

Design & Access Statement

Volume 8 - Lighting Strategy

Tottenham Hale Centre

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Volume 8 - Lighting Strategy

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Volume 8
Lighting Strategy

8.0





Figure 8.2:View of Building 1 from Ferry Square

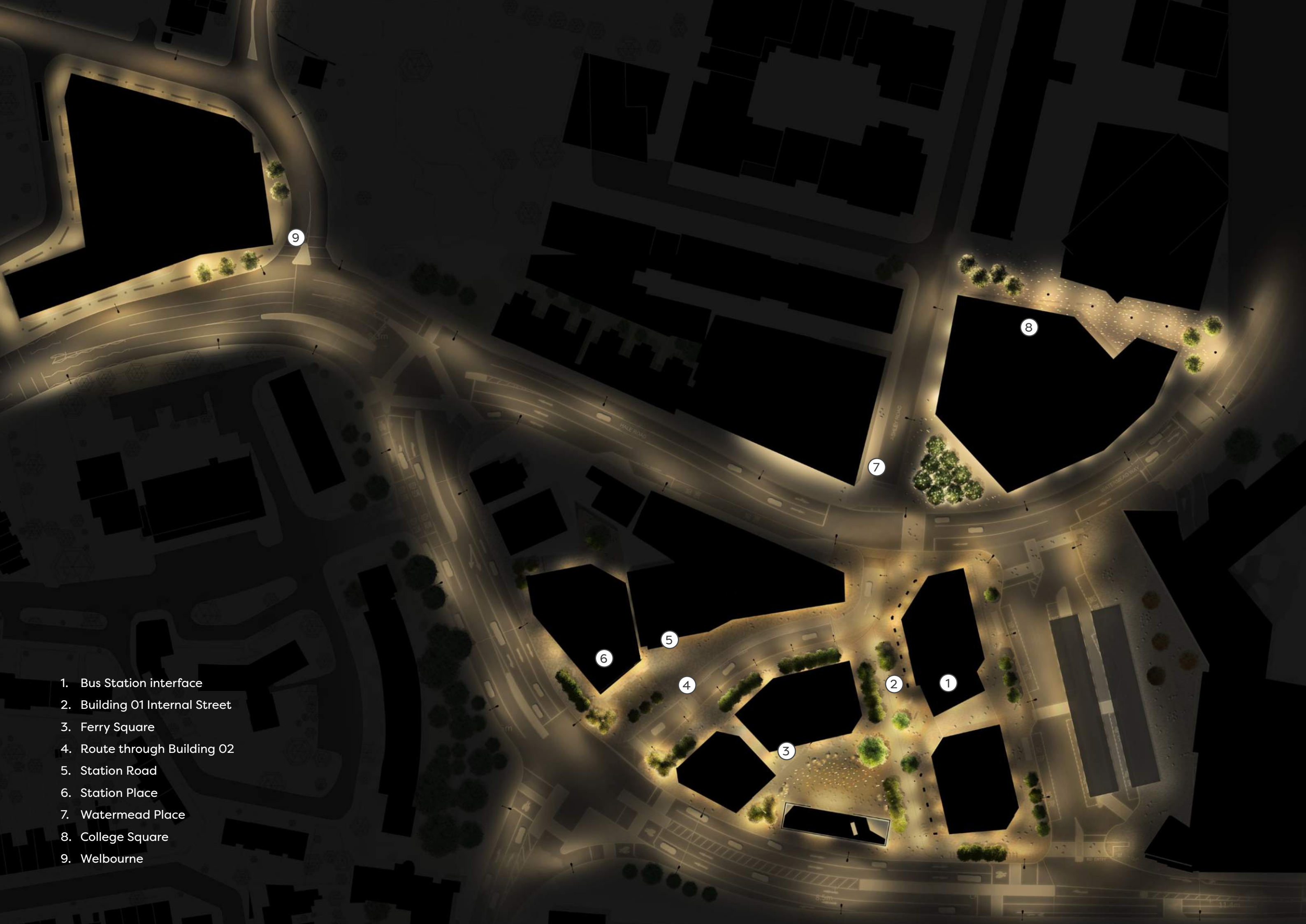
The following Lighting Strategy has been prepared for TH DM Limited (“the Applicant”) by Speirs + Major as part of the Design and Access Statement for the Tottenham Hale Centre development. It covers the following plots:

- Ferry Island
- North Island
- Welbourne
- Ashley Road West
- Ashley Road East

Together, referred to as the “Site”.

Whilst this Lighting Strategy is a high-level vision for the Site after dark and not a final detailed lighting scheme, it aims to provide the inspiration, approach and guidance against which the final technical design and installed lighting is to be delivered.

Figure 8.1:View from Bus Station



1. Bus Station interface
2. Building O1 Internal Street
3. Ferry Square
4. Route through Building O2
5. Station Road
6. Station Place
7. Watermead Place
8. College Square
9. Welbourne

Background

2.0



Figure 8.4: View of Ferry Square

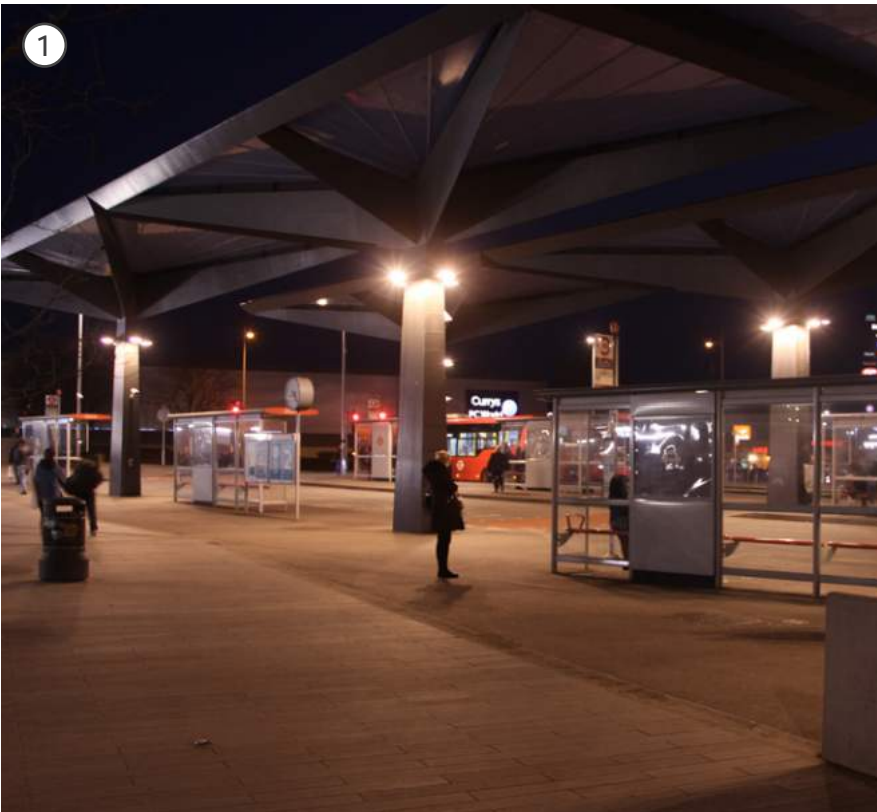
The proposed buildings and public realm that make up the Tottenham Hale Centre development have been carefully planned and designed to create a high quality experience both by day and after dark.

By day, natural light from the sun, whether focused or diffused, will reveal the form, massing and materiality of the proposed development. As a result those living, working or visiting the development will not only understand the form of the buildings in their setting but also appreciate the colours and textures of the building facades, paving, trees, planting and other materials and their detailing. People will also be able to clearly see each other and negotiate hazards such as changes of level, vehicles and bicycles. After dark however those using the development will be entirely reliant on artificial light to both reveal the architecture and landscape and to help meet their various functional, safety and aesthetic needs. As a result it is essential that such lighting is carefully designed not only to meet the basic requirements for vision and safety, but also contribute to place-making and experience of the place.

This Lighting Strategy aims to provide clear design guidance as to the development of the pedestrian, commercial and residential experience after dark in a holistic and sustainable manner. In doing so it seeks to provide a cohesive approach to all the various forms of illumination including the street and amenity lighting, architectural lighting, landscape lighting, the illumination of signs and signals and the flexible provision of lighting for events.

Figure 8.3: Tottenham Hale Centre development after dark

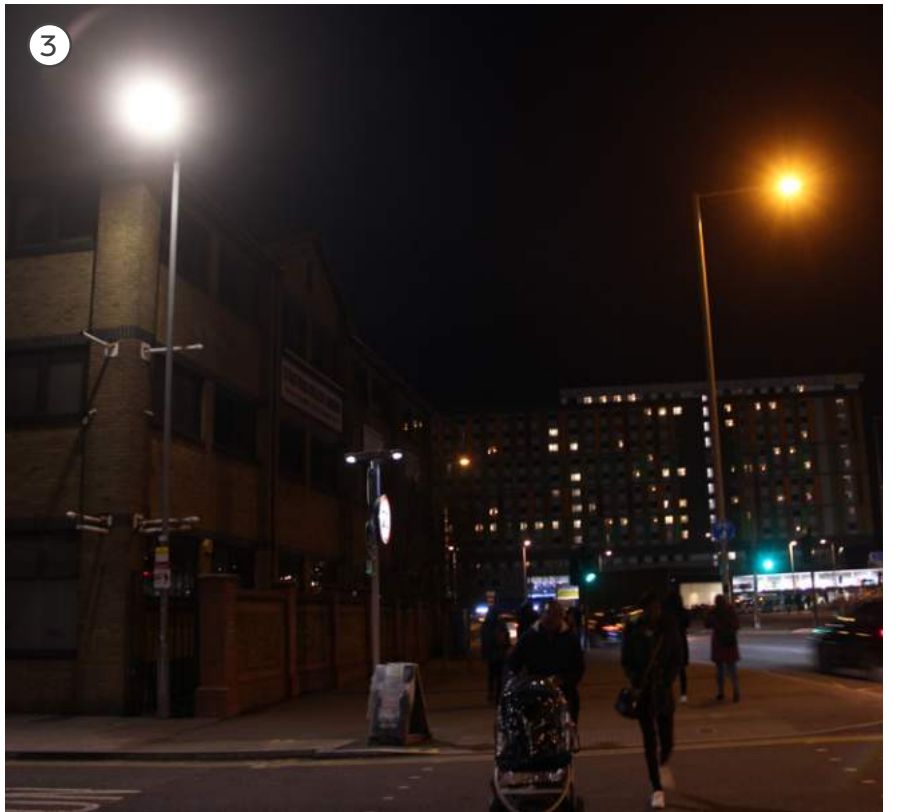
Context



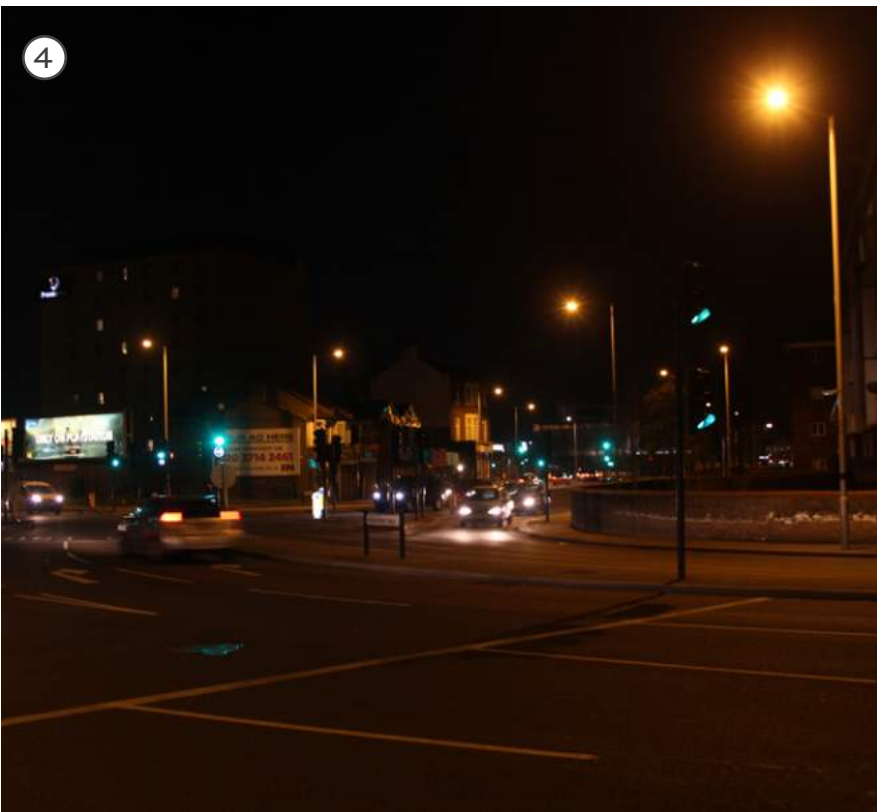
Bus Station concourse illuminated by floodlights mounted on canopy columns.



Bus Station Drop Off illuminated by combination of tall column-mounted lanterns.



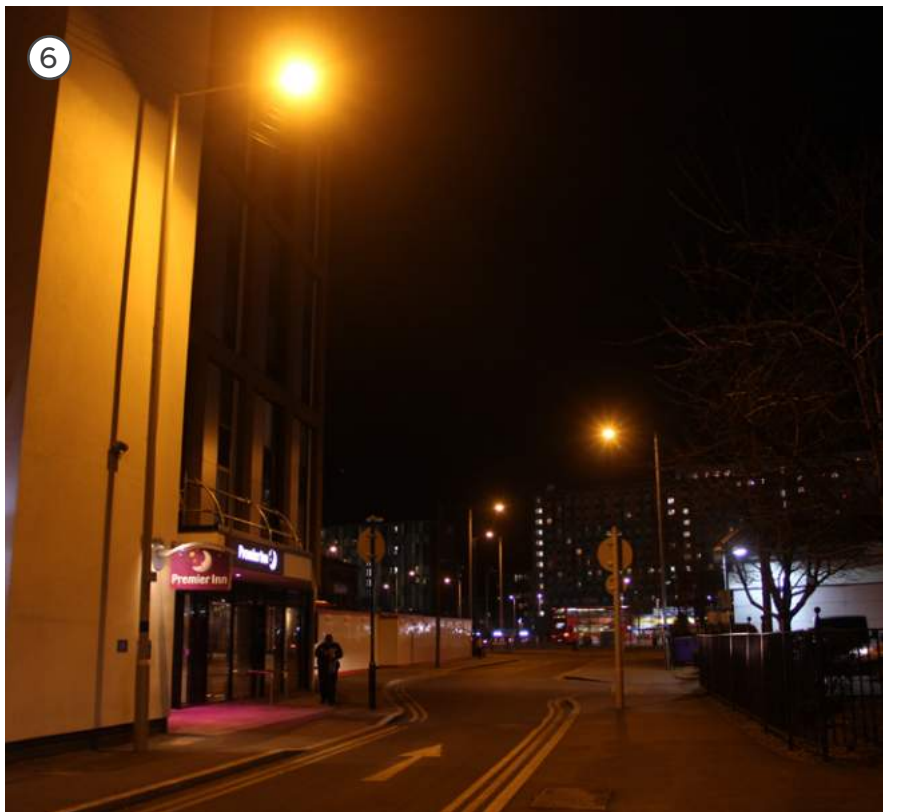
Different light sources are currently used to illuminate Ashley Road and Watermead Way.



Hale Road illuminated with tall column mounted lanterns.



Ferry Lane illuminated with tall column mounted lanterns with different light sources.



Station Road illuminated with tall column mounted lanterns.



Figure 8.5: Site plan

1. Bus Station
2. Bus Station Drop Off
3. Ashley Road junction with Hale Road/
Watermead Way
4. Monument Way junction
5. Broad Lane junction with Ferry Lane/The Hale
6. Station Road

The Lighting Strategy has been informed by an analysis of the lit context, the qualities of both light and darkness on the Site, various design considerations and constraints and the elements of lighting that will be addressed to create a holistic approach. The following legibility study has also been conducted with the view to assisting people to navigate the site from dusk to dawn.

The existing lit context for the proposed development consists of a number of streets and roads, many of which are very busy routes. A brief analysis was carried out into the existing lighting as follows:

Bus Station & Drop Off

Tottenham Hale Bus Station and its drop off was re-lit in 2015. The concourse is illuminated with warm white light provided by floodlights mounted on the main structural columns supporting the canopies (assumed to be warm metal halide 3000K). The drop-off area is lit with warm white light provided by a combination of tall column mounted lanterns (assumed to be warm metal halide 3000K).

Watermead Way & Ashley Road

The highway and pavement are illuminated with tall column mounted lanterns using high pressure sodium lanterns delivering a very warm white light (2700K) with a narrow spectral distribution. Some lanterns have been upgraded to LED that produces a much cooler white light (4000K) with a much broader spectrum by contrast.

Hale Road, Station Road, Ferry Lane, Broad Lane & The Hale

The highway and pavement are illuminated with tall column mounted lanterns using high pressure sodium lanterns delivering a very warm white light (2700K) with a narrow spectral distribution.

Following the site analysis the key observations are as follows:

- The existing approach relies entirely on lighting columns many of which are over-scaled and too tall for a residential and retail area.
- The existing lighting often results in over-illumination and produces light spill that adversely impacts the character of the area after dark and has the potential to create a nuisance for residents, especially in areas around the Bus station and Station Road.
- The existing lighting of the area comprises of a mix of high-pressure sodium, metal halide and LED lamps with different colour temperatures. The varying colour temperature creates a disjointed visual landscape after dark.
- An LED upgrade has already been carried out on Ashley Road and a portion of Watermead Way using cool white sources (4000K).

Whilst the majority of the area is still illuminated with an older lighting scheme employing high pressure sodium and metal halide using a warm white light (3000k – 2700K) some areas have already been upgraded to LED using a much cooler white light (4000K). It is the recommendation of this report that warm white light (3000K) that is more in keeping with the character of a residential neighbourhood and retail development should be applied more consistently across the Site. Also that wherever possible the scale of column mounted lanterns is reduced to provide a height (6m mounting height or lower) that is more sympathetic to the use of the streets and open spaces by both pedestrians and cyclists.

Qualities

The analysis has also considered the various qualities of light to be employed:

Intensity

Whilst the quantity of light is critical to visual function it is suggested that lighting levels are minimised as far as is practical and safe to do so in order to reduce the perceived intensity and district brightness. This will be achieved without compromise to either safety or security through careful consideration of appropriate lighting standards, based on British Standard BS5489:EN13201. The intensity may be varied throughout the night through the use of site-wide lighting control system that is based on levels of daylight in conjunction with time of day.

Balance

Light and darkness should be carefully balanced to avoid a totally uniform and homogeneous lit environment whilst at the same time avoiding excessive contrast between different areas and the creation of strong shadows and dark adjacent areas. It is anticipated that the balance of light and darkness may be subtly adjusted through the use of site-wide lighting control system that allows for flexibility and monitoring.

Colour

It is important that the colour of the light is consistent and contributes to the ambience. It is proposed that the entire development will be illuminated with warm white light (see 4.1 Standards) using LED light sources providing excellent colour rendering (RA80+). The use of saturated coloured light will be limited to events unless otherwise agreed. The use of signage, both commercial and non-commercial, that employs coloured light will also be carefully considered in terms of visual impact, particularly with respect to residential amenity.

Scale

The scale of the light and the height at which light fittings are mounted is central to creating a more pedestrian friendly environment after dark. Mounting heights will be carefully considered to balance the needs of people with the aesthetics of the architecture and landscape (see 4.1 Mounting Heights). The use of column mounted lanterns will be limited to the principle routes to help reduce clutter.

Distribution

The distribution of the light to all areas will be carefully considered and controlled so as to minimise unnecessary light spill and light trespass. Whilst upward light may be employed for the illumination of landscape elements such as trees where no alternative exists, this will be such that the light is directed onto a vertical surface and does not cause a nuisance to residents or those using the public realm.

Glare

Light fittings and their optical control will be carefully selected to help minimise glare and avoid light spill and light trespass. The use of fixtures with a very wide distribution will be avoided. The illumination of entrances to basement areas, service yards and ramps will be carefully controlled to help mitigate over-illumination.



Figure 8.6: Lighting levels should be minimised to suit residential-nature of neighbourhood.



Figure 8.7: Light and darkness will be balanced for safety & comfort, as well as for visual interest.



Figure 8.8: Colour of the light will be carefully considered so that it contributes to the ambience.

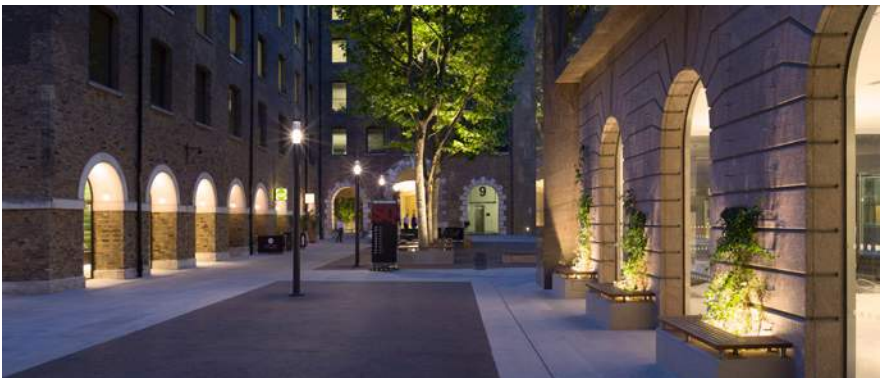


Figure 8.9: Scale and height of luminaires will help create a more pedestrian-friendly environment.



Figure 8.10: Distribution of light will be controlled to minimise light spill and light trespass.



Figure 8.11: Luminaires will be carefully selected for their optical control.

Considerations

3.3

Attention will be paid to the following design considerations as part of a holistic approach to the development of the lighting across all plots:

Safety

The primary reason we employ artificial light in public space after dark is to help keep people safe and prevent accidents. Special attention will be paid to changes of level and conflict areas between pedestrians, bicycles and motorised vehicles. Major junctions and meeting points will have higher levels of illumination to assist.

Security

Artificial light is also used in public space to enhance our sense of personal security. Whilst lighting cannot prevent crime and anti-social behaviour it can help deter it. It can also contribute to the sense of well-being and reduce fear. Lighting shall be designed to match best practice and guidance such as is provided by 'Secure by Design'. It shall also be designed to help support CCTV in so far that it does not require lighting levels to exceed appropriate standards for a residential area.

Character

The balance of light and darkness and the way that colour and texture are revealed at night all contribute to place-making after dark. The lighting shall be designed to create a pleasing and welcoming ambience through the combination of both horizontal and vertical illumination and the careful balance of light and darkness.

Identity

Whilst there are no specific proposals to provide architectural illumination to the taller buildings to make them highly visible or iconic at night when seen from a distance, the lighting will be designed to create a clear identity for each individual plot and the whole development at night both at podium level and within all public spaces.

Accessibility

The lighting will be designed not only to assist with intuitive way-finding but also provide specific navigational guidance through the careful and considered use of illuminated signage. The thresholds between spaces and the entrances to buildings will be clearly defined after dark. The lighting shall also be designed to assist a wide range of users.

Flexibility

The provision of electrical and mechanical infrastructure will be considered to help support a busy diary of temporary events that will take place on site, some of which will take place after dark such as religious winter festivals e.g. Christmas lighting, Diwali, Chanukah, etc.

Sustainability

The ability of light to bring about social cohesion and provide a focus for the community together with the benefits it brings to the development of the local night-time economy will be carefully balanced with the environmental consequences such as energy use, light pollution, over-illumination, adverse impacts on local ecologies and waste.



Figure 8.12: Illumination of public space after dark is meant to help keep people safe.



Figure 8.14: The balance of light and darkness contributes to place-making after dark.



Figure 8.16: Lighting will be designed to assist with wayfinding across the development.



Figure 8.13: Lighting contributes to the sense of well-being and reduces fear.



Figure 8.15: Lighting will be designed to create a clear identity for each area across the development.



Figure 8.17: Provision for relevant infrastructure will support temporary installations and events.

Elements

The lighting of both the individual plots and the overall development will be realised through the coalescence of many layers of illumination, each of which are operated and controlled by different stakeholders. This Lighting Strategy aims to provide guidance and insight into the requirements of each layer:

- Occupancy – the private lighting of internal residential and commercial spaces
- Signs + Signals – illuminated signs, traffic lights and bollards
- Street – general column or building mounted lighting to the highway.
- Amenity – general column or building mounted area lighting to pedestrian routes and open spaces
- Architecture – the illumination of facades, soffits, canopies and specific architectural details.
- Landscape – the lighting of hard and soft landscaping including trees, planting and street furniture
- Events – the temporary illumination of large and small-scale events such as markets, festivals and Christmas lighting



Figure 8.19: Occupancy - private lighting of internal spaces.



Figure 8.20: Signs + Signals - Illuminated signs, traffic lights, etc.



Figure 8.21: Street - Lighting to the highway.



Figure 8.22: Amenity - Lighting to pedestrian routes and open spaces.



Figure 8.23: Architecture - Lighting to specific architectural details such as soffits and canopies.

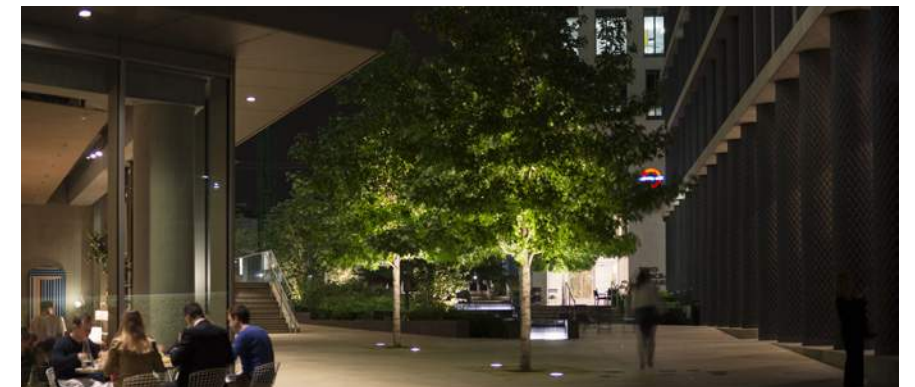


Figure 8.24: Landscape - Lighting of soft landscaping and street furniture.



Figure 8.25: Events - Temporary illumination of large and small-scale events.

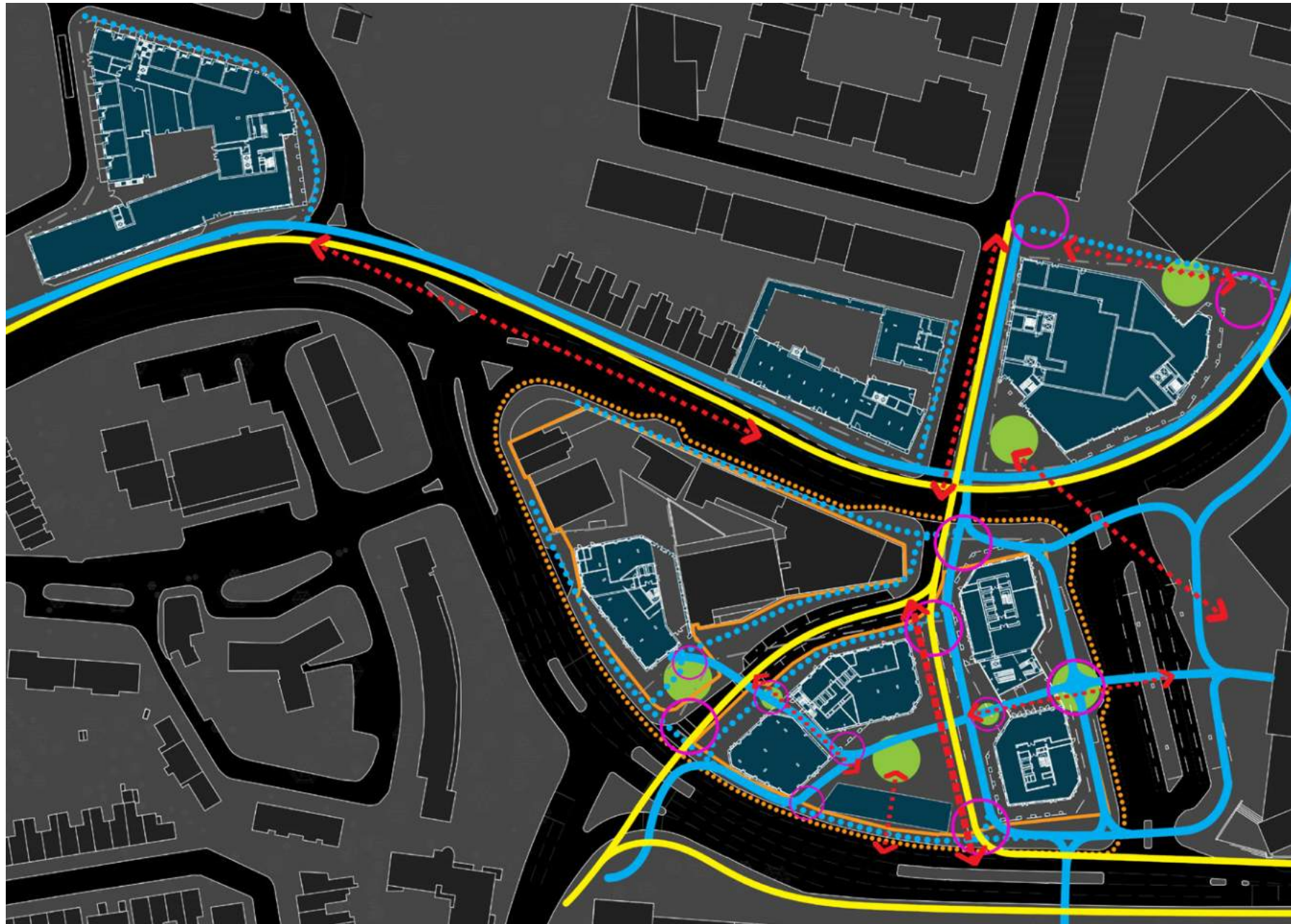


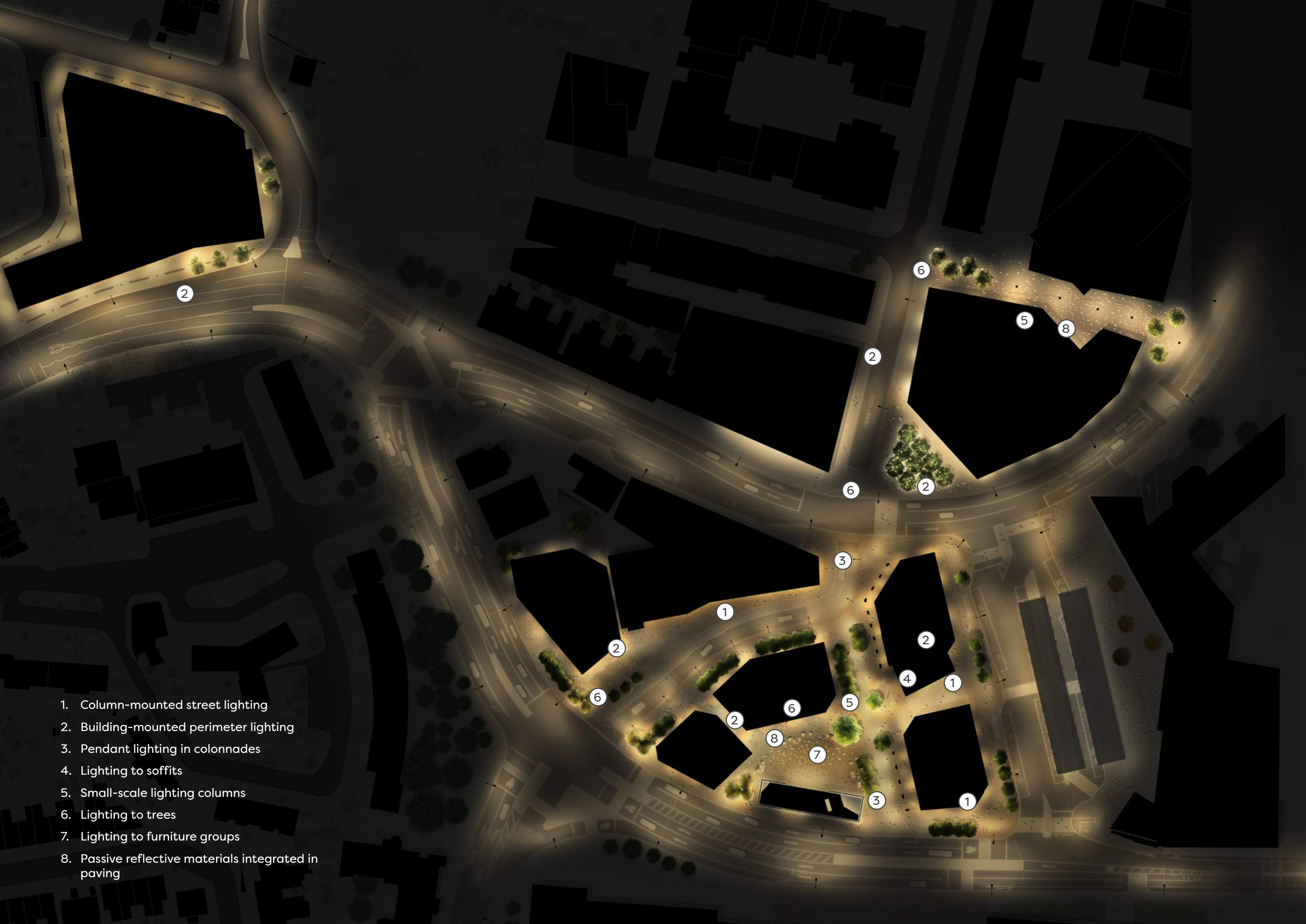
Figure 8.26: Legibility Diagram

Key

- Boundaries
- Routes
- Meeting Places
- Gateways
- - - - Vistas

This analysis has included a brief study of how light can be employed to create greater legibility after dark (see Figure 8.26). During the day we can understand the built environment through our comprehension of a number of key elements such as routes, meeting places, thresholds between areas and into and out of buildings and the reinforcement of views and vistas to key features, details and landmarks. After dark our ability to intuitively move through public space is greatly reduced often leading to disorientation and a sense of alienation. The identification of key elements and considering how they may be illuminated can help improve the legibility of space thereby aiding navigation and improving the sense of safety, security and well-being.

- Boundary – the visual impact of the illumination of strong visual boundaries will be considered
- Routes – lighting standards will be adopted to provide a clear hierarchy of routes
- Meeting Places – key open spaces, junctions and other meeting and decision making points will be highlighted
- Gateways – thresholds into and out of the site and key entrances to the buildings will be highlighted to aid recognition
- Vistas – the principle views will be reinforced after dark, particularly through the lighting of vertical surfaces



- 1. Column-mounted street lighting
- 2. Building-mounted perimeter lighting
- 3. Pendant lighting in colonnades
- 4. Lighting to soffits
- 5. Small-scale lighting columns
- 6. Lighting to trees
- 7. Lighting to furniture groups
- 8. Passive reflective materials integrated in paving

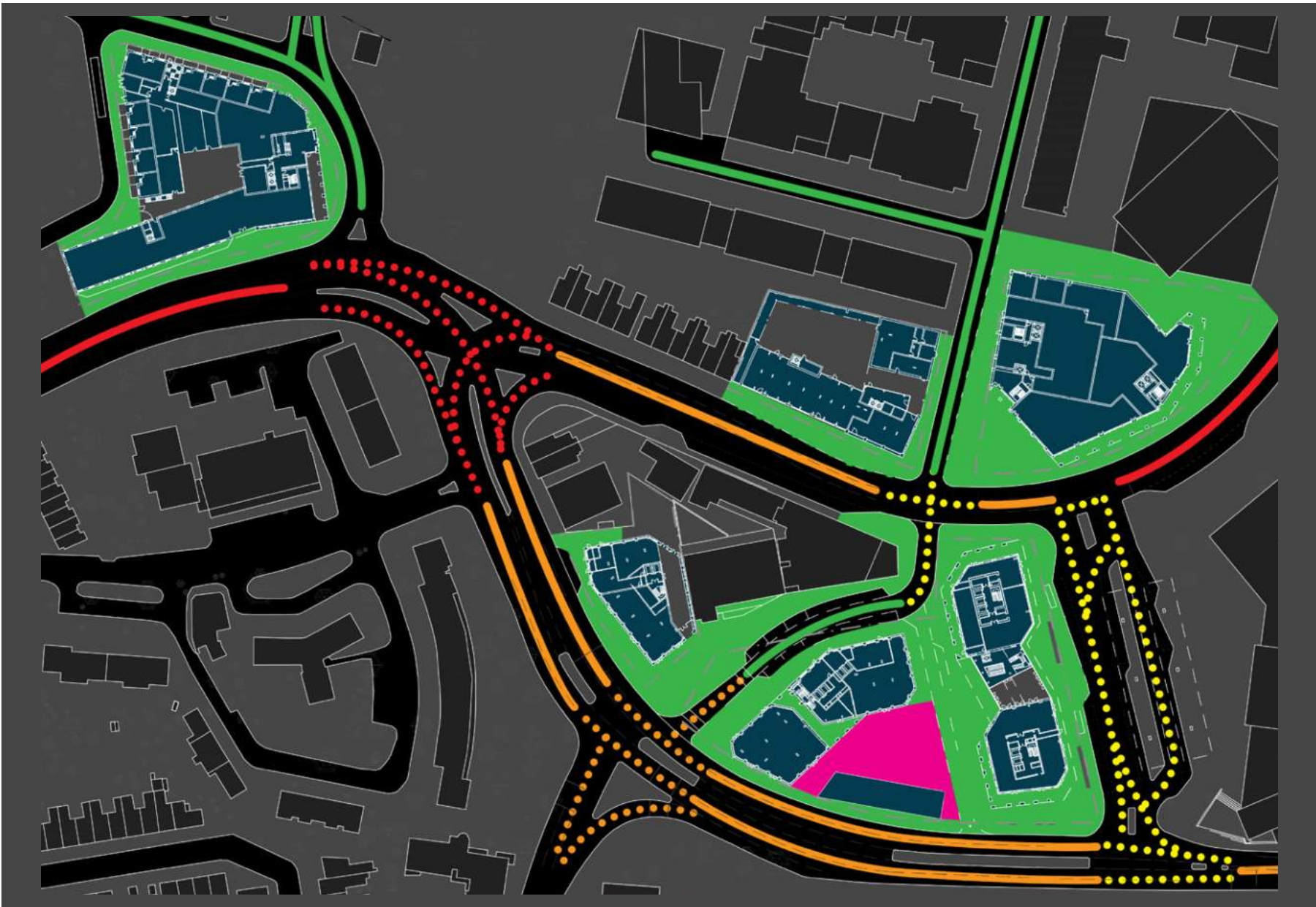


Figure 8.28:Proposed lighting levels

Key	Peak			Off-Peak		
—	P1	$E_{av.} 15lx$		P2	$E_{av.} 10lx$	
—	P2	$E_{av.} 10lx$		P3	$E_{av.} 7.5lx$	
—	M2	$L. 1.5^{cd/m^2}$	$0.40U_o$	M3	$L. 1.0^{cd/m^2}$	$0.40U_o$
—	M4	$L. 0.75^{cd/m^2}$	$0.40U_o$	M5	$L. 0.5^{cd/m^2}$	$0.4U_o$
●●●●	C1	$E_{av.} 30lx$	$0.40U_o$	C2	$E_{av.} 20lx$	$0.40U_o$
●●●●	C2	$E_{av.} 20lx$	$0.40U_o$	C3	$E_{av.} 15lx$	$0.40U_o$
●●●●	C4	$E_{av.} 10lx$	$0.40U_o$	C5	$E_{av.} 7.5lx$	$0.40U_o$

Figure 8.27:Tottenham Hale Centre Development indicative lighting proposals

The Lighting Strategy has adopted the approach and various recommendations made in 3.0 Analysis. It seeks to provide a flexible design through the consideration and determination of lighting levels, colour temperature and mounting heights and their application to routes, open spaces, buildings, soft and hard landscaping and signage as follows:

Illuminance

Illuminance levels have been determined in line with British Standard BS5489:EN 13201 and are shown in Figure 8.28. Individual lighting classes have been selected for the various primary and secondary routes and open spaces to achieve appropriate standards of horizontal and vertical illuminance and uniformity that also recognise the nature of the development as amixed-use development. It is suggested that the lighting is dimmed between classes to create a peak (early evening) and off-peak (late night) level of light.

Note: All lighting levels and uniformity values to be approved by Haringey Council

Standards

Colour

The colour of the light shall be warm white across the proposed development, as illustrated in Figure 8.29. The illumination of the boundary condition and primary routes will be 3000K (warm white). The illumination of all other areas will be 2700K (very warm white) including Station Road. The use of LED sources will ensure that colour rendering is good (RA80+) notwithstanding the colour temperature of the light.

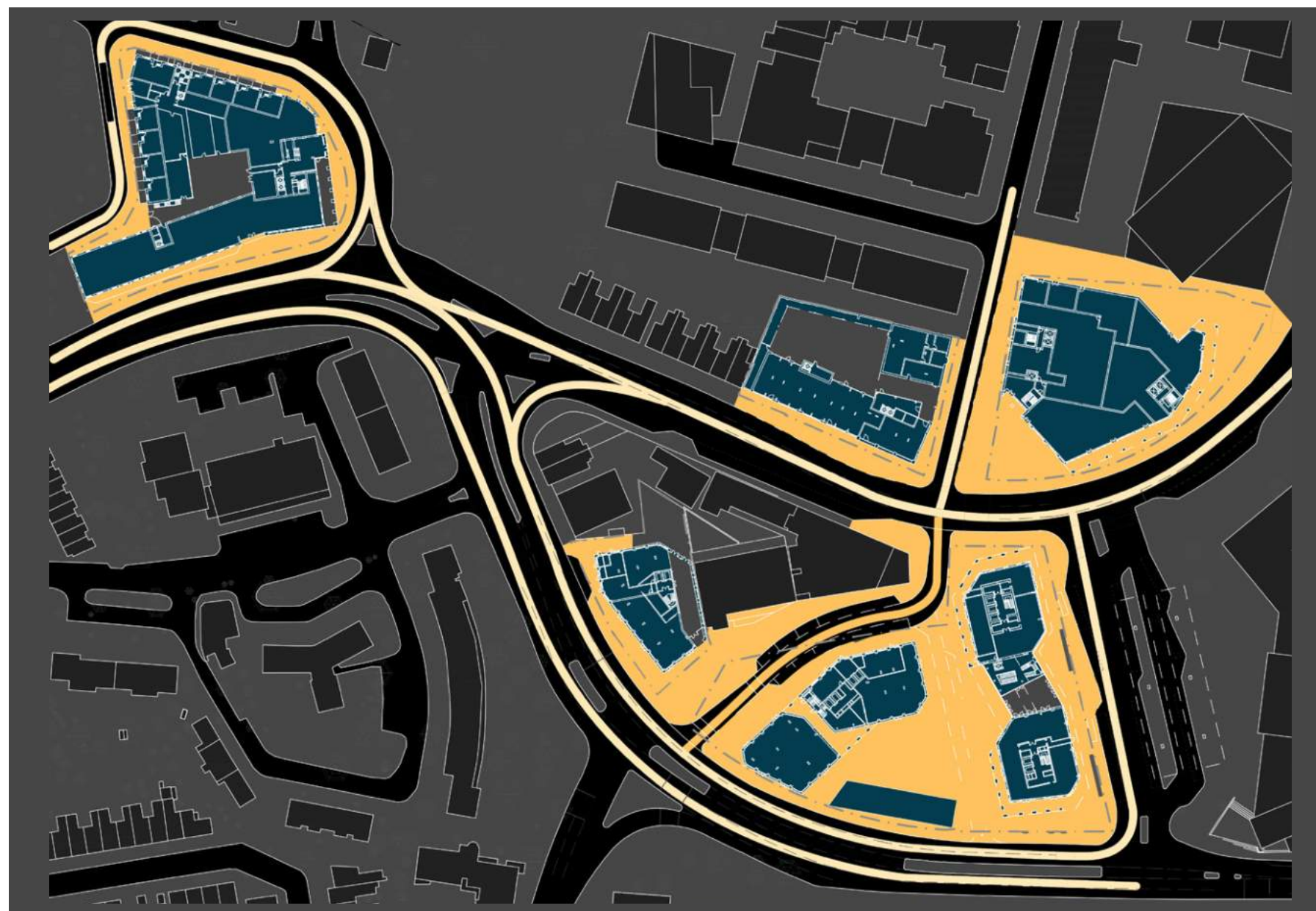


Figure 8.29: Proposed lighting colour temperature

Key

- 3000K
- 2700K

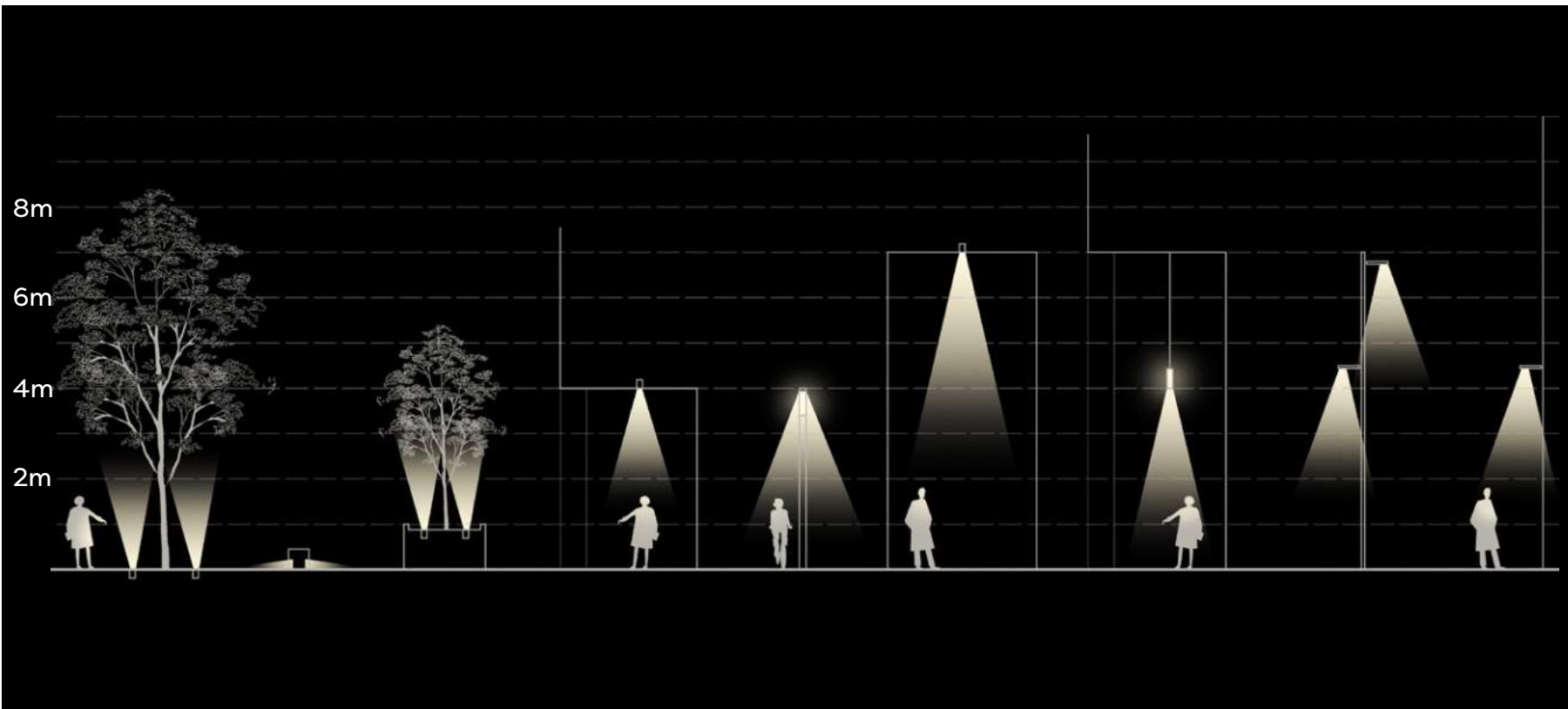


Figure 8.30:Proposed mounting heights

Mounting Heights

The lighting shall be generally mounted on columns, on the building facades or on soffits dependant on location. Mounting heights (shown in Figure 8.30) shall not exceed 8m from finished ground level and will generally be set below 6m where practical and able to be successfully integrated with the architecture of the buildings’ podiums. This will help maintain a pedestrian scale.



Figure 8.31:Proposed palette of lighting equipment

Strategy

Occupancy

The private lighting of internal spaces within the residential and commercial units will provide a rich visual pattern after dark. Whilst the lighting of residential units will not be subject to controls, guidance will be provided to retailers, especially those facing Ferry Square (including those in the Pavilion) and along Station Road, to ensure that they follow best practice particularly with respect to the presentation of shopfronts and illuminated signage at night. This is to help reduce light pollution, over-illumination and blight.

Signs & Signals

There will be a large number of illuminated signs and signals across the proposed development ranging from road signs, traffic lights and bollards to illuminated way-finding. Careful attention will be paid to the visual brightness of illuminated advertising. The use of LED media screens will be avoided both externally and internally where visible from the public realm unless otherwise agreed.

Street

The general street lighting is to be provided, operated and maintained by LBH, including Station Road. As the subject of a full upgrade to LED it is anticipated that levels of illuminance, colour temperature, colour rendering, scale and control are all carefully considered in respect of the recommendations of this report with the view to making a positive contribution to the experience of the public realm at night.

Amenity

The amenity lighting to both routes and open spaces is to be provided, operated and maintained by the Applicant. It is generally to be both column and building mounted and to provide levels of illuminance, colour temperature, colour rendering, scale and control in line with the recommendations of this report with the view to making a positive contribution to both the experience of the public realm.



Figure 8.32: Illustrative section through Building 01



Figure 8.33: Illustrative section through College Square, Ashley Road East, Watermead Place and Watermead Way



Figure 8.34: Illustrative section through Station Road

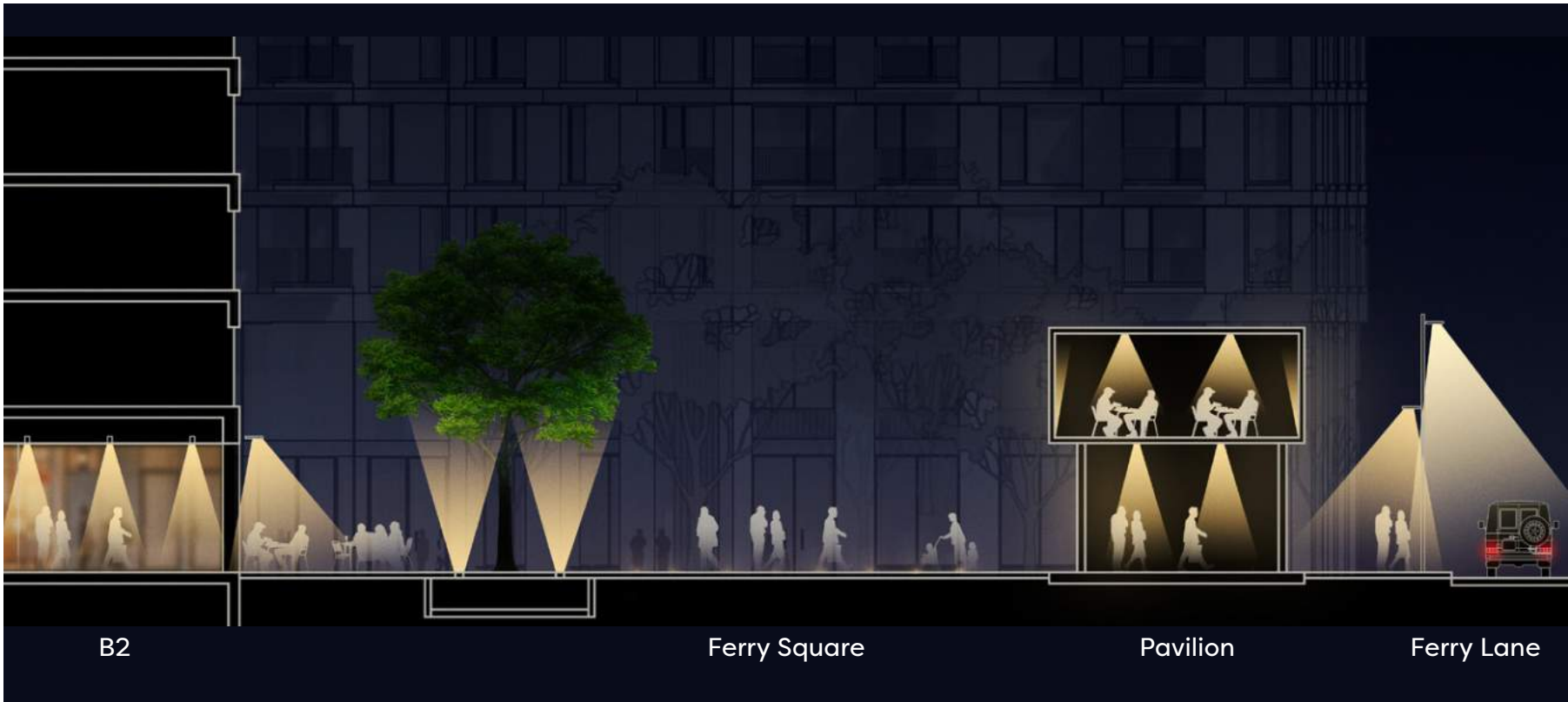


Figure 8.35: Illustrative section through Ferry Square

Architecture

The use of architectural lighting is to be limited. No visible expression is to be provided to the residential buildings after dark above podium level beyond the occupancy lighting and the subtle illumination of the roof terraces. Architectural identity is to be created at podium level only through the indirect or direct illumination of soffits, canopies, entrances (through and in between buildings including Building 01 Internal Street) and colonnades on Building 01, 02, Ashley Road East and Welbourne. The Pavilion is to have special feature lighting to publicly visible vertical surfaces, soffits and other features such that it acts as a focal point after dark. Feature lighting to the pavilion will be controlled and set such that it responds to the needs of its tenant but will also respond to curfew and dim later in the evening to not disturb residential occupiers.

Landscape

The lighting of the landscape is to be limited to the uplighting of specimen trees in key locations (such as Ferry Square), the feature lighting of benches and other street furniture elements and the internal illumination of way-finding signage and environmental graphics.

Events

The illumination of large and small-scale events at night can provide a changing seasonal layer of colour, texture and visual interest. Consideration will be given to the staging and impact of such events with respect to both residential amenity and the benefit to retailers.

Technical

The following provides a brief summary of the technical requirements for the lighting scheme:

Sources

All light sources shall be light emitting diodes (LED) to be warm white (3000K – 2700K as indicated by this report) and be run by drivers that are fully dimmable. Colour rendering shall be good (RA80+). LED's should be carefully selected and binned and be provided by a reliable OEM manufacturer (Xicato, Lumileds, Cree, Citizen or similar and approved) and be provided with a minimum 10 year warranty.

Luminaires

All luminaires shall provide good optical control through the use of lenses, collimators or other optical devices that are employed to control the efficient distribution of the light without recourse to excessive glare unless otherwise agreed. Luminaires are to be supplied by a reliable manufacturer whose fittings have been properly photometered, tested and certified to be used with the LED sources integrated within them.

Control

The lighting will be controlled through the use of a site-wide proprietary lighting management or as part of a SMART system. The lighting will be automatically switched on and off and/or dimmed by timeclocks and/or sensors as is appropriate to location and function. Subject to discussions with the council, the lighting control will be harmonised with or act as an extension to LBH's own district-wide lighting control where required.



Figure 8.36: All light sources will be specified to be LED, with good colour-rendering and extended manufacturer's warranty.



Figure 8.37: LED luminaires will be selected for their optical control and high-quality construction.



Figure 8.38: Public realm lighting will be controlled by a site-wide lighting management system.

