Trinity Islands, Manchester
Lighting Planning Submission

External Lighting Scheme Report

Rev A 12/03/26

Included additional information from page 13

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1 INTRODUCTION

This report has been prepared to support the discharge of planning conditions 124 and 167 relating to phases D1 and D2 at Trinity Islands, Manchester.

The conditions require the submission of a scheme for building and site lighting, including details of the illumination of external areas during the period between dusk and dawn.



2 LIGHTING DESIGN OBJECTIVES

The external lighting at Trinity Islands, Manchester, has been designed to provide safe and effective illumination for the public exterior spaces.

Care has been taken to ensure all the lighting is warm white, at 2,700K or warmer. We have looked to avoid using uncontrolled light from columns in most areas and have acted to integrate light - be it within bollards, handrail or within public realm furniture. This creates warm and inviting spaces for the residents and public to use in the evenings, spaces which are safe and create ambient light for reading people and objects within the areas of focussed lighting design.

Clear lit routes throughout the spaces are defined to allow accessible access through and across the site at night, all staircases are very well illuminated by handrail luminaire, and the stramp area will be easily navigable at night by those requiring step free access. We have taken care to design these spaces to be aesthetic and appealing - whilst not compromising on access, security and sensation of secure spaces or amenity usage where the site links and uses vehicular activity.

We have taken clear action to ensure all the lights illuminate on to the required surface, or create ambient light around the furniture or public realm they are required to illuminate. We have used micro gauze to ensure the linear lights do not emit light up above 20 degrees viewing, ensuring views from the flats do not intrusive light from the handrail vertical linear strips.

We have also undertaken a lighting design to mitigate light falling back into the river Irwell, which we demonstrate in this document. We have tried to mitigate as much as possible, any upward light which can contribute to light pollution.

GUIDING PRINCIPLES

Purpose Needed Light Only

Light only where it is needed or required, whilst acting to create safety, functionality and beauty. Whilst considering the site and the surroundings.

Directed Shielded and Directed

Light and luminaires are to be selected with specific parameters, optics and design to ensure no upward or unwanted distribution of light in areas that are not pre-determined.

Intensity Controlled Light Levels

Light levels are to be set out, controlled and understood. Working to create the correct amount of light for the purpose of the project and making sure contrast of light is kept in check.

Control Timers and Sensors

Lighting control to be used in straightforward and easily maintainable manner, with a clear set of parameters to control lighting in time with our daily routines and usage.

Colour Warm Colour Temperatures

Ensuring all lighting is warm white with a maximum of 2,700K for exterior and 3,000K in interior usage. The lower the tone of light towards warm spectrum of white has the less impact on the surrounding ecology and nightscape

Guidance notes used for production of lighting design:

BS 5489-1:2020 – Code of practice for the design of road lighting.

CIBSE LG6 – Outdoor Lighting

ILP Guidance Notes – Reduction of Obtrusive Light (GN01:2020)

Bat Conservation Trust & ILP Guidance (2018)

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3 LIGHTING REPORT METHODOLOGY

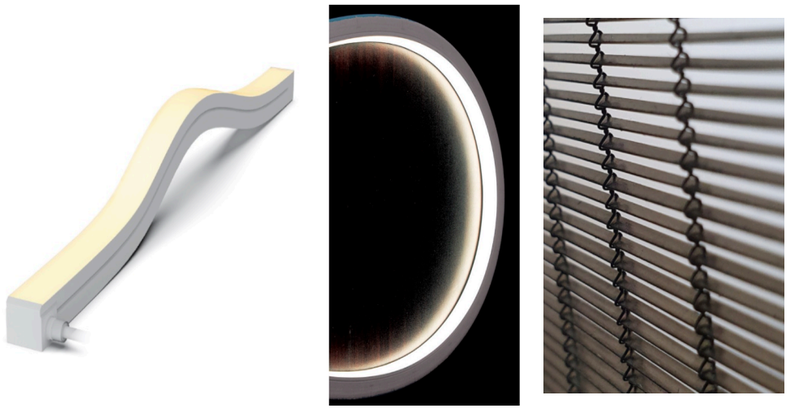
We created a photometric report of the scheme within Dialux which is presented within this document to help present an easily understandable representation the lighting design proposals of Trinity Islands, Manchester.

We have included diagrammatic visuals of the external lighting design scheme and proposed lux levels for clarity within the report.

We have not included light levels provided by the windbreak scullptural metalwork pieces between D1 and D2. These do have integrated lighting which will be decorative only and is not specified to be overly bright or have visible light sources.

Please find in the appendices our full lighting specification of all the products and luminaires specified for this project.

4 OUTLINE LIGHTING SPECIFICATION



Seating and Bollard Luminaire

Integrated LED linear light to act as under seat lighting and within bollard luminaires.
Micro lourve used in bollards to prevent upward light.



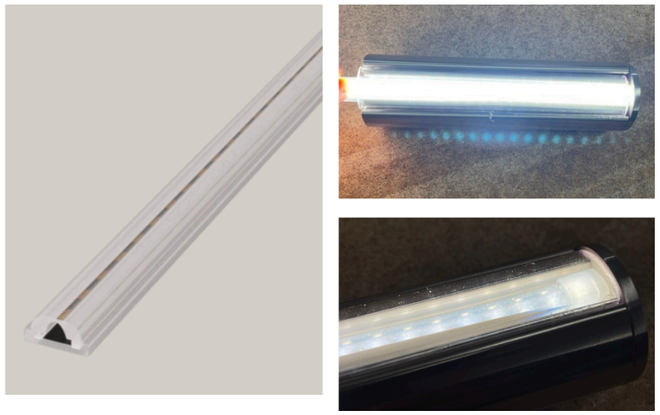
Column Type 1

Column luminaire type 1 with directional downward light only and specific optics for the area and location used.
Focussed to ensure light is specific to the location needed.



Turning Circle Luminaire

Discreet luminaire for illumination of the turning circle area where vehicles will turn around.
Downward and direct light only.



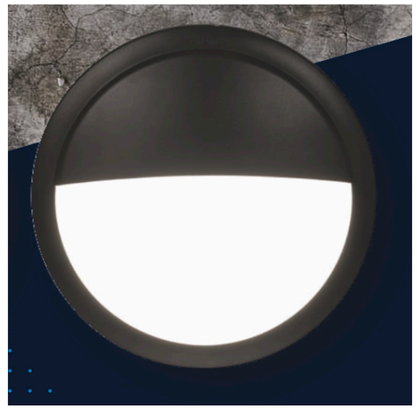
Handrail LED Luminaire

Integrated LED luminaire within bespoke handrail solution to allow for downward lighting of the staircases where handrails are used.



Column Type 2

Column luminaire type 2 with downward only light and specific optics for the area and location used.

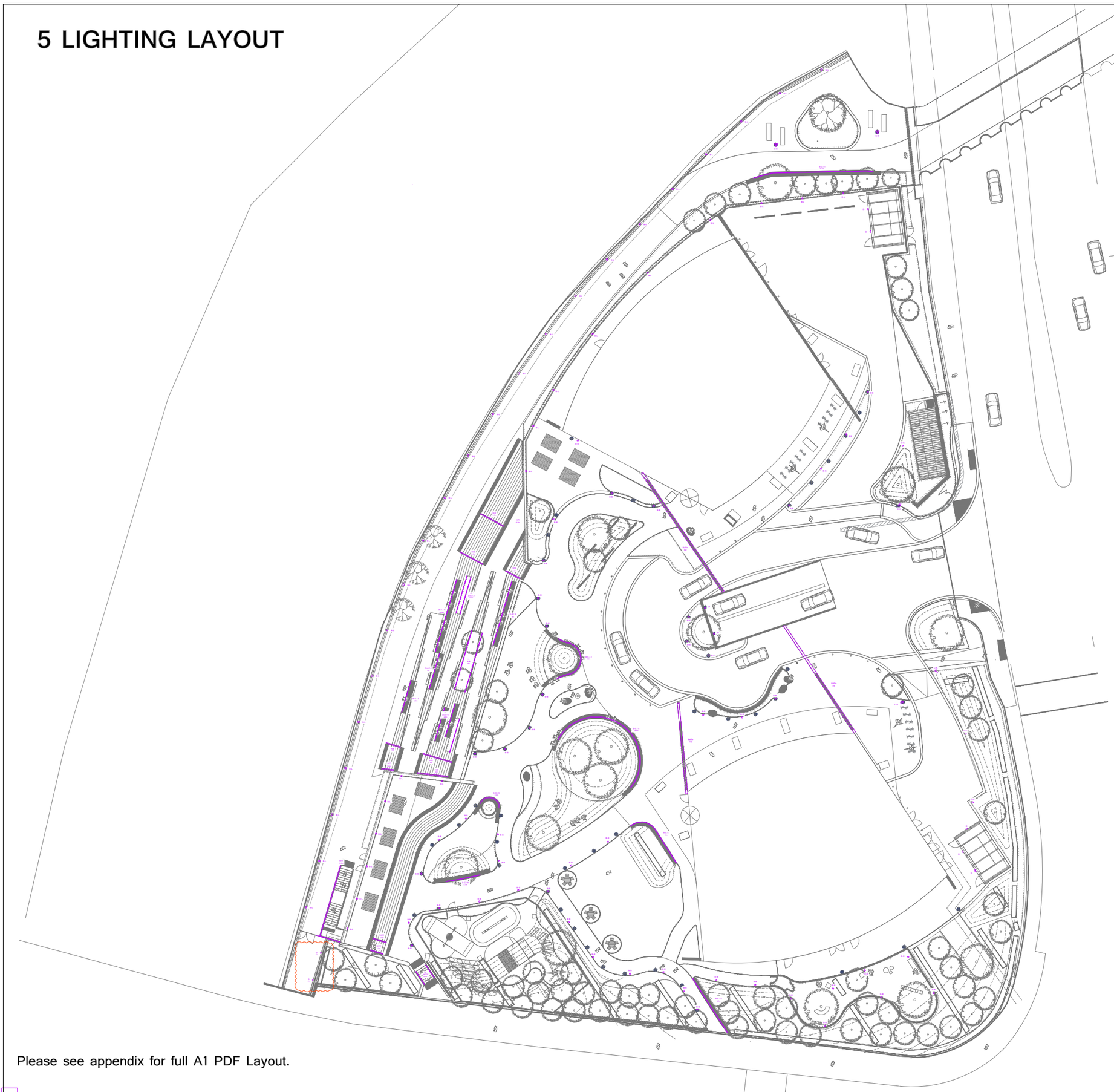


Shielded Bulkhead Luiminaire

Shielded bulkhead luminaire for illumination around the bin store and back of house areas.
Controlled via timeclock or presence detection.

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5 LIGHTING LAYOUT



Please see appendix for full A1 PDF Layout.

NOTES

1. DO NOT SCALE FROM THIS DRAWING
2. ALL DIMENSIONS ARE STATED IN MILLIMETERS
3. THIS DRAWING IS DESIGN INTENT ONLY, AND SHALL NOT BE USED FOR CONSTRUCTION PURPOSES
4. THIS DRAWING SHALL BE READ IN COORDINATION WITH THE LUMINAIRE SCHEDULE
5. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE LIGHTING SPECIFICATION DOCUMENT
6. CONSTRUCTION DRAWINGS SHALL BE PROVIDED BY OTHERS
7. COORDINATION OF THE M&E SERVICES ONSITE SHALL BE UNDERTAKEN BY THE MAIN CONTRACTOR
8. THE MAIN CONTRACTOR SHALL ENSURE THE LIGHTING EQUIPMENT IS INSTALLED INLINE WITH REGULATORY GUIDANCE AND BRITISH STANDARDS
9. THE MAIN CONTRACTOR SHALL DESIGN AND INSTALL EMERGENCY LIGHTING AND EXIT SIGNAGE IN LINE WITH BS EN 5266 + BS EN 1838
10. THE MAIN CONTRACTOR SHALL UNDERTAKE A FEASIBILITY STUDY TO ASSESS THE PROPOSED FITTING LOCATIONS, LUMINAIRE SIZES, FIXING DETAILS AND CABLING ROUTES PRIOR TO ORDERING THE LIGHTING EQUIPMENT. A REPORT SHALL BE ISSUED FROM THE MAIN CONTRACTOR CONFIRMING THE STUDY RESULTS AND RAISING ANY ISSUES THAT MIGHT ARISE FROM THE STUDY
11. FINAL LUMINAIRE HEIGHTS FOR WALL MOUNTED FITTINGS AND PENDANTS FITTINGS SHALL BE AGREED BY THE ARCHITECT AND INTERIOR DESIGNER PRIOR TO INSTALLATION

AREA HIGHLIGHTED - LIGHTING DESIGN BY OTHERS

REMOTE LED DRIVERS

THE MAIN CONTRACTOR SHALL ENSURE ALL REMOTE LED DRIVERS ARE CONCEALED FROM DIRECT VIEW IN ACCESSIBLE POSITIONS FOR MAINTENANCE PURPOSES.

LINEAR LED LIGHTING

LED POSITION WITHIN COFFERS TO BE AGREED ONSITE PRIOR TO FINAL INSTALLATION

THE MAIN CONTRACTOR SHALL CONFIRM FINAL LED LENGTHS FOR ALL LINEAR LED PRODUCTS WHICH SHALL COORDINATED WITH ARCHITECTURAL DETAILS AND JOINERY ELEMENTS

B-B Bollard luminaire for area illumination.
B-L Integrated balustrade luminaire
C-A Entrance area column illumination
C-B North park column with gobo
C-C Back of house column luminaire
D Back of house wall mounted luminaire
H Handrail lighting
P Surface mounted luminaire for parking ramp
S-A Stramp integrated LED luminare Type A
S-B Stramp integrated LED luminare Type B
S-C Seating integrated LED luminare Type C
H1 / H2 / H3 / H4 / C Wind baffle illumination

REV	DATE	ISSUE	
P00	29.08.25	PLANNING SUBMISSION DRAWING	SA

Project	TRINITY ISLANDS, MANCHESTER	
Client	RENAKER	
Designer	TPM LANDSCAPE ARCHITECTS	
Drawing	EXTERIOR LIGHTING LAYOUT	
Drawing No.	Z1-ATL-G540-PL-GRD-001	Scale:1:200 @ A1

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Creative Lighting Design

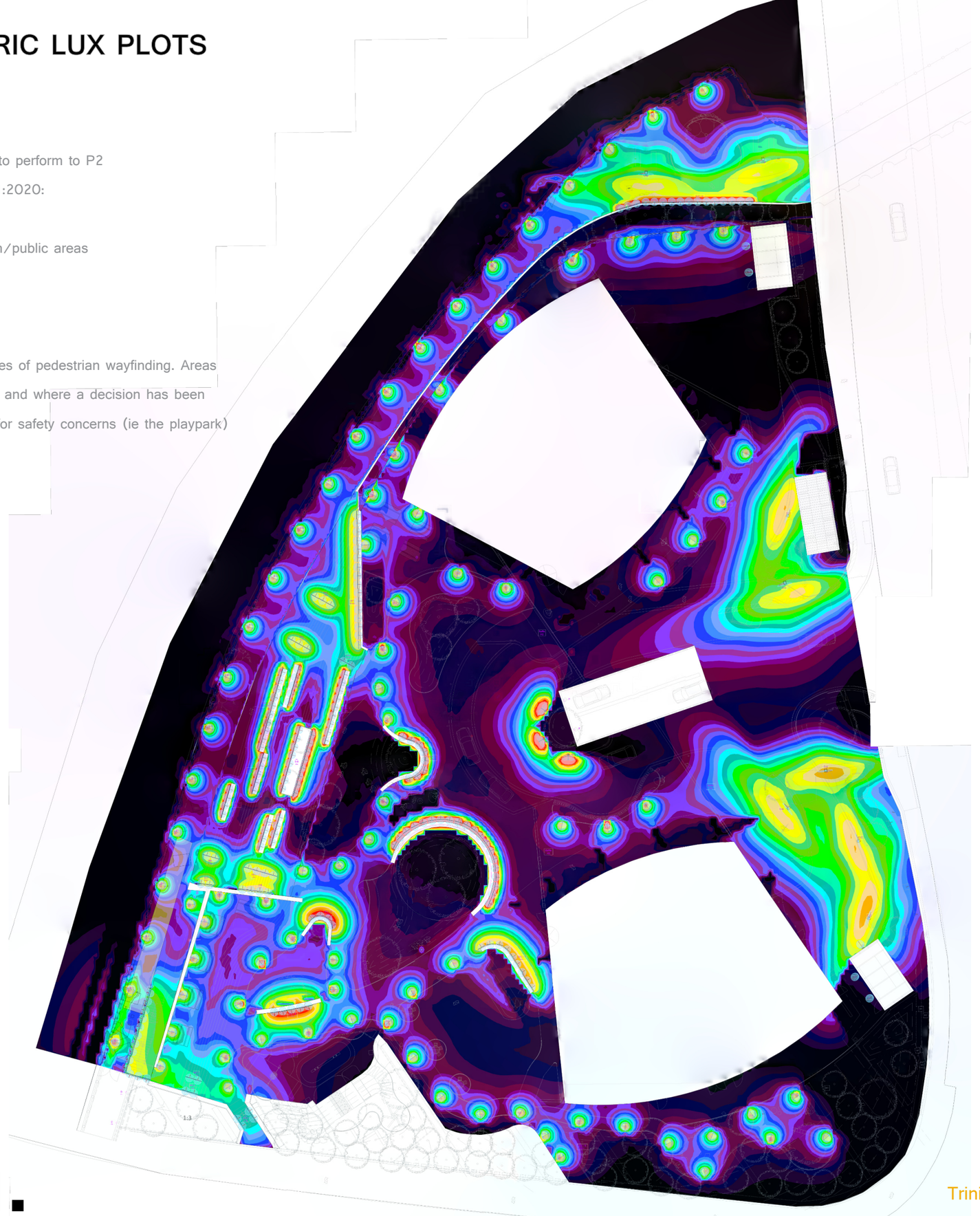
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6 PHOTOMETRIC LUX PLOTS

Our aim for the light levels is to perform to P2
BS EN 13201-2 & BS 5489-1:2020:

Avg. ≥ 5 lux across pedestrian/public areas
Min. ≥ 1 lux
Uniformity ≥ 0.25

This is achieved along all routes of pedestrian wayfinding. Areas outside of this are for vehicles and where a decision has been made to keep the areas unlit for safety concerns (ie the playpark)

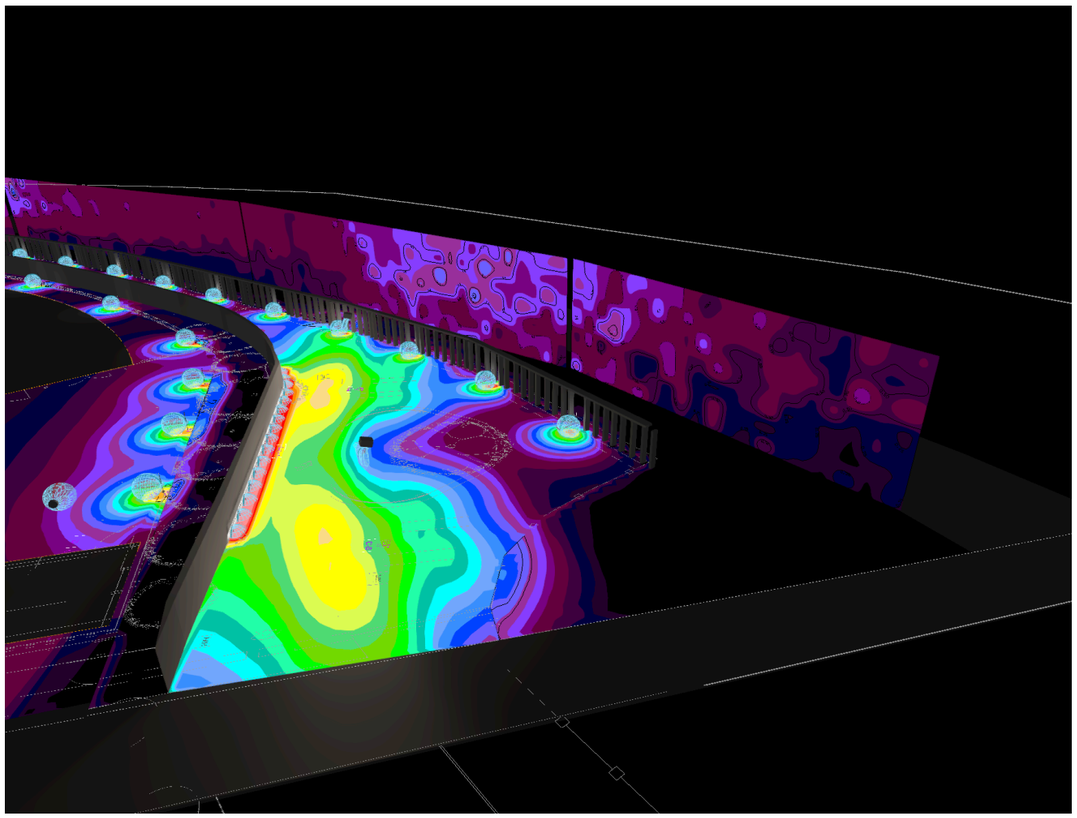


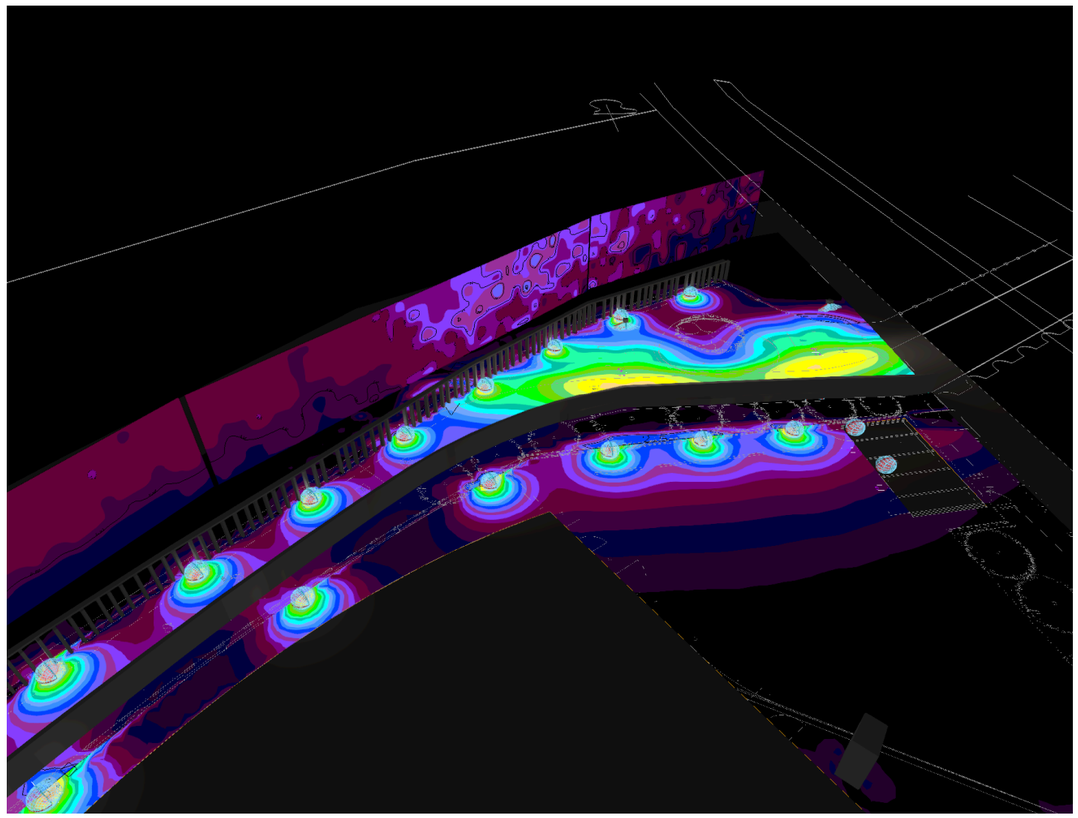
LUX
0.5
1
2
3
4
5
7
10
15
20
30
40
50
75
100

7 PHOTOMETRIC LUX PLOTS - KEY VIEWS
NORTH CONNECTION WITH VERTICAL CALCULATION SURFACE

Vertical calulcation surfaces representing light spill towards the River Irwell detect reflected light from the landscape public realm lighting on the solid surfaces.
The average lux for each surface is avg 1 lux purely from reflected light.

ILP Guidance for E3 - 5 lux - Medium district brightness (suburban, small town)
E4 - 10 lux - High district brightness (urban centre, city)





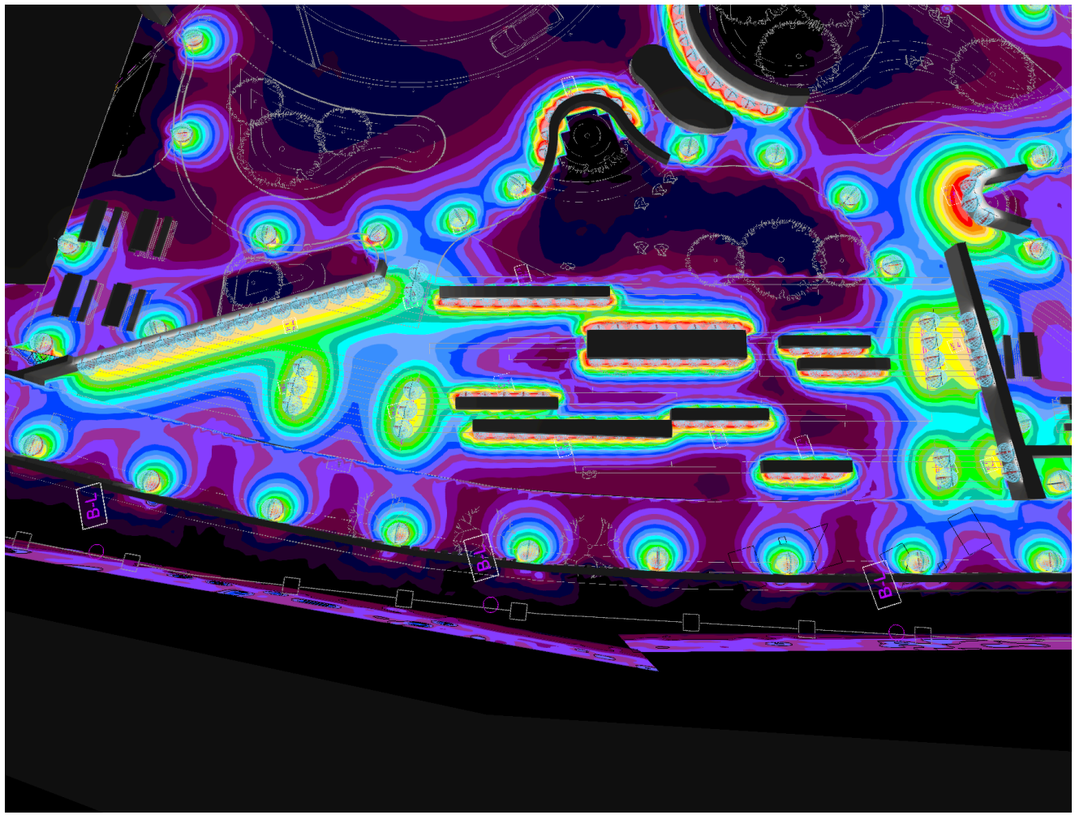


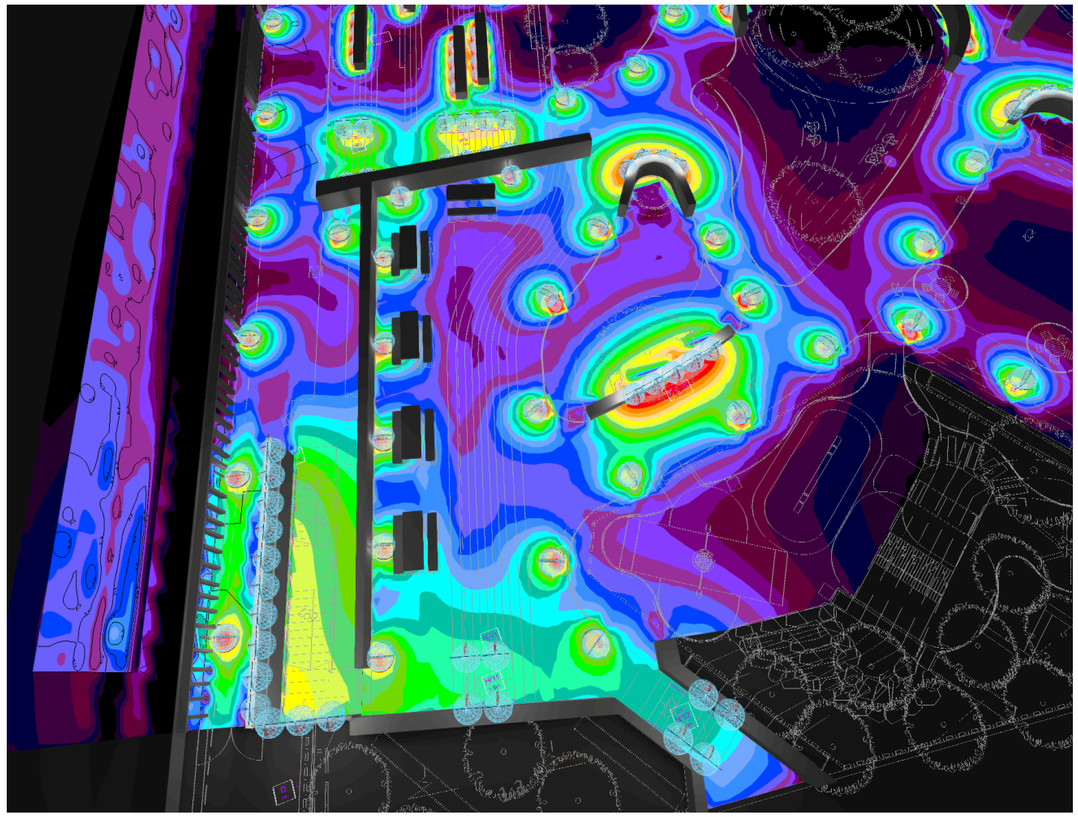
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7 PHOTOMETRIC LUX PLOTS - KEY VIEWS
VIEW OF STRAMP AND STAIRCASE AREAS

Vertical calulcation surfaces representing light spill towards the River Irwell detect reflected light from the landscape public realm lighting on the solid surfaces.
The average lux for each surface is avg 1 lux purely from reflected light.

ILP Guidance for E3 - 5 lux - Medium district brightness (suburban, small town)
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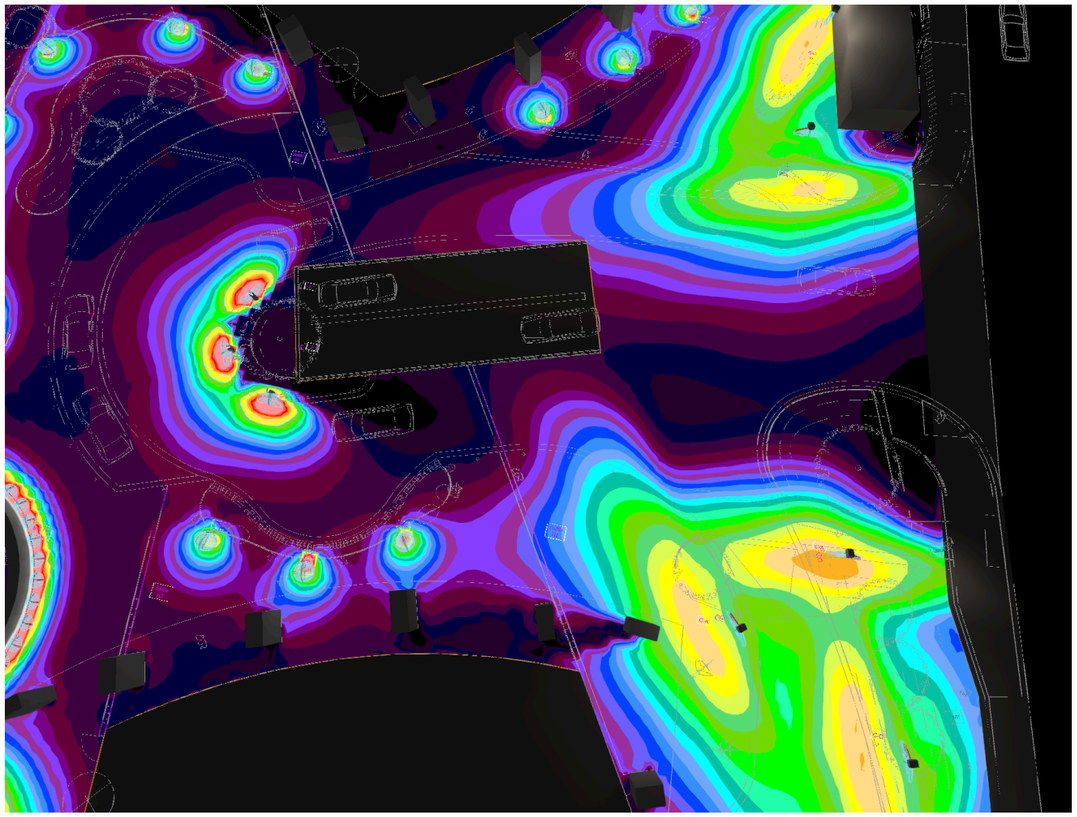


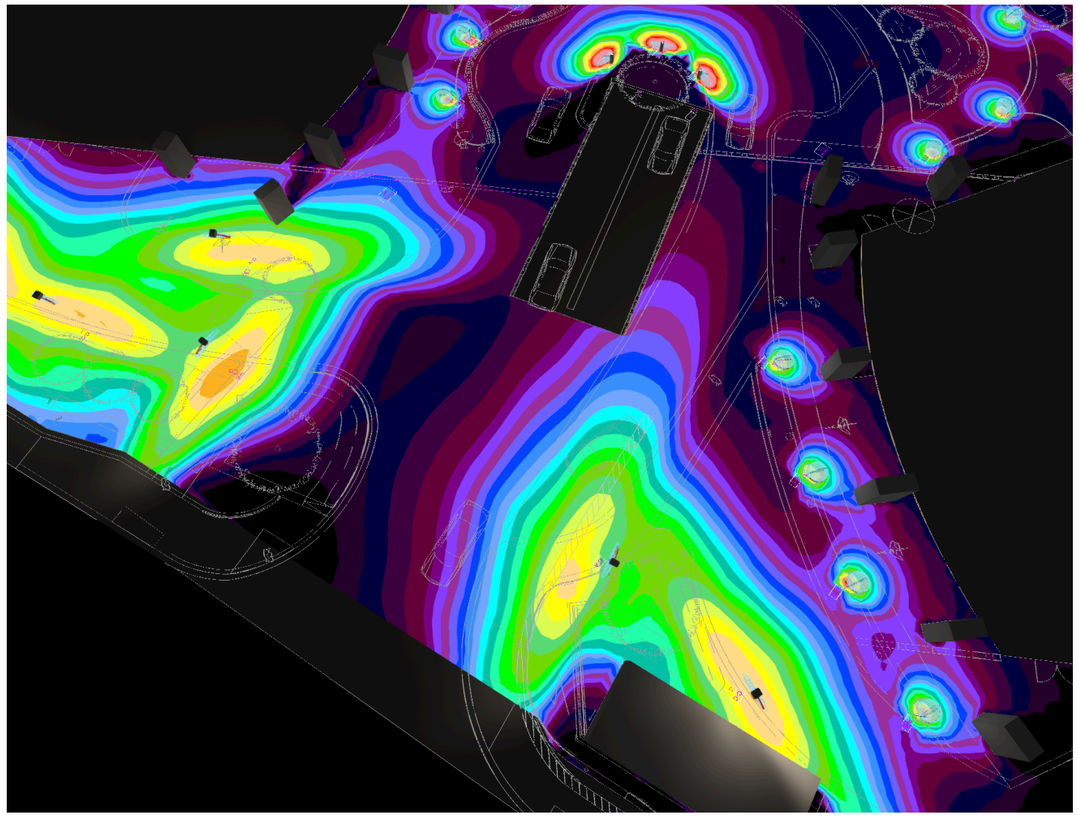


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7 PHOTOMETRIC LUX PLOTS - KEY VIEWS

VIEW OF VEHICULAR ENTRANCE



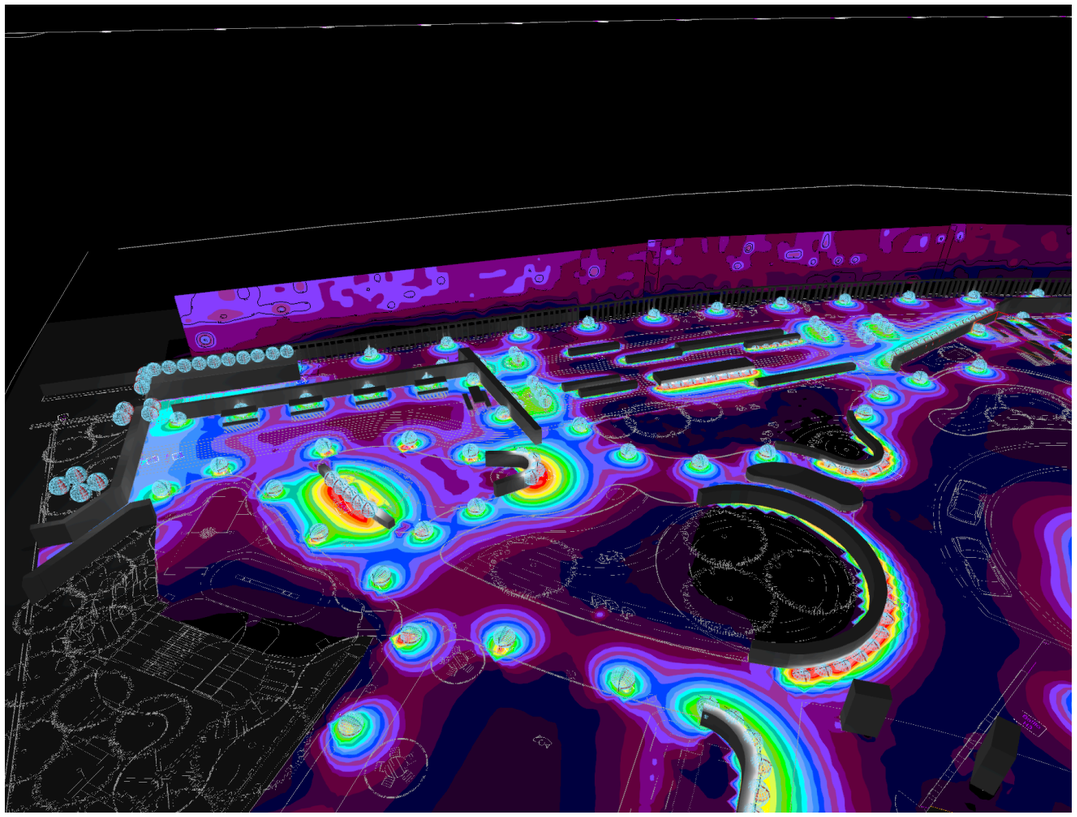


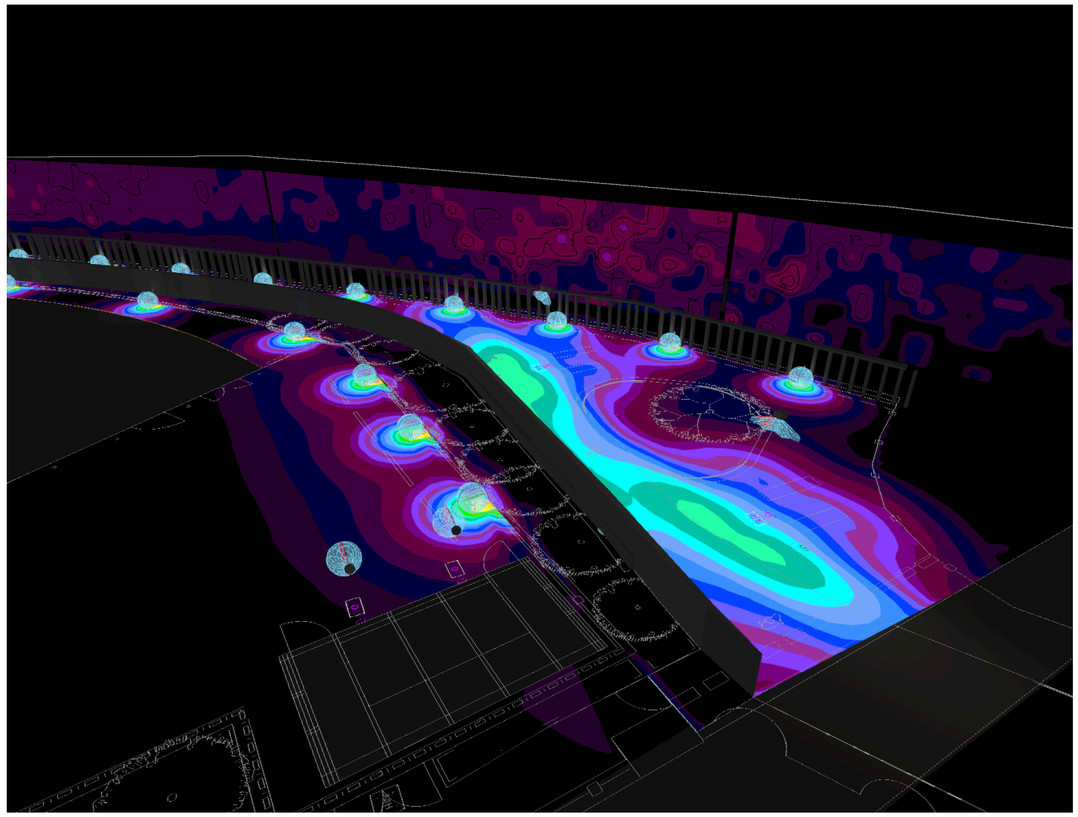


7 PHOTOMETRIC LUX PLOTS - KEY VIEWS
CURFEW LIGHT LEVELS

Vertical calulcation surfaces representing light spill towards the River Irwell detect reflected light from the landscape public realm lighting on the solid surfaces.

Curfew level lighting has even lower levels of reflected light and well below the recommended ILP guidance for this specification of area (E3/E4)



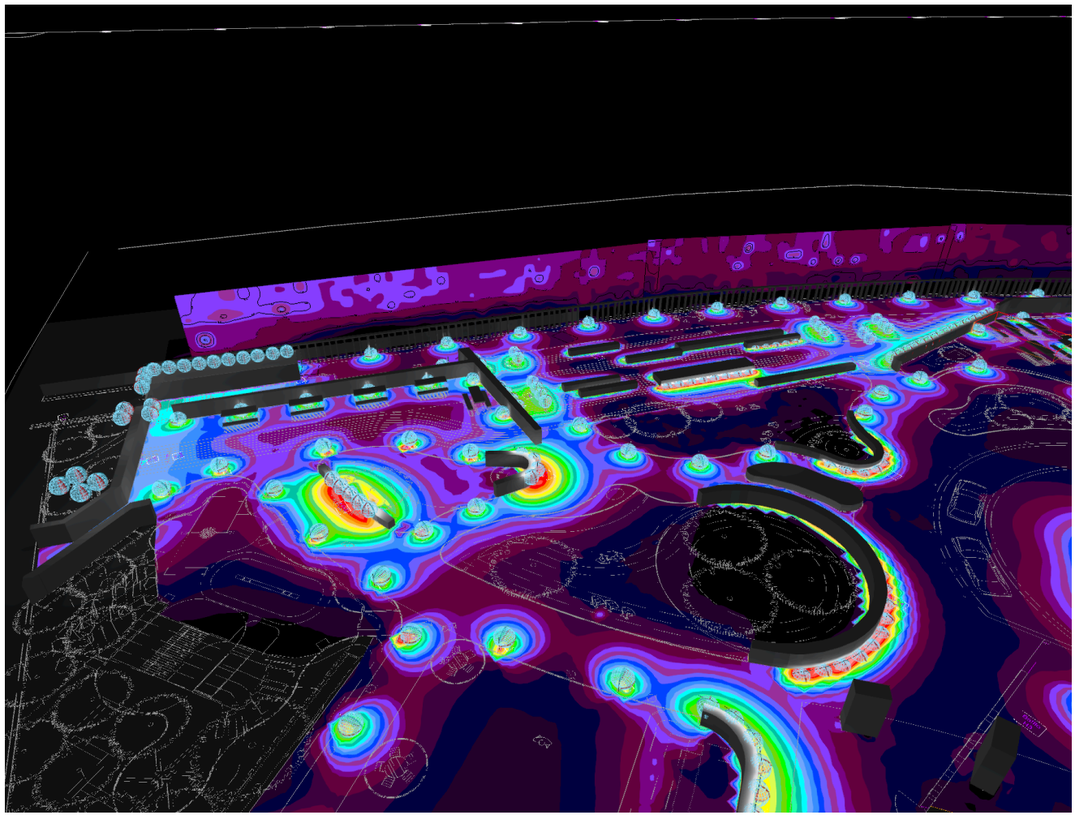


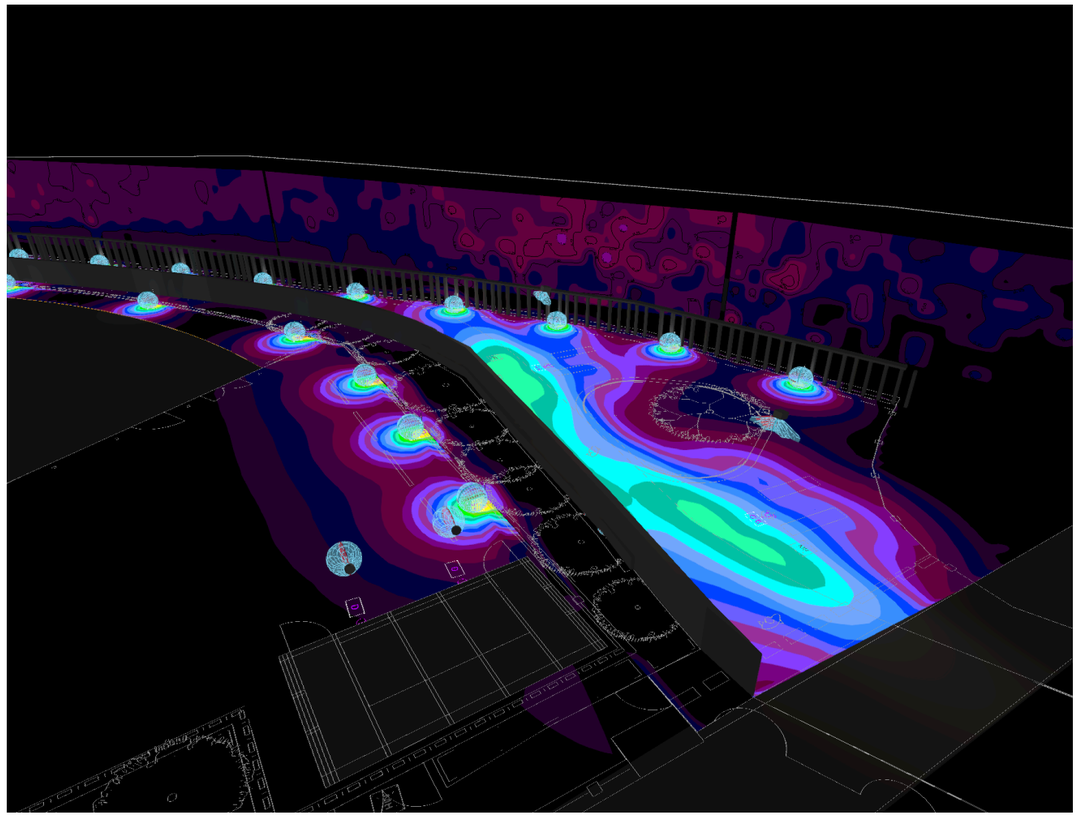


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8 MCC REQUEST

ADJACENT VERTICAL LIGHT SPILL IMPACT ASSESSMENT

Response to request from MCC for Vertical Illuminance:

Wilburn Basin

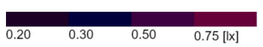
Vertical Illuminance: One Regent

Vertical Illuminance: Plot C2

Vertical Illuminance: D1 / D2

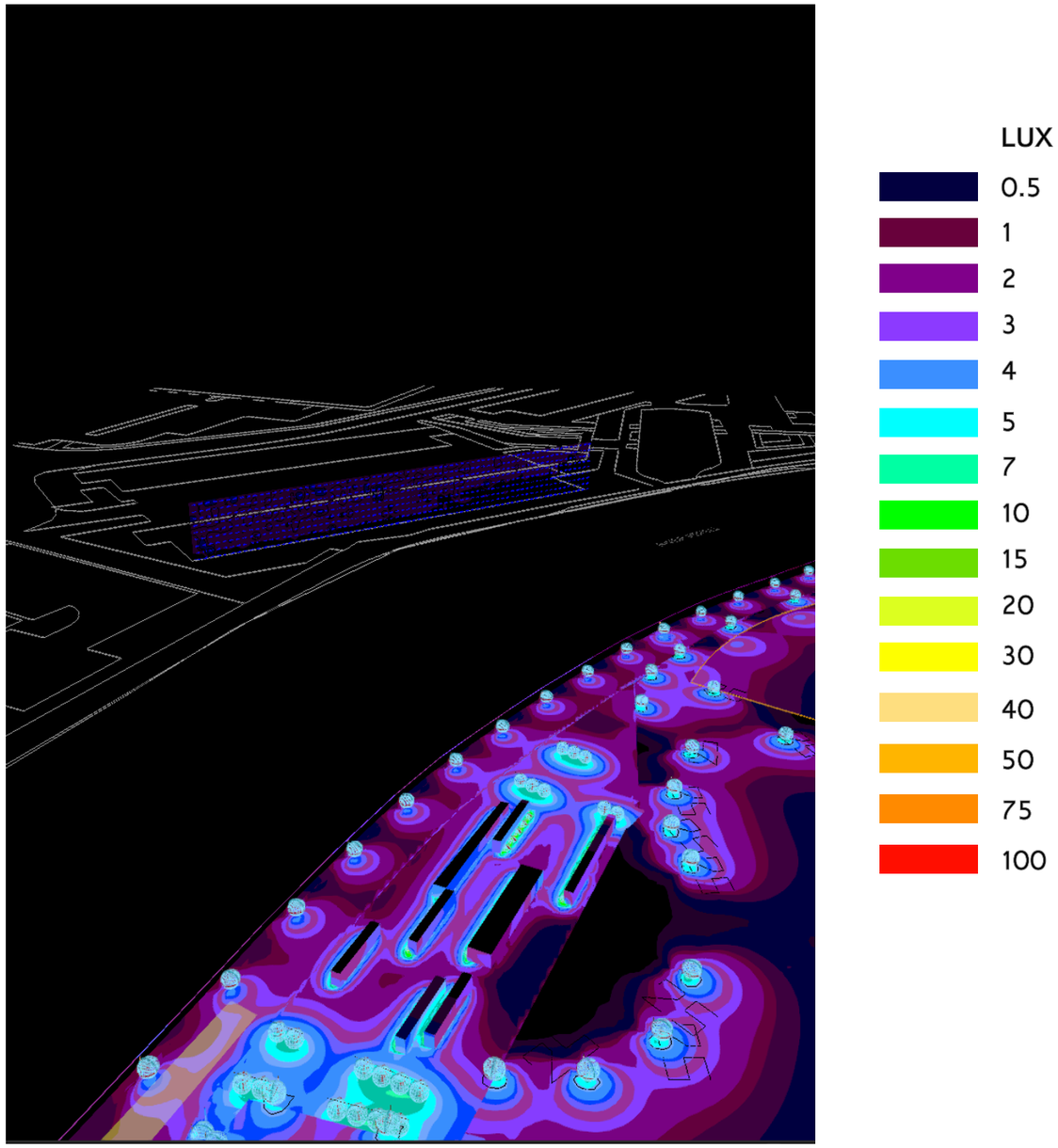
Site 1 (Light scene 2)

Wilburn Basin



Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Wilburn Basin Perpendicular illuminance Height: 4.000 m	0.22 lx	0.12 lx	0.54 lx	0.55	0.22	CG6

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))



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8 MCC REQUEST

ADJACENT VERTICAL LIGHT SPILL IMPACT ASSESSMENT

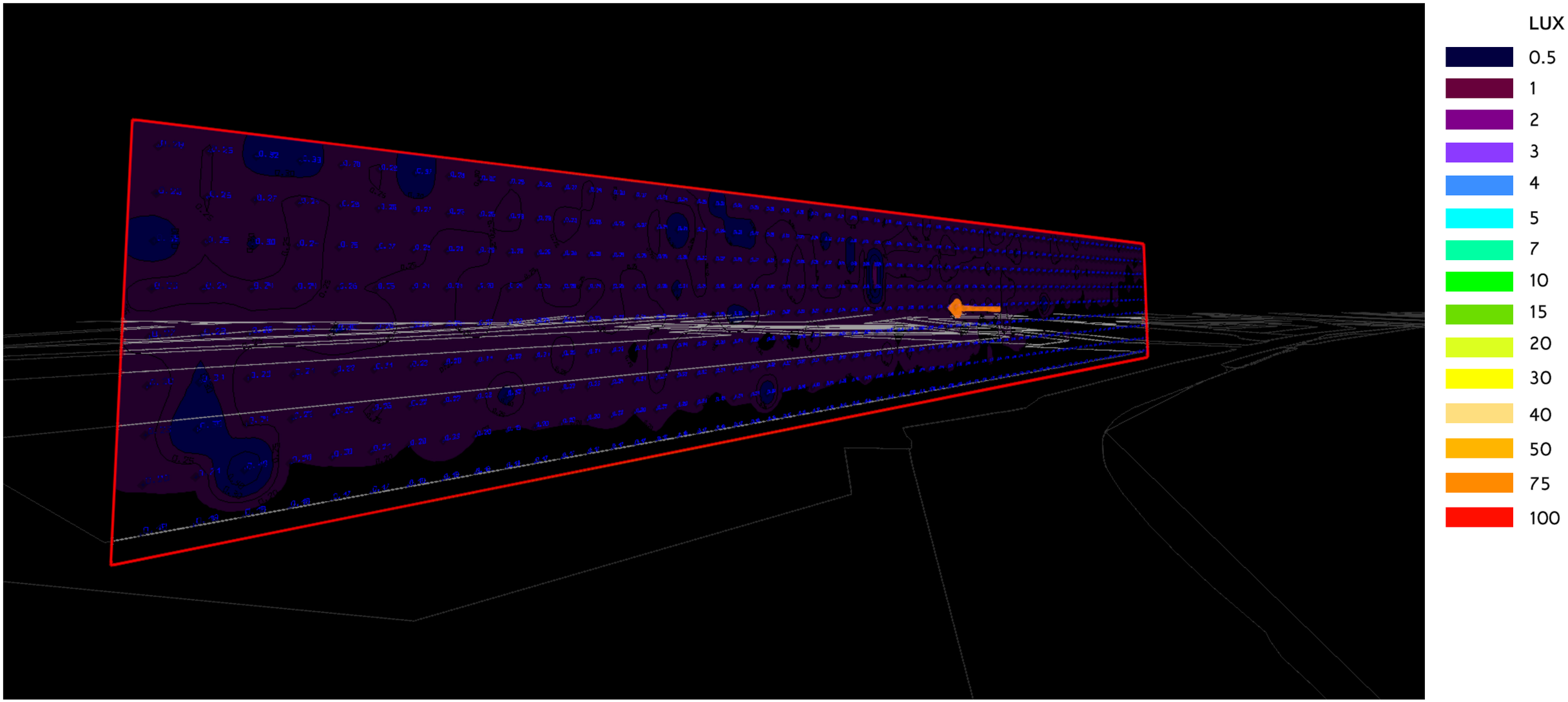
Response to request from MCC for Vertical Illuminance:

Wilburn Basin

Vertical Illuminance: One Regent

Vertical Illuminance: Plot C2

Vertical Illuminance: D1 / D2



8 MCC REQUEST

ADJACENT VERTICAL LIGHT SPILL IMPACT ASSESSMENT

Response to request from MCC for Vertical Illuminance:

One Regent

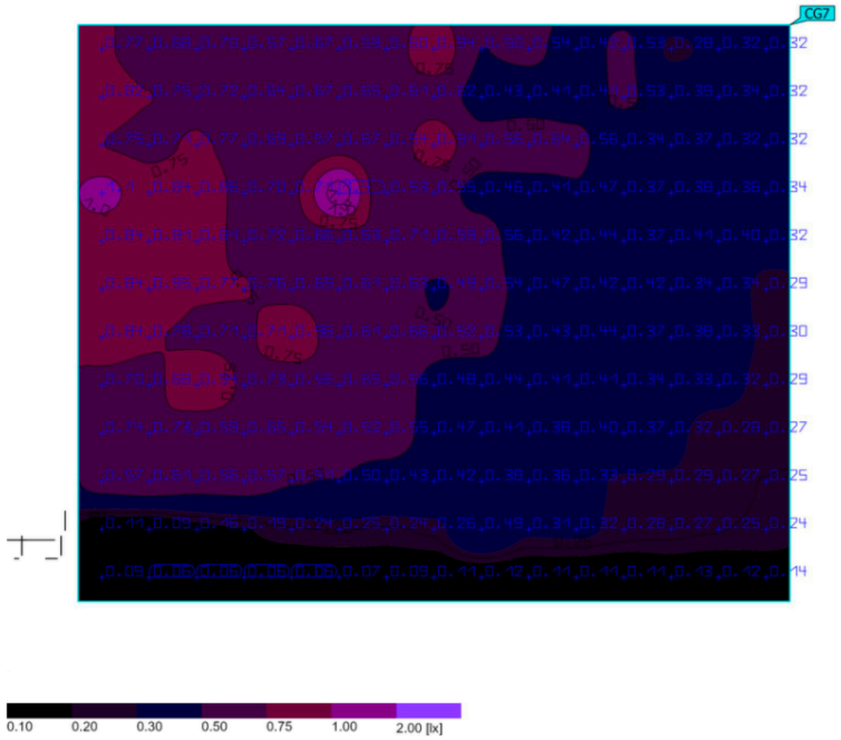
Vertical Illuminance: One Regent

Vertical Illuminance: Plot C2

Vertical Illuminance: D1 / D2

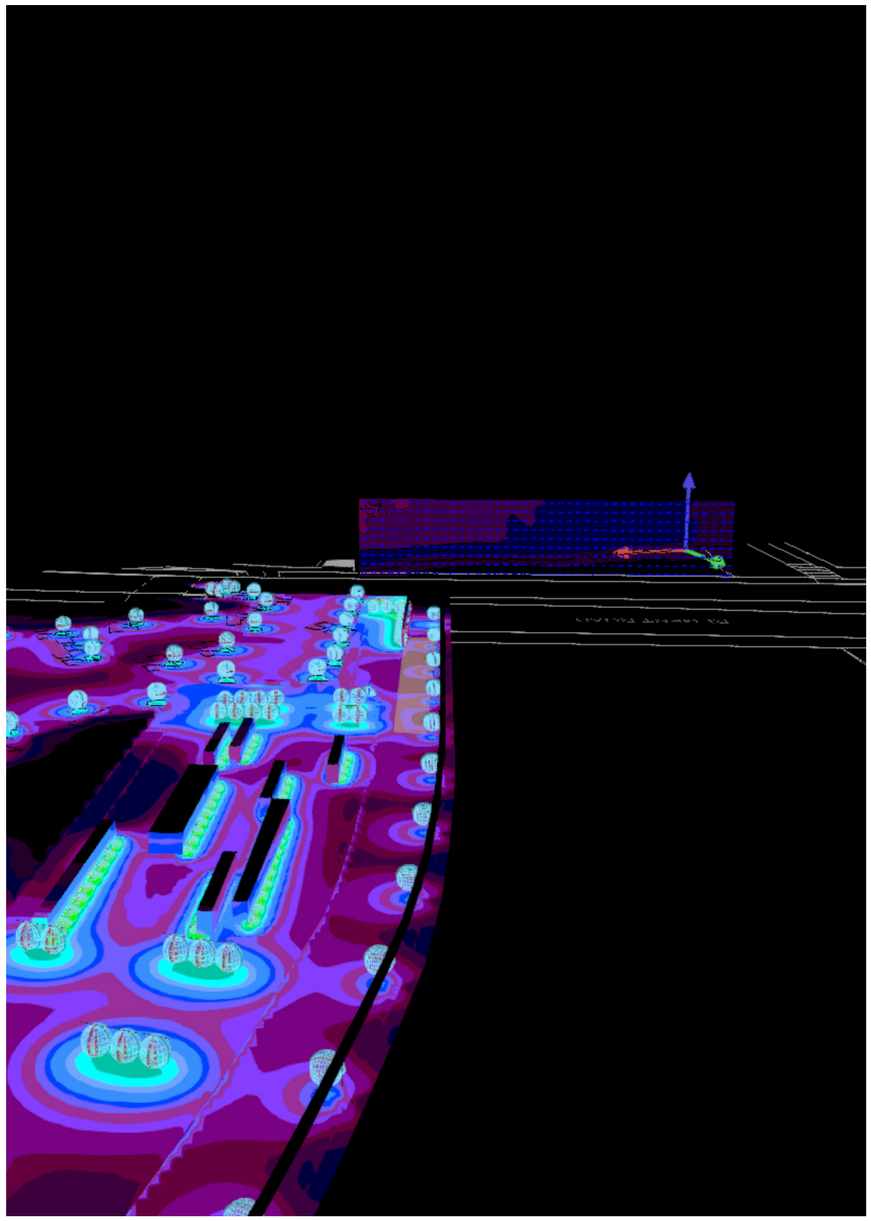
Site 1 (Light scene 2)

One Regent



Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
One Regent Perpendicular illuminance Height: 15.000 m	0.48 lx	0.057 lx	1.36 lx	0.12	0.042	CG7

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))



8 MCC REQUEST

ADJACENT VERTICAL LIGHT SPILL IMPACT ASSESSMENT

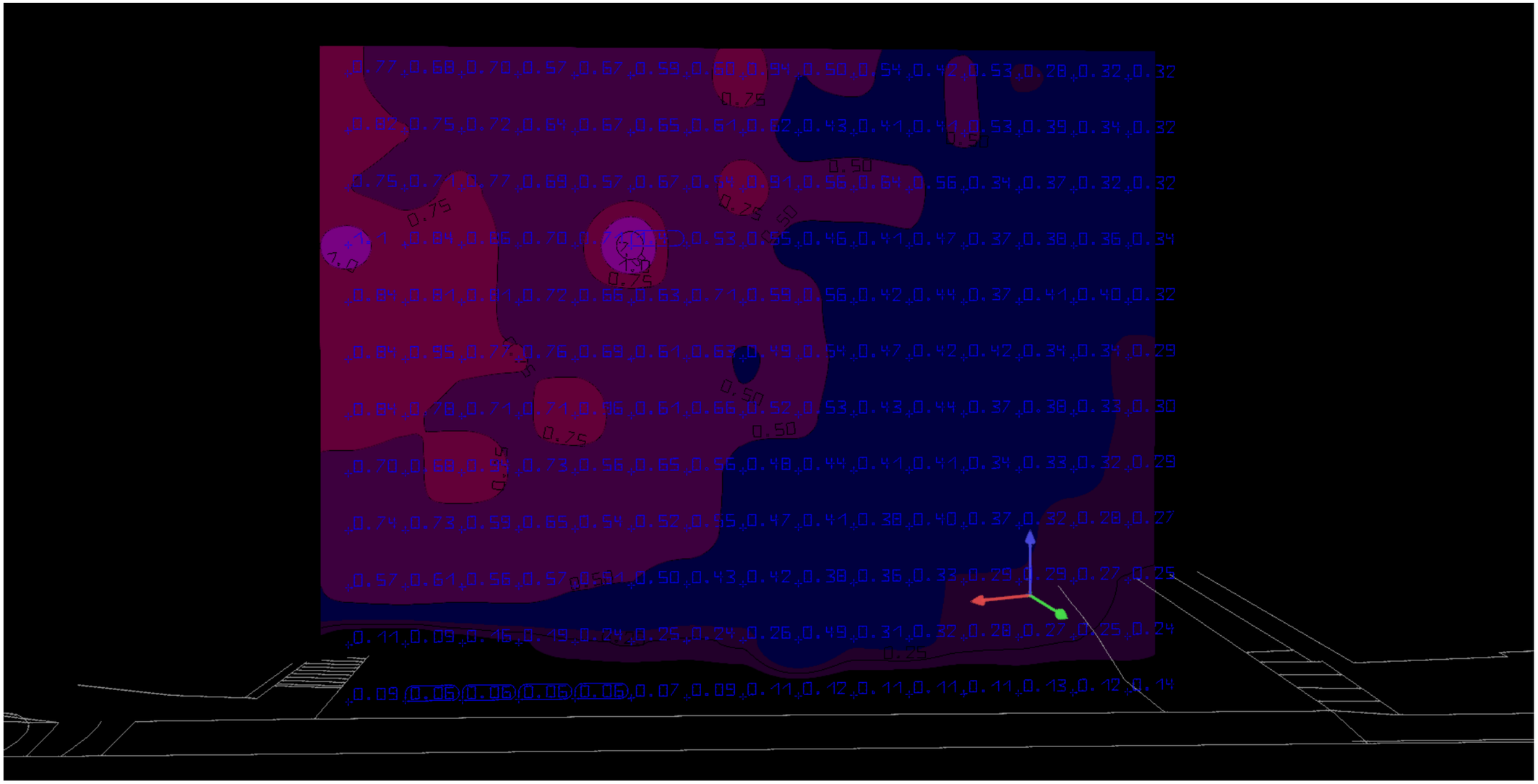
Response to request from MCC for Vertical Illuminance:

One Regent

Vertical Illuminance: One Regent

Vertical Illuminance: Plot C2

Vertical Illuminance: D1 / D2



8 MCC REQUEST

ADJACENT VERTICAL LIGHT SPILL IMPACT ASSESSMENT

Response to request from MCC for Vertical Illuminance:

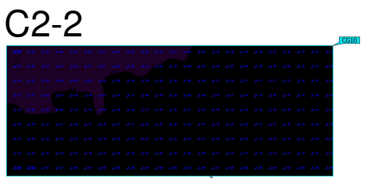
C2

Vertical Illuminance: One Regent

Vertical Illuminance: Plot C2

Vertical Illuminance: D1 / D2

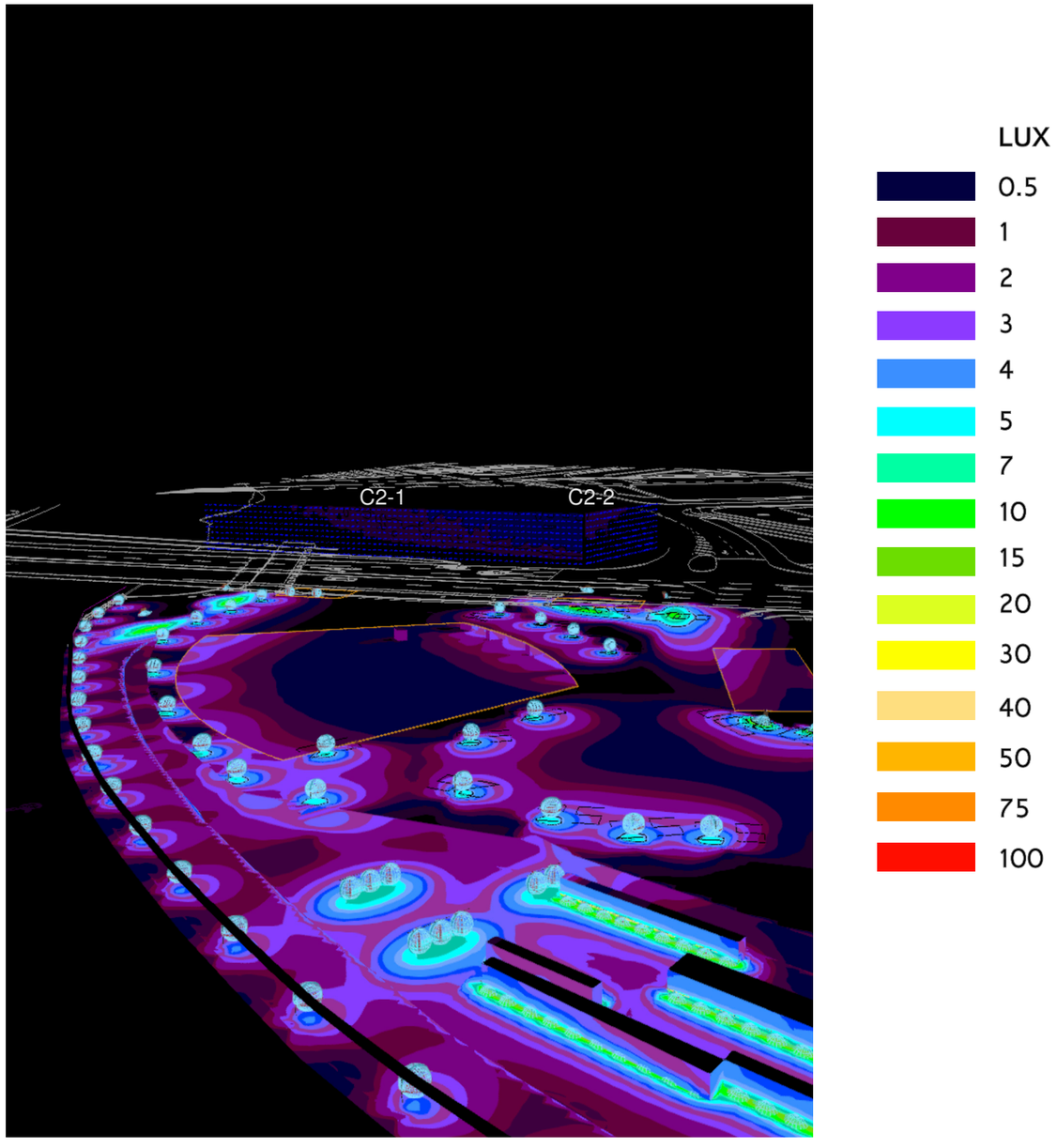
Site 1 (Light scene 2)





Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
C2 - 1 Perpendicular illuminance Height: 4.000 m	0.20 lx	0.035 lx	0.46 lx	0.18	0.076	CG8
C2 - 2 Perpendicular illuminance Height: 4.000 m	0.16 lx	0.063 lx	0.26 lx	0.39	0.24	CG10

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))



8 MCC REQUEST

ADJACENT VERTICAL LIGHT SPILL IMPACT ASSESSMENT

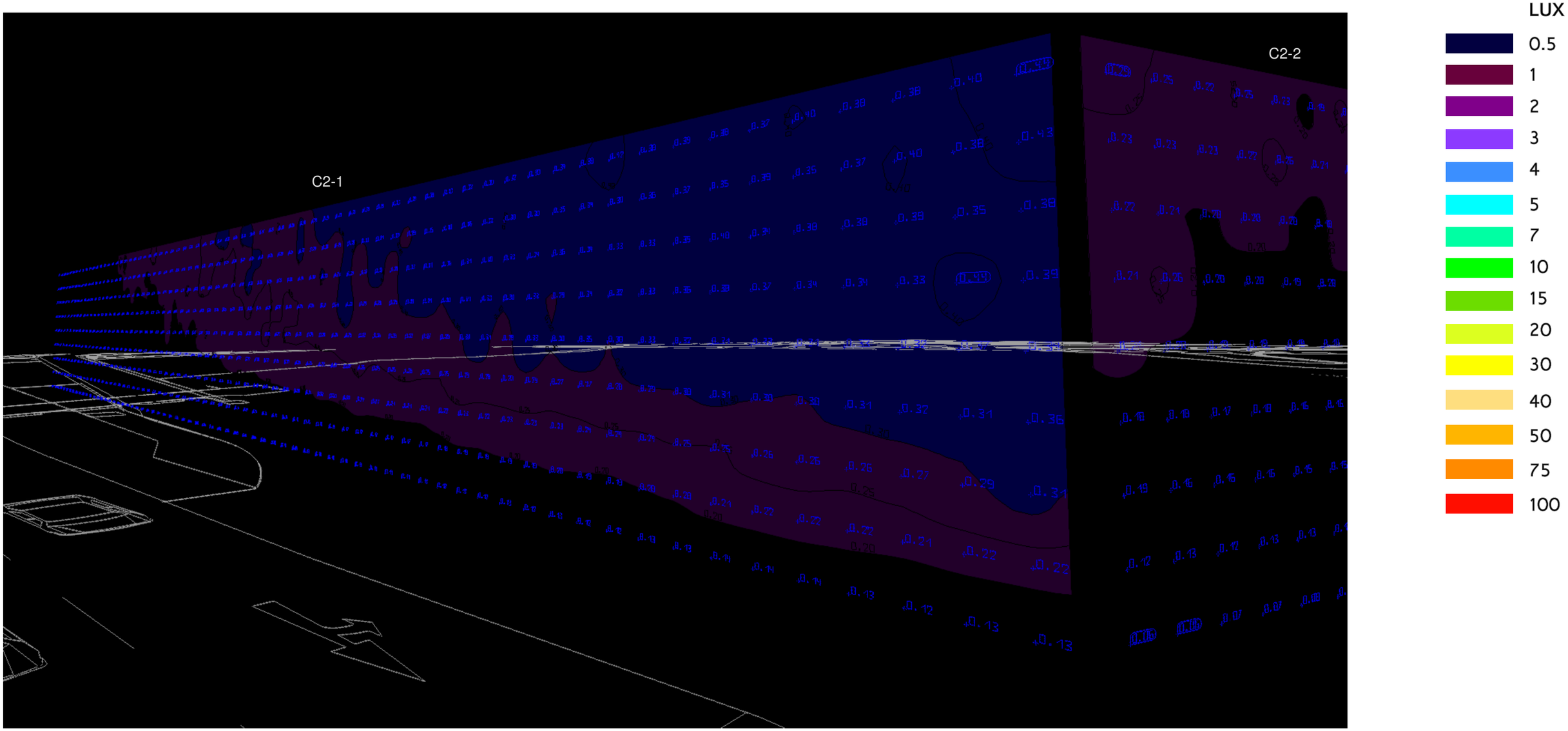
Response to request from MCC for Vertical Illuminance:

C2

Vertical Illuminance: One Regent

Vertical Illuminance: Plot C2

Vertical Illuminance: D1 / D2



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8 MCC REQUEST

ADJACENT VERTICAL LIGHT SPILL IMPACT ASSESSMENT

Response to request from MCC for Vertical Illuminance:

Wilburn Basin

Vertical Illuminance: One Regent

Vertical Illuminance: Plot C2

Vertical Illuminance: D1 / D2



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9 LIGHTING CONTROL & OPERATION

All the lighting within the Trinity Islands, Manchester which is in the public realm is controlled via DALI. We have been keen to ensure all the lighting is dimmable and controlled in this manner to ensure firstly that we reduce contrast between different elements of the lighting scheme visually. But additionally this gives us great control about the amount of light and at what times.

Evening lighting will be controlled to come on 1 hour before sunset every day. This is set by the astronomical clock in the control lighting equiptment.

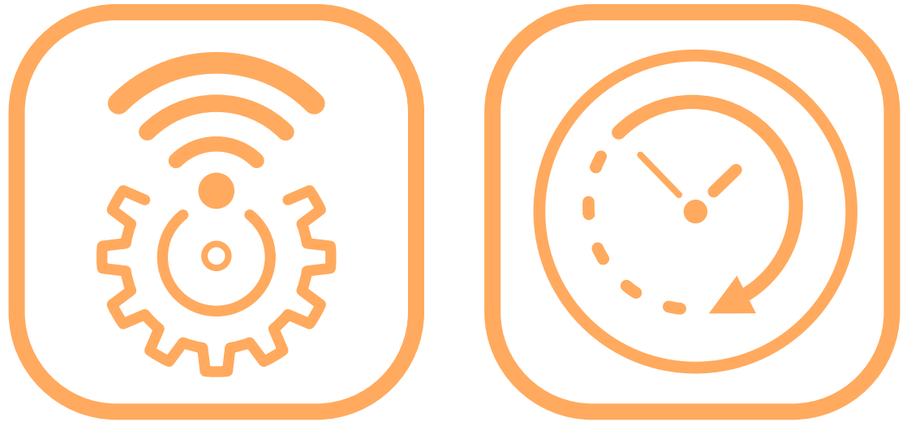
Although this will be a visual '100%' we are likely to dim some of the circuits of light to ensure contrast and balance across the scheme.

Curfew lighting will be from 1am - sunrise everyday. This will ensure there is safe passage of light at night, but also look to deter people from being within the public realm spaces in unsocial hours.

If there is further guidance or a wider curfew strategy from the Local Planning level we would be willing to support and match this accordingly.

Inhabitation of the scheme may require adjustments of these timings. In the instance that there is more than expected pedestrian activity later in the evening we would advise to change the timings to the hours which suit the activity. Equally this may be different from season to season. We have looked to specify the lighting control so that the master control DALI system within the D1/D2 blocks can have control of this, much like lighting in the foyers. This means changing and adapting to the in-use acitivity is suitable and safe for the residents and pedestrians - whilst dimming to curfew levels is maintained suitable to the use case of Trinity Islands.

Outside of this methodology is the back of house luminaires for maintenance only (rear of stairwell on the riverside) and the luminaires on the residents bin stores. These are both controlled via proximity sensors to ensure they are only illuminated when necessary and for the function of the users.



Curfew and Timings

Controlling Light through Time

There are numerous stages of evening and night, and these shift through the seasons. It is our prerogative to ensure that any control system implemented should be programmed to fully respect this.



Evening Light Levels | **Curfew Light Levels**

The concept of curfew and the specific timings should be agreed in advance of deployment and should allow reasonable timings and light levels to be agreed and therefore diminished in the times where human activity is low.

With the control system it will be possible to adjust the timings for events, specific times and season of the year and for adjustments based on the surrounding neighbourhood desires and requests if specific items or lights become visibly problematic.

Each area will have the possibility to have it's own timings and parameters. This, coupled with the range of lighting dimming capabilities that LEDs have when fully utilised allows for the Trinity Islands, Manchester scheme to be a space which works with night time and adjusts according to usage and timings, rather than being an On / Off install which is so commonly experienced at night.

Through this use of control, dimming and care, Trinity Islands can be flexible and in line with the usage.

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10 ENVIRONMENTAL AND WILDLIFE CONSIDERATIONS

Colour Temperature

All external luminaires are specified with warm-white LEDs (≤3000K), which minimise the blue light spectrum known to disrupt nocturnal species, particularly bats and insects.

Directional Control & Shielding

Luminaires are full cut-off type, with optics and housings designed to prevent upward light and minimise light spill into adjacent habitats.

No floodlighting is proposed, and all fittings are aimed horizontally or downwards to avoid illumination of tree canopies and sky glow.

We are not uplighting any trees directly from in-ground uplights.

Lux Level Management

Lighting levels have been designed to meet the functional requirements of the public realm while remaining as low as reasonably practicable in sensitive areas.

Calculation grids confirm that vertical illuminance at site boundaries is within ILP GN01:2020 limits for the environmental zone.

Control Strategy

Lighting will operate via photocell control (dusk to dawn) with the ability to dim or reduce output during periods of low activity, in order to reduce unnecessary illumination.

Curfews can be introduced if required by the Local Planning Authority.

Habitat Protection

No lighting has been positioned to directly illuminate known or potential bat roosting features, such as mature trees or hedgerows.

Pathways and pedestrian areas are lit to provide safe movement for people without creating wide zones of over-illumination that may disturb wildlife corridors.

Compliance with Guidance

The scheme has been designed in line with:

ILP/Bat Conservation Trust Guidance Note 08/18: Bats and Artificial Lighting in the UK;

ILP GN01:2020 Guidance Notes for the Reduction of Obtrusive Light;

BS 5489-1:2020 recommendations for obtrusive light control.

11 LIGHTING DESIGN PRINCIPLES

Classifications and Standards

A successful project is one which creates a well lit environment, the professional and guidance and standards work to give us a high quality level and benchmark to deliver and judge well lit environments. The issue many projects face is that they are not ordinary from the assumed typology of buildings and landscapes which the standards aim to cover, equally they assume mostly on the horizontal lighting of spaces, rather than combined factor of the the vertical and the perceived brightness in context to other surrounding items within the project space.

Therefore as a template and a way to converse ideas, concerns and situations the standards are a great starting point, allowing quantitive and functional approaches. Equally as time and topics become more vital to review, such as the impact lighting has on ecology, evolution from these guides is only natural as they fall behind progress of lighting design.

The guides and standards from which information and usage is drawn within this document include:

A brief description and overview of the relevant standards in regards to pedestrian activity:
BS5489-1:2013

To enable pedestrians and cyclists to orientate themselves and detect vehicular and other hazards, and to discourage crime against people and property. The lighting on such roads can provide some guidance for motorists, but is unlikely to be sufficient for revealing objects on the road without the use of headlights.
CIE115:2010

The road lighting should enable pedestrians to discern obstacles or other hazards in their path and be aware of the movements of other pedestrians, friendly or otherwise, who may be in close proximity.

BS EN:13201 and BS 5489:2013, ILP guides for Lighting Against Crime (2011), Guidance Bats & Artificial Light (2018), Guidance Light Pollution (2011) and SLL Guide for Obtrusive Light (2012) will also be used.

Accessibility

Lighting design must support all human activity and make consideration for those with disabilities, visual impairments, special needs and the elderly. Supporting these groups with lighting and activating spaces at night time is undertaken by care of selection and usage of lighting. Preventing harsh shadows, reducing glare and other lighting issues such as reflections and high contrast and avoiding bright up lighting. Equally ensuring spaces are well lit enough for people to see their way to and from their destination, and ability to see obstacles or hazards in their way is key to a successful lighting scheme.

Ensuring we design for all ensures we increase security, sensibility and safety is key to the successful delivery of the project.

Cost

Consideration of cost within the lighting design scheme is in terms of the whole project. From product cost, lead time and knock on effect for installation, additional components and cabling and insulating requirements for electrical works are key on the design side.

Cost avoidance due to excess labour and installation costs is important from a concept and planning stage, but also reducing access equipment and other types of needs for certain lighting installations which carry higher costs . We also take into account the whole life cycle of a luminaire, it’s surrounding infrastructure and the materiality that it embodies and how much that may cause in future cost by degradation. Finally ensuring energy usage is as low as possible fits with the drive for us all to reduce energy by all means necessary.

Sustainability & Lifetime

Sustainability has to start from the moment an idea is conceived, and understanding the impact on as many chains of supply, material, transportation and beyond is very important to us as designers. At every moment of a luminaires life there is opportunity to reduce it’s impact on carbon and material use, resourcing and transportation.

Materials used to create luminaires, from the chips and phosphors of the LEDs through to the housing, the finish, painting and electrical components included. All these items are important, and use the earths resources in countless ways, many lights have been around the world several times before their destination. Therefore we look out for manufacturers that have ethical and progressive stances to match our own standards. It is important that in selecting these types of manufacturers, that we get the highest quality product for the price, but with the lowest impact on our natural resources as possible. We also take pride in holding manufacturers to account and challenging them to progress these types of embodied energy ideals consistently for our projects.

We thoroughly review projects completed across the realm of lighting design to gauge what is successful or not over a given timeframe, therefore guiding us to suggest and warn of issues, future-proofing where at all possible. This feedback loop of success an failure is key to ensuring future decision and ideas are grounded in success over the long term.

Maintenance

We look to ensure all manufacturers used will maintain and warranty their luminaires for the maximum time possible, with a UK office, a representative and a suggested contact where specification is supplied. This is in order to ensure that anyone needing replacements, parts or information on a given luminaire is capable of in the lifetime of the product.

It is also key that we specify products that are easy to maintain, installed as per instructions to a high standard, and with electrical components ensuring the longevity and desired used of the luminaire for the greatest time with the least risk to failure or damage.

Operational

In order for our designs to be as fully operational for the given lifetime of the project we look to understand the operational angle of lighting which we specify. Having a key eye to make sure control equipment is easy to use, flexible enough for all desired and briefed purpose. As cost can be a factor in increasing the ease of operational use, we give the option within the client budget to excel at what the briefed requirements could be.

It is important important we engage with the team deploying the lighting systems within the process and adapt our thinking to work with their system and future planning for the project, there are many decisions and details that if picked up in good time ensure a full delivery to needs of all users in the future.

Ecology

Ecology and lighting is a growing area of concern and research. We are very interested and follow the latest guidance on these topics and researchers, as well as projects that open that tackle similar issues that we encounter.

As the topic is quite complex and very situational we have included an appendix to approach and brief the topic with our outline and approach to the design for lighting in the aspect of ecology.

Technical

All luminaires and lighting systems specified will have online and searchable manuals, instruction, installation details and full parameters of the luminaire and system technical needs. It is important these are used and followed by installation and maintenance teams to ensure the longevity of lighting within the project, and to be used to it’s full potential.

Design Intention

The visuals presented in this document are diagramatic impression of the lighting design intent. Final lighting effects should be subject to lighting calculation, mock up tests and review of the design team and client.

Further Information

If further information on a specific item is required please do contact Artin Light with your request for information.

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11 LIGHTING DESIGN PRINCIPLES

Approach

Working to design lighting for human activity whilst balancing the impact we have on nature and the environment is a task which we feel is our natural duty as lighting designers. We have a deep passion and interest into all aspects off light and lighting, as well as the natural environment and the night sky. We work hard to demonstrate our knowledge about how lighting can enhance our wellbeing and built environment, whilst making decisions to ensure our damage to our local ecology is minimised. Equally as conscious humans, we want to make sure that our decisions, and the decisions we lead others to make have the best interest for our planet as a whole, we consider everything from procurement and sourcing distance, to materiality and finishes, to ensuring the products and lights are well installed and easily maintainable. Lighting equates to 11% of all the electricity power usage in 2021, so we know clearly our decisions can help to lessen the impact directly on energy usage as a whole.

Equally the impact on local ecology is a growing concern for many, and as new research (both and short term) is being released and passed amongst peers within the lighting industry, we are keen to make sure we are at the front of this growing trend for lessening our impact at a more local level as much as possible. Aiming to enhance our dark skies where at all possible, and having a minimal impact the local flora and fauna of the sites we are invited to design lighting for.

Key Considerations

In order to portray all aspects of the design we have developed a system of quickly demonstrating the proposals at strategy and early design stages. This system quickly allows our concept designs to be tested, and for our purpose through to control to be assessed quickly by a wide range of disciplines and stakeholders.



6 Key Considerations for Each Design, A Guide to Support the Reader.

Research and Learning

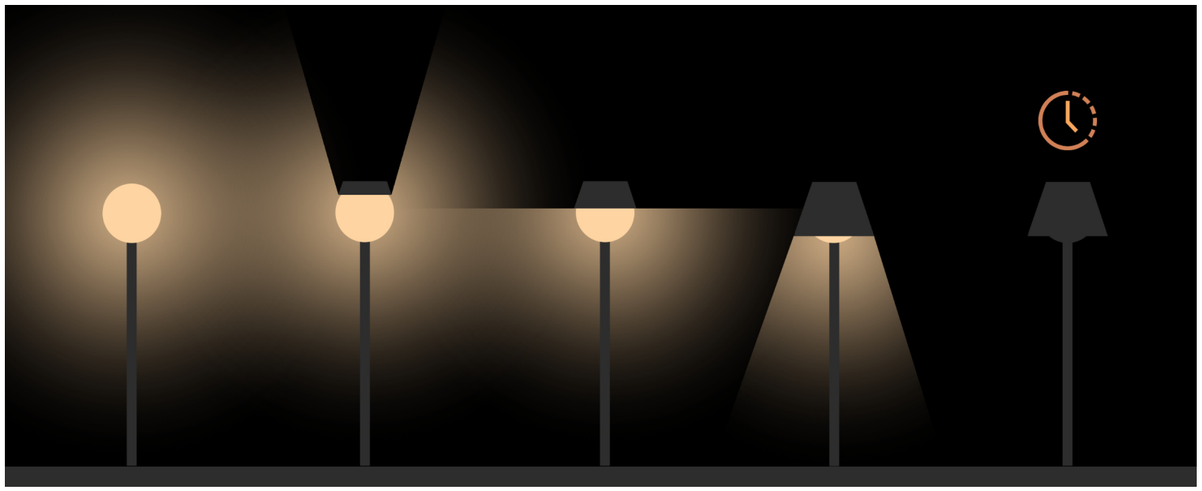
We are keen to learn as much as possible on the topic of lighting and ecology and are actively pursuing information from successful delivered projects, lighting industry publications and reports, lighting society publications as well as conferences and lectures not just from light and lighting but from the National Bat Conservation Trust, ROLAN, Dark Skies Network, ILP, SLL and IALD.

Working with Ecologists

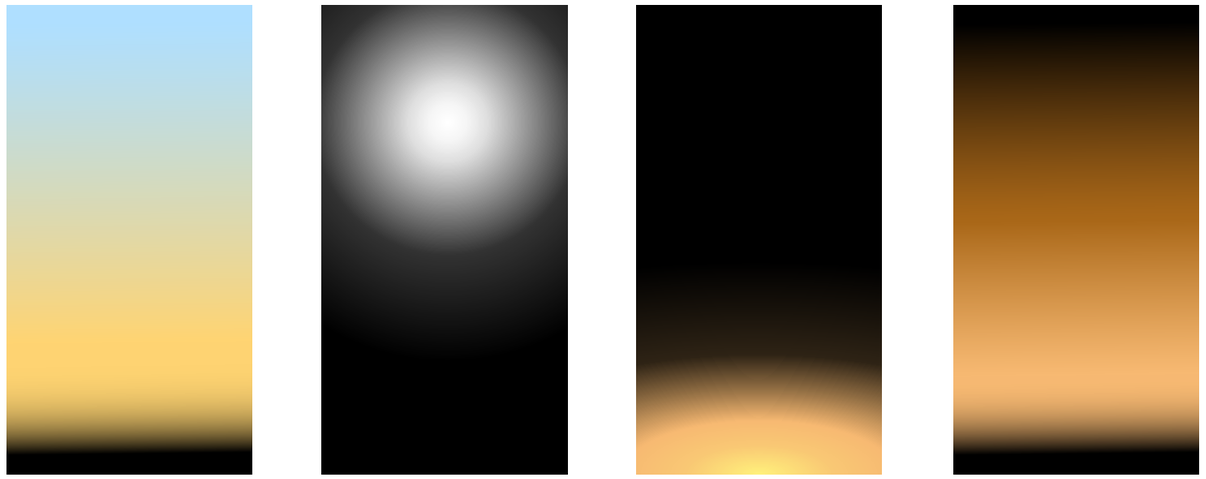
We invite all ecology reports and active discussions with Ecologists as part of the design process and we wish to make it proactive. We believe it is an important aspect to be heard in order to ensure our designs and proposals match the proposed allowance of impact and have been considered by all parties. Although it may not be possible for the project to have no lighting, we do wish to work to make a minimal impact, whilst ensuring the project aims and creating safety and usability at night where necessary.

Dark Skies

Making and keeping skies dark is a extremely important topic and ideal to us as lighting designers, we do not wish for our lighting designs and implementations to impact or lessen the beauty and natural wonder of the sky for anyone where at all possible. Therefore we follow the recommendations and actively encourage our clients and surrounding design team to find the right balance between light and dark, between safety and ambience and between use at night and no light whatsoever. Reduction and darkness is as much a tool as light is and we endure to find the balance between each on every project and intervention.

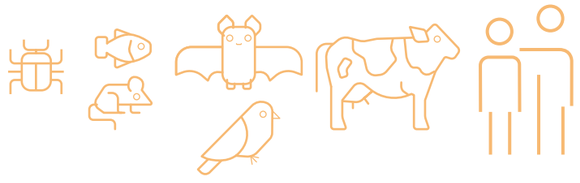


Dark Sky Guidance - Worst Case example to Best Case



Sunset 800 Lux | Full Moon 0.3 Lux | Outdoor Lighting | Sky Glow

Natural | Human Made



Therefore lighting makes a huge impact on the circadian rhythms of both animals and humans. It should be used with care an appreciation for the wider sphere of our world and the activities we as humans do within the spaces we create.

0.1 — *3* — *0.2 - 6*

Melatonin Suppression Levels

Artin.

11 EXECUTIVE SUMMARY AND APPENDICES

The overall intention of the lighting design is to provide functionality, wayfinding and safety across the site. The lighting design scheme shall have clear legibility and a clear level of contrast and illumination to provide a safe and secure environment for all users at all times.

The scheme achieves BS 5489-1:2020 Class P2 requirements for average illuminance, uniformity, and glare control, along the key routes through the site. Within the stramp and curved seating areas we have opted to provide suitable illuminated areas, integrated lighting within structures, seating and planters and vertical illumination to ensure that the scheme provides a well-lit and aesthetically pleasing external lighting design environment.

The scheme has been developed to ensure all vertical and upward light is minimised reduced where necessary through clear and concise specification of fittings, and adaptations to ensure unnecessary upward light spill is minimised. Luminaires have been specified with cut-off optics, louvres, or integration details as well as careful aiming to minimise upward light, glare, and overspill at site boundaries (in line with ILP GN01:2020). This equally means that glare will be minimal and controlled in order to create the lighting environments we aspire to.

All luminaires are 2,700K or warmer, and sensitive placement of luminaires minimise ecological impact, particularly on nocturnal wildlife. The lighting is also well controlled across the site and operates with DALI astronomical clock, photocells/timers with provision for dimming, reducing energy use during low-activity periods of curfew.

The scheme has been developed in close coordination with the developer to ensure the scheme balances safety, functionality, and environmental responsibility, delivering a sustainable lighting solution for the development.

Please see associated documents referenced or included within this document:

Z1-ATL-G540-PL-GRD-001
A1 PDF Lighting General Arrangement Plan

Z1-ATL-G540-DC-GRD-002
Trinity Islands Balustrade Design Intent

Z1-ATL-G540-SP-GRD-001
Trinity Islands Exterior Lighting Specifications