

Chullora Materials Recycling Facility

Environmental Impact Statement (SSD-10401)

Appendix F Building Code of Australia Assessment Report



www.concisecert.com.au

BCA ASSESSMENT REPORT

PURSUANT TO CLAUSE 145 EP&A REGS

21 Muir Road, Chullora NSW 2190

Prepared for: SUEZ RECYCLING & RECOVERY PTY LIMITED / Project No.: 200097

Date: 03 August 2020 / Status: Revision 02

Accredited Certifiers / Building Regulation Consultants

Office 1300 057 046

Email admin@concisecert.com.au

Address PO Box 603, Engadine NSW 2233

ABN 70 612 151 014

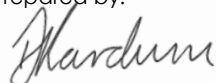


TABLE OF CONTENTS

1.	INTRODUCTION	3
1.1	Report Background	3
1.2	Report Purpose	3
1.3	Report Documentation Relied Upon	3
1.4	Report Limitations & Exclusions	4
1.5	Existing & Proposed Development	5
1.6	Building Code of Australia 2019 (BCA)	7
1.7	Report Structure	7
2.	SUMMARY OF KEY COMPLIANCE DEPARTURES	7
3.	BCA ASSESSMENT	15
3.1	General Provisions	15
3.2	Fire Source Features	15
3.3	Floor Area / Volume (Fire Compartment Sizes):	16
3.4	Section A – Classification of Buildings & Structures	16
3.5	Section B – Structural Provisions	16
3.6	Section C – Fire Resistance and Compartmentation	17
3.7	Section D – Access and Egress	23
3.8	Section E – Essential Fire Safety Measures	29
3.9	Section F – Health & Amenity	35
3.10	Section J – Energy Efficiency	36
3.11	General /Safety in Design Requirements:	37
4.	CONCLUSION	38
	APPENDIX: PRELIMINARY FIRE SAFETY SCHEDULE	39

REPORT STATUS				
DATE	REVISION	STATUS	AUTHOR	PEER REVIEW
20 April 2020	0	Issued for Client Information	Darko Kardum	Steven Rodriguez
26 May 2020	01	Issued for Client Information	Darko Kardum	Steven Rodriguez
03 August 2020	02	Issued for CC Stage	Darko Kardum	Steven Rodriguez

Prepared by:



Darko Kardum - Senior Building Surveyor
Accredited Certifier/Senior Building Regulations Consultant

Reviewed by:



Steven Rodriguez - Director
Registered Certifier/Principal Certifier (NSW)
Building Surveying Grade A1 - Accreditation No. BDC 0823

1. INTRODUCTION

1.1 REPORT BACKGROUND

Concise Certification Pty Ltd has been commissioned by SUEZ RECYCLING & RECOVERY Pty Ltd to provide professional Building Certification Services for the proposed development at 21 Muir Road, Chullora NSW 2190.

Our proposed engagement as the Principal Certifier involved a detailed desktop assessment of the architectural design documentation against the provisions of the National Construction Code Series (Volume 1) Building Code of Australia 2019 – Amendment 1 (BCA) for purposes of Clause 145 of the Environmental Planning & Assessment Regulation 2000.

1.2 REPORT PURPOSE

The key objectives of the report are as follows:

- Undertake an assessment of the proposed development against the deemed to satisfy provisions of the National Construction Code Series - Volume 1- Building Code of Australia 2019 Amendment 1, pursuant to the provisions of Clause 145 of the Environmental Planning & Assessment Regulation 2000.
- Identify essential fire safety measures that are applicable to the proposed development in accordance with Clause 166 of the Environmental Planning and Assessment Regulation 2000.
- Identify any Deemed-to-Satisfy compliance departures that require further resolution/attention by the design team, by either way of design change or Performance Based Solutions prior to the submission of the Construction Certificate application.
- Issue a collaborated fire engineering summary outlining the key compliance departures identified by the design team, that are requiring consideration by the project Fire Safety Engineer (Certifier – Fire Safety) in order to ensure the Fire Engineering strategy considers all matters requiring attention prior to the formal submission to (Fire & Rescue NSW).
- Verify that the referenced documentation has been reviewed by an appropriately qualified Building Surveyor to demonstrate that compliance with the BCA / Access to Premises – Building Standard 2010 is readily achievable.
- Enable the Registered Certifier to satisfy its statutory obligations under Clause 145 of the Environmental Planning and Assessment Regulation 2000, whilst also taking into due consideration the provisions under Sections 28 and 29 of Part 3 of the Building and Development Certifiers Act 2018 and Clauses 24 and 25 of Part 4 of the Building and Development Certifiers Regulation 2020.

It is important to note that this Building Certification Report is not a design development or design contribution report. This is a desktop assessment carried out against the presented design using the Building Code of Australia as a benchmark and no contribution to design advice has been provided.

1.3 REPORT DOCUMENTATION RELIED UPON

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

- National Construction Code Series – Volume 1 – Building Code of Australia 2019 (BCA)
- National Construction Code Series – Guide to the Building Code of Australia 2019 (BCA Guide)
- Environmental Planning & Assessment Act 1979
- Environmental Planning & Assessment Regulation 2000
- Access to Premises - Building Standards 2010
- Fire & Rescue NSW Guideline "Fire Safety in Waste Facilities" Version 02.02 Issued 27 February 2020
- Fire & Rescue NSW Guideline "Access for Fire Brigade Vehicles" Version 05 Issued 4 October 2019
- Preliminary Fire Services Mark ups prepared by Sparks + Partners dated April and May 2020
- Preliminary Fire Safety Engineering advice provided by Innova Services dated 05 March 2020
- Preliminary Equipment layout plans prepared by Suez.
- Architectural Plans prepared by as detailed below;

Plan No	Document Name	Revision	Date
DA01	Part Site Plan	J	31 July 2020
DA02	Part Site Plan	J	31 July 2020

DA03	Part Floor Plan	J	31 July 2020
DA04	Part Floor Plan	J	31 July 2020
DA05	Part Floor Plan	J	31 July 2020
DA06	Mezzanine / Part Floor Plan	J	31 July 2020
DA07	Section A-A, B-B Plan	J	31 July 2020
DA08	Section C-C Plan	J	31 July 2020
DA09	West- & Part West Elevation Plan	J	31 July 2020
DA10	East & Part East Elevation Plan	J	31 July 2020
DA11	North & Part North & South Elevation Plan	J	31 July 2020
DA12	Typical Signage Plan	J	31 July 2020
DA13	Gate House Plan	J	31 July 2020

1.4 REPORT LIMITATIONS & EXCLUSIONS

The limitations and exclusions of this report are as follows:

- This report is based on a review of the referenced documentation in the report above.
- This Report does not address issues in relation to the design, maintenance or operation electrical, mechanical, hydraulic or fire protection services, Utility Services Provider Requirements (Water, Gas, Telecommunications and Electricity supply authorities), Local Government Act and Regulations, Occupational Health and Safety Act and Regulations or the like.
- This assessment does not incorporate the detailed requirements of the BCA Referenced Australian Standards and it's the responsibility of design and installation contractors to demonstrate and achieve compliance for all new works.
- Although our assessment has considered Part D of the BCA, detailed assessment is excluded from our services, and this is to be undertaken by an Energy Efficiency Consultant; or addressed via design certification from the Architect
- Although our assessment has considered Part J of the BCA, detailed assessment of the Energy Efficiency is excluded from our services, and this is to be undertaken by an Energy Efficiency Consultant; or addressed via design certification from the Architect.
- This assessment does not incorporate the detailed requirements of the BCA Referenced Australian Standards and it's the responsibility of design and installation contractors to demonstrate and achieve compliance for all new works.
- The commentary within this BCA Assessment Report does not relieve the Design Practitioners, Principal Building Practitioners, Accredited Practitioners (Fire Safety) and/or any associated Building Suppliers and Sub Contractors from their statutory obligations under the Work Health Safety Act, Safety in Design Principles, EP&A Regs/Act and /or their statutory duty of care obligations under the Design and Building Practitioners Act 2020.
- The commentary in this report is not in any way a contribution to the Fire Safety Strategy and/or meant to contribute to the Fire Engineering Brief process as this is the role of the Fire Safety Engineer – (Certifier in Fire Safety).
- The commentary within this BCA Assessment Report does not relieve the Registered Certifier from their statutory obligations under EP&A Regs/Act, Building and Development Certifiers Act/Regs and they are to be satisfied that the proposal meets their requirements prior to approval.
- The commentary within this BCA Assessment Report does not relieve the C10 Fire Safety Engineer from their statutory obligations under EP&A Regs/Act, Building and Development Certifiers Act/Regs.
- Concise Certification Pty Limited cannot guarantee acceptance of this report by the Local Council, NSW Fire Brigades or other approval authorities.

- It should be noted that this BCA Assessment Report predominantly relates to the Stage 1 works – (Building A & Estate Wide Fire Services). Although the report has considered high level key building characteristics and fire services applicable to Stage 2 (Buildings B), a detailed assessment was not carried out as these plans have not yet been finalised. Further assessments and revisions of this report will be required at these future staged applications accordingly.
- It is important to note that this Building Certification Report is not a design development or design contribution report. This is a clause by clause summary carried out against the presented design using the Building Code of Australia as a benchmark and no contribution to design advice has been provided. The report simply identifies key compliance matters to be considered further by either way of detail, design consideration and/or via Performance Solutions as required by Clause 145 of the Environmental Planning and Assessment Regulation 2000. The Design Practitioners and Building Practitioners are to refer back to the BCA and relevant Australian standards which need to be ready in conjunction with this report.
- It is important to note that without the written permission from Concise Certification Pty Ltd, no part of this report may be reproduced in any form or by any means. This report is based solely on client instructions and therefore should not be relied upon or used by any third party without prior knowledge and instructions from Concise Certification Pty Ltd.

1.5 EXISTING & PROPOSED DEVELOPMENT

The existing site is located at 21 Muir Road, Chullora NSW 2190 and is legally described as Lot 2 in DP 1227526. The site is irregular in shape, has an approximate site area of 9.2 ha and is located within the Local Government Area (LGA) of Canterbury – Bankstown Council.

The principle public entrance to the site is via Muir Road which is to the North side of the site. Secondary staff access is via the rear carpark which is accessed from Anzac Street located at the Southern side of the site.

The Northern side of the site was recently subdivided and is occupied by a new warehouse distribution centre, whilst the Western side adjoins a rail corridor and the Eastern side adjoins another industrial site.



Figure 1 – Satellite Image (Source: Spatial information Exchange – April 2020)

The site is currently vacant of any buildings and was previously occupied by warehouses utilised for Material Recycling Facilities which were severely impacted by a fire event in February 2017.

The main building was significantly fire damaged and all warehouse structures have since been demolished and cleared from the site.

The site is currently being used as a storage yard and off street carparking and there is a small single storey administrations building located on the opposite side of the Sydney Water Drainage Channel which runs North to South along the Eastern portions of the site.

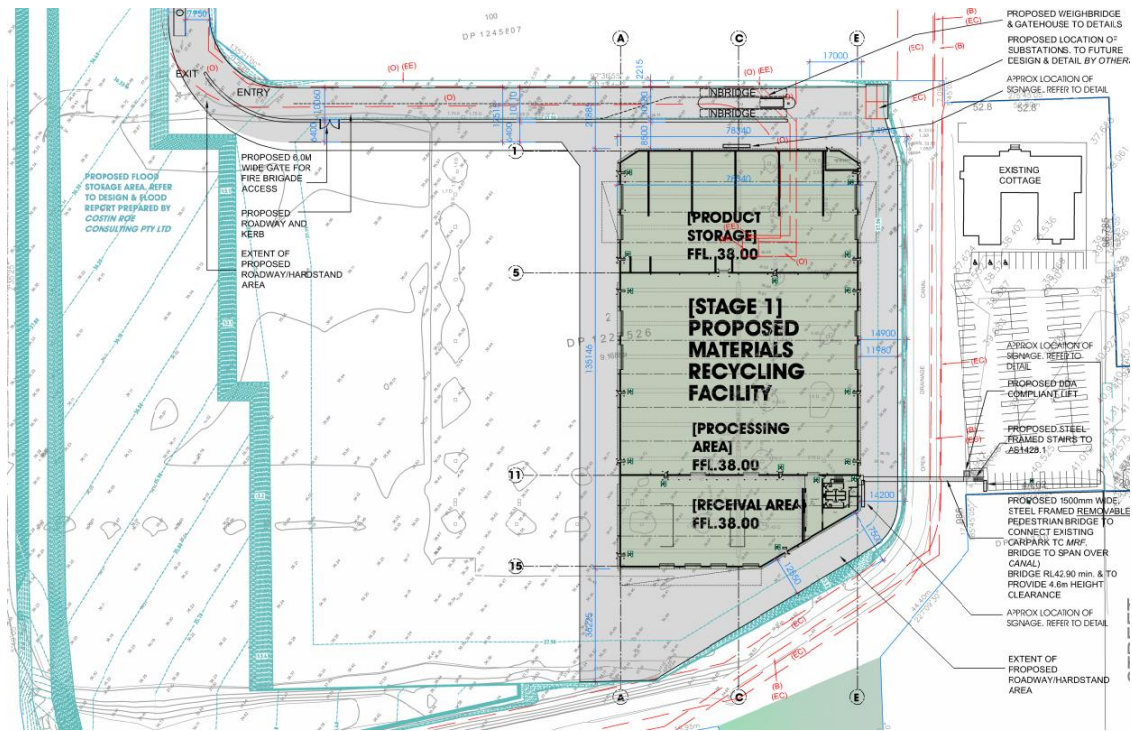


Figure 2 – Site Plan (Source: Envision Group)

The proposed development is Stage 1 of a Master Plan proposal as follows:

Stage 1 – Building A (Material Recycling Facility), Main Site Access Upgrades & Estate Wide Services

- Construction of a two (2) storey warehouse with an approximate floor areas of 10,000msq which is proposed to be utilised as a Material Recycling Facility (MRF) and includes recycling/sorting equipment, conveyors, tumblers and a mezzanine structure used as administrations and amenities.
- Site preparation and Estate Wide civil works including flood basin and fire water containment measures.
- Construction of perimeter access roads around Building A and associated hardstand.
- Construction of a new internal access roads.
- Construction of an overhead structural steel walkway and associated stairways connecting the existing bitumen carpark to the proposed administrations mezzanine structure.
- Construction of new entry Access point and exit weight bridge structures.
- Construction of the Estate Wide Fire Services Infrastructure works.
- Off-street car parking spaces and loading facilities.
- Building identification signage.
- Associated landscaping; and
- Associated services and utilities.

Stage 2 – Building B (Material Recycling Plant) and Access Roads and Hardstand – NOT PART OF THIS APPROVAL

- Construction of a single storey warehouse with an approximate floor area of 8,000msq which is proposed to be utilised as a Material Recycling Facility (MRF) and associated equipment.
- Construction of the perimeter access road and other ancillary landscaping & hardstand works.

It should be noted that this BCA Assessment Report predominantly relates to the Stage 1 works – (Building A & Estate Wide Fire Services) only. Although the report has considered key building characteristics and fire services applicable to Stage 2, a detailed assessment was not carried out as these plans have not yet been finalised. Further assessments and revisions of this report will be required at these future staged applications accordingly.

1.6 BUILDING CODE OF AUSTRALIA 2019 (BCA)

Pursuant to Clause 98 & 145 of the Environmental Planning and Assessment Regulation 2000 (EP&AR), all new building work must comply with the current provisions of the National Construction Code Series (Volume 1) Building Code of Australia (BCA).

At the date of this assessment it was understood that a Part 6 Construction Certificate Application for the development would be made with a PCA prior to the 1st May 2022 and as such the relevant rendition of the BCA is **BCA 2019 Amendment 1**.

It should be noted that this **BCA Assessment Report predominantly relates to the Stage 1 works – (Building A & Estate Wide Access Roads and Fire Services Infrastructure)**. Although the report has considered high level key building characteristics and fire services applicable to Stages 2 (Buildings B), a detailed assessment was not carried out as these plans have not yet been finalised.

Further assessments and revisions of this report will be required at these future staged applications accordingly.

1.7 REPORT STRUCTURE

The report consists of a Summary of Compliance Departures provided in the table under **Section 2** below, which is for the reader's ease of reference and most urgent attention.

Notwithstanding the summary of issues within **Section 2** must also be read in conjunction with the body of the assessment provided under **Section 3** of the report which further details compliance matters needing consideration in design development and during construction.

It is also the responsibility of all design consultants to ensure compliance with relevant BCA requirements, Australian Standards and Manufacturers Specifications. This report does not relieve the Design Practitioners, Building Practitioner, Accredited Practitioners in Fire Safety (Fire Services Engineers), the Certifier - Fire Safety (Fire Safety Engineer) and/or the Registered and Principal Certifier from their statutory obligations which requires regulated works to be designed, installed and certified in accordance with the BCA and any respective Standards.

2. SUMMARY OF KEY COMPLIANCE DEPARTURES

The following comprises a summary of the key compliance issues identified within the BCA Assessment in Section 3 of this report and is to be read in conjunction with the aforementioned Section and the Building Code of Australia Volume 1. The following matters are to be considered & addressed to the satisfaction of the Principal Certifying Authority as part of the Construction Certificate application.

Relevant BCA Clauses	Description of Compliance Matter Requiring Resolution
BCA Parts B1.1- B1.4 (Structural Performance & BCA Spec C1.11 (Performance of walls)	<p><u>BCA Part B and Spec C1.1</u> specify the key structural requirements and FRL's for buildings.</p> <p>Structural engineering drawings and design certification is required for the new works. Certification and details are to also any FRL's as specified under BCA Spec C1.1 and/or the Fire safety Strategy.</p> <p><u>BCA Spec C1.11</u> specifies that external panels must inward collapse.</p> <p>Structural engineer to provide certification</p> <p>Structural engineer to provide certification confirming the external precast & dado walls have been designed to inward collapse in the event of a fire.</p> <p>Note 1: Timber primary elements include tongue and groove flooring to lightweight floor system require termite mitigation measures to be considered and details of compliance are to be provided with the Construction Certificate application.</p> <p>Note 2: Architectural Details and notations demoting FRL's, design certification and Fire Safety Engineering Report to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.</p> <p>Note 3: Structural plans, specifications and design certification are to be prepared by a suitably qualified design practitioner (Registered Structural Engineer) and submitted to the satisfaction of the Registered Certifier at the Construction Certificate application stage.</p>
BCA Clause C2.3 (Large Isolated Building)	<p><u>BCA Clause C2.3</u> specifies the requirements for buildings with oversized fire compartments.</p> <p>In this regard, the following areas have been identified as matters that will be requiring consideration given Building A and B will be assessed as a Large Isolated Building/s Therefore, the following provisions have been adopted to the design;</p> <ul style="list-style-type: none"> - The building must be provided with perimeter vehicular access complying with BCA Clause C2.4 (b) and Fire & Rescue NSW Fire Safety Guideline (Access for Fire brigade vehicles and fire fighters). - The building must be protected throughout with a sprinkler system complying with BCA Specification E1.5 & AS2118.1-2017, and - The Building must be provided with a fire hydrant system consisting of a ring main in accordance with BCA E.13 and AS2419.1-2005, and - The Building must be provided with an Automatic Smoke Exhaust System in complying with BCA Specification E2.2b & AS1668.1-2018. <p>Note 1: Consideration of the Acceptance Criteria nominated within the Fire & Rescue NSW Guideline "Fire Safety in Waste Facilities" is to be considered by the design team and discussed with FRNSW.</p> <p>Note 2: Detailed fire compartment plans including Floor Areas and Volumes are to be provided by the Architect to accompany the FEBQ and Construction Certificate applications. Areas to include external awnings structures.</p> <p>Note 3: Refer to comments under C2.4, E1.5, E1.10, E2.2 & E2.3 below for further requirements in this regard.</p>
BCA Clause C2.4 (Perimeter Vehicular Access)	<p><u>BCA Clause C2.4</u> specifies the requirements for perimeter vehicular access to Large Isolated Buildings. Furthermore, the perimeter access roads and turning bays will need to be designed to comply with the BCA and Fire & Rescue NSW Fire Safety Guideline (Access for Fire brigade vehicles and fire fighters)</p> <p>In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:</p> <ol style="list-style-type: none"> The Site (Secured Entry/Exit Points) – The Buildings will have perimeter vehicular access roads which will require emergency vehicles to pass by secured entry points and past the entry-weighbridge and out-bridge structures along the Northern sides of the site. Furthermore, these locations are likely to have reduced widths under 6m (approximately 3.2m) and kerbs that could hinder appliance access, External Hardstand – Where external stock piling is proposed, the perimeter access roads are to be line marked to ensure they are maintained at all times and the perimeter access roads should be designed with enhances provisions to cater for large emergency services response (e.g. Multiple alarm and multiple agency attendance – including protracted Hazardous extraction response for the containment and removal of contaminated fire water run off). The hardstand areas above the flood basin areas are to be designed to accommodate the loads of fire brigade appliances or be restricted from access with permanent barriers and signage. Warehouse Building A (Awning's)– The required 6m perimeter access road necessitated passing underneath Awning structures along the Southern side <u>and</u> potentially on the Eastern and Western sides of the site and the heights are to achieve a minimum height of 4.5m,

	<p>d) Warehouse Building A (Overhead Bridge/Walkway) – The required 6m perimeter access road necessitated passing underneath the proposed overhead walkway/bridge structure proposed to connect the offices along the Eastern side and the heights are to achieve a minimum height of 4.5m,</p> <p>Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Solution prepared by a C10 Fire Safety Engineer to rationalise the proposed vehicular access departures accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement CP9 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stage.</p> <p>Note 1: Architectural and Civil details and design certification to the satisfaction of the Registered Certifier and Fire Safety Engineer are to be provided with the CC application which satisfy the provisions of the Fire & Rescue NSW Fire Safety Guideline (Access for Fire brigade vehicles and fire fighters) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/vehicle_access.pdf.</p> <p>Note 2: Design team are encouraged to consider the enhances requirements nominated for waste facilities as listed under Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf</p> <p>Note 3: Architectural details, specifications and design certifications are to be prepared by a suitably qualified design practitioner (Registered Architect) and submitted to the satisfaction of the Registered Certifier at the Construction Certificate application stage. Where Fire Safety Engineering is proposed, a copy of the Fire Engineers Report prepared by a C10 Certifier – Fire Safety is to also be provided.</p>
<p>BCA Clause C2.12 (Separation of Equipment) & BCA Clause C2.13 (Electrical Supply)</p>	<p><u>BCA Clause C2.12 & C2.13</u> specifies the need for fire separation of certain high-risk areas.</p> <p>In this regard, the following areas have been identified as matters which may be requiring consideration;</p> <ol style="list-style-type: none"> The comms room on Level 1 of the offices will require fire separation due to the size of the UPS – Electrical engineer to confirm. The Main Switch Board room on the Ground floor on the North East corner of the warehouse will require fire separation. <p>Note: Architectural details, specifications and design certifications are to be prepared by a suitably qualified design practitioner (Registered Architect) and submitted to the satisfaction of the Registered Certifier at the Construction Certificate application stage</p>
<p>BCA Clause D1.4 (Exit Travel Distances)</p>	<p><u>BCA Clause D1.4</u> specifies the maximum egress travel distances permissible from a point on the floor to a point of choice where alternative exits are available or from a point on the floor to the nearest exits.</p> <p>In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:</p> <ol style="list-style-type: none"> Warehouse Building A – (Storage/Processing/Receival Areas) - Egress distances from the furthest point of the floor to the nearest exits across all Sections of the Warehouse are up to 55m (in lieu of 40m). Warehouse Building A – (Office Mezzanine) - Egress distances from the furthest point of the floor to the nearest exit on the office level is up to 29m (in lieu of 20m). Warehouse Building A – (Processing Platforms) – Egress distances from the furthest point of the work platforms to the top riser of the steel stairways may be up to 30m (in lieu of 20m). <p>Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the extended egress distances accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements DP4 & EP2.2 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stages.</p> <p>Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.</p>
<p>BCA Clause D1.5 (Distance between Alternative Exits)</p>	<p><u>BCA Clause D1.5</u> specifies the maximum distances of travel permitted between alternative exits.</p> <p>In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:</p> <ol style="list-style-type: none"> Warehouse Building A – (Storage/Processing/Receival Areas) – Egress distances between alternative exits when measured back through the point of choice are up to 100m (in lieu of 60m), <p>Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the extended egress distances accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements DP4 & EP2.2 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at Construction Certificate stages.</p> <p>Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application</p>

<p>BCA Clause D1.6</p> <p>(Dimensions of Exits & Paths of Travel to Exits)</p>	<p><u>BCA Clause D1.6</u> specifies the minimum widths required to paths of travel and egress stairs etc.</p> <p>In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:</p> <p>a) Warehouse Building A – (Processing Platforms) – Egress widths along access stairways, along elevated work platforms and between equipment is expected to be reduced to a minimum of 650mm (in lieu of 1.0m) which is typical of these arrangements when designed to AS1657-2013 (in lieu of Part D of the BCA).</p> <p>Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the reduced egress widths accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP2 & DP6 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the FEBQ and Construction Certificate stages.</p> <p>Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.</p>
<p>BCA Clause D1.9</p> <p>(Travel via Non-Fire Isolated Stairways)</p>	<p><u>BCA Clause D1.9</u> specified the requirements for open stairways utilised as exits.</p> <p>In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:</p> <p>a) Warehouse Building A – The discharge location of the elevated work platform stairways may be up to 10m before a point of choice is available and up to 50m (in lieu of 40m).</p> <p>Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the extended egress distances accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP4 & EP2.2 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stages.</p> <p>Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.</p>
<p>BCA Clause D1.10</p> <p>(Safety Bollards)</p>	<p><u>BCA Clause D1.10</u> specifies the requirements for bollards to protect exits and accessways leading from exits to open space.</p> <p>In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:</p> <p>a) Warehouse Building A – Egress grades between 1:20 and 1:8 <u>are not</u> proposed to be provided with handrails and any slopes greater than 1:8 will need to be further considered.</p> <p>Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the reduced egress widths accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP2 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the FEBQ and Construction Certificate stages.</p> <p>Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.</p>
<p>BCA Part D2 (Stairways and Barriers)</p>	<p><u>BCA Clause D2.13, D2.14, D2.16, D2.17 and D2.18</u> specify the requirements for stairways and balustrade compliance.</p> <p>In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:</p> <p>a) Warehouse Building A – (Processing Platforms) – Egress stairways, tread and risers, landings, handrails, balustrades to the steel stairways serving the elevated work platforms will be designed to AS1657-2013 (in lieu of Part D of the BCA).</p> <p>Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the reduced egress widths accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP2, DP3 & DP6 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stages.</p> <p>Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.</p>
<p>BCA Part D3 & E3.6 and, AS1428.1 (Accessibility requirements)</p>	<p><u>BCA Part D3</u> requires the building, carpark facility, access ways and general circulation provisions are required to comply with the accessibility provisions of this Clause and Australian Standard.</p> <p>In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:</p> <p>a) <u>Site access</u> – details demonstrating compliant grades are to be noted on the drawings for the review and comment of the access consultant. Circulation space to be achieved at the entry gates near the sliding gates on the driveways.</p>

	<p>b) <u>Stairways/Tactiles</u> – Stairways will need to be AS1428.1 compliant and have details to be provided at the Construction Certificate stages ensuring there is sufficient space within the property.</p> <p>c) <u>Doorway Circulation</u> – Doorway circulation at between the under-croft and storage areas will need to be assessed further at the Construction certificate stages to ensure circulation is appropriately available.</p> <p>d) <u>Accessible Facilities</u> – are to be detailed on the CC stage plans.</p> <p>e) <u>Vertical Access</u> – the entrance level is the first-floor mezzanine and the next storey is the Warehouse floor which has a floor area greater than 200msq with no lift access. In this regard lift access is technically required and as its not proposed to be provided, this will require further justification via performance.</p> <p>Accessibility Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by an Accessibility Consultant to address the sanitary facility departures accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP1 and be prepared to the satisfaction of the Registered Certifier at the Construction Certificate stage.</p> <p>Note: Architectural details and design certification to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application. It is also recommended that the detailed accessibility compliance report accompanies the Construction Certificate application.</p>
<p>BCA Clause E1.3 (Fire Hydrants)</p>	<p><u>BCA Clause E1.3</u> requires hydrants to be provided in the building. Fire Hydrants are to be shown on the architectural drawings at the Construction Certificate stage and design certification form a consultant is required against AS2419.1-2005.</p> <p>In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:</p> <p>a) The fire hydrant booster assembly, pump room, water supply and associated infrastructure will be located along the North-Western side of the site, accessed from Muir Road and will be an 'Industrial Estate Wide' installation which will be serving all proposed and future buildings.</p> <p>b) The location of the fire hydrant booster assembly is not possible to be located within sight of the main entrances to 'The Buildings' and to assist with Fire Brigade Intervention it is proposed to be located in a designated area within the confines of the site an approximately 140m away from the main street entrance and approximately 50m from the nearest building (Warehouse Building B) or any external stockpiles . This location has been designated by the design team to meet the operational requirements of FRNSW and the recommendations in Section 7.5 and 7.6 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities).</p> <p>c) External fire hydrants will be provided to aid in fire brigade operations and where internal hydrant are required for coverage, daisy chain arrangements will be required by FRNSW.</p> <p>d) External Hydrants are recommended to be placed 10m away from the external wall, awnings and any stockpiles in this regard. Where hydrants are attached to the external walls, fall back hydrants may be required by FRNSW.</p> <p>e) External stock piles are to be detailed on the plans and line mark accordingly as hydrant coverage needs to be considered and hydrants ae to also be located 10m away from stockpiles to meet the operational requirements of FRNSW and the recommendations in Section 7.5 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities).</p> <p>f) A Fire Hydrant ring main will need to be provided external to Warehouse Building A. Isolation valves are to be provided in locations which are readily accessible and labelled accordingly. Details are to be noted on the drawings.</p> <p>g) Fire Hydrant coverage is required to the office level and elevated work platforms and detailed sweep coverage plans are required to accompany the CC application.</p> <p>h) Fire water containment run off needs to be designed to meet the recommendations under Section 7.9 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) and the enhanced hydraulic demands of the hydrant system (water supply and capacity providing the maximum hydraulic demand (i.e. flow rate) of not less than 4hrs).</p> <p>The water quantities are to be calculated in accordance with the guidelines and pollution control equipment such as stormwater isolation valves, water diversion booms, drain mats etc are to be considered.</p> <p>i) The fire services engineers are to identify any shortfalls or departures associated with the either the BCA or the relevant Australian Standards.</p> <p>Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the hydrant system departures accordingly. In this regard, the report will need to demonstrate compliance with BCA</p>

	<p>Performance Requirement EP1.3 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stages.</p> <p>Note 1: The pump room circulation and hardstand associated with the booster location are to be further detailed on the Architectural and Fire Services plans and design certification to the satisfaction of the Accredited Certifier and Fire Safety Engineer are to be provided with the CC application which satisfy the provisions of the Fire & Rescue NSW Fire Safety Guideline (Access for Fire brigade vehicles and fire fighters) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/vehicle_access.pdf.</p> <p>Note 2: Design team is to consider the enhances requirements associated with Fire Hydrant Systems as nominated under Section 7.5 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf</p> <p>Note 3: The fire services design engineer must demonstrate that they are an Accredited Practitioner (Fire Safety) registered with the Fire Protection Association of Australia (FPAA) or Department of Fair Trading. Furthermore, the designer must have suitable levels of qualifications in the respective fields they are designing to, and their design details and certifications are to identify any shortfalls or departures associated with the either the BCA or the relevant Australian Standards.</p> <p>Note 4: Architectural & Fire Services details and design certifications are to be prepared by a suitably qualified design practitioners (Registered Architect and Fire Services Engineers) to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application. Where Fire Safety Engineering is proposed, a copy of the Fire Engineers Report prepared by a C10 Certifier – Fire Safety is to also be provided.</p>
BCA Clause E1.5 (Sprinklers)	<p>BCA Clause E1.5 requires Fire Sprinklers to be installed throughout 'the building' given its a large isolated building.</p> <p>In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:</p> <ol style="list-style-type: none"> The fire sprinkler booster assembly, pump room, water supply and associated infrastructure will be located along the North-Western side of the site, accessed from Muir Road and will be an 'Industrial Estate Wide' installation which will be serving all proposed and future buildings. The location of the fire sprinkler booster assembly is not possible to be located within sight of the main entrances to 'The Buildings' and to assist with Fire Brigade Intervention it is proposed to be located in a designated area within the confines of the site an approximately 140m away from the main street entrance and approximately 50m from the nearest building (Warehouse Building B) or any external stockpiles . This location has been designated by the design team to meet the operational requirements of FRNSW and the recommendations in Section 7.5 and 7.6 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities). The sprinkler valve room has not been detailed on the plans and is to be in a location which is accessed directly from open space. Fire water containment run off needs to be designed to meet the recommendations under Section 7.9 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) and the enhanced hydraulic demands of the sprinkler system (water supply and capacity providing the maximum hydraulic demand (i.e. flow rate) of not less than 2hrs). The water quantities are to be calculated in accordance with the guidelines and pollution control equipment such as stormwater isolation valves, water diversion booms, drain mats etc are to be considered. The fire services engineers are to identify any shortfalls or departures associated with the either the BCA or the relevant Australian Standards. <p>Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the hydrant system departures accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement EP1.4 and be prepared to the satisfaction of the Accredited Certifier and Fire & Rescue NSW at the Construction Certificate stages.</p> <p>Note 1: The pump room circulation and hardstand associated with the booster location are to be detailed on the Architectural and Fire Services plans and design certification to the satisfaction of the Registered Certifier and Fire Safety Engineer are to be provided with the CC application which satisfy the provisions of the Fire & Rescue NSW Fire Safety Guideline (Access for Fire brigade vehicles and fire fighters) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/vehicle_access.pdf.</p> <p>Note 2: Design team is to consider the enhances requirements associated with Fire Sprinkler Systems as nominated under Section 7.6 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf</p> <p>Note 3: The fire services design engineer must demonstrate that they are an Accredited Practitioner (Fire Safety) registered with the Fire Protection Association of Australia (FPAA) or Department of Fair Trading. Furthermore, the designer must have suitable levels of qualifications in the respective fields they are designing to, and their design details and certifications are to identify any shortfalls or departures associated with the either the BCA or the relevant Australian Standards.</p>

	<p>Note 4: Architectural & Fire Services details and design certifications are to be prepared by a suitably qualified design practitioners (Registered Architect and Fire Services Engineers) to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application. A copy of the Fire Engineers Report prepared by a C10 Certifier – Fire Safety is to also be provided.</p>
<p>BCA Clause / Spec. E1.8 (Fire Control Room / Centre)</p>	<p>BCA Clause E1.8 and Spec E1.8 requires a fire control facility to be provided to provide provisions for fire-fighting operations.</p> <p>In this regard, the following areas have been identified as items that will be requiring further consideration from the fire services design engineering consultants accordingly;</p> <ol style="list-style-type: none"> Given the fire services infrastructure are "Estate Wide Services", a designated fire control room/centre needs to be provided to serve the site. In this regard the room should be located at the co-located Fire Services Pump rooms and Boosters in its own acoustically separated room. The fire control room/centre needs to consist of the Main FIP, be acoustically separated from the pumps, have tactical fire plans and other fire-fighting provisions such as telephones, furniture and other equipment suitable to accommodate fire-fighting operations. Mimic panels should be provided at each Warehouse A and Warehouse B building entry/office. The fire control centre 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 in aggregate exceed 300 mm. <p>Note 1: The fire services engineers are to identify any other shortfalls or departures associated with either the BCA or the relevant Australian Standards.</p> <p>Note 2: Architectural and Fire Services Details and design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.</p>
<p>BCA Clause E4.2- to E4.6 (Exit signs & Emergency lighting)</p>	<p>BCA Clauses E4.2-E4.6 require emergency lighting and exit signage installations.</p> <p>In this regard, the following areas have been identified as items that will be requiring further consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:</p> <ol style="list-style-type: none"> It is understood that the exit signs will be sporadically spaced and at high level. <p>Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the departures associated with the proposed hydrant system design accordingly. In this regard, the report will be considered on the basis that it appropriately demonstrates compliance with BCA Performance Requirement EP4.2.</p> <p>Note: Architectural & Fire Services details and design certification to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.</p>
<p>BCA Spec. E2.2b (Smoke Hazard Management)</p>	<p>BCA Spec E2.2b requires Large Isolated Buildings with floor areas and volumes that exceed 18,000m² and 108,000m³ and with ceiling heights greater than 12m to be provided with smoke hazard management systems (smoke exhaust systems).</p> <p>AS1670.1-2018 also requires the Main FIP to be located at the designated Building Entrances.</p> <p>In this regard, the following areas have been identified as areas which would be necessitating further design consideration and/or justification from the project fire safety engineer;</p> <ol style="list-style-type: none"> Sprinkler system design to AS2118.1-2017 and the Acceptance Criteria nominated under "Appendix A – Acceptable Solution" of the document titled Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) Smoke Hazard management system to AS1668.1-2015 and the Acceptance Criteria nominated under "Appendix A – Acceptable Solution" of the document titled Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) Smoke Detection and Manual Call Points to AS1670.1-2018 and the Acceptance Criteria nominated under "Appendix A – Acceptable Solution" of the document titled Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) The Main Fire Panel will not be within sight of the main entrances to each Warehouse Building part and will be located adjacent to the fire services infrastructure in the Fire Control Centre. <p>Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the smoke hazard management provisions accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements EP2.2 and be prepared to the satisfaction of the Registered Certifier at the Construction Certificate stage.</p> <p>Note 1: The fire services design engineer must demonstrate that they are an Accredited Practitioner (Fire Safety) registered with the Fire Protection Association of Australia (FPAA) or Department of Fair Trading. Furthermore, the designer must have suitable levels of qualifications in the respective fields they are</p>

	<p>designing to, and their design details and certifications are to identify any shortfalls or departures associated with the either the BCA or the relevant Australian Standards.</p> <p>Note 2: Architectural & Fire Services details and design certifications are to be prepared by a suitably qualified design practitioners (Registered Architect and Fire Services Engineers) to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application. A copy of the Fire Engineers Report prepared by a C10 Certifier – Fire Safety is to also be provided.</p>
BCA Part J (Energy Efficiency)	<p><u>BCA Part J requires</u> energy efficiency measures to be considered to class 5-9 buildings in areas which will be a conditioned space (as defined by the BCA).</p> <p>In this regard, detailed Section J compliance report to be provided at the Construction application stage for the conditioned spaces.</p> <p>Note: Section J Report and Design statements are to the satisfaction of the Registered Certifier is to be provided with the Construction Certificate application.</p>

It is important to note that the above is not an exhaustive list of the matters requiring attention at the Construction Certificate stage and the summary is to be read in conjunction with the remainder of the report in **Section 3** below.

3. BCA ASSESSMENT

The following is a summary of relevant areas of NCC/BCA Compliance that will need to be considered & addressed for the proposed development prior to the issue of a Part 6 Construction Certificate.

3.1 GENERAL PROVISIONS

The building, the subject of this report is deemed **a two (2) storey stand-alone Large Isolation Building** identified as Warehouse Building A.

Section A – General Provisions:

The building have the following key building characteristics and classifications as determined by Volume 1 of the Building Code of Australia are as follows:

Warehouse Building A:

BUILDING CHARACTERISTICS	
- BCA CLASSIFICATION:	Class 5 (Administrations), Class 7b (Storage/Bundling), Class 8 (Process / Recycling), Class 10a (Pump House) and Class 10b (External Walkway/Stairway)
- RISE IN STOREYS:	Two (2)
- TYPE OF CONSTRUCTION:	Type C Construction (Table 5 of BCA Spec C1.1)
- EFFECTIVE HEIGHT:	Less than 12m – Approximately 3.5m (Mezzanine Floor FFL)
- FIRE COMPARTMENTATION:	Greater than 5,000msq and 30,000mcb – Large Isolated Building
- CLIMATE ZONE:	Climate Zone 5
- CRITICAL FIRE SERVICES:	Sprinklers (AS2118.1-2017), Smoke Detection (AS1670.1-2018) BOWS (AS1670.1-2018), Hydrants (AS2419.1-2005), Hose Reels (AS2441-2005), Extinguishers (AS2444-2001), Emergency Lights & Exit Signs (AS2293.1-2018), Smoke Hazard Management (AS1668.1-2015), Perimeter Access Road + Fire Safety Engineering Strategy
- SPECIAL CONSIDERATIONS:	Fire & Rescue NSW Guideline "Fire Safety in Waste Facilities" <u>and</u> "Access for Fire Brigade Vehicles" <u>and</u> Fire Engineering Report prepared by Innova Services

Note 1: The Building will have oversized fire compartments – which includes the Floor areas and Volumes. As such the building will be assessed as a Large Isolated building pursuant to Clauses C2.2, C2.3, C2.4, E1.5 & E2.2 of the BCA.

Note 2: The Building will be subject to enhance Fire Fighting Acceptance Criteria associated with the Fire & Rescue NSW Guideline "Fire Safety in Waste Facilities and the extent of the requirements will be negotiated between the project fire safety engineer and FRNSW.

3.2 FIRE SOURCE FEATURES

The principle public entrance to the site is via Muir Road which is to the North side of the site. Secondary staff access is via the rear carpark which is accessed from Anzac Street located at the Southern side of the site.

The Northern side of the site was recently subdivided and is occupied by a new warehouse distribution centre, whilst the Western side adjoins a rail corridor and the Eastern side adjoins another industrial site.

Having regard to the above, the distances from the proposed external walls of the Building to the nearest Fire Source Features / allotment boundaries are noted as follows;

Warehouse Building A:

FIRE SOURCE FEATURE	DISTANCE TO FIRE SOURCE FEATURE
- NORTH SIDE	>3m from the front facing Boundary - (Approx. 21.5m)
- SOUTH SIDE	>3m from the rear facing Boundary - (Approx. 4.5m)
- EAST SIDE	>3m from the side facing Boundary - (Approx. 83.5m)
- WEST SIDE	>6m from the adjoining building – (Building B) - (Approx. 7m)

3.3 FLOOR AREA / VOLUME (FIRE COMPARTMENT SIZES):

The maximum permissible fire compartment sizes for the different classifications in the development must comply with the limitations of BCA Table C2.2 (refer to CBCA Clause C2.2 in the report below).

Where compliance with the above is not readily achievable due to the size of the fire compartments proposed, further fire compartmentation is required via horizontal and vertical fire walls; or alternatively the building is to be assessed as **Large Isolated Building** which permit oversized fire compartments accordingly.

Having regard to the above, **the building** will be a Large Isolated Building of Type C Construction (due to the rise in storeys of 2 and the oversized fire compartments proposed).

Note 1: Refer to comments under BCA Clause C2.2 and C2.3 below where the design team has proposed a Performance Based Solution to address the proposed fire compartment strategies.

Note 2: Detailed fire compartment plans including Floor Areas and Volumes are to be provided by the architect to accompany the FEBQ and Construction Certificate applications.

3.4 SECTION A – CLASSIFICATION OF BUILDINGS & STRUCTURES

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section A of the BCA subject to compliance with the following:

1. BCA cl. A3.1 – Principles of Classification: The classification of a building or part of a building is determined by the purpose for which it is designed, constructed or adapted to be used. In this regard, it is understood the site will be a Waste Recycling and Processing premises and 'The Building/s' will entail new Class 5 (Office/Administrations), Class 7b (Storage/Bundling), Class 8 (Process/Recycling), Class 10a (Pump House) and Class 10b (External Walkway/Stairway) classifications and uses accordingly.
2. BCA cl. A3.3 – Multiple Classification: Each part of a building must be classified separately and where these parts have different purposes – If not more than 10% of the floor area of a storey – being the minor use, is used for a purpose which is a different classification applying to the major use, may apply to the whole storey. In this regard, the provision of this clause are not applicable to this proposal and furthermore given the Building is of Type C Construction, there is no need for fire separation between any of the classifications in either of 'The Buildings' pursuant to BCA Clause C2.8 and C2.9 below.

3.5 SECTION B – STRUCTURAL PROVISIONS

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section B of the BCA subject to compliance with the following:

3. BCA cl's. B1 – B3 Structural provisions: Structural engineering documentation for structural works must comply with the structural provisions of BCA Clauses B1.1, B1.2 & B1.3. Table B1.2 identifies the Importance Levels of Building & Structures that must be considered by the structural engineer.

Note: The Structural details and design certification to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

4. BCA cl. B1.4 – Materials and Forms of Construction: Structural resistance of materials and forms of construction must comply with BCA clause B1.4. Structural details and design certification to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

The design must consider (but not be limited to) the following Australian Standards and any other appropriate standards accordingly:

- 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 1288 – 2006, Glass in buildings + B1.4(h)(iii) – To protect against nickel sulphide inclusions.
- AS1530.4-2014, Fire-Resistance Tests on Elements of Construction
- AS1657-2013, Fixed platforms, Walkways, Stairways and Ladders
- AS/NZS 1664.1 and 2 – 1997, Aluminium construction
- AS/NZS 1684.1, 2 and 3 – 2010, Residential Timber Framed Construction
- AS 1720.1 – 2010, Design of Timber Structure

- AS 1720.5 – 2015, Nail plated timber roof structures
- AS 2159 – 2009, Piling
- AS 2047 – 2014, Windows in buildings
- AS 3600 – 2018, Concrete code
- AS3666.1-2014 Termite Management
- AS 3700 – 2018, Masonry code
- AS 4100 – 1998, Steel Structures and/or AS 4600 – 2018, Cold formed steel
- AS 4600 – 2018, Cold formed steel

Note 1: Timber primary elements include tongue and groove flooring to lightweight floor system require termite mitigation measures to be considered and details of compliance are to be provided with the Construction Certificate application.

Note 2: The Structural details and design certification to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

3.6 SECTION C – FIRE RESISTANCE AND COMPARTMENTATION

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section C of the BCA subject to compliance with the following:

5. BCA Clause C1.1 & C1.2 Type of Construction and Rise in Storeys: The building will be **Type C Construction** by virtue of the Rise in Storeys being no more than two (2) and pursuant to compliance with the provisions under BCA Clause C2.3 and C2.4 below for **Large Isolated Buildings**.

Note 1: Refer to the Section 5 and Table 5 BCA Specification C1.1.

Note 2: The Administration Level in 'Warehouse A' has an internal average height greater than 6m however it is in a Class 5 part of the building and hence the provisions of BCA Clause C1.2 (c) are considered to not apply in this instance.

Note 3: The machinery/equipment platforms proposed within the central processing areas within 'Warehouse A' have not been considered storeys under this assessment. Notwithstanding, they would technically fall within the criteria for mezzanines and their combined aggregate areas would not constitute a storey as per the definitions of a storey in the BCA.

6. BCA cl. C1.8 - Lightweight construction: Lightweight construction must comply with Specification C1.8 if used in a wall system in accordance with sub-clauses (a) & (b). The fire rated applications must comply with manufacturers specifications and be certified accordingly.

Note: Architectural details, specifications and design certification are to be prepared by a suitably qualified design practitioner (Registered Architect) and submitted to the satisfaction of the Registered Certifier at the Construction Certificate application stage.

7. BCA cl. C1.9 Non-combustible Building Elements: Changes to the BCA in 2016, amended the provisions under Spec C1.1 and C1.12 and included a new BCA Clause C1.9 accordingly.

The provisions of this clause are intended to provide a series of requirements and concessions for the use of non-combustible building elements and these provisions are specified below;

- a) In a building required to be of Type A or B construction, the following building elements and their components must be non-combustible:
 - (i) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation.
 - (ii) The flooring and floor framing of lift pits.
 - (iii) Non-loadbearing internal walls where they are required to be fire-resisting.
- b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction in—
 - (i) a building required to be of Type A construction; and
 - (ii) a building required to be of Type B construction, subject to C2.10, in—
 - A. a Class 2, 3 or 9 building; and

- B. a Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys.
- c) A loadbearing internal wall and a loadbearing fire wall (in any Type of Construction), including those that are part of a loadbearing shaft, must comply with Specification C1.1.
- d) The requirements of (a) and (b) do not apply to gaskets, caulking, sealants & damp-proof courses.
- e) The following materials may be used wherever a non-combustible material is required:
- (i) Plasterboard.
 - (ii) Perforated gypsum lath with a normal paper finish.
 - (iii) Fibrous-plaster sheet.
 - (iv) Fibre-reinforced cement sheeting.
 - (v) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0.
 - (vi) Bonded laminated materials where—
 - A. each lamina, including any core, is non-combustible; and
 - B. each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and
 - C. the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively.

Note 1: Our office does not endorse the use of any ACP's on this development unless they are 100% non-combustible and comply with AS1530.1 and are 'attached' to external fire rated or non-combustible walls.

Note 2: Any performance solutions for external walls must consider AS1113-2016 and FRNSW requirements. The use of, external claddings or permanent polymer formwork walls must be supported by Codemark Certification or the like and cross section wall details are required.

Note 3: The Supporting Fire Test and/or Design Certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.

Note 4: Architectural details, specifications and design certifications are to be prepared by a suitably qualified design practitioner (Registered Architect) and submitted to the satisfaction of the Registered Certifier at the Construction Certificate application stage.

8. BCA cl. C1.10 – Early Fire Hazard Properties: Floor, wall & ceiling linings, sarking, and any other linings and attachments are required to comply with the requirements under Clause & Specification C1.10. in this regard we provide the following notes which are to be read in conjunction with the tables in the BCA:
- All reflective foils such as sarking/insulations need to achieve compliance and have a flammability index of not greater than 5.
 - All insulation materials (including sarking, mineral wool and other fabricated batt, poly or the like products) located in external walls and other walls required to be non-combustible, must be tested to comply with AS1530.1 or be addressed under Performance Solutions (in line with recent ABCB Practice Notes).
 - Ceiling and wall linings are to have a Material Group Number of 1, 2 or 3 in sprinklered protected buildings.
 - Timber feature wall or ceiling linings (or the like) are to comply with the Material Group Ratings under Table C1.10 and are also to have a Material Group Number of 1, 2 or 3 in sprinklered protected buildings.
 - Flooring such as carpets, vinyls, floating floors etc need to achieve a Critical Radiant Flux of not less than 1.2 (where sprinklers are installed).
 - Any cool room type sandwich panels must be PIR or fire rated panels which are to be installed in accordance with best practice guidelines – EPS panels are not supported in this instance.

Note 1: The Supporting Fire Test and/or Design Certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application. BCA Clause C1.10 relates to internal linings only and not linings associated with external walls.

Note 2: Architectural details, specifications and design certifications are to be prepared by a suitably qualified design practitioner (Registered Architect) and submitted to the satisfaction of the Registered Certifier at the Construction Certificate application stage.

9. **BCA cl. C1.14 – Ancillary Elements:** Changes to BCA 2016 – Amendment 1 has amended the provisions under Spec C1.1 and C1.12 and included a new BCA Clause C1.14 accordingly.

The provisions of this clause are intended to clarify that the **Ancillary Elements** listed under this clause may be applied to an external wall that is required to be non-combustible. The provisions of this clause are specified below;

An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it is one of the following:

- a) An ancillary element that is non-combustible.
- b) A gutter, downpipe or other plumbing fixture or fitting.
- c) A flashing.
- d) A grate or grille not more than 2 m² in area associated with a building service.
- e) An electrical switch, socket-outlet, cover plate or the like.
- f) A light fitting.
- g) A required sign.
- h) A sign other than one provided under (a) or (g) that—
 - (i) achieves a group number of 1 or 2; and
 - (ii) does not extend beyond one storey; and
 - (iii) does not extend beyond one fire compartment; and
 - (iv) is separated vertically from other signs permitted under (h) by at least 2 storeys.
- i) An awning, sunshade, canopy, blind or shading hood other one provided under (a) that—
 - (i) meets the requirements of Table 4 of Specification C1.10 as for an internal element; and
 - (ii) serves a storey—
 - A. at ground level; or
 - B. immediately above a storey at ground level; and
 - (iii) does not serve an exit, where it would render the exit unusable in a fire.
- j) A part of a security, intercom or announcement system.
- k) Wiring.
- l) A paint, lacquer or a similar finish.
- m) A gasket, caulking, sealant or adhesive directly associated with (a) to (k).

Note 1: In this regard all materials need to demonstrate compliance with the above or be supported by other fire test data. Any business identification signage proposed on the external walls of the building is to ensure the substrate is non-combustible or alternatively confirm that it achieved a Material Group Rating of 1 or 2.

Note 2: Architectural details, specifications and design certifications are to be prepared by a suitably qualified design practitioner (Registered Architect) and submitted to the satisfaction of the Registered Certifier at the Construction Certificate application stage.

10. **BCA cl. C2.2 – General Floor Area and Volume Limitations:** The total proposed floor area and volume sizes of the fire compartments must comply with the limitations of C2.2 (below) for the classifications concerned.

Table C2.2 Maximum size of fire compartments or atria

Classification	Type A construction	Type B construction	Type C construction
5, 9b or 9c	Max floor area —8 000 m ² Max volume—48 000 m ³	Max floor area —5 500 m ² Max volume—33 000 m ³	Max floor area —3 000 m ² max volume—18 000 m ³
6, 7, 8 or 9a (except for patient care areas)	Max floor area —5 000 m ² Max volume—30 000 m ³	Max floor area —3 500 m ² Max volume—21 000 m ³	Max floor area —2 000 m ² Max volume—12 000 m ³

Figure 3 – Table C2.2 (Source: NCC/BCA Volume 1)

The proposed floor area and volume (Fire Compartment sizes) of can exceed the limitations for Type A, B and C Construction under Table C2.2 if they comply with the limitations of BCA Clause C2.3 as a Large Isolated Building.

The indicative floor areas and Volumes derived from the drawings indicate the following fire compartment sizes which are to be verified by the Architect;

- **Warehouse Building A** – Floor Areas & Volumes of approx. 10,400msq and 110,000mcb.

As such, Warehouse Building A will be designed as Large Isolated Buildings of Type C Construction.

Note 1: Detailed fire compartment plans including Floor Areas and Volumes are to be provided by the Architect to accompany the FEBQ and Construction Certificate applications. Areas to include external awnings structures.

Note 2: Refer to comments under BCA Clause C2.3, C2.4, E1.5, E1.10, E2.2 & E2.3 below for comments associated with Large Isolated Buildings.

11. **BCA cl. C2.3 – Large Isolated Buildings:** The size of a fire compartment in a building may exceed the fire compartment limitations specified in Table C2.2 on the premise that compliance with the relevant provisions for Large Isolated Buildings are complied with. Given the discussions under BCA Clause C2.2 above, both of the Building is to be designed as Large Isolated Building accordingly.

In this regard, it is noted that the building will be assessed as a Large Isolated Building with oversized fire compartments (as detailed under BCA Clause C2.2 above). Therefore, the following provisions need to be adopted into the fire safety design;

- a) The building must be provided with perimeter vehicular access complying with BCA Clause C2.4 (b) and Fire & Rescue NSW Fire Safety Guideline (Access for Fire brigade vehicles and fire fighters).
- b) The building must be protected throughout with a sprinkler system complying with BCA Specification E1.5 & AS2118.1-2017, and
- c) The Building must be provided with a fire hydrant system consisting of a ring main in accordance with BCA E.13 and AS2419.1-2005, and
- d) The Building must be provided with an Automatic Smoke Exhaust System in complying with BCA Specification E2.2b & AS1668.1-2018.

Note 1: Consideration of the Acceptance Criteria nominated within the Fire & Rescue NSW Guideline "Fire Safety in Waste Facilities" is to be considered by the design team and discussed with FRNSW.

Note 2: Detailed fire compartment plans including Floor Areas and Volumes are to be provided by the Architect to accompany the FEBQ and Construction Certificate applications. Areas to include external awnings structures.

Note 3: Detailed Refer to comments under C2.4, E1.5 and E2.2 below for further requirements in this regard.

12. **BCA cl. C2.4 – Requirements for Open Spaces & Vehicular Access:** Given the proposed oversized fire compartments discussed under BCA Clause C2.2 above, the Building is to be designed as Large Isolated Buildings.

Open space and Vehicular access provisions required for Large Isolated Building (LIB) must comply with the following:

- (a) An **open space** required by **C2.3** must—
 - (i) be wholly within the allotment except that any road, river, or public place adjoining the allotment, but not the farthest 6 m of it may be included; and
 - (ii) include vehicular access in accordance with (b); and
 - (iii) not be used for the storage or processing of materials; and
 - (iv) not be built upon, except for guard houses and service structures (such as electricity substations and pump houses) which may encroach upon the width of the space if they do not unduly impede fire-fighting at any part of the perimeter of the allotment or unduly add to the risk of spread of fire to any building on an adjoining allotment.
- (b) **Vehicular access** required by this Part—
 - (i) must be capable of providing continuous access for emergency vehicles to enable travel in a forward direction from a public road around the entire building; and
 - (ii) must have a minimum unobstructed width of 6 m with no part of its furthest boundary more than 18 m from the building and in no part of the 6 m width be built upon or used for any purpose other than vehicular or pedestrian movement; and

- (iii) (must provide reasonable pedestrian access from the vehicular access to the building; and
- (iv) must have a load bearing capacity and unobstructed height to permit the operation and passage of fire brigade vehicles; and
- (v) must be wholly within the allotment except that a public road complying with (i), (ii), (iii) &
- (vi) may serve as the vehicular access or part thereof.

In this regard, the following areas have been identified as matters which may be requiring consideration by either way of design change or justification by the project Fire Safety Engineer;

- a) The Site (Secured Entry/Exit Points) – The Buildings will have perimeter vehicular access roads which will require emergency vehicles to pass by secured entry points and over the entry-weighbridge and out-bridge structures along the Northern sides of the site. Furthermore, these locations are likely to have reduced widths under 6m (approximately 3.2m) and kerbs that could hinder appliance access,
 - b) External Hardstand – Where external stock piling is proposed, the perimeter access roads are to be line marked to ensure they are maintained at all times and the perimeter access roads should be designed with enhances provisions to cater for large emergency services response (e.g. Multiple alarm and multiple agency attendance – including protracted Hazardous extraction response for the containment and removal of contaminated fire water run off). The hardstand areas above the flood basin areas are to be designed to accommodate the loads of fire brigade appliances or be restricted from access with permanent barriers and signage,
 - c) Warehouse Building A (Awning's)– The required 6m perimeter access road necessitated passing underneath Awning structures along the Southern side and potentially on the Eastern and Western sides of the site and the heights are to achieve a minimum height of 4.5m,
 - d) Warehouse Building A (Overhead Bridge/Walkway) – The required 6m perimeter access road necessitated passing underneath the proposed overhead walkway/bridge structure proposed to connect the offices along the Eastern side and the heights are to achieve a minimum height of 4.5m,
- Refer to details below which detail perimeter vehicular access routes around the Building.

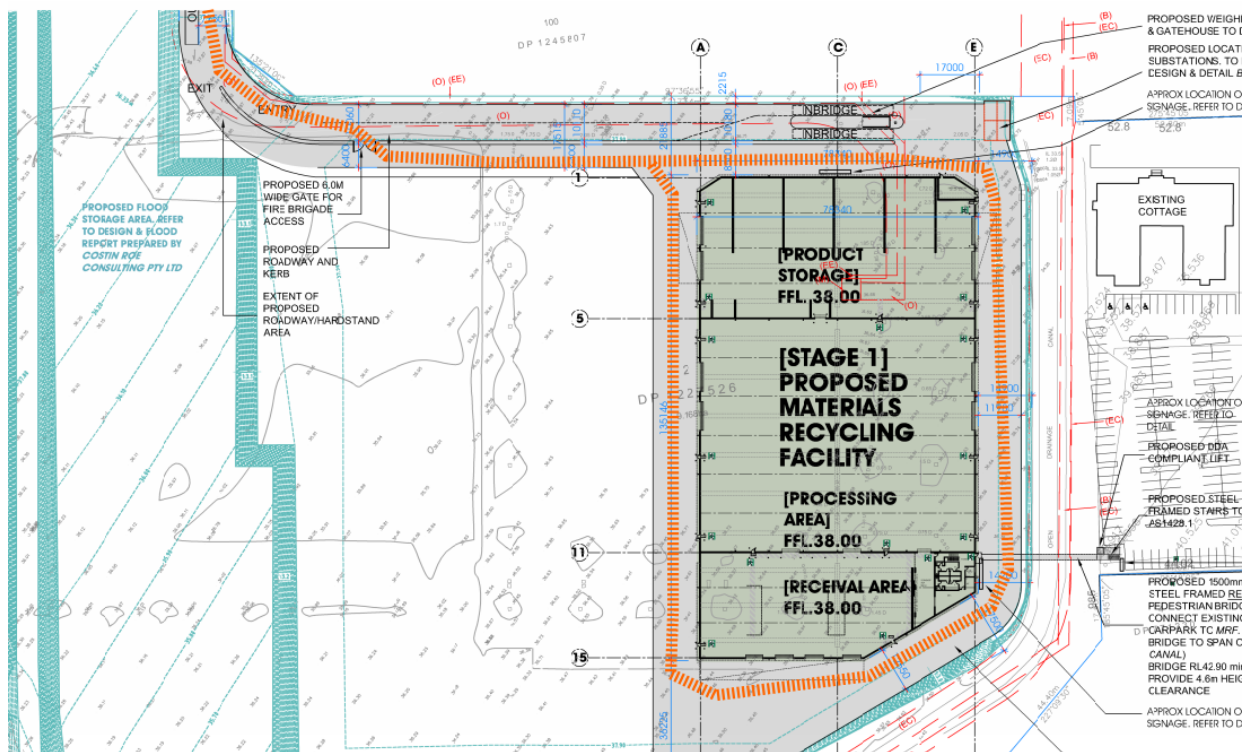


Figure 4 – Site Plan with FRNSW Access Road Mark-up's (Source: Envision Group Pty Ltd)

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the proposed vehicular access departures accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement CP9 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stages.

Note 1: Architectural and Civil details and design certification to the satisfaction of the Registered Certifier and Fire Safety Engineer are to be provided with the CC application which satisfy the provisions of the Fire & Rescue NSW Fire Safety Guideline (Access for Fire brigade vehicles and fire fighters) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/vehicle_access.pdf.

Note 2: Design team are encouraged to consider the enhances requirements nominated for waste facilities as listed under Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf

Note 3: Architectural details, specifications and design certifications are to be prepared by a suitably qualified design practitioner (Registered Architect) and submitted to the satisfaction of the Registered Certifier at the Construction Certificate application stage. Where Fire Safety Engineering is proposed, a copy of the Fire Engineers Report prepared by a C10 Certifier – Fire Safety is to also be provided.

13. BCA cl. C2.8 – Separation of classifications in the same storey: This clause requires fire separation between classifications where different fire ratings are specified under BCA Specification C1.1.

In this regard, the building is Type C Construction and given that the Classifications require the same FRL's, no further means of fire separation between classifications is required.

14. BCA cl. C2.9 – Separation of Classifications on different storeys: Where parts of different classifications with different requirements for FRL's are situated above one another in adjoining storeys, they must be fire separated so that the floor between the adjoining parts has an FRL of not less than the prescribed under Spec C1.1 for the classification of the lower storey.

In this regard, the building is Type C Construction which require the same FRL's and as such no further means of fire separation between classifications is required.

15. BCA cl. C2.12 Separation of Equipment: Any emergency generators, boilers or battery storage enclosures are required to be fire separated from the remainder of the building by construction having a minimum FRL of 120/120/120. Doors to the enclosure are to be self-closing --/120/30 fire doors.

Note: Consideration for the need for fire separation of any server/comms room may be required where it is proposed to have a battery system installed in the building that has a total voltage of 12 Volts or more and a storage capacity of 200 kWh. A **Battery System** is defined as one or more chemical cells connected in series, parallel or a combination of the two for the purpose of electrical energy storage. Electrical/IT contractor to advise further in this regard and Architectural details to specify fire ratings as required.

16. BCA cl. C2.13 Electricity Supply Systems: Any electrical substations, electrical conductors, or main switchboards that sustain emergency equipment operating in emergency mode are required to be fire separated from the remainder of the building by construction having a minimum FRL of 120/120/120. Doors to the enclosure are to be self-closing --/120/30 fire doors.

Note 1: The implementation of fire hydrant/sprinkler pumps and other services could necessitate the MSB to be fire rated accordingly if the room sustains power to emergency services operating in emergency mode.

Note 2: Suitable portable fire extinguisher is to be located between 2m and 10m of the MSB room. Fire rating details are to be noted on the drawings.

17. BCA cl. C3.2 – Protection of Openings in External Walls: Any openings proposed within the external walls that are located within 3m of a side or rear allotment boundary, 3m from an adjoining building on the same allotment or 6m from the far boundary of an adjoining roadway are required to be protected externally in accordance with Clause C3.4. Openings may also be protected by non-translucent construction achieving an FRL of 30 mins such as blade walls or the like.

Note: In this regard, the Building is Type C Construction and is located greater than the prescribed distances above. As such no further means of fire separation or protection is required.

18. BCA cl. C3.15 – Openings for Service Installations: Where service installations penetrate the walls or floors required to have an FRL with respect to integrity and insulation they are to be protected by fire seals having an FRL of the building element concerned. Fire seals are required to comply with Specification C3.15 and Manufacturers Specifications. Where the mechanical ventilation system penetrates floors or walls that require an FRL the installation is to comply with AS/NZS 1668.1.

19. BCA cl. C3.16 – Construction Joints: Any construction joints must be fire rated as per the ratings of the building elements within which they are installed.
20. BCA Spec. C1.1 – Fire Resisting Construction: The Building are of Type C Construction and as such all new building elements will need to comply with the FRL's detailed in Section 5 & Table 5 of BCA Specification C1.1.

Warehouse Buildings A – Table 5 Type C Construction:

BUILDING ELEMENT	Class 5, 7b & 8
EXTERNAL WALLS (including any column and other building element incorporated within) or other external building element, where the distance from any fire-source feature to which it is exposed is –	
Less than 1.5m:	90/90/90
1.5m to less than 3m:	60/60/60
3m or more:	No FRL
EXTERNAL COLUMNS not incorporated in an external wall, where the distance from any fire source feature to which it is exposed is –	
Less than 1.5m:	90/90/90
1.5m to less than 3m:	60/60/60
3m or more:	No FRL
COMMON WALLS & FIRE WALLS	90/90/90
ROOFS:	--/--/--
FLOORS:	--/--/--

Figure 5 – Summary of Table 5 of BCA Spec C1.1 (Source: NCC/BCA Volume 1)

In this regard, it is noted that given there are no external walls located within 3m of the fire source features and given the provision of Type C Construction, there are no key building elements that will require an FRL. The external walls and roof and floors will however achieve non combustibility requirements.

Note: Notwithstanding the fact that BCA does not require fire rated elements to be considered, it is understood SUEZ will be providing push walls and separating walls with 90/90/90 mins fire ratings which are intended to assist with the fire safety strategy for the building.

21. BCA cl. C1.11 – Performance of External Walls in Fire: The use of tilt up or precast panels in external walls are to comply with the requirements of Spec C1.11 to minimise the likelihood of outward collapse and separation from support members in the event of a fire.

Note: The Structural details and design certification to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

3.7 SECTION D – ACCESS AND EGRESS

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section D of the BCA subject to the compliance with the following:

22. BCA cl. D1.2 – Number of Exits Required: The Building are required to be provided with a minimum of one (1) exit from each storey. Additional exits are required to achieve compliance with the egress travel distances listed under D1.4 and D1.5 below. In this regard, we note that there are multiple exits proposed and compliance is readily achieved.
23. BCA cl. D1.4 – Exit Travel Distances: In accordance with the provisions of this clause, no point on the floor within the Building must be more than 20 metres from a single exit or a point of choice where travel in different directions is available. Where alternative exits are available the total distance may be increased to 40m accordingly.

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) Warehouse Building A – (Storage/Processing/Receival Areas) - Egress distances from the furthest point of the floor to the nearest exits across all Sections of the Warehouse are up to 55m (in lieu of 40m).
- b) Warehouse Building A – (Office Mezzanine) - Egress distances from the furthest point of the floor to the nearest exit on the office level is up to 29m (in lieu of 20m).

- c) Warehouse Building A – (Processing Platforms) – Egress distances from the furthest point of the work platforms to the top riser of the steel stairways may be up to 30m (in lieu of 20m),

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the extended egress distances accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements DP4 & EP2.2 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stages.

Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

24. BCA cl. D1.5 – Distances Between Alternative Exits: The distance between alternative exits within the building must not exceed 60 metres and/or be located less than 9m apart.

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) Warehouse Building A – (Storage/Processing/Receival Areas) – Egress distances between alternative exits when measured back through the point of choice are up to 100m (in lieu of 60m),

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the extended egress distances accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements DP4 & EP2.2 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stages.

Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

25. BCA cl. D1.6 – Dimensions of Exits and Paths of Travel to Exits: The unobstructed height throughout the Building an exit or a path of travel to an exit must be not less than 2 metres, except for doorways which may be reduced to not less than 1980mm. In addition, the unobstructed width of an exit or a path of travel to an exit must be not less than 1 metre or the required exit width determined under D1.6.

It is considered that the proposed design generally complies with the egress width provisions of D1.6. Furthermore, there are ample exits to permit future internal configurations which will not compromise compliance. Notwithstanding, the work platforms in the processing areas in Warehouse Building A are expected to depart from the DTS provisions of the BCA.

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) Warehouse Building A – (Processing Platforms) – Egress widths along access stairways, along elevated work platforms and between equipment is expected to be reduced to a minimum of 650mm (in lieu of 1.0m) which is typical of these arrangements when designed to AS1657-2013 (in lieu of Part D of the BCA).

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the reduced egress widths accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP2 & DP6 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the FEBQ and Construction Certificate stages.

Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

26. BCA cl. D1.9 Travel Via Non-Fire Isolated Exits: The non-fire isolated stairways in Warehouse Building A are to provide a continuous means of travel to the level at which egress to a road or open space is provided.

Egress via these open stairways must ensure the following:

- The distance from the furthest point the floor to the road or open space by way of the open stairway must not exceed 80m overall, and
- The distance from the discharge point from the open stairway must be 20m from a doorway providing egress to a road or open space, or 40 m from one of 2 such doorways if travel is in opposite or approximate opposite directions.

In this regard, the proposed stair arrangements in Warehouse Building A serving the Office comply accordingly.

The processing plant areas will have raised work platforms and the stairs to these platforms could discharge in locations contrary to the provisions above.

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) Warehouse Building A – The discharge location of the elevated work platform stairways may be up to 10m before a point of choice is available and up to 50m (in lieu of 40m).

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the extended egress distances accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP4 & EP2.2 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stages.

Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

27. **BCA cl. D1.10 – Discharge from Exits:** Upon egress occupants must have suitable paths of travel including compliant stairways and ramps (where required) between the building and the Roadway. Graded surfaces must not be steeper than 1:8 and pedestrian egress ramps require handrails.

It is noted that the roadway access is up to 100-350m away from certain exits and the grades of the roadway may exceed 1:20 but not 1:8 and this would necessitate handrails to assist evacuating occupants in the event of an emergency.

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) Warehouse Building A – Egress grades between 1:20 and 1:8 are not proposed to be provided with handrails and any slopes greater than 1:8 will need to be further considered.

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the reduced egress widths accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP2 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stages.

Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

28. **BCA cl. D1.13 – Number of Persons Accommodated:** Clause D1.13 and Table D1.13 provide a method which may be 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.

In this regard, we note that the building has ample exits to accommodate the expected population numbers proposed within the building.

29. **BCA Part D2.13, D2.14, D2.16, D2.17 & D2.18 Construction of Exits:** The stair treads and risers, stair landings, door thresholds, balustrades and handrails are to comply with the provisions of these Clauses. Further details will be required prior to issue of the Construction Certificate. Notwithstanding, the work platforms in the processing areas in Warehouse Building A are expected to depart from the DTS provisions of the BCA.

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) Warehouse Building A – (Processing Platforms) – Egress stairways, tread and risers, landings, handrails, balustrades to the steel stairways serving the elevated work platforms will be designed to AS1657-2013 (in lieu of Part D of the BCA).

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the reduced egress widths accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP2, DP3 & DP6 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stages.

Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

30. BCA cl. D2.7 – Installations in Exits and Paths of Travel: Services or equipment comprising electricity meters, distribution boards, central telecommunication distribution boards/equipment, electrical motors or other motors serving equipment in the building, can be installed in a corridor or the like, leading to a required exit if the services or equipment are enclosed with non-combustible construction or appropriate fire-protection covering and doorways suitably sealed against smoke spread from the enclosure.
31. BCA cl. D2.8: Enclosure of Space under Stairs: Where enclosures are proposed under any non-fire isolated stairways, they are required to be enclosed in construction having an FRL of 60/60/60 with a self-closing --/60/30 fire door.

In this regard we note there are no enclosures detailed beneath any of the egress stairs in the building.

32. BCA cl. D2.11 – Pedestrian Ramps: Pedestrian ramps located between the discharge locations from the fire stairs and the Road must be no steeper than 1:8 and these gradients need to be detailed on the Construction Certificate drawings.
33. BCA cl. D2.13 – Treads and Risers: The stairs must comply with the tread, riser and going dimensions of this clause and the nosing of the stairs must be provided with a non-slip treads and meet the provisions of AS1428.1-2009.

The following will apply in relation to the construction of all stairways:

- Stairway must have not more than 18 and not less than 2 risers in each flight.
- Goings and risers within the stair flights must be constant throughout each flight.
- Off-set treads between flights are to be provided – refer to AS1428.1-2009.
- Goings and risers are to be in accordance with BCA Table D2.13 i.e.:

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

Detail 6 – Tread and riser dimensions (Source: BCA Table D2.13 Volume 1)

- Risers must be solid construction with no gaps and treads must have non-slip finishes and stair nosing's in accordance with BCA Part D3 and AS4586-2013 and AS1428.1-2009.

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
Nosing or landing edge strip	P3	P4

Detail 7 – Slip Resistance Classifications (Source: BCA Table D2.14 Volume 1)

Note: Architectural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.

34. BCA cl. D2.14 – Landings: A review of the plans has confirmed that landings are compliant throughout. Notwithstanding the above, compliance is to be ensured when introducing the smoke barriers and doors to address the compliance departures referenced under D2.4 above.
35. BCA cl. D2.15 – Thresholds: Doors must not have a ramp or step closer to the door that the width of the door leaf except where opening to open space, where the change in level may be a maximum of 190mm.

Note: Threshold ramps are permitted where door open directly to a road or open space and not in any cases.

36. BCA cl. D2.16 - Balustrades or other barriers: Balustrades throughout are to comply with the provisions of this clause. The following summary is provided for your ease of reference;

- All balustrades generally must achieve a minimum of 1m in height above any fall more than 1m with no gaps greater than 125mm.
- In addition, where the fall exceeds 4 metres the balconies must not have any climbable elements (on the barrier or within 1.0m of the barrier) located between 150mm and 760mm above the floor which can serve as climbable elements and footholds for children.
- For the non-fire isolated stairs in the building, where the fall exceeds 1m the balustrading must be a minimum of 865mm above the line of the nosing's of the treads, 1m at the floors and landings and there must be no gaps greater than 125mm throughout.
- External stairways and walkway bridges are to ensure the balustrade system consists of no gaps greater than 125mm and has a height of 1.0m above floors, landings and 865mm above the line of the nosing's.
- Glass balustrades are to comply with AS1170 & AS1288-2006 requiring interlinking rails and end point fixtures. NB: No frameless glass balustrades are permitted.

Note: The Architectural details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.

37. **BCA cl. D2.17 – Handrails:** A handrail is required along one side of all proposed stairways located a minimum of 865-mm above the stair nosing and 1.0m above landings greater than 500mm. The handrail must also be continuous between flights. Please note the additional handrail requirements for stairs required to be accessible under AS1428.1-2009.
38. **BCA Clause D2.18 – Fixed Platforms, walkways, stairways and ladders:** Access to the roof top plant deck must be via a compliant ladder which complies with AS1657-2013.

The concessions of this clause do not technically apply to the elevated work platforms as those proposed under this development. Notwithstanding, the work platforms in the processing areas in Warehouse Building A are expected to depart from the DTS provisions of the BCA.

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) Warehouse Building A – (Processing Platforms) – Egress stairways, tread and risers, landings, handrails, balustrades to the steel stairways serving the elevated work platforms will be designed to AS1657-2013 (in lieu of Part D of the BCA).

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team has engaged the services of a Fire Safety Engineer to develop a Performance Based Solution to rationalise the reduced egress widths accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP2, DP3 & DP6 and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the Construction Certificate stages.

Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

39. **BCA cl. 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 this clause which requires all doors to swing in the direction of egress unless they serve certain tenancies with floor areas less than 200m² and the doors are the only exits from that space.

Note: Architectural Details, design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

40. **BCA cl. D2.21 - Operation of Latch:** A door in a required exit or in a path of travel to an exit must be readily openable from the side facing a person seeking egress, by a single hand downward action or pushing action on a device located between 900mm and 1100mm above finished floor level. The hardware is to also comply with Section 13 of AS1428.1-2009 (as applicable to the use).

Note: In this regard, the individual storage units are considered sole occupancy units with floor areas less than 200msq. as such the proposed roller shutters are permitted in this regard.

41. **BCA Part D3 - Access for People with a Disability:** Access and facilities for people with disabilities will need to be provided to satisfy the requirements of Part D3 of the BCA & AS1428.1-2009, and the Access to Premises – Buildings Standards 2010 satisfying the client's obligations under the DDA. Under Table D3.1, the building must be accessible as follows:

Class of Building	Access Requirements
Class 5, 7a & 7b	To and within all areas normally used by the occupants.

In this regard, the above and below details are to be noted on the Construction Certificate documentation and complied with during construction of the development;

- Access from the street to the principal pedestrian entrance of the building is to be provided in accordance with AS1428.1-2009. External accessible paths / thoroughfares providing access to the building are to be noted with compliant gradients and landings at entry doors etc. This includes accessible paths of travel between the accessible carparking space and the building.
- The door to the main entrances and to doors in areas required to be accessible within the building are required to have a clear width of not less than 850mm and satisfy the circulation space requirements under AS 1428.1 – 2009.

Note: Where an entry door is proposed to have multiple door leaves (except an automatic opening door) **one of the door leaves** must have a clear width of not less than 850mm.

- The circulation space around all accessible swinging and sliding doors is required to comply with Clause 13.3 and Figure 31 of AS 1428.1-2009. Circulation space requirements are to be detailed on the CC drawings – refer to Section 13 of AS1428.1-2009.
- All door handles and related hardware to swinging doorways are required to be a type 'D' handle which allows the door to be unlocked and opened with one hand in accordance with Clause 13.5.2.
- 30% luminance contrasts are to be provided to all new doorways e.g. contrasting between door leaf & jamb; or door leaf & wall; or architrave & wall; or door leaf & architrave and/or door jamb & adjacent wall. Please ensure the office components comply in this regard.
- All frameless glass panels or fully glazed doors on an accessway are to be clearly marking in accordance with AS 1428.1. In this instance, all frameless glass panel or fully glazed doors, including glazing capable of being mistaken for a doorway or opening, shall be marked with a full width solid non transparent contrast line not less than 75mm wide is required to be located between 900mm and 1000mm above floor level.
- All the stairs are to be provided with contrast stair nosing's between 50 and 75mm deep across the full width of the path of travel. The strip may be set back 15mm from the front of the nosing and must possess a minimum luminance contrast of 30% to the background. The strip must not extend down the riser more than 10mm.
- Stair treads in the fire stairs will need to be off-set as per the diagrams in AS1428.1-2009.
- Accessways must have passing spaces complying with AS 1428.1 at maximum 20 metre intervals on those paths of travel where a direct line of sight is not available, and turning spaces within 2 metres of the end of a path of travel and at maximum 20 metre intervals (corridor width of 1540mm x 1800mm required).
- External and internal surfaces are to comply with Section 7 of AS1428.1-2009.
 - o Walking surfaces to be slip resistant and certification in respect to the slip resistance of any tiles and vinyl will be required at the Occupation Certificate stage to verify compliance with AS/NZS 4586.
 - o Any proposed carpets within the building are to have a pile height or pile thickness not exceeding 11mm and the carpet backing thickness shall not exceed 4mm (total thickness shall not exceed 15mm).
- Braille tactile signage is to be provided to all sanitary facilities and ambulant facilities. In addition, the signage to the accessible facilities is to also identify the facility for left & right-handed use.
- Braille signage is also required in accordance with the new BCA 2013 provisions at every designated exit door provided with an Exit sign required under E4.5 and state "Exit – Ground".

- Tactile indicators are to be provided to all stairs and ramps in the site. In addition, tactile indicators or another type of barrier will need to be provided around the stair obstruction where the stair is less than 2 metre above floor level. Tactiles are also required between the shared zone and vehicular driveway.
- Accessible sanitary facility to comply with Section 15 of AS1428.1-2009.
- Ambulant facilities (where required) are to comply with Section 16 of AS1428.1-2009
- The carparking areas and the accessible car spaces are required to satisfy the requirements of AS/NZS2890.6. In this regard, one space for every 100 car spaces is required and compliance is achieved.
- Lift/vertical access is required where the above ground level has a floor area greater than 200msq.
- Areas that would be considered inappropriate because of the particular purpose for which the area is used or where it would pose a health or safety risk for people with a disability access is not required to be provided and written confirmation will be required by the client e.g. plant areas etc.

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance-Based Alternative Solutions by the project Access Consultant;

- a) Site access – details demonstrating compliant grades are to be noted on the drawings for the review and comment of the access consultant. Circulation space to be achieved at the entry gates near the sliding gates on the driveways.*
- b) Wheelchair Access – There appears to be no dedicated wheelchair access to the building. In this*
- c) Stairways/Tactiles – Stairways will need to be AS1428.1 compliant and have details to be provided at the Construction Certificate stages ensuring there is sufficient space within the property.*
- d) Doorway Circulation – Doorway circulation at between the under-croft and storage areas will need to be assessed further at the Construction certificate stages to ensure circulation is appropriately available.*
- e) Accessible Facilities – are to be detailed on the CC stage plans.*
- f) Vertical Access – the entrance level is the first-floor mezzanine and the next storey is the Warehouse floor which has a floor area greater than 200msq – in this regard lift access is technically required and as it is not proposed to be provided, this will require further justification via performance.*

Accessibility Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by an Accessibility Consultant to address the sanitary facility departures accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement DP1 and be prepared to the satisfaction of the Registered Certifier at the Construction Certificate stage.

Note: Architectural details and design certification to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application. It is also recommended that the detailed accessibility compliance report accompanies the Construction Certificate application.

3.8 SECTION E – ESSENTIAL FIRE SAFETY MEASURES

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section E of the BCA subject to the compliance with the following:

Refer to **Appendix 1** for a table of the relevant Essential Fire and Other Safety Measures applicable which is to be read in conjunction with the following;

25. **BCA cl. E1.3 – Fire Hydrants:** A fire Hydrant system is required to be provided in the building it has a total floor areas greater than 500m². The system is to be designed to comply with AS2419.1-2005 and Fire & Rescue NSW Operational Requirements.

The location of the hydrant booster will need to be in sight of the main entrance of the Building and adjacent to the vehicular entrance as such as per the provisions of AS 2419.1-2005. The fire booster must be located greater than 10m from any substation/kiosk, gas storage/meters and other hazardous materials. This includes gas metres, regulators fuel storage, stockpiles etc.

Vehicular access and circulation are required and it is to be ensured that brigade appliances connected to the booster assemblies do not obstruct the perimeter access road.

Any Internal Hydrants are to be located within the fire isolated stairways at the landing of the storey they serve. In addition, if floor coverage cannot be achieved supplementary fire hydrants (daisy-chain arrangements) may be provided to suit the operational requirements of the NSW Fire Brigades. Any 'required' hydrant pump room is required to have a door opening to a road or open space, or a door opening direct into a fire isolated airlock connected to a fire stair.

The hydrant pump room need to be accessible directly from open space.

Open yard protection is to also be considered to the hardstand areas in accordance with AS2419.1- 2005 and FRNSW Guidelines for Waste Facilities.

Due to the Building being assessed as a Large Isolated Building, AS2419.1-2005 requires a Ring Main and accessible Isolation Valves. Details are to be shown on the fire services plans and block plans for the site.

The use of a single 'Estate Wide Service' will need to be documented in the fire safety strategy. Furthermore, the fire Hydrant Design and fire safety strategy for the Estate is to meet the Acceptance Criteria outlined under Section 7.5 of Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) *The fire hydrant booster assembly, pump room, water supply and associated infrastructure will be located along the North-Western side of the site, accessed from Muir Road and will be an 'Industrial Estate Wide' installation which will be serving all proposed and future buildings.*
- b) *The location of the fire hydrant booster assembly is not possible to be located within sight of the main entrances to 'The Buildings' and to assist with Fire Brigade Intervention it is proposed to be located in a designated area within the confines of the site an approximately 140m away from the main street entrance and approximately 50m from the nearest building (Warehouse Building B) or any external stockpiles. This location has been designated by the design team to meet the operational requirements of FRNSW and the recommendations in Section 7.5 and 7.6 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities).*
- c) *External fire hydrants will be provided to aid in fire brigade operations and where internal hydrant are required for coverage, daisy chain arrangements will be required by FRNSW.*
- d) *External Hydrants are recommended to be placed 10m away from the external wall, awnings and any stockpiles in this regard. Where hydrants are attached to the external walls, fall back hydrants may be required by FRNSW.*
- e) *External stock piles are to be detailed on the plans and line mark accordingly as hydrant coverage needs to be considered and hydrants ae to also be located 10m away from stockpiles to meet the operational requirements of FRNSW and the recommendations in Section 7.5 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities).*
- f) *A Fire Hydrant ring main will need to be provided external to Warehouse Building A. Isolation valves are to be provided in locations which are readily accessible and labelled accordingly. Details are to be noted on the drawings.*
- g) *Fire Hydrant coverage is required to the office level and elevated work platforms and detailed sweep coverage plans are required to accompany the CC application.*
- h) *Fire water containment run off needs to be designed to meet the recommendations under Section 7.9 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) and the enhanced hydraulic demands of the hydrant system (water supply and capacity providing the maximum hydraulic demand (i.e. flow rate) of not less than 4hrs). The water quantities are to be calculated in accordance with the guidelines and pollution control equipment such as stormwater isolation valves, water diversion booms, drain mats etc are to be considered.*
- i) *The fire services engineers are to identify any shortfalls or departures associated with the either the BCA or the relevant Australian Standards.*

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the hydrant system departures accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement EP1.3 and be prepared to the satisfaction of the Accredited Certifier and Fire & Rescue NSW at the FEBQ and Construction Certificate stages.

Note 1: The pump room circulation and hardstand associated with the booster location are to be detailed on the Architectural and Fire Services plans and design certification to the satisfaction of the Accredited Certifier and Fire Safety Engineer are to be provided with the CC application which satisfy the provisions of the Fire & Rescue NSW Fire Safety Guideline (Access for Fire brigade vehicles and fire fighters) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/vehicle_access.pdf.

Note 2: Design team is to consider the enhances requirements associated with Fire Hydrant Systems as nominated under Section 7.5 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf

Note 3: The fire services design engineer must demonstrate that they are an Accredited Practitioner (Fire Safety) registered with the Fire Protection Association of Australia (FPAA) or Department of Fair Trading. Furthermore, the designer must have suitable levels of qualifications in the respective fields they are designing to, and their design details and certifications are to identify any shortfalls or departures associated with the either the BCA or the relevant Australian Standards.

Note 4: Architectural & Fire Services details and design certifications are to be prepared by a suitably qualified design practitioners (Registered Architect and Fire Services Engineers) to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application. Where Fire Safety Engineering is proposed, a copy of the Fire Engineers Report prepared by a C10 Certifier – Fire Safety is to also be provided.

42. **BCA cl. E1.4 – Hose Reels:** A fire hose reel system is required to serve the building where one or more internal fire hydrants are installed or in a building where the floor area greater than 500m² and the system is to be designed to comply with AS 2441 – 2005.

Hose reels are required to be located within 4 metres of an exit or adjacent to internal Hydrants. Hose reel enclosures are to be sign posted and they must not obstruct egress paths required by BCA cl. D1.6 above. In addition, Fire Hose Reels must be located so that the hose will not pass through doorways fitted with a fire door, other than a door associated with Clauses C2.12 and C2.13.

External fire hose reels to cover open yard storage/stockpiles is also required adjacent to the external hydrants in accordance with Section 7.9 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities).

Note 1: The fire services design engineer must demonstrate that they are an Accredited Practitioner (Fire Safety) registered with the Fire Protection Association of Australia (FPAA) or Department of Fair Trading. Furthermore, the designer must have suitable levels of qualifications in the respective fields they are designing to, and their design details and certifications are to identify any shortfalls or departures associated with the either the BCA or the relevant Australian Standards.

Note 2: Architectural & Fire Services details and design certifications are to be prepared by a suitably qualified design practitioners (Registered Architect and Fire Services Engineers) to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application. Where Fire Safety Engineering is proposed, a copy of the Fire Engineers Report prepared by a C10 Certifier – Fire Safety is to also be provided.

43. **BCA cl. E1.5 – Sprinklers:** A sprinkler system must be installed in the building and comply with Table E1.5, Specification E1.5 and installed in accordance with AS2118.1- 2017 and be suitably designed to address the hazards proposed in the facilities e.g. High Hazard with an enhanced standard of performance where necessary.

The sprinkler valves are to be enclosed in a secured room and be accessible directly from the road and open space. Where located along the permitter access road they are to ensure they do not encroach the brigade appliance accessways.

The location of the sprinkler booster will need to be in sight of the main entrance of each of the buildings on the site and adjacent to the vehicular entrance as such as per the provisions of AS 2419.1-2005. The fire booster must be located greater than 10m from any substation/kiosk, gas storage/meters and other hazardous materials. This includes gas metres, regulators fuel storage, stockpiles etc.

Booster assembly needs to be readily accessible and areas in front of the booster/water tanks must be designated to brigade appliances or line marked accordingly. The Sprinkler boosters should be co-located

with the Hydrant boosters in accordance with Section 7.6 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities).

Vehicular access and circulation is required and it is to be ensured that brigade appliances connected to the booster assemblies do not obstruct the perimeter access road.

The use of a single 'Estate Wide Service' will need to be documented in the Building fire safety strategy. Furthermore, the fire Sprinkler Design and fire safety strategy for the Estate is to meet the Acceptance Criteria outlined under Section 7.6 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) The fire sprinkler booster assembly, pump room, water supply and associated infrastructure will be located along the North-Western side of the site, accessed from Muir Road and will be an 'Industrial Estate Wide' installation which will be serving all proposed and future buildings.
- b) The location of the fire sprinkler booster assembly is not possible to be located within sight of the main entrance to the building and to assist with Fire Brigade Intervention it is proposed to be located in a designated area within the confines of the site an approximately 140m away from the main street entrance and approximately 50m from the nearest building (Warehouse Building B) or any external stockpiles. This location has been designated by the design team to meet the operational requirements of FRNSW and the recommendations in Section 7.5 and 7.6 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities).
- c) The sprinkler valve room has not been detailed on the plans and is to be in a location which is accessed directly from open space.
- d) Fire water containment run off needs to be designed to meet the recommendations under Section 7.9 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) and the enhanced hydraulic demands of the sprinkler system (water supply and capacity providing the maximum hydraulic demand (i.e. flow rate) of not less than 2hrs). The water quantities are to be calculated in accordance with the guidelines and pollution control equipment such as stormwater isolation valves, water diversion booms, drain mats etc are to be considered.
- e) The fire services engineers are to identify any shortfalls or departures associated with the either the BCA or the relevant Australian Standards.

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the hydrant system departures accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirement EP1.4 and be prepared to the satisfaction of the Accredited Certifier and Fire & Rescue NSW at the FEBQ and Construction Certificate stages.

Note 1: The pump room circulation and hardstand associated with the booster location are to be further detailed on the Architectural and Fire Services plans and design certification to the satisfaction of the Accredited Certifier and Fire Safety Engineer are to be provided with the CC application which satisfy the provisions of the Fire & Rescue NSW Fire Safety Guideline (Access for Fire brigade vehicles and fire fighters) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/vehicle_access.pdf.

Note 2: Design team is to consider the enhances requirements associated with Fire Sprinkler Systems as nominated under Section 7.6 of the Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf

Note 3: The fire services design engineer must demonstrate that they are an Accredited Practitioner (Fire Safety) registered with the Fire Protection Association of Australia (FPAA) or Department of Fair Trading. Furthermore, the designer must have suitable levels of qualifications in the respective fields they are designing to, and their design details and certifications are to identify any shortfalls or departures associated with the either the BCA or the relevant Australian Standards.

Note 4: Architectural & Fire Services details and design certifications are to be prepared by a suitably qualified design practitioners (Registered Architect and Fire Services Engineers) to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application. Where Fire Safety Engineering is proposed, a copy of the Fire Engineers Report prepared by a C10 Certifier – Fire Safety is to also be provided.

44. BCA cl. E1.6 – Portable Fire Extinguishers: Portable fire extinguishers are to be installed in accordance with Clause E1.6 and AS 2444-2001 and also to protect buildings that don't have fire hose reel coverage.

Note: Architectural details and Design Certification to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.

45. BCA cl. E1.8 – Fire Control Centres and Rooms: A fire control centre facility in accordance with Specification E1.8 must be provided for—

- A building with an effective height of more than 25 m; and
- A Class 6, 7, 8 or 9 building with a total floor area of more than 18 000 m².

In this regard, given the fire services infrastructure are "Estate Wide Services", a designated fire control room/centre needs to be provided to serve the building.

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) Given the fire services infrastructure are "Estate Wide Services", a designated fire control room/centre needs to be provided to serve the site. In this regard the room should be located at the co-located Fire Services Pump rooms and Boosters in its own acoustically separated room.
- b) The fire control room/centre needs to consist of the Main FIP, be acoustically separated from the pumps, have tactical fire plans and other fire-fighting provisions such as telephones, furniture and other equipment suitable to accommodate fire-fighting operations.
- c) Mimic panels should be provided at each Warehouse A and Warehouse B building entry/office.
- d) The fire control centre 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 in aggregate exceed 300 mm.

Note 1: The fire services engineers are to identify any other shortfalls or departures associated with either the BCA or the relevant Australian Standards.

Note 2: At the time of this report, fire services details were not available for our review and re-assessment will be required.

Note 3: Architectural and Fire Services Details and design certification and Fire Safety Engineering Report to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.

46. BCA cl. E1.9 – Precautions during Construction: The appointed builder must ensure that prior to the building passing an effective height of 12m, that appropriate fire hydrants, hose reels and extinguishers are available.
47. BCA Clause E1.10 and E2.3 – Provisions for Special Hazards: Suitable additional provisions must be made if special problems of fighting fire could arise because of the nature or quantity of materials stored, displayed or used in a building and the location of water supply for fire-fighting equipment.

FRNSW consider waste facilities to pose a hazardous risk to their operational requirements and as such the fire safety designs and fire safety strategies for the building is to consider the provisions accordingly.

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) FRNSW consider waste facilities to pose a hazardous risk to their operational requirements and the design team is to consider the Acceptance Criteria nominated under "Appendix A – Acceptable Solution" of the document titled Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the Acceptance Criteria and design parameters under of the "Appendix A – Acceptable Solution" of the document titled Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities). In this regard, the report will need to demonstrate compliance with the relevant BCA Performance Requirement being addressed e.g. EP2.2 for smoke hazard management provisions etc, and be prepared to the satisfaction of the Registered Certifier and Fire & Rescue NSW at the FEBQ and Construction Certificate stages.

Note: Architectural & Fire Services details and design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

48. **BCA cl. E2.2 – Smoke Hazard Management:** The building must comply with the provisions of the Clause / Specification and Tables within to manage smoke during a fire. Smoke hazard provisions apply to buildings and are to be installed in accordance with Table E2.2a & E2.2b as applicable.

The following provisions apply to the building;

- An automatic fire suppression system (sprinklers) is required to be installed throughout Warehouse Building A given it is proposed to be a Large Isolated building and the system will be installed in accordance with AS2118.1-2017.
- Where the total floor areas and volume exceed 18,000m² and/or 108,000m³, an automatic smoke extraction system including associated detection is required in accordance with AS1668.1-2015/AS1670.1-2018.
- Irrespective of the floor areas and volumes sizes discussed above, pursuant to BCA Clause E2.3 and Section 7.8 of the document titled Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities), enhanced smoke hazard management and smoke exhaust systems are to be provided which are designed to vent or exhaust smoke so that in at least 90% of the compartment, the smoke layer does not descend below 4m above the finished floor level. Low level make up air via roller shutters and louvres are also to be incorporated into the design.
- A Fire Detection and Smoke and Alarm System in accordance with AS1670.1-2018 and Section 7.7 of the document titled Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) is also to be provided which is designed suitable to the specific hazards in the buildings. The system is required to also incorporate Manual Call Points/ Break Glass Alarms located in clearly visible locations (adjacent to the exits) to enable staff to manually initiate the buildings fire alarms.
- A Fire Panel needs with Alarm Signalling Equipment interfaced with a brigade monitoring/despatch call centre and the Fire Panel is to be installed at the MAIN ENTRANCE / FIRE CONTROL CENTRE of the building and within close proximity of the fire hydrant booster assemblies. Sub FIP panels will also be required at each building entrance and these Sub –FIP's are to have full functionality (not mimic panels).
- A Building Occupant Warning system must be provided throughout the building in accordance with AS1670.4-2018.

In this regard, the following areas have been identified as matters which may be requiring further design consideration and/or justification via Performance Solutions by the project Fire Safety Engineer:

- a) Sprinkler system design to AS2118.1-2017 and the Acceptance Criteria nominated under "Appendix A – Acceptable Solution" of the document titled Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities)
- b) Smoke Hazard management system to AS1668.1-2015 and the Acceptance Criteria nominated under "Appendix A – Acceptable Solution" of the document titled Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities)
- c) Smoke Detection and Manual Call Points to AS1670.1-2018 and the Acceptance Criteria nominated under "Appendix A – Acceptable Solution" of the document titled Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities)
- d) The Main Fire Panel will not be within sight of the main entrances to each Warehouse Building part and will be located adjacent to the fire services infrastructure in the Fire Control Centre.

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the smoke hazard management provisions accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements EP2.2 and be prepared to the satisfaction of the Registered Certifier at the Construction Certificate stage.

Note 1: The fire services design engineer must demonstrate that they are Competent Fire Safety Practitioner (CFSP) and either be an NER service design engineer or be on the interim register of the Fire Protection Association Australia (FPAA). Furthermore, the designer must have suitable qualifications in the respective fields they are designing to, and their design details and certifications are to identify any shortfalls or departures associated with the either the BCA or the relevant Australian Standards.

Note 2: Architectural & Fire Services details and design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

Note 3: Architectural & Fire Services details and design certification and Fire Safety Engineering Report to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.

49. BCA cl. E3.3 – Warning Against use of Lifts in Fire: Signage “DO NO USE LIFT IF THERE IS A FIRE” is to be provided near the lift call button in letters not less than 10-mm in height.
50. BCA cl. E3.6 – Facilities for People with Disabilities: Passenger lifts are generally required to be provided for disabled access and they must be compliant with a lift specified under Table E3.6a (as appropriate) and the provisions of AS1735.12 as follows:
- Have complying handrails.
 - Have minimum internal floor dimensions of 1400 x 1600mm.
 - Have doors with a minimum clear.
 - Be fitted with a series of door opening sensory devices / passenger protection devices.
 - Upper lift landing door requirements.
 - Have lift and landing control buttons.
 - Appropriate lighting provisions and audible and visual indications, and
 - Emergency hands free communication devices.

Note: We understand passenger lifts are not proposed and the Accessibility Compliance strategy for the building will address the omission of vertical access between the Warehouse parts and office parts accordingly to the satisfaction of the Accredited Certifier are to be provided with the Construction Certificate application.

51. BCA cl. E4.2 & E4.4 – Emergency Lighting: Emergency Lighting is required in the building in accordance with AS 2293.1-2018.

Note: Architectural & Fire Services details and design certification to the satisfaction of the Accredited Certifier are to be provided with the Construction application.

52. BCA cl. E4.5 & E4.6 – Exit Signs: Exit signs 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. Signs are required to comply with AS 2293.1-2018.

In this regard, the following areas have been identified as items that will be requiring further consideration and/or justification from the fire services design and/or fire safety engineering consultants accordingly;

a) It is understood that the Exit Signs and Directional will be sporadically spaced and at high level.

Fire Engineered Performance Solution: Notwithstanding the above, it is understood that the design team will obtain a Performance Based Solution prepared by a Fire Safety Engineer to rationalise the smoke hazard management provisions accordingly. In this regard, the report will need to demonstrate compliance with BCA Performance Requirements EP4.2.

Note: Architectural & Fire Services details and design certification and Fire Safety Engineering Report to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

3.9 SECTION F – HEALTH & AMENITY

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section F of the BCA subject to the compliance with the following:

53. BCA Clause F1.0 – External Wall Weatherproofing: The buildings external walls and features are to be designed to prevent the penetration of moisture and water in accordance with BCA Performance Requirement FP1.4 and the design criteria under Volume 2 can be used as a guide.

Note: Architectural details and design certifications are to be prepared by a suitably qualified design practitioners (Registered Architect) to the satisfaction of the Registered Certifier are to be provided with the Construction Certificate application.

54. BCA cl. F1.1 – Stormwater Drainage: Stormwater drainage must be installed as per AS 3500.3 -2003. All plumbing works are to comply with BCA Volumes 1 and 3.
55. BCA cl. F1.5 – Roof Coverings: All new roofing must be covered with
- Metal roof sheeting comply with AS 1562.1

- Plastic roof sheeting complying with AS/NZS 4256 parts 1, 2 3 and 5 and AS/NZS 1562.3
- 56. BCA cl. F1.6 – Sarking: Sarking must be installed to roof and walls for weatherproofing as per AS/NZS 4200.1 and 2 - 1994. Damp proofing between external abutting walls of any adjacent buildings is also to be considered.
- 57. BCA cl. F1.7 – Waterproofing of Wet Areas: Wet areas in the building are required to comply with AS 3740-2004.
- 58. BCA cl. F1.9 & F1.10 – Damp Proofing: Compliance with the provisions of the BCA and the referenced Australian Standard is required.
- 59. BCA cl. F1.13 – Glazed Assemblies: Glazed assemblies in an external wall of a building are required to comply with AS 2047 requirements for resistance to water penetration. All other glazing installations are to comply with AS1288-2006 and full height glazing is to be toughened glass and provided with decals/motifs.
- 60. BCA cl. 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.

Note: Final Confirmation of total population numbers, Architectural details and accessibility report to the satisfaction of the Registered Certifier are to be provided with the Construction application.

- 61. BCA cl. F2.4 – Facilities for People with Disabilities: The accessible WC's must be designed in accordance with the requirements of Section 15 of AS 1428.1-2009. Additionally, the Ambulant Facilities need also comply with Section 16 of AS1428.1-2009. In this regard, there is less than 10 persons expected to occupy the building and the single accessible sanitary facility complies.
- 62. BCA cl. F2.5 – Construction of Sanitary Compartments: The door to fully enclosed sanitary facilities must open outwards, slide or be readily removable from the outside unless there is a clear space of 1.2 metres measured in accordance with figure F2.5.

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.

- 63. BCA cl. F3.1 – Height of Rooms: The floor to ceiling heights in the commercial parts of the building must not be less than 2.4 metres in habitable rooms and 2.1 metres in the bathrooms.

Note: Architectural details and design certification to the satisfaction of the Registered Certifier are to be provided with the Construction application.

- 64. BCA cl. F4.4 – Artificial Lighting: Artificial lighting is required where it is necessary to minimise the hazard to occupants during an emergency evacuation. In this regard, we note that artificial lighting is required throughout the building in accordance with AS/NZS 1680.0-2009

Note: Design statement to the satisfaction of the Registered Certifier is to be provided with the Construction Certificate application.

- 65. BCA cl. F4.5 – Ventilation of Rooms: The building is required to be provided with either mechanical ventilation complying with AS1668.2-2012 or natural ventilation achieving 5% of the floor area of the room served.
- 66. BCA cl. F4.8 – Restrictions on locations of Sanitary Facilities: A sanitary compartment must not open directly to a workplace normally occupied more than one (1) person. In this regard compliance is readily achieved.

3.10 SECTION J – ENERGY EFFICIENCY

The proposed development will generally satisfy the DTS provisions & Performance Requirements of Section J of the BCA subject to the compliance with the following:

- 67. BCA Section J Energy Efficiency: The proposed building will be subject to the Energy Efficiency requirements under this section. In this regard the applicable requirements include J1 – Building Fabric, J2 – External Glazing, J3 – Building Sealing, J5 – Air Conditioning and Ventilation Systems, J6 – Artificial Lighting and Power, J7 – Hot Water Supply and J8 – Access for Maintenance.

The building is located in Climate Zone 5 and the relevant provisions of the BCA are to be applied to each classification concerned adoringly.



Figure 8 – Section J Climate Zones (Source: NCC/BCA Climate Zone Map)

In this regard, it is understood that only the office parts of the Building will be a conditioned space with all other storage areas only being served by supply air systems (not heating or cooling systems) as such, in accordance with the BCA definitions below, it is considered that J1, J2 and J3 do not apply to the Warehouse building parts.

Envelope, for the purposes of **Section J**, means the parts of a building's *fabric* that separate a *conditioned space* or *habitable room* from—

- (a) the exterior of the building; or
- (b) a non-*conditioned space* including—
 - (i) the floor of a rooftop plant room, lift-machine room or the like; and
 - (ii) the floor above a *carpark* or warehouse; and
 - (iii) the *common wall* with a *carpark*, warehouse or the like.

Conditioned space means a space within a building, including a ceiling or under-floor supply air plenum or return air plenum, where the environment is likely, by the intended use of the space, to have its temperature controlled by *air-conditioning*, but does not include—

- (a) a non-*habitable room* of a Class 2 building or Class 4 part of a building in which a heater with a capacity of not more than 1.2 kW or 4.3 MJ/hour provides the *air-conditioning*; or
- (b) a space in a Class 6, 7, 8 or 9b building where the input energy to an *air-conditioning* system is not more than 15 W/m² or 15 J/s.m² (54 KJ/hour.m²); or
- (c) a lift *shaft*.

Air-conditioning, for the purposes of **Section J**, means a *service* that actively cools or heats the air within a space, but does not include a *service* that directly—

- (a) cools or heats cold or hot rooms; or
- (b) maintains specialised conditions for equipment or processes, where this is the main purpose of the *service*.

Note: In order to demonstrate compliance, it is understood that a Section J report and Verification report from an ESD Consultant will be submitted with the Construction Application. Glazing calculators to accompany reports.

3.11 GENERAL /SAFETY IN DESIGN REQUIREMENTS:

- 68. External and internal surfaces are to comply with the slip resistance criteria referenced under AS/NZS 4586-2013.
- 69. All safety and toughened glazing needs to have permanently affixed labels as required by AS1288 -2006.
- 70. Roof anchoring systems and roof access provisions for the elevated planter beds need to comply with Work, Health and Safety legislation, Work Cover requirements, AS1657 -2013 etc.
- 71. External carpark areas including driveways, turning circles and car spaces are to comply with AS2890.1 -2004 and AS2890.6-2009.
- 72. Areas where occupants could trip, fall and cause injury (over and above areas listed in the BCA) should be provided with suitable barriers and signage.
- 73. Raised concrete plinths to have the kerbs painted in high-viz yellow paint for brigade identification.
- 74. Safety in design principles to be considered by all consultants for areas outside the minimum requirements of the BCA – namely in relation to slips trips, falls and workplace health and safety.

4. CONCLUSION

This report contains an assessment of the referenced architectural documentation for the proposed development (Warehouse Building A) located at 21 Muir Road Chullora NSW, against the Deemed-to-Satisfy provisions and Performance Requirements of the National Construction Code Series (Volume 1) Building Code of Australia 2019 (Amendment 1).

The detailed desktop assessment of the building was carried out against the technical provisions of the BCA pursuant to Clause 145 of the Environmental Planning and Assessment Regulation 2000. It is noted that the proposed development must comply with the relevant requirements and this can be achieved by complying with the following:

- a) Complying with the Deemed-to-satisfy (DTS) Provisions; or
- b) Formulating a Performance Solution which considers one or more of the BCA Assessment methods and 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 the above.

In view of the above assessment, we can confirm that subject to the matters outlined under **Section 2** and **Section 3** of this report above being adequately addressed by the Registered Design Practitioners (Architects/Structural Engineer), Registered Building Practitioner (Builder), Accredited Practitioners - Fire Safety (Fire Services Designers), C10 Certifier Fire Safety (Fire Safety Engineer), Accredited Access Consultant, ESD consultants and other key Stakeholders, that compliance with the BCA will be readily achieved accordingly.

Note: Refer to Attached Appendix - Fire Safety Schedule

APPENDIX: PRELIMINARY FIRE SAFETY SCHEDULE

The following comprises a preliminary fire safety schedule containing statutory fire safety measures that will apply to the new buildings

Statutory Fire Safety Measure	Design/Installation Standard
Automatic Fail-Safe Devices	BCA Clause D2.21 + Fire Safety Strategy
Alarm Signalling Equipment (<i>Main & SUB FIP's/Mimic Panels</i>)	BCA Specification E2.2a (Clause 8) & AS 1670.3 – 2018, AS4428.6 – 2018 and Manufacturer's Specifications + Fire Safety Strategy
Automatic Fire Detection & Alarm System	BCA Specification E2.2a (Clause 4) & AS 1670.1 – 2018 Manufacturer's Specifications + Fire Safety Strategy
Automatic Fire Suppressions System (Sprinkler System)	BCA Spec. E1.5 & AS 2118.1 – 2017, Manufacturer's Specification + Fire Safety Strategy
Building Occupant Warning System	BCA Specification E1.5 (Clause 8), BCA Specification E2.2a (Clause 7) and / or AS 1670.1 – 2018 (Clause 3.22) and Manufacturer's Specifications
Emergency Lighting	BCA Clause E4.2, E4.3, E4.4 & AS 2293.1 – 2018 and Manufacturer's Specifications
Exit Signs	BCA Clauses E4.5, E4.6, E4.8 & AS 2293.1 – 2018 and Manufacturer's Specifications
Fire Doors	BCA Clause C2.12, C2.13, C3.4 and AS 1905.1 – 2015
Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005 + Fire Safety Strategy
Fire Hydrant Systems	BCA Clause E1.3 & AS 2419.1 – 2005 + Fire Safety Strategy
Fire Seals	BCA Clause C3.15 & AS 1530.4 – 2014 & AS 4072.1 – 2005
Fire Control Centre and Rooms	BCA Specification E1.8 + Fire Safety Strategy
Lightweight Construction (<i>Enclosures beneath Stairs/MSB</i>)	BCA Clause C1.8 & AS 1530.4 – 2005 + Fire Safety Strategy
Paths of Travel	EP & A Regulation Clause 186 + Fire Safety Strategy
Manual Call Points/Break Glass Alarms	AS 1670.1 – 2018 + Fire Safety Strategy
Perimeter Vehicular Access for Emergency Vehicles	BCA Clause C2.4 + Fire Safety Strategy
Portable Fire Extinguishers (Common areas and MSB)	BCA Clause E1.6 & AS 2444 – 2001
Smoke Hazard Management Systems (<i>Natural Vent or Smoke Exhaust Systems</i>)	BCA Part E2 & AS1668.1 – 2015 + Fire Safety Strategy
Warning & Operational Signs	Section 183 of the EP&A Regulation 2000, AS 1905.1 – 2015, BCA Clause C3.5, C3.8, D2.23, D3.6, E1.3, E1.4, E1.5, E2.2a & E3.3 + Fire Engineered Performance Based Solution
Fire Engineered Solutions / Fire Safety Strategy for the following: <ul style="list-style-type: none"> - <u>BCA Clause C2.4</u>: Rationalisation of the perimeter vehicular access provisions; - <u>BCA Clause Cause D1.4</u>: Rationalisation of the extended egress travel distances being up to 55m to an exit (in lieu of 40m); - <u>BCA Clause Cause D1.4</u>: Rationalisation of the extended egress travel distances in Warehouse Building A (Offices) being up to 29m to an exit (in lieu of 20m); - <u>BCA Clause Cause D1.4</u>: Rationalisation of the extended egress travel distances in (Processing Platforms) being up to 30m to an exit (in lieu of 20m); - <u>BCA Clause D1.5</u>: Rationalisation of the extended egress travel distances between alternative exits being up to 100m (in lieu of 60m); - <u>BCA Clause D1.6</u>: Rationalisation of the reduced egress widths to the stairways and work platforms; - <u>BCA Clause D1.9</u>: Rationalisation of the egress distances from the discharge location of the work platforms stairways being up to 20m to appoint of choice and 50m to the nearest exit (in lieu of 40m) 	The relevant Performance Requirements associated with the proposed Fire Engineered Solutions / Fire Safety Strategy: <ul style="list-style-type: none"> - CP1, CP2, CP9, DP2, DP3, DP4, DP6, EP1.3, EP1.4, EP2.2 & EP4.2

Statutory Fire Safety Measure	Design/Installation Standard
<ul style="list-style-type: none"> - <u>BCA Clause D1.10</u> – Rationalisation of the need any handrails along the vehicular access road which provides access for occupant egressing from <u>Warehouse Building A</u> to Muir Road/Open Space; - <u>BCA Clause D2.13, D2.14, D2.16, D2.17 & D2.18</u> – Rationalisation of the design of the stairways and work platforms in <u>Warehouse Building A</u> being to AS1657-2013 (in lieu of Part D2 of the BCA) - <u>BCA Clause E1.3</u>: Rationalisation of the 'Estate Wide' fire hydrant system arrangements/locations and other departures associated with the hydrant system such as location of boosters and other services etc; - <u>BCA Clause Specification E1.5</u>: Rationalisation of the 'Estate Wide' fire hydrant system arrangements/locations and other departures associated with the sprinkler system such as location of boosters and other services etc; - <u>BCA Specification E1.8& E2.2a</u>: Rationalisation of the Rationalisation of the 'Estate Wide' Main Fire Control Room and having the Main FIP not being within sight of the main entrances of the <u>Warehouse A</u> as it will be located within sight of the booster assemblies; - <u>BCA Clause E1.10 & E2.3 & BCA Specification E2.2b</u> - Rationalisation of the Smoke Hazard Management; systems to <u>Warehouse Building A</u>. - <u>BCA Clause E4.4</u>: Rationalisation of exit sign heights and locations in the warehouse. 	

Note 1: The Fire Safety Strategy for the building is to address not only the DTS departures identified above but also the Acceptance Criteria outlined under the document titled Fire & Rescue NSW Fire Safety Guideline (Fire Safety in Waste Facilities) https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf

Note 2: The above Performance Solutions include Category 2 fire safety provisions and pursuant to Clause 144 of the EP&A Regulation 2000, formal fire engineering brief and report referrals to Fire & Rescue NSW will be require prior to the CC application stage.

Note 3: The above list of Performance Solutions may be subject to change once final fire services drawings, Architectural and Structural drawings are furnished for further review.