect for confirmation of the form and the overall height of the Proposed Development. The method used to locate each model is recorded. Each distinct model is assigned a unique reference code by the Visualiser.

Determining occlusion and creating simple renderings

A6.29 A further rendering was created using the aligned camera, which combined the Proposed Development with a computer-generated context. This was used to assist the operator to determine which parts of the source image should appear in front of the Proposed Development and which behind it. Using this image and additional site photography for information, the source file is divided into layers representing foreground and background elements.

A6.30 In cases where the Proposed Development is to be represented in silhouette or massing form (AVR1 or AVR2), final renderings of an accurate massing model were generated and inserted into the background image file between the foreground and background layers.

A6.31 Final graphical treatments were applied to the resulting image as agreed with the Architect and environmental and planning consultants. These included the application of coloured outlines to clarify the reading of the images or the addition of tones to indicate occluded areas.

Creating more sophisticated renderings

A6.32 Where more sophisticated representations of the Proposed Developments were required (AVR3) the initial model is

developed to show the building envelope in greater detail. In addition, definitions were applied to the model to illustrate transparency, indicative material properties and inter-reflection with the surrounding buildings.

A6.33 For each final view, lighting was set in the visualisation system to match the theoretical sunlight conditions at the time the source photograph was taken, and additional model lighting placed as required to best approximate the recorded lighting conditions and the representation of its proposed materials.

A6.34 By creating high resolution renderings of the detailed model, using the calculated camera specification and approximated lighting scenario, the operator prepared an image of the building that was indicative of its likely appearance when viewed under the conditions of the study photograph. This rendering was combined with the background and foreground components of the source image to create the final study images.

A6.35 A single CAD model of the Proposed Development has been used for all distant and local views, in which the architectural detail is therefore consistently shown. Similarly a single palette of materials has been applied. In each case the sun angles used for each view are transferred directly from the photography records.

A6.36 Material definitions have been applied to the models assembled as described. The definitions of these materials have been informed by technical notes on the planning drawings and other available visual material, primarily renderings created by others. These resulting models have then been rendered using the lighting conditions of the photographs.

A6.37 Where the Proposed Development is shown at night-time, the lightness of the scheme and the treatment of the materials was the best judgment of the visualiser as to the likely appearance of the scheme given the intended lighting strategy and the ambient lighting conditions in the background photograph.

A6.38 Where a panoramic view is specified each panel is prepared by treating each photograph as an individual AVR following the process described in the previous paragraphs. The panels are then arranged side by side to construct the panorama. Vertical dividers are added to mark the edge of each panel in order to make clear that the final image has been constructed from more than one photograph.

Documenting the study

A6.39 For each Assessment Point a CAD location plan was prepared, onto which a symbol was placed using the coordinates of the camera supplied by the Surveyor. Two images of this symbol were created cross-referencing background mapping supplied by Ordnance Survey.

A6.40 The final report on the Study Location was created which shows side by side, the existing and proposed prospect. These were supplemented by images of the location map, a record of the camera location and descriptive text. The AVR level is described.

A6.41 Peripheral annotation was added to the image to clearly indicate the final FOV used in the image, any tilt or rise, and whether any cropping has been applied.

A6.42 Any exceptions to the applied policies or deviations from the methodology were clearly described.

A6.43 Where appropriate, additional images were included in the study report, showing the Development in the context of other consented schemes.

Process – modelled context

Example of AVR using a modelled context

Reconnaissance

A6.44 At each Study Location the Visualiser conducted a photographic reconnaissance to identify potential Assessment Points. From each candidate position, a digital photograph was taken looking in the direction of the Proposed Development using a wide angle lens. Its position was noted with field observations onto an OS map and recorded by a second digital photograph looking at a marker placed at the Assessment Point.

A6.45 The Visualiser assigned a unique reference to each Assessment Point and Photograph.

Reference Photography

A6.46 From each selected Assessment Point a large format photograph was taken with a camera height of approximately 1.6m. The camera, lens, format and direction of view are determined in accordance with the policies set out above

A6.47 The centre point of the tripod was marked and a digital photograph showing the camera and tripod in situ was taken to allow the Surveyor to return to its location. Measurements and field notes were also taken to record the camera location, lens used, target point and time of day.

Surveying the Assessment Points

A6.48 For each selected Assessment Point a survey brief was prepared consisting of the Assessment Point study sheet.

A6.49 Using differential GPS techniques the Surveyor established the location of at least two intervisible stations in the vicinity of the camera location. A photograph of the GPS antenna in situ was taken as confirmation of the position.

Creating the context model

A6.50 Three dimension model data from a variety of sources was assembled to determine the location of significant roofscape features (parapet edges, ridge lines, chimneys etc) and groundscape features (kerb and dock edges, walls etc).

A6.51 From this data an accurate roofscape model was prepared. For buildings close to the site fenestration detail was added to the model to aid in understanding the scale of the context. Indicative trees with estimated height and width where added to the model. Additional entourage (cars, buses, street furniture etc) was inserted in order to provide scale.

Creating the study model

A6.52 Using drawings and 3D models supplied by the Architects, an accurate massing model of the project was created showing all significant elements of the building that would affect that overall silhouette of the proposals. A palette of simple abstract materials is applied to the model. In general specific construction materials are not shown, except for glass which is used in order to indicate a degree of transparency where this affects the profile of the Development.

A6.53 Using data supplied by the Architects that defined the relationship of the building grid to the Ordnance Survey, the completed study model was located in the same geometric space as the context model, the survey and other reference data.

A6.54 Indicative trees with estimated height and width where added to the model. Additional entourage (cars, buses, street furniture etc) was inserted in order to provide scale.

Rendering and Post-production

A6.55 For each selected view, a virtual camera was created at the same location as the digital photograph and using a similar FOV and target. Renders of both the existing model and the proposal model were produced using lighting from a sun at an appropriate time of day. As the models are internally consistent the relationship of the Proposed Development to the context is exact.

Documenting the study

A6.56 For each Assessment Point a CAD location plan was prepared, onto which a symbol was placed using the coordinates of the camera supplied by the Surveyor. Two images of this symbol were created cross-referencing background mapping supplied by Ordnance Survey.

A6.57 The final report on the Study Location was created which shows side by side, the existing and proposed prospect. These were supplemented by images of the location map, a record of the camera location and descriptive text. The AVR level is described.

A6.58 Peripheral annotation was added to the image to clearly indicate the final FOV used in the image, any tilt or rise, and whether any cropping has been applied.

A6.59 Any exceptions to the applied policies or deviations from the methodology were clearly described.

A6.60 Where appropriate, additional images were included in the study report, showing the Development in the context of other consented schemes.

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