

Job no 120029

27 May 2025

Greg Hastie
Pymble Ladies' College
20 Avon Road
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Dear Greg

Secondary Innovation Precinct (SIP) and Campus Commons – Preliminary fire safety engineering review

Jensen Hughes has been commissioned by Pymble Ladies' College (the College) to prepare this fire safety engineering statement in accordance with the technical requirements of the Secretary's Environmental Assessment Requirements (SEARs) and in support of the preparation of an Environmental Impact Statement (EIS) and State Significant Development Application (SSD-79146716) to the Department of Planning, Housing and Infrastructure (DPHI). This statement has been prepared with reference to the architectural plans prepared by 3XN dated March 2025. Refer to Appendix A.

The site is located at 20 Avon Road, Pymble, within the Ku-Ring-Gai Local Government Area (LGA). The site comprises multiple parcels of land and is legally described as:

- Lot 1 Deposited Plan 69541
- Lots 11- 17 Deposited Plan 7131

The project comprises demolition of several existing buildings and the construction of the Secondary Innovation Precinct, associated landscaping and Campus Commons at the Pymble Ladies College. The SIP is a five-storey building that will consolidate STEM based learning opportunities within the College.

1. SEARs response

This statement addresses the additional assessment requirement relating to fire safety, forming part of the SEARs for the Pymble Ladies' College Secondary Innovation Precinct project (SSD-79146716). Specifically, the requirement states: *'Provide a report detailing compliance with Fire & Rescue NSW Fire Safety Guidelines, Position Statements, and any other relevant requirements.'* This is included in Table 4 in section 2.2 of this statement.

2. Performance solutions

2.1 Secondary Innovation Precinct (SIP)

The design of the SIP will incorporate performance solutions complying with the performance requirements of National Construction Code Volume One - Building Code of Australia (NCC) 2022¹.

The intent of the review was to determine whether we believe the design can be demonstrated to achieve compliance with the performance requirements of the NCC.

The performance solutions identified to date are listed in Table 1.

¹ National Construction Code Volume One - Building Code of Australia 2022, Australian Building Codes Board, Australia.

* Warringtonfire Australia Pty Ltd was acquired by Jensen Hughes in December 2023. Jensen Hughes Fire Testing Pty Ltd is not affiliated, associated, authorised, or endorsed by Warringtonfire Australia Pty Ltd, Warringtonfire Testing and Certification Limited or its "Warringtonfire" or "Certifire" brands.

Table 1 Preliminary list of performance solutions – SIP

Item	Description of performance solution	DTS provision	Performance requirement	Comment
1.	The fire rating of building elements associated with the class 6 canteen on lower ground level will be reduced from 3 hours to 2 hours.	Clause C2D2	C1P1 and C1P2	The building is sprinkler protected throughout. The class 6 use is limited to the canteen – ie food & beverage areas.
2.	The atrium stair landings on levels 2 and 3 are considered part of the floor of these storeys due to their large areas and are required to achieve a 2-hour fire rating. These landings will not achieve a fire rating.	Clause C2D2	C1P1 and C1P2	The non-fire-rated landings form part of the stair structure and are to be designed to be structurally independent to the floor of the building.
3.	The fire wall separating the auditorium from the rest of the building incorporates glazed openings.	Clauses C2D2 and C3D8 and specification 5	C1P2	The glazing is to be protected with wall-wetting sprinklers on both sides.
4.	The fire stopping between the typical slab edge and curtain wall junction will not be provided in accordance with a tested system.	Clauses C2D2 and C4D16 and specification 5	C1P2 and C1P8	The gap between the slab edge and curtain wall is to be filled with a non-combustible batt suitable for the application and achieving a 2-hour fire rating when tested between two fire rated elements.
5.	The floor area of the largest fire compartment in the building will exceed the maximum area permitted under table C3D3 of the NCC for buildings of type A construction.	Clause C3D3	C1P2 and E2P2	Levels 02 and 03, and the auditorium spanning basement and ground levels, are to be fire separated on a performance basis (combination of fire curtains and drenched glazing) from the rest of the building.
6.	The travel distance to a point of choice exceeds 20 m from the following areas: - Up to 22 m from the retractable seating within the auditorium down to the auditorium floor on basement level. - Up to 25 m from the auditorium storage room on basement level. - Up to 26 m from residential kitchen 2 on lower ground level. - Up to 30 m from the external terrace on ground level. - Up to 26 m from the D&T workshop in the eastern portion of ground level. - Up to 30 m from the robotics area in the western half of ground level. - Up to 28 m from the staff rooms and offices in the south-eastern corner of ground level.	Clause D2D5	D1P4 and E2P2	The building will be provided with a smoke detection system throughout to provide early warning to occupants.

Item	Description of performance solution	DTS provision	Performance requirement	Comment
	- Up to 23 m from the external terrace on level 02. - Up to 22 m from the GLS in the north-western corner of level 03. - Up to 22 m from the external terrace in the western portion of level 03.			
7.	The travel distance to the nearest exit exceeds 40 m from the following areas: - Up to 48 m from the food hub storage on lower ground level. - Up to 41 m from the south-eastern GLS on level 01. - Up to 42 m from the external terrace on level 02.	Clause D2D5	D1P4 and E2P2	The building will be provided with a smoke detection system throughout to provide early warning to occupants.
8.	The distance between alternative exits exceeds 60 m in the following areas: - Up to 66 m measured through the point of choice from the food hub storage on lower ground level. - Up to 79 m measured through the point of choice from the canteen dry store on lower ground level. - Up to 69 m on level 01. - Up to 64 m on level 02.	Clause D2D6	D1P4 and E2P2	The building will be provided with a smoke detection system to provide early warning to occupants.
9.	The path of travel from the discharge of fire-isolated stairs ST-01 and ST-02 requires occupants to pass within 6 m of the northern external wall of the building. Openings in this wall are not proposed to be protected.	Clause D2D12	D1P4	Occupants have alternative pathways in opposite directions from the point of discharge of both fire-isolated stairs.
10.	The unobstructed width of a portion of the path of travel to the road from the discharge of fire-isolated stair ST-02 is less than the width of the stair – ie a minimum of 1.62 m instead of 1.75 m.	Clause D2D15	D1P4 and D1P6	
11.	Power-operated sliding doors on lower ground and ground levels serving as required exits leading to open space do not open automatically upon power failure or fire trip in the building outside of school hours for security purposes.	Clause D2D24	D1P2	The sliding doors will be openable with 'push to exit' buttons provided with battery back-ups. The doors will fail-safe open if the battery back-up fails.

Item	Description of performance solution	DTS provision	Performance requirement	Comment
12.	The following fire services will not be provided below the retractable seating in the auditorium due to the nature of its use: • Sprinklers • Smoke detection • Fire hydrant coverage • Fire hose reel coverage	Clauses E1D2, E1D3, E1D4 and E2D9	E1P1, E1P3, E1P4 and E2P2	The space underneath the retractable seating will be kept clear of combustible items, reinforced through signage and housekeeping procedures.
13.	The fire hydrant booster assembly is not within sight of the main entrance to the SIP building.	Clause E1D2	E1P3	The booster assembly is located on Avon Road, at the main entrance to the school. Hydrant block plans will be provided at the FDCIE and main entry to the SIP indicating the location of the booster assembly.
14.	Fire hydrant coverage from lower ground level to level 02 is achieved using two lengths of firefighting hose – ie 60 m hose length – from the internal fire hydrants within the fire-isolated exits instead of a single hose length.	Clause E1D2 and G6D6	E1P3	Signage provided at the FDCIE and adjacent to each internal hydrant within the fire-isolated exits indicating that two lengths of hose are required for full hydrant coverage. Note: In our professional experience, Fire and Rescue NSW (FRNSW) have supported this performance solution and indicated that the use of two lengths of hose does not deviate from standard procedure.
15.	Fire hose reel coverage will not be provided within the canteen kitchen area on lower ground level. Portable fire extinguishers will be provided instead to enable occupants to undertake an initial attack on a fire.	Clause E1D3	E1P1	Portable fire extinguishers provided as an alternative to fire hose reels to enable first-aid firefighting.
16.	The building contains an atrium connecting five storeys – ie lower ground level to level 03 – and will not comply with the requirements of NCC Part G3. The atrium is to be fire separated from levels 02 and 03 upon fire trip in the building.	Part G3 and specification 31	C1P1, C1P2, E1P4 and E2P2	Levels 02 and 03, and the auditorium on basement and lower ground levels, are to be fire separated on a performance basis (combination of fire curtains and drenched glazing) from the rest of the building.
17.	The Pymble Ladies' College site includes several separate Torrens Title allotments straddling the project building. This results in multiple technical non-compliances.	Various, refer to Appendix C of Group DLA BCA report	Various, refer to Appendix C of Group DLA BCA report	Pymble Ladies' College to confirm ownership of the various allotments to support the performance solution.

2.2 SIP Campus Commons Interface

The Campus Commons portion of the project involves an outdoor amphitheatre and associated landscaping works to connect the SIP precinct to the rest of the campus. As part of these works, alterations and additions are proposed to the existing school buildings surrounding the Campus Commons area, including the Colonnade Building and Ferguson Building, among others.

The design of the Colonnade Building and Ferguson Building incorporate performance solutions associated with the proposed works complying with the performance requirements of NCC 2022.

The performance solutions identified to date are listed in Table 2 and Table 3.

Table 2 Preliminary list of performance solutions – Colonnade Building

Item	Description of performance solution	DTS provision	Performance requirement	Comment
1.	The travel distance to an exit from the corridor in the north-eastern portion of level 1 is up to 26 m instead of 20 m.	Clause D2D5	D1P4 and E2P2	The existing Colonnade Building is understood to be provided with a smoke detection system. Level 1 is provided with a direct exit to open space from an open veranda / colonnade.

Table 3 Preliminary list of performance solutions – Ferguson Building

Item	Description of performance solution	DTS provision	Performance requirement	Comment
1.	Openings in the eastern external wall of the Ferguson Building from ground level to level 02 are less than 6 m from the external wall of the adjacent Science Centre. The openings are not proposed to be protected in accordance with clause C4D5 of the NCC.	Clauses C4D3 and C4D5	C1P2	The unprotected openings are in the vertical plane at the construction edge of an external balcony/veranda area serving the Ferguson Building. The only portion of the external wall of the Science Centre located within 6 m of these openings is a fire rated lift shaft.
2.	The travel distance to the nearest exit from level 02 of the Ferguson Building is up to 43 m instead of 40 m.	Clause D2D5	D1P4 and E2P2	The existing Ferguson Building is understood to be provided with a smoke detection system. The path of travel to the nearest exit from level 02 is along an external balcony/veranda area.

3. Fire and Rescue NSW guidelines and position statements

Table 4 below lists the relevant Fire and Rescue NSW (FRNSW) fire safety guidelines and position statements to determine the compliance of the proposed development against each, as part of DPHI's industry-specific SEARs requirements. Guidelines and position statements not relevant to the development have not been included in the table – e.g. impulse fans in carparks, fire safety in waste facilities, fire safety in early childhood centres, automated vehicle parking systems etc.

It is noted that a performance-based design brief (PBDB) consultation – required for all fire engineering performance solutions under clause A2G2(4) of the NCC – will be undertaken with FRNSW at a later stage for the development.

Table 4 FRNSW fire safety guidelines and position statements relevant to the development

Item	FRNSW guideline / position statement	Compliance status	Comment
FRNSW fire safety guidelines			
1.	Access for fire brigade vehicles and firefighters	Capable of complying	The fire brigade booster assembly is to be located at the entry to the school from Avon Road – ie the public road. The guideline states that 'a complex development' includes a 'major facility', which is defined as '<i>a complex of related buildings on any given site and having multiple designated site or building entry points for emergency purposes.</i>' The Pymble Ladies College' site aligns with this definition. The guideline acknowledges that a 'complex development' may not require any specific fire brigade vehicle access other than to a designated entry point. However, it recommends a holistic assessment of access for possible emergencies to be considered during the design phase, including provision of accessible private roads and hardstand areas as appropriate. Access to the SIP will be considered further at the design stage as per the guideline and based on any commentary provided by FRNSW during the PBDB consultant process.
2.	Emergency services information package and tactical fire plans	Capable of complying	The guideline lists the standard information required to be provided at the fire control centre (FCC) for fire brigade information and intervention. This will be provided as required.
3.	Fire brigade booster connection with inlet insert	Capable of complying	Fire brigade booster assembly to be designed in accordance with the relevant Australian standards and FRNSW guidelines. Fire services engineer to confirm as part of detailed design.
FRNSW position statements			
4.	Accessibility of fire hydrants	Capable of complying	Fire hydrant system to be designed in accordance with the relevant Australian standards and FRNSW guidelines. Fire services engineer to confirm as part of detailed design.
5.	Consultation on the performance-based design brief (PBDB)	Capable of complying	A PBDB questionnaire documenting the performance solutions for the development will be prepared and referred to FRNSW as part of the PBDB stakeholder consultation process.

Item	FRNSW guideline / position statement	Compliance status	Comment
6.	Extended fire hydrant coverage	Capable of complying	A performance solution relating to extended fire hydrant coverage will be included in the PBDB questionnaire for FRNSW review and comment. Note: Based on our previous experience, this performance solution has been supported by FRNSW.
7.	Fire brigade booster operating pressure	Capable of complying	Fire hydrant system to be designed in accordance with the relevant Australian standards and FRNSW guidelines. Fire services engineer to confirm as part of detailed design.
8.	Fire doors with fire activated retaining devices (e.g. bolts)	Capable of complying	Door hardware details to be provided at a later stage. Fire rated door sets with fire bolts should be avoided where reasonably practicable. If larger doors with fire bolts are used, a performance solution can be provided demonstrating compliance with performance requirement D1P2 of the NCC to the satisfaction of the certifying authority.
9.	Fire hydrant system in new building or premises	Capable of complying	Fire hydrant standard AS 2419.1:2021 is to be used for the development, which is endorsed by FRNSW.
10.	Fire hydrant system signage	Capable of complying	Signage is to be provided as required by the hydrant standard AS 2419.1:2021 and FRNSW's position statement relating to additional hydrants provided to achieve full coverage. Signage requirements for the additional hydrants will also be specified as part of a performance solution, which FRNSW will be able to review and comment on as part of the PBDB consultation process.
11.	Fixed suction connection for below-ground water supply	Capable of complying	Fire hydrant system to be designed in accordance with the relevant Australian standards and FRNSW guidelines. Fire services engineer to confirm as part of detailed design.
12.	FRNSW hose connections	Capable of complying	Fire hydrant system to be designed in accordance with the relevant Australian standards and FRNSW guidelines. Fire services engineer to confirm as part of detailed design.
13.	Hydraulic fire safety system design	Capable of complying	Statement of available pressure and flow from the water network utility operator to be provided by the fire services engineer as required.
14.	Plastic pipe in combined fire hydrant and sprinkler systems	Capable of complying	A combined fire hydrant and sprinkler system is proposed to be used as per AS 2118.6:2012, which requires compliance with the relevant requirements of AS 2419.1 (hydrant standard) and AS 2118.1 (sprinkler standard). This includes requirements for pipes and fittings, which are to be designed to comply with the relevant AS 2419.1 provisions. Fire services engineer to confirm as part of detailed design.

4. Summary

It is Jensen Hughes' professional opinion that it is possible to develop performance solutions for the issues identified in Table 1 – Table 3 to demonstrate compliance with the relevant performance requirements of the NCC without major changes to the proposed design. Additionally, the design is capable of complying with the FRNSW fire safety guidelines and position statements that are relevant to the project as identified in Table 4.

The details of the proposed performance solutions are subject to the outcome of the performance-based design brief and analysis which will be carried out in accordance with the Australian Fire Engineering Guidelines (AFEG)².

The performance solutions for the building will be developed during the detailed design stage and documented in a format suitable for submission to the relevant approval authorities as part of the construction documentation for the building. It is noted that additional performance solutions may be identified during the detailed design development process in consultation with the design team.

Please contact me on (02) 9211 4333 if you have any questions.

Yours sincerely

Malhar Bhadbhade
Senior fire safety consultant
Jensen Hughes

Greg Leach
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Jensen Hughes
NSW Certifier – fire safety – BDC2402

² Australian Fire Engineering Guidelines, 2021, version 1.0, Australian Building Codes Board, Australia.

Appendix A Drawings and information

Drawing title	Dwg no	Date	Drawn
LOCATION PLAN	AR-SIP-DA-A00-1001 issue 4	26 May 2025	3XN
SITE PLAN - EXISTING & DEMOLITION	AR-SIP-DA-A01-1000 issue 4	26 May 2025	3XN
SITE PLAN - PROPOSED	AR-SIP-DA-A01-1001 issue 4	26 May 2025	3XN
GA PLAN - BASEMENT 01	AR-SIP-DA-A02-10B1 issue 4	26 May 2025	3XN
GA PLAN - LOWER GROUND LEVEL	AR-SIP-DA-A02-10LG issue 4	26 May 2025	3XN
GA PLAN - GROUND FLOOR	AR-SIP-DA-A02-1000 issue 4	26 May 2025	3XN
GA PLAN - LEVEL 01	AR-SIP-DA-A02-1001 issue 4	26 May 2025	3XN
GA PLAN - LEVEL 02	AR-SIP-DA-A02-1002 issue 4	26 May 2025	3XN
GA PLAN - LEVEL 03	AR-SIP-DA-A02-1003 issue 4	26 May 2025	3XN
GA PLAN - PLANT LEVEL	AR-SIP-DA-A02-1004 issue 4	26 May 2025	3XN
GA PLAN - ROOF LEVEL	AR-SIP-DA-A02-1005 issue 4	26 May 2025	3XN
ELEVATION - WEST	AR-SIP-DA-A06-1000 issue 4	26 May 2025	3XN
ELEVATION - NORTH	AR-SIP-DA-A06-1001 issue 4	26 May 2025	3XN
ELEVATION - SOUTH	AR-SIP-DA-A06-1002 issue 4	26 May 2025	3XN
ELEVATION - EAST	AR-SIP-DA-A06-1003 issue 4	26 May 2025	3XN
SECTION – NORTH / SOUTH 01 - ATRIUM	AR-SIP-DA-A07-1000 issue 3	26 May 2025	3XN
SECTION – NORTH / SOUTH 02 - AUDITORIUM	AR-SIP-DA-A07-1001 issue 4	26 May 2025	3XN
SECTION – EAST / WEST 01 – BUILDING CORES	AR-SIP-DA-A07-1002 issue 3	26 May 2025	3XN
SECTION – NORTH / SOUTH 03 – STAFF ROOMS	AR-SIP-DA-A07-1003 issue 1	26 May 2025	3XN
GA PLAN – GROUND FLOOR – EXISTING COLONNADE BUILDING	AR-COL-DA-A02-1000 issue 1	26 May 2025	3XN
GA PLAN – LEVEL 01– EXISTING COLONNADE BUILDING	AR-COL-DA-A02-1001 issue 1	26 May 2025	3XN
GA PLAN – LEVEL 02 – EXISTING COLONNADE BUILDING	AR-COL-DA-A02-1002 issue 1	26 May 2025	3XN
GA PLAN – GROUND FLOOR – PROPOSED COLONNADE BUILDING	AR-COL-DA-A02-2000 issue 1	26 May 2025	3XN
GA PLAN – LEVEL 01 – PROPOSED COLONNADE BUILDING	AR-COL-DA-A02-2001 issue 1	26 May 2025	3XN
GA PLAN – LEVEL 02 – PROPOSED COLONNADE BUILDING	AR-COL-DA-A02-2002 issue 1	26 May 2025	3XN
GA PLAN – GROUND FLOOR – EXISTING FERGUSON AND SCIENCE BUILDING	AR-SCI-DA-A02-1000 issue 1	26 May 2025	3XN
GA PLAN – LEVEL 01 – EXISTING FERGUSON AND SCIENCE BUILDING	AR-SCI-DA-A02-1001 issue 1	26 May 2025	3XN
GA PLAN – LEVEL 02 – EXISTING FERGUSON AND SCIENCE BUILDING	AR-SCI-DA-A02-1002 issue 1	26 May 2025	3XN

Drawing title	Dwg no	Date	Drawn
GA PLAN – GROUND FLOOR – PROPOSED FERGUSON AND SCIENCE BUILDING	AR-SCI-DA-A02-2000 issue 1	26 May 2025	3XN
GA PLAN – LEVEL 01 – PROPOSED FERGUSON AND SCIENCE BUILDING	AR-SCI-DA-A02-2001 issue 1	26 May 2025	3XN
GA PLAN – LEVEL 02 – PROPOSED FERGUSON AND SCIENCE BUILDING	AR-SCI-DA-A02-2002 issue 1	26 May 2025	3XN
ELEVATION – EXISTING & PROPOSED COLONNADE EAST	AR-COL-DA-A06-1000 issue 1	26 May 2025	3XN
ELEVATION – EXISTING & PROPOSED FERGUSON BUILDING	AR-SCI-DA-A06-1000 issue 1	26 May 2025	3XN
ELEVATION – EXISTING & PROPOSED SCIENCE BUILDING	AR-SCI-DA-A06-1001 issue 1	26 May 2025	3XN

Other information	Ref no	Date	Prepared by
BCA compliance report	GDL240387 rev G	27 May 2025	Group DLA