EXTERNAL LIGHTING DESIGN

FOR

SIEMENS HEALTHINEERS BUILDING

AT

SYMMETRY PARK, OXFORD NORTH

FOR

TRITAX SYMMETRY

EXTERNAL LIGHTING DESIGN

FOR

SIEMENS HEALTHINEERS BUILDING

AT

SYMMETRY PARK, OXFORD NORTH

FOR

TRITAX SYMMETRY

Client

Tritax Symmetry
Grange Park Court
Roman Way
Northampton
NN4 5EA

Consulting Engineers

Dunwoody LLP
Dunwoody House
396 Kenton Road
Harrow
Middlesex
HA3 9DH

REVISION SHEET

Issue No	Date	Revision Details	Status	Approved
P1	02/09/21	First Issue	Planning	RES
P2	19/10/21	Second Issue	Planning	RES
P3	28/10/21	Typographical corrections	Planning	RES
01	15/11/21	Final Issue. Phase 2 Drawing added	Planning	RES
02	01/12/21	Phase 1 and 2 Illumination Levels added	Planning	RES

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1.00 EXECUTIVE SUMMARY

The external lighting installations serving the Siemens Healthineers building at Symmetry Park Oxford North have been designed in accordance with British Standards, CIBSE Codes and ILP Guidance Note 08/18 to limit the light pollution impact to the area and in particular the spill at the boundary of the A41 has been limited by luminaire shielding to 1.0 Lux so as not to impact on a potential Bat feeding corridor. Only luminaire with zero upward light output will be specified and careful consideration will be given to photometric distribution to limit glare from secondary surface and impact on night time skies.

It is considered that the lighting assessment shows that there is no significant environmental spillage or impact to residential amenity or other environmental concerns as a result of the lighting installation either during construction or in operational phases**.**

The attached technical information details the design to support this statement.

2.00 INTRODUCTION

This supporting information is for consideration by the Cherwell District Council Planning Department for the Siemens Healthineers building at Symmetry Park, Oxford North. The report includes lux levels within the site and surrounding areas, and includes supporting technical information. The external lighting design has been carried out with regard to British Standards and CIBSE Guides and with special consideration to limiting light pollution generally and in particular to adjacent properties.

3.00 TECHNICAL INFORMATION

External lighting design will incorporate the requirements of BS 5489-1:2013 and BS12464-2:2014 Part 2. All luminaires will be selected to have a zero upward light output ratio with shielding to limit light spill to surrounding areas and have a photometric distribution to control illumination of vertical surfaces and secondary reflected lighting pollution.

Roadway lighting will be lantern LED Road Distribution luminaires mounted on 0.5m projection single arm brackets, which will be fitted to 8m or 10m high lighting columns. (Luminaire reference V1, V2 or V3).

Car parking areas lighting will be lantern LED Forward Throw / Asymmetric Distribution luminaires mounted on 0.5m projection single / double arm brackets, which will be fitted to 8m high lighting columns. (luminaire reference V2, V3 and V4).

Service Area lighting around Unit 01 will be Lantern LED forward throw distribution luminaires with higher lumens output, mounted on 8m lighting columns and single arm brackets (Luminaire reference V1). Additional LED area distribution luminaires to be wall mounted at a height of 8m on building perimeter walls. (Luminaire reference V1.W).

Loading Bay Area lighting, will be bulkhead LED luminaires mounted on the building façade above the docking door at 4m high (luminaire reference U).

Wall mounted LED bulkhead luminaires shall be fitted on the perimeter at 3.5m mounting height. (Luminaire reference U).

Wall mounted emergency lights shall be provided above each fire exit door at 3.5m mounting height. (Luminaire reference U/E)

All lighting will be operated via photocells with each zone of lighting having its own time switch override control. Roadway lighting will be photocell controlled

Lighting will be operational every day of the week, including public holidays.

The design of the lighting has been developed, so as not to cause visual intrusion and unacceptable light spillage to residential properties.

Shields will be fitted to luminaires to prevent light intrusion, to protect adjacent properties from direct glare and to limit lighting level to 1.0lux in the potential Bat feeding zone adjacent to the A41.

Lighting columns are 8 or 10 meter root mounted tubular steel columns, designed in accordance with EN40. Finish galvanised to ISO 1461. Hinge down pattern for external winch operation.

Obtrusive Lighting and Planning Conditions.

The following section is in reference to the ILP guidance notes on obtrusive light pollution 2011. Based on table 1 – Environmental Zones of the guidance notes it is assumed the services area and office parking bays shall fall under zone category E2 (Rural) / E3 (Suburban).

As per table 2 – Obtrusive Light Limitations for exterior lighting installations the following standards must not be exceeded.

Environmental Zone	Sky Glow ULR (Max %)	Light Intrusion (into windows) Ev[Lux]		Luminaire intensity I [candelas]		Building Luminaire Pre-Curfew
		Pre Curfew	Post Curfew	Pre Curfew	Post Curfew	Average L cd/m²
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10

Note: the light intrusion into windows is not applicable in the current scenario. Calculation result outputs have determined that the above standards have not been exceeded. The upward light ratio does not exceed 2.5% and average L cd/m² is 2.48.

The lighting layout outputs are in accordance with table 3 within the ILP guidance notes under road classification ME4 / ME3 which states Threshold Increment shall not exceed 15% based on adaption luminance of 2 cd/m and veiling luminance of 0.40 LV.

All directional signage, security and roadway lighting is required to operate 24hour via photocell control with an additional manual and programmable automatic off switch.

Display signage will comply with ILP guidance notes and all non-essential lighting will be photocell controlled with time switch override to switch off power between hours of 11.00pm and 7.00am.

Refer to drawing “20944/E/105 P2 External General Lighting Site Lux Plot” for visual representation of lux levels at specific points through the service area, transport, parking area, office and loading area. Additionally, the drawing displays levels of obtrusive lighting up to a 30 meter perimeter of the site boundary. The drawing also shows types/locations of luminaires, illumination levels throughout the site and obtrusive lighting spill, and indicates the shielded luminaires.

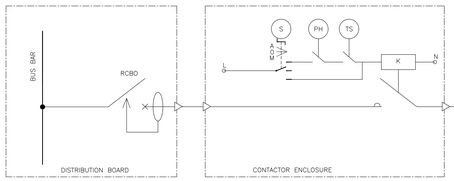
4.00 CONCLUSION

It is considered that the lighting assessment shows that there is no significant environmental spillage or impact to residential amenity or other environmental concerns as a result of the lighting installation either during construction or in operational phases.

APPENDIX A

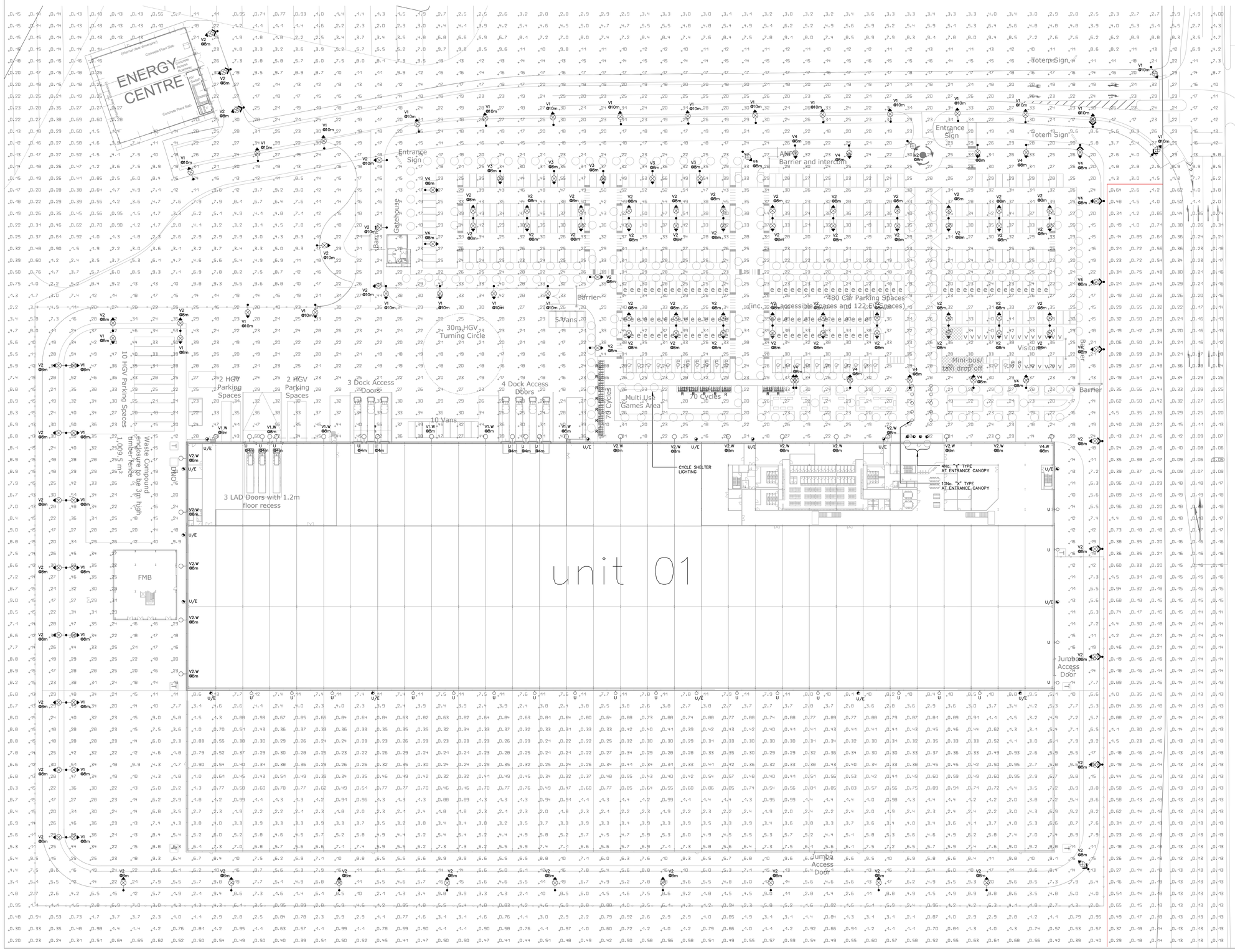
LIST OF DRAWINGS

20944/E/105 A	Phase 1 External Lighting Site Lux Plot
20944/E/106 A	Phase 2 External Lighting Site Lux Plot



TS – TIME SWITCH
PH – PHOTOCELL
K – CONTACTOR
A1 – COIL
RCBO – RESIDUAL-CURRENT CIRCUIT BREAKER WITH OVERCURRENT PROTECTION.
S – HAND/OFF/AUTO SELECTOR
L – PHASE
N – NEUTRAL

DESIGN VALUE OF HORIZONTAL ILLUMINANCE VALUES	
AREAS	AVERAGE HORIZONTAL ILLUMINANCE (LUX)
ROADWAY	20
CAR PARK	25
LOADING/UNLOADING	50
PEDESTRIAN WALKWAY	10
MAIN ENTRANCE	50
SERVICE YARD	25
FIRE TRACK	10
CYCLE SHELTER	20
PEDESTRIAN AREA	20



LEGEND:

DOWNLIGHT LUMINAIRE:
TYPE Y.E (E – EMERGENCY PACK)
MOUNTED AT 7.2m

BOLLARD LUMINAIRE:
TYPE X
MOUNTED AT FINISH FLOOR LEVEL

COLUMN CARRYING LUMINAIRE:
TYPE V1/V2/V3/V4
MOUNTED AT: AS NOTED

COLUMN CARRYING LUMINAIRE WITH LIGHT SHIELDING REQUIRED FOR PROTECTION AGAINST LIGHT SPILLS INTO WOODLAND AREA:
TYPE V1/V2/V3/V4
MOUNTED AT: AS NOTED

WALL MOUNTED LUMINAIRE:
TYPE V1.W /V2.W
MOUNTED AT: 8m

WALL MOUNTED LUMINAIRE ABOVE DOCKING LEVELER:
TYPE U
MOUNTED AT: 4m ABOVE ±0.00 LEVEL

WALL MOUNTED LUMINAIRE:
TYPE D
MOUNTED ABOVE EXIT DOORS

LIGHT SCREEN

LOCAL ILLUMINANCE LEVEL VALUE (LUX)

BOUNDARY LINE WHERE LIGHT OVERSPILL SHALL BE LIMITED TO A MAXIMUM OF 1Lx.

LUMINAIRE DETAILS	PICTURE
TYPE K LUMINARIES: LUCECO PLATINUM DOWNLIGHT 25W MATT REFLECTOR IP65 CLEAR DIFFUSER ARTICLE NO.: LDP20W32M540 + LDP20BWHIP LUMINOUS FLUX (LUMINAIRE): 2892 lm LUMINOUS FLUX (LAMPS): 2940 lm LUMINOUS EFFICACY: 115.7 lm/W LUMINAIRE WATTAGE: 25 W IP65, W07, CRI 100, CCT 4000K LUMINAIRE CLASSIFICATION ACCORDING TO CIE: 99 CIE FLUX CODE: 79 98 100 99 98 (CORRECTION FACTOR 1.000)	
TYPE T LUMINARIES: KINGFISHER LIGHTING (LUCECO) HELVELLYN 2.0 - 15W (LED 4000K) SYMMETRICALARTICLE NO.: PBH 4D11361 LUMINOUS FLUX (LUMINAIRE): 1500 lm LUMINOUS FLUX (LAMPS): 1500 lm LUMINOUS EFFICACY: 100 lm/W LUMINAIRE WATTAGE: 15 W IP65, W08, CRI >70, CCT 4000K LUMINAIRE CLASSIFICATION ACCORDING TO CIE: 95 CIE FLUX CODE: 0 27 68 95 25 (CORRECTION FACTOR 1.000)	
TYPE U/UE LUMINARIES: HOLOPHANE EUROPE LTD DENVER ELITE WALL MOUNTED AT 3.5m ARTICLE NO.: DEW.LA014.NR.CGL LUMINOUS FLUX (LUMINAIRE): 1226 lm LUMINOUS FLUX (LAMPS): 1226 lm LUMINOUS EFFICACY: 102.1 lm/W LUMINAIRE WATTAGE: 12 W IP65, IK08, CRI 70, CCT 4000K LUMINAIRE CLASSIFICATION ACCORDING TO CIE: 97 CIE FLUX CODE: 30 63 93 97 100 (CORRECTION FACTOR 1.000)	
TYPE R LUMINARIES: WHITECROFT LIGHTING ACL EXTREME - MOUNTED AT 2.0m ARTICLE NO.: AKJ442AK LUMINOUS FLUX (LUMINAIRE): 3274 lm LUMINOUS EFFICACY: 116 lm/W LUMINAIRE WATTAGE: 28.3 W IP65, IK10, CRI 80, CCT 4000K	
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TYPE V2/V2.W LUMINARIES: HOLOPHANE EUROPE LIMITED FACTOR STREETLIGHT ARTICLE NO.: FTS.2.LA124.FW LUMINOUS FLUX (LUMINAIRE): 12574 lm LUMINOUS FLUX (LAMPS): 11700 lm LUMINOUS EFFICACY: 123.3 lm/W LUMINAIRE WATTAGE: 102 W IP65, IK08, CRI 100, CCT 4000K, ULOR 0.0% LUMINAIRE CLASSIFICATION ACCORDING TO CIE: 100 CIE FLUX CODE: 20 47 89 100 100 (CORRECTION FACTOR 1.000)	
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REV.	AMENDMENTS	BY	DATE
A	TENDER ISSUE	RES	NOV '21

dunwoody

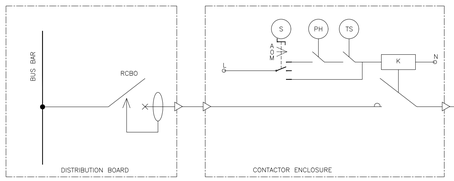
MAIL@DUNWOODY.UK.COM

CLIENT:
TRITAX SYMMETRY
A TRITAX BIG BOX COMPANY

PROJECT:
OXFORD NORTH, SYMMETRY PARK

TITLE:
PHASE 1 EXTERNAL GENERAL LIGHTING SITE LUX PLOT

DRAWN: ARV	DESIGNED: RES
SCALE: 1:500@A0	DATE: NOV '21
DRAWING NUMBER: 20944/E/105	A



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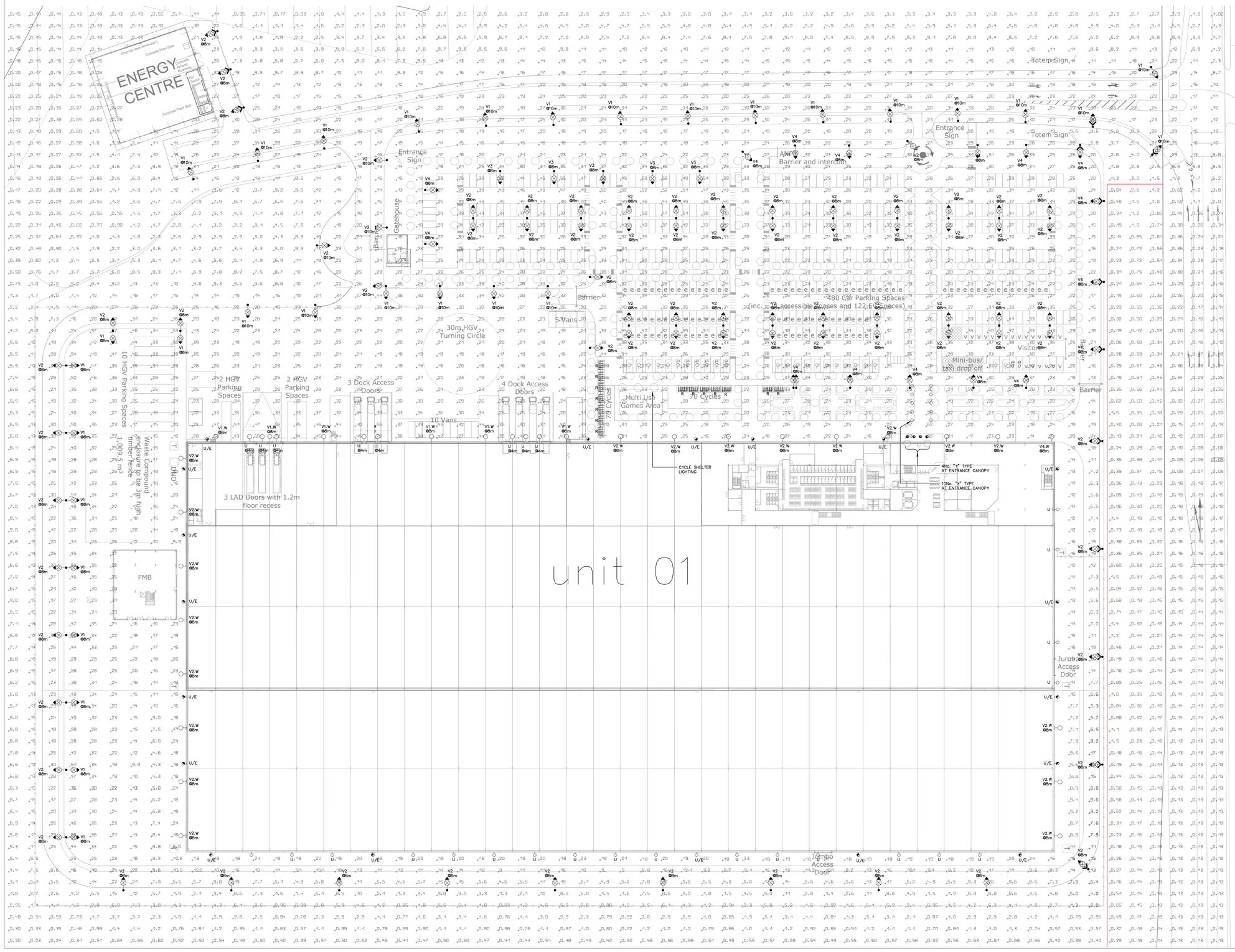

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MOUNTED AT FINISH FLOOR LEVEL

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MOUNTED AT: 4m ABOVE ±0.00 LEVEL

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MOUNTED ABOVE EXIT DOORS

LIGHT SCREEN

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A	TENDER ISSUE	RES	NOV '21

dunwoody

MAIL@DUNWOODY.UK.COM

CLIENT
TRITAX SYMMETRY
A TRITAX BIG BOX COMPANY

PROJECT
OXFORD NORTH, SYMMETRY PARK

TITLE
PHASE 2 EXTERNAL GENERAL LIGHTING SITE LUX PLOT

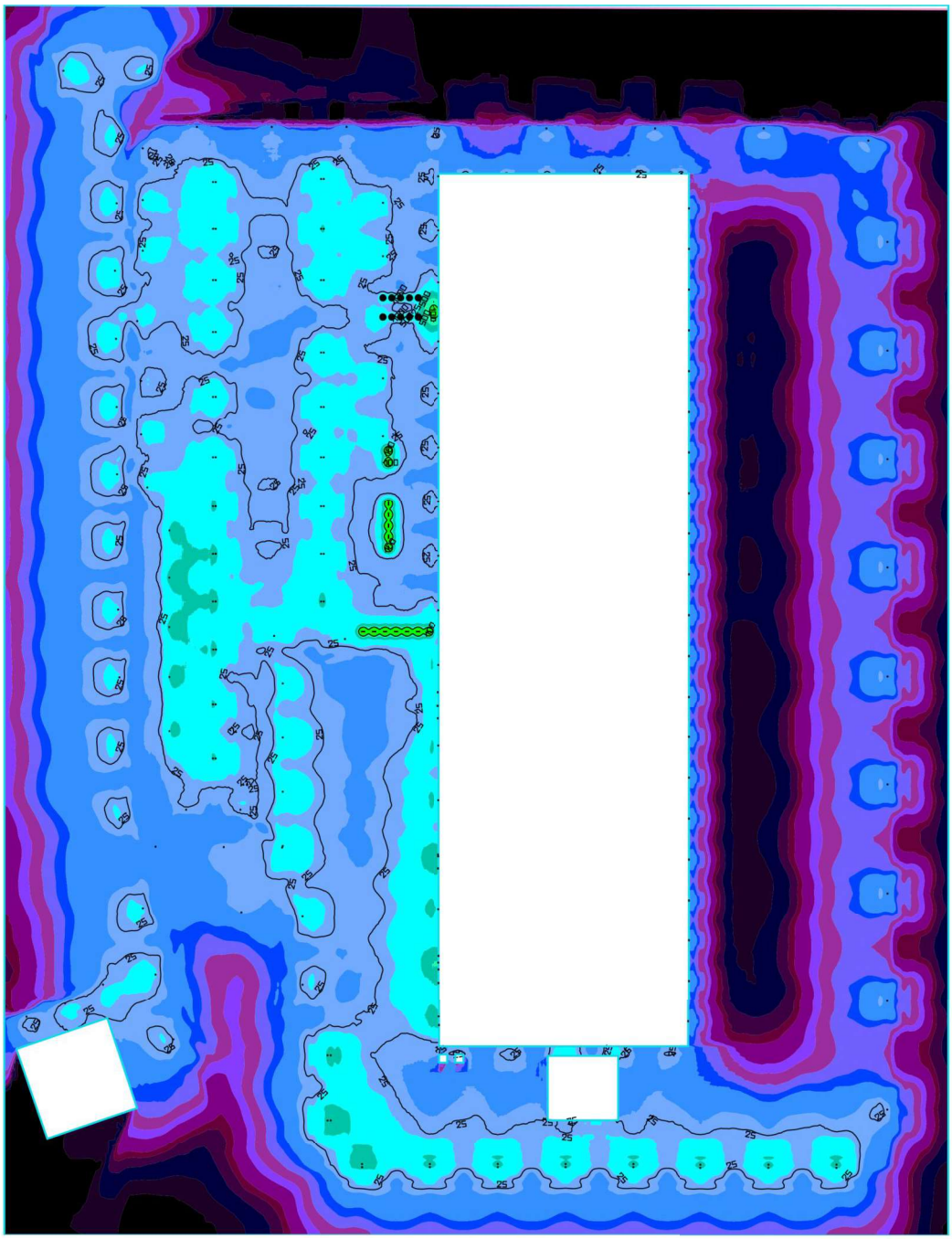
DRAWN	DESIGNED
ARV	RES
SCALE: 1:500@A0	DATE: NOV '21
DRAWING NUMBER: 20944/E/106	A

APPENDIX B

PHASE 1 AND 2 ILLUMINATION LEVELS

Oxford North · Outdoor Space (Light scene)

Summary



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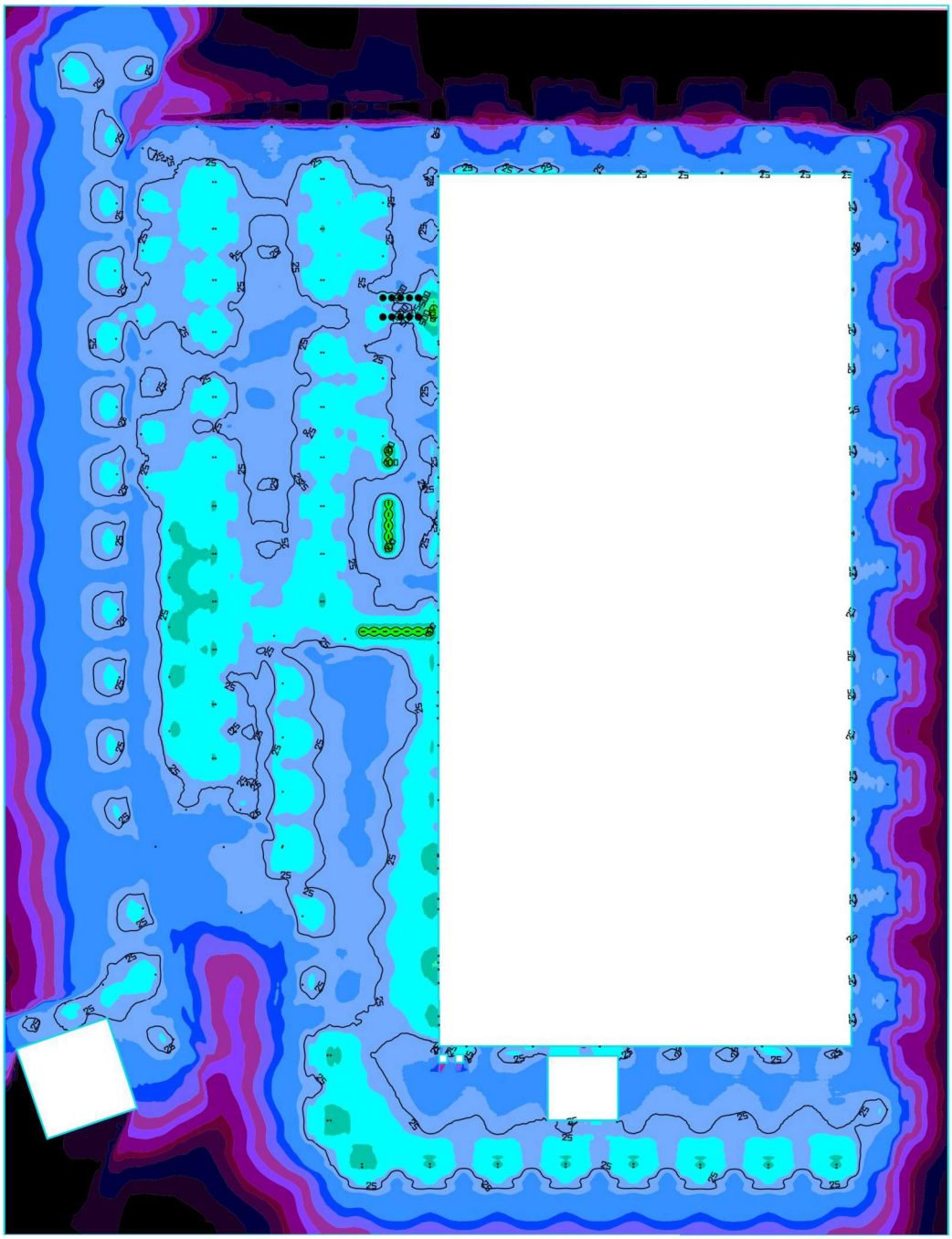
Summary



Ground area: 157529.28 m² | Light loss factor: 0.80 (fixed) | Mounting height: 1.000 m - 10.000 m