

EXTERNAL LIGHTING DESIGN STATEMENT

WATERFRONT SQUARE, READING

MEE Project Nr.: LN24064

Date: 10 September 2024

Rev: 01 - For planning submission



Issue	Date	Author	Checked	Notes
00	5/9/2024	SS/XF	XF	1st Issue - draft for comment
01	10/9/2024	SS/XF	XF	2nd Issue - for planning submission

Contents

1.0 INTRODUCTION		
1.1 Background	4	
2.0 SITE CONTEXT		
2.1 Baseline description	5	
2.1.1 Urbanisation Context	5	
2.1.2 Illuminated Context		5
2.1.3 Existing Brightness Conditions	5	
2.1.4 Ecological Conditions	5	
2.2 Local Guidelines	6	
2.2.1 Reading Borough Local Plan		6
3.0 SURVEY		
3.1 Existing Lighting	7	
3.1.1 Observations on Existing Lighting Scheme	7	
4.0 PROPOSED DEVELOPMENT		
4.1 Guidance & Standards		8
4.1.1 Environmental Zone		8
4.1.2 Obtrusive Light Limitations	8	
4.1.3 Applicable Standards & Guidance	8	
4.1.4 Ecology Guidance	8	
4.2 Indicative Lighting Scheme	9	
4.2.1 System Description		9
4.2.2 Proposed Luminaires	9	
4.2.3 Lighting Control	9	
4.2.4 Qualitative Design Metrics	9	
4.2.5 Proposed Lighting Metrics	10	
4.2.6 Proposed Layout & Luminaires	11	
4.2.7 Lighting Calculations - Ground Level Front	12	
4.2.8 Lighting Calculations - Ground Level Rear	13	
4.2.9 Terrace Level - Lighting Layout	14	
4.2.10 Lighting Calculations - Terrace Level		15
4.2.11 Lighting Calculations - Site Spill Light Extent		17
5.0 SUMMARY		
5.1 Summary of Proposed Scheme		18
5.2 Conclusions	18	

1.0 INTRODUCTION

1.1 Background

A new residential development is proposed at 2 Norman Place on Vastern Road. The development will introduce circa 250 new homes. The development will transform an existing vacant office building into a vibrant mixed use development with public realm amenity space

This report seeks to inform planners of the existing baseline lighting conditions, recommends design limitations based on applicable planning policy and good practice guidance, and provides an indicative external lighting design scheme to demonstrate a sensitive, thoughtful and minimal ecological impact can be achieved.

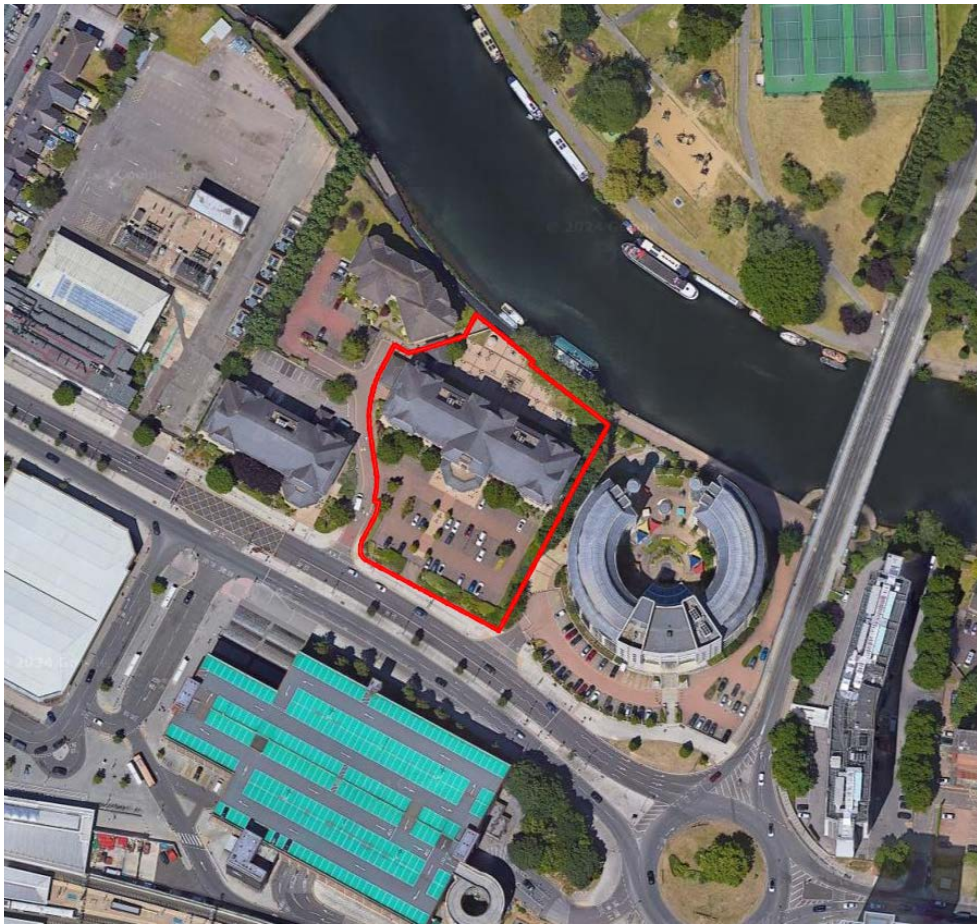


Figure 1. - Proposed development (2 Norman Place) with red line boundary is bordered by Vastern Road to the South and River Thames to the North.

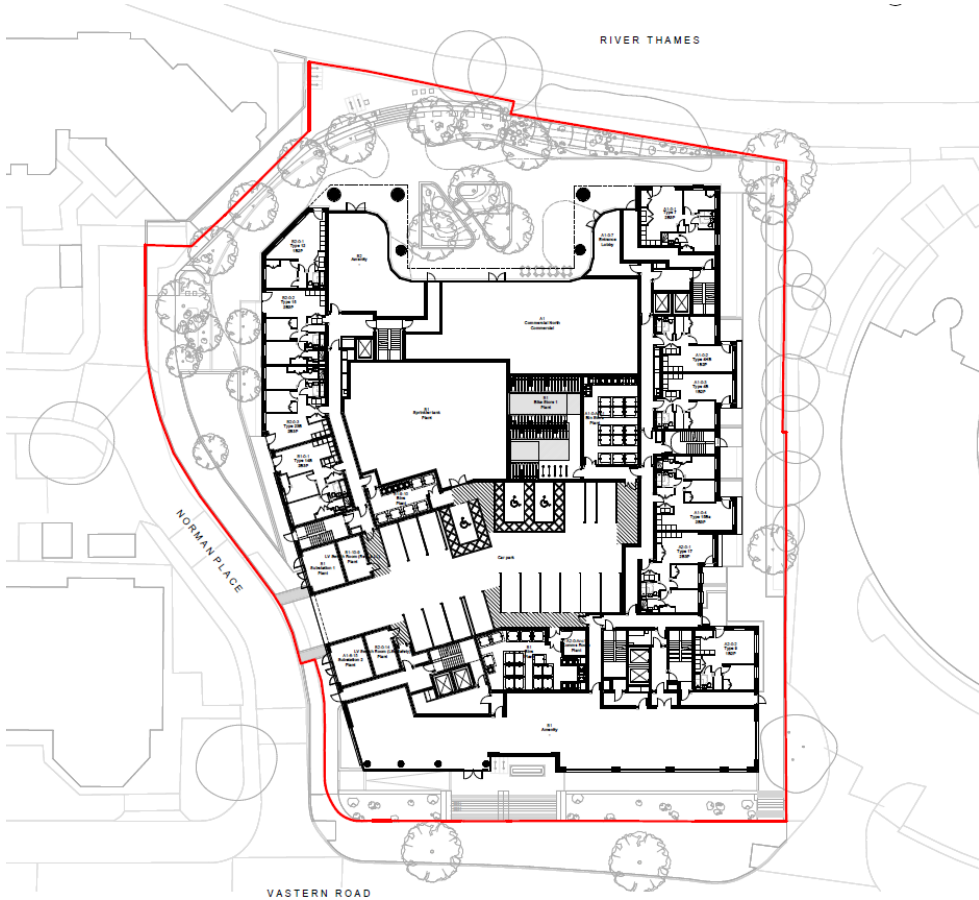


Figure 2 - Development site's ground level plan.

2.0 SITE CONTEXT

2.1 Baseline Description

This section provides an overview of the site conditions in terms of urbanisation and landscape conditions around the development site and the immediate context. A baseline assessment establishes existing lighting conditions on, and adjacent to, the development site.

The baseline assessment provides observations on the existing external lighting conditions so that the effects of any proposed lighting installation can be quantified and managed. Specific focus is made to observe existing lighting with respect to the nature of the River Thames footpath and Vastern Road and surrounding areas, and consideration also made to local ecology. Across the River Thames, the Christchurch Meadows Park and Garden are found, while Fry's Island is visible to the West.

Figures 3 through 8 show photos of the existing commercial office building at 2 Norman Place and its existing luminaires. The figure captions describe the existing luminaire palette used.

2.1.1 Urbanisation Context

The development site is to the West of the Thames Water utilities building, East of the a commercial office building (Sovereign House) which is also proposed to be converted into a residential development, and is bounded by Vastern Road and the River Thames to the South and North.

Most structures in the local area are for commercial use, retail use or public transportation infrastructure (Reading Train Station and Car Park). Buildings are generally two stories to 5 stories in height.

The site itself is an unoccupied commercial building with a car park facing Vastern Road and a private ground level terrace at the rear.

Residential properties exist further West on Vastern Road while a residential tower block is located at the roundabout of Vastern Road, Bagnall Way, Naper Road and the B3345.

2.1.2 Illuminated Context

Existing permanent lighting is found on parts of the property. Norman Place contains 4-metre tall lighting columns with full-cut LED floodlights. The front car park and rear terrace contains 5-6 metre all columns with decorative globe style lanterns (with restricted uplight). The car park also contains low level illuminated bollards for the central pedestrian walkway.

Neighbouring properties are also floodlit with a mixture of 5-6 metre tall columns with floodlights and building mounted luminaires.

The River Thames footpath is illuminated with 4-metre tall lighting columns using full cut off LED floodlights.

2.1.3 Existing Brightness Conditions

In review of the Institute of Lighting Professionals Guidance Note 01/21 (GN01 2021) 'The Reduction of Obtrusive Light', the Proposed Development is situated within a developed urban and 'high district brightness' environment associated with a 'Town / City centre with high levels of night-time activity'. Therefore, a Zone E4 is been selected as the environmental zone for this assessment.

Potential sensitive receptors which may be affected by light from installations associated with the construction and operation of the proposed development include:

- Existing residential properties (approximately 150m away);
- Potential new residential development at 55 Vastern Road (adjacent property);
- River Thames ecological corridor;
- And in general, ecological receptors such as bats, birds, owls or other species known to have a sensitivity to light or a change in the static lighting condition.

Receptors that are likely to experience a negligible change in their lighting condition are expected to be those within the immediate vicinity of the development site. Most others will be obstructed by existing landforms / built structures, or be subject to different and more immediate sources of lighting local to them.

2.1.4 Ecological Conditions

Ecologically designated areas may include habitats used by light sensitive species. Such areas are primarily impacted by light intrusion onto protected habitats and are not sensitive to glare and sky glow. On this basis receptors located over 2 km from the site are unlikely to be impacted by light intrusion from the proposed development.

No statutory designated ecological sites have been identified within this radius. The nearest statutory designated ecology site is Clayfield Copse Local Nature Reserve which is located approximately 2.7 km north of the site on the opposite site of the River Thames.

The River Thames is anticipated to act as an ecological corridor, and therefore, is considered a sensitive habitat on site for bats and other species.

- A sensitive lighting scheme should be conditioned as part of the permission.
- Any new lighting on site should be installed only if there is significant need and must be directed away from the tree lines and hedgerows along the edges of the site in order to maintain 'dark corridors'.
- Lighting should also be aimed away from any potential roosting sites such as bat boxes/tubes.
- Planting or man made structures can be used as barriers against light.
- Any new lighting should abide by the recommendation set forth in the Institute of Lighting Professionals (ILP) Guidance Note (GN08/23) 'Bats and Artificial Lighting At Night (2023).



Figure 3 - View of front car park which uses 5-6 metre tall lighting columns with decorative globes.

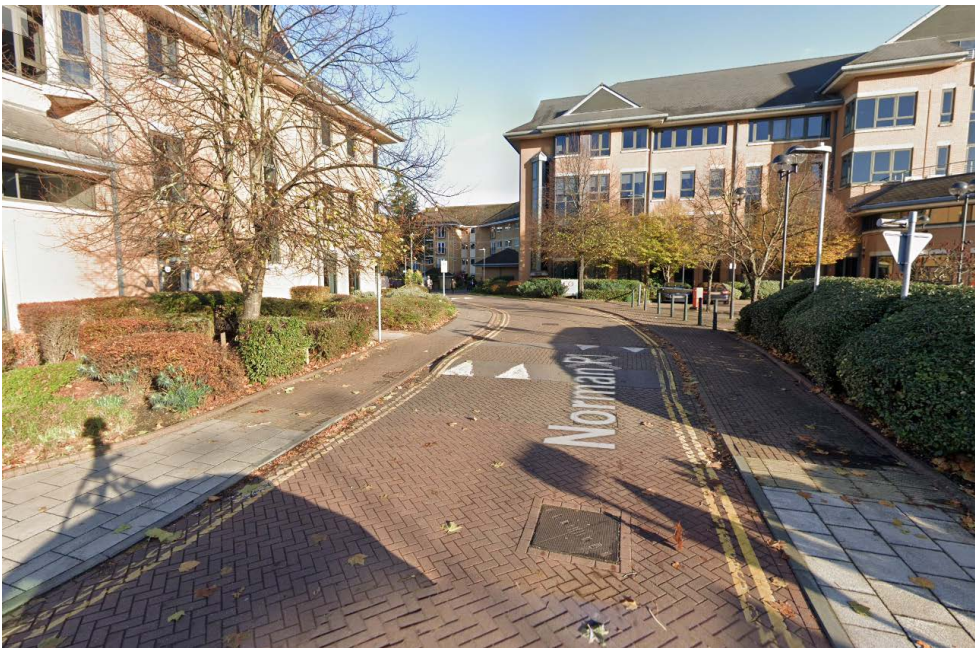


Figure 4 - View of Norman Place which uses 4-metre tall columns and functional full-cut LED floodlights.

2.0 SITE CONTEXT

2.2 Local Guidelines

There is a Local Policy which addresses concerns over safeguarding, pollution and illuminated advertisements. The following provides the applicable excerpts from these documents.

2.2.1 Reading Borough Local Plan (2019)

The Reading Borough Local Plan was adopted in November 2019 and guides development in Reading up to 2036. The following policies are relevant to lighting associated with the proposed development:

- CC8: Safeguarding Amenity - “Development will not cause a detrimental impact on the living environment of existing residential properties or unacceptable living conditions for new residential properties, in terms of:… Artificial lighting…”
- EN16: Pollution and Water Resources - “Development will only be permitted where it would not be damaging to the environment and sensitive receptors through land, noise or light pollution… Proposals for development that are sensitive to the effects of noise or light pollution will only be permitted in areas where they will not be subject to high levels of such pollution, unless adequate mitigation measures are provided to minimise the impact of such pollution.”
- OU4: Advertisements - “All adverts shall comply with the following criteria: … Illumination should not detract from the amenity of the area or pose a safety hazard to users of the highway…”



Figure 5 - View of Normal Place which uses 4-metre tall columns and functional full-cut LED floodlights along both sides of the access road.

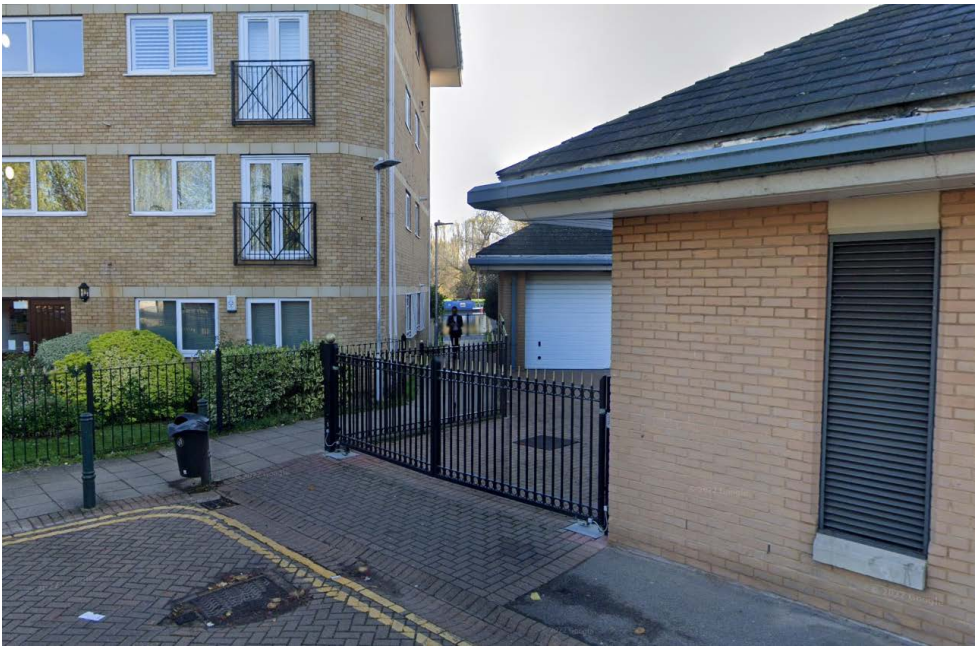


Figure 6 - View of Normal Place's footpath leading to the River Thames uses 4-metre tall columns and functional full-cut LED floodlights.

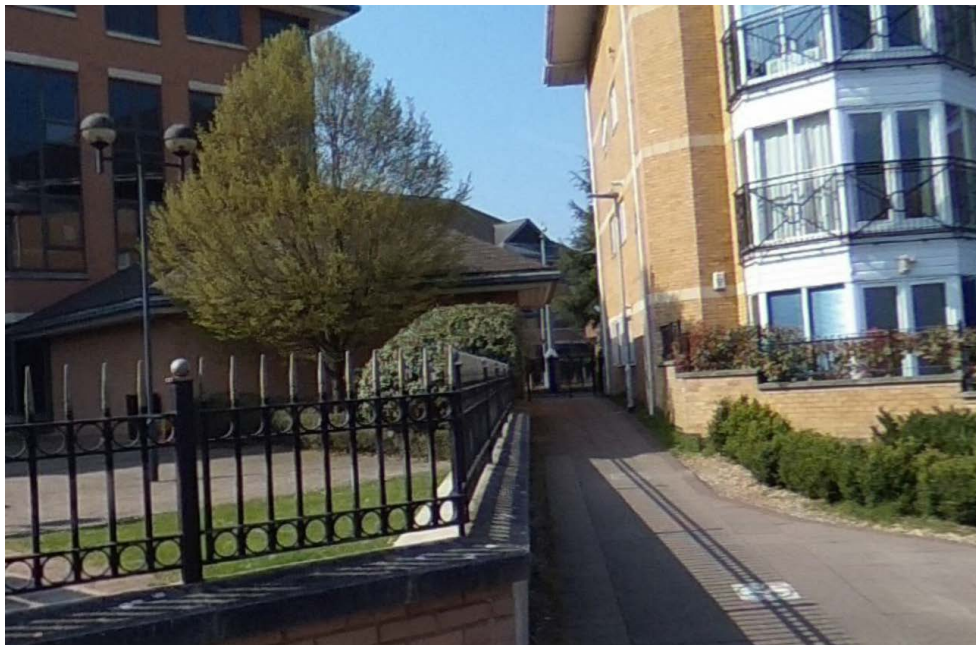


Figure 7 - View of looking back to the Norman Place footpath from the River Thames.



Figure 8 - View of rear terrace which uses the same 5-6 metre tall columns and decorative globe lanterns.



Figure 9 - View of Thames footpath looking West. The Thames footpath is illuminated with 4-metre tall functional LED floodlighting.

3.0 SURVEY

3.1 Existing Lighting

This section of the report discusses the existing external lighting installations on the site and the wider study area

There is a mixture of artificial lighting sources present on site and the immediate surrounding areas including wall mounted amenity lighting, flood lighting for amenity and security which include Metal Halide (MH), High Pressure Sodium, (HPS) and fluorescent lamps.

The flood lighting provided on site helps illuminate the wider area (in particular Norman Place) whilst the localised amenity lighting helps illuminate the external building areas. The duration of which lighting is switched on within the site is controlled through a mix of sensors or left on permanently.

To the north, LED column mounted lighting is present along the Thames Path and backs onto the northern site boundary which causes some minor light intrusion into this section of the site. Coloured architectural lighting and rail mounted lighting is also present on the Christchurch Bridge which is visible from the majority of the site. Residential amenity lighting is visible on the residential property on Fry's Island.

Figures 10 through 14 displays the current palette of luminaires found throughout the existing commercial office development.

3.1.1 Observations on Existing Lighting Scheme

The existing lighting system at 2 Normal Place contains a mixture of traditional style luminaires and modern functional luminaires. It should be noted the decorative globe style columns illuminating the front car park and rear ground terrace contributes to unnecessary and significant skyward, and potentially disruptive glare due to the general 180-degree glow produced. The illuminated low level bollards at the front also produce slight glare and upward illumination. The functional floodlighting along Norman Place, the footpath leading to the river, and the Thames footpath provide a controlled lighting condition with no skyward light, and generally, good glare control.



Figure 10: Front Car Park

Decorative globe style column-mounted lanterns (two and three heads) with principally downward light distribution, though uplight strong uplight component.

Retrofitted LED source.
Estimated height: 4-5m



Figure 13: Front Car Park Footpath

Illuminated bollard with shield source, symmetric distribution. Generally downward light, though poor distribution with an uplight component.

Compact Fluorescent or LED retrofit
Estimated height: <1m



Figure 11: Norman Place

LED column-mounted floodlights with downward light distribution.

LED source.
Estimated height: 4m



Figure 14: Norman Place

LED column-mounted floodlights with downward light distribution.

LED source.
Estimated height: 4m

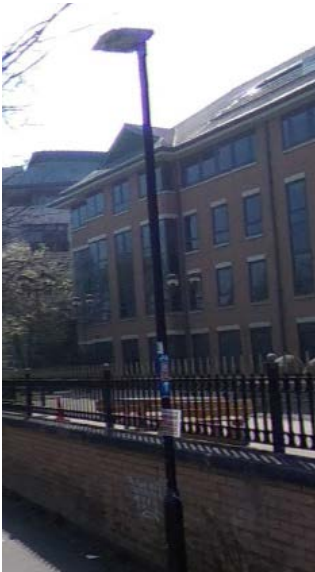


Figure 12: River Thames

LED column-mounted floodlights with downward light distribution.

LED source.
Estimated height: 4m

4.0 Proposed Development

4.1 Guidance & Standards

4.1.1 Environmental Zone

Different environmental zones are established within the UK to determine recommended limitations for lighting installations, depending on the surrounding environment that the development is located. The table below (taken from the ILP GN01 document) defines the various environmental zones. Environmental zones are determined by Local Planning Authorities (LPAs).

Given the existing sources of lighting present on site and the extensive existing light sources within the surrounding area, the site has been identified through the site walkover as E3 Suburban (medium district brightness), on the edge of E4 Urban (High district brightness) as set out in ILP Guidance Notes for the Reduction of Obtrusive Light GN01:2021. The evaluation of the environmental zone is based on the use and urbanisation context of the site and also a comparative analysis of its relationship with its immediate surrounding areas.

Zone	Surrounding	Light Environment	Examples
E0	Protected	Intrinsically Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Dark district	National parks, Areas of Outstanding Natural Beauty, etc.
E2	Rural	Low district brightness	Village or relatively dark outer suburban location
E3	Suburban	Medium district brightness	Small town centres or suburban locations
E4	Urban	High district brightness	Town/city centres with high levels of night-time activity

4.1.2 Obtrusive Light Limitations

The Institute of Lighting Professionals (ILP) Guidance Note 01/21 ‘The Reduction of Obtrusive Light’ (2021) establishes the limitations on obtrusive lighting. For an E3 environmental zone, the following limitations on surrounding premises are recommended:

Impact Characteristic:	Limitation:	
	Pre-Curfew	Post-Curfew
Vertical illumination	10 lx	2 lx
Luminous intensity of bright luminaires	0<A, ≤0.002 - 0.86d 0.002<Ap, ≤0.01 - 1.9d 0.01<Ap, ≤0.03 - 3.8d 0.03<Ap, ≤0.013 - 7.5d 0.13<Ap, ≤0.05 - 15d Ap > 0.5 - 10,000	0<A, ≤0.002 - 0.29d 0.002<Ap, ≤0.01 - 0.63d 0.01<Ap, ≤0.03 - 1.3d 0.03<Ap, ≤0.013 - 2.5d 0.13<Ap, ≤0.05 - 5.1d Ap > 0.5 - 1,000
Skyglow	5% (ULR)	
Building facade luminance	10 cd/sqm	
Sign luminance (ILP PLG05)	less than 10sqm 300cdm ² no more than 10sqm 600cdm ²	

4.1.3 Applicable Standards & Guidance

The intention of the lighting design is to comply with the recommendations in good practice guidance and minimise light levels across the site.

The luminance levels provided are based on the British Standards noted below, the ‘The SLL Code for Lighting, 2012’ and the SLL Lighting Guide 6 –the exterior environment. These documents discuss the interaction between pedestrians, cyclists and vehicles. Dependant on user typologies, moving speed, direction of travel, etc, light levels and other associated metrics can be applied.

- BS EN 13201-1, 2, 3 and 4 (2015) - these standards define the lighting characteristics for roadways, defining lighting classes and performance requirements
- BS 5489-1 (2020) - this standard provides advice on selecting the most appropriate type of lighting for roadways, external car parks and public amenity areas
- BS121464-2 (2021) - this standard provides advice on selecting the most appropriate lighting metrics for outdoor work places
- Institute of Lighting Professionals (ILP) Guidance Note (PGL05) ‘The Brightness of Illuminated Advertisements’, if applicable
- Institute of Lighting Professionals (ILP) Guidance Note (GN08/23) ‘Bats and Artificial Lighting At Night (2023

4.1.4 Ecology Guidance

The new lighting scheme should anticipate sensitive nocturnal species using the site for roosting, foraging and migration. In particular, the new lighting scheme should be sensitive to bat species and follow the guidance provided in the Institute of Lighting Professionals (ILP) Guidance Note (GN08/23) ‘Bats and Artificial Lighting At Night (2023).

The ILP’s GN08/23 guidance provides extensive advice on light planning for bats. ‘There are no lux level thresholds available for individual species to negate

the need for site specific advice. Every site is different and interactions between species at lit sites has even been shown to give site and species specific responses.’ However, ‘it is acknowledged that, especially for vertical calculation planes, very low levels of light (<0.5 lux) may occur even at considerable distances from the source if there is little intervening attenuation.’ It is therefore very difficult to demonstrate ‘complete darkness’ or a ‘complete absence of illumination’ on vertical planes where some form of lighting is proposed on site, despite efforts to reduce them as far as possible and where horizontal plane illuminance levels are zero. Consequently, where ‘complete darkness’ on a feature or buffer is required, it may be appropriate to consider this to be where illuminance is at or below 0.2 lux on the horizontal plane, and at or below 0.4 lux on the vertical plane. These figures are still lower than what may be expected on a moonlit night and are in line with research findings for the illuminance found at hedgerows used by lesser horseshoe bats, a species well known for its light averse behaviour.

- Therefore, the new lighting scheme will adhere to the following:
- Avoid illumination in landscape buffer zones, perimeter hedging and other identified key habitats.
 - All luminaires should lack UV elements when manufactured, and LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
 - A warm white light source (2700 Kelvin or lower) should be adopted to reduce blue light component
 - Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012)
 - Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards
 - Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01
 - Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt
 - Where appropriate, external security lighting should be set on motionsensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate
 - Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely

4.0 Proposed Development

4.2 Indicative Lighting Scheme

4.2.1 System Description

External lighting will activate the building and its immediate surrounds in the nightscape. The external lighting will provide a safe and sensitive illuminated night time environment. The design will coordinate with the architecture, landscape elements, security systems and seamlessly transition with adjacent public realm illumination.

The exterior lighting scheme will be designed to be in harmony with the landscape and architectural design principles. The site as a whole will be lit in such way that it expresses a coherent identity.

The proposed lighting scheme aims to achieve the following objectives:

- Create an appropriate ambiance and mood
- Promote legibility through the illumination
- Integrate with the landscape elements to minimise the appearance
- Promote a safe and inviting ambiance
- Provide for orientation and assist way finding.
- Provide sustainable lighting solutions that minimize energy use.
-

The landscape lighting design will illuminate key routes and gathering nodes, utilise warm white (2700-3000K) colour temperatures, and provide an appropriate use of lighting intensities to create an intuitive illuminated hierarchy. The lighting design approach will manipulate its distributions, level of contrast and visibility, and add animation and spectrum to create a memorable experience.

In order to minimize visual clutter and provide a dark sky sensitive solution, the lighting will integrate into the furniture and facade of the landscape, concealed into planters, walls, handrails, ramps and steps.

All external lighting will be designed to minimize light pollution, as well as being sensitive to the local ecology and environment.

4.2.2 Proposed Luminaires

In order to minimise the impact of artificial lighting on the local ecology and adjacent properties, the proposed luminaires will align with the following selection principles:

- (1) Utilise ‘full cut-off’ optic luminaires and minimise tilt anle (no tilt angle applied in the proposed scheme);
- (2) Utilise floodlights with fully shielded optics (pointing downward) to minimise glare and light trespass;
- (3) Luminaire output selections to be no brighter than necessary, i.e. design to the minimum guidance document recommendations required.

4.2.3 Lighting Controls

The external lighting will be provided lighting control in order to react to available daylight and actuate the system with digital timeclock input. The controls shall operate the lighting to only be ‘on’ when needed, i.e. implement lighting controls such as photocells and timeclock devices, and respect curfew hours, thus adapting lighting to usage and need of the local community and visitors. This is a key point in terms of the relationship with the River Thames and ensuring the external lighting system is as energy efficient as possible.

4.2.4 Qualitative Design Metrics

An indicative lighting scheme for the Proposed Development shall be conceived with the intention of minimising obtrusive light whilst providing sufficient light for safe movement of pedestrians and vehicles and support the landscape and architectural vision.

The scheme will be designed to meet the requirements of British Standards, CIBSE and other guidance stated in section 4.1.3. The table below displays the light level and uniformity targets.

Task Areas	Em (lux)	Uo
Walkways exclusively for pedestrians	5	0.25
Traffic areas for slow moving vehicles	10	0.40
Stairways/ramp – open	20	0.25
Gangways and passages exclusively for pedestrians	10	0.25
Pedestrian passages, vehicle turning, loading and unloading point	50	0.40
Heavy traffic, e.g. parking areas of major sports and multi-purpose sports	20	0.25
Regular vehicle traffic (max 40m/h)	20	0.40

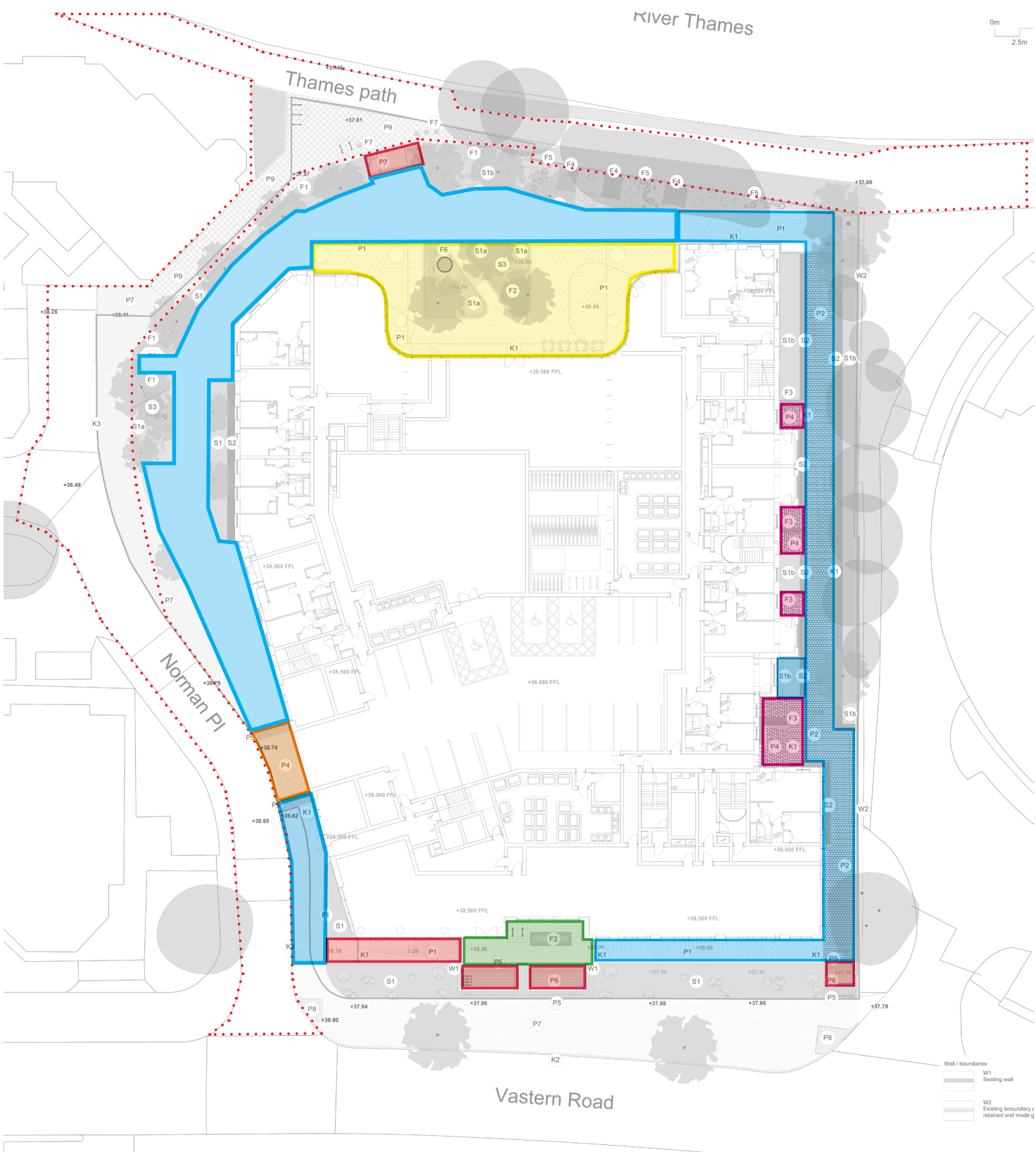
4.0 Proposed Development

4.2 Indicative Lighting Scheme

4.2.5 Proposed Lighting Metrics

Task Areas	Em (Lux)	U0
Walkways exclusively for pedestrians	5	0.25
Under soffit building circulation routes	20	0.25
Stairways / ramp- open	20	0.25
Emergency access / entrances	5	0.25
Main access / entrances	50	0.40
Pedestrian passages, vehicle turning, loading and unloading points	50	0.40
N/A Traffic areas for slow moving vehicles	10	0.40
N/A Gangways and passages exclusively for pedestrians	10	0.25
N/A Heavy traffic, e.g. Parking areas of major sports and multi-purpose sports	20	0.25
N/A Regular vehicle traffic (max 40m/h)	20	0.40

..... Road and Pathways with existing lighting columns



Lighting Zoning Diagram

4.0 Proposed Development

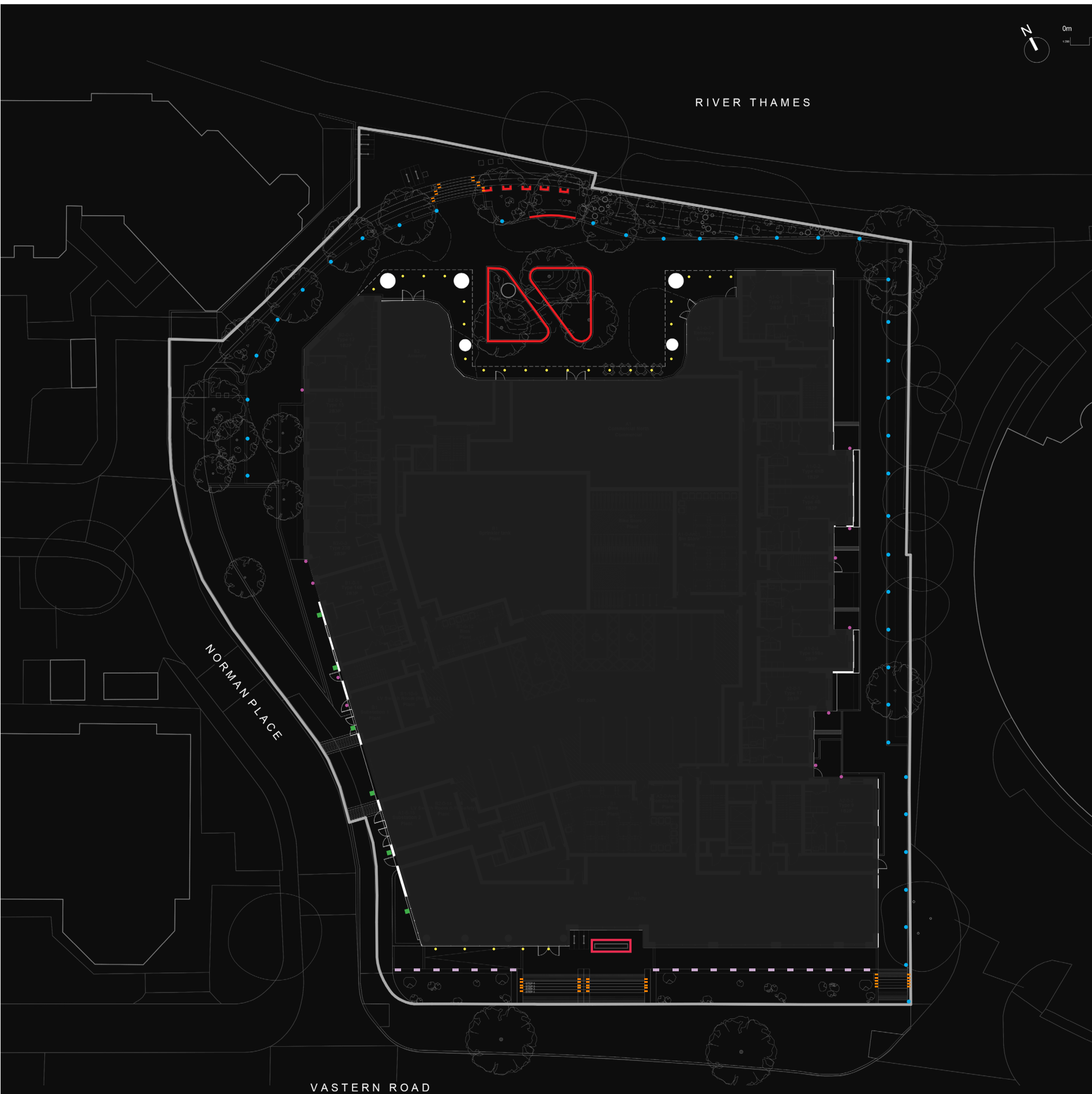
4.2 Indicative Lighting Scheme

4.2.6 Proposed Layout & Luminaires

This page provides the overall lighting layout along with the proposed luminaire palette.

LEGEND

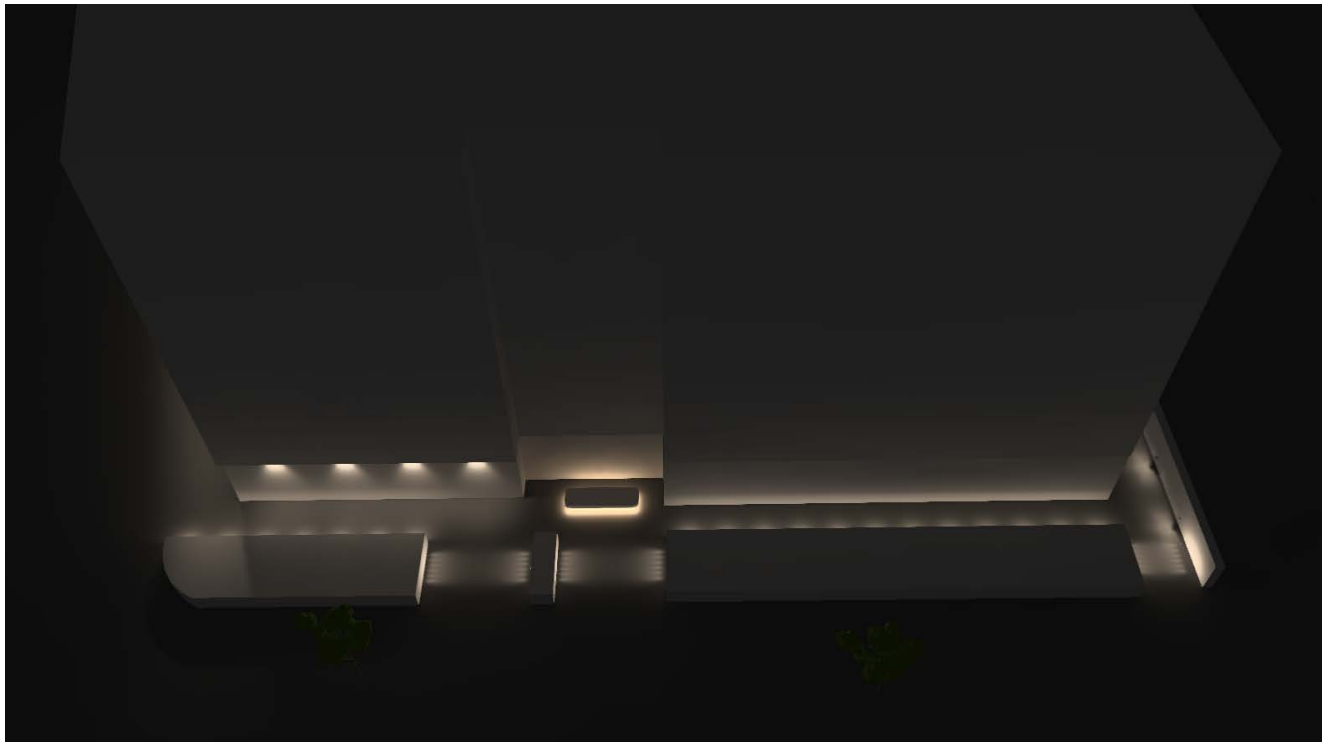
- Surface mounted entrance lighting above or beside doors
- Canopy mounted downlights to building perimeter
- Pathway lighting bollards for circulation routes
- Recessed step lights for front ramp and walkway
- Recessed step lights for stairs and level changes
- Linear accent lighting to planter edge
- Building mounted lights for larger circulation spaces



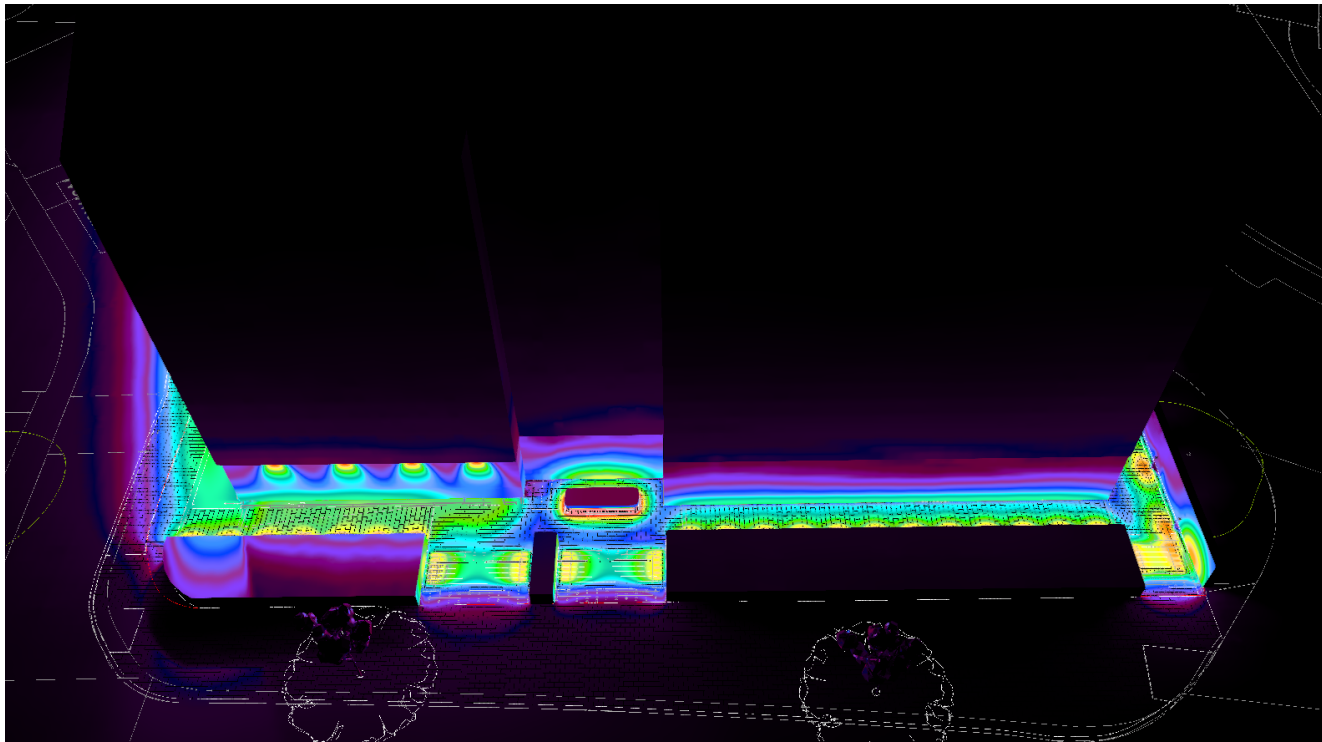
Ground Level Lighting Layout

4.0 Proposed Development

4.2.7 Lighting Calculations - Ground Level Front



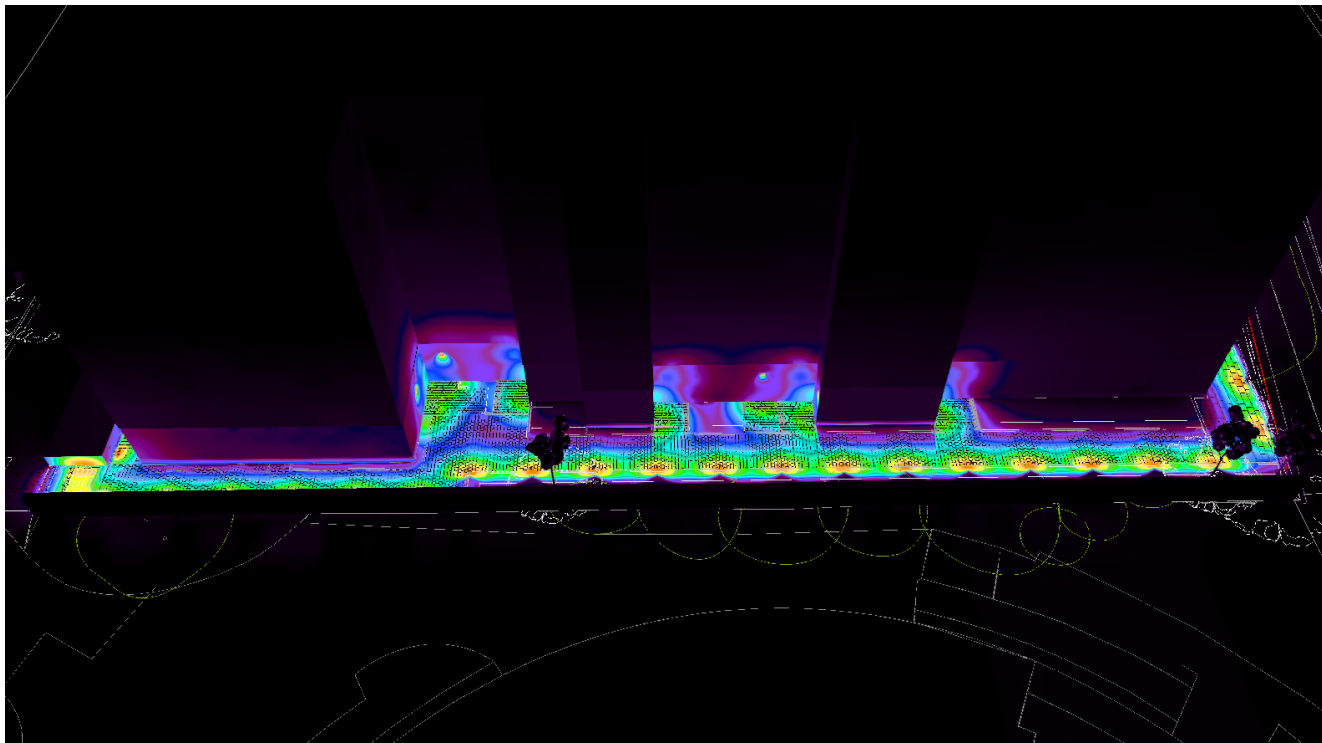
South West Elv - Lighting Render



South West Elv - False Colour



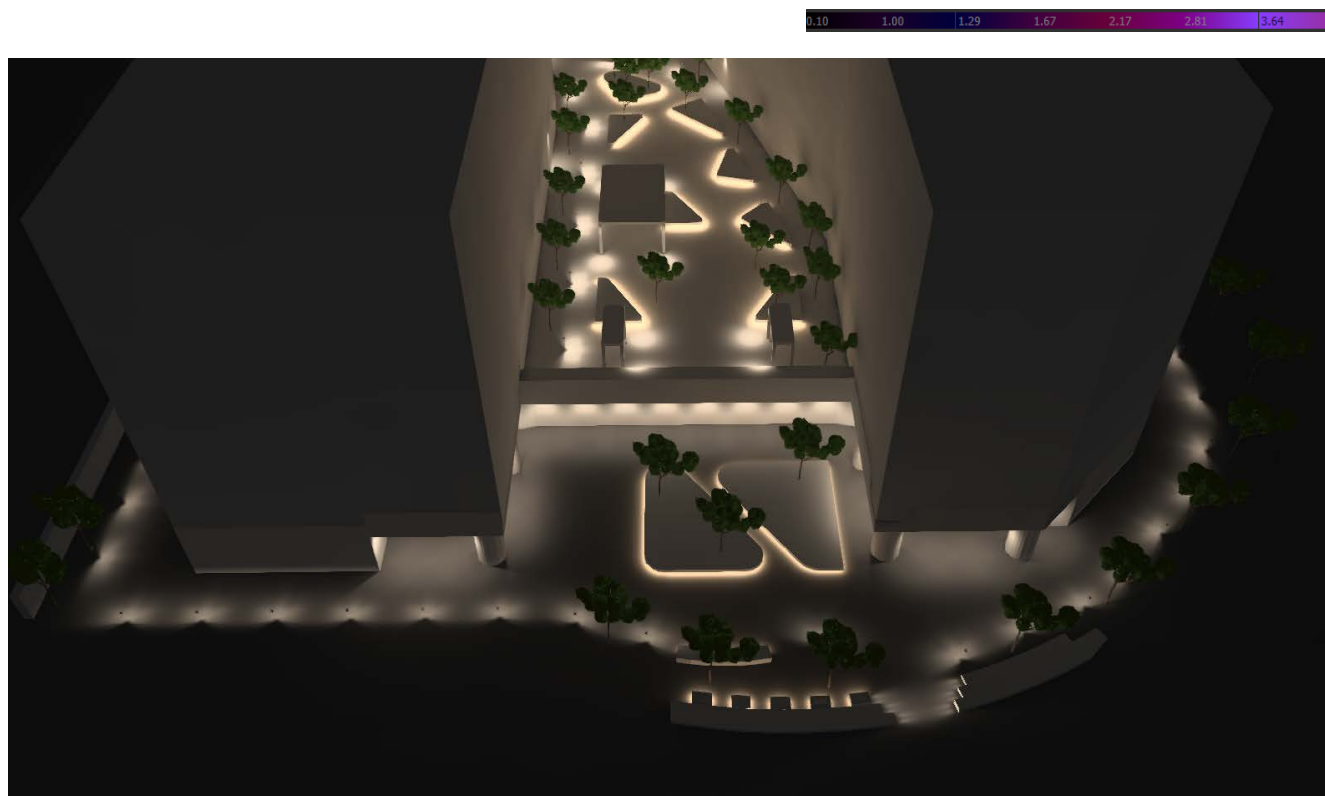
South East Elv - Lighting Render



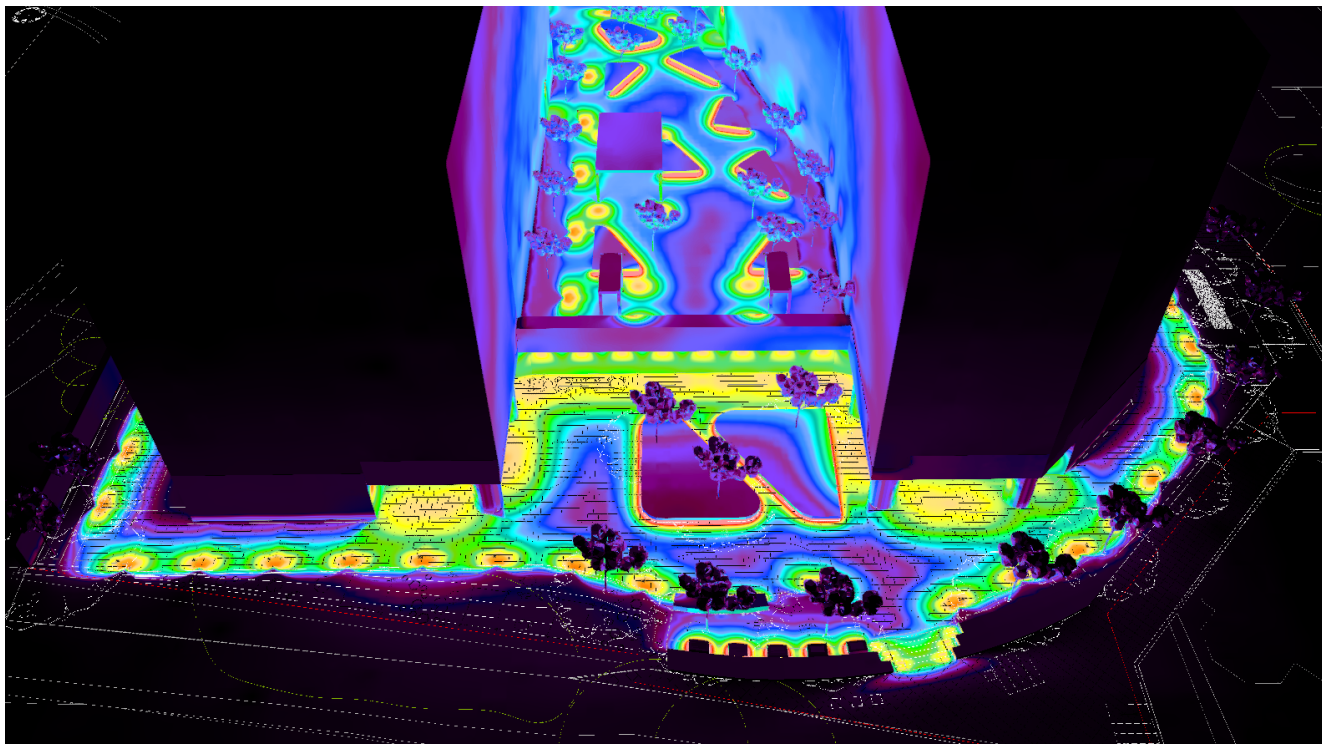
South East Elv - False Colour

4.0 Proposed Development

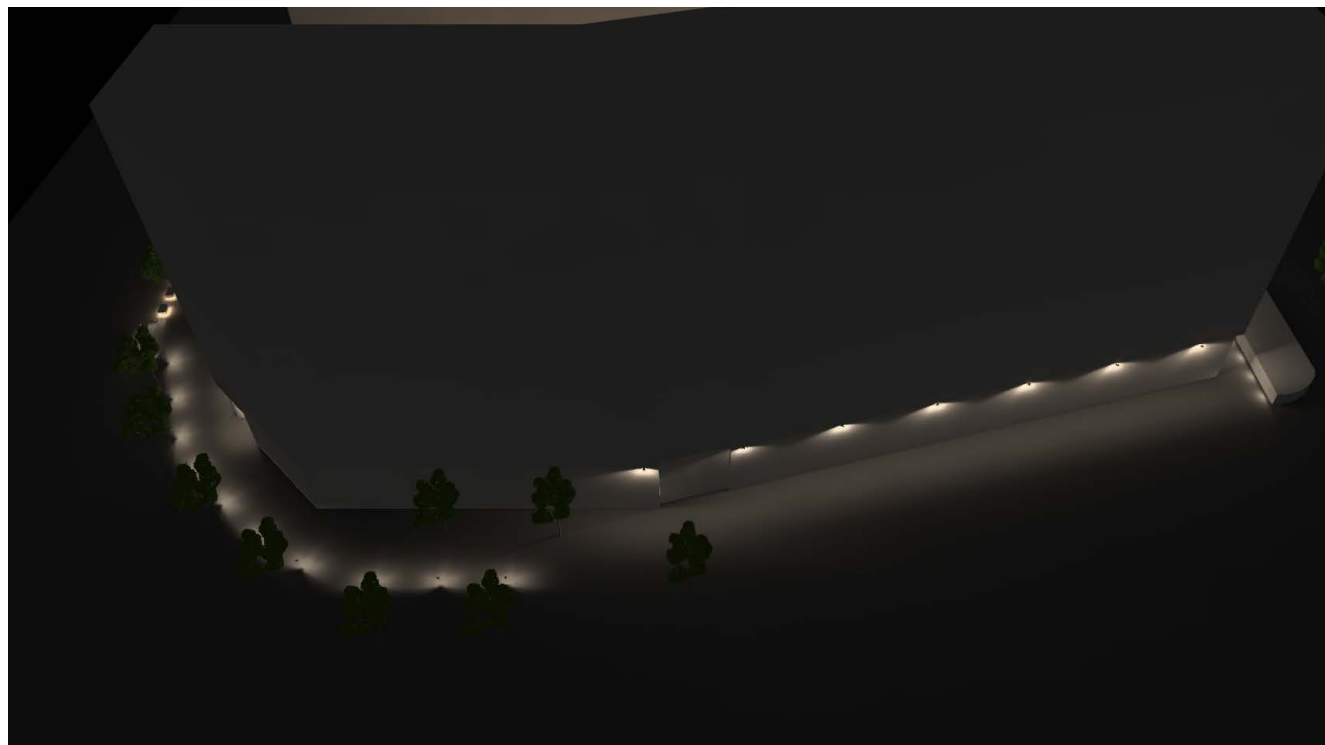
4.2.8 Lighting Calculations - Ground Level Rear



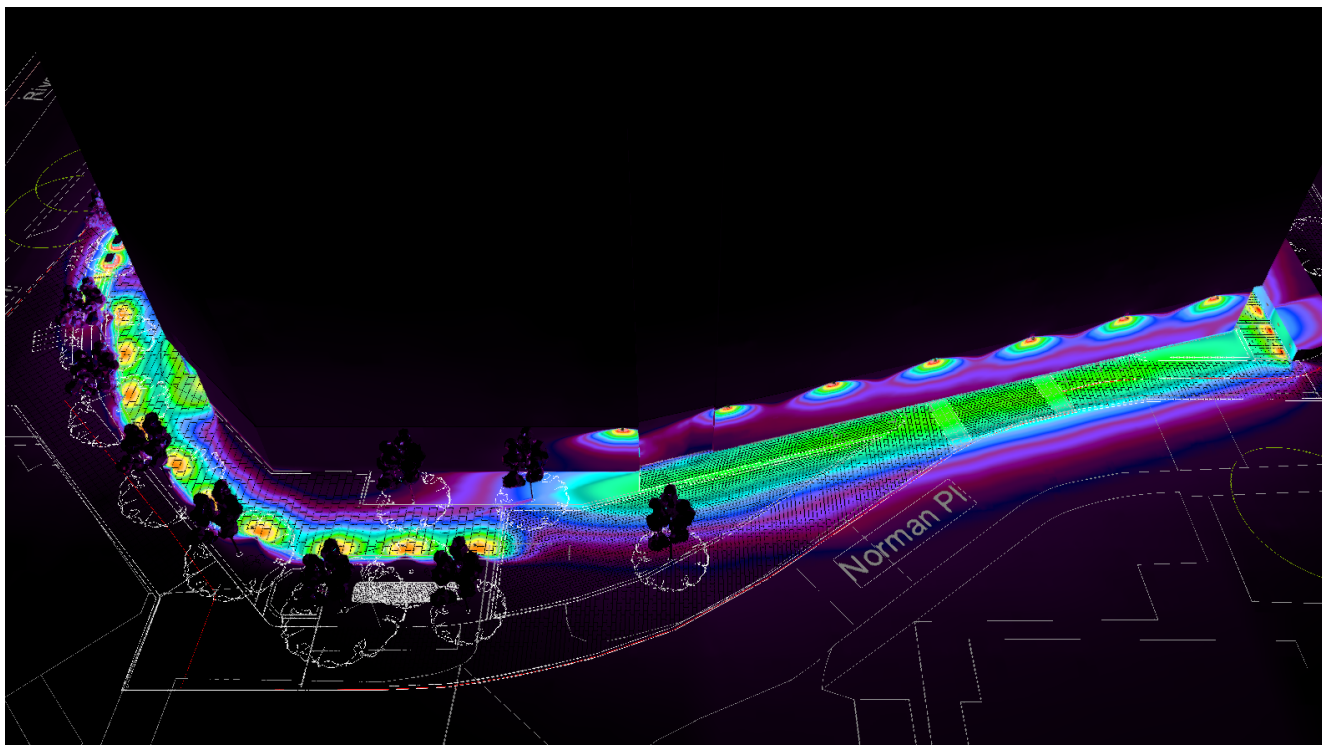
North East Elv - Lighting Render



North East Elv - False Colour



North West Elv - Lighting Render



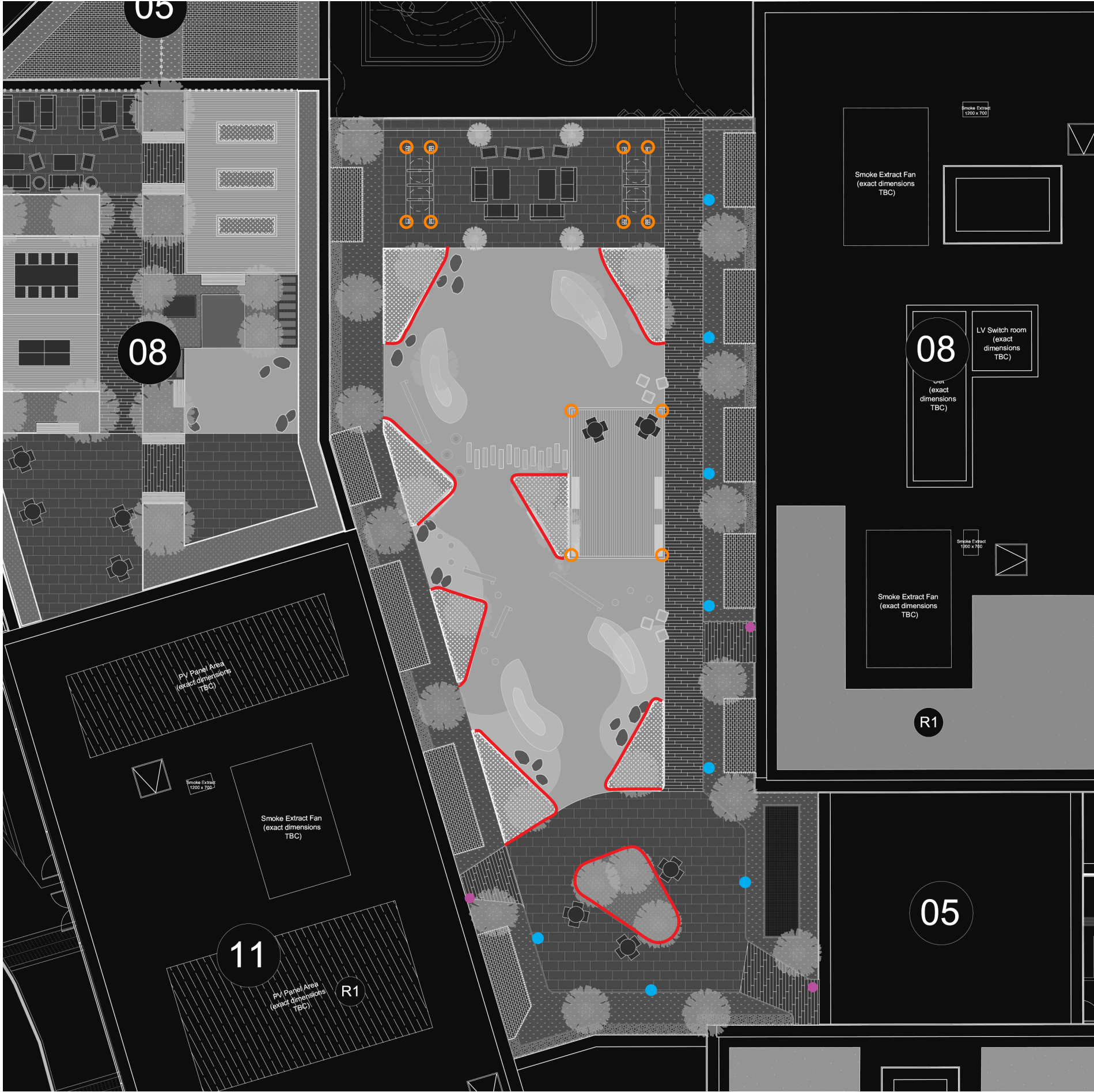
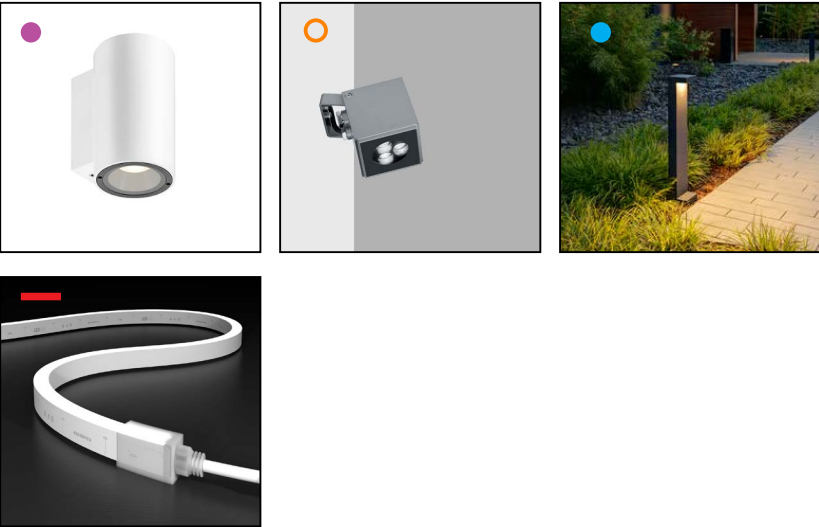
North West Elv - False Colour

4.0 Proposed Development

4.2.9 Terrace Level - Lighting Layout

LEGEND

- Surface mounted entrance lighting above or beside doors
- Pergola mounted spotlights
- Pathway lighting bollards for circulation routes
- Linear accent lighting to planter edge



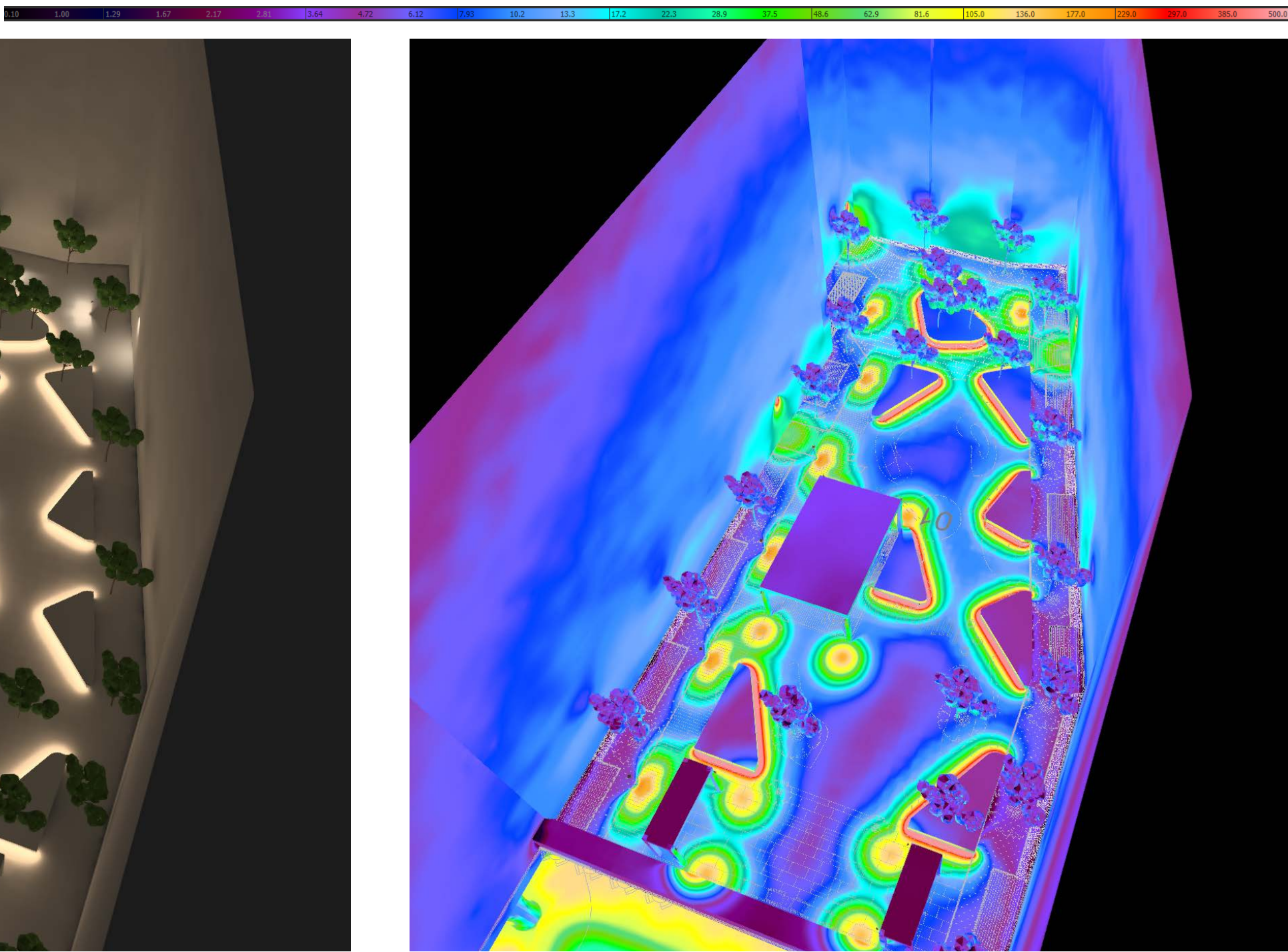
Terrace Level Lighting Layout

4.0 Proposed Development

4.2.10 Lighting Calculations - Terrace Level



Lighting Render - Top View



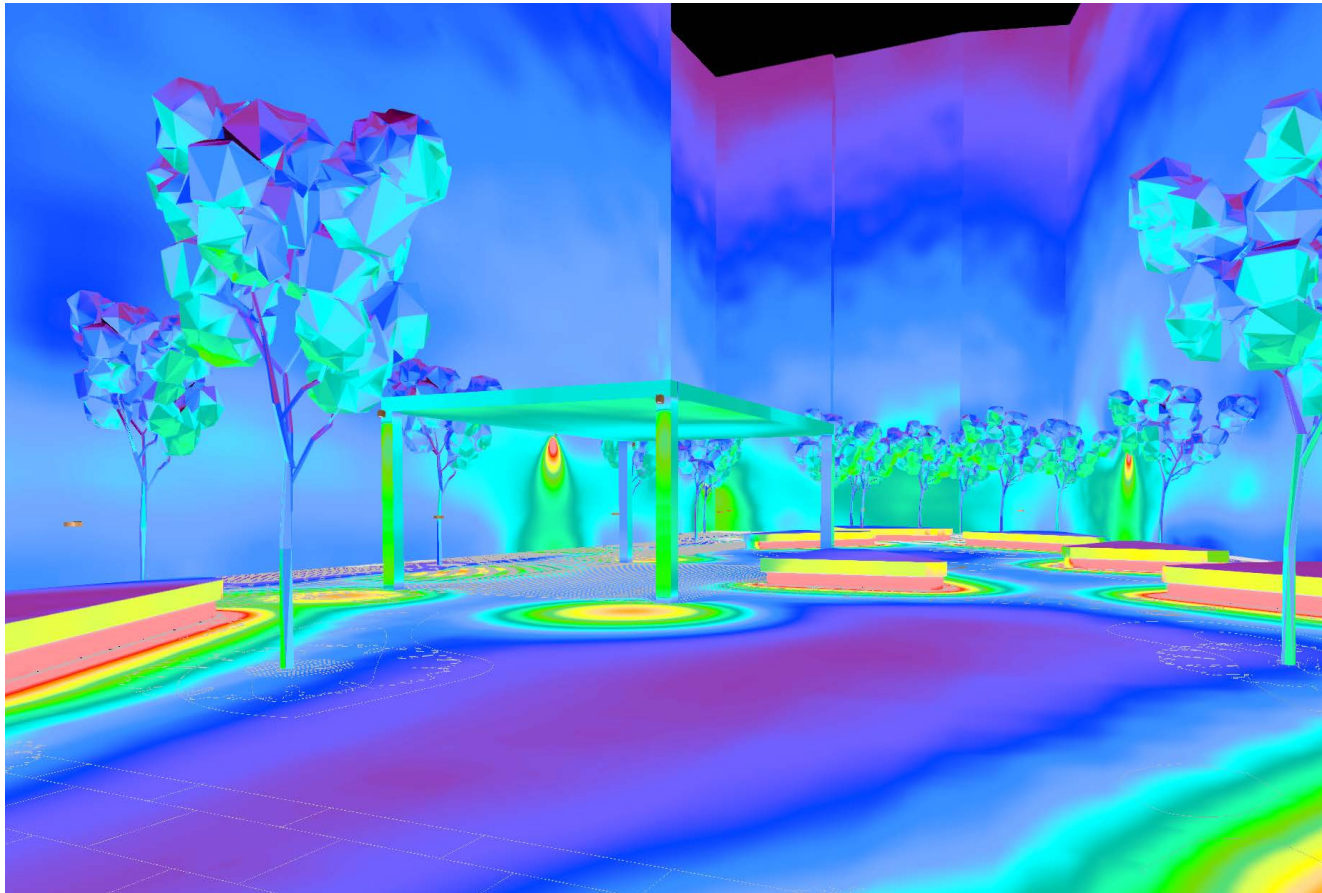
False Colour - Top View

4.0 Proposed Development

4.2.10 Lighting Calculations - Terrace Level



Lighting Render - Perspective View



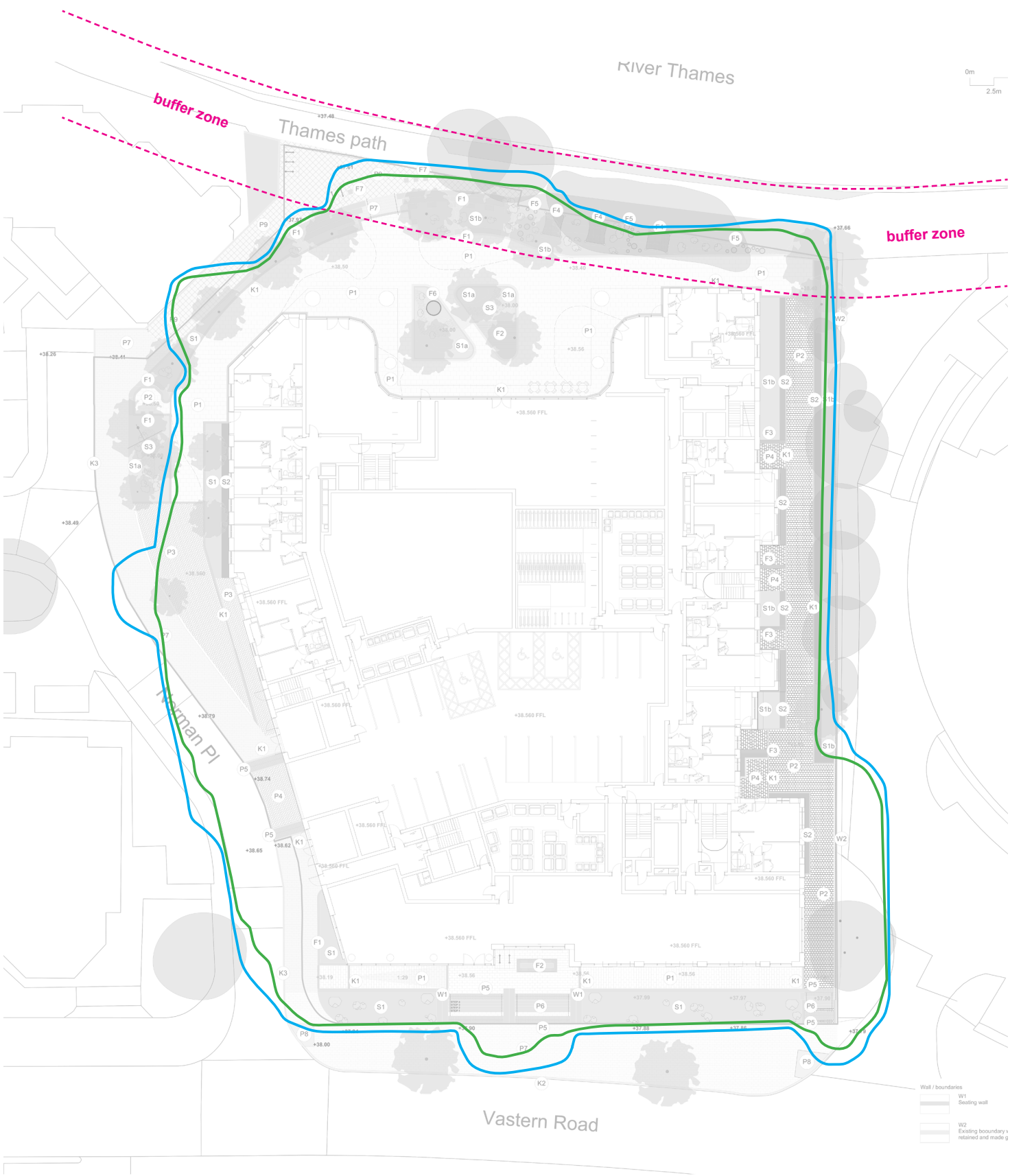
False Colour - Perspective View

4.0 Proposed Development

4.2.11 Lighting Calculations - Site Spill Lighting Extent

It is understood that the Environmental Agency has in place a 10-metre buffer zone in order to protect water-borne ecology. Within this buffer zone, the Local Planning Authority has recommended a 2-lux spill light condition, and for luminaires within this zone to be provided with glare control measures. In the plan to the right, isolines are provided to show the extent of 1-lux and 2-lux within the buffer zone and circumnavigating the site.

There is no spill lighting identified over 2-lux onto the Thames footpath. Where lighting extends into the ‘buffer zone’, this is due to proposed step and furniture lighting to raise light levels for navigation and highlight level changes.



- Blue line indicates the extent of 1 lux light levels across the site
- Green line indicates the extent of 2 lux light levels across the site

5.0 SUMMARY

5.1 Summary of Indicative Scheme

The indicative scheme is comprised of a selection of fit-for-purpose luminaires, each providing a respective function; illuminating walkways, ramps, stairs, entrances, and feature illuminating seating. The lighting calculations demonstrate compliance with the standards and good practice guidance stated within this report. And while providing the appropriate functionality, the calculations show a controlled and limited spill lighting condition.

The luminaire criteria and design principles for a proposed lighting scheme in this report utilises the following principles in order to provide the appropriate illuminated condition to the Proposed Development and the surrounding environment:

- The use of flat-glass LED luminaires with no upward light emission;
- Good quality, precision optics to ensure: a) light is projected only to where it is needed and, b) the minimum quantity of luminaires can be used;
- Selection of illuminance criteria to use the minimum illuminance levels required for safe and efficient navigation, and sufficient security provision,
- Feature lighting details are provided with fully concealed techniques
- Warm white (2700K-3000K colour temperature) light sources,
- Luminaires are positioned at lowest possible height,
- Integrate luminaires within the architecture and landscape elements.
- Utilise lighting control for programmable timeclock control, implement photocell and presence detection in order to minimise energy usage.

All proposed luminaires have specific optics and utilise glare control accessories, however, if further mitigation measures are deemed necessary, then it is possible to mask lighting effects with bespoke shielding

5.1.1 Comparison of Existing & Proposed

While it is not possible to accurately calculate the existing illuminated conditions, it should be noted the existing scheme, particularly the globe lanterns, cast light in all directions with no optical control to prevent spill light into neighbouring properties and the River Thames ecological corridor. The indicative scheme proposes luminaires and design techniques intended to place the illumination where it is required, avoiding obtrusive light spill characteristics (glare, skyglow, spill) as per the ILP Guidance Notes GN01 recommendations. Therefore, it is safe to conclude a new external lighting scheme improves the illuminated condition of the site in regards to obtrusive light and the local ecology.

5.2 Conclusion

The indicative lighting scheme for the Proposed Development and the associated lighting calculations presented within this report demonstrate compliance with the standards and good practice guidance stated within this report, while also providing the appropriate controlled and limited spill lighting condition.