Elephant and Castle, Coburg House

Workshop 1

26th March 2021

Tibbalds planning and urban design

expedition

HayesDavidson

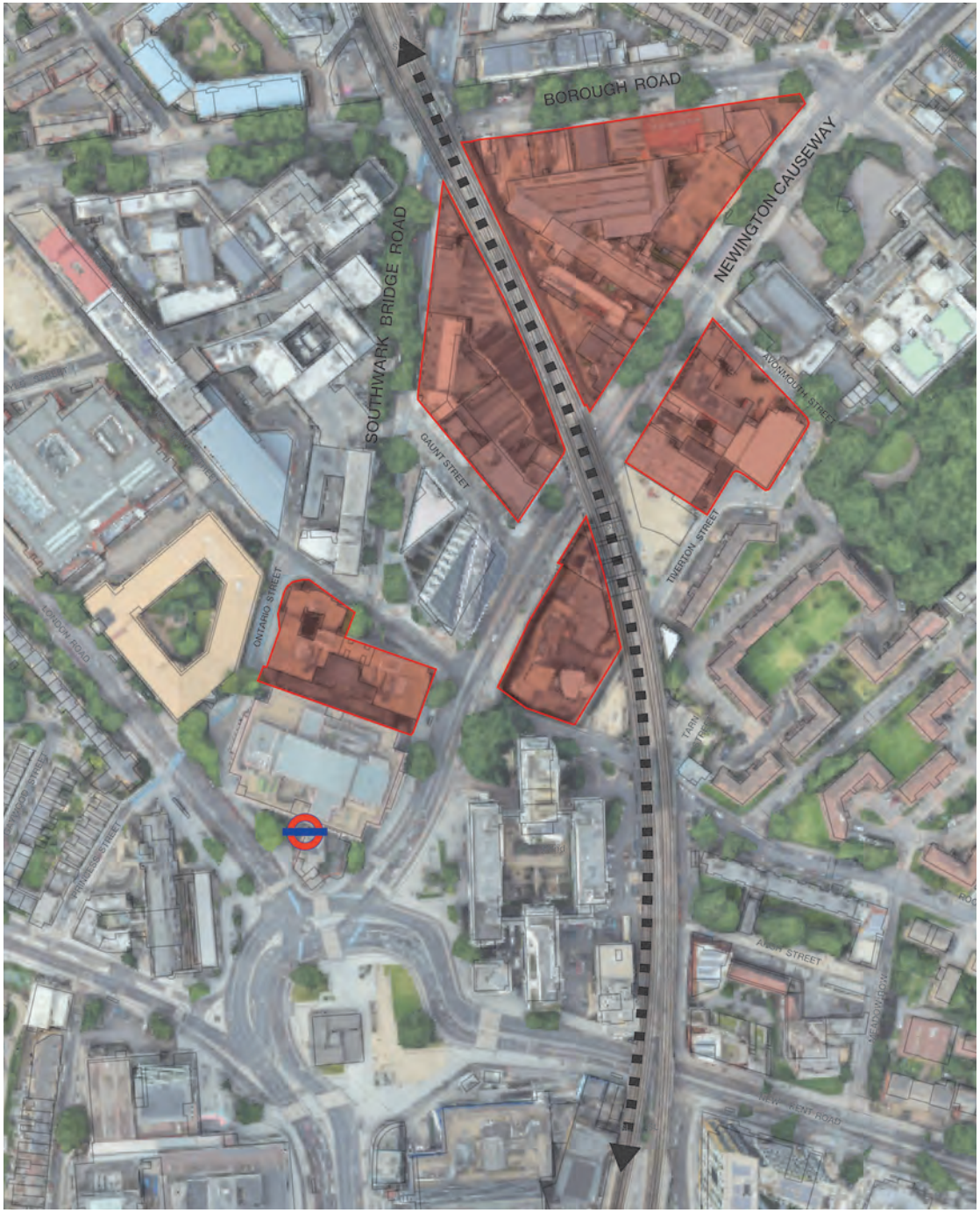
Introduction and background

LB Southwark has appointed a team led by Tibbalds to develop an urban design framework and associated assessment tools to enable alternative development scenarios that are envisaged will be brought forward by developers on a number of sites associated with Newington Causeway to be assessed.

It is anticipated that each of the sites will comprise tall buildings and the Council wants to ensure that there is a framework in place that will enable development on the sites to be co-ordinated and for the environmental and townscape impacts to be understood and planned for in a positive manner.

Given this situation the team lead by Tibbalds and supported by Expedition Engineering and Hayes Davidson have undertaken four iterative streams of work comprising:

- Step 1: Urban design analysis, which generated a series of principles in relation to the public realm in terms of links and spaces, building edges, retained buildings and heights and massing principles.
- Step 2: Environmental testing (sunlight/ daylight and wind) of the baseline urban design framework.
- Step 3: Refinement of baseline urban design framework using the feedback from the environmental testing
- Step 4: Townscape assessment in order to test the implications of the baseline urban design framework on Protected views, listed buildings, conservation areas and other sensitive locations identified by LB Southwark.



Baseline work

- This baseline work has then been used to help test a series of alternative massing scenarios and as a basis to enable pre-application discussions with applicants bringing forward proposals on the various sites that comprise the study.
- The programme of workshop sessions are as follows:
  - Triangle Site: 5th February 2021
  - Quadrilateral: 17th February 2021
  - Salvation Army: 10th March 2021
  - Coburg House: 26th March 2021

Presentation content

It is intended that this document will help to inform future pre-app discussions.

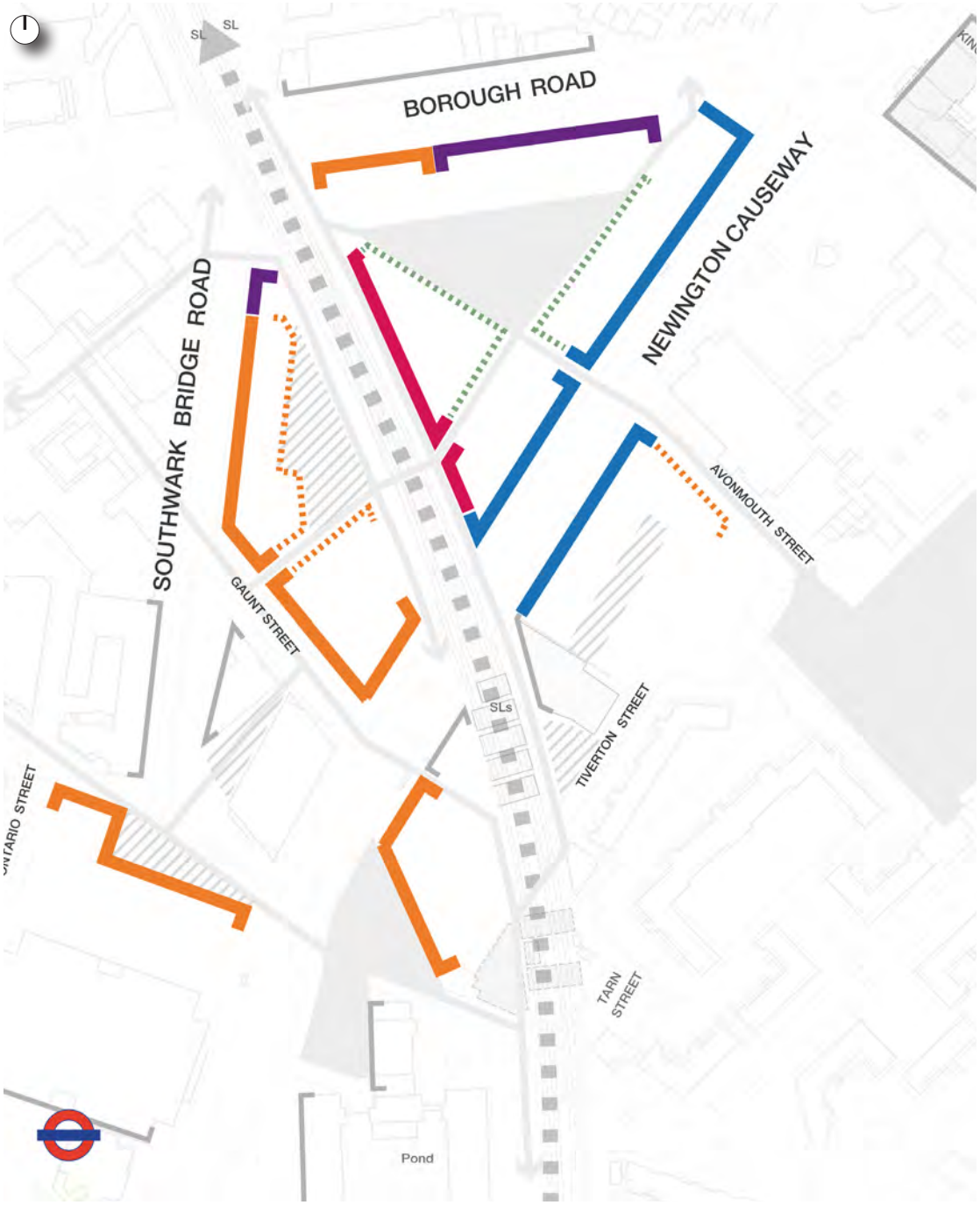
In terms of document content:

- A summary of the key principles established by our part one baseline urban design analysis.
- NSP 43 parameters
- Local urban design considerations
- Baseline urban design response
- A summary of the environmental analysis
- A summary of the view analysis

Part One: Urban design principles
Key frontages

Key ideas:

- Create positive frontage onto Newington Causeway
- Establish coherent and consistent frontages onto Southwark Bridge Road
- Respond to the existing frontage onto Borough Road
- Create a new strong edge on the Salvation Army site to enhance the setting of the MCH listed building
- Create an active and positive edge onto the proposed Low line
- Potential active edges to front onto open spaces to ensure safe and active places
- Create new strong edge to end vista and establish the framing of a public space



Key

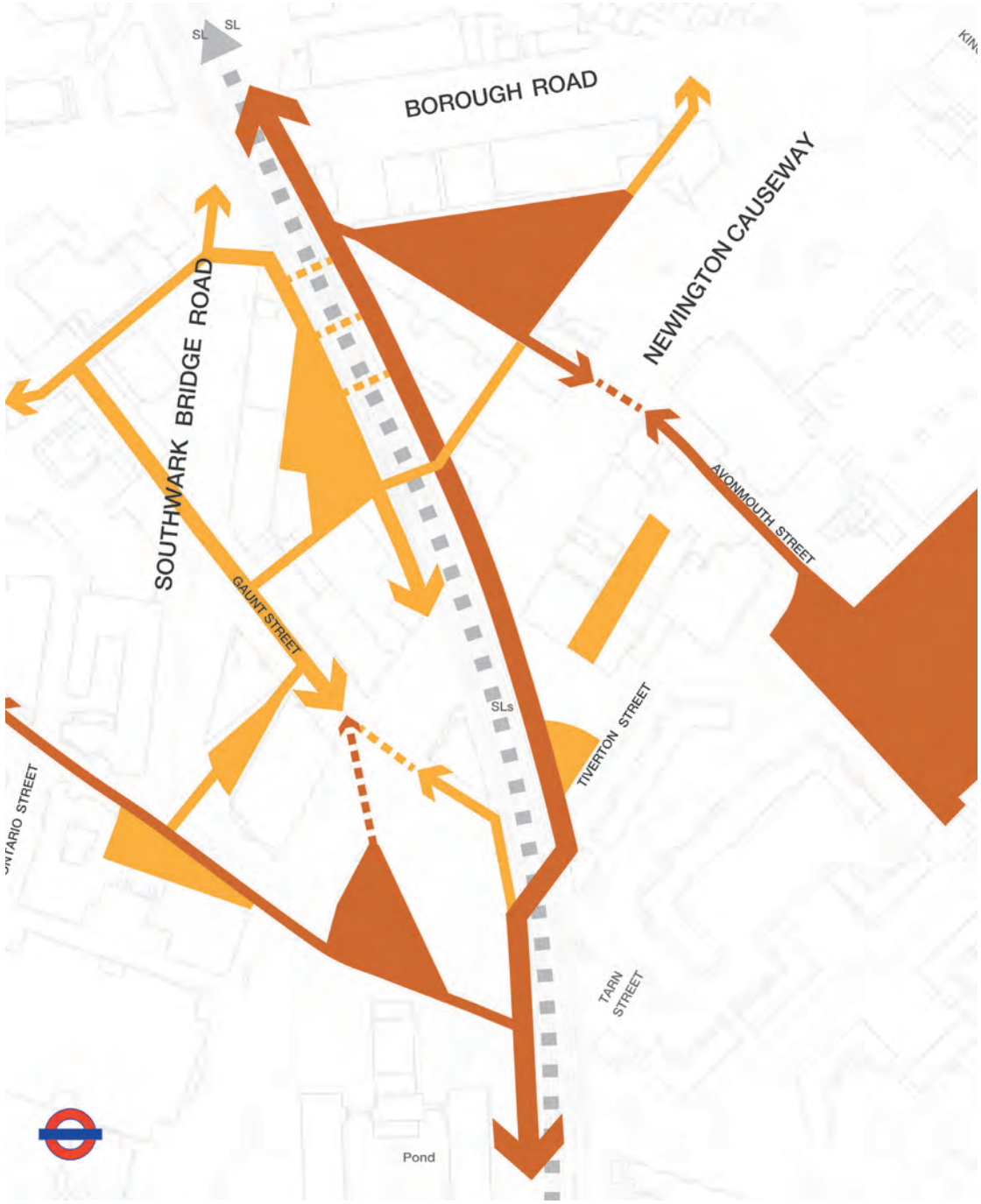
- Primary frontage
- Secondary frontage
- Key frontage onto Low line
- Frontage onto open space
- Existing frontage

Objective: To enhance the emerging town centre identity across the development by creating positive frontages

Part One: Urban design principles
Key links and spaces

Key ideas:

- Create key pedestrian public spaces and focal point at the heart of the sites
- Provision of secondary public spaces forming network of wider public realm strategy
- Establishing and enhancing existing pedestrian connection across Newington Causeway linking to Newington Gardens
- Network of secondary pedestrian links connecting the sites to wider walking and cycling networks
- Potential gateway location providing attractive arrival into the town centre



Key
Primary space
Secondary space

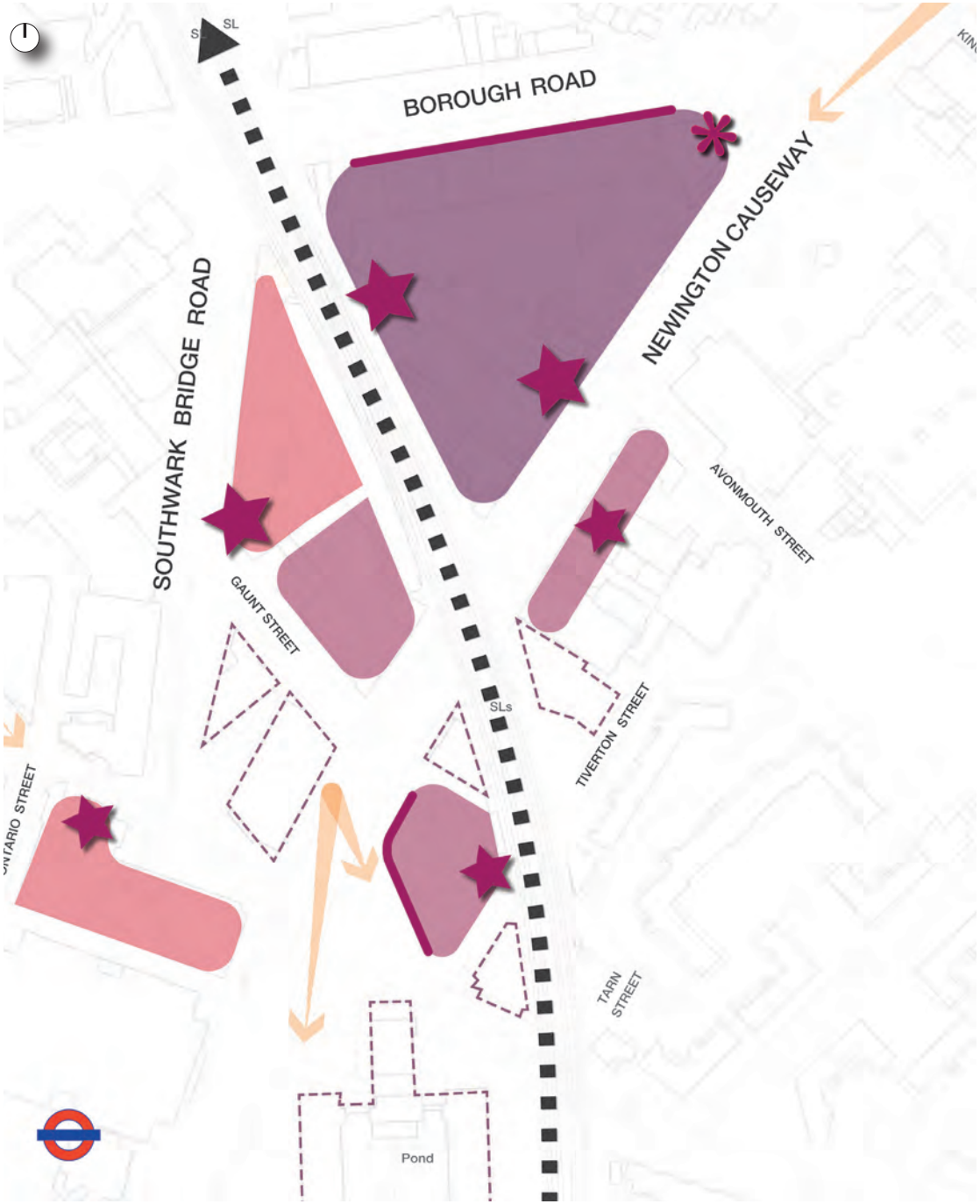
Objective: To improve permeability across the sites by establishing connections and spaces, and high quality public realm

Part One: Urban design analysis
Heights and massing

Key ideas:

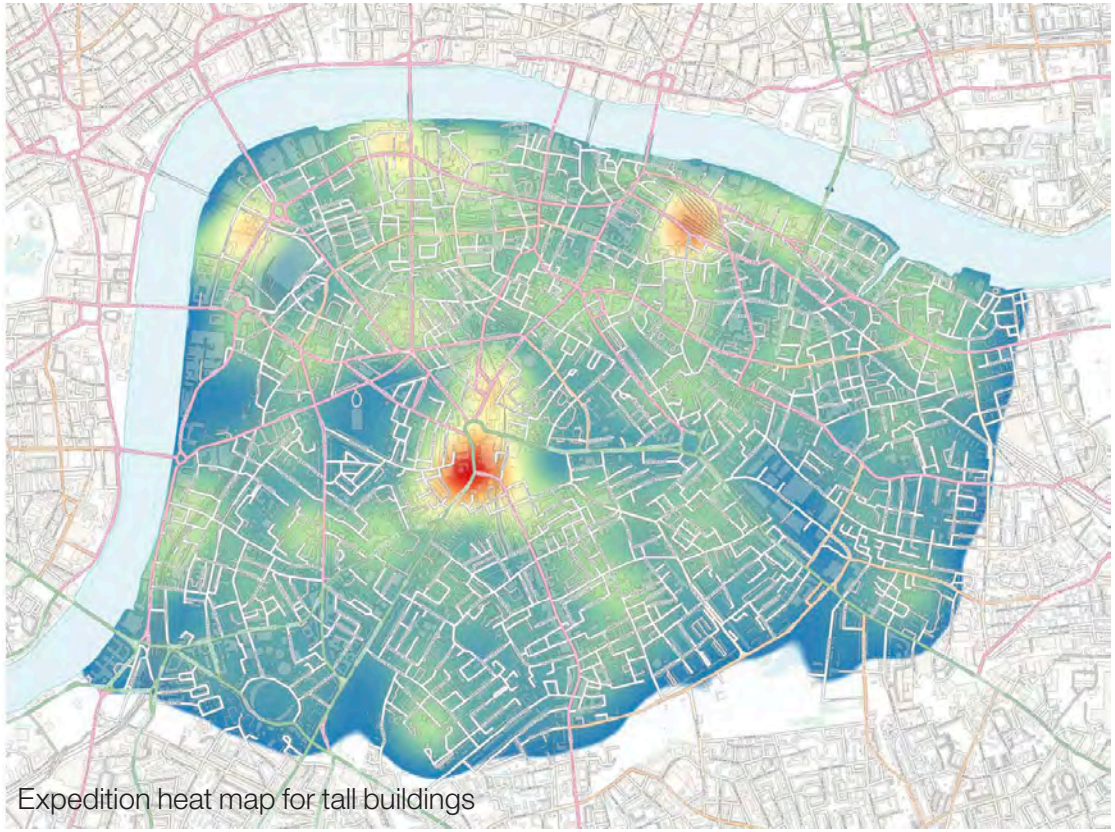
- Potential location of increased height responding to context of emerging and cumulative scheme, creating a coherent composition of tall building
- Punctuate key corners along primary connection links to establish local landmarks
- Respond to key views
- Potential location of punctuated corner with increased height to create attractive gateway into the town centre
- Create consistent and responsive massing to ensure an appropriate transition from medium scale to higher scale buildings
- Create consistent height along Borough Road
- Provide appropriate setting to key listed buildings
- Residential amenity within the towers

Objective: To establish a legible approach to heights and massing responding to emerging and cumulative proposals for increased height in the surrounding area

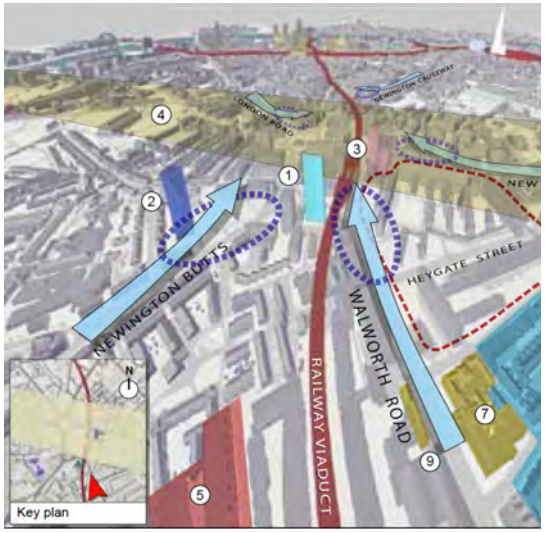


Part One: Context
Borough wide tall building study

- A point of landmark significance is where a number of important routes converge, where there is a concentration of activity and which is or will be the focus of views from several directions. ((EIP27B)
- Elephant and Castle is defined by a cluster of tall commercial and residential buildings focused around train, tube and bus services and its importance as a Major town Centre.
- A clear cluster of tall buildings at Elephant and Castle and smaller clusters at London Bridge, Blackfriars and Waterloo.

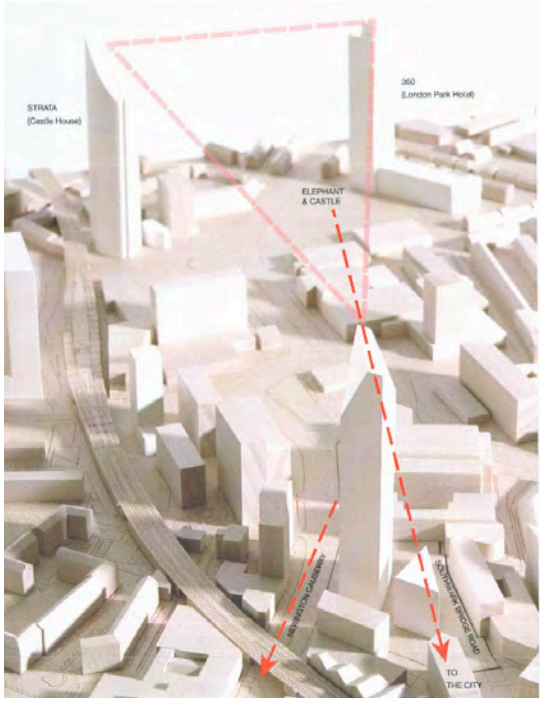


Expedition heat map for tall buildings



Part One: Context
Local tall building study

- 251 Newington Causeway identified as a city-wide scale landmark building that contributes to the proposed cluster of towers at the Elephant and Castle. (within the extended Secondary cluster of tall buildings at the E&C)
- A further result of the articulation of the top of the building is a reorientation of the tower geometry. While the body of the tower aligns itself with Newington Causeway, the top is now rotated to align with Southwark Bridge road. This defines a north-south axis with the building linking the Northern Roundabout, the very centre of the Elephant and Castle, with Southwark Bridge itself and on into the City of London -locking the proposal into its wider context.
- Together with the already consented tall buildings of Strata and 360 on the Castle House and London Park Hotel sites to the South, 251 Newington Causeway forms the northern apex of a triangle of tall buildings that define the core regeneration area of the Elephant and Castle.
- The 251 NC site is identified in the LBS Enterprise Quarter SPD as a location for a “City scale landmark tall building”. The proposed tower rises to ground plus 43 storeys, its top reaching 137.5 m AOD (Above Ordnance Datum). The consented Castle House and London Park Hotel schemes to the south each rise to heights of 151 m AOD and 146.9 m AOD respectively.
- The impacts of 251 Newington Causeway height on LVMF view from Serpentine

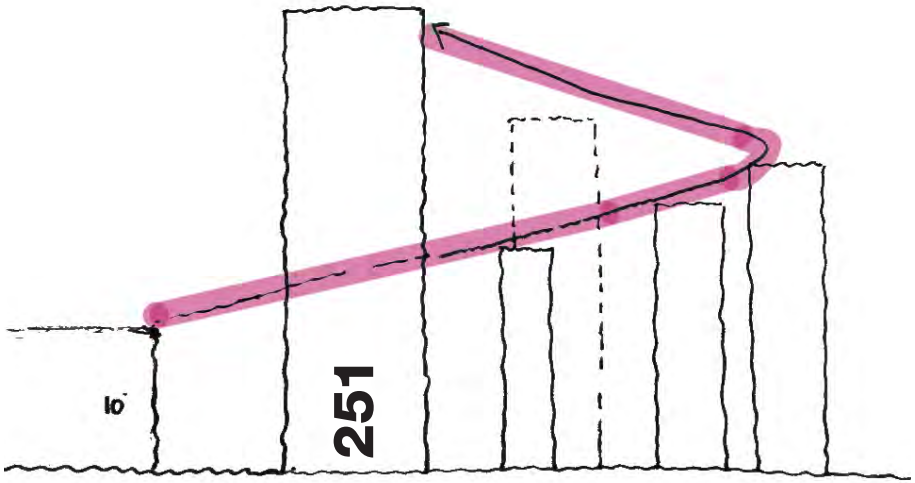


Extract from Enterprise Quarter SPD pg 56 - 60

Extract from Enterprise Quarter SPD

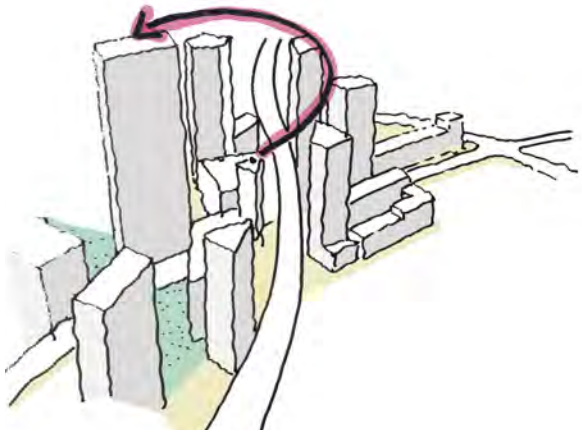
Part One: Urban design framework
Concept (tall building cluster)

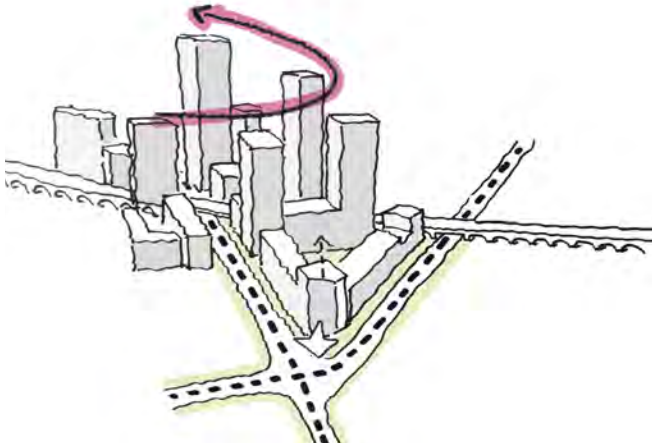
- To establish a legible approach to heights and massing responding to emerging cumulative proposals for increased height in the surrounding area

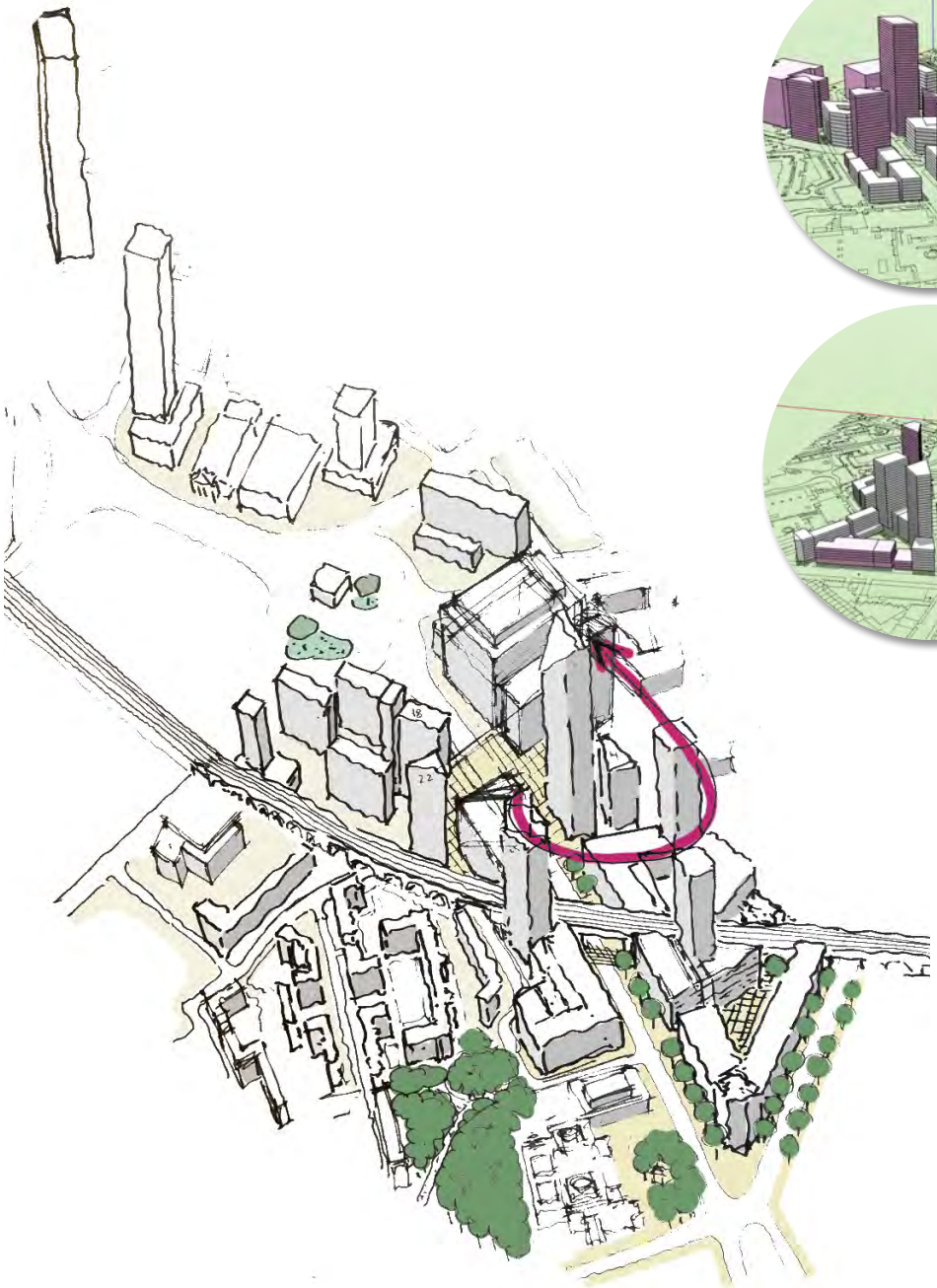


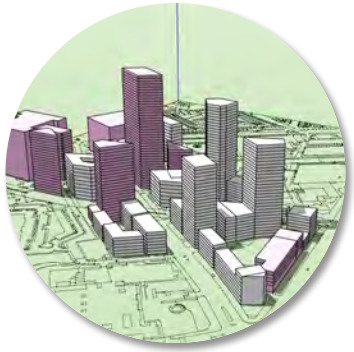
Part One: Urban design framework
Envelope concept

- 251 Newington Causeway forms the northern apex of a triangle of tall buildings that define the core regeneration area of the Elephant and Castle. It is the tallest building within the Enterprise Zone setting a max height at 137.5 m AOD high with new tall buildings sitting below that



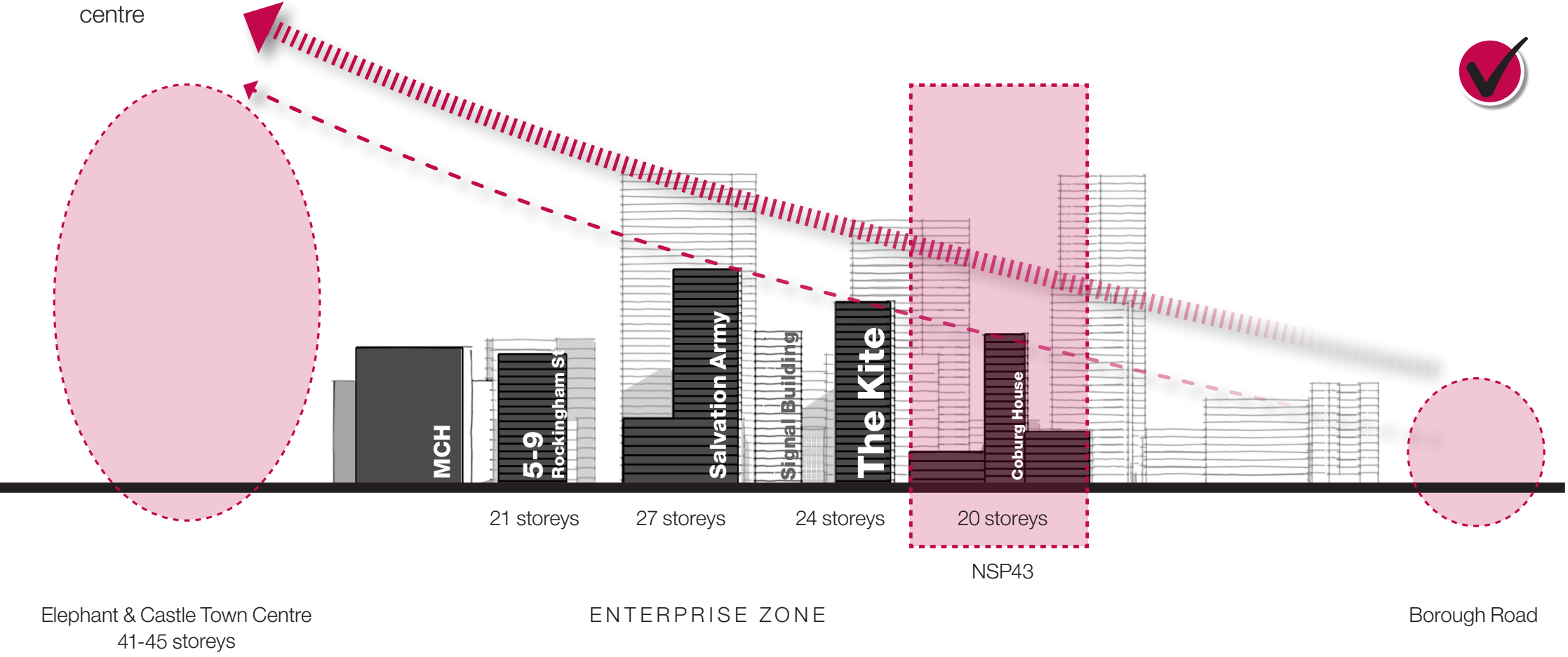






Part One: Urban design framework
Envelope concept

- Massing steps up away from Borough Road towards the tallest building in the North Southwark Cluster - 251 Newington Causeway at 41st high creating a secondary cluster north of the Elephant and Castle regeneration core
- The intensity of the cluster together with other clusters which frame the main Elephant and Castle regeneration core reinforce its importance as a London wide major centre



Part One: Influences
Emerging Southwark Plan: Site Allocation NSP43

Site

- Site area: 3,784 m^2
- Redevelopment of the site must:
  - Provide at least the amount of employment floorspace (B use class) currently on the site or provide at least 50% of the development as employment floorspace, whichever is greater; and
  - Retain the existing theatre use or provide an alternative cultural use (D2); and
  - Provide active frontages including ground floor town centre uses (A1, A2, A3, A4, D1, D2) on Newington Causeway.
- Redevelopment of the site should:
  - Provide new homes (C3)
- Redevelopment of the site may:
  - Provide a new community health Hub

Existing uses

- Southwark Playhouse (D2) - 816 m^2
- Office uses (B1) - 4,168 m^2
- Light industrial uses (B1c) - 827 m^2
- Job Centre (A2) - 546 m^2

Indicative residential capacity

- 93 homes

Site location considerations

Approach to tall buildings

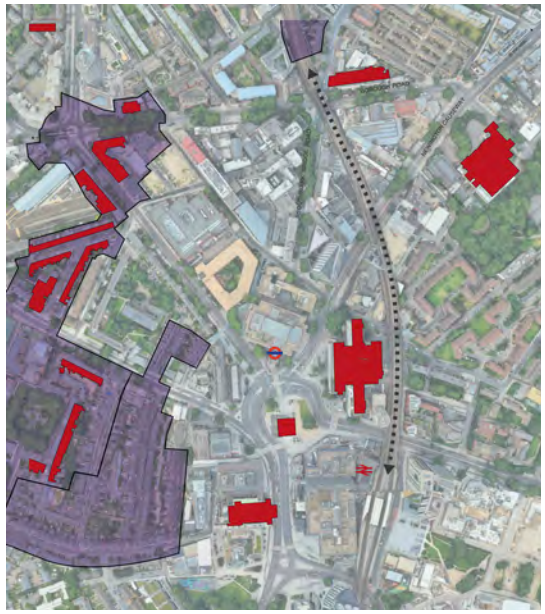
- Comprehensive mixed-use redevelopment of the site could include taller buildings subject to consideration of impacts on existing character, heritage and townscape.

Impacts Listed Buildings or undesignated heritage assets

- The site is within the setting of Grade II listed building Inner London Sessions Court and the undesignated heritage asset Newington Gardens and undesignated heritage assets on Newington Causeway.

Impacts a Conservation Area

- The site is within the setting of the Trinity Church Square Conservation Area.

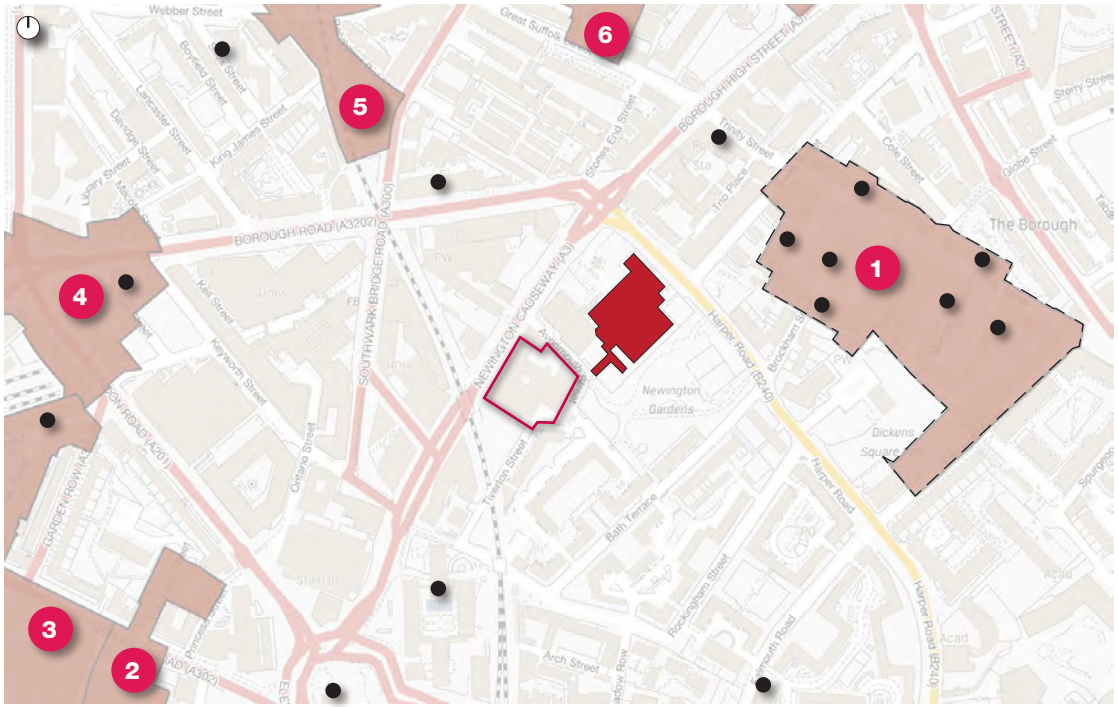


Part One: Influences
Listed buildings and conservation areas

There are six conservation areas in close proximity to the core sites. The areas within close proximity to the site are :

1. The Trinity Church Square Conservation Area is situated to the south-east of The Borough. Trinity Street forms the northern boundary of the conservation area, and runs between Borough High Street and Great Dover Street. Falmouth Road runs north-south between Trinity Street and Harper Road and forms the eastern boundary of the conservation area. To the west Trinity Church Square and the junction of Trinity and Swan Streets form a natural boundary. The Trinity Church Square was completed in entirety within a comparatively short period in the early 19th century. The terraces forming both Trinity Church and Merrick Squares have strong group value. The main characteristics of the conservation area are the uniformity of the design of the terraces and its two grand squares. The focal point of the conservation area is the Henry Wood Hall, former Holy Trinity Church at the centre of Trinity Church Square.
2. Elliot's Row (LBS Conservation area number: 46)
3. West Square (LBS Conservation area number: 14)
4. St Georges Circus (LBS Conservation area number: 36)
5. King's Bench (LBS Conservation area number: 40)
6. Liberty of the Mint (LBS Conservation area number: 47)

- There are approximately 2,200 listed buildings and structures in Southwark that are of national, historical or architectural interest.
- The Grade II Listed building Inner London Sessions Court is adjacent to the site, therefore a key consideration.



Extract from Southwark Council interactive Conservation map

Hayes Davidson imagery from Trinity Square Gardens

Key

- Site boundary
- Inner London Crown Court *Grade II Listed Building*
- Listed building

Part One: Influences
Existing buildings and context

The site is bounded on all sides by key buildings of significance which require careful consideration:

1 ***57-61 Newington Causeway:***

- Existing buildings on the corner of the site are to be retained as set out in Southwark Plan allocation NSP43

2 ***Inner London Crown Court***

- Grade II listed building: Located to the immediate north-east of the site is the Grade II Listed Building, Inner London Crown Court. Any development on this site; will therefore take into consideration impacts on: Sunlight Daylight, Views, and the overall setting of the listed building.

3 ***87 Newington Causeway:* 16/AP/3144**

- Mixed use development comprising a basement/mezzanine basement, ground plus twenty-three floors to accommodate a 140 room hotel (levels 1-11), 48 residential units (levels 12-24), a retail unit (at ground floor), associated cycle parking, servicing and refuse and recycling, landscaping and private and communal residential amenity space (including at roof top level), external refurbishment to the front of the railway arches, and a new pedestrian route through the site linking Newington Causeway with Tiverton Street
- Architects – SPPARC Architecture

4. Tiverton Street residents

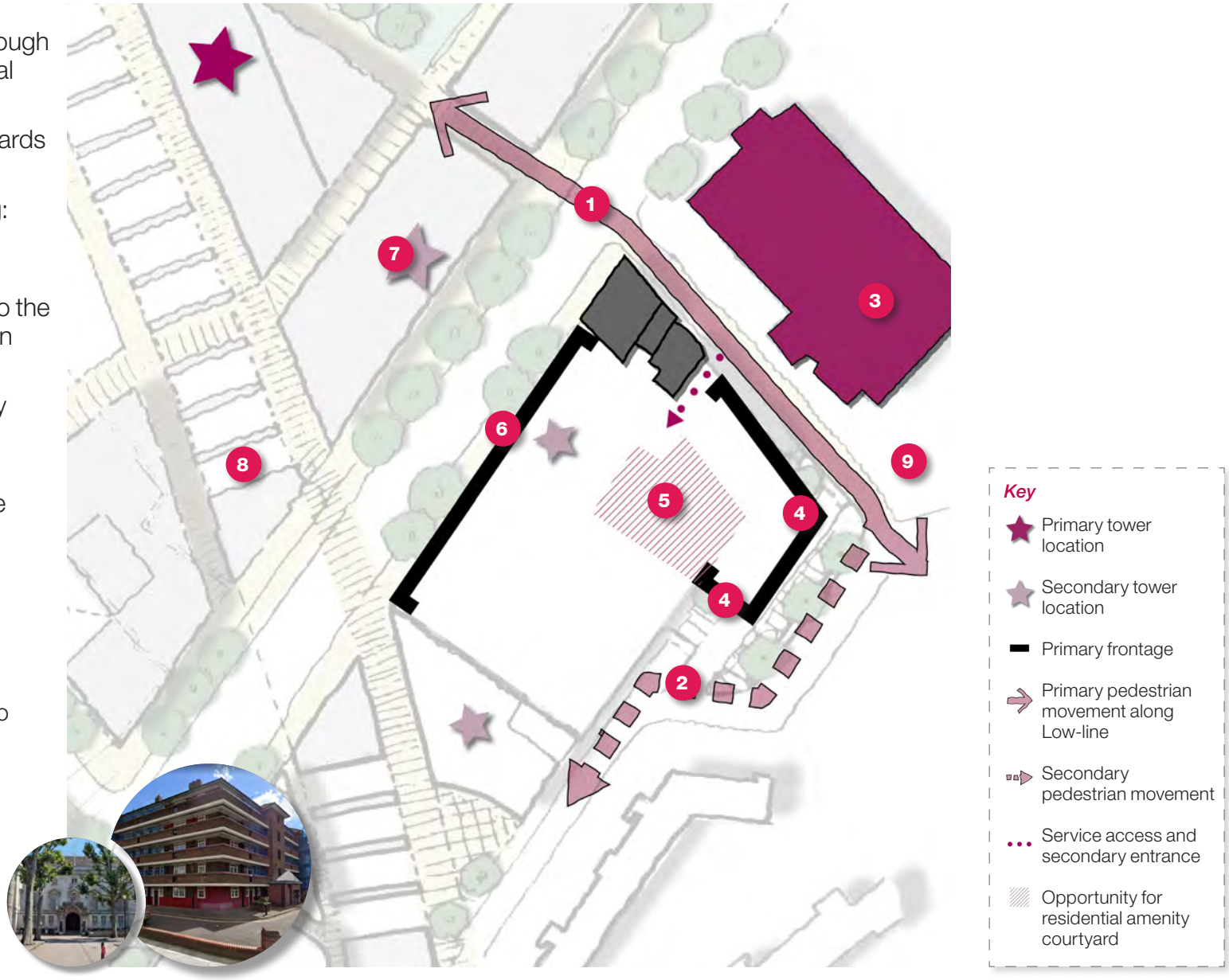
4
- The existing buildings to the immediate south of the site are 5 storey residential blocks with deck access off Tiverton Street.
- Development on the southern side of the site will need to be considerate of the existing heights on Tiverton street.

5. Newington Gardens

5
- Newington Gardens located to the south east of the site off Avonmouth Street. The park occupies part of the site of an old prison that was closed in 1878 and is considered a local asset.
- Connections to Newington Gardens from Tiverton street and Newington Causeway are therefore a key consideration.

Part one: Summary of urban design and site specific analysis

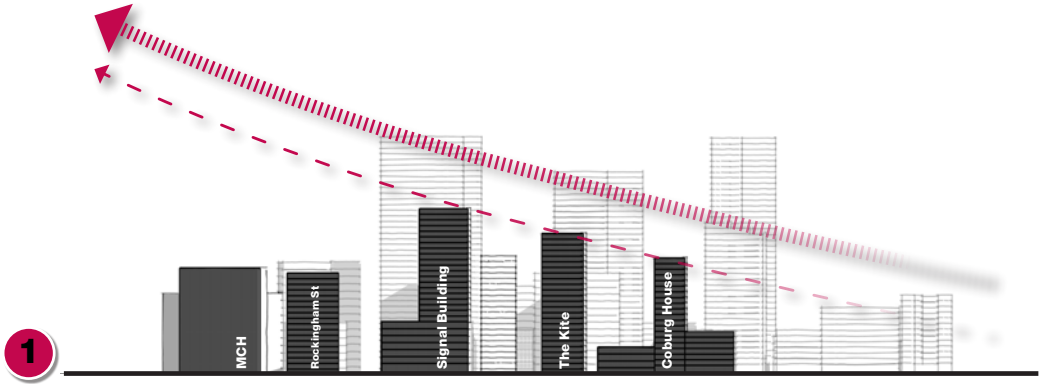
1. Enhance existing link from Newington Causeway to Newington Gardens through creation of active pedestrian and visual links along Avonmouth Street
2. Enhance pedestrian connections towards Low line along Tiverton Street
3. Consider the setting of Listed building: Inner London Crown Court
4. Create a new strong frontage with emphasis on the corner in response to the immediate relationship with Newington Gardens
5. Provide accessible residential amenity space
6. Activate frontages onto Newington Causeway creating a positive frontage
7. Respond to proposals on NSP41 Newington Triangle by establishing a coherent cluster of tall buildings responding to context
8. Consider Low line
9. Consider impacts on and connections to Newington Gardens to east

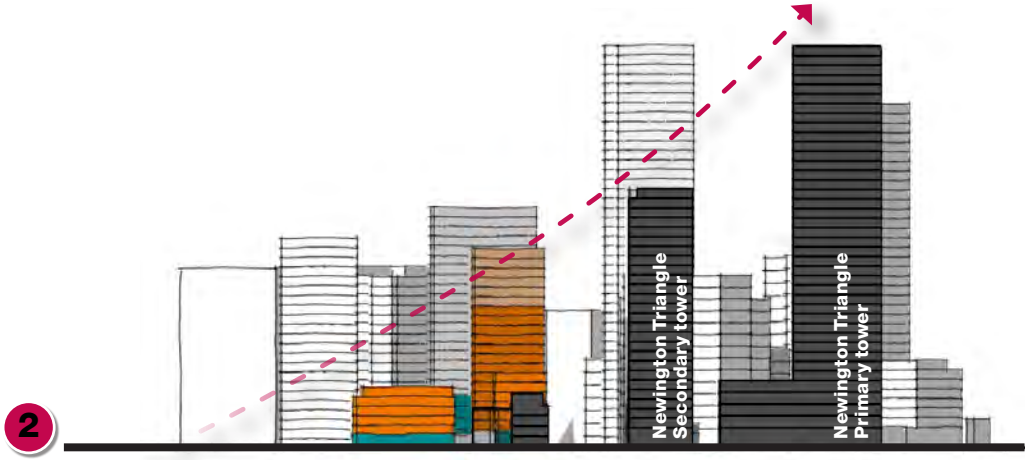


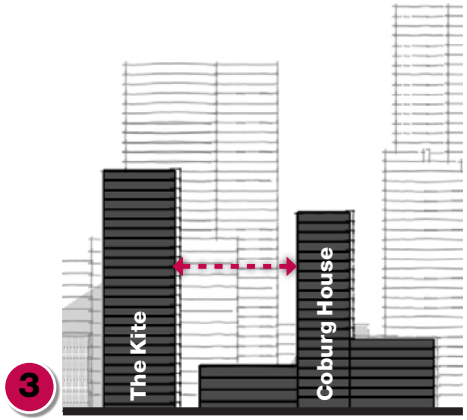
Part One: Influences
Heights strategy

Urban design and townscape principles

1. Proposed tall building positioned within the secondary envelope relating to no. 1 Newington Causeway and The Kite;
2. Create frontage along Newington Causeway towards E&C town Centre, responding to proposals on Newington Triangle;
3. Fixed height of commercial building in relation to adjacent Kite building (maximum height without negative impact on hotel);
4. Consider impacts of height on Newington Gardens to east (overshadowing and townscape);
5. Consider impacts on existing residents on Tiverton Street;
6. Consider impact on adjacent listed building







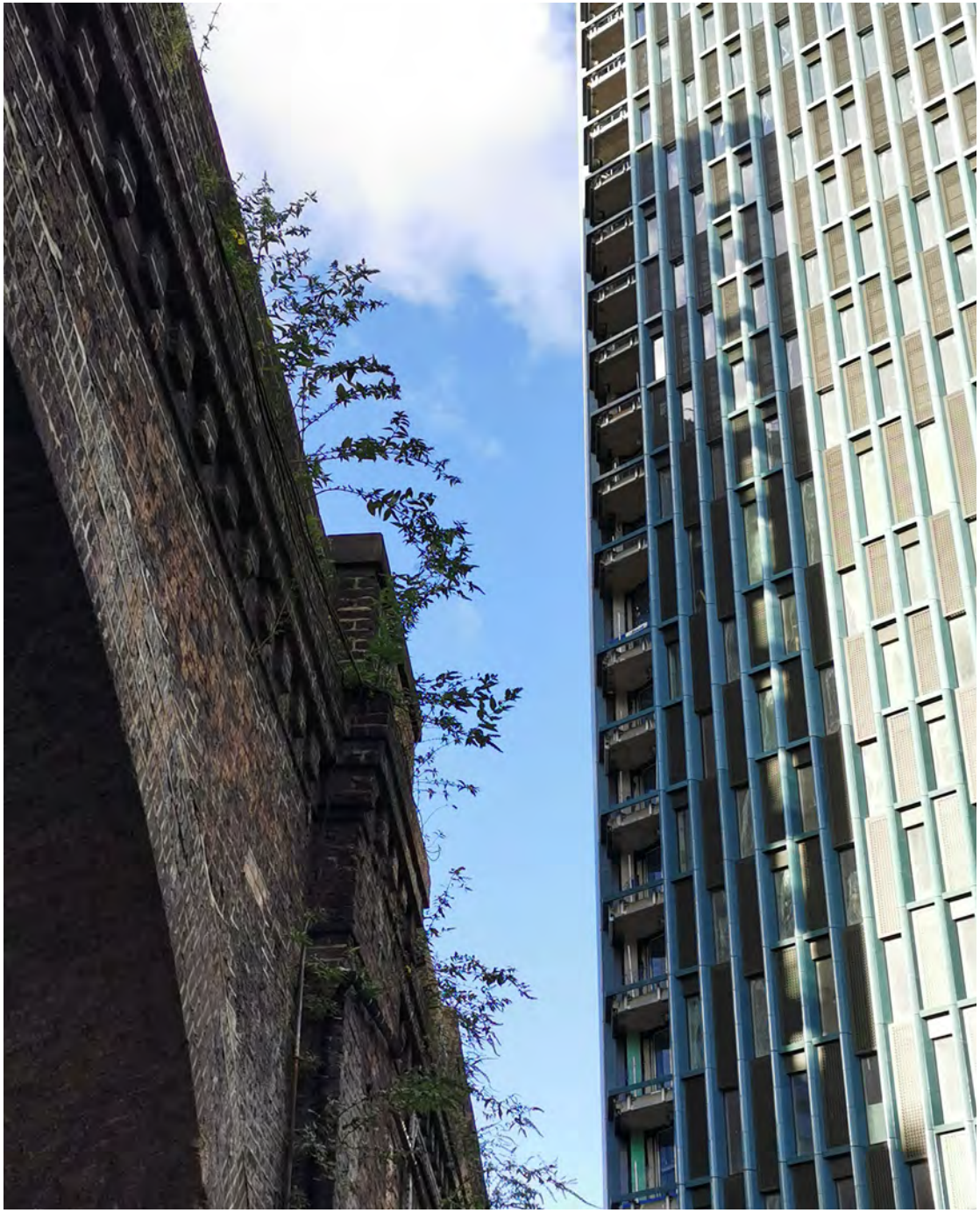
Summary of assumptions

Using our baseline urban design framework that we have generated for the wider study and in order to illustrate the spatial and massing implications of accommodating different amounts of development on this Site we generated two options:

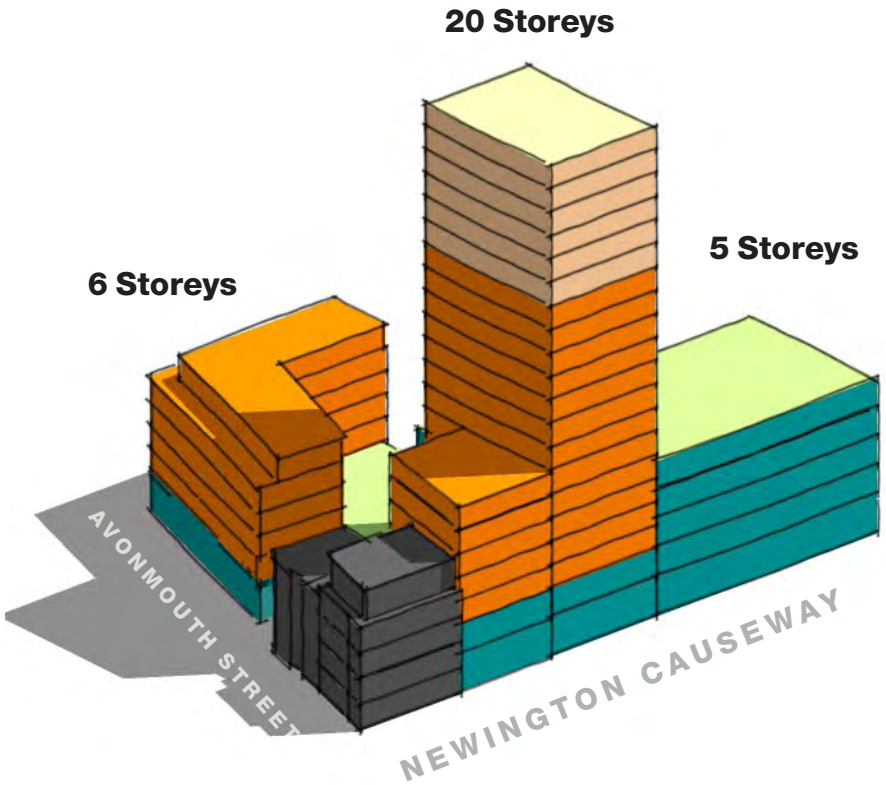
- Option 1: Baseline
- Option 2; Optimising the residential potential within the Tibbalds baseline framework and massing principles.

In order to maintain consistency and to enable a comparison to be made between the different options we use the same baseline urban design framework requirements in terms of:

- Existing buildings to be demolished (existing quantum to be re provided on site)
  - Southwark Playhouse (D2) - 816 m^2
  - Office uses (B1) - 4,168 m^2
  - Light industrial uses (B1c) - 827 m^2
  - Job Centre (A2) - 546 m^2
- Retain the existing theatre use or provide an alternative cultural use
- Consider existing buildings on the corner of Avonmouth Street; 57-61 Newington Causeway to be retained
- Listed building to the immediate north east is the listed building: Inner London Crown Court
- Opportunity for new building edge to address Avonmouth Street, to improve connections and views to Newington Gardens.
- Key links: to NSP41 Newington Triangle, Tiverton Street, Low line and Newington Gardens
- Strong edge onto Newington Causeway and positive response to 25st tower, 'The Kite'.



Urban design massing response



Ground floor plan

Above ground floor plan

BASELINE: NSP43

PROPOSED USE DIVISION

Residential (14st)	**6,220 m² (GEA)**
Other	**1,700 m² (GEA)**
B1 Commercial	**4,964 m² (GEA)**

OPTIMISED

PROPOSED USE DIVISION

Residential (20st)	**8,320 m² (GEA)**
Other	**1,700 m² (GEA)**
B1 Commercial	**4,964 m² (GEA)**

UNIT PROVISION

Baseline **93** units

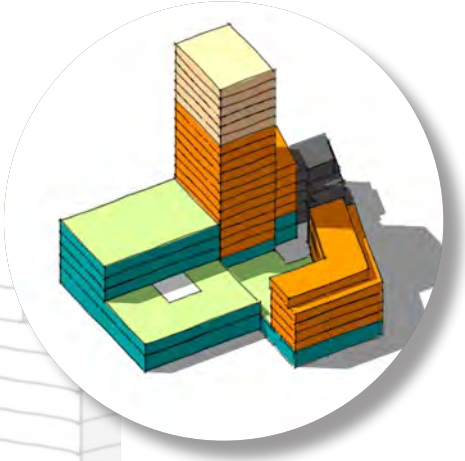
SITE AREA **3,784 m²**

UNIT PROVISION

Optimised **118** units

Note: unit sizes are based on the averages extracted from Table 6: Minimal Internal space standards (residential) in the Emerging Southwark plan Policy 15-Residential design

Urban design massing response



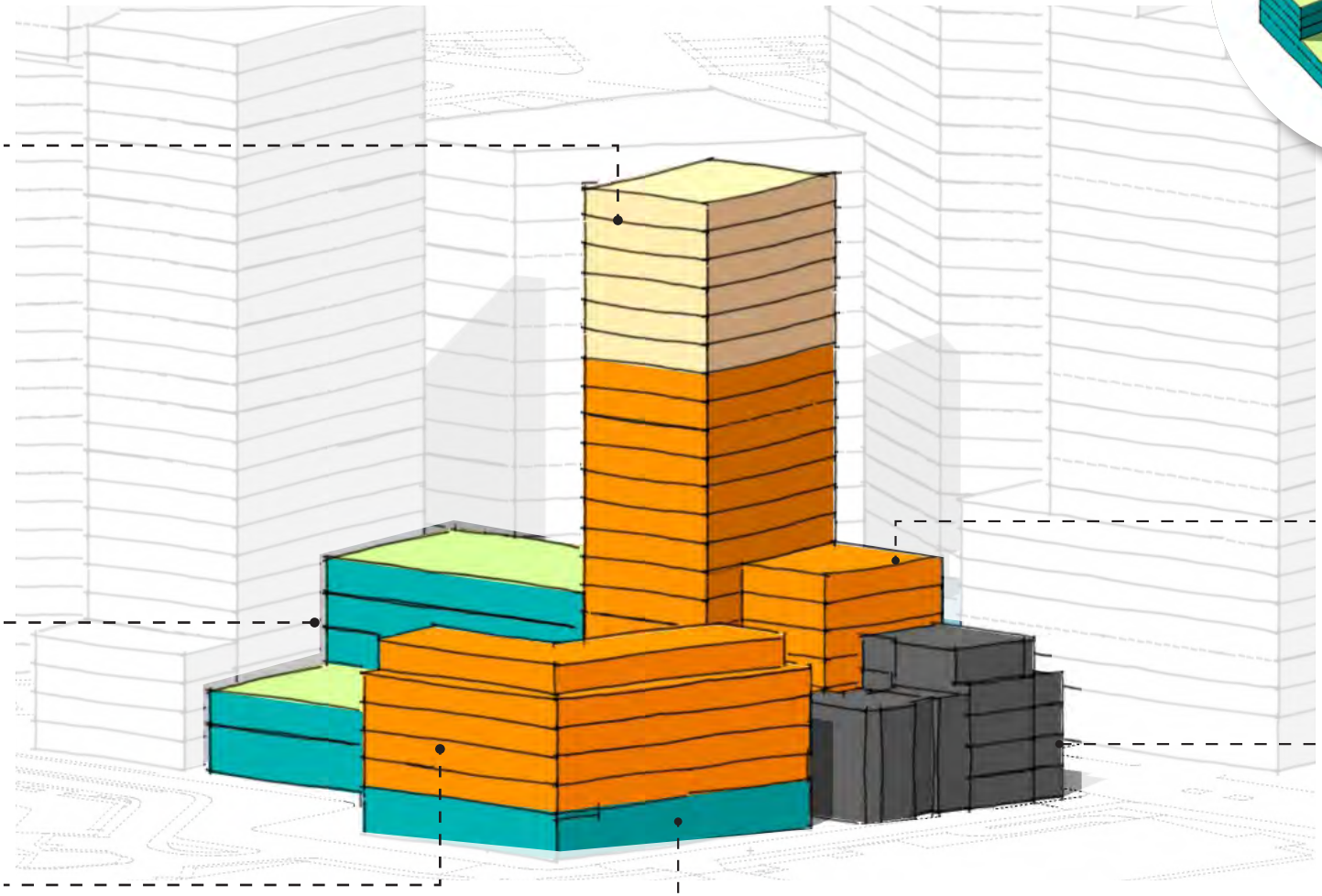
1 storey = 5m Commercial

2 storeys = 3m Other uses

17 storeys = 3m Residential

20 Storeys = 62m total

Note: Baseline scheme NSP43 compliant = 14 storeys



1 storey = 5m Commercial

6 storeys = 3m Residential

7 Storeys = 23m total

1 storey = 5m Commercial

4 storeys = 3.7m Commercial

5 Storeys = 19.8m total

Note: Retention of existing buildings on Newington Causeway

1 storey = 4m Commercial

5 storeys = 3m Residential

6 Storeys = 19m total

Note: Podium provides a mix of 'Other' uses, residential access and further commercial space

Part two: Environmental performance

Environmental Tool Framework

Off-site impact			
Environmental Criteria	Testing methodology	Minimum	Aspirational target
Sunlight in public realm / amenity spaces	Direct sunlight hours on March 21st	Less than 20% reduction from existing value	2 hours for 50% of the space
Daylight in proposed buildings (residential only)	Vertical Sky Component (VSC)	Less than 20% reduction from existing value	No loss of VSC

On-site performance			
Environmental Criteria	Testing methodology	Minimum	Aspirational target
Sunlight in public realm / amenity spaces	Direct sunlight hours on March 21st	2 hours for 50% of the space	4 hours for 50% of the space
Daylight in proposed buildings (residential only)	Vertical Sky Component (VSC)	15% VSC	27% VSC

Wind

The wind conditions can influence several aspects of environmental performance.

High wind speeds and gusty conditions can result in uncomfortable spaces for pedestrians and even dangerous conditions for cyclist and vehicles in the most extreme cases.

However adequate wind can help flush excess heat and pollution from street canyons in urban areas. Wind also helps drive natural ventilation in buildings, reducing the risk of overheating.

To assess wind comfort and safety, the Lawson LDDC Criteria from the City of London Wind Microclimate Guidelines is used. These criteria set wind speed thresholds and probability of occurrence for various outdoor activities from sitting to business walking.

Wind comfort was assessed using Computational Fluid Dynamics (CFD). CFD analysis was run with 8-wind directions which is appropriate for early stage concept design, therefore the results should be confirmed with analysis using 32-wind directions and wind tunnels for the most complex sites.

In order to minimise the effect of Urban Heat Island (UHI) its good practice to ensure there is enough wind circulation through the road corridors to remove excess heat and pollution. Therefore a balanced approach to the wind microclimate is needed.

Overheating

In addition to daylight and sunlight in buildings, overheating is an important factor to consider. The London Plan provides guidance on how to predict overheating risk using CIBSE TM59 with dynamic thermal modelling. Overheating modelling was not considered in this study as it is expected all proposed developments will comply with London Plan on overheating

It would be expected that all southern and western elevations on towers will require mitigation measures to reduce the risk of overheating such as:

- Increased ventilation area with secure openings and acoustic attenuation if outdoor noise levels are above threshold values
- Measures to reduce solar gains during the summer period:
  - External shading such as balcony overhangs
  - Solar control glazing

Energy and Carbon Use

Another dimension to consider for the urban design framework is how the massing and layouts affect energy use and carbon emissions in buildings.

The London Plan sets out specifics requirements on carbon reduction and it is expected that all development proposals will meet or exceed these requirements.

Assumptions and limitations

The testing methodology in this framework is appropriate for an outline/screening assessment. The results presented in this framework should be used as screening for more detailed testing. Key assumptions:

- VSC available at the facade was used as a proxy for daylight within a room due to information about room layouts not available for this study.
- The uses of adjacent buildings was determined using the best available information at the time.

To fully asses impacts on sunlight and daylight proposals should use the testing methodology as set out in BRE209.

Impacts on pedestrian wind comfort and safety should be carried out in line with the methodology in the City of London Wind Microclimate guidelines.

Part two: Environmental performance

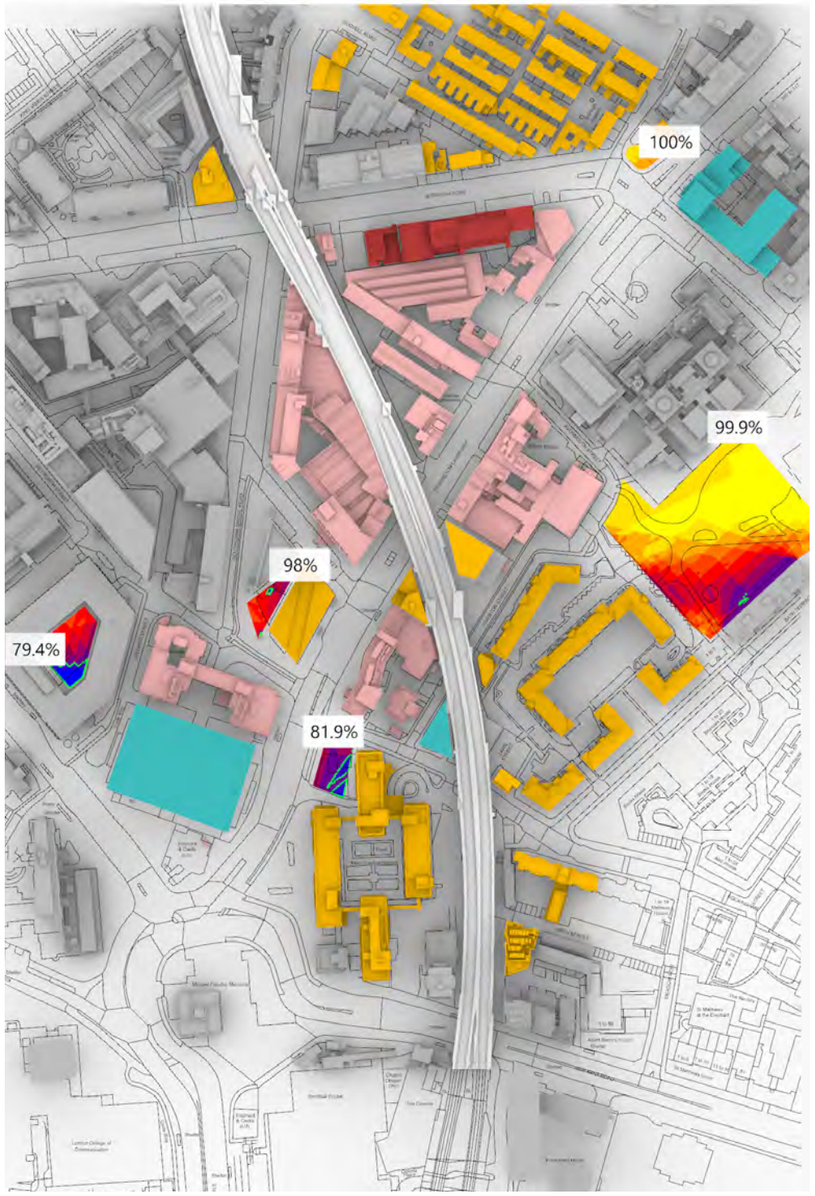
Sunlight Hours March

Sunlight in the public realm

The existing areas around the development sites were examined to identify existing public amenity spaces (courtyards, plazas, green spaces). Five locations were identified:

1. Southbank Technopark Courtyard
2. Eileen house plaza
3. MCH green
4. Borough rough corner
5. Newington gardens

The results of the baselines analysis show that all of the pubic realm spaces identified pass the minimum criteria of 2 hours for at least 50% of the space.



Existing - sunlight in amenity spaces, March 21st

Part two: Environmental performance

Coburg House Option 1 and Option 2

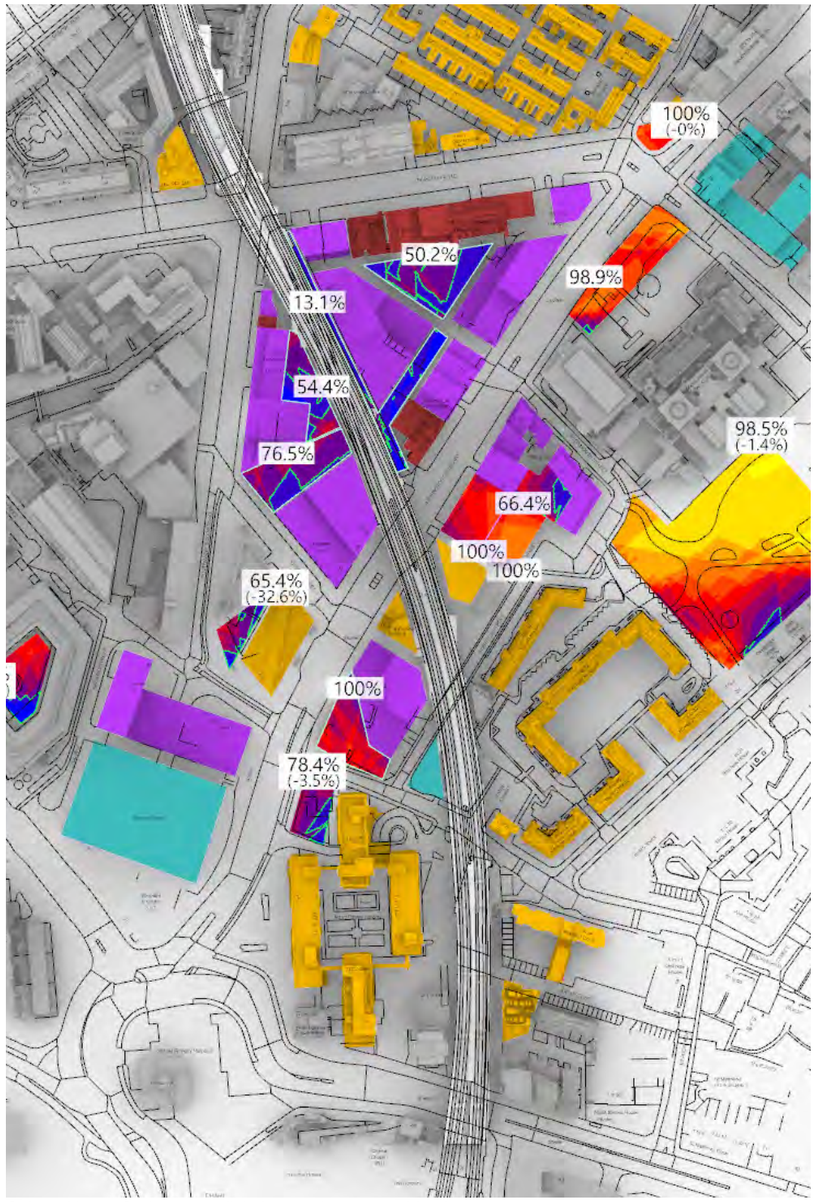
The massing doesn't have any significant impacts on sunlight access for the existing amenity spaces.

Both massing options perform very similarly in terms of sunlight access for the proposed amenity spaces.

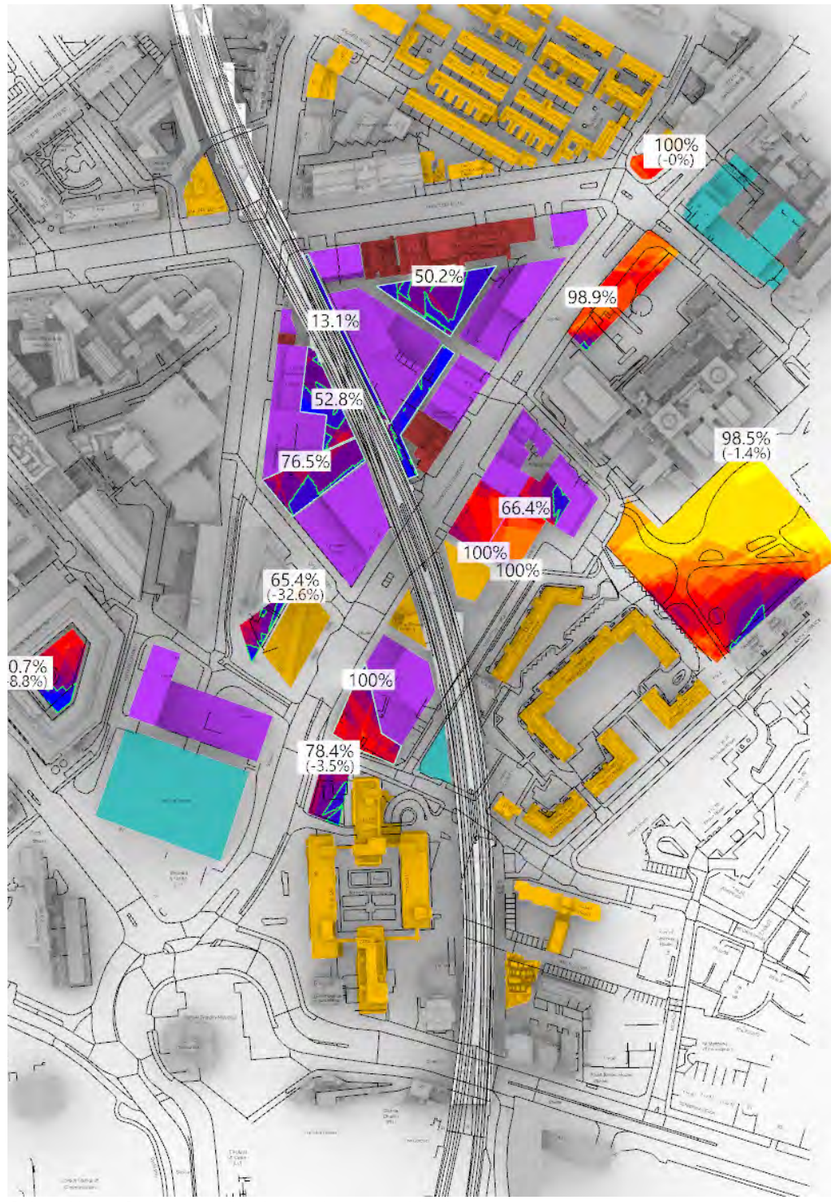
The proposed amenity space on the roof of the commercial block has very good sunlight access, with 87% of the area receiving at least 4 hours of direct sunlight on March 21st.

The proposed amenity space above the ground floor podium has a lower solar access with only 66% of the space receiving at least 2 hours of sunlight on March 21st, which still passes the minimum criteria.

Sunlight Hours March



Coburg House Option 1 - sunlight in amenity spaces, March 21st



Coburg House Option 2 - sunlight in amenity spaces, March 21st

Part two: Environmental performance

Daylight access in residential buildings

The façades of existing residential buildings which are likely to be impacted by the proposed development were analysed for Vertical Sky Component (VSC).

VSC is a measure of obstruction to the sky from a point on a facade, and is used at outline stage to assess daylight access. It should be noted that actual internal daylight performance will depend on layout of rooms, size of windows and internal finishes.

A VSC of 27% or greater implies good daylight access with standard design. VSC between 15-27% provides good daylight with larger windows and optimised design.

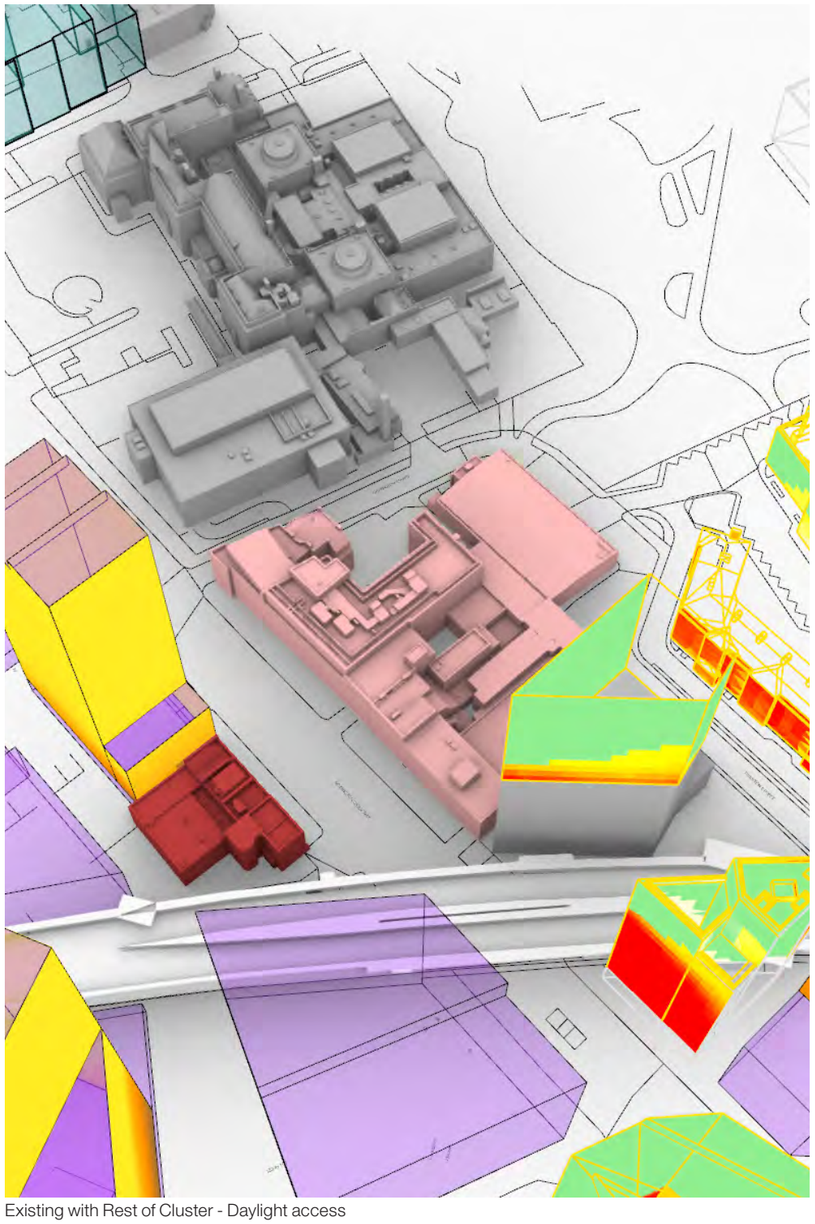
The results of the baselines analysis show that:

- 56% of the existing facade area has a VSC>27%
- 26% of existing facade area has a VSC between 15-27%
- 18% of existing facade area has a VSC below 15%

Vertical Sky Component

Existing - Daylight access

Reduction of VSC (%)



Existing with Rest of Cluster - Daylight access

Part two: Environmental performance

expedition

Coburg House Option 1

The massing has impacts on the adjacent facade of Telford House.

The combination of all proposals is creating a reduction in VSC of about 40% from previous. More detailed studies on room use and layouts is required to determine the full impact on daylight access.

The residential portion of the proposed massing has an average value of VSC.

The façades fronting Newington Causeway and the internal courtyard have lower VSC, the following measures should be explored to maximise the daylight indoors for dwellings in these locations.

- providing flats with dual aspect
- larger window openings
- taller floor-ceiling heights

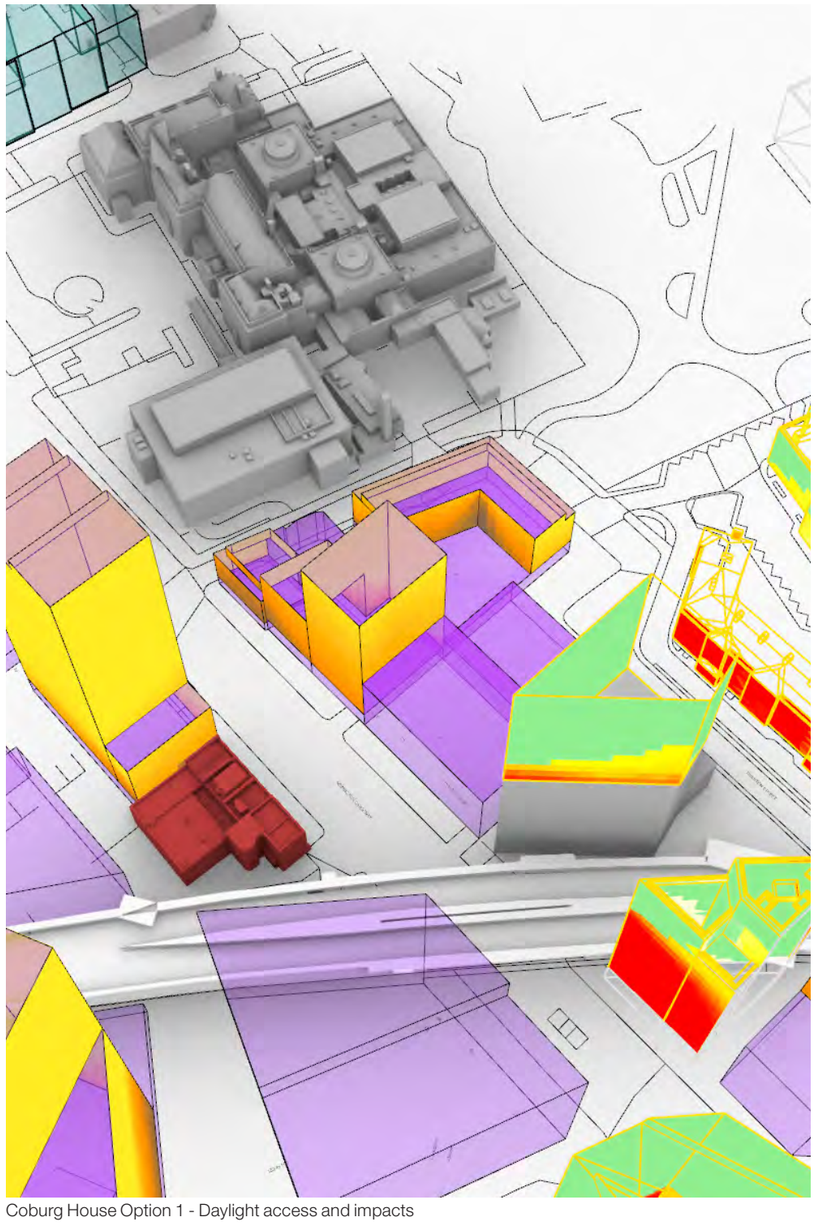
Coburg House Option 2

The massing has slightly increased impacts on the adjacent facade of Telford House, as mentioned above.

The residential portion of the proposed massing has an average amount of VSC access. The taller tower element has good VSC but is causing some self-overshadowing on the lower residential levels.

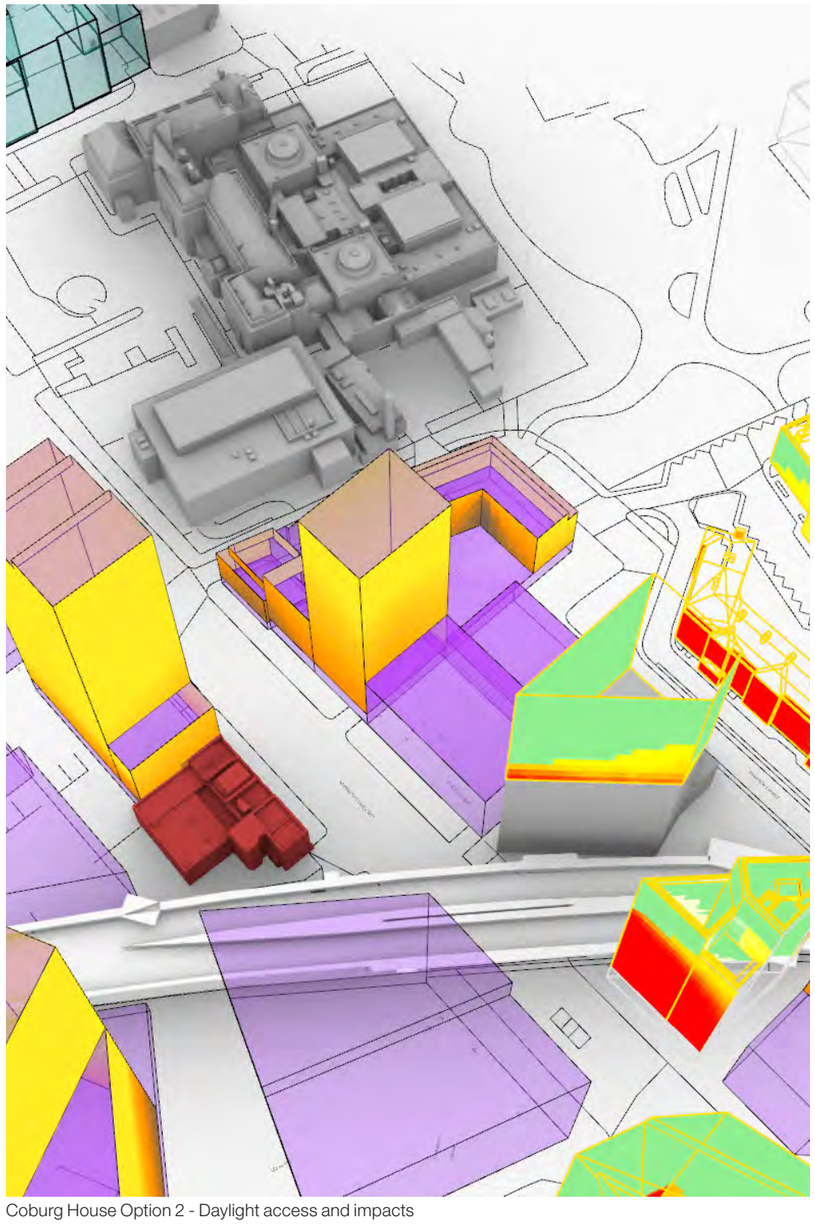
As above, specific design measures should be taken to optimise the layout and configuration of dwellings to maximise daylight potential.

Vertical Sky Component



Coburg House Option 1 - Daylight access and impacts

Reduction of VSC (%)



Coburg House Option 2 - Daylight access and impacts

Part two: Environmental performance

Summary of impact on Daylight Access

The tables to the right summarise the daylight access impacts on existing buildings and performance of proposed buildings.

Considering the existing surrounding buildings, the massing for Coburg House has a slight negative effect, increasing the proportion of façades which are below the minimum criteria. The reductions on daylight access are focused on the adjacent Telford House development.

To determine the full impact of proposals the adjacent flats need to be surveyed to carry out a full assessment according to BRE 209 guidance.

The proposed development has average levels of VSC. Due to its proximity to the adjacent tower on The Triangle Site, there is lower daylight access at lower levels.

The increase in tower height from Option 2 has a slight negative impact on the adjacent massing in The Triangle Site.

It should be noted that the actual daylight performance will vary depending on:

- Room layout
- Depth from facade
- Floor-ceiling heights
- Glazing ratio

Consideration of the above is needed to ensure that good VSC translates into good internal daylight.

Existing buildings

Daylight potential	Aspirational	Minimum	Fail
VSC (%) % of gross facade area	No reduction from existing	<20% reduction from existing	>20% reduction from existing
Rest of cluster	50.7%	41%	8.3%
Coburg House Option 1	50.6%	40.7%	8.7%
Coburg House Option 2	50.4%	40.6%	9%

Proposed buildings

	Coburg House			Rest of Cluster		
Daylight potential	Aspirational	Minimum	Fail	Aspirational	Minimum	Fail
VSC (%) % of gross facade area	>27%	15-27%	<15%	>27%	15-27%	<15%
Rest of cluster	-	-	-	77.5%	19.3%	3.2%
Coburg House Option 1	50.1%	33.0%	16.9%	77.2%	19.3%	3.5%
Coburg House Option 2	59.5%	26.4%	14.1%	77.1%	19.3%	3.6%

Part two: Environmental performance

Sunlight access in residential buildings

The south facing façades of existing residential buildings which are likely to be impacted by the proposed development were analysed for sunlight access.

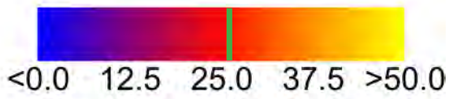
Sunlight access is measured as percent of annual probable hours. This is also broken down to percent of sunlight during the winter period, which is important for passive heating.

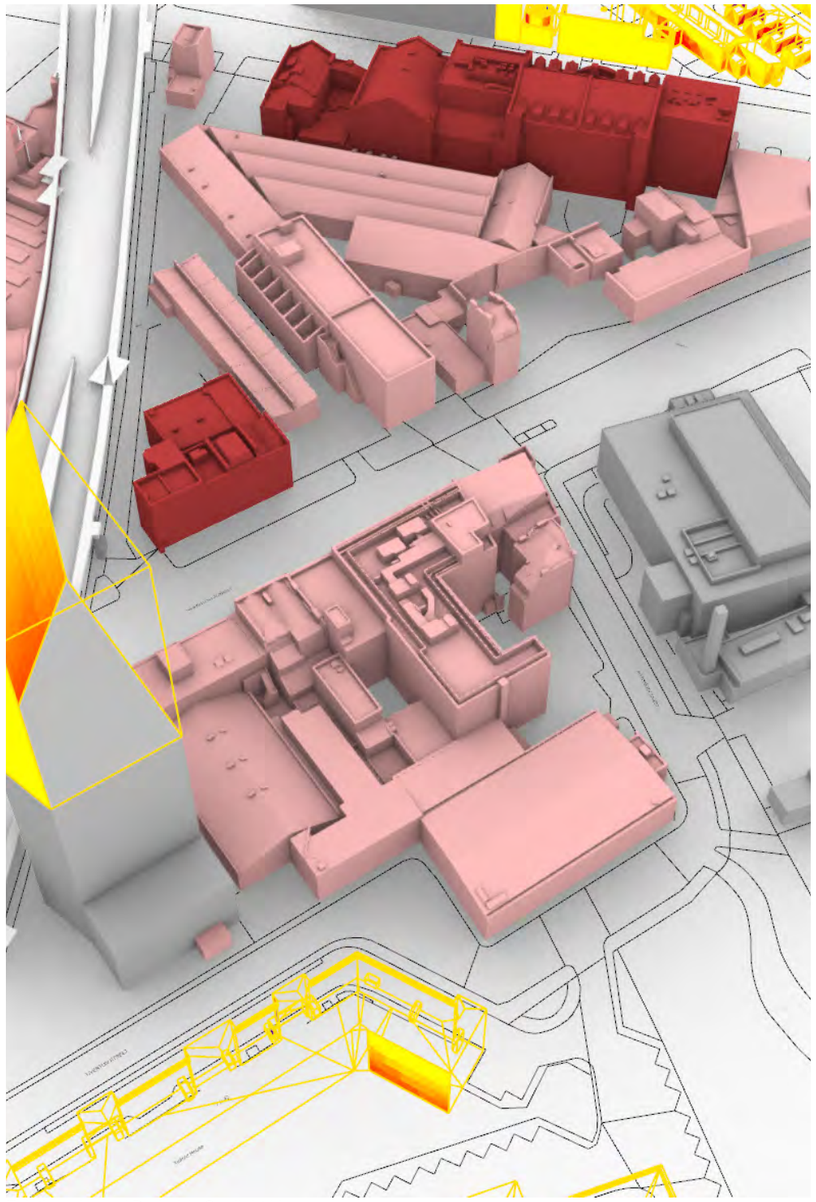
Annual sunlight hours of >25% is considered good, and >5% for the winter period.

The results of the baselines analysis show that:

- 75% of the existing facade area receives at least 25% of annual sunlight hours
- 72% of existing facade area receives at least 5% of winter sunlight hours

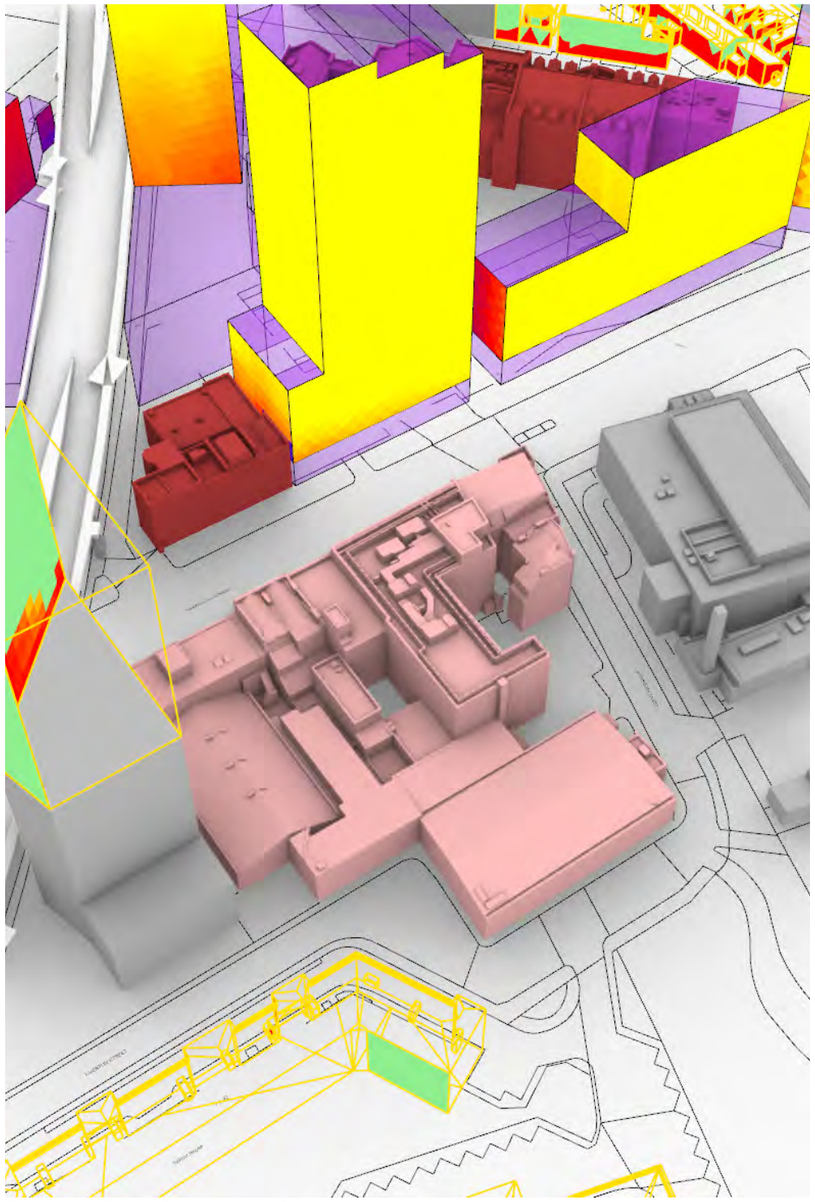
Annual Sunlight Hours (%)





Existing- Annual Probable Sunlight Hours

Reduction of Sunlight (%)



Existing with Rest of Cluster- Annual Sunlight Access and Impacts

Part two: Environmental performance

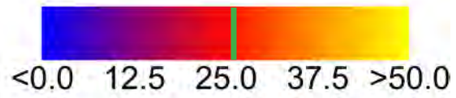
Coburg House Option 1 and 2

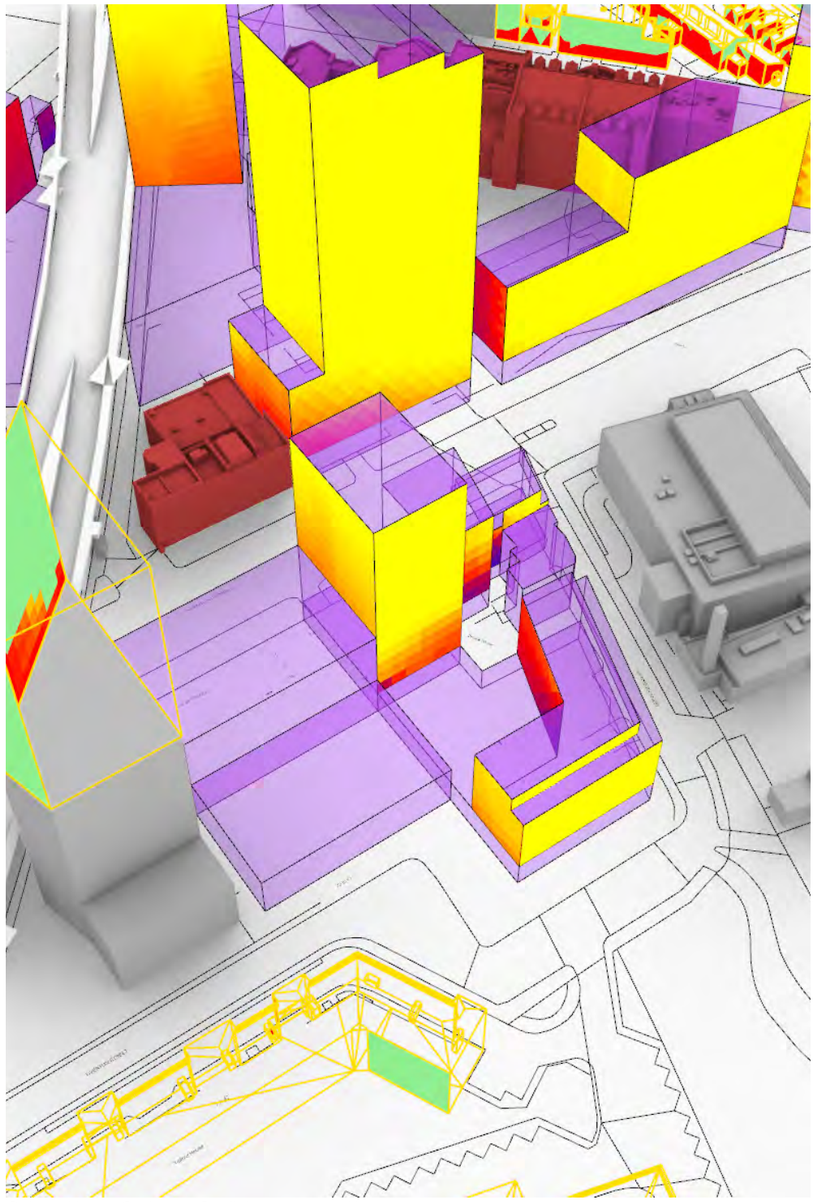
The massing has no impact on sunlight access to existing façades, as there aren't any sensitive façades directly due north of the site.

Option 1 has slightly lower overall sunlight access , due to the lower tower height.

However the increased tower height of Option 2 is beginning to reduce sunlight access for the adjacent façades of The Triangle Site.

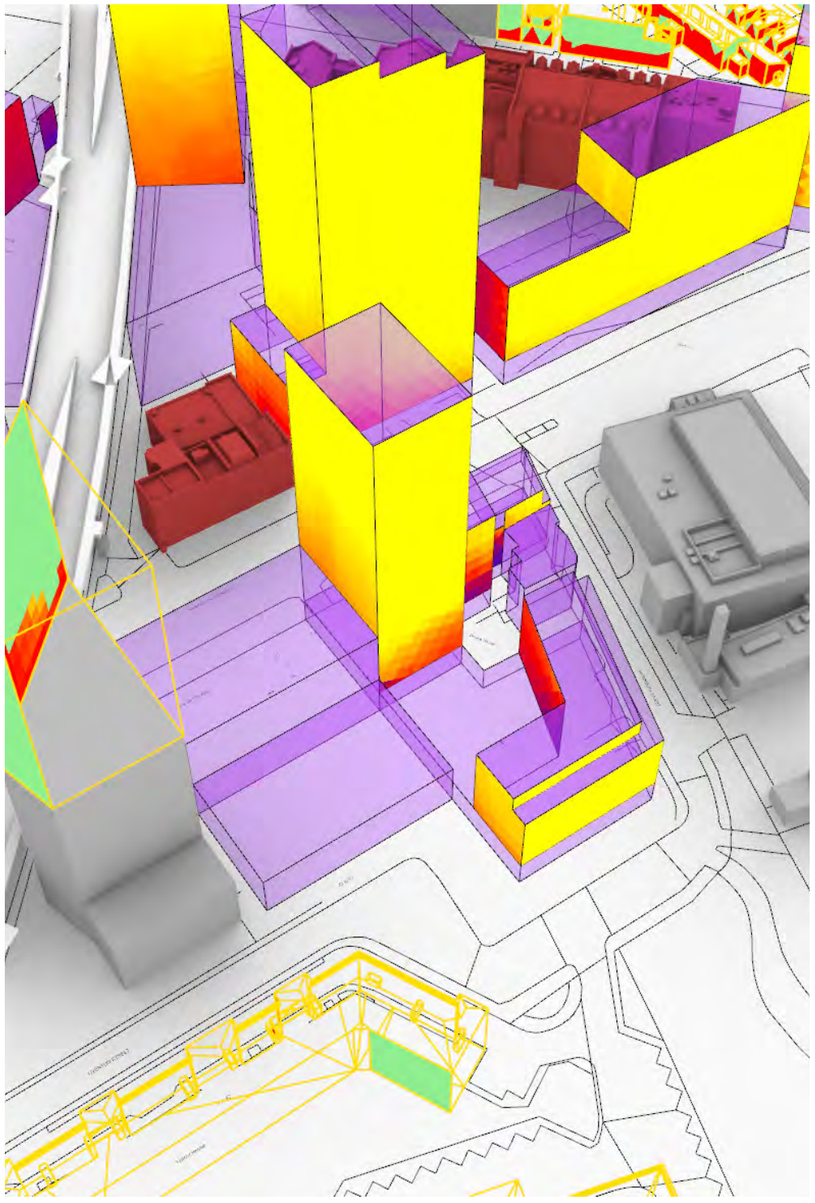
Annual Sunlight Hours (%)





Coburg House Option 1 - Sunlight access and impacts

Reduction of Sunlight (%)



Coburg House Option 2 - Sunlight access and impacts

Part two: Environmental performance

Summary of impact on Sunlight Access

The tables to the right summarise the sunlight access impacts on existing buildings and performance of proposed buildings.

There are no existing façades which are sensitive to massing options from this site.

Further studies should be taken to perform a more detailed survey of the existing surrounding buildings to determine any sensitive uses.

The proposed development has good levels of sunlight access for the annual and winter period.

Option 2 has slightly higher overall sunlight access, due to the increased tower height. But the increased tower reduces sunlight access for the adjacent façades on The Triangle Site.

Areas of the facade that have high levels of annual sunlight access may be more at risk to overheating due to excess solar gains during summer periods.

It's expected that all south-facing elevations of the tower blocks will require specific mitigation measures to ensure the risk of overheating is minimised.

Existing buildings

Sunlight in buildings	Aspirational	Minimum	Fail
% of Sunlight hours % of gross facade area	No reduction from existing	<20% reduction from existing	>20% reduction from existing
Rest of cluster	65.1%	26.3%	8.6%
Coburg House Option 1	65.1%	26.3%	8.6%
Coburg House Option 2	65.1%	26.3%	8.6%

Proposed buildings

	Coburg House					Rest of Cluster				
Sunlight in buildings	Annual		Winter			Annual		Winter		
	Aspirational	Fail	Aspirational	Minimum	Fail	Aspirational	Fail	Aspirational	Minimum	Fail
% of Sunlight Hours % of gross facade area	>25%	<25%	>10%	10-5%	<5%	>25%	<25%	>10%	10-5%	<5%
Rest of cluster	-	-	-	-	-	91.6%	8.4%	54.9%	37.1%	8.0%
Coburg House Option 1	76.2%	23.8%	71.7%	10.0%		91.3%	8.7%	52.9%	37.8%	9.3%
Coburg House Option 2	83.2%	16.8%	79.5%	7.5%		90.9%	9.1%	52.3%	38.1%	9.6%

Part two: Environmental performance

Wind Comfort

Early stage wind comfort analysis was performed using CFD with 8-wind directions. The effects of vegetation was not included to represent a conservative analysis.

The results of wind comfort are shown in the figures to the right.

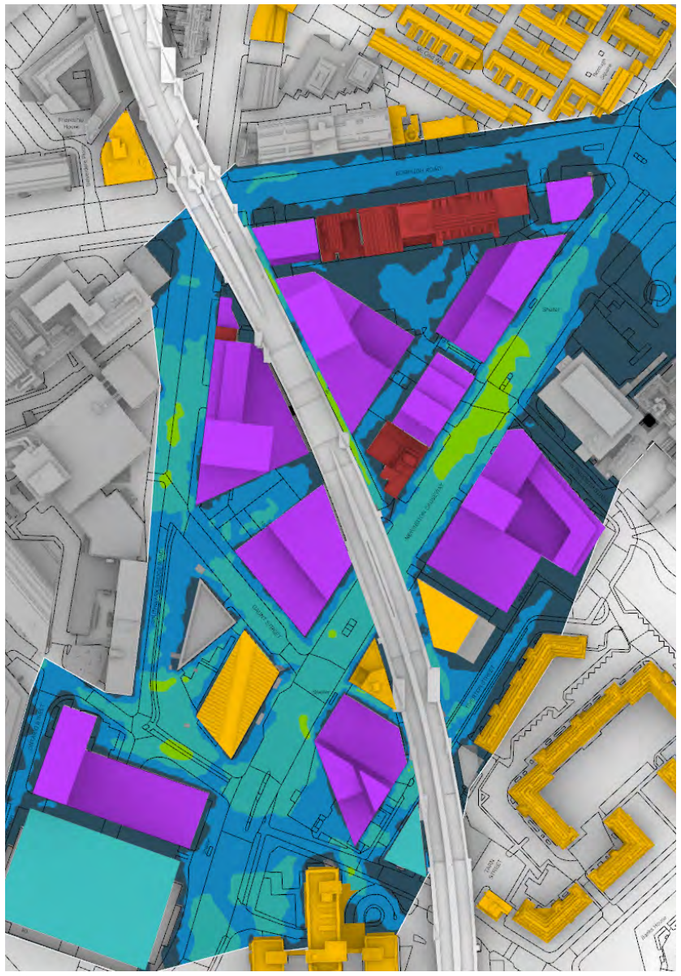
For the worst case season (winter) there are some areas that are 'uncomfortable' for pedestrians which are mostly located within the road carriageway. It's unlikely that these spaces will be used for sitting during the winter.

The areas of uncomfortable conditions 'orange' are likely due to wind channelling in street canyons and downdraught from the tall buildings. Mitigation measures such as street trees and canopy overhangs should be tested at later stages to assess benefits to improving the wind comfort.

For the summer season the majority of spaces show conditions suitable for sitting and standing.

Further analysis is required at detailed stages to refine and confirm results.

Wind comfort - worst case season (winter)



Wind comfort - summer

	Wind Speed	Description
	<2.5 m/s	Frequent Sitting
	<4 m/s	Occasional sitting
	<6 m/s	Standing

	Wind Speed	Description
	<8 m/s	Walking
	>8 m/s	Uncomfortable

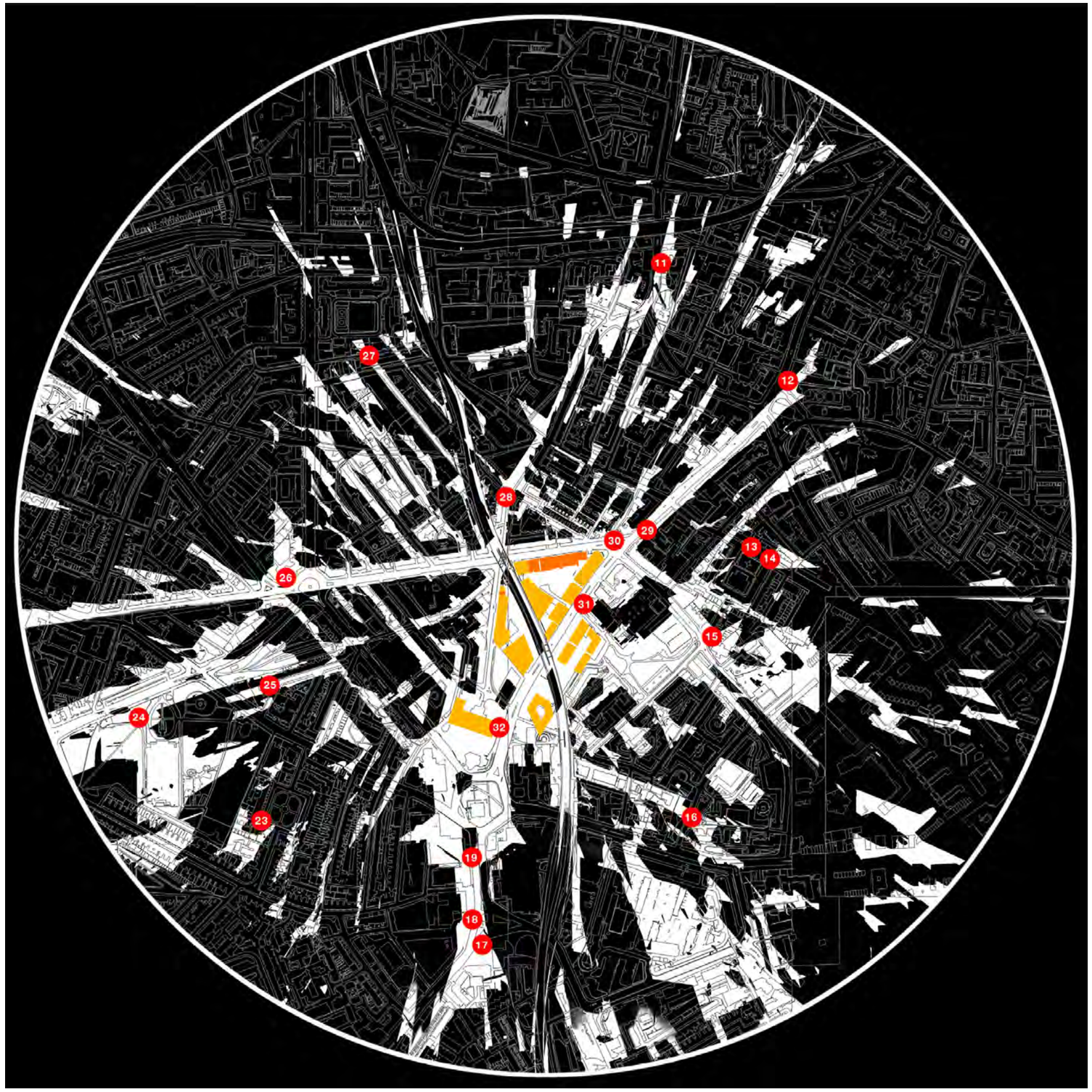
Comfort wind speed thresholds are for a 5% occurrence

Part three: View analysis

- Newington Triangle Site
- Quadrilateral Site
- Coburg House Site
- Salvation Army Site
- Keyworth Hostel Site
- Cumulative schemes

Overview of sites

View Map (View 01 *LVMF 1A.1* and View 02 *LVMF 23A.1* are offscreen)



Zone of Theoretical Visibiltiy (ZTV) with relevant view numbers

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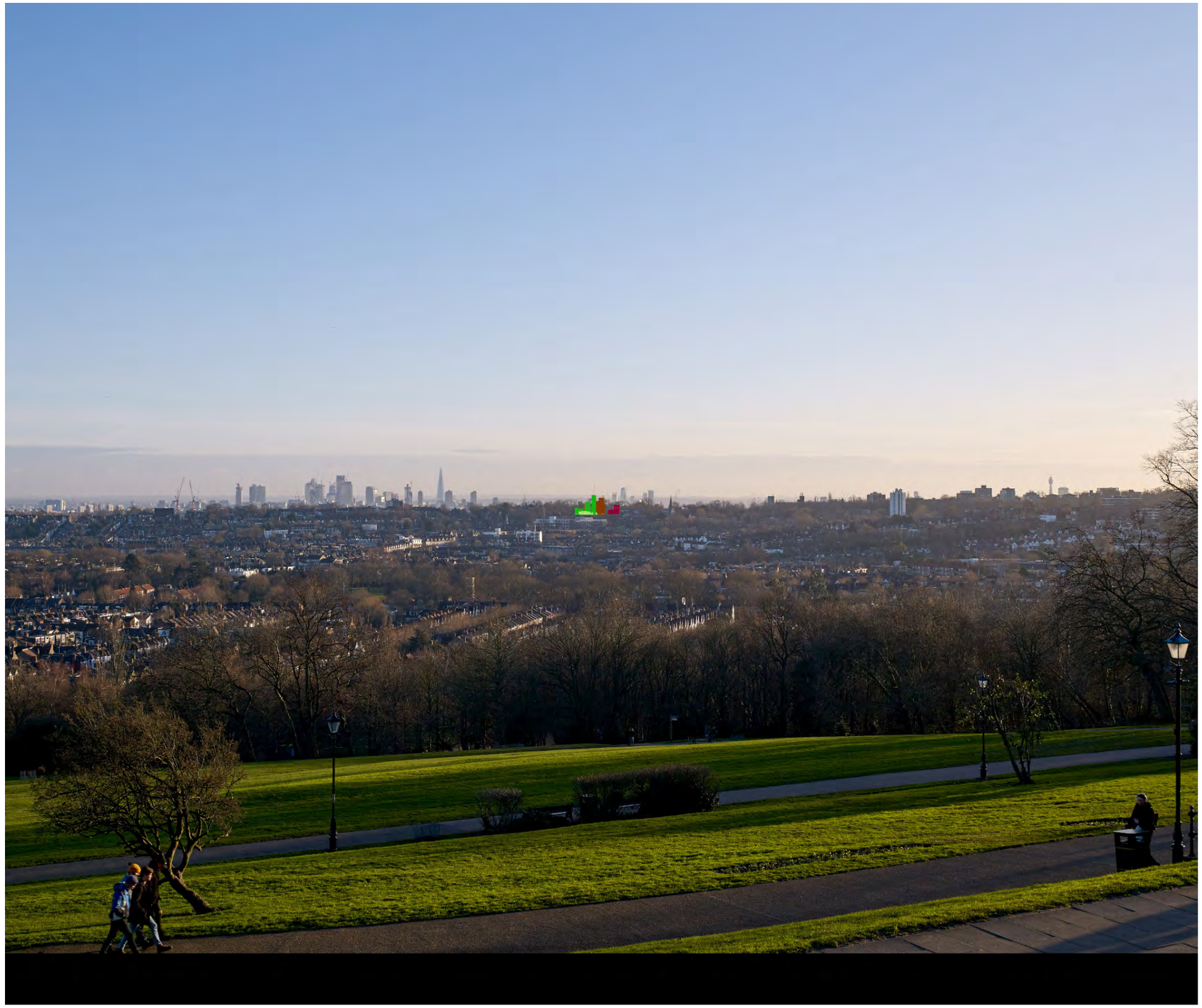
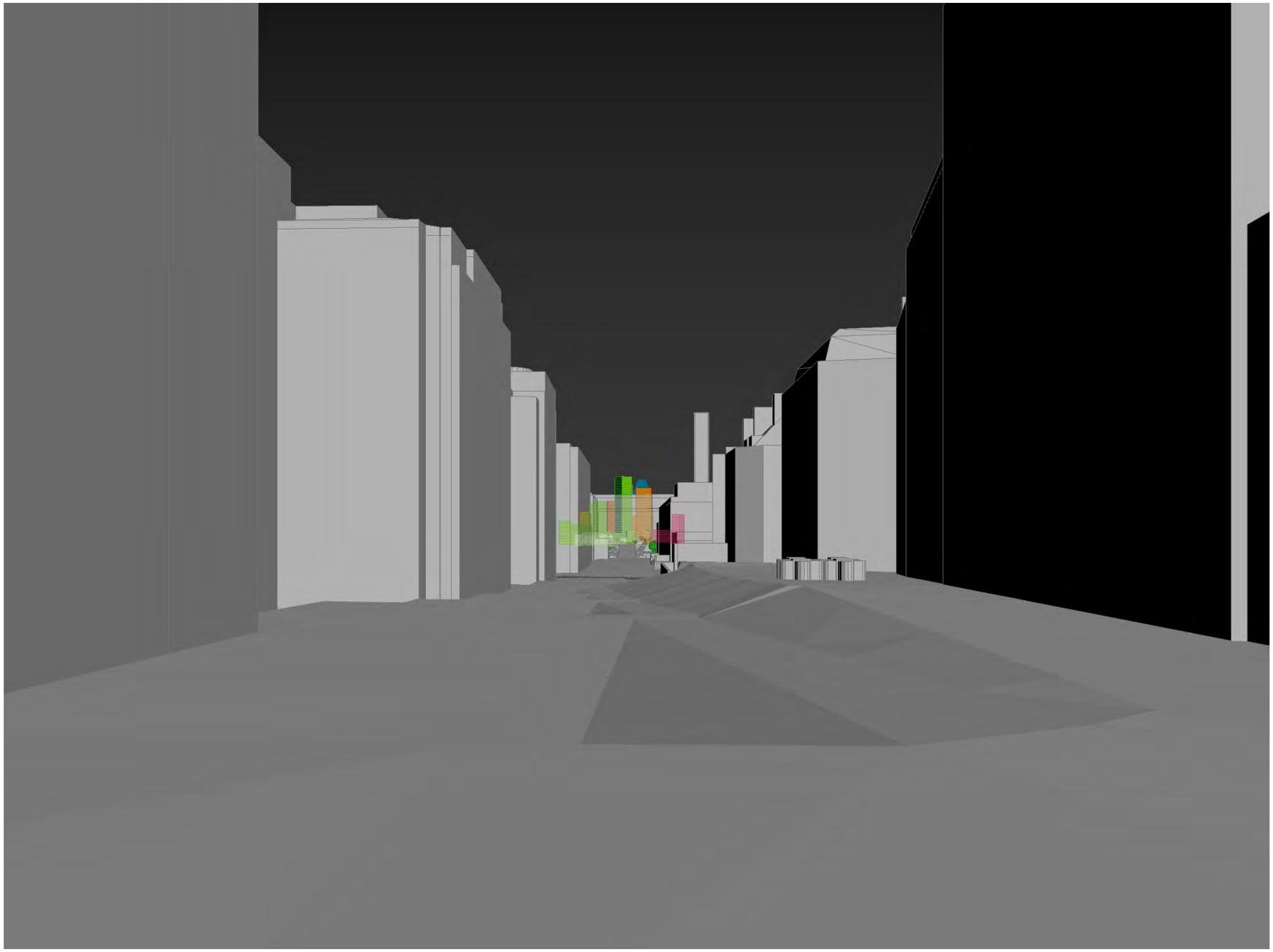


*Zoomed in version

01 - LVMF 1A.1 Alexandra Palace

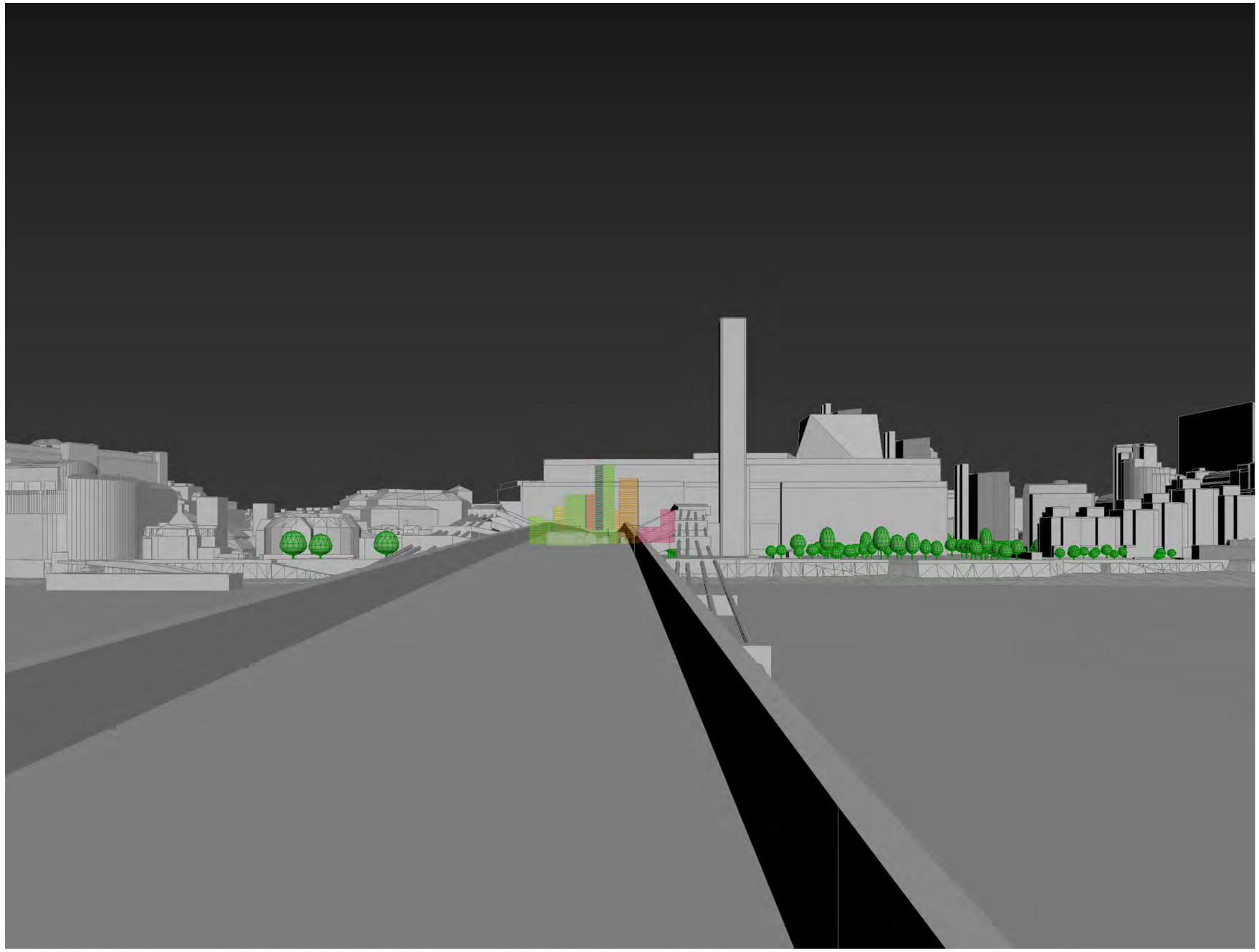
*Zoomed in version

02 - LVMF 23A.1 Bridge over the Serpentine

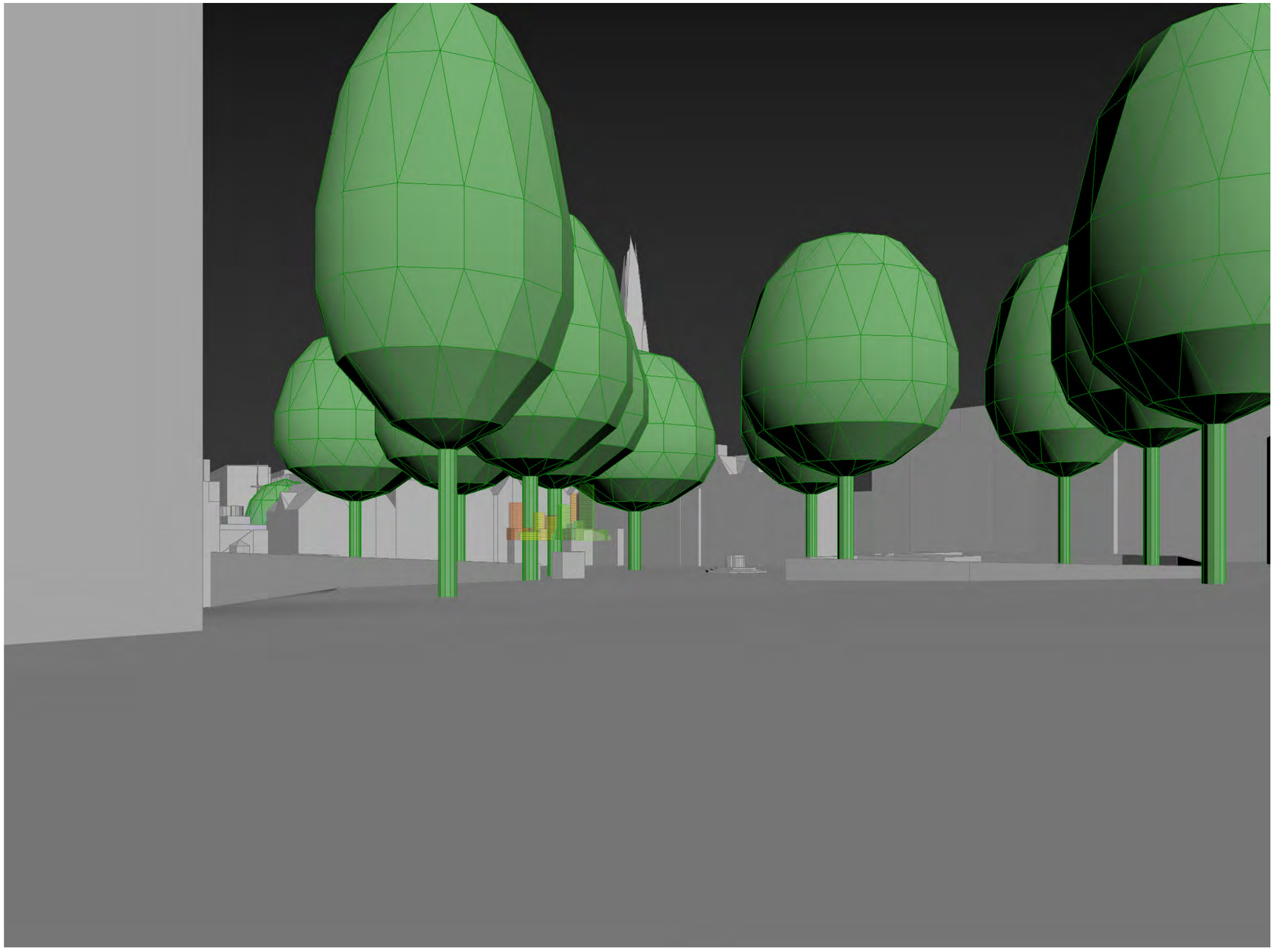


*Indicative photography

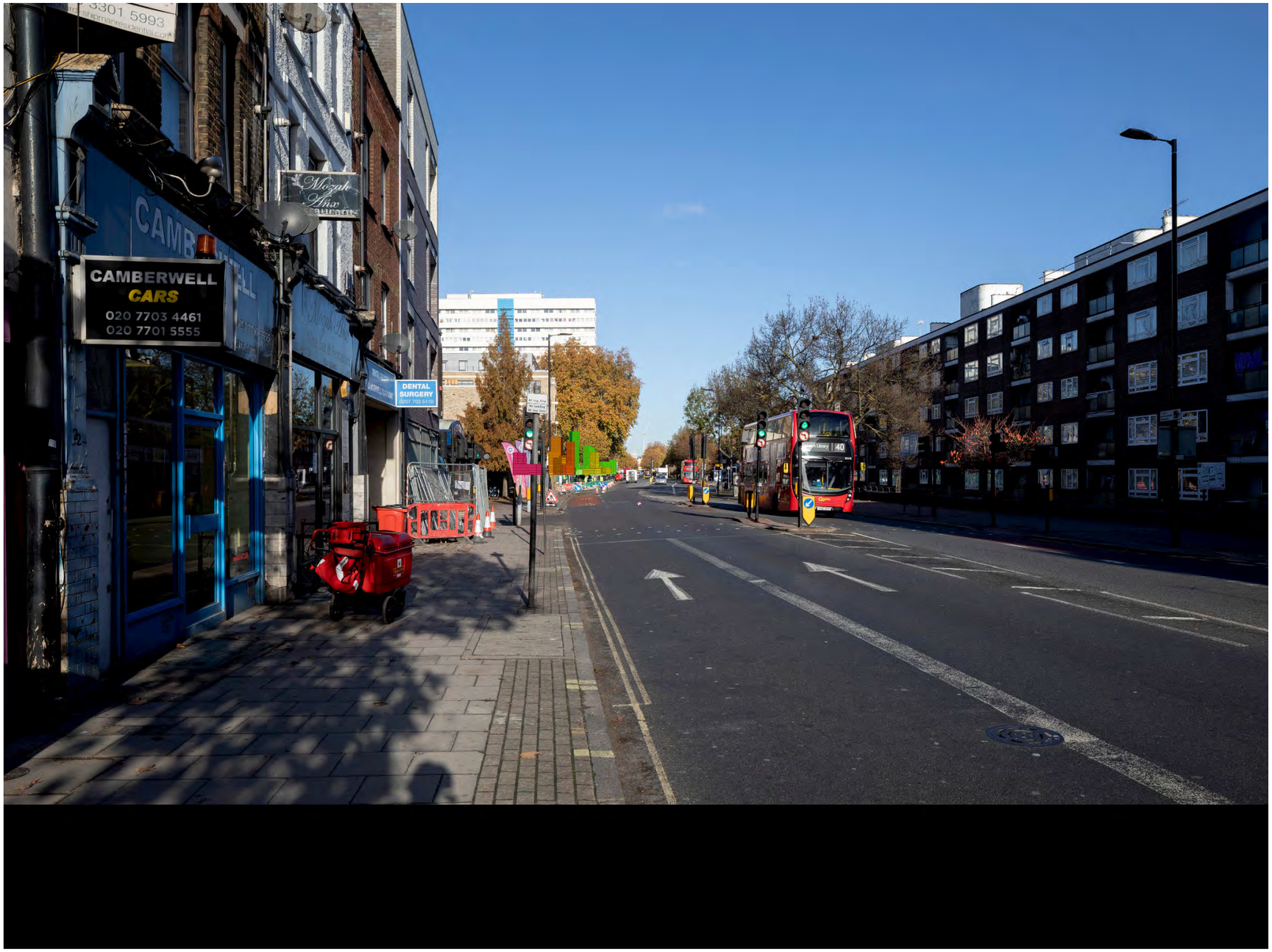
03 - Millenium Bridge approach on Peters Hill



03A - Millenium Bridge

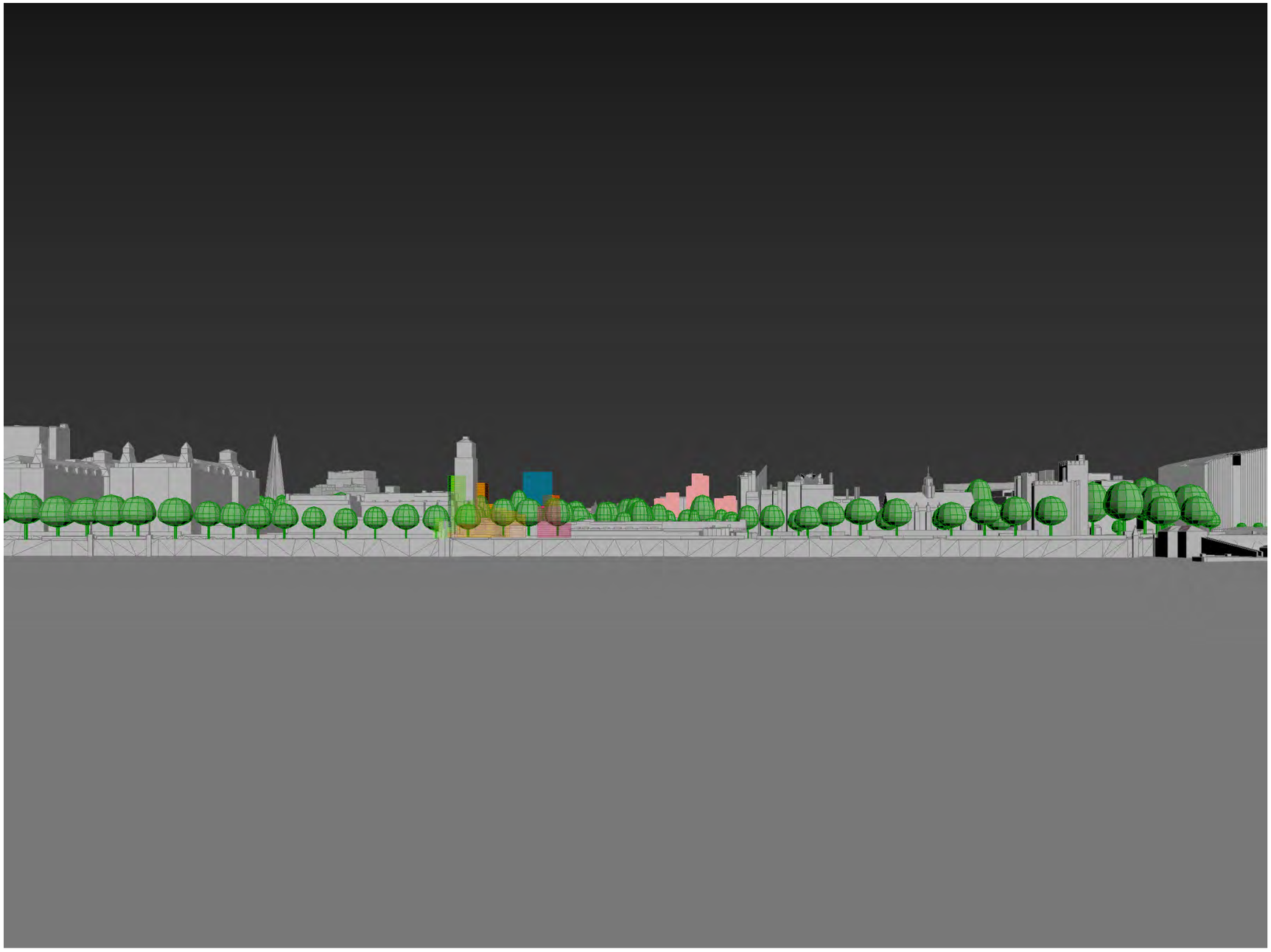


04 - View from the Inner Ward, Tower of London



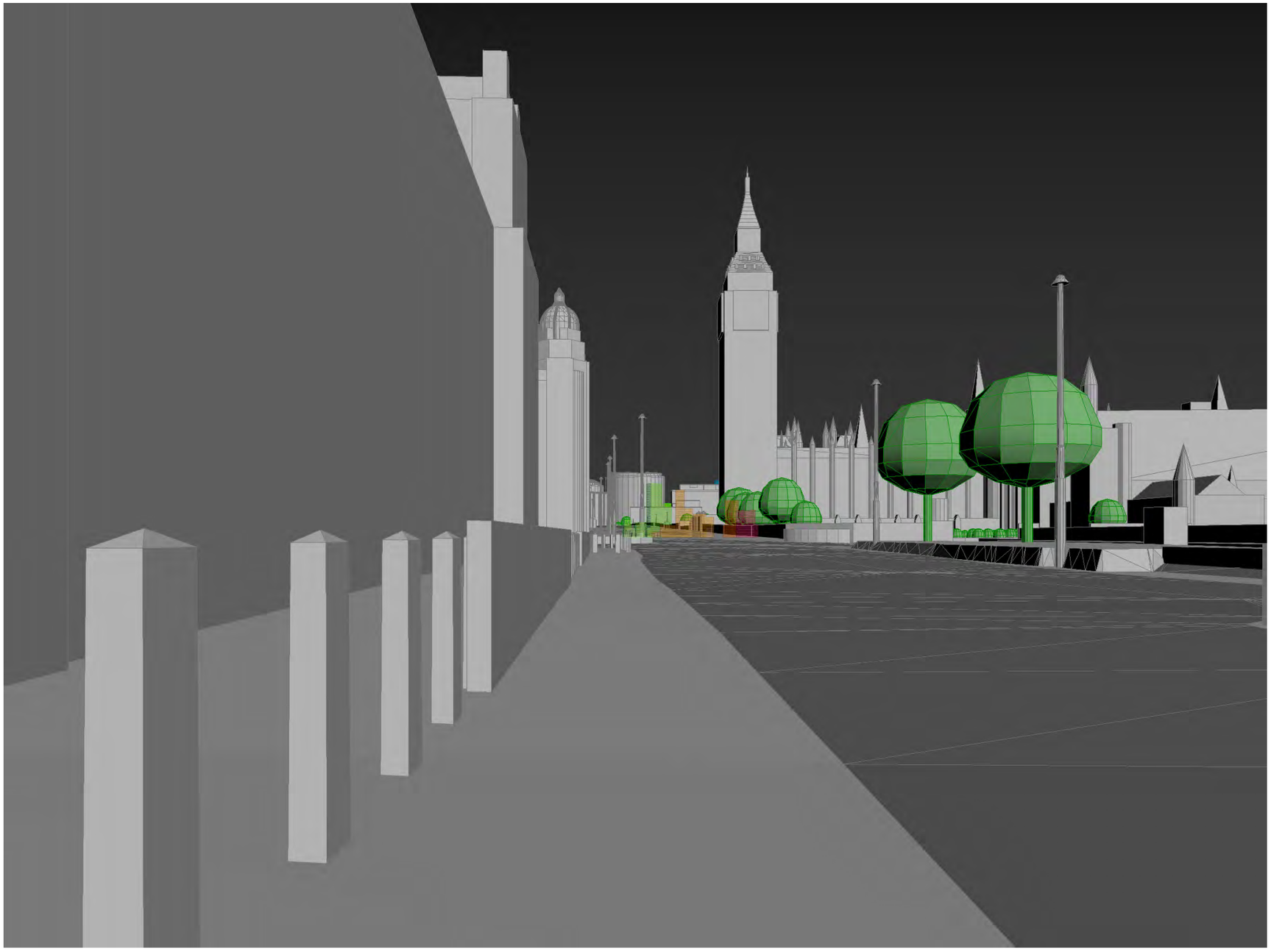
*Zoomed in version

05 - Southwark Local View 5.3 Camberwell Road



*Indicative photography

06 - Victoria Tower Gardens, positioned centrally



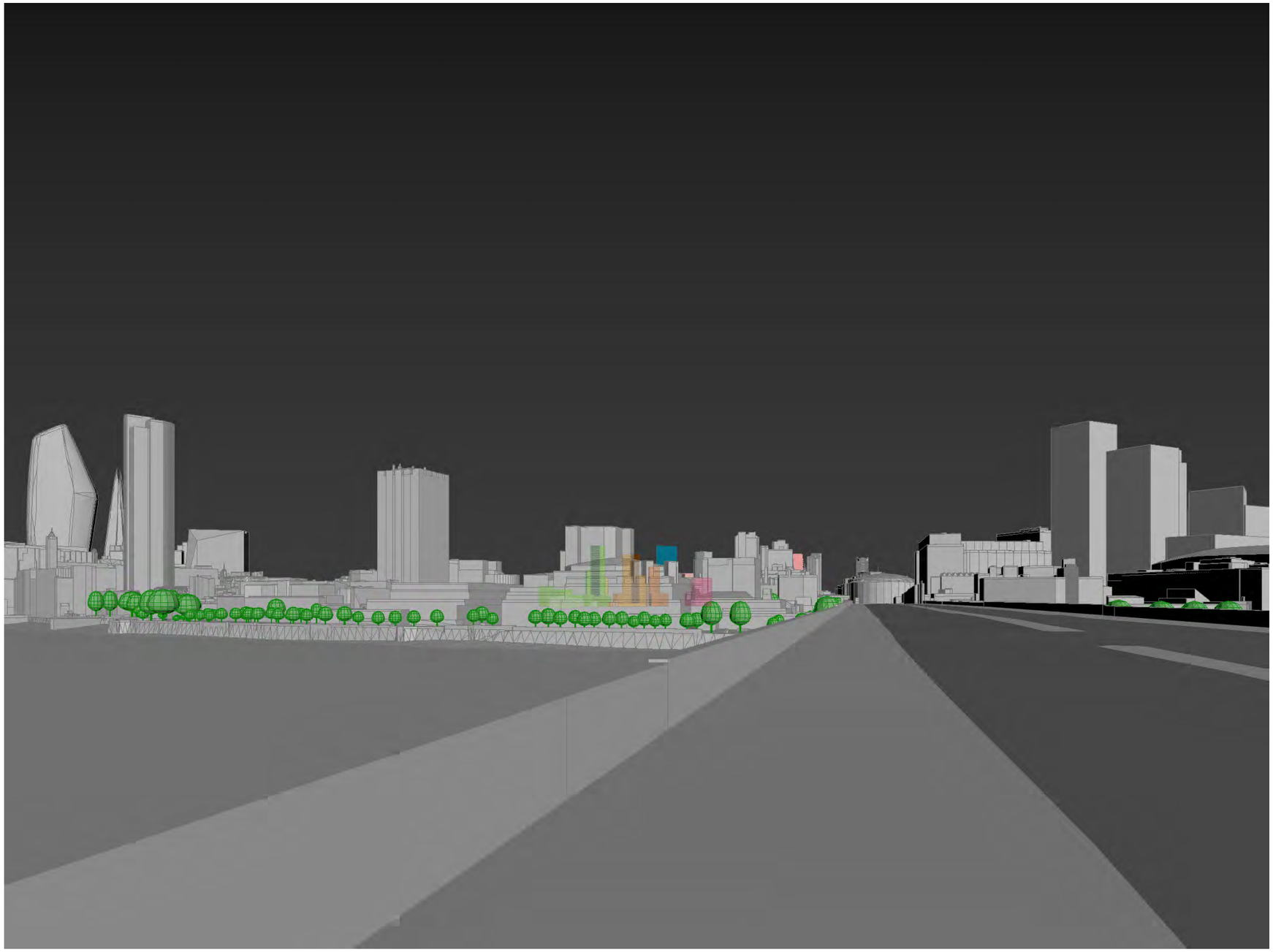
*Indicative photography

07 - LVMF 27B.1 Parliament Square: north pavement - entering from St James's Park (rotated)

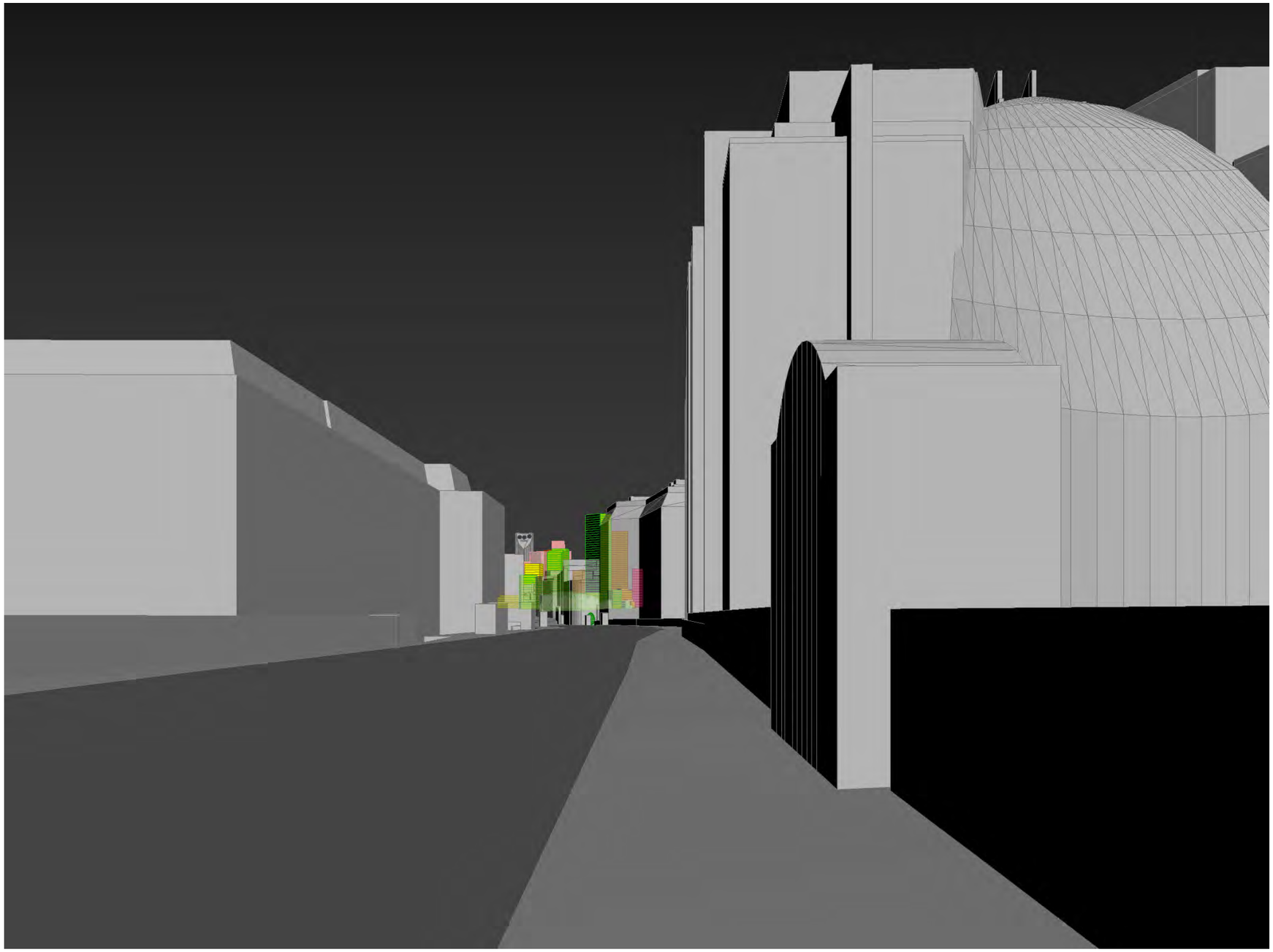
HayesDavidson

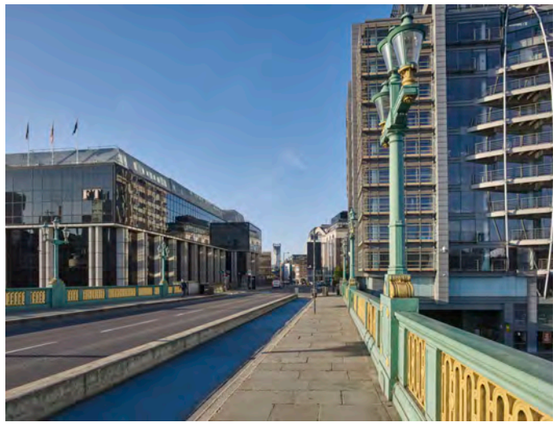
*Indicative photography

08 - LVMF 27B.2 Parliament Square: north pavement - entering from Whitehall (rotated)



09 - LVMF 15B.1 Waterloo Bridge: downstream – close to the Westminster bank





*Indicative photography

10 - Southwark Bridge

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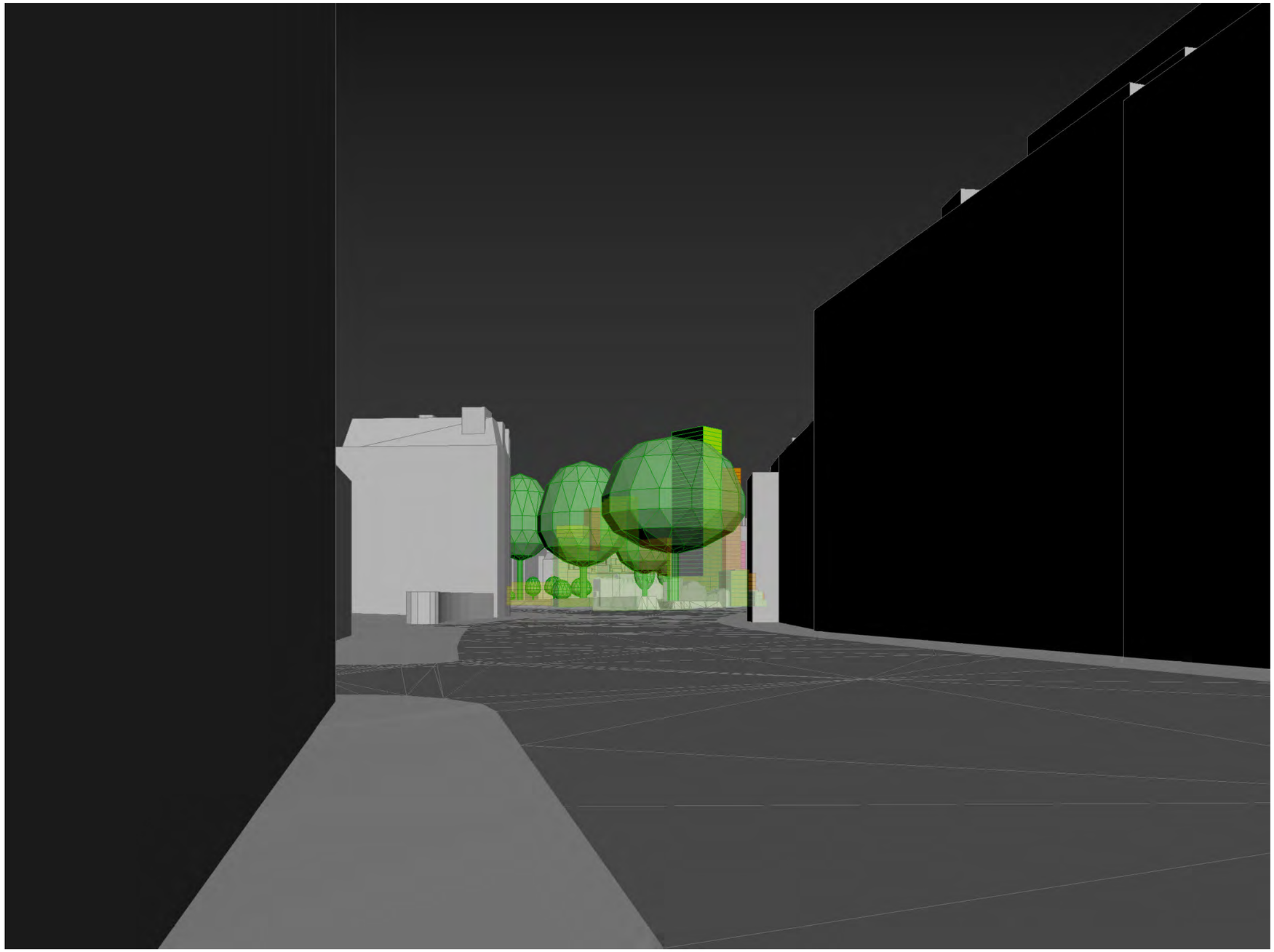
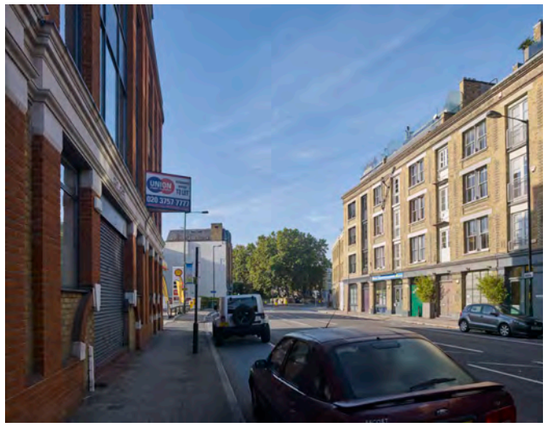
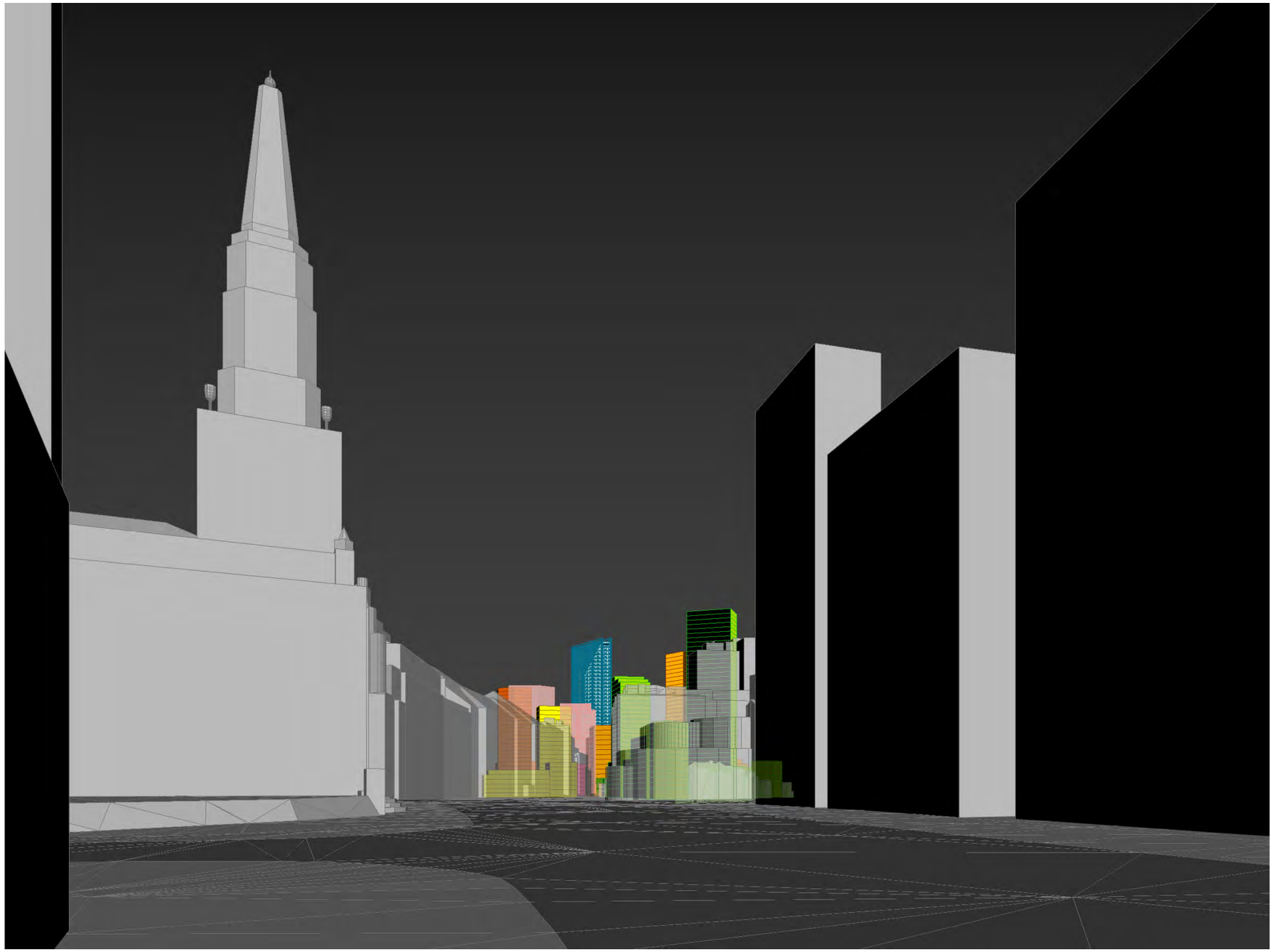




*Indicative photography

11 - Southwark Bridge Road

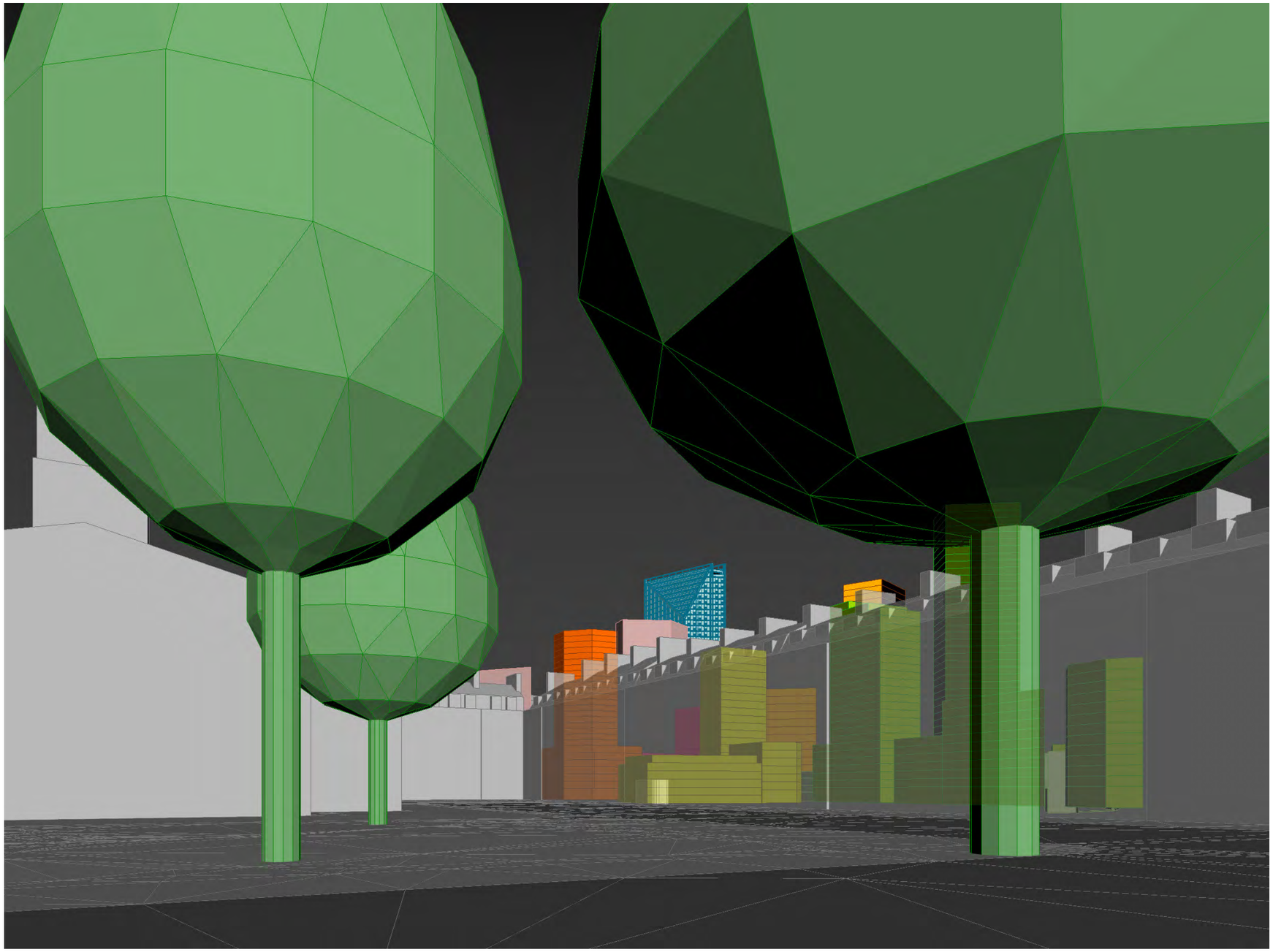
HayesDavidson



*Indicative photography

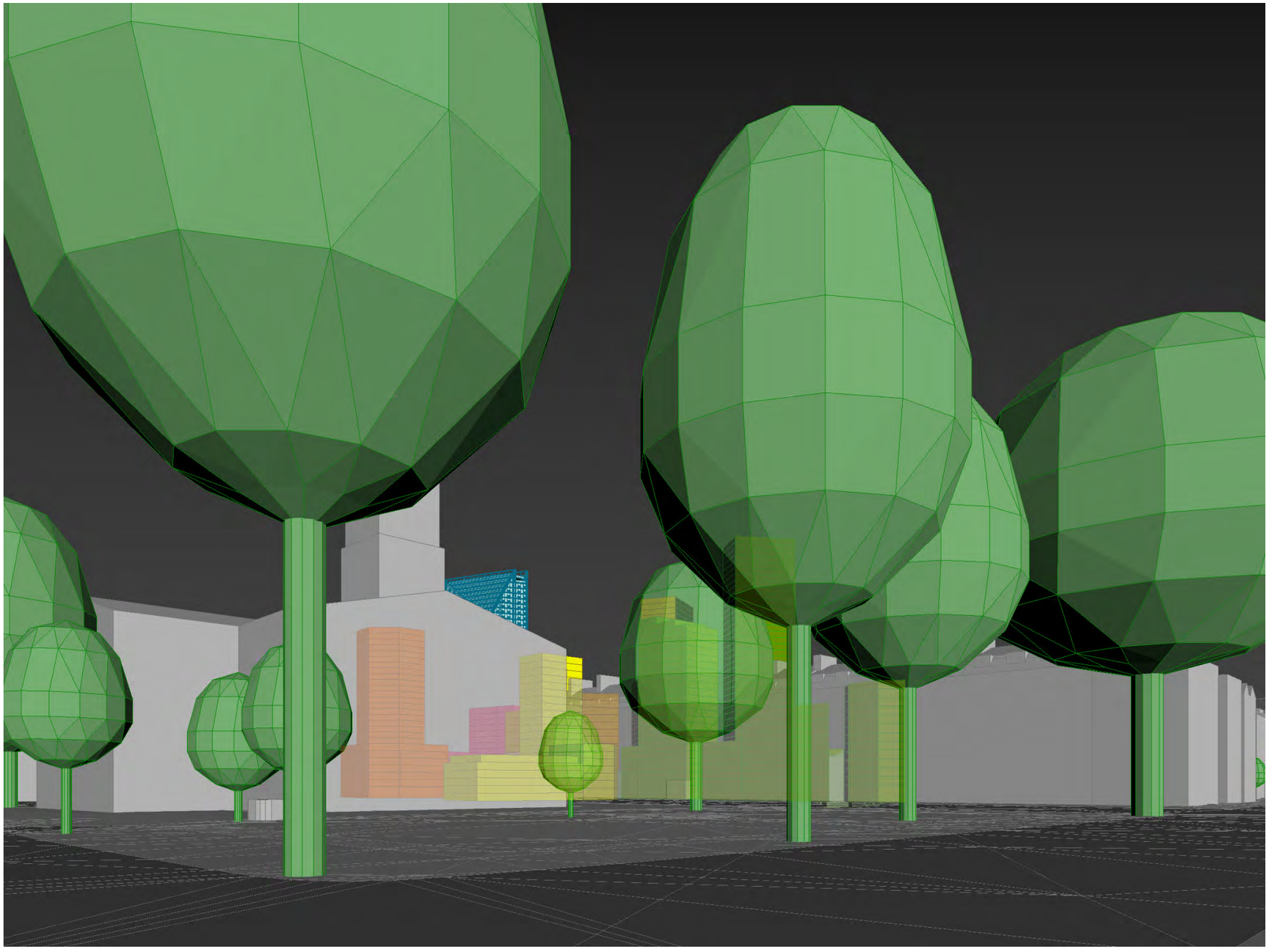
12 - Borough High Street

HayesDavidson



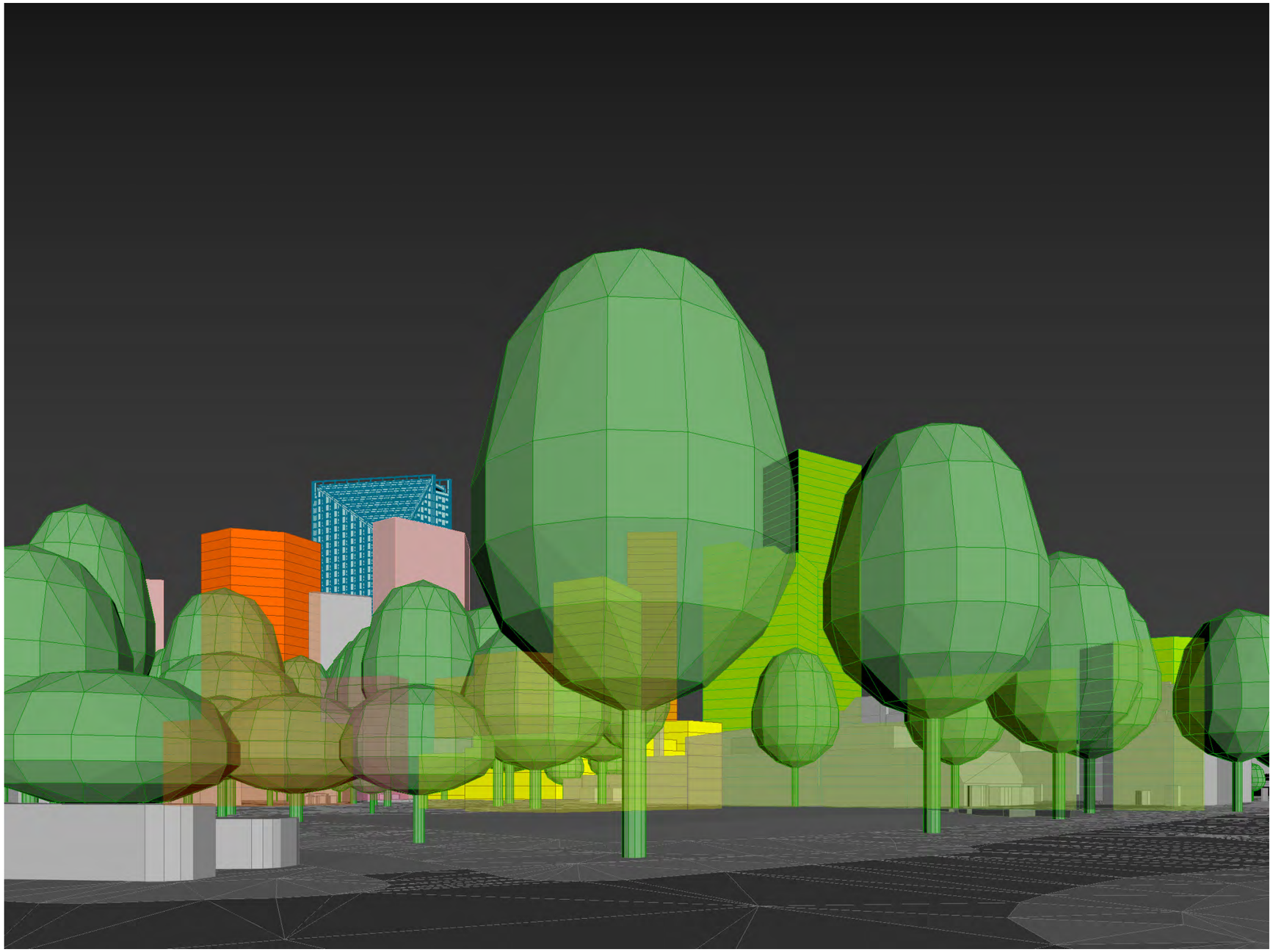
*Indicative photography

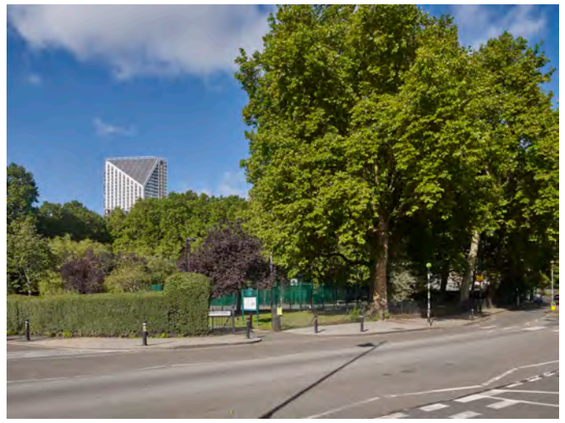
13 - Trinity Church Square Northern Edge



*Indicative photography

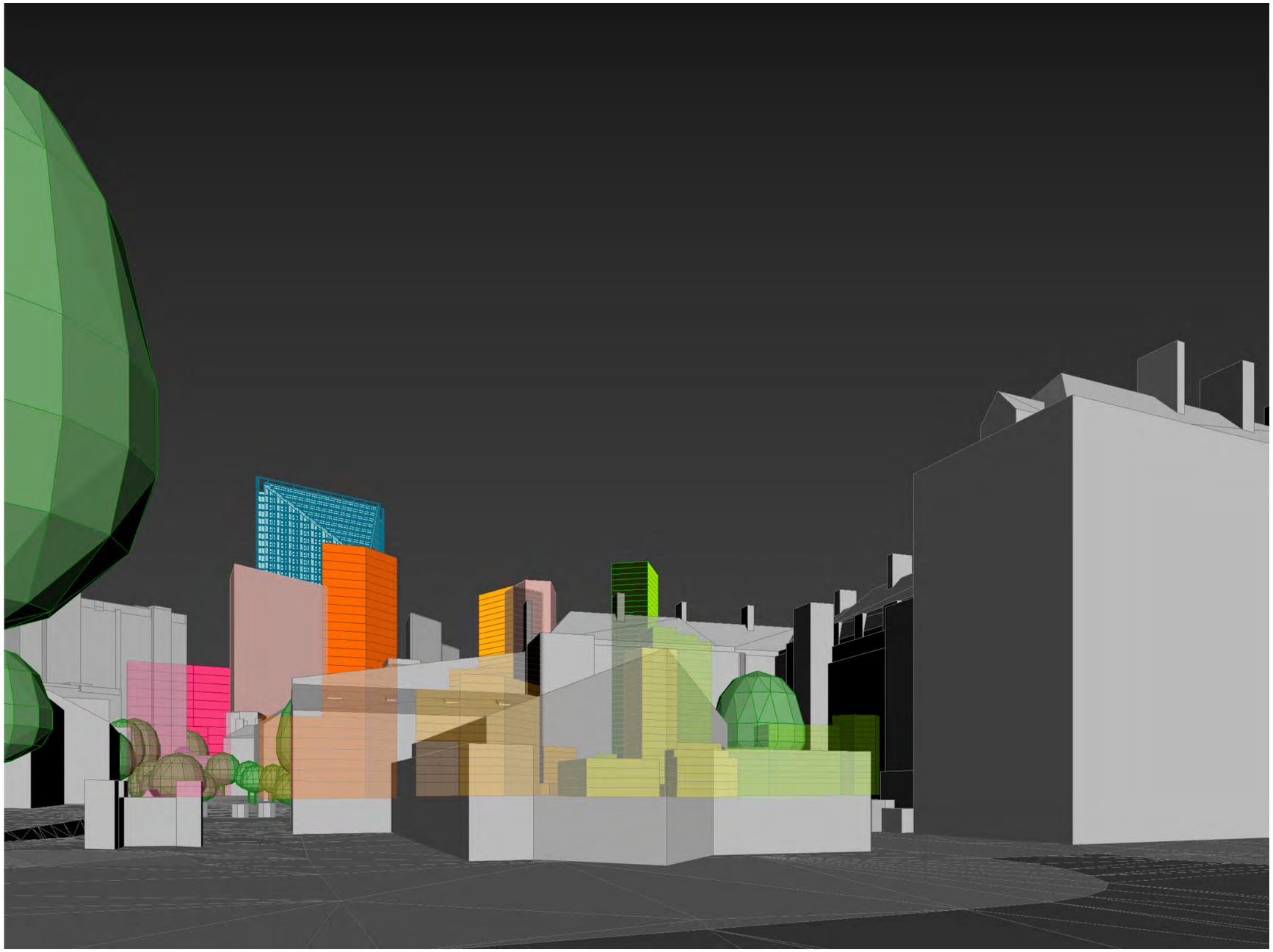
14 - Trinity Church Square



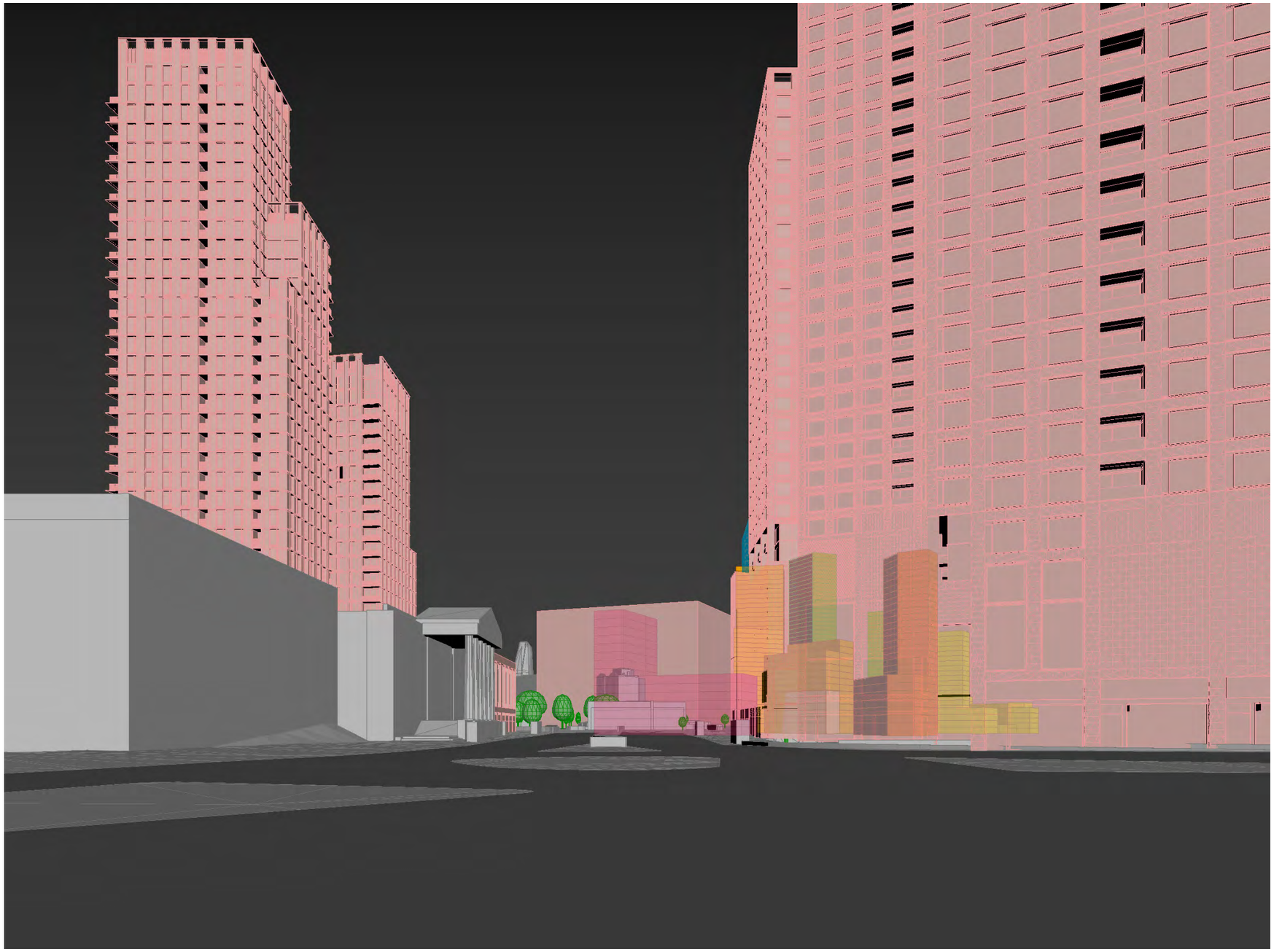


*Indicative photography

15 - Newington Gardens East



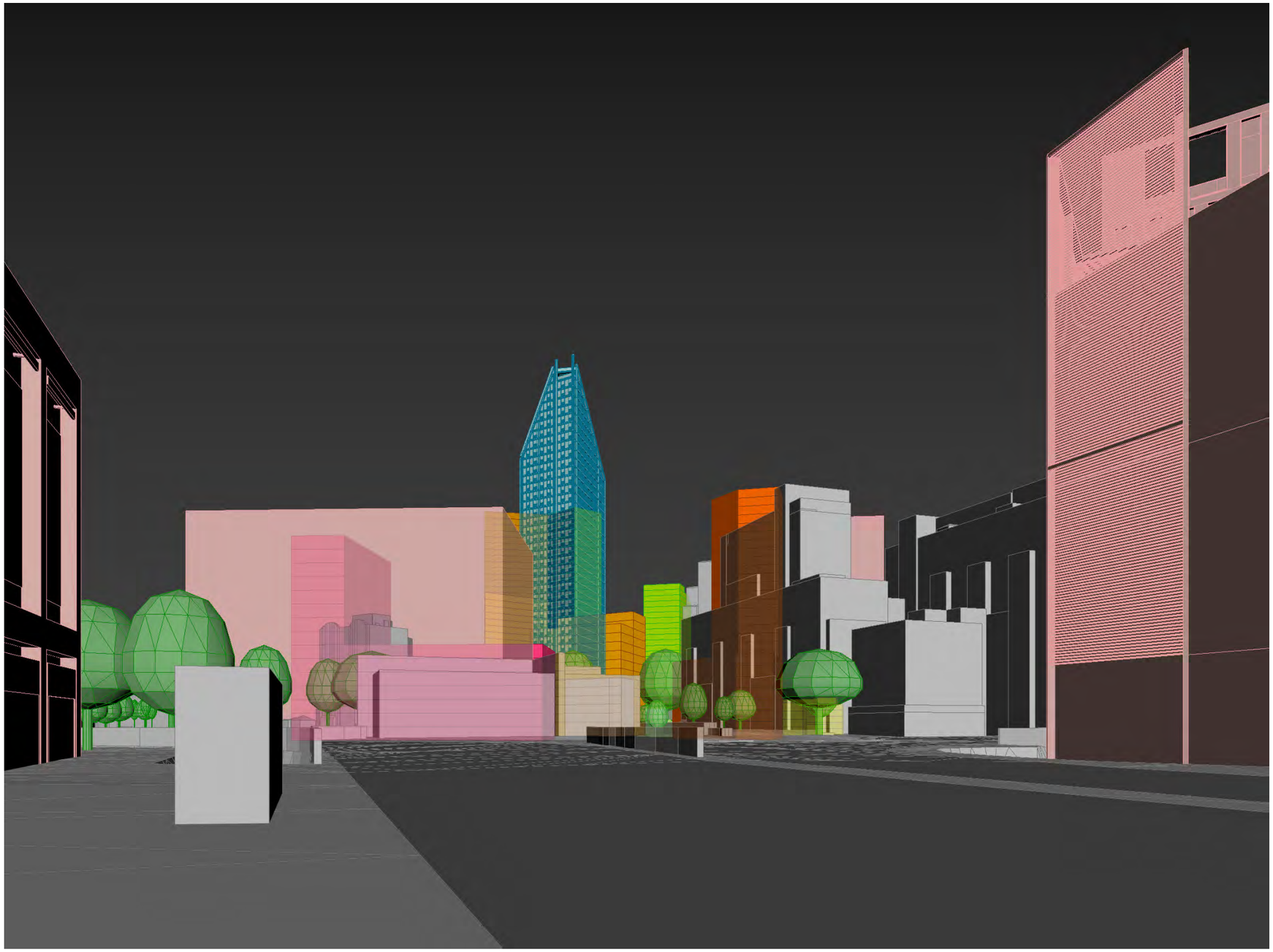
16 - Star and Cross Church



17 - View of Tabernacle, South Roundabout

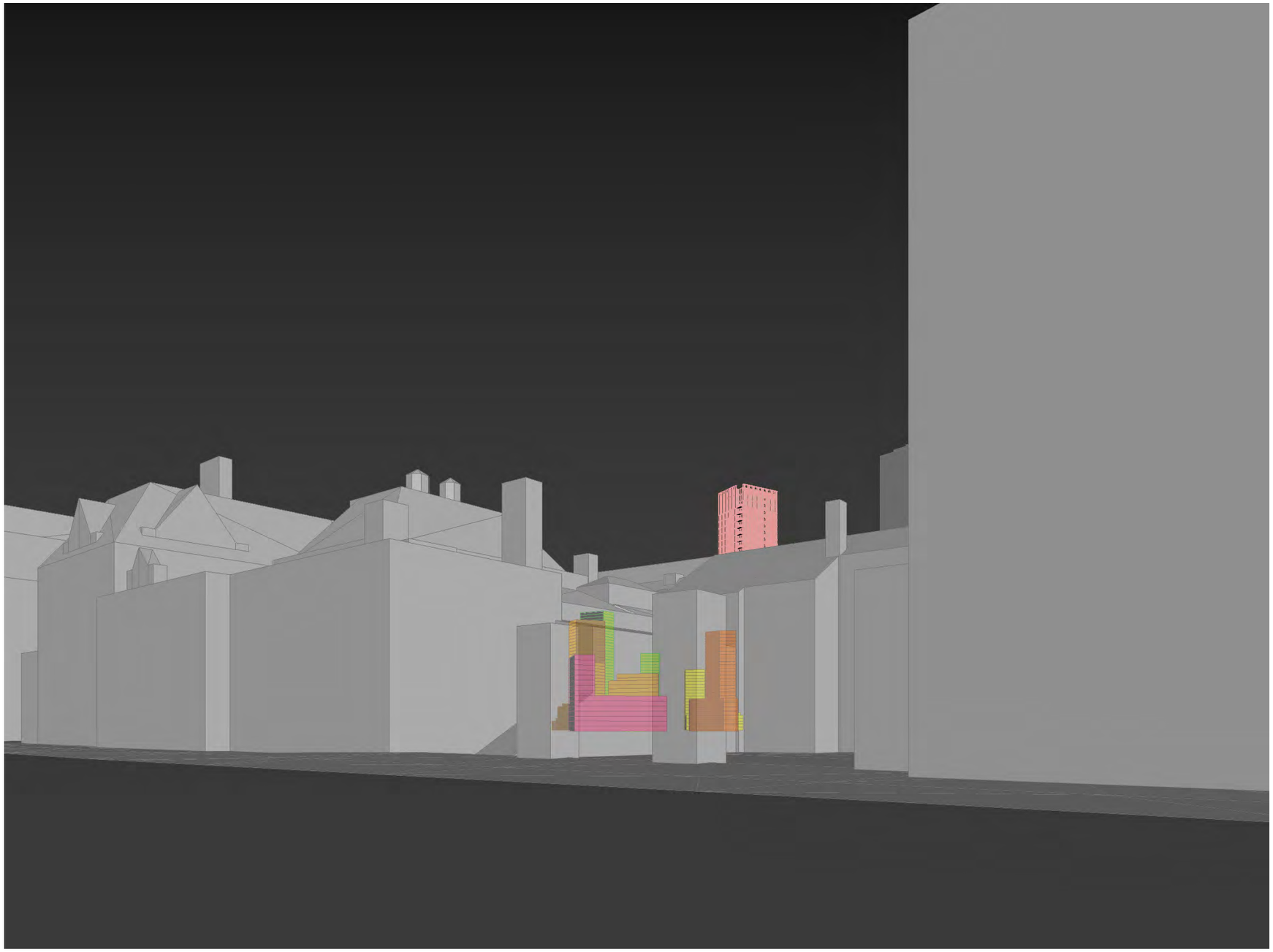
*Indicative photography

18 - Elephant and Castle South Roundabout West



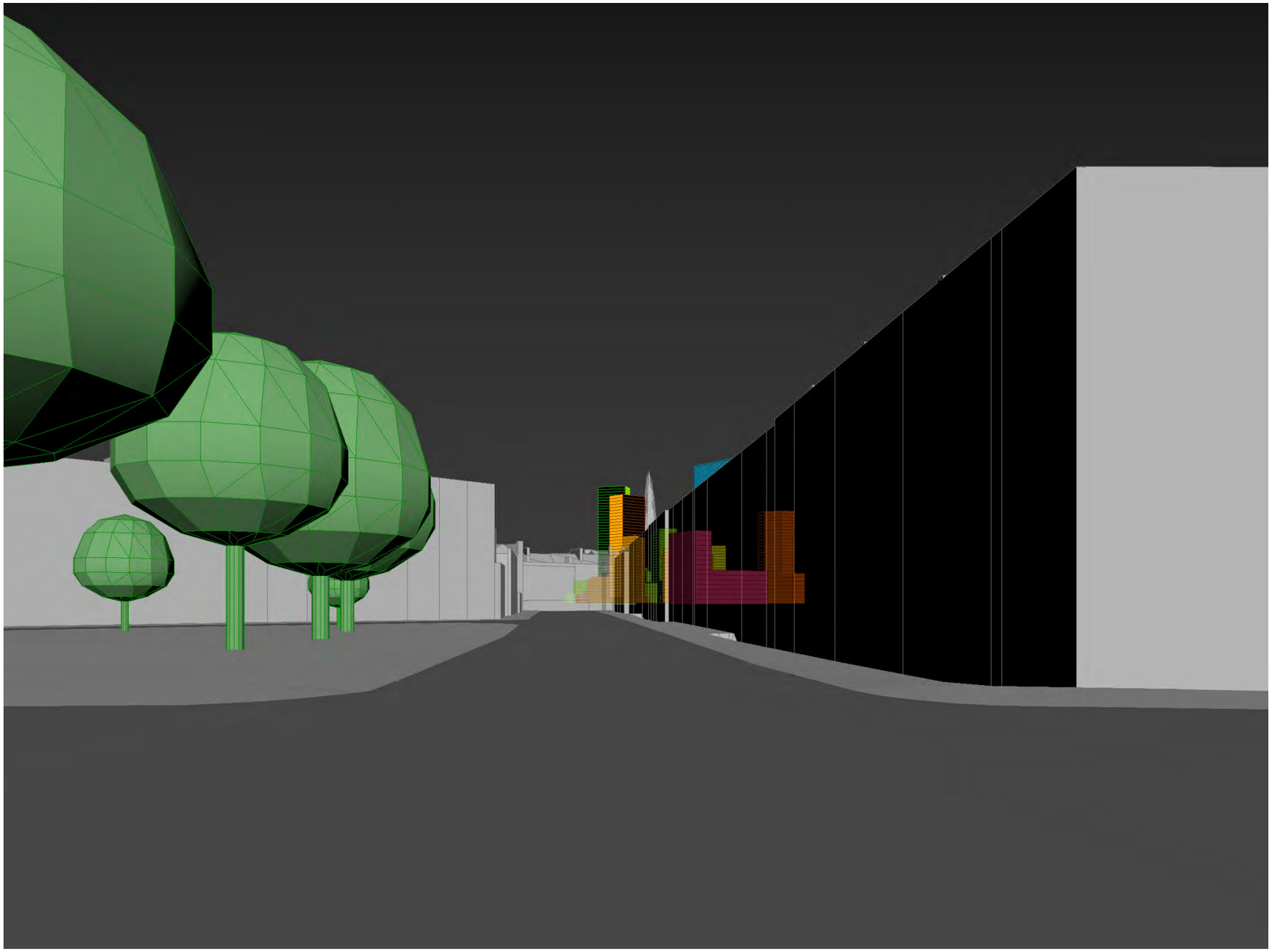
*Indicative photography

19 - Elephant and Castle North Roundabout West



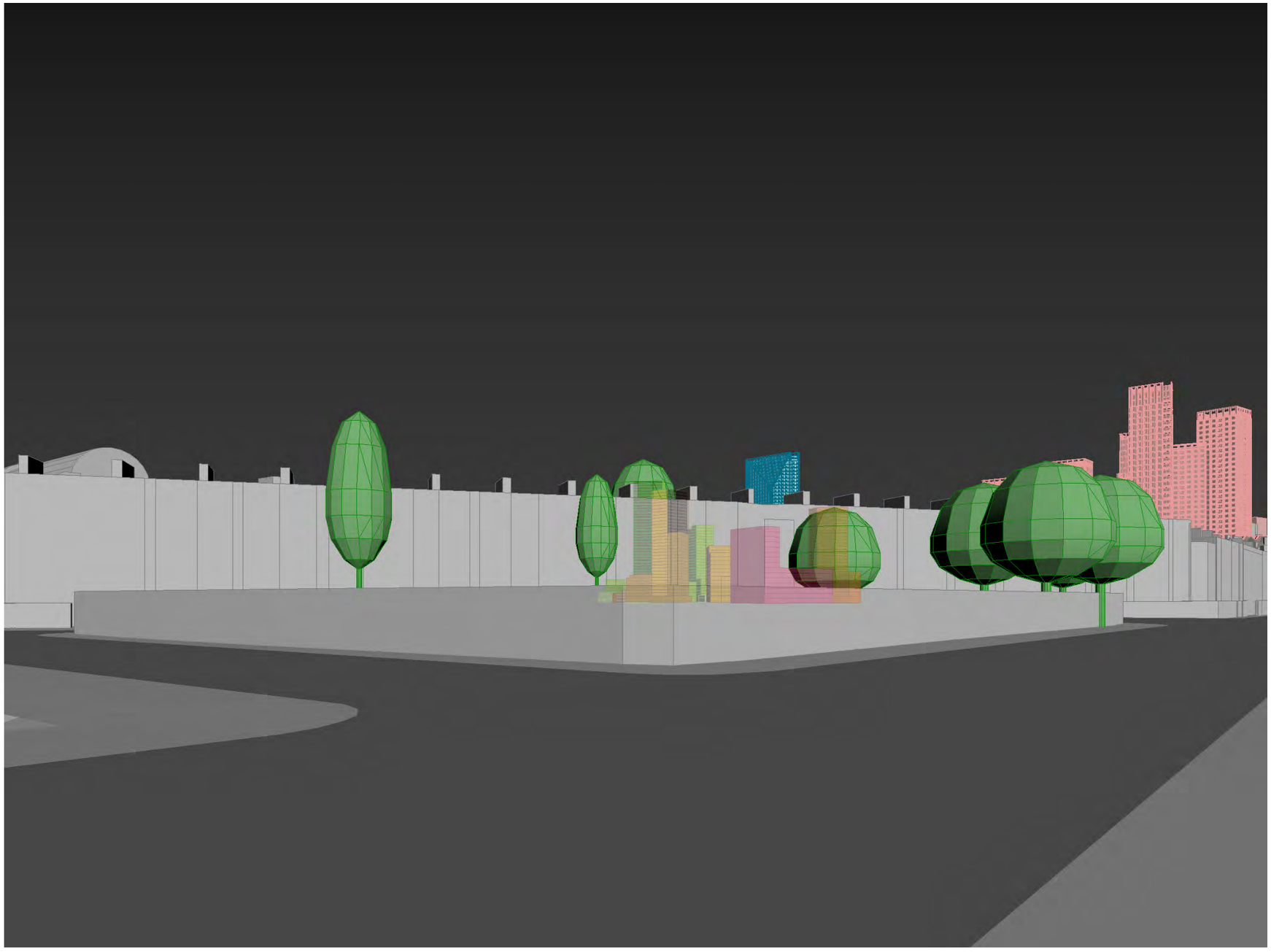
20 - Renfrew Road Conservation Area

HayesDavidson



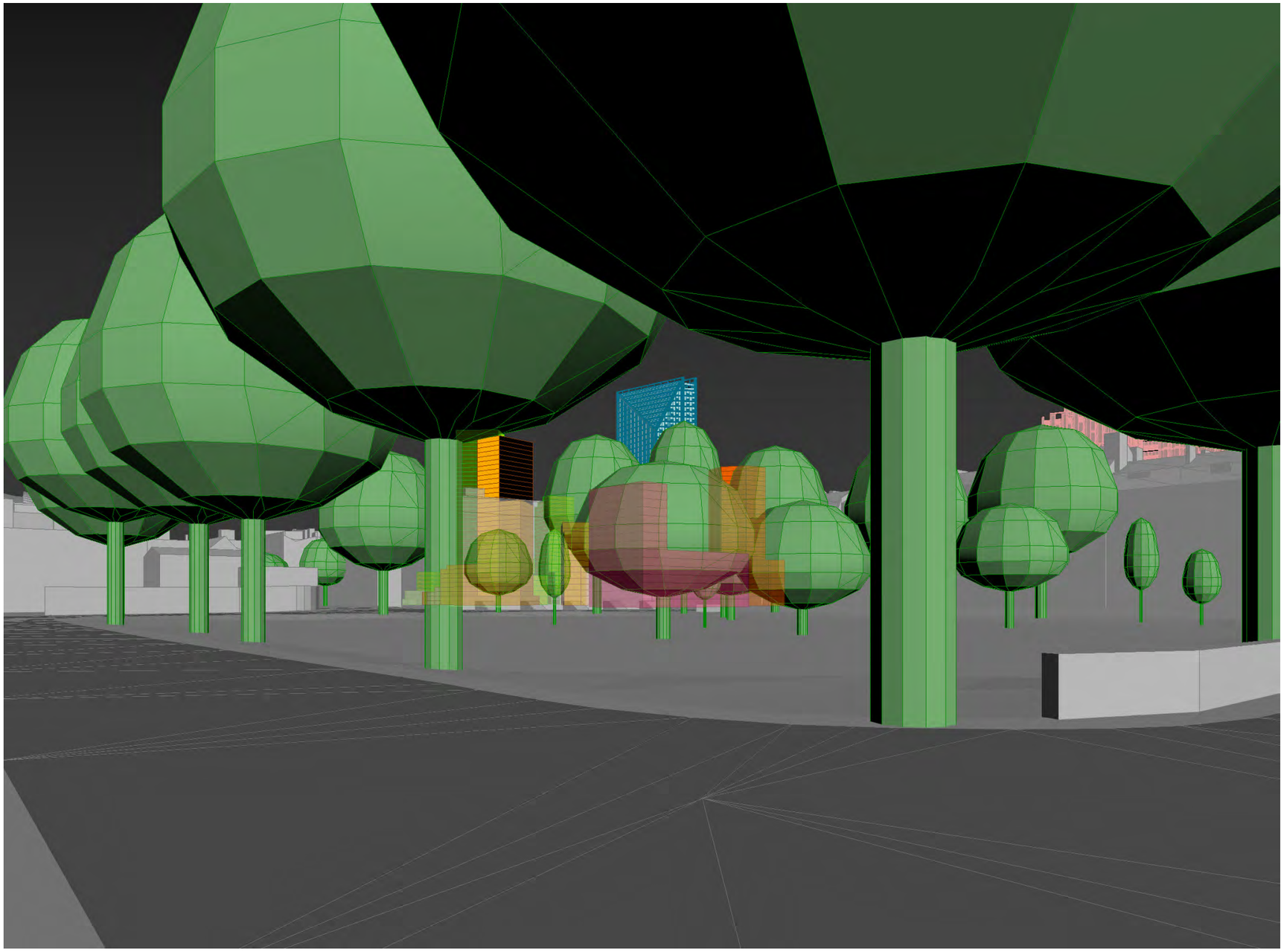
*Indicative photography

21 - St Marys Gardens



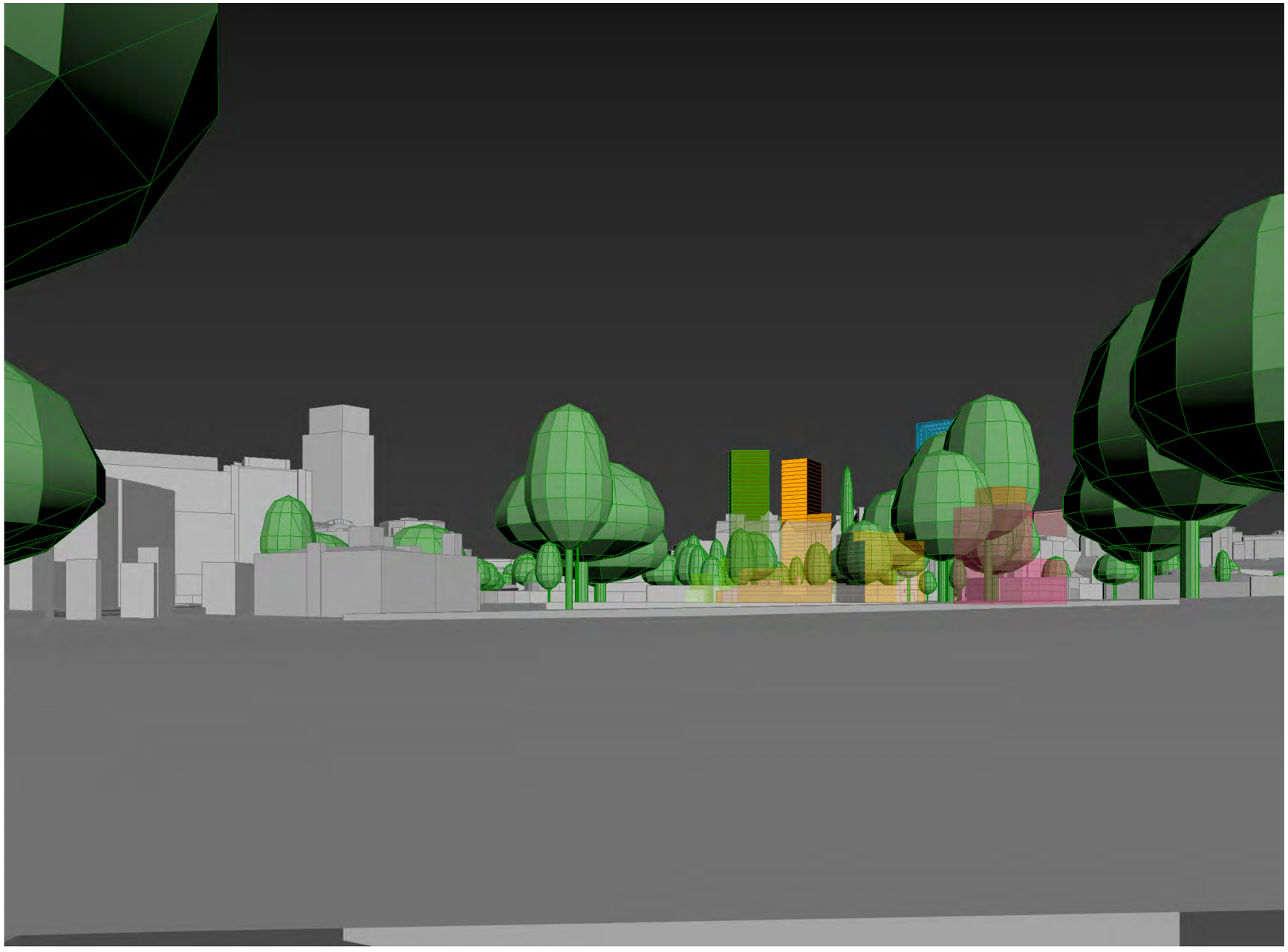
*Indicative photography

22 - Walcot Square



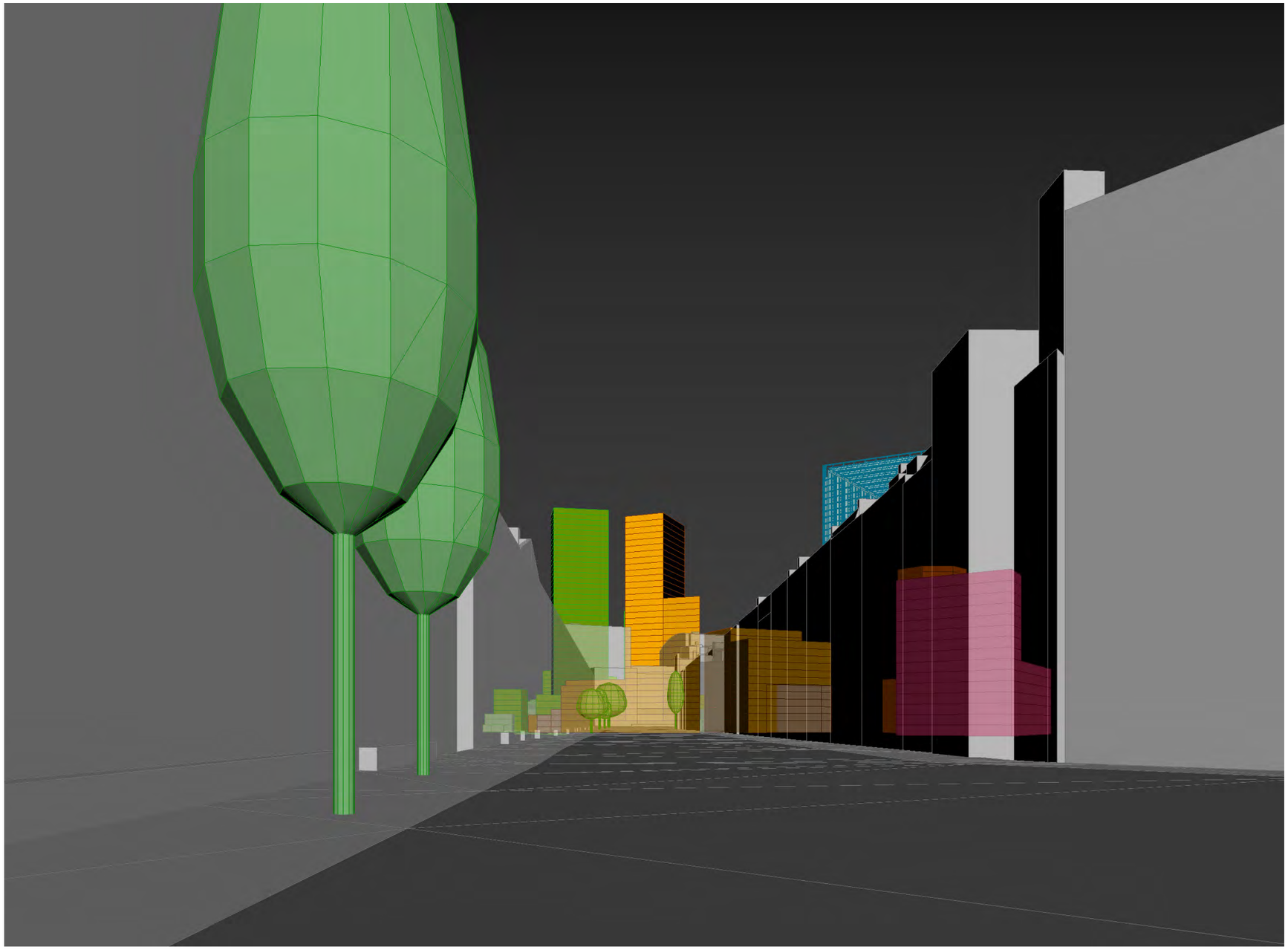
*Indicative photography

23 - West Square



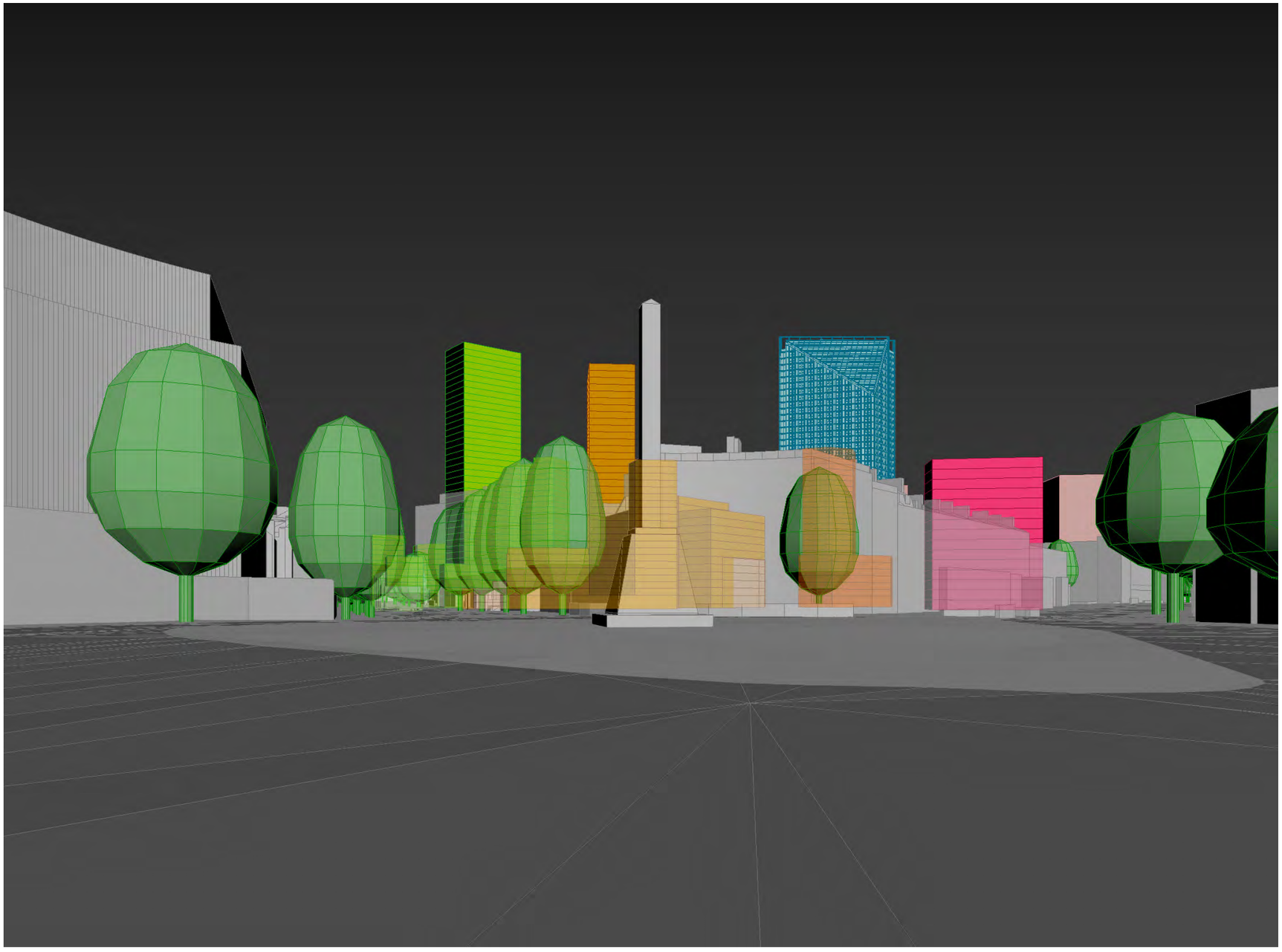
*Indicative photography

24 - Entrance to the Imperial War Museum



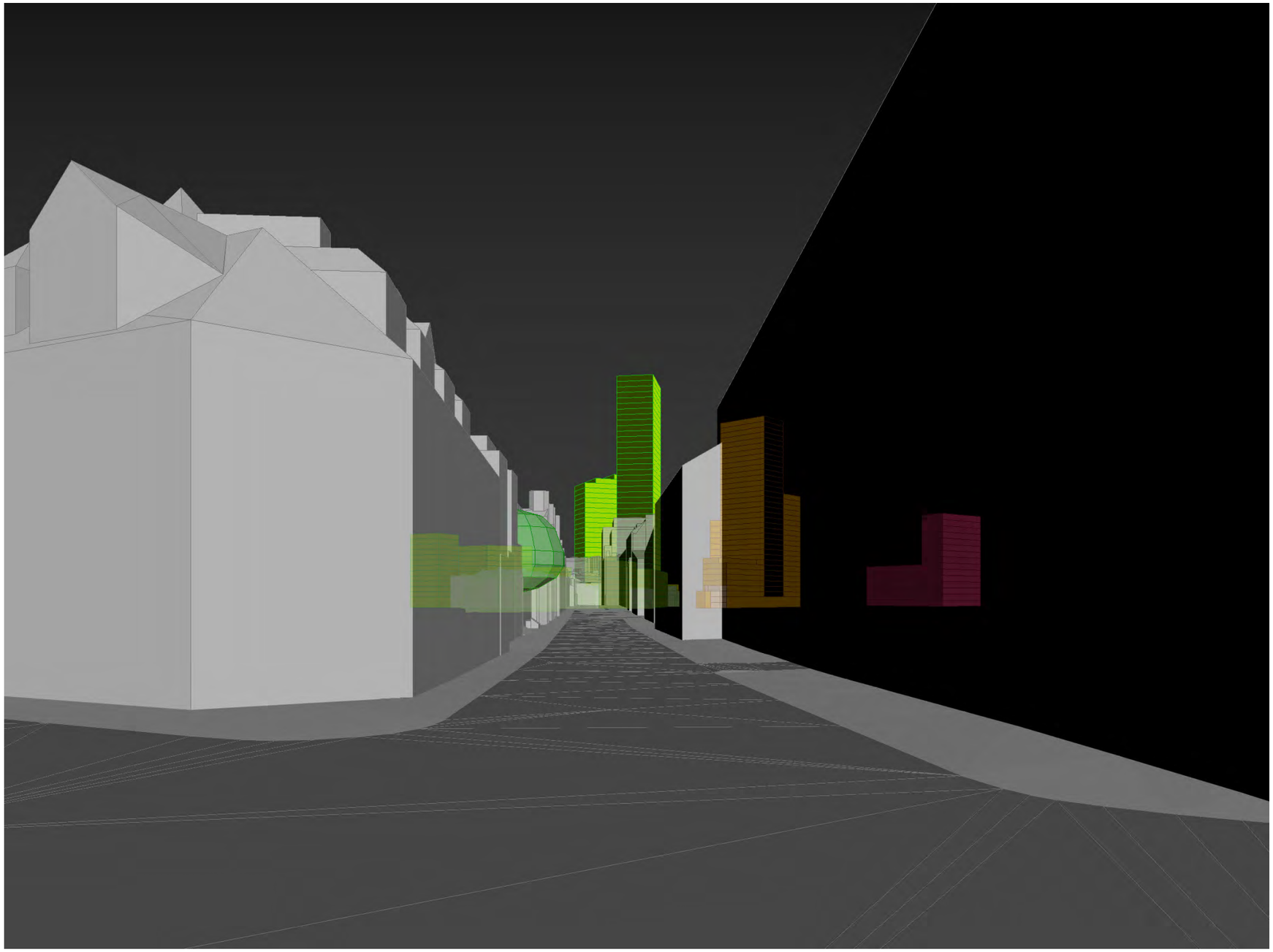
*Indicative photography

25 - Gladstone Street



*Indicative photography

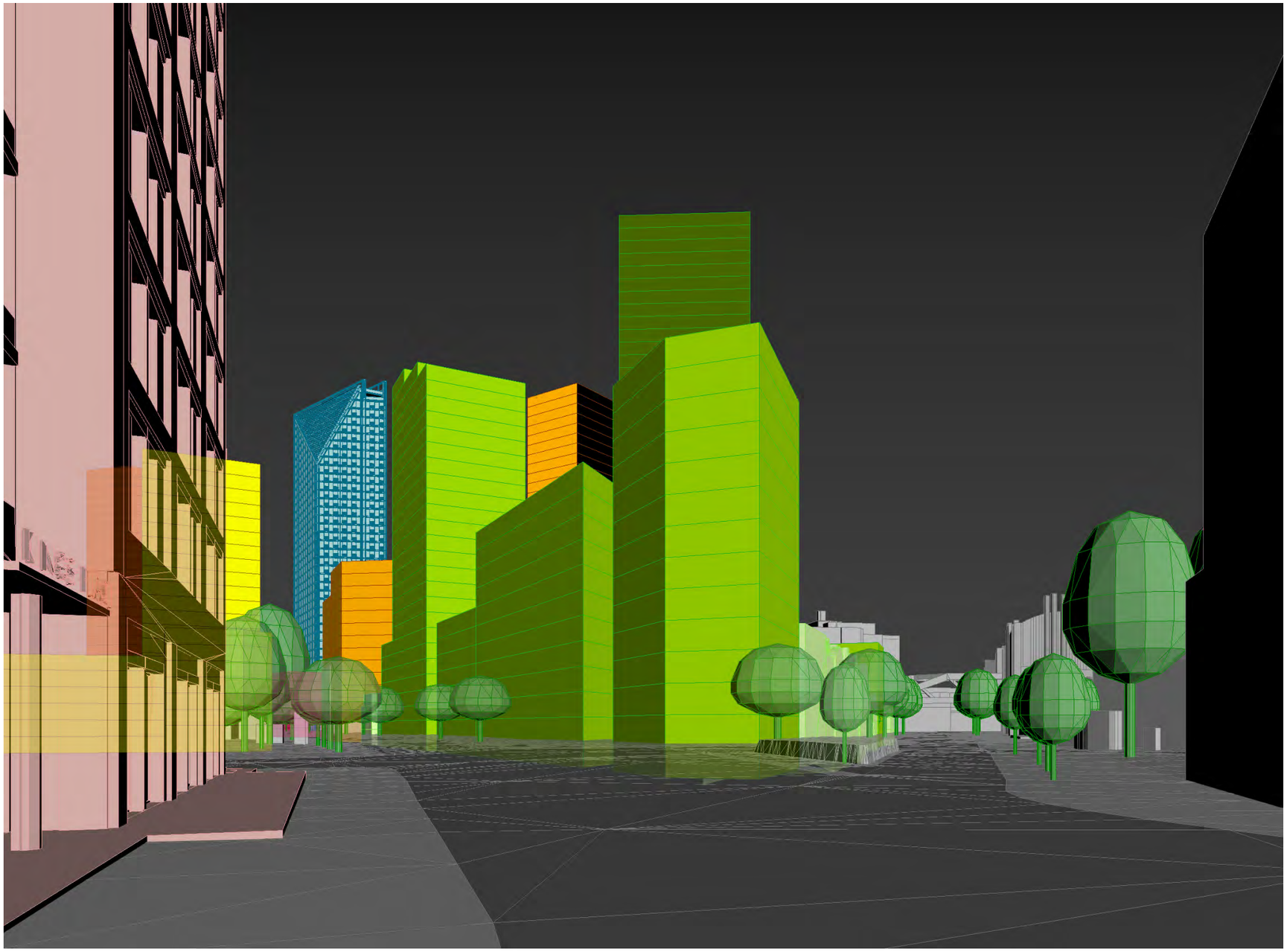
26 - St Georges Circus



*Indicative photography

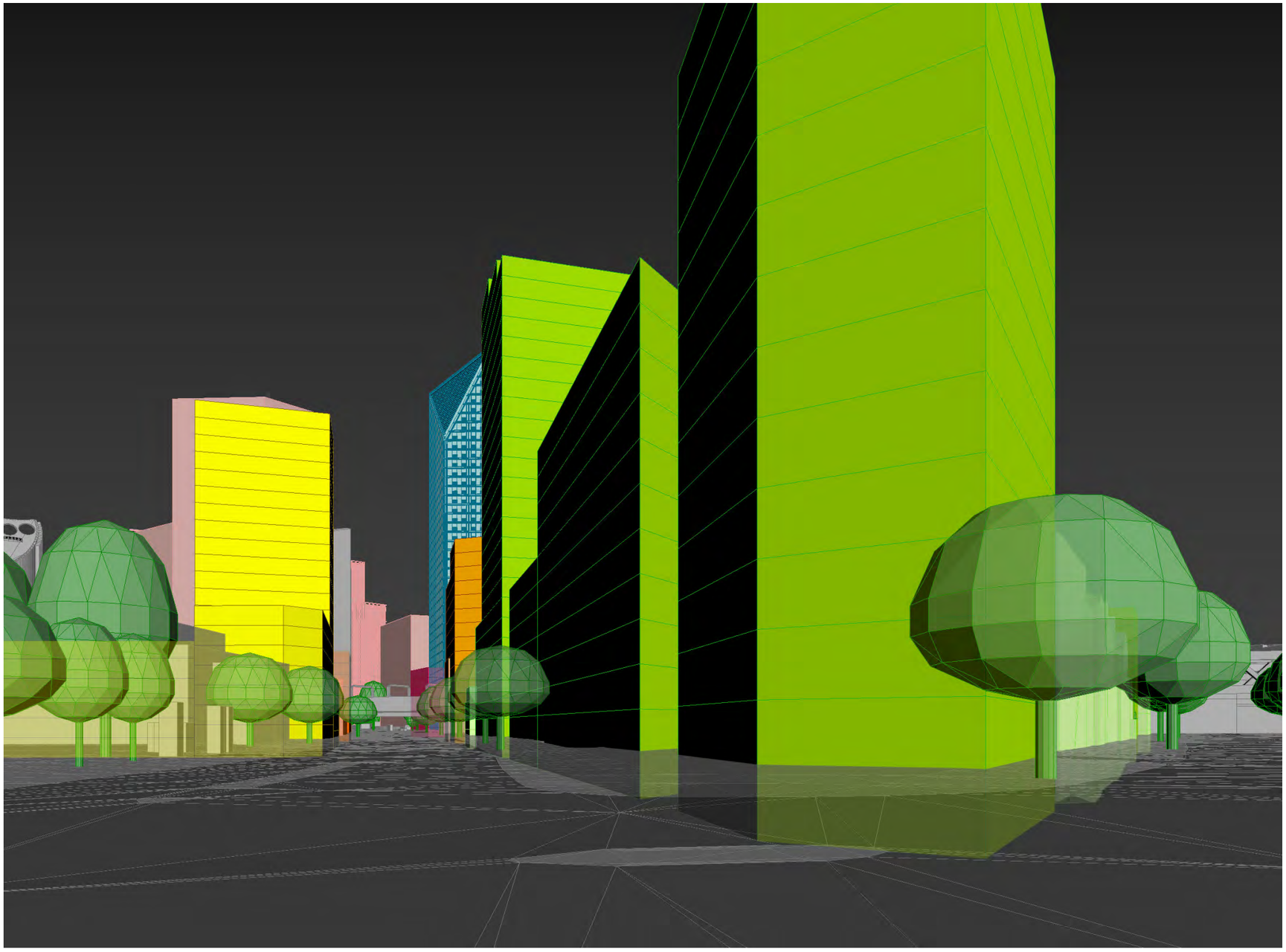
27 - Rushworth Street

28 - Southwark Bridge Road

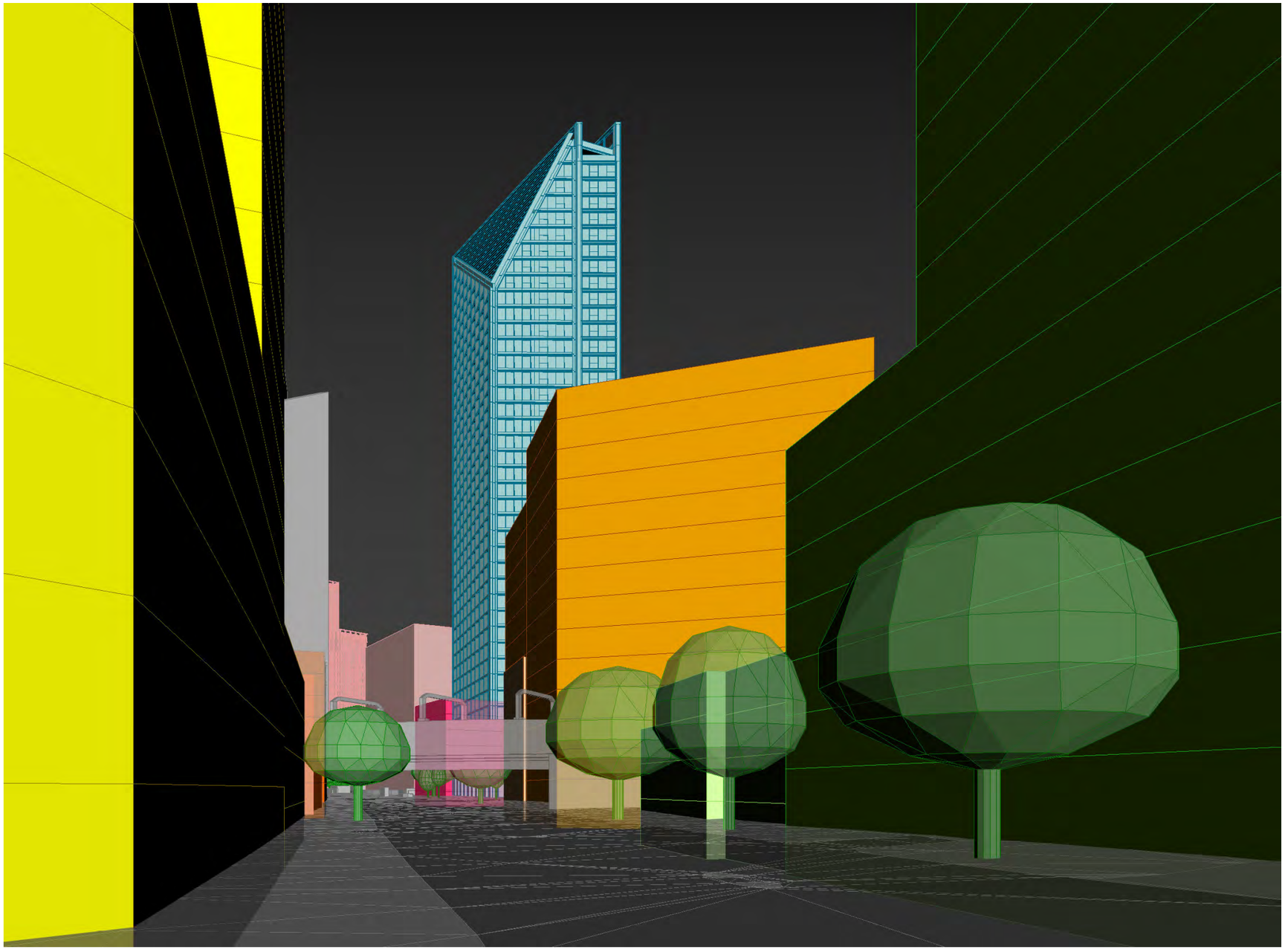


*Indicative photography

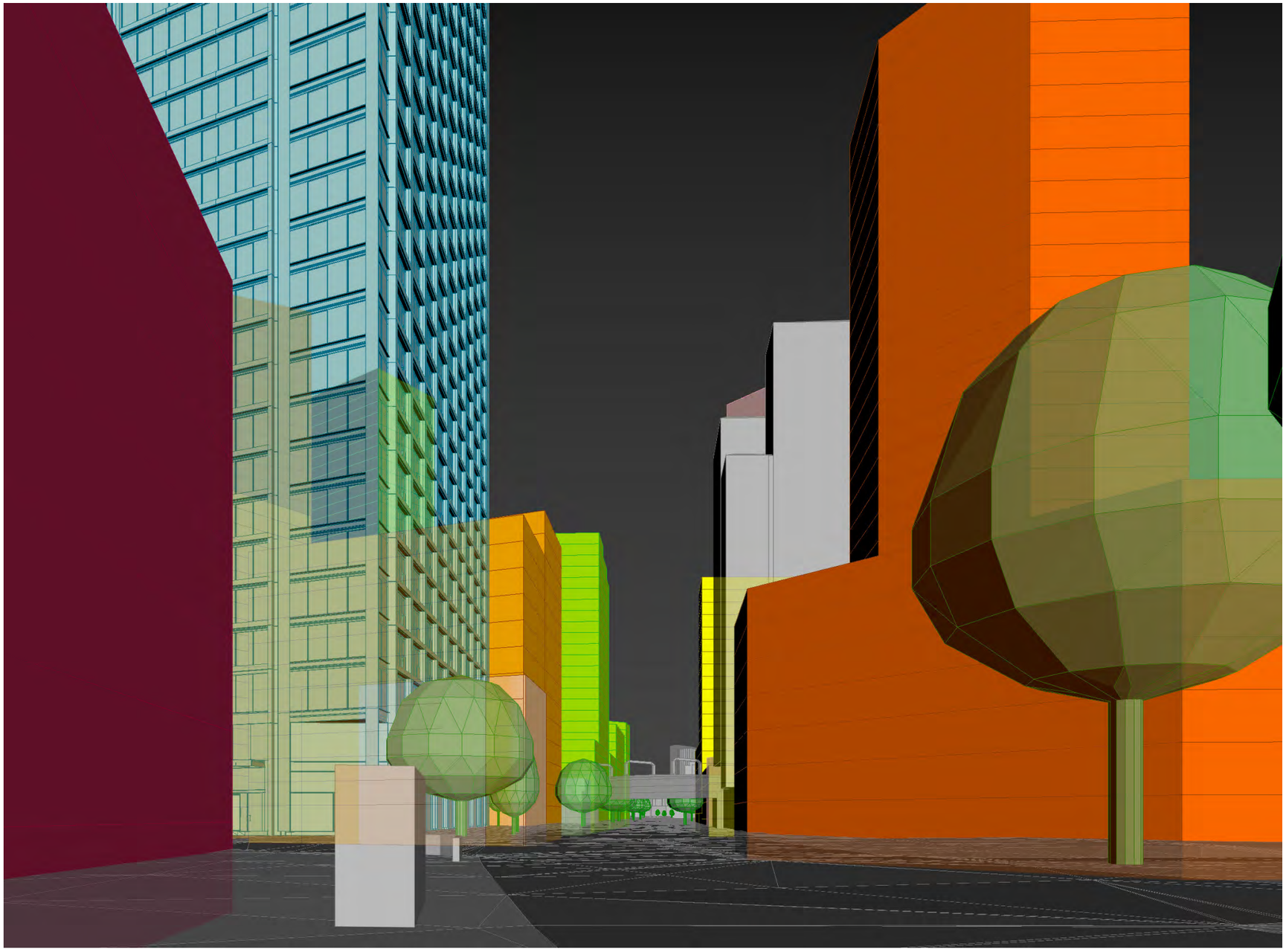
29 - Approach along Newington Causeway



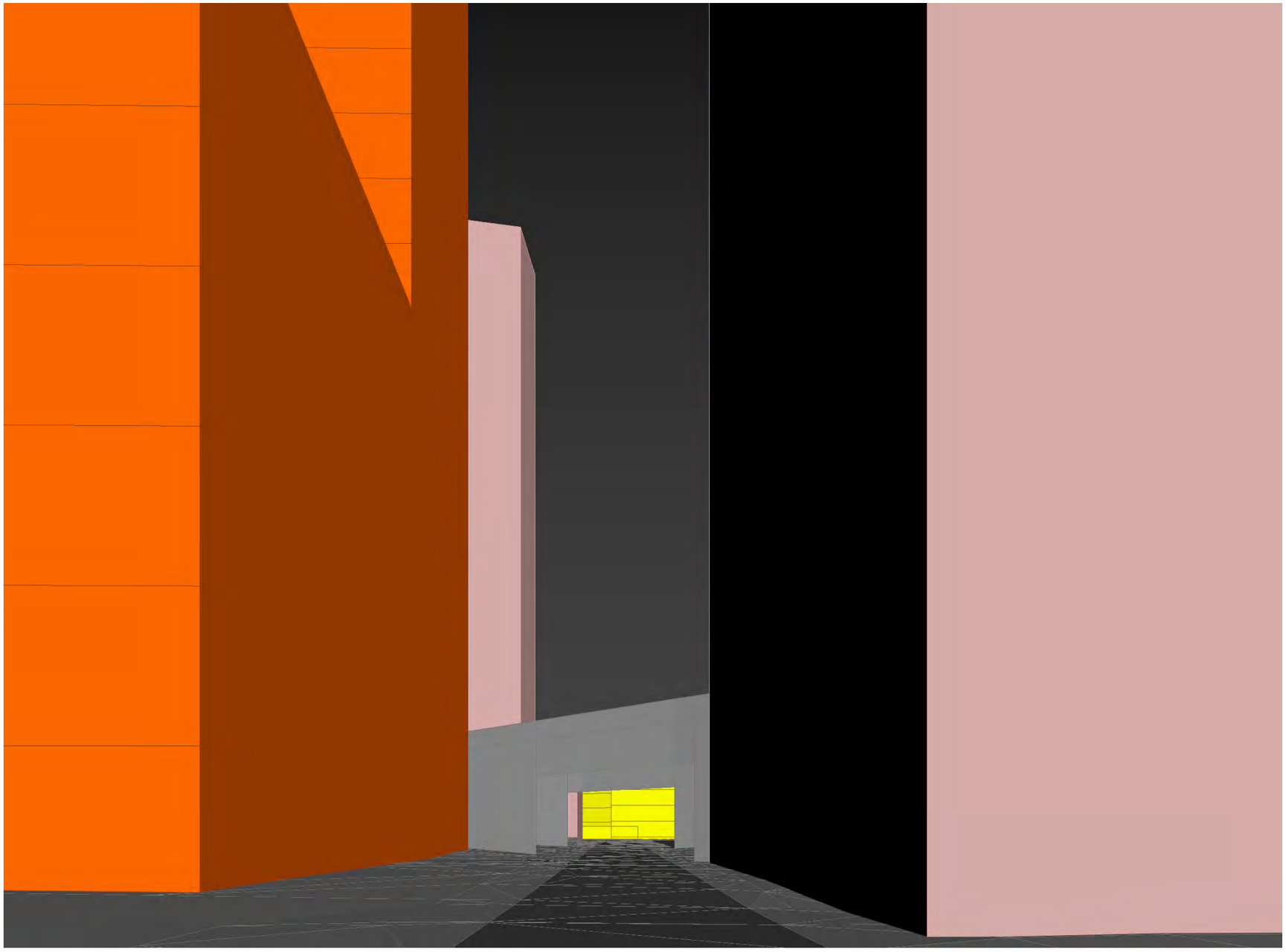
30 - Borough High Street South



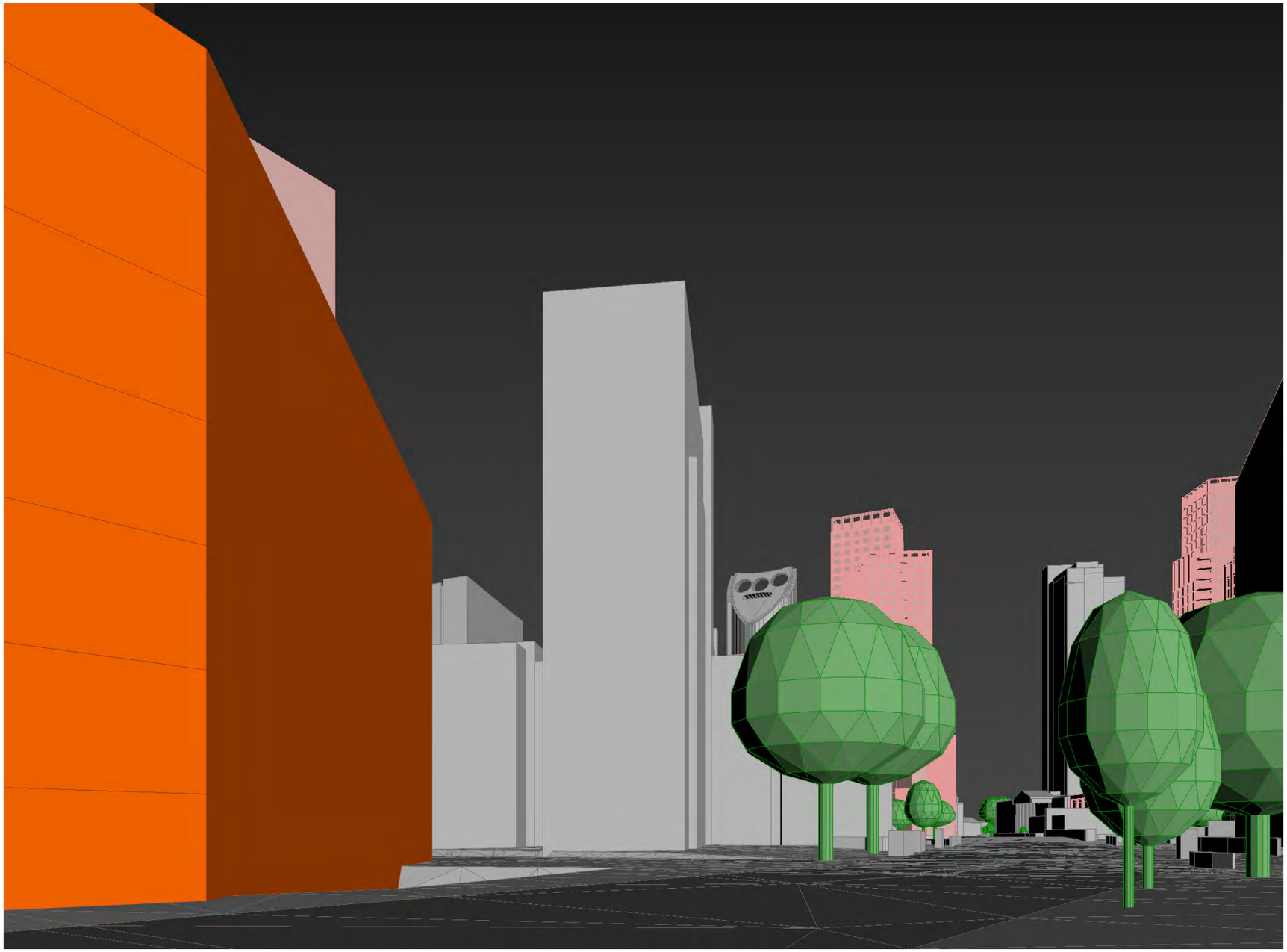
31 - Newington Causeway looking South



32 - Newington Causeway looking North



33 - Tiverton Street



34 - Newington Causeway looking South towards Metro Central Heights (MCH)

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