Introduction

BESTEC Pty Ltd has been engaged to provide acoustic engineering services during the design and construction stages of the new primary school building at St Aloysius College on 53 Wakefield, St Adelaide SA. This document presents the proposed acoustic design criteria and recommendations for acoustic treatment to achieve the recommended design criteria.

Executive Summary

In summary:

- The SA Planning and Design Code has been reviewed in order to determine relevant planning conditions and requirements applicable to the proposed redevelopment in conjunction with the SA Environment Protection (Commercial and Industrial Noise) Policy 2023.
- Building acoustic design criteria have been nominated in accordance with AS 2107:2016 “Acoustics – Recommended design sound levels and reverberation times for building interiors” and Education Facilities Design Standards 2024.
- The architectural drawings of the redevelopment have been reviewed to determine the required acoustic treatments.
- Acoustic concept design recommendations have been provided in order to comply with the selected acoustic design criteria, including:
  - Construction of the building elements separating adjacent spaces in order to achieve the selected criteria for sound insulation/speech privacy of each space.
  - Reverberation control in the critical spaces.
  - Construction of the building envelope elements, in order to control noise intrusion.
  - Control of noise generated by mechanical and fire services plant.
- A mark-up has been provided (APPENDIX A) to illustrate the recommended level of speech privacy and extent for each partition type.

Acoustic Analysis

References

The following documents have been referenced within the preparation of this acoustic report:

[1] SA Planning and Design Code, 2024.

[2] Environment Protection (Commercial and Industrial Noise) Policy 2023.

[3] World Health Organisation (1999) “Guidelines for Community Noise”.

[4] AS/NZS 2107:2016 “Acoustics – Recommended design sound levels and reverberation times for building interiors”.

[5] Architectural drawings provided by Grieve Gillett Architect dated September 2024.

[6] Structural drawings provided by MATTER Consulting Structural engineers dated September 2024.

[7] Education Facilities Design Standards 2024.

[8] As ISO 140.4 – 2006 “Acoustics – Measurement of sound insulation in buildings and of building elements. Part 4: Field measurements of airbourne sound insulation between rooms”.

[9] BESTEC Mechanical services drawings dated September 2024.

Proposed Development

We understand that the existing Dunlevie building will be demolished, and a new primary school building will be constructed at St Aloysius College, which is located at 53 Wakefield St, Adelaide SA 5000 on land zoned Capital City (CC). The developments surrounding the college fall within the same land zoning as per SA Planning and Design Code [1]. The existing boundaries are as follows:

- North – Wakefield St separating the college from commercial properties.
- East – Chancery Ln separating the college from commercial properties.
- South – Angas St separating the college from commercial and residential properties.
- West – St Francis Xavier’s Catholic Cathedral and SA Water building.

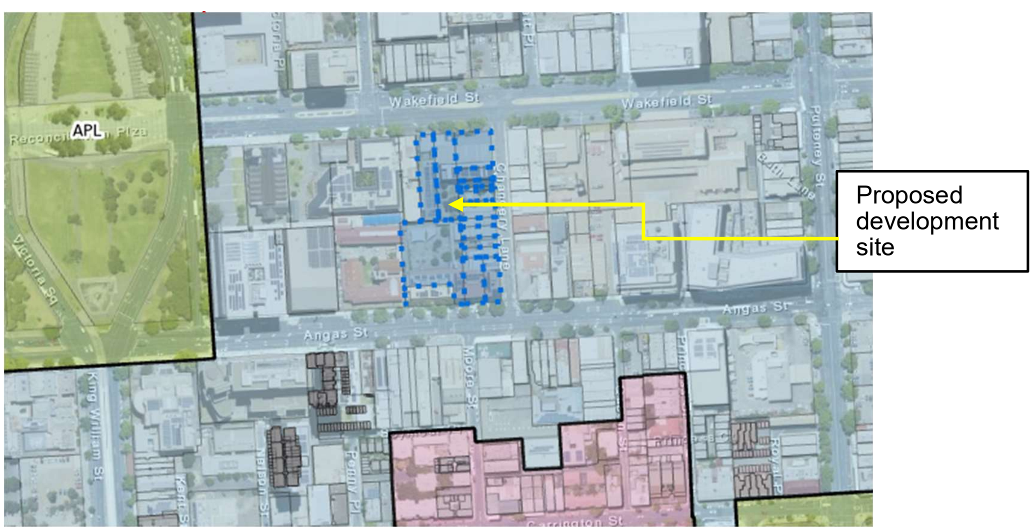

Figure 1: Location and land zoning of the site of the proposed extension

Proposed Development and Conditions

The proposed redevelopment comprises:

- Ground Floor – 3 x Reception GLA's, quiet room, learning commons, sensory room, music room, foyer, presentation space, administration component (offices, meeting room), comms room, amenities.
- First Floor – 6 x Homebase GLA's, learning commons, STEAM room, balcony gardens, sensory room, quiet rooms, breakout rooms, stores and amenities.
- Second Floor – 6 x Homebase GLA's, learning commons, multipurpose room, quiet rooms, sensory rooms, stores and amenities.
- Third Floor – 6 x Homebase GLA's, learning commons, quiet rooms, sensory rooms, breakout rooms, stores and amenities.
- Rooftop – garden, learning space and events, rooftop sports court, sports store and amenities.
- Rooftop Plant – mechanical plant room, fire pump room, generator room.

The new primary school will be operating Mon – Fri, 08:00 – 17:00. The SA Planning and Design Code [1] sets the following Desired Outcome (DO) for developments, which might affect sensitive receivers in adjacent relevant to the proposed facility:

DO 1 Development is located and designed to mitigate adverse effects on or from neighbouring and proximate uses.

The following requirements (performance outcomes) of the SA Planning and Design Code [1] are relevant to the design and siting of the proposed developments (Section Interface Between Land Uses):

PO 1.2 Development adjacent to a site containing a sensitive receiver (or lawfully approved sensitive receiver) or primarily intended to accommodate sensitive receivers is designed to minimise adverse impacts

PO 4.1 Development that emits noise (other than music) does not unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers).

A non-residential development is deemed to satisfy the above requirement if the noise emissions that affect the noise sensitive receivers achieves the relevant Environment Protection (Commercial and Industrial Noise) Policy criteria (DTS/DPF 4.1).

PO 4.2 Areas for the on-site manoeuvring of service and delivery vehicles, plant and equipment, outdoor work spaces (and the like) are designed and sited to not unreasonably impact the amenity of adjacent sensitive receivers (or lawfully approved sensitive receivers) and zones primarily intended to accommodate sensitive receivers due to noise and vibration by adopting techniques including:

(a) locating openings of buildings and associated services away from the interface with the adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers

(b) when sited outdoors, locating such areas as far as practicable from adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers

(c) housing plant and equipment within an enclosed structure or acoustic enclosure

(d) providing a suitable acoustic barrier between the plant and / or equipment and the adjacent sensitive receiver boundary or zone.

PO 4.3 Fixed plant and equipment in the form of pumps and/or filtration systems for a swimming pool or spa are positioned and/or housed to not cause unreasonable noise nuisance to adjacent sensitive receivers (or lawfully approved sensitive receivers).

Design Criteria

Environmental Noise

As the Deemed-to-Satisfy/Designed Performance Feature (DTS/DPF 4.1) refers to compliance with relevant Environment Protection (Commercial and Industrial Noise) Policy criteria [2], the environmental noise assessment was conducted against the criteria set by the Environment Protection (Commercial and Industrial Noise) Policy 2023 [2].

The Environment Protection (Commercial and Industrial Noise) Policy 2023 [2] sets out the maximum allowable continuous sound pressure levels in terms of A-weighted Equivalent Continuous Noise Level (L_{Aeq}) based on the time of day and zoning/use of land, in which the noise source and receiver are located. With reference to the SA Planning and Design Code 2024 [1], the proposed development is located within the land zoned Capital City (CC) with the surrounding commercial and residential dwellings within the same land zoning.

Therefore, the criteria derived in accordance with the Environment Protection (Commercial and Industrial Noise) Policy 2023 [2] should be based on the average of the indicative noise levels for different land categories. Additionally, the Environment Protection (Commercial and Industrial Noise) Policy 2023 [2] determines the appropriate indicative noise levels (INLs) for noise sources based on the principal land uses of zones and subzones within the Planning and Design Code. With reference to the indicative noise factor guidelines in the EPP, for land zoned Capital City (CC), the indicative noise levels used in this assessment is detailed in Table 1.

Land Use Category	Day Time (7:00 to 22:00)	Night Time (22:00 to 7:00)
Residential, Commercial	57	50

Table 1: Indicative noise factors based on time of day and land use

As the new facility will be operating daytime (School hours, Mon – Fri, 8:00 – 17:00) only, the assessment will be conducted against the daytime criterion only. We note that for planning purposes, the predicted noise level for the proposed development should not exceed the relevant indicative noise level, minus 5dBA for residential receivers. Therefore, the applicable day time noise criteria would be as follows:

- Commercial receivers:
  - Day time (7:00 a.m. to 10:00 p.m.): 57 dBA
- Residential receivers:
  - Day time (7:00 a.m. to 10:00 p.m.): 52 dBA

Note that if noise emitted by the proposed development contains any tones, modulation, impulsive or low frequency characteristics, the continuous noise level of the noise source must be adjusted as follows:

- Noise containing 1 characteristic – 5dBA penalty added to source continuous noise level;
- Noise containing 2 characteristics – 8dBA penalty added to source continuous noise level;
- Noise containing 3 or 4 characteristics – 10dBA penalty added to source continuous noise level.

Building Acoustics

The level of background and transient/intermittent noise, the speech privacy rating and the room acoustics define the acoustic quality of a building. The recommended criteria referenced from Education Facilities Design Standard [7] and AS/NZS 2107:2016 [4] for each space are shown in Table 2. Please refer to each individual section below for interpretation of the criteria.

Type of Occupancy/ Activity	Background Noise, dBA	Reverberation Time, sec	Weighted Sound Reduction Index, D_W
Reception GLA's	40	0.4	40
Quiet room	35 - 40	0.6	N/A[1]
Sensory room	35 - 40	0.6	45 N/A[2]
Learning commons	40 - 45	0.6	N/A 35[3]
Toilets and changerooms	< 55	N/A	40
Foyer	< 50	0.6	N/A
Board room	40 - 45	0.6	45
Music room	35 - 40	0.8 - 1.0	45
Hos, D.Hos offices	40 - 45	0.6	40
Meeting	40 - 45	0.6	40
STEAM room	40 - 45	0.8	40
Homebase	40	0.4	40
Corridor	< 50	0.8	N/A
Multipurpose	40	0.6	45
Breakout room	40 - 45	0.6	N/A
Rooftop sports court	N/A	N/A	45[4]
Comms and stores	N/A	N/A	35

Table 2: Proposed building acoustic design criteria

Background Noise

AS 2107:2016 [4] sets the criteria for background noise in terms of A-weighted equivalent continuous sound pressure level over the measurement period (L_{Aeq}) in accordance with the use of the spaces and the location of the buildings. Table 3 details the subjective response of individuals to the proposed sound levels for interpretation of the recommendations.

Average Sound Pressure Levels (dBA)	Subjective Rating
35 – 40	Audible but unobtrusive
40 – 45	Moderate but unobtrusive
45 – 50	Unobtrusive with low levels of surrounding activities
50 – 55	Unobtrusive with high levels of surrounding activities

[1] Drawings indicate the quiet rooms separating the Homebases are open, we note that unless a partition or door is introduced, sound will transfer between the spaces.

[2] For sensory rooms that are open

[3] Ground floor

[4] Between floors

Table 3: Subjective ratings for various average sound pressure levels

Sound Insulation

For enclosed spaces, the noise from activities in the adjacent rooms transmitted through walls, floors, ceilings etc. increases the background noise level similarly to the noise intrusion from any outside sources. The level of noise transmitted from the adjacent rooms and the level of sound insulation/speech privacy is controlled by the design of building elements and providing adequate level of sound attenuation through specifying appropriate construction types for walls, floors, doors, ceilings etc.

There are no recommended Australian or International Standards for sound insulation ratings for adjoining spaces. Recommendations are based on experience from previous projects, with these recommendations reflecting user expectations. The privacy rating is dependent on the sound absorption and background noise level in the adjoining space as well as the area and acoustic performance of the dividing partition.

The proposed criteria for speech privacy between the spaces separated by partitions (extending either to the ceiling level or to the roof structure above are presented in terms of Weighted Sound Level Difference (D_W) as defined by AS ISO 140.4–2006 [8], which is related to the sound level difference between two spaces and are detailed in Table 4. The criteria are based on our experience in the acoustic design of similar facilities. Table 4 details the subjective response of individuals to the proposed privacy ratings for interpretation of the recommendations.

Weighted Sound Level Difference, D_W	Subjective Rating
50	Confidential privacy
45	Very good privacy. Speech inaudible unless raised
40	Good privacy. Speech audible but unintelligible
35	Normal privacy. Neighbouring conversations are audible and may be understood
< 35	Privacy not required

Table 4: Subjective perceptions for various privacy ratings

Room Acoustics

AS 2107-2016 [4] sets out the design criteria for reverberation times within occupied spaces. The reverberation time defines the time taken for sound to decay within a space and thus the degree of intelligibility of both unassisted speech and sound reinforcement systems. The criterion for a given space depends on the volume of the space, with Table 5 outlining the subjective impression for spaces with varying volume. Criteria considered appropriate for the various spaces within the development are listed in Table 5.

Reverberation Time (sec)			Subjective Rating
Small (100m3)	Medium (1,000 m3)	Large (10,000m3)	
< 0.3	0.3 – 0.5	0.6 – 0.8	Dead
0.3 – 0.5	0.5 – 0.7	0.8 – 1.0	Medium dead
0.5 – 0.7	0.7 – 1.0	1.0 – 1.5	Average
0.7 – 1.0	1.0 – 1.5	1.5 – 2.5	Medium live
1.0 – 2.00	1.5 – 2.5	2.5 – 4.5	Live

Table 5: Subjective response to various reverberation times and room volumes

Assessment and Recommendation

General Recommendation

Acoustic Sealants

We note that for the acoustic integrity of building elements to be maintained, all gaps and interfaces along the junctions and joints of linings must be sealed with an appropriate acoustic grade sealant. Penetrations for mechanical or electrical services must be properly caulked and sealed around the ductwork and cabling Appropriate acoustic caulking products include:

- Bostik Firemastic.
- Bostik Seal-n-flex 2637.

- Pyropanel Multiflex.
- Boral Fyreflex.
- Dow-Corning 790 Silicone.
- Dow-Corning 795 Silicone.
- Sika Sikaflex-11 FC.
- Fosroc Flamex 3.

Cavity Infill

Unless otherwise specified, where a cavity infill is recommended, equivalent alternatives are:

- Fibreglass – 50mm, 12kg/m^3.
- Rockwool – 50mm, 38kg/m^3.
- Polyester – 900gsm.

Ceiling Overlay

Unless otherwise specified, where a ceiling overlay is recommended, equivalent alternatives are:

- Glasswool – 100mm, 12kg/m^3.
- Rockwool – 100mm, 38kg/m^3.
- Polyester – 100mm, 32kg/m^3.

Where higher durability and/or water resistance is required, 6mm compressed fibre cement sheeting could be used in lieu of the 13mm fire-rated plasterboard and 9mm compressed fibre cement in-lieu of 16mm fire-rated plasterboard.

Sound Insulation

For extent of the proposed levels of speech privacy/sound insulation, refer the mark-up in APPENDIX A.

The architectural drawings have not specified glazing and doors and as such we make the following recommendations:

- Normal Privacy, D_w 35 (highlighted in yellow colour)
  - P02 – 1 layer of 13mm plasterboard to each side of 76mm steel studs extending to the ceiling level with cavity infill of 50mm, 12kg/m^3 glasswool. This is acceptable from an acoustics point of view.
  - P22 – 1 layer of 16mm Fyrchek to both side of 92mm steed studs, we recommend cavity infill of 50mm, 12kg/m^3 glasswool.

    We note that this construction will only achieve Normal Speech Privacy and has been recommended for rooms (sensory) requiring Very Good Speech Privacy and we recommend constructing the partitions as recommended in Very Good Speech Privacy
  - Glazing – minimum 10.38mm laminated glass or as required structurally.
  - Doors – 40 mm thick solid core doors or hinged aluminium framed glass doors with 10.38mm laminated glass.
- Good Privacy, D_w 40 (highlighted in green colour)
  - P03 – 1 layer of 13mm plasterboard to one side of 92mm steel studs and 2 layers of 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool with plasterboard extending to the structure above. This is acceptable from an acoustics point of view.

    We note that this construction will only achieve Good Privacy and has been recommended for rooms requiring Very Good Speech Privacy and we recommend constructing the partitions as recommended in Very Good Speech Privacy.
  - P03B – Drawings indicate P03B to G.07 however the is no indication on the wall schedule and we recommend 1 layer of 13mm plasterboard to one side of 92mm steel studs and 2 layers of 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool.
  - P09 – 1 layer of 13mm plasterboard to both sides of double steel studs consisting of 76mm steel stud and 64mm steel stud separated by a 90mm airgap with caviy infill of 50mm, 12kg/m^3 glasswool. This is acceptable from an acoustics point of view.
  - P14 – 1 layer of 13mm plasterboard to one side of 92mm steel studs with 1 layer of 18mm MDF on 6mm z clip on 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool.

We note that this construction will only achieve Good Privacy and has been recommended for rooms requiring Very Good Speech Privacy and we recommend adding 1 layer of 13mm plasterboard to the construction.

- P15 – 1 layer of 13mm plasterboard to one side of double steel studs consisting of 76mm steel stud and 64mm steel stud separated by a 90mm airgap and 1 layer of 18mm MDF on 6mm z clip on 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool. This is acceptable from an acoustics point of view.
- Glazing
  - Between spaces with good speech privacy and trafficable areas minimum 12.5mm VLam Hush glass.
  - Between spaces with good speech privacy – double glazing constructed of 6.38mm laminated glass – 12mm air space – 10.38mm laminated glass (Weighted Sound reduction Index of R_W 43).
- Doors:
  - Between spaces with good speech privacy and trafficable areas – hinged 50mm thick solid core doors (minimum density 700kg/m^3) or hinged aluminium framed doors with 12.5mm VLam Hush glass. We recommend medium duty acoustic seals (Raven RP8, RP10 or equivalent). We note that the glass door would not strictly achieve Good speech privacy as the Weighted Sound Reduction of 12.5mm VLam Hush glass is R_W 40, however, it would be acceptable between the sensitive spaces and adjacent trafficable area.
  - Between spaces with good speech privacy - proprietary acoustic door with Weighted Sound Reduction Index of Rw 43 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance
  - Sliding doors – Please note that the architectural drawings indicate sliding door, which will achieve only Normal speech privacy. If achieving Good privacy is required, we recommend proprietary acoustic slider with Weighted Sound Reduction Index of R_w 40 is considered or the sliding door be replaced with hinged door (refer above).
  - Toilet doors – 40mm thick solid core doors will be sufficient. Relief air grilles should not be incorporated in the toilet doors.

- Very Good Privacy, D_w 45 (highlighted in red colour)
  - P08A, P08B, P08C – 1 layer of 13mm plasterboard on both sides of double 92mm steel studs separated by a 90mm airgap (P08A and P08B) with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill of double layers of 90mm, 12kg/m^3 glasswool.
  - P10 – 2 layers of 13mm plasterboard to each side of 92mm steel studs with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P10B – 2 layers of rendered kelso on 2 layers of 13mm plasterboard to each side of 92mm steel studs with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P11 – 1 layer of 13mm plasterboard to one side of double steel studs consisting of 76mm steel stud and 64mm steel stud separated by a 90mm airgap and 1 layer of 18mm MDF on 6mm z clip on 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill double layers of 60mm, 12kg/m^3 glasswool.
  - P20 – 1 layer of 25mm Gyprock shaft linear panel to one side of 102mm metal CH studs and 2 layers of 13mm fyrechek to the other side. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P24 – 2 layers of 16mm Fyrchek to both sides of 92mm steel studs. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P25 – 2 layers of 13mm Fyrchek to both sides of 92mm steel studs. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - Glazing – minimum double double glazing consisting of 10.38mm laminated glass – 12mm airgap – 12.76mm laminated glass.
  - Doors:

- Hinged doors – we recommend proprietary acoustic door with Weighted Sound Reduction Index of Rw 47 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance.
- Sliding doors – We recommend proprietary acoustic sliders with Weighted Sound Reduction Index of Rw 47 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance.

We recommend 300mm post tension concrete slab between the rooftop sports court and the spaces on Level 3, and we recommend the ceilings of the spaces below be suspended on neoprene spring hangers with minimum static deflection of 25mm (e.g., Embelton RHS/RHSH or equivalent) in order to control structure borne and impact generated from use of the space. The hangers should be selected based on the total ceiling loads, including engineering services. For further details of the ceiling construction refer section Room Acoustics.

We note that the where the quiet rooms interconnect homebases and reception, Good speech privacy will not be achieved as the quiet rooms are open and if Good speech privacy is required, we recommend constructing a partition/ door as recommended above.

Room Acoustics

Based on the latest architectural drawings and reflected ceiling plan, we make the following recommendations for critical spaces:

- Teaching spaces – we understand that ceiling in the teaching spaces is proposed to be constructed of a mix of BAUX Woodwool (CE13) with Noise reduction coefficient of NRC 0.9 and SonaSpray K13 25mm (CE12) with Noise reduction coefficient of NRC 0.9 to exposed concrete.
    - Ground floor, Levels 1, 2 and the GLA's on Level 3, which are below the roof garden – RONDO or equivalent standard ceiling suspension grid concealed with 1 layer of plasterboard to the side with 100mm/ 32kg/m^3 polyester insulation;
    - Level 3 – We recommend the entire ceiling extend to the underside of the outdoor sports court to be constructed with RONDO or equivalent ceiling grid suspended on neoprene spring hangers with minimum static deflection of 25mm (e.g., Embelton RHS/RHSH or equivalent) with minimum cavity of 300mm and have a cavity infill of minimum 100mm, 32kg/m^3 polyester.

    This is acceptable from an acoustics point of view.
- Learning commons, STEAM – we understand the intention is to have exposed concrete soffit sprayed with SonaSpray and make the following recommendations:
    - Ground floor, Levels 1, 2 and the learning commons on Level 3 located under the roof garden – SonaSpray K13 25mm (CE12) with Noise reduction coefficient of NRC 0.9.
    - Level 3 - 13mm plasterboard in ceiling grid suspended on neoprene spring hangers with minimum 25mm static deflection (e.g., Embelton RHS/RHSH or equivalent) finished with SonaSpray K13 25mm (CE12) with Noise reduction coefficient of NRC 0.9.

    This is acceptable from an acoustics point of view.
- Music room – drawings indicate Aktar (CE14) perforated MDF and SonaSpray k13 (CE12) to the exposed concrete and we make the following recommendations:
    - Ceiling – The entire suspended ceiling (~43m^2) to be constructed of perforated plasterboard (10% open area) backed with non-woven acoustic tissue with Noise Reduction Coefficient of NRC 0.5(i.e., Random Plus 8/15/20R, 9.9%OA or equivalent) uniformly distributed along the perimeter of the room.
    - Walls – 16m^2 AUTEX Accent (13mm thick, 3300gsm, NRC0.8) spread equally between the walls of the music space.
- Administration component (Boardroom, meeting room, Hos and D,Hos) – we recommend perforated ceiling tiles with minimum Noise Reduction Coefficient of NRC 0.6 (e.g., Knauf Circular 15.5%OA or equivalent).
- Theatre stairs – Aktar diPanel AP250D (CE14) with noise coefficient or NRC 0.85, this is acceptable from an acoustics point of view.

Building Envelope

Based on the architectural drawings [5] and the results of our assessment, we make the following recommendations for construction of building envelope.

- Façade:
  - EP01 – 200mm precast concrete. This is acceptable from an acoustics point of view.
  - EP02 – 250mm precast concrete. This is acceptable from an acoustics point of view.
  - Ep03 – 150mm precast concrete. This is acceptable from an acoustics point of view.
  - EP04 – 190mm thick blockwork. This is acceptable from an acoustics point of view.
  - EP05 – 1 layer of 9mm fibre cement cladding on 1 layer of 15mm top hats, 35mm top hats to the external side of 92mm steel studs with 1 layer of 13mm plasterboard to the internal side with cavity infill R2.2 insulation. We recommend 2 layers of 13mm plasterboard to the internal side of the wall construction and cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP06 – 1 layer of 9mm fibre cement cladding on 15mm top hats, 35mm top hats on 1 layer of 16mm Fyrchek to the external side of 92mm steel studs and 1 layer of 16mm Fyrchek to the internal side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - Ep07 – 3 layers of 16mm Fyrchek to the internal side of 92mm steel studs and 1 layer of 12mm viroc cladding on 15mm top hat, 35mm top hats with cavity infill of 90mm pink partition insulation R2.7. This is acceptable from an acoustics point of view.
  - EP08 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of 92 mm steel studs with 2 layers of 16mm Fyrchek to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - Ep09 – 1 layer of viroc cladding on 15mm top hats, 35 top hats to the external side of 92mm steel studs with 2 layers of 13mm plasterboard and 2 layers of 6.5mm wall lining to the internal side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP10 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm top hats to each side of 92mm steel studs. This is acceptable from an acoustics point of view.
  - EP11 – 1 layer of 30mm brick snaps on 15mm top hats, 35 mm top hats to the external side of 92mm steel studs. We note that the internal side of this construction will be precast concrete and note that it is acceptable from an acoustics point of view.
  - EP12 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of 92 mm steel studs with 2 layers of 16mm Fyrchek to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP13 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of double 92 mm steel studs separated by a 5mm air gap with 2 layers of 16mm Fyrchek to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP14 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of 102 mm CH steel studs with 1 layer of 25mm Shaft liner to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP18 – 1 layer of 75mm hebel powerpanel on 15mm top hats, 35mm top hats to the external side of 92mm steel studs with 1 layer of precast concrete to the internal side separated by a 20mm air gap.

    We understand that the stairway wall adjacent to the outdoor sport area will have ball thrown by students on painted targets on the wall. In order to control impact noise generated from this activity, we recommend the wall be constructed on vibration isolation strips (i.e., Getzner Sylomer or similar) to decouple the wall from the concrete slab and have cavity infill of 90mm, 11kg/m^3 glasswool.

- Roof:
  - Learning area – The structural drawings [6] indicate 250mm post tension concrete slab and we consider it acceptable from acoustic point of view. In order to control footfall noise to the spaces below, we recommend the pavers in the roof garden be installed on adjustable plastic pedestals.
  - Fire pump room – we recommend 0.48BMT profiled roof steel cladding over R2.5 foil faced insulation blanket (ANTICON 100 or equivalent) on 150mm deep roof purlins with ceiling of 2 layer of 13mm fire rated plasterboard or 200mm thick precast concrete.
- Glazing – we recommend:
  - Minimum 10.38mm laminated glass or as required structurally.
  - Music Room – we recommend minimum double glazing of 10.38mm laminated glass – 12mm airgap – 12.76mm laminated glass. We recommend proprietary acoustic door with Weighted Sound Reduction Index of Rw 47 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance.

Engineering Services Acoustics

Mechanical Services

Airborne Noise

The assessment of the airborne noise emissions from operation of mechanical services units was assessed based on BESTEC mechanical services drawings and plant selections [9] the sound levels summarised below. The results of our assessment are summarised in Table 7.

Daikin Model	Unit Designation	Mode	Octave Band Centre Frequencies Sound Pressure Level, dB re 20μPa								
			63	125	250	500	1K	2K	4K	8K	Total, dB(A)
FXMQ40PAVE	L4 Foyer (ACU 4-1)	HH	35	41	39	35	34	32	25	18	39
		H	34	37	35	33	32	29	23	15	37
		L	30	37	34	31	31	27	21	14	35
FXMQ50PAVE	Boardroom (ACU G-4),	HH	36	43	40	38	37	31	24	22	41
		H	36	40	38	36	34	29	23	22	39
		L	35	38	36	35	32	26	22	22	37
FXMQ100PAVE	L3 Learning Commons W stair	HH	40	45	40	39	40	33	28	18	43
		H	37	43	38	38	38	31	25	17	41
		L	31	40	36	36	36	28	18	16	39
FXMQ125PAVE	Reception G0.7 (ACU G-11), L1 Homebase 1.05,07,09,11(ACU 1-14,12,10,8), L2 Homebase 2.04,.06,.08,10 (ACU 2-14,12,11,7), L2 Multi, L3 Homecoming 3.05,7,9,11,13	HH	43	46	42	40	41	34	28	22	44
		H	41	44	39	38	39	32	25	18	42
		L	37	41	38	36	36	30	20	17	40
FXMQ140PAVE	Reception G0.5 (ACU G-2), Music (ACU g.09), Homebase 1.13, L3 Homecoming 3.04, 14	HH	46	49	45	42	42	37	31	35	46
		H	43	47	44	41	41	36	30	34	45
		L	41	45	41	40	40	34	27	32	43
FXMQ160PV1A	Reception G0.6 (ACU G-1), STEM, Homebase 1.14, L2 Homebase 2.13,14, L3 Learning Commons W	H	53	52	47	40	39	36	34	26	45
		L	46	44	40	33	32	29	26	20	38
FXMQ180PV1A	GF Learning Commons (ACU G-10), L1 Learning Commons E,	H	53	52	47	40	39	36	34	26	45
		L	46	44	40	33	32	29	26	20	38

Daikin Model	Unit Designation	Mode	Octave Band Centre Frequencies Sound Pressure Level, dB re 20μPa								
			63	125	250	500	1K	2K	4K	8K	Total, dB(A)
	L2 Learning Commons E, L3 Learning Commons E										
FXMQ200PV1A	L1 Learning Commons W (ACU 1-2), L2 Learning Commons W (ACU 2-3)	H	52	51	45	39	37	35	33	27	44
		L	46	43	40	31	31	29	24	23	37
FXMQ250PV1A	GF Foyer (ACU G-3)	H	54	53	47	41	40	38	33	28	46
		L	48	45	41	36	32	31	26	20	39
VAM1000GJVE	ERVs	U-H	50	47	48	40	35	29	22	13	54
		H	50	45	47	39	33	27	20	10	53
		L	49	43	44	37	31	25	16	9	51

Table 6: Sound Pressure Levels for ACU's

We have conducted an assessment of the noise emissions resulting from the operation of the above units based on the layout shown in the current mechanical services drawings [9]. The results of our assessment are summarised in the tables below, with acoustic treatment recommended where required.

Daikin Model	Unit Designation	S/A	R/A	Casing Radiated
FXMQ40PAVE	ACU 4-1	(1)	(1)	(1)
FXMQ50PAVE	ACU G-4	(1)	(1)	(1)
FXMQ100PAVE	ACU 3-4	(1)	(1)	(4)
FXMQ125PAVE	ACU G-11, ACU 1-14, ACU1-12, ACU1-10, ACU1-8, ACU 2-14, ACU 2-12, ACU 2-11, ACU 2-7, ACU 3-16, ACU 3-14, ACU 3-12, ACU 3-10, ACU 3-8	(2)	(1)	(1)
FXMQ140PAVE	ACU G-2, ACU 1-6, ACU 3-1	(2)	(1)	(1)
FXMQ140PAVE	ACU G-9 (music)	(2)	(3)	(1)
FXMQ160PV1A	ACU G-1, ACU 1-1, ACU 1-5, ACU 2-6, ACU2-7,	(2)	(1)	(4)
FXMQ180PV1A	ACU G-10, ACU 1-4, ACU 2-5, ACU 3-6	(1)	(1)	(4)
FXMQ200PV1A	ACU 1-2, ACU 2-3	(1)	(1)	(4)
FXMQ250PV1A	ACU G-3	(1)	(1)	(4)
VAM1000GJVE	ERVs	(1)	(5)	(4)

Table 7: Summary of acoustic treatment for ACU's.

(1) No further acoustic treatment is required.
(2) Minimum 2,000mm long flexible ducting before the SA grilles.
(3) Minimum 1,500mm long flexible ducting before the RA grilles.
(4) Replace perforated plasterboard ceiling and construct a bulkhead encapsulating the units with minimum 1 layer of 13mm plasterboard and internally line with 100mm, 32kg/m^3 polyester.

(5) Minimum 2,200mm long flexible ducting before the RA grilles.

Environmental Acoustics

Noise Associated with Roof Mechanical Services

We have reviewed the rooftop mechanical services serving the development and the results of our assessment reveal that when all units are in operation, the criteria will be achieved and the amenity of the nearest residential receivers and the adjacent school buildings (Archdiocese centre, Redden centre, FJ Siebert, Convent & Chapel) will not be affected during the day time when the building is operational.

To control the noise from the condensers serving the development to the outdoor learning area and the outdoor sports court, we recommend acoustic louvres with the minimum attenuation at each frequency:

Frequency (dB)	63	125	250	500	1K	2K	4K
Sound Reduction Index	18	14	14	22	28	28	33

Structure Borne Noise and Vibration

Condensing units to be installed on neoprene vibration isolation mounts with minimum static deflection of 8mm.

Noise associated with Fire Services

Details of the fire services are currently not available. Hence for this assessment, we used measured data from a previous project and assumed similar noise levels which were 95dBA@1m.

The results of our assessment reveal that with the roof services room construction (Refer Building Façade), the amenity of the nearest residential receivers and the adjacent school buildings (Archdiocese centre, Redden centre, FJ Siebert, Convent & Chapel) will not be affected during the day time when the building is operational.

Please note:

- The fire pump diesel engine will require cooling intake and discharge openings as well as exhaust mufflers, which will be specified once details of the diesel engine are provided;
- The fire pump should be suspended on seismically restrained vibration spring isolators with minimum static deflection of 50mm.
- The connection between the fire pump and any pipes should be via flexible connection (Victaulic or equivalent) with the pipes suspended on seismically restrained spring hanger with minimum 50mm static deflection for the first 15m or 100 pipe diameters, whichever is greater. For the rest of the run, the pipes could be supported on neoprene hangers.
- The fire pump room would require minimum 5m^2 of NRC0.9 acoustic panels/ tiles internally to reduce the reverberation buildup noise.
- Once the details and selections are made available, this assessment would be revised.

APPENDIX A

Partition Mark-Up

Speech Privacy	D_W	Mark-up Colour
Normal Speech Privacy	35	
Good Speech Privacy	40	
Very Good Speech Privacy	45	

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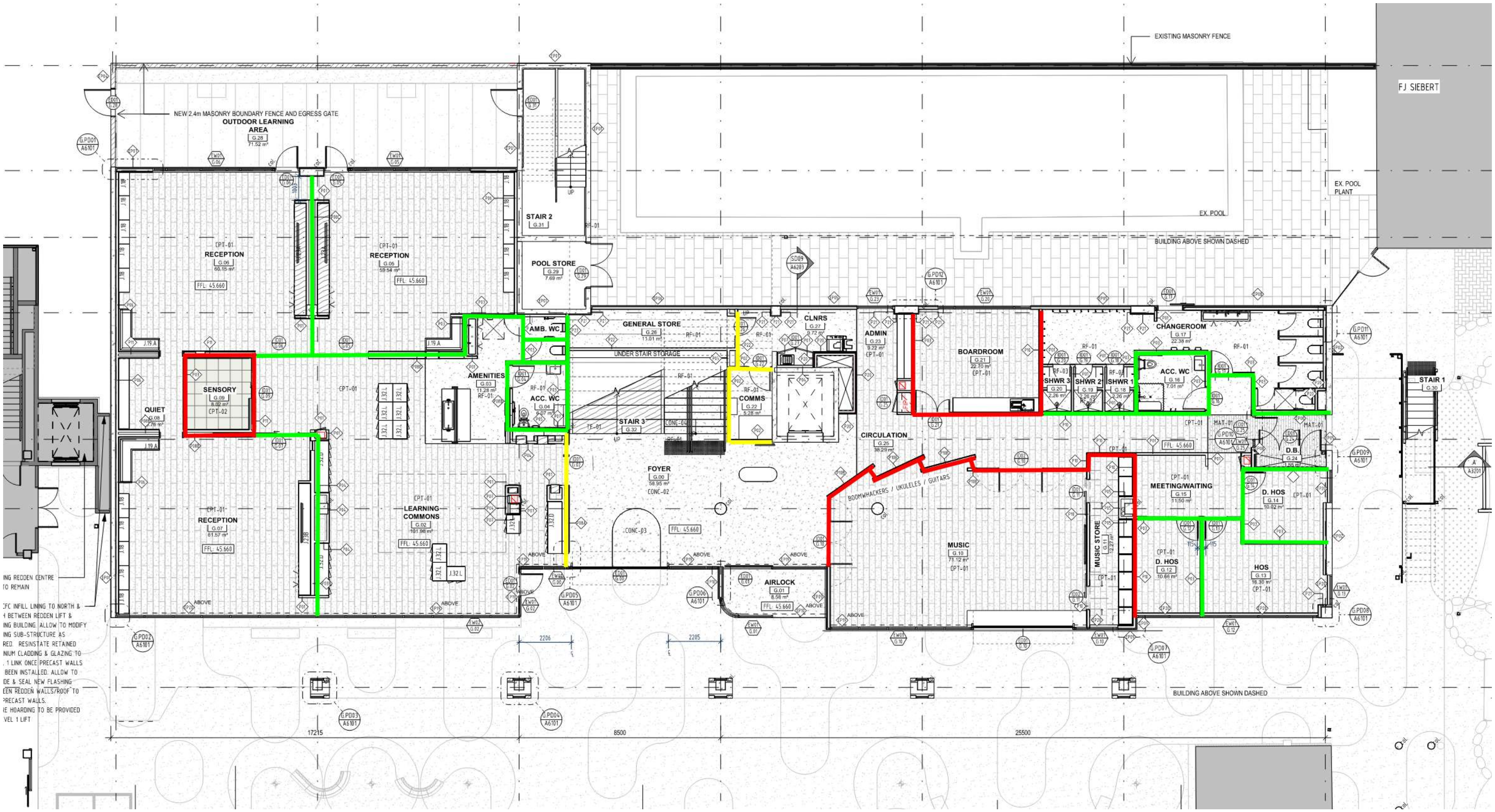
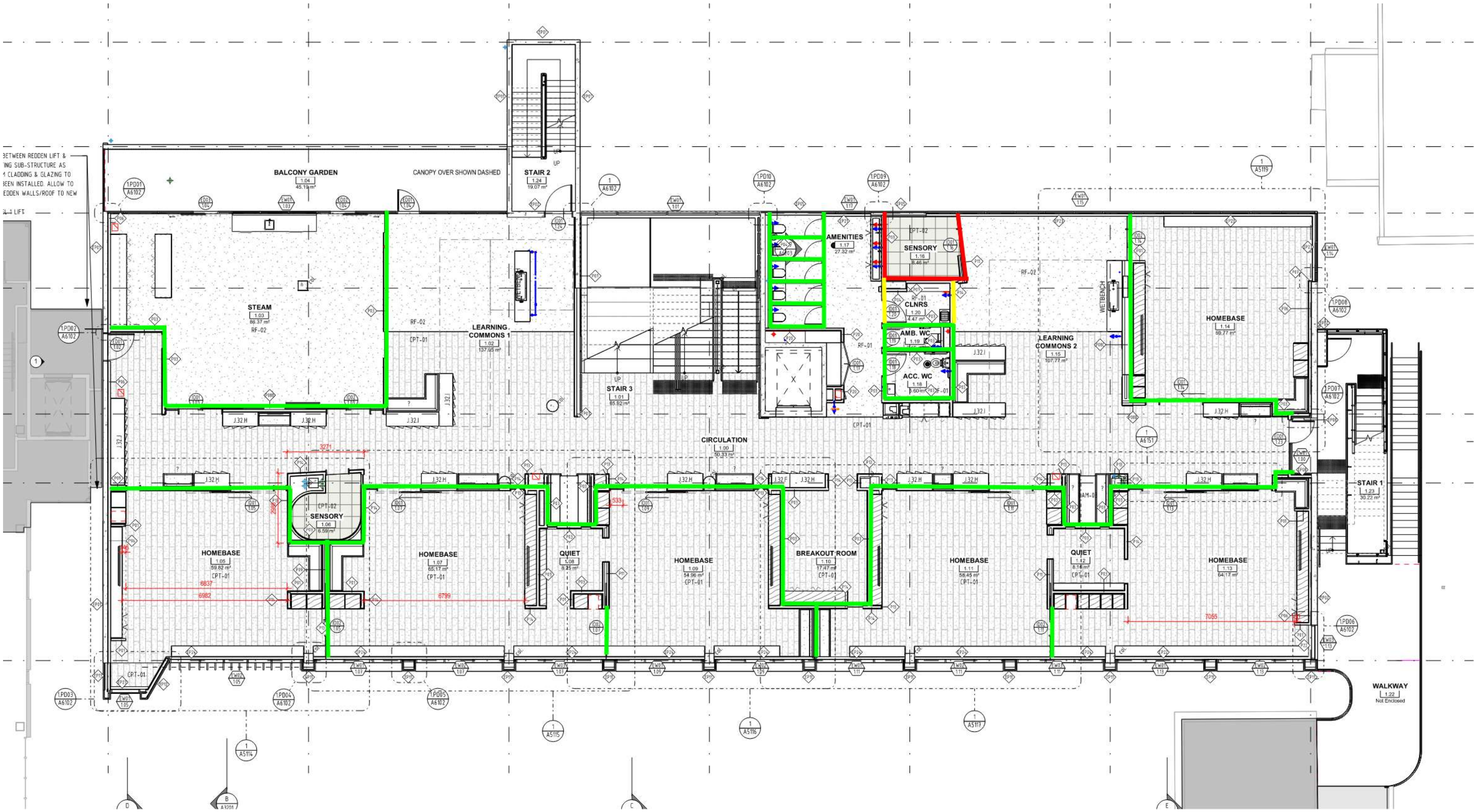


Ground Floor


BALCONY GARDEN
STAIR 2
STEAM
LEARNING COMMONS 1
STAIR 3
AMENITIES
SENSORY
CLNRS
AMB. WC
ACC. WC
LEARNING COMMONS 2
HOMEBASE
CIRCULATION
SENSORY
HOMEBASE
HOMEBASE
QUIET
HOMEBASE
BREAKOUT ROOM
HOMEBASE
QUIET
HOMEBASE
STAIR 1
WALKWAY

Level 1

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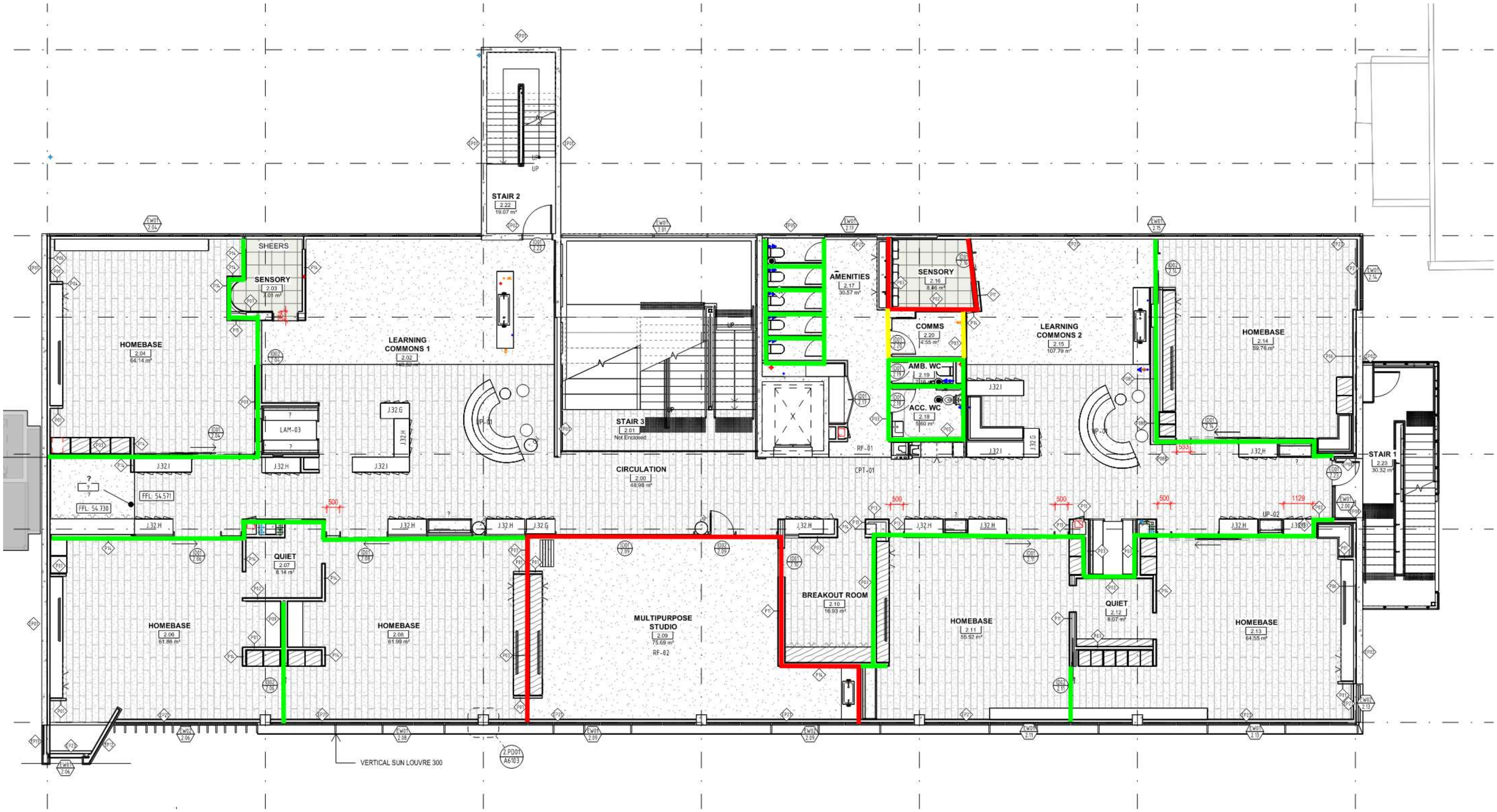
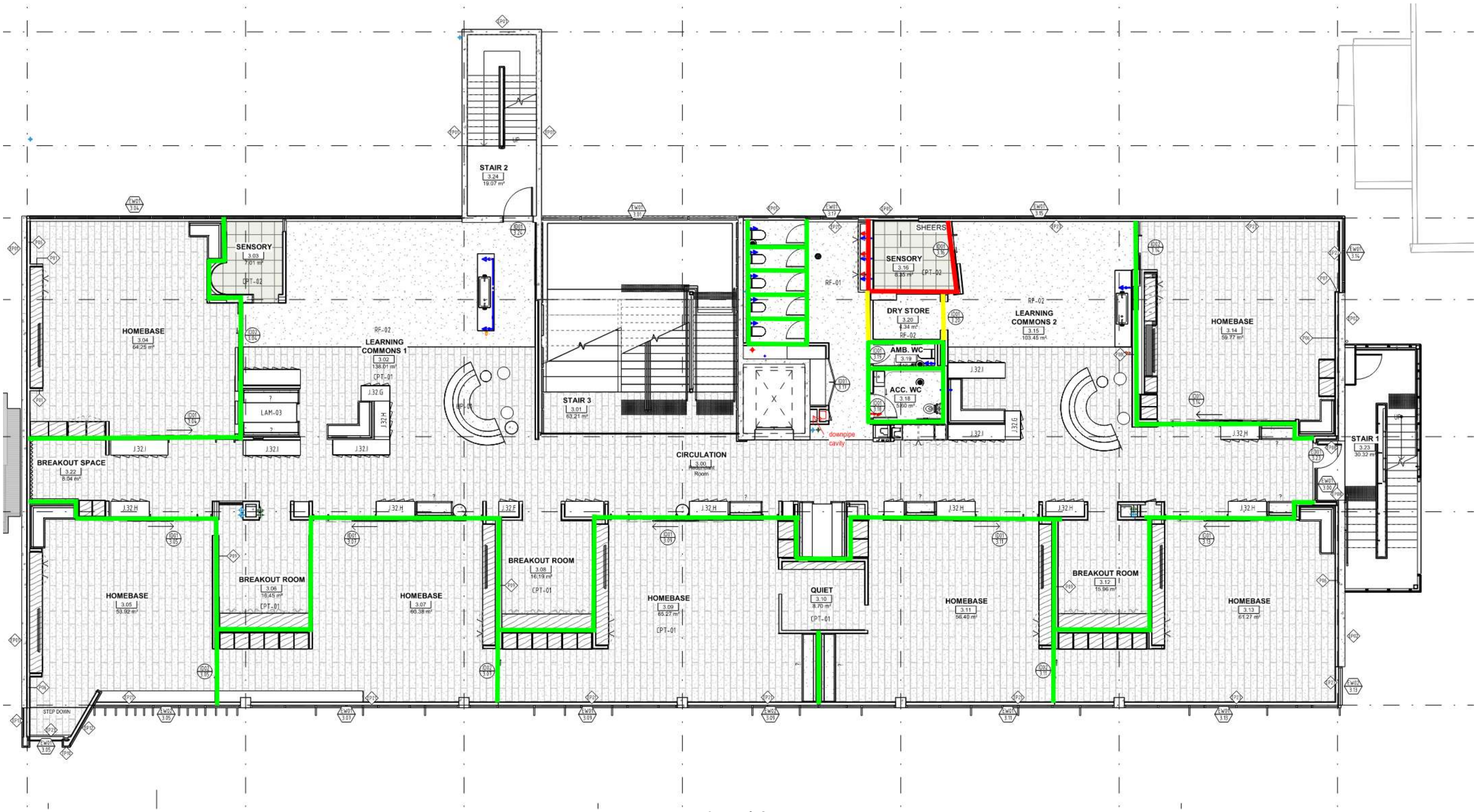
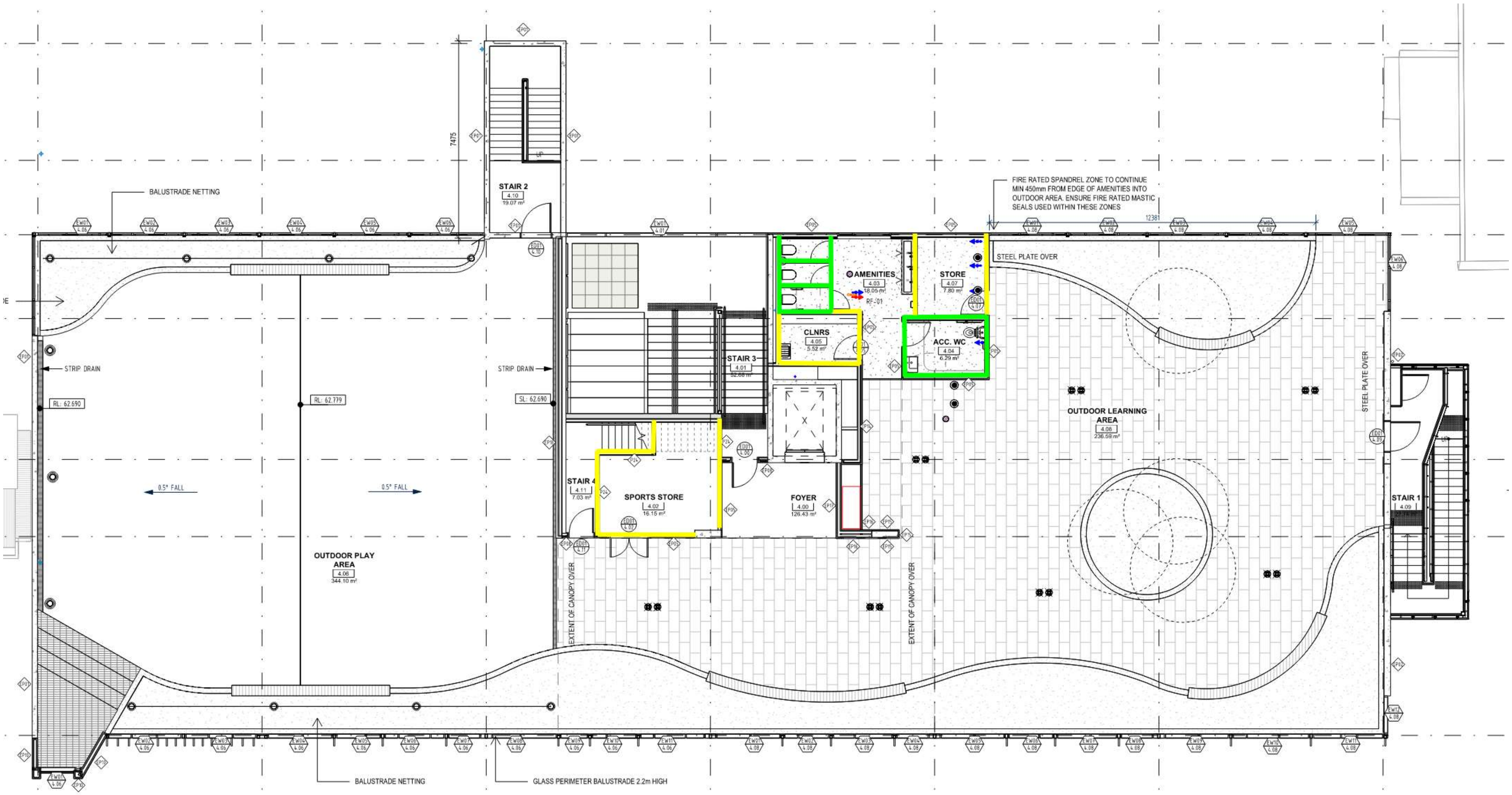


Level 2


STAIR 2
SENSORY
HOMEBASE
LEARNING COMMONS 1
STAIR 3
SHEERS
SENSORY
DRY STORE
AMB. WC
ACC. WC
LEARNING COMMONS 2
HOMEBASE
STAIR 1
BREAKOUT SPACE
CIRCULATION
downpipe cavity
HOMEBASE
BREAKOUT ROOM
HOMEBASE
BREAKOUT ROOM
HOMEBASE
QUIET
HOMEBASE
BREAKOUT ROOM
HOMEBASE
STEP DOWN

Level 3


STAIR 2
BALUSTRADE NETTING
FIRE RATED SPANDREL ZONE TO CONTINUE MIN 450mm FROM EDGE OF AMENITIES INTO OUTDOOR AREA. ENSURE FIRE RATED MASTIC SEALS USED WITHIN THESE ZONES
AMENITIES
STORE
STEEL PLATE OVER
CLNRS
ACC. WC
STAIR 3
STRIP DRAIN
OUTDOOR LEARNING AREA
STEEL PLATE OVER
STAIR 4
SPORTS STORE
FOYER
STAIR 1
0.5° FALL
OUTDOOR PLAY AREA
EXTENT OF CANOPY OVER
BALUSTRADE NETTING
GLASS PERIMETER BALUSTRADE 2.2m HIGH

Roof Plan

APPENDIX B

Glossary of Acoustic Terminology

dB(A) Also referred to as dBA. A unit of measurement, decibels (A), of sound pressure level which has its frequency characteristics modified by a filter ("A-weighted") so as to more closely approximate human ear response at a loudness level of 40 phons. The table below outlines the subjective rating of different sound pressure levels.

Noise Level (dBA)	Subjective Rating
25-30	Barely audible and very unobtrusive.
30-35	Audible but very unobtrusive.
35-40	Audible but unobtrusive.
40-45	Moderate but unobtrusive.
45-50	Unobtrusive with low levels of surrounding activity.
50-55	Unobtrusive with high levels of surrounding activity.

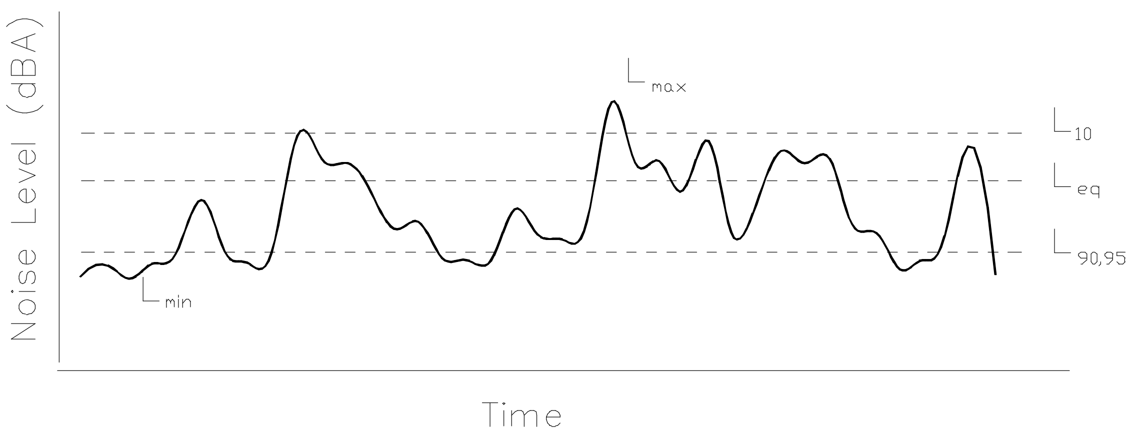
L_1 The noise level which is equalled or exceeded for 1% of the measurement period. L_1 is an indicator of the impulse noise level, and is used in Australia as the descriptor for intrusive noise (usually in dBA).

L_{10} The noise level which is equalled or exceeded for 10% of the measurement period. L_{10} is an indicator of the mean maximum noise level, and is used in Australia as the descriptor for intrusive noise (usually in dBA).

L_{90}, L_{95} The noise level which is equalled or exceeded for 90% of the measurement period. L_{90} or L95 is an indicator of the mean minimum noise level, and is used in Australia as the descriptor for background or ambient noise (usually in dBA).

L_{eq} The equivalent continuous noise level for the measurement period. L_{eq} is an indicator of the average noise level (usually in dBA).

L_{max} The maximum noise level for the measurement period (usually in dBA).



Note: The subjective reaction or response to changes in noise levels can be summarised as follows: A 3dBA increase in sound pressure level is required for the average human ear to notice a change; a 5dBA increase is quite noticeable and a 10dBA increase is typically perceived as a doubling in loudness.

STC/R_W Sound Transmission Class or Weighted Sound Reduction Index. Provides a single number rating (from the sound transmission loss or sound reduction index for each frequency band) of the sound insulation performance of a partition. The higher the value, the better the performance of the partition. The subjective impression of different ratings is shown in the table below.

Type of noise source	STC/Rw Rating				
	40	45	50	55	60
Normal Speech	Audible	Just Audible	Not Audible		
Raised speech	Clearly Audible	Audible	Just Audible	Not Audible	
Shouting	Clearly Audible	Clearly Audible	Audible	Just Audible	Not Audible
Small television/small entertainment system	Clearly Audible	Clearly Audible	Audible	Just Audible	Not Audible
Large television/large hi-fi music system	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Just Audible
DVD with surround sound	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Audible
Digital television with surround sound	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Audible

$FSTC/R_W'$ The equivalent of STC/R_W, unit for sound insulation performance of a building element measured in the field.

C_I, C_{tr} The ratings (R_W, D_{nTw}, L_{nTw}) are weighted in accordance to a spectrum suited to speech. This term modifies the overall rating to account for noise with different spectra, such as traffic (C_{tr}) or footfalls (C_I). The ratings may be written as R_W+C_{tr}, or $D_{nTw}/L_{nTw}+C_I$.

$NNIC/D_{nTw}$ Normalised Noise Isolation Class, or Weighted Standardised Sound Level Difference. Provides a single number rating of the sound level difference between two spaces, and incorporates the effects of flanking noise between two spaces. This rating is generally accepted to be about 5 points less than the STC/R_W rating.

IIC/L_{nw} Impact Insulation Class, or Weighted Normalised Impact Sound Level. L_{nw} = 110 - IIC. The higher the IIC rating, or the lower the L_{nw} rating the better the performance of the building element at insulating impact noise. The table below gives the subjective impression of different ratings:

IIC	Lnw	Subjective Rating
40	70	Clearly Audible
45	65	Clearly Audible
50	60	Audible
55	55	Audible
60	50	Just Audible
65	45	Inaudible

$FIIC/L_{nTw}'$ The equivalent of IIC/L_{nw}, but the performance is for the building element measured in the field.

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ST ALOYSIUS COLLEGE
PRIMARY SCHOOL BUILDING
HERITAGE IMPACT STATEMENT

PREPARED FOR ST ALOYSIUS COLLEGE & RCP PROJECT MANAGERS

24 JUNE 2024

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REPORT NAME:	St Aloysius College Dunlevie Building - Heritage Impact Statement
FOR:	St Aloysius College and RCP Project Managers
JOB NUMBER:	23135

PREPARATION, REVIEW AND APPROVAL

REVISION #	DATE	PREPARED BY	REVIEWED BY	APPROVED BY
01	24.06.2024	AR	ND	PG

ISSUE REGISTER

DISTRIBUTION	DATE ISSUED	NO. OF COPIES	FORMAT
SAC and RCP	24.06.2024	electronic	PDF

CONTENTS

1. INTRODUCTION

St Aloysius College (SAC) was established in 1880 by the Sisters of Mercy to educate students to realise their own potential and to contribute more fully to the wider community.

They continue to maintain the Mercy traditions, where education is valued and participation in a wide range of social justice programs is encouraged. The Congregation of the Sisters of Mercy was founded in Ireland in 1831, when Catherine McAuley, in response to the needs of the time, established an institute particularly for the care and education of vulnerable girls and young women.

Since then, the Congregation has continued to act in response to contemporary needs in society.

The Mercy values of compassion, hospitality, justice, service, respect, and courage underpin all aspects of the College. For more than 140 years, SAC has blazed a trail for women in South Australia, including notable graduate Dame Roma Mitchell, by providing a tailored teaching environment that challenges gender stereotypes and encourages confidence and higher aspirations.

The school currently provides a Montessori Early Learning Centre (ELC) through to Year 12 education for girls, and accommodates approximately 1300 students and 165 staff.

The site includes two State Heritage listed buildings – the Convent of Mercy, circa 1880, and the Cunningham Memorial Chapel, circa 1922.

The proposal is the construction of a new multi-storey primary school building that allows for the full primary school cohort to gather in one building and to receive their education in a facility that supports contemporary learning. The project requires the demolition of the existing Dunlevie Building which sits behind the listed buildings.

The existing building does not meet current building code requirements nor modern pedagogical needs, including child safety, supervision and flexibility of spaces.

The proposal can be described as:

> The demolition of an existing three-storey red brick building and associated red brick dividing wall, the construction of a new four-storey building including rooftop play/ learning spaces, refurbishment of the existing pool facility, new landscaping.

The following assessment will review the proposed works due to the proximity to the State Heritage listed places located on the St Aloysius College site.

1.1. OBJECTIVES OF THE HERITAGE IMPACT STATEMENT

The primary objective of this Heritage Impact Statement (HIS) is to assess any impact of the proposed works on the identified heritage values of the place, and to describe mitigation measures to reduce any negative impact on those values.

This Heritage Impact Statement has been prepared to support the design proposal prepared by Grieve Gillett Architects and Hayball Architects.

The following tasks have been undertaken in the preparation of this document:

- A physical inspection of the Convent, the Chapel and the Dunlevie Buidling
- A review of the history and development of the buildings and the overall site;
- A review of the heritage values of the place, to determine what impacts may occur as a result of the development;
- Analysis of condition and integrity of the existing fabric on site;
- Review of the documentation of proposed works;
- Determination of mitigation measures.

1.2. PROPOSED DEVELOPMENT

The proposal involves the following components:

- Demolition of a 3-storey red-brick building – Dunlevie Building
- Demolition of a red-brick wall including two archways
- Construction of a new 4-storey vertical primary school building including roof garden
- Possible interpretation works to capture the history and past uses of the Dunlevie Building, including re-use of original brickwork, interpretive signage and graphics throughout, interpretation of the archways in the façade elements, brick podium design to reflect the design of the adjacent cloister

The proposed development has been commissioned by St Aloysius College to address the requirement of a contemporary educational facility that builds upon the history of the site and the work of the Sisters of Mercy, and addresses modern pedagogical needs, including child safety and supervision requirements and flexibility of learning environments.

1.3. LOCATION OF THE DEVELOPMENT

The St Aloysius College is located within the City of Adelaide, bounded by Wakefield Street to the north, Angas Street to the South and Chancery Lane to the east. Adjacent properties include the Archdiocese of Adelaide and St Francis Xavier's Cathedral to the north and SA Water to the west.

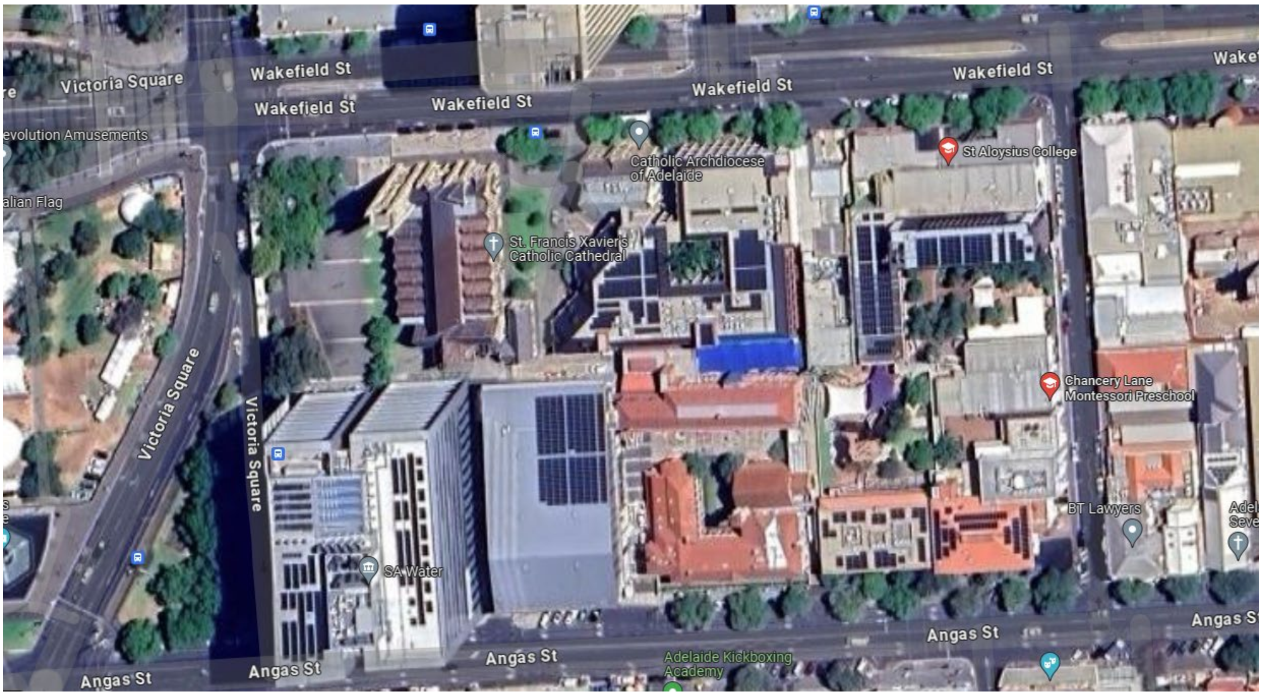


Figure 01: Location Plan, St Aloysius College, Adelaide

1.4. USE AND OWNERSHIP

The school has had various names over the years; St Angela's Select School became St Aloysius's High School and Boarding School, but both were called the Sisters of Mercy School, or commonly Convent of Mercy. St Aloysius College (SAC) belongs to the second half of the 20th Century.

2. EXISTING HERITAGE LISTINGS

2.1. EXISTING STATE HERITAGE LISTING

The St Aloysius College has enjoyed a rich history of education.

The listed buildings on the site are the Convent of Mercy circa 1880, and the Cunningham Memorial Chapel, circa 1922.

The places were formally entered in the Register in 1986

The extent of the places entered in the South Australian Heritage Register is indicated in the below *figures*.

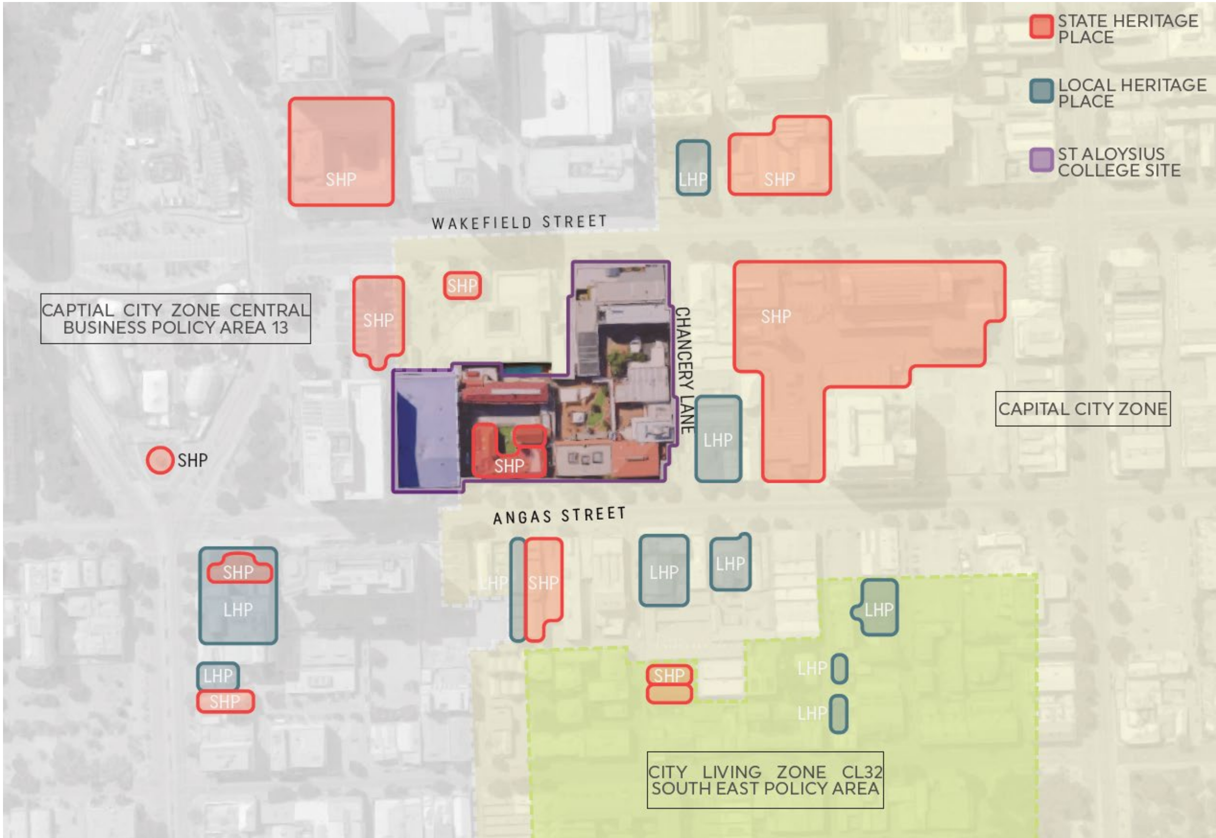


Figure 02: Extent of State and Local Heritage Places in the locality

Figure 03: State Heritage Places indicated by red marker (SA Viewer Map, June 2024)

2.2. EXTENT OF LISTING

The formal extent of listing is as defined in Figure 2 above, and includes the following items:

- The Convent of Mercy; and
- The Cunningham Memorial Catholic Chapel

DESCRIPTION AND/ OR EXTENT OF LISTED PLACE	PROPERTY ADDRESS	DATE OF CONSTRUCTION	CERTIFICATE OF TITLE	HERITAGE NUMBER	SA HERITAGE REGISTER ID
Convent of Mercy (incorporating two former dwellings)	34 Angas St Adelaide	Dutton-Green House circa 1870 Acraman House circa 1870 Convent established 1880	CT 6172/128 C40109 FCP,CT 6172/126 C40109 F50,CT 6172/127 C40109 F51,CT 6181/901 D113190 A27	1361	13415
Cunningham Memorial Catholic Chapel	34 Angas St Adelaide	1922	CT 6172/128 C40109 FCP,CT 6172/126 C40109 F50,CT 6172/127 C40109 F51,CT 6181/901 D113190 A27	1362	13416

The Dunlevie Building, dating from 1904 with eastern extension completed in 1922, is not included in the above heritage listings.

Figure 04: Convent of Mercy, Angas Street (State Library of South Australia,, 1903, PRG 631-2-1803)

2.3. DEVELOPMENT SEQUENCE

The following summarises the development sequence of the buildings on the St Aloysius College site (refer Appendix A for the detailed history of the site):

- 1880 – Dutton Green Residence purchased and converted into the Convent of Mercy
- 1882 – St Philomena's House of Mercy constructed on land adjacent to St Francis Xavier's Cathedral
- 1885 – St Agnes' wing constructed at the back of the Dutton-Green Residence, containing refectory and chapel on the ground floor and bedrooms on the first floor, with an arched cloister to the eastern face, ground level verandah on the western side
- 1889 – Two storey additions fronting Angas Street were constructed to the east, providing a community room and offices on the ground floor and bedrooms above. The façade of the new wing was constructed in the same Italianate style as the Dutton-Green facade
- 1904 – McAuley House (later renamed the St Aloysius High School and Boarding House, and then Dunlevie Building in 1995) constructed
- 1920 – Barr Smith House purchased
- 1921 – Wakefield St and Chancery Lane properties purchased and converted to a sports ground, Acraman Residence on Angas Street purchased
- 1922 – Cunningham Memorial Chapel and Children's Chapel constructed, including the completion of the cloister and balcony to the quadrangle, stables and hayloft of Acraman House demolished, front facade of Acraman Residence was extended to bring it in line with the Convent of Mercy building, and McAuley House (later Dunlevie Building) extended to the east
- 1925 – Properties on Angas Steet, Wakefield Street and Chancery Lane purchased (Painters Cottage, Woods Pty, and the Butchers Shop) and St Cecilia's Hall and Parish School constructed
- 1967 – Campion Jordan Building constructed fronting Wakefield Street on what had been the sports ground, incorporating administrative quarters, laboratories and a senior secondary school
- 1970 – Catherine McAuley Library constructed with library on top floor and science laboratories below
- 1982 – Barr Smith Residence demolished
- 1983 - Dame Roma Mitchell Building constructed
- 1984 – House of Mercy to the north of Dunlevie Building demolished (land swap with Archdiocese for space where pool now located)
- 1985 - St Cecilia's Hall and Parish School demolished
- 1986 - Carmel Bourke Expressive Arts Centre constructed
- 1988 – Swimming pool opened to the north of Dunlevie, on land once owned by the Archdiocese
- 1995 – Library extended to the north and external stairs realigned
- 2001 – Catherine McAuley Auditorium (next to the Library) opened on top floor with computer rooms below
- 2008 – Judith Redden Centre constructed
- 2009 – Montessori Centre constructed, taking over computer rooms (previously science laboratories) under the Library and grassed area
- 2011 – Catherine McAuley Auditorium opened (top floor) with computer rooms below and lift giving access to Art Centre
- 2014 - Senior School constructed
- 2022 – Adventure playground constructed

3. SURVEY OF EXTANT FABRIC

3.1. CONVENT OF MERCY

The Convent of Mercy, located on the Angas Street frontage, incorporates the Dutton-Green Residence circa 1870 and the Acraman Residence circa 1870. The façade added to the front of the Acraman Residence was constructed in the same Italianate style as the Dutton-Green façade.

The St Agnes wing, dating from 1885, was constructed to the rear of the Dutton-Green Residence

The Cloister and balconies to the south and east were completed in 1922 at the time of the Chapel construction., completing the three-sided cloister.

Later additions include the single-storey western wing located along the Redden Lane frontage.

The Convent of Mercy is in excellent condition and is well utilised by the school.


Figure 05and 06: Convent of Mercy from Angas Street, and from the Cloister

3.2. CUNNINGHAM MEMORIAL CHAPEL

The Cunningham Memorial Chapel was constructed to the north-west of the Convent in 1922.

No significant alterations have occurred to the Chapel. It remains in excellent condition and is well utlised by the school and the greater school community.

Figure 07 and 08: Cunningham Memorial Chapel, external and internal views

3.3. DUNLEVIE BUILDING

The Dunlevie Building (formerly McAuley House) is a three-storey red brick building with south facing balconies and an external stair. The original footprint was enlarged in the 1920's in a similar style. The balcony balustrades are cast iron with timber columns and supports.

The red brick wall dividing the campus includes two arched openings Photographic evidence suggests the southern most archway was constructed as a window and was opened up to the ground some time later. Historic photos suggest hinged shutters covered the openings, however these are no longer in place.

Later works to the original building include:

- An external stair constructed to the eastern face
- A steel and concrete walkway and exit stair with asbestos balustrades was added to connect the first floor levels of adjacent buildings
- Connections through to the Redden Centre were created at the time of the Redden Centre construction
- Later change room and toilet facility fitouts
- Internal walls demolished to create classroom spaces
- The existing pool was constructed in 1987, whilst the current canopy was a later addition to the area

The building is in relatively poor condition and is not conducive to contemporary teaching methods. Classrooms lack natural light whilst being divided and unconnected. The existing arrangement of rooms indicates that multiple internal alterations have occurred over the life of the building.

The internal iron stair is non-compliant, whilst steps are evident at various doorways.

Connections to outdoor spaces are via small door and window openings leading to the minimal balcony spaces.

The aged amenities contain non-compliant fixtures and fittings and lack direct supervision and passive surveillance opportunities.


Figure 09 and 10: Dunlevie Building external views of southern wall showing external balconies and external stair


Figure 11: Dunlevie Building external views of southern wall showing external balconies and external stair
Figure 12: Dunlevie Building external views of southern wall showing brick archways to the east and underside of later walkway

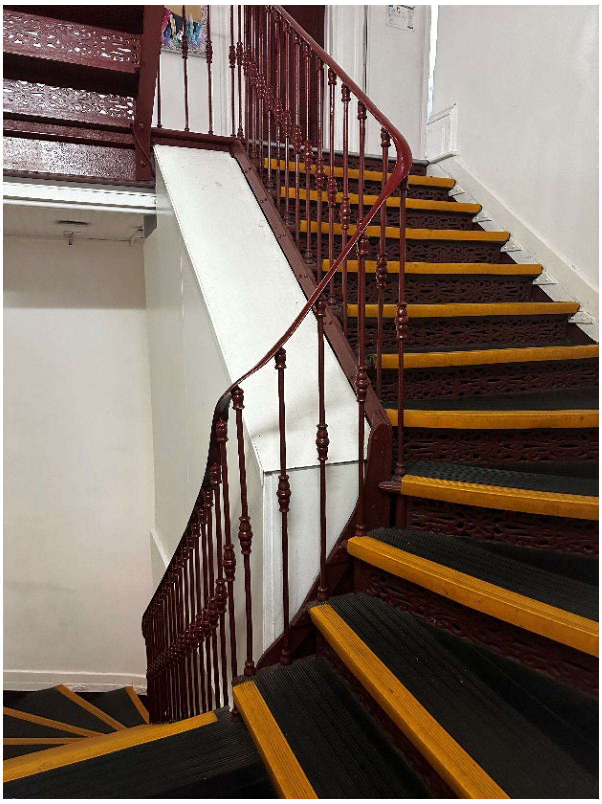



Figure 13 and 14 Dunlevie Building views of internal stair

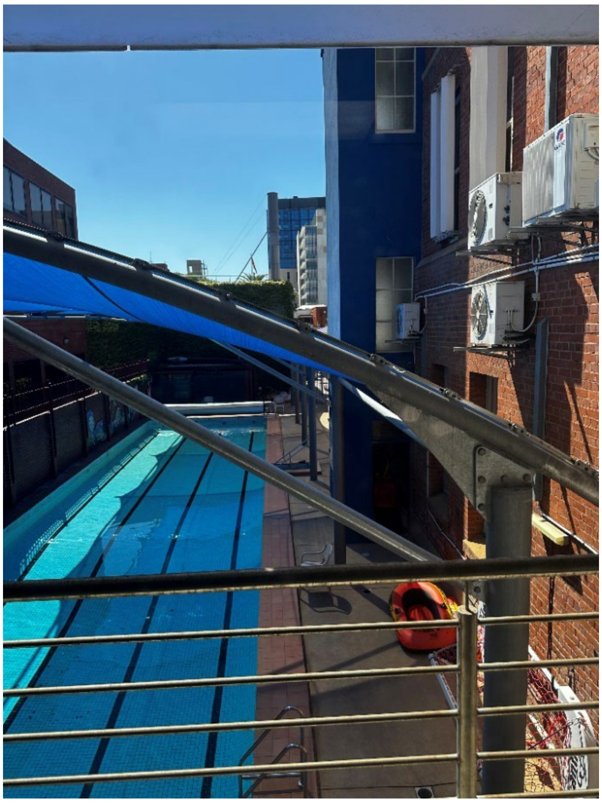



Figure 15: Dunlevie Building view of pool to the north
Figure 16: Dunlevie Building external views of third floor balcony

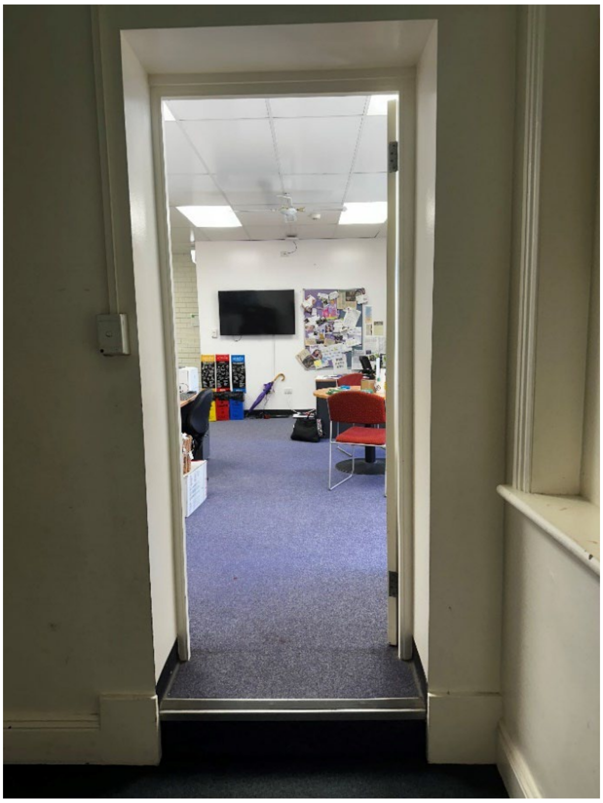
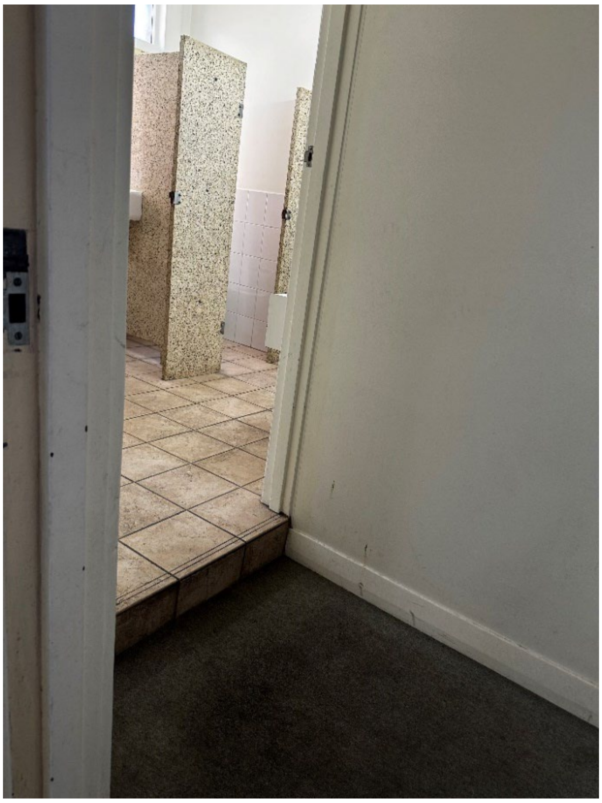



Figure 17 and 18: Dunlevie Building view step hazards to classroom and amenity environments

4. ASSESSMENT OF CULTURAL SIGNIFICANCE

The Heritage Places Act 1993 states that registration of a heritage place is valid if it satisfies one or more of the following criteria:

a) it demonstrates important aspects of the evolution or pattern of the State's history; or
b) it has rare, uncommon or endangered qualities that are of cultural significance; or
c) it may yield information that will contribute to an understanding of the State's history, including its natural history; or
d) it is an outstanding representative of a particular class of places of cultural significance; or
e) it demonstrates a high degree of creative, aesthetic or technical accomplishment or is an outstanding representative of particular construction techniques or design characteristics; or
f) it has strong cultural or spiritual associations for the community or a group within it; or
g) it has a special association with the life or work of a person or organisation or an event of historical importance.

The Convent of Mercy and the Cunningham Memorial Chapel were both assessed and entered onto the Register in 1986. There have been no significant changes to either place since their entry in the SA Heritage Register to warrant reassessment, and therefore no additional assessment is provided as part of this report.

As the Dunlevie Building is not included in the state heritage listing, it has not been assessed against the aforementioned criteria.

5. DESCRIPTION OF DEVELOPMENT PROPOSAL

5.1. DESCRIPTION OF DEVELOPMENT PROPOSAL

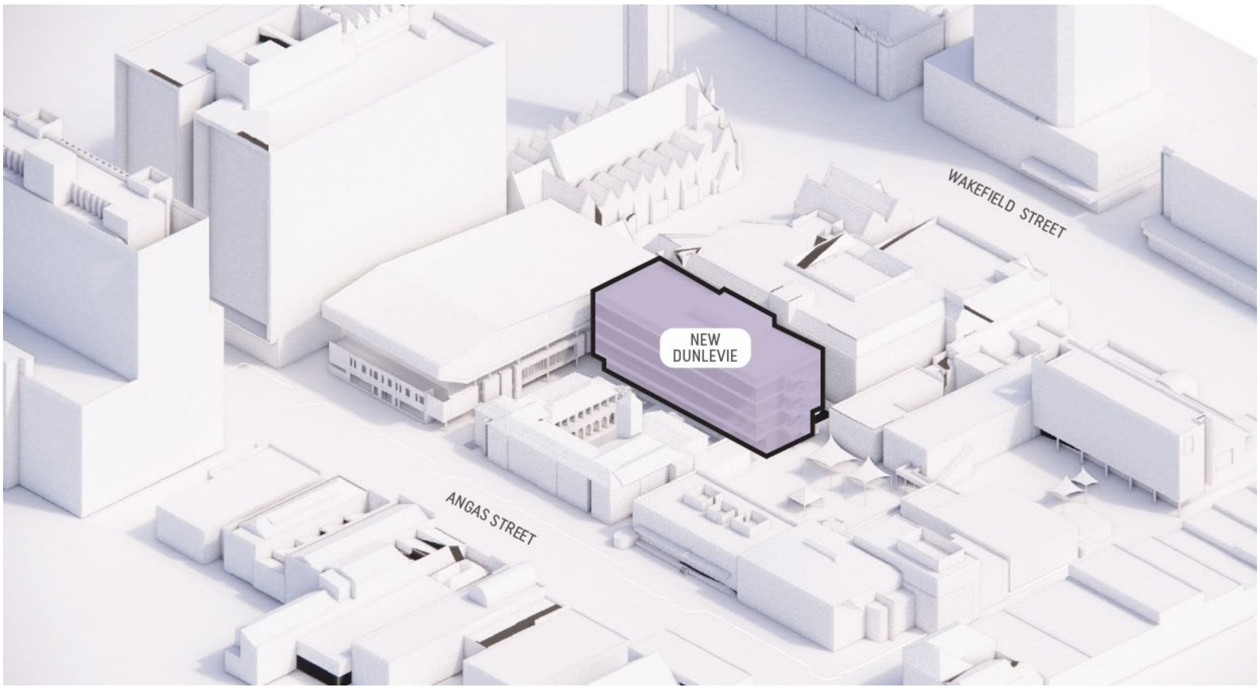


Figure 19 Massing Study of the proposed building within the campus

The project proposes the construction of a new multi-storey primary school building that allows for the full primary school cohort to gather in one building, and to receive their education in a facility that supports contemporary learning.

The proposed building is four stories high and is situated in the central position to the site. It's mass and form reflect the scale of the adjacent buildings. The building is set back within the site and has no frontage to either Angas or Wakefield Streets. The building will not be visible from the street, apart from the picture window seen at a distance down Redden Lane from Angas Street.

The building will house 22 homebases, a dedicated STEAM learning environment, a multi-purpose room, and music room, breakout areas, and quiet and sensory rooms. A central theatre stair will connect all levels providing a connected learning environment. New pool changeroom facilities and amenities throughout will be provided whilst the existing pool facility will be refurbished. Three offices for staff will be provided on the ground floor. Connections into the Redden Centre and level 1 walkways will assist in the integration of the building on the site.

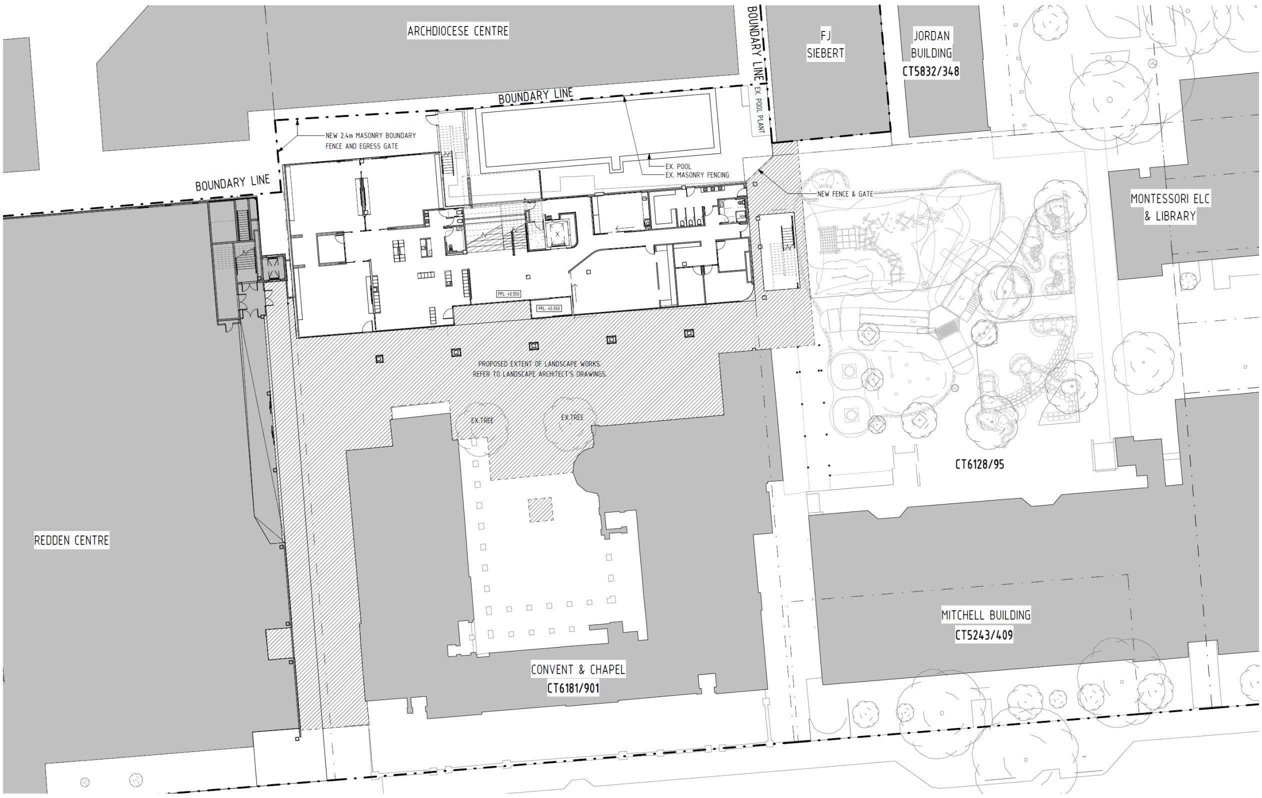
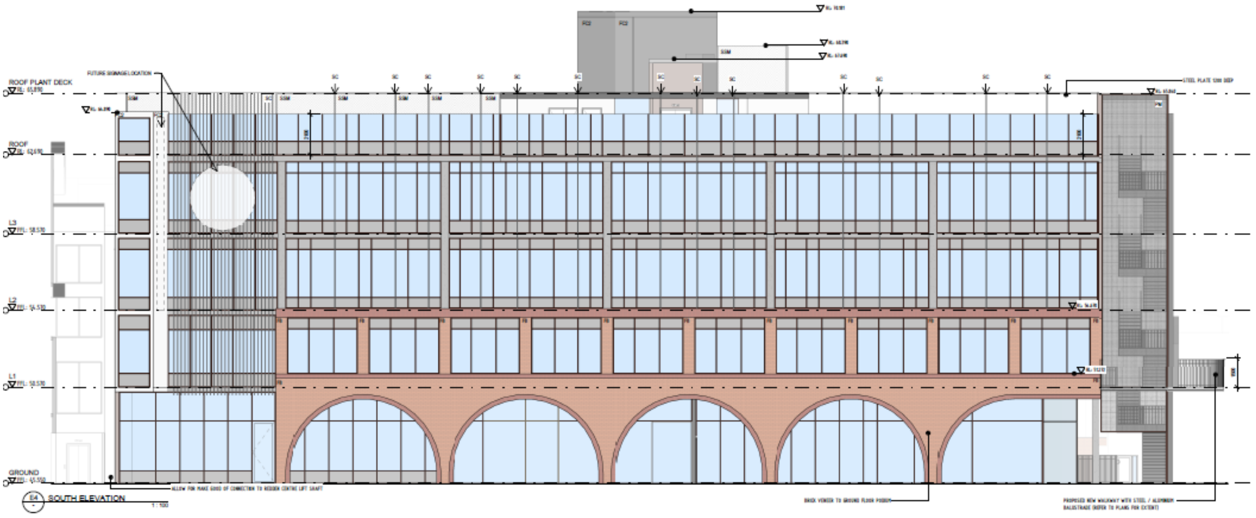
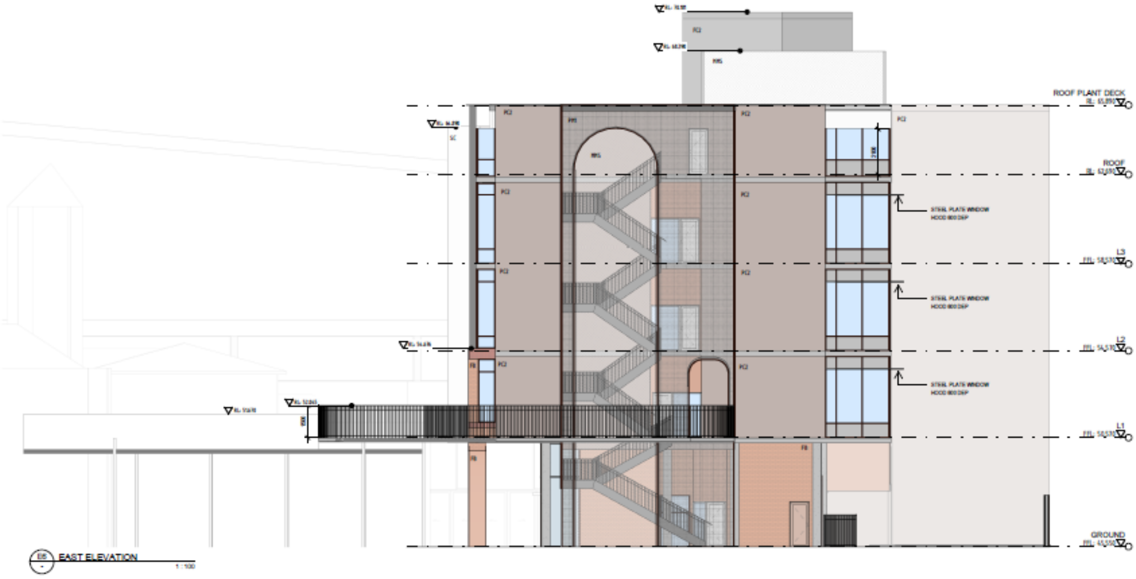


Figure 20 Proposed Site Plan




ROOF PLANT DECK
ROOF
L3
L2
L1
GROUND
NORTH ELEVATION


ROOF PLANT DECK
ROOF
L3
L2
L1
GROUND
EAST ELEVATION

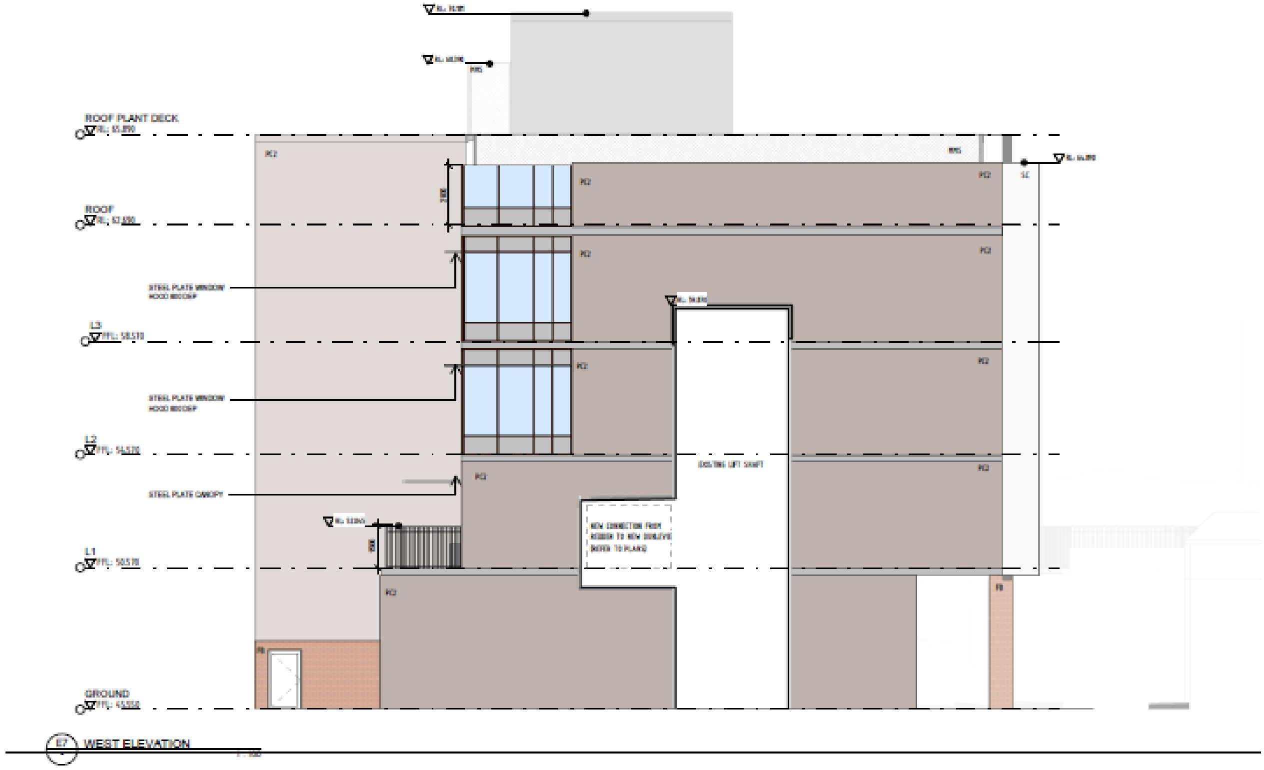


Figure 21: Proposed Elevations

Figure 22 Artist impressions of the proposal

The project requires the demolition of the existing red-brick Dunlevie building and the red brick dividing wall to the Chapel. The existing Dunlevie Building does not meet current building code requirements nor modern pedagogical needs, including child safety, supervision and flexibility of spaces. To continue to provide high-quality education to the young women of Adelaide, as envisaged by the Sisters of Mercy, the aged building needs to be replaced with contemporary facilities.

An analysis of the immediate environs determined that the locality, in its city environment, contains an eclectic mix of character and built form. The site is encircled by contemporary and historic built form., a collection of which is shown in the below images:

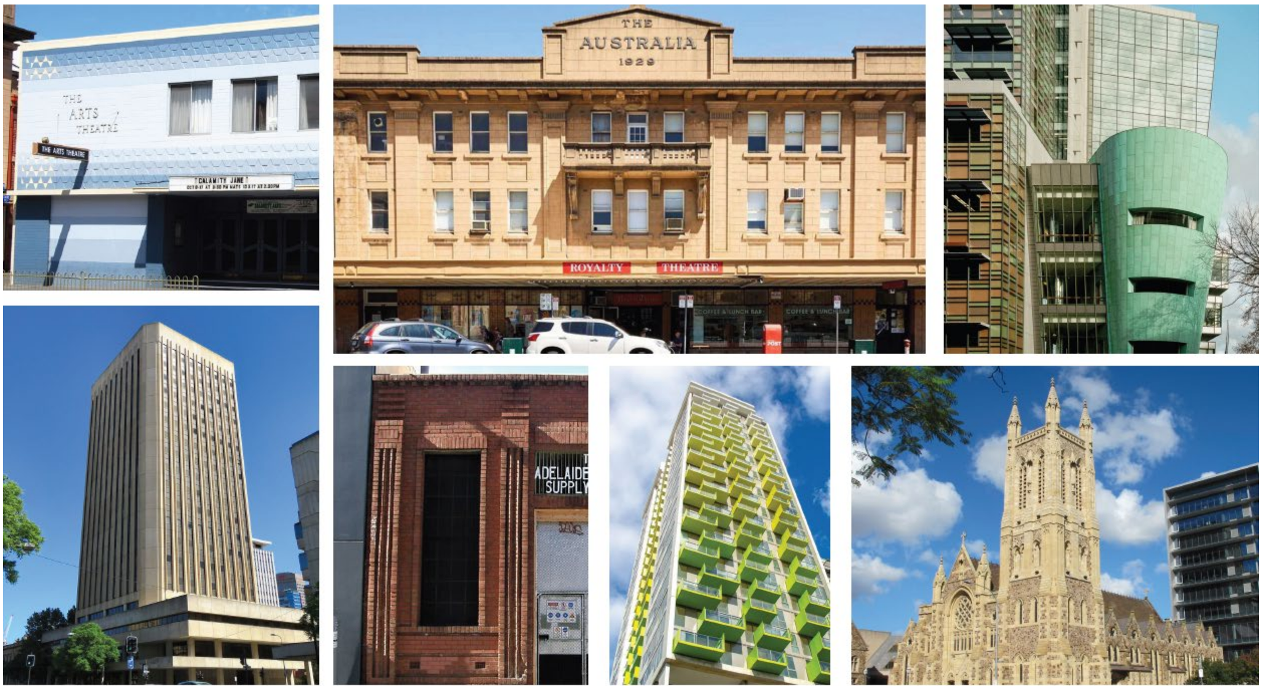


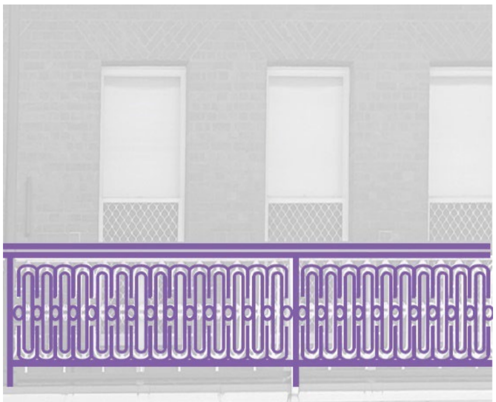
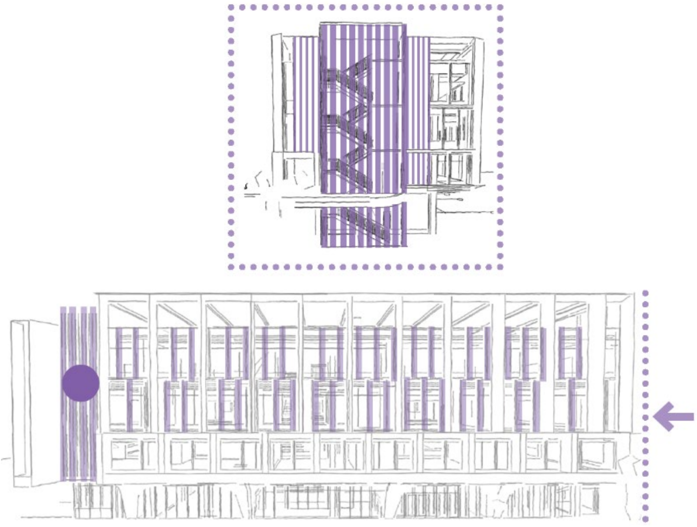
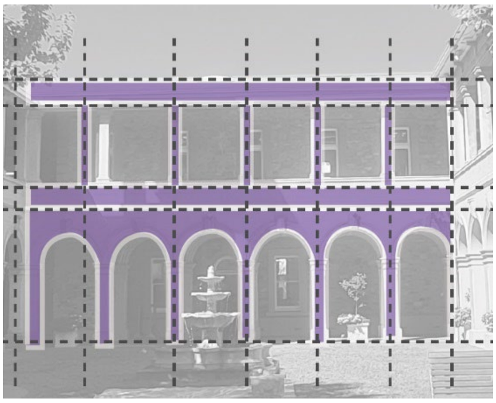
Figure 23 Locality styles - Mix of contemporary and historic built form in the immediate locality

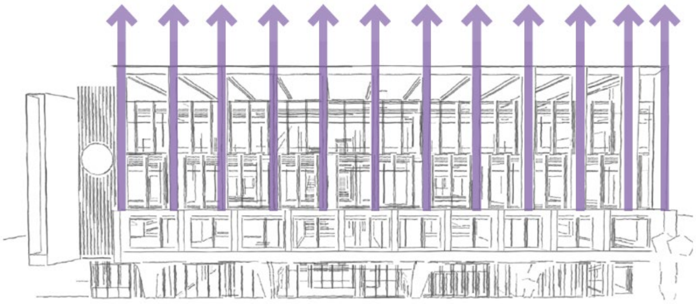
Likewise, the school site itself contains a mix of styles and materials across the campus, reflecting the growth and learning approaches through the 140 years of the school's existence. The confines of the site have led to a diverse collection of built form, shown in the below images:

Figure 24: Site styles - Mix of styles and materials on the SAC site

5.2. DESIGN RESPONSE – INTERPRETATION

The existing form, geometry and patternation of the adjacent architectural context has been analysed and studied. The proposed design provides a contemporary response that is harmonious with its surroundings and respects the existing fabric and history of the site. The key elements are noted below.

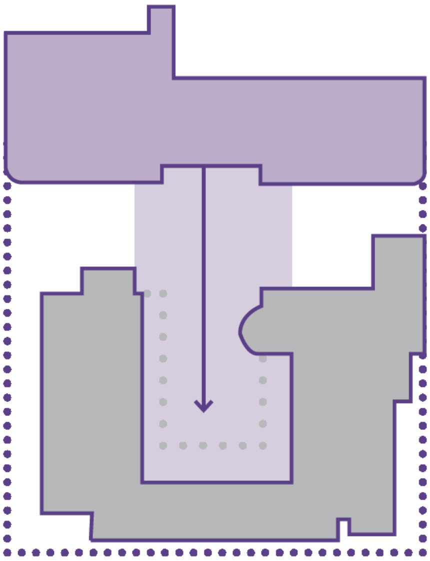
EXISTING FORM , GEOMETRY AND PATTERNATION	CONTEMPORARY DESIGN RESPONSE
 Pattern of the existing Dunlevie Building balustrading	
 Repetition and form of the Cloisters	

 Verticality of the Cunningham Memorial Chapel tower	
 Repetition and proportions of the Dunlevie Building columns and slab edge	
 The Cloister	

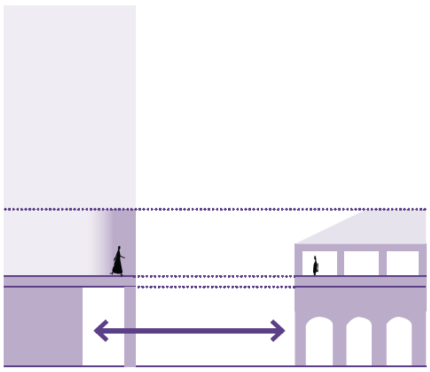
 Transparency of the Cunningham Memorial Chapel tower	

5.3. DESIGN STRATEGIES + PRINCIPLES

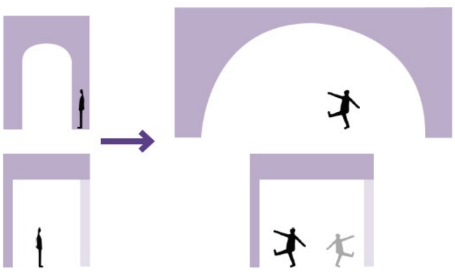
The key design strategies and principles were determined through consultation with the School and included a detailed analysis of the site and its environs, the school's history, cultural significance of the adjacent buildings, existing conditions and contemporary pedagogical learning approaches. The key design strategies and principles relating to the historic Convent and Chapel buildings are noted below.



CONNECT TO CONVENT
Embracing the ceremonial heart of the school



FORM CONSIDERATION
Creation of a solid podium to reflect the existing form and proportions



HISTORICAL INTERPRETATION
Creating a contemporary cloister through interpretation of existing form

6. HERITAGE IMPACT ASSESSMENT

6.1. IMPACT ON STATE HERITAGE VALUES

The following table responds directly to the Department for Environment & Water's *Heritage Impact Statement Guidelines for State Heritage Places.*

HERITAGE IMPACT ASSESSMENT	RESPONSE
Provide a brief summary of the advantages and disadvantages of preliminary development options explored and the reasons for the selection of the final proposal.	The siting of the new building within a tight city site was explored extensively to ensure that the design brief requirements maximised the potential of the site while respecting existing facilities and infrastructure. Siting of the building maximised the constrained urban environment while incorporating existing features such as the pool and adjacent Redden Centre access. Initial master planning concepts explored the balance of spatial efficiencies, functionality and aesthetic harmony on the site. The extent of overhang to the existing pool were explored, assessing the functionality and constructability of the spaces. The colonnade design was extensively workshopped to strike a careful balance between the structural and functional point of view for end users. Options were investigated where the column line was recessed, maximising the courtyard space. Ultimately, the efficiencies of the structural design and internal educational planning were maximised by taking the columns to the ground and creating a colonnade. Functionally, this also delineates an enjoyable and valuable circulation, seating and teaching space for use by the primary students. The connection to the existing Redden Centre was extensively explored, and the existing Redden first floor level ultimately determined the first-floor level of the proposed building. Ultimately, providing the connection at the first-floor level, allows for the beneficial connection of the new classrooms to the existing Science spaces. The form and materiality of the lower podium was highly workshopped. Coloured precast concrete and lightweight construction were considered, however the preference for the tactility, texture and colours of brickwork prevailed. The building will sit harmoniously within the site, whilst providing an exciting showcase of education teaching spaces visible from Angas

	Street through the intentional architectural elements and illuminated signage. No works are proposed to the two heritage listed buildings, and the proposed building does not impact their context, siting or prominence to Angas Street.
Provide a brief description of the development proposal, focussing on the effect upon all the elements of heritage significance including site elements and settings.	The proposed building is four storeys in height with an additional rooftop play space. The building replaces an existing three-storey red-brick building. The footprint of the building encroaches further south into the existing courtyard, however it does not touch the heritage listed places. The proposed building's form and materiality will create a harmonious relationship between the old and the new, ensuring that the rich history of the site and its environs are preserved. The ground floor building line is set back from the building façade, creating a sheltered colonnade, reminiscent of the existing cloisters. No works are proposed to the two heritage listed buildings, and the proposed building does not impact their context, siting or prominence to Angas Street.
Describe/assess the impacts, positive and/or negative of the various aspects of the proposal on the cultural heritage significance of the State Heritage Place.	The heritage significance of the heritage places are enhanced due to the form and materiality of the proposed building. The landscaping concept will provide much needed shade and seating to the existing barren courtyard. Two existing mature trees flanking the cloisters entry will be retained and incorporated into the landscape design. A new walkway/ viewing platform to the east will connect into the existing walkway network, enhancing the staff and student circulation and movement pathways through the campus. The interpretation of the history of the existing Dunlevie Building through landscaping, imagery, graphics and balustrading design will provide a rich narrative that will enhance the historic aspects of the building and its environs. This approach will educate and engage end users, creating a deeper appreciation for the site's significance. No works are proposed to the two heritage listed buildings, and the proposed building does not impact their context, siting or prominence to Angas Street.

Provide reasons why the proposed works are necessary for the conservation of the State Heritage Place. Why is this best solution/outcome?	The proposed building is sited to the north of the heritage places and sits independently. The footprint of the building has been retained where possible, however the building footprint encroaches further south into the existing courtyard due to the internal planning of contemporary pedagogical learning environment requirements. No works are proposed to the two heritage listed buildings, and the proposed building does not impact their context, siting or prominence to Angas Street.
Detail how the proposal has been influenced by and/or addressed Local Council Development Plan, Council wide objectives, design guidelines or policies. *(Note: the 'Development Plan' quote is from the Heritage SA template and is now superseded by the PDI Act)*	The subject site is located wholly within the Capital City Zone of the Planning and Design Code. The Capital City Zone provides for development that supports a range of residential, employment, community, educational, innovation, recreational, tourism and educational facilities that generate opportunities for population and employment growth. An Educational facility is expressly envisaged within the Capital City Zone. The proposed development does not change the current land use, nor does the area of the existing school expand onto adjacent land. The proposed development represents a rebuild and consolidation of the existing facilities to provide contemporary learning opportunities and additional teaching spaces. No work is proposed to the two State Heritage Places on the subject site. However, as detailed in the preceding sections of this Table, the existing form, geometry and patternation of the adjacent architectural context has been analysed and studied. The proposed design provides a contemporary response that is harmonious with its surroundings and respects the existing fabric and history of the site.
Detail measures that are to be taken to mitigate potential detrimental impacts on the cultural heritage significance of the place (e.g. conservation works, interpretation).	The design team has acknowledged the importance expressed by the St Aloysius College representatives to celebrate the history of the site within the new building and landscape design. There is an opportunity for the proposal to include interpretive elements that highlight the varied historical layering of the site. Possible interpretation opportunities include the following:

<table>
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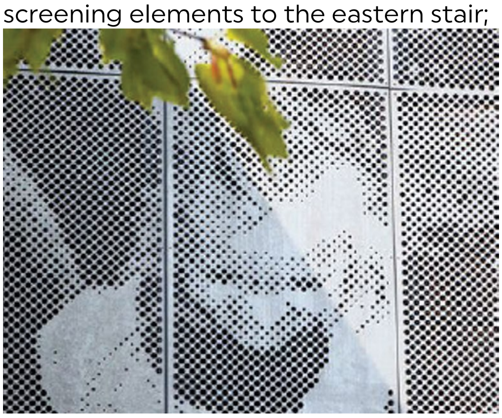
Reuse of red brick in landscaping elements and seating plinths;

Interpretative elements in the pavers;


Historic imagery in the perforated metal screening elements to the eastern stair;

References to the existing Dunlevie Building balustrade pattern in the proposed balustrades; and

</td>
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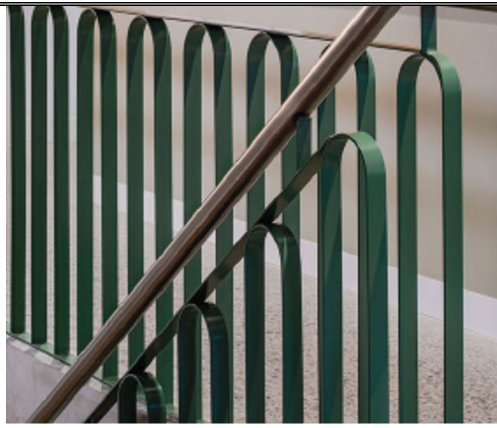
</table>

	 • Graphic elements throughout the building signage 

As per the *Heritage Impact Statement Guidelines* published by Heritage South Australia, the following questions have been addressed in regard to specific works.

PROPOSED CHANGE TO HERITAGE PLACE	QUESTIONS TO BE ADDRESSED	RESPONSE
Construction of new buildings or car parking (or structure), within the grounds of a heritage place	• How is the impact of the new development on the heritage significance of the heritage place to be minimised?	No works are proposed to the two heritage listed buildings, and the proposed building does not impact their context, siting or prominence to Angas Street.
	Is the new development sympathetic to the heritage place? In	The proposed building is sympathetic in its form and materiality to the heritage place. The use of brickwork to the lower podium provides a contemporary reference to the

	what way (e.g. siting, form, proportion, design, materials)?	existing masonry cloister in height and scale. The combination of the archways at ground level with a simple form to first floor level directly reference the architecture of the cloister. The podium design enhances the ceremonial heart of the College. The use of brickwork references the existing archways and enhances the remaining brickwork on the northern face of the Cunningham Memorial Chapel. The materiality and articulation of the upper levels create a playful yet simple façade that provides a contemporary backdrop to the heritage place. No works are proposed to the two heritage listed buildings, and the proposed building does not impact their context, siting or prominence to Angas Street.
	• How does the curtilage retained around the heritage place contribute to the conservation of its heritage significance?	The podium design grounds the proposed building, and enhances the cloister environment. The landscaping concept has been designed to integrate well into the lane and courtyard spaces, employing plant species and hardscape materials that are consistent with the historical context. The circulation through the spaces are improved. The landscaping to Redden Lane provide a visual barrier to later additions to the heritage place. No works are proposed to the two heritage listed buildings, and the proposed building does not impact their context, siting or prominence to Angas Street.
	• Is the new development sited on any known or potentially significant archaeological artefacts? How can this be mitigated?	It is considered that the potential for archaeological artefacts to be present below ground in the area of development is low. Should any artefacts be encountered in the construction of the development, the project team will contact Heritage South Australia immediately and follow the due process for dealing with artefacts.

7. CONCLUSION

The proposed development is considered acceptable for the following reasons:

- No works are proposed to the two heritage listed buildings;
- The proposed building does not impact the context, siting or prominence to Angas Street of the listed buildings;
- The form and materiality of the building references the heights and language of the heritage places and sits harmoniously within the constrained urban environment;
- The interpretation of the history of the existing Dunlevie Building and the wider school campus through landscaping, imagery, graphics and balustrading design will provide a rich narrative that will further enhance the historic aspects of the building at its history, whilst educating and engaging end users and past staff and students;
- The building will sit harmoniously within the site, whilst providing an exciting showcase of education teaching spaces visible from Angas Street through the intentional architectural elements and illuminated signage;
- The contemporary pedagogical needs of the school will be met whilst providing dedicated spaces for the primary cohort; and
- The school will continue to provide a high-quality education to the young women of Adelaide in a contemporary pedagogical environment.

APPENDIX A – HISTORICAL BACKGROUND

LIST OF FIGURES

GENERAL OVERVIEW

(sourced from the St Aloysius College website (March 2024)

House of Mercy

On June 5, 1880 the Sisters purchased the home of Mr G. Dutton-Green in Angas Street, Adelaide and established a Mother House under the leadership of Mother Evangelista. The largest room of the house was converted into a chapel and the stables and coach-house behind the Dutton-Green house were converted into boarding accommodation for poor girls and orphans. On August 12, 1880 this temporary House of Mercy was opened, offering these young women training in domestic service to work in the homes of Adelaide's wealthy. This House of Mercy proved so successful that a new building, St. Philomena's House of Mercy, was erected and opened in 1884. The building adjoined and ran parallel to St. Francis Xavier Hall.

As they did in Buenos Aries, the Sisters offered religious instruction to adults as well as visiting prisoners and the sick, but the real need in Adelaide was for education.

August 6, 1880

The Sisters established 2 schools, which were housed in St Francis Xavier's Hall, next to the Cathedral in Wakefield Street. St Anthony's for the younger boys and St Angela's for the girls provided a primary school education for the poor boys and girls of the parish. There were 2 separate playgrounds – one for boys and one for girls.

Figure 25: South-eastern view of Adelaide – Government Offices (now Torrens Building) can be seen in the foreground, St Andrew's Presbyterian Church (now demolished) is visible to the left of the view, St Francis Xavier's Cathedral and Hall are central to the view. The House of Mercy building can be seen behind St Francis Xavier's Hall whilst the original dwellings along Angas Street are visible (State Library of South Australia, 1896, PRG-631-2-142 (partial))

March 1882

St Angela's Select Intermediate School for Girls was established in the upper rooms of St Francis Xavier Hall. Catering to the wealthier Catholic families from suburban Adelaide as well as boarders from country South Australia, the focus was on education in the arts and academics. Both the Select school and the parish school for girls were dedicated to St. Angela. Following the tradition set by Catherine McAuley, the fees from the Select school helped the Sisters to run the primary school for poor children.

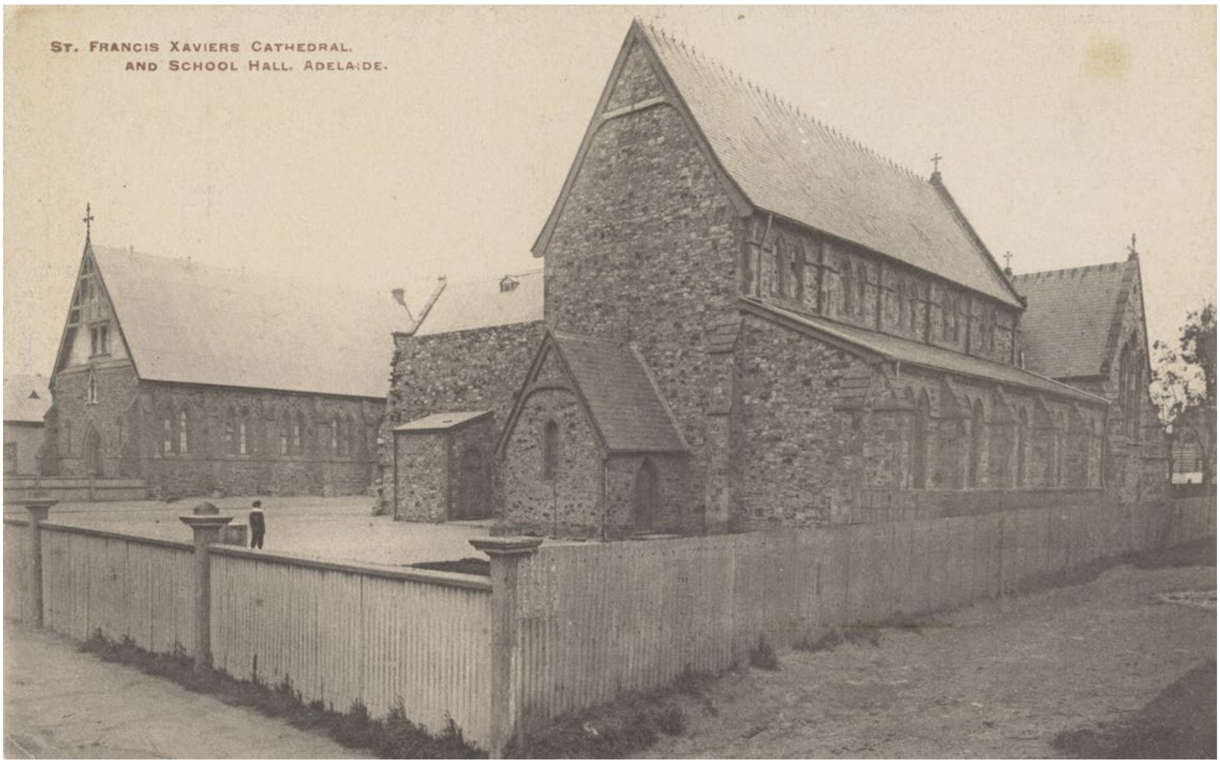


Figure 26: St Francis Xavier's Cathedral and School Hall (State Library of South Australia, 1905, B-72310)

1904

Two inheritances gave the Sisters the funds to erect a new building for St Angela's next to the House of Mercy. This three story building at the northern end of the convent property, was named McAuley House and was the new home of the Select school. This building was later to be called the Dunlevie Building. The poorer children of the parish continued to be educated in the Cathedral Hall. St Angela's Select Intermediate School for Girls was renamed 'St Aloysius College High School and Boarding School' in honour of St Aloysius, Patron Saint of students. The parish school for girls in the St Francis Xavier Hall continued to be called St Angela's.

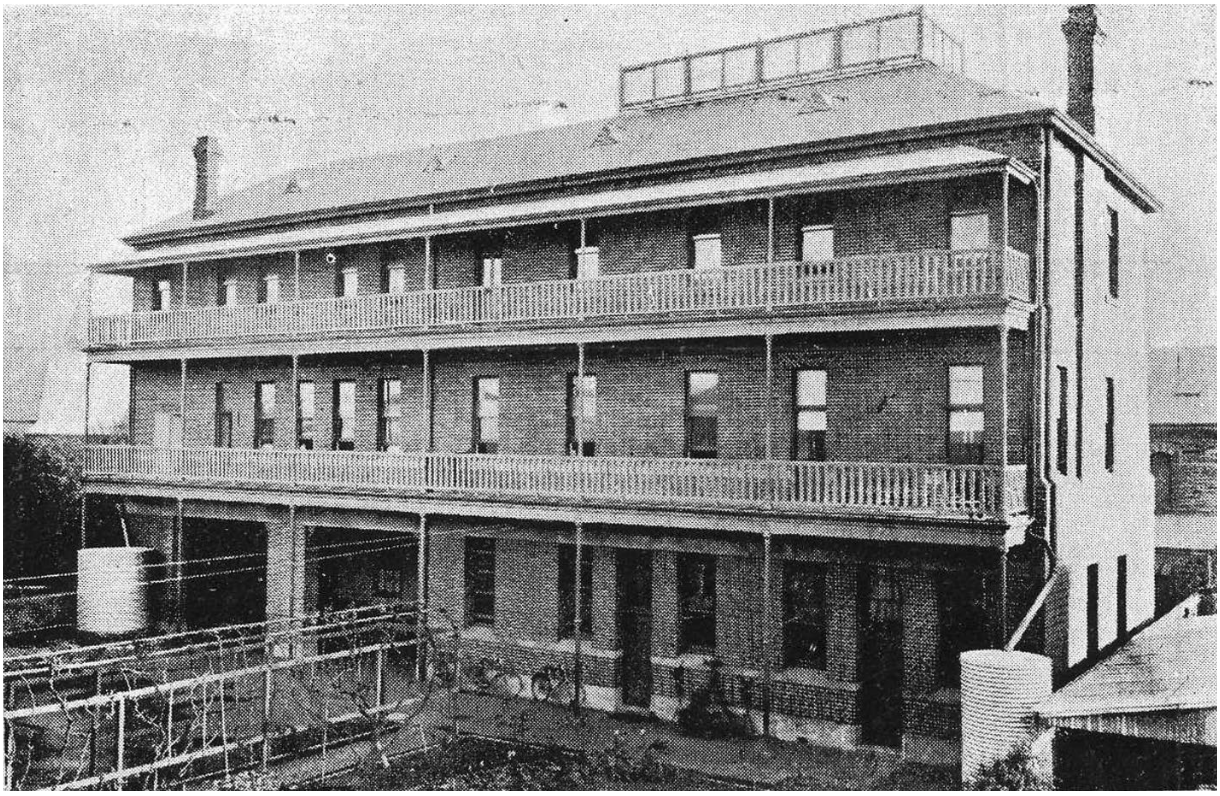


Figure 27: McAuley House (later renamed Dunlevie Building) prior to the eastern extension being constructed (St Aloysius College,, circa 1904)

Figure 28: Interior of new school room, Angas Street (St Aloysius College,, circa 1906)

Figure 29: Dunlevie Building (with viewing platform on roof) behind the tram barns on Victoria Square (State Library of South Australia, 1911, B-2189 (partial))

1920

Mother Cecilia Cunningham inherited a large fortune from her parents in Argentina. The money was used to purchase three properties and two blocks of land on the eastern side of the Convent. The Barr Smith house in Angas Street was purchased in November and provided additional accommodation for the Sisters, a kitchen and two dining rooms. The rest of the house was used by the Novitiate.

Figure 30 and 31: Barr Smith House, Angas Street (State Library of South Australia, 1903, PRG-631-2-280 & PRG-631-2-281)

Figure 32: Angas Street taken from the Supreme Court Building, viewing platform on top of the Dunlevie Building can be seen to the far left, Barr Smith House can be seen to the east of the Convent of Mercy (State Library of South Australia,, 1911, B-2171)

1921

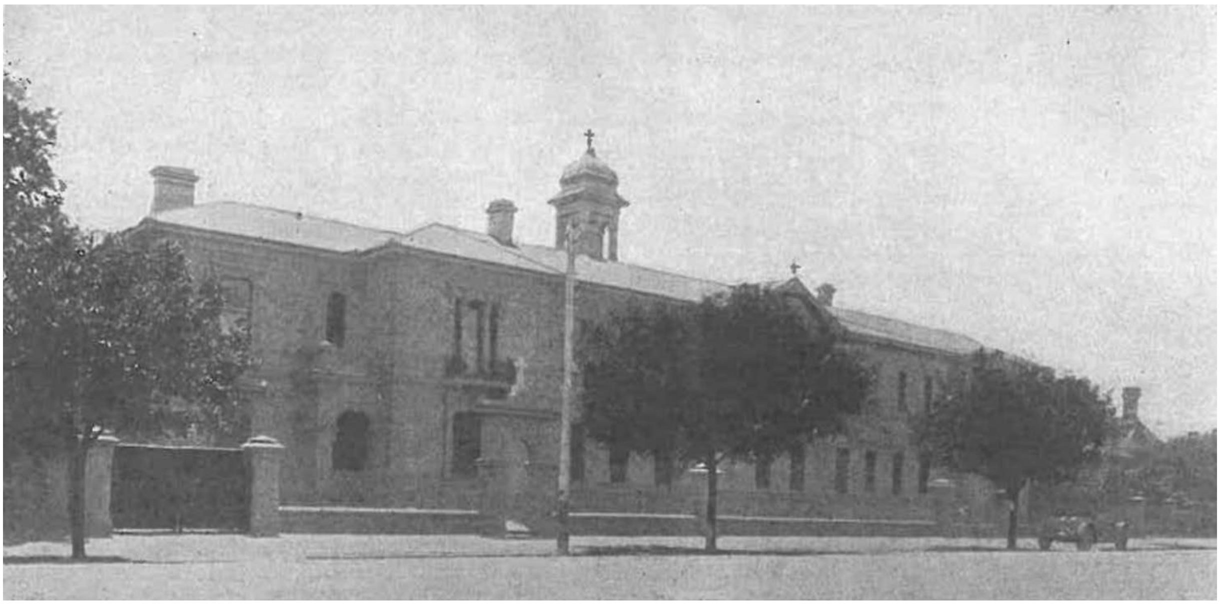
Acraman House, on the eastern side of the Convent, was purchased and the two houses joined to form the current Convent of Mercy. The architect extended Acraman House towards Angas Street to bring it into alignment with the Dutton-Green house. A number of cottages and small shops were purchased to extend the Angas Street property to Chancery Lane. More properties in Chancery Lane were bought as well as a block on Wakefield Street to extend the College grounds. There was now space for a number of tennis courts.

Figure 33 Early view of the gardens to the rear of the Convent of Mercy, prior to the construction of the southern cloister and Cunningham Memorial Chapel (St Aloysius College, circa 1920)

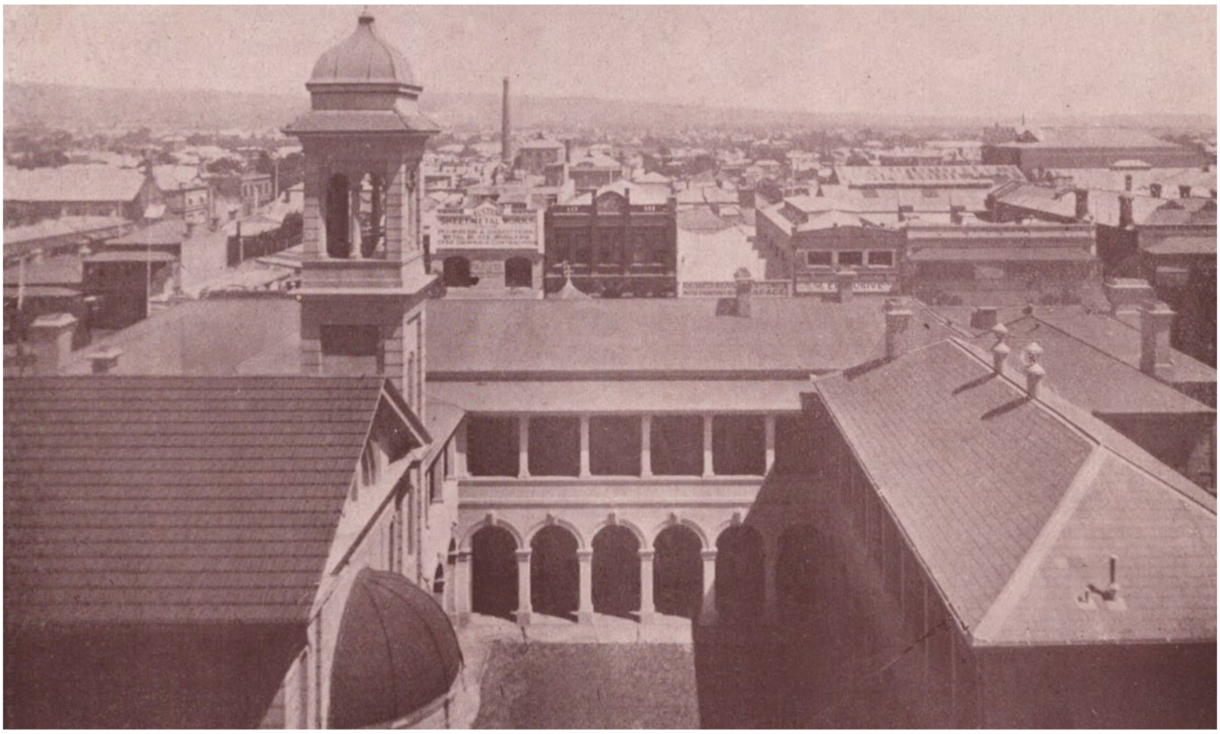
1922

The Memorial Chapel was built on the site of the kitchen and laundry of Acraman House. This formed part of the eastern side of the present cloisters.

The McAuley Building (currently Dunlevie) was extended by demolishing the stables and hayloft of Acraman House and adding another two-story wing.



Figures 34: Convent of Mercy (St Aloysius College, 1922)



Figures 35: View of quadrangle, cloister and Cunningham Chapel (St Aloysius College, 1922)

Figure 36: View of children's playground, Angas Street (St Aloysius College, 1922)

<u>1925</u>
St Cecilia's Hall and Primary School was erected next to the Barr Smith house on the corner of Angas Street and Chancery Lane. This primary school for boys and girls was staffed by the Sisters of Mercy and replaced St Angela's that had previously been housed in St Francis Xavier's Hall next to the Cathedral (St Anthony's for younger boys had been closed in 1915). The fees from St Aloysius College subsidised the schooling for St Cecilia's students and the two schools operated side by side.

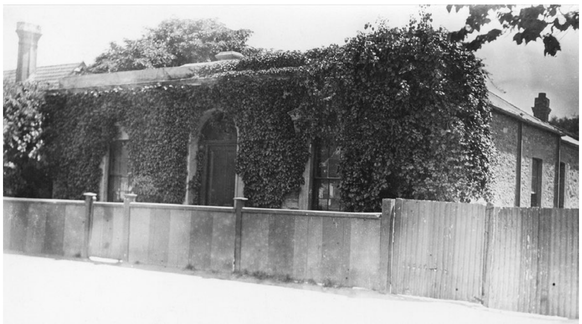


Figure 37 Angas Street cottage, demolished in 1923 (State Library of South Australia, 1922, B-1108)
Figure 38: Angas Street butcher shop, demolished in 1923 (State Library of South Australia, 1922, B-1108)

Figure 39: St Cecilia's Hall and Parish School – two storey building with a one three storey section constructed of brick and featuring a motif on the wall with a geometric pattern including a cross (State Library of South Australia, 1926, B-13408)

Figure 40: Boarders Dining Room (St Aloysius College, 1925)

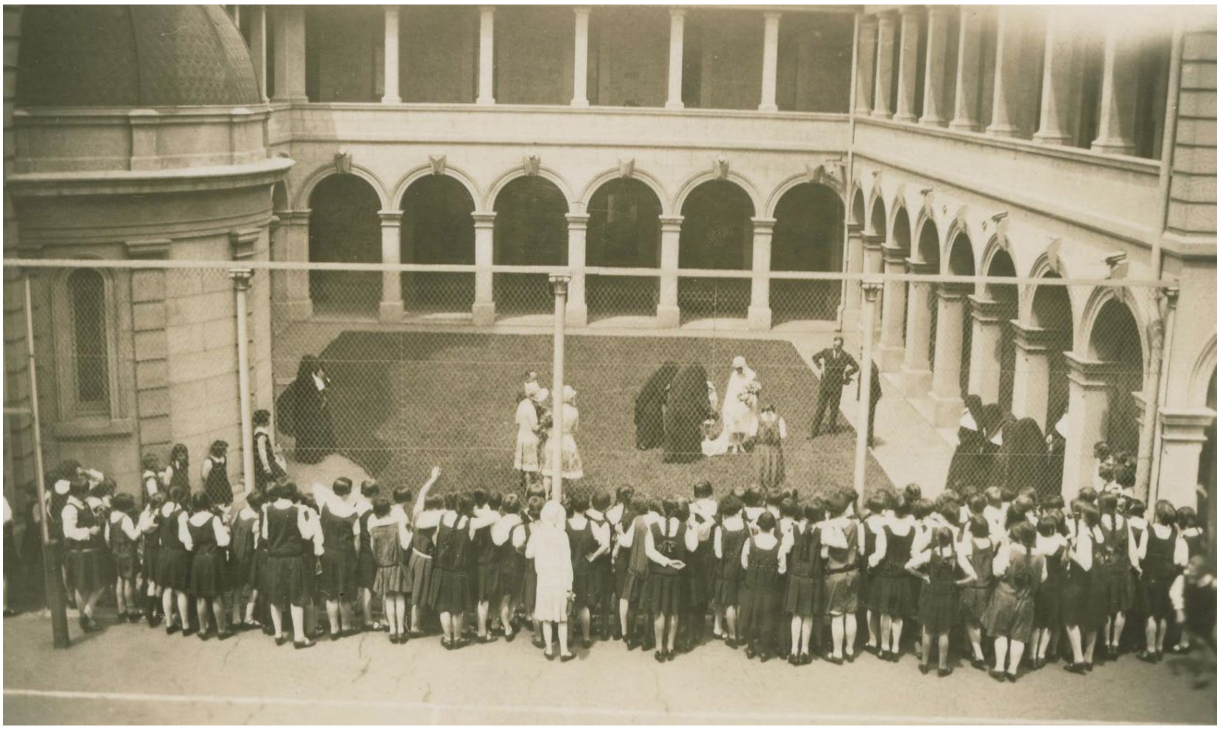


Figure 41: Angas St Quadrangle (St Aloysius College, 1926)

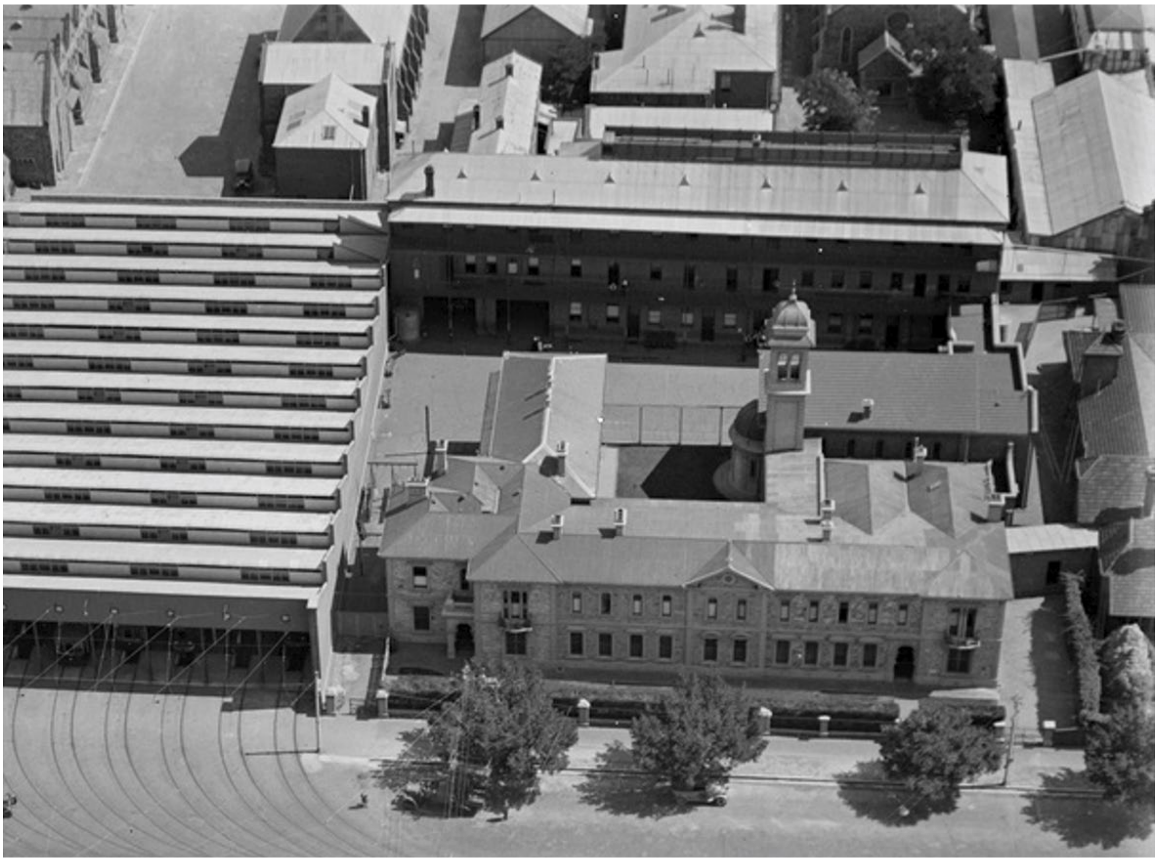


Figure 42: Aerial view of the Convent of Mercy, Cunningham Memorial Chapel and Dunlevie Building, with the Municipal Tramways Trust (MTT) tram barn to the left of view (State Library of South Australia, 1930, BRG-397-2-45-2 (partial))

Figure 43: Aerial view of the Convent of Mercy, Cunningham Memorial Chapel and Dunlevie Building, with the MTT tram barn, St Francis Xavier's Cathedral, St Xavier's School Hall, and House of Mercy Building in the background. The Barr Smith House can be seen in the foreground (State Library of South Australia, 1930, BRG-397-2-45-9 (partial))

Figure 44: Art class (St Aloysius College, 1938)

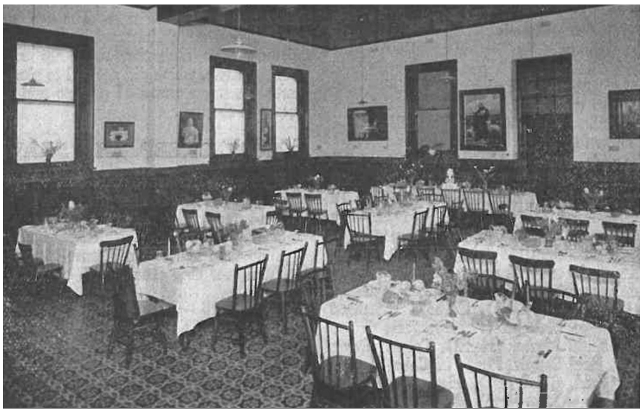


Figure 45 Boarders Dining Room (St Aloysius College, 1938)
Figure 46: Boarders Christmas Party in the Dining Room (St Aloysius College, 1940)

Figure 47: Commercial class (St Aloysius College, 1940)

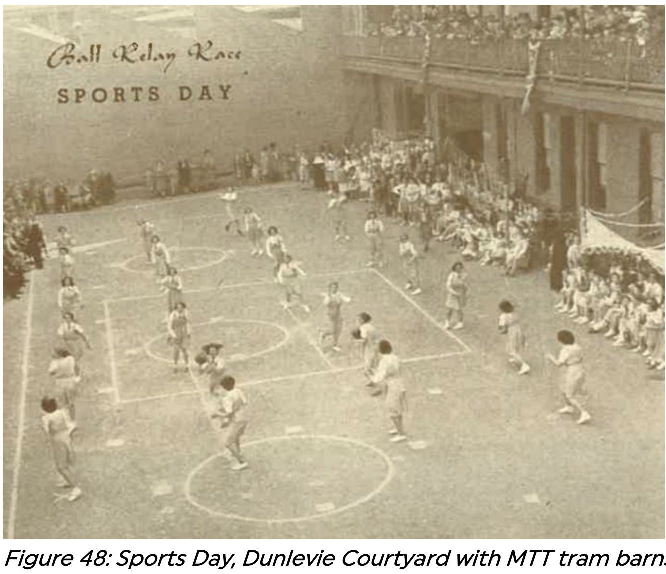


Figure 48: Sports Day, Dunlevie Courtyard with MTT tram barns in the background (St Aloysius College, 1945)
Figure 49: Dunlevie Courtyard with western wing of the Convent of Mercy in the background (St Aloysius College, 1960)

1954
The boarders left St Aloysius College and went to a new Mercy School, Mercedes College at Springfield.

1957
St Cecilia's School was closed and the girls from St Cecilia's were absorbed into St Aloysius College.

GENERAL DESCRIPTION – CONVENT OF MERCY

The State Heritage Database simply provides details of the Convent of Mercy as incorporating two former dwellings.

GENERAL DESCRIPTION – CUNNINGHAM MEMORIAL CHAPEL

The State Heritage Database describes the Chapel as follows:

> *Completed in 1922, the Cunningham Memorial Chapel of the Convent of Mercy was built as a memorial to Mother Cecilia Cunningham's parents and is remarkable for its excellence of design and workmanship at a time when craft skills were still highly regarded. The richly detailed surfaces and finishes render this particular building unique in Adelaide. The consistency of detail and the marriage of the old convent building with the new is well carried through, the design being perhaps the finest to come from the hand of Walter Hervey Bagot. No expense was spared in carrying out his design, with its heavily coffered ornate ceiling, superb parquet flooring, richly carved altars and London-designed stained glass windows. [Adapted from S Marsden et al 'Heritage of the City of Adelaide ' (1990) p203]*

Figure 50 Cunningham, Memorial Chapel (State Library of South Australia,, 1922, B-1116)

GENERAL DESCRIPTION – DUNLEVIE BUILDING

As the Dunlevie Building is not specifically covered by the listing, we have sourced the following historical information:

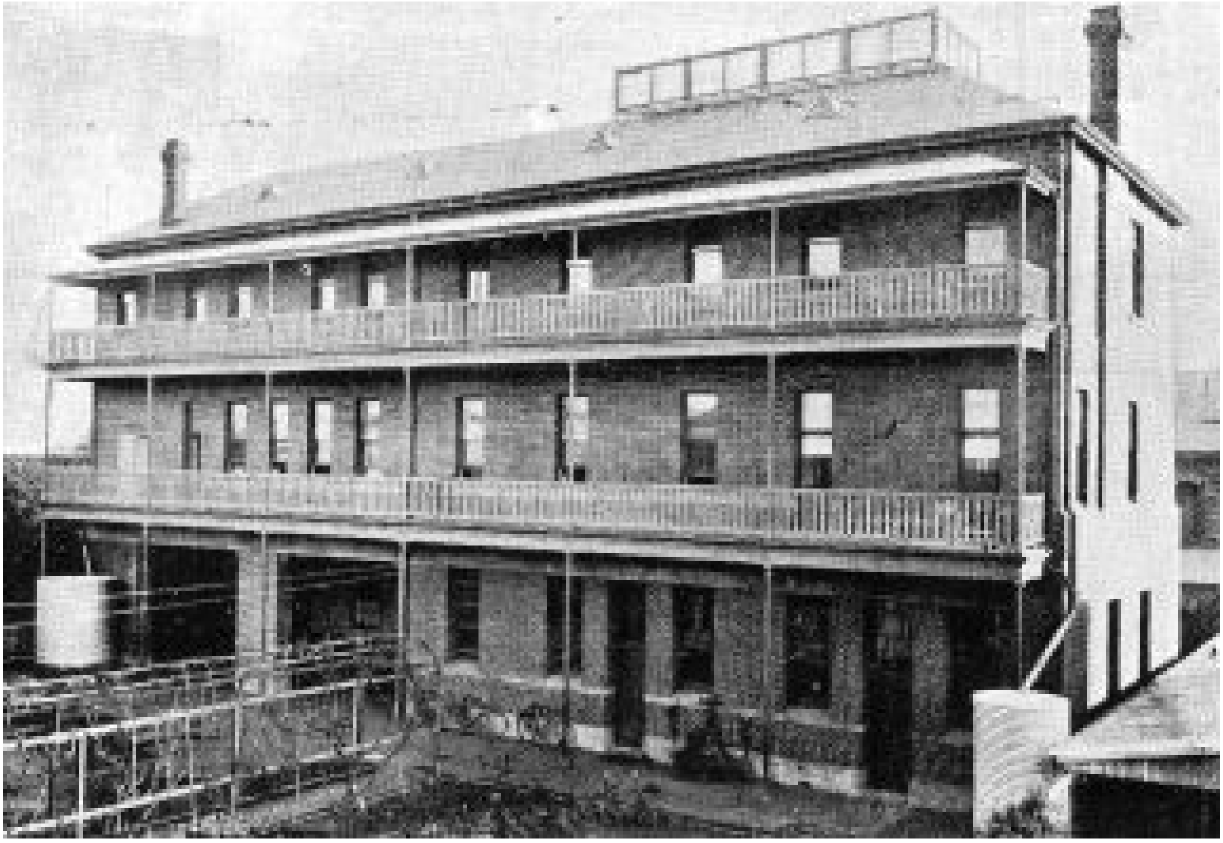
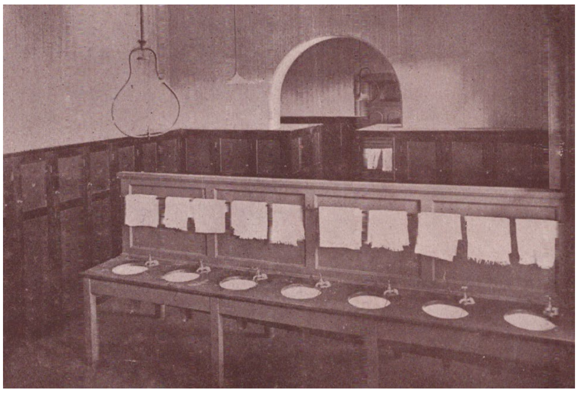


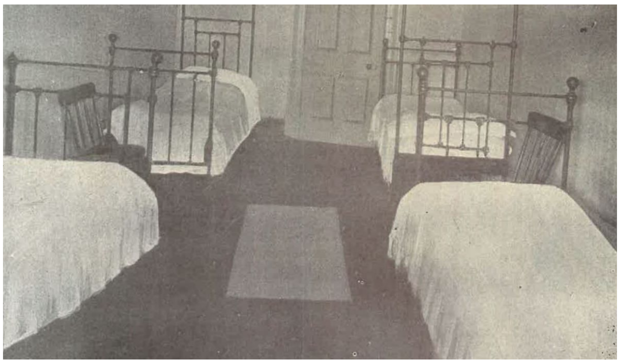
Figure 51: McAuley House (later renamed Dunlevie Building) prior to the eastern extension being constructed (St Aloysius College,, circa 1904)

From - New Buildings in the City, The Advertiser, Fri 13 Nov 1903, p.6:

> *The Sisters of Mercy are erecting an extensive building, three stories in height, on their Angas-street property, for the purposes of providing more adequate accommodation for the high school and boarding establishment. The new work will consist of a schoolroom, 40 ft by 32 ft, with a height of 16 ft with extra classroom adjoining, music rooms, and other conveniences for pupils, and an open shelter area 45 ft x 22ft for study and recreation purposes. In close proximity to the school is placed a new refectory 28 ft x 14 ft., finished with a tiled floor. A special feature of the extended work will be the accommodation provided for boarders; spacious and well-lighted dormitories, with clothes-rooms and washing rooms, also bathrooms, arranged on the best sanitary principles. An infirmary is included for invalided children, with access to external balcony. Sisters' rooms are provided, a large room for novitiate, and conveniences throughout for conventual requirements. A fireproof staircase is contained in a central position of the building, giving access to each room, and corridors. The building is flanked by two balconies, each 100 ft. long, with a look-out on roof, commanding a fine view of the city and surroundings. The work is being executed by Mr. G. Hudd from the designs of Mr. A. S. Conrad.*

Figures 52 and 53: Dunlevie Building internal views – Bedroom, Boarders Dining Room and Boarders Washroom (St Aloysius College, 1922)

Figures 54 and 55 Dunlevie Building internal views – Bedroom views (St Aloysius College, 1922)

From - Sisters of Mercy Convent, Angas Street, Southern Cross, Fri 5 Feb 1904, p.10:

> *New Wing Opened and Blessed*
>
> *There was a large assemblage at St. Mary's Convent of Our Lady of Mercy, Angas-street, on Sunday afternoon last, when the new wing recently erected at the rear of the building was opened and solemnly blessed.*
>
> *The ceremony was brief, and at its conclusion the visitors inspected the new building, and were received by the Sisters of Mercy. The rooms had already been arranged for the resumption of school work next day, and they presented a most inviting appearance, being large, airy, cool and commodious. There were the subject of general eulogy on the part of the visitors, and the manner in which the architect and contractor had done their worm also came in for commendation.*
>
> *The new wing is intended for the use of the select school and it will afford the Sisters much-needed additional accommodation, their school having, through their great success and excellent management, greatly outgrown the capacity of the original buildings. By the erection of the new building the difficulty as to accommodation has been overcome, and the institution is now properly equipped with all that is necessary for scholastic and conventional work. On account of the confined area and scarcity of ground the desire of the Sisters and the scheme of the architect was to provide all that was essential and encroach with the building as little as possible on the precincts of the convent. Through the clearance of the old wood and galvanized iron outhouses and the utilization of an existent building this has been accomplished.*

The following is a detailed description of the new building:- The new wing on the ground floor contains a school room 40 ft x 32 ft x 16 ft high, effectively lighted on the three sides, and approached with two double folding doors. The room is finished with a dado in woodwork and is ceiled with figured boarding. An infants' classroom is attached to the school-room, also an open shelter area 46 ft x 22 ft x 16 ft high for class and recreation purposes. By a rearrangement of the original accommodation a children's refectory is formed 14 ft x 28ft. 6 in. in the clear, with provision for serving from the kitchen. The entrance to the boarding establishment is contained in a separate staircase hall, and gives access to the accommodation on the first floor, including a dormitory 37 ft 6 in x 17 ft x 13 ft high, lighted with a series of windows, and connected with an ante-room for the Sister in charge. An apartment for a lavatory is conveniently placed, and is fitted with groups of white china washstand basins connected with drainage and provided with cupboards for articles of toilet. In an adjoining apartment lockers are provided for the reception of linen for individual boarders. Bathrooms are provided with porcelain enamel baths, with hot and cold water, and the walling is protected with opaline tiling. In close relation to the above accommodation a children's infirmary is placed, suitably arranged for nursing, with a lifting window, giving access to the external balcony. The remainder of the first floor is devoted to the requirements of the novitiate Sisters, with a community room 22ft x 20 ft x 13 ft high, approached through a stained glass enclosure, provided with windows at the sides, fitted with lifting sashes, to give access to the balcony.

The whole of the second floor is occupied with cells, 19 in number, provided with fanlights over the doors, ranged on either side of dividing corridor. They are furnished with windows at ends for light and ventilation. A spiral staircase gives access to a roof promenade 30 ft x 10 ft, surrounded with seating, and protected with iron sheathed balustrading. For the purpose of effecting a means of escape should occasion arise, a fire-proof steel staircase is placed in the center of the building, communicating with each corridor. Ventilation is afforded throughout the whole building by medium of air shafts, and light is admitted to every apartment by a varied arrangement of window sashes. The whole of the vacant area has been tar-paved and a complete system of drainage installed, both for surface and underground moisture.

The arrangement and supervision of the work has been under the direction of Mr. Albert S. Conrad, F.S.A.I.A., architect, in conjunction with Messrs. George Hudd and Charlies Oliver & Son, contractors, who have completed their contract with satisfaction in every particular. The upper balcony was the gift of Mr. Conrad, and Messrs. Hudd and Oliver presented the lookout on the top of the building, from which a splendid view of the city and bay is obtainable. Needless to say, the Sisters are extremely grateful for the thoughtful kindness shown by the above-mentioned gentleman. The balcony and lookout will afford a means of enjoying the fresh air, and will be greatly appreciated during the summer months.

Figures 56: Dunlevie Courtyard at the opening of the new eastern wing and Chapel (St Aloysius College, 1922)

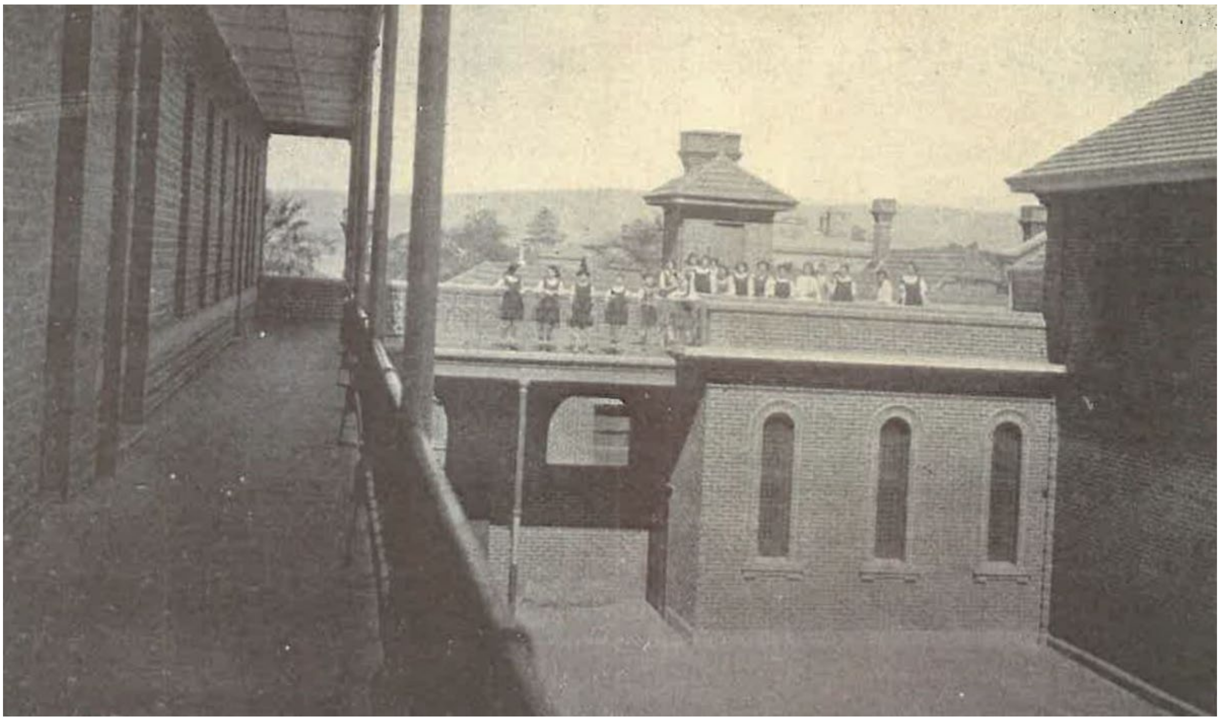


Figure 57: New Dunlevie Building eastern extension and walkway to new Cunningham Memorial Chapel (St Aloysius College, 1922)

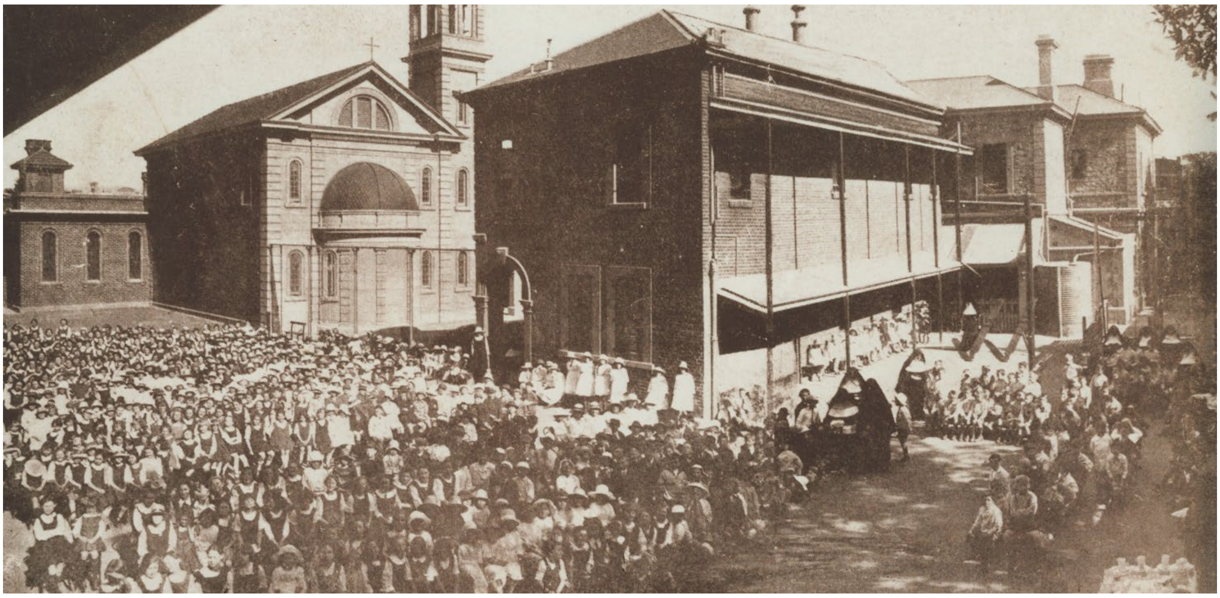


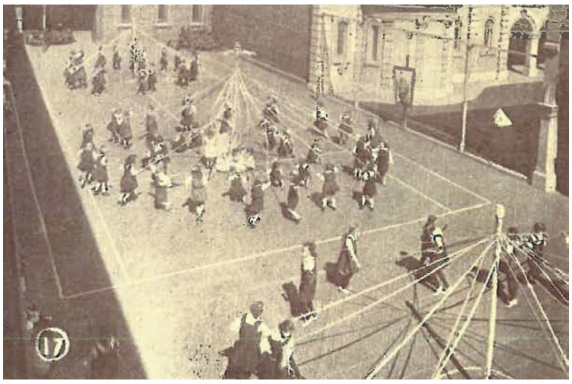
Figure 58 View of courtyard, showing the children of Angas Street, Parkside, Henley Beach, St Thomas' and St Vincent de Paul's Schools at a party given in honour of the opening of the new Dunlevie Building eastern extension and Cunningham Memorial Chapel (St Aloysius College, 1922)

Figure 59: Opening and blessing ceremony of the new Dunlevie Building eastern extension and Cunningham Memorial Chapel (St Aloysius College, 1922)

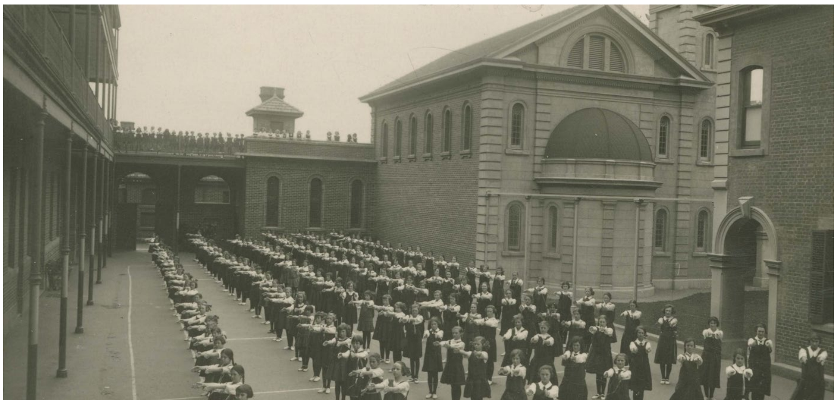
1922 description of the completed 1921 additions - Convent of Mercy, Angas Street, Southern Cross, Fri 1 Dec 1922, p.4:

The boarding and day school, largely increased in size by an addition to the older building, contains scholar's refectory, seven class rooms, with a stage, lavatories, and dormitories. It contains two fireproof stairs, and has an attractive promenade upon the roof and extensive balconies.

There is a large tar-paved playground containing a tennis court, and apparatus for exercise, such as giants' stride, swings, trapeze, and see-saws. The general contractors for the whole of the additions are Messrs. T A. Cook and Co., the masonry has been executed by Messrs. W. G. Maddern and Son, plastering, plain and decorative, by Mr. Geo. Wright, plumbing by Messrs. Dixon and Rankine and painting by Messrs Martindale and Flehr. The electric current has been installed by Messrs. Unbehaun and Johnstone, Ltd., and Newton, McLaren, Ltd. The architects are Messrs. Woods, Bagot, Jory and Laybourne-Smith, of Adelaide.

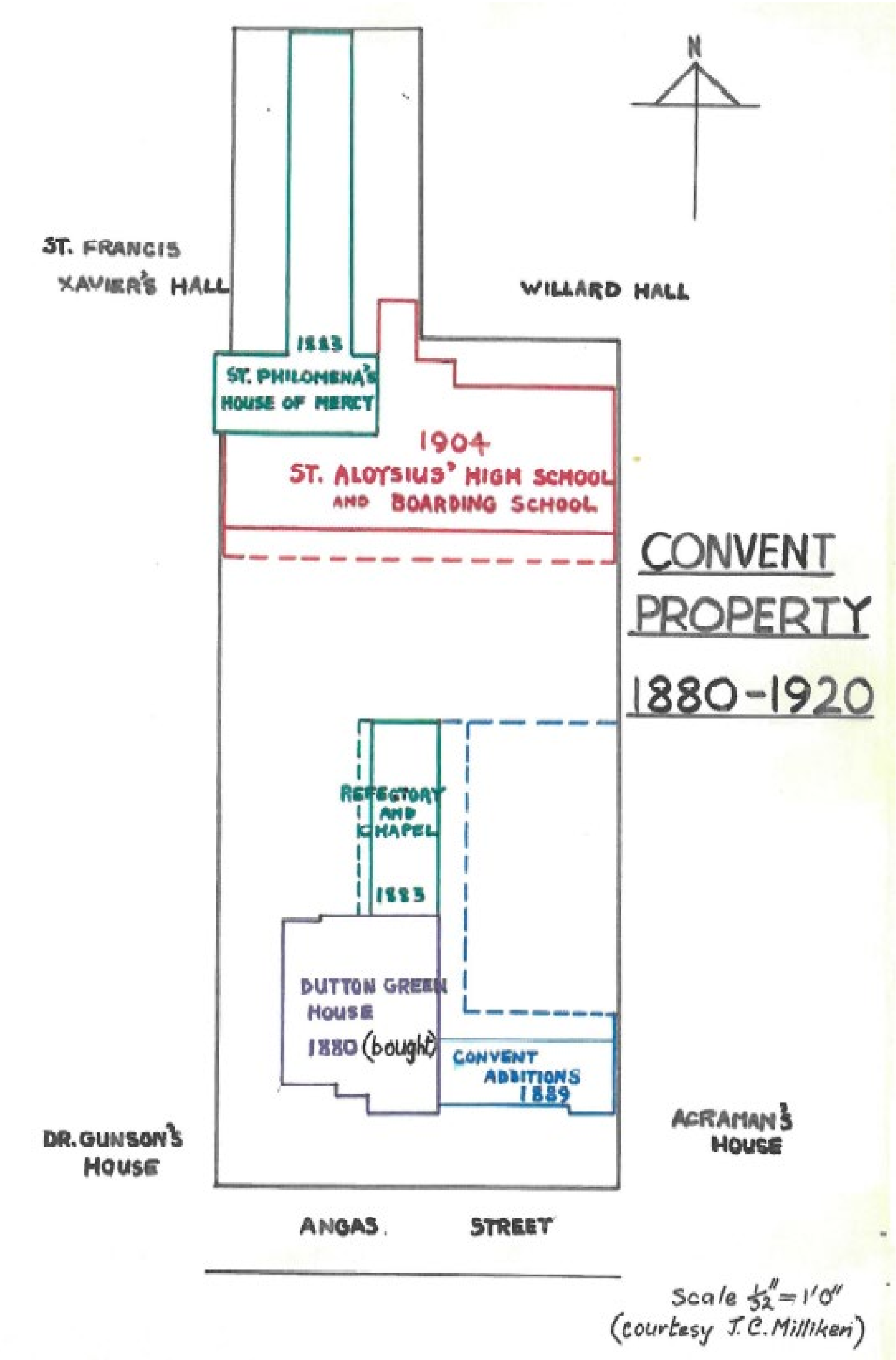
Figures 60 and 61: Commercial class and Maypole dancing (St Aloysius College, 1926)

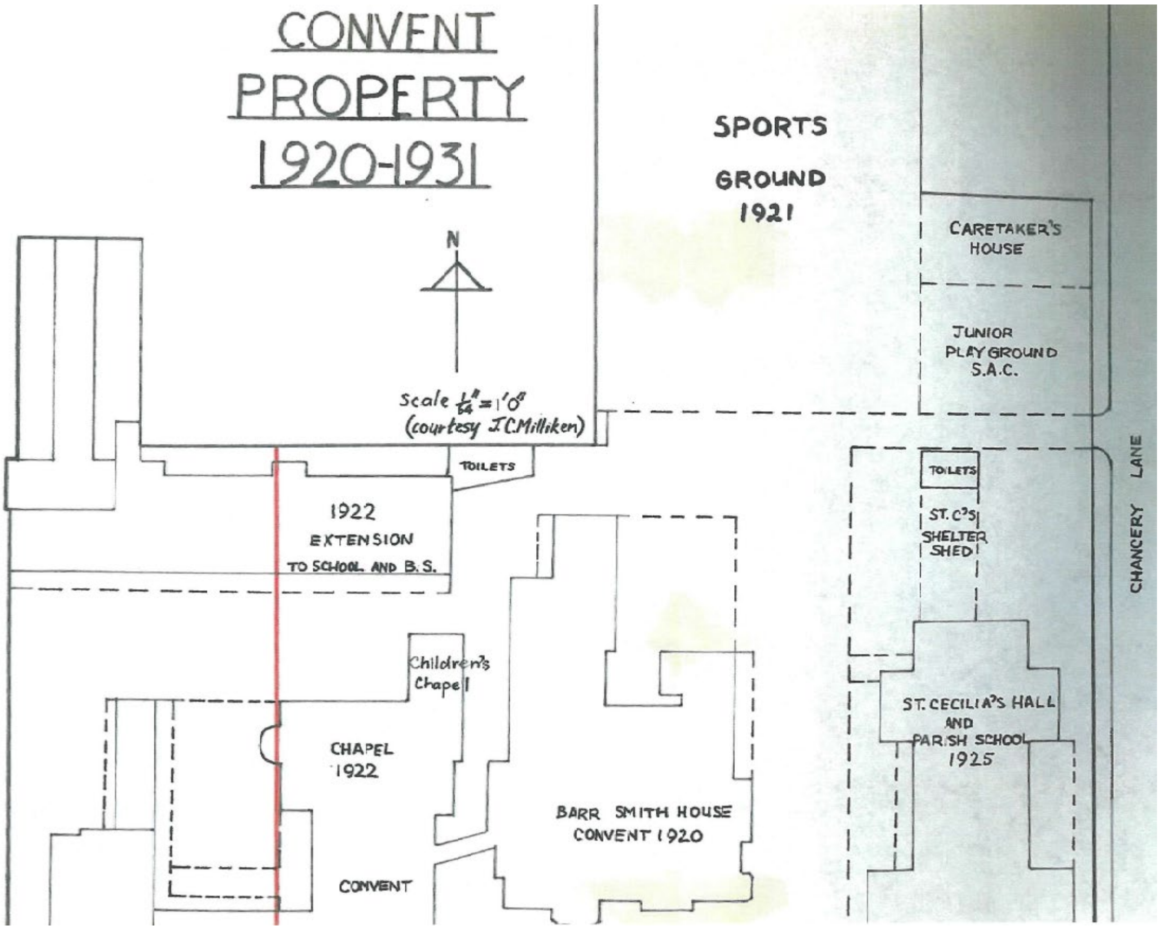
Figures 62 and 63 School display in the Dunlevie Courtyard (St Aloysius College, 1926)

DUNLEVIE BUILDING PLANS

Plans of the site, hand-drawn by nun J G Milliken, provide an overview of the development sequence of buildings on the SAC site.

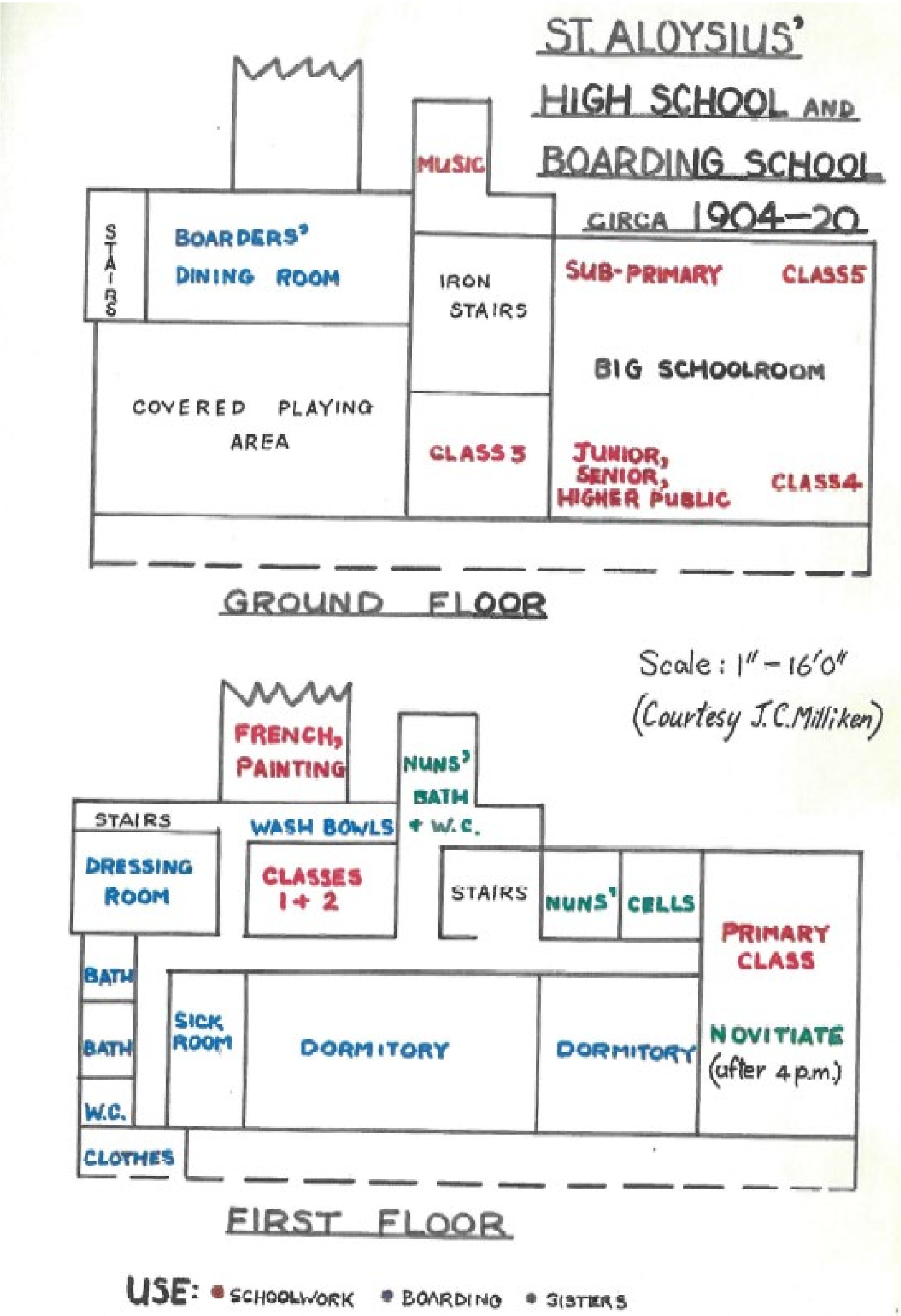


Figures 64: Convent property 1880 – 1920 (St Aloysius College, 2024)



Figures 65: Convent property 1920 – 1931 (St Aloysius College, 2024)

The McAuley House/ Boarding School/ Dunlevie Building floor plans circa 1904-1920 were noted as follows:



Figures 66: St Aloysius High School and Boarding School 1904 - 1920 (St Aloysius College, 2024)

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LRO:OZH
57837/1/1
26 August 2024

Grieve Gillett Architects
243 Pirie Street
ADELAIDE SA 5000

Attention: Ms A Rebbeck

Dear Madam

ST ALOYSIUS COLLEGE NEW PRIMARY SCHOOL
MECHANICAL SERVICES

We have undertaken an alternative Building Code of Australia Section J assessment for the above project. Its purpose is to demonstrate the proposed glazing with the National Construction Code (NCC) 2022 Section J requirements via a Verification Method - Section J1V3 approach.

The assessment is based on the following:-

- Grieve Gillett Architects / Hayball Architectural drawings dated 20 August 2024.
- Building Location: 53 Wakefield Street, Adelaide SA 5000.
- Climate Zone: 5
- Building Class: 9B

NATIONAL CONSTRUCTION CODE OF AUSTRALIA 2022 COMPLIANCE

JV3 Verification Method

The NCC 2022 by *'Verification Method - Section J1V3 - Verification using a reference building'* states:-

For a Class 9B, building compliance with 'Performance Requirement J1P1' is verified when –

- *It is determined that the annual greenhouse gas emissions of the proposed building are not more than the annual greenhouse gas emissions of a reference building when –*

  (i) the proposed building is modeled with the proposed services; and

  (ii) the proposed building is modelled with the same services as the reference building; and

- *In the proposed building a thermal comfort level of between a Predicted Mean Vote of -1 to +1 is achieved across not less than 95% of the floor area of all occupied zone for not less than 98% of the annual hours of operation of the building.*

SPECKEL ANALYSIS

Thermal load and energy consumption analysis was calculated for the proposed and reference building utilising the computer software programme SPECKEL.

This computer simulation software has been certified in accordance with the ANSI/ASHRAE Standard 140-2001: “Standard Method of Test for Evaluation of Building Energy Analysis Computer Programs”.

INPUT DATA

The following design input parameters have been utilised for both the proposed and reference building in accordance with NCC 2022 Specification J1V3:-

Item		**Input Data**
		Reference Building Design & Proposed Building Design
Location		Adelaide, SA 5000
Building classification		Class 9B
Climate zone		5
Schedules		Taken from NCC Specification 35 Table S35C2j (Class 9B)
People	Occupancy	2 m^2/person In accordance with AS 1668.2-2012
	Activity	130W/person (70W sensible, 60W latent) – design input
	Air Velocity	0.1 – Design input
	Clothing	0.65 – Knee-length skirt, long-sleeve shirt (Typical school uniform)
Lights		4.5 W/m^2 In accordance with NCC Section J7D3 Table J7D3a
Equipment		10 W/m^2 In accordance with NCC Specification 35 Table S35C2L.
Infiltration	ON	0.35 - In accordance with NCC Specification 34
	OFF	0.7 - In accordance with NCC Specification 34
Thermostat	Cooling Setpoint	22.5^{o}C In accordance with NCC Specification 34
	Heating Setpoint	21.5^{o}C In accordance with NCC Specification 34
HVAC	System Type	Variable Refrigerant Flow Air Cooled Condensing unit
	Outdoor Air	10 L/s/person – In accordance with AS 1668.2-2012
	Cooling COP	3.5 – Design Input
	Heating COP	3.0 – Design Input
	Supply Fan Total Efficiency	80% – Design Input
	Supply Fan Delta Pressure	150Pa – Design input
	Supply Fan Motor Efficiency	80% – Design Input
Modelling	Ground Reflectance	20% – Design Input
	Wall Solar Absorbance	60$^{\%}$ – In Accordance with NCC Specification 34

CLIMATE DATA

The building is located in Adelaide which is classified by the NCC as Climate Zone 5 in accordance with Table 1 Climate Zones for Thermal Design. The building simulation utilized hourly weather data inbuilt into SPECKEL for the Adelaide region.

PART J4 - BUILDING FABRIC

As per the NCC Specification 37 requirement, the total system U-values have been calculated as weighted average of the thermal transmittances of each construction element and surface resistance and any thermal bridging.

Wall Constructions

The following external wall constructions were used in the energy assessment:-

Wall Construction: 01	**R- Value (summer heat flow inwards)**	
Compressed Fibre Cement sheeting with internal stud framing and insulation (146mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Compressed Fibre Cement (6mm)	0.02	
3. Top Hat Stud (35mm)	0.15	
4. Unventilated Airspace (2mm)	0.00	
5. Wall insulation (R2.0, 90mm)	1.91	
6. Metal Wall Stud (92mm)		0.14
7. Plasterboard (13mm)	0.08	
8. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.42**	

Wall Construction: 02	**R- Value (summer heat flow inwards)**	
Precast Concrete wall with internal stud framing and insulation (395mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Precast Concrete (250mm)	0.31	
3. Air Cavity (40mm)	0.15	
4. Unventilated Airspace (17mm)	0.00	
5. Wall insulation (R1.5, 75mm)	1.44	
6. Metal Wall Stud (92mm)		0.14
7. Plasterboard (13mm)	0.08	
8. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.57**	

Wall Construction: 03	**R- Value (summer heat flow inwards)**	
Spandrel panel with insulated stud wall	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.4	
2. *Glazing system Refer to glazing section for maximum allowable U-value*	0.26	
3. Unventilated Airspace (50mm)	0	
4. Steel pan (1mm)	1.93	
5. Metal Wall Stud (92mm)		0.11
6. Plasterboard (10mm)	0.06	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.52**	

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PART J4 - BUILDING FABRIC (CONT.)

Wall Constructions (Cont.)

Wall Construction: 04	**R- Value (summer heat flow inwards)**	
Northern Column wall	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Compressed Fibre Cement (12mm)	0.05	
3. Top Hat Stud (35mm)	0.15	
4. Top Hat Stud (15mm)	0.00	
5. Concrete (300mm)	0.37	
6. Insulated Plasterboard (35mm)	1.15	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.88**	

Wall Construction: 05	**R- Value (summer heat flow inwards)**	
Southern Column wall (397mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Brick Snaps (15mm)	0.03	
3. Top Hat Stud	0.00	
4. Unventilated Air cavity	0.15	
5. Concrete (450mm)	0.56	
6. Insulated Plasterboard (35mm)	1.15	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.05**	

Wall Construction: 06	**R- Value (summer heat flow inwards)**	
Wall Column with External Metal Flashing (382mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Metal Flashing (0.42mm)	0.00	
3. Top Hat Stud	0.00	
4. Unventilated Air cavity	0.15	
5. Concrete (450mm)	0.56	
6. Insulated Plasterboard (35mm)	1.15	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.02**	

PART J4 - BUILDING FABRIC (CONT.)

Wall Constructions (Cont.)

The following internal wall constructions between conditioned and unconditioned spaces was used in the energy assessment:-

Wall Construction: 06	**R- Value (summer heat flow inwards)**	
Plasterboard with internal stud frame and insulation (109mm)	**Insulation Pathway**	**Bridging Pathway**
1. Indoor air film	0.12	
2. Plasterboard (13mm)	0.08	
3. Unventilated Airspace (2mm)	0.00	
4. Wall Insulation (R 2.5, 90mm)	2.41	
5. Metal Wall Stud (92mm)		0.14
6. Plasterboard (13mm)	0.08	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.46**	

Roofing and Ceiling Constructions

A solar absorbance of 0.45 was used in the energy assessment.

The following Roof and ceiling construction was used in the energy assessment:-

Roof/Ceiling Construction: 01	**R- Value (summer heat flow inwards)**	
Concrete slab with ceiling insulation and plasterboard / wood panel ceiling	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Concrete slab (250mm)	0.31	
3. Unventilated airspace	0.15	
4. Ceiling insulation (R3.5,175mm)	3.35	
5. Plasterboard / wood panel (10mm)	0.06	
6. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**4.03**	

Floor Constructions

The ground floor was modelled as a 200mm thick concrete slab on ground with no under slab insulation.

The following floor construction for floors exposed to external conditions was used in the energy assessment:-

Floor Construction	**R- Value**	
	Insulation Pathway	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Compressed Fibre Cement (6mm)	0.02	
3. Ceiling insulation (R1.5, 75mm)	1.44	
4. Unventilated Airspace	0.15	
5. Concrete slab (300mm)	0.37	
6. Carpet (8mm)	0.16	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.30**	

PART J4 - BUILDING FABRIC (CONT.)

Wall Constructions (Cont.)

The following floor construction for areas that are either above or below an unconditioned space was used in the energy assessment:-

Floor Construction	R- Value	
	Insulation Pathway	Bridging Pathway
1. Indoor air film	0.12	
2. Plasterboard (10mm)	0.06	
3. Ceiling Insulation (R1.5, 75mm)	1.44	
4. Unventilated Airspace	0.15	
5. Concrete slab (300mm)	0.37	
6. Carpet (8mm)	0.16	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.42**	

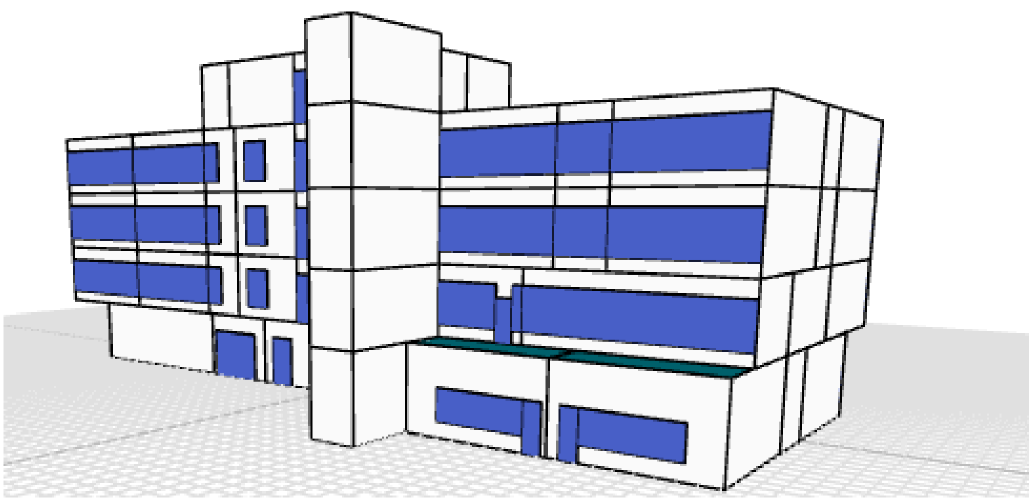
Glazing

SPECKEL has been used to determine the thermal performance requirements of the wall-glazing construction via the J1V3 verification method. The maximum allowable total glazing U-value and SHGC, inclusive of the frame, is summarised in the table below:-

Facade	Proposed Thermal Transmission U (W/m².K)	Proposed Solar Heat Gain Coefficient SHGC
All Façades	3.9	0.30

RESULTS JV3 VERIFICATION METHOD

A graphical representation of the Model used in the assessment can be seen below:-



Energy Analysis

The following table summarises the annual energy consumption for the Reference Building and Proposed Building.

Source	Reference Case (kWh/year)	Proposed Design (kWh/year)
Cooling Electricity	88,801.62	87,765.94
Heating Electricity	6,667.49	6,414.07
Fans Electricity	6,307.38	6,193.21
Lighting Electricity	45,225.45	45,225.45
Equipment Electricity	88,651.59	88,651.59
Total	**235,653.53**	**234,250.26**

The results from the energy simulation demonstrate that the annual energy consumption for the proposed building design is 0.6% less compared to the Deemed-to-Satisfy reference building.

Emissions Analysis

The following table summarises the annual CO_2 consumption for the Reference Building and Proposed Building.

	Reference Case	Proposed Design
Total ($kgCO_2$)	85,683.63	85,173.43

* Greenhouse gas emissions factor is 0.33 $KgCO_2$/kWh sourced from Australian National Greenhouse Accounts Factors August 2023.

The results from the emissions simulation demonstrate that the annual amount of CO_2 produced is 0.6% less for the proposed building design compared to the DtS reference building.

Thermal Comfort

The simulation shows that 100% of the floor area within the occupied zones has a thermal comfort level of between a Predicted Mean Vote of -1 to +1 for more than 98% of the annual hours of operation of the building. This exceeds the minimum NCC 2019 JV3 requirement of 95% of the floor area. The full zone by zone breakdown is enclosed for your information.

J1V3 Verification Method - Final Summary

Therefore, we conclude the above solution for the Proposed Building Design and Proposed Building Fabric Systems satisfies the Verification Method - Section J1V3.

We trust the above is satisfactory and we would be pleased to further advise on any aspect upon your request.

Yours faithfully

BESTEC PTY LTD

LIAM ROGERS
UNDERGRADUATE MECHANICAL SERVICES ENGINEER

Encl.

J1V3 Building Assessment

National Construction Code 2022 - Volume 1

Project	57837 - SAC New Primary
Address	53 Wakefield St, Adelaide SA 5000, Australia (34.93° S, 138.6° E)
Date	2024-08-26, 09:03 AM
Author	lrogers@bestec.com.au
Scope	National Construction Code 2022
Performance Requirements	J1P1 Energy Use
Assessment Process	Verification Method
Building Class	9B
Climate Zone	5
Storeys	4
Floor to Floor Height	4000 mm

Using Speckel

Speckel provides various calculations in line with the National Construction Code 2022 - Volume 1 - Section J Energy Efficiency. These calculations are tested in line with all applicable NCC equations or NCC referenced primary or secondary documents, for them to represent an accurate Performance Solution against the Performance Requirements - J1P1 Energy Use. A Performance Solution must be shown to comply with the relevant Performance Requirements through one or a combination of Assessment Methods. Speckel is a valid Assessment Method by comparison with the Deemed-to-Satisfy Provisions of each relevant area.

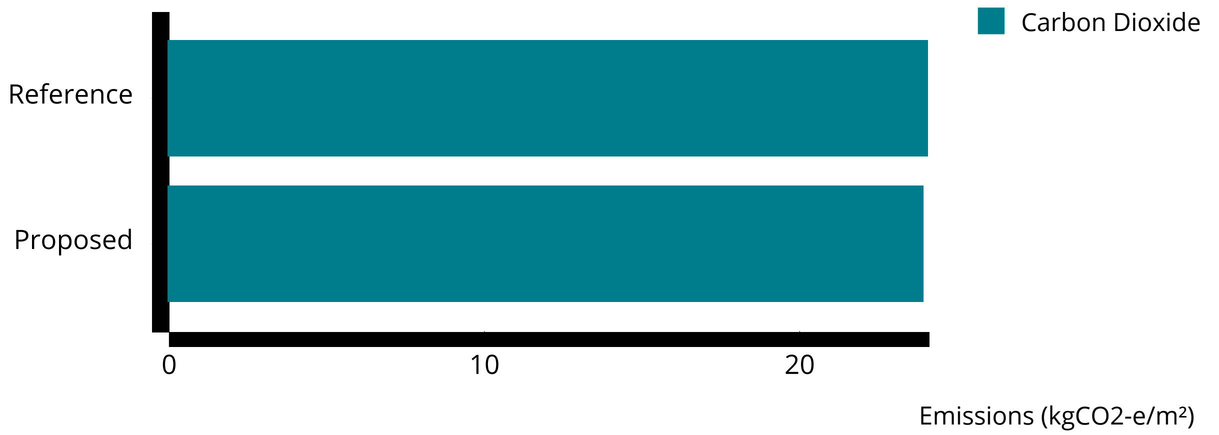
Results

The National Construction Code (NCC) specifies minimum performance standards for the energy efficiency of buildings through the Building Code of Australia (BCA) Volume 1, Section J. To enable flexibility in the architectural design of the building, a Performance Solution has been used to comply with the Performance Requirement - J1P1.

The Assessment Method, 'J1V3 Verification using a reference building' has been used and is an Alternative Solution for the Building Fabric only. As such, a Proposed Building with the proposed fabric has been modelled as part of this approach, to compare against the Reference Building services.

Building Emissions

To meet the acceptance criteria, annual Supplied Energy emissions must be less than **24.11** kgCO2-e/m². Based on a treated floor area of 3554.03 m², the simulated building achieved **23.97** kgCO2-e/m², **meeting** the acceptance criteria.



Thermal Comfort (PMV)

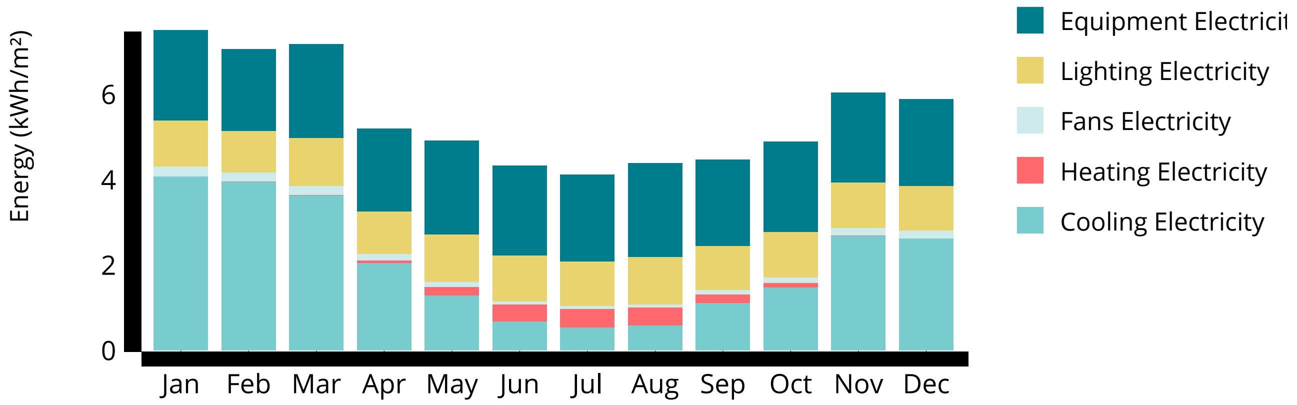
To meet the acceptance criteria, **95** % of total area across the assessed zones must meet the conditions:

- zone thermal comfort (pmv) is between -1.0 and 1.0 PMV
- for at least 98 % of hours
- when above 20 % occupancy

A total area of 3481.21 m² across 77 zones were assessed, where zones of **100.00** % area achieved the conditions, **meeting** the acceptance criteria.

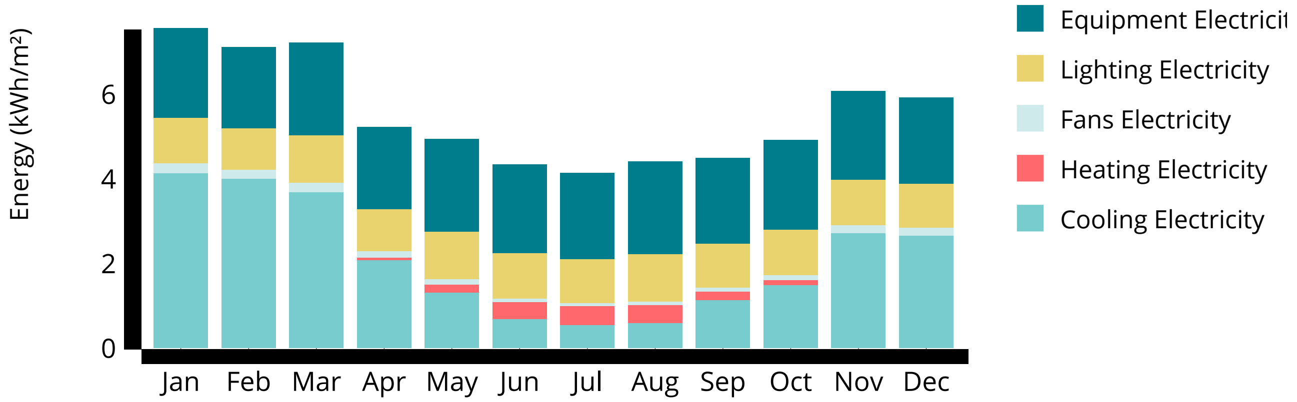
Building Meters

Proposed



Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Cooling Electricity	87765.94	24.69	201.74	31 Jan 13:00
Heating Electricity	6414.07	1.80	149.50	18 Jul 07:15
Fans Electricity	6193.21	1.74	6.16	30 Jan 14:15
Lighting Electricity	45225.45	12.73	16.80	2 Jan 09:15
Equipment Electricity	88651.59	24.94	34.33	2 Jan 09:15

Reference



Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Cooling Electricity	88801.62	24.99	204.34	31 Jan 13:00
Heating Electricity	6667.49	1.88	149.60	18 Jul 07:15
Fans Electricity	6307.38	1.77	6.30	30 Jan 14:15

Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Lighting Electricity	45225.45	12.73	16.80	2 Jan 09:15
Equipment Electricity	88651.59	24.94	34.33	2 Jan 09:15

Method

Approach

- The National Construction Code (NCC) specifies minimum performance standards for the energy efficiency of buildings through the Building Code of Australia (BCA) Volume 1, Section J.
- To enable flexibility in the architectural design of the building, a Performance Solution has been used to comply with the Performance Requirement - J1P1.
- The Assessment Method, J1V3 verification using a reference building, has been used and is an Alternative Solution for the Building Fabric only. As such, a Proposed Building with the proposed fabric has been modelled as part of this approach to compare against the Reference Building services.
- To meet acceptance criteria, the Proposed Building with the proposed fabric Greenhouse Gas (GHG) emissions must be no greater than the Reference Building services.
- Greenhouse gas emission factors are selected according Vol 1 Specification 34 Modelling Parameters for J1V3 Table S34C3 Greenhouse Gas Emissions Factors (kgCO2-e/GJ). In the case of the ACT, an exception is made where a greenhouse gas emission factor of nil is provided, as the national emission factors are not applied as they do not take into account investments in renewable electricity generation in the National Electricity Market.
- When the Simulated Shading Multipliers feature is enabled, each window is simulated in EnergyPlus twice, to compare a completely unshaded window, to a window affected by attached shading, building self-shading, and surrounding structures. The multiplier is based on the ratio of shaded versus unshaded annual average external incident solar radiation, limited between 0.0 and 1.0.

Assumptions / Limitations

- Parts J3, J5, J6, J7, J8 and J9 are not part of this assessment.
- Specification 33 Additional requirements - General is only met for provisions (a) General Thermal Construction and (b) for Floor Edge Insulation. All other provisions (c - n) are not part of this assessment.
- Specification 34 Modelling parameters for J1V3 S34C1 Scope, S34C2 Reference building and S34C3 Proposed building and reference building have been used to form the basis of the Method of Assessment.
- S34C4 Services Proposed and Reference Building is not part of this assessment as the minimum performance requirements of the services are not included.
- To ensure the reference building can be calculated, windows are limited to a maximum of 99% window-to-wall ratio (WWR).

Inputs

The NCC 2022 - Vol 1 contains technical design and construction requirements for all commercial buildings and their associated structures. The following Building Classes have been adopted in this assessment.

Building Class	9B
Wall Area (m²)	1731.64
Window Area (m²)	951.78
Roof Area (m²)	949.86
Floor Area (m²)	1120.56
Window-Wall Ratio (%)	35.47

Levels

Level	Drawing	# Zones	Floor Area (m²)	Wall (m²)	Window (m²)
1	GF	25	785.7	626.3	192.8
2	LV 1	21	1005.0	323.6	231.7
3	LV 2	22	1005.2	324.9	240.4
4	LV 3	22	1005.2	324.9	240.4
5	Roof	8	177.1	131.9	46.5

Zones

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
1	20. Sensory	8.90	41.83	8.90
1	1. Breakout	106.88	502.34	106.88
1	24. Void	2.51	11.78	2.51
1	22. Lift	8.04	37.80	8.04
1	25. Cleaners	0.83	3.89	0.83
1	16. Office	11.22	52.72	11.22
1	11. MTG	22.33	104.97	22.33
1	7. WC	48.85	229.61	0.00

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
1	10. Stairs	22.70	106.71	22.70
1	19. Quiet	9.53	44.78	9.53
1	5. GLA	63.59	298.87	63.59
1	15. Office	11.62	54.60	11.62
1	8. Hallway	28.39	133.44	28.39
1	23. Comms	5.35	25.12	5.35
1	17. Store	10.33	48.57	0.00
1	9. Stair	27.91	131.19	0.00
1	12. WC	21.53	101.19	0.00
1	18. Office	10.31	48.44	10.31
1	21. Airlock	8.44	39.65	8.44
1	3. GLA	72.33	339.93	72.33
1	14. Store	13.92	65.43	13.92
1	13. Office	18.04	84.79	18.04
1	2. Foyer	87.94	413.32	87.94
1	6. GLA	60.95	286.45	60.95
1	4. GLA	66.51	312.61	66.51
2	2. GLA	87.56	337.10	87.56
2	21. Void	3.14	12.08	3.14
2	6. GLA	63.91	244.51	63.91
2	16. Quiet	9.27	35.32	9.27
2	8. GLA	63.35	242.62	63.35
2	19. Sensory	8.04	30.97	8.04
2	14. MTG	17.56	67.55	17.56
2	18. Quiet	8.04	30.97	8.04

Level	Zone	Area (m^2)	Volume (m^3)	Treated Area (m^2)
2	13. Stair	19.66	75.70	0.00
2	11. Stair	51.29	195.83	51.29
2	15. WC	15.32	58.97	15.32
2	12. WC	31.36	119.96	31.36
2	17. Sensory	8.01	30.43	8.01
2	9. GLA	63.20	241.32	63.20
2	3. Hallway	69.80	268.61	69.80
2	10. Breakout	63.08	240.77	63.08
2	20. Lift	8.04	30.97	8.04
2	7. GLA	63.60	241.99	63.60
2	5. GLA	65.49	250.76	65.49
2	4. GLA	68.35	261.62	68.35
2	1. bREAKOUT	179.78	690.52	179.78
3	22. Void	3.14	12.08	3.14
3	9. GLA	63.51	244.52	63.51
3	8. GLA	63.35	243.89	63.35
3	20. Sensory	8.04	30.97	8.04
3	14. MTG	17.56	67.59	17.56
3	18. Quiet	8.04	30.97	8.04
3	13. Stair	19.66	75.70	0.00
3	11. Stair	51.29	197.48	51.29
3	15. WC	10.02	38.56	10.02
3	17. Sensory	8.01	30.83	8.01
3	16. Sensory	8.57	32.98	8.57
3	2. GLA	76.90	296.05	76.90

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Level	Zone	Area (m^2)	Volume (m^3)	Treated Area (m^2)
3	1. bREAKOUT	191.99	739.15	191.99
3	6. GLA	64.04	246.56	64.04
3	19. Lift	8.04	30.97	8.04
3	3. Hallway	69.77	268.62	69.77
3	12. WC	31.36	120.72	31.36
3	10. Breakout	63.05	242.73	63.05
3	21. COMMS	4.99	19.23	4.99
3	7. GLA	63.60	244.85	63.60
3	5. GLA	65.49	252.14	65.49
3	4. GLA	68.35	263.14	68.35
4	22. Void	3.14	12.08	3.14
4	13. Stair	19.66	75.70	0.00
4	11. Stair	51.29	197.48	51.29
4	17. WC	15.32	58.97	15.32
4	12. WC	31.36	120.72	31.36
4	19. Sensory	8.01	30.83	8.01
4	18. Sensory	8.57	32.98	8.57
4	3. GLA	64.04	246.56	64.04
4	21. Quiet	8.04	30.97	8.04
4	8. GLA	62.49	240.58	62.49
4	9. GLA	62.31	239.90	62.31
4	10. GLA	61.98	238.61	61.98
4	14. MTG	16.67	64.16	16.67
4	15. MTG	16.66	64.12	16.66
4	1. bREAKOUT	191.91	738.84	191.91

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
4	16. MTG	16.46	63.36	16.46
4	20. Lift	8.04	30.97	8.04
4	7. Breakout	63.49	244.43	63.49
4	2. Hallway	69.42	267.28	69.42
4	5. GLA	63.60	244.85	63.60
4	6. GLA	62.99	242.49	62.99
4	4. GLA	63.48	244.39	63.48
5	3. Stair	19.66	75.70	0.00
5	6. Lift	7.93	30.13	0.00
5	7. Sensory	6.80	25.85	0.00
5	8. Void	3.41	12.96	0.00
5	2. WC	33.66	127.91	0.00
5	5. Stair	7.93	30.14	0.00
5	4. Store	19.33	73.46	0.00
5	1. Stair	67.22	258.81	67.22
		3820.38		3554.03

Walls

Total System R-values of all walls include the effects of thermal bridging, which are calculated in accordance with AS/NZS 4859.2 and NZ 4214:2006 (as per J4D3 Thermal Construction — General (5)) or are stated values.

For the purpose of the Reference Building, the wall total system R-value of the wall-glazing construction has been calculated in accordance with J4D6 Walls and Glazing and Specification 37 Calculation of U-Value and solar admittance.

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
Exposed to Unconditioned	Concept	9B	1.52	330.57
Exposed to Unconditioned	Precast	9B	1.57	34.80
External	Concept	9B	1.52	598.80

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
External	Fibre Cement	9B	1.42	265.66
External	NORTH COLUMN	9B	1.88	13.72
External	Precast	9B	1.57	443.69
External	South Column	9B	2.05	44.40
Reference	**Title**	**Class**	**R-Value (m²K°/W)**	**Area (m²)**
Exposed to Unconditioned	Concept	9B	1.00	330.57
Exposed to Unconditioned	Precast	9B	1.00	34.80
External	Concept	9B	1.00	598.80
External	Fibre Cement	9B	1.00	265.66
External	NORTH COLUMN	9B	1.00	13.72
External	Precast	9B	1.00	443.69
External	South Column	9B	1.00	44.40

Roofs

Total system R-values of all roofs include the effects of thermal bridging are calculated in accordance with AS/NZS 4859.2 and NZ 4214:2006 (as per J4D3 Thermal Construction — General (5)) or are stated values.

For the purpose of the Reference Building, the roof total system R-value has been assumed in accordance with J4D4 Roof and ceiling construction.

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
External	Concept	9B	4.03	879.32
Top	Concept	9B	4.03	70.54
Reference	**Title**	**Class**	**R-Value (m²K°/W)**	**Area (m²)**
External	Concept	9B	3.70	879.32
Top	Concept	9B	3.70	70.54

Floors

Total system R-values of all floors include the effects of thermal bridging are calculated in accordance with AS/NZS 4859.2, NZ 4214:2006 and Section 3.5 of CIBSE Guide A (as per J4D3 Thermal Construction — General (5)) or are stated values

For the purpose of the Reference Building, the floor total system R-value has been assumed in accordance with J4D7 Floors.

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
Bottom	Concept	9B	2.24	669.52
Exposed to Unconditioned	Concept	9B	2.24	180.31
External	Concept	9B	2.24	270.73
Reference	**Title**	**Class**	**R-Value (m²K°/W)**	**Area (m²)**
Bottom	Concept	9B	2.00	669.52
Exposed to Unconditioned	Concept	9B	2.00	180.31
External	Concept	9B	2.00	270.73

Windows

Total system U-values of all windows include the effects of thermal bridging at the frame, which are calculated in accordance with ISO 15099, as per J4D3 Thermal Construction — General (5).

For the purpose of the Reference Building, the glazing total system U-value and solar admittance of the wall-glazing construction has been calculated in accordance with J4D6 Walls and Glazing and Specification 37 Calculation of U-Value and solar admittance.

Proposed	Title	Class	U-value	SHGC	Area (m²)
External	2400 ^700	9B	3.90	0.30	725.14
External	Concept	9B	3.90	0.30	226.64
Reference	**Title**	**Class**	**U-value**	**SHGC**	**Area (m²)**
External	2400 ^700	9B	3.82	0.33	725.14
External	Concept	9B	3.82	0.33	226.64

Location and Climate

This development is located at Adelaide-Kent.Town,SA AUS. The climate file used in all simulations was AUS_SA_Adelaide-Kent.Town.946750_TMYx.2007-2021, sourced from Climate.OneBuilding, an online repository collated from public sources. http://www.climate.onebuilding.org/.

Occupants

Occupant density (m²/person) are stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building occupant densities are

identical.

Space	Building Class	Activity	Occupancy Density	Clothing	Air Velocity (m/s)
Default	9B	Generic Building	2.0	0.7	0.1

Lighting

Lighting power density (W/m²) is stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building equipment density have been nominated as identical.

Space	Building Class	Space	W/m²
Default	9B	Generic Building	4.5

Equipment

Equipment density (W/m²) are stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building equipment density are identical.

Space	Building Class	Space	W/m²
Default	9B	Generic Building	10.0

Air-Conditioning

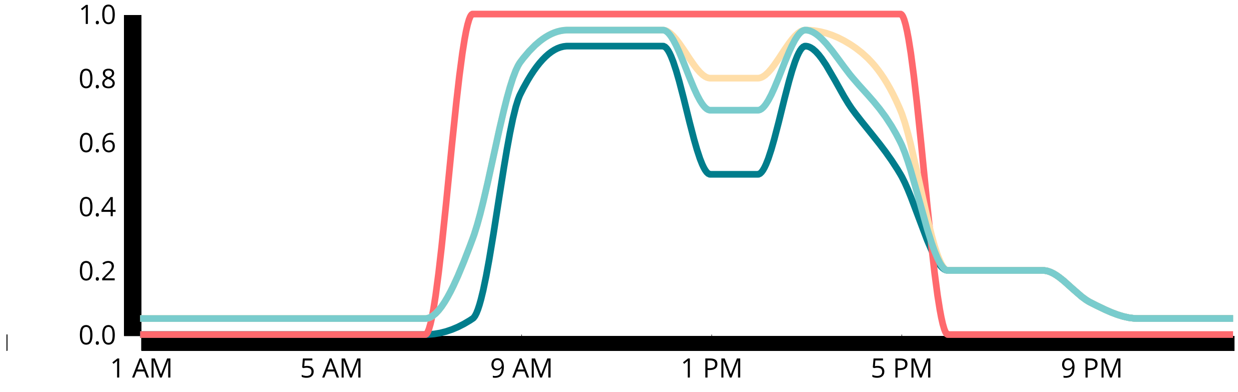
As a fabric only assessment, air-condition equipment and mechanical ventilation rates for the Reference and Proposed Building are identical. Minimum mechanical ventilation is required as per Part F6P3 Outdoor air supply.

Thermostat Details

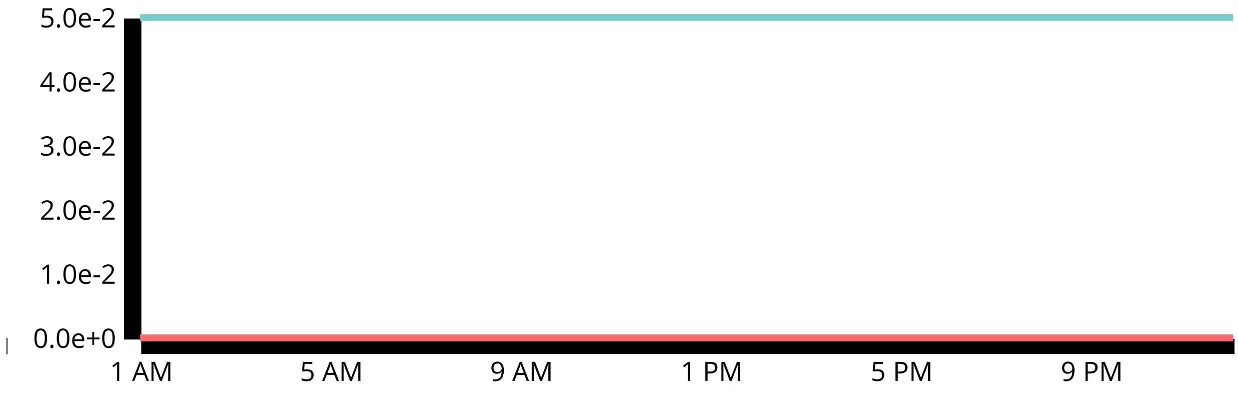
Space	Building Class	Space	Cooling Set Point (°C)	Heating Set Point (°C)
Default	9B	Generic Building	22.5	21.5

Profiles

Space - Default
Typical Day



Weekend



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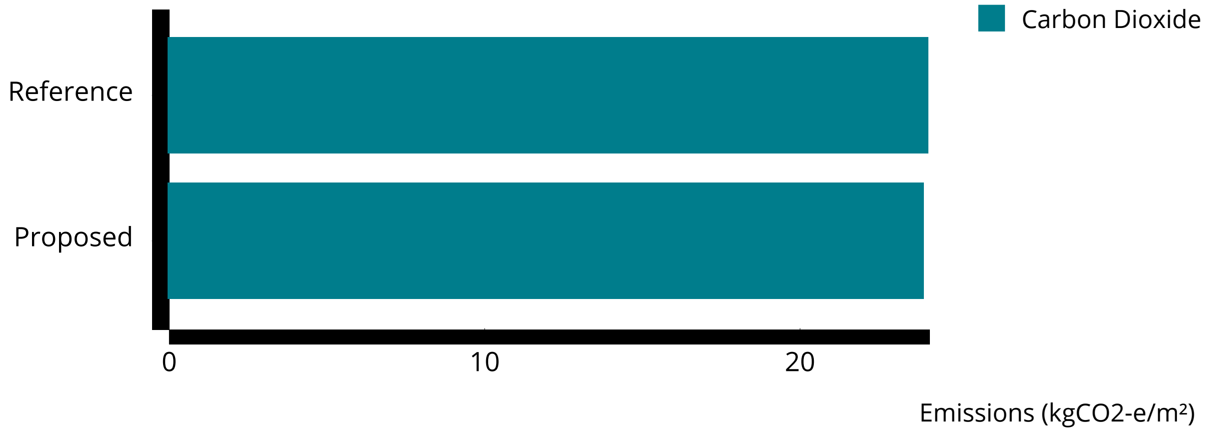
Detailed Results

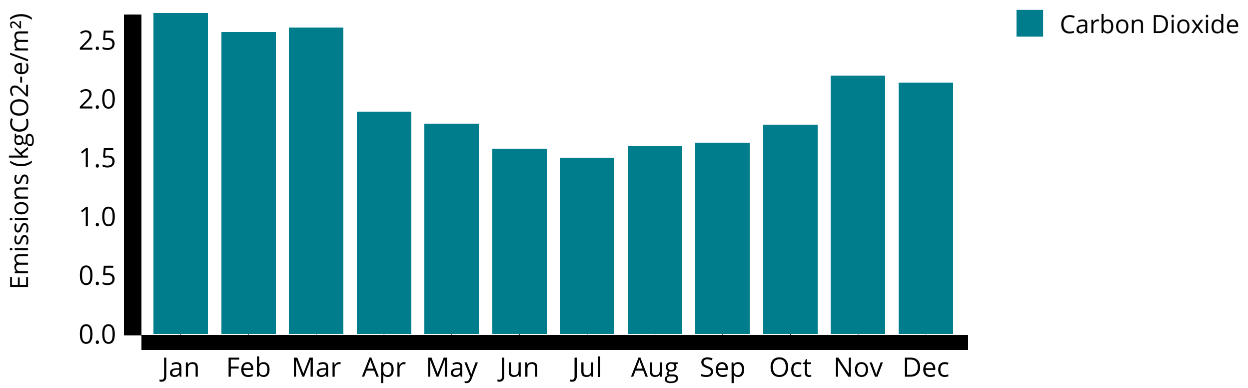
Building Emissions

To meet the acceptance criteria, annual Supplied Energy emissions must be less than **24.11** kgCO2-e/m². Based on a treated floor area of 3554.03 m², the simulated building achieved **23.97** kgCO2-e/m², **meeting** the acceptance criteria.



Greenhouse gas emission factors have been nominated as **101.00** kilogram / GJ for electricity , and **51.53** kilogram / GJ for natural gas.

Proposed



Meter	Emissions (kgCO2-e)	Emissions (kgCO2-e/m²)
Emissions	85173.43	23.97

Electricity Purchased

Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Jan	26645.12	7.50	258.28	31 Jan 14:15
Feb	25086.40	7.06	252.78	3 Feb 10:00

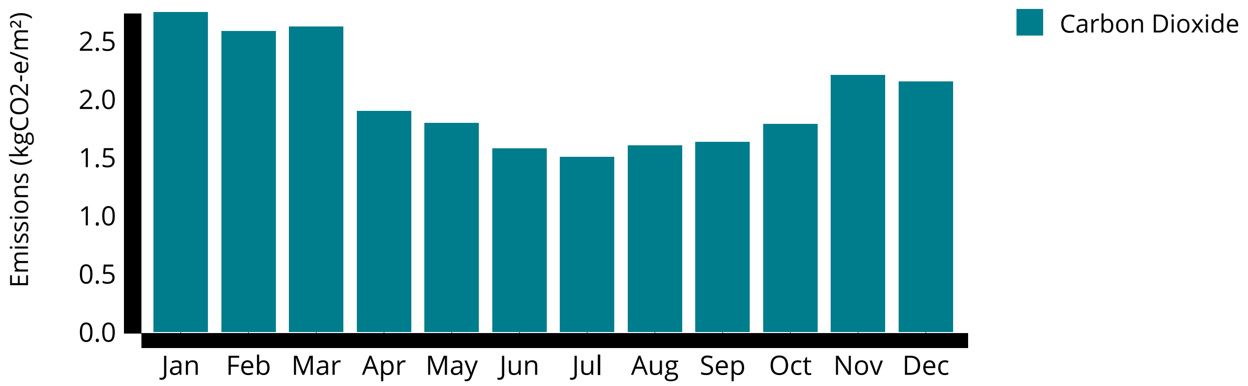
Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Mar	25463.37	7.16	244.94	2 Mar 14:30
Apr	18440.95	5.19	179.92	6 Apr 14:00
May	17448.78	4.91	128.98	15 May 07:15
Jun	15361.54	4.32	152.17	29 Jun 07:15
Jul	14612.39	4.11	170.26	18 Jul 07:15
Aug	15589.84	4.39	155.15	2 Aug 07:15
Sep	15865.86	4.46	123.86	22 Sep 14:00
Oct	17377.41	4.89	119.43	11 Oct 14:15
Nov	21464.48	6.04	214.61	9 Nov 14:15
Dec	20894.11	5.88	152.45	7 Dec 14:30
Total	234250.27	65.91	258.28	31 Jan 14:15

Gas Demand

The simulated building did not include Gas Demand.

Reference

The Reference Building simulated results are shown below, which sets the acceptance criteria threshold.



Meter	Emissions (kgCO2-e)	Emissions (kgCO2-e/m²)
Emissions	85683.63	24.11

Electricity Purchased

Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Jan	26843.02	7.55	261.01	31 Jan 14:15

Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Feb	25278.62	7.11	255.41	3 Feb 10:00
Mar	25642.68	7.22	247.50	2 Mar 14:30
Apr	18559.46	5.22	182.05	6 Apr 14:00
May	17537.32	4.93	128.84	15 May 07:15
Jun	15426.22	4.34	152.60	29 Jun 07:15
Jul	14695.72	4.13	170.38	18 Jul 07:15
Aug	15654.00	4.40	155.46	2 Aug 07:15
Sep	15939.10	4.48	124.69	22 Sep 14:00
Oct	17473.06	4.92	120.36	11 Oct 14:15
Nov	21581.79	6.07	216.78	9 Nov 14:15
Dec	21022.55	5.92	153.62	7 Dec 14:30
Total	235653.54	66.31	261.01	31 Jan 14:15

Gas Demand

The simulated building did not include Gas Demand.

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Thermal Comfort (PMV)

To meet the acceptance criteria, **95** % of total area across the assessed zones must meet the conditions:

- zone thermal comfort (pmv) is between -1.0 and 1.0 PMV
- for at least 98 % of hours
- when above 20 % occupancy

A total area of 3481.21 m² across 77 zones were assessed, where zones of **100.00** % area achieved the conditions, **meeting** the acceptance criteria.

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
1	20. Sensory	8.90	2340	2339	99.96	✓
1	4. GLA	66.51	2340	2340	100.00	✓
1	6. GLA	60.95	2340	2340	100.00	✓
1	2. Foyer	87.94	2340	2336	99.83	✓
1	13. Office	18.04	2340	2332	99.66	✓
1	14. Store	13.92	2340	2338	99.91	✓
1	3. GLA	72.33	2340	2329	99.53	✓
1	21. Airlock	8.44	2340	2308	98.63	✓
1	23. Comms	5.35	2340	2339	99.96	✓
1	18. Office	10.31	2340	2340	100.00	✓
1	15. Office	11.62	2340	2339	99.96	✓
1	1. Breakout	106.88	2340	2327	99.44	✓
1	8. Hallway	28.39	2340	2339	99.96	✓
1	25. Cleaners	0.83	2340	2335	99.79	✓
1	16. Office	11.22	2340	2332	99.66	✓
1	24. Void	2.51	2340	2338	99.91	✓
1	10. Stairs	22.70	2340	2339	99.96	✓
1	19. Quiet	9.53	2340	2339	99.96	✓
1	5. GLA	63.59	2340	2332	99.66	✓
1	11. MTG	22.33	2340	2340	100.00	✓

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Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
2	17. Sensory	8.01	2340	2340	100.00	✓
2	1. bREAKOUT	179.78	2340	2322	99.23	✓
2	4. GLA	68.35	2340	2335	99.79	✓
2	5. GLA	65.49	2340	2338	99.91	✓
2	7. GLA	63.60	2340	2336	99.83	✓
2	10. Breakout	63.08	2340	2340	100.00	✓
2	3. Hallway	69.80	2340	2340	100.00	✓
2	9. GLA	63.20	2340	2337	99.87	✓
2	12. WC	31.36	2340	2340	100.00	✓
2	16. Quiet	9.27	2340	2340	100.00	✓
2	11. Stair	51.29	2340	2340	100.00	✓
2	18. Quiet	8.04	2340	2340	100.00	✓
2	14. MTG	17.56	2340	2340	100.00	✓
2	19. Sensory	8.04	2340	2340	100.00	✓
2	8. GLA	63.35	2340	2338	99.91	✓
2	6. GLA	63.91	2340	2338	99.91	✓
2	21. Void	3.14	2340	2340	100.00	✓
2	2. GLA	87.56	2340	2327	99.44	✓
3	6. GLA	64.04	2340	2340	100.00	✓
3	3. Hallway	69.77	2340	2340	100.00	✓
3	12. WC	31.36	2340	2340	100.00	✓
3	4. GLA	68.35	2340	2337	99.87	✓
3	21. COMMS	4.99	2340	2340	100.00	✓
3	7. GLA	63.60	2340	2335	99.79	✓
3	5. GLA	65.49	2340	2337	99.87	✓

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
3	1. bREAKOUT	191.99	2340	2322	99.23	✓
3	10. Breakout	63.05	2340	2340	100.00	✓
3	2. GLA	76.90	2340	2334	99.74	✓
3	8. GLA	63.35	2340	2338	99.91	✓
3	17. Sensory	8.01	2340	2340	100.00	✓
3	11. Stair	51.29	2340	2340	100.00	✓
3	18. Quiet	8.04	2340	2340	100.00	✓
3	14. MTG	17.56	2340	2340	100.00	✓
3	20. Sensory	8.04	2340	2340	100.00	✓
3	9. GLA	63.51	2340	2338	99.91	✓
3	22. Void	3.14	2340	2340	100.00	✓
3	16. Sensory	8.57	2340	2340	100.00	✓
4	14. MTG	16.67	2340	2340	100.00	✓
4	15. MTG	16.66	2340	2340	100.00	✓
4	1. bREAKOUT	191.91	2340	2322	99.23	✓
4	16. MTG	16.46	2340	2340	100.00	✓
4	6. GLA	62.99	2340	2335	99.79	✓
4	7. Breakout	63.49	2340	2340	100.00	✓
4	2. Hallway	69.42	2340	2340	100.00	✓
4	5. GLA	63.60	2340	2335	99.79	✓
4	4. GLA	63.48	2340	2333	99.70	✓
4	10. GLA	61.98	2340	2333	99.70	✓
4	8. GLA	62.49	2340	2333	99.70	✓
4	21. Quiet	8.04	2340	2340	100.00	✓
4	9. GLA	62.31	2340	2333	99.70	✓

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
4	11. Stair	51.29	2340	2340	100.00	✓
4	22. Void	3.14	2340	2340	100.00	✓
4	19. Sensory	8.01	2340	2340	100.00	✓
4	18. Sensory	8.57	2340	2340	100.00	✓
4	3. GLA	64.04	2340	2340	100.00	✓
4	12. WC	31.36	2340	2340	100.00	✓
5	1. Stair	67.22	2340	2327	99.44	✓
					Pass	✓

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
1	20. Sensory	8.90	1.0	107.0	1957.0	275.0	0.0	0.0
1	1. Breakout	106.88	3.0	151.0	1611.0	556.0	9.0	10.0
1	24. Void	2.51	2.0	315.0	1890.0	133.0	0.0	0.0
1	25. Cleaners	0.83	5.0	368.0	1866.0	101.0	0.0	0.0
1	16. Office	11.22	8.0	263.0	1567.0	502.0	0.0	0.0
1	11. MTG	22.33	0.0	78.0	1345.0	917.0	0.0	0.0
1	10. Stairs	22.70	1.0	102.0	1982.0	255.0	0.0	0.0
1	19. Quiet	9.53	1.0	166.0	1883.0	290.0	0.0	0.0
1	5. GLA	63.59	8.0	187.0	1568.0	573.0	4.0	0.0
1	15. Office	11.62	1.0	128.0	1940.0	271.0	0.0	0.0
1	8. Hallway	28.39	1.0	164.0	1838.0	337.0	0.0	0.0
1	23. Comms	5.35	1.0	146.0	1997.0	196.0	0.0	0.0
1	18. Office	10.31	0.0	161.0	1338.0	823.0	18.0	0.0
1	21. Airlock	8.44	32.0	517.0	1141.0	643.0	7.0	0.0
1	3. GLA	72.33	10.0	170.0	1504.0	643.0	12.0	1.0
1	14. Store	13.92	2.0	203.0	1821.0	314.0	0.0	0.0

BESTEC

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
1	13. Office	18.04	8.0	249.0	1233.0	834.0	16.0	0.0
1	2. Foyer	87.94	0.0	132.0	1753.0	441.0	10.0	4.0
1	6. GLA	60.95	0.0	90.0	1491.0	759.0	0.0	0.0
1	4. GLA	66.51	0.0	78.0	1430.0	826.0	6.0	0.0
2	2. GLA	87.56	0.0	33.0	630.0	1612.0	52.0	13.0
2	21. Void	3.14	0.0	52.0	2067.0	221.0	0.0	0.0
2	6. GLA	63.91	2.0	129.0	1499.0	704.0	6.0	0.0
2	16. Quiet	9.27	0.0	82.0	1915.0	343.0	0.0	0.0
2	8. GLA	63.35	2.0	128.0	1482.0	722.0	6.0	0.0
2	19. Sensory	8.04	0.0	46.0	1952.0	341.0	1.0	0.0
2	14. MTG	17.56	0.0	48.0	1903.0	389.0	0.0	0.0
2	18. Quiet	8.04	0.0	58.0	1933.0	349.0	0.0	0.0
2	11. Stair	51.29	0.0	21.0	803.0	1443.0	73.0	0.0
2	12. WC	31.36	0.0	28.0	1611.0	701.0	0.0	0.0
2	17. Sensory	8.01	0.0	39.0	1311.0	990.0	0.0	0.0
2	9. GLA	63.20	3.0	130.0	1507.0	694.0	6.0	0.0
2	3. Hallway	69.80	0.0	23.0	1348.0	962.0	7.0	0.0
2	10. Breakout	63.08	0.0	22.0	1181.0	1131.0	6.0	0.0
2	7. GLA	63.60	0.0	31.0	675.0	1536.0	94.0	4.0
2	5. GLA	65.49	2.0	120.0	1390.0	815.0	13.0	0.0
2	4. GLA	68.35	5.0	142.0	1538.0	646.0	9.0	0.0
2	1. bREAKOUT	179.78	0.0	33.0	1571.0	713.0	5.0	18.0
3	22. Void	3.14	0.0	38.0	2074.0	228.0	0.0	0.0
3	9. GLA	63.51	2.0	116.0	1474.0	742.0	6.0	0.0
3	8. GLA	63.35	2.0	118.0	1462.0	752.0	6.0	0.0

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
3	20. Sensory	8.04	0.0	41.0	1947.0	351.0	1.0	0.0
3	14. MTG	17.56	0.0	43.0	1904.0	393.0	0.0	0.0
3	18. Quiet	8.04	0.0	52.0	1937.0	351.0	0.0	0.0
3	11. Stair	51.29	0.0	14.0	711.0	1528.0	87.0	0.0
3	17. Sensory	8.01	0.0	19.0	1207.0	1114.0	0.0	0.0
3	16. Sensory	8.57	0.0	57.0	583.0	1607.0	93.0	0.0
3	2. GLA	76.90	2.0	122.0	1446.0	756.0	10.0	4.0
3	1. bREAKOUT	191.99	0.0	28.0	1397.0	889.0	8.0	18.0
3	6. GLA	64.04	0.0	22.0	766.0	1526.0	26.0	0.0
3	3. Hallway	69.77	0.0	25.0	1636.0	674.0	5.0	0.0
3	12. WC	31.36	0.0	14.0	1559.0	767.0	0.0	0.0
3	10. Breakout	63.05	0.0	10.0	652.0	1649.0	29.0	0.0
3	21. COMMS	4.99	0.0	15.0	1988.0	337.0	0.0	0.0
3	7. GLA	63.60	0.0	20.0	588.0	1617.0	110.0	5.0
3	5. GLA	65.49	3.0	118.0	1360.0	843.0	16.0	0.0
3	4. GLA	68.35	3.0	132.0	1529.0	667.0	9.0	0.0
4	22. Void	3.14	0.0	88.0	2016.0	236.0	0.0	0.0
4	11. Stair	51.29	0.0	21.0	729.0	1501.0	89.0	0.0
4	12. WC	31.36	0.0	33.0	1607.0	700.0	0.0	0.0
4	19. Sensory	8.01	0.0	44.0	1306.0	990.0	0.0	0.0
4	18. Sensory	8.57	0.0	69.0	602.0	1573.0	96.0	0.0
4	3. GLA	64.04	0.0	40.0	876.0	1392.0	32.0	0.0
4	21. Quiet	8.04	0.0	88.0	1925.0	327.0	0.0	0.0
4	8. GLA	62.49	7.0	137.0	1455.0	735.0	6.0	0.0
4	9. GLA	62.31	7.0	137.0	1466.0	724.0	6.0	0.0

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
4	10. GLA	61.98	7.0	140.0	1445.0	742.0	6.0	0.0
4	14. MTG	16.67	0.0	65.0	1889.0	385.0	1.0	0.0
4	15. MTG	16.66	0.0	74.0	1896.0	369.0	1.0	0.0
4	1. bREAKOUT	191.91	0.0	46.0	1351.0	916.0	9.0	18.0
4	16. MTG	16.46	0.0	68.0	1891.0	380.0	1.0	0.0
4	7. Breakout	63.49	0.0	37.0	1205.0	1083.0	15.0	0.0
4	2. Hallway	69.42	0.0	37.0	1368.0	924.0	11.0	0.0
4	5. GLA	63.60	0.0	33.0	682.0	1526.0	94.0	5.0
4	6. GLA	62.99	5.0	141.0	1350.0	829.0	15.0	0.0
4	4. GLA	63.48	7.0	154.0	1514.0	659.0	6.0	0.0
5	1. Stair	67.22	0.0	75.0	1033.0	1158.0	61.0	13.0

BESTEC

Shading Multiplier

Each window of the reference building has been simulated to determine the ratio of shaded versus unshaded annual average incident radiation. These results supersede the values determined by the deemed-to-satisfy process to develop the reference building.

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
1	21.60	180.0	28.19	50.78	0.56
1	20.24	179.9	32.17	50.78	0.63
1	15.96	180.0	29.56	50.78	0.58
1	15.46	180.1	19.36	50.78	0.38
1	14.88	180.0	30.00	50.78	0.59
1	12.48	0.0	82.85	146.42	0.57
1	11.76	180.0	33.51	50.78	0.66
1	9.36	0.0	122.44	146.42	0.84
1	9.36	0.0	140.32	146.42	0.96
1	8.88	180.0	26.44	50.78	0.52
1	6.72	180.0	28.38	50.78	0.56
1	5.52	180.0	17.20	50.78	0.34
1	5.44	0.0	79.15	146.42	0.54
1	4.56	180.0	15.23	50.78	0.30
1	4.48	90.0	116.13	122.43	0.95
1	4.16	90.0	116.18	122.43	0.95
1	4.08	90.0	43.65	122.43	0.36
1	3.36	90.0	12.59	122.43	0.10
1	3.12	180.0	30.86	50.78	0.61
1	2.70	0.0	137.11	146.42	0.94
1	2.70	0.0	134.06	146.42	0.92
1	1.68	90.0	13.60	122.43	0.11
1	1.61	206.6	25.70	62.80	0.41

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
1	1.44	180.0	30.64	50.78	0.60
1	1.29	248.2	17.97	102.67	0.18
2	28.56	0.0	145.96	146.42	1.00
2	23.40	0.0	110.11	146.42	0.75
2	18.96	0.0	144.53	146.42	0.99
2	18.00	0.0	142.68	146.42	0.97
2	13.68	180.0	42.89	50.78	0.84
2	8.88	180.0	45.55	50.78	0.90
2	8.88	0.0	104.31	146.42	0.71
2	8.88	180.0	46.38	50.78	0.91
2	8.88	180.0	45.29	50.78	0.89
2	8.88	180.0	45.17	50.78	0.89
2	8.64	180.0	45.26	50.78	0.89
2	8.64	180.0	47.14	50.78	0.93
2	7.68	180.0	45.09	50.78	0.89
2	7.20	180.0	45.38	50.78	0.89
2	7.20	90.0	120.64	122.43	0.99
2	6.96	180.0	45.83	50.78	0.90
2	6.00	90.0	90.43	122.43	0.74
2	5.76	180.0	45.20	50.78	0.89
2	4.32	0.0	136.03	146.42	0.93
2	4.08	180.0	47.77	50.78	0.94
2	3.36	180.0	45.22	50.78	0.89
2	3.12	0.0	140.65	146.42	0.96
2	3.12	90.0	119.72	122.43	0.98

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
2	2.40	0.0	122.00	146.42	0.83
2	1.92	180.0	46.02	50.78	0.91
2	1.68	180.0	45.34	50.78	0.89
2	1.44	0.0	127.09	146.42	0.87
2	1.20	180.0	44.97	50.78	0.89
3	23.40	0.0	112.47	146.42	0.77
3	20.40	180.0	48.23	50.78	0.95
3	18.96	0.0	145.22	146.42	0.99
3	18.00	0.0	143.86	146.42	0.98
3	18.00	180.0	47.12	50.78	0.93
3	17.52	0.0	143.32	146.42	0.98
3	17.28	180.0	47.48	50.78	0.93
3	16.80	0.0	112.48	146.42	0.77
3	16.08	180.0	47.11	50.78	0.93
3	13.68	180.0	44.32	50.78	0.87
3	12.00	180.0	47.13	50.78	0.93
3	7.20	180.0	47.24	50.78	0.93
3	7.20	90.0	121.20	122.43	0.99
3	6.96	0.0	135.41	146.42	0.92
3	6.00	90.0	90.09	122.43	0.74
3	4.32	0.0	138.21	146.42	0.94
3	4.08	180.0	48.80	50.78	0.96
3	3.12	180.0	47.16	50.78	0.93
3	3.12	0.0	142.48	146.42	0.97
3	3.12	90.0	120.76	122.43	0.99

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
3	1.92	180.0	47.73	50.78	0.94
3	1.20	180.0	46.72	50.78	0.92
4	23.40	0.0	116.46	146.42	0.80
4	20.40	180.0	48.97	50.78	0.96
4	18.96	0.0	145.61	146.42	0.99
4	18.00	180.0	48.40	50.78	0.95
4	18.00	0.0	144.80	146.42	0.99
4	17.52	0.0	143.39	146.42	0.98
4	17.28	180.0	48.48	50.78	0.95
4	16.80	0.0	115.59	146.42	0.79
4	13.68	180.0	45.65	50.78	0.90
4	12.24	180.0	48.29	50.78	0.95
4	12.00	180.0	48.30	50.78	0.95
4	7.20	90.0	121.58	122.43	0.99
4	7.20	180.0	48.34	50.78	0.95
4	6.96	180.0	48.30	50.78	0.95
4	6.96	0.0	137.49	146.42	0.94
4	6.00	90.0	92.66	122.43	0.76
4	4.32	0.0	140.76	146.42	0.96
4	4.08	180.0	49.35	50.78	0.97
4	3.12	0.0	143.97	146.42	0.98
4	3.12	90.0	121.31	122.43	0.99
4	1.92	180.0	48.69	50.78	0.96
4	1.20	180.0	48.33	50.78	0.95
5	23.40	0.0	127.42	146.42	0.87

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
5	13.80	180.0	48.44	50.78	0.95
5	9.30	90.0	79.73	122.43	0.65

Building Class 9B

Method Two

AC Energy Threshold	421.43
U-Value Threshold (W/m².K)	2.00
Reference Window U-Value (W/m².K)	3.82
Reference Window SHGC	0.33
Reference Wall R-Value (m².K/W)	1.00
Total Area (m²)	2683.41
Window-Wall Ratio	0.35

Method One - North Aspect

Reference Window U-Value (W/m².K)	3.39
Reference Window SHGC	0.30
Reference Wall R-Value (m².K/W)	1.00
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	2.28
Aspect Area (m²)	938.69
Window-Wall Ratio	0.42

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	0.0	3.82	0.33	8.88	0.71
2400 ^700	0.0	3.82	0.33	16.80	0.77
2400 ^700	0.0	3.82	0.33	16.80	0.79

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	0.0	3.82	0.33	6.96	0.93
2400 ^700	0.0	3.82	0.33	4.32	0.93
2400 ^700	0.0	3.82	0.33	6.96	0.94
2400 ^700	0.0	3.82	0.33	4.32	0.94
2400 ^700	0.0	3.82	0.33	7.44	0.96
2400 ^700	0.0	3.82	0.33	3.12	0.97
2400 ^700	0.0	3.82	0.33	18.00	0.97
2400 ^700	0.0	3.82	0.33	35.04	0.98
2400 ^700	0.0	3.82	0.33	21.12	0.98
2400 ^700	0.0	3.82	0.33	18.96	0.99
2400 ^700	0.0	3.82	0.33	18.00	0.99
2400 ^700	0.0	3.82	0.33	18.96	0.99
2400 ^700	0.0	3.82	0.33	18.96	0.99
2400 ^700	0.0	3.82	0.33	28.56	1.00
2400 ^700	0.0	3.82	0.33	1.44	0.87
Concept	0.0	3.82	0.33	23.40	0.75
Concept	0.0	3.82	0.33	23.40	0.77
Concept	0.0	3.82	0.33	23.40	0.80
Concept	0.0	3.82	0.33	2.40	0.83
Concept	0.0	3.82	0.33	9.36	0.84
Concept	0.0	3.82	0.33	23.40	0.87
Concept	0.0	3.82	0.33	2.70	0.92
Concept	0.0	3.82	0.33	2.70	0.94
Concept	0.0	3.82	0.33	9.36	0.96
Concept	0.0	3.82	0.33	5.44	0.54

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
Concept	0.0	3.82	0.33	12.48	0.57

Method One - East Aspect

Reference Window U-Value (W/m².K)	5.80
Reference Window SHGC	0.68
Reference Wall R-Value (m².K/W)	1.40
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	1.72
Aspect Area (m²)	439.85
Window-Wall Ratio	0.17

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	90.0	3.82	0.33	3.12	0.98
2400 ^700	90.0	3.82	0.33	7.20	0.98
2400 ^700	90.0	3.82	0.33	3.12	0.99
2400 ^700	90.0	3.82	0.33	7.20	0.99
2400 ^700	90.0	3.82	0.33	3.12	0.99
2400 ^700	90.0	3.82	0.33	7.20	0.99
2400 ^700	90.0	3.82	0.33	1.68	0.11
Concept	90.0	3.82	0.33	6.00	0.74
Concept	90.0	3.82	0.33	6.00	0.74
Concept	90.0	3.82	0.33	6.00	0.76
Concept	90.0	3.82	0.33	4.48	0.95
Concept	90.0	3.82	0.33	4.16	0.95
Concept	90.0	3.82	0.33	4.08	0.36
Concept	90.0	3.82	0.33	9.30	0.65

BESTEC

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
Concept	90.0	3.82	0.33	3.36	0.10

Method One - South Aspect

Reference Window U-Value (W/m².K)	2.93
Reference Window SHGC	0.29
Reference Wall R-Value (m².K/W)	1.00
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	1.00
Aspect Area (m²)	928.30
Window-Wall Ratio	0.52

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	179.9	3.82	0.33	20.24	0.63
2400 ^700	180.0	3.82	0.33	13.68	0.84
2400 ^700	180.0	3.82	0.33	13.68	0.87
2400 ^700	180.0	3.82	0.33	7.68	0.89
2400 ^700	180.0	3.82	0.33	8.88	0.89
2400 ^700	180.0	3.82	0.33	5.76	0.89
2400 ^700	180.0	3.82	0.33	12.00	0.89
2400 ^700	180.0	3.82	0.33	8.88	0.89
2400 ^700	180.0	3.82	0.33	7.20	0.89
2400 ^700	180.0	3.82	0.33	8.88	0.90
2400 ^700	180.0	3.82	0.33	13.68	0.90
2400 ^700	180.0	3.82	0.33	6.96	0.90
2400 ^700	180.0	3.82	0.33	8.88	0.91
2400 ^700	180.0	3.82	0.33	54.72	0.93

BESTEC

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	180.0	3.82	0.33	3.12	0.93
2400 ^700	180.0	3.82	0.33	7.20	0.93
2400 ^700	180.0	3.82	0.33	17.28	0.94
2400 ^700	180.0	3.82	0.33	4.08	0.94
2400 ^700	180.0	3.82	0.33	20.40	0.95
2400 ^700	180.0	3.82	0.33	31.20	0.95
2400 ^700	180.0	3.82	0.33	7.20	0.95
2400 ^700	180.0	3.82	0.33	18.00	0.95
2400 ^700	180.0	3.82	0.33	17.28	0.95
2400 ^700	180.0	3.82	0.33	4.08	0.96
2400 ^700	180.0	3.82	0.33	20.40	0.96
2400 ^700	180.0	3.82	0.33	4.08	0.97
2400 ^700	180.0	3.82	0.33	1.20	0.89
2400 ^700	180.0	3.82	0.33	1.68	0.89
2400 ^700	180.0	3.82	0.33	1.92	0.91
2400 ^700	180.0	3.82	0.33	1.20	0.92
2400 ^700	180.0	3.82	0.33	1.92	0.94
2400 ^700	180.0	3.82	0.33	1.20	0.95
2400 ^700	180.0	3.82	0.33	1.92	0.96
2400 ^700	180.0	3.82	0.33	14.88	0.59
2400 ^700	180.0	3.82	0.33	1.44	0.60
2400 ^700	180.0	3.82	0.33	3.12	0.61
2400 ^700	180.0	3.82	0.33	8.88	0.52
2400 ^700	180.0	3.82	0.33	6.72	0.56
2400 ^700	180.0	3.82	0.33	11.76	0.66

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	180.0	3.82	0.33	21.60	0.56
2400 ^700	180.0	3.82	0.33	5.52	0.34
2400 ^700	180.0	3.82	0.33	4.56	0.30
2400 ^700	206.6	3.82	0.33	1.61	0.41
Concept	180.0	3.82	0.33	15.96	0.58
Concept	180.0	3.82	0.33	13.80	0.95
Concept	180.1	3.82	0.33	15.46	0.38

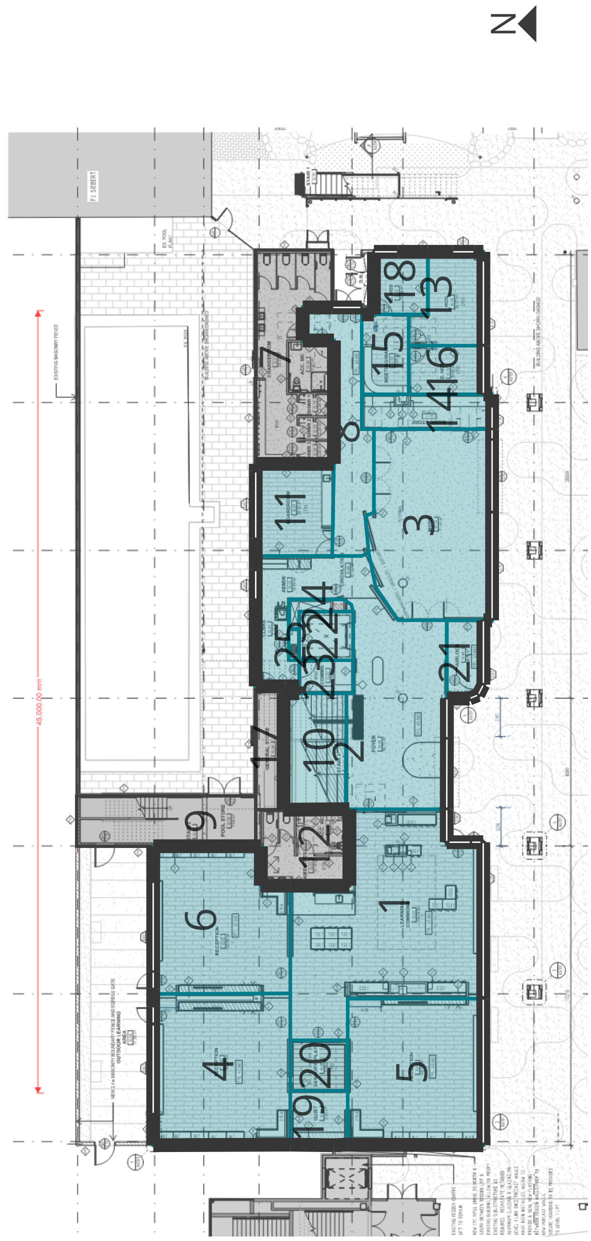
Method One - West Aspect

Reference Window U-Value (W/m².K)	5.80
Reference Window SHGC	0.81
Reference Wall R-Value (m².K/W)	1.40
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	0.00
Aspect Area (m²)	376.58
Window-Wall Ratio	0.00

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	248.2	3.82	0.33	1.29	0.17

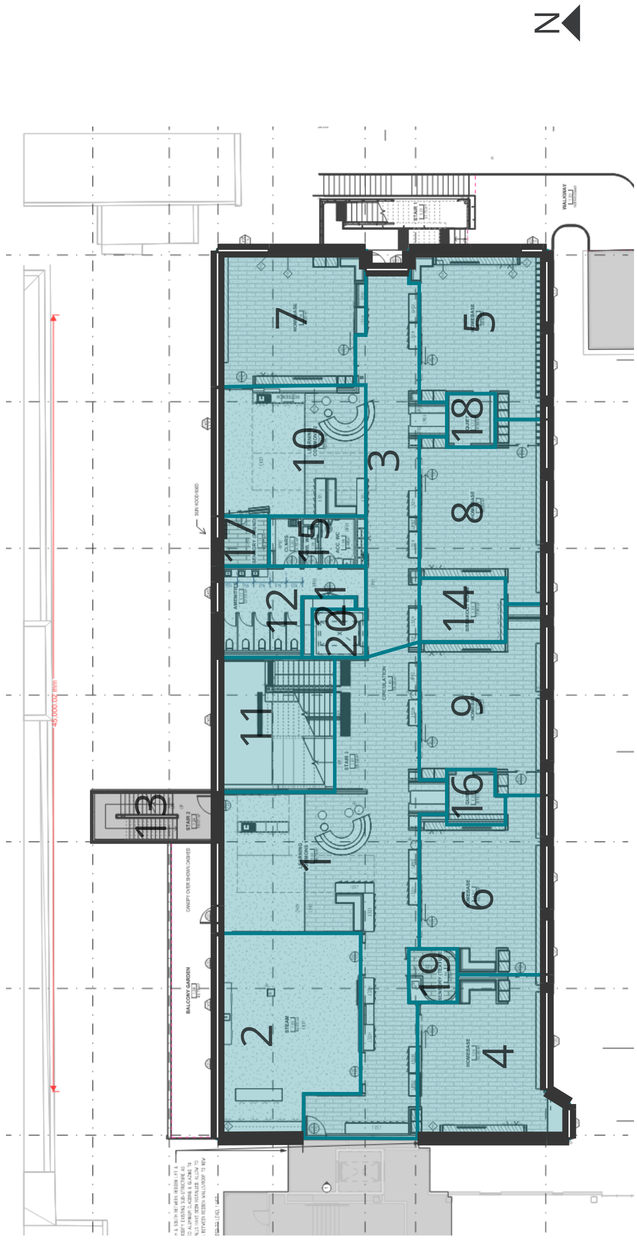
Drawings

Level 1 - GF



Thermal Line   Windows   Class 9B   Unconditioned

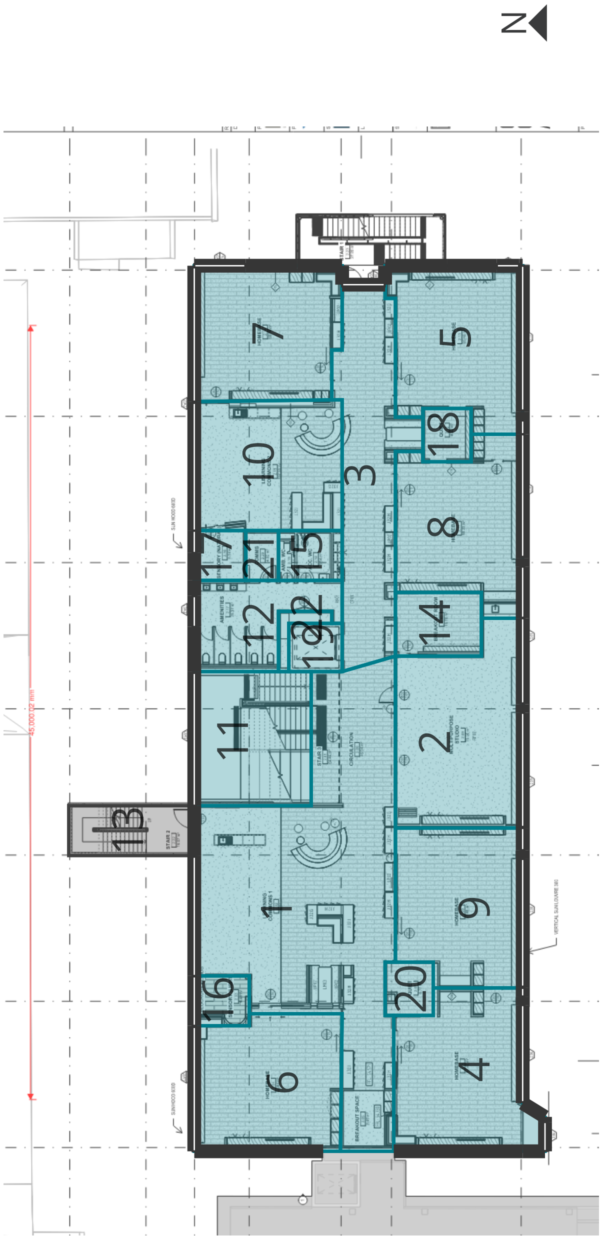
Level 2 - LV 1



Thermal Line Windows Class 9B Unconditioned

BESTEC

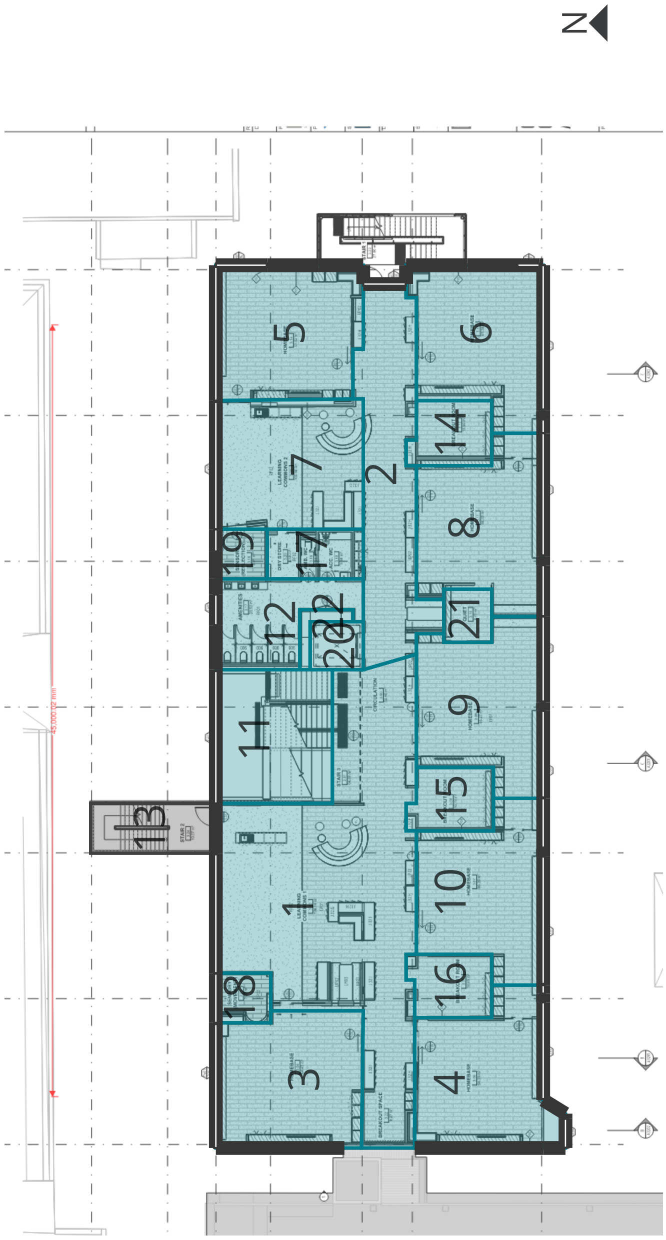
Level 3 - LV 2



Thermal Line   Windows   Class 9B   Unconditioned

BESTEC

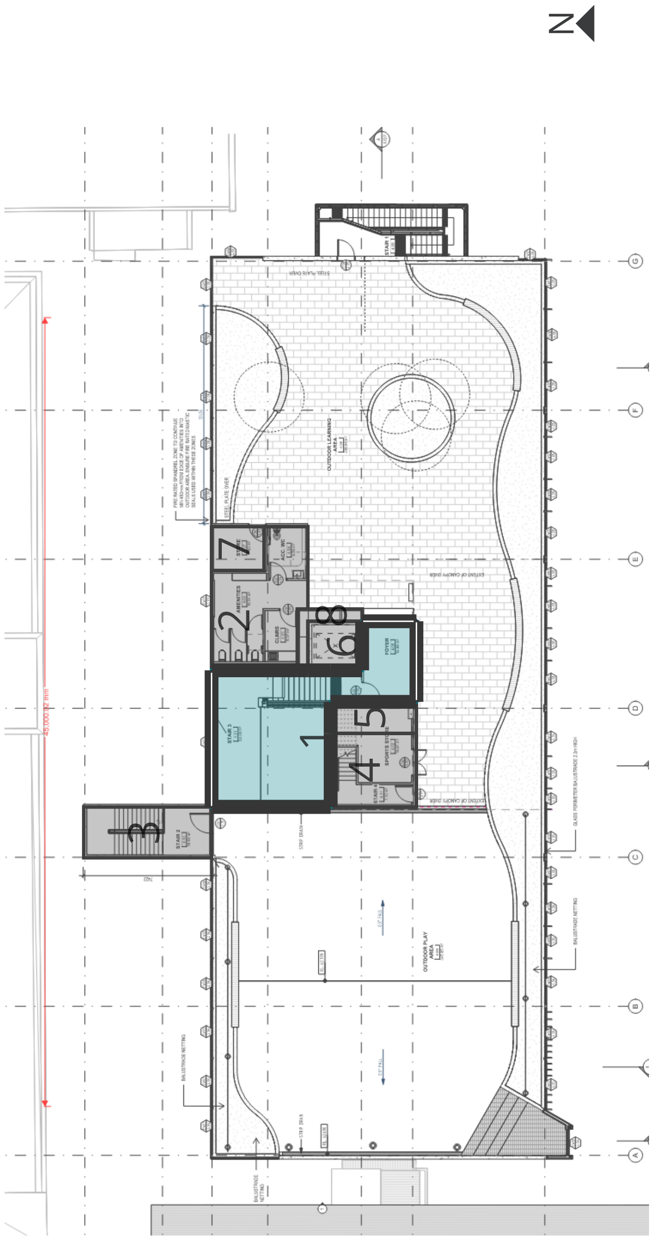
Level 4 - LV 3



Thermal Line
Windows
Class 9B
Unconditioned

BESTEC

Level 5 - Roof



Thermal Line

Windows

Unconditioned

Class 9B

BESTEC

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REAL PROPERTY ACT, 1886

South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 6181 Folio 901

Parent Title(s)	CT 6109/688, CT 6114/942				
Creating Dealing(s)	RTC 12605613				
Title Issued	14/10/2016	**Edition**	1	**Edition Issued**	14/10/2016

Estate Type

FEE SIMPLE

Registered Proprietor

MCAULEY PROPERTY LTD. (ACN: 151 537 450)
OF 1 THOMAS STREET LEWISHAM NSW 2049

Description of Land

ALLOTMENT 27 DEPOSITED PLAN 113190
IN THE AREA NAMED ADELAIDE
HUNDRED OF ADELAIDE

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED C ON D113190 (TG 11954064)

Schedule of Dealings

Dealing Number	Description
13288552	APPLICATION PURSUANT TO SECTION 103P(2) OF THE ENVIRONMENT PROTECTION ACT 1993 NOTING THAT A SITE CONTAMINATION AUDIT REPORT HAS BEEN PREPARED IN RESPECT OF THE WITHIN LAND AND IS TO BE FOUND IN THE REGISTER KEPT BY THE ENVIRONMENT PROTECTION AUTHORITY UNDER SECTION 109 OF THE ACT

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL

Registrar-General's Notes

PLAN FOR LEASE PURPOSES VIDE G175/2005
APPROVED FX51529

Administrative Interests

CONFIRMED IN SA HERITAGE REGISTER 11/09/1986

Certificate of Title

Title Reference: CT 6181/901

Status: CURRENT

Parent Title(s): CT 6109/688, CT 6114/942

Dealing(s) Creating Title: RTC 12605613

Title Issued: 14/10/2016

Edition: 1

Dealings

Lodgement Date	Completion Date	Dealing Number	Dealing Type	Dealing Status	Details
17/04/2020	27/04/2020	13288552	GENERAL APPLICATION	REGISTERED	ENVIRONMENT PROTECTION AUTHORITY

PURPOSE:	DIVISION	AREA NAME:	ADELAIDE	APPROVED: BILL SHEEKY 29/06/2016	D113190
MAP REF:	6628/42/J	COUNCIL:	THE CORPORATION OF THE CITY OF ADELAIDE	DEPOSITED: MARK MCNEIL 07/10/2016	SHEET 1 OF 2
LAST PLAN:		DEVELOPMENT NO:	020/D035/14/001/45562		52686_text_01_v04_Version_4

AGENT DETAILS: ALEXANDER & SYMONDS PTY LTD
1ST FLOOR 11 KING WILLIAM ST
KENT TOWN SA 5067
PH: 81301666
FAX: 83620099

AGENT CODE: ALSY

REFERENCE: A138014LTO(B)

SURVEYORS CERTIFICATION: I BRENTON ALLEN CARN , a licensed surveyor do hereby certify - 1) That this plan has been made from surveys carried out by me or under my personal supervision and in accordance with the Survey Act 1992. 2) That the field work was completed on the 20th day of May 2016
29th day of June 2016 Brenton Allen Carn Licensed Surveyor

SUBJECT TITLE DETAILS:

PREFIX	VOLUME	FOLIO	OTHER	PARCEL	NUMBER	PLAN	NUMBER	HUNDRED / IA / DIVISION	TOWN	REFERENCE NUMBER
CT	6109	688		ALLOTMENT(S)	1	D	17208	ADELAIDE		
CT	6114	942		ALLOTMENT(S)	2	D	17208	ADELAIDE		

OTHER TITLES AFFECTED:

EASEMENT DETAILS:

STATUS	LAND BURDENED	FORM	CATEGORY	IDENTIFIER	PURPOSE	IN FAVOUR OF	CREATION
EXTINGUISH	CT 6109/692	LONG	RIGHT(S) OF WAY WITH LIMITATIONS	D		1 IN D17208 NOW CONTAINED IN 27	TG 11908780
EXISTING	27	LONG	EASEMENT(S)	C			TG 11954064
EXISTING		LONG	RIGHT(S) OF WAY WITH LIMITATIONS	D		26	TG 11908780

ANNOTATIONS: NO OCCUPATION ON SUBJECT LAND BOUNDARIES UNLESS OTHERWISE SHOWN

D113190

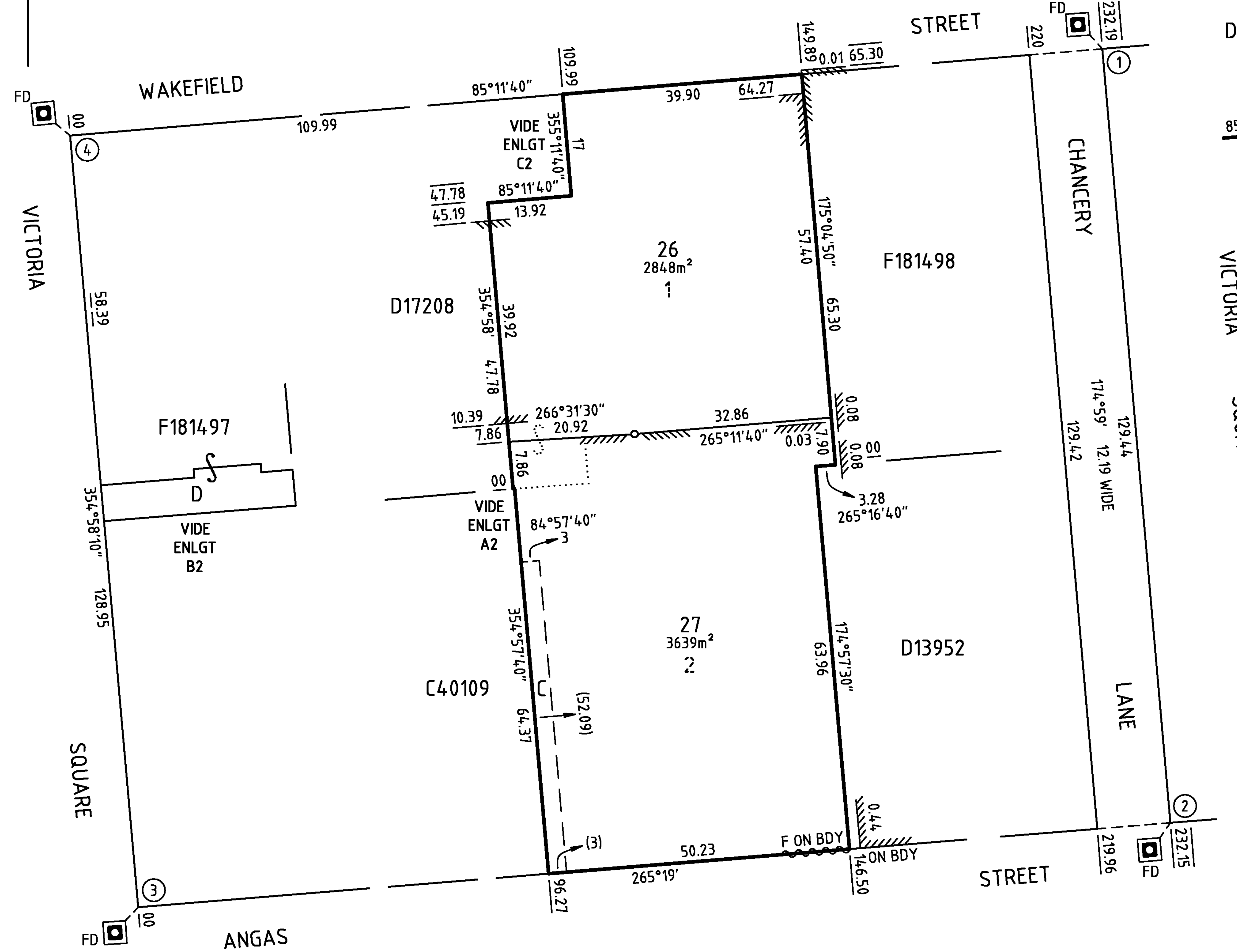
SHEET 2 OF 2

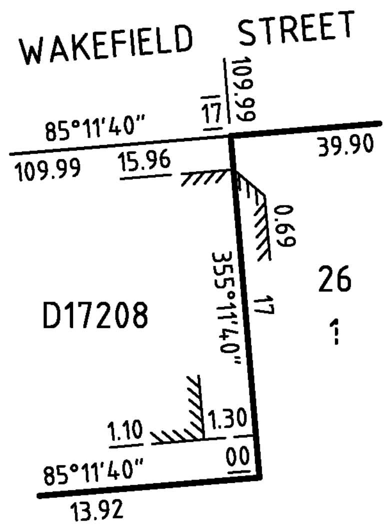
52686_pland_1_V02_Version_4

BEARING DATUM: MGA 94 ZONE 54
DERIVATION: PM 6628/13942 TO 6628/16720
TOTAL AREA:

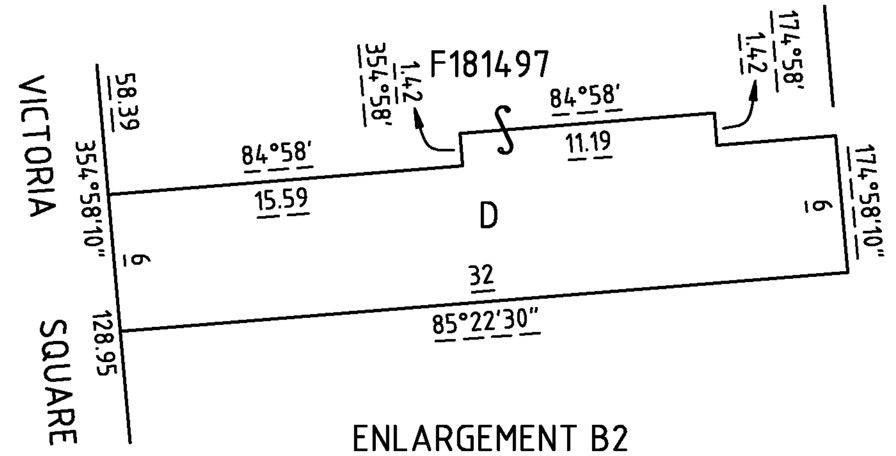
REFERENCE MARKS

CNR	BEARING	FROM	DIST	PM NO
1	130°05′	PM FD	0.86	6628/16721
2	40°09′	PM FD	0.86	6628/13942
3	40°09′	PM FD	0.86	6628/16720
4	130°05′	PM FD	0.86	6628/16719

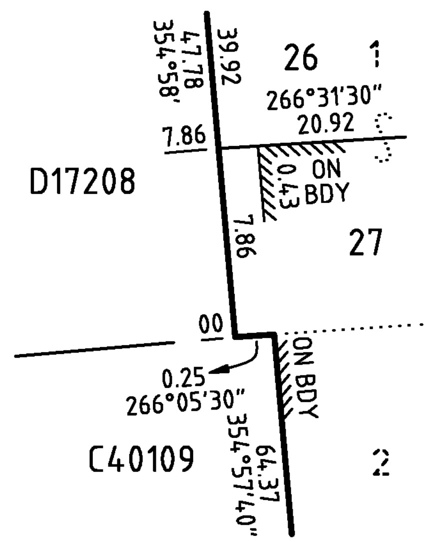




ENLARGEMENT C2
NOT TO SCALE



ENLARGEMENT B2
NOT TO SCALE



ENLARGEMENT A2
NOT TO SCALE

0 7.5 15 22.5 30 37.5

SCALE METRES

Alexander & Symonds Pty.Ltd.
11 KING WILLIAM STREET, KENT TOWN
P.O. BOX 1000 KENT TOWN 5071
Tel (08) 8130 1666 Fax (08) 8362 0099 A.B.N. 93 007 753 988

REFERENCE A138014LTO(B)
DMM 21/06/2016 BAC

REAL PROPERTY ACT, 1886

South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 6128 Folio 95

Parent Title(s) CT 5243/408

Creating Dealing(s) TG 12036379

Title Issued 08/01/2014 **Edition** 1 **Edition Issued** 08/01/2014

Estate Type

FEE SIMPLE

Registered Proprietor

MCAULEY PROPERTY LTD. (ACN: 151 537 450)
OF 720 HEIDELBERG ROAD ALPHINGTON VIC 3078

Description of Land

ALLOTMENT 2 DEPOSITED PLAN 13952
IN THE AREA NAMED ADELAIDE
HUNDRED OF ADELAIDE

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A ON FP 55740 (TG 12036379)

Schedule of Dealings

Dealing Number	Description
13288552	APPLICATION PURSUANT TO SECTION 103P(2) OF THE ENVIRONMENT PROTECTION ACT 1993 NOTING THAT A SITE CONTAMINATION AUDIT REPORT HAS BEEN PREPARED IN RESPECT OF THE WITHIN LAND AND IS TO BE FOUND IN THE REGISTER KEPT BY THE ENVIRONMENT PROTECTION AUTHORITY UNDER SECTION 109 OF THE ACT

Notations

Dealings Affecting Title NIL

Priority Notices NIL

Notations on Plan NIL

Registrar-General's Notes

PLAN FOR LEASE PURPOSES VIDE G280/1994

Administrative Interests NIL

WARNING CREASING OR FOLDING WILL LEAD TO REJECTION

17208 LTO C

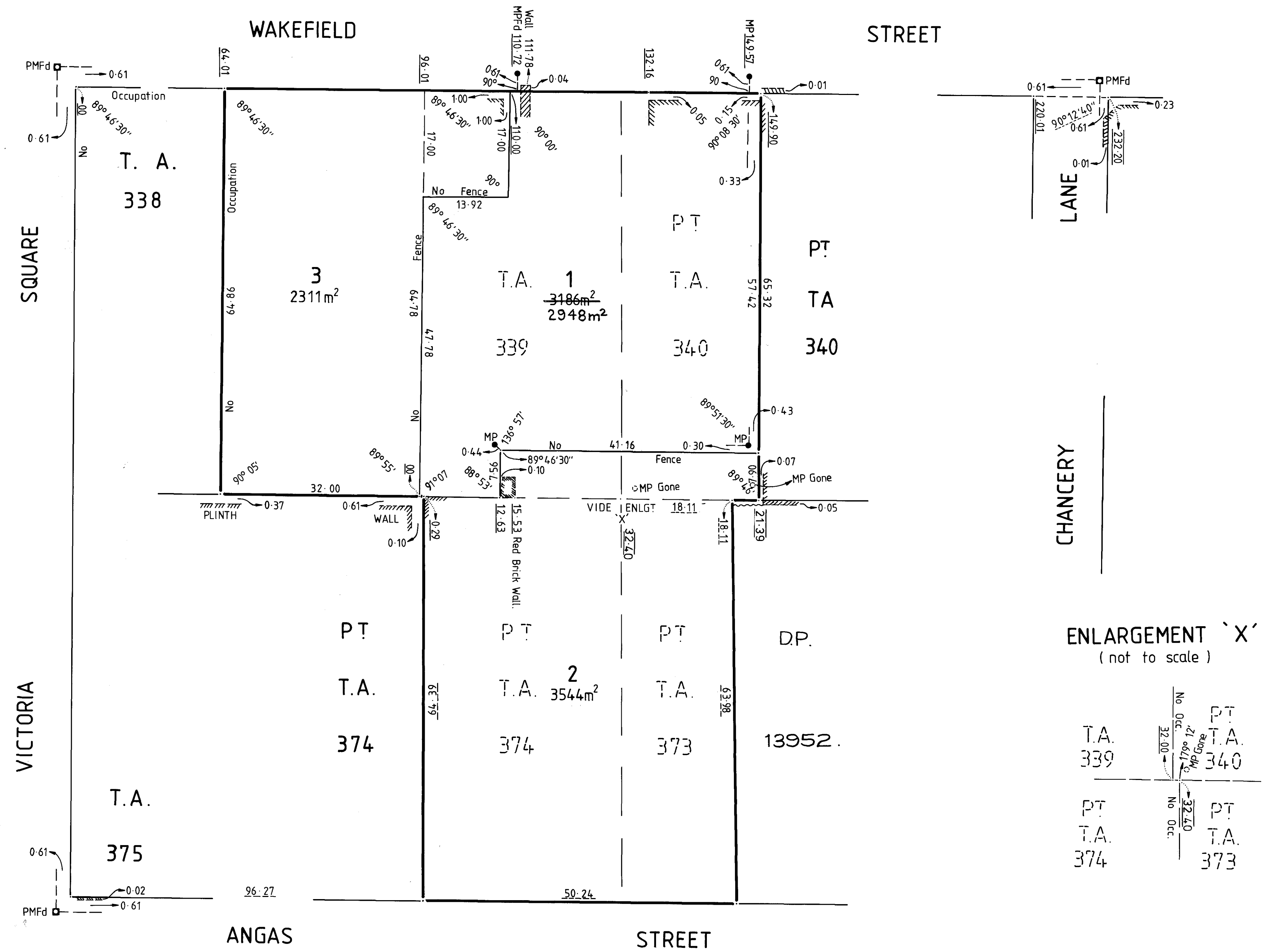
PLAN OF DIVISION

T.A. 339 & PTS T.A. 340, 373 & 374

CITY OF ADELAIDE
HUNDRED OF ADELAIDE

Scale 0 10 20 30 40 50metres

C.T. 638 / 159
C.T. 3336/ 125
C.T. 4054 / 70
C.T. 4054 / 71
C.T. 3134 / 94
C.T 3336/ 124
C.T. 208 / 246
C.T. 919 / 80



DATA COPIED FROM PREVIOUS SURVEYS SHOWN THUS: 50·24

" ADDITIONS BY ME "

18-11-85

Permanent marks shown thus . . . ▢PM

DEPOSITED PLAN NUMBER

DP 17208

ACCEPTED FOR DEPOSIT

pro Registrar-General
18/ 3 /1986

Reference Map No.

COUNCIL
CORPORORATION OF THE CITY OF ADELAIDE.
Development No. : :

THIS IS SHEET OF SHEETS

Amendment to Area vide
DDP 11053314
pro RG 27·10·2008
A.G.

PERMANENT MARKS APPROVED BY SURVEYOR GENERAL

PLAN EXAMINATION		
Closure Checked	Plan Examined	Data Approved (X)
LR	SBW	pro Principal Drafting Officer 19 /12 /1985

I, John Damian O'Callaghan.
Licensed Surveyor, of South Australia do hereby certify–

(1) That this plan has been made from surveys executed by me or under my supervision;

(2) that the field work was completed on the 8th day of JULY 1985 :

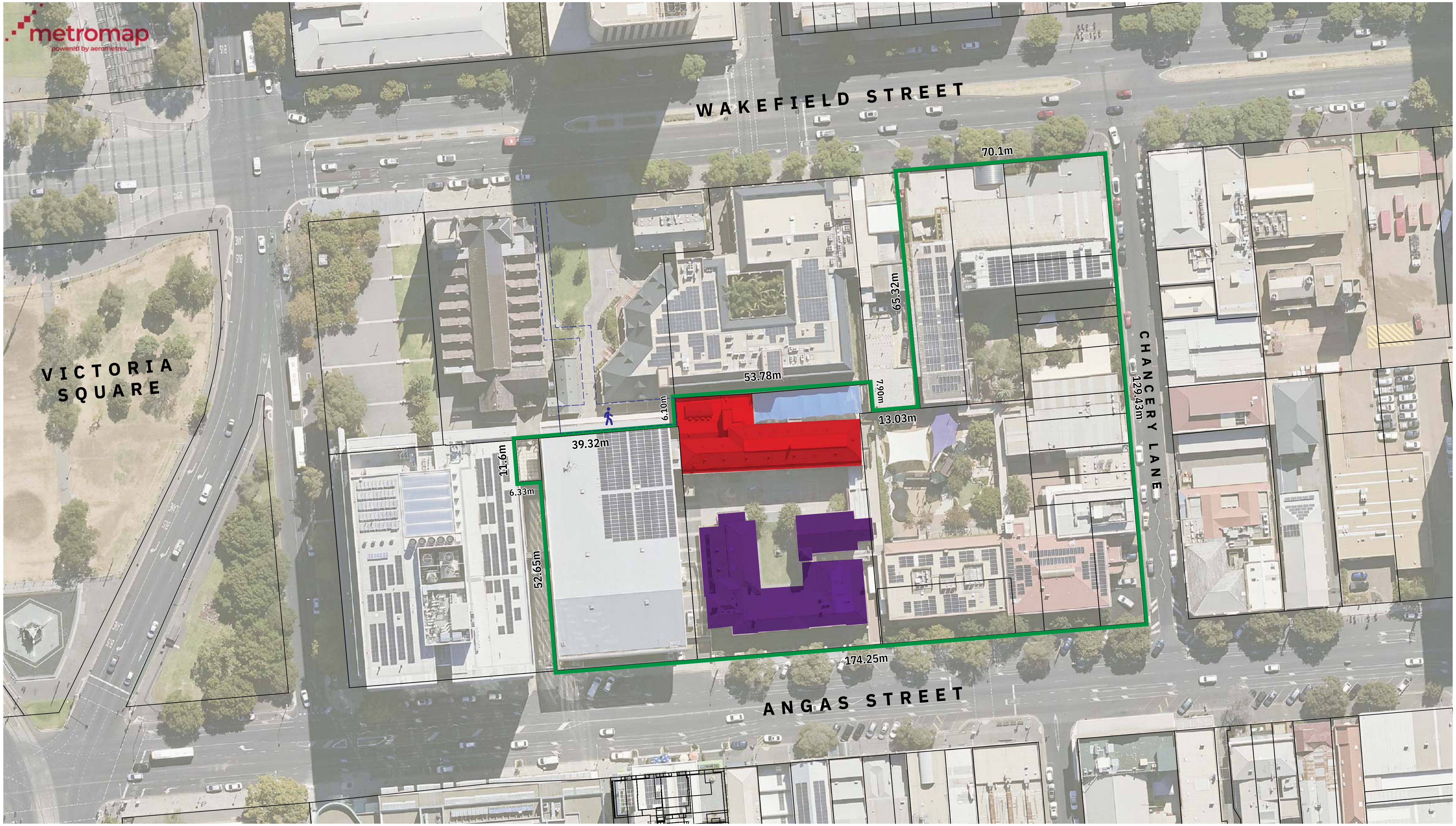
(3) that both plan and field work are to the best of my knowledge correct and have been made in accordance with the Regulations under the Surveyors Act, 1975.

Date 8th JULY 1985.

Licensed Surveyor

O'CALLAGHAN, HENNIG & CO. PTY.
LICENSED SURVEYORS
CADASTRE HOUSE
108 GILLES STREET, ADELAIDE, 5000
PHONE 223 6346 REFER 6044

3



Subject Site
State Heritage Place
Proposed Demolition
Right of Way - on Foot

SITE PLAN

53 Wakefield Street
ADELAIDE

for St Aloysius College Primary School

1:1000 @ A3
0 20

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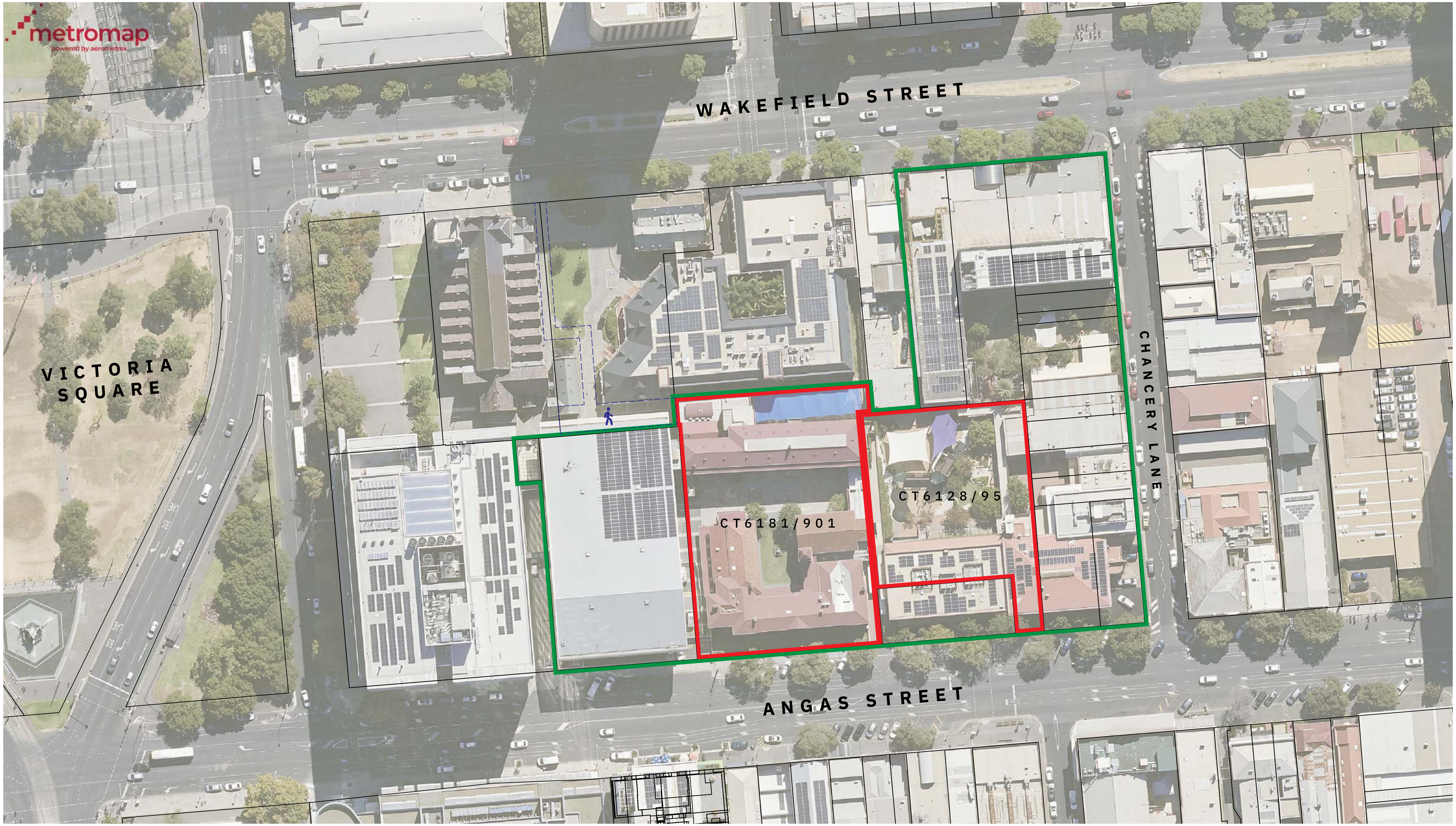
TOWN + COUNTRY PLANNERS SINCE 1977



Site of Proposed Development

Subject Site

Right of Way - on Foot

SITE PLAN
Proposed Development

53 Wakefield Street
ADELAIDE

for St Aloysius College Primary School

1:1000 @ A3
0 20

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TOWN + COUNTRY PLANNERS SINCE 1977

30 September 2024

Tegan Lewis
State Planning Commission
Via email: Tegan.Lewis@sa.gov.au

Our Ref: 53834LET04

Dear Tegan

Response to Government Architect for Development Application 24019790 at 53 Wakefield Street, Adelaide

On behalf of St Aloysious College ('our client' or 'the applicant'), we refer to the referral response received from the Government Architect dated 2 August 2024 in respect of the above-mentioned development application.

The referral response raised six matters, as follows:

- Project Scope and Built Form.
- Ground Plane and Pedestrian Movement.
- Materiality and Architectural Expression.
- Services.
- Landscape.
- Environmentally Sustainable Design (ESD).

Drawing Schedule

Please find **enclosed** with this correspondence:

- Revised Architectural Drawings, prepared by Grieve Gillett and Hayball Architects:

Table 1: Drawing Schedule – Greive Gillett and Hayball Architects

No.	Sheet Title	Revision	Status	Date
DA00	Title Sheet	3	Preliminary	25.09.24

No.	Sheet Title	Revision	Status	Date
DA01	Location Plan	0	Preliminary	21.06.24
DA10	Proposed Site Plan	3	Preliminary	25.09.24
DA11	Existing / Demolition Site Plan – Early Works – Sheet 1	2	Preliminary	25.09.24
DA15	Existing / Demolition Site Plan – Main Works – Sheet 1	0	Preliminary	25.09.24
DA18	Street Elevations	2	Preliminary	25.09.24
DA19	Sun Study	3	Preliminary	25.09.24
DA21	Ground Floor Plan	4	Preliminary	25.09.24
DA22	L1 Plan	4	Preliminary	25.09.24
DA23	L2 Plan	3	Preliminary	25.09.24
DA24	L3 Plan	3	Preliminary	25.09.24
DA25	Rooftop Plan	3	Preliminary	25.09.24
DA26	Plant Level Plan	2	Preliminary	25.09.24
DA27	Plant Roof Plan	0	Preliminary	25.09.24
DA31	Elevations	3	Preliminary	25.09.24
DA32	Elevations	3	Preliminary	25.09.24
DA51	Renders	3	Preliminary	25.09.24
DA52	Design Diagrams	0	Preliminary	21.06.24
DA53	External Materials	0	Preliminary	21.06.24
DA61	External Section Details	0	Preliminary	25.09.24

- Landscape Works Plan, prepared by T.C.L Landscape Architects:

Table 2: Drawing Schedule – TCL Landscape Architects

No.	Sheet Title	Revision	Status	Date
L001	Title Page	P3	-	11/09/24
L002	Schedules	P3	-	11/09/24

No.	Sheet Title	Revision	Status	Date
L100	Overall Plan	P3	-	11/09/24
L200	Setout Plan – Ground Floor	P3	-	11/09/24
L201	Setout Plan – GF & Level 1	P3	-	11/09/24
L202	Setout Plan – Roof Garden	P3	-	11/09/24
L300	Surfaces Plan – Ground Floor	P3	-	11/09/24
L301	Surfaces Plan – GF & Level 1	P3	-	11/09/24
L302	Surfaces Plan – Roof Garden	P3	-	11/09/24
L400	Grading Plan – Ground Floor	P3	-	11/09/24
L401	Grading Plan – GF & Level 1	P3	-	11/09/24
L402	Grading Plan – Roof Plan	P3	-	11/09/24
L500	Planting Plan – Ground Floor	P3	-	11/09/24
L501	Planting Plan – GF & Level 1	P3	-	11/09/24
L502	Planting Plan – Roof Garden	P3	-	11/09/24
L600	Sections – Ground Floor	P3	-	11/09/24
L601	Sections – Roof Garden	P3	-	11/09/24
L700	Hardscape Details	P3	-	11/09/24
L710	Softscape Details	P3	-	11/09/24
L720	Furniture & Fixture Details 01	P3	-	11/09/24
L721	Furniture & Fixture Details 02	P3	-	11/09/24
L722	Furniture & Fixture Details 03	P3	-	11/09/24

This correspondence responds to each of the matters raised in turn.

Project Scope and Built Form

Commentary regarding the project scope and built form has been reviewed by the Project Team, with the following comments:

- As shown on the revised Ground Floor Plan, prepared by Grieve Gillett and Hayball Architects (Drawing No. DA21 Revision 4), the existing boundary wall between the pool enclosure and the Archdiocese Centre to the north is to remain. The wall (as shown in **Photograph 1**) is currently showing fretting to mortar and therefore will be re-pointed as required. The internal face of the masonry wall is to be rendered.

  A small section of the masonry wall up to the first pier is to be removed during the demolition of the existing Dunlevie building. The structural engineer has confirmed that no additional propping will be required to the remaining wall following demolition.

  The space between the proposed development and the existing masonry wall is to be infilled with a section of aluminium tubular fence to match the existing fencing above the masonry wall.

Photograph 1: Existing boundary wall between the pool enclosure and Archdiocese Centre.

- The proposed development has been designed to future proof for the addition of a pool canopy. The canopy works will be undertaken by the applicant later and will be the subject of a future application. The general intent, however, is that a cantilevering canopy structure could directly fix to the slab edge at Level 1.

- In the reception Courtyard, located to the north-west of the site, a new 2.4-metre-high rendered and painted blockwork wall will be constructed along the boundary to create a secure playspace for Reception students. A secure gate will be included to accommodate the egress path from the fire stair to the laneway.

Ground Plane and Pedestrian Movement

The discrepancies between the elevations and perspective images have been noted by the project team. The project team confirm:

- As shown on the revised Elevations, prepared by Grieve Gillett and Hayball Architects (Drawing No. DA31. Revision 3), two large vertical folding doors are proposed in front of the foyer and music room. The proposed selection is the ARA Manufacture Monarch Renlita Sovereign Vertical Folding Door.

Materiality and Architectural Expression

Commentary regarding the materiality and architectural expression have been considered by the project team:

- The external materials selections have been made with consideration of longevity, low maintenance and accessibility requirements. A materials board of physical samples is currently being prepared by Grieve Gillett and Hayball Architects for review by the Government Architect. **Figure 1** below shows the external materials currently approved by the Client.

1. **CFS-01** External Cladding Type - Viroc
2. **FIN-01** Powdercoated Vertical Fins
3. **CFS-02** Aluminium Cladding Rooftop Blade
4. **MC-01** Downpipes & Sundry Items
5. **PCF-01** Powdercoat Colour
6. **PCF-01** Powdercoat Colour
7. **PCF-02** External Door and Window Framing
8. **CFS-03** Perforated Metal Panel
9. **BAL-01** External Handrail - Stainless Steel
10. **CFS-07** Mesh Cladding to Eastern Stair
11. **FB-01** Ground Floor Podium Brick Cladding
12. **FB-05** Ground Floor Podium Brick Cladding
13. **FG-01** Clear Glazing Typical
14. **FG-04** Translucent Glazing - Amenities
15. **PV01** Ground Floor Concrete Paving - Dark
16. **PV02** Ground Floor Concrete Paving - Light
17. **TGIS-01** Tactile Indicators
18. **SN-01** Stair Nosing
19. **FX03** Timber Decking
20. **PV04** Rooftop Acrylic Play Surface
21. **FT-01** External Paving - Rooftop & Steam Balcony

Figure 1: External Materials Presentation.

It is requested that the provision of a physical materials board which demonstrates accurately the proposed materials and finishes, to the satisfaction of the State Planning Commission Panel in consultation with the Government Architect be imposed as a condition of Planning Consent.

- Compressed fibre cement sheet cladding was selected for its durability, authenticity and cost-effectiveness, offering a hard-wearing finish that can be repainted as needed and allows for the inclusion of an artwork background to the Pool and Reception Courtyard. Capable of withstanding impact, harsh weather conditions and general wear and tear, it lasts longer and requires less maintenance than many other cladding types.

- The intent is for the accessible areas, i.e. ground floor to the north and the perimeter of the rooftop occupied spaces, to be painted compressed fibre cement sheet cladding (i.e. ExoTec Façade Panel). The areas that will be more difficult to access (i.e. the external cladding to the amenities on the northern façade and both the picture window and 'education window' to the southern façade) will be clad in a prefinished cladding that will not require any repainting or maintenance (i.e. Viroc External Cladding).

  The proposed external wall types have been confirmed to meet acoustic, thermal and fire compliance requirements. A revised copy of the Acoustic Services report, prepared by Bestec is **enclosed**.

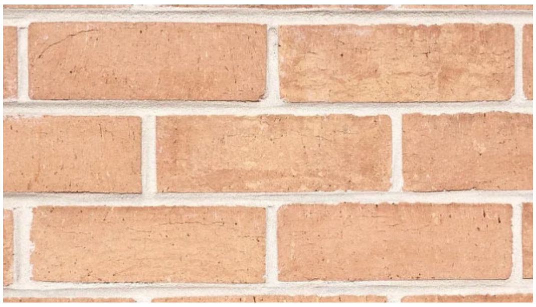
The discrepancies between the elevations and perspective images have been noted by the project team. The project team confirm:

- Due to the vertical 'education window' to the southern façade being largely inaccessible for regular repainting or maintenance, the decision has been made to select a material that was prefinished and heterogeneous in nature. Viroc External Cladding is a composite panel consisting of a mixture of wood particles and Portland cement, which achieves the aesthetics of an authentic natural concrete finish.

- An integrated façade access system has been detailed to the underside of the horizontal blade to the rooftop perimeter. Access to the external windows for cleaning and maintenance will be achieved via a proprietary roof access rail system.

- The brick colonnade is to be constructed using brick snaps on the Tru-Brix support system. The Tru-Brix system is an efficient way of installing brickwork and reduces the reliance on load-carrying steelwork. Once mortar has been applied to the brick snaps, the tactility and materiality of the surfaces is as per a solid brick wall.

  Soldier coursing will be provided to archways and horizontal banding. The brick selections are to be Nubrik Australis 'Murray Sunset' generally with Nubrik Traditional 'Domain Terracotta' (shown in **Figure 2** and **Figure 3** below) to archways and horizontal banding.



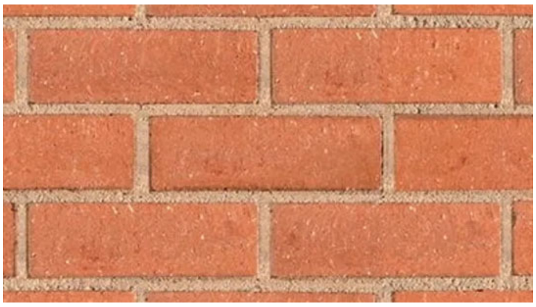


Figure 2: Nubrik Australis ‘Murray Sunset’.

Figure 3: Nubrik Traditional ‘Domain Terracotta’.

- The expressed concrete columns on the external facades will be clad with 1.2BMT metal flashings. Likewise, the exposed slab edges will be clad in 1.2BMT metal flashings. Horizontal capping will be dark to match the window framing. Vertical capping to columns to be white to match the fin colour.

- The roof plant and services are to be screened with the Monkeytoe screening system, HushMonkey Louvre-Look Acoustic Barrier. The screening is proposed to be 2.25 metres high.

- The intent is to for the accessible areas, i.e. ground floor to the north and the perimeter of the rooftop occupied spaces, to be painted compressed fibre cement sheet cladding (i.e. ExoTec Façade Panel). The areas that will be more difficult to access (i.e. the external cladding to the amenities on the northern façade and both the picture window and ‘education window’ to the southern façade) will be clad in a prefinished cladding that will not require any repainting or maintenance (i.e. Viroc External Cladding).

- No operable windows are proposed. The aluminium vertical fins will span floor to floor and typically face fixed to the edge of slab. The aluminium vertical fins will typically be aligned with the window mullions. Joints in the aluminium vertical fins will be expressed and line up with the horizontal window transoms.

- Consideration has been given to the alignment of the slabs be creating a raised hob at the slab edge providing a consistent line to the external face. The edge of the slabs will be clad in 1.2BMT metal flashing.

Services

Commentary regarding the location and screening of roof plant has been considered by the project team:

- The revised Plant Level Plan, prepared by Grieve Gillett Architects and Hayball Architects (Drawing Number DA26 and DA27, Revision 2) have been revised to show the location of roof mounted services and plant.

- The roof plant and services are to be screened with the Monkeytoe screening system, HushMonkey Louvre-Look Acoustic Barrier. The screening is proposed to be 2.25 metres high.

Landscape

Commentary regarding the landscape have been considered by the project team:

- All garden beds on the ground floor are in ground providing deep root planting zones.

- All planters on the roof have a minimum depth of 600 millimetres, and the garden beds will be mounded at 1:5 to have more soil depth towards the middle of the planters.

- Garden beds on the Dunlevie Courtyard are on the south side to maximise sun exposure, and garden beds on Redden Lane are located on the eastern side away from the multistorey Redden Centre. Trees along both Redden Lane and Dunlevie Courtyard will provide ample shade.

- The planting selection will consist of mediterranean species, which are waterwise and suited to the local climate.

  It is requested that the provision of a detailed landscape plan demonstrating specific species, their locations, numbers and mature heights at all landscaped areas of the proposed development be imposed as a condition of Planning Consent.

The inconsistencies between the architectural and landscape documentation have been reviewed by the project team. The revised Rooftop Plan (Drawing No. DA25 Revision 3) prepared by Grieve Gillett and Hayball Architects is now consistent with the Landscape Works plans prepared by T.C.L Landscape Architects. Together, these documents now demonstrate a coordinated proposal of the planters, seating, court netting, paving and extent of acrylic surfacing.

Environmentally Sustainable Design (ESD)

ESD initiatives have been considered and where suitable integrated into the proposal:

- The proposal includes a 20kW photovoltaic solar array on the rooftop canopy as shown on the revised Plant Level Plan, prepared by Grieve Gillett Architects and Hayball Architects.

- A rooftop water tank was not considered suitable with concerns regarding positioning, bacterial run-off from the roof plant, potential algae growth in the tank and commination.

- The proposal includes the instruction to retain, clean and stack on pallets 2,000 old red bricks from the Dunlevie Building demolition works. It is unsure how these bricks will be used yet; these will be inspected once the building is demolished, and a determination will be made whether they can be incorporated into the building faced (in lieu of the proposed Nubrik Traditional 'Domain Terracotta' selection) or used as a landscaping element.

Additionally:

- The building has been designed to meet the thermal comfort levels required by the NCC. The revised assessment (**enclosed** with this correspondence) indicates that 10-0 per cent of the floor area within the occupied zones has a thermal comfort level of between a predicted mean of -1 to +1 for more than 98 per cent of the annual hours of operation of the building, which exceeds the minimum NCC JV3 requirement of 95 per cent of the floor area.

Closure

We trust that this information clarifies the matters raised by the Government Architect.

Should you require any additional information, or clarification, please do not hesitate to contact the writer.

Yours sincerely

Kirsten Falt
MasterPlan SA Pty Ltd

enc: As listed.

Attachment A

Revised Architectural Drawings

MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977

Scale Bar Units in Millimetres

RN

ST ALOYSIUS
COLLEGE PRIMARY SCHOOL

DA SHEET LIST		
Drawing Number	Sheet Name	Current Revision
DA00	TITLE SHEET	3
DA01	LOCATION PLAN	0
DA10	PROPOSED SITE PLAN	3
DA11	EXISTING / DEMOLITION SITE PLAN - EARLY WORKS - SHEET 1	2
DA15	EXISTING / DEMOLITION SITE PLAN - MAIN WORKS - SHEET 1	0
DA18	STREET ELEVATION	2
DA19	SUN STUDY	3
DA21	GROUND FLOOR PLAN	4
DA22	L1 PLAN	4
DA23	L2 PLAN	3
DA24	L3 PLAN	3
DA25	ROOFTOP PLAN	3
DA26	PLANT LEVEL PLAN	2
DA27	PLANT ROOF PLAN	0
DA31	ELEVATIONS	3
DA32	ELEVATIONS	3
DA51	RENDERS	3
DA52	DESIGN DIAGRAMS	0
DA53	EXTERNAL MATERIALS	0
DA61	EXTERNAL SECTION DETAILS	0

PLOT FILE DATE: 25/09/2024 9:28:10 AM PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

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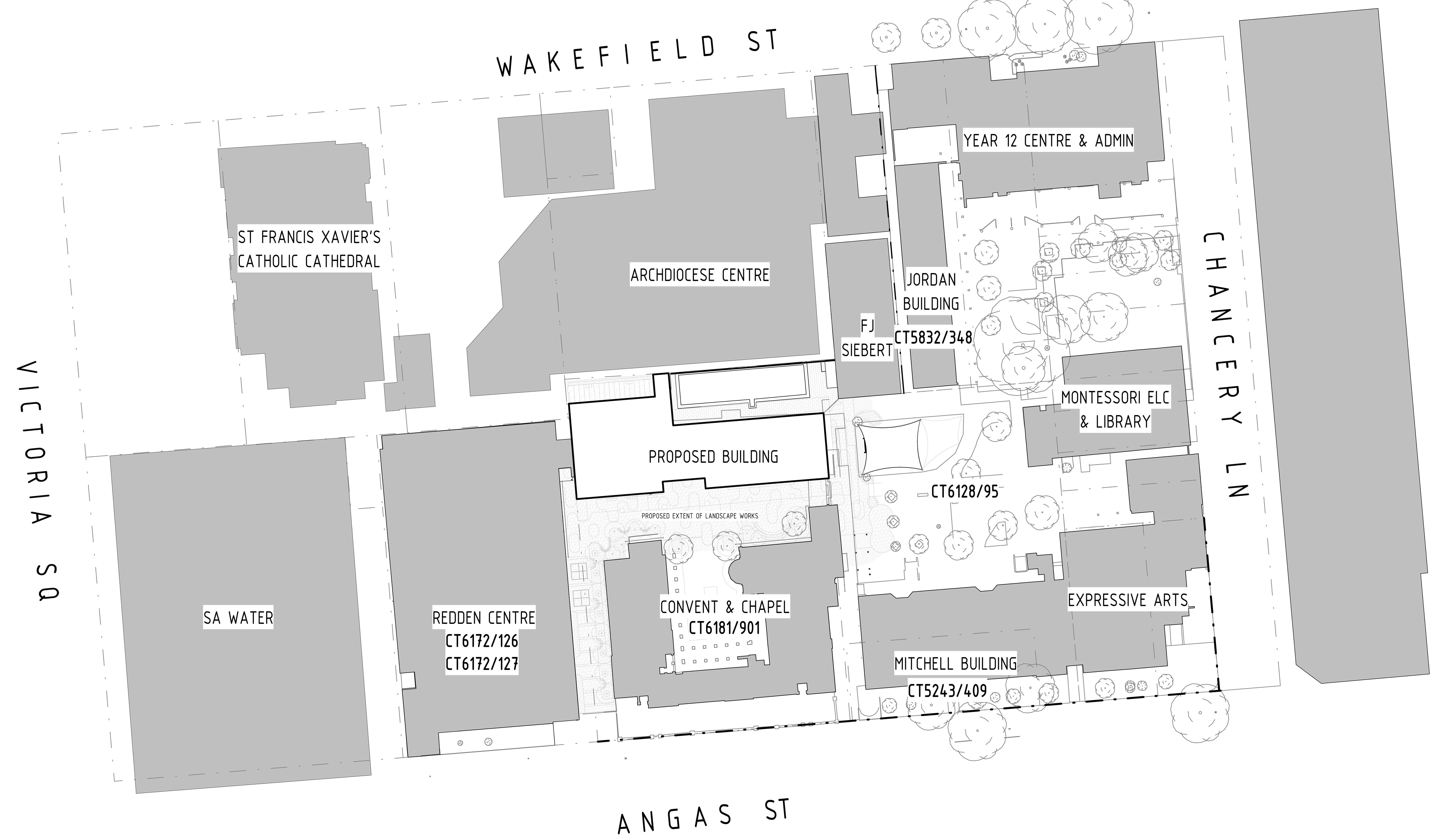
Scale Bar Units in Millimetres

A1 Sheet

NOTE: REFER TO LANDSCAPE CONCEPT PLANS FOR FULL EXTENT OF WORK



SITE PLAN
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PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

PLOT FILE DATE: 24/09/2024 6:38:18 PM

Legend

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Rev.	Date	Description	Ver.	Appr.
0	21.06.24	ISSUE FOR PLANNING CONSENT		

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

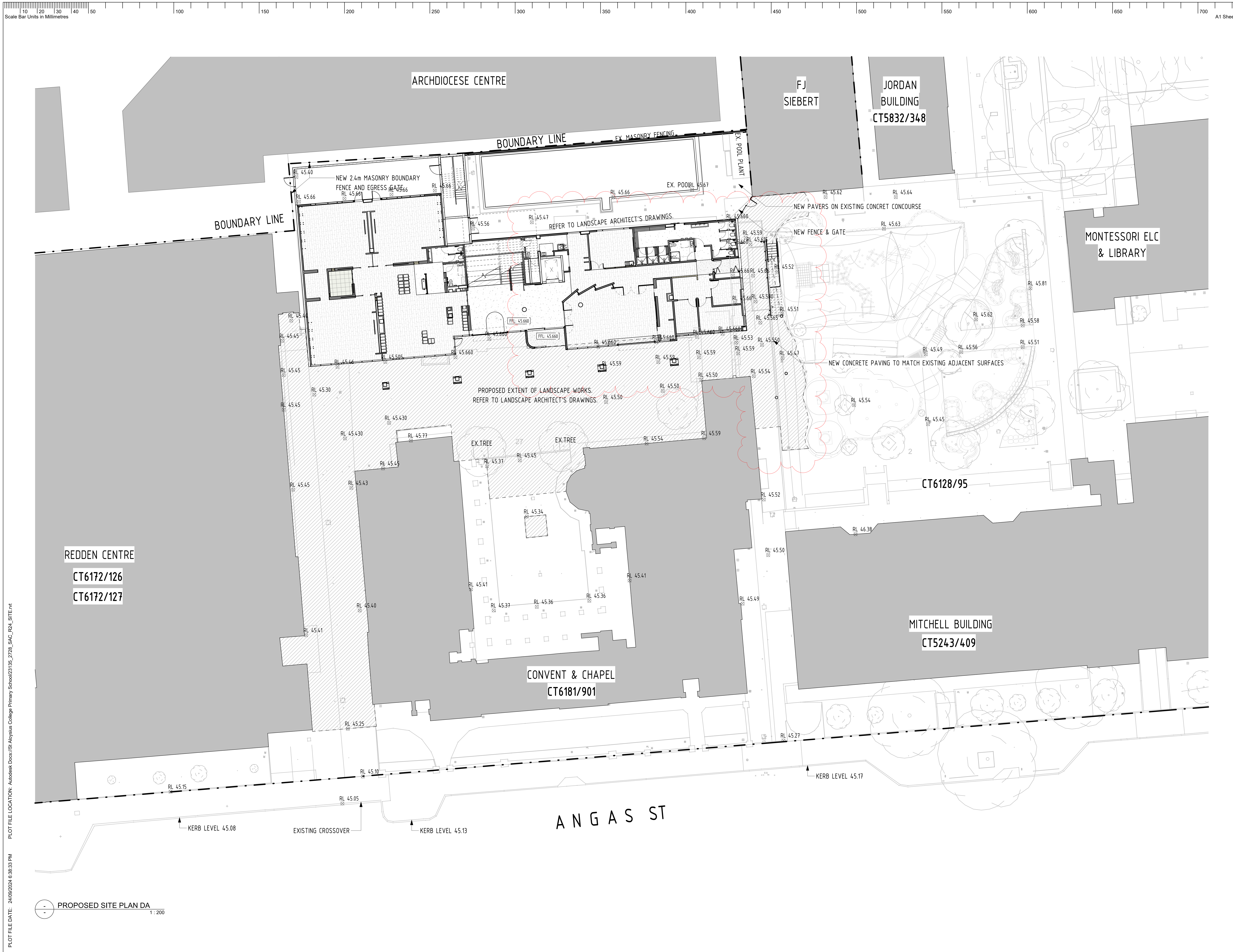
Drawing Title

LOCATION PLAN

PN N

Scale (at A1) As indicated

Job No.	Drawing No.	Issue
23135_2728	DA01	0



PROPOSED SITE PLAN DA
1 : 200

Scale Bar Units in Millimetres

A1 Sheet

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Legend

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Rev.	Date	Description	Ver.	Appr.
3	25.09.24	ISSUE FOR PLANNING CLARIFICATION		
2	23.07.24	ISSUE FOR SIGNAGE AND LEVEL CLARIFICATION		
1	24.06.24	ISSUE FOR PLANNING		
0	21.06.24	ISSUE FOR PLANNING CONSENT		

Drawing Status

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Drawing Title

PROPOSED SITE PLAN

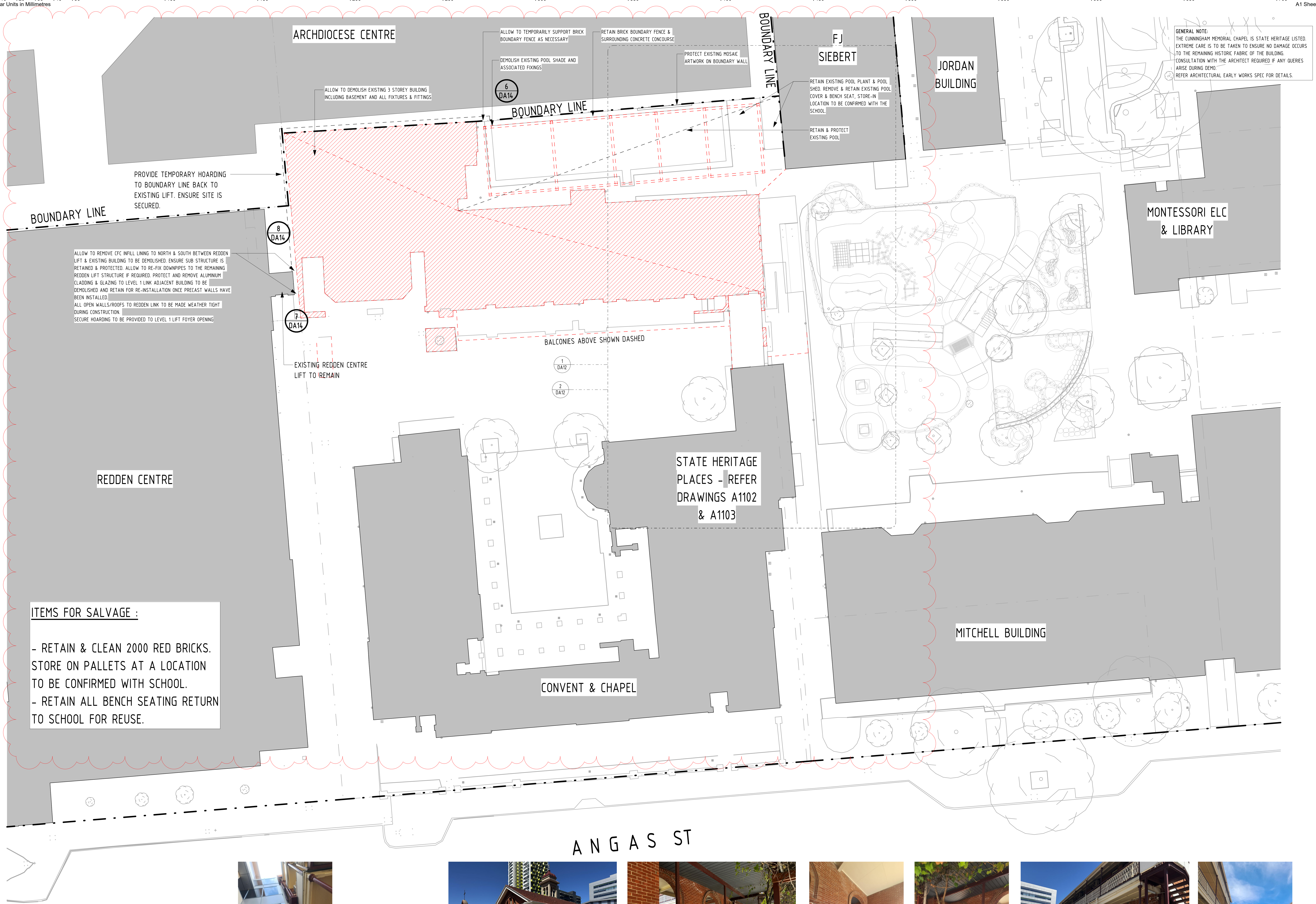
PN

Scale (at A1) As indicated

Job No.	Drawing No.	Issue
23135_2728	DA10	3

Scale Bar Units in Millimetres

A1 Sheet



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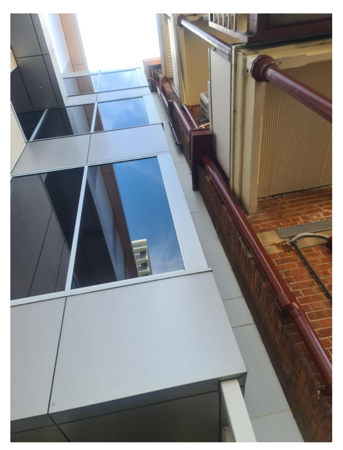

REDDEN CENTRE & DUNLEVIE JUNCTION

CHAPEL, ARCHES & LEVEL 1 WALKWAY JUNCTION

Legend

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8. MAKE GOOD OR PROVIDE NEW AS REQUIRED TO ALL EXISTING ADJOINING SURFACES TO BE RETAINED, THAT ARE AFFECTED BY THE WORKS.
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13. THE DEMOLITION CONTRACTOR SHALL REFER TO SPECIFICATION FOR IDENTIFIED HAZARDOUS MATERIAL SCHEDULE. IF HAZARDOUS MATERIALS OR CONDITIONS ARE FOUND CEASE WORK AND GIVE NOTICE IMMEDIATELY.

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Project

ST ALOYSIUS
COLLEGE PRIMARY SCHOOL

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Drawing Title

EXISTING / DEMOLITION
SITE PLAN - EARLY WORKS -
SHEET 1

PN
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Scale (at A1) As indicated

Job No.	Drawing No.	Issue
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Scale Bar Units in Millimetres

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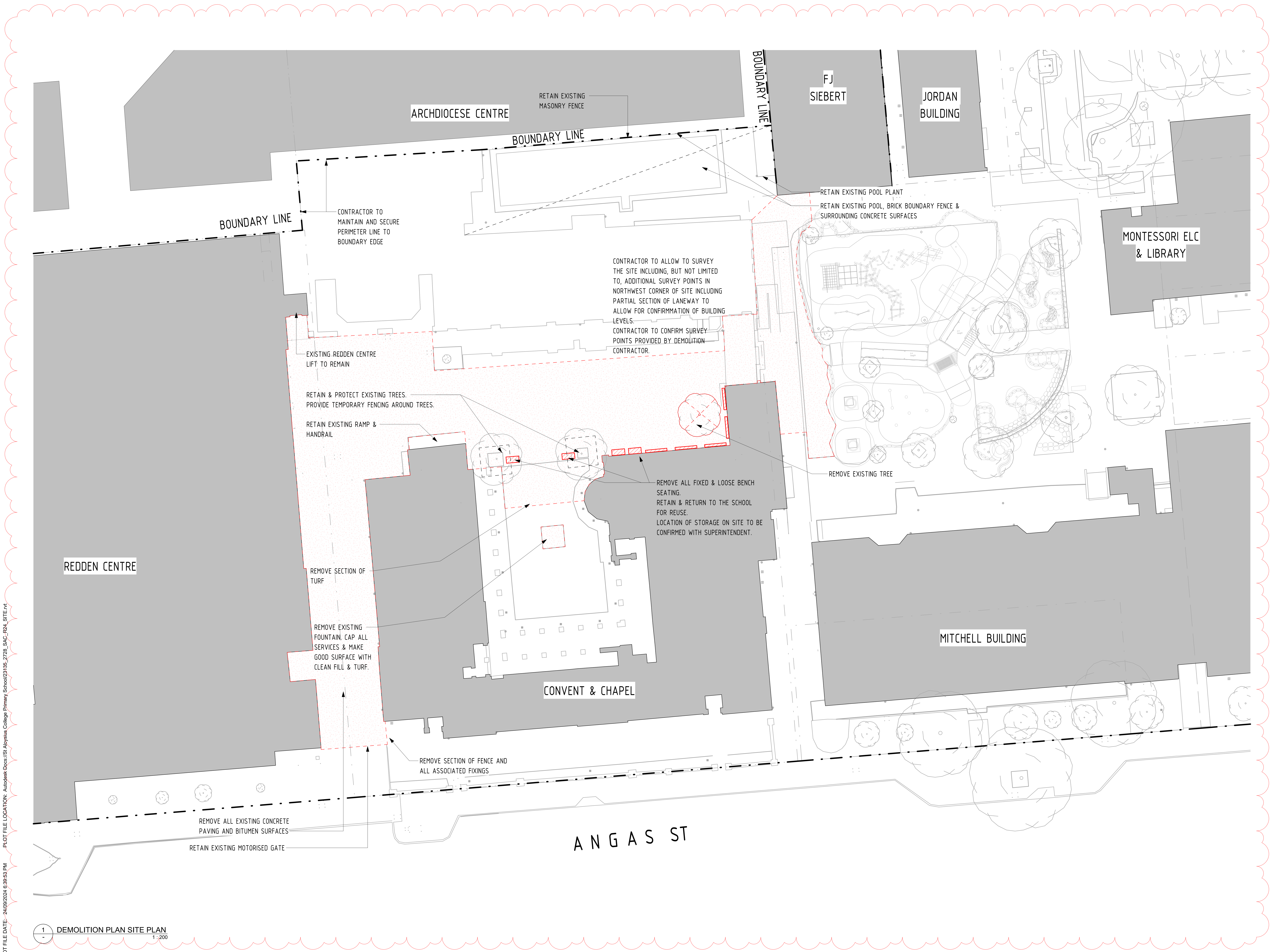

1 DEMOLITION PLAN SITE PLAN
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ST ALOYSIUS
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Drawing Title

EXISTING / DEMOLITION
SITE PLAN - MAIN WORKS -
SHEET 1

PN N

Scale (at A1) As indicated

Job No.	Drawing No.	Issue
23135_2728	DA15	0

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A1 Sheet

E1 STREET ELEVATION
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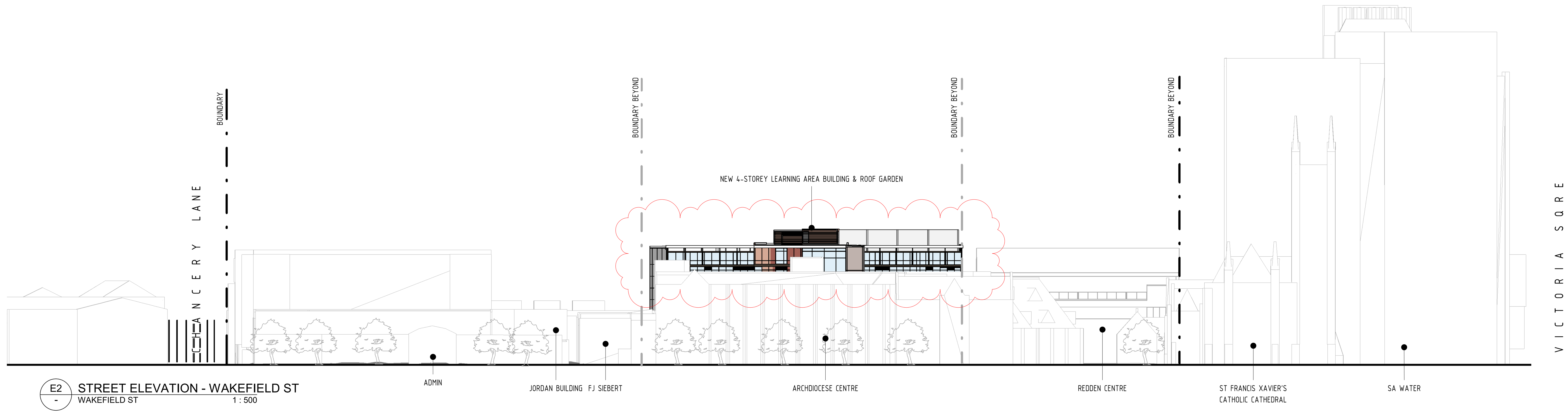
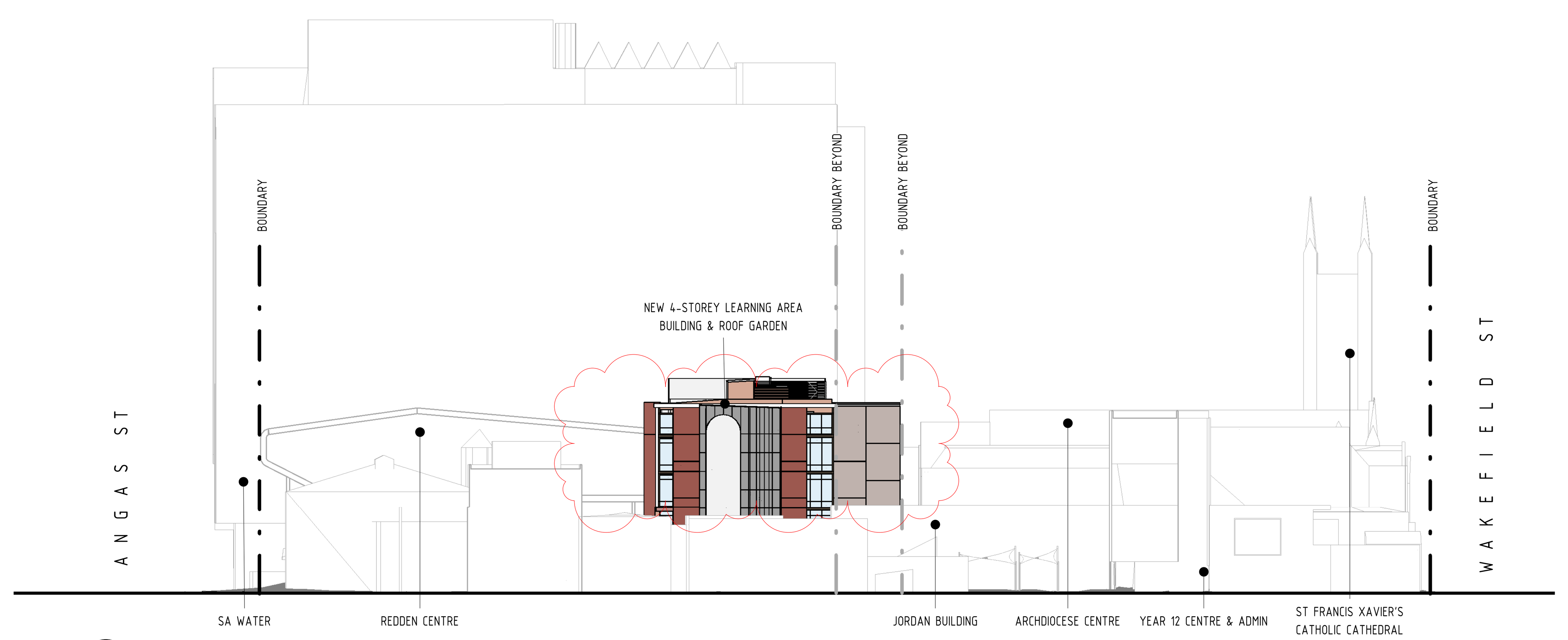


E2 STREET ELEVATION - WAKEFIELD ST
WAKEFIELD ST 1 : 500



E3 STREET ELEVATION
CHANCERY LANE 1 : 500

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

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Drawing Title

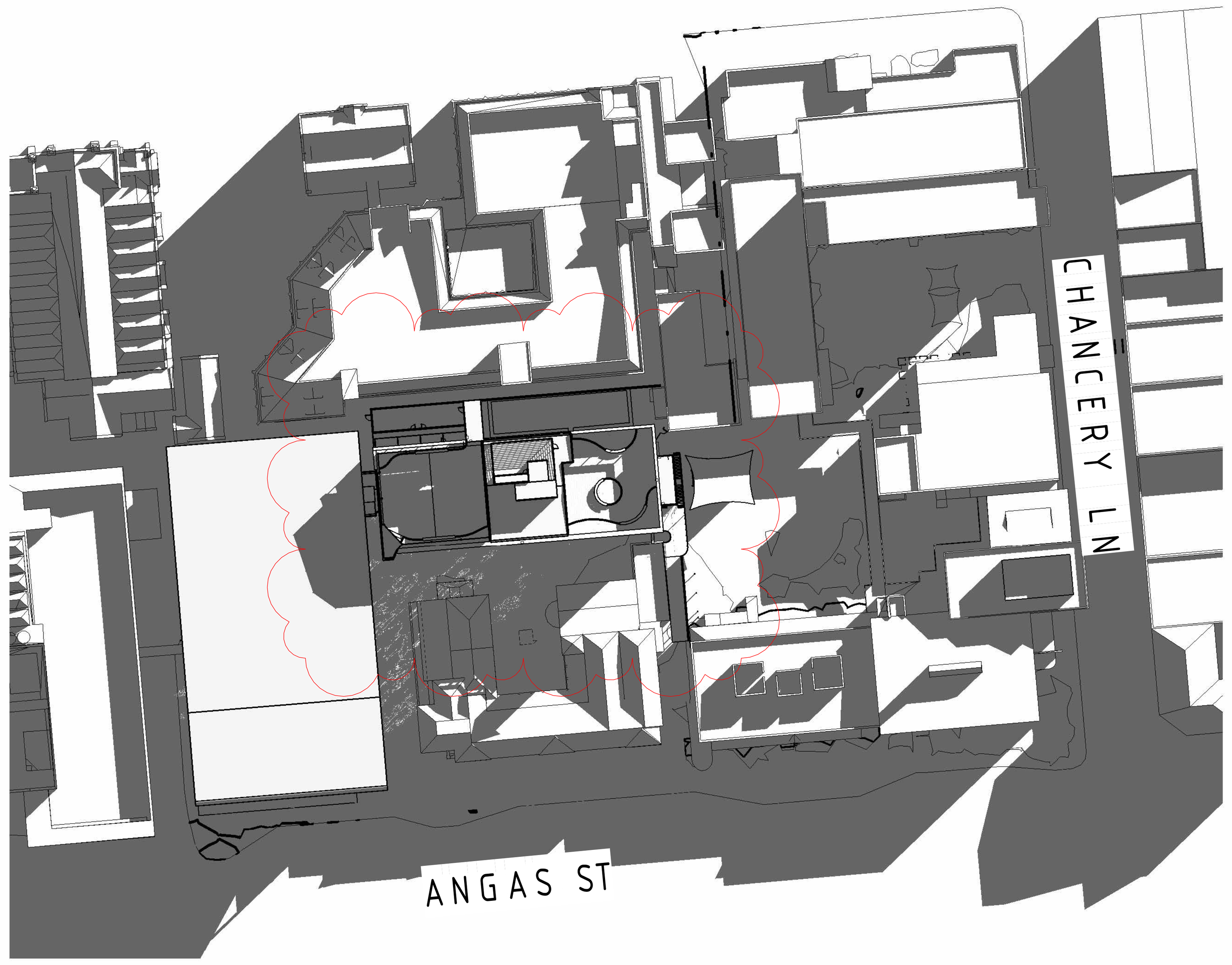
STREET ELEVATION

Scale (at A1) As indicated

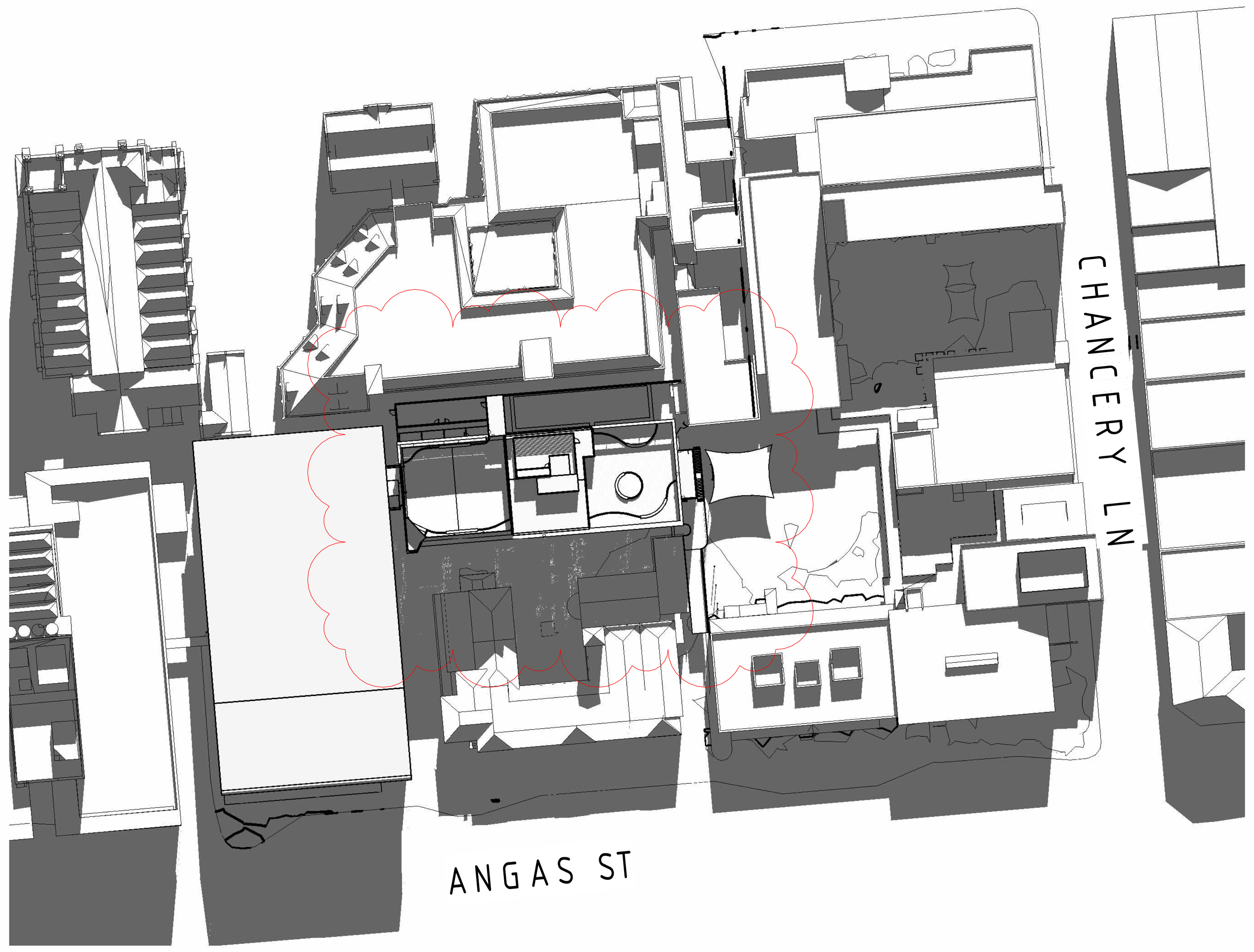
Job No.	Drawing No.	Issue
23135_2728	DA18	2

Scale Bar Units in Millimetres

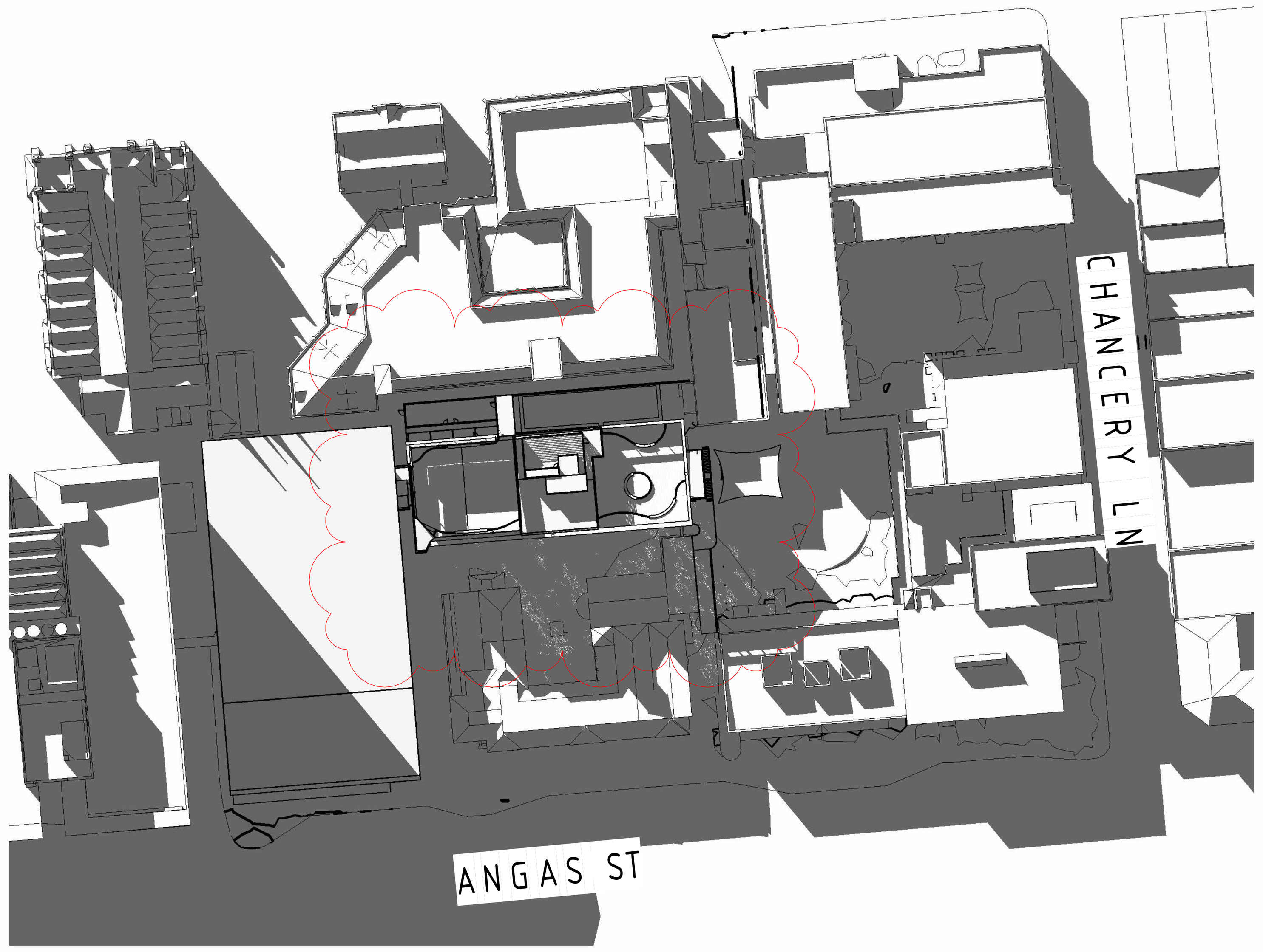
A1 Sheet



1 SUN STUDY
WINTER SOLSTICE - 9AM 1 : 1000



2 SUN STUDY
WINTER SOLSTICE - 12PM 1 : 1000



3 SUN STUDY
WINTER SOLSTICE - 3PM 1 : 1000

4 SUN STUDY
SUMMER SOLSTICE - 9AM 1 : 1000

5 SUN STUDY
SUMMER SOLSTICE - 12PM 1 : 1000

6 SUN STUDY
SUMMER SOLSTICE - 3PM 1 : 1000

PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

PLOT FILE DATE: 23/09/2024 10:11:45 AM

Legend

Rev.	Date	Description	Ver.	Appr.
3	25.09.24	ISSUE FOR PLANNING		
2	21.06.24	ISSUE FOR PLANNING CONSENT		
1	23.04.24	FOR INFORMATION		
0	17.04.24	FOR INFORMATION		

Drawing Status
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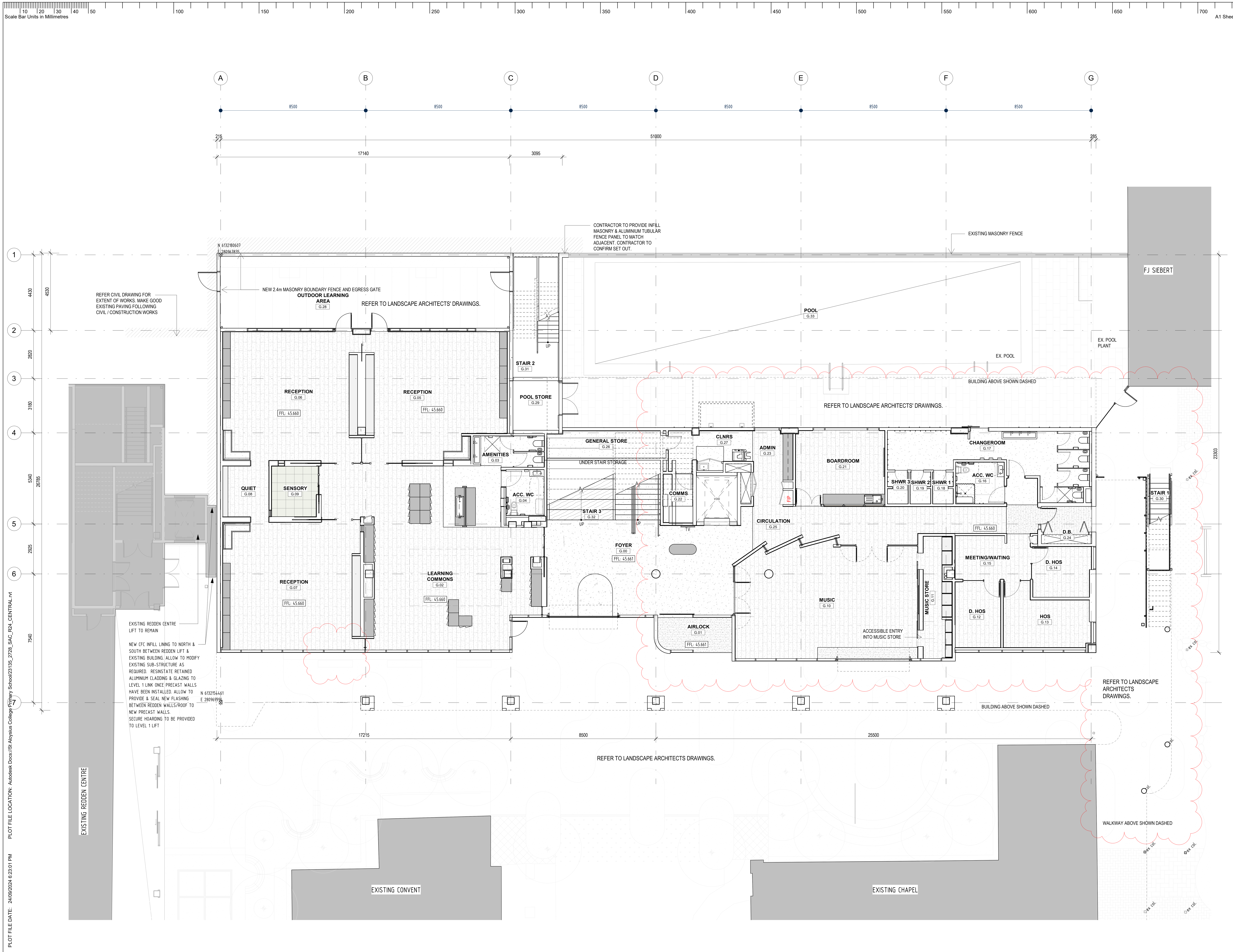
Project
ST ALOYSIUS
COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title
SUN STUDY

PN N

Scale (at A1)	1 : 1000	
Job No.	Drawing No.	Issue
23135_2728	DA19	3



PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_CENTRAL.rvt

PLOT FILE DATE: 24/09/2024 6:23:01 PM

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4	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK
3	23.07.24	FOR COORDINATION	AR	AK
2	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK
1	11.06.24	FOR COORDINATION	AR	AK
0	22.04.24	FOR INFORMATION	AR	AK

Drawing Status

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

GROUND FLOOR PLAN

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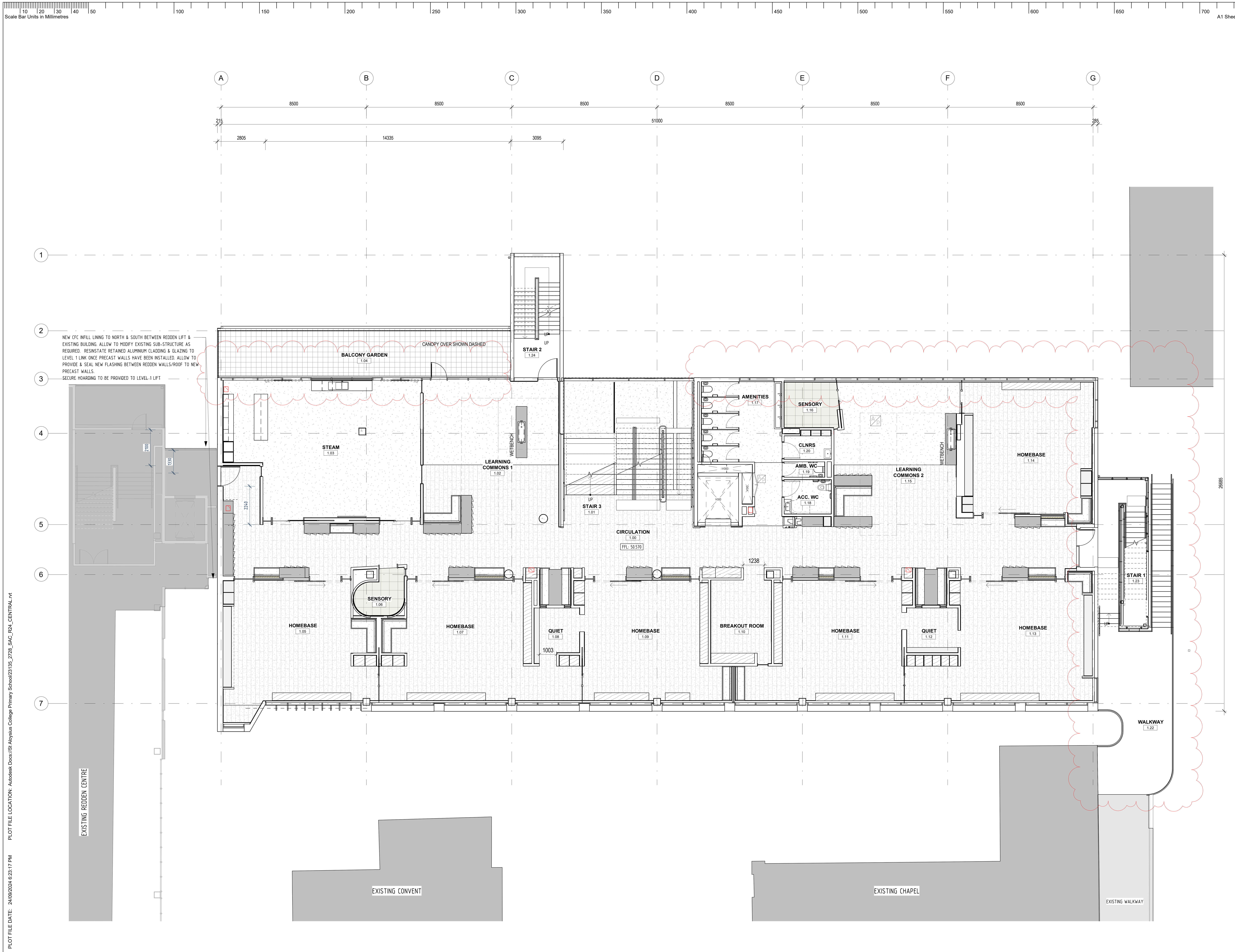
Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA21	4



Legend

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Rev.	Date	Description	Ver.	Appr.
4	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK
3	23.07.24	ISSUE FOR SIGNAGE AND LEVEL CLARIFICATION	AR	AK
2	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK
1	11.06.24	FOR COORDINATION	AR	AK
0	22.04.24	FOR INFORMATION	AR	AK

Drawing Status

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

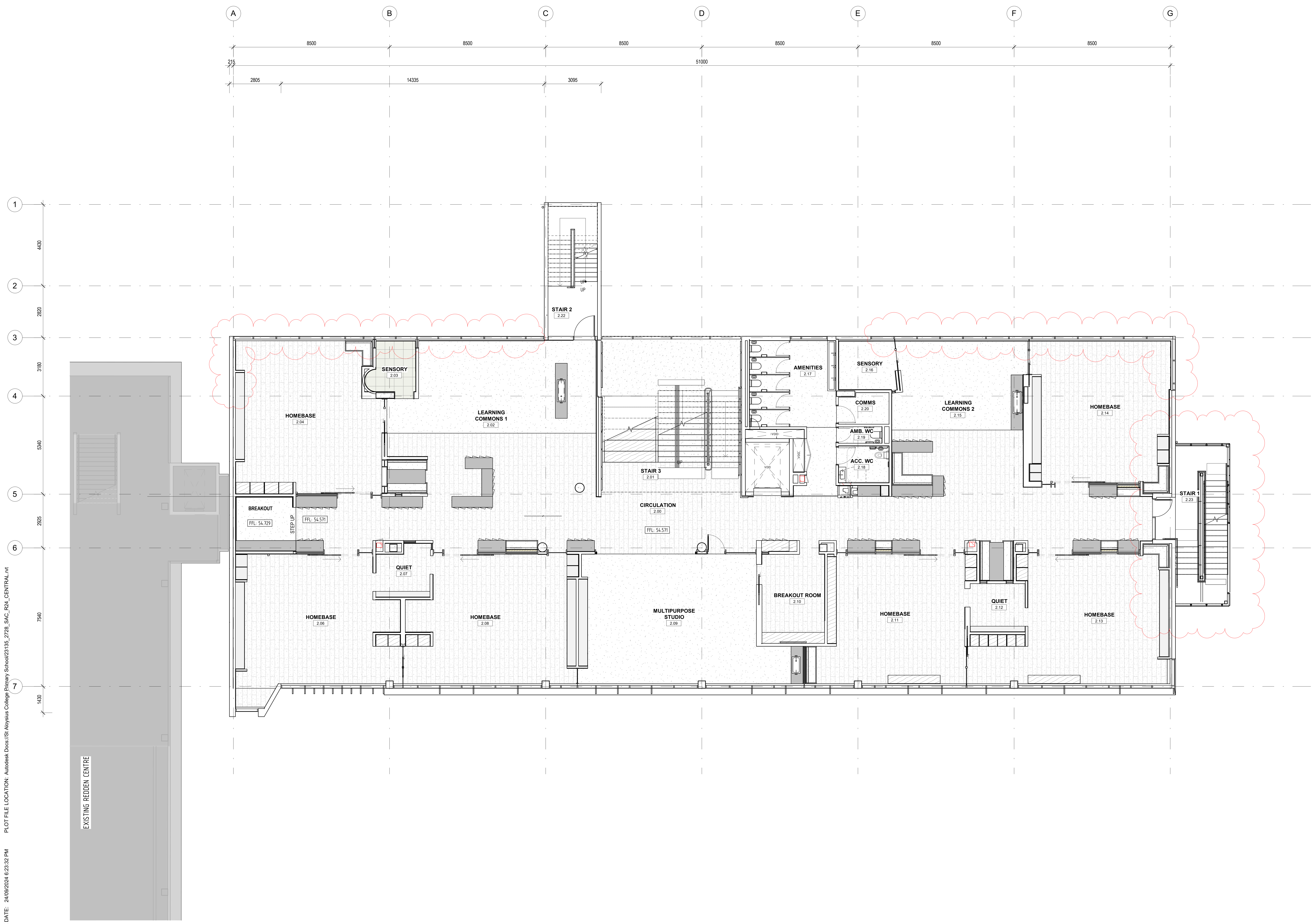
L1 PLAN

Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA22	4

Scale Bar Units in Millimetres

A1 Sheet



PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_CENTRAL.rvt

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Legend

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2	24.06.24	ISSUE FOR PLANNING	AR	AK
1	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK
0	11.06.24	FOR COORDINATION	AR	AK

Drawing Status

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

L2 PLAN

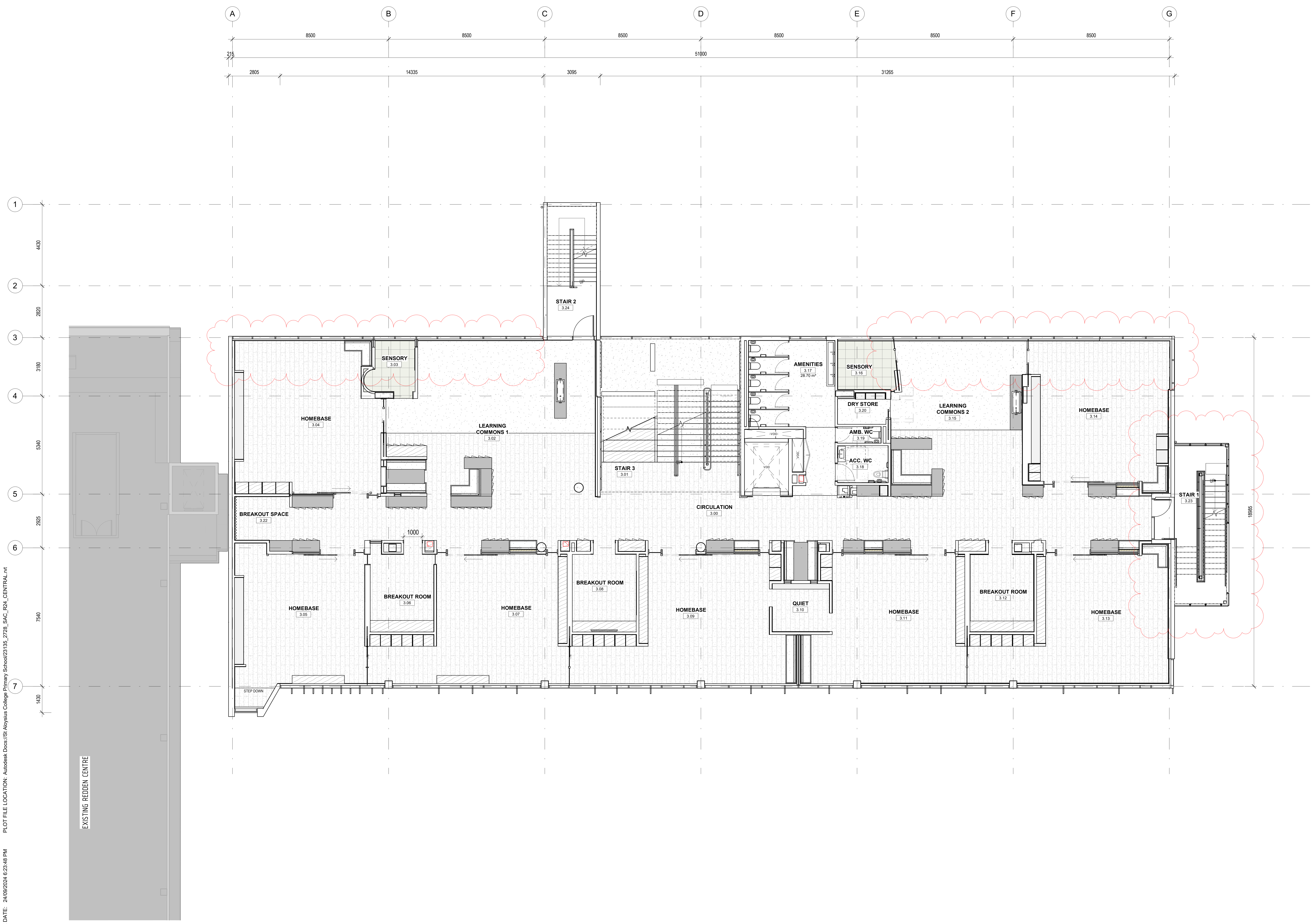
PN

Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA23	3

Scale Bar Units in Millimetres

A1 Sheet



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PLOT FILE DATE: 24/09/2024 6:23:48 PM

Legend

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Rev.	Date	Description	Ver.	Appr.
3	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK
2	24.06.24	ISSUE FOR PLANNING	AR	AK
1	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK
0	11.06.24	FOR COORDINATION	AR	AK

Drawing Status

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

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Drawing Title

L3 PLAN

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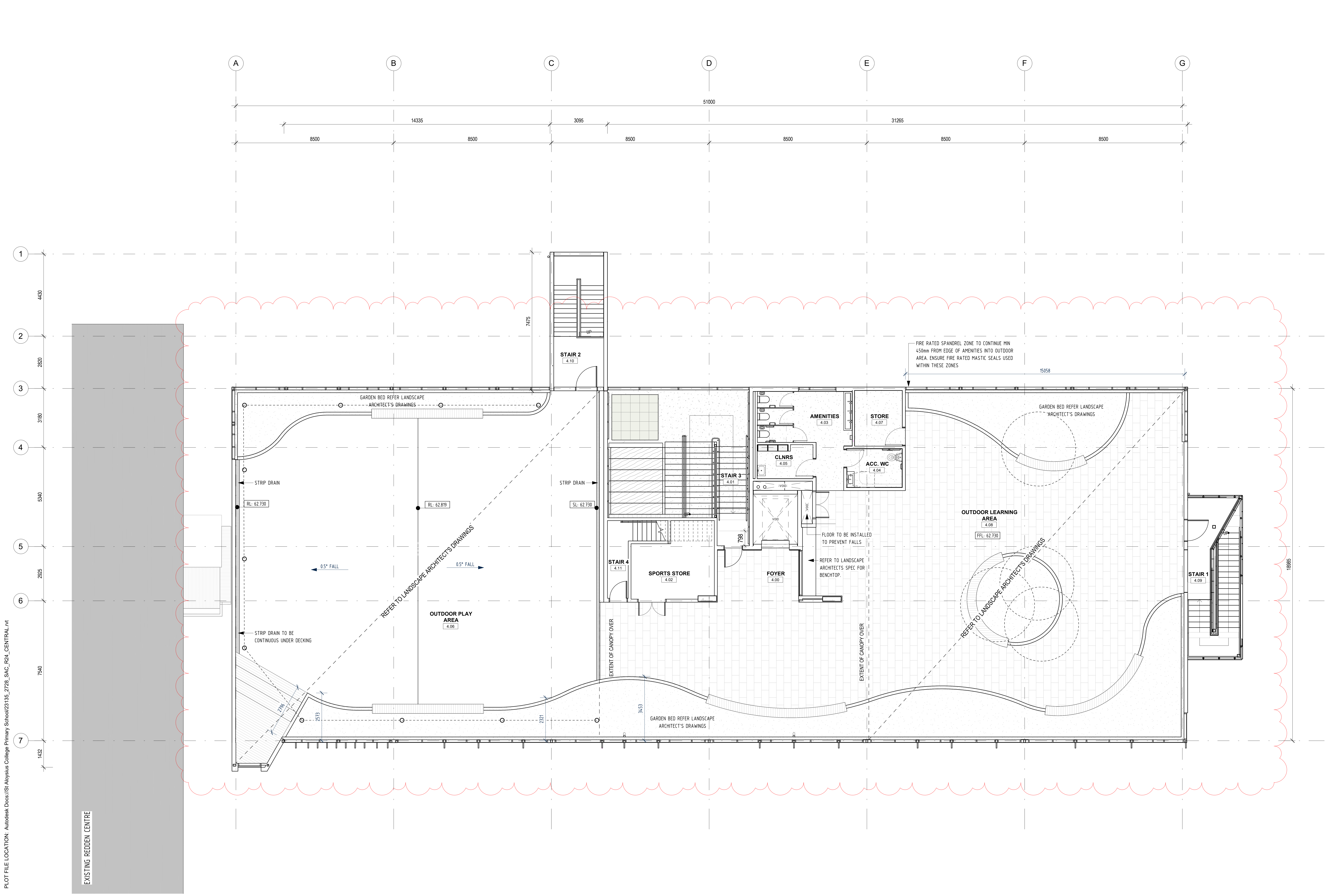
Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA24	3



Scale Bar Units in Millimetres

A1 Sheet

Legend

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3	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK
2	24.07.24	FOR COORDINATION	AR	AK
1	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK
0	11.06.24	FOR COORDINATION	AR	AK

Drawing Status

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

ROOFTOP PLAN

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Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA25	3

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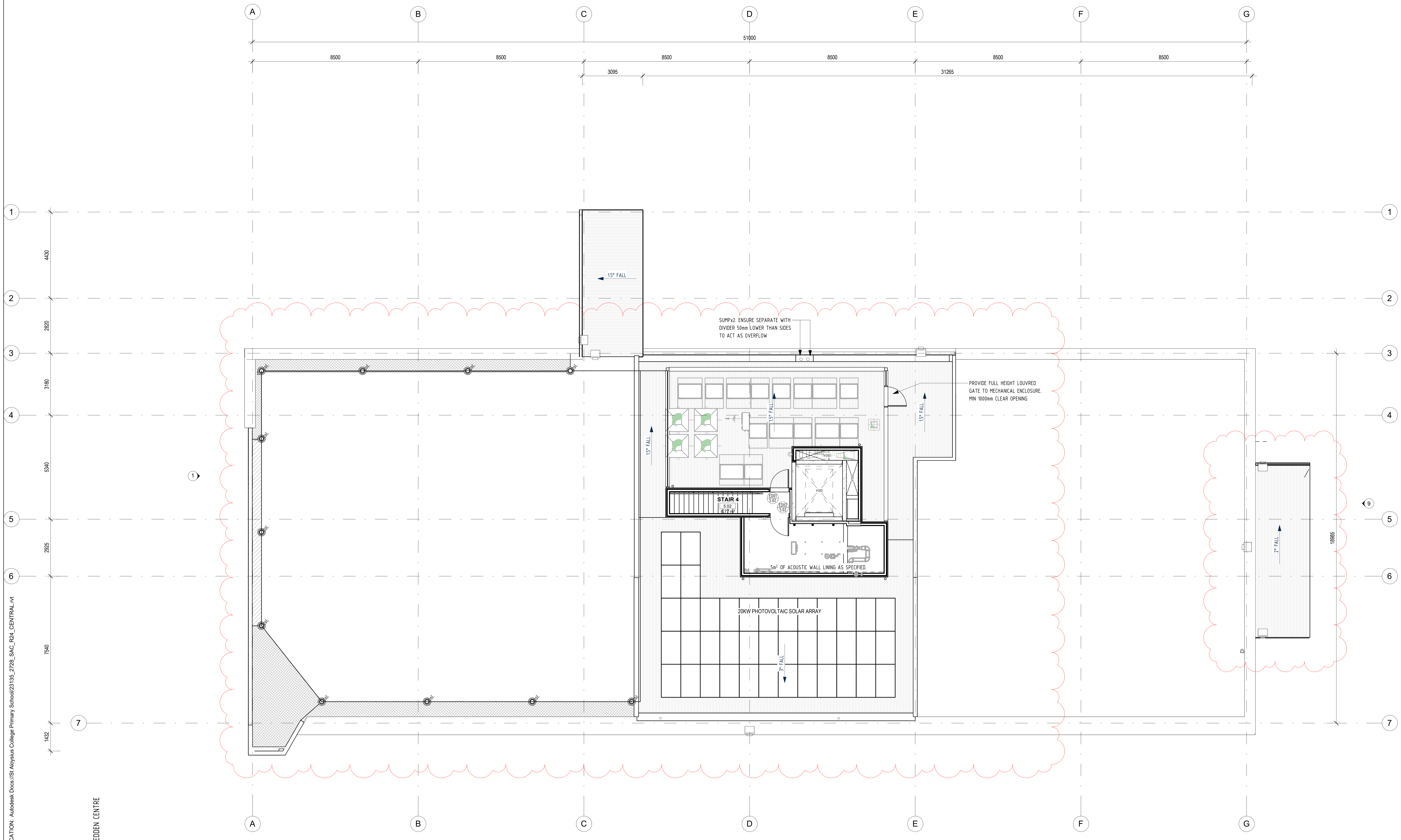

Scale Bar Units in Millimetres

A1 Sheet

Legend

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2	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK
1	24.07.24	FOR COORDINATION	AR	AK
0	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK

Drawing Status

PRELIMINARY

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

PLANT LEVEL PLAN

PN

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Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA26	2

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Scale Bar Units in Millimetres

A1 Sheet

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Rev.	Date	Description	Ver.	Appr.
0	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK

Drawing Status

PRELIMINARY

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

PLANT ROOF PLAN

RN

Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA27	0

PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_CENTRAL.rvt

PLOT FILE DATE: 24/09/2024 6:24:18 PM

E1 SOUTH ELEVATION DA
1 : 100

E2 NORTH ELEVATION DA
1 : 100

Legend

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3	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK
2	23.07.24	ISSUE FOR SIGNAGE AND LEVEL CLARIFICATION	AR	AK
1	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK
0	11.06.24	FOR COORDINATION	AR	AK

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Project
ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title
ELEVATIONS

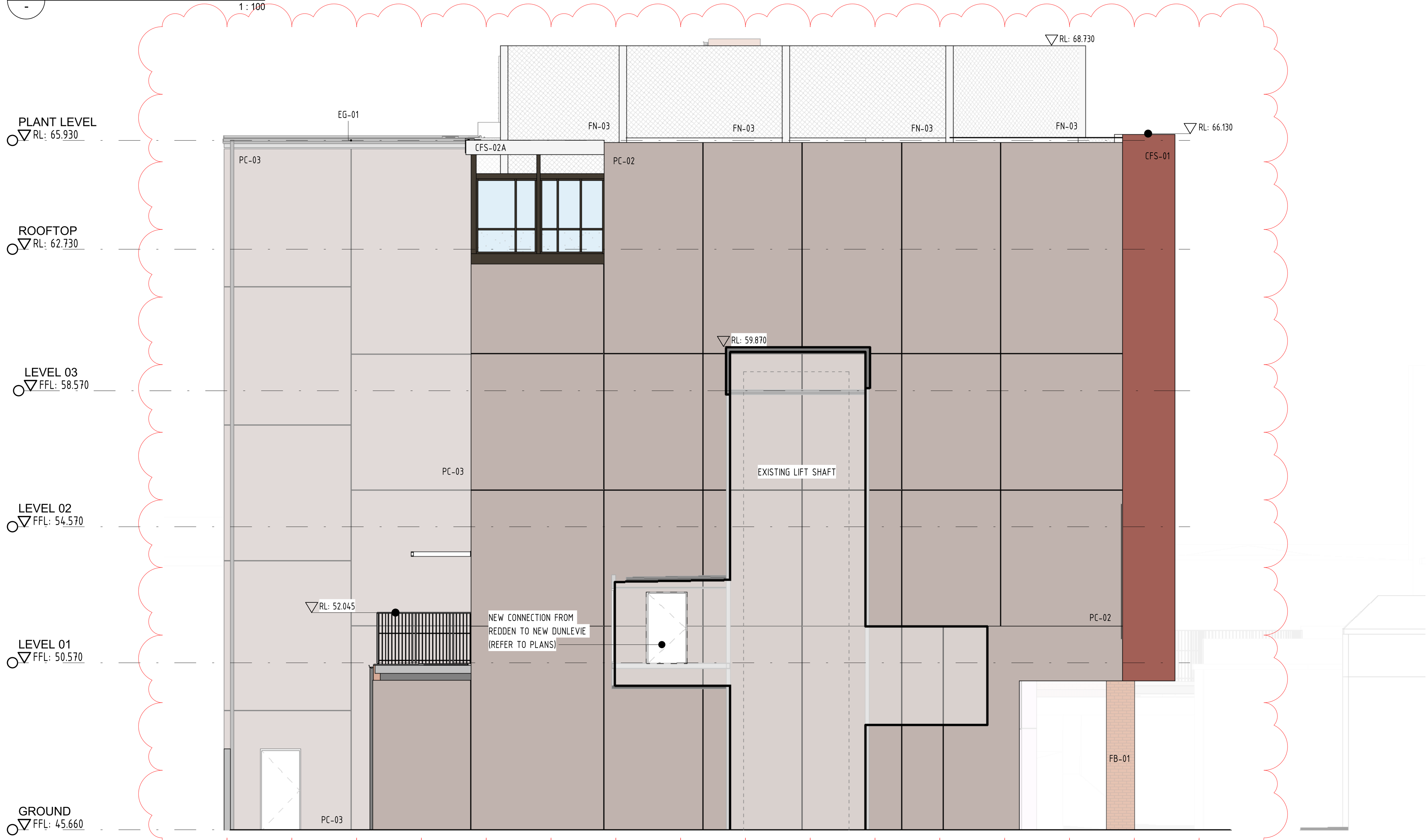
Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA31	3

Scale Bar Units in Millimetres

A1 Sheet

E3 EAST ELEVATION 1 : 100



E4 WEST ELEVATION 1 : 100

PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_CENTRAL.rvt

PLOT FILE DATE: 24/09/2024 6:24:51 PM

FB-01 & FB-05
FACE BRICKWORK CLADDING

CFS-01
FIBRE CEMENT WALL CLADDING

PC1
PRECAST CONCRETE

PC2 & PC03
PRECAST CONCRETE

CFS-04
FIBRE CEMENT WALL CLADDING

FIN-01
VERTICAL ALUMINIUM FINS

MF-02
METAL FLASHING

CFS-03
PERFORATED METAL

CFS-02A
HORIZONTAL ALUMINIUM FINS

FN-03 & CFS-07
STAINLESS STEEL MESH

CFS-02B
ALUMINIUM CLADDING

ES-01
EXTERNAL SIGNAGE

GLAZING
CLEAR GLASS UNLESS OTHERWISE NOTED

Legend

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0	11.06.24	FOR COORDINATION	AR	AK

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Project
ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title
ELEVATIONS

Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA32	3

10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700
Scale Bar Units in Millimetres
A1 Sheet

Legend

ARTIST IMPRESSIONS

VIEW FROM ANGAS ST


VIEW FROM REDDEN LANEWAY LOOKING NORTH


VIEW FROM COURTYARD LOOKING WEST


VIEW OF ENTRY


LOOKING WEST FROM UNDER NEW CLOISTER


VIEW FROM PLAYGROUND


VIEW FROM CONVENT


VIEW FROM POOL


VIEW FROM NORTHERN COURTYARD

Rev.	Date	Description	Ver.	Appr.
3	25.09.24	ISSUE FOR PLANNING CLARIFICATION		
2	23.07.24	ISSUE FOR SIGNAGE AND LEVEL CLARIFICATION		
1	24.06.24	ISSUE FOR PLANNING		
0	21.06.24	ISSUE FOR PLANNING CONSENT		

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Project
ST ALOYSIUS
COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title
RENDERS

Scale (at A1)

Job No.	Drawing No.	Issue
23135_2728	DA51	3

PLOT FILE DATE: 25/09/2024 9:24:12 AM
PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

Scale Bar Units in Millimetres
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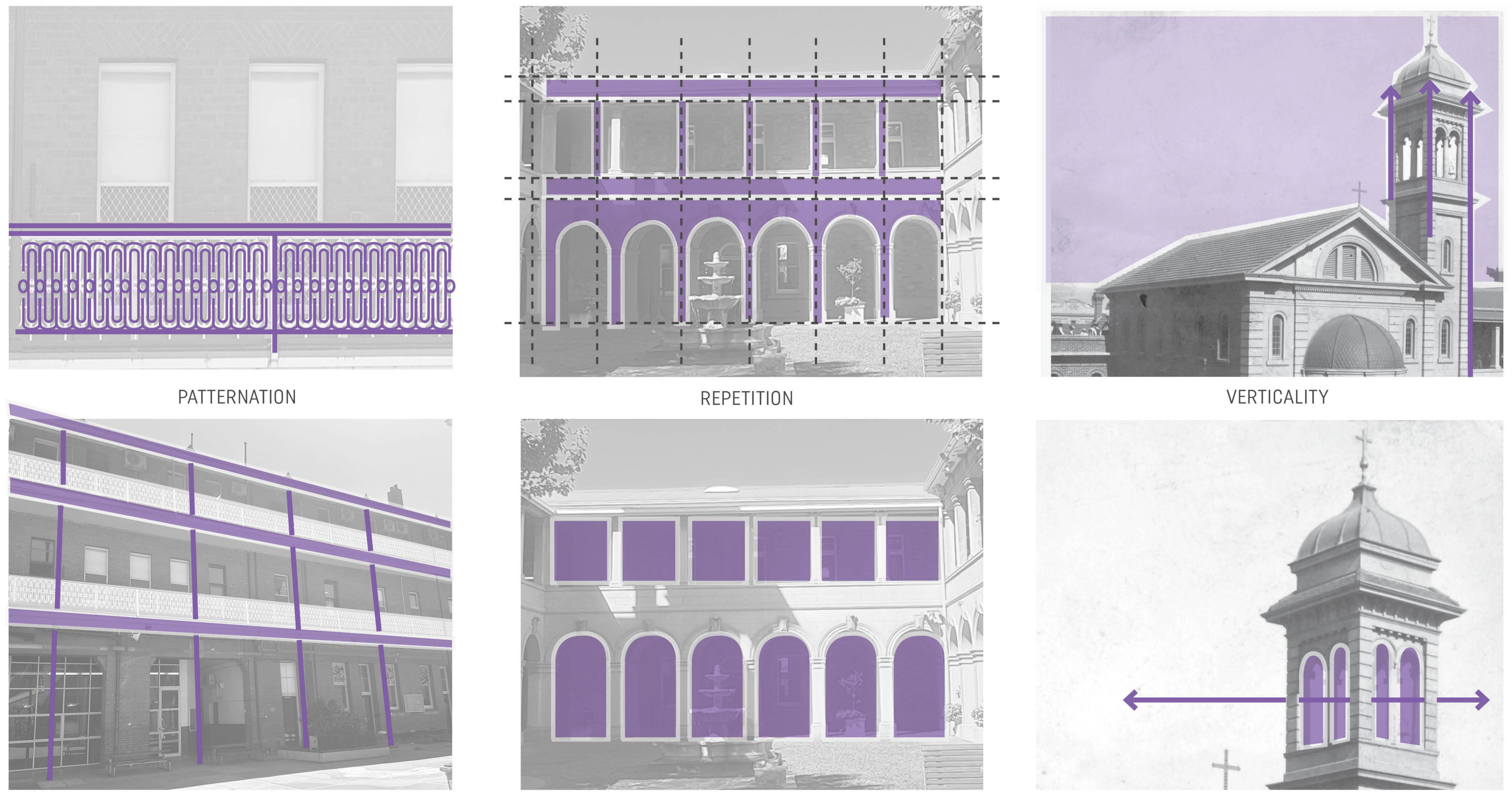
A1 Sheet



PATTERNATION — REPETITION — VERTICALITY

PROPORTION — "THE CLOISTER" — OPENESS

DUNLEVIE BUILDING — **CONVENT** — **CUNNINGHAM MEMORIAL CHAPEL**

HERITAGE CONTEXT

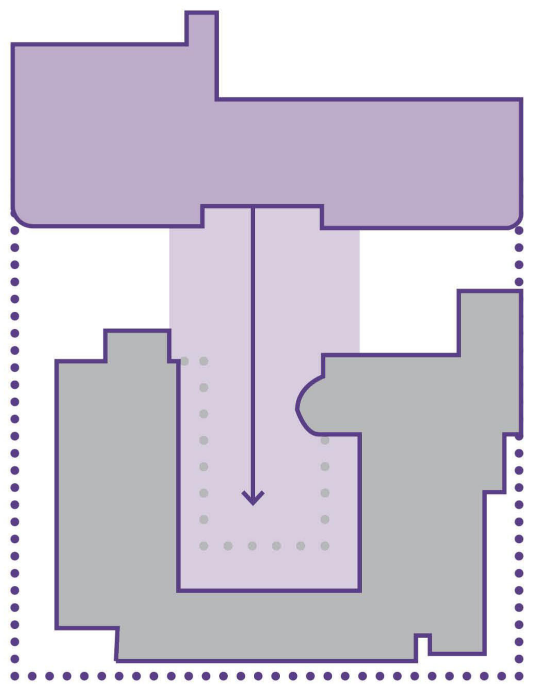
FORM, GEOMETRY & PATTERNATION

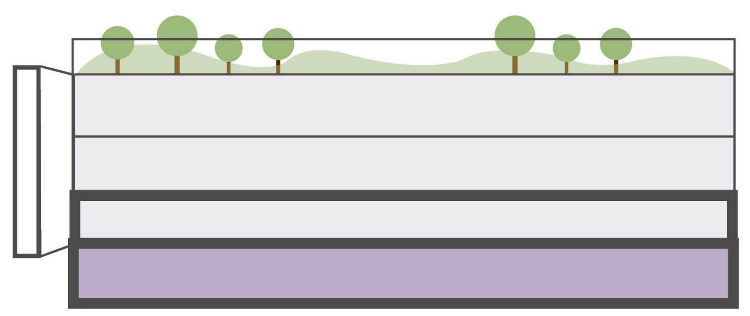
PATTERNATION — REPETITION — VERTICALITY

PROPORTIONS — "THE CLOISTER" — OPENESS

HERITAGE CONTEXT

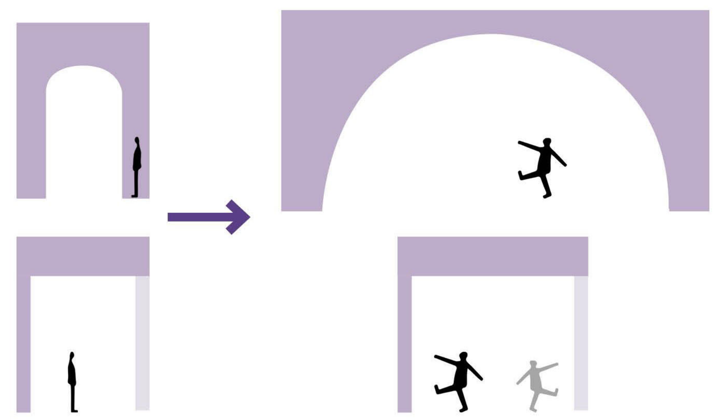
CONTEMPORARY DESIGN RESPONSE





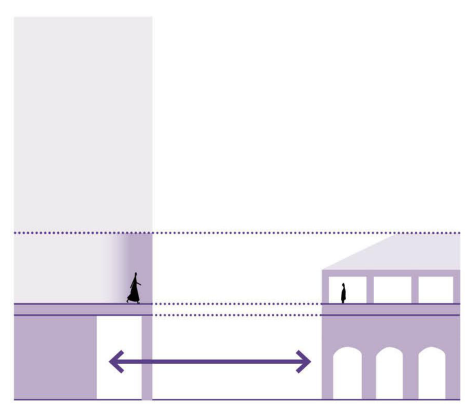
SKY GARDEN

An opportunity for greater outdoor space for students within the tight site



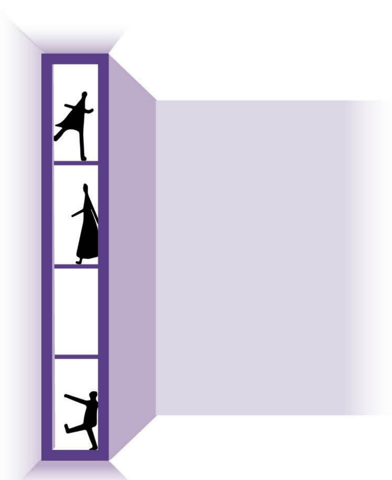
HISTORICAL INTERPRETATION

Creating a contemporary cloister through interpretation of form to create cover without reducing circulation space



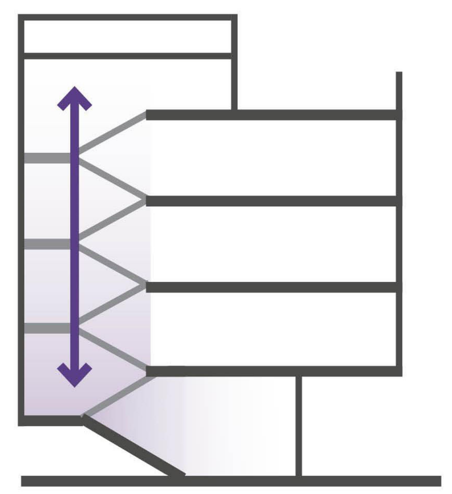
CONNECT TO CONVENT

Embracing the ceremonial heart of the school



EDUCATIONAL WINDOW

Connecting levels together to enhance learning opportunities



VERTICAL CONNECTIONS

Connecting levels together to enhance learning opportunities

NEW BUILDING

DESIGN STRATEGIES

PLOT FILE DATE: 24/09/2024 6:42:59 PM
PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

Legend

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Project
ST ALOYSIUS
COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title
DESIGN DIAGRAMS

Scale (at A1)

Job No.	Drawing No.	Issue
23135_2728	DA52	0

Scale Bar Units in Millimetres 10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700 A1 Sheet

Legend

Off-white vertical aluminium fins and rooftop perimeter fin

Steel archway to external stair

Window framing in charcoal

Brick cladding pinkish/ light red colour

Black steel fin balustrading

Fibre cement cladding, light terracotta colour expressed joints

Stainless steel mesh

Perforated metal to stair

Courtyard paver – grey

Courtyard paver – cream

Precast Concrete (pigmented light terracotta with routed lines)

Precast Concrete (unpainted with routed lines)

Glass balustrading to rooftop

Fibre cement cladding, expressed joints

Acrylic surface to rooftop in light blue

Metal roof sheeting to rooftop canopy

Timber slats external seating

Rendered blockwork to rooftop planters

Painted fibre cement soffit ligh terracotta colour expressed joints

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Project

ST ALOYSIUS
COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

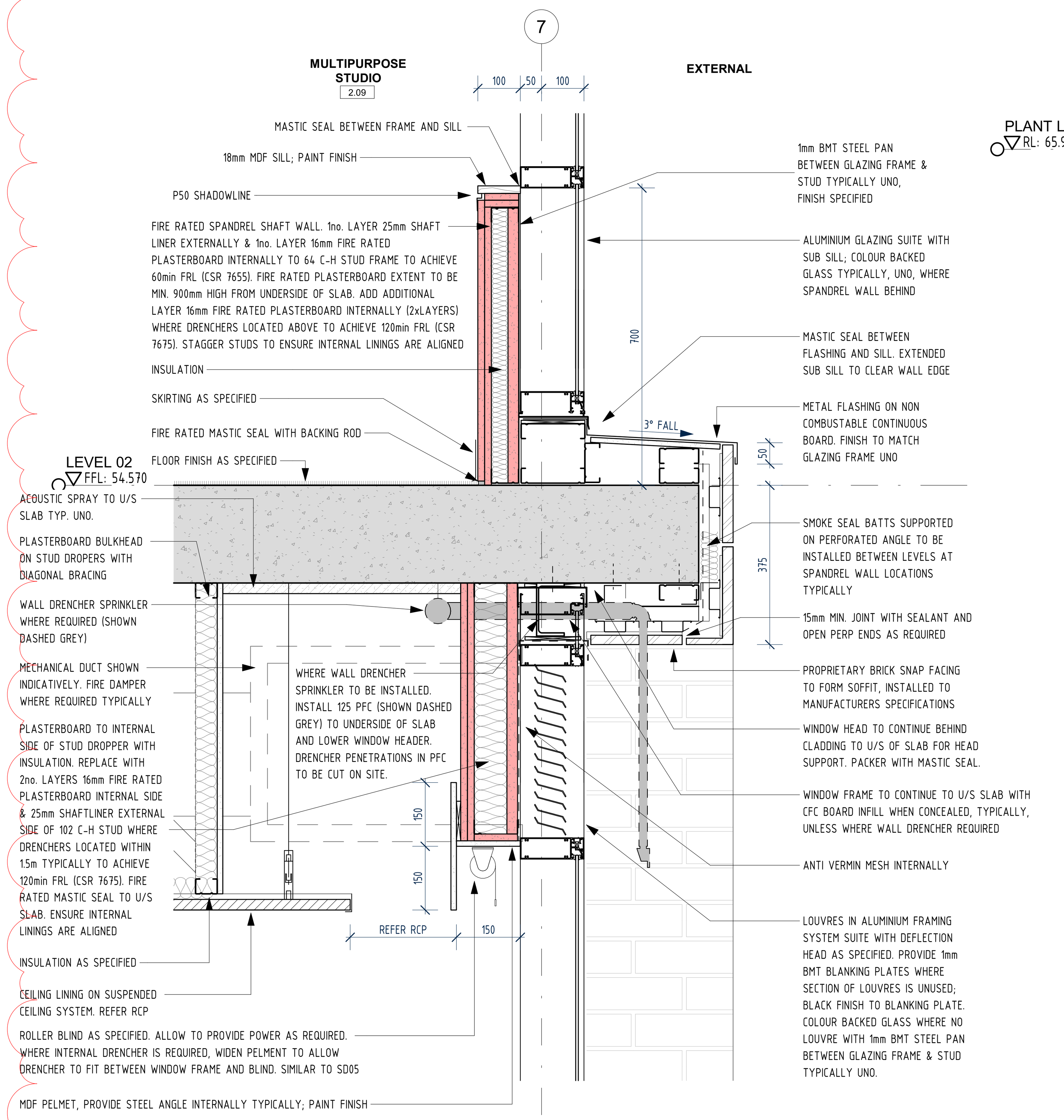
EXTERNAL MATERIALS

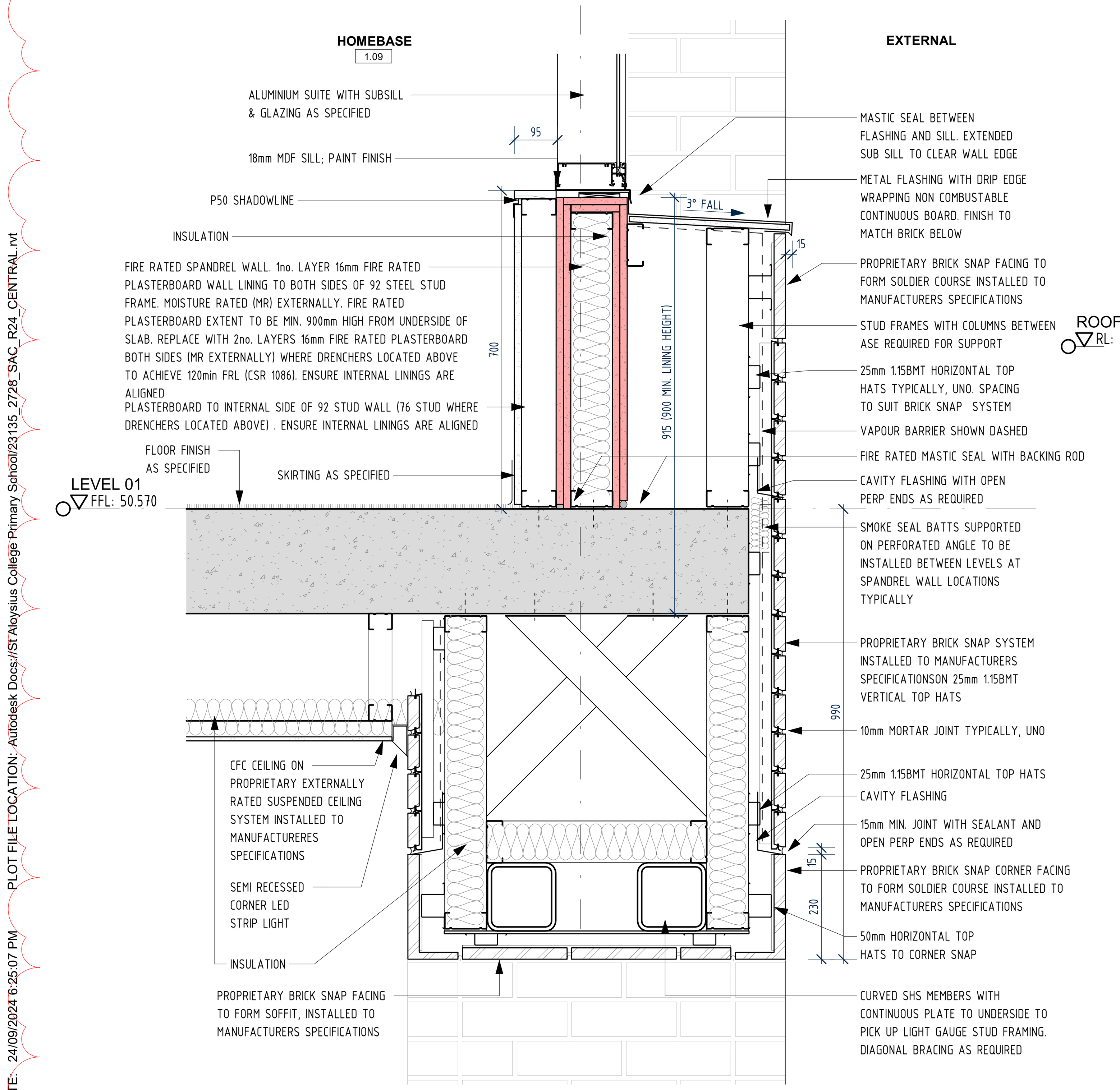
Scale (at A1)

Job No.	Drawing No.	Issue
23135_2728	DA53	0

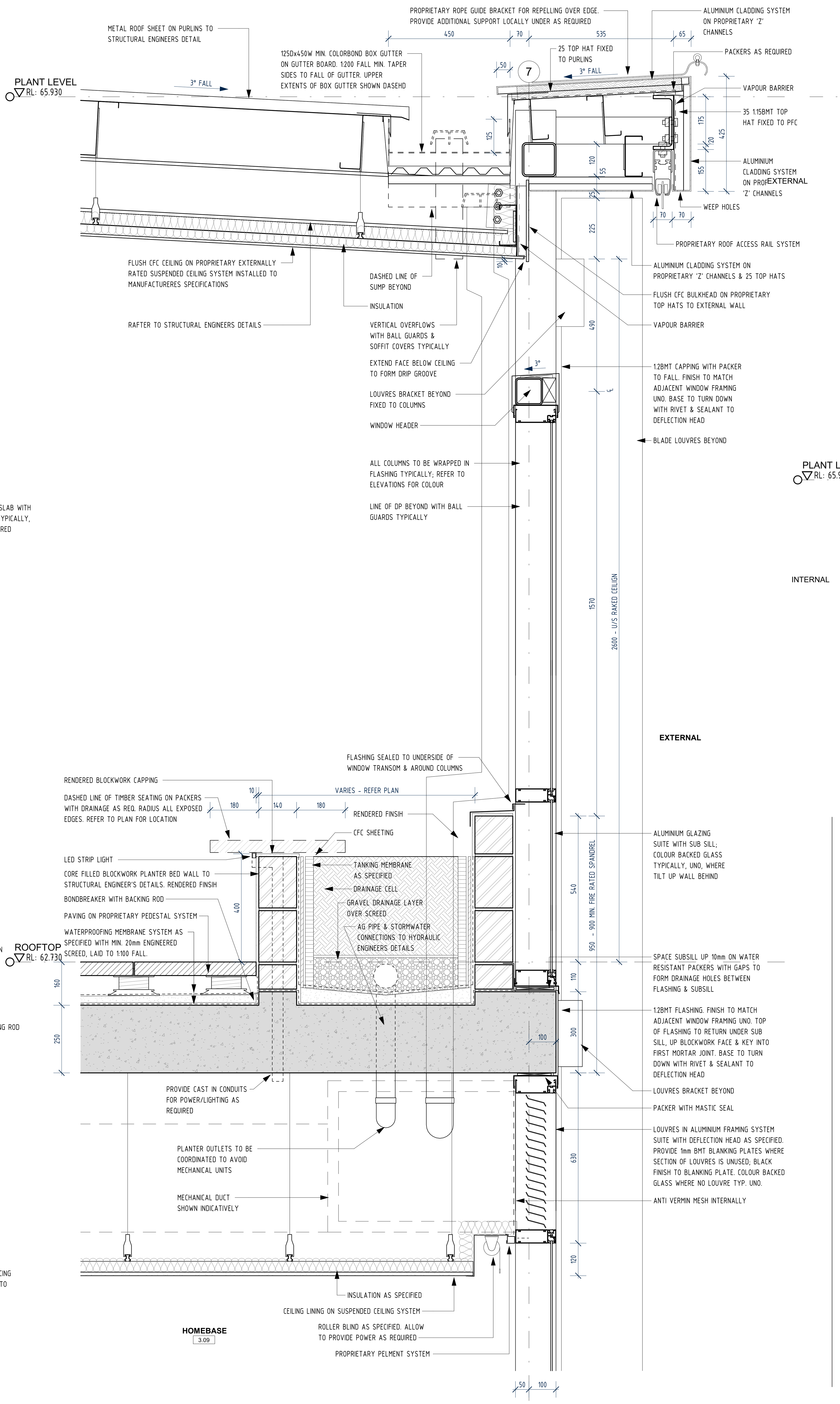
PLOT FILE DATE: 24/09/2024 6:43:38 PM PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

Scale Bar Units in Millimetres | A1 Sheet

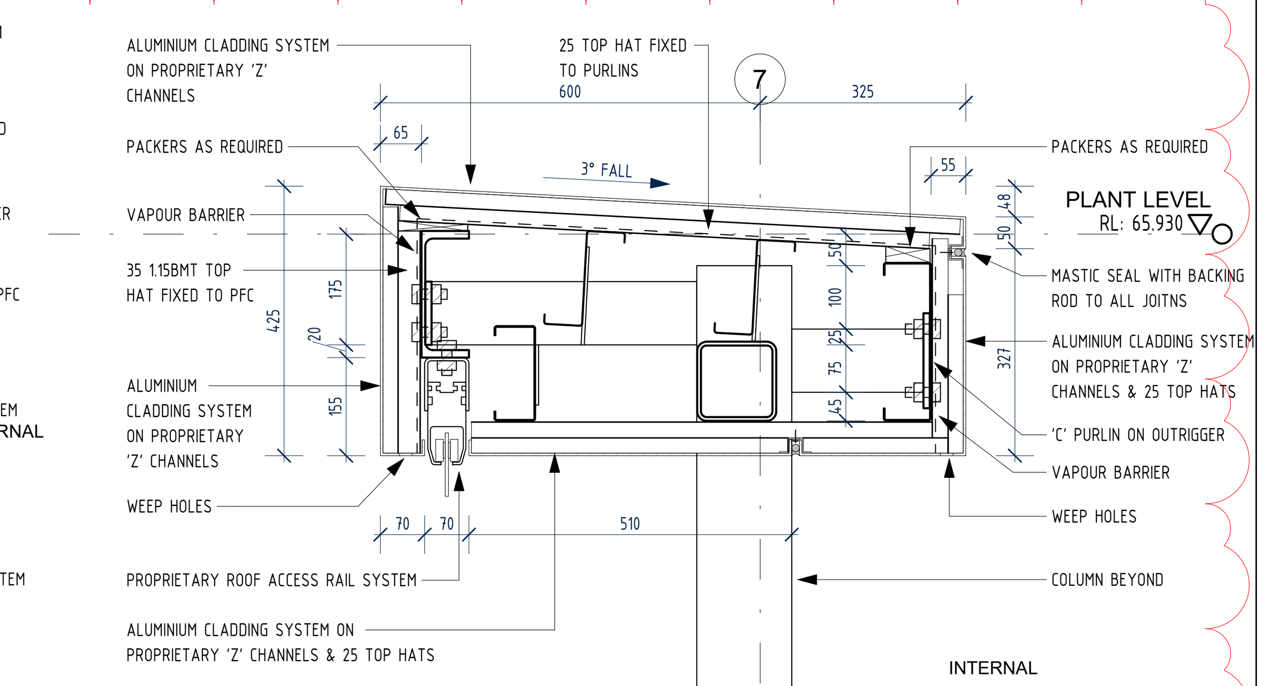




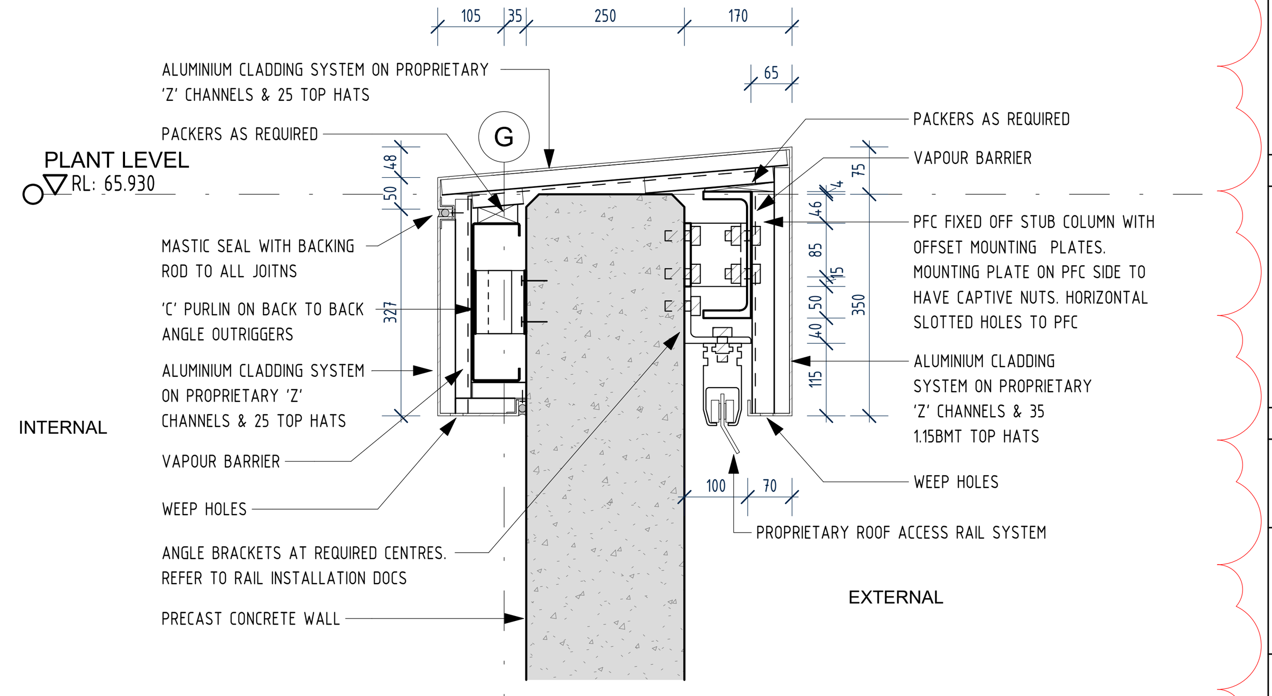
1 SECTION DETAIL 1 : 10



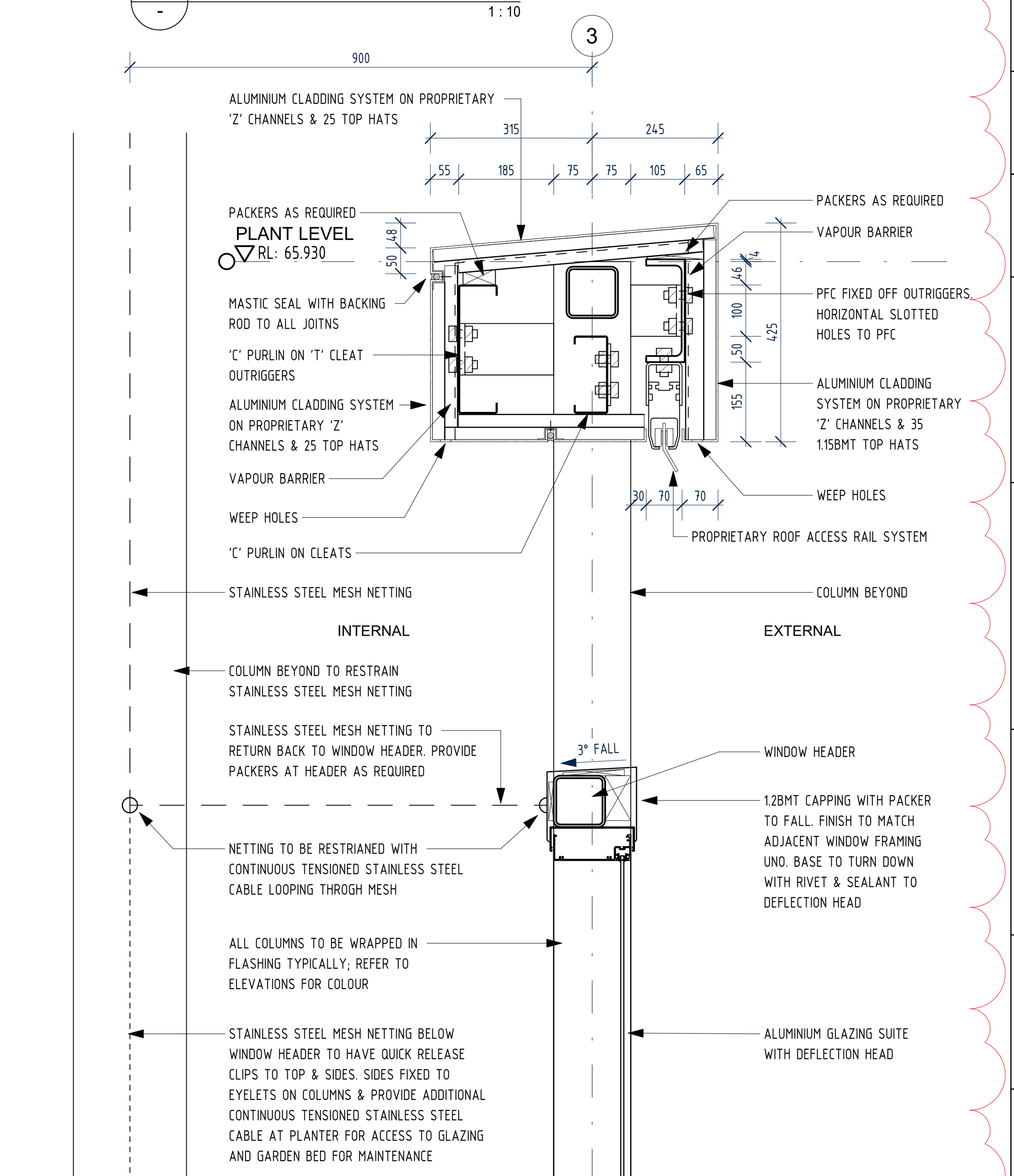
2 SECTION DETAIL 1 : 10



3 SECTION DETAIL 1 : 10



4 SECTION DETAIL 1 : 10



5 SECTION DETAIL 1 : 10

PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_CENTRAL.rvt
PLOT FILE DATE: 24/09/2024 6:25:07 PM

Legend

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Project
ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title
EXTERNAL SECTION DETAILS

Scale (at A1) As indicated

Job No.	Drawing No.	Issue
23135_2728	DA61	0

Attachment B

Landscape Works Plan

MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977

A2407_ ST ALOYSIUS COLLEGE
LANDSCAPE WORKS

ISSUED: 11/09/24

REV: P3

GENERAL NOTES

NOTES:

THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE LANDSCAPE TECHNICAL SPECIFICATION AND THE FINISHES AND FURNITURE SCHEDULED PROVIDED AS PART OF THIS DRAWING SET.

THE CONTRACTOR AND SUB-CONTRACTORS SHALL VERIFY ALL DIMENSIONS, LINES, LEVELS, AND EXISTING SERVICE LOCATIONS PRIOR TO COMMENCEMENT ON SITE, PREPARATION OF DETAIL/SHOP DRAWINGS, AND FABRICATION OF CONSTRUCTION/BUILDING COMPONENTS.

CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS PRIOR TO FABRICATION AND INSTALLATION. IF ANY ANOMALIES ARISE THE CONTRACTOR IS TO ADVISE THE ENGINEER IMMEDIATELY.
ALL DIMENSIONS ARE IN MM. DO NOT SCALE OFF DRAWINGS.

CONTRACTOR IS TO PROVIDE SHOP DRAWINGS (CAD DRAFTED TO SCALE WITH ADEQUATE NOTES AND DIMENSIONS FOR REVIEW AND FABRICATION) TO THE ENGINEER. FIXING COMPONENTS AND DETAIL TO BE CONFIRMED THROUGH THE SHOP DRAWING PROCESS.

ALL WELDS TO BE 4MM CFW ELECTRODE TO AS/NZ 1554, PART 1 AND 2 AS APPROPRIATE. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS/NZ 4100 STEEL STRUCTURES.
SHOP WELD WITH CFW ALL JOINS. ALL BUTT WELDS SHALL BE FULL PENETRATION. UNLESS SPECIFIED OTHERWISE ALL FABRICATION TOLERANCES SHALL BE WITHIN +/- 1.0MM AND ALL.

ANGULAR TOLERANCES SHALL BE +/- 1.0MM.
GRIND SMOOTH ALL EDGES TO MAKE NEAT JOINS. REMOVE GLOBULES OF WELD METAL, WELD SLAG AND ALL FOREIGN MATTER.

FINISH VISIBLE JOINTS MADE BY WELDING USING METHODS, APPROPRIATE TO THE CLASS OF WORK, INCLUDING GRINDING OR BUFFING BEFORE FURTHER TREATMENT.

CONTRACTOR SHALL SUPPLY AND INSTALL ALL STAINLESS STEEL SCREWS, BOLTS, NUTS , WASHERS, HINGES, LOCKS, RIVETS AND FIXINGS.

WHERE FIXING TYPES OR STRUCTURAL SPACINGS HAVE NOT BEEN NOMINATED, CONTRACTOR TO ENSURE THAT ENGINEER HAS APPROVED ANY SIZINGS AND SPACINGS INSTALLED.

ALL HARDWOOD TIMBER TO BE SUPPLIED AND INSTALLED AS DURABLE CLASS 1 UNLESS OTHERWISE STATED IN THE TECHNICAL SPECIFICATION.

ALL PRECAST CONCRETE SURFACES TO BE 'CLASS 1' FINISH. REFER TO ENGINEER'S DRAWINGS FOR CONCRETE STRENGTH AND REINFORCING.

PRECAST CONCRETE UNITS WILL REQUIRE STEEL REINFORCEMENT - DESIGN TO BE PROVIDED BY THE FABRICATOR FOR THE ENGINEER'S APPROVAL. CONTRACTOR TO ALLOW FOR DH10 REINFORCEMENT AT 150C/C ON EACH FACE.

DRAWING LIST

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 1 OF 1

Purpose:
TITLE PAGE

Date:
05.06.24

Scale:
N/A

Drawing No.
L001

Rev.
P3

LANDSCAPE DETAIL TYPE SCHEDULE

This schedule to be read in conjuction with the Landscape Drawings & Specification.
Contractor to advise any discrepancies between information provided in this Schedule with Referenced details, prior to ordering of materials.

Detail Type	Description	Location	Detail Reference No.	Finish	Size	Supplier/ Type	Submissions
PV01	Concrete Pavement Type 1	Ground floor	01/L700	Blasted, Exposed Aggregate Colour Country Tan Moonscape, Clear Sealant	Refer to drawings	Hanson or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
PV02	Concrete Pavement Type 2	Ground floor	01/L700	Blasted, Exposed Aggregate Colour Flinders, Clear Sealant	Refer to drawings	Hanson or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
PV03	Concrete Pavers on Pedestal	Ground floor, Level 1, Roof	02,03/L700	Blasted Color Remi	600 x 300 x 50 THK	Aston or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
PV04	Acrylic Play Surface	Roof Level	04/L700	Plexicushion Prestige. Colour Light Blue. Line marking White.	Refer to drawings	Plexipave or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
PV05	Granite Pavers	Ground floor	05/L700	Raven. Exfoliated	400 x 100 x 15 THK	Eco Outdoors or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
PV06	Brick Paving	Ground floor	06/L700	Match existing	Match existing	Match existing	Sample, Test Panel, Testing Data for Approval by Landscape Architect
FX01	Strip Drain Grate	Ground floor, Roof	01-04/L720	Stainless Steel Wedgewire Heelsafe	Straight & curved. Refer to drawings.	ACO or Approved equivalent	Sample, Prototype, Testing Data for Approval by Landscape Architect
FX02	Raised Steel Planters	Ground floor	05/L720	Redcor rusted steel	1165(D) x 850(H)	Formboss or Approved Equivalent	Sample, Prototype for Approval by Landscape Architect
FX03	Timber Deck	Roof Level	L721	Spotted Gum Battens coated with Intergrain Ultradeck.	Refer to drawings	N/A	Shop drawings, Prototype, Testing Data for Approval by Landscape Architect
FN01A	Concrete Bench, Straight, Timber Top, Backrest, Left Armrest	Ground floor	Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame and armrest. Monument colour. Concrete, Grey oxide, White quartz aggregate, medium blast	860 x 400 x 430(H)	Draffin, Wandin range or Approved Equivalent	Sample, Prototype, Testing Data for Approval by Landscape Architect
FN01B	Concrete Bench, Straight, Timber Top, Backrest, Right Armrest	Ground floor	Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame and armrest. Monument colour. Concrete, Grey oxide, White quartz aggregate, medium blast	860 x 400 x 430(H)	Draffin, Wandin range or Approved Equivalent	Sample, Prototype, Testing Data for Approval by Landscape Architect
FN01C	Concrete Bench, Straight, Timber Top, Backrest	Ground floor	Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame and armrest. Monument colour, Concrete, Grey oxide, White quartz aggregate, medium blast	860 x 400 x 430(H)	Draffin, Wandin range or Approved Equivalent	Sample, Prototype, Testing Data for Approval by Landscape Architect
FN01D	Concrete Bench, Curved, Concrete Top	Ground floor	Proprietary	Concrete, Grey oxide, White quartz aggregate, medium blast	863 x 400 x 430(H) 728 (R)	Draffin, Wandin range or Approved Equivalent	Sample, Prototype, Testing Data for Approval by Landscape Architect
FN02A	Timber Bench with Steel Frame, Subsurface mounted	Ground floor	Customised Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame, Monument colour, Subsurface mounted	405(W) x 430(H) Refer drawings for length	Draffin, Wandin range or Approved Equivalent	Shop drawings, Sample, Prototype, Testing Data for Approval by...
FN02B	Timber Bench with Steel Frame, Wall mounted	Ground floor	Customised Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame, Monument colour, Wall mounted	405(W) x 430(H) Refer drawings for length	Draffin, Wandin range or Approved Equivalent	Shop drawings, Sample, Prototype, Testing Data for Approval by...
FN03	Timber Table with Steel Frame, Subsurface Mounted	Ground floor	Customised Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame, Monument colour, Subsurface mounted	2030 x 405 x 750(H)	Draffin, Wandin range or Approved Equivalent	Shop drawings, Sample, Prototype, Testing Data for Approval by Landscape Architect
FN04	Timber Amphitheater, Subsurface Mounted	Ground floor	L722	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame, Monument colour, Subsurface mounted	Refer to drawings	Draffin, Fawkner range or Approved Equivalent	Shop drawings, Sample, Prototype, Testing Data for Approval by Landscape Architect
FN05	Kitchen Bench	Roof Level	Proprietary	Stainless Steel	2000 x 700 x 900(H)	Stoddart or Approved equivalent	Shop drawings for Approval by Landscape Architect
FN06	Palissade Cone Table	Roof Level	Proprietary	3no. Iron red powdercoated steel 2no. Olive powdercoated steel	Ø700 x 740(H)	Cult Design	N/A
FN07	Hee Dining Chair	Roof Level	Proprietary	6no. Rust powdercoated steel 6no. Fall green powdercoated steel 8no. Asphalt grey powdercoated steel	475 x 500 x 790(H)	Cult Design	N/A
FN08	Timber Bench atop Blockwork Wall	Roof Level	Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame. Monument colour	500(W) . Refer to drawing for length and radii	Draffin, Fawkner range or Approved Equivalent	Shop drawings, Sample, Prototype, Testing Data for Approval by...
FN09	Mud Kitchen	Ground floor	Proprietary	Charcoal colour WPC timber and steel frame	1200 x 550 x 600(H)	Preschool Equipment or Approved Equivalent	N/A
FN10	Vegepod	Level 1	Proprietary	Black planter in black steel frame	1000 x 1000 x 1500(H) 950(H) backboard	Vegepod or Approved Equivalent	N/A
GB01	Garden Bed In Ground Organic Mulch	Ground floor	02/L710	Forest Mulch	600mm topsoil A for trees. 300mm topsoil A for the rest	Jeffries or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
GB02	Raised Garden Bed Organic Mulch	Roof Level	03/L710	Forest Mulch	min 800mm topsoil B for trees. min 400mm topsoil B for the rest	Jeffries or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
LAWN	Instant Turf	Ground floor	01/L710	N/A	150mm min. topsoil C	Lawn Solutions or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
ED01	Blockwork Wall	Roof Level	07/L700	Rendered. Refer Architect's documentation	Refer to drawings	N/A	Sample, Test Panel, Testing Data for Approval by Landscape Architect

Contractor to submit samples of all materials for review by Landscape Architect prior to use in the works. - If alternatives are proposed, submit proposed alternatives and include samples, available technical information, shop drawings, images, reasons for proposed substitutions and cost as appropriate to sufficiently communicate validity of alternative item. If necessary, provide an English translation. State if provision of proposed alternatives will necessitate alteration to other parts of the works and advise consequent costs. Approval may be given for any substitution but it is the prerogative of the Principal to accept an alternative item or not.

Contractor to submit Shop drawings for the elements as documentation in the Landscape detail drawings. - Requirements: submit Shop Drawings for approval 14 days prior to commencing fabrication, to a scale not smaller than 1:25 for review by the Landscape Architect and Engineer.

Contractor shall engage specialist rooftop and green wall specialist for the supply and install of all other above structure planters, plant types, soil and irrigation. Soil shall be approved by Specialist Contractor, light weight with appropriate organic matter for long term organics needs for long term health of plants.

Contractor shall engage a specialist for irrigation design and construction. Contractor to allow for irrigation to all planters as per surface plans, including control wires, solenoids, soil moisture monitor for each planter run, control panel, weather station. Design submission prior to construction, including proposed layout, materials, and all products to be submitted to Landscape Architect for approval for all levels. Water supply as per Engineers Drawings.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

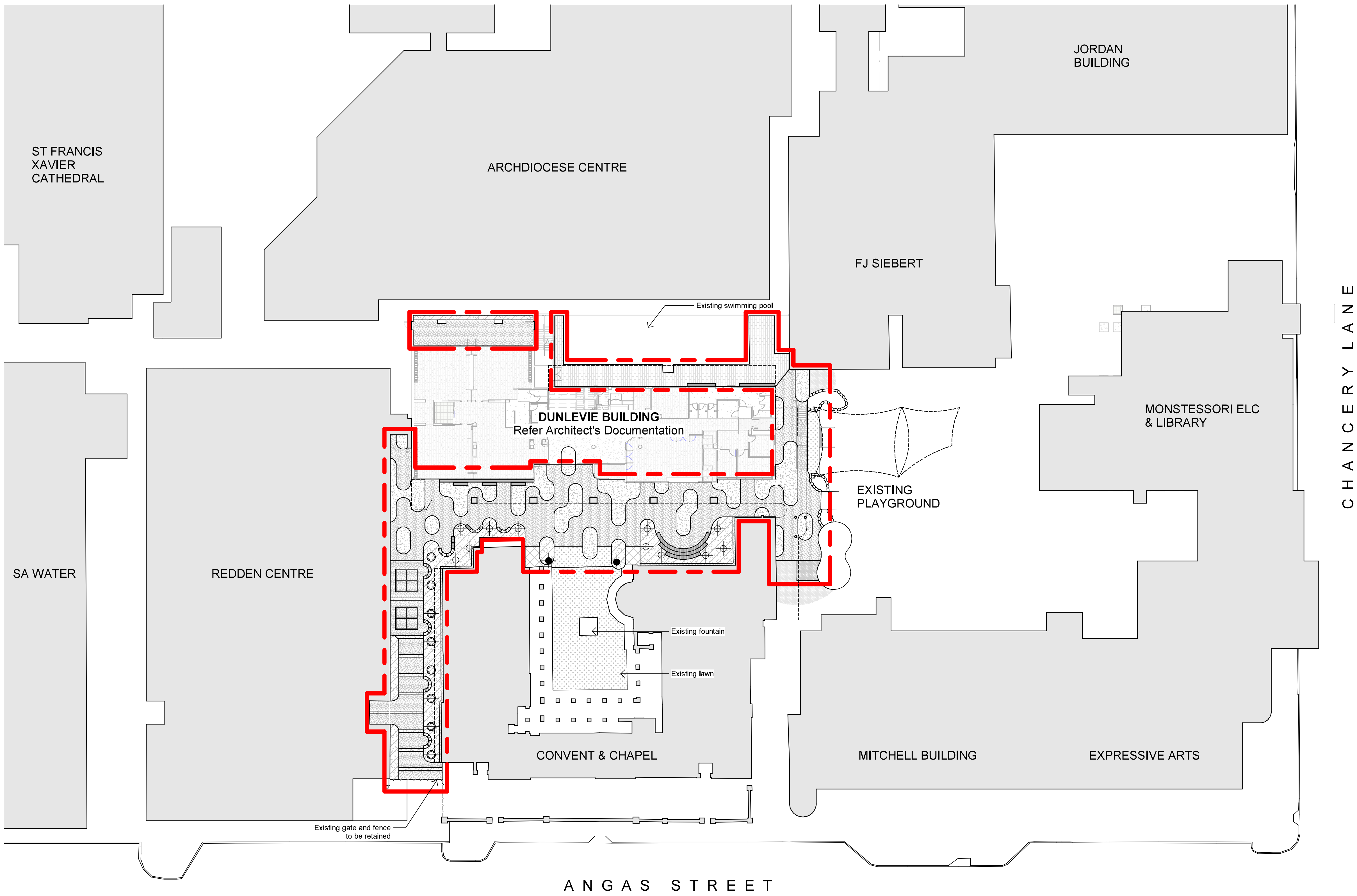
File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE
Sheet: SHEET 1 OF 1
Purpose: SCHEDULES
Date: 05.06.24
Scale: N/A
Drawing No. L002
Rev. P3



LEGEND

Extent of Works

Existing Fence

Building Overhang

Proposed Tree

Existing Tree

PV01 In-Situ Coloured Concrete Paving
Exposed aggregate
Refer Detail 01/L700

PV02 In-Situ Coloured Concrete Paving
Exposed aggregate
Refer Detail 01/L700

PV03 Pavers on Pedestal
Refer Detail 02&03/L700

PV05 Granite Pavers
Refer Detail 05/L700

PV06 Brick Paving
Refer Detail 06/L700

GB01 Garden Bed In Ground
Refer detail 02/L710

Lawn
Refer detail 01/L710

FN01A Concrete Bench with Left Armrest & Backrest
Refer Specification & L002

FN01B Concrete Bench with Right Armrest & Backrest
Refer Specification & L002

FN01C Concrete Bench with Backrest
Refer Specification & L002

FN01D Curved Concrete Bench
Refer Specification & L002

FN02A Timber Bench, subsurface mounted
Refer Specification & L002

FN02B Timber Table, wall mounted
Refer Specification & L002

FN03 Timber Table, subsurface mounted
Refer Specification & L002

FN04 Timber Amphitheater, subsurface mounted. Refer Specification & detail 01&02/L722

FX01 Strip Drain
Refer Detail 01-04/L720

FX02 Raised Steel Planters
Refer Detail 05/L720

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 1 OF 1

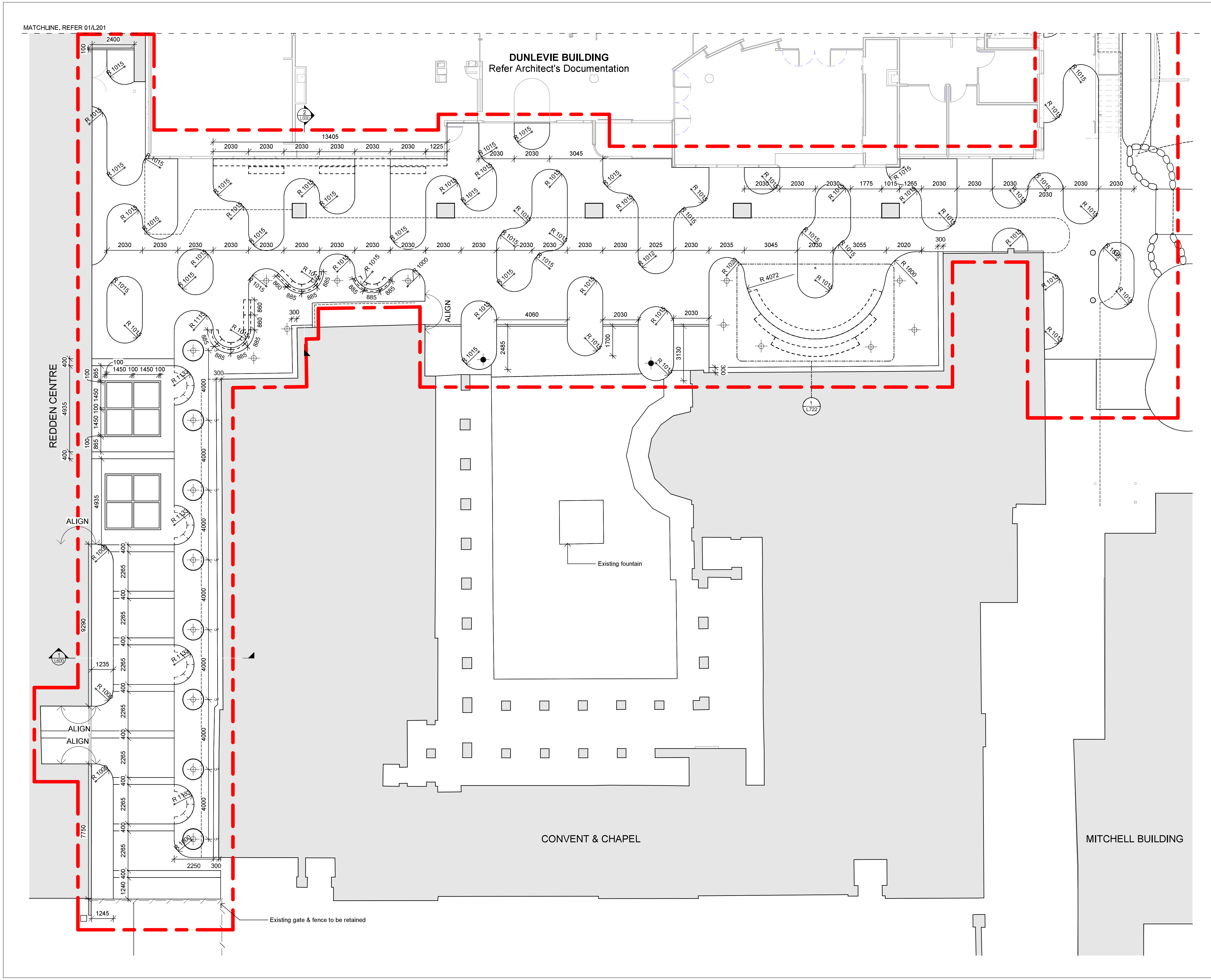
Purpose:
OVERALL PLAN

Date:
05.06.24

Scale:
As indicated@A1

Drawing No.:
L100

Rev.
P3



LEGEND

- Extent of Works
- Building Overhang
- Existing Fence
- Proposed Tree
- Existing Tree

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

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File #: A2407

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Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 1 OF 3

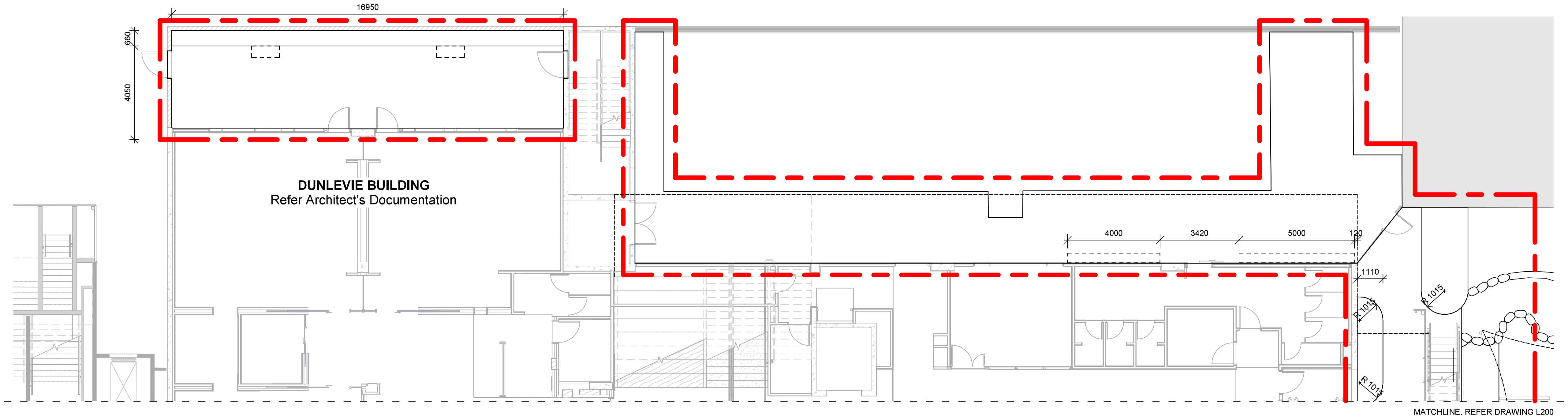
Purpose:
SETOUT PLAN - GROUND FLOOR

Date:
05.06.24

Scale:
1 : 100@A1

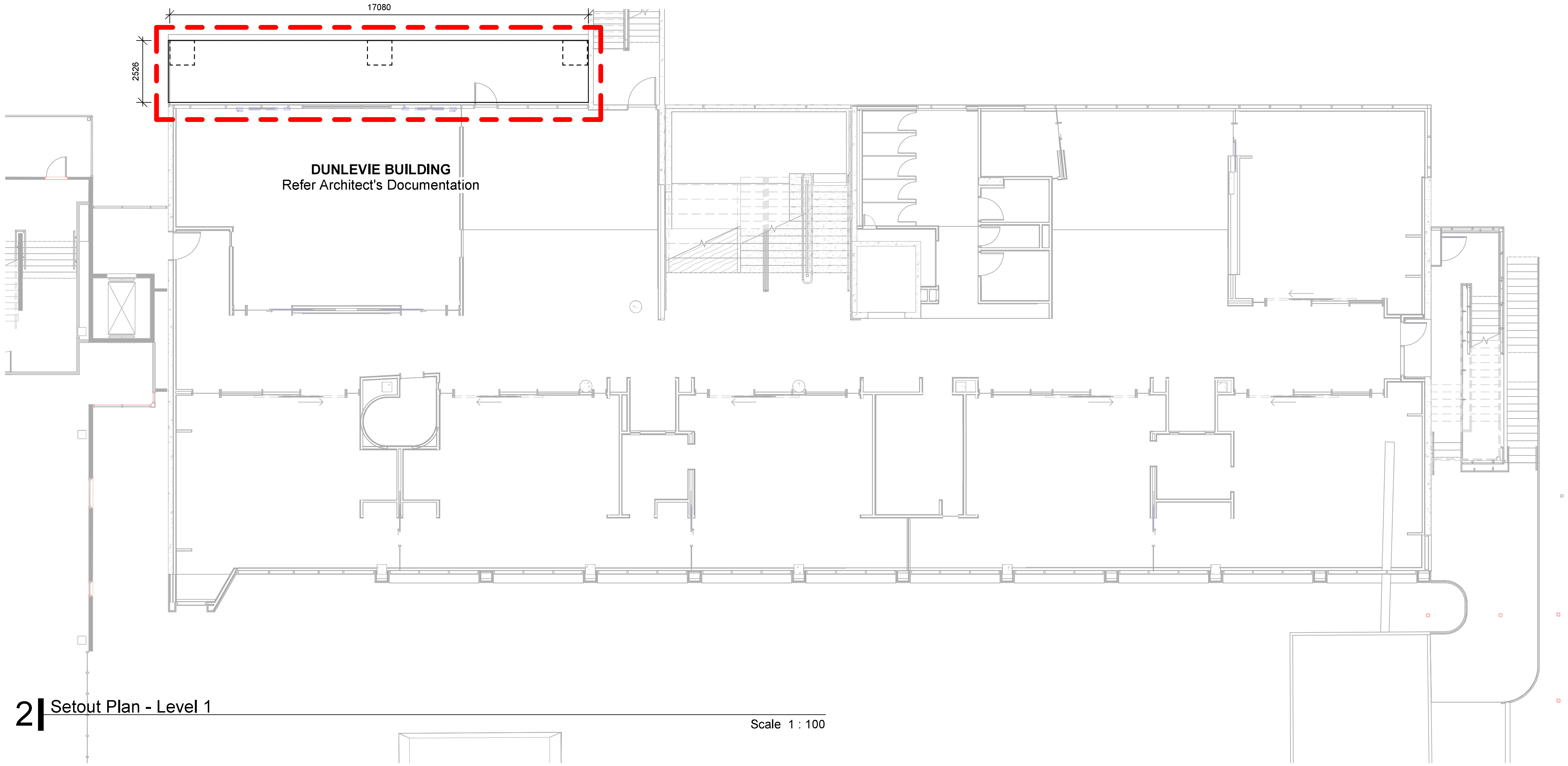
Drawing No.
L200

Rev.
P3



1 Setout Plan - Ground Floor Courtyard

Scale 1 : 100



2 Setout Plan - Level 1

Scale 1 : 100

LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- Existing Tree

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

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File #: A2407

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Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Date:
05.06.24

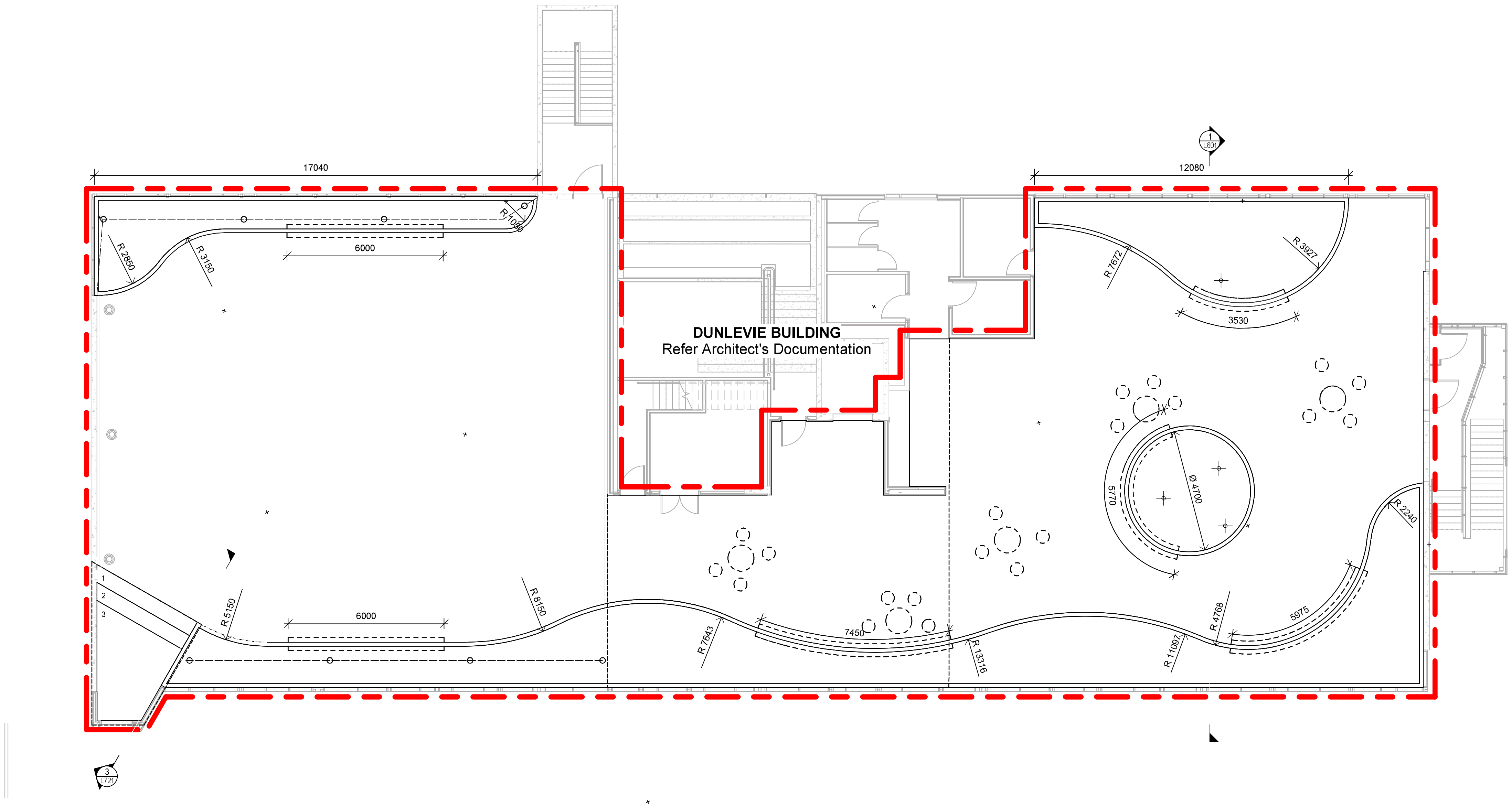
Sheet:
SHEET 2 OF 3

Scale:
1 : 100@A1

Purpose:
SETOUT PLAN - GF & LEVEL 1

Drawing No.
L201

Rev.
P3



LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- Existing Tree

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

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File #: A2407

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Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE

Sheet: SHEET 3 OF 3

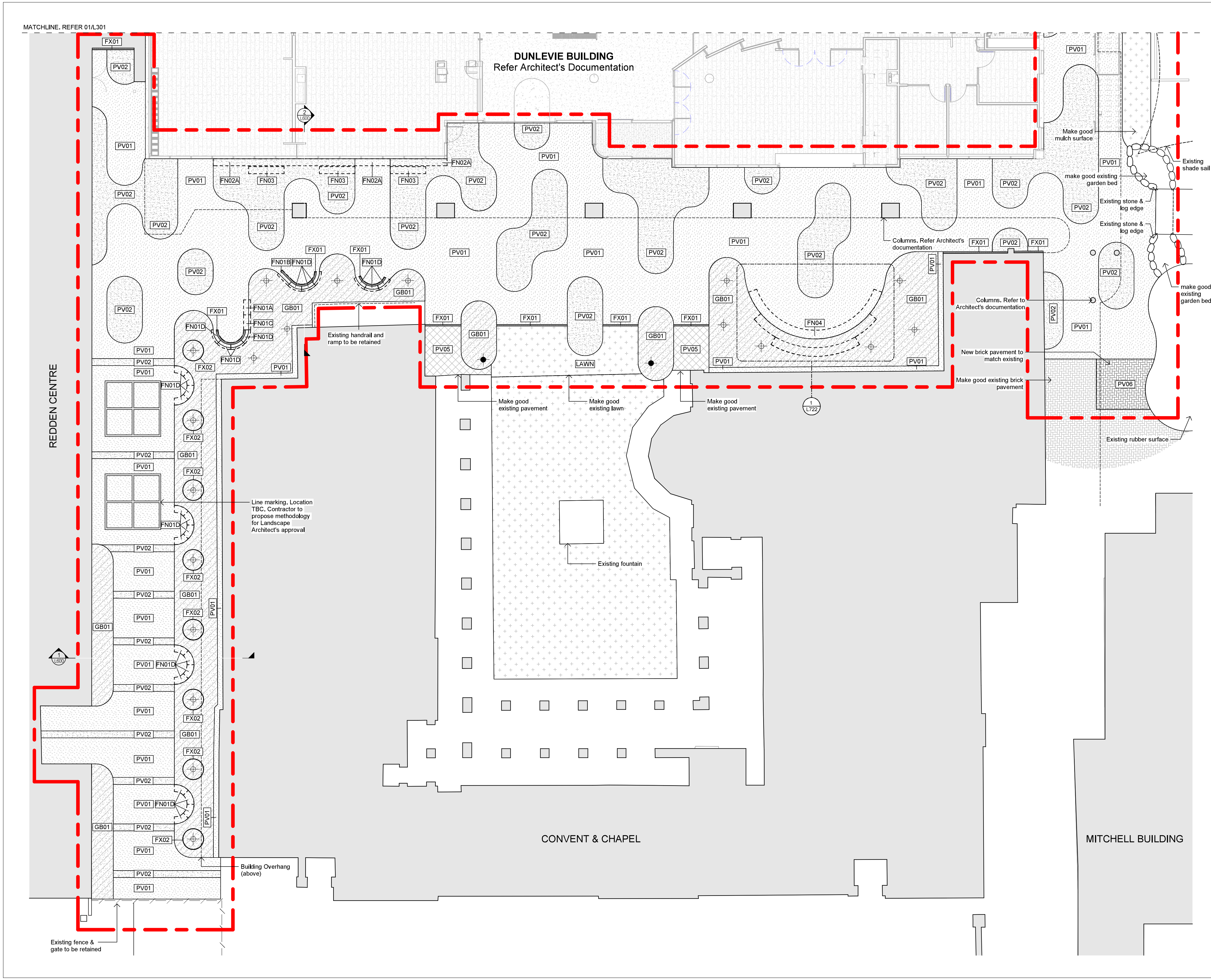
Purpose: SETOUT PLAN - ROOF GARDEN

Date: 05.06.24

Scale: 1 : 100@A1

Drawing No. L202

Rev. P3



LEGEND

- Extent of Works
- Existing Fence
- Building Overhang
- Proposed Tree
- Existing Tree
- PV01 In-Situ Coloured Concrete Paving Exposed aggregate Refer Detail 01/L700
- PV02 In-Situ Coloured Concrete Paving Exposed aggregate Refer Detail 01/L700
- PV03 Pavers on Pedestal Refer Detail 02&03/L700
- PV05 Granite Pavers Refer Detail 05/L700
- PV06 Brick Paving Refer Detail 06/L700
- GB01 Garden Bed In Ground Refer detail 02/L710
- Lawn Refer detail 01/L710
- FN01A Concrete Bench with Left Armrest & Backrest Refer Specification & L002
- FN01B Concrete Bench with Right Armrest & Backrest Refer Specification & L002
- FN01C Concrete Bench with Backrest Refer Specification & L002
- FN01D Curved Concrete Bench Refer Specification & L002
- FN02A Timber Bench, subsurface mounted Refer Specification & L002
- FN02B Timber Table, wall mounted Refer Specification & L002
- FN03 Timber Table, subsurface mounted Refer Specification & L002
- FN04 Timber Amphitheater, subsurface mounted. Refer Specification & detail 01&02/L722
- FX01 Strip Drain Refer Detail 01-04/L720
- FX02 Raised Steel Planters Refer Detail 05/L720

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

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GL	KC	EL	GL

Status:

NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE

Date: 05.06.24

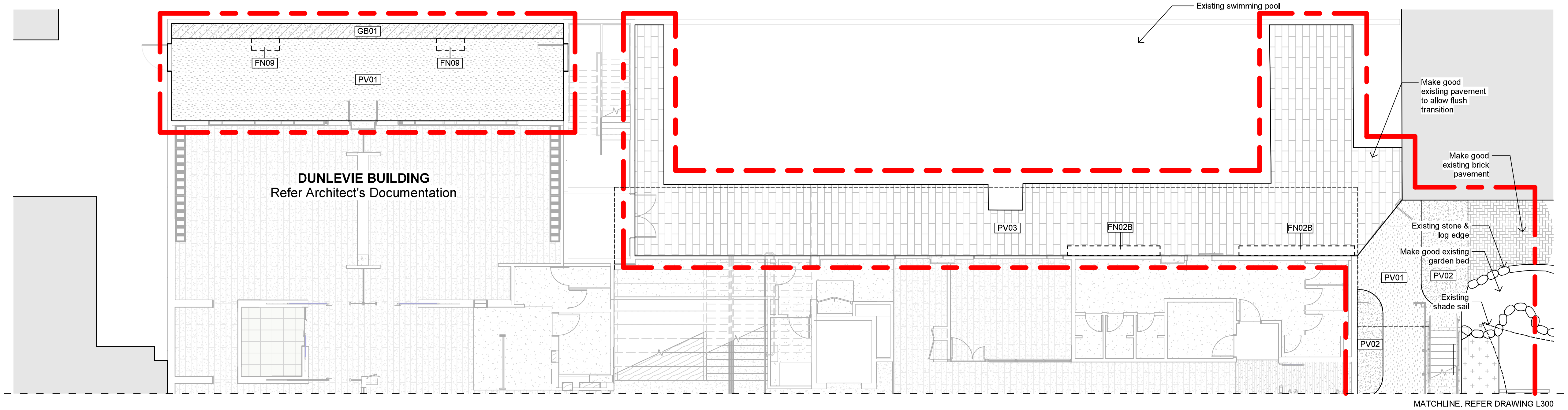
Sheet: SHEET 1 OF 3

Scale: 1 : 100@A1

Purpose: SURFACES PLAN - GROUND FLOOR

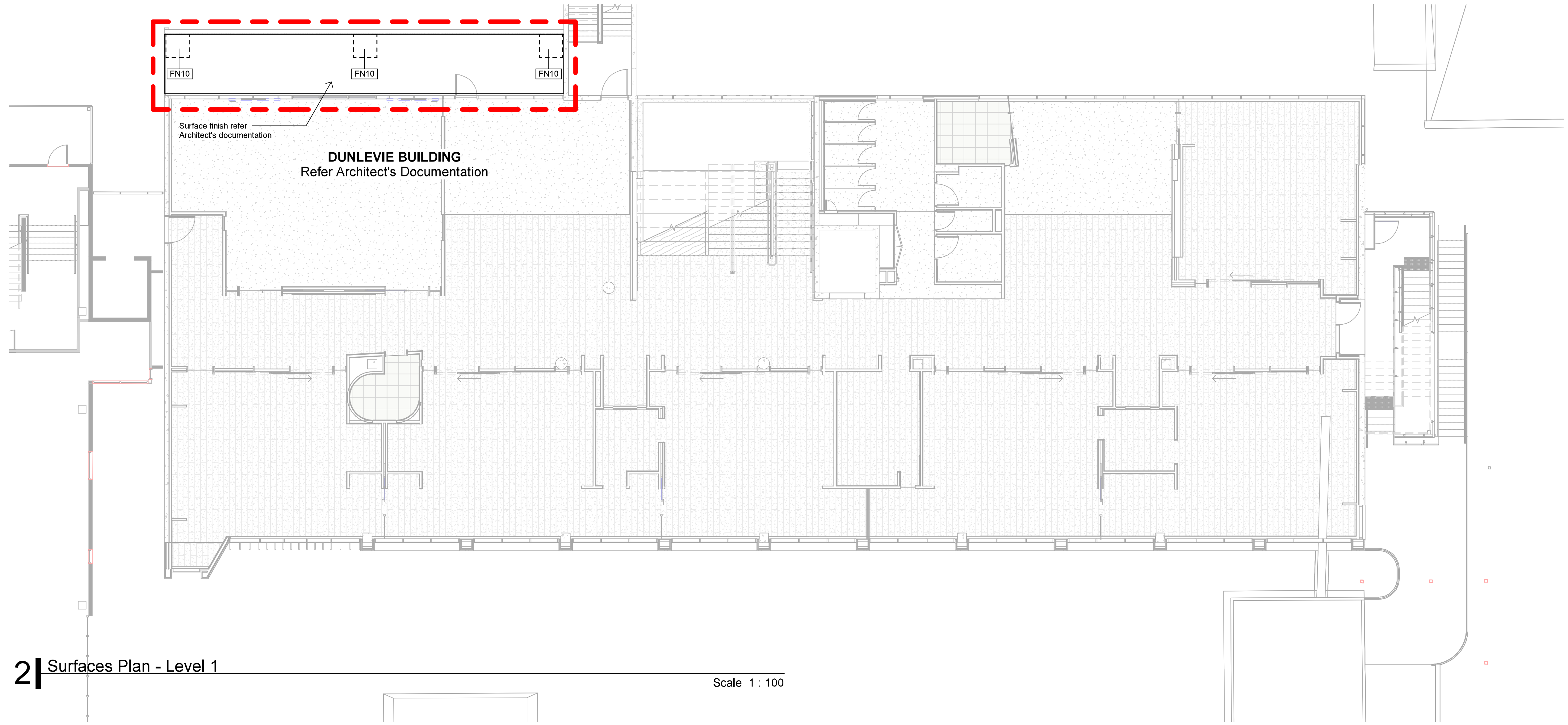
Drawing No. L300

Rev. P3



1 Surfaces Plan - Ground Floor Courtyard

Scale 1 : 100



2 Surfaces Plan - Level 1

Scale 1 : 100

LEGEND

- Extent of Works
- Building Overhang
- PV01 In-Situ Coloured Concrete Paving Exposed aggregate Refer Detail 01/L700
- PV02 In-Situ Coloured Concrete Paving Exposed aggregate Refer Detail 01/L700
- PV03 Pavers on Pedestal Refer Detail 02&03/L700
- GB01 Garden Bed In Ground Refer detail 02/L710
- FN09 Mud Kitchen Refer specification & L002
- FN10 Vegepod Refer specification & L002

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

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Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Date:
05.06.24

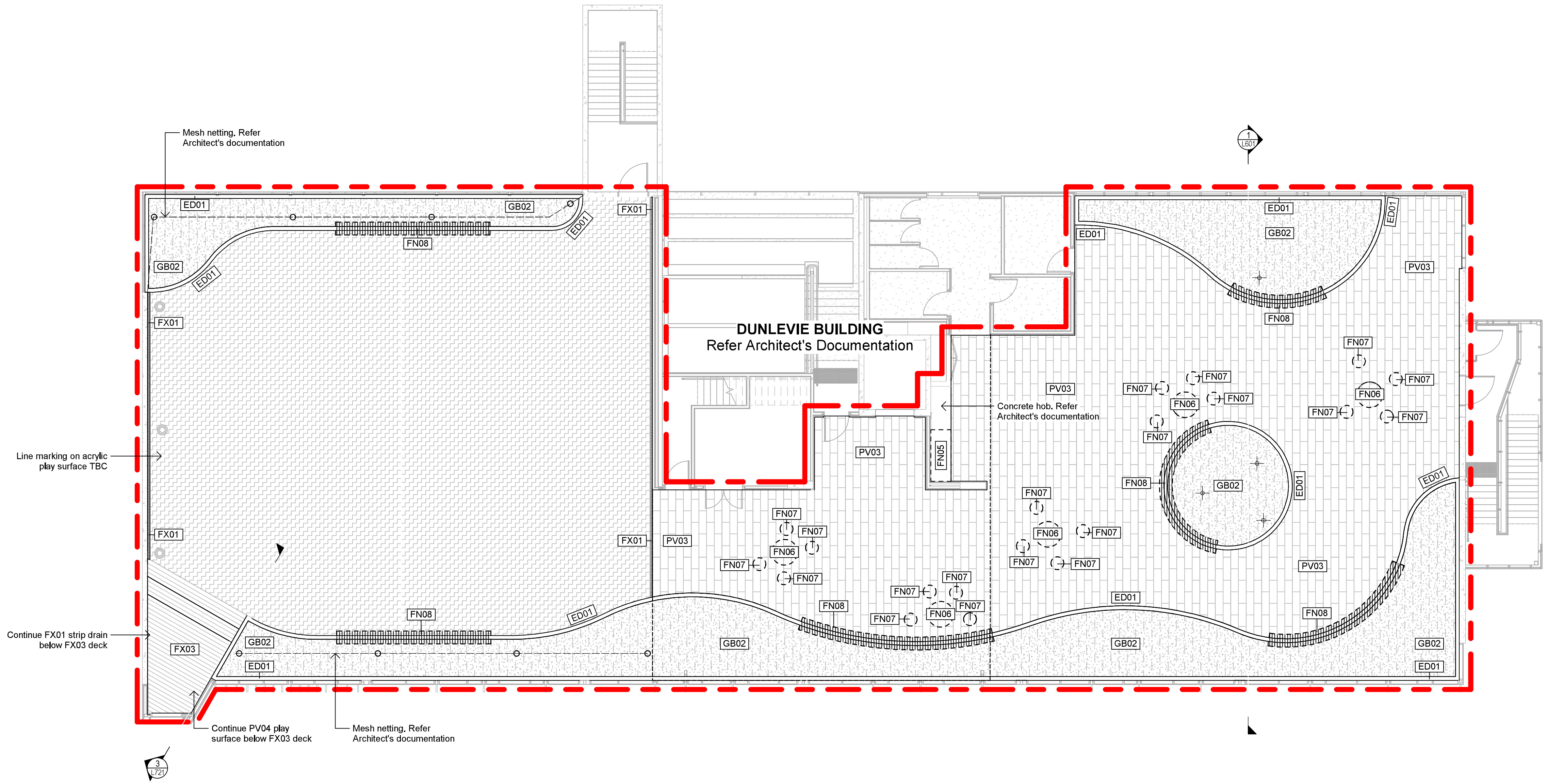
Sheet:
SHEET 2 OF 3

Scale:
1 : 100@A1

Purpose:
SURFACES PLAN - GF & LEVEL 1

Drawing No.
L301

Rev.
P3



LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- PV03 Pavers on Pedestal
  Refer Detail 02&03/L700
- PV04 Play Surface
  Refer Detail 04/L700
- GB02 Raised Garden Bed
  Refer detail 03/L710
- FN08
  Timber Bench atop Blockwork Wall
- FN05 Kitchen Bench
  Refer Specification & L002
- FN06 Loose Table
  Refer Specification & L002
- FN07 Loose Chair
  Refer Specification & L002
- ED01 Blockwork Wall
  Refer detail 03/L720 & Architect's documentation
- FX01 Strip Drain
  Refer Detail 03/L720
- FX03 Timber Deck
  Refer Detail L721

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 3 OF 3

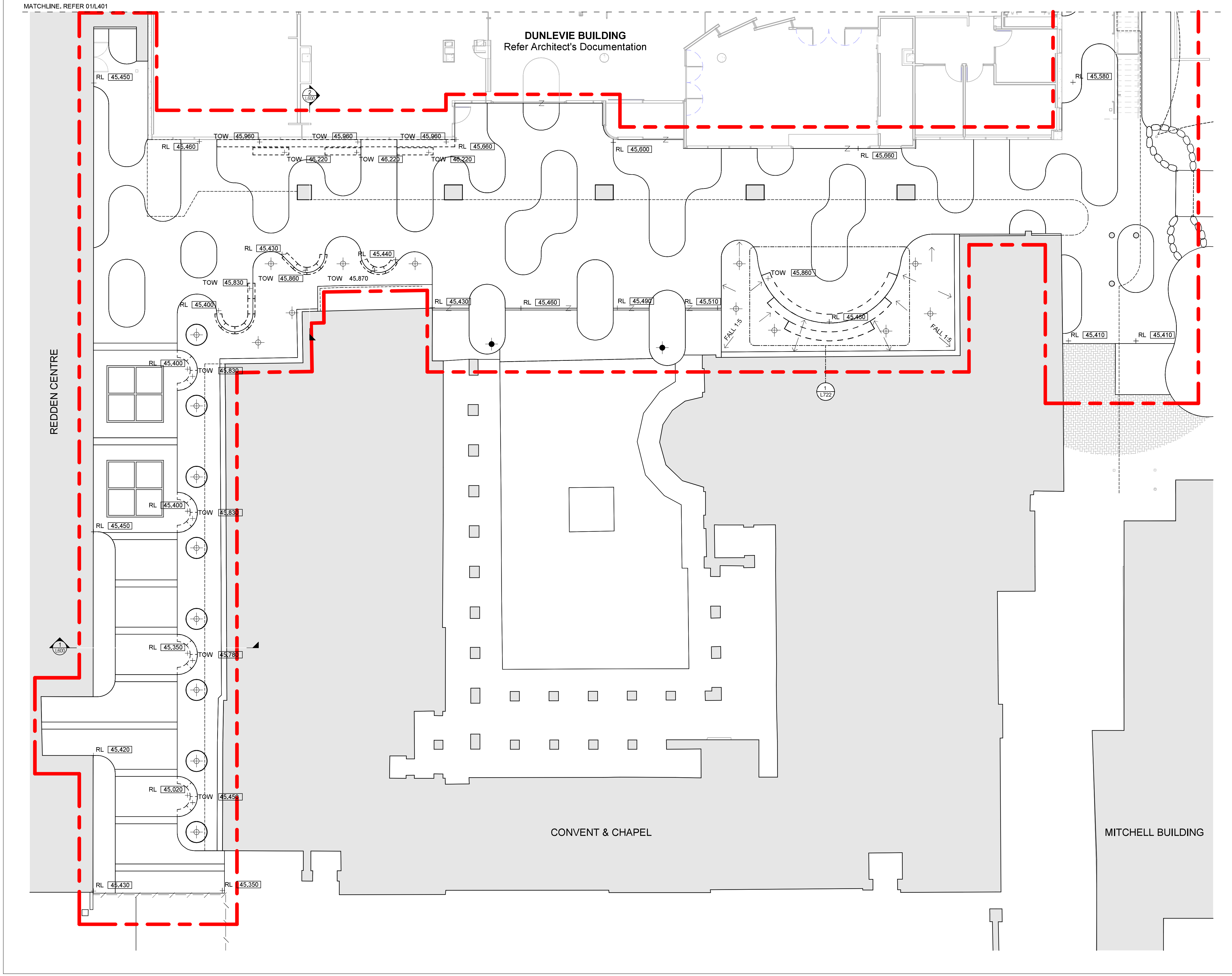
Purpose:
SURFACES PLAN - ROOF GARDEN

Date:
05.06.24

Scale:
1 : 100@A1

Drawing No.
L302

Rev.
P3



LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- RL Proposed Level
- TOW Proposed Top of Wall Level
- EX Existing Level
- Flush

Note:
Grading plans to be read in conjunction withcivil drawings.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 1 OF 3

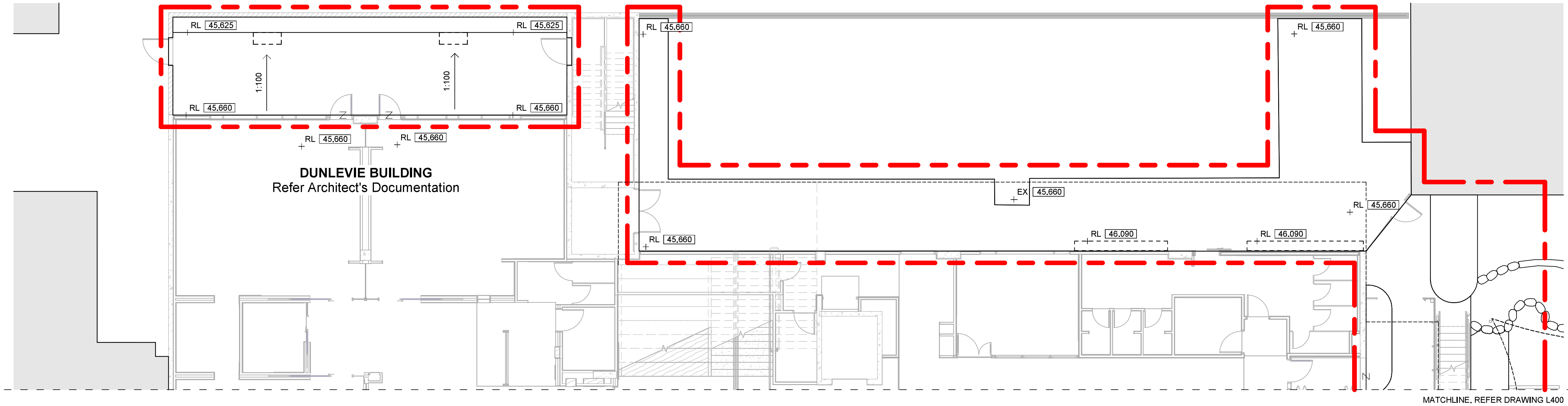
Purpose:
GRADING PLAN - GROUND FLOOR

Date:
05.06.24

Scale:
1 : 100@A1

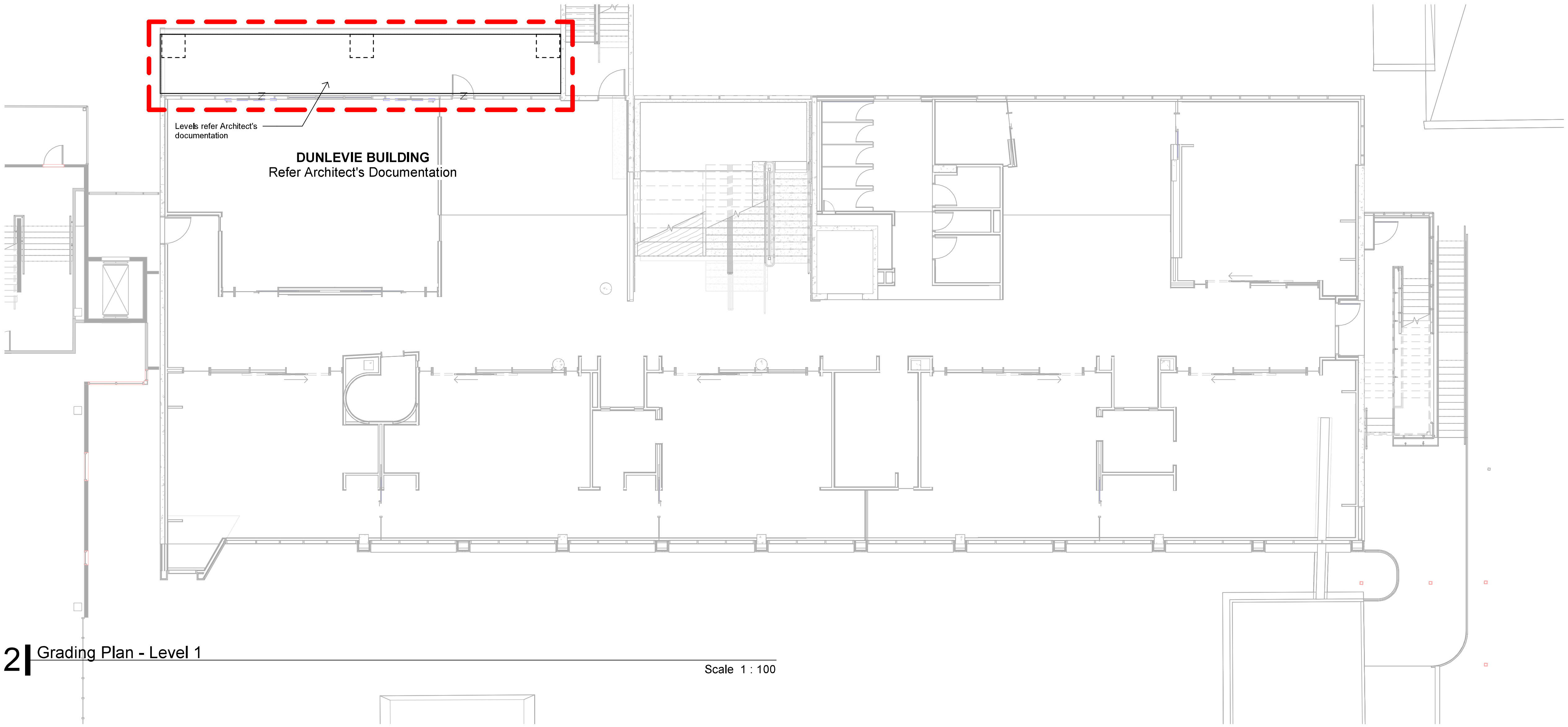
Drawing No.
L400

Rev.
P3



1 Grading Plan - Ground Floor Courtyard

Scale 1 : 100



2 Grading Plan - Level 1

Scale 1 : 100

LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- RL Proposed Level
- TOW Proposed Top of Wall Level
- EX Existing Level
- Flush

Note:
Grading plans to be read in conjunction withcivil drawings.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE

Date: 05.06.24

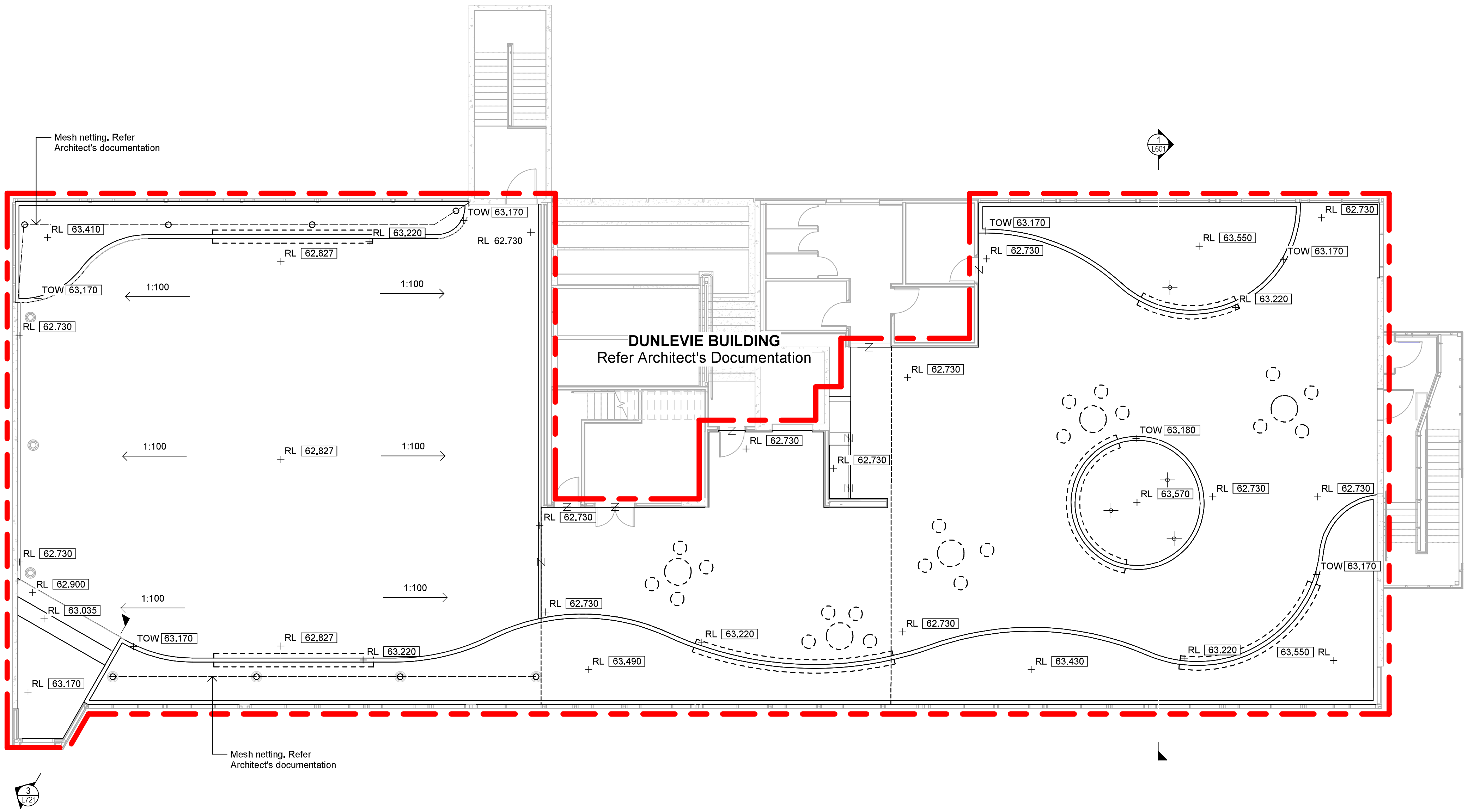
Sheet: SHEET 2 OF 3

Scale: 1 : 100@A1

Purpose: GRADING PLAN - GF & LEVEL 1

Drawing No. L401

Rev. P3



LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- RL Proposed Level
- TOW Proposed Top of Wall Level
- EX Existing Level
- Flush

Note:
Grading plans to be read in conjunction withcivil drawings.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

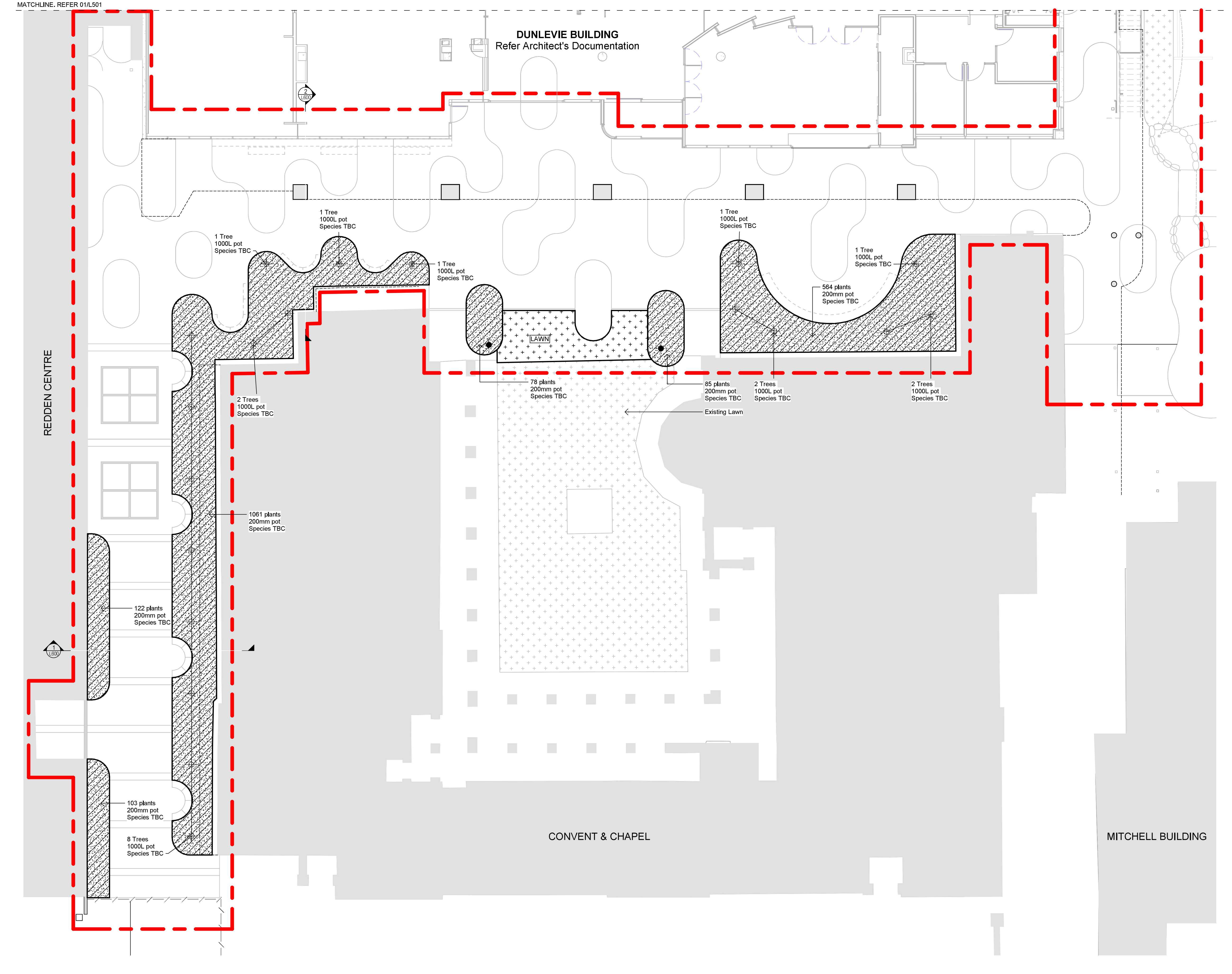
T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE
Sheet:
SHEET 3 OF 3
Purpose:
GRADING PLAN - ROOF GARDEN

Date:
05.06.24
Scale:
1 : 100@A1
Drawing No.
L402
Rev.
P3



LEGEND

Extent of Works

Proposed Tree

Existing Tree

Existing Fence

GB01 Garden bed in ground with hardy waterwise planting Refer detail 02/L710

Lawn Refer detail 01/L710

Note: Contractor to provide irrigation drawings for superintendent approval.

Rev:	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L

TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:

NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 1 OF 3

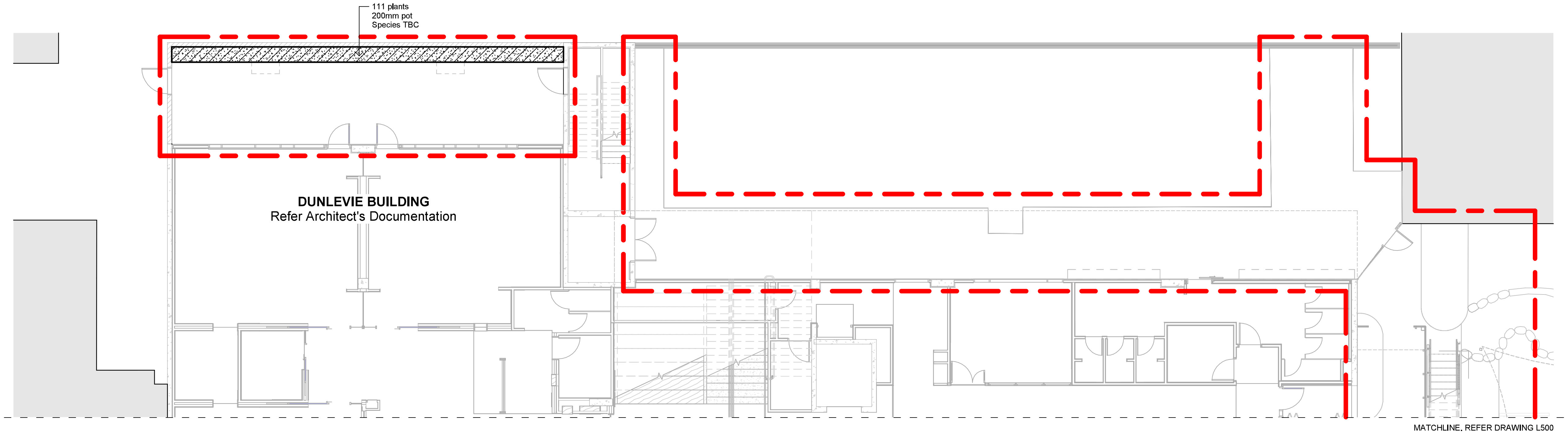
Purpose:
PLANTING PLAN - GROUND FLOOR

Date:
05.06.24

Scale:
1 : 100@A1

Drawing No.
L500

Rev.
P3



1 Planting Plan - Ground Floor Courtyard

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LEGEND

Extent of Works

Proposed Tree

Note:
Contractor to provide irrigation drawings for superintendent approval.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE

Sheet: SHEET 2 OF 3

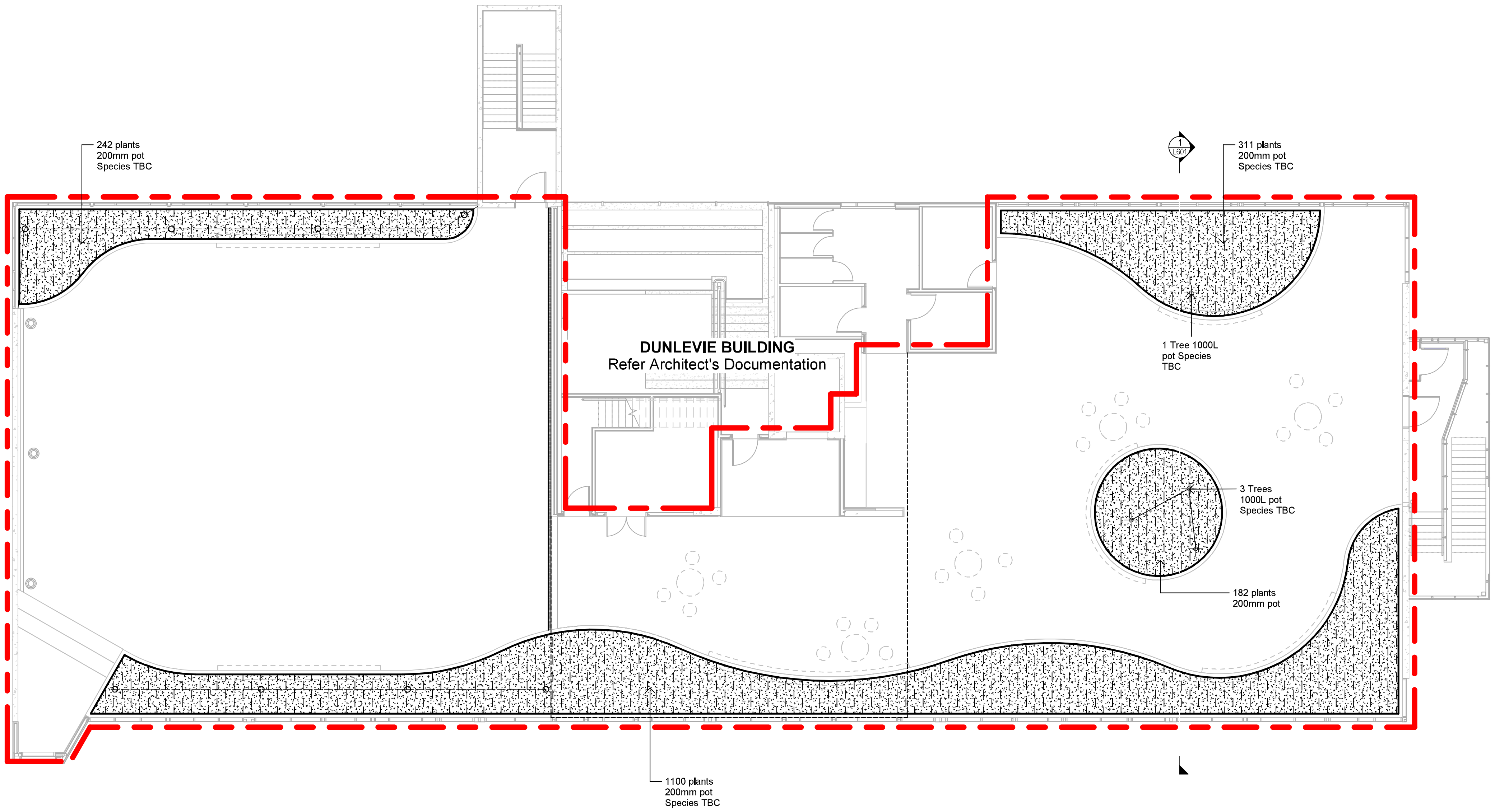
Purpose: PLANTING PLAN - GF & LEVEL 1

Date: 05.06.24

Scale: 1 : 100@A1

Drawing No. L501

Rev. P3



LEGEND

Extent of Works

Proposed Tree

Note:
Contractor to provide irrigation drawings for superintendent approval.

Rev	Date	Revision Details	By	Chk
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P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

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File #: A2407

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GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
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Sheet:
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05.06.24

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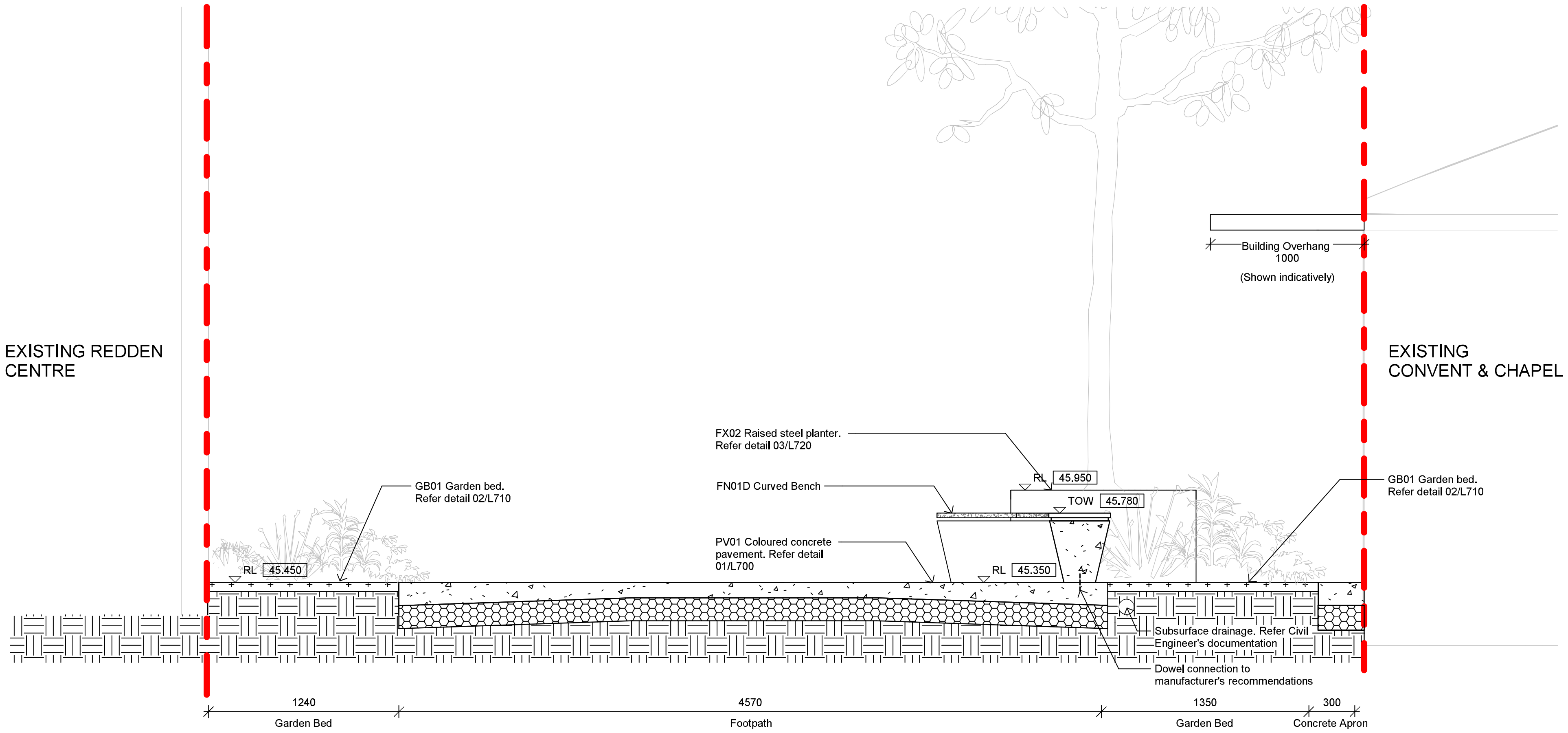

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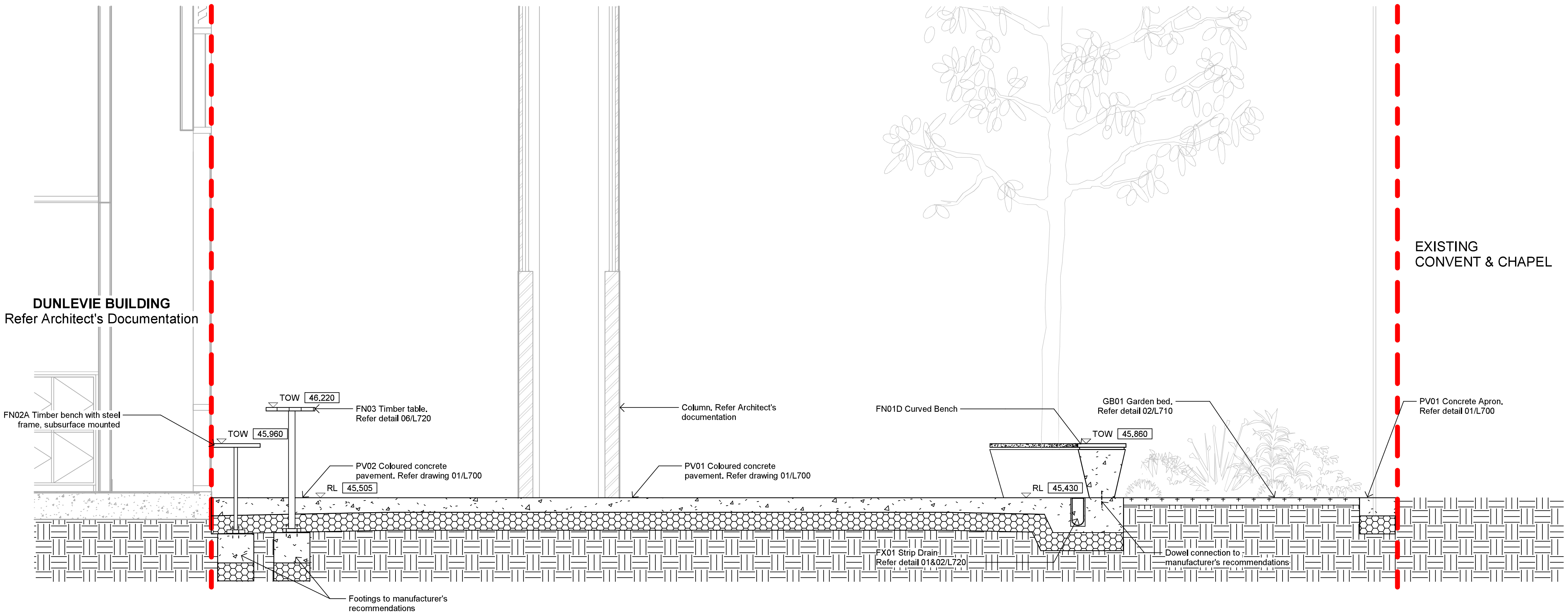

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Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

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Drawing:
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05.06.24

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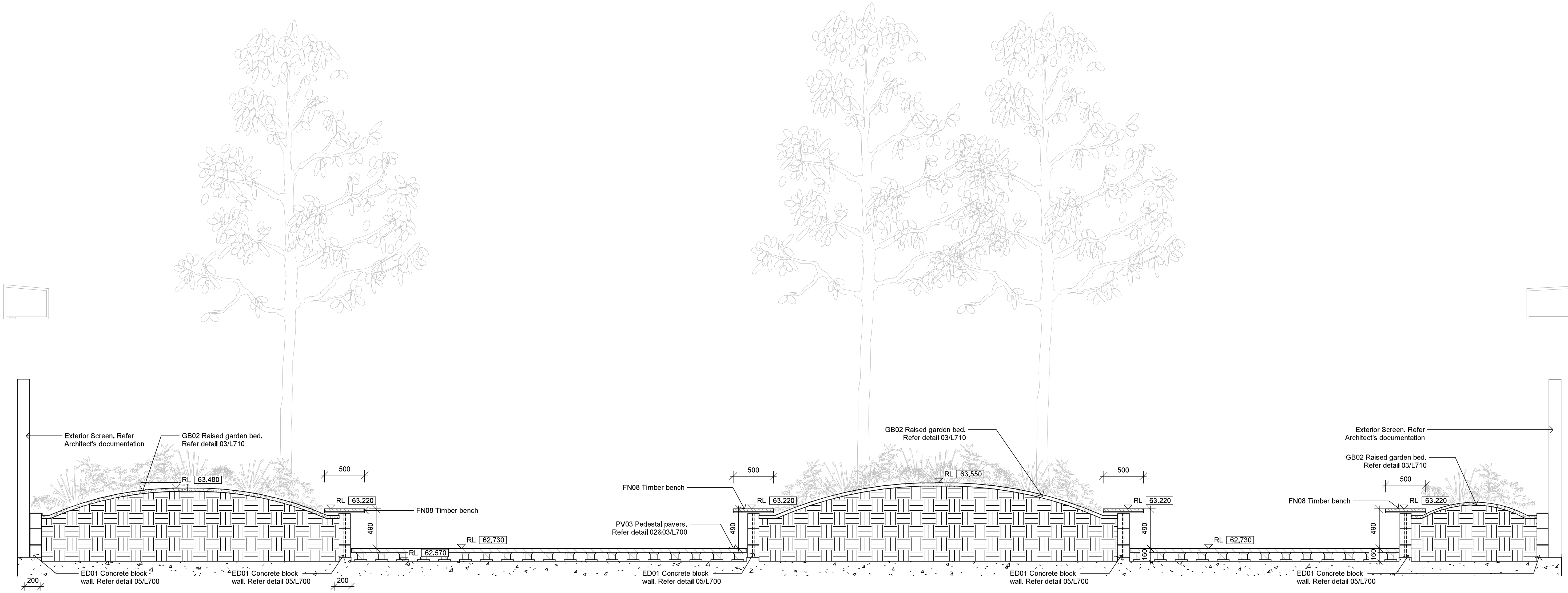

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P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

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GL	KC	EL	GL

Status:
ISSUED FOR TENDER

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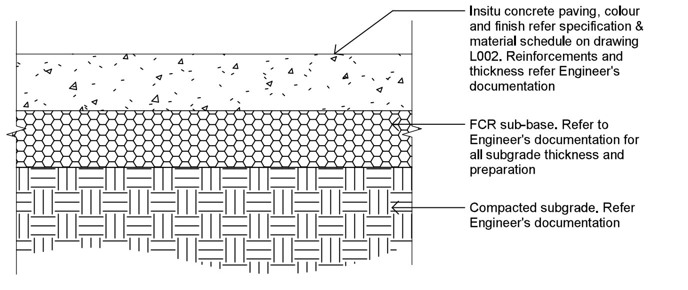

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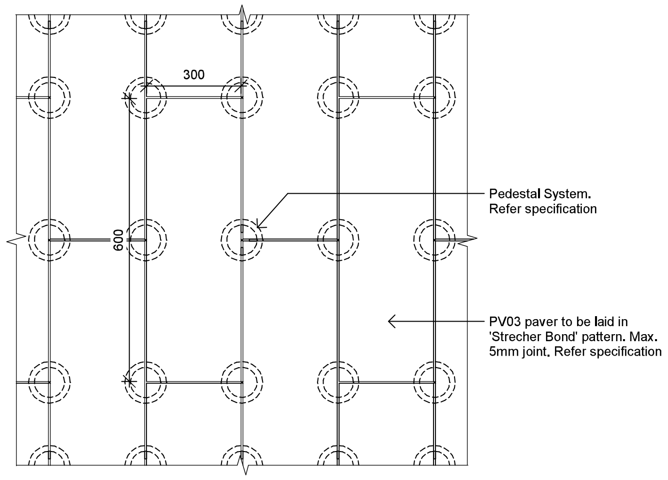

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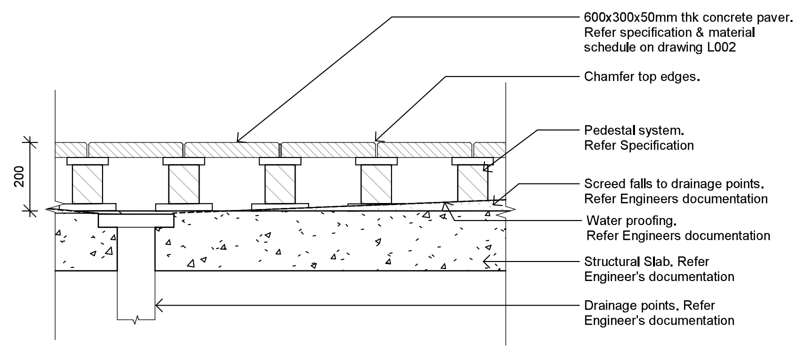

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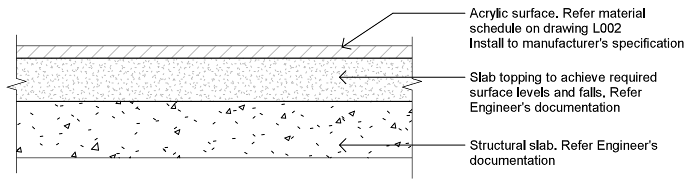

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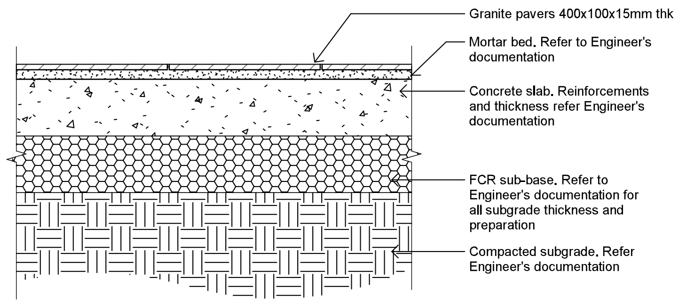

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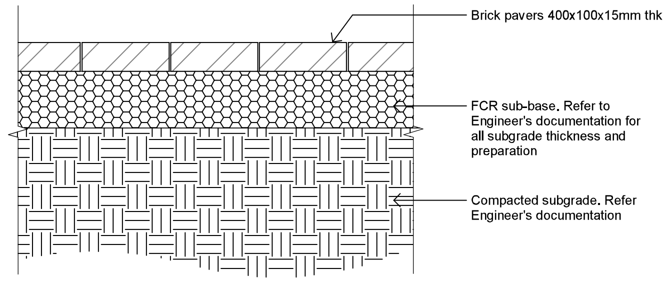

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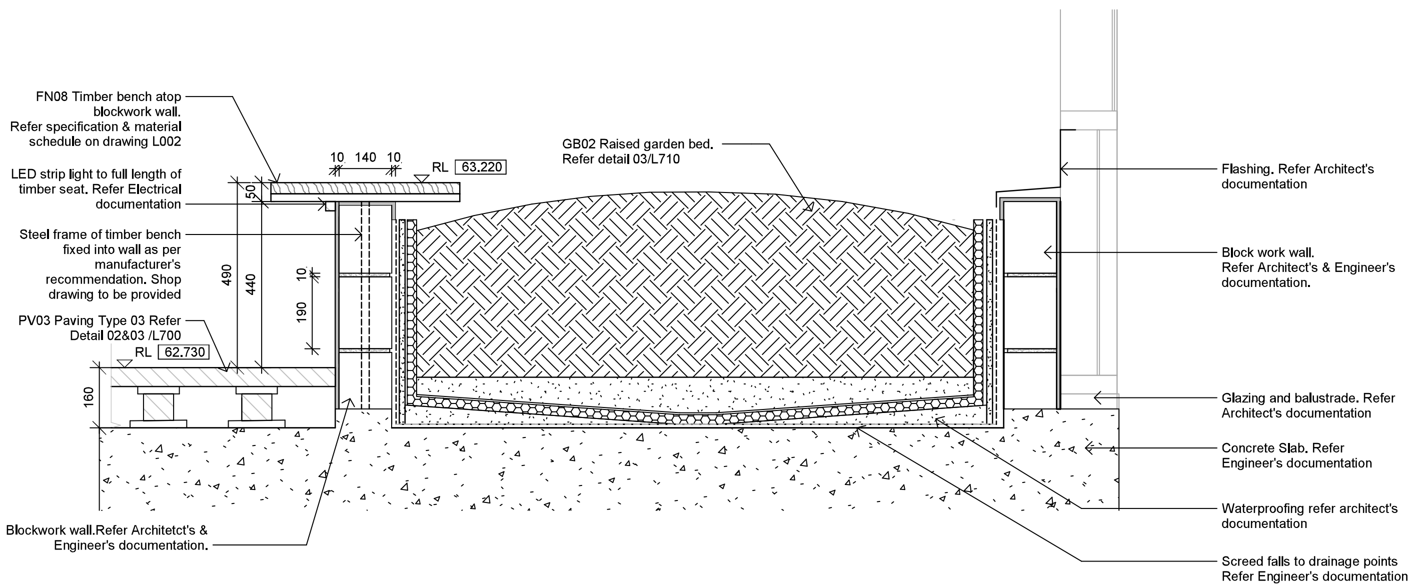

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P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
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Sheet: SHEET 1 OF 1
Purpose: HARDSCAPE DETAILS
Date: 05.06.24
Scale: 1 : 10@A1
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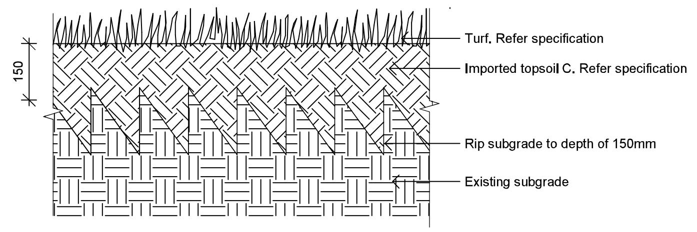
Rev. P3



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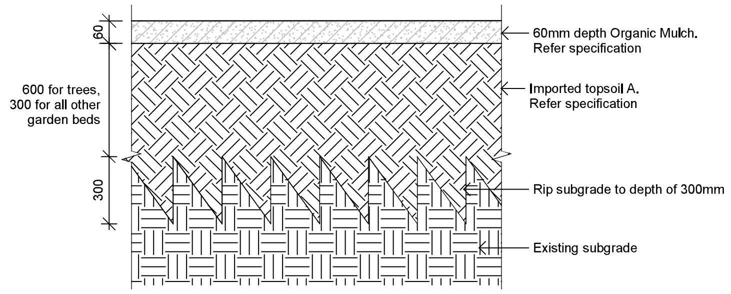

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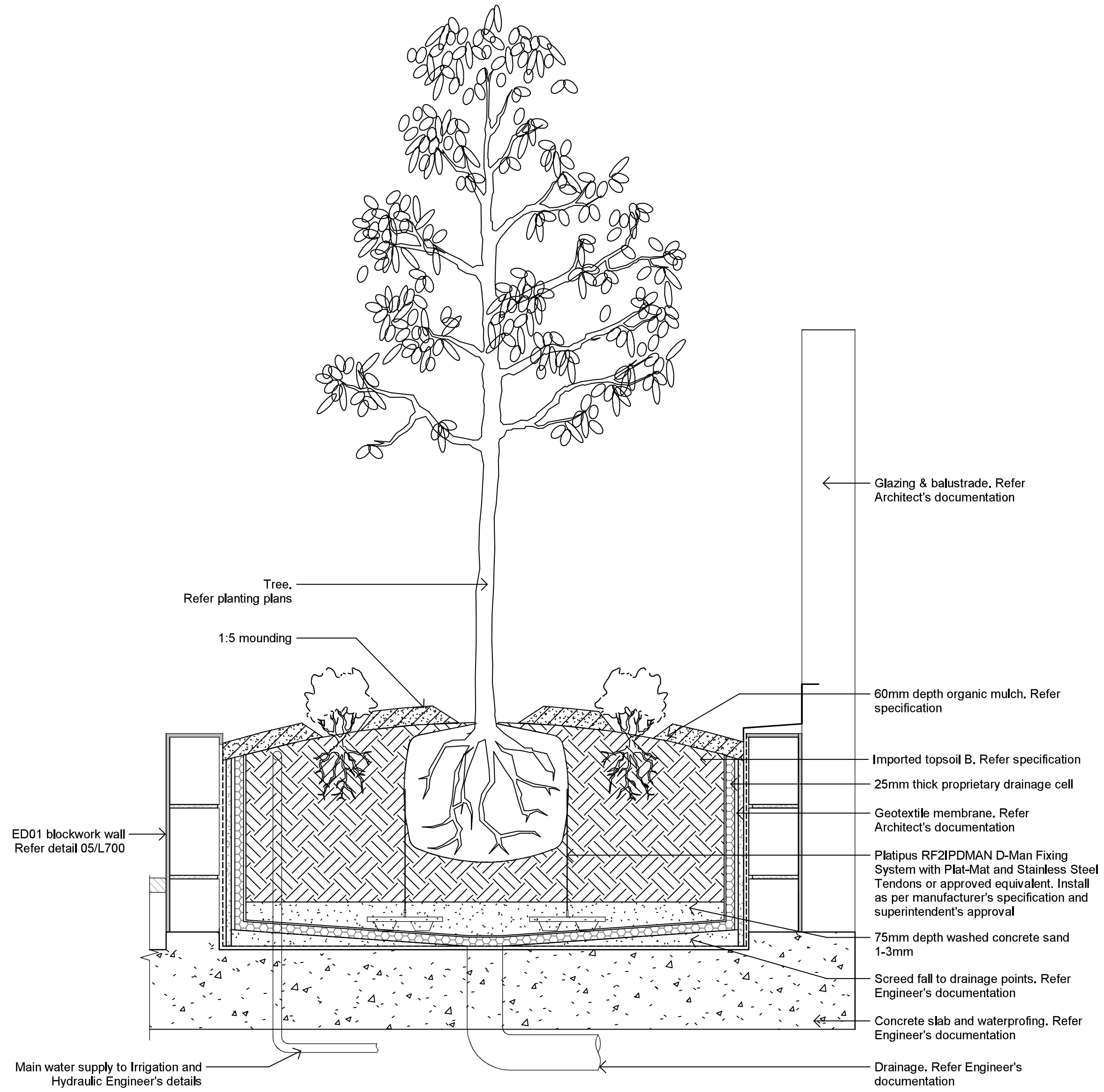

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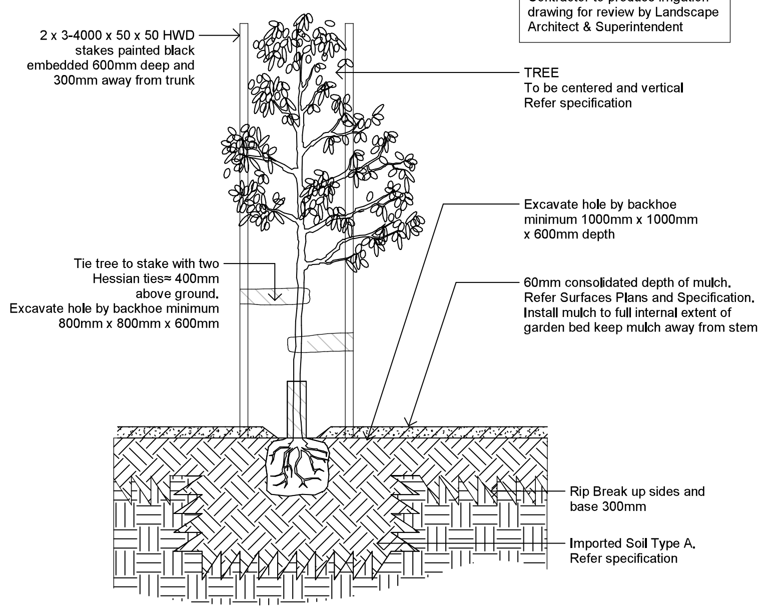
NOTES:
Contractor to produce irrigation drawing for review by Landscape Architect & Superintendent



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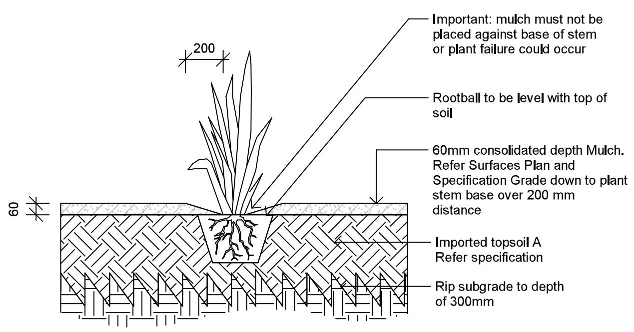

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GL	KC	EL	GL

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Rev.
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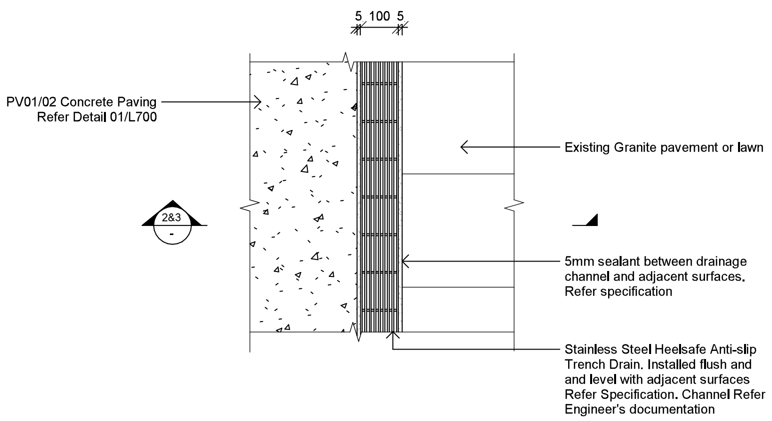

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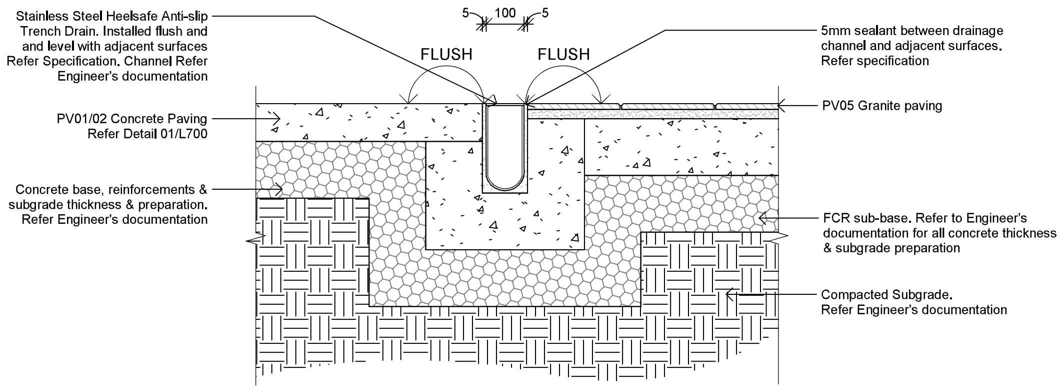

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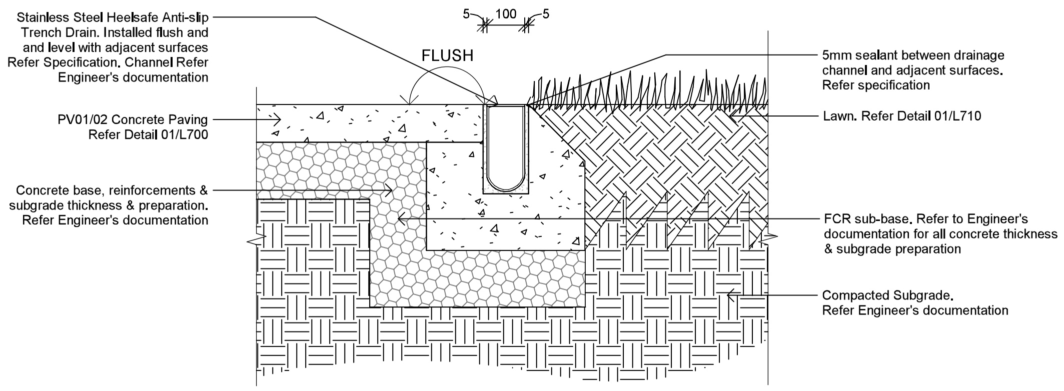

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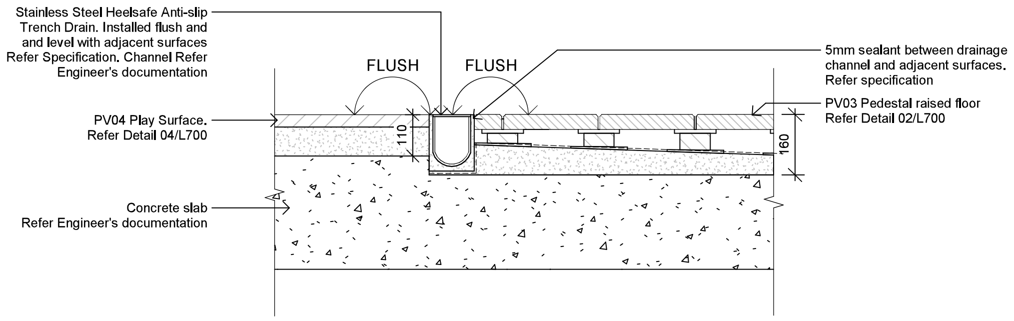

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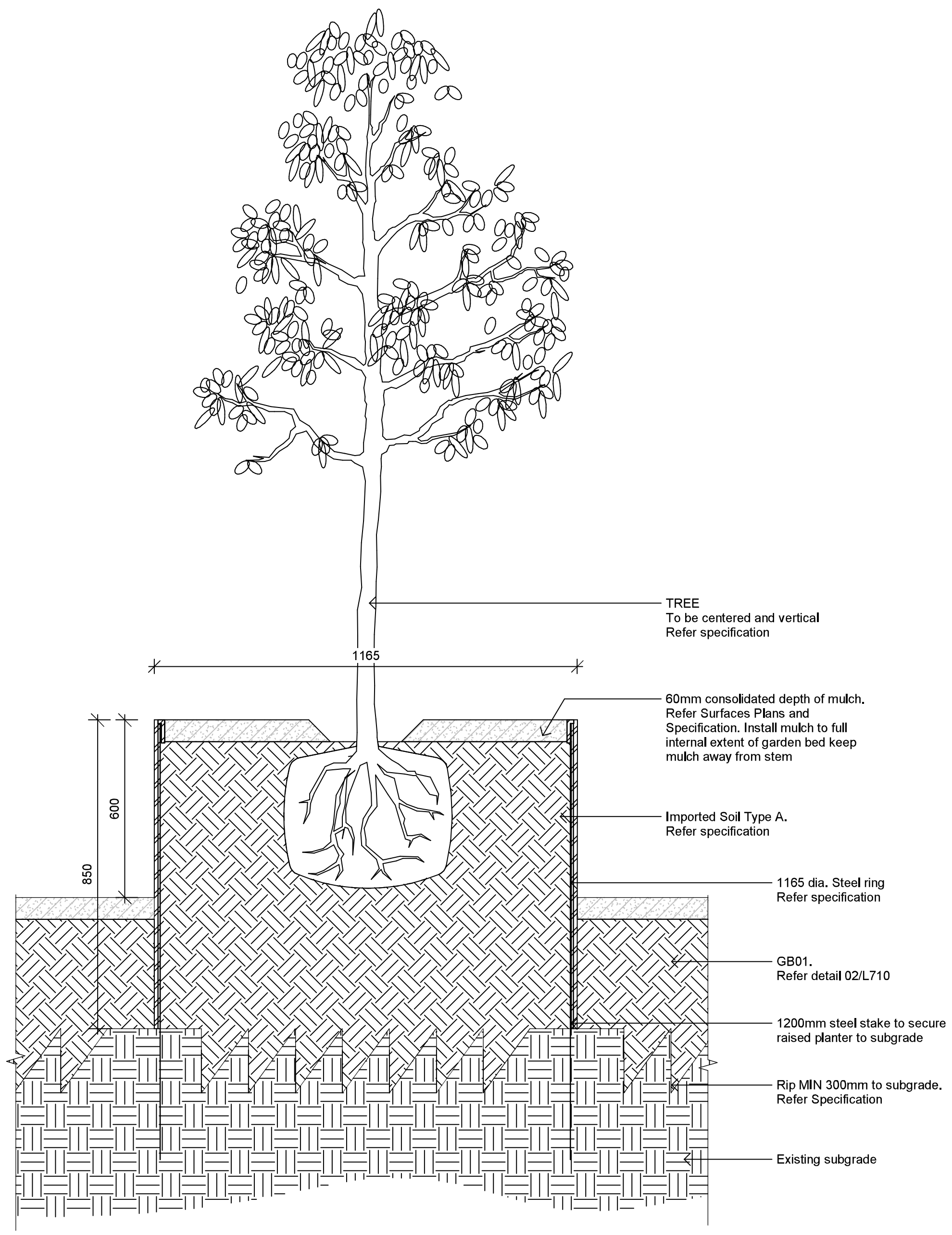

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File #: A2407

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GL	KC	EL	GL

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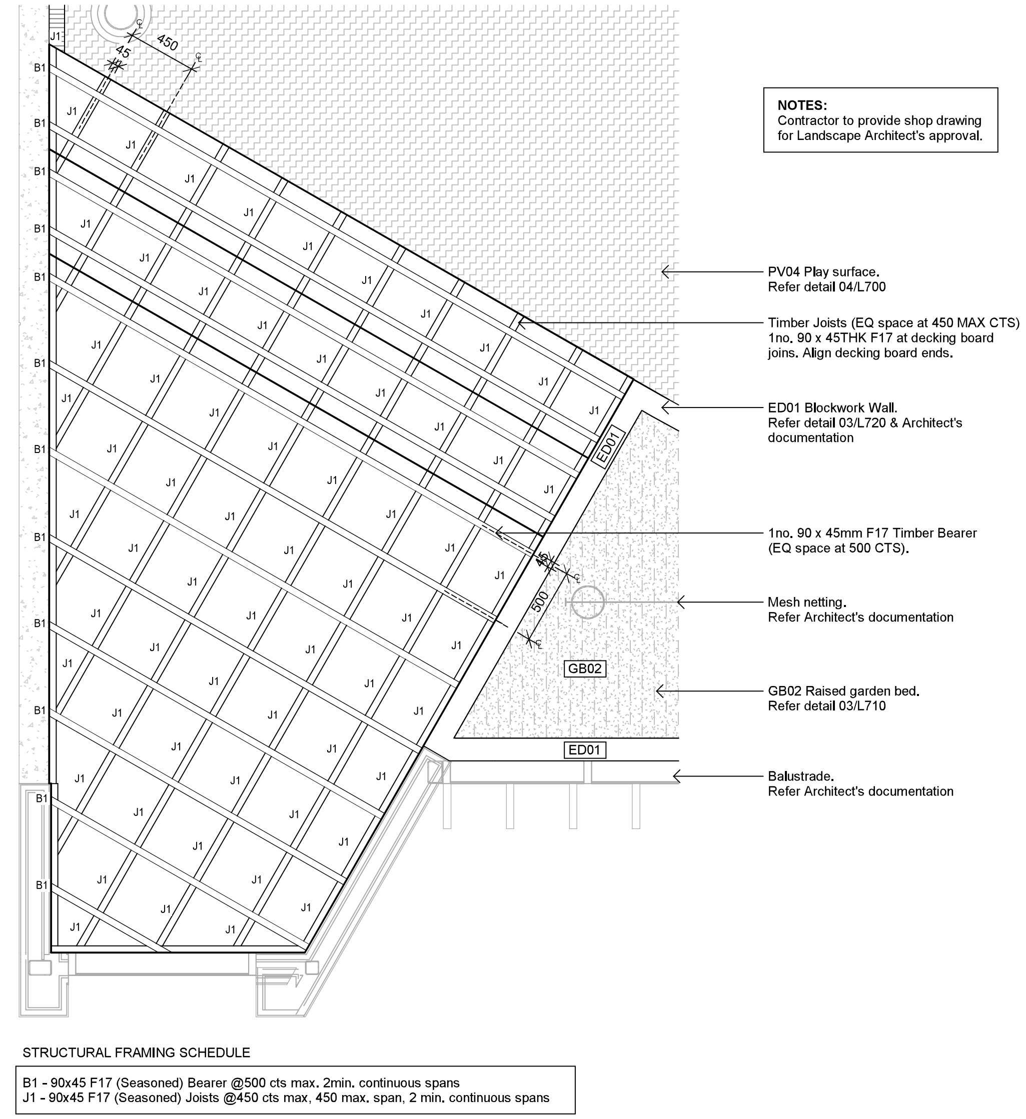

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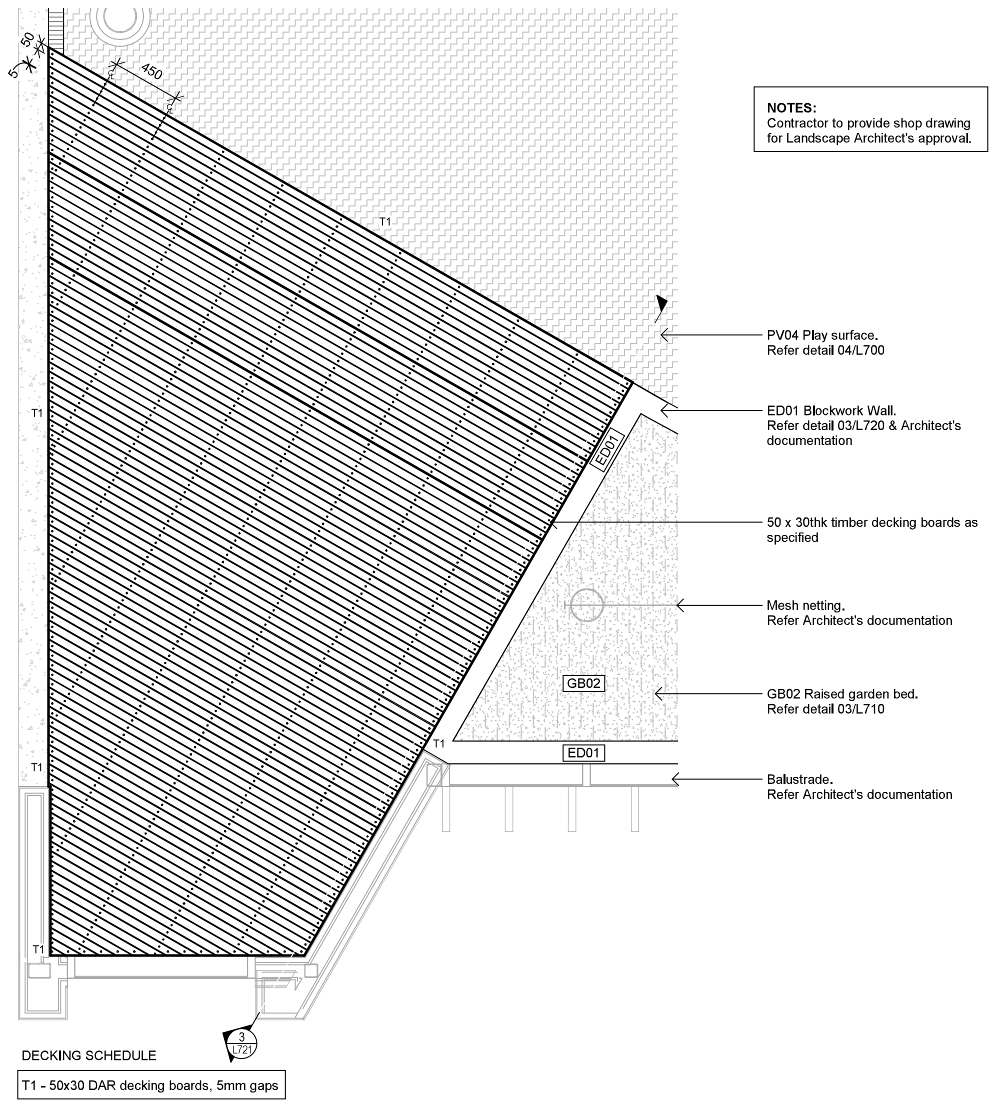

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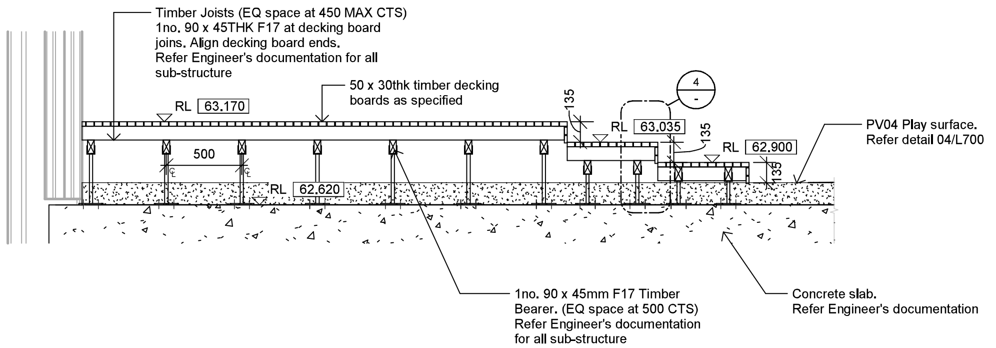

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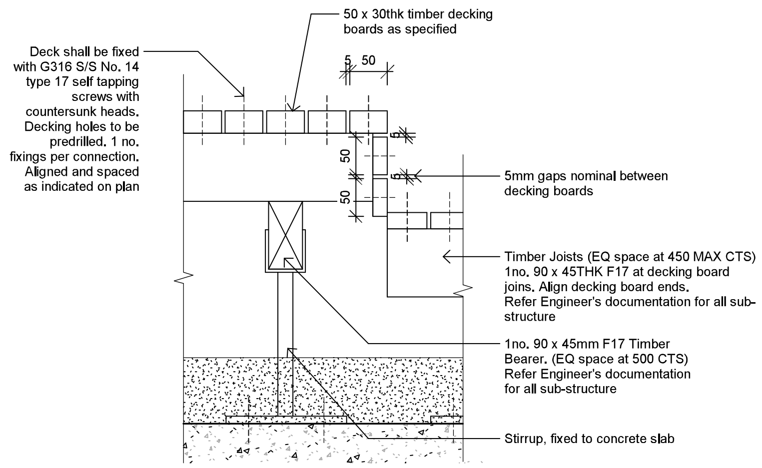

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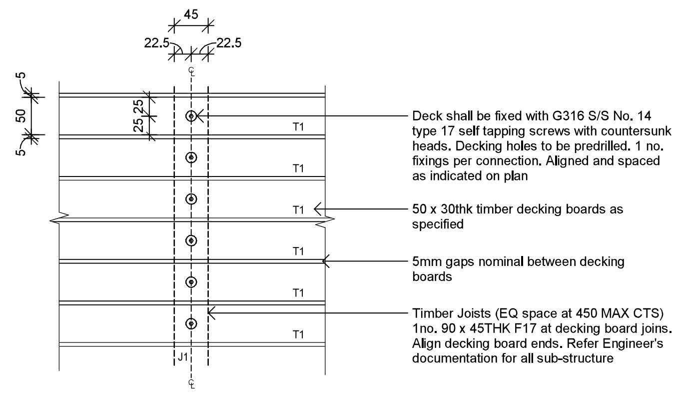

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ST ALOYSIUS COLLEGE

File #: A2407

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TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
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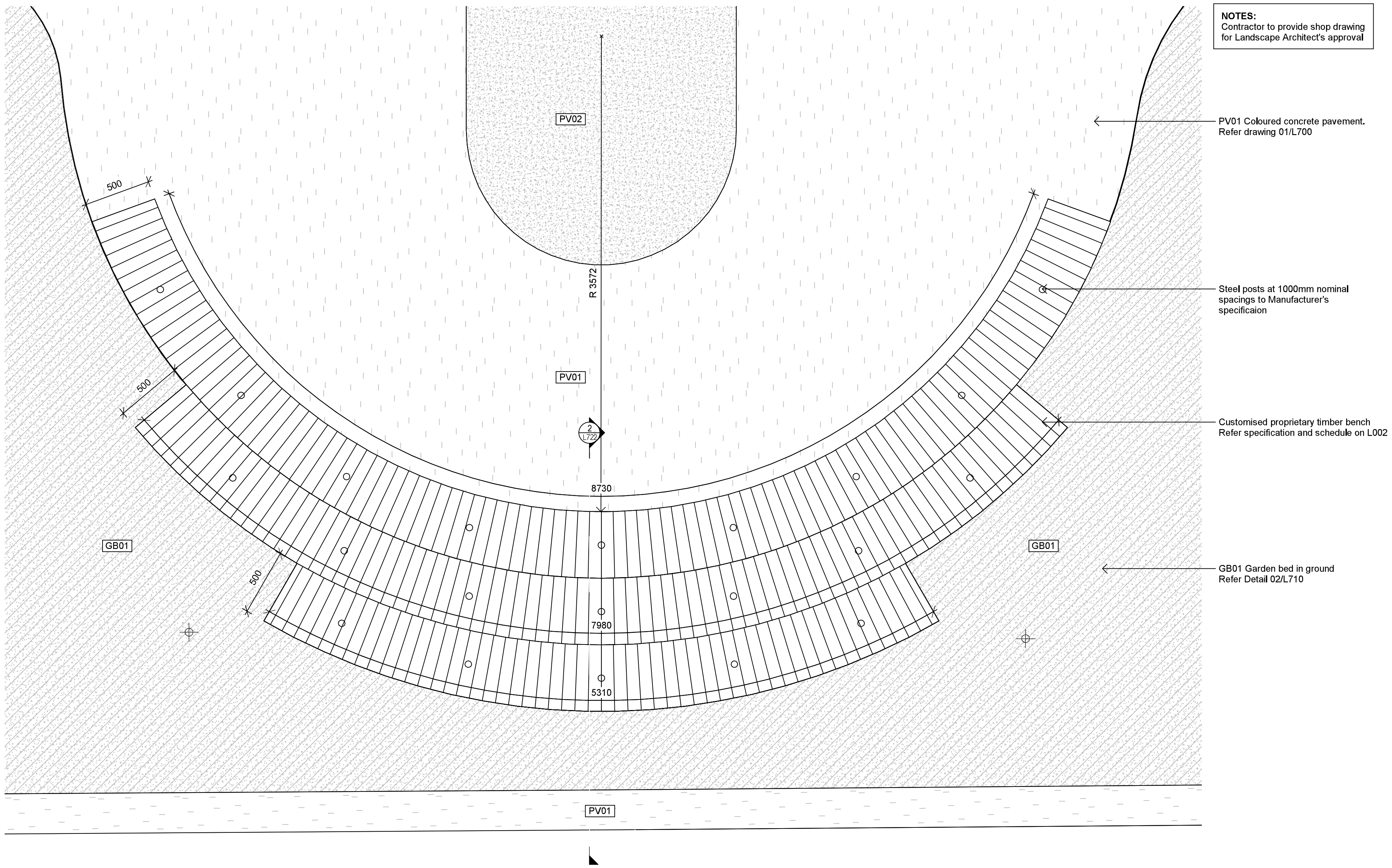
Rev. P3



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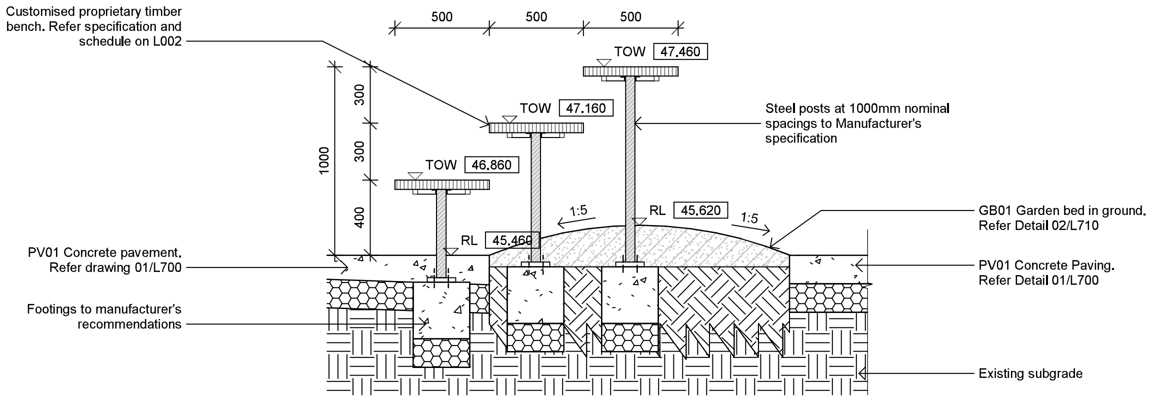

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File #: A2407

T.C.L
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Designed by	Drawn by	Checked by	Approved by
GL	SE	EL	GL

Status:
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Purpose:
FURNITURE & FIXTURES DETAILS 03

Date:
05.06.24
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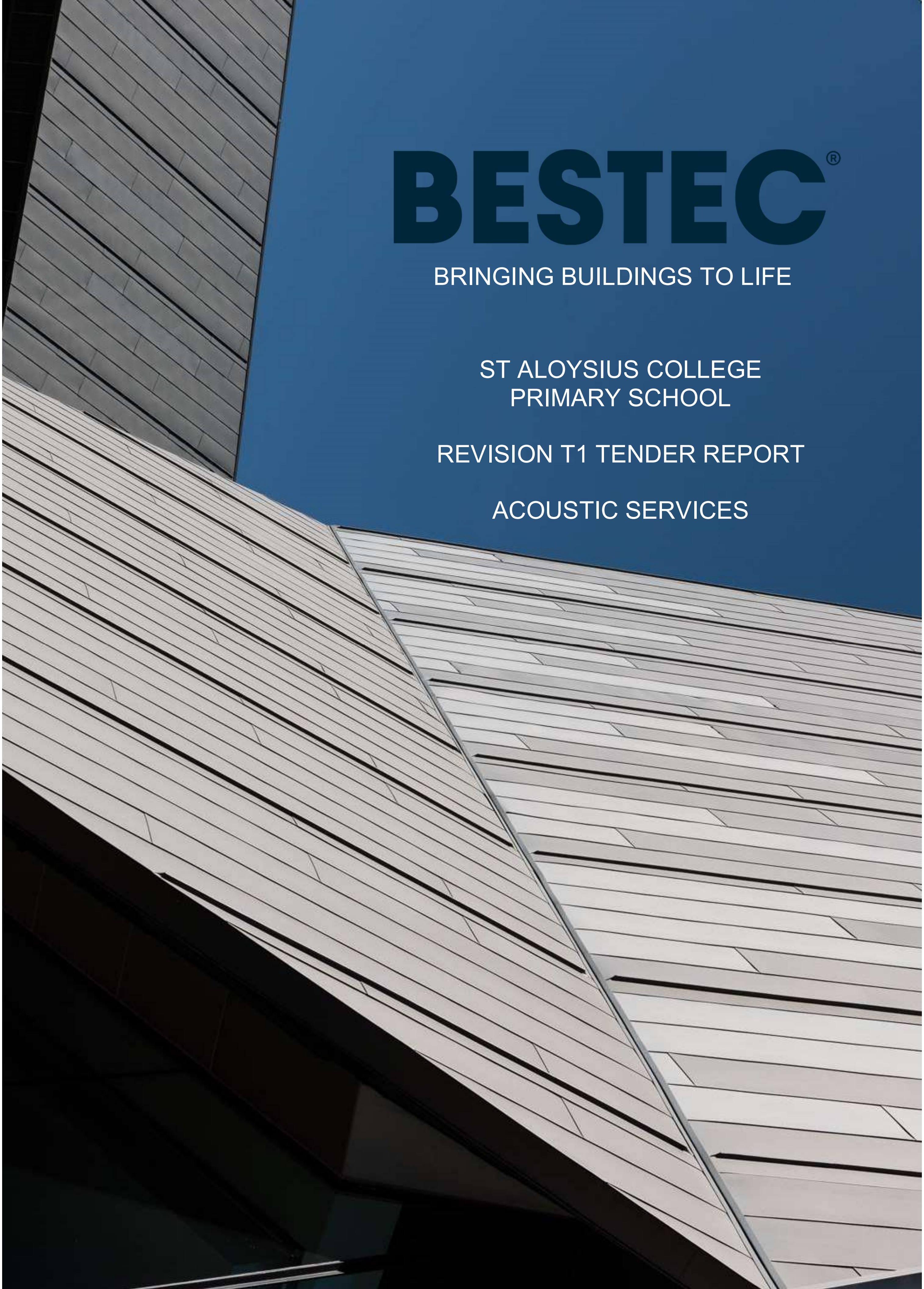
Drawing No.
L722
Rev.
P3

Attachment C

Acoustic Services Report

MASTERPLAN

TOWN + COUNTRY PLANNERS SINCE 1977



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ST ALOYSIUS COLLEGE PRIMARY SCHOOL

REVISION T1 TENDER REPORT

ACOUSTIC SERVICES

BESTEC®

ABN 43 909 272 047

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Services Technologies
Consulting Engineers

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W. bestec.com.au

CJI:OZH
57837/6/1
10 September 2024

RCP
Level 99, Gawler Place
ADELAIDE SA 5000

Attention: Mr W Sharp

Dear Sir

ST ALOYSIUS COLLEGE, PRIMARY SCHOOL
REVISION T1 TENDER ACOUSTIC REPORT
ACOUSTIC SERVICES

As requested, we enclose a copy of our design report on the Acoustic Services on the above project for your review and comments.

We trust that the report provides sufficient information for your immediate purpose and we would be most pleased to further discuss any aspect upon your request.

Yours faithfully
BESTEC PTY LTD

LOW CHYI JIE (CJ)
ACOUSTIC SERVICES ENGINEER

Encl

REPORT ISSUE REGISTER

REVISION	DATE	REVISION DESCRIPTION
00	12.09.2024	Revision T1 Tender Issue

CONTENTS

Introduction

BESTEC Pty Ltd has been engaged to provide acoustic engineering services during the design and construction stages of the new primary school building at St Aloysius College on 53 Wakefield, St Adelaide SA. This document presents the proposed acoustic design criteria and recommendations for acoustic treatment to achieve the recommended design criteria.

Executive Summary

In summary:

- The SA Planning and Design Code has been reviewed in order to determine relevant planning conditions and requirements applicable to the proposed redevelopment in conjunction with the SA Environment Protection (Commercial and Industrial Noise) Policy 2023.
- Building acoustic design criteria have been nominated in accordance with AS 2107:2016 “Acoustics – Recommended design sound levels and reverberation times for building interiors” and Education Facilities Design Standards 2024.
- The architectural drawings of the redevelopment have been reviewed to determine the required acoustic treatments.
- Acoustic concept design recommendations have been provided in order to comply with the selected acoustic design criteria, including:
  - Construction of the building elements separating adjacent spaces in order to achieve the selected criteria for sound insulation/speech privacy of each space.
  - Reverberation control in the critical spaces.
  - Construction of the building envelope elements, in order to control noise intrusion.
  - Control of noise generated by mechanical and fire services plant.
- A mark-up has been provided (APPENDIX A) to illustrate the recommended level of speech privacy and extent for each partition type.

Acoustic Analysis

References

The following documents have been referenced within the preparation of this acoustic report:

[1] SA Planning and Design Code, 2024.

[2] Environment Protection (Commercial and Industrial Noise) Policy 2023.

[3] World Health Organisation (1999) "Guidelines for Community Noise".

[4] AS/NZS 2107:2016 "Acoustics – Recommended design sound levels and reverberation times for building interiors".

[5] Architectural drawings provided by Grieve Gillett Architect dated September 2024.

[6] Structural drawings provided by MATTER Consulting Structural engineers dated September 2024.

[7] Education Facilities Design Standards 2024.

[8] As ISO 140.4 – 2006 "Acoustics – Measurement of sound insulation in buildings and of building elements. Part 4: Field measurements of airbourne sound insulation between rooms".

[9] BESTEC Mechanical services drawings dated September 2024.

Proposed Development

We understand that the existing Dunlevie building will be demolished, and a new primary school building will be constructed at St Aloysius College, which is located at 53 Wakefield St, Adelaide SA 5000 on land zoned Capital City (CC). The developments surrounding the college fall within the same land zoning as per SA Planning and Design Code [1]. The existing boundaries are as follows:

- North – Wakefield St separating the college from commercial properties.
- East – Chancery Ln separating the college from commercial properties.
- South – Angas St separating the college from commercial and residential properties.
- West – St Francis Xavier's Catholic Cathedral and SA Water building.

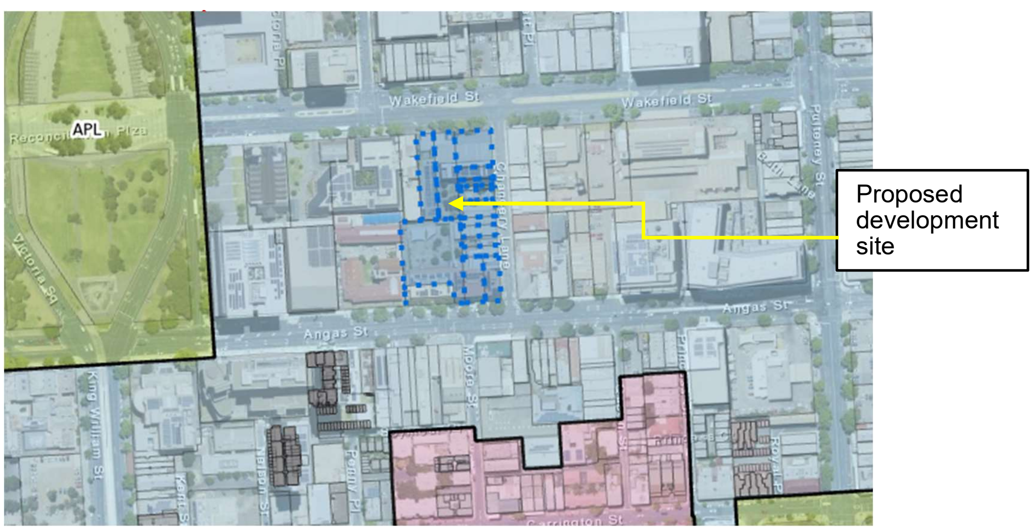


Figure 1: Location and land zoning of the site of the proposed extension

Proposed Development and Conditions

The proposed redevelopment comprises**:**

- Ground Floor – 3 x Reception GLA's, quiet room, learning commons, sensory room, music room, foyer, presentation space, administration component (offices, meeting room), comms room, amenities.
- First Floor – 6 x Homebase GLA's, learning commons, STEAM room, balcony gardens, sensory room, quiet rooms, breakout rooms, stores and amenities.
- Second Floor – 6 x Homebase GLA's, learning commons, multipurpose room, quiet rooms, sensory rooms, stores and amenities.
- Third Floor – 6 x Homebase GLA's, learning commons, quiet rooms, sensory rooms, breakout rooms, stores and amenities.
- Rooftop – garden, learning space and events, rooftop sports court, sports store and amenities.
- Rooftop Plant – mechanical plant room, fire pump room, generator room.

The new primary school will be operating Mon – Fri, 08:00 – 17:00. The SA Planning and Design Code [1] sets the following Desired Outcome (DO) for developments, which might affect sensitive receivers in adjacent relevant to the proposed facility:

> *DO 1 Development is located and designed to mitigate adverse effects on or from neighbouring and proximate uses.*

The following requirements (performance outcomes) of the SA Planning and Design Code [1] are relevant to the design and siting of the proposed developments (Section Interface Between Land Uses):

> *PO 1.2 Development adjacent to a site containing a sensitive receiver (or lawfully approved sensitive receiver) or primarily intended to accommodate sensitive receivers is designed to minimise adverse impacts*

> *PO 4.1 Development that emits noise (other than music) does not unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers).*

A non-residential development is deemed to satisfy the above requirement if the noise emissions that affect the noise sensitive receivers achieves the relevant Environment Protection (Commercial and Industrial Noise) Policy criteria (DTS/DPF 4.1).

> *PO 4.2 Areas for the on-site manoeuvring of service and delivery vehicles, plant and equipment, outdoor work spaces (and the like) are designed and sited to not unreasonably impact the amenity of adjacent sensitive receivers (or lawfully approved sensitive receivers) and zones primarily intended to accommodate sensitive receivers due to noise and vibration by adopting techniques including:*
>
> *(a) locating openings of buildings and associated services away from the interface with the adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers*
>
> *(b) when sited outdoors, locating such areas as far as practicable from adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers*
>
> *(c) housing plant and equipment within an enclosed structure or acoustic enclosure*
>
> *(d) providing a suitable acoustic barrier between the plant and / or equipment and the adjacent sensitive receiver boundary or zone.*

> *PO 4.3 Fixed plant and equipment in the form of pumps and/or filtration systems for a swimming pool or spa are positioned and/or housed to not cause unreasonable noise nuisance to adjacent sensitive receivers (or lawfully approved sensitive receivers).*

Design Criteria

Environmental Noise

As the Deemed-to-Satisfy/Designed Performance Feature (DTS/DPF 4.1) refers to compliance with relevant Environment Protection (Commercial and Industrial Noise) Policy criteria [2], the environmental noise assessment was conducted against the criteria set by the Environment Protection (Commercial and Industrial Noise) Policy 2023 [2].

The Environment Protection (Commercial and Industrial Noise) Policy 2023 [2] sets out the maximum allowable continuous sound pressure levels in terms of A-weighted Equivalent Continuous Noise Level (L_{Aeq}) based on the time of day and zoning/use of land, in which the noise source and receiver are located. With reference to the SA Planning and Design Code 2024 [1], the proposed development is located within the land zoned Capital City (CC) with the surrounding commercial and residential dwellings within the same land zoning.

Therefore, the criteria derived in accordance with the Environment Protection (Commercial and Industrial Noise) Policy 2023 [2] should be based on the average of the indicative noise levels for different land categories. Additionally, the Environment Protection (Commercial and Industrial Noise) Policy 2023 [2] determines the appropriate indicative noise levels (INLs) for noise sources based on the principal land uses of zones and subzones within the Planning and Design Code. With reference to the indicative noise factor guidelines in the EPP, for land zoned Capital City (CC), the indicative noise levels used in this assessment is detailed in Table 1.

Land Use Category	Day Time (7:00 to 22:00)	Night Time (22:00 to 7:00)
Residential, Commercial	57	50

Table 1: Indicative noise factors based on time of day and land use

As the new facility will be operating daytime (School hours, Mon – Fri, 8:00 – 17:00) only, the assessment will be conducted against the daytime criterion only. We note that for planning purposes, the predicted noise level for the proposed development should not exceed the relevant indicative noise level, minus 5dBA for residential receivers. Therefore, the applicable day time noise criteria would be as follows:

- Commercial receivers:
  - Day time (7:00 a.m. to 10:00 p.m.): 57 dBA
- Residential receivers:
  - Day time (7:00 a.m. to 10:00 p.m.): 52 dBA

Note that if noise emitted by the proposed development contains any tones, modulation, impulsive or low frequency characteristics, the continuous noise level of the noise source must be adjusted as follows:

- Noise containing 1 characteristic – 5dBA penalty added to source continuous noise level;
- Noise containing 2 characteristics – 8dBA penalty added to source continuous noise level;
- Noise containing 3 or 4 characteristics – 10dBA penalty added to source continuous noise level.

Building Acoustics

The level of background and transient/intermittent noise, the speech privacy rating and the room acoustics define the acoustic quality of a building. The recommended criteria referenced from Education Facilities Design Standard [7] and AS/NZS 2107:2016 [4] for each space are shown in Table 2. Please refer to each individual section below for interpretation of the criteria.

Type of Occupancy/ Activity	Background Noise, dBA	Reverberation Time, sec	Weighted Sound Reduction Index, D_W
Reception GLA’s	40	0.4	40
Quiet room	35 - 40	0.6	N/A[1]
Sensory room	35 - 40	0.6	45 N/A[2]
Learning commons	40 - 45	0.6	N/A 35[3]
Toilets and changerooms	< 55	N/A	40
Foyer	< 50	0.6	N/A
Board room	40 - 45	0.6	45
Music room	35 - 40	0.8 - 1.0	45
Hos, D.Hos offices	40 - 45	0.6	40
Meeting	40 - 45	0.6	40
STEAM room	40 - 45	0.8	40
Homebase	40	0.4	40
Corridor	< 50	0.8	N/A
Multipurpose	40	0.6	45
Breakout room	40 - 45	0.6	N/A
Rooftop sports court	N/A	N/A	45[4]
Comms and stores	N/A	N/A	35

Table 2: Proposed building acoustic design criteria

Background Noise

AS 2107:2016 [4] sets the criteria for background noise in terms of A-weighted equivalent continuous sound pressure level over the measurement period (L_{Aeq}) in accordance with the use of the spaces and the location of the buildings. Table 3 details the subjective response of individuals to the proposed sound levels for interpretation of the recommendations.

Average Sound Pressure Levels (dBA)	Subjective Rating
35 – 40	Audible but unobtrusive
40 – 45	Moderate but unobtrusive
45 – 50	Unobtrusive with low levels of surrounding activities
50 – 55	Unobtrusive with high levels of surrounding activities

[1] Drawings indicate the quiet rooms separating the Homebases are open, we note that unless a partition or door is introduced, sound will transfer between the spaces.
[2] For sensory rooms that are open
[3] Ground floor
[4] Between floors

Table 3: Subjective ratings for various average sound pressure levels

Sound Insulation

For enclosed spaces, the noise from activities in the adjacent rooms transmitted through walls, floors, ceilings etc. increases the background noise level similarly to the noise intrusion from any outside sources. The level of noise transmitted from the adjacent rooms and the level of sound insulation/speech privacy is controlled by the design of building elements and providing adequate level of sound attenuation through specifying appropriate construction types for walls, floors, doors, ceilings etc.

There are no recommended Australian or International Standards for sound insulation ratings for adjoining spaces. Recommendations are based on experience from previous projects, with these recommendations reflecting user expectations. The privacy rating is dependent on the sound absorption and background noise level in the adjoining space as well as the area and acoustic performance of the dividing partition.

The proposed criteria for speech privacy between the spaces separated by partitions (extending either to the ceiling level or to the roof structure above are presented in terms of Weighted Sound Level Difference (D_W) as defined by AS ISO 140.4–2006 [8], which is related to the sound level difference between two spaces and are detailed in Table 4. The criteria are based on our experience in the acoustic design of similar facilities. Table 4 details the subjective response of individuals to the proposed privacy ratings for interpretation of the recommendations.

Weighted Sound Level Difference, D_W	Subjective Rating
50	Confidential privacy
45	Very good privacy. Speech inaudible unless raised
40	Good privacy. Speech audible but unintelligible
35	Normal privacy. Neighbouring conversations are audible and may be understood
< 35	Privacy not required

Table 4: Subjective perceptions for various privacy ratings

Room Acoustics

AS 2107-2016 [4] sets out the design criteria for reverberation times within occupied spaces. The reverberation time defines the time taken for sound to decay within a space and thus the degree of intelligibility of both unassisted speech and sound reinforcement systems. The criterion for a given space depends on the volume of the space, with Table 5 outlining the subjective impression for spaces with varying volume. Criteria considered appropriate for the various spaces within the development are listed in Table 5.

Reverberation Time (sec)			Subjective Rating
Small (100m3)	Medium (1,000 m3)	Large (10,000m3)	
< 0.3	0.3 – 0.5	0.6 – 0.8	Dead
0.3 – 0.5	0.5 – 0.7	0.8 – 1.0	Medium dead
0.5 – 0.7	0.7 – 1.0	1.0 – 1.5	Average
0.7 – 1.0	1.0 – 1.5	1.5 – 2.5	Medium live
1.0 – 2.00	1.5 – 2.5	2.5 – 4.5	Live

Table 5: Subjective response to various reverberation times and room volumes

Assessment and Recommendation

General Recommendation

Acoustic Sealants

We note that for the acoustic integrity of building elements to be maintained, all gaps and interfaces along the junctions and joints of linings must be sealed with an appropriate acoustic grade sealant. Penetrations for mechanical or electrical services must be properly caulked and sealed around the ductwork and cabling Appropriate acoustic caulking products include:

- Bostik Firemastic.
- Bostik Seal-n-flex 2637.

- Pyropanel Multiflex.
- Boral Fyreflex.
- Dow-Corning 790 Silicone.
- Dow-Corning 795 Silicone.
- Sika Sikaflex-11 FC.
- Fosroc Flamex 3.

Cavity Infill

Unless otherwise specified, where a cavity infill is recommended, equivalent alternatives are:

- Fibreglass – 50mm, 12kg/m^3.
- Rockwool – 50mm, 38kg/m^3.
- Polyester – 900gsm.

Ceiling Overlay

Unless otherwise specified, where a ceiling overlay is recommended, equivalent alternatives are:

- Glasswool – 100mm, 12kg/m^3.
- Rockwool – 100mm, 38kg/m^3.
- Polyester – 100mm, 32kg/m^3.

Where higher durability and/or water resistance is required, 6mm compressed fibre cement sheeting could be used in lieu of the 13mm fire-rated plasterboard and 9mm compressed fibre cement in-lieu of 16mm fire-rated plasterboard.

Sound Insulation

For extent of the proposed levels of speech privacy/sound insulation, refer the mark-up in APPENDIX A.

The architectural drawings have not specified glazing and doors and as such we make the following recommendations:

- Normal Privacy, D_w 35 (highlighted in yellow colour)
  - P02 – 1 layer of 13mm plasterboard to each side of 76mm steel studs extending to the ceiling level with cavity infill of 50mm, 12kg/m^3 glasswool. This is acceptable from an acoustics point of view.
  - P22 – 1 layer of 16mm Fyrchek to both side of 92mm steed studs, we recommend cavity infill of 50mm, 12kg/m^3 glasswool.

    We note that this construction will only achieve Normal Speech Privacy and has been recommended for rooms (sensory) requiring Very Good Speech Privacy and we recommend constructing the partitions as recommended in Very Good Speech Privacy
  - Glazing – minimum 10.38mm laminated glass or as required structurally.
  - Doors – 40 mm thick solid core doors or hinged aluminium framed glass doors with 10.38mm laminated glass.
- Good Privacy, D_w 40 (highlighted in green colour)
  - P03 – 1 layer of 13mm plasterboard to one side of 92mm steel studs and 2 layers of 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool with plasterboard extending to the structure above. This is acceptable from an acoustics point of view.

    We note that this construction will only achieve Good Privacy and has been recommended for rooms requiring Very Good Speech Privacy and we recommend constructing the partitions as recommended in Very Good Speech Privacy.
  - P03B – Drawings indicate P03B to G.07 however the is no indication on the wall schedule and we recommend 1 layer of 13mm plasterboard to one side of 92mm steel studs and 2 layers of 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool.
  - P09 – 1 layer of 13mm plasterboard to both sides of double steel studs consisting of 76mm steel stud and 64mm steel stud separated by a 90mm airgap with caviy infill of 50mm, 12kg/m^3 glasswool. This is acceptable from an acoustics point of view.
  - P14 – 1 layer of 13mm plasterboard to one side of 92mm steel studs with 1 layer of 18mm MDF on 6mm z clip on 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool.

We note that this construction will only achieve Good Privacy and has been recommended for rooms requiring Very Good Speech Privacy and we recommend adding 1 layer of 13mm plasterboard to the construction.

- P15 – 1 layer of 13mm plasterboard to one side of double steel studs consisting of 76mm steel stud and 64mm steel stud separated by a 90mm airgap and 1 layer of 18mm MDF on 6mm z clip on 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool. This is acceptable from an acoustics point of view.
- Glazing
  - Between spaces with good speech privacy and trafficable areas minimum 12.5mm VLam Hush glass.
  - Between spaces with good speech privacy – double glazing constructed of 6.38mm laminated glass – 12mm air space – 10.38mm laminated glass (Weighted Sound reduction Index of R_W 43).
- Doors:
  - Between spaces with good speech privacy and trafficable areas – hinged 50mm thick solid core doors (minimum density 700kg/m^3) or hinged aluminium framed doors with 12.5mm VLam Hush glass. We recommend medium duty acoustic seals (Raven RP8, RP10 or equivalent). We note that the glass door would not strictly achieve Good speech privacy as the Weighted Sound Reduction of 12.5mm VLam Hush glass is R_W 40, however, it would be acceptable between the sensitive spaces and adjacent trafficable area.
  - Between spaces with good speech privacy - proprietary acoustic door with Weighted Sound Reduction Index of Rw 43 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance
  - Sliding doors – Please note that the architectural drawings indicate sliding door, which will achieve only Normal speech privacy. If achieving Good privacy is required, we recommend proprietary acoustic slider with Weighted Sound Reduction Index of R_w 40 is considered or the sliding door be replaced with hinged door (refer above).
  - Toilet doors – 40mm thick solid core doors will be sufficient. Relief air grilles should not be incorporated in the toilet doors.

- Very Good Privacy, D_w 45 (highlighted in red colour)
  - P08A, P08B, P08C – 1 layer of 13mm plasterboard on both sides of double 92mm steel studs separated by a 90mm airgap (P08A and P08B) with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill of double layers of 90mm, 12kg/m^3 glasswool.
  - P10 – 2 layers of 13mm plasterboard to each side of 92mm steel studs with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P10B – 2 layers of rendered kelso on 2 layers of 13mm plasterboard to each side of 92mm steel studs with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P11 – 1 layer of 13mm plasterboard to one side of double steel studs consisting of 76mm steel stud and 64mm steel stud separated by a 90mm airgap and 1 layer of 18mm MDF on 6mm z clip on 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill double layers of 60mm, 12kg/m^3 glasswool.
  - P20 – 1 layer of 25mm Gyprock shaft linear panel to one side of 102mm metal CH studs and 2 layers of 13mm fyrechek to the other side. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P24 – 2 layers of 16mm Fyrchek to both sides of 92mm steel studs. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P25 – 2 layers of 13mm Fyrchek to both sides of 92mm steel studs. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - Glazing – minimum double double glazing consisting of 10.38mm laminated glass – 12mm airgap – 12.76mm laminated glass.
  - Doors:

- Hinged doors – we recommend proprietary acoustic door with Weighted Sound Reduction Index of Rw 47 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance.
- Sliding doors – We recommend proprietary acoustic sliders with Weighted Sound Reduction Index of Rw 47 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance.

We recommend 300mm post tension concrete slab between the rooftop sports court and the spaces on Level 3, and we recommend the ceilings of the spaces below be suspended on neoprene spring hangers with minimum static deflection of 25mm (e.g., Embelton RHS/RHSH or equivalent) in order to control structure borne and impact generated from use of the space. The hangers should be selected based on the total ceiling loads, including engineering services. For further details of the ceiling construction refer section Room Acoustics.

We note that the where the quiet rooms interconnect homebases and reception, Good speech privacy will not be achieved as the quiet rooms are open and if Good speech privacy is required, we recommend constructing a partition/ door as recommended above.

Room Acoustics

Based on the latest architectural drawings and reflected ceiling plan, we make the following recommendations for critical spaces:

- Teaching spaces – we understand that ceiling in the teaching spaces is proposed to be constructed of a mix of BAUX Woodwool (CE13) with Noise reduction coefficient of NRC 0.9 and SonaSpray K13 25mm (CE12) with Noise reduction coefficient of NRC 0.9 to exposed concrete.
  - Ground floor, Levels 1, 2 and the GLA's on Level 3, which are below the roof garden – RONDO or equivalent standard ceiling suspension grid concealed with 1 layer of plasterboard to the side with 100mm/ 32kg/m^3 polyester insulation;
  - Level 3 – We recommend the entire ceiling extend to the underside of the outdoor sports court to be constructed with RONDO or equivalent ceiling grid suspended on neoprene spring hangers with minimum static deflection of 25mm (e.g., Embelton RHS/RHSH or equivalent) with minimum cavity of 300mm and have a cavity infill of minimum 100mm, 32kg/m^3 polyester.

  This is acceptable from an acoustics point of view.
- Learning commons, STEAM – we understand the intention is to have exposed concrete soffit sprayed with SonaSpray and make the following recommendations:
  - Ground floor, Levels 1, 2 and the learning commons on Level 3 located under the roof garden – SonaSpray K13 25mm (CE12) with Noise reduction coefficient of NRC 0.9.
  - Level 3 - 13mm plasterboard in ceiling grid suspended on neoprene spring hangers with minimum 25mm static deflection (e.g., Embelton RHS/RHSH or equivalent) finished with SonaSpray K13 25mm (CE12) with Noise reduction coefficient of NRC 0.9.

  This is acceptable from an acoustics point of view.
- Music room – drawings indicate Aktar (CE14) perforated MDF and SonaSpray k13 (CE12) to the exposed concrete and we make the following recommendations:
  - Ceiling – The entire suspended ceiling (~43m^2) to be constructed of perforated plasterboard (10% open area) backed with non-woven acoustic tissue with Noise Reduction Coefficient of NRC 0.5(i.e., Random Plus 8/15/20R, 9.9%OA or equivalent) uniformly distributed along the perimeter of the room.
  - Walls – 16m^2 AUTEX Accent (13mm thick, 3300gsm, NRC0.8) spread equally between the walls of the music space.
- Administration component (Boardroom, meeting room, Hos and D,Hos) – we recommend perforated ceiling tiles with minimum Noise Reduction Coefficient of NRC 0.6 (e.g., Knauf Circular 15.5%OA or equivalent).
- Theatre stairs – Aktar diPanel AP250D (CE14) with noise coefficient or NRC 0.85, this is acceptable from an acoustics point of view.

Building Envelope

Based on the architectural drawings [5] and the results of our assessment, we make the following recommendations for construction of building envelope.

- Façade:
  - EP01 – 200mm precast concrete. This is acceptable from an acoustics point of view.
  - EP02 – 250mm precast concrete. This is acceptable from an acoustics point of view.
  - Ep03 – 150mm precast concrete. This is acceptable from an acoustics point of view.
  - EP04 – 190mm thick blockwork. This is acceptable from an acoustics point of view.
  - EP05 – 1 layer of 9mm fibre cement cladding on 1 layer of 15mm top hats, 35mm top hats to the external side of 92mm steel studs with 1 layer of 13mm plasterboard to the internal side with cavity infill R2.2 insulation. We recommend 2 layers of 13mm plasterboard to the internal side of the wall construction and cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP06 – 1 layer of 9mm fibre cement cladding on 15mm top hats, 35mm top hats on 1 layer of 16mm Fyrchek to the external side of 92mm steel studs and 1 layer of 16mm Fyrchek to the internal side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - Ep07 – 3 layers of 16mm Fyrchek to the internal side of 92mm steel studs and 1 layer of 12mm viroc cladding on 15mm top hat, 35mm top hats with cavity infill of 90mm pink partition insulation R2.7. This is acceptable from an acoustics point of view.
  - EP08 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of 92 mm steel studs with 2 layers of 16mm Fyrchek to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - Ep09 – 1 layer of viroc cladding on 15mm top hats, 35 top hats to the external side of 92mm steel studs with 2 layers of 13mm plasterboard and 2 layers of 6.5mm wall lining to the internal side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP10 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm top hats to each side of 92mm steel studs. This is acceptable from an acoustics point of view.
  - EP11 – 1 layer of 30mm brick snaps on 15mm top hats, 35 mm top hats to the external side of 92mm steel studs. We note that the internal side of this construction will be precast concrete and note that it is acceptable from an acoustics point of view.
  - EP12 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of 92 mm steel studs with 2 layers of 16mm Fyrchek to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP13 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of double 92 mm steel studs separated by a 5mm air gap with 2 layers of 16mm Fyrchek to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP14 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of 102 mm CH steel studs with 1 layer of 25mm Shaft liner to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP18 – 1 layer of 75mm hebel powerpanel on 15mm top hats, 35mm top hats to the external side of 92mm steel studs with 1 layer of precast concrete to the internal side separated by a 20mm air gap.

    We understand that the stairway wall adjacent to the outdoor sport area will have ball thrown by students on painted targets on the wall. In order to control impact noise generated from this activity, we recommend the wall be constructed on vibration isolation strips (i.e., Getzner Sylomer or similar) to decouple the wall from the concrete slab and have cavity infill of 90mm, 11kg/m^3 glasswool.

- Roof:
  - Learning area – The structural drawings [6] indicate 250mm post tension concrete slab and we consider it acceptable from acoustic point of view. In order to control footfall noise to the spaces below, we recommend the pavers in the roof garden be installed on adjustable plastic pedestals.
  - Fire pump room – we recommend 0.48BMT profiled roof steel cladding over R2.5 foil faced insulation blanket (ANTICON 100 or equivalent) on 150mm deep roof purlins with ceiling of 2 layer of 13mm fire rated plasterboard or 200mm thick precast concrete.
- Glazing – we recommend:
  - Minimum 10.38mm laminated glass or as required structurally.
  - Music Room – we recommend minimum double glazing of 10.38mm laminated glass – 12mm airgap – 12.76mm laminated glass. We recommend proprietary acoustic door with Weighted Sound Reduction Index of Rw 47 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance.

Engineering Services Acoustics

Mechanical Services

Airborne Noise

The assessment of the airborne noise emissions from operation of mechanical services units was assessed based on BESTEC mechanical services drawings and plant selections [9] the sound levels summarised below. The results of our assessment are summarised in Table 7.

Daikin Model	Unit Designation	Mode	Octave Band Centre Frequencies Sound Pressure Level, dB re 20μPa								
			63	125	250	500	1K	2K	4K	8K	Total, dB(A)
FXMQ40PAVE	L4 Foyer (ACU 4-1)	HH	35	41	39	35	34	32	25	18	39
		H	34	37	35	33	32	29	23	15	37
		L	30	37	34	31	31	27	21	14	35
FXMQ50PAVE	Boardroom (ACU G-4),	HH	36	43	40	38	37	31	24	22	41
		H	36	40	38	36	34	29	23	22	39
		L	35	38	36	35	32	26	22	22	37
FXMQ100PAVE	L3 Learning Commons W stair	HH	40	45	40	39	40	33	28	18	43
		H	37	43	38	38	38	31	25	17	41
		L	31	40	36	36	36	28	18	16	39
FXMQ125PAVE	Reception G0.7 (ACU G-11), L1 Homebase 1.05,07,09,11(ACU 1-14,12,10,8), L2 Homebase 2.04,.06,.08,10 (ACU 2-14,12,11,7), L2 Multi, L3 Homecoming 3.05,7,9,11,13	HH	43	46	42	40	41	34	28	22	44
		H	41	44	39	38	39	32	25	18	42
		L	37	41	38	36	36	30	20	17	40
FXMQ140PAVE	Reception G0.5 (ACU G-2), Music (ACU g.09), Homebase 1.13, L3 Homecoming 3.04, 14	HH	46	49	45	42	42	37	31	35	46
		H	43	47	44	41	41	36	30	34	45
		L	41	45	41	40	40	34	27	32	43
FXMQ160PV1A	Reception G0.6 (ACU G-1), STEM, Homebase 1.14, L2 Homebase 2.13,14, L3 Learning Commons W	H	53	52	47	40	39	36	34	26	45
		L	46	44	40	33	32	29	26	20	38
FXMQ180PV1A	GF Learning Commons (ACU G-10), L1 Learning Commons E,	H	53	52	47	40	39	36	34	26	45
		L	46	44	40	33	32	29	26	20	38

Daikin Model	Unit Designation	Mode	Octave Band Centre Frequencies Sound Pressure Level, dB re 20μPa								
			63	125	250	500	1K	2K	4K	8K	Total, dB(A)
	L2 Learning Commons E, L3 Learning Commons E										
FXMQ200PV1A	L1 Learning Commons W (ACU 1-2), L2 Learning Commons W (ACU 2-3)	H	52	51	45	39	37	35	33	27	44
		L	46	43	40	31	31	29	24	23	37
FXMQ250PV1A	GF Foyer (ACU G-3)	H	54	53	47	41	40	38	33	28	46
		L	48	45	41	36	32	31	26	20	39
VAM1000GJVE	ERVs	U-H	50	47	48	40	35	29	22	13	54
		H	50	45	47	39	33	27	20	10	53
		L	49	43	44	37	31	25	16	9	51

Table 6: Sound Pressure Levels for ACU's

We have conducted an assessment of the noise emissions resulting from the operation of the above units based on the layout shown in the current mechanical services drawings [9]. The results of our assessment are summarised in the tables below, with acoustic treatment recommended where required.

Daikin Model	Unit Designation	S/A	R/A	Casing Radiated
FXMQ40PAVE	ACU 4-1	(1)	(1)	(1)
FXMQ50PAVE	ACU G-4	(1)	(1)	(1)
FXMQ100PAVE	ACU 3-4	(1)	(1)	(4)
FXMQ125PAVE	ACU G-11, ACU 1-14, ACU1-12, ACU1-10, ACU1-8, ACU 2-14, ACU 2-12, ACU 2-11, ACU 2-7, ACU 3-16, ACU 3-14, ACU 3-12, ACU 3-10, ACU 3-8	(2)	(1)	(1)
FXMQ140PAVE	ACU G-2, ACU 1-6, ACU 3-1	(2)	(1)	(1)
FXMQ140PAVE	ACU G-9 (music)	(2)	(3)	(1)
FXMQ160PV1A	ACU G-1, ACU 1-1, ACU 1-5, ACU 2-6, ACU2-7,	(2)	(1)	(4)
FXMQ180PV1A	ACU G-10, ACU 1-4, ACU 2-5, ACU 3-6	(1)	(1)	(4)
FXMQ200PV1A	ACU 1-2, ACU 2-3	(1)	(1)	(4)
FXMQ250PV1A	ACU G-3	(1)	(1)	(4)
VAM1000GJVE	ERVs	(1)	(5)	(4)

Table 7: Summary of acoustic treatment for ACU's.

(1) No further acoustic treatment is required.
(2) Minimum 2,000mm long flexible ducting before the SA grilles.
(3) Minimum 1,500mm long flexible ducting before the RA grilles.
(4) Replace perforated plasterboard ceiling and construct a bulkhead encapsulating the units with minimum 1 layer of 13mm plasterboard and internally line with 100mm, 32kg/m^3 polyester.

(5) Minimum 2,200mm long flexible ducting before the RA grilles.

Environmental Acoustics

Noise Associated with Roof Mechanical Services

We have reviewed the rooftop mechanical services serving the development and the results of our assessment reveal that when all units are in operation, the criteria will be achieved and the amenity of the nearest residential receivers and the adjacent school buildings (Archdiocese centre, Redden centre, FJ Siebert, Convent & Chapel) will not be affected during the day time when the building is operational.

To control the noise from the condensers serving the development to the outdoor learning area and the outdoor sports court, we recommend acoustic louvres with the minimum attenuation at each frequency:

Frequency (dB)	63	125	250	500	1K	2K	4K
Sound Reduction Index	18	14	14	22	28	28	33

Structure Borne Noise and Vibration

Condensing units to be installed on neoprene vibration isolation mounts with minimum static deflection of 8mm.

Noise associated with Fire Services

Details of the fire services are currently not available. Hence for this assessment, we used measured data from a previous project and assumed similar noise levels which were 95dBA@1m.

The results of our assessment reveal that with the roof services room construction (Refer Building Façade), the amenity of the nearest residential receivers and the adjacent school buildings (Archdiocese centre, Redden centre, FJ Siebert, Convent & Chapel) will not be affected during the day time when the building is operational.

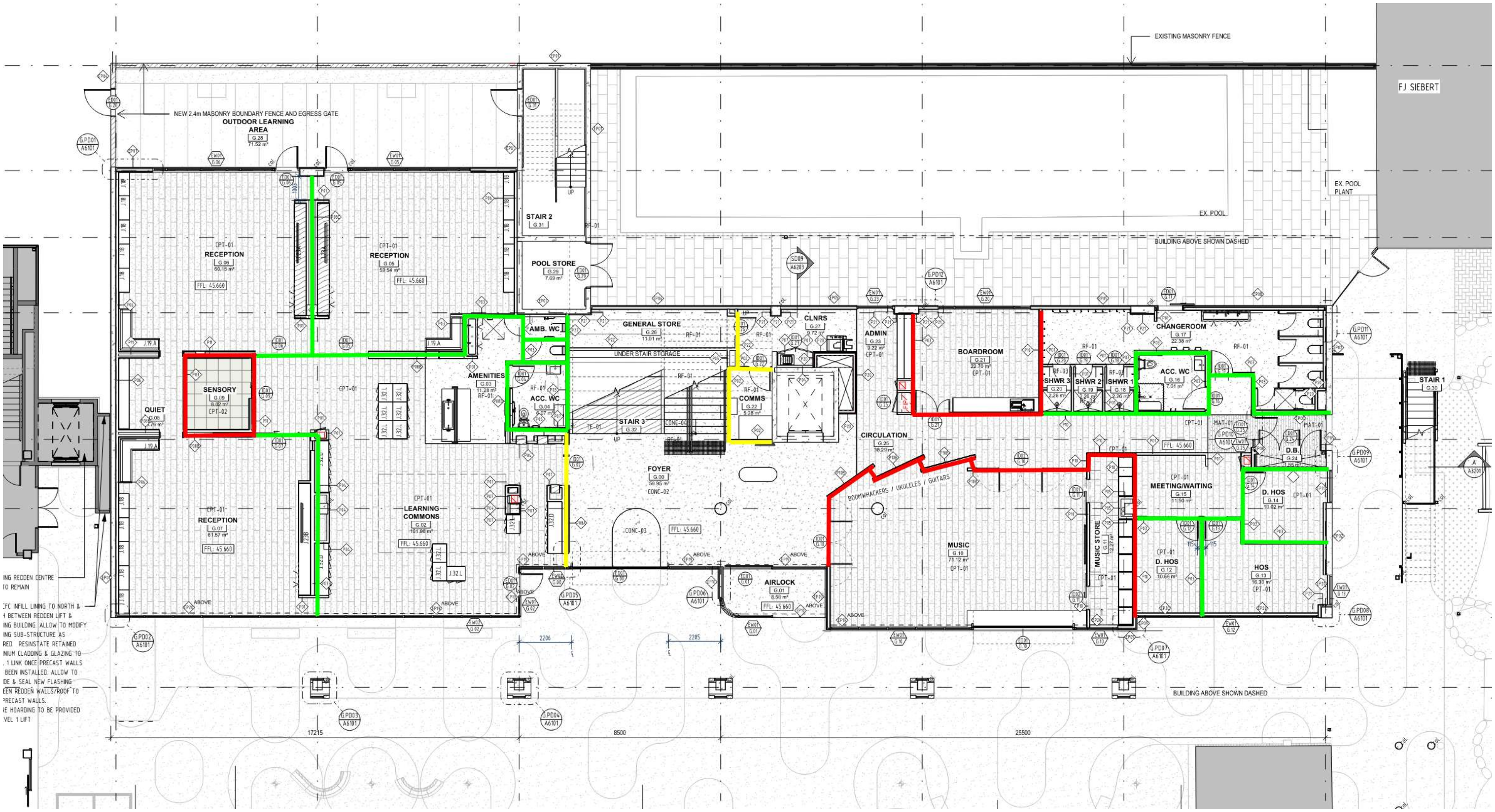
Please note:

- The fire pump diesel engine will require cooling intake and discharge openings as well as exhaust mufflers, which will be specified once details of the diesel engine are provided;
- The fire pump should be suspended on seismically restrained vibration spring isolators with minimum static deflection of 50mm.
- The connection between the fire pump and any pipes should be via flexible connection (Victaulic or equivalent) with the pipes suspended on seismically restrained spring hanger with minimum 50mm static deflection for the first 15m or 100 pipe diameters, whichever is greater. For the rest of the run, the pipes could be supported on neoprene hangers.
- The fire pump room would require minimum 5m^2 of NRC0.9 acoustic panels/ tiles internally to reduce the reverberation buildup noise.
- Once the details and selections are made available, this assessment would be revised.

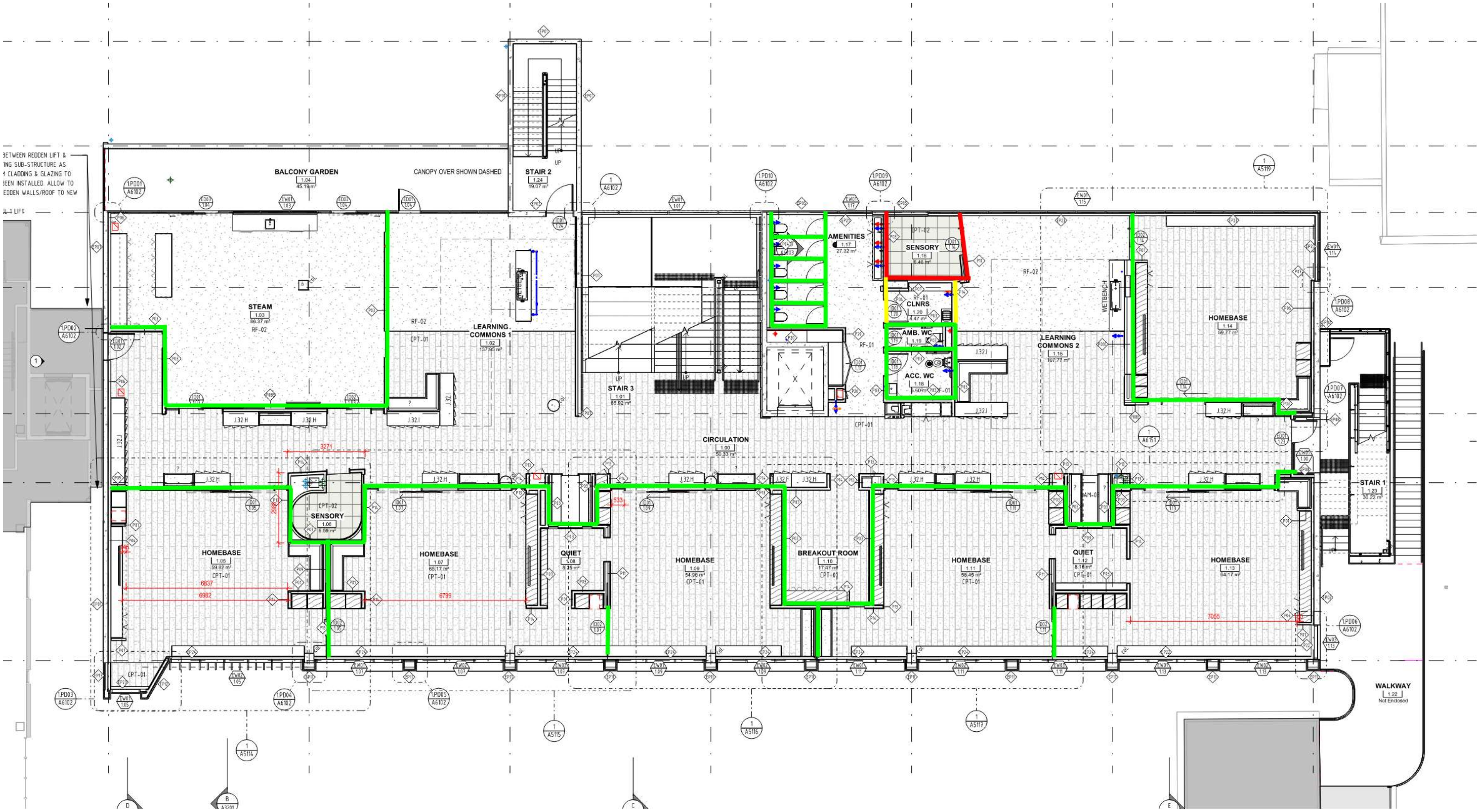
APPENDIX A

Partition Mark-Up

Speech Privacy	D_W	Mark-up Colour
Normal Speech Privacy	35	
Good Speech Privacy	40	
Very Good Speech Privacy	45	

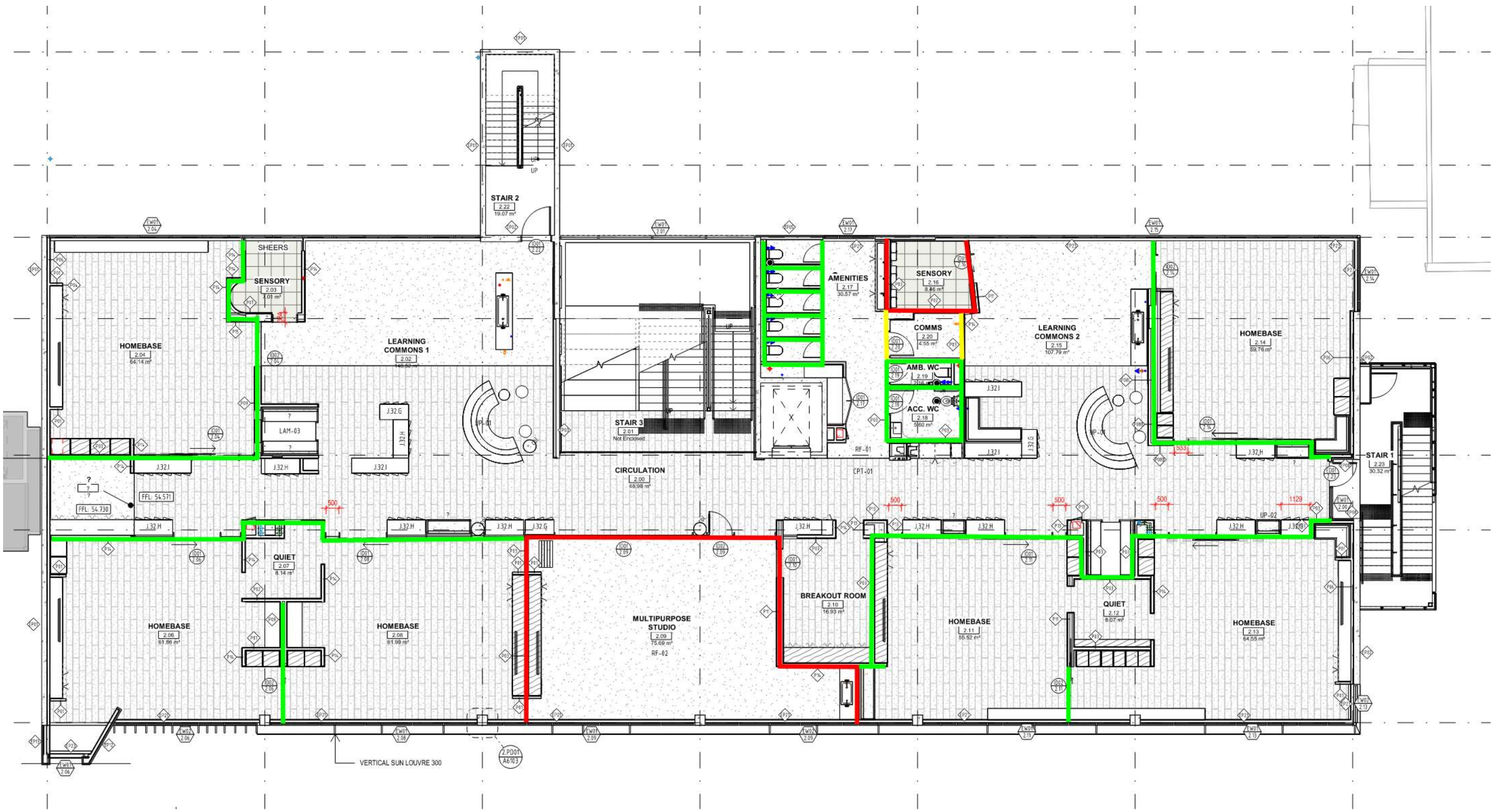


Ground Floor


BALCONY GARDEN
CANOPY OVER SHOWN DASHED
STAIR 2
STEAM
LEARNING COMMONS 1
STAIR 3
AMENITIES
SENSORY
CLNRS
AMB. WC
ACC. WC
LEARNING COMMONS 2
HOMEBASE
CIRCULATION
STAIR 1
SENSORY
HOMEBASE
HOMEBASE
QUIET
HOMEBASE
BREAKOUT ROOM
HOMEBASE
QUIET
HOMEBASE
WALKWAY
Not Enclosed
WETBENCH

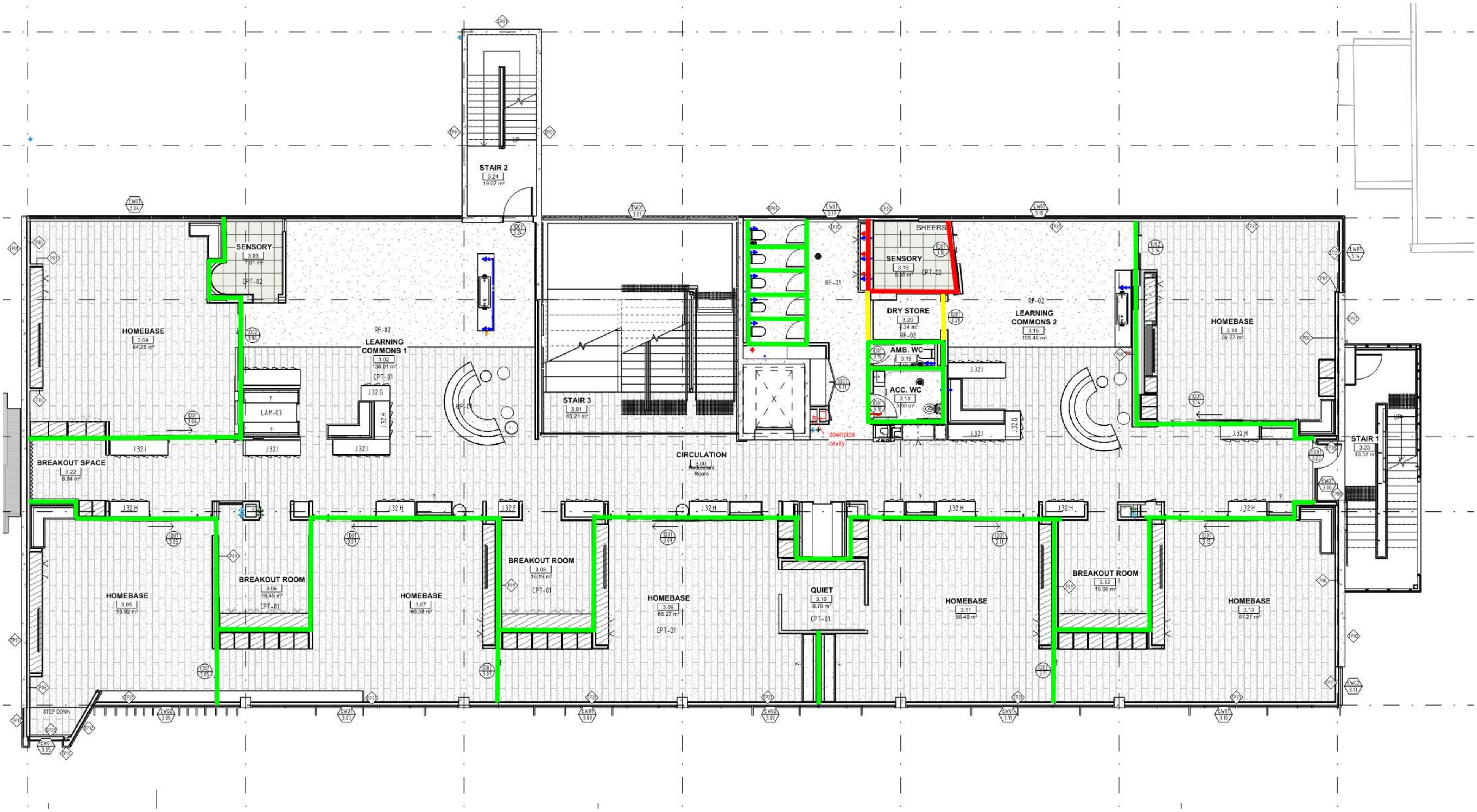
Level 1

BESTEC®

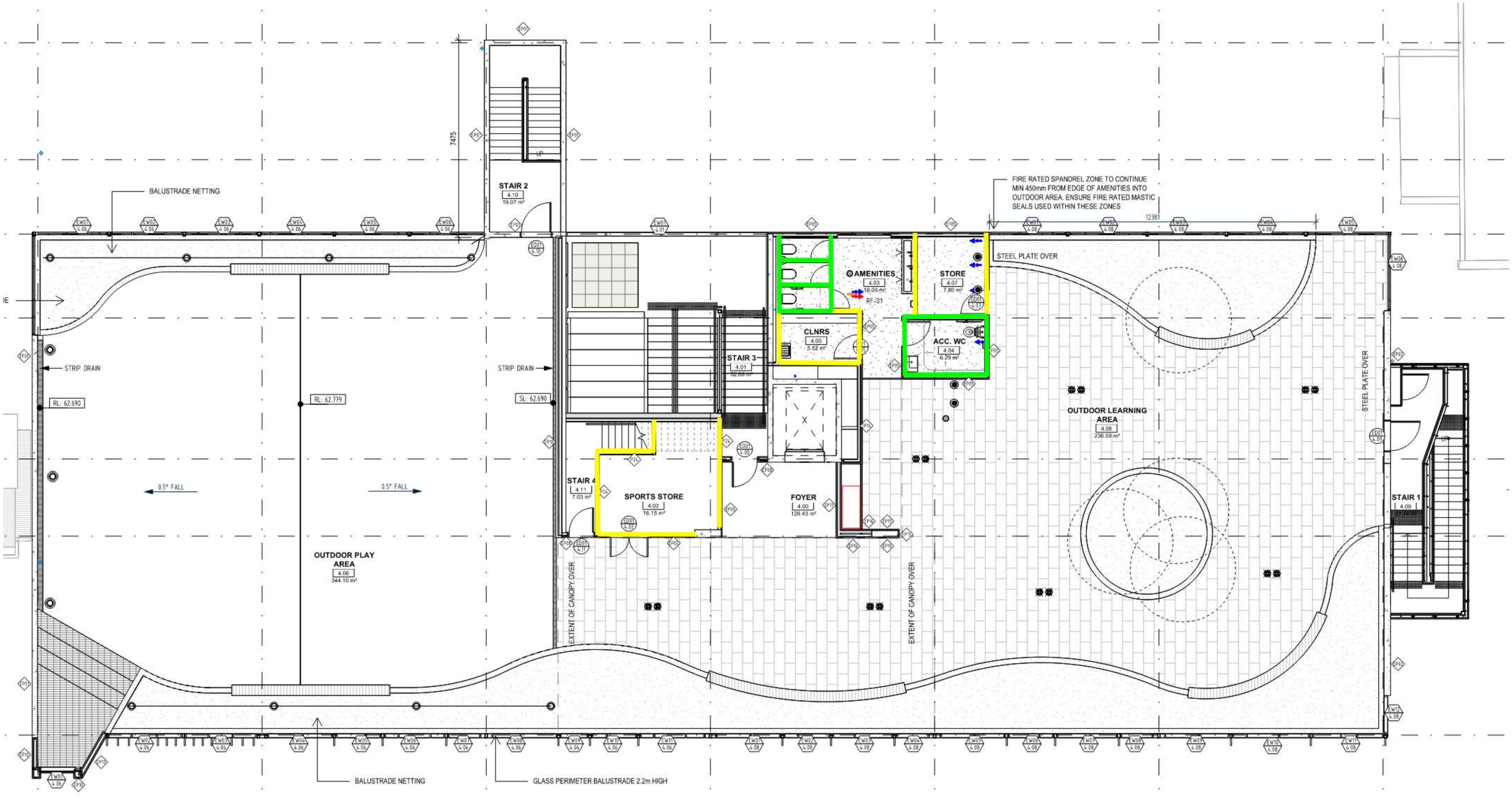


Level 2

BESTEC®



Level 3


BALUSTRADE NETTING
STAIR 2
FIRE RATED SPANDREL ZONE TO CONTINUE MIN 450mm FROM EDGE OF AMENITIES INTO OUTDOOR AREA. ENSURE FIRE RATED MASTIC SEALS USED WITHIN THESE ZONES
AMENITIES
STORE
STEEL PLATE OVER
CLNRS
ACC. WC
STAIR 3
STRIP DRAIN
OUTDOOR LEARNING AREA
STEEL PLATE OVER
STAIR 4
SPORTS STORE
FOYER
STAIR 1
0.5° FALL
OUTDOOR PLAY AREA
EXTENT OF CANOPY OVER
BALUSTRADE NETTING
GLASS PERIMETER BALUSTRADE 2.2m HIGH

Roof Plan

APPENDIX B

Glossary of Acoustic Terminology

dB(A) Also referred to as dBA. A unit of measurement, decibels (A), of sound pressure level which has its frequency characteristics modified by a filter ("A-weighted") so as to more closely approximate human ear response at a loudness level of 40 phons. The table below outlines the subjective rating of different sound pressure levels.

Noise Level (dBA)	Subjective Rating
25-30	Barely audible and very unobtrusive.
30-35	Audible but very unobtrusive.
35-40	Audible but unobtrusive.
40-45	Moderate but unobtrusive.
45-50	Unobtrusive with low levels of surrounding activity.
50-55	Unobtrusive with high levels of surrounding activity.

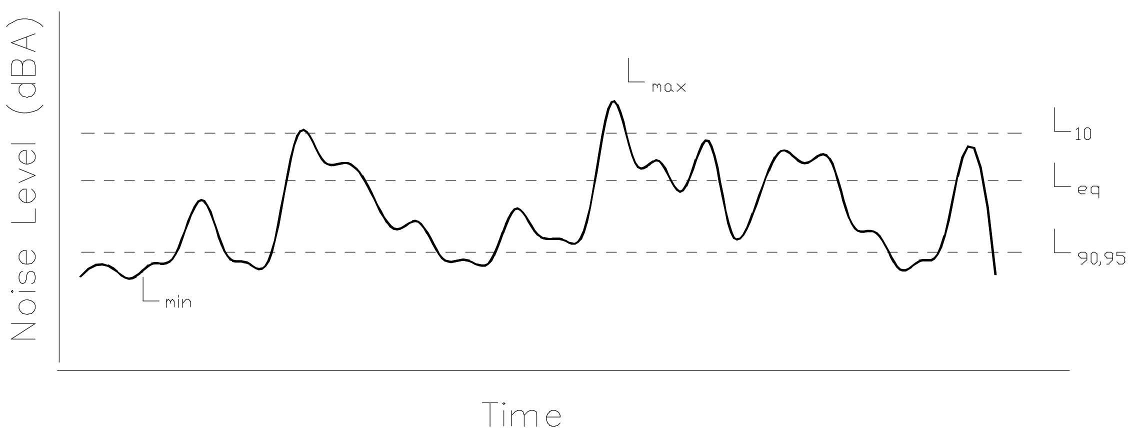
L_1 The noise level which is equalled or exceeded for 1% of the measurement period. L_1 is an indicator of the impulse noise level, and is used in Australia as the descriptor for intrusive noise (usually in dBA).

L_{10} The noise level which is equalled or exceeded for 10% of the measurement period. L_{10} is an indicator of the mean maximum noise level, and is used in Australia as the descriptor for intrusive noise (usually in dBA).

L_{90}, L_{95} The noise level which is equalled or exceeded for 90% of the measurement period. L_{90} or L95 is an indicator of the mean minimum noise level, and is used in Australia as the descriptor for background or ambient noise (usually in dBA).

L_{eq} The equivalent continuous noise level for the measurement period. L_{eq} is an indicator of the average noise level (usually in dBA).

L_{max} The maximum noise level for the measurement period (usually in dBA).



Note: The subjective reaction or response to changes in noise levels can be summarised as follows: A 3dBA increase in sound pressure level is required for the average human ear to notice a change; a 5dBA increase is quite noticeable and a 10dBA increase is typically perceived as a doubling in loudness.

STC/R_W Sound Transmission Class or Weighted Sound Reduction Index. Provides a single number rating (from the sound transmission loss or sound reduction index for each frequency band) of the sound insulation performance of a partition. The higher the value, the better the performance of the partition. The subjective impression of different ratings is shown in the table below.

Type of noise source	STC/Rw Rating				
	40	45	50	55	60
Normal Speech	Audible	Just Audible	Not Audible		
Raised speech	Clearly Audible	Audible	Just Audible	Not Audible	
Shouting	Clearly Audible	Clearly Audible	Audible	Just Audible	Not Audible
Small television/small entertainment system	Clearly Audible	Clearly Audible	Audible	Just Audible	Not Audible
Large television/large hi-fi music system	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Just Audible
DVD with surround sound	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Audible
Digital television with surround sound	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Audible

FSTC/R_W' The equivalent of STC/R_W, unit for sound insulation performance of a building element measured in the field.

C_I, C_{tr} The ratings (R_W, D_{nTw}, L_{nTw}) are weighted in accordance to a spectrum suited to speech. This term modifies the overall rating to account for noise with different spectra, such as traffic (C_{tr}) or footfalls (C_I). The ratings may be written as R_W+C_{tr}, or D_{nTw}/L_{nTw}+C_I.

NNIC/D_{nTw} Normalised Noise Isolation Class, or Weighted Standardised Sound Level Difference. Provides a single number rating of the sound level difference between two spaces, and incorporates the effects of flanking noise between two spaces. This rating is generally accepted to be about 5 points less than the STC/R_W rating.

IIC/L_{nw} Impact Insulation Class, or Weighted Normalised Impact Sound Level. L_{nw} = 110 - IIC. The higher the IIC rating, or the lower the L_{nw} rating the better the performance of the building element at insulating impact noise. The table below gives the subjective impression of different ratings:

IIC	Lnw	Subjective Rating
40	70	Clearly Audible
45	65	Clearly Audible
50	60	Audible
55	55	Audible
60	50	Just Audible
65	45	Inaudible

FIIC/L_{nTw}' The equivalent of IIC/L_{nw}, but the performance is for the building element measured in the field.

Attachment D

NCC Revised Assessment

MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977

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ABN 43 909 272 047

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Services Technologies
Consulting Engineers

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LRO:OZH
57837/1/1
26 August 2024

Grieve Gillett Architects
243 Pirie Street
ADELAIDE SA 5000

Attention: Ms A Rebbeck

Dear Madam

ST ALOYSIUS COLLEGE NEW PRIMARY SCHOOL
MECHANICAL SERVICES

We have undertaken an alternative Building Code of Australia Section J assessment for the above project. Its purpose is to demonstrate the proposed glazing with the National Construction Code (NCC) 2022 Section J requirements via a Verification Method - Section J1V3 approach.

The assessment is based on the following:-

- Grieve Gillett Architects / Hayball Architectural drawings dated 20 August 2024.
- Building Location: 53 Wakefield Street, Adelaide SA 5000.
- Climate Zone: 5
- Building Class: 9B

NATIONAL CONSTRUCTION CODE OF AUSTRALIA 2022 COMPLIANCE

JV3 Verification Method

The NCC 2022 by *'Verification Method - Section J1V3 - Verification using a reference building'* states:-

For a Class 9B, building compliance with 'Performance Requirement J1P1' is verified when –

- *It is determined that the annual greenhouse gas emissions of the proposed building are not more than the annual greenhouse gas emissions of a reference building when –*

  (i) the proposed building is modeled with the proposed services; and

  (ii) the proposed building is modelled with the same services as the reference building; and

- *In the proposed building a thermal comfort level of between a Predicted Mean Vote of -1 to +1 is achieved across not less than 95% of the floor area of all occupied zone for not less than 98% of the annual hours of operation of the building.*

BESTEC

SPECKEL ANALYSIS

Thermal load and energy consumption analysis was calculated for the proposed and reference building utilising the computer software programme SPECKEL.

This computer simulation software has been certified in accordance with the ANSI/ASHRAE Standard 140-2001: "Standard Method of Test for Evaluation of Building Energy Analysis Computer Programs".

INPUT DATA

The following design input parameters have been utilised for both the proposed and reference building in accordance with NCC 2022 Specification J1V3:-

Item		Input Data
		Reference Building Design & Proposed Building Design
Location		Adelaide, SA 5000
Building classification		Class 9B
Climate zone		5
Schedules		Taken from NCC Specification 35 Table S35C2j (Class 9B)
People	Occupancy	2 m^2/person In accordance with AS 1668.2-2012
	Activity	130W/person (70W sensible, 60W latent) – design input
	Air Velocity	0.1 – Design input
	Clothing	0.65 – Knee-length skirt, long-sleeve shirt (Typical school uniform)
Lights		4.5 W/m^2 In accordance with NCC Section J7D3 Table J7D3a
Equipment		10 W/m^2 In accordance with NCC Specification 35 Table S35C2L.
Infiltration	ON	0.35 - In accordance with NCC Specification 34
	OFF	0.7 - In accordance with NCC Specification 34
Thermostat	Cooling Setpoint	22.5°C In accordance with NCC Specification 34
	Heating Setpoint	21.5°C In accordance with NCC Specification 34
HVAC	System Type	Variable Refrigerant Flow Air Cooled Condensing unit
	Outdoor Air	10 L/s/person – In accordance with AS 1668.2-2012
	Cooling COP	3.5 – Design Input
	Heating COP	3.0 – Design Input
	Supply Fan Total Efficiency	80% – Design Input
	Supply Fan Delta Pressure	150Pa – Design input
	Supply Fan Motor Efficiency	80% – Design Input
Modelling	Ground Reflectance	20% – Design Input
	Wall Solar Absorbance	60% – In Accordance with NCC Specification 34

CLIMATE DATA

The building is located in Adelaide which is classified by the NCC as Climate Zone 5 in accordance with Table 1 Climate Zones for Thermal Design. The building simulation utilized hourly weather data inbuilt into SPECKEL for the Adelaide region.

PART J4 - BUILDING FABRIC

As per the NCC Specification 37 requirement, the total system U-values have been calculated as weighted average of the thermal transmittances of each construction element and surface resistance and any thermal bridging.

Wall Constructions

The following external wall constructions were used in the energy assessment:-

Wall Construction: 01	R- Value (summer heat flow inwards)	
Compressed Fibre Cement sheeting with internal stud framing and insulation (146mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Compressed Fibre Cement (6mm)	0.02	
3. Top Hat Stud (35mm)	0.15	
4. Unventilated Airspace (2mm)	0.00	
5. Wall insulation (R2.0, 90mm)	1.91	
6. Metal Wall Stud (92mm)		0.14
7. Plasterboard (13mm)	0.08	
8. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.42**	

Wall Construction: 02	R- Value (summer heat flow inwards)	
Precast Concrete wall with internal stud framing and insulation (395mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Precast Concrete (250mm)	0.31	
3. Air Cavity (40mm)	0.15	
4. Unventilated Airspace (17mm)	0.00	
5. Wall insulation (R1.5, 75mm)	1.44	
6. Metal Wall Stud (92mm)		0.14
7. Plasterboard (13mm)	0.08	
8. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.57**	

Wall Construction: 03	R- Value (summer heat flow inwards)	
Spandrel panel with insulated stud wall	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.4	
2. *Glazing system* *Refer to glazing section for maximum allowable U-value*	0.26	
3. Unventilated Airspace (50mm)	0	
4. Steel pan (1mm)	1.93	
5. Metal Wall Stud (92mm)		0.11
6. Plasterboard (10mm)	0.06	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.52**	

PART J4 - BUILDING FABRIC (CONT.)

Wall Constructions (Cont.)

Wall Construction: 04	R- Value (summer heat flow inwards)	
Northern Column wall	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Compressed Fibre Cement (12mm)	0.05	
3. Top Hat Stud (35mm)	0.15	
4. Top Hat Stud (15mm)	0.00	
5. Concrete (300mm)	0.37	
6. Insulated Plasterboard (35mm)	1.15	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.88**	

Wall Construction: 05	R- Value (summer heat flow inwards)	
Southern Column wall (397mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Brick Snaps (15mm)	0.03	
3. Top Hat Stud	0.00	
4. Unventilated Air cavity	0.15	
5. Concrete (450mm)	0.56	
6. Insulated Plasterboard (35mm)	1.15	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.05**	

Wall Construction: 06	R- Value (summer heat flow inwards)	
Wall Column with External Metal Flashing (382mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Metal Flashing (0.42mm)	0.00	
3. Top Hat Stud	0.00	
4. Unventilated Air cavity	0.15	
5. Concrete (450mm)	0.56	
6. Insulated Plasterboard (35mm)	1.15	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.02**	

PART J4 - BUILDING FABRIC (CONT.)

Wall Constructions (Cont.)

The following internal wall constructions between conditioned and unconditioned spaces was used in the energy assessment:-

Wall Construction: 06	R- Value (summer heat flow inwards)	
Plasterboard with internal stud frame and insulation (109mm)	**Insulation Pathway**	**Bridging Pathway**
1. Indoor air film	0.12	
2. Plasterboard (13mm)	0.08	
3. Unventilated Airspace (2mm)	0.00	
4. Wall Insulation (R 2.5, 90mm)	2.41	
5. Metal Wall Stud (92mm)		0.14
6. Plasterboard (13mm)	0.08	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.46**	

Roofing and Ceiling Constructions

A solar absorbance of 0.45 was used in the energy assessment.

The following Roof and ceiling construction was used in the energy assessment:-

Roof/Ceiling Construction: 01	R- Value (summer heat flow inwards)	
Concrete slab with ceiling insulation and plasterboard / wood panel ceiling	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Concrete slab (250mm)	0.31	
3. Unventilated airspace	0.15	
4. Ceiling insulation (R3.5,175mm)	3.35	
5. Plasterboard / wood panel (10mm)	0.06	
6. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**4.03**	

Floor Constructions

The ground floor was modelled as a 200mm thick concrete slab on ground with no under slab insulation.

The following floor construction for floors exposed to external conditions was used in the energy assessment:-

Floor Construction	R- Value	
	Insulation Pathway	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Compressed Fibre Cement (6mm)	0.02	
3. Ceiling insulation (R1.5, 75mm)	1.44	
4. Unventilated Airspace	0.15	
5. Concrete slab (300mm)	0.37	
6. Carpet (8mm)	0.16	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.30**	

PART J4 - BUILDING FABRIC (CONT.)

Wall Constructions (Cont.)

The following floor construction for areas that are either above or below an unconditioned space was used in the energy assessment:-

Floor Construction	R- Value	
	Insulation Pathway	Bridging Pathway
1. Indoor air film	0.12	
2. Plasterboard (10mm)	0.06	
3. Ceiling Insulation (R1.5, 75mm)	1.44	
4. Unventilated Airspace	0.15	
5. Concrete slab (300mm)	0.37	
6. Carpet (8mm)	0.16	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.42**	

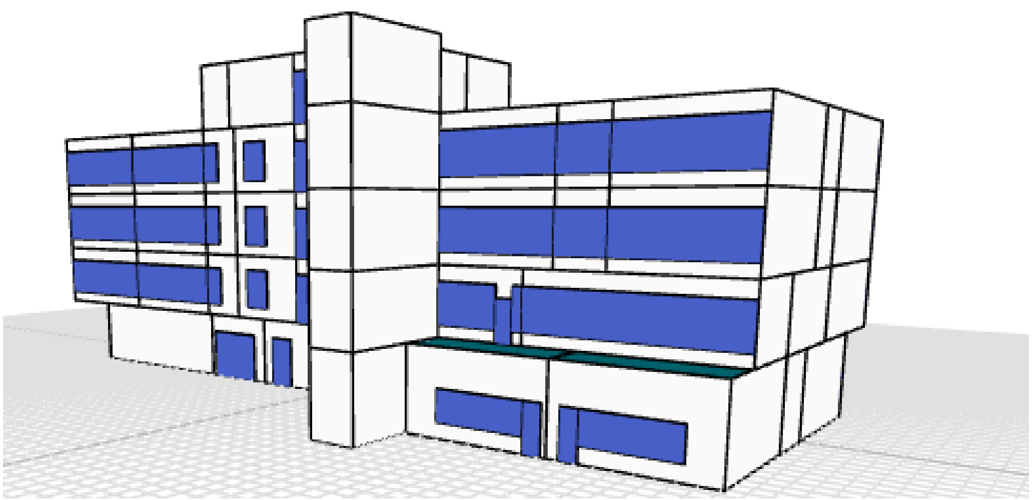
Glazing

SPECKEL has been used to determine the thermal performance requirements of the wall-glazing construction via the J1V3 verification method. The maximum allowable total glazing U-value and SHGC, inclusive of the frame, is summarised in the table below:-

Facade	Proposed Thermal Transmission U ($W/m^2.K$)	Proposed Solar Heat Gain Coefficient SHGC
All Façades	3.9	0.30

RESULTS JV3 VERIFICATION METHOD

A graphical representation of the Model used in the assessment can be seen below:-



Energy Analysis

The following table summarises the annual energy consumption for the Reference Building and Proposed Building.

Source	Reference Case (kWh/year)	Proposed Design (kWh/year)
Cooling Electricity	88,801.62	87,765.94
Heating Electricity	6,667.49	6,414.07
Fans Electricity	6,307.38	6,193.21
Lighting Electricity	45,225.45	45,225.45
Equipment Electricity	88,651.59	88,651.59
Total	**235,653.53**	**234,250.26**

The results from the energy simulation demonstrate that the annual energy consumption for the proposed building design is 0.6% less compared to the Deemed-to-Satisfy reference building.

Emissions Analysis

The following table summarises the annual CO_2 consumption for the Reference Building and Proposed Building.

	Reference Case	Proposed Design
Total ($kgCO_2$)	85,683.63	85,173.43

* Greenhouse gas emissions factor is 0.33 $KgCO_2$/kWh sourced from Australian National Greenhouse Accounts Factors August 2023.

The results from the emissions simulation demonstrate that the annual amount of CO_2 produced is 0.6% less for the proposed building design compared to the DtS reference building.

Thermal Comfort

The simulation shows that 100% of the floor area within the occupied zones has a thermal comfort level of between a Predicted Mean Vote of -1 to +1 for more than 98% of the annual hours of operation of the building. This exceeds the minimum NCC 2019 JV3 requirement of 95% of the floor area. The full zone by zone breakdown is enclosed for your information.

J1V3 Verification Method - Final Summary

Therefore, we conclude the above solution for the Proposed Building Design and Proposed Building Fabric Systems satisfies the Verification Method - Section J1V3.

We trust the above is satisfactory and we would be pleased to further advise on any aspect upon your request.

Yours faithfully

BESTEC PTY LTD

LIAM ROGERS
UNDERGRADUATE MECHANICAL SERVICES ENGINEER

Encl.

J1V3 Building Assessment

National Construction Code 2022 - Volume 1

Project	57837 - SAC New Primary
Address	53 Wakefield St, Adelaide SA 5000, Australia (34.93° S, 138.6° E)
Date	2024-08-26, 09:03 AM
Author	lrogers@bestec.com.au
Scope	National Construction Code 2022
Performance Requirements	J1P1 Energy Use
Assessment Process	Verification Method
Building Class	9B
Climate Zone	5
Storeys	4
Floor to Floor Height	4000 mm

Using Speckel

Speckel provides various calculations in line with the National Construction Code 2022 - Volume 1 - Section J Energy Efficiency. These calculations are tested in line with all applicable NCC equations or NCC referenced primary or secondary documents, for them to represent an accurate Performance Solution against the Performance Requirements - J1P1 Energy Use. A Performance Solution must be shown to comply with the relevant Performance Requirements through one or a combination of Assessment Methods. Speckel is a valid Assessment Method by comparison with the Deemed-to-Satisfy Provisions of each relevant area.

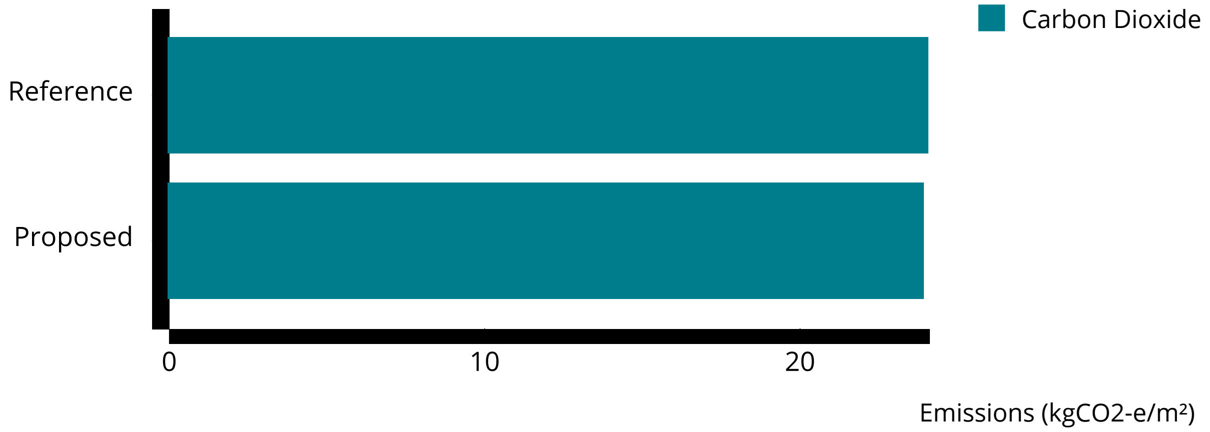
Results

The National Construction Code (NCC) specifies minimum performance standards for the energy efficiency of buildings through the Building Code of Australia (BCA) Volume 1, Section J. To enable flexibility in the architectural design of the building, a Performance Solution has been used to comply with the Performance Requirement - J1P1.

The Assessment Method, 'J1V3 Verification using a reference building' has been used and is an Alternative Solution for the Building Fabric only. As such, a Proposed Building with the proposed fabric has been modelled as part of this approach, to compare against the Reference Building services.

Building Emissions

To meet the acceptance criteria, annual Supplied Energy emissions must be less than **24.11** kgCO2-e/m². Based on a treated floor area of 3554.03 m², the simulated building achieved **23.97** kgCO2-e/m², **meeting** the acceptance criteria.



Thermal Comfort (PMV)

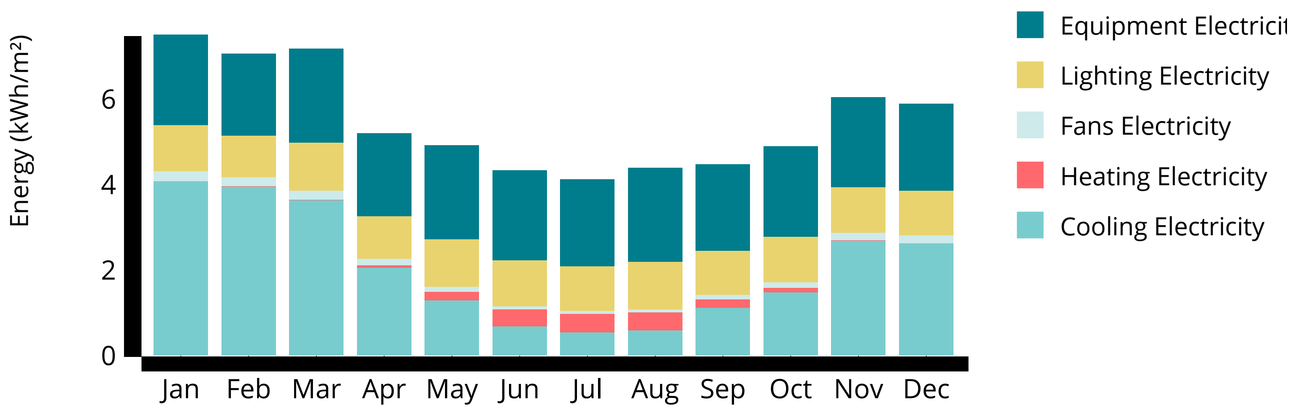
To meet the acceptance criteria, **95** % of total area across the assessed zones must meet the conditions:

- zone thermal comfort (pmv) is between -1.0 and 1.0 PMV
- for at least 98 % of hours
- when above 20 % occupancy

A total area of 3481.21 m² across 77 zones were assessed, where zones of **100.00** % area achieved the conditions, **meeting** the acceptance criteria.

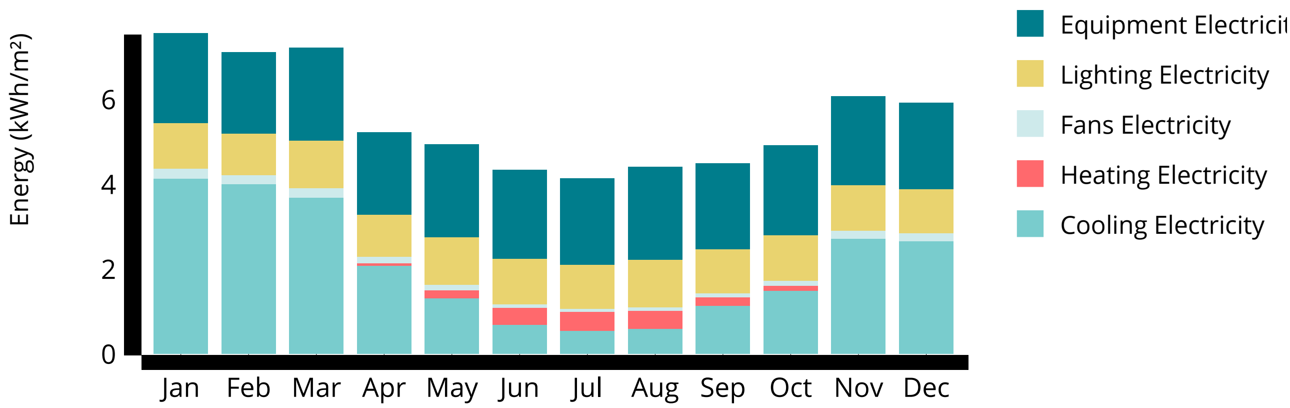
Building Meters

Proposed



Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Cooling Electricity	87765.94	24.69	201.74	31 Jan 13:00
Heating Electricity	6414.07	1.80	149.50	18 Jul 07:15
Fans Electricity	6193.21	1.74	6.16	30 Jan 14:15
Lighting Electricity	45225.45	12.73	16.80	2 Jan 09:15
Equipment Electricity	88651.59	24.94	34.33	2 Jan 09:15

Reference



Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Cooling Electricity	88801.62	24.99	204.34	31 Jan 13:00
Heating Electricity	6667.49	1.88	149.60	18 Jul 07:15
Fans Electricity	6307.38	1.77	6.30	30 Jan 14:15

Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Lighting Electricity	45225.45	12.73	16.80	2 Jan 09:15
Equipment Electricity	88651.59	24.94	34.33	2 Jan 09:15

Method

Approach

- The National Construction Code (NCC) specifies minimum performance standards for the energy efficiency of buildings through the Building Code of Australia (BCA) Volume 1, Section J.
- To enable flexibility in the architectural design of the building, a Performance Solution has been used to comply with the Performance Requirement - J1P1.
- The Assessment Method, J1V3 verification using a reference building, has been used and is an Alternative Solution for the Building Fabric only. As such, a Proposed Building with the proposed fabric has been modelled as part of this approach to compare against the Reference Building services.
- To meet acceptance criteria, the Proposed Building with the proposed fabric Greenhouse Gas (GHG) emissions must be no greater than the Reference Building services.
- Greenhouse gas emission factors are selected according Vol 1 Specification 34 Modelling Parameters for J1V3 Table S34C3 Greenhouse Gas Emissions Factors (kgCO2-e/GJ). In the case of the ACT, an exception is made where a greenhouse gas emission factor of nil is provided, as the national emission factors are not applied as they do not take into account investments in renewable electricity generation in the National Electricity Market.
- When the Simulated Shading Multipliers feature is enabled, each window is simulated in EnergyPlus twice, to compare a completely unshaded window, to a window affected by attached shading, building self-shading, and surrounding structures. The multiplier is based on the ratio of shaded versus unshaded annual average external incident solar radiation, limited between 0.0 and 1.0.

Assumptions / Limitations

- Parts J3, J5, J6, J7, J8 and J9 are not part of this assessment.
- Specification 33 Additional requirements - General is only met for provisions (a) General Thermal Construction and (b) for Floor Edge Insulation. All other provisions (c - n) are not part of this assessment.
- Specification 34 Modelling parameters for J1V3 S34C1 Scope, S34C2 Reference building and S34C3 Proposed building and reference building have been used to form the basis of the Method of Assessment.
- S34C4 Services Proposed and Reference Building is not part of this assessment as the minimum performance requirements of the services are not included.
- To ensure the reference building can be calculated, windows are limited to a maximum of 99% window-to-wall ratio (WWR).

Inputs

The NCC 2022 - Vol 1 contains technical design and construction requirements for all commercial buildings and their associated structures. The following Building Classes have been adopted in this assessment.

Building Class	9B
Wall Area (m^2)	1731.64
Window Area (m^2)	951.78
Roof Area (m^2)	949.86
Floor Area (m^2)	1120.56
Window-Wall Ratio (%)	35.47

Levels

Level	**Drawing**	**# Zones**	**Floor Area (m^2)**	**Wall (m^2)**	**Window (m^2)**
1	GF	25	785.7	626.3	192.8
2	LV 1	21	1005.0	323.6	231.7
3	LV 2	22	1005.2	324.9	240.4
4	LV 3	22	1005.2	324.9	240.4
5	Roof	8	177.1	131.9	46.5

Zones

Level	**Zone**	**Area (m^2)**	**Volume (m^3)**	**Treated Area (m^2)**
1	20. Sensory	8.90	41.83	8.90
1	1. Breakout	106.88	502.34	106.88
1	24. Void	2.51	11.78	2.51
1	22. Lift	8.04	37.80	8.04
1	25. Cleaners	0.83	3.89	0.83
1	16. Office	11.22	52.72	11.22
1	11. MTG	22.33	104.97	22.33
1	7. WC	48.85	229.61	0.00

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
1	10. Stairs	22.70	106.71	22.70
1	19. Quiet	9.53	44.78	9.53
1	5. GLA	63.59	298.87	63.59
1	15. Office	11.62	54.60	11.62
1	8. Hallway	28.39	133.44	28.39
1	23. Comms	5.35	25.12	5.35
1	17. Store	10.33	48.57	0.00
1	9. Stair	27.91	131.19	0.00
1	12. WC	21.53	101.19	0.00
1	18. Office	10.31	48.44	10.31
1	21. Airlock	8.44	39.65	8.44
1	3. GLA	72.33	339.93	72.33
1	14. Store	13.92	65.43	13.92
1	13. Office	18.04	84.79	18.04
1	2. Foyer	87.94	413.32	87.94
1	6. GLA	60.95	286.45	60.95
1	4. GLA	66.51	312.61	66.51
2	2. GLA	87.56	337.10	87.56
2	21. Void	3.14	12.08	3.14
2	6. GLA	63.91	244.51	63.91
2	16. Quiet	9.27	35.32	9.27
2	8. GLA	63.35	242.62	63.35
2	19. Sensory	8.04	30.97	8.04
2	14. MTG	17.56	67.55	17.56
2	18. Quiet	8.04	30.97	8.04

Level	Zone	Area (m^2)	Volume (m^3)	Treated Area (m^2)
2	13. Stair	19.66	75.70	0.00
2	11. Stair	51.29	195.83	51.29
2	15. WC	15.32	58.97	15.32
2	12. WC	31.36	119.96	31.36
2	17. Sensory	8.01	30.43	8.01
2	9. GLA	63.20	241.32	63.20
2	3. Hallway	69.80	268.61	69.80
2	10. Breakout	63.08	240.77	63.08
2	20. Lift	8.04	30.97	8.04
2	7. GLA	63.60	241.99	63.60
2	5. GLA	65.49	250.76	65.49
2	4. GLA	68.35	261.62	68.35
2	1. bREAKOUT	179.78	690.52	179.78
3	22. Void	3.14	12.08	3.14
3	9. GLA	63.51	244.52	63.51
3	8. GLA	63.35	243.89	63.35
3	20. Sensory	8.04	30.97	8.04
3	14. MTG	17.56	67.59	17.56
3	18. Quiet	8.04	30.97	8.04
3	13. Stair	19.66	75.70	0.00
3	11. Stair	51.29	197.48	51.29
3	15. WC	10.02	38.56	10.02
3	17. Sensory	8.01	30.83	8.01
3	16. Sensory	8.57	32.98	8.57
3	2. GLA	76.90	296.05	76.90

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
3	1. bREAKOUT	191.99	739.15	191.99
3	6. GLA	64.04	246.56	64.04
3	19. Lift	8.04	30.97	8.04
3	3. Hallway	69.77	268.62	69.77
3	12. WC	31.36	120.72	31.36
3	10. Breakout	63.05	242.73	63.05
3	21. COMMS	4.99	19.23	4.99
3	7. GLA	63.60	244.85	63.60
3	5. GLA	65.49	252.14	65.49
3	4. GLA	68.35	263.14	68.35
4	22. Void	3.14	12.08	3.14
4	13. Stair	19.66	75.70	0.00
4	11. Stair	51.29	197.48	51.29
4	17. WC	15.32	58.97	15.32
4	12. WC	31.36	120.72	31.36
4	19. Sensory	8.01	30.83	8.01
4	18. Sensory	8.57	32.98	8.57
4	3. GLA	64.04	246.56	64.04
4	21. Quiet	8.04	30.97	8.04
4	8. GLA	62.49	240.58	62.49
4	9. GLA	62.31	239.90	62.31
4	10. GLA	61.98	238.61	61.98
4	14. MTG	16.67	64.16	16.67
4	15. MTG	16.66	64.12	16.66
4	1. bREAKOUT	191.91	738.84	191.91

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
4	16. MTG	16.46	63.36	16.46
4	20. Lift	8.04	30.97	8.04
4	7. Breakout	63.49	244.43	63.49
4	2. Hallway	69.42	267.28	69.42
4	5. GLA	63.60	244.85	63.60
4	6. GLA	62.99	242.49	62.99
4	4. GLA	63.48	244.39	63.48
5	3. Stair	19.66	75.70	0.00
5	6. Lift	7.93	30.13	0.00
5	7. Sensory	6.80	25.85	0.00
5	8. Void	3.41	12.96	0.00
5	2. WC	33.66	127.91	0.00
5	5. Stair	7.93	30.14	0.00
5	4. Store	19.33	73.46	0.00
5	1. Stair	67.22	258.81	67.22
		3820.38		3554.03

Walls

Total System R-values of all walls include the effects of thermal bridging, which are calculated in accordance with AS/NZS 4859.2 and NZ 4214:2006 (as per J4D3 Thermal Construction — General (5)) or are stated values.

For the purpose of the Reference Building, the wall total system R-value of the wall-glazing construction has been calculated in accordance with J4D6 Walls and Glazing and Specification 37 Calculation of U-Value and solar admittance.

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
Exposed to Unconditioned	Concept	9B	1.52	330.57
Exposed to Unconditioned	Precast	9B	1.57	34.80
External	Concept	9B	1.52	598.80

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
External	Fibre Cement	9B	1.42	265.66
External	NORTH COLUMN	9B	1.88	13.72
External	Precast	9B	1.57	443.69
External	South Column	9B	2.05	44.40
Reference	**Title**	**Class**	**R-Value (m²K°/W)**	**Area (m²)**
Exposed to Unconditioned	Concept	9B	1.00	330.57
Exposed to Unconditioned	Precast	9B	1.00	34.80
External	Concept	9B	1.00	598.80
External	Fibre Cement	9B	1.00	265.66
External	NORTH COLUMN	9B	1.00	13.72
External	Precast	9B	1.00	443.69
External	South Column	9B	1.00	44.40

Roofs

Total system R-values of all roofs include the effects of thermal bridging are calculated in accordance with AS/NZS 4859.2 and NZ 4214:2006 (as per J4D3 Thermal Construction — General (5)) or are stated values.

For the purpose of the Reference Building, the roof total system R-value has been assumed in accordance with J4D4 Roof and ceiling construction.

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
External	Concept	9B	4.03	879.32
Top	Concept	9B	4.03	70.54
Reference	**Title**	**Class**	**R-Value (m²K°/W)**	**Area (m²)**
External	Concept	9B	3.70	879.32
Top	Concept	9B	3.70	70.54

Floors

Total system R-values of all floors include the effects of thermal bridging are calculated in accordance with AS/NZS 4859.2, NZ 4214:2006 and Section 3.5 of CIBSE Guide A (as per J4D3 Thermal Construction — General (5)) or are stated values

For the purpose of the Reference Building, the floor total system R-value has been assumed in accordance with J4D7 Floors.

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
Bottom	Concept	9B	2.24	669.52
Exposed to Unconditioned	Concept	9B	2.24	180.31
External	Concept	9B	2.24	270.73
Reference	**Title**	**Class**	**R-Value (m²K°/W)**	**Area (m²)**
Bottom	Concept	9B	2.00	669.52
Exposed to Unconditioned	Concept	9B	2.00	180.31
External	Concept	9B	2.00	270.73

Windows

Total system U-values of all windows include the effects of thermal bridging at the frame, which are calculated in accordance with ISO 15099, as per J4D3 Thermal Construction — General (5).

For the purpose of the Reference Building, the glazing total system U-value and solar admittance of the wall-glazing construction has been calculated in accordance with J4D6 Walls and Glazing and Specification 37 Calculation of U-Value and solar admittance.

Proposed	Title	Class	U-value	SHGC	Area (m²)
External	2400 ^700	9B	3.90	0.30	725.14
External	Concept	9B	3.90	0.30	226.64
Reference	**Title**	**Class**	**U-value**	**SHGC**	**Area (m²)**
External	2400 ^700	9B	3.82	0.33	725.14
External	Concept	9B	3.82	0.33	226.64

Location and Climate

This development is located at Adelaide-Kent.Town,SA AUS. The climate file used in all simulations was AUS_SA_Adelaide-Kent.Town.946750_TMYx.2007-2021, sourced from Climate.OneBuilding, an online repository collated from public sources. http://www.climate.onebuilding.org/.

Occupants

Occupant density (m²/person) are stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building occupant densities are

identical.

Space	Building Class	Activity	Occupancy Density	Clothing	Air Velocity (m/s)
Default	9B	Generic Building	2.0	0.7	0.1

Lighting

Lighting power density (W/m²) is stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building equipment density have been nominated as identical.

Space	Building Class	Space	W/m²
Default	9B	Generic Building	4.5

Equipment

Equipment density (W/m²) are stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building equipment density are identical.

Space	Building Class	Space	W/m²
Default	9B	Generic Building	10.0

Air-Conditioning

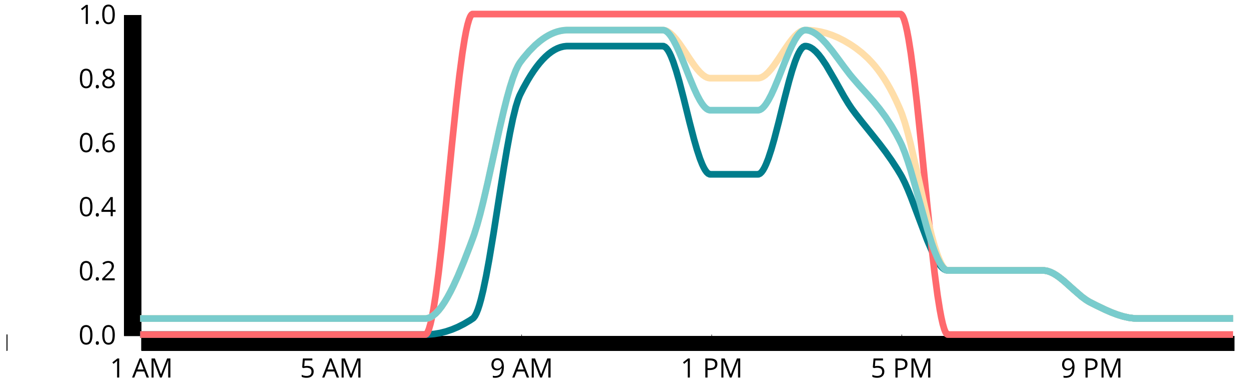
As a fabric only assessment, air-condition equipment and mechanical ventilation rates for the Reference and Proposed Building are identical. Minimum mechanical ventilation is required as per Part F6P3 Outdoor air supply.

Thermostat Details

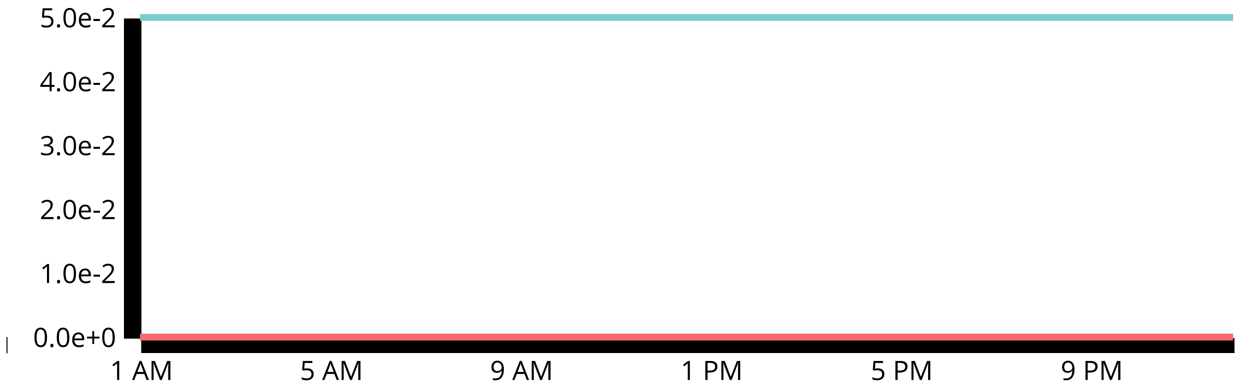
Space	Building Class	Space	Cooling Set Point (°C)	Heating Set Point (°C)
Default	9B	Generic Building	22.5	21.5

Profiles

Space - Default
Typical Day



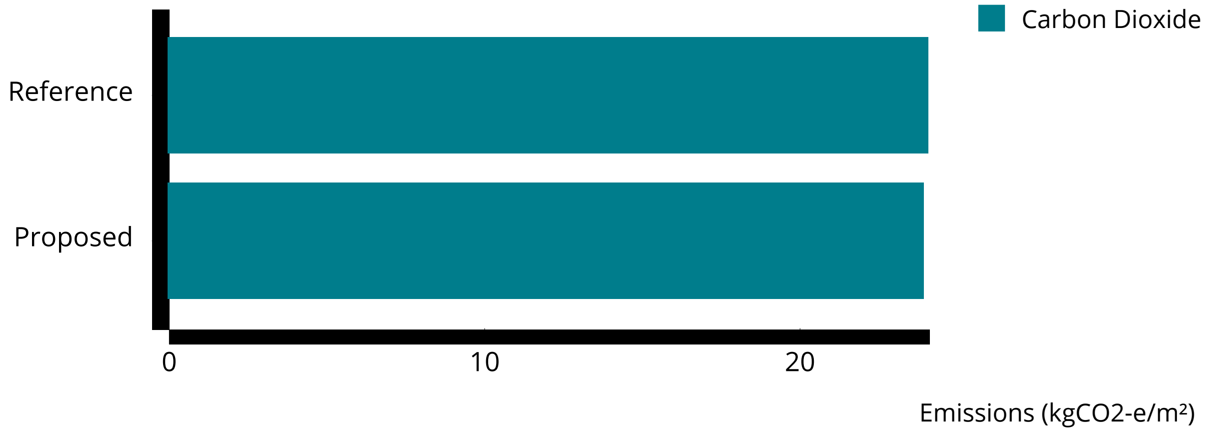
Weekend



Detailed Results

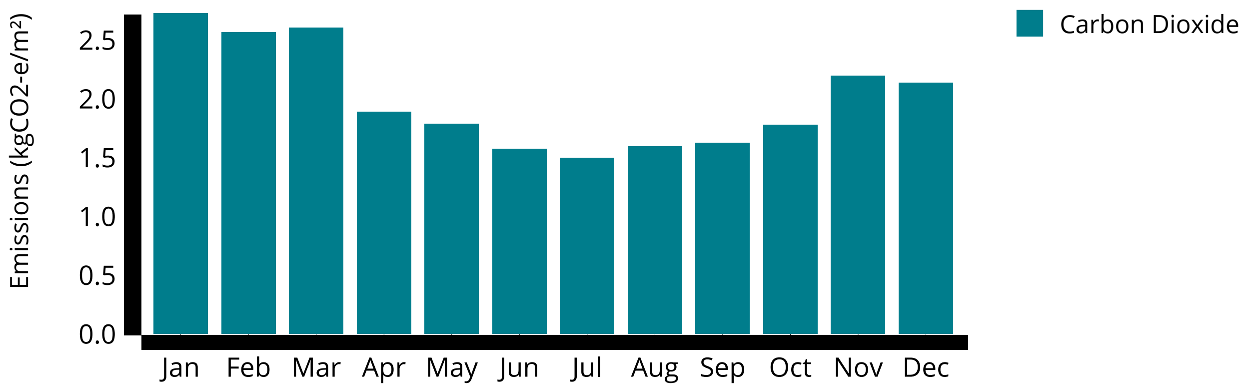
Building Emissions

To meet the acceptance criteria, annual Supplied Energy emissions must be less than **24.11** kgCO2-e/m². Based on a treated floor area of 3554.03 m², the simulated building achieved **23.97** kgCO2-e/m², **meeting** the acceptance criteria.



Greenhouse gas emission factors have been nominated as **101.00** kilogram / GJ for electricity , and **51.53** kilogram / GJ for natural gas.

Proposed



Meter	Emissions (kgCO2-e)	Emissions (kgCO2-e/m²)
Emissions	85173.43	23.97

Electricity Purchased

Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Jan	26645.12	7.50	258.28	31 Jan 14:15
Feb	25086.40	7.06	252.78	3 Feb 10:00

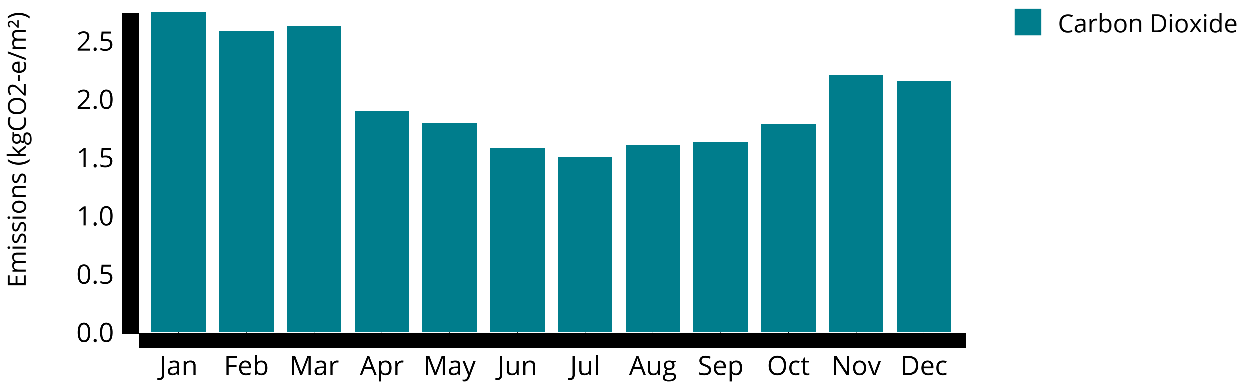
Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Mar	25463.37	7.16	244.94	2 Mar 14:30
Apr	18440.95	5.19	179.92	6 Apr 14:00
May	17448.78	4.91	128.98	15 May 07:15
Jun	15361.54	4.32	152.17	29 Jun 07:15
Jul	14612.39	4.11	170.26	18 Jul 07:15
Aug	15589.84	4.39	155.15	2 Aug 07:15
Sep	15865.86	4.46	123.86	22 Sep 14:00
Oct	17377.41	4.89	119.43	11 Oct 14:15
Nov	21464.48	6.04	214.61	9 Nov 14:15
Dec	20894.11	5.88	152.45	7 Dec 14:30
Total	234250.27	65.91	258.28	31 Jan 14:15

Gas Demand

The simulated building did not include Gas Demand.

Reference

The Reference Building simulated results are shown below, which sets the acceptance criteria threshold.



Meter	Emissions (kgCO2-e)	Emissions (kgCO2-e/m²)
Emissions	85683.63	24.11

Electricity Purchased

Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Jan	26843.02	7.55	261.01	31 Jan 14:15

Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Feb	25278.62	7.11	255.41	3 Feb 10:00
Mar	25642.68	7.22	247.50	2 Mar 14:30
Apr	18559.46	5.22	182.05	6 Apr 14:00
May	17537.32	4.93	128.84	15 May 07:15
Jun	15426.22	4.34	152.60	29 Jun 07:15
Jul	14695.72	4.13	170.38	18 Jul 07:15
Aug	15654.00	4.40	155.46	2 Aug 07:15
Sep	15939.10	4.48	124.69	22 Sep 14:00
Oct	17473.06	4.92	120.36	11 Oct 14:15
Nov	21581.79	6.07	216.78	9 Nov 14:15
Dec	21022.55	5.92	153.62	7 Dec 14:30
Total	235653.54	66.31	261.01	31 Jan 14:15

Gas Demand

The simulated building did not include Gas Demand.

Thermal Comfort (PMV)

To meet the acceptance criteria, **95** % of total area across the assessed zones must meet the conditions:

- zone thermal comfort (pmv) is between -1.0 and 1.0 PMV
- for at least 98 % of hours
- when above 20 % occupancy

A total area of 3481.21 m² across 77 zones were assessed, where zones of **100.00** % area achieved the conditions, **meeting** the acceptance criteria.

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
1	20. Sensory	8.90	2340	2339	99.96	✓
1	4. GLA	66.51	2340	2340	100.00	✓
1	6. GLA	60.95	2340	2340	100.00	✓
1	2. Foyer	87.94	2340	2336	99.83	✓
1	13. Office	18.04	2340	2332	99.66	✓
1	14. Store	13.92	2340	2338	99.91	✓
1	3. GLA	72.33	2340	2329	99.53	✓
1	21. Airlock	8.44	2340	2308	98.63	✓
1	23. Comms	5.35	2340	2339	99.96	✓
1	18. Office	10.31	2340	2340	100.00	✓
1	15. Office	11.62	2340	2339	99.96	✓
1	1. Breakout	106.88	2340	2327	99.44	✓
1	8. Hallway	28.39	2340	2339	99.96	✓
1	25. Cleaners	0.83	2340	2335	99.79	✓
1	16. Office	11.22	2340	2332	99.66	✓
1	24. Void	2.51	2340	2338	99.91	✓
1	10. Stairs	22.70	2340	2339	99.96	✓
1	19. Quiet	9.53	2340	2339	99.96	✓
1	5. GLA	63.59	2340	2332	99.66	✓
1	11. MTG	22.33	2340	2340	100.00	✓

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
2	17. Sensory	8.01	2340	2340	100.00	✓
2	1. bREAKOUT	179.78	2340	2322	99.23	✓
2	4. GLA	68.35	2340	2335	99.79	✓
2	5. GLA	65.49	2340	2338	99.91	✓
2	7. GLA	63.60	2340	2336	99.83	✓
2	10. Breakout	63.08	2340	2340	100.00	✓
2	3. Hallway	69.80	2340	2340	100.00	✓
2	9. GLA	63.20	2340	2337	99.87	✓
2	12. WC	31.36	2340	2340	100.00	✓
2	16. Quiet	9.27	2340	2340	100.00	✓
2	11. Stair	51.29	2340	2340	100.00	✓
2	18. Quiet	8.04	2340	2340	100.00	✓
2	14. MTG	17.56	2340	2340	100.00	✓
2	19. Sensory	8.04	2340	2340	100.00	✓
2	8. GLA	63.35	2340	2338	99.91	✓
2	6. GLA	63.91	2340	2338	99.91	✓
2	21. Void	3.14	2340	2340	100.00	✓
2	2. GLA	87.56	2340	2327	99.44	✓
3	6. GLA	64.04	2340	2340	100.00	✓
3	3. Hallway	69.77	2340	2340	100.00	✓
3	12. WC	31.36	2340	2340	100.00	✓
3	4. GLA	68.35	2340	2337	99.87	✓
3	21. COMMS	4.99	2340	2340	100.00	✓
3	7. GLA	63.60	2340	2335	99.79	✓
3	5. GLA	65.49	2340	2337	99.87	✓

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
3	1. bREAKOUT	191.99	2340	2322	99.23	✓
3	10. Breakout	63.05	2340	2340	100.00	✓
3	2. GLA	76.90	2340	2334	99.74	✓
3	8. GLA	63.35	2340	2338	99.91	✓
3	17. Sensory	8.01	2340	2340	100.00	✓
3	11. Stair	51.29	2340	2340	100.00	✓
3	18. Quiet	8.04	2340	2340	100.00	✓
3	14. MTG	17.56	2340	2340	100.00	✓
3	20. Sensory	8.04	2340	2340	100.00	✓
3	9. GLA	63.51	2340	2338	99.91	✓
3	22. Void	3.14	2340	2340	100.00	✓
3	16. Sensory	8.57	2340	2340	100.00	✓
4	14. MTG	16.67	2340	2340	100.00	✓
4	15. MTG	16.66	2340	2340	100.00	✓
4	1. bREAKOUT	191.91	2340	2322	99.23	✓
4	16. MTG	16.46	2340	2340	100.00	✓
4	6. GLA	62.99	2340	2335	99.79	✓
4	7. Breakout	63.49	2340	2340	100.00	✓
4	2. Hallway	69.42	2340	2340	100.00	✓
4	5. GLA	63.60	2340	2335	99.79	✓
4	4. GLA	63.48	2340	2333	99.70	✓
4	10. GLA	61.98	2340	2333	99.70	✓
4	8. GLA	62.49	2340	2333	99.70	✓
4	21. Quiet	8.04	2340	2340	100.00	✓
4	9. GLA	62.31	2340	2333	99.70	✓

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
4	11. Stair	51.29	2340	2340	100.00	✓
4	22. Void	3.14	2340	2340	100.00	✓
4	19. Sensory	8.01	2340	2340	100.00	✓
4	18. Sensory	8.57	2340	2340	100.00	✓
4	3. GLA	64.04	2340	2340	100.00	✓
4	12. WC	31.36	2340	2340	100.00	✓
5	1. Stair	67.22	2340	2327	99.44	✓
					Pass	✓

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
1	20. Sensory	8.90	1.0	107.0	1957.0	275.0	0.0	0.0
1	1. Breakout	106.88	3.0	151.0	1611.0	556.0	9.0	10.0
1	24. Void	2.51	2.0	315.0	1890.0	133.0	0.0	0.0
1	25. Cleaners	0.83	5.0	368.0	1866.0	101.0	0.0	0.0
1	16. Office	11.22	8.0	263.0	1567.0	502.0	0.0	0.0
1	11. MTG	22.33	0.0	78.0	1345.0	917.0	0.0	0.0
1	10. Stairs	22.70	1.0	102.0	1982.0	255.0	0.0	0.0
1	19. Quiet	9.53	1.0	166.0	1883.0	290.0	0.0	0.0
1	5. GLA	63.59	8.0	187.0	1568.0	573.0	4.0	0.0
1	15. Office	11.62	1.0	128.0	1940.0	271.0	0.0	0.0
1	8. Hallway	28.39	1.0	164.0	1838.0	337.0	0.0	0.0
1	23. Comms	5.35	1.0	146.0	1997.0	196.0	0.0	0.0
1	18. Office	10.31	0.0	161.0	1338.0	823.0	18.0	0.0
1	21. Airlock	8.44	32.0	517.0	1141.0	643.0	7.0	0.0
1	3. GLA	72.33	10.0	170.0	1504.0	643.0	12.0	1.0
1	14. Store	13.92	2.0	203.0	1821.0	314.0	0.0	0.0

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
1	13. Office	18.04	8.0	249.0	1233.0	834.0	16.0	0.0
1	2. Foyer	87.94	0.0	132.0	1753.0	441.0	10.0	4.0
1	6. GLA	60.95	0.0	90.0	1491.0	759.0	0.0	0.0
1	4. GLA	66.51	0.0	78.0	1430.0	826.0	6.0	0.0
2	2. GLA	87.56	0.0	33.0	630.0	1612.0	52.0	13.0
2	21. Void	3.14	0.0	52.0	2067.0	221.0	0.0	0.0
2	6. GLA	63.91	2.0	129.0	1499.0	704.0	6.0	0.0
2	16. Quiet	9.27	0.0	82.0	1915.0	343.0	0.0	0.0
2	8. GLA	63.35	2.0	128.0	1482.0	722.0	6.0	0.0
2	19. Sensory	8.04	0.0	46.0	1952.0	341.0	1.0	0.0
2	14. MTG	17.56	0.0	48.0	1903.0	389.0	0.0	0.0
2	18. Quiet	8.04	0.0	58.0	1933.0	349.0	0.0	0.0
2	11. Stair	51.29	0.0	21.0	803.0	1443.0	73.0	0.0
2	12. WC	31.36	0.0	28.0	1611.0	701.0	0.0	0.0
2	17. Sensory	8.01	0.0	39.0	1311.0	990.0	0.0	0.0
2	9. GLA	63.20	3.0	130.0	1507.0	694.0	6.0	0.0
2	3. Hallway	69.80	0.0	23.0	1348.0	962.0	7.0	0.0
2	10. Breakout	63.08	0.0	22.0	1181.0	1131.0	6.0	0.0
2	7. GLA	63.60	0.0	31.0	675.0	1536.0	94.0	4.0
2	5. GLA	65.49	2.0	120.0	1390.0	815.0	13.0	0.0
2	4. GLA	68.35	5.0	142.0	1538.0	646.0	9.0	0.0
2	1. bREAKOUT	179.78	0.0	33.0	1571.0	713.0	5.0	18.0
3	22. Void	3.14	0.0	38.0	2074.0	228.0	0.0	0.0
3	9. GLA	63.51	2.0	116.0	1474.0	742.0	6.0	0.0
3	8. GLA	63.35	2.0	118.0	1462.0	752.0	6.0	0.0

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
3	20. Sensory	8.04	0.0	41.0	1947.0	351.0	1.0	0.0
3	14. MTG	17.56	0.0	43.0	1904.0	393.0	0.0	0.0
3	18. Quiet	8.04	0.0	52.0	1937.0	351.0	0.0	0.0
3	11. Stair	51.29	0.0	14.0	711.0	1528.0	87.0	0.0
3	17. Sensory	8.01	0.0	19.0	1207.0	1114.0	0.0	0.0
3	16. Sensory	8.57	0.0	57.0	583.0	1607.0	93.0	0.0
3	2. GLA	76.90	2.0	122.0	1446.0	756.0	10.0	4.0
3	1. bREAKOUT	191.99	0.0	28.0	1397.0	889.0	8.0	18.0
3	6. GLA	64.04	0.0	22.0	766.0	1526.0	26.0	0.0
3	3. Hallway	69.77	0.0	25.0	1636.0	674.0	5.0	0.0
3	12. WC	31.36	0.0	14.0	1559.0	767.0	0.0	0.0
3	10. Breakout	63.05	0.0	10.0	652.0	1649.0	29.0	0.0
3	21. COMMS	4.99	0.0	15.0	1988.0	337.0	0.0	0.0
3	7. GLA	63.60	0.0	20.0	588.0	1617.0	110.0	5.0
3	5. GLA	65.49	3.0	118.0	1360.0	843.0	16.0	0.0
3	4. GLA	68.35	3.0	132.0	1529.0	667.0	9.0	0.0
4	22. Void	3.14	0.0	88.0	2016.0	236.0	0.0	0.0
4	11. Stair	51.29	0.0	21.0	729.0	1501.0	89.0	0.0
4	12. WC	31.36	0.0	33.0	1607.0	700.0	0.0	0.0
4	19. Sensory	8.01	0.0	44.0	1306.0	990.0	0.0	0.0
4	18. Sensory	8.57	0.0	69.0	602.0	1573.0	96.0	0.0
4	3. GLA	64.04	0.0	40.0	876.0	1392.0	32.0	0.0
4	21. Quiet	8.04	0.0	88.0	1925.0	327.0	0.0	0.0
4	8. GLA	62.49	7.0	137.0	1455.0	735.0	6.0	0.0
4	9. GLA	62.31	7.0	137.0	1466.0	724.0	6.0	0.0

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
4	10. GLA	61.98	7.0	140.0	1445.0	742.0	6.0	0.0
4	14. MTG	16.67	0.0	65.0	1889.0	385.0	1.0	0.0
4	15. MTG	16.66	0.0	74.0	1896.0	369.0	1.0	0.0
4	1. bREAKOUT	191.91	0.0	46.0	1351.0	916.0	9.0	18.0
4	16. MTG	16.46	0.0	68.0	1891.0	380.0	1.0	0.0
4	7. Breakout	63.49	0.0	37.0	1205.0	1083.0	15.0	0.0
4	2. Hallway	69.42	0.0	37.0	1368.0	924.0	11.0	0.0
4	5. GLA	63.60	0.0	33.0	682.0	1526.0	94.0	5.0
4	6. GLA	62.99	5.0	141.0	1350.0	829.0	15.0	0.0
4	4. GLA	63.48	7.0	154.0	1514.0	659.0	6.0	0.0
5	1. Stair	67.22	0.0	75.0	1033.0	1158.0	61.0	13.0

BESTEC

Shading Multiplier

Each window of the reference building has been simulated to determine the ratio of shaded versus unshaded annual average incident radiation. These results supersede the values determined by the deemed-to-satisfy process to develop the reference building.

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
1	21.60	180.0	28.19	50.78	0.56
1	20.24	179.9	32.17	50.78	0.63
1	15.96	180.0	29.56	50.78	0.58
1	15.46	180.1	19.36	50.78	0.38
1	14.88	180.0	30.00	50.78	0.59
1	12.48	0.0	82.85	146.42	0.57
1	11.76	180.0	33.51	50.78	0.66
1	9.36	0.0	122.44	146.42	0.84
1	9.36	0.0	140.32	146.42	0.96
1	8.88	180.0	26.44	50.78	0.52
1	6.72	180.0	28.38	50.78	0.56
1	5.52	180.0	17.20	50.78	0.34
1	5.44	0.0	79.15	146.42	0.54
1	4.56	180.0	15.23	50.78	0.30
1	4.48	90.0	116.13	122.43	0.95
1	4.16	90.0	116.18	122.43	0.95
1	4.08	90.0	43.65	122.43	0.36
1	3.36	90.0	12.59	122.43	0.10
1	3.12	180.0	30.86	50.78	0.61
1	2.70	0.0	137.11	146.42	0.94
1	2.70	0.0	134.06	146.42	0.92
1	1.68	90.0	13.60	122.43	0.11
1	1.61	206.6	25.70	62.80	0.41

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
1	1.44	180.0	30.64	50.78	0.60
1	1.29	248.2	17.97	102.67	0.18
2	28.56	0.0	145.96	146.42	1.00
2	23.40	0.0	110.11	146.42	0.75
2	18.96	0.0	144.53	146.42	0.99
2	18.00	0.0	142.68	146.42	0.97
2	13.68	180.0	42.89	50.78	0.84
2	8.88	180.0	45.55	50.78	0.90
2	8.88	0.0	104.31	146.42	0.71
2	8.88	180.0	46.38	50.78	0.91
2	8.88	180.0	45.29	50.78	0.89
2	8.88	180.0	45.17	50.78	0.89
2	8.64	180.0	45.26	50.78	0.89
2	8.64	180.0	47.14	50.78	0.93
2	7.68	180.0	45.09	50.78	0.89
2	7.20	180.0	45.38	50.78	0.89
2	7.20	90.0	120.64	122.43	0.99
2	6.96	180.0	45.83	50.78	0.90
2	6.00	90.0	90.43	122.43	0.74
2	5.76	180.0	45.20	50.78	0.89
2	4.32	0.0	136.03	146.42	0.93
2	4.08	180.0	47.77	50.78	0.94
2	3.36	180.0	45.22	50.78	0.89
2	3.12	0.0	140.65	146.42	0.96
2	3.12	90.0	119.72	122.43	0.98

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
2	2.40	0.0	122.00	146.42	0.83
2	1.92	180.0	46.02	50.78	0.91
2	1.68	180.0	45.34	50.78	0.89
2	1.44	0.0	127.09	146.42	0.87
2	1.20	180.0	44.97	50.78	0.89
3	23.40	0.0	112.47	146.42	0.77
3	20.40	180.0	48.23	50.78	0.95
3	18.96	0.0	145.22	146.42	0.99
3	18.00	0.0	143.86	146.42	0.98
3	18.00	180.0	47.12	50.78	0.93
3	17.52	0.0	143.32	146.42	0.98
3	17.28	180.0	47.48	50.78	0.93
3	16.80	0.0	112.48	146.42	0.77
3	16.08	180.0	47.11	50.78	0.93
3	13.68	180.0	44.32	50.78	0.87
3	12.00	180.0	47.13	50.78	0.93
3	7.20	180.0	47.24	50.78	0.93
3	7.20	90.0	121.20	122.43	0.99
3	6.96	0.0	135.41	146.42	0.92
3	6.00	90.0	90.09	122.43	0.74
3	4.32	0.0	138.21	146.42	0.94
3	4.08	180.0	48.80	50.78	0.96
3	3.12	180.0	47.16	50.78	0.93
3	3.12	0.0	142.48	146.42	0.97
3	3.12	90.0	120.76	122.43	0.99

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
3	1.92	180.0	47.73	50.78	0.94
3	1.20	180.0	46.72	50.78	0.92
4	23.40	0.0	116.46	146.42	0.80
4	20.40	180.0	48.97	50.78	0.96
4	18.96	0.0	145.61	146.42	0.99
4	18.00	180.0	48.40	50.78	0.95
4	18.00	0.0	144.80	146.42	0.99
4	17.52	0.0	143.39	146.42	0.98
4	17.28	180.0	48.48	50.78	0.95
4	16.80	0.0	115.59	146.42	0.79
4	13.68	180.0	45.65	50.78	0.90
4	12.24	180.0	48.29	50.78	0.95
4	12.00	180.0	48.30	50.78	0.95
4	7.20	90.0	121.58	122.43	0.99
4	7.20	180.0	48.34	50.78	0.95
4	6.96	180.0	48.30	50.78	0.95
4	6.96	0.0	137.49	146.42	0.94
4	6.00	90.0	92.66	122.43	0.76
4	4.32	0.0	140.76	146.42	0.96
4	4.08	180.0	49.35	50.78	0.97
4	3.12	0.0	143.97	146.42	0.98
4	3.12	90.0	121.31	122.43	0.99
4	1.92	180.0	48.69	50.78	0.96
4	1.20	180.0	48.33	50.78	0.95
5	23.40	0.0	127.42	146.42	0.87

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
5	13.80	180.0	48.44	50.78	0.95
5	9.30	90.0	79.73	122.43	0.65

Building Class 9B

Method Two

AC Energy Threshold	421.43
U-Value Threshold (W/m².K)	2.00
Reference Window U-Value (W/m².K)	3.82
Reference Window SHGC	0.33
Reference Wall R-Value (m².K/W)	1.00
Total Area (m²)	2683.41
Window-Wall Ratio	0.35

Method One - North Aspect

Reference Window U-Value (W/m².K)	3.39
Reference Window SHGC	0.30
Reference Wall R-Value (m².K/W)	1.00
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	2.28
Aspect Area (m²)	938.69
Window-Wall Ratio	0.42

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	0.0	3.82	0.33	8.88	0.71
2400 ^700	0.0	3.82	0.33	16.80	0.77
2400 ^700	0.0	3.82	0.33	16.80	0.79

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	0.0	3.82	0.33	6.96	0.93
2400 ^700	0.0	3.82	0.33	4.32	0.93
2400 ^700	0.0	3.82	0.33	6.96	0.94
2400 ^700	0.0	3.82	0.33	4.32	0.94
2400 ^700	0.0	3.82	0.33	7.44	0.96
2400 ^700	0.0	3.82	0.33	3.12	0.97
2400 ^700	0.0	3.82	0.33	18.00	0.97
2400 ^700	0.0	3.82	0.33	35.04	0.98
2400 ^700	0.0	3.82	0.33	21.12	0.98
2400 ^700	0.0	3.82	0.33	18.96	0.99
2400 ^700	0.0	3.82	0.33	18.00	0.99
2400 ^700	0.0	3.82	0.33	18.96	0.99
2400 ^700	0.0	3.82	0.33	18.96	0.99
2400 ^700	0.0	3.82	0.33	28.56	1.00
2400 ^700	0.0	3.82	0.33	1.44	0.87
Concept	0.0	3.82	0.33	23.40	0.75
Concept	0.0	3.82	0.33	23.40	0.77
Concept	0.0	3.82	0.33	23.40	0.80
Concept	0.0	3.82	0.33	2.40	0.83
Concept	0.0	3.82	0.33	9.36	0.84
Concept	0.0	3.82	0.33	23.40	0.87
Concept	0.0	3.82	0.33	2.70	0.92
Concept	0.0	3.82	0.33	2.70	0.94
Concept	0.0	3.82	0.33	9.36	0.96
Concept	0.0	3.82	0.33	5.44	0.54

BESTEC

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
Concept	0.0	3.82	0.33	12.48	0.57

Method One - East Aspect

Reference Window U-Value (W/m².K)	5.80
Reference Window SHGC	0.68
Reference Wall R-Value (m².K/W)	1.40
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	1.72
Aspect Area (m²)	439.85
Window-Wall Ratio	0.17

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	90.0	3.82	0.33	3.12	0.98
2400 ^700	90.0	3.82	0.33	7.20	0.98
2400 ^700	90.0	3.82	0.33	3.12	0.99
2400 ^700	90.0	3.82	0.33	7.20	0.99
2400 ^700	90.0	3.82	0.33	3.12	0.99
2400 ^700	90.0	3.82	0.33	7.20	0.99
2400 ^700	90.0	3.82	0.33	1.68	0.11
Concept	90.0	3.82	0.33	6.00	0.74
Concept	90.0	3.82	0.33	6.00	0.74
Concept	90.0	3.82	0.33	6.00	0.76
Concept	90.0	3.82	0.33	4.48	0.95
Concept	90.0	3.82	0.33	4.16	0.95
Concept	90.0	3.82	0.33	4.08	0.36
Concept	90.0	3.82	0.33	9.30	0.65

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
Concept	90.0	3.82	0.33	3.36	0.10

Method One - South Aspect

Reference Window U-Value (W/m².K)	2.93
Reference Window SHGC	0.29
Reference Wall R-Value (m².K/W)	1.00
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	1.00
Aspect Area (m²)	928.30
Window-Wall Ratio	0.52

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	179.9	3.82	0.33	20.24	0.63
2400 ^700	180.0	3.82	0.33	13.68	0.84
2400 ^700	180.0	3.82	0.33	13.68	0.87
2400 ^700	180.0	3.82	0.33	7.68	0.89
2400 ^700	180.0	3.82	0.33	8.88	0.89
2400 ^700	180.0	3.82	0.33	5.76	0.89
2400 ^700	180.0	3.82	0.33	12.00	0.89
2400 ^700	180.0	3.82	0.33	8.88	0.89
2400 ^700	180.0	3.82	0.33	7.20	0.89
2400 ^700	180.0	3.82	0.33	8.88	0.90
2400 ^700	180.0	3.82	0.33	13.68	0.90
2400 ^700	180.0	3.82	0.33	6.96	0.90
2400 ^700	180.0	3.82	0.33	8.88	0.91
2400 ^700	180.0	3.82	0.33	54.72	0.93

BESTEC

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	180.0	3.82	0.33	3.12	0.93
2400 ^700	180.0	3.82	0.33	7.20	0.93
2400 ^700	180.0	3.82	0.33	17.28	0.94
2400 ^700	180.0	3.82	0.33	4.08	0.94
2400 ^700	180.0	3.82	0.33	20.40	0.95
2400 ^700	180.0	3.82	0.33	31.20	0.95
2400 ^700	180.0	3.82	0.33	7.20	0.95
2400 ^700	180.0	3.82	0.33	18.00	0.95
2400 ^700	180.0	3.82	0.33	17.28	0.95
2400 ^700	180.0	3.82	0.33	4.08	0.96
2400 ^700	180.0	3.82	0.33	20.40	0.96
2400 ^700	180.0	3.82	0.33	4.08	0.97
2400 ^700	180.0	3.82	0.33	1.20	0.89
2400 ^700	180.0	3.82	0.33	1.68	0.89
2400 ^700	180.0	3.82	0.33	1.92	0.91
2400 ^700	180.0	3.82	0.33	1.20	0.92
2400 ^700	180.0	3.82	0.33	1.92	0.94
2400 ^700	180.0	3.82	0.33	1.20	0.95
2400 ^700	180.0	3.82	0.33	1.92	0.96
2400 ^700	180.0	3.82	0.33	14.88	0.59
2400 ^700	180.0	3.82	0.33	1.44	0.60
2400 ^700	180.0	3.82	0.33	3.12	0.61
2400 ^700	180.0	3.82	0.33	8.88	0.52
2400 ^700	180.0	3.82	0.33	6.72	0.56
2400 ^700	180.0	3.82	0.33	11.76	0.66

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	180.0	3.82	0.33	21.60	0.56
2400 ^700	180.0	3.82	0.33	5.52	0.34
2400 ^700	180.0	3.82	0.33	4.56	0.30
2400 ^700	206.6	3.82	0.33	1.61	0.41
Concept	180.0	3.82	0.33	15.96	0.58
Concept	180.0	3.82	0.33	13.80	0.95
Concept	180.1	3.82	0.33	15.46	0.38

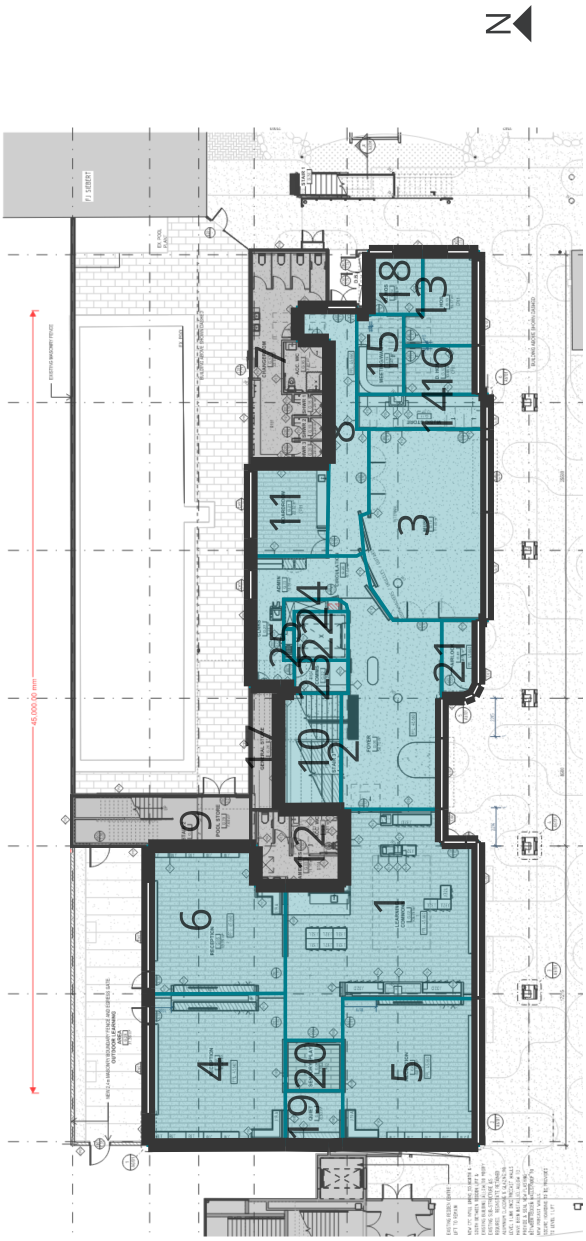
Method One - West Aspect

Reference Window U-Value (W/m².K)	5.80
Reference Window SHGC	0.81
Reference Wall R-Value (m².K/W)	1.40
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	0.00
Aspect Area (m²)	376.58
Window-Wall Ratio	0.00

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	248.2	3.82	0.33	1.29	0.17

Drawings

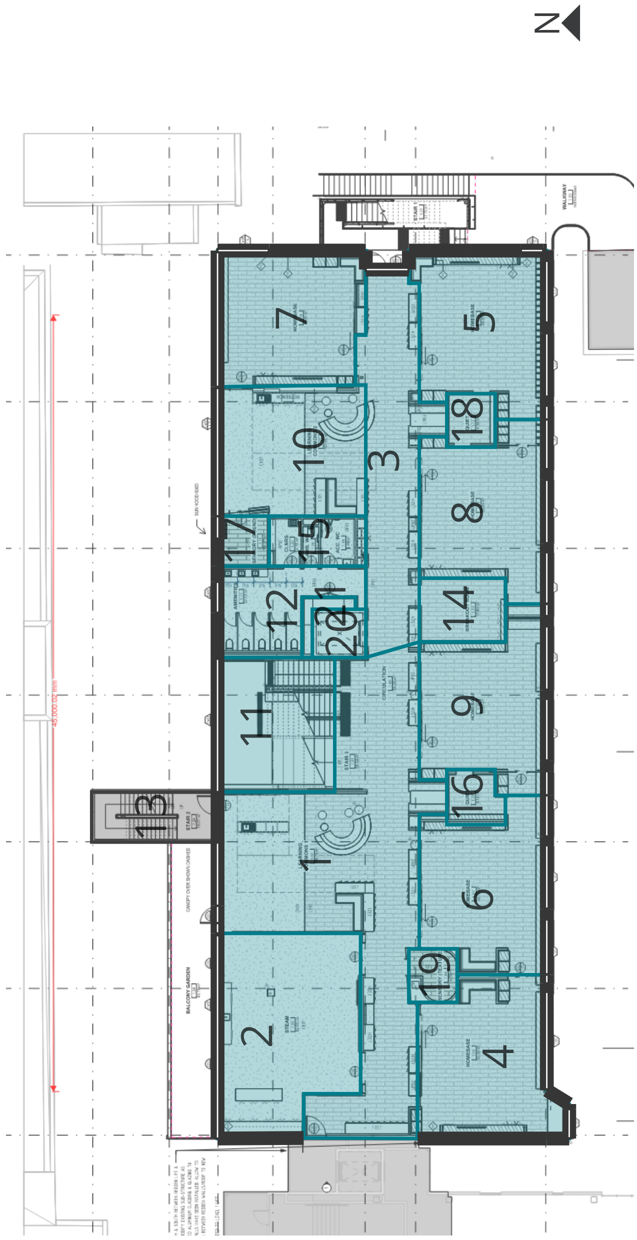
Level 1 - GF



Thermal Line | Windows | Class 9B | Unconditioned

BESTEC

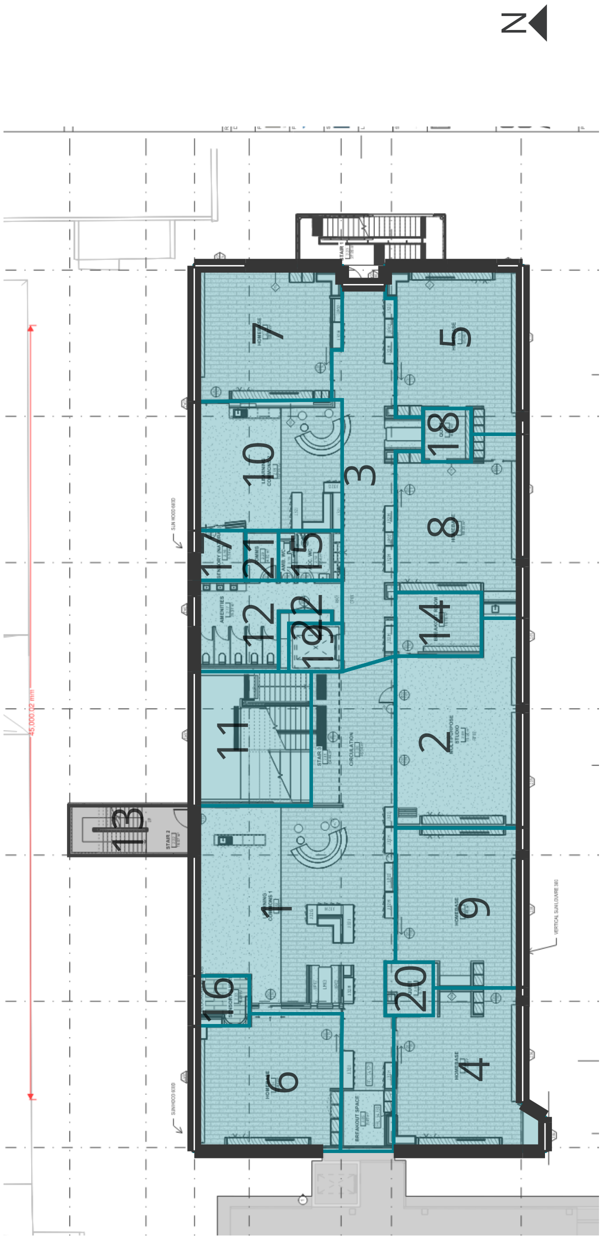
Level 2 - LV 1



Thermal Line
Windows
Class 9B
Unconditioned

BESTEC

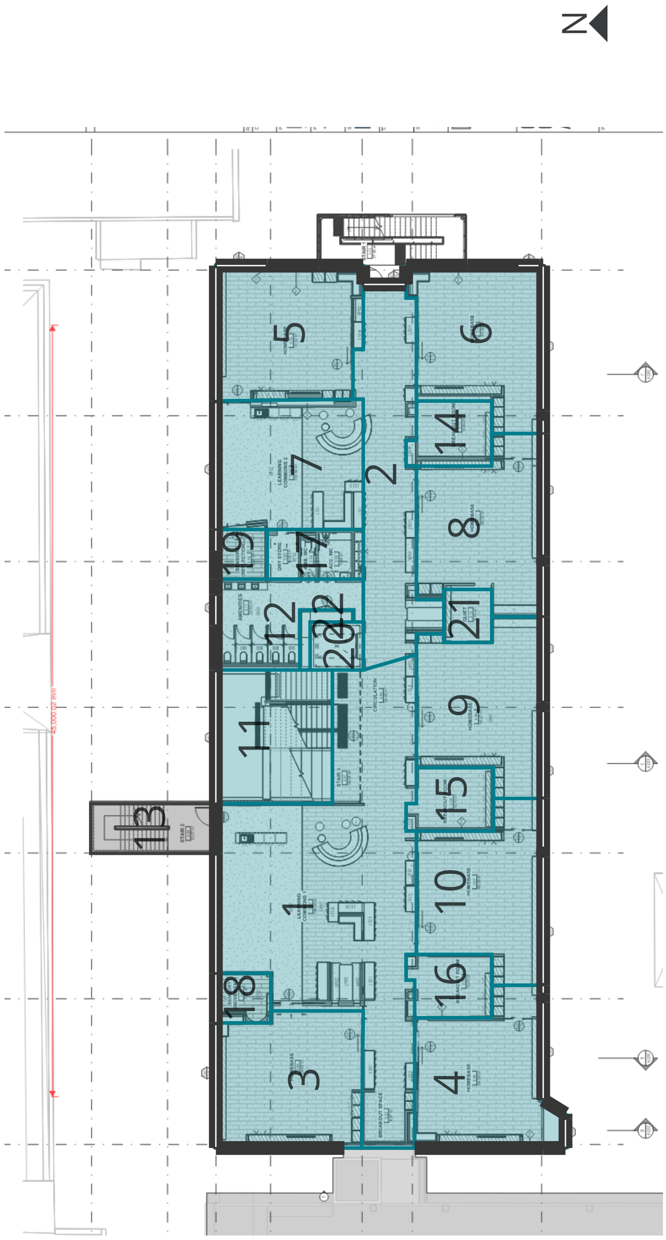
Level 3 - LV 2



Thermal Line Windows Class 9B Unconditioned

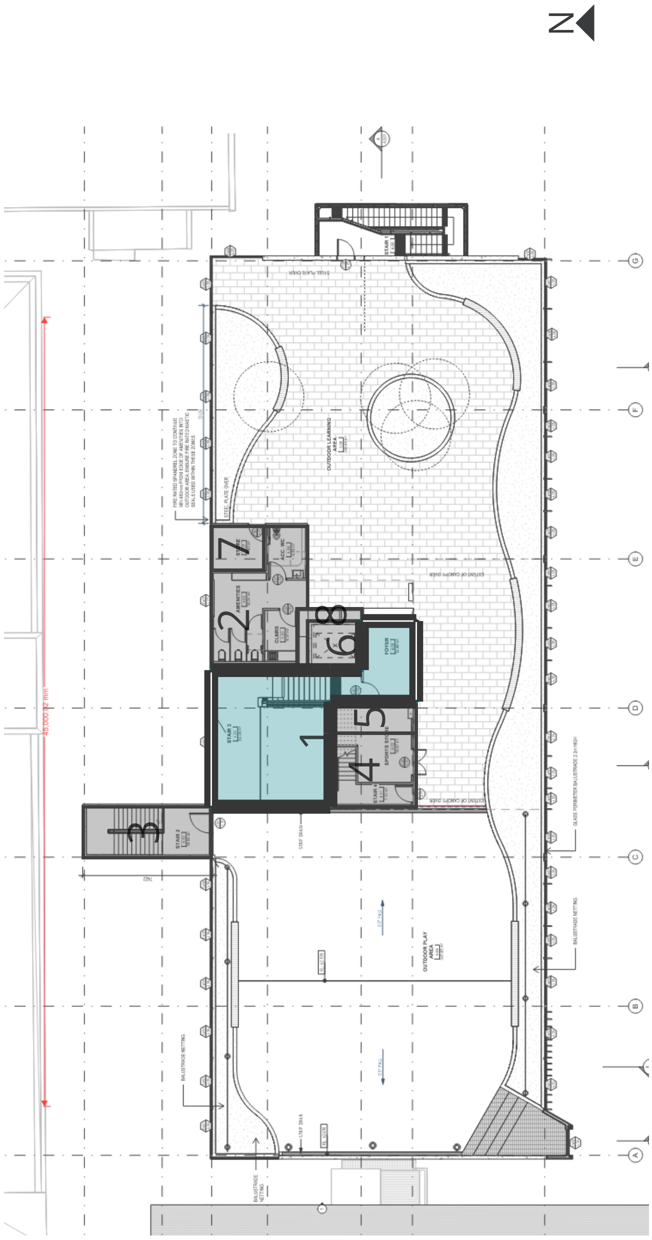
BESTEC

Level 4 - LV 3



Thermal Line
Windows
Class 9B
Unconditioned

Level 5 - Roof



Thermal Line   Windows   Unconditioned   Class 9B

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30 September 2024

Tegan Lewis
State Planning Commission
Via email: Tegan.Lewis@sa.gov.au

Our Ref: 53834LET04

Dear Tegan

Response to Government Architect for Development Application 24019790 at 53 Wakefield Street, Adelaide

On behalf of St Aloysious College ('our client' or 'the applicant'), we refer to the referral response received from the Government Architect dated 2 August 2024 in respect of the above-mentioned development application.

The referral response raised six matters, as follows:

- Project Scope and Built Form.
- Ground Plane and Pedestrian Movement.
- Materiality and Architectural Expression.
- Services.
- Landscape.
- Environmentally Sustainable Design (ESD).

Drawing Schedule

Please find **enclosed** with this correspondence:

- Revised Architectural Drawings, prepared by Grieve Gillett and Hayball Architects:

Table 1: Drawing Schedule – Greive Gillett and Hayball Architects

No.	Sheet Title	Revision	Status	Date
DA00	Title Sheet	3	Preliminary	25.09.24

No.	Sheet Title	Revision	Status	Date
DA01	Location Plan	0	Preliminary	21.06.24
DA10	Proposed Site Plan	3	Preliminary	25.09.24
DA11	Existing / Demolition Site Plan – Early Works – Sheet 1	2	Preliminary	25.09.24
DA15	Existing / Demolition Site Plan – Main Works – Sheet 1	0	Preliminary	25.09.24
DA18	Street Elevations	2	Preliminary	25.09.24
DA19	Sun Study	3	Preliminary	25.09.24
DA21	Ground Floor Plan	4	Preliminary	25.09.24
DA22	L1 Plan	4	Preliminary	25.09.24
DA23	L2 Plan	3	Preliminary	25.09.24
DA24	L3 Plan	3	Preliminary	25.09.24
DA25	Rooftop Plan	3	Preliminary	25.09.24
DA26	Plant Level Plan	2	Preliminary	25.09.24
DA27	Plant Roof Plan	0	Preliminary	25.09.24
DA31	Elevations	3	Preliminary	25.09.24
DA32	Elevations	3	Preliminary	25.09.24
DA51	Renders	3	Preliminary	25.09.24
DA52	Design Diagrams	0	Preliminary	21.06.24
DA53	External Materials	0	Preliminary	21.06.24
DA61	External Section Details	0	Preliminary	25.09.24

- Landscape Works Plan, prepared by T.C.L Landscape Architects:

Table 2: Drawing Schedule – TCL Landscape Architects

No.	Sheet Title	Revision	Status	Date
L001	Title Page	P3	-	11/09/24
L002	Schedules	P3	-	11/09/24

No.	Sheet Title	Revision	Status	Date
L100	Overall Plan	P3	-	11/09/24
L200	Setout Plan – Ground Floor	P3	-	11/09/24
L201	Setout Plan – GF & Level 1	P3	-	11/09/24
L202	Setout Plan – Roof Garden	P3	-	11/09/24
L300	Surfaces Plan – Ground Floor	P3	-	11/09/24
L301	Surfaces Plan – GF & Level 1	P3	-	11/09/24
L302	Surfaces Plan – Roof Garden	P3	-	11/09/24
L400	Grading Plan – Ground Floor	P3	-	11/09/24
L401	Grading Plan – GF & Level 1	P3	-	11/09/24
L402	Grading Plan – Roof Plan	P3	-	11/09/24
L500	Planting Plan – Ground Floor	P3	-	11/09/24
L501	Planting Plan – GF & Level 1	P3	-	11/09/24
L502	Planting Plan – Roof Garden	P3	-	11/09/24
L600	Sections – Ground Floor	P3	-	11/09/24
L601	Sections – Roof Garden	P3	-	11/09/24
L700	Hardscape Details	P3	-	11/09/24
L710	Softscape Details	P3	-	11/09/24
L720	Furniture & Fixture Details 01	P3	-	11/09/24
L721	Furniture & Fixture Details 02	P3	-	11/09/24
L722	Furniture & Fixture Details 03	P3	-	11/09/24

This correspondence responds to each of the matters raised in turn.

Project Scope and Built Form

Commentary regarding the project scope and built form has been reviewed by the Project Team, with the following comments:

- As shown on the revised Ground Floor Plan, prepared by Grieve Gillett and Hayball Architects (Drawing No. DA21 Revision 4), the existing boundary wall between the pool enclosure and the Archdiocese Centre to the north is to remain. The wall (as shown in **Photograph 1**) is currently showing fretting to mortar and therefore will be re-pointed as required. The internal face of the masonry wall is to be rendered.

  A small section of the masonry wall up to the first pier is to be removed during the demolition of the existing Dunlevie building. The structural engineer has confirmed that no additional propping will be required to the remaining wall following demolition.

  The space between the proposed development and the existing masonry wall is to be infilled with a section of aluminium tubular fence to match the existing fencing above the masonry wall.

Photograph 1: Existing boundary wall between the pool enclosure and Archdiocese Centre.

- The proposed development has been designed to future proof for the addition of a pool canopy. The canopy works will be undertaken by the applicant later and will be the subject of a future application. The general intent, however, is that a cantilevering canopy structure could directly fix to the slab edge at Level 1.

- In the reception Courtyard, located to the north-west of the site, a new 2.4-metre-high rendered and painted blockwork wall will be constructed along the boundary to create a secure playspace for Reception students. A secure gate will be included to accommodate the egress path from the fire stair to the laneway.

Ground Plane and Pedestrian Movement

The discrepancies between the elevations and perspective images have been noted by the project team. The project team confirm:

- As shown on the revised Elevations, prepared by Grieve Gillett and Hayball Architects (Drawing No. DA31. Revision 3), two large vertical folding doors are proposed in front of the foyer and music room. The proposed selection is the ARA Manufacture Monarch Renlita Sovereign Vertical Folding Door.

Materiality and Architectural Expression

Commentary regarding the materiality and architectural expression have been considered by the project team:

- The external materials selections have been made with consideration of longevity, low maintenance and accessibility requirements. A materials board of physical samples is currently being prepared by Grieve Gillett and Hayball Architects for review by the Government Architect. **Figure 1** below shows the external materials currently approved by the Client.

1. **CFS-01** External Cladding Type - Viroc
2. **FIN-01** Powdercoated Vertical Fins
3. **CFS-02** Aluminium Cladding Rooftop Blade
4. **MC-01** Downpipes & Sundry Items
5. **PCF-01** Powdercoat Colour
6. **PCF-01** Powdercoat Colour
7. **PCF-02** External Door and Window Framing
8. **CFS-03** Perforated Metal Panel
9. **BAL-01** External Handrail - Stainless Steel
10. **CFS-07** Mesh Cladding to Eastern Stair
11. **FB-01** Ground Floor Podium Brick Cladding
12. **FB-05** Ground Floor Podium Brick Cladding
13. **FG-01** Clear Glazing Typical
14. **FG-04** Translucent Glazing - Amenities
15. **PV01** Ground Floor Concrete Paving - Dark
16. **PV02** Ground Floor Concrete Paving - Light
17. **TGIS-01** Tactile Indicators
18. **SN-01** Stair Nosing
19. **FX03** Timber Decking
20. **PV04** Rooftop Acrylic Play Surface
21. **FT-01** External Paving - Rooftop & Steam Balcony

Figure 1: External Materials Presentation.

It is requested that the provision of a physical materials board which demonstrates accurately the proposed materials and finishes, to the satisfaction of the State Planning Commission Panel in consultation with the Government Architect be imposed as a condition of Planning Consent.

- Compressed fibre cement sheet cladding was selected for its durability, authenticity and cost-effectiveness, offering a hard-wearing finish that can be repainted as needed and allows for the inclusion of an artwork background to the Pool and Reception Courtyard. Capable of withstanding impact, harsh weather conditions and general wear and tear, it lasts longer and requires less maintenance than many other cladding types.

- The intent is for the accessible areas, i.e. ground floor to the north and the perimeter of the rooftop occupied spaces, to be painted compressed fibre cement sheet cladding (i.e. ExoTec Façade Panel). The areas that will be more difficult to access (i.e. the external cladding to the amenities on the northern façade and both the picture window and 'education window' to the southern façade) will be clad in a prefinished cladding that will not require any repainting or maintenance (i.e. Viroc External Cladding).

  The proposed external wall types have been confirmed to meet acoustic, thermal and fire compliance requirements. A revised copy of the Acoustic Services report, prepared by Bestec is **enclosed**.

The discrepancies between the elevations and perspective images have been noted by the project team. The project team confirm:

- Due to the vertical 'education window' to the southern façade being largely inaccessible for regular repainting or maintenance, the decision has been made to select a material that was prefinished and heterogeneous in nature. Viroc External Cladding is a composite panel consisting of a mixture of wood particles and Portland cement, which achieves the aesthetics of an authentic natural concrete finish.

- An integrated façade access system has been detailed to the underside of the horizontal blade to the rooftop perimeter. Access to the external windows for cleaning and maintenance will be achieved via a proprietary roof access rail system.

- The brick colonnade is to be constructed using brick snaps on the Tru-Brix support system. The Tru-Brix system is an efficient way of installing brickwork and reduces the reliance on load-carrying steelwork. Once mortar has been applied to the brick snaps, the tactility and materiality of the surfaces is as per a solid brick wall.

  Soldier coursing will be provided to archways and horizontal banding. The brick selections are to be Nubrik Australis 'Murray Sunset' generally with Nubrik Traditional 'Domain Terracotta' (shown in **Figure 2** and **Figure 3** below) to archways and horizontal banding.

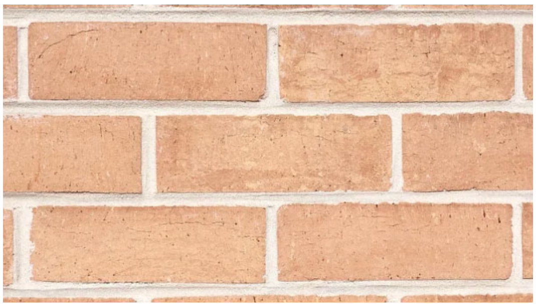

Figure 2: Nubrik Australis 'Murray Sunset'.

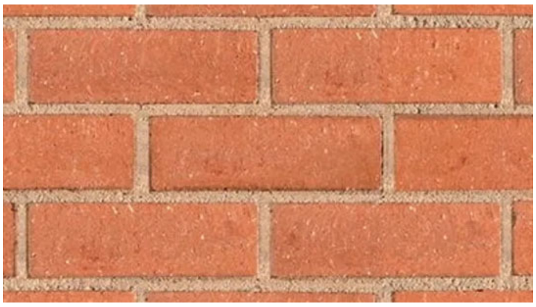

Figure 3: Nubrik Traditional 'Domain Terracotta'.

- The expressed concrete columns on the external facades will be clad with 1.2BMT metal flashings. Likewise, the exposed slab edges will be clad in 1.2BMT metal flashings. Horizontal capping will be dark to match the window framing. Vertical capping to columns to be white to match the fin colour.

- The roof plant and services are to be screened with the Monkeytoe screening system, HushMonkey Louvre-Look Acoustic Barrier. The screening is proposed to be 2.25 metres high.

- The intent is to for the accessible areas, i.e. ground floor to the north and the perimeter of the rooftop occupied spaces, to be painted compressed fibre cement sheet cladding (i.e. ExoTec Façade Panel). The areas that will be more difficult to access (i.e. the external cladding to the amenities on the northern façade and both the picture window and 'education window' to the southern façade) will be clad in a prefinished cladding that will not require any repainting or maintenance (i.e. Viroc External Cladding).

- No operable windows are proposed. The aluminium vertical fins will span floor to floor and typically face fixed to the edge of slab. The aluminium vertical fins will typically be aligned with the window mullions. Joints in the aluminium vertical fins will be expressed and line up with the horizontal window transoms.

- Consideration has been given to the alignment of the slabs be creating a raised hob at the slab edge providing a consistent line to the external face. The edge of the slabs will be clad in 1.2BMT metal flashing.

Services

Commentary regarding the location and screening of roof plant has been considered by the project team:

- The revised Plant Level Plan, prepared by Grieve Gillett Architects and Hayball Architects (Drawing Number DA26 and DA27, Revision 2) have been revised to show the location of roof mounted services and plant.

- The roof plant and services are to be screened with the Monkeytoe screening system, HushMonkey Louvre-Look Acoustic Barrier. The screening is proposed to be 2.25 metres high.

Landscape

Commentary regarding the landscape have been considered by the project team:

- All garden beds on the ground floor are in ground providing deep root planting zones.

- All planters on the roof have a minimum depth of 600 millimetres, and the garden beds will be mounded at 1:5 to have more soil depth towards the middle of the planters.

- Garden beds on the Dunlevie Courtyard are on the south side to maximise sun exposure, and garden beds on Redden Lane are located on the eastern side away from the multistorey Redden Centre. Trees along both Redden Lane and Dunlevie Courtyard will provide ample shade.

- The planting selection will consist of mediterranean species, which are waterwise and suited to the local climate.

  It is requested that the provision of a detailed landscape plan demonstrating specific species, their locations, numbers and mature heights at all landscaped areas of the proposed development be imposed as a condition of Planning Consent.

The inconsistencies between the architectural and landscape documentation have been reviewed by the project team. The revised Rooftop Plan (Drawing No. DA25 Revision 3) prepared by Grieve Gillett and Hayball Architects is now consistent with the Landscape Works plans prepared by T.C.L Landscape Architects. Together, these documents now demonstrate a coordinated proposal of the planters, seating, court netting, paving and extent of acrylic surfacing.

Environmentally Sustainable Design (ESD)

ESD initiatives have been considered and where suitable integrated into the proposal:

- The proposal includes a 20kW photovoltaic solar array on the rooftop canopy as shown on the revised Plant Level Plan, prepared by Grieve Gillett Architects and Hayball Architects.

- A rooftop water tank was not considered suitable with concerns regarding positioning, bacterial run-off from the roof plant, potential algae growth in the tank and commination.

- The proposal includes the instruction to retain, clean and stack on pallets 2,000 old red bricks from the Dunlevie Building demolition works. It is unsure how these bricks will be used yet; these will be inspected once the building is demolished, and a determination will be made whether they can be incorporated into the building faced (in lieu of the proposed Nubrik Traditional 'Domain Terracotta' selection) or used as a landscaping element.

Additionally:

- The building has been designed to meet the thermal comfort levels required by the NCC. The revised assessment (**enclosed** with this correspondence) indicates that 10-0 per cent of the floor area within the occupied zones has a thermal comfort level of between a predicted mean of -1 to +1 for more than 98 per cent of the annual hours of operation of the building, which exceeds the minimum NCC JV3 requirement of 95 per cent of the floor area.

Closure

We trust that this information clarifies the matters raised by the Government Architect.

Should you require any additional information, or clarification, please do not hesitate to contact the writer.

Yours sincerely

Kirsten Falt
MasterPlan SA Pty Ltd

enc: As listed.

Attachment A

Revised Architectural Drawings

MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977

Scale Bar Units in Millimetres

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

DA SHEET LIST		
Drawing Number	Sheet Name	Current Revision
DA00	TITLE SHEET	3
DA01	LOCATION PLAN	0
DA10	PROPOSED SITE PLAN	3
DA11	EXISTING / DEMOLITION SITE PLAN - EARLY WORKS - SHEET 1	2
DA15	EXISTING / DEMOLITION SITE PLAN - MAIN WORKS - SHEET 1	0
DA18	STREET ELEVATION	2
DA19	SUN STUDY	3
DA21	GROUND FLOOR PLAN	4
DA22	L1 PLAN	4
DA23	L2 PLAN	3
DA24	L3 PLAN	3
DA25	ROOFTOP PLAN	3
DA26	PLANT LEVEL PLAN	2
DA27	PLANT ROOF PLAN	0
DA31	ELEVATIONS	3
DA32	ELEVATIONS	3
DA51	RENDERS	3
DA52	DESIGN DIAGRAMS	0
DA53	EXTERNAL MATERIALS	0
DA61	EXTERNAL SECTION DETAILS	0

PLOT FILE DATE: 25/09/2024 9:28:10 AM PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

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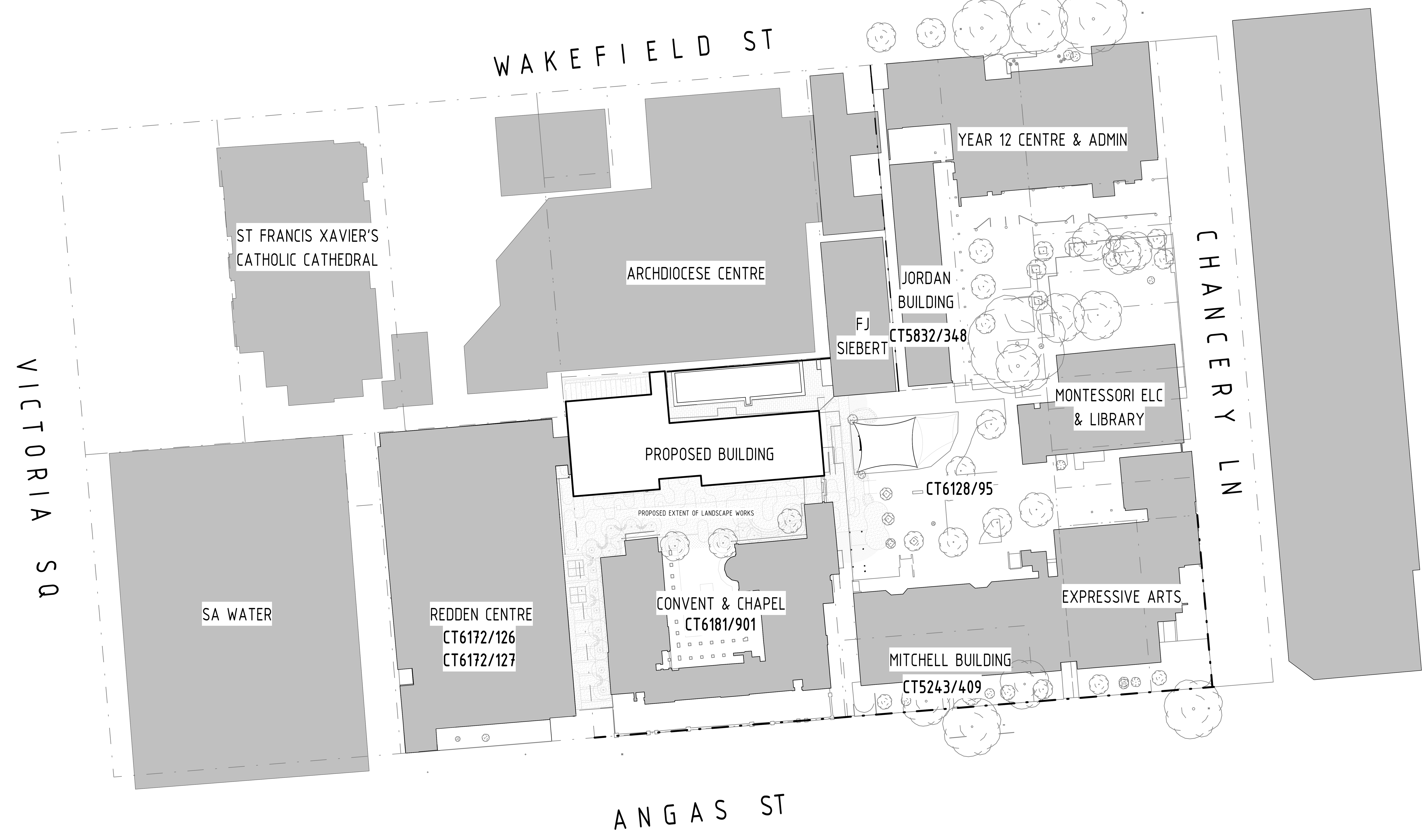
NOTE: REFER TO LANDSCAPE CONCEPT PLANS FOR FULL EXTENT OF WORK



SITE PLAN
1 : 500

Scale Bar Units in Millimetres | A1 Sheet

PLOT FILE DATE: 24/09/2024 6:38:18 PM
PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

Legend

GENERAL NOTES:

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5. ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF SHOP DRAWINGS & WORK ON SITE.

Rev.	Date	Description	Ver.	Appr.
0	21.06.24	ISSUE FOR PLANNING CONSENT		

Drawing Status
PRELIMINARY

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Project
ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title
LOCATION PLAN

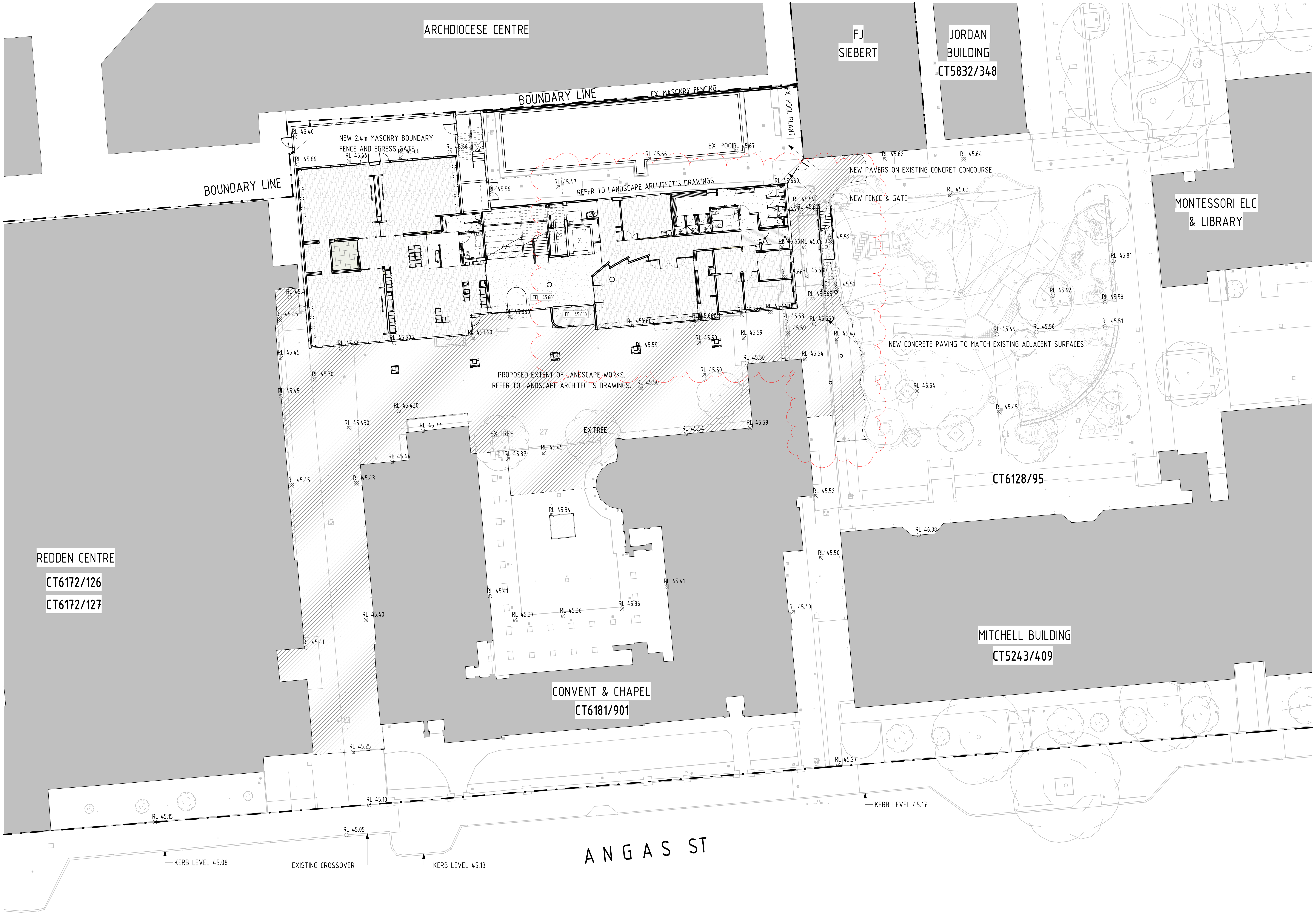
PN N

Scale (at A1) As indicated

Job No.	Drawing No.	Issue
23135_2728	DA01	0

Scale Bar Units in Millimetres

A1 Sheet



PROPOSED SITE PLAN DA
1 : 200

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PLOT FILE DATE: 24/09/2024 6:38:33 PM

Legend

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Rev.	Date	Description	Ver.	Appr.
3	25.09.24	ISSUE FOR PLANNING CLARIFICATION		
2	23.07.24	ISSUE FOR SIGNAGE AND LEVEL CLARIFICATION		
1	24.06.24	ISSUE FOR PLANNING		
0	21.06.24	ISSUE FOR PLANNING CONSENT		

Drawing Status

PRELIMINARY

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

PROPOSED SITE PLAN

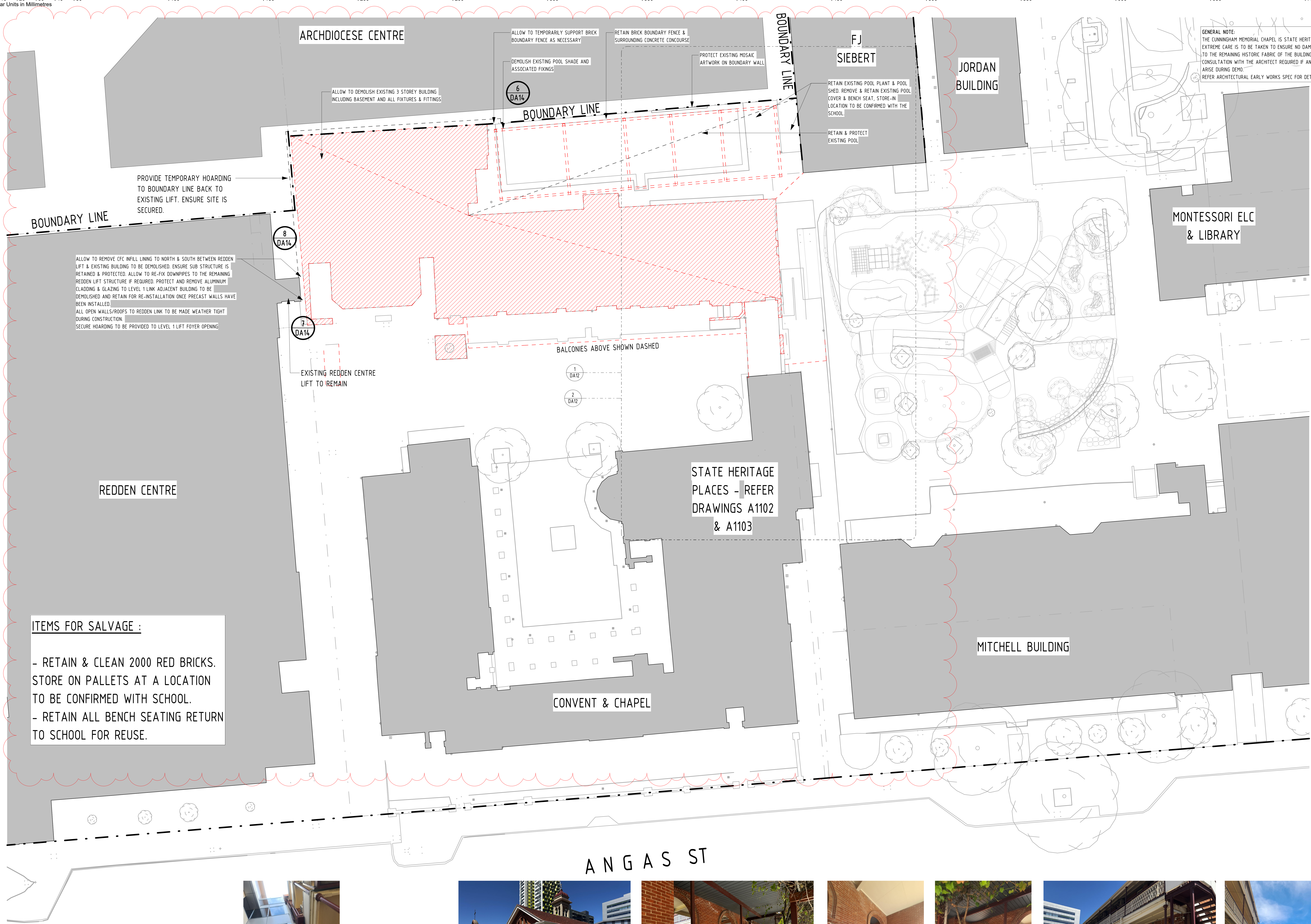
PN

Scale (at A1) As indicated

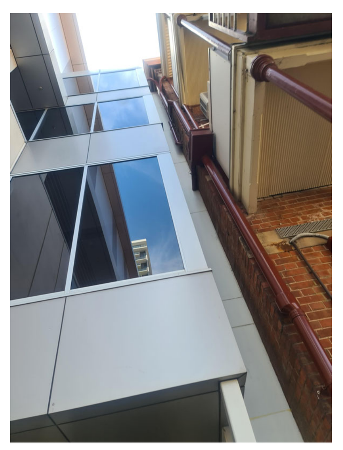
Job No.	Drawing No.	Issue
23135_2728	DA10	3

Scale Bar Units in Millimetres

A1 Sheet



1 STAGE 1 - DEMOLITION SITE PLAN
1 : 200



REDDEN CENTRE & DUNLEVIE JUNCTION

CHAPEL, ARCHES & LEVEL 1 WALKWAY JUNCTION

Legend

DEMOLITION NOTES:

1. THE CONTRACTOR IS TO DEMOLISH ITEMS WITHIN THE SITE BOUNDARY TO THE EXTENT SHOWN ON THE DOCUMENTS.
2. ALL MATERIAL & DEBRIS CREATED BY DEMOLITION WORKS TO BE REMOVED FROM SITE, UNLESS NOTED OTHERWISE.
3. ALL DEMOLITION WORK TO BE CARRIED OUT IN ACCORDANCE WITH AS2601.
4. REFER TO RELEVANT ENGINEER'S DRAWINGS FOR CAPPING & SEALING OF REDUNDANT EXISTING SERVICES. SERVICES TO BE CUT AND SEALED IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS AND S.A.A CODES FOR THAT TRADE.
5. FOR INFORMATION ON OR ABOUT EXISTING SERVICES REFER TO RELEVANT CONSULTANTS DRAWINGS.
6. CONTRACTORS TO INSPECT & CHECK ON SITE PRIOR TO DEMOLITION. SETTING OUT OF THE WORK IS THE RESPONSIBILITY OF THE CONTRACTOR. CONFIRM ALL DIMENSIONS ON SITE.
7. MAKE GOOD TO ALL SURFACES AFTER DEMOLITION HAS TAKEN PLACE IN PREPARATION FOR NEW FINISHES TO BE APPLIED. ALLOW FOR SCABBLING AND/OR TO APPLY APPROVED FLOOR LEVELLER TO EXISTING SLAB SURFACES IN PREPARATION FOR NEW FLOOR FINISHES.
8. MAKE GOOD OR PROVIDE NEW AS REQUIRED TO ALL EXISTING ADJOINING SURFACES TO BE RETAINED, THAT ARE AFFECTED BY THE WORKS.
9. THE DEMOLITION CONTRACTOR TO PROVIDE STAR DROPPERS AND ORANGE BUNTING AROUND TREE TRUNKS TO CLEARLY IDENTIFY WHICH TREES ARE TO BE RETAINED, AND INSTALL STAR DROPPERS AND BUNTING AROUND TREE PROTECTION ZONES.
10. DURING SITE EARTHWORKS, CARE SHALL BE TAKEN NOT TO DAMAGE THE TREE ROOT SYSTEM.
11. THE DEMOLITION CONTRACTOR TO CONTACT "DIAL BEFORE YOU DIG", TO IDENTIFY ALL EXISTING SERVICES WITHIN THE SITE AREA, PRIOR TO COMMENCEMENT OF ANY EARTHWORKS.
12. THE DEMOLITION CONTRACTOR TO INSTALL TEMPORARY FENCING AROUND PERIMETER OF DEMOLITION AREA FOR DURATION OF THE WORKS.
13. THE DEMOLITION CONTRACTOR SHALL REFER TO SPECIFICATION FOR IDENTIFIED HAZARDOUS MATERIAL SCHEDULE. IF HAZARDOUS MATERIALS OR CONDITIONS ARE FOUND CEASE WORK AND GIVE NOTICE IMMEDIATELY.

Rev.	Date	Description	Ver.	Appr.
2	25.09.24	ISSUE FOR PLANNING CLARIFICATION		
1	23.07.24	ISSUE FOR SIGNAGE AND LEVEL CLARIFICATION		
0	21.06.24	ISSUE FOR PLANNING CONSENT		

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Project
ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title
EXISTING / DEMOLITION SITE PLAN - EARLY WORKS - SHEET 1

PN

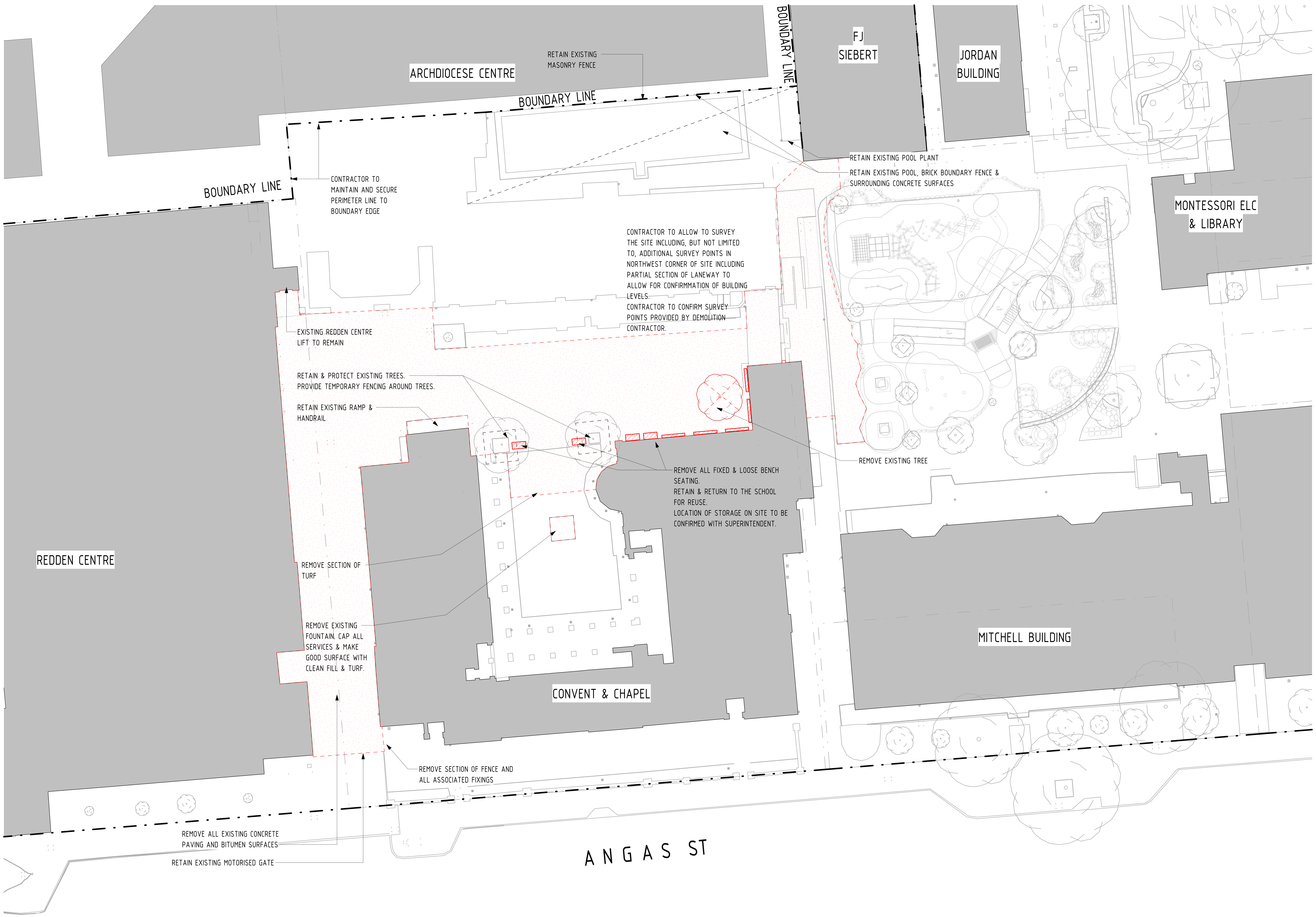
Scale (at A1) As indicated

Job No.	Drawing No.	Issue
23135_2728	DA11	2

PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt
PLOT FILE DATE: 24/09/2024 6:38:50 PM

Scale Bar Units in Millimetres

A1 Sheet



1 DEMOLITION PLAN SITE PLAN
1 : 200

PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

PLOT FILE DATE: 24/09/2024 6:39:53 PM

Legend

DEMOLITION NOTES:

1. THE CONTRACTOR IS TO DEMOLISH ITEMS WITHIN THE SITE BOUNDARY TO THE EXTENT SHOWN ON THE DOCUMENTS.
2. ALL MATERIAL & DEBRIS CREATED BY DEMOLITION WORKS TO BE REMOVED FROM SITE, UNLESS NOTED OTHERWISE.
3. ALL DEMOLITION WORK TO BE CARRIED OUT IN ACCORDANCE WITH AS2601.
4. REFER TO RELEVANT ENGINEER'S DRAWINGS FOR CAPPING & SEALING OF REDUNDANT EXISTING SERVICES. SERVICES TO BE CUT AND SEALED IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS AND S.A.A CODES FOR THAT TRADE.
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7. MAKE GOOD TO ALL SURFACES AFTER DEMOLITION HAS TAKEN PLACE IN PREPARATION FOR NEW FINISHES TO BE APPLIED. ALLOW FOR SCABBLING AND/OR TO APPLY APPROVED FLOOR LEVELLER TO EXISTING SLAB SURFACES IN PREPARATION FOR NEW FLOOR FINISHES.
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Rev.	Date	Description	Ver.	Appr.
0	25.09.24	ISSUE FOR PLANNING CLARIFICATION		

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

EXISTING / DEMOLITION SITE PLAN - MAIN WORKS - SHEET 1

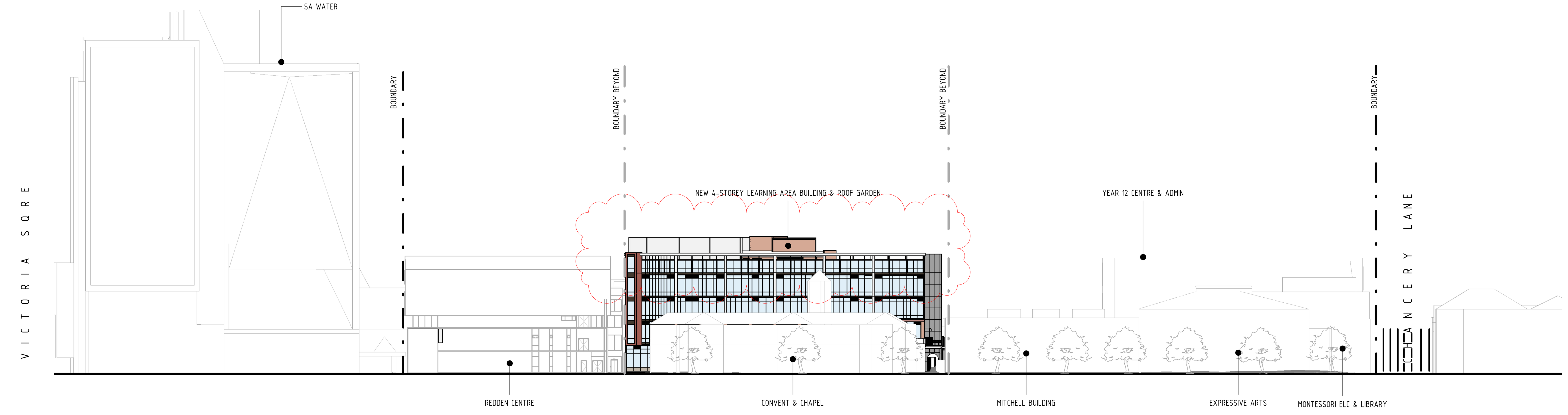
PN

Scale (at A1) As indicated

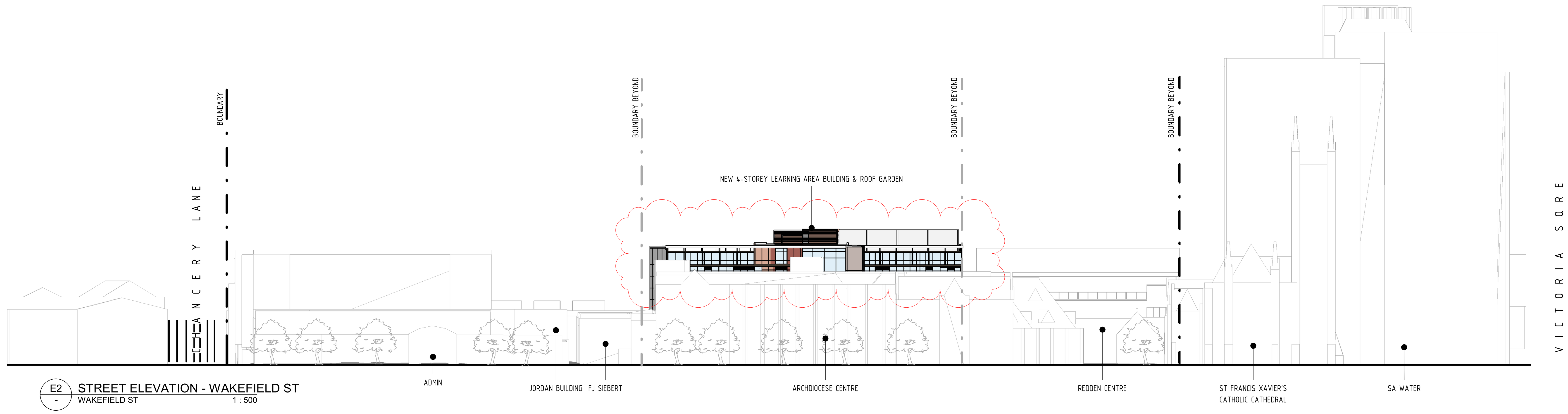
Job No.	Drawing No.	Issue
23135_2728	DA15	0

Scale Bar Units in Millimetres

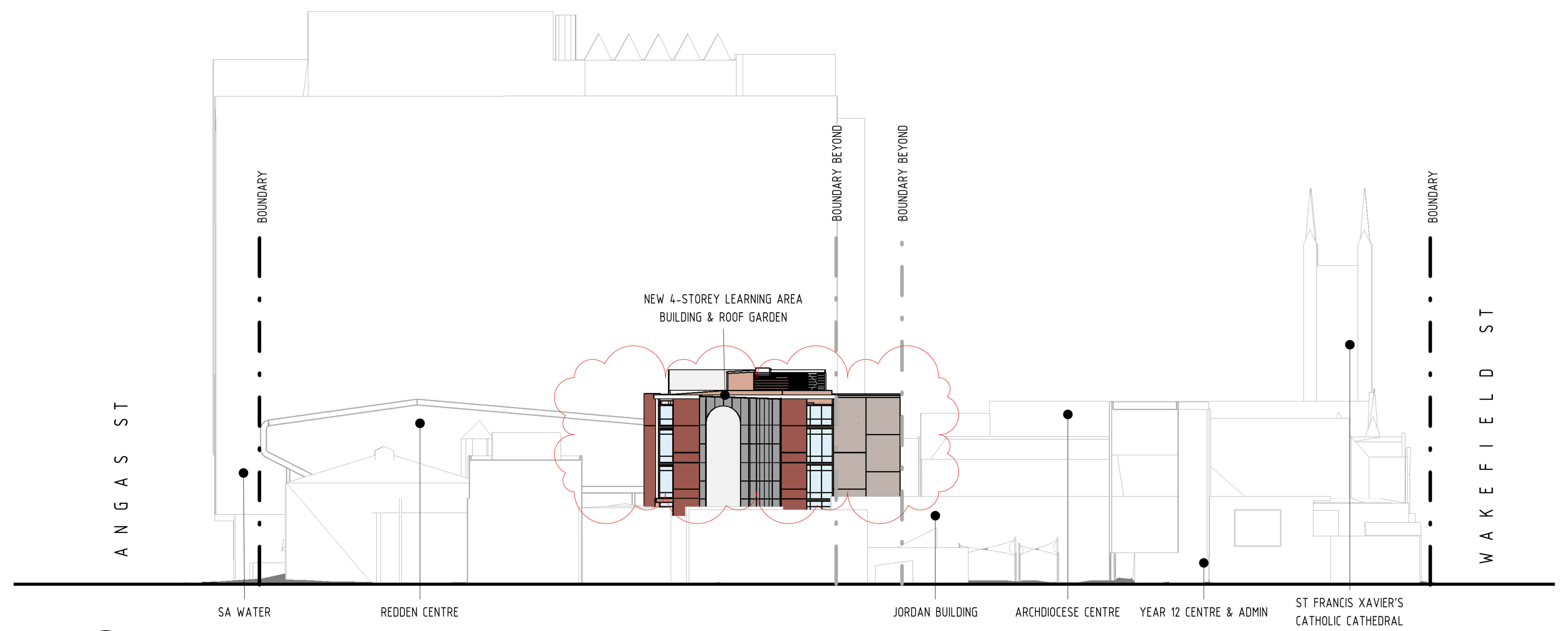
A1 Sheet



E1 STREET ELEVATION
ANGAS ST 1 : 500



E2 STREET ELEVATION - WAKEFIELD ST
WAKEFIELD ST 1 : 500



E3 STREET ELEVATION
CHANCERY LANE 1 : 500

PLOT FILE DATE: 24/09/2024 6:50:58 PM PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

Legend

GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER WORKING DRAWINGS, ALL SPECIFICATIONS AND SCHEDULES AND ALL OTHER INFORMATION PROVIDED BY THE ARCHITECT.
2. ARCHITECTURAL DRAWINGS AND SPECIFICATIONS ARE TO BE READ IN CONJUNCTION WITH CONSULTANTS DOCUMENTS. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
3. DO NOT SCALE OFF DRAWINGS.
4. SITE AND BUILDING SETOUT TO BE TAKEN FROM KNOWN AND APPROVED ALLOTMENT BOUNDARIES AND NOT EXISTING FENCE LINES.
5. ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF SHOP DRAWINGS & WORK ON SITE.

Rev.	Date	Description	Ver.	Appr.
2	25.09.24	ISSUE FOR PLANNING CLARIFICATION		
1	23.07.24	ISSUE FOR SIGNAGE AND LEVEL CLARIFICATION		
0	21.06.24	ISSUE FOR PLANNING CONSENT		

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Drawing Title
STREET ELEVATION

Scale (at A1) As indicated

Job No.	Drawing No.	Issue
23135_2728	DA18	2

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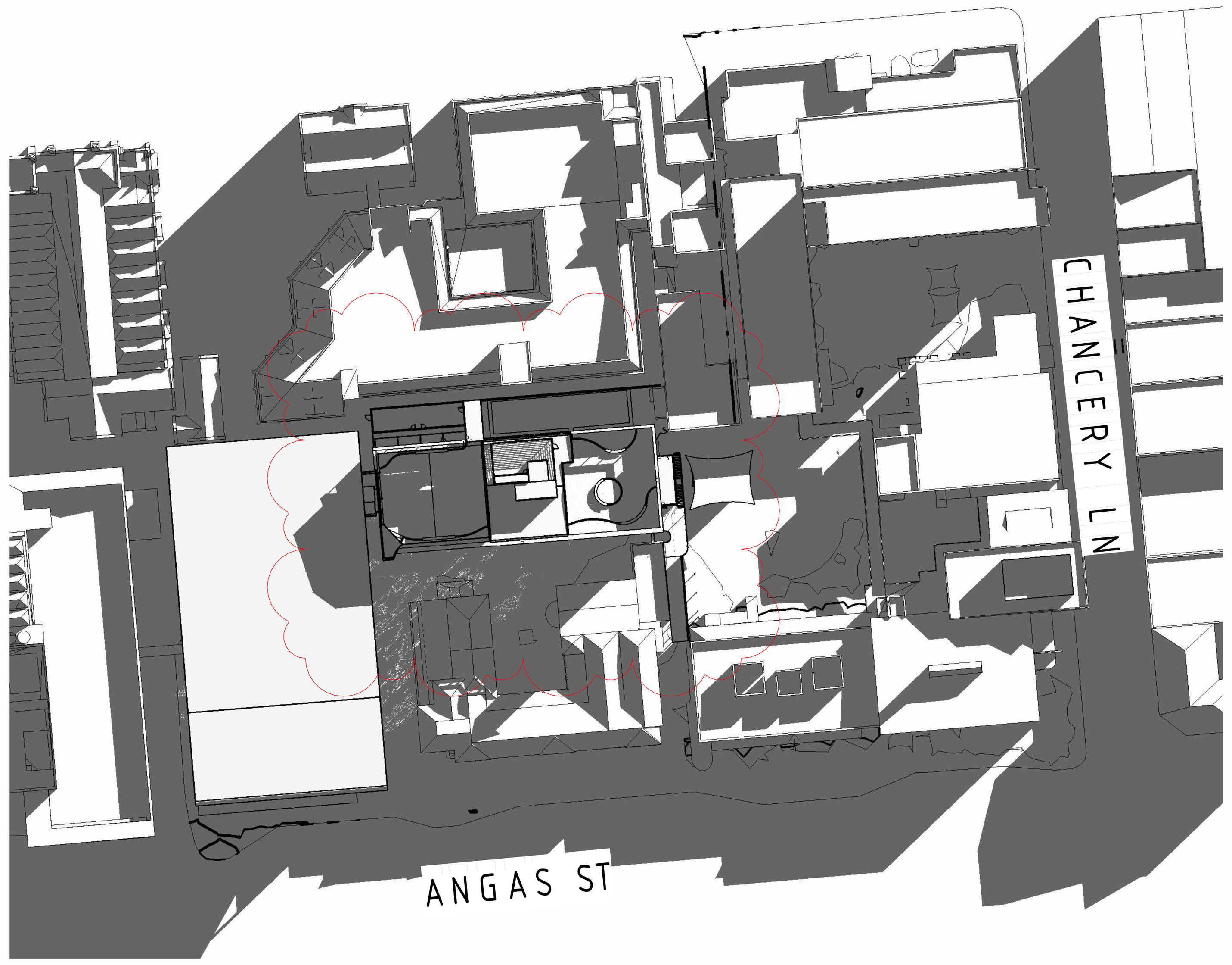
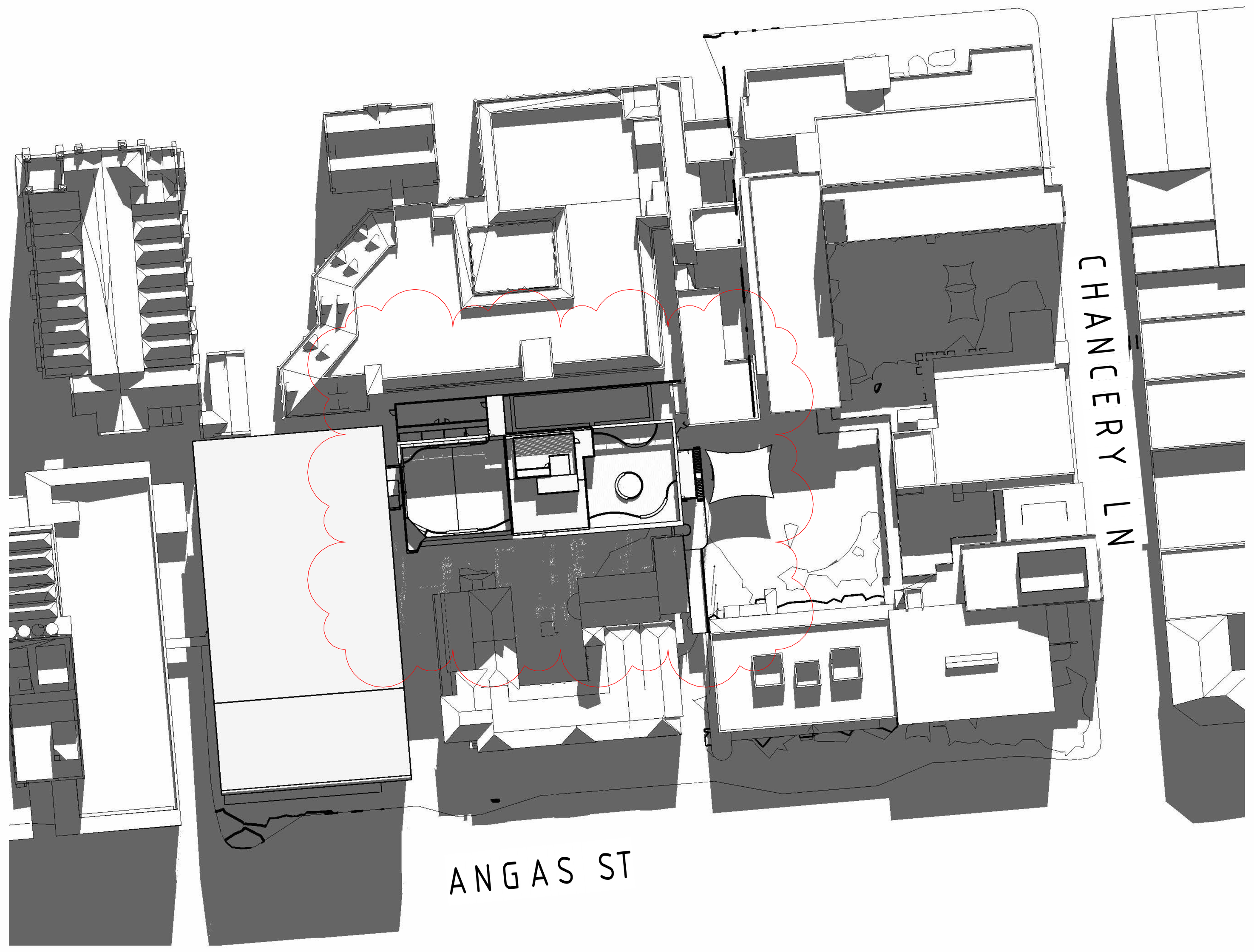
Scale Bar Units in Millimetres

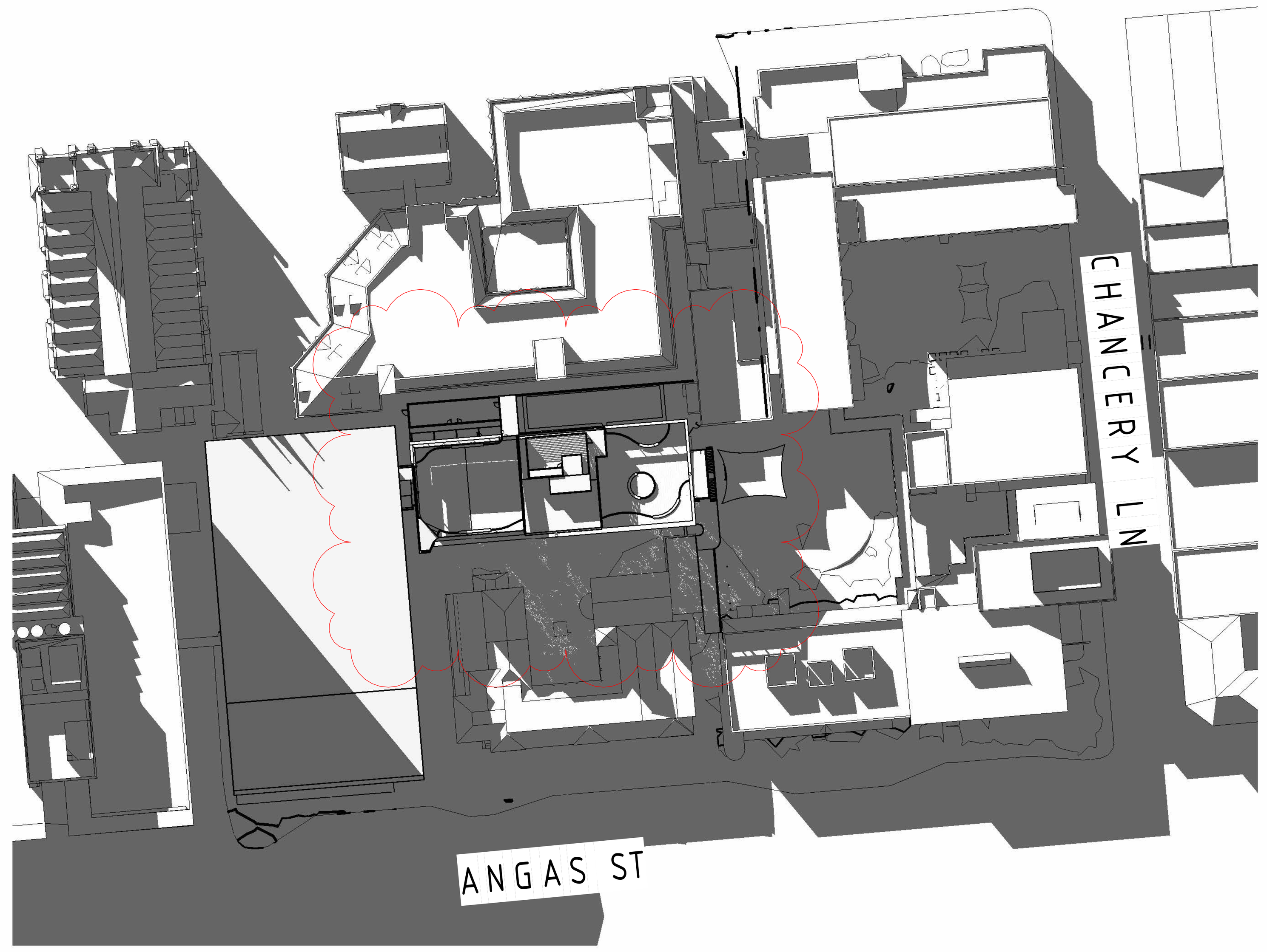
A1 Sheet



1 SUN STUDY
- WINTER SOLSTICE - 9AM 1 : 1000



2 SUN STUDY
- WINTER SOLSTICE - 12PM 1 : 1000



3 SUN STUDY
- WINTER SOLSTICE - 3PM 1 : 1000

4 SUN STUDY
- SUMMER SOLSTICE - 9AM 1 : 1000

5 SUN STUDY
- SUMMER SOLSTICE - 12PM 1 : 1000

6 SUN STUDY
- SUMMER SOLSTICE - 3PM 1 : 1000

Legend

Rev.	Date	Description	Ver.	Appr.
3	25.09.24	ISSUE FOR PLANNING		
2	21.06.24	ISSUE FOR PLANNING CONSENT		
1	23.04.24	FOR INFORMATION		
0	17.04.24	FOR INFORMATION		

Drawing Status

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Project

ST ALOYSIUS
COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

SUN STUDY

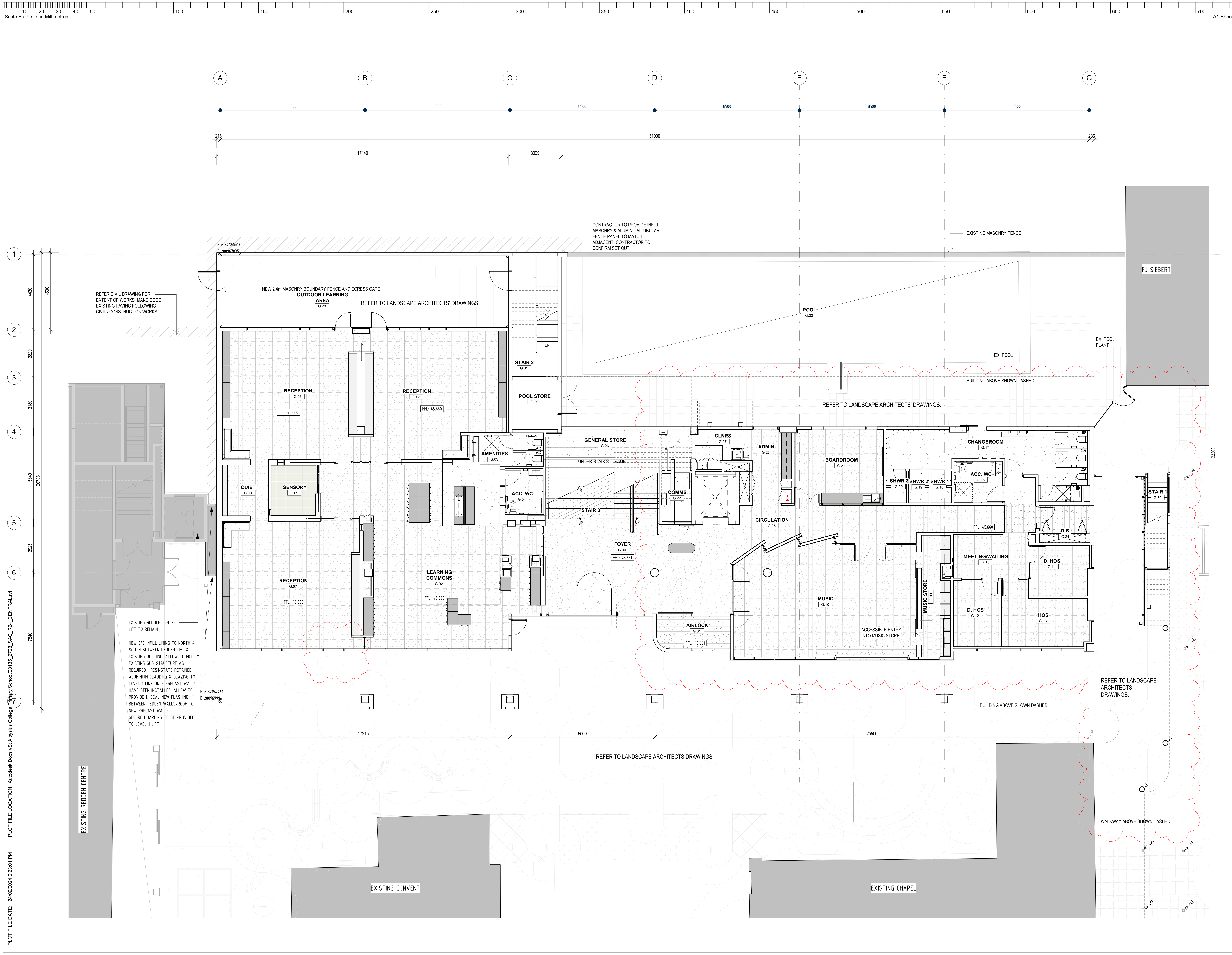
PN

Scale (at A1) 1 : 1000

Job No.	Drawing No.	Issue
23135_2728	DA19	3

PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

PLOT FILE DATE: 23/09/2024 10:11:45 AM



PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_CENTRAL.rvt

PLOT FILE DATE: 24/09/2024 6:23:01 PM

Legend

GENERAL NOTES:

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3. DO NOT SCALE OFF DRAWINGS.
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Rev.	Date	Description	Ver.	Appr.
4	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK
3	23.07.24	FOR COORDINATION	AR	AK
2	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK
1	11.06.24	FOR COORDINATION	AR	AK
0	22.04.24	FOR INFORMATION	AR	AK

Drawing Status

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

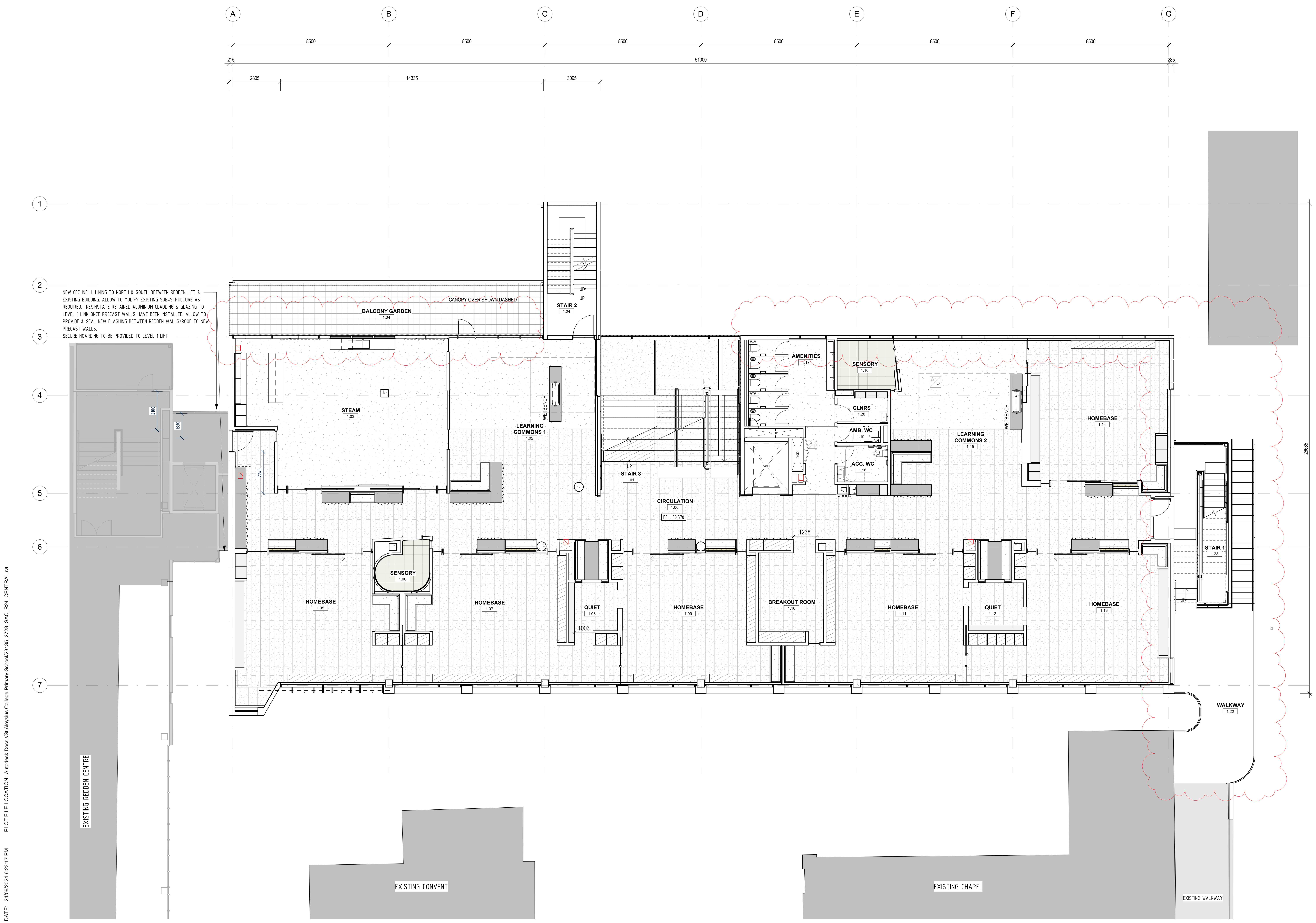
GROUND FLOOR PLAN

Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA21	4

Scale Bar Units in Millimetres

A1 Sheet



Legend

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4	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK
3	23.07.24	ISSUE FOR SIGNAGE AND LEVEL CLARIFICATION	AR	AK
2	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK
1	11.06.24	FOR COORDINATION	AR	AK
0	22.04.24	FOR INFORMATION	AR	AK

Drawing Status

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

L1 PLAN

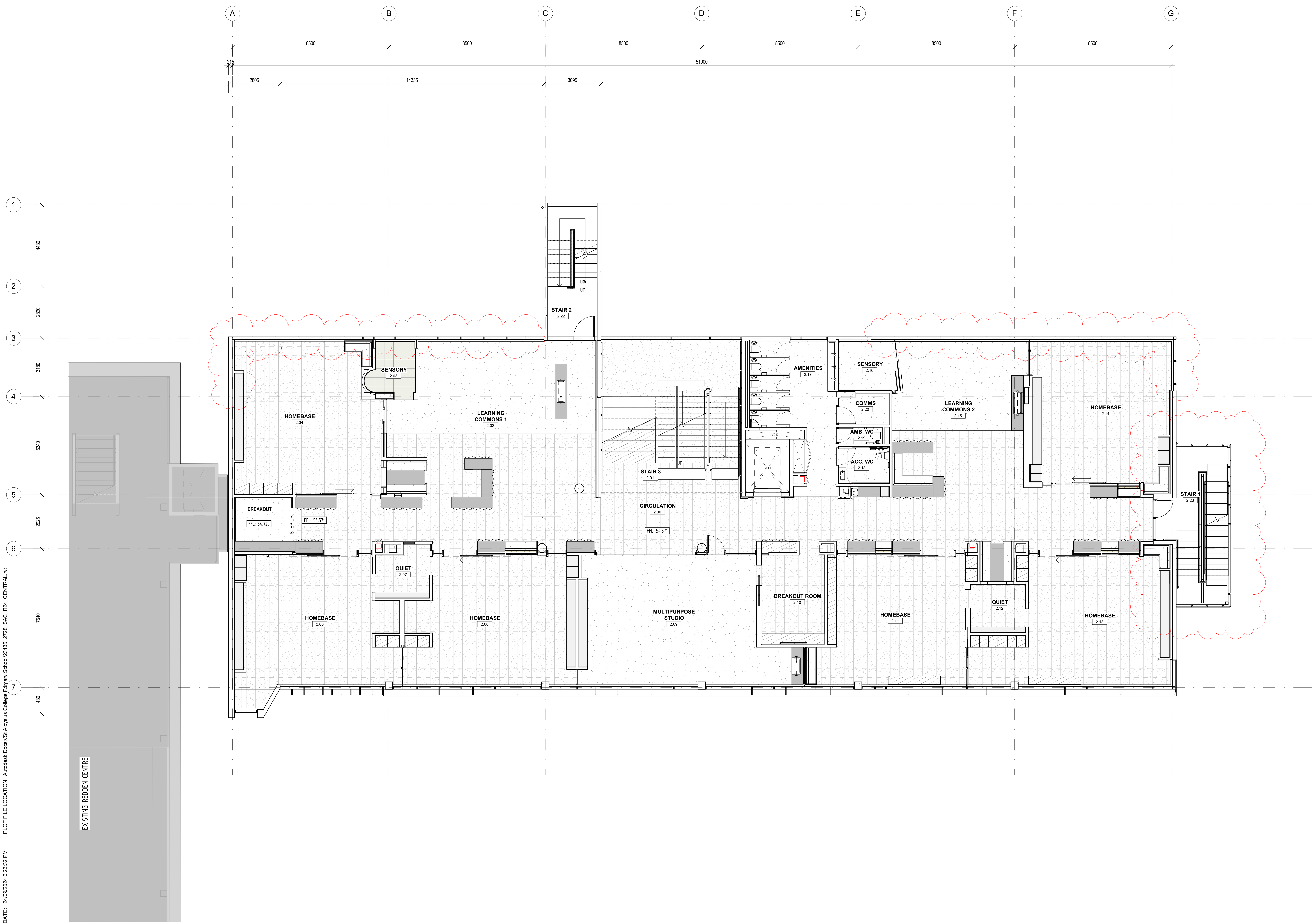
PN

Scale (at A1)	1 : 100	
Job No.	Drawing No.	Issue
23135_2728	DA22	4

PLOT FILE DATE: 24/09/2024 6:23:17 PM
PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_CENTRAL.rvt

Scale Bar Units in Millimetres

A1 Sheet



PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_CENTRAL.rvt

PLOT FILE DATE: 24/09/2024 6:23:32 PM

Legend

GENERAL NOTES:

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Rev.	Date	Description	Ver.	Appr.
3	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK
2	24.06.24	ISSUE FOR PLANNING	AR	AK
1	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK
0	11.06.24	FOR COORDINATION	AR	AK

Drawing Status

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

L2 PLAN

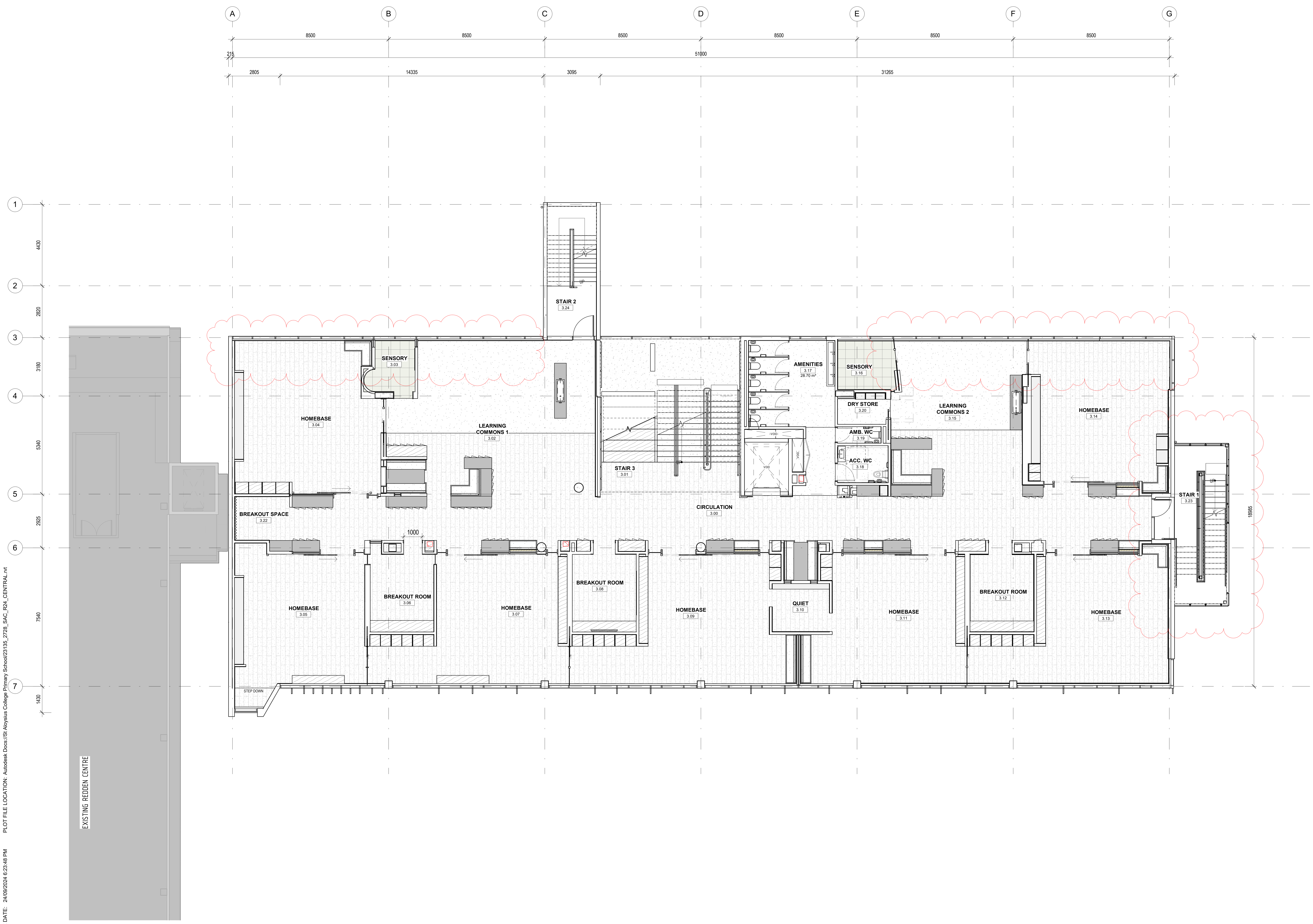
PN

Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA23	3

Scale Bar Units in Millimetres

A1 Sheet



PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_CENTRAL.rvt

PLOT FILE DATE: 24/09/2024 6:23:48 PM

Legend

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3	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK
2	24.06.24	ISSUE FOR PLANNING	AR	AK
1	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK
0	11.06.24	FOR COORDINATION	AR	AK

Drawing Status

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

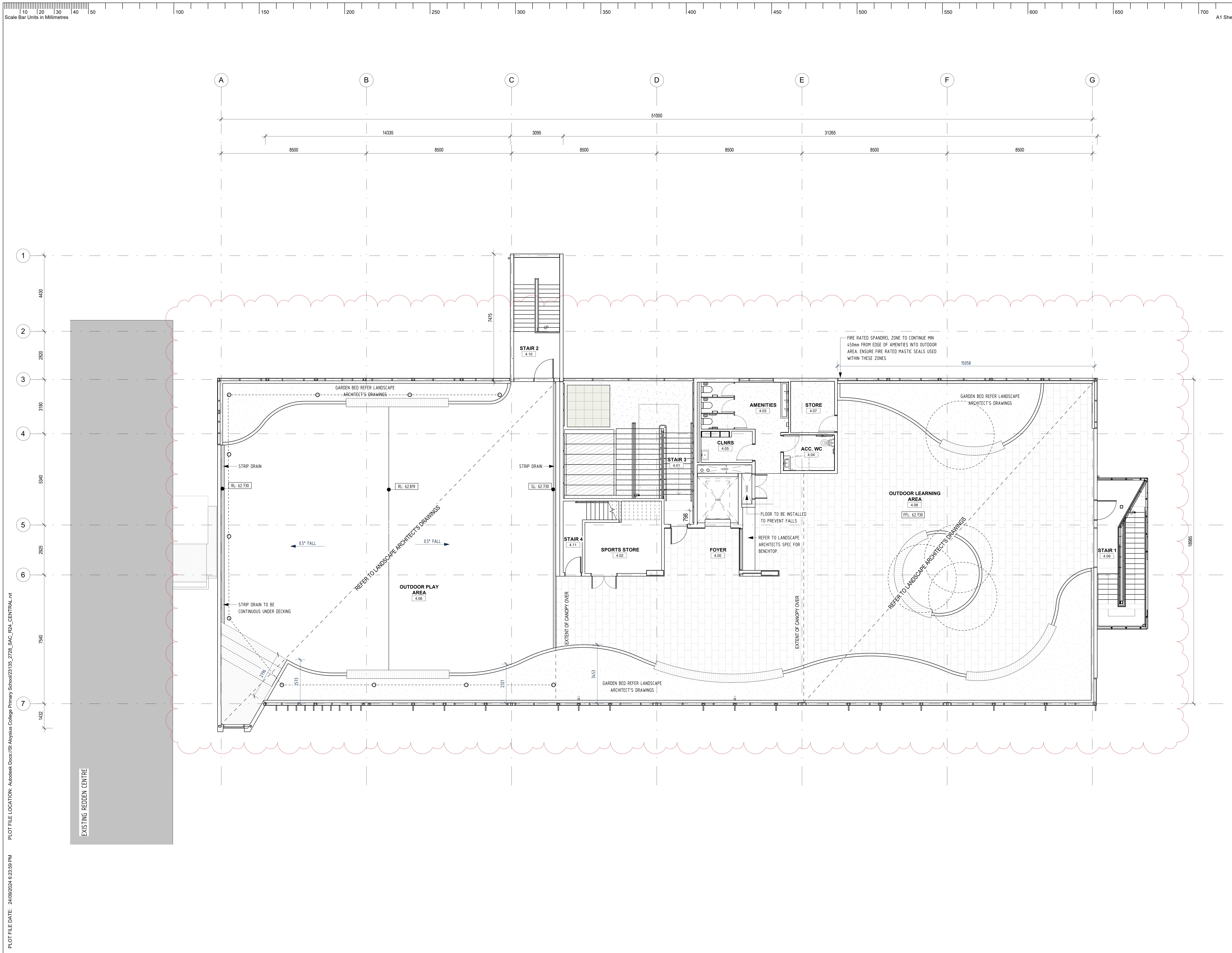
Drawing Title

L3 PLAN

PN

Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA24	3



Legend

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0	11.06.24	FOR COORDINATION	AR	AK

Drawing Status

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

ROOFTOP PLAN

PN

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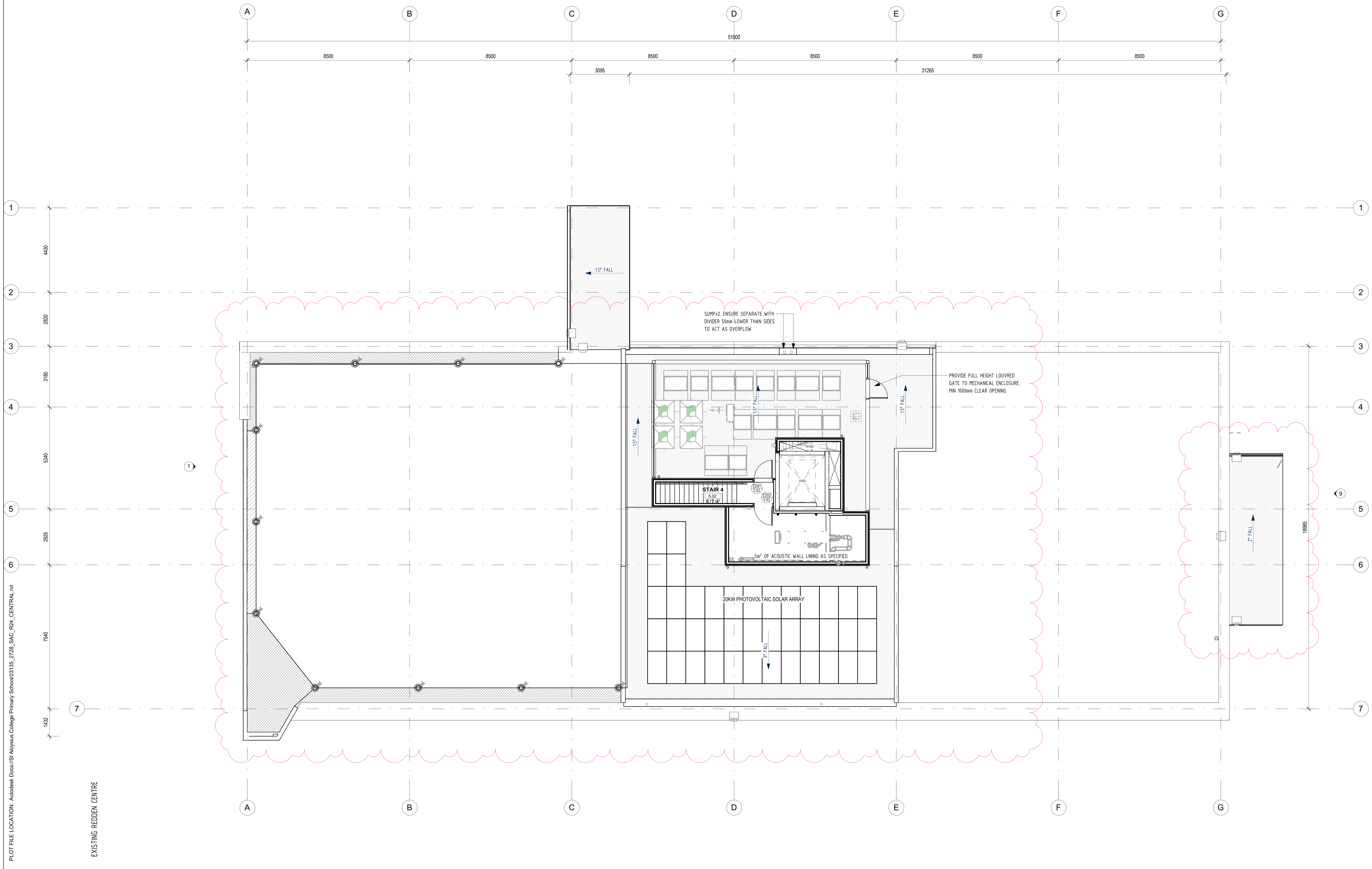
Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA25	3



Scale Bar Units in Millimetres

A1 Sheet

Legend

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2	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK
1	24.07.24	FOR COORDINATION	AR	AK
0	21.06.24	ISSUE FOR PLANNING CONSENT	AR	AK

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Project
ST ALOYSIUS COLLEGE PRIMARY SCHOOL
53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title
PLANT LEVEL PLAN

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Job No.	Drawing No.	Issue
23135_2728	DA26	2

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PLOT FILE DATE: 24/09/2024 6:24:11 PM

Scale Bar Units in Millimetres

A1 Sheet

PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_CENTRAL.rvt

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Legend

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0	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK

Drawing Status

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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

PLANT ROOF PLAN

RN

Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA27	0

Scale Bar Units in Millimetres

A1 Sheet

E1 SOUTH ELEVATION DA

1 : 100

E2 NORTH ELEVATION DA

1 : 100

FB-01 & FB-05
FACE BRICKWORK CLADDING

CFS-01
FIBRE CEMENT WALL CLADDING

PC1
PRECAST CONCRETE

PC2 & PC03
PRECAST CONCRETE

CFS-04
FIBRE CEMENT WALL CLADDING

FIN-01
VERTICAL ALUMINIUM FINS

MF-02
METAL FLASHING

CFS-03
PERFORATED METAL

CFS-02A
HORIZONTAL ALUMINIUM FINS

FN-03
STAINLESS STEEL MESH

CFS-02B
ALUMINIUM CLADDING

ES-01
EXTERNAL SIGNAGE

GLAZING
CLEAR GLASS UNLESS OTHERWISE NOTED

Legend

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Project
ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title
ELEVATIONS

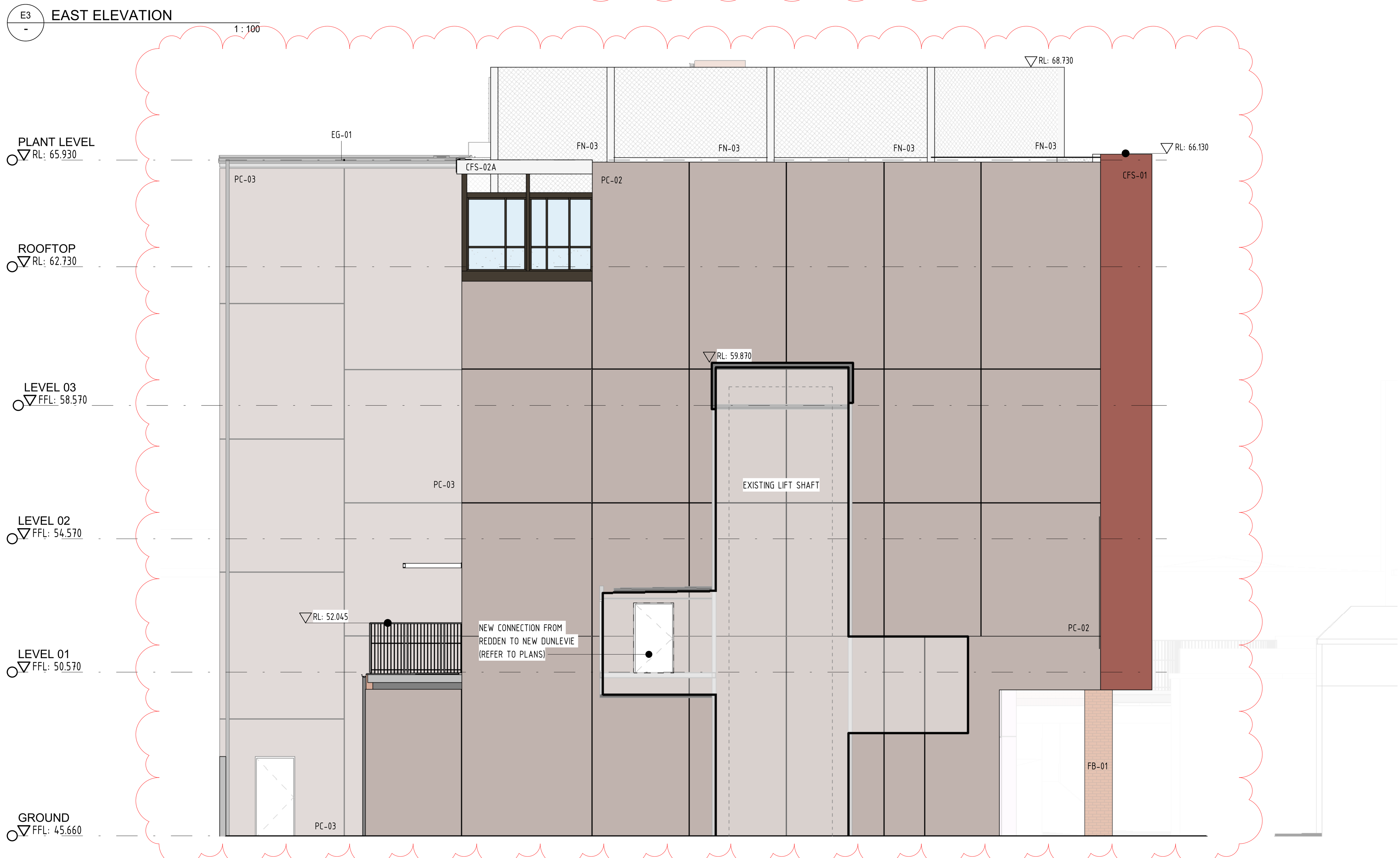
Scale (at A1) 1 : 100

Job No.	Drawing No.	Issue
23135_2728	DA31	3

Scale Bar Units in Millimetres

A1 Sheet

E3 EAST ELEVATION 1 : 100



E4 WEST ELEVATION 1 : 100

FB-01 & FB-05
FACE BRICKWORK CLADDING

CFS-01
FIBRE CEMENT WALL CLADDING

PC1
PRECAST CONCRETE

PC2 & PC03
PRECAST CONCRETE

CFS-04
FIBRE CEMENT WALL CLADDING

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CFS-02A
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ES-01
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Drawing Status
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ST ALOYSIUS COLLEGE PRIMARY SCHOOL

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Drawing Title
ELEVATIONS

Scale (at A1)	Job No.	Drawing No.	Issue
1 : 100	23135_2728	DA32	3

PLOT FILE DATE: 24/09/2024 6:24:51 PM
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Scale Bar Units in Millimetres

10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700

A1 Sheet

ARTIST IMPRESSIONS

VIEW FROM ANGAS ST

VIEW FROM REDDEN LANEWAY LOOKING NORTH

VIEW FROM COURTYARD LOOKING WEST

VIEW OF ENTRY

LOOKING WEST FROM UNDER NEW CLOISTER

VIEW FROM PLAYGROUND

VIEW FROM CONVENT

VIEW FROM POOL

VIEW FROM NORTHERN COURTYARD

PLOT FILE DATE: 25/09/2024 9:24:12 AM

PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

Legend

Rev.	Date	Description	Ver.	Appr.
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Project

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

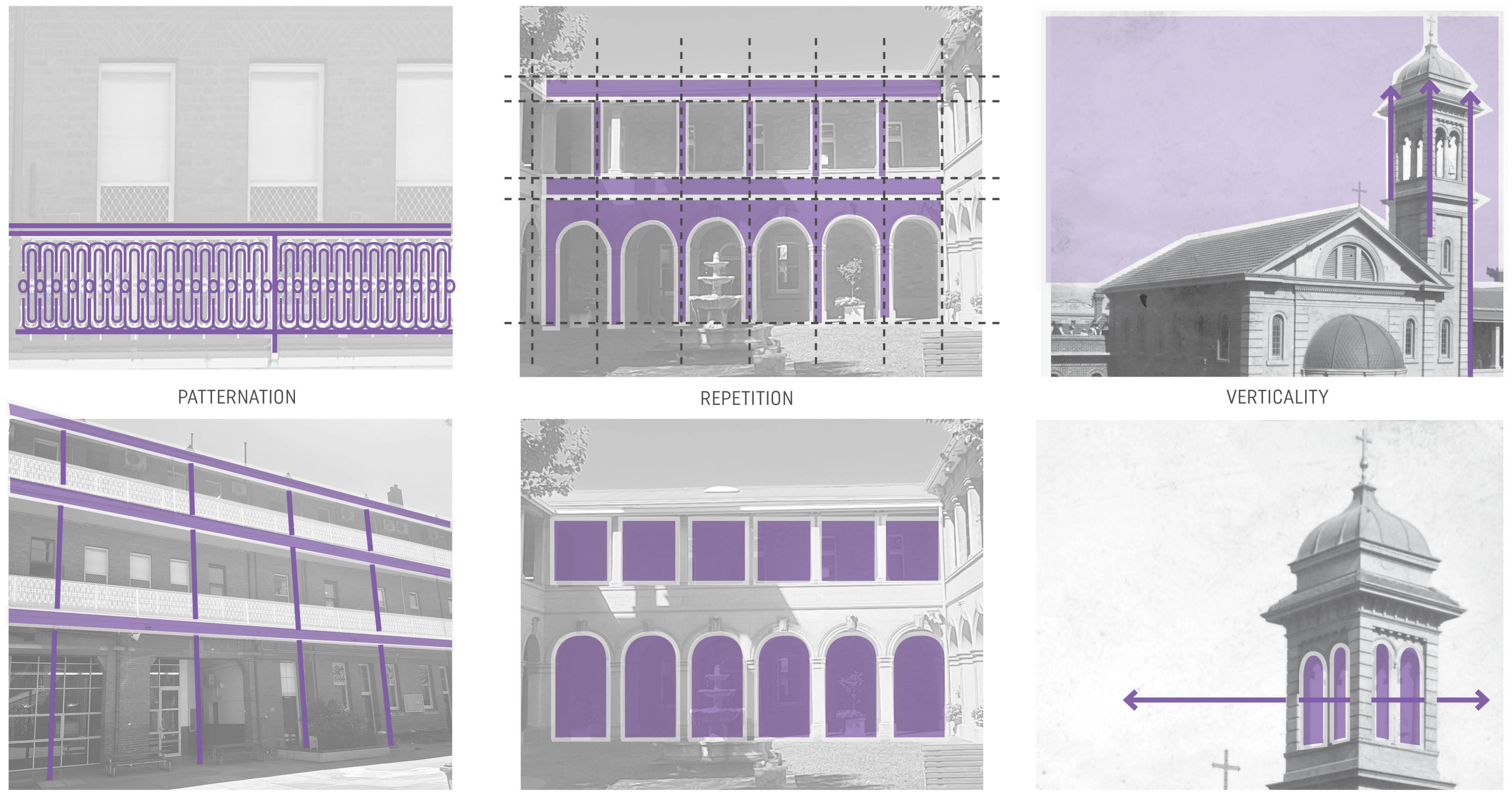
RENDERS

Scale (at A1)

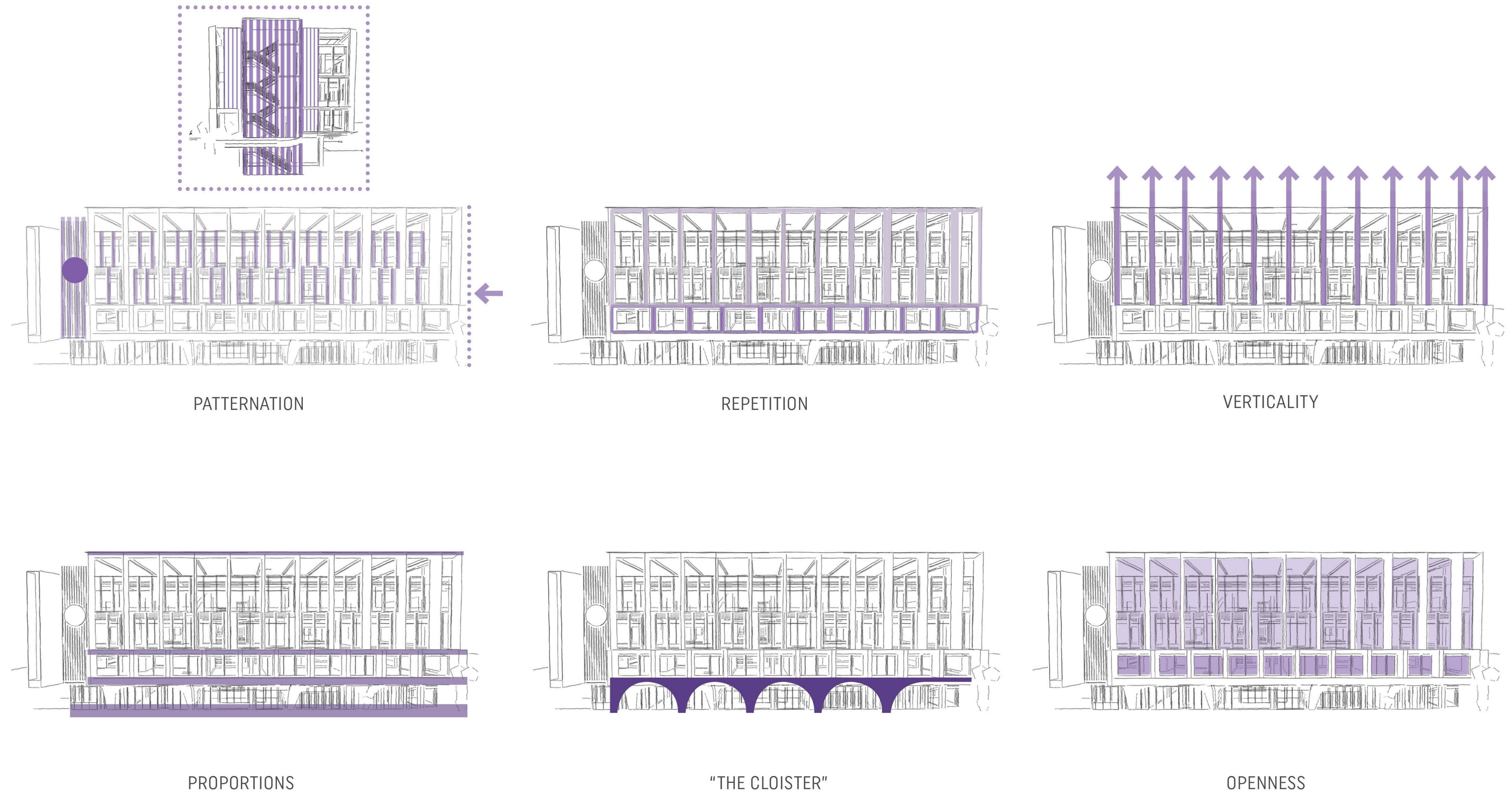
Job No.	Drawing No.	Issue
23135_2728	DA51	3

Scale Bar Units in Millimetres

A1 Sheet



DUNLEVIE BUILDING | **CONVENT** | **CUNNINGHAM MEMORIAL CHAPEL**

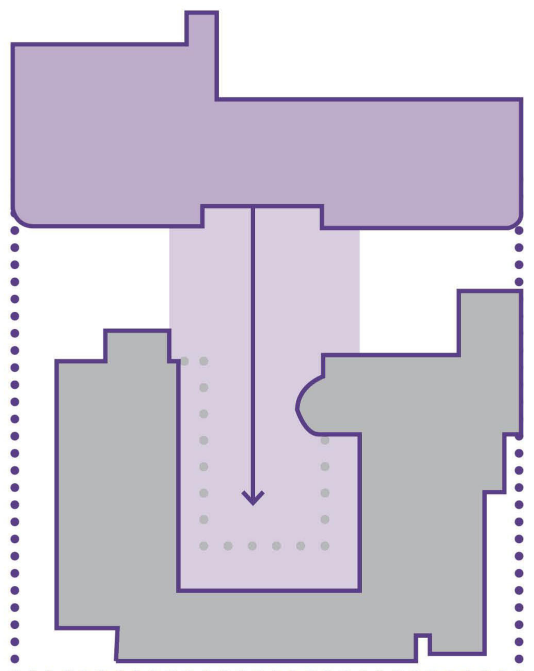


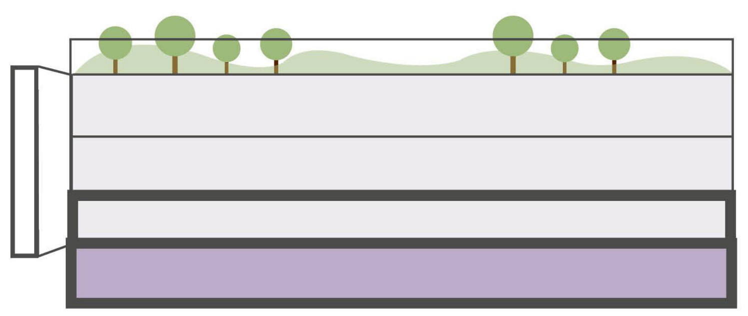
HERITAGE CONTEXT

FORM, GEOMETRY & PATTERNATION

HERITAGE CONTEXT

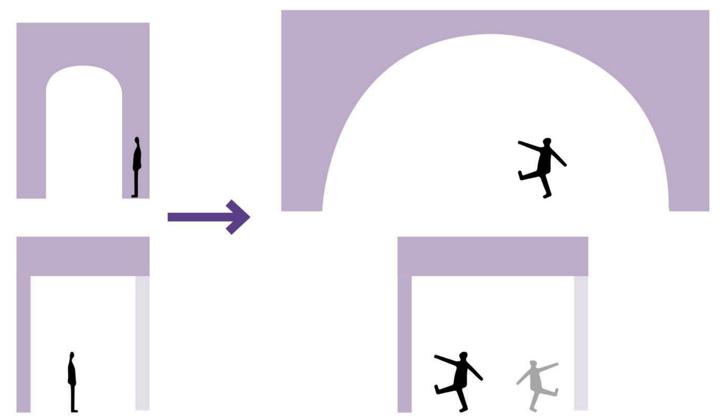
CONTEMPORARY DESIGN RESPONSE





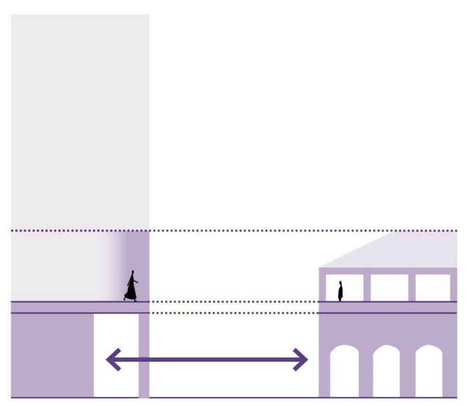
SKY GARDEN

An opportunity for greater outdoor space for students within the tight site



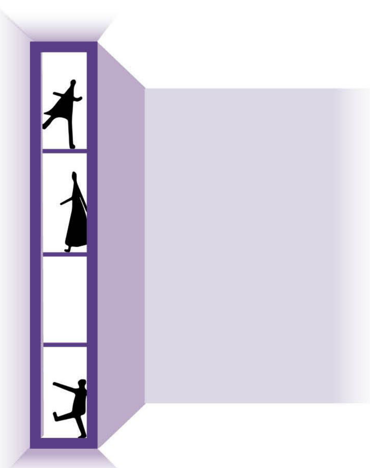
HISTORICAL INTERPRETATION

Creating a contemporary cloister through interpretation of form to create cover without reducing circulation space



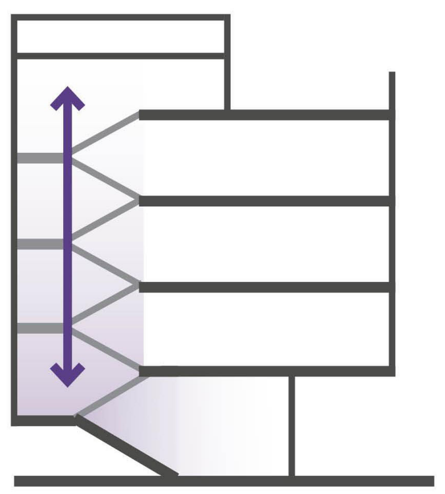
CONNECT TO CONVENT

Embracing the ceremonial heart of the school



EDUCATIONAL WINDOW

Connecting levels together to enhance learning opportunities



VERTICAL CONNECTIONS

Connecting levels together to enhance learning opportunities

NEW BUILDING

DESIGN STRATEGIES

PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt

PLOT FILE DATE: 24/09/2024 6:42:59 PM

Legend

Rev.	Date	Description	Ver.	Appr.
0	21.06.24	ISSUE FOR PLANNING CONSENT		

Drawing Status

PRELIMINARY

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Services

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Project

ST ALOYSIUS
COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

DESIGN DIAGRAMS

Scale (at A1)

Job No.	Drawing No.	Issue
23135_2728	DA52	0

Scale Bar Units in Millimetres 10 20 30 40 50 100 150 200 250 300 350 400 450 500 550 600 650 700 A1 Sheet

Legend

Rev.	Date	Description	Ver.	Appr.
0	21.06.24	ISSUE FOR PLANNING CONSENT		

Drawing Status

PRELIMINARY

Project Manager

RCP Leadership in Project Management

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MASTERPLAN TOWN + COUNTRY PLANNERS

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Services

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Landscape

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Project

ST ALOYSIUS
COLLEGE PRIMARY SCHOOL

53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title

EXTERNAL MATERIALS

Scale (at A1)

Job No.	Drawing No.	Issue
23135_2728	DA53	0

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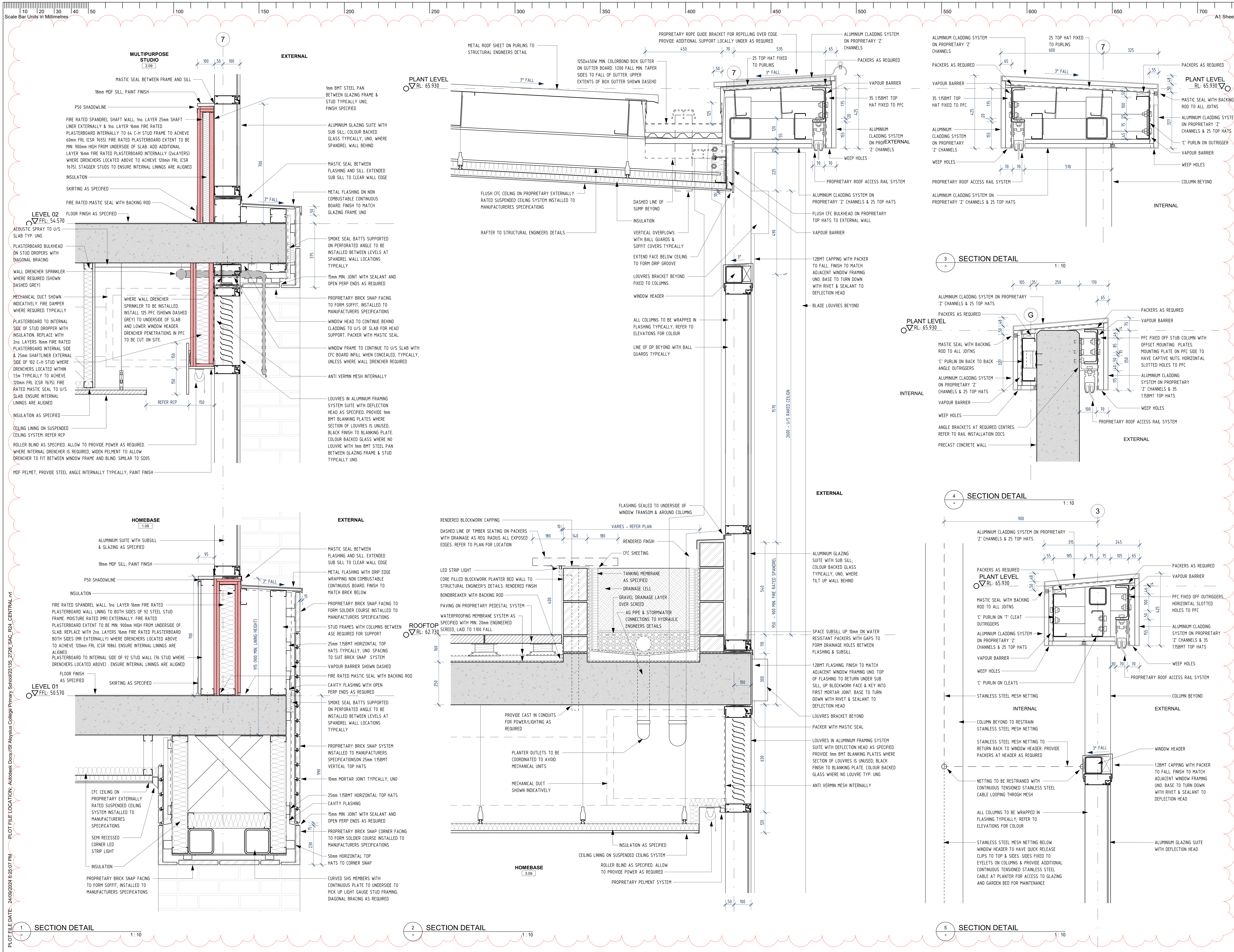
PLOT FILE LOCATION: Autodesk Docs://St Aloysius College Primary School/23135_2728_SAC_R24_SITE.rvt



Legend

GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND ALL OTHER INFORMATION PROVIDED BY THE ARCHITECT.
2. ARCHITECTURAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH CONSULTANTS DOCUMENTS. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
3. DO NOT SCALE OFF DRAWINGS.
4. SITE AND BUILDING SETOUT TO BE TAKEN FROM KNOWN AND APPROVED ALLOTMENT BOUNDARIES AND NOT EXISTING FENCE LINES.
5. ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF WORK ON SITE.
6. ALL WORK TO COMPLY WITH RELEVANT AUTHORITY REQUIREMENTS AND S.A.A. CODES FOR THAT TRADE.
7. ALL MATERIALS AND PRODUCTS SELECTED AND SPECIFIED ARE TO BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND RELEVANT STANDARD.

Rev.	Date	Description	Ver.	Appr.
0	25.09.24	ISSUE FOR PLANNING CLARIFICATION	AR	AK

Drawing Status

PRELIMINARY

Project Manager
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Project
ST ALOYSIUS COLLEGE PRIMARY SCHOOL
53 WAKEFIELD ST, ADELAIDE SA 5000

Drawing Title
EXTERNAL SECTION DETAILS

Scale (at A1) As indicated

Job No.	Drawing No.	Issue
23135_2728	DA61	0

Attachment B

Landscape Works Plan

MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977

A2407_ ST ALOYSIUS COLLEGE
LANDSCAPE WORKS

ISSUED: 11/09/24

REV: P3

GENERAL NOTES

NOTES:

THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE LANDSCAPE TECHNICAL SPECIFICATION AND THE FINISHES AND FURNITURE SCHEDULED PROVIDED AS PART OF THIS DRAWING SET.

THE CONTRACTOR AND SUB-CONTRACTORS SHALL VERIFY ALL DIMENSIONS, LINES, LEVELS, AND EXISTING SERVICE LOCATIONS PRIOR TO COMMENCEMENT ON SITE, PREPARATION OF DETAIL/SHOP DRAWINGS, AND FABRICATION OF CONSTRUCTION/BUILDING COMPONENTS.

CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS PRIOR TO FABRICATION AND INSTALLATION. IF ANY ANOMALIES ARISE THE CONTRACTOR IS TO ADVISE THE ENGINEER IMMEDIATELY.
ALL DIMENSIONS ARE IN MM. DO NOT SCALE OFF DRAWINGS.

CONTRACTOR IS TO PROVIDE SHOP DRAWINGS (CAD DRAFTED TO SCALE WITH ADEQUATE NOTES AND DIMENSIONS FOR REVIEW AND FABRICATION) TO THE ENGINEER. FIXING COMPONENTS AND DETAIL TO BE CONFIRMED THROUGH THE SHOP DRAWING PROCESS.

ALL WELDS TO BE 4MM CFW ELECTRODE TO AS/NZ 1554, PART 1 AND 2 AS APPROPRIATE. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS/NZ 4100 STEEL STRUCTURES.
SHOP WELD WITH CFW ALL JOINS. ALL BUTT WELDS SHALL BE FULL PENETRATION. UNLESS SPECIFIED OTHERWISE ALL FABRICATION TOLERANCES SHALL BE WITHIN +/- 1.0MM AND ALL.

ANGULAR TOLERANCES SHALL BE +/- 1.0MM.
GRIND SMOOTH ALL EDGES TO MAKE NEAT JOINS. REMOVE GLOBULES OF WELD METAL, WELD SLAG AND ALL FOREIGN MATTER.

FINISH VISIBLE JOINTS MADE BY WELDING USING METHODS, APPROPRIATE TO THE CLASS OF WORK, INCLUDING GRINDING OR BUFFING BEFORE FURTHER TREATMENT.

CONTRACTOR SHALL SUPPLY AND INSTALL ALL STAINLESS STEEL SCREWS, BOLTS, NUTS , WASHERS, HINGES, LOCKS, RIVETS AND FIXINGS.

WHERE FIXING TYPES OR STRUCTURAL SPACINGS HAVE NOT BEEN NOMINATED, CONTRACTOR TO ENSURE THAT ENGINEER HAS APPROVED ANY SIZINGS AND SPACINGS INSTALLED.

ALL HARDWOOD TIMBER TO BE SUPPLIED AND INSTALLED AS DURABLE CLASS 1 UNLESS OTHERWISE STATED IN THE TECHNICAL SPECIFICATION.

ALL PRECAST CONCRETE SURFACES TO BE 'CLASS 1' FINISH. REFER TO ENGINEER'S DRAWINGS FOR CONCRETE STRENGTH AND REINFORCING.

PRECAST CONCRETE UNITS WILL REQUIRE STEEL REINFORCEMENT - DESIGN TO BE PROVIDED BY THE FABRICATOR FOR THE ENGINEER'S APPROVAL. CONTRACTOR TO ALLOW FOR DH10 REINFORCEMENT AT 150C/C ON EACH FACE.

DRAWING LIST

DRAWING	Drawing Title	Rev
L001-L099 General Information		
L001	TITLE PAGE	P3
L002	SCHEDULES	P3
L100-L199 Overall Plan		
L100	OVERALL PLAN	P3
L200-L299 Setout		
L200	SETOUT PLAN - GROUND FLOOR	P3
L201	SETOUT PLAN - GF & LEVEL 1	P3
L202	SETOUT PLAN - ROOF GARDEN	P3
L300-L399 Surfaces		
L300	SURFACES PLAN - GROUND FLOOR	P3
L301	SURFACES PLAN - GF & LEVEL 1	P3
L302	SURFACES PLAN - ROOF GARDEN	P3
L400-L499 Grading		
L400	GRADING PLAN - GROUND FLOOR	P3
L401	GRADING PLAN - GF & LEVEL 1	P3
L402	GRADING PLAN - ROOF GARDEN	P3
L500-L599 Planting		
L500	PLANTING PLAN - GROUND FLOOR	P3
L501	PLANTING PLAN - GF & LEVEL 1	P3
L502	PLANTING PLAN - ROOF GARDEN	P3
L600-L699 Sections		
L600	SECTIONS - GROUND FLOOR	P3
L601	SECTIONS - ROOF GARDEN	P3
L700-L799 Details		
L700	HARDSCAPE DETAILS	P3
L710	SOFTSCAPE DETAILS	P3
L720	FURNITURE & FIXTURES DETAILS 01	P3
L721	FURNITURE & FIXTURES DETAILS 02	P3
L722	FURNITURE & FIXTURES DETAILS 03	P3

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE
Sheet: SHEET 1 OF 1
Purpose: TITLE PAGE
Date: 05.06.24
Scale: N/A
Drawing No. L001
Rev. P3

LANDSCAPE DETAIL TYPE SCHEDULE

This schedule to be read in conjuction with the Landscape Drawings & Specification.
Contractor to advise any discrepancies between information provided in this Schedule with Referenced details, prior to ordering of materials.

Detail Type	Description	Location	Detail Reference No.	Finish	Size	Supplier/ Type	Submissions
PV01	Concrete Pavement Type 1	Ground floor	01/L700	Blasted, Exposed Aggregate Colour Country Tan Moonscape, Clear Sealant	Refer to drawings	Hanson or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
PV02	Concrete Pavement Type 2	Ground floor	01/L700	Blasted, Exposed Aggregate Colour Flinders, Clear Sealant	Refer to drawings	Hanson or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
PV03	Concrete Pavers on Pedestal	Ground floor, Level 1, Roof	02,03/L700	Blasted Color Remi	600 x 300 x 50 THK	Aston or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
PV04	Acrylic Play Surface	Roof Level	04/L700	Plexicushion Prestige. Colour Light Blue. Line marking White.	Refer to drawings	Plexipave or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
PV05	Granite Pavers	Ground floor	05/L700	Raven. Exfoliated	400 x 100 x 15 THK	Eco Outdoors or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
PV06	Brick Paving	Ground floor	06/L700	Match existing	Match existing	Match existing	Sample, Test Panel, Testing Data for Approval by Landscape Architect
FX01	Strip Drain Grate	Ground floor, Roof	01-04/L720	Stainless Steel Wedgewire Heelsafe	Straight & curved. Refer to drawings.	ACO or Approved equivalent	Sample, Prototype, Testing Data for Approval by Landscape Architect
FX02	Raised Steel Planters	Ground floor	05/L720	Redcor rusted steel	1165(D) x 850(H)	Formboss or Approved Equivalent	Sample, Prototype for Approval by Landscape Architect
FX03	Timber Deck	Roof Level	L721	Spotted Gum Battens coated with Intergrain Ultradeck.	Refer to drawings	N/A	Shop drawings, Prototype, Testing Data for Approval by Landscape Architect
FN01A	Concrete Bench, Straight, Timber Top, Backrest, Left Armrest	Ground floor	Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame and armrest. Monument colour. Concrete, Grey oxide, White quartz aggregate, medium blast	860 x 400 x 430(H)	Draffin, Wandin range or Approved Equivalent	Sample, Prototype, Testing Data for Approval by Landscape Architect
FN01B	Concrete Bench, Straight, Timber Top, Backrest, Right Armrest	Ground floor	Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame and armrest. Monument colour. Concrete, Grey oxide, White quartz aggregate, medium blast	860 x 400 x 430(H)	Draffin, Wandin range or Approved Equivalent	Sample, Prototype, Testing Data for Approval by Landscape Architect
FN01C	Concrete Bench, Straight, Timber Top, Backrest	Ground floor	Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame and armrest. Monument colour, Concrete, Grey oxide, White quartz aggregate, medium blast	860 x 400 x 430(H)	Draffin, Wandin range or Approved Equivalent	Sample, Prototype, Testing Data for Approval by Landscape Architect
FN01D	Concrete Bench, Curved, Concrete Top	Ground floor	Proprietary	Concrete, Grey oxide, White quartz aggregate, medium blast	863 x 400 x 430(H) 728 (R)	Draffin, Wandin range or Approved Equivalent	Sample, Prototype, Testing Data for Approval by Landscape Architect
FN02A	Timber Bench with Steel Frame, Subsurface mounted	Ground floor	Customised Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame, Monument colour, Subsurface mounted	405(W) x 430(H) Refer drawings for length	Draffin, Wandin range or Approved Equivalent	Shop drawings, Sample, Prototype, Testing Data for Approval by...
FN02B	Timber Bench with Steel Frame, Wall mounted	Ground floor	Customised Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame, Monument colour, Wall mounted	405(W) x 430(H) Refer drawings for length	Draffin, Wandin range or Approved Equivalent	Shop drawings, Sample, Prototype, Testing Data for Approval by...
FN03	Timber Table with Steel Frame, Subsurface Mounted	Ground floor	Customised Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame, Monument colour, Subsurface mounted	2030 x 405 x 750(H)	Draffin, Wandin range or Approved Equivalent	Shop drawings, Sample, Prototype, Testing Data for Approval by Landscape Architect
FN04	Timber Amphitheater, Subsurface Mounted	Ground floor	L722	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame, Monument colour, Subsurface mounted	Refer to drawings	Draffin, Fawkner range or Approved Equivalent	Shop drawings, Sample, Prototype, Testing Data for Approval by Landscape Architect
FN05	Kitchen Bench	Roof Level	Proprietary	Stainless Steel	2000 x 700 x 900(H)	Stoddart or Approved equivalent	Shop drawings for Approval by Landscape Architect
FN06	Palissade Cone Table	Roof Level	Proprietary	3no. Iron red powdercoated steel 2no. Olive powdercoated steel	Ø700 x 740(H)	Cult Design	N/A
FN07	Hee Dining Chair	Roof Level	Proprietary	6no. Rust powdercoated steel 6no. Fall green powdercoated steel 8no. Asphalt grey powdercoated steel	475 x 500 x 790(H)	Cult Design	N/A
FN08	Timber Bench atop Blockwork Wall	Roof Level	Proprietary	Spotted Gum Battens coated with Intergrain Ultradeck. Steel frame. Monument colour	500(W) . Refer to drawing for length and radii	Draffin, Fawkner range or Approved Equivalent	Shop drawings, Sample, Prototype, Testing Data for Approval by...
FN09	Mud Kitchen	Ground floor	Proprietary	Charcoal colour WPC timber and steel frame	1200 x 550 x 600(H)	Preschool Equipment or Approved Equivalent	N/A
FN10	Vegepod	Level 1	Proprietary	Black planter in black steel frame	1000 x 1000 x 1500(H) 950(H) backboard	Vegepod or Approved Equivalent	N/A
GB01	Garden Bed In Ground Organic Mulch	Ground floor	02/L710	Forest Mulch	600mm topsoil A for trees. 300mm topsoil A for the rest	Jeffries or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
GB02	Raised Garden Bed Organic Mulch	Roof Level	03/L710	Forest Mulch	min 800mm topsoil B for trees. min 400mm topsoil B for the rest	Jeffries or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
LAWN	Instant Turf	Ground floor	01/L710	N/A	150mm min. topsoil C	Lawn Solutions or Approved Equivalent	Sample, Test Panel, Testing Data for Approval by Landscape Architect
ED01	Blockwork Wall	Roof Level	07/L700	Rendered. Refer Architect's documentation	Refer to drawings	N/A	Sample, Test Panel, Testing Data for Approval by Landscape Architect

Contractor to submit samples of all materials for review by Landscape Architect prior to use in the works. - If alternatives are proposed, submit proposed alternatives and include samples, available technical information, shop drawings, images, reasons for proposed substitutions and cost as appropriate to sufficiently communicate validity of alternative item. If necessary, provide an English translation. State if provision of proposed alternatives will necessitate alteration to other parts of the works and advise consequent costs. Approval may be given for any substitution but it is the prerogative of the Principal to accept an alternative item or not.

Contractor to submit Shop drawings for the elements as documentation in the Landscape detail drawings. - Requirements: submit Shop Drawings for approval 14 days prior to commencing fabrication, to a scale not smaller than 1:25 for review by the Landscape Architect and Engineer.

Contractor shall engage specialist rooftop and green wall specialist for the supply and install of all other above structure planters, plant types, soil and irrigation. Soil shall be approved by Specialist Contractor, light weight with appropriate organic matter for long term organics needs for long term health of plants.

Contractor shall engage a specialist for irrigation design and construction. Contractor to allow for irrigation to all planters as per surface plans, including control wires, solenoids, soil moisture monitor for each planter run, control panel, weather station. Design submission prior to construction, including proposed layout, materials, and all products to be submitted to Landscape Architect for approval for all levels. Water supply as per Engineers Drawings.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

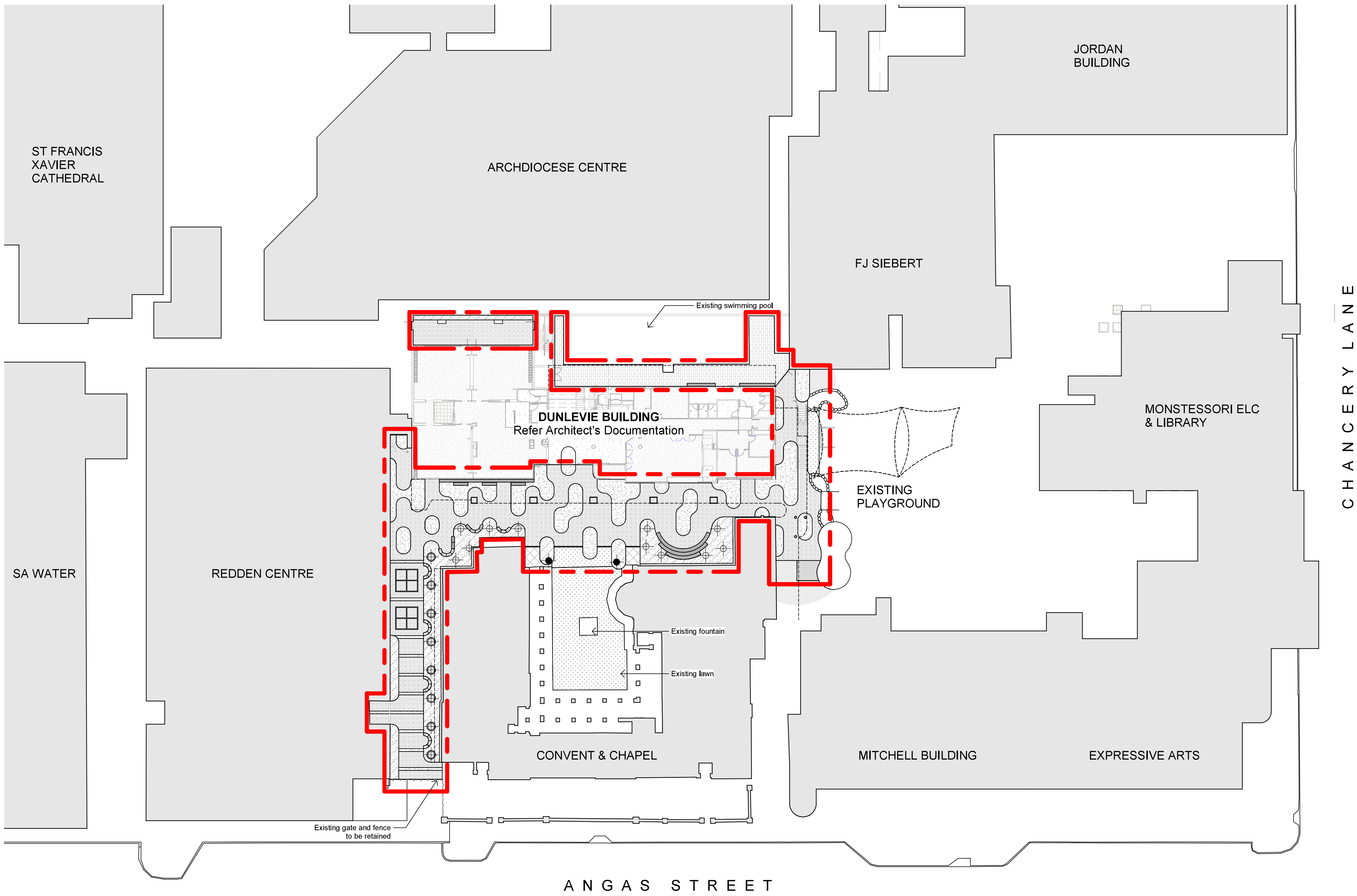
File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE
Date: 05.06.24
Sheet: SHEET 1 OF 1
Scale: N/A
Purpose: SCHEDULES
Drawing No. L002
Rev. P3



LEGEND

- Extent of Works
- Existing Fence
- Building Overhang
- Proposed Tree
- Existing Tree
- PV01 In-Situ Coloured Concrete Paving Exposed aggregate Refer Detail 01/L700
- PV02 In-Situ Coloured Concrete Paving Exposed aggregate Refer Detail 01/L700
- PV03 Pavers on Pedestal Refer Detail 02&03/L700
- PV05 Granite Pavers Refer Detail 05/L700
- PV06 Brick Paving Refer Detail 06/L700
- GB01 Garden Bed In Ground Refer detail 02/L710
- Lawn Refer detail 01/L710
- FN01A Concrete Bench with Left Armrest & Backrest Refer Specification & L002
- FN01B Concrete Bench with Right Armrest & Backrest Refer Specification & L002
- FN01C Concrete Bench with Backrest Refer Specification & L002
- FN01D Curved Concrete Bench Refer Specification & L002
- FN02A Timber Bench, subsurface mounted Refer Specification & L002
- FN02B Timber Table, wall mounted Refer Specification & L002
- FN03 Timber Table, subsurface mounted Refer Specification & L002
- FN04 Timber Amphitheater, subsurface mounted. Refer Specification & detail 01&02/L722
- FX01 Strip Drain Refer Detail 01-04/L720
- FX02 Raised Steel Planters Refer Detail 05/L720

Rev.	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

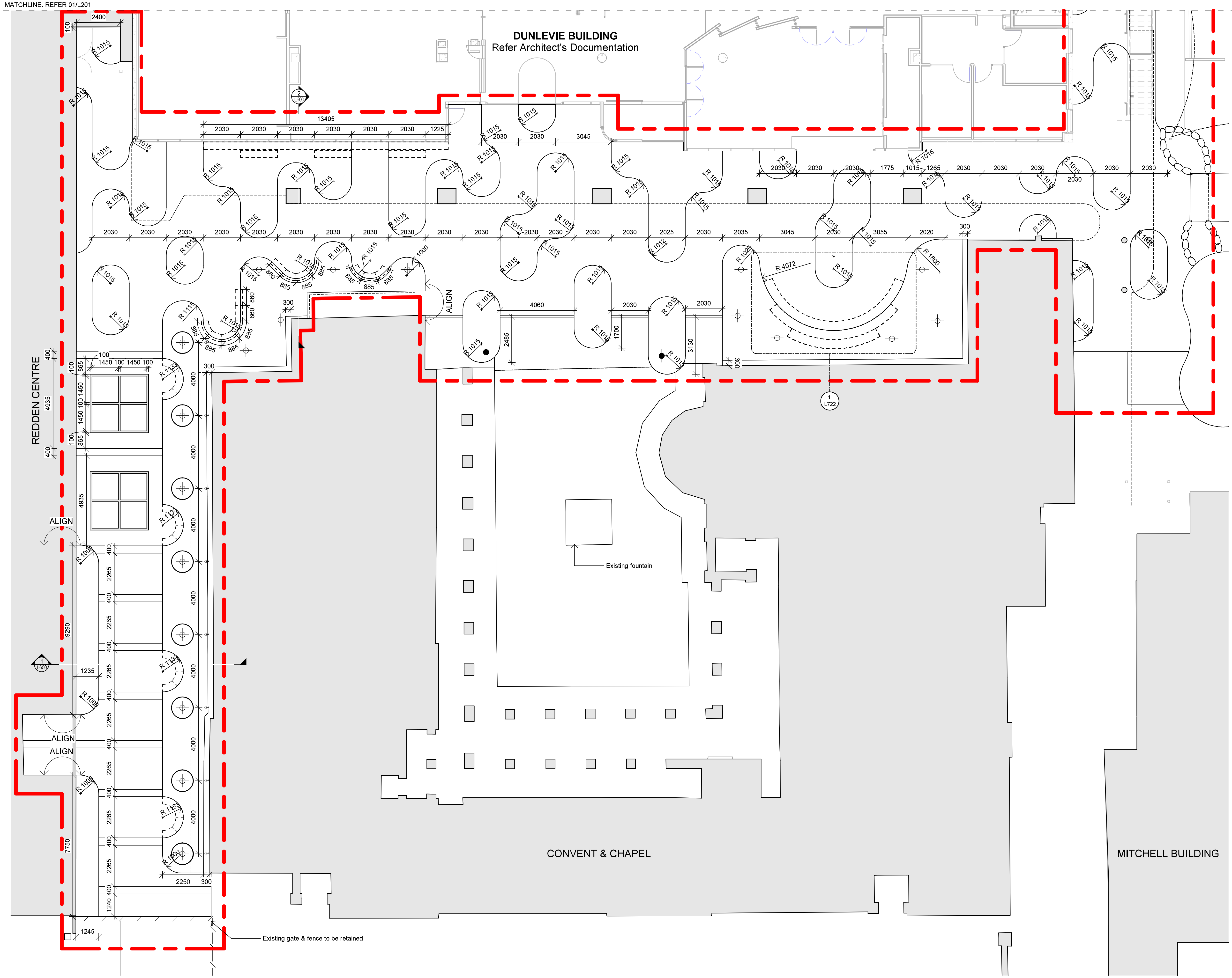
File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE
Date: 05.06.24
Sheet: SHEET 1 OF 1
Scale: As indicated@A1
Purpose: OVERALL PLAN
Drawing No.: L100
Rev.: P3



LEGEND

- Extent of Works
- Building Overhang
- Existing Fence
- Proposed Tree
- Existing Tree

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L

TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:

NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE

Date: 05.06.24

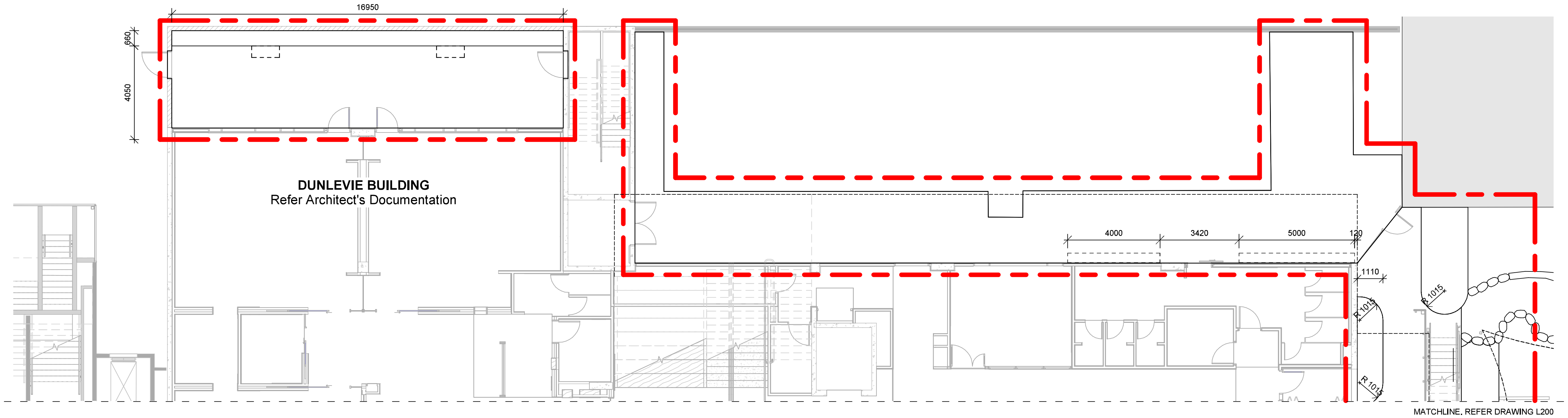
Sheet: SHEET 1 OF 3

Scale: 1 : 100@A1

Purpose: SETOUT PLAN - GROUND FLOOR

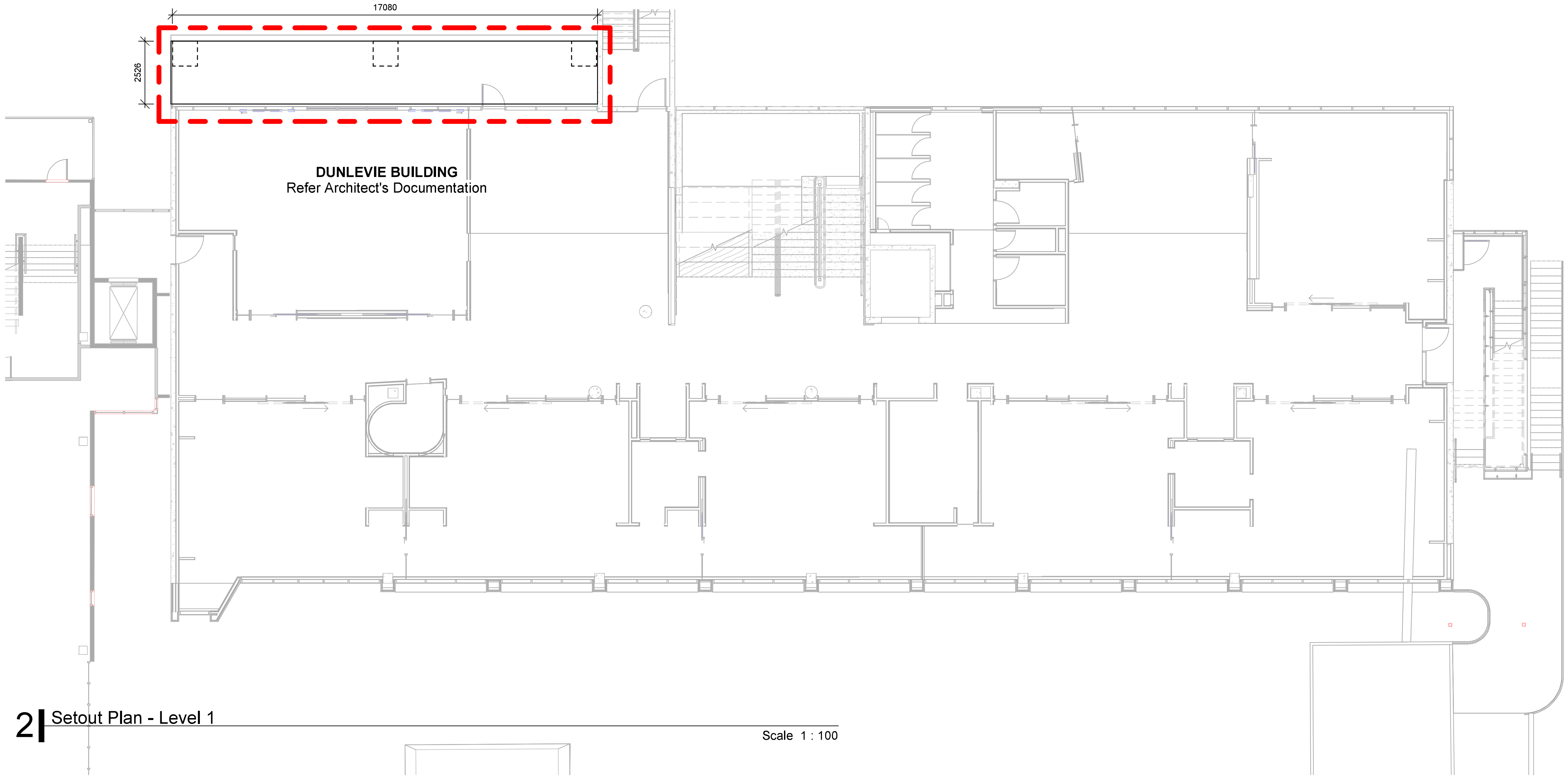
Drawing No. L200

Rev. P3



1 Setout Plan - Ground Floor Courtyard

Scale 1 : 100



2 Setout Plan - Level 1

Scale 1 : 100

LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- Existing Tree

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 2 OF 3

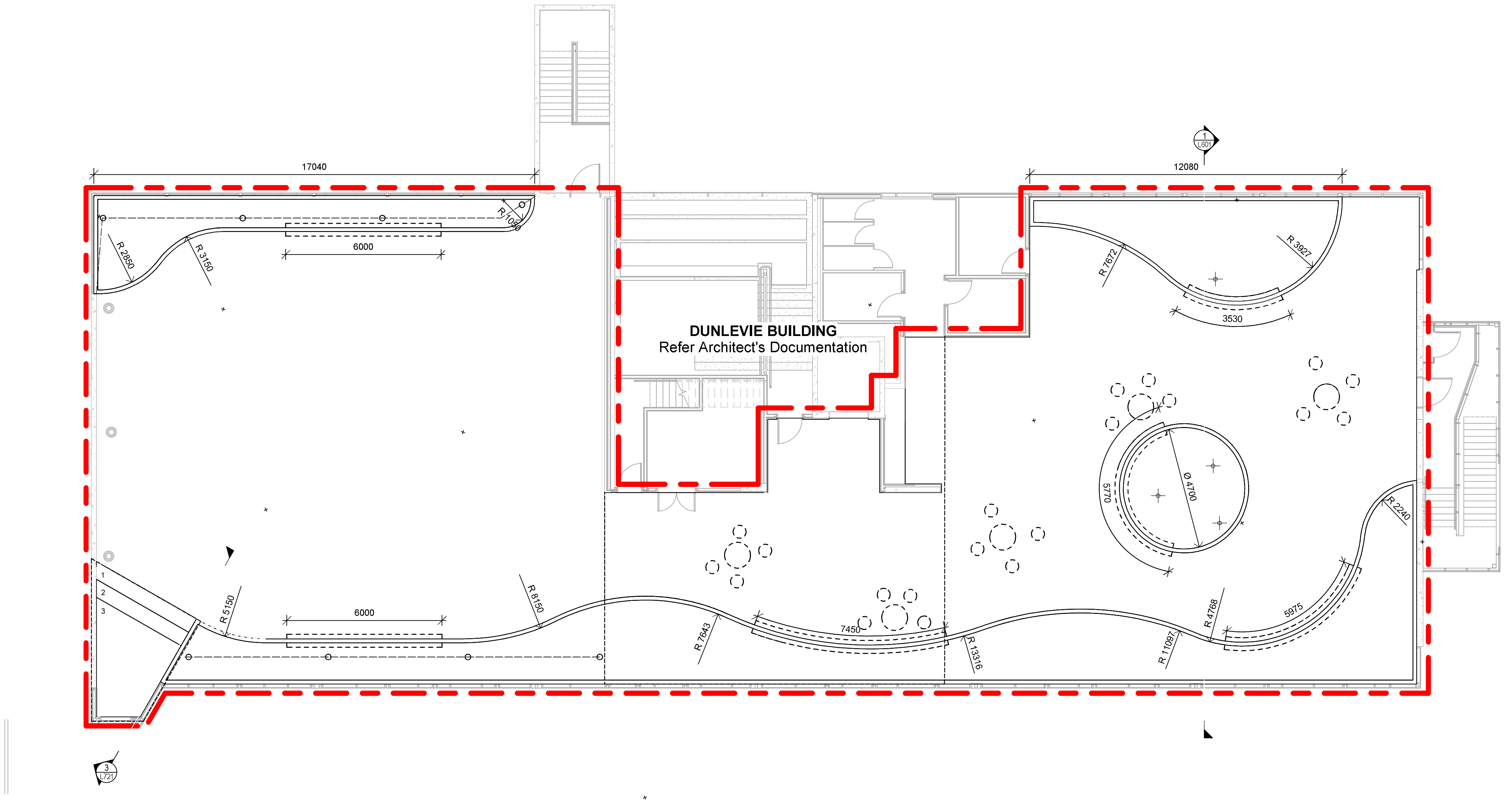
Purpose:
SETOUT PLAN - GF & LEVEL 1

Date:
05.06.24

Scale:
1 : 100@A1

Drawing No.
L201

Rev.
P3



LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- Existing Tree

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 3 OF 3

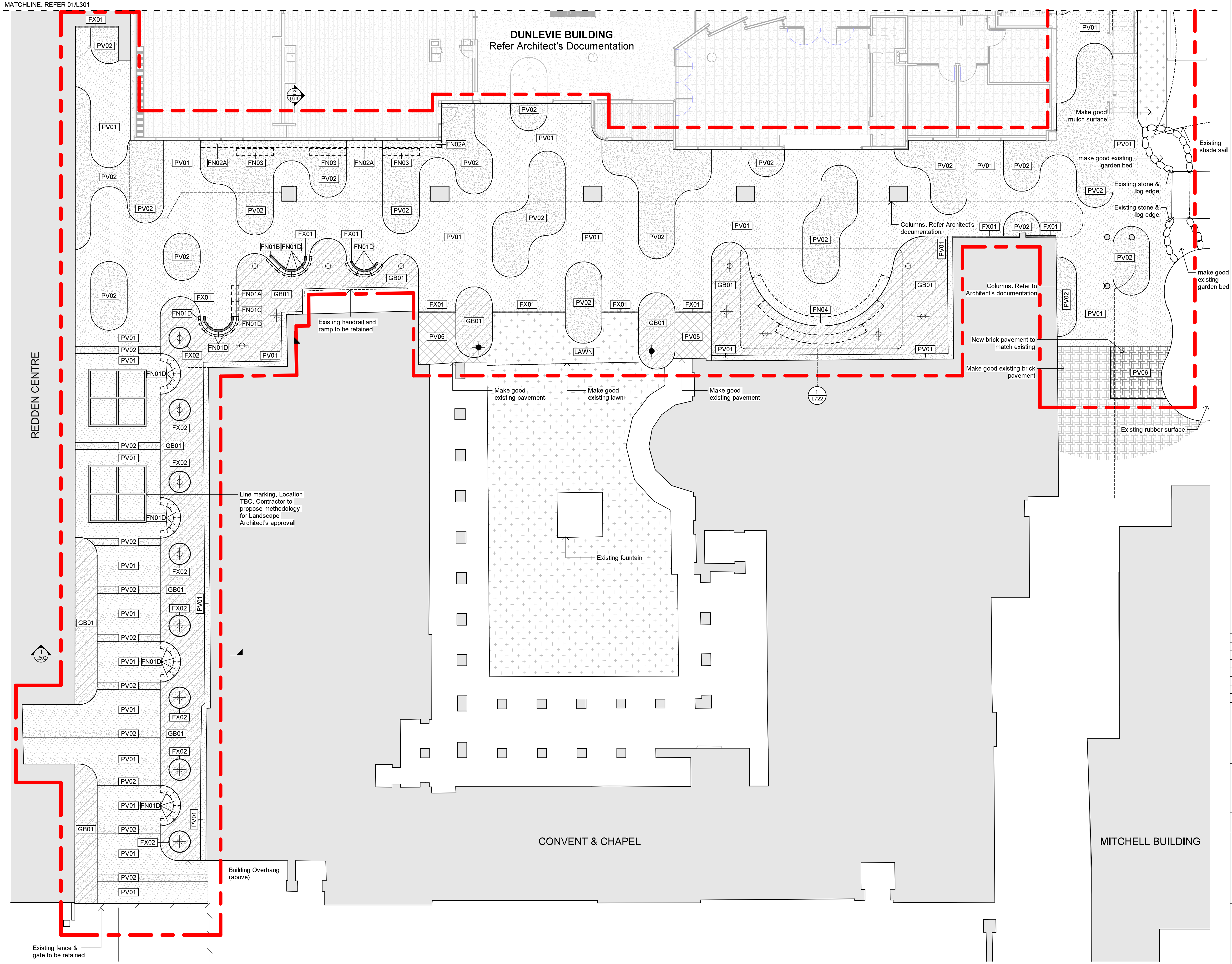
Purpose:
SETOUT PLAN - ROOF GARDEN

Date:
05.06.24

Scale:
1 : 100@A1

Drawing No.
L202

Rev.
P3



LEGEND

- Extent of Works
- Existing Fence
- Building Overhang
- Proposed Tree
- Existing Tree
- PV01 In-Situ Coloured Concrete Paving Exposed aggregate Refer Detail 01/L700
- PV02 In-Situ Coloured Concrete Paving Exposed aggregate Refer Detail 01/L700
- PV03 Pavers on Pedestal Refer Detail 02&03/L700
- PV05 Granite Pavers Refer Detail 05/L700
- PV06 Brick Paving Refer Detail 06/L700
- GB01 Garden Bed In Ground Refer detail 02/L710
- Lawn Refer detail 01/L710
- FN01A Concrete Bench with Left Armrest & Backrest Refer Specification & L002
- FN01B Concrete Bench with Right Armrest & Backrest Refer Specification & L002
- FN01C Concrete Bench with Backrest Refer Specification & L002
- FN01D Curved Concrete Bench Refer Specification & L002
- FN02A Timber Bench, subsurface mounted Refer Specification & L002
- FN02B Timber Table, wall mounted Refer Specification & L002
- FN03 Timber Table, subsurface mounted Refer Specification & L002
- FN04 Timber Amphitheater, subsurface mounted. Refer Specification & detail 01&02/L722
- FX01 Strip Drain Refer Detail 01-04/L720
- FX02 Raised Steel Planters Refer Detail 05/L720

Rev.	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

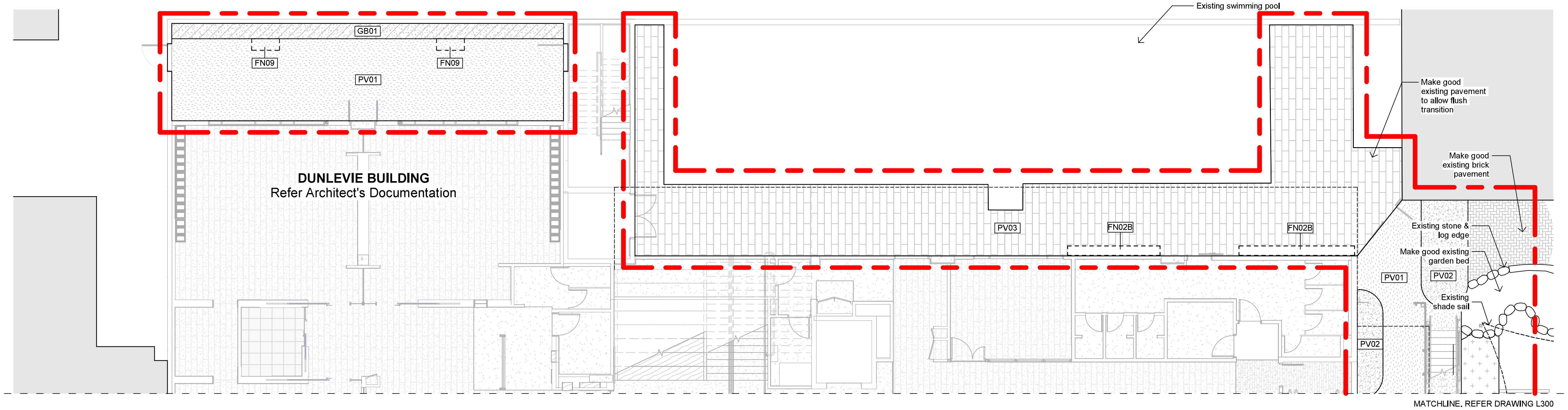
T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

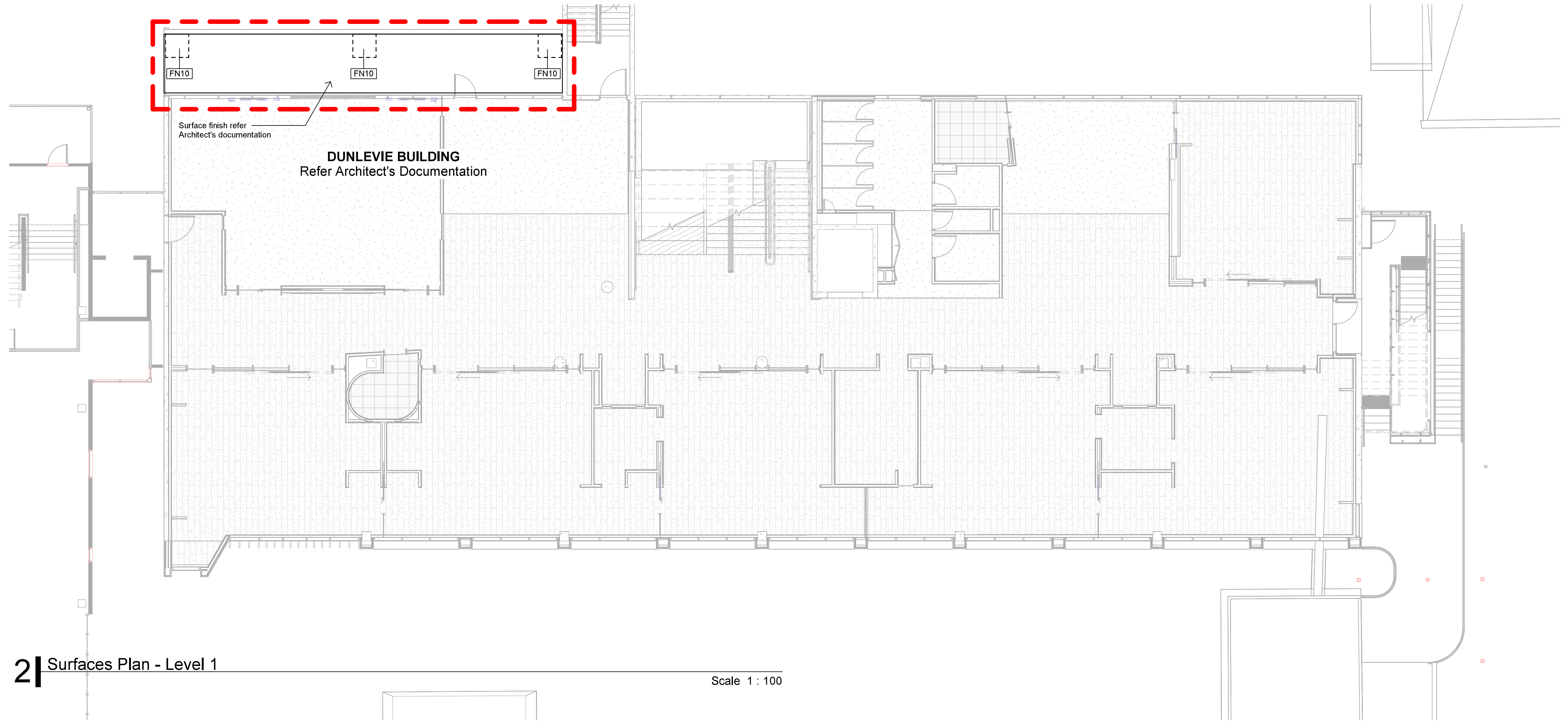
Drawing:
LANDSCAPE ARCHITECTURE
Sheet:
SHEET 1 OF 3
Purpose:
SURFACES PLAN - GROUND FLOOR

Date: 05.06.24
Scale: 1 : 100@A1
Drawing No. L300
Rev. P3



1 Surfaces Plan - Ground Floor Courtyard

Scale 1 : 100



2 Surfaces Plan - Level 1

Scale 1 : 100

LEGEND

- Extent of Works
- Building Overhang
- PV01 In-Situ Coloured Concrete Paving, Exposed aggregate, Refer Detail 01/L700
- PV02 In-Situ Coloured Concrete Paving, Exposed aggregate, Refer Detail 01/L700
- PV03 Pavers on Pedestal, Refer Detail 02&03/L700
- GB01 Garden Bed In Ground, Refer detail 02/L710
- FN09 Mud Kitchen, Refer specification & L002
- FN10 Vegepod, Refer specification & L002

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

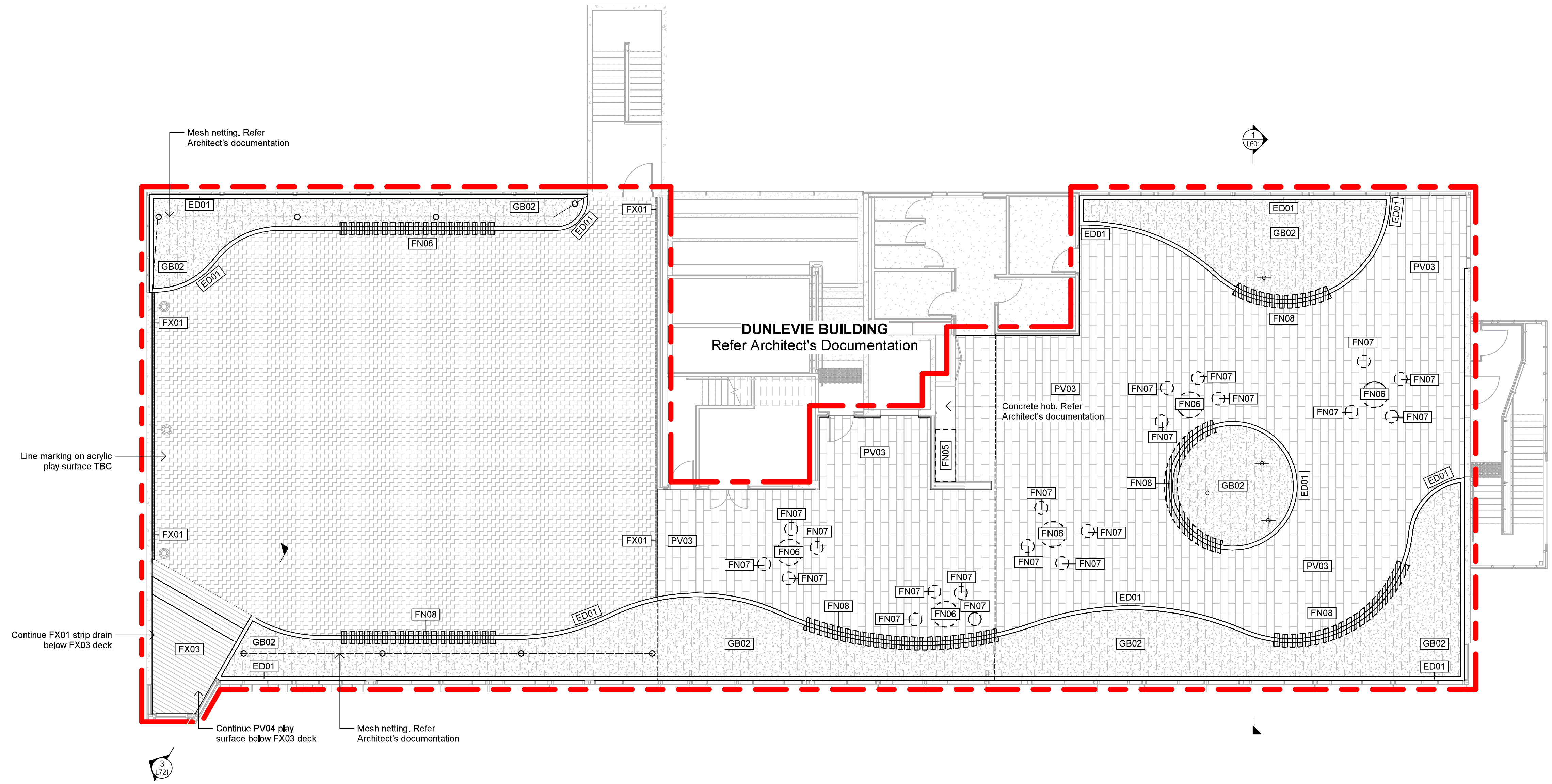
File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE
Sheet: SHEET 2 OF 3
Purpose: SURFACES PLAN - GF & LEVEL 1
Date: 05.06.24
Scale: 1 : 100@A1
Drawing No. L301
Rev. P3



LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- PV03 Pavers on Pedestal
  Refer Detail 02&03/L700
- PV04 Play Surface
  Refer Detail 04/L700
- GB02 Raised Garden Bed
  Refer detail 03/L710
- FN08
  Timber Bench atop Blockwork Wall
- FN05 Kitchen Bench
  Refer Specification & L002
- FN06 Loose Table
  Refer Specification & L002
- FN07 Loose Chair
  Refer Specification & L002
- ED01 Blockwork Wall
  Refer detail 03/L720 &
  Architect's documentation
- FX01 Strip Drain
  Refer Detail 03/L720
- FX03 Timber Deck
  Refer Detail L721

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 3 OF 3

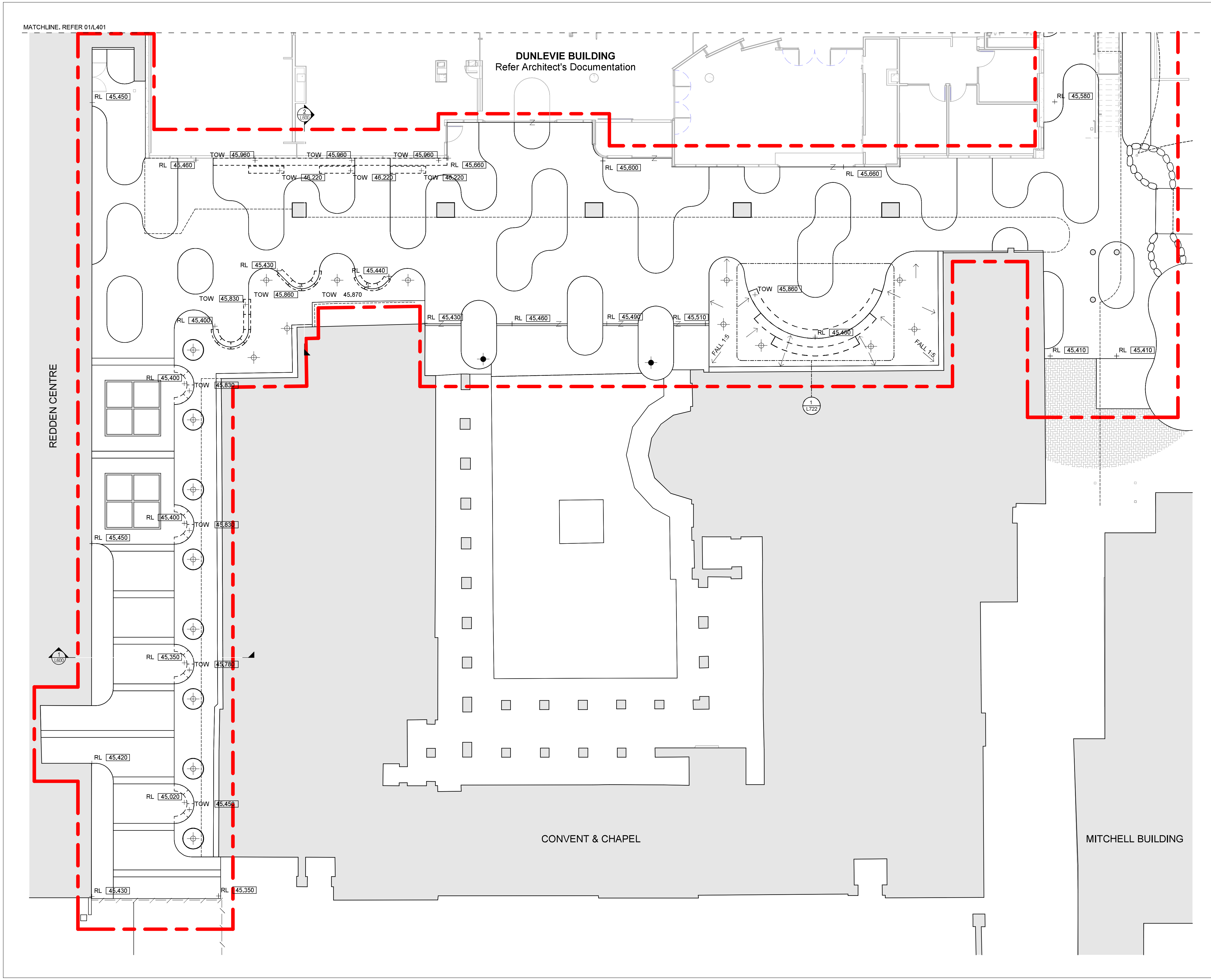
Purpose:
SURFACES PLAN - ROOF GARDEN

Date:
05.06.24

Scale:
1 : 100@A1

Drawing No.
L302

Rev.
P3



LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- RL Proposed Level
- TOW Proposed Top of Wall Level
- EX Existing Level
- Flush

Note:
Grading plans to be read in conjunction withcivil drawings.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 1 OF 3

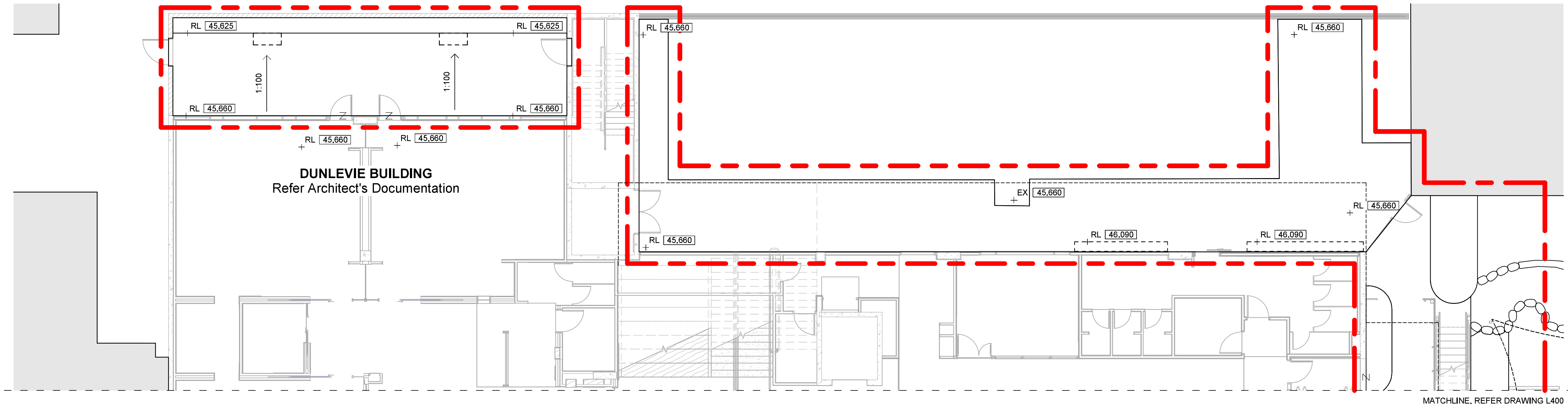
Purpose:
GRADING PLAN - GROUND FLOOR

Date:
05.06.24

Scale:
1 : 100@A1

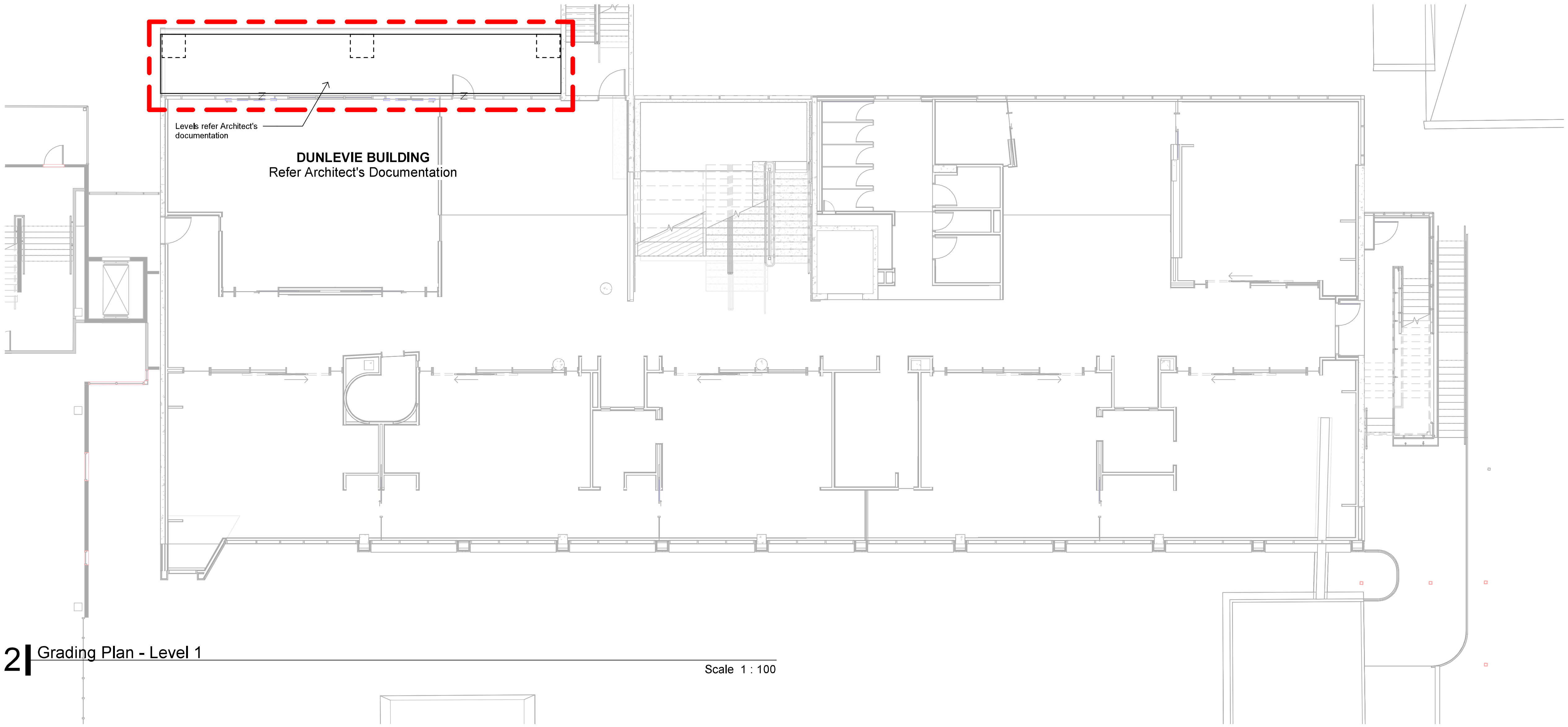
Drawing No.
L400

Rev.
P3



1 Grading Plan - Ground Floor Courtyard

Scale 1 : 100



2 Grading Plan - Level 1

Scale 1 : 100

LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- RL Proposed Level
- TOW Proposed Top of Wall Level
- EX Existing Level
- Flush

Note:
Grading plans to be read in conjunction withcivil drawings.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE

Date: 05.06.24

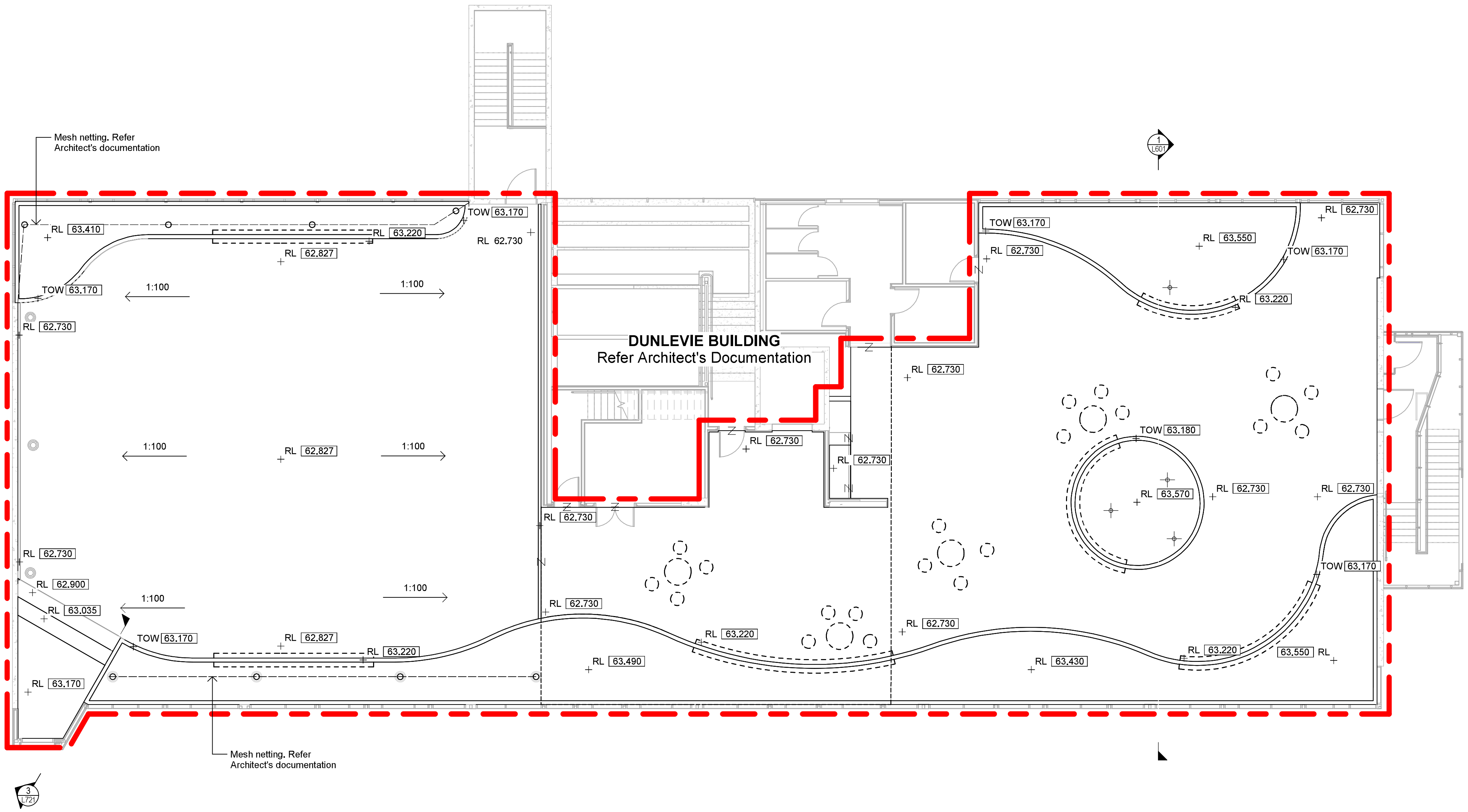
Sheet: SHEET 2 OF 3

Scale: 1 : 100@A1

Purpose: GRADING PLAN - GF & LEVEL 1

Drawing No. L401

Rev. P3



LEGEND

- Extent of Works
- Building Overhang
- Proposed Tree
- RL — Proposed Level
- TOW — Proposed Top of Wall Level
- EX — Existing Level
- Flush

Note:
Grading plans to be read in conjunction withcivil drawings.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 3 OF 3

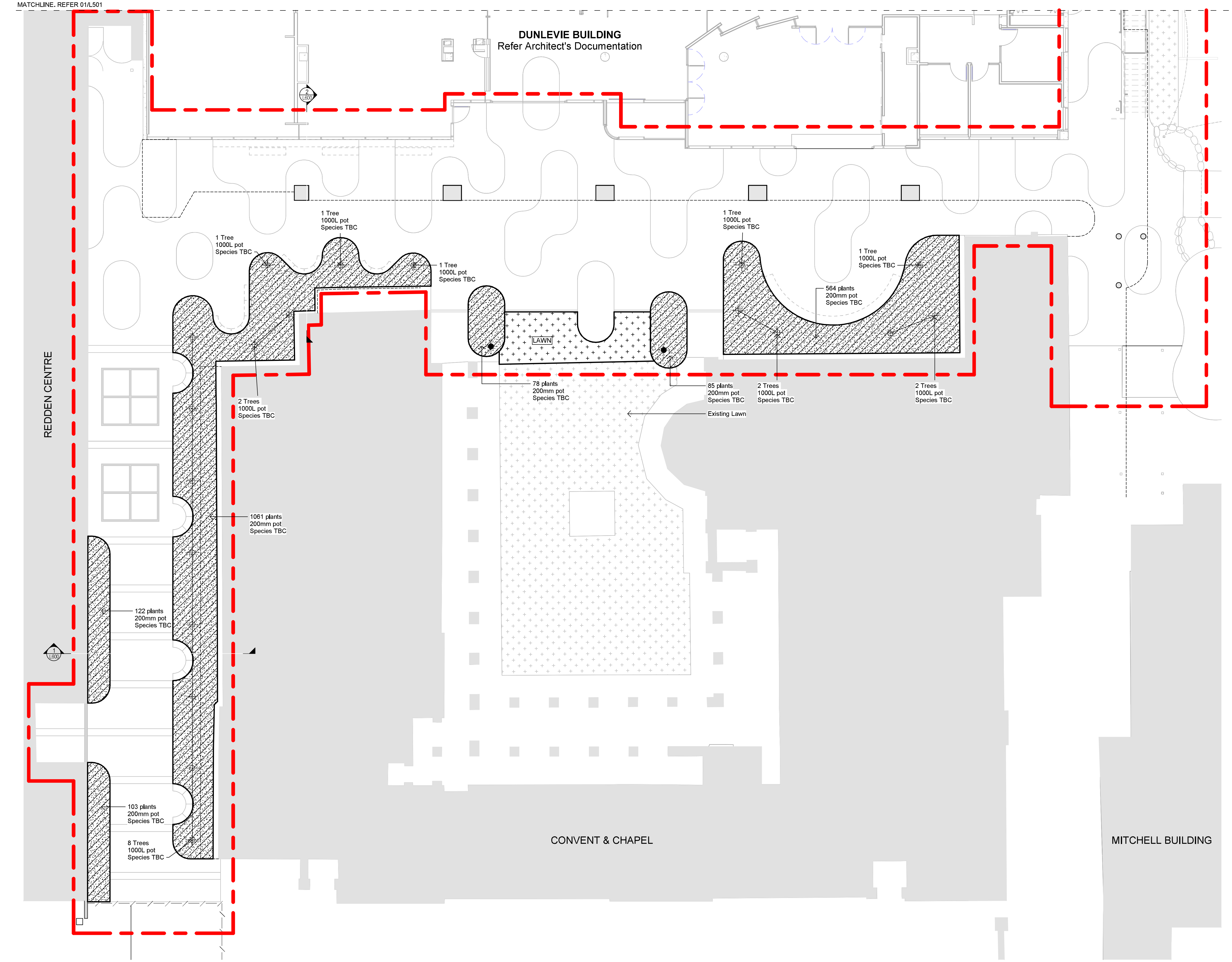
Purpose:
GRADING PLAN - ROOF GARDEN

Date:
05.06.24

Scale:
1 : 100@A1

Drawing No.
L402

Rev.
P3



LEGEND

- Extent of Works
- Proposed Tree
- Existing Tree
- Existing Fence
- GB01 Garden bed in ground with hardy waterwise planting Refer detail 02/L710
- Lawn Refer detail 01/L710

Note:
Contractor to provide irrigation drawings for superintendent approval.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

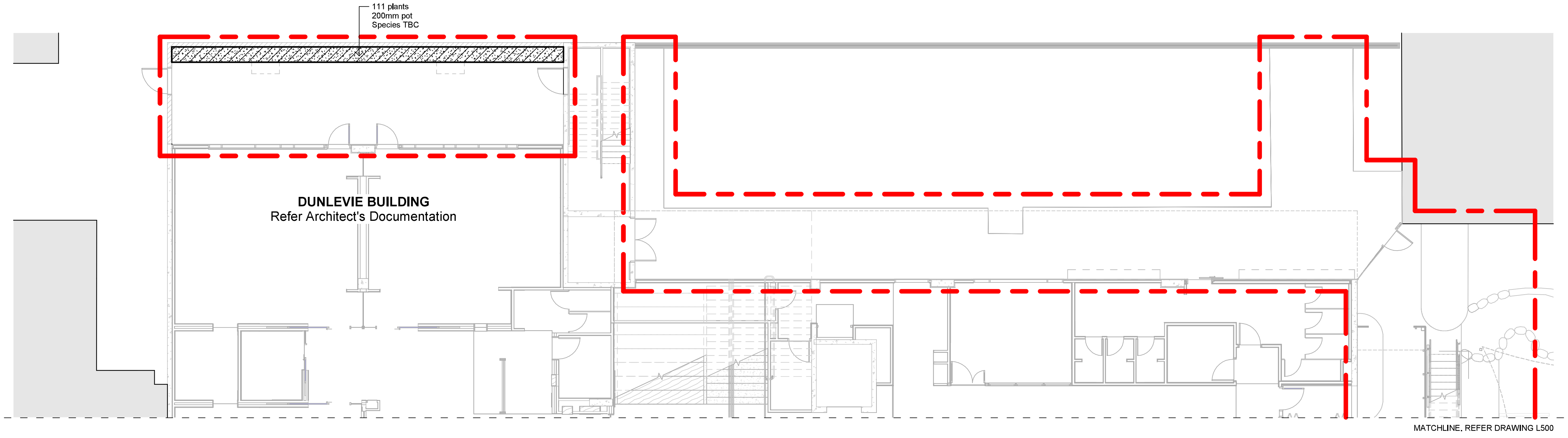
File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE
Sheet: SHEET 1 OF 3
Purpose: PLANTING PLAN - GROUND FLOOR
Date: 05.06.24
Scale: 1 : 100@A1
Drawing No. L500
Rev. P3



1 Planting Plan - Ground Floor Courtyard

Scale 1 : 100

LEGEND

Extent of Works

Proposed Tree

Note:
Contractor to provide irrigation drawings for superintendent approval.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE

Date: 05.06.24

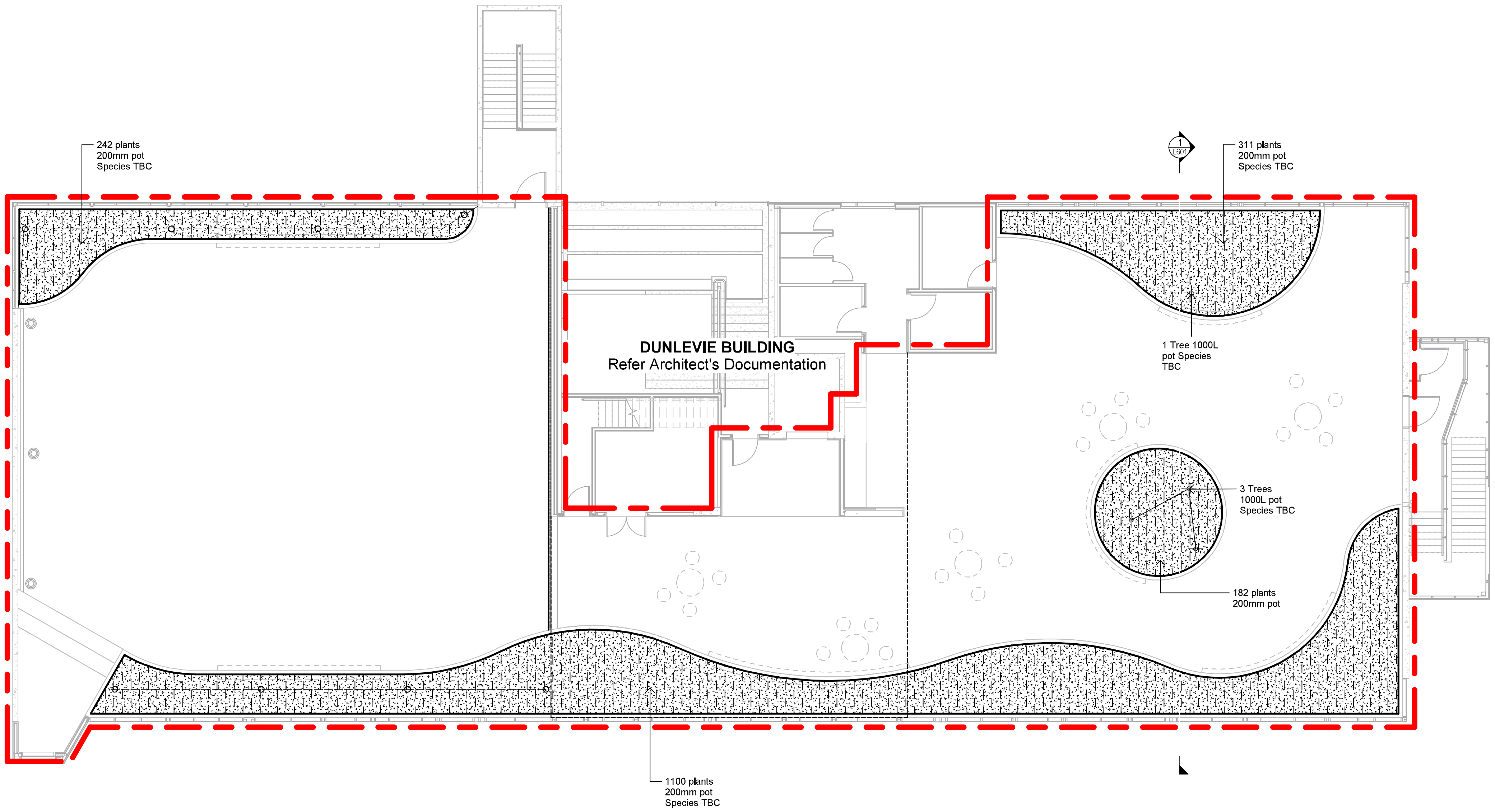
Sheet: SHEET 2 OF 3

Scale: 1 : 100@A1

Purpose: PLANTING PLAN - GF & LEVEL 1

Drawing No. L501

Rev. P3



LEGEND

Extent of Works

Proposed Tree

Note:
Contractor to provide irrigation drawings for superintendent approval.

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 3 OF 3

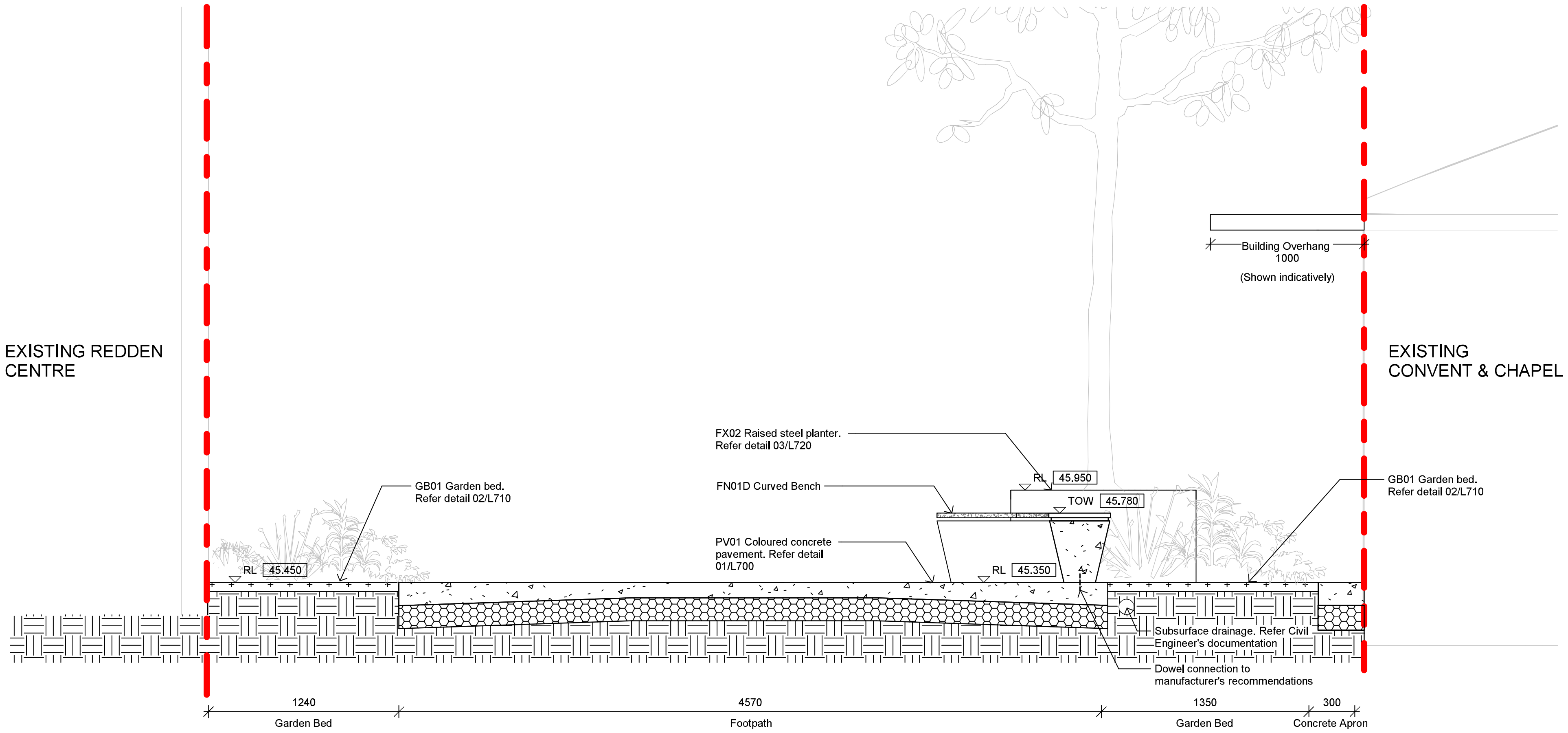
Purpose:
PLANTING PLAN - ROOF GARDEN

Date:
05.06.24

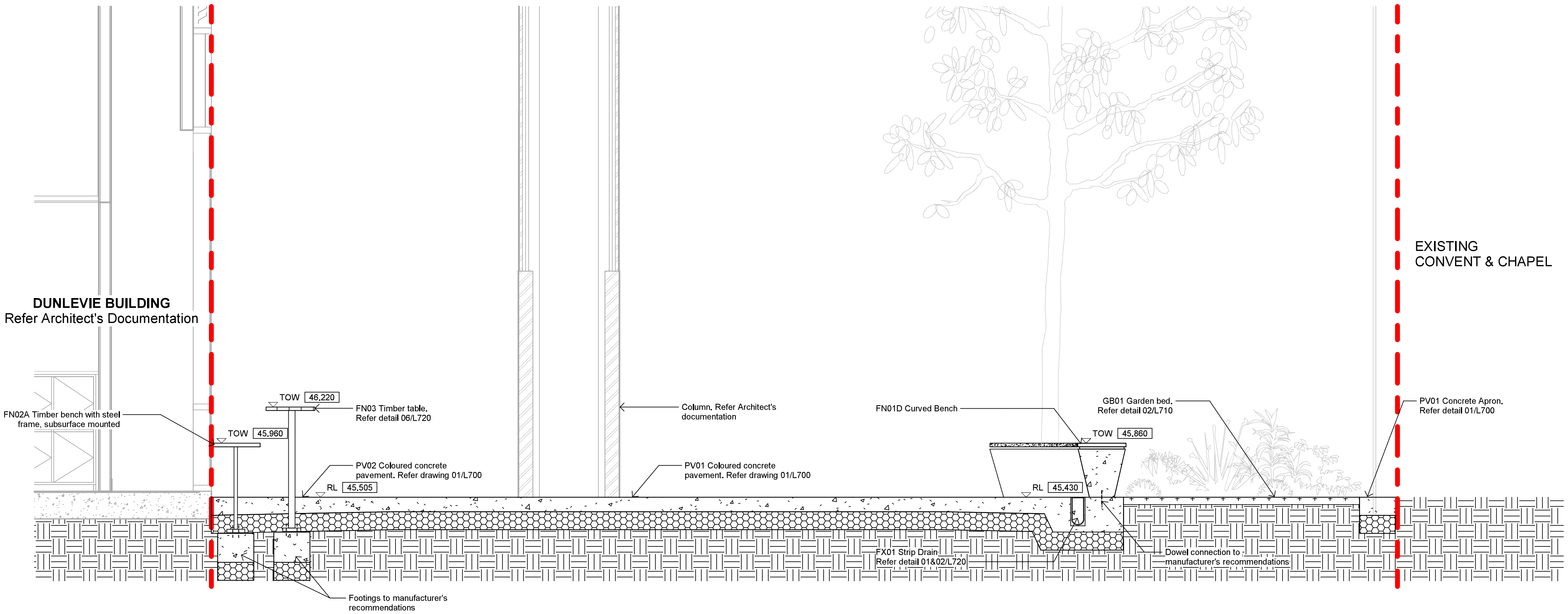
Scale:
1 : 100@A1

Drawing No.
L502

Rev.
P3



1 REDDEN LANE
Section
Scale 1 : 20



2 DUNLEVIE COURTYARD
Section
Scale 1 : 20

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

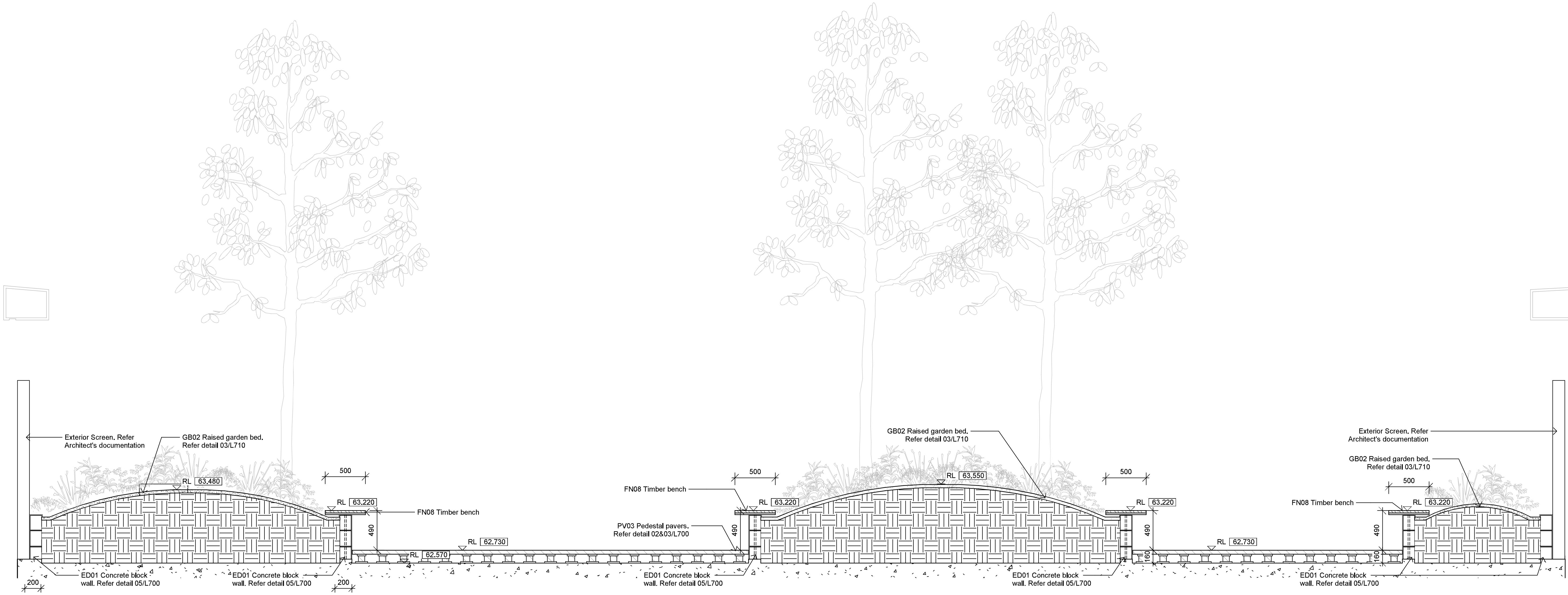
File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE
Sheet: SHEET 1 OF 1
Purpose: SECTIONS - GROUND FLOOR
Date: 05.06.24
Scale: 1 : 20@A1
Drawing No. L600
Rev. P3



1 ROOF GARDEN
Section

Scale 1 : 25

Rev.	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
ISSUED FOR TENDER

Drawing:
LANDSCAPE ARCHITECTURE

Sheet:
SHEET 1 OF 1

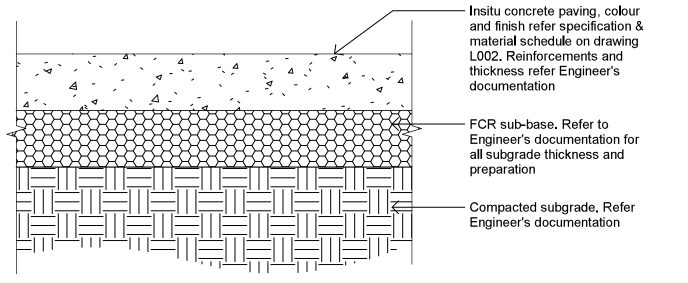
Purpose:
SECTIONS - ROOF GARDEN

Date:
05.06.24

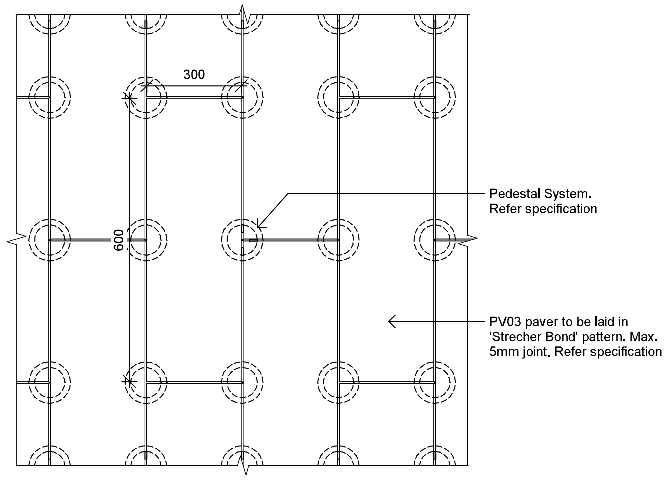
Scale:
1 : 25@A1

Drawing No.
L601

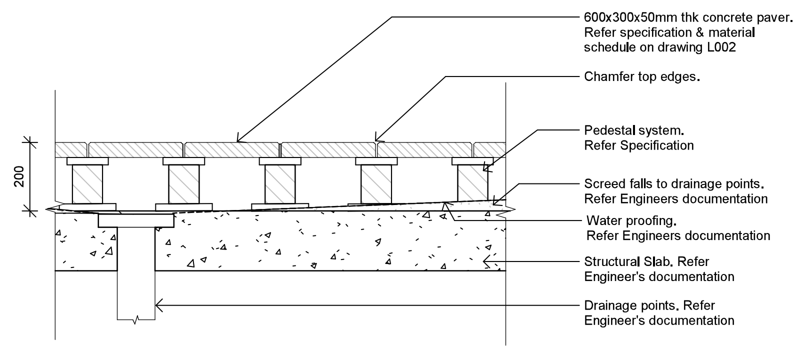
Rev.
P3



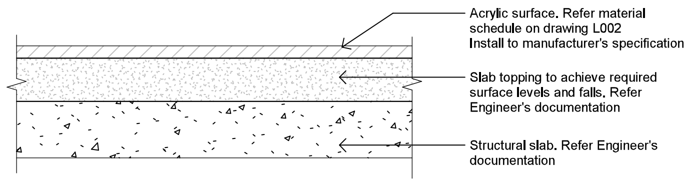
1 **PV01 & PV02 CONCRETE PAVING**
Section
Scale 1 : 10



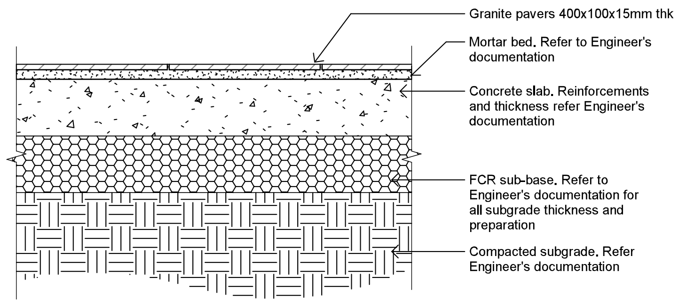
2 **PV03 PEDESTAL PAVERS**
Plan
Scale 1 : 10



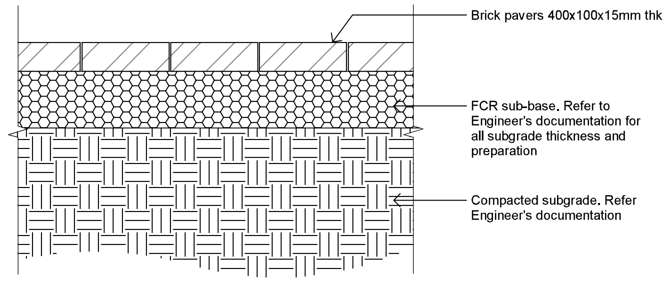
3 **PV03 PEDESTAL PAVERS.**
Section
Scale 1 : 10



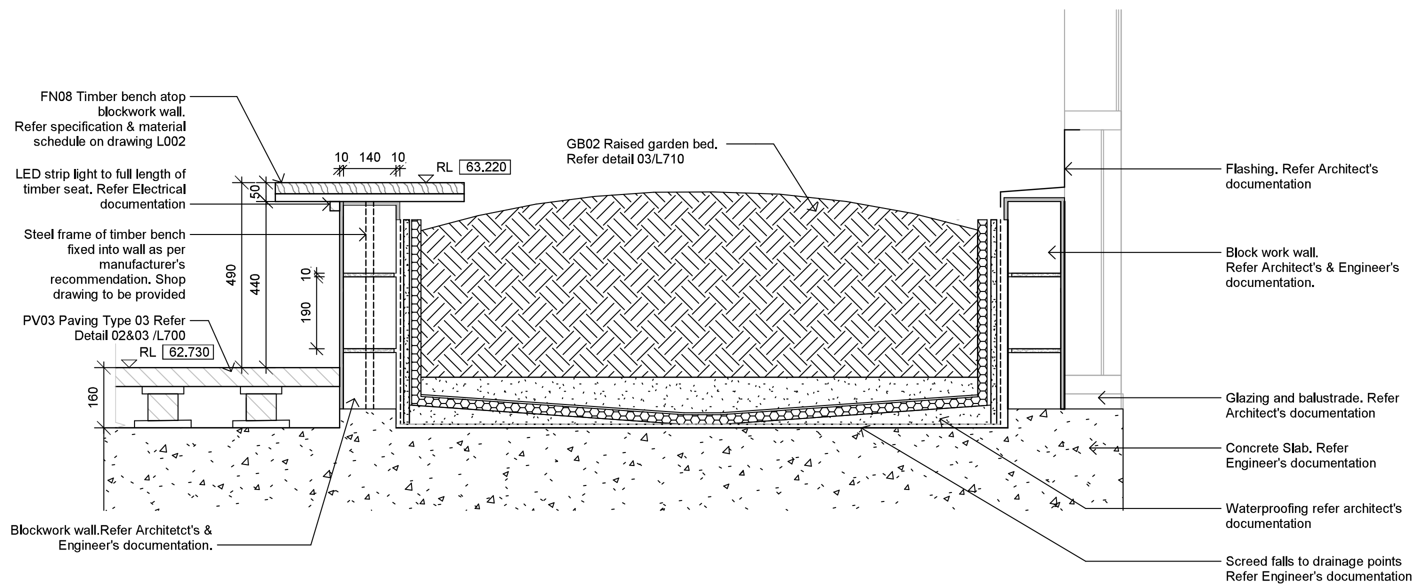
4 **PV04 Play Surface**
Section
Scale 1 : 10



5 **PV05 Granite Pavers**
Section
Scale 1 : 10



6 **PV06 Brick Paving**
Section
Scale 1 : 10



7 **ED01 BLOCK WORK WALL**
Section
Scale 1 : 10

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

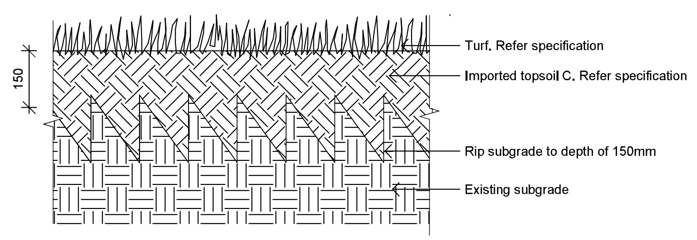
T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

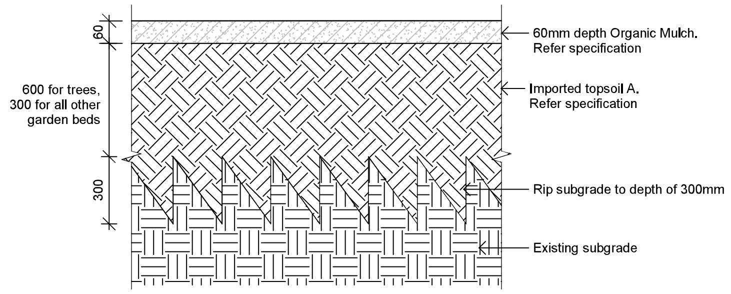
Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE
Sheet:
SHEET 1 OF 1
Purpose:
HARDSCAPE DETAILS

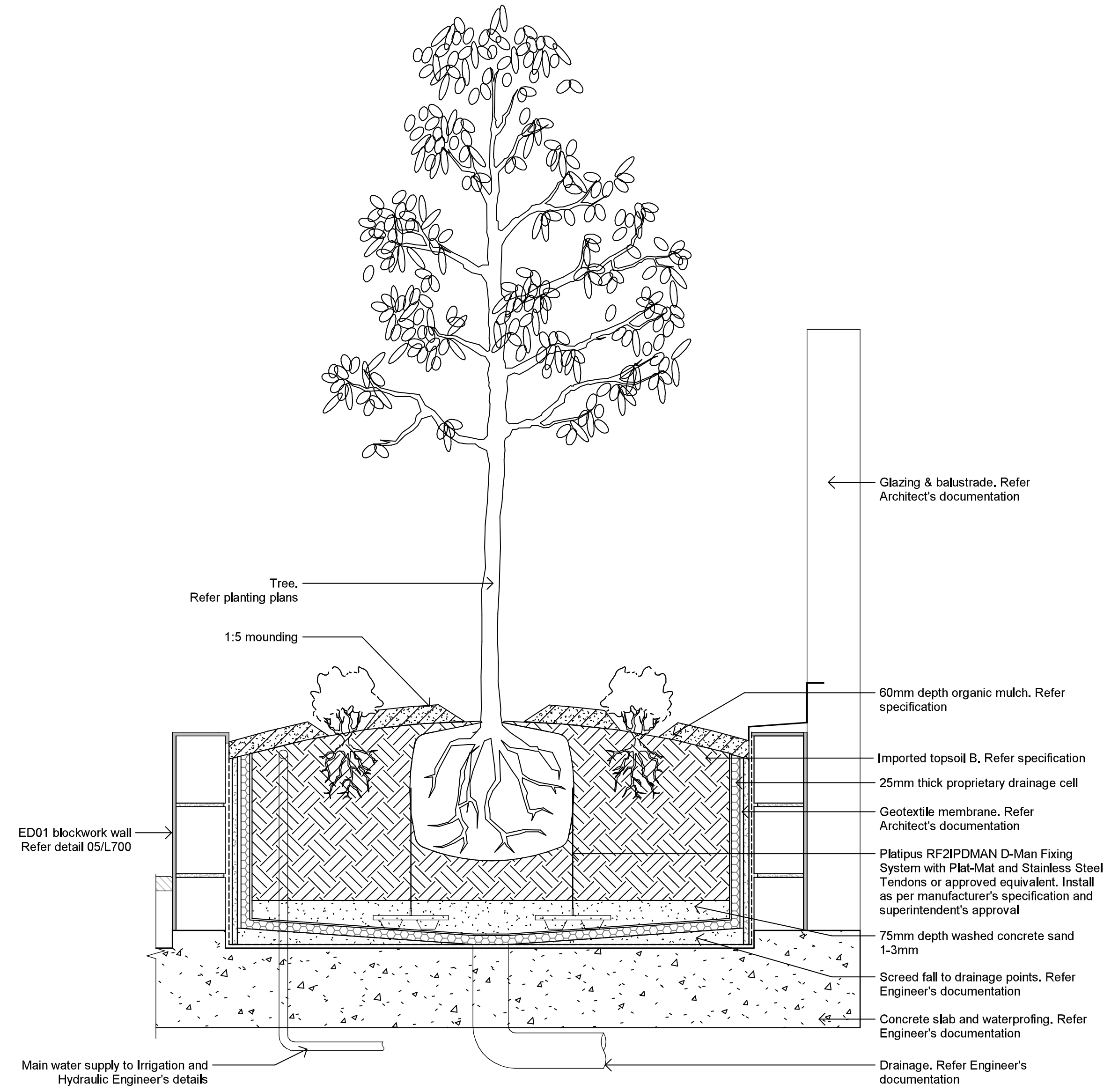
Date:
05.06.24
Scale:
1 : 10@A1
Drawing No.
L700
Rev.
P3



1 LAWN
Section
Scale 1 : 10

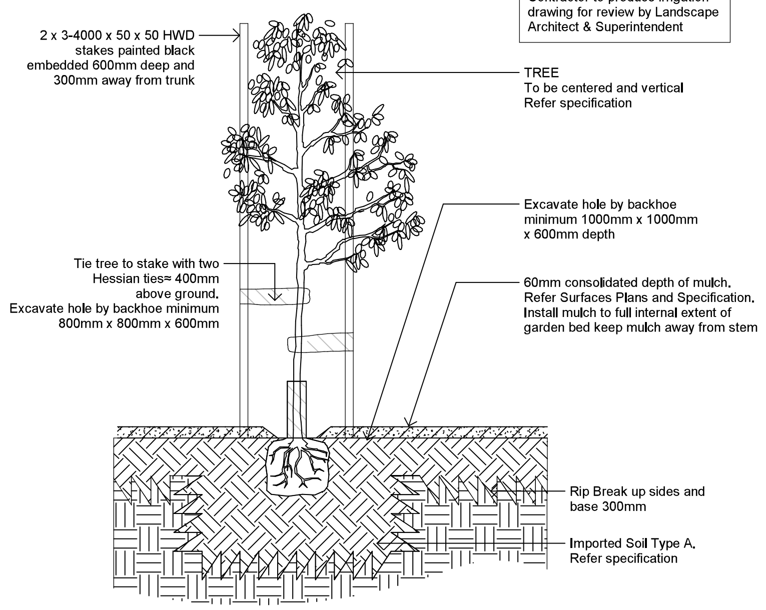


2 GB01 GARDEN BED IN GROUND
Section
Scale 1 : 10

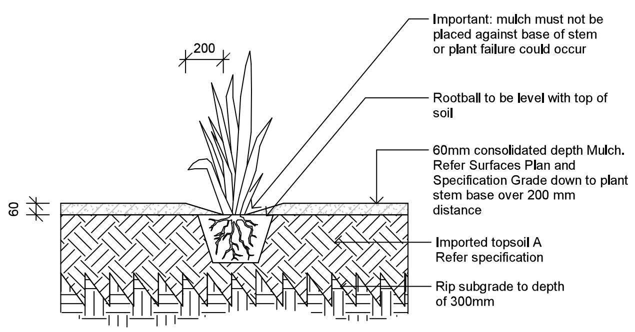


3 GB02 RAISED GARDEN BED
Section
Scale 1 : 10

NOTES:
Contractor to produce irrigation drawing for review by Landscape Architect & Superintendent



4 TREE PLANTING
Section
Scale 1 : 20



5 SHRUB/GROUNDCOVER PLANTING
Section
Scale 1 : 20

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

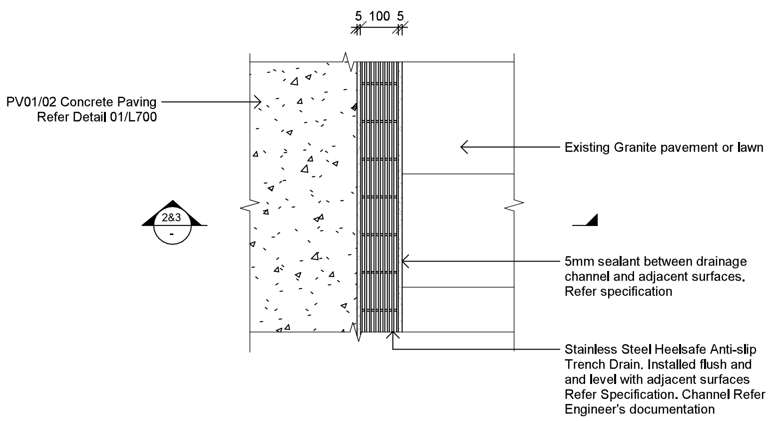
File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

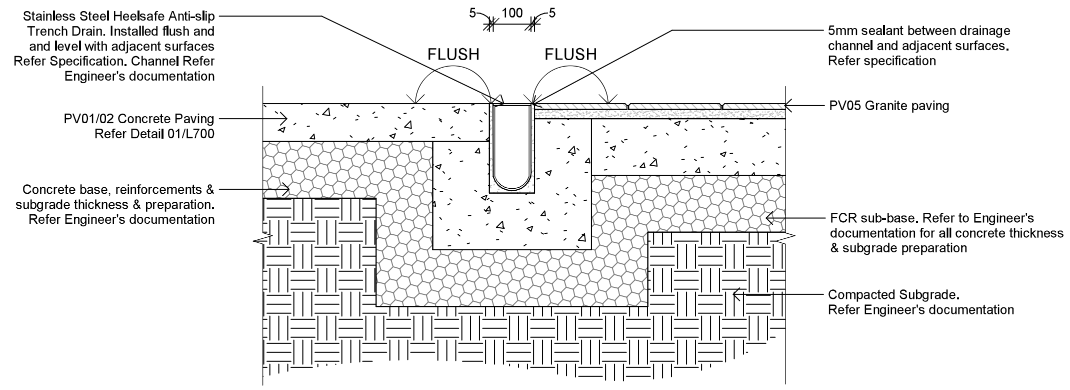
Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

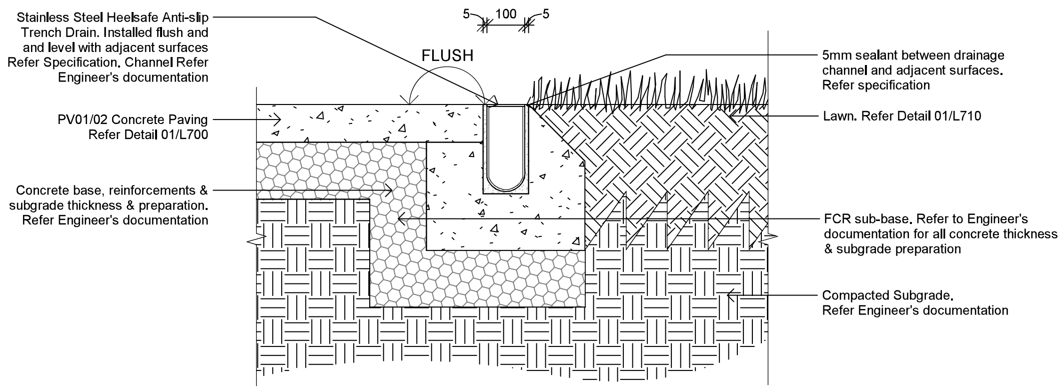
Drawing: LANDSCAPE ARCHITECTURE
Date: 05.06.24
Sheet: SHEET 1 OF 1
Scale: As indicated@A1
Purpose: SOFTSCAPE DETAILS
Drawing No.: L710
Rev.: P3



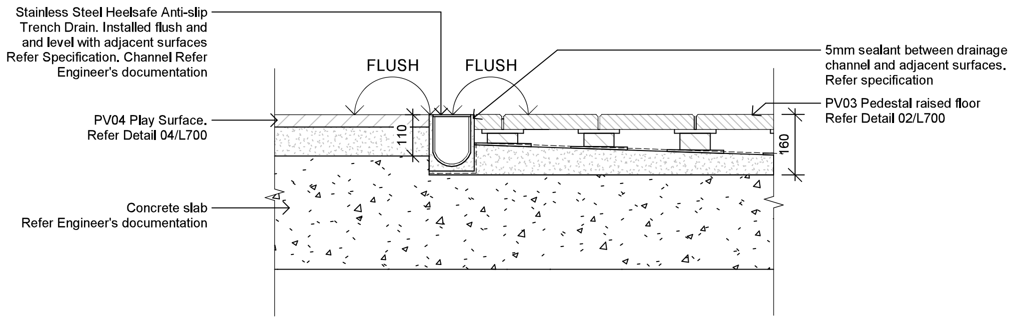
1 FX01 STRIP DRAIN
Plan
Scale 1 : 10



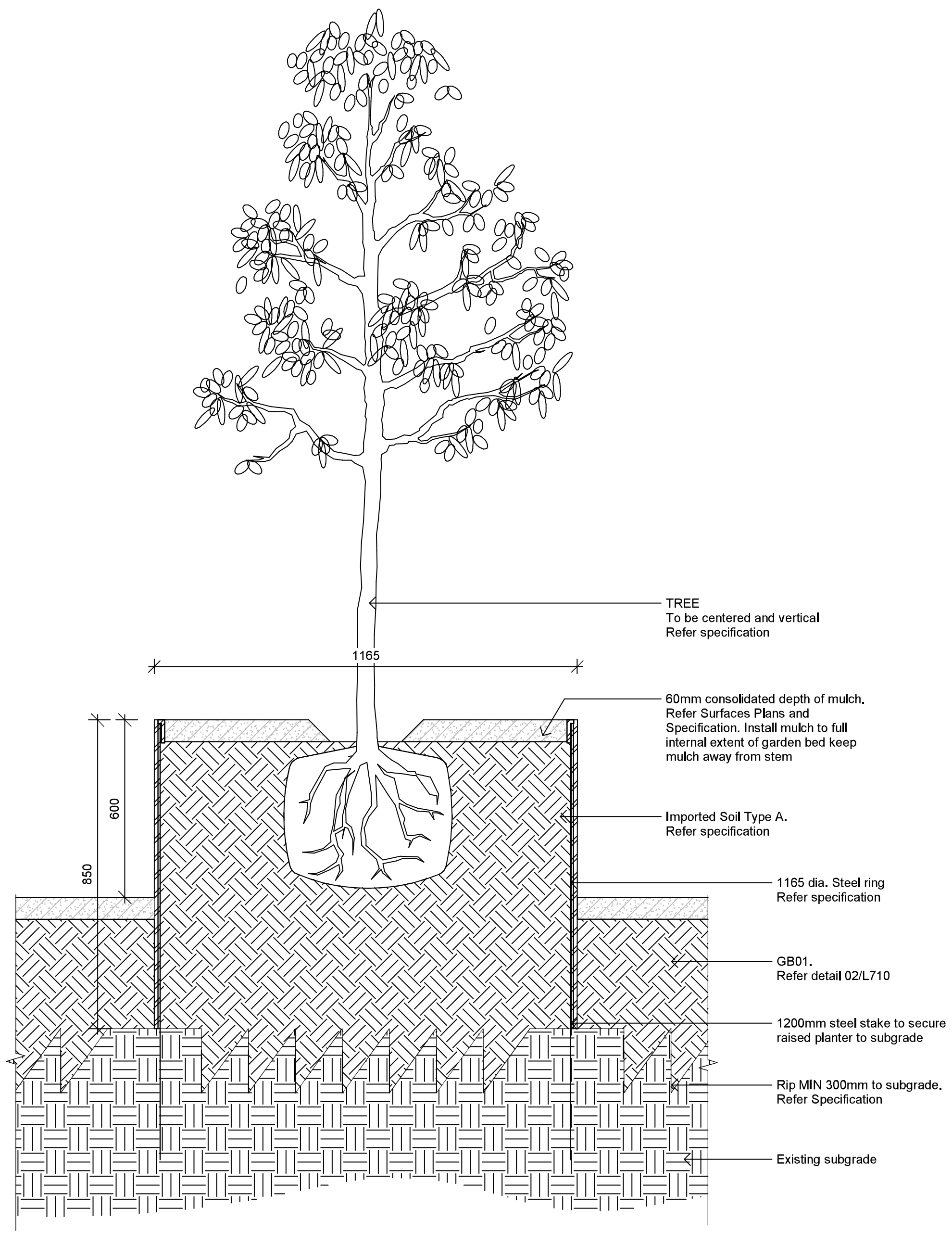
2 FX01 STRIP DRAIN - CONCRETE & GRANITE PAVEMENT INTERFACE
Section
Scale 1 : 10



3 FX01 STRIP DRAIN - CONCRETE PAVEMENT & LAWN INTERFACE
Scale 1 : 10



4 FX01 STRIP DRAIN - PLAY SURFACE & PEDESTAL PAVER INTERFACE
Section
Scale 1 : 10



5 FX02 RAISED PLANTER
Section
Scale 1 : 10

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

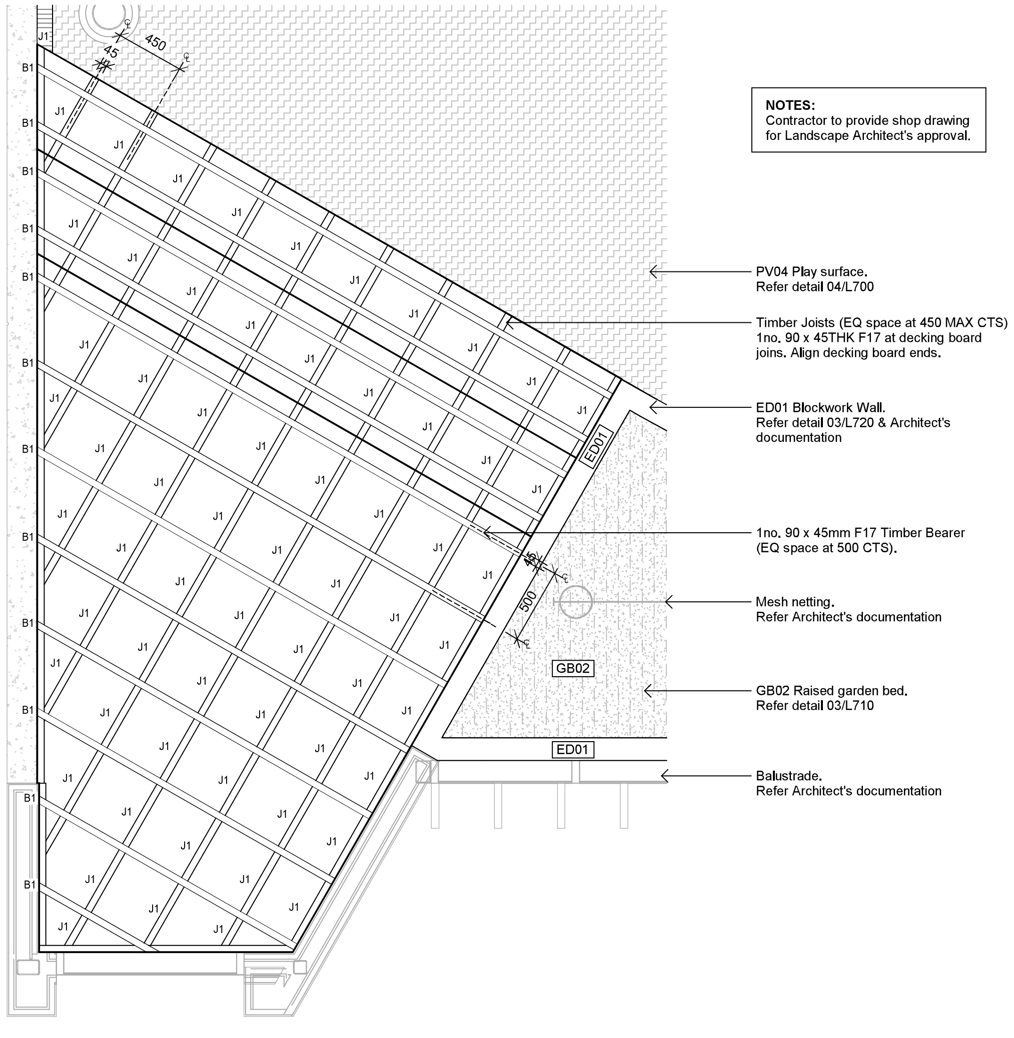
T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE
Sheet:
SHEET 1 OF 3
Purpose:
FURNITURE & FIXTURES DETAILS 01

Date:
05.06.24
Scale:
1 : 10@A1
Drawing No.
L720
Rev.
P3

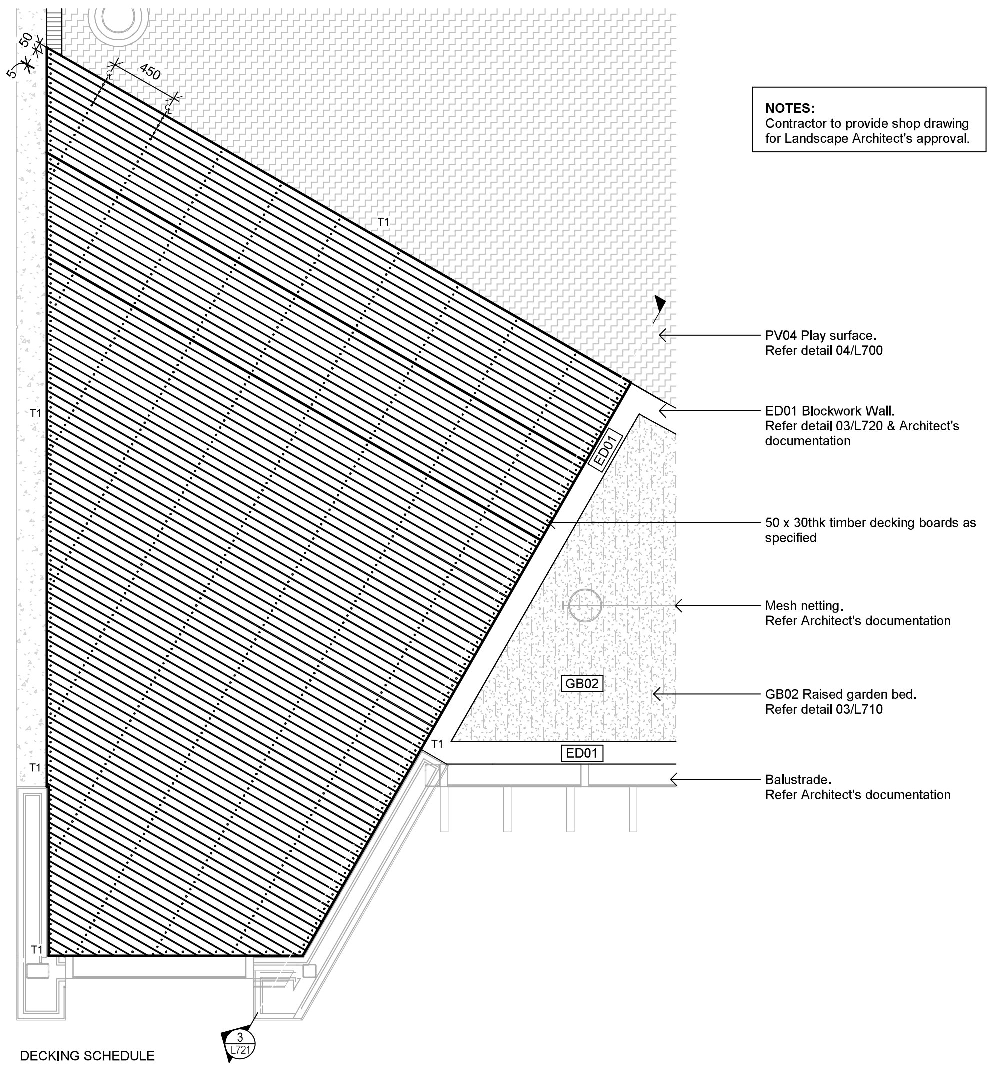


STRUCTURAL FRAMING SCHEDULE

B1 - 90x45 F17 (Seasoned) Bearer @500 cts max. 2min. continuous spans J1 - 90x45 F17 (Seasoned) Joists @450 cts max, 450 max. span, 2 min. continuous spans

1 FX03 TIMBER DECKING - FRAMING PLAN

Scale 1 : 25

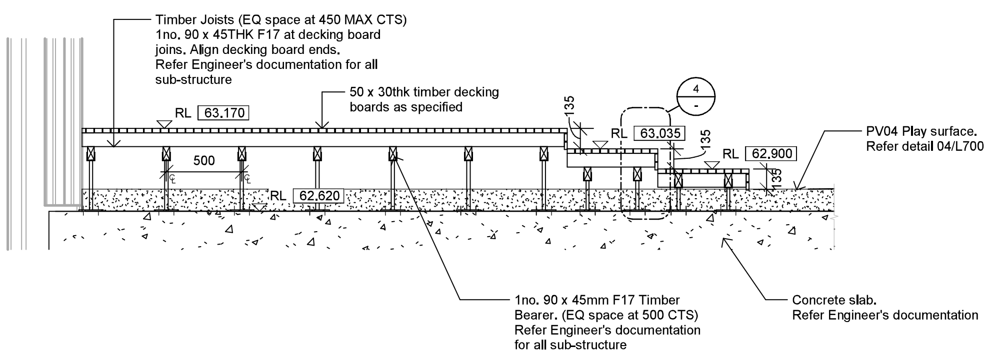


DECKING SCHEDULE

T1 - 50x30 DAR decking boards, 5mm gaps

2 FX03 TIMBER DECKING - SURFACES PLAN

Scale 1 : 25



3 TIMBER DECKING SECTION

Section

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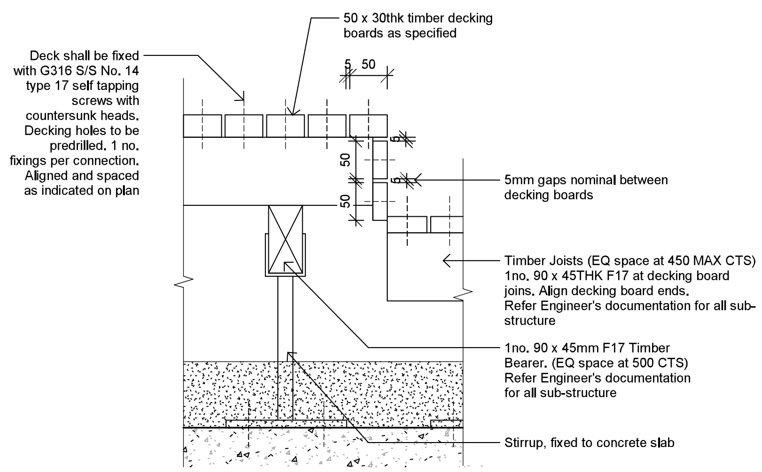
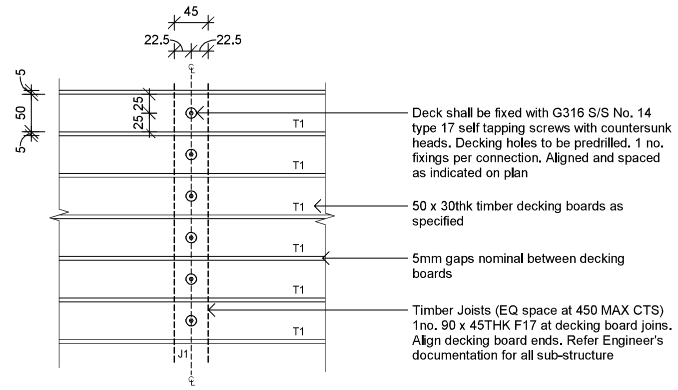


4 TIMBER DECKING EDGING DETAIL

Section

Scale 1 : 5



5 FX03 TIMBER DECK FIXING

Detail

Scale 1 : 5

Rev	Date	Revision Details	By	Chk
P3	11/09/24	FOR COORDINATION	KC	EL
P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L

TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	KC	EL	GL

Status:

NOT FOR CONSTRUCTION

Drawing: LANDSCAPE ARCHITECTURE

Date: 05.06.24

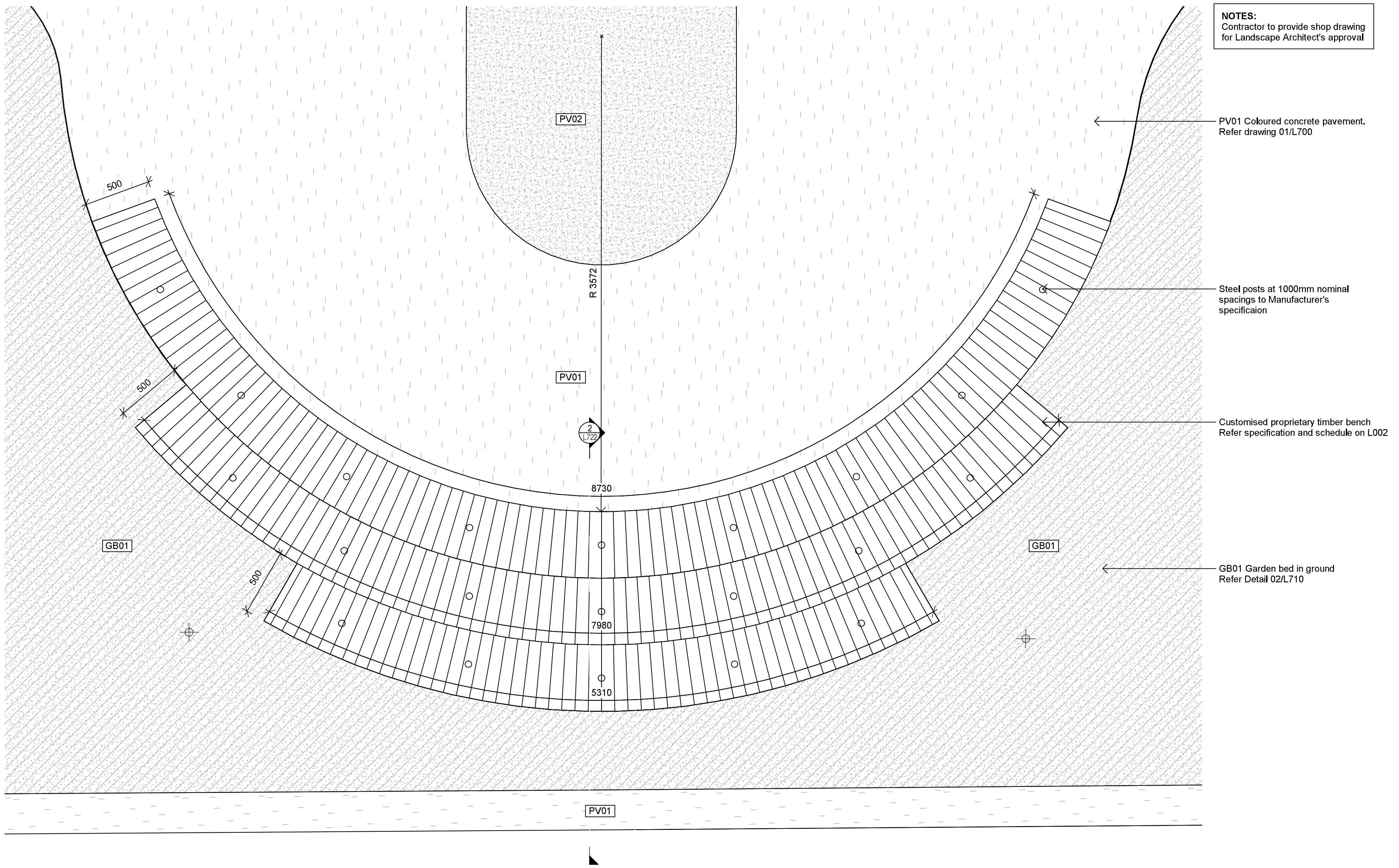
Sheet: SHEET 2 OF 3

Scale: As indicated@A1

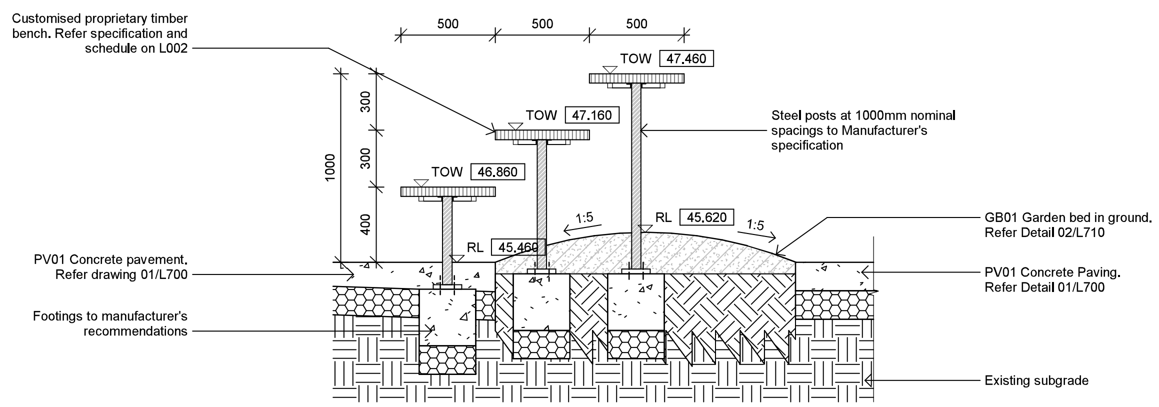
Purpose: FURNITURE & FIXTURES DETAILS 02

Drawing No.: L721

Rev.: P3



1 FN04 AMPHITHEATER
Plan
Scale 1 : 20



2 FN04 AMPHITHEATER
Section
Scale 1 : 20

Rev	Date	Revision Details	By	Chk
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P2	29/08/24	95% DESIGN DEVELOPMENT	KC	EL
P1	21/08/24	90% DESIGN DEVELOPMENT	KC	EL

ST ALOYSIUS COLLEGE

File #: A2407

T.C.L
TAYLOR.CULLITY.LETHLEAN

Designed by	Drawn by	Checked by	Approved by
GL	SE	EL	GL

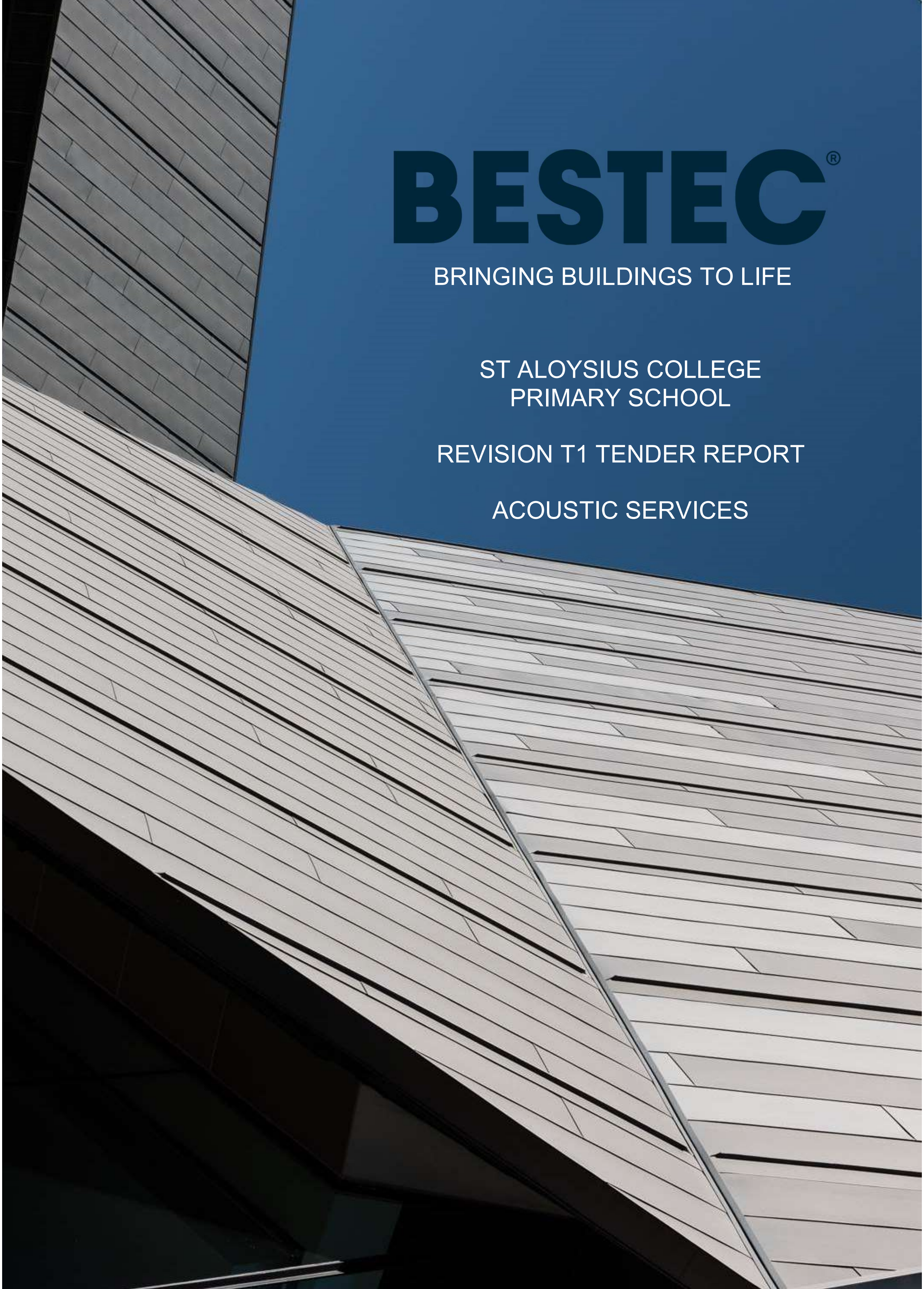
Status:
NOT FOR CONSTRUCTION

Drawing:
LANDSCAPE ARCHITECTURE
Sheet:
SHEET 3 OF 3
Purpose:
FURNITURE & FIXTURES DETAILS 03

Date:
05.06.24
Scale:
1 : 20@A1
Drawing No.
L722
Rev.
P3

Attachment C

Acoustic Services Report



BESTEC®

BRINGING BUILDINGS TO LIFE

ST ALOYSIUS COLLEGE PRIMARY SCHOOL

REVISION T1 TENDER REPORT

ACOUSTIC SERVICES

BESTEC®

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CJI:OZH
57837/6/1
10 September 2024

RCP
Level 99, Gawler Place
ADELAIDE SA 5000

Attention: Mr W Sharp

Dear Sir

ST ALOYSIUS COLLEGE, PRIMARY SCHOOL
REVISION T1 TENDER ACOUSTIC REPORT
ACOUSTIC SERVICES

As requested, we enclose a copy of our design report on the Acoustic Services on the above project for your review and comments.

We trust that the report provides sufficient information for your immediate purpose and we would be most pleased to further discuss any aspect upon your request.

Yours faithfully
BESTEC PTY LTD

LOW CHYI JIE (CJ)
ACOUSTIC SERVICES ENGINEER

Encl

REPORT ISSUE REGISTER

REVISION	DATE	REVISION DESCRIPTION
00	12.09.2024	Revision T1 Tender Issue

CONTENTS

Introduction

BESTEC Pty Ltd has been engaged to provide acoustic engineering services during the design and construction stages of the new primary school building at St Aloysius College on 53 Wakefield, St Adelaide SA. This document presents the proposed acoustic design criteria and recommendations for acoustic treatment to achieve the recommended design criteria.

Executive Summary

In summary:

- The SA Planning and Design Code has been reviewed in order to determine relevant planning conditions and requirements applicable to the proposed redevelopment in conjunction with the SA Environment Protection (Commercial and Industrial Noise) Policy 2023.
- Building acoustic design criteria have been nominated in accordance with AS 2107:2016 “Acoustics – Recommended design sound levels and reverberation times for building interiors” and Education Facilities Design Standards 2024.
- The architectural drawings of the redevelopment have been reviewed to determine the required acoustic treatments.
- Acoustic concept design recommendations have been provided in order to comply with the selected acoustic design criteria, including:
  - Construction of the building elements separating adjacent spaces in order to achieve the selected criteria for sound insulation/speech privacy of each space.
  - Reverberation control in the critical spaces.
  - Construction of the building envelope elements, in order to control noise intrusion.
  - Control of noise generated by mechanical and fire services plant.
- A mark-up has been provided (APPENDIX A) to illustrate the recommended level of speech privacy and extent for each partition type.

Acoustic Analysis

References

The following documents have been referenced within the preparation of this acoustic report:

[1] SA Planning and Design Code, 2024.

[2] Environment Protection (Commercial and Industrial Noise) Policy 2023.

[3] World Health Organisation (1999) “Guidelines for Community Noise”.

[4] AS/NZS 2107:2016 “Acoustics – Recommended design sound levels and reverberation times for building interiors”.

[5] Architectural drawings provided by Grieve Gillett Architect dated September 2024.

[6] Structural drawings provided by MATTER Consulting Structural engineers dated September 2024.

[7] Education Facilities Design Standards 2024.

[8] As ISO 140.4 – 2006 “Acoustics – Measurement of sound insulation in buildings and of building elements. Part 4: Field measurements of airbourne sound insulation between rooms”.

[9] BESTEC Mechanical services drawings dated September 2024.

Proposed Development

We understand that the existing Dunlevie building will be demolished, and a new primary school building will be constructed at St Aloysius College, which is located at 53 Wakefield St, Adelaide SA 5000 on land zoned Capital City (CC). The developments surrounding the college fall within the same land zoning as per SA Planning and Design Code [1]. The existing boundaries are as follows:

- North – Wakefield St separating the college from commercial properties.
- East – Chancery Ln separating the college from commercial properties.
- South – Angas St separating the college from commercial and residential properties.
- West – St Francis Xavier’s Catholic Cathedral and SA Water building.

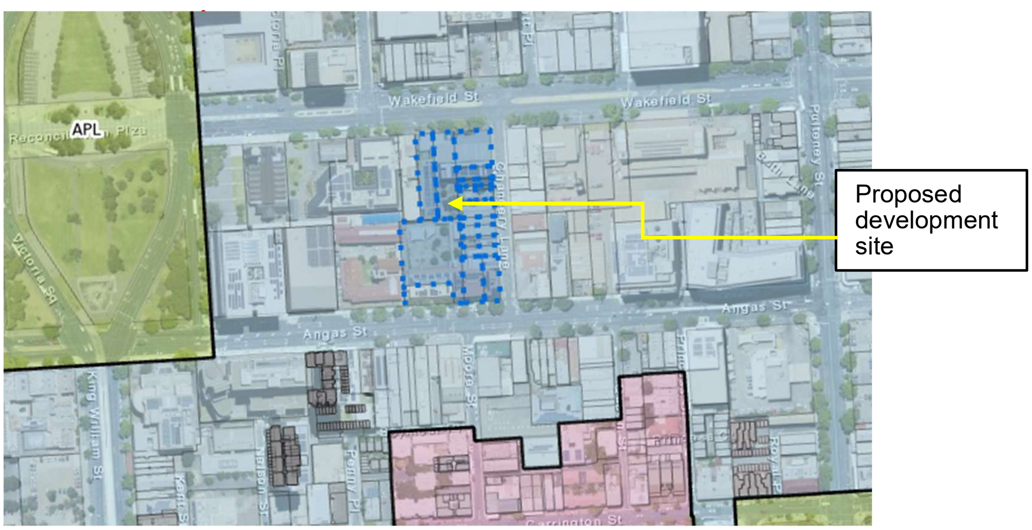


Figure 1: Location and land zoning of the site of the proposed extension

Proposed Development and Conditions

The proposed redevelopment comprises:

- Ground Floor – 3 x Reception GLA's, quiet room, learning commons, sensory room, music room, foyer, presentation space, administration component (offices, meeting room), comms room, amenities.
- First Floor – 6 x Homebase GLA's, learning commons, STEAM room, balcony gardens, sensory room, quiet rooms, breakout rooms, stores and amenities.
- Second Floor – 6 x Homebase GLA's, learning commons, multipurpose room, quiet rooms, sensory rooms, stores and amenities.
- Third Floor – 6 x Homebase GLA's, learning commons, quiet rooms, sensory rooms, breakout rooms, stores and amenities.
- Rooftop – garden, learning space and events, rooftop sports court, sports store and amenities.
- Rooftop Plant – mechanical plant room, fire pump room, generator room.

The new primary school will be operating Mon – Fri, 08:00 – 17:00. The SA Planning and Design Code [1] sets the following Desired Outcome (DO) for developments, which might affect sensitive receivers in adjacent relevant to the proposed facility:

DO 1 Development is located and designed to mitigate adverse effects on or from neighbouring and proximate uses.

The following requirements (performance outcomes) of the SA Planning and Design Code [1] are relevant to the design and siting of the proposed developments (Section Interface Between Land Uses):

PO 1.2 Development adjacent to a site containing a sensitive receiver (or lawfully approved sensitive receiver) or primarily intended to accommodate sensitive receivers is designed to minimise adverse impacts

PO 4.1 Development that emits noise (other than music) does not unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers).

A non-residential development is deemed to satisfy the above requirement if the noise emissions that affect the noise sensitive receivers achieves the relevant Environment Protection (Commercial and Industrial Noise) Policy criteria (DTS/DPF 4.1).

PO 4.2 Areas for the on-site manoeuvring of service and delivery vehicles, plant and equipment, outdoor work spaces (and the like) are designed and sited to not unreasonably impact the amenity of adjacent sensitive receivers (or lawfully approved sensitive receivers) and zones primarily intended to accommodate sensitive receivers due to noise and vibration by adopting techniques including:

(a) locating openings of buildings and associated services away from the interface with the adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers

(b) when sited outdoors, locating such areas as far as practicable from adjacent sensitive receivers and zones primarily intended to accommodate sensitive receivers

(c) housing plant and equipment within an enclosed structure or acoustic enclosure

(d) providing a suitable acoustic barrier between the plant and / or equipment and the adjacent sensitive receiver boundary or zone.

PO 4.3 Fixed plant and equipment in the form of pumps and/or filtration systems for a swimming pool or spa are positioned and/or housed to not cause unreasonable noise nuisance to adjacent sensitive receivers (or lawfully approved sensitive receivers).

Design Criteria

Environmental Noise

As the Deemed-to-Satisfy/Designed Performance Feature (DTS/DPF 4.1) refers to compliance with relevant Environment Protection (Commercial and Industrial Noise) Policy criteria [2], the environmental noise assessment was conducted against the criteria set by the Environment Protection (Commercial and Industrial Noise) Policy 2023 [2].

The Environment Protection (Commercial and Industrial Noise) Policy 2023 [2] sets out the maximum allowable continuous sound pressure levels in terms of A-weighted Equivalent Continuous Noise Level (L_{Aeq}) based on the time of day and zoning/use of land, in which the noise source and receiver are located. With reference to the SA Planning and Design Code 2024 [1], the proposed development is located within the land zoned Capital City (CC) with the surrounding commercial and residential dwellings within the same land zoning.

Therefore, the criteria derived in accordance with the Environment Protection (Commercial and Industrial Noise) Policy 2023 [2] should be based on the average of the indicative noise levels for different land categories. Additionally, the Environment Protection (Commercial and Industrial Noise) Policy 2023 [2] determines the appropriate indicative noise levels (INLs) for noise sources based on the principal land uses of zones and subzones within the Planning and Design Code. With reference to the indicative noise factor guidelines in the EPP, for land zoned Capital City (CC), the indicative noise levels used in this assessment is detailed in Table 1.

Land Use Category	Day Time (7:00 to 22:00)	Night Time (22:00 to 7:00)
Residential, Commercial	57	50

Table 1: Indicative noise factors based on time of day and land use

As the new facility will be operating daytime (School hours, Mon – Fri, 8:00 – 17:00) only, the assessment will be conducted against the daytime criterion only. We note that for planning purposes, the predicted noise level for the proposed development should not exceed the relevant indicative noise level, minus 5dBA for residential receivers. Therefore, the applicable day time noise criteria would be as follows:

- Commercial receivers:
  - Day time (7:00 a.m. to 10:00 p.m.): 57 dBA
- Residential receivers:
  - Day time (7:00 a.m. to 10:00 p.m.): 52 dBA

Note that if noise emitted by the proposed development contains any tones, modulation, impulsive or low frequency characteristics, the continuous noise level of the noise source must be adjusted as follows:

- Noise containing 1 characteristic – 5dBA penalty added to source continuous noise level;
- Noise containing 2 characteristics – 8dBA penalty added to source continuous noise level;
- Noise containing 3 or 4 characteristics – 10dBA penalty added to source continuous noise level.

Building Acoustics

The level of background and transient/intermittent noise, the speech privacy rating and the room acoustics define the acoustic quality of a building. The recommended criteria referenced from Education Facilities Design Standard [7] and AS/NZS 2107:2016 [4] for each space are shown in Table 2. Please refer to each individual section below for interpretation of the criteria.

Type of Occupancy/ Activity	Background Noise, dBA	Reverberation Time, sec	Weighted Sound Reduction Index, D_W
Reception GLA’s	40	0.4	40
Quiet room	35 - 40	0.6	N/A[1]
Sensory room	35 - 40	0.6	45 N/A[2]
Learning commons	40 - 45	0.6	N/A 35[3]
Toilets and changerooms	< 55	N/A	40
Foyer	< 50	0.6	N/A
Board room	40 - 45	0.6	45
Music room	35 - 40	0.8 - 1.0	45
Hos, D.Hos offices	40 - 45	0.6	40
Meeting	40 - 45	0.6	40
STEAM room	40 - 45	0.8	40
Homebase	40	0.4	40
Corridor	< 50	0.8	N/A
Multipurpose	40	0.6	45
Breakout room	40 - 45	0.6	N/A
Rooftop sports court	N/A	N/A	45[4]
Comms and stores	N/A	N/A	35

Table 2: Proposed building acoustic design criteria

Background Noise

AS 2107:2016 [4] sets the criteria for background noise in terms of A-weighted equivalent continuous sound pressure level over the measurement period (L_{Aeq}) in accordance with the use of the spaces and the location of the buildings. Table 3 details the subjective response of individuals to the proposed sound levels for interpretation of the recommendations.

Average Sound Pressure Levels (dBA)	Subjective Rating
35 – 40	Audible but unobtrusive
40 – 45	Moderate but unobtrusive
45 – 50	Unobtrusive with low levels of surrounding activities
50 – 55	Unobtrusive with high levels of surrounding activities

[1] Drawings indicate the quiet rooms separating the Homebases are open, we note that unless a partition or door is introduced, sound will transfer between the spaces.
[2] For sensory rooms that are open
[3] Ground floor
[4] Between floors

Table 3: Subjective ratings for various average sound pressure levels

Sound Insulation

For enclosed spaces, the noise from activities in the adjacent rooms transmitted through walls, floors, ceilings etc. increases the background noise level similarly to the noise intrusion from any outside sources. The level of noise transmitted from the adjacent rooms and the level of sound insulation/speech privacy is controlled by the design of building elements and providing adequate level of sound attenuation through specifying appropriate construction types for walls, floors, doors, ceilings etc.

There are no recommended Australian or International Standards for sound insulation ratings for adjoining spaces. Recommendations are based on experience from previous projects, with these recommendations reflecting user expectations. The privacy rating is dependent on the sound absorption and background noise level in the adjoining space as well as the area and acoustic performance of the dividing partition.

The proposed criteria for speech privacy between the spaces separated by partitions (extending either to the ceiling level or to the roof structure above are presented in terms of Weighted Sound Level Difference (D_W) as defined by AS ISO 140.4–2006 [8], which is related to the sound level difference between two spaces and are detailed in Table 4. The criteria are based on our experience in the acoustic design of similar facilities. Table 4 details the subjective response of individuals to the proposed privacy ratings for interpretation of the recommendations.

Weighted Sound Level Difference, D_W	Subjective Rating
50	Confidential privacy
45	Very good privacy. Speech inaudible unless raised
40	Good privacy. Speech audible but unintelligible
35	Normal privacy. Neighbouring conversations are audible and may be understood
< 35	Privacy not required

Table 4: Subjective perceptions for various privacy ratings

Room Acoustics

AS 2107-2016 [4] sets out the design criteria for reverberation times within occupied spaces. The reverberation time defines the time taken for sound to decay within a space and thus the degree of intelligibility of both unassisted speech and sound reinforcement systems. The criterion for a given space depends on the volume of the space, with Table 5 outlining the subjective impression for spaces with varying volume. Criteria considered appropriate for the various spaces within the development are listed in Table 5.

Reverberation Time (sec)			Subjective Rating
Small (100m3)	Medium (1,000 m3)	Large (10,000m3)	
< 0.3	0.3 – 0.5	0.6 – 0.8	Dead
0.3 – 0.5	0.5 – 0.7	0.8 – 1.0	Medium dead
0.5 – 0.7	0.7 – 1.0	1.0 – 1.5	Average
0.7 – 1.0	1.0 – 1.5	1.5 – 2.5	Medium live
1.0 – 2.00	1.5 – 2.5	2.5 – 4.5	Live

Table 5: Subjective response to various reverberation times and room volumes

Assessment and Recommendation

General Recommendation

Acoustic Sealants

We note that for the acoustic integrity of building elements to be maintained, all gaps and interfaces along the junctions and joints of linings must be sealed with an appropriate acoustic grade sealant. Penetrations for mechanical or electrical services must be properly caulked and sealed around the ductwork and cabling Appropriate acoustic caulking products include:

- Bostik Firemastic.
- Bostik Seal-n-flex 2637.

- Pyropanel Multiflex.
- Boral Fyreflex.
- Dow-Corning 790 Silicone.
- Dow-Corning 795 Silicone.
- Sika Sikaflex-11 FC.
- Fosroc Flamex 3.

Cavity Infill

Unless otherwise specified, where a cavity infill is recommended, equivalent alternatives are:

- Fibreglass – 50mm, 12kg/m^3.
- Rockwool – 50mm, 38kg/m^3.
- Polyester – 900gsm.

Ceiling Overlay

Unless otherwise specified, where a ceiling overlay is recommended, equivalent alternatives are:

- Glasswool – 100mm, 12kg/m^3.
- Rockwool – 100mm, 38kg/m^3.
- Polyester – 100mm, 32kg/m^3.

Where higher durability and/or water resistance is required, 6mm compressed fibre cement sheeting could be used in lieu of the 13mm fire-rated plasterboard and 9mm compressed fibre cement in-lieu of 16mm fire-rated plasterboard.

Sound Insulation

For extent of the proposed levels of speech privacy/sound insulation, refer the mark-up in APPENDIX A.

The architectural drawings have not specified glazing and doors and as such we make the following recommendations:

- Normal Privacy, D_w 35 (highlighted in yellow colour)
  - P02 – 1 layer of 13mm plasterboard to each side of 76mm steel studs extending to the ceiling level with cavity infill of 50mm, 12kg/m^3 glasswool. This is acceptable from an acoustics point of view.
  - P22 – 1 layer of 16mm Fyrchek to both side of 92mm steed studs, we recommend cavity infill of 50mm, 12kg/m^3 glasswool.

    We note that this construction will only achieve Normal Speech Privacy and has been recommended for rooms (sensory) requiring Very Good Speech Privacy and we recommend constructing the partitions as recommended in Very Good Speech Privacy
  - Glazing – minimum 10.38mm laminated glass or as required structurally.
  - Doors – 40 mm thick solid core doors or hinged aluminium framed glass doors with 10.38mm laminated glass.
- Good Privacy, D_w 40 (highlighted in green colour)
  - P03 – 1 layer of 13mm plasterboard to one side of 92mm steel studs and 2 layers of 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool with plasterboard extending to the structure above. This is acceptable from an acoustics point of view.

    We note that this construction will only achieve Good Privacy and has been recommended for rooms requiring Very Good Speech Privacy and we recommend constructing the partitions as recommended in Very Good Speech Privacy.
  - P03B – Drawings indicate P03B to G.07 however the is no indication on the wall schedule and we recommend 1 layer of 13mm plasterboard to one side of 92mm steel studs and 2 layers of 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool.
  - P09 – 1 layer of 13mm plasterboard to both sides of double steel studs consisting of 76mm steel stud and 64mm steel stud separated by a 90mm airgap with caviy infill of 50mm, 12kg/m^3 glasswool. This is acceptable from an acoustics point of view.
  - P14 – 1 layer of 13mm plasterboard to one side of 92mm steel studs with 1 layer of 18mm MDF on 6mm z clip on 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool.

We note that this construction will only achieve Good Privacy and has been recommended for rooms requiring Very Good Speech Privacy and we recommend adding 1 layer of 13mm plasterboard to the construction.

- P15 – 1 layer of 13mm plasterboard to one side of double steel studs consisting of 76mm steel stud and 64mm steel stud separated by a 90mm airgap and 1 layer of 18mm MDF on 6mm z clip on 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool. This is acceptable from an acoustics point of view.
- Glazing
  - Between spaces with good speech privacy and trafficable areas minimum 12.5mm VLam Hush glass.
  - Between spaces with good speech privacy – double glazing constructed of 6.38mm laminated glass – 12mm air space – 10.38mm laminated glass (Weighted Sound reduction Index of R_W 43).
- Doors:
  - Between spaces with good speech privacy and trafficable areas – hinged 50mm thick solid core doors (minimum density 700kg/m^3) or hinged aluminium framed doors with 12.5mm VLam Hush glass. We recommend medium duty acoustic seals (Raven RP8, RP10 or equivalent). We note that the glass door would not strictly achieve Good speech privacy as the Weighted Sound Reduction of 12.5mm VLam Hush glass is R_W 40, however, it would be acceptable between the sensitive spaces and adjacent trafficable area.
  - Between spaces with good speech privacy - proprietary acoustic door with Weighted Sound Reduction Index of Rw 43 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance
  - Sliding doors – Please note that the architectural drawings indicate sliding door, which will achieve only Normal speech privacy. If achieving Good privacy is required, we recommend proprietary acoustic slider with Weighted Sound Reduction Index of R_w 40 is considered or the sliding door be replaced with hinged door (refer above).
  - Toilet doors – 40mm thick solid core doors will be sufficient. Relief air grilles should not be incorporated in the toilet doors.

- Very Good Privacy, D_w 45 (highlighted in red colour)
  - P08A, P08B, P08C – 1 layer of 13mm plasterboard on both sides of double 92mm steel studs separated by a 90mm airgap (P08A and P08B) with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill of double layers of 90mm, 12kg/m^3 glasswool.
  - P10 – 2 layers of 13mm plasterboard to each side of 92mm steel studs with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P10B – 2 layers of rendered kelso on 2 layers of 13mm plasterboard to each side of 92mm steel studs with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P11 – 1 layer of 13mm plasterboard to one side of double steel studs consisting of 76mm steel stud and 64mm steel stud separated by a 90mm airgap and 1 layer of 18mm MDF on 6mm z clip on 13mm plasterboard to the other side with cavity infill of 50mm, 12kg/m^3 glasswool. We recommend cavity infill double layers of 60mm, 12kg/m^3 glasswool.
  - P20 – 1 layer of 25mm Gyprock shaft linear panel to one side of 102mm metal CH studs and 2 layers of 13mm fyrechek to the other side. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P24 – 2 layers of 16mm Fyrchek to both sides of 92mm steel studs. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - P25 – 2 layers of 13mm Fyrchek to both sides of 92mm steel studs. We recommend cavity infill of 90mm, 12kg/m^3 glasswool.
  - Glazing – minimum double double glazing consisting of 10.38mm laminated glass – 12mm airgap – 12.76mm laminated glass.
  - Doors:

- Hinged doors – we recommend proprietary acoustic door with Weighted Sound Reduction Index of Rw 47 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance.
- Sliding doors – We recommend proprietary acoustic sliders with Weighted Sound Reduction Index of Rw 47 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance.

We recommend 300mm post tension concrete slab between the rooftop sports court and the spaces on Level 3, and we recommend the ceilings of the spaces below be suspended on neoprene spring hangers with minimum static deflection of 25mm (e.g., Embelton RHS/RHSH or equivalent) in order to control structure borne and impact generated from use of the space. The hangers should be selected based on the total ceiling loads, including engineering services. For further details of the ceiling construction refer section Room Acoustics.

We note that the where the quiet rooms interconnect homebases and reception, Good speech privacy will not be achieved as the quiet rooms are open and if Good speech privacy is required, we recommend constructing a partition/ door as recommended above.

Room Acoustics

Based on the latest architectural drawings and reflected ceiling plan, we make the following recommendations for critical spaces:

- Teaching spaces – we understand that ceiling in the teaching spaces is proposed to be constructed of a mix of BAUX Woodwool (CE13) with Noise reduction coefficient of NRC 0.9 and SonaSpray K13 25mm (CE12) with Noise reduction coefficient of NRC 0.9 to exposed concrete.
  - Ground floor, Levels 1, 2 and the GLA's on Level 3, which are below the roof garden – RONDO or equivalent standard ceiling suspension grid concealed with 1 layer of plasterboard to the side with 100mm/ 32kg/m^3 polyester insulation;
  - Level 3 – We recommend the entire ceiling extend to the underside of the outdoor sports court to be constructed with RONDO or equivalent ceiling grid suspended on neoprene spring hangers with minimum static deflection of 25mm (e.g., Embelton RHS/RHSH or equivalent) with minimum cavity of 300mm and have a cavity infill of minimum 100mm, 32kg/m^3 polyester.

  This is acceptable from an acoustics point of view.
- Learning commons, STEAM – we understand the intention is to have exposed concrete soffit sprayed with SonaSpray and make the following recommendations:
  - Ground floor, Levels 1, 2 and the learning commons on Level 3 located under the roof garden – SonaSpray K13 25mm (CE12) with Noise reduction coefficient of NRC 0.9.
  - Level 3 - 13mm plasterboard in ceiling grid suspended on neoprene spring hangers with minimum 25mm static deflection (e.g., Embelton RHS/RHSH or equivalent) finished with SonaSpray K13 25mm (CE12) with Noise reduction coefficient of NRC 0.9.

  This is acceptable from an acoustics point of view.
- Music room – drawings indicate Aktar (CE14) perforated MDF and SonaSpray k13 (CE12) to the exposed concrete and we make the following recommendations:
  - Ceiling – The entire suspended ceiling (~43m^2) to be constructed of perforated plasterboard (10% open area) backed with non-woven acoustic tissue with Noise Reduction Coefficient of NRC 0.5(i.e., Random Plus 8/15/20R, 9.9%OA or equivalent) uniformly distributed along the perimeter of the room.
  - Walls – 16m^2 AUTEX Accent (13mm thick, 3300gsm, NRC0.8) spread equally between the walls of the music space.
- Administration component (Boardroom, meeting room, Hos and D,Hos) – we recommend perforated ceiling tiles with minimum Noise Reduction Coefficient of NRC 0.6 (e.g., Knauf Circular 15.5%OA or equivalent).
- Theatre stairs – Aktar diPanel AP250D (CE14) with noise coefficient or NRC 0.85, this is acceptable from an acoustics point of view.

Building Envelope

Based on the architectural drawings [5] and the results of our assessment, we make the following recommendations for construction of building envelope.

- Façade:
  - EP01 – 200mm precast concrete. This is acceptable from an acoustics point of view.
  - EP02 – 250mm precast concrete. This is acceptable from an acoustics point of view.
  - Ep03 – 150mm precast concrete. This is acceptable from an acoustics point of view.
  - EP04 – 190mm thick blockwork. This is acceptable from an acoustics point of view.
  - EP05 – 1 layer of 9mm fibre cement cladding on 1 layer of 15mm top hats, 35mm top hats to the external side of 92mm steel studs with 1 layer of 13mm plasterboard to the internal side with cavity infill R2.2 insulation. We recommend 2 layers of 13mm plasterboard to the internal side of the wall construction and cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP06 – 1 layer of 9mm fibre cement cladding on 15mm top hats, 35mm top hats on 1 layer of 16mm Fyrchek to the external side of 92mm steel studs and 1 layer of 16mm Fyrchek to the internal side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - Ep07 – 3 layers of 16mm Fyrchek to the internal side of 92mm steel studs and 1 layer of 12mm viroc cladding on 15mm top hat, 35mm top hats with cavity infill of 90mm pink partition insulation R2.7. This is acceptable from an acoustics point of view.
  - EP08 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of 92 mm steel studs with 2 layers of 16mm Fyrchek to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - Ep09 – 1 layer of viroc cladding on 15mm top hats, 35 top hats to the external side of 92mm steel studs with 2 layers of 13mm plasterboard and 2 layers of 6.5mm wall lining to the internal side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP10 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm top hats to each side of 92mm steel studs. This is acceptable from an acoustics point of view.
  - EP11 – 1 layer of 30mm brick snaps on 15mm top hats, 35 mm top hats to the external side of 92mm steel studs. We note that the internal side of this construction will be precast concrete and note that it is acceptable from an acoustics point of view.
  - EP12 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of 92 mm steel studs with 2 layers of 16mm Fyrchek to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP13 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of double 92 mm steel studs separated by a 5mm air gap with 2 layers of 16mm Fyrchek to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP14 – 1 layer of 12mm viroc cladding on 15mm top hats, 35mm stop hats on 2 layers of 16mm Fyrchek to the external side of 102 mm CH steel studs with 1 layer of 25mm Shaft liner to the interna side with cavity infill of R2.2 insulation. We recommend cavity infill of minimum 90mm, 12kg/m^3 glasswool or as thermally required.
  - EP18 – 1 layer of 75mm hebel powerpanel on 15mm top hats, 35mm top hats to the external side of 92mm steel studs with 1 layer of precast concrete to the internal side separated by a 20mm air gap.

    We understand that the stairway wall adjacent to the outdoor sport area will have ball thrown by students on painted targets on the wall. In order to control impact noise generated from this activity, we recommend the wall be constructed on vibration isolation strips (i.e., Getzner Sylomer or similar) to decouple the wall from the concrete slab and have cavity infill of 90mm, 11kg/m^3 glasswool.

- Roof:
  - Learning area – The structural drawings [6] indicate 250mm post tension concrete slab and we consider it acceptable from acoustic point of view. In order to control footfall noise to the spaces below, we recommend the pavers in the roof garden be installed on adjustable plastic pedestals.
  - Fire pump room – we recommend 0.48BMT profiled roof steel cladding over R2.5 foil faced insulation blanket (ANTICON 100 or equivalent) on 150mm deep roof purlins with ceiling of 2 layer of 13mm fire rated plasterboard or 200mm thick precast concrete.
- Glazing – we recommend:
  - Minimum 10.38mm laminated glass or as required structurally.
  - Music Room – we recommend minimum double glazing of 10.38mm laminated glass – 12mm airgap – 12.76mm laminated glass. We recommend proprietary acoustic door with Weighted Sound Reduction Index of Rw 47 to be used. Please note that the proprietary acoustic doors are supplied as a set, including door leaf, frame, seals and hardware and are installed and tested by supplier to guarantee compliance.

Engineering Services Acoustics

Mechanical Services

Airborne Noise

The assessment of the airborne noise emissions from operation of mechanical services units was assessed based on BESTEC mechanical services drawings and plant selections [9] the sound levels summarised below. The results of our assessment are summarised in Table 7.

Daikin Model	Unit Designation	Mode	Octave Band Centre Frequencies Sound Pressure Level, dB re 20μPa								
			63	125	250	500	1K	2K	4K	8K	Total, dB(A)
FXMQ40PAVE	L4 Foyer (ACU 4-1)	HH	35	41	39	35	34	32	25	18	39
		H	34	37	35	33	32	29	23	15	37
		L	30	37	34	31	31	27	21	14	35
FXMQ50PAVE	Boardroom (ACU G-4),	HH	36	43	40	38	37	31	24	22	41
		H	36	40	38	36	34	29	23	22	39
		L	35	38	36	35	32	26	22	22	37
FXMQ100PAVE	L3 Learning Commons W stair	HH	40	45	40	39	40	33	28	18	43
		H	37	43	38	38	38	31	25	17	41
		L	31	40	36	36	36	28	18	16	39
FXMQ125PAVE	Reception G0.7 (ACU G-11), L1 Homebase 1.05,07,09,11(ACU 1-14,12,10,8), L2 Homebase 2.04,.06,.08,10 (ACU 2-14,12,11,7), L2 Multi, L3 Homecoming 3.05,7,9,11,13	HH	43	46	42	40	41	34	28	22	44
		H	41	44	39	38	39	32	25	18	42
		L	37	41	38	36	36	30	20	17	40
FXMQ140PAVE	Reception G0.5 (ACU G-2), Music (ACU g.09), Homebase 1.13, L3 Homecoming 3.04, 14	HH	46	49	45	42	42	37	31	35	46
		H	43	47	44	41	41	36	30	34	45
		L	41	45	41	40	40	34	27	32	43
FXMQ160PV1A	Reception G0.6 (ACU G-1), STEM, Homebase 1.14, L2 Homebase 2.13,14, L3 Learning Commons W	H	53	52	47	40	39	36	34	26	45
		L	46	44	40	33	32	29	26	20	38
FXMQ180PV1A	GF Learning Commons (ACU G-10), L1 Learning Commons E,	H	53	52	47	40	39	36	34	26	45
		L	46	44	40	33	32	29	26	20	38

Daikin Model	Unit Designation	Mode	Octave Band Centre Frequencies Sound Pressure Level, dB re 20μPa								
			63	125	250	500	1K	2K	4K	8K	Total, dB(A)
	L2 Learning Commons E, L3 Learning Commons E										
FXMQ200PV1A	L1 Learning Commons W (ACU 1-2), L2 Learning Commons W (ACU 2-3)	H	52	51	45	39	37	35	33	27	44
		L	46	43	40	31	31	29	24	23	37
FXMQ250PV1A	GF Foyer (ACU G-3)	H	54	53	47	41	40	38	33	28	46
		L	48	45	41	36	32	31	26	20	39
VAM1000GJVE	ERVs	U-H	50	47	48	40	35	29	22	13	54
		H	50	45	47	39	33	27	20	10	53
		L	49	43	44	37	31	25	16	9	51

Table 6: Sound Pressure Levels for ACU's

We have conducted an assessment of the noise emissions resulting from the operation of the above units based on the layout shown in the current mechanical services drawings [9]. The results of our assessment are summarised in the tables below, with acoustic treatment recommended where required.

Daikin Model	Unit Designation	S/A	R/A	Casing Radiated
FXMQ40PAVE	ACU 4-1	(1)	(1)	(1)
FXMQ50PAVE	ACU G-4	(1)	(1)	(1)
FXMQ100PAVE	ACU 3-4	(1)	(1)	(4)
FXMQ125PAVE	ACU G-11, ACU 1-14, ACU1-12, ACU1-10, ACU1-8, ACU 2-14, ACU 2-12, ACU 2-11, ACU 2-7, ACU 3-16, ACU 3-14, ACU 3-12, ACU 3-10, ACU 3-8	(2)	(1)	(1)
FXMQ140PAVE	ACU G-2, ACU 1-6, ACU 3-1	(2)	(1)	(1)
FXMQ140PAVE	ACU G-9 (music)	(2)	(3)	(1)
FXMQ160PV1A	ACU G-1, ACU 1-1, ACU 1-5, ACU 2-6, ACU2-7,	(2)	(1)	(4)
FXMQ180PV1A	ACU G-10, ACU 1-4, ACU 2-5, ACU 3-6	(1)	(1)	(4)
FXMQ200PV1A	ACU 1-2, ACU 2-3	(1)	(1)	(4)
FXMQ250PV1A	ACU G-3	(1)	(1)	(4)
VAM1000GJVE	ERVs	(1)	(5)	(4)

Table 7: Summary of acoustic treatment for ACU's.

(1) No further acoustic treatment is required.
(2) Minimum 2,000mm long flexible ducting before the SA grilles.
(3) Minimum 1,500mm long flexible ducting before the RA grilles.
(4) Replace perforated plasterboard ceiling and construct a bulkhead encapsulating the units with minimum 1 layer of 13mm plasterboard and internally line with 100mm, 32kg/m^3 polyester.

(5) Minimum 2,200mm long flexible ducting before the RA grilles.

Environmental Acoustics

Noise Associated with Roof Mechanical Services

We have reviewed the rooftop mechanical services serving the development and the results of our assessment reveal that when all units are in operation, the criteria will be achieved and the amenity of the nearest residential receivers and the adjacent school buildings (Archdiocese centre, Redden centre, FJ Siebert, Convent & Chapel) will not be affected during the day time when the building is operational.

To control the noise from the condensers serving the development to the outdoor learning area and the outdoor sports court, we recommend acoustic louvres with the minimum attenuation at each frequency:

Frequency (dB)	63	125	250	500	1K	2K	4K
Sound Reduction Index	18	14	14	22	28	28	33

Structure Borne Noise and Vibration

Condensing units to be installed on neoprene vibration isolation mounts with minimum static deflection of 8mm.

Noise associated with Fire Services

Details of the fire services are currently not available. Hence for this assessment, we used measured data from a previous project and assumed similar noise levels which were 95dBA@1m.

The results of our assessment reveal that with the roof services room construction (Refer Building Façade), the amenity of the nearest residential receivers and the adjacent school buildings (Archdiocese centre, Redden centre, FJ Siebert, Convent & Chapel) will not be affected during the day time when the building is operational.

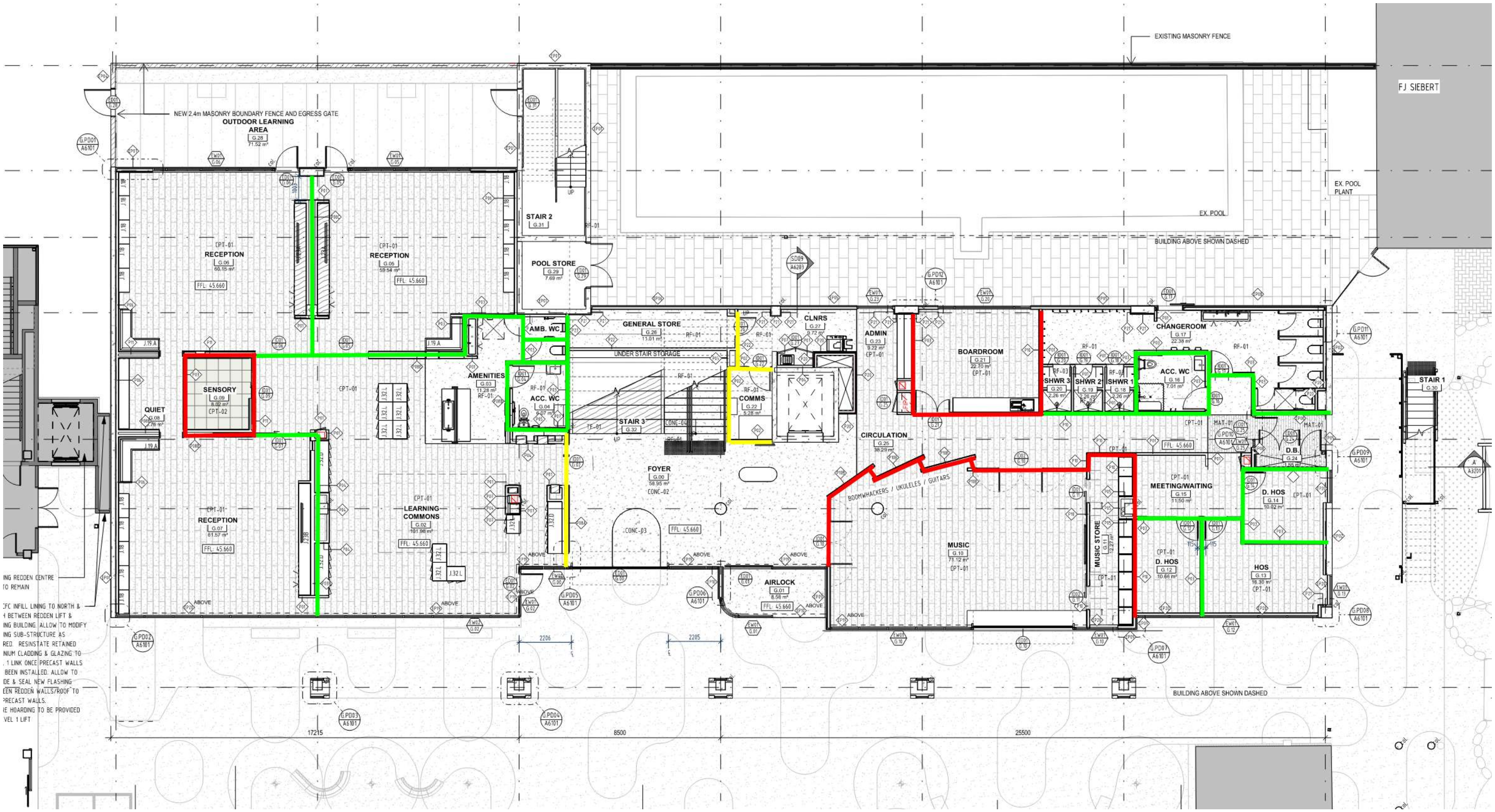
Please note:

- The fire pump diesel engine will require cooling intake and discharge openings as well as exhaust mufflers, which will be specified once details of the diesel engine are provided;
- The fire pump should be suspended on seismically restrained vibration spring isolators with minimum static deflection of 50mm.
- The connection between the fire pump and any pipes should be via flexible connection (Victaulic or equivalent) with the pipes suspended on seismically restrained spring hanger with minimum 50mm static deflection for the first 15m or 100 pipe diameters, whichever is greater. For the rest of the run, the pipes could be supported on neoprene hangers.
- The fire pump room would require minimum 5m^2 of NRC0.9 acoustic panels/ tiles internally to reduce the reverberation buildup noise.
- Once the details and selections are made available, this assessment would be revised.

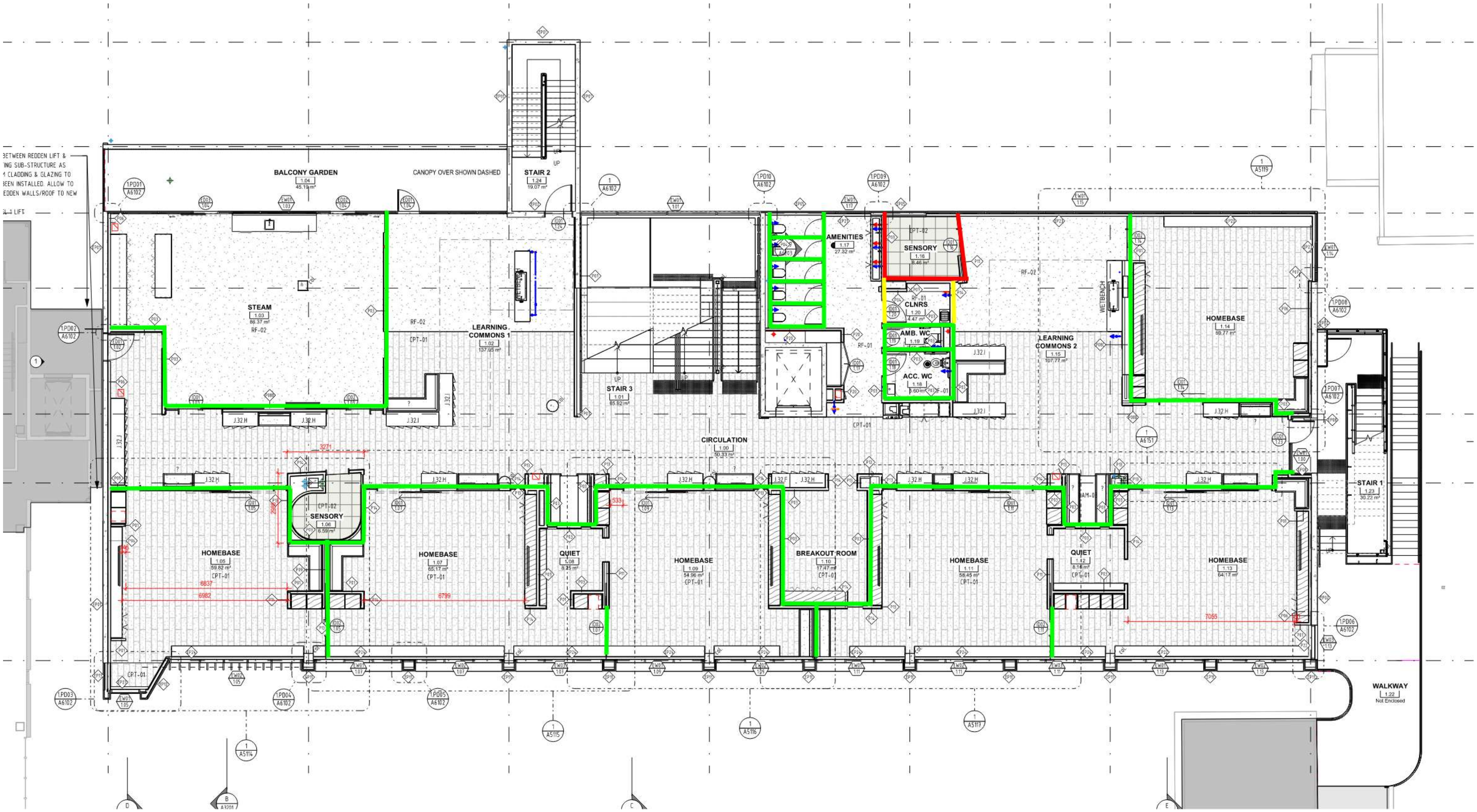
APPENDIX A

Partition Mark-Up

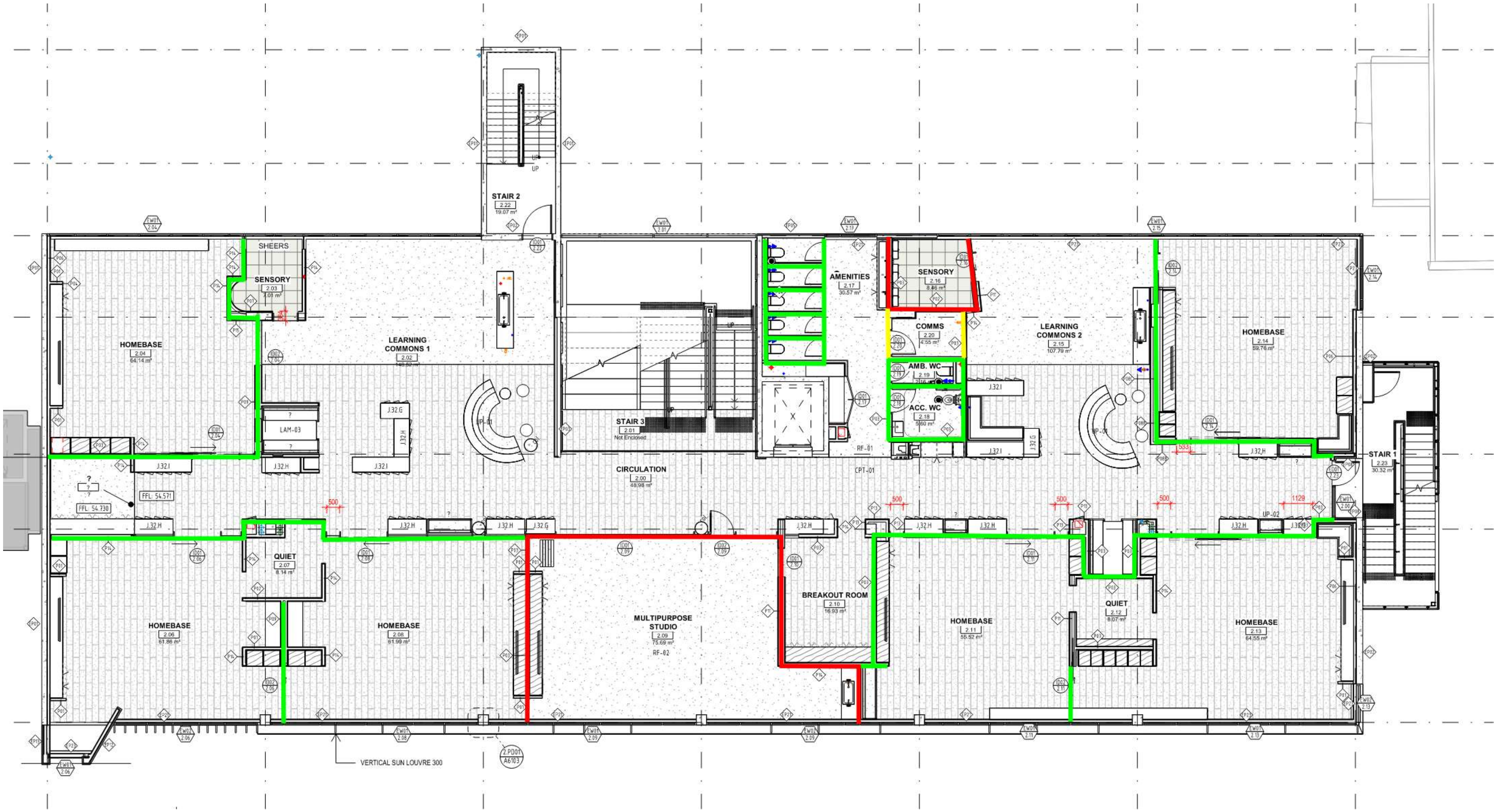
Speech Privacy	D_W	Mark-up Colour
Normal Speech Privacy	35	
Good Speech Privacy	40	
Very Good Speech Privacy	45	



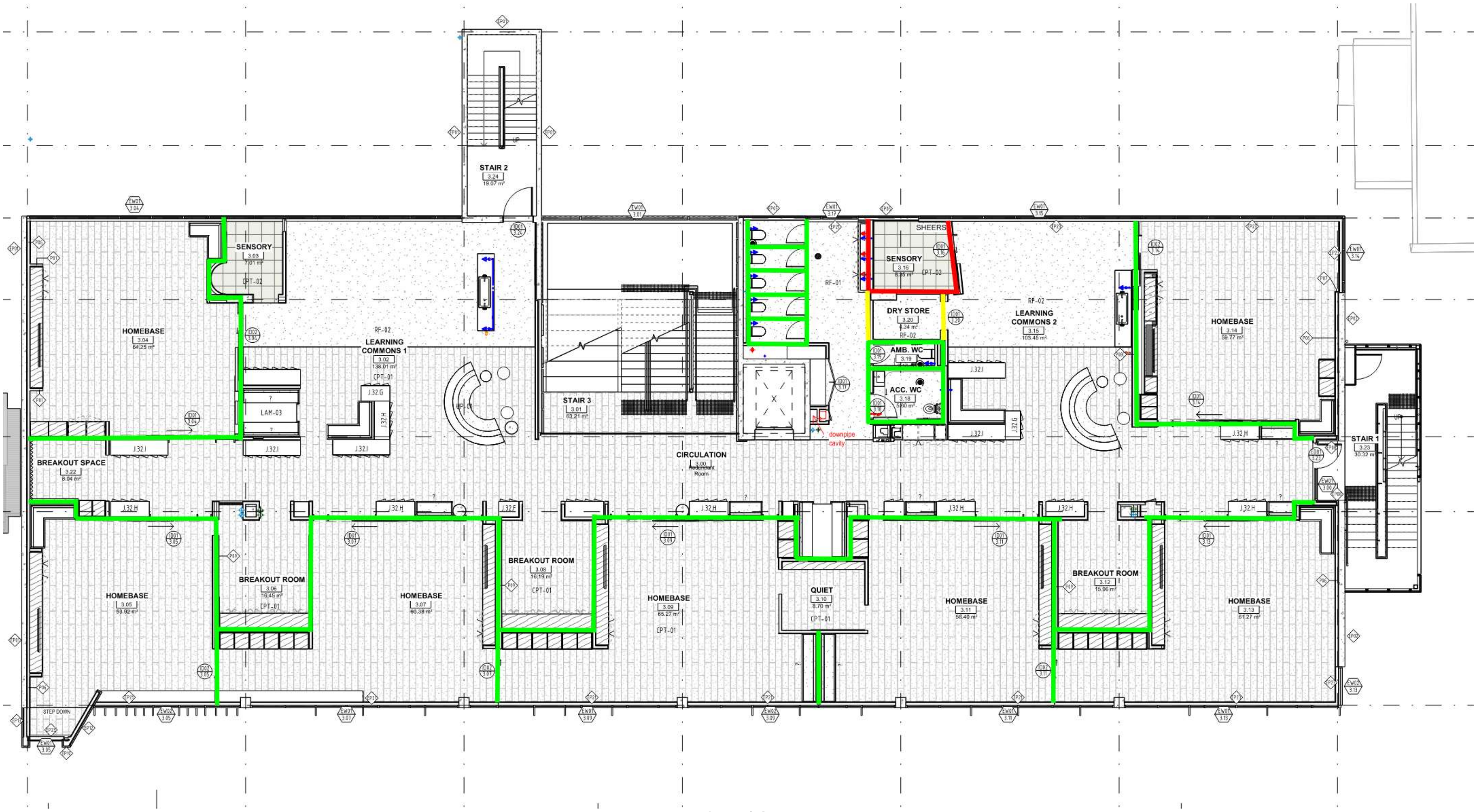
Ground Floor


BALCONY GARDEN
CANOPY OVER SHOWN DASHED
STAIR 2
STEAM
LEARNING COMMONS 1
STAIR 3
AMENITIES
SENSORY
CLNRS
AMB. WC
ACC. WC
LEARNING COMMONS 2
WETBENCH
HOMEBASE
CIRCULATION
SENSORY
HOMEBASE
HOMEBASE
QUIET
HOMEBASE
BREAKOUT ROOM
HOMEBASE
QUIET
HOMEBASE
STAIR 1
WALKWAY
Not Enclosed

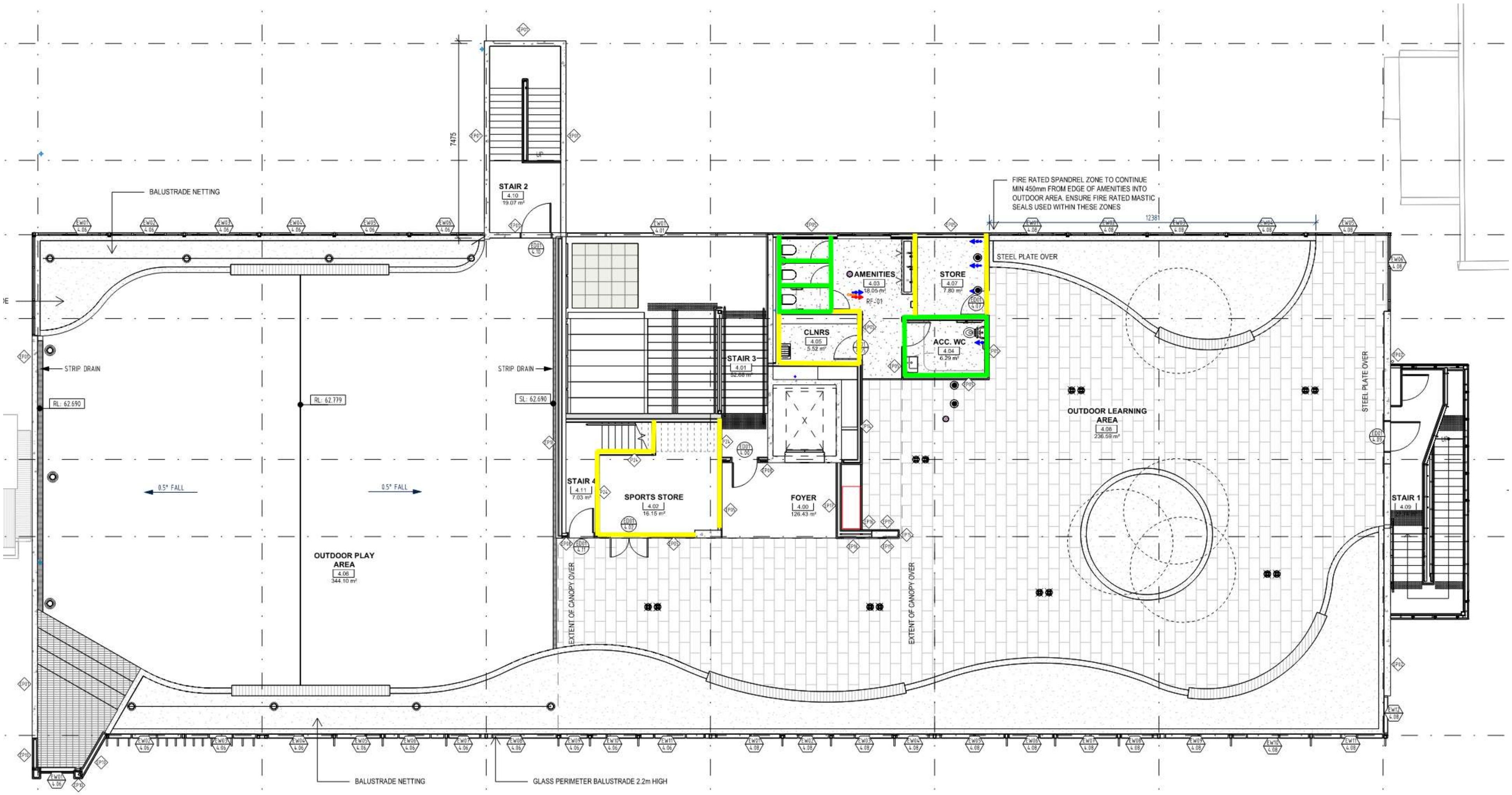
Level 1


STAIR 2
SHEERS
SENSORY
HOMEBASE
LEARNING COMMONS 1
AMENITIES
SENSORY
COMMS
LEARNING COMMONS 2
HOMEBASE
AMB. WC
ACC. WC
STAIR 3
CIRCULATION
STAIR 1
QUIET
HOMEBASE
HOMEBASE
MULTIPURPOSE STUDIO
BREAKOUT ROOM
HOMEBASE
QUIET
HOMEBASE
VERTICAL SUN LOUVRE 300

Level 2


STAIR 2
SENSORY
HOMEBASE
LEARNING COMMONS 1
STAIR 3
SENSORY
DRY STORE
AMB. WC
ACC. WC
LEARNING COMMONS 2
HOMEBASE
STAIR 1
BREAKOUT SPACE
CIRCULATION
HOMEBASE
BREAKOUT ROOM
HOMEBASE
BREAKOUT ROOM
HOMEBASE
QUIET
HOMEBASE
BREAKOUT ROOM
HOMEBASE

Level 3


STAIR 2
BALUSTRADE NETTING
FIRE RATED SPANDREL ZONE TO CONTINUE MIN 450mm FROM EDGE OF AMENITIES INTO OUTDOOR AREA. ENSURE FIRE RATED MASTIC SEALS USED WITHIN THESE ZONES
STEEL PLATE OVER
AMENITIES
STORE
CLNRS
ACC. WC
STAIR 3
STRIP DRAIN
OUTDOOR LEARNING AREA
STAIR 4
SPORTS STORE
FOYER
STAIR 1
OUTDOOR PLAY AREA
EXTENT OF CANOPY OVER
GLASS PERIMETER BALUSTRADE 2.2m HIGH

Roof Plan

APPENDIX B

Glossary of Acoustic Terminology

dB(A) Also referred to as dBA. A unit of measurement, decibels (A), of sound pressure level which has its frequency characteristics modified by a filter ("A-weighted") so as to more closely approximate human ear response at a loudness level of 40 phons. The table below outlines the subjective rating of different sound pressure levels.

Noise Level (dBA)	Subjective Rating
25-30	Barely audible and very unobtrusive.
30-35	Audible but very unobtrusive.
35-40	Audible but unobtrusive.
40-45	Moderate but unobtrusive.
45-50	Unobtrusive with low levels of surrounding activity.
50-55	Unobtrusive with high levels of surrounding activity.

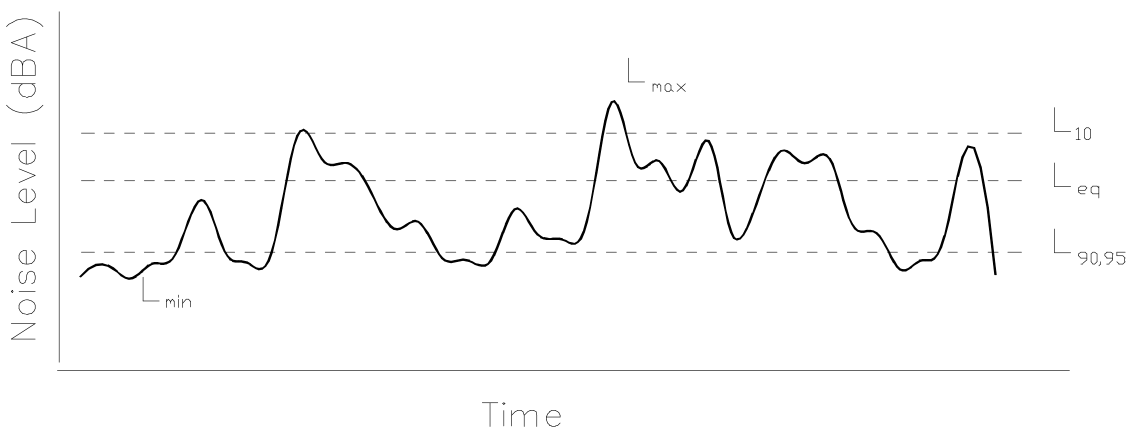
L_1 The noise level which is equalled or exceeded for 1% of the measurement period. L_1 is an indicator of the impulse noise level, and is used in Australia as the descriptor for intrusive noise (usually in dBA).

L_{10} The noise level which is equalled or exceeded for 10% of the measurement period. L_{10} is an indicator of the mean maximum noise level, and is used in Australia as the descriptor for intrusive noise (usually in dBA).

L_{90}, L_{95} The noise level which is equalled or exceeded for 90% of the measurement period. L_{90} or L95 is an indicator of the mean minimum noise level, and is used in Australia as the descriptor for background or ambient noise (usually in dBA).

L_{eq} The equivalent continuous noise level for the measurement period. L_{eq} is an indicator of the average noise level (usually in dBA).

L_{max} The maximum noise level for the measurement period (usually in dBA).



Note: The subjective reaction or response to changes in noise levels can be summarised as follows: A 3dBA increase in sound pressure level is required for the average human ear to notice a change; a 5dBA increase is quite noticeable and a 10dBA increase is typically perceived as a doubling in loudness.

STC/R_W — Sound Transmission Class or Weighted Sound Reduction Index. Provides a single number rating (from the sound transmission loss or sound reduction index for each frequency band) of the sound insulation performance of a partition. The higher the value, the better the performance of the partition. The subjective impression of different ratings is shown in the table below.

Type of noise source	STC/Rw Rating				
	40	45	50	55	60
Normal Speech	Audible	Just Audible	Not Audible		
Raised speech	Clearly Audible	Audible	Just Audible	Not Audible	
Shouting	Clearly Audible	Clearly Audible	Audible	Just Audible	Not Audible
Small television/small entertainment system	Clearly Audible	Clearly Audible	Audible	Just Audible	Not Audible
Large television/large hi-fi music system	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Just Audible
DVD with surround sound	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Audible
Digital television with surround sound	Clearly Audible	Clearly Audible	Clearly Audible	Audible	Audible

FSTC/R_W' — The equivalent of STC/R_W, unit for sound insulation performance of a building element measured in the field.

C_I, C_{tr} — The ratings (R_W, D_{nTw}, L_{nTw}) are weighted in accordance to a spectrum suited to speech. This term modifies the overall rating to account for noise with different spectra, such as traffic (C_{tr}) or footfalls (C_I). The ratings may be written as R_W+C_{tr}, or D_{nTw}/L_{nTw}+C_I.

NNIC/D_{nTw} — Normalised Noise Isolation Class, or Weighted Standardised Sound Level Difference. Provides a single number rating of the sound level difference between two spaces, and incorporates the effects of flanking noise between two spaces. This rating is generally accepted to be about 5 points less than the STC/R_W rating.

IIC/L_{nw} — Impact Insulation Class, or Weighted Normalised Impact Sound Level. L_{nw} = 110 - IIC. The higher the IIC rating, or the lower the L_{nw} rating the better the performance of the building element at insulating impact noise. The table below gives the subjective impression of different ratings:

IIC	Lnw	Subjective Rating
40	70	Clearly Audible
45	65	Clearly Audible
50	60	Audible
55	55	Audible
60	50	Just Audible
65	45	Inaudible

FIIC/L_{nTw}' — The equivalent of IIC/L_{nw}, but the performance is for the building element measured in the field.

Attachment D

NCC Revised Assessment

MASTERPLAN

TOWN + COUNTRY PLANNERS SINCE 1977

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ABN 43 909 272 047

Building Engineering
Services Technologies
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F. (08) 8232 4244

E. consulting@bestec.com.au
W. bestec.com.au

LRO:OZH
57837/1/1
26 August 2024

Grieve Gillett Architects
243 Pirie Street
ADELAIDE SA 5000

Attention: Ms A Rebbeck

Dear Madam

ST ALOYSIUS COLLEGE NEW PRIMARY SCHOOL
MECHANICAL SERVICES

We have undertaken an alternative Building Code of Australia Section J assessment for the above project. Its purpose is to demonstrate the proposed glazing with the National Construction Code (NCC) 2022 Section J requirements via a Verification Method - Section J1V3 approach.

The assessment is based on the following:-

- Grieve Gillett Architects / Hayball Architectural drawings dated 20 August 2024.
- Building Location: 53 Wakefield Street, Adelaide SA 5000.
- Climate Zone: 5
- Building Class: 9B

NATIONAL CONSTRUCTION CODE OF AUSTRALIA 2022 COMPLIANCE

JV3 Verification Method

The NCC 2022 by *'Verification Method - Section J1V3 - Verification using a reference building'* states:-

For a Class 9B, building compliance with 'Performance Requirement J1P1' is verified when –

- *It is determined that the annual greenhouse gas emissions of the proposed building are not more than the annual greenhouse gas emissions of a reference building when –*

  (i) the proposed building is modeled with the proposed services; and

  (ii) the proposed building is modelled with the same services as the reference building; and

- *In the proposed building a thermal comfort level of between a Predicted Mean Vote of -1 to +1 is achieved across not less than 95% of the floor area of all occupied zone for not less than 98% of the annual hours of operation of the building.*

SPECKEL ANALYSIS

Thermal load and energy consumption analysis was calculated for the proposed and reference building utilising the computer software programme SPECKEL.

This computer simulation software has been certified in accordance with the ANSI/ASHRAE Standard 140-2001: “Standard Method of Test for Evaluation of Building Energy Analysis Computer Programs”.

INPUT DATA

The following design input parameters have been utilised for both the proposed and reference building in accordance with NCC 2022 Specification J1V3:-

Item		Input Data
		Reference Building Design & Proposed Building Design
Location		Adelaide, SA 5000
Building classification		Class 9B
Climate zone		5
Schedules		Taken from NCC Specification 35 Table S35C2j (Class 9B)
People	Occupancy	2 m^2/person In accordance with AS 1668.2-2012
	Activity	130W/person (70W sensible, 60W latent) – design input
	Air Velocity	0.1 – Design input
	Clothing	0.65 – Knee-length skirt, long-sleeve shirt (Typical school uniform)
Lights		4.5 W/m^2 In accordance with NCC Section J7D3 Table J7D3a
Equipment		10 W/m^2 In accordance with NCC Specification 35 Table S35C2L.
Infiltration	ON	0.35 - In accordance with NCC Specification 34
	OFF	0.7 - In accordance with NCC Specification 34
Thermostat	Cooling Setpoint	22.5°C In accordance with NCC Specification 34
	Heating Setpoint	21.5°C In accordance with NCC Specification 34
HVAC	System Type	Variable Refrigerant Flow Air Cooled Condensing unit
	Outdoor Air	10 L/s/person – In accordance with AS 1668.2-2012
	Cooling COP	3.5 – Design Input
	Heating COP	3.0 – Design Input
	Supply Fan Total Efficiency	80% – Design Input
	Supply Fan Delta Pressure	150Pa – Design input
	Supply Fan Motor Efficiency	80% – Design Input
Modelling	Ground Reflectance	20% – Design Input
	Wall Solar Absorbance	60% – In Accordance with NCC Specification 34

CLIMATE DATA

The building is located in Adelaide which is classified by the NCC as Climate Zone 5 in accordance with Table 1 Climate Zones for Thermal Design. The building simulation utilized hourly weather data inbuilt into SPECKEL for the Adelaide region.

PART J4 - BUILDING FABRIC

As per the NCC Specification 37 requirement, the total system U-values have been calculated as weighted average of the thermal transmittances of each construction element and surface resistance and any thermal bridging.

Wall Constructions

The following external wall constructions were used in the energy assessment:-

Wall Construction: 01	R- Value (summer heat flow inwards)	
Compressed Fibre Cement sheeting with internal stud framing and insulation (146mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Compressed Fibre Cement (6mm)	0.02	
3. Top Hat Stud (35mm)	0.15	
4. Unventilated Airspace (2mm)	0.00	
5. Wall insulation (R2.0, 90mm)	1.91	
6. Metal Wall Stud (92mm)		0.14
7. Plasterboard (13mm)	0.08	
8. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.42**	

Wall Construction: 02	R- Value (summer heat flow inwards)	
Precast Concrete wall with internal stud framing and insulation (395mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Precast Concrete (250mm)	0.31	
3. Air Cavity (40mm)	0.15	
4. Unventilated Airspace (17mm)	0.00	
5. Wall insulation (R1.5, 75mm)	1.44	
6. Metal Wall Stud (92mm)		0.14
7. Plasterboard (13mm)	0.08	
8. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.57**	

Wall Construction: 03	R- Value (summer heat flow inwards)	
Spandrel panel with insulated stud wall	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.4	
2. Glazing system *Refer to glazing section for maximum allowable U-value*	0.26	
3. Unventilated Airspace (50mm)	0	
4. Steel pan (1mm)	1.93	
5. Metal Wall Stud (92mm)		0.11
6. Plasterboard (10mm)	0.06	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.52**	

PART J4 - BUILDING FABRIC (CONT.)

Wall Constructions (Cont.)

Wall Construction: 04	**R- Value (summer heat flow inwards)**	
Northern Column wall	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Compressed Fibre Cement (12mm)	0.05	
3. Top Hat Stud (35mm)	0.15	
4. Top Hat Stud (15mm)	0.00	
5. Concrete (300mm)	0.37	
6. Insulated Plasterboard (35mm)	1.15	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.88**	

Wall Construction: 05	**R- Value (summer heat flow inwards)**	
Southern Column wall (397mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Brick Snaps (15mm)	0.03	
3. Top Hat Stud	0.00	
4. Unventilated Air cavity	0.15	
5. Concrete (450mm)	0.56	
6. Insulated Plasterboard (35mm)	1.15	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.05**	

Wall Construction: 06	**R- Value (summer heat flow inwards)**	
Wall Column with External Metal Flashing (382mm)	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Metal Flashing (0.42mm)	0.00	
3. Top Hat Stud	0.00	
4. Unventilated Air cavity	0.15	
5. Concrete (450mm)	0.56	
6. Insulated Plasterboard (35mm)	1.15	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.02**	

PART J4 - BUILDING FABRIC (CONT.)

Wall Constructions (Cont.)

The following internal wall constructions between conditioned and unconditioned spaces was used in the energy assessment:-

Wall Construction: 06	**R- Value (summer heat flow inwards)**	
Plasterboard with internal stud frame and insulation (109mm)	**Insulation Pathway**	**Bridging Pathway**
1. Indoor air film	0.12	
2. Plasterboard (13mm)	0.08	
3. Unventilated Airspace (2mm)	0.00	
4. Wall Insulation (R 2.5, 90mm)	2.41	
5. Metal Wall Stud (92mm)		0.14
6. Plasterboard (13mm)	0.08	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**1.46**	

Roofing and Ceiling Constructions

A solar absorbance of 0.45 was used in the energy assessment.

The following Roof and ceiling construction was used in the energy assessment:-

Roof/Ceiling Construction: 01	**R- Value (summer heat flow inwards)**	
Concrete slab with ceiling insulation and plasterboard / wood panel ceiling	**Insulation Pathway**	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Concrete slab (250mm)	0.31	
3. Unventilated airspace	0.15	
4. Ceiling insulation (R3.5,175mm)	3.35	
5. Plasterboard / wood panel (10mm)	0.06	
6. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**4.03**	

Floor Constructions

The ground floor was modelled as a 200mm thick concrete slab on ground with no under slab insulation.

The following floor construction for floors exposed to external conditions was used in the energy assessment:-

Floor Construction	**R- Value**	
	Insulation Pathway	**Bridging Pathway**
1. Outdoor air film	0.04	
2. Compressed Fibre Cement (6mm)	0.02	
3. Ceiling insulation (R1.5, 75mm)	1.44	
4. Unventilated Airspace	0.15	
5. Concrete slab (300mm)	0.37	
6. Carpet (8mm)	0.16	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.30**	

PART J4 - BUILDING FABRIC (CONT.)

Wall Constructions (Cont.)

The following floor construction for areas that are either above or below an unconditioned space was used in the energy assessment:-

Floor Construction	R- Value	
	Insulation Pathway	Bridging Pathway
1. Indoor air film	0.12	
2. Plasterboard (10mm)	0.06	
3. Ceiling Insulation (R1.5, 75mm)	1.44	
4. Unventilated Airspace	0.15	
5. Concrete slab (300mm)	0.37	
6. Carpet (8mm)	0.16	
7. Indoor air film	0.12	
Total Equivalent R-Value (m^2K/W)	**2.42**	

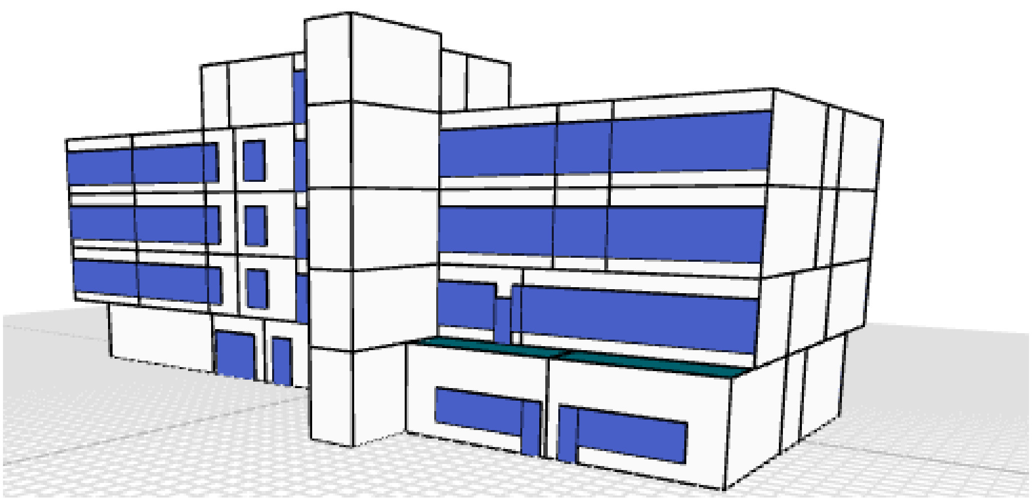
Glazing

SPECKEL has been used to determine the thermal performance requirements of the wall-glazing construction via the J1V3 verification method. The maximum allowable total glazing U-value and SHGC, inclusive of the frame, is summarised in the table below:-

Facade	Proposed Thermal Transmission U (W/m².K)	Proposed Solar Heat Gain Coefficient SHGC
All Façades	3.9	0.30

RESULTS JV3 VERIFICATION METHOD

A graphical representation of the Model used in the assessment can be seen below:-



Energy Analysis

The following table summarises the annual energy consumption for the Reference Building and Proposed Building.

Source	Reference Case (kWh/year)	Proposed Design (kWh/year)
Cooling Electricity	88,801.62	87,765.94
Heating Electricity	6,667.49	6,414.07
Fans Electricity	6,307.38	6,193.21
Lighting Electricity	45,225.45	45,225.45
Equipment Electricity	88,651.59	88,651.59
Total	**235,653.53**	**234,250.26**

The results from the energy simulation demonstrate that the annual energy consumption for the proposed building design is 0.6% less compared to the Deemed-to-Satisfy reference building.

Emissions Analysis

The following table summarises the annual CO_2 consumption for the Reference Building and Proposed Building.

	Reference Case	Proposed Design
Total (kgCO_2)	85,683.63	85,173.43

* Greenhouse gas emissions factor is 0.33 KgCO_2/kWh sourced from Australian National Greenhouse Accounts Factors August 2023.

The results from the emissions simulation demonstrate that the annual amount of CO_2 produced is 0.6% less for the proposed building design compared to the DtS reference building.

Thermal Comfort

The simulation shows that 100% of the floor area within the occupied zones has a thermal comfort level of between a Predicted Mean Vote of -1 to +1 for more than 98% of the annual hours of operation of the building. This exceeds the minimum NCC 2019 JV3 requirement of 95% of the floor area. The full zone by zone breakdown is enclosed for your information.

J1V3 Verification Method - Final Summary

Therefore, we conclude the above solution for the Proposed Building Design and Proposed Building Fabric Systems satisfies the Verification Method - Section J1V3.

We trust the above is satisfactory and we would be pleased to further advise on any aspect upon your request.

Yours faithfully

BESTEC PTY LTD

LIAM ROGERS
UNDERGRADUATE MECHANICAL SERVICES ENGINEER

Encl.

BESTEC

J1V3 Building Assessment

National Construction Code 2022 - Volume 1

Project	57837 - SAC New Primary
Address	53 Wakefield St, Adelaide SA 5000, Australia (34.93° S, 138.6° E)
Date	2024-08-26, 09:03 AM
Author	lrogers@bestec.com.au
Scope	National Construction Code 2022
Performance Requirements	J1P1 Energy Use
Assessment Process	Verification Method
Building Class	9B
Climate Zone	5
Storeys	4
Floor to Floor Height	4000 mm

Using Speckel

Speckel provides various calculations in line with the National Construction Code 2022 - Volume 1 - Section J Energy Efficiency. These calculations are tested in line with all applicable NCC equations or NCC referenced primary or secondary documents, for them to represent an accurate Performance Solution against the Performance Requirements - J1P1 Energy Use. A Performance Solution must be shown to comply with the relevant Performance Requirements through one or a combination of Assessment Methods. Speckel is a valid Assessment Method by comparison with the Deemed-to-Satisfy Provisions of each relevant area.

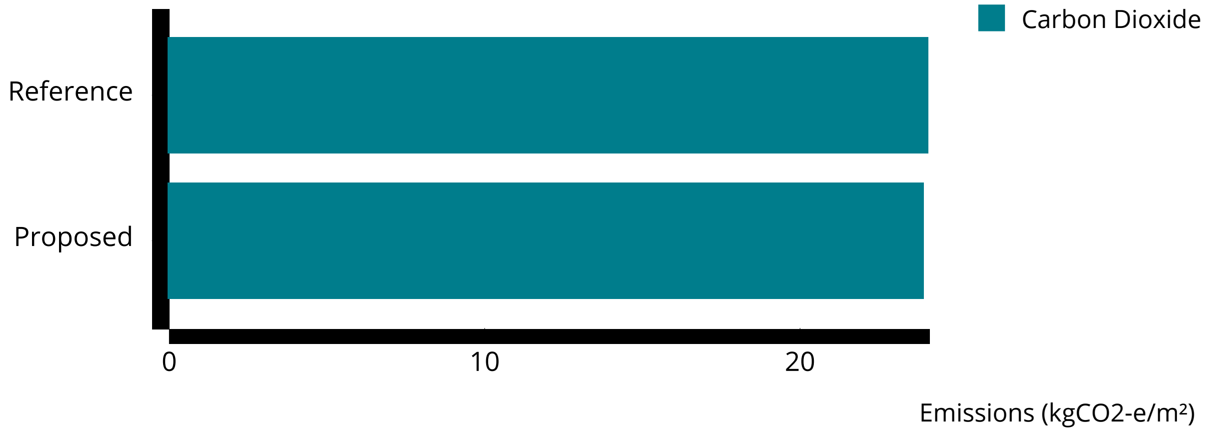
Results

The National Construction Code (NCC) specifies minimum performance standards for the energy efficiency of buildings through the Building Code of Australia (BCA) Volume 1, Section J. To enable flexibility in the architectural design of the building, a Performance Solution has been used to comply with the Performance Requirement - J1P1.

The Assessment Method, 'J1V3 Verification using a reference building' has been used and is an Alternative Solution for the Building Fabric only. As such, a Proposed Building with the proposed fabric has been modelled as part of this approach, to compare against the Reference Building services.

Building Emissions

To meet the acceptance criteria, annual Supplied Energy emissions must be less than **24.11** kgCO2-e/m². Based on a treated floor area of 3554.03 m², the simulated building achieved **23.97** kgCO2-e/m², **meeting** the acceptance criteria.



Thermal Comfort (PMV)

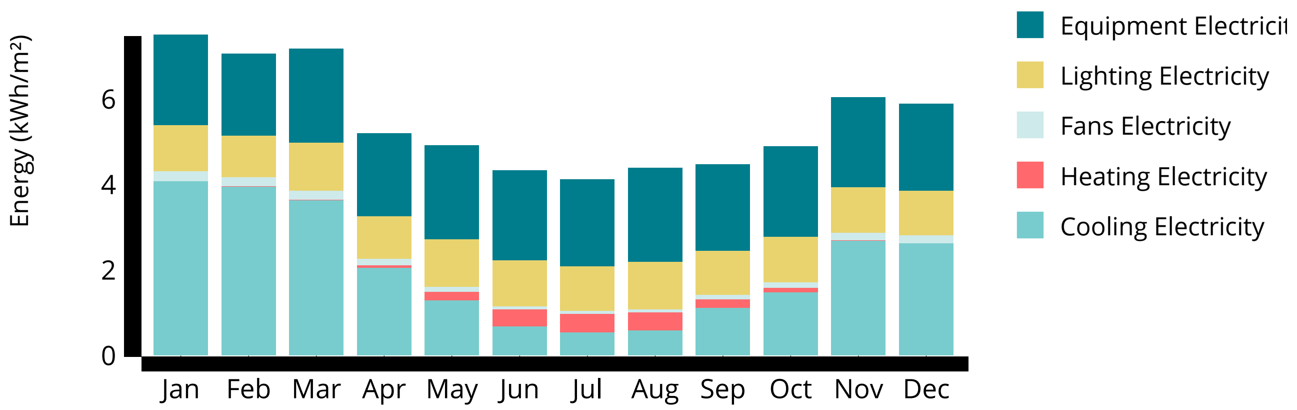
To meet the acceptance criteria, **95** % of total area across the assessed zones must meet the conditions:

- zone thermal comfort (pmv) is between -1.0 and 1.0 PMV
- for at least 98 % of hours
- when above 20 % occupancy

A total area of 3481.21 m² across 77 zones were assessed, where zones of **100.00** % area achieved the conditions, **meeting** the acceptance criteria.

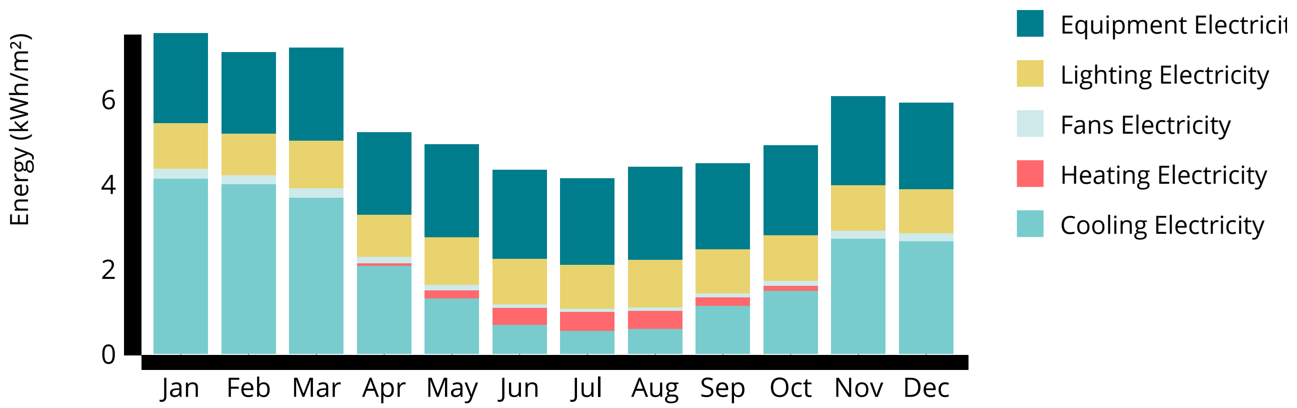
Building Meters

Proposed



Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Cooling Electricity	87765.94	24.69	201.74	31 Jan 13:00
Heating Electricity	6414.07	1.80	149.50	18 Jul 07:15
Fans Electricity	6193.21	1.74	6.16	30 Jan 14:15
Lighting Electricity	45225.45	12.73	16.80	2 Jan 09:15
Equipment Electricity	88651.59	24.94	34.33	2 Jan 09:15

Reference



Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Cooling Electricity	88801.62	24.99	204.34	31 Jan 13:00
Heating Electricity	6667.49	1.88	149.60	18 Jul 07:15
Fans Electricity	6307.38	1.77	6.30	30 Jan 14:15

Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Lighting Electricity	45225.45	12.73	16.80	2 Jan 09:15
Equipment Electricity	88651.59	24.94	34.33	2 Jan 09:15

Method

Approach

- The National Construction Code (NCC) specifies minimum performance standards for the energy efficiency of buildings through the Building Code of Australia (BCA) Volume 1, Section J.
- To enable flexibility in the architectural design of the building, a Performance Solution has been used to comply with the Performance Requirement - J1P1.
- The Assessment Method, J1V3 verification using a reference building, has been used and is an Alternative Solution for the Building Fabric only. As such, a Proposed Building with the proposed fabric has been modelled as part of this approach to compare against the Reference Building services.
- To meet acceptance criteria, the Proposed Building with the proposed fabric Greenhouse Gas (GHG) emissions must be no greater than the Reference Building services.
- Greenhouse gas emission factors are selected according Vol 1 Specification 34 Modelling Parameters for J1V3 Table S34C3 Greenhouse Gas Emissions Factors (kgCO2-e/GJ). In the case of the ACT, an exception is made where a greenhouse gas emission factor of nil is provided, as the national emission factors are not applied as they do not take into account investments in renewable electricity generation in the National Electricity Market.
- When the Simulated Shading Multipliers feature is enabled, each window is simulated in EnergyPlus twice, to compare a completely unshaded window, to a window affected by attached shading, building self-shading, and surrounding structures. The multiplier is based on the ratio of shaded versus unshaded annual average external incident solar radiation, limited between 0.0 and 1.0.

Assumptions / Limitations

- Parts J3, J5, J6, J7, J8 and J9 are not part of this assessment.
- Specification 33 Additional requirements - General is only met for provisions (a) General Thermal Construction and (b) for Floor Edge Insulation. All other provisions (c - n) are not part of this assessment.
- Specification 34 Modelling parameters for J1V3 S34C1 Scope, S34C2 Reference building and S34C3 Proposed building and reference building have been used to form the basis of the Method of Assessment.
- S34C4 Services Proposed and Reference Building is not part of this assessment as the minimum performance requirements of the services are not included.
- To ensure the reference building can be calculated, windows are limited to a maximum of 99% window-to-wall ratio (WWR).

Inputs

The NCC 2022 - Vol 1 contains technical design and construction requirements for all commercial buildings and their associated structures. The following Building Classes have been adopted in this assessment.

Building Class	9B
Wall Area (m²)	1731.64
Window Area (m²)	951.78
Roof Area (m²)	949.86
Floor Area (m²)	1120.56
Window-Wall Ratio (%)	35.47

Levels

Level	Drawing	# Zones	Floor Area (m²)	Wall (m²)	Window (m²)
1	GF	25	785.7	626.3	192.8
2	LV 1	21	1005.0	323.6	231.7
3	LV 2	22	1005.2	324.9	240.4
4	LV 3	22	1005.2	324.9	240.4
5	Roof	8	177.1	131.9	46.5

Zones

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
1	20. Sensory	8.90	41.83	8.90
1	1. Breakout	106.88	502.34	106.88
1	24. Void	2.51	11.78	2.51
1	22. Lift	8.04	37.80	8.04
1	25. Cleaners	0.83	3.89	0.83
1	16. Office	11.22	52.72	11.22
1	11. MTG	22.33	104.97	22.33
1	7. WC	48.85	229.61	0.00

Level	Zone	Area (m^2)	Volume (m^3)	Treated Area (m^2)
1	10. Stairs	22.70	106.71	22.70
1	19. Quiet	9.53	44.78	9.53
1	5. GLA	63.59	298.87	63.59
1	15. Office	11.62	54.60	11.62
1	8. Hallway	28.39	133.44	28.39
1	23. Comms	5.35	25.12	5.35
1	17. Store	10.33	48.57	0.00
1	9. Stair	27.91	131.19	0.00
1	12. WC	21.53	101.19	0.00
1	18. Office	10.31	48.44	10.31
1	21. Airlock	8.44	39.65	8.44
1	3. GLA	72.33	339.93	72.33
1	14. Store	13.92	65.43	13.92
1	13. Office	18.04	84.79	18.04
1	2. Foyer	87.94	413.32	87.94
1	6. GLA	60.95	286.45	60.95
1	4. GLA	66.51	312.61	66.51
2	2. GLA	87.56	337.10	87.56
2	21. Void	3.14	12.08	3.14
2	6. GLA	63.91	244.51	63.91
2	16. Quiet	9.27	35.32	9.27
2	8. GLA	63.35	242.62	63.35
2	19. Sensory	8.04	30.97	8.04
2	14. MTG	17.56	67.55	17.56
2	18. Quiet	8.04	30.97	8.04

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
2	13. Stair	19.66	75.70	0.00
2	11. Stair	51.29	195.83	51.29
2	15. WC	15.32	58.97	15.32
2	12. WC	31.36	119.96	31.36
2	17. Sensory	8.01	30.43	8.01
2	9. GLA	63.20	241.32	63.20
2	3. Hallway	69.80	268.61	69.80
2	10. Breakout	63.08	240.77	63.08
2	20. Lift	8.04	30.97	8.04
2	7. GLA	63.60	241.99	63.60
2	5. GLA	65.49	250.76	65.49
2	4. GLA	68.35	261.62	68.35
2	1. bREAKOUT	179.78	690.52	179.78
3	22. Void	3.14	12.08	3.14
3	9. GLA	63.51	244.52	63.51
3	8. GLA	63.35	243.89	63.35
3	20. Sensory	8.04	30.97	8.04
3	14. MTG	17.56	67.59	17.56
3	18. Quiet	8.04	30.97	8.04
3	13. Stair	19.66	75.70	0.00
3	11. Stair	51.29	197.48	51.29
3	15. WC	10.02	38.56	10.02
3	17. Sensory	8.01	30.83	8.01
3	16. Sensory	8.57	32.98	8.57
3	2. GLA	76.90	296.05	76.90

BESTEC

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
3	1. bREAKOUT	191.99	739.15	191.99
3	6. GLA	64.04	246.56	64.04
3	19. Lift	8.04	30.97	8.04
3	3. Hallway	69.77	268.62	69.77
3	12. WC	31.36	120.72	31.36
3	10. Breakout	63.05	242.73	63.05
3	21. COMMS	4.99	19.23	4.99
3	7. GLA	63.60	244.85	63.60
3	5. GLA	65.49	252.14	65.49
3	4. GLA	68.35	263.14	68.35
4	22. Void	3.14	12.08	3.14
4	13. Stair	19.66	75.70	0.00
4	11. Stair	51.29	197.48	51.29
4	17. WC	15.32	58.97	15.32
4	12. WC	31.36	120.72	31.36
4	19. Sensory	8.01	30.83	8.01
4	18. Sensory	8.57	32.98	8.57
4	3. GLA	64.04	246.56	64.04
4	21. Quiet	8.04	30.97	8.04
4	8. GLA	62.49	240.58	62.49
4	9. GLA	62.31	239.90	62.31
4	10. GLA	61.98	238.61	61.98
4	14. MTG	16.67	64.16	16.67
4	15. MTG	16.66	64.12	16.66
4	1. bREAKOUT	191.91	738.84	191.91

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
4	16. MTG	16.46	63.36	16.46
4	20. Lift	8.04	30.97	8.04
4	7. Breakout	63.49	244.43	63.49
4	2. Hallway	69.42	267.28	69.42
4	5. GLA	63.60	244.85	63.60
4	6. GLA	62.99	242.49	62.99
4	4. GLA	63.48	244.39	63.48
5	3. Stair	19.66	75.70	0.00
5	6. Lift	7.93	30.13	0.00
5	7. Sensory	6.80	25.85	0.00
5	8. Void	3.41	12.96	0.00
5	2. WC	33.66	127.91	0.00
5	5. Stair	7.93	30.14	0.00
5	4. Store	19.33	73.46	0.00
5	1. Stair	67.22	258.81	67.22
		3820.38		3554.03

Walls

Total System R-values of all walls include the effects of thermal bridging, which are calculated in accordance with AS/NZS 4859.2 and NZ 4214:2006 (as per J4D3 Thermal Construction — General (5)) or are stated values.

For the purpose of the Reference Building, the wall total system R-value of the wall-glazing construction has been calculated in accordance with J4D6 Walls and Glazing and Specification 37 Calculation of U-Value and solar admittance.

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
Exposed to Unconditioned	Concept	9B	1.52	330.57
Exposed to Unconditioned	Precast	9B	1.57	34.80
External	Concept	9B	1.52	598.80

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
External	Fibre Cement	9B	1.42	265.66
External	NORTH COLUMN	9B	1.88	13.72
External	Precast	9B	1.57	443.69
External	South Column	9B	2.05	44.40
Reference	**Title**	**Class**	**R-Value (m²K°/W)**	**Area (m²)**
Exposed to Unconditioned	Concept	9B	1.00	330.57
Exposed to Unconditioned	Precast	9B	1.00	34.80
External	Concept	9B	1.00	598.80
External	Fibre Cement	9B	1.00	265.66
External	NORTH COLUMN	9B	1.00	13.72
External	Precast	9B	1.00	443.69
External	South Column	9B	1.00	44.40

Roofs

Total system R-values of all roofs include the effects of thermal bridging are calculated in accordance with AS/NZS 4859.2 and NZ 4214:2006 (as per J4D3 Thermal Construction — General (5)) or are stated values.

For the purpose of the Reference Building, the roof total system R-value has been assumed in accordance with J4D4 Roof and ceiling construction.

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
External	Concept	9B	4.03	879.32
Top	Concept	9B	4.03	70.54
Reference	**Title**	**Class**	**R-Value (m²K°/W)**	**Area (m²)**
External	Concept	9B	3.70	879.32
Top	Concept	9B	3.70	70.54

Floors

Total system R-values of all floors include the effects of thermal bridging are calculated in accordance with AS/NZS 4859.2, NZ 4214:2006 and Section 3.5 of CIBSE Guide A (as per J4D3 Thermal Construction — General (5)) or are stated values

For the purpose of the Reference Building, the floor total system R-value has been assumed in accordance with J4D7 Floors.

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
Bottom	Concept	9B	2.24	669.52
Exposed to Unconditioned	Concept	9B	2.24	180.31
External	Concept	9B	2.24	270.73
Reference	**Title**	**Class**	**R-Value (m²K°/W)**	**Area (m²)**
Bottom	Concept	9B	2.00	669.52
Exposed to Unconditioned	Concept	9B	2.00	180.31
External	Concept	9B	2.00	270.73

Windows

Total system U-values of all windows include the effects of thermal bridging at the frame, which are calculated in accordance with ISO 15099, as per J4D3 Thermal Construction — General (5).

For the purpose of the Reference Building, the glazing total system U-value and solar admittance of the wall-glazing construction has been calculated in accordance with J4D6 Walls and Glazing and Specification 37 Calculation of U-Value and solar admittance.

Proposed	Title	Class	U-value	SHGC	Area (m²)
External	2400 ^700	9B	3.90	0.30	725.14
External	Concept	9B	3.90	0.30	226.64
Reference	**Title**	**Class**	**U-value**	**SHGC**	**Area (m²)**
External	2400 ^700	9B	3.82	0.33	725.14
External	Concept	9B	3.82	0.33	226.64

Location and Climate

This development is located at Adelaide-Kent.Town,SA AUS. The climate file used in all simulations was AUS_SA_Adelaide-Kent.Town.946750_TMYx.2007-2021, sourced from Climate.OneBuilding, an online repository collated from public sources. http://www.climate.onebuilding.org/.

Occupants

Occupant density (m²/person) are stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building occupant densities are

identical.

Space	Building Class	Activity	Occupancy Density	Clothing	Air Velocity (m/s)
Default	9B	Generic Building	2.0	0.7	0.1

Lighting

Lighting power density (W/m²) is stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building equipment density have been nominated as identical.

Space	Building Class	Space	W/m²
Default	9B	Generic Building	4.5

Equipment

Equipment density (W/m²) are stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building equipment density are identical.

Space	Building Class	Space	W/m²
Default	9B	Generic Building	10.0

Air-Conditioning

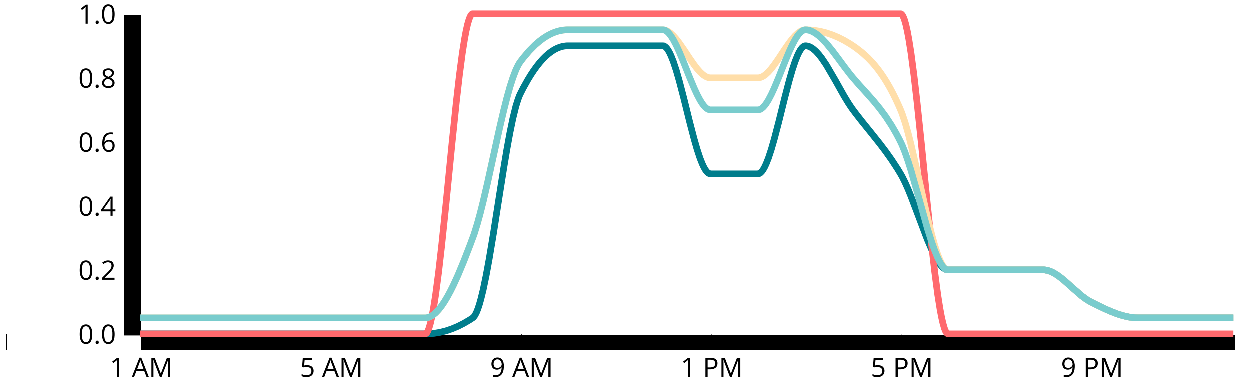
As a fabric only assessment, air-condition equipment and mechanical ventilation rates for the Reference and Proposed Building are identical. Minimum mechanical ventilation is required as per Part F6P3 Outdoor air supply.

Thermostat Details

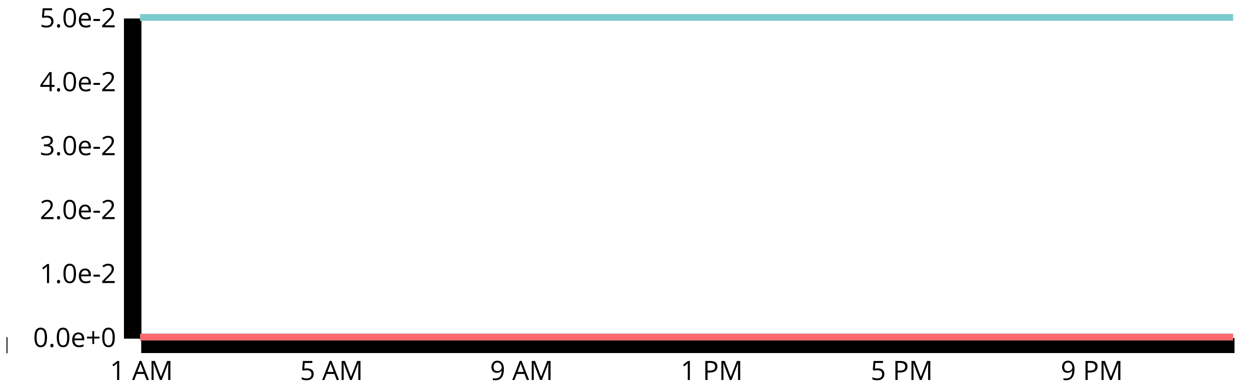
Space	Building Class	Space	Cooling Set Point (°C)	Heating Set Point (°C)
Default	9B	Generic Building	22.5	21.5

Profiles

Space - Default
Typical Day



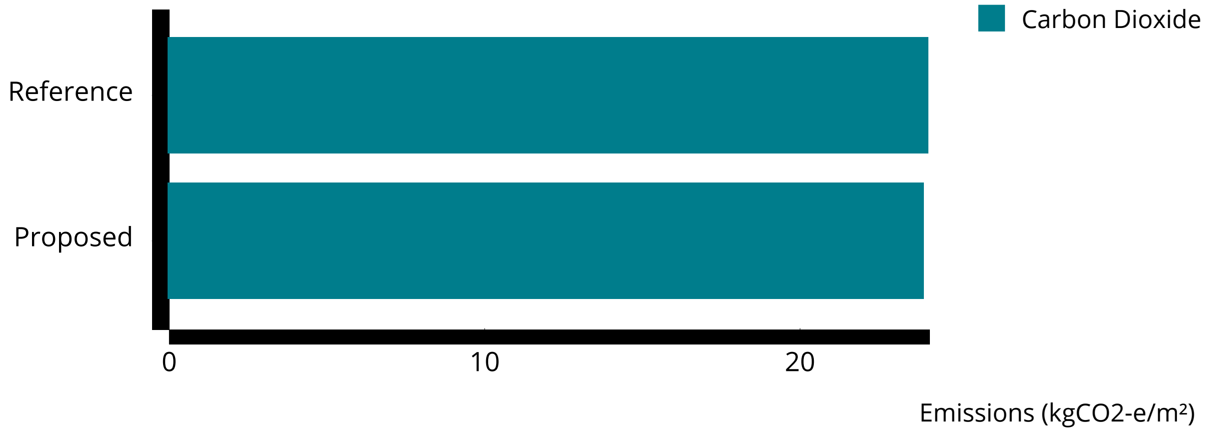
Weekend



Detailed Results

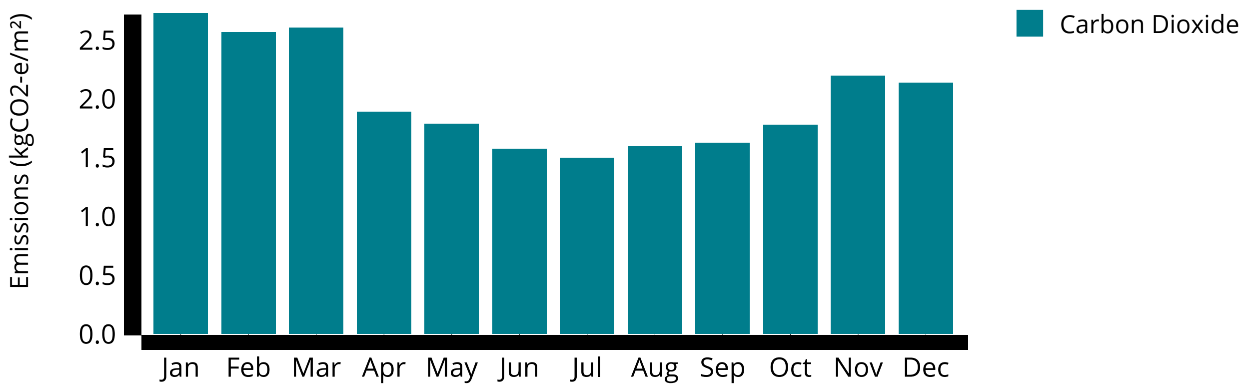
Building Emissions

To meet the acceptance criteria, annual Supplied Energy emissions must be less than **24.11** kgCO2-e/m². Based on a treated floor area of 3554.03 m², the simulated building achieved **23.97** kgCO2-e/m², **meeting** the acceptance criteria.



Greenhouse gas emission factors have been nominated as **101.00** kilogram / GJ for electricity , and **51.53** kilogram / GJ for natural gas.

Proposed



Meter	Emissions (kgCO2-e)	Emissions (kgCO2-e/m²)
Emissions	85173.43	23.97

Electricity Purchased

Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Jan	26645.12	7.50	258.28	31 Jan 14:15
Feb	25086.40	7.06	252.78	3 Feb 10:00

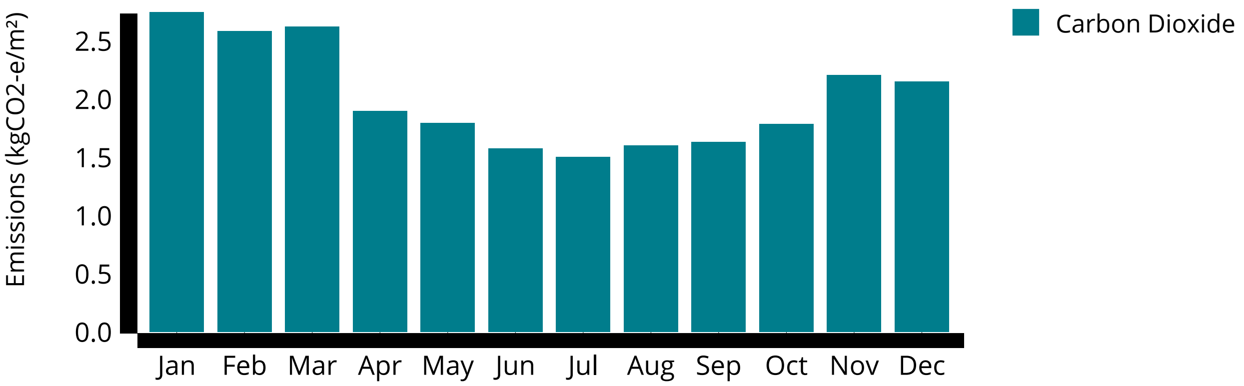
Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Mar	25463.37	7.16	244.94	2 Mar 14:30
Apr	18440.95	5.19	179.92	6 Apr 14:00
May	17448.78	4.91	128.98	15 May 07:15
Jun	15361.54	4.32	152.17	29 Jun 07:15
Jul	14612.39	4.11	170.26	18 Jul 07:15
Aug	15589.84	4.39	155.15	2 Aug 07:15
Sep	15865.86	4.46	123.86	22 Sep 14:00
Oct	17377.41	4.89	119.43	11 Oct 14:15
Nov	21464.48	6.04	214.61	9 Nov 14:15
Dec	20894.11	5.88	152.45	7 Dec 14:30
Total	234250.27	65.91	258.28	31 Jan 14:15

Gas Demand

The simulated building did not include Gas Demand.

Reference

The Reference Building simulated results are shown below, which sets the acceptance criteria threshold.



Meter	Emissions (kgCO2-e)	Emissions (kgCO2-e/m²)
Emissions	85683.63	24.11

Electricity Purchased

Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Jan	26843.02	7.55	261.01	31 Jan 14:15

Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Feb	25278.62	7.11	255.41	3 Feb 10:00
Mar	25642.68	7.22	247.50	2 Mar 14:30
Apr	18559.46	5.22	182.05	6 Apr 14:00
May	17537.32	4.93	128.84	15 May 07:15
Jun	15426.22	4.34	152.60	29 Jun 07:15
Jul	14695.72	4.13	170.38	18 Jul 07:15
Aug	15654.00	4.40	155.46	2 Aug 07:15
Sep	15939.10	4.48	124.69	22 Sep 14:00
Oct	17473.06	4.92	120.36	11 Oct 14:15
Nov	21581.79	6.07	216.78	9 Nov 14:15
Dec	21022.55	5.92	153.62	7 Dec 14:30
Total	235653.54	66.31	261.01	31 Jan 14:15

Gas Demand

The simulated building did not include Gas Demand.

BESTEC

Thermal Comfort (PMV)

To meet the acceptance criteria, **95** % of total area across the assessed zones must meet the conditions:

- zone thermal comfort (pmv) is between -1.0 and 1.0 PMV
- for at least 98 % of hours
- when above 20 % occupancy

A total area of 3481.21 m² across 77 zones were assessed, where zones of **100.00** % area achieved the conditions, **meeting** the acceptance criteria.

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
1	20. Sensory	8.90	2340	2339	99.96	✓
1	4. GLA	66.51	2340	2340	100.00	✓
1	6. GLA	60.95	2340	2340	100.00	✓
1	2. Foyer	87.94	2340	2336	99.83	✓
1	13. Office	18.04	2340	2332	99.66	✓
1	14. Store	13.92	2340	2338	99.91	✓
1	3. GLA	72.33	2340	2329	99.53	✓
1	21. Airlock	8.44	2340	2308	98.63	✓
1	23. Comms	5.35	2340	2339	99.96	✓
1	18. Office	10.31	2340	2340	100.00	✓
1	15. Office	11.62	2340	2339	99.96	✓
1	1. Breakout	106.88	2340	2327	99.44	✓
1	8. Hallway	28.39	2340	2339	99.96	✓
1	25. Cleaners	0.83	2340	2335	99.79	✓
1	16. Office	11.22	2340	2332	99.66	✓
1	24. Void	2.51	2340	2338	99.91	✓
1	10. Stairs	22.70	2340	2339	99.96	✓
1	19. Quiet	9.53	2340	2339	99.96	✓
1	5. GLA	63.59	2340	2332	99.66	✓
1	11. MTG	22.33	2340	2340	100.00	✓

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
2	17. Sensory	8.01	2340	2340	100.00	✓
2	1. bREAKOUT	179.78	2340	2322	99.23	✓
2	4. GLA	68.35	2340	2335	99.79	✓
2	5. GLA	65.49	2340	2338	99.91	✓
2	7. GLA	63.60	2340	2336	99.83	✓
2	10. Breakout	63.08	2340	2340	100.00	✓
2	3. Hallway	69.80	2340	2340	100.00	✓
2	9. GLA	63.20	2340	2337	99.87	✓
2	12. WC	31.36	2340	2340	100.00	✓
2	16. Quiet	9.27	2340	2340	100.00	✓
2	11. Stair	51.29	2340	2340	100.00	✓
2	18. Quiet	8.04	2340	2340	100.00	✓
2	14. MTG	17.56	2340	2340	100.00	✓
2	19. Sensory	8.04	2340	2340	100.00	✓
2	8. GLA	63.35	2340	2338	99.91	✓
2	6. GLA	63.91	2340	2338	99.91	✓
2	21. Void	3.14	2340	2340	100.00	✓
2	2. GLA	87.56	2340	2327	99.44	✓
3	6. GLA	64.04	2340	2340	100.00	✓
3	3. Hallway	69.77	2340	2340	100.00	✓
3	12. WC	31.36	2340	2340	100.00	✓
3	4. GLA	68.35	2340	2337	99.87	✓
3	21. COMMS	4.99	2340	2340	100.00	✓
3	7. GLA	63.60	2340	2335	99.79	✓
3	5. GLA	65.49	2340	2337	99.87	✓

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
3	1. bREAKOUT	191.99	2340	2322	99.23	✓
3	10. Breakout	63.05	2340	2340	100.00	✓
3	2. GLA	76.90	2340	2334	99.74	✓
3	8. GLA	63.35	2340	2338	99.91	✓
3	17. Sensory	8.01	2340	2340	100.00	✓
3	11. Stair	51.29	2340	2340	100.00	✓
3	18. Quiet	8.04	2340	2340	100.00	✓
3	14. MTG	17.56	2340	2340	100.00	✓
3	20. Sensory	8.04	2340	2340	100.00	✓
3	9. GLA	63.51	2340	2338	99.91	✓
3	22. Void	3.14	2340	2340	100.00	✓
3	16. Sensory	8.57	2340	2340	100.00	✓
4	14. MTG	16.67	2340	2340	100.00	✓
4	15. MTG	16.66	2340	2340	100.00	✓
4	1. bREAKOUT	191.91	2340	2322	99.23	✓
4	16. MTG	16.46	2340	2340	100.00	✓
4	6. GLA	62.99	2340	2335	99.79	✓
4	7. Breakout	63.49	2340	2340	100.00	✓
4	2. Hallway	69.42	2340	2340	100.00	✓
4	5. GLA	63.60	2340	2335	99.79	✓
4	4. GLA	63.48	2340	2333	99.70	✓
4	10. GLA	61.98	2340	2333	99.70	✓
4	8. GLA	62.49	2340	2333	99.70	✓
4	21. Quiet	8.04	2340	2340	100.00	✓
4	9. GLA	62.31	2340	2333	99.70	✓

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
4	11. Stair	51.29	2340	2340	100.00	✓
4	22. Void	3.14	2340	2340	100.00	✓
4	19. Sensory	8.01	2340	2340	100.00	✓
4	18. Sensory	8.57	2340	2340	100.00	✓
4	3. GLA	64.04	2340	2340	100.00	✓
4	12. WC	31.36	2340	2340	100.00	✓
5	1. Stair	67.22	2340	2327	99.44	✓
					Pass	✓

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
1	20. Sensory	8.90	1.0	107.0	1957.0	275.0	0.0	0.0
1	1. Breakout	106.88	3.0	151.0	1611.0	556.0	9.0	10.0
1	24. Void	2.51	2.0	315.0	1890.0	133.0	0.0	0.0
1	25. Cleaners	0.83	5.0	368.0	1866.0	101.0	0.0	0.0
1	16. Office	11.22	8.0	263.0	1567.0	502.0	0.0	0.0
1	11. MTG	22.33	0.0	78.0	1345.0	917.0	0.0	0.0
1	10. Stairs	22.70	1.0	102.0	1982.0	255.0	0.0	0.0
1	19. Quiet	9.53	1.0	166.0	1883.0	290.0	0.0	0.0
1	5. GLA	63.59	8.0	187.0	1568.0	573.0	4.0	0.0
1	15. Office	11.62	1.0	128.0	1940.0	271.0	0.0	0.0
1	8. Hallway	28.39	1.0	164.0	1838.0	337.0	0.0	0.0
1	23. Comms	5.35	1.0	146.0	1997.0	196.0	0.0	0.0
1	18. Office	10.31	0.0	161.0	1338.0	823.0	18.0	0.0
1	21. Airlock	8.44	32.0	517.0	1141.0	643.0	7.0	0.0
1	3. GLA	72.33	10.0	170.0	1504.0	643.0	12.0	1.0
1	14. Store	13.92	2.0	203.0	1821.0	314.0	0.0	0.0

BESTEC

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
1	13. Office	18.04	8.0	249.0	1233.0	834.0	16.0	0.0
1	2. Foyer	87.94	0.0	132.0	1753.0	441.0	10.0	4.0
1	6. GLA	60.95	0.0	90.0	1491.0	759.0	0.0	0.0
1	4. GLA	66.51	0.0	78.0	1430.0	826.0	6.0	0.0
2	2. GLA	87.56	0.0	33.0	630.0	1612.0	52.0	13.0
2	21. Void	3.14	0.0	52.0	2067.0	221.0	0.0	0.0
2	6. GLA	63.91	2.0	129.0	1499.0	704.0	6.0	0.0
2	16. Quiet	9.27	0.0	82.0	1915.0	343.0	0.0	0.0
2	8. GLA	63.35	2.0	128.0	1482.0	722.0	6.0	0.0
2	19. Sensory	8.04	0.0	46.0	1952.0	341.0	1.0	0.0
2	14. MTG	17.56	0.0	48.0	1903.0	389.0	0.0	0.0
2	18. Quiet	8.04	0.0	58.0	1933.0	349.0	0.0	0.0
2	11. Stair	51.29	0.0	21.0	803.0	1443.0	73.0	0.0
2	12. WC	31.36	0.0	28.0	1611.0	701.0	0.0	0.0
2	17. Sensory	8.01	0.0	39.0	1311.0	990.0	0.0	0.0
2	9. GLA	63.20	3.0	130.0	1507.0	694.0	6.0	0.0
2	3. Hallway	69.80	0.0	23.0	1348.0	962.0	7.0	0.0
2	10. Breakout	63.08	0.0	22.0	1181.0	1131.0	6.0	0.0
2	7. GLA	63.60	0.0	31.0	675.0	1536.0	94.0	4.0
2	5. GLA	65.49	2.0	120.0	1390.0	815.0	13.0	0.0
2	4. GLA	68.35	5.0	142.0	1538.0	646.0	9.0	0.0
2	1. bREAKOUT	179.78	0.0	33.0	1571.0	713.0	5.0	18.0
3	22. Void	3.14	0.0	38.0	2074.0	228.0	0.0	0.0
3	9. GLA	63.51	2.0	116.0	1474.0	742.0	6.0	0.0
3	8. GLA	63.35	2.0	118.0	1462.0	752.0	6.0	0.0

BESTEC

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
3	20. Sensory	8.04	0.0	41.0	1947.0	351.0	1.0	0.0
3	14. MTG	17.56	0.0	43.0	1904.0	393.0	0.0	0.0
3	18. Quiet	8.04	0.0	52.0	1937.0	351.0	0.0	0.0
3	11. Stair	51.29	0.0	14.0	711.0	1528.0	87.0	0.0
3	17. Sensory	8.01	0.0	19.0	1207.0	1114.0	0.0	0.0
3	16. Sensory	8.57	0.0	57.0	583.0	1607.0	93.0	0.0
3	2. GLA	76.90	2.0	122.0	1446.0	756.0	10.0	4.0
3	1. bREAKOUT	191.99	0.0	28.0	1397.0	889.0	8.0	18.0
3	6. GLA	64.04	0.0	22.0	766.0	1526.0	26.0	0.0
3	3. Hallway	69.77	0.0	25.0	1636.0	674.0	5.0	0.0
3	12. WC	31.36	0.0	14.0	1559.0	767.0	0.0	0.0
3	10. Breakout	63.05	0.0	10.0	652.0	1649.0	29.0	0.0
3	21. COMMS	4.99	0.0	15.0	1988.0	337.0	0.0	0.0
3	7. GLA	63.60	0.0	20.0	588.0	1617.0	110.0	5.0
3	5. GLA	65.49	3.0	118.0	1360.0	843.0	16.0	0.0
3	4. GLA	68.35	3.0	132.0	1529.0	667.0	9.0	0.0
4	22. Void	3.14	0.0	88.0	2016.0	236.0	0.0	0.0
4	11. Stair	51.29	0.0	21.0	729.0	1501.0	89.0	0.0
4	12. WC	31.36	0.0	33.0	1607.0	700.0	0.0	0.0
4	19. Sensory	8.01	0.0	44.0	1306.0	990.0	0.0	0.0
4	18. Sensory	8.57	0.0	69.0	602.0	1573.0	96.0	0.0
4	3. GLA	64.04	0.0	40.0	876.0	1392.0	32.0	0.0
4	21. Quiet	8.04	0.0	88.0	1925.0	327.0	0.0	0.0
4	8. GLA	62.49	7.0	137.0	1455.0	735.0	6.0	0.0
4	9. GLA	62.31	7.0	137.0	1466.0	724.0	6.0	0.0

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
4	10. GLA	61.98	7.0	140.0	1445.0	742.0	6.0	0.0
4	14. MTG	16.67	0.0	65.0	1889.0	385.0	1.0	0.0
4	15. MTG	16.66	0.0	74.0	1896.0	369.0	1.0	0.0
4	1. bREAKOUT	191.91	0.0	46.0	1351.0	916.0	9.0	18.0
4	16. MTG	16.46	0.0	68.0	1891.0	380.0	1.0	0.0
4	7. Breakout	63.49	0.0	37.0	1205.0	1083.0	15.0	0.0
4	2. Hallway	69.42	0.0	37.0	1368.0	924.0	11.0	0.0
4	5. GLA	63.60	0.0	33.0	682.0	1526.0	94.0	5.0
4	6. GLA	62.99	5.0	141.0	1350.0	829.0	15.0	0.0
4	4. GLA	63.48	7.0	154.0	1514.0	659.0	6.0	0.0
5	1. Stair	67.22	0.0	75.0	1033.0	1158.0	61.0	13.0

BESTEC

Shading Multiplier

Each window of the reference building has been simulated to determine the ratio of shaded versus unshaded annual average incident radiation. These results supersede the values determined by the deemed-to-satisfy process to develop the reference building.

Level	Area (m^2)	Heading (°)	Shaded (W/m^2)	Unshaded (W/m^2)	Multiplier
1	21.60	180.0	28.19	50.78	0.56
1	20.24	179.9	32.17	50.78	0.63
1	15.96	180.0	29.56	50.78	0.58
1	15.46	180.1	19.36	50.78	0.38
1	14.88	180.0	30.00	50.78	0.59
1	12.48	0.0	82.85	146.42	0.57
1	11.76	180.0	33.51	50.78	0.66
1	9.36	0.0	122.44	146.42	0.84
1	9.36	0.0	140.32	146.42	0.96
1	8.88	180.0	26.44	50.78	0.52
1	6.72	180.0	28.38	50.78	0.56
1	5.52	180.0	17.20	50.78	0.34
1	5.44	0.0	79.15	146.42	0.54
1	4.56	180.0	15.23	50.78	0.30
1	4.48	90.0	116.13	122.43	0.95
1	4.16	90.0	116.18	122.43	0.95
1	4.08	90.0	43.65	122.43	0.36
1	3.36	90.0	12.59	122.43	0.10
1	3.12	180.0	30.86	50.78	0.61
1	2.70	0.0	137.11	146.42	0.94
1	2.70	0.0	134.06	146.42	0.92
1	1.68	90.0	13.60	122.43	0.11
1	1.61	206.6	25.70	62.80	0.41

BESTEC

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
1	1.44	180.0	30.64	50.78	0.60
1	1.29	248.2	17.97	102.67	0.18
2	28.56	0.0	145.96	146.42	1.00
2	23.40	0.0	110.11	146.42	0.75
2	18.96	0.0	144.53	146.42	0.99
2	18.00	0.0	142.68	146.42	0.97
2	13.68	180.0	42.89	50.78	0.84
2	8.88	180.0	45.55	50.78	0.90
2	8.88	0.0	104.31	146.42	0.71
2	8.88	180.0	46.38	50.78	0.91
2	8.88	180.0	45.29	50.78	0.89
2	8.88	180.0	45.17	50.78	0.89
2	8.64	180.0	45.26	50.78	0.89
2	8.64	180.0	47.14	50.78	0.93
2	7.68	180.0	45.09	50.78	0.89
2	7.20	180.0	45.38	50.78	0.89
2	7.20	90.0	120.64	122.43	0.99
2	6.96	180.0	45.83	50.78	0.90
2	6.00	90.0	90.43	122.43	0.74
2	5.76	180.0	45.20	50.78	0.89
2	4.32	0.0	136.03	146.42	0.93
2	4.08	180.0	47.77	50.78	0.94
2	3.36	180.0	45.22	50.78	0.89
2	3.12	0.0	140.65	146.42	0.96
2	3.12	90.0	119.72	122.43	0.98

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
2	2.40	0.0	122.00	146.42	0.83
2	1.92	180.0	46.02	50.78	0.91
2	1.68	180.0	45.34	50.78	0.89
2	1.44	0.0	127.09	146.42	0.87
2	1.20	180.0	44.97	50.78	0.89
3	23.40	0.0	112.47	146.42	0.77
3	20.40	180.0	48.23	50.78	0.95
3	18.96	0.0	145.22	146.42	0.99
3	18.00	0.0	143.86	146.42	0.98
3	18.00	180.0	47.12	50.78	0.93
3	17.52	0.0	143.32	146.42	0.98
3	17.28	180.0	47.48	50.78	0.93
3	16.80	0.0	112.48	146.42	0.77
3	16.08	180.0	47.11	50.78	0.93
3	13.68	180.0	44.32	50.78	0.87
3	12.00	180.0	47.13	50.78	0.93
3	7.20	180.0	47.24	50.78	0.93
3	7.20	90.0	121.20	122.43	0.99
3	6.96	0.0	135.41	146.42	0.92
3	6.00	90.0	90.09	122.43	0.74
3	4.32	0.0	138.21	146.42	0.94
3	4.08	180.0	48.80	50.78	0.96
3	3.12	180.0	47.16	50.78	0.93
3	3.12	0.0	142.48	146.42	0.97
3	3.12	90.0	120.76	122.43	0.99

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
3	1.92	180.0	47.73	50.78	0.94
3	1.20	180.0	46.72	50.78	0.92
4	23.40	0.0	116.46	146.42	0.80
4	20.40	180.0	48.97	50.78	0.96
4	18.96	0.0	145.61	146.42	0.99
4	18.00	180.0	48.40	50.78	0.95
4	18.00	0.0	144.80	146.42	0.99
4	17.52	0.0	143.39	146.42	0.98
4	17.28	180.0	48.48	50.78	0.95
4	16.80	0.0	115.59	146.42	0.79
4	13.68	180.0	45.65	50.78	0.90
4	12.24	180.0	48.29	50.78	0.95
4	12.00	180.0	48.30	50.78	0.95
4	7.20	90.0	121.58	122.43	0.99
4	7.20	180.0	48.34	50.78	0.95
4	6.96	180.0	48.30	50.78	0.95
4	6.96	0.0	137.49	146.42	0.94
4	6.00	90.0	92.66	122.43	0.76
4	4.32	0.0	140.76	146.42	0.96
4	4.08	180.0	49.35	50.78	0.97
4	3.12	0.0	143.97	146.42	0.98
4	3.12	90.0	121.31	122.43	0.99
4	1.92	180.0	48.69	50.78	0.96
4	1.20	180.0	48.33	50.78	0.95
5	23.40	0.0	127.42	146.42	0.87

Level	Area (m²)	Heading (°)	Shaded (W/m²)	Unshaded (W/m²)	Multiplier
5	13.80	180.0	48.44	50.78	0.95
5	9.30	90.0	79.73	122.43	0.65

Building Class 9B

Method Two

AC Energy Threshold	421.43
U-Value Threshold (W/m².K)	2.00
Reference Window U-Value (W/m².K)	3.82
Reference Window SHGC	0.33
Reference Wall R-Value (m².K/W)	1.00
Total Area (m²)	2683.41
Window-Wall Ratio	0.35

Method One - North Aspect

Reference Window U-Value (W/m².K)	3.39
Reference Window SHGC	0.30
Reference Wall R-Value (m².K/W)	1.00
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	2.28
Aspect Area (m²)	938.69
Window-Wall Ratio	0.42

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	0.0	3.82	0.33	8.88	0.71
2400 ^700	0.0	3.82	0.33	16.80	0.77
2400 ^700	0.0	3.82	0.33	16.80	0.79

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	0.0	3.82	0.33	6.96	0.93
2400 ^700	0.0	3.82	0.33	4.32	0.93
2400 ^700	0.0	3.82	0.33	6.96	0.94
2400 ^700	0.0	3.82	0.33	4.32	0.94
2400 ^700	0.0	3.82	0.33	7.44	0.96
2400 ^700	0.0	3.82	0.33	3.12	0.97
2400 ^700	0.0	3.82	0.33	18.00	0.97
2400 ^700	0.0	3.82	0.33	35.04	0.98
2400 ^700	0.0	3.82	0.33	21.12	0.98
2400 ^700	0.0	3.82	0.33	18.96	0.99
2400 ^700	0.0	3.82	0.33	18.00	0.99
2400 ^700	0.0	3.82	0.33	18.96	0.99
2400 ^700	0.0	3.82	0.33	18.96	0.99
2400 ^700	0.0	3.82	0.33	28.56	1.00
2400 ^700	0.0	3.82	0.33	1.44	0.87
Concept	0.0	3.82	0.33	23.40	0.75
Concept	0.0	3.82	0.33	23.40	0.77
Concept	0.0	3.82	0.33	23.40	0.80
Concept	0.0	3.82	0.33	2.40	0.83
Concept	0.0	3.82	0.33	9.36	0.84
Concept	0.0	3.82	0.33	23.40	0.87
Concept	0.0	3.82	0.33	2.70	0.92
Concept	0.0	3.82	0.33	2.70	0.94
Concept	0.0	3.82	0.33	9.36	0.96
Concept	0.0	3.82	0.33	5.44	0.54

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
Concept	0.0	3.82	0.33	12.48	0.57

Method One - East Aspect

Reference Window U-Value (W/m².K)	5.80
Reference Window SHGC	0.68
Reference Wall R-Value (m².K/W)	1.40
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	1.72
Aspect Area (m²)	439.85
Window-Wall Ratio	0.17

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	90.0	3.82	0.33	3.12	0.98
2400 ^700	90.0	3.82	0.33	7.20	0.98
2400 ^700	90.0	3.82	0.33	3.12	0.99
2400 ^700	90.0	3.82	0.33	7.20	0.99
2400 ^700	90.0	3.82	0.33	3.12	0.99
2400 ^700	90.0	3.82	0.33	7.20	0.99
2400 ^700	90.0	3.82	0.33	1.68	0.11
Concept	90.0	3.82	0.33	6.00	0.74
Concept	90.0	3.82	0.33	6.00	0.74
Concept	90.0	3.82	0.33	6.00	0.76
Concept	90.0	3.82	0.33	4.48	0.95
Concept	90.0	3.82	0.33	4.16	0.95
Concept	90.0	3.82	0.33	4.08	0.36
Concept	90.0	3.82	0.33	9.30	0.65

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
Concept	90.0	3.82	0.33	3.36	0.10

Method One - South Aspect

Reference Window U-Value (W/m².K)	2.93
Reference Window SHGC	0.29
Reference Wall R-Value (m².K/W)	1.00
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	1.00
Aspect Area (m²)	928.30
Window-Wall Ratio	0.52

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	179.9	3.82	0.33	20.24	0.63
2400 ^700	180.0	3.82	0.33	13.68	0.84
2400 ^700	180.0	3.82	0.33	13.68	0.87
2400 ^700	180.0	3.82	0.33	7.68	0.89
2400 ^700	180.0	3.82	0.33	8.88	0.89
2400 ^700	180.0	3.82	0.33	5.76	0.89
2400 ^700	180.0	3.82	0.33	12.00	0.89
2400 ^700	180.0	3.82	0.33	8.88	0.89
2400 ^700	180.0	3.82	0.33	7.20	0.89
2400 ^700	180.0	3.82	0.33	8.88	0.90
2400 ^700	180.0	3.82	0.33	13.68	0.90
2400 ^700	180.0	3.82	0.33	6.96	0.90
2400 ^700	180.0	3.82	0.33	8.88	0.91
2400 ^700	180.0	3.82	0.33	54.72	0.93

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	180.0	3.82	0.33	3.12	0.93
2400 ^700	180.0	3.82	0.33	7.20	0.93
2400 ^700	180.0	3.82	0.33	17.28	0.94
2400 ^700	180.0	3.82	0.33	4.08	0.94
2400 ^700	180.0	3.82	0.33	20.40	0.95
2400 ^700	180.0	3.82	0.33	31.20	0.95
2400 ^700	180.0	3.82	0.33	7.20	0.95
2400 ^700	180.0	3.82	0.33	18.00	0.95
2400 ^700	180.0	3.82	0.33	17.28	0.95
2400 ^700	180.0	3.82	0.33	4.08	0.96
2400 ^700	180.0	3.82	0.33	20.40	0.96
2400 ^700	180.0	3.82	0.33	4.08	0.97
2400 ^700	180.0	3.82	0.33	1.20	0.89
2400 ^700	180.0	3.82	0.33	1.68	0.89
2400 ^700	180.0	3.82	0.33	1.92	0.91
2400 ^700	180.0	3.82	0.33	1.20	0.92
2400 ^700	180.0	3.82	0.33	1.92	0.94
2400 ^700	180.0	3.82	0.33	1.20	0.95
2400 ^700	180.0	3.82	0.33	1.92	0.96
2400 ^700	180.0	3.82	0.33	14.88	0.59
2400 ^700	180.0	3.82	0.33	1.44	0.60
2400 ^700	180.0	3.82	0.33	3.12	0.61
2400 ^700	180.0	3.82	0.33	8.88	0.52
2400 ^700	180.0	3.82	0.33	6.72	0.56
2400 ^700	180.0	3.82	0.33	11.76	0.66

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	180.0	3.82	0.33	21.60	0.56
2400 ^700	180.0	3.82	0.33	5.52	0.34
2400 ^700	180.0	3.82	0.33	4.56	0.30
2400 ^700	206.6	3.82	0.33	1.61	0.41
Concept	180.0	3.82	0.33	15.96	0.58
Concept	180.0	3.82	0.33	13.80	0.95
Concept	180.1	3.82	0.33	15.46	0.38

Method One - West Aspect

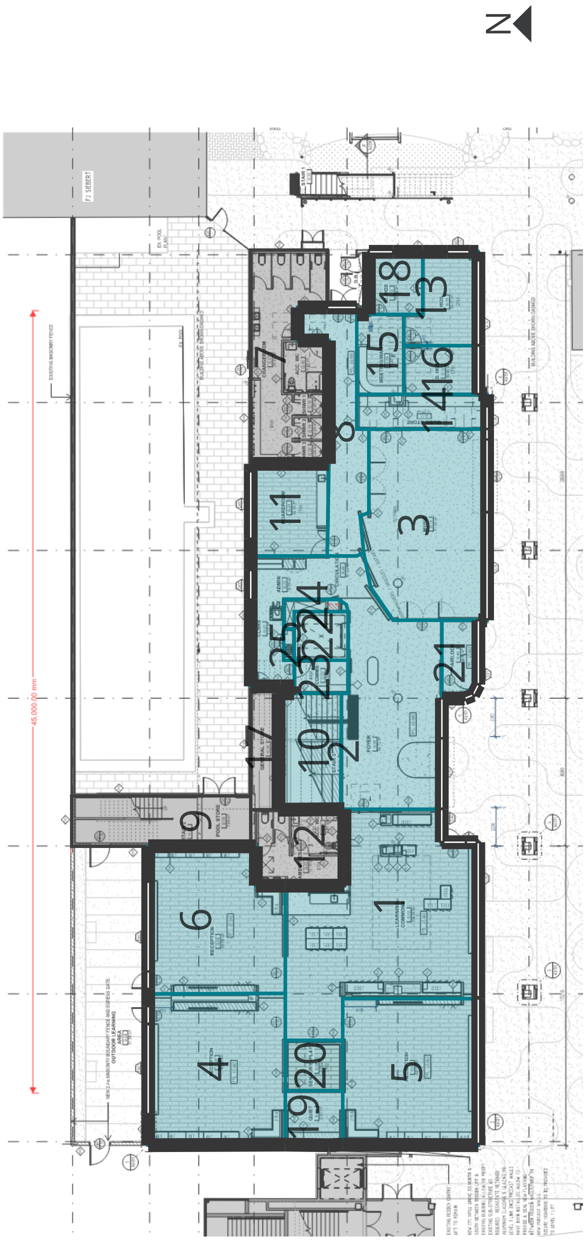
Reference Window U-Value (W/m².K)	5.80
Reference Window SHGC	0.81
Reference Wall R-Value (m².K/W)	1.40
Solar Admittance Threshold	0.13
U-Value Threshold (W/m².K)	2.00
Solar Admittance Weighting	0.00
Aspect Area (m²)	376.58
Window-Wall Ratio	0.00

Title	Heading (°)	U-value (W/m²K°)	SHGC	Area (m²)	SC
2400 ^700	248.2	3.82	0.33	1.29	0.17

BESTEC

Drawings

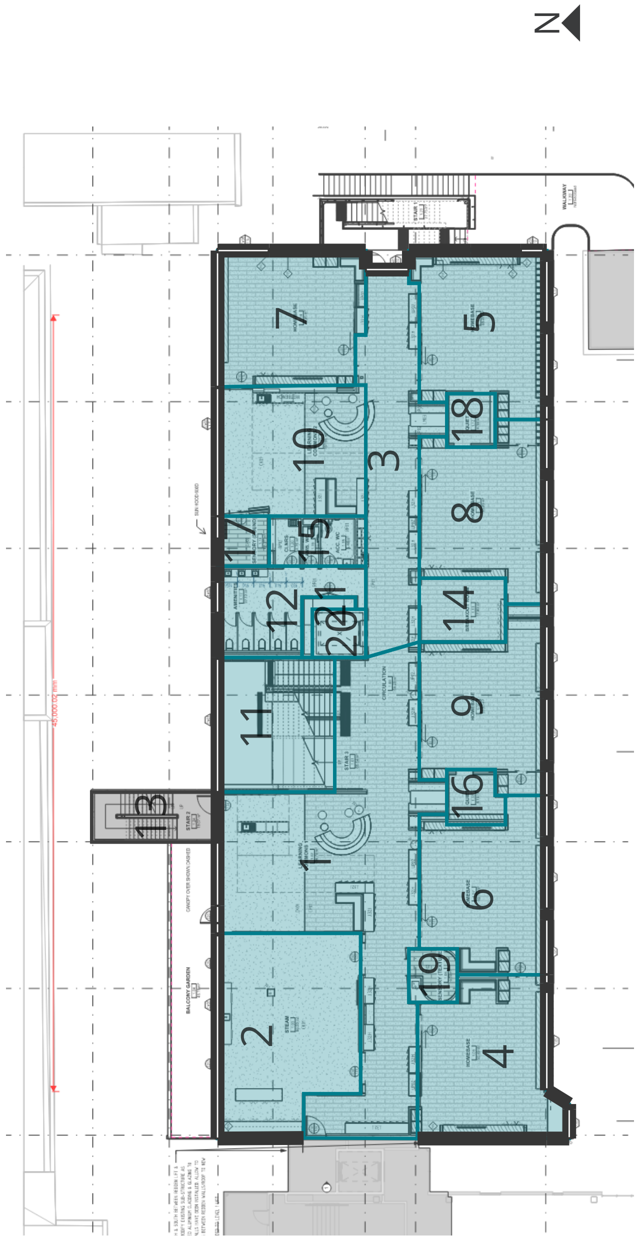
Level 1 - GF



Thermal Line   Windows   Class 9B   Unconditioned

BESTEC

Level 2 - LV 1



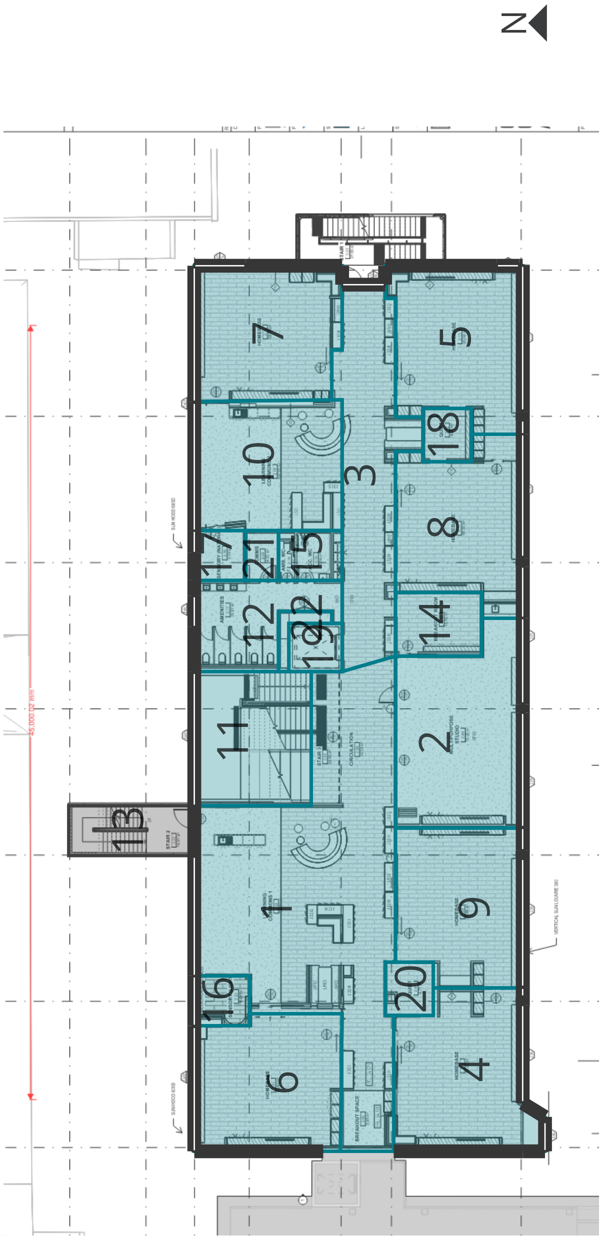
Thermal Line

Windows

Class 9B

Unconditioned

Level 3 - LV 2



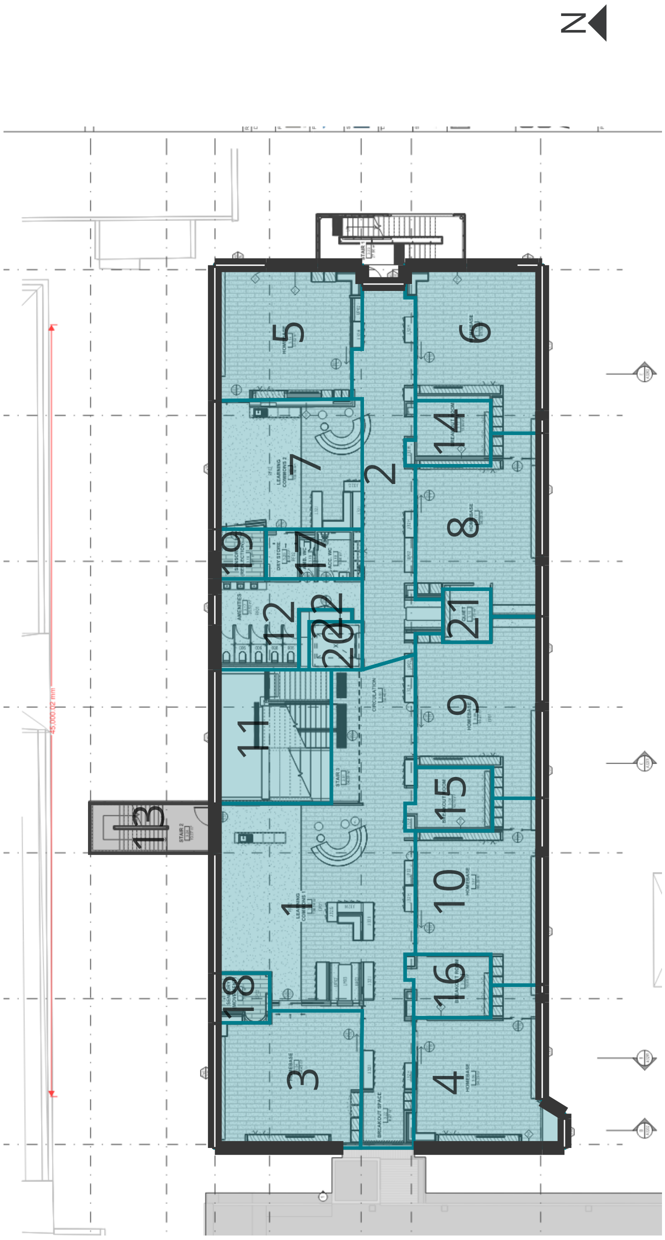
Thermal Line

Windows

Class 9B

Unconditioned

Level 4 - LV 3



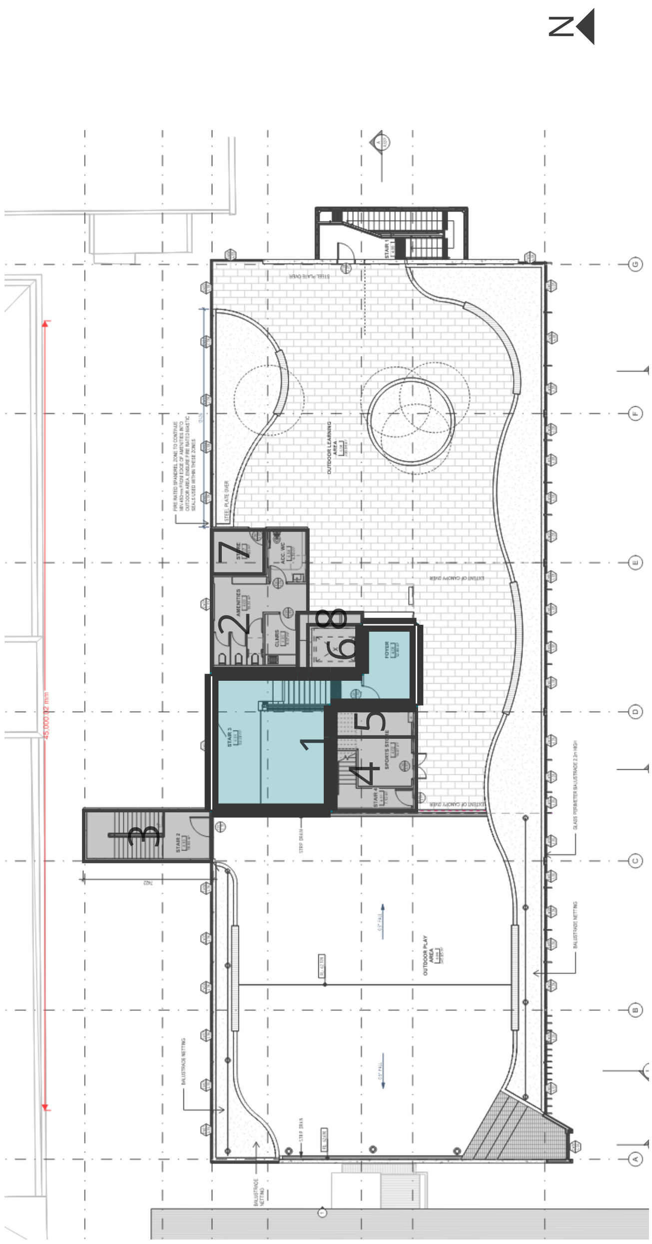
Thermal Line

Windows

Class 9B

Unconditioned

Level 5 - Roof



Thermal Line   Windows   Unconditioned   Class 9B

Disclaimer

MASTERPLAN
TOWN + COUNTRY PLANNERS SINCE 1977

16 October 2024

Tegan Lewis
State Planning Commission
Via email: Tegan.Lewis@sa.gov.au

Our Ref: 53834LET05

Dear Tegan

Response to City of Adelaide Development Application 24019790

On behalf of St Aloysius College ('our client' or 'the applicant') we refer to the comments received from City of Adelaide dated 25 September 2024 in respect of the above-mentioned development application. These comments are in addition to our previous response to City of Adelaide dated 10 September 2024.

The referral response raised the following matter:

- Traffic and Access

This correspondence responds to each element of this matter in turn.

The initial commentary related to the potential conflicts within the shared use lane and do not relate to servicing implications within the public realm.

It is important to understand that Redden Lane is not a publicly accessible road and forms part of the existing school grounds. Redden Lane is referenced only as an internal vehicle accessway and is only accessible and available for use by vehicles associated with the school operations.

We refer to Deposited Plan D113190 submitted with the Application Documents and the Area marked "C" over Lot 27, which is subject to a 3.0-metre-wide easement appurtenant to the land held in FX 56844 and being a portion of the land in Certificate of Title Volume 5764 Folio 47 being the land to the west of Lot 27.

The easement is provided solely for obtaining light and air to the adjoining building and does not infer any rights of way to other parties.

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Adelaide SA 5000
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As detailed in our previous response dated 10 September 2024, the existing motorised gates from Angas Street are to be retained. Students may enter through the Angas Street gates during drop off and pick up only. The gates are otherwise closed during the school day.

The proposed development seeks to reduce the width of Redden Lane, to a trafficable minimum width of 3.5 metres through the installation of raised planters on the eastern side and inground garden bed on portions of the western side of Redden Lane, thus creating a low speed, shared character zone.

As detailed above, Redden Lane is not a publicly accessible road and forms part of the existing school grounds. Emergency and service vehicles will therefore only access the site via Redden Lane under direction of the school supervisory team. The school supervisory team will also be responsible for managing the movement of students if a vehicle is present on-site.

It is worth noting that this is consistent with existing practices.

The applicants' response states the proposed clear width of 3.5m along Redden Lane is suitable (and compliant) however the standard which the design complies have not been provided.

The Guide to Road Design Part 3: Geometric Design states that current Australian practice is to provide standard traffic lane widths of 3.5 metres.

The pedestrian-oriented space has therefore been designed to provide:

- Single vehicle access.
- A minimum clear width of 3.5 metres.
- A low speed, very low vehicle movement shared zone character.

Whilst the proposed building extends to the south of the footprint of the existing Dunlevie Building, it is considered that the Dunlevie Courtyard retains sufficient space for vehicles to manoeuvre, turn around and exit via Redden Lane in a forward direction.

As detailed above, Redden Lane is not a publicly accessible road and forms part of the existing school grounds. Emergency and service vehicles will therefore only access the site via Redden Lane under direction of the school supervisory team. The school supervisory team will also be responsible for managing the movement of students if a vehicle is present on-site.

Noting both emergency/maintenance vehicles and pedestrians are proposed to use Redden Lane for ingress/ egress further information or advice should be sought to verify the proposed clear width is suitable for the proposed types of vehicles and number/type of pedestrians (children) to suitably address risk of conflict e.g. between emergency service vehicle ingress and pedestrian egress etc.

As detailed in our previous response dated 10 September 2024, the existing motorised gates from Angas Street are to be retained. Students may enter through the Angas Street gates during drop off and pick up only. The gates are otherwise closed during the school day. Emergency and service vehicles will only access the site via Redden Lane under direction of the school supervisory team. The school supervisory team will also be responsible for managing the movement of students if a vehicle is present on-site.

Again, it is worth noting that this is consistent with existing practices.

Closure

We trust that this information clarifies the matters raised by the City of Adelaide.

Should you require any additional information, or clarification, please do not hesitate to contact the writer.

Yours sincerely

Kirsten Falt
MasterPlan SA Pty Ltd

Government of South Australia
Department for Environment and Water

Heritage South Australia

Environment, Heritage and Sustainability Division

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www.environment.sa.gov.au

Ref: SH/13415D
Date: 11 September 2024

State Commission Assessment Panel
GPO Box 1815
Adelaide 5001

Attention: Tegan Lewis

Dear Sir/Madam

DESCRIPTION: DEMOLITION OF AN EXISTING SCHOOL BUILDING AND CONSTRUCTION OF A MULTI-LEVEL PRIMARY SCHOOL BUILDING WITH ASSOCIATED ILLUMINATED SIGNAGE - 53 WAKEFIELD ST ADELAIDE SA 5000 + 17 MORE LOCATION(S)

Application number:	24019790
Referral received:	1/08/2024
State Heritage Place:	SHP/13415 - Convent of Mercy (incorporating two former dwellings) & SHP/13416 Cunningham Memorial Chapel
Documentation:	As referred to date of response
☒	Direct to impose Conditions of Development Authorisation

In accordance with Section 122(1) of the Planning, Development and infrastructure Act 2016 and Regulation 41(1) of the Planning, Development and Infrastructure (General) Regulations 2017, the above application has been referred to the Minister for Climate, Environment and Water as the prescribed body listed in Schedule 9 Clause 3 Item 17 of the Regulations.

The subject land is contained within the State Heritage Place Overlay of the Planning and Design Code.

The proposed development is considered to be acceptable in relation to the above State Heritage Place for the following reason/s.

- State Heritage Places on the School site are not physically impacted by the proposed works.
- No heritage issues of concern with the proposed demolition of Dunlevie Building, as the building is not a State Heritage Place. Further, the setting of adjacent State Heritage Places (Cunningham Memorial Catholic Chapel and the Convent of Mercy) are not greatly affected, as the architectural features and siting of the current Dunlevie Building does not contribute to the significant cloistered setting of the heritage places.
- The proposed classroom building is compatible in architectural detail and materials with adjacent State Heritage Places. The proposed building's red brick cloister and framed grid façade above repeat the rhythym and scale of the existing cloister and architectural features of each heritage building.
- The scale of the proposed building will not have an adverse visual impact on the setting of adjacent heritage places, as while taller than the current building, it is still sufficiently distant from these buildings to not dominate in views of the heritage places from Angas Street.

Condition 1: making good works to the external wall of the chapel building, where the abutting walkway and wall are to be demolished, to be confirmed, to the satisfaction of Heritage SA, of the Department for Environment and Water, prior to commencement of construction.

General Information

1. Any changes to the proposal for which Planning Consent is sought or granted may give rise to heritage impacts requiring further consultation with the Department for Environment and Water, or an additional referral to the Minister for Climate, Environment and Water. Such changes would include for example (a) an application to vary the Planning Consent, or (b) Building Rules documentation that incorporates differences from the proposal as documented in the development application.

2. Please note the following requirements of the *Heritage Places Act 1993*.

   (a) If an archaeological artefact believed to be of heritage significance is encountered during excavation works, disturbance in the vicinity must cease and the SA Heritage Council must be notified.

   (b) Where it is known in advance (or there is reasonable cause to suspect) that significant archaeological artefacts may be encountered, a permit is required prior to commencing excavation works.

   For further information, contact the Department for Environment and Water.

3. Please note the following requirements of the *Aboriginal Heritage Act 1988.*

   (a) If Aboriginal sites, objects or remains are discovered during excavation works, the Aboriginal Heritage Branch of the Aboriginal Affairs and Reconciliation Division of the Department of the Premier and Cabinet (as delegate of the Minister) is to be notified under Section 20 of the *Aboriginal Heritage Act 1988*.

Any enquiries in relation to this application should be directed to telephone (08) 8124 4922 or e-mail DEW.StateHeritageDA@sa.gov.au.

Yours sincerely

Michael Queale
Principal Heritage Architect
Department for Environment and Water
as delegate of the
MINISTER FOR CLIMATE, ENVIRONMENT AND WATER

Government of South Australia
Department for Environment and Water

Heritage South Australia

Environment, Heritage and Sustainability Division

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Any enquiries in relation to this application should be directed to telephone (08) 8124 4922 or e-mail DEW.StateHeritageDA@sa.gov.au.

Yours sincerely

Michael Queale
Principal Heritage Architect
Department for Environment and Water
as delegate of the
MINISTER FOR CLIMATE, ENVIRONMENT AND WATER

Lewis, Tegan (DHUD)

From: Heffernan, Damien (DHUD)
Sent: Tuesday, 29 October 2024 8:59 AM
To: Lewis, Tegan (DHUD)
Subject: RE: Application 24019790 - St Aloysius College

Follow Up Flag: Follow up
Flag Status: Flagged

OFFICIAL: Sensitive

Dear Tegan,

Thank you for the response provided by MasterPlan in relation to the Government Architect's referral advice for application (24019790), and for the opportunity to provide updated comments.

Please find below comments informed by the following:

- Originally lodged application documents (MasterPlan Reference 53834) dated 02 July 2024
- Response to Government Architect referral comments (MasterPlan Reference 53834LET04) dated 30 September 2024
- Revised architectural drawings, prepared by Grieve Gillett and Hayball Architects (various revisions) received 30 September 2024
- Landscape works plan, prepared by T.C.L Landscape Architects (revision P3) dated 11 September 2024.

Project Scope and Built Form

We acknowledge clarification of the proposed boundary condition between the pool enclosure, the reception courtyard and the Archdiocese Centre to the north of the proposal. We also acknowledge the intent for a canopy structure to the pool as part of a future application. We recommend consideration of an interim solution prior to construction of a new canopy structure, which may include retention of the existing canopy, to mitigate any overlooking and provide shade and shelter to support longer term use of the pool by the school.

Ground Plane and Pedestrian Movement

We acknowledge clarification of the external door arrangement located in front of the foyer and music room. We support the proposed approach (large openings) noting the internal uses of these spaces for performance, opportunities for connection to the courtyard space and increased permeability into the building. We note the specified ARA Manufacture Monarch Renlita Sovereign Vertical Folding Door includes numerous transoms and recommend consideration of a system that supports visual permeability that better reflects the expression of the adjacent curtain wall/mullion configuration.

Materiality and Architectural Expression

We acknowledge the following in relation to the applicant's responses to referral advice on materiality and architectural expression:

- Clarification/confirmation of several external materials and finishes as recommended in the referral advice including the Viroc external cladding to the education window
- Rationale for the proposed painted compressed fibre cement sheet to be limited to areas for ease of accessibility and a strategy for maintenance in place
- Confirmation of the construction methodology for the arched colonnade as a proprietary brick snap system informed by structural considerations. However, we continue to recommend consideration of authentic three dimensional brickwork for the arched colonnade noting the heritage context.

- Intent for colour matching of metal flashings proposed to clad the concrete slab and column edges seeking to deliver a cohesive elevational composition
- Consideration of the visual alignment of the concrete slab edges that vary in thickness by the creation of an upstand and metal cladding

We acknowledge the intent and look forward to the submission of the physical samples board.

In relation to operable windows, we continue to recommend the project team explore options for natural ventilation solutions.

Services
We acknowledge confirmation of the location of rooftop mounted plant including the proposed Monkeytoe screening system (HushMonkey Louvre-Look Acoustic Barrier) and recommend a sample be provided as part of the physical samples board.

Landscape
We acknowledge the provision of landscape drawings and coordination between landscape and architectural documentation. We support the provision of deep soil zones to the ground floor planting zones, planters to the rooftop terrace to support mature trees and natural shade and shelter, and the consideration of seating configurations to support outdoor education opportunities.

Environmentally Sustainable Design (ESD)
We acknowledge confirmation of PV panels to the rooftop and support the reuse of the Dunlevie brickwork.

We continue to recommend further exploration of opportunities to establish sustainability targets for the project and ensure ESD initiatives are integrated within all areas of the development given the building use and educational benefit. To this end, we recommend confirmation of any targets for a recognised rating system such as Greenstar or the National Australian Built Environment Rating System (NABERS).

I trust the above comments assist with your assessment.

Warm regards,

Damien Heffernan
Senior Design Advisor
Office for Design and Architecture SA

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Level 1, 28 Leigh Street, Kaurna/Adelaide SA 5000

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ABN 20 903 762 572

Enquiries: Phil Chrysostomou 8203 7146
DA reference: 24019790

16 August 2024

State Commission Assessment Panel
GPO Box 1815
ADELAIDE SA 5001

Dear Sir/Madam

Application: 24019790

Applicant: Mercy Education Limited trading as St Aloysius College

Addresses: 53 Wakefield St Adelaide SA 5000 + 17 more locations

Description: Demolition of an Existing School Building and Construction of a Multi-Level Primary School Building with associated illuminated signage

I write in reference to the abovementioned Development Application and the referral undertaken to Council pursuant to Regulation 23(2)(b) of the *Planning, Development & Infrastructure (General) Regulations 2017*.

In accordance with Regulation 23(3), Council can provide comments with respect to the following matters:

- Essential infrastructure
- Traffic
- Waste management
- Stormwater
- Public open space
- Other public assets and infrastructure
- The impact on any local heritage place.

Matters relevant to this application are addressed below.

TRAFFIC & ACCESS

- The existing entry from Angas Street consists of a vehicular and pedestrian entry gate. Given the proposed landscape upgrade, further clarification is sought regarding how vehicle and pedestrian movements will be maintained noting the reduced width of entry pathway.

STORMWATER

- The following information is required regarding stormwater:
  - Existing drainage system, including pipe sizes, connections to the council system, and overland flow paths.
  - The design standards for the proposed drainage system.
  - Proposed changes to the existing drainage system including changes to discharge rates to the council system and any on-site detention.
  - Clarify proposed levels and flow paths and drainage system design around the existing pool.
    - Appears levels on the north eastern side of the new building are proposed to be raised to RL45.66-45.63 with limited-no freeboard between the flow path levels and the proposed floor level of the new building.
  - Confirm existing drainage system is in good condition and adequate capacity for the proposed discharge.

Please contact Phil Chrysostomou if you require any clarification.

Yours sincerely

M. F. Sedgman

Michael Sedgman
CHIEF EXECUTIVE OFFICER

Lewis, Tegan (DHUD)

From: Phil Chrysostomou <P.Chrysostomou@cityofadelaide.com.au>
Sent: Tuesday, 24 September 2024 3:57 PM
To: Lewis, Tegan (DHUD)
Cc: Seb Grose
Subject: RE: Content Manager (CM) - Application 24019790 - St Aloysius College - Proponent Team response to CoA referral

Follow Up Flag: Follow up
Flag Status: Completed

OFFICIAL

Good afternoon Tegan,

I write to advise that Council has the following comments to make in relation to applicants' response to Council referral received 11 September 2024. These comments are in addition to the previous City of Adelaide referral response dated 16 August 2024 and still stand where relevant.

Traffic & Access

- The initial commentary related to potential conflicts within the shared use lane and do not relate to servicing implications within the public realm.
- The applicants' response states the proposed clear width of 3.5m along Redden Lane is suitable (and compliant) however the specific standard which the design complies have not been provided.
- Noting both emergency/maintenance vehicles and pedestrians are proposed to use Redden Lane for ingress/egress further information or advice should be sought to verify the proposed clear width is suitable for the proposed types of vehicles and number/type pedestrians (children) to suitably address risk of conflict. e.g. conflict between emergency service vehicle ingress and pedestrian egress etc.

Stormwater

- Agree with applicants' response, whereby this matter can be addressed by condition – see below.

Recommended condition
Stormwater
All stormwater run-off from surface areas of the development including awnings must be collected in a system of gutters, pits and pipelines and discharged, via any detention and/or water retention reuse tanks, by gravity to the existing site drainage system and comply with requirements of the National Construction Code, AS3500.3, SA Water Sensitive Urban Design Policy and Planning Consent documentation. Any existing component of the stormwater system that is to be retained must be checked and certified by a Licensed Plumber or qualified practising Civil Engineer to be in good condition and operating satisfactorily.

Recommended advisory note
Boundary Levels – Match existing
If landscape works extend to Angas Street boundary, the finished floor level at the boundary of the site shall match the existing back of footpath levels.

Kind regards,

Phil Chrysostomou
Senior Planner – Development Assessment, Regulatory Services

T 8203 7146 **E** p.chrysostomou@cityofadelaide.com.au

Kaurna Country
Colonel Light Centre
4th Floor, 25 Pirie Street, Adelaide, South Australia, 5000

CITY OF ADELAIDE
cityofadelaide.com.au

The City of Adelaide acknowledges the Kaurna people as the Traditional Owners of the Country where the City of Adelaide is situated, and pays its respect to Elders past, present and emerging.

From: Lewis, Tegan (DHUD) <Tegan.Lewis@sa.gov.au>
Sent: Wednesday, September 11, 2024 11:00 AM
To: Phil Chrysostomou <P.Chrysostomou@cityofadelaide.com.au>
Cc: Kirsten Falt <kirstenf@masterplan.com.au>
Subject: Content Manager (CM) - Application 24019790 - St Aloysius College - Proponent Team response to CoA referral

OFFICIAL

Hi Phil, I hope you are well.

Please find attached the proponent team response to Council comments in respect to application 24019790. **Could you please review and provide response by the 25th of September?**

For convenience, I have also attached the original referral response from Council.

Could I confirm if the vehicle access matter raised is in response to concern that deliveries will occur on the street? i.e. was Council seeking to confirm this can occur on site?

Thank you for coordinating review of this application. Your assistance is appreciated.

Please let me know if you have any concerns or you'd like to have a chat.

Speak soon,

Tegan Lewis (She/Her)
Senior Planning Officer
Planning and Land Use Services
Department for Housing and Urban Development

T 7133 1616
E Tegan.lewis@sa.gov.au

Level 10, 83 Pirie Street, Adelaide SA 5000

Government of South Australia
Department for Housing
and Urban Development

Lewis, Tegan (DHUD)

From:	Phil Chrysostomou <P.Chrysostomou@cityofadelaide.com.au>
Sent:	Thursday, 24 October 2024 10:05 AM
To:	Lewis, Tegan (DHUD)
Subject:	RE: Application 24019790 - St Aloysius College
Follow Up Flag:	Follow up
Flag Status:	Completed

OFFICIAL

Hi Tegan,

Thank you for following up.

I agree with the position, however as this has not been formally demonstrated it is advised the proponent to consider the development formal management practices of Reddin Lane. This should be for both typical daily activities and in the event of an emergency or evacuation.

Kind regards,

Phil Chrysostomou
Senior Planner – Development Assessment, Regulatory Services
T 8203 7146 **E** p.chrysostomou@cityofadelaide.com.au

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4th Floor, 25 Pirie Street, Adelaide, South Australia, 5000

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From: Lewis, Tegan (DHUD) <Tegan.Lewis@sa.gov.au>
Sent: Thursday, 17 October 2024 11:01 AM
To: Phil Chrysostomou <P.Chrysostomou@cityofadelaide.com.au>
Subject: Application 24019790 - St Aloysius College

OFFICIAL

Hi Phil,

The proponent team for application 24019790 have provided a response to traffic (attached).

I have reviewed and am comfortable with the position.

If you have any additional comments, please let me know.

Thanks,
Tegan Lewis (She/Her)
Senior Planning Officer
Planning and Land Use Services
Department for Housing and Urban Development

T 7133 1616
E Tegan.lewis@sa.gov.au

Level 10, 83 Pirie Street, Adelaide SA 5000

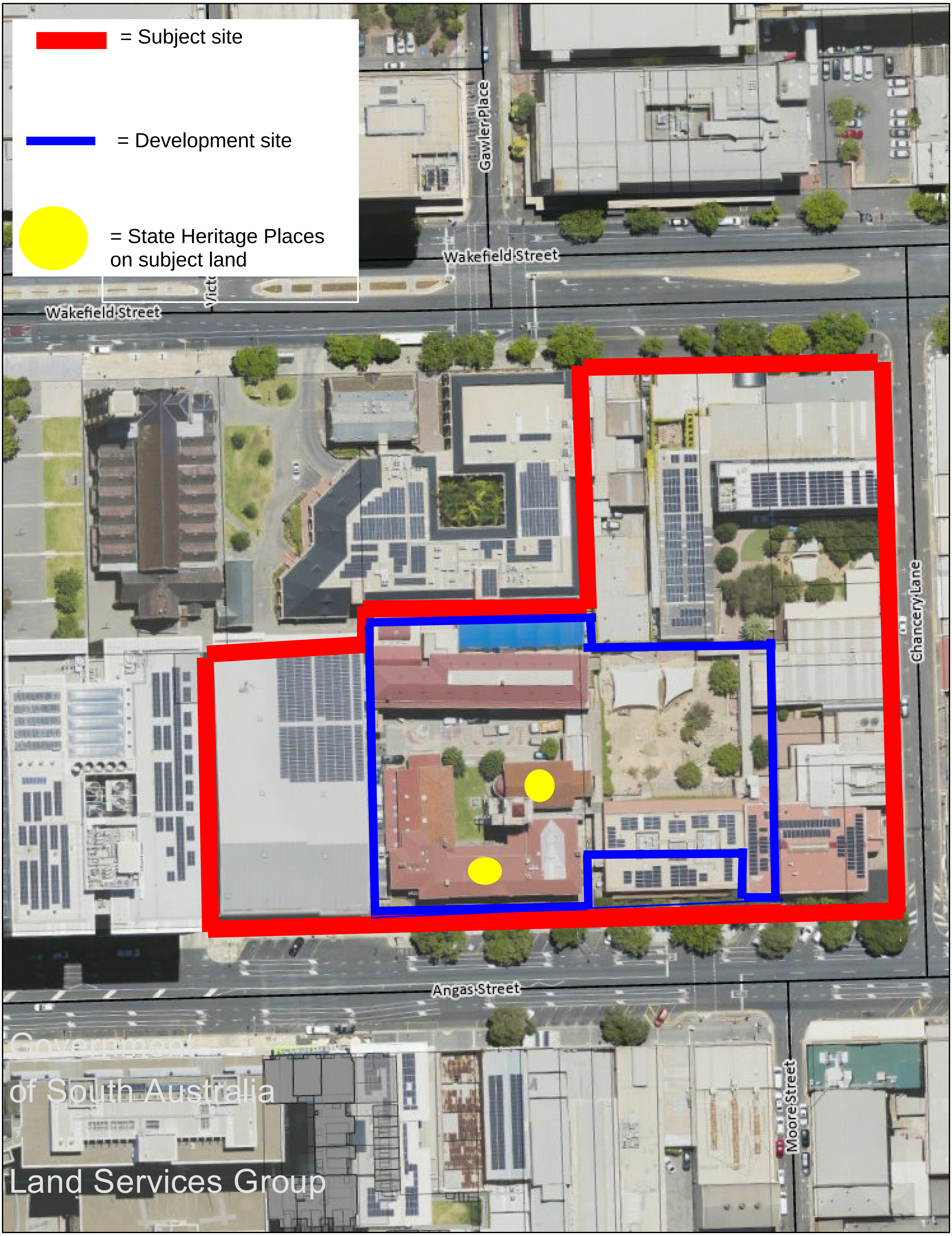
Government of South Australia
Department for Housing and Urban Development

The Department for Housing and Urban Development acknowledges First Nation people as the Traditional Owners of South Australian land and waters and we extend our respect to Elders past, present and emerging. We value and recognise the ongoing cultural heritage, beliefs and relationship First Nations peoples have with these lands and waters and the continuing importance of this today.

SAPPA Report

The SA Property and Planning Atlas is available on the Plan SA website: https://sappa.plan.sa.gov.au

Date created:
November 4, 2024



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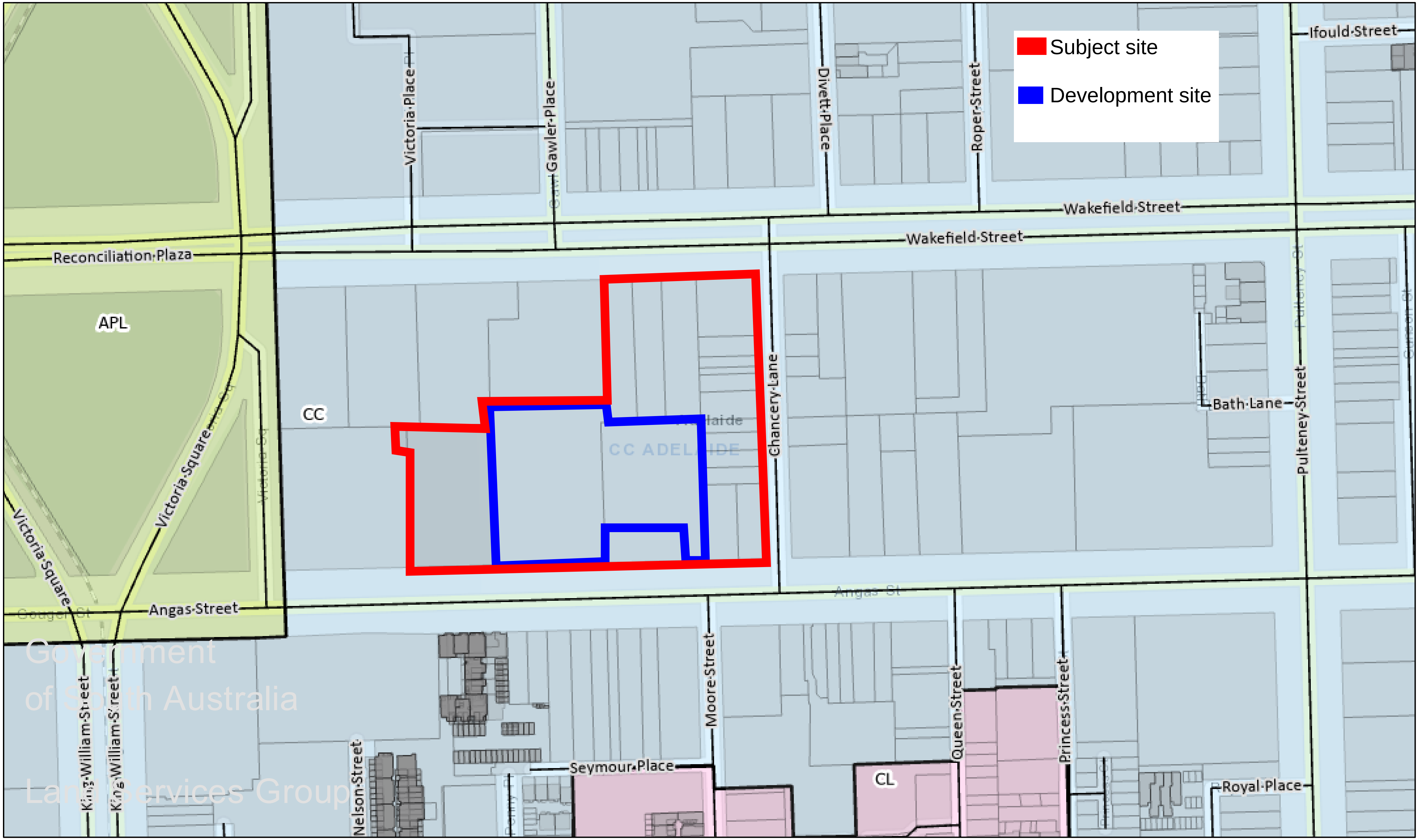

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