SHIRE OF DERBY / WEST KIMBERLEY
LOCAL INTERIM DEVELOPMENT ORDER NO.9

NOTICE OF PUBLIC ADVERTISEMENT OF A PLANNING PROPOSAL

Planning and Development Act 2005
Shire of Derby / West Kimberley

The local government has received a development application requesting the Regional Joint Development Assessment Panel's approval to use and/or develop land for the following purpose and public comments are invited.

Property Address: Lot 1701 on Deposited Plan 419014 Fairfield-Leopold Downs Road, Yarranggi in the Wunaamin Miliwundi Ranges.

Proposal: Construction and use of a proposed new 'educational establishment' (i.e. school) on a portion of Lot 1701 to accommodate up to 78 full-time students, plus up to 20 visiting 'induction' students, as well as 40 teaching, support, and facility management staff.

Details of the proposal are attached including various supporting documentation and plans.

Comments on the proposal are now invited and can be emailed to sdwk@sdwk.wa.gov.au or posted to the Shire's Chief Executive Officer at PO Box 94 DERBY WA 6728 by no later than **Friday 17 November 2023**.

All submissions must include the following information:

- Your name, address and contact telephone number;
- How your interests are affected; whether as a private citizen, on behalf of a company or other organisation, or as an owner or occupier of property;
- Address of property affected (if applicable); and
- Whether your submission is in support of, or objecting to the proposal and provide any arguments supporting your comments.

All submissions received may be made public at the Regional Joint Development Assessment Panel's meeting when the application is formally considered unless a submission specifically requests otherwise.

Amanda Dexter
Chief Executive Officer
Shire of Derby / West Kimberley

23 October 2023

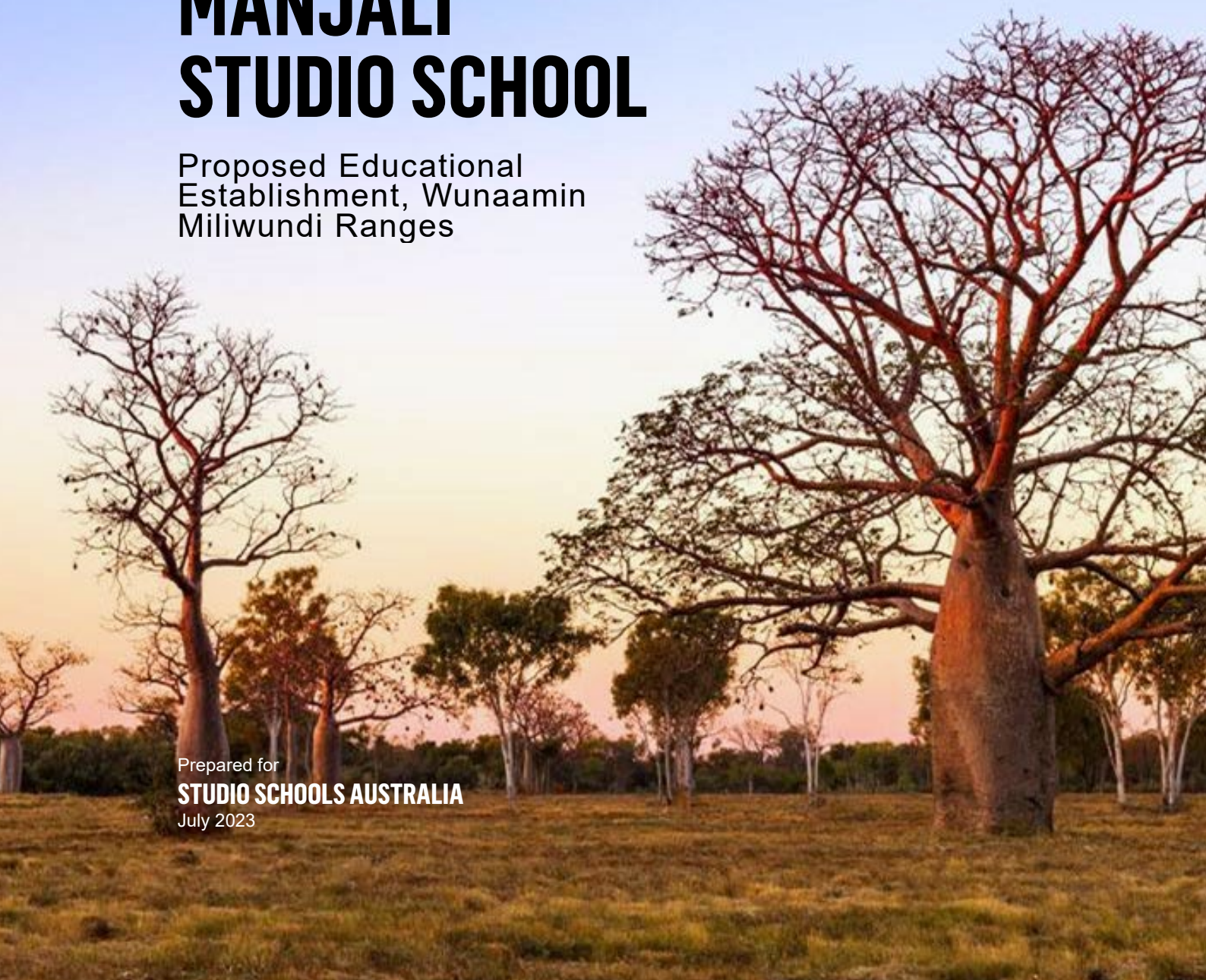
DAP application received for processing on 6 October 2023.

Mr Joe Douglas - Town Planner on behalf of the Shire of Derby / West Kimberley

URBIS

MANJALI STUDIO SCHOOL

Proposed Educational Establishment, Wunaamin Miliwundi Ranges



Prepared for

STUDIO SCHOOLS AUSTRALIA

July 2023

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Tim Dawkins
Consultant	Jackson Tomich
Project Code	P0041111
Report Number	Final v2.0

Urbis acknowledges the important contribution that Aboriginal and Torres Strait Islander people make in creating a strong and vibrant Australian society.

We acknowledge, in each of our offices, the Traditional Owners on whose land we stand.

urbis.com.au

CONTENTS

‘MANJALI’ IS THE BUNUBA NAME FOR SHINY ROCK, INSPIRED BY THE QUARTZ ROCKS FOUND ON THE SITE AND NAMED WITH THE PERMISSION OF THE BUNUBA TRADITIONAL OWNERS.

INTRODUCTION

Studio Schools of Australia (**SSA**) is an Australian Educational Organisation delivering a new model of residential secondary education on country for Indigenous students in the remote north. This new model of education has a central focus on Indigenous language and culture and is co-led and co-designed with Indigenous people. It provides a wholistic program of education across academic learning, personal/social learning and industry learning in readiness for employment and further study. The model brings together Indigenous and non-Indigenous students to learn from each other across cultures and languages and from different world views.

A Studio School on-country increase the ability to engage with the local indigenous community and to minimise the dislocation felt by students living outside the family home.

Based upon the proven success of the of the SSA's Yiramalay Studio School (formerly established by the Partnership between the Bunuba People Wesley College Melbourne) in the Kimberley region of Western Australia, SSA has been supported by seed and establishment funding by the Commonwealth Government and the National Indigenous Australians Agency (**NIAA**) to build a system of through northern remote Australia.

The Manjali School is one of three new studio school proposed to be established over the next three years which will be supported by a dedicated Indigenous Education and Resource Centre (IERC) on-country.

A Studio School brings the following benefits:

- Practical, hands-on learning across academic learning, industry learning, and personal/social development in the secondary years
- A fully residential learning model that is 24/7, supporting the development of living skills, cultural identity and personal confidence
- Partner school relationships where Indigenous and non-Indigenous students live and study together on-country and in other environments
- Genuine and equal partnership between Indigenous and non-Indigenous Australians with emphasis on the importance of Indigenous co-design and co-leadership; and
- Local employment for Indigenous people.

1. THE PROPOSAL

This application proposes the development of a Manjali Studio School on a currently unoccupied site on Leopold Downs Station on Tunnel Creek Road in the Shire of Derby/West Kimberley. The school is one of three new Studio Schools to be established by SSA in northern Australia over the course of the next few years.

Key details of the proposal are listed below:

- An Educational Establishment land use which includes
  - 1x AFL Sports Oval
  - 6x Student Accommodation Buildings
  - 10x Staff Residences
  - 1x Sports Pavilion
  - 3x Learning Pavilions
  - 1x Community Building
  - Other amenity structures (including Arrival Building, Staff Common Lounge)
- An Indigenous Education and Research Centre
- A Solar Array and Maintenance Shed
- Other ancillary buildings and structures

1.1. LOCATION

The proposal sits wholly within the land parcel legally identified as Lot 1701 on Deposited Plan 419014 (**Subject Site**) of which its proprietor is the State of Western Australia. Refer to **Figure 1** and **Figure 2** for a Cadastral Plan and **Table 1** for lot details. The proposed Educational Establishment is to sit at the southern boundary of the lot. This is depicted in **Figure 2**.

The traditional owners of the land are the Bunuba People. The school site will utilise the existing access driveway shown on plans to link with Fairfield Leopold Downs Road.

Table 1 Lot Particulars

Lot	Deposited Plan	Vol/Folio	Area	Proprietor	Street Address
1701	419014	LR3172/695	116825 ha	State of Western Australia	No Street Address

Figure 1 - Whole Cadastre Plan (Parent Site)

Regionally, the site is remotely located with the Shire of Derby/West Kimberley (**the Shire**), just north of the Devonian Reef Conservation Park. The subject site is approximately 185km east of Derby and 60km northwest of Fitzroy Crossing. The site is linked to these regional centres and the wider Kimberley through Fairfield-Leopold Downs Road. Leopold Downs Airstrip is within a 10km proximity of the subject site.

The subject site is situated upon the Cadjebut and Kurrajong Creek systems, a part of the Fitzroy river catchment and Tanami-Timor Sea Coast. The site currently has no formal built structures and has not been

cleared, and is sparely covered by with natural vegetation including Mundagallal, Manda Gum, Boab Trees and Biriyali.

Refer to **Figure 2** for an Aerial Plan and **Figure 3** for a Regional Context Plan

Figure 2 - Aerial Plan

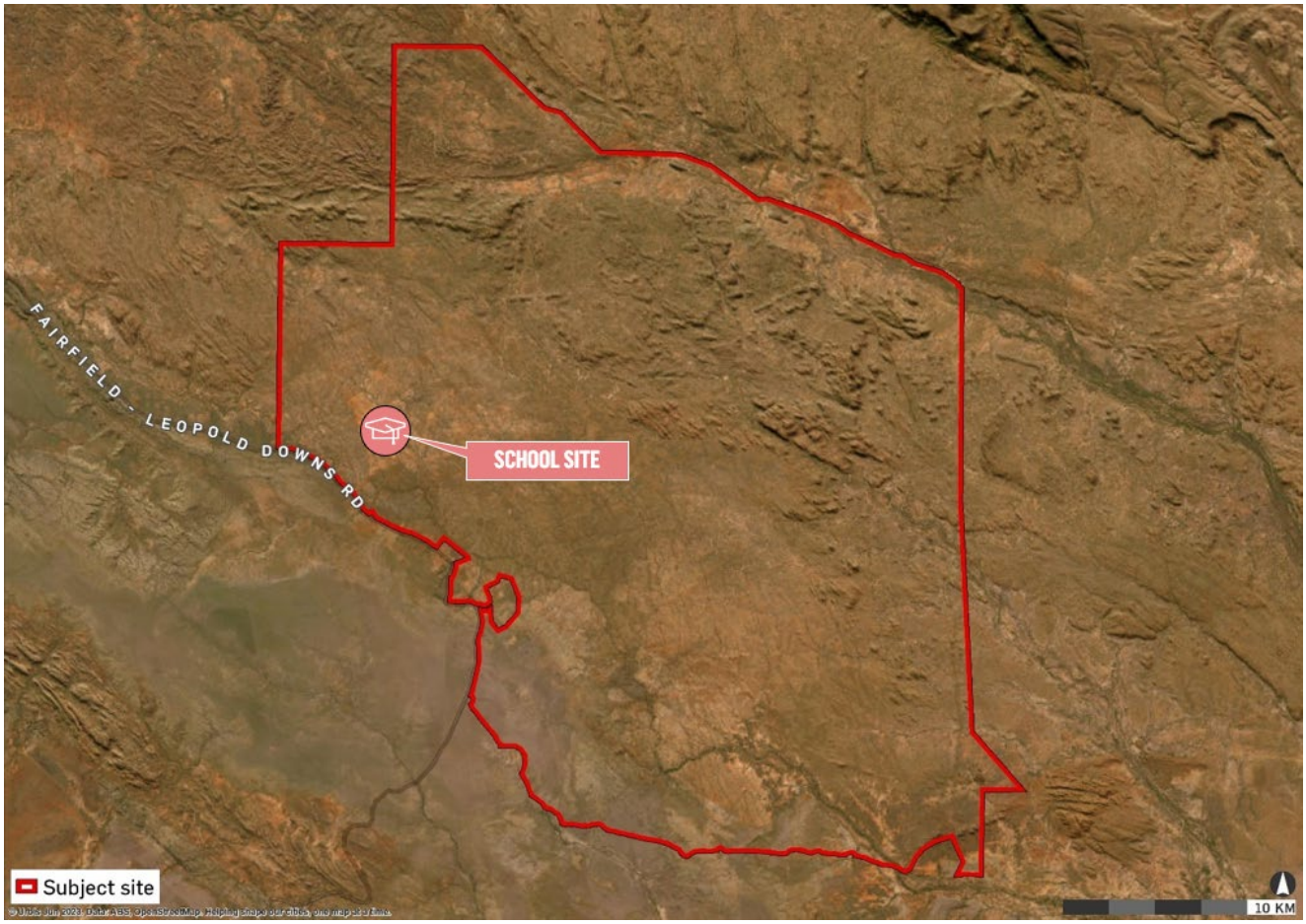


Figure 3 - Regional Context Plan

1.2. PRELODGEMENT

A prelodgement meeting was held between Urbis, Lyons Architecture, SSA and the Shire on 29 May 2023. The meeting included and discussion of the proposal and the processes for assessment, in addition to clarification being sought regarding the unique planning context of the site and any specific documentation requested by the Shire.

It was confirmed by the Shire that the proposal will be assessed under the Interim Development Order No. 9 (**IOD9**) planning framework, however, would need to acknowledge the draft Local Planning Scheme No. 9 (**draft LPS 9**) and have some regard for it in the assessment of the proposal.

A key discussion was had between the project team and the Shire with regards to technical considerations required to support the proposal. The Shire expressed interests in the operation of the school site during the wet season, particularly regarding the self-sufficiency of the site during those periods. As a result, SSA has prepared a detailed operations plan which outlines how the school will operate in such a context.

Separately to the planning process, prelodgement discussions were had between SSA, Bunuba Aboriginal Corporation, and Pardoo Beef as the Pastoral Leaseholders. Pardoo Beef Corporation outlined their full support of the application, considering it an important social and economic benefit for the community. A letter addressed to the Department of Lands, Planning and Heritage from Pardoo Beef supporting the proposal is appended this report.

1.3. DESIGN STORY

At the centre of SSA's vision for on-country learning is the creation of a learning environment that supports its genuine intentions. As such, the approach taken for the Manjali School featured a detailed 'co-design' process with the Bunuba community of the West Kimberley and Fitzroy Valley. This highly interactive process occurred over the last 18 months and included 5 co-design sessions located on country with Bunuba Dawangarri Aboriginal Corporation (BDAC) and other Bunuba Traditional Owners.

Unfortunately, the original Bandilngan site was affected by the recent Kimberley floods and through guidance of Traditional Owners, a new site was established at Kurrajong following a series of investigations into 5 potential sites.

A detailed documentation of this co-design process has been prepared Lyons Architects and is located in **Appendix B**. A short summary of each session is located below:

Co-Design Session 1

The first session occurred in late 2021 by The Fulcrum Agency who attended a site visit and met with key Banuba stakeholders. This session was largely a visioning exercise where the Bunuba community's aspirations were identified. This further included collection of knowledge form the community with regards to the history, geography, and geopolitical context.

The second component to the session was the selection of the future school site. This location was broadly identified as the northern portion of the then lot, close to the Lennard River, and looking north east across to the Devonian Range. The connection to the Devonian Range has been carried through to the revised Manjali site, being situated in close proximity to the Conservation Area.

Co-Design Session 2

Building off the first session, the second session involved a workshop held in the Liyan-Ngan Nyirrwa Cultural Centre of the Yawuru community in Broome. It was attended by a number of Bunuba stakeholders together with Studio Schools of Australia staff and the Lyons design team.

The workshop focused on the future site layout, as well as educational offerings such as music, technology, and a culturally appropriate pastoral care model.

Co-Design Session 3

The third workshop was held over a three-day camp out on country near the original Bandilngan site. This session built upon the early stages of the design to bring about more detail on the internal fit out and building provisions.

Further, a site visit was held in which a detailed feature survey of the site, its contours, and the vegetation, was undertaken by licensed surveyors. Tree flagging also occurred to identify significant trees.

Co-Design Session 4

The final session was held during the Garma Festival. The final design was presented to key stakeholders which included final finishing elements.

Co-Design Session 5

Following the devastation caused by the recent floods in the Kimberley and due to the unprecedented impact on the original Bandilngan site, a new site was selected by the Bunuba People. This site is the Manjali School Site. The new site location was determined as the desired site due to better topographic conditions and a much lower flooding risk than the previous site, supported by hydraulic modelling and land survey data.

A visit was undertaken following the floods in early 2023, in which conversations and design Workshops were held with students and staff about the design of the school, as well as feedback on the existing Yiramalay Studio School facilities to inform the new design.

Stakeholders Workshop on Bunuba Country

1.4. PROPOSED SCHOOL FACILITIES

Through the above design process paired with learnings from the Yiramalay Studio School, the site has incorporated the following facilities to ensure a bespoke and effective on-country learning facility. Please refer to **Table 2**.

Table 2 - School Facility List

School Facility	Comment
Sports Facilities	AFL Sports Oval ▪ Dimensions: 100m x 125m Sports Pavilion ▪ Sport Multicourt (Basketball; Tennis; Netball) ▪ Equipment and Uniform Storage ▪ Dimensions: 33.50m x 18.00m ▪ Roof over with industrial fans
Learning Pavilions	Dedicated Year 7,8,9 and two specialist learning spaces, the 'wet' and 'Dry' lab as well as student amenities and central store. There are modular canopy located in between learning pavilions to create covered external informal learning areas.
Indigenous Education and Research Centre (IERC)	The IERC is the learning support centre to support all Studio Schools across Australia, with seminar rooms, meeting rooms, workstations to support staff training programs and events.
Arrival Building	School main entry building with reception desk, teaching and operational staff workstations and offices, school sick bay and first aid with staff amenities.
Community/Student Residence	16 student + mentor residences with kitchenette and common areas and 9-bed staff house for residential mentors
Community Building	Multipurpose dining hall for student, staff and visitors, commercial kitchen, with public amenities and student games room.
Staff Residence	Long Stay: ▪ Staff residence with bedroom, living, kitchen/kitchenette and ensuite. Short Stay: ▪ Staff residence/visitor room with bedroom and ensuite.
Staff Common Lounge	Staff common lounge with kitchen and living areas as well as central staff laundry for all staff + visitor residences.
Maintenance Shed	Lockable parking, services plant area, tanks, storage shed.

School Facility	Comment
Solar Array and Waste Disposal	9,025 sq.m Solar Farm co-located with site waste disposal.

1.5. HERITAGE CONSIDERATIONS

Whilst there is no identified Aboriginal Heritage or European Heritage by the Department of Planning, Lands and Heritage (**DPLH**) within the proposed development area, it is acknowledged that there is a significant connection to the land surrounding the site by the Bunuba People.

As such, the extensive co-design process was undertaken with key indigenous stakeholders to ensure the development of the school is respectful to people and country and will have a social license to operate.

It is noted that within the sizeable subject lot, there is one area of Identified Aboriginal Heritage, being Registered Aboriginal Site 13856. This site is of a distance of 13km northeast of the proposed development area and does not directly impact the site. Notwithstanding and as outlined below, the design of the school has followed a co-design process with ongoing engagement with the Bunuba people ensuring it is delivered in an appropriate manner.

2. TECHNICAL CONSIDERATIONS

2.1. FLOOD MANAGEMENT

As identified earlier in the report, the previous Bandilngan Studio School was not progressed due to complications associated with flooding experienced during the last wet season. With the proposal seeking to accommodate students on site, it was deemed necessary to seek an alternative location of Studio School.

Following the above, the chosen Manjali site has been subject to a rigorous Site Flood Risk assessment. A specialist Hydrological Consultant was appointed to complete this assessment, in HARC (Hydrology and Risk Consulting). The full assessment is located in **Appendix C**.

Unlike the Bandilngan site, the subject site is not located within close proximity to any substantial watercourses, meaning that immediate risk is greatly reduced. A RORB hydrologic and TUFLOW hydraulic model was developed to understand the flood risk associated with the SSA site. This showed at whilst floods between the 20% AEP to 0.2% AEP did encroach onto the site boundary as the proposed school infrastructure is approximately 13.5 m above the maximum flood extent in a 0.2% AEP flood event and 13.9 m above the maximum flood extent in a 1% AEP flood event. As a result, there is no flood risk to the site infrastructure.

Notwithstanding the above, the study found that there is potential that the site could become isolated during a flood event as a result of inundation of the access road. The main evacuation route from site is via an established road which is graded to the creek banks at the crossing. The modelling indicates that at the low point of the road, water depths could reach up to 2.2 m in a 20% AEP flood event. This may result in the road becoming impassable for at least 12 hours based in a worst-case-scenario. Whilst not uncommon for the Kimberley Region in the west season, the lodged Operations Plan (**refer Section 2.3**) outlines how the site will be supplied during such a situation.

As such, the report confirmed that the site is of no direct flood risk and is safe to accommodate education facilities. Mitigative measures are defined to ensure the site remains supplied during a flooding event to the surrounding road network, however the use of the site would remain intact and safe.

2.2. BUSHFIRE MANAGEMENT

The proposed school is located within the Bushfire Prone Area (BPA) in accordance with State Planning Policy 3.7 (**SPP 3.7**). Refer to **Figure 4**. As such, the provisions of SPP 3.7 are applicable to this proposal. Further, the school is considered a vulnerable land use under SPP 3.7 because the site is remote and users of the site are less able to respond in a bushfire emergency. As such, a detailed Bushfire Management and Emergency Evacuation Plan (**BMP**) has been prepared by Bushfire Safety Consulting and is located in **Appendix D**.

The BMP assesses the Bushfire Risk present to this proposal as well as including a comprehensive Emergency Evacuation Plan which specifically reflects the land uses' needs and circumstances. The potential bushfire impact occurs around the entre facility as outlined in the BAL Contour Map as shown in **Figure 5**.

Trees located in the footprint of proposed buildings or with trunks located 6 metres or less from a proposed building will be removed prior to development. Remaining trees in the Asset Protection Zone (APZ) will be pruned so that any branches within 2 metres from ground level are removed. Understorey vegetation, predominately native grasses, will be slashed in the APZ to achieve acceptable bushfire protection outcomes. All native vegetation clearing and modification and the Asset Protection Zone will be certified to standard prior to occupancy of the school and managed thereafter.

The site accommodates an open space safe area to shelter (designated as the sports oval) which can operate under extreme fire weather conditions such as a 1 in 200 return period. A site specific water supply system is designed for the site and dual access to the nearby public road and around the buildings is accommodated. A number of other mitigative solutions are outlined in the BMP.

The submitted BMP demonstrates how the School Site can safely operate in the Bushfire Hazardous environment subject to the continuous upholding of the outlined solutions.

Figure 4 - Bushfire Prone Area Mapping

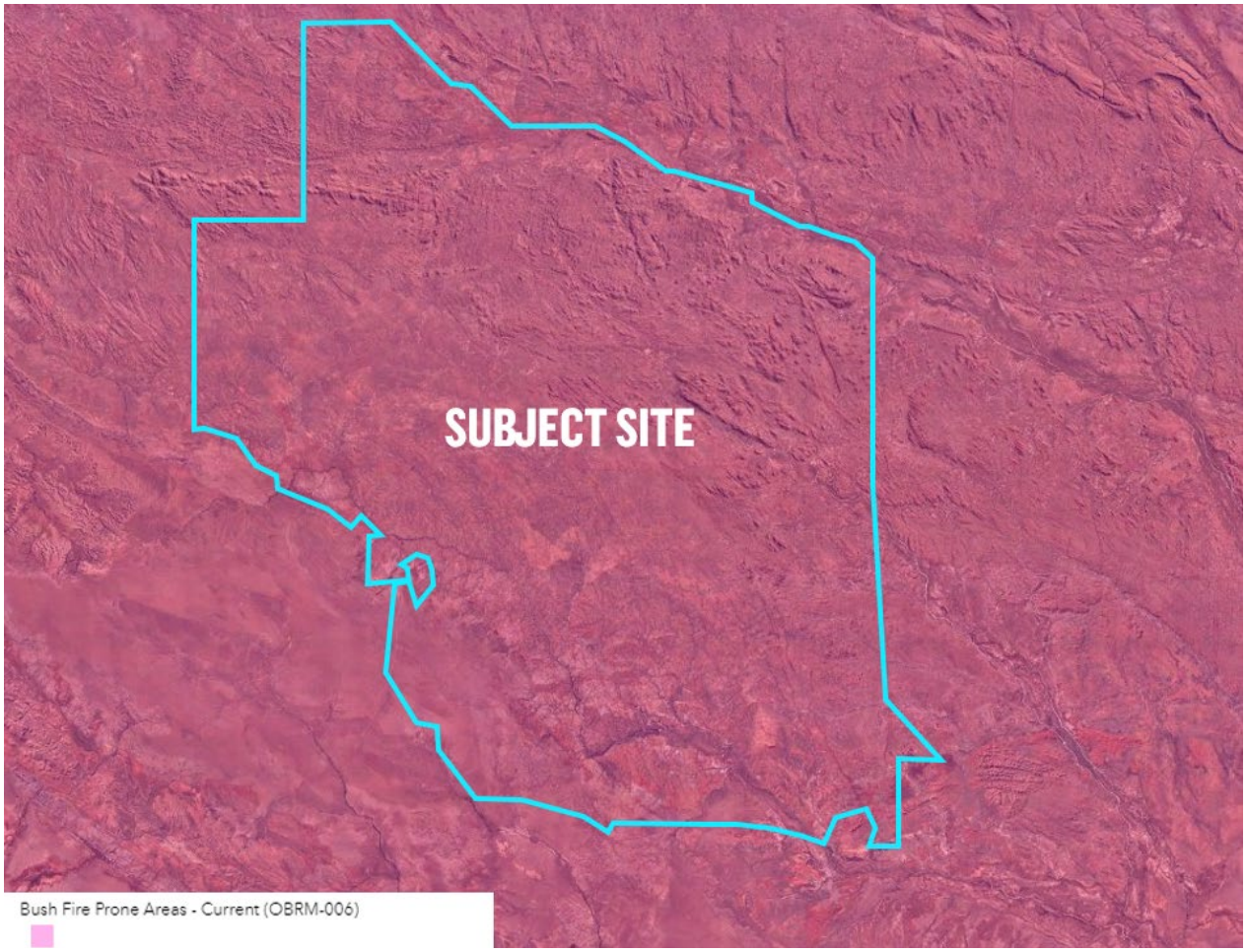
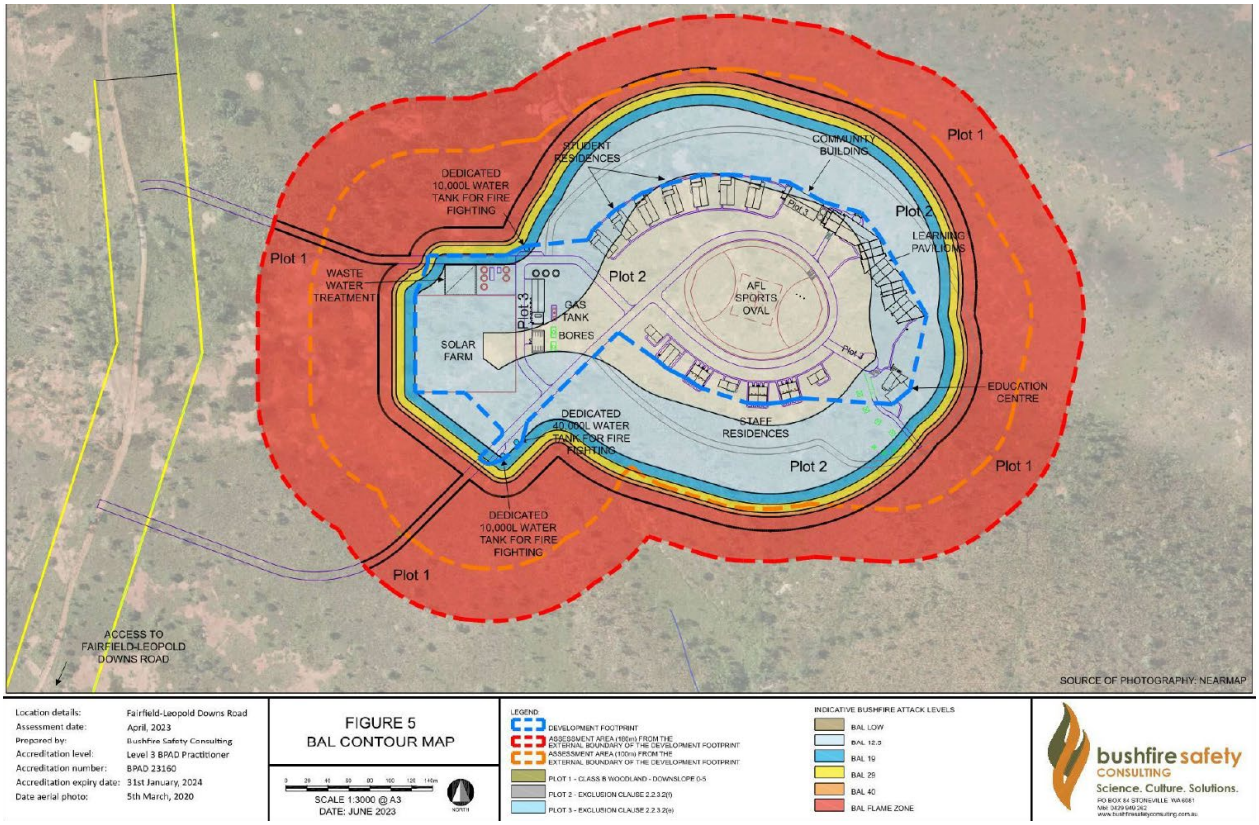


Figure 5 - BAL Contour Map



2.3. SCHOOL SITE OPERATION

In alignment with prelodgement discussions with the Shire, SSA have produced a comprehensive Operations Plan which addresses protocols that will be put in place to manage wet-season issues at the proposed Manjali Studio School. The operation plan further details how the site will operate throughout the year, including waste management.

The site is located in remote Western Australia in which produces challenges not often experienced by metropolitan or town centre-based schools. As such, it was identified by the Shire that this remoteness would require a dedicated plan to outline the ability to operate throughout these conditions in particularly during any potential wet season-induced isolating events.

The Operations Plan, located in **Attachment E** addresses the potential issues of flood risk, residential population during the wet season, routine medical care, emergency medical care, food supply, water supply, power supply, fuel supply, wastewater disposal, organic solid waste disposal, inorganic solid waste disposal.

SSA has considerable experiencing operating a school of this nature within the Kimberley and remote Australia with the Yiramalay Studio School. SSA has operated the school since 2010 and have implemented a number of measures to ensure safety across the site. Through this, SSA is committed to putting in place the staff, equipment, processes and procedures to safely manage the flooding and isolation risk to achieve the objective of delivering quality on-country education to the children of the Kimberley Region

2.4. WASTEWATER TREATMENT

Wastewater is proposed to be managed onsite through a Sewer Treatment System which will process effluent into irrigation water. This water will be utilised for surface irrigation within a stock proof fence, separate to that of the habitable areas.

A detailed memo has been provided by WSP in **Appendix F**, detailing the proposed system and an information brochure.

2.5. FLORA AND FAUNA

Raised through prelodgement consultation held on 29 May 2023, the Shire identified their desire for a Flora and Fauna assessment to be undertaken to accompany the development application. Due to the timing of the advice to prepare such a document, including the need for appointment of services, travel to the site and reporting, such an assessment was unable to be prepared in the timeframe required for lodgement.

Notwithstanding, Studio Schools have engaged Environmental Consultant Syrinx, who is undertaking a Flora and Fauna assessment. The assessment will include a survey of the existing flora and fauna on the site, as well as other environmental conditions. The proposal will then be assessed against the Department of Environment Regulation (DER) ten clearing principles to determine that the clearing will not have adverse impacts on the native habitats/vegetation. This is expected to be of low impact given the proposed ‘light touch’ construction methodology and little ground disturbance.

3. PLANNING CONSIDERATIONS

3.1. PREVAILING PLANNING FRAMEWORK

Due to size, scale, and remoteness of the Shire's jurisdiction, there are three prevailing Planning Frameworks. These are: Town Planning Scheme No. 5; Town Planning Scheme No. 7; and Interim Development Order No. 9.

Town Planning Scheme No. 5 and Town Planning Scheme No. 7 are not applicable to the proposed SSA location, only covering the Derby Townsite and neighbouring Birdwood Downs Station and Solar Power.

Interim Development Order No.9 (**IDO9**) is the applicable planning framework with regards to the proposed SSA application. IDO9 was enacted by the State Government to provide a generic planning framework across the entire shire area (excluding Derby Town Centre and Birdwood Downs) as a regular detailed planning scheme is not feasible to cover such a large area of land. IDO9 does not include any land use maps/zoning but provides general direction to planning in its area.

3.2. LAND USE

IOD9 does not stipulate Land Use classifications or their definitions. As such, the proposal best fits an 'Educational Establishment' land use as per the model scheme text:

> *"means premises used for the purposes of providing education including premises used for a school, higher education institution, business college, academy or other educational institution".*

Clause 6 of IOD9 pertains to permitted development, in which it stipulates development classes that do not require approval. An Educational Establishment is not listed within this clause and as such requires development approval under IOD9.

3.3. INTERIM DEVELOPMENT ORDER NO.9 MATTERS OF CONSIDERATION

As IOD9 is a high-level planning document that governs the development of a vast area of land, development controls are maintained at a high, qualitative level to ensure a site-specific design and assessment can occur. The following table outlines the matters to be considered under Clause 4A under IOD9 and how to proposal meets each item.

#	Matter to be Considered	Design Response
1	any approved Statement of Planning Policy of the Western Australian Planning Commission;	Refer letter **Section 3.4**.
2	any approved Environment Protection Policy under the Environmental Protection Act 1986	Not applicable.
3	any other adopted or proposed planning policy or strategy that may be applicable to the area	Not applicable.
4	the conservation of any place on the Heritage List or Character or appearance of a Heritage Area under the Aboriginal Heritage Act 1972 and the Heritage Act 2018	Refer letter section 1.5.
5	any environmental consideration	The subject site identified potential risks of bushfire and flooding. These have been addressed through appropriate technical documentation. Refer to letter section 2.

#	Matter to be Considered	Design Response
6	whether the land to which that application relates is unsuitable for the proposal by reason of it being, or likely to be, subject to flooding, tidal inundation, subsidence, landslip, bush fire or any other risk	As above.
7	the preservation of amenity of the locality	The subject site is currently undeveloped with the surrounding locality including pristine bushland and pastoral grazing. As such, the proposal has sought to be as least intrusive as possible. As such, the proposal has employed a light touch' methodology to its design and subject site, looking to retain trees, vegetation, red dirt, natural connection to the river and the wider topography. This ensures that the natural and cultural amenity is preserved and respected through design and operation. This is further ratified for the notion of on-country learning, seeking to further strengthen the local and regional Indigenous community through appropriate investment into education.
8	the relationship of the proposal to development on adjourning land or on other land in the locality	The proposal is to deliver Indigenous education in an on-country residential format. This is co-led and co-designed with Indigenous people which brings together Indigenous and non-Indigenous students to learn from each other across cultures and languages and from different world views. The delivery of this school on site and locality is most appropriate given the connection to the lands and waters of the West Kimberley by the Bunuba people and surrounding Indigenous groups. On-country learning representing a significant development in culturally appropriate education and investment. The operation through its co-design has a social license to operate and represents the best interests of the local community. A school site is further a non-intrusive development and provides a centre piece for the local community to gather through. The proposal includes additional community facilities to act in this role.
9	whether the proposed means of access to and egress from the site are adequate and whether adequate provision has been made	The application will utilise an existing access driveway from Fairfield-Leopold Downs Road to access the site. Two access roads from this established driveway are proposed, connecting the

#	Matter to be Considered	Design Response
	for the loading, unloading, manoeuvring and parking of vehicles	School. An internal circle route has been included with a separate slip road for service vehicles to prevent them from needing to enter the main student facilities. The existing driveway currently services trucks and other larger vehicles for Pastoral uses, demonstrating a functional and established route.
10	the amount of traffic likely to be generated by the proposal, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety	Students and staff will reside on campus during the School Terms. As such, daily traffic movement to and from the site will be minimal to nil, ultimately culminating in weekly movements as opposed to daily. The peak wet season will coincide with the summer holidays, in which there will be zero students and approximately five (5) staff at the school. Access and traffic movements during this period will be minimal to nil
11	whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved	The school site has been designed to appropriately reflect the country in which it is located. This has included a 'light touch' methodology to the subject site within the Wunaamin Miliwundi Ranges, looking to retain trees, vegetation and topography. The proposal includes a reduction of only 16 trees from the natural landscape, with a total of 121 trees identified to be retained and protected during site. these include Boab, White Gum and Bohemia Trees. This includes the retention of identified "Significant Trees" which have deeper connections to the land.
12	whether the proposal is likely to cause soil erosion or land degradation	The site has been co-design designed on-country within local indigenous community to ensure that its impact on the locality is greatly minimised. Each structure is designed to be able to be erected with little ground disturbance, respecting the locale and the site.
13	provision of adequate services and/or infrastructure	The school is proposed to be self-sufficient and not rely on externally provided services and infrastructure. This is detailed in Section 2.3 and Appendix E. In summary: • On-site solar array.

#	Matter to be Considered	Design Response
		• On-site waste disposal facility and wastewater treatment plant. • On site water generation.
14	any relevant submission or objections received on the application	To be determined during the assessment period.
15	the comments or submission or objections received from any statutory, public, planning or service authority and relevant Aboriginal people and community group/s	To be determined during the assessment period.
16	any other matter which in the opinion of the Local Government has planning relevance	To be determined during the assessment period. It is further noted that a prelodgement meeting was held between the applicant and the Shire to understand the Shire's key focus items. The key concern from the shire was the operation of the site during the Wet Season. In response, SSA have provided an Operational Plan which outlines how the school will operate in the remote Kimberley, in particular the wet season Refer to letter **Section 2.3** and **Appendix E**. Further consideration from the Shire was to ensure their Draft Scheme at time of advertising was considered. An assessment against the relevant provisions from the Draft Scheme has been provided in **Section 3.5**.

3.4. STATE PLANNING POLICY 3.7 – PLANNING IN BUSHFIRE PRONE AREAS

As demonstrated in above **Section 2.2**, the proposed school is located within the Bushfire Prone Area (BPA) in accordance with State Planning Policy 3.7 (SPP 3.7). Refer to **Figure 6**. In alignment with SPP 3.7, a detailed Bushfire Management and Emergency Evacuation Plan (BMP) has been prepared by Bushfire Safety Consulting and is located in **Appendix D**, refer to **Section 2.2** for a summary of the mitigative techniques and recommendations.

3.5. DRAFT LOCAL PLANNING SCHEME NO. 9

Notwithstanding section 3.3 above, the Shire has been progressing the preparation of a new local planning scheme, Draft Local Planning Scheme No. 9 (**Draft Scheme)**. The Draft Scheme has since been advised earlier in the year following initial support from the Minister for Planning.

The Draft Scheme will replace Local Planning Schemes No. 5 and No. 7 which are the operative planning schemes within the Derby townsite. The Draft Scheme will also zone land outside the Derby townsite currently subject to Interim Development Order No. 9. Of relevance for the subject site, the Draft Scheme will introduce a specific Land Use Zone as opposed to the current utilisation of IOD 9.

Whilst IOD 9 is the prevailing planning framework of which the proposal must be assessed against, it is acknowledge that a level of due regard is placed upon the Draft Scheme. As such, the following high-level assessment against the Draft Scheme has been provided. It is demonstrated that the proposal does not

prejudice the Draft Scheme in its current advertised form. It is noted that the Draft Scheme may change since advertised.

3.5.1. Draft Zoning and Land Use

Under the Draft Scheme, the subject site is zoned 'Rural'. The objectives of the rural zone are shown in **Table 3**, in which a high level assessment has been provided.

Table 3 - Draft LPS 9 Rural Zone Objectives Assessment

Objective	**Proposal Alignment**
To provide for the maintenance or enhancement of specific local rural character	The proposed Educational Facility retains the globally unique character of the Rural Kimberley. The school does not detract from the ability to utilise the land in a rural setting, but enhances the local community through providing a key service to the local community which can support to continuous use and residence of the rural character.
To protect broad acre agricultural activities such as cropping and grazing and intensive uses such as horticulture as primary uses, with other rural pursuits and rural industries as secondary uses in circumstances where they demonstrate compatibility with the primary use.	The land subject to the proposal is a part of wider Pastoral Lease. The occupier of the lease has identified this site as being in excess to their requirements and as such supported the development of an Educational Facility.
To maintain and enhance the environmental qualities of the landscape, vegetation, soils and water bodies, to protect sensitive areas especially the natural valley and watercourse systems from damage.	The school site has been designed to appropriately reflect the country in which it is located. This has included a 'light touch' methodology to the subject site within the Wunaamin Miliwundi Ranges, looking to retain trees, vegetation and topography. The proposal includes a reduction of only 16 trees from the natural landscape, with a total of 121 trees identified to be retained and protected during site. these include Boab, White Gum and Bohemia Trees. This includes the retention of identified "Significant Trees" which have deeper connections to the land. The site has been designed on-country by country to ensure that its impact on the locality is greatly minimised. Each structure is designed to be able to be erected with little ground disturbance, respecting the locale and the site.
To provide for the operation and development of existing, future and potential rural land uses by limiting the introduction of sensitive land uses in the Rural zone.	The proposal will not impact the use of rural land uses in the short, medium and long term. The Educational Facility

Objective	Proposal Alignment
To provide for a range of non-rural land uses where they have demonstrated benefit and are compatible with surrounding rural uses.	As evident through the above, the proposal will bring a direct and much needed service to the local rural community. The proposal is a 'On-Country' Educational facility which will assist in the retention of the local community, providing them with local access to what would result in students having to relocate. The use of light touch development methodologies and preservation of the landscape through the facility demonstrates an assimilation with the existing rural land scape and ensuring no encroachment on surrounding rural uses.

An 'Educational Establishment' is proposed to be an 'A' use under the Draft Scheme meaning that the use is permissible subject a period of advertising. This follows a similar process with regards to advertising in IOD 9.

3.5.2. Draft Development Standards

As the Scheme is still in Draft and not yet adopted to form part of the prevailing planning framework, the proposal is to be assessed in the context of not prejudicing the incoming scheme as opposed to strict compliance.

Under the Draft Scheme, General Development Standards have been drafted to provide guidance on development upon zoned land. The proposal has been assessed against the relevant draft standards below.

Table 4 - Draft LPS 9 General Development Standards Assessment

Provision and LPS 9 Reference	Relevant/Applicable Provision Detail	Response
Setbacks *Schedule 4*	Setbacks for development within the rural zone shall be assessed at the discretion of the Local Government.	The proposal is setback considerably from the street frontage to Fairfield-Leopold Downs Road and any nearby use/development. It is considered to satisfy any setback concern.
Car Parking *Schedule 1 and Schedule 3(5)*	1 car bay for every person employed plus adequate pickup / set down areas on site plus 2 bays for visitors.	8 secure car parking bays are provided on site for long-term parking. Additional parking areas are to be accommodated along the internal roadways as shown in Drawing No. KSS-DA-00-10-08. A separate parking area is proposed along the Indigenous Education and Research Centre. Disabled parking is also provided for this centre.

Provision and LPS 9 Reference	Relevant/Applicable Provision Detail	Response
		As the school will not involve pick up drop off on a daily basis, in addition to staff residing on site, dedicated interim/short-term parking facilities are not required. The proposal's rural/remote setting, its size, and space available through internal roadways provides adequate areas for vehicles to park, without requiring dedicated parking spaces.
	A person shall not develop or use any land or erect, use or adopt any building unless car parking spaces specified by the local government are provided and such spaces are constructed and maintained in accordance with the Scheme.	Complies. See above.
	All areas utilised for vehicle parking, manoeuvring, access, egress and storage are to be sealed, marked and formalised as per Australian Standard 2890.1-2004 as amended.	Will comply with Australian Standard 2890.1-2004 in a rural setting.
	Where the maximum dimension of any open car parking area exceeds twenty metres in length or width, one car parking space in ten shall be used for garden and tree planting to provide visual relief and so long as the garden and tree planting areas shall be maintained in good order, those car parking spaces shall be included in calculations as car parking and not as landscaping.	Proposed lockable car parking is enclosed and therefore bot applicable. Not other dedicated parking area exceeds 20m in length.
	The owner or occupier of premises on which car parking spaces are provided shall ensure that the parking area is landscaped with shade trees, the car parking is laid out, drained and maintained in accordance with the approved plans relating thereto.	Noted and will comply.
Development of Land Subject to Dampness or Flooding	Where, in the opinion of the local government, the dampness of the site on which a building is proposed to be constructed so warrants the local government may require that one or all of the following measures shall be carried out: (i) the subsoil shall be effectively drained;	A detailed Flood Assessment has been undertaken to accompany this application. The report confirmed that the site is of no direct flood risk and is safe to accommodate education facilities. Mitigative measures are defined to ensure the site remains

Provision and LPS 9 Reference	Relevant/Applicable Provision Detail	Response
Schedule 3(6)	(ii) (ii) the surface of the ground beneath the building shall be regraded or filled and provided with adequate outlets to prevent any accumulation of water beneath the building; (iii) (iii) the surface of the ground beneath the building shall be covered with an approved damp-resisting material.	supplied during a flooding event to the surrounding road network, however the use of the site would remain intact and safe. This is further elaborated on in report **Section 2.1** and **Appendix C**.
	A building shall not be constructed upon any land defined by the local government as being liable to flooding or inundation.	
Effluent Disposal *Schedule 3(7)*	Where access to a reticulated sewerage disposal system is demonstrated to not be available, on-site effluent disposal facilities are to be provided to treat and dispose of any effluent generated on the site in accordance with the Government Sewerage Policy 2019.	Wastewater is proposed to be managed onsite through a Sewer Treatment System which will process effluent into irrigation water. This is further elaborated on in report **Section 2.4** and **Appendix F.**
Disability services *Schedule 3(10)*	The local government may require the provision of facilities for the disabled when considering applications for development approval.	ACROD parking has been provided in certain locations across the site. Accessible ramps have been provided to four residences, staff common lounge, community building and other proposed facilities.
Amenity	No building shall be so constructed, finished or left unfinished that its external appearance would significantly detract from the amenity of the locality or tend to depreciate the value of adjoining property. All land and buildings shall be so used and maintained as to preserve the local amenity.	The proposal will be developed to the highest quality standards to ensure students and staff who are studying, learning and residing on site are appropriately attended to. The finishes provided pay homage to the natural environment in which the proposal sits. The colour themes are taken from the Bunuba seasons of Bullurru, Grinyabali, Maurri, and Barrangga. Specific colours have been selected from those present at Bandilngan Gorge, Devonian Reef, Manjali Quartz Rock, Konkaberry (Barrangga) and the Nhaa Honey & Cultural Burning (Maurri). These have been documented in **Appendix H**,
	No land, building or appliance shall be used in such a manner as to permit the escape therefrom of smoke, dust, fumes, odour, noise, glare, vibration or waste products in such quantity or extent or in such a manner as will create or be a nuisance to any inhabitant, or to traffic or persons using any land or roads in the vicinity.	

Provision and LPS 9 Reference	Relevant/Applicable Provision Detail	Response
		demonstrating an enhancement of the local amenity. There will be no proposed land, building, or appliance that will permit the escape of smoke, dust, fumes, odour, noise, glare, vibration or waste products in such quantity or extent or in such a manner as will create or be a nuisance to any inhabitant, or to traffic or persons using any land or roads in the vicinity. The onsite wastewater management system proposes sustainable reuse of waste water
Boab Tree Removal *Schedule 3(24)*	To maintain and enhance the character of the Town of Derby, no person shall remove a Boab Tree from any land within the scheme area without the prior written consent of the local government. For the purpose of this Clause: (a) the consent of local government shall not be unreasonably withheld and shall be issued where the tree is dead, dying or dangerous; (b) it shall be sufficient defence to show that a tree that has been removed was dead, dying or dangerous prior to its removal.	No Boab trees are proposed to be removed. Multiple Boab's have been identified on site and have subsequently been classified as a Culturally Significant Tree to be retained. A total of 121 trees are to be retained on site, with the wider proposal being continuously adjusted to result in the largest amount of trees being retained possible. These include White Gum, Boab, Bohemia, Trees nominated to be removed are to be reused for furniture or left on site near the proposed maintenance shed for future use by the school.
	When considering an application for development approval the local government shall determine whether any Boab tree or other vegetation on the subject site has landscape or environmental significance and should be retained and in granting consent to an application may: (a) impose a condition on the development approval requiring the retention or relocation of the tree or trees; (b) request a modification of the proposal; and/or (c) permit a variation of the site development requirements to provide for retention of the tree or trees.	

Further to the above, General Development Standards for the Rural Zone are also specified in the Draft Scheme. The proposal has been assessed against the relevant draft Rural Zone standards below.

Table 5 - Draft LPS 9 Rural Zone General Development Standards

Provisions	**Provision Detail**	**Response**
Alignment with Zone Objectives	1. Development in the Rural zone shall comply with the requirements of Table 2 and the objectives for that zone as outlined in Part 3.	Refer to above responses in report **Table 3** and **4**.

4. CONCLUSION

The proposed application seek approval for the establishment of a Studio School located at Manjali, Wunaamin Miliwundi Ranges. This Educational Establishment offers a new model of school and unique on-country learning opportunity in the Kimberley region. The proposal represents a year long co-design process in which the project team has developed a school that was designed on-country for country.

The proposal addresses the key items from the relevant planning framework and represents an opportunity to develop a unique educational offering within the Shire.

We look forward to working with the Regional Joint Development Assessment Panel, the Shire and relevant referral agencies to achieve a development approval for this proposal.

DISCLAIMER

This report is dated 12 July 2022 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd **(Urbis)** opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Lyons Architecture; Studio Schools Australia **(Instructing Party)** for the purpose of Development Application **(Purpose)** and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

APPENDIX A CERTIFICATES OF TITLE

WESTERN AUSTRALIA

REGISTER NUMBER	
1701/DP419014	
DUPLICATE EDITION **N/A**	DATE DUPLICATE ISSUED **N/A**

VOLUME **LR3172** FOLIO **695**

RECORD OF CERTIFICATE OF CROWN LAND TITLE

UNDER THE TRANSFER OF LAND ACT 1893
AND THE LAND ADMINISTRATION ACT 1997
NO DUPLICATE CREATED

The undermentioned land is Crown land in the name of the STATE OF WESTERN AUSTRALIA, subject to the interests and Status Orders shown in the first schedule which are in turn subject to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts
REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 1701 ON DEPOSITED PLAN 419014

STATUS ORDER AND PRIMARY INTEREST HOLDER:
(FIRST SCHEDULE)

STATUS ORDER/INTEREST: PASTORAL LEASE

PRIMARY INTEREST HOLDER: BUNUBA ABORIGINAL CORPORATION OF 7 FORREST ROAD FITZROY CROSSING WA 6765

(LC N050061) REGISTERED 1/7/2015

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. N050061 LEASE. SUBJECT TO THE TERMS AND CONDITIONS AS SET OUT IN THE LEASE. REGISTERED 1/7/2015.
   - N130706 MORTGAGE OF LEASE N050061 TO INDIGENOUS BUSINESS AUSTRALIA REGISTERED 24/9/2015.
   - O940584 CHANGE OF ADDRESS. REGISTERED 12/11/2021.
   - O940584 SUB LEASE. SUB LESSEE PARDOO BEEF CORPORATION PTY LTD OF LEVEL 5 189 ST GEORGES TERRACE PERTH WA 6000 REGISTERED 12/11/2021.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF CROWN LAND TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	DP419014
PREVIOUS TITLE:	LR3020-353
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.

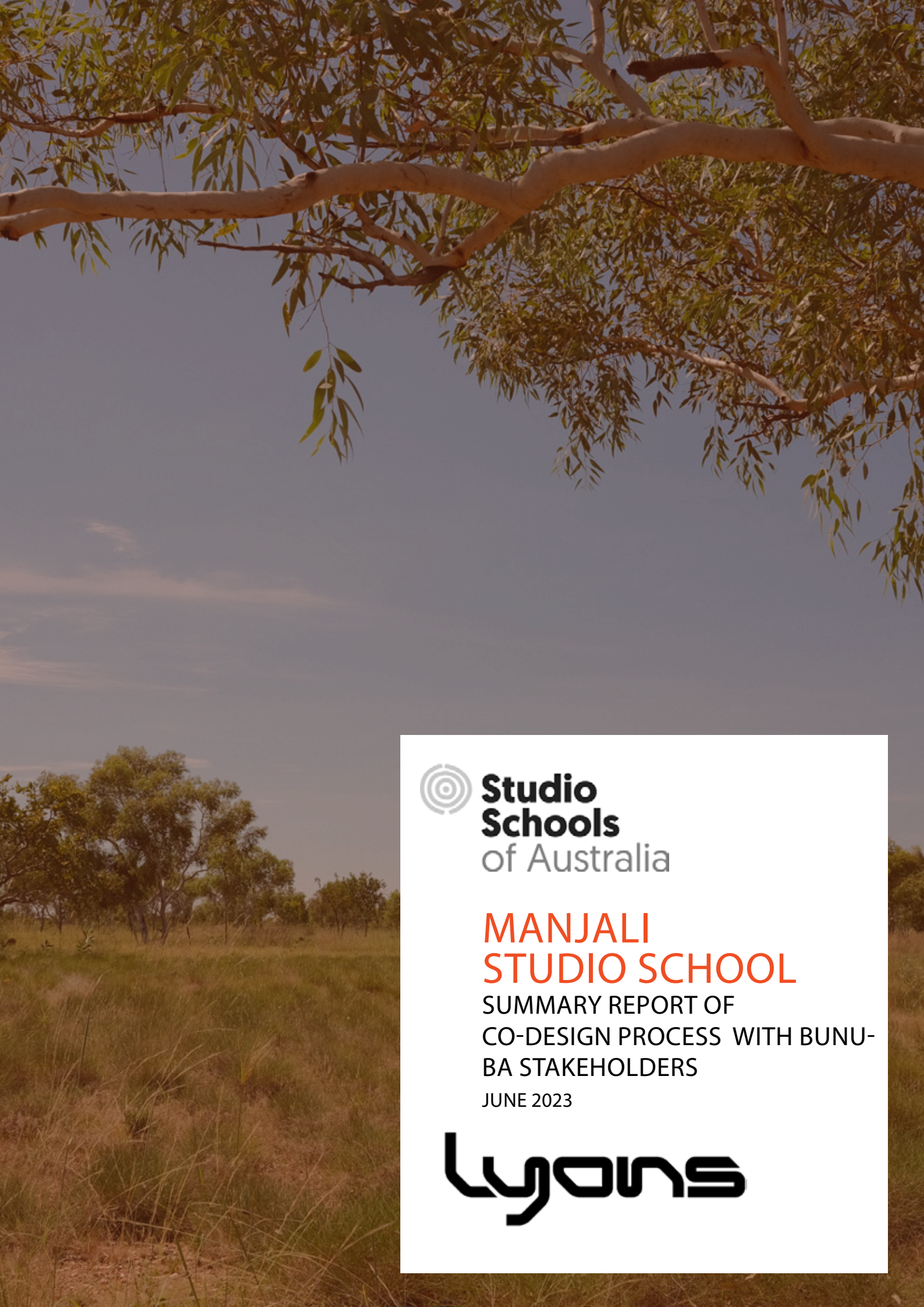
END OF PAGE 1 - CONTINUED OVER

REGISTER NUMBER: 1701/DP419014 VOLUME/FOLIO: LR3172-695 PAGE 2

LOCAL GOVERNMENT AUTHORITY: SHIRE OF DERBY-WEST KIMBERLEY
RESPONSIBLE AGENCY: DEPARTMENT OF PLANNING, LANDS AND HERITAGE (SLSD)

NOTE 1: L848616 SUBJECT TO SURVEY - NOT FOR ALIENATION PURPOSES
NOTE 2: M977947 CORRESPONDENCE FILE 00985-2014-01RO

APPENDIX B DESIGN STORY



Studio Schools of Australia

MANJALI STUDIO SCHOOL

SUMMARY REPORT OF CO-DESIGN PROCESS WITH BUNUBA STAKEHOLDERS

JUNE 2023

lyons

SECTION ONE

Revision

VERSION	SECTION	DESCRIPTION/CHANGES	ISSUED	APPROVED
1		Draft Issue for Review	04.10.22	Carey Lyon
2		Issued for Development Application	06.10.22	Carey Lyon
3		Issued for Development Application	xx.05.23	James Wilson

Contents

Background

Central to the vision of Studio Schools of Australia is the co-creation of a number of schools with the communities they serve, leading to genuine learning on Country within a 'two way' learning program. At the centre of this approach is that the School is 'co-designed' with the Bunuba community of the West Kimberley and Fitzroy Valley.

Unfortunately as outlined in the Development Application Report, the original Bandilngan site was unfortunately affected by the recent Kimberley floods and through guidance of Traditional Owners, a new site was established at Kurrajong following a series of investigations into 5 potential sites.

The design as submitted in this Development Application has been developed over the previous 18 months via a number of on Country co-design sessions with Bunuba Dawangarri Aboriginal Corporation (BDAC) and other Bunuba Traditional Owners. This process has been highly interactive, in assessing the chosen site, developing the project spatial brief, and the creation of the detailed design. A summary of the co-design and consultation process to date is as follows.

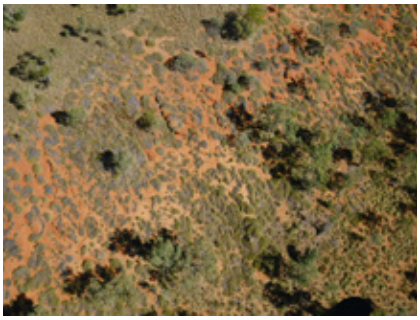
Co-Design Session 1

This initiation session took place in late 2021, and included a site visit by members of the design team (The Fulcrum Agency) to meet with key Bunuba stakeholders on the Bandilngan site. The work undertaken in this first session was two-fold.

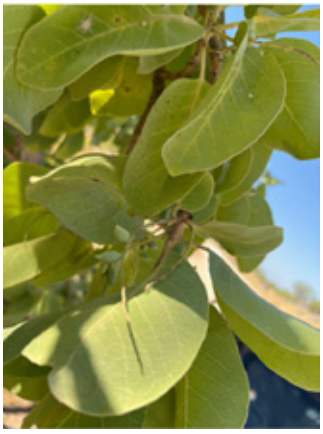
Firstly, the overarching aspirations of the Bunuba community for the School were identified, including their approach to learning on Country, the cultural history of the community, the geopolitical landscape history including the Devonian Range, and contemporary needs.

Secondly this session was an opportunity to consult with Bunuba community members on a preferred location for the school within the subject site. This location was broadly identified as the northern portion of the site, close to the Lennard River, and looking north east across to the Devonian Range. This orientation also optimizes climatic orientation, including for cooling easterly winds during the dry season. An overarching Buunuba objective is for as many of the school spaces as possible to visually connect to the Devonian range as a key aspect of Bunuba Country, history and culture.

In this session a wide variety of other items were discussed, including use of language, plants as learning tools and the deep time history of the Devonian Range.



Site photos from the original Bandilngan site from above.



Mundagallgal - Kakadu plum variety - fruits in Jan

Bunyji - Freshwater Mangrove

Manda Gum - like toffee when cooked with some sugar

Biriyali - Conkerberry, used for smoking ceremonies. Muraja - Blood wood trees

Co-Design Session 2

This workshop was held in early 2022 in the Liyan-Ngan Nyirrwa Cultural Centre of the Yaru community in Broome, and included a number of Bunuba stakeholders together with Studio Schools of Australia staff and the Lyons design team.

The purpose of the workshop was to review the initial design response (from Session 1) in relation to the site planning, and also the jointly review and develop the learning and spatial brief for the school.

Some of the key items arising from this session included:

- a distinctive approach to the student residential community, with a culturally appropriate pastoral care model
- the importance of technology, music and performance to the learning activities
- the site layout to optimise the learning on Country concept
- this session was also comprehensively documented with minutes and drawings.

Bunuba Stakeholders Workshop at the Liyan-Ngan Nyirrwa Cultural Centre

Co-Design Session 3

This third workshop was held on Country over a three day camp out adjacent to the subject site – using the ranger station at Windjana Gorge (now Bandilngan) camp areas. A number of diverse Bunuba stakeholders were able to participate in these sessions over three days, to comprehensively review and provide feedback to the emerging design.

This extended stay on Country also providing an opportunity for the extended team to revisit the site with Bunuba community members, to further refine the preferred location of the school including its distance from the Lennard River zone, and in relation to significant trees within the subject site. As part of this process all major trees were tagged, and a GPS location recorded for future accurate surveying. Following this site work the overall school configuration was adjusted to further away from the Lennard River, and located specifically in relation to trees of significance to the Bunuba community.

Following this co-design session the design was adjusted to retain the maximum number of major trees on site, within the context of the overall bushfire management strategies.

Subsequent to this visit a detailed feature survey of the site, its contours, and the vegetation, was undertaken by licensed surveyors, and this was then used to further nuance and amend the design.

Stakeholders Workshop on Bunuba Country

Co-Design Session 4

Prior to the Development Application lodgement, a session was undertaken during the Garma Festival. A number of Bunuba community members, together with the Studio Schools of Australia staff and students, travelled to Garma to present at this significant cultural event. This time was also used to present the revised design to key project stakeholders, including colours, materials and finishes.

Garma Festival forum discussion on Gumatj Country

Co-Design Session 5

Following the devastation caused by the recent floods in the Kimberley and due to the unprecedented damage caused to the original Bandilngan site, a new site was selected in consultation with Bunuba. The Kurrajong site was put forward as the most preferable by all project stakeholders after an assessment of 4 other sites on Bunuba Country.

A site visit was undertaken by the architects, who stayed at the Yiramalay Studio School, which is only 8km from the new site. The new site location was determined as the desired site due to better topographic conditions and a much lower flooding risk than the previous site, supported by hydraulic modeling and land survey data.

During the visit there were many rich informal conversations and design workshops with students and staff about the design of the school and feedback on the Yiramalay Studio School facilities to inform the new design.

Photos from the Kurrajong Site Visit

Summary

Based on the above interactive and collaborative process, the submitted design has strong support from the Bunuba community, as they have been an integral part of the development of the design and thinking over the last 18 months.

APPENDIX C FLOOD RISK STUDY

Studio Schools of Australia

Site Flood Risk Assessment

Version 2

19/05/2023

Document status

Client	Studio Schools of Australia
Project	Studio Schools of Australia
Report title	Site Flood Risk Assessment
Version	Version 2
Authors	Julia Tan, Erin Hughes
Project manager	Erin Hughes
File name	FPM00164_SSA_V2
Project number	Studio Schools of Australia

Document history

Version	Date issued	Reviewed by	Approved by	Sent to	Comment
Version 1	5/5/2023	Erin Hughes	Rob Swan	David Finch	
Version 2	19/5/2023	Erin Hughes	Rob Swan	David Finch	

Copyright and Limitation

Contents

Glossary of terms

Abbreviation	Definition
AEP	Annual Exceedance Probability
ARR2019	Australian Rainfall and Runoff 2019
ARR87	Australian Rainfall and Runoff 1987
BoM	Bureau of Meteorology
CL	Continuing Loss
DEM	Digital Elevation Model
HARC	Hydrology and Risk Consulting
IFD	Intensity-Frequency-Duration
IL	Initial Loss
LiDAR	Light Detection and Ranging
MC	Monte Carlo (design event flood modelling method)
RFFE	Regional Flood Frequency Estimate
RORB	General runoff and streamflow routing program used to calculate flood hydrographs from rainfall and other channel inputs
SRTM	Shuttle Radar Topography Mission
SSA	Studio Schools of Australia
TUFLOW	Hydraulic modelling software for flood, urban drainage, estuarine and coastal assessments

Executive Summary

Studio Schools of Australia (SSA) are currently proposing a school development north-west of Fitzroy Crossing. Hydrology and Risk Consulting (HARC) have been engaged to assess the flood risk associated with the proposed site.

To undertake this flood risk assessment a RORB hydrological and TUFLOW hydraulic model were developed. There were a number uncertainties associated with determining the flood risk due to the available data. However, sensitivity analysis was conducted and a conservative approach was adopted to manage the uncertainties. The peak flows from the RORB hydrologic model for the 20%, 5%, 2%, 1% and 0.2% annual exceedance probability (AEP) were used as inputs as steady state flows into the TUFLOW hydraulic model. These models were used to assess the sites flood risk.

The results of this flood analysis show that whilst floods between the 20% to 0.2% AEP did encroach onto the site boundary, it is unlikely to impact the area where buildings and associated infrastructure is to be located. The assessment indicated that the proposed school infrastructure is approximately 13.5 m above the maximum flood extent in a 0.2% AEP flood event and 13.9 m above the maximum flood extent in a 1% AEP flood event. As a result, there is no flood risk to the proposed school infrastructure extent. However, there is a potential that the site could become isolated during a flood event as a result of inundation of the access road. The main evacuation route from site is via a dirt road which is graded to the creek banks at the crossing. The modelling indicates that the at the low point of the road, water depths could reach up to 2.2 m in a 20% AEP flood event. There is also the risk that this road could be impassable for up to 12 hours during a flood event.

1. Introduction

As part of the Studio Schools of Australia (SSA) development, north-west of Fitzroy Crossing, Hydrology and Risk Consulting (HARC) have been engaged to undertake a flood risk assessment of the proposed school site. This flood assessment will inform SSA of the potential flood risk associated with the proposed school site, its buildings and egress and ingress routes.

This report documents the hydrological and hydraulic modelling undertaken to provide a high-level assessment of the flood risk associated with this site. The uncertainties associated with this assessment, primarily due to the limited available data within this region, are also outlined within the report and approaches adopted to manage it.

2. Data Collection

To undertake this flooding assessment, the project relied on the following data inputs.

2.1 Terrain

For this flood assessment, the largest source uncertainty in the modelling was the available topographic data. To reduce this uncertainty, a number of topographic data sets were used for this project. These include:

- Digital elevation model (DEM) derived from Shuttle Radar Topography Mission (SRTM) data. This dataset covers Australia and was produced by Geoscience Australia from data collected by NASA in 2009. It was provided as a smoothed digital elevation model with a 1 arc second horizontal resolution (close to 30 m over the area of interest).
- DEM derived photogrammetrically from 80 cm high resolution scanned aerial photography provided by Western Australia Land Information Authority (Landgate). The expected horizontal accuracy is 10 m (95% Confidence Interval) and the expected vertical accuracy of the original photogrammetric high resolution point cloud used to create the DEM dataset is 3.2 m (95% Confidence Interval).
- Survey data of the SSA site around the project site, adjacent road and main streams as seen in Figure 2-1 was collected by McMullen Nolan Group (MNG).

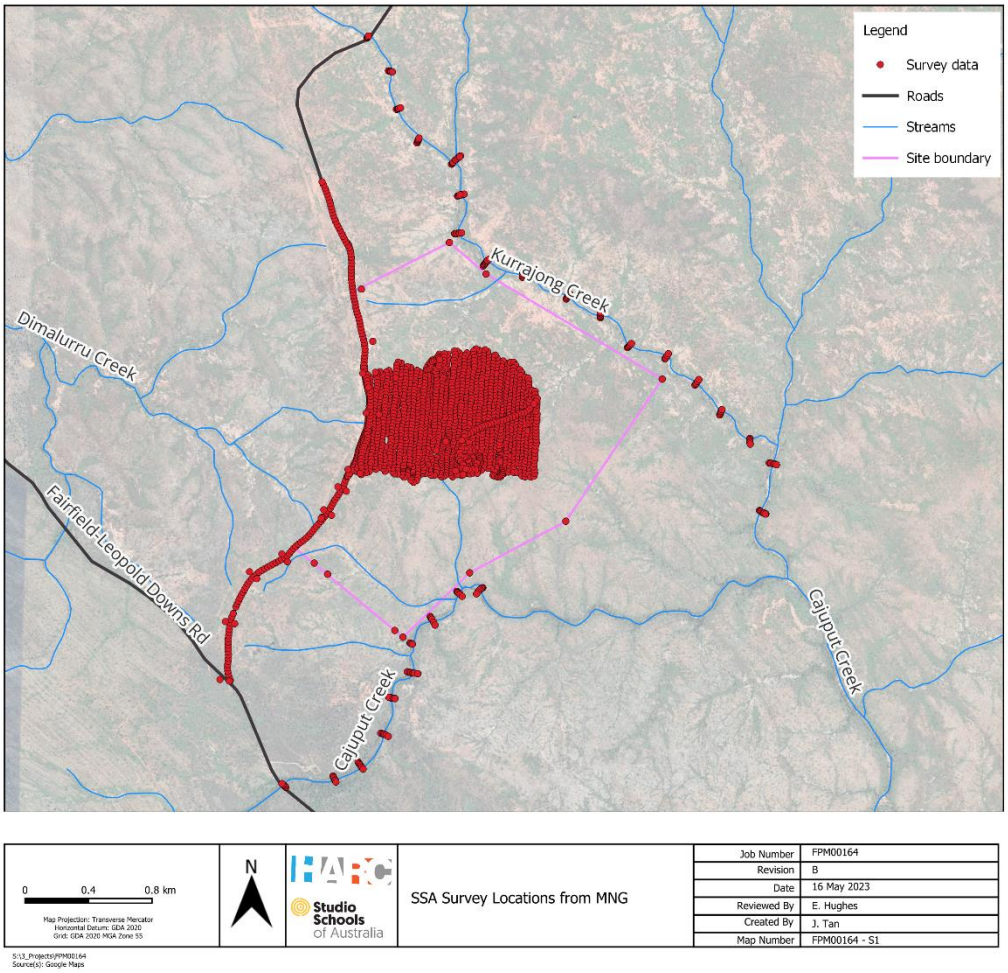


Figure 2-1: SSA Survey Data Locations from MNG

2.2 Other Data

A range of other information was obtained from SSA and other sources for use in this project. This includes:

- Site photos and aerial images covering the entire study area
- Site drawings which included the maximum extent of school infrastructure and current location of buildings
- Pluviograph and streamflow gauge data within the area

3. Hydrological Modelling

The main purpose of the hydrological modelling in this study was to determine the peak flows associated with a variety of annual exceedance probabilities (AEP) for the site. This information was used as an input into the hydraulic modelling.

3.1 Model Set Up

For this project, a RORB hydrological model was developed in accordance with the Australian Rainfall and Runoff 2019 (ARR2019) guidelines to determine the peak flows for different AEPs within the site. A Monte Carlo joint probability approach was adopted, in which the peak flows for a representative single run for different AEPs were extracted from the Monte Carlo hydrological modelling results. This approach allowed for the simple application of flows into the hydraulic model, whilst still incorporating the variability in the Monte Carlo estimates.

The hydrological model was developed in RORBWin as depicted in Figure 3-1. The model was split into two catchments (north and south) where both catchments drain to the same outlet. The subcatchment boundaries were determined using available SRTM data. Due to the rural nature of the area, it was assumed that all subcatchments were pervious and natural reaches were adopted within the model.

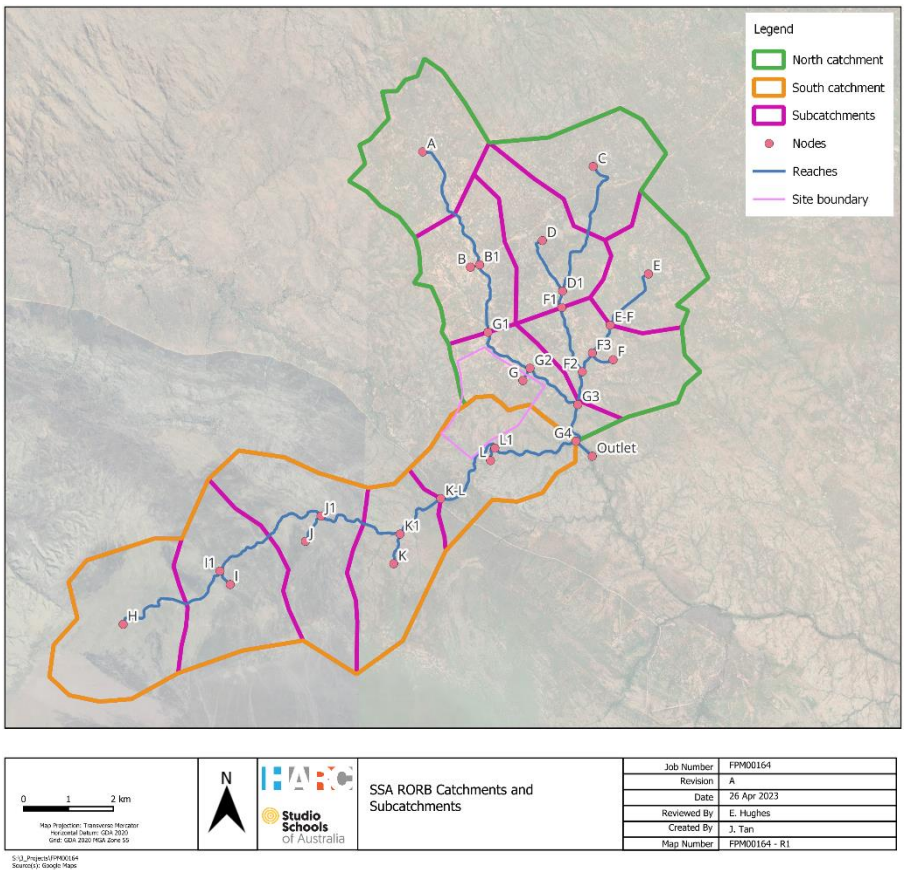


Figure 3-1: SSA RORB Catchment and Subcatchments

3.2 Design Inputs

Design Intensity-Frequency-Duration (IFD) rainfall data from the Bureau of Meteorology (BoM) was extracted for input into the RORB model, as shown in Table 3-1. The IFD data was applied with standard ARR2019 procedures including application of point areal reduction factors and spatial patterns. Baseflow and pre-burst was not included in this study.

Due to the uncertainties of the data available within the region, an analysis was conducted to validate the suitability of the IFD data. This IFD data was validated using the 24 hour total rainfall pluviograph data between 1899-2012 and 2016-2023 from Leopold Downs (gauge 3011 and 3099). The analysis indicated that the IFD data was reasonable for use within this area.

Table 3-1: IFD Rainfall Data (mm) with Areal Reduction Factors and Spatial Patterns (BoM)

	Annual Exceedance Probabilities (AEP)							
Duration (hour)	**63.2%**	**50%**	**20%**	**5%**	**2%**	**1%**	**0.5%**	**0.2%**
1	32.0	35.8	46.7	58.8	65.3	69.6	79.1	91.6
2	39.9	44.8	58.9	74.6	83.1	88.9	100.4	115.6
3	44.1	49.7	65.7	84.0	94.2	101.0	114.0	130.5
6	51.2	58.2	79.1	105.2	121.4	133.3	151.6	175.2
9	55.9	63.8	88.9	120.3	141.3	157.4	179.5	208.4
12	59.7	68.4	95.5	131.8	156.4	175.8	200.4	233.3
18	66.0	75.9	107.5	151.2	182.8	207.5	237.5	276.7
24	71.5	82.5	118.1	168.6	205.9	236.0	270.3	316.2
36	80.6	93.4	135.8	197.2	243.7	282.0	328.4	392.3
48	88.3	102.5	150.1	220.4	274.6	319.0	371.8	445.2
72	100.9	117.6	173.4	256.1	320.3	372.8	430.0	511.6

3.2.1 Rainfall Losses

One of the largest uncertainties associated with the available data was the ARR suggested rainfall losses in the Kimberly region. ARR2019 provides estimates for regional loss rates, which for the subject site, were an initial loss (IL) of 43 mm/h and a continuing loss (CL) of 10 mm/h. The estimate of continuing loss in ARR2019 was significantly higher than previous estimates in Australian Rainfall and Runoff 1987 (ARR87) for continuing loss in the Kimberley. This was of concern as adoption of high continuing losses would reduce the estimate of peak flow if all other parameters remain the same.

The limited streamflow gauges in the region meant that no calibration of the continuing loss could occur. As a result, the following methods were adopted to validate the model by gaining an understanding of the potential range of peak flows for various AEPs at the project site:

1. Rational method (adopted from Australian Rainfall and Runoff 1987 (ARR87) (Book 4))
2. Index method (adopted from ARR87 (Book 4))
3. Regional Flood Frequency Estimation (RFFE) (adopted from the ARR website)

The peak flows extracted from the methods outlined above were compared against the RORB model results with varied CL values. Figure 3-2 indicates that the RFFE severely overestimated the peak flow rate compared to the RORB results with varied CL, rational method and index method for all AEPs. The RFFE estimates were deemed not suitable for validation of CL in this assessment as when 0 mm/h CL was adopted in the RORB model, the RFFE flows were significantly larger. This is likely because the gauges used to develop the RFFE method were not representative of the project catchments in terms of size and terrain.

Figure 3-2 highlights that when using a CL of 10 mm/h, as suggested by ARR2019, the peak flow rates generated by RORB underestimated the peak flow rate by about 100 m^3/s compared to the index and rational methods.

Figure 3-2 indicates that using a continuing loss of 5 mm/h would generate peak flow rates that generally align with the rational method and index method. However, due to the uncertainties as a result of limited data, a conservative approach for this study prompted adopting a continuing loss of 3 mm/h. This provided similar results to the result of the index flood method, which was the higher of the two regional estimates would provide a conservative understanding of the sites flood risk with the limited available data. A sensitivity analysis was also undertaken to provide an understanding of the impacts of CL on flood extents. This can be seen Section 4.3.1.

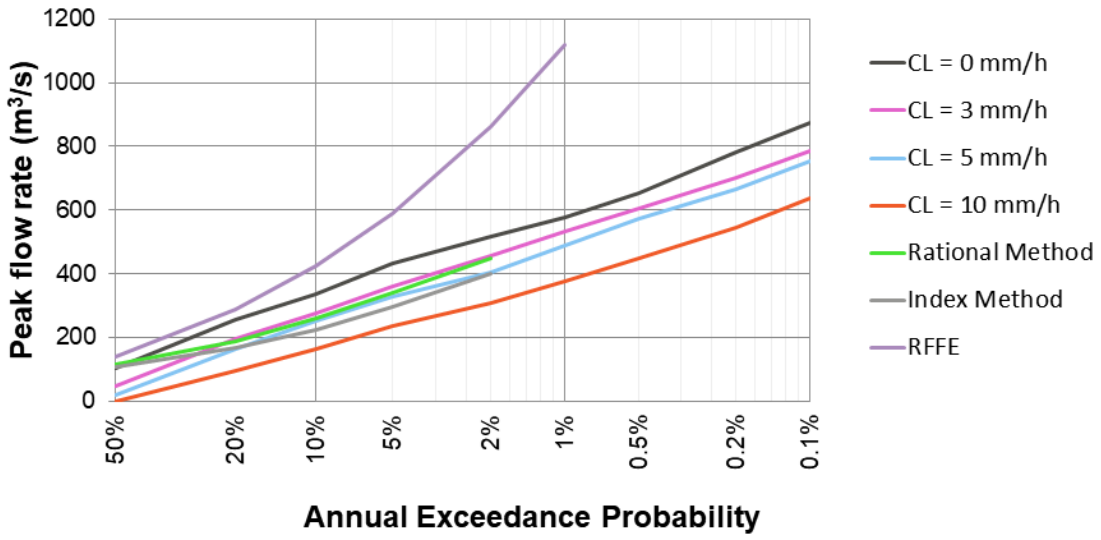


Figure 3-2: RORB Continuing Losses (CL) Comparison

3.2.2 RORB Verification and Routing Parameter, k_c

An analysis of the limited streamflow gauges in the surrounding catchment area was conducted to assess the feasibility of calibration. However, the three closest gauges, Mt Herbert (503001), Mt Joseph (803001) and Ellendale (503011), were deemed not useful for validation of the project catchments. This is due to the size of these gauged catchments being 7 - 12 times larger in area than the project catchments and of a significant distance away. Additionally, Mt Herbert and Mt Joseph exhibited rocky outcrops in the terrain, which was dissimilar to the sandy, vegetated terrain in the project catchments. As a result, there were no appropriate

streamflow gauges for calibration and an analysis of the following three methods from Flavell et al. (1983) for the Kimberly Region was used to determine k_c:

1. Using the mainstream length and equal area slope of the catchment, as suggested by ARR2019 (Equation 16)

2. Using only catchment area (Equation 12)

3. Using only mainstream length (Equation 13)

The estimated k_c values from each of the three methods can be seen in Table 3-2 for the north and south catchment, as discussed in Section 3.1. Assessing the results across the three methods, a k_c value of 3.5 was adopted.

Table 3-2: k_c Value Estimations

	North Catchment	South Catchment
Method 1	3.5	7.0
Method 2	3.6	3.4
Method 3	2.4	5.9

3.2.3 Summary of Parameters

Table 3-3 shows a summary of the adopted RORB input parameters.

Table 3-3: Summary of RORB Parameter Inputs

kc	m	IL (mm)	CL (mm/h)
3.5	0.8	43	3

3.3 Results

The RORB mode was run for a range of AEPs and storm durations. Table 3-4 shows the peak flows generated at key output locations for different AEPs, where the labels correspond to Figure 3-1. The peak flows at nodes G2, F2 and L1 were used in the hydraulic modelling. It should be noted that the flows adopted in the model are the highest flows at that node and are not necessarily from the same storm event, in terms of duration.

Table 3-4: Peak Flows (m^3/s) for Each AEP Generated by RORB at Different Nodes

AEP (%)	G2	F2	L1	Outlet
20	49.0	79.2	80.4	193.3
5	89.3	139.2	158.3	360.3
2	114.5	171.5	198.2	457.7
1	130.8	199.8	227.4	531.3
0.2	171.6	264.5	312.1	699.4

4. Hydraulic Modelling

This section of the report documents the hydraulic model development to assess the flood risk of the site.

4.1 Model Overview

Hydraulic modelling in the two-dimensional TUFLOW hydrodynamic modelling package was used to determine the flood extent for a range of AEPs at the SSA site. The peak flows generated by RORB were input into the hydraulic model as steady state flows to determine the maximum flood extent for each AEP. Figure 4-1 shows the model's layout including the inflow and outflow locations, which are located where main streams intersect the model boundary.

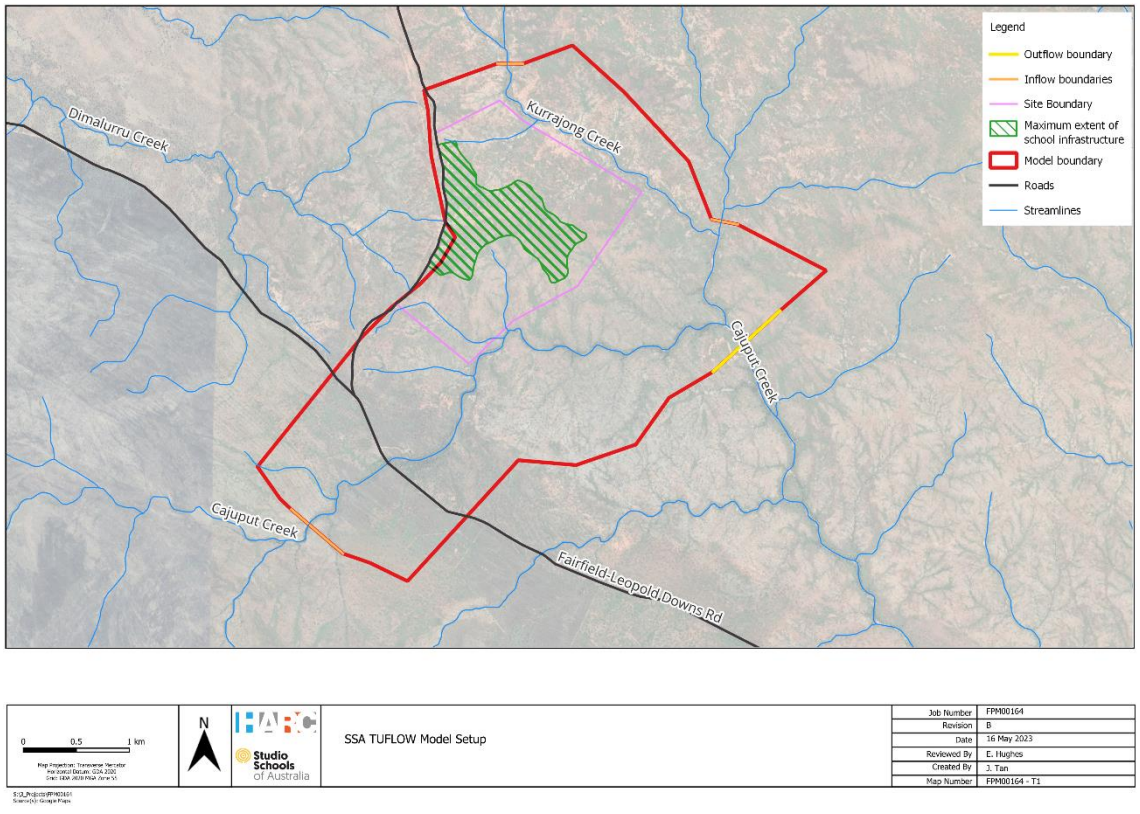


Figure 4-1: SSA TUFLOW Model Setup

4.2 Design Inputs

4.2.1 Terrain

The largest source of uncertainty in the hydraulic modelling was the topographic data available in the region. SRTM was initially considered but when compared to the surveyed data, it indicated vertical elevation differences of up to 2 - 4 m and an inability to capture the shape of the terrain, resulting in the SRTM data being unsuitable for use. As a result, available 10 m DEM data was purchased from Landgate and used as the base terrain within the hydraulic model. The survey data collected by MNG was also used to supplement the DEM data.

Discrepancies between the elevations in the survey data and the base DEM was evident. Therefore, manual manipulation of the 10 m DEM occurred to tie the two datasets together. Additional elevation modifications, guided by the survey data, were undertaken to represent the road crests and the lower elevation of the river bed.

As a result of the coarse terrain data available, a model grid cell size of 10 m was adopted.

4.2.2 Boundary Conditions

Inflows were applied as steady state inflows at the upstream boundaries of the hydraulic model (Figure 4-1). The downstream boundary of the model was represented through an automated stage discharge relationship (HQ), which was based on a surface slope of 0.0024

4.2.3 Roughness

The roughness of the terrain was defined by the Manning's n roughness coefficient, which influences the speed of water during a flood. The Manning's n roughness applied over the model is summarised in Figure 4-2. These values were estimated using areal images and site photos.

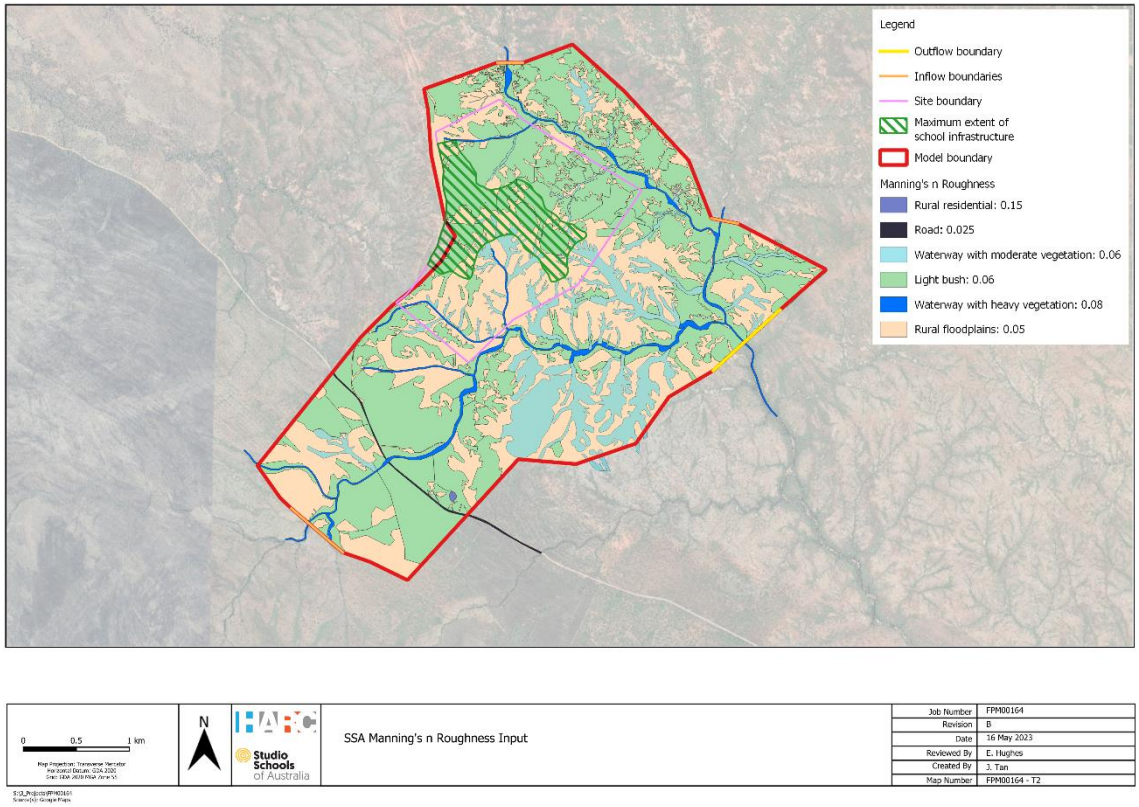


Figure 4-2: SSA Manning's n Roughness

4.3 Results

4.3.1 Sensitivity Assessment

A sensitivity assessment was conducted to determine the impact of continuing loss on flood extents for the 1% AEP flood event. Figure 4-3 shows the sensitivity of the flooding extent when adopting a continuing loss of 0 mm/hr, 3 mm/hr or 10 mm/hr. The results indicated that in some areas, adopting a higher CL could significantly reduce the flood extents. The modelling indicated that approximately a ± 50 m change in flood extent could occur from the reported extents based on an adopted CL of 3 mm/h. However, this uncertainty in flooding extent is unlikely to pose any additional flood risk to the maximum extent of school infrastructure which is where all proposed buildings and infrastructure is located.

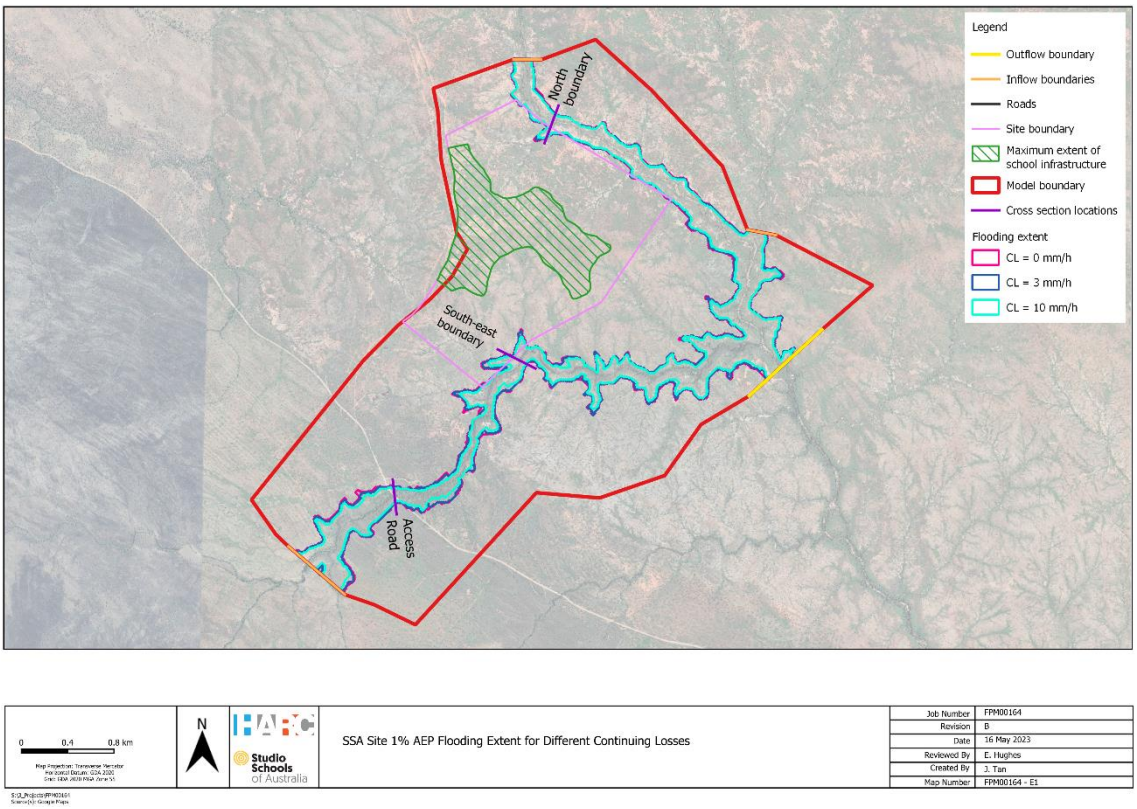


Figure 4-3: SSA Site 1% AEP Flooding Extent for Different Continuing Losses

Figure 4-4 shows the impact on water levels at the access road to the SSA site. The figure indicates that there is only a 0.1 m increase in flood level when the CL is changed from 3 mm/h to 0 mm/h. However, the continuing loss of 10 mm/h severely underestimated the flood level by 0.5 m, when compared to a continuing loss of 3 mm/h. Consequently, this indicates there could be an uncertainty in the reported flood depths of up to ± 0.5 m at the road crossing.

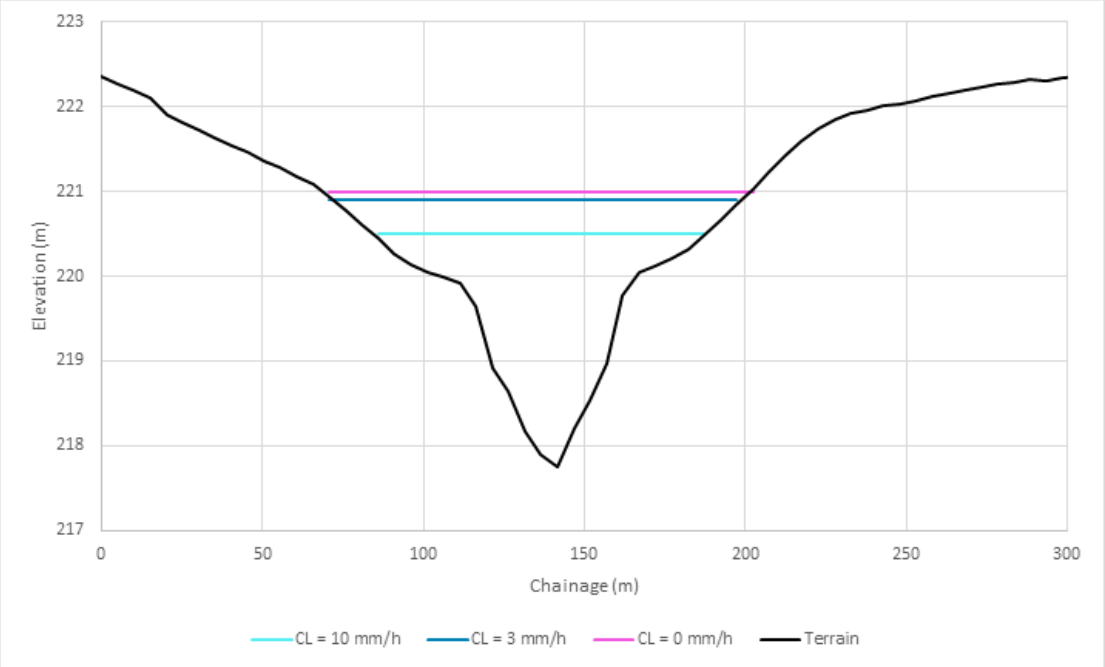


Figure 4-4: Access Road Flood Level cross section sensitivity to continuing loss for 1% AEP

4.3.2 Site Flood Fisk

Figure 4-5 shows the flooding extents for 20% AEP to 0.2% AEPs at the SSA site. This indicates that whilst the flooding extent does encroach onto the site boundary for flooding events between 20% AEP to 0.2% AEP, it does not impact the SSA proposed maximum extent of school infrastructure.

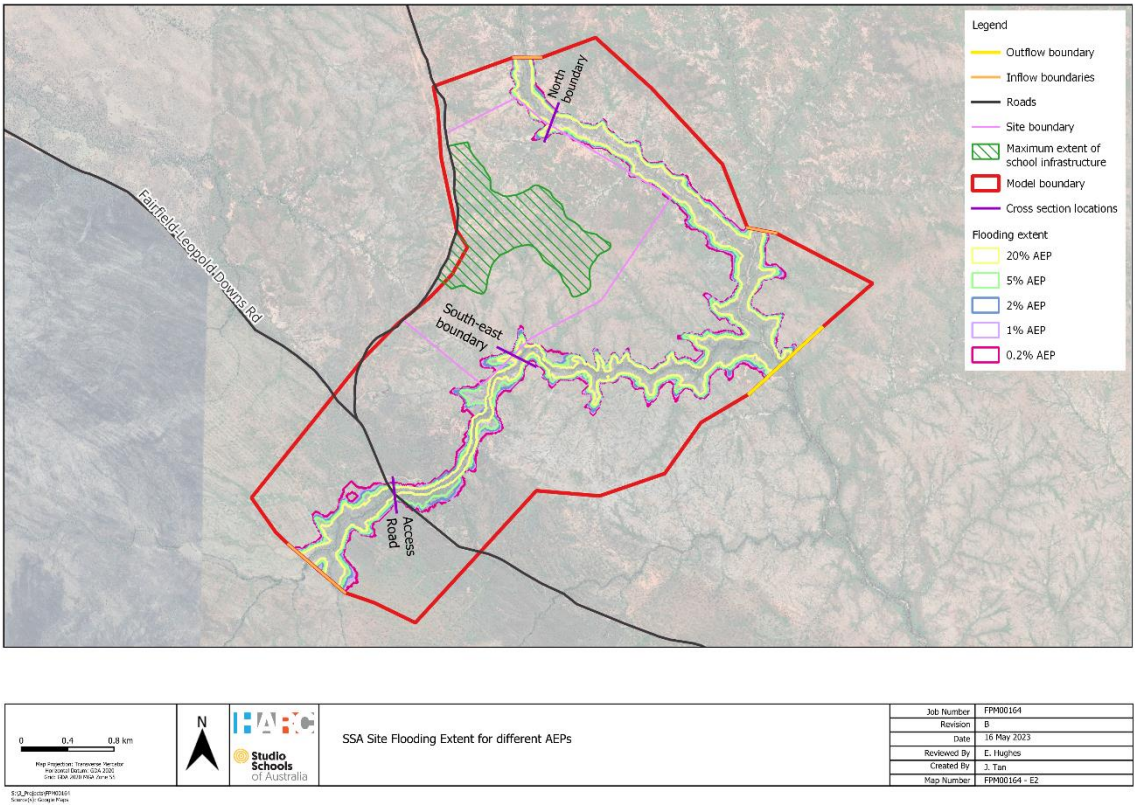


Figure 4-5: SSA Site Flooding Extent for different AEPs

For locations where the flooding extent encroaches on the site boundary, cross sections (Figure 4-6, and Figure 4-7) of the water levels have been taken. The location of these cross sections on the south-east and north boundary can be seen in Figure 4-5.

Figure 4-6 indicates that the south-east site boundary can become inundated during a 5% AEP to 0.2% AEP flood events with flood depths between 0.4 – 1.3 m with velocities of 0.1 – 0.4 m/s at the site boundary. It should be noted that some parts of the south-east site boundary could also be inundated in a 20% AEP flood event.

Figure 4-7 shows the north site boundary can become inundated during a 20% AEP flood event. The flood depths for a 20% AEP to 0.2% AEP could be between 0.4 – 1.2 m with velocities of 0.4 – 0.6 m/s at the site boundary.

Figure 4-8 highlights key maximum flood levels during the 0.2% AEP. Currently, the proposed minimum elevation for infrastructure on site is 226 mAHD. For the 0.2% AEP, the maximum flood levels that encroach onto the south-east boundary is 212.5 mAHD. This flood level for a 0.2% AEP flood event is approximately 13.5 m below the minimum proposed elevation of the SSA infrastructure. For the 1% AEP flood event, the maximum flood levels that encroach onto the south-east boundary is 13.9 m below the minimum proposed elevation of the SSA buildings.

As a result, the modelling indicates that the there is no flood risk to the proposed maximum extent of school infrastructure for events up to a 0.2% AEP. However, it should be noted that although there is no flood risk to the site infrastructure, the site could become isolated during a flood event depending on evacuation routes, as detailed in Section 4.3.3.

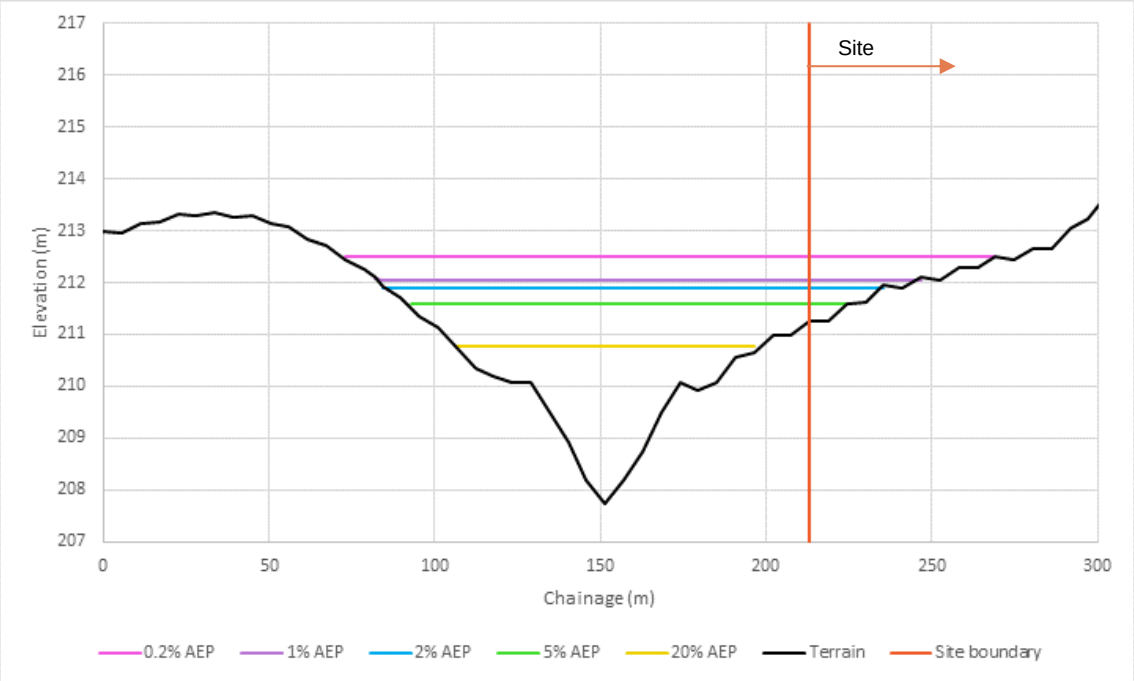


Figure 4-6: South-east site boundary flood level cross section

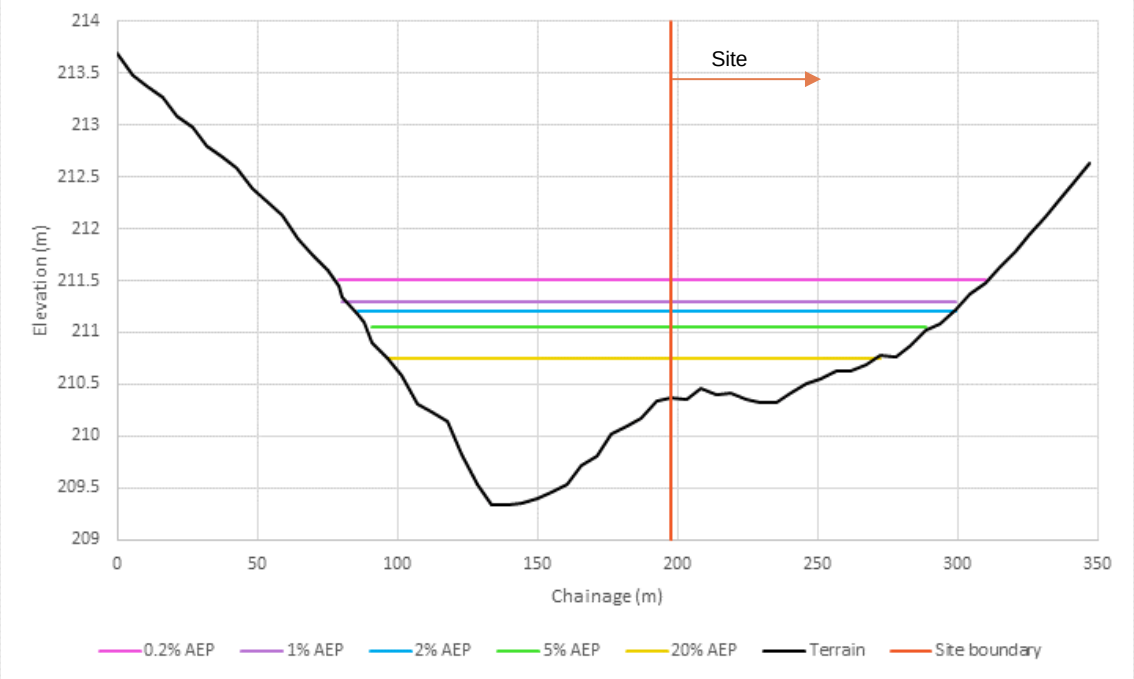


Figure 4-7: North site boundary flood level cross section

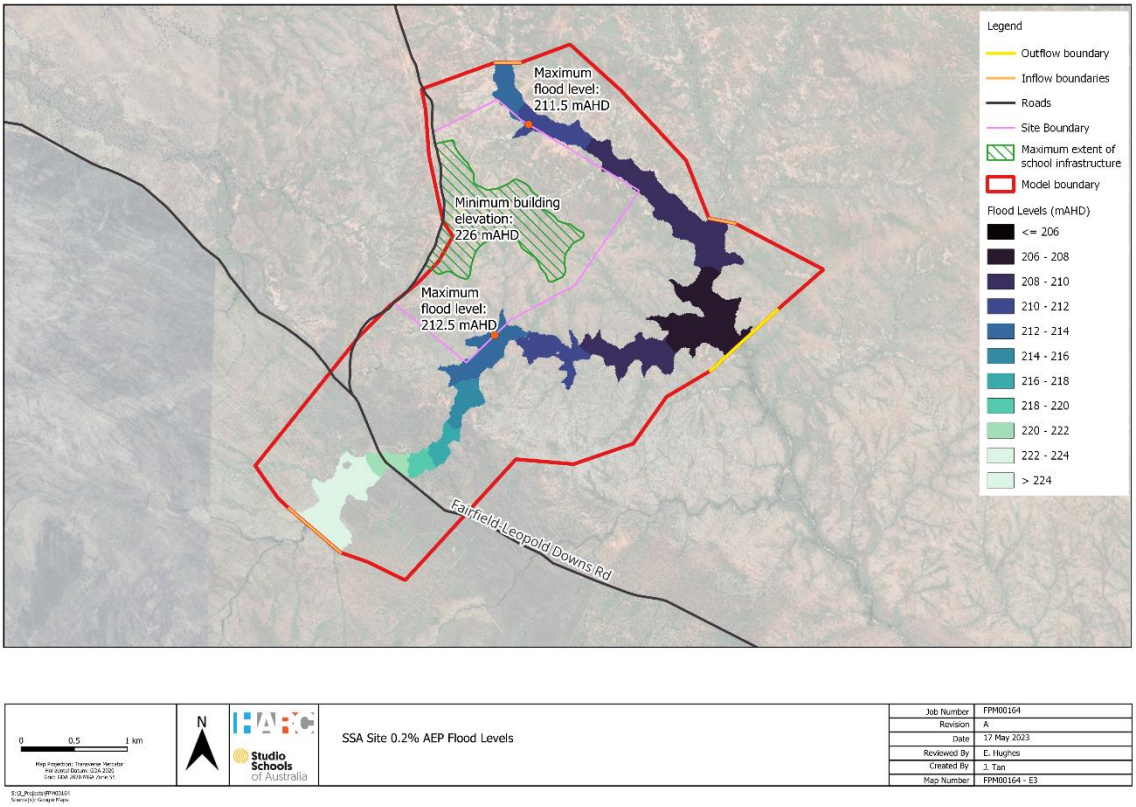


Figure 4-8: SSA Site 0.2% AEP Flood Levels

4.3.3 Site Access

Although the site infrastructure is not at risk of significant flooding from riverine inundation, it has the potential to become isolated due to the flooding of evacuation routes. The main access road to site is a dirt road which crosses the creek, as shown in Figure 4-5. Based on the information available, it appears that the access road is graded to follow the creek banks. The provided survey data appears to have been taken directly downstream of the access road. However, as the road appears to follow the profile of the creek, the elevations within the survey data are assumed to represent the elevation of the road.

The flood depths at the lowest point of the access road for different AEPs can be seen in Figure 4-9. From this cross section, it is clear that the road is likely to be inundated in flood events smaller than a 20% AEP by depths of water up to 2.2 m. The velocities and hazards, extracted from the lowest point in the road are shown in Table 4-1. This road would be impassable in a 20% AEP flood event or greater.

The road is likely to be impacted by any rainfall event significant enough to causes runoff, but to a lesser depth than shown in Figure 4-9. It is also likely be inundated for the duration of the flood event. In the critical flood events assessed, the access road could be inundated for more than 12 hours.

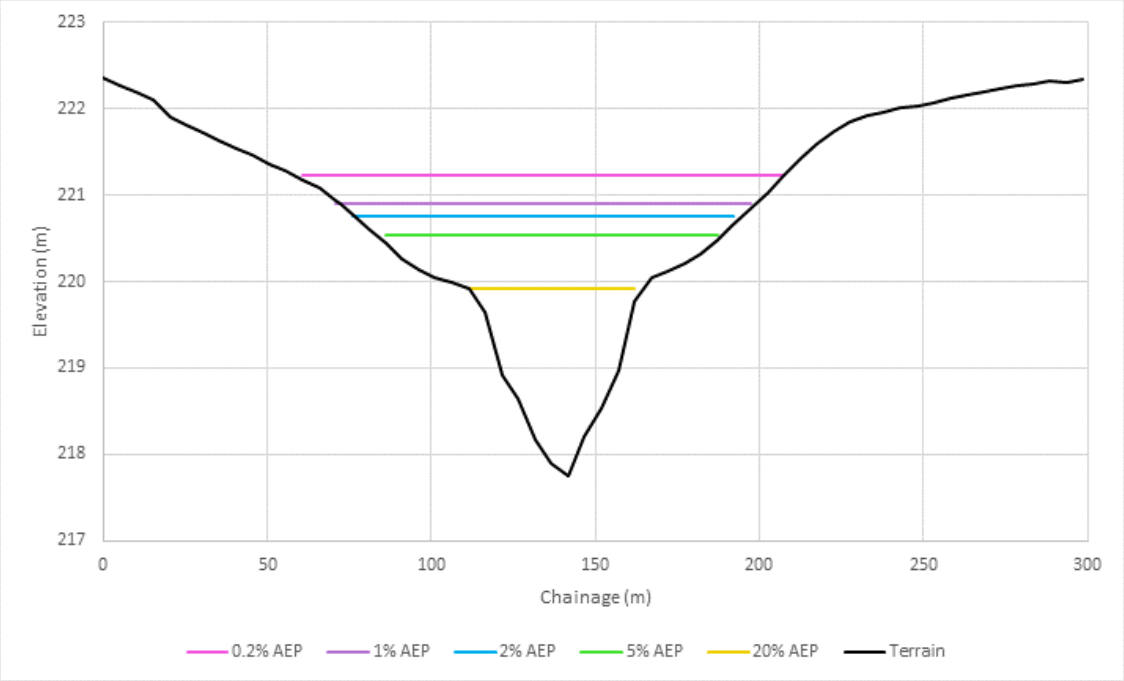


Figure 4-9: Road flood level cross section

Table 4-1: Summary of flood properties at the access road

AEP (%)	Depths (m)	Velocity (m/s)	Hazard (m^2/s)
20	2.2	1.6	3.5
5	2.9	1.8	5.0
2	3.1	1.9	5.5
1	3.3	1.9	5.9
0.2	3.6	2.0	6.7

5. Conclusion

A RORB hydrologic and TUFLOW hydraulic model was developed to understand the flood risk associated with the SSA site. Due to the limited available data, there were a number of uncertainties associated with the modelling. These particularly related to the adopted continuing losses parameters and terrain data. To manage these uncertainties, a number of validation and sensitivity assessments were undertaken to understand the impact of continuing loss assumptions on the site's flood risk. A conservative approach was adopted as a result of this analysis. To reduce the uncertainties associated with the available terrain data, additional elevation data was purchased to undertake the hydraulic modelling.

The flood assessment for SSA shows that whilst floods between the 20% AEP to 0.2% AEP did encroach onto the site boundary, it is unlikely to impact the SSA buildings and associated infrastructure. Additionally, proposed school infrastructure is approximately 13.5 m above the maximum flood extent in a 0.2% AEP flood event and 13.9 m above the maximum flood extent in a 1% AEP flood event. As a result, there is no flood risk to the site infrastructure. However, there is a potential that the site could become isolated during a flood event as a result of inundation of the access road. The main evacuation route from site is via a dirt road which is graded to the creek banks at the crossing. The modelling indicates that the at the low point of the road, water depths could reach up to 2.2 m in a 20% AEP flood event. There is also the risk that this road could be impassable for at least 12 hours based on the flood events assessed.

6. References

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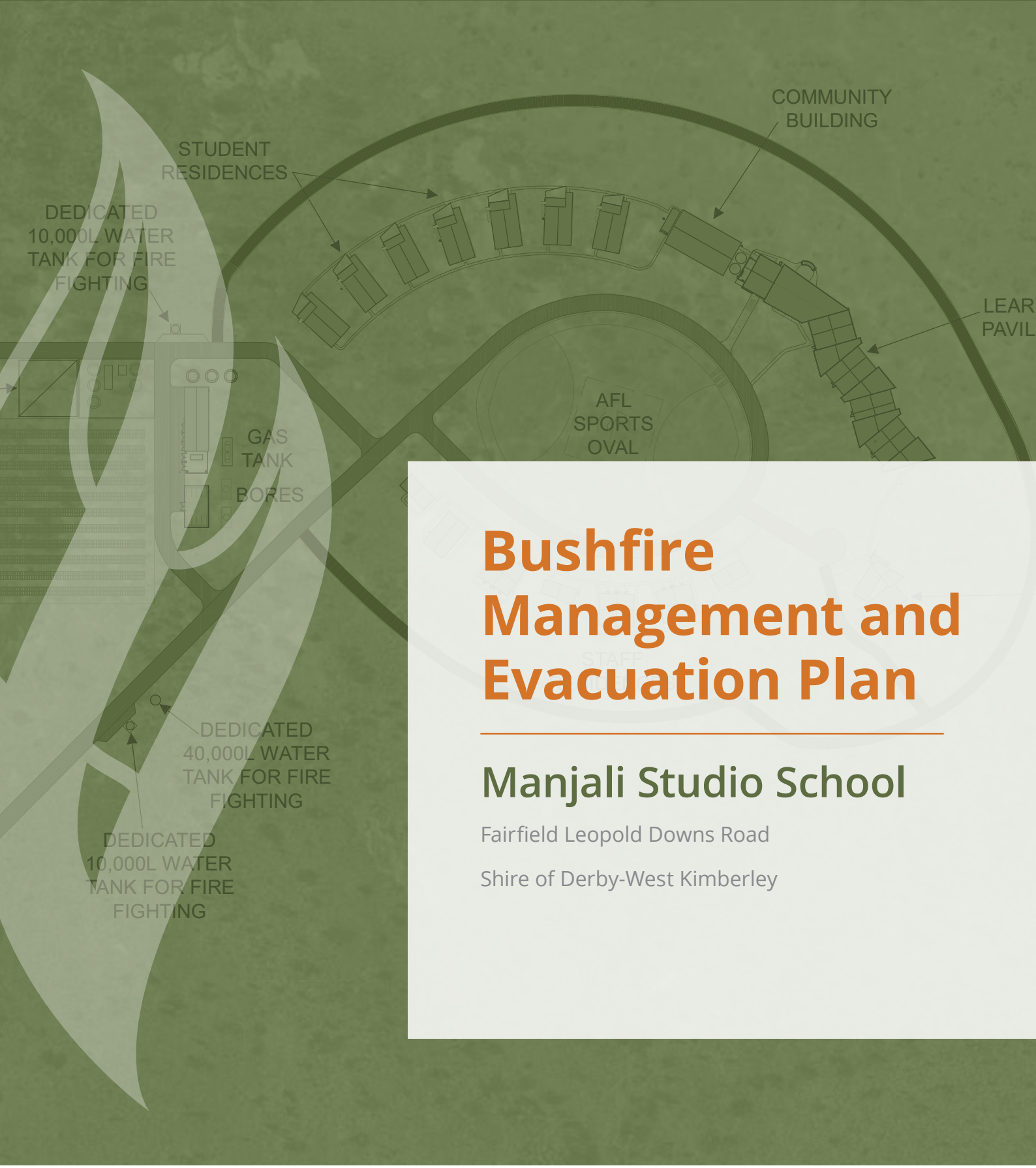
APPENDIX D BUSHFIRE MANAGEMENT AND EMERGENCY EVACUATION PLAN



Bushfire Management and Evacuation Plan

Manjali Studio School

Fairfield Leopold Downs Road

Shire of Derby-West Kimberley

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Prepared For:
Studio Schools of Australia
4 July 2023
Version 2.0

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Document Information

Prepared for:	Studio Schools of Australia
Project Name:	Manjali Studio School -Bushfire Management and Evacuation Plan
Address:	Fairfield-Leopold Downs Road
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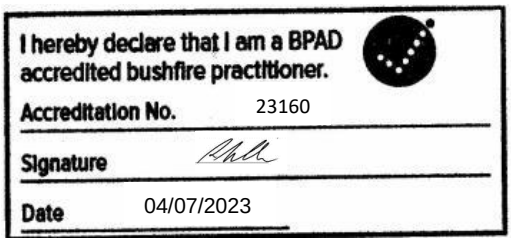
	Bushfire Safety Consulting Pty Ltd



Document Control

Manjali Studio School - Bushfire Management & Emergency Evacuation Plan			
REPORT VERSION	**PURPOSE**	**AUTHOR/REVIEWER AND ACCREDITATION DETAILS**	**DATE SUBMITTED**
V1	Draft for Review	Rohan Carboon (Level 3 - BPAD 32160) Dr Karen Brown (Level 2 - BPAD 48364)	09/06/2023
V2	Updated with new layout	Rohan Carboon (Level 3 - BPAD 32160) Dr Karen Brown (Level 2 - BPAD 48364)	04/07/2023

Front cover photo: Manjali Studio School Layout

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EXECUTIVE SUMMARY

This Bushfire Management and Emergency Evacuation Plan (BMEEP) has been prepared to support the Development Application for a new school facility comprising of twenty-one buildings. The maximum number of students that could be on-site at any one time is 96 and there is capacity for 60 staff and visitors. The proposed School meets the needs and expectations of the community, there has been an extensive consultation process between Studio Schools of Australia (SSA), the local community and BDAC. The proposed Studio School targets Years 7, 8 and 9 students and provides the Bunuba community with another educational option for Indigenous students in the area, further supporting and enhancing improvements in educational and wellbeing outcomes for their community.

The proposed site for the Manjali Studio School is located off Fairfield-Leopold Downs Road, in a remote area between Derby and Halls Creek in the Kimberley. It is located 1.3 kilometres north of the Fairfield – Leopold Downs Road and 7 kilometres north-west of the existing Yiramalay Studio School, 155km to the north-west of the main community in Fitzroy Crossing.

Extensive consultation has occurred with state and federal government on this project, its importance and educational value for indigenous students in the region. The site is strategically and deliberately positioned in an area remote from nearby communities and to support focused, on country learning, free from the distractions in the community but also close enough for students, families and communities to visit frequently and stay connected.

It is sited within relative proximity to Yiramalay Studio School which will support the operation of the school, both as the proposed site of the IERC but also as a feeder school for Yiramalay by providing additional schooling options for Years 7, 8 and 9 in preparation for Senior Years Learning at Yiramalay Studio School. The land leasing agreements for the proposed Manjali Studio School will be between BDAC as the Aboriginal Corporation with Native Title rights over the site and SSA as the planned Approved Authority for the Studio School. The site was originally an old stock route that was returned to the Bunuba people. BDAC has excised this land to be used for educational purposes.

The school is located in the declared Bushfire Prone Area of WA and a very large Asset Protection Zone can be established around school buildings, mostly by managing grass fuels. A Method 1 BAL assessment has been undertaken to determine predicted radiant heat flux level for the proposed buildings. All proposed buildings are rated a maximum BAL-12.5. On May 1, 2023, the National Construction Code (NCC) introduced additional considerations for Class 9 buildings (ie. school buildings) including that exposed building elements should not experience a predicted radiant heat flux greater than 10kW/m2 and for relevant outdoor exposed areas, people should not be exposed to levels above 1kW/m² (using FDI 100). Full compliance is achieved with this additional requirement.

A site-specific water source solution will be designed by hydrology engineers and will include pumping water from bores to a number of designated holding tanks with access and fire appliance fittings to ensure fire appliance can draft water if defending life and property at the site.

The primary driveway and perimeter driveway provide two-way access from the school buildings to the main access driveway, with additional loop access around all school buildings and infrastructure. The main access driveway connects the site with Fairfield-Leopold Road which provides two access ways to two different destinations on the public road system. The main access driveway is used by road trains to access cattle yards during mustering operations to the north of the school site.

The proposed development complies with the definition of "vulnerable land use" in the *State Planning Policy 3.7: Planning in Bushfire Prone Areas (SPP 3.7)*, Policy Clause 6.6, and therefore requires a Bushfire Management Plan which includes a Bushfire Emergency Evacuation Plan for proposed occupants. School Management is responsible for ensuring requirements for the provision of water and vehicular access are met and to establish and maintain the Asset Protection Zone (APZ).

It is expected that the implementation of this BMEEP will reduce the threat to students /users of the camp, staff and fire fighters in the area addressed by this BMEEP. The proposal complies with the *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas (SPP 3.7)* and the *Guidelines for Planning in Bushfire Prone Areas* (WAPC 2021 V1.4).

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APPENDICES

ATTACHMENT

1 PROPOSAL DETAILS AND FACILITY USE

The proposed Manjali School development will provide 24 hour a day, seven days a week holistic and immersive *on country* education for year 7 to 9 students from nearby remote Kimberley communities during school terms. It is remotely located to provide culturally appropriate learning with age appropriate facilities. The nearby Yiramalay Studio School caters for younger students. Figure 1 shows the proposed site layout. The proposed school facility will consist of:

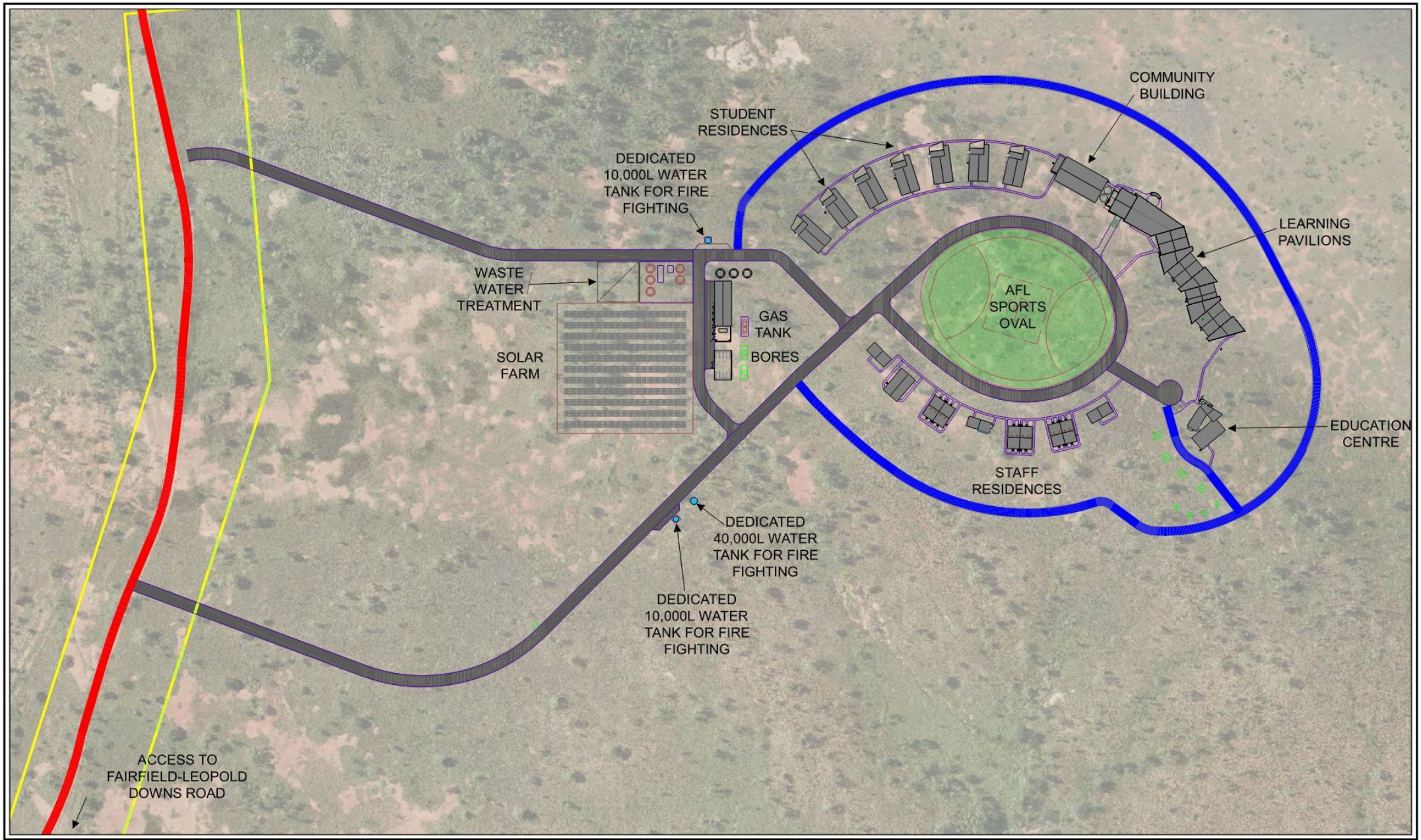
- Science, Art and Technology learning Pavilions
- Multipurpose Learning Spaces
- Ceremonial Ground and Firepit
- Indigenous Education and Research Centre
- Community Building with Dining Hall and Kitchen
- 6 Student Residence Buildings
- 10 Staff Residence Buildings
- Staff Communal Lounge
- Entry/ Administration Building
- Sports Oval

The maximum number of students that could be on-site at any one time is 96 and there is capacity for 60 staff and visitors.

The school is located in the Shire of Derby/ West Kimberley, in the Kimberley region of Western Australia. The Bunuba Aboriginal Corporation own the land as pastoral lease 3114/ 750 Leopold Downs Station, comprising crown land title 1539 DP 66639 Leasehold CLT 412/ 1966 30/6/2015 LR 3020 Fol 353 4,028.9, while also holding Native Title rights. The proposed school site, including access easement, will be sub-leased to Studio Schools Australia for educational uses. An application has been submitted for a special purpose lease to occupy crown land under Section 91 of the Land Administration Act 1997 WA.

The site is located approximately 7 kilometres to the north-west of Yiramalay Studio School and Leopold Downs Station, 52 kilometres to the south-east of Bandilngan (Windjana Gorge) Campground, 155 kilometres to the east of Derby and 150 kilometres to the north-west of Fitzroy Crossing (see Figure 2 for site location in relation to Yiramalay Studio School).

The site is surrounded by large areas of native vegetation, consisting predominately of sparse tropical savanna woodland with grassy understorey. Access will be via an existing main 2 kilometre long driveway that connects to Fairfield – Leopold Downs Road to the south-west and a newly created approximately 500 metre long driveway which connects to the main driveway at two locations and terminates in a loop connecting the school buildings for improved access. The Fairfield – Leopold Downs Road provides access to Fitzroy Crossing to the south-east and Derby to the west (see Figure 2).



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Assessment date:	April, 2023
Prepared by:	Bushfire Safety Consulting
Accreditation level:	Level 3 BPAD Practitioner
Accreditation number:	BPAD 23160
Accreditation expiry date:	31st January, 2024
Date aerial photo:	5th March, 2020

FIGURE 1
DEVELOPMENT PLAN

0 20 40 60 80 100 120m

SCALE 1:2500 @ A3
DATE: JUNE 2023

NORTH

LEGEND:

- 6m WIDE PRIMARY DRIVEWAY
- 6m WIDE PERIMETER DRIVEWAY
- 6m WIDE ACCESS DRIVEWAY
- DEDICATED FIRE WATER SUPPLY

SOURCE OF PHOTOGRAPHY: NEARMAP

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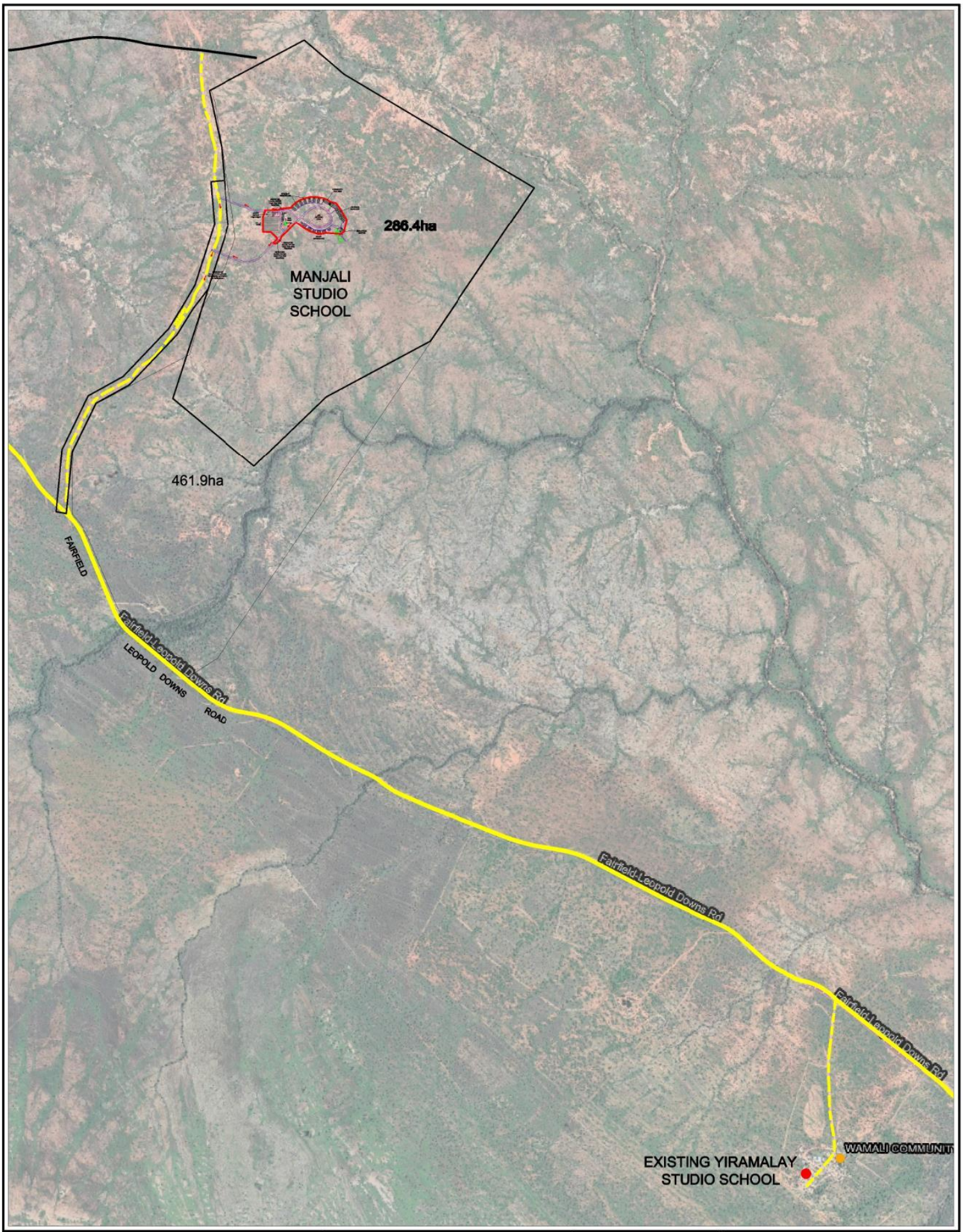

Location details:	Manjali Studio School
Assessment date:	April, 2023
Prepared by:	Bushfire Safety Consulting
Accreditation level:	Level 3 BPAD Practitioner
Accreditation number:	BPAD 23160
Accreditation expiry date:	31st January, 2024
Date aerial photo:	5th March, 2020

FIGURE 2
SITE LOCATION

0 100 200 300 400 500 600m

SCALE 1:15 000 @ A3
DATE: JUNE 2023

NORTH

LEGEND:
DEVELOPMENT FOOTPRINT

SOURCE OF PHOTOGRAPHY:
GOOGLE EARTH

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1.1 Policy and Guidelines

1.1.1 Application of SPP 3.7

The *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas (SPP 3.7)* provides the foundation for land use planning to address bushfire risk management in Western Australia. It is used to inform and guide decision makers, referral agencies and land owners to help achieve acceptable bushfire protection outcomes.

The policy contains objectives and policy measures as well as reference to the Bushfire Protection Criteria as outlined in the Guidelines for Planning in Bushfire Prone Areas (WAPC 2021 V1.4; the Guidelines). The policy applies to this Development Application because the site is located in a designated bushfire prone area on the WA Map of Bushfire Prone Areas (Figure 3). The following policy measures will need to comply with SPP 3.7:

Table 1. Policy measures

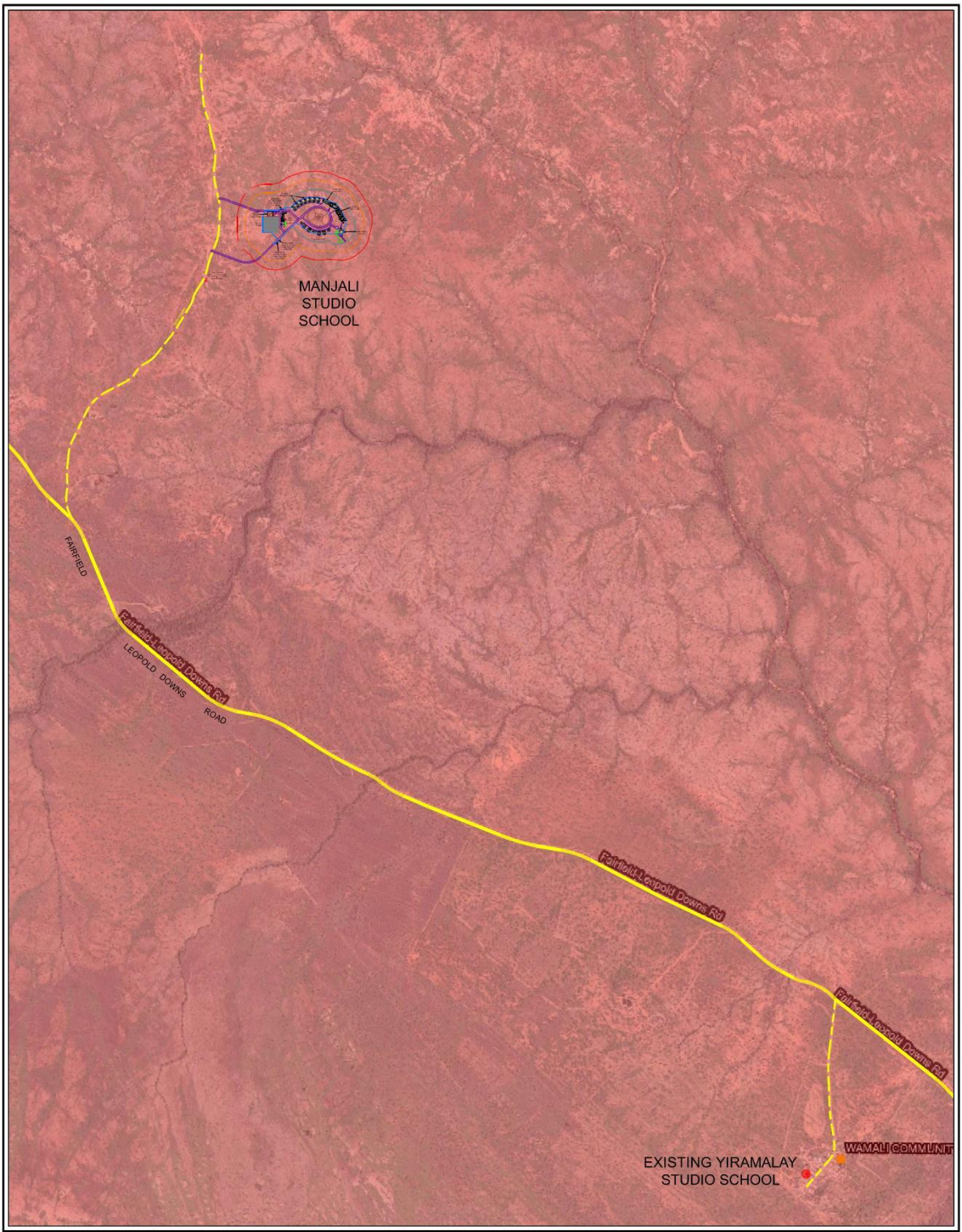
Policy Measure 6.2	The proposed school is located within the Bushfire Prone Area (BPA) and the site has a Bushfire Hazard Level above low and a Bushfire Attack Level rating above BAL-LOW.
Policy Measure 6.4	Policy measure 6.4 applies, meaning the assessment will include a Bushfire Management Plan that contains the following: - BAL Contour Plan - BAL ratings - Identification of relevant issues; and - Demonstration of compliance with the Guidelines
Policy Measure 6.6	Policy Clause 6.6 applies to vulnerable land use applications. The school is considered a vulnerable land use under the policy because the site is remote and users of the site are less able to respond in a bushfire emergency. The report therefore includes a comprehensive Emergency Evacuation Plan which specifically reflects the users' needs and circumstances.

1.1.2 Guidelines for Planning in Bushfire Prone Areas V1.4 (2021)

The requirements in the Department of Planning publication 'Guidelines for Planning in Bushfire Prone Areas V1.4 (2021)' are accommodated within this BMEEP. The Guidelines for Planning in Bushfire Prone Areas V 1.4 (2021) is intended to inform and guide decision makers, referral authorities and proponents to achieve acceptable bushfire protection outcomes, including expectations at the different stages of planning.

1.1.3 National Construction Code 2022

The development application triggers considerations for Class 9 buildings (School buildings). Vol 1 of the National Construction Code (NCC) 2022 establishes that exposed building elements on should not experience a predicted radiant heat flux greater than 10kW/m² and for relevant outdoor exposed areas, people not exposed to levels above 1kw/m² (using FDI 100). These building siting considerations have been accommodated in the design of the layout and full compliance is achieved.



Location details:	Manjali Studio School
Assessment date:	April, 2023
Prepared by:	Bushfire Safety Consulting
Accreditation level:	Level 3 BPAD Practitioner
Accreditation number:	BPAD 23160
Accreditation expiry date:	31st January, 2024
Date aerial photo:	5th March, 2020

FIGURE 3
BUSHFIRE PRONE AREAS

0 100 200 300 400 500 600m

SCALE 1:15 000 @ A3
DATE: JUNE 2023

NORTH

LEGEND
DEVELOPMENT FOOTPRINT
ASSESSMENT AREA (150m) FROM THE EXTERNAL BOUNDARY OF THE DEVELOPMENT FOOTPRINT
ASSESSMENT AREA (100m) FROM THE EXTERNAL BOUNDARY OF THE DEVELOPMENT FOOTPRINT
BUSHFIRE PRONE AREAS

SOURCE OF PHOTOGRAPHY:
GOOGLE EARTH

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2 CULTURAL AND ENVIRONMENTAL CONSIDERATIONS

2.1 Registered Heritage Sites

Registered Aboriginal heritage sites occur 7 kilometres to south-east of the proposed site, near the Yiramalay studio school). Additional sites are located 9.5 kilometres to the north-west and 13 kilometres to the north-east. The area and surrounding landscape hold strong cultural values and connections for Bunuba people.

Details of the official registered sites include:

- Site 12491 – Catjuput; Artefacts/ Scatter (SE)
- Site 12492 – Little Spring 1; Artefacts/ Scatter (SE)
- Site 12493 – Little Spring 2; Artefacts/ Scatter (SE)
- Site 12494 – Little Spring 3; Artefacts/ Scatter (SE)
- Site 13366 – Gorge; Mythological, Painting (NW)
- Site 14473 – Tunnel Creek, Napier Range; Painting (NW)
- Site 13856 – Feature 6/1 CRA Artefacts/ Scatter, Painting (NE)

2.2 Native Vegetation – Modification and Clearing

Trees located in the footprint of proposed buildings or with trunks located 6 metres or less from a proposed building will be removed prior to development. Remaining trees in the Asset Protection Zone (APZ) will have lower branches removed to 2 metres from ground level. All grasses and weeds will be slashed down and mowed in perpetuity in the APZ to achieve acceptable bushfire protection outcomes. All native vegetation clearing and modification and the Asset Protection Zone will be certified to standard prior to occupancy of the school.

Nearby Yiramalay Studio School, provides a good example of fuel load management to APZ standards around school buildings and the gardening and landscape employees will work across both sites.

Table 2. Environmental Considerations

Environmental Consideration	Site	Comments
Bush Forever (COP-071)	✗	Site is not a declared Bush Forever area.
Conservation Covenant (DPIRD-023)	✗	There are no conservation covenants on the site.
Conservation Wetland or Buffer (DBCA-019; DBCA-017)	✗	There are no conservation wetlands or buffers on the site.
Environmentally Sensitive Area (DWER-070)	✗	The site is not a declared Environmentally Sensitive Area under the Environmental Protection Act 1986.
Local Government	✗	There are no identified environmental planning considerations under the Shire of Derby/ West Kimberley.
RAMSAR Wetland (DBCA-010)	✗	There are no declared RAMSAR wetlands at the site.

Regionally Significant Natural Areas (DWER-070)	✗	There are no regionally significant natural areas within the site.
Removal of Restricted Vegetation	✗	The addition proposal does not require the removal of restricted vegetation.
Threatened Ecological Communities (DBCA-038)	✗	There are no threatened ecological communities at the site.
Threatened and Priority Fauna (DBCA-037)	✗	There are no threatened fauna species recorded at the site.
Threatened and Priority Flora (DBCA-036)	✗	There are no recorded species of threatened flora at the site.

2.3 Revegetation/ Landscape Plans

There are revegetation and garden design plans being developed for the project and these will consider APZ standards, with managed garden beds likely to be included at the site. A gardener will be employed at the school who will manage the fuel loads and garden beds to ensure APZ standards are always maintained.

Any future landscaping will be established and maintained in perpetuity in a low threat condition to minimum Asset Protection Zone standards (Appendix 1).

3 BUSHFIRE ASSESSMENT RESULTS

Bushfires are common in the Kimberley region of Western Australia. Given the bushfire threat in the area, this BMEEP plays a critical role in ensuring that the development of the land appropriately mitigates the risk from bushfire.

3.1 Assessment Inputs

The methodology used to assess the site is outlined in the *Guidelines for Planning in Bushfire Prone Areas V1.4 (2021).* The development footprint and surrounding bushland areas can be seen in Figure 4 and a BAL Contour Map (Figure 5) is provided in accordance with Appendix 3 of the guidelines. Assessing bushfire hazards at the site-specific level accounts for the predominant class of vegetation on the site and surrounding area for a minimum of 180 m.

3.1.1 Vegetation Classification

The predominant vegetation class within the assessment area in all directions is Class B Woodland. This consists of a sparse Eucalypt canopy to 10 metres in height with 10 to 30% canopy cover, with predominately grassy understorey and the occasional isolated small to large shrub. The vegetation plots on and surrounding the site and within 180 metres of the site boundary are found in the plot descriptions below and in Figure 4.

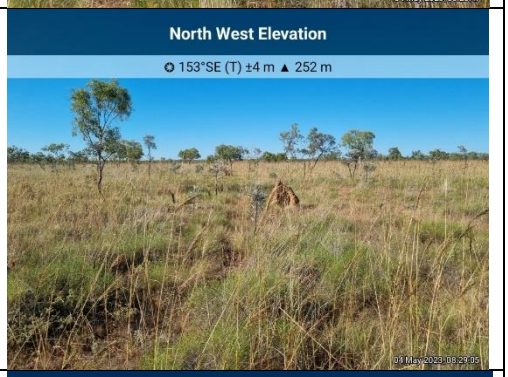
Photo ID: 1 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 2 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 3 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
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Photo ID: 5 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	

Photo ID: 6 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 7 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
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Photo ID: 10 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	

Photo ID: 11 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 12 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 13 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 14 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	

Photo ID: 15 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 16 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
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Photo ID: 18 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 19 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	

Photo ID: 20 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 21 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 22 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
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Photo ID: 24 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	

Photo ID: 25 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 26 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 27 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 28 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 29 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	

Photo ID: 30 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 31 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 32 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 33 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	
Photo ID: 34 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification**: Blue Typical Savanna woodland with grassy under-storey and isolated eucalypt over-storey canopy cover. Overstorey Foliage cover 10-30%	

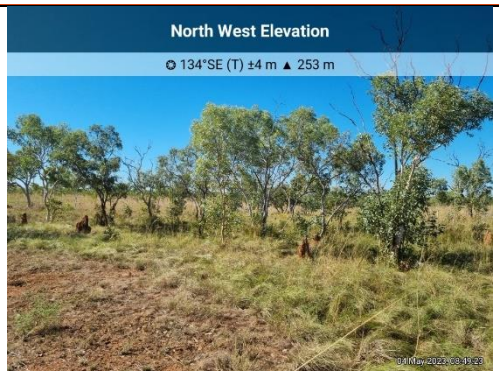
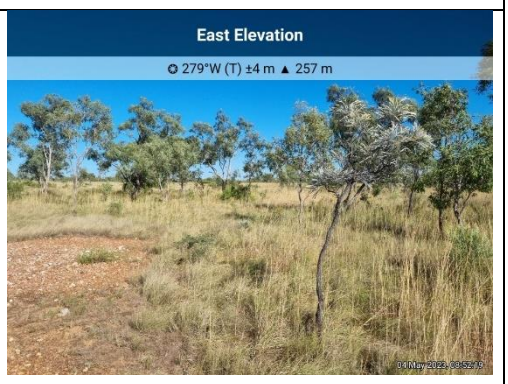
Photo ID: 35 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	
Photo ID: 36 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	
Photo ID: 37 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	
Photo ID: 38 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	

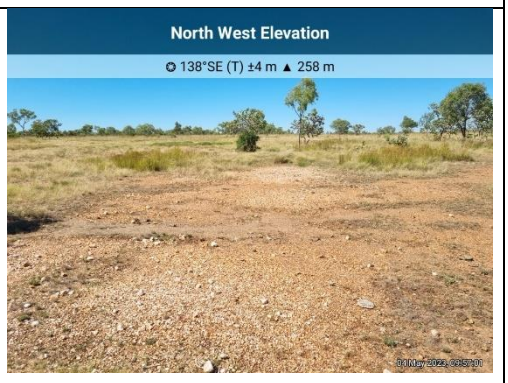
Photo ID: 39 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	
Photo ID: 40 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	
Photo ID: 41 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	
Photo ID: 42 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	

Photo ID: 43 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	
Photo ID: 44 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	
Photo ID: 45 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	
Photo ID: 46 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	

Photo ID: 47 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Exclusion Clause 2.2.3.2 (f) **Description/justification of classification**: Blue Area to be established and maintained in low threat condition, including grasses slashed and trees thinned with lower branches less than two metres from ground level removed.	

3.1.2 Effective Slope

The landscape surrounding the proposed school development slopes down gently in all directions. All slopes were measured in the field with a Forestry Pro laser measuring tool and cross checked against surveyed topographic data from the site.

This is outlined in Table 2, with vegetation plots mapped in Figure 4.

Table 3. Summary of vegetation type and effective slope

Vegetation Area/ Plot	**Applied Vegetation Classification**	**Effective Slope under the Classified Vegetation (degrees)**
1	Class B Woodland	Downslope 0 - 5°
2	Exclusion Clause 2.2.3.2 (f)	N/A

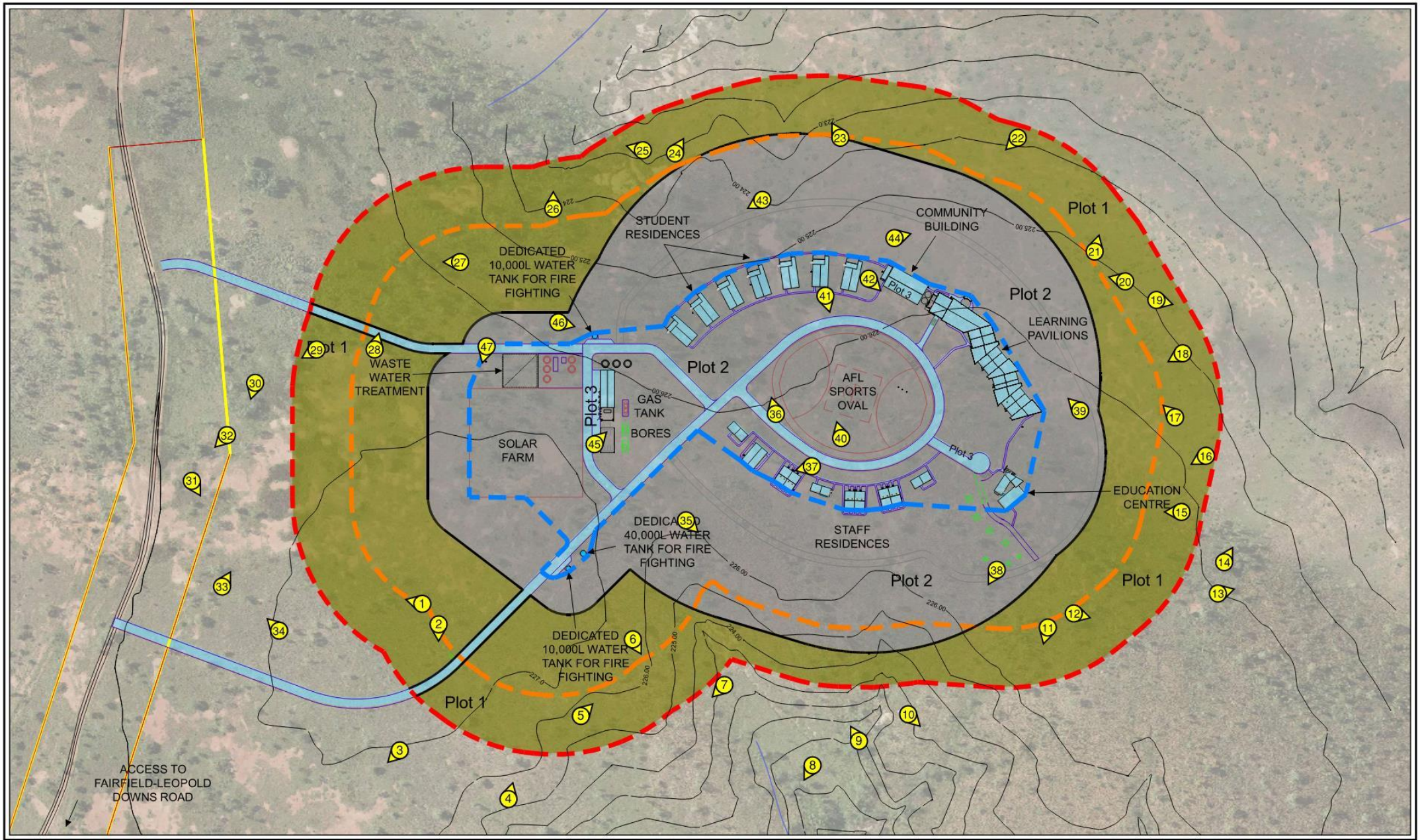
3.2 Assessment Outputs

A method 1 BAL Assessment was undertaken to determine the BAL contours impacting the proposed school buildings (Table 3 and Figure 5). All buildings are exposed to BAL-12.5.

Table 4. Summary of assessment outputs

Building	Plot No. & Applied Vegetation Classification	Effective slope	Separation distance to Classified Vegetation	Highest BAL Contour
Student residential buildings	Plot 1 Class B Woodland	Downslope 0-5	35 - <100 metres	BAL-12.5
Community Building & Learning Pavilions	Plot 1 Class B Woodland	Downslope 0-5	35 - <100 metres	BAL-12.5
Education Centre	Plot 1 Class B Woodland	Downslope 0-5	35 - <100 metres	BAL-12.5
Power station, water treatment & solar farm	Plot 1 Class B Woodland	Downslope 0-5	35 - <100 metres	BAL-12.5
Staff Residential Buildings	Plot 1 Class B Woodland	Downslope 0-5	35 - <100 metres	BAL-12.5

Figure 5 outlines the final developed scenario with the proposed buildings at the school site and the fuel managed areas around the buildings managed to APZ standards.



Location details:	Fairfield-Leopold Downs Road
Assessment date:	April, 2023
Prepared by:	Bushfire Safety Consulting
Accreditation level:	Level 3 BPAD Practitioner
Accreditation number:	BPAD 23160
Accreditation expiry date:	31st January, 2024
Date aerial photo:	5th March, 2020

FIGURE 4 - VEGETATION CLASSIFICATION MAP (BAL CONTOUR MAP)

0 20 40 60 80 100 120 140m

SCALE 1:3000 @ A3
DATE: JUNE 2023

NORTH

LEGEND:

- DEVELOPMENT FOOTPRINT
- ASSESSMENT AREA (180m) FROM THE EXTERNAL BOUNDARY OF THE DEVELOPMENT FOOTPRINT
- ASSESSMENT AREA (100m) FROM THE EXTERNAL BOUNDARY OF THE DEVELOPMENT FOOTPRINT
- PLOT 1 - CLASS B WOODLAND - DOWNSLOPE 0-5
- PLOT 2 - EXCLUSION CLAUSE 2.2.3.2(f)
- PLOT 3 - EXCLUSION CLAUSE 2.2.3.2(e)

SOURCE OF PHOTOGRAPHY: NEARMAP

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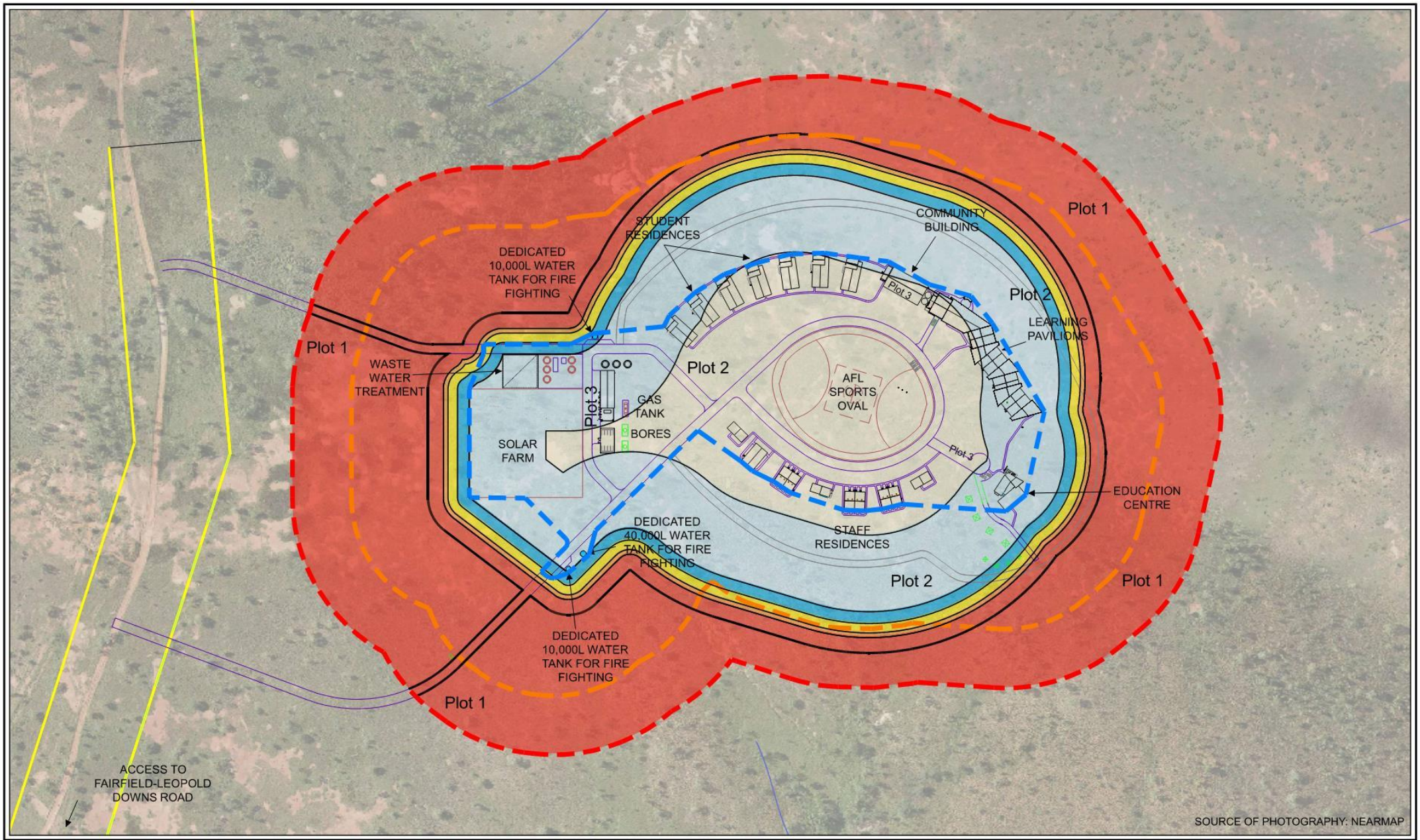

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Date aerial photo:	5th March, 2020

FIGURE 5
BAL CONTOUR MAP

0 20 40 60 80 100 120 140m

SCALE 1:3000 @ A3
DATE: JUNE 2023

NORTH

LEGEND:

- DEVELOPMENT FOOTPRINT
- ASSESSMENT AREA (180m) FROM THE EXTERNAL BOUNDARY OF THE DEVELOPMENT FOOTPRINT
- ASSESSMENT AREA (100m) FROM THE EXTERNAL BOUNDARY OF THE DEVELOPMENT FOOTPRINT
- PLOT 1 - CLASS B WOODLAND - DOWNSLOPE 0-5
- PLOT 2 - EXCLUSION CLAUSE 2.2.3.2(f)
- PLOT 3 - EXCLUSION CLAUSE 2.2.3.2(e)

INDICATIVE BUSHFIRE ATTACK LEVELS

- BAL LOW
- BAL 12.5
- BAL 19
- BAL 29
- BAL 40
- BAL FLAME ZONE

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4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

The remote school site is surrounded by open savannah woodland vegetation which poses an extreme hazard to the site, although the highest fuel loads are found in the understorey grass fuels. There is a fire danger period each year at the end of the dry season when grasses have cured and large landscape scale bushfires can occur. The site can be impacted by a bushfire as outlined in the BAL Contour Plan showing radiant heat impacts at an FFDI of 80. A contingency for when higher fire danger rated days occurs is also considered in the Evacuation plan and a thorough fire weather analysis has been undertaken for 36 years of fire weather data from records at Warmun station.

The site accommodates an open space safer area to shelter (designated as a portion of the sports oval) even under extreme fire weather conditions such as a 1 in 200 return period event when the FFDI reaches 179. With the management of the Asset Protection Zone, the BAL contour plan highlights the areas of the school site impacted by a potential bushfire. The potential bushfire impact occurs around the entire facility as outlined in the BAL Contour Map.

The development application triggers considerations for Class 9 buildings (School buildings). Vol 1 of the National Construction Code (NCC) 2022 establishes that exposed building elements on should not experience a predicted radiant heat flux greater than 10kW/m² and for relevant outdoor exposed areas, people not exposed to levels above 1kw/m² (using FDI 100). These building siting considerations have been accommodated in the design of the layout and full compliance is achieved.

A site-specific water supply system is designed for the site and comprehensive access to the nearby public road and around the buildings is accommodated.

The Bushfire Emergency Evacuation Plan (BEEP) provides School staff with triggers and actions to implement if the site is ever threatened by a bushfire.

Early evacuation in the direction away from a fire threat or, if unable to do this safely, sheltering in place on the western side of the sports oval in the centre of the school, is a solid strategy outlined in the BEEP in Attachment 1.

5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA

This report adopts an acceptable solution and performance-based system of control for each bushfire protection criteria. This methodology is consistent with Appendix 4 of the *Guidelines for Planning in Bushfire Prone Areas, Version 1.4 (2021).* The management issues are:

- Location of the development
- Siting and Design of Development
- Vehicular access.
- Water

Acceptable solutions are proposed for all bushfire protection criteria.

Land use planning bushfire risk mitigation strategies are comprehensively detailed in the following sections by providing responses to the performance criteria that fulfil the intent of the bushfire hazard management issues outlined in the *Guidelines for Planning in Bushfire Prone Areas V1.4 (2021).* The compliance details are outlined in Table 5 below.

5.1 Compliance Table

Land use planning bushfire risk mitigation strategies are comprehensively detailed in the following sections by providing responses to the performance criteria that fulfil the intent of the bushfire hazard management issues outlined in the *Guidelines for Planning in Bushfire Prone Areas V1.4(2021).* The compliance checklist is shown in Table 5 and the final scenario is outlined in Figure 6 as a spatial representation of the bushfire management strategies.

5.2 Additional Management Strategies

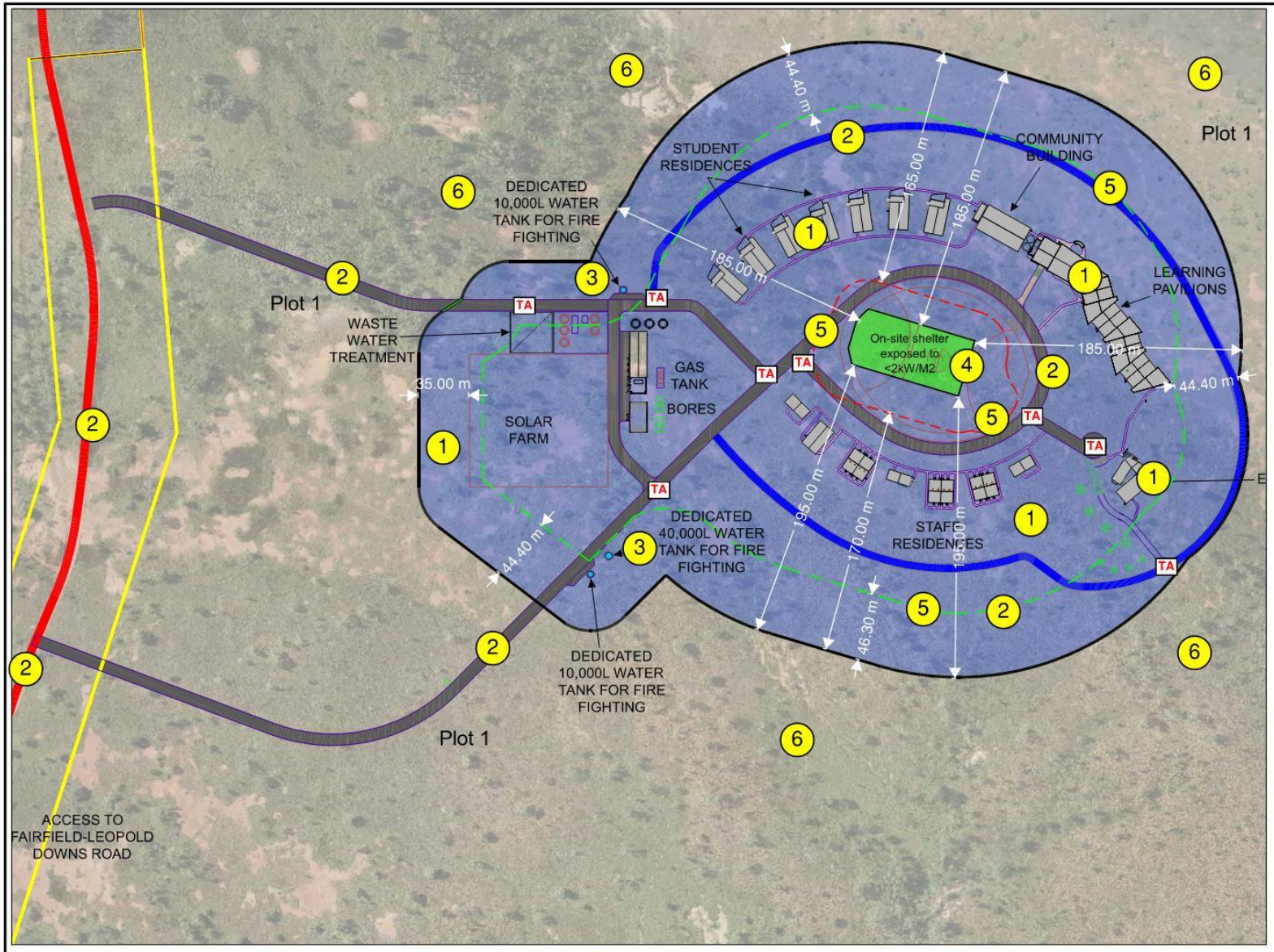
The safest place to be during a bushfire is away from it. Where to go is a crucial element when people are relocating during a time of emergency. The relocation of staff, students and visitors away from areas of bushfire threat during an event is required to ensure the safety of people. Specific details are provided in the Bushfire Emergency Evacuation Plan (Attachment 1). Safer sheltering options exist at the site on the sports oval in the middle area of the school site. If required external evacuation may be desirable and the designated evacuation destination are in Fitzroy Crossing townsite to the south-east or Derby to the west.

The spatial representation of bushfire management strategies is outlined in Figure 6 and the vehicle access plan in outlined in Figure 6.

Table 5: Compliance Table		
Bushfire Protection Criteria	**Method of compliance** **Acceptable Solutions**	**Proposed bushfire management strategies**
Element 1: Location	A1.1 Development Location	The Method 1 BAL Assessment outlined in this report demonstrates that all proposed buildings and infrastructure achieves BAL-12.5. A large Asset Protection Zone surrounding the school ensures no buildings will be located in an area that is greater than BAL-29. Full compliance is achieved.
Element 2: siting and Design	A2.1 Asset Protection Zone (APZ)	The proposed development area requires a large APZ to be established and once completed, all buildings are exposed to BAL-12. In order to provide a large central area that accommodates a Shelter-on-Site Area, the grass understorey will be slashed and sparse trees pruned so as to remove lower branches less than 2 metres from ground level to distances outlined in this BMEEP. This will create sufficient setback from bushfire hazard and can be easily achieved as the site is large. An APZ is proposed as outlined in Figure 6 between all buildings and the perimeter buildings and areas of bushfire threat. The APZ standards (Appendix 2) can be achieved. Class 9 buildings such as school buildings are required to comply with the National Construction Code (NCC). The NCC establishes that exposed building elements on should not experience a predicted radiant heat flux greater than 10kW/m² and for relevant outdoor exposed areas, people not exposed to levels above 1kw/m² (using FDI 100). A substantial APZ and the layout of the site have been accommodated in the design of the layout so that full compliance is achieved.
Element 3: Vehicular Access	A3.1 Public Roads	The site or development does not propose any public roads and is accessed by a private driveway. The nearby public road is the Fairfield – Leopold Downs Road, located 1.35 kms to the south which complies with public road standards and is a busy tourist road providing suitable access to the north-west and south-east (Appendix 3). On occasions the road is damaged by wet season flooding as recently experienced, however maintenance works are always triggered as soon as possible following the period of flooding due to the importance of the road to tourism, nearby pastoral stations and Yiramaly school.

	A3.2a Multiple access routes	A two-way primary access driveway provides access from the school to Fairfield – Leopold Downs Road 1.4 kilometres to the south, which then provides access to Fitzroy Crossing to the south-east and Derby to the west. A two-way secondary loop driveway links the school site to the main driveway in two locations, approximately 500 metres to the east (see Figure 6 and 7). The driveways will meet required standards (Appendix 2). A perimeter driveway will also provide access around the school buildings within the site.
	A3.2b Emergency Access Way	There are no designated Emergency Access Ways proposed or required.
Element 3: Vehicular Access (cont)	A3.3 Through roads	Fairfield – Leopold Downs Road is a through road which provides access to Fitzroy Crossing in the south-east and Derby to the west.
	A3.4a Perimeter roads	The site contains a perimeter driveway around all buildings between areas of bushfire hazard and buildings and infrastructure. This is specifically designed to provide fire appliance access to all buildings and for fire suppression activities. The extensive driveway network including the perimeter driveway will provide adequate perimeter access around the site.
	A3.4b Fire services access route	The school will contain an extensive driveway network and there are no formal Fire Service Access Routes proposed or required.
	A3.5 Battle-axe access legs	Not applicable
	A3.6 Private driveways	All driveways will be a minimum 6 metres wide. The primary driveway is 6m wide with a cement reinforced compacted gravel surface with drainage. The perimeter driveway will be a natural all-weather clearly defined mowed grass surface with a 6m trafficable surface. The access driveway is used by road trains to access the pastoral station cattle yards and will be maintained under agreement to minimum required standards (Appendix 2). In addition, due to the open spaces, the large managed fuel load Asset Protection Zone will also be easily accessible for fire appliances over much of the site.
Element 4: Water	A4.1 Identification of future water supply	Sufficient non-reticulated water supply for bushfire fighting according to the requirement of Schedule 2 (Appendix 3) will be installed prior to facility use. Three dedicated non-combustible water tanks are proposed with approved fittings, two tanks will hold 10,000 litres each and will be sited on the internal driveway network pm 8-metre-high platforms so water can gravity feed into fire appliances. A third water tank will hold 40,000 litres of water and be positioned on the primary driveway into the site. This tank will also have the approved fittings, pump station and associated control panel (see Figure 6). All tanks are sited within 3 metres of hard stand and turn around areas for fire appliances.

	A4.2 Provision of water for firefighting purposes	Fire services require ready access to an adequate water supply during fire emergencies. A total of 60,000 litres of dedicated water supply is proposed in three non-combustible water tanks with appropriate fittings (see Figure 6). As required by Regulation 18B (1) of the amended (19 Dec 2012) Building Regulations 2012, the application for the building permit for a Class 2-9 building is required to have plans and specifications of sufficient detail for assessment purposes deposited with DFES. This documentation for the proposed buildings will be provided to DFES for assessment at the building application stage.
Element 5: Vulnerable Tourism Land Uses	A5.1 Siting and Design	Not applicable



LEGEND:

- ON SITE SHELTER < 2kW/m2 EXPOSURE
- APZ — ASSET PROTECTION ZONE
- DEDICATED 10,000 LITRE WATER TANK FOR FIRE APPLIANCES ON 8m HIGH PLATFORM
- DEDICATED 40,000 LITRE WATER TANK FOR FIRE APPLIANCES
- 6m WIDE PRIMARY DRIVEWAY
- 6m WIDE PERIMETER DRIVEWAY
- 6m WIDE ACCESS DRIVEWAY
- 10kW/m2 LINE FOR NCC CLASS 9 BUILDING COMPLIANCE
- 1kW/m2 LINE FOR NCC OPEN SPACE COMPLIANCE
- TA — COMPLIANT TURN AROUND AREAS

FIGURE 6 - SPATIAL REPRESENTATION OF BUSHFIRE MANAGEMENT STRATEGIES

REQUIREMENTS

1. All buildings and critical infrastructure is surrounded by an Asset Protection Zone (APZ) which will be established and maintained in perpetuity to APZ standards. The APZ dimensions and standards ensure BAL-12.5 is not exceeded.

2. The internal driveway network has no dead ends, and provides extensive access throughout and around the school site. Three levels of driveway are proposed, all are 6m wide and numerous loops, cul-de-sac heads and t-shaped turn around areas are provided throughout for fire appliance access.

3. The site is provided with three compliant water tanks, including fittings, hard stands, and turn around areas on the internal driveway network

4. Detailed Design Fire modelling has been undertaken to determine the middle and western portion of the sports oval is designated as the on-site safer shelter area based on a 1 in 200 return period analysis on fire weather data from the nearest weather station with adequate data. A FFDI of 179 was used to model the setback distances to achieve less than 2kW/m2 of predicted radiant heat flux levels and provide a safer sheltering location within the site as a contingency if early safe evacuation off site is not achieved.

5. NCC compliance is achieved with less than 10kW/m2 exposed on all buildings and less than 1kW/m2 on the internal open space

6, The Class B Woodland contains sparse over-storey eucalypt trees and a grassy under-storey consistent with a savannah woodland. This vegetation experiences rapid annual grass growth during the wet season which cures and poses a threat in the late dry season

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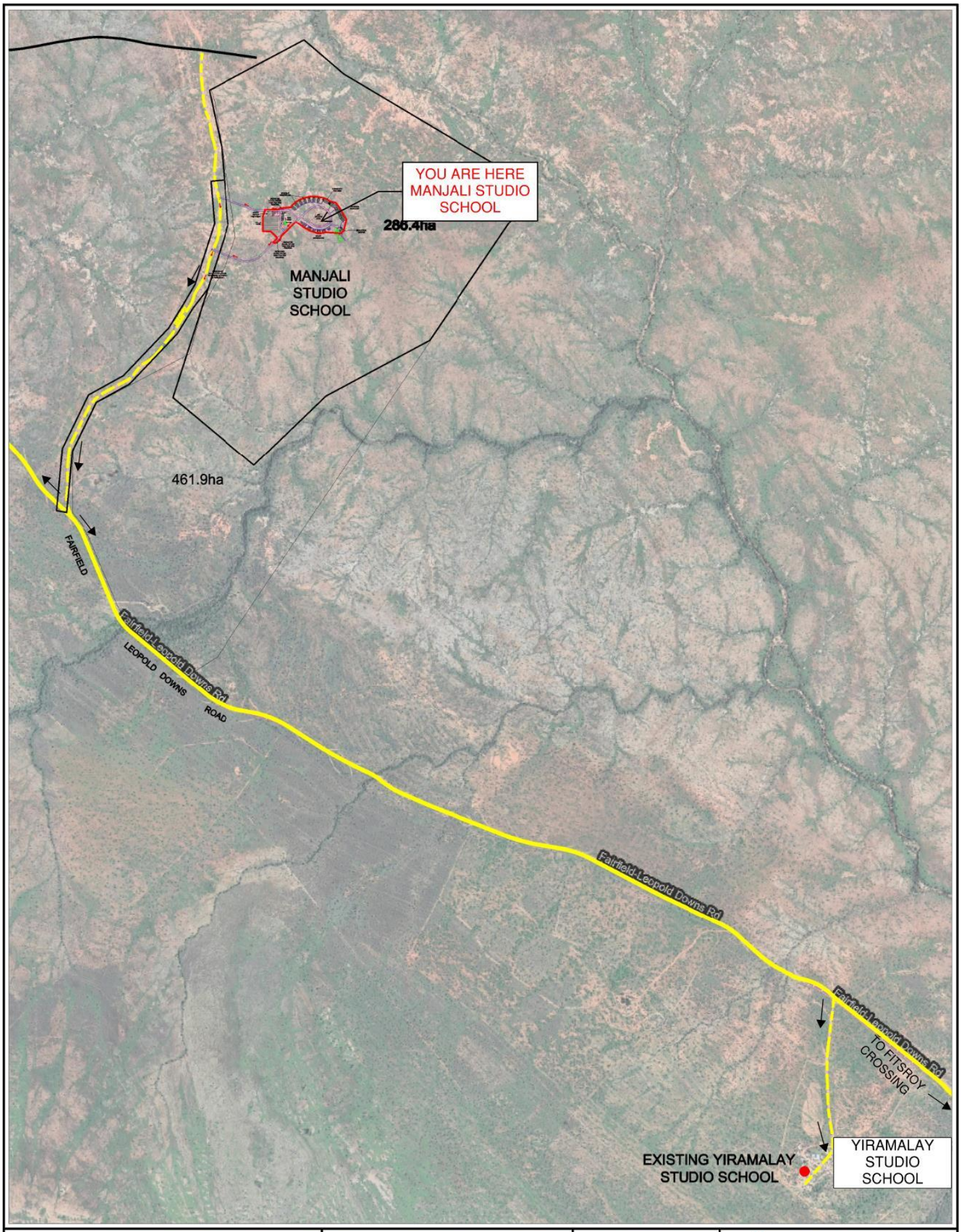
www.bushfiresafetyconsulting.com.au

SCALE 1:3000 @ A3
DATE: JULY 2023

Location details:	Fairfield-Leopold Downs Road
Assessment date:	April, 2023
Prepared by:	Bushfire Safety Consulting
Accreditation level:	Level 3 BPAD Practitioner
Accreditation number:	BPAD 23160
Accreditation expiry date:	31st January, 2024
Date aerial photo:	5th March, 2020



Location details:	Manjali Studio School
Assessment date:	April, 2023
Prepared by:	Bushfire Safety Consulting
Accreditation level:	Level 3 BPAD Practitioner
Accreditation number:	BPAD 23160
Accreditation expiry date:	31st January, 2024
Date aerial photo:	5th March, 2020

FIGURE 7
VEHICULAR ACCESS PLAN

0 100 200 300 400 500 600m
SCALE 1:15 000 @ A3
DATE: JUNE 2023

NORTH

LEGEND:
DEVELOPMENT FOOTPRINT

SOURCE OF PHOTOGRAPHY:
GOOGLE EARTH

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6 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE MEASURES

Table 6 outlines the initial and ongoing responsibilities, actions and associated works that need to be undertaken by school management. The check boxes for implementation actions will be used by school management. A Bushfire Planning Practitioner will certify that the necessary implementation action has been completed.

Table 6. Responsibility for bushfire measures

SCHOOL MANAGEMENT – PRIOR TO OCCUPATION OF THE BUILDINGS		
No.	**Implementation Action**	**DA Clearance**
1	**Establish and maintain the APZ to standards outlined in Appendix 1 and certify the BAL ratings at building licence stage.**	☐
2	**Establish the driveway network to standards outlined in Appendix 2.**	☐
3.	**Establish the water supply, tanks and fittings to standards outlined in Appendices 3 and 4.**	☐
4	**Make a copy of this BMEEP available to the school management and staff.**	
5	**It is recommended all facility buildings are constructed to AS 3959:2018 standards.**	
6	**As required by Regulation 18B (1) of the amended (19 Dec 2012) Building Regulations 2012, the application for the building permit for a Class 2-9 building is required to have plans and specifications of sufficient detail for assessment purposes deposited with DFES. This documentation will be provided to DFES for assessment at this stage.**	
SCHOOL MANAGEMENT – ONGOING MANAGEMENT		
7	**Annually review the Bushfire Emergency Evacuation Plan**	
8	**Maintain the Asset Protection Zone (APZ) to standards stated in this BMEEP (Appendix 1).**	
9	**Ensure the site complies with the Shire of Derby/ West Kimberley's Fire Break and Fuel Hazard Reduction Notice as published (Appendix 3).**	
10	**If buildings are subject to additional construction in the future, AS 3959:2018 compliance is recommended.**	
SHIRE OF DERBY/ WEST KIMBERLEY – ONGOING MANAGEMENT		

11	**Maintain public roads to appropriate standards and ensure compliance with the Shire of Derby/ West Kimberley's Fire Break and Fuel Hazard Reduction Notice.**

Certification by Bushfire Consultant

I _____ certify that at the time of inspection, the BAL rating contained within this BMEEP is correct; and implementation Actions 1-3 has been undertaken in accordance with the BMEEP.

Signature: _____

Date: _____

7 CONCLUSION

This Plan provides acceptable solutions and responses to the performance criteria that fulfil the intent of the bushfire hazard management issues outlined in the Guidelines for Planning in Bushfire Prone Areas (WAPC 2021 V1.4). However, community bushfire safety is a shared responsibility between governments, fire agencies, communities and individuals.

The unique site has been determined after extensive consultation with state and federal representatives and its unique location is linked to maximising the best education outcomes for the students.

The proposed school is located in a bushfire prone area (i.e., within 150m of classified vegetation) and risk is reduced via compliance with *AS3959:2018* standards which is recommended. BAL-12.5 is not exceeded, an APZ will surround the buildings and be maintained in perpetuity. This will significantly reduce the bushfire hazard and threat at the site.

A minimum of two access options and emergency water requirements for fire-fighting are met. The proposed development will fall within the acceptable level of risk.

8 REFERENCES

Standards Australia. 2018. Construction of buildings in bushfire-prone areas (Amendments 1-3), AS 3959-2018, Standards Australia International Ltd, Sydney.

Western Australian Planning Commission (WAPC). 2015b. State Planning Policy No. 3.7: planning in Bushfire Prone Areas (SPP3.7). December 2015. Western Australian Planning Commission and Department of Planning WA, Government of Western Australia.

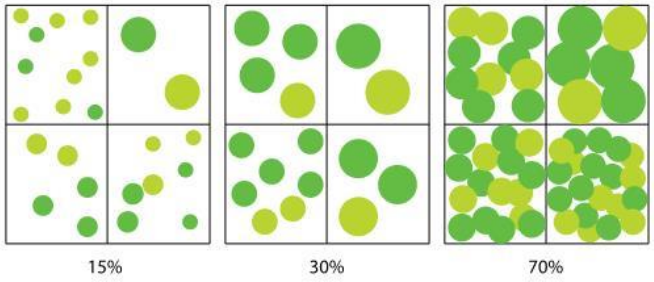
Western Australian Planning Commission (WAPC). 2021. Guidelines for Planning in Bushfire Prone Areas. December 2021 V1.4. Western Australian Planning Commission and Department of Planning WA, Government of Western Australia.

APPENDICES

Appendix 1: Asset Protection Zone Standards
Appendix 2: Vehicular Access Technical Requirements
Appendix 3: Schedule 2 – Water Supply Standards
Appendix 4: Shire of Derby/ West Kimberley – Fire Break and Fuel Hazard Reduction Notice 2021/22
Appendix 5: Bushfire Emergency Evacuation Plan Assessment
Appendix 6: Assessment Criteria and Design Fire Modelling – Sheltering Area

Appendix 1: Asset Protection Zone Standards

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

OBJECT	REQUIREMENT
Fences within the APZ	• Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness)	• Should be managed and removed on a regular basis to maintain a low threat state. • Should be maintained at <2 tonnes per hectare (on average). • Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness.
Trees* (>6 metres in height)	• Trunks at maturity should be a minimum distance of six metres from all elevations of the building. • Branches at maturity should not touch or overhang a building or powerline. • Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. • Canopy cover within the APZ should be <15 per cent of the total APZ area. • Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ. **Figure 19:** Tree canopy cover – ranging from 15 to 70 per cent at maturity  15% 30% 70%
Shrub* and scrub* (0.5 metres to six metres in height). Shrub and scrub >6 metres in height are to be treated as trees.	• Should not be located under trees or within three metres of buildings. • Should not be planted in clumps >5 square metres in area. • Clumps should be separated from each other and any exposed window or door by at least 10 metres.
Ground covers* (<0.5 metres in height. Ground covers >0.5 metres in height are to be treated as shrubs)	• Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above. • Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.

Appendix 2: Vehicular Access Technical Requirements

Table 6: Vehicular access technical requirements

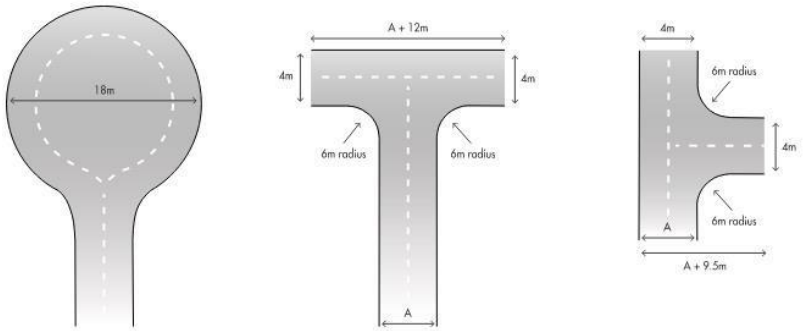
TECHNICAL REQUIREMENTS	1 Public roads	2 Emergency access way[1]	3 Fire service access route[1]	4 Battle-axe and private driveways[2]
Minimum trafficable surface (metres)	In accordance with A3.1	6	6	4
Minimum horizontal clearance (metres)	N/A	6	6	6
Minimum vertical clearance (metres)	4.5			
Minimum weight capacity (tonnes)	15			
Maximum grade unsealed road[3]	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Maximum grade sealed road[3]		1:7 (14.3%)		
Maximum average grade sealed road		1:10 (10%)		
Minimum inner radius of road curves (metres)		8.5		

Notes:

[1] To have crossfalls between 3 and 6%.

[2] Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision.

[3] Dips must have no more than a 1 in 8 (12.5% -7.1 degree) entry and exit angle.



Appendix 3: Water Supply Standards

SCHEDULE 2: WATER SUPPLY DEDICATED FOR BUSHFIRE FIREFIGHTING PURPOSES

2.1 Water supply requirements

Water dedicated for firefighting should be provided in accordance with Table 7 below, and be in addition to water required for drinking purposes.

Table 7: Water supply dedicated for bushfire firefighting purposes

PLANNING APPLICATION	NON-RETICULATED AREAS
Development application	10,000L per habitable building
Structure Plan / Subdivision: Creation of 1 additional lot	10,000L per lot
Structure Plan / Subdivision: Creation of 3 to 24 lots	10,000L tank per lot **or** 50,000L strategic water tank
Structure Plan / Subdivision: Creation of 25 lots or more	50,000L per 25 lots or part thereof Provided as a strategic water tank(s) or 10,000L tank per lot

2.2 Technical requirements

2.2.1 Construction and design

An above-ground tank and associated stand should be constructed of non-combustible material. The tank may need to comply with AS/NZS 3500.1:2018.

Below ground tanks should have a 200mm diameter access hole to allow tankers or emergency service vehicles to refill direct from the tank, with the outlet location clearly marked at the surface. The tank may need to comply with AS/NZS 3500.1:2018. An inspection opening may double as the access hole provided that the inspection opening meets the requirements of AS/NZS 3500.1:2018. If the tank is required under the BCA as part of fire hydrant installation, then the tank will also need to comply with AS 2419.

Where an outlet for an emergency service vehicle is provided, then an unobstructed, hardened ground surface is to be supplied within four metres of any water supply.

2.2.2 Pipes and fittings

All above-ground, exposed water supply pipes and fittings should be metal. Fittings should be located away from the source of bushfire attack and be in accordance with the applicable section below, unless otherwise specified by the local government.

2.2.2.1 Fittings for above-ground water tanks:

- Commercial land uses: 125mm Storz fitting; or
- Strategic water tanks: 50mm or 100mm (where applicable and adapters are available) male camlock coupling with full flow valve; or
- Standalone water tanks: 50mm male camlock coupling with full flow valve; or
- Combined water tanks: 50mm male camlock coupling with full flow valve or a domestic fitting, being a standard household tap that enables an occupant to access the water supply with domestic hoses or buckets for extinguishing minor fires.

Appendix 4: Shire of Derby/ West Kimberley – Fire Break and Fuel Hazard Reduction Notice

Shire of Derby / West Kimberley

BUSH FIRES ACT 1954

SHIRE OF DERBY / WEST KIMBERLEY

FIRE BREAK & FUEL HAZARD REDUCTION NOTICE

FIRST AND FINAL NOTICE

Notice to owners and/or occupiers of land within the Shire of Derby/West Kimberley

PURSUANT to the powers contained in Section 33 of the *Bush Fires Act 1954*, all owners and occupiers of land within the Shire of Derby/West Kimberley (Shire) are hereby required, on or **before 30th June 2022** and thereafter up to and **including 31st December 2022** to have fire breaks or fire control measures installed and maintained for the period in accordance with the following:

1. **Rural lands - being all land outside townsites (not including pastoral lease land).**

a) Mineral earth trafficable fire breaks must be installed on the land and be kept clear of flammable material. The fire breaks must not be less than four (4) metres in width, four (4) metres in height and be located within six (6) metres of all external boundaries; and

b) A building protection zone of twenty-five (25) metres must be established around all buildings on the land and be clear of all flammable material capable of sustaining fire or enabling fire to spread. Any garden beds or vegetation situated within the building protection zone must be maintained so that fuel levels containing mulch, dried leaves or other garden refuse do not exceed fifty (50) mm in height.

2. **Pastoral lease lands – being all land held under pastoral lease.**

Low fuel breaks are required to be not less than twenty-five (25) metres wide, totally surrounding and within three (3) metres of the perimeter of all buildings and/or haystacks or groups of buildings.

3. **Townsite Lands - being all land in the townsites of Derby, Camballin and Fitzroy Crossing.**

a) **Where the area of the land is 2023m² or less**
With the exception of living trees and bushes, all flammable material is required to be removed from the whole of the land. Any stubble left is not to exceed fifty (50) mm in height.

b) **Where the area of the land is greater than 2023 m²**
Mineral earth trafficable fire breaks must be installed on the land and be kept clear of flammable material. These fire breaks must not be less than three (3) metres in width, four (4) metres in height and must be located within two (2) metres of all external boundaries.

A building protection zone of twenty (25) metres must be established around all buildings on the land, inclusive of all dwellings, sheds etc. This area must be clear of all flammable material capable of sustaining fire or enabling fire to spread. Reticulated garden beds or vegetation situated within the building protection zone must be maintained so that fuel levels containing mulch, dried leaves or other garden refuse do not exceed fifty (50) mm in height.

4. **Rubbish/landfill Sites.**

Mineral earth trafficable fire breaks must be installed on the land and be kept clear of flammable material. These fire breaks must not be less than four (4) metres in width, four (4) metres in height and must be located within six (6) metres of the perimeter of the rubbish sites.

5. **Fuel dumps and depots.**

Remove all flammable material where fuel drum ramps or dumps are located, and where fuel drums (whether containing fuel or not) are stored to a distance of at least ten metres outside the perimeter of any drum, ramp or stack of drums.

6. **Compliance.**

The actions required in Parts 1 to 5 (above) must be undertaken to the satisfaction of the Shire.

Derby
(08) 9191 0999 | sdwk@sdwk.wa.gov.au | 30 Loch Street, PO Box 94, Derby WA 6728

Fitzroy Crossing
(08) 9191 5355 | sdwk@sdwk.wa.gov.au | Flynn Drive, PO Box 101, Fitzroy Crossing

ABN: 99 934 203 062 | www.sdwk.wa.gov.au

7. Alternative Arrangements.

If for any reason it is considered to be impracticable to clear fire breaks or to remove flammable material from the land as required by this Notice, you may apply to the Shire **before 30th May 2022** for permission to provide Alternative Arrangements for fire breaks or to take alternative action to abate fire hazards on the land. Until and unless the Shire gives permission in writing to the contrary, you must comply with this Notice.

8. Penalties.

The penalties for failing to comply with this Notice is a fine of up to $5000 or infringement penalty of $250. An owner or occupier is also liable, whether or not a prosecution is commenced or an infringement notice is issued, to pay the cost to the Shire of carrying out work in default of this Notice. The Shire's Authorised Officer has legal right of entry to any property with any machinery or personnel deemed necessary in order to complete the work, under section 33(4)(b) of the *Bush Fires Act 1954*

9. Bushfire Management Plans.

Those property owners/occupiers who reside on properties that have a Bushfire Management Plan (BMP) endorsed by the Shire and Western Australian Planning Commission must ensure that they are implementing and complying with the conditions of the BMP as it applies to their land.

Where an approved BMP exists, land owners and occupiers must still comply with all requirements in this Notice and any additional requirements outlined within the BMP.

10. Definitions.

Alternative Arrangements includes a written variation as defined in Part 7 of this Notice to reduce and mitigate fire hazards within a particular subdivision, lot or other area of land anywhere in the district.

Authorised Officer means an employee of the Shire appointed as a Bush Fire Control Officer pursuant to the powers conferred in Section 38 of the *Bush Fires Act 1954*.

Building Protection Zone means a fuel-reduced area that surrounds buildings and other built assets.

'Bushfire Management Plan' means a comprehensive plan that may be placed on the certificate of title(s) of land that has been developed as a condition of development or subdivision. Bushfire Management Plans may become out dated and it is the responsibility of the land owner to review and keep them current.

Fire breaks are defined for the purposes of this Notice as 'a strip of land that has been cleared of all trees, bushes, grasses and any other object or thing or flammable vegetation leaving clear, bare mineral earth.'

Flammable material is defined for the purposes of this Notice to include long dry grass, leaves, bark, timber, boxes, cartons, paper, rubbish and any other form of combustible matter, but does not include living trees, shrubs, growing bushes and plants under cultivation.

Fuel Depot / Fuel Storage Area means an area of land, a building or structure where fuel, i.e. (petrol, diesel, kerosene, liquid gas or any other fossil fuel) is kept in any container or manner.

Trafficable means capable of being driven on from one point to another by any Emergency Services Vehicle on a clear surface, without any obstruction that may endanger that vehicle or its occupants. A fire break is not to terminate or lead to a dead end.

BY ORDER OF CHIEF EXECUTIVE OFFICER

Amanda Dexter

Chief Executive Officer, Shire of Derby/West Kimberley

Appendix 5: Bushfire Emergency Evacuation Plan Assessment

STEP 1 – EMERGENCY MANAGEMENT TEAM

The Emergency Management Team (EMT) consists of responsible senior staff members at Manjali Studio School. The Chief Warden is responsible for;

- Ensuring all staff are educated and trained on emergency procedures;
- Consulting with local emergency services in relation to this Bushfire Emergency Evacuation Plan (BEEP), and;
- Annually reviewing the BEEP to ensure it remains practical and current.

STEP 2 – FACILITY DETAILS, SITE ANALYSIS AND LOCATION CHARACTERISTICS

The BEEP will apply to the Manjali Studio School, which is a private boarding school facility for high school students in grades 7, 8 and 9. It is located near the Fairfield-Leopold downs Road, between Derby and Fitzroy Crossing in the Kimberley region of Western Australia. The site is identified as being in a Bushfire Prone Area and a bushfire could impact the site from any direction. At the completion of the development, the school will contain residential and classroom buildings, various sheds, power station and solar farm and water treatment infrastructure. The school will accommodate up to 96 students, 60 staff and visitors, predominately during school terms.

The facility will contain an internal and interface driveway network and all facilities are centrally located around the school oval. The perimeter of the development contains woodland vegetation, sloping down 0 to 5 degrees to the north, east and west, with upslope/ flat to the south.

Access to the school is via two access driveways which connects to Manjali Campground Road and direct to the Fairfield – Leopold Downs Road 400 metres to the south. This road provides direct access to Derby in the west and Fitzroy Crossing in the south-east. Surrounding public roads have a well formed gravel surface and comply with public road standards. In extreme weather scenarios, the roads may become impassable like man y public roads in northern Australia.

With the establishment and maintenance of a compliant APZ, all buildings are assessed as being exposed to BAL-12.5 or less.

STEP 3 – PRIMARY AND EMERGENCY ACTIONS

Evacuation is the process of moving people from the site to another safer location off-site. If successfully done, evacuation occurs in a calm, safe manner, away from the place of threat, to a location that will not be affected by bushfire.

Shelter in place is a process of sheltering in an identified safer building or open area on-site, away from the life-threatening radiant heat caused by a bushfire. Shelter in place during a bushfire is generally not recommended and should only be taken as a last resort if it is not safe to evacuate. A portion of the school oval in the centre of the school will have significant separation from nearby bushland areas around this site and could provide shelter from a fast moving high intensity fire with little warning that could impact the site or surrounding roads making evacuation difficult. Given the large open area on the oval within the middle of the school is predicted to experience heat flux of less than 2kw/m at 1200°K, sheltering in place here in the event of a nearby bushfire is a solid contingency

response. The identified shelter in place location, surrounding facilities and APZ should be well prepared and maintained in the event this is necessary.

STEP 4 – REQUIREMENTS FOR EVACUATION AND SHELTER IN PLACE

a) Identification of off-site location for evacuation

The following questions are taken from the Western Australia Planning Commission's guide to developing a bushfire emergency evacuation plan (2019) to assess the suitability of the primary off-site evacuation location.

If there are occupants with support needs that require a similar facility to support them, is the off-site location suitable?	In the unlikely event that evacuation is required, a location suitable to accommodate the number of staff and guests in the short term has been identified as the townsites of Fitzroy Crossing (Recreation Centre) or Derby (Town Oval).
Is the off-site location in an area away from the effects of bushfire?	Yes, these larger towns, although they could be impacted do provide large areas of non-vegetated areas for sheltering purposes.
Are there amenities (toilets, food, water, etc.,) available at the off-site locations?	Yes
Can the off-site location accommodate the number of occupants?	Yes
Does the route to the off-site location require transport through bushfire affected areas, or areas that may be affected by an approaching bushfire?	Yes, this is unavoidable due to extent of surrounding vegetation and travel required through the rural and remote landscapes. There are two potential locations and routes available to choose from depending on the direction of bushfire threat.
Has the owner of the off-site location advised that they are happy to accommodate occupants if evacuation from a bushfire emergency occurs?	The broad townsites with community facilities have been identified

b) Determining transport to an off-site location (evacuation)

The following questions are taken from the Western Australia Planning Commission's guide to developing a bushfire emergency evacuation plan (2019) to assess the suitability of available transport to off-site evacuation locations.

Do you have your own transport for all occupants?	The Fire Warden and the Facility Manager will ensure that there are an appropriate number of vehicles for the number of staff and student on site each day during the bushfire season. It is essential that there are enough vehicles to safely evacuate all students, guests and staff from the site.
Are you going to use private vehicles?	This is possible because some staff will have private vehicles at the site and do bring their own vehicles to their work place. If there is plenty of time and evacuation is required then private vehicles can be used to evacuate students, staff and guests.
If using private vehicles, will they be available when you need them and will there be drivers available?	Some guests staying at the facility may have their own vehicles, so can use these in the event of evacuating.
Will there be sufficient vehicles to transport all the occupants?	Yes, between the buses on site and guests' vehicles there is enough transport.
Have occupants with support needs been considered when determining	Yes, the school management will take extra time to organise evacuation and shelter in place in safe location within site with any guests that have special needs.

transport types and necessary timing to evacuate?	
Is disabled transport required, and is this sufficient to move the number of occupants from the facility?	Yes, the school management will ensure transport requirements for any less abled people is accommodated at the school and shelter in place in safe location within site with any guests that have special needs.
Do you require ambulances?	No
Is a community bus available when needed?	No, not required.
Are other means of transport available?	No
Do you need any other type of special transport?	No

STEP 5 – PRIMARY EMERGENCY PROCEDURES

Primary and secondary emergency procedures were developed with the following considerations;

- Requirement to organise and co-ordinate evacuation of site users present safely. If this is not possible, then the requirement to provide shelter in place procedures for the number of people present.

Emergency Procedures include those for preparation prior to potential bushfire event, monitoring to detect bushfire or required conditions for pre-emptive actions, identification of triggers to enact BEEP, emergency response both prior, during and after the fire front has passed, and finally recovery responses to be undertaken when the all clear has been given following a bushfire event

STEP 6 – TRAINING AND EDUCATION ON EMERGENCY PROCEDURES

The Chief Warden will ensure that all staff are aware of their responsibilities within the BEEP and are sufficiently trained to carry out their duties in the event of a bushfire. This includes preparedness, monitoring, pre-emptive and recovery tasks in addition to tasks undertaken in response to a bushfire emergency.

Appendix 6: Assessment Criteria and Design Fire Modelling – Sheltering Area

1 Introduction

Facilities such as boarding schools can provide a building that could function as an on-site shelter if sufficient separation distance from the predominant bushfire prone vegetation to avoid exposure to a radiant heat flux exceeding 10kW/m² is achieved. Where an open space area is to function as an on-site shelter there must be sufficient separation distance from the predominant bushfire prone vegetation to avoid exposure to a radiant heat flux exceeding 2 kW/m². The flame temperature of 1200°K is to be used in all calculations.
A building used as suitable on-site shelter would need to be designed and constructed (or retrofitted) in accordance with the National Construction Code and the ACBC Community Shelter Handbook.

The school Asset Protection Zone is approximately 20 hectares in size and bushfire hazard surrounds the site. The sheltering area is in the centre of the school facilities and is 0.45 hectares in size. The school site will have a suitable Asset Protection Zone and includes driveways, parking areas, hard surfaces and some retained trees within a large mowed grass and managed fuel load area. This results in a large area to shelter from life threatening radiant heat from a bushfire on the school oval in the central area.

Staff, students and visitors on the site can relocate to the school oval to shelter in place in the centre of the school while being exposed to predicted radiant heat levels of less than 2kW/m². Design fire modelling for calculations is detailed below in Section 5.

2 LIMITATIONS

Bushfire sheltering locations do not guarantee peoples safety, but they offer improved protection if people are caught by a fire and cannot evacuate early, away from the threat, to an area that cannot be threatened.

It is important for people to understand that there are risks associated with sheltering in open spaces even when assessed to the accepted standards. The Country Fire Authority (CFA 2020) and NSW Rural Fire Service (RFS 2017) have identified the following risks that are associated with sheltering in open spaces that are applicable to this site:

- Travelling to the Bushfire Shelter Area through a fire affected landscape either on foot or in a vehicle could be inherently dangerous due to poor visibility, fire activity and potential traffic accidents on internal roads.
- Sheltering at a site may result in physical and / or psychological trauma.
- Extreme conditions can be experienced such as embers, heat, strong winds, fire noise, radiant heat, smoke and ash while sheltering.
- The presence of emergency services cannot be guaranteed and there may be no communications, power, water or first aid facilities, however these can be planned for to some extent at this site.

3 Assessment Criteria and Methodology

The methodology used to determine the predicted radiant heat flux levels at the Bushfire Shelter Location utilises the methodology developed by Douglas and Tan (2005) *Integrating Site Assessment and Performance Planning Outcomes for Bushfire Prone Areas.*

The assessment criteria used in this assessment (Table 1) was developed by the NSW Rural Fire Service and is outlined in their document "Neighbourhood Safer Places – Guidelines for the identification and inspection of Neighbourhood Safer Places in NSW".

Table 1: Relevant assessment criteria

	Performance Criteria	Acceptable Solution
Radiant Heat	Open Space is located to enhance the chance of survival for humans in attendance from the radiant heat of a bushfire.	Open Space is situated and maintained to prevent direct flame contact, material ignition and radiant heat flux levels of 2kW/m², or provide 310 metres separation distance from a bushfire hazard.
Maintenance of the site and surrounding area	Area between bushfire hazard and the sheltering site is maintained to a level that ensures the radiant heat flux levels at the open space meet the Performance Criteria for radiant heat	The site and grounds between the sheltering area and the bushfire hazard is managed land or maintained in accordance with Asset Protection Zone Standards. There are driveways, parking areas and hard surfaces between the shelter area and bushland.

Table 2: Principles for site identification

Site Selection	The site should provide a safer place for the school community.
	The community should be moving away from the bushfire hazard to access the site over short distances where possible.
	The location should reflect the community need and bushfire risk
Moving to the site	The site should not be isolated from the facility management.
	The staff and guests should not be impeded from reaching the site in a bushfire situation
Capacity	Additional bushfire shelter areas should be sought where it is likely the site cannot accommodate those likely to use it. The area is 0.45 ha in size.
	Demand for use of a site reflects the sites level of bushfire preparedness

The detailed site-specific design fire calculations are outlined below.

4 Manjali Studio School - SITE ASSESSMENT

4.1 Assessment Inputs

A detailed site visit has been undertaken and a minimum assessment area of 150 metres around the school facilities and sheltering area was undertaken.

The bushfire sheltering location was identified in the middle of the site and the open space area has been modelled to be suitable. The site- specific detailed design fire modelling inputs and analysis is outlined below.

The vegetation was classified in accordance with Clause 2.2.3 of AS 3959-2018. Each distinguishable vegetation plot with the potential to determine the predicted radiant heat flux levels towards the sheltering area were identified.

4.2 Manjali Studio School - BUSHFIRE SHELTERING AREA

The open space bushfire sheltering area has been identified to provide staff, students and visitors with an area that will provide improved protection of human life during the onset and passage of a bushfire. It is a location where people facing an immediate threat to their personal safety can gather and seek shelter from the impact of bushfire in the nearby bushland areas.

Detailed design fire modelling has been undertaken surrounding the facility with site specific variables analysed to identify an area that is situated (and can be maintained) to achieve radiant heat flux levels of 2kW/m² and less. This sheltering area has been assessed against the criteria (Table 3) and provides a backup plan to be utilised if the safe and early evacuation off site, away from bushfire threat, cannot be implemented. Evacuation off site is not easy to achieve quickly when necessary, so it is important to have a good sheltering location on-site until that is achieved.

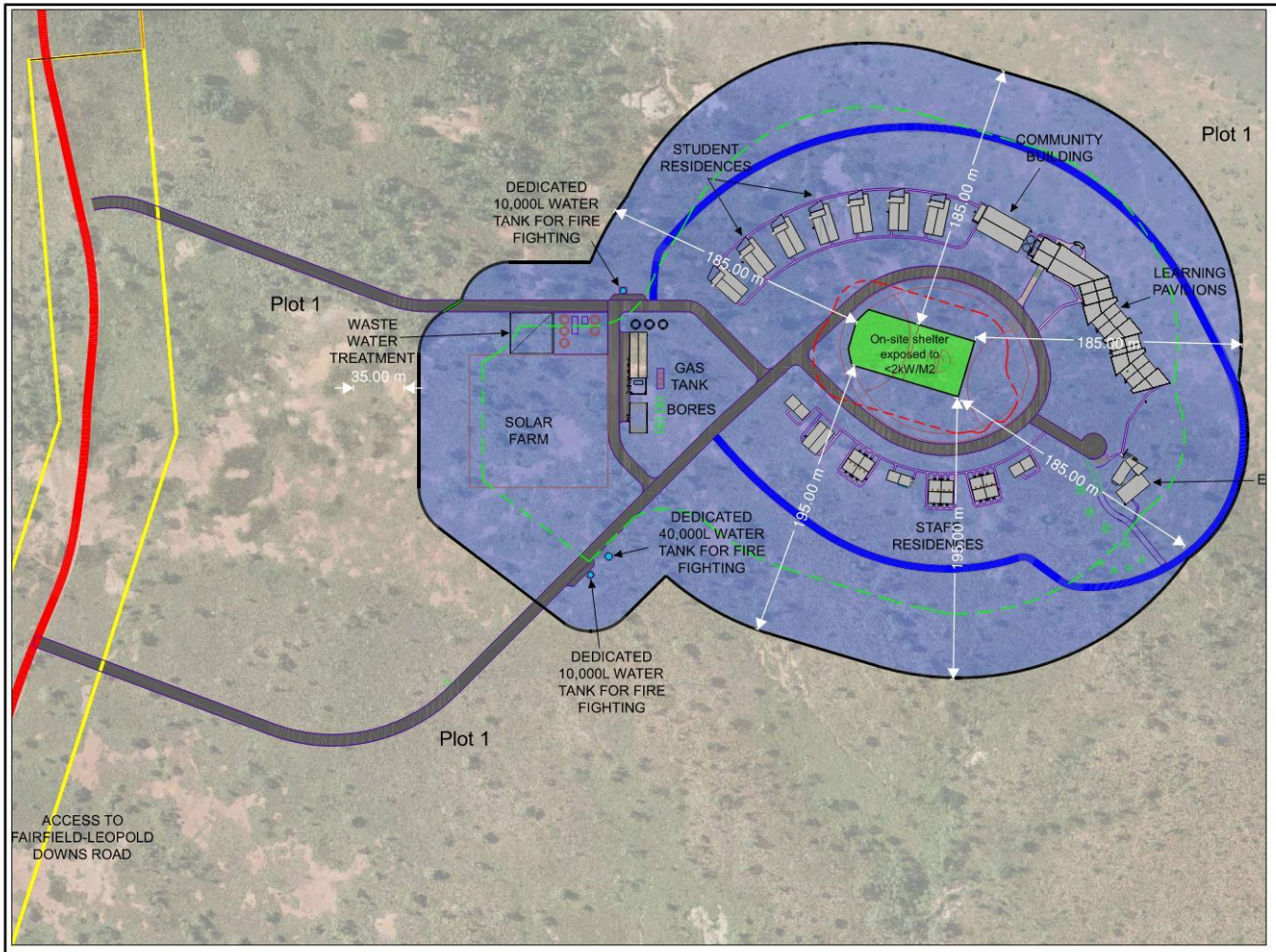
Table 3: Sheltering Area assessment outcomes against the criteria

Location	Manjali Studio School	
Size	0.45 ha Asset Protection Zone on sports oval	
Access	Centrally located, easily accessible to staff, students and visitors by walking.	
Assessment Criteria – (from NSW RFS 2017)		
	Performance Criteria	**Acceptable Solution**
Radiant Heat	Open Space is located to enhance the chance of survival for humans in attendance from the radiant heat of a bushfire.	The open space is situated and maintained to prevent direct flame contact, material ignition and radiant heat flux levels of 2kW/m². The site is located on a sports oval with irrigated mown grass and is maintained at Asset Protection Zone standards
Maintenance of the site and surrounding area	Area between bushfire hazard and the sheltering site is maintained to a level that ensures the radiant heat flux levels at the open space meet the Performance Criteria for radiant heat	The school Asset Protection Zone surrounding the site is 20 ha in size and will be managed to maintain a low threat condition consistent with vegetation classifications exclusion clause 2.2.3.2(f) (manage parkland) and Exclusion Clause 2.2.3.2(e) - unvegetated in AS3959-2018.
Principles for Site Identification		
Site Selection	The site should provide a safer place for the community.	The area is the open space on the oval in the middle of the site, so is the safest area within the site. Radiant heat flux modelling confirms this.
	The community should be moving away from the bushfire hazard to access the site over short distances where possible.	Site users, including staff, students and visitors, can move towards this area away from surrounding bushfire threat.
	The location should reflect the community need and bushfire risk	The site reflects the immediate needs for the school occupants comprehensively, it is nearby and easily accessible.
Moving to the site	The site should not be isolated from the community	The site is located in the centre of the site.

	The community should not be impeded from reaching the site in a bushfire situation	It is within walking distance (100 metres) for all users.
Capacity	Additional bushfire shelter areas should be sought where it is likely the site cannot accommodate those likely to use it	There is no requirement for another site to be identified for users of this school. It is accessible and permanent.
	Demand for use of a site reflects the community's level of bushfire preparedness	A Bushfire Management Plan has been developed for the school and the safer area reflects the needs of the staff, students and visitors. Some consultation has occurred and additional consultation will occur once school management is established.

FIGURE 1:

BUSHFIRE SAFER AREA



LEGEND:

ON SITE SHELTER < 2kW/m2 EXPOSURE

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0 20 40 60 80 100 120 140m

SCALE 1:3000 @ A3
DATE: JULY 2023

NORTH

Location details:	Fairfield-Leopold Downs Road
Assessment date:	April, 2023
Prepared by:	Bushfire Safety Consulting
Accreditation level:	Level 3 BPAD Practitioner
Accreditation number:	BPAD 23160
Accreditation expiry date:	31st January, 2024
Date aerial photo:	5th March, 2020

5 Design Fire Modelling

5.1 AIM

Provide a bushfire protection outcome that meets the performance requirements of the proposed safer area at the site and;

- Approval under State Planning Policy No. 3.7 Planning in Bushfire Areas V1.4 (2021);
- Compliance with the Performance Principles in the Guidelines for Planning in Bushfire Prone Areas V1.4 (December 2021) and Australian Standard AS 3959-2018 Construction of buildings in bushfire-prone areas (Standards Australia 2018);

5.2 Objectives

Demonstrate the Radiant Heat Flux (RHF) exposure profile is < 2kW/m ² contour.

Demonstrate that the exposure profile under specific design fire evaluation includes:

- Classified vegetation uses default fuels loads specified in AS3959-2018;
- Flame temperature is set at 1200K as a conservative level to assess life safety priorities;
- FDI set at 179 due to detailed fire weather analysis of the Warmun Weather Station data to determine a 1:200 FDI return period for the inland Kimberley region.
- Site specific values for effective slope under classified vegetation and site slope

5.3 Design Fire Assessment to determine <2kW/m²

The methodology used to assess the Bushfire Safer Area utilises the methodology developed by Douglas and Tan (2005) *Integrating Site Assessment and Performance Planning Outcomes for Bushfire Prone Areas*. The extent of exposure to people sheltering from bushfire attack is primarily related to the proximity to the fire front, fire severity/ fuel characteristics, fire weather, topography and shielding (by natural features or man-made barriers).

The design fire assessments determine the level to which predicted radiant heat flux exposure from surrounding areas impacts the proposed sheltering area.

The predicted bushfire attack is assessed by considering specific site factors that are different to those used in a method 1 BAL assessment in AS3959-2018. The predicted radiant heat flux received on the identified sites from surrounding areas is determined by accurate assessment of site and effective slope characteristics, vegetation heights, fire weather and can include fuel load analysis.

5.4 Specific Design Fire Inputs

Specific design fire inputs used to evaluate all design fires surrounding the sheltering location is listed below.

- Site slope and effective slope analysis using a Forestry Pro digital field instrument to determine the slope under the classified vegetation and between the sheltering area and the classified vegetation;
- Site slope and effective slope analysis using topographic data.
- Flame temperature set at 1200K to reflect life safety priorities;
- Fire Danger Index of 179 determined by Generalised Extreme Value (GEV) and regression analyses to determine the FFDI return period of 1:200 years for Warmun Weather Station.

Warmun is 350 kilometres to the east of the site and is the nearest inland weather station with available historic FFDI data;

- Elevation of Receiver used is default to ensure maximum predicted radiant heat flux results;

5.5 Methodology

The Method 2 Approach to determine the radiant heat flux exposure is described in *Appendix B Detailed method for determining the Bushfire Attack Level (BAL) – Method 2* in AS3959-2018 (Standards Australia 2018). Site specific inputs and bushfire modelling calculations were undertaken using the software tool Bushfire Attack Level calculator (BALc) version 4.8 developed for FPAA by Flamesol.

The Bushfire Attack Level calculator (BALc) version 4.8 is a software tool approved for use by the FPAA that implements the Method 2 bushfire behaviour and view factor calculations and heat transfer models to determine the exposure of a site to a radiant heat flux.

6 Fire Weather Analysis for Developing Alternative Design Bushfire Conditions

Warmun weather station data was used in the design fire calculations. The weather station is 300 kilometres from the site and is the closest inland weather station with historic FFDI data available.

Table 1 – Long term climate data from weather station at Warmun (Source – BOM 2022)

Climate Data	Weather Station Location
	Warmun Id 002032
Mean Maximum Temperature (°C)	35.1
Maximum Recorded Temperature (°C)	46.5
Mean Annual Rainfall (mm)	721.5
Mean Rainfall in January (mm)	181.5
Mean Rainfall in July (mm)	5.8
Mean Humidity at 3pm in January (%)	43
Mean Humidity at 3pm in July (%)	22
Mean Wind Speed at 3pm in January (km/h)	10.7
Mean Wind Speed at 3pm in July (km/h)	10.4

The data from the Warmun weather station provided the most accurate data to determine alternative design fire conditions at the site given it is more reflective of the inland weather patterns experienced at the site, in contrast to the closer Broome weather station (290km to the west) which experiences differing coastal conditions. Daily Forest Fire Danger Index (FFDI) data for the weather station was extracted from Lucas (2010) Historical Fire Weather Data-set obtained from the Bureau of Meteorology. The dataset covers 39 years from 1975 to 2014.

This data was analysed to determine the 1:200 year FFDI annual return interval using methodology set out in Douglas et.al. The NSW RFS Neighbourhood Safer Places methodology uses a FFDI of 120 (Catastrophic). AS3959-2018 policy FFDI value for this location is 80, the results of this assessment conclude the most accurate available 1:200 year FFDI is 179.

6.1 Methodology

The extreme value analysis was undertaken using 39 years data of the highest FFDI values for the Warmun weather station (Table 2).

Table 2: Maximum yearly FFDI at 3pm records for Perth Airport Weather Station.

Year	No.	Return Period Calc	Return Period	FFDI Max
1979	1	36	36	120
1985	2	18	18	120
1981	3	12	12	118
1990	4	9	9	102
1983	5	7.2	7.2	96
1982	6	6	6	95
1984	7	5.14285714285714	5.14	91
1996	8	4.5	4.5	84
1991	9	4	4	80
1993	10	3.6	3.6	69
2004	11	3.27272727272727	3.28	66
2007	12	3	3	66
2000	13	2.76923076923077	2.77	65
2014	14	2.57142857142857	2.57	64
2005	15	2.4	2.4	63
1992	16	2.25	2.25	62
2006	17	2.11764705882353	2.12	62
2001	18	2	2	61
2008	19	1.89473684210526	1.9	61
2009	20	1.8	1.8	61
1989	21	1.71428571428571	1.71	60
1988	22	1.63636363636364	1.64	59
1987	23	1.56521739130435	1.57	58
1977	24	1.5	1.5	57
2003	25	1.44	1.44	57
2002	26	1.38461538461538	1.39	56
2011	27	1.33333333333333	1.33	54
1995	28	1.28571428571429	1.29	53
2010	29	1.24137931034483	1.24	49
1994	30	1.2	1.2	47
1998	31	1.16129032258065	1.16	45
2013	32	1.125	1.13	44
1997	33	1.09090909090909	1.09	43
2012	34	1.05882352941176	1.06	41
1999	35	1.02857142857143	1.03	38
1975	36	1	1	30

6.2 Results

The data (Table 2) was used to generate a GEV analysis of a return period of 1:200 years which has been advocated as an input into determining fire weather inputs for an alternative method for the identification of places for community bushfire shelters.

Figure 1 outlines the linear-log plots of FFDI vs return period R for the Warmun weather station. The plots were then subject to a formatted trend line using the log-linear function as expressed in Douglas et al. (2014)
as : y = alnR+b

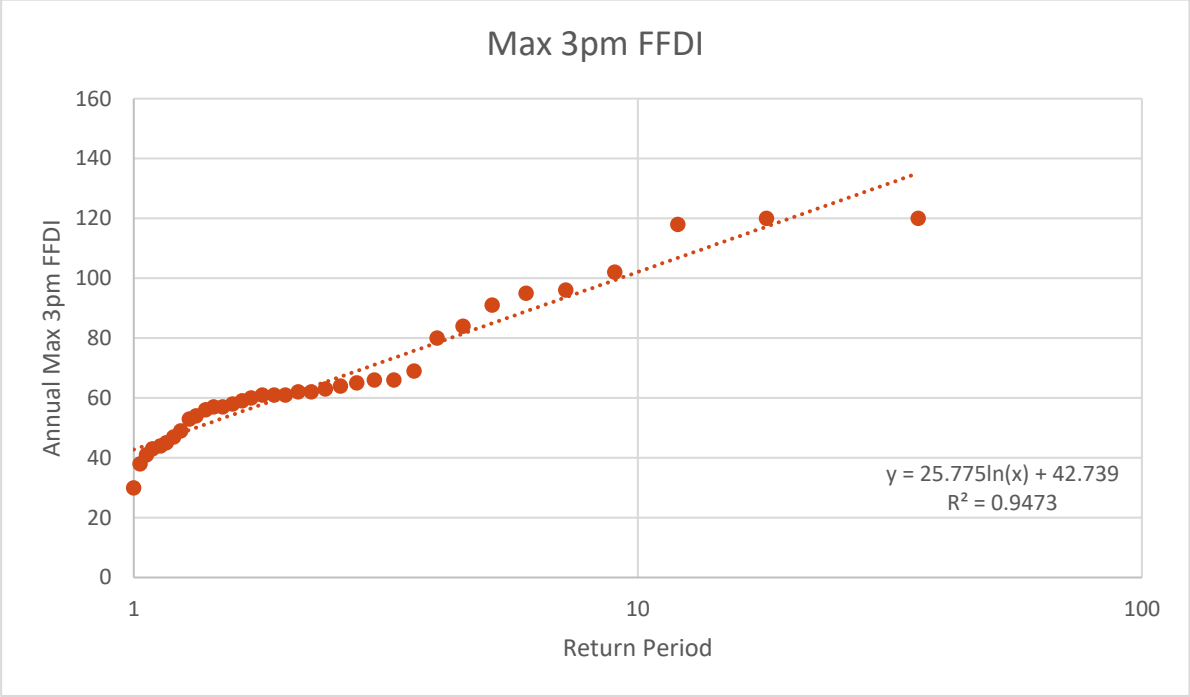


Figure 1 – Linear-log plot of FFDI and Return Period (R) – 39 years of data

The GEV and regression analyses were applied to the data from the weather station and the results are presented in Table 3, including the FFDI value corresponding to 1:200 return period.
The correlation co-efficient R^2 of 0.9473 refers to the quality of the statistical analysis.
Using the equation y = alnR+b in Douglas et al. (2014) for the log linear graph (Figure 1) to determine the 1:200 year return period, the extrapolated results are:

Y = 25.775 ln(200) + 42.739

FFDI = 179

Highest maximum FFDI on record is 120 which occurred in the 1979 and 1985. Generalised Extreme Value (GEV) analysis of data determined that a return value of 1:200 years gives a maximum FFDI of 179 (Figure 1 and Tables 2 & 3).

Table 3: Results of GEV and regression analysis and FFDI value based on a 1:200 return period.

a	b	r^2	FFDI =1:200
25.775	42.739	0.9473	179

7 Vegetation and Fuel load analysis for Developing Alternative Design Bushfire Conditions

Dominant vegetation types in the landscape surrounding the proposed development have been assessed to create a BAL Contour Plan in the Bushfire Management Plan. The surrounding class of vegetation is Class B Woodland with downslope 0 to 5 degrees in all directions. Class B Woodland consists of Eucalypts with 10 to 30% canopy cover and an understorey of grasses with sparse, scattered native shrubs.

The vegetation plots on and surrounding the site and within 150 metres of the site boundary are found in Figure 4 of the Bushfire Management Plan.

The deemed to satisfy tables and default fuel loads in AS3959-2018 provide a simple method to determine predicted radiant heat flux levels on sheltering areas or structures. The default fuel loads for corresponding vegetation classifications in AS3959-2018 have been used in this assessment.

8 Design Fire Modelling

This assessment determined the site specific FFDI based on the Generalised Extreme Value (GEV) modelling found in Douglas et al. (2014). The 1:200 year return period for 39 years of data from the Warmun weather station was determined as FFDI 179.

To ensure conservative values were modelled for life safety reason the FFDI of 179 was adopted in this assessment.

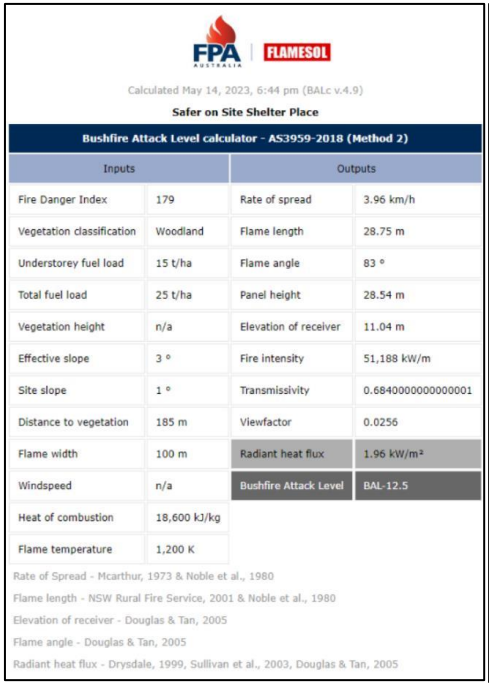
The view factor and radiant heat flux level calculations are shown below in the modelling data and in Figure 2.

A performance based solution including design fire modelling and AS3959 Method B fire modelling has been undertaken to predict these outcomes.

8.1 Manjali Studio School Design Fire modelling

Design Fire	Direction of fire run	Vegetation type	Default AS3959 Fuel Load (t/ha)		Slope (°)		Separation (m)	Flame Temp.	FDI	Elevation of receiver	Flame Width (m)	Flame length (m)	Radiant Heat Flux
			surface	overall	Effective	Site							
1	North, East & West	Class B Woodland	15	25	3	1	185m	1200K	179	11.04	100m	28.75 m	1.96 kW/m²
2	South	Class B Woodland	15	25	4	1	195 m	1200K	179	11.74m	100m	30.59 m	1.87 kW/m²

8.2 Manjali Studio School Model Calculations – Design Fires 1 and 2



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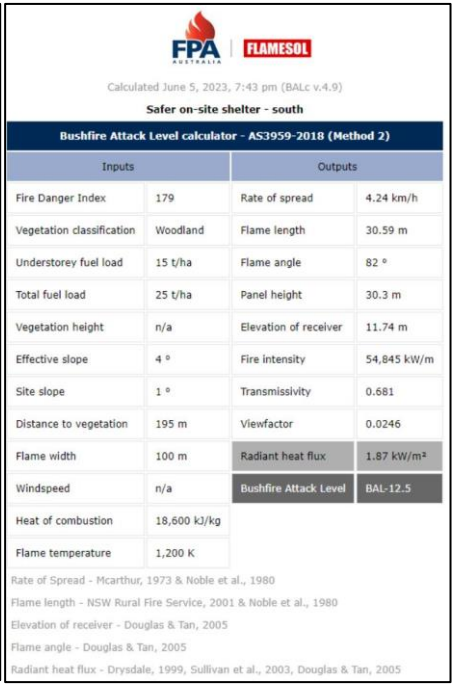
Calculated May 14, 2023, 6:44 pm (BALc v.4.9)

Safer on Site Shelter Place

Bushfire Attack Level calculator - AS3959-2018 (Method 2)

Inputs		Outputs	
Fire Danger Index	179	Rate of spread	3.96 km/h
Vegetation classification	Woodland	Flame length	28.75 m
Understorey fuel load	15 t/ha	Flame angle	83 °
Total fuel load	25 t/ha	Panel height	28.54 m
Vegetation height	n/a	Elevation of receiver	11.04 m
Effective slope	3 °	Fire intensity	51,188 kW/m
Site slope	1 °	Transmissivity	0.6840000000000001
Distance to vegetation	185 m	Viewfactor	0.0256
Flame width	100 m	Radiant heat flux	1.96 kW/m²
Windspeed	n/a	Bushfire Attack Level	BAL-12.5
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,200 K		

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980
Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980
Elevation of receiver - Douglas & Tan, 2005
Flame angle - Douglas & Tan, 2005
Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005



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Calculated June 5, 2023, 7:43 pm (BALc v.4.9)

Safer on-site shelter - south

Bushfire Attack Level calculator - AS3959-2018 (Method 2)

Inputs		Outputs	
Fire Danger Index	179	Rate of spread	4.24 km/h
Vegetation classification	Woodland	Flame length	30.59 m
Understorey fuel load	15 t/ha	Flame angle	82 °
Total fuel load	25 t/ha	Panel height	30.3 m
Vegetation height	n/a	Elevation of receiver	11.74 m
Effective slope	4 °	Fire intensity	54,845 kW/m
Site slope	1 °	Transmissivity	0.681
Distance to vegetation	195 m	Viewfactor	0.0246
Flame width	100 m	Radiant heat flux	1.87 kW/m²
Windspeed	n/a	Bushfire Attack Level	BAL-12.5
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,200 K		

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980
Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980
Elevation of receiver - Douglas & Tan, 2005
Flame angle - Douglas & Tan, 2005
Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

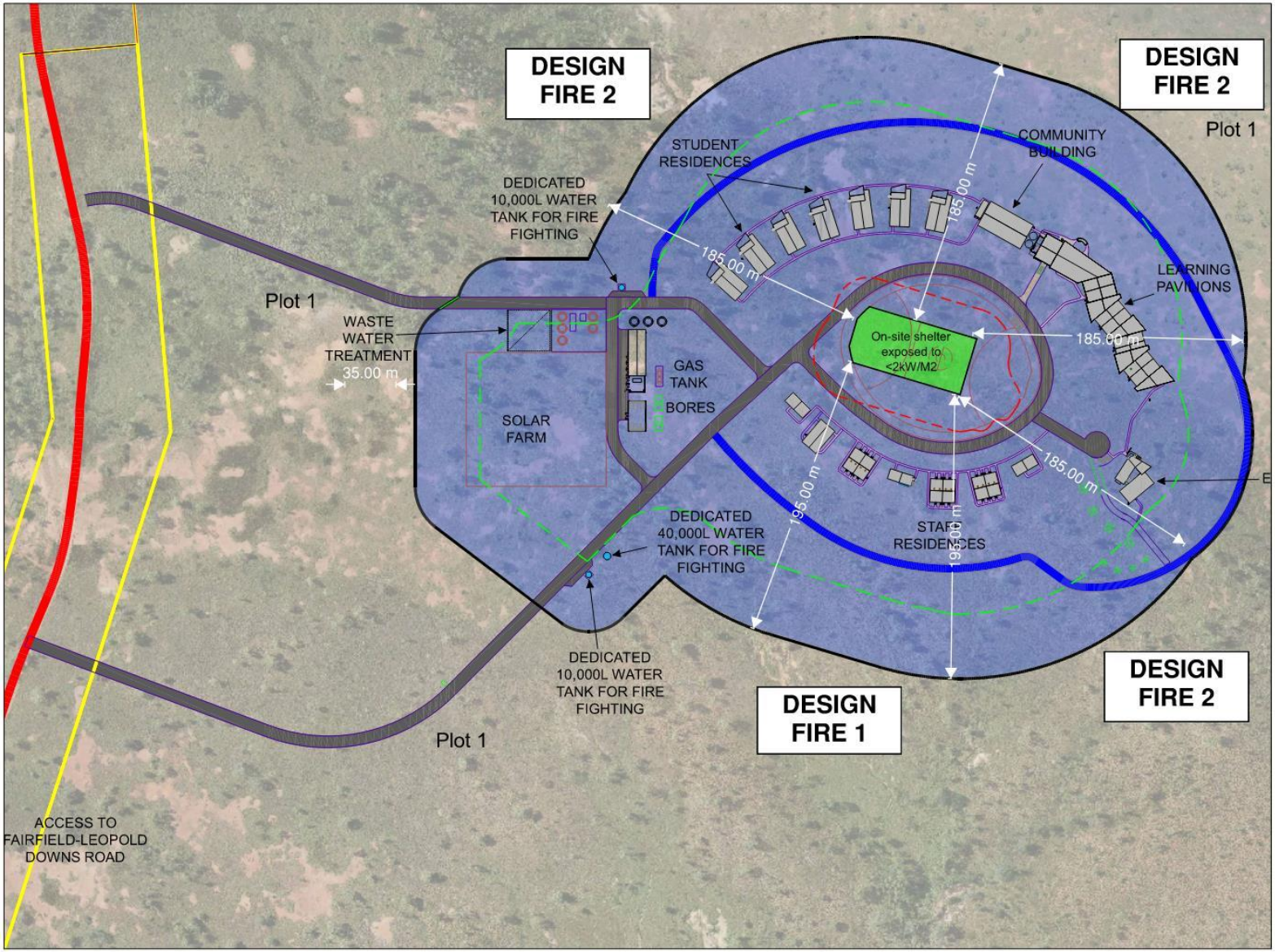

FIGURE 2:

DESIGN FIRES TO DETERMINE SAFER SHELTERING AREA

DESIGN FIRE 1

FIRE RUN - SOUTH
VEGETATION CLASSIFICATION - CLASS B WOODLAND
EFFECTIVE SLOPE - 4
SITE SLOPE - 1
FLAME TEMPERATURE - 1200k
SETBACK DISTANCE TO <2Kw/M2 - 195 METRES

DESIGN FIRE 2

FIRE RUN - WEST, NORTH AND EAST
VEGETATION CLASSIFICATION - CLASS B WOODLAND
EFFECTIVE SLOPE - 1
SITE SLOPE - 3
FLAME TEMPERATURE - 1200k
SETBACK DISTANCE TO <2Kw/M2 - 185 METRES

LEGEND:

ON SITE SHELTER < 2kW/m2 EXPOSURE

APZ ASSET PROTECTION ZONE

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Science. Culture. Solutions.
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Mbl: 0429 949 262
www.bushfiresafetyconsulting.com.au

0 20 40 60 80 100 120 140m

SCALE 1:3000 @ A3
DATE: JULY 2023

NORTH

Location details:	Fairfield-Leopold Downs Road
Assessment date:	April, 2023
Prepared by:	Bushfire Safety Consulting
Accreditation level:	Level 3 BPAD Practitioner
Accreditation number:	BPAD 23160
Accreditation expiry date:	31st January, 2024
Date aerial photo:	5th March, 2020

9 References

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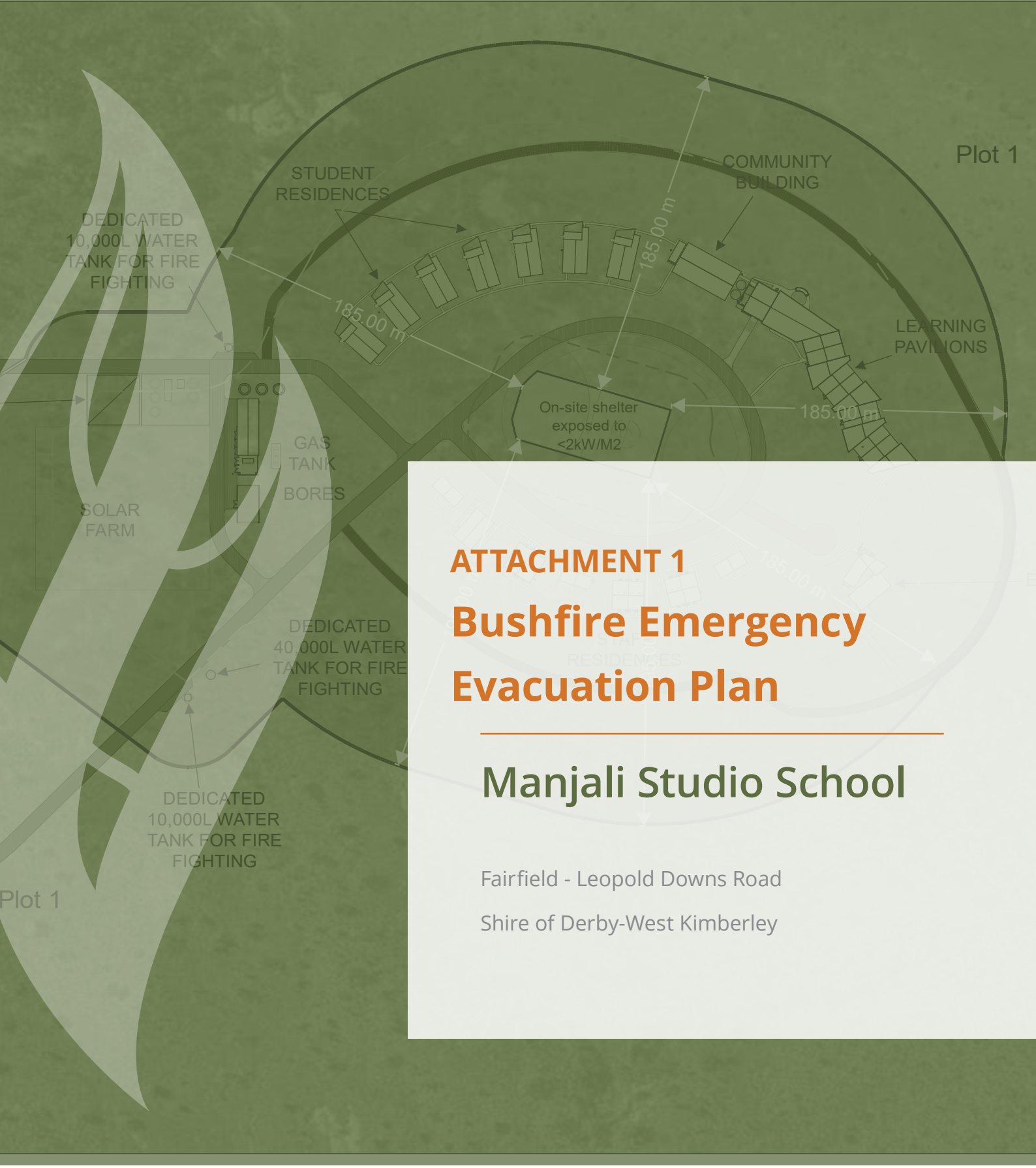
ATTACHMENTS

Attachment 1: Bushfire Emergency Evacuation Plan



ATTACHMENT 1

Bushfire Emergency Evacuation Plan

Manjali Studio School

Fairfield - Leopold Downs Road

Shire of Derby-West Kimberley

bushfiresafety CONSULTING
Science. Culture. Solutions.

Prepared For:
Studio Schools of Australia
4 July 2023
Version 1.0

bushfiresafetyconsulting.com.au

Site Details

Name of Facility		Manjali Studio School	
Address		Fairfield Leopold Downs Road	
Prepared by (Practitioner)		Rohan Carboon BPAD Level 3 – 23160 Dr Karen Brown BPAD Level 2 – 48364	
Owner/operator		Studio Schools of Australia	
Date	04/07/2023	**Plan Version**	1.0

Document Control

VERSION	DATE	DETAILS	UNDERTAKEN BY
V1	04/07/2023	Draft for inputs	Rohan Carboon BPAD Level 3 – 23160 Dr Karen Brown BPAD Level 2 – 48364

Emergency Management Team

TITLE	POSITION/ NAME	CONTACT DETAILS
Chief Warden	Principal	TBC
Deputy Chief Warden	Deputy Principal	TBC
Communications Officer	Administration Staff	TBC
Additional Wardens	Emergency Response Team Members - Zone Warden 1 (Staff) - Zone Warden 2 (Staff) - Zone Warden 3 (Staff) First Aid Officer (Qualified Staff)	 TBC TBC TBC TBC

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1. Facility Details

This plan has been designed to assist Manjali Studio School management to protect life in the event of a bushfire. It outlines procedures for both **evacuation** and **shelter-in-place** to enhance the protection of students, staff and visitors from the threat of a bushfire.

The primary action to follow in a bushfire emergency is to **Evacuate** to a safe location if it is assessed as being safe to do so.

In the event that the risk associated with evacuation is assessed as being greater than the risk of sheltering, the alternative action to follow in a bushfire emergency will be to shelter in place in the on-site Safer Location.

Name of on-site contact person	TBA
Position/ role of contact person	Chief Fire Warden/ TBA
Phone number of contact person	TBA
Type of facility	Secondary School for children in grades 7 to 9
Number of buildings	21 main buildings and various sheds.
Number of staff:	The number of staff and visitors varies depending on the number of students on site and activities that are being undertaken. Numbers could fluctuate up to a maximum of 60.
Total number of students:	Maximum capacity of 96 students
Number of people with support needs:	Children are less likely to respond appropriately to a bushfire emergency and will require assistance by responsible staff members to undertake actions to mitigate risk. The number of students, staff and/ or visitors with disabilities or medical conditions that will require additional assistance to respond to an emergency is likely to fluctuate and will need to be considered regularly.
Description of support needs	Students and visitors will need direction and advice from the Chief Warden and staff members in order to respond to a bushfire emergency. A coordinated response by school management will result in a better outcome, with decisions being centrally made with advice from DFES (if available) and a decision made about evacuation or sheltering on-site. Triggers to evacuate or stay on-site and shelter in the Safer Area is the most important risk mitigation strategy in this plan. Transport is provided within the school and is best coordinated by the Principal and Chief Warden so the movement of people off -site to the evacuation areas can be undertaken in a safe manner and avoided if the fire threat on the roads exceeds the safer response by sheltering on-site. Adequate vehicle capacity is always provided for the number of staff and students on-site.

2. Responsibilities

Table 1 - Responsibility for implementing the emergency procedures in the event of a bushfire.

Area of Responsibility	Name of Staff Member/s	Staff Position/ Identification Item	Responsibilities	Mobile Phone Number
Chief Warden	**TBC**	**School Principal White Helmet**	• Monitor the Fire Danger Rating daily and if there is a fire danger rating of Extreme ensure appropriate bushfire monitoring procedures are in place (see Table 4). • Should a bushfire be identified, shelter in place and then evaluate the need to evacuate using Bushfire Response Decision Making Process Flowchart and Poster (Appendix 1). See Table 2 for Emergency Contact numbers; • Initiate evacuation or sheltering in place procedures as required; • Advise authorities that an evacuation or shelter in place is underway, including DFES, Police, and Shire of Derby/ West Kimberley Ranger Services (see Table 2 for Emergency Contact numbers). Maintain communication with emergency services; • Consider requirements of students / guests with high needs, such as those that are less mobile or are asthmatic; • Ensure Shelter-in-place actions are implemented by Zone Wardens and available staff members if required (see Table 7.2); • Document the circumstances of the emergency, processes and outcome.	**TBC**

Deputy Warden	**TBC**	**School Principal Red Helmet**	• Assist Chief Warden. Liaise between Chief Warden, Zone Wardens and other staff members; • Ensure all buildings are cleared and locked down in event of bushfire close to the school; • Ensure all students and guests are accounted for and follow up on any missing persons; • Enact Shelter-in-place actions if required (see Table 7.2);	**TBC**
Administration Officer	**TBC**	**Administration Officers**	• Monitor the Fire Danger Rating daily and if there is a fire danger rating forecast of Extreme or Catastrophic, advise the Chief Warden; • Manage emergency communications as directed by the Chief Warden i.e., sirens, phone calls, etc., • Print Student / Guest Roll, give with emergency pack to Administration Officer; • Record all phones calls to emergency services (Fire, Police, Ambulance); • Direct all enquiries from emergency services to Chief Warden.	**TBC**

Zone Wardens	**TBC**	**Staff**	• Take and use handheld UHF radio – Channel 1; • Take direction from and carry out tasks allocated by the Chief Warden or Deputy Wardens; • Ensure all students, visitors and staff are evacuated from all rooms, toilets, storage areas, etc., and ensure everyone makes it to the assembly area; • Maintain communication with, and update Deputy Warden/s or Chief Warden with situation reports; • Provide situational information to staff, students and visitors; • Actively defend immediate surrounds if required when sheltering in place (see Table 6 for Shelter-in-place required actions); • Once emergency threat or event has passed and all clear from DFES given, unlock all buildings and facilitate return of students/guests back to rooms; • Contribute to debriefing. • Coordinate traffic flows on the school grounds during a bushfire event. • Ensure an orderly evacuation away from the site if the decision is made to evacuate the school. • Manage the access and placement of Zone Wardens and staff to co-ordinate vehicles to safely leave the school during an evacuation if required.	**TBC**
First Aid Officers	**TBC**	**Staff**	• Obtain first aid kit from office; • Evaluate any injuries or conditions requiring first aid assistance; • Administer first aid if safe to do so; • Assess if those requiring further medical assistance can be evacuated safely and coordinate if so.	**TBC**

3. Emergency Contacts

Table 2 – Emergency Contacts in the event of a bushfire.

Name or Organisation	Further Information	Contact Details
Fire, Police, Ambulance	Fire or Emergency	000
Police	Derby Police Station Fitzroy Crossing Police Station	(08) 9115 2500 (08) 9163 9555
Department of Fire & Emergency Services (DFES)	Emergency Information	13 DFES (13 33 37) and 9395 9300
EmergencyWA	Warnings and Incidents	www.emergency.wa.gov.au
Shire of Derby/ West Kimberley Ranger Services	Fire	(08) 9191 0999
Local Hospitals / Health Centres	Fitzroy Crossing Hospital (closest) Derby Hospital Broome Hospital	(08) 9166 1777 (08) 9193 3333 (08) 9194 2222
Main Roads WA	Road Conditions	13 81 38
Department of Biodiversity Conservation and Attractions (DBCA)	Bandilngan National Park	(08) 9195 5500
Yirramalay Studio School	Principal – Adele Gott Deputy Principal – Heather Brett	0473 876 102 0419 045 458

4. Preparation

The bushfire season in the Shire of Derby/ West Kimberley is usually between **June 30th through to December 31st** (or until sufficient rain has fallen) each year, but it can extend beyond this in dry years. Table 3 lists the bushfire preparedness actions that must be undertaken throughout the year, including ongoing, just prior and during the bushfire season.

Table 3 – Bushfire preparedness actions to be undertaken

Actions	Frequency	Responsible Person
Ongoing		
1. All Wardens and other staff working at the school should be informed of and trained in relation to all information contained in this document; individual roles and responsibilities; access and egress routes; assembly point location; and written shelter in place and evacuation procedures. **2.** Fire-fighting equipment and water supply infrastructure, including smoke detectors and hand-held fire hydrants, to be checked and maintained regularly according to servicing schedules. **3.** Ensure no modifications or alterations that may affect BAL ratings are made to the buildings, or structures without prior development approval and Bushfire Management Plan revision.	As required	**Chief Warden** **TBC**
To be completed just prior to the bushfire season each year (June 30th)		
1. Practice shelter in place and initial evacuation procedures, including use of communication devices, procedures and EMT Identification Items. Staff briefing should occur prior to each such drill and a debriefing should follow any drill to discuss any issues regarding the implementation of the plan. **2.** Review and revise (if required) plan annually prior to bushfire season, including Emergency Management Team members and contact details, as well as emergency contact numbers. In addition, revision of procedures should occur	Annually	**Chief Warden -** **TBC**

following any bushfire in the area and/ or after an evacuation. Ensure Evacuation Diagram is clearly displayed at reception. **3.** Ensure the Asset Protection Zone (APZ) is established and maintained according to the standards outlined in the Bushfire Management Plan, and that compliance with the Shire of Derby/ West Kimberley Fire Break Notice is achieved.		
To be completed during the bushfire season between 30th June through to 31st December		
1. Ensure that APZ is maintained to the standards outlined in the Bushfire Management Plan. Regularly remove leaf and twig materials that collect in gutters or against buildings. **2.** Ensure buildings are maintained by repairing or sealing any gaps greater than 2mm that form. **3.** Ensure monitoring for bushfires is carried out on days with Fire Danger Rating of High, Extreme OR Catastrophic in accordance with Section 5 (see Table 4).	Ongoing	**Chief Warden** **TBC**

5. Awareness and Pre-emptive Procedures

Table 4 outlines actions to be undertaken to ensure the school maintains situational awareness of a possible bushfire approaching and pre-emptive procedures. This will assist with the assessment of a bushfire situation should it occur and whether the triggers identified in the evacuation/ sheltering-in-place procedures have occurred. The Fire Danger Rating predictions for the site can be found on the Bureau of Meteorology website under the Kimberly Inland district. Appendix 2 provides more information on the Fire Danger Rating system.

Table 4 – Bushfire awareness and pre-emptive procedures to be undertaken

Actions	Predicted Fire Behaviour	Responsible Person
Days with no rating or forecast Moderate		
No specific monitoring required, but staff alert for any signs of smoke.	Fire likely to be controlled, but possibly unpredictable and hard to control if windy.	**Administration Officer Chief Warden**
Days forecast High		
No specific monitoring required, but all staff and particularly grounds staff are alert for any signs of smoke in the environment.	Hot, dry and possibly windy conditions, fire may be hard to control.	**Administration Officer Chief Warden**
Days forecast Extreme		
1. Monitor Websites every 30 minutes; **2.** Monitor ABC Radio during broadcasts at 15 minutes before and after the hour; **3.** Assess for smoke by walking around the school observing the surroundings every hour.	Very hot, dry and windy conditions, fire will be unpredictable, move very fast and be difficult for firefighters to bring under control. Spot fires will start and move quickly. Embers may come from many directions.	**Administration Officer Chief Warden**
Days forecast Catastrophic		
Pre-emptively close school the day before. Ensure all staff, students and visitors have left the site and arrived at the evacuation safe place (Fitzroy Crossing or Derby) prior to predicted Catastrophic rating.	Extremely hot, dry and windy conditions, fire will be unpredictable, move very fast and be difficult for firefighters to bring under control. Spot fires will start and move quickly. Embers may come from many directions. Buildings are generally not designed or built to withstand a fire in these conditions.	**Administration Officer Chief Warden**

6. Emergency Response

The primary action to follow with an imminent bushfire threat is to **Evacuate** to a destination away from the bushfire if it is safe to do so and sufficient vehicles are on-site to achieve this action. There is a suitable area for sheltering on site in the designated "Safer Place", located on the school oval in the centre of the school, if evacuation of the site is not safe or possible. Late evacuation is very dangerous, the threat to lives while travelling on roads is extreme during a bushfire and should never be attempted.

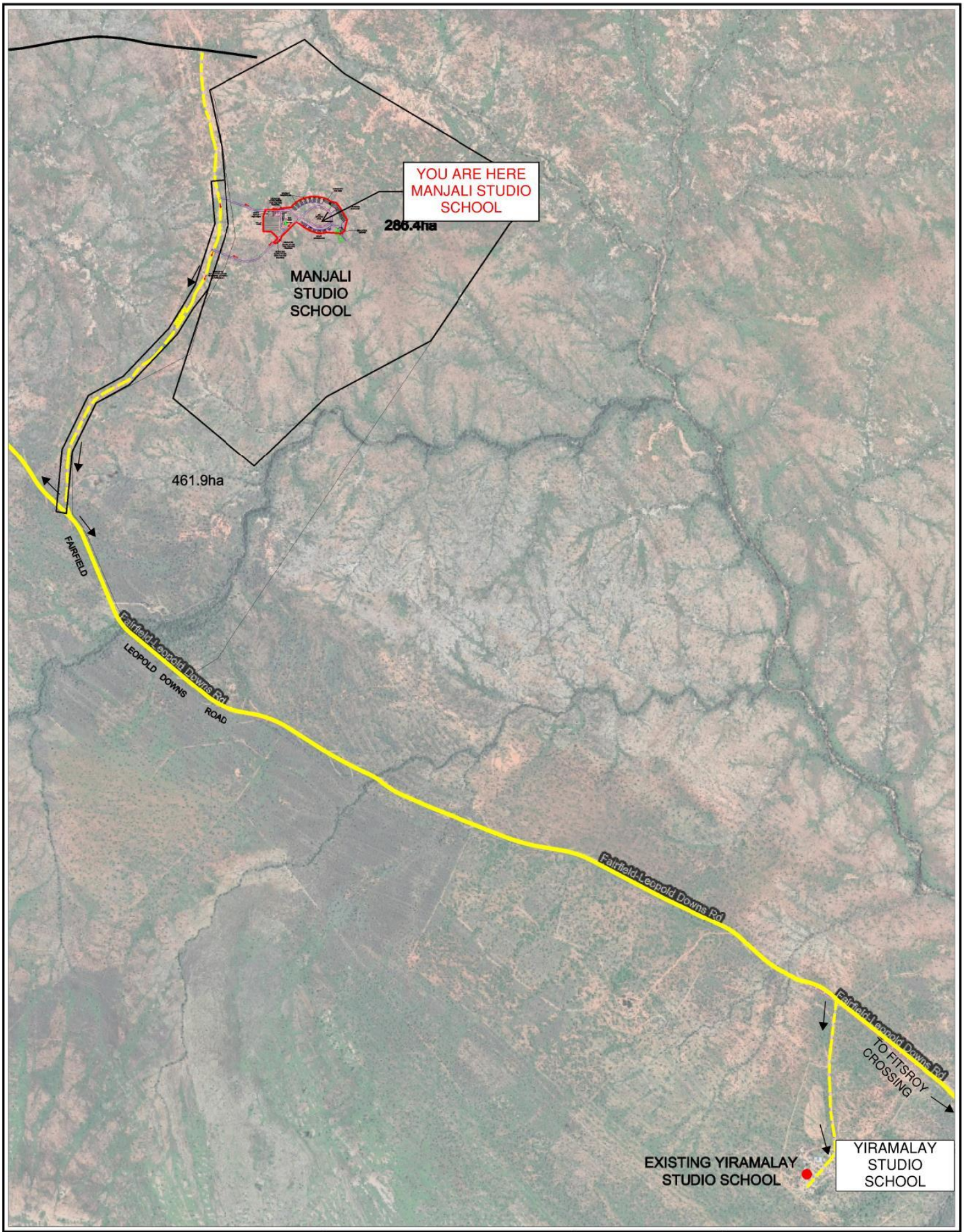
6.1 Evacuation

The key to a safe relocation and evacuation is to ensure it is undertaken well before the fire front is adjacent to the site and while evacuation routes are not threatened. Evacuation away from the site on buses and private or work vehicles can be undertaken safely if the fire front is clearly a safe distance from the school and evacuation roads are not threatened. Evacuating off site will be in buses and other private vehicles to either the nearby Yiramalay Studio School (6 kilometres south on Fairfield – Leopold Downs Road), Fitzroy Crossing or Derby townsites (see Figure 1). The Fitzroy Crossing evacuation destination is the Fitzroy Crossing Recreation Centre and in Derby the evacuation destination is the Derby Town Oval. Public roads can be hazardous because the route taken could be impacted by large landscape scale bushfires. If in doubt about the whereabouts of the fire front(s) and the safety of travelling on the roads, the internal relocation to the safer place of students, visitors and staff should be the initial response to ensure the safety and well-being of people before any evacuation off site.

Table 6 shows the procedures that should be implemented in the unlikely event that a decision to evacuate has been made.

The following are triggers for evacuation:

- Receipt of an official warning to evacuate from the emergency authorities. Details of official warning levels are provided in Appendix 3. These official warnings, however, must be assessed against the local conditions and needs of students, visitors and staff before evacuation is undertaken and therefore advise should also be sought directly from emergency services.
- When it is judged by the Chief Warden, using the tools provided in this document, that a bushfire could impact the site and evacuation is safer than to shelter in place (see Appendix 1 - Bushfire Assessment Flowchart).



Location details:	Manjali Studio School
Assessment date:	April, 2023
Prepared by:	Bushfire Safety Consulting
Accreditation level:	Level 3 BPAD Practitioner
Accreditation number:	BPAD 23160
Accreditation expiry date:	31st January, 2024
Date aerial photo:	5th March, 2020

FIGURE 1
EVACUATION ROUTES

0 100 200 300 400 500 600m
SCALE 1:15 000 @ A3
DATE: JUNE 2023

NORTH

LEGEND:
DEVELOPMENT FOOTPRINT

SOURCE OF PHOTOGRAPHY:
GOOGLE EARTH

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Mbl: 0429 949 262
www.bushfiresafetyconsulting.com.au

Table 6 – Evacuation Procedure

Action	Responsible Person/s
1. In consultation with emergency services, decide whether evacuation off site is required and a safe route for evacuating the site. Organise buses and vehicles for all students, visitors and staff;	**Chief Warden/ Principal**
2. Calmly notify all students, visitors and staff that a bushfire evacuation is underway;	**Deputy Chief Warden/ Area Wardens**
3. Collect any required documentation including students and staff details, emergency contact details, and visitors' registrations;	**Administration Officer/ Deputy Chief Warden**
4. Ensure the site is completely evacuated before the site is secured; and,	**Deputy Chief Warden/ Area Wardens**
5. Evacuate away from the threat to Fitzroy Crossing or Derby where safe to do so.	**Chief Warden**

6.2 Shelter in Place

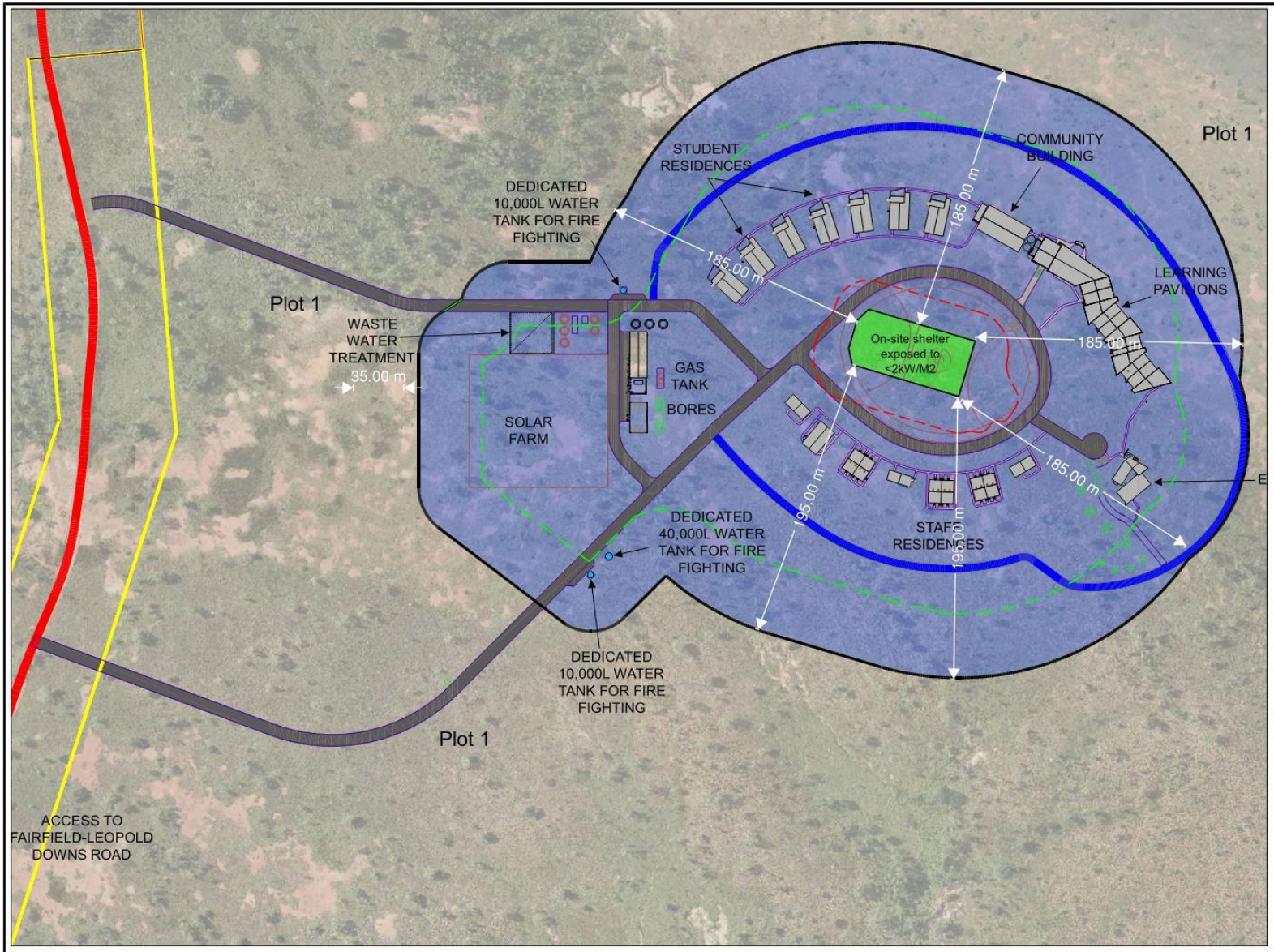
The alternative action to undertake during a bushfire emergency is to Shelter in Place. This is undertaken if the risk of evacuation is assessed as being greater than the risk of sheltering in place due to the proximity of the fire or threats to evacuation routes. The designated Bushfire Sheltering Area is the school oval in the centre of the school as shown in Figure 2. The Shelter-in-place procedures are outlined in Table 5.

The trigger to shelter-in-place is an assessment by the Chief Warden, which may involve consultation with Emergency Services, that a bushfire is likely to impact the school buildings and immediate action is required. An on-site Safer Area has been identified as suitable after a detailed fire weather analysis which is based on a 1 in 200 return fire weather event.

Design bushfire modelling has been undertaken to assess life safety potential within the school from a surrounding bushfire event. The fire model used a flame temperature of 1200^{o}K to ensure life safety for people sheltering on-site and demonstrates that the school oval in the centre of the school is exposed to radiant heat of less than 2kw/m^{2} (see Appendix 6). Relocating to the central safer place on the oval during a fire event is easily achieved as people will be moving away from the vegetation and bushfire hazard. There may be smoke experienced by people in the safer place, but the radiant heat flux levels are lowest in this area. Table 5 shows the procedures that should be implemented once the decision to shelter-in-place has been activated.

FIGURE 2:

BUSHFIRE SAFER AREA



LEGEND:

ON SITE SHELTER < 2kW/m2 EXPOSURE

APZ ASSET PROTECTION ZONE

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Mbl: 0429 949 262
www.bushfiresafetyconsulting.com.au

0 20 40 60 80 100 120 140m

SCALE 1:3000 @ A3
DATE: JULY 2023

NORTH

Location details:	Fairfield-Leopold Downs Road
Assessment date:	April, 2023
Prepared by:	Bushfire Safety Consulting
Accreditation level:	Level 3 BPAD Practitioner
Accreditation number:	BPAD 23160
Accreditation expiry date:	31st January, 2024
Date aerial photo:	5th March, 2020

Table 5 – Shelter in Place Procedure

Action	Responsible Person/s
1. If not already consulted, advise emergency authorities of the decision to shelter in place using contact numbers in Table 2 (see Appendix 4 for details to be provided to emergency services);	**Chief Warden**
2. Calmly notify staff, students and visitors of the decision to shelter in place. All guests and staff to assemble at Safer Place on the school oval in the centre of the school (see Figure 1);	**Deputy Chief Warden/ Area Wardens**
3. Ensure that all visitors, students and staff have moved to the safer area and are accounted for;	**Deputy Chief Warden/ Area Wardens**
4. Be prepared when sheltering to experience smoke, heat and embers. Ensure P2 smoke masks are available for everyone.	**All Staff Members**
5. Keep alert for any embers that could start fires in buildings or immediate garden areas surrounding the Safer Place. Extinguish embers using fire extinguishers under the direction of the Chief Fire Warden. Alert authorities if any local ember fire cannot be extinguished;	**All Staff Members**
6. Monitor student and visitors' wellbeing and respond as appropriate. Ensure water is available and everyone is well hydrated and as cool as possible.	**All Staff Members**
7. Stay in the Bushfire Safer Area until advised by DFES or Police that the fire is no longer a threat or until evacuated off-site with assistance from Emergency Services.	**Chief Warden**

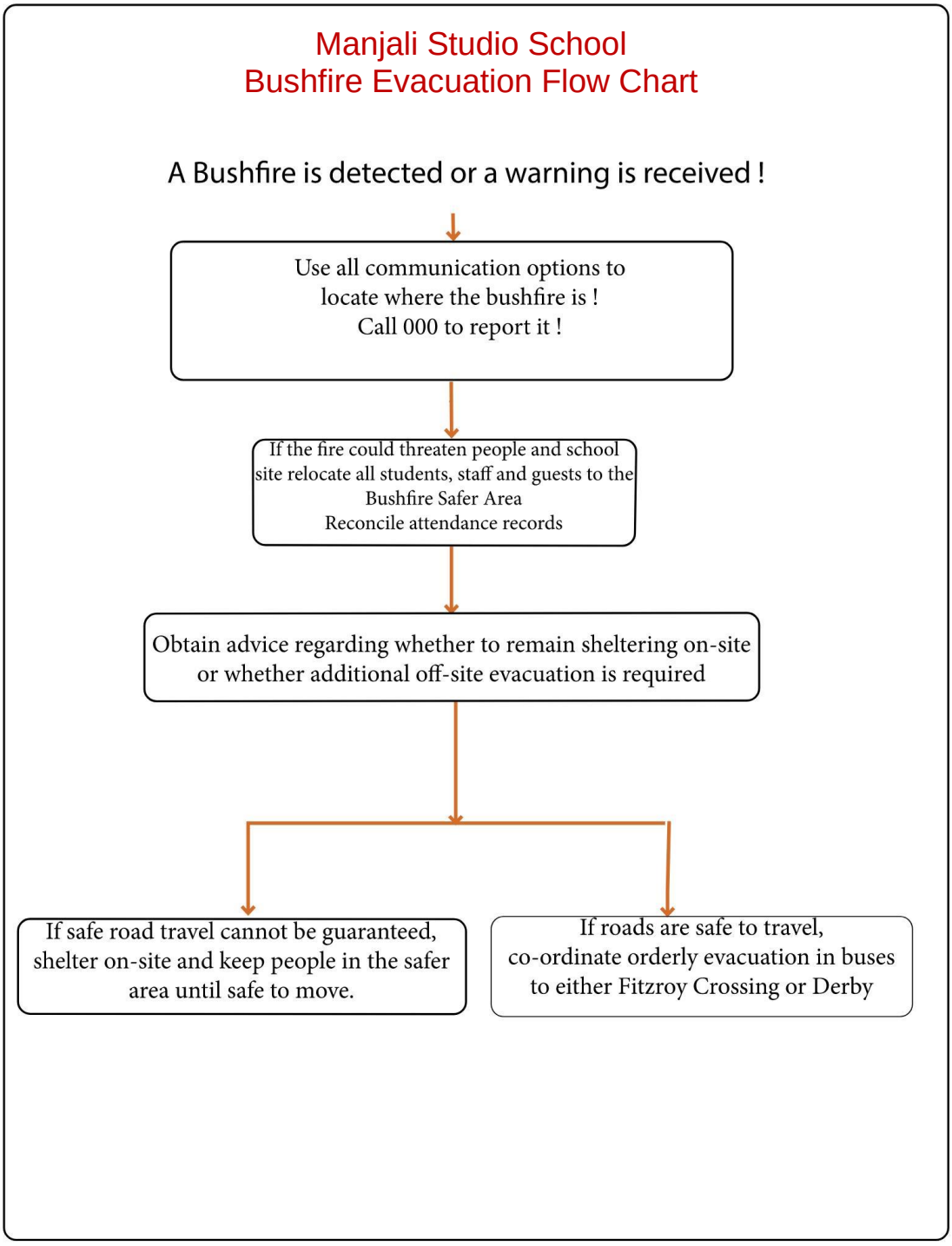
7. Recovery

When notified of all clear by Emergency Services, assess if there is any damage to the school buildings and facilities. Do not resume use of the site buildings and grounds until it has been determined that it is safe to do so. Continue to monitor the buildings and grounds for any sign of fire for up to 48 hours after the bushfire incident. A review of this Bushfire Emergency Evacuation Plan, including the response of the staff, students and visitors, should be undertaken following any bushfire in the area and/or after an evacuation.

APPENDICES

Appendix 1: Bushfire Response Decision Making Flowchart
Appendix 2: Fire Danger Ratings and their Meanings
Appendix 3: Details of Fire Warning Levels
Appendix 4: Shelter in Place - Details to be provided to Emergency Authorities

Appendix 1 – Bushfire Evacuation Flowchart



Appendix 2 – Fire Danger Ratings and their Meanings

Australian Fire Danger Rating System

FIRE DANGER RATINGS

Fire danger ratings are used on days when there's a risk of fires and you need to take action. The higher the fire danger, the more dangerous the conditions and the greater the consequences if a fire starts.

If you're in an area near bush or grasslands, you're in a bush fire risk area. Identify a safer location. A safer location may include an area well away from bushland. If you're in a remote area, consider going to a built up area that may offer safety.

Fire Danger	MODERATE	HIGH	EXTREME	CATASTROPHIC
Key Message	**Plan and prepare.**	**Be ready to act.**	**Take action now** to protect your life and property.	For your survival, **leave bushfire risk areas.**
Fire Behaviour	Most fires can be controlled.	Fires can be dangerous.	Fires will spread quickly and be extremely dangerous.	If a fire starts and takes hold, lives are likely to be lost.
Supporting Messages	• Stay up to date and be ready to act if there is a fire.	• There's a heightened risk. Be alert for fires in your area. • Decide what you will do if a fire starts. • If a fire starts, your life and property may be at risk. The safest option is to avoid bushfire risk areas.	• These are dangerous fire conditions. • Check your bushfire plan and ensure that your property is fire ready. • If a fire starts, take immediate action. If you and your property are not prepared to the highest level, go to a safer location well before the fire impacts. • Reconsider travel through bushfire risk areas.	• These are the most dangerous conditions for a fire. • Your life may depend on the decisions you make, even before there is a fire. • Stay safe by going to a safer location early in the morning or the night before. • Homes cannot withstand fires in these conditions. You may not be able to leave, and help may not be available.
Monitor conditions and official sources for warnings. Adhere to local regulations governing fire activity. Ensure any industrial or agricultural activities adhere to relevant industry guidelines. If a fire starts near you, take action immediately to protect your life. Do not wait for a warning.				

AFDRS Community Messaging Framework – June 2022 – 1

Appendix 3: Details of Fire Warning Levels

An **ADVICE** provides information that a fire has started but there is no immediate danger, this is general information to keep people informed and up to date with developments. **An Advice warning is a trigger to assess where the fire is and its potential threat level.**

A **WATCH AND ACT:** A fire is approaching and there is a possible threat to lives or homes. Put your plan into action. If your plan is to leave, make sure you leave early. If your plan is to stay, check all your equipment is ready. Only stay and defend if you are mentally and physically prepared.

An **EMERGENCY WARNING:** An out-of-control fire is approaching fast and you need to take immediate action to survive. If you aren't, it is too late. You must seek shelter or leave now if it is safe to do so. The message may start with a siren called a Standard Emergency Warning Signal.

Appendix 4: Shelter in Place - Details to be provided to emergency authorities

The following information should be provided to the emergency authorities if a decision is made to shelter in place:

1. Nature of the emergency

    a. Immediacy – Can the bushfire be seen/distance from site
    b. Evidence of ember attack
    c. Evidence of spot fires

2. Details of individuals sheltering:

    a. Number
    b. Condition/ state
    c. Special needs

3. Location

    a. Address
    b. Nearest cross-roads
    c. Exact location of shelter
    d. Entry point to shelter

APPENDIX E SCHOOL SITE OPERATIONS PLAN

Studio Schools of Australia

Manjali Studio School – Wet Season Operations

Introduction

The Studio Schools of Australia (SSA) model for indigenous education is delivered in an on-country residential format so as to engage with the local indigenous community and to minimise the dislocation felt by students living outside the family home.

School sites are necessarily in remote locations, and SSA has demonstrated its ability to manage the resulting issues, particularly over the wet season, over the ten years of operation of the Yiramalay Studio School (YSS).

This report addresses the protocols that will be put in place to manage wet-season issues at the proposed Manjali Studio School (MSS).

Issues that will be addressed are as follows:

a. Flood risk
b. Bushfire Risk
c. Residential population during the wet season
d. Routine medical care
e. Emergency medical care
f. Food supply
g. Water supply
h. Power supply
i. Fuel supply
j. Waste water disposal
k. Organic solid waste disposal
l. Inorganic solid waste disposal

Flood Risk

MSS is located away from major rivers. It is located between Cadjebutt Creek and Kurrajong Creek. SSA has carried out comprehensive flood modelling to assess the risk to the school from river flooding during the wet season.

The outcome of this analysis is that all proposed school infrastructure is approximately 13.5 m above the maximum flood extent in a 0.2% AEP flood event and 13.9 m above the maximum flood extent in a 1% AEP flood event. As a result, there is no flood risk to the site infrastructure.

However, nearby roads would be cut at even lower intensity events, though local experience is that this is generally for only a few days. The following sections describe how the school will manage periods of isolation.

Bushfire Management Strategy

MSS is located in the declared Bushfire Prone Area of WA and a large Asset Protection Zone is can be established around school buildings, by treating mostly under-storey vegetation and grass fuels.

A Bushfire Management & Emergency Evacuation Plan (BMEEP) has been developed. Ongoing management activities include;

- Annual review of the Bushfire Mangement & Emergency Evacuation Plan
- Maintenance of the Asset Protection Zone to the standards required by the BMEEP
- Maintain compliance with the Shire of Derby/West Kimberley Fire Breaks and Fuel Hazard Reduction Notice

Residential population during the wet season

The residential population of the school will vary over the year.

During school terms the maximum number of enrolments will be 78 students. The students will be supported by up to 40 teaching, support, and facility management staff. In addition, there may be up to 20 visiting "induction" students, who may be visitors from city schools or prospective future residential students.

Inductions are held over several three-week periods of the year, and dates for these induction programs will be chosen to avoid the wet season periods.

As school term holidays co-incide with the highest risk periods of the wet season, during this period both student and staff numbers at the school will be at their minimum. From early December to early February it is planned that there will be zero students and approximately five staff at the school.

Flood risk mitigations, such as flood warning and evacuation plan based on river water level monitoring, form part of the site emergency processes to ensure that the residual flood risk can be managed and the occupants of MSS can be safe during a flood emergency.

Routine medical care

As part of our health and safety protocols MSS will have a trained nurse or a qualified first-aid officer in attendance at the school at all times. The school will carry its own supply of non-prescription drugs and epi-pens and parental permissions for administration of these will be appropriately managed.

Emergency medical care

Emergency medical care is available through the hospitals at Fitzroy Crossing, Derby, and Broome and the support of the Royal Flying Doctors Service.

During the short periods when the roads are cut due to floodwaters, helicopter transport is available to all three of these hospitals. Should evacuation to a major hospital be required, a patient may be transferred by helicopter to meet the Royal Flying Doctor Service at the airport at Fitzroy Crossing.

A safe helicopter landing area will be provided on the schools football oval.

In addition, the airstrip at nearby Leopold Downs Station (approx. 3.5km drive from Yiramalay) is generally available for use by agreement with the station management.

Food supply

Normal food supply deliveries will be weekly through the year. The reduced residential population during the wet season means that a normal food delivery will last several weeks. In addition, it has been normal operating protocol at YSS to stock up with non-perishable food options prior to the wet season, to lengthen the period of resilience over food delivery disruption.

Water supply

MSS will manage its own water supply, using a system of bores to supply general water and rainwater tanks (with appropriate treatment) to supply potable water. Water supply is not considered to be a problem during the wet season.

Power supply

Primary power will be provided from an appropriately sized solar farm with banks of batteries backed up by a diesel generator. This combination will ensure continuity of power during the wet season.

Fuel supply

The diesel generator and light vehicles will be supplied from a fuel tank on site. As has been the case at YSS, the operations team will ensure that the diesel fuel tank is full at the commencement of the wet season and that will supply approximately 16 weeks of operations.

Liquid waste disposal

MSS will install a self-contained multi-phase onsite waste water treatment plant which will not be affected by flooding.

Organic solid waste disposal

For normal oprations the school will separate and compost all organic waste. The resulting nutrient-rich fertilizer will be used on landscaping and gardens.

Inorganic solid waste disposal

MSS will install an on-site transfer station for all inorganic solid waste. Large waste skips will be appropriately sized to cope with the expected inorganic solid waste over the wet season. These will be collected by an independent waste collection contractor once roads are open after the wet.

Summary

Through operating YSS since 2010, SSA understands the challenges presented by the operation of a boarding school in a remote location. We commit to putting in place the staff, equipment, processes and procedures to safely manage the flooding and isolation risk so that we can achieve our objective of delivering quality on-country education to the children of the Kimberley Region.

APPENDIX F WASTE WATER MEMO

Memo

To:	Lyons Architecture
From:	Mario Maddalozzo
Subject:	**Wastewater Treatment Plant at Manjali Studio School**
Our ref:	PS132563-HYD-Manjali Studio School-0001 Rev B
Date:	**23 May 2023**

This Memo has been assembled to provide a high-level overview of the proposed wastewater treatment system to be installed at the new Manjali Studio School being constructed in northern WA.

A drainage network will be provided to all buildings across the school site. It will comprise a network of gravity drainage pipework with several in ground sewer pump station where it will pumped to a containerised packaged wastewater treatment plant with additional above ground buffer tanks located to the West of the site adjacent to the services compound area.

The gravity drainage network will collect the sewer which will discharge to an in ground sewer pump station with a minimum 2 day emergency storage tank where it will be lift pumped up into the treatment system.

The sewer treatment system will treat the sewer / effluent to Class B grade where the treated water can be utilised for surface irrigation within a stock proof fence.

The treatment system will comprise:

- Above ground buffer tanks
- The containerised, packaged treatment plant;
- Above ground treated effluent storage tanks, irrigation break tank and pump system.

To ensure the treated effluent can be Class B water the treatment plant will automatically perform a combination of anoxic/aerobic biological suspended growth treatment processes.

This effluent as Class B water can then be utilised for irrigation on a selected area fenced with a stock proof fence with appropriate signage “Effluent Disposal Area” using above ground sprinklers. The irrigation pumps controller will be configured with float switches within the treated water storage tanks and will pump the treated water to the irrigation zones as required.

The system would be fully automated and linked back to the manufacturer monitoring facilities via 3G/4G LTE. This would enable remote alarm viewing and diagnostics.

Technical data for the proposed system is appended to this memo, for further information.

Mario Maddalozzo
Associate Director - Project Manager

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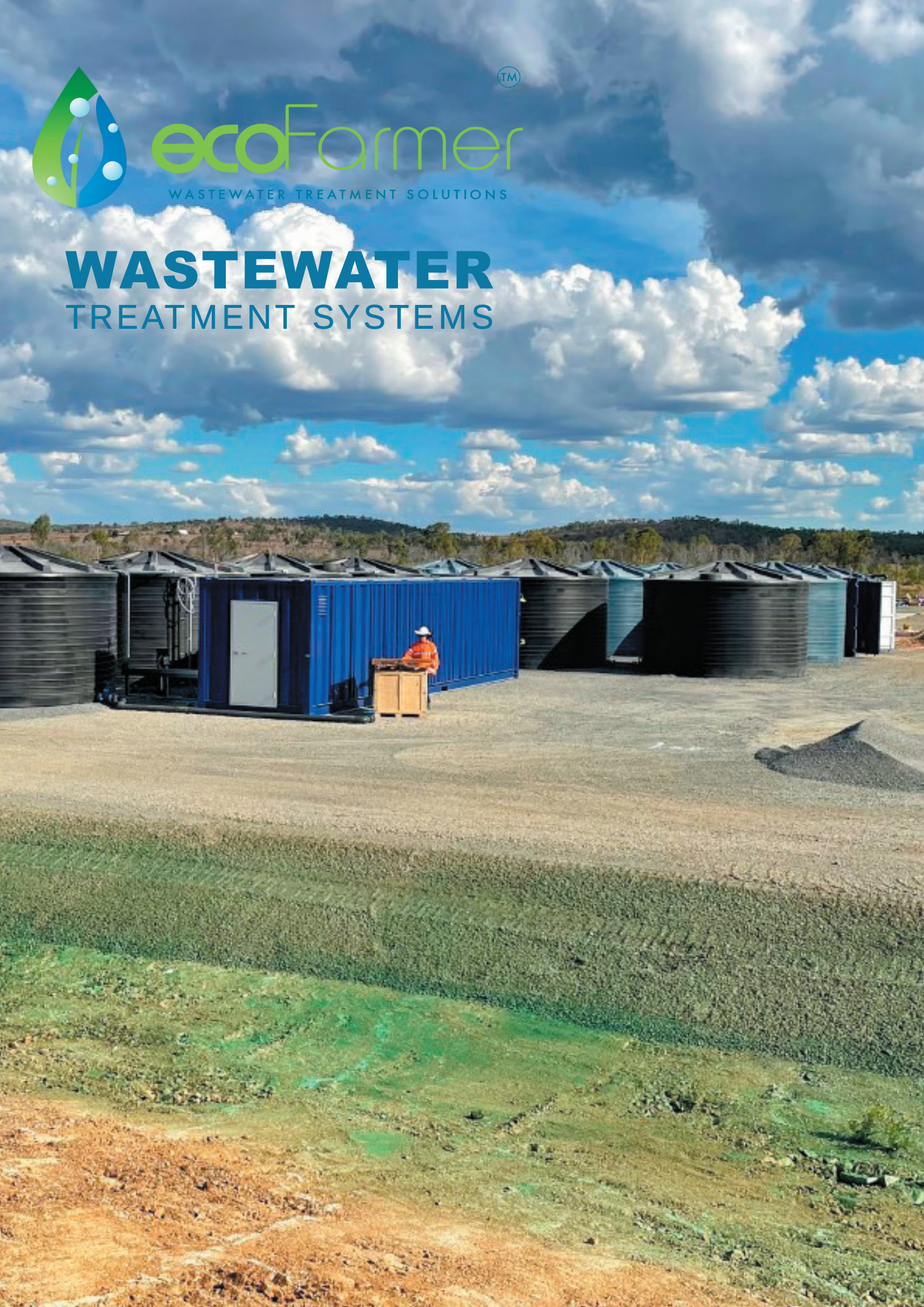
ecoFarmer™

WASTEWATER TREATMENT SOLUTIONS

WASTEWATER
TREATMENT SYSTEMS



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WASTEWATER TREATMENT SOLUTIONS

THE **TRUSTED NAME** IN BIOLOGICAL SBR AND MBR WASTEWATER TREATMENT DESIGN.

After working on numerous projects in remote locations around Australia, we noticed a gap in the wastewater treatment industry. What our clients needed was a high quality, turn-key waste water treatment solution that could be seamlessly transported to even the most isolated destinations. As Australia's trusted wastewater treatment solution providers, we went to the drawing board to create an ideal range of systems.

Introducing the EcoFarmer series - The containerised, 'PLUG AND PLAY' wastewater treatment plants are designed for rapid deployment, providing ongoing wastewater treatment solution whilst also maintaining environmental site compliance.

Each system is designed and built to cater beyond the unique needs of our valued clients, based in remote working camps across Australia and the Pacific. The EcoFarmer provides a cost-effective wastewater treatment solution, catering to the mining, gas and oil, disaster relief, defence and construction industries.

Utilising a durable and robust modular platform, the EcoFarmer includes a comprehensive 20 year structural guarantee, ensuring the long-term asset protection of your wastewater treatment investment.

The EcoFarmer is available in two standard sizes, 50 or 250, however multiple modular designs provide the perfect solution catering for larger permanent camp facilities. Our systems have been tried and tested throughout Australia and exceed the expectations of all state and territory legislation.

SEAMLESS TRANSPORTATION

The EcoFarmer is optimised for **seamless transportation** by any rail, shipping or freight service. This is a result of the external design of the containerized unit to ensure the system is ideally transportable to **regional and isolated destinations**, where deployment is often difficult.

RAPID CONNECTION

The EcoFarmer has been designed to ensure **rapid commissioning on-site.** Simply connect to power via an electrical plug of your choice and connect to water input and output by way of camlocks, or a customised hosing solution.

ecoFarmer

WASTE WATER TREATMENT PLANTS ARE AS SOLID AS A ROCK

TURNKEY
solution

ROBUST HATCH

EASY TRANSPORTATION
with ISO high cube design

ENGINEERED + CERTIFIED
design

HMI PLC
Control System

BIOLOGICAL TREATMENT
approved by legislation

MODULAR DESIGN
allows flexibility to expand

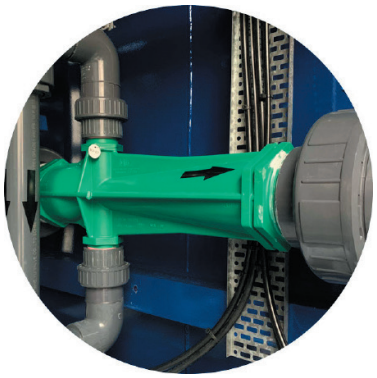
SOLID CONSTRUCTION
6mm gauge walls + floor

FEATURES

ISO container design allows seamless transportability

Interconnection provisional flanges for rapid set-up

Robust steel construction to exceed Australian standards and harsh environmental conditions

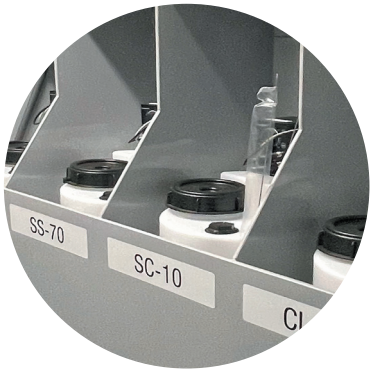


Proprietary air injection and mixed phase

Premium quality fittings and instrumentation

Grundfos wastewater handling pump

External mixer aerator pump combination



Durable chemical bunding to ensure the utmost safety

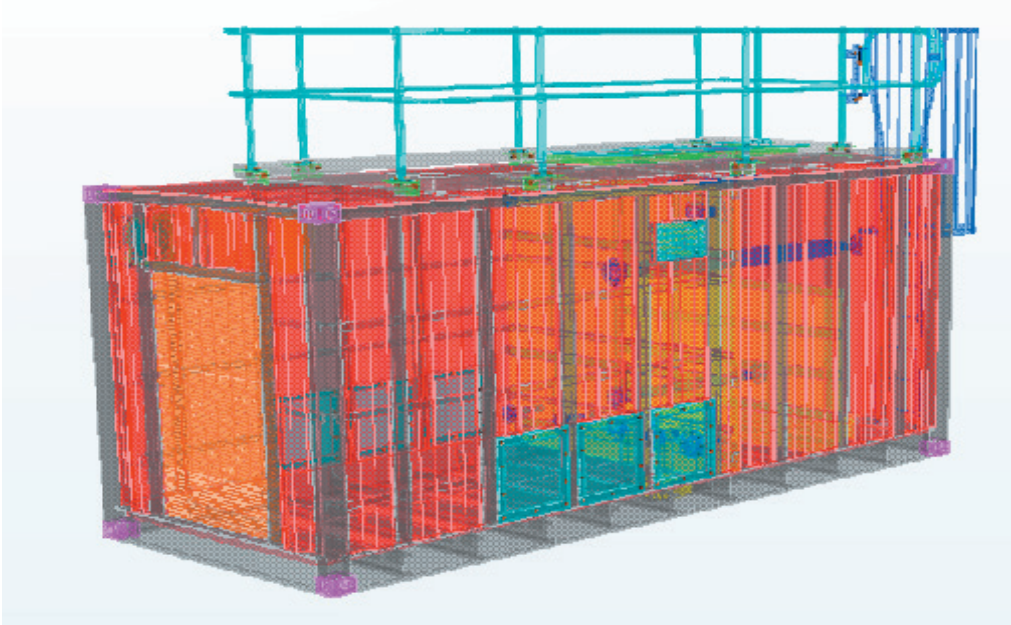
Fully automated control with Allen-Bradley HMI PLC

OVERVIEW
DESIGN

Model	Treated Capacity (per day)	Estimated Persons	Treated Effluent	Footprint L x W x H (m)	Weight (kg)
ECO50	2-10m^3	15-50	A, B, C	6 x 2.4 x 2.8	6,907
ECO250	10-50m^3	50-280	A, B, C	12 x 2.4 x 2.8	11,000

Final Effluent Parameters	Class C	Class B	Class A	Enhanced Nutrient Removal (ENR)
Total suspended solids TSS	30	30	10	< 5
BOD	20	20	5	< 5
E.coli without coliforms	1000	150	10	< 10
Total chlorine	NA	0.5 - 1.5	0.5 - 1.5	0.5 - 1.5
pH	7.5 - 8	7.5 - 8	7.5 - 8	7.5 - 8
Conductivity	1600	1600	1600	1600
Total Nitrogen	60	20	20	< 5
Total Phosphorus	10	10	10	< 5
Turbidity	NA	NA	< 2	< 2

ENGINEERING MODELLING
SOFTWARE USED FOR
STRUCTURAL DESIGN



OVERVIEW
DESIGN

Key Features	*ECO Series*
Engineering	Process and structural third party RPEQ certification
Roof Design	6mm plate steel with pitched roof
Floor Design	6mm plate steel
Wall Design	6mm formed pressed steel plate with external RHS vertical strengthening support
Paint Specification	External – Paint in Royal blue semi gloss enamel coating, sandblasted to SA 2 and primed prior to coating Internal – Paint light grey matt finish epoxy marine coating, sandblasted to SA 2 and primed prior to coating
Holiday Spark Testing	Spark testing procedure is performed to test painted surface
Hatches	6mm aluminium pressed and folded lids for weight saving and corrosion resistance, grab handle and locking point with simplistic hinge design
Piping	Steel pipe spools for container penetration, Grey UPVC sch 80 pipe work
Standards	Built to the electrical AS3000 and plumbing AS3500 standards
Electrical	Quality and brand leading hardware, stainless steel electrical switch board
Interface	Allen Bradley HMI and PLC system, coding software completed within RWTS automation experts
Flow monitoring	Full bore mag flow fluid meters measuring raw water in and treated water out to dispersal field
Pumping	Stenner hose pumps controlled through our automation platform for precise dosing
Level Control	Level transmitting instruments for tank capacity
Pressure Instruments	Pressure transducers for monitoring and display
Chemistry	Alkalinity and carbon offset support

Optional Features	*ECO Series*
Communication	Full remote telemetry access
SMS	SMS dialler functionality for plant fault
Instrumentation	High level instrumentation package available
Disinfection	Recirculated chlorine monitoring and dosing system
Filtration	Glass media and or ultrafiltration back-end polishing packages
Handrail system	Powder coated safety yellow. Lightweight aluminium top, mid and kick rail compliant to AS1657

MANUFACTURING **OPERATIONS**

The EcoFarmer is not your ordinary containerised wastewater treatment system. Engineered to last a lifetime and certified to exceed quality, environmental and safety standards, these systems are built from the ground up using the highest calibre steel construction to guarantee durability.

All EcoFarmers are manufactured in accordance with certified procedures and processes. The tanks are manufactured at a state-of-the-art production facility in Brisbane which feature a wide array of modern manufacturing equipment including:

- Laser and Plasma Cutting Machines
- CNC Lathes
- Cutting / Milling and Turning Equipment
- Dedicated blasting and painting booths providing a quality industrial finish.

Our integration of the production and assembly operations provides our valued clients with a far superior wastewater solution.

ISO 9001 certified Equal Assurance

ISO 14001 certified Equal Assurance

ISO 45001 certified Equal Assurance

THINK GREEN - THINK ECOFARMER

A number of green physical and chemical processes are employed to clean and remediate the environment without generating hazardous substances or toxic by our products.

HIRE

For a **flexible** and i**mmediate solution**, our EcoFarmer range is available for hire. Ensure **consistent, reliable operation** and optimal performance without the significant upfront investment.

Get in touch to discuss a tailored rental approach today.

20 YEAR STRUCTURAL GUARANTEE

We build our systems to last, even in the harshest remote locations. That's why Ecofarmer Australia offers a 20-year structural guarantee on all EcoFarmers. Choose guaranteed durability to reap the long-term benefits of your investment.

RWTS REMOTE WATER TREATMENT SERVICES

ecoFarmer WASTEWATER TREATMENT SOLUTIONS

ecoFarmer™ WASTEWATER TREATMENT SOLUTIONS

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APPENDIX G ARCHITECTURE PLANS

MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DEVELOPMENT APPLICATION

BSS DEVELOPMENT APPLICATION

DRAWING PREFIX	BUILDING	SHEET NUMBER	SERIES	SHEET NAME	Current Revision
BSS DEVELOPMENT APPLICATION					
KSS	BSS DEVELOPMENT APPLICATION	DA-00-00-01	AR-00-000 DRAWING REGISTER	ARCHITECTURAL DRAWING REGISTER	3
KSS	BSS DEVELOPMENT APPLICATION	DA-00-05-01	AR-00-050 3D IMAGES	EXTERIOR VIEW	2
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-01	AR-00-100 SITE DEVELOPMENT	SITE CONTEXT PLAN EXISTING	3
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-02	AR-00-100 SITE DEVELOPMENT	SITE CONTEXT PLAN PROPOSED	3
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-03	AR-00-100 SITE DEVELOPMENT	SITE PLAN EXISTING	2
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-04	AR-00-100 SITE DEVELOPMENT	SITE PLAN PROPOSED	3
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-05	AR-00-100 SITE DEVELOPMENT	ZONE PLAN LV1 STAFF RESIDENTIAL A	2
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-06	AR-00-100 SITE DEVELOPMENT	ZONE PLAN LV1 STAFF RESIDENTIAL B	2
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-07	AR-00-100 SITE DEVELOPMENT	ZONE PLAN LV1 STUDENT RESIDENTIAL	2
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-08	AR-00-100 SITE DEVELOPMENT	ZONE PLAN LV1 COMMUNITY LEARNING	2
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-09	AR-00-100 SITE DEVELOPMENT	ZONE PLAN LV1 IERC	2
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-10	AR-00-100 SITE DEVELOPMENT	ZONE PLAN LV1 SERVICES	3
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-11	AR-00-100 SITE DEVELOPMENT	SITE WIDE CONTEXT ELEVATIONS	2
KSS	BSS DEVELOPMENT APPLICATION	DA-00-10-12	AR-00-100 SITE DEVELOPMENT	BUILDING TYPES	2
KSS	BSS DEVELOPMENT APPLICATION	DA-01-31-01	AR-31-000 GENERAL ARRANGEMENT PLANS	LEARNING PAVILION 1 (Y7+8)	2
KSS	BSS DEVELOPMENT APPLICATION	DA-01-31-02	AR-31-000 GENERAL ARRANGEMENT PLANS	LEARNING PAVILION 2 (WET)	2
KSS	BSS DEVELOPMENT APPLICATION	DA-01-31-03	AR-31-000 GENERAL ARRANGEMENT PLANS	LEARNING PAVILION 3 (DRY+Y9)	2
KSS	BSS DEVELOPMENT APPLICATION	DA-02-31-01	AR-31-000 GENERAL ARRANGEMENT PLANS	COMMUNITY BUILDING PLAN	2
KSS	BSS DEVELOPMENT APPLICATION	DA-02-31-02	AR-31-000 GENERAL ARRANGEMENT PLANS	COMMUNITY BUILDING ELEVATIONS	2
KSS	BSS DEVELOPMENT APPLICATION	DA-03-31-01	AR-31-000 GENERAL ARRANGEMENT PLANS	ARRIVAL BUILDING	2
KSS	BSS DEVELOPMENT APPLICATION	DA-04-31-01	AR-31-000 GENERAL ARRANGEMENT PLANS	COMMUNITY RESIDENCE (STUDENT)	2
KSS	BSS DEVELOPMENT APPLICATION	DA-04-31-02	AR-31-000 GENERAL ARRANGEMENT PLANS	COMMUNITY RESIDENCE (STAFF)	2
KSS	BSS DEVELOPMENT APPLICATION	DA-05-31-01	AR-31-000 GENERAL ARRANGEMENT PLANS	STAFF RESIDENCE - UNIT	2
KSS	BSS DEVELOPMENT APPLICATION	DA-06-31-01	AR-31-000 GENERAL ARRANGEMENT PLANS	STAFF RESIDENCE - SINGLE HOUSE	2
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KSS	BSS DEVELOPMENT APPLICATION	DA-08-31-01	AR-31-000 GENERAL ARRANGEMENT PLANS	STAFF COMMON LOUNGE	2
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KSS	BSS DEVELOPMENT APPLICATION	DA-15-31-01	AR-31-000 GENERAL ARRANGEMENT PLANS	INDIGENOUS EDUCATION AND RESEARCH CENTRE PLAN	2
KSS	BSS DEVELOPMENT APPLICATION	DA-15-31-02	AR-31-000 GENERAL ARRANGEMENT PLANS	INDIGENOUS EDUCATION AND RESEARCH CENTRE ELEVATIONS	1

Grand total: 31

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REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023
3	DEVELOPMENT APPLICATION	11.07.2023

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lyons@lyonsarch.com.au
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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

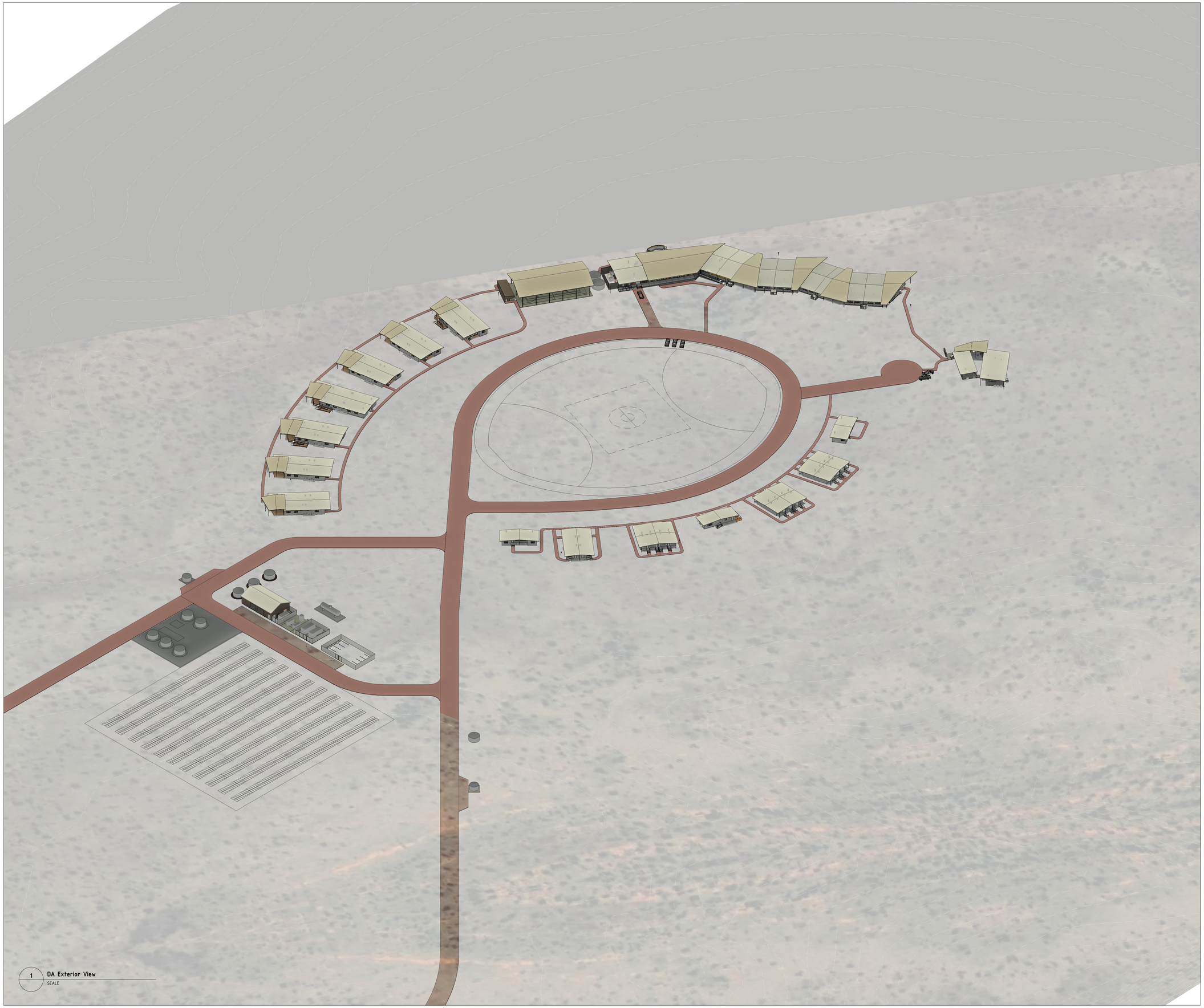
DRAWING TITLE
ARCHITECTURAL DRAWING REGISTER

SCALE
@A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	11.07.2023

DRAWING No.
KSS-DA-00-00-01

REVISION
3



1 DA Exterior View
SCALE

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PROJECT

MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE

EXTERIOR VIEW

SCALE @A1

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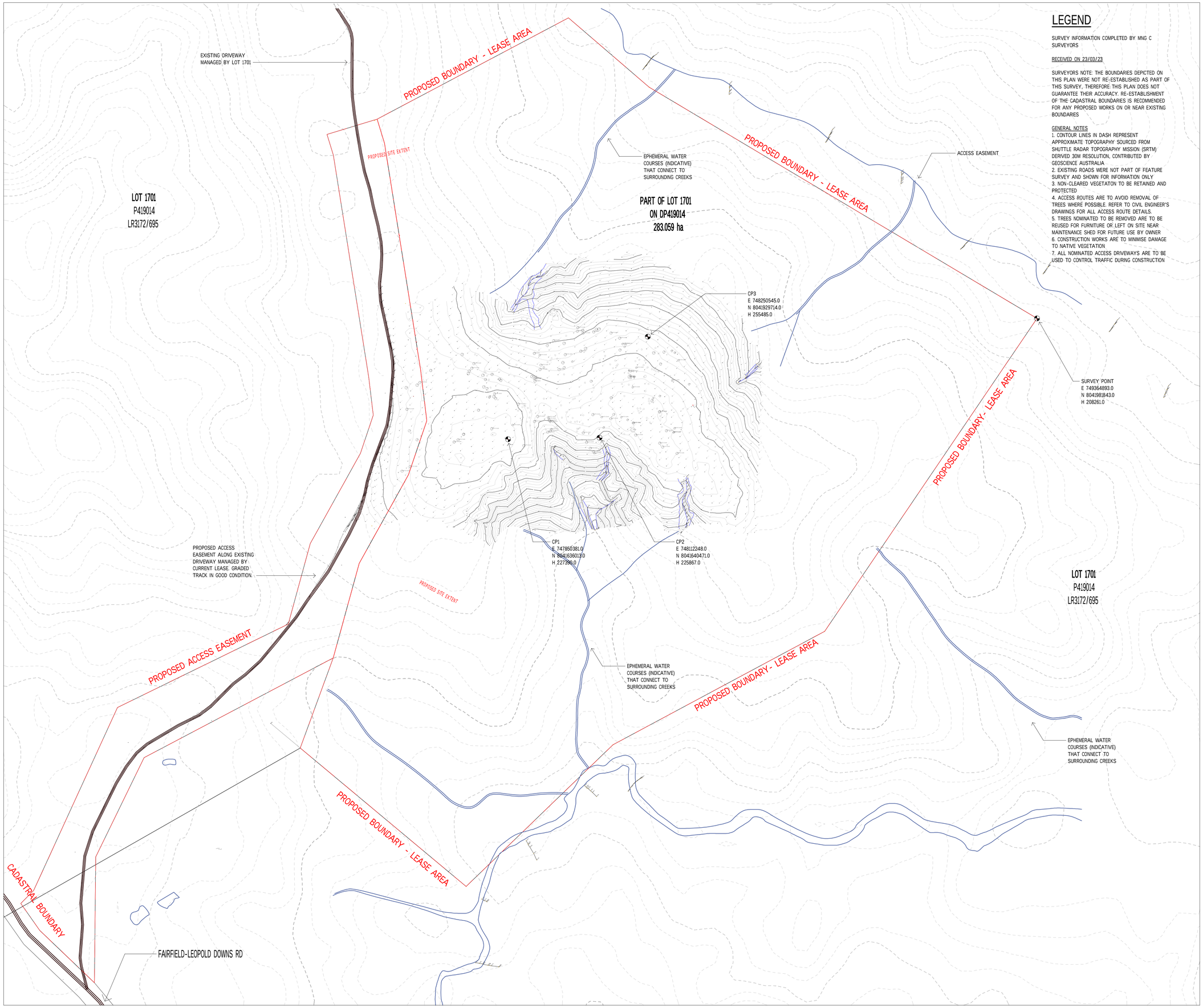
SS02	LYONS	CL	2.06.2023

DRAWING No. KSS-DA-00-05-01

REVISION 2



LEGEND

SURVEY INFORMATION COMPLETED BY MNG C SURVEYORS

RECEIVED ON 23/03/23

SURVEYORS NOTE: THE BOUNDARIES DEPICTED ON THIS PLAN WERE NOT RE-ESTABLISHED AS PART OF THIS SURVEY, THEREFORE THIS PLAN DOES NOT GUARANTEE THEIR ACCURACY. RE-ESTABLISHMENT OF THE CADASTRAL BOUNDARIES IS RECOMMENDED FOR ANY PROPOSED WORKS ON OR NEAR EXISTING BOUNDARIES

GENERAL NOTES

1. CONTOUR LINES IN DASH REPRESENT APPROXIMATE TOPOGRAPHY SOURCED FROM SHUTTLE RADAR TOPOGRAPHY MISSION (SRTM) DERIVED 30M RESOLUTION, CONTRIBUTED BY GEOSCIENCE AUSTRALIA
2. EXISTING ROADS WERE NOT PART OF FEATURE SURVEY AND SHOWN FOR INFORMATION ONLY
3. NON-CLEARED VEGETATON TO BE RETAINED AND PROTECTED
4. ACCESS ROUTES ARE TO AVOID REMOVAL OF TREES WHERE POSSIBLE. REFER TO CIVIL ENGINEER'S DRAWINGS FOR ALL ACCESS ROUTE DETAILS.
5. TREES NOMINATED TO BE REMOVED ARE TO BE REUSED FOR FURNITURE OR LEFT ON SITE NEAR MAINTENANCE SHED FOR FUTURE USE BY OWNER
6. CONSTRUCTION WORKS ARE TO MINIMISE DAMAGE TO NATIVE VEGETATION
7. ALL NOMINATED ACCESS DRIVEWAYS ARE TO BE USED TO CONTROL TRAFFIC DURING CONSTRUCTION

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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
SITE CONTEXT PLAN
EXISTING

NORTH

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	11.07.2023

DRAWING No. KSS-DA-00-10-01

REVISION 3

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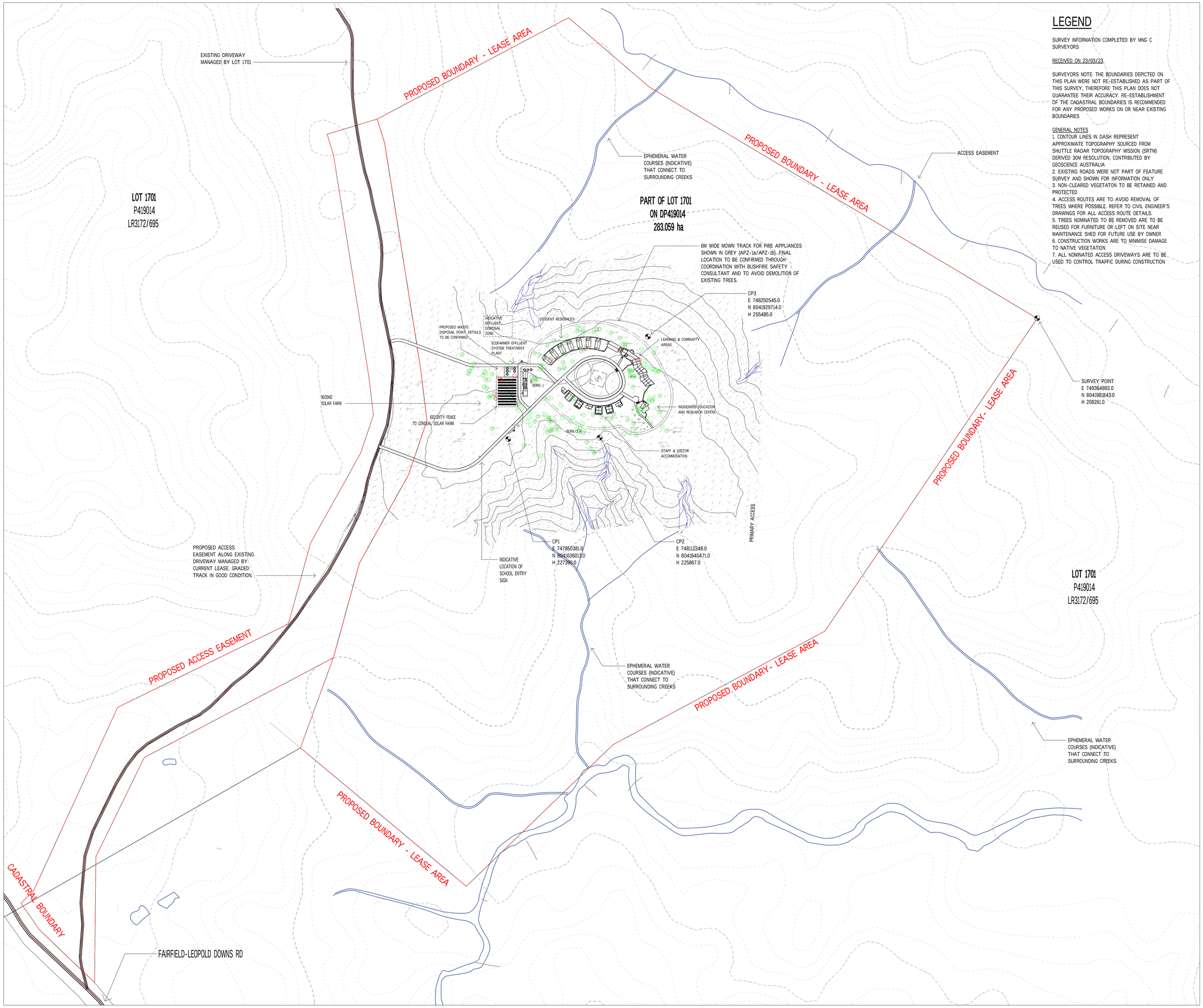

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CLIENT
STUDIO SCHOOLS OF AUSTRALIA
T +61 439 653 684

REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023
3	DEVELOPMENT APPLICATION	11.07.2023

Level 3, 246 Bourke Street
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F +61 3 9600 2819
lyons@lyonsarch.com.au
www.lyonsarch.com.au

PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
SITE CONTEXT PLAN PROPOSED

NORTH

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	11.07.2023

DRAWING No. KSS-DA-00-10-02

REVISION 3

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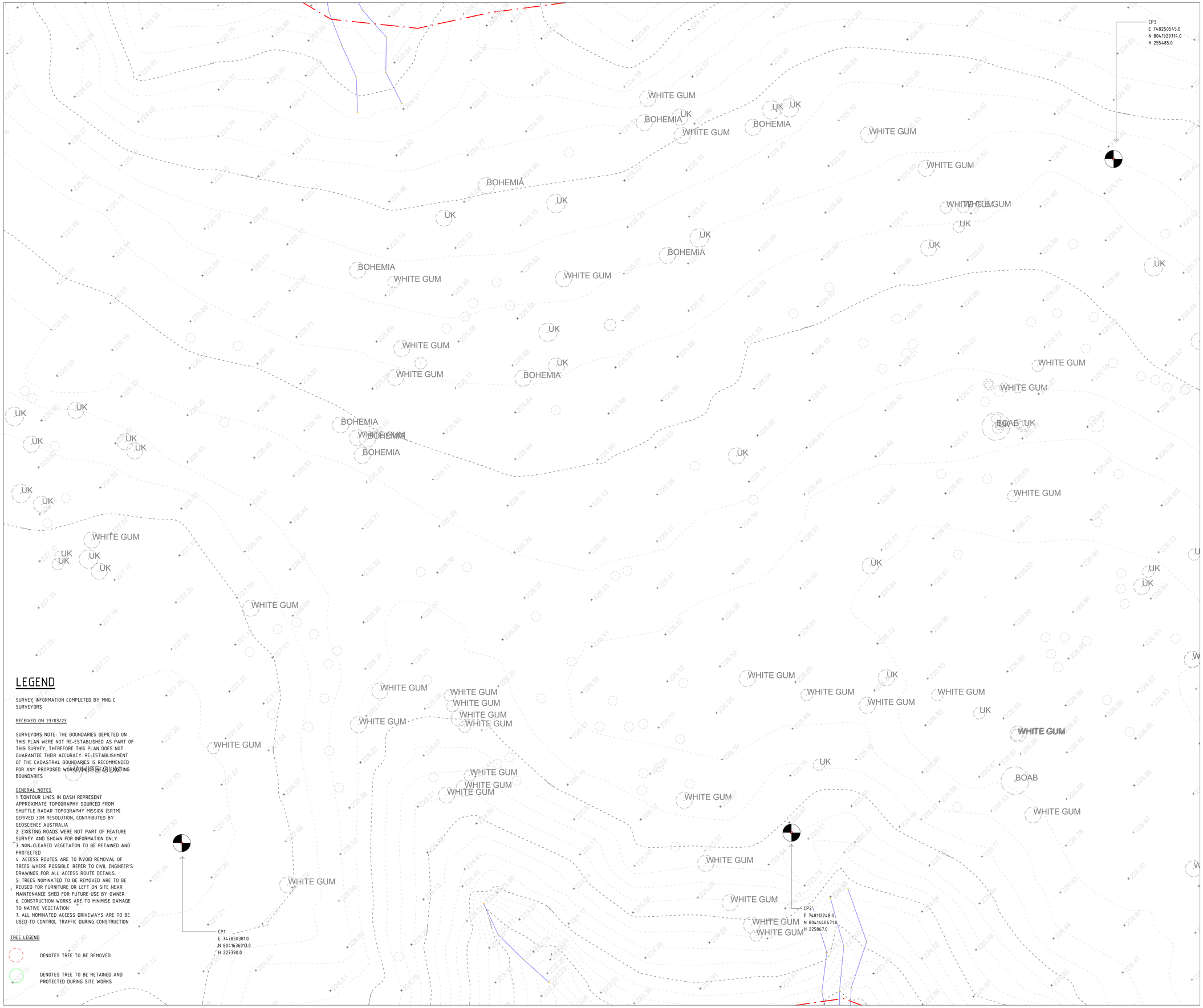

LEGEND

SURVEY INFORMATION COMPLETED BY MNG C SURVEYORS

RECEIVED ON 23/03/23

SURVEYORS NOTE: THE BOUNDARIES DEPICTED ON THIS PLAN WERE NOT RE-ESTABLISHED AS PART OF THIS SURVEY, THEREFORE THIS PLAN DOES NOT GUARANTEE THEIR ACCURACY. RE-ESTABLISHMENT OF THE CADASTRAL BOUNDARIES IS RECOMMENDED FOR ANY PROPOSED WORKS IN PROXIMITY TO EXISTING BOUNDARIES

GENERAL NOTES

1. CONTOUR LINES IN DASH REPRESENT APPROXIMATE TOPOGRAPHY SOURCED FROM SHUTTLE RADAR TOPOGRAPHY MISSION (SRTM) DERIVED 30M RESOLUTION, CONTRIBUTED BY GEOSCIENCE AUSTRALIA
2. EXISTING ROADS WERE NOT PART OF FEATURE SURVEY AND SHOWN FOR INFORMATION ONLY
3. NON-CLEARED VEGETATON TO BE RETAINED AND PROTECTED
4. ACCESS ROUTES ARE TO AVOID REMOVAL OF TREES WHERE POSSIBLE. REFER TO CIVIL ENGINEER'S DRAWINGS FOR ALL ACCESS ROUTE DETAILS.
5. TREES NOMINATED TO BE REMOVED ARE TO BE REUSED FOR FURNITURE OR LEFT ON SITE NEAR MAINTENANCE SHED FOR FUTURE USE BY OWNER
6. CONSTRUCTION WORKS ARE TO MINIMISE DAMAGE TO NATIVE VEGETATION
7. ALL NOMINATED ACCESS DRIVEWAYS ARE TO BE USED TO CONTROL TRAFFIC DURING CONSTRUCTION

TREE LEGEND

DENOTES TREE TO BE REMOVED

DENOTES TREE TO BE RETAINED AND PROTECTED DURING SITE WORKS

FILE: C:\Users\Stephanie Palmer\Documents\MSS-ARSITE-00-22_Stephanie.PalmerA1r22.rvt
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A1 840 x 594

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SERVICES, ESD, STRUCTURAL & CIVIL ENGINEERING, BUILDING SURVEYOR

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CLIENT

STUDIO SCHOOLS OF AUSTRALIA

T +61 439 653 684

REV.	DETAILS	DATE
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2	DEVELOPMENT APPLICATION	2.06.2023

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Melbourne Victoria
Australia 3000
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lyons@lyonsarch.com.au
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PROJECT

MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE

SITE PLAN EXISTING

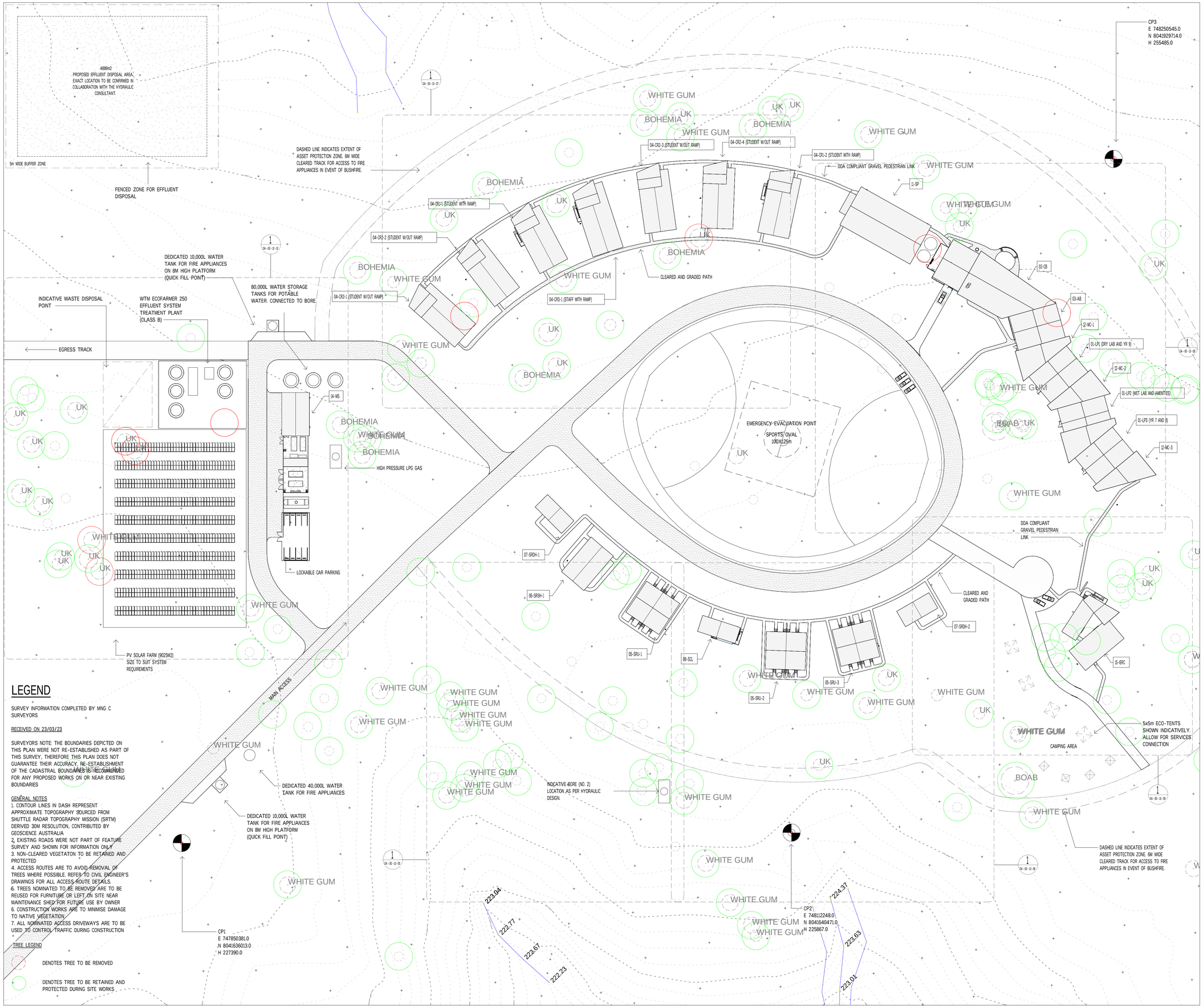
NORTH

SCALE: As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.: KSS-DA-00-10-03

REVISION: 2



LEGEND

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FILE: C:\Users\blake.alexander\Documents\MISS-AR-SW-00-22_blake_alexander.rvt
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A1 840 x 594

0 10 20 30 40 50 60 70 80 90 100

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CLIENT

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REV.	DETAILS	DATE
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lyons

PROJECT

MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE

SITE PLAN PROPOSED

NORTH

SCALE

As indicated @A1

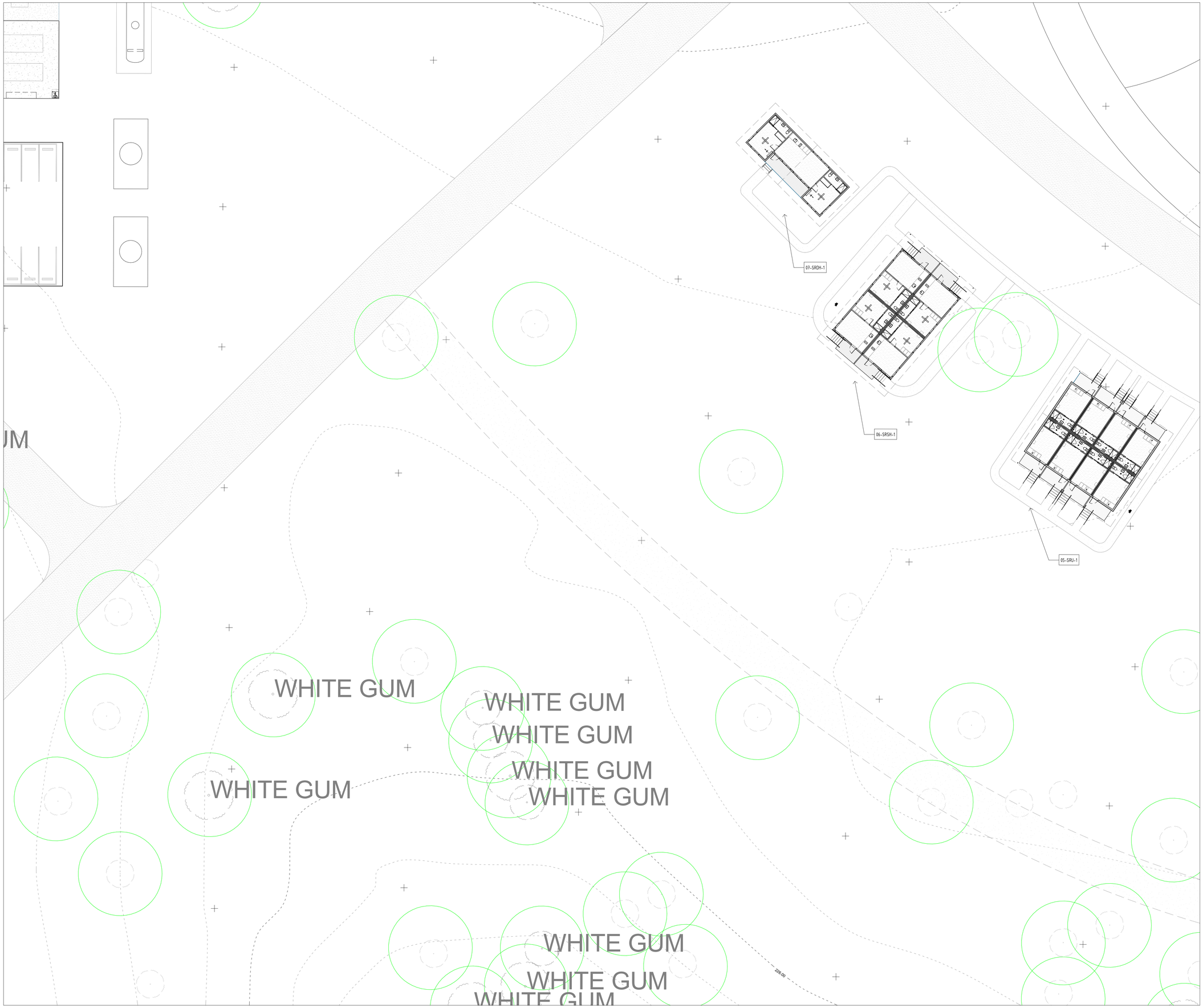
JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	11.07.2023

DRAWING No.

KSS-DA-00-10-04

REVISION

3



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PROJECT

MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE

ZONE PLAN LV1 STAFF RESIDENTIAL A

NORTH

SCALE 1 : 250 @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No. KSS-DA-00-10-05

REVISION 2

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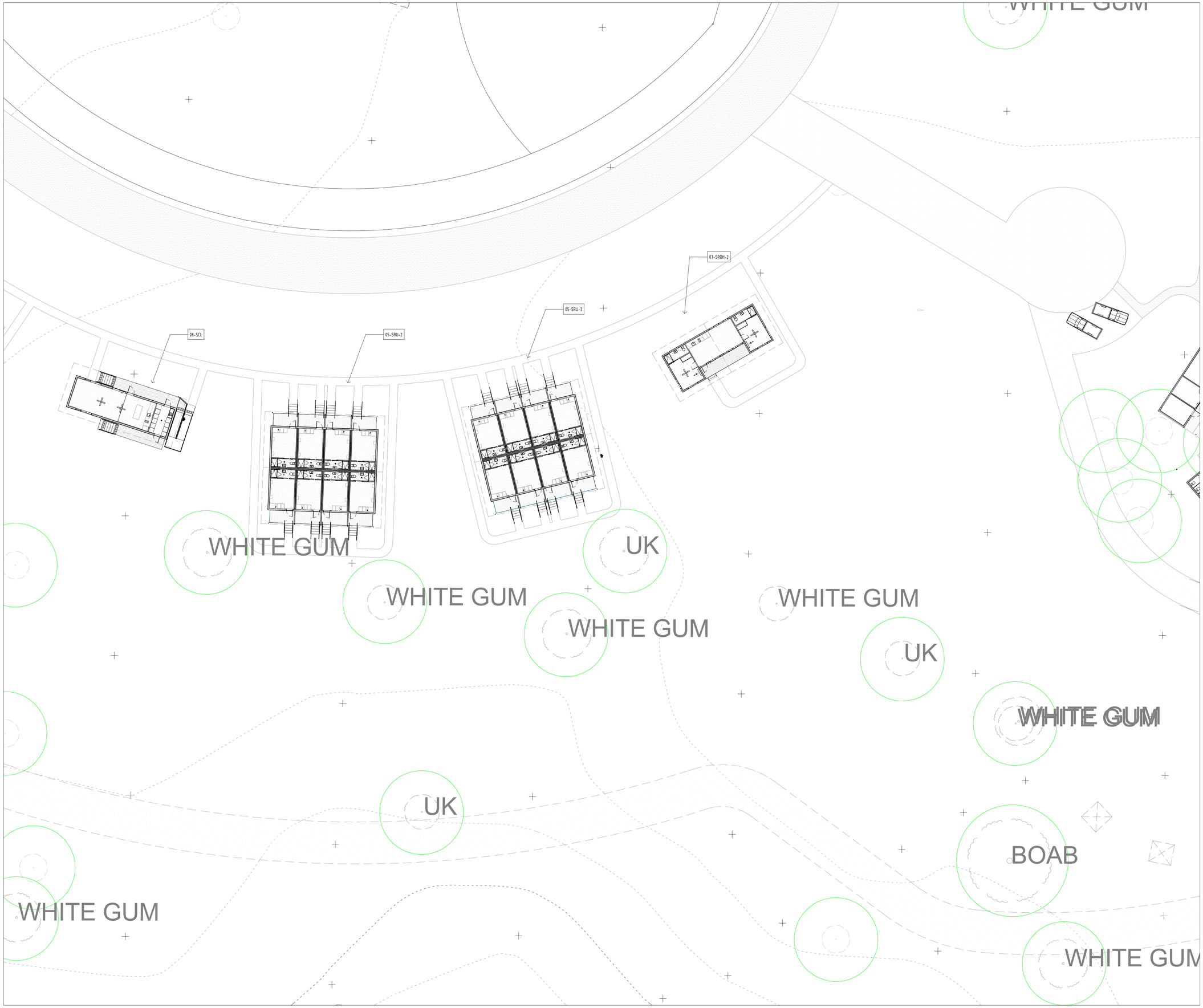

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REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

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Melbourne Victoria
Australia 3000
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lyons@lyonsarch.com.au
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PROJECT

MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE

ZONE PLAN LV1 STAFF RESIDENTIAL B

NORTH

SCALE 1 : 250 @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No. KSS-DA-00-10-06

REVISION 2

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PROJECT

MANJALI STUDIO SCHOOL

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Bunuba Native Title

DRAWING TITLE

ZONE PLAN LV1
COMMUNITY LEARNING

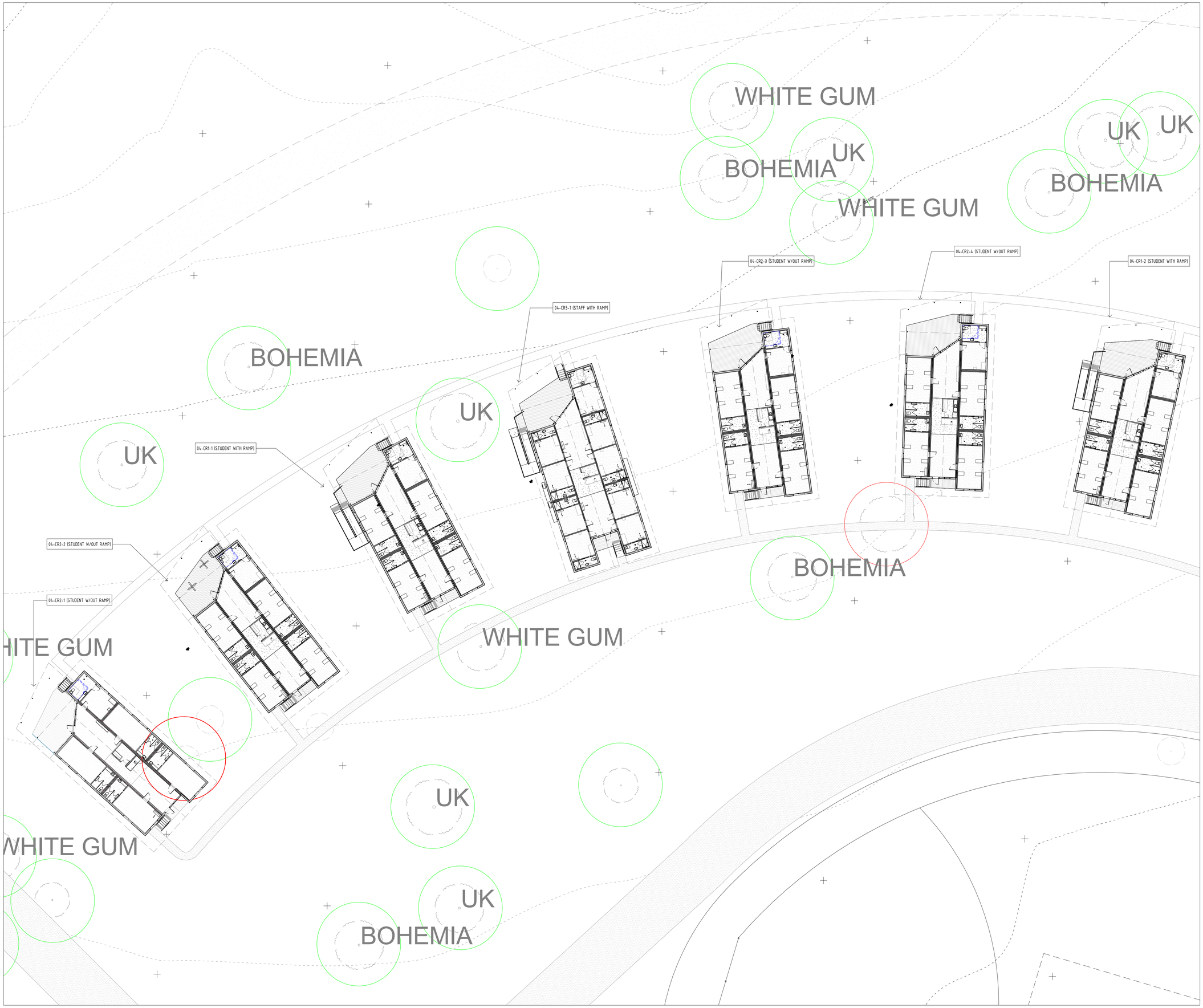
NORTH

SCALE 1 : 250 @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No. KSS-DA-00-10-08

REVISION 2



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PROJECT

MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE

ZONE PLAN LV1
STUDENT RESIDENTIAL

NORTH

SCALE 1 : 250 @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No. KSS-DA-00-10-07

REVISION 2

FILE: C:\Users\Stephanie Pahnis\Documents\MSS-AR-SW-00-22_Stephanie.Pahnis@H2S2.rvt
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A1 840 x 594

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ZONE PLAN LV1 IERC

NORTH

SCALE
1 : 250 @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-00-10-09

REVISION
2

EGRESS TRACK

2100MM HIGH CHAINLINK FENCE TO PEREMETER OF WASTE WATER TREATMENT

DEDICATED 10,000L WATER TANK FOR FIRE APPLIANCES ON 8M HIGH PLATFORM (QUICK FILL POINT)

240 KL COMBINED WATER TANK CAPACITY FROM BORE. FOR POTABLE TREATMENT AND BUSHFIRE SAFTEY

INDICATIVE LOCATION OF WASTE DISPOSAL POINT (TO BE CONFIRMED)

WASE WATER TREATMENT SYSTEM
WTM ECOFARMER 250
TREATMENT PLANT, CLASS B

GRAVEL PULLOVER TO ROAD FRONTAGE OF SERVICES COMPOUND

2100 MM HIGH CHAINLINK FENCE TO PEREMETER OF PV ARRAY

14-WS

HIGH PRESSURE LPG GAS

2400MM HIGH CHAINLINK FENCE TO PEREMETER OF GENERATORS AND FUEL TANKS

BORE 1

BORE 2

SECURE CAR PARK

8 X APPROX PARKING BAYS IN SECURE FENCED AREA. SIZE TO BE CONFIRMED TO SUIT VEHICLES

PV SOLAR ARRAY TO SUPPORT 100% OF ELECTRICITY LOAD - SIZE TO SUIT SYSTEM REQUIREMENTS

221.00

UK

WHITE GUM

BOHEMIA

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A1 840 x 594

0 10 20 30 40 50 60 70 80 90 100

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PROJECT
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Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
ZONE PLAN LV1 SERVICES

NORTH

SCALE
1 : 250 @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	11.07.2023

DRAWING No. KSS-DA-00-10-10

REVISION 3

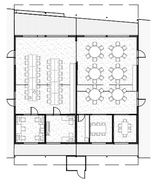
01-LP

LEARNING PAVILIONS "LP"
CLASS 9B (BAL-LOW)

DEDICATED Y7,8,9 AND TWO SPECIALIST LEARNING SPACES, THE 'WET' AND 'DRY' LAB AS WELL AS STUDENT AMENITIES AND CENTRAL STORE.

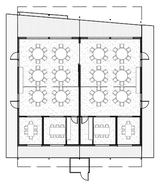
BUILDING	QTY	DESCRIPTION
01-1	1	DRY LAB & Y9 CLASSROOM
01-2	1	WET LAB & AMENITIES
01-3	1	Y7 & Y8 CLASSROOMS

01-1



01-2

01-3

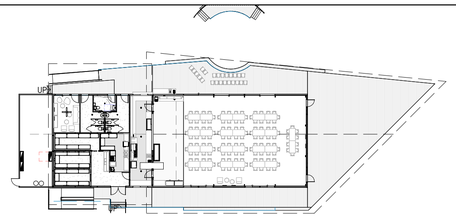


02-CB

COMMUNITY BUILDING "CB"
CLASS 6+9B (BAL-LOW)

MULTIPURPOSE DINING HALL FOR STUDENT, STAFF AND VISITORS, COMMERCIAL KITCHEN, WITH PUBLIC AMENITIES AND STUDENT GAMES ROOM.

BUILDING	QTY
02-CB	1

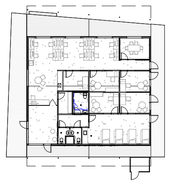


03-AB

ARRIVAL BUILDING "AB"
CLASS 5 (BAL-LOW)

SCHOOL MAIN ENTRY BUILDING WITH RECEPTION DESK, TEACHING AND OPERATIONAL STAFF WORKSTATIONS AND OFFICES, SCHOOL SICK BAY AND FIRST AID WITH STAFF AMENITIES.

BUILDING	QTY
03-AB	1



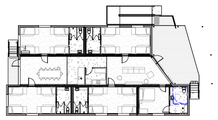
04-CR

COMMUNITY RESIDENCE "CR"
CLASS 3+1B (BAL-12.5)

16 STUDENT + MENTOR RESIDENCE WITH KITCHENETTE AND COMMON AREAS AND 9-BED STAFF HOUSE FOR RESIDENTIAL MENTORS.

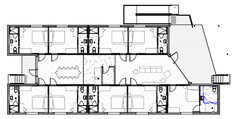
BUILDING	QTY	DESCRIPTION
04-1	2	STUDENT RESIDENCE RAMP ACCESSIBLE
04-2	4	STUDENT RESIDENCE NO RAMP
04-3	2	STAFF RESIDENCE RAMP ACCESSIBLE

04-1



CLASS 3

04-3



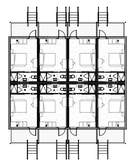
CLASS 1B

05-SRU

STAFF RESIDENCE UNIT "SRU"
CLASS 3 (BAL-12.5)

STAFF + VISITOR RESIDENCE WITH BEDROOM AND ENSUITE.

BUILDING	QTY
05-SRU	2



06-SRSH

STAFF RESIDENCE SINGLE HOUSE "SRSH"
CLASS 1A (BAL-12.5)

STAFF RESIDENCE SINGLE HOUSE WITH BEDROOM, LIVING, KITCHENETTE AND ENSUITE.

BUILDING	QTY
06-SRSH	4

07-SRDH

STAFF RESIDENCE DOUBLE HOUSE "SRDH"
CLASS 1A (BAL-12.5)

STAFF RESIDENCE DOUBLE HOUSE, TWO BEDROOMS, LIVING, KITCHEN AND ENSUITE.

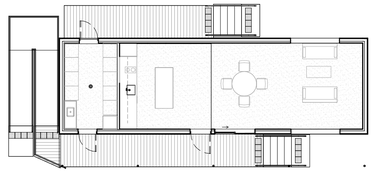
BUILDING	QTY
07-SRDH	2

08-SCL

STAFF COMMON LOUNGE "SCL"
CLASS 3+9B (BAL-12.5)

STAFF COMMON LOUNGE WITH KITCHEN AND LIVING AREAS AS WELL AS CENTRAL STAFF LAUNDRY FOR ALL STAFF + VISITOR RESIEDENCES.

BUILDING	QTY
08-SCL	1

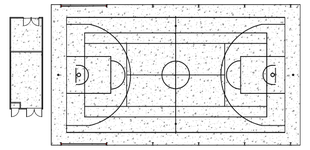


11-SP

SPORTS PAVILION "SP"
CLASS 10A (BAL-LOW)

SPORTS PAVILION WITH SPORT MULTI-COURT, EQUIPMENT AND UNIFORM STORAGE.

BUILDING	QTY
11-SP	1

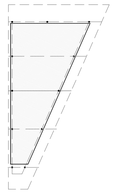


12-MC

MODULAR CANOPY "MC"
CLASS 9B (BAL-LOW)

MODULAR CANOPY LOCATED INBETWEEN LEARNING PAVILIONS TO CREATE COVERED EXTERNAL INFORMAL LEARNING AREAS.

BUILDING	QTY
12-MC	5

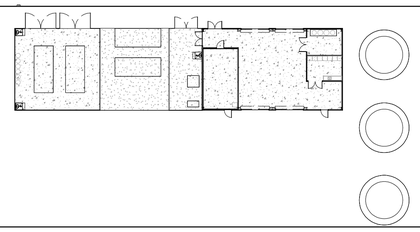


14-MS

MAINTENANCE SHED "MS"
CLASS 8 (BAL-12.5)

LOCKABLE PARKING, SERVICES PLANT AREA, TANKS, STORAGE SHED

BUILDING	QTY
14-MS	1



15-IERC

INDIGENOUS EDUCATION AND RESEARCH CENTRE "IERC"
CLASS 9B (BAL-12.5)

THE IERC IS THE LEARNING SUPPORT CENTRE TO SUPPORT ALL STUDIO SCHOOLS ACROSS AUSTRALIA, WITH SEMINAR ROOMS, MEETING ROOMS, WORKSTATIONS TO SUPPORT STAFF TRAINING PROGRAMS AND EVENTS.

BUILDING	QTY
15-IERC	1

GENERAL NOTES

CONSTRUCTION MUST COMPLY WITH AS3959:2018 AND SECTION J REQUIREMENTS.

SITE IS LOCATED WITHIN A BUSHFIRE PRONE AREA.

THE DESIGN HAS BEEN DEVELOPED IN CONJUNCTION WITH THE BUSHFIRE MANAGEMENT PLAN.

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STUDIO SCHOOLS OF AUSTRALIA
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REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

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Melbourne Victoria
Australia 3000
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lyons@lyonsarch.com.au
www.lyonsarch.com.au

PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
BUILDING TYPES

NORTH

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-00-10-12

REVISION
2

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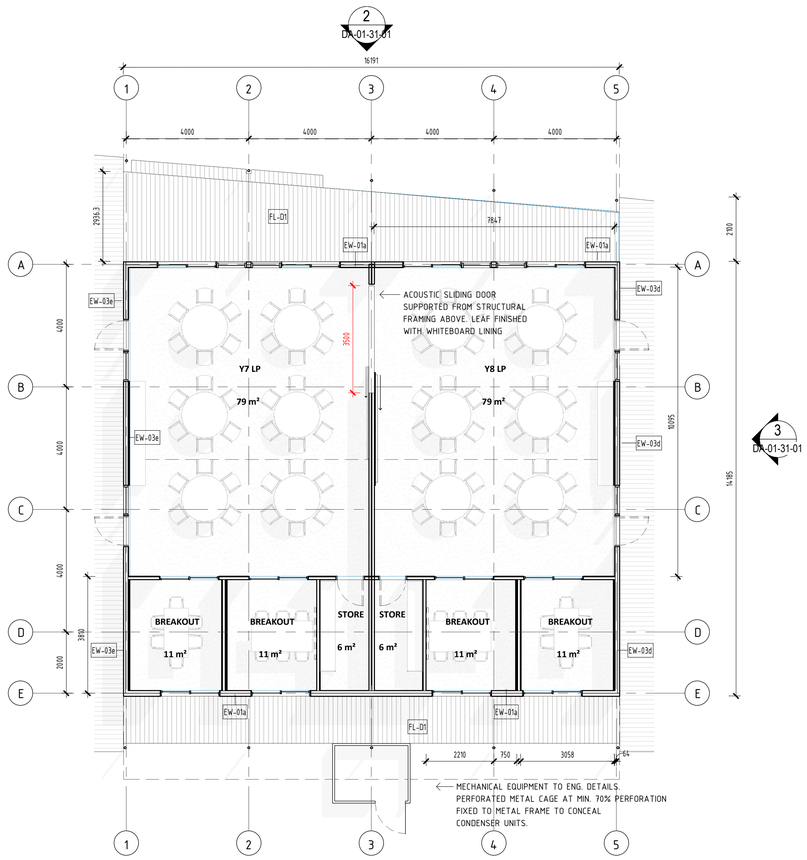

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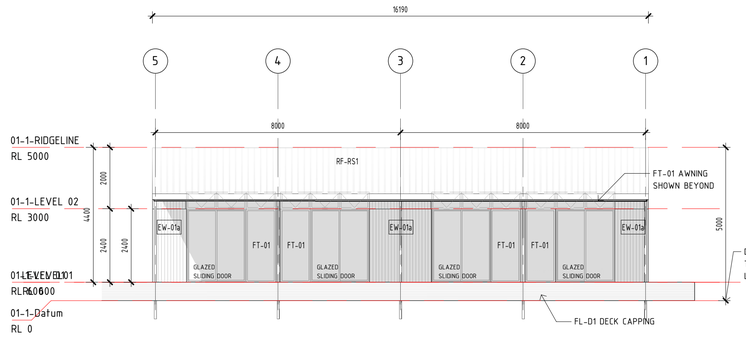

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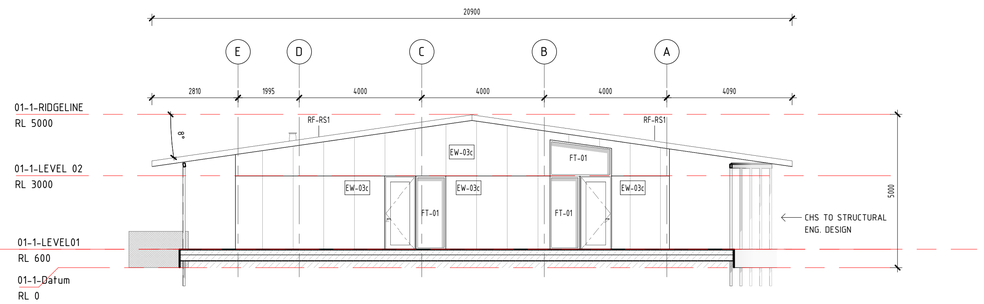

3 DA-EL-01-1-LP-B
DA-01-31-01 SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
FT-02	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 1A+B, 3 + 10 BUILDINGS

ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING, PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
EW-02	BONDOR EQUITILT EPS-FR 125MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R3.3. CLASS 1&3 BUILDINGS.
EW-03	FC SHEET CLADDING THERMALLY BROKEN INSULATED EXTERNAL WALL SYSTEM, R2.4. CLASS 5,6&9B BUILDINGS.
EW-04	METAL PERFORATED SHEETING FIXED TO EXPOSED 75MM STEEL STUD FRAMING, MIN. 70% PERFORATION TO MEET MECHANICAL ENG. REQUIREMENTS.
EW-05	METAL WALL SHEETING, PROFILE TO MATCH BONDOR COMPOSITE SHEETING FIXED TO EXPOSED STEEL STUD FRAMING WITH COLORBOND FINISH.

0 10 20 30 40 50 60 70 80 90 100

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REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

Level 3, 246 Bourke Street
Melbourne Victoria
Australia 3000
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lyons@lyonsarch.com.au
www.lyonsarch.com.au

PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
LEARNING PAVILION 1 (Y7+8)

NORTH

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-01-31-01

REVISION
2

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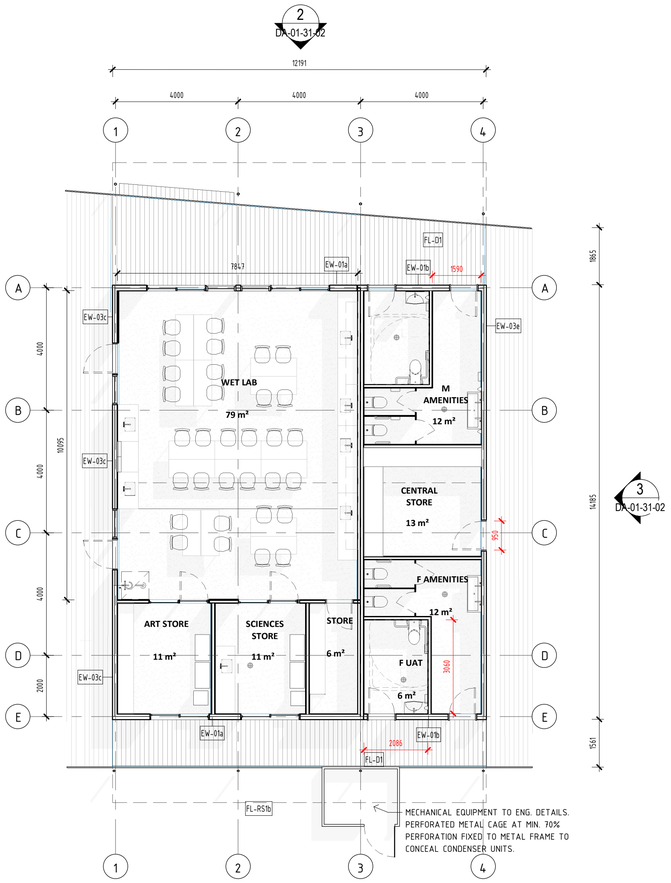

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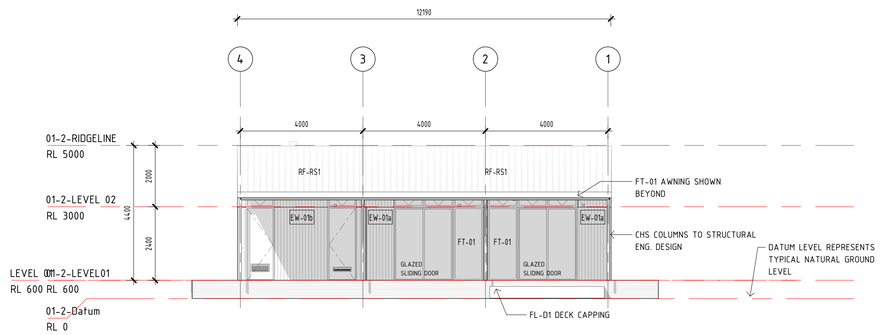

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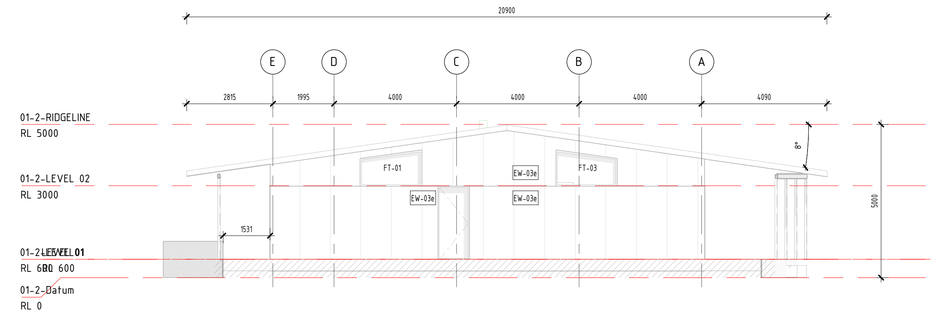

3 DA-EL-01-2-LP-B
DA-01-31-02 SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
FT-02	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 1A+B, 3 + 10 BUILDINGS

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	ROOF FIXTURES
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RF-RS2	METAL ROOF SHEETING, PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
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	SOFFIT LINING
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0 10 20 30 40 50 60 70 80 90 100

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REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
LEARNING PAVILION 2 (WET)

NORTH

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-01-31-02

REVISION
2

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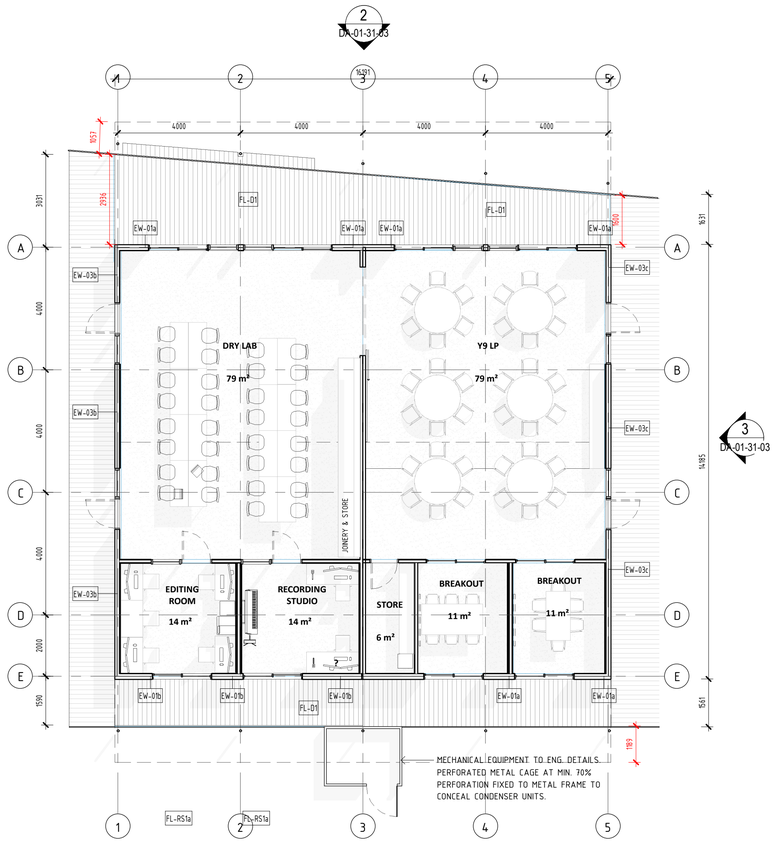

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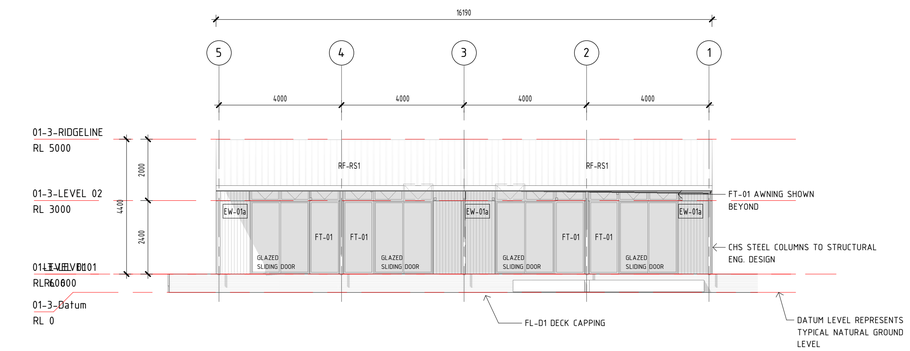

2 DA-EL-01-3-LP-A
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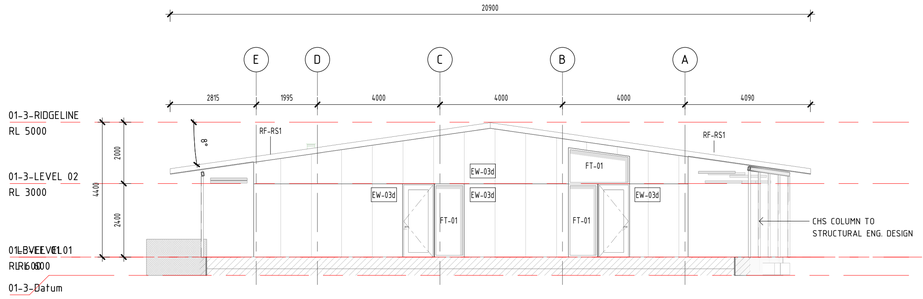

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FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
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EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
EW-02	BONDOR EQUITILT EPS-FR 125MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R3.3. CLASS 1&3 BUILDINGS.
EW-03	FC SHEET CLADDING THERMALLY BROKEN INSULATED EXTERNAL WALL SYSTEM, R2.4. CLASS 5,6&9B BUILDINGS.
EW-04	METAL PERFORATED SHEETING FIXED TO EXPOSED 75MM STEEL STUD FRAMING, MIN. 70% PERFORATION TO MEET MECHANICAL ENG. REQUIREMENTS.
EW-05	METAL WALL SHEETING, PROFILE TO MATCH BONDOR COMPOSITE SHEETING FIXED TO EXPOSED STEEL STUD FRAMING WITH COLORBOND FINISH.

0 1 2 3 4 5 6 7 8 9 10

ALL DIMENSIONS ARE IN MILLIMETERS. DO NOT SCALE DRAWINGS FOR CRITICAL DIMENSIONS. CHECK DRAWING IS TO SCALE BY MEASURING SCALE BAR ABOVE. VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK, SHOP DRAWINGS OR ORDERING MATERIALS.

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Resonate
Level 4,
440 Elizabeth Street,
Melbourne, VIC, 3000
T (03) 9020 3888

CLIENT
STUDIO SCHOOLS OF AUSTRALIA
T +61 439 653 684

REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

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Australia 3000
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F +61 3 9600 2819
lyons@lyonsarch.com.au
www.lyonsarch.com.au

PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
LEARNING PAVILION 3 (DRY+Y9)

NORTH

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No. KSS-DA-01-31-03

REVISION 2

FILE: C:\Users\Stephanie Pahnis\Documents\MSS-AR-SW-00-22_Stephanie.Pahnis.AH2S2.rvt
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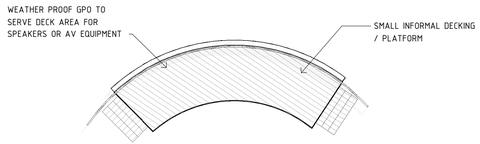
A1 840 x 594



1 03-50-01 **DA-FP-02-CB-LV1**
SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
FT-02	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 1A+B, 3 + 10 BUILDINGS

ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING, PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
EW-02	BONDOR EQUITILT EPS-FR 125MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R3.3. CLASS 1&3 BUILDINGS.
EW-03	FC SHEET CLADDING THERMALLY BROKEN INSULATED EXTERNAL WALL SYSTEM, R2.4. CLASS 5,6&9B BUILDINGS.
EW-04	METAL PERFORATED SHEETING FIXED TO EXPOSED 75MM STEEL STUD FRAMING, MIN. 70% PERFORATION TO MEET MECHANICAL ENG. REQUIREMENTS.
EW-05	METAL WALL SHEETING, PROFILE TO MATCH BONDOR COMPOSITE SHEETING FIXED TO EXPOSED STEEL STUD FRAMING WITH COLORBOND FINISH.

0 1 0 2 0 3 0 4 0 5 0 6 0 7 0 8 0 9 0 10 0

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STUDIO SCHOOLS OF AUSTRALIA
T +61 439 653 684

REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

Level 3, 246 Bourke Street
Melbourne Victoria
Australia 3000
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F +61 3 9600 2819
lyons@lyonsarch.com.au
www.lyonsarch.com.au

PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
COMMUNITY BUILDING PLAN

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-02-31-01

REVISION
2

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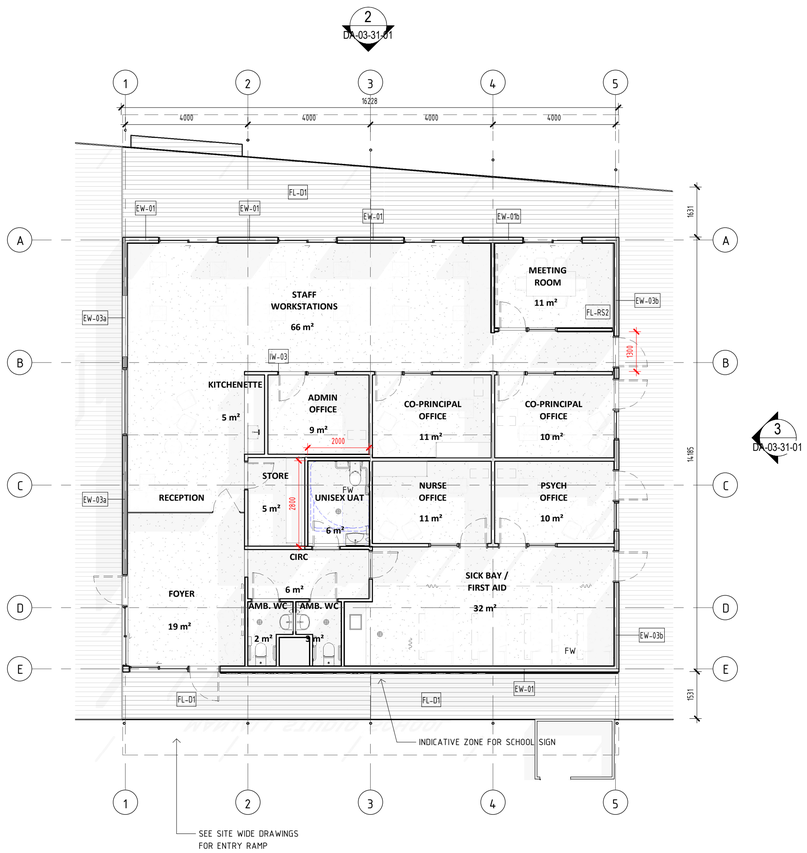

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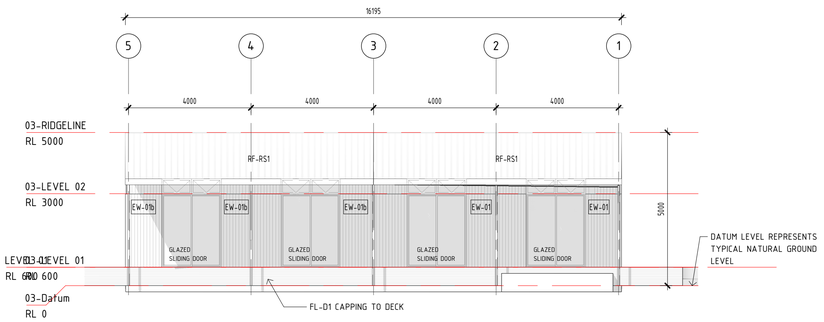

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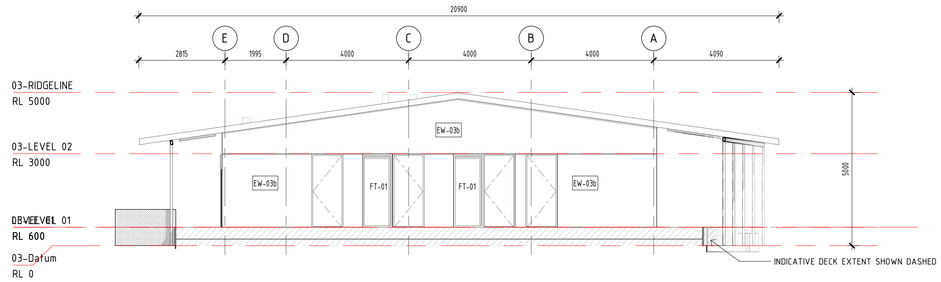
DA-03-31-01 SCALE 1 : 100



3 DA-EL-03-AB-B
DA-03-31-01 SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
FT-02	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 1A+B, 3 + 10 BUILDINGS

ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING. PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
EW-02	BONDOR EQUITILT EPS-FR 125MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R3.3. CLASS 1&3 BUILDINGS.
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EW-04	METAL PERFORATED SHEETING FIXED TO EXPOSED 75MM STEEL STUD FRAMING, MIN. 70% PERFORATION TO MEET MECHANICAL ENG. REQUIREMENTS.
EW-05	METAL WALL SHEETING, PROFILE TO MATCH BONDOR COMPOSITE SHEETING FIXED TO EXPOSED STEEL STUD FRAMING WITH COLORBOND FINISH.

0 10 20 30 40 50 60 70 80 90 100

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CLIENT
STUDIO SCHOOLS OF AUSTRALIA
T +61 439 653 684

REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

Level 3, 246 Bourke Street
Melbourne Victoria
Australia 3000
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F +61 3 9600 2819
lyons@lyonsarch.com.au
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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
ARRIVAL BUILDING

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No. KSS-DA-03-31-01
REVISION 2

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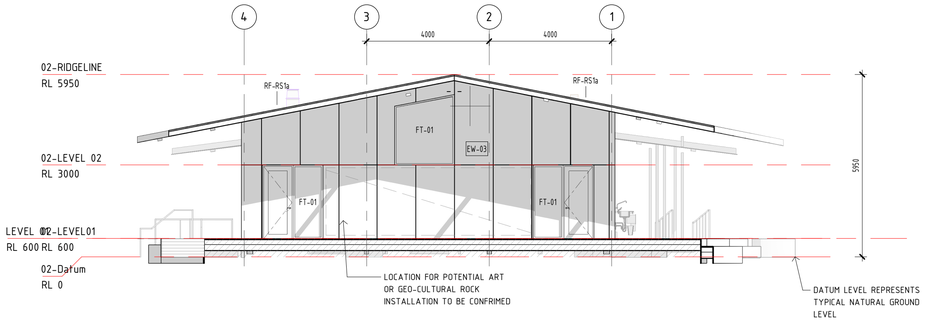
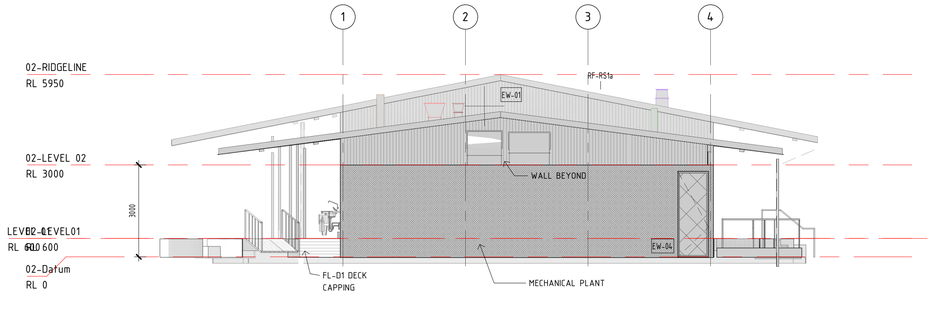


2 **DA-EL-02-CB-B**
DA-02-31-01 SCALE 1 : 100



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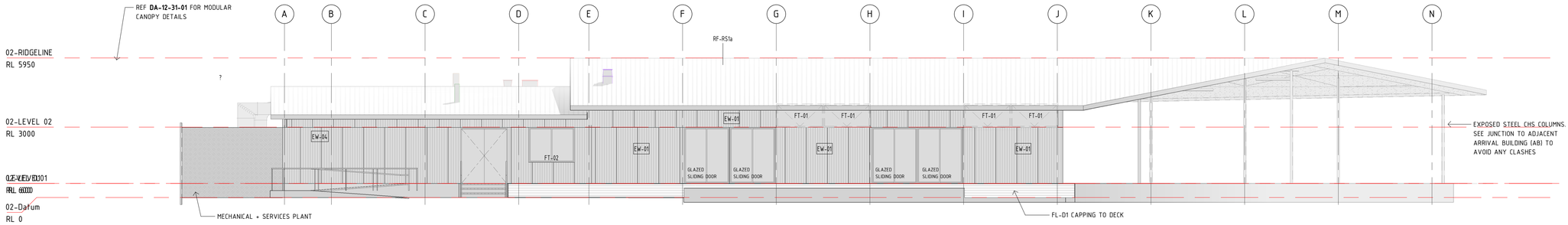

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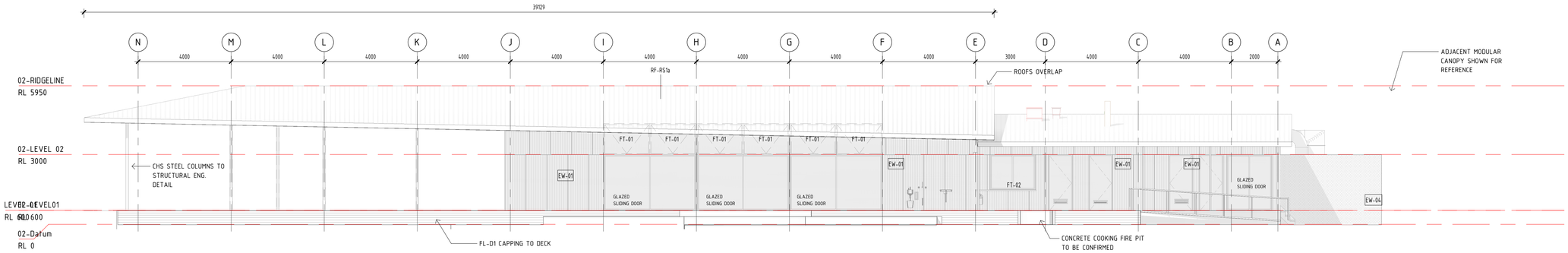
DA-02-31-01 SCALE 1 : 100



1 **DA-EL-02-CB-A**
DA-02-31-01 SCALE 1 : 100

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A1 840 x 594

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STUDIO SCHOOLS OF AUSTRALIA
T +61 439 653 684

REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

Level 3, 246 Bourke Street
Melbourne Victoria
Australia 3000
T +61 3 9600 2818
F +61 3 9600 2819
lyons@lyonsarch.com.au
www.lyonsarch.com.au

PROJECT
MANJALI STUDIO SCHOOL

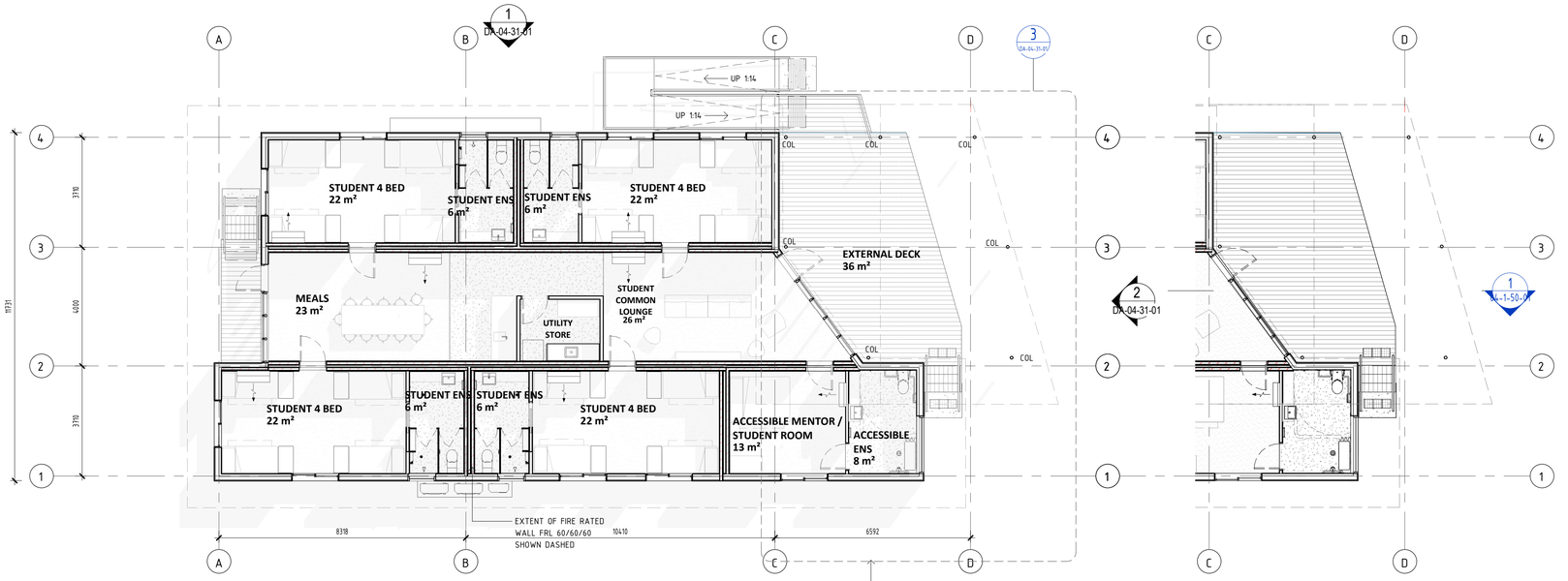
Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
COMMUNITY BUILDING ELEVATIONS

SCALE
1 : 100 @A1

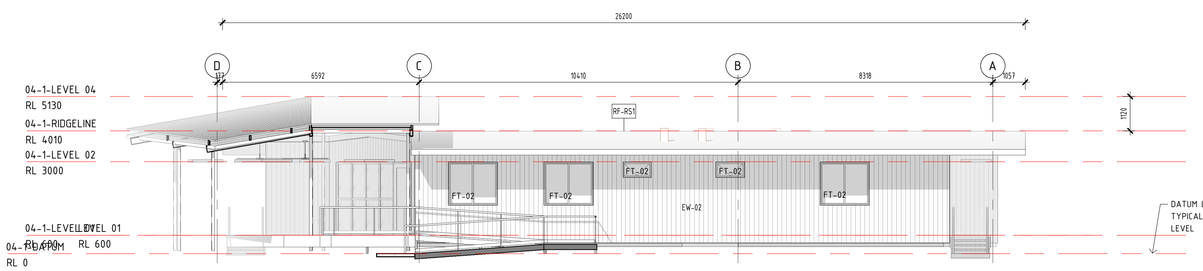
JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No. KSS-DA-02-31-02
REVISION 2



DL 03-50-01 **DA-FP-04-1-CR-LV1 - DDA**
SCALE 1 : 100

3 DA-04-31-07 **DA-FP-04-1-CR-LV1 - NON-DDA - Callout**
SCALE 1 : 100



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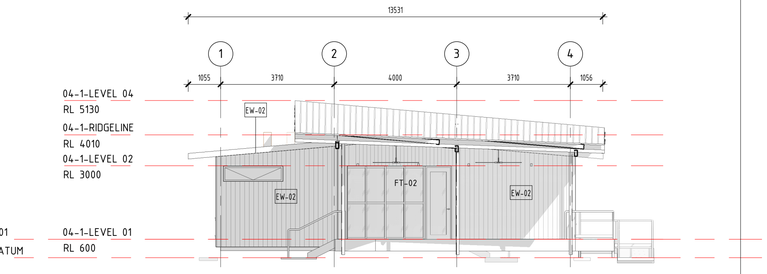

2 DA-04-31-07 **DA-EL-04-1-CR-B**
SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
FT-02	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 1A+B, 3 + 10 BUILDINGS

ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING. PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
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T +61 439 653 684

REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

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Australia 3000
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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
COMMUNITY RESIDENCE (STUDENT)

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-04-31-01

REVISION
2

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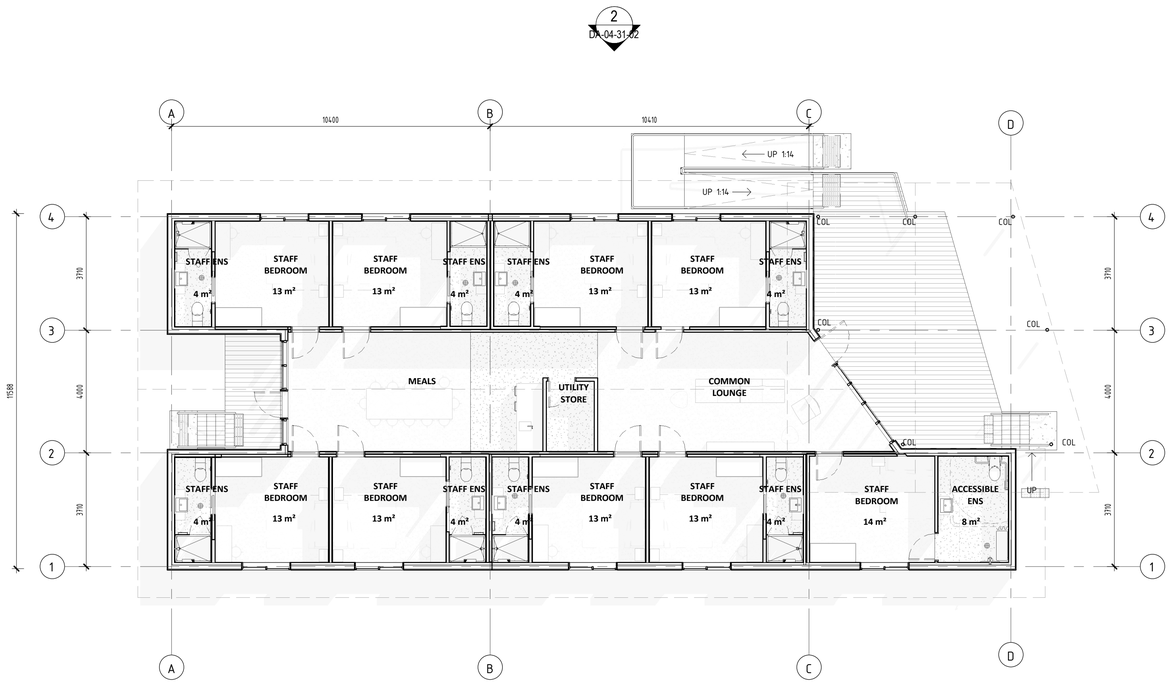

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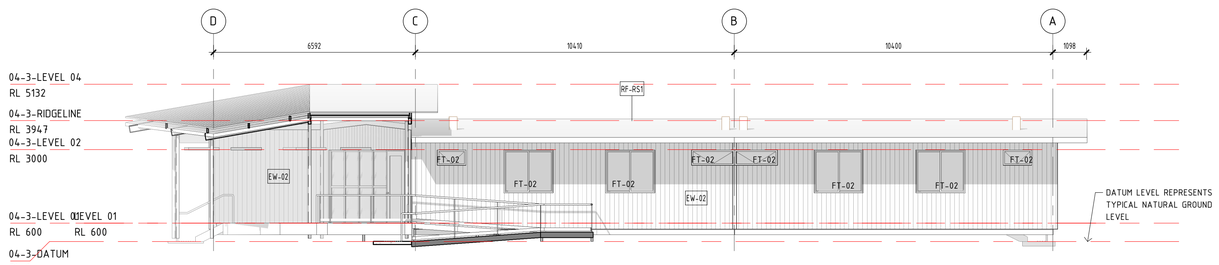
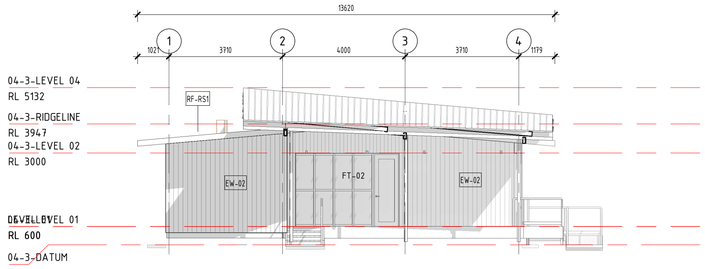
03-50-01 SCALE 1 : 100



2 DA-EL-04-3-CR-A
DA-04-31-02 SCALE 1 : 100



3 DA-EL-04-3-CR-B
DA-04-31-02 SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
FT-02	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 1A+B, 3 + 10 BUILDINGS

ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING. PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
EW-02	BONDOR EQUITILT EPS-FR 125MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R3.3. CLASS 1&3 BUILDINGS.
EW-03	FC SHEET CLADDING THERMALLY BROKEN INSULATED EXTERNAL WALL SYSTEM, R2.4. CLASS 5,6&9B BUILDINGS.
EW-04	METAL PERFORATED SHEETING FIXED TO EXPOSED 75MM STEEL STUD FRAMING, MIN. 70% PERFORATION TO MEET MECHANICAL ENG. REQUIREMENTS.
EW-05	METAL WALL SHEETING, PROFILE TO MATCH BONDOR COMPOSITE SHEETING FIXED TO EXPOSED STEEL STUD FRAMING WITH COLORBOND FINISH.

0 10 20 30 40 50 60 70 80 90 100

ALL DIMENSIONS ARE IN MILLIMETERS. DO NOT SCALE DRAWINGS FOR CRITICAL DIMENSIONS. CHECK DRAWING IS TO SCALE BY MEASURING SCALE BAR ABOVE. VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK, SHOP DRAWINGS OR ORDERING MATERIALS.

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T (03) 9020 3888

CLIENT
STUDIO SCHOOLS OF AUSTRALIA
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REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

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Melbourne Victoria
Australia 3000
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lyons@lyonsarch.com.au
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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
COMMUNITY RESIDENCE (STAFF)

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-04-31-02

REVISION
2

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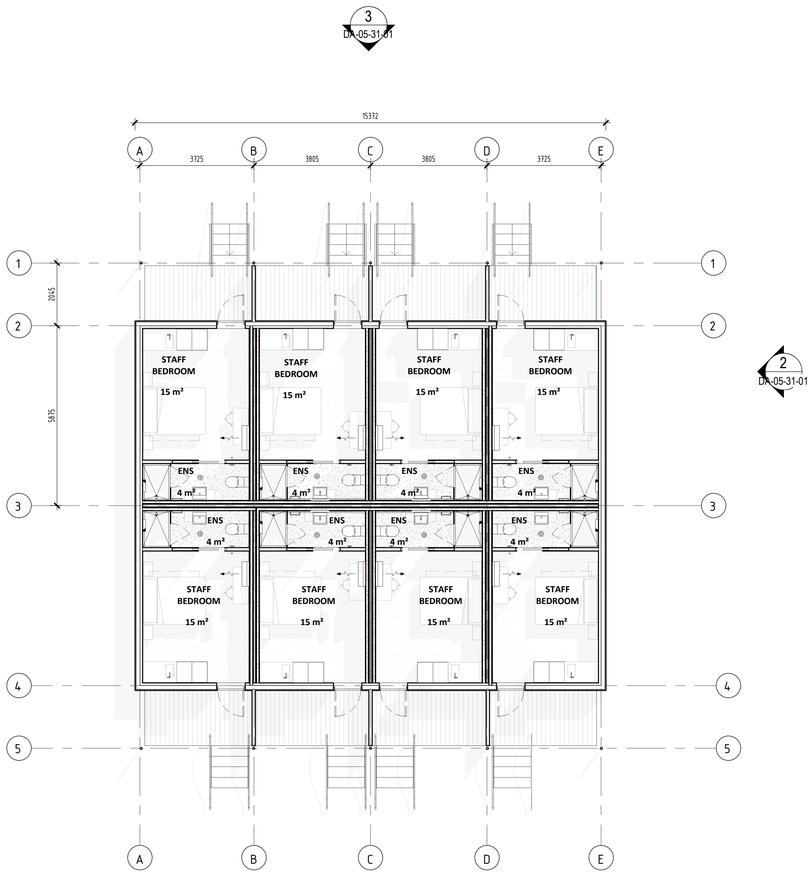

1 DA-FP-05-SRU-LV1
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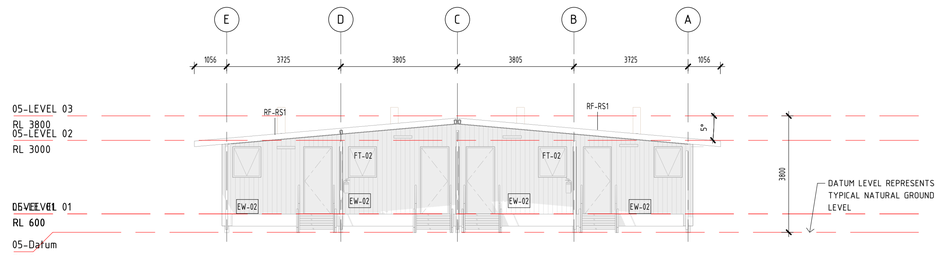

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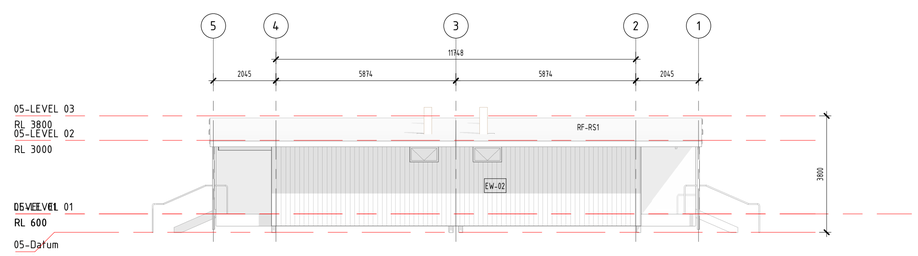

2 DA-EL-05-SRU-B
DA-05-31-01 SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
FT-02	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 1A+B, 3 + 10 BUILDINGS

ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING. PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
EW-02	BONDOR EQUITILT EPS-FR 125MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R3.3. CLASS 1&3 BUILDINGS.
EW-03	FC SHEET CLADDING THERMALLY BROKEN INSULATED EXTERNAL WALL SYSTEM, R2.4. CLASS 5,6&9B BUILDINGS.
EW-04	METAL PERFORATED SHEETING FIXED TO EXPOSED 75MM STEEL STUD FRAMING, MIN. 70% PERFORATION TO MEET MECHANICAL ENG. REQUIREMENTS.
EW-05	METAL WALL SHEETING, PROFILE TO MATCH BONDOR COMPOSITE SHEETING FIXED TO EXPOSED STEEL STUD FRAMING WITH COLORBOND FINISH.

0 10 20 30 40 50 60 70 80 90 100

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REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

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Melbourne Victoria
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F +61 3 9600 2819
lyons@lyonsarch.com.au
www.lyonsarch.com.au

PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
STAFF RESIDENCE - UNIT

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-05-31-01

REVISION
2

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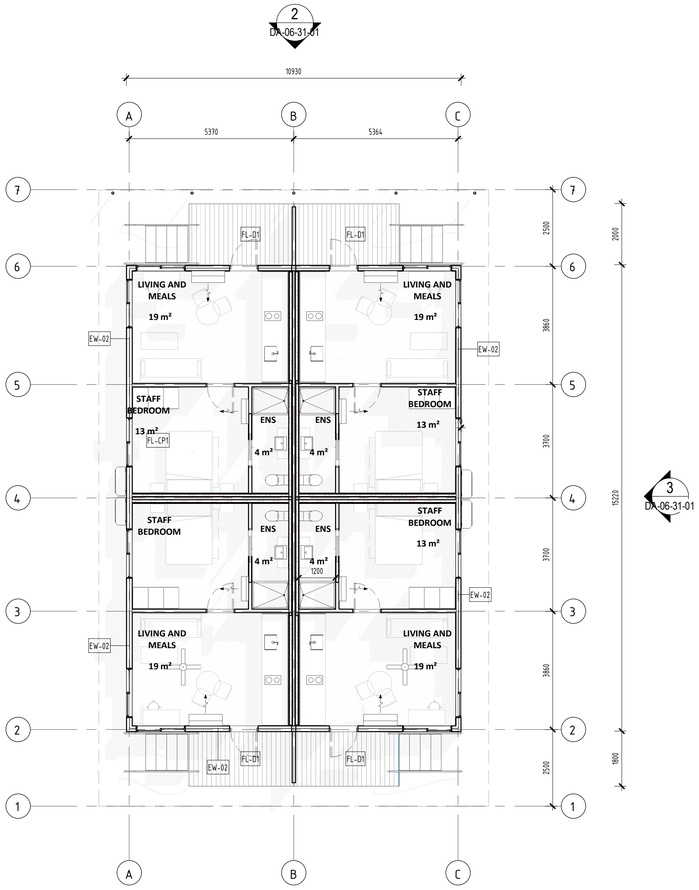
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DA-06-31-01
10930
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5370
5364
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FL-D1
LIVING AND MEALS
19 m²
EW-02
STAFF BEDROOM
13 m²
FL-CP1
ENS
4 m²
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DA-06-31-01

1 DA-FP-06-SRSH-LV1
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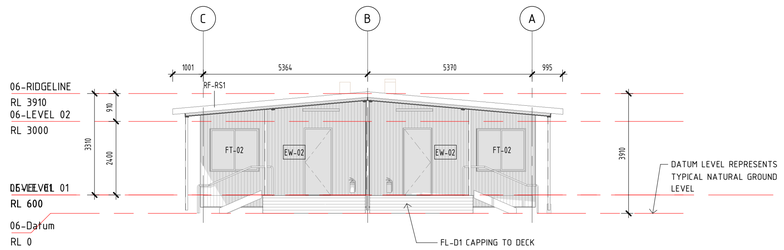

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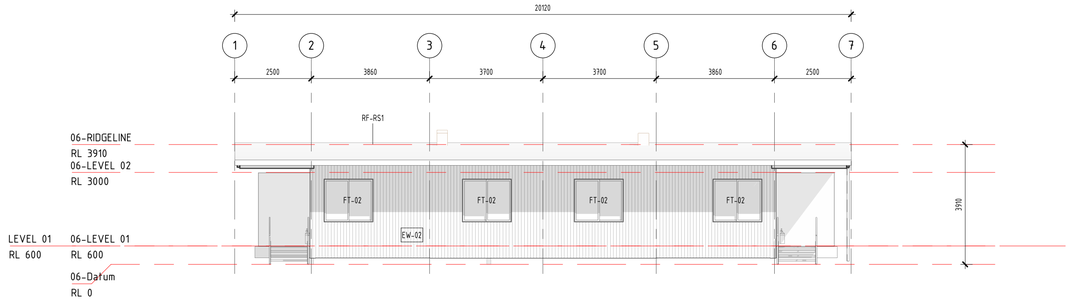
DA-06-31-01 SCALE 1 : 100



3 DA-EL-06-SRSH-B
DA-06-31-01 SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
FT-02	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 1A+B, 3 + 10 BUILDINGS

ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING. PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
EW-02	BONDOR EQUITILT EPS-FR 125MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R3.3. CLASS 1&3 BUILDINGS.
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EW-05	METAL WALL SHEETING, PROFILE TO MATCH BONDOR COMPOSITE SHEETING FIXED TO EXPOSED STEEL STUD FRAMING WITH COLORBOND FINISH.

0 1 0 2 0 3 0 4 0 5 0 6 0 7 0 8 0 9 0 10 0

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REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
STAFF RESIDENCE - SINGLE HOUSE

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-06-31-01

REVISION
2

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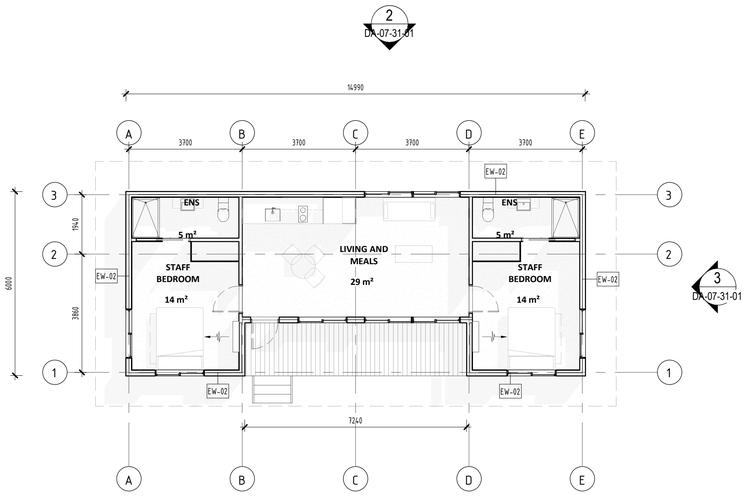

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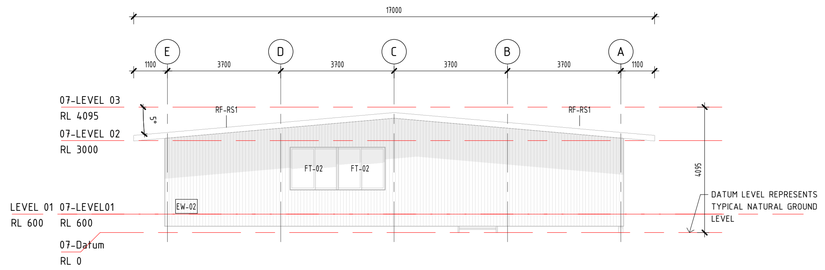

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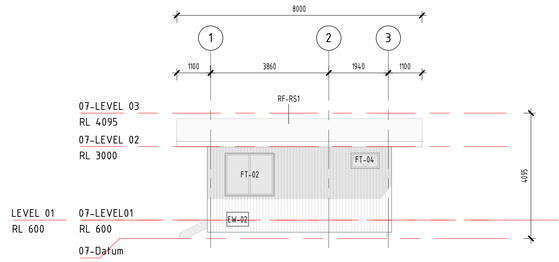

3 DA-EL-07-SRDH-B
DA-07-31-01 SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
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ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING. PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
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0 1 0 2 0 3 0 4 0 5 0 6 0 7 0 8 0 9 0 10 0

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STUDIO SCHOOLS OF AUSTRALIA
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REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
STAFF RESIDENCE - DOUBLE HOUSE

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-07-31-01

REVISION
2

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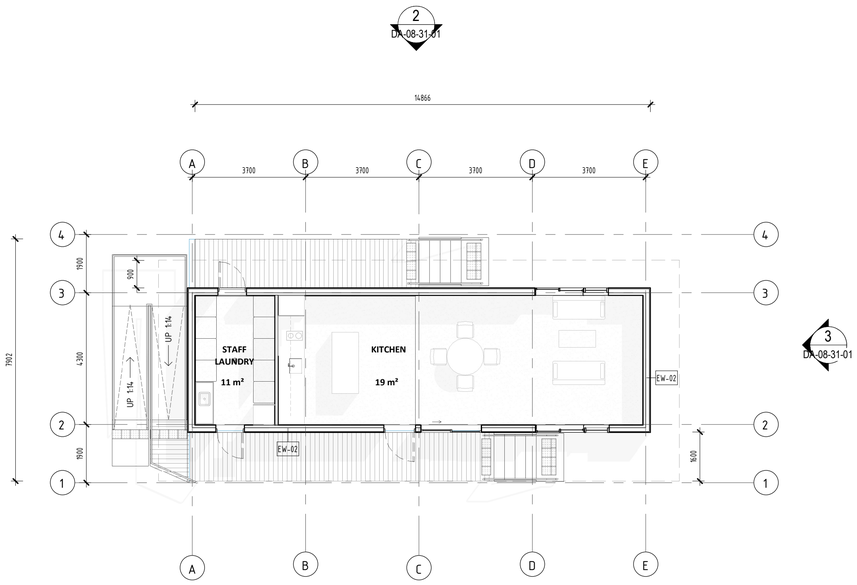

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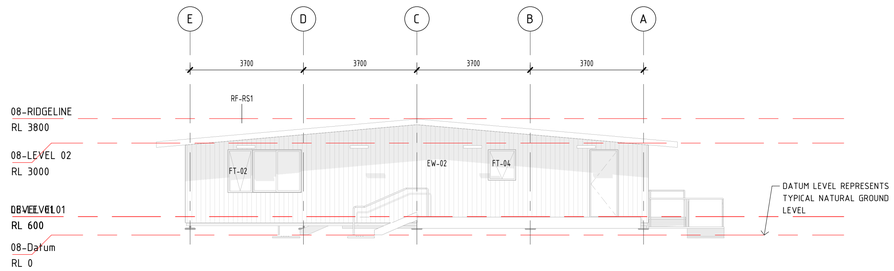

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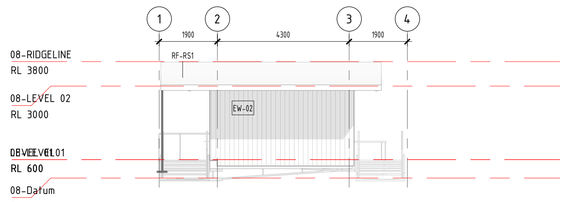

3 DA-EL-08-SCL-B
DA-08-31-01 SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
FT-02	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 1A+B, 3 + 10 BUILDINGS

ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING. PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
EW-02	BONDOR EQUITILT EPS-FR 125MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R3.3. CLASS 1&3 BUILDINGS.
EW-03	FC SHEET CLADDING THERMALLY BROKEN INSULATED EXTERNAL WALL SYSTEM, R2.4. CLASS 5,6&9B BUILDINGS.
EW-04	METAL PERFORATED SHEETING FIXED TO EXPOSED 75MM STEEL STUD FRAMING, MIN. 70% PERFORATION TO MEET MECHANICAL ENG. REQUIREMENTS.
EW-05	METAL WALL SHEETING, PROFILE TO MATCH BONDOR COMPOSITE SHEETING FIXED TO EXPOSED STEEL STUD FRAMING WITH COLORBOND FINISH.

0 10 20 30 40 50 60 70 80 90 100

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STUDIO SCHOOLS OF AUSTRALIA
T +61 439 653 684

REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

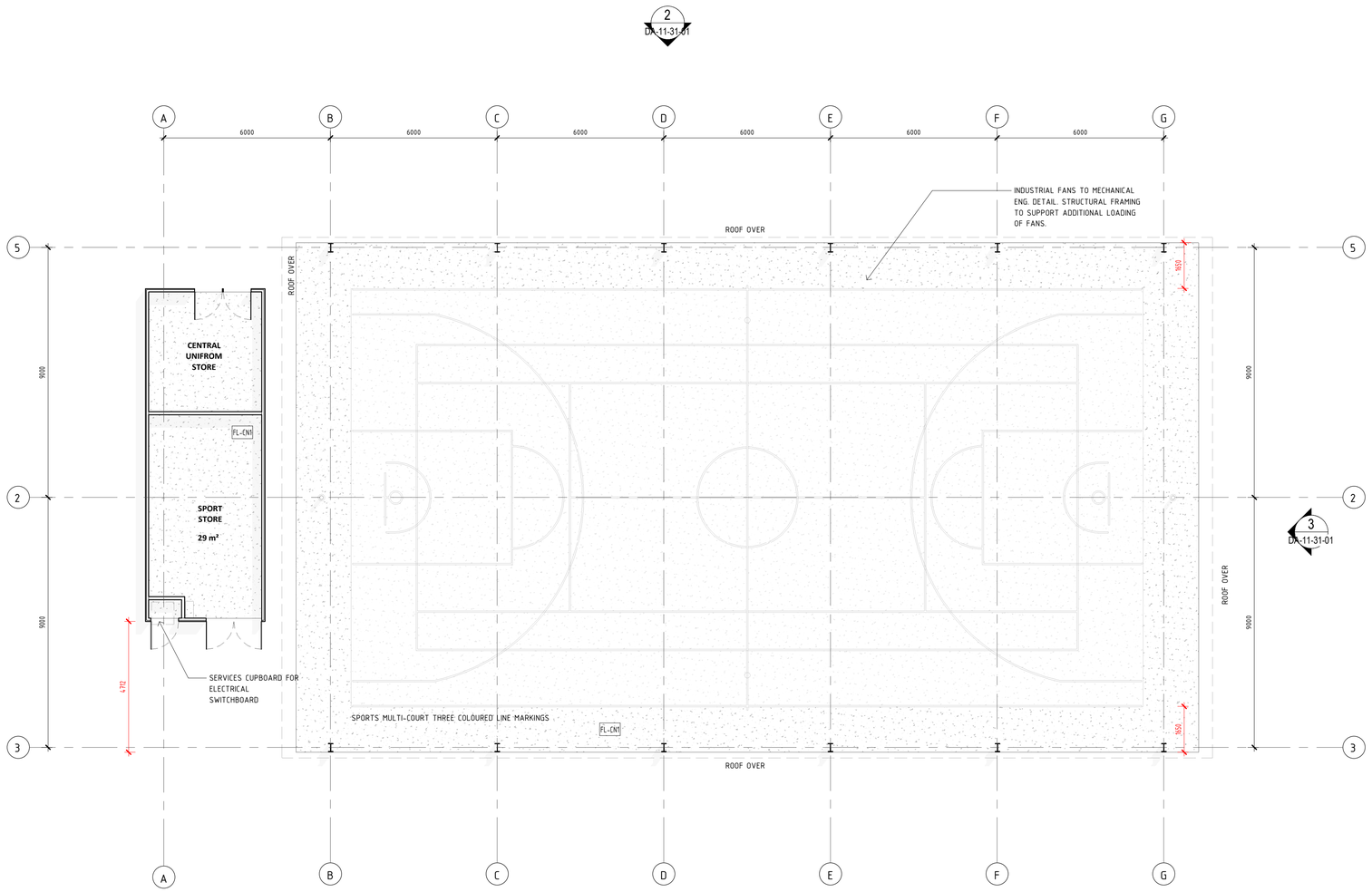
DRAWING TITLE
STAFF COMMON LOUNGE

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-08-31-01

REVISION
2



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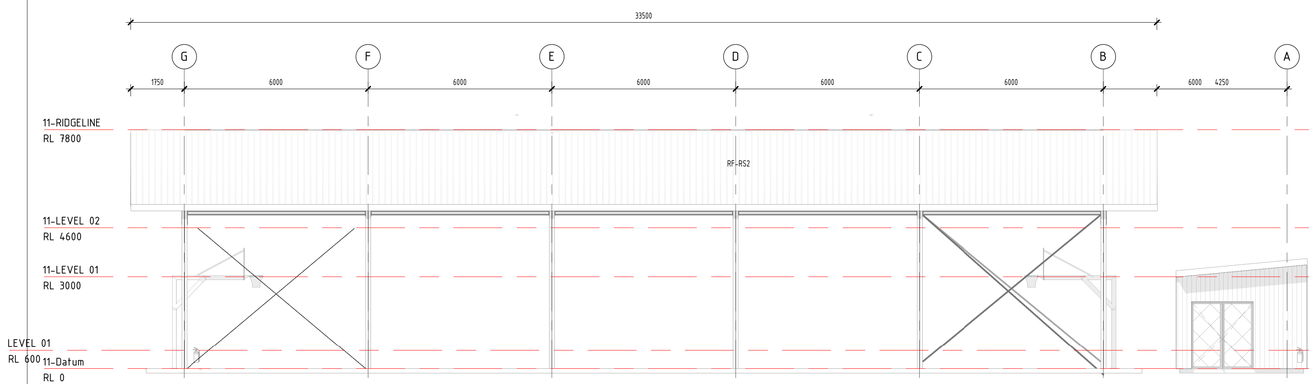

2 DA-EL-11-SP-A
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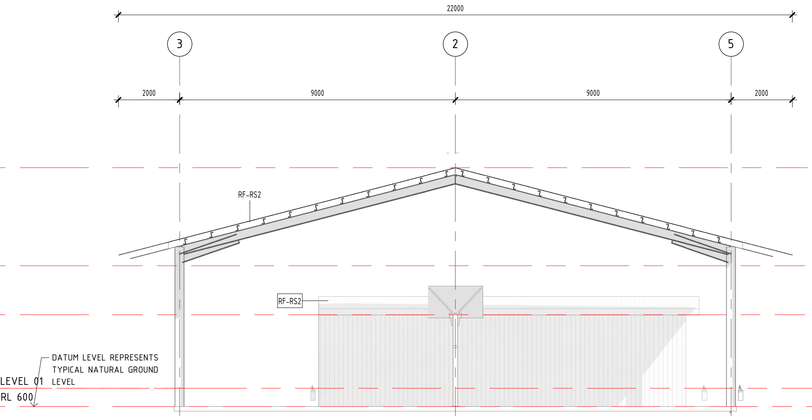

3 DA-EL-11-SP-B
DA-11-31-01 SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
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ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING. PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
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REV.	DETAILS	DATE
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2	DEVELOPMENT APPLICATION	2.06.2023

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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
SPORTS PAVILION

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No. KSS-DA-11-31-01

REVISION 2

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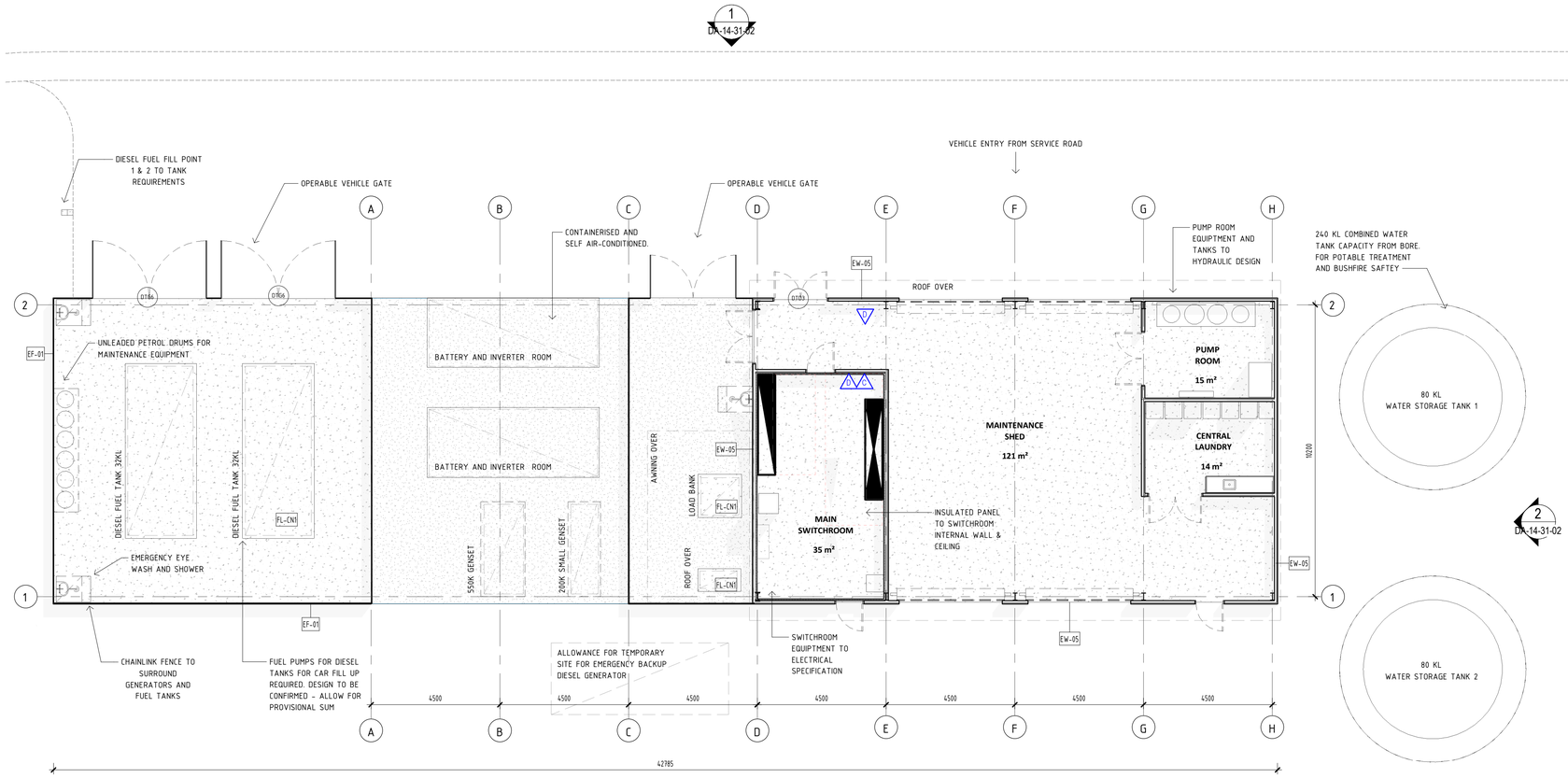

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
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ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING, PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
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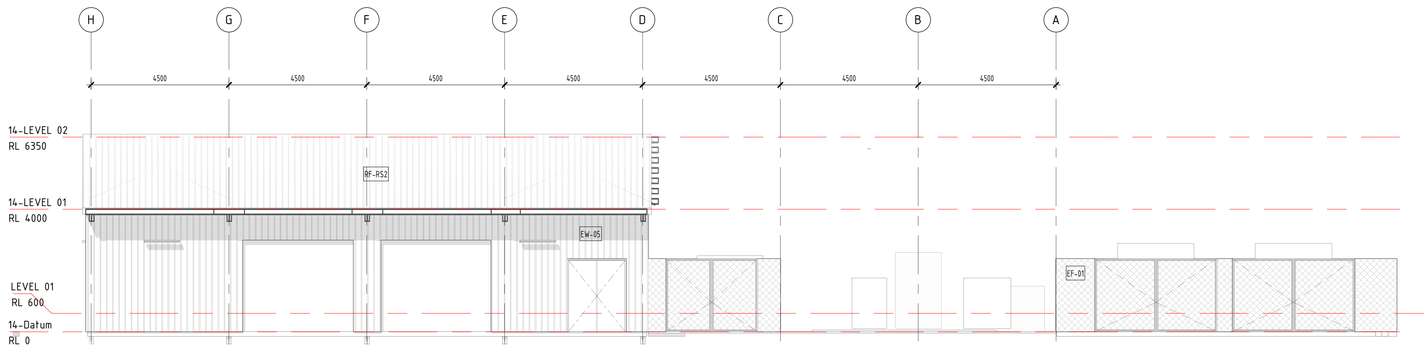
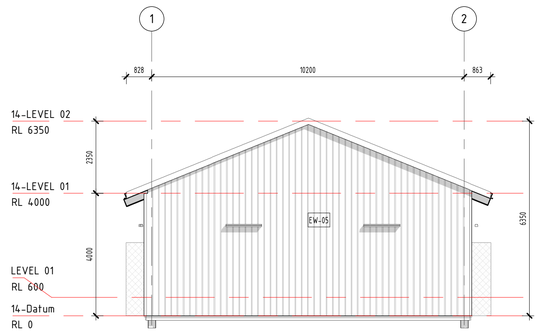
EW-05	METAL WALL SHEETING, PROFILE TO MATCH BONDOR COMPOSITE SHEETING FIXED TO EXPOSED STEEL STUD FRAMING WITH COLORBOND FINISH.

3 / 03-50-01 — **DA-FP-14-MS-LV1** SCALE 1 : 100



1 / DA-14-31-02 — **DA-EL-14-MS-A** SCALE 1 : 100



2 / DA-14-31-02 — **DA-EL-14-MS-B** SCALE 1 : 100

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REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

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PROJECT
MANJALI STUDIO SCHOOL

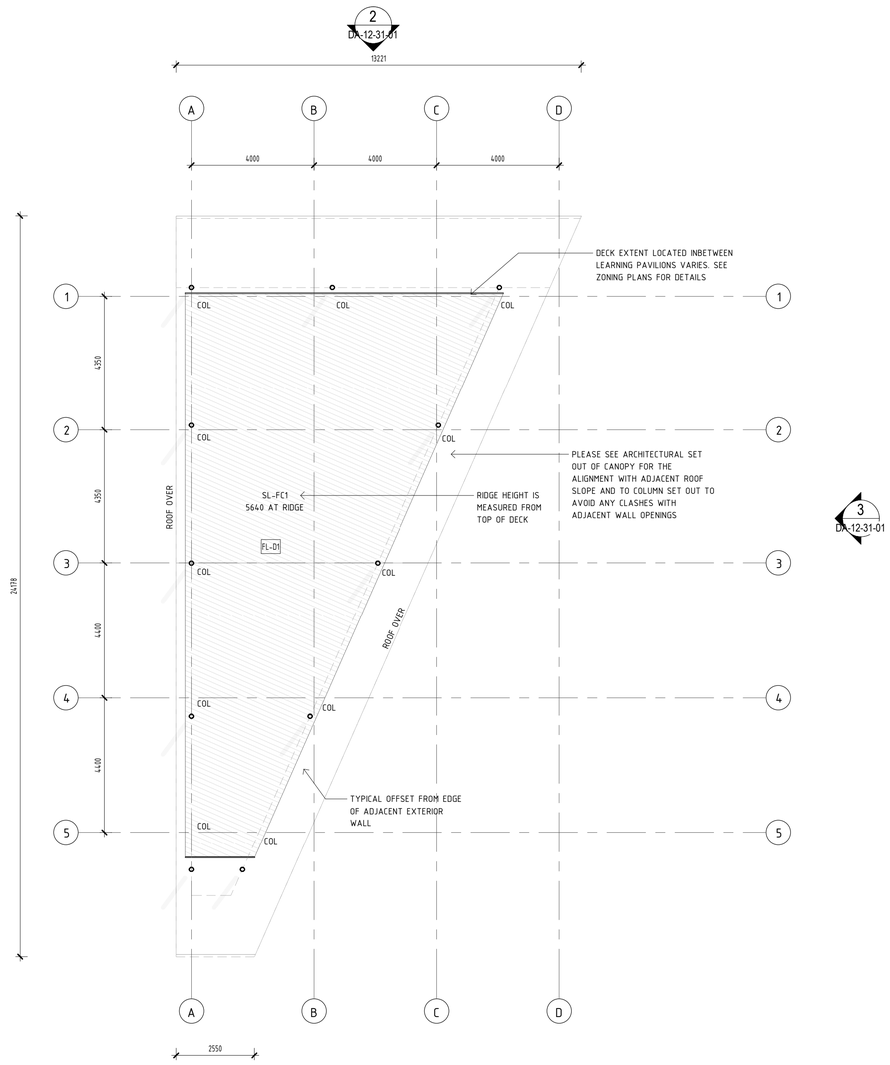
Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
MAINTENANCE SHED

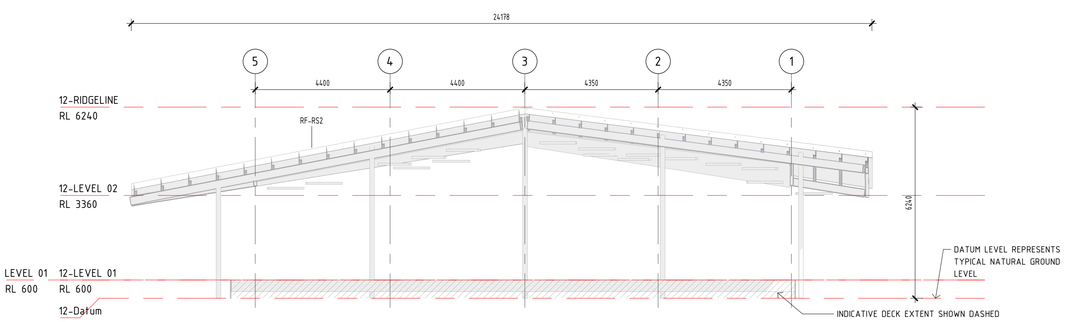
SCALE: As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

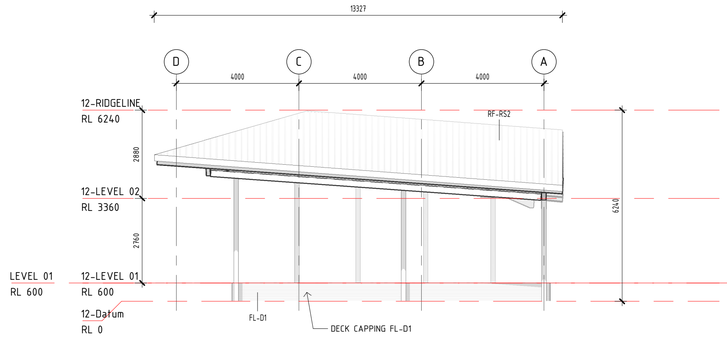
DRAWING No.: KSS-DA-14-31-02
REVISION: 2



1 DA-FP-12-MC-LV1
03-50-01 SCALE 1 : 100



3 DA-EL-12-MC-B
DA-12-31-01 SCALE 1 : 100



2 DA-EL-12-MC-A
DA-12-31-01 SCALE 1 : 100

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
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ROOF TYPE LEGEND

	ROOF FIXTURES
RF-RS1	COMPOSITE ROOF SHEETING, BONDOR SOLAR SPAN 150MM THICK. THERMAL PERFORMANCE R3.7 OVER ALL HABITABLE AREAS. BAL-40. HIGH RIB TRAPEZOIDAL PROFILE.
RF-RS2	METAL ROOF SHEETING. PROFILE TO MATCH BONDOR PROFILE WITH COLORBOND FINISH. SOFFIT OPTION 1: NO LINING. SOFFIT OPTION 2: EQUITONE FC SHEETING FIXED WITH EQUITONE SYSTEM.

MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
SL-FC1	EQUITONE EXTERNAL FC SHEET SOFFIT LINING, ALLOW FOR MULTIPLE COLOURS.

WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
EW-02	BONDOR EQUITILT EPS-FR 125MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R3.3. CLASS 1&3 BUILDINGS.
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0 1 2 3 4 5 6 7 8 9 10

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REV.	DETAILS	DATE
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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
MODULAR CANOPY

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No.
KSS-DA-12-31-01

REVISION
2

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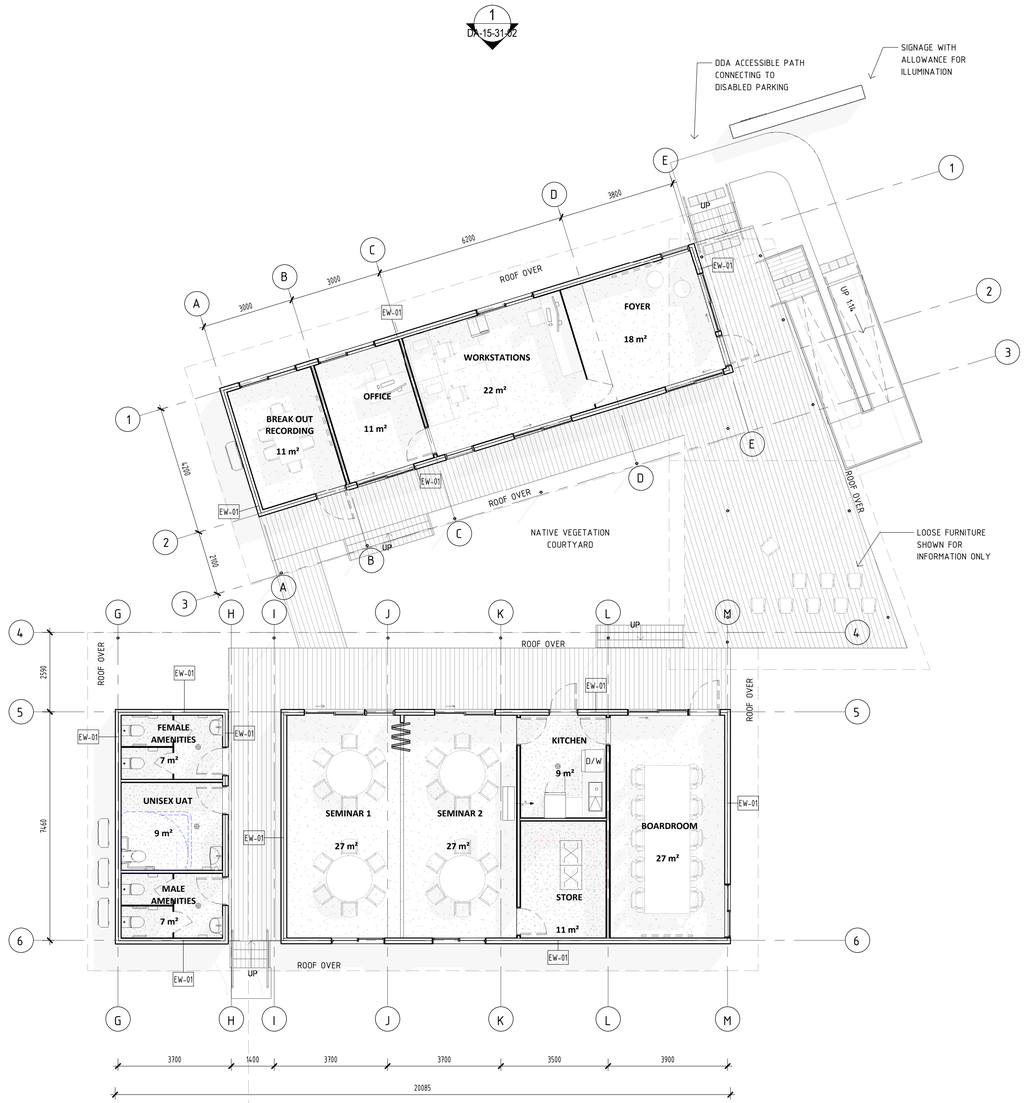

1 / DA-FP-15-IERC-LV1 / 03-50-01 SCALE 1 : 100

3 / DA-15-31-02

2 / DA-15-31-02

FACADE TYPE LEGEND

CODE	DESCRIPTION
	EXTERNAL FACADE SYSTEMS
FT-01	EXTERNAL DOUBLE GLAZED FACADE SYSTEM. CAPRAL ALUMINIUM SERIES 625 HINGED NARROWLINE FRAMING SYSTEM, NOMINALLY 46MM THICK. ANODISED ALUMINIUM. DOUBLE GLAZING WITH AIR GAP TO ACHIEVE 3.5 U VALUE. MUST COMPLY WITH AS2047 AND AS1288. TOUGHENED, LAMINATED GLASS. CLASS 5, 6 + 9 BUILDINGS.
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ROOF TYPE LEGEND

	ROOF FIXTURES
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MATERIAL LEGEND

	FLOOR FINISH
FL-D1	EXTERNAL EKODECK COMPOSITE DECKING - FLAME FIGHTER RANGE.
	SOFFIT LINING
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WALL TYPE LEGEND

	EXTERNAL WALLS
EW-01	BONDOR EQUITILT EPS-FR 100MM COMPOSITE EXTERNAL WALL CLADDING PANEL, R2.4. CLASS 5,6&9B BUILDINGS.
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WSP Darwin
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T (08) 8980 5900

COMMERCIAL KITCHEN CONSULTANT
Green Design Group
15/231 Bay Rd,
Sandringham, VIC 3191
T +61 422 206 454

TOWN PLANNING CONSULTANT
Urbis
LEVEL 14, 1 William Street
PERTH, WA, 6000
T (08) 9346 0500

BUSHFIRE SAFETY CONSULTANT
Bushfire Safety Consulting
PO Box 84,
Stoneville, WA, 6081
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HYDROLOGY & FLOOD RISK CONSULTANT
HARC
PO Box 209
Suite 3, 41 Railway Road
Blackburn, VIC, 3130
T (03) 9908 2169

ACOUSTIC CONSULTANT
Resonate
Level 4,
440 Elizabeth Street,
Melbourne, VIC, 3000
T (03) 9020 3888

CLIENT
STUDIO SCHOOLS OF AUSTRALIA
T +61 439 653 684

REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	05.10.2022
2	DEVELOPMENT APPLICATION	2.06.2023

Level 3, 246 Bourke Street
Melbourne Victoria
Australia 3000
T +61 3 9600 2818
F +61 3 9600 2819
lyons@lyonsarch.com.au
www.lyonsarch.com.au

PROJECT
MANJALI STUDIO SCHOOL

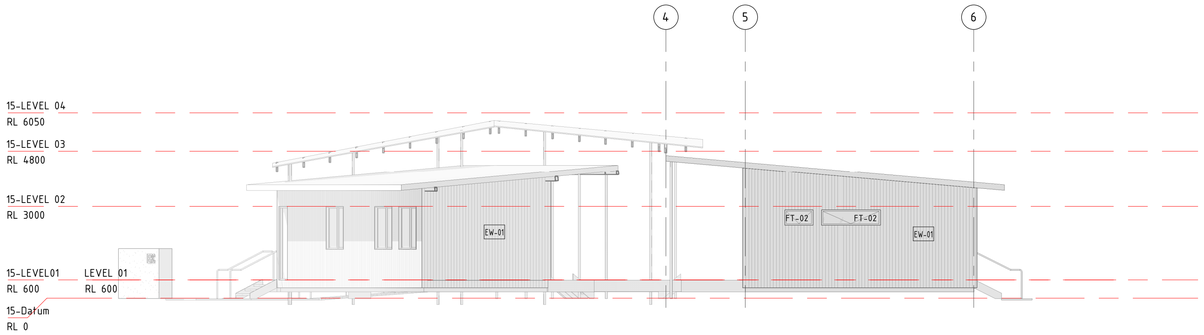
Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
INDIGENOUS EDUCATION AND RESEARCH CENTRE PLAN

SCALE
As indicated @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No. KSS-DA-15-31-01
REVISION 2



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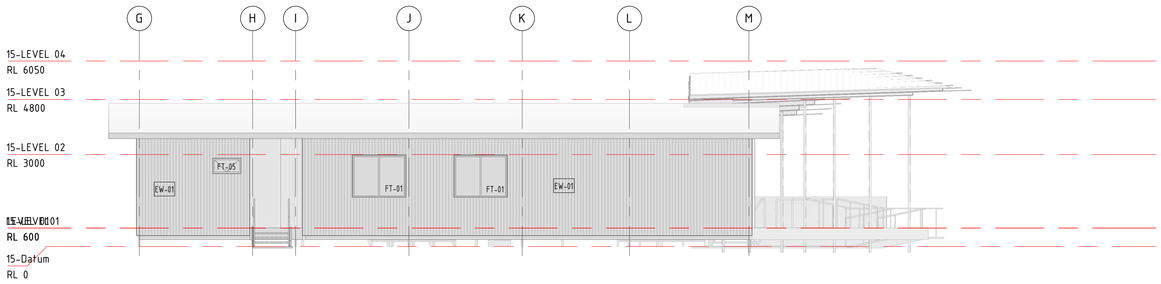

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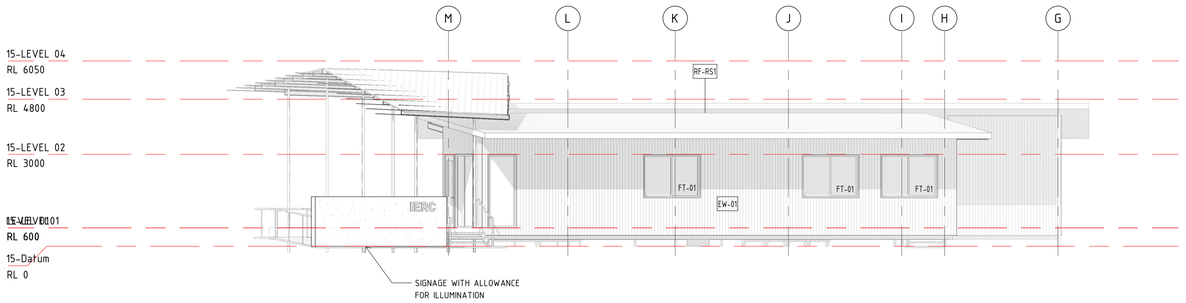

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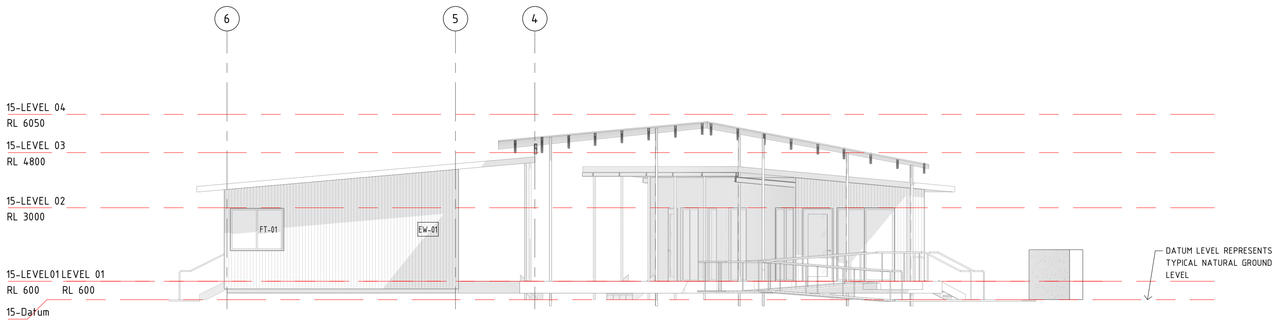

2 DA-EL-15-IERC-B
DA-15-31-01 SCALE 1 : 100

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A1 840 x 594

0 10 20 30 40 50 60 70 80 90 100

ALL DIMENSIONS ARE IN MILLIMETERS. DO NOT SCALE DRAWINGS FOR CRITICAL DIMENSIONS. CHECK DRAWING IS TO SCALE BY MEASURING SCALE BAR ABOVE. VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK, SHOP DRAWINGS OR ORDERING MATERIALS.

SERVICES, ESD, STRUCTURAL & CIVIL ENGINEERING, BUILDING SURVEYOR
WSP Darwin
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REV.	DETAILS	DATE
1	DEVELOPMENT APPLICATION	2.06.2023

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lyons@lyonsarch.com.au
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PROJECT
MANJALI STUDIO SCHOOL

Part of Lot 1701 on DP419014
Bunuba Native Title

DRAWING TITLE
INDIGENOUS EDUCATION AND RESEARCH CENTRE ELEVATIONS

SCALE
1 : 100 @A1

JOB No.	DRAWN	CHECKED	DATE
SS02	LYONS	CL	2.06.2023

DRAWING No. KSS-DA-15-31-02
REVISION 1

APPENDIX H MATERIAL SCHEDULE

MANJALI STUDIO SCHOOL

STUDIO SCHOOLS OF AUSTRALIA

lyons

EXTERNAL MATERIALS & FINISHES

JUNE 2023

SECTION ONE

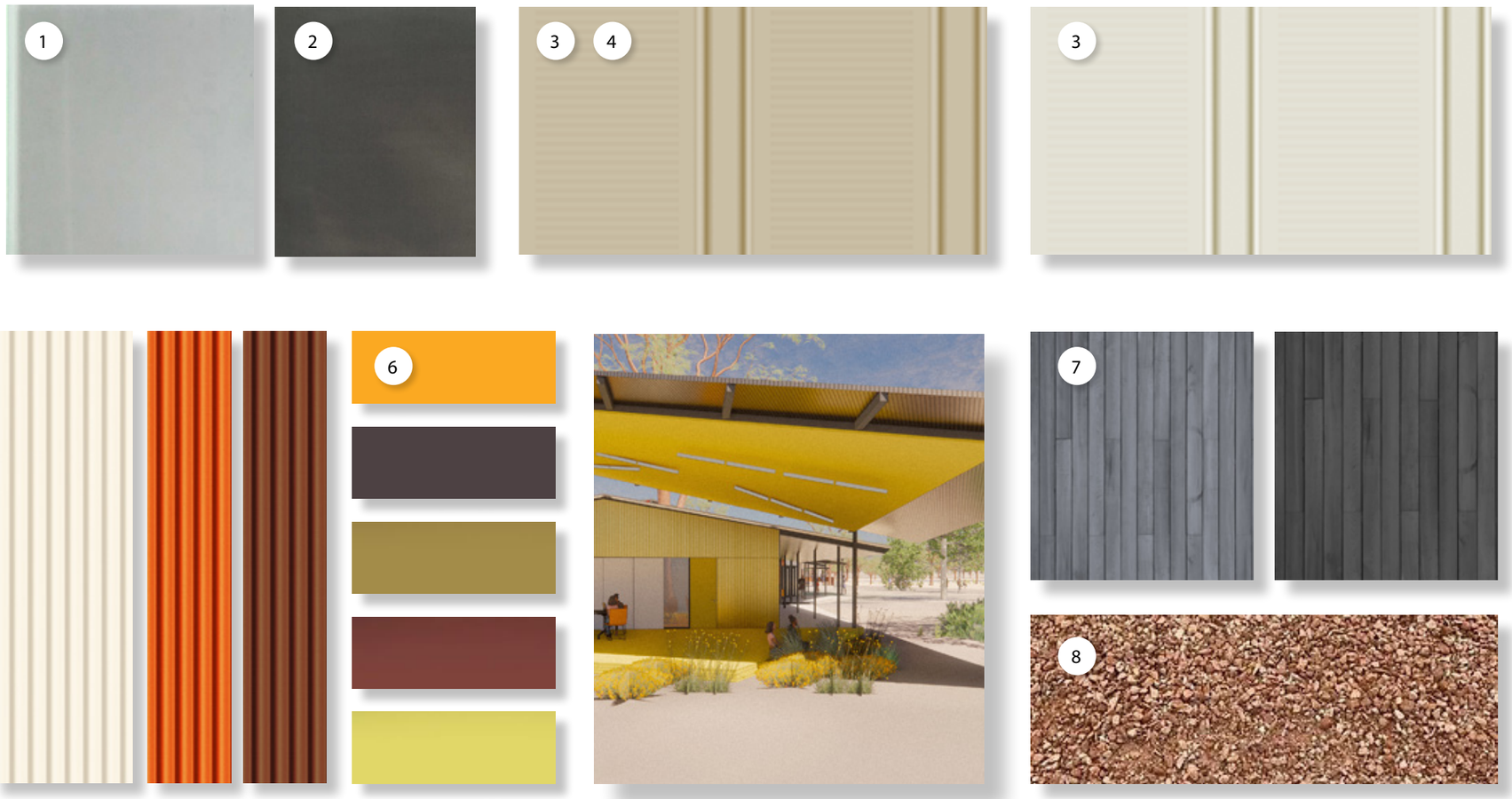
Revision

VERSION	SECTION	DESCRIPTION/CHANGES	ISSUED	APPROVED
1		Draft Issue for Review	28.09.22	Carey Lyon
2		Draft Issue for Review	26.05.23	James Wilson

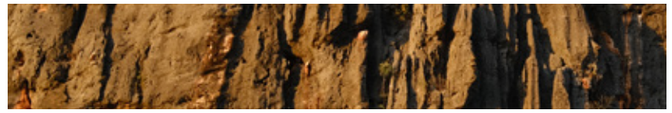
VIEW FACING WEST TOWARD THE DINING HALL + ARRIVAL BUILDING (JUNE, 10AM)

EXTERNAL MATERIALS + FINISHES

1. EXTERNAL DOUBLE GLAZING THROUGHOUT. CLEAR WITH ONE TINTED PANE AND ONE LOW-EMISSIVITY TREATED CLEAR PANE.
2. ALUMINIUM WINDOW FRAMES (CHARCOAL)
3. ROOF PANEL BONDOR SOLAR SPAN COMPOSITE PANEL, COLORBOND FINISH SURFMIST & PAPERBARK.
4. METAL ROOF SHEETING FINISH PAPERBARK.
5. BONDOR COMPOSITE WALL CLADDING THROUGHOUT. MULTIPLE COLOURS: WOODLAND GREY, EVENING HAZE AND ORANGE OR TERRAIN TO BE CONFIRMED.
6. FC SHEET EXTERNAL WALL AND SOFFIT LINING TO EAVES. MULTIPLE COLOURS.
7. EXTERNAL COMPOSITE DECKING TWO TONES OF GREY THROUGHOUT.
8. EXTERNAL COMPACT GRAVEL, USED THROUGHOUT ROADS AND PEDESTRIAN PATHWAYS.

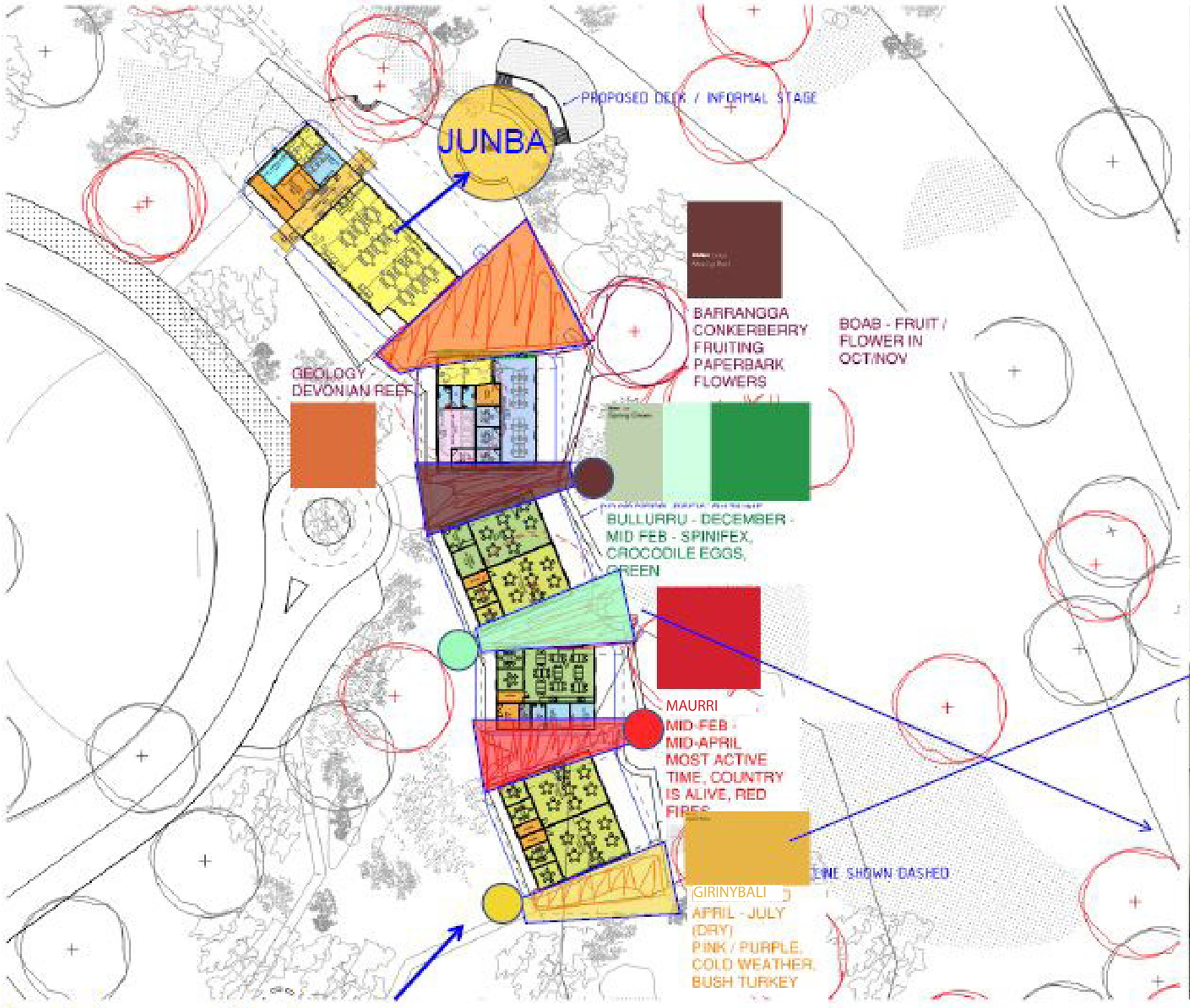


VIEW FACING EAST TOWARD THE DINING HALL AND ARRIVAL BUILDING (5PM)



VIEW FACING EAST TOWARD THE MAIN ENTRY (DEC, 3PM)

MATERIALS + FINISHES (PUBLIC AREAS)



SEASONAL MATERIAL PALETTE FOR LEARNING PAVILIONS AND ARRIVAL BUILDING (CONCEPT DIAGRAM)

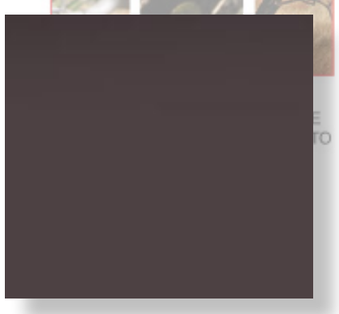
BUNUBA SEASONS - COLOUR THEMES

MAURRI

BOAB TREE (DERBY, GREGORII)

BULLURRU

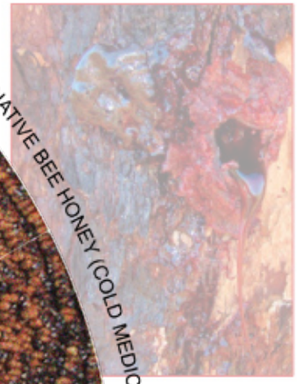
BARRANGGA



BININYBAL
SPINIFEX
NOTES: THE WAX FROM THE SPINIFEX (BARRALA / NGIRRIDUS) USED FOR COLDS

?
MANDA GUM
NOTES: LIKE TOFFEE WHEN COOKED WITH SOME SUGAR

?
CYPRESS PINE (CALLITRIS INTRATROPICA)
NOTES: TERMITE RESISTANT



MUNDAGALLGAL KAKADU
KAKADU PLUM (TERMINALIA FERDINANDIANA)
NOTES: FRUITS IN JANUARY

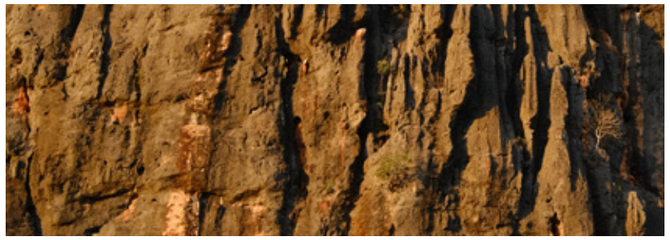
GIRINYBALI

WANGGU
NATIVE COTTON
NOTES: THE ROOT IS LIKE A YAM, FLOWERS ARE A BEAUTIFUL SMELL

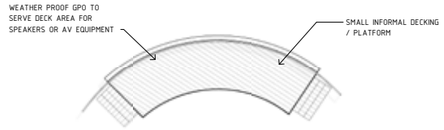
WIYINBI
BUSH HEATHER
NOTES: USED TO MAKE BROOMS AND FOR SWEEPING

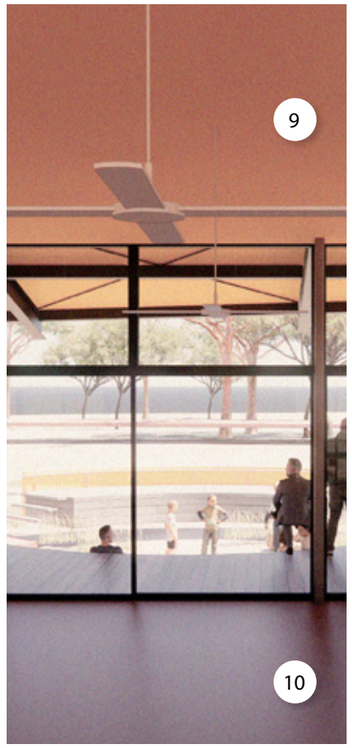
MATERIALS + FINISHES

BANDILNGAN GORGE



DEVONIAN REEF





COMMUNITY BUILDING (DINING HALL)

COMMUNITY BUILDING - GROUND FLOOR PLAN

MANJALI WHITE GUM TREE

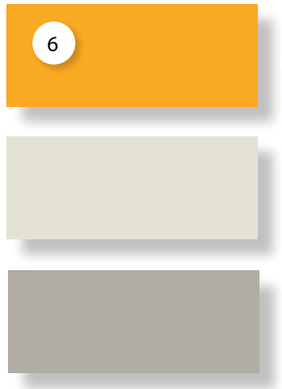
EROSION NEAR CREEKS

MANJALI QUARTZ ROCK

COMMUNITY BUILDING

CB

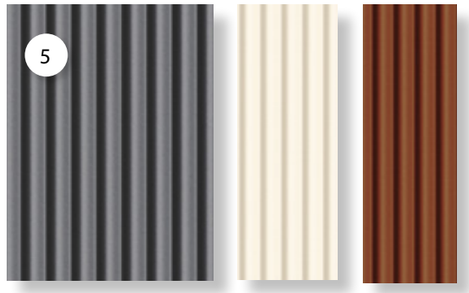
(RF-RS1, PAPERBARK)



SL-FC1

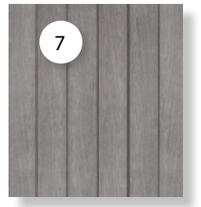
GLAZING

FRAMING



WALL (EW-01, COLOUR A, B & C)

WALL (EW-03)



FLOORS (FL-D1)

CEILING (CL-PL1)

EXTERIOR

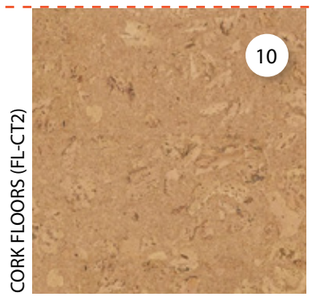
INTERIOR

WALL LINING (WL-03)

PAINT COLOUR

SS WALL LINING

SS BENCHTOPS



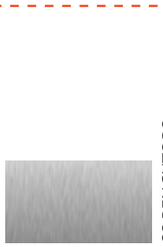
CORK FLOORS (FL-CT2)

QUEUING AREA (FL-CT1)

DINING HALL

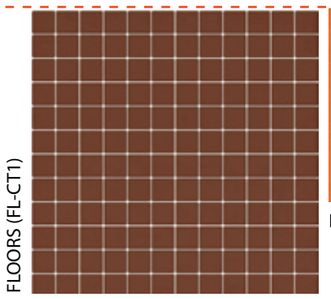
MR PLASTERBOARD

PAINT COLOUR

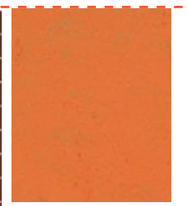


SS WALL LINING

SS BENCHTOPS



FLOORS (FL-CT1)



FLOORS (FL-RS1)

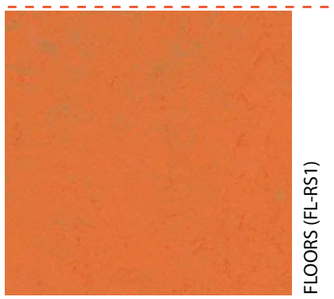
KITCHEN

WALL LINING (FL-RS1)

MR PLASTERBOARD

SS BASIN

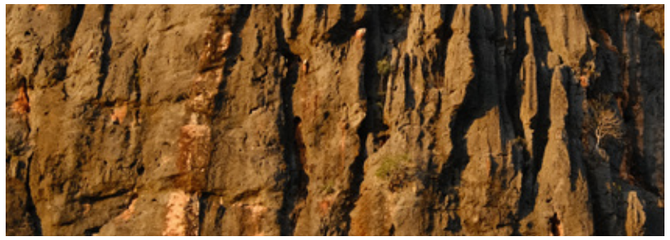
TOILET PARTITIONS (SF-TP1)



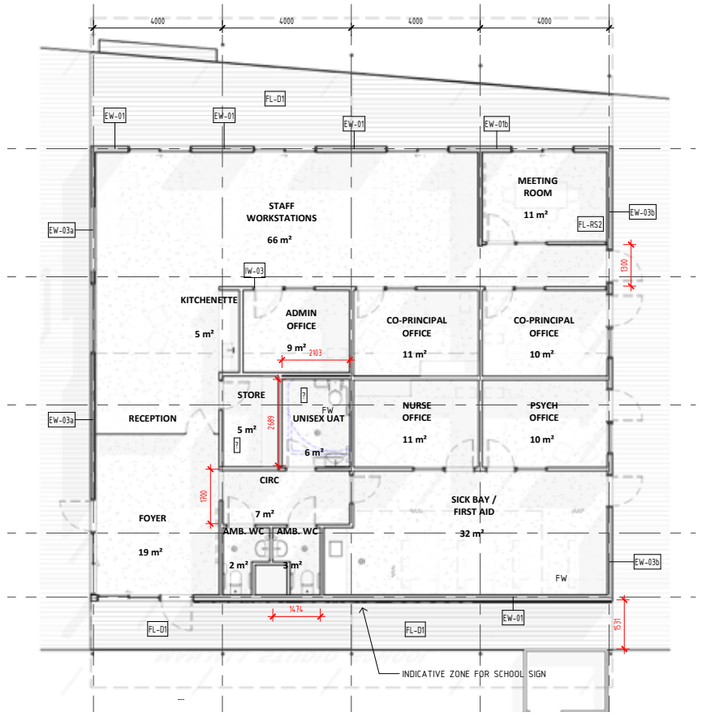
FLOORS (FL-RS1)

AMENITIES

MATERIALS + FINISHES



ARRIVAL BUILDING - MAIN ENTRY

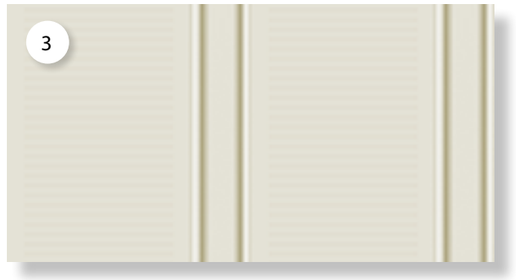


ARRIVAL BUILDING - GROUND FLOOR PLAN

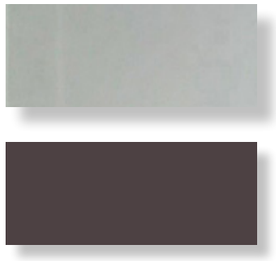
MANJALI

ARRIVAL BUILDING

AB



(RF-RS1, PAPERBARK)

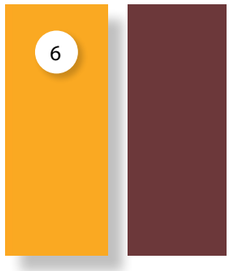


SL-FC1 (MODULAR CANOPY)

GLAZING

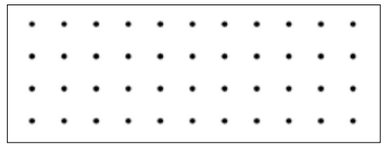
FRAMING

WALL (EW-01, COLOUR A & B)



WALL (EW-03a+b)

FLOORS (FL-D1)



CEILING

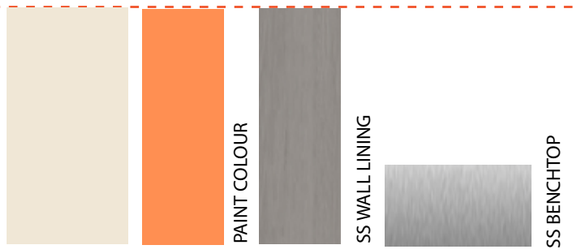
PERFORATED PLASTERBOARD (CL-PP1)

CEILING

CL-PB1 (WHITE PLASTERBOARD)

EXTERIOR

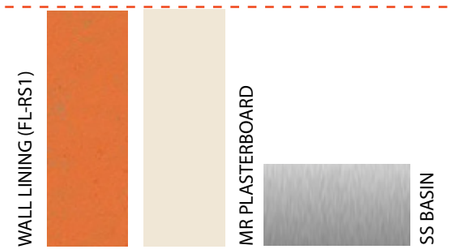
INTERIOR



PAINT COLOUR

SS WALL LINING

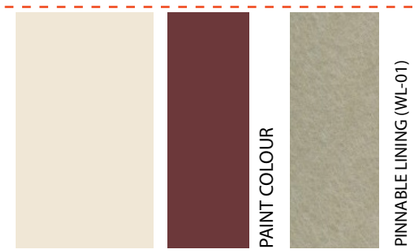
SS BENCHTOP



WALL LINING (FL-RS1)

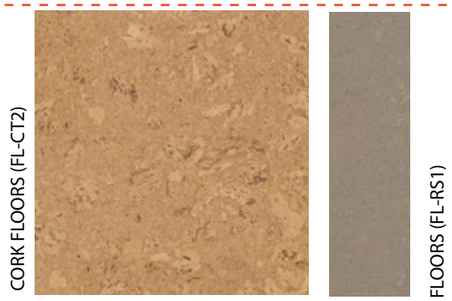
MR PLASTERBOARD

SS BASIN



PAINT COLOUR

PINNABLE LINING (WL-01)

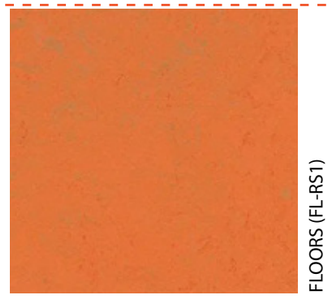


CORK FLOORS (FL-CT2)

FLOORS (FL-RS1)

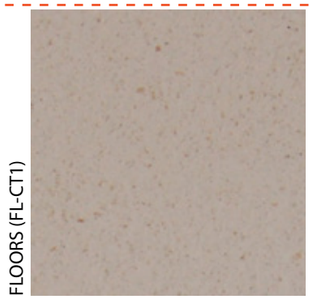
FOYER, WORKSTATIONS & KITCHENETTE

TOILET PARTITIONS (SF-TP1)



FLOORS (FL-RS1)

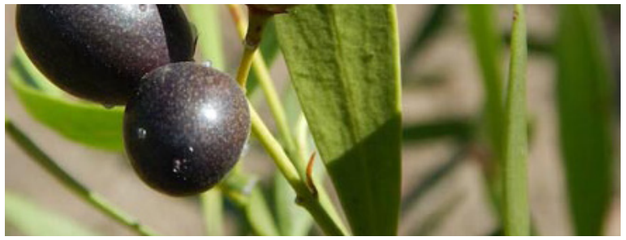
AMENITIES



FLOORS (FL-CT1)

MEETING, FIRST AID + OFFICES

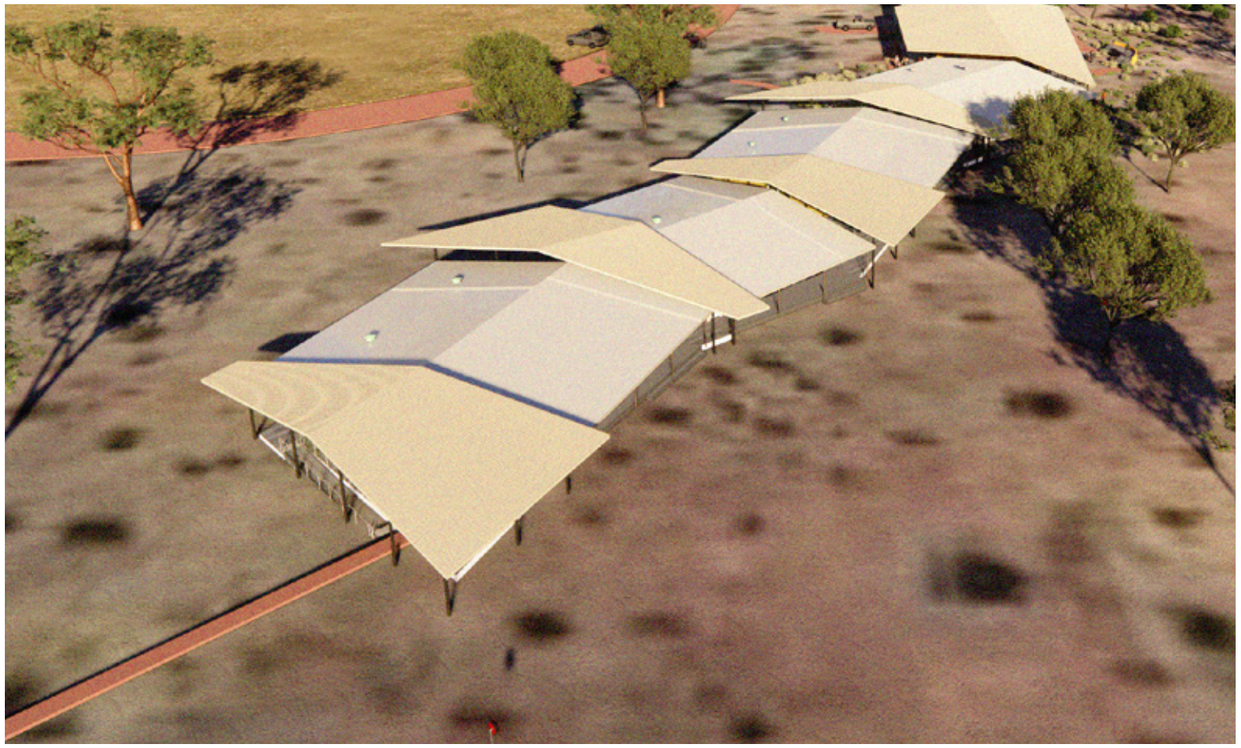
MATERIALS + FINISHES



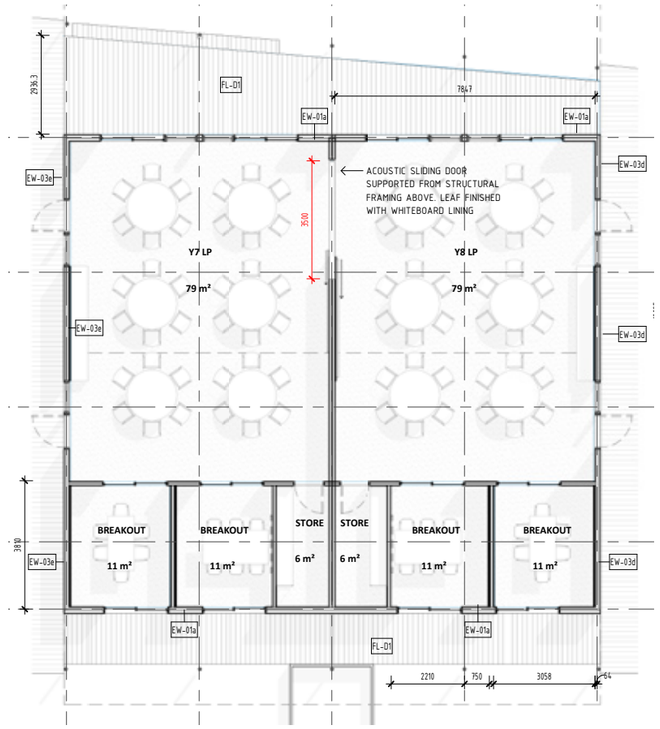
KONKABERRY (BARRANGGA) - PLUM

SPINIFEX WAX (BULLURRU)- GREEN

GILINI FLOWER (GIRINYABALI) - YELLOW



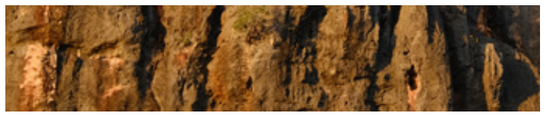
LEARNING PAVILIONS & INFILL MODULAR CANOPIES (EXTERNAL LEARNING AREAS)



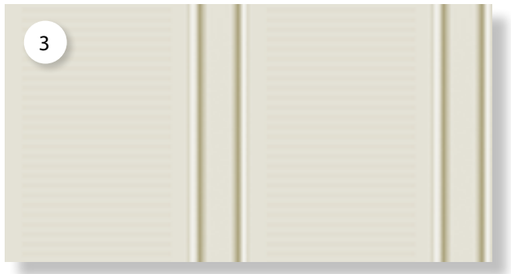
LEARNING PAVILION 3 - GROUND FLOOR PLAN

NHAA HONEY + CULTURAL BURNING (MAURRI) - RED

LEARNING PAVILIONS

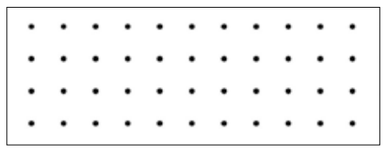




LP1, LP2, LP3 & MC



(RF-RS1, PAPERBARK)

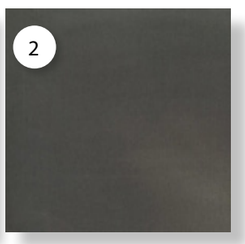

CANOPY (PAPERBARK)



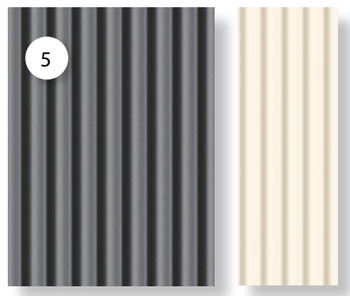
CEILING

PERFORATED PLASTERBOARD (CL-PP1)

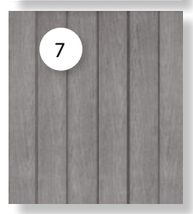
GLAZING



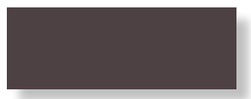
FRAMING



WALL (EW-01, COLOUR A & B)

FLOORS (FL-D1)

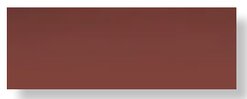


SL-FC1b

EW-03b

SL-FC1c

EW-03c



SL-FC1d

EW-03d

SL-FC1e

EW-03e

EXTERIOR

INTERIOR

PAINT PLASTERBOARD

PINNABLE LINING (WL-01)

WHITEBOARD (WL-02)

PAINT PLASTERBOARD

PINNABLE LINING (WL-01)

WHITEBOARD (WL-02)

PAINT PLASTERBOARD

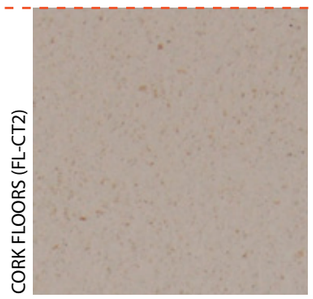
PINNABLE LINING (WL-01)

WHITEBOARD (WL-02)

PAINT PLASTERBOARD

PINNABLE LINING (WL-01)

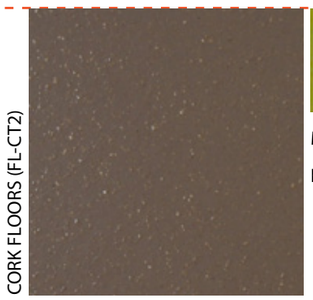
WHITEBOARD (WL-02)



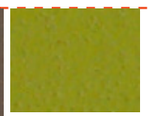
CORK FLOORS (FL-CT2)

MEETING ROOM

FLOORS (FL-CT2)

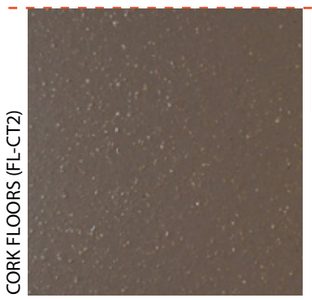


CORK FLOORS (FL-CT2)



MEETING ROOM

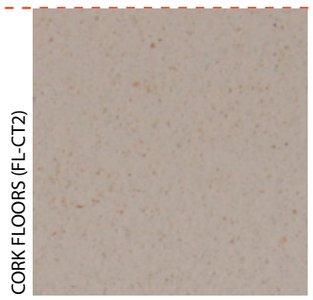
FLOORS (FL-CT2)



CORK FLOORS (FL-CT2)

MEETING ROOM

FLOORS (FL-CT2)



CORK FLOORS (FL-CT2)

MEETING ROOM

FLOORS (FL-CT2)

BARRANGGA

LP - AB/DRY LAB

BULLURRU

LP - Y9/WET LAB

MAURRI

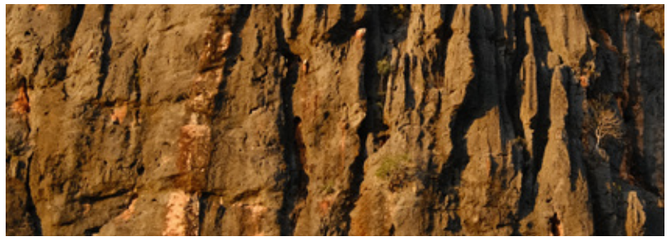
LP - AMENITIES/Y8

GIRINYABALI

LP- Y7

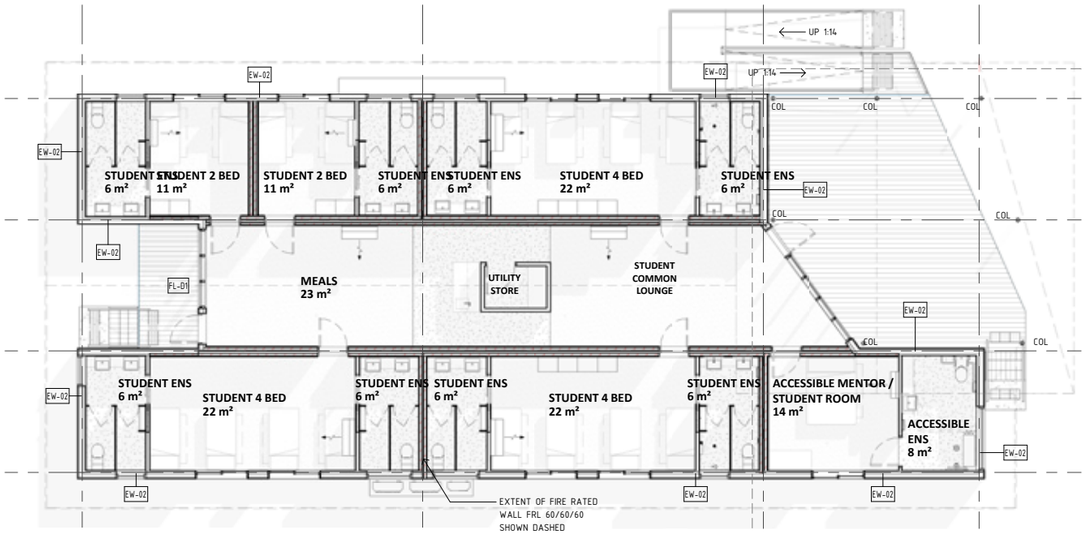
MATERIALS + FINISHES

BANDILNGAN GORGE



DEVONIAN REEF

STUDENT RESIDENCES



STUDENT HOUSES (COMMUNITY RESIDENCE - CR) - GROUND FLOOR PLAN

MANJALI WHITE GUM TREE

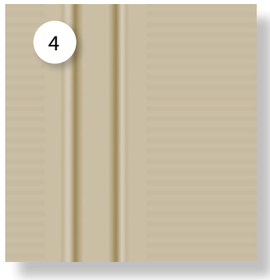
MANJALI QUARTZ ROCK

STAFF + STUDENT RESIDENCES



CR, SRU, SRSH, SRDH, SCL

(RF-RS1, SURFMIST)

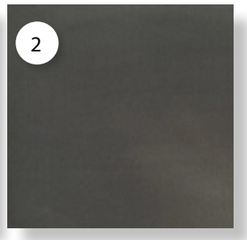


4

CANOPY (PAPERBARK)

1

GLAZING



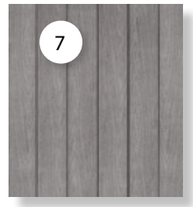
2

FRAMING

5

6

CANOPY SOFFIT (TBC)



7

FLOORS (FL-D1)

CEILING

CL-PB1 (WHITE PLASTERBOARD)

EXTERIOR

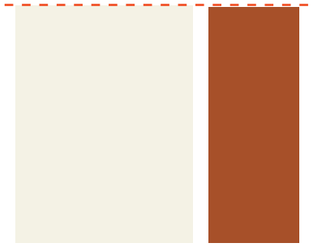
INTERIOR


PAINT PLASTERBOARD

SS BENCHTOP

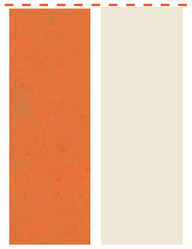
SPLASHBACK

LAMINEX JOINERY



PAINT PLASTERBOARD

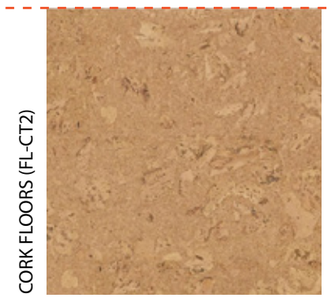
STORAGE UNITS / ROBES



WALL LINING (FL-RS1)

MR PLASTERBOARD

SS BASIN

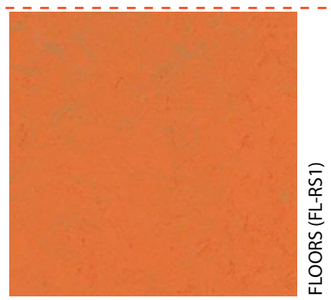


CORK FLOORS (FL-CT2)

FLOORS (FL-RS1)

CORK FLOORS (FL-CT2)

TOILET PARTITIONS (SF-TP1)



FLOORS (FL-RS1)

COMMON AREAS

KITCHENETTE

BEDROOMS

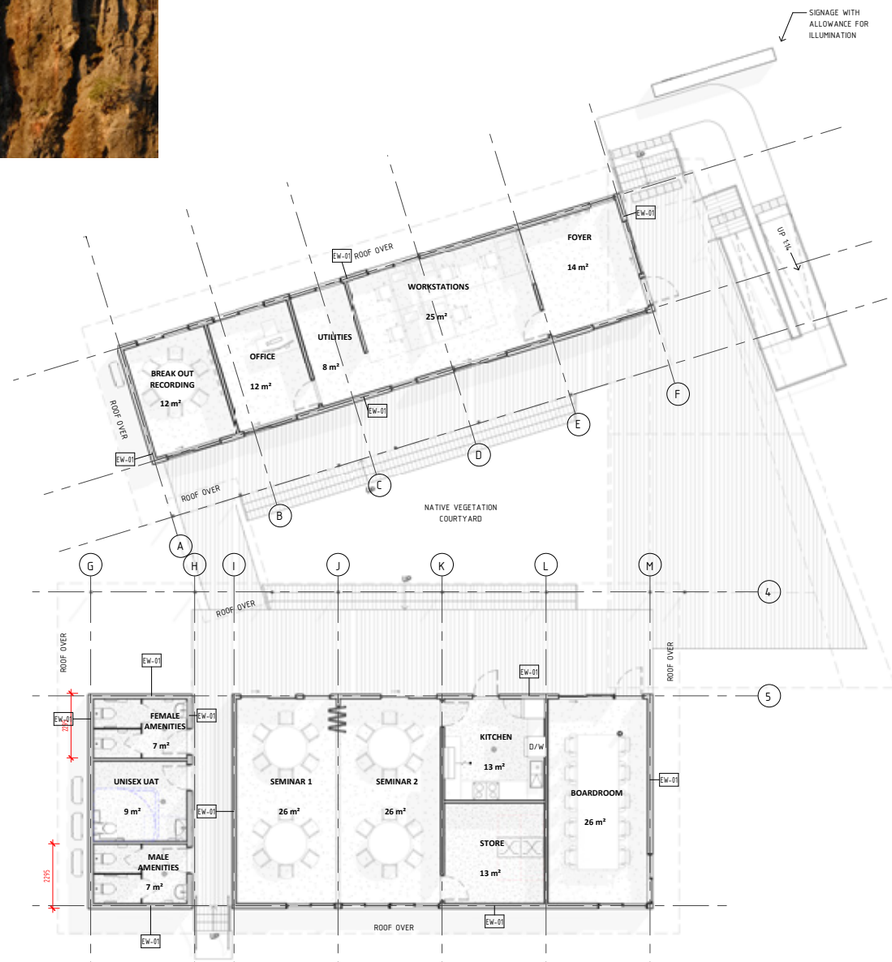
AMENITIES

MATERIALS + FINISHES

BANDILNGAN GORGE

DEVONIAN REEF

INDIGENOUS EDUCATION AND RESEARCH CENTRE (IERC)

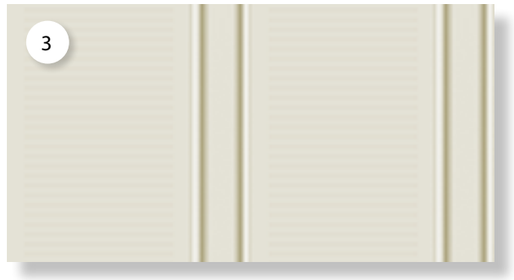


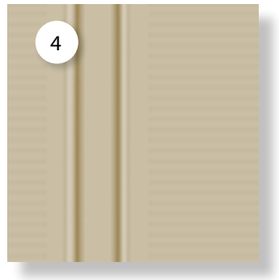
IERC - GROUND FLOOR PLAN

MANJALI

INDIGENOUS EDUCATION AND RESEARCH CENTRE (IERC)

IERC





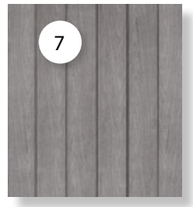
(RF-RS1, SURFMIST)

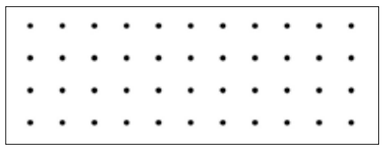
CANOPY (PAPERBARK)

GLAZING

FRAMING

CANOPY SOFFIT (TBC)





CEILING

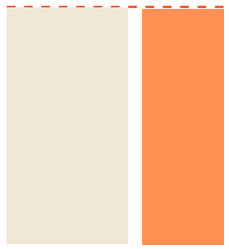
PERFORATED PLASTERBOARD (CL-PP1)

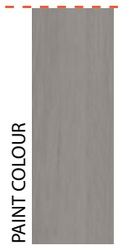
CEILING

CL-PB1 (WHITE PLASTERBOARD)

EXTERIOR

INTERIOR

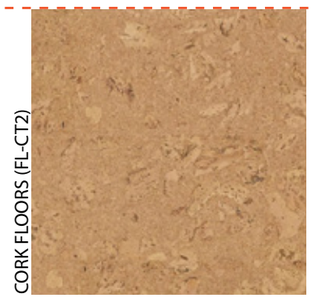




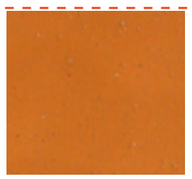
PAINT COLOUR

SS WALL LINING

SS BENCHTOP



CORK FLOORS (FL-CT2)



FLOORS (FL-CT2)

SEMINAR, BOARDROOM, MEETING ROOMS & WORKSTATIONS

MR PLASTERBOARD

PAINT COLOUR

SS WALL LINING

SS BENCHTOPS

FLOORS (FL-RS1)

KITCHENETTE

WALL LINING (FL-RS1)

MR PLASTERBOARD

SS BASIN

TOILET PARTITIONS (SF-TP1)

FLOORS (FL-RS1)

AMENITIES

APPENDIX I PARDOO BEEF CORPORATION CORRESPONDENCE

PARDOO
wagyu

PARDOO BEEF CORPORATION PTY LTD ABN: 56 601 968 165

HEAD OFFICE L5, 189 St George's Terrace, Perth WA 6000
Tel: +61 8 9322 3888 Fax: +61 8 9322 5888
PARDOO STATION Gt Northern Highway, Port Hedland WA 6721
Tel: +61 8 9176 4930 Fax: +61 8 9176 4737

Mr Sean Browne
Manager Land Management North
Department of Planning, Lands & Heritage
140 William Street
Perth WA 6000

Email: sean.browne@dplh.wa.gov.au

Dear Sean

Re: Studio Schools of Australia at Yarranggi/Leopold Downs

Our paths cross again Sean on different subject - happy that we have finally reached our freehold milestone for Pardoo. Thank you again to you and the whole team for working with us to reach this important juncture for our company.

Bunuba Aboriginal Corporation and Studio Schools of Australia (SSA) have met with our management team to discuss the need for the new proposed Middle School to be relocated to Yarranggi/Leopold Downs because of the flood rendering the previous location untenable. Pardoo gives full support to Bunuba Aboriginal Corporation ICN 1349 to have the nominated 300-hectare area of land near Kurrajong excised off the Yarranggi/Leopold Downs pastoral sub-lease (Ref 120840085) for the purposes of developing the SSA Middle School. The area is a portion of Lot 1701 on Deposited Plan 419014. Indicative site plans attached.

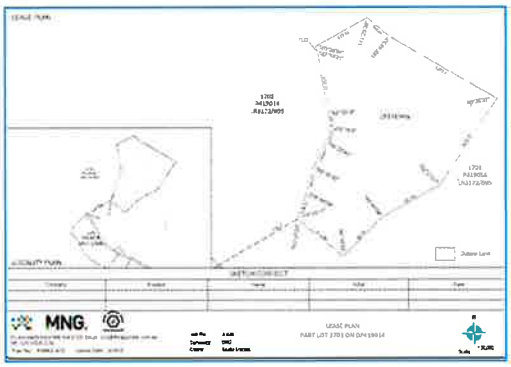
Bunuba Aboriginal Corporation will apply for a special purpose Section 91 License to lease the excised area to Studio Schools of Australia to develop the new middle Studio School at Kurrajong.

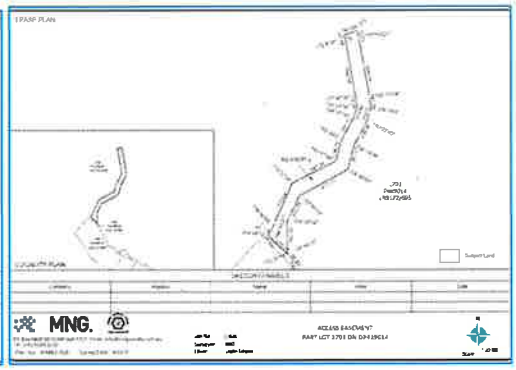
Pardoo Beef Corporation fully supports this application and considers this an important social and economic benefit for the community.

Yours sincerely,

Bruce Cheung
Chairman and Chief Executive Officer
26 April 2023

INDICATIVE SITE PLANS





URBIS

URBIS.COM.AU