BLACKETT MAGUIRE+ GOLDSMITH

BCA ASSESSMENT REPORT

ESR Horsley Logistics Park
327-335 Burley Road, Horsley Park
Lot 206

Prepared For:
ESR Australia

Revision 2

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Project No.: 220206

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REPORT STATUS				
DATE	**REVISION**	**STATUS**	**AUTHOR**	**REVIEWED**
20.06.2022	0	Preliminary Assessment – Draft Report for Client & Consultant Review	TJ	DG
12.10.2022	1	Preliminary Assessment – Updated Design	TJ	DG
16.11.2022	2	Preliminary Assessment – For Submission with MOD Application	TJ	DG

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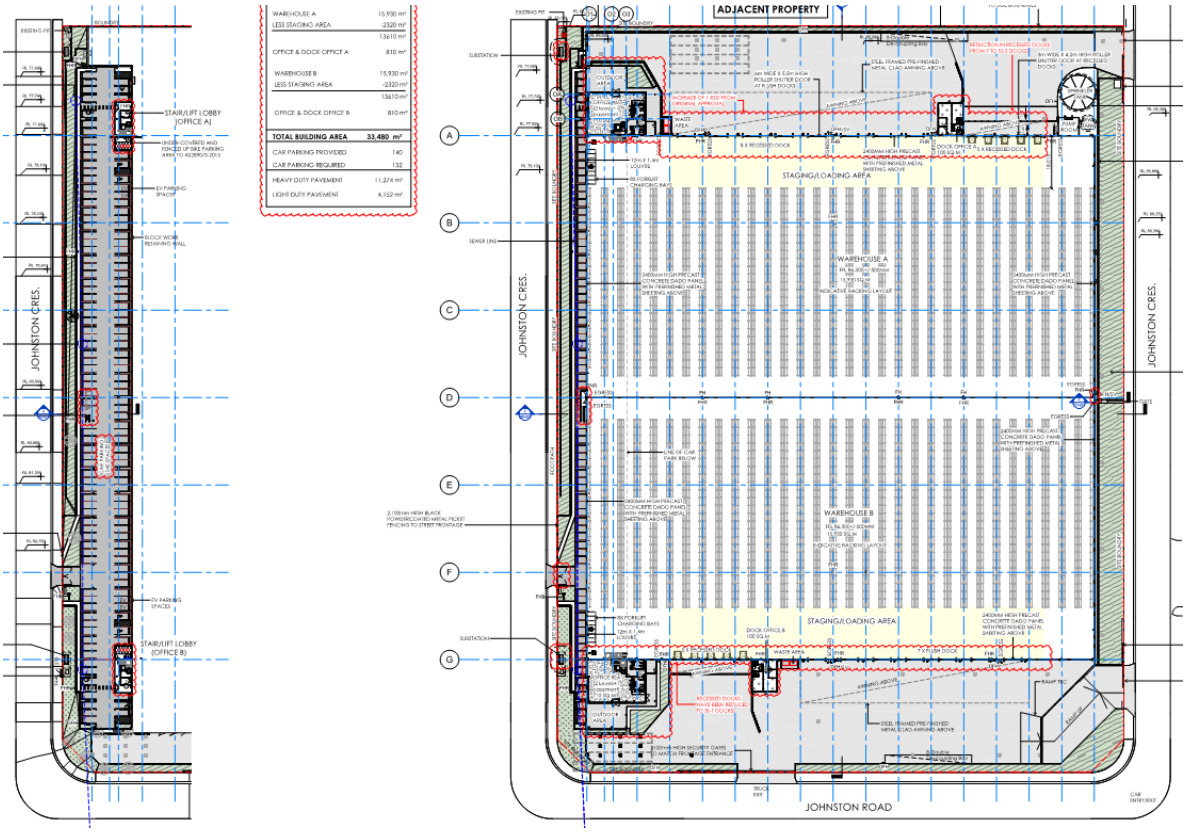
1.0 INTRODUCTION

1.1 BACKGROUND / PROPOSAL

Blackett Maguire + Goldsmith Pty Ltd (BM+G) have been commissioned by ESR Australia to undertake a preliminary review of the proposed development, against the deemed-to-satisfy (DtS) provisions of the Building Code of Australia 2019 Amendment 1 (BCA) pursuant to the provisions of Section 19 of the *Environmental Planning & Assessment (Development Certification and Fire Safety) Regulation 2021.*

The proposed development involves the construction of Lot 206 (formerly Lot 202) within the ESR Horsley Logistic Park with undercroft carpark and ancillary offices, hardstand, loading docks and landscaping.



Pace Architects Drawing No. MD-102 Rev. 3 dated 09.11.2022

1.2 AIM

The aim of this report is to:

- Undertake an assessment of the proposed development against the Deemed-to-Satisfy (DtS) Provisions of the BCA 2019 Amendment 1.

  Note: The edition of the BCA that is applicable to building work is the edition that is in force at the time the application for the relevant construction certificate is made. In this regard, it is highlighted that this report includes an assessment of the proposed development against the requirements of BCA 2019 Amendment 1, however, the development (or part thereof) may be subject to compliance with a future edition of the BCA (BCA 2022, for example, is to be adopted on 1 May 2023, which would be applicable to any construction certificate applications on or after this date). Where staged construction certificates are proposed, different editions of the BCA may be applicable to each construction certificate, depending on the date the application for the relevant construction certificate(s) is made.

- Identify any BCA compliance issues that require resolution/attention for the proposed development at the CC Application stage.

1.3 PROJECT TEAM

The following BM+G Team Members have contributed to this Report:

- Tom Johnston (Building Surveyor)
- Dean Goldsmith (Director)

1.4 DOCUMENTATION

The following documentation has been reviewed, referenced and/or relied upon in the preparation of this report:

- BCA 2019 Amendment 1
- Guide to the BCA 2019 Amendment 1
- Architectural Plans prepared by Pace Architects:

Drawing No.	Rev.	Date	Drawing No.	Rev.	Date
MD-101	3	09.11.2022	MD-256	3	09.11.2022
MD-102	3	09.11.2022	MD-600	3	09.11.2022
MD-251	3	09.11.2022	MD-601	3	09.11.2022
MD-252	3	09.11.2022	MD-610	3	09.11.2022
MD-253	3	09.11.2022	MD-611	3	09.11.2022
MD-254	3	09.11.2022	MD-620	3	09.11.2022
MD-255	3	09.11.2022			

1.5 REGULATORY FRAMEWORK

Pursuant to Section 19 of the *Environmental Planning & Assessment (Development Certification and Fire Safety) Regulation 2021* all new building work must comply with the current BCA however the existing features of an existing building need not comply with the BCA unless upgrade is required by other clauses of the legislation.

The assessment has been undertaken in accordance with Clause 24 and 25 of the Building and Development Certifiers Regulation 2020. BM+G are the proposed Registered Certifier and the advice provided in this Report is limited to whether submitted documentation complies with the Building Code of Australia or a legislative requirement.

1.6 LIMITATIONS & EXCLUSIONS

The limitations and exclusions of this report are as follows:

- The following assessment is based upon a review of the architectural documentation.
- No assessment has been undertaken with respect to the Disability Discrimination Act (DDA) 1992. The building owner should be satisfied that their obligations under the DDA have been addressed. In this regard, however, the provisions of the DDA Access to Premises – Buildings Standards have been considered as they are generally consistent with the accessibility provisions of the BCA.
- The Report does not address matters in relation to the following:
  - Local Government Act and Regulations.
  - NSW Public Health Act 1991 and Regulations.
  - Occupational Health and Safety (OH&S) Act and Regulations.
  - Work Cover Authority requirements.
  - Water, drainage, gas, telecommunications and electricity supply authority requirements.
  - DDA 1992.
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1.7 TERMINOLOGY

+ **Alternative Solution / Performance Solution**
A Building Solution which complies with the Performance Requirements other than by reason of satisfying the DtS Provisions.

+ **Building Code of Australia (BCA)**
Document published on behalf of the Australian Building Codes Board. The BCA is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia

and is adopted in New South Wales (NSW) under the provisions of the EPA Act and Regulation. Building regulatory legislation stipulates that compliance with the BCA Performance Requirements must be attained and hence this reveals BCA's performance-based format.

+ **Construction Certificate**
Building Approval issued by the Certifying Authority pursuant to Part 6 of the EP&A Act 1979.

+ **Construction Type**
The construction type is a measure of a buildings ability to resist a fire. The minimum type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1, except as allowed for—
(i) certain Class 2, 3 or 9c buildings in C1.5; and
(ii) a Class 4 part of a building located on the top storey in C1.3(b); and
(iii) open spectator stands and indoor sports stadiums in C1.7.
Note: Type A construction is the most fire-resistant and Type C the least fire-resistant of the types of construction.

+ **Climatic Zone**
Is an area defined in BCA Figure A1.1 and in Table A1.1 for specific locations, having energy efficiency provisions based on a range of similar climatic characteristics.

+ **Deemed to Satisfy Provisions (DtS)**
Provisions which are deemed to satisfy the Performance Requirements.

+ **Effective Height**
The height to the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units) from the floor of the lowest storey providing direct egress to a road or open space.

+ **Fire Resistance Level (FRL)**
The grading periods in minutes for the following criteria-
(a) structural adequacy; and
(b) integrity; and
(c) insulation,
and expressed in that order.

+ **Fire Source Feature (FSF)**
The far boundary of a road which adjoins the allotment; or a side or rear boundary of the allotment; or an external wall of another building on the allotment which is not a Class 10 building.

+ **National Construction Code Series (NCC)**
The NCC was introduced 01 May 2011 by the Council of Australian Governments. The BCA Volume One (Class 2 to 9 Buildings) is now referenced as the National Construction Code Series Volume One — BCA.

+ **Occupation Certificate**
Building Occupation Approval issued by the Principal Certifying Authority pursuant to Part 6 of the EPA Act 1979.

+ **Open Space**
A space on the allotment, or a roof or other part of the building suitably protected from fire, open to the sky and connected directly with a public road.

+ **Performance Requirements of the BCA**
A Building Solution will comply with the BCA if it satisfies the Performance Requirements. A Performance requirement states the level of performance that a Building Solution must meet.
Compliance with the Performance Requirements can only be achieved by-
(a) complying with the DtS Provisions; or
(b) formulating an Performance Solution which-
(i) complies with the Performance Requirements; or
(ii) is shown to be at least equivalent to the DtS Provisions; or
(c) a combination of (a) and (b).

+ **Sole Occupancy Unit (SOU)**

A room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes a dwelling.

2.0 BUILDING CHARACTERISTICS

2.1 BUILDING CLASSIFICATION

The following table presents a summary of relevant building classification items of the proposed Warehouse development:

BCA Class:	Class 5 (Office), Class 7a (Carpark) & Class 7b (Warehouse)
Rise in Storeys:	Three (3)
Effective Height:	Less than 12m
Type of Construction:	Type B Construction
Climate Zone:	Zone 6
Maximum Floor Area:	**Greater** than 18,000m^2
Maximum Volume:	**Greater** than 108,000m^3

2.2 FIRE SOURCE FEATURE

The distances from the nearest Fire Source Features to the building are:

Boundary	Distance to Fire Source Feature
Northern Boundary	**Greater than 18m to the allotment boundary**
Southern Boundary	**Greater than 18m to the far side of the public road**
Eastern Boundary	**Greater than 18m to the far side of the public road**
Western Boundary	**Greater than 18m to the far side of the public road**

3.0 BCA ASSESSMENT

BCA DEEMED-TO-SATISFY COMPLIANCE ISSUES

The following comments have been made in relation to the relevant BCA provisions relating to the compliance issues associated with the proposed Warehouse development.

3.1 SECTION B – STRUCTURE

PART B1 – STRUCTURAL PROVISIONS

+ **Clause B1.4 – Determination of Structural Resistance of Materials and Forms of Construction**

Structural engineering details prepared by an appropriately qualified structural engineer to be provided to demonstrate compliance with Part B1. This will include the following Australian Standards (where relevant):

- AS 1170.0 – 2002 General Principles
- AS 1170.1 – 2002, including certification for balustrades (dead and live loads)
- AS 1170.2 – 2011, Wind loads
- AS 1170.4 – 2007, Earthquake loads
- AS 3700 – 2018, Masonry Structures
- AS 3600 – 2018, Concrete Structures
- AS 4100 – 1998, Steel Structures and/or
- AS 4600 – 2018, Cold formed steel Structures.
- AS 2159 – 2009, Piling Design &Installation
- AS 1720 – 2010, Design of Timber Structure
- AS/NZS 1664.1 & 2 – 1997, Aluminium Structures
- AS 2047 – 2014, Windows and External Glazed Doors in buildings.
- AS 1288 – 2006, Glass in buildings.
- AS 3660.1 – 2014, Termite control (or confirmation no primary building elements are timber).

Comments: *Structural design details and certification will be required at CC application stage.*

Note: *Design certification will also be required from the Architect and Services Consultants to confirm compliance with Section 8 of AS1170.4-2007 with regard to the design of non-structural parts and components and their fastenings for horizontal and vertical earthquake forces and inter-storey drift.*

3.2 SECTION C – FIRE RESISTANCE

FIRE RESISTANCE AND STABILITY

+ **Clause C1.1 – Type of Construction Required**

The minimum type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1 except as allowed for in this clause.

Comments: *Type B Construction applies to the proposed building – see notes under Spec. C1.1 below.*

+ **Clause C1.2 – Calculation of Rise in Storeys**

The rise in storeys of a building is the sum of the greatest number of storeys at any part of the external walls of the building and any storeys within the roof space calculated in accordance with the requirements set out in this clause.

Comments: The proposed building has a rise in storeys of three (3).

+ **Clause C1.9 – Non-Combustible Building Elements**

In a building of Type A or Type B Construction a number of building elements are required to be non-combustible including external walls & common walls (including elements incorporated in them including the façade coverings, framing and insulation), lift pit flooring and floor framing, services risers, lifts shafts, non-load-bearing fire resisting internal walls and fire walls. Note: C1.9(e) provides a list of materials that may be deemed as non-combustible without the need for verification testing per AS 1530.1.

Comments: *The external walls of the proposed building (including all elements incorporated in the walls), the lift pits and the non-loadbearing internal walls that are required to be fire rated are required to be of non-*

combustible construction in accordance with C1.9 (a) & (b). Details to be provided at CC application stage. See additional comments under C1.14 below regarding internal and external attachments to the external walls.

+ **Clause C1.10 – Fire Hazard Properties**

The fire hazard properties of the linings, materials and assemblies in a Class 2 to 9 building must comply with **Specification C1.10** and the additional requirements of the **NSW Provisions** of the Code.

Comments: Design certification required at CC application stage and installation certification (including relevant test reports confirming the critical radiant flux of floor linings and group number of wall and ceiling linings) required at OC stage.

+ **Clause C1.14 – Ancillary Elements**

An ancillary combustible element must not be fixed, installed or attached to the internal or external parts of a non-combustible wall unless it is one of the concession items listed in items (b) – (m).

Comments: The elements in the facades of the proposed building require review to confirm that the proposed internal & external attachments to the external walls achieve compliance with the non-combustibility requirements of this clause. Particular attention is drawn to the feature louvres and slat screens shown on the Office elevations and all external signage and awnings/sunshades that are attached to the external walls which must be non-combustible per C1.14(a) or comply with one of the concessions in C1.14. Details to be provided at CC application stage

It is noted a Performance Solution from the Fire Engineer is proposed to address the external 'ESR' signage attached to the external walls

COMPARTMENTATION AND SEPARATION

+ **Clause C2.2 – General Floor Area and Volume Limitations**

Sets out the parameters for the area and volume of Class 5, 6, 7, 8 & 9 buildings as required by sub-clauses (a), (b) & (c).

Comments: The proposed building is a Large Isolated Building and as such the provisions for maximum fire compartment size under Table C2.2 do not apply. Refer to comments under C2.3 & C2.4 below in relation to the Large Isolated Building provisions applicable to the proposed development.

+ **Clause C2.3 – Large Isolated Buildings**

A Large Isolated Building that contains Class 5, 6, 7, 8 or 9 parts, is required to be—
(i) protected throughout with a sprinkler system complying with Specification E1.5; and
(ii) provided with a perimeter vehicular access complying with C2.4(b).

Comments: The proposed building is required to be sprinkler protected throughout and provided with perimeter vehicular access in accordance with Clause C2.4 (see notes below) pursuant to its Large Isolated Building designation under this clause.

+ **Clause C2.4 – Requirements for Open Spaces & Vehicular Access**

An open space and vehicular access required by C2.3 must comply with the requirements of sub-clauses (a) & (b) of this Part as that they must be 6m wide within 18m of the building and of a suitable bearing capacity and unobstructed height to permit the operation and passage of FRNSW vehicles.

Comments: The proposed building does not comply with the provisions of C2.4 and thus the following non-compliance issues are proposed to be addressed as a Performance Solution by the Fire Engineer to demonstrate compliance with Performance Requirement CP9:

- *Perimeter Vehicular Access is greater than 18m from various parts of the building;*
- *Perimeter Vehicular Access is not continuous in the north-western corner as it is not provided between the Hardstand and the Access Road.*

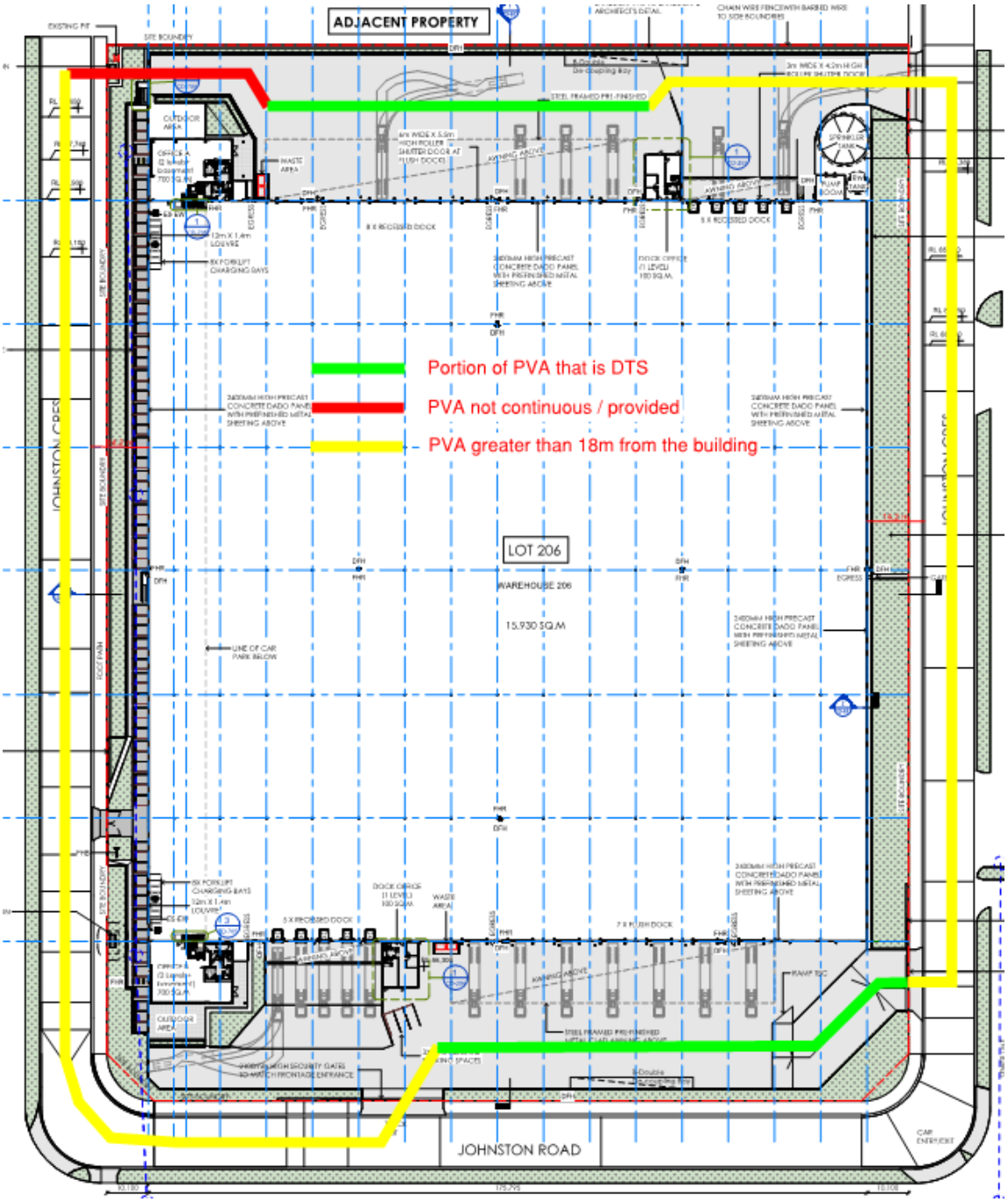

Figure 1 – Perimeter Vehicular Access per BCA C2.4.

<u>Note 1:</u> Any proposed gates are to achieve no less than 6m unobstructed width or the reduced width will need to be included in the above Performance Solution.

<u>Note 2:</u> The driveways providing vehicular perimeter access must be designed with adequate loading capacities to withstand a fire truck and the gradients of any ramps and swept paths should take into consideration the requirements of the FRNSW Fire Safety Guideline – Access for Fire Brigade Vehicles and Firefighters.

+ **Clause C2.8 – Separation of Classifications in the Same Storey**

If a building has parts of different classifications located alongside one another in the same storey, each element must have the required higher FRL for the classifications concerned.

Alternatively, the parts must be separated by a fire wall having the higher FRL for the classifications prescribed in Table 3 or 4 of BCA Specification C1.1 (for Type A or Type B Construction), or Table 5 for Type C Construction.

Comments: The higher FRLs of the Class 7b Warehouse areas on the Warehouse Level are required to be applied to the entirety of the storey (Including the Office and Dock Offices).

+ Clause C2.12 – Separation of Equipment

Equipment as listed below must be separated from the remainder of the building with construction complying with (d), if that equipment comprises –

(i) Lift motors and lift control panels; or
(ii) Emergency generators used to sustain emergency equipment operating in the emergency mode; or
(iii) Central smoke control plant; or
(iv) Boilers; or
(v) A battery system installed in the building that has a voltage of 12 volts or more and a storage capacity of 200kWh or more.

Note: Separating construction must have –

(A) an FRL as required by Specification C1.1, but not less than 120/120/120; and
(B) any doorway protected with a self-closing fire door having an FRL of not less than -/120/30.

Comments: Where appropriate, details demonstrating compliance are to be included in the CC Application plans.

+ Clause C2.13 – Electricity Supply System

(a) An electricity substation located within a building must –
  (i) Be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and
  (ii) Have any doorway in that construction protected with a self-closing fire door having an FRL of not less then -/120/30
(b) A main switchboard located within the building which sustains emergency equipment operating in the emergency mode must –
  (i) Be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and
  (ii) Have any doorway in that construction protected with a self-closing fire door having an FRL of not less than -/120/30.
(c) Electrical conductors located within a building that supply –
  (i) A substation located within the building which supplies a main switchboard covered by (b); or
  (ii) A main switchboard covered by (b),

Must –

  (iii) Have a classification in accordance with AS/NZS 3013 of not less than –
    (A) If located in a position that could be subject to damage by motor vehicles – WS53W; or
    (B) Otherwise – WS52W; or
  (iv) Be enclosed or otherwise protected by construction having an FRL of not less than 120/120/120

Comments: Where appropriate, details demonstrating compliance are to be included in the CC Application plans. Particular attention is drawn to the MSBs on the Undercroft Carpark Level.

PROTECTION OF OPENINGS

+ Clause 3.15 – Openings for Services Installations

All opening for services installations in building elements required to be fire-resisting with respect to integrity and insulation must be protected in accordance with the provisions of Spec. C3.15.

Comments: Note – see C2.12 & C2.13 above.

SPECIFICATIONS

+ Specification C1.1 – Fire Resisting Construction

The building works associated with the proposed Warehouse are required to comply with the requirements detailed under Table 4 of Specification C1.1 for Type B Construction.

Comments: Compliance with the requirements of Type B Construction is required throughout all parts of the proposed building (see Appendix 1 at the end of this report for the required FRLs applicable to each of the classifications). In this regard, the following is noted in relation to general requirements of Spec. C1.1:

- *Loadbearing internal walls & columns on the Lower Ground Office Lobby & Carpark Level to achieve an FRL of 120/-/- (columns in the undercroft area are considered internal for the purposes of this requirement);*
- *Loadbearing internal walls & columns on the Ground Floor to achieve an FRL of 240/-/- except where in the storey immediately below the roof per Note 2 below.*

It noted a Performance Solution from the Fire Engineer is proposed to reduce the FRLs of the internal loadbearing columns in the Ground Floor Office A & B areas, which is required to demonstrate compliance with Performance Requirements CP1 & CP2.

Note 1: Loadbearing internal walls must be constructed of concrete or masonry.

Note 2: In the storey immediately below the roof, internal columns and internal walls other than fire walls and shaft walls need not comply with Table 4.

+ **Specification C1.10– Fire Hazard Properties.**

This Specification sets out requirements in relation to the fire hazard properties of linings, materials and assemblies in Class 2 to 9 buildings as set out in the Tables.

Comments: *Refer to comments under Clause C1.10 above – certification will be required at both CC and OC Application stages.*

+ **Specification C1.11 – Performance of External Walls in Fire**

This specification contains measures to minimise in the event of fire the likelihood of external walls collapsing outwards as complete panels and the likelihood of panels separating from supporting members.

Comments: *Structural design certification and details demonstrating compliance are required to be provided at CC Application stage.*

3.3 SECTION D – ACCESS & EGRESS

PROVISION FOR ESCAPE

+ **Clause D1.2 – Number of Exits Required**

This clause requires the provision of sufficient exits to enable safe egress in case of an emergency. D1.2 provides that all buildings must have at least one exit from each storey and sets out circumstances in which more than one exit may be required (particularly in relation to Class 9 buildings).

Note 1: Not less than 2 exits must be provided from each storey if the building has an effective height of more than 25m.

Note 2: Not less than 2 exits must be provided from any basement storey that involves a vertical rise within the building of more than 1.5m unless the floor area of the storey is not more than 50m^2 and the distance of travel from any point on the floor to a single exit is not more than 20m.

Comments: Compliance with the requirements of this clause is readily achievable.

+ **Clause D1.3 – When Fire Isolated Stairways & Ramps are Required**

This clause specifies the requirements for when fire isolated stairs or ramps are required in buildings based upon the number of storeys that they interconnect and the classification of the building.

Comments: *The exit stairs will not connect more than 3 storeys in a sprinkler protected building and as such are not required to be fire isolated in accordance with D1.3(b).*

+ **Clause D1.4 – Exit Travel Distances**

This clause specifies the permitted travel distances allowable from Class 2 to Class 9 buildings. Sub-clauses (a) to (f) specify the maximum distances to be taken into account for the various uses in each Class of building.

Comments: *The exit travel distances are non-compliant within the following areas. In this regard, the following non-compliance are proposed to be addressed as a Performance Solution by the Fire Engineer to demonstrate compliance with Performance Requirements DP4 & EP2.2:*

Undercroft Carpark

- *Undercroft Carpark – up to 55m to the nearest exit*

Warehouse

- *Warehouse Areas – up to 95m to the nearest exit*
- *Level 1 Office A & B – up to 30m to a single exit (Note: The FEBQ dated 11.11.2022 is required to be amended to state the non-compliance is related to the distance to a single exit in lieu of the distance to a point of choice between exits).*

Note: The egress path from the Outdoor Areas associated with Office A is required to be provided for review to assess the exit travel distances from this area.

+ Clause D1.5 – Distances Between Alternative Exits

Exits required as alternative exits must be –

(a) not less than 9m apart; and
(b) not more than – 60m apart.
(c) Located so that the alternative paths of travel do not converge such that they become less than 6m apart.

Comments: The distance between alternative exits are non-compliant within the following areas. In this regard, the following non-compliance issues will be required to be addressed as a Performance Solution by the Fire Engineer to demonstrate compliance with Performance Requirements DP4 & EP2.2:

Undercroft Carpark

- *Undercroft Carpark – up to 105m between alternative exits*

Warehouse

- *Warehouse Areas – up to 190m between alternative exits*

Note: The egress path from the Outdoor Areas associated with Office A is required to be provided for review to assess the exit travel distances from this area.

+ Clause D1.6 – Dimensions of Exits

This clause details the minimum dimensions such as height and width of paths of travel from Class 2 to 9 buildings. It also specifies the minimum dimensions of doorways from the various compartments and the width of exit doors from buildings depending on the uses and functions carried out within them.

Comments: Population numbers for the proposed building are required to be provided by ESR / the tenant at the CC Application stage to facilitate an assessment of the provisions of D1.6. In this regard, however, an assessment under D1.13 of the population numbers has been carried out and as a result it is considered that the overall egress width available within each warehouse is capable of complying with this clause.

In addition to the above, it is to be noted that all exit paths are required to have a minimum clear width of 1m and height of 2m and 1980mm through doorway openings per D1.6(a).

+ Clause D1.9 – Travel by Non-fire-isolated Stairways or Ramps

Sub-clauses (a) to (f) set out the prescribed travel distances to be provided in required exits of Class 2 to 9 buildings and Class 4 parts of buildings. The sub-clauses set out the maximum distances to be taken into account for the various uses in each Class of building.

Comments: The total distance to open space from the Ground Floor and Level 1 Office areas is compliant with the requirements of this clause.

+ Clause D1.10 – Discharge from Exits

Requires that an exit must not be blocked at the point of discharge. Barriers such as bollards must be installed to prevent vehicles from blocking the discharge from exits.

This clause also provides the methods of construction, location and separation, at exit discharge points for all building Classes.

Comments: All exit discharge points from the building are required to be protected in accordance with the requirements of this clause. Additionally, the paths of travel to the road from each exit must have an unobstructed width throughout of not less than 1m. Particular attention is drawn to the egress paths from the Outdoor Areas associated with Offices A & B to the hardstand, which must have an unobstructed width of not less than 1m.

In addition to the above, it is noted that a pedestrian egress gate is required from the Warehouse B Hardstand to the Johnston Road.

+ **Clause D1.13 – Number of Persons Accommodated**

Clause D1.13 and Table D1.13 are used to calculate the anticipated number of people in particular types of buildings so that minimum exit widths and the required number of sanitary and other facilities can be calculated. This clause and table are not to be used for non-BCA purposes.

Comments: In accordance with the comments under D1.6 above, population numbers for the proposed building are to be provided by ESR / the tenant at CC Application stage, however for the purposes of our assessment the following populations have been determined in accordance with Table D1.13 using a 50% discounted floor area for racking and circulation spaces in the warehouse areas:

Undercroft Carpark

- *97 persons*

Warehouse

- *Warehouse – 530 persons*

Offices (including Dock Offices)

- *Office & Dock Office A – 81 persons*
- *Office & Dock Office B – 81 persons*

CONSTRUCTION OF EXITS

+ **Clause D2.3 – Non-fire-isolated Stairways and Ramps**

This clause requires that required non-fire-isolated stairways and ramps must in a building with a rise in storeys of more than 2 be either constructed in accordance with D2.2 or the alternative options set out in D2.3 (a) to (c).

Comments: The requirements of D2.3 apply to the proposed Office stairs. Details are to be provided of the stair design at CC application stage.

+ **Clause D2.7 – Installations in Exits & Paths of Travel**

This clause restricts the installation of certain services in fire-isolated exits, non-fire-isolated exits and certain paths of travel to exits. Sub-clauses (a) to (e) prescribes which services **shall not be installed** as well as the circumstances in which certain services **may be installed** in fire-isolated and non-fire-isolated exits.

Comments: This requirement applies to all cupboards containing electrical distribution boards or comms. equipment that are located in a path of travel to an exit. In this regard, such cupboards are to be enclosed in non-combustible materials and are to be suitably sealed against the spread of smoke.

+ **Clause D2. 8 – Enclosure of Space under Stairs and Ramps**

The space below a required fire-isolated stairway or ramp in a fire-isolated shaft must not be enclosed to form a cupboard or other enclosed space. If the required stairway or ramp is non-fire-isolated, (including an external stairway) any cupboard underneath must have an FRL of 60/60/60, with a self-closing -60/30 door.

Comments: Any enclosures under the stairs will need to achieve an FRL of -/60/60 in both directions and the doorways will need to be fitted with self-closing -/60/30 fire doors.

+ **Clause D2.13 – Goings & Risers**

This clause sets out the detailed requirements for the construction and geometry of the goings and risers in required stairways. These details are set out in sub-clauses (a) to (c) and Table D2.13 Riser and Going Dimensions.

Comments: All stairs are to have dimensions that comply with Table D.13 (below), have solid risers, and are to have contrasting nosings and slip resistant surfaces throughout in accordance with Clause 11 of AS1428.1-2009. (See diagram in Part D3 below).

Note: Refer to the slip resistance requirements for stairs below under Clause D2.14. On site slip testing will be required at OC Application stage.

Riser and Going Dimensions (mm)

	Riser (R)	Going (G)	Quantity (2R + G)
Maximum	190	355	700
Minimum	115	250	550

Clause D2.14 – Landings

The dimensions and gradients of landings in stairways are set out in this clause; the configuration will depend on the proposed use of a building.

Landing surfaces must be slip resistant OR have slip resistant nosings not less than that listed in Table D2.14 when tested in accordance with AS4586.

Comments: Architect to note. On-site slip testing will be required at OC Application stage.

Application	Surface conditions	
	Dry	Wet
Ramp steeper than 1:14	P4 or R11	P5 or R12
Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11
Tread or landing surface	P3 or R10	P4 or R11

Clause D2.15 – Thresholds

The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless –

In a building required to be accessible by Part D3, the doorway –
(i) Opens to a road or open space; and
(ii) Is provided with a threshold ramp or step ramp in accordance with AS1428.1;
In other cases –
(i) Opens to a road or open space, external stair landing or external balcony; and
(ii) The door sill is not more than 190mm above the finished surface of the ground, balcony, or the like, to which the doorway opens.

Comments: Architect to note. Details demonstrating compliance will be required to be included in the CC plans.

Clause D2.16 – Balustrades or Other Barriers

This clause details where balustrades are required to be provided and sets out in specific detail the construction requirements. Typically, the following will apply to this class of building:

- Balustrades are required where the fall to the level below is 1m or more in height. The minimum height of a balustrade is 1m above the floor of the landing, walkway or the like; and 865mm above the floor of a stairway or a ramp.
- For a fall of more than 4m to the surface level below, a window sill must be a minimum of 865mm in height above the height of the floor surface.
- Where the floor is more than 4m above the surface beneath the balustrade any horizontal or near horizontal members between 150mm and 760mm above the floor must not facilitate climbing.
- Balustrades must be constructed so as to not permit a sphere of 125mm diameter to pass through. The exception to this is within fire isolated exits within the building, or internal stairs within a Class 7b or 8 building, where the rails can be positioned a maximum of 460mm apart, so long as a bottom rail is located so a sphere of 150mm cannot pass through the opening between the nosing of the stair treads and the rail or between the floor of the landing, balcony or the like. External stairs associated with a Class 7b or 8 building are required to have gaps no greater than 125mm.

Comments: Architect to note. Details demonstrating compliance are to be submitted with the CC Application drawings for assessment against the above criteria.

Note: External balustrades are required to comply with the requirements for a Class 5 Office i.e. gaps no greater than 125mm and where the floor is more than 4m above the surface beneath the balustrade any

horizontal or near horizontal members between 150mm and 760mm above the floor must not facilitate climbing.

+ **Clause D2.17 – Handrails**

This Clause sets out the requirements regarding the location, spacing and extent of handrails required to be installed in buildings.

Comments: *Architect to note. Details demonstrating compliance will be required to be included in the CC plans. Handrails serving all stairs and ramps both internally and externally are required to comply with the accessibility requirements of Clause D3.3 and AS 1428.1-2009.*

+ **Clause D2.19 – Doorways and Doors**

This clause applies to all doorways and refers to the types of doors that cannot be used in buildings of prescribed uses, the use of power operated doors and the force required to operate sliding doors.

If the door is also power operated, it must be opened manually under a force of not more than 110N if there is a malfunction or failure to the power source; and open on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door.

Comment: Architect to note. Details demonstrating compliance will be required to be included in the CC plans.

It is noted a Performance Solution is proposed from the Fire Engineer to address the operation of the internal airlock doors on the Undercroft Carpark Level which will need to demonstrate compliance with Performance Requirement DP2.

+ **Clause D2.20 – Swinging Doors**

A swinging door in a required exit or forming part of a required exit must be installed to the requirements of sub-clauses (a), (b) & (c). This clause only applies to swinging doors in doorways serving a required exit or forming part of a required exit. It does not apply to other doorways – see notes in the Guide to the BCA.

Comments: The proposed egress doors are required to swing in the direction of egress in accordance with D2.20(a).

+ **Clause D2.21 – Operation of Latch**

A door in a required exit or forming part of a required exit and in a path of travel to a required exit must be readily openable without a key from the side that faces a person seeking egress, by a single downward action or pushing action on a single device which is located between 900mm & 1.1m from the floor. This clause prohibits the use of devices such as deadlocks and knobs where knobs must be operated in a twisting motion in accordance with sub-clauses (a) & (b). D2.21 also sets out exceptions in relation to buildings where special security arrangements are required in relation to the uses carried out.

Comments: *Architect to note. Details demonstrating compliance will be required to be included in the CC plans.*

ACCESS FOR PEOPLE WITH A DISABILITY

+ **Clause D3.1 – General Building Access Requirement**

Buildings and parts of building must be accessible as required by Table D3.1, unless exempted by D3.4.

Comments: *Compliant access is required to and within all areas normally used by the occupants throughout the Class 5, 7a & 7b building unless exempted by Clause D3.4.*

+ **Clause D3.2 – General Building Access Requirements for People with Disabilities**

Access must be provided to and within all areas normally used by occupants (as required by Clause D3.1) within the buildings from the main points of pedestrian entry at the allotment boundary; from another accessible building connected by a pedestrian link; and any accessible car parking space.

Access must be provided through the principal pedestrian entrance and through not less than 50% of all pedestrian entrances (including the principal pedestrian entry). In addition, as the buildings are greater than 500m^2, the non-accessible entrance must not be greater than 50m from an accessible entrance.

Comments: *Compliant access is required from the main points of a pedestrian entry at the allotment boundary and from accessible parking spaces to a compliant main entry associated with Office A & B in accordance with AS 1428.1-2009. Refer to additional comments under D3.3 and D3.4 below.*

+ **Clause D3.3 – Parts of the Building to be Accessible**

This part specifies the requirements for accessways within buildings which must be accessible. In accordance with Clause D3.3; ramps & stairways must comply with Clause 10 & 11 of AS 1428.1-2009 (respectively), whilst fire isolated stairs must comply with Clauses 11.1(f) & (g) of AS 1428.1-2009 only. In addition, any storey with a floor area more than 200m² must be served by a passenger lift that is designed to comply with Clause E3.6, and all accessways must include passing & turning spaces per AS 1428.1-2009.

Comments: *The proposed building is required to be accessible throughout in accordance with AS1428.1-2009. It is noted that subject to D3.4 below, compliance with the requirements of D3.3 and AS 1428.1-2009 is readily achievable; however, details and design certification will be required to be provided at CC Application stage.*

The following is a summary of some of the key matters which need to be considered from Clause D3.3 and AS 1428.1-2009:

- *An accessway complying with AS1428.1-2009 is required from the allotment boundary and on-site accessible carparking to the main entry associated with Office A & B. In this regard, it is noted the turning spaces to the accessways (particularly to Office B) require review to ensure compliance is achieved. Design details demonstrating compliance are required at CC Application stage.*
- *Every ramp, except a fire-isolated ramp, must comply with clause 10 in AS1428.1-2009.*
- *Every stairway, except a fire-isolated stairway, must comply with clause 11 of AS1428.1-2009.*
- *Every passenger lift must comply with clause E3.6.*
- *Accessways must have passing spaces complying with AS1428.1-2009 at a maximum 20m intervals on those parts of the accessway where a direct line of sight is not available and turning spaces complying with AS1428.1-2009 within 2m of the end of accessways and at a maximum 20m intervals along the accessway.*
- *Clause D3.3(g) and (h) requires that the pile height or pile thickness shall not exceed 11mm and the carpet backing thickness shall not exceed 4mm. Moreover, the carpet pile height or pile thickness dimension shall not exceed 11mm, the carpet backing thickness dimension shall not exceed 4mm and their combined dimension shall not exceed 15mm.*
- *The minimum width of an accessible doorway must have a clear opening width of not less than 850mm in accordance with AS1428.1. An accessway must have a minimum clear width of 1000mm and 2000mm clear height.*
- *All doorways on a continuous path of travel shall have a minimum luminance contrast of 30% provided between: door leaf and door jamb; or door leaf and adjacent wall; or architrave and wall; or door leaf and architrave; or door jamb and adjacent wall. The minimum width of the area of luminance contrast shall be 50mm.*
- *Circulation space to the new doorways that are required to be accessible are to comply with Section 13 of AS 1428.1-2009.*
- *Turning Spaces and Passing Spaces in all areas are required to be provided on each level of the building in accordance with Clauses 6.4 & 6.5 of AS 1428.1-2009.*

Stairways

- *Every common area stairway must be constructed in accordance with Clause 11 of AS1428.1, except if they are within a fire isolated exit (which need to comply with Clause 11.1f & g only) or serve the areas in the building that a D3.4 Exemption has been applied to. Details will need to be confirmed on the plans for CC.*
- *Stairs shall have opaque risers (i.e. solid)*
- *Stair nosings shall comply with Figure 27 in AS1428.1-2009, which achieve a colour contrast luminance of 30% to the background (tread).*

Handrails

- *Handrails shall be installed along stairways as follows:*
  - *Shall be continuous through the flight and where practicable, around landings and have no obstruction on or above up to a height of 600mm,*
  - *Installed along both sides of the stairway (giving consideration also to 1m unobstructed width),*

- *Shall have a compliant hand clearance in accordance with Figure 29 of AS 1428.1-2009.*

+ **Clause D3.4 – Exemptions**

This clause provides details on buildings or parts of buildings not required to be accessible under the BCA where providing access would be inappropriate because of the nature of the area/use or the tasks undertaken.

Comments: *It is recommended that advice be obtained from an Access Consultant at the CC Application stage, however, consideration to an exemption for the Warehouse & Hardstand areas may be appropriate on this project. Confirmation will be required from ESR or the tenant that includes a request for concession, where this would be applied and the reasons why it would be inappropriate for access for people with disabilities within the facility.*

+ **Clause D3.5 – Accessible Parking**

This clause provides details of the number of accessible carparking spaces required in a carpark depending on the classification of the building.

Comments: *Compliant accessible parking spaces are to be provided at a rate of 1 per 100 spaces for the Warehouse / Office areas – compliance has been achieved. Details and design certification demonstrating compliance will be required to be included in the CC plans.*

+ **Clause D3.6 Signage**

Braille and tactile signage must be provided to required accessible sanitary facilities, spaces with hearing augmentation, ambulant sanitary facilities, pedestrian entrances that are not accessible, **and** to each door required by Clause E4.5 to be provided with an exit sign. The latter is to state EXIT and state the level eg. LEVEL 1.

Comments: *Architect to note. Details and design certification demonstrating compliance will be required to be included in the CC plans.*

+ **Clause D3.8 – Tactile Indicators**

This clause provides for the installation of tactile indicators in buildings required to be accessible and must be provided to warn people who are blind or have a vision impairment that they are approaching a stairway, escalator, passenger conveyor, ramp, overhead obstruction or an accessway meeting a vehicular way, except for areas exempted by D3.4.

Comments: *Subject to D3.4 above, stairways and ramps serving the building, any overhead projections less than 2m in height and any paths leading directly to a driveway or roadway without a kerb will need to be provided with Tactile Ground Surface Indicators in accordance with AS1428.4. Details and design certification demonstrating compliance will be required to be included in the CC plans.*

+ **Clause D3.11 – Ramps**

Ramps may be used as part of an accessway where there is a change of level and must comply with the requirements set out in AS1428.1.

Comments: Architect to note. Details and design certification demonstrating compliance will be required to be included in the CC plans.

+ **Clause D3.12 – Glazing on an Accessway**

This part requires the provision of a contrasting strip, chair rail, handrail or transom across all frameless or fully glazed doorways and surrounding glazing capable of being mistaken for an opening.

Comments: *Glazing capable of being mistaken for an opening as listed above must be clearly marked for its full width with a solid and non-transparent contrasting line being not less than 75mm wide and the lower edge must be located between 900mm and 1000mm above the plane of the finished floor level. Details and design certification demonstrating compliance will be required to be included in the CC plans.*

3.4 SECTION E – SERVICES AND EQUIPMENT

FIRE FIGHTING EQUIPMENT

+ **Clause E1.3 – Fire Hydrants**

E1.3(a) – A fire hydrant system must be provided to serve a building having a total floor area greater than 500m² and where a fire brigade is available to attend a building fire.

E1.3(b) – Requires that the fire hydrant system must be installed in accordance with the provisions of AS2419.1 and also details where internal hydrants must be located.

Comments: *The proposed Large Isolated Building is required to be served by a hydrant system incorporating a ring main in accordance with AS2419.1-2005. In this regard, it is noted a Performance Solution is proposed by the Fire Engineer to adopt AS2419.1-2021 in its entirety and to classify the hydrants located beneath the external awnings as external hydrants. Additionally, a Performance Solution is proposed for the hydrant booster location, noting it is not within 20m of the main pedestrian entrance to the building contrary to Clause 7.3.1 of AS2419.1-2021. The proposed Performance Solutions will need to demonstrate compliance with EP1.3. Details demonstrating compliance are to be provided at the CC application stage.*

Note: *The hydrant booster must be located not less than 10m from the nearby electrical substation.*

+ **Clause E1.4 – Fire hose reels**

A fire hose reel system must be provided to serve a building where one or more internal fire hydrants are installed or in a building with a floor area greater than 500m².

This clause requires that the fire hose reel system must be installed in accordance with AS 2441 and sets out the detail for location and uses of fire hose reels.

Comments: *The proposed Warehouse, covered Hardstand and Undercroft Carpark / Lobby portions of the building are required to be served by a compliant fire hose reel system; however, the Office areas do not require coverage as they are subject to the Class 5 concession. In this regard, it is noted a Performance Solution is proposed by the Fire Engineer to allow 50m hose lengths, which will need to demonstrate compliance with Performance Requirement EP1.1. Details demonstrating compliance are to be provided at the CC application stage.*

+ **Clause E1.5 – Sprinklers**

A sprinkler system must be installed in a building or part of a building when required by Table E1.5 and comply with Specification E1.5. Table E1.5 sets out which types of building occupancies and Classes which are required to have sprinkler systems installed in them.

Specification E1.5 sets out requirements for the design and installation of sprinkler systems.

Comments: *The proposed Large Isolated Building is required to be sprinkler protected throughout in order to address the requirements of Clause C2.3 and Table E1.5.*

In accordance with Clause 4.14.1 of AS2118.1-2017, sprinkler boosters are required to comply with the requirements of AS2419.1-2005 for a hydrant booster, which is proposed to be addressed as a Performance Solution by the Fire Engineer. In addition, it is noted a Performance Solution is proposed from the Fire Engineer for the design of the sprinkler system to the Warehouse areas due to the roof height exceeding the limitations of AS2118.1-2017 and for the occupant warning alarm zones The proposed Performance Solutions will need to demonstrate compliance with EP1.4 (as relevant to the sprinkler system) & EP2.2 (as relevant to the occupant warning system). Details demonstrating compliance are to be provided at the CC application stage.

+ **Clause E1.6 – Portable fire extinguishers**

Portable fire extinguishers must be provided as listed in Table E1.6 and must be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444.

Comments: *Fire extinguishers will be required to be installed in the proposed building in accordance with Table E1.6 and AS 2444-2001 including the Class 5 Office areas.*

+ **Clause E1.8 – Fire Control Centres**

A fire control centre facility in accordance with Specification E1.8 must be provided for a building having an effective height of more than 25m and in a Class 6, 7, 8 or 9 building with a total floor area of more than 18,000m².

Specification E1.8 describes the construction and content of required fire control centres or rooms.

Comments: *As the floor area of the proposed building exceeds 18,000m², it is required to be provided with a Fire Control Centre facility that complies with Clauses 2-5 of Spec. E1.8. Further details which demonstrate compliance with the requirements of Spec. E1.8 will be required to be included on the Construction Certificate application plans, noting it must be so located in a building that egress from any part of its floor to a road or open space does not involve changes in level which exceed 300mm in aggregate.*

+ **Clause E1.10 – Provision for Special Hazards**

Suitable provisions are to be made for firefighting in a building if special problems of fighting fire could arise due to the nature or the quantity of goods stored, displayed or used; and/or the proximity of the building to a firefighting water supply.

Comments: Details are required from both the Fire Services Consultant and the Fire Engineer to confirm that the proposed firefighting systems have the required capability to address the additional hazard resulting from EV charging spaces in the Undercroft Carpark Level.

SMOKE HAZARD MANEGEMENT

+ **Clause E2.2 – General Requirements**

Class 2 to 9 buildings must comply with the provisions of this Clause to remove smoke during a fire, to control the operation of air handling systems and to prevent the spread of smoke between compartments.

Buildings must comply with the provisions of **Table E2.2a**, as applicable to Class 2 to 9 buildings. It deals with the design and construction of air handling systems that are part of a smoke hazard management system and air handling systems that are not part of a smoke hazard management system.

The details relating to the installation and operation of the systems are set out in **Specifications E2.2a**, **E2.2b** and **E2.2c**.

Comments: As the volume of the proposed building is greater than 108,000m^3, an automatic smoke exhaust system is required to be provided serving all parts of the building. In this regard, it is noted a Performance Solution is proposed from the Fire Engineer to rationalise the performance of the smoke hazard management system which will need to demonstrate compliance with Performance Requirement EP2.2.

+ **Clause E2.3 – Provision for Special Hazards**

Additional smoke hazard management measures may be required in a building to address any additional risk that result from special characteristics, functions, type of quantities of storage or mix of classifications within a fire compartment.

Comments: Details are required from both the Mechanical Consultant and the Fire Engineer to confirm that the proposed smoke hazard management systems have the required capability to address the additional hazard resulting from EV charging spaces in the Undercroft Carpark Level.

LIFT INSTALLATIONS

+ **Clause E3.3 – Warning Against use of Lifts in Fire**

Warning signs required be provided must be displayed where they can be readily seen and must comply with the details and dimensions of **Figure 3.3.**

Comments: Architect and Lift Contractor to note. Details demonstrating compliance will be required to be provided with the CC application.

+ **Clause E3.5 – Landings**

Access and egress to and from lift well landings must comply with the Deemed-to-Satisfy Provisions of Part D, including the accessibility requirements of AS 1428.1-2009.

Comments: Architect and Lift Contractor to note. Details demonstrating compliance will be required to be provided with the CC application.

+ **Clause E3.6 – Passenger Lifts**

In an accessible building, every passenger lift must be one of the types identified in **Table E3.6a,** have accessible features in accordance with **Table E3.6b** and not rely on a constant pressure device for its operation if the lift car is fully enclosed.

Comments: Lift Contractor to note. Lift floor dimensions must be not less than 1100mm wide x 1400mm deep per Table E3.6b. Details demonstrating compliance will be required to be provided with the CC application.

VISABILITY IN AN EMRGENCY, EXIT SIGNS AND WARNING SYSTEMS

+ **Clause E4.2 – Emergency Lighting Requirements**

This clause details when emergency lighting must be installed in Class 2 to 9 buildings. The requirements for buildings and parts of buildings are detailed in sub-clauses (a) to (i) and each sub-clause must be considered as more than one may apply to any single building.

Comments: *Emergency Lighting is required throughout the proposed building in accordance with E4.2, E4.4 and AS/NZS 2293.1-2018.*

+ **Clause E4.4 – Design & Operation of Emergency Lighting**

Every required emergency lighting system must comply with AS2293.1.

Comments: *Electrical Consultant to note. Details demonstrating compliance will be required to be provided with the CC application.*

+ **Clause E4.5 – Exit Signs**

An exit sign must be clearly visible to persons approaching the exit and must be installed on, above or adjacent to each door providing egress from a building. Sub-clauses (a) to (d) set out the situations where exit signs are required to be installed.

Comments: *Electrical Consultant to note. Details demonstrating compliance will be required to be provided with the CC application.*

+ **Clause E4.6 – Direction Signs**

If an exit is not readily apparent to persons occupying or visiting the building then exit signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a required exit.

Comments: *Electrical Consultant to note. Details demonstrating compliance will be required to be provided with the CC application.*

+ **Clause E4.8 – Design & Operation of Exit Signs**

Every required exit sign must comply with AS/NZS 2293.1 and be clearly visible at all times when the building is occupied by any person having the legal right of entry into the building.

Comments: *Electrical Consultant to note. Details demonstrating compliance will be required to be provided with the CC application.*

3.5 SECTION F – HEALTH & AMENITY

DAMP AND WEATHERPROOFING

+ **Performance Requirement FP1.4**

A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause

a) Unhealthy or dangerous conditions, or loss of amenity for occupants; and

b) Undue dampness or deterioration of building elements.

Note 1: There are no Deemed-to-Satisfy provisions for this Performance Requirement in respect to External Walls.

Note 2: Refer to Clause F1.5 for roof coverings.

Comments: A documented Performance Solution is to be provided for the proposed building with the Construction Certificate application, either by using:

- *The Verification Methods in Clause FV1; or*
- *Other verification methods deemed acceptable by the Certifier; or*
- *Evidence to support that the use of the material or product, form of construction or design meets the Performance Requirements or the DTS provisions, such as a Certificate of Conformity (eg. CodeMark); or*
- *By way of Expert Judgement.*

+ **Clause F1.1 – Stormwater drainage**

Stormwater drainage must comply with AS/NZ 3500.3.

Comments: *Details of stormwater disposal, from a suitably qualified consultant are required to be submitted with documentation for the CC.*

+ **Clause F1.5 – Roof Coverings**

This clause details the materials and appropriate standards, with which roofs must be covered with. The roofing requirements are set out in sub-clauses (a), (b) (c), (d), (e) & (f) which identifies the types of materials that may be used and the adopted Australian Standards that apply to their quality and installation.

Comments: *Note – design certification required at CC Application stage.*

+ **Clause F1.6 – Sarking**

Sarking-type materials used for weatherproofing of roofs must comply with AS/NZS 4200 parts 1 and 2.

Comments: Note.

+ **Clause F1.7 – Waterproofing of Wet Areas**

This clause requires that wet areas in Class 2 to 9 buildings must be waterproofed. It prescribes the standards to which the work must be carried out in sub-clauses (a) to (e) with emphasis in sub-clauses (c), (d) & (e) on the construction of rooms containing urinals and their installation.

Note: Figures F1.7(1) & F1.7(2) of the Guide to the BCA contain diagrams indicating the areas of walls and floors to be protected around baths, washbasins and showers.

Comments: Note – installation certification will be required at OC Application stage.

+ **Clause F1.13 – Glazed Assemblies**

Glazed assemblies in an external wall must comply with AS2047 requirements for resistance to water penetration for windows, sliding doors with a frame, adjustable louvres, shop fronts and windows with one-piece framing

Comments: *Details demonstrating compliance will be required to be provided with the CC application.*

SANITARY AND OTHER FACILITIES

+ **Clause F2.3 – Facilities in Class 3 to 9 Buildings**

This clause provides the requirements for sanitary facilities to be installed in Class 3, 5, 6, 7, 8 and 9 buildings in accordance with **Table F2.3**. The requirements and variations are set out in sub-clauses (a)-(h).

Comments: *As indicated under D1.6 & D1.13 above, the proposed population numbers are to be provided by ESR / the tenant at CC application stage to assess if the proposed toilet facilities within the Warehouse are adequate to achieve compliance with Table F2.3. Notwithstanding, an assessment of the proposed facilities has been carried out based on the population numbers calculated in accordance D1.13 above with the required facilities detailed below based on a 50/50 split between Males and Females:*

Office

- *Male (81 persons): 5 pans, 3 urinals & 3 basins; Female (81 persons): 6 pans & 3 basins – does not comply*

Warehouse

- *Male (265 persons): 14 pans, 7 urinals & 14 basins; Female (265 persons): 18 pans & 14 basins – does not comply*

In this regard, it is noted 7 additional Male pans and 3 additional Male basins, and 10 additional Female pans and 3 additional Female basins are required to achieve compliance based on the populations calculated under Clause D1.13 above.

Note: The Unisex facility in each Dock Office is required to be allocated to Males and Females unless it is demonstrated that it is in excess of the minimum number of toilets for Males and Females throughout each Warehouse based on the proposed population.

+ Clause F2.4 – Accessible Sanitary Facilities

Accessible unisex sanitary compartments must be provided, in accordance with **Table F2.4(a)** and unisex showers must be provided in accordance with **Table F2.4(b)**, in buildings or parts that are required to be accessible. The details for the provision of accessible & ambulant facilities and the standard, AS 1428.1, are set out in sub-clauses (a) to (i).

Comments: *The proposed accessible and ambulant sanitary facilities shown in the Warehouse and Office areas achieve compliance with the provisions of Table F2.4. Details demonstrating that the design of each facility complies with AS 1428.1-2009 are to be provided at the CC application stage.*

+ Clause F2.5 – Construction of Sanitary Compartments

Other than in an early childhood centre, sanitary compartments must have doors and partitions that separate adjacent compartments and extend –

- from floor level to the ceiling in the case of a unisex facility; or
- a height of not less than 1.5m above the floor if primary school children are the principal users; or
- 1.8m above the floor in all other cases.

The door to a fully enclosed sanitary compartment must open outwards; or slide: or be readily removable from the outside of the sanitary compartment, unless there is a clear space of at least 1.2m, measured in accordance with Figure F2.5 between the closet pan within the sanitary compartment and the doorway.

Comments: Architect to note. Details to be provided with the application for the Construction Certificate.

ROOM HEIGHTS

+ Clause F3.1 – Height of Rooms and Other Spaces

The ceiling heights in Class 2 to 9 buildings must not be less than required in sub-clauses (a) to (f) of this clause.

The minimum ceiling heights for a Class 5, 7a & 7b buildings are as follows:

- Corridor, passage or the like – 2.1m
- Bathroom, shower room, sanitary compartment, airlock, tea room, pantry, store room, garage, car parking area or the like – 2.1m
- Remainder – 2.4m.

Comments: Architect to ensure compliance.

Note: The Undercroft Carpark will require careful consideration, particularly with regard to the ceiling height required for accessible spaces, where services may impact on the required clearances in accordance with AS2890.6 and should be given early attention to ensure compliance.

LIGHT AND VENTILATION

+ Clause F4.4 – Artificial Lighting

Artificial lighting is required where it is necessary to minimise the hazard to occupants during an emergency evacuation. Sub-clauses (a), (b) & (c) sets out the places where artificial lighting is always required in all classes of buildings and the standard to which it must be installed.

Comments: *Electrical Consultant to note. Design certification to be submitted at CC Application Stage.*

+ Clause F4.5 – Ventilation of Rooms

A habitable room, office, shop, factory, workroom, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have natural ventilation complying with F4.6 **or** a mechanical or air-conditioning system complying with AS1668.2 and AS/NZS 3666.1.

Note: NSW F4.5(b) a mechanical ventilation or air-conditioning system complying with AS 1668.2 – the reference to AS/NZS 3666.1 is deleted from the BCA in NSW as the need to comply with this standard is regulated under the relevant section of the Public Health Act 2010.

Comments: *Mechanical Consultant and Architect to note. Design certification to be submitted at CC Stage.*

+ Clause F4.11 – Carparks

Every storey of a carpark except an open-deck carpark must have-

- A system of ventilation complying with AS 1668.2; or

- An adequate system of permanent natural ventilation.

Comments: Mechanical Consultant to note. Design certification to be submitted at CC Stage.

3.6 SECTION J – ENERGY EFFICIENCY

+ Part J1 – Building Fabric

The provision of insulation to the building envelope will be required in the proposed Building, in accordance with **Clauses J1.0 to J1.6**, and the **Tables therein**, including Thermal Construction General, Roof and Ceiling Construction, Rooflights, Walls and Glazing, and Floors. Design details and/or certification of design will be required to be provided in this regard.

Comments: This section applies to any air-conditioned spaces proposed within the proposed building. Design details and / or certification of building envelope design will be required to be submitted with the application for a Construction Certificate.

+ Part J3 – Building Sealing

The proposed building envelope will be required to be sealed to prevent air infiltration in accordance with the requirements of **Clauses J3.0 to J3.6**. Details or certification that the proposed building design complies with the requirements of **Part J3** is required to be provided.

*Comments: This section applies to any air-conditioned spaces proposed within the proposed building. Details and / or certification that the proposed design complies with the requirements of **Part J3** will need to be submitted with the application for a Construction Certificate.*

+ Part J5 – Air-Conditioning & Ventilation Systems

Details and/or design certification which confirm that any proposed air-conditioning system or unit within the proposed building achieves compliance with the relevant requirements of **Part J5** will be required to be provided from the mechanical engineer.

Comments: Details or certification demonstrating compliance will need to be submitted with the application for a Construction Certificate.

+ Part J6 – Artificial Light & Power

Details and/or design certification which confirm that all artificial lighting, power control, and boiling/chilled water units within the proposed building achieves compliance with the relevant requirements of **Part J6** will be required to be provided from the electrical engineer.

Comments: Details or certification demonstrating compliance will need to be submitted with the application for a Construction Certificate.

+ Part J7 – Hot Water Supply, & Swimming Pool & Spa Pool Plant

Details and/or design certification which confirm that any proposed hot water supply system within the proposed building achieves compliance with the relevant requirements of **Part J7** (Section 8 of AS 3500.4) will be required to be provided from the hydraulic engineer.

Comments: Details or certification demonstrating compliance will need to be submitted with the application for a Construction Certificate.

+ Part J8 – Facilities for Energy Monitoring

Provision for monitoring of energy consumption must be provided to a building where the floor area exceeds 500m², and must be capable of recording the consumption of gas and electricity. In addition, where the floor area of the building exceeds 2,500m² the energy monitoring facilities must be capable of individually recording air-conditioning, lighting, appliance power, central hot water supply, lifts/escalators, and other ancillary plant.

Comments: Details or certification demonstrating compliance will need to be submitted with the application for a Construction Certificate.

4.0 SUMMARY OF KEY COMPLIANCE ISSUES

The following comprises a summary of the key compliance issues identified under the assessment contained above in this report and includes the required Performance Solutions. These matters are to be addressed prior to issue of the Construction Certificate.

4.1 MATTERS REQUIRING FURTHER RESOLUTION / NON-FIRE SAFETY PERFORMANCE SOLUTIONS

	BCA Clause/s	Description
1.	C1.9 & C1.14	A schedule of the non-combustible materials proposed to form part of the external walls as well as the internal and external attachments to the external walls are required to be provided for assessment. Particular attention is drawn to the feature louvres and slat screens shown on the Office elevations and all external signage and awnings/sunshades that are attached to the external walls.
2.	D1.10	+ A pedestrian egress gate is required from the southern hardstand to Johnston Road. + The egress paths from the Outdoor Areas associated with Offices A & B to the hardstand are required to achieve an unobstructed width of not less than 1m.
3.	D1.6, D1.13 & F2.3	+ The proposed population of each Warehouse is to be provided by ESR to confirm if the proposed egress dimensions & sanitary facilities achieve compliance. + The Unisex sanitary facility in each Dock Office is required to be allocated to Males or Females unless it is demonstrated that it is in excess of the minimum number of toilets for Males and Females throughout the building.
4.	Part D3 & F2.4	+ The turning spaces to the accessways from the allotment boundary (particularly to Office B) require review to ensure compliance is achieved. + Details of any proposed Clause D3.4 exemptions to be provided by ESR or the tenant (as applicable).
5.	E1.10 & E2.3	Details are required from the Fire Services Consultant, Mechanical Consultant and the Fire Engineer to confirm that the proposed firefighting systems and smoke hazard management systems have the required capability to address the additional hazard resulting from EV charging spaces in the Undercroft Carpark Level.
6.	FP1.4	A Performance Solution report is to be provided by the Architect / Façade Engineer to demonstrate how the external walls & roof are designed to prevent the penetration of water into the building.
7.	Section J	A Section J Compliance Report or JV3 Report will be required at CC application stage.

4.2 MATTERS TO BE ADDRESSED AS FIRE SAFETY ENGINEERED PERFORMANCE SOLUTIONS

	BCA Clause/s	Description
1.	Spec. C1.1	A Performance Solution is proposed to reduce the required FRLs associated with the Ground Floor Office A & B areas.
2.	C2.4	A Performance Solution is proposed to address the Perimeter Vehicular Access.
3.	D1.4 / D1.5	A Performance Solution is proposed to address the travel distance non-compliances. Note: The Level 1 Office non-compliance is required to be updated in the FEBQ dated 11.11.2022 to address the distance to a single exit in lieu of the distance to a point of choice between exits.
4.	D2.19	A Performance Solution is proposed from the Fire Engineer to address the operation of the internal airlock doors on the Undercroft Carpark Level.

	BCA Clause/s	Description
5.	E1.3	+ A Performance Solution is proposed to adopt AS2419.1-2021 in its entirety and to classify the hydrants located beneath the external awnings as external hydrants. + A Performance Solution is proposed for the hydrant booster location.
6.	E1.4	A Performance Solution is proposed to allow 50m hose lengths.
7.	E1.5	+ A Performance Solution is proposed address the sprinkler booster location. + A Performance Solution is proposed for the design of the sprinkler system to the Warehouse areas due to the roof height exceeding the limitations of AS2118.1-2017. + A Performance Solution is proposed for the design of the occupant warning system.
8.	E2.2	A Performance Solution is proposed to rationalise the smoke hazard management requirements.

5.0 CONCLUSION

This report contains an assessment of the referenced architectural documentation for Lot 206 of the ESR Horsley Logistics Park development located at 327-335 Burley Road, Horsley Park against the Deemed-to-Satisfy Provisions of the BCA 2019 Amendment 1. Arising from the review, it is considered that the proposed development can readily achieve compliance with the relevant provisions of the BCA. Where compliance matters are proposed to comply with the Performance Requirements (rather than DtS Provisions), the development of a Performance Solution Report will be required prior to the issue of the Construction Certificate.

The following fire safety measures are required for the new building:

Fire Safety Schedule

Statutory Fire Safety Measure	Design / Installation Standard
Alarm Signaling Equipment	AS 1670.3 – 2018
Automatic Fire Detection & Alarm System	BCA Spec. E2.2a & AS 1670.1 – 2018
Automatic Fire Suppression Systems	BCA Spec. E1.5 & AS 2118.1 – 2017
Building Occupant Warning System activated by the Sprinkler System	BCA Spec. E1.5, Clause 8 and / or Clause 3.22 of AS 1670.1 – 2018
Emergency Lighting	BCA Clause E4.4 & AS 2293.1 – 2018
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8; and AS 2293.1 – 2018
Fire Control Centre	BCA Spec E1.8
Fire Dampers	BCA Clause C3.15, AS 1668.1 – 2015 & AS 1682.1 & 2 – 2015 and manufacturer's specification
Fire Doors	BCA Clause C2.12 & C2.13 and AS 1905.1 – 2015 and manufacturer's specification
Fire Hose Reels (Excluding Class 5 Ground Floor and Level 1 Office Areas)	BCA Clause E1.4 & AS 2441 – 2005
Fire Hydrant Systems	BCA Clause E1.3 & AS 2419.1 – 2005
Fire Seals	BCA Clause C3.15, AS 1530.4 – 2014 & AS 4072.1 – 2005 and manufacturer's specification
Lightweight Construction	BCA Clause C1.8 & AS 1530.4 – 2014 and manufacturer's specification
Paths of Travel	EP&A (DC&FS) Reg. 2021 Clause 109
Perimeter Vehicular Access	BCA Clause C2.4
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
Smoke Hazard Management Systems (Automatic Smoke Exhaust System)	BCA Part E2 & AS/NZS 1668.1 –2015
Warning & Operational Signs	AS 1905.1 – 2015, BCA Clause D3.6 & E3.3

6.0 APPENDIX 1 – SPEC. C1.1 FRL REQUIREMENTS (TYPE B CONSTRUCTION)

Table 4 TYPE B CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	Class of building—FRL: (in minutes)			
	Structural adequacy/ Integrity/ Insulation			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any fire-source feature to which it is exposed is—				
For loadbearing parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 30	120/ 90/ 60	180/120/ 90	240/180/120
3 to less than 9 m	90/ 30/ 30	120/ 30/ 30	180/ 90/ 60	240/ 90/ 60
9 to less than 18 m	90/ 30/–	120/ 30/–	180/ 60/–	240/ 60/–
18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
For non- loadbearing parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 30	–/ 90/ 60	–/120/ 90	–/180/120
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an external wall, where the distance from any fire-source feature to which it is exposed is—				
less than 3 m	90/–/–	120/–/–	180/–/–	240/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90 / 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
Fire-resisting lift and stair shafts—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Fire-resisting stair shafts				

Building element	Class of building—FRL: (in minutes)			
	Structural adequacy/ Integrity/ Insulation			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
Non- loadbearing	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding public corridors, public lobbies and the like—				
Loadbearing	60/ 60/ 60	120/–/–	180/–/–	240/–/–
Non- loadbearing	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding sole-occupancy units—				
Loadbearing	60/ 60/ 60	120/–/–	180/–/–	240/–/–
Non- loadbearing	–/ 60/ 60	–/–/–	–/–/–	–/–/–
OTHER LOADBEARING INTERNAL WALLS				
and COLUMNS—	60/–/–	120/–/–	180/–/–	240/–/–
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–