Bushfire Assessment Report

SPCC Salamander Bay – Junior School Building, 182 Salamander Way, Salamander Bay

Prepared for

St Philip's Christian Education Foundation Limited, C/- Barr Planning

Final V2 / September 2021

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Stuart Greville
Accredited Bushfire Practitioner
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This report has been prepared in accordance with Appendix 2 of Planning for Bushfire Protection 2019 and certifies the development conforms to the specifications and requirements of Section 100B of the Rural Fires Act 1997 and S4.14 of the Environmental Planning and Assessment Act 1979.

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GLOSSARY OF TERMS AND ABBREVIATIONS

Term/ Abbreviation	Meaning
API	Aerial Photograph Interpretation
APZ	Asset Protection Zone
AS2419-2005	Australian Standard – Fire Hydrant Installations
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BAR	Bushfire Assessment Report
BCA	Building Code of Australia
BC Act	Biodiversity Conservation Act 2016
BMP	Bush Fire Management Plan
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BPL	Bush Fire Prone Land
BPLM	Bush Fire Prone Land Map
BPM	Bush Fire Protection Measures
DoE	Commonwealth Department of the Environment
DPI Water	NSW Department of Primary Industries – Water
EPA Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
FDI	Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
LLS Act	Local Land Services Act 2013
MHE	Manufactured Home Estate
NCC	National Construction Code
OPA	Outer Protection Area
OEH	NSW Office of Environment and Heritage
PBP or PBP (2019)	Planning for Bushfire Protection 2019
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation
RFS	NSW Rural Fire Service
TSC Act	NSW Threatened Species Conservation Act 1995 (as repealed)

1 Introduction

MJD Environmental has been engaged by Barr Planning on behalf of St Philip's Christian Education Foundation Limited (SPCC) to prepare a Bushfire Assessment Report (BAR) to accompany a Development Application (DA) seeking approval to demolish an existing School building and construct a new Junior School building over land at 182 Salamander Way, Salamander Bay (hereafter referred to as the Site). Refer to **Figure 1**.

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the Proposal, and to outline the minimum mitigative measures which would be required in accordance with *Planning for Bush Fire Protection 2019* (PBP), as adopted through the *Environmental Planning & Assessment Amendment* (Planning for Bush Fire Protection) *Regulation 2020*.

The proposal type triggers the criteria outlined with Chapter 6 Section 6.4 of PBP (2019) for infill Special Fire Protection Purposes (SFPP) due to the school development type. As such SFPP activates the provisions of integrated development under Section 4.46 of the EP& A Act, thus requiring approval and issue of a Bush Fire Safety Authority from the NSW RFS under section 100B of the *Rural Fires Act 1997* (RF Act).

In order to determine whether the proposed development is bushfire-prone, and if so, which setbacks and other relevant Bush Fire Protection Measures (BPM) will be appropriate, this assessment adhered to the methodology and procedures outlined in PBP (2019) via assessment of acceptable solutions as outlined in Chapter 6 of PBP (2019).

This assessment has been made based on the bushfire hazards in and around the Site at the time of site inspection (31st July 2021) and report production.

1.1 Aims & Objectives

This BAR addresses the aims and objectives of PBP 2019, being:

- Afford buildings and their occupants protection from exposure to a bushfire;
- Provide for a defendable space to be located around buildings;
- Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;
- Ensure that appropriate operational access and egress for emergency service personnel and occupants is available;
- Provide for ongoing management and maintenance of bushfire protection measures; and
- Ensure that utility services are adequate to meet the needs of firefighters.

1.2 Site Particulars

Locality	The site is located at 182 Salamander Way, Salamander Bay.
Land Title	Lots 143 & 144 DP715013.
LGA	Port Stephens Council
Area	4082 sqm in total (approximately)
Zoning	The site is zoned SP2 – Infrastructure School / Child Services
Boundaries	The site is bound to the North by Salamander Way and surrounding residential suburb, to the West by the neighbouring The Rock Church, to the East by

	Narnia Christian Preschool and Early Childhood Centre and to the South by the existing St Philip's Christian College Campus.
Current Land Use	The site is currently part of the existing St Philip's Christian College Campus, and houses part of the Junior School Campus.
Topography	The site terrain is on flat land (~6-7m AHD).
Climate / Fire History	The site lies within a geographical area with a Forest Fire Danger Index (FFDI) rating of 100. The site is classified as being affected by Vegetation Category 3 and its Buffer on the Bushfire Prone Land Map (DPE 2021/ Mecone Mosaic 2021). Refer to **Figure 2**.
Environment & Cultural Significance	A search of the AHIMS register has been completed on the 31st August 2021 and confirmed that there are no recorded Aboriginal sites or places on the site. The proposal will require only continuation of current land management practices, without impacting native vegetation communities. Therefore, it is considered that the proposal will have minimal impact on matters of environmental or cultural significance.

1.3 Description of the Proposal & Background

The proposed development seeks to replace part of the existing junior school facilities and represents St Philip's continuing commitment to investment in educational infrastructure.

The site comprises Lot 143 and Lot 144 DP 715013, 182 and 184 Salamander Way, and Lot 1 DP 847022 176 Salamander Way, and Lot 1, DP 734433, 186 Salamander Way, Salamander Bay. Lot 143 together with Lot 1 DP 847022 forms the existing St Philip's Christian College (SPCC) Port Stephens campus, which provides a range of primary, and secondary educational uses. Lot 1, DP 734433 contains Narnia Child Care Centre, providing early childcare services for the school and the community. The consolidation of the lots is proposed as part of this application.

The land is owned by St Philips Christian Education Foundation Limited.

The proposed development seeks consent for the following works:

- Consolidation of Lots 143 and 144 DP 715013. (note that only Lot 144 has a very minor impact from mapped bushfire buffer to Category 3 vegetation. Refer to **Figure 2**)
- Demolition of three existing junior school buildings located on Lot 143, the existing OOSH building, four car spaces and driveway, removal of existing fencing and 11 existing trees;
- Construction of two-storey junior school building including classrooms and associated support rooms, administration area, staff room, and multipurpose lab. The building comprises a range of building materials including coloured glazed brick, lightweight cladding at the upper level, and Colorbond roofing;
- Associated earthworks and landscaping; and
- Use of land at Lot 144 DP 715013 as an educational establishment.

Note and of critical importance to the site context as it relates to bushfire:

1) The development represents SFPP Infill under the provisions Section 6.4 of PBP (2019), specifically as the site and buildings form a part of the school operation. The buildings are aged and former dwellings that have been adapted to suit the school use. The new building affords a better design and outcome with regard to bushfire.
2) Port Stephens Council Development Consent No. 16 - 2017 - 647 – 1 was issued by Council on 18 April 2018. This application was prepared and approved on the basis of a total of 1200 of students (Junior, Middle and Senior school), and 120 FTF staff. The proposed alterations and additions to the school will not increase this overall student or staff number.

3) The proposal will not increase the number of students and staff on the school that also includes Narnia Child Care to the east of the site. The proposed building is providing new facilities for the approved school population.

4) The School as a whole that includes the Narnia Child Care Centre located on 186 Salamander Way has obtained approval for operation that involved a change of use to adapt an existing dwelling on the land. This approval was informed by bushfire studies and review from the NSW RFS (Ref D13/2465-DA13102589457KV Dated 16 July 2015 – provided as **Appendix C**). Closely related to this approval, a licence agreement for the initial removal of vegetation and continual management has been established with the Crown over an area of land immediately adjacent to the school / childcare. The licence agreement is provided **Appendix D**.

Within the Crown Land a series of interconnecting fire trails have been established with Quarry Fire Trail traversing the rear of the Salamander Bay Fire & Rescue and Ambulance Station located 150m to the east of the site.

182 SALAMANDER WAY, SALAMANDER BAY

SITE

Legend

- Cadastral Boundaries
- Subject Site
- Inner Protection Area (License 548404 v2)
- Slope Classification Buffer (100m)
- Vegetation Classification Buffer (140m)

0 20 40 80

Meters

1:1,400

N W E S

MJD Environmental

Aerial: NearMap (2021) | Data: MJD Environmental. SHAC, Spatial Services (2021) | Datum/Projection: GDA 2020 MGA Zone 56 | Date: 8/09/2021| Version 1 | Z:\21073 - Salamander Bay Campus\21073 - Salamander Bay Campus_20210727.mxd | This plan should not be relied upon for critical design dimensions.

Figure 2 Bushfire Prone Land Map

Source: Mecone Mosaic

2 Bushfire Hazard Analysis

2.1 Vegetation Assessment

Methodology

The vegetation in and around the Site, has been assessed to 140m in accordance with PBP 2019. This assessment has been made via a combination of:

- aerial photo interpretation;
- a site visit (31st July 2021); and
- reference to regional community vegetation mapping (including Keith 2004).

These vegetation communities have been classified for bushfire purposes into structure and formation using the system adopted by Keith (2004) and using Figure A1.2 of PBP (2019) with due regard to Appendix 1 of PBP (2019).

Refer to Site Photos for vegetation observed in and around the site during site inspection.

Vegetation Classification

Vegetation classification has been presented in **Table 1** below and **Figure 3**.

Table 1 Vegetation Classification

Direction	Description	Vegetation Classification
North	Interface with residential dwellings adjoining Salamander Way	Managed
East	Narnia Christian Preschool and Early Childhood Centre and Licence Vegetation Management area	Managed
	Coastal Swamp Forest transitioning to Coastal Dune Dry Sclerophyll Forest	Forest
South-east	Coastal Swamp Forest transitioning to Coastal Dune Dry Sclerophyll Forest	Forest
South	St Philip's Christian College Campus	Managed
South-west	St Philip's Christian College Campus	Managed
West	The Rock Church and carpark	Managed

Site Photos

Photo 1 – View of the site from northern side of Salamander Way

Photo 2 – View looking west along Salamander Way from site

Photo 3 – View looking east along Salamander Way

Photo 4 – Booster Station and Hydrant at front of Narnia

Photo 5 – Licence management area looking north adjacent to Narnia

Photo 6 – Licence management area looking south adjacent to Sneior School Campus

Photo 7 – Licence management to rear of Narnia

Photo 8 – View of South-east corner of the site.

Photo 9 – Licence management area looking south adjacent to Sneior School Campus

Photo 10 – Southen intersection of Fire Trails

Photo 11 – View north on Quarry Fire Trail

Photo 12 – View from Quarry Fire Trail through Swamp Forest and Creekline into Licence Management Area

Photo 13 – View from Quarry Fire Trail through Swamp Forest and Creekline into Licence Management Area

Photo 14 – View north on Quarry Fire Trail. Note Creekline and Licence Management Area to the west (left) of photo.

Photo 15 – View from Fire Trail at rear of Salamander Bay Fire & Rescue Station via intersecting track from Quarry Fire Trail

Photo 16 –Fire Trail signage at entrance.

Photo 17 –Quarry Fire Trail access from Salamander Way

2.2 Slope Assessment

Methodology

In accordance with PBP (2019), an assessment of the slope was conducted throughout the Site (where a hazard is present) and for a distance of 100m around the Site in the hazard direction. Both the average slope and maximum slopes were considered to determine the level of gradient which will most significantly influence fire behaviour on the Site. The slope was categorised within the slope classification under PBP Appendix A1.4.

Slope assessment was assisted by:

- Preparation of slope assessment based on 1m contours derived from the DEM; and
- Aerial imagery overlay.

Effective Slope

The slope class under any bushfire hazard within 100m is presented in **Table 2** below and **Figure 3**.

Table 2 Slope measurements

Direction	Vegetation Classification	Slope measurement
East (T1)	Forest	Flat / Upslope 0.5º
South-east (T2)	Forest	Flat / Upslope 0.8º

182 SALAMANDER WAY, SALAMANDER BAY

FIGURE 3: SLOPE AND VEGETATION CLASSIFICATION

Legend

- Elevation (m)
- Transects
- Contours (1m)
- Fire Trail
- Stormwater

Vegetation (Keith 2004)

- Coastal Dune Dry Sclerophyll Forests
- Coastal Swamp Forests
- Development Footprint
- Intergrade
- Managed Land
- Wallum Sand Heaths
- Area requiring management to IPA per License 548404 v2

- Subject Site
- Inner Protection Area (License 548404 v2)
- Slope Classification Buffer (100m)
- Vegetation Classification Buffer (140m)
- Cadastral Boundaries

0 20 40 80

Meters

1:1,400

N W E S

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3 Bushfire Protection Measures

PBP 2019 sets out a suite of BPMs and criteria that require consideration and assessment for applicable proposals on bushfire prone land in order to provide an adequate level of protection to new developments.

The following measures have been considered and discussed throughout this chapter with due regard to PBP (2019):

- Asset Protection Zones (APZ)
- Bushfire Attack Levels (BAL) set out in PBP 2019
- Access
- Services – Water supply, Gas and Electricity
- Landscaping and Fuel Management
- Emergency Management

3.1 Asset Protection Zone

An APZ is a buffer zone between the hazard and buildings that is progressively managed to minimise bushfire hazard (fuel loads and reduce potential radiant heat levels, flame, ember and smoke attack) PBP (2019), in order to mitigate risk to life and asset. Where a hazard vegetation classification has been determined, an APZ can consist of two areas being:

1) Inner Protection Area (IPA) – The IPA extends from the edge of the development/ buildings to the OPA. The IPA aims to provide defendable space and reduce potential for direct or spontaneous ignition by providing a heavily reduced or fuel free zone.
2) Outer Protection Area (OPA) – The OPA is located adjacent to the hazard. Within the OPA any trees and shrubs should be maintained in a manner such that the vegetation is not continuous in order to reduce flame length and fire intensity. A properly managed OPA can aid in ember attack by filtering embers and slowing the fires rate of spread.

An APZ can include the following:

- Lawns;
- discontinuous gardens;
- swimming pools;
- driveways;
- detached garages;
- open space / parkland;
- car parking; and
- cycleway and formed walkways.

3.1.1 Determining APZ

The site lies within the Port Stephens Council LGA and therefore is assessed under an FFDI (Forest Fire Danger Index) rating of 100. Notably, as the proposal is for SFPP development, performance criteria for APZs is satisfied if radiant heat levels 10kW/m^2 or less are experienced at the building.

Acceptable solution APZ has been assessed in accordance with PBP (2019) Table A1.12.1. Refer to **Table 3** for the required APZs.

Table 3 Required APZ (PBP 2019)

Direction	Vegetation Classification	Slope measurement	APZ
East (T1)	Forest	Flat / Upslope 0.5º	67
South-east (T2)	Forest	Flat / Upslope 0.8º	67

3.1.2 Determining BAL

By considering the bushfire hazard analysis outcomes presented in Chapter 2, Table A1.12.5 of Appendix 1 of PBP (2019) was applied to the vegetation classification and slope analysis to calculate the required BAL based on separation from the hazard for the site. Refer to **Table 4**.

Table 4 Required BAL (PBP 2019)

Direction of Hazard	Vegetation Classification	Slope	APZ (PBP 2019)	Separation Distance (m)	BAL
East (T1)	Forest	Flat / Upslope 0.5º	67m	<18 18-<24 24-<33 33-<45 45-<100 62m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 10Kw/m^2
South-east (T2)	Forest	Flat / Upslope 0.8º	67m	<18 18-<24 24-<33 33-<45 45-<100 62m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 10Kw/m^2

3.1.3 Performance Solution APZ

The Performance Criteria may also be met by designing an Alternate Solution (Performance Solution); which in this instance involves the modelling of radiant heat using the methodology detailed in Appendix B of Australian Standard *AS3959-2018 Construction of buildings in bushfire prone areas* (AS3959-2018).

Modelling the radiant heat exposure, the size and shape of a bushfire hazard influence the behaviour of bushfire and associated risk to the built environment/ development.

The NBC Bushfire Attack Assessor V4.1 was used to model the bushfire radiant heat exposure which determined the applicable APZ setback to achieve a 10kw/m^2. The modelled APZ has been detailed in **Table 5** and mapped in **Figure 4**. Refer to **Appendix B** for a copy of the NBC Bushfire Attack Assessment Report V4.1 report.

Table 5 Modelled APZ (PBP 2019)

Direction	Vegetation Classification	Slope measurement	APZ
East (T1)	Coastal Swamp Forest	Flat / Upslope 0.5º	66
South-east (T2)	Coastal Swamp Forest	Flat / Upslope 0.8º	60

3.1.4 Performance Solution BAL

The NBC Bushfire Attack Assessor V4.1 was used to model the bushfire radiant heat exposure which determined the applicable BAL. The modelled BAL contours have been detailed in **Table 6** and mapped in **Figure 5**.

Table 6 Modelled BAL (PBP 2019)

Direction of Hazard	Vegetation Classification	Slope	APZ (PBP 2019)	Separation Distance (m)	BAL
East (T1)	Coastal Swamp Forest	Flat / Upslope 0.5º	66m	<24 24-<31 31-<43 43-<57 66-<100 66m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 10Kw/m^2
South-east (T2)	Coastal Swamp Forest	Flat / Upslope 0.8º	60m	<24 24-<31 31-<43 43-<57 53-<100 65m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 10Kw/m^2

212/ /1021533

22/ /877647

242/ /883093

241/ /883093

75/ /877647

10/ /837605

SALAMANDER WAY

SALAMANDER WAY

6.3m SETBACK

141/ /715013

142/ /715013

PROPOSED JUNIOR SCHOOL BUILDING

144/ /715013

EXISTING NARNIA BUILDING

RL 8.085 (for survey DS 2013)

1/ /734433

COVERED OUTDOOR PLAY

OUTDOOR STORE

NARNIA PLAYAREA

SHADE SAILS & PLAYGROUND

533/ /822120

182 SALAMANDER WAY, SALAMANDER BAY

ASSET PROTECTION ZONE

Legend

- Fire Trail
- Stormwater
- Cadastral Boundaries
- Required Asset Protection Zone (PBP 2019 / AS3959-2018 Method 2)
- Inner Protection Area (License 548404 v2)
- Site

Vegetation (Keith 2004)

- Coastal Dune Dry Sclerophyll Forests
- Coastal Swamp Forests
- Intergrade
- Area requiring management to IPA per License 548404 v2

0 5 10 20

Meters

1:600

N W E S

MJD Environmental

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BUSHFIRE ATTACK LEVELS

Legend

- Contours (1m)
- Fire Trail
- Stormwater
- Cadastral Boundaries
- Required Asset Protection Zone (PBP 2019 / AS3959-2018 Method 2)
- Inner Protection Area (License 548404 v2)
- Site

Vegetation (Keith 2004)

- Coastal Dune Dry Sclerophyll Forests
- Coastal Swamp Forests
- Intergrade
- Area requiring management to IPA per License 548404 v2

Required Bushfire Attack Levels

PBP 2019 / AS3959-2018 Method 2

- BAL-40
- BAL-29
- BAL-19
- BAL-12.5

0 5 10 20

Meters

1:600

N W E S

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3.2 Access

In the event of a serious bushfire threat to the proposed development, it will be essential to ensure that adequate ingress / egress and the provision of defendable space are afforded in the development design with due regard to the requirements of Table 6.8b, and Appendix 3 of PBP (2019).

The site for the new SPCC Junior Campus has direct access from Salamander Way, a public road situated on the Northern boundary of the lots. As part of proposed development works, vehicular access will be removed from 182 Salamander Way and redirected through 176 Salamander Way to the existing St Philip's Christian College Campus access and carpark.

The new building will provide pedestrian access fronting Salamander Way and also connect students to the existing School campus buildings situated to the south of the site (note plans provided in **Appendix A**)

Access to Narnia will be maintained and uninterrupted as part of this proposal. Importantly, the Narnia access provides water booster connection points and walking access to defendable space established in the cleared licence area to the east.

The proposal is considered to meet the performance criteria for access by providing safe operational access for emergency services personnel while occupants are evacuating the site.

Refer to **Appendix A** for Site Plan showing access.

Table 7 Acceptable solutions for Access (PBP 2019)

Performance Criteria	Acceptable Solutions
The intent may be achieved where:	
Access ▪ firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	▪ SFPP access roads are two-wheel drive, all-weather roads; ▪ access is provided to all structures; ▪ traffic management devices are constructed to not prohibit access by emergency services vehicles; ▪ access roads must provide suitable turning areas in accordance with Appendix 3; and ▪ one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.
▪ the capacity of access roads is adequate for firefighting vehicles.	▪ the capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges and causeways are to clearly indicate load rating.
▪ there is appropriate access to water supply.	▪ hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression; ▪ hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005; and ▪ there is suitable access for a Category 1 fire appliances to within 4m of the static water supply where no reticulated supply is available.
Perimeter access roads ▪ perimeter access roads are designed to allow safe access and egress for firefighting vehicles while	▪ there are two-way sealed roads; ▪ minimum 8m carriageway width kerb to kerb;

Performance Criteria	Acceptable Solutions
occupants are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.	▪ parking is provided outside of the carriageway width; ▪ hydrants are to be located clear of parking areas; ▪ there are through roads, and these are linked to the internal road system at an interval of no greater than 500m; ▪ curves of roads have a minimum inner radius of 6m; ▪ the maximum grade road is 15 degrees and average grade of not more than 10 degrees; ▪ the road crossfall does not exceed 3 degrees; and ▪ a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.
Non-perimeter access roads ▪ non-perimeter access roads are designed to allow safe access and egress for firefighting vehicles while occupants are evacuating.	▪ minimum 5.5m carriageway width kerb to kerb; ▪ parking is provided outside of the carriageway width; ▪ hydrants are located clear of parking areas; ▪ there are through roads, and these are linked to the internal road system at an interval of no greater than 500m; ▪ curves of roads have a minimum inner radius of 6m; ▪ the maximum grade road is 15 degrees and average grade of not more than 10 degrees; ▪ the road crossfall does not exceed 3 degrees; and ▪ a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

3.3 Services – Water, Electricity, Gas

The Site is to be developed in accordance with the acceptable solutions detailed in Table 6.8c of PBP 2019 for services s summarised below in **Table 8**.

The proposal is able to satisfy these requirements given:

- Reticulated water supply is available and shall be extended and augmented within the site.
- The Site is connected to the existing power supply available from Salamander Way. This shall be extended and augmented within the site.
- Any future gas connection shall be installed in accordance with the provisions of PBP (2019).
- Fire hydrant booster is available in the carpark of the Narnia Child Care.
- Any water storage tanks are to include connection points in accordance with PBP (2019) and be readily accessible and clearly marked. If pumps are to be made available, they must be regularly maintained and in good working order.

Table 8 Acceptable solutions for services (PBP 2019)

Performance Criteria	Acceptable Solutions
The intent may be achieved where:	
▪ An adequate water supply for firefighting purposes is installed and maintained.	▪ reticulated water is to be provided to the development, where available; or ▪ a 10,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available.
▪ Water supplies are located at regular intervals. ▪ The water supply is accessible and reliable for firefighting operations.	▪ fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005; ▪ hydrants are not located within any road carriageway; and ▪ reticulated water supply to SFPPs uses a ring main system for areas with perimeter roads.
▪ Flows and pressure are appropriate.	▪ fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005
▪ The integrity of the water supply is maintained.	▪ all above-ground water service pipes external to the building are metal, including and up to any taps.
▪ Water supplies are adequate in areas where reticulated water is not available.	▪ a connection for firefighting purposes is located within the non-hazard side / away from the structure; a 65mm Storz outlet with a ball valve is fitted to the outlet; ▪ ball valve and pipes are adequate for water flow and are metal; ▪ supply pipes from tank to ball valve have the same bore size to ensure flow volume; ▪ underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank; ▪ a hardened ground surface for truck access is supplied within 4m of the access hole; ▪ above-ground tanks are manufactured from concrete or metal; ▪ raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F AS 3959); ▪ unobstructed access is provided at all times; ▪ tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters; and ▪ underground tanks are clearly marked, ▪ all exposed water pipes external to the building are metal, including any fittings; ▪ where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack; Any hose and reel for firefighting connected to the pump shall be 19mm internal diameter; and ▪ fire hose reels are constructed in accordance with AS/NZS 1221:1997 Fire hose reels, and installed

Performance Criteria	Acceptable Solutions
	in accordance with the relevant clauses of AS 2441:2005 Installation of fire hose reels.
Electricity Services ▪ Location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings	▪ where practicable, electrical transmission lines are underground. ▪ where practicable, electrical transmission lines are underground; where overhead, electrical transmission lines are proposed as follow: o lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and o no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 *Guideline for Managing Vegetation Near Power Lines*.
Gas services ▪ Location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings	▪ reticulated or bottled gas is installed and maintained in accordance with AS/NZ 1596:2014 – *The storage and handling of LP Gas*, and the requirements of relevant authorities, and metal piping is used; ▪ all fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side; ▪ Connections to and from gas cylinders are metal; ▪ if gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion; ▪ polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used; and ▪ above-ground gas service pipes are metal, including and up to any outlets.

3.4 Landscaping & Fuel Management

All future landscaping on the site should be designed and managed to minimise the impact of bushfire based on the principles set out in PBP (2019) being:

- Prevent flame contact / direct ignition on the building;
- Provide a defendable space for property protection;
- Reduce fire spread;
- Deflect and filter embers;
- Provide shelter from radiant heat; and
- Reduce wind speed.

In this manner, consideration should be given to species selection, planting location, flammability, and size at maturity to ensure discontinuous canopy/ structure both vertically and horizontally to ensure the above principles are met.

Ongoing fuel management across the site as part of the maintenance regime should give due consideration to Appendix 4 Asset Protection Zone Requirements of PBP (2019) which provides guidance on maintenance activities to assist in achieving the landscape principles.

3.5 Emergency Management

Any fire within the site would be attended in the first instance by Salamander Bay Fire & Rescue Station situated 150m to the east or Soldiers Point RFS, with further support available from surrounding Rural Fire Brigades.

A Bush Fire Emergency Management and Evacuation Plan shall be prepared for the Site as set out in Table 6.8d of PBP 2019 and summarised in **Table 9** below. A copy of the Bushfire Emergency Management and Evacuation Plan is to be provided to the Local Emergency Management Committee. Any existing emergency management plans must be updated to reflect the proposal and RFS guidelines.

Table 9 Acceptable solutions for Emergency Management (PBP 2019)

Performance Criteria	Acceptable Solutions
The intent may be achieved where:	
a Bush Fire Emergency Management and Evacuation Plan is prepared.	▪ a Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the NSW RFS document: *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan*, and AS 3745:2010 *Planning for emergencies in facilities* ▪ the Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants. Note: A copy of the Bush Fire Emergency Management and Evacuation Plan should be provided to the Local Emergency Management Committee for its information prior to occupation of the development.
appropriate and adequate management arrangements are established for consultation and implementation of the Bush Fire Emergency Management and Evacuation Plan.	▪ an Emergency Planning Committee is established to consult with residents (and their families in the case of aged care accommodation and schools) and staff in developing and implementing an Emergency Procedures Manual; and ▪ detailed plans of all emergency assembly areas including on site and off-site arrangements as stated in AS 3745:2010 are clearly displayed, and an annually emergency evacuation is conducted.

3.6 Discussion of Bushfire Outcomes

The site is situated within 66m of the proximate hazard situated to the east and therefore the acceptable solution APZ will encroach over the proposed building. However, the proposed Junior School building on site is further away from the hazard with due consideration to the existing Narnia Child Care centre situated to the east and large SPCC School campus area situated to the south.

Consideration has been given to meeting the PBP (2019) Performance Criteria by designing an Alternate Solution (Performance Solution); which in this instance involves the modelling of radiant heat using the methodology detailed in Appendix B of Australian Standard *AS3959-2018 Construction of buildings in bushfire prone areas* (AS3959-2018).

The NBC Bushfire Attack Assessor V4.1 was used to model the bushfire radiant heat exposure which determined the applicable APZ setback to achieve a 10kw/m^2. A copy of the NBC Bushfire Attack Assessment Report V4.1 report has been provided as **Appendix B**. The modelling determined that a 10kw/m^2 exposure would occur at a setback of 66m from the hazard to the east and 60 to the south-east however similar to the acceptable solution APZ, this setback will encroach over the proposed building.

A review of bushfire protection measures applying to the SPCC Salamander Campus has determined that:

- The site is situated 150m east from the Salamander Bay Fire & Rescue Station.
- A licence for establishment and management of an APZ over Crown Land has been entered into by the School. The APZ is regularly maintained under the terms of the licence.
- The Crown Land contains a network of interconnected Fire trails accessed from Salamander Way that run along the school boundary, through the bushland and along the rear of the Salamander Bay Fire and Rescue. The southern extent of the fire trail network connects to Nelson Bay Road.
- Pedestrian egress to the new building is provided to the south into the existing School campus and primary site access. However, in an emergency situation occupants are able to egress north to Salamander Way in a direction that is away from the primary hazard. Refuge is available in the neighbouring Church carpark and building.
- Evacuation is possible the immediate north into built up areas containing retail and residential areas where bushfire hazards have been reduced or removed.
- Provision of a hydrant and booster has been provided in a strategic location at the entry of the Narnia Child Care Centre (35m to the east of the site) carpark where emergency services can make connections and access defendable space provided by the licenced management area/ fire trail network.
- The total number of occupants approved for the SPCC campus accounts for a total of 1200 of students (Junior, Middle and Senior school), and 120 FTF staff. The proposed alterations and additions on the site for the new Junior School building will not increase this overall student or staff number.

With due consideration to the existing bush fire protection measures applying to the site, it is considered that opportunity also exists to increase BAL on the new building to in accordance with the modelled setbacks detailed in **Table 6** and **Figure 5**. As such the building shall be built to **BAL-19** on the entire roofline along with eastern, northern and southern elevations and **BAL-12.5** on the western elevation.

4 Conclusion & Recommendations

MJD Environmental has been engaged by Barr Planning on behalf of St Philip's Christian Education Foundation Limited to prepare a Bushfire Assessment Report (BAR) to accompany a Development Application (DA) seeking approval to demolish an existing School building and construct a new Junior School building over land at 182 Salamander Way, Salamander Bay (hereafter referred to as the Site).

This assessment considered and assessed the bushfire hazard and associated potential threats relevant to the proposal and outlines the minimum mitigative measures which would be required in accordance with *Planning for Bush Fire Protection 2019* (PBP), as adopted through the *Environmental Planning & Assessment Amendment* (Planning for Bush Fire Protection) *Regulation 2020*.

The proposal type triggers the criteria outlined within Chapter 6 Section 6.4 of PBP (2019) for infill Special Fire Protection Purposes (SFPP) due to the school development type. As such SFPP activates the provisions of integrated development under Section 4.46 of the EP& A Act, thus requiring approval and issue of a Bush Fire Safety Authority from the NSW RFS under section 100B of the *Rural Fires Act 1997* (RF Act).

In order to determine whether the proposed development is bushfire-prone, and if so, which setbacks and other relevant Bush Fire Protection Measures (BPM) will be appropriate, this assessment adhered to the methodology and procedures outlined in PBP (2019) via assessment of acceptable solutions as outlined in Chapter 6 of PBP (2019).

This assessment has been made based on the bushfire hazards in and around the Site at the time of site inspection (31st July 2021) and report production.

The assessment found that hazard vegetation types occur within 140m of the site. The primary risk is from the forest-class vegetation located to the East and South-east of the Site. These vegetation hazards have been assessed as having the greatest effect on bushfire behaviour to determine required separation distances from the hazard. The slope under these areas of hazard vegetation varies from flat to upslope.

In summary, the following key recommendations have been generated to enable the proposal to comply with PBP (2019).

Asset Protection Zone

- The APZ over the crown reserve to the east and south must be maintained for the life of development.
- The entire site is to be maintained to an IPA standard for life of development.
- In accordance with modelling presented in this report, the building shall be built to **BAL-19** on the entire roofline along with eastern, northern and southern elevations and **BAL-12.5** on the western elevation.

Access

- The site for the new SPCC Junior Campus has direct access from Salamander Way, a public road situated on the Northern boundary of the lots. As part of proposed development works, vehicular access will be removed from 182 Salamander Way and redirected through 176 Salamander Way to the existing St Philip's Christian College Campus access and carpark.
- The new building will provide pedestrian access fronting Salamander Way and also connect students to the existing School campus buildings situated to the south of the site The proposal has been designed with due regard to the requirements of Table 6.8b, and Appendix 3 of PBP (2019).
- Access to Narnia Child Care (SFPP) that is owned and operated by SPCC will be maintained and uninterrupted as part of this proposal. Importantly, the Narnia access provides water booster connection points (35m to the east of site) and walking access to defendable space established in the cleared licence area to the east.

Services – Water supply, Gas and Electricity

- Reticulated water supply is available and shall be extended and augmented within the site.
- The Site is connected to the existing power supply available from Salamander Way. This shall be extended and augmented within the site.
- Any future gas connection shall be installed in accordance with the provisions of PBP (2019).
- Fire hydrant and booster is available in the carpark of the Narnia Child Care 35m to the east of site.
- Any water storage tanks are to include connection points in accordance with PBP (2019) and be readily accessible and clearly marked. If pumps are to be made available, they must be regularly maintained and in good working order.

Landscaping and Fuel Management

- Careful consideration of future site landscaping and ongoing fuel management must occur to minimise the potential impact of bushfire on the site. All landscaping and fuel management must provide due consideration of PBP (2019) Appendix 4.

Emergency Management

- A Bush Fire Emergency Management and Evacuation Plan shall be prepared for the site as set out in Table 6.8d of PBP 2019. A copy of the Bushfire Emergency Management and Evacuation Plan is to be provided to the Local Emergency Management Committee. Any existing emergency management plans must be updated to reflect the proposal and RFS guidelines.

5 Bibliography

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NBC Bushfire Attack Assessment Report V4.1. *21073 – 182 Salamander Way, Salamander Bay.* 29/07/2021

Appendix A Proposed Site Plan

Developed Design

St Philip's Christian College Port Stephens - Junior Building

New Junior School Building at existing Preschool & K-12 Campus

REVISION E

SITE
182 Salamander Way, Salamander Bay

CLIENT
SPCC Foundation

DATE
12.08.21

PROJECT NO.
4315

St Philip's Christian College
The Way The Truth The Life
For the Whole of Their Life

SHAC

Developed Design

1. Dimensions are in millimetres unless otherwise shown.
2. Work to given dimensions. Do not scale from drawing.
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LOCALITY

The original custodians of this land are the Worimi people of the Gathang language group. The Worimi people were hunter-gatherers, finding resources from their tribal land within the Port Stephens region. Those who lived near the sea hunted marine food, in particular shell fish, where historical evidence remains today along the coastline of Port Stephens. Sites exist within the Port Stephens region that have deep cultural significance to the Worimi people, also known as the Worimi Conservation Lands, that was given back over a period of 30+ years after the Worimi Local Aboriginal Land Council (WLALC) was established in 1984. The WLALC was established after the Aboriginal Land Rights Act was passed in 1983 to return land in New South Wales to the Aboriginal People, with the Worimi People now having ownership and management of 116 properties in the region.

The first European to discover Port Stephens was Captain Cook in 1770, naming the region after Sir Phillip Stephens; Secretary of Admiralty. The first Europeans to explore the Port Stephens region was a group of five escaped convicts that were wrecked in the area in 1790. They lived happily among the Worimi people for five years before being captured by Captain W.R. Broughton. Due to the high number of convicts escaping from Sydney, a garrison was established in the area in 1820, which then flourished throughout the rest of the 1800's.

The Australian Agricultural Company was established in 1824, being granted one million acres of land by a Royal Charter. The formation of roads, erection of buildings, a military barracks, cultivation of the land, permanent residences, and the surveying of land allotments, allowed for the company to settle, and before long 600 employees were working across 23 stations as part of the establishment of the wool industry and the sole beef producer for the region. The first overland transport service was established in 1904, and continued to flourish until a daily car commute was established and later a bus service by Port Stephens Bus Co. in 1957, providing connections to Newcastle, Williamtown and beyond.

Today, Port Stephens is a popular holiday destination with over 64,000 people residing in the area. The region is known for its humpback whale sightings and the multitude of beaches and walking tracks along the coastline.

Port Stephens is home to both public and private schools, aged care facilities and popular tourist activities and accommodations.

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Locality
St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 1 2 3 4 5 1:100 @A3

SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

Developed Design

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POINTS OF INTEREST

1. TOMAREE PUBLIC SCHOOL
2. TOMAREE HIGH SCHOOL
3. TOMAREE TAFE
4. TAFE EDUCATION FACILITY
5. SALAMANDER CHILD CARE CENTRE
6. SALAMANDER BAY SQUARE
7. FIRE AND RESCUE SALAMANDER BAY
8. NELSON BAY AMBULANCE STATION
9. THE ROCK CHURCH
10. PORT STEPHENS UNITING CHURCH
11. TOMAREE LIBRARY AND COMMUNITY CENTRE
12. OAKS PACIFIC BLUE RESORT
13. TOBOGGAN HILL PARK
14. TOMAREE AQUATIC CENTRE
15. TOMAREE BASKETBALL COURTS
16. TOMAREE SOCCER FIELDS

LEGEND

- SUBJECT SITE
- EDUCATIONAL ESTABLISHMENTS
- SPORTING FACILITIES
- RETAIL CENTRES
- COMMUNITY INFRASTRUCTURE
- TOURISM
- MAIN ROAD
- TRANSPORT STATIONS

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Location Context

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

NTS
@A3

SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

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Salamander Bay exists within the Port Stephens Council Local Environment Area. The following town planning legislative framework is applicable to the site.

PLANNING PRINCIPLES

Acid Sulfate Soils
The objective of this zone is to prevent disturbance, exposure or drainage of acid sulphate soils that would cause damage to the environment. The school site is located within a Class 3 Zone of Acid Sulfate Soils, indicating that any works one metre or below the natural ground surface requires consent, as well as works that is likely to lower the water table below the natural ground surface by one metre. Work that does not meet these parameters will need an Acid Sulfate Soil Management Plan to proceed.

Land Zoning
The St Philip's Christian College Campus is located within an SP2 School/Child Care Centre zone according to the Port Stephens LEP 2013 map. Port Stephens Council defines a 'School' as being a building or place used for education and a 'Child Care Centre' as being a building or place used for the supervision and care of children providing long day care, pre-school care, occasional child care or out-of-school-hours care. The objectives of this zone is to provide for infrastructure and related uses, and to prevent development that is not compatible with or that may detract from the provision of infrastructure. Environmental protection works and the establishment of roads is permitted without consent in this zone. It is noted that the surrounding zone to the West and South are E2 Environmental Conservation zone, with E3 Environmental Management to the East.

Heritage
The subject site is not identified as having any heritage significance according to the Port Stephens Local Environmental Plan 2013 and is not within a Heritage Conservation Area. However, note is made to the Aboriginal Land Claim on the Crown land to the East of the site, and the possibility of Aboriginal heritage orders that may influence the subject site and its future expansion.

Maximum Building Height
The subject site is not identified on the Port Stephens LEP Map to have a height restriction, and will need to be referred to the Land Zone Specifications for the site. The objective of this planning guide is to ensure the height of buildings are appropriate for the context and character of the area and reflects the hierarchy of centres and land use structure.

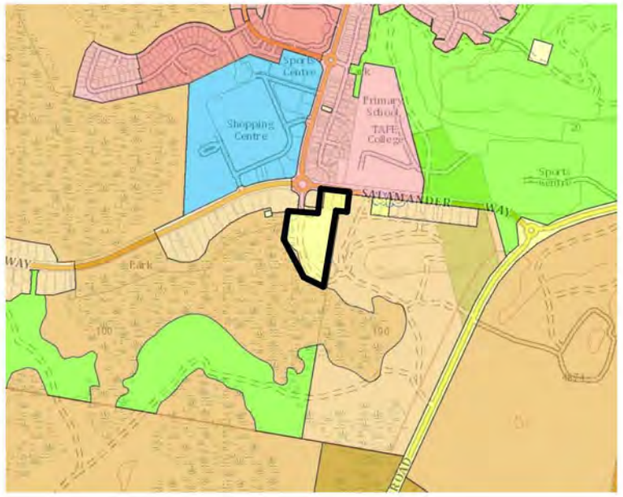
Minimum Lot Size
The school site is identified as having a minimum lot size of 500sqm. This planning guide is to ensure that lot sizes are able to accommodate development that is suitable for its purpose and that is consistent with relevant Council development controls and to prevent fragmentation of rural areas.

Wetlands
The Wetlands map indicates that there are no wetlands located on the school campus site, however wetlands border the site on the East, South and West. The objective of this zone is to ensure that wetlands are preserved and protected from the impacts of development.

Bushfire Prone Land
The St Philips Christian College Campus at Port Stephens is located within a vegetation buffer as indicated by the Bushfire Prone Land map from Port Stephens Council. Additionally, Vegetation Category 1 and Category 2 briefly crosses the school site boundary.

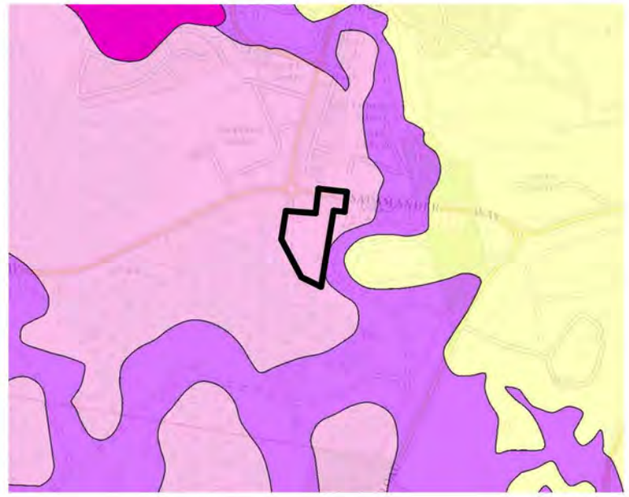
Land Zoning

- RU3
- RU4
- RU5
- RU6
- RUR
- RW
- SET
- SP1
- SP2
- SP3
- SPU



Acid Sulfate Soils

- Class 1
- Class 2
- Class 2a
- Class 2b
- Class 3
- Class 4
- Class 5
- Non Standard Values



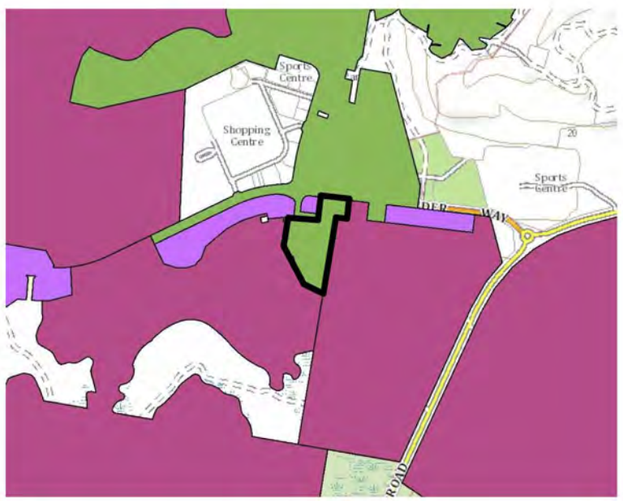
Height of Building

- 0 - 3.6 m
- 3.7 - 4.9 m
- 5 - 5.4 m
- 5.5 - 5.9 m
- 6 - 6.4 m
- 6.5 - 6.9 m
- 7 - 7.4 m
- 7.5 - 7.9 m
- 8 - 8.9 m
- 9 - 9.9 m

Wetlands

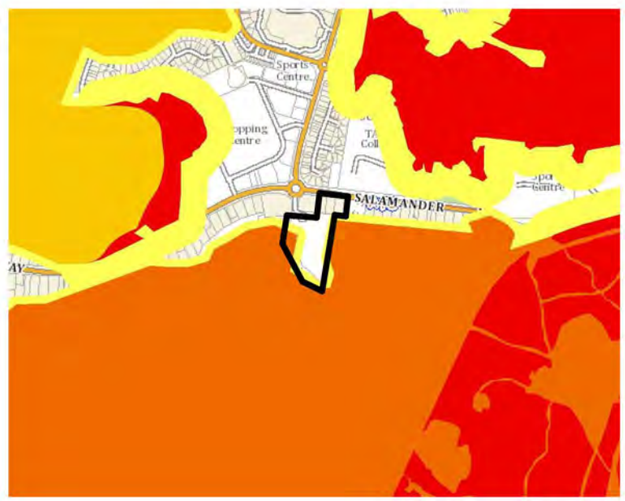
Minimum Lot Size

- 0 - 199 sq m
- 200 - 249 sq m
- 250 - 299 sq m
- 300 - 349 sq m
- 350 - 399 sq m
- 400 - 449 sq m
- 450 - 474 sq m
- 475 - 499 sq m
- 500 - 524 sq m
- 525 - 549 sq m



Bushfire Prone Land (Non-EPI)

- Vegetation Category 1
- Vegetation Category 2
- Vegetation Category 3
- Vegetation Buffer



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Statutory Planning Principles

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

NTS
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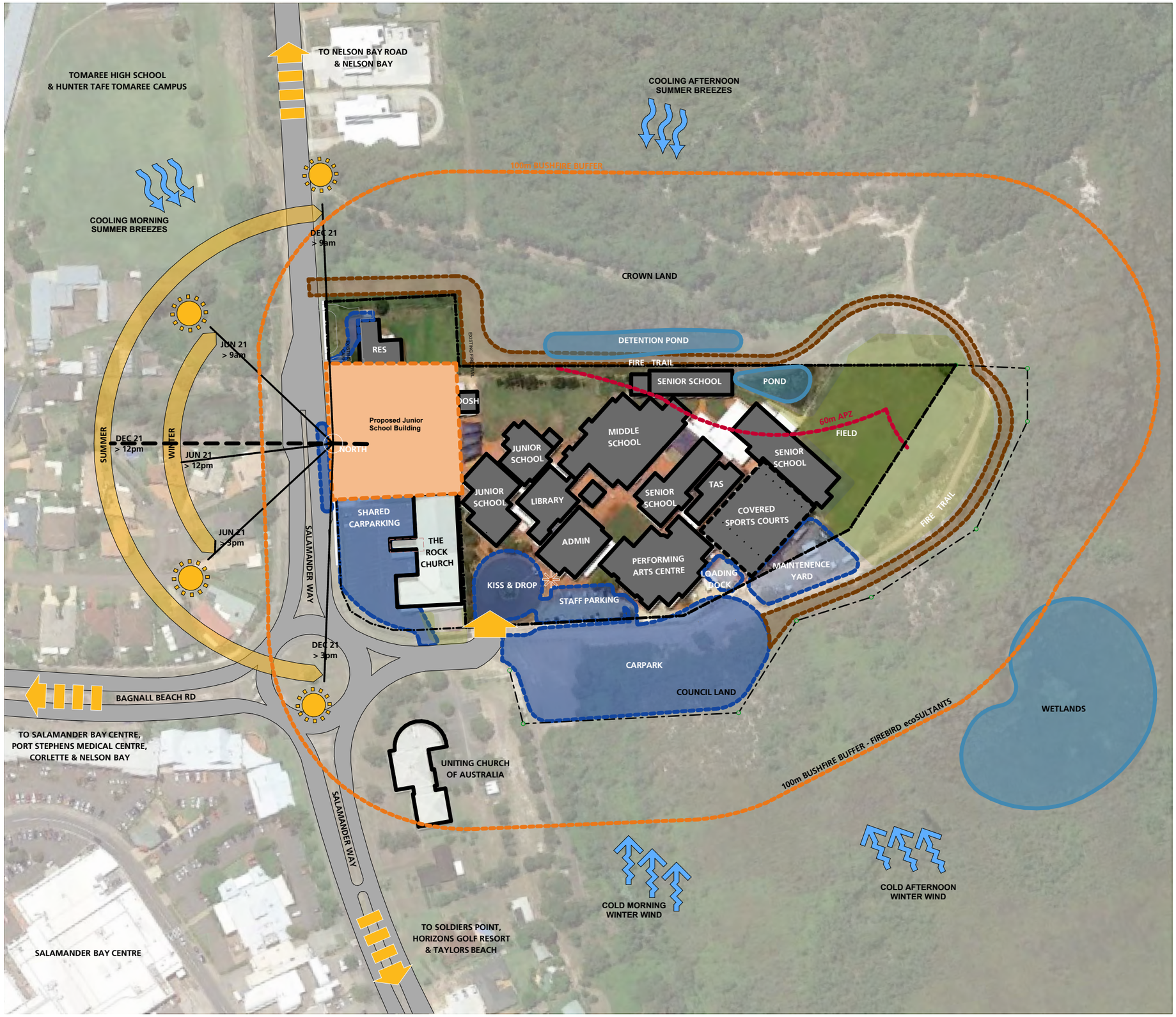
Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846



Developed Design

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A site specific analysis reveals the Port Stephens campus in its surrounding context.

SCHOOL DETAILS

182 Salamander Way
Salamander Bay NSW 2317

Lot 1 DP847022 Lot 143 & 144 DP715013 Lot 1 DP7344433

SCHOOL CONTEXT

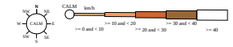
St Philip's Christian College, Port Stephens Campus, is situated within the suburb of Salamander Bay on a parcel of land approximately 3,310m^2. The campus is bound on three sides by Crown land, with the East currently under Aboriginal Land Claim. The Northern boundary is bordered by a main road within the road network of Port Stephens, Salamander Way, and provides connections to Salamander, Soldiers Point, Nelson Bay and beyond.

The campus is bound by an Environmental Conservation zone to the West and South and an Environmental Management zone to the East, which will need to be managed and protected. The site is also nominated as being affected by bushfire prone land, koala habitat, biodiversity credit availabilities and surrounding wetland protections, however the site does not appear to be affected by flooding or tree protection.

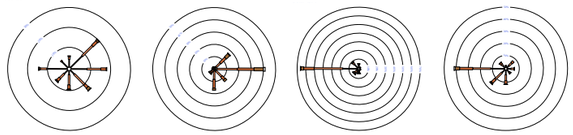
Salamander Way Centre is located across Salamander Way, North of the roundabout, which has specific design parameters that need to be adhered to, however will have little to no effect on the development of the school site and the masterplan.

Note: Please refer to Firebird ecoSultants report (March 2016) for further information

CLIMATE ANALYSIS



Wind Speed and Direction Roses - Nelson Bay



Summer
January 9am

Summer
January 3pm

Winter
July 9am

Winter
July 3pm

Climate Statistics - Nelson Bay

Mean Max. Temperature
Range: 18 - 29 degrees celsius

Mean Min. Temperature
Range: 7.5 - 19.5 degrees celsius

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Macro Site Analysis Plan

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 20 40 60 80 100 1:2000

SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

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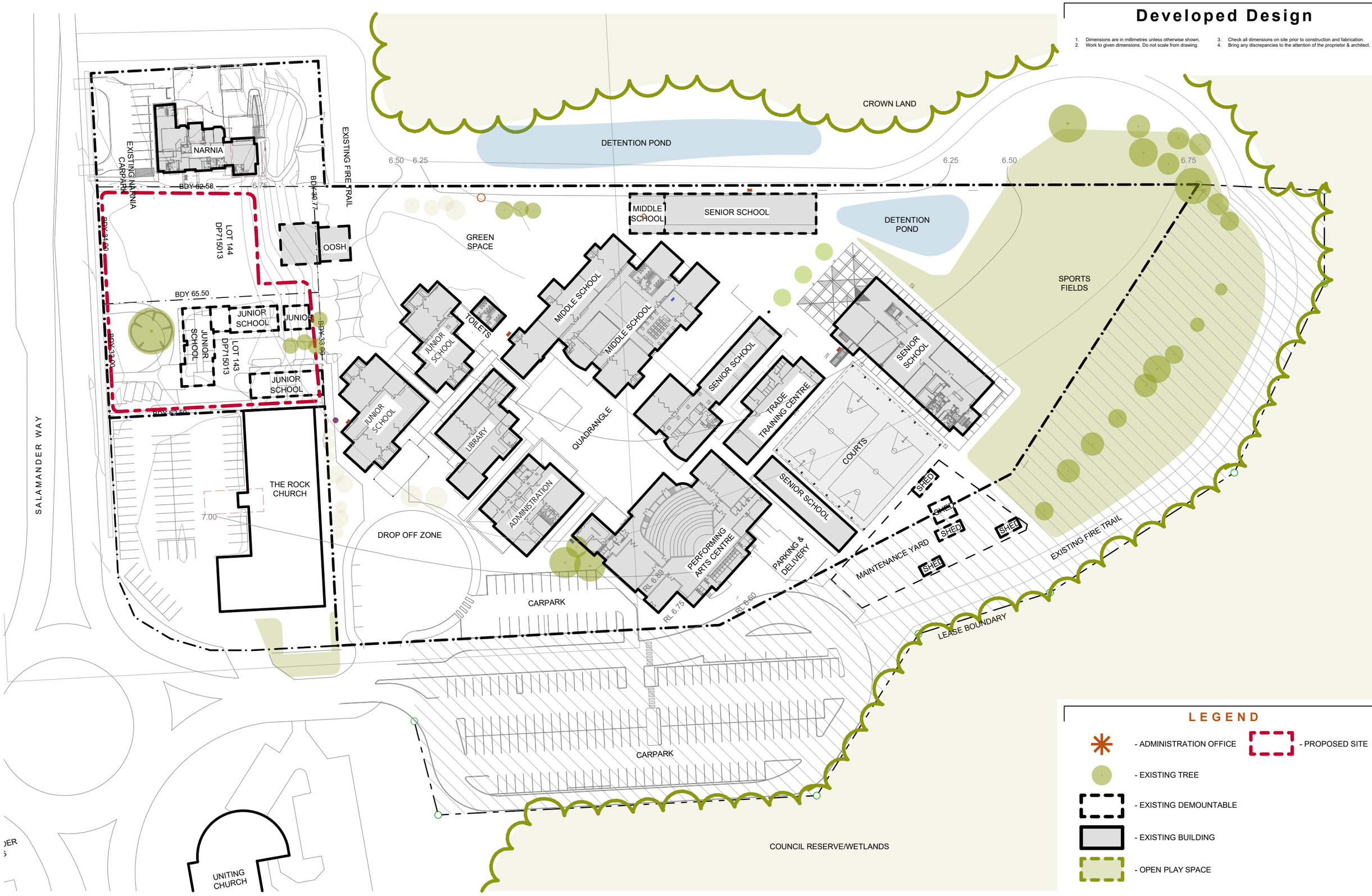

LEGEND

- ADMINISTRATION OFFICE
- PROPOSED SITE
- EXISTING TREE
- EXISTING DEMOUNTABLE
- EXISTING BUILDING
- OPEN PLAY SPACE

4315
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Full School Site Plan

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 10 20 30 40 50 1:1000 @A3

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Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

Developed Design

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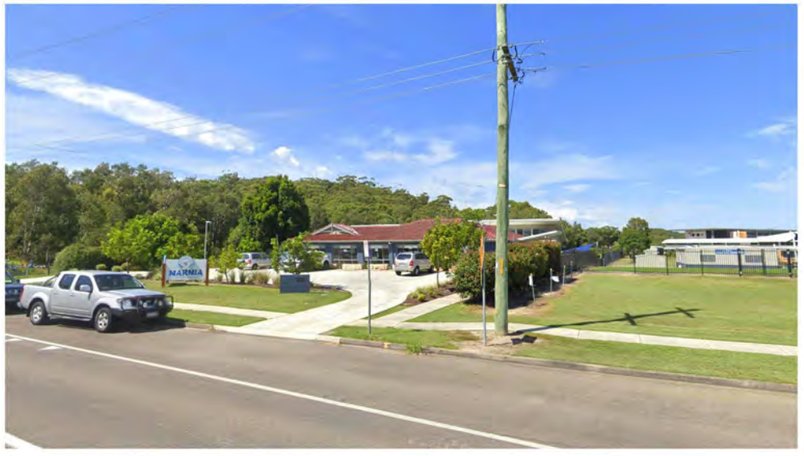

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Photographic Analysis

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

NTS
@A3

SHAC

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Developed Design

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LEGEND

- LOT BOUNDARY LINES
- EXISTING DEMOUNTABLE
- EXISTING BUILDING
- TO BE DEMOLISHED
- EXISTING TREE
- TREE TO BE DEMOLISHED

SALAMANDER WAY
BDY 33.00
BDY 34.00
RL+7.19
BDY 62.50
BDY 65.50
BDY 62.58
EXISTING NARNIA CARPARK
ERL 7.90
RL 7.25
JUNIOR SCHOOL
LOT 143 DP715013
LOT 144 DP715013
7.60
6.75
THE ROCK CHURCH
JUNIOR SCHOOL
JUNIOR
NARNIA PLAY AREA
BDY 33.00
EXISTING OOSH
BDY 30.77
RL+6.88
SHADE SAILS & PLAYGROUND
EXISTING FIRE TRAIL
MAIN ENTRY
EXISTING JUNIOR SCHOOL
FFL 6.90 (TBC)
CURRENT PARENT DWELL SPACE
KISS AND DROP ZONE
TOILETS
6.50
6.25
CROWN LAND AND DETENTION POND
EXISTING SCHOOL ADMIN

St Philip's Christian College
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4315
DA1007
RevE 12.08.21

Existing / Demolition Plan

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 5 10 15 20 25 1:500 @A3

SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

CHILDREN'S CROSSING ZONE
PUBLIC BUS STOP
SALAMANDER WAY
EXISTING PEDESTRIAN PATHWAY
PP
PP
BDY 33.00
BDY 34.00
FOUR CAR SPACES EXISTING
RL+7,190
SHARED USE CARPARK (67 SPACES)
EXISTING ENTRY ONE WAY DRIVEWAY TO BE DEMOLISHED
VEHICULAR ENTRY TO NARNIA
EXISTING NARNIA CARPARK
EXISTING LIQUID AMBER TREE. APPROX. SIZE 11m DIAMETER.
POTENTIAL FOR SECONDARY KISS AND DROP ENTRY
BDY 62.58
7.60
JUNIOR SCHOOL
BDY 65.50
LOT 143 DP715013
COT ROOMS / QUIET ZONES TO CONSIDER
LOT 144 DP715013
ERL 7.90
RL 6.25
BDY 62.58
5.79
JUNIOR SCHOOL
JUNIOR SCHOOL
JUNIOR
THE ROCK CHURCH
NARNIA PLAY AREA
BDY 33.00
BDY 30.77
EXISTING OOSH
RL 6.38
SHADE SAILS & PLAYGROUND
EXISTING FIRE TRAIL
MAIN ENTRY
EXISTING JUNIOR SCHOOL
FFL 6.90 (TBC)
CURRENT PARENT DWELL SPACE
KISS AND DROP ZONE
POTENTIAL TO REUSE EXISTING JUNIOR SCHOOL BUILDINGS FOR FUTURE DALE
6.50
6.25
CROWN LAND AND DETENTION POND
EXISTING SCHOOL ADMIN
TOILETS

Developed Design

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LEGEND

- CAMPUS BOUNDARY
- PROPOSED JUNIOR SCHOOL AREA
- EXISTING JUNIOR SCHOOL AREA
- EXISTING SCHOOL BUILDINGS
- TO BE DEMOLISHED
- KISS & DROP AREAS
- BUS BAY
- GREEN SPACES
- SERVICES - STORMWATER
- NOISE CONSIDERATIONS
- PEDESTRIAN PATHWAY
- PEDESTRIAN ACCESS
- EXISTING TREES
- FRONT OF SCHOOL / ADMIN
- POWER POLE

St Philip's Christian College
The Way The Truth The Life
For the Whole of Their Life

4315
DA1008
RevD 12.08.21

Micro Site Analysis

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 5 10 15 20 25 1:500 @A3

SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

Developed Design

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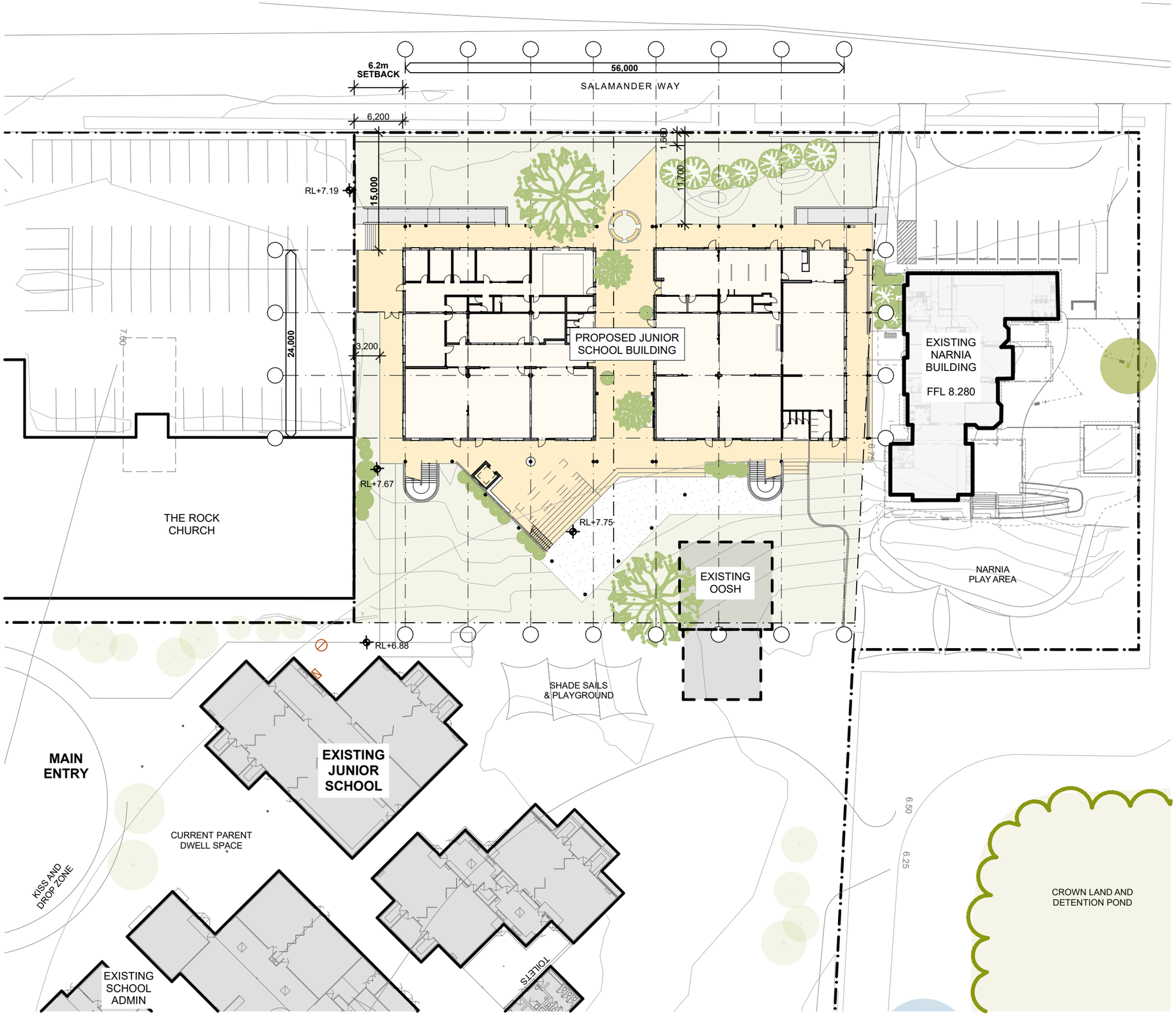
2. Work to given dimensions. Do not scale from drawing.
3. Check all dimensions on site prior to construction and fabrication.
4. Bring any discrepancies to the attention of the proprietor & architect.

LEGEND

- CAMPUS BOUNDARY
- EXISTING SCHOOL BUILDINGS
- PROPOSED JUNIOR SCHOOL BUILDING
- PROPOSED JUNIOR SCHOOL DECKING
- PROPOSED JUNIOR SCHOOL LANDSCAPING



St Philip's Christian College
The Way The Truth The Life
For the Whole of Their Life

4315
DA1009
RevJ 12.08.21

Proposed Site Plan

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 5 10 15 20 25 1:500 @A3

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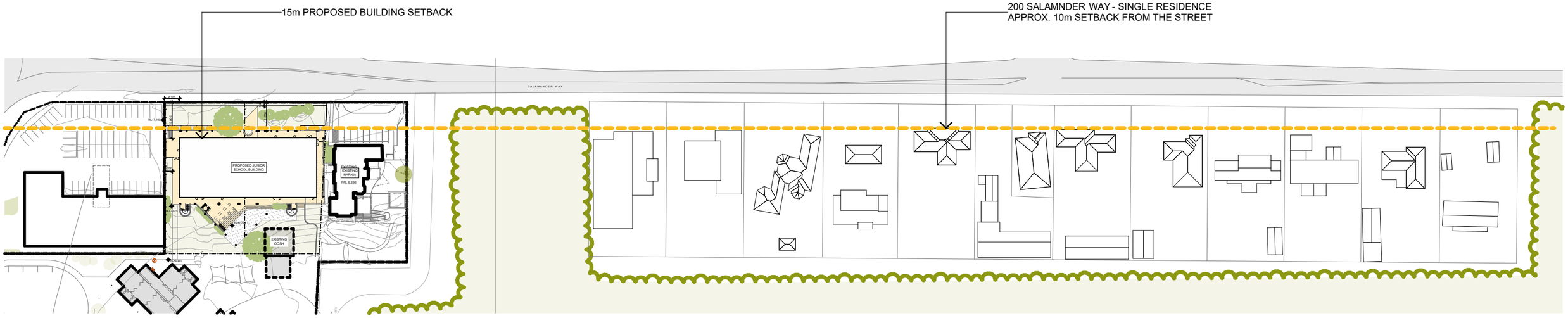
LEGEND

CLOSEST NEIGHBOURING PROPERTY TO STREET



St Philip's Christian College
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For the Whole of Their Life

4315
DA1010
RevD 12.08.21

Street Setback Plan

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 20 40 60 80 100 1:2000 @A3

SHAC

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SALAMANDER WAY

PEDESTRIAN FOOTPATH

SANDSTONE BLOCK SIGNAGE WALLS

SECURE FENCE LINE AWAY FROM B'DRY

NEW MATURE FEATURE TREE

EXISTING RETAINING WALL

EXISTING 'THE ROCK' CHURCH

EXISTING NARNIA CARPARK

EXISTING NARNIA BUILDING
FFL 8.280

SCREENING

SHARED NARNIA & PREP PLAYGROUND

RL+7.19

RL+7.67

RL+7.75

RL+8.25

ERL 7.90

RL 8.25

RL 6.13

6,200

8,000

3,200

1660

11,700

6,75

RAMP 1:14

RAMP 1:14

RAMP 1:20

RAMP TBC

GARDENS

YARNING CIRCLE

GREEN WALL

VOID ABOVE

Covered Travel
168 m²

Shelter / Coffee Cart
28.6 m²

Office
11.6 m²

Office
11.4 m²

Meeting
11.4 m²

Meeting
27.4 m²

Foyer
45.7 m²

Student

Administration
37.1 m²

Acc WC
5.4 m²

WC
6.2 m²

Clinic
9.3 m²

Store
8.7 m²

Acc WC
5.8 m²

Learning Support
32.6 m²

Pod 3
10.1 m²

Learning Support Staff
29.4 m²

Store
15 m²

WC
13.9 m²

Open Learning
50.6 m²

Year 1
70.2 m²

Year 2
69.4 m²

STEAM Lab / OOSH
70.3 m²

Atrium
181.3 m²

Staff Hub
92.3 m²

Pod 1
7.9 m²

Pod 2
7.8 m²

Store
8.4 m²

WC
5.7 m²

Narnia / Prep Entry
30.9 m²

Prep
92.9 m²

Kilibinbin
61.7 m²

Open Learning
61.8 m²

Kindy
62.3 m²

Kindy
62.3 m²

PAA
40.6 m²

WC
12.7 m²

WC
9.3 m²

Steam Breakout
45.1 m²

Covered Travel
210.9 m²

Lift

Store
10.8 m²

Store
10.8 m²

ALL WEATHER AMPHITHEATRE

Transition Landscape Space TBC
43.5 m²

EXISTING OOSH TO BE RELOCATED

0m 2.5 5 7.5 10 12.5 1:250 @A3

4315
DA2201
RevK 12.08.21

Ground Floor Plan

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

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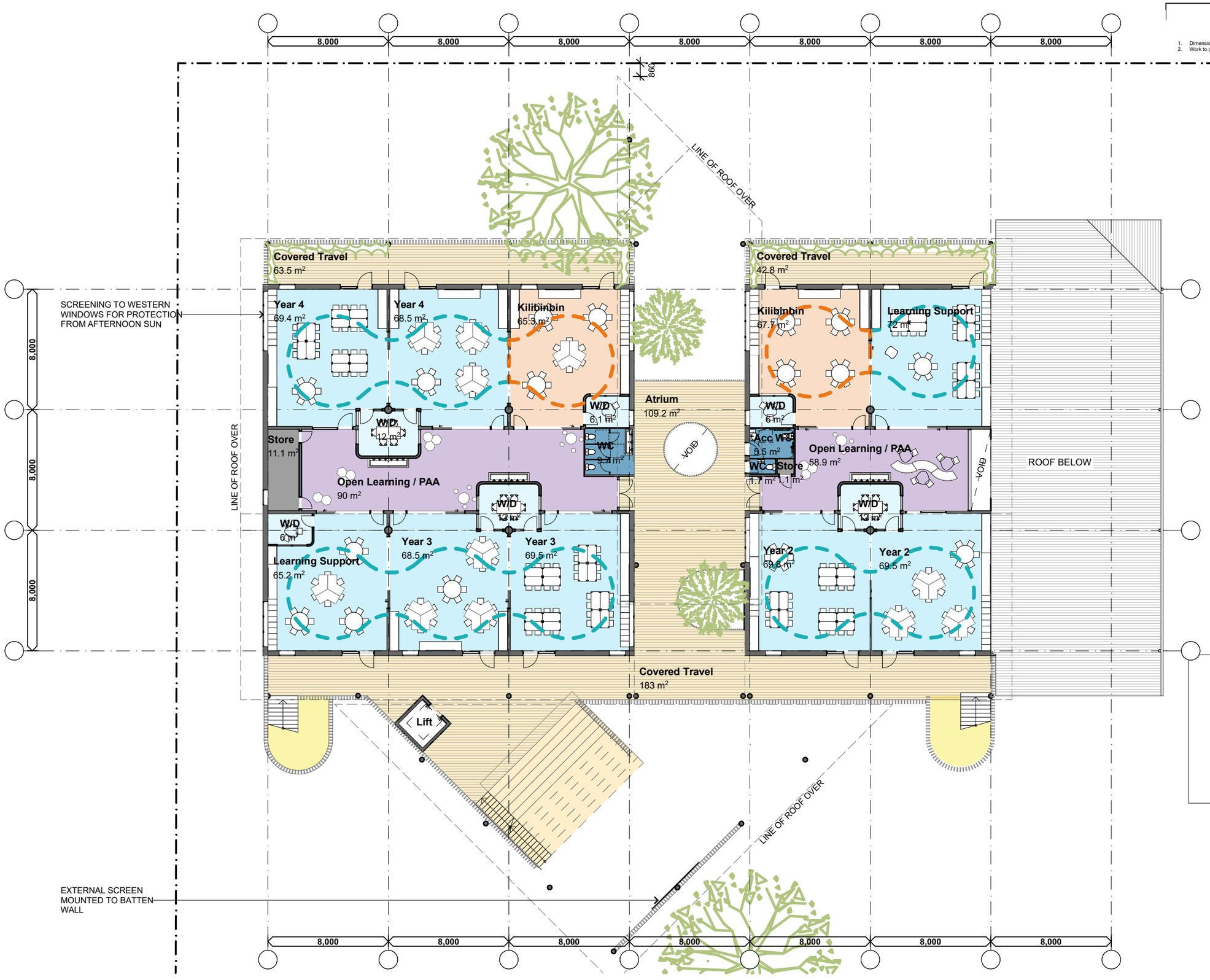

4315
DA2202
Revl 12.08.21

First Floor Plan

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 2.5 5 7.5 10 12.5 1:250 @A3

SHAC

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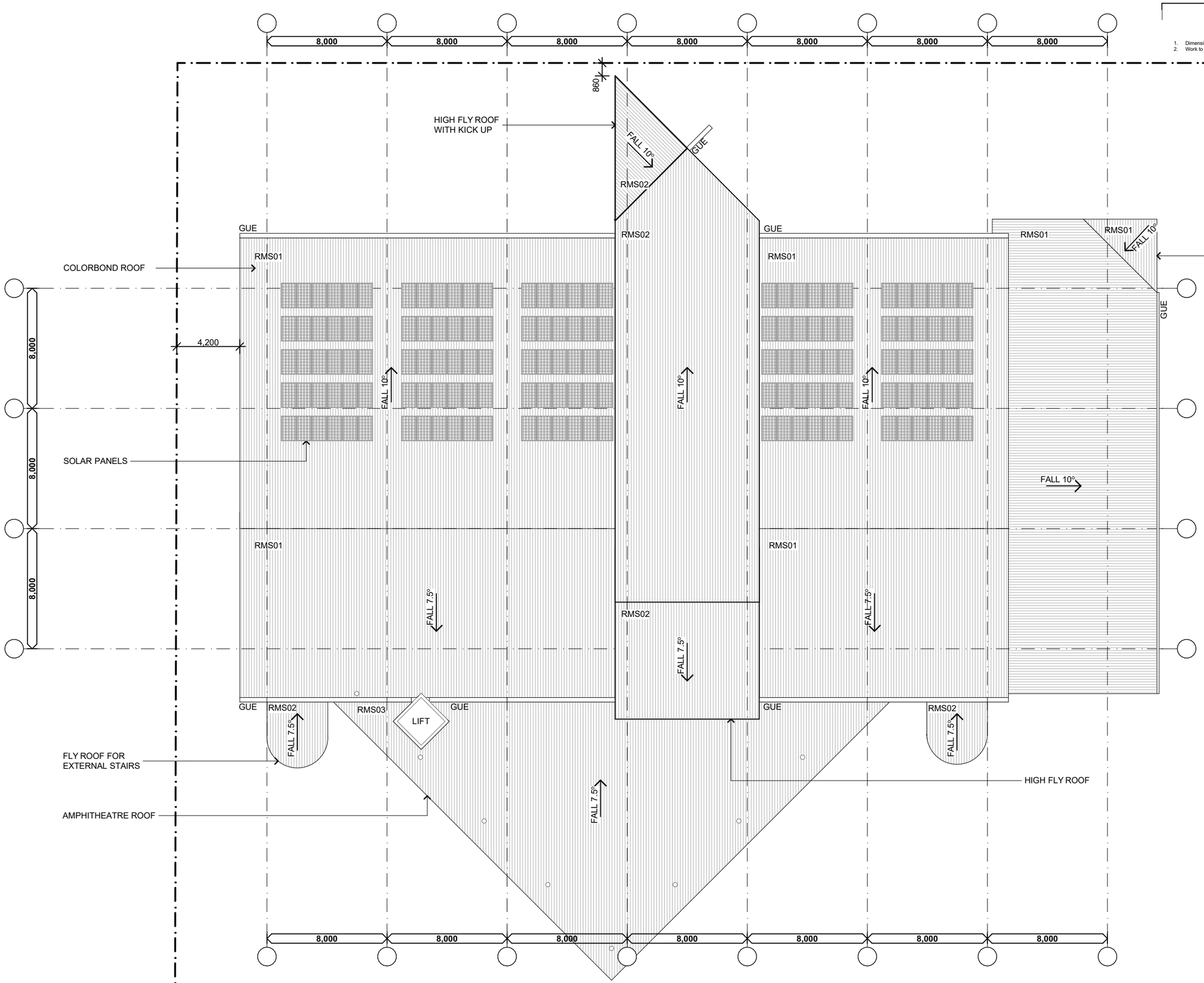

4315
DA2401
RevD 12.08.21

Roof Plan

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 2.5 5 7.5 10 12.5 1:250 @A3

SHAC

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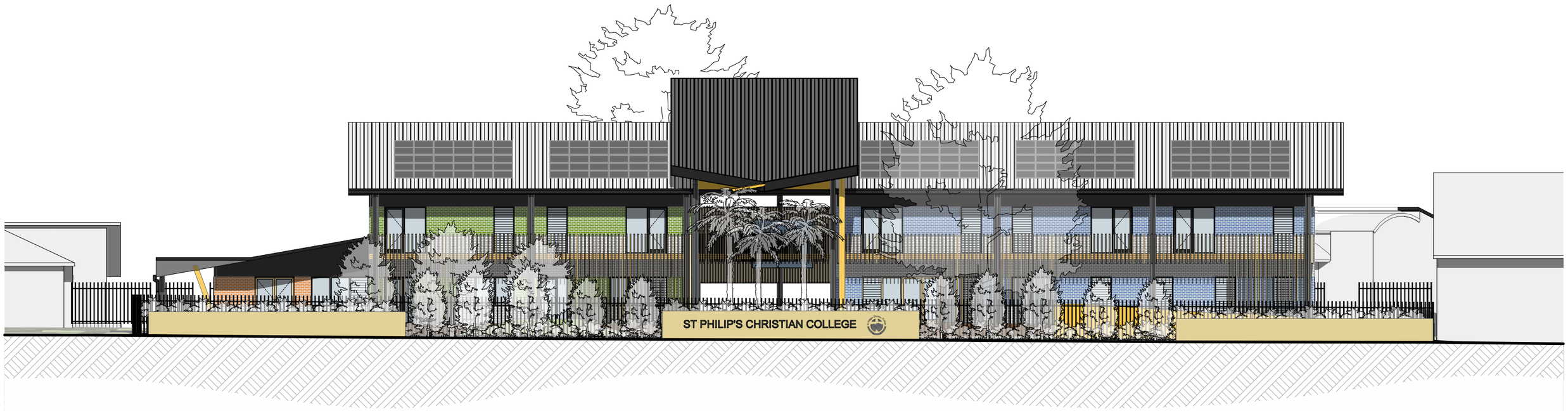

4315
DA3101
RevC 12.08.21

Salamander Way Street Elevation

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 2 4 6 8 10 1:200 @A3

SHAC

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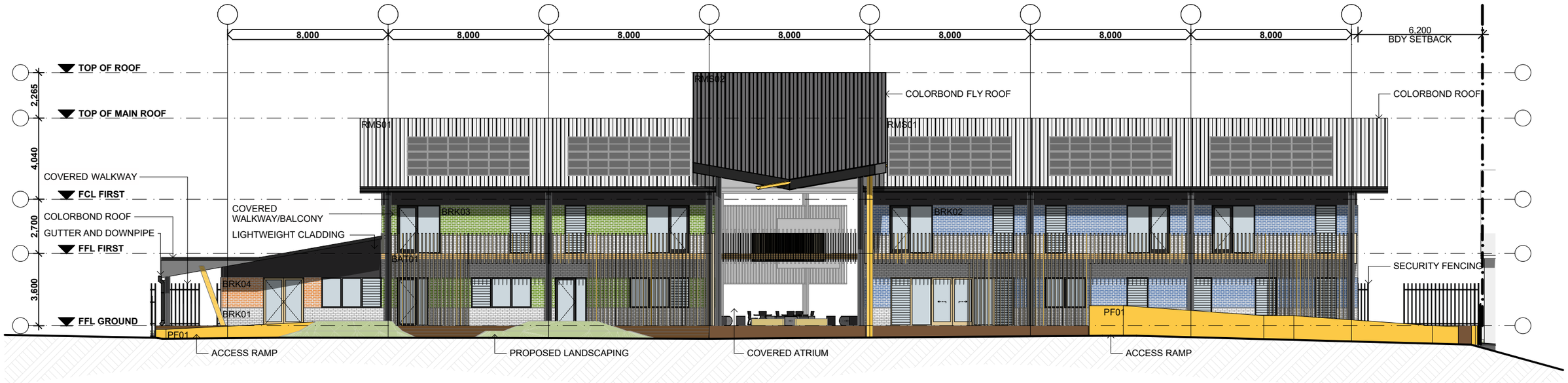
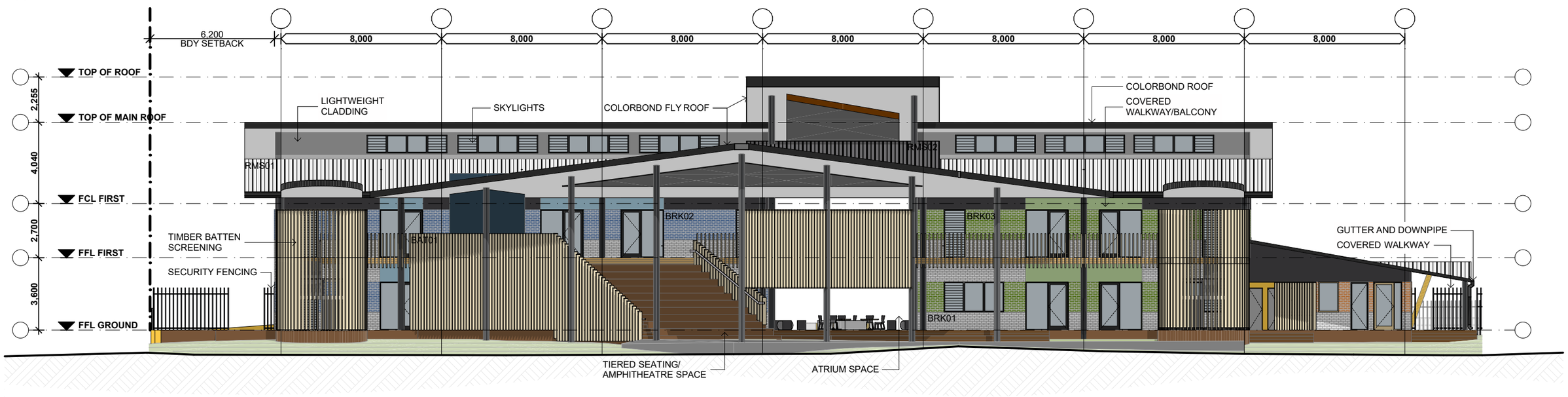


North Elevation

1:200



South Elevation

1:200

4315
DA3102
RevC 12.08.21

North + South Elevations

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 2 4 6 8 10 1:200 @A3

SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

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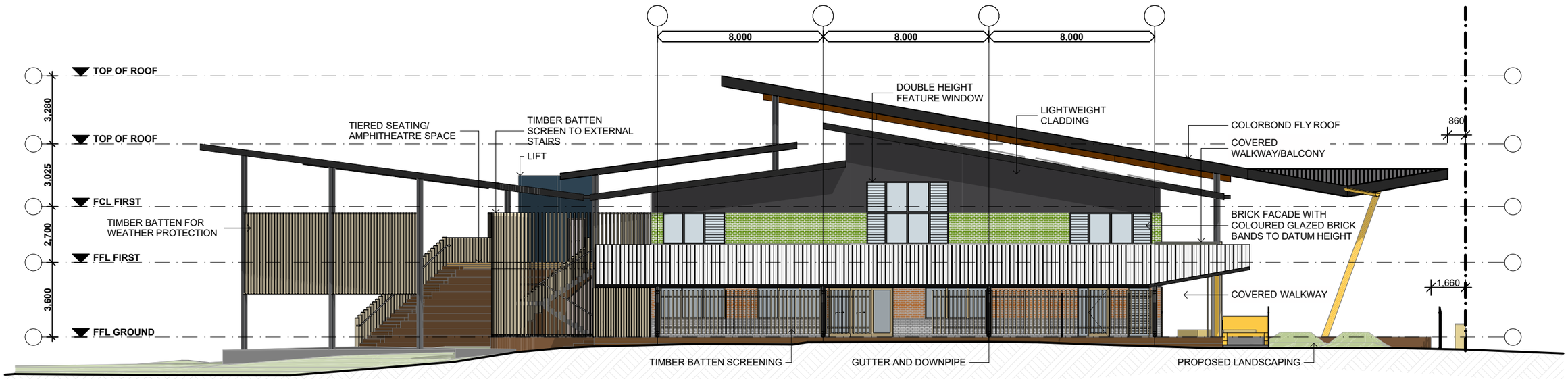
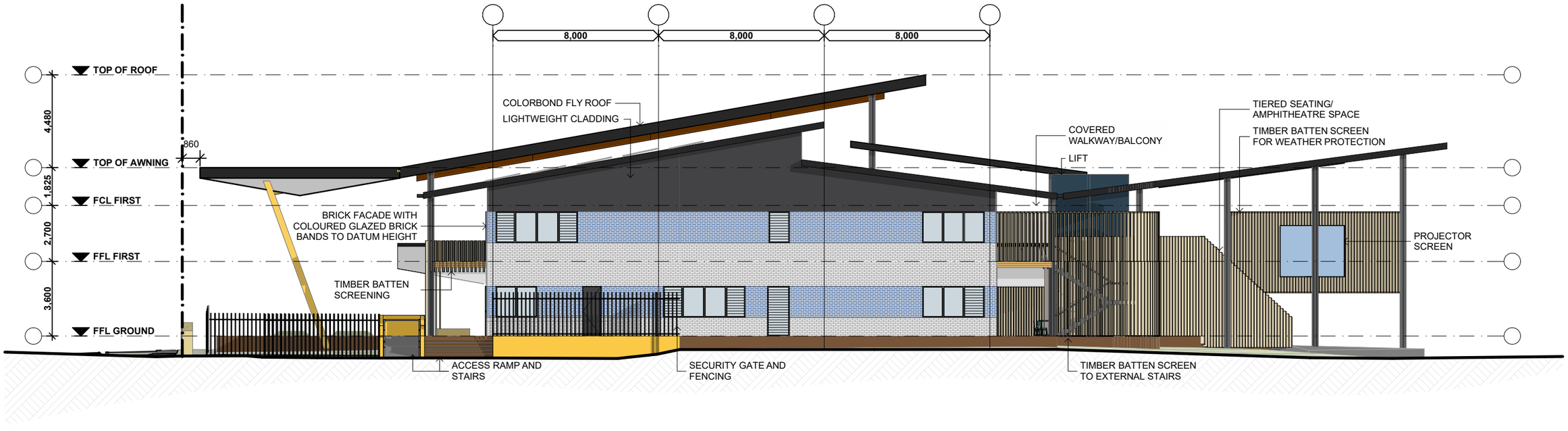


East Elevation

1:200



West Elevation

1:200

4315
DA3103
RevC 12.08.21

East + West Elevations

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 2 4 6 8 10 1:200 @A3

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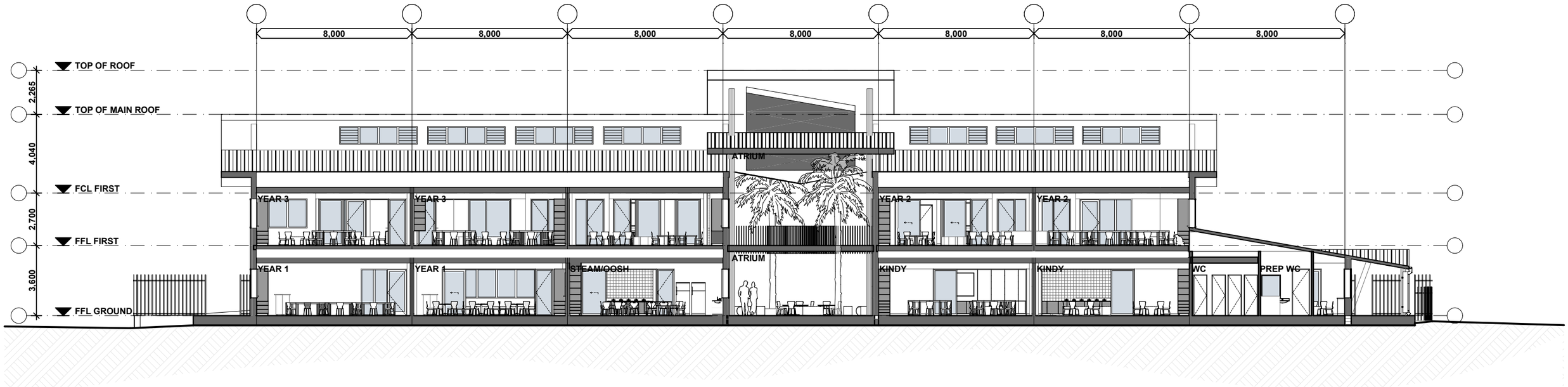
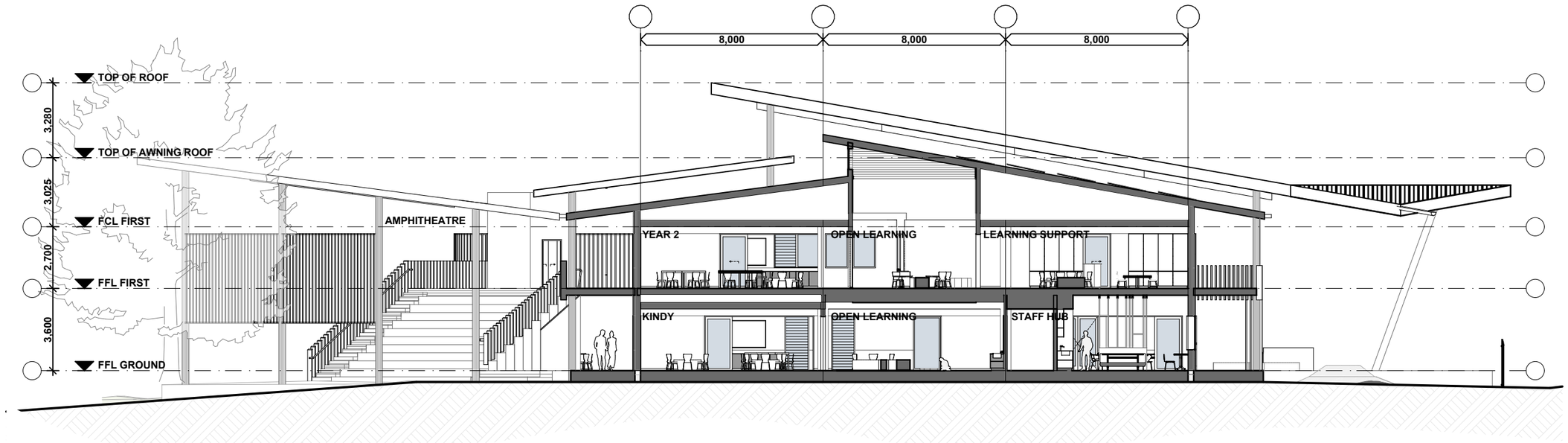


Section A
1:200



Section B
1:200

4315
DA3201
RevC 12.08.21

Sections

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

0m 1 2 3 4 5 1:100 @A3

SHAC

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View from Salamander Way

4315
DA8001
RevE 12.08.21

3D Perspectives

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

NTS
@A3

SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

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View from School

4315
DA8002
RevD 29.07.21

3D Perspectives

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

NTS
@A3

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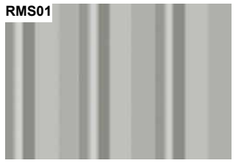
Entry Atrium

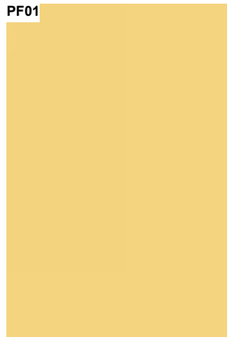
BRK01

RMS01



RMS02

PF01



LAURA FREESTONE ARTWORK AS EX. OF INDIGENOUS MOTIF
LOCAL INDIGENOUS ARTIST COLLABORATION FOR MOTIF - TBC

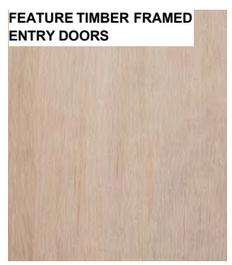
BRK02

BRK03

BRK04

BAT01

FEATURE TIMBER FRAMED
ENTRY DOORS



4315
DA8003
RevC 29.07.21

3D Perspectives And Materiality

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

NTS
@A3

SHAC

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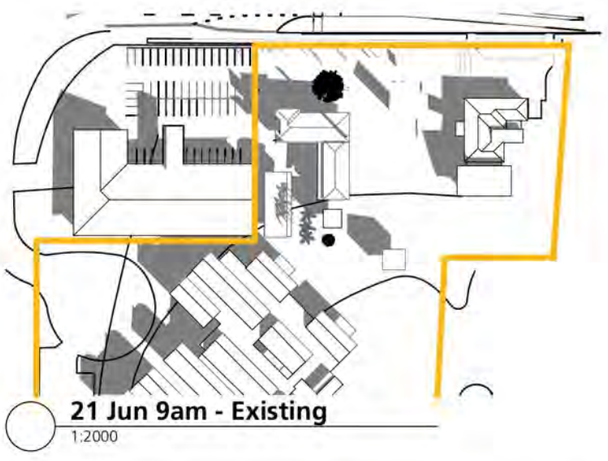
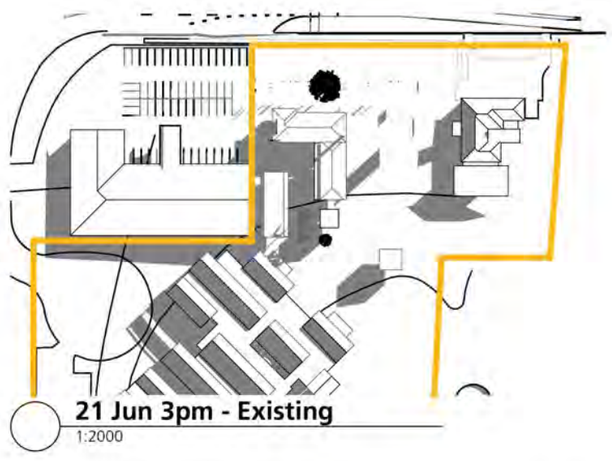
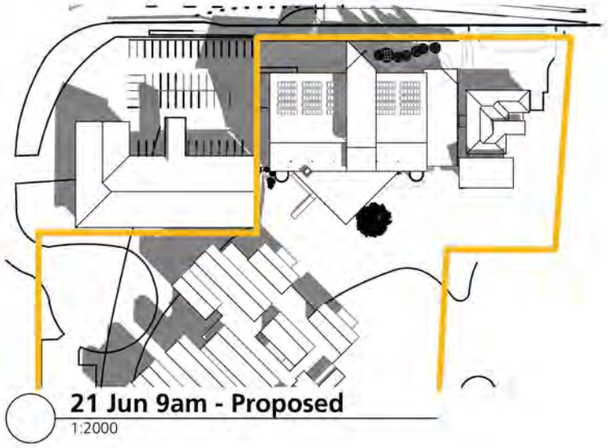


21 Jun 9am - Existing
1:2000

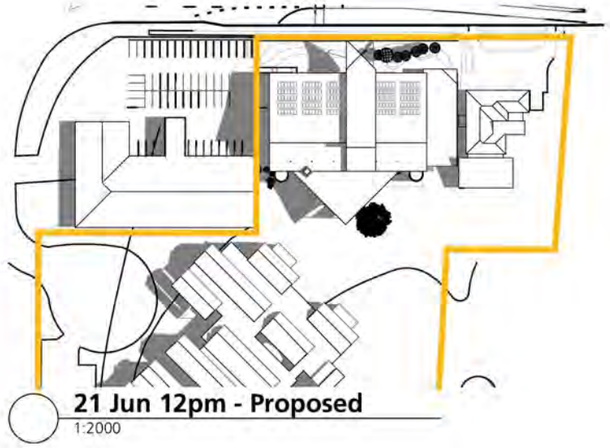
21 Jun 12pm - Existing
1:2000



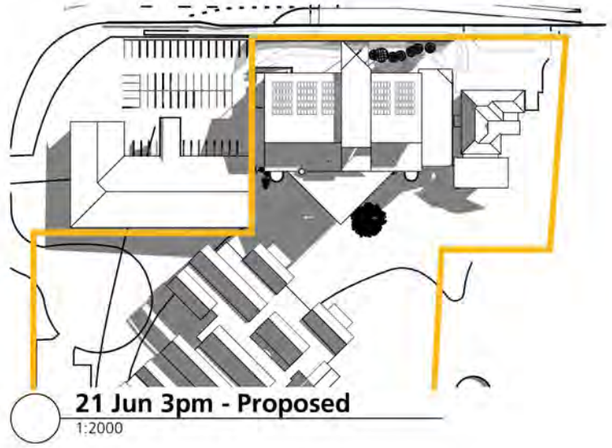
21 Jun 3pm - Existing
1:2000



21 Jun 9am - Proposed
1:2000



21 Jun 12pm - Proposed
1:2000



21 Jun 3pm - Proposed
1:2000

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DA8004
RevA 29.07.21

Shadow Diagrams 01

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

NTS
@A3

SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

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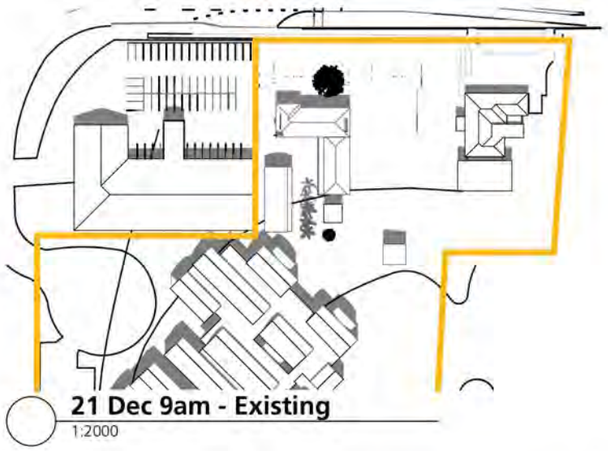
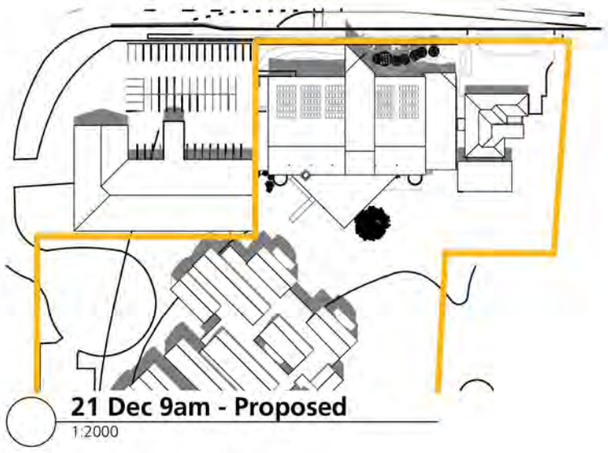
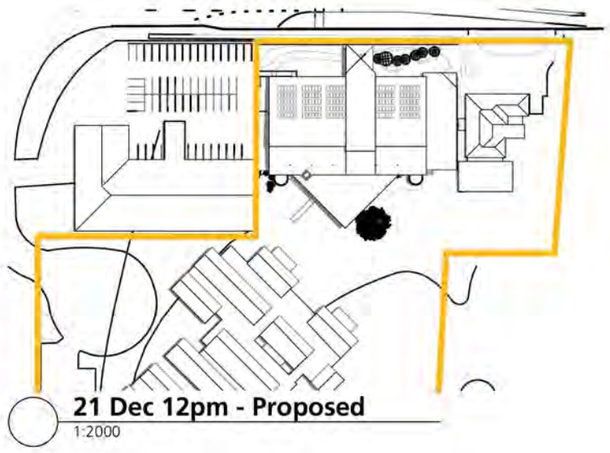
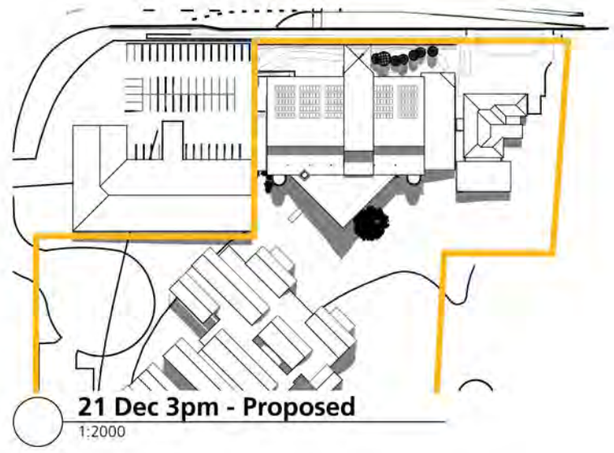








St Philip's Christian College
The Way The Truth The Life
For the Whole of Their Life

4315
DA8005
RevA 29.07.21

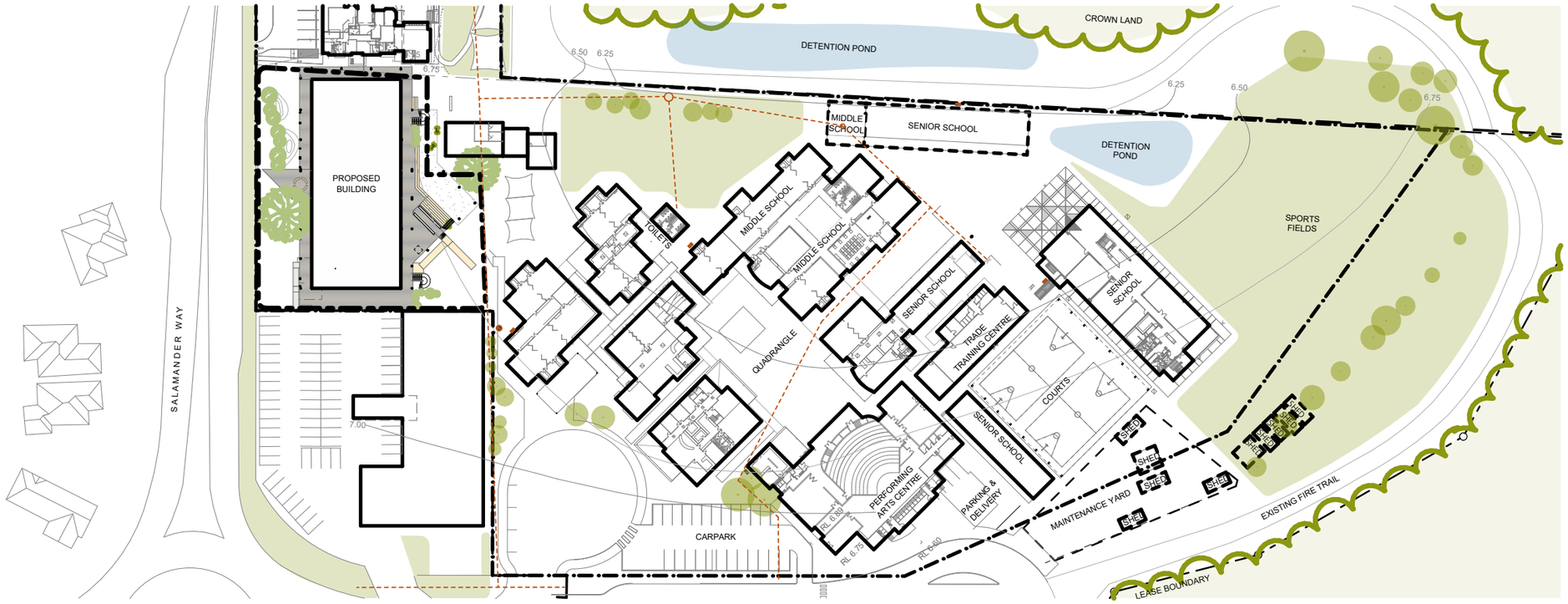
Shadow Diagrams 02

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

NTS
@A3

SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846



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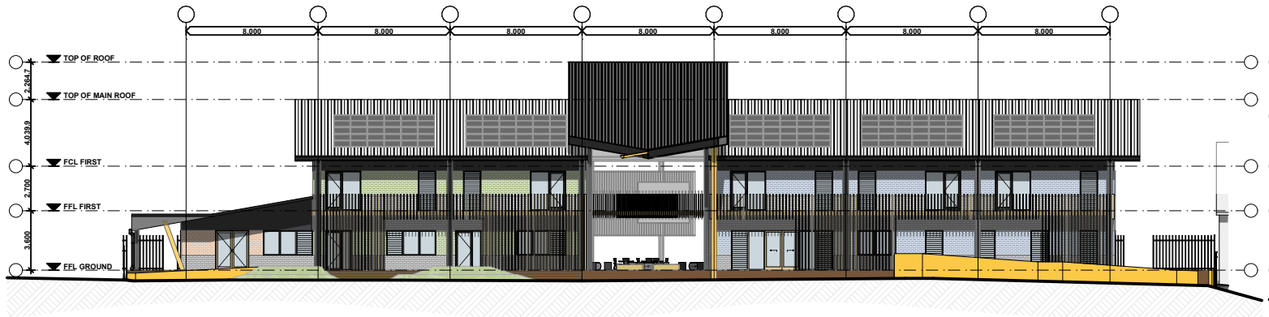
SCHOOL DETAILS

Site Address: 182 Salamander Way,
Salamander Bay NSW 2317

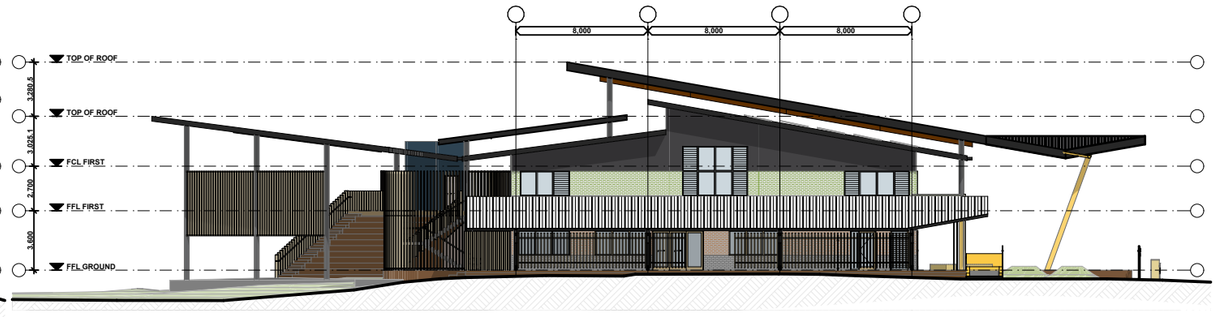
Lot/DP Address: Lot 1 DP847022
Lot 143 & 144 DP715013
Lot 1 DP7344433

Council: Port Stephens LGA

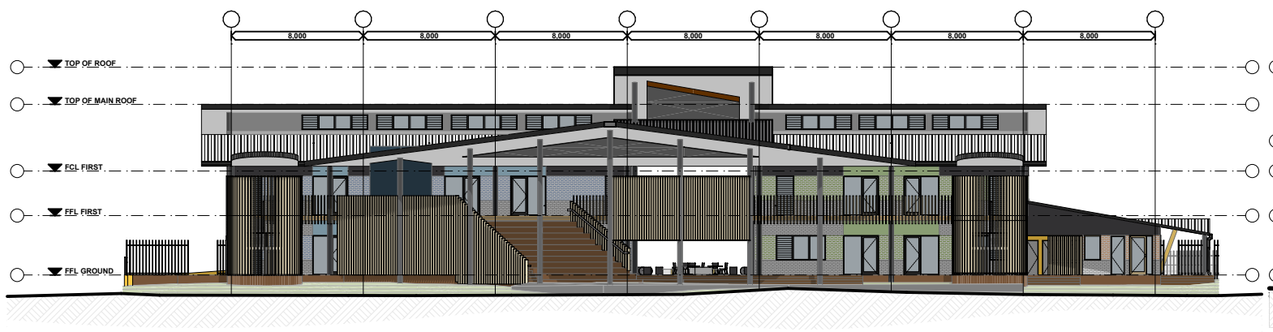
Zoning: SP2 - Infrastructure



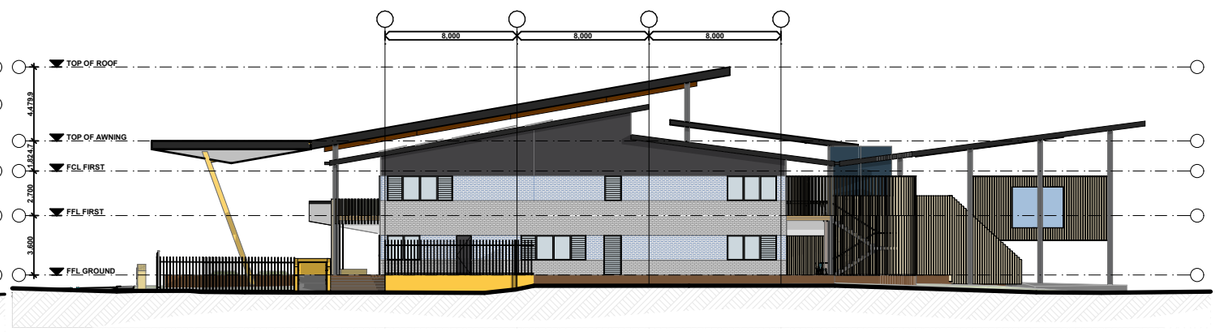
North Elevation



East Elevation



South Elevation



West Elevation

4315
DA8006
RevA 29.07.21

Notification Plan

St Philip's Christian College Port Stephens - Junior Building
182 Salamander Way, Salamander Bay

NTS
@A3

SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

KEYS:

1. Open lawn
2. Low maintenance shrub & mass planting
3. Feature trees to highlight the street
4. Big canopy tree to provide shade
5. Existing totem poles relocated
6. Existing tree to be retained
7. Low concrete seating wall painted in rainbow colours
8. Stairs and seating bench
9. Accessible concrete path 1:20
10. Large deciduous tree to provide shade
11. Nature play area with mulch softball
12. Rubber softball play mound
13. Planter box
14. Climbing timber sleepers and natural boulders
15. Green wall
16. Indoor plants

moir landscape architecture
Studio 1, 88 Fern Street
PO Box 111
Islington NSW 2296
Phone (02) 4965 3500
Fax (02) 4965 3555
admin@moirla.com.au
www.moirla.com.au

ARCHITECT:
SHAC

ENGINEER:

CLIENT:
St Phillips Christian Education Foundation

No:	DATE:	REVISION:	BY:
A	13/8/21	DRAFT CONCEPT	CX

NOTE: DRAWING PURPOSES FOR APPROVAL ONLY. NOT FOR CONSTRUCTION.

PROJECT:
St Phillips Junior School Salamander Bay
182 Salamander Way, Salamander Bay

Status: DRAFT

North

LANDSCAPE CONCEPT PLAN

SCALE: 1:200@A1
ORIGINAL DRAWING AT A1.
Drawn By: CX
Checked By: TB Approved By: DM

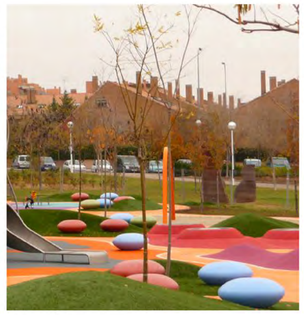
Project No. 2035
Drawing No. LP01
Rev A

0 2 4 6 8 10m

Low concrete seating wall

Nature play space - stepping logs, decks

Rubber softball play mound



Colorful seating

Natural boulders

KEYS:

1. Accessible concrete path 1:20
2. Large deciduous tree to provide shade
3. Rubber softball play mound
4. Nature play area with mulch softball
5. Planter box
6. Natural boulders in garden bed
7. Coloured concrete retaining wall to provide seating and access
8. Feature deciduous tree along western boundary
9. New brick paving

moir landscape architecture
Studio 1, 88 Fern Street
PO Box 111
Islington NSW 2296
Phone (02) 4965 3500
Fax (02) 4965 3555
admin@moirla.com.au
www.moirla.com.au

ARCHITECT:
SHAC

ENGINEER:

CLIENT:
St Phillips Christian Education Foundation

No:	DATE:	REVISION:	BY:
A	13/8/21	DRAFT CONCEPT	CX

NOTE: DRAWING PURPOSES FOR APPROVAL ONLY. NOT FOR CONSTRUCTION.

PROJECT:
St Phillips Junior School Salamander Bay
182 Salamander Way, Salamander Bay

Status: DRAFT

North

LANDSCAPE DETAIL CONCEPT PLAN

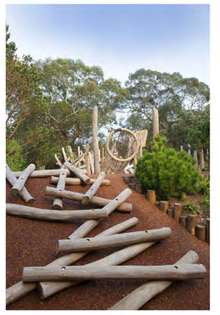
SCALE: 1:100@A1
ORIGINAL DRAWING AT A1.
Drawn By: CX
Checked By: TB Approved By: DM

Project No. 2035
Drawing No. LP02
Rev A

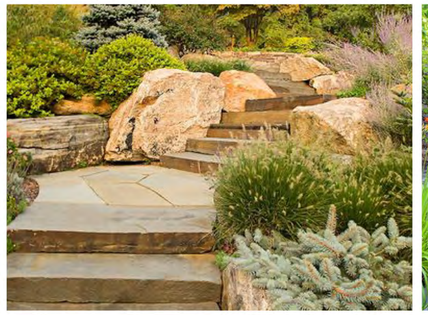
0 2 4 6 8 10m

Green wall

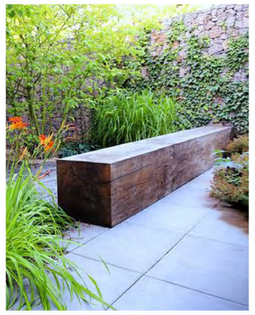
Timber climbing wall



Garden steps with planting



Natural boulders in garden bed



Timber bench seating

KEYS:

1. Green wall
2. Timber climbing wall
3. Garden steps with planting
4. Landing area with bench seating
5. Natural boulders in garden bed
6. Access to Narina play area
7. Feature small trees to provide shade
8. Planter box

moir landscape architecture
Studio 1, 88 Fern Street
PO Box 111
Islington NSW 2296
Phone (02) 4965 3500
Fax (02) 4965 3555
admin@moirla.com.au
www.moirla.com.au

ARCHITECT:
SHAC

ENGINEER:

CLIENT:
St Phillips Christian Education Foundation

No:	DATE:	REVISION:	BY:
A	13/8/21	DRAFT CONCEPT	CX

NOTE: DRAWING PURPOSES FOR APPROVAL ONLY. NOT FOR CONSTRUCTION.

PROJECT:
St Phillips Junior School Salamander Bay
182 Salamander Way, Salamander Bay

Status: DRAFT

North

LANDSCAPE DETAIL CONCEPT PLAN

SCALE: 1:100@A1
ORIGINAL DRAWING AT A1.
Drawn By: CX
Checked By: TB Approved By: DM

Project No. 2035
Drawing No. LP03
Rev A

INDOOR TREES

Elaeocarpus reticulatus
Blueberry Ash

Livistona australis
Slender palm

Davidsonia johnsonii
Davidson's Plum

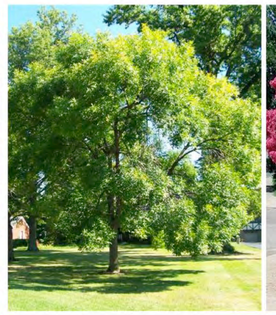
OUTDOOR TREES

Fraxinus raywood
Claret Ash

Quercus robur
English Oak

Cupaniopsis anacardioides
Tuckeroo

Tristaniopsis laurina 'Luscious'
Water Gum

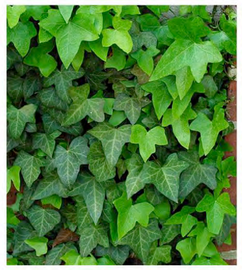


Fraxinus pennsylvanica
Green ash

Lagerstroemia indica
Crepe Myrtle

Prunus cerasifera
Purple Plum

GREEN WALL PLANTS



Hedera helix
Ivy

Epipremnum aureum
Devil's Ivy

Liriope muscari
Lily Turf

Nephrolepis exaltata
Sword Fern

Chlorophytum comosum
Spider Plant

Asplenium nidus
Bird's-nest fern

Soleirolia soleirolii
Soleirolia

Philodendron hederaceum
Heartleaf philodendron

Tradescantia spathacea
Moses-in-the-cradle

Carex oshimensis
Sedge

SHRUBS & GROUNDCOVERS & SUCCULENTS

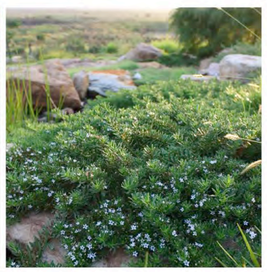
Syzygium australe 'Resilience'
Lilly Pilly

Acmena smithii 'Allyn Magic'
Dwarf Lilly Pilly

Westringia fruticosa
Coastal Rosemary

Rhododendron hybrid 'Autumn Ruby'
Encore Azaleas

Neomarica gracilis
Walking Iris



Myoporum parvifolium 'Yareena'
Creeping Boobialla

Dianella caerulea 'Little Jess'
Native Flax

Aloe vera
Aloe

Echeveria elegans
Mexican snow ball

Senecio serpens
Blue Chalk Sticks

Agave attenuata
Century Plant

moir landscape architecture
Studio 1, 88 Fern Street
PO Box 111
Islington NSW 2296
Phone (02) 4965 3500
Fax (02) 4965 3555
admin@moirla.com.au
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ARCHITECT:
SHAC

ENGINEER:

CLIENT:
St Phillips Christian Education Foundation

No:	DATE:	REVISION:	BY:
A	13/8/21	DRAFT CONCEPT	CX

NOTE: DRAWING PURPOSES FOR APPROVAL ONLY. NOT FOR CONSTRUCTION.

PROJECT:
St Phillips Junior School Salamander Bay
182 Salamander Way, Salamander Bay

Status: DRAFT

North

PLANTING PALETTE

SCALE: NTS
ORIGINAL DRAWING AT A1.
Drawn By: CX
Checked By: TB Approved By: DM

Project No. 2035
Drawing No. LP04
Rev A

Appendix B NBC Bushfire Attack Assessment Report V4.1

NBC Bushfire Attack Assessment Report V4.1

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 7/09/2021 **Assessment Date:** 29/07/2021

Site Street Address: 21073 - 182 Salamander Way, Salamander Bay

Assessor: Stuart Greville; Bushfire Planning Australia

Local Government Area: Port Stephens **Alpine Area:** No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001/Vesta/Catchpole
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description: T1 - East

Vegetation Information

Vegetation Type:	Coastal Swamp Forests		
Vegetation Group:	Forested Wetlands		
Vegetation Slope:	0.5 Degrees	**Vegetation Slope Type:**	Upslope
Surface Fuel Load(t/ha):	22.6	**Overall Fuel Load(t/ha):**	34.1
Vegetation Height(m):	1.4	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope:	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m):	Default	**APZ/Separation(m):**	66

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K):**	1200

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	100

Program Outputs

Level of Construction:	BAL 12.5	**Peak Elevation of Receiver(m):**	10.25
Radiant Heat(kW/m2):	9.95	**Flame Angle (degrees):**	76
Flame Length(m):	21.12	**Maximum View Factor:**	0.117
Rate Of Spread (km/h):	2.62	**Inner Protection Area(m):**	41
Transmissivity:	0.762	**Outer Protection Area(m):**	25
Fire Intensity(kW/m):	46161		

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	24	31	43	57	66	6

Run Description:	T2 - South east		
Vegetation Information			
Vegetation Type:	Coastal Swamp Forests		
Vegetation Group:	Forested Wetlands		
Vegetation Slope:	0.8 Degrees	**Vegetation Slope Type:**	Upslope
Surface Fuel Load(t/ha):	22.6	**Overall Fuel Load(t/ha):**	34.1
Vegetation Height(m):	1.4	Only Applicable to Shrub/Scrub and Vesta	
Site Information			
Site Slope:	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m):	6	**APZ/Separation(m):**	60
Fire Inputs			
Veg./Flame Width(m):	100	**Flame Temp(K):**	1200
Calculation Parameters			
Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	100
Program Outputs			
Level of Construction:	BAL 12.5	**Peak Elevation of Receiver(m):**	10.03
Radiant Heat(kW/m2):	10.18	**Flame Angle (degrees):**	75
Flame Length(m):	20.77	**Maximum View Factor:**	0.119
Rate Of Spread (km/h):	2.57	**Inner Protection Area(m):**	60
Transmissivity:	0.769	**Outer Protection Area(m):**	0
Fire Intensity(kW/m):	45215		

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	24	31	43	57	65	6

Run Description: T2 transition to Coastal Dune DSF

Vegetation Information

Vegetation Type: Coastal Dune DSF

Vegetation Group: Dry Sclerophyll Forests (Shrubby)

Vegetation Slope:	2 Degrees	**Vegetation Slope Type:**	Upslope
Surface Fuel Load(t/ha):	20.5	**Overall Fuel Load(t/ha):**	31.1
Vegetation Height(m):	2	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope:	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m):	Default	**APZ/Separation(m):**	60

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K):**	1200

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	100

Program Outputs

Level of Construction:	BAL 12.5	**Peak Elevation of Receiver(m):**	8.64
Radiant Heat(kW/m2):	9.64	**Flame Angle (degrees):**	78
Flame Length(m):	17.66	**Maximum View Factor:**	0.112
Rate Of Spread (km/h):	2.14	**Inner Protection Area(m):**	39
Transmissivity:	0.768	**Outer Protection Area(m):**	21
Fire Intensity(kW/m):	34433		

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	21	27	38	51	59	6

Appendix C NSW RFS Approval – Narnia Childcare Centre

NSW RURAL FIRE SERVICE

NSW GOVERNMENT

The General Manager
Port Stephens Council
PO Box 42
RAYMOND TERRACE 2324

Your reference: 16-2013-622-1
Our reference: D13/2465
DA13102589457KV

16 July 2015

Attention: Samuel Harvey

Dear Sir/Madam,

Alterations and additions to an existing building to enable change of use to a child care centre at 186 Salamander Way Salamander Bay 2317

Reference is made to Council's correspondence dated 05 March 2014 seeking general terms of approval for the above application for integrated development in accordance with Section 91 of the *Environmental Planning and Assessment Act 1979.*

The New South Wales Rural Fire Service (NSW RFS) has reviewed the assessment of bush fire risk to the proposed development presented in the bush fire reports submitted by

- Peak Land Management dated September 2013,
- Firebird ecoSultants Pty Ltd dated 27 February 2014, 02 November 2014, 20 February 2015 and 09 June 2015, and
- Peer review of the methodologies used in the alternative solution by Newcastle Bushfire Consulting dated 09 June 2015.

The NSW RFS accepts the fuel sample analysis undertaken for forested wetland to the south of the subject site which has been subject to peer review by Newcastle Bushfire Consulting. The suggested fuel loads for forest to the south east of the subject site considering the expected accumulation of fuels after the prescribed hazard burn are also supported given the exceptional circumstances in relation to the proposal.

The proposed alternative solution has demonstrated compliance with the performance criteria under Section 4.2.7 of *Planning for Bush Fire Protection 2006* for Special Fire Protection Purpose (SFPP) development to ensure that radiant heat levels of greater than 10kW/m2 will not be experienced by occupants or emergency services workers entering or exiting the building proposed to be used as a child care centre.

The NSW RFS advises that this response be deemed to be a bush fire safety authority (BFSA) as required under section 100B of the *Rural Fires Act 1997* and is issued subject to the following conditions:

Asset Protection Zones
The intent of measures is to provide sufficient space and maintain reduced fuel loads so as to ensure radiant heat levels of buildings are below critical limits and to prevent direct flame contact with a building. To achieve this, the following conditions shall apply:

Postal address
NSW Rural Fire Service
Records Management
Locked Bag 17
GRANVILLE NSW 2141

Street address
NSW Rural Fire Service
Glendenning Customer Service Centre
42 Lamb Street
GLENDENNING NSW 2761

T 1300 NSW RFS
F (02) 8741 5433
E csc@rfs.nsw.gov.au
www.rfs.nsw.gov.au

1. At the commencement of building works and in perpetuity, the entire property shall be managed as an inner protection area (IPA) as outlined within section 4.1.3 and Appendix 5 of *Planning for Bush Fire Protection 2006* and the NSW Rural Fire Service's document *Standards for asset protection zones.*

2. A restriction to the land use pursuant to Section 88B of the *Conveyancing Act 1919* shall be placed on or a licence agreement agreed with Crown Land (or any other future land owner) for Lot 533 DP 822120 Tomaree Parish Gloucester County requiring the provision of the Asset Protection Zones (APZs) identified to the east, south east and south of the subject site in perpetuity.

   APZs shall be consistent with those indicated on the maps titled *Crown Land Area for Licence* included as part of the application lodged by St Philip's Christian Education Foundation Limited on 24 February 2015.

   APZs shall be managed as outlined within section 4.1.3 and Appendix 5 of *Planning for Bush Fire Protection 2006* and the NSW Rural Fire Service's document *Standards for asset protection zones.*

Water and Utilities
The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building. To achieve this, the following conditions shall apply:

3. Water, electricity and gas shall comply with section 4.2.7 of *Planning for Bush Fire Protection 2006.*

Access
The intent of measures for property access is to provide safe access to/from the public road system for fire fighters providing property protection during a bush fire and for occupants faced with evacuation. To achieve this, the following conditions shall apply:

4. Property access roads shall comply with the following requirements of section 4.1.3 (2) of *Planning for Bush Fire Protection 2006:*
   - A minimum carriageway width of 4 metres.
   - A minimum vertical clearance of 4 metres to any overhanging obstruction, including tree branches.
   - Internal roads provide a loop road around the building or incorporate a turning circle with a minimum 12 metre outer radius.
   - Curves have a minimum inner radius of 6 metres and are minimal in number to allow for rapid access and egress.
   - The minimum distance between the inner and outer curves is 6 metres.
   - The crossfall is not to exceed 10 degrees.
   - Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads.
   - To aid in the fire fighting activities, an unobstructed pedestrian access to the rear of the property shall be provided and maintained at all times.

Evacuation and Emergency Management
The intent of measures is to provide suitable emergency and evacuation (and relocation) arrangements for occupants of special fire protection purpose developments. To achieve this, the following conditions shall apply:

5. An emergency/evacuation plan shall be prepared for the proposed child care centre to comply with section 4.2.7 of *Planning for Bush Fire Protection 2006.*

Design and Construction
The intent of measures is that buildings are designed and constructed to withstand the potential impacts of bush fire attack. To achieve this, the following conditions shall apply:

6. New construction on all elevations for the proposed alterations and additions to the existing building and the proposed outdoor store shall comply with Australian Standard AS3959-2009 *Construction of buildings in bush fire-prone areas* section 3 and section 5 (BAL 12.5) and section A3.7 of Addendum Appendix 3 of *Planning for Bush Fire Protection 2006.*

7. The existing building is required to be upgraded to improve ember protection. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen. Where applicable, this includes any sub floor areas, openable windows, doors, vents, weepholes and eaves.

Landscaping

8. Landscaping to the site shall comply with the principles of Appendix 5 of *Planning for Bush Fire Protection 2006.* In this regard the following landscaping principles are to be incorporated into the development:

    - Suitable impervious areas such as courtyards, paths and driveways shall be provided immediately surrounding the building;
    - Grassed areas/mowed lawns/ or ground cover plantings shall be provided in close proximity to the building;
    - Planting in the immediate vicinity of the building which may over time and if not properly maintained come in contact with the building shall be restricted; Maximum tree cover shall be less than 30%, and maximum shrub cover shall be less than 20%;
    - Planting shall not provide a continuous canopy to the building. Trees or shrubs shall be isolated or located in small clusters;
    - Consideration shall be given to estimated size of the plant at maturity when selecting landscape species;
    - Species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies shall be avoided;
    - Smooth bark species of trees which generally do not carry a fire up the bark into the crown shall be used;
    - Planting of deciduous species that may increase fuel at surface/ ground level (leaf litter) shall be avoided;
    - Climbing species to walls and pergolas shall be avoided;
    - Combustible materials such as woodchips/mulch, flammable fuel stores shall be located away from the building;
    - Combustible structures such as garden sheds, pergolas and timber garden furniture shall be located away from the building; and
    - Low flammability vegetation species shall be used.

The alternative solution proposed by the bush fire consultant and the assessment undertaken by the NSW RFS have relied on the establishment and the management in perpetuity of the proposed APZs located to the east, south east and south of the subject site on Crown Land in the determination of radiant heat levels for the eastern, south eastern and southern elevations of the proposed footprint.

The applicant has lodged an application for a licence to authorise the management of APZs on Crown Land situated to the east, south east and south of the subject site on 24 February 2015. However, no formal agreement has been received to date. These proposed APZs are required to be established and managed in perpetuity. If an easement or a licence agreement to this effect cannot be obtained from Crown Land, the proposed development will not be able to comply with Section 4.2.7 of *Planning for Bush Fire Protection 2006.* In this event, the current BFSA in its entirety is to be retracted.

A request for a modified BFSA is required to be submitted supported by bush fire threat assessment demonstrating compliance of the proposed development with Section 4.2.7 of *Planning for Bush Fire Protection 2006* with regard to APZs within the property boundaries.

If you have any queries regarding this advice, please contact Kalpana Varghese, Development Assessment and Planning Officer, on 1300 NSW RFS.

Yours sincerely,

Nika Fomin
Manager
Customer Service Centre East

Appendix D Crown Licence Agreement