

Prepared by

Alland Group Pty Limited

# Outdoor Lighting Management Plan

ESR Logistics Park – Lot 202

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## Revision Status

Changes that are made in the latest and/or previous editions of this Outdoor Lighting Management Plan are indicated and identified as follows:

Rev	Date	Description	Reviewed by	Approved by
1	023.03.22	Outdoor Lighting Management Plan	Kieran Murtagh	

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## 1.1 Purpose

ESR Logistics Park Outdoor Lighting Management Plan is intended to guide the selection, placement, installation and operation of all current and replacement lighting throughout the external areas of Lot 202. The LMP function is to regulate the use of artificial light in a way that ensures the safety of visitors and staff while minimizing the impact of lighting pollution to surrounding areas.

This Management Plan is intended to be used in conjunction with the current certified lighting Design and lighting layouts.

## 1.2 Applicability

All Outdoor Lighting used throughout Lot 202 shall conform with the below requirements at all times:

- Comply with client needs and intended uses as outlined in ESR Design Brief
- Comply with relevant Australian Standards
- Comply with BCA artificial lighting requirements
- Be designed and certified by qualified persons in accordance with BCA Clause A2.2

## 1.3 Shielding

All outdoor lighting shall comply with the latest version of AS 4282-2019 – Control of the obtrusive effects of outdoor lighting. All light fittings shall be mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

As outlined in Alland Group exterior lighting designs all lighting fittings are to be installed at the nominated angle to ensure all lighting is projected below the horizontal plane.

## 1.4 Lamp Selection, Lumen intensity, Lighting Density

All outdoor lighting applications will employ the use of energy efficient LED technology. All lighting calculations for current outdoor lighting installation is provided within Appendix A - Alland Group lighting Design.

## 1.5 Security Lighting and minimum lighting levels

A minimum of 20 Lux at 1m horizontally is to be maintained in all external areas by use of LED floodlights to external perimeter of the building. LED batten light fittings shall be installed above all fire exit doorways along external building perimeter.

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Awning areas are to maintain 100 lux measured at 1m horizontally whilst carparks, truck parks and manoeuvring areas are to be illuminated via the use of post or building mounted LED flood lighting in accordance with relevant Australian Standards.

## 1.6 Adaptive Controls

All outdoor lighting contained within the boundaries of Lot 202 shall employ the use of lighting control measures. These controls shall limit the duration and un-intentional activation of outdoor lighting. Based on the current Design Brief and Lighting Design, the use of PE Cells and programmable timers has been implemented to ensure the correct operation of outdoor lighting.

## 1.7 Maintenance and Warranties

Outdoor lighting fixtures shall be regularly tested and inspected as part of the building services maintenance schedule. This installation has been provided with light fitting and installation warranties in accordance with contract requirements. Alland Group are responsible for maintenance and testing of this installation for the DLP duration of 12 months from PC. After this time it is the responsibility of ESR to maintain and test the lighting installation to ensure it is operating correctly.

## 1.8 Certification

This outdoor lighting installation has been designed and certified by qualified persons in accordance with BCA, Australian Standards and local government regulations. Any alterations made to the current lighting installation shall be certified by qualified persons to ensure the integrity of the design throughout is maintained.

## 1.9 Lighting Index Table

Identification No on Drawings/ Design	Description	Locations Found	Installation Information	Control Type As outlined in attached Drawing
P1 / P2	Alpine Street Light 200W	Front and Rear Carpark	Mounted to 8m Pole at 5 Degree angle.	PE Cell
C1	Avalon Flood Light 100W	Awnings Warehouse A + B	Mounted to underside of Awning directly downwards	Timer
C2	Avalon Flood Light 150W	Super Awning Warehouse C	Mounted to underside of Awning directly downwards	Timer
C3	Avalon Flood Light 50W	Awning Warehouse A	Mounted to underside of Awning directly downwards	Timer
W1	Avalon Flood Light 150W	Warehouse Perimeter walls	Mounted at 6.8-7.5m at 8 degrees tilt angle	PE Cell
W3	Avalon Flood Light 100W	Awning perimeters	Mounted to exterior facia of awnings at 7.5m with 8 degree tilt angle	PE Cell
W4	Avalon Flood Light 100W	Warehouse Perimeter walls	Mounted at 6.8m with 8 degrees tilt angle	PE Cell
F1	Zyan Batten Light 35W	Emergency Exit Doorways.	Installed above door way facing floor to avoid any light spill above horizontal plane	PE Cell

## 1.10 Maintenance Schedule

Trade	Description	Frequency	Disruption	Date 1	Date 2
Electrical	Residual Current Device push button Trip Test to Tenants A,B,C and House DB's 1 & 2	6 Monthly	All installations: Test permanently installed Residual Current Devices (RCDs) / Safety Switches using their inbuilt test button. Record results in a log book	Oct-22	Apr-23
Electrical	Emergency Evacuation Lighting System	6 Monthly	Carry out full discharge test and check for correct operation of each emergency luminaire and exit sign.	Oct-22	Apr-23
Electrical	Emergency Evacuation Lighting System	12 Monthly	6 Monthly procedures plus clean all light emitting and reflecting surfaces. Check emergency lighting operates in correct relationship to the normal lighting.	Apr-23	

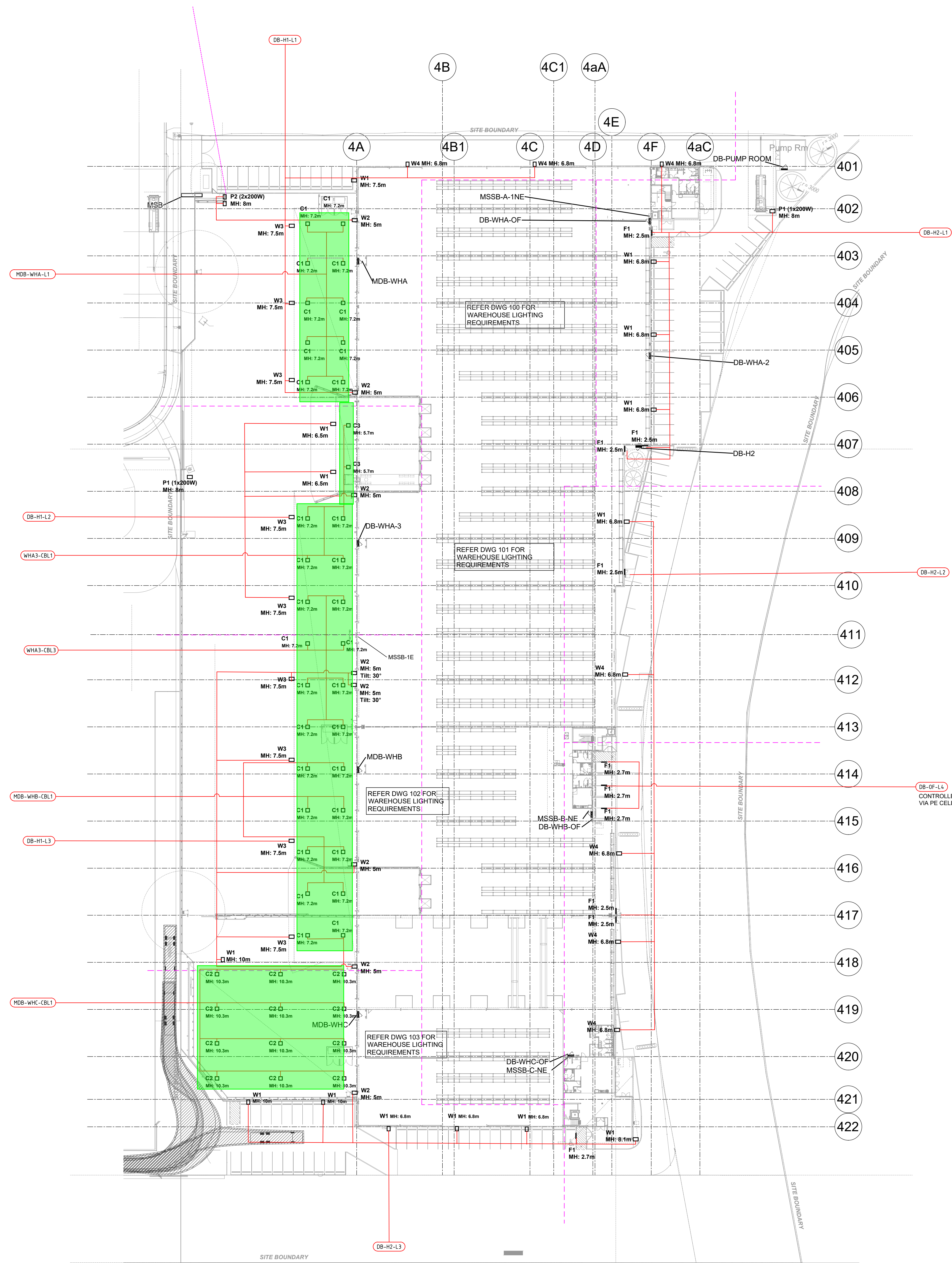


**NOTE:**

1. COMMON AREA EXTERNAL LIGHTING TO BE CONTROLLED VIA PE CELL.
2. TENANT AWNING LIGHTS TO BE CONTROLLED VIA TIMECLOCK WITH OVERRIDE SWITCHING.

Controlled Via Timer controlled Relays to operate from 5:30PM -6:30AM

All other house lighting Not highlighted is controlled Via Daylight Sensor (PE Cell) to maintain security perimeter lighting at all times.



REV	DESCRIPTION	DRAWN	DATE
6	SHOP DRAWING	DS	27.11.21
5	SHOP DRAWING	DS	15.11.21
4	SHOP DRAWING	DS	19.10.21
3	SHOP DRAWING	DS	05.10.21
2	SHOP DRAWING	DS	21.09.21
1	SHOP DRAWING	DS	14.09.21
0	SHOP DRAWING	DS	19.08.21

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PROJECT: **ESR HORSLEY LOGISTIC PARK**  
 327-335 BURLEY ROAD  
 HORSLEY PARK NSW

TITLE: **ELECTRICAL SERVICES EXTERNAL LIGHTING LAYOUT**

**SHOP DRAWING**

SCALE: 1:500	DRAWN: DS
PROJECT No. 6944	DRAWING No. AL-EL-002
	REVISION 6

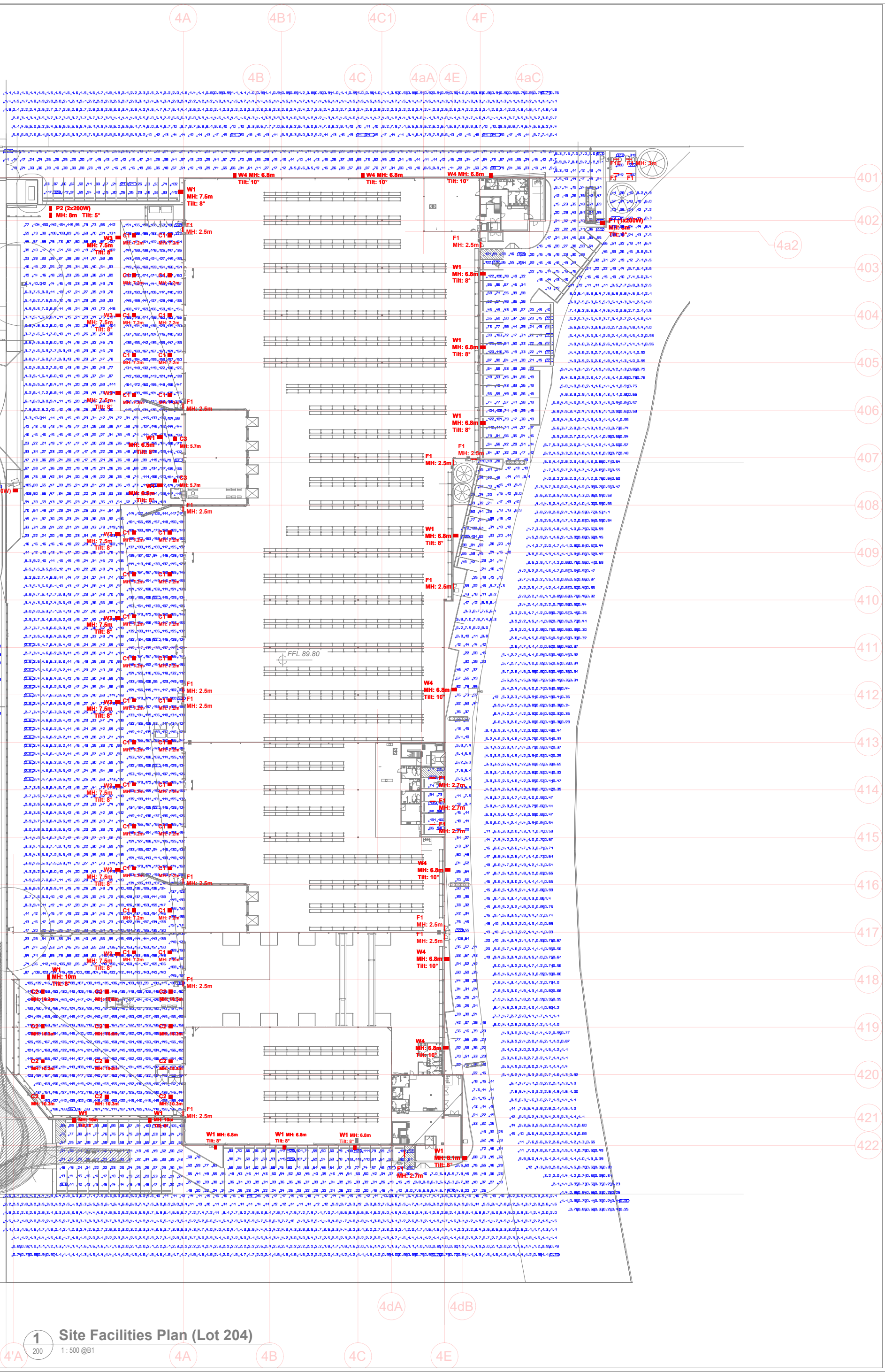


SITE AREA (APZ included 7.166 sqm)	40,080 sqm
EFFICIENCY	40.23 %
WAREHOUSE A	9,000 sqm
OFFICE A (2 LEVELS)	500 sqm
WAREHOUSE B	2,670 sqm
OFFICE B (2 LEVELS)	240 sqm
WAREHOUSE C	2,940 sqm
OFFICE C (2 LEVELS)	613 sqm
TOTAL BUILDING AREA	16,126 sqm
AWNING (5m)	106sqm
SUPERAWNING (15m)	2,348sqm
SPRINKLING	1320sqm
CAR PARKING PROVIDED	114 Spaces
HEAVY DUTY PAVEMENT (H)	9,220 sqm
LIGHT DUTY PAVEMENT (L)	4,970 sqm

Type	Description	Count
PK-CP1	PK-CP1 5500 x 2500mm - 90 deg	79
PK-CP2	PK-CP2 5400 x 2500mm - 90 deg	16
PK-CP3	PK-CP3 5500 x 2500mm - (Disable)	1
PK-CP4	PK-CP4 5400 x 2500mm - (Disable)	1
PK-PP	PK-PP 6400 x 2200m Parallel	7
Grand total		104

All drawings must be read in conjunction with Architectural Specifications Document No. 7 from AR-4600 Architectural S&C Specifications

BRACE	Structural bracing members to engineer's details.
CB	Steel framed wall with 0.42 BMT Colorbond cladding on both sides. Colorbond finish as specified.
CBM	Steel framed wall with 0.42 BMT Colorbond cladding. Colorbond finish as specified. Black UV stabilised birch netting to be installed to closed up steel framing.
COL	Steel column surface treated and painted to engineer's detail.
CRANE-ST	5-tonne gantry on crane rails to structural engineer's details.
FC/W1.8	Chain wire fence with gate on steel posts and intermediate framing to overall height of 1800mm.
FC/W-B	
FPS	Black powdercoated 'Palisade' style fencing 2.100m high.
FPS-G	Black powdercoated 'Palisade' style security gates. Gap below gate to NOT exceed 50mm. Height to match adjacent fence.
FH	Fire Hydrant
FL-ASP	Bituminous concrete pavements for non-commercial vehicle loads only.
FL-H	Heavy duty concrete pavement to structural engineer's details.
FL-L	Landscape area refer to civil engineering drawings for levels and landscape architect's drawings for vegetation details.
FL-W	Reinforced concrete floor with construction joints, steel trowel burnished finish and cured to engineer's details.
LPole	Precast concrete wall panel to engineer's details. paint finish as specified.
PC	
RS-D1	Roller Shutter Door (Flush Docks) (6.0m W x 5.5m H). Motorised with manual chain override and wind lock. Painted externally with 2 pack polyurethane finish.
RS-D2	Roller Shutter Door (Inboard Recessed Docks) (9.0m W x 5.5m H). Motorised with manual chain override and wind lock. Painted externally with 2 pack polyurethane finish.
SB	Safety barrier to be Arco steel guardrail or equivalent approved. Stubby nose wrapped around ends. Painted safety yellow.
SPT	Sprinkler Tank to fire engineer's details.
SUB	Substation to electrical engineer's details.



1 Site Facilities Plan (Lot 204)  
200 1:500 @B1

Luminaire list (ESR External)								
Type	Manufacturer	Article name	Item number	Fitting	Luminous flux	Light loss factor	Connected load	Quantity
P1/P2	Azure Lighting Solutions, Sydney, Australia	Alpine Street Light	ALPINE.752.T3.200.66.840.N.G	1x LED 200W 4000K CRIBO	29000 lm	0.80	200.5 W	4
C2	Azure Lighting Solutions, Sydney, Australia	Avalon Flood Light	AVALON.350.90.150.66.840.N.B	1x LED 150W 4000K CRIBO	20250 lm	0.80	150 W	12
W1	Azure Lighting Solutions, Sydney, Australia	Avalon Flood Light	AVALON.350.T3.150.66.840.N.B	1x LED 150W 4000K CRIBO	20250 lm	0.80	150 W	14
C1	Azure Lighting Solutions, Sydney, Australia	Avalon Flood Light	AVALON.315.90.100.66.840.N.B	1x LED 100W 4000K CRIBO	13500 lm	0.80	100 W	32
W3	Azure Lighting Solutions, Sydney, Australia	Avalon Flood Light	AVALON.315.T3.100.66.840.N.B	1x LED 100W 4000K CRIBO	13500 lm	0.80	100 W	9
W4	Azure Lighting Solutions, Sydney, Australia	Avalon Flood Light	AVALON.315.T2.100.66.840.N.B	1x LED 100W 4000K CRIBO	13500 lm	0.80	100 W	7
C3	Azure Lighting Solutions, Sydney, Australia	Avalon Flood Light	AVALON.240.90.50.66.840.N.B	1x LED 50W 4000K CRIBO	7145 lm	0.80	49.6 W	2
F1/F1E	Azure Lighting Solutions, Sydney, Australia	Zyan Batten Light	ZYAN.1270.35.65.840.N.120	1x LED 35W 4000K CRIBO	4350 lm	0.80	35 W	22

#	Name	Parameter	Min	Max	Average	Min/average	Min/max
1	Awning WHA (at 1m)	Perpendicular illuminance	67.2 lx	231 lx	151 lx	0.45	0.29
2	Awning WHB (at 1m)	Perpendicular illuminance	91.9 lx	407 lx	143 lx	0.64	0.23
3	Awning WHC (at 1m)	Perpendicular illuminance	96.1 lx	300 lx	136 lx	0.71	0.32
4	Hardstand (at 0m)	Perpendicular illuminance	2.55 lx	176 lx	44.4 lx	0.057	0.014
5	Car Park (Entrance) (Horizontal at 0m) (Vertical & Semi-Cylindrical at 1.75m)	Horizontal illuminance	21.4 lx	124 lx	58.3 lx	0.37	0.17
		Vertical illuminance	0.79 lx	17.7 lx	2.69 lx	0.29	0.045
6	Car park 1 (Office A) (Horizontal at 0m) (Vertical & Semi-Cylindrical at 1.75m)	Semi-cylindrical illuminance	3.78 lx	36.0 lx	13.3 lx	0.28	0.11
		Horizontal illuminance	6.35 lx	112 lx	29.7 lx	0.21	0.057
7	Car park 2 (Office A) (Horizontal at 0m) (Vertical & Semi-Cylindrical at 1.75m)	Semi-cylindrical illuminance	4.21 lx	41.6 lx	17.4 lx	0.24	0.10
		Vertical illuminance	1.28 lx	48.9 lx	10.7 lx	0.12	0.026
8	Car park (Office B) (Horizontal at 0m) (Vertical & Semi-Cylindrical at 1.75m)	Horizontal illuminance	10.7 lx	126 lx	48.6 lx	0.22	0.085
		Vertical illuminance	0.50 lx	4.81 lx	2.03 lx	0.25	0.10
9	Car park 1 (Office C) (Horizontal at 0m) (Vertical & Semi-Cylindrical at 1.75m)	Semi-cylindrical illuminance	2.19 lx	28.2 lx	9.86 lx	0.22	0.078
		Horizontal illuminance	68.2 lx	135 lx	93.6 lx	0.73	0.51
10	Car park 2 (Office C) (Horizontal at 0m) (Vertical & Semi-Cylindrical at 1.75m)	Vertical illuminance	1.23 lx	223 lx	56.9 lx	0.022	0.006
		Semi-cylindrical illuminance	12.0 lx	177 lx	60.2 lx	0.20	0.068
11	Car park 1 (Office C) (Horizontal at 0m) (Vertical & Semi-Cylindrical at 1.75m)	Horizontal illuminance	36.8 lx	126 lx	74.9 lx	0.49	0.29
		Vertical illuminance	0.99 lx	4.65 lx	2.32 lx	0.43	0.21
12	Car park 2 (Office C) (Horizontal at 0m) (Vertical & Semi-Cylindrical at 1.75m)	Semi-cylindrical illuminance	8.70 lx	61.8 lx	29.3 lx	0.30	0.14
		Horizontal illuminance	9.80 lx	106 lx	45.8 lx	0.21	0.092
13	Disable Park Office A (Horizontal at 0m) (Vertical & Semi-Cylindrical at 1.75m)	Vertical illuminance	0.35 lx	9.35 lx	1.88 lx	0.19	0.037
		Semi-cylindrical illuminance	1.43 lx	19.2 lx	7.18 lx	0.20	0.074
14	Disable Park Office B (Horizontal at 0m) (Vertical & Semi-Cylindrical at 1.75m)	Horizontal illuminance	31.5 lx	118 lx	74.1 lx	0.43	0.27
		Vertical illuminance	3.17 lx	5.69 lx	4.12 lx	0.77	0.56
15	Disable Park Office C (Horizontal at 0m) (Vertical & Semi-Cylindrical at 1.75m)	Semi-cylindrical illuminance	5.62 lx	37.2 lx	15.5 lx	0.36	0.15
		Horizontal illuminance	58.4 lx	133 lx	82.4 lx	0.71	0.44
16	Perimeter (Car Driveway) 1 (at 0m)	Vertical illuminance	1.19 lx	280 lx	58.4 lx	0.020	0.004
		Semi-cylindrical illuminance	7.10 lx	191 lx	54.2 lx	0.13	0.037
17	Perimeter (Car Driveway) 2 (at 0m)	Horizontal illuminance	28.2 lx	129 lx	78.6 lx	0.36	0.22
		Vertical illuminance	0.63 lx	91.9 lx	27.0 lx	0.023	0.007
18	Pump Room	Semi-cylindrical illuminance	7.32 lx	148 lx	44.1 lx	0.17	0.049
		Perpendicular illuminance	8.07 lx	89.2 lx	28.3 lx	0.29	0.090
19	Beyond Boundary - North	Perpendicular illuminance (Adaptive)	4.40 lx	111 lx	30.0 lx	0.15	0.040
		Perpendicular illuminance	141 lx	349 lx	270 lx	0.52	0.40
20	Beyond Boundary - South	Perpendicular illuminance	0.71 lx	21.5 lx	4.88 lx	0.15	0.033
		Perpendicular illuminance	0.70 lx	18.8 lx	4.45 lx	0.56	0.037
21	Beyond Boundary - West	Perpendicular illuminance	0.19 lx	24.1 lx	1.97 lx	0.096	0.008
		Perpendicular illuminance	0.20 lx	73.3 lx	4.01 lx	0.050	0.003

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PROJECT: ESR HORSLEY LOGISTIC PARK  
 ADDRESS: 327-335 BURLEY ROAD, HORSLEY PARK NSW  
 PROJECT NUMBER: 200227

Rev	Description	Date
01	Issue for Construction	24.06.21
02	Updated RAs to match civil design info. Columns updated to match latest structural design.	30.06.21
03	Grid line location corrected	01.07.21
04	Revisions to reflect the latest warehouse tenancy break-up and layout as per client's requirements.	14.07.21
05	WH-A update and various updates to requirements	22.07.21
06	Internal columns at Grid 418 deleted to allow for double width crane bay. Landscape strip added to street frontage.	27.07.21

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General Notes:  
 Architectural drawings to be read in conjunction with all other consultants' detailed drawings, specifications & reports.  
 Do not scale this drawing. Verify all dimensions on site.  
 Refer all discrepancies to H.A. before commencing any work.

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FOR CONSTRUCTION

DRAWING TITLE: Site & Facility Plan  
 DRAWING NUMBER: [Blank]

DRWN: HL  
 CHK: HL  
 ISSUE: [Blank]