

04 February 2020

Our Ref: P219\_288

Willow Tree Planning  
c/o – Bloompark Consulting Pty Ltd  
Suite 2.04 | 41 McLaren Street  
NORTH SYDNEY NSW 2060

Attention: Peter Brogan

**Re: Trinity Grammar School – Renewal Project**  
**Re: BCA Capability Statement for State Significant Development Application SSD 10371**

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1. Introduction

This statement has been prepared by Design Confidence on behalf of Trinity Grammar School (the 'Applicant'). It accompanies an Environmental Impact Statement (EIS) prepared in support of State Significant Development Application 10371 for the proposed development at the existing educational establishment located at 119 Prospect Road, Summer Hill (the 'Site'). The EIS seeks development consent to allow for the following to occur within the site –

- Create an education precinct to create a high-quality teaching and learning environment for staff and students;
- Establish additional floor space to increase availability and efficiency of teaching functions for Trinity Grammar School Summer Hill Campus;
- Improve site access, car parking and surrounding traffic functions in the precinct;
- Strengthen pedestrian linkages throughout the campus;
- Enhance the overall campus aesthetic, upgrade the public domain to create visually interesting transitions through the campus, and promote the heritage elements of the campus;
- Ensure minimal environmental impact;
- Maintain the significant green fields assets and provide opportunities for new outdoor environments;
- Ensure development is compatible with surrounding development and the local context; and
- Create a safe environment to support and nurture the boys growth.

The site and proposed design are considered to meet the objectives of the project as it allows for development on land that has been previously used for educational purposes.

The detailed built form approval of the new teaching and educational facilities, is as detailed below:

- New five (5) storey building at the heart of the Campus to accommodate contemporary, flexible teaching and learning spaces;
- Improve movement and flow for students, with better east-west and north-south links across the school grounds and between levels, including more accessible connections between the Junior School, ovals and car park, and providing strong visual and physical connections;
- Renewal and Refurbishment of existing teaching and learning facilities;
- Reconfiguration and connection of underground car park improve traffic flow for the school drop-off and pick-up zone and improve the safety of boys and visitors who enter the school grounds as pedestrians from Victoria Street;

- New multipurpose pavilion between Ovals 1 and 3 containing a championship size basketball court with practice overlay, spectator seating and amenities;
- Demolition of school-owned residences at 46, 48, 50 and 52 Seaview Street, improving the existing service, maintenance and delivery facilities;
- Improvement and extension to Junior School outdoor teaching, assembly and recreational

The purpose of this report is to provide an assessment of the proposal as described above and detailed within the EIS.

## 2. Background

Design Confidence has been engaged to provide building regulatory advice regarding the compliance status of the proposed educational development when assessed against the relevant prescriptive requirements as contained within the Building Code of Australia (BCA) 2019 – Volume 1.

This statement has been provided to accompany the Development Application, which is of State Significance. A broad assessment has been undertaken of the proposed design (as detailed within the documentation listed in Table 2.1 below).

Design Confidence has been involved on the project since the development of the architectural concept, the advice being provided to date has been in the context of the Building Code of Australia (BCA) 2019 – Volume 1, inclusive of the performance provisions contained therein.

The subject development will be of significance and has been designed to function as multi-level school. The development will also be provided with a hall which will serve multiple purposes, the hall be designed such that it can be used as an entertainment venue.

**Table 2.1 – Architectural Drawings**

PLAN TITLE	DRAWING NO	REVISION	DATE
<b>SITE PLAN</b>			
Proposed Site Plan B2	DA110	P1	Nov 2019
Proposed Site Plan B1	DA111	P1	Nov 2019
Proposed Site Plan L0	DA112	P1	Nov 2019
Proposed Site Roof Plan	DA113	P1	Nov 2019
<b>PRECINCT PLAN</b>			
Proposed T&L Precinct Plan B1	DA120	P1	Nov 2019
Proposed T&L Precinct Plan L0	DA121	P1	Nov 2019
Proposed T&L Precinct Plan L1	DA122	P1	Nov 2019
Proposed T&L Precinct Plan L2	DA123	P1	Nov 2019
Proposed T&L Precinct Plan L3	DA124	P1	Nov 2019
Proposed T&L Precinct Plan L4	DA125	P1	Nov 2019
<b>PERFORMING ARTS PRECINCT PLAN</b>			
Proposed Performing Arts Precinct & Multi-Purpose Pavilion Plan B2	DA130	P1	Nov 2019
Proposed Performing Arts Precinct & Multi-Purpose Pavilion Plan B1	DA131	P1	Nov 2019
Proposed Performing Arts Precinct & Multi-Purpose Pavilion Plan L0	DA132	P1	Nov 2019
Proposed Performing Arts Precinct & Multi-Purpose Pavilion Plan L1	DA133	P1	Nov 2019
Proposed Performing Arts Precinct & Multi-Purpose Pavilion Plan L2	DA134	P1	Nov 2019

PLAN TITLE	DRAWING NO	REVISION	DATE
Proposed Performing Arts Precinct & Multi-Purpose Pavilion Plan L3	DA135	P1	Nov 2019
Proposed Performing Arts Precinct Roof & Multi-Purpose Pavilion Plan	DA136	P1	Nov 2019
<b>PROPOSED MAINTENANCE PLAN</b>			
Proposed Maintenance Plan B1	DA140	P1	Nov 2019
Proposed Maintenance Plan L0	DA141	P1	Nov 2019
Proposed Maintenance Plan L1	DA142	P1	Nov 2019
<b>SECTIONS</b>			
Site Sections AA, BB, GG	DA300	P1	Nov 2019
Site Sections CC, DD	DA301	P1	Nov 2019
Site Sections EE, FF	DA302	P1	Nov 2019
<b>DECANTING SPACE</b>			
Decanting Space Proposal	DA400	P1	Nov 2019

### 3. BCA Compliance Strategy

Table 3.1 below summaries the proposed development in the context of the BCA

**Table 3.1 – BCA Summary**

DESCRIPTION OR REQUIREMENT	
Building Classification	Basement Level B2 – Class 7a + 9b Basement Level B1 – Class 7a + 9b Ground Floor (level 0) – Class 9b Level 1 – Class 9b Level 2 – Class 9b Level 3 – Class 9b Level 4 – Class 9b
Rise in Storeys	Seven (7) – 2 levels of basement
Storeys Contained	Seven (7) (5 above ground and 2 basement levels)
Construction Type	Type A
Effective Height	20.23 (RL64.1 – RL43.87)

The following outlines the proposed compliance strategy for the development noting that compliance will be achieved via both prescriptive measures and performance-based solutions.

#### 3.1 Compartmentation & Separation

The BCA places limitations on the maximum floor area and volume an area within a building can be, this is to limit the maximum allowable fuel load available within a space which is also tied back to the fire-resistance levels building elements are required to achieve.

The subject building consists of a significant new portion which ties into existing building parts, hence, to achieve compliance two separate but interrelated matters need to be met, being –

- i. Item 1 – the connection between new and old building parts, reference should made to the architectural drawings contained within Appendix A1 which nominate an indicative compartmentation strategy between the new building works and the existing buildings, the main areas which require further development are –

- Basement B2 – the existing school of science and the carpark;
- Basement B1 – the existing school of science from the carpark;
- Basement B1 – the existing school of science from the refurbished change rooms and gym
- Basement B1 – the carpark and the performing arts building
- Basement B1 – the existing pool house and scout hall from the gym
- Level 0 – the existing school of science from the refurbished change rooms and gym; the intention would be to include the refurbished change rooms and gym into the new building / Agora to allow for the open connection to occur at this level
- Level 01 – the assembly hall from the proposed new building
- Decanting building - setbacks to fire source features

ii. Item 2 – the new building contains vertical connections throughout to promote the vertical integration of the educational spaces, hence this is to be considered a single fire compartment and will be addressed under a BCA Performance Solution / Fire Engineering Report.

### 3.2 Protection of Openings

Based upon the compartmentation strategy proposed above, there will be a need to look at addressing both existing and proposed openings which are located within adjoining fire compartments when they are within 6m of one another.

### 3.3 Provision for Escape

#### 3.3.1 Fire-Isolated Exits

The new building incorporates open stairways which connect more than two levels and are not enclosed within fire-rated shafts, these stairways which promote an open connection will be the subject of a BCA Performance Solution / Fire Engineering Report.

#### 3.3.2 Exit Travel Distances

A detail egress assessment of the proposed development has been undertaken which determined that the BCA Performance Solution / Fire Engineering Report (FER) is required to support the design in its current format, a general overview of the egress assessment is detailed below –

- Champ Court – additional exit required to western wall + FER to address extended travel;
- Main Building – provision of two exits on every level + FER to address extended travel distances and maximum distances permitted between alternative exits;
- Carpark – additional exits may be required + FER to address extended travel and maximum distances permitted between alternative exits

### 3.4 Services and Equipment

#### 3.4.1 Sprinklers

The new educational building and the carpark will be sprinkler protected; the existing carpark is as it contains more than 40 cars spaces. The educational building is not required to be sprinkler protected; however, it is being proposed to afford the users with a better level of life safety and assist in addressing some of the items highlighted in Section 3.3 above.

The introduction of sprinklers will require that all sprinklered and non-sprinkler areas be separated via construction achieving an FRL of at least 120/120/120, the compartmentation strategy proposed under Section 3.1 looks to address this, however this will require further refinement as the design develops and assistance from the fire safety engineer may be required.

### 3.4.2 Stage within Assembly Hall

The subject stage within the space exceeds 150sqm and incorporates flying scenery, hence it is required to be provided with an automatic smoke exhaust system complying with BCA Spec E2.2b, the subject stage is currently provided with smoke and heat vents, however the current performance status of these vents is unknown, irrespective of this the vents are not acceptable due to the stage size and the use of flying scenery.

The stage will not be provided with an automatic smoke exhaust system, hence the measures above this area will be subject of a BCA Performance Solution / Fire Engineering Report and the detailed analysis contained therein.

### 3.4.3 Other Fire Safety Measures

Reference should be made to Section 4 Below as it outlines the remaining fire safety measures currently proposed.

### 3.5 Sanitary Facilities

Table 3.2 below outlines the required number of sanitary facilities

**Table 3.2** – Sanitary Facilities

OCCUPANT POPULATION		NUMBER	WC REQUIRED	URINAL REQUIRED	WASHBASIN REQUIRED
Senior School	<b>Male</b>	1 680	<b>19</b>	<b>18</b>	<b>25</b>
Staff	<b>Male</b>	150	<b>8</b>	<b>6</b>	<b>5</b>
	<b>Female</b>	150	<b>11</b>		<b>5</b>

- An accessible sanitary facility can be counted once for each sex
- Sanitary facilities are not permitted to be shared between males and females
- The table does not address the junior school

#### 4. Fire Safety Measures

Table 4.1 below outlines the relevant statutory fire safety measures that will be provided as part of the development such that compliance with the BCA is achieved.

**Table 4.1 – Fire Safety Measures**

STATUTORY FIRE SAFETY MEASURES	PROPOSED STANDARD OF PERFORMANCE
Access panels and hoppers to fire-resisting shafts	BCA Cl. C3.13 & AS1905.1-2005 & AS1530.4-2005
Alarm signalling equipment	BCA Spec 1.5 & AS1670.3-2015
Automatic fail-safe devices	BCA Cl. D2.21
Automatic fire detection and alarm systems	BCA Cl. E2.2, Spec E2.2a & AS1670.1-2015
Automatic fire suppression systems	BCA E1.5, Spec E1.5, H101.5.3 & AS2118.1-1999
Emergency warning and intercommunication systems	BCA Cl. E4.9 & AS1670.4-2015
Emergency lighting	BCA Cl. E4.2, E4.4 & AS/NZS2293.1-2005
Exit signs	BCA Cl. E4.5, E4.6, E4.8 & AS/NZS2293.1-2005
Fire dampers	BCA Cl. C3.15, Spec. C3.15, AS1530.4-2005 & AS4072.1-2005 with tested prototype and manufactures specifications
Fire doors	BCA C3.2, C3.4, D1.8 & AS1905.1-2005
Fire control centre	BCA E1.8 & BCA Spec E1.8
Fire hose reel systems	BCA Cl. E1.4 & AS2441-2005
Fire hydrant systems	BCA Cl. E1.3 & AS2419.1-2005
Fire seals protecting openings in fire-resisting components of the building	BCA Cl. C3.15, Spec. C3.15, AS1530.4-2005 & AS4072.1-2005 with tested prototype and manufactures specifications
Fire windows	BCA Cl. C3.4, D1.8 & AS1530.4-2005 with tested prototype and manufactures specifications
Fire shutters	BCA Cl. C3.4, D1.8 & AS1530.4-2005 with tested prototype and manufactures specifications
Lightweight construction	BCA Cl. C1.8, D1.8, Spec C1.1 & AS1530.4-2005 with tested prototype and manufactures specifications
Mechanical air-handling systems (automatic shutdown)	BCA Cl. E2.2 (NSW), Spec E2.2a (clause 5) & AS1670.1-2004
Mechanical air-handling systems (automatic smoke exhaust system)	BCA Cl. E2.2 (NSW), Spec E2.2b & AS1668.1-2015
Portable Fire Extinguishers	BCA Cl. E1.6 & AS2444-2001
Smoke dampers	BCA Cl. E2.2 with tested prototype and manufactures specifications
Safety curtains in proscenium openings	BCA NSW H101.10
Wall wetting sprinkler and drencher systems	BCA Cl. C3.4 & D1.8 with tested prototype and manufactures specifications
Warning and operational signs	BCA D2.23 & E3.3
Fire Engineering Performance Solutions	TBC

## 5. Summary

Our strategy for ensuring compliance will be refined and documented over the coming months in conjunction with the continual development of the architectural documentation, if required.

In order to achieve compliance with the BCA, whilst preserving the functional and aesthetic requirements of the project, the use of performance-based designs may be required. It is our belief that performance-based design can deliver a building that meets the Performance Requirements of the BCA.

We are of the opinion that compliance can be achieved, be it via either complying with the DTS provisions or Performance requirements of the BCA.

We trust that the above information is sufficient for the Department of Planning in assessing the merit architectural design from a planning perspective.

This statement should not be construed as relieving any other parties of their legislative obligations.

I possess Indemnity Insurance to the satisfaction of the building owner or my principal.

Yours Faithfully



Luke Sheehy

**Principal**

For Design Confidence (Sydney) Pty Ltd

