

APPENDIX C

BCA REPORT





CONSULTING ENGINEERS

CRITICAL MEASURE BCA COMPLIANCE ASSESSMENT

To:	Hi Noon Ski Club Thredbo	Date:	7 January 2025
Attention:	Ziggi Krpan	Project Ref:	3430
From:	James Alexander	Revision:	Rev D FINAL
Project:	Hi Noon Ski Club Thredbo		
Purpose:	BCA Compliance Assessment of proposed upgrades to sanitary compartment and conversion of existing storage room to SOU		

1.0 INTRODUCTION

This Building Code of Australia 2022 (BCA) memorandum has been prepared to review the proposed internal alterations to the existing Hi Noon ski Club at Thredbo, NSW. These works comprise the re-arrangement of an existing sanitary facility located on the ground floor to incorporate a new shower facility and conversion of an e storeroom located on the ground floor to a Sole occupancy unit (SOU).

The report details the non-compliances identified as part of the inspection undertaken on the 5th of August 2023, a desktop review of the drawings provided and listed below and discussion regarding intended conversion of the storeroom to SOU. Recommendations have been made to address identified issues of non-compliance and where it is deemed more cost effective or practical, a recommendation will be made to address an identified non-compliance via a Performance-based Fire Engineered Upgrade Strategy.

2.0 BASIS OF REPORT

This report is based upon the following information:

- Concept architectural drawings prepared by TZ Design
 - 353-03 LOWER LEVEL FLOOR PLAN EXISTING – REV E
 - 353-03 LOWER LEVEL FLOOR PLAN PROPOSED – REV E

The assessment has been undertaken on the following basis:

- The site inspection undertaken was strictly a visual based site inspection only with no invasive or destructive works undertaken to determine compliance with the BCA.
- The performance of any installed fire and life safety system was not tested or witnessed during site inspection. It has been assumed that where these systems are installed, they are installed in accordance with the relevant standards and codes applicable at the time of original approval/installation.
- It has been assumed that no fire engineering reports apply to the building and all buildings and extensions have been undertaken in accordance with due process at the time of original approval and construction.

3.0 BUILDING PARTICULARS

DESCRIPTION OF BUILDING:	The building is a two-storey lightweight construction ski lodge.
TYPE OF CONSTRUCTION:	Type C Construction – each level is provided with direct egress to open space and therefore the concession under C2D6 can be applied. The building contains 11 bedrooms which are deemed to be Sole Occupancy Units (SOUs), communal dining, living, kitchen and sanitary facilities. The lower ground floor contains a large ski store area which has not been classified as a class 7b given it is ancillary to the use of the building as a ski lodge.

J Squared Engineering Pty Ltd ABN 836 057 939 86

FIRE SAFETY ENGINEERING | ESSENTIAL SERVICES MAINTENANCE MANAGEMENT | BUILDING SERVICES DESIGN

PO Box 169, Jindabyne NSW 2627 Phone: 02 6457 1420 Mobile: 0427 571 420

PO Box 146, Magill SA 5072 Phone: 08 8390 0462 Mobile: 0412 882 122

info@jsquared.com.au www.jsquared.com.au


RISE IN STOREYS:	2
STOREYS CONTAINED:	2
EFFECTIVE HEIGHT:	2.8m
BCA CLASSIFICATION:	Class 3 (ski lodge ground floor and Level one)
APPROXIMATE FIRE COMPARTMENT SIZE:	BCA Table C2.2 Maximum size of fire compartments does not have a maximum size for class 3.
POTENTIAL FIRE SOURCE FEATURES:	<p>The building is located in excess of 1.5m from the lot boundaries except potentially in the southern corner as shown. The proximity to the boundary in this area is not relevant to the proposed development works.</p>  <p>may be less than 1.5m TBC</p>

Figure 1: Site location (courtesy of NSW e-Planning spatial viewer)

4.0 LIMITATIONS

This report does not assess or include the following:

- Does not provide concessions, Performance Solutions or exemptions from the requirements of the BCA, other than any directly identified in the Executive Summary of this report.
- Reporting on hazardous materials, OH&S matters or construction site contamination.
- Assessment of any structural elements or geotechnical matters relating to the building, including any structural or other assessment of the existing fire-resistant levels of the building other than the items raised specifically within this memorandum.
- Assessment of any fire services operations (including hydraulic, electrical or other systems).
- Assessment of plumbing and drainage installations, including stormwater.
- Assessment of mechanical plant operations, electrical systems or security systems.
- Heritage significance.
- Consideration of energy or water authority requirements.
- Consideration of local planning policies.
- Environmental, planning or heritage issues.
- Requirements of statutory authorities.
- Pest inspection or assessment of building damage caused by pests.
- Assessment of Sections B, G, H and J of the BCA.
- This report is not a Part 4A compliance certificate under the Environmental Planning & Assessment Act 1979 or Regulation 2000.

5.0 BCA ASSESSMENT

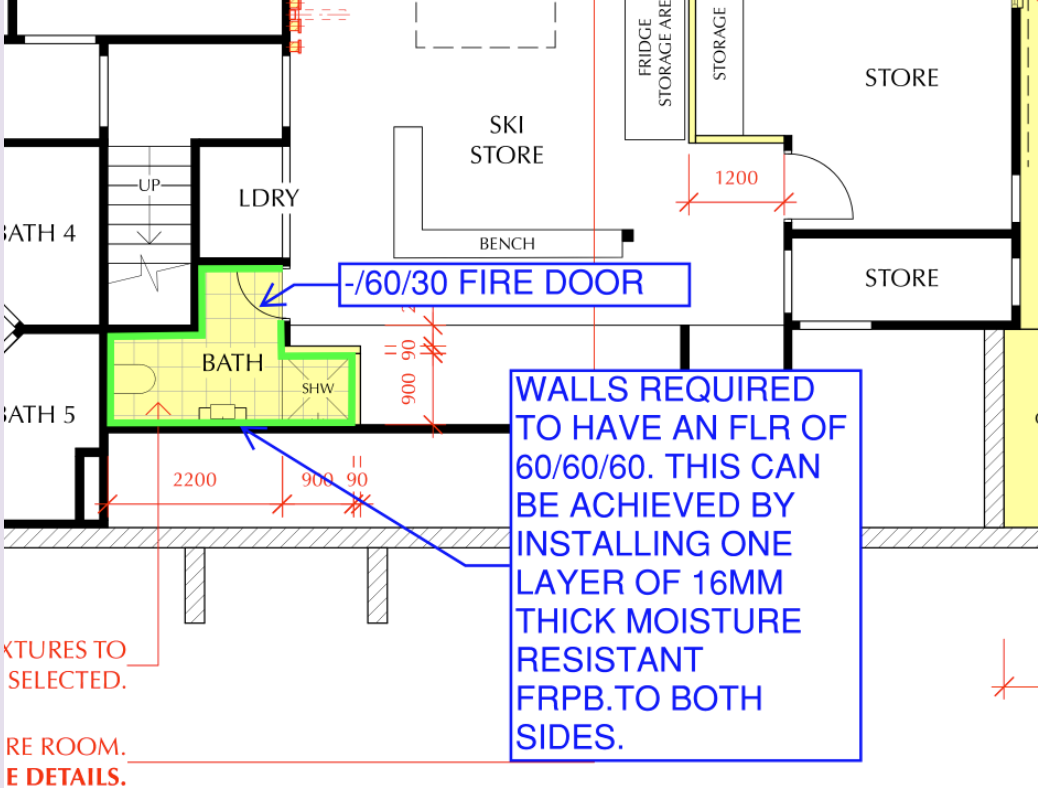

The following is an assessment of the critical and pertinent clauses of the BCA for the proposed development works to the existing building. Consideration is also given to the existing structure to which the development works will be attached for compliance in accordance with Condition B14 of the development consent.

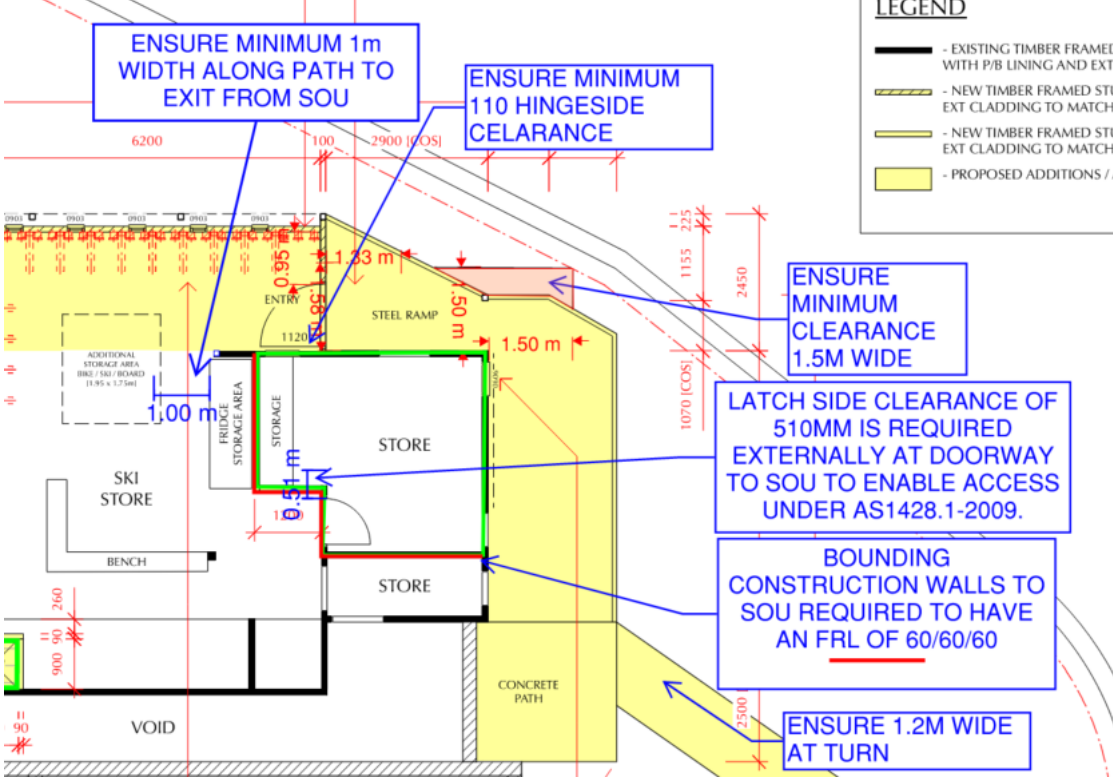
BCA CLAUSE	COMPLIANCE ISSUE	DESIGN RECOMMENDATION
BCA CLAUSE C2D2 SPECIFICATION 5 – FIRE RESISTING CONSTRUCTION	<p>The building is currently a Type C residential ski lodge located on the site. The building is class 3 throughout the ground floor and level one and therefore required to comply with the relevant requirements of Specification 5 Clause S5C24 for fire resistance levels.</p>	<p>The allotment boundaries have not been detailed within the architectural drawings. In general, the building is located at in excess of 1.5m from the Lot boundaries and hence are not required to achieve an FRL.</p> <p>Any new works to a floor/ceiling must achieve an FRL of 30/30/30 as a minimum.</p> <p>The walls of the sanitary compartment must achieve an FRL of 60/60/60. It is understood that the walls of the sanitary compartment and the proposed SOU are lined with 16 thick FRPB which would likely achieve the required FRL. The new walls of the shower area must be lined in the same manner.</p>
	<p>External Wall: The external walls are required to achieve the following Fire Resistance Level (FRL) for load bearing walls:</p> <ul style="list-style-type: none"> Less than 1.5m: 90/90/90 1.5m to 3m: -/-/- 	
	<p>Floors: The floor separating the two levels of the building is required to achieve a minimum 30/30/30 Fire Resistance Level.</p>	
	<p>Roof: The roof is not required to achieve a Fire Resistance Level as the building is a Class 3 building.</p>	
	<p>Bounding walls: The walls of the sanitary compartment are required to achieve an FRL of 60/60/60. Refer D3D9 below.</p> <p>The walls between the proposed SOU and the Ski store on the lower level are required to achieve an FRL of 60/60/60.</p>	
BCA CLAUSE C2D11 AND SPECIFICATION 7 – FIRE HAZARD PROPERTIES	<p>Carpets, floor and wall linings of all areas to be certified to comply with Spec C2D11 and sarking to comply with Spec 7.</p>	<p>Any new internal works are to comprise material linings with compliance fire hazard properties.</p>
BCA CLAUSE C4D3 – PROTECTION OF OPENINGS	<p>If the distance between an opening and the fire-source feature to which it is exposed to is less than 1.5m from a side or rear boundary of the allotment, 6m from the far boundary of a road, river, lake or the like adjoining the allotment, if not located in a storey at or near ground level or 6m from another building on the allotment that is not a Class 10.</p> <p>The allotment boundary is not nominated within the architectural drawings.</p>	<p>There are no openings in the proposed development located within 1.5m of an allotment boundary and hence the requirements of this clause do not apply.</p>
BCA CLAUSE C4D12 – BOUNDING CONSTRUCTION	<p>The internal walls, floors and ceilings which form the bounding construction to the existing SOUs was not assessed as part of the inspection but understood to be generally Type C compliant via the installation of fire</p>	<p>It is understood that the walls of the existing storeroom/proposed SOU are lined with 16 thick FRPB which would likely achieve the required FRL. The doorway to the proposed SOU is required to be protected via a self-closing, tight</p>



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BCA CLAUSE	COMPLIANCE ISSUE	DESIGN RECOMMENDATION
CLASS 2, 3 AND 4 BUILDINGS	<p>rated plasterboard to achieve the required FRL of 60/60/60.</p> <p>The proposed works do not impact the bounding construction to existing SOUs and corridors however walls bounding the proposed SOU require a FRL of 60/60/60.</p>	<p>fitting, solid core door of at least 35mm thickness. It is understood that a fire rated solid core door is provided to the proposed SOU.</p>
BCA CLAUSE C4D13 – OPENINGS IN FLOORS, WALLS AND CEILING FOR SERVICES	<p>The service must be served by a shaft that will not reduce the fire performance of the building element it penetrates, or the service required to be protected in accordance with BCA Clause C4D15.</p> <p>Floor level penetrations for waste pipes are not required to be protected given the lower ground floor is not required to achieve an FRL.</p> <p>Any penetrations through the external wall to the service corridor are not required to achieve an FRL.</p>	<p>Note only. The proposed works will not cause a non-compliance with this clause given plumbing penetrations are located behind fire rated ceiling linings.</p>
BCA CLAUSE D3D9 - ENCLOSURE OF SPACE UNDER STAIRS	<p>The subject sanitary compartment is located under the main internal stair and is provided with a door and hence is an enclosed space under a required stair. The enclosing walls are therefore required to be protected by fire rated linings achieving FRL 60/60/60 and a door achieving -/60/30.</p>	<p>It was noted that the walls were lined with 16 thick fire rated plasterboard which would likely achieve the required FRL.</p> <p>The proposed shower area increase is also to incorporate 16mm thick FRPB prior to linings with CFC and tiles.</p> <p>The door to sanitary compartment however was not a fire door. A fire door could be fitted, or a fire engineered performance solution developed to permit the existing solid core door.</p>

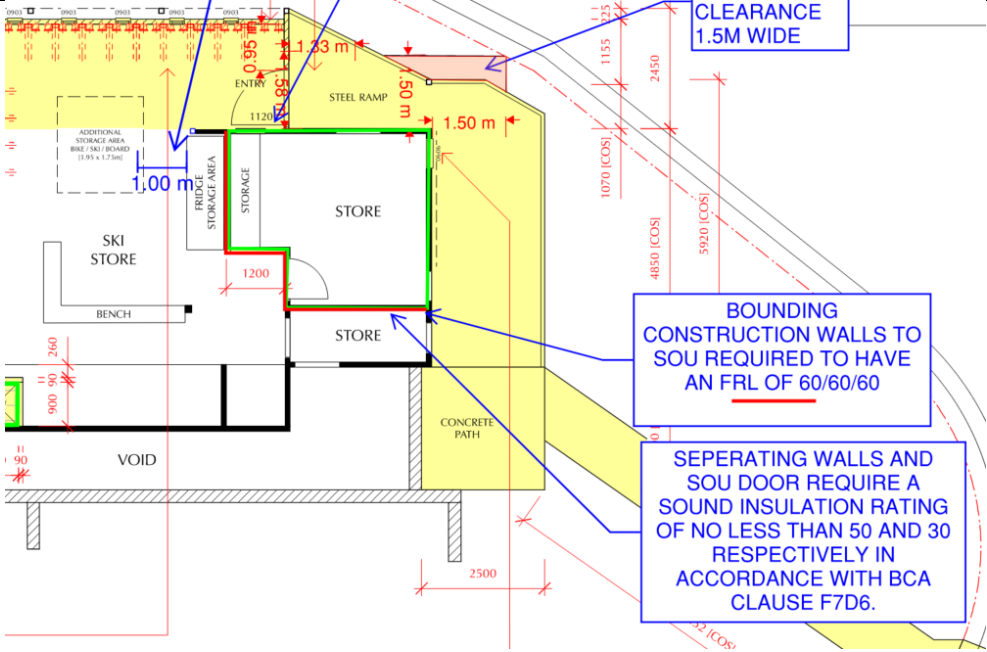
BCA CLAUSE	COMPLIANCE ISSUE	DESIGN RECOMMENDATION
	 <p>Figure 1 - Fire resisting requirements</p>	
<p>BCA CLAUSE D2D3 NUMBER OF EXITS</p> <p>BCA CLAUSE D2D5 - EXIT TRAVEL DISTANCES</p>	<p>In a building under 25m, one exit is required to be provided per level, the distance of travel to an exit or point of choice is required to be within 6m on the upper level and 20m on the ground floor level.</p>	<p>The sanitary compartment and proposed SOU are located within 20m of an exit.</p>
<p>BCA CLAUSE D2D7 - HEIGHTS OF EXITS, PATHS OF TRAVEL TO EXITS AND DOORWAYS</p> <p>BCA CLAUSE D2D8 WIDTH OF EXITS AND PATHS OF TRAVEL TO EXITS</p>	<p>In a required exit or path of travel to an exit —</p> <ul style="list-style-type: none"> • The unobstructed height throughout must be not less than 2m, except the unobstructed height of any doorway may be reduced to not less than 1980mm. • The unobstructed width of each exit or path of travel to an exit, except for doorways, must be not less than 1m. 	<p>The reduced height is located over the WC and therefore not considered a path of travel to an exit. The reduced ceiling height will however need to be addressed under F5D2.</p>  <p>Figure 2 - raked ceiling over WC is less than 2.1m over the WC.</p>

BCA CLAUSE	COMPLIANCE ISSUE	DESIGN RECOMMENDATION
<p>BCA PART D4 – ACCESS FOR PERSONS WITH A DISABILITY</p>	<p>Access is required to the “affected part” in accordance with the Access to Premises Standard. The affected part is the enlarge WC and the proposed SOU. Access can be provided to these areas via the lower level external deck and ramp</p>	<p>An unobstructed width of 1m is required to be achieved between the proposed SOU and the exit.</p> <p>The access to the affected parts does not currently comply. It is understood however that a new lower level deck and accessible path of travel to the lower level shall be provided.</p> <p>The provided drawings indicate compliance except for the 90° turn at the external corner of the deck. This requires the ramp to be min 1500mm at each turn as shown below.</p> <p>An external latch side clearance of 510mm is required at the doorway to the proposed SOU if it is required and intended to be used as an accessible SOU. Additionally, circulation spaces required under AS1428.1-2009 will be applicable within the SOU if accessible.</p>
	 <p><i>Figure 3 – Accessible entrance requirements</i></p>	
<p>BCA CLAUSE E1E2 – FIRE HYDRANTS</p>	<p>A fire hydrant system is required to serve the entire building as it exceeds 500m² and is in the alpine areas. Fire Hydrant coverage provided in accordance with AS2419.1-2021 where flow and pressure achieves 10L/S at minimum 150kPa</p> <p>Notably, AS2419.1-2021 is a new adoption Australian Standard within BCA 2022.</p>	<p>Where required a flow and pressure test should be undertaken to confirm compliance for the street hydrant system.</p>



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BCA CLAUSE	COMPLIANCE ISSUE	DESIGN RECOMMENDATION
BCA CLAUSE E1D11 – WHERE SPRINKLERS ARE REQUIRED: ALL CLASSIFICATIONS	Sprinklers are not required given the building less than 4 stories.	No action required for CC.
BCA CLAUSE E2D6 BUILDINGS NOT MORE THAN 25M IN EFFECTIVE HEIGHT: CLASS 3 BUILDINGS AND. G4D7 – FIRE FIGHTING SYSTEMS.	<p>A manually operated (manual call point) automatic smoke detection and alarm system complying with Specification 20 must be provided within a Class 3 building in the alpine areas.</p> <p>The building does not have a class 3 part more than 1 storey above ground level and therefore the system is not required to be monitored in accordance with S20C8.</p>	Certification of smoke detection system required prior to issue of certification.
PARTS F1 – F3 – HEALTH AND AMENITY	<p>Assessment of the external wall system/building envelope and the associated provisions of BCA Section F.</p> <p>The external walls are to prevent rainwater from entering the building via the installation of the new cladding.</p> <p>The new cladding arrangement must not introduce damp to rise from the ground into the external walls via compliance with F1D6.</p>	The proposed works do not affect the external walls.
BCA CLAUSE F4D4 – FACILITIES IN CLASS 3 TO 9 BUILDINGS	<p>In a Class 3 building, the following facilities are required, within a sole occupancy unit or direct access to them:</p> <ul style="list-style-type: none"> • A bath or shower; and • A closet pan; and • A washbasin. <p>The proposed additional SOU is provided with access to the existing sanitary facility located off of the ski store. The facility includes a toilet, washbasin and shower.</p>	Where the proposed SOU is required or intended to be an accessible SOU, an accessible sanitary facility will be required.
BCA CLAUSE F5D2 – HEIGHTS OF ROOMS AND OTHER SPACES	A minimum of 2.1m ceiling height is required to be provided in accordance with BCA Clause F5D2 to the subject sanitary compartment.	<p>The extension of the compartment must include a 2.1m head height. The low head height under the stair will need to addressed via a performance solution.</p> <p>It is understood that a ceiling height of 2.4m is achieved within the proposed SOU.</p>
BCA CLAUSE NSW F6D6 – VENTILATION OF ROOMS	A sanitary compartment, bathroom, shower room occupied by a person for any purpose must achieve natural ventilation complying with BCA Clause F6D7 or a mechanical ventilation or air-conditioning system complying with AS1668.2 and AS/NZ3666.1.	<p>Mechanical ventilation is required to be installed within the sanitary compartment in accordance with AS 1668.2 and AS 3666.1. Ducting must be incorporated from the fan unit to the exterior of the building.</p> <p>It is understood that the existing store room/proposed SOU is provided with two windows (one of these openable). The openable</p>

BCA CLAUSE	COMPLIANCE ISSUE	DESIGN RECOMMENDATION
		window is required to achieve a ventilating area of not less than 5% of the floor area of the room.
PART F7 – SOUND SEPARATION	A wall which separates a sanitary compartment from an SOU is required to be of discontinuous construction and achieve a sound insulation rating of $R_w + C_{tr} > 50$.	<p>The walls of the subject bathroom are not required to achieve a sound rating given they do not bound an SOU.</p> <p>The walls separating the proposed additional SOU from the ski store are required to achieve a sound rating of not less than 50. The door to the SOU is required to achieve a R_w not less than 30.</p>
	 <p>Figure 4 – Sound insulation ratings to proposed SOU</p>	

G4D5 – EXTERNAL TRAFFICABLE STRUCTURES	The new deck and stair must be capable of shedding snow, to this end it is required to be constructed of web forge decking panels.	The replacement deck is noted as being constructed of expanded mesh and hence complies.
G4D7- FIRE FIGHTING SERVICES AND EQUIPMENT	<p>The building must have the following –</p> <ul style="list-style-type: none"> (a) A manually operated fire alarm system with call points complying with AS 1670.1 (b) Fire hydrants installed in accordance with AS2419.1 (c) Fire hose reels 	<p>A detection system was observed onsite and confirmation is required for compliance with AS 1670..</p> <p>Hydrant coverage was observed from the street hydrant system located on Bella’s Corner.</p>



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G4D8 - FIRE ORDERS	Fire Orders were identified in the building and posted on the back of each SOU as well as in a prominent location on each level.	Not required in the sanitary compartment.
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6.0 CONCLUSION

The above inspection and compliance memorandum has identified items which are required to be addressed or rectified by way of redesign or by a Performance-Based Solutions. The recommendations above outline methods of achieving compliance with the current Building Code of Australia 2022 or where required by way of a Fire Engineered Upgrade Strategy given the non-compliant issues identified are incorporated into the existing structure.

We trust this assessment report is suitable for your purposes however, if you have any queries or wish to discuss, please contact the undersigned.

Regards,

J² CONSULTING ENGINEERS

James Alexander

Director

B. App.Sci (Bldg), Grad Dip (Disp Res), ME(Fire safety), Grad Dip (Bldg Surv)

AIBS Nationally Accredited Level 1 Building Surveyor

BPB Grade A1 Accredited Certifier and PCA

Fire Safety Engineer

Nick Wilson

Building Inspector

B. Building (Const Mgmt),

Grad Dip(Bldg Surv)

BDC3386 – Building Inspector