



DDEG

Fire Safety | Acoustics | Access | Building Solutions

9 Marvell Street, Byron Bay

Fire Engineering Preliminary Report

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Fire Engineering Preliminary Report

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Revision History

Doc.	Rev.	Date	Purpose	Prepared by:	Reviewed by:
PR	0	17/08/2022	Stakeholder Review	Bryan Lee	Oliver Hare
PR	1	08/11/2022	Stakeholder Review	Bryan Lee	Oliver Hare

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1 Introduction & Background

Cobild has appointed DDEG to undertake a preliminary fire engineering review for the proposed apartment and retail building at 9 Marvell Street, Byron Bay.

The purpose of this preliminary fire engineering report is to provide indication on the anticipated fire safety requirements for the proposed development in order to assist in the early documentation phase of the project.

1.1 Relevant Fire Engineering Guidelines

In accordance with the IFEG, the following stages will be completed in the development and acceptance of the fire safety design:

- Preliminary Fire Engineering Report – This Preliminary Fire Engineering Report will outline the benefits and issues associated with the proposed design, and outline concept strategies that are to be further developed in the subsequent stages (FEB & FER) to address the fire safety issues identified.
- Fire Engineering Brief (FEB) – The FEB will be prepared after the Preliminary Report and is required to include a trial design, the framework for evaluation and acceptance criteria for proposed Performance Solutions. Approval by stakeholders indicates acceptance of proposed trial designs, calculation methods, assumptions, and acceptance criteria for use in the FER. Where the development is subject to a Fire Rescue New South Wales (FRNSW) referral under Clause 144 of Environmental Planning and Assessment Regulation 2000), the FEB is required to be submitted to FRNSW.
- Fire Engineering Report (FER) – A detailed FER will be prepared after the FEB is approved. The FER contains all relevant information from the FEB as well as final calculations, justification and evaluations to demonstrate that proposed Performance Solutions satisfy the agreed acceptance criteria and therefore comply with the Performance Requirements of the BCA.

1.2 Relevant Legislation

The primary legislation applicable to the development is the New South Wales Environmental Planning and Assessment Regulation (EP&A) 2021. The applicable version of the BCA for this development will be the Building Code of Australia 2022 (BCA) Volume One (ABCB, 2022).

The BCA provides a set of Performance Requirements which must be complied with. The prescriptive deemed-to-satisfy (DTS) Provisions are also described in the BCA. A design that complies with the DTS Provisions is deemed to comply with the Performance Requirements. A Performance Solution is a design that does not comply with the DTS Provisions however is shown to comply with the Performance Requirements by way of an evaluation.

1.3 Reference Documentation

This high-level review has considered the following background information:

Table 1 Reference Documentation

Document	Prepared by	Issue
Architectural Drawings 9 Marvell Street, Byron Bay Project No: HGA344 Drawing/Sheet No: DA.05 <i>Updated Ground Floor Plan</i>	Harley Graham Architects	8/10/2022
Architectural Drawings 9 Marvell Street, Byron Bay Project No: HGA344 Drawing/Sheet No: DA.03-DA.07 <i>Floor Plans</i>	Harley Graham Architects	1/08/2022
Preliminary Design Review <i>Building characteristics, noncompliances identified, compliance markup provided</i>	Mackie Construction Consultants	15/07/2022

1.4 Report Limitations

It is important to note the following key limitations of this report:

- This report is not a formal fire safety engineering report for the support of the building under the NSW Environmental Planning and Assessment (EP&A) Regulation and / or National Construction Code – Building Code of Australia.
- This report is not a full compliance review of the building or conformance audit for any fire safety systems.
- This report is based on information provided by others and we have not verified the accuracy and/or completeness of this information.
- The proposed fire safety strategy has been prepared on the basis that fire brigade consent may be required under EP&A Regulation. Following fire brigade consultation (at FEB stage), additional fire safety requirements may be applicable based on feedback received.

2 Building Characteristics

The project comprises a proposed apartment with Basement level parking, retail tenancies at Ground Floor and a rooftop pool area.

Table 2 Building Parameters

BCA Parameter	
Occupancy	Apartments, Retail, Carpark
BCA Classification	Class 2, Class 6, Class 7a
Rise in Storeys	4
Number of Storeys Contained	4
Effective Height	11.05m
Type of Construction	Type A

The building is shown in Table 5.

3 Fire Engineering Preliminary Design Criteria

3.1 Primary Design Considerations

Based on our high-level fire engineering review, the following non-compliances with the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) have been identified as potentially benefiting from a fire engineering evaluation.

Table 3 Proposed Performance Solutions and Reference Criteria

Proposed Performance Solution	Building Code of Australia		AFEG Subsystem
	DTS Provision	Performance Requirement	
To provide technical justification for a reduction in fire ratings for the retail tenancies and café from 3 hours to 1.5 – 2 hours.	S5C11	C1P1, C1P2	C & F
To provide technical justification for the use of minor combustible components in nonloadbearing internal walls required to be fire resisting and fire resisting external walls for the purposes of mounting joinery, securing services, back blocking, etc. (eg timber strong backs, service pipes, window trimmers, etc).	C2D10, C2D2 / S5C11	C1P2	C
To provide technical justification for vertically aligned openings in external walls without compliant spandrel or horizontal projection separations.	C3D7	C1P2	C

Proposed Performance Solution	Building Code of Australia		AFEG Subsystem
	DTS Provision	Performance Requirement	
To provide technical justification for unprotected openings in external walls within 3m of a fire source feature being the property boundary. Openings in the plane formed at construction edge of the building at Ground Floor Level.	C4D2(3), C4D3	C1P2	C
To provide technical justification for unprotected openings in external walls within 3m of a fire source feature being the property boundary. Unprotected openings at First and Second Floor Level.	C4D3	C1P2	C
To provide technical justification for a single exit from basement level. Two exits are required under BCA DTS Provisions.	D2D3	D1P4	E, F
To provide technical justification for travel distances to be exceeded as follows: - Basement Level - greater than 20m to the single exit from the most remote point, - Rooftop deck - greater than 20m to the single exit from the most remote point	D2D5	D1P4, E2P2	A, B, D, E & F
To provide technical justification for the fire isolated stair to discharge internally in lieu of directly to a road or open space.	D2D12	D1P5	A, B, C, D, E & F
To provide technical justification for rising and descending stair flights connecting basement to levels above.	D3D5	D1P4	B, E
To provide technical justification for the pump room to be located within the building, in lieu of the location specified in AS2419.1.	E1D2	E1P3	F
To provide technical justification for the deletion of fire hose reel coverage to the Basement carpark smoke lobby.	E1D3	E1P1	D, E

The non-compliance with the Deemed-to-Satisfy Provisions of the BCA identified above can generally be addressed with a Fire Engineered Performance Based Solution. The proposed Performance Solution will be evaluated for compliance with the BCA Performance Requirements with the inclusion of the following required fire safety measures:

Table 4 Preliminary Specification of Required Fire Safety Measures

System	Performance Standard in addition to the BCA DTS Provisions
Automatic Fire Suppression	An Automatic Fire Sprinkler System will be provided throughout in accordance with BCA Clause E1D4 and FPAA101H with the following variations: ▪ The concessions detailed in Clause 3.1.2(a)(ii), (iv), (vi), (vii) and (viii), and 3.1.2(b) of FPAA101H will <u>not</u> be adopted. ▪ Sprinklers will be provided to all covered parts of the building (undercroft, balconies etc.). ▪ The Basement carpark will be provided with a fire sprinkler system in accordance with FPAA101H with fast response sprinkler heads throughout ($RTI \leq 50(m.s)^{1/2}$). ▪ Where openings are protected in accordance with BCA Clause C4D3 and Clause C4D5 using externally mounted wall wetting sprinklers, the exposure protection design requirements of AS2118.1 Clause 3.2 may be adopted.
Automatic Fire Detection and Alarm	Smoke alarms in accordance with AS3786 will be installed inside apartments in accordance with BCA DTS Provisions. A smoke / heat detector may be provided as appropriate in lieu of a sprinkler head at the top of the lift shaft. Horn-type speakers will be provided to the outdoor spaces at the top level.
Emergency lighting	Emergency lighting will be provided in accordance with the BCA DTS Provisions. Directional exit signs are to be provided to the undercroft areas at Ground Floor Level to direct occupants from the to the road or open space.
Exit signs	Exit signage will be provided in accordance with the BCA DTS Provisions.
Fire hose reel systems	Fire hose reels will be provided, where required, in accordance with BCA DTS Provisions with the following exceptions: ▪ Fire hose reels need not be provided within the smoke-proof lobby at Basement Level. Portable fire extinguishers will be provided in lieu.
Fire hydrant systems	Fire Hydrant(s) will be provided in accordance with BCA DTS Provisions with the following variations: ▪ The pump room may be accessed from within the building as indicated on referenced architectural drawings in lieu of direct access from a road or open space.
Portable fire extinguishers & fire blankets	Portable fire extinguishers will be provided in accordance with the BCA DTS Provisions. A portable 2.5kg Dry Chemical Powder type fire extinguisher with a minimum rating of 3A:40B:E will be provided in the following location: ▪ Within the Basement smoke-proof lobby.

System	Performance Standard in addition to the BCA DTS Provisions
Construction Requirements	Loadbearing elements, fire resisting walls and floors within the building which are required to be fire rated by BCA C1.1 S5C11 Tables S5C11a – S5C11g may have a reduced FRL as follows: ▪ Ground Floor (Class 6 Retail) – 180/90/90 in lieu of 180/180/180. All other elements within the building will be fire rated in accordance with the BCA DTS Provisions. External walls will be non-combustible and have a non-combustible façade covering with the following exceptions: ▪ Timber noggins may be located within the external walls with the following restrictions: - o The dimensions of the timber noggins must not exceed 90mm x 45mm (or equivalent surface area). - o Timber noggins may only be used in fire rated walls and must be completely concealed within the wall cavity (i.e. the timber noggins must be fully encapsulated within a fire rated wall). - o The timber noggins must not cross fire compartments, SOUs or storeys. - o The timber noggins are only permitted to be used for purposes of fixing joinery, plumbing fixtures and fittings and sanitary hardware cabinetry, and must not form an integral element of the overall framing system. Non-loadbearing fire resisting internal walls will be constructed of non-combustible construction with the following exceptions: ▪ Timber noggins may be located within the internal wall with the following restrictions: - o The dimensions of the timber noggins must not exceed 90mm x 45mm. - o Timber noggins may only be used in in fire rated walls and must be completely concealed within the wall cavity (i.e. the timber noggins must be fully encapsulated within a fire rated wall). - o The timber noggins must not cross fire compartments, SOUs or storeys. - o The timber noggins are only permitted to be used for purposes of fixing joinery, plumbing fixtures and fittings and sanitary hardware cabinetry, and must not form an integral element of the overall framing system. The framing structure for the vertical gardens will be constructed of metal fixed into the external wall. All elements of the vertical garden construction will be constructed in accordance with BCA Clause C2D14

	with the exception of the living plant material that will grow on the metal frame. The following additional requirements will also be met: ▪ The plants that are growing along the frame shall be planted in the ground and permanently irrigated with an appropriate automatic irrigation system. ▪ The vertical garden climbing frame structure and associated irrigation system is to be maintained and inspected monthly to ensure that plants are watered and kept in good health. ▪ Dried, dead plant material must be removed from the building immediately. ▪ These requirements are to be listed as an essential safety measure on the occupancy permit. ▪ Management in use procedures are also required to manage potential fire hazards within close proximity to the green wall. Vertically aligned openings in external walls at consecutive storeys need not be protected by fire rated spandrels in accordance with BCA Clause C3D7. Openings in external walls within 3m of adjacent property boundaries will be protected in accordance with Appendix A. A fire rated wall will be provided on the eastern property boundary to achieve a FRL of (60/60/60). The wall will be of concrete/masonry construction and extend from the finished floor level of the Ground Floor to the finished floor level of the First Floor or above. The Basement carpark will incorporate the following fire safety features: ▪ The Basement carpark will be provided with one exit. ▪ The Basement carpark will be fire separated (120/120/120) from the common exit stair and the covered/enclosed spaces above. The common exit stair door will be self-closing fire doors with an FRL of -/60/30 and will be provided with medium temperature smoke seals meeting the smoke leakage rates specified in AS6905 Pt. 2.4 parts (a) & (b). ▪ The main garage door will be interfaced with the sprinkler system and configured to open upon detection of fire. ▪ A smoke-proof lobby will be provided outside of the fire isolated exit stair. The door into the smoke-proof lobby will be a self-closing smoke door fitted with medium temperature smoke seals meeting the smoke leakage rates specified in AS6905 Pt. 2.4 parts (a) & (b). The smoke-proof lobby will be constructed in accordance with BCA Specification 11, however, it need not comply with the requirements of BCA S11C4. ▪ The carpark ventilation system must not penetrate into the smoke-proof lobby above or below the ceiling level. ▪ Exit signage will be provided in the fire isolated stair. Instructional signage of a permanent nature will be provided on the inside face of
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System	Performance Standard in addition to the BCA DTS Provisions
	the fire-isolated stair door at Ground Level stating “GROUND LEVEL. ACCESS TO STREET” and at Basement Level stating “BASEMENT LEVEL. ACCESS TO STREET VIA GROUND LEVEL ABOVE”. The lettering for this sign will be in capital letters not less than 20mm in height in a colour contrasting with the background; ▪ Vision panels will be provided on all stair and lobby doors at Basement Level and Ground Level. All vision panels are to be provided with an area of at least 0.1m² located at a height between 500mm to 1500mm above the floor. Vision panels in fire doors will be required to comply with AS1905.1. Glazed areas in smoke doors must be safety glass as defined in AS 1288; The fire isolated stair will discharge into the undercroft at Ground Floor Level. The degree of openness to the Ground Floor is to be maintained as indicated on the referenced architectural drawings. Light wells are not to be covered/enclosed (i.e. no shade coverings/awnings). Two paths of travel in opposite directions will be provided from within 1m of the fire isolated stair discharge door. A balustrade will be provided around the void to Basement Level located at Ground Floor Level. The balustrade will extend to a minimum of 1.5m above the finished surface of the adjacent walkway and be of solid, non-combustible construction. The walls bounding the loading bay, communal bin store, residential bin store and the fire pump room will be of construction that achieves at least a 120 minute FRL with respect to integrity and insulation criteria. The doors to the bin rooms are to be -/120/30 self-closing fire doors. The pump room will be separated from the remainder of the Ground Floor Level by construction that achieves at least a 120 minute FRL with respect to integrity and insulation criteria. The canopy/verandah above the BBQ area at the top level is to be constructed of non-combustible construction. Enclosed spaces at the top level are to be limited to the storeroom, the pool plant room and amenities compartment. Type 4 (direct DC) EV charging facilities are not permitted to be used in the Basement carpark or loading bay if combustible liquid coolant is used. Signage is to be provided at the Fire Indicator Panel (FIP) which states “BASEMENT CARPARK AND LOADING BAY INCORPORATES ELECTRIC VEHICLES AND CHARGING POINTS”. A floor plan is to be provided adjacent to FIP which clearly identifies the following:

System	Performance Standard in addition to the BCA DTS Provisions
	▪ The location of all electric vehicle charging points and car parking spots considered to be reserved for electric vehicles. ▪ The location of isolation points / breakers for the charging systems. Remote isolation switches or equivalent systems will be provided to isolate and switch off the power supply to the electric vehicle charging stations (inclusive of both cars and e-bikes) with the following key features: ▪ Controlled shutdown and power isolation of the electric vehicle charging stations (inclusive of both cars and e-bikes) shall be automatically initiated upon detection of fire within the carpark fire compartment and loading bay. ▪ Signage indicating the power isolation procedures and isolation locations for the system should be provided at the FIP and designated firefighter access points to the Basement Level carpark and loading bay. ▪ Isolation points/breakers should also be clearly identified. ▪ Visual signals indicating the status of the electric vehicle charging station systems (e.g. “EV Charging Station Live” or “EV Charging Station Isolated”) will be provided at the FIP and designated firefighter access points to the Basement Level carpark. ▪ The EV charging stations should not automatically start back up when the fire panel has been reset.
Management in Use	The following requirements will be listed as an Essential Safety Measure (ESM) on the building’s occupancy permit. A copy of this document is to be retained within the building for reference purposes. ▪ Electric vehicles (cars, e-bikes, etc.) that have damage to the battery packs are prohibited from being stored or parked inside the building at any time. Building owners and / or appointed building management is to ensure that appropriate policies, procedures and signage are in place to mitigate electric vehicle fire risks and prevent the storage of electric vehicles in the Basement Carpark or loading bay that have faulty battery or charging systems and / or are suspected to have been involved in an incident that may have damaged the vehicle’s battery or charging system.

Other than the abovementioned requirements and the specifically addressed deviations from the DTS provisions in this report, it is assumed that all other parts of the building’s passive and active fire safety system will be installed and maintained as required by the BCA DTS Provisions.

A mark-up of the non-compliances and their corresponding trial designs have been provided in Appendix B.

4 Conclusion

We trust that this Preliminary Report provides sufficient preliminary advice on construction requirements for the proposed development and for the client / design team to determine a suitable course of action towards the fire engineering documentation phase. If you have any questions, please call or email our office.

Appendix A BCA C4D3 – Protection of Openings

Openings in external walls within 3m of adjacent property boundaries will be protected in accordance with Table 5, and as shown in Table 5.

Table 5 Receiving Radiant Heat Flux – Protection Requirements

Orientation	Distance to Allotment Boundary	Received Radiant Heat Flux	Protection Required (Note 1)
Parallel	0m to <1m	$\leq 80\text{kW/m}^2$ $> 40\text{kW/m}^2$	Option 5, or BCA C4D5
	1m to <1.7m	$\leq 40\text{kW/m}^2$ $> 33\text{kW/m}^2$	Option 1, or Option 5, or Option 6, or BCA C4D5
	1.7m to <3m	$\leq 33\text{kW/m}^2$ $> 20\text{kW/m}^2$	Option 1, or Option 2, or Option 3, or Option 5, or Option 6, or BCA C4D5
	3m and above	$\leq 20\text{kW/m}^2$	None
Perpendicular	0m to <0.3m	$\leq 40\text{kW/m}^2$ $> 33\text{kW/m}^2$	Option 1, or Option 4, or Option 5, or Option 6, or BCA C4D5
	0.3m to <1.65m	$\leq 33\text{kW/m}^2$ $> 13\text{kW/m}^2$	Option 1, or Option 2, or Option 3, or Option 4, or Option 5, or Option 6, or BCA C4D5
	1.65m and above	$\leq 13\text{kW/m}^2$	None

Note 1: Refer Table 6 for Description of Methods of Protection ([Click Here](#))

Table 6 Methods of Protection Summary

Protection Option	Description	
	Windows	Doors
Option 1 – 6mm Toughened Glazing	- Seals to stiles, head and sills or thresholds to have a flammability index of not more than 5 or be of silicone. - Metal frames and hardware. - Windows are to be tagged and maintained as detailed below*. Fixed Glazing 6mm toughened glazing (provided to outside pane if double glazed). Openable Glazing 6mm toughened glazing and <u>automatic closing</u>*.	- Seals to stiles, head and sills or thresholds to have a flammability index of not more than 5 or be of silicone. - Metal frames and hardware. 6mm toughened glazing (provided to outside pane if double glazed). - For swing and sliding doors, <u>automatic closing</u>* / self-closing devices will be provided. - Doors are to be tagged and maintained as detailed below*.
Option 2 – 6mm Toughened Glazing (+ 40% Fire Attenuation Screen)	Same specification as <u>Option 1</u> above, except that operable glazing (windows and doors) may be used in lieu of <u>automatic closing</u>* or self-closing devices subject to the following requirements: - For windows, fitted with a fire attenuation screen in accordance with <u>Option 3</u> (fire attenuation of 40%). - For sliding doors, a separate self-closing, fire attenuation screen in accordance with <u>Option 3</u> (fire attenuation of 40%) will be provided. - Windows/screens are to be tagged and maintained as detailed below.	
Option 3 – Fire Attenuation	A fire attenuation screen must satisfy the following features: - Minimum 40% of heat flux attenuated. - Tested based on AS 1530.4 Appendix B7. - Examples of such screens include, but are not limited to: - Greene Fire MicroLouvre™ The selection and installation of attenuation screens must be in accordance with the respective manufacturers' requirements and further reflect a tested system. An attenuation screen is required to be fitted over the entire opening except when used in conjunction with <u>Option 1</u> listed above. - Screens are to be tagged and maintained as detailed below.	
Option 4 – Wing Walls	A wing wall must satisfy the following criteria: - A minimum FRL of 30/30/30. - A minimum length of 800mm. - Be non-transparent and non-translucent. - Extend the full height of the opening.	

Protection Option	Description
Option 5 – Automatic Closing Fire Shutter (-/60/-) on Sliding Doors	An <u>automatic closing</u>* fire shutter (-/60/-) may be installed to protect a sliding door. The selection and installation of the fire shutter must be in accordance with the respective manufacturers' requirements and further reflect a tested system. The functionality of the fire shutter must not be interfered by the door hardware. This option may not be adopted for doors in a required exit, forming part of a required exit, or in the path of travel to a required exit. The intent is that this protection option is only adopted for personal/private sliding doors, such as residential sliding balcony doors. Shutters are to be maintained as detailed below.
Option 6 – Non-Combustible Steel Louvres	Where protection is required for a ventilation opening, a steel louvre and a metal mesh or attenuation screen will be provided to cover the opening. The horizontal blades must overlap by a minimum of 10mm with a metal mesh affixed internally behind the blades. The mesh or perforated sheet will have the following requirements: ▪ The mesh or perforated sheet is to be made of corrosion-resistant steel or bronze. ▪ The maximum allowable aperture size of the mesh or perforated sheet shall be 2mm. ▪ The frame supporting the mesh or perforated sheet shall be metal. ▪ The mesh or perforated sheet assembly shall be attached using metal fixings. Alternatively the Attenuation Screens described in <u>Option 3</u> may be fixed internally in conjunction with the metal louvres to achieve the same outcome. Louvre protected openings are to be tagged and maintained as detailed below.
Option 7 – Maintained Clear Space	A vehicle entry to a carpark or similar arrangement where a permanent thoroughfare must be maintained will be an acceptable solution provided that the closest possible location of combustibles in the building is at least 3m away from property boundary. In cases where the clear space is not inherently required to be kept clear as part of the building use (e.g. warehouse roller doors), yellow painted floor marking will be provided and will include the words "KEEP CLEAR" in large legible letters. The line marking will be provided for a distance of at least 3m from the property boundary measured in a straight line from the outside of the building through the opening.
BCA C4D5	Doorways: ▪ <u>external</u> wall-wetting sprinklers used with doors that are self-closing or automatic closing; or ▪ -/60/30 fire doors that are self-closing or automatic closing. Windows

Protection Option	Description
	▪ <u>external</u> wall-wetting sprinklers used with windows that are automatic closing or permanently fixed in the closed position; or ▪ –/60/– fire windows that are automatic closing or permanently fixed in the closed position; or ▪ –/60/– automatic closing fire shutters. Other openings ▪ excluding voids — <u>external</u> wall-wetting sprinklers; or ▪ construction having an FRL not less than –/60/–. Conditions ▪ Fire doors, fire windows and fire shutters must comply with Specification 12. ▪ Internal wall-wetting sprinklers are not permitted as outlined in BCA C4D3.
Additional Requirements *	Detail
Automatic Closing	Where automatic closing is specified/required to openings in <u>external</u> walls, the following performance criteria must be adhered with: ▪ The automatic closing function must be activated by an appropriate fire or heat sensing device located on the external side of the opening. ▪ The device must be suitable for the environment and installed in accordance with the relevant manufacturer's specification. Examples of possible devices/arrangements are listed below (this list is not exhaustive): - o An external exposure sprinkler head activated closing mechanism. - o An external fusible link activated closing mechanism which activates at no more than 72°C. ▪ The automatic closing mechanism must not solely rely on the activation of smoke alarms/detectors or any internal fire detection systems.
Identification Tags	Each opening fitted with a Fire Engineered protection option will be provided with a metal fire safety tag. The Fire Safety Tag must: ▪ clearly and legibly labelled "FIRE PROTECTED OPENING – DO NOT REMOVE", and ▪ the required information shall be etched, embossed or stamped on the metal tags so that it is recessed or projected not less than 0.5 mm below or above the surface of the tag. Alphabetic characters shall be not less than 5 mm high; and ▪ be mechanically fixed in a conspicuous location on the inside face of the opening.

Protection Option	Description
Maintenance of Protection Options	Options 1, 2 and 3 will be maintained in accordance with AS1851-2012 Clause 12.4.6 as if they were Fire-Rated Glazing. Option 5 will be maintained in accordance with AS1851-2012 Clause 12.4.5 as if it were a Fire Shutter. Any automatic closing mechanism will be maintained in accordance with AS1851-2012 as appropriate.

Appendix B Annotated Drawings – Fire Safety Preliminary Mark-up Drawings

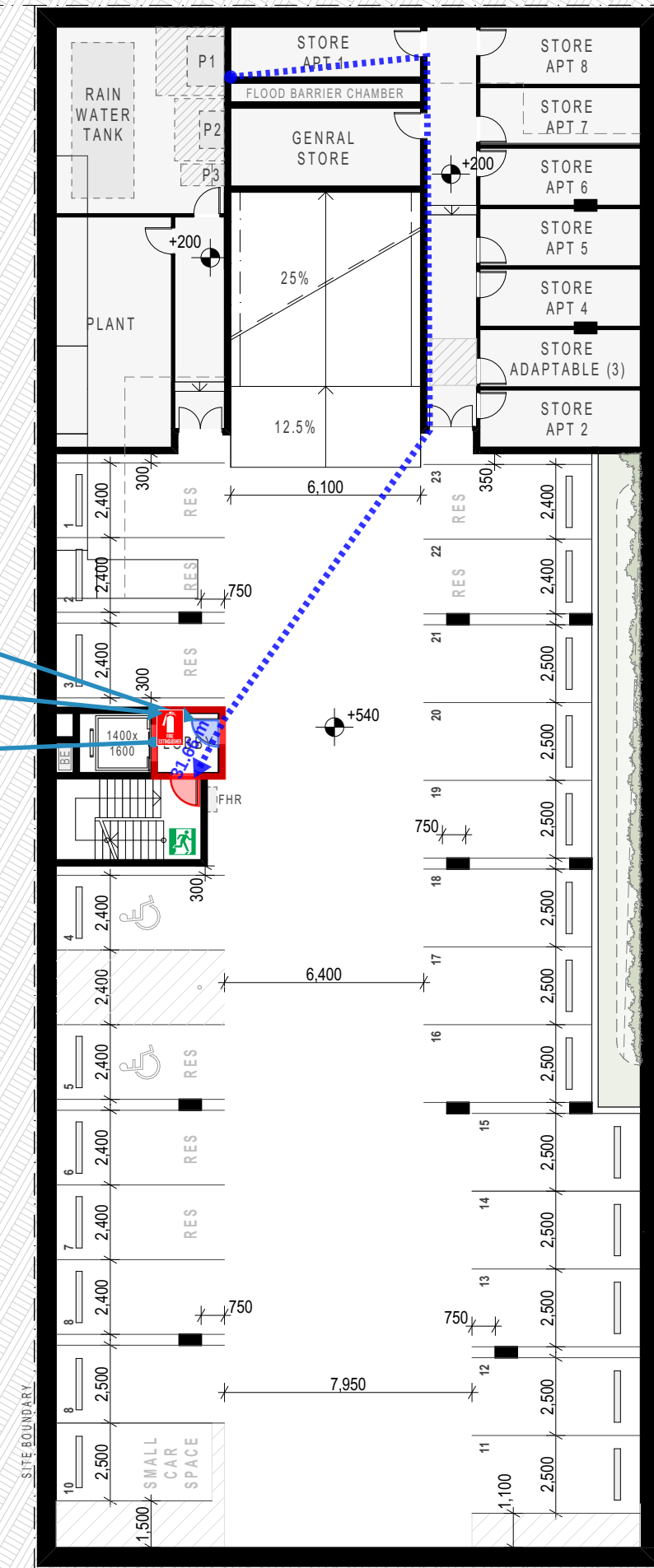
FLETCHER LANE

600 100

Door into the smoke-proof lobby will be a self-closing smoke door fitted with medium temperature smoke seals meeting the smoke leakage rates specified in AS6905 Pt. 2.4 parts (a) & (b).

Fire hose reels need not be provided within the smoke-proof lobby at Basement Level. A portable 2.5kg Dry Chemical Powder type fire extinguisher with a minimum rating of 3A:40B:E will be provided in lieu.

Smoke-proof lobby to be provided outside of the fire isolated exit stair



LEGEND

- Fire Rated Construction
- Smoke-Proof Construction
- Fire Rated and Smoke-Proof Construction
- Restricted Wall and Ceiling Linings (Group 1 and 2)
- Egress Path
- Extended Travel Distance to Point of Choice
- Extended Travel Distance to Single Exit / Nearest Exit
- Extended Distance Between Alternative Exits
- Extended Public Corridor Length
- Exit
- Additional Exit Signage
- Additional Directional Exit Signage
- Active Illuminated Worded Signage
- Active Illuminated Exit Signage
- Instructional Passive Signage
- Fire Hose Reel
- Additional Fire Extinguisher
- Protection of External Openings Within 3m of Property Boundary
Refer to Appendix A for a full specification of each option.

 Fire Safety Acoustics Access Building Solutions	Date: 07/11/2022	Scale: NTS
Project: 9 Marvell Street, Byron Bay	Drawn By: BL	Revision: PR-R0
Title: Fire Safety Engineering - Annotated Drawings	Drawing No.: 28522-SK01	
Note: These mark-ups do not contain all the BCA DTS requirements. They cover the proposed fire safety requirements to support the proposed Performance Solutions and shall be read in conjunction with the Fire Engineering Preliminary Report .		

LEGEND	
	Fire Rated Construction
	Smoke-Proof Construction
	Fire Rated and Smoke-Proof Construction
	Restricted Wall and Ceiling Linings (Group 1 and 2)
	Egress Path
	Extended Travel Distance to Point of Choice
	Extended Travel Distance to Single Exit / Nearest Exit
	Extended Distance Between Alternative Exits
	Extended Public Corridor Length
	Exit
	Additional Exit Signage
	Additional Directional Exit Signage
	Active Illuminated Worded Signage
	Active Illuminated Exit Signage
	Instructional Passive Signage
	Fire Hose Reel
	Additional Fire Extinguisher
	Protection of External Openings Within 3m of Property Boundary / 6m Far Side of the Road Refer to SK06 for a full specification of each option.

The walls bounding the loading bay, communal bin store, residential bin store and the fire pump room will be of construction that achieves at least a 120 minute FRL with respect to integrity and insulation criteria. The doors to the bin rooms are to be -/120/30 self-closing fire doors.

The pump room may be accessed from within the building as indicated on referenced architectural drawings in lieu of the location specified in AS2419.1.

Two paths of travel in opposite directions will be provided from within 1m of the fire isolated stair discharge door.

Retail units may adopt a reduced FRL of 180/90/90 in lieu of 90/90/90.

Retail units may adopt a reduced FRL of 180/90/90 in lieu of 90/90/90.

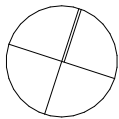
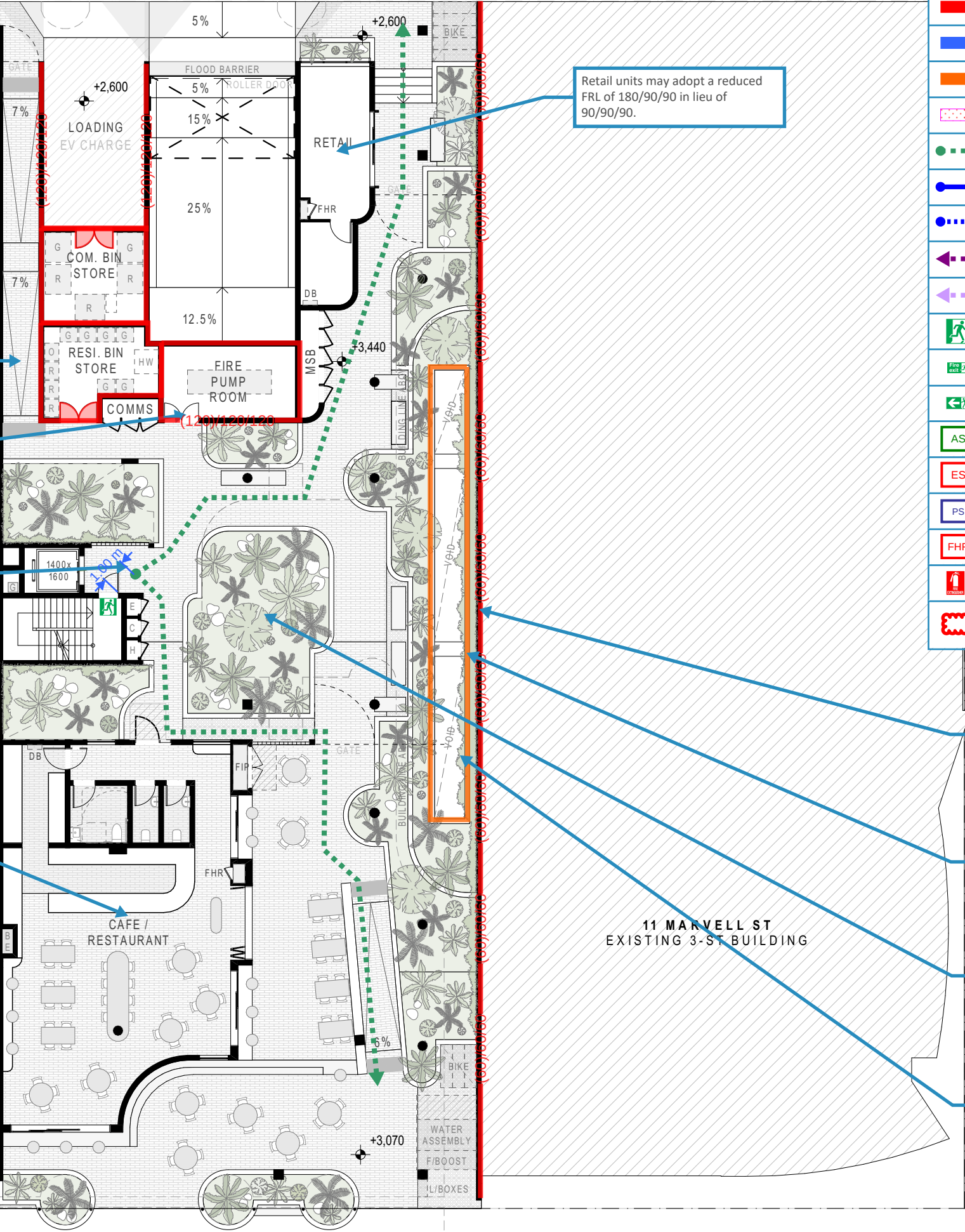
A fire rated wall will be provided on the eastern property boundary to achieve a FRL of (60/60/60). The wall will be of concrete/masonry construction and extend from the finished floor level of the Ground Floor to the finished floor level of the First Floor or above.

A balustrade will be provided around the void to Basement Level located at Ground Floor Level. The balustrade will extend to a minimum of 1.5m above the finished surface of the adjacent walkway and be of solid, non-combustible construction.

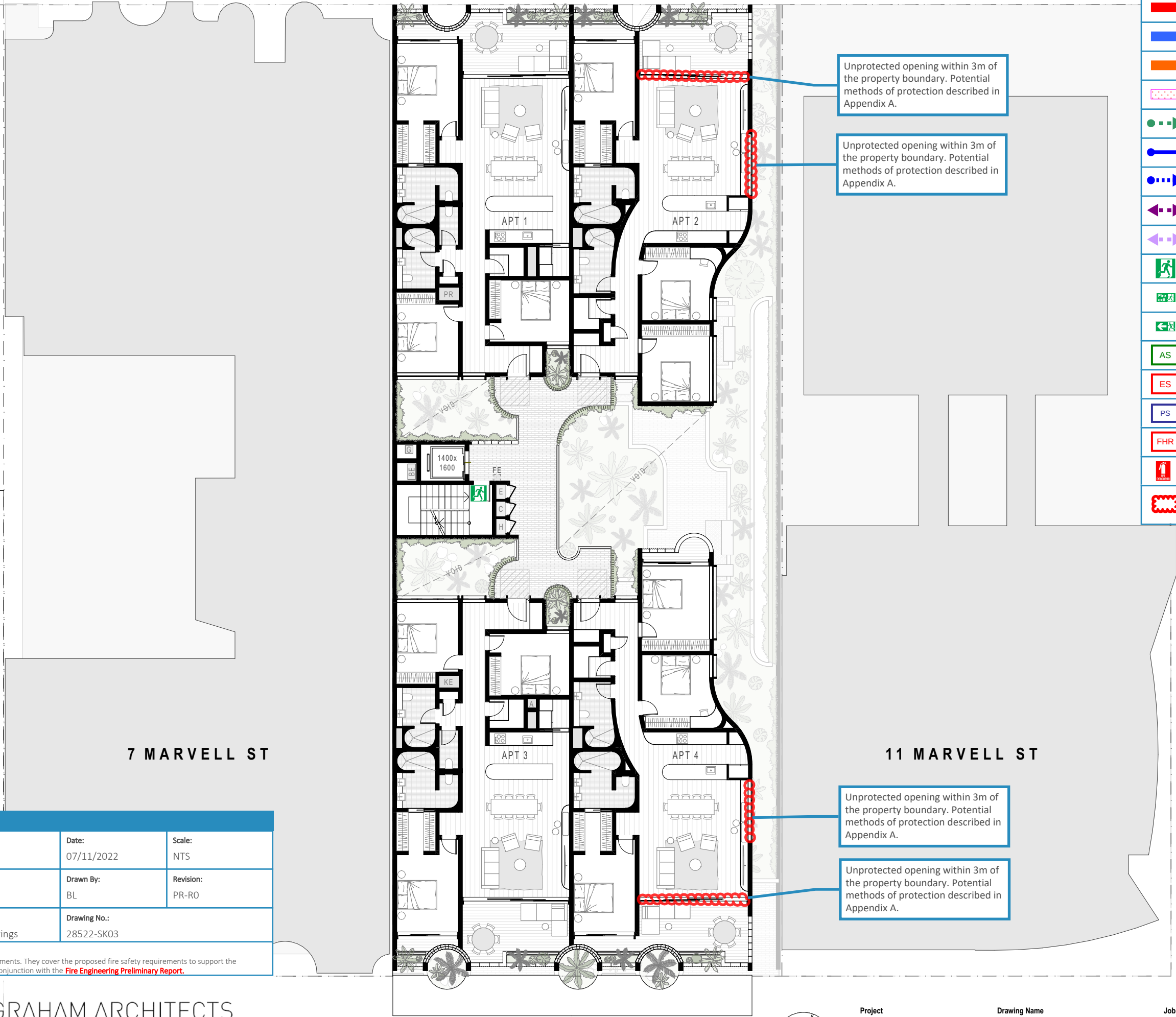
The degree of openness to the Ground Floor is to be maintained as indicated on the referenced architectural drawings. Light wells are not to be covered/enclosed (i.e. no shade coverings/awnings).

The framing structure for the vertical gardens will be constructed of metal fixed into the external wall. All elements of the vertical garden construction will be constructed in accordance with BCA Clause C2D14 with the exception of the living plant material that will grow on the metal frame.

	Date: 07/11/2022	Scale: NTS
Project: 9 Marvell Street, Byron Bay	Drawn By: BL	Revision: PR-R0
Title: Fire Safety Engineering - Annotated Drawings	Drawing No.: 28522-SK02	
Note: These mark-ups do not contain all the BCA DTS requirements. They cover the proposed fire safety requirements to support the proposed Performance Solutions and shall be read in conjunction with the Fire Engineering Preliminary Report .		

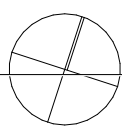


FLETCHER LANE

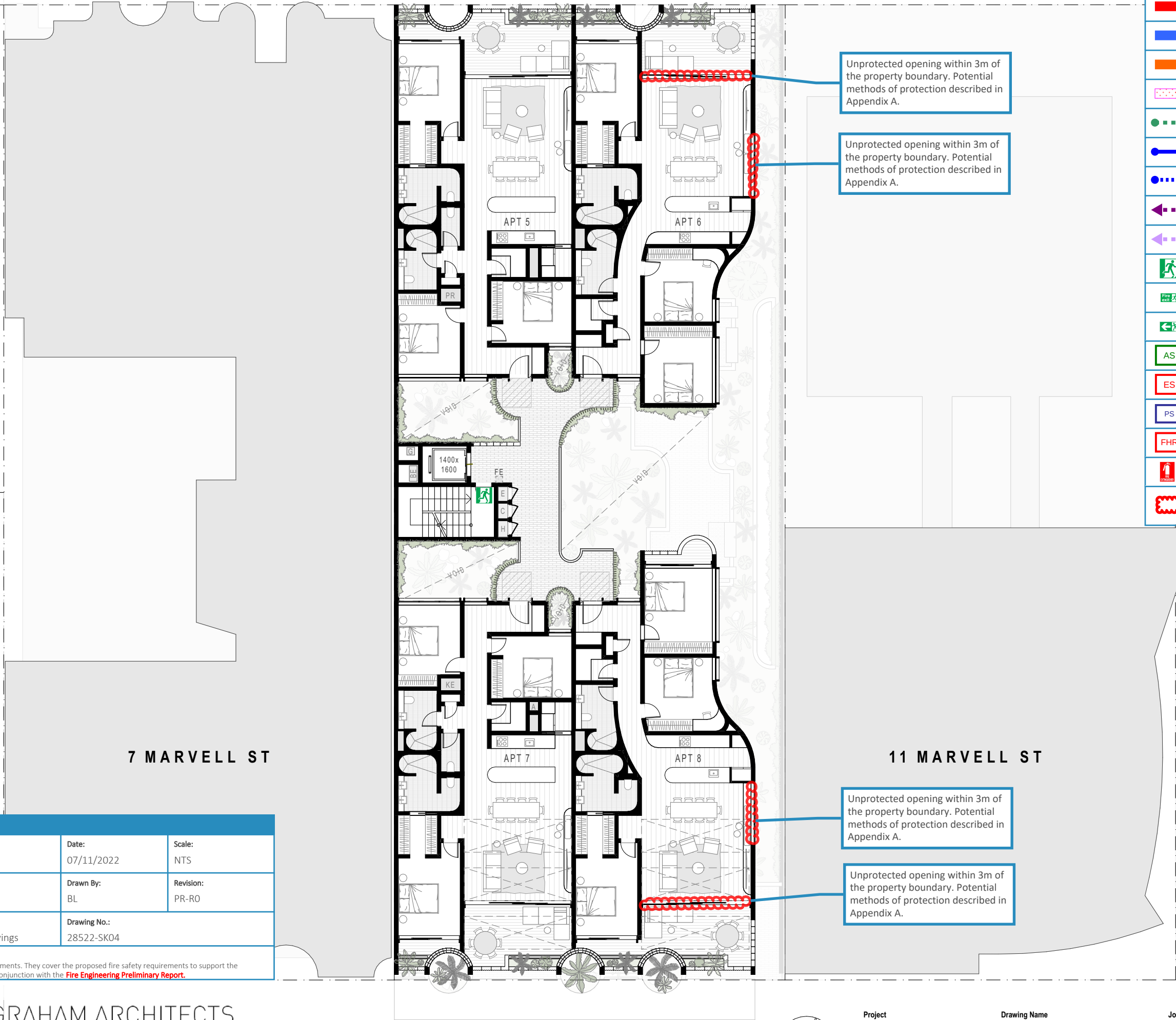


LEGEND	
	Fire Rated Construction
	Smoke-Proof Construction
	Fire Rated and Smoke-Proof Construction
	Restricted Wall and Ceiling Linings (Group 1 and 2)
	Egress Path
	Extended Travel Distance to Point of Choice
	Extended Travel Distance to Single Exit / Nearest Exit
	Extended Distance Between Alternative Exits
	Extended Public Corridor Length
	Exit
	Additional Exit Signage
	Additional Directional Exit Signage
	Active Illuminated Worded Signage
	Active Illuminated Exit Signage
	Instructional Passive Signage
	Fire Hose Reel
	Additional Fire Extinguisher
	Protection of External Openings Within 3m of Property Boundary Refer to Appendix A for a full specification of each option.

 DDEG Fire Safety Acoustics Access Building Solutions		
Project:	Date:	Scale:
9 Marvell Street, Byron Bay	07/11/2022	NTS
Title:	Drawn By:	Revision:
Fire Safety Engineering - Annotated Drawings	BL	PR-RO
Drawing No.:		
28522-SK03		
Note: These mark-ups do not contain all the BCA DTS requirements. They cover the proposed fire safety requirements to support the proposed Performance Solutions and shall be read in conjunction with the Fire Engineering Preliminary Report .		



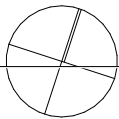
FLETCHER LANE



LEGEND	
	Fire Rated Construction
	Smoke-Proof Construction
	Fire Rated and Smoke-Proof Construction
	Restricted Wall and Ceiling Linings (Group 1 and 2)
	Egress Path
	Extended Travel Distance to Point of Choice
	Extended Travel Distance to Single Exit / Nearest Exit
	Extended Distance Between Alternative Exits
	Extended Public Corridor Length
	Exit
	Additional Exit Signage
	Additional Directional Exit Signage
	Active Illuminated Worded Signage
	Active Illuminated Exit Signage
	Instructional Passive Signage
	Fire Hose Reel
	Additional Fire Extinguisher
	Protection of External Openings Within 3m of Property Boundary <i>Refer to Appendix A for a full specification of each option.</i>

	Date: 07/11/2022	Scale: NTS
Project: 9 Marvell Street, Byron Bay	Drawn By: BL	Revision: PR-R0
Title: Fire Safety Engineering - Annotated Drawings	Drawing No.: 28522-SK04	
Note: These mark-ups do not contain all the BCA DTS requirements. They cover the proposed fire safety requirements to support the proposed Performance Solutions and shall be read in conjunction with the Fire Engineering Preliminary Report .		

MARVELL STREET



Project
9 MARVELL ST
Client
COBILD

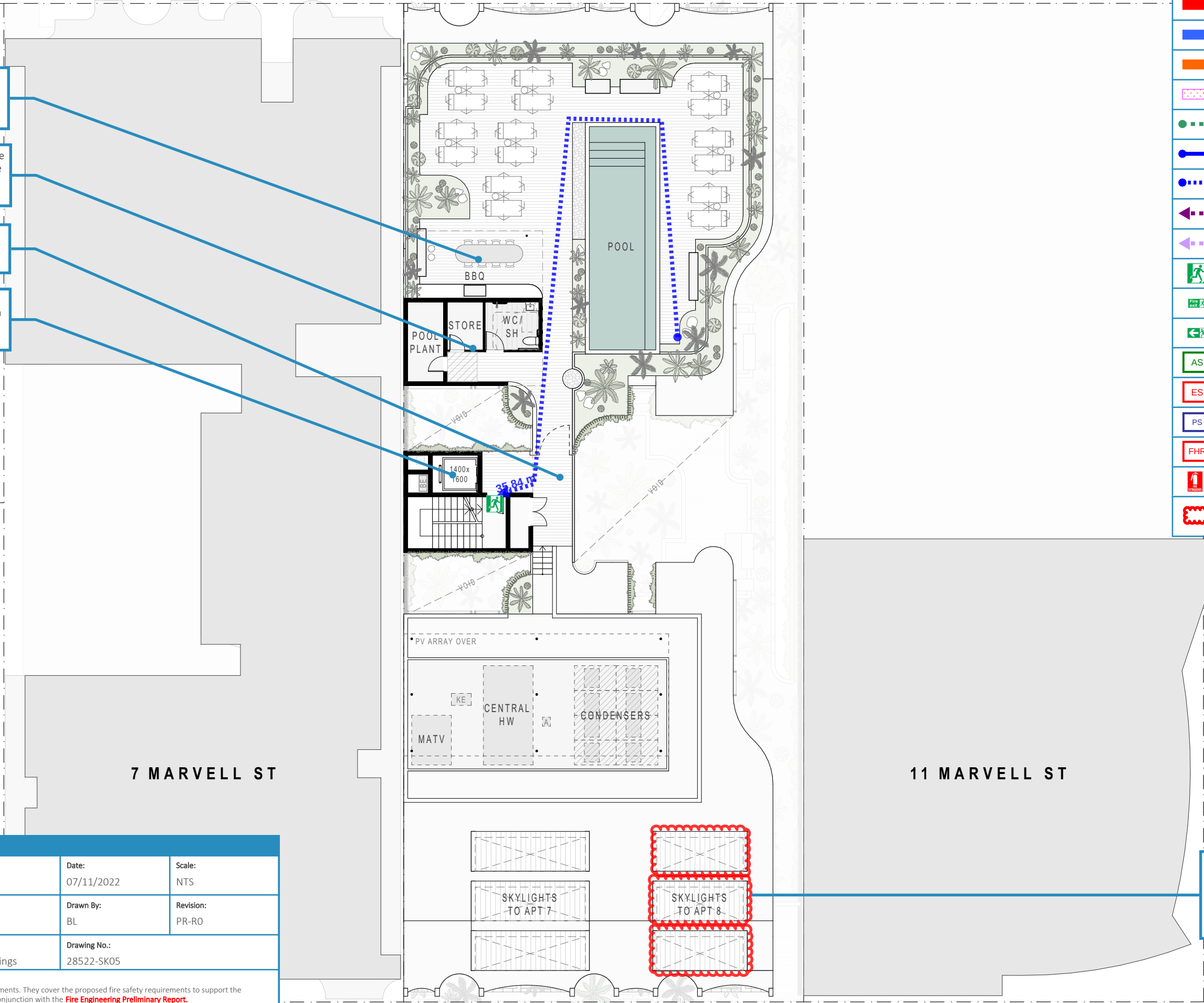
Drawing Name
FLOOR PLAN - SECOND FLOOR
Location
9 MARVELL ST BYRON BAY
NSW 2481

Job No.
HGA344
Date
29/07/2022

Drawing No.
DA.06
Revision
Concept
Scale
1:200

- The canopy/verandah above the BBQ area at the top level is to be constructed of non-combustible construction.
- Enclosed spaces at the top level are to be limited to the storeroom, the pool plant room and amenities compartment.
- Horn-type speakers will be provided to the outdoor spaces at the top level.
- A smoke / heat detector may be provided as appropriate in lieu of a sprinkler head at the top of the lift shaft.

LEGEND	
	Fire Rated Construction
	Smoke-Proof Construction
	Fire Rated and Smoke-Proof Construction
	Restricted Wall and Ceiling Linings (Group 1 and 2)
	Egress Path
	Extended Travel Distance to Point of Choice
	Extended Travel Distance to Single Exit / Nearest Exit
	Extended Distance Between Alternative Exits
	Extended Public Corridor Length
	Exit
	Additional Exit Signage
	Additional Directional Exit Signage
	Active Illuminated Worded Signage
	Active Illuminated Exit Signage
	Instructional Passive Signage
	Fire Hose Reel
	Additional Fire Extinguisher
	Protection of External Openings Within 3m of Property Boundary Refer to Appendix A for a full specification of each option.



 DDEG Fire Safety Acoustics Access Building Solutions	Date: 07/11/2022	Scale: NTS
Project: 9 Marvell Street, Byron Bay	Drawn By: BL	Revision: PR-RO
Title: Fire Safety Engineering - Annotated Drawings	Drawing No.: 28522-SK05	
Note: These mark-ups do not contain all the BCA DTS requirements. They cover the proposed fire safety requirements to support the proposed Performance Solutions and shall be read in conjunction with the Fire Engineering Preliminary Report .		

