MICHAEL GRUBB STUDIO

# Stag Brewery, Mortlake

## Lighting Masterplan

For Reselton Properties

February 2018

# PROJECT TEAM

| | |
|---|---|
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# CONTENTS

# 1.0 ANALYSIS

# 1.1 INTRODUCTION

"Lighting is decisively important when considering the experience of an external environment after dark. The making of a place is directly influenced by interplay of light and space, light and form, light and surfaces, light and texture, light and colour and most importantly, light and human activity".

Michael Grubb Studio has been appointed by Reselton Properties Ltd to review, consult and advise on all relevant lighting design issues associated with the proposed development of Mortlake Stag Brewery.

Michael Grubb Studio is an independent lighting design consultancy, specialising in exterior lighting schemes that are sensitive to their surrounding environments. We are not linked to any individual supplier or manufacturer, which means we give unbiased expert advice based on the most appropriate technologies, techniques and best practice.

This document has been developed in conjunction with the client, design team and with the projects long-term objectives in mind. The intention of this strategy is to identify a clear set of guiding principles that will be used to guide future lighting schemes. Doing so will ensure a cohesive lit environment across the development after dark, it will also add character, improve wayfinding, improve safety, reduce energy consumption and support surrounding habitats and ecology.

This strategy has been specifically developed to ensure that the environmental impact of artificial light is minimised. The ILP guides and resources regarding Light Pollution have been adopted and will be adhered to. This includes reducing light pollution, minimising energy and also mitigating unwelcome impacts on flora, fauna and the waterways.

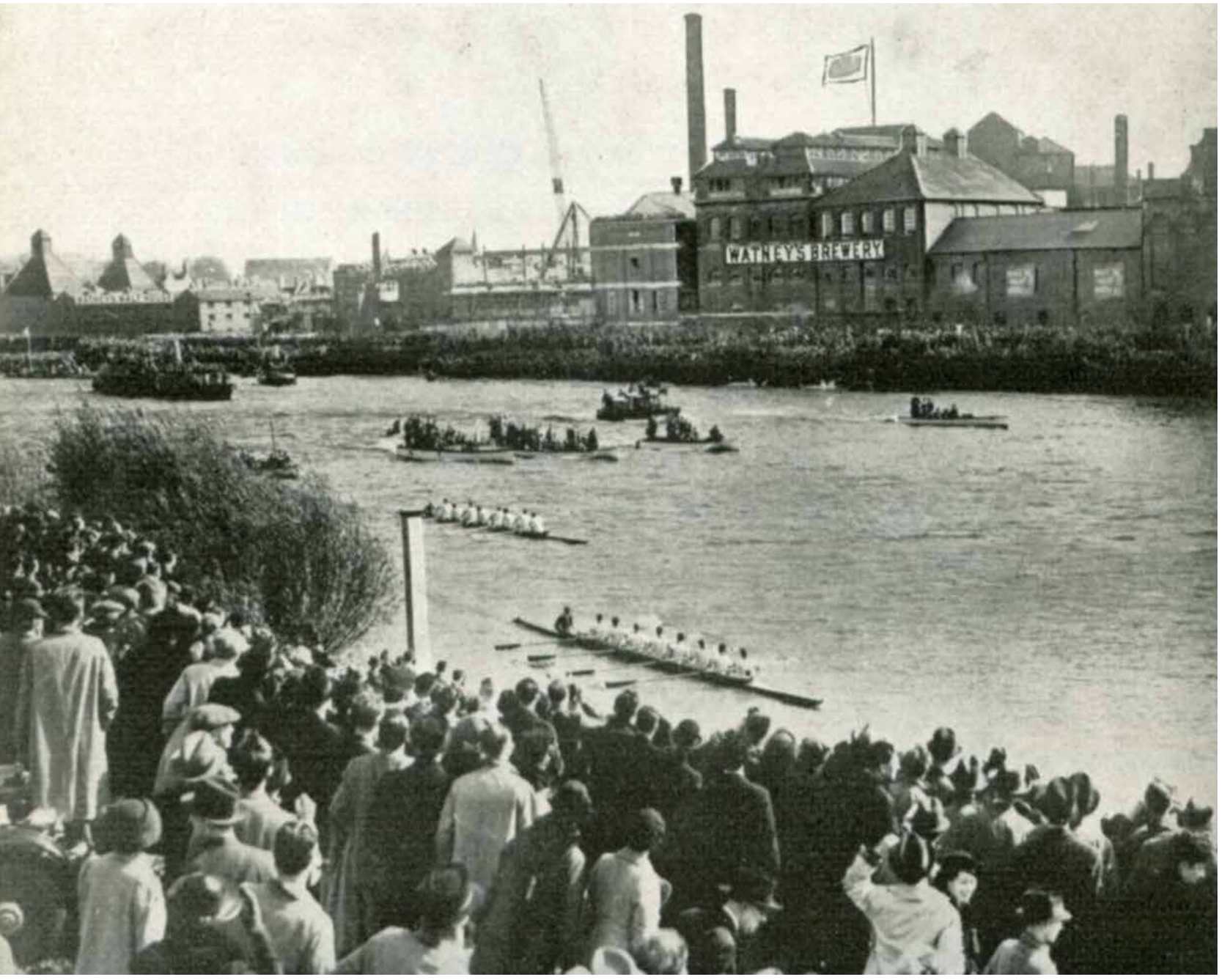

# 1.2
# CONTEXT

Reselton Properties Limited, represented by Dartmouth Capital, is developing plans for a mixed-use scheme for Mortlake's Stag Brewery site, London, UK.

The Stag Brewery Redevelopment is an emerging masterplan that will create a new vibrant village with a view to deliver a new heart for the Mortlake neighbourhood through regeneration.

The site is located along the edge of the River Thames with good connections to both Chiswick Bridge and Mortlake Rail Station.

Existing factories and industrial buildings will be replaced with a mixed use development comprising units for commercial retail frontages, an office building, residential apartments, new entertainment centres, extra care facilities, a nursing home, health facilities and a school.




# 1.3 HISTORY

Mortlake is a suburban district of the London Borough of Richmond upon Thames on the south bank of the River Thames between Kew and Barnes. For many centuries it had village status and extended far to the south, to include East Sheen and part of what is now Richmond Park. Its history was economically one of malting, brewing, farming, watermen and a great tapestry works.

According to Domesday Book (1086) the manor and parish of Mortlage (by which name Mortlake was then known). The manor belonged to the Archbishops of Canterbury until the time of Henry VIII, when it passed by exchange to the Crown. From the early part of the 17th century until after the English Civil War,

Mortlake was celebrated for the manufacture of tapestry, founded during the reign of James I at the Mortlake Tapestry Works.

Mortlake was reduced by 732 acres when Richmond Park was created by Charles I in 1637. Other parishes also lost smaller amounts of land to the new deer park.

Since 1845, the Oxford and Cambridge Boat Race has had its finish point at Mortlake, marked by the University Boat Race stone just downstream of Chiswick Bridge. Several other important rowing races over the Championship Course also either start or finish at the stone.

In the 1840's, Charles James Philips and James Wigan acquired Mortlake Brewery, which had existed since the 15th century. In 1889 the brewery was acquired by James Watney & Co., which in 1898 became Watney Combe & Reid after acquiring Messrs. Combe Delafield and Co. and Messrs. Reid and Co. When Watney's Stag Brewery in Victoria, London, was demolished in 1959, the name became officially applied to Mortlake Brewery. The brewery became part of Scottish Courage, briefly part of Heineken and was then divested to Anheuser-Busch Europe Ltd as it produced the company's Budweiser pale lager.

In December 2015, Reselton purchased the site and in 2016 consultation regarding the future of the Stag Brewery got underway.

# 1.4
# VISION

The Stag Brewery will be home to many people whilst also a place to work, shop, dine, play and relax.

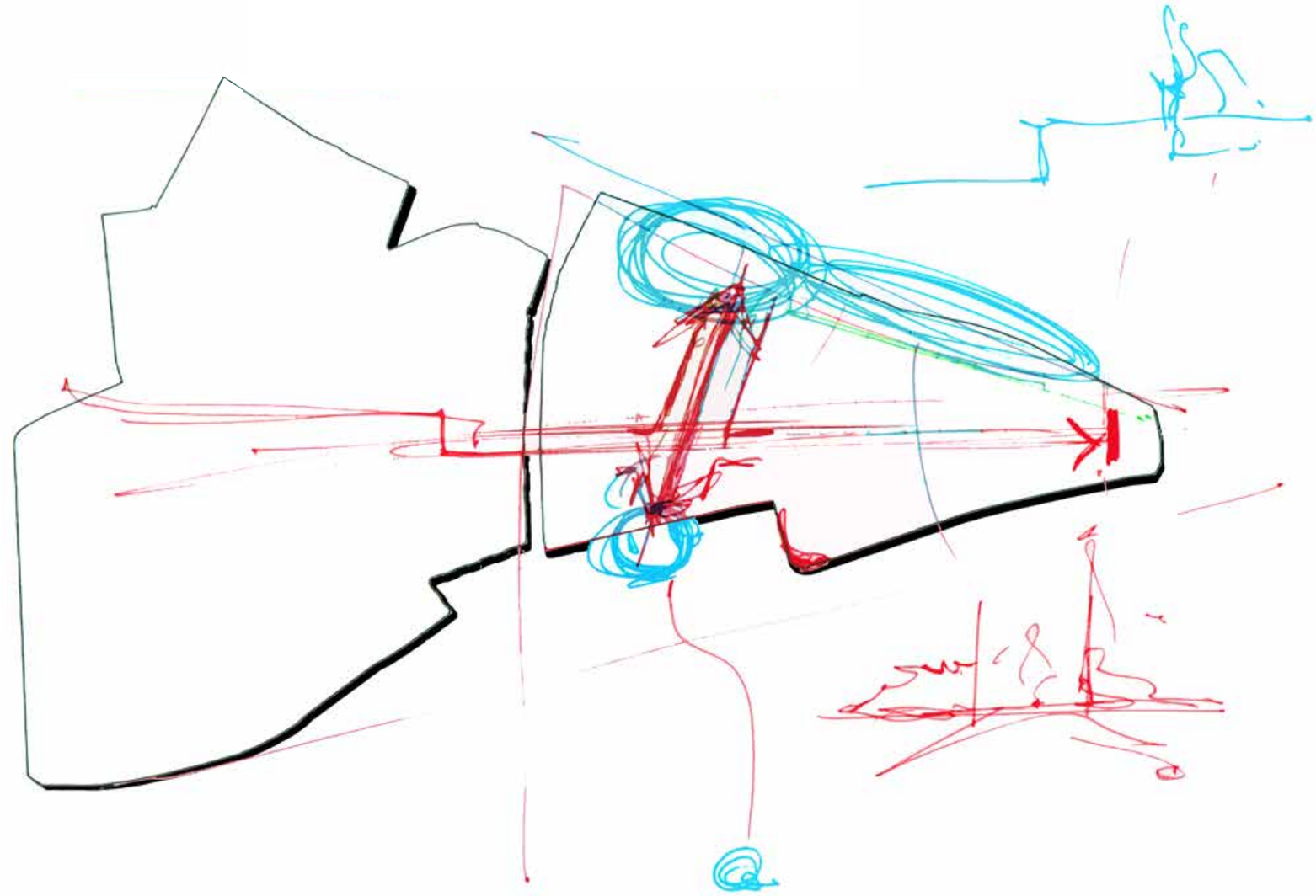
The site will boast open green spaces and views across the River Thames – all of which will help define the development as a destination in its own right and in turn, will create a vibrant night time economy.

Light will be used to help create focal points and a sense of place after dark, which will also help reinforce a sense of community and security.

It is envisaged that the Linear Park, Maltings Plaza and the River Terrace will be vibrant and active during the evening.  Al fresco dining will help to activate these areas which will in turn create a positive perception and enhanced security.  Street lighting will be used to support both shopping and outdoor dining by providing an appropriately low-key backdrop that supports an outdoor dining experience.

The well-being of residents will be promoted both through;
**light** - helping to encourage exercise and play outdoors and through **darkness**, reinforcing a closeness to nature, whilst helping to avoid light trespass and disturbance to sleep.

# 2.0 STRATEGY



# 2.1
# LIGHTING STRATEGY

The purpose of this Lighting Strategy is to help create a unique lit environment for Mortlake Stag Brewery. This will be achieved by enhancing both the character of the surrounding buildings and the newly proposed landscape.

The primary goals of this Lighting Strategy are:

- To create a cohesive lit environment after dark;
- To use lighting to develop a character and identity for the site;
- To establish a visual hierarchy of the lighting to assist wayfinding;
- To protect and support surrounding habitats;
- To use appropriate levels of light with respect to security and safety without over-lighting;
- To minimise light pollution, glare and flicker;
- To generate a low energy solution that is easy to maintain;

It is envisaged that the Lighting Strategy will be implemented over 2 - 3 phases. With this in mind, this strategy document establishes key strategic principles that will help guide future lighting proposals, whilst always ensuring a cohesive aesthetic after dark.

# 2.2 SITE SURVEY /PHOTOGRAPHY

Michael Grubb Studio (the lighting consultant) undertook a site survey assessment on the evening of 12 September 2017. The purpose of the survey was to review and record existing lighting conditions during twilight hours and after dusk.



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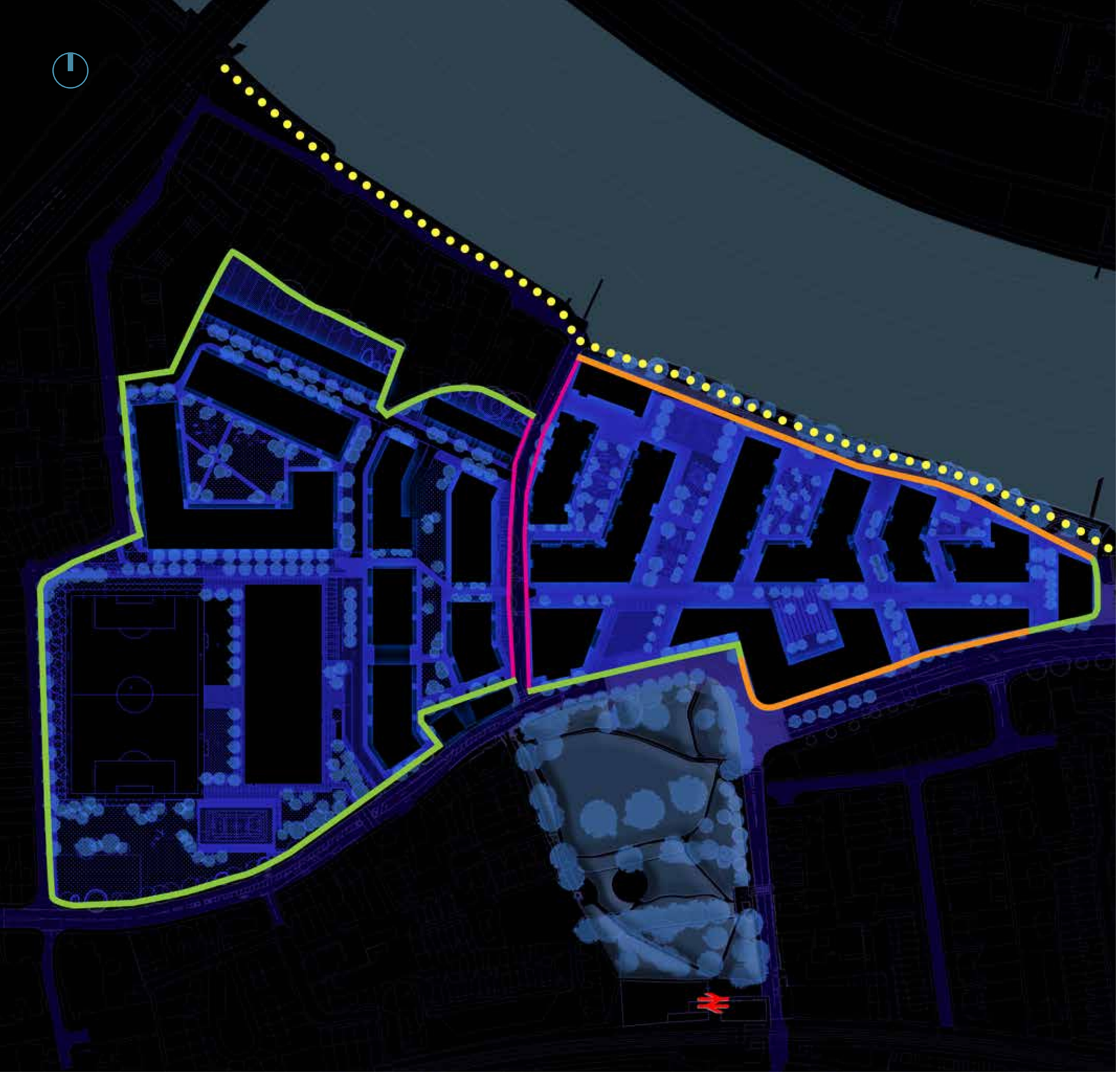
# 2.3
# EDGES

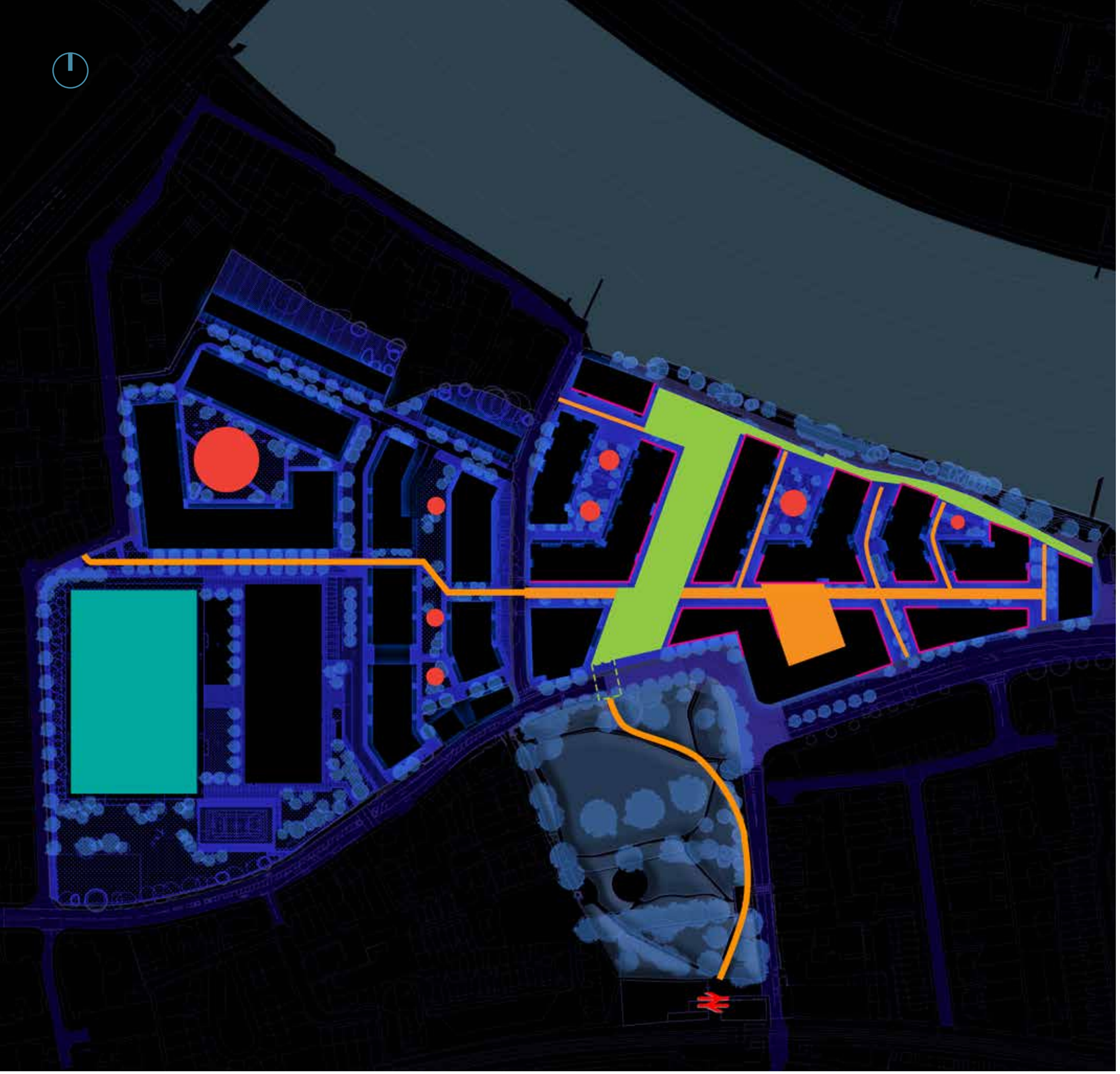
The majority of the site is surrounded by highways, with residential properties and historic Stag Brewery buildings adjacent to these routes.

The River Thames towpath route runs parallel to the north of the East Development. This is separated by a retaining flood wall, which will be refurbished and retained in part and replaced by new flood defence protection works. The towpath is included within the planning application boundary.

Ship Lane is an adoptable highway that runs north through the centre of the site, creating East and West plots.



- Hard Edge
- Adopted Highway
- Boundary Edge
- Existing Towpath (light sensitive area)



# 2.4
# EVENING USE

The development will be accessible to the public 24/7.
This includes the residential communal gardens, the River Terrace and all associated routes and spaces. However, there will clearly be areas that are more active than others after dark. The Lighting Strategy looks to create a cohesive lit environment, which supports the operational needs of these areas, whilst providing added character and enhanced wayfinding through the site.

### Primary Use

- Mortlake Green Gateway
- Linear Park, including Cinema, Retail, Bar and Restaurants.
  Also main connection through site.
- Maltings Plaza, destination and flexible space for special events.
- The River Terrace, for Bar & Restaurant use.

### Secondary Use

- Thames Street, East - West connection
- Pedestrian routes to river towpath
- Residential 'communal' gardens
- Bottleworks Square
- Existing park, Mortlake Green, for pedestrian movement from Mortlake Rail Station into site.

### Sports Field

- The sports field will be available for community use / hire during evenings.

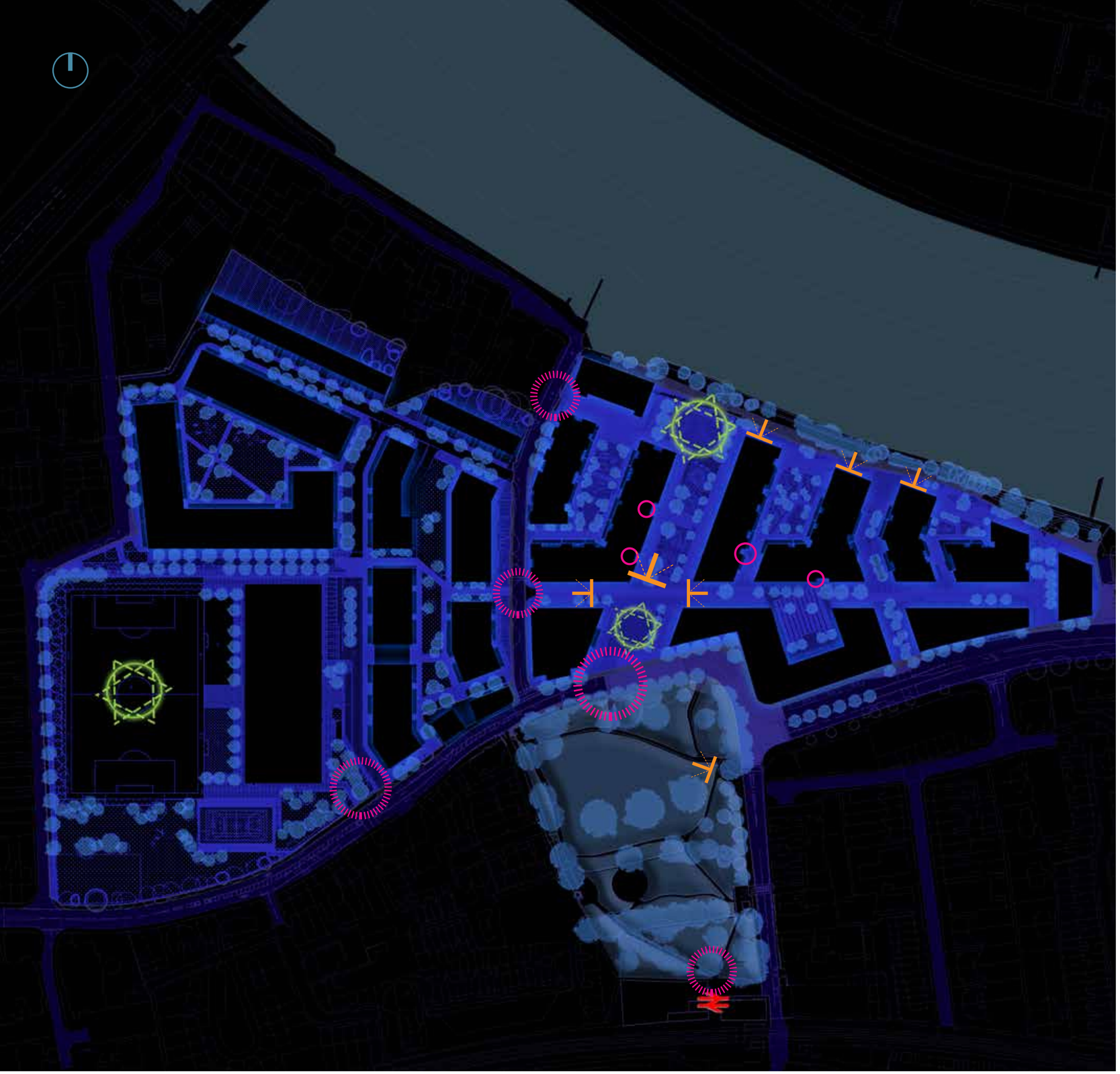
High Level

Medium Level

Low Level

Sports Field
(*used on certain days/hours of the year)

Retail/Restaurant Frontages



# 2.5 GATEWAYS, VISTAS & NODES

Gateways are the thresholds at which people enter the site.

Vistas promote the ability to see elements of the mental map, encouraging movement and familiarity with the site.

Nodes are 'strategic spots' that form final or interim destinations. They help provide guidance and create structure across the site at night.

Gateways will be warm and welcoming. Layers of light will combine, with ambient and architectural lighting working in harmony to add character and interest. Ambient 'warm white' light will be used to provide safe levels of illumination to the various routes and spaces. Accent lighting will then be added to highlight architecture and key landscape features. This approach will provide depth and interest as well as define the various spaces by providing enhanced way-finding after dark.

Vistas towards key nodes and landmarks should be controlled in terms of the balance of light and dark and the location of lighting equipment. Doing so will actively protect and promote adjoining nodes.

The positive illumination of architectural and man-made features terminating vistas along routes will also help to make people feel secure and confident when navigating the area after nightfall.

Nodes include structures, landscape areas, meeting places and key intersections of paths. Lighting to such nodes must consider the nature of activities within the space and how the lighting can create an appropriate ambience within them. Lighting to vertical surfaces will make them identifiable from afar. This will aid way-finding, provide confidence and heighten the perception of security.

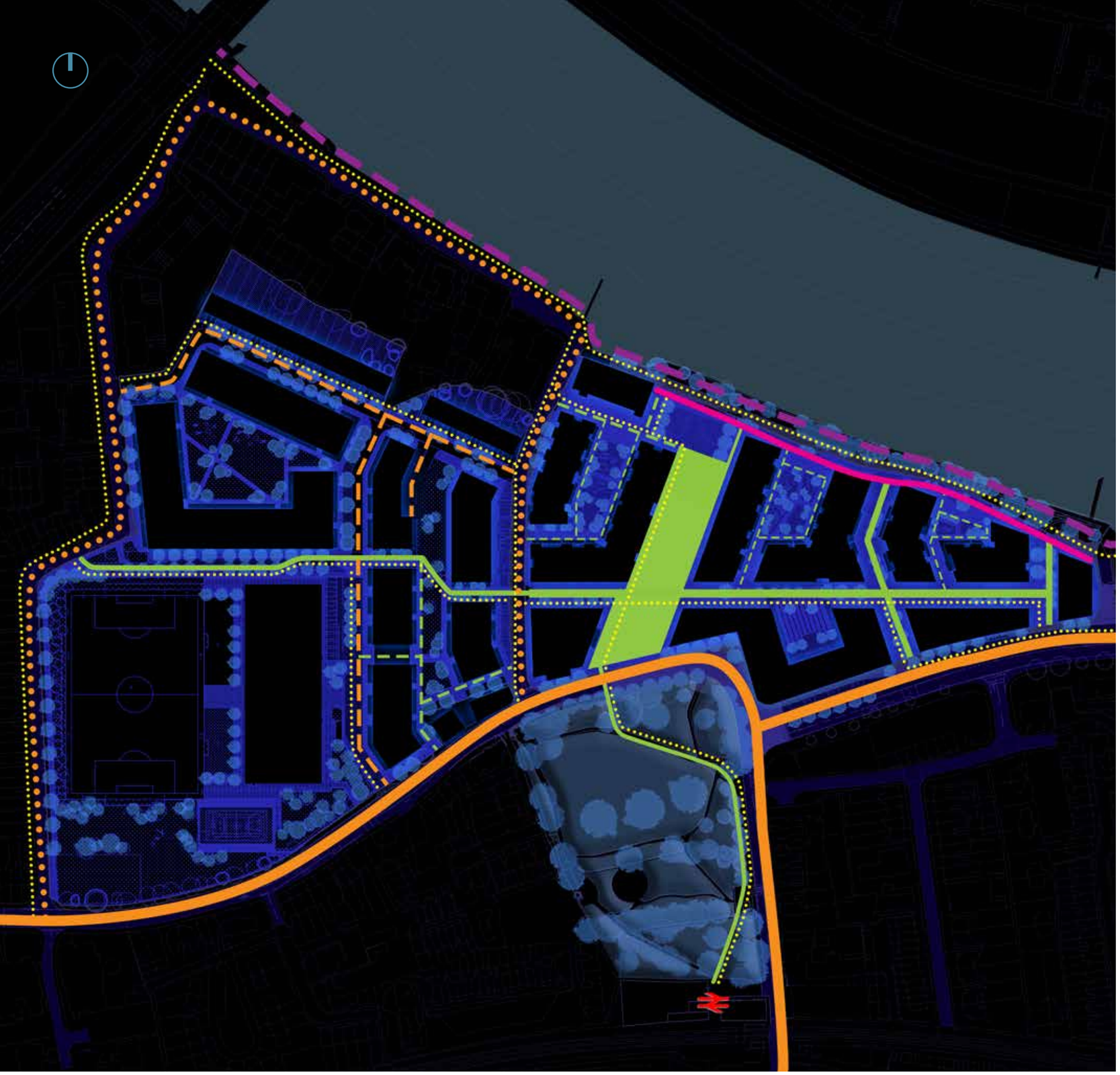
- Primary Gateway
- Secondary Gateway
- Vistas
- Nodes

# 2.6 ROUTES

Routes have been considered with regard to their intended users, whether these are pedestrians, cyclists, motorists or any combination of the three.

On vehicular routes, horizontal illumination with good uniformity will be important to ensure that the roadway and its junctions with the pavement are visible and that the lighting does not cause visual distraction.

Lighting to pedestrian paths must be designed to support human scale, aid way-finding, provide good facial recognition and to promote a sense of character.



- Highway Primary
- Highway Secondary
- Pedestrian Primary
- Pedestrian Secondary
- Cycle Route
- River Terrace Route
- Existing Towpath

# 2.7
# SPACES

The external environment is open to the public 24/7, with certain areas being more active than others after dark.

Entrance Plaza and Linear Park will act as a gateway to the site, hosting a variety of restaurants, bars and retail stores coupled with good links to the cinema.  In addition, both the River Terrace and Bottleworks Square will also be destinations for those visiting at night.

Maltings Plaza will provide the backdrop for festivals and other temporary events throughout the year.  It is therefore, imperative that the setup is flexible, easy to control and maintain.

Gateways into the Residential Courtyards will need to be warm and welcoming, with the internal spaces providing a tranquil quality for those surrounding properties.

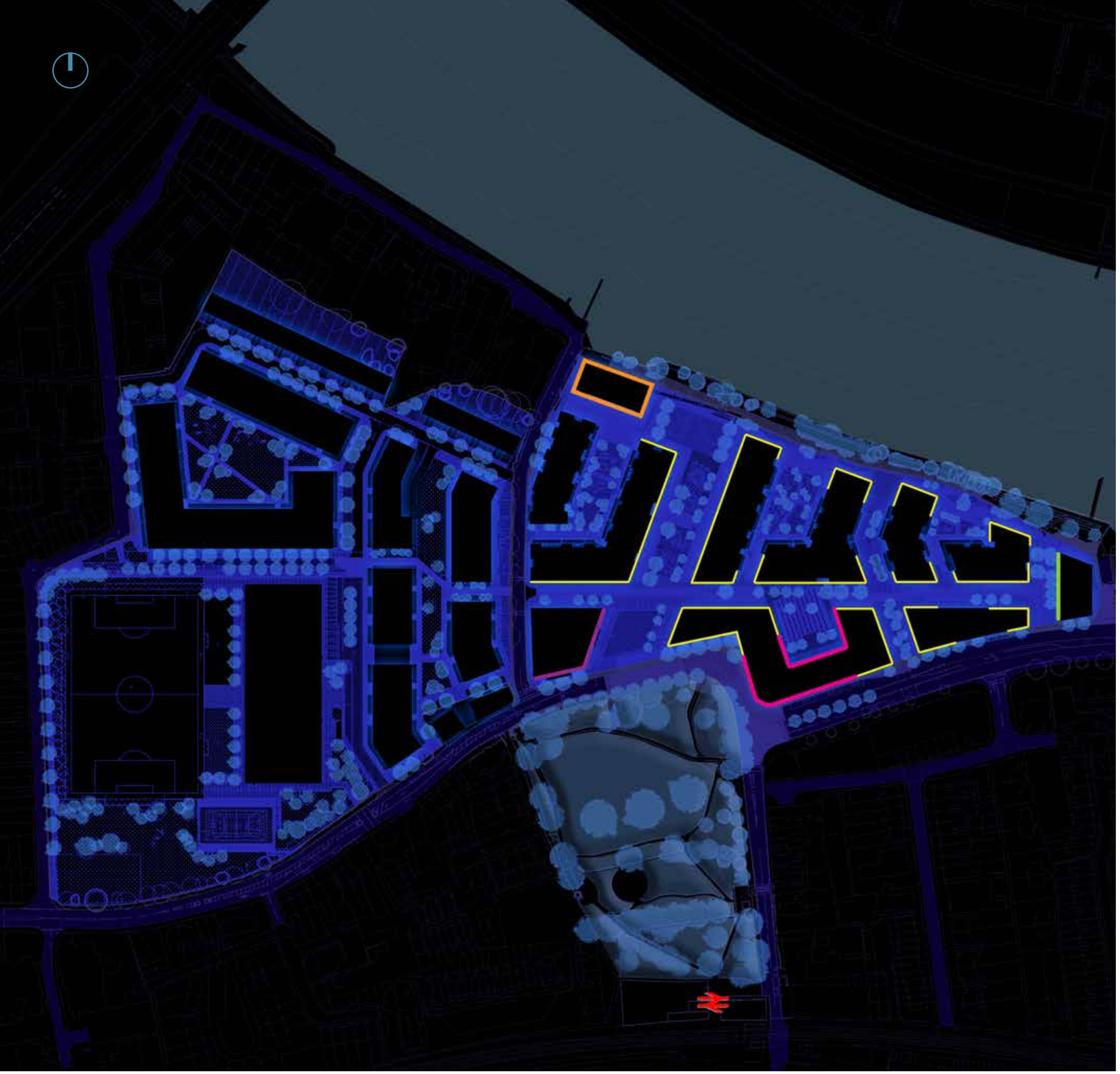
It is our intention that all Play Spaces will be lit.

- Public Open Space (including community park)
- Residential Courtyards
- Residential Gateway
- Play Space
- Park Gateways
- Sports Field (*used on certain days/hours of the year)

# 2.8
# ARCHITECTURAL LIGHTING

Architectural lighting will add depth and interest to the site after dark.

Certain buildings / facades have been selected based on their contribution towards wayfinding, place making and heritage. It is important to note however, that at this stage, only detailed elements are being considered.



**TIER ONE**

- Maltings Building
- Cinema

**TIER TWO**

- The Bottleworks Hotel & Bottleworks Square
- Rowing Club

**TIER THREE**

- Commercial Facades (Retail / Bars & Restaurants)

# 3.0 LIGHTING PRINCIPLES

# 3.1 SITE WIDE

This Lighting Strategy will help to ensure that an appropriate atmosphere is created to reinforce a strong sense of place whilst remaining balanced and visually integrated with the surrounding environment. Psychologically, light will play an important role in influencing the manner in which people perceive and behave in the development after dark.

Lighting within the site needs to fulfil a range of requirements for various uses and people. This includes both commercial and residential use, along with the cinema and the various bars and restaurants that will be visited by those travelling into the development by night. It is therefore imperative that lighting enhances the character of the site, aids way-finding and improves the overall visitor experience.

Lighting is also required to meet the specific requirements for both personal and wider security and through its contribution to the prevention of crime. This is a complex area as good lighting cannot prevent crime - rather it can help reduce the fear of crime. It can also support other measures such as surveillance.

A range of 'overarching' lighting design principles have been developed for the project and are relevant to all areas of the Stag Brewery site. These are as follows:

1. Safe & Secure Environment
2. Accessibility
3. Way-finding
4. Sustainability
5. Protecting Surrounding Ecology
6. Light Pollution, Flicker & Glare
7. Operational Requirements
8. Luminaires & Lamp Sources
9. Approach to Colour Temperature
10. Heritage
11. Use of Colour
12. Lighting Standards & Guidelines

# 3.2 SAFE & SECURE ENVIRONMENT

A primary function of the lighting will be to provide adequate levels of illumination to enable people to see in the absence of natural light.

The extent to which people need to see after dark will vary from area to area, with some requiring high levels of visual acuity whilst others should enable just a basic understanding of scale and the ability to identify a safe path through a space.

Flooding a space with light does little to improve the perception of a safe and secure environment after dark, it instead creates a negative and unwelcoming environment that results in minimal use. Within the residential settings low levels of light will be important in maintaining a sense of security and privacy.

Creating an environment that feels secure will largely depend on ensuring that spaces are legible, appear well maintained and do not inhibit adaptation of the eye through excessive contrast and glare.

Facial recognition is important for CCTV operation and must be considered, however, this should not dictate the lit environment. A more constructive approach would be to create an environment that combines both horizontal and vertical illumination.

# 3.3 ACCESSIBILITY

The accessibility of the site during the hours of darkness is a key issue.

The design of artificial light must support the various needs of those visiting and inhabiting the neighbourhood after dark. This includes people with visual impairments, wheelchair users, the young, the elderly and those with special needs.

Supporting a highly accessible after-dark environment will include avoiding excessive contrasts, avoiding direct and reflected sources of glare, avoiding shiny, mirror-like surfaces at pedestrian level, controlling shadow and limiting potentially confusing upward lighting.

# 3.4 WAYFINDING

Lighting to architectural and landscape features will enable people to form a 'mental map' of the Stag Brewery site and inform the way in which they experience and remember it.

After dark (including winter mornings, afternoons, late evenings and night-time) many of these visual signs can disappear from view and leave residents and, in particular, visitors feeling disorientated and uncomfortable.

For example, it can become difficult to understand both the scale and boundaries of spaces and to identify safe routes after dark, which can heighten feelings of unease and insecurity. After nightfall it will be largely left to artificial light and preserved natural darkness to 'edit' the visual landscape to render some elements more prominent whilst allowing others to visually recede. This balance between light and dark will help to reinforce a collective 'map' or 'image' of Stag Brewery and support orientating around it, with a view to improve the enjoyment and image of the development.

It should be noted that creating a legible after-dark environment will predominantly rely on achieving an appropriate balance of light and dark on vertical rather than horizontal surfaces as these are the surfaces that help to describe the scale and layout of built and natural forms and help draw views through to particular locations.

# 3.5 SUSTAINABILITY

The extent and manner with regard to the use of light will become a very visible symbol for the development's sustainability credentials.

Light is a highly visible form of energy use that not only exploits the earth's precious natural resources but also creates unwanted impacts such as light pollution. The amount of light, its distribution and direction and the manner in which it is delivered and controlled must all be carefully designed. Over-lighting and light pollution (particularly light trespass) must be avoided.

Light levels will be minimised when and where possible but without compromise to safety and security.

Efficient light sources, control gear and luminaire optics will help to focus light onto the desired surfaces, whilst defined areas of unlit public realm - i.e. the River Thames - will ensure that a connection to nature and the night sky is clearly promoted.

The preservation of darkness will also play an important social role, helping to protect privacy and, alongside the considered selection of light sources, helping to support well-being by minimising light trespass and disturbances to circadian rhythms.

# 3.6 PROTECTING SURROUNDING ECOLOGY

Artificial lighting can cause disturbance to ecological systems because animals, insects and plants can all be affected adversely. For this reason, the lowest appropriate amount of light should be used to achieve the needs of the various routes and spaces. Lighting should also be controlled with minimal light spilling upwards. Additional glare control accessories should be used where appropriate. Uplighting within the courtyard is acceptable, but should be designed on a human scale with light focused on the lower levels of the building façades only. Lighting beyond this is unnecessary and could prove problematic for local habitats.

Artificial night lighting harms species directly by triggering unnatural periods of attraction or repulsion which can lead to disruptions in reproductive cycles by fixation, disorientation or by interfering with feeding and sustenance. Light can also have an effect on the life of plants as well as on the animals that use plants for feeding or nesting.

Many studies show that different species of birds are affected by certain wavelengths of light in different ways. Where rare and protected species are known to exist, research should be undertaken to establish whether the intensity of artificial light or specific wavelengths of light should be minimised generally or at specific times of the evening/year to help protect species.

It should be noted that sky glow can disrupt local biodiversity as well as distant ecosystems.

Light levels within the site will vary depending on use and location, especially with regards to protecting surrounding ecology along the river edge. Light level guidance has therefore been provided and is fully detailed in Chapter 3 of this document.

# 3.7
# LIGHT POLLUTION, FLICKER & GLARE

All efforts should be made to minimise light pollution. Particular attention should be paid where light spill could have a detrimental effect on ecology. The following principles should be applied to ensure light pollution is kept to an absolute minimum:

- Lighting will be carefully focused once installed, Lockable luminaires will be used, where possible, to ensure that they are not accidentally refocused during servicing and maintenance;

- Provision should be made for louvers, cowls, snoots, and other accessories that control upward light spill and reduce glare or light trespass.

In addition to the above, each lighting scheme should comply with both the ILP Guidance Notes for the Reduction of Light Pollution and the CIBSE SLL Lighting Guides for The Outdoor Environment.

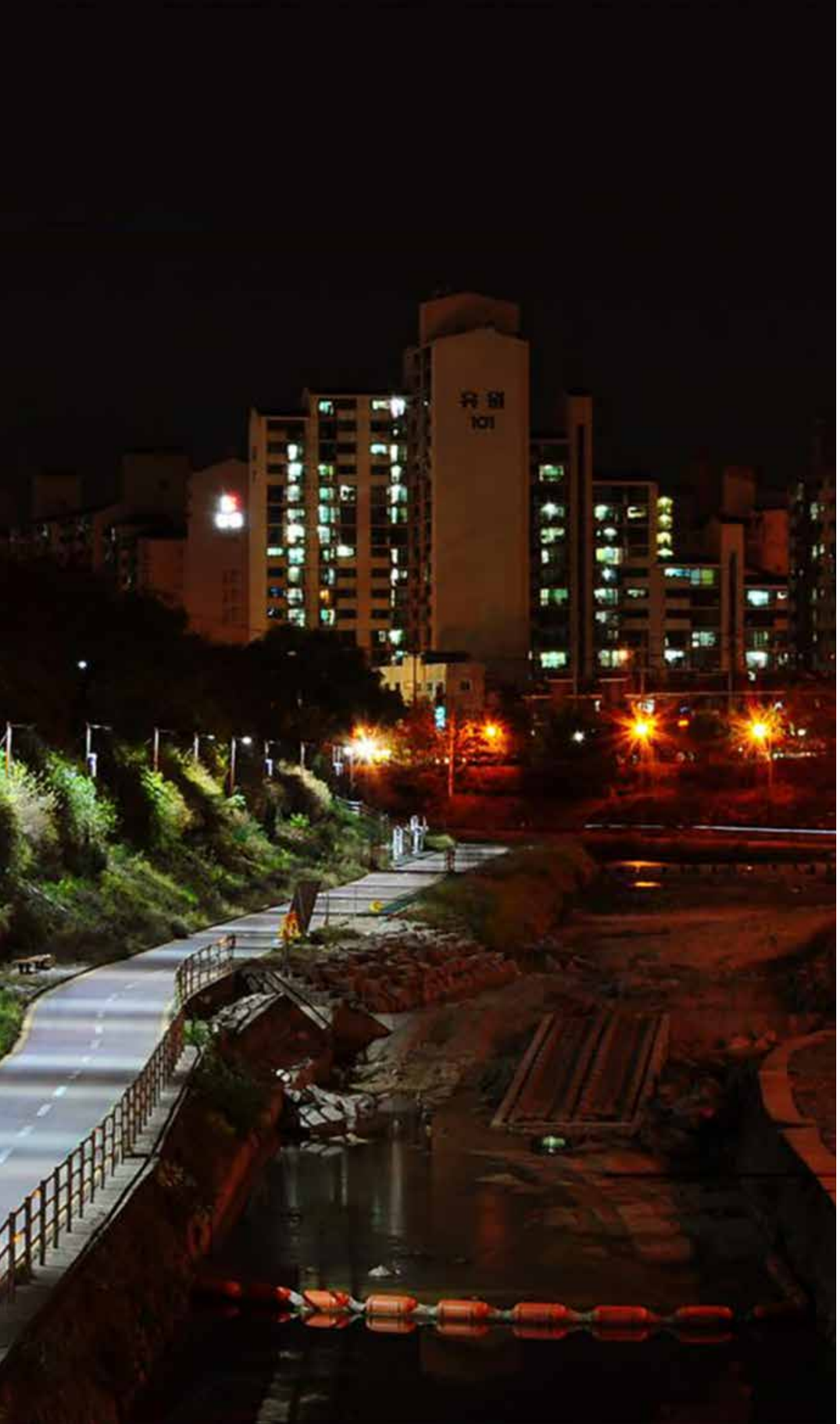
# 3.8 OPERATIONAL REQUIREMENTS

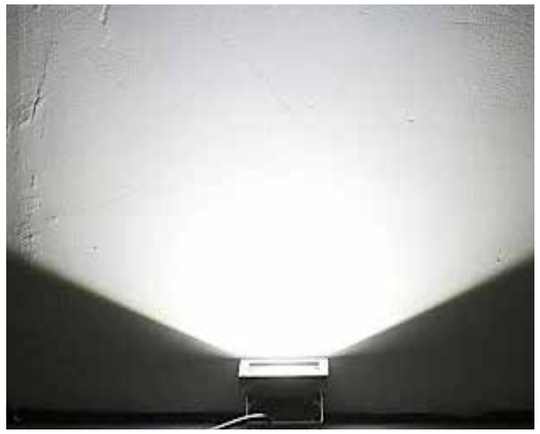
The controls of luminaires will have a significant impact on the sustainability and environmental impact of the project, especially as it concerns the amount of energy that the equipment uses.

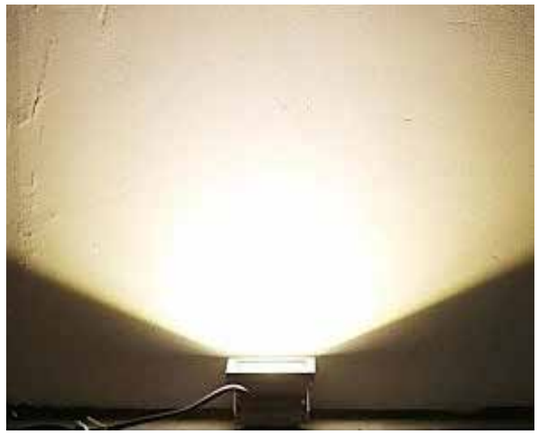
The simplest and most cost effective way to control a luminaire is to switch it on or off. Although dimming may be a solution, it is much more complex, costly, requires more equipment and some types of lamp do not dim effectively.

Switching systems have to be controlled by some form of input. The input can be an automatic input that is triggered by either ambient light levels (daylight falling below a certain level or rising above a level), by the presence or lack of activity (presence detectors or similar devices), by time (a time switch) or by a combination of all of these inputs.

Amenity lighting will remain operational between dusk and dawn. Feature lighting will be switched off at curfew (midnight). This simple philosophy allows the lighting control to expand through each of the design phases, for all areas of the site.







# 3.9
# LAMPS & LUMINAIRES

As part of the development of individual lighting schemes, consideration must be given to the types of lighting equipment selected as well as their mounting locations, materials, the longevity of their finishes and the types of light sources utilised. This will ensure minimal disruption to day and night-time activities when the installation needs maintenance or replacement.

Lighting equipment should be as discreet as possible. Where possible all lighting equipment will be hidden from view, where this is not possible all lighting will be detailed in such a way that it complements its immediate environment.

A reduced palette of luminaires and light sources is proposed as this will help simplify maintenance regimes. See Chapter 4: Lighting Strategy for full details.

Lighting must be designed to the prevailing best practice and, in general, to European and British Standards and Regulations. Individual lighting schemes should utilise long life, efficient light sources and control gear to help minimise long term maintenance and energy costs. In all cases the aim is to provide suitable amenity, ensure ease of adaptation, limit excessive contrast and avoid potential problems of over-lighting and glare.

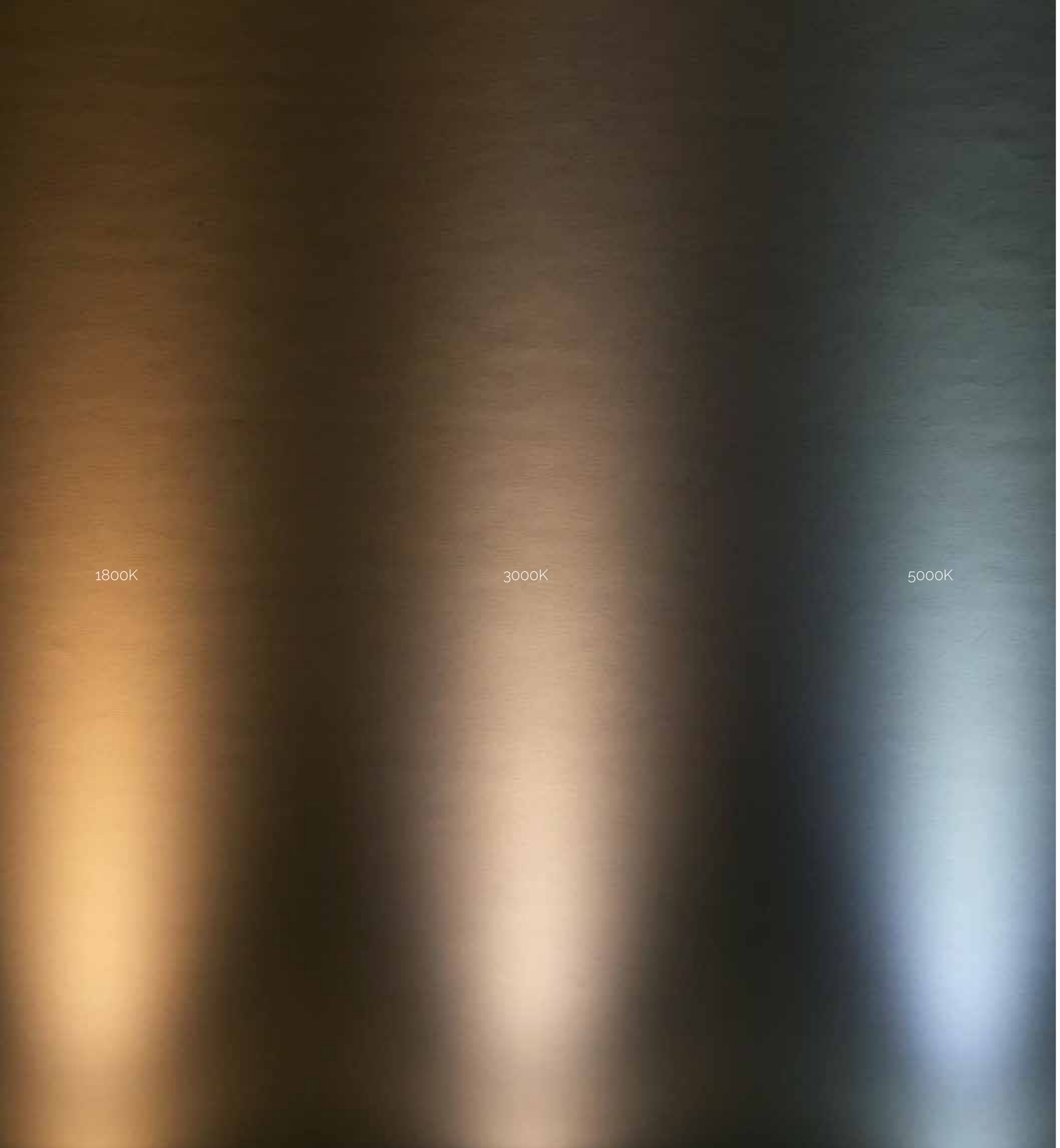
LED Technology is proposed for all areas of the site. Colour temperature of LED lamps with vary dependant on location and use.

# 3.10
# COLOUR TEMPERATURE

Colour temperature describes the coolness or warmth of light. The lower the number in degrees Kelvin, the warmer the appearance of the light. For example, 1800K light has a warm appearance, similar to candlelight, while 5000K light is very cold looking.

Many of our town and cities are now lit in cold white light, which can result in uninviting, unpleasant and underused spaces.

The general principle for the Mortlake Stag Brewery site is to use only warm white light, with a colour temperature of 2700-3200K, for all pedestrian routes and spaces. This simple approach will help create a warm and inviting environment after dark.



# 3.11 HERITAGE

The Maltings building, the former bottling plant and hotel are all identified as Buildings of Townscape Merit (BTM). The new lighting scheme must respect the heritage of these buildings and do everything to ensure that they are preserved for future generations.

These buildings will outlive even a 50-year LED Lighting scheme so it's imperative that the building fabric is respected, physical damage avoided and visual impact considered. External lighting to reinforce a building's patterns can increase the appreciation of architectural details. Crosslighting, uplighting and backlighting should all be considered, although uplighting must be limited and well controlled to avoid light pollution. The approach should be to illuminate selected architectural and sculptural features such as pediments, columns, portico or niches, rather than illuminating the whole building / structure.

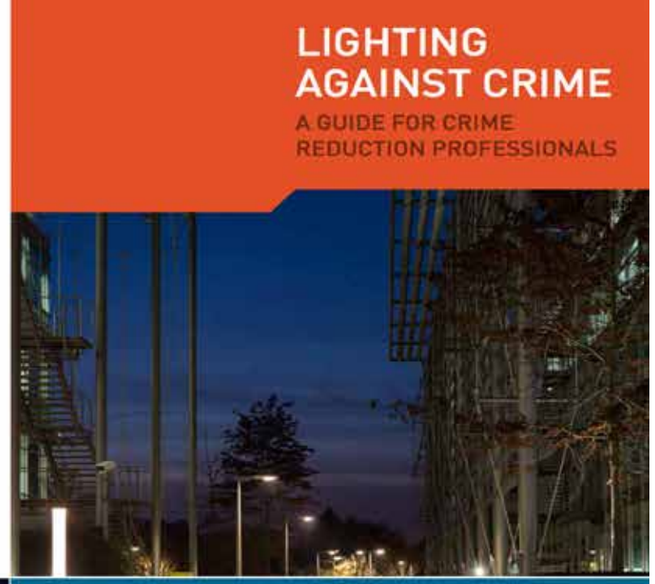
It is essential that all luminaires are inconspicuous, easy to install and maintain, and respectful of the historic fabric. Even though a lighting design may give the desired effect at night, if the floodlights cannot be effectively hidden from view or disguised, the scheme must be rethought.

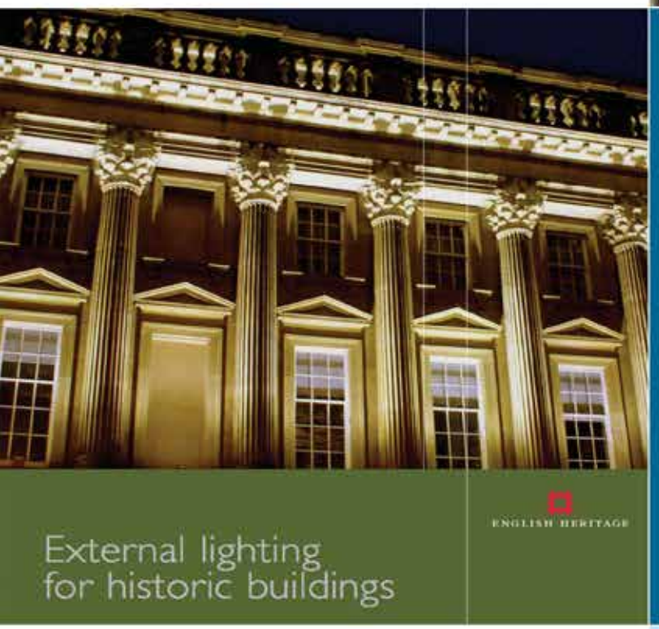
Proposed lighting schemes must follow English Heritage guidelines for 'Exterior Lighting of Historic Buildings'.

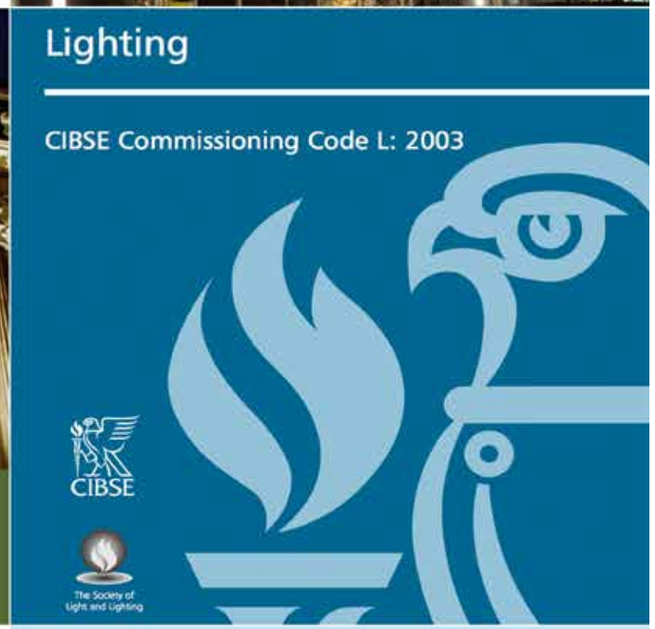
# 3.12
# USE OF COLOUR

The use of coloured light can be dramatic when used effectively, but it can also dominate and distract.

Coloured light has a low Colour Rendering Index (CRI) and so it is hard to see colours accurately. This has implications for security (CCTV) and the recognition of objects, such as signage. For this reason coloured lighting will be restricted to architectural components, hard landscaping features and light-art interventions only. Even then, the use of colour needs to be relevant to the environment and justified.




# 3.13 STANDARDS & GUIDELINES

This Lighting Strategy adheres to current British and European Lighting Standards coupled with the existing adopted highway standards. Examples include, PD CEN/TR 13201-1:2004, BS EN 13201- 2:2003, BS EN 12464-2:2007 and BS 5489:2013.

Whilst this Lighting Strategy prescribes lighting criteria from set standards, it is well established in the field of urban lighting that solely fulfilling such requirements will not necessarily lead to a satisfactory lighting solution.

A purely functional, quantitative approach to lighting can lead to a design that is bland and overly utilitarian, placing the emphasis firmly on the immediate visual task and relegating spatial experience to a secondary consideration.

Creating an after-dark environment that enhances safety, security and accessibility does not necessitate high light intensities and strong horizontal illuminance, but rather the selective illumination of key surfaces, forms and details. The illumination of vertical surfaces, whether they be natural (e.g. trees) or man-made (e.g. architectural and landscape features) will be critical in revealing the proportions and boundaries of spaces within Mortlake Stag Brewery after dark. Even soft lighting to vertical surfaces can greatly increase the legibility and perceived brightness of a space, whilst providing visual interest and creating character. Lighting to vertical surfaces can also help to provide diffuse reflected light to peoples' faces, helping to aid facial recognition and further heighten perceptions of security.

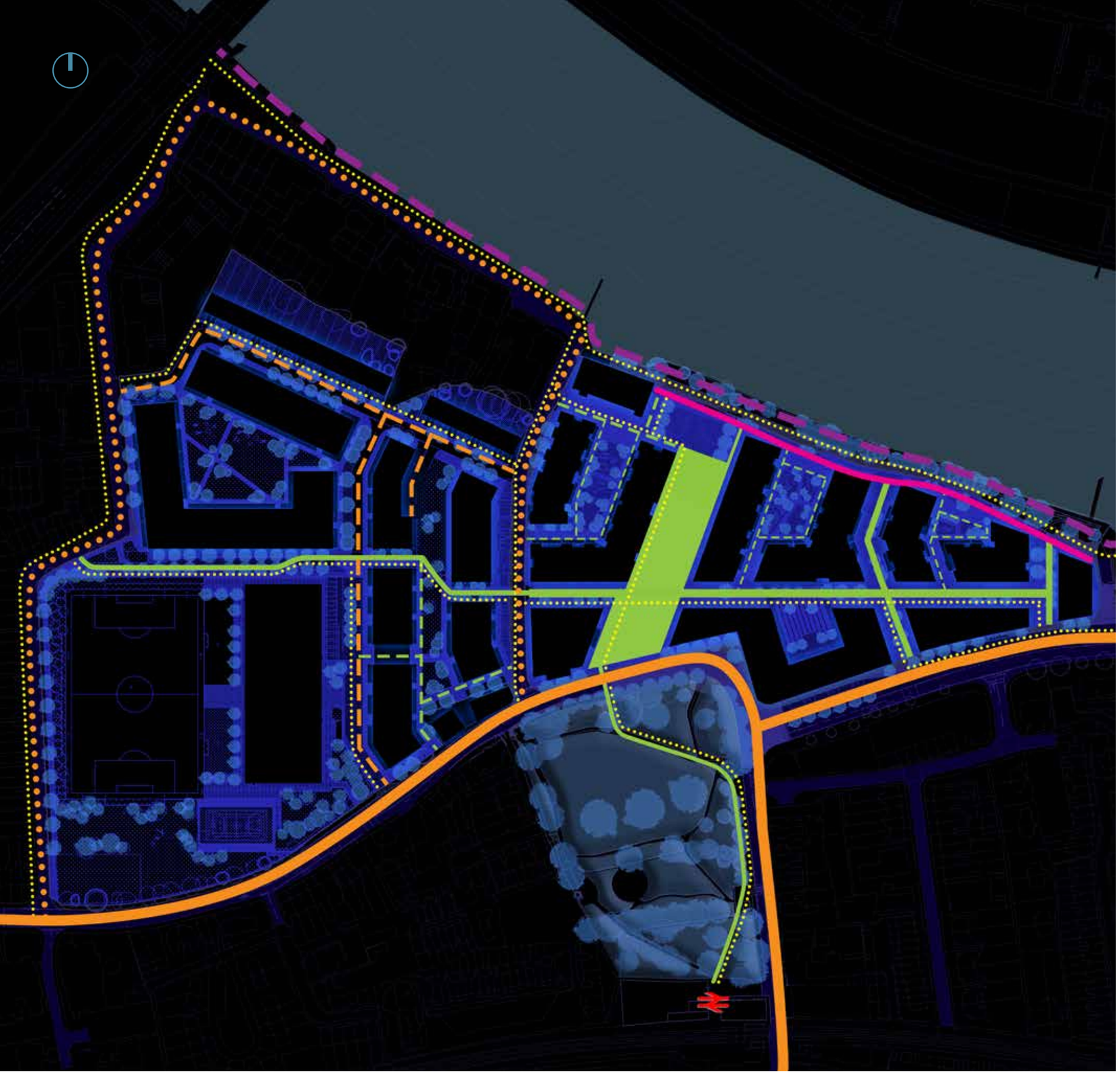
# 4.0 MASTERPLAN

# 4.1 MASTERPLAN

Lighting has been configured according to use after dark. This approach ensures that visitors subconsciously understand the various spaces, buildings and adjoining routes. To help achieve this a lighting hierarchy has been developed, with emphasis placed on elements that contribute most in terms of wayfinding and added character.

The Stag Brewery development will be a predominantly residential neighbourhood with retail / commercial areas running through the heart of the site and along the river edge. The lit environment caters for both these scenarios, with more focus and feature lighting in those commercial areas with higher footfall. Residential areas will be calmer to allow for privacy and the general well-being of residents.

The proposed lighting scheme comprises layers of light, with each layer complementing one another. The ambient (warm white) light layer is used to provide a safe and secure environment and to provide general illumination to the various routes and spaces. The accent light layer comprises additional sources of light, which will highlight key landscape features and surrounding architectural structures. The purpose of this layer is to enhance the feeling of the space and to introduce illumination to vertical surfaces. Accent lighting is proposed along key strategic routes and destinations only, such as the Linear Park, Maltings Plaza and the River Terrace for example.



# 4.2 ROUTES

The following lighting criteria is proposed for each route.

**Highway Secondary**

| | |
|---|---|
| Lighting Class: | P3 |
| Light Source: | LED |
| Colour Temperature: | 3000K |
| Colour Rendering: | Ra85+ |
| Lantern Mounting: | Column |
| Mounting Height: | 5-6m |

**Pedestrian Primary**

| | |
|---|---|
| Lighting Class: | P3 |
| Light Source: | LED |
| Colour Temperature: | 2700K |
| Colour Rendering: | Ra85+ |
| Lantern Mounting: | Column |
| Mounting Height: | 12m & 4m |

**Pedestrian Secondary**

| | |
|---|---|
| Lighting Class: | P4 |
| Light Source: | LED |
| Colour Temperature: | 2700K |
| Colour Rendering: | Ra85+ |
| Lantern Mounting: | Column |
| Mounting Height: | 5-6m |

**River Terrace, including steps to Towpath.**

| | |
|---|---|
| Lighting Class: | P4 |
| Light Source: | LED |
| Colour Temperature: | 2700K |
| Colour Rendering: | Ra85+ |
| Lantern Mounting: | Bollard |
| Mounting Height: | 1m |

**Cycle Route**

| | |
|---|---|
| Lighting Class: | P3 |
| Light Source: | LED |
| Colour Temperature: | 3000K |
| Colour Rendering: | Ra85+ |

**Site Boundary**

# ROUTES

## / SHIP LANE

Ship Lane is owned by London Borough of Richmond-Upon-Thames and is an adoptable highway. The current lighting scheme consists of concrete columns housing outdated 70W Low-Pressure SON lamp sources.

Low-pressure sodium lamps only give monochromatic yellow light and so inhibit colour vision at night, the colours of objects illuminated are also difficult to distinguish. This can be problematic for CCTV operation and can also misrepresent form and materials of the built environment. SON lamps are therefore being phased out and replaced with LED technology. LBRuT have advised that all existing columns along Ship Lane are due for replacement.

The intention is to work in conjunction with Richmond's Street Lighting Team to develop a mutually agreeable specification. This will mean matching sitewide characteristics whilst specifying highway approved products and suppliers. This includes columns by Mallatite, and the Philips Luma lantern with 3G City Touch technology.

The Street Lighting Team have provisionally suggested that Ship Lane should be lit to P3 Lighting Class.

### PROPOSALS INCLUDE:

- 5-6 metre high 'Mallatite' lighting column with Philips Luma lantern (3000K) with 3G Citi Touch technology.

# ROUTES

## / THAMES STREET

Thames Street is strategically very important as it provides a strong east / west connection through the heart of the develpoment. The route will be predominately used by pedestrians and cyslists, though it will allow for deliveries and servicing at certain hours of the day. Lighting must therefore enhance wayfinding whilst providing suitable levels of illumination for vechicular / operational use.

The illumination of shopfronts will heavily influence the street level experience. Individual retail, bar and restaurant tenants should be encouraged to implement high quality illuminated windows where light contributes to the overall ambience of Thames Street.

The use of building mounted lanterns should also be considered, so to reduce street clutter.

The final street lighting proposal will also need to consider the approach to Bottleworks Square and surrounding retail outlets as well as any bars / restaurants.

### PROPOSALS INCLUDE:

- 6 metre high lighting columns, staggered, along both sides of the highway (and / or the possibility of building mounted lanterns).
- Uplighting of trees.

# ROUTES

## / TYPICAL RESIDENTAL STREET

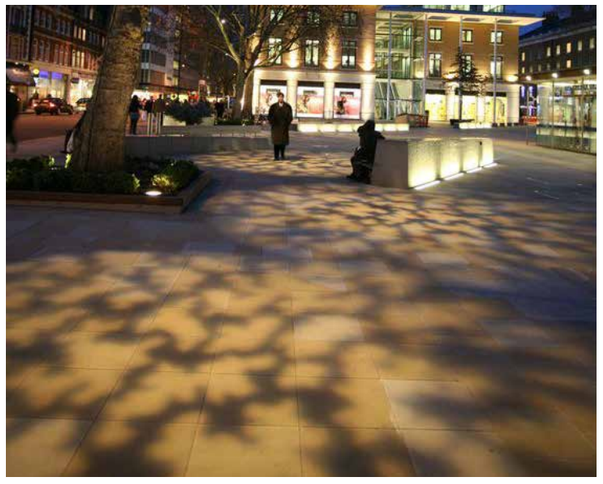
Lighting within residential areas needs to be calm and allow for both the privacy and general wellbeing of residents.

Lighting columns housing multiple spotlights will be located within the central soft landscape.  Warm white light will then be projected through the tree canopy to create a soft 'dappled' ambience below.

Lighting will be optically controlled to prevent light spill into adjacent properties.  Glare shields will also be used to ensure that all lamp sources are hidden from view.

### PROPOSALS INCLUDE:

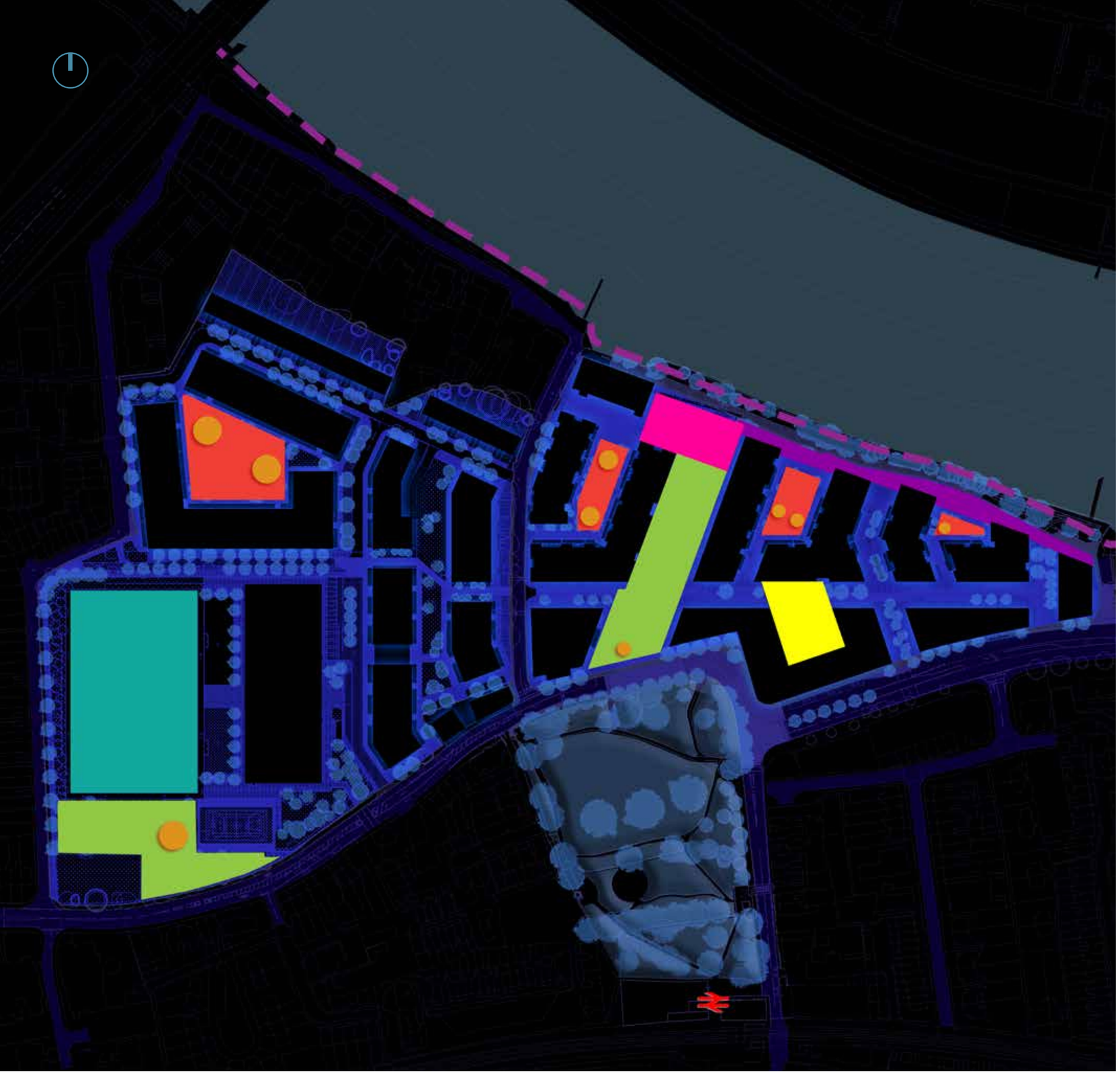
- 6 metre high bespoke column with multiple spotlights attached.



# 4.3
# SPACES

The lighting scheme for open spaces must consider vertical illumination as an important design factor to enable horizontal illumination levels to be minimised whilst still maintaining high levels of perceived brightness and security.

Landscape lighting should be designed to assist with the overall legibility of the site and its constituent spaces as well as to assist with place-making.



- Entrance Plaza / Linear Park
- Maltings Plaza
- River Terrace
- Towpath
- Residential Courtyards
- Bottleworks Square
- Play Space
- Sports Field

# SPACES

## / ENTRANCE PLAZA & LINEAR PARK

An 'architectural lighting' approach has been adopted and combines both horizontal and vertical illumination to key features along the route. This includes a series of 'bespoke' multi-purpose 10m lighting masts that have been introduced to support the narrative of the site and to create a positive image, aid wayfinding and add to the sense of place and memory after dark.

The masts have been located along the west side of the Linear Park as this strengthens the gateway entrance through Mortlake Green. In addition, we have proposed one to be added over the highway.

This route also connects with the Cinema, which will be beneficial for evening use. A secondary row of 4m high columns are located along the east side. We are also proposing the uplighting of trees and some low level lighting within seating, etc.

Illumination levels / lighting standards have not been applied to all areas of the Linear Park, but only to key spaces and routes that pass through it. This adopted approach ensures safety whilst respecting the residents living above ground floor level.

The illumination of shopfronts will heavily influence the street level experience. Individual retail, bar and restaurant tenants should be encouraged to implement high quality illuminated windows where light contributes to the overall ambience of the public realm.


### PROPOSALS INCLUDE:

- 10 metre high 'bespoke' multi-purpose lighting columns with internally lit section, which will illuminate depending on tide heights. Each column is to include spotlights and provision for additional luminaires and infrastructure, such as gobo-projectors, festive lighting, WiFi, PA systems and banners. The intention being that these will act as wayfinding beacons between Mortlake Green and Maltings Plaza, both by day and by night.
- 4 metre high columns located along the east route, linking the Riverside Terrace.
- Architectural lighting to key facades and hard-landscape features.
- Uplighting of trees.

# SPACES

## / MALTINGS PLAZA

Lighting needs to fulfill a range of requirements for various uses and people. To accommodate this, a flexible lighting scheme has been developed where lighting conditions can be easily reconfigured and adjusted. This will allow the space to be used for temporary events, festivals and other activities througout the year,

10m high decorative 'bespoke' lighting columns will signal Maltings Plaza as the final destination of the route through Linear Park.

Spotlights and gobo-projectors will be used to illuminate and animate the space after dark. Subtle projections will be used to support amenity lighting, with additional feature lighting incorporated witihin the water feature.

Additional lighting will be added to support any temporary events or festivals. All lighting will be controlled and focused on to the floor only, with no spill on to the towpath or surrounding area.

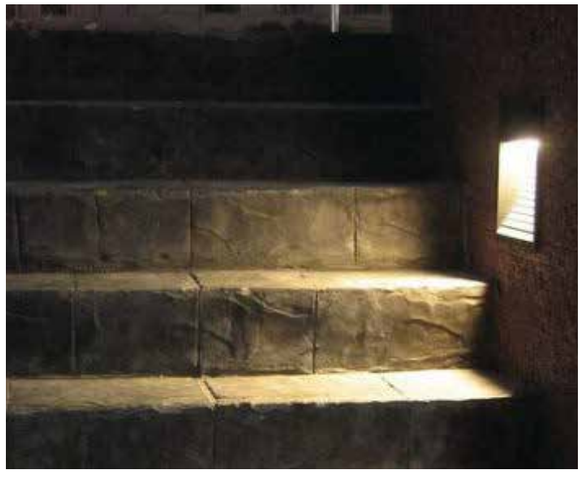
As part of the design for new lighting schemes, an infrastructure for events lighting should be considered. This may include the introduction of power supplies, data points and luminaire mounting locations. Where possible, infrastructure for events should be concealed from view as far as possible and integrated with existing structures to minimise clutter. In some cases, especially in spaces with infrequent events, a temporary infrastructure may be more appropriate.

### PROPOSALS INCLUDE:

- 10 metre high 'bespoke' multi-purpose lighting columns with internally lit section, which will illuminate depending on tide heights. Each column is to include spotlights and provision for additional luminaires and infrastructure, such as gobo-projectors, festive lighting, WiFi, PA systems and banners.
- Water feature lighting.
- Lighting incorporated within steps and associated handrails.
- Uplighting of trees.
- Small power will be provided for third parties to provide additional lighting for temporary events.

# SPACES

## / RIVER TERRACE & TOWPATH



The River Terrace will benefit from low levels of light. This will support both the surrounding ecology as well as the commercial operators (cafes, bars & restaurants) who will utilise the space at night.

High level lighting is to be avoided as this is likely to provide glare and spill onto the river / towpath. Low level lighting will be provided by either bollards or luminaires recessed / incorporated within the retaining river wall. This approach will ensure safe levels of illumination, whilst providing a tranquil backdrop that protects surrounding ecology along the river edge.

A small amount of light will be provided to the steps that lead down to the towpath. This is required for safety reasons only. Light will be carefully focused on the step treads with no glare or upward spill.

The towpath will remain unlit.

### PROPOSALS INCLUDE:

- Intergrated low level lighting or bollards.
- Low level lighting of steps

# SPACES

## / RESIDENTIAL COURTYARDS

Aerial views experienced by residents in the tall buildings must be considered. The selective illumination of landscape and architectural features within Residential Courtyards, for example, can provide pleasant views for residents whilst supporting passive surveillance.

The wellbeing of residents and visitors will be promoted both through light and darkness. Light will help encourage use and provide a safe experience. Darkness will reinforce a closeness to nature and will help avoid light trespass and disturbance to sleep.

In general, all lighting should be low level, utilising bollards and landscape related lighting. Additional lighting to entrances should be added but controlled.

### PROPOSALS INCLUDE:

- Low level bollards (1 metre max).
- Possible uplighting of trees.

# SPACES

## / BOTTLEWORKS SQUARE

Bottleworks Square will be a tranquil and quite space by night.

Lighting will limited to routes and key landscape features only. This will include both trees and associated seating, which will be underlit with warm white light to clearly define the form and contribute to the amenity lighting.

Additional architectural lighting to surrounding facades should be considered as this will add depth and interest to the space.

The illumination of shopfronts / surrounding buildings will heavily influence the street level experience. Individual retail, bar and restaurant tenants should be encouraged to implement high quality illuminated windows where light can contribute to the overall ambience of the public realm.

### PROPOSALS INCLUDE:

- 4 metre high columns around the perimeter of the square.
- Uplighting of trees.
- Architectural lighting to key facades and hard-landscape features.
- Small power will be provided for third parties to provide additional lighting if required after the curfew.

# SPACES

## / PLAY AREAS

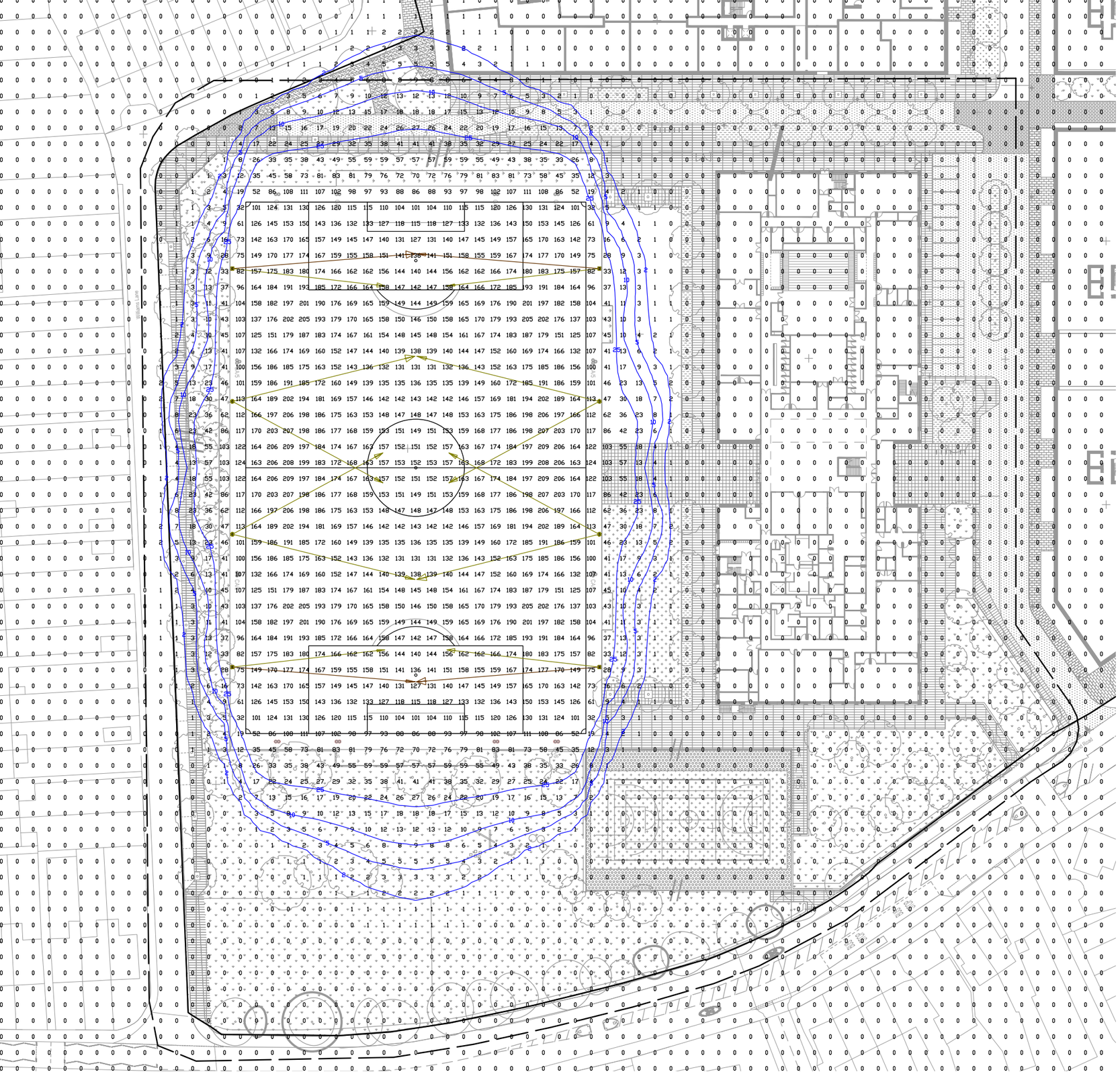
A single lighting column housing gobo-projectors and spotlights will be used to animate each of the play areas. The intention being to create a playful and dramatic look after dark - rather than just providing safe levels of illuminiation. Coloured lighting could be considered for these areas. All lighting should be switched off at the given curfew.

### PROPOSALS INCLUDE:

- 10 metre high 'bespoke' multi-purpose lighting columns with internally lit section, which will illuminate depending on tide heights. Each column is to include spotlights and provision for additional luminaires and infrastructure, such as gobo-projectors, festive lighting, WiFi, PA systems and banners.

# SPACES

## / SPORTS FIELD



Lighting is required to meet Sport England / FA requirements for Sports Pitch use after dark.

Lighting designs for both Class II and FA Class III have been developed, with both complying with the relevant ILP guidelines. Whilst both schemes are considered acceptable, the preference is for the FA Class lll scheme as this is deemed to be most appropriate when considering use and location.

Both lighting schemes have been designed to Sport England Outdoor Football Pitch Class guidelines and are based on 8 No 15m columns with 2 No luminaires on each column (16 No fittings in total). Luminaires for the Class ll scheme would be higher output.

The proposed luminaire (floodlight) contains an internal louvre, which limits spill in all directions as well as reducing light intensity and glare. An additional external louvre is also proposed to ensure that all efforts are made to reduce glare and light spill.

A detailed 'Sports Pitch Lighting Assessment' document has been prepared and is appended separately to this Provisional Lighting Masterplan.

# 4.4 ARCHITECTURE

The introduction of architectural lighting to surrounding buildings and structures will be hugely beneficial to the overall look and feel of the Stag Brewery development.

Lighting to buildings will provide depth and interest and add to the overall placemaking, which in turn, will support wayfinding and improve the general perception of the site after dark.

A tiered system has been developed, whereby Tier One is considered to be most important in terms of overall contribution to the site.

**TIER ONE**

- Maltings Building

**TIER TWO**

- Cinema
- The Bottleworks & Bottleworks Square
- Rowing Club


The Cinema


The Bottleworks

**TIER THREE**

- Commercial Facades (Retail / Bars & Restaurants)


Thames Street


Mortlake High Street

# 5.0 GLOSSARY

# 5.1 GLOSSARY

### COLOUR RENDERING INDEX (CRI)
A scale of the colour appearance of an object under a particular light source compared to its colour appearance under a reference light source. Expressed on a scale of 1 to 100 where 100 represents the colour rendering of daylight.

### COLOUR TEMPERATURE
A specification of the colour appearance of a light source, relating the colour to a reference source heated to a particular temperature, measured in Kelvin.

### CONTRAST
The relationship between the luminance of an object and its background. The higher the contrast, the more likely it is an object can be seen.

### GLARE
Glare causing discomfort which may impair the ability to see objects.

### ILLUMINANCE
Illuminance is the quantity of light, or luminous flux, falling on a unit area of a surface.

### LIGHT POLLUTION
The spillage of light into areas where it is not required.

### LIGHT SPILL
This is the unwanted spillage of light onto adjacent areas and may affect sensitive receptors particularly residential properties and ecological sites.

### LIGHT TRESPASS
Light that impacts on a surface outside of the area designed to be lit by a lighting installation.

### LOUVRE
Assembly used to control light distribution from a luminaire.

### LUMINAIRE
A lighting unit designed to distribute the light from a lamp or lamps.

### LUX (LX)
Illuminance is the quantity of light, or luminous flux, falling on a unit area of a surface. It is designated by the symbol E. The unit is the lux (lx).

### OPTIC
The components of a luminaire such as reflectors, refractors, protectors which make up the light emitting section.

### OVERALL UNIFORMITY
Ratio of the lowest to highest road surface luminance on a set of grid points.

### SKY GLOW
The brightening of the night sky caused by artificial lighting.

# 6.0 APPENDIX

Purpose of drawing:

## Information Only

**Drawing information:**

1. Do not scale from this drawing
2. This drawing should be read in conjunction with the current set of luminaire specification sheets.
3. Exact luminaire locations will be confirmed prior to the commencement of works on site.
4. The number located within each reference represents the'control circuit' only. This may not be the same as the actual wiring circuit.
5. If in doubt, ASK!

**Key:**

- CA/1 - 4 metre high lighting column
- CA/2 - 6 metre high lighting column
- CA/3 - 10 metre bespoke lighting mast, with spotlights, gobo projectors, WiFi, CCTV and banners.
- CA/4 - 6 metre bespoke lighting mast, with spotlights.
- CA/5 - 15 metre high lighting column.
- BA/1 - 1 metre tall bollard.
- UA - Recessed inground uplights
- UB - Recessed inground uplights
- XA - Recessed inground uplights to water feature.
- AB/1-4 - Architectural lighting.
- LA/2 - Bench integrated linear lighting.
- LA/3 - Recessed step seating linear lighting.
- WA/1 - Recessed step luminaires.

**Revisions:**

MICHAEL GRUBB STUDIO

Project:

**Stag Brewery**

Drawing:

**Provisional Lighting Layout for Planning Full Site**

| Client: | | Scale: |
|---|---|---|
| **Reselton Properties Ltd** | | **1:1000 on A1** |
| Drawn: | Checked: | Date: |
| **WL** | **MG** | **31st January 2018** |

Drawing reference: Rev:

**547-(00)-DR-EX-MP**