

Concept Fire Engineering Strategy

St Patricks College

Francis St




Strathfield NSW 2135

Revision: CFES 1.0 | Date: 19 December 2019 | Ref: S19224



Prepared for: School Facilities Planning Pty Ltd

Document Control

Document Control and Verification					
Revision	Date		Prepared by	Reviewed By	Approved By
CFES 1.0	19/12/2019	Name:	Lei Wang C10: BPB3165	Mark McDaid C10: BPB2165	Mark McDaid C10: BPB2165
		Signature:			
		Comment:	Issue 1.0 - Concept Fire Engineering Strategy / Feasibility		

© MCD Fire Engineering Pty Ltd. All rights reserved.

MCD Fire Engineering has prepared this document for the sole use of School Facilities Planning Pty Ltd and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of MCD Fire Engineering. MCD Fire Engineering undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on School Facilities Planning Pty Ltd' description of its requirements and MCD Fire Engineering's experience, having regard to assumptions that MCD Fire Engineering can reasonably be expected to make in accordance with sound professional principles. MCD Fire Engineering accepts no liability for information provided by the Client and other third parties used to prepare this document or as the basis of the analysis. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Executive Summary

School Facilities Planning Pty Ltd have appointed MCD Fire Engineering Pty Ltd to carry out an initial review of the findings of concept drawings of the subject works from a BCA Assessment viewpoint. The intention of this report is to provide some preliminary fire engineering advice and conceptual fire engineering feasibilities for the proposed (4) Storey Education Building with associated Carparking and Associated Rooftop Tennis Facilities for St Patricks College, located at Francis St, Strathfield NSW 2135.

The building required to be of Type A construction, having a Rise in Storey (RIS) of 4 and has been classified as Class 7a (Carpark) and Class 9b (School).

The matters detailed in the BCA Assessment relate to a high-level fire and life safety review and the following matters have been identified as having a scope to rectify that does not have to strictly comply with the deemed-to-satisfy (DtS) provisions of the BCA. As such Performance Solutions are sought from a C10 Accredited Fire Safety Engineer to provide an alternative scope of works to address the variations to the DtS Provisions of the BCA/NCC.

The intent of this conceptual report is to provide a high-level fire engineering input for the project in order to document the likely fire safety measures for the building in order to achieve compliance with the relevant Performance Requirements of the BCA. The following is the currently agreed high level scope for fire engineering, the performance requirements listed in the tables below are the minimum Performance Requirements that must be considered, should the fire engineer identify more relevant Performance Requirements these are to be also considered.

Table 1: Summary of Performance Solution

No	DtS Clause	Description of non-compliance	Performance Requirement (A2.2(3) & A2.4)	Method of meeting Performance Requirements (A2.1)	Assessment Method (A2.2(2))
1	C1.9	To permit the use of plywood timber noggings/reinforcement (for handrails/grabrails/wall mounted wet areas systems such as WHBs etc) in cavities of fire rated walls (internal or external).	CP2, CP4	A2.1(1) Refer Table 2	A2.2(2)(b)(ii) Refer Table 2
2	D1.2	To review and permit a single exit on rooftop in a Class 7b building having a rise in storey of more than 3.	DP4, EP2.2	A2.1(1) Refer Table 2	A2.2(2)(b)(ii) Refer Table 2
3	D1.4	To review and permit the extended travel distance up to 42 m to a single exit instead of maximum 20 m in rooftop area.	DP4, EP2.2	A2.1(1) Refer Table 2	A2.2(2)(d) Refer Table 2
4	D1.5	To review and permit the extended travel distance up to 70 m between alternative exits instead of maximum 60 m in basement carpark.	DP4, EP2.2	A2.1(1) Refer Table 2	A2.2(2)(d) Refer Table 2
5	E1.4	To review and permit Omission of fire hose reels within the Class 9b areas that are not "classrooms and associated corridors".	EP1.1	A2.1(1) Refer Table 2	A2.2(2)(b)(ii) Refer Table 2

Contents

Executive Summary	3
1 Introduction.....	6
1.1 Objective.....	6
1.2 Applicable Legislation	6
1.3 Stakeholders and Documentation	6
1.4 Occupant Characteristics	8
1.5 BCA Building Information Characteristics	9
2 Conceptual Fire Safety Measures	10
3 Key Assumptions and Limitations.....	13
Appendix A Proposed Drawings	14

1 Introduction

1.1 Objective

School Facilities Planning Pty Ltd have appointed MCD Fire Engineering Pty Ltd to carry out an initial review of the findings of concept drawings of the subject works from a BCA Assessment viewpoint. The intention of this report is to provide some preliminary fire engineering advice and conceptual fire engineering feasibilities for the proposed (4) Storey Education Building with associated Carparking and Associated Rooftop Tennis Facilities for St Patricks College, located at Francis St, Strathfield NSW 2135.

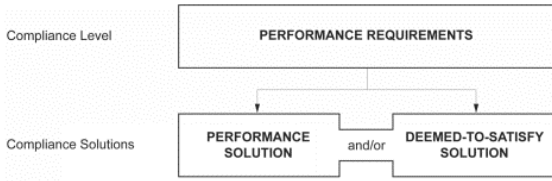
1.2 Applicable Legislation

The primary legislation applicable to the development is the National Construction Code (NCC), Volume One aka as the BCA 2019: Building Code of Australia. The BCA provides a set of prescriptive requirements, *Deemed-to-Satisfy* (DtS) Provisions that if meet, are deemed an acceptable level of safety and achieve compliance with the Performance Requirements of the BCA. Deviations from the BCA DtS Provisions must be shown and be addressed as a Performance Solutions to demonstrate they comply with the BCA Performance Requirements.

This Report is not a Performance Solution Report, but rather a Conceptual Fire Engineering Strategy that sets down the intentions or proposed fire safety strategy and likely fire engineering Performance Solution requirements.

The assessment of a Performance Solution can be undertaken using a variety of methods. These are defined in BCA Clause A2.2(3) and A2.4. One or more, or a combination of these methods can be adopted to determine whether the proposed Performance Solution complies with the BCA Performance Requirements. The relevant BCA Performance Requirements are determined in accordance with BCA Clause A2.2(3) and A2.4. Compliance with BCA Performance Requirements is undertaken in accordance with BCA Clause A2.1. BCA Clause A2.1 and A2.2(2) are presented below in Table 2.

Table 2: Methods of Meeting the Performance Requirements and Assessment Method for Performance Solution

BCA Clause A2.1	BCA Clause A2.2(2)
<p>Performance Requirements are satisfied by one of the following—</p> <ol style="list-style-type: none"> (1) A Performance Solution; or (2) A Deemed-to-Satisfy Solution; or (3) A combination of (1) and (2) <p>as shown below:</p>  <pre> graph TD A[PERFORMANCE REQUIREMENTS] --> B[PERFORMANCE SOLUTION] A --> C[DEEMED-TO-SATISFY SOLUTION] B --- D[and/or] C --- D </pre>	<p>A Performance Solution must be shown to comply with the relevant Performance Requirements through one or a combination of the following Assessment Methods:</p> <ol style="list-style-type: none"> (a) Evidence of suitability in accordance with Part A5 that shows the use of a material or product, plumbing and drainage product, form of construction or design meets a Performance Requirement. (b) Verification Methods including the following: <ol style="list-style-type: none"> (i) the Verification Methods in the NCC; or (ii) Other Verification Methods, accepted by the appropriate authority that show compliance with the relevant Performance Requirements (c) Expert Judgement (d) Comparison with the Deemed-to-Satisfy Provisions

The following New South Wales Legislation is applicable:

- NSW Environmental Planning and Assessment Act, 1979 and subsequent amendments
- NSW Environmental Planning and Assessment Regulation, 2000 and subsequent amendments

1.3 Stakeholders and Documentation

The relevant stakeholders in the design of this development are listed in Table 3 below.

Table 3: Relevant Stakeholders

Name	Organisation	Role
Geoff Whitnall	School Facilities Planning Pty Ltd	Project Manager / Client Representative
-	BVN	Architect
Scott O'Donohue	Dix Gardner Pty Ltd	BCA Consultant
TBA	TBA	Principal Certifying Authority
Mark McDaid, Lei Wang	MCD Fire Engineering Pty Ltd	Fire Engineering

1.3.1 Use and Location

The subject building, located at Francis St, Strathfield NSW 2135, consists of a Class 7a (Carpark) and a Class 9b (School). The Fire Service can access the building from Francis Street or Fraser Street as shown in Figure 1.



Figure 1: Map showing brigade access (© 2019 Sinclair Knight Merz, Map data ©2019 Google)

1.3.2 Size and shape

The building contains 5 storeys from basement to Level 3. The rise in storey is 4 and the effective height is not more than 25 m. Refer to Appendix A for more details.

1.4 Occupant Characteristics

Building occupants can generally be classified into separate distinctive groups: staff, students and visitors. All occupants are assumed to be representative of the general population with no specific or unusual distributions in respect to gender, age and physical or mental attributes. A detailed description is contained in Table 4 below:

Table 4: Occupancy Characteristics

Characteristic	Description
Familiarity	<p>Staff: Staff are expected to be familiar with the layout of the building and the location of exits.</p> <p>Students: Students are expected to be familiar with the layout of the building and the location of exits.</p> <p>Visitors: Visitors will generally be aware of the route they entered the building and are more likely to evacuate the building via this route even if other exits are closer.</p> <p>Most occupants, however, are expected to be mostly transient and it cannot be guaranteed that all occupants would be familiar with the building, its layout and the exit points. However due to the simple layout of the building they are expected to be able to make their way to exits, or be guided by their staff.</p>
Awareness	<p>Staff: Staff are expected to be alert and sober.</p> <p>Students are expected to be awake and alert to a potential emergency event such as a fire in the building.</p> <p>Visitors: Visitors may be under the influence of alcohol or other mild narcotics at some times.</p>
Mobility	<p>Staff: Any hearing, visual or mobility impaired staff are assumed to be able to self-evacuate or be assisted by other staff members.</p> <p>Students: Students are considered to be representative of the general population with some members having hearing, visual or mobility impairment and assumed to be assisted by staff.</p> <p>Visitors: Visitors are considered to be representative of the general population including a limited proportion of mobility impaired occupants. These occupants may require crutches, a wheelchair or similar to evacuate on their own or need assistance from other occupants and / or staff.</p>
Training	<p>Staff: Some staff are expected to have received some form of emergency / first aid training but for the purposes of the assessment, all occupants are assumed to be untrained.</p> <p>Students: Students are expected to have received some form of emergency but for the purposes of the assessment, all occupants are assumed to be untrained.</p> <p>Visitors: Visitors are expected to have no form of emergency / first aid training and for the purposes of the report, are assumed to be untrained.</p>
Age	<p>Staff: Staff are considered to be representative of the general population with no specific or unusual distributions in respect to gender or age.</p> <p>Students: Students are considered to be representative of the general population with a school age distribution but no specific or unusual distributions in respect to gender.</p>
Culture / language	<p>Staff: Staff are considered to be representative of the general population with some members having hearing, visual or mobility impairment and assumed to be assisted by staff.</p> <p>Students: Students are considered to be representative of the general population with some members having varying cultural backgrounds and languages.</p> <p>Visitors: Visitors are considered to be representative of the general population with some members having varying cultural backgrounds and languages.</p> <p>Although occupants may have English as their second language, they are expected to understand signs or verbal instructions in English to the degree necessary to not adversely impact upon evacuation.</p>
Occupancy Loading	<p>Occupancy levels and distribution throughout the building is assumed to be in accordance with the occupancy loadings of Table D1.13 of the BCA for the respective area usage.</p>

1.5 BCA Building Information Characteristics

The initial review has identified the building information listed in Table 5.

Table 5: Relevant Building Information

BCA Clause		Description
Schedule 3	Effective Height	Less than 25 m
A6	Occupancy Classification	BCA Class 7a (Carpark) BCA Class 9b (School)
C1.1	Minimum Type of Construction	Type A
C1.2	Rise in Storeys	4
C2.2	Fire Compartment Floor Area and Volume	BCA Class 7a – No limit (sprinkler protected) BCA Class 9b < 8,000 m ² , 48,000 m ³
E1.5	Sprinkler Protected?	Yes (throughout in accordance with AS 2118.1)

2 Conceptual Fire Safety Measures

The following high level fire safety measures should be read in conjunction with a BCA review for the building. These measures aim to act as a base point of any further and more detailed fire engineering assessment and reports as part of the Certification / Approvals processes.

It is outlined herein that, subject to the preliminary fire safety measures being incorporated into the design as detailed in Table 6 below as part of the concept fire safety design, and in conjunction with DtS fire safety measures as listed in a BCA Assessment Report, the future fire engineering assessments undertaken should be able to demonstrate that the identified deviations from the Deemed-to-Satisfy (DtS) Provisions meet the relevant Performance Requirements of the BCA. All other aspects of the proposed works are understood to be in accordance with the BCA DtS Provisions or as accepted by the PCA/Council.

Table 6: Required Fire Safety Features

Fire Safety Measure	Description
Construction Requirements	<p>The building shall be of Type A construction. All building elements are required to have a fire resistance level (FRL) as listed in Table 3 of Specification C1.1 of BCA, except where addressed in the proposed Fire Engineering Report as a Performance Solution.</p> <p>All penetrations in fire rated construction shall be fire stopped in accordance with the BCA DtS requirements.</p>
Fire safety doors and exit doors – statutory signage	<p><u>General requirement – BCA D2.23</u></p> <p>Fire doors and smoke doors must be provided with a sign in 20 mm capital lettering on both sides of the doors as required in BCA D2.23. The signs are required to be as follows:</p> <ul style="list-style-type: none"> to fire or smoke doors held open with automatic closing hold-open devices: <p style="text-align: center;">FIRE SAFETY DOOR – DO NOT OBSTRUCT</p> to self-closing fire or smoke doors: <p style="text-align: center;">FIRE SAFETY DOOR DO NOT OBSTRUCT DO NOT KEEP OPEN</p> to a door discharging from a fire-isolated exit: <p style="text-align: center;">FIRE SAFETY DOOR – DO NOT OBSTRUCT</p> <p><u>General requirement – EP&A Clause 183</u></p> <p>Fire safety notices shall be provided entry (not within) any fire-isolated stairway, passageway or ramp as required in EP&A Clause 183. The notice shall contain the wording as follows. The words “OFFENCE RELATING TO FIRE EXITS” in the notice must be in letters at least 8 millimetres high, and the remaining words must be in letters at least 2.5 millimetres high:</p> <p style="text-align: center;">“OFFENCE RELATING TO FIRE EXITS</p> <p style="text-align: center;"><i>It is an offence under the Environmental Planning and Assessment Act 1979:</i></p> <p style="text-align: center;"><i>(a) to place anything in or near this fire exit that may obstruct persons moving to and from the exit, or</i></p> <p style="text-align: center;"><i>(b) to interfere with or obstruct the operation of any fire doors, or</i></p> <p style="text-align: center;"><i>(c) to remove, damage or otherwise interfere with this notice.”</i></p>
Electrical/Comms rooms/cupboard along path of travel	<p>According to BCA D2.7, any Electrical/Comms rooms/cupboard located along path of travel shall be smoke sealed/separated from the remaining area:</p> <ul style="list-style-type: none"> Any penetration through the Electrical/Comms rooms/cupboard shall be smoke sealed. The doors to the Electrical/Comms rooms/cupboard shall be fitted with ambient and medium smoke seals (refer to below separate section for detailed requirements for smoke seals). The doors to the Electrical/Comms rooms/cupboard, if not fire doors, shall be fitted with non-combustible backing such as metal sheeting, FC sheeting, plasterboard etc.

Fire Safety Measure	Description
Smoke seals	<p>The smoke seals required in this Report to doorways shall be ambient and medium smoke seal systems that have a smoke leakage rate of < 40 m³/h (at medium temperature conditions with a pressure differential of 25 Pa after exposure at 200 °C for at least 30 minutes) when tested to AS 1530.7.</p> <ul style="list-style-type: none"> Considerations shall be made when selecting smoke seals products such that they shall be compatible with the fire doors, such as the gaps around the perimeters of the doors and if the seals are suitable for the floor covering (if applicable). Products designed for retrofit/upgrading fire doors shall be considered. The installation of smoke seals shall be the same as that for the tested specimen and the provisions of AS 6905-2007. The clearances, seal contacts and other critical design attributes for fire doors shall be within the range established by test to AS 1530.7 and any variations permitted by AS 6905-2007. Recommended smoke seals products are Lorient LAS1212 & LAS1515 Batwing Perimeter Seals door frame perimeters and LAS8001si, LAS8002si, LAS8003si, LAS8005si, LAS8008si and LAS8009si threshold drop seals. Test Report EWFA Report No: 33937100.1 by Exova Warringtonfire for the above mentioned Lorient smoke seals have been reviewed, which demonstrates a smoke sealing performance that meets the set criteria above.
Extended travel distance	<p>The following extended travel distances in the building are permitted as part of a proposed Performance Solution:</p> <p><u>Rooftop area</u></p> <ul style="list-style-type: none"> Up to 42 m to a single exit instead of maximum 20 m <p><u>Basement carpark</u></p> <ul style="list-style-type: none"> Up to 70 m between alternative exits instead of maximum 60 m
Single exit on rooftop	<p>The single exit is to be permitted under a proposed Performance Solution.</p> <ul style="list-style-type: none"> The Emergency Warning and Intercommunication System (EWIS) shall include voice annunciation instead of alert tones in accordance with Clause 4.8 of AS 1670.4-2018. The evacuation messages shall include the following verbal announcements: “EMERGENCY, EMERGENCY, EVACUATE NOW”. Suitable occupant warning devices such as horn speakers or strobes shall be provided to rooftop areas. Exit sign and emergency lighting (where applicable) shall be provided to the rooftop in accordance with BCA Clause E4.2 and E4.5 respectively, and AS/NZS 2293.1-2018, as per the requirement of BCA G6.8 for “occupiable outdoor area”.
Plywood used in fire-rated walls	<p>It is permitted under a proposed Performance Solution to have plywood to be used as noggings/reinforcement (for handrails/grabrails/wall mounted wet areas systems such as WHBs etc) in cavities of fire rated walls (internal or external), with the following conditions:</p> <ul style="list-style-type: none"> The plywood used as wall reinforcing / strengthening element for handrails/grabrails/wall mounted wet areas systems in cavities of fire rated walls (internal or external) shall have a finished thickness of not less than 12 mm and have an average density of not less than 600 kg/m³ at a moisture content of 12%; and shall not be joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue.
Smoke detection system	<p>The building shall be provided with a smoke detection and alarm system in accordance with BCA 2019 Spec E2.2a Clause 6 (Smoke detection for smoke control systems) and AS 1670.1, to activate automatic shutdown of air-handling systems in accordance with Table E2.2b.</p> <ul style="list-style-type: none"> The smoke detectors shall be spaced not more than 20 m apart and not more than 10 m from any wall, bulkhead or smoke curtain. Refer to Clause 5.1.4 of AS 1670.1-2015 for detailed requirements for location of detectors on level surfaces with deep beams/bulkhead. The smoke detectors shall have a sensitivity in accordance with AS 1670.1. The Class 7a carpark areas (basement) does not require smoke detection as it is provided with sprinkler protection.

Fire Safety Measure	Description
Emergency Warning and Intercom System (EWIS)	<p>An Emergency Warning and Intercom System (EWIS) shall be provided throughout the building in accordance with BCA Spec E4.9 and AS 1670.4-2018.</p> <ul style="list-style-type: none"> The Emergency Warning and Intercommunication System (EWIS) shall include voice annunciation instead of alert tones in accordance with Clause 4.8 of AS 1670.4-2018. The evacuation messages shall include the following verbal announcements: “EMERGENCY, EMERGENCY, EVACUATE NOW”. Suitable occupant warning devices such as horn speakers or strobes shall be provided to rooftop areas.
Fire hydrant system	<p>A fire hydrant system shall be provided to the building in accordance with BCA Clause E1.3 and AS 2419.1-2005.</p> <ul style="list-style-type: none"> The fire hydrant booster assembly connections and all fire hydrant valves must be fitted with Storz aluminium alloy delivery couplings manufactured and installed in accordance with clauses 7.1 and 8.5.11.1 of AS 2419.1-2005. Blank caps must be fitted to the couplings via a screw thread. Refer to guide sheet no. 4 'Fire brigade hose couplings' prepared by Fire and Rescue NSW for more information. This document is available at www.fire.nsw.gov.au.
Fire sprinkler system	<p>A fire sprinkler system shall be provided throughout the building in accordance with BCA Clause E1.5 and AS 2118.1-2017.</p> <ul style="list-style-type: none"> All ceiling mounted sprinkler heads are to be fast response with an RTI of 50 (m-s)^{1/2} or less in accordance with the requirements of AS 2118.1-2017. Activation temperature of 68°C except where otherwise required by AS 2118.1-2017 (such as under glazed skylights and roof areas). Activation of the sprinkler system must activate the Emergency Warning and Intercom System (EWIS). The sprinkler system must be permanently connected with a direct data link or other approved monitoring system to a fire station or fire station dispatch centre in accordance with AS 2118.1. All signage and block plans to be provided in accordance with AS 2118.1. System component fault monitoring must be provided in accordance with AS 2118.1. Attention is drawn to the specific requirements of AS 2118.1 with regard to height of storage / racking and clearances below sprinkler heads, generally required to be at least 500 mm.
Fire hose reels	<p>Fire hose reels shall be provided in accordance with BCA Clause E1.4 and AS 2441-2005 to Class 7a carpark and Class 9b areas that are not “classrooms and associated corridors”.</p> <ul style="list-style-type: none"> Note: the requirement of Class 9b areas that are not “classrooms and associated corridors” may be omitted under a proposed Performance Solution.
Portable fire extinguishers	<p>Portable fire extinguishers shall be provided in accordance with BCA Clause E1.6 and AS 2444.</p> <ul style="list-style-type: none"> Where a Performance Solution is proposed to omit the requirement of Class 9b areas that are not “classrooms and associated corridors”, additional fire extinguishers shall be provided in those areas such that all areas are with 10 m of a fire extinguisher.
Emergency lighting and exit signs	<p>Emergency lighting and exit signage shall be provided in accordance with BCA Clause E4.2 and E4.5 respectively, and AS 2293.1.</p> <ul style="list-style-type: none"> Exit sign and emergency lighting (where applicable) shall be provided to the rooftop in accordance with BCA Clause E4.2 and E4.5 respectively, and AS/NZS 2293.1-2018, as per the requirement of BCA G6.8 for “occupiable outdoor area”.
Management in use	<p>An emergency management and evacuation plan shall be developed and implemented prior to Occupation Certificate. The plan should satisfy the requirements of AS 3745.</p>
Maintenance	<p>A maintenance program shall be developed with all essential safety measures (active, passive and management) maintained in accordance with AS 1851 and AS 2293.2, and is to incorporate system interface testing, where relevant.</p>

3 Key Assumptions and Limitations

- This report is consistent with the fire safety provisions, objectives and limitations of the NCC 2016 - Building Code of Australia (BCA) Volume One:
 - All new works associated with the works comply with the current DtS provisions of the BCA except for any specific Performance Solution report carried out in addressing DtS non-compliances.
 - This report excludes the assessment and design against fires that include incendiary ones involving accelerants, explosives, multiple ignition sources, or acts of terrorism.
 - The concepts outlined in this report assume a complete and operational building, and do not address protection of the building during construction, renovation or demolition.
 - All of the fire safety systems are assumed to be designed, installed and operate in accordance with the appropriate Australian standards, other design codes, legislation and regulations relevant to the project unless specifically stated otherwise. All essential services equipment will be maintained, to the operational capacity to which they were designed, installed, commissioned and certified, in accordance with the manufacturer's instructions. As such, all essential services equipment and management plans, etc discussed within this report are assumed to function correctly during a fire situation.
 - Access and Egress provisions for persons with disabilities including compliance with the Disability Discrimination Act (DDA) are considered to the same degree as the BCA.
 - Unless stated otherwise, protection of property (other than within the subject property), business continuity, interruption or losses, environmental impacts, personal or moral obligations of the owner/occupier, reputation, amenity or non-fire related matters in the building such as health, security, energy efficiency, and occupational health & safety or the costs associated with any fire damages are specifically excluded from this analysis.
- **This report is not a Performance Solution Report.**
- This report is not a compliance or conformance audit for any fire safety system. For example, operational checks of fire safety equipment, verification of construction techniques, fire resistance levels or the witnessing of fire drills or exercises are specifically excluded from the scope of this report.
- The findings and outcomes of this report apply only to the subject building / works and must not be utilised for any other purpose. Any modifications, extensions, change of use, etc. to the building, fire safety measures or essential services equipment, from that described in this report may invalidate the findings, necessitating a re-assessment.

Appendix A Proposed Drawings



INTELLECTUAL PROPERTY

COPYRIGHT BY BN ARCHITECTURE PTY LIMITED. UNLESS OTHERWISE AGREED IN WRITING, ALL RIGHTS TO THIS DOCUMENT ARE SUBJECT TO PAYMENT IN FULL. OF ALL BVN CHARGES THIS DOCUMENT MAY ONLY BE USED FOR THE EXPRESS PURPOSE AND PROJECT FOR WHICH IT WAS CREATED AND DELIVERED. AS NOTIFIED IN WRITING BY VBN AND THIS DOCUMENT MAY NOT BE OTHERWISE USED, OR COPIED, UNAUTHORISED USE OF THIS DOCUMENT IS AT THE USER'S SOLE RISK AND WITHOUT LIMITING BVN'S RIGHTS THE USER RELEASES AND INDEMNIFIES BVN FROM AND AGAINST ALL LOSS SO ARISING.

NOTE
CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR
TO COMMENCEMENT OF WORK, OR PREPARATION OF SHOP DRAWINGS.
DO NOT SCALE THIS DRAWING

[illegible]

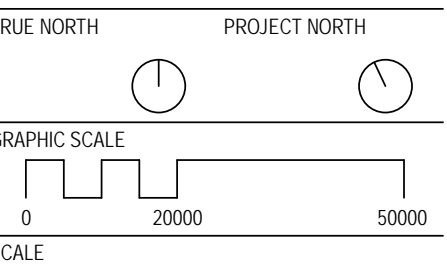
CONSULTANT
SUDA STRUCTURES
EL 02 98106911
CONSULTANT
ELECTRICAL PROJECTS AUSTRALIA
EL 02 49675999
CONSULTANT
CHA CONSULTING ENGINEERING
EL 02 94371000
CONSULTANT
MCCALLUM PCFA
EL 02 49462633
PROJECT MANAGER
GEOFF WHITNALL
EL 04 27666022
CLIENT



ST. PATRICKS COLLEGE
FRANCIS ST, STRATHFIELD NSW 2135
VN PROJECT NUMBER

811017.000

RAWING KEY



STATUS

FOR INFORMATION

DRAWING

PROPOSED SITE PLAN

AR-A10 AA-02	ISSUE 1
--------------	------------



NSW ARCHITECTS REGISTRATION BOARD /
NOMINATED ARCHITECTS

4501 ABBIE GALVIN
9356 WINDYCHAM TITCHKOSKY
7115 JULIAN ASHTON
7053 MATTHEW BLAIR
7151 PHILIP ROSSINGTON
4937 JAMES GROSE

Telephone +61 2 8297 7200
Facsimile +61 2 8297 7299
www.bvm.com.au

INTELLECTUAL PROPERTY

COPYRIGHT BVM ARCHITECTURE PTY LIMITED. UNLESS OTHERWISE
AGREED IN WRITING ALL RIGHTS TO THIS DOCUMENT ARE SUBJECT TO
PAYMENT IN FULL OF ALL BVM CHARGES. THIS DOCUMENT MAY ONLY
BE USED FOR THE EXPRESS PURPOSE AND PROJECT FOR WHICH IT
HAS BEEN CREATED AND DELIVERED. AS NOTIFIED IN WRITING BY
BVM AND THIS DOCUMENT MAY NOT BE, OTHERWISE USED OR COPIED.
ANY UNAUTHORISED USE OF THIS DOCUMENT IS AT THE USER'S SOLE
RISK AND WITHOUT LIMITING BVM'S RIGHTS THE USER RELEASES AND
INDEMNIFIES BVM FROM AND AGAINST ALL LOSS SO ARISING.

NOTE

CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR
TO COMMENCEMENT OF WORK OR PREPARATION OF SHOP DRAWINGS.
DO NOT SCALE THIS DRAWING

ISSUE	DATE	FOR
1	10/10/19	INFORMATION
2	18/11/19	INFORMATION

CONSULTANT

SDA STRUCTURES
TEL 02 98106911

CONSULTANT

ELECTRICAL PROJECTS AUSTRALIA
TEL 02 49675999

CONSULTANT

JHA CONSULTING ENGINEERING
TEL 02 94371000

CONSULTANT

MCCALLUM PCFA
TEL 02 49462633

PROJECT MANAGER

GEOFF WHITNALL
TEL 04 27666022

CLIENT



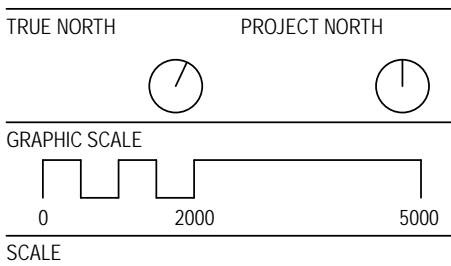
ST. PATRICKS COLLEGE

PROJECT

ST. PATRICKS COLLEGE
FRANCIS ST, STRATHFIELD NSW 2135
BVM PROJECT NUMBER

1811017.000

DRAWING KEY



1 : 200@A1

STATUS

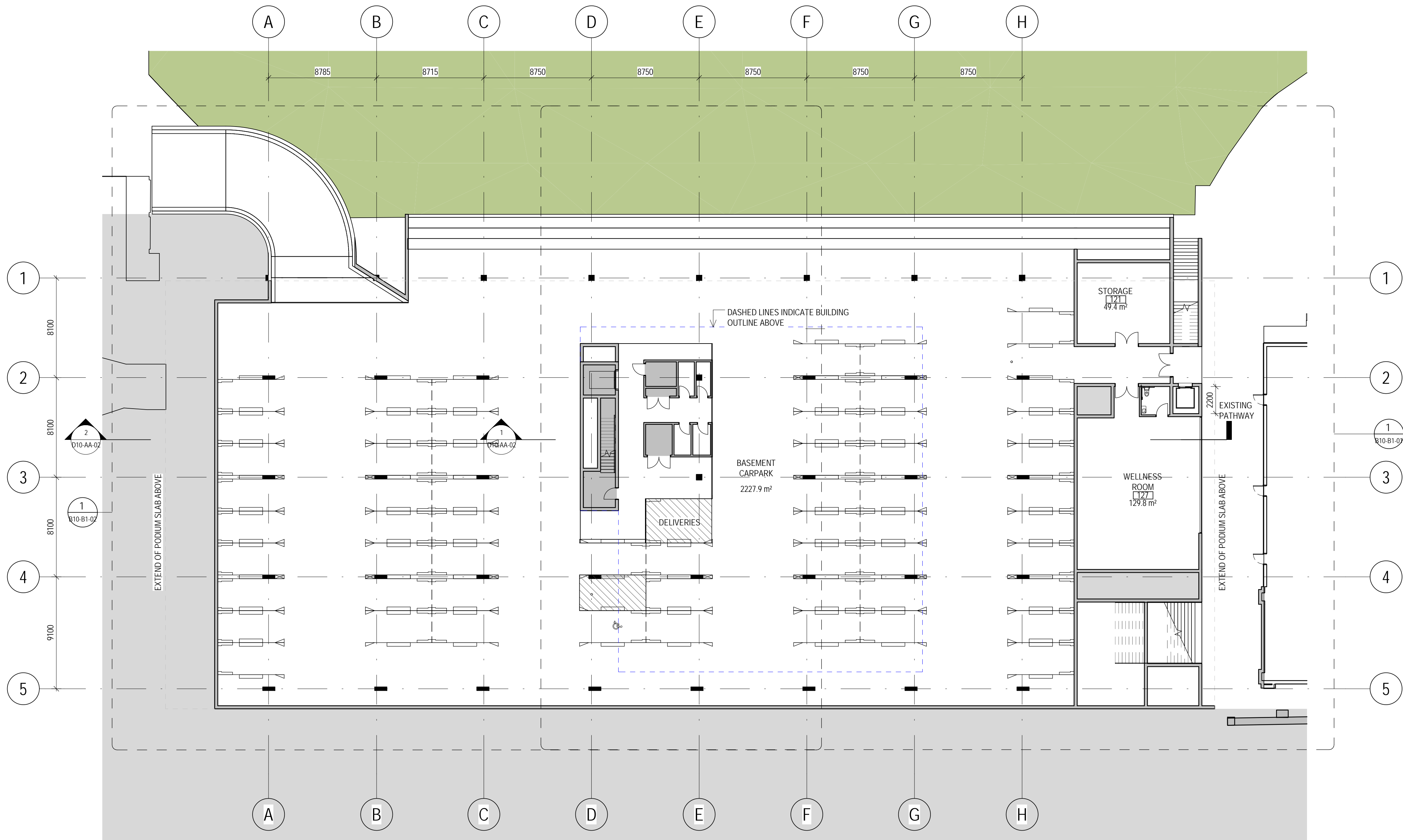
FOR INFORMATION

DRAWING

GA PLAN - BASEMENT
OVERALL

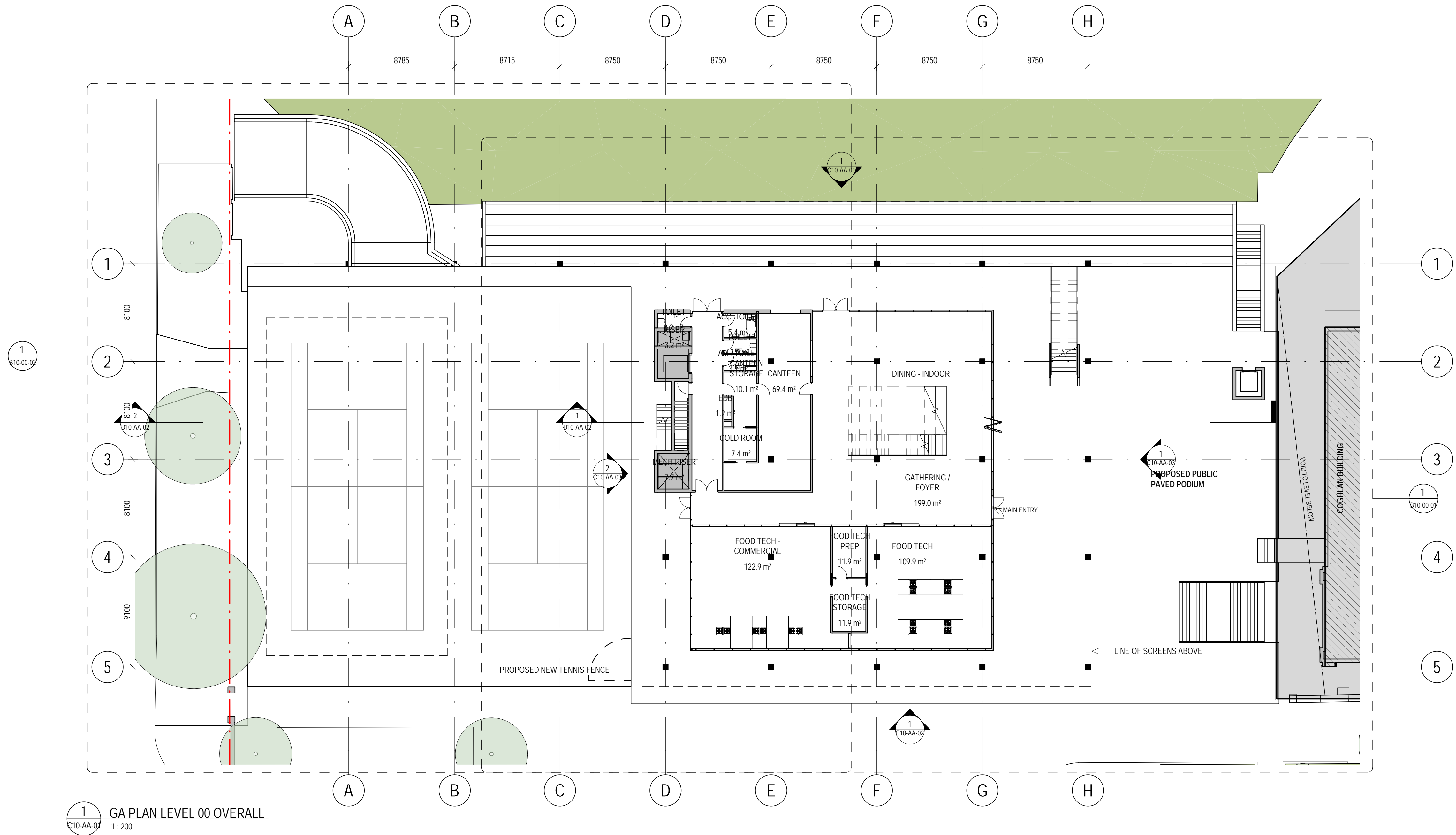
ISSUE
2

AR-B10-B1-00



1 GA PLAN - BASEMENT OVERALL
1 : 200

FRASER STREET



NSW ARCHITECTS REGISTRATION BOARD /
NOMINATED ARCHITECTS

4501 ABBIE GALVIN
9356 WROTCZAKA TITCHKOSKY
7115 JULIAN ASHTON
7053 MATTHEW BLAIR
7151 PHILIP ROSSINGTON
4937 JAMES GROSSE

Telephone +61 2 8297 7200
Facsimile +61 2 8297 7299
www.bvm.com.au

INTELLECTUAL PROPERTY

COPYRIGHT BVM ARCHITECTURE PTY LIMITED. UNLESS OTHERWISE
AGREED IN WRITING ALL RIGHTS TO THIS DOCUMENT ARE SUBJECT TO
PAYMENT IN FULL OF ALL BVM CHARGES. THIS DOCUMENT MAY ONLY
BE USED FOR THE EXPRESS PURPOSE AND PROJECT FOR WHICH IT
HAS BEEN CREATED AND DELIVERED. AS NOTIFIED IN WRITING BY
BVM AND THIS DOCUMENT MAY NOT BE OTHERWISE USED OR COPIED.
ANY UNAUTHORISED USE OF THIS DOCUMENT IS AT THE USER'S SOLE
RISK AND WITHOUT LIMITING BVM'S RIGHTS THE USER RELEASES AND
INDEMNIFIES BVM FROM AND AGAINST ALL LOSS SO ARISING.

NOTE

CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR
TO COMMENCEMENT OF WORK OR PREPARATION OF SHOP DRAWINGS.
DO NOT SCALE THIS DRAWING.

ISSUE	DATE	FOR
1	10/10/19	INFORMATION
2	18/11/19	INFORMATION

CONSULTANT

SDA STRUCTURES
TEL 02 98106911

CONSULTANT

ELECTRICAL PROJECTS AUSTRALIA
TEL 02 49675999

CONSULTANT

JHA CONSULTING ENGINEERING
TEL 02 94371000

CONSULTANT

MCCALLUM PCFA
TEL 02 49462633

PROJECT MANAGER

GEOFF WHITNALL
TEL 04 27666022

CLIENT

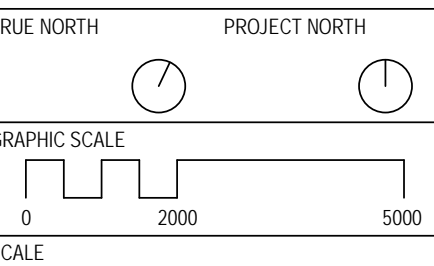


ST. PATRICKS COLLEGE
PROJECT

ST. PATRICKS COLLEGE
FRANCIS ST, STRATHFIELD NSW 2135
BVM PROJECT NUMBER

1811017.000

DRAWING KEY



1:200@A1

STATUS

FOR INFORMATION

DRAWING

GA PLAN - GROUND LEVEL
OVERALL

AR-B10-00-00

ISSUE

2



NSW ARCHITECTS REGISTRATION BOARD /
NOMINATED ARCHITECTS

4501 ABBIE GALVIN
9356 WROTHAMIA TITCHKOSKY
7115 JULIAN ASHTON
7053 MATTHEW BLAIR
7153 PHILIP ROSSINGTON
4937 JAMES GROSSE

Telephone +61 2 8297 7200
Facsimile +61 2 8297 7299
www.bvm.com.au

INTELLECTUAL PROPERTY
COPYRIGHT BVM ARCHITECTURE PTY LIMITED. UNLESS OTHERWISE
AGREED IN WRITING ALL RIGHTS TO THIS DOCUMENT ARE SUBJECT TO
PAYMENT IN FULL OF ALL BVM CHARGES. THIS DOCUMENT MAY ONLY
BE USED FOR THE EXPRESS PURPOSE AND PROJECT FOR WHICH IT
HAS BEEN CREATED AND DELIVERED. AS NOTIFIED IN WRITING BY
BVM AND THIS DOCUMENT MAY NOT BE OTHERWISE USED OR COPIED.
ANY UNAUTHORISED USE OF THIS DOCUMENT IS AT THE USER'S SOLE
RISK AND WITHOUT LIMITING BVM'S RIGHTS THE USER RELEASES AND
INDEMNIFIES BVM FROM AND AGAINST ALL LOSS SO ARISING.

NOTE
CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR
TO COMMENCEMENT OF WORK OR PREPARATION OF SHOP DRAWINGS.
DO NOT SCALE THIS DRAWING.

ISSUE	DATE	FOR
1	12/08/19	INFORMATION
2	28/08/19	INFORMATION
3	23/09/19	INFORMATION
4	10/10/19	INFORMATION
5	18/11/19	INFORMATION

CONSULTANT
SDA STRUCTURES
TEL 02 98106911
CONSULTANT
ELECTRICAL PROJECTS AUSTRALIA
TEL 02 49675999
CONSULTANT
JHA CONSULTING ENGINEERING
TEL 02 94371000
CONSULTANT
MCCALLUM PCFA
TEL 02 49462633
PROJECT MANAGER
GEOFF WHITNALL
TEL 04 27666022
CLIENT

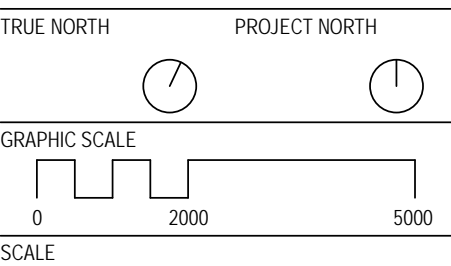


ST. PATRICKS COLLEGE
PROJECT

ST. PATRICKS COLLEGE
FRANCIS ST, STRATHFIELD NSW 2135
BVM PROJECT NUMBER

1811017.000

DRAWING KEY



1 : 100@A1
STATUS

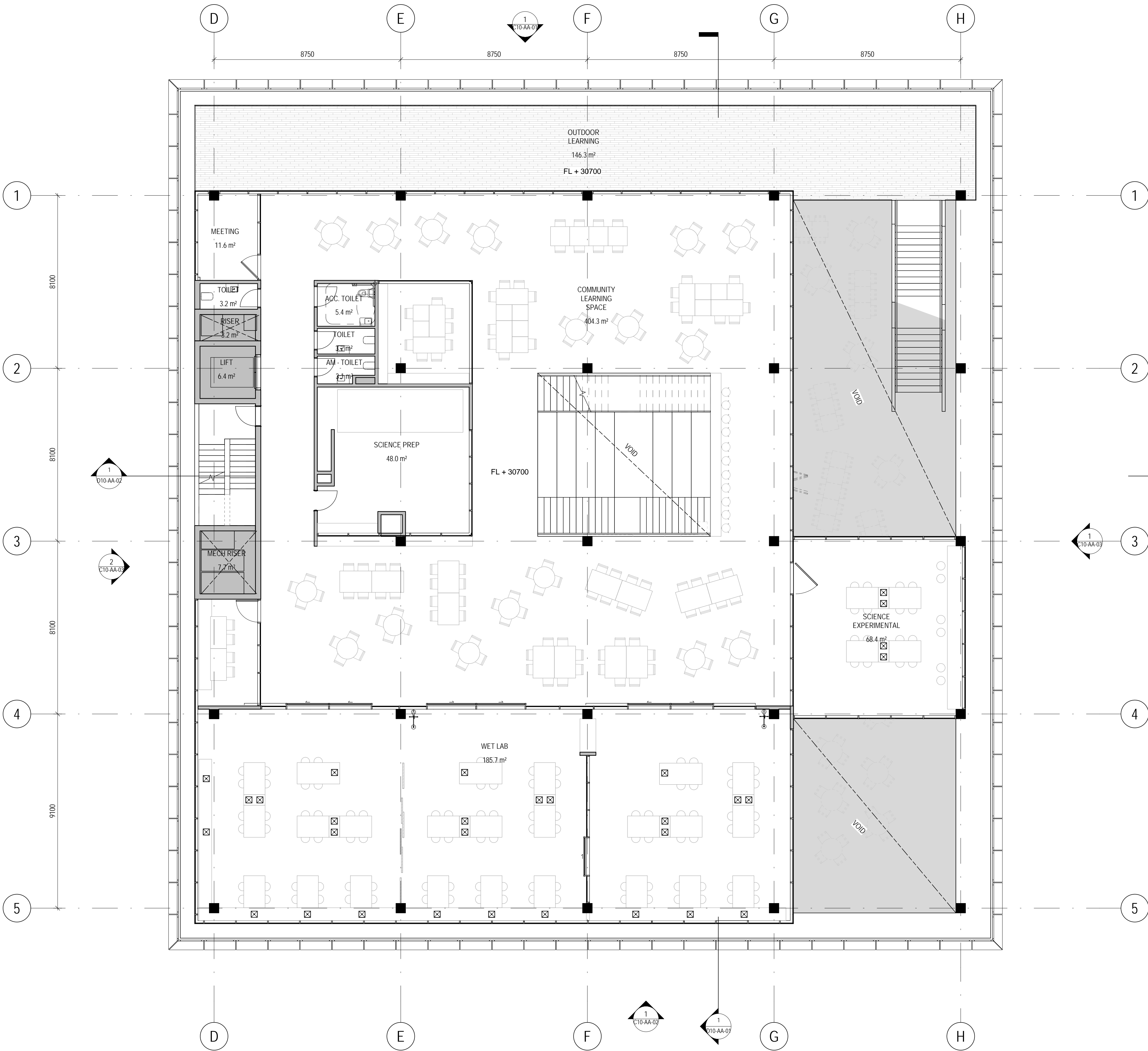
FOR INFORMATION
DRAWING

GA PLAN - LEVEL 01

AR-B10-01-00

ISSUE

5



COGHLAN BUILDING



NSW ARCHITECTS REGISTRATION BOARD /
NOMINATED ARCHITECTS

4501 ABBIE GALVIN
9356 WINDYCHAM TCHOSKY
7115 JULIAN ASHTON
7153 MATTHEW BLAIR
7153 PHILIP ROSSINGTON
4937 JAMES GROSSE

Telephone +61 2 8297 7200
Facsimile +61 2 8297 7299
www.bvm.com.au

INTELLECTUAL PROPERTY
COPYRIGHT BVM ARCHITECTURE PTY LIMITED. UNLESS OTHERWISE
AGREED IN WRITING ALL RIGHTS TO THIS DOCUMENT ARE SUBJECT TO
PAYMENT IN FULL OF ALL BVM CHARGES. THIS DOCUMENT MAY ONLY
BE USED FOR THE EXPRESS PURPOSE AND PROJECT FOR WHICH IT
HAS BEEN CREATED AND DELIVERED. AS NOTIFIED IN WRITING BY
BVM AND THIS DOCUMENT MAY NOT BE OTHERWISE USED OR COPIED.
ANY UNAUTHORISED USE OF THIS DOCUMENT IS AT THE USER'S SOLE
RISK AND WITHOUT LIMITING BVM'S RIGHTS THE USER RELEASES AND
INDEMNIFIES BVM FROM AND AGAINST ALL LOSS, SO ARISING.

NOTE
CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR
TO COMMENCEMENT OF WORK OR PREPARATION OF SHOP DRAWINGS.
DO NOT SCALE THIS DRAWING.

ISSUE	DATE	FOR
1	12/08/19	INFORMATION
2	28/08/19	INFORMATION
3	23/09/19	INFORMATION
4	10/10/19	INFORMATION
5	18/11/19	INFORMATION

CONSULTANT
SDA STRUCTURES
TEL 02 98106911
CONSULTANT
ELECTRICAL PROJECTS AUSTRALIA
TEL 02 49675999
CONSULTANT
JHA CONSULTING ENGINEERING
TEL 02 94371000
CONSULTANT
MCCALLUM PCFA
TEL 02 49462633
PROJECT MANAGER
GEOFF WHITNALL
TEL 04 27666022
CLIENT

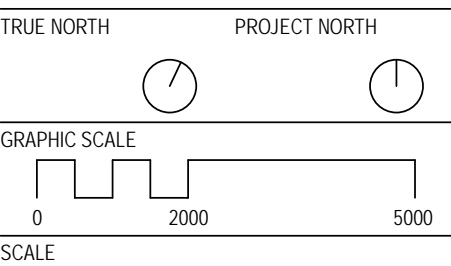


ST. PATRICKS COLLEGE
PROJECT

ST. PATRICKS COLLEGE
FRANCIS ST, STRATHFIELD NSW 2135
BVM PROJECT NUMBER

1811017.000

DRAWING KEY



1 : 100@A1
STATUS

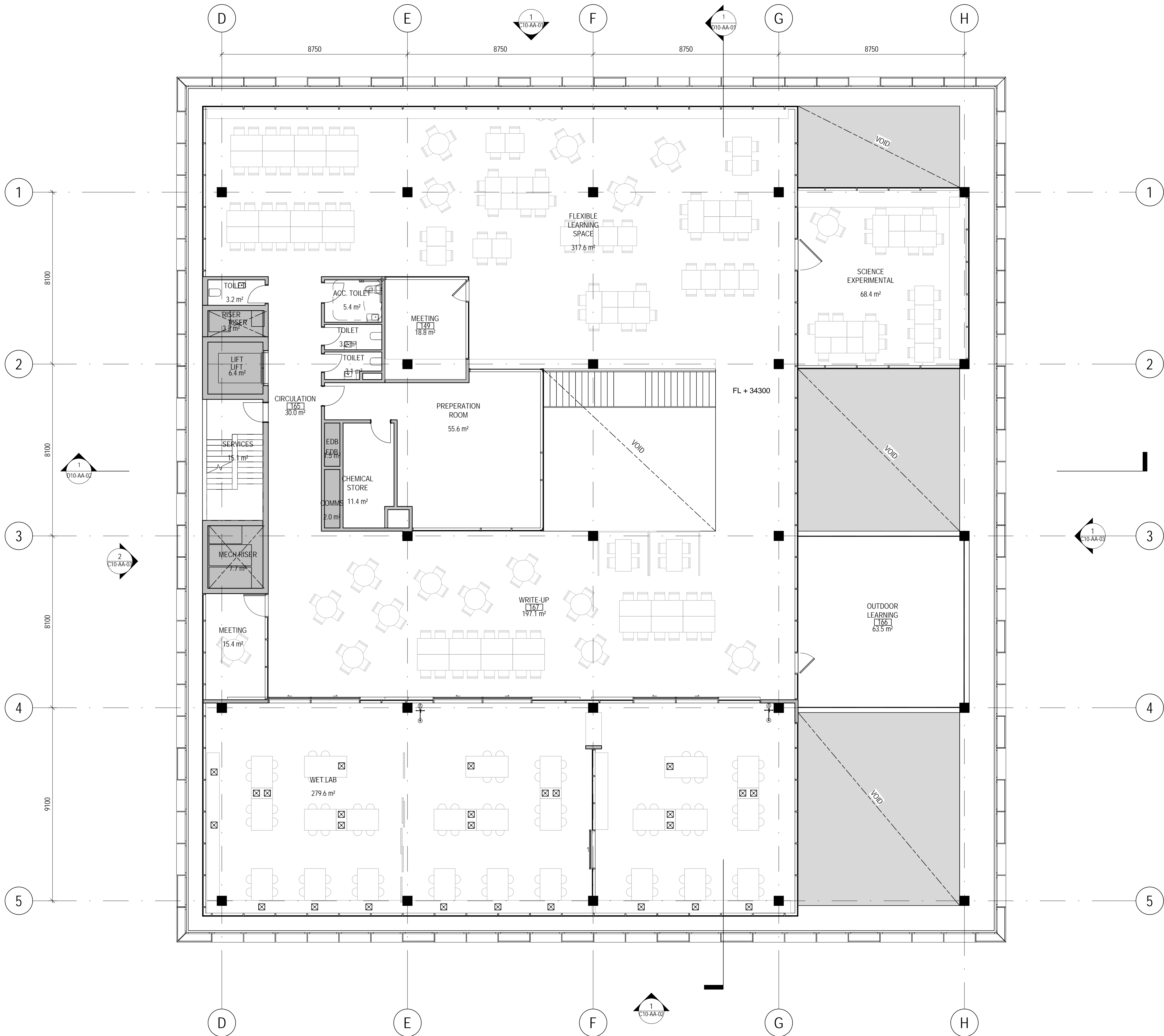
FOR INFORMATION
DRAWING

GA PLAN - LEVEL 02

AR-B10-02-00

ISSUE

5





NSW ARCHITECTS REGISTRATION BOARD /
NOMINATED ARCHITECTS
6501 ABBIE GALVIN
9356 WINDYCHAM TITCHKOSKY
7115 JULIAN ASHTON
7053 MATTHEW BLAIR
7753 PHILIP BOSSINGTON
4937 JAMES GROSSE
Telephone +61 2 8297 7200
Facsimile +61 2 8297 7299
www.bvm.com.au

INTELLECTUAL PROPERTY
COPYRIGHT BVM ARCHITECTURE PTY LIMITED. UNLESS OTHERWISE
AGREED IN WRITING ALL RIGHTS TO THIS DOCUMENT ARE SUBJECT TO
PAYMENT IN FULL OF ALL BVM CHARGES. THIS DOCUMENT MAY ONLY
BE USED FOR THE EXPRESS PURPOSE AND PROJECT FOR WHICH IT
HAS BEEN CREATED AND DELIVERED. AS NOTIFIED IN WRITING BY
BVM AND THIS DOCUMENT MAY NOT BE OTHERWISE USED OR COPIED.
ANY UNAUTHORISED USE OF THIS DOCUMENT IS AT THE USER'S SOLE
RISK AND WITHOUT LIMITING BVM'S RIGHTS THE USER RELEASES AND
INDEMNIFIES BVM FROM AND AGAINST ALL LOSS SO ARISING.

NOTE
CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR
TO COMMENCEMENT OF WORK OR PREPARATION OF SHOP DRAWINGS.
DO NOT SCALE THIS DRAWING.

ISSUE	DATE	FOR
1	12/08/19	INFORMATION
2	28/08/19	INFORMATION
3	23/09/19	INFORMATION
4	10/10/19	INFORMATION
5	18/11/19	INFORMATION

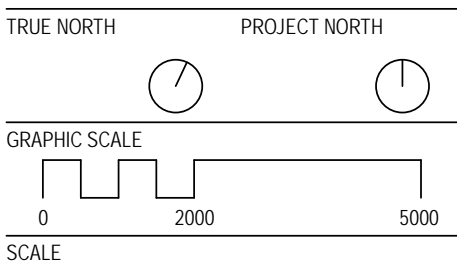
CONSULTANT
SDA STRUCTURES
TEL 02 98106911
CONSULTANT
ELECTRICAL PROJECTS AUSTRALIA
TEL 02 49675999
CONSULTANT
JHA CONSULTING ENGINEERING
TEL 02 94371000
CONSULTANT
MCCALLUM PCFA
TEL 02 49462633
PROJECT MANAGER
GEOFF WHITNALL
TEL 04 27666022
CLIENT



ST. PATRICKS COLLEGE
PROJECT

ST. PATRICKS COLLEGE
FRANCIS ST, STRATHFIELD NSW 2135
BVM PROJECT NUMBER

1811017.000
DRAWING KEY



1 : 100@A1
STATUS

FOR INFORMATION
DRAWING

GA PLAN - LEVEL 03

ISSUE	
AR-B10-03-00	5