

# Secure Training Facility

External Lighting Strategy & Planning Statement

Rev. P08  
December 2017

Rev.	Description	Prepared and checked by	Reviewed by	Date
P00	Initial issue for comment/approval	RB	RG	09/09/2016
P01	Design Team Comments Incorporated	RB	RG	10/10/2016
P02	External Strategy Drawing Adjusted	RB	RG	13/10/2016
P03	Environmental Zone E3 Incorporated	RB	RG	24/10/2016
P04	External Strategy Drawing Adjusted	RB	RG	16/11/2016
P05	External Strategy Drawing Adjusted	RB	RG	12/01/2017
P06	External Strategy Drawing Adjusted	RB	RG	17/01/2017
P07	Stage 3 Issue	RB	RG	11/04/2017
P08	VE Re-design	RB	RG	12/01/2018

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# Secure Training Facility, Cardiff Bay

## External Lighting Strategy & Planning Statement



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## External Lighting Strategy & Planning Statement

### 1. Introduction

This statement has been compiled to support the Planning Application for the proposed external lighting scheme at the Secure Training Facility, Cardiff Bay.

The planners will need to advise on any limitations of the height of lighting columns due to the local ecology which will influence this proposal.

### 2. Design Standards

The following design standards will be utilised:

- BS5489-1:2013 Code of practice for the design of road lighting Part 1 – Lighting of roads & public amenity areas
- BS EN 12464-2:2014- Light & Lighting Places of Work Places – Part 2 Outdoor Work Places
- The Institute of Lighting Engineers (ILE) Guidance Notes for the Reduction of Light Pollution
- BREEAM 2014
- CIBSE LG6 – The Outdoor Environment

### 3. Lighting Proposals

The extent of external lighting that will be provided as part of the new build works is covered below. The final quantity and position of the luminaires will be determined at Technical Design - RIBA Stage 4.

Refer to the lighting strategy attached for further information.

#### 3.1 Car Park/ Access Road & Front of Walkways

The car park will be illuminated via 6m lighting columns at approximately 15m centre.

A luminous efficacy of at least 70 lamp lumens /circuit watt with colour rendering (Ra) greater than or equal to 60 will be achieved within the car park [BREEAM Ene3].

#### 3.2 Building Perimeter & Dock Edge Access

Lighting around the building perimeter and dock edge will incorporate decorative luminaires and more functional bulkheads fixed to the external perimeter of the building / fencing at approximately 6m centres and 6m AFFL.

A luminous efficacy of at least 70 lamp lumens /circuit watt with colour rendering (Ra) greater than or equal to 60 will be achieved to the building perimeter [BREEAM Ene3].

#### 3.3 Street Lighting

Offsite road/street lighting will predominately remain as existing as per Cardiff County Council street lighting division. Some minor alterations may be required in the vicinity of the new entrance to the training facility. i.e Existing column in new entrance is to be relocated to the entrance path.

#### 3.4 Feature & Signage Lighting

Linear LED Lighting strip is to be provided to the entrance canopy together with LED strip to projection cladding. This will also provide functional lighting to the path below. Illuminated signage will be provided to the Key elevations and on the entrance to the site.

## External Lighting Strategy & Planning Statement

### 4. Design Criteria

In order to comply with the design standards a balanced selection of design criteria needs to be considered in particular to uniformity. In compliance with BS EN 12464-2 for the car park access road and adjacent walkways the illuminance and recommended Uniformity  $U_0$  is 10 Lux and 0.4 / 0.25 respectively. The proposed lighting to the façade of the new building shall provide 5 Lux with no prescribed uniformity due to the decorative nature of the luminaires. The dock edge access lighting shall adopt 5 Lux @ 0.25 Uniformity.

The exact manufacturer and model of luminaires shall be determined at Technical design stage 4, and thus the images below are subject to change. The design criteria for each area is proposed as follows:

**LEGEND**

(X1) BUILDING DECORATIVE FUNCTIONAL DOWN LIGHTING MOUNTED ON THE FACADE TO PROVIDE 5 LUX. (C/W EMERGENCY O/S EXITS)



(X2) P 65 LED STRIP IN ALUMINIUM EXTRUSION / DOWNLIGHTING FROM CANOPY FRAME



(X3) IP 65 LED STRIP FIXED TO PROJECTING CLADDING EDGE (3 ROWS)



(X4) PERIMETER LIGHTING MOUNTED ON 3.0m FENCE TO ILLUMINATE DOCK EDGE / GATEHOUSE / BIN STORE TO PROVIDE 5 LUX/0.25 $U_0$



(X5) GROUND RECESSED MOUNTED FEATURE LIGHTING



(X6) ROAD / WALKWAY / PARKING / PARADE & WET WEATHER AREA TO PROVIDE 10 LUX/0.4 $U_0$  (8m COLUMNS)



(X7) IP 65 LED FLOODLIGHT IN BLACK



**LEGEND**

INTERNAL / ATRIUM LIGHTING



(X8) EXISTING HIGHWAY / STREET LIGHTING TO BE RETAINED (8m COLUMNS)



INTERNALLY ILLUMINATED SIGNAGE (BY SIGNAGE SPECIALISTS). ELECTRICAL SUPPLY TO BE PROVIDED ONLY.



## External Lighting Strategy & Planning Statement

### 5. Lighting Controls

This section contains a brief description of the extent of external lighting controls that will be used to control the luminaires covered previously.

#### 5.1 Car Park & Walkways

The lighting of the car park shall operate on a dusk till dawn lighting sensor [BREEAM Ene3] with time clock to facilitate 50% dimming or switch off during out of hours (curfew) operation i.e. 23:00-0700 hrs.

#### 5.2 Building Perimeter

The lighting to the perimeter of the building will be controlled with a dusk till dawn lighting sensor [BREEAM Ene3] with time clock switch override to turn the lighting off when required.

#### 5.3 Path / Access Walkways

The lighting of the path and access walkways shall operate on a dusk till dawn lighting sensor [BREEAM Ene3] with time clock to facilitate 50% dimming or switch off during out of hours (curfew) operation i.e. 23:00-0700 hrs.

#### 5.4 Feature & Signage Lighting

The lighting of the path and access walkways shall operate on a dusk till dawn lighting sensor [BREEAM Ene3] with time clock switch off during out of hours (curfew) operation i.e. 23:00-0700 hrs.

### 6. Lighting Pollution

External lighting will be designed to minimise light pollution [BREEAM PoI4].

The design will be based on The Institute of Lighting Engineers (ILE) Guidance Notes for the Reduction of Light Pollution.

It is proposed that environmental zone for the development will be based on Zone E3 category – suburban surrounding with medium district brightness area, as indicated in the table below.

The flood lighting shall be designed and aligned to ensure that the upper limit of the main beam does not exceed 70 degrees from its downward vertical.

The submitted scheme shall include an isolux diagram showing the predicted illuminance in the vertical plane (in Lux) at critical locations on the boundary of the site and at adjacent properties.

Environmental Zones			
Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark	National Parks, Areas of Outstanding Natural Beauty etc
E2	Rural	Low district brightness	Village or relatively dark outer suburban locations
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

The obtrusive light limitations will be based on the below:

Obtrusive Light Limitations for Exterior Lighting Installations – General Observers						
Environmental Zone	Sky Glow ULR [Max %]	Light Intrusion (into Windows) $E_v$ [lux]		Luminaire Intensity I [candelas]		Building Luminance Pre-curfew
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L [cd/m <sup>2</sup> ]
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

## 7. Supporting Documentation

A drawing indicating the External Lighting Strategy is attached overleaf layout and elevation.



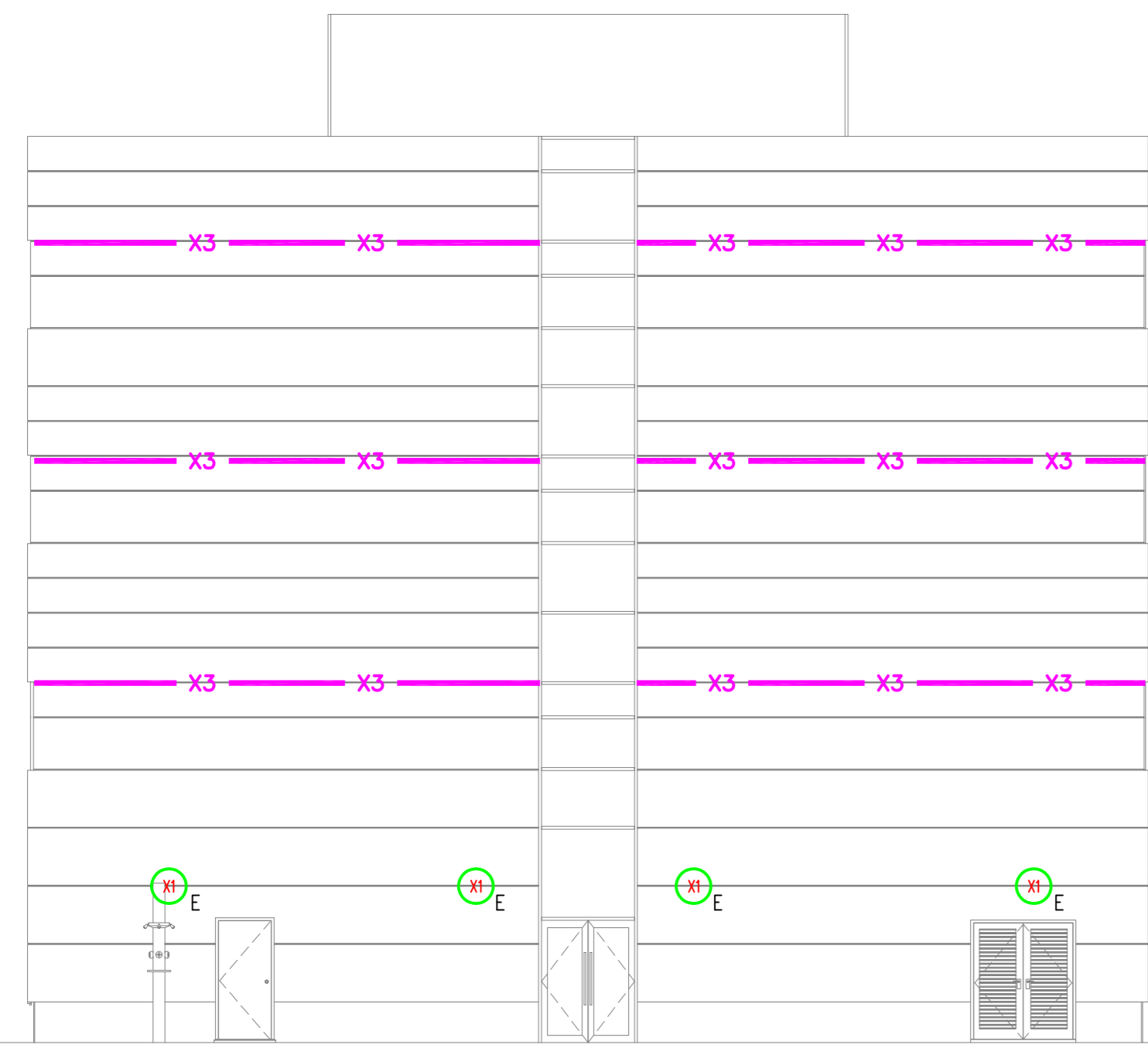
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		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L [cd/m <sup>2</sup> ]
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

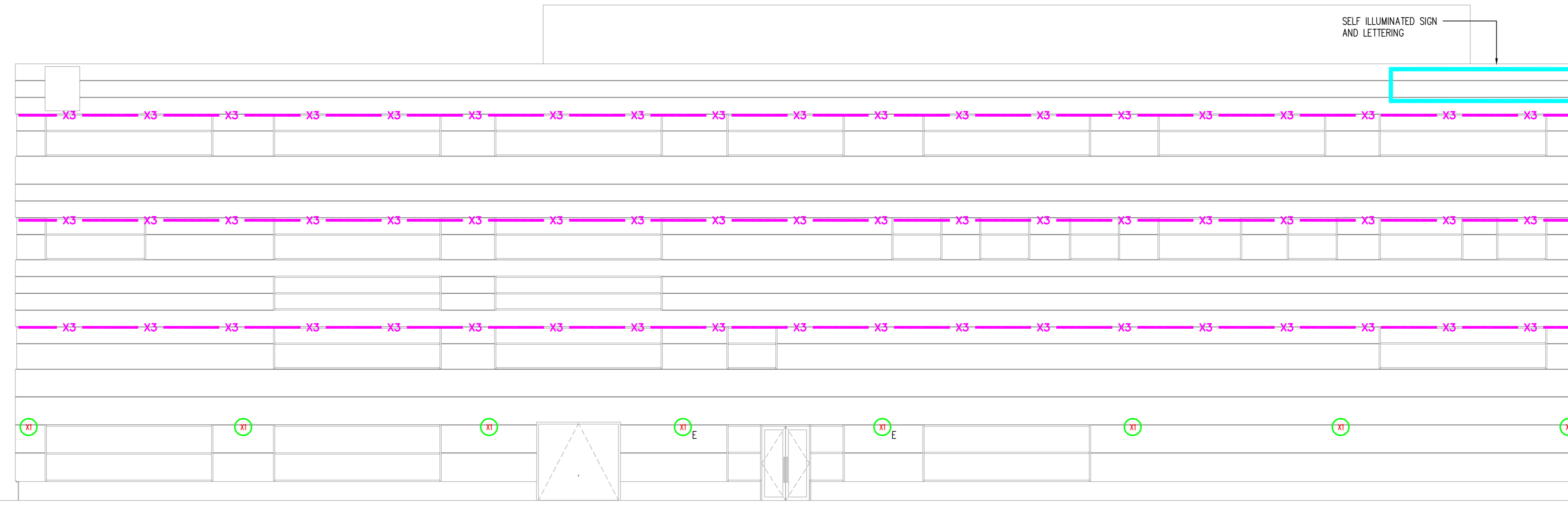
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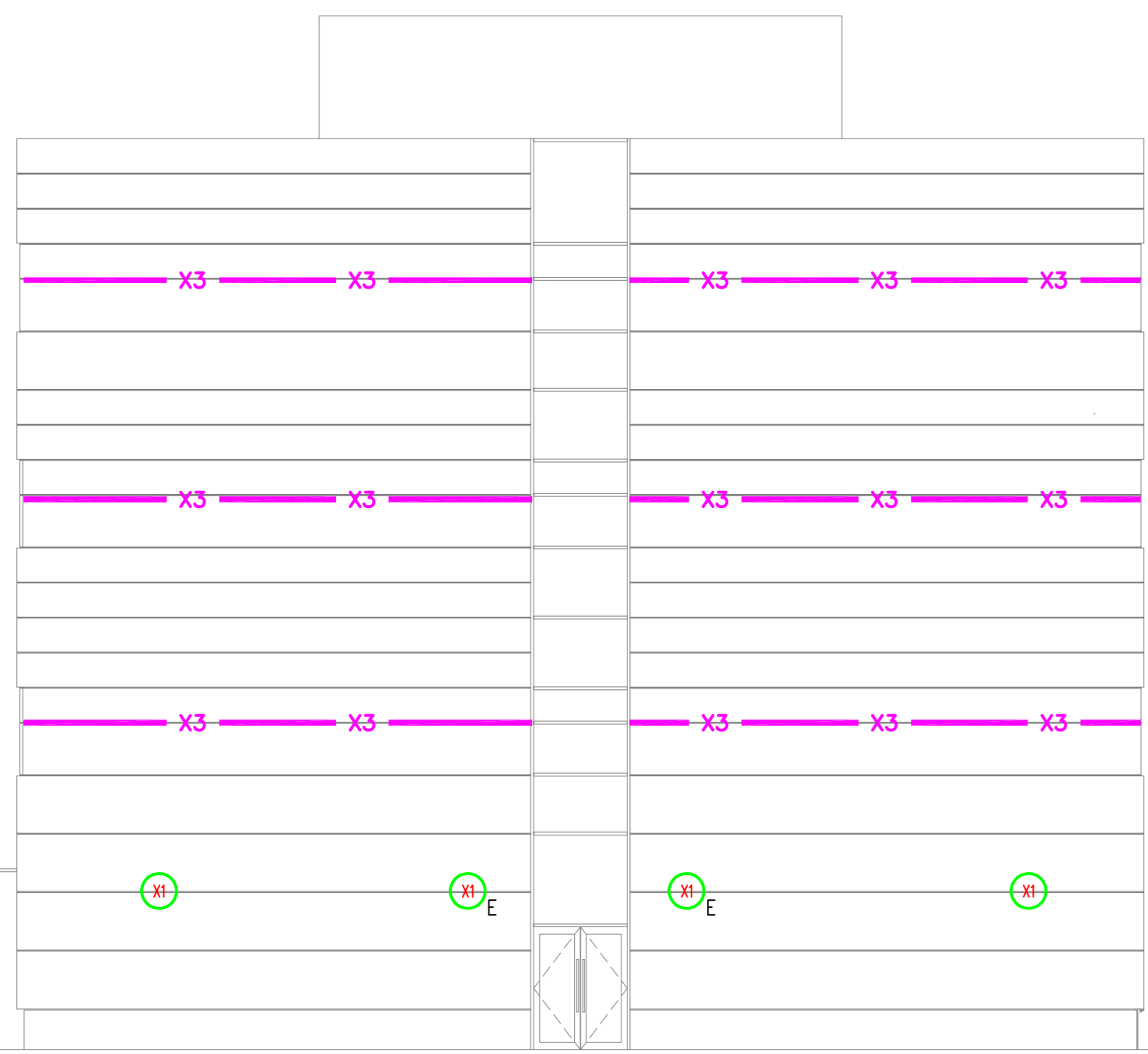




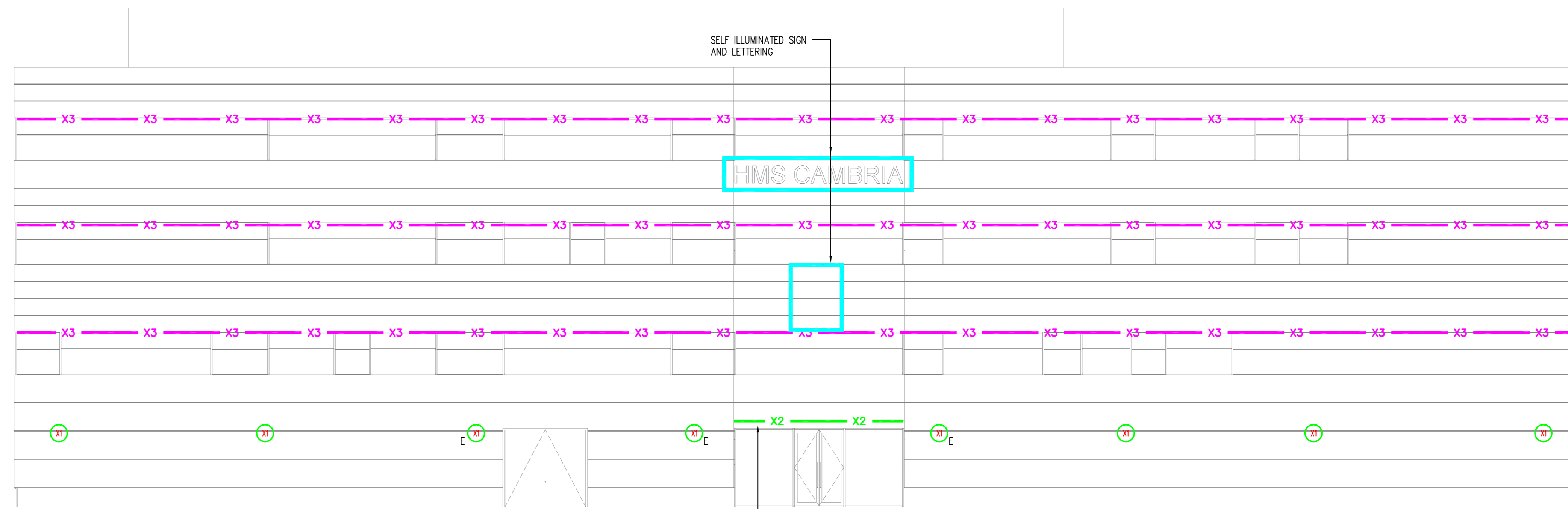
NORTH ELEVATION




EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION

- LEGEND**
- X2 CONTINUOUS LED LIGHT STRIP MOUNTED IN ALUMINUM EXTRUSION
  - X3 CONTINUOUS LED LIGHT STRIP MOUNTED IN FLEXIBLE SUPPORT SYSTEM
  -  DECORATIVE DOWNLIGHT BULKHEAD FIXED TO BUILDING
  - E DENOTES EMERGENCY LIGHTING

- NOTES**
1. THIS DRAWING IS MEANT TO ILLUSTRATE CONCEPT ONLY.
  2. REFER TO EXTERNAL LIGHTING STRATEGY DRAWING FOR FURTHER INFO.
  3. ELECTRICAL SUPPLY TO SIGNAGE ONLY. SIGNAGE TO BE PROVIDED BY SPECIALIST.
  4. X'S TO BE PROVIDED WITH REMOTE EMERGENCY PACKS WHERE SITUATED ADJACENT TO FINAL EXITS.

- General Notes**
- The drawing does not necessarily show all the information needed to interpret the design intent or the construction details.
  - The drawing contains information from more than one source and must be read in conjunction with all relevant specifications.
  - Any apparent drafting errors and differences between other drawings and specifications shall be brought to our attention.

**Project Notes:**

T02	VE RE-DESIGN	JG	ROB	01/18
Issue	Description	Drawn & Checked	Reviewed	Date
Revisions				
CAD ORIGINAL - NOT TO BE MODIFIED BY HAND				

CDM Pre-Construction Information  
The following information is provided in accordance with Regulation 9 of the CDM Regulations 2015:

Architect  
CHETWOODS

Project Title  
SECURE TRAINING FACILITY

Client  
ABP

Drawing Title  
LIGHTING ELEVATION DETAIL

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**TENDER ISSUE**

Drawn by	Designed by	Reviewed by
DR	JG	RDB
Project No	Date	Scale @ A0
0991421	APR 2017	1:100 @ A0
DRAWING NUMBER		
91421-HL-EX-00-DT-E-630-0001		T02

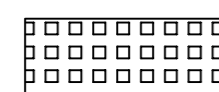


LEGEND

(X1) BUILDING DECORATIVE FUNCTIONAL DOWN LIGHTING MOUNTED ON THE FACADE TO PROVIDE 5 LUX. (C/W EMERGENCY O/S EXITS)



(X2) IP 65 LED STRIP IN ALUMINIUM EXTRUSION / DOWNLIGHTING FROM CANOPY FRAME



(X3) IP 65 LED STRIP FIXED TO PROJECTING CLADDING EDGE (3 ROWS)



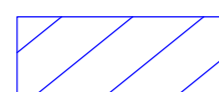
(X4) PERIMETER LIGHTING MOUNTED ON 3.0m FENCE TO ILLUMINATE DOCK EDGE / GATEHOUSE / BIN STORE TO PROVIDE 5 LUX/0.250u



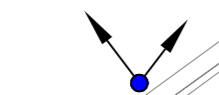
(X5) GROUND RECESSED MOUNTED FEATURE LIGHTING



(X6) ROAD / WALKWAY / PARKING / PARADE & WET WEATHER AREA TO PROVIDE TO LUX/0.40u (6m COLUMNS)



(X7) IP 65 LED LED FLOODLIGHT IN BLACK

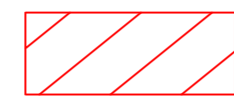
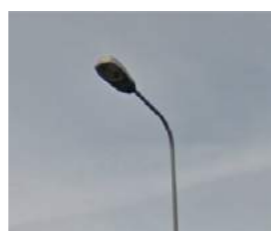


LEGEND

INTERNAL / ATRIUM LIGHTING



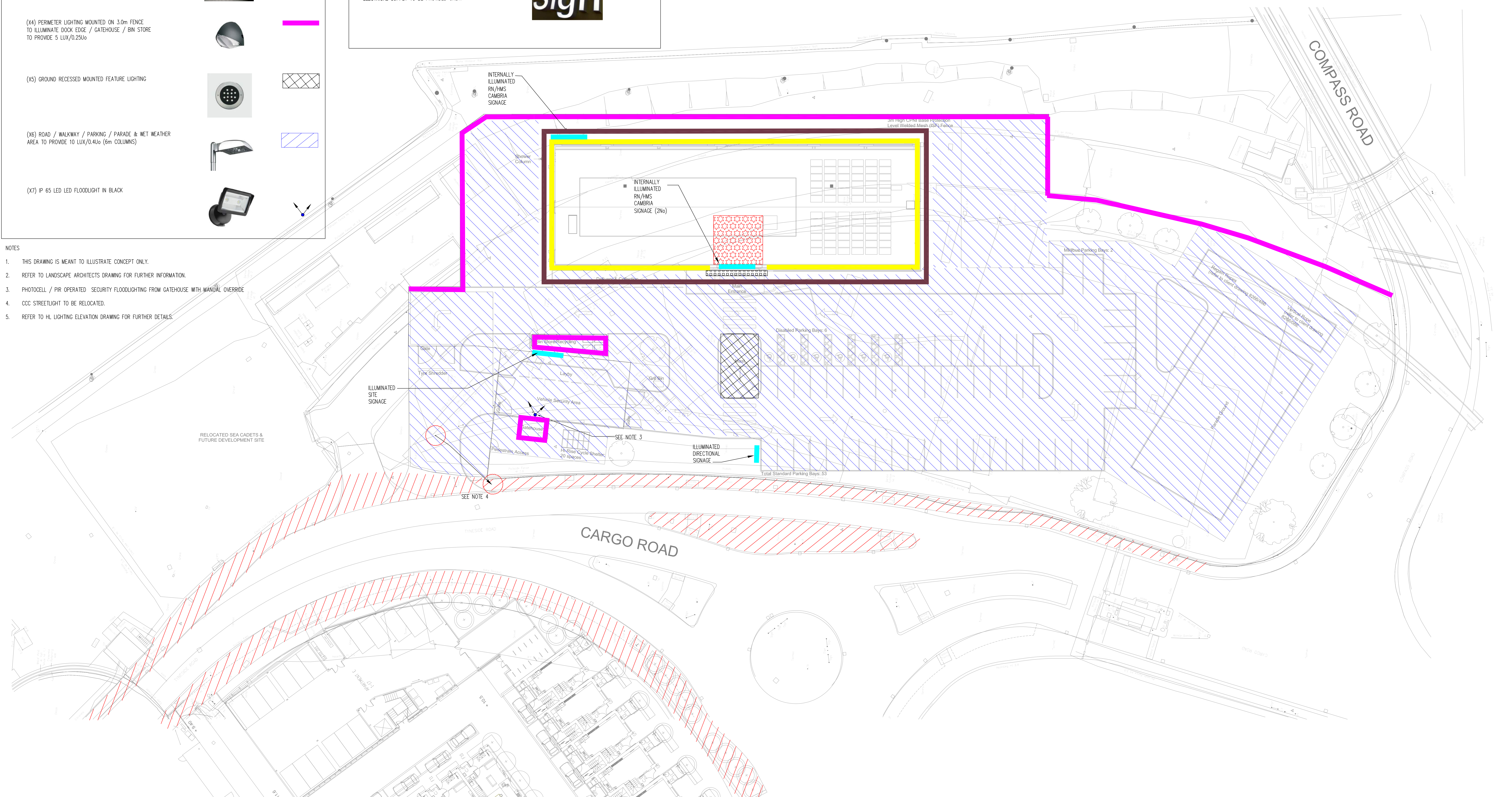
(X8) EXISTING HIGHWAY / STREET LIGHTING TO BE RETAINED (8m COLUMNS)



INTERNALLY ILLUMINATED SIGNAGE (BY SIGNAGE SPECIALISTS). ELECTRICAL SUPPLY TO BE PROVIDED ONLY.



- NOTES
- THIS DRAWING IS MEANT TO ILLUSTRATE CONCEPT ONLY.
  - REFER TO LANDSCAPE ARCHITECTS DRAWING FOR FURTHER INFORMATION.
  - PHOTOCELL / PIR OPERATED SECURITY FLOODLIGHTING FROM GATEHOUSE WITH MANUAL OVERRIDE
  - CCC STREETLIGHT TO BE RELOCATED.
  - REFER TO HL LIGHTING ELEVATION DRAWING FOR FURTHER DETAILS.



<p><b>T02 VE RE-DESIGN ISSUE</b></p> <p>Drawn by: DR Date: 01/18</p> <p>Designed by: RB</p> <p>Checked by: AMT</p> <p>Revisions</p> <p>CAD ORIGINAL - NOT TO BE MODIFIED BY HAND</p>	<p><b>General Notes:</b></p> <ul style="list-style-type: none"> <li>The drawing does not necessarily show all the information needed to interpret the design intent or the construction details.</li> <li>The drawing contains information from more than one source and must be read in conjunction with all relevant specifications.</li> <li>Any apparent drafting errors and differences between other drawings and specifications shall be brought to our attention.</li> </ul> <p><b>Project Notes:</b></p>	<p><b>CDM Pre-Construction Information</b></p> <p>The following information is provided in accordance with Regulation 9 of the CDM Regulations 2015:</p> <p>NO RESIDUAL RISKS IDENTIFIED</p>	<p><b>Architect:</b></p> <p>CHETWOODS</p>	<p><b>Project Title:</b></p> <p>SECURE TRAINING FACILITY</p>	<p><b>www.hoarelea.com</b></p> <p><b>HOARE LEA</b></p> <p><b>TENDER ISSUE</b></p> <table border="1"> <tr> <th>Drawn by</th> <th>Designed by</th> <th>Reviewed by</th> </tr> <tr> <td>DR</td> <td>RB</td> <td>AMT</td> </tr> <tr> <th>Project No</th> <th>Date</th> <th>Scale</th> </tr> <tr> <td>91421</td> <td>AUG 2016</td> <td>1:200 @ A0</td> </tr> <tr> <th colspan="3">DRAWING NUMBER</th> </tr> <tr> <td colspan="2">91421-HL-EX-00-GA-E-630-0001</td> <td>T02</td> </tr> </table>	Drawn by	Designed by	Reviewed by	DR	RB	AMT	Project No	Date	Scale	91421	AUG 2016	1:200 @ A0	DRAWING NUMBER			91421-HL-EX-00-GA-E-630-0001		T02
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<p><b>Client:</b></p> <p>ABP</p>	<p><b>Drawing Title:</b></p> <p>EXTERNAL LIGHTING STRATEGY</p>	<p>© Hoare Lea LLP</p> <p>X:\Cardiff\Projects\91421 Secure Training Facility\07 BIM Axd CAD\7B CAD\7B-3 Electrical\630 - Lighting\91421-HL-EX-00-GA-E-630-0001.dwg Richard Brennan.12010218 13:36:52</p>																					