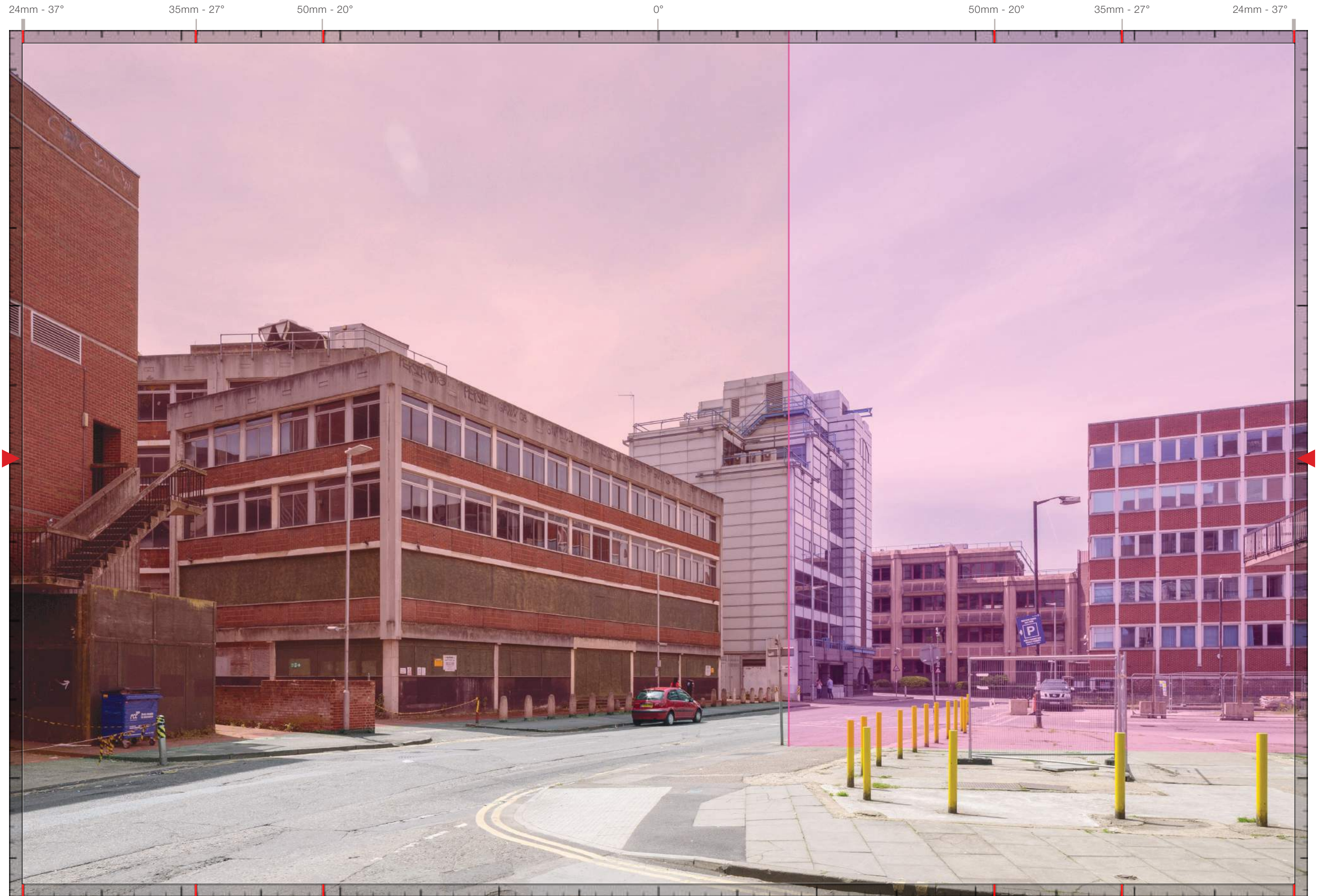




Cumulative view

Chapter 7

CONCLUSIONS

AND RESIDUAL

IMPACTS

Do Nothing – No Development

- 7.1 If the Proposed Development were not to take place the existing townscape character of the Site would remain broadly similar. It would continue to be a gap in the urban and public realm fabric and have a negative effect on the quality and character of the surrounding area.

Interim Condition: Temporary Events Space

- 7.2 An Interim Condition of the Proposed Development is a multi-functional events space which was the subject of a separate planning application which gained approval in January 2014. It will be simply landscaped with hard and soft surfaces and planting and will significantly enhance the quality of the immediate context of the building Plots during their phased construction. The space has been designed to accommodate a number of potential uses. It has also been designed to integrate with the Station redevelopment, and will help to create a series of interlinked spaces and to improve the permeability of the surrounding area. The planting and activity that the Temporary Events Space will bring will have a beneficial impact on the setting of the listed Station and the character of the surrounding townscape that people will experience and view as they arrive at Reading by train.

Construction Impacts of the Proposed Development

- 7.3 The impacts on the local area during construction on townscape and public realm character will result in a temporary moderate adverse visual impact because of the disturbance and visual impact on the Site and in the surrounding area; for example, the presence of cranes, deliveries and service connections. This impact would be temporary and is not considered major due to the adverse visual impact of the Site in its existing state.
- 7.4 Construction impacts will have a minor impact on distant views due to the requirement for cranes and the large scale of the Proposed Development which will be visible as it is built, particularly in distant views from elevated points.

Operational Impacts of the Proposed Development

- 7.5 The assessment of the Proposed Development on townscape and visual impact has been undertaken with particular regard to:

- the size and massing of the maximum and minimum parameters of the Proposed Development and points in between;
- the architectural styles and palettes of materials identified for each plot in the DAS and Design Codes documents;
- the arrangement of routes, landscaped spaces and active uses at street level;
- guidance for plant and other material at roof level;
- other schemes under construction and consented buildings visible in relation to the Proposed Development.

- 7.6 The Site has a low sensitivity to change. This is because it comprises a number of dilapidated buildings, including the Western Tower, and boarded-up buildings with large parts of the site inaccessible to pedestrians. It is also set within a mixed quality townscape, on the north side being adjacent to the Thames Tower site and close to the Grade II listed Station. It is recognised, however, that the Proposed Development will have a substantial and permanent effect on the existing townscape and public realm character.

Townscape impacts

- 7.7 The principal townscape changes of the Proposed Development on the local area will be:

- The creation of two new landscaped areas of public realm, Station Square and Central Square;
- New pedestrian routes both east-west and north-south through the Site which connect the main shopping thoroughfare to the new bus interchange and refurbished Station;
- The replacement of office and retail buildings on Site with buildings of masses and designs that will be more viable to owners and ensure occupation, use and, therefore, vitality;
- Buildings which will be of appropriate and high quality architectural styles and materials, relating to their specific contexts in different parts of the Site and reflecting their different uses;
- An appropriate frontage on the south side in relation to Friar Street and the adjacent listed building;
- An appropriate frontage to the north and the bus interchange and Station refurbishment works currently in progress;
- A marker for the new bus interchange, refurbished Station and new Station Square;
- Enhancement of the perception of Reading, in particular for rail users; and
- The positive visual effect of the Proposed Development on the streets surrounding the Site through the quality of its design and materials and through the increased activity and illumination brought day and night.

7.8 The Proposed Development will also have a significant impact on distant views in the wider area. The massing has been arranged to create a new, attractive, landmark cluster form on the Reading skyline that will relate positively to other consented development and will landmark the newly refurbished Station and Station Square by appearing as a compact and cohesive identifiable group on the skyline. Plot C will be the tallest Plot and will be seen alone and in relation to the second tallest, B, in a number of distant views, adding to the existing urban skyline and marking the Station in a wide area. In views where more plots are visible, they will have an attractively layered and stepped composition that will give depth to the cluster form and will form a new, cohesive element to the regenerated Reading skyline.

Heritage impacts

- 7.9 There are no conservation areas and listed buildings on Site. However, the setting of designated heritage assets in the local and wider area has been taken into account during the design process.
- 7.10 The closest designated heritage asset to the Site is the adjacent listed building at 39 Friar Street (see views 12 and 26). The south elevation of Plot E has been brought forward to share the same building line as the listed building and is set 8 metres away from it by Friars Walk, the entrance to which is in between. Both the minimum and maximum parameters of Plot E step down in height from the taller buildings in the north, providing a mediation in height with the listed building and the frontage on Friar Street, whilst still potentially providing a marker for the new pedestrian route (in the maximum parameters). The palette of materials of Plot E and F, to the rear of the listed building, will also be more earthbound than the commercial development to the north, and will have more articulated, explicitly residential elevations at upper level. The proposed amended Plot E will have the same character and will be of the same minimum and maximum heights as Plot E of the SH3 Scheme: it will have the same impact on the setting of the adjacent listed building. The newly exposed west elevation of the listed building, fronting the south end of Friar’s Walk, will gain a new and positive setting.
- 7.11 North of the Site and facing Plot C and B is the Grade II listed Reading Station. Due to its distance from the Site, the listed Station will not be seen in a direct visual relationship with the Proposed Development. However, the Proposed Development will be prominent in views south from within its setting. The massing and materials of the Proposed Development will not relate directly to the listed building, however the significance of the listed building will not be harmed: it is a symmetrically composed building which relates primarily to the open space it faces and to the other rail associated structures. The new Station Square will extend and improve the public realm beside the Station and the north elevations of Plots B and C will provide clear and attractive new frontages to Station Hill road, with active uses at street level bringing vitality to that area. Due to the high quality of the buildings, spaces and routes proposed, the setting of the listed Station will be greatly enhanced

- 7.12 The statue of King Edward VII on the roundabout at the north end of Station Road is also close to the Site. However, it is primarily seen in approaches from the south or east, where it will be seen against the backdrop of Thames Tower. The part of the Site north of Thames Tower accommodates the new Station Square, which will contribute positively to the local setting of the listed statue. The buildings of the Proposed Development will have no impact on the immediate setting or significance of the listed statue.
- 7.13 The settings of the listed buildings fronting Station Road will be little impacted if at all by the Proposed Development. As views 25 and 25a show, only the top of the maximum parameters of Plot C may be seen and it will appear set well back from those listed buildings and will not harm their significance.
- 7.14 The Proposed Development will have little impact on the setting of the listed buildings at the east end of Friar Street except when looking from the open space in front of the Grade II listed town hall (view 25). From here, at maximum parameters, the existing Novotel on the skyline will be much hidden and the tops of Plots B, D and C will appear as a discrete new layer of urban form on the skyline, distinct from the red brick, historic buildings in view and – at both maximum and minimum parameters – providing a new high quality marker for the Station. View 25, from outside the Grade I St Laurence Church, is in the north part of the Market Place/ London Street Conservation Area and is dominated by the listed town hall building in the foreground: the setting of all of these historic buildings enhanced. The small part of the Proposed Development visible in the mid-distance will add positively to the existing urban context of these listed buildings and the conservation area through its massing and the high quality architectural expression and materials palettes set out in the Design Code documents.
- 7.15 To the east of the Site, only Plot C will be visible in relation to the setting of the Grade II listed Reading Prison wall and the Grade II listed Church of St James (view 23). As View 23 shows, the existing setting of these listed buildings is of disparate built form and is significantly detracted by the adjacent major road. The narrow east elevation of Plot C addresses this view and it will rise to a similar height as existing modern buildings in the mid-distance and will provide a new slender marker for the regenerated Station and surrounding area: the setting of these listed buildings will not be harmed.
- 7.16 To the southwest of the Site, at maximum parameters, the tops of almost all the Plots of the Proposed Development would be visible close to the tower of the Grade I listed St Mary’s church, at the heart of the St Mary’s/ Castle Street Conservation Area (view 28). Together they would have a dense and richly layered cluster form on the skyline, marking the regeneration of the Station and surrounding area, and would appear much lower (because more distant) and separate to the Church tower. At minimum parameters, only part of Plot C would be seen, and in summer it would be largely concealed by trees. The impact on the setting of the Grade I listed Church and the Conservation Area would be moderate and entirely beneficial.

7.17 The Proposed Development will be visible in some views from St Peter’s Conservation Area, to the north of the Site. View 3 is from the churchyard of the Grade II* listed Church of St Peter, which provides a position slightly elevated from the river below. From here, the tops of Plots A, B, C and D will become the tallest buildings in view through the winter trees in the middle ground. However, they will be visibly distant forms and will be of a related, calm architectural expression that will ensure that they have a discrete presence on the skyline. The existing Western Tower on Site will be replaced with a group of high quality buildings which will signal the regeneration of the Station and surrounding area beyond and will add positively to the distant urban context of this historic place.

Visual Impacts

Local views

- 7.18 Due to the scale of the Proposed Development, it will have a moderate to major, beneficial impact on all local views in the close vicinity of the Site in which it is clearly visible. That will be primarily from the Station surrounds in the north and from streets orientated towards the Site in the west. From the south and east of the Site, views of the Proposed Development will be very restricted and moderate at most. These impacts have been assessed in section 6 and found to be entirely beneficial.
- 7.19 In close views from the west (views 10, 11, 14, 15 and 16), Plot A will be the most visible form, fronting the west of the Site, with the maximum parameter tops of other Plots rising above. If built out to the maximum parameters, the tops of Plots A, D, B and C will appear as a tight group, their different heights and massing adding depth to the skyline form and rising towards Plot C to mark the northeast end of the Site at the Station. The streets to the west of the Site have a fragmented appearance and are characterised by varied housing and light industrial buildings and spaces, the setting of which will be positively transformed by the Proposed Development.
- 7.20 Due to the embedded nature of the Site, close views on its south side are on Friar Street only. Views 12 and 26 show that only Plot E would be visible on Friar Street. At both minimum and maximum parameters, it would add positively to the varied street frontage and will mark the entrance to the new Friar’s Walk, leading north through the Site and to the new public spaces and activity located there. The proposed amended Plot E would be of the same minimum and maximum heights and character as Plot E in the SH3 Scheme, with its mass extended further westwards: the likely significance of its impact on the character of Friar Street, and on views east and west along the street, will be the same as that of Plot E in the consented SH3 Scheme.
- 7.21 To the east of the Site, only the tip of the maximum parameters of Plot C may be seen on Station Road (views 25 and 25a). If visible, Plot C will landmark the new Station Square and regenerated area just south of the Station, and will assist in forming a separate upper layer of built

form in view, separating the Novotel further from the predominantly brick frontage at street level.

7.22 Views from the north are restricted to positions very close to the Site and the Station, which would be positively transformed by the creation of the new Station Square and routes through the Site, and by the activity introduced by shops and entrances at the street level of Plots C and B, which will address the new bus interchange. Local views further north are restricted by the rail lines and associated land and by the Royal Mail Group site on its north side.

Distant views

7.23 The Proposed Development will be most visible in distant viewpoints from elevated positions or across open spaces. Few such positions were found in the residential areas to the south of Reading and none in the distance to the west. However, a number of open and elevated places were identified to the north and east of the Site from which the Proposed Development would be visible. The impact of the Proposed Development on distant viewpoints has been assessed in section 6 above and, depending on the distance of the viewing position and the height and sensitivity of the built form and spaces in view, it has been found to be negligible to major, and entirely beneficial.

7.24 In almost all views from the north, Plots C and B are the most prominent forms of the Proposed Development, with the tops of the lower Plots, where visible, seen stepping down to the west and the south, creating a tight cluster form on the skyline. The architectural expression and materials palette of the northerly plots of the Proposed Development would be visibly related and together they would have a recognisable skyline form, stepping up to the northeast to mark the refurbished Station. The Western Tower will be replaced with a group of high quality buildings which will signal the regeneration of the Station and surrounding area beyond and will add positively to the urban skyline of Reading.

7.25 In mid-distant views from the east (views 21, 22 and 23), Plot C would be the most prominent Plot, landmarking the refurbished Station, with the other Plot buildings clustered beyond. In the limited views available from the south (view 6), Plot C would also be the most prominent part of the Proposed Development, with Plots B and D stepping down to the west. The lower, southerly Plots G, E and F would have no impact on these more distant vantage points from any direction.

7.26 Overall, and in conjunction with the works in progress to the Station and bus interchange and the proposed and consented large scale development in the area, the Proposed Development will have a positive impact on the setting and perception of Reading by drawing attention to the town centre and linking it visually and physically to the transport interchange. This effect is considered to be major and beneficial.

Impacts of amended Plot E

7.27 As is evident from the views assessment in section 6 and the conclusions relating to townscape, heritage and visual impacts in the preceding paragraphs, the proposed amended Plot E will have the same significance of impact in conjunction with the other plots of the consented SH3 Scheme as the consented Plot E of the original SH3 Scheme. This is because it will have identical minimum and maximum parameter heights and, although broader in width and significantly greater in overall mass, its footprint will maintain the existing adjacent street lines (on Friar Street to the south and Garrard Street to the north). Consequently, the impacts of the Proposed Development set out in the 2013 ES would not be affected by the amendments proposed to Plot E. Three views (views 29-31) in addition to those assessed in the 2013 ES were selected for assessment in this report to allow a full consideration of the potential impacts of the enlarged Plot E: they show that in such close views, the likely significance of impact of the proposed Development will be major and entirely beneficial.

Mitigation

7.28 The impacts on the local area during construction on townscape and public realm character will result in a temporary moderate adverse impact because of the disturbance and visual impact on the Site and its surrounds. This will be mitigated by hoarding and other measures to be agreed with RBC. The Temporary Events Space will also mitigate these adverse effects.

7.29 The operational development would not require mitigation. The potential impacts of the Plot heights and mass, and the principles of their architectural expression and detail, have been considered and adjusted throughout the design process so as to fix a design that will relate positively to its local and wider context.

Residual impacts

7.30 There would be no residual effects beyond those considered in relation to the completed and operational development in section 6 above.

REFERENCES

- 1 - 1..... *Guidelines for Landscape and Visual Impact Assessment (GLVIA) Third Edition* (2013) produced jointly by the Landscape Institute and the Institute of Environmental Management and Assessment;
- 1 - 2..... Historic England, *Seeing History in the View* (May 2011)
- 1 - 3..... *National Planning Policy Framework* (March 2012)
- 1 - 4..... *Planning Practice Guidance (PPG)* (March 2014)
- 1 - 5..... Historic England, *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (March 2015)
- 1 - 6..... EH/CABE, *Guidance on Tall Buildings* (July 2007)
- 1 - 7 Reading Borough Council, *Reading Borough Council Core Strategy* (Adopted January 2008, altered January 2015)
- 1 - 8..... Reading Borough Council, *Reading Borough Council Sites and Detailed Policies Document (SDPD)* (Adopted October 2012, altered 27 January 2015)
- 1 - 9..... Reading Borough Council, *Reading Central Area Action Plan to 2026* (January 2009)
- 1 - 10..... Reading Borough Council, *Reading Station Area Framework* (December 2010)
- 1 - 11 Reading Borough Council, *Station Hill South Planning Urban Design Brief (SHSPUDB)* (March 2007)
- 1 - 12..... Entec, *Reading Tall Building Strategy* (January 2008)
- 1 - 13..... P.H. Ditchfield and William Page, *A History of the County of Berkshire: Volume 3* (1923)
- 1 - 14 Reading Borough Council, *Market Place/London Street Conservation Area Appraisal* (March 2007)
- 1 - 15..... Reading Borough Council, *St Mary's Butts/Castle Street Conservation Area Appraisal* (March 2008)
- 1 - 16 Historic England, *The National Heritage List for England* (2013)
- 1 - 17..... P.H. Ditchfield and William Page, *A History of the County of Berkshire: Volume 2* (1907)

Cityscape

VERIFIED VIEW

METHODOLOGY

0.1 Methodology overview

The methodology applied by Cityscape Digital Limited to produce the verified images or views contained in this document is described below. In the drafting of this methodology and the production and presentation of the images, guidance has been taken from the London View Management Framework SPG March 2012. The disciplines employed are of the highest possible levels of accuracy and photo-realism which are achievable with today’s standards of architectural photography and computer-generated models.

0.2 View selection

The viewpoints have been selected through a process of consultation with relevant statutory consultees and having regard to relevant planning policy and guidance.

CAMERA MATCHING PROCESS FOR DIGITAL PHOTOGRAPHY

OUTSOURCED OPERATION		INHOUSE OPERATION	PAGE
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1.0
PHOTOGRAPHY

1.1 Digital photography

With the latest advances in Digital Photography it is now possible to match the quality of plate photography. Due to the added benefits of time saving and flexibility Cityscape now employ full time in-house digital photographers.

1.2 Lenses

For local views a wide angle lens of 24mm or 35mm was used in order to capture as much of the proposal and its surroundings as possible. Intermediate distance views were photographed with a standard 35mm to 70mm. As a guide, the following combinations were used:

Distance to subject	View	Canon Digital SLR, 1DS Mark III and 5D
0 - 800 metres	Local	24mm to 50mm 'L' series
800 to 5000 metres	Intermediate	24mm to 70mm 'L' series zoom

Examples of these views are shown in Figures 4 and 5.

1.3 Digital camera

Cityscape used a Canon 1DS (shown in figure 1), Canon Digital SLR, Canon 1DSMK3 or 5D (all full frame digital SLRs) high resolution digital camera for the digital photography. Also used were Canon's 'L' series professional tilt and shift lenses which produce high quality images that are suitable for the camera-matching process without the need for processing and scanning.

1.4 Position, time and date recording

The photographer was provided with (i) an Ordnance Survey map indicating the position of each viewpoint from which the required photographs were to be taken, and (ii) a digital photograph taken by Cityscape of the desired view. For each shot the camera was positioned at a height of 1.60/1.65 metres (depending on whether image is SPG or RPG3A view) above the ground level which closely approximates the human eye altitude. A point vertically beneath the centre of the lens was marked on the ground as a survey reference point and two digital reference photographs were taken of (i) the camera / tripod location and (ii) the survey reference point (as shown in Figures 2 and 3). The date and time of the photograph were recorded by the camera.





- 1 Canon 1DS Digital Camera
- 2 Camera Location
- 3 Survey reference point
- 4 Local view
- 5 Intermediate view

2.0 // 3.0

RAW FILE CONVERSION AND DIGITAL IMAGE CORRECTION

2.1 Raw file conversion

Canon cameras produce a raw file format, which is then processed digitally for both high detail and colour accuracy. The final image is outputted as a tiff1 file.

3.1 Digital image correction

The digital images were then loaded into Cityscape’s computers running Adobe Photoshop®2 software to prepare the digital image for the next stage of camera matching (see section 6). The image is also ‘bank’4 corrected which means ensuring that the horizon in each digital image is precisely horizontal.

In spite of the selection of the most advanced photographic equipment, lenses are circular which results in a degree of distortion on the perimeter of images. The outer edges of an image are therefore not taken into consideration; this eliminates the risk of inaccuracy. Figure 20 in section 6 illustrates the ‘safe’ or non-distortive area of an image which is marked by the red circle.

The adjusted or corrected digital image, known as the ‘background plate’, is then saved to the Cityscape computer system ready for the camera matching process (see section 6). In preparation for the survey (see section 4) Cityscape marks up each background plate selecting a number of points in the view, such as corners of buildings, for survey (see Figures 7 and 8).

1/ TIFF is the name given to a specific format of image file stored digitally on a computer.

2/ Adobe Photoshop® is the industry standard image editing software.

3/ Pixel stands for picture element. It is the most basic component of any computer graphic and corresponds to the smallest thing that can be drawn on the computer screen.

4/ By aligning the vanishing points.

6



7



7

7 Background plate highlighting critical survey points in purple and secondary survey strings in red

8 Area of interest to be surveyed as shown in Figure 7

4.0

GPS SURVEY

4.1 Survey

Marshall Survey Associates Ltd. (MSA) were contracted to undertake the survey of (i) each viewpoint as marked on the ground beneath the camera at the time the photograph was taken (and recorded by way of digital photograph (see section 1 above)) and (ii) all the required points on the relevant buildings (as marked on the background plate).

The survey was co-ordinated onto the Ordnance Survey National Grid (OSGB36) by using Global Positioning System (GPS) equipment (see, for example, Figure 9) and processing software. The Ordnance Survey National Grid (OSGB36) was chosen as it is the most widely used and because it also allows the captured data to be incorporated into other available digital products (such as Ordnance Survey maps). The height datum used was Ordnance Survey Newlyn Datum and was also derived using the GPS.

MSA uses a baseline consisting of two semi-permanent GPS base stations (see Figure 10). These stations are located approximately 5730 metres apart and positioned so as to optimise the results for the area of operation (see location map, Figure 14). The base stations are tied into the National GPS Network and are constantly receiving and storing data which allows their position to be monitored and evaluated over long periods of operation. By using the same base stations throughout the survey MSA ensure the consistency of the results obtained.

Using the Real Time Kinematic method a real time correction is supplied by each base station to the rover (shown in Figure 11) (over the GSM5 network) physically undertaking the field survey. This enables the rover to determine the co-ordinates of its location instantaneously (i.e. in ‘real time’). The rover receives a ‘corrected’ fix (co-ordinates) from each base station. If the two independent fixes are each within a certain preset tolerance, the rover then averages the two fixes received. The viewpoints are, with a few exceptions, surveyed using this technique. This method of GPS survey (Real Time Kinematic) produces results to an accuracy in plan and height of between 15mm-50mm as outlined in the “Guidelines for the use of GPS in Land Surveying” produced by the Royal Institute of Chartered Surveyors.

The particular points on each building as marked up on the background plate are surveyed using conventional survey techniques utilising an electronic theodolite and reflectorless laser technology (shown in Figures 12 and 13). There are two methods used to fix the building details, namely polar observations⁶ and intersection observations⁷. The position of the theodolite is fixed by the rover as described above. In certain circumstances, a viewpoint may need to be surveyed using conventional survey techniques as opposed to Real Time Kinematic, if, for example, the viewpoint is in a position where GPS information cannot be received.

5/ GSM network: the mobile phone network.

6/ Polar observation is the measurement of a distance and direction to a point from a known baseline in order to obtain co-ordinates for the point. The baseline is a line between two known stations.

7/ Intersection observation is the co-ordination of a point using directions only from two ends of a baseline.

8



9



10



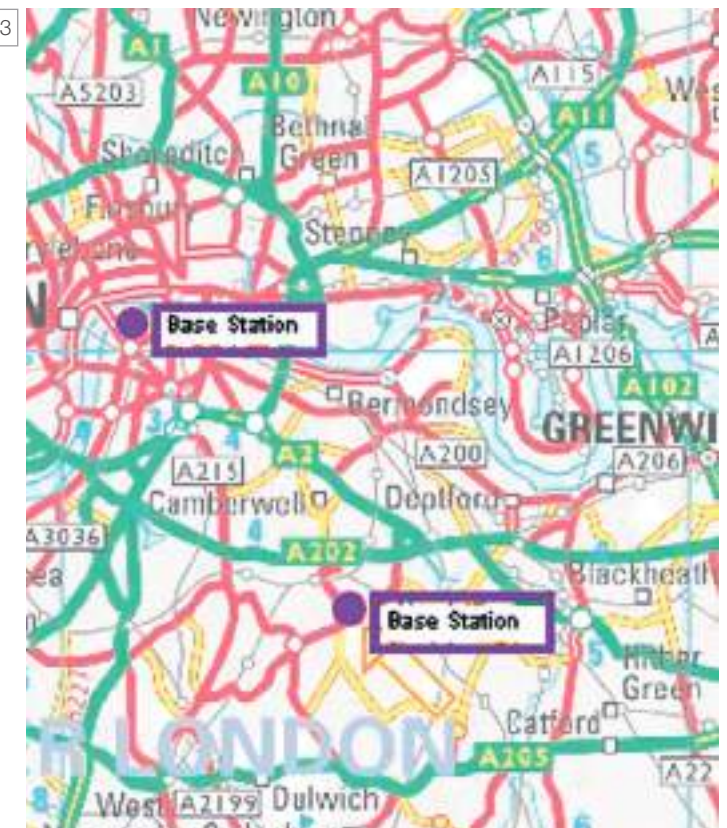
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12



13



8 Marshall Survey semi-permanent GPS base station

9 GPS System

10 Field survey being carried out using a GPS rover

11 Electronic Theodolite

12 Field survey being carried out by St. Paul's Cathedral

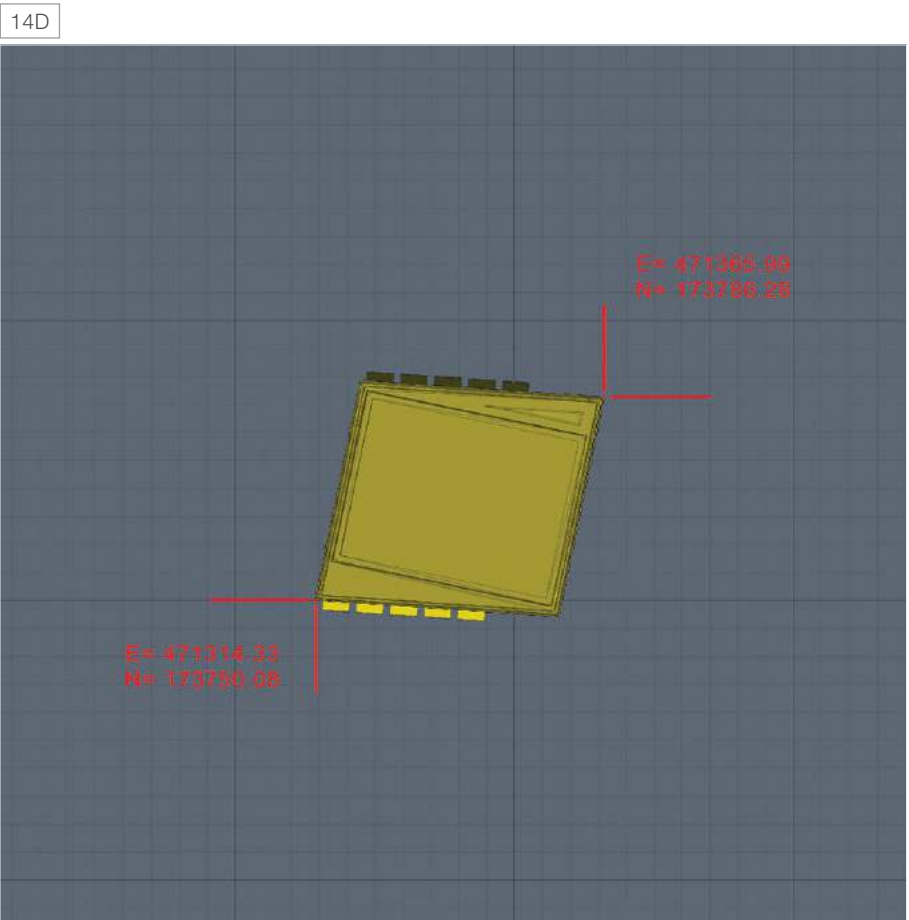
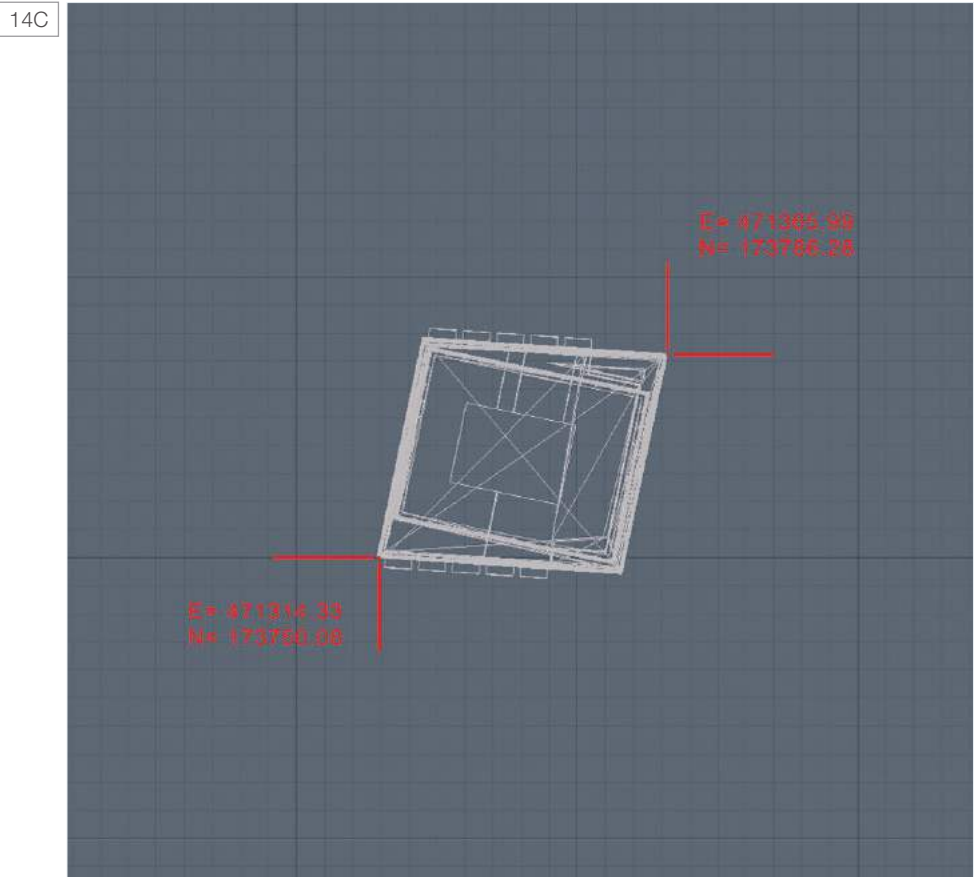
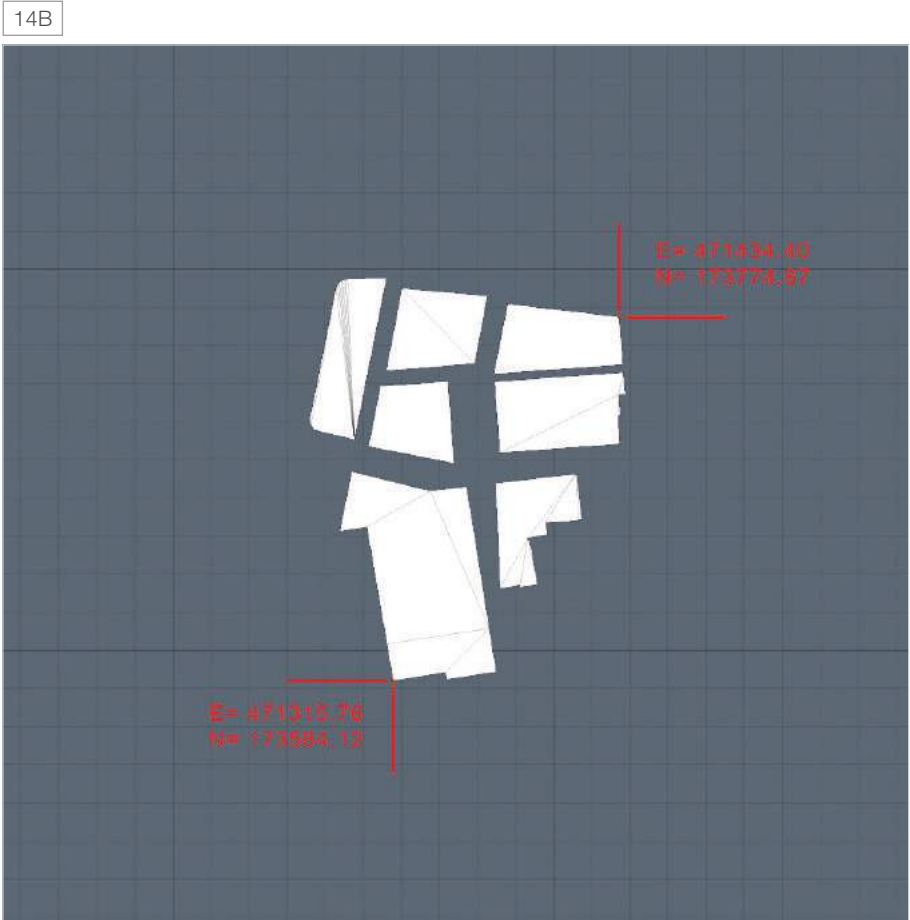
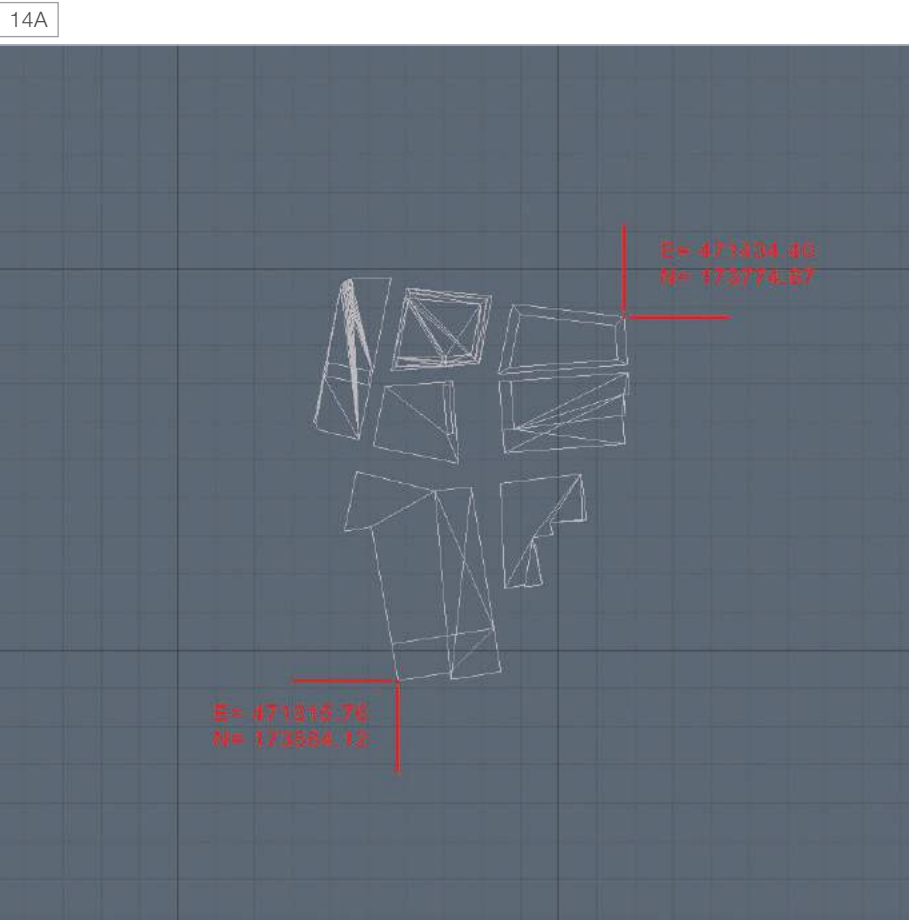
13 Location of Marshall Survey's GPS base stations

5.0

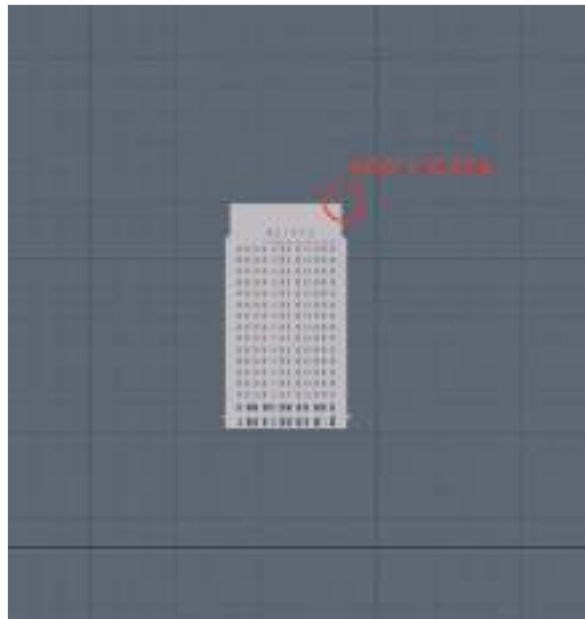
MODEL POSITIONING

5.1 Height and position check

The model is positioned using a site plan provided by the architect. This is then overlaid onto OS positioned survey from ProMap. Once the building has been positioned in Lightwave confirmation of height and position is requested from the architect. Two clear reference points are agreed and used to confirm the site plan and Ordnance Survey. The height is cross checked against the architects section and given in metres Above Ordnance Survey Datum (AOD).



15E



15G



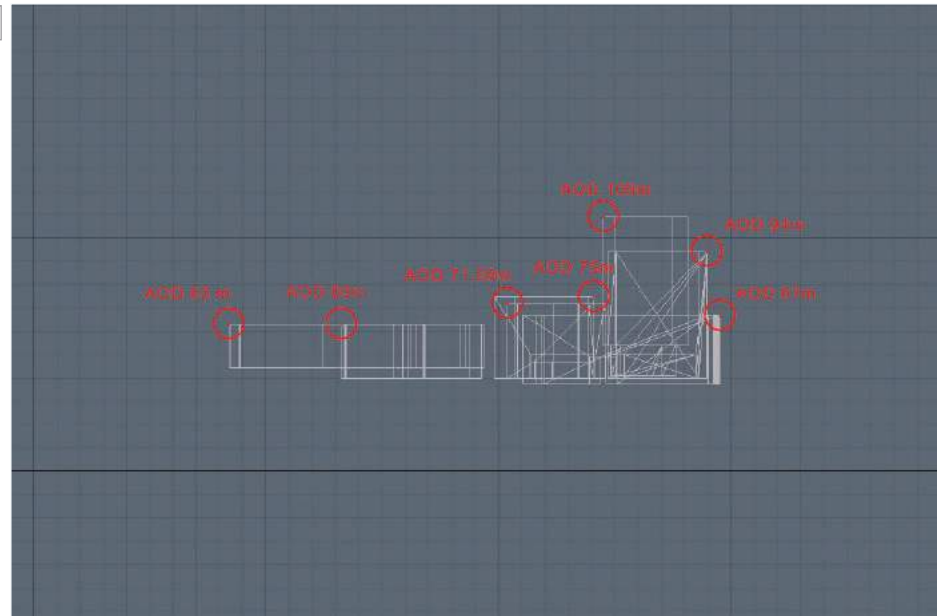
15I



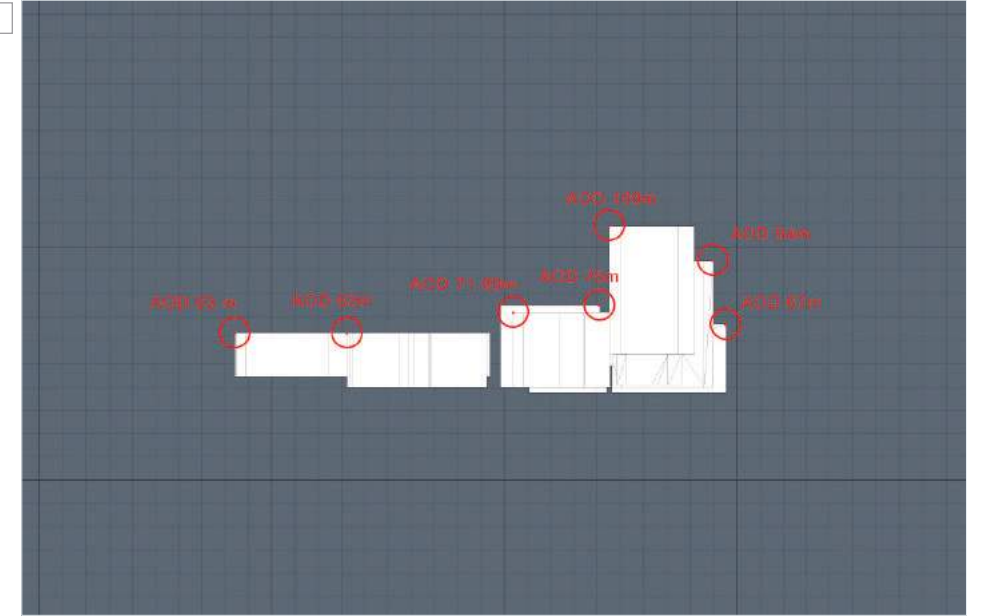
15F



15H



15J



- 14A The architect plan
- 14B Cityscape model plan
- 14C Methodology Detail Plan Architect
- 14D Methodology Detail Plan Cityscape
- 15E Methodology Detail Elevation Architect
- 15F Methodology Detail Elevation Cityscape
- 14G Methodology Max Elevation Architect
- 15H Methodology Min Elevation Architect
- 15I Methodology Max Elevation Cityscape
- 15J Methodology Min Elevation Cityscape

6.0

CAMERA MATCHING

Cityscape has built up a comprehensive database of survey information on buildings and locations in central London; the database contains both GPS survey information and information regarding the dimensions and elevations of buildings gathered from architects and other sources. Figure 19 shows a selection of GPS located models (yellow) within Cityscape’s database which effectively represents a 3D verified computer ‘model’ of some prominent buildings in central London. The term ‘3D model’ has been adopted with caution in this methodology as it is thought to be slightly misleading because not every building in central London is included in the database although the majority of those buildings which form part of the ‘skyline’ are included.

The outlines of buildings are created by connecting the surveyed points or from the information obtained from architects’ drawings of particular buildings. By way of example of the high level of detail and accuracy, approximately 300 points have been GPS surveyed on the dome of St. Paul’s. The database ‘view’ (as shown in Figure 19) is ‘verified’ as each building is positioned using coordinates acquired from GPS surveys.

In many instances, the various co-ordinates of a particular building featured in one of the background plates are already held by Cityscape as part of their database of London. In such cases the survey information of buildings and locations provided by MSA (see section 4 above) is used to cross-check and confirm the accuracy of these buildings. Where such information is not held by Cityscape, it is, where appropriate, used to add detail to Cityscape’s database. The survey information provided by MSA is in all cases used in the verification process of camera matching.

A wireframe8 3D model of the proposed scheme is created by Cityscape from plans and elevations provided by the architects, Allies and Morrison and from survey information of the ground levels on site and various other points on and around the site, such as the edge of adjacent roads and bollards etc. provided by MSA.

- The following information is required for the camera matching process:
- Specific details of the camera and lens used to take the photograph and therefore the field of view 10 (see section 1);
 - The adjusted or corrected digital image i.e. the 'background plate' (see section 2);
 - The GPS surveyed viewpoint co-ordinates (see section 3);
 - The GPS surveyed co-ordinates of particular points on the buildings within the photograph (the background plate) (see section 3);
 - Selected models from Cityscape’s database (see section 4);
 - The GPS surveyed co-ordinates of the site of the proposed scheme (see section 4);
 - A 3D model of the proposed scheme (see section 5).

A background plate (the corrected digital image) is opened on computer screen (for example, Figure 20), the information listed above is then used to situate Cityscape’s virtual camera such that the 3D model aligns exactly over the background plate (as shown in Figures 21 and 24) (i.e. a ‘virtual viewer’ within the 3D model would therefore be standing exactly on the same viewpoint from which the original photograph was taken (Figure 23). This is the camera matching process.

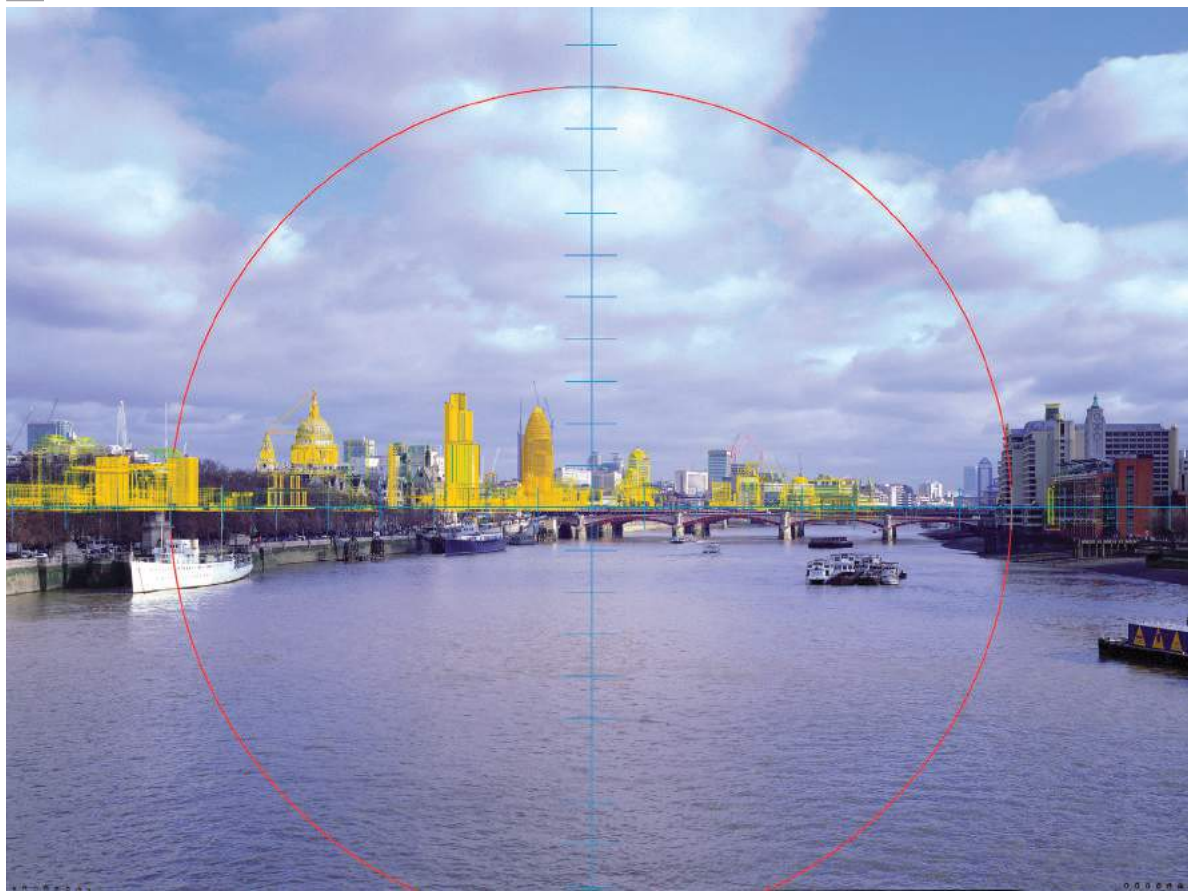
Cityscape is then able to insert the wireframe 3D model of the proposed scheme into the view in the correct location and scale producing a verified wireline image of the proposal (shown in Figures 22 & 25). The camera matching process is repeated for each view and a wireline image of the proposal from each viewpoint is then produced. The wireline image enables a quantitative analysis of the impact of the proposed scheme on views.



8/ A wireframe is a 3D model, a wireline is a single line representing the outline of the building.

16 Selected GPS located models (yellow) from Cityscape’s database, situated on Cityscape’s London digital terrain model

17



20



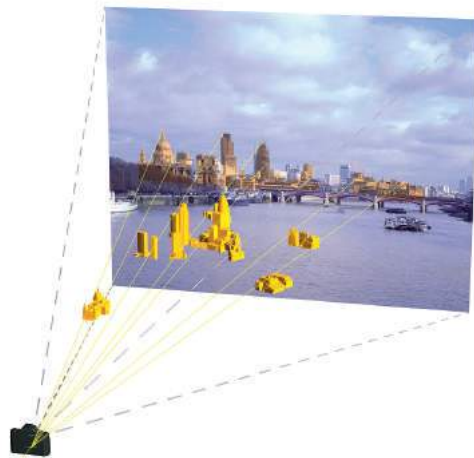
21



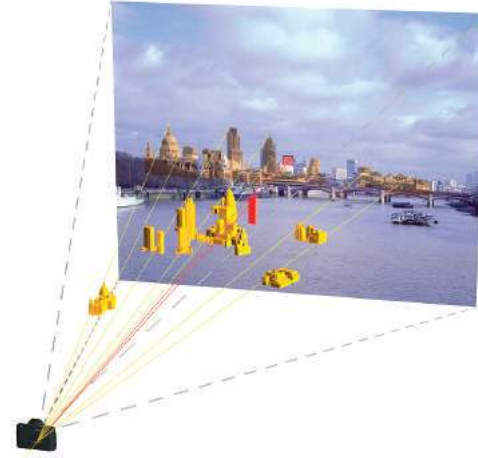
22



18



19



17 Background plate & selected 3D models as seen by the computer camera. Red circle highlights the safe or non-distortive area of the image

18 Background plate matched to the 3D GPS located models

19 The camera matched background plate with an example of a proposed scheme included in red

20 Background plate: digital photograph, size and bank corrected as described in section 3

21 Camera matching: the background plate matched in the 3D GPS located models

22 The camera matched background plate with the proposed scheme included

7.0

POST PRODUCTION

7.1 Post production

Finally the rendered image of the scheme model is inserted and positioned against the camera matched background plate. Once in position the rendered images are edited using Adobe Photoshop®. Masks are created in Photoshop where the line of sight to the rendered image of the proposed scheme is interrupted by foreground buildings (as shown in Figure 27).

The result is a verified image or view of the proposed scheme (as shown in Figure 28).

23



23

Background plate

24

Background plate with rendered scheme positioned using the camera matching process Red area highlights the Photoshop mask that hides the unseen portion of the render

25

Shows a photo-realistic verified image

24



25



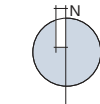
An aerial architectural sketch of a city block, rendered in a light blue line-art style. The sketch shows a dense urban environment with various building footprints, streets, and green spaces. In the center-left, there is a large rectangular area with a grid-like pattern, possibly representing a park or a large building complex. To its right, there are several smaller rectangular blocks, some with internal courtyards. The overall layout suggests a planned urban development. The text is overlaid on the right side of the image.

PLOT E AND TELECOM HOUSE

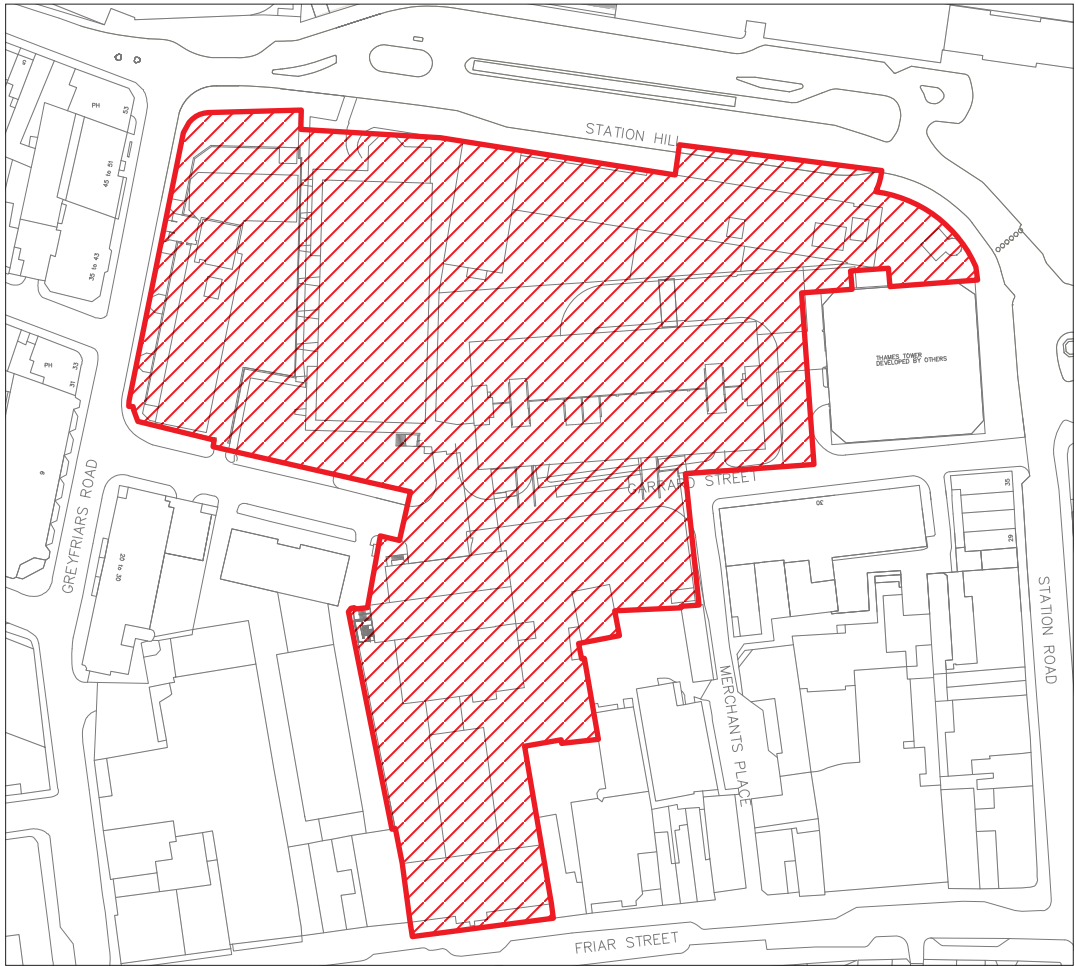
Outline Application
Environmental Statement (ES)

Volume 3: Figures

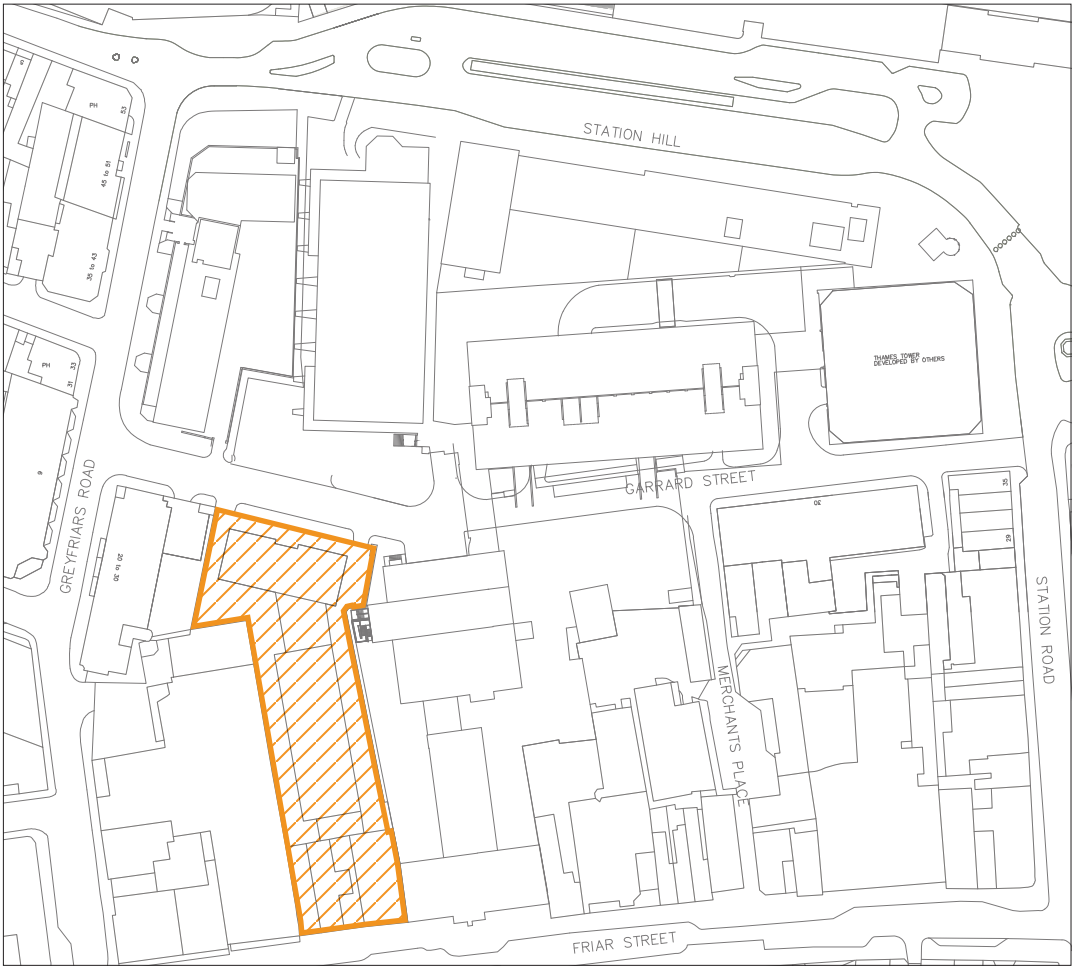
Waterman
August 2015



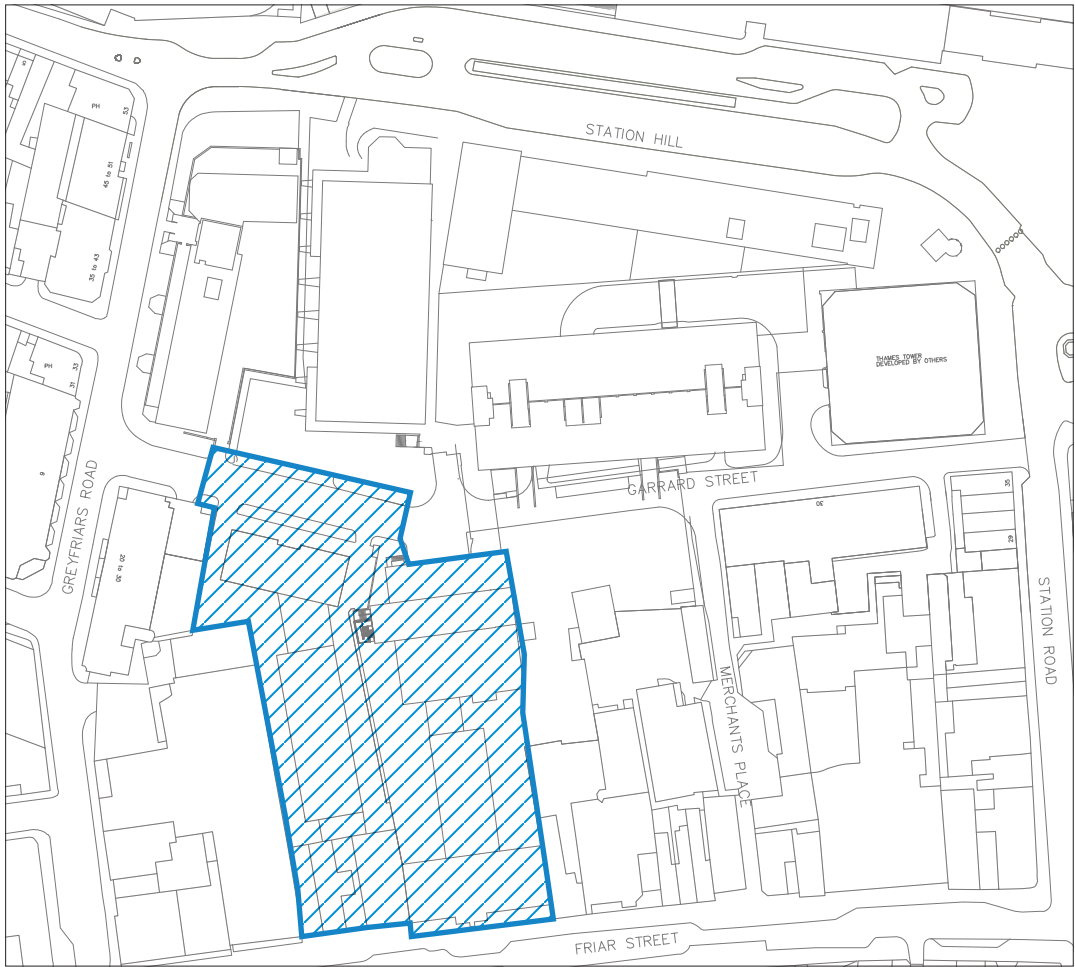
Project Details	WIB12350-111: Station Hill, Reading
Figure Title	Figure 1.1: Site Location
Figure Ref	WIB12350-111_GR_ES_1.1A
Date	2015
File Location	\\s-Incsweed\projects\leed12350\111\graphics\es\issued figures



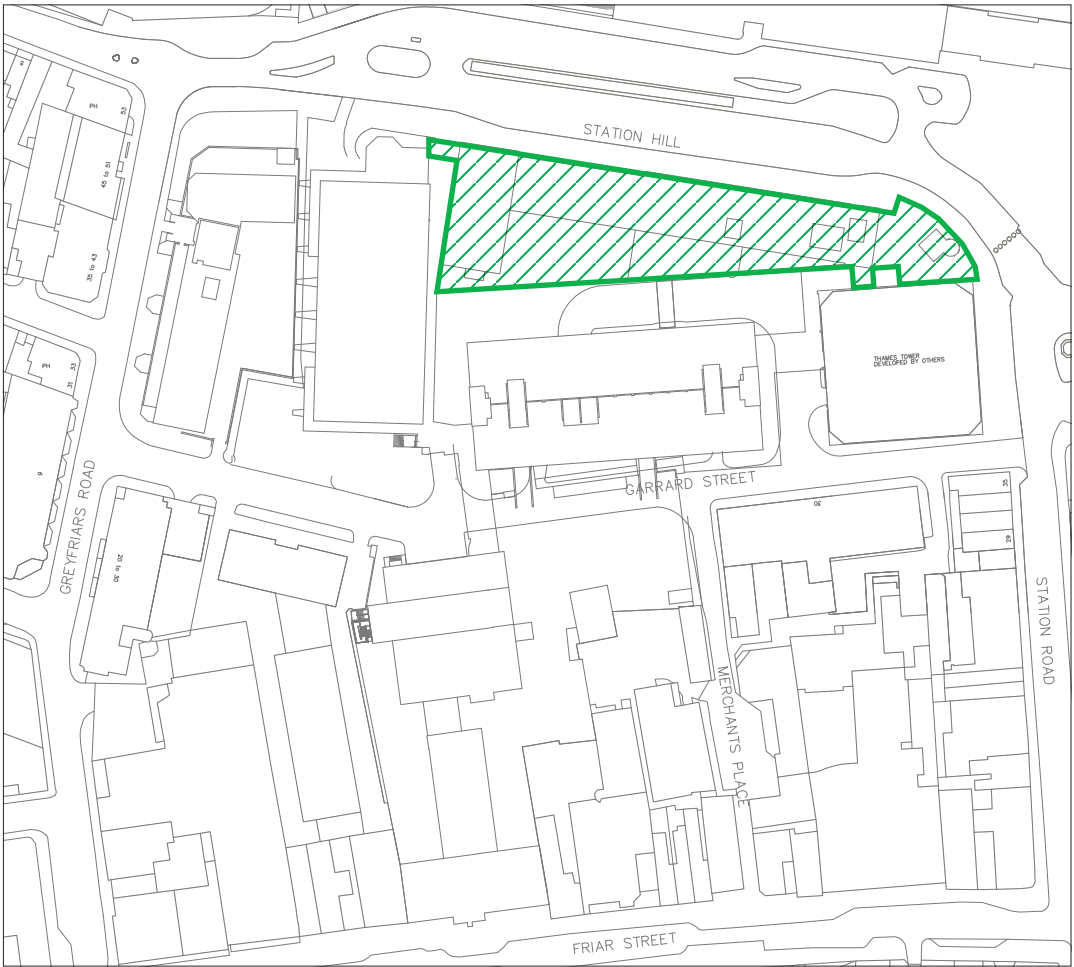
SH3 Scheme Planning Application Boundary



Telecom House Site

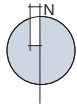


Telecom House / Plot E Scheme Application Boundary



Temporary Events Space Application Boundary

-  SH3 Scheme Planning Application Boundary
-  Telecom House Site
-  Telecom House / Plot E Scheme Application Boundary
-  Temporary Events Space Application Boundary



Project Details

WIB12350-111: Station Hill, Reading

Figure Title

Figure 1.2: Site Boundaries

Figure Ref

WIB12350-111_GR_ES_1.2A

Date

2015

File Location

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