AUSTRALIAN UNIT INVESTMENT PTY LTD

BCA/ACCESS ASSESSMENT REPORT

1-7 Gladys Avenue, Frenches Forest

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Jensen Hughes Australia

Providing building regulations, fire engineering, accessibility, and energy consulting services to NSW for over 25 years

Our story begins in 1997 with the founding of BCA Logic to fulfill the demand of a consultancy company whose expertise expanded across the entire life cycle of a building, from consulting on the initial planning through to construction and occupation.

BCA Logic, SGA Fire and BCA Energy joined Jensen Hughes in 2021, a leading global, multi-disciplinary engineering, consulting and technology firm focused on safety, security and resiliency. We continue to be at the forefront of our industry and work thoroughly to preserve our position by ensuring the successful delivery of projects.

Jensen Hughes was launched in 2014 through the historic merger of Hughes Associates and Rolf Jensen & Associates (RJA), two of the most experienced and respected fire protection engineering companies at the time. Since then, we have gained market leadership in nuclear risk consulting and established commanding positions in areas like forensic engineering, security risk consulting and emergency management. Over the past 22 years, our integration of more than 30 privately held engineering and consulting firms has dramatically expanded our global footprint, giving us a powerful market presence ten times larger than our nearest competitor in some of our markets and extending our historical lineage back to 1939.

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Executive summary

This dument provides an assessment of the architectural design drawings for the proposed new residential development at 1-7 Gladys Avenue, Frenches Forest, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1.

Part 3 'Matters for Further Consideration' of this report outlines the identified BCA compliance issues that require further information or consideration and/or assessment as Performance Solutions.

Any Performance Solution will need to be detailed in a separate report and must clearly indicate methodologies for achieving compliance with the relevant BCA Performance Requirements.

Item	Description	BCA Provision
Performance Solutions Required		
1.	Rationalise the protection being required to the openings in the driveway external wall due to the SOU overhang on the level above.	Clause C3.2
2.	The construction of external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions – FP1.4 Performance Provisions Only
Building Code of Australia Compliance Matters to be Addressed		
1.	Modification of the access door to the western bin room to ensure compliant door circulation in accordance with AS1428.1-2009.	Clause D3.1
2.	Modify the podium walkways as required to ensure that suitable turning spaces are provided at 20m intervals and a suitable passing space is provided where a line of sight is not maintained as required by Clause D3.3 and AS1428.1-2009.	Clause D3.3
Further Information Required		
1.	Confirm the compliance of the internal lift shafts with regards to fire compartmentation and acoustics. Consideration is required to be given to Clauses C2.10, C3.10, C3.11 and F5.5.	Clauses C2.10, C3.10, C3.11 and F5.5
2.	Provide further details of the kitchen layouts in the adaptable units at CC stage to ensure suitable benching is provided at the CC stage. Sufficient space is made available on the plans; however, the detailing must be updated to ensure compliance.	AS4299
3.	Confirm that suitable ceiling heights will be maintained within the garages to allow for access to the storerooms in accordance with Clause F3.1 of the BCA.	Clause F3.1

1.0 Adoption of BCA 2022

1.1 PROPOSED INTRODUCTION

As of 26 August 2022, the ABCB have advised to introduce the National Construction Code (NCC), Volume One, Building Code of Australia (BCA) 2022 on 1 May 2023. BCA2022 is proposing some major changes to Condensation Management, Energy Efficiency, and the introduction of Livable Housing Design.

Building Ministers agreed to publish NCC 2022 on 1 October 2022. The full and final version of NCC 2022, in its entirety, is live on **NCC online**. The pdf files will be released close to the new NCC adoption date.

The States and Territories will bring the majority of NCC 2022 into full effect from 1 May 2023, to allow industry time to learn and adapt to the new requirements.

There will also be transition periods for specific requirements. These include:

- New livable housing requirements, new energy efficiency and condensation mitigation requirements – 1 October 2023
- New low lead in plumbing product requirements – 1 September 2025.

These provisions of NCC 2019.1 will be considered mandatory until 1 May 2023.

1.2 MAJOR CHANGES KNOWN TO DATE

Below is a summary of the proposed changes which were released in the May draft preview. We have also provided a table below for quick reference. Your project has been assessed against the proposed changes where applicable.

Livable housing

Note: NSW have advised that the livable housing provisions will not be adopted at this time as a result of the impact of the pandemic, rising interest rates and stability of the current housing market. This could change at any time in the future.

Volumes One and Two contain new livable housing requirements for Class 1a buildings (houses and townhouses) and Class 2 sole-occupancy units (individual apartments). This puts in place features based on the Livable Housing Design Guidelines silver standard, with a voluntary gold standard also available for features over and above silver.

Consistent volume structure

BCA2022 uses a new structure and clause referencing system to create better consistency across all volumes. While the new Section-Part-Type-Clause system makes the NCC look different at first, it's intended to improve user experience and make it more web accessible.

The new structure results in a reorganisation of specifications and parts, some of which are contained in the table below.

Fire safety of external walls

Volume One contains a number of amendments to the fire safety of external walls. This clarifies interpretation of concessions from non-combustibility requirements. Also included is a new provision that prevents fixing of certain bonded laminated cladding panels by adhesive only.

Waterproofing

There are new DTS Provisions in Volume Two for waterproofing of wet areas, not previously covered by an acceptable construction practice or manual.

Waterproofing in Volume One is restructured into three parts to enhance readability and accommodate future changes.

Weatherproofing

Volume One contains additional DTS Provisions, providing new solutions for weatherproofing of external walls. These include references to weatherproofing provisions in Australian Standards for masonry, autoclaved aerated concrete and metal wall sheeting.

Falls for floor wastes

Volumes One and Two are amended to require bathrooms and laundries where a floor waste is installed, to have a fall of the floor in order to help drain the surface. This also applies to floor wastes included voluntarily.

Number of exits

Some minor amendments to the required number of exits are in Volume One. This includes a new concession allowing a single exit for a part of a storey in some circumstances, where previously at least two exits were required.

1.3 SUMMARY OF MAJOR CHANGES

Summary of Major Changes		
Clause Reference		**Description of proposed changes**
BCA 2019	**BCA2022**	
C1.9	C2D10	**Non-combustible building elements** Further exemptions to the non-combustible requirements of external walls added. Larger list of materials that can be used where non-combustible materials are required.
-	C2D15	**Fixing of Bonded Laminated Cladding panels**
D1.2	D2D3	**Number of Exits** + Ground floor can be provided with a single exit in lieu of 2 + 2 exits required from each storey and each fire compartment of an **early childhood centre**
D1.6	D2D7 – D2D11	**Dimensions of Exits** Clause split into multiple clauses
D1.11	D2D16	**Horizontal Exits** – New provisions relating to early childhood centres
D2.16	D3D17 - D3D21	**Barrier** clause split into multiple clauses

E1.5	E1D4 - E1D13	**Sprinkler** requirements split into separate clauses for each building class.
E2.2	E2D3 – E2D21	General Requirements – **Smoke Hazard Management** Tables removed and replaced with clauses for each building class
F1.7	Part F2	**Wet Area and Overflow Prevention**
F1.11	F2D4	**Floor wastes –** floor must be graded with a minimum fall of 1:80
FP1.4	Part F3	**Roof and Wall Cladding** Introduces DTS provisions for walls and roofs in lieu of the previous BCA requiring performance solutions for all weatherproofing

2.0 Basis of Assessment

2.1 LOCATION AND DESCRIPTION

The building development, the subject of this report, is located at 1-7 Gladys Avenue, Frenches Forest. The proposal is for thirty (30) townhouses located above a common basement carpark. The townhouses range between two – three storeys with several having rooftop terraces.

Both pedestrian access and vehicular access is provided via Gladys Avenue.

Site plans taken from architectural plans

2.2 PURPOSE

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2019, Amendment 1, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of BCA 2019. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

2.3 BUILDING CODE OF AUSTRALIA

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2019, Amendment 1 (BCA) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is updated generally on a three-yearly cycle, starting from the 1st of May 2016.

2.4 LIMITATIONS

This report does not include nor imply any detailed assessment for design, compliance or upgrading for:

1. the structural adequacy or design of the building;
2. the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and

3. the design basis and/or

This report does not include, or imply compliance with:

1. the National Construction Code – Plumbing Code of Australia Volume 3
2. the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to),
3. Demolition Standards not referred to by the BCA;
4. Work Health and Safety Act 2011;
5. Requirements of Australian Standards unless specifically referred to;
6. Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and
7. Conditions of Development Consent issued by the Local Consent Authority.

2.5 FEDERAL DISABILITY DISCRIMINATION ACT (DDA)

Disability is broadly defined and includes disabilities which are physical, intellectual, psychiatric, neurological, cognitive or sensory (a hearing or vision impairment), learning difficulties, physical disfigurement and the presence in the body of disease causing organisms.

All organisations have a responsibility, under the DDA, to provide equitable, dignified access to goods and services and to premises used by the public. Premises are broadly defined and would include all areas included within the subject development.

The DDA applies nationally and is complaint based. While the Disability (Access to Premises – Buildings) Standards 2010 and the BC2019 are recognised as a design standard to satisfy certain aspects of the DDA, compliance with the BCA2019 and the referenced standards does not guarantee that a complaint will not be lodged.

2.6 DISABILITY ACCESS TO PREMISES STANDARDS (PREMISES STANDARDS)

The aim of the Premises Standards is to provide the building and design industry with detailed information regarding the required access provisions associated with the design and construction of new buildings and upgrade to existing buildings.

The Premises Standards intend to provide certainty for the building industry in relation to meeting the requirements for access in new and upgraded buildings. They only apply to elements addressed within the Standards. All other elements related to premises will still be subject to the existing provisions of the DDA.

The Premises Standards generally align with the BCA2019 and reference a range of Australian Standards relating to access and other associated matters.

They do not apply to existing buildings that are not undergoing upgrade, however they introduce the concept of the “Affected Part”. This means that new works need to be connected to the building’s Principal Pedestrian Entrance by an accessible path of travel. This can mean that upgrade to the building may be necessary even where none is proposed.

2.7 DESIGN DOCUMENTATION

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

3.0 Building Description

For the purposes of the Building Code of Australia (BCA), the development may be described as follows.

3.1 RISE IN STOREYS (CLAUSE C1.2)

The building has a rise in storeys of four (4).

Note: this is based upon the location of the roller shutter being provided at the base of the driveway entry on the basement storey. This interpretation will need to be accepted by the Certifier for the project at the CC stage.

3.2 CLASSIFICATION (CLAUSE A6.0)

The building has been classified as follows.

Table 1: Building Classification

Class	Level	Description
Class 2	Ground Floor – Level 3	Residential Sole Occupancy Units
Class 7a	Basement	Carparking

3.3 EFFECTIVE HEIGHT (CLAUSE A1.0)

The building has an *effective height* of 10.05m (RL162.500 – RL152.450 = 10.05m)

3.4 TYPE OF CONSTRUCTION REQUIRED (TABLE C1.1)

The building is required to be of Type A Construction.

3.5 FLOOR AREA AND VOLUME LIMITATIONS (TABLE C2.2)

The building is subject to maximum floor area and volume limits of:-

Class 7a	The carpark is to be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5) and as such there are no maximum floor area or volume limitations for this area.
Class 2	The Class 2 portions of the building are not subject to floor area and volume limitations of C2.2 as Table 3 of Specifications C1.1 and Clause C3.11 of the BCA regulates the compartmentation and separation provisions applicable to buildings, or building portions, of Class 2 classifications.

3.6 FIRE COMPARTMENTS

The following *fire compartments* have been assumed:

1. The basement carpark will form its own fire compartment

2. The residential storeys will form their own fire compartment

3.7 EXITS

The following points in the building have been considered as the exits:

1. The first tread of each non-fire isolated stairway in the basement
2. The SOU entry doors

3.8 CLIMATE ZONE (CLAUSE A1.0)

The building is located within Climate Zone 5

3.9 LOCATION OF FIRE-SOURCE FEATURES

The fire source features for the subject development are:

North: The far boundary of Gladys Avenue | more than 6m

South: The side boundary of the allotment | more than 3m

East: The side boundary of the allotment | more than 3m

West: The far boundary of Gladys Avenue | more than 6m

In accordance with Clause 2.1 of Specification C1.1, a part of a building element is exposed to a *fire-source feature* if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that–

a. has an FRL of not less than 30/–/–; and

b. is neither transparent nor translucent.

4.0 BCA Assessment

4.1 INTRODUCTION

The assessment undertaken is in relation to the plans prepared for the development consent application. The technical details required for a development consent are far less than that required for a construction certificate and as such, this assessment is designed to address a higher level assessment of the building against the provisions of the BCA.

The main purpose of this report is to address any major design changes required to the building, services required to be installed, and the fundamentals of design required by sections C, D, E, F, G and H (where applicable) of the BCA. This report does not address the design requirements for the structure of the building (Section B), or for the detailed design of services (Section E).

The summary below is to be read in conjunction with the BCA specification contained in Annexure F of the report.

4.2 RELATIONSHIP TO THE DESIGN AND BUILDING PRACTITIONERS ACT

The Design and Building practitioners Act requires certain specified design to be certified by a Registered Practitioner and the issuing of a Design Compliance Declaration (DCD). The declared designs include:

+ Structure
+ Building Enclosure (eg Façade);
+ Fire Safety Systems (eg services, egress and FRL's)
+ Waterproofing
+ Fire Safety performance solutions

This report contains an assessment of the plans and specifications available, which are not sufficient in detail to allow any DCD to be issued by others. This report is not to be construed as, or used to support to a DCD at CC stage as it is based on development application drawings only.

4.3 FIRE RESISTANCE AND STABILITY – PART C1 & SPECIFICATION C1.1

The required fire resistance levels for the building elements are outlined in **Annexure C** of this report.

The external walls and all components of the wall, in a building of Type A construction, are required to be non-combustible. The plans do not indicate the materials of the external wall and further details will be required to be submitted at CC stage for assessment, however compliance is readily achievable by a number of common wall types.

All new linings, materials and assemblies are required to be provided with the required fire hazard properties in accordance with BCA Clause C1.10 and Specification C1.10. Details will be required at CC stage to confirm compliance.

All newly constructed ancillary attachments (i.e privacy screens etc) shall be constructed of non-combustible materials, further details will be required at CC stage to confirm compliance with Clause C1.14.

Subject to the required FRL's being provided, the proposed building is capable of complying with the requirements of the BCA with respect to fire resistance.

4.4 COMPARTMENTATION AND SEPARATION – PART C2

Under the provisions of clause C2.2 of the BCA, the residential portion of the building is not the subject to any floor area and volume limitations.

The carpark is required to have a sprinkler system, therefore the carpark is not the subject of floor area and volume limitations under the provision of clause C2.2 of the BCA.

Clause C2.6 of the BCA requires suitable vertical and/or horizontal spandrel separation between the openings in the external walls on different storeys. The proposal is for townhouses and therefore internal floors are not required to have an FRL to require spandrels within the same SOU. Furthermore, the openings located within adjacent SOUs are located more than 450mm and will therefore not required vertical separation.

If the switchboard in the basement is required service emergency equipment required to operate in an emergency, the switch room is to have an FRL of 120/120/120. The design of the switch room is such that compliance can be readily achieved.

The internal lifts within the SOU are connecting more than two storeys and will be required to maintain an FRL in accordance with Clause C2.10 of the BCA. It would be considered that these are located internally and may allow for a Fire Engineering Report to rationalise the fire rating being required throughout the residential portion of the lift shaft.

Compliance with Part C2 of the BCA can be readily achieved by the proposal.

4.5 PROTECTION OF OPENINGS – PART C3

5.5.1 Openings in external walls

The external walls are generally proposed to be more than 3m from the boundary and would not require protection in accordance with Clause C3.2. However, the carpark driveway wall is located within 3m to the boundary and will have an opening created due to the overhanging units above that is within proximity to the boundary.

Due to the lack of construction and this being an opening created by a slab overhang it is considered that no methods under Clause C3.4 would be applicable and this compliance is addressed via Fire Engineering.

5.5.2 Bounding Construction

The walls between the SOU's and between the SOU's and corridor are internal walls that require and FRL. As such, the doors to the sole occupancy units are required to be self-closing FRL --/60/30 fire doors in accordance with Clause C3.11 of the BCA.

However, it is noted that the lift shafts to several of the units will open directly into the unit being connected to the basement carpark and will not maintain the required separation in accordance with Clause C3.11 of the BCA. Lift landing doors are considered to only maintain a -/60/- in lieu of the required -/60/30; confirmation would need to be sought that suitable lift lading doors are provided as per C3.11 otherwise a Performance Solution would need to be sought.

5.5.3 Openings in Floors for Services and Service Installations

Where electrical, plumbing, mechanical or other services pass through an element of construction that is required to achieve a fire resistance level (FRL), the service installation shall not compromise the fire

resistance level of the element. A such, the service installation must be fire sealed with a compliant system such as fire collar on PVC pipes or fire rated mastic on electrical cables.

4.6 OCCUPANT ACCESS AND EGRESS – SECTION D

5.6.1 Egress from the building

Egress from the carpark is required in sufficient numbers and location to ensure that no point on the floor is more than 20m from an exit, or a point of choice of two exits, in which case the distance to one of those exits is not more than 40m, as required by Clause D1.4 of the BCA.

The distance between alternative exits is required by Clause D1.5 of the BCA to be no closer than 9m and no further apart than 60m when measured through the point of choice. The travel distances and distances between exits comply with the above requirements.

In the residential portion of the building, each of the SOUs are provided with direct access to open space via their own means. This would allow for suitable travel distances being maintained due to open space being provided throughout the entire podium.

The building has no more than 3 storeys connected by a stairway, and therefore under the provisions of Clause D1.3 of the BCA, the basement is permitted to have non fire isolated stairways.

Where the egress discharges to open space on the property, a continuous pathway from the point of discharge to the street is required. The plans do indicate such a pathway and as such the provisions of Clause D1.10 of the BCA are readily satisfied.

Details of treads and risers, landings, thresholds, balustrades and handrails have not been provided however compliance is readily achievable. The design of these elements can be assessed at the CC stage. However, it is noted that the provision of a stairway platform lift to each of the external stairway would likely provide compliance issues with the handrail that would need to be addressed via a Performance Solution.

Electrical distribution cupboards are to be provided with smoke separation to satisfy the requirements of BCA D2.7. The doors are to be lined internally with fire grade plasterboard or metal backing sheets and smoke seals provided to all four sides, including drop down seals on the bottom. All penetrations from the enclosure are to be suitable sealed against smoke spread by sealing with fire mastic.

5.6.2 Access for people with disabilities

Clause D1.3 of the BCA requires access to the building as follows:

Class 2 Common Areas	**From a pedestrian entrance required to be accessible to at least 1 floor containing sole-occupancy units and to the entrance doorway of each sole-occupancy unit located on that level.** **To and within not less than 1 of each type of room or space for use in common by the residents, including a cooking facility, sauna, gymnasium, swimming pool, common laundry, games room, individual shop, eating area, or the like.**

	It is noted that access had been provided to the front door of each SOU on the Ground Floor due to suitable pathways and lifts being provided. The entry to the SOUs are considered to be the gates leading into the yards of the SOU. However, it is noted that access to the western bin room will not be provided due to a lack of circulation being maintained around the entry doorway. This will need to be modified to maintain a 1670mm clearance at the door in accordance with AS1428.1-2009 to comply. Furthermore, the southern corner of the podium is not provided with a direct line of sight along the accessway and will therefore need to be provided with a passing bay of 1800mm x 2000mm. It is recommended that this is provided to the corner near Townhouse 10 to allow for line of sight. Additionally, the accessway along the southern boundary is more than 20m in length and will need to have a 1540mm x 2070mm turning space located centrally to comply with Clause D3.3. Details of handrails and TGSI compliance may be addressed at the CC stage.
Class 7a	**To and within any level containing accessible carparking spaces.** It is noted that there are no accessible parking spaces provided within the building and therefore is no requirement to have access maintained throughout the basement.

4.7 SERVICES AND EQUIPMENT- PARTS E1, E2 AND E4

The building is required to be provided with the services and equipment set out in Annexure B of this report. The annexure also outlines the standard of performance to be achieved by the services and equipment.

4.8 LIFT INSTALLATIONS – PART E3

The lifts do not require a stretcher facility as the building is under 12m in effective height and the dimensions of the shaft are sufficient to allow compliance. The lifts are not located within an accessible common use area of the building and therefore Clause E3.6 requirements would not be applicable.

Within the podium there are several stairways which are proposed to be offset via the use of a platform lift. In accordance with Clause E3.6 of the BCA a stairway platform lift may not be used where another form of lift may be provided, based upon the nature of the building and new construction it would be considered that the use of these lifts would be non-complaint. The use of these lifts would need to be accepted by the Certifier.

4.9 FACILITIES IN RESIDENTIAL BUILDINGS – PART F2

Clause F2.1 of the BCA requires the following facilities within a Class 2 building:

- Kitchen sink;
- Bath or shower;
- Closet pan;
- Washbasin
- Laundry facilities

The plans indicate that each of these facilities are provided within each sole occupancy unit and therefore compliance is achieved with Clause F2.1 of the BCA.

4.10 ROOM HEIGHTS – PART F3

The ceiling heights have been assessed in accordance with Part F3 of the BCA which has indicated that compliance is readily achievable within all habitable spaces, corridors and the like.

It is noted that several garages are provided with storerooms that are accessed underneath the stairways serving the unit. Confirmation will be required to the clear height being maintained under these stairways to ensure that compliance clearance is maintained in accordance with this Clause.

4.11 LIGHT AND VENTILATION – PART F4

Natural light and ventilation are required to all habitable rooms within a class 2 building. The plans have been assessed which reveals all habitable spaces are services by windows or glazed doors. The area of the doors and windows are sufficient in size to provide the required minimum natural light and ventilation to all habitable rooms.

The carpark is required to be provided with a system of mechanical ventilation where required by clause F4.11 of the BCA.

4.12 SOUND TRANSMISSION AND INSULATION – PART F5

Lifts are found to connect the basement directly into the SOUs via lift landing doors which would not be considered to maintain the required insulation in accordance with this Part of the BCA. In-situ testing will need to be undertaken in accordance with the Verification Method otherwise a Performance Solution is required to be sought.

4.13 COUNCIL'S DEVELOPMENT CONTROL PLAN REQUIREMENTS (DCP)

Warringah DCP 2011 provides Council's planning controls on the provision of Accessibility / Adaptability under Part D of that Plan.

The Controls for Accessibility under Clause 11 of Part D of Warringah DCP 2011 are as follows:

Copy in table below the Council DCP any accessibility requirements

Table 2: Controls for Accessibility

Item No	Control	Comment	Compliance
1	The design is to achieve a barrier free environment with consideration given to the design of door handles and switches, entrances and corridors. Steep, rough and slippery surfaces, steps and stairs and narrow paths should be avoided.	The development will be considered to be barrier free with suitable access being maintained throughout the building and podium as required by the BCA and AS1428.1-2009.	CRA – Refer to Annexure F
2	There are to be continuous, independent and barrier-free access ways incorporated into the design of buildings.	The development will be considered to be barrier free with suitable access being maintained throughout the building and podium as required by the BCA and AS1428.1-2009.	CRA – Refer to Annexure F
3	Pathways are to be reasonably level with minimal cross fall and sufficient width, comfortable seating and slip-resistant floor surfaces	Throughout the ground floor podium, it is found that a combination of ramps and walkways are used to navigate the change in levels. These pathways shall be provided with suitable slip-resistant floor surfaces. No seating is detailed as being provided.	CRA – Refer to Annexure F
4	Where there is a change of level from the footpath to commercial or industrial floor levels, ramps rather than steps should be incorporated.	Throughout the ground floor podium, it is found that a combination of ramps and walkways are used to navigate the change in levels but where steps are required these are provided with a lift to accommodate access as required.	CRA – Refer to Annexure F
5	There is to be effective signage and sufficient illumination for people with a disability.	Suitable signage and illumination may be provided	CRA – Refer to Annexure F

6	Tactile ground surface indicators for the orientation of people with visual impairments are to be provided in accordance with the relevant Australian Standard.	TGSIs are a requirement under the BCA and will be applied throughout the development. They are generally detailed on the plans with future detailing at CC stage to ensure compliance.	CRA – Refer to Annexure F
7	Access for people with a disability is to be provided at the main entrance to the development.	Accessible entry points have been provided at both site entrances	Complies
8	Development is to comply with Australian Standard AS1428.2.	This is above the requirements of the BCA however it is considered that accessways throughout the development would be 1200mm as required by this standard.	Noted
9	Where a development comprises at least five (5) dwellings, 10% (rounded up to next whole number) of dwellings shall be capable of being adapted (Class C) under AS4299	Due to less than 30 townhouses being provided it is noted that 3 units are detailed as being adaptable. These include 9, 10 and 22. When reviewing the post adaptation plans proposed, it is considered that compliance would be readily available with the pre and post adaptation in accordance with AS4299. Details will need to be provided of the kitchen layout at CC to ensure that 800mm bench space is provided adjacent to the kitchen appliances as required. Each of the adaptable units have been provided with a 3800mm x 6000mm parking space as required.	CRA – Refer to Annexure F

5.0 Statement of Compliance

The plans assessed were developed to a standard suitable for submission as a development application and do not contain all the details necessary to allow a CC to be issued. As such, this assessment was limited to the major items of the BCA with the view of identifying any items that may result in a modified development consent being required, or additional key items that need to be included in the design.

The architectural design documentation as referred to in report has been assessed against the applicable provisions of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying with that Code, subject to the following items being addressed:

1. Confirm the compliance of the internal lift shafts with regards to fire compartmentation and acoustics. Consideration is required to be given to Clauses C2.10, C3.10, C3.11 and F5.5.
2. Modification of the access door to the western bin room to ensure compliant door circulation in accordance with AS1428.1-2009.
3. Modify the podium walkways as required to ensure that suitable turning spaces are provided at 20m intervals and a suitable passing space is provided where a line of sight is not maintained as required by Clause D3.3 and AS1428.1-2009.
4. Confirm that suitable ceiling heights will be maintained within the garages to allow for access to the storerooms in accordance with Clause F3.1 of the BCA.
5. Provide further details of the kitchen layouts in the adaptable units at CC stage to ensure suitable benching is provided at the CC stage. Sufficient space is made available on the plans; however, the detailing must be updated to ensure compliance.

Furthermore, the following Performance Solutions will be required to be prepared at the CC stage.

Required Performance Solutions at CC Stage	
Performance Solution	**BCA DtS Clause**
The construction of external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements.	No DtS Provisions for F1.0
Rationalise the protection being required to the openings in the driveway external wall due to the SOU overhang on the level above.	Clause C3.2

Annexures

Annexure A: Design Documentation

This report has been based on the following design documentation.

Table 4: Architectural Plans

Architectural Plans Prepared by Walsh Architects			
Drawing Number	**Revision**	**Date**	**Title**
DA070	6	14.02.23	PROPOSED SITE PLAN
DA100	7	14.02.23	BASEMENT PLAN
DA101	7	14.02.23	GROUND FLOOR PLAN
DA102	7	14.02.23	LEVEL 1 PLAN
DA103	7	14.02.23	LEVEL 2 PLAN
DA104	6	14.02.23	ROOF PLAN
DA200	3	14.02.23	SECTIONS - SHEET 1
DA201	3	14.02.23	SECTIONS - SHEET 2
DA202	3	14.02.23	SECTIONS - SHEET 3
DA203	3	14.02.23	SECTIONS - SHEET 4
DA300	3	14.02.23	ELEVATIONS - SHEET 1
DA301	2	14.02.23	ELEVATIONS - SHEET 2
DA302	3	14.02.23	ELEVATIONS - SHEET 3
DA303	2	14.02.23	ELEVATIONS - SHEET 4
DA801	2	14.02.23	ADAPTABLE TYPE 1
DA802	2	14.02.23	ADAPTABLE TYPE 2

Annexure B: Essential Services

The following fire safety measures are required to be installed in the building. The following table may be required to be updated as the design develops and options for compliance are confirmed.

Table 5: Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
6.	Fire doors	**BCA2019.1 C3.5** (Fire Doors in Fire Walls) **BCA2019.1 C2.13** (Electricity Supply Systems) Isolated Lift Shafts) AS1735.11- 1986 Spec C3.4 AS1905.1: 2015
7.	Fire seals protecting openings in fire resisting components of the building	**BCA2019.1 C3.15** (Openings for service installations) **BCA2019.1 C3.16** (Construction joints) **BCA2019.1 Spec C3.15** AS1530.4:2014 & AS4072.1-2005
8.	Lightweight construction	**BCA2019.1 C1.1, Spec. C1.1** **BCA2019.1 C1.8, Spec C1.8** AS1530.4:2014
General		
9.	Portable fire extinguishers	**BCA2019.1 E1.6** AS 2444–2001
10.	Operation of Door latches	**D2.21** (Operation of Latch)
11.	Swing of Exit Doors	**D2.20** (Swinging Doors)
12.	Warning & operational signs	**BCA2019.1 D3.6** (Braille Exit Signs) (Note: E4.5 (Exit Signs)) **BCA2019.1 E3.3** (Lift Signs)
Lifts		
13.	Access to Lift Pits + Located at lowest level or if >3m provided through an access door	**BCA2019.1 D1.17** (Access to Lift Pits) 'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'

Item	Essential Fire and Other Safety Measures	Standard of Performance
Electrical Services		
14.	Automatic fire detection & alarm: + Clause 3 – AS 3786:2014 Smoke Alarm systems powered from consumer mains to all residential SOU's, + Clause 4 – AS 1670.1:2018 system throughout the building/part connected to a BOWS @ 100dB(A)	**BCA2019.1 E2.2**, NSW Table E2.2a, **Spec E2.2a** - Clause 3 (Smoke alarm system) **Spec E2.2a** - Clause 4 (Smoke detection system) **Spec E2.2a** - Clause 7 (BOWS) AS 3786:2014 (Amdt 1-4) AS 1670.1:2018 (Fire) – Section 4 and 5 (Detectors)
15.	Emergency lighting	**BCA2019.1 E4.2, E4.4** AS/NZS 2293.1:2018
16.	Exit signs	**BCA2019.1 E4.5** (Exit Signs) **BCA2019.1 E4.6** (Direction Signs) **BCA2019.1 E4.8** (Design and Operation - Exits) AS/NZS 2293.1:2018
17.	System Monitoring	**BCA2019.1 E2.2 , Table E2.2a,Spec E2.2a** AS 1670.3:2018 Monitoring Required for any: + Any Sprinkler System
Hydraulic Services		
18.	Automatic fire suppression systems +	**BCA2019.1 E1.5** **BCA2019.1 E1.5a** *Standard of performance to be detailed*
19.	Fire hydrant systems + NSW Storz Couplings	**BCA2019.1 E1.3** **BCA2019.1 C2.12 (Separation of Equipment)** AS 2419.1:2005 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
20.	Hose reel systems	**BCA2019.1 E1.4** AS 2441:2005
Mechanical Services		
21.	1. Mechanical air handling systems 2. Mechanical ventilation to carpark.	**BCA2019.1 E2.2, Table E2.2a, Spec E2.2a, Spec E2.2b** AS 1668.1:2015 (Amdt 1) **Note: 5.5.3 Override control**

Item	Essential Fire and Other Safety Measures	Standard of Performance
		To enable manual control by attending emergency services personnel, fans that are not required to shut down on initiation of fire mode in the car park shall be provided with a control switch at the designated building entry point. **Note:** Signage should be located at the car park entry indicating the location of the control switches.
3.	**Future Fire Engineering Report (FER)**	

Annexure C – Fire Resistance Levels

The following fire resistance levels (FRL's) are required for the various building elements, with a fire source feature being the far boundary of a road adjoining the allotment, a side or rear boundary or an external wall of another building on the allotment except a Class 10 structure.

Type A Construction

Table 6: Type A Construction

Item	Class 2	Class 7a
Loadbearing External Walls (including columns and other building elements incorporated therein) + Less than 1.5m to a *fire-source feature* + 1.5 – less than 3m from a *fire-source feature* + 3m or more from a *fire source feature*	90/90/90 90/60/60 90/60/30	120/120/120 120/90/90 120/60/30
Non-Loadbearing External Walls + Less than 1.5m to a fire-source feature + 1.5 – less than 3m from a fire-source feature + 3m or more from a fire-source feature	-/90/90 -/60/60 -/-/-	-/120/120 -/90/90 -/-/-
External Columns + Loadbearing + Non-loadbearing	90/-/- -/-/-	120/-/- -/-/-
Common Walls & Fire Walls	90/90/90	120/120/120
Stair and Lift Shafts required to be fire-resisting + Loadbearing + Non-loadbearing	90/90/90 -/90/90	120/120/120 -/120/120
Internal walls bounding sole occupancy units + Loadbearing	90/90/90	120/-/-

Item	Class 2	Class 7a
+ Non-loadbearing	-/60/60	-/-/-
Internal walls bounding public corridors, public lobbies and the like: + Loadbearing + Non-loadbearing	90/90/90 -/60/60	120/-/- -/-/-
Ventilating, pipe, garbage and like shafts: + Loadbearing + Non-loadbearing	90/90/90 -/90/90	120/90/90 -/90/90
Other loadbearing internal walls, beams trusses and columns	90/-/-	120/-/-
Floors	90/90/90	120/120/120
Roofs[1]	90/60/30	120/60/30

[1] The roof need not comply with any FRL's due to the sprinkler protection of the entire building.

Annexure E: Definitions

Average specific extinction area

Average specific extinction area means the average specific extinction area for smoke as determined by AS 5637.1:2015.

Critical radiant flux

Critical radiant flux (CRF) means the critical heat flux at extinguishment (CHF in kW/m2) as determined by AS ISO 9239.1:2003.

Designated bushfire prone area

Designated bushfire prone area means land which has been designated under a power of legislation as being subject, or likely to be subject, to bushfires.

Effective height

Effective height means the vertical distance between the floor of the lowest storey included in a determination of rise in storeys and the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units).

Envelope

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

1. the exterior of the building; or
2. a non-conditioned space including—
    a. the floor of a rooftop plant room, lift-machine room or the like; and
    b. the floor above a carpark or warehouse; and
    c. the common wall with a carpark, warehouse or the like.

Exit

Exit means –

1. Any, or any combination of the following if they provide egress to a road or open space—
    a. An internal or external stairway.
    b. A ramp.
    c. A fire-isolated passageway.
    d. A doorway opening to a road or open space.
    e. A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

Fire compartment

Fire compartment means –

1. the total space of a building; or

2. when referred to in—

    a. the Performance Requirements — any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or

    b. the Deemed-to-Satisfy Provisions — any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the Deemed-to-Satisfy Provisions of the relevant Part.

Fire-resistance level (FRL)

Fire-resistance level (FRL) means the grading periods in minutes determined in accordance with Specification A2.3, for the following criteria—

1. structural adequacy; and
2. integrity; and
3. insulation,

and expressed in that order.

Note: A dash means that there is no requirement for that criterion. For example, 90/–/– means there is no requirement for an FRL for integrity and insulation, and –/–/– means there is no requirement for an FRL.

Fire-source feature

1. the far boundary of a road, river, lake or the like adjoining the allotment; or
2. a side or rear boundary of the allotment; or
3. an external wall of another building on the allotment which is not a Class 10 building

Fire wall

Fire wall means a wall with an appropriate resistance to the spread of fire that divides a storey or building into fire compartments.

Flammability index

Flammability Index means the index number as determined by AS 1530.2:1993.

Group number

Group number means the number of one of 4 groups of materials used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining, or attachment to a wall or ceiling.

Loadbearing

Intended to resist vertical forces additional to those due to its own weight.

Non-combustible

Non-combustible means—

1. applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and
2. applied to construction or part of a building — constructed wholly of materials that are not deemed combustible

Occupiable outdoor area

Occupiable outdoor area means a space on a roof, balcony or similar part of a building–

1. that is open to the sky; and
2. to which access is provided, other than access only for maintenance; and
3. that is not open space or directly connected with open space.

Open space

Open space means a space on the allotment, or a roof or similar part of a building adequately protected from fire, open to the sky and connected directly with a public road.

Performance Requirement

Performance Requirement means a requirement which states the level of performance which a Performance Solution or Deemed-to-Satisfy Solution must meet.

Performance Solution

Performance Solution means a method of complying with the Performance Requirements other than by a Deemed-to-Satisfy Solution.

Sarking-type material

Sarking-type material means a material such as a reflective insulation or other flexible membrane of a type normally used for a purpose such as waterproofing, vapour management or thermal reflectance.

Smoke developed index

Smoke developed index means the index number for smoke as determined by AS/NZS 1530.3.

Smoke development rate

Smoke development rate means the development rate for smoke as determined by testing flooring materials in accordance with AS ISO 9239.1.

Smoke growth rate index

Smoke growth rate index (SMOGRA RC) means the index number for smoke used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining or attachment to a wall or ceiling.

Sole-occupancy unit

Sole-occupancy unit means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes—

1. a dwelling; or
2. a room or suite of rooms in a Class 3 building which includes sleeping facilities; or
3. a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
4. a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident.

Annexure F – BCA Compliance Specification

The following BCA matters are to be addressed by specific BCA Design Certificate to be issued by the relevant architectural, services and engineering consultants at the Construction Certificate Stage. This schedule should be forwarded to all consultants to obtain verification that these items have and will be included in the design documentation / specifications:

Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with Table 3 of Specification C1.1 of BCA2019.1 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.1.
3. Building elements, including external walls and their components, must be non-combustible in accordance with C1.9 of BCA2019.1.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C1.10 and Specification C1.10 of BCA2019.1.
5. Any ancillary elements fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C1.14 of BCA2019.1.
6. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C2.8 and Specification C1.1 of BCA2019.1.
7. Floors separating storeys of different classifications will comply with BCA Clause C2.9 of BCA2019.1.
8. Any main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having an FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C2.13 of BCA2019.1.
9. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C3.2 of BCA2019.1 or protected in accordance with Clause C3.4 of BCA2019.1.
10. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C3.5 of BCA2019.1.
11. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.12, C3.13 and C3.15 and Specification C3.15 of BCA2019.1.
12. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in accordance with BCA Clause C3.16.
13. The lift doors will be --/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C3.10 of BCA2019.1.
14. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C3.11 of BCA2019.1.
15. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C3.17 of BCA2019.1.
16. A lintel will have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non- loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of

a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification C1.1 Clause 2.3 BCA2019.1.

17. Fire doors will comply with AS 1905.1:2015 and Specification C3.4 of BCA2019.1.
18. The number of exits provided to the building will be in accordance with Clause D1.2 of BCA2019.1.
19. The required exits will be fire-isolated in accordance with Clause D1.3 of BCA2019.1.
20. Travel distances to exits will be in accordance with Clause D1.4 of BCA2019.1.
21. The alternative exits will be distributed uniformly around the storey and will not be less than 9m apart, and not more than 60m, in accordance with Clause D1.5 of BCA2019.1.
22. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2019.1.
23. Discharge from exits will be in accordance with Clause D1.10 of BCA2019.1.
24. The ladder from the plant, lift machine rooms, and electricity network substation in lieu of a stairway will be in accordance with Clause D1.16 of BCA2019.1.
25. Access to the lift pit will be in accordance with Clause D1.17 of BCA2019.1.
26. The non-fire isolated stairs will be constructed in accordance with Clause D2.3 of BCA2019.1.
27. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D2.7 of BCA2019.1 with the enclosure bounded by non-combustible construction or fire protective covering and smoke seals provided around the perimeter of the non-combustible doors and any openings sealed with non-combustible mastic to prevent smoke spreading from the enclosure.
28. New pedestrian ramps will comply with AS 1428.1:2009, Clause D2.10 and Part D3 of BCA2019.1. The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
29. The roof of the building where the exit discharges will have an FRL of 120/120/120, and will not have roof lights or openings within 3m of the path of travel in accordance with Clause D2.12 of BCA2019.1.
30. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2019.1. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
31. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2019.1. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
32. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.1.
33. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.1.
34. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019.1
35. Signage will be provided on fire and smoke doors in accordance with Clause D2.23 of BCA2019.1.
36. The openable portion of a window in a bedroom will be protected with a restricting device or secure screen that does not allow a 125mm sphere to pass through the opening or screen and resist an outward horizontal action of 250N in accordance with Clause D2.24 of BCA2019.1. In addition to window

protection, and for other openable windows 4 meters or more above the ground below, a barrier with a height not less than 865mm above the floor will be installed to the openable window.

37. The new works will be accessible in accordance with Clause D3.1 and table D3.1, D3.2, D3.3 of BCA2019.1, and with AS 1428.1:2009, with particular note to door circulation spaces, accessway widths, turning spaces and floor coverings, in accordance with Part D3 of BCA2019.1.
38. Tactile ground surface indicators will be provided in accordance with Clause D3.8 of BCA2019.1 and AS/NZS 1428.4.1:2009.
39. The ramps associated with the accessway will not have a combined vertical rise of more than 3.6m and a landing for a step ramp will not overlap a landing for another step ramp of ramp in accordance with Clause D3.11 of BCA2019.1.
40. On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, will be clearly marked in accordance with AS 1428.1:2009 and Clause D3.12 of BCA2019.1.
41. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2019.1.
42. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019.1 and AS 4654 Parts 1 & 2:2012.
43. The new roof covering will be in accordance with Clause F1.5 of BCA2019.1.
44. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.1.
45. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2019.1 and AS 3740:2010.
46. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.1.
47. Floor wastes will be installed to bathrooms and laundries above sole occupancy units or public space in accordance with Clause F1.11 of BCA2019.1.
48. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019.1 and AS 1288:2006 / AS 2047:2014.
49. Sanitary facilities will be provided in the building in accordance with Clause F2.1 and Table F2.1 of BCA2019.1.
50. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.1.
51. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2019.1.
52. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2019.1.
53. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2019.1.
54. Pliable building membranes installed in external walls will comply with Clause F6.2 of BCA2019.1 and where a pliable building membrane is not installed in an external wall, the primary water control layer will be separated from water sensitive materials by a drained cavity.
55. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F4.11 of BCA2019.1.

56. A safe manner for cleaning of windows located 3 or more storeys above ground level will be provided in accordance with the Work Health & Safety Act 2011 and regulations made under that Act in accordance with NSW G1.101 of BCA2019.1.
57. The construction of the residential portions of the development will be undertaken in accordance with the relevant BASIX commitments that form part of the Development Consent approval.
58. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.
59. Building Fabric and Thermal Construction will be in accordance with Part J1 of BCA2019.1.
60. Glazing will be in accordance with Part J1 of BCA2019.1.
61. Building sealing will be in accordance with Part J3 of BCA2019.1.
62. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2019.1.

Electrical Services Design Certification:

63. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2019.1.
64. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019.1 and AS/NZS 2293.1:2018.
65. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2019.1 and AS/NZS 2293.1:2018.
66. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019.1 and AS/NZS 1680.0:2009.
67. Lighting power and controls will be installed in accordance with Part J6 of BCA2019.1.
68. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C2.13 of BCA2019.1.

Hydraulic Services Design Certification:

69. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019.1 and AS/NZS 3500.3:2018
70. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019.1 and AS 2419.1:2005 as required.
71. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2019.1 and AS 2441:2005.
72. A sprinkler system will be installed in accordance with Clause E1.5 of BCA2019, Specification E1.5 and appropriate part(s) of AS 2118.
73. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019.1 and AS 2444:2001.
74. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J7.2 of BCA2019.1.

Mechanical Services Design Certification:

75. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2019.1, and AS 1668.1:2015.

76. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019.1 and AS 1668.2:2012.
77. Every storey of the car park will be ventilated in accordance with Clause F4.11 of BCA2019.1 and where not naturally ventilated it will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.
78. Exhaust systems installed in a kitchen, bathroom, sanitary compartment or laundry of a Class 2 or 4 sole-occupancy unit will have a minimum flow rate and discharge location in accordance with Clause F6.3 of BCA2019.1.
79. Where exhaust discharges directly or via shaft into a roof space of a Class 2 or 4 sole-occupancy unit, ventilation of the roof space will comply with Clause F6.4 of BCA2019.1.
80. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2019.1
81. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

82. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2019.1 as follows:
    a. Dead and Live Loads – AS/NZS 1170.1:2002
    b. Wind Loads – AS/NZS 1170.2:2011
    c. Earthquake actions – AS 1170.4:2007
    d. Masonry – AS 3700:2018
    e. Concrete Construction – AS 3600:2018
    f. Steel Construction AS 4100:1998
    g. Aluminium Construction – AS/NZS 1664.1 or 2:1997
    h. Timber Construction – AS 1720.1:2010
    i. ABCB Standard for Construction of Buildings in Flood Hazard Areas.
83. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification C1.1 of BCA2019.1, including Table 3 for a building of Type A Construction.
84. The lift shaft will have an FRL in accordance with Clause C2.10 and Specification C1.1 of BCA2019.1.
85. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.1.
86. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2019.1 to reinstate the FRL of the element concerned.

Lift Services Design Certification:

87. Warning signage in accordance with Clause E3.3 of BCA2019.1 will be provided to the lifts to advise not to use the lifts in a fire.
88. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D3 of the BCA2019.1 and will be suitable to accommodate disabled persons.

89. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3.6, Table E3.6a, and will have accessible features in accordance with Table E3.6b of BCA2019.1.

90. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3.6 of BCA2019.1.

91. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification E3.1 of BCA2019.1.

Acoustic Services Design Certification:

92. The sound transmission and insulation of the residential portions of the development will comply with Part F5 of BCA2019.1.

Adaptable Housing Units

93. All ground surfaces will be slip resistant to comply with HB197/AS4856.

94. Letterboxes will be on a hard stand area connected to an accessible pathway in accordance with Clause 3.8 of AS4299.

95. The unit entry doors to the adaptable units will comply with the circulation spaces required under AS1428.2 in accordance with Clause 4.3.1 of AS4299.

96. Door hardware will be compliant with AS1428.1-2009 and all external doors will be keyed alike in accordance with Clause 4.3.4 of AS4299.

97. Internal door openings within the adaptable units will have a clear opening of 820mm with door circulation spaces complying with AS1428.1 in accordance with Clauses 4.3.3 and 4.3.7 respectively of AS4299.

98. A telephone outlet will be provided adjacent to GPO in living/dining area in accordance with Clause 4.7.4 of AS4299.

99. The kitchen cabinet design will allow for the removal of the cabinets under the sink and adjacent work surface in accordance with Clause 4.5.6 of AS4299.

100. Cook tops to be provisioned with isolating switches or gas stop valves that can be easily and safely operated with the cook top is in use in accordance with Clause 4.5.7 of AS4299.

101. GPO's will comply with AS 1428.1 with at least one double GPO provided within 300mm of front of work surface and a GPO for refrigerator will be easily reachable when the refrigerator is in its operating position in accordance with Clause 4.5.11 of AS4299.

102. The adaptable bathroom will be provisioned for the fit-out to comply with AS1428.1 in accordance with 4.4.1 of AS4299.

103. The shower of the adaptable bathroom will be hob-less in accordance with Clause 4.4.4(f) of AS4299.

104. The bathrooms will be waterproofed to comply with AS3740.

105. The soap holder will be recessed in accordance with Clause 4.4.4(f) of AS4299.

106. Shower heads and taps will be located at a height and clearance compliant with AS1428.1 in accordance with Clause 4.4.4(f) of AS4299.

107. Provision for the installation of all grabrails, shower hardware, and folding seat will be provided in the adaptable bathroom in accordance with Clause 4.4.4(h) of AS4299.

108. Provision for the installation of a washbasin with clearances as required by AS1428.1 will be provided in accordance with Clause 4.4.4(g) of AS4299.

109. A double GPO will be provided beside the mirror in the adaptable bathroom in accordance with Clause 4.4.4(d) of AS4299.
110. Provision for the toilet to comply with AS1428.1, will be provided, including locating the pan in the correct position, and the provision for the installation of all grabrails in accordance with Clauses 4.4.1, 4.4.3 and 4.4.4(h) of AS4299.
111. Where a clothes line is provided and accessible path of travel will be provided to this in accordance with Clause 4.8(a) of AS4299.
112. A double GPO will be provided in the laundry, as will a shelf at a height of 1200mm maximum in accordance with Clause 4.8 of AS4299.
113. Lighting will be provided to the adaptable units in accordance with Clause 4.10 of AS4299