Enhance the Skyline and Contribute Positively to the Legibility of the Townscape

It is essential that the layout, massing and height of the introduced built form enhances the skyline and assists in wayfinding, thereby contributing positively to legibility. Variation in the height of the introduced built forms should be achieved, gradually stepping up in height and culminating in proximity to the new DLR station in the western part of the Site. So as to not read as one large area of tall buildings, two distinct clusters should be provided within the Site, either side of the proposed Silvertown Tunnel, with the easternmost cluster of a comparatively reduced height.

Intensify Development and Create a New Local Centre

Redevelopment of this large strategic Site should capitalise on its location within the 'Arc of Opportunity' and its proximity to the proposed DLR station and Silvertown Tunnel. The introduced built form should be of a high density, helping to mark a new local centre/focal point in the townscape, while delivering a range of benefits to the neighbourhood and local community, emphasising its strategic function as a new local centre in the townscape.

Enhance the Public Realm and Visual Amenity Experience

The introduced built form should be articulated and detailed in a manner that complements the surroundings, while simultaneously providing visual interest that is sympathetic to the other nearby emerging schemes. Public and private spaces should be clearly distinguished, while ensuring that these spaces are overlooked to promote a safe neighbourhood. At the streetscape level, uniform building lines would help define the area of public realm, with a finer grain of detail provided in the facades at ground floor. Materiality should not be monotonous, avoiding a homogenous response.

DESIGN RATIONALE

Focus for high-rise development in this part of the Site, **emphasising the location of a new key focal point in the townscape**, both at a local and strategic scale. **Capacity to accommodate significantly taller built form** than the immediate surroundings, providing a sense of balance between the other existing and emerging high-rise development at Canary Wharf and on the Greenwich Peninsula while also **assisting in legibility and wayfinding**. Opportunity for the layout of introduced built form to channel views through and towards the as yet unbuilt Marco Polo building to amplify its function in the townscape.

To take advantage of the constraints presented by both the Emirates Air Line and the Silvertown Tunnel there is the potential to **incorporate a strong green infrastructure link / linear park** through the Site that would provide relief from the built-up nature of the townscape in addition to the benefits arising from **increased accessibility; physical and visual permeability; and ecological improvements**.

A secondary high-rise cluster to be provided that is physically (in terms of scale) and perceptibly subordinate to the main cluster that coincides with the location of the new DLR station. A step up in scale/height is appropriate in this location to **reflect the modulating rhythm of the townscape and built form** along the course of the River Thames east of London, thereby appropriately **tying-in with the other emerging schemes** further east, including the as yet unbuilt Marco Polo building.

Ensure that physical and visual permeability is provided within the layout of the introduced built form, **facilitating access to the waterside environment** and creating new vistas through the Site and across the River Thames that reflects the townscape grain / street pattern of the surrounding area. Regular spacing between the introduced built form could be incorporated to provide a sense of rhythm in the townscape, while building heights could be arranged so as to provide a **visually pleasing cadence in views from across the River that also assists in legibility**. The flow and lilt of the built form across the panorama would accentuate the distinctiveness of the as yet unbuilt Marco Polo building on the apex of the curve in the River Thames and at the Leamouth North Peninsula.

CONCLUSION

CONCLUSION

10. SUMMARY

10.1 Barton Willmore Landscape Planning and Design has been instructed by Silvertown Homes Ltd to provide townscape and visual advice in respect of the proposed redevelopment of that land at Thames Wharf and the Silvertown Landing Area (the 'Site').

10.2 The Site is identified as an area suitable for regeneration as it is located within both the 'Royal Docks and Beckton Riverside Opportunity Area, and the London Borough of Newham 'Arc of Opportunity', meaning that there is a greater capacity to absorb the type of development proposed.

10.3 Notably, the Site is not covered by any national regional or local landscape/townscape designations, nor does it lie within any of the protected viewing corridors as identified in the LVMF.

10.4 The Site is positioned at a unique location in the townscape, lying at the confluence of the River Lea and River Thames; in the setting of Canary Wharf and the Greenwich Peninsula; and corresponding with the location of a proposed new DLR station and the proposed Silvertown Tunnel. The Emirates Air Line also passes over and through the Site.

10.5 With respect to published characterisations, at a national level the Site is identified within NCA Profile 81: Greater Thames Estuary, while at a regional level it is identified within Natural Landscape Area 14: Lower Thames Floodplain.

10.6 At a local level, within the Newham townscape character assessment, the Site is identified within the Industrial land (older concentrations of industry) typology, which forms part of the wider Royal Docks character area. However, to provide a finer grain of detail we have undertaken a townscape assessment and identified a series of more localised townscape character areas to facilitate a better understanding of the context within which the Site lies (with the Site identified in the Leamouth and Thames Estuary area).

10.7 The surrounding area is characterised by a diverse range of land uses of varying scale and built form. Low-rise industrial and commercial units occupy Trinity Buoy Wharf (which benefits from planning permission for 30 storey high built form), which lies to the west of the Site across the River Lea, while to the north of this Wharf is the Leamouth Peninsula, which features high-rise residential built form.

10.8 Further to the west, beyond Trinity Buoy Wharf, large scale residential and office blocks predominate, gradually stepping up in height towards the iconic Canary Wharf that stands at over 50 storeys at its peak. Across the Thames to the south lies the O2 Arena (with planning permission for built form up to 40 storeys high), while to the north-east lies Royal Victoria Dock, which is framed by high-rise built form of varying use (including the Hoola towers which are 23 and 24 storeys high).

10.9 The preliminary visual appraisal demonstrates both the visual character of the Site and its surroundings, as well as the existing visual envelope of the exiting built form. A common

element of the views towards the Site is the presence and influence of open expanses of water, which in turn allows for generally uninterrupted views of the Site. Inevitably, the regeneration of the Site is therefore likely to be clearly visible and will therefore need to take design cues from the surrounding area to integrate with its context.

10.10 Nonetheless, due to the built-up nature north of the River Thames, there are many locations where the Site is not visible, and any development proposal is similarly likely to not be perceived, due to the screening afforded by the intervening built forms.

10.11 The preliminary analysis of the existing and future baseline townscape and visual characteristics of the Site and its surroundings has identified that there are a number of opportunities for the redevelopment of the Site, and accordingly a mitigation-by-design rationale has been developed to help inform the iterative design process.

10.12 Key design considerations include:

- Positively promoting regeneration and creation of a successful place;
- Contributing positively to the cityscape, creating a modulated decrescendo in building scale and height as the Thames extends east from the City of London;
- Improving the legibility of the townscape, assisting in wayfinding and acting as a gateway to the Royal Docks and the River Lea;
- Providing a sense of balance and integration with the surrounding area, while enhancing the streetscape and public realm; and
- Incorporating and creating new vistas across the blue infrastructure network to enhance the visual amenity experience.

10.13 In light of the aspirations of the emerging London Plan to deliver an even greater number of residential units, it is crucial that brownfield sites such as Thames Wharf and Silvertown Landing truly maximise their development potential through a design-led approach.

10.14 Turning to the current London Plan, and in particular the considerations of Policy 7.7, it is apparent from the site specific analysis that the Site is suitable for the development of tall buildings (i.e. those "*that are substantially taller than their surroundings*") as: it is located within an Opportunity Area and the Arc of Intensification; it is in an area with good access to public transport in the future; introduced tall buildings as a group would improve the legibility of the area and enhance the skyline over neighbouring boundaries; it can contribute to improving the permeability of the townscape; and its redevelopment would make a significant contribution to local regeneration.

TOWN PLANNING
MASTERPLANNING & URBAN DESIGN
ARCHITECTURE
LANDSCAPE PLANNING & DESIGN
PROJECT MANAGEMENT & COST CONSULTANCY
ENVIRONMENTAL & SUSTAINABILITY ASSESSMENT
GRAPHIC DESIGN
PUBLIC ENGAGEMENT
RESEARCH

All Barton Willmore stationery is produced using recycled or FSC paper and vegetable oil based inks

BARTON WILLMORE
Planning · Design · Delivery

Thameside West, London

Verified Photomontages:
Methodology and Supporting Evidence

April 2020

Contents

1.0 Overview

This document has been prepared by Realm Communications to explain the methodology used to create accurate visual representations (AVRs) of the proposed development at Thameside West, London. The visual assessment of the proposed development reflects current best practice in relation to the verification of images, a process which is constantly being refined and improved with advances in technology and industry experience.

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

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

Selection of viewpoints
Barton Willmore
7 Soho Square
London
W1D 3QB
Phone: 0207 446 6888

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

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

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

Supply of 3D building model CAD and spot height info (Masterplan)
Foster & Partners:
Riverside
22 Hester Road
London
SW11 4AN
Phone: 0207 738 0455

Supply of 3D building model CAD and spot height info (Blocks A & B)
John McAslan & Partners
7-9 William Road
London
NW1 3ER
Phone: 0207 756 8533

Supply of Landscape CAD
Patel Taylor
48 Rawstorne Street
London
EC1V 7ND
Phone: 0207 278 2323

2.0 Methodology

2.1 Photography

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

The following methodology statement has been supplied by Arcminute:

Photography brief The following methodology applies to the production of photographic images originated in February 2020 which form the pictorial basis for visual impact assessment photomontages for 21 views for the site at Thameside West, London.

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

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

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

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

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

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

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

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

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

For panoramic images, proprietary software creates a seamless and accurate cylindrical projection from an overlapping sequence of images (10 stitched together for a 120° panoramic, 14 for a 180° and 27 for a 360°) which share a single camera coordinate. The image is then placed in a pre-prepared template where the centre of the optical axis is aligned with the image centre to account for any offset used in vertical farming adjustments or mechanical

misalignment of the lens' optical axis and that of the sensor.

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 Thameside West, London. Digital files of the 21 views together with camera point locations were provided by the photographer.

Date of surveys February 2020.

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

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

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

Deliverables The completed survey data was issued as follows:

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

2.3 3D building model

An updated massing model was supplied by Foster & Partners.

2.4 Landscape

Landscape information was supplied by Patel Taylor.

2.5 Camera matching

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

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

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

2.6 Lighting and rendering

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

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

2.7 Post production

Fully rendered views The render of the three-dimensional model was superimposed on the existing still views in Adobe Photoshop. The foreground of the existing views was then copied and placed over the rendered model in order to ensure that the depth is accurate within the photomontage view between the foreground, background and the rendered model. At this stage, for the fully rendered photomontages, the textured model can be further adjusted to match the resolution, colouring and saturation of the photograph taken to create a close impression of what the textures of the buildings and structures would look like. This is a qualitative exercise and requires interpretation by the designer on how the structure will look. A final qualitative check of all of the photomontage images has been carried out to ensure that they provide objectively accurate views of the proposed development.

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

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 hand-held viewing distance of between 300 to 500mm. The recommended viewing distance for each image is specified within Section 4.0 of this document.

Panoramic views should be viewed when curved to a cylindrical shape whose radius is equal to that of the calculated viewing distance so that peripheral parts of the image are viewed at the same distance, or viewed by panning across a flat image with the eye remaining at the correct viewing distance.

When viewed on site, panoramic photomontages should be accompanied by A3 size 40° rectilinear cropped sections to better assess the visual impact of a proposed scheme.

2.9 Key to cumulative schemes

- Wood Wharf
- Scheme on Caxton St N
- Greenwich
- Royal Wharf
- Silvertown
- Leamouth North and South
- Silvertown Riverside

2.10 Caveats

None.

3.0 Supporting evidence

Ordance survey co-ordinates			
View Ref	Eastings	Northings	AOD Height
1001	539328.980	180919.766	16.492
1003	539919.868	181188.333	2.849
1004	539824.878	180802.262	9.511
1005	540030.324	180736.264	4.940
1007	540320.874	180654.765	6.126
1008	540247.892	180302.414	6.637
1009	540419.390	180177.123	12.659
1012	540713.259	180534.857	20.393
1014	541289.912	179842.999	8.083
1015	541118.459	179197.235	5.335
1016	540026.614	179368.841	5.485
1018	539364.193	180156.533	6.295
1019	539501.846	180624.045	5.018
1021	538528.352	180344.180	5.324
1023	538389.739	179783.953	5.298
1024	543782.773	180236.680	10.720
1025	543146.546	179297.518	5.764
1027	538922.418	177335.189	47.129
B	539131.872	180689.649	4.871
E	538531.476	178014.959	4.229
G	535800.622	180772.143	5.687

View 1 - 27 and B, E G Location

View G Location

6

View 1

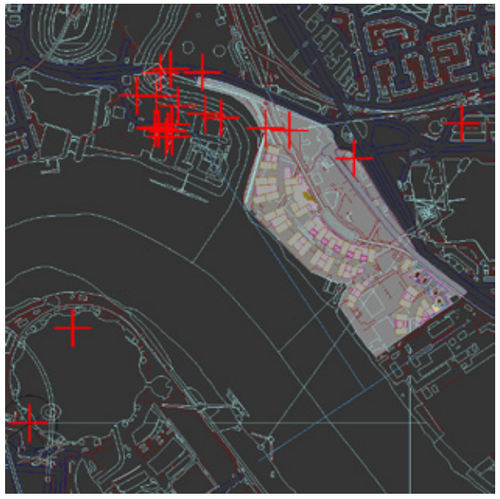
01.1 Ordnance Survey coordinates

Point Ref	Eastings	Northings	AOD height
101	539334.132	180860.939	5.005
102	539338.765	180774.627	18.316
103	539359.136	180753.715	47.529
104	539374.440	180754.285	34.426
105	539363.923	180768.900	22.099
106	539373.563	180786.297	24.488
107	539391.141	180834.981	2.953
108	539462.269	180814.420	36.607
109	539503.494	180804.017	5.458
110	539620.283	180776.421	6.726
111	539852.940	180696.667	14.108
112	539683.771	180770.854	58.068
113	539344.272	180922.191	16.184
114	539454.162	180923.048	13.940
115	540136.415	180789.232	44.400
116	539283.067	180862.760	11.323
117	539113.827	180250.623	102.751
118	539330.194	180777.274	10.618
119	539371.048	180932.073	27.255

01.3 View 1 camera location

Eastings	539328.980m
Northings	180919.766m
AOD height	16.492m
Distance to centre of site	658m
Bearing from North	146°

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 survey data

01.7 Screen grab of wireline model matched to photograph

01.8 Final camera matched photomontage

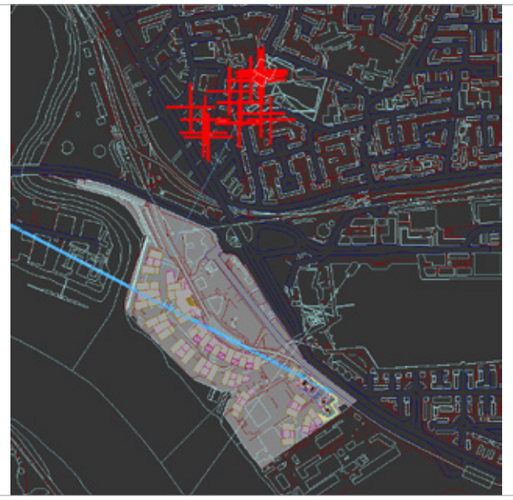
View 3

01.1 Ordance survey co-ordinates			
View Ref	Eastings	Northings	AOD Height
301	539933.557	181060.168	3.166
302	539908.348	181075.677	3.343
303	539911.055	181161.156	2.908
304	539913.757	181176.117	1.788
305	539914.606	181184.062	1.991
306	539906.051	181170.030	9.339
307	539903.841	181179.445	5.481
308	539828.543	181132.008	17.231
309	539882.785	181159.073	4.509
310	539766.617	181060.070	34.034
311	539762.840	181026.235	49.227
312	539774.443	181015.690	45.238
313	539853.426	181050.799	3.026
314	539857.957	181103.688	2.671
315	539730.333	181091.424	48.200

01.2 OS survey points marked on photograph

01.3 View 3 camera location

Eastings	539919.868m
Northings	181188.333m
AOD height	2.849m
Distance to site	677m
Bearing from North	207°



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 survey data

01.7 Screen grab of model matched to photograph

01.8 Final camera-matched photomontage

View 4

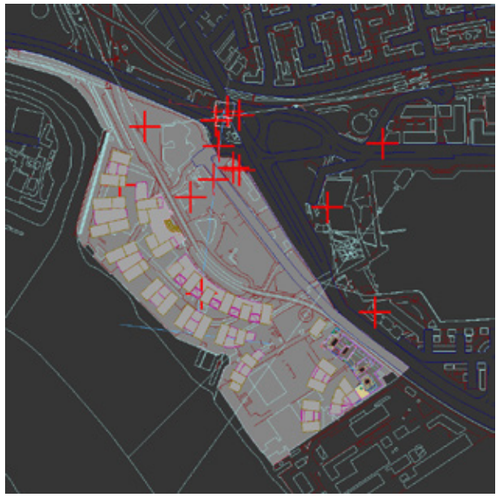
01.1 Ordnance Survey coordinates

Point Ref	Eastings	Northings	AOD height
401	540104.701	180742.993	52.738
402	539850.898	180792.822	11.664
403	539830.634	180799.787	9.308
404	539805.512	180679.318	4.832
405	540007.333	180630.007	18.472
406	540090.919	180444.189	39.597
407	539851.226	180695.513	15.104
408	539840.649	180700.037	8.388
409	539765.043	180647.921	14.097
410	539814.795	180738.106	2.295
411	539810.221	180783.230	13.001
412	539684.611	180772.611	58.162
413	539639.861	180669.752	17.301
414	539784.465	180477.342	14.210

01.3 View 4 camera location

Eastings	539824.878m
Northings	180802.262m
AOD height	9.511m
Distance to centre of site	291m
Bearing from North	187°

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 survey data

01.7 Screen grab of wireline model matched to photograph

01.8 Final camera matched photomontage

View 5

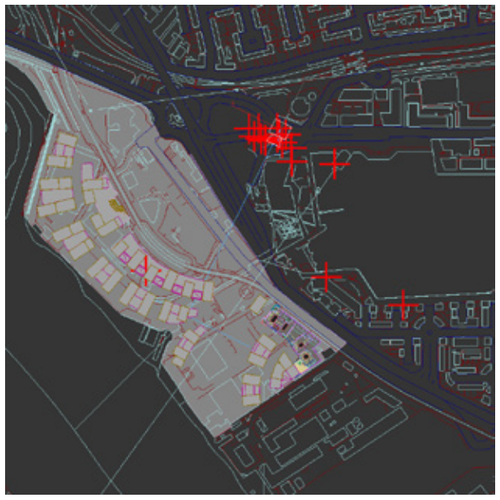
01.1 Ordnance Survey coordinates

Point Ref	Eastings	Northings	AOD height
501	540025.040	180738.486	4.897
502	539991.149	180738.591	9.075
503	539982.853	180723.363	6.203
504	540025.557	180721.545	8.677
505	540034.043	180712.158	7.957
506	540050.901	180702.311	12.610
507	540003.354	180716.160	6.241
508	540129.610	180672.975	17.898
509	540114.834	180466.534	34.180
510	540051.774	180678.052	20.788
511	540040.279	180726.747	5.179
512	539973.617	180737.705	16.699
513	539785.432	180478.386	17.801
514	540028.730	180727.462	5.305
515	539995.523	180719.218	15.628
516	540255.067	180415.723	19.514

01.3 View 5 camera location

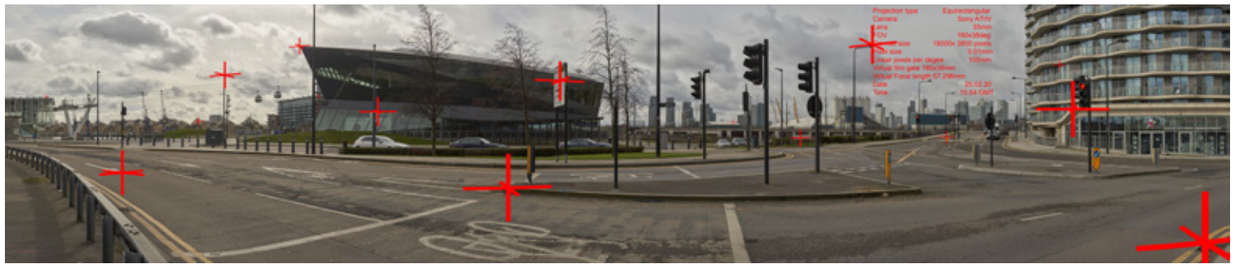
Eastings	540030.324m
Northings	180736.264m
AOD height	4.940m
Distance to centre of site	294m
Bearing from North	207

01.2 OS survey points marked on photograph

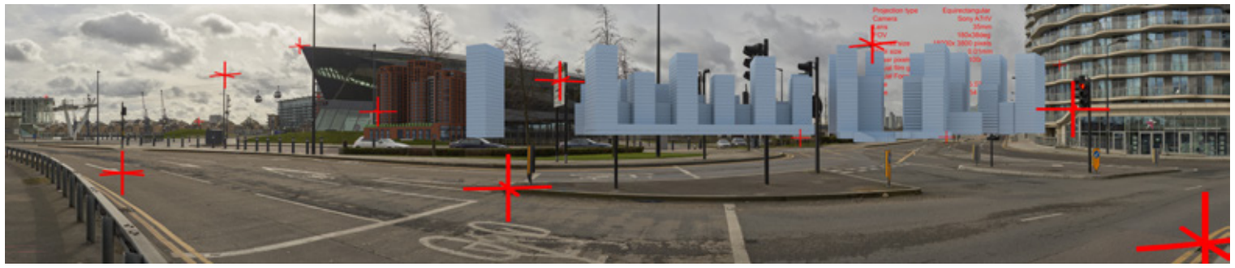


01.4 Screen grab of camera location in 3D Studio Max software

01.5 Screen grab of calculated horizon line



01.6 Screen grab of camera matching to survey data



01.7 Screen grab of wireline model matched to photograph

01.8 Final camera matched photomontage

View 7

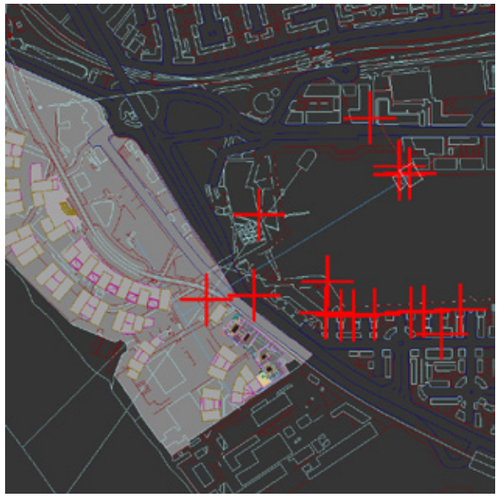
01.1 Ordnance Survey coordinates

Point Ref	Eastings	Northings	AOD height
701	540405.740	180423.942	23.280
702	540373.070	180381.832	25.317
703	540320.662	180419.040	22.777
704	540258.228	180415.822	22.883
705	540200.624	180413.965	22.651
706	540342.823	180420.797	8.384
707	540222.342	180413.858	8.381
708	540174.554	180418.193	22.566
709	540052.026	180448.197	9.277
710	539970.257	180440.864	45.966
711	540060.253	180586.376	21.561
712	540300.777	180655.265	6.594
713	540300.623	180669.729	12.932
714	540318.816	180657.144	6.793
715	540250.582	180752.178	43.578
716	540177.506	180472.016	5.848

01.3 View 7 camera location

Eastings	540320.874m
Northings	180654.765m
AOD height	6.126m
Distance to centre of site	504m
Bearing from North	338°

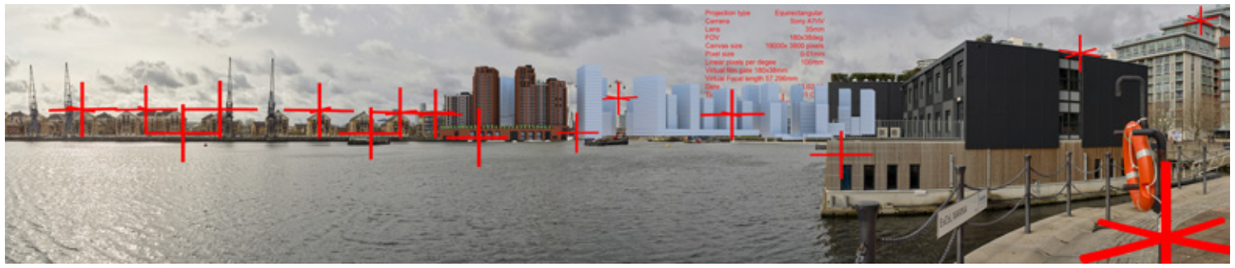
01.2 OS survey points marked on photograph



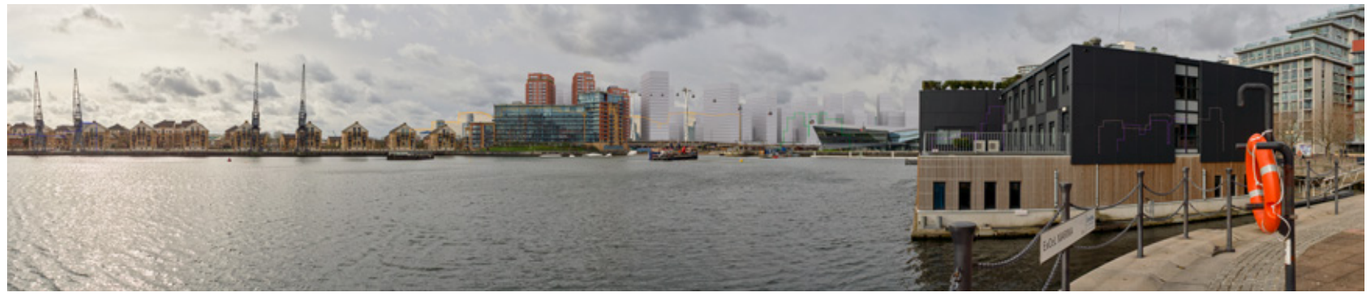
01.4 Screen grab of camera location in 3D Studio Max software

01.5 Screen grab of calculated horizon line

01.6 Screen grab of camera matching to survey data



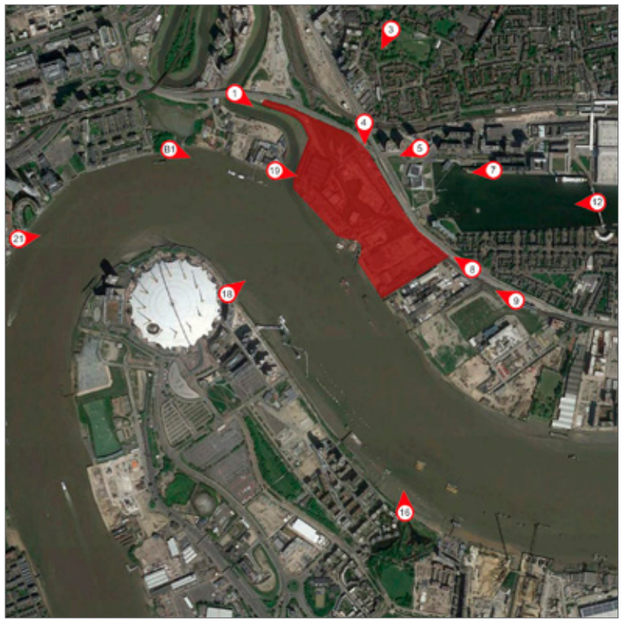
01.7 Screen grab of wireline model matched to photograph



01.8 Final camera matched photomontage

View 8

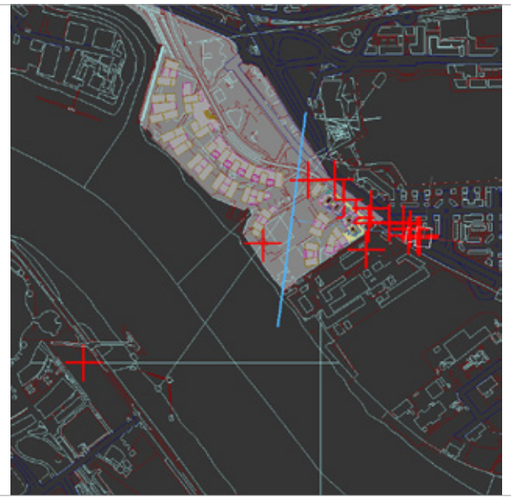
01.1 Ordance survey co-ordinates			
View Ref	Eastings	Northings	AOD Height
801	539861.359	180287.838	67.526
802	539970.233	180439.567	45.880
803	540085.055	180348.730	24.748
804	540115.780	180335.839	17.458
805	540212.020	180305.454	18.770
806	540165.312	180337.262	20.035
807	540121.189	180370.593	14.548
808	540216.324	180321.894	8.432
809	540198.820	180335.531	19.300
810	540236.722	180301.064	6.870
811	540234.630	180306.161	6.934
812	540239.660	180306.143	6.745
813	540109.638	180272.146	15.153
814	540055.456	180392.395	17.163
815	540034.310	180442.301	22.932



01.2 OS survey points marked on photograph

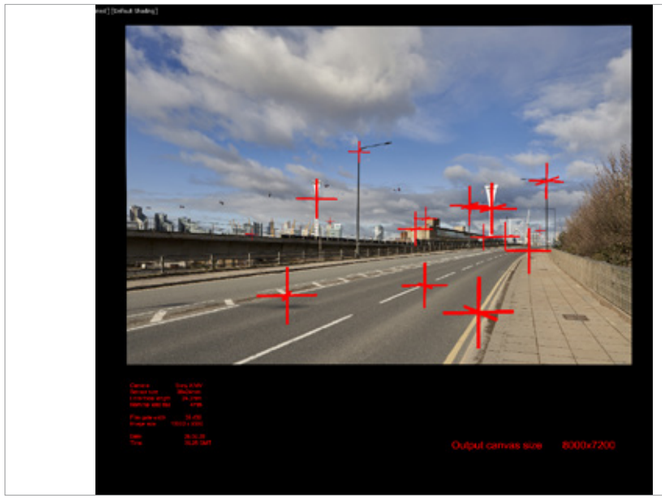
01.3 View 8 camera location

Eastings	540247.892m
Northings	180302.414m
AOD height	6.637m
Distance to site	455m
Bearing from North	278°

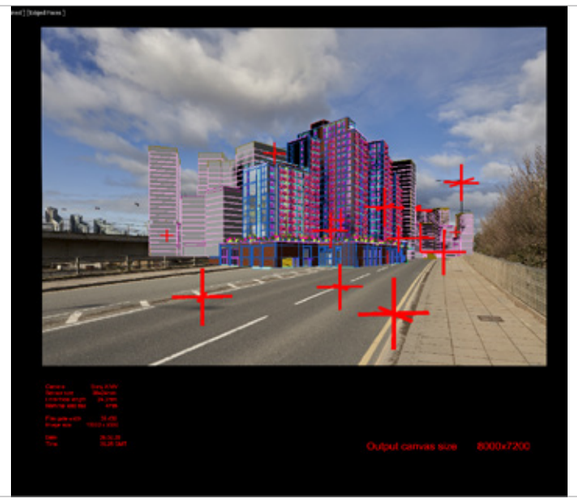


01.4 Screen grab of camera location in 3D Studio Max software

01.5 Screen grab of calculated horizon line



01.6 Screen grab of camera matching to survey data



01.7 Screen grab of model matched to photograph

01.8 Final camera-matched photomontage

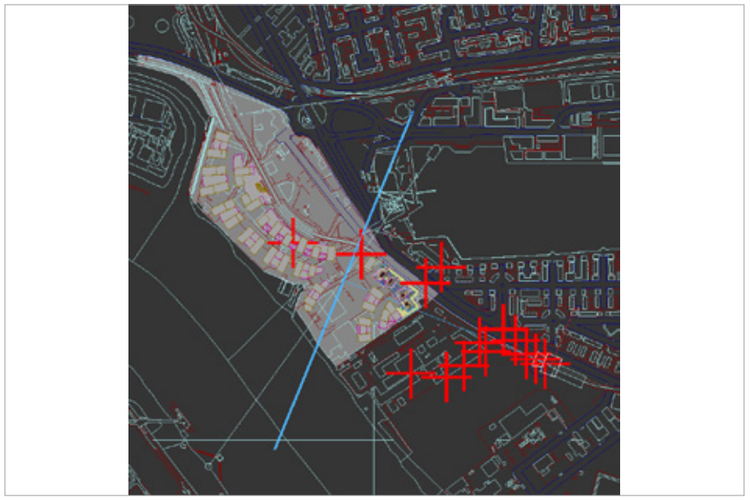
View 9

01.1 Ordance survey co-ordinates			
View Ref	Eastings	Northings	AOD Height
901	540087.485	180157.799	20.934
902	540171.750	180148.783	4.782
903	540212.689	180175.782	9.969
904	540264.087	180209.995	13.675
905	540250.411	180230.920	15.475
906	540404.799	180180.917	9.823
907	540382.831	180191.693	9.807
908	540360.489	180203.172	9.811
909	539807.889	180466.477	15.848
910	540334.808	180235.612	1.917
911	540306.343	180261.758	5.718
912	540159.393	180408.660	32.229
913	540121.837	180371.421	14.673

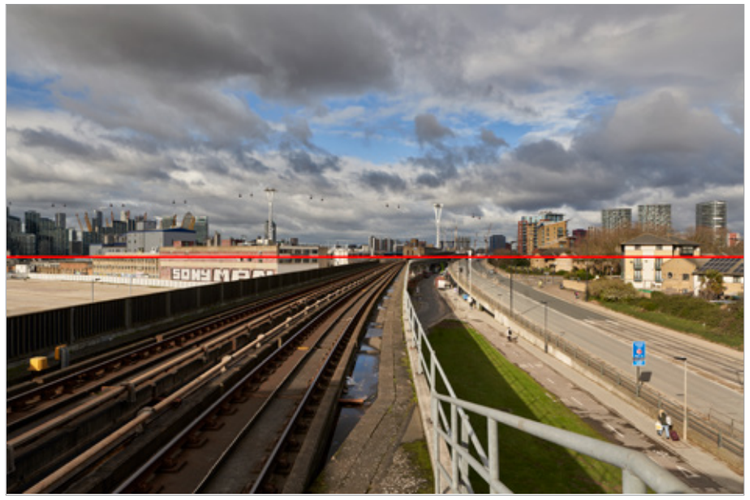
01.2 OS survey points marked on photograph

01.3 View 9 camera location

Eastings	540419.390m
Northings	180177.123m
AOD height	12.659m
Distance to site	677m
Bearing from North	293°



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 survey data

01.7 Screen grab of model matched to photograph

01.8 Final camera-matched photomontage

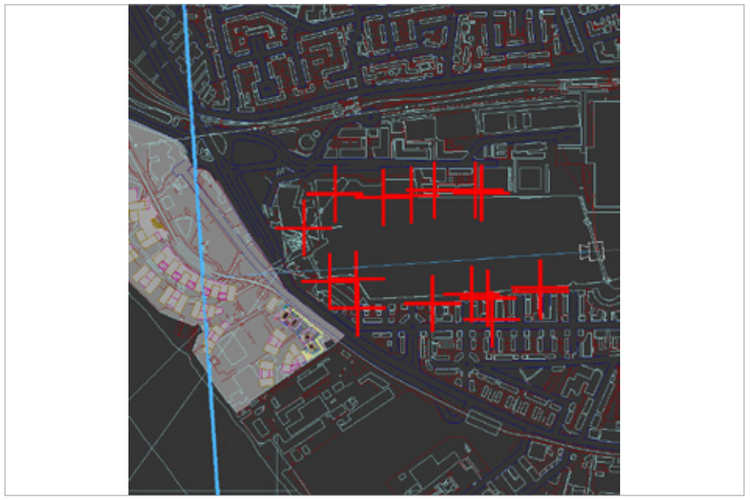
View 12

01.1 Ordance survey co-ordinates			
View Ref	Eastings	Northings	AOD Height
1201	540589.702	180444.688	19.532
1202	540471.452	180429.715	20.199
1203	540118.135	180467.195	44.495
1204	540180.736	180407.631	24.505
1205	540587.710	180453.016	8.168
1206	540116.459	180511.079	6.955
1207	540238.472	180654.442	6.624
1208	540300.726	180659.512	6.649
1209	540130.154	180662.532	4.587
1210	540351.792	180670.891	53.318
1211	540443.599	180671.146	33.478
1212	540456.950	180664.599	10.710
1213	540348.004	180417.837	22.463
1214	540434.470	180438.854	51.524
1215	540480.708	180382.615	25.708
1216	538578.138	180540.563	96.183

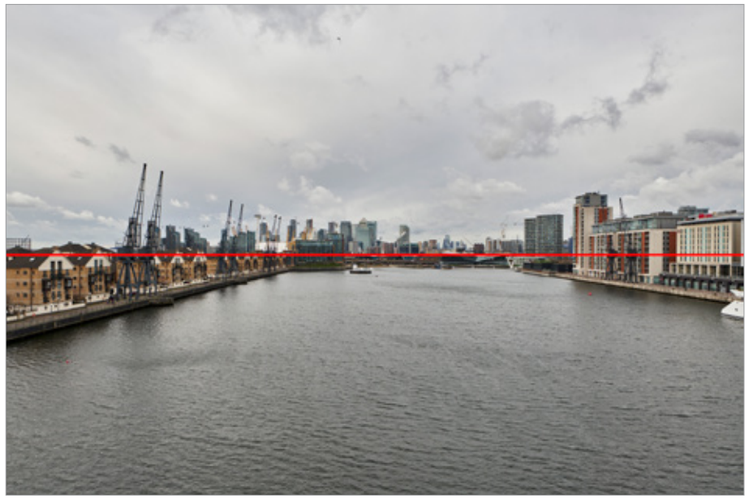
01.2 OS survey points marked on photograph

01.3 View 12 camera location

Eastings	540713.259m
Northings	180534.857m
AOD height	20.393m
Distance to site	886m
Bearing from North	274°



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 survey data

01.7 Screen grab of model matched to photograph

01.8 Final camera-matched photomontage

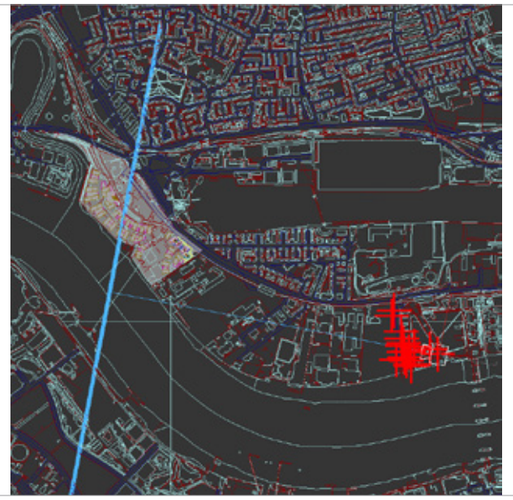
View 14

01.1 Ordance survey co-ordinates			
View Ref	Eastings	Northings	AOD Height
1401	541155.309	179787.811	46.800
1402	541154.241	179796.675	22.079
1403	541133.139	179812.142	20.586
1404	541085.554	179819.214	35.281
1405	541125.395	179830.072	20.619
1406	541143.459	179856.537	16.136
1407	541122.384	179854.932	26.915
1408	541113.378	179884.210	27.949
1409	541120.047	179899.895	20.599
1410	541110.718	179918.751	27.956
1411	541108.068	179953.621	27.940
1412	541171.170	179882.924	6.860
1413	541284.371	179845.216	7.255
1414	541062.998	180029.136	50.445
1415	541075.675	180055.215	50.476
1416	541247.946	179869.982	7.249

01.2 OS survey points marked on photograph

01.3 View 14 camera location

Eastings	541289.912m
Northings	179842.999m
AOD height	8.083m
Distance to site	1589m
Bearing from North	280°



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 survey data

01.7 Screen grab of model matched to photograph

01.8 Final camera-matched photomontage

View 15

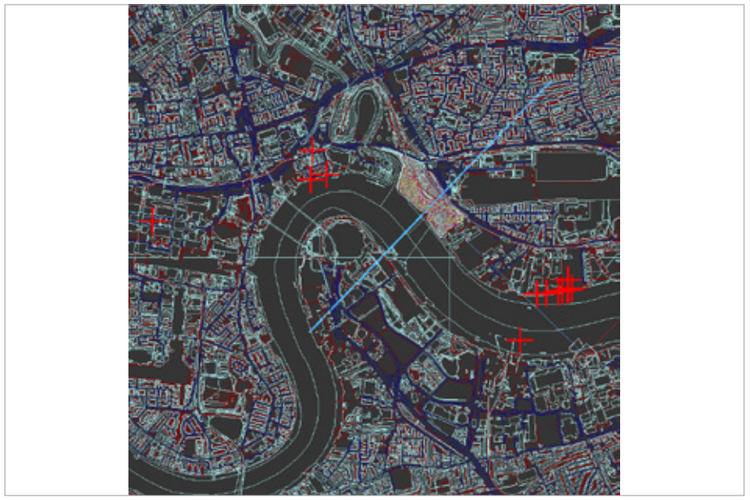
01.1 Ordance survey co-ordinates

View Ref	Eastings	Northings	AOD Height
1501	540578.511	179320.459	4.067
1502	540795.703	179707.166	33.784
1503	540719.078	179703.626	33.803
1504	540894.489	179719.572	32.034
1505	540968.699	179735.887	32.034
1506	540977.945	179818.340	35.191
1507	541007.268	179747.309	28.492
1508	540926.374	179727.003	9.976
1509	540980.799	179738.345	9.079
1510	537550.050	180303.620	245.750
1511	538854.338	180643.255	22.920
1512	538984.826	180685.701	22.333
1513	538868.740	180885.383	72.679

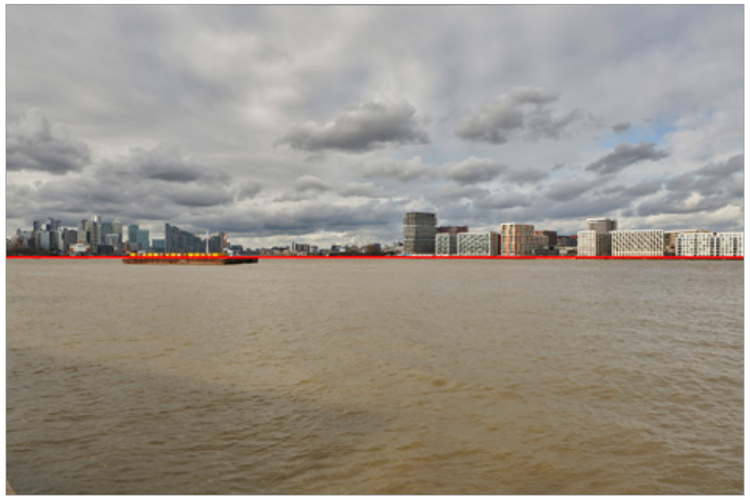
01.2 OS survey points marked on photograph

01.3 View 15 camera location

Eastings	541118.459m
Northings	179197.235m
AOD height	5.335m
Distance to site	1860m
Bearing from North	314°



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 survey data

01.7 Screen grab of model matched to photograph

01.8 Final camera-matched photomontage

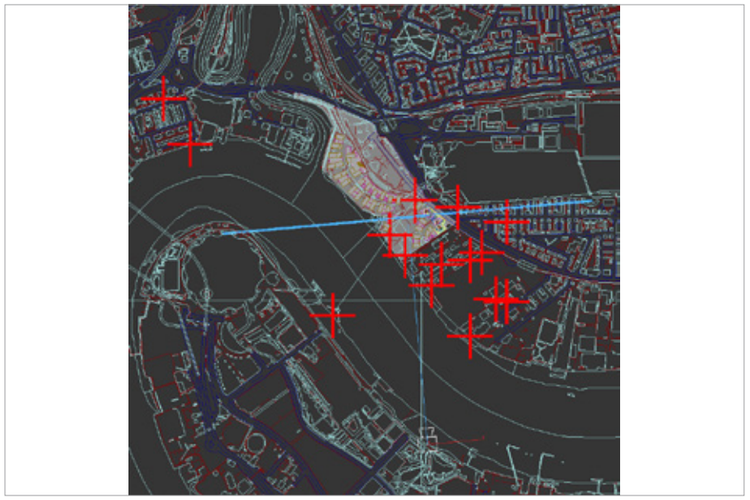
View 16

01.1 Ordance survey co-ordinates			
View Ref	Eastings	Northings	AOD Height
1601	540373.032	179994.326	15.520
1602	540327.057	180006.067	22.865
1603	540212.574	179843.205	8.140
1604	540044.226	180065.783	13.237
1605	540373.255	180344.794	18.968
1606	539927.304	180198.092	11.829
1607	539610.418	179934.139	15.013
1608	538868.740	180885.383	72.679
1609	538984.934	180685.681	22.485
1610	539861.359	180287.838	67.526
1611	540087.485	180157.799	20.934
1612	539970.233	180439.567	45.880
1613	540212.689	180175.782	9.969
1614	540264.087	180209.995	13.675
1615	540159.393	180408.660	32.229

01.2 OS survey points marked on photograph

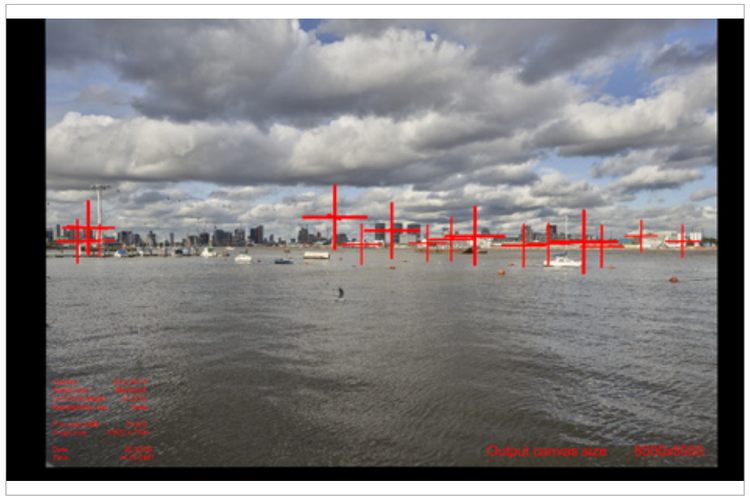
01.3 View 16 camera location

Eastings	540026.614m
Northings	179368.841m
AOD height	5.485m
Distance to site	1136m
Bearing from North	355°



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 survey data

01.7 Screen grab of model matched to photograph

01.8 Final camera-matched photomontage

View 18

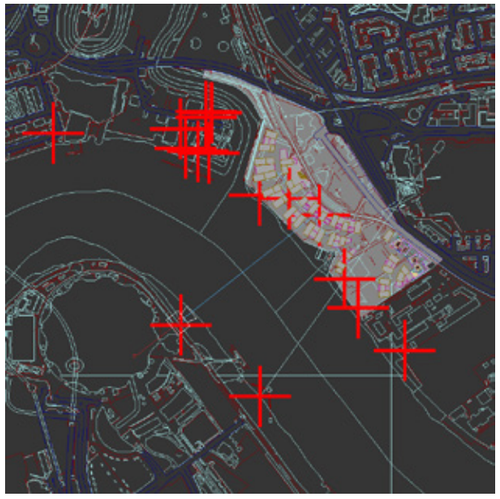
01.1 Ordnance Survey coordinates

Point Ref	Eastings	Northings	AOD height
1801	539423.331	180667.814	15.564
1802	539784.821	180477.752	14.171
1803	539606.969	180536.862	8.027
1804	539372.748	180149.533	6.293
1805	539608.049	179938.296	68.813
1806	539859.290	180287.057	67.660
1807	540038.787	180074.159	13.181
1808	539900.554	180201.549	11.950
1809	539455.757	180662.257	9.011
1810	539386.461	180676.515	13.044
1811	539695.296	180526.845	13.272
1812	538992.848	180721.181	15.311
1813	539371.265	180734.122	47.590
1814	539447.531	180785.883	49.802
1815	539463.501	180782.232	49.794
1816	539447.537	180767.865	31.447

01.3 View 18 camera location

Eastings	539364.193m
Northings	180156.533m
AOD height	6.295m
Distance to centre of site	587m
Bearing from North	52°

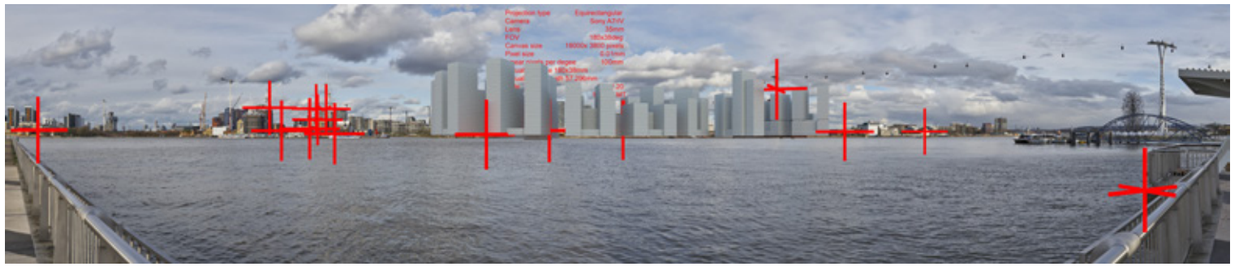
01.2 OS survey points marked on photograph



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 survey data



01.7 Screen grab of wireline model matched to photograph

01.8 Final camera matched photomontage

View 19

01.1 Ordnance Survey coordinates

Point Ref	Eastings	Northings	AOD height
1901	539503.440	180633.591	7.207
1902	539503.951	180667.832	15.455
1903	539529.035	180708.523	15.438
1904	539708.542	181070.029	44.601
1905	539744.809	181006.363	43.558
1906	539769.632	180977.355	35.945
1907	539661.197	180860.256	10.823
1908	539620.110	180776.599	6.799
1909	539685.261	180770.144	58.126
1910	539604.035	180717.443	9.257
1911	539623.851	180676.165	17.086
1912	539609.383	180635.924	17.319
1913	539622.582	180591.902	11.013
1914	539567.910	180586.945	7.746

01.3 View 19 camera location

Eastings	539501.846m
Northings	180624.045m
AOD height	5.018m
Distance to centre of site	385m
Bearing from North	88°

01.2 OS survey points marked on photograph