

CROOBYAR ROAD

PRINCES HIGHWAY

BUDAWANG SCHOOL

SSDA Report

We acknowledge the traditional custodians of the land, and pay our respects to their elders past present and emerging, recognising their continuing connection to land, waters and culture.

Issue	Title	Date	Prepared	Checked
1	Draft - Issued for Information	12/03/2021	RF	RK
2	Draft - Issued for Information	24/03/2021	RF	MM / RK
3	Draft - Issued for Information	02/04/2021	RF	RF
4	Issue for SSDA	12/04/2021	RF/CH	MM/RK
5	Issue for SSDA	13/04/2021	RF	MM/RF
6	Issue for SSDA	29/04/2021	RF	RF/FR
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1.0 EXECUTIVE SUMMARY

This report has been prepared for School Infrastructure NSW to support the development of a new school for students with special needs in Milton, NSW.

The project involves relocation of the existing Budawang School for Specific Purposes, Budawang School in Ulladulla to a new site in nearby Milton, NSW

The existing Budawang School is located on Camden Street in Ulladulla within the Shoalhaven LGA.

The Business Case prepared by Deloitte notes the LGA has a higher than average prevalence of disability amongst the school community. Increasing student numbers are allocated to support classes: The lease for the current site is ending and the buildings are not fit for purpose. This project relocates the existing school to a part of the 7.7Ha Department of Education site on Croobyar Road in Milton.

Budawang's new facilities will provide 7 homebases in the first phase, which is covered within this SSDA. If there is sufficient future demand for Special Educational Needs facilities within the locality, there is scope within the masterplan and core facilities to increase Budawang School to 10 homebases in the future.

Budawang School caters for Special Needs students from Kindergarden to year 12. Classes are typically of 6 to 8 students with two staff members. This high staff to student ratio is typical for a special needs school; the current Budawang School has 35 students. The entry criteria for the school is a moderate to severe intellectual disability. This is often coupled with other conditions, such as a sensory condition, autism, behavioural and/or emotional disorders, and/or severe physical disabilities. High levels of care are required by students, who often have very conflicting needs.

The new school will accommodate 56 students within the first phase of 7 homebases with a maximum population of 80 students when the future block of 3 homebases is constructed.

There is no fixed catchment area for the school. Many students commute a long distance to the school. Students who are currently enrolled at Budawang travel from Saint Georges Basin to the North, and Batemans Bay to the South; up to a 50-minute car or taxi ride. These distances coupled with the nature of Special Needs means that very few students are expected to arrive on foot.

The Site

In 2018 the NSW Department for Education purchased the 7.7-hectare site in Milton, near Ulladulla, which had previously been occupied by the Shoalhaven Anglican School. In early 2019 it was announced that purpose-built facilities for Budawang School would be located on the site.

The site is on Croobyar Road in Milton, near the junction with the Princes Highway. It contains numerous educational buildings dating from around the 1980s to the early 2000s. As the site is larger than is required by the Budawang School the remainder of the lot may be used for potential future educational purposes. The Budawang School has been located to the front of the site. This maximises flexibility for the remainder of the site.

Pedagogy Overview

The school's pedagogy targets development of social and lifeskills. Learning is geared towards the goal of independent living in adulthood. This curriculum includes self-care skills, cooking, cleaning, laundry, and social interaction. Academic skills are typically focused around skills that are relevant for interaction in society.

The school may consider opportunities for selective social interaction with the wider school and community network.

Each student will have an individual learning plan suiting their ability, with the pedagogy adjusted to meet their ability, age, and learning requirements. The levels of care required at the school are typically greater than those required by students attending a support unit within a mainstream school.

Design for Manufacture and Assembly (DfMA)

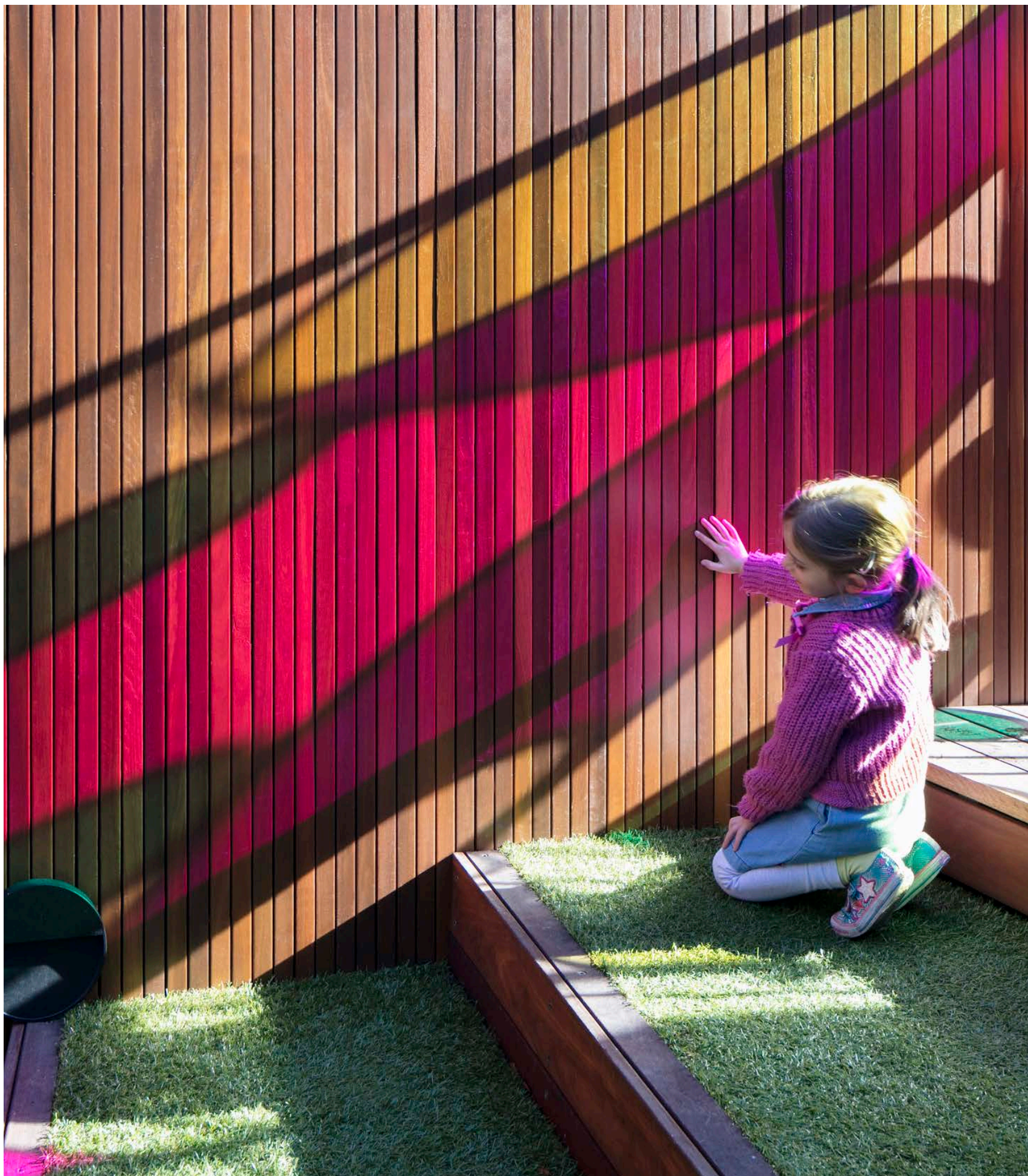
At Schematic Design commencement for Budawang School SINSW asked GroupGSA to review the scheme utilising DfMA principles. The core facilities and homebases have been adjusted to SINSW's DfMA grid. A "Kit of Parts" DfMA solution has been considered.

Government Architect NSW

As this development is undergoing a State Significant Development Application process the project has been presented twice to the Government Architect. Comments received following these presentations have been considered, and are discussed within this report in sections 9.1 and 9.2.

This report has been structured as follows:

- Introduction
- Education Design Principles
- Context
- Site Analysis
- Architecture
- Landscape
- Services
- GANSW / SEPP Response



INTRODUCTION

2.0

2.1 SEARS TABLE

This document responds to the following requirements set out in the Planning Secretary’s Environmental Assessment Requirements

SEARS	Report reference
3/ Built Form and design	
Address:	
– The height, density, bulk and scale, setbacks and interface of the proposal in relation to the surrounding development, topography, streetscape and any public open spaces	<ul style="list-style-type: none">• Section 2.2 for SEARs Response information• Section 5.0 for Site Analysis information.• Refer to Architectural drawings contained within the Appendices.
– Design quality and built form, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials and colours	<ul style="list-style-type: none">• Refer to sections 6.0 and 7.0 of this report for Architectural and Landscape information.• Refer to Architectural drawings contained within the Appendices.
– How Crime Prevention through Environmental Design (CPTED) principles are to be integrated into development	<ul style="list-style-type: none">• Section 2.2• Section8.5
– How good environmental amenity would be provided, including access to natural daylight and ventilation, acoustic separation, access to landscape and outdoor spaces and future flexibility	<ul style="list-style-type: none">• Refer to section 8.1 and 8.2 for response to daylighting and ventilation.• Refer to Acoustic Report.• Refer to sections 6.7, 6.8 and 7.7 for information regarding connectivity between indoor and outdoor spaces• Refer to sections 6.4 and 6.8 for information relating to future flexibility.
– How design quality will be achieved in accordance with Schedule 4 Schools – design quality principles of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 and the GANSW Design Guide for Schools (GANSW, 2018)	<ul style="list-style-type: none">• Refer to sections 9.3 and 9.4.• Responses to Government Architect comments specifically relating to the design of Budawang School are covered in sections 9.1 and 9.2.
– How services, but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development.	<ul style="list-style-type: none">• Refer to section 8.
Provide:	
– A detailed site and context analysis to justify the proposed site planning and design approach including massing options and preferred strategy for future development	<ul style="list-style-type: none">• Refer to sections 4.0 and 5.0 within this report for context and site analysis information
– A visual impact assessment that identifies any potential impacts on the surrounding built environment and landscape including views to and from the site and any adjoining heritage items.	<ul style="list-style-type: none">• Refer to the Report prepared by Mecone for detailed information regarding visual impact. Renders within sections 6.13 to 6.17 illustrate views of the site and demonstrate the relationship to adjacent heritage items.
4/ Tree Removal and Landscaping	
Provide a detailed site-wide landscape strategy, that:	
– details the proposed site planting, including location, number and species of plantings, heights of trees at maturity and proposed canopy coverage	<ul style="list-style-type: none">• Refer to section7.9
– considers equity and amenity of outdoor play spaces, and integration with built form, security, shade, topography and existing vegetation	<ul style="list-style-type: none">• Refer to section 7.0.
– demonstrates how the proposed development would: contribute to long term landscape setting in respect of the site and the streetscape	<ul style="list-style-type: none">• Refer to Vegetation Strategy, section 7.8.• Boundary conditions are covered in section 7.10.
Provide:	
– a detailed landscape plan prepared by a suitably qualified person.	<ul style="list-style-type: none">• Refer to Landscape Plan, section 7.4.• Further information relating to landscape design are throughout section 7.0.

SEARS	Report reference
5/ Environmental Amentity	
<div><div>– Assess amenity impacts on the surrounding locality, including solar access, visual privacy, visual amenity, overshadowing, wind impacts and acoustic impacts. A high level of environmental amenity for any surrounding residential land uses must be demonstrated</div></div>	<div><div>• Refer to the Report prepared by Mecone for detailed information regarding visual impact.</div><div>• Renders within sections 6.13 to 6.17 illustrate views of the site and demonstrate the relationship to adjacent heritage items.</div><div>• Refer to Acoustic Report</div></div>
Provide:	
<div><div>– shadow diagrams</div></div>	<div><div>• Refer to drawings SSDA-2150 and SSDA-2151 within the Architectural drawing pack.</div></div>
<div><div>– a view analysis of the site from key vantage points and streetscape locations and public domain including photo-montages or perspectives showing the proposed and likely future development</div></div>	<div><div>• Refer to the Report prepared by Mecone for detailed information regarding visual impact.</div><div>• Renders within sections 6.13 to 6.17 illustrate views of the site and demonstrate the relationship to adjacent heritage items.</div></div>
<div><div>– an analysis of proposed lighting that identifies measures to reduce spill into the surrounding sensitive receivers</div></div>	<div><div>• Refer to report provided by Mecone.</div></div>
14/ Staging	
Provide:	
<div><div>– Assess impacts of staging where it is proposed and detail how construction works and operations would be managed to ensure public safety and amenity on and surrounding the site.</div></div>	<div><div>• The project is not being staged. Allowance has been made for a potential future block of three homebases. This building is not included within this application.</div><div>• Refer to Section 6.4 for further information on the future block</div></div>
26/	
<div><div>– A detailed constraints map identifying the key environmental and other land use constraints that have informed the final design of the development</div></div>	<div><div>• Refer to Site Analysis diagrams within Section 5.0</div></div>
27/	
<div><div>– Plans, elevations and sections of the proposed development</div></div>	<div><div>• Refer to Architectural and Landscape drawings located within the appendices of this document.</div><div>• For further design information refer to sections 6.0 and 7.0 within this report</div></div>
28/	
<div><div>– Cladding, window and floor details, including materials</div></div>	<div><div>• Refer to Architectural drawings SSDA-3201, SSDA-3202., and SSDA3020</div><div>• Sections 6.10 6.11 for further information regarding materiality</div></div>
29/	
<div><div>– A site plan showing all infrastructure and facilities (including any infrastructure that would be required for the development, but the subject of a separate approvals process)</div></div>	<div><div>• Site Plan located on Architectural drawing SSDA-2000.</div><div>• Landscape Plan located in Section 7.4</div></div>
30/	
<div><div>– Plans and details of any advertising/business identification signs to be installed, including size, location and finishes</div></div>	<div><div>• Refer to drawing SSDA-2800</div><div>• Section 6.18.</div></div>
41A/	
<div><div>The applicant is made aware that there is an existing DN225 AC/C Sewer Rising (Pressure) Main located within an Easement to Pump Sewage that diagonally traverses the property. No building or part thereof shall be constructed within this easement. Proposed Block A1 has a corner located on the easement boundary line. It is preferred for the applicant to move the building clear of the zone of influence.</div></div>	<div><div>• Refer to Architectural drawing SSDA-2002. Column and slab adjacent to the bike shed has been moved away from the existing sewer line.</div></div>

2.2 SEARS RESPONSE

Context

The site for Budawang School is located in Milton, on the South Coast of NSW. It is around 3 hours drive south of Sydney close to Ulladulla and Mollymock. The Budawang School site is located 10 minutes walk southwards from the centre of Milton near the junction of The Princes Highway and Croobyar Road .

The project is situated on part of the wider Department of Education site on Croobyar Road. This lot measures around 7.7Ha, whilst the Budawang School encompasses around 10,206sqm towards the northern boundary of the lot, occupying much of the frontage on Croobyar Road. The south, west and east of the Budawang site is surrounded by the remainder of the Department of Education site with existing school buildings to the south of the Budawang School

Surrounding Developments

The Project site is bounded by:

- Croobyar Road to the North with single storey residential buildings and Milton Anglican Pioneers Cemetery, which is heritage listed.
- A heritage listed commercial building to the east operated as a bakery, separated from the Budawang School site by a row of mature trees and car parking belonging to the bakery.
- Residential buildings to the east which address the Princes Highway. These buildings have deep back yards and dwellings are set well back from the Budawang School boundary by around 30 to 40 metres, excluding out-buildings.
- Existing school buildings to the south
- One residential building and cements works to the west
- Milton Heliport to the west

Streetscape Response

The vernacular of local buildings, both historical and contemporary has been considered carefully during the design process.

Conceptually the design uses materiality and building scale common to the Shoalhaven locality to give the building a domestic scale, and thus feel more comfortable and familiar to the students, whilst blending in with the surroundings. This response is discussed further within the Materiality section of this document.

High fencing measuring 2150mm high and car parking have been located along Croobyar Road, with these items serving functional requirements. To improve the streetscape along Croobyar Road and reduce the impact of the cars, planting will screen both the fence and car park. Refer to Landscape diagrams and sections.

Density

Buildings on the Budawang site are separated into blocks arranged around a central courtyard. The footprint of blocks is comparable to existing educational buildings on the site.

GFA of the Budawang buildings is approximately 2,325sqm, whilst the site area occupied by the Budawang School is 10,206sqm. Site coverage of the buildings (excluding outdoor covered areas) is 22.8%.

Height

The school massing responds to the scale of the local residential context; it is a single storey building. Site levels of the new school, which are lower than Croobyar Road, result in the buildings being either lower than or at a comparable height to the surrounding built context. The nearby heritage bakery building is two storeys high with a more steeply pitched roof than the Budawang School buildings.

Roofs of the Budawang School have a pitch of 4 degrees with clerestory roof forms providing additional height above the Hydrotherapy Pool, Hall, and Library. Maximum height of the buildings is 6,775mm to the

clerestory of the hydrotherapy building; the tallest of the new school buildings.

The Hydrotherapy building is located closer to Croobyar Road and the Heritage Bakery than the other blocks. At RL58.00 the ridge line of the Hydrotherapy building is almost 5 metres lower than the ridge of the 2 storey Heritage Bakery, which has a ridge line RL of 62.91. The Hydrotherapy Pool ridge line is comparable to the heights of residential properties to the opposite side of Croobyar Road.

The drop off shelter within the car park, has an RL of 55.990. This height is necessitated by Traffic advice in relation to the height of services vehicles.

Bulk and Scale

The new Budawang School is single storey, which is comparable to existing educational buildings on the site and the residential context.

Organising the campus around a central courtyard creates linear blocks, with dual aspect façades to most of the learning spaces, most of which face inwards. The longest of these blocks contains core facilities; it faces north establishing a public facade and south to provide views over the courtyard from rooms occupied by staff. This block is 60m long, divided by an 6m wide external entry way, which provides covered access from the Drop Off to the COLA.

Homebase blocks which flank the courtyard measure 39 metres long for the block of 3 homebases, and 48 metres long for the block of 4 homebases.

All buildings have overhanging eaves. The design considers:

- Managing excess solar gain,
- Covered outdoor learning areas,
- Reducing additional structures required to create covered walkways.

Setbacks

The Hydrotherapy building footprint is 3 metres set back from the lot boundary aligned with Croobyar Road. This is comparable to the setback of the Heritage Bakery to the street. The overhanging eaves of the Hydrotherapy building encroach into the 3m setback to the north lot boundary. The fascia of the Hydrotherapy building roof overhang is 2 metres set back from the lot boundary.

The footprint of the core facilities building is around 36 metres from the site boundary.

The car park and drop off shelter, essential to the arrival and departure process, is adjacent to Croobyar Road due to particular pick up / drop off process requirements of the a school for students with Special Needs

Demolitions

As part of the Masterplanning Process for the School GroupGSA considered the entire 7.7Ha Department of Education site to select the ideal location for the new Budawang School. The existing educational buildings were assessed in terms of the following factors:

- Building condition and state of repair
- Re-purposing existing buildings for use as a School for Specific Purposes - including consideration of site levels, spatial arrangements, and pedagogy. This design option was dismissed.
- Future reuse of facilities for a potential future educational purposes
- Location of the Budawang School on the wider DoE site

The selected plot was most suitable for the Budawang School. This plot contains two buildings (both considered of low retention value) and outbuildings:

- Existing Pre-School on Croobyar Road
- Block L
- Pre School gatehouse and shed

- A part of the existing site entry wall and gate house will be demolished.
- Existing fence along Croobyar Road removed and replaced.
- Trees removed as indicated on Tree Management Plan.
- Existing playground equipment
- Existing Anglican School signage removed

Demolitions in relation to this project are noted on drawing SSDA-1120

CPTED

- Crime Prevention is an important consideration for the design of the school. Features required for student safety, such as high fences and maximising passive surveillance through clear sight lines serve the requirements of CPTED. Refer to section 8.5 of this report for more detailed descriptions of the design response to CPTED

2.3 PROJECT SCOPE

The students’ spatial, sensory, physical, functional and pedagogical requirements is considered and understood within the architecture. The proposed design addresses the safety, practical, and professional needs of the teaching staff.

The SINSW brief for Concept Design of Budawang School was based on modelling by Deloitte. This indicated:

- Core facilities for 10 homebases
- 7 homebases to be built within this stage accommodating around 56 students (depending upon level of care)
- Provision within the masterplan and core facilities for a future 3 homebases
- Hydrotherapy Facility
- Core facilities including one Special Programmes Room for Lifeskills
- Sensory Rooms co-located with Multipurpose Space
- External Play Area
- Assumed maximum enrolment of 80 students

Budawang School Information

Site Area:	10,206sqm approx.
Gross Floor Area:	2,325sqm approx.
New site address:	17 Croobyar Road, Milton, NSW
Local Government Area:	Shoalhaven City Council
Current enrolment of existing Budawang School	32 students within 5 homebases
Projected enrolment for this stage	56 students within 7 homebases
Projected enrolment including potential future stage	80 students within 10 homebases
Projected staff numbers for this stage	27
Projected staff number including potential future stage	34





EDUCATION DESIGN PRINCIPLES

3.0

3.1 EFSG EDUCATION DESIGN PRINCIPLES

The NSW DoE General Education Principles for Facilities Design translate the NSW DoE vision for learning into a set of design considerations for both indoor and outdoor education facilities. They make a strong and clear statement about valued learning and the school's place in the community. Drawing on Great Teaching, Inspired Learning, the General Education Principles for Facilities Design ensure that NSW students are 'inspired to learn by great teachers and great teaching' in learning environments that support the needs of learners, their communities and a learning-centred approach.

DoE Principle 1:

First and foremost, focus on the needs of learners and learning.

DoE Principle 2:

Build community and identity and create a culture of welcome, inclusion and belonging that reflects and respects diversity within the school's community.

DoE Principle 3:

Be aesthetically pleasing.

DoE Principle 4:

Provide contemporary, sustainable learning environments that:

- Promote learning for students and teachers through collaboration, social interaction and active investigation
- Encourage learner self-management and self-direction
- Support a full range of teaching strategies from direct explicit instruction to facilitation of inquiry and authentic project and problem-based learning
- Facilitate learning and connection anywhere, anytime by providing seamless access to ICT and integration of learning resources throughout the learning spaces
- Be integrated into, and maximise the use of the natural environment
- Enable aspects of the buildings, building design and outdoor spaces to be learning tools in themselves—for example, learning from the ecologically sustainable features of the design and associated energy management systems
- Are age and stage appropriate

DoE Principle 5:

Embed the potential for re-reconfigurability, both in the present for multi-purpose use and over time for changing needs

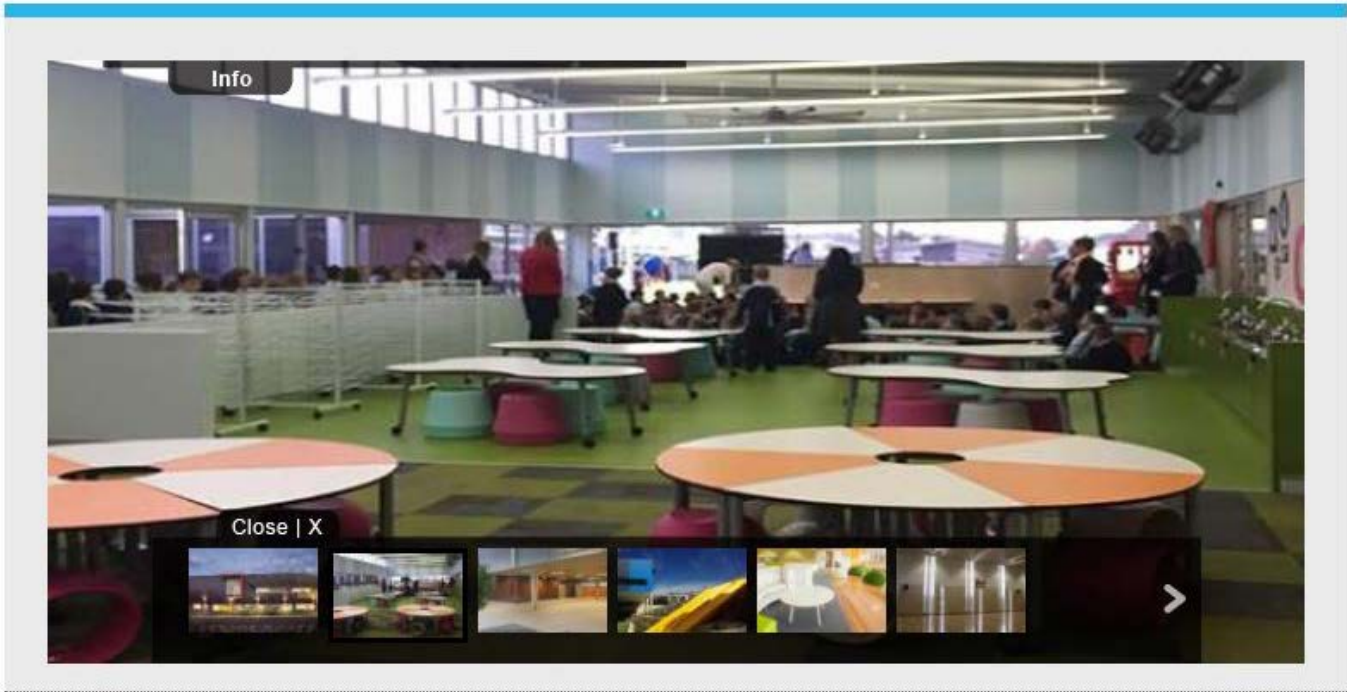
Educational Facilities Standards and Guidelines



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The Educational Facilities Standards & Guidelines (EFSG)



3.2 SEPP - SCHEDULE 4 SCHOOL DESIGN PRINCIPLES

The following design principles are itemised under schedule 4 of the State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017. These principles have been considered within the design of the Budawang School and are discussed further within this document.

Principle 1—context, built form and landscape

- Schools should be designed to respond to and enhance the positive qualities of their setting, landscape and heritage, including Aboriginal cultural heritage. The design and spatial organisation of buildings and the spaces between them should be informed by site conditions such as topography, orientation and climate.
- Landscape should be integrated into the design of school developments to enhance on-site amenity, contribute to the streetscape and mitigate negative impacts on neighbouring sites.
- School buildings and their grounds on land that is identified in or under a local environmental plan as a scenic protection area should be designed to recognise and protect the special visual qualities and natural environment of the area, and located and designed to minimise the development's visual impact on those qualities and that natural environment.

Principle 2—sustainable, efficient and durable

- Good design combines positive environmental, social and economic outcomes. Schools and school buildings should be designed to minimise the consumption of energy, water and natural resources and reduce waste and encourage recycling.
- Schools should be designed to be durable, resilient and adaptable, enabling them to evolve over time to meet future requirements.

Principle 3—accessible and inclusive

- School buildings and their grounds should provide good wayfinding and be welcoming, accessible and inclusive to people with differing needs and capabilities.
- Schools should actively seek opportunities for their facilities to be shared with the community and cater for activities outside of school hours.

Principle 4—health and safety

- Good school development optimises health, safety and security within its boundaries and the surrounding public domain, and balances this with the need to create a welcoming and accessible environment.

Principle 5—amenity

- Schools should provide pleasant and engaging spaces that are accessible for a wide range of educational, informal and community activities, while also considering the amenity of adjacent development and the local neighbourhood.
- Schools located near busy roads or near rail corridors should incorporate appropriate noise mitigation measures to ensure a high level of amenity for occupants.
- Schools should include appropriate, efficient, stage and age appropriate indoor and outdoor learning and play spaces, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage and service areas.

Principle 6—whole of life, flexible and adaptive

- School design should consider future needs and take a whole-of-life-cycle approach underpinned by site wide strategic and spatial planning. Good design for schools should deliver high environmental performance, ease of adaptation and maximise multi-use facilities.

Principle 7—aesthetics

- School buildings and their landscape setting should be aesthetically pleasing by achieving a built form that has good proportions and a balanced composition of elements. Schools should respond to positive elements from the site and surrounding neighbourhood and have a positive impact on the quality and character of a neighbourhood.
- The built form should respond to the existing or desired future context, particularly, positive elements from the site and surrounding neighbourhood, and have a positive impact on the quality and sense of identity of the neighbourhood.



3.3 SPECIAL NEEDS AND ACCESSIBILITY

The design supports special needs learning within an environment that is focused on the dignity, comfort and safety of students and staff: To improve educational outcomes, whilst meeting the complex requirements of Special Needs students.

The design process has included the following Special Needs considerations developed following extensive consultation with the School Principal and Stakeholders:

Age and Ability Appropriate Design

Enrolment is from Kindergarden to Year 12, with ages ranging from around 5 years to 19 years.

- Ability to separate different age and/or ability groups, and consideration of age appropriate furniture, equipment, and learning settings.
- Flexibility - design of homebases allows for students to be allocated to any homebase in the school regardless of age or ability.

Physical Disabilities

Requirements of students with special needs frequently exceed the regulations relating to disabled access. Considerations include:

- Assisted toileting facilities for students with severe physical disabilities including adult sized changing tables and accessible showers with adjacency to a laundry. Hoists to lift the student from the wheelchair onto the change table; hoists run from the homebase into the adjacent hygiene room to avoid double handling.
- Provide 1:40 maximum gradient across the central playground to lessen the difficulties for wheelchair users.
- Walkways through the site are no steeper than 1:20.
- Adequate storage. Numerous special needs pieces of equipment, including chairs, boards and other devices, to be stored when not in use.

Sensory Impairment and Neuro-diversity

Current scientific thinking suggests that neuro-diversity is a variation in the functioning of the human brain, which manifests in learning and thinking processes that differ from neuro-typical peers. Neurodivergent conditions include Autistic Spectrum Disorders, Dyslexia, Dyspraxia, Dyscalculia, ADHD, Tourettes Syndrome, etc. Designing for neuro-diverse students has considered:

- Colour impact upon neuro-diverse individuals – cooler colours for those with autism, increased colour contrast for those with visual impairments.
- Consideration of pattern and texture
- Control of light (natural and artificial)
- Control of noise and other stimuli to consider the needs of neuro-diverse students or those with sensory impairments.

- Spatial adjacencies to ease transition between rooms and activities
- Arrival and departure to avoid transitioning between internal and external spaces from the Drop Off Area to the student's homebase.

Behavioural Issues

The design supports separation of students with conflicting needs.

Behaviours of students can involve aggression towards others, self, or property. These behaviours require consideration of the following:

- Spaces for retreat during "meltdowns"
- Robust materials and fixtures.
- Escape routes for staff and students to avoid students' aggressive behaviour. Two exits are provided to every learning space.
- Boundary fencing designed to restrict students absconding during drop off or during school hours. This behaviour can endanger students (i.e. running into roads or falling).
- Specification of fixtures and furnishings to minimise their use as weapons



3.4 PEDAGOGY AND FACILITIES

The school’s pedagogy targets social and lifeskills. Learning is geared towards independent living in adulthood.

Each student has their own individual Learning Plan, around which the pedagogy is tailored to the individuals’ abilities and needs.

The design of learning spaces to responds to the requirements of a Special Needs Pedagogy. Learning spaces are focused on lifeskills and therapies. Safety and comfort of students are key considerations.

Most learning spaces benefit from strong physical and visual connections to outdoor learning.

Lifeskills Room

Life skills lessons for students with special needs develop daily living abilities; setting the foundation for the self-sufficiency necessary to achieve independence.

These skills include self-care tasks, such as toileting, bathing, eating, and getting dressed. More complex life skills include cooking, nutrition, shopping, laundry, household chores, home safety, and self-advocacy.

Access to the wider community requires skills including communication, understanding public transport, functional reading for reading signs and maps and navigating the internet, functional maths to count money and tell the time, and understanding the behaviours expected when visiting restaurants and community buildings. Job-related skills are taught, such as team skills, understanding authority, punctuality, and the ability to follow directions.

With a sufficiently flexible learning environment many of these skills can be taught within the homebases, dining areas and hygiene rooms of the school. A dedicated lifeskills room mirroring a household kitchen is provided to teach domestic related tasks. Wheelchair access is achieved throughout the lifeskills kitchen. Kitchen sink heights are adjustable. Typical household appliances such as fridges, ovens, dishwashers, microwaves, and washing machines are provided.

Not all students will be able to safely use household appliances and will need to view this space without having full access.

Active and Passive Sensory Rooms

Sensory Rooms are multi-sensory environments providing an immersive atmosphere, which may be active or passive. Various stimuli include visual elements, soothing sounds, aromas, tactile experiences, vibro-sonic sensations, and movement.

Therapies such as Physiotherapy or Occupational Therapy may be undertaken with increased success within a Sensory Room due to the sensory

stimulation and calming response provided by the room.

Equipment may include;

- Bubble tubes, as a focal tool for sensory activities, to test responses such as colour recognition, visual tracking, and hand-eye coordination
- Interactive panels, offering wide ranging visual effects or including switches and tactile elements
- Olfactory systems; aroma diffusers or essential oils, which are useful for stimulating memory.
- Projections to promote relaxation through visual engagement
- Fibre-optics to stimulate and hold attention.

Dysfunctional proprioception (the sense of the body’s position and movement through space) is common amongst people with Autistic Spectrum Disorders. Often students self-regulate through repetitive movements to increase proprioceptive input, such as toe walking, crashing, running or flapping. Active equipment within a Sensory Room can improve the students’ proprioceptive system. This may include:

- Padded surfaces to enable users to throw their bodies around the space with minimal harm.
- Trampolines
- Ball Pools
- Sensory wrap swings
- Weighted blankets
- Pressure pads

Hygiene Facilities

Design of toilet and shower facilities suitable for access by students with severe physical disabilities (e.g. quadriplegics) has considered the “Changing Places” changing facility design:

Accessible toilets with adult sized change tables are

provided directly off every homebase and within the core facilities block. Students with severe physical disabilities typically require access to a change table, assistance from one or two members of staff for assistance with hygiene requirement. The practicalities of manoeuvring older students mean that a hoist is necessitated to assist this process.

Accessible and ambulant toilets in line with the requirements of Accessibility standards are also provided throughout the site according to the BCA requirement.

Hydrotherapy Pool

Hydrotherapy is widely used as a treatment for conditions impacting the musoskeletal system. Various factors allow a range of exercises to be administered within a hydrotherapy pool, which would be too difficult or painful to carry out on land. A greater range of movement is afforded producing a liberating effect for the physically disabled.

Hydrotherapy has also shown potential as a treatment method to improve social interactions and behaviours in students with Autistic Spectrum Disorders.



CONTEXT

4.0

4.1 INDIGENOUS HERITAGE

We acknowledge the traditional custodians of the land upon which the site is located, Budawang Yuin, their connection to Country, land, water, community and spirit.

The south coast of New South Wales is the traditional Country of the Yuin people. The Budawang tribal area is from Conjola in the north, Lake George in the West and the Moruya (Deua) River in the south.

The First Peoples of the Milton-Ulladulla area have a connection to country spanning at least 20,000 years.

The Budawang people were sighted by European explorers in 1770, on Koorbrua beach at Murramarang.

Church records from Milton/Ulladulla, Moruya and other refer to Walbanga tribal members and other Yuin people.

In the 2016 census, 17 people identifying as Aboriginal or Torres Strait Islander called Milton home, approximately 1.3% of the local population. Within the adjacent suburb of Ulladulla, from Narrawallee to Burril Lake, 3.6% of the population identify as Aboriginal or Torres Strait Islander.

Demographic information relating to the current Budawang School enrolment indicates that just under 20% of all students have indigenous heritage.

Indigenous Consultation:

Consultation with the indigenous community undertaken as part of the ACHA highlighted the significance of local landmarks to the local Aboriginal Community. These landmarks are not visible from the site:

- Didthol (Pigeon House Mountain) is located around 16 km west of the site.
- Bherwerre (St George's Basin) is around 24 km north-north-east of the site

Information received from Indigenous Community via the Indigenous and Heritage consultant has also indicated that an indigenous campsite was located somewhere along the creek which forms part of the wider Department of Education site.



DIDTHUL (PIGEON HOUSE MOUNTAIN) - NOT VISIBLE FROM SITE
IMAGE: ANDREW GRAY / WIKIMEDIA COMMONS



BUDAWANG MONOLITH VALLEY - NOT VISIBLE FROM SITE
IMAGE: EDWARD HATHWAY / <https://hikingscenery.com/monolith-valley-nibelung-pass/>



BHERWERRE (ST GEORGE'S BASIN) - NOT VISIBLE FROM SITE
IMAGE: BELLE PROPERTY



BHERWERRE (ST GEORGE'S BASIN) - NOT VISIBLE FROM SITE
IMAGE: BELLE PROPERTY

4.2 POST SETTLEMENT HERITAGE

Founded in 1860, and named after the property of post master George Knight, Milton became an important regional centre during the 19th Century.

It is now classified under the National Trust due to the number of historic buildings within the Town Centre.

Initially known as "The Settlement", the first land grant within Milton was issued in 1827 to Reverend Thomas Kendal.

Milton was founded in 1859 by speculator John Booth as a private town. Booth employed Scottish surveyor Henry G. Morton, who led the survey of the Shoalhaven estate under the direction of Hon. Alexander Berry LC, to survey the subdivision and street layout. The subdivided land was sold in 1860.

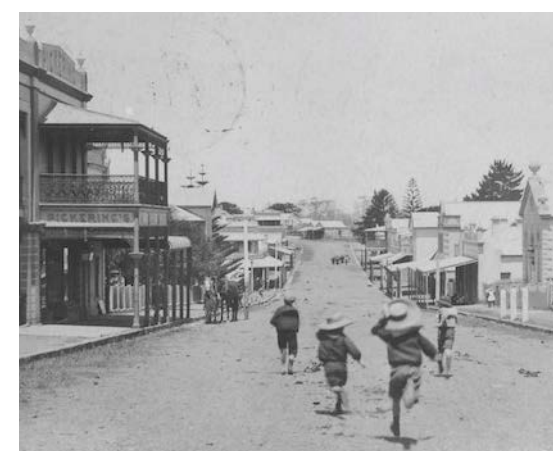
In its first century, Milton grew prospered as a result of the local cedar cutting industry. Timber extraction and processing attracted workers and investors alike to the town in the late nineteenth century.

Located along the Princes Highway, Milton grew as a commercial and administrative centre for the region - while its sister-city, Ulladulla, formed as a port servicing the timber industry.

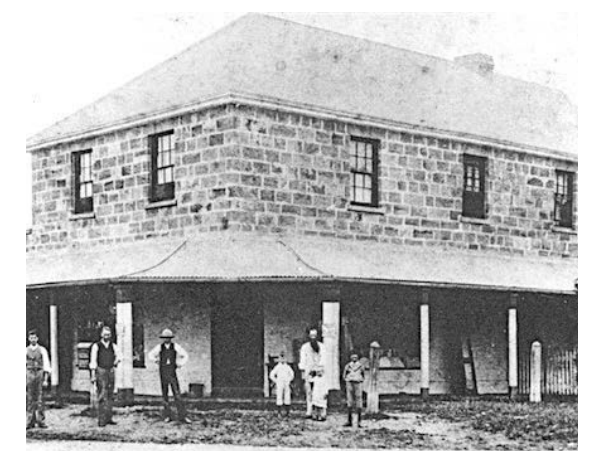
As a result, Milton boasts many historical buildings and homesteads dating back to the 1870s.



2. 1880s: View of Milton looking South-East from Church St



3. 1904-1908: View of Main St of Milton looking South-East



4. 1899: Heritage Bakery Milton

4.3 LOCAL CONTEXT

The site is on Croobyar Road in Milton, NSW, close to the intersection of Croobyar Road with the Princes Highway. It is within 10 minutes walk of Milton Town Centre, which includes shops, cafés and public services such as the theatre and library, all located along the Princes Highway.

a) LEP Zoning

Though used by educational institutions since the 1990s, the site is zoned as RU1 Primary Production. Buildings on the site are a combination of poor quality primary school rooms and demountables dating from the Croobyar Road Christian School, to recently constructed High School brick buildings dating from the former Shoalhaven Anglican School, which most recently occupied the site.

b) Public Transport

As a regional town Milton is served by public transport, but at a lesser level than the main hubs. Premier Coachlines run a service along the Princes Highway between Eden on the South Coast and Sydney CBD. Ulladulla Bus-lines operates the 740 bus between Milton and Ulladulla, which runs several times per day Monday to Saturday. Students from the School currently arrive at school by taxi or by family members or carers by car.

c) Local Schools

Milton has two primary schools; Milton Public School, which has approximately 680 students within years K-6 and the nearby St Mary Star of the Sea Catholic Primary School, which is a single stream school.

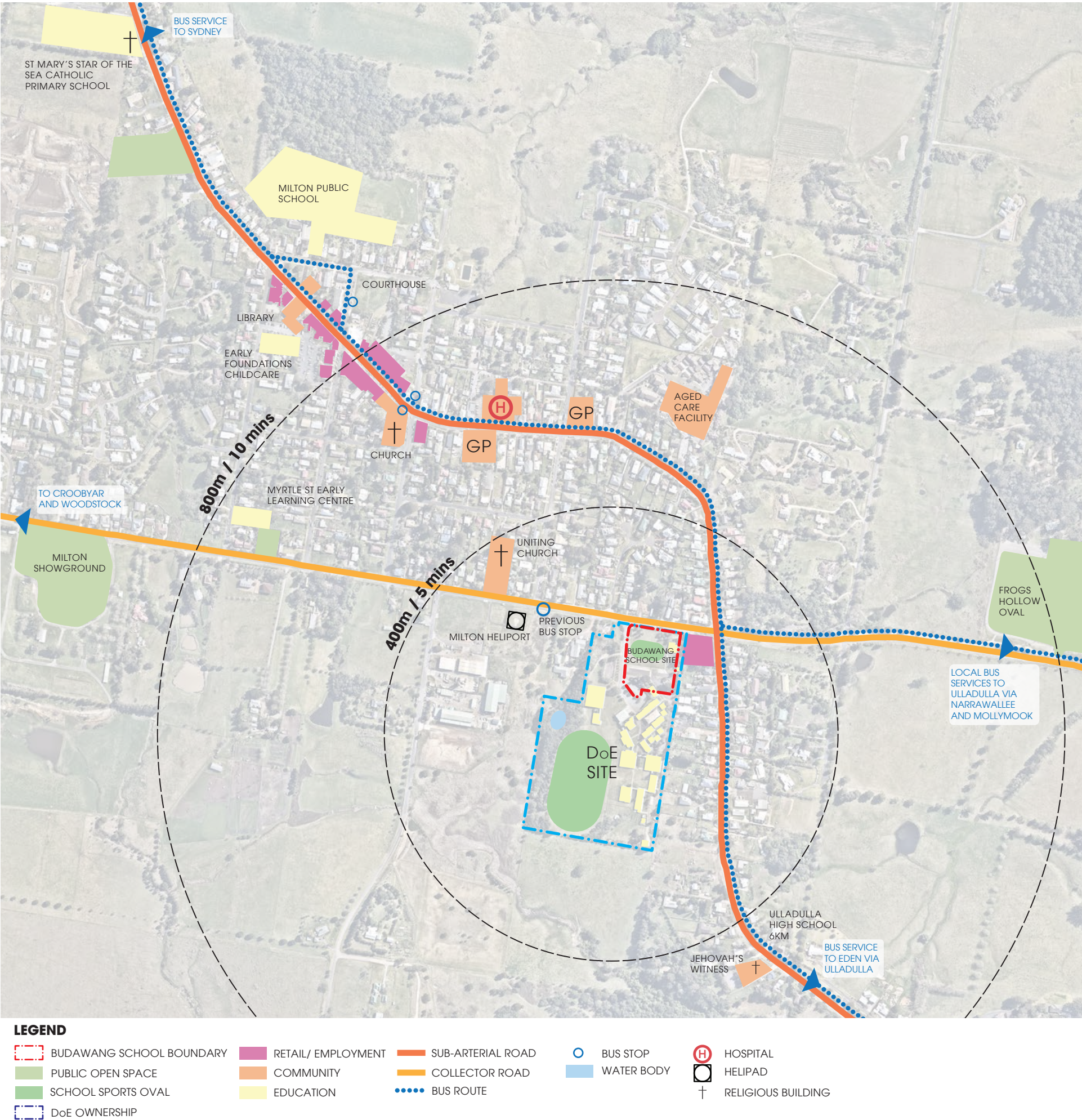
The existing Budawang School is the closest Special Needs School to Milton, whilst the nearest Secondary level school is in Ulladulla. Ulladulla High School has a higher than the NSW average FEOI (family education and occupation index), indicating a greater level of disadvantage.

d) Indigenous enrolment

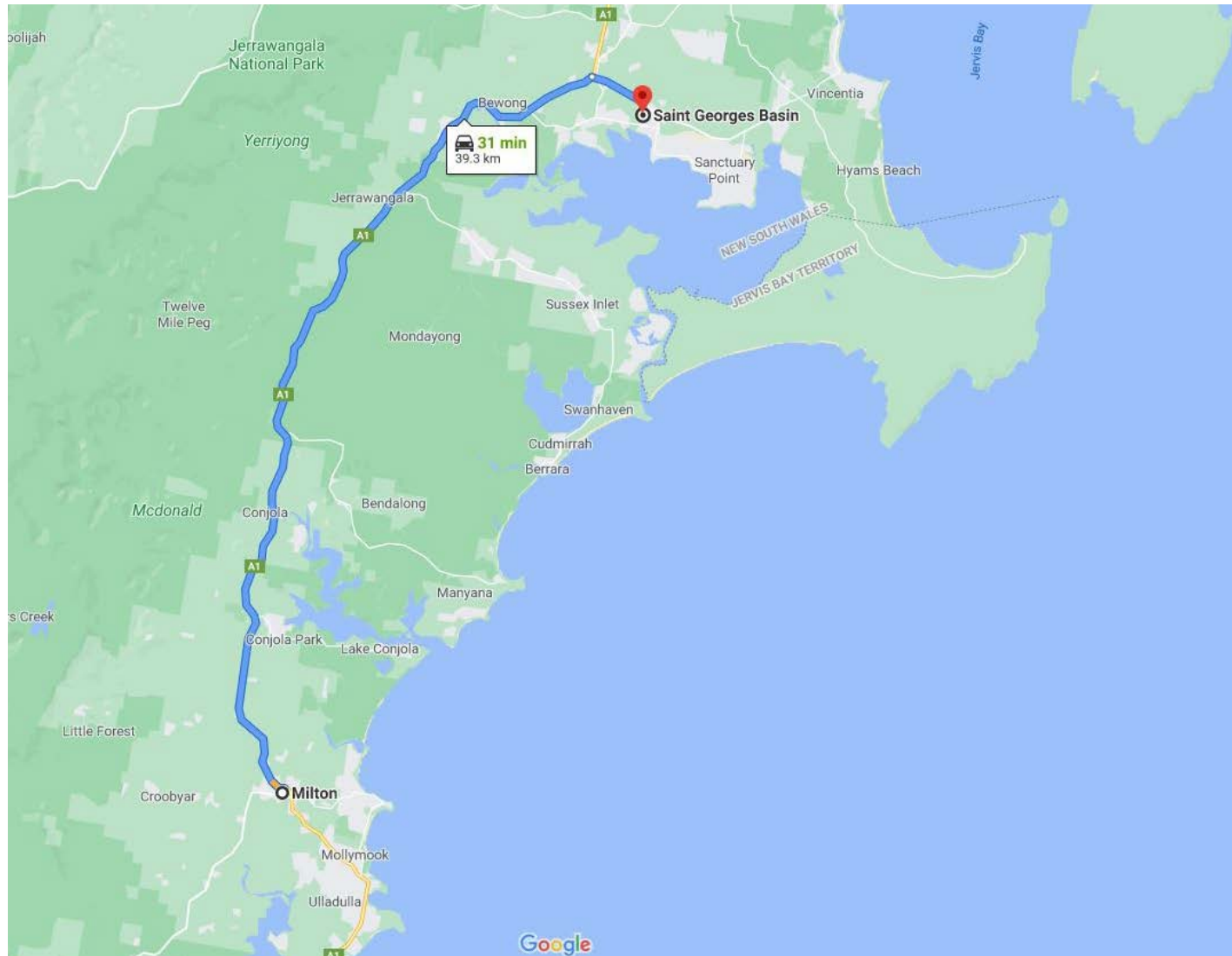
5.4% of the students enrolled at Ulladulla High School identify as indigenous
19% of students currently enroled at the existing Budawang School identify as Indigenous

e) Catchment Area

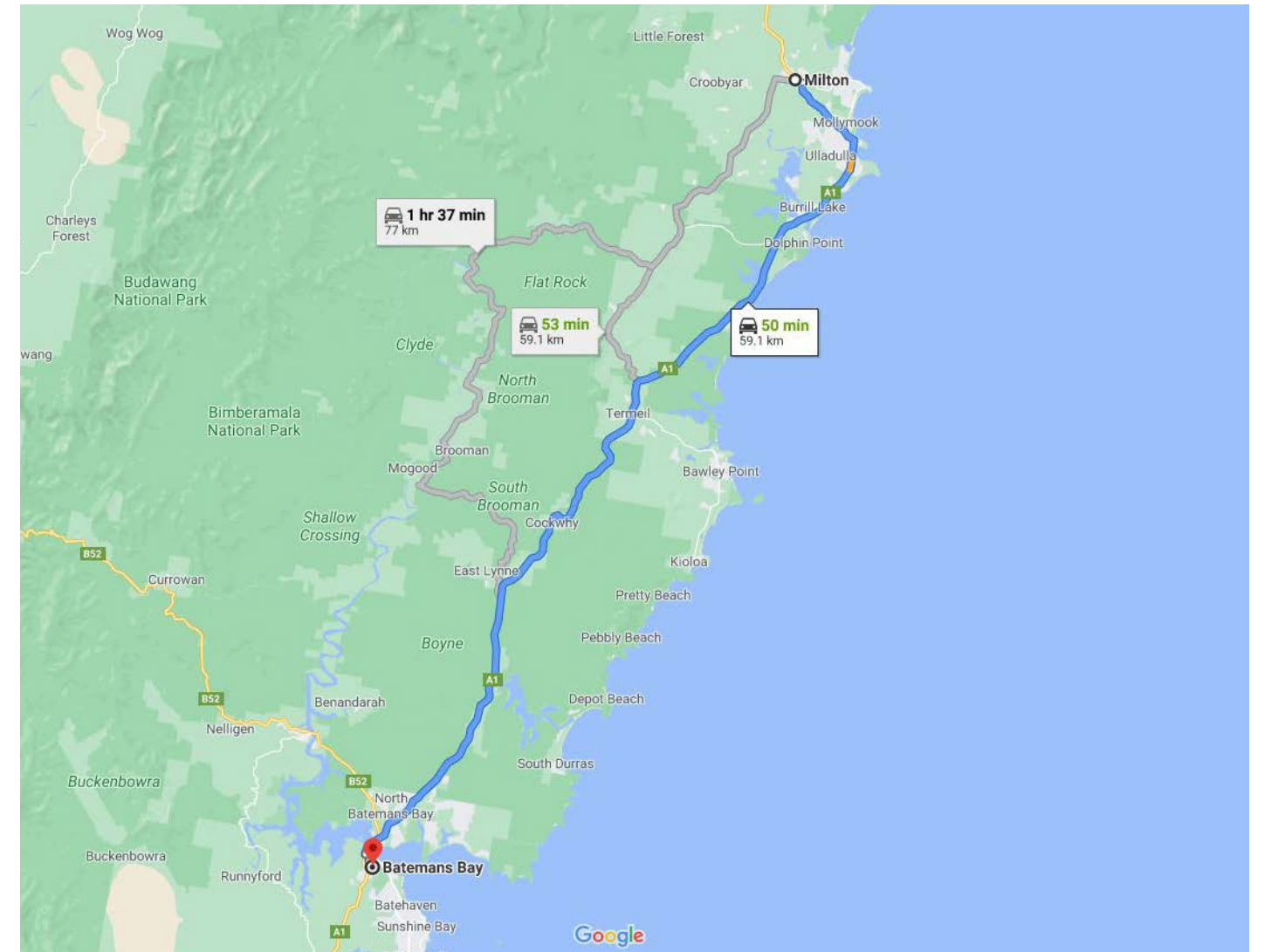
There is technically no catchment area for the existing Budawang School; current students travel from St George's Basin in the North and Bateman's Bay in the south. Combined with the Special Needs of the students this means that the majority of students will travel to school by car rather than by bus or on foot.



4.4 BUDAWANG SCHOOL “CATCHMENT AREA”



ST GEORGE'S BASIN TO MILTON - 31 MINUTES BY CAR



BATEMAN'S BAY TO MILTON - 50 MINUTES BY CAR

There is no specific catchment area for the existing Budawang School; current students travel from St George's Basin in the North and Bateman's Bay in the south

4.5 MILTON HISTORICAL BUILDINGS

Milton Historical Built Context

Milton's European built heritage dates back to the mid 1800's. Buildings of note line the Princes Highway, which snakes through the centre of Milton.

Design features shared by these buildings often include the following:

- Metal roof - often grey
- Steep pitch to roof
- Verandah
- Sandstone , pale coloured brick, or beige coloured render

Pertinent characteristics have been considered within the aesthetic and materiality of the new school to ensure the building responds appropriately to the context.

Photos:

1. Anglican Church of St Peter and St Paul - dates from 1860s
2. Heritage Bakery - dates from 1870
3. Milton Uniting Church
4. Milton Courthouse - dates from c. 1892

Images sourced from:

<https://www.churchesaustralia.org/>

<https://nswcourts.com.au/courts/milton-local-court/>



4.6 POST-SETTLEMENT HERITAGE SIGNIFICANCE



European Heritage Items

Heritage listed items located close to the site are the Heritage Bakery (above left) and the Graveyard (above right).

The Bakery adjacent to the site is two storeys high, and dates from the 1870s. The building features sandstone walls, which can be identified on other local buildings of a similar date. The pitched roof is sheet metal. The verandah at first floor is a later addition.

To the north of Croobyar Road opposite the site, are graveyards of the Milton Anglican Pioneer Cemetery. Three gravestones are graves of early Pioneers, the Goodsell family who died in the 1870s and 1880s.

4.7 MILTON PROPERTY TYPOLOGIES

Numerous residential and rural properties within the Milton area have forms similar to those of buildings within the Milton area.

Features include:

- Linear forms
- Low pitched roofs - particularly to agricultural out-buildings
- Sand coloured facades

Notable features of the historical, residential and agricultural building within locality have been interpreted into the form and materiality of the Budawang School.

Budawang School is single storey due to functional requirements of access and passive surveillance. The buildings have low lying horizontal forms, with expressed structure and low pitched grey roofs. This form and materiality references rural industrial agricultural buildings responding to cattle and dairy farming, which is the predominant agricultural type within the Shoalhaven area.

The pre-cast concrete façade is textured and coloured to respond to the sandstone of nearby historical buildings. High steeply pitched roofs were not adopted to retain sustainable building volumes.

Images of Agricultural Sheds (far right) show kit of parts sheds, which are available from a supplier in Bateman's Bay. These are of the type used by the cattle and dairy industry within Shoalhaven and surrounds.

Images of residential properties are sourced from Real Estate websites



EVANS LANE, MILTON
SAND COLOURED WALLS, LONG, LOW, GREY ROOF FORMS



POINTER ROAD, MILTON -
LONG GREY ROOF WITH PORCH



STANDARD AGRICULTURAL SHED WITH LONG HORIZONTAL FORM AND METAL ROOF
<https://www.sheds.com.au/>



STANDARD AGRICULTURAL SHED - EXPRESSED COLUMNS, MODULARISED FORM
<https://www.sheds.com.au/>



SITE DESCRIPTION AND ANALYSIS

5.0

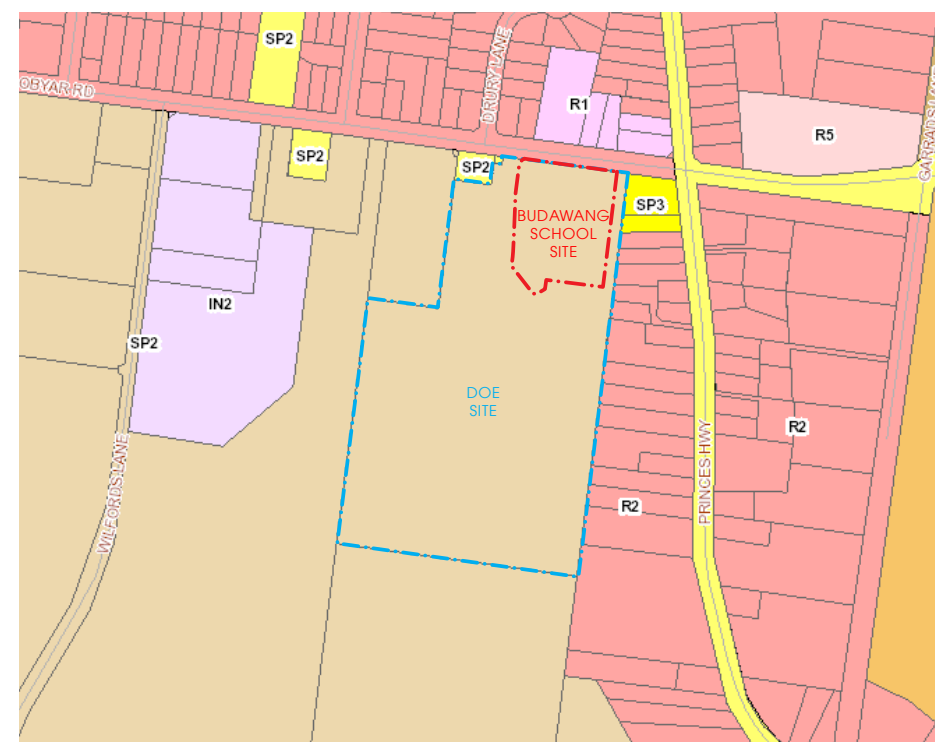
5.1 LEP CONTROLS

Shoalhaven Local Environmental Plan 2014

The aims of the Shoalhaven LEP are stated as follows:

- To protect and promote the use and development of land for arts and cultural activity, including music and other performance arts,
- To encourage the proper management, development and conservation of natural and man-made resources,
- To facilitate the social and economic wellbeing of the community,
- To ensure that suitable land for beneficial and appropriate uses is made available as required,
- To manage appropriate and essential public services, infrastructure and amenities for Shoalhaven,
- To minimise the risk of harm to the community through the appropriate management of development and land use.

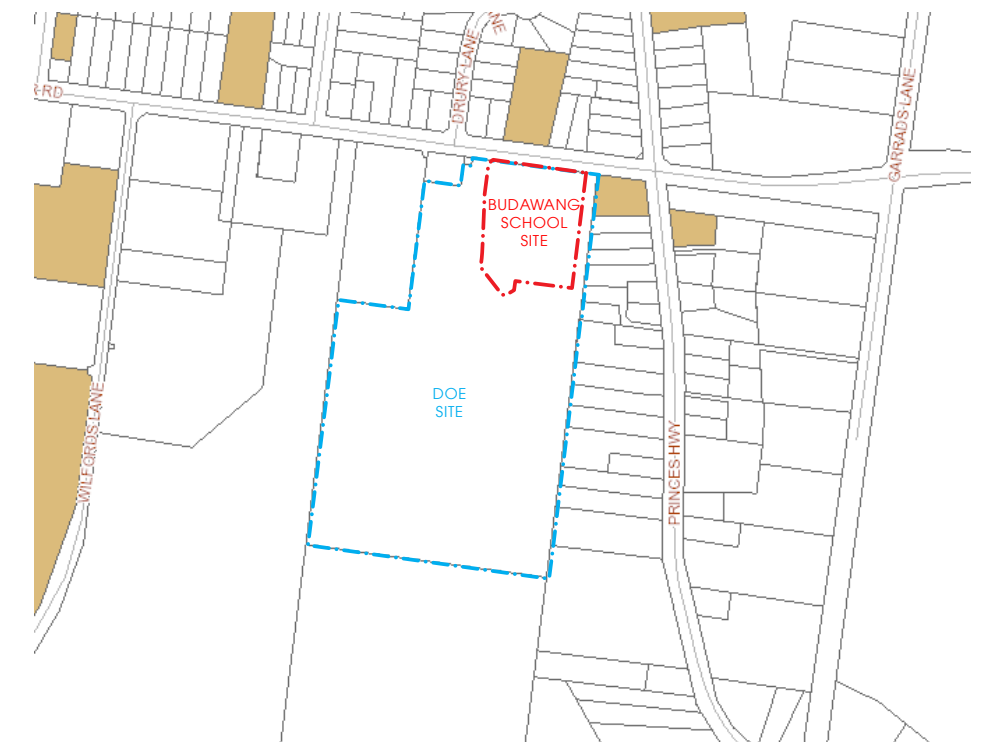
The Local Environment Plan controls that pertain to the site are as indicated.



Land Zoning (Shoalhaven LEP 2014)

Legend

- RU1 Primary Production
- RU4 Primary Production Small Lots
- SP2 Infrastructure
- SP3 Tourist
- IN2 Light Industrial
- R1 General Residential
- R2 Low Density Residential
- R5 Large Lot Residential
- E3 Environmental Management



Heritage Buildings (Shoalhaven LEP 2014)

Legend

- Heritage Listed Lot

No buildings within the site are heritage listed. The school is located close to heritage buildings.

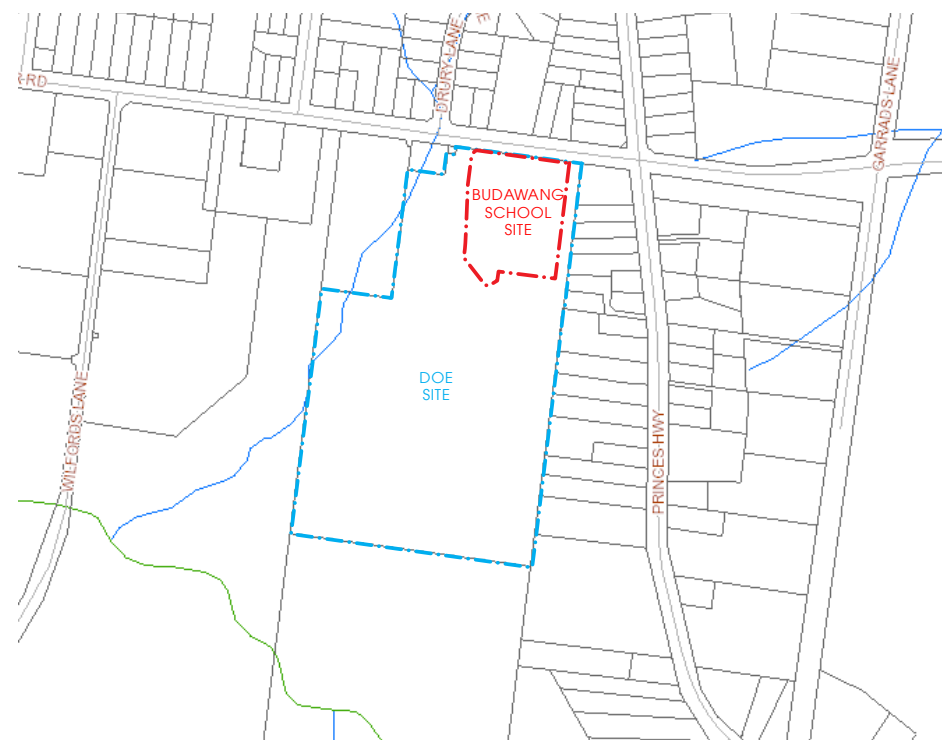


Height of Buildings (Shoalhaven LEP 2014)

Legend

I2 8.5 metres

Clause 4.3 applies



Riparian Lands and Watercourses (Shoalhaven LEP 2014)

Legend

Watercourse Category 3



Bushfire Prone Lands (Shoalhaven LEP 2014)

5.2 THE SITE

Site Size

The new Budawang School will be constructed on a northern portion of the Department of Education site measuring just over 1 Ha.

The entire wider Department of Education site is just over 7.7ha. Now owned by the Department of Education NSW, the remainder of the site not occupied by Budawang School is being retained by the DoE NSW for a potential future educational purpose.

Boundary

The Budawang site is surrounded to three sides by land that is owned by the Department of Education NSW, with Croobyar Road to the north. The wider site is bounded by the following:

- Croobyar Road to the north with residential buildings
- A heritage commercial building to the east operated as a bakery
- Residential buildings to the east
- Existing school buildings to the south
- One residential building and cement works to the west
- Milton Heliport to the west

Existing Buildings

The School will require the demolition of two educational buildings; the preschool on Croobyar Road, and Block L; a classroom block from the 1990s.

Wider Site within Department of Education NSW Ownership

The wider site is bounded by Croobyar Road to the north, low density residential properties along the Princes Highway to the east and rural land to the south and south west. West of the site is the Milton Heliport, which is used by the nearby Milton Ulladulla Hospital.

Access to the existing school site is via a single entrance on Croobyar Road. The school has minimal built presence (other than the pre-school) along the street boundary, and is enclosed on all other boundaries by lots in other ownership.


Land zoning of the site is RU1 primary production, which though intended for food production, permits educational establishments with the relevant consents. The site has been used for educational purposes since the Croobyar Road Christian School was established in 1991, and is configured as a school. The existing buildings have been disused since the closure of the Shoalhaven Anglican School.

10,206
sqm
BUDAWANG SITE AREA

77,600
sqm
TOTAL DoE SITE AREA

 **RU1**
LAND ZONING (LEP)
PRIMARY PRODUCTION

N/A
FSR (LEP)

 **Clause 4.3**
HEIGHT (LEP)



 **Frogs Hollow Oval**
In walking distance

14 Mins



14 Mins

Milton Town Centre
in walking distance 

15 Croobyar Road, Milton, NSW

5.3 CONTEXT ANALYSIS

a) Topography

A topographical survey of the site was carried out in 2020 for SINSW by Philip Brown Land Surveyors. Falls across the Budawang site are largely east to west; approximately 4 metres over 85 metres in the East / West direction. This is a flatter, more suitable part of the site to build on, which is a key consideration for a Special Needs School due to the large number of wheelchair users.

b) Hydrology

A small watercourse runs to the west of the Budawang site within the wider school site. An existing pond to the west of the site is believed to have served as an OSD for the former Shoalhaven Anglican School. Due to the overgrown vegetation around this dam it was not possible to fully assess suitability of this pond for use as an OSD for the new development. Please refer to services report.

c) Vegetation

There is minimal tree planting visible from the site entrance along Croobyar Road, except for trees around the existing pre-school and the basketball courts. Dense tree planting exists to the west of the sports oval, surrounding the watercourse and pond. Some overgrown vegetation to the west of the site will need to be removed to reduce Bushfire risks. This is due to the reduced maintenance as the site has remained disused for the past few years. Refer to Bushfire and Ecological Reports for further discussion.

d) Buildings

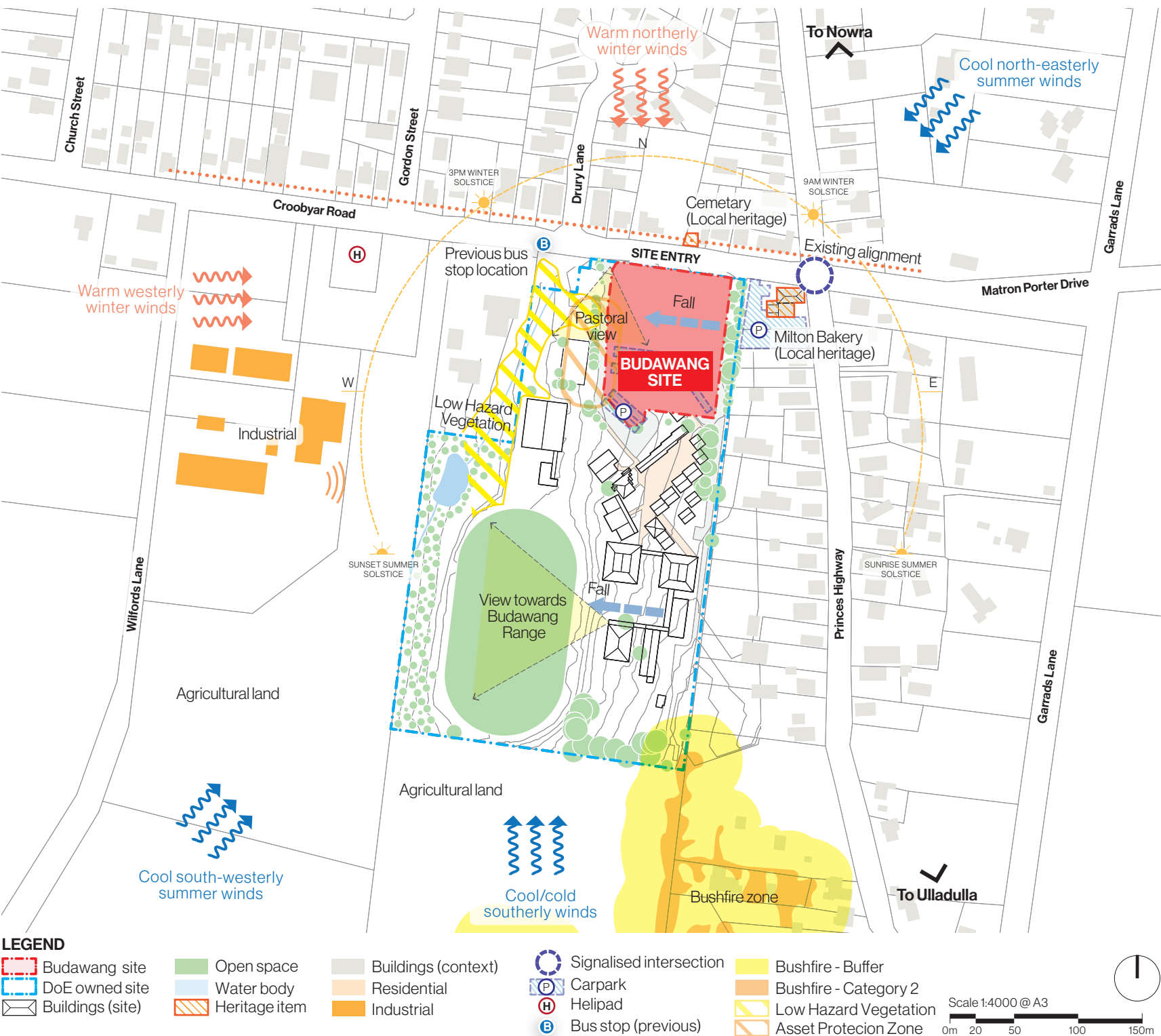
The surrounding area is largely single storey residential with pitched roofs. These dwellings are located to the north and east of the site. Industrial buildings are located to the west of the site, beyond which the density of buildings reduces to become more rural.

The south and south west of the site is agricultural land.,

Existing educational buildings throughout the wider Department of Education site are one storey, however some of the newer buildings have high clerestory atrium spaces.

The existing educational buildings are of low aesthetic quality, the newer buildings are generally in reasonable condition and are likely to be functionally viable for reinstatement as an educational facility. Older buildings on site dating from the 1990s are typically in poorer condition. Further description of existing site buildings is under section 5.6of this report.

In a previous masterplan study the existing buildings on site were found to be unsuitable for refitting as an School for students with Special Needs. A proposal to situate new buildings on part of the site was adopted, leaving the remainder of the site available for use as a potential future educational facility.



5.4 STREETScape PHOTOS



South Side of Croobyar Road



North Side of Croobyar Road

The Budawang site is bounded on the north by residential properties to the opposite side of Croobyar Road. These are typically single storey detached cottages with pitched metal roofs. Similar single storey dwellings line the east of the site along the Princes Highway.

The southern side of Croobyar Road, is less dense than the northern side, with industrial buildings such as the cement works. Further west along the south side of Croobyar Road there is a Helipad related to the nearby Milton Hospital. Dwellings on the south side of Croobyar Road are well set back and occupy larger plots.

Adjacent to the school at the intersection of Croobyar Road and The Princes Highway sits the Heritage Bakery, which at two storeys is taller than most of the surrounding context. The bakery dates from 1870 and is constructed using sandstone, with a metal roof. This is described in more detail within this report.

Images above from Google Streetview - January 2010



Google Streetview from Croobyar Road near the junction with Church Street facing east

5.5 SITE PHOTOS - BUDAWANG SCHOOL SITE

The selected site is located at the northern end of the Wider Department of Education site. The new Budawang School will occupy land previously used as a sports pitch

1. Facing south towards the former High School site
2. Facing towards the existing preschool, which is to be demolished
3. Facing south west towards the access road
4. Facing north west. Houses along Croobyar Road are to the right of the image





The Budawang School site viewed from Croobyar Road

5.6 WIDER DEPARTMENT OF EDUCATION SITE

Existing Buildings on site

Existing buildings on the wider site date from the Croobyar Christian School in the 1990s, which occupied the older, primary school buildings north of the site.

New High School buildings were constructed for the Shoalhaven Anglican School in around 2000-2010

The existing buildings are of limited aesthetic quality, common features, which can inform the design include:

- Clerestory windows
- Covered walkways
- Green/play space between buildings



5.7 SITE ANALYSIS

The site presents opportunities and constraints that inform our design:

Opportunities

- Improve the legibility of school uses
- Establish a stronger sense of arrival for the school population and visitors.
- Create a clearly legible central courtyard space as its heart; a combination of flexible outdoor space and key buildings.
- Consolidate uses and activities
- Retain existing high school buildings for future
- Allow for future expansion of the Budawang School
- Maximise options for the expansion of the school

Constraints

- Proximity to junction of Croobyar Road and The Princes Highway. Right turns from the Budawang School are problematic due to queuing at the junction.
- Potential noise from Croobyar Road, the Princes Highway and the Milton Heliport.
- Adjoining site to the west may be flood affected and has a pond located within the vegetation
- Dwellings along the eastern boundary; building scale, privacy or overlooking and noise impacts.
- The electricity transmission line to the west of the site impacts visual amenity when looking towards this easement and restricts use of this area.
- Substation requirements
- The site falls from around RL52.00 on the eastern boundary to around RL48.00 on the existing site road to the west.
- Public sewer easement runs across the site
- Consideration of adjacent heritage building - Milton Bakery
- Limited street frontage
- Existing buildings, including a former preschool are located on the development site
- Riparian corridor and creek to adjacent site



5.8 SERVICES AND EASEMENTS

Services and easements across the wider site are as follows:

- Existing pond
- Main public sewer runs diagonally across the site
- Power lines to the north west corner of the site following the driveway
- Watercourse
- Comms Room and Main Switchboard located in the existing Administrative building (block W)
- Fire hose reels
- Full services review is required

Extinguished easements

Stormwater easement across the Budawang School site has been extinguished.



LEGEND

- EASEMENT
- SEWER LINE
- MAIN SWITCHBOARD AND COMMUNICATIONS ROOM
- BUDAWANG SCHOOL BOUNDARY
- SITE IN D.E. OWNERSHIP

5.9 BUILDING CONDITION

Numerous existing educational buildings are spread across the wider 7.7 Ha site. The AMU Accommodation Summary Report dated May 2019 indicates an existing gross internal area of just under 7,000sqm. This area is spread across a range of buildings of varying quality and conditions.

During the years since the closure of the Shoalhaven Anglican School the accommodation and grounds have been well maintained and secured to minimise vandalism and deterioration through ingress of rainwater, vegetation or animals.

Existing Primary School Buildings

The existing primary school buildings, to the north of the site date from the 1990s Croobyar Road Christian School and comprise mostly of general learning spaces and associated rooms. These blocks are of poor build quality and are dark and musty inside. Some external cladding is damaged, possibly due to vandalism coupled with the poor quality of the building materials. Windows, where broken, have been boarded up.

Decks accessing some of the Primary School Accommodation, particularly the demountables, has rotted and is unsafe.

Existing Secondary School Buildings and Core Facilities

The Secondary School blocks generally date from after the site was acquired by the Anglican Church for the Shoalhaven Anglican School. These comprise largely of specialist high school facilities, such as technology and visual arts workshops, IT, science labs, and hospitality training kitchens. Spaces (measuring approximately 55-56sqm), which could serve as general learning spaces accompanied by break out space within central atriums, are located within blocks A and B. Core school facilities, such as the Gymnasium, Admin, and Library blocks are also generally well maintained and in good condition, though they are lacking aesthetically.

The build quality is typically double brick, with interiors and exteriors in good condition. On the basis of a visual assessment, most of the Secondary School buildings require minimal work to reinstate them for reuse. However the buildings are unsuitable for use as an School for students with Special Needs for the following reasons:

- There are significant levels differences between many of the existing buildings
- Net areas of the existing buildings are not suitable
- Wet area are not suitable
- Site layout of the existing buildings is not suitable to provide the enclosure, privacy, and level access required by Special Needs students.



LEGEND

 BUDAWANG SCHOOL BOUNDARY	 BUILDINGS TO KEEP - MINIMAL WORK REQUIRED TO UPGRADE	 BUILDINGS TO CONSIDER KEEPING DEPENDING UPON ACCOMMODATION SCHEDULE AND MASTERPLAN OPTIONS	 DEMOUNTABLES WHICH MAY BE SOLD OR REUSED
 RESIDENTIAL	 BUILDINGS TO KEEP - MINIMAL WORK REQUIRED TO UPGRADE	 BUILDINGS TO KEEP - MINIMAL WORK REQUIRED TO UPGRADE	 BUILDINGS TO DEMOLISH
 OPEN SPACE	 BUILDINGS TO KEEP - MINIMAL WORK REQUIRED TO UPGRADE	 BUILDINGS TO KEEP - MINIMAL WORK REQUIRED TO UPGRADE	 BUILDINGS TO DEMOLISH
 SITE IN DOE OWNERSHIP	 BUILDINGS TO KEEP - MINIMAL WORK REQUIRED TO UPGRADE	 BUILDINGS TO KEEP - MINIMAL WORK REQUIRED TO UPGRADE	 BUILDINGS TO DEMOLISH

Existing Pre School

Located on the north side of the site lies a pre-school (block J), being temporarily used by a Childcare provider. This building is single storey, double brick with a pitched roof and timber verandah. It is the only building to have an interface with the streetscape and is disconnected from the remainder of the site. The internal configuration does not maximise views of the outdoor learning spaces. Provision of kitchenette and toilet facilities is dated and may be inadequate.

Conclusion

It has been determined that the most suitable location for the Budawang School is to the north of the site adjacent to Croobyar Road. This maximises retention of the High School buildings that are in good condition for potential future use and groups site functions most efficiently to avoid the school creating a barrier across the site. This strategy requires the demolition of the existing Pre-School, Block L, and a storage shed associated with the preschool.

If there is future educational demand the School can expand at by constructing an additional 3 homebases. Demolition of Block M will be required.

All of these buildings have been assessed as being of low retention value.

Photos

Top left: Block L - weatherboard building with metal roof. Poor Condition

Top Right: Double brick pre school with tiled roof.

Bottom Left: Block M - double brick building with weatherboard cladding in poor condition

Bottom Right: Pre School Storage Shed



5.10 SLOPE ANALYSIS

The wider Department of Education site is sloped with the high point in the South-East corner of the site and a low point to the West. Moving between existing blocks often requires a substantial level change.

The area at the front of the site, selected for the construction of the Budawang School is comparatively flat with a 4.25m fall across 85m, from the East boundary to the internal access road. Apart from the flood prone land to the west, the selected site for Budawang School has the least fall.

The previous primary school buildings have a notable slope with a 1.5m fall between Block P and Block M across the COLA.

There is a steep embankment between the school buildings and the Sports Oval. This is concentrated in the area near existing Blocks A and E where there is a 3.5m fall across 10m.

The sports oval is located below the flood level and is therefore unsuitable for use as the Budawang School site.

Steep falls occur between existing Blocks A and B and between existing Blocks E, D and C. Between Blocks A and B, a 2.5m fall is experiences across 15m.

Currently, it appears not all existing buildings on the site are DDA accessible.



5.11 BUILDABILITY ASSESSMENT

Early in the Masterplanning process GroupGSA undertook an assessment of the entire 7.7Ha Department of Education site to determine the optimum location for the new Budawang School, whilst also considering opportunities for future use of the remaining site area.

This assessment has been informed by consideration of the following factors:

- Need to keep the large Sports Oval free of buildings
- Avoid building over the services easements to minimise risk
- Condition and location of the existing buildings
- Topography - consideration of the site contours
- Water courses
- Retaining existing vegetation where possible (minimal through the built area of the school)
- Vehicular access, car parking and drop off for the school
- Existing location on site of the main comms room and existing main switchboard
- Connection to the community (proximity to Croobyar Road)
- Retaining any buildings that are in good condition and can be easily reused
- Consideration of potential for shared use with potential future educational facility.
- Ability to reuse existing c road layouts





ARCHITECTURE

6.0

6.1 ARCHITECTURE STATEMENT

Aesthetic concept:

The campus is organised into linear blocks surrounding a central courtyard. These buildings have low lying horizontal forms, with expressed structure and low pitched grey roofs. This form and materiality references rural industrial agricultural buildings, responding to cattle and dairy farming, which is the predominant agricultural type within the Shoalhaven area.

The pre-cast concrete façade is textured and coloured to respond to the sandstone of nearby historical buildings. High steeply pitched roofs were not adopted to retain sustainable building volumes.

Tying together the myriad of requirements for each individual block and function, is the conceptual idea of an series of over-sailing roofs, which gather the accommodation below within a courtyard form. The roofs provide a dominant aesthetic form, stretching over the buildings, allowing a degree of flex in terms of the building footprint, whilst maintaining the clean lines of the roof.

Functional Organisation

The "Core" block containing the Multi-purpose Unit with adjacent COLA, Storage, Administration Unit, Staff Facilities, and Library is located adjacent to the Drop-Off; this block serves as the public facing facade for the school, creating a sense of arrival. The Hydrotherapy block is located to the front of the site, accessed from both the school and directly from the car park; allowing ease of out of hours access.

Homebase blocks are located beyond the public facade, creating a private enclosure for the students.



6.2 COURTYARD FORM - ACCESSIBILITY AND VISIBILITY

The organisation of accommodation into linear blocks around a central playground was a key request of the Budawang Principal during the Masterplanning phase.

The School is conceptually based around a courtyard form, which creates the heart of the school.

Homebases stem from either side of the core facilities building to create a central courtyard playground that engenders privacy for the students.

The design intent of is to maximise passive surveillance over the outdoor areas from most occupied rooms including the homebases. Staff and administration areas are located to maximise sight-lines through the central playground. Additionally all homebases benefit from views over the central courtyard through the fences. This makes it easier to monitor and manage difficult student behaviours, increase oversight of the playground, and thus improve the safety of all building occupants.

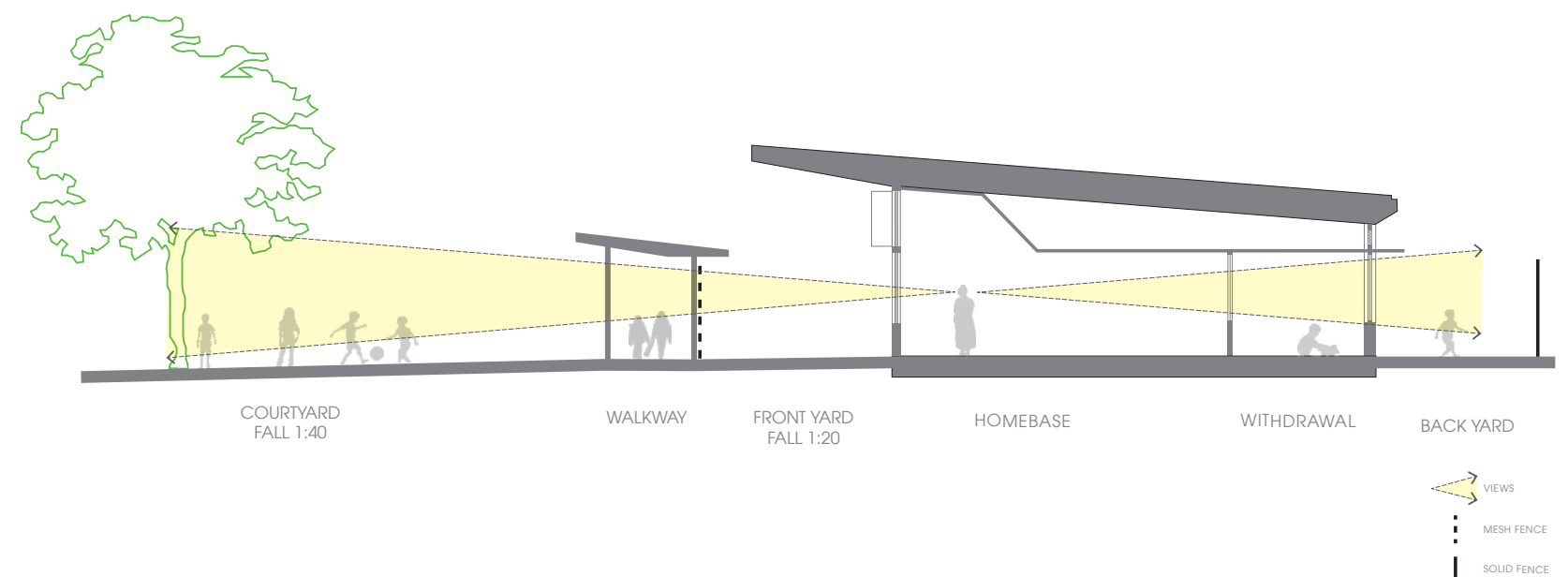
Fences throughout the campus were carefully considered so that visibility is not unduly impeded, particularly to the outdoor learning spaces located to the courtyard side of the homebases.

For students, passive surveillance means that they have a reduced sense of being watched. Staff have described that passive surveillance of students reduces difficult attention seeking behaviours.

The reduced interaction with teachers involved in passive surveillance means that this methodology is aligned with the key pedagogical goal of independence.

Terrain Management

The existing site contours demonstrate a fall of approximately 4 metres across around 85 metres. To achieve a gradient of typically 1:40 the site has been regraded. Cut and fill will adjust the contours to create terraced retaining walls with planting to the western boundary. The eastern boundary will have a combination of berms and retaining walls with planting.



6.3 PUBLIC INTERFACE

Buildings and functions requiring an interface with the public domain are located adjacent to Croobyar Road; this considers how the school presents to the wider community.

An interface with the public is established through the placement of Administration, Hall, Library, and Hydrotherapy functions adjacent to Croobyar Road. Many of these functions also require adjacency with the car park for ease of access during and outside school hours. These core facilities and consequently the associated car park are best located to the front of the site.

Conversely, homebase blocks and the playground areas are located beyond the main facade. This spatial arrangements affords the students privacy, whilst also considering their comfort and dignity.

6.4 STAGING

Allowing for future expansion is a key consideration for a new school.

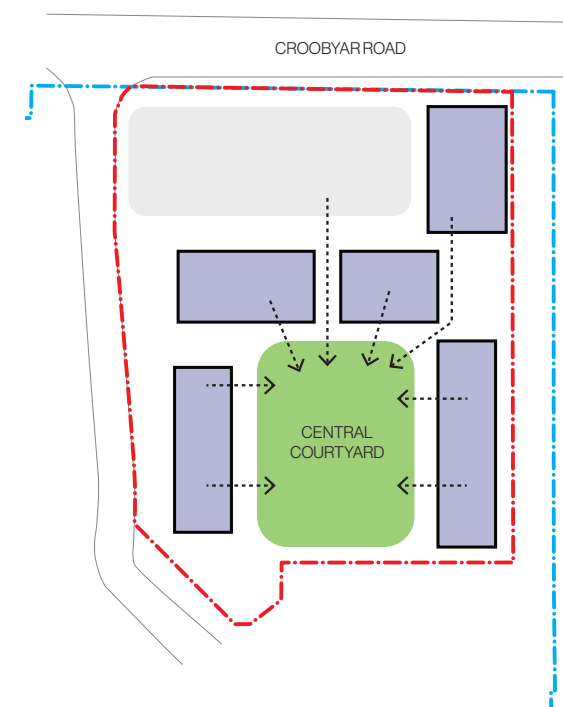
Studies undertaken by Deloitte prior to the masterplanning stage identified the requirement for 7 homebases within this stage. Potential future growth of the school was also outlined by Deloitte - the masterplan and spatial allocation for core facilities enables a further 3 homebases at some point in the future.

Studies undertaken by GroupGSA determined that the optimum location for the future homebases is to the south of the site. The reasoning is as follows:

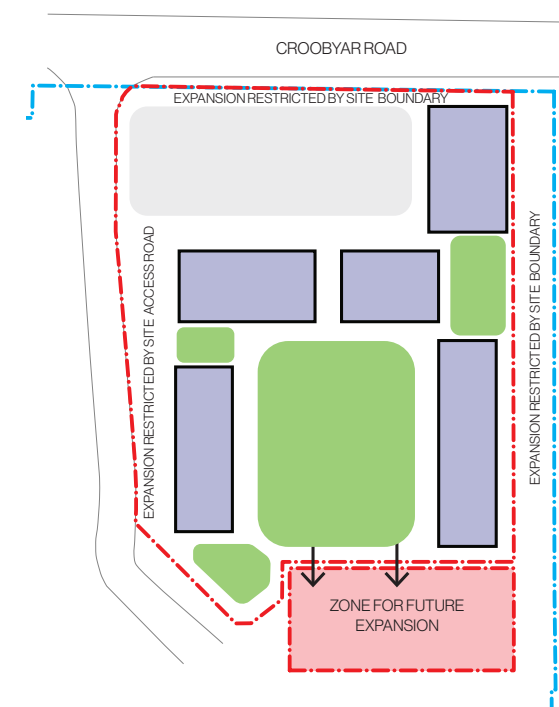
- Croobyar Road and site boundary to the north restricts expansion
- Existing site access road, riparian zone, and easements to the west restrict expansion
- Site boundary to the East
- Site to the south is within the ownership of the Department of Education NSW.

Only the southern side of the Budawang site allows for expansion beyond the designated boundary of the new school. By locating the future block to the south future options for expansion and connectivity with the remainder of the 7.7Ha site can be maximised. Refer to diagram 2 below.

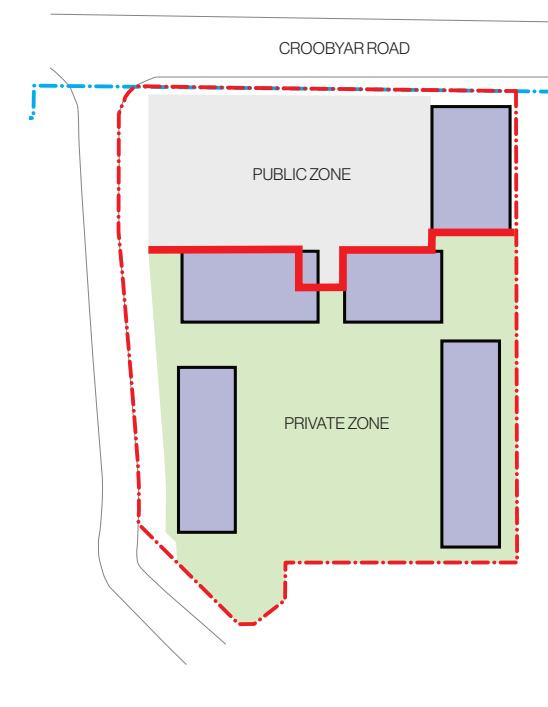
1. Landscape as the Heart of the School



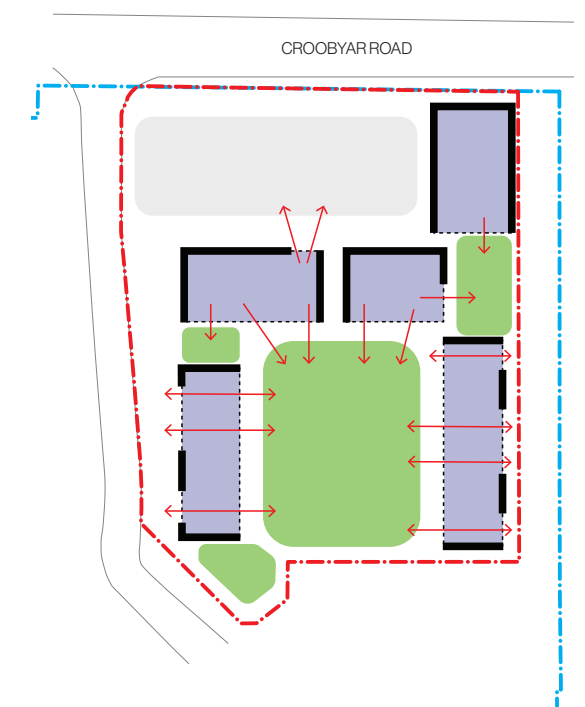
2. Potential Future Expansion / Staging



3. Public / Private zoning



4. Passive Surveillance



6.5 ACCESS AND CIRCULATION

Movement of students around the school during the day, and particularly at drop off and pick up is a highly managed process.

Pedestrian Access

Due to the type of school and requirements of the students the majority of people arrive at school by car. Pedestrian access to the school has been provided adjacent to the Hydrotherapy Pool on Croobyar Road.

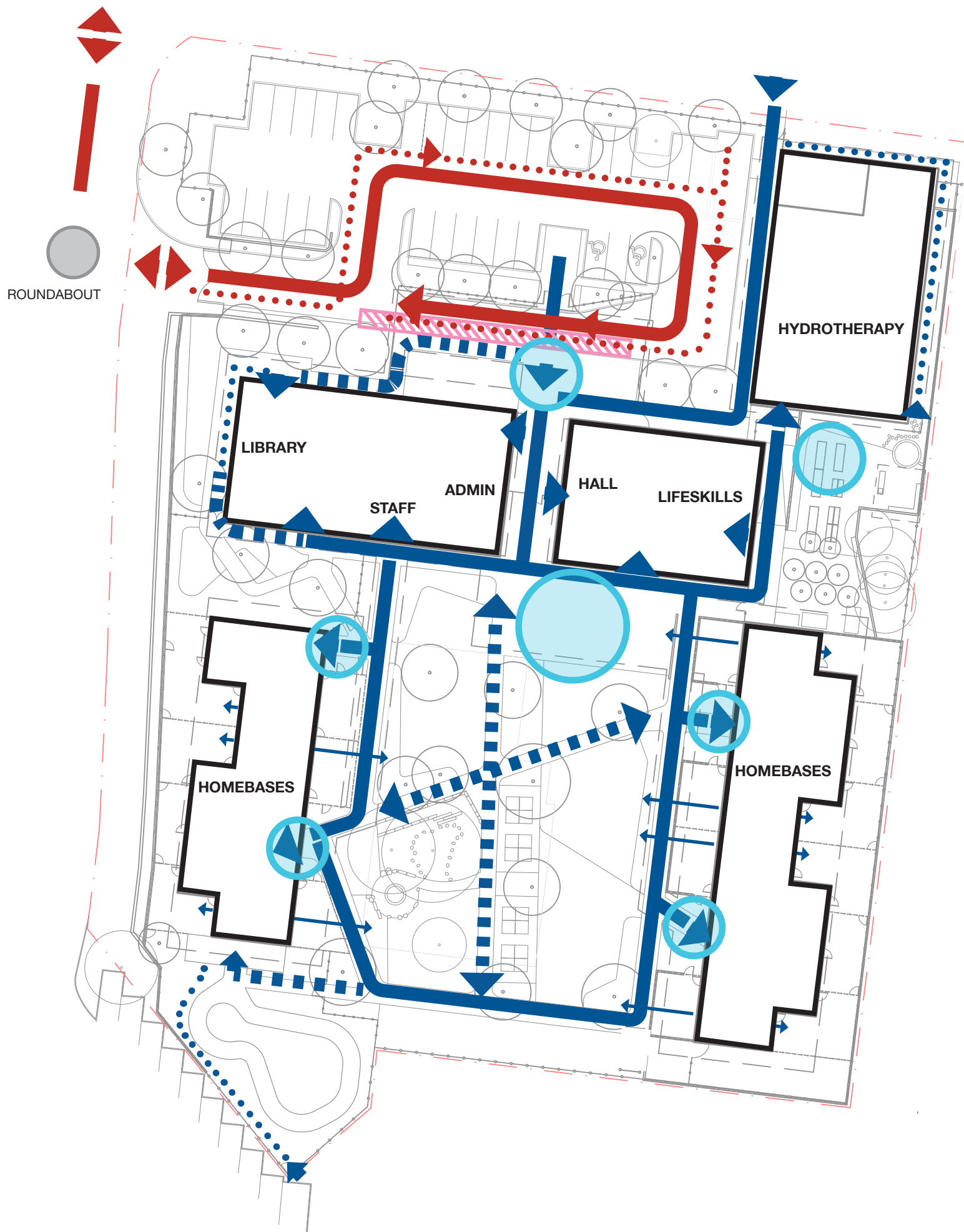
Vehicular Access

Vehicular access to the Budawang School is via the existing access road that leads into the wider epartment of Education site. This maintains the existing access from Croobyar Road. This entry was determined by constraints associated with the proximity of the site to the junction with The Princes Highway. The drop off process for students is described on the following page.

Site Circulation

Paths through the school grounds include seating around the COLA and at “pause points” for students to stop, wait, rest, and reflect. This supports the needs of both neuro-diverse students and those with physical disabilities.

Temperature, light, noise, and weather related changes resulting from the transition between internal and external environments can cause sensory overload for students with ASD (Love,J, 2019). This has been confirmed by the Budawang PRG as aligning with their experiences. Arrival at the school avoids unnecessary internal / external transitions, resulting in entry to the school via a covered entry way. Pause spaces with roof overhangs for shade allow students to manage any momentary over-stimulation, which may result from change in light and temperature, etc. These pause spaces also afford seating and space for students with physical disabilities, who may need to rest on route through the campus.



- VEHICULAR ACCESS
- VEHICULAR CIRCULATION
- DROP-OFF ZONE
- PEDESTRIAN ACCESS
- MAIN PEDESTRIAN ROUTE
- SECONDARY PEDESTRIAN ROUTE
- MAINTENANCE ACCESS - PEDESTRIAN
- MAINTENANCE ACCESS - VEHICULAR
- GATHERING POINTS /PAUSE POINTS

6.6 DROP OFF PROCESS

The drop off of students at the school is a very managed process and considers the complex factors relating to the specific needs of the students.

The majority of students will arrive by car due to a combination of their special needs and the distances typically travelled to school (refer to "catchment area" description). Due to this factor the main access to the site is vehicular. Currently around 40% of students arrive at school by mini-bus.

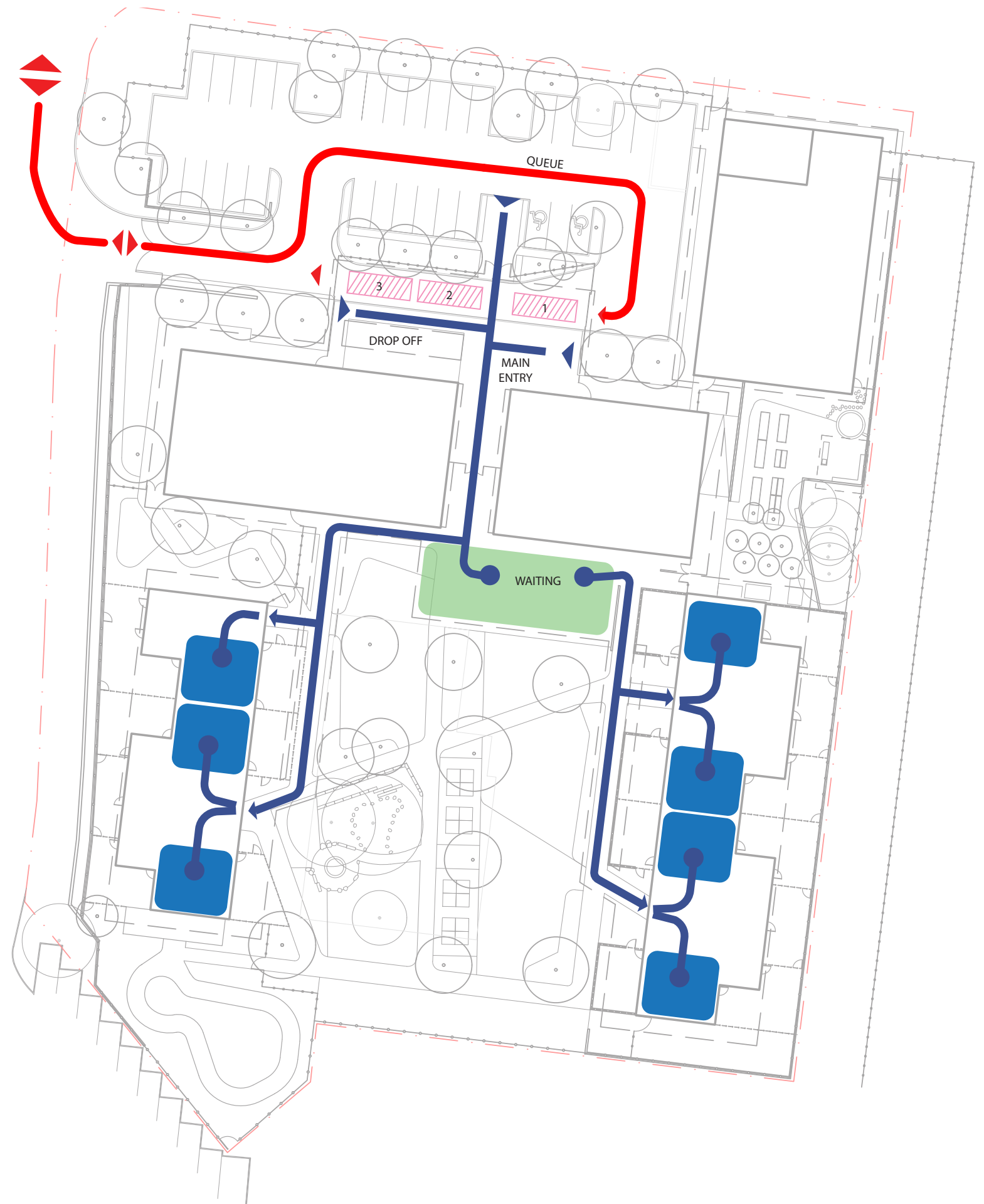
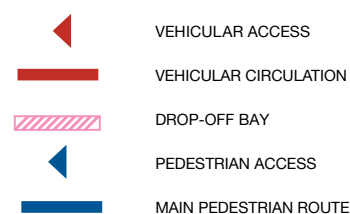
Key considerations for the design of the school entry and car park are the special needs of the students:

- Students who are highly physically able and prone to running off. This puts them at risk of collision with vehicles. These students arrive into the fully fenced porte cochere
- Students with severe physical disabilities who require significant assistance entering and exiting vehicles
- Neuro-diverse students who struggle with the sensory changes associated with arrival at school: i.e. temperature, noise, lighting changes, etc.

The entry route into the school is entirely external and undercover to reduce the amount of sensory changes experienced by students on their journey from the car to their classrooms.

The drop off and pick up has been considered within the design following consultation with the PRG. This process is as follows:

- Students arrive via minibus, taxi, or are dropped off by parents or guardians by car.
- Vehicles can enter into a fenced enclosure, which is covered by the porte cochere.
- Students are systematically taken from the vehicles by the Budawang staff considering which students can wait together in a group.
- Entry into the school is via the drop off porte cochere, through an external entry way and into the COLA.
- Students either wait on seats within the COLA or are escorted directly into their homebases, depending upon their specific needs.
- "Pause spaces" providing space and seating are located along the route from the COLA to the homebases.
- It is possible for students to remain within an enclosed, undercover, external area from leaving the vehicle to arriving at their homebase.

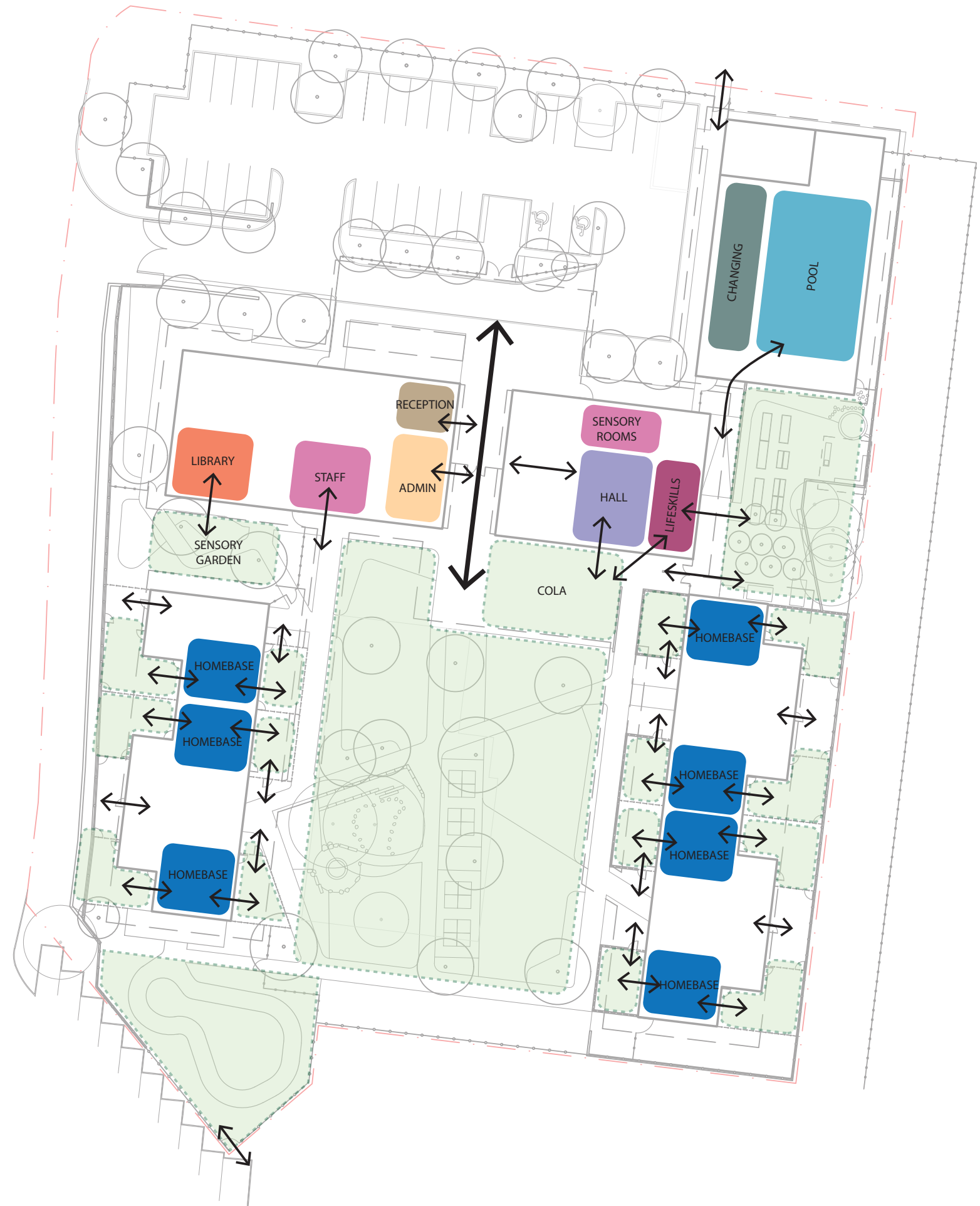


6.7 CONNECTIVITY

Spatial adjacencies and connection of internal to external spaces has been a key consideration of the design.

Buildings flank the central playground, maximising opportunity for connections to outdoors, particularly from learning spaces.

- Hall connects to Sensory Rooms, COLA, and Lifeskills. The lifeskills kitchenette can be used for functions in the Hall and adjoins the COLA for access at break times
- Lifeskills connects to the Productive Garden
- Staff and Admin areas are adjoined and have direct access to the playground
- Library adjoins the sensory garden for quiet outdoor learning
- Homebases have front and back outdoor learning spaces
- Pool, Hall and Main Reception adjoin the Car Park

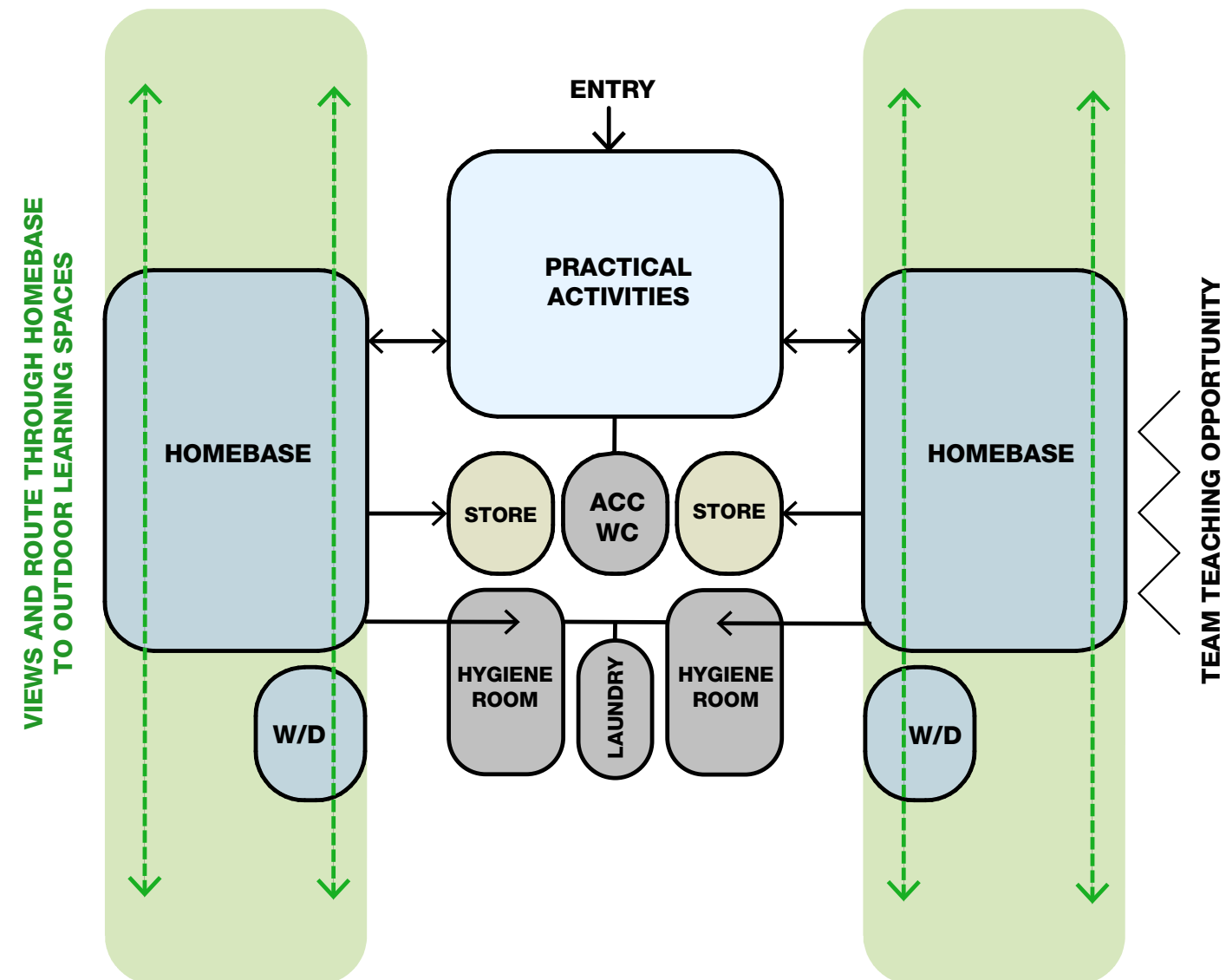


6.8 HOMEBASE CONFIGURATION

Homebases and their ancillary spaces have been designed to cater for the needs of all students from the highly active to those with severe physical disabilities, of all age groups.

The design maximises the future proofing of the school, increasing the ability to cater for fluctuations in the special needs of students attending the school.

- Linear block arrangement selected to maximise passive supervision from homebases and staff areas over the central play area
- Outdoor breakout areas to both the front and back of the each homebase to offer sufficient options for student separation and outdoor learning. Views from homebases into both front and back garden areas
- Internal windows between practical activities area, withdrawal rooms and homebases for passive supervision
- Operable walls between selected homebases to enable team teaching
- Accessible WC / Shower / Change room to every homebase with a full sized change table.
- Laundry to be accessed directly off every change room that is attached to a homebase
- Diffused overhead natural lighting to homebases and practical activities areas
- Practical Activities Area to be shared by two homebases.
- No more than two homebases sharing a practical activities area
- One WC accessed off the Practical Activities Area. This allows another toilet option if the Hygiene Room associated with the homebase is occupied
- Accessible WC / Shower / Change room to every homebase with a full sized change table.
- Laundry to be accessed directly off every change room that is attached to a homebase
- Homebase block doors to be coloured differently to support way-finding and identification of rooms
- Doors to be painted in colours to assist way-finding and bring in small splashes of colour.



6.9 USE OF COLOUR

Use of colour throughout the interior considers the requirements of the Special Needs students

- Students on the autistic spectrum who may experience sensitivity to certain colours.
- Students with visual impairments may benefit from increased LRV contrast to finishes and objects.

Academic studies have identified that cooler colours are preferred by children with ASD, with a preference for brown and green indicated (Grandgeorge, 2016). Evidence suggests that warmer colours (particularly yellow) elicit a hyper-sensation response whereby the colour is perceived as producing sensory overload (Grandgeorge 2016). Discussion with the Budawang PRG has confirmed that warmer colours, including yellow, orange, red, and even cream can be problematic for students with ASD.

Careful consideration of use of colour is relevant when designing for people who are partially sighted - adequate LRV contrast is necessary. Beyond the requirements of AS1428.1, considerations such as the ability to discern items of furniture from their background can assist movement of partially sighted students around the space.

Consequently, greys, greens and blues (even very light shades) are preferred for use within the interiors of Budawang School on permanent finishes. Additionally, use of timber within interiors to connect to the wider environment has a beneficial impact on building occupants. Colours widely reputed to cause glare or over stimulation, such as white, yellow and red are avoided on surfaces which are difficult to remove, such as floor and wall finishes. Instead, brighter and warmer colours will be applied to the furniture, which can be easily swapped if a specific colour is problematic for a student.

Colour and Connection to Country

Selection of colour externally responds to the colours of local sandstone, which can be seen in the rock formations of the nearby Budawang Ranges. Internally colours reference the greens and greys of the landscape, the blues, greys and pink of the sky (with stronger colours being used sparingly on the furniture finishes). This strategy will help to visually tie the interior and exterior of the school; colour used internally will also be referenced within the selection of planting within the landscape in specification of robust native plants.

Door Colours and Way-finding

Discussion with the PRG stakeholders including the Budawang Principal via Zoom on 09/04/2020 indicated that whilst a restricted palette is preferred for the interior, a rainbow spectrum can be used as part of a way-finding strategy of identifying the homebases. This will also give the school a “fun” appearance. The doors are painted to help identify either homebase grouping or room function

Consideration will be given to requirements around Light Reflectance Values (LRV) in terms of providing sufficient contrast around doors..

Colour and Age Groups

The new school will cater for students ranging from Kindergarden to Year 12, which adds an additional layer of complexity to specification of colour for the school. In neuro-typical students colour preferences are known to shift from warmer to cooler hues as children age (Burnham et al. 1963), which was supported by Rudolph Steiner (Walden 2015).. The colour preferences of 10,000 children worldwide were studied by Dr. Heinrich Frieling of the Institute of Color Psychology. He found that:

- Most children aged 5 – 14 rejected black, white, grey, and brown [note that this refers to neuro-typical children]
- Children 5 – 8 preferred red, orange, yellow, and violet
- Children 9 – 10 preferred red, red-orange, and green-blue
- Children 11 – 12 preferred green and yellow
- Children 13 - 14 preferred blue, ultramarine, and orange

This information will be considered within the context of selection of colours for furniture.

Refer to sample boards within sections 6.11 and 6.12 of this document for further information regarding colour specification



6.10 MATERIALITY

Conceptually the design uses materiality and building scale common to the Shoalhaven locality to give the building a domestic scale and appearance, and thus feel more comfortable and familiar to the students.

Facade:

Pre-cast concrete will be imbued with a colour mix to reference the aesthetic of rammed earth, or of the local sandstone will be used for facade walls. Sandstone is used on nearby historical buildings, and can be seen in the rock formations of the Budawang Ranges. This effect will be emphasised through the application of a textured form liner.

The requirement for robust finishes that could fit a DfMA grid and manufacturing process has resulted in the specification of pre-cast concrete. The structure of the Building is being expressed to emphasise the modular grid, and will be painted Colorbond "Monument" to contrast with the concrete.

Roofs:

The floating roof forms provide both shelter, shade and link the various blocks. The use of a metal sheet roof corresponds to the wide use of metal sheeting throughout the area. This use of metal roofing can be seen on the aerial photo bottom left.

The overhang soffits are clad in timber effect panels, which creates a more domestic, warm aesthetic. These roof overhangs are deep on east and west facades to provide protection from solar gain.

The roof colour is Colorbond "Shale Grey", selected to reduce the solar absorption.



SANDSTONE OVERHANG - BUDAWANG RANGES
IMAGE: <http://hikeoz.com/SITE/article.php?article=0100>



SANDSTONE WALL OF THE BAKERY SHOWING THE COLOURS OF THE STONE



AERIAL IMAGE SHOWING ROOF TYPES OF PROPERTIES ADJACENT TO THE SITE.



PROPOSED ROOFING SYSTEM

6.11 EXTERNAL FINISHES

Material selected for the exterior of the building to reference the local context and create a warm inviting building:

- Textured coloured concrete to respond to the local sandstone
- Metal roof in light grey colorbond
- Window and door frames: powdercoated aluminium - "monument" colour
- Exposed steel structure painted "Monument"
- Timber effect soffit to create a warm, welcoming aesthetic
- Coloured vertical louvres
- Coloured door leaves to denote room function as part of a way-finding strategy.



Oversailing roofs with timber effect soffit and exposed structure



Sandstone coloured textured concrete



6.12 INTERIOR FINISHES

Specification of internal finishes carefully considers the diversity of Special Needs of students attending the school.

Permanent items within rooms will be cool shades of grey and blue, which have been identified as being generally comfortable for people with autism. Not all students attending the school are autistic. Therefore removable items, such as furniture will use a wider colour spectrum.

Use of colour internally is predominantly blue and green, with purple, pink, and orange used sparingly on furniture.

This colour selection also makes reference to the landscapes and vistas of the area; the sky, water, mountains, and native vegetation - tying the interior design of the school to the landscaped areas.



6.13 AERIAL VIEW



6.14 PEDESTRIAN SITE ENTRY

View of Budawang School from Heritage item, Milton Anglican Pioneer Cemetery



6.15 VIEW FROM CROOBYAR ROAD

View of Budawang School facing towards the Heritage Bakery



6.16 HYDROTHERAPY AND CAR PARK



6.17 COURTYARD



6.18 EXTERNAL SIGNAGE

The architectural team will develop an external signage system that uses the NSW DoE EFSG principles, and adapts it to suit the architectural language of this particular site and context.

It will include characteristics that provide and reflect the new School identity, including the School Logo and vision at entry points.

Signage will be designed to comply with all current guidelines and consider latest DoE precedents, as indicated within the image on the right..

The signage addressing the School Community frontage will implement IT communication displays and will be compatible with the built and landscaped environment.

Signage will also be designed to address use of the Hydrotherapy facility to assist way-finding for out of hours use.

We will be developing other type of signage communication, that complements the standard directional signage and provides a creative, subliminal communication for all, supporting the idea of buildings as learning tools.

Refer to Architectural drawing SSDA-2800 for further information.





LANDSCAPE

7.0

7.1 LANDSCAPE DESIGN STATEMENT

The landscape design acknowledges that play contributes significantly to the education/ life skills process and occurs at the heart of the school. Through play, children learn to challenge themselves physically, (climbing, balancing, crawling, spinning, sliding etc).

Current literature points to the psychological and social benefits of play: Taking turns, working together, helping and challenging each other. Play is self-directed (unlike in the classroom) and this gives children a sense of independence, freedom and stimulates creativity.

Landscape Design Principles

Four design principles underpin the approach to the landscape design. These are:

- 1. Create a quality outdoor learning environment
- 2. Designing for inclusion
- 3. Develop a diversity of play opportunities
- 4. Student safety

Employing these principles to the site will provide a safe environment and improve student sense of wellbeing. These principles will lead to “whole of school” activation and result in spatial design which fully explores the school’s educational pedagogy focusing on lifeskills.

The Outdoor Learning Environment

The outdoor environment plays a significant role in the life of a school. It provides the organisational framework for way finding and circulation; highlighting entries, connections and making distinguishable different use zones. It needs to be logical and legible to all. Students will feel comfortable and confident in the space by being able to navigate the school with wide, level pathways and using 1:20 ramps where required.

Legibility is developed using strong square geometry, beginning with the COLA space upon entering the school proper. This is a flexible, large gathering space with connectivity to the Multipurpose Space. The area will be frequently used for lunch breaks with ample seating provided under weather protection. From the COLA, children can navigate the school under a covered walkway which links all buildings as the main circulation route. The courtyard is divided into play zones which differ in scale and character and offer a progression of play. These play elements and challenges cater to a diverse range of user ages, abilities and agility levels. This will include a yarning circle created within an informal bush garden setting.

Connecting to the central courtyard, are three landscape zones created to maximise opportunities for outdoor learning and play. These zones are an important educational tool, providing authentic learning activities where students can experience science, art, and essential life skills that can only be created in the gardens and ecosystems of the natural environment.

These are:

- The food growing area - productive garden attached to the lifeskills/kitchen classroom
- The outdoor library space - a quiet seating and reading zone enveloped in a sensory garden and the
- The cycle track - an active zone which develops balance and co-ordination abilities in a fun way

Design Drivers

- Emphasis on learning from the natural environment

and local ecology with a strong connection between home bases and outdoor learning areas

- Flexible spaces, both open and covered, with a high degree of connectivity and transparency
- “Nature play” creating stimulating mental and physical challenges through use of natural materials and elements as part of play
- Sensory appeal using the outdoors to provide experiences in touch, scent, sound and vision.
- Making visible the behaviour of physical forces and processes (rain gauges, temperature gauges, wind monitor, use of water tanks)

Designing for Inclusion

Site planning and design for a special school has accessibility and inclusivity at its core. The planning and design achieves level outdoor areas, keeping level transitions to a minimum. Where level changes do occur, 1:20 walkways have been used. The pedestrian hierarchy responds to the needs of the user, understanding that people relying on mobility devices require generous path widths which accommodate “pause” spaces, particularly when transitioning from indoors to out. The design of outdoor spaces encourages and supports independence of movement and full engagement with the diversity of spaces.

Design Drivers

- Minimise level transitions, through ramps no more than 1:20 gradient
- Generous path widths and pause spaces for less mobile users
- Selection of paving types easily navigable for people reliant on mobility devices
- Use of raised planters to food growing spaces for ease of access
- Inclusion of outdoor furniture which is DDA

- compliant
- Selection of play elements and experiences which are inclusive and accessible.
- Consideration of environmental comfort levels – providing built and natural shade
- Support independence of movement and engagement with outdoor spaces

Diversity of Play

Play is important to a child’s social, emotional and cognitive development. When students play, they are thinking, innovating, negotiating and taking risks. Learning is facilitated through play and inquiry so is particularly valuable to the primary school setting. A diverse range of play, capable of complementing the curriculum and encouraging learning through play is included.

It is important that children can engage in self-directed play particularly those with special needs. They can also benefit from group play and interpret the outdoors in their own imaginative way. Outdoor learning environments provide sensory experiences and physical risk-taking that cannot be achieved indoors.

It is intended that future play equipment selections be inclusive but stimulating to enable students develop critical gross motor-skills, learn how to take “risks” in a controlled environment, understand rules and fair play.

When fully resolved, there will be a range of areas for different purposes, from quiet intimate play spaces to larger areas. Opportunities will also exist for creative play, focusing on children’s ability to interpret and imagine.

Design Drivers

Diverse range of play opportunities for children to choose from: reflective, creative, natural, social, active, adventurous, and formal in response to neuro-diverse needs and various physical abilities

- Scale and zoning of spaces to respond to the type of play on offer
- Accessible and inclusive with an emphasis on independence of movement and encouraging exploration.
- Group and individual play
- Degree of surveillance
- Adaptable outdoor spaces
- Shade and environmental comfort

Student Safety

Student safety within a Special Needs context requires careful consideration based on the specific needs of students enrolled. Students ages and physical abilities vary significantly amongst the students at Budawang School; from the extremes of younger students with severe physical disabilities to older students who are highly energetic and have behavioural issues. The ability to separate groups within the playground is crucial for the safety of students, particularly those who are either younger or less physically able..

Students who have behavioural issues and are more physically able may be prone to aggressive behaviour and climbing. This impacts upon specification of planting, fencing, and retention of existing trees

.

Design Drivers

- Specification and retention of trees with smooth trunks, no low height branches, reduced dropping of branches (which may be used as weapons)
- High fences
- Considered placement of rainwater tanks and mechanical plant to avoid climbing
- Division of landscaped zones

7.2 LANDSCAPE AS THE HEART

The courtyard design places landscape at the heart of the school both physically and visually, with learning spaces benefiting from views over the central playground.

Key considerations of the courtyard design:

- Gradients across the site suit wheelchair users. Across the central play area, falls are typically no steeper than 1:40. To deal with level changes there are carefully located short ramps at 1:20, which do not require handrails and kerbs.
- Colour differentiation to indicate changes of slope in landscape to assist students with mobility issues
- Seating with backrests within the COLA and play areas to assist students with core strength issues
- Preference for indigenous and endemic planting
- Consideration of the need for separate play areas based on age, ability, and agility.
- Existing trees retained where possible
- Shade structures considered

Connection to Country

Consultation with the Registered Aboriginal Parties has taken place and an Aboriginal and Cultural Heritage Assessment (ACHA) has been completed. This included a review of the site between the Aboriginal Consultant and the Registered Aboriginal Parties. The ACHA has highlighted two finds of low significance on the site.

The process of community consultation is ongoing. Moving forward, an Aboriginal Consultant is engaged and there will be continual consultation with the aboriginal community to understand their local traditional stories so that those stories can be incorporated into the design. This is anticipated to be achieved through the following provisions:

- Increased retention of existing trees
- Yarning circle within the Bush Garden space
- Native and endemic planting throughout the site



7.3 TREE MANAGEMENT PLAN

An Arborist Report prepared by Allied Tree Consultancy, dated March 2021 is the basis for the Tree Management Plan and tree retention.

The integration of nature into the school is a key consideration for creating a calming educational environment that is connected to country.

The design focuses on indoor/outdoor connection centred on the courtyard, Tree Management throughout the site also considers numerous factors relating to the function of the school;

- Functional requirement for open space for play
- Clear sight lines - this is to maximise passive surveillance, which serves a safety and pedagogical purpose
- Avoidance of climbing hazards
- Risks associated with falling branches injuring building occupants
- Risks associated with sticks and branches being used by students as weapons
- Levels are adjusted across the site to achieve falls that are suitably accessible for wheelchair users - 1:40 across the central courtyard. These changes to levels mean that it is sometimes not possible to retain trees due to safety risks: Locally reducing levels to enable retention of trees is liable to cause ponding of water if drains block.

The Budawang Landscape and Tree Management Plan reflects a design modification proposed within the Arborist Report in order to retain trees T24 to T29. Retaining these trees also aligns with comments from the Government Architect citing a need to keep more of the existing trees and integrate them into the Landscape Design.

Point 7.1.3 of the Arborist Report states: “Trees No. 23-31; within the footprint of the proposed batter cut/excavation. These trees provide sufficient significance for retention, although a design modification would be required to remove the excavation in the SRZ’s.”

The design of the Productive Garden area where these trees are located has been modified to include a retaining wall structure reflecting the RL of the existing ground level. This responds to point 9.2.2 of the Arborist Report: “Tree No. 23-31 Remove excavation proposed in the SRZ’s nominated for the batter/cut.”

Trees T24 to T29 are not located on a playground surface, therefore any risks associated with roots causing a trip hazard are significantly reduced.

Where trees have been retained, their existing soil levels are maintained. Retained trees have been inspected by the Arborist.

The Landscape Plan includes planting of new trees and creation of outdoor learning areas - refer to the Vegetation Strategy Diagram for further information.

Refer to the Arborist Report for further information.

Tree Calculation:

Number of trees to be removed:

53









Number of trees to be retained:

11

Number of proposed trees:

44

LEGEND

-  TREES TO BE RETAINED (SURVEYED)
-  TREES TO BE RETAINED (NOT SURVEYED)
-  TREES TO BE RETAINED (NOT ASSESSED)
-  TREES TO BE REMOVED (SURVEYED)
-  TREES OUTSIDE OF BOUNDARY
-  TREES PROTECTION ZONE (TPZ) REFER TO ARBORIST REPORT
-  STRUCTURAL ROOT ZONE (SRZ) REFER TO ARBORIST REPORT
-  SITE BOUNDARY



7.4 LANDSCAPE PLAN

LEGEND

- ①

CARPARK
- ②

PRODUCTIVE GARDEN
- ③

SENSORY PLAYGROUND
- ④

PLAYGROUND SPACES
- ⑤

BUSH GARDEN/PLAY/YARNING CIRCLE
- ⑥

KICK AROUND AREA
- ⑦

BIKE TRACK
- ⑧

STAFF OUTDOOR AREA
- EXISTING TREES
- PROPOSED TREES
- COLOURED CONCRETE PAVING TYPE 1
- COLOURED CONCRETE PAVING TYPE 2
- RUBBER SOFTFALL - PLAY SPACE
- RUBBER SURFACE - OUTDOOR LEARNING SAPCE
- NATURAL MULCH
- SERVICE ZONE - CONCRETE PAVED
- TURF
- MASS PLANTING



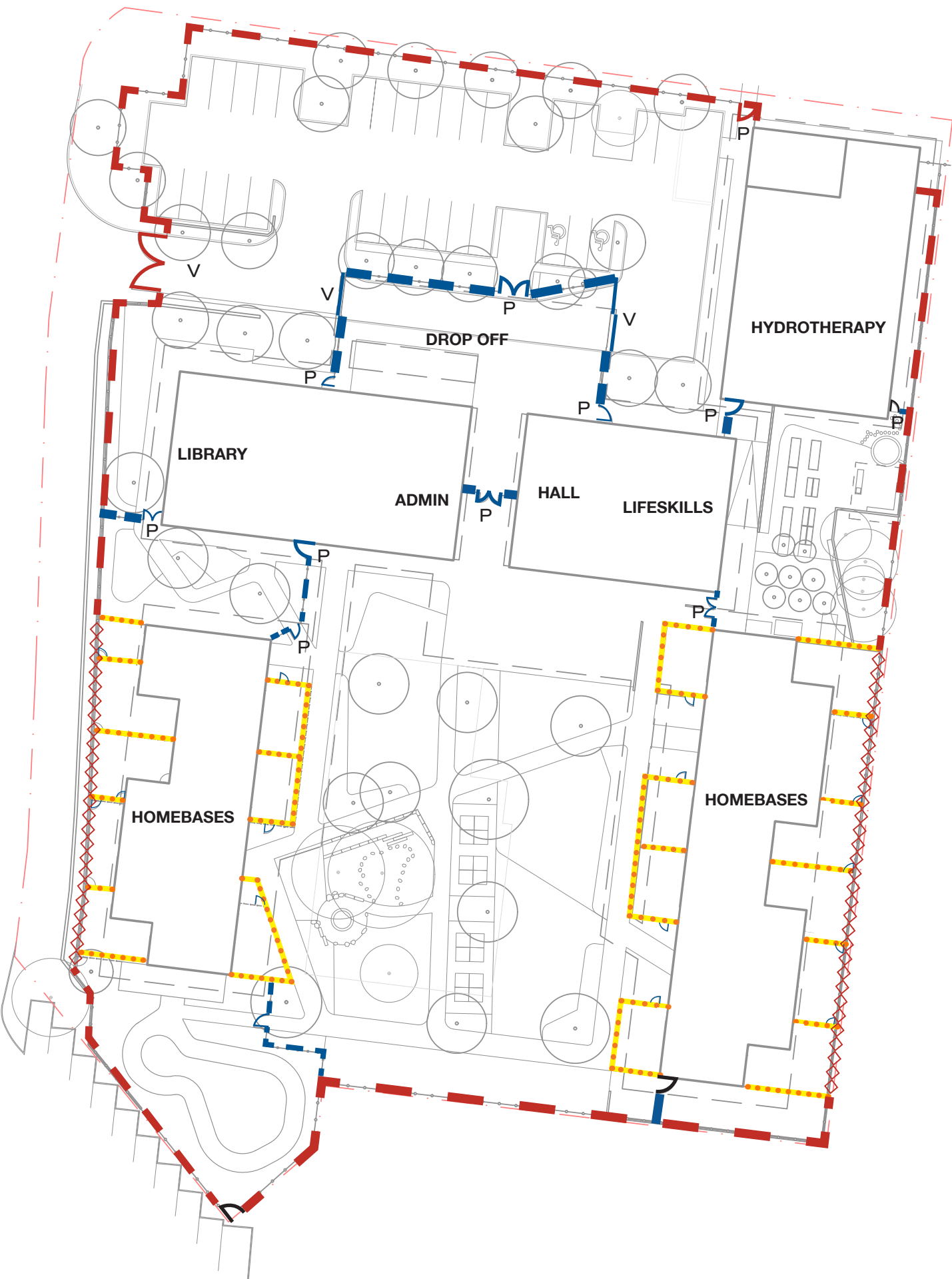
7.5 FENCING STRATEGY

Fences are a necessary element of the design due to the requirements of separating students of different age and ability groups. Fences need to be suitably high to prevent students from climbing over and avoid creating footholds. To diminish the visual impact the fencing is designed to integrate into either the Architecture or the Landscape.

Boundary fences are designed to consider the specific condition of their location:

- The street frontage along Croobyar Road and the existing site access road will be fenced and planted to diminish the impact of the car park
- Fences to the back of homebases consider the students' need for privacy
- Fences to outdoor learning spaces consider the need for maximising visibility from the homebases to the central courtyard. Fences will have no footholds.

Placement of fences and gates within the campus will continue to be discussed with the PRG, BCA and DDA to ensure that routes around the site provide logical access for staff, whilst also safely enclosing the students.



- AM80 - BOUNDARY FENCE (2150MM HIGH SCHOOL PALISADE FENCE) - FLAT TOP
- AM82 - BOUNDARY FENCE WITH VISUAL SCREENING
- VEHICULAR ACCESS GATE - SWING
- VEHICULAR ACCESS GATE - SLIDE
- AM84 - PEDESTRIAN ACCESS
- AM80 - SECONDARY FENCE AND GATES
- AM83 - SECURE FENCE TO OUTDOOR LEARNING SPACE
- MAINTENANCE ACCESS AND GATES

7.6 FENCING AND BOUNDARY TREATMENT PRECEDENTS

Fencing is essential for security and to define the boundary of the school. Careful consideration has been given to the functional and aesthetic requirements of the fences depending upon the frontage of the boundary and the requirements of the space being enclosed.

Fencing of 2150mm high is required to the Budawang School boundary as per the EFSG.

Along Croobyar Road this fencing is screened through planting to the street side of the fence.

Sandstone logs are used along the western boundary to create planted terracing. This boundary will be come more predominant if the remainder of the Department of Education site is utilised in the future as a potential educational purpose. This existing access road forms the vehicular entry for any development on the remainder of the site.

The back of the homebase blocks require additional privacy. Fencing to these boundaries has slats with reduced gaps.

Expansion of Budawang School may occur in the future depending upon demand. Privacy of the courtyard is important to the school; this will be provided in the interim through a combination of security fencing with dense planting.



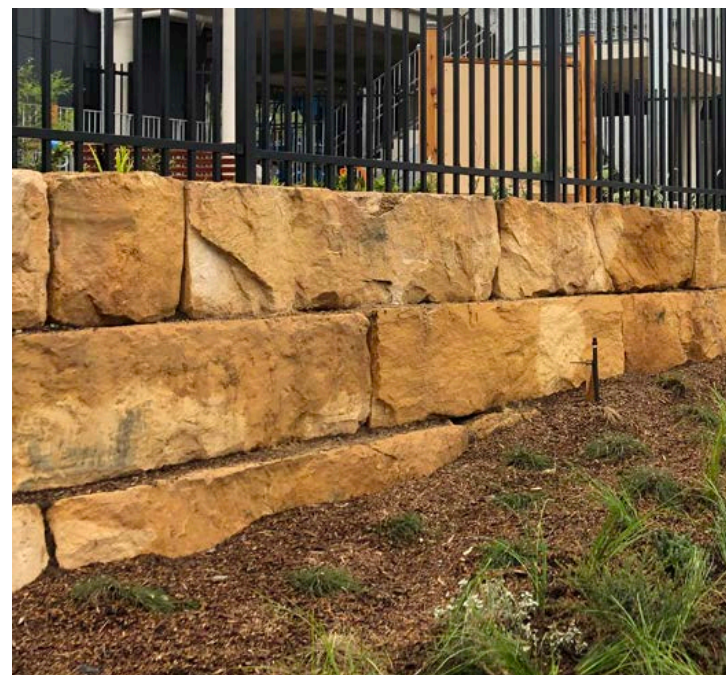
AM80 - Palisade fence to school boundary. This will be softened with planting when located along a visible boundary



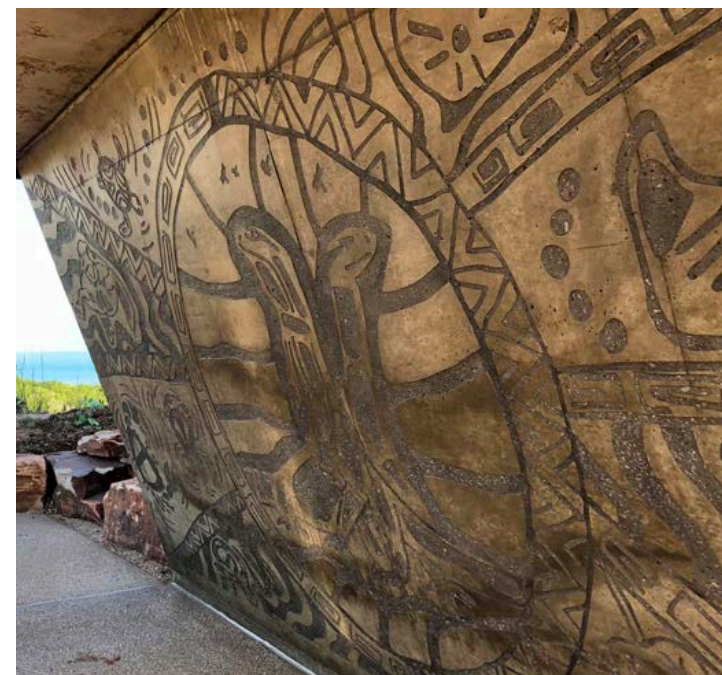
AM83 - Mesh fencing to homebase outdoor learning areas



AM82 - Boundary fencing used where more privacy is required. Colour will be "Monument"



Sandstone logs suggested to create terraced retaining walls along western boundary



Example of community artwork within concrete
<https://www.mudmapstudio.com/projects>

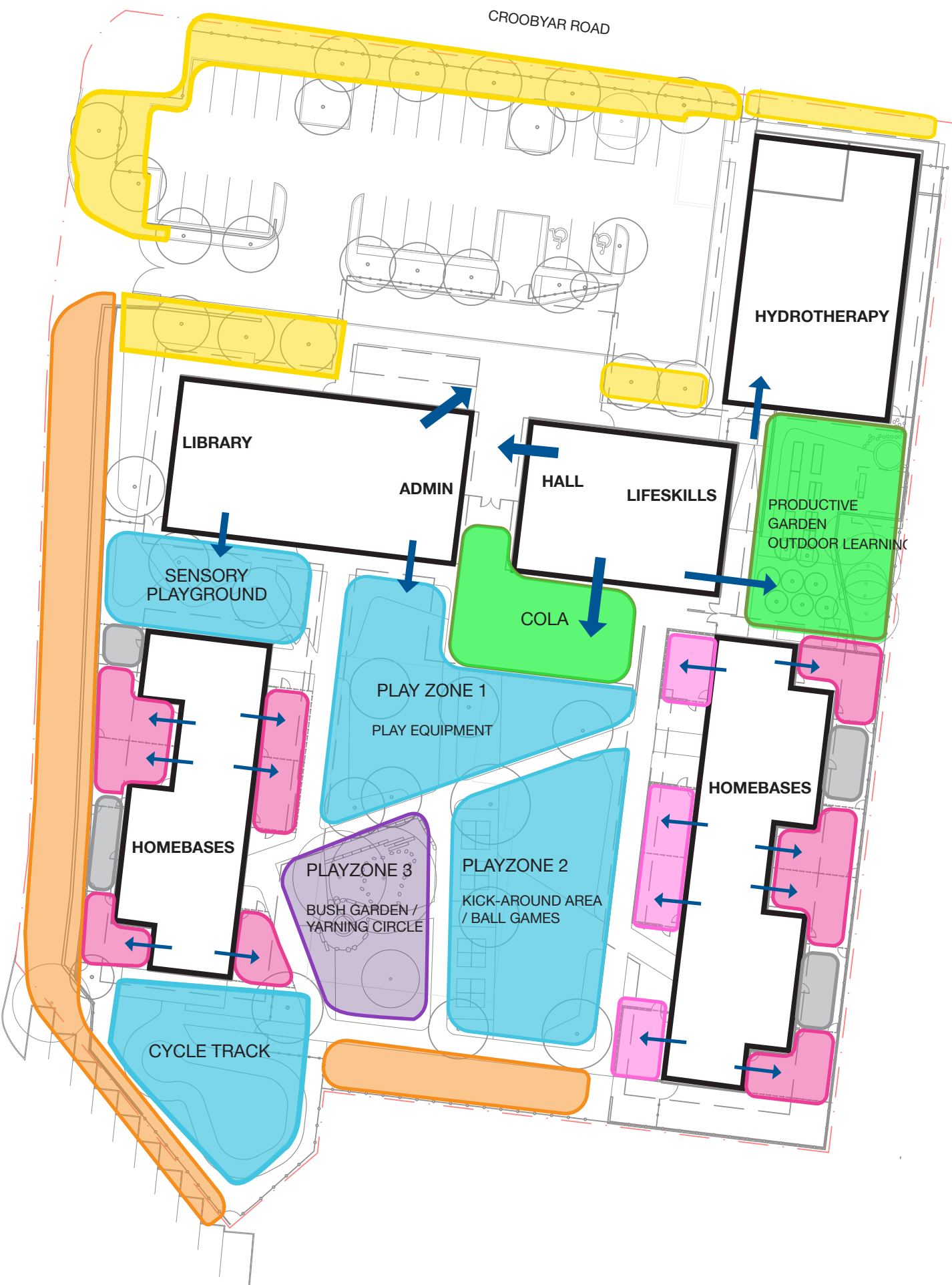


AM84 - Example of community artwork within perforated metal
<https://www.mudmapstudio.com/projects>

7.7 LANDSCAPE ZONES

Key landscape areas which respond to this need for learning through play include:

- Central playground with various play spaces
- Productive garden
- Bike track
- Sensory Garden associated with the library
- Bush garden with proposed yarning circle



STREET ADDRESS

BOUNDARY LANDSCAPE

GATHERING SPACES

PLAYGROUND

OUTDOOR LEARNING SPACE

SERVICE ZONE

7.8 VEGETATION STRATEGY

The integration of nature into the school is a key consideration for creating a calming environment.

The Landscape Plan includes planting of new trees and creation of outdoor learning areas - refer to the Vegetation Strategy Diagram (right) for further information.

Percentage of tree cover is also impacted by various functional requirement associated with the school:

- Functional requirement for open space
- Need for clear sight lines
- Avoidance of climbing hazards
- Amount of tree coverage suitable for a regional educational facility



- BUSH GARDEN - Native & indigenous planting focussing on groundcovers, low shrubs and sensory planting
- PLAY ZONES - Tree planting and groundcovers with emphasis on hardy, native species
- BOUNDARY LANDSCAPE - Native trees and screening vegetation where required
- PRODUCTIVE GARDEN - Edible plants and orchard trees, Indigenous bush foods
- SENSORY PLAYGROUND
- PROPOSED TREES
- EXISTING TREES TO BE RETAINED
- EXISTING TREES TO BE REMOVED

7.9 PLANTING PALETTE

BOUNDARY PLANTING



Acmena Smithii



Callistemon sieberi



Tristaniopsis laurina



Westringia fruticosa

CARPARK TREES



Eleocharis reticulatus



Tristaniopsis laurina



Corymbia eximia 'nana'

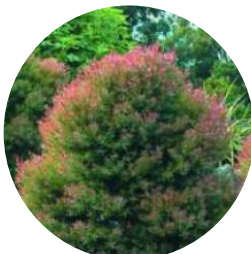
BUSH GARDEN



Banksia aemula



Leptospermum petersonii



Melaleuca 'Claret Tops'



Philotheca 'Profusion'



Carpobrotus glaucescens



Chrysocephalum apiculatum sp.



Lomandra longifolia 'Tanika'



Poa labillardieri 'Eskdalea'

PLAY ZONES - CANOPY TREES



OUTDOOR LIBRARY - SENSORY GARDEN



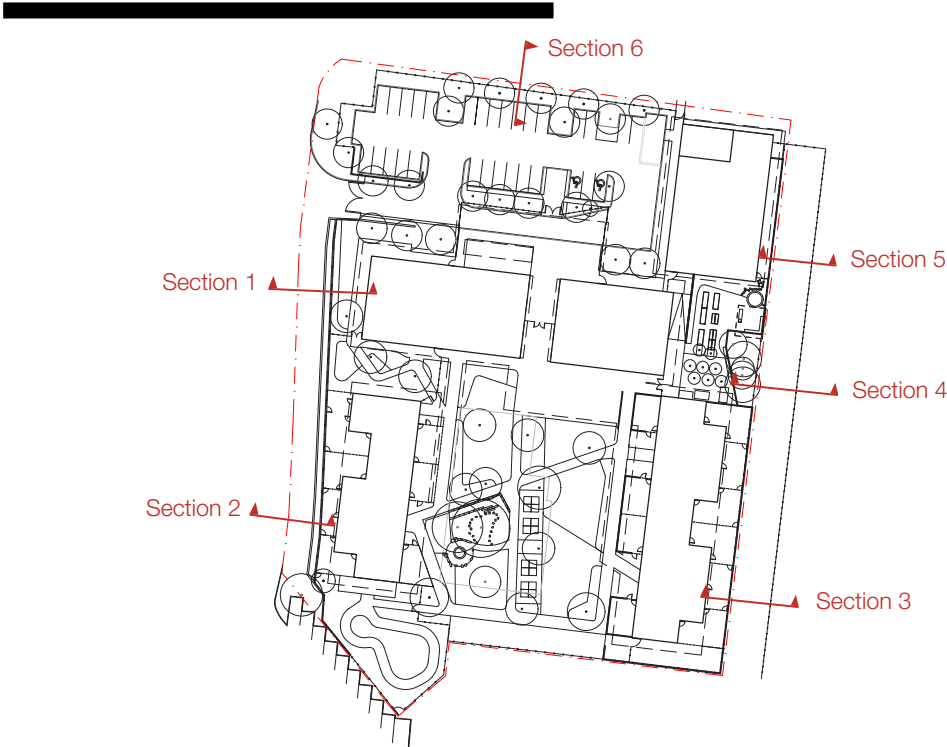
PRODUCTIVE GARDEN - FOOD GROWING



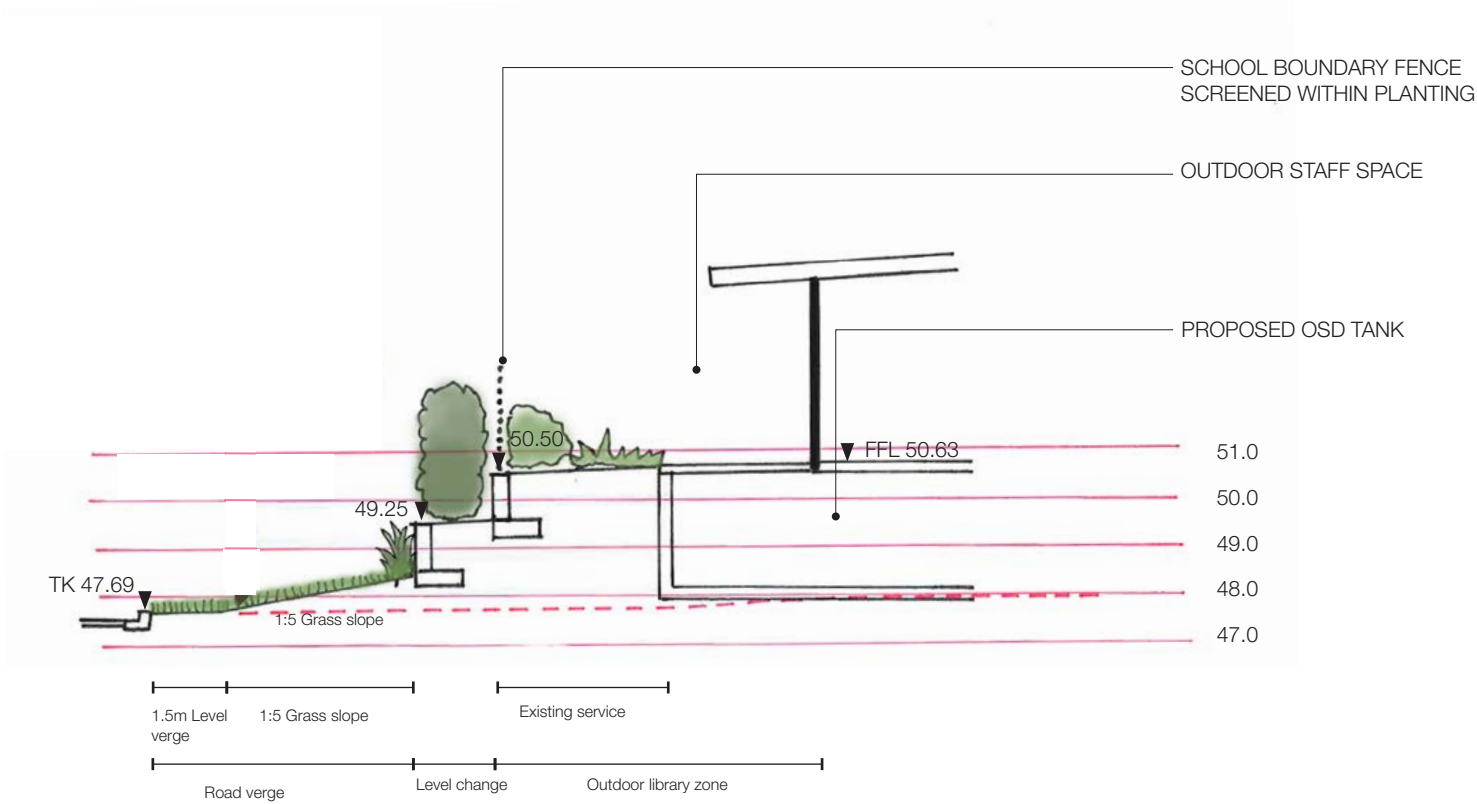
BOUNDARY PLANTING			
BOTANIC NAME	COMMON NAME	MATURE SIZE (H x W) m	NATIVE (N) ENDEMIC (E)
<i>Acmena Smithii</i>	Lilly Pilly	6 x 6	E
<i>Callistemon sieberi</i>	Bottlebrush	3 x 2	E
<i>Tristaniaopsis laurina</i>	Water Gum	12 x 6	E
<i>Westringia fruticosa</i>	Coastal rosemary	1.5 x 1	N
CARPARK TREES			
BOTANIC NAME	COMMON NAME	MATURE SIZE (H x W) m	NATIVE (N) ENDEMIC (E)
<i>Corymbia eximia</i> 'nana';	Dwarf Yellow Bloodwood	10 x 7	E
<i>Eleaocarpus reticulatus</i>	Blueberry Ash	12 x 5	N
<i>Tristaniaopsis laurina</i>	Water Gum	12 x 6	E
BUSH GARDEN AND PLAY			
BOTANIC NAME	COMMON NAME	MATURE SIZE (H x W) m	NATIVE (N) ENDEMIC (E)
SMALL TREES & SHRUBS			
<i>Banksia aemula</i>	Wallum banksia	5 x 25	N
<i>Leptospermum petersonii</i>	Lemon scented Tea tree	4 x 2	N
<i>Melaleuca</i> "Claret Tops"	Honey Myrtle	1.0 x 0.8	N
<i>Philotheca</i> "Profusion"	Eriostemon	1.5 x 1.5	N
GROUNDCOVERS			
<i>Carpobrotus glaucescens</i>	Pigface	0.3 x 1.5	N
<i>Chrysocephalum apiculatum</i>	Yellow Buttons	0.3 x 0.5	N
<i>Lomandra longifolia</i> 'Tanika'	Lomandra Tanika	0.5 x 0.5	N
<i>Poa labillardieri</i> "Eskdale"	Tussock grass	1 x 0.5	E

PLAY ZONES - CANOPY TREES			
BOTANIC NAME	COMMON NAME	MATURE SIZE (H x W) m	NATIVE (N) ENDEMIC (E)
<i>Melaleuca linariifolia</i>	Snow in Summer	10 x 4	N
<i>Tristaniaopsis laurina</i> "Luscious"	Water Gum	12 x 6	E
<i>Waterhousia floribunda</i>	Weeping Lilly Pilly	30 x 10	N
OUTDOOR LIBRARY - SENSORY GARDEN			
BOTANIC NAME	COMMON NAME	MATURE SIZE (H x W) m	NATIVE (N) ENDEMIC (E)
<i>Adenanthos sericeus</i>	Woolly Bush	5 x 1.5	N
<i>Casuarina</i> "Green Wave"	She oak cultivar	2 x 2	N
<i>Gaura Species</i>	Butterfly bush	1.2 x 1.0	E
<i>Leptospermum</i> "Pacific Beauty"		1.5 x 2.5	N
<i>Pelargonium citrosum</i>	Lemon scented geranium	0.6 x 0.4	E
PRODUCTIVE GARDEN - FOOD GROWING			
BOTANIC NAME	COMMON NAME	MATURE SIZE (H x W) m	NATIVE (N) ENDEMIC (E)
INDIGENOUS			
<i>Citrus australis</i>	Finger Lime	7 x 5	N
<i>Myoporum parvifolium</i>	Creeping boobialla	0.3 x 2.5	N
<i>Olea paniculata</i>	Native Olive	8.0 x 3.0	N
<i>Pittosporum angustifolium</i>	Gumbi gumbi	8 x 5	N
EXOTIC HERBS			
<i>Aloysia triphylla</i>	Lemon Verbena	3.0 x 3.0	
<i>Rosmarinus officinalis</i>	Rosemary	1.5 x 1.5	
<i>Salvia elegans</i>	Pineapple Sage	1.2 x 0.9	
<i>Tulbaghia violacea</i>	Society Garlic	0.3 x 0.3	

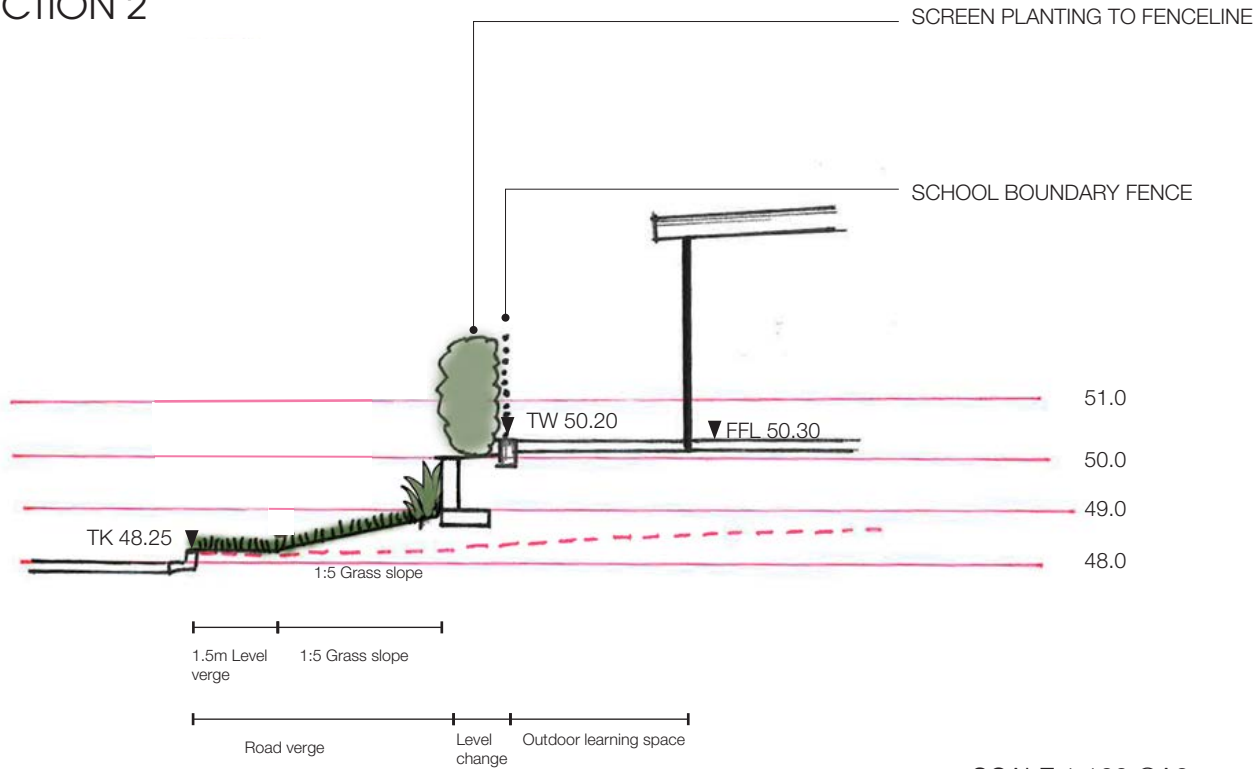
7.10 BOUNDARY CONDITIONS



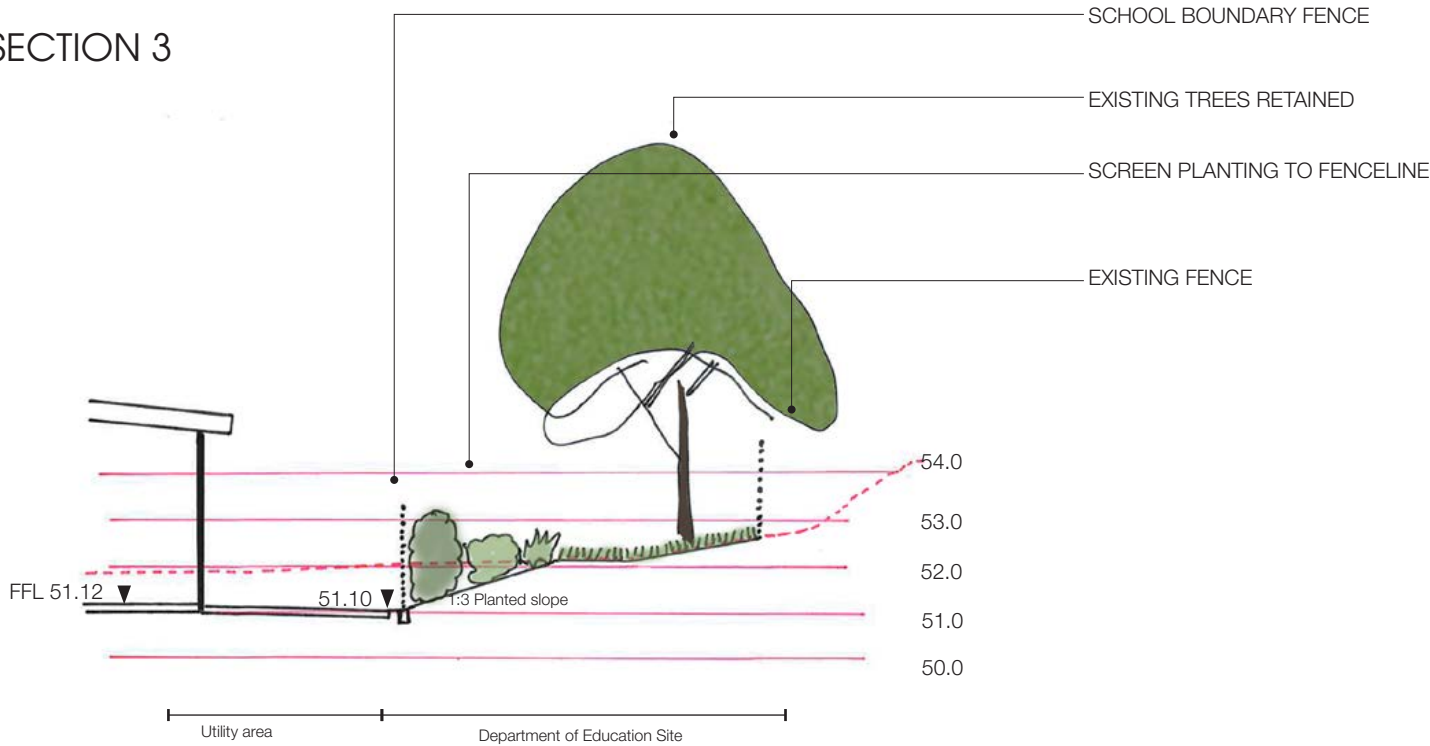
SECTION 1



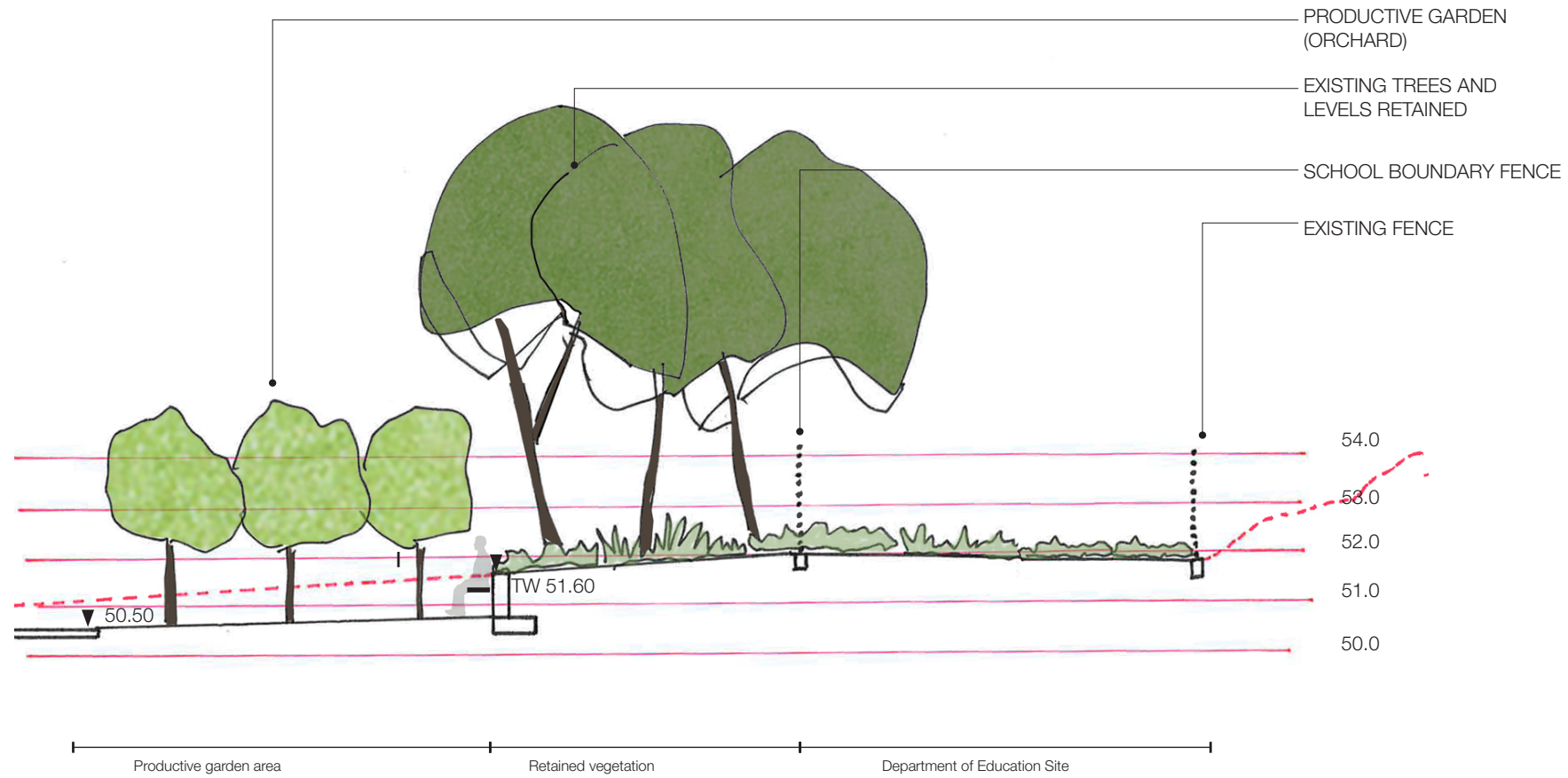
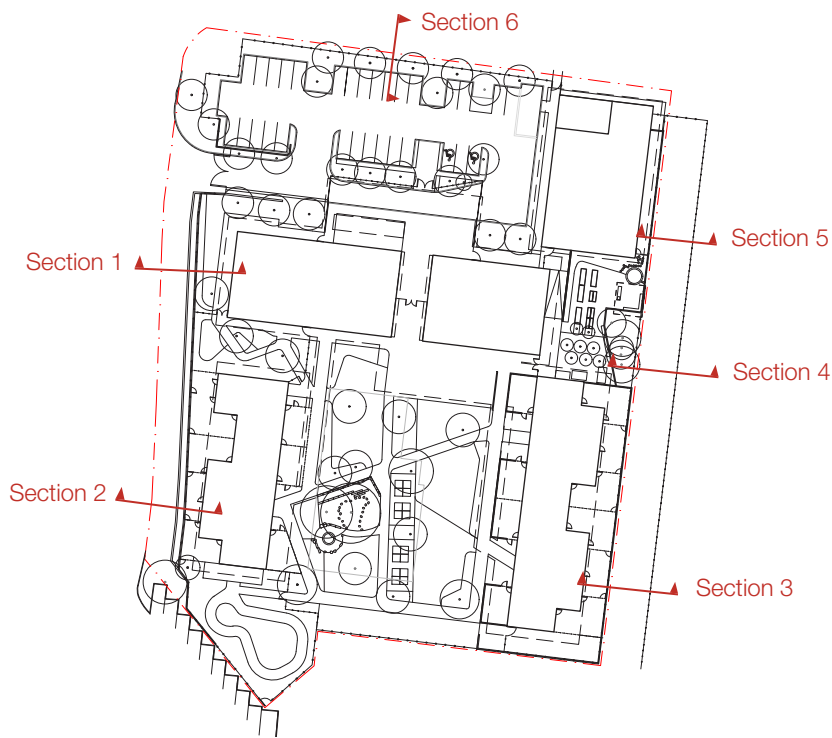
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SECTION 3

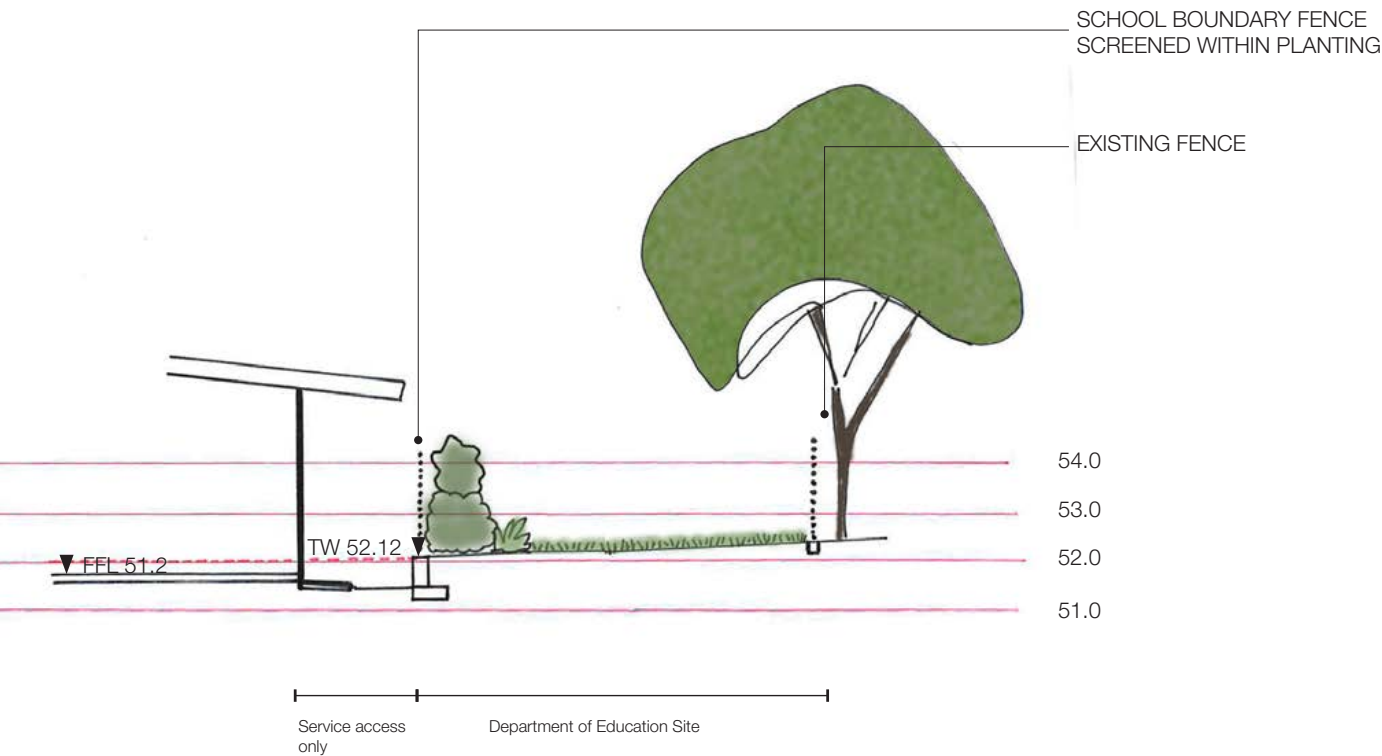


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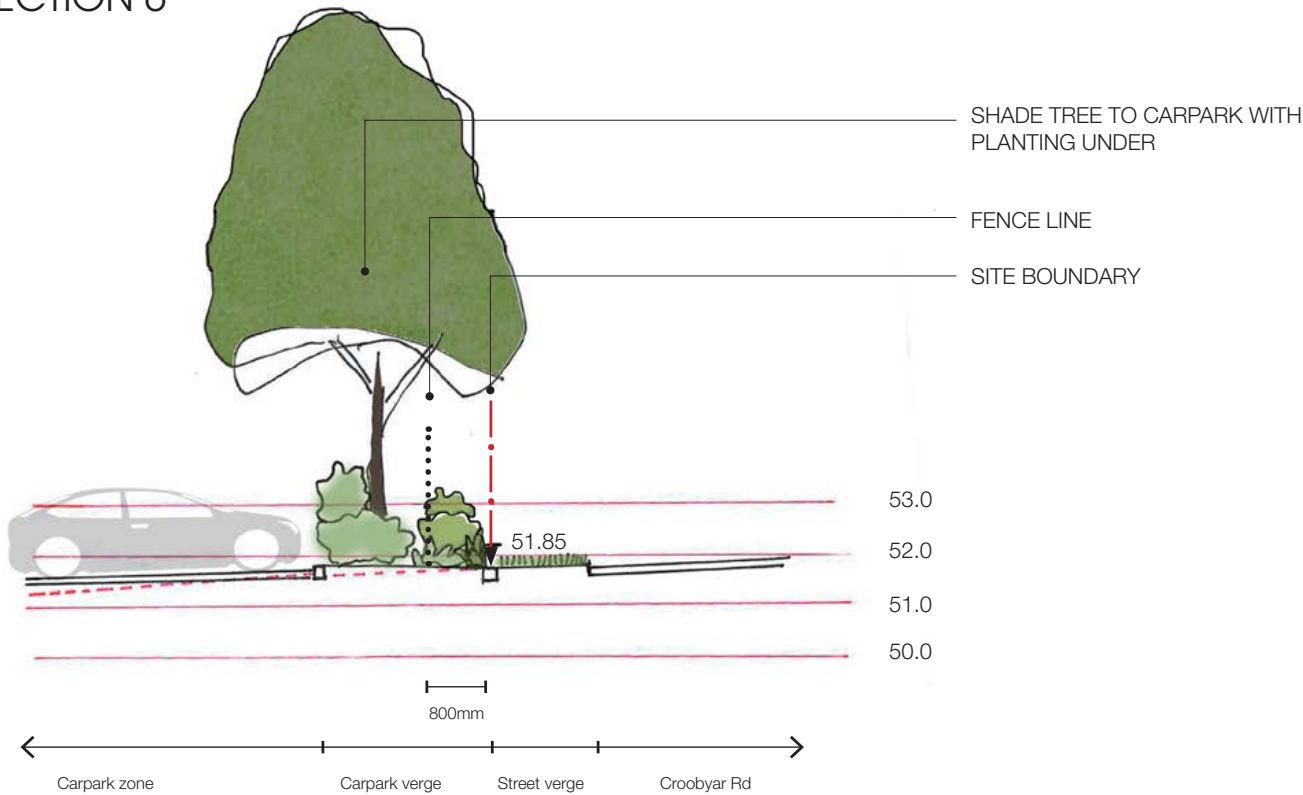
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SECTION 5



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SECTION 6



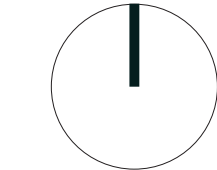
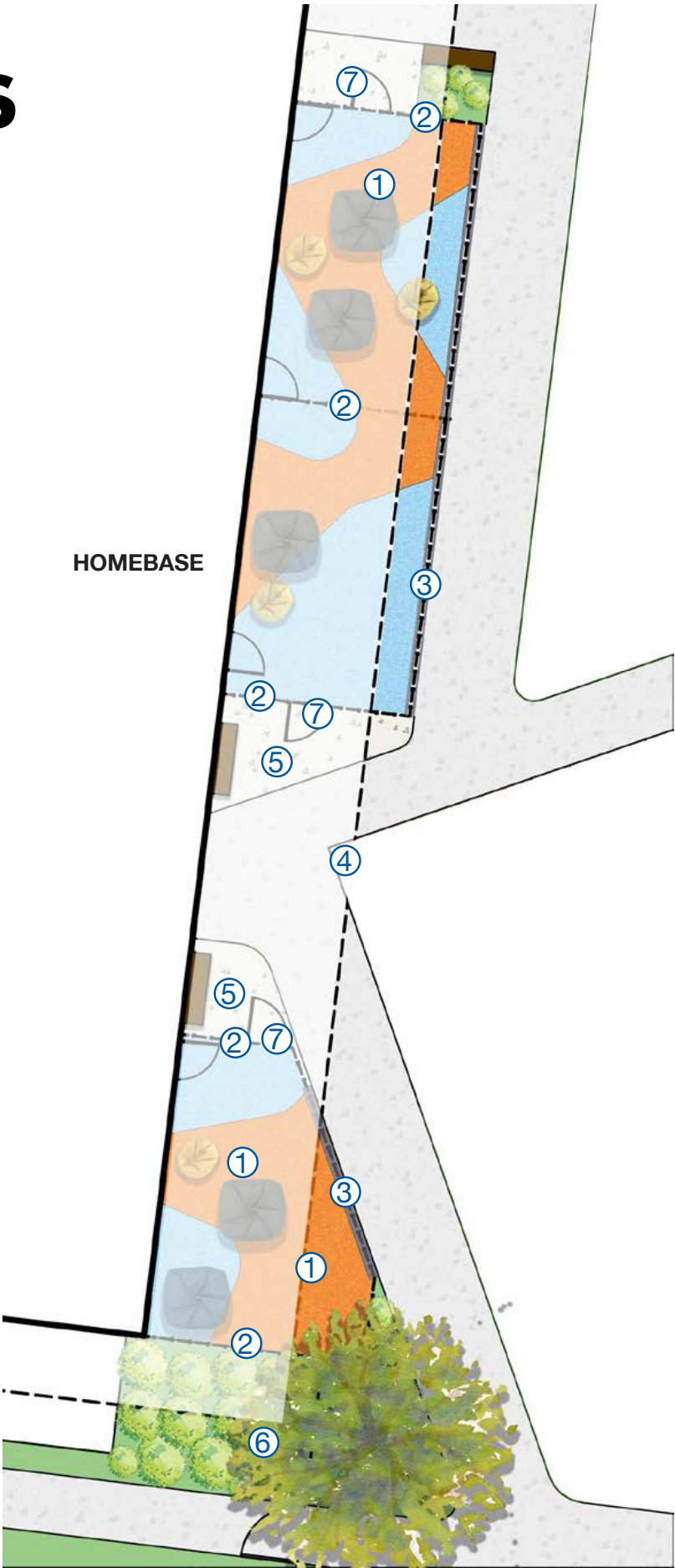
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7.11 OUTDOOR LEARNING AREAS ADJACENT TO HOMEBASES

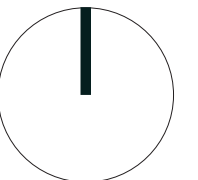


LEGEND

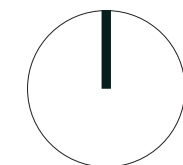
- ① SPACE INCLUDES PATTERNED RUBBER SOFT FALL SURFACE AND SOFT, WEATHERPROOF FURNISHINGS FOR CASUAL SEATING (EG. BEANBAGS)
- ② FENCING TO OUTDOOR LEARNING SPACE – SECURIFOR MESH FENCE 2150MM HEIGHT
- ③ CONCRETE PLINTH WITH FENCING FOR SEATING (400MM NOM. HEIGHT)
- ④ ROOF OVER
- ⑤ ENTRY ZONE – PAUSE SPACES WITH SEATING AND BLACKBOARDS UNDER COVER FOR ACTIVATION
- ⑥ SCREEN PLANTING TO FENCING ALONG OUTDOOR LEARNING SPACES WHERE POSSIBLE TO INCREASE SENSE OF ENCLOSURE AND MAINTAIN PRIVACY.
- ⑦ GATE



- 1 BOUNDARY FENCE
- 2 INTERNAL FENCE AND SERVICE GATE ACCESS
- 3 SENSORY PLANTING - FOCUS ON COLOUR, TEXTURE AND SCENT
- 4 SHADE TREES WITH SEATING UNDER
- 5 SWALE - GROUND COVER PLANTING
- 6 OPPORTUNITIES FOR SENSORY PLAY ITEMS
- 7 CONNECTION TO LIBRARY
- 8 ROOF OVERHEAD
- 9 TIERED RETAINING WALL WITH PLANTING
- 10 OUTDOOR STAFF SPACE



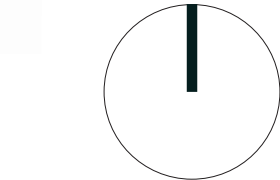
- ① TURF SPACE IN CENTRE OF BIKE TRACK - INFORMAL VIEWING
- ② BIKE TRACK
- ③ PROPOSED RETAINING WALL
- ④ EXISTING TREE TO BE RETAINED WITH GROUNDCOVERS UNDER
- ⑤ SCREEN PLANTING TO BOUNDARY FENCE
- ⑥ INTERNAL FENCING AND GATE
- ⑦ GROUND COVER PLANTING TO GENTLE SLOPE
- ⑧ EXISTING CARPARK AND KERB LINE RETAINED
- ⑨ BOUNDARY FENCE
- ⑩ BIKE STORAGE
- ⑪ TURF SPILL-OUT AREA FOR BIKES/WAITING ZONE



7.14 PRODUCTIVE GARDEN

LEGEND

- ① GARDEN BED - FOCUS ON PRODUCTIVE PLANTS, MEDICINAL HERBS AND BUSH TUCKER.
- ② PERGOLA FOR SHADE INCLUDING VINE COVERED SECTION – GRAPES. SEATING AND OUTDOOR BENCH IN SPACE
- ③ ROUND GALVANISED WATER TANK WITH TAP FOR WATERING GARDEN
- ④ TURF
- ⑤ SMALL ORCHARD TREES IN MULCH RINGS
- ⑥ RAISED GARDENS BEDS FOR FOOD GROWING.
- ⑦ EXISTING TREES TO BE RETAINED
- ⑧ RETAINING WALL WITH SEATING ATTACHED
- ⑨ CONNECTION TO LIFE SKILLS/INDOOR KITCHEN AREA
- ⑩ STEPPERS THROUGH GARDEN FOR SERVICE ACCESS ONLY.
- ⑪ SERVICE GATE AND FENCING TO REAR OF HYDROTHERAPY BUILDING
- ⑫ CLOTHESLINE
- ⑬ CHICKEN COOP-MOBILE

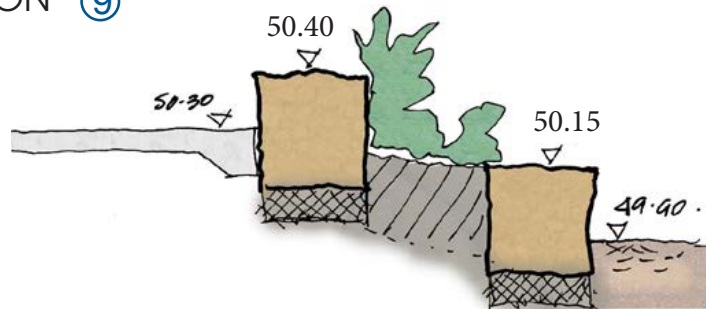


7.15 BUSH GARDEN

LEGEND

- ① EXISTING TREES
- ② ACCESS PATH
- ③ DECK AND STEP ACCESS
- ④ SANDSTONE KERB AND RETAINING WALL TO GARDEN
- ⑤ SOFT FALL MULCH AND STEPPERS
- ⑥ YARNING CIRCLE
- ⑦ TO FUTURE PLAN DESIGN
- ⑧ GARDEN BED

SECTION ⑨





SERVICES

8.0

8.1 ENVIRONMENTAL CONSIDERATIONS

The new Budawang School will include environmental strategies to foster a culture of environmental sustainability

Key strategies adopted in the new learning building include:

- Solar panel system to offset the energy consumption of the new building as per EFSG requirements, placed in a highly visible location.
- Dual aspect facades to all homebases
- Sun control to reduce cooling loads on the building and increase user comfort.
- Vegetable Gardens to encourage student engagement with sustainable practices including composting and water saving features.
- Water tanks to capture rainwater for reuse on-site for irrigation.
- Native planting to contribute to the surrounding natural ecology and reduce the amount of irrigation required. This also provides a link to Country. Refer to Landscape Planting Schedule for further information.
- Re-using natural site elements such as trees and stones in the landscape and site works.
- Mixed mode system of air conditioning with operable windows will reduce energy demand
- Greenstar 4
- Structural system allows future internal plan adjustment
- High daylighting will reduce energy demand

8.2 ESD STRATEGIES

Architecture:

Design features supporting mixed mode include the following:

- Dual aspect façade where possible to promote cross-flow natural ventilation
- Open-able windows (preferred manual for simplicity, cost, ease of operation and maintenance)
- Open-able % area to meet and exceed the code.
- Roof overhangs provide solar shade to habitable spaces.
- Rooflights to the homebase blocks provide daylight to the centre of the buildings

Mechanical:

- Mechanical system zoned for homebases so when windows are opened for natural ventilation the FCU is switched off, so other homebases are not affected by operation of windows and air conditioning within adjacent spaces.
- When windows are opened the air conditioning serving the classroom/space is switched off
- The FCU has fan operation only – the class rooms can be provided with fan forced filtered outdoor air when conditions are suitable – hence ceiling fans can be avoided.

Three stage cooling strategy:

- Mechanical cooling – when conditions are not suitable to allow natural ventilation
- Fan forced ventilation –when outdoor conditions are favourable but there is high pollen count, air pollution or noise issues.
- When temperatures, wind, rain, pollen dust, emissions are all favourable; allow natural ventilation through windows opening.

Favourable outdoor conditions to be indicated for natural ventilation and allow windows opening – (eg – alerting facility/ maintenance staff or teacher to allow

windows to be opened)

Acoustic:

- Project acoustic consultant consulted on noise intrusion when windows are open under natural ventilation.

Towards Net Zero

To support the NSW Government net zero plan the proposed school has the following considerations.

- Follow EFSG (NSW Department of Education) guidelines for energy efficiency, reducing energy demand and passive design for
 - o Building services
 - o Building envelope
- Air tightness: A good level of air tightness as nominated under Green Star innovation category. (aim to achieve 3 permeability at 50 Pa is being pursued)
- Targeting 4 Star Green Star using current Design and As Built V1.3 tool.
- Reduce the demand and use of fossil fuel (example – no gas on site/building)
- Fully electric building
- On site generation and provision for storage – Solar panels
- Consideration of low carbon materials for embodied energy

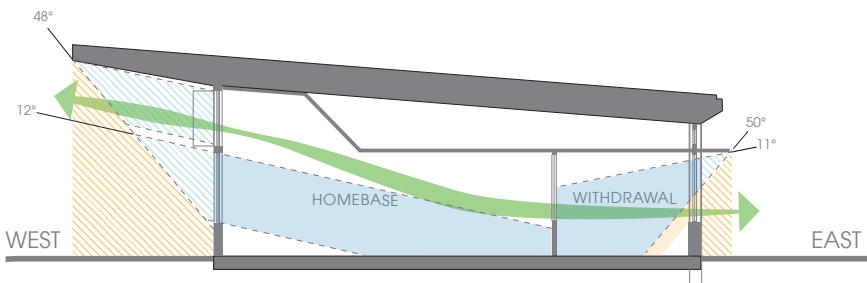
Additional guidance from Thermal comfort and IAQ performance brief:

- Applies to air conditioned spaces
- The mechanical design should address the PMV criteria of +/- 0.5 PMV for 95% of the occupied hours. This required following on the mechanical system design:
 - o Occupied space average air velocity not to exceed 0.2 m/s. ideally 0.15 m/s

- o ADIP – target at 100%
- o Swirl type diffusers with high induction ratio
- o Avoid side discharge – such as wall mounted diffusers.
- Mechanical ventilation system linked to CO2 sensors for demand controlled ventilation to remain below threshold – this aligns with Green Star requirement.
- Mechanical ventilation to have good access: Access panels typically on both side of debris catching components such as fans, filters, coils etc.
- Follow ASHRAE 62.1 – for separation distances – Similar to Green Star
- Exhaust of pollutants – Similar to Green Star.

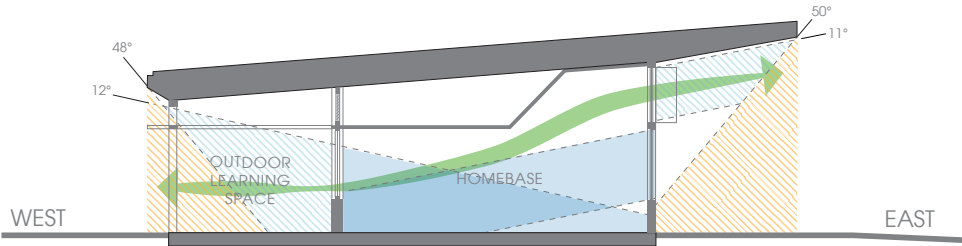
Solar Diagrams

Deep overhangs to the homebases protect these learning spaces from excess solar gain in the height of summer. During winter when the sun is lower in the sky , this natural light enters the homebases at the beginning and end of the day Diagrams below demonstrate this principle.



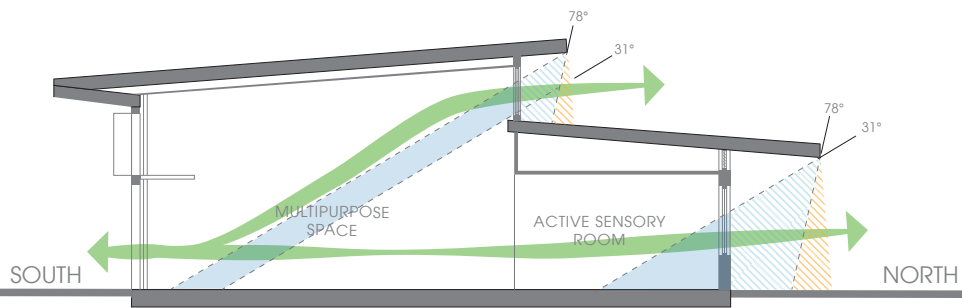
HOMEBASE BLOCK - FACING WEST

June 21st, 3pm: Solar Angle 12° June 21st, 9am: Solar Angle 11°
December 21st, 3pm: Solar Angle 48° December 21st, 9am: Solar Angle 50°



HOMEBASE BLOCK - FACING EAST

June 21st, 3pm: Solar Angle 12° June 21st, 9am: Solar Angle 11°
December 21st, 3pm: Solar Angle 48° December 21st, 9am: Solar Angle 50°



HALL BLOCK

December 21st, 12pm: Solar Angle 78°
June 21st, 12pm: Solar Angle 31°

8.3 ACOUSTIC IMPACT

An Acoustic Report has been prepared by Marshall Day Acoustics as part of the Design Process.

This report has outlined the following:

The nearest noise sensitive residential receivers are located to the east of the site, with further residential receivers to the north over Croobyar Road. However, as school hours are during day time hours, as such it is not anticipated that noise will be emitted during night time hours. Additionally the site has previously functioned as a school, so the proposed development aligns with previous use.

Noise emitted by the school:

- Breakout of noise from internal spaces to the environment is expected to be limited.
- Noise from children playing
- Noise emitted from external mechanical plant

Noise emitted from the environment outside the site:

Design of the building envelope considers the following emitters:

- Traffic noise along Croobyar Road
- Aircraft noise emitted from Helicopter landing pad to west of site
- Cement Plant to the west of the site
- Rain noise

Internal Acoustics

Speech intelligibility is a key component of acoustic design within schools and is of particular importance for a School for Specific Purposes as teachers and students must be able to clearly communicate with each other to allow effective teaching and instruction. Specific consideration of acoustics requirements considers the Special Needs of the students, which may include hearing impairment and autism.

Consideration of internal finishes specification has considered the following with regard to absorptive effects:

Pinboard: Autex Quietspace pinboards with Vertiface finish have been selected for acoustic properties coupled with their velcro receptive properties to avoid the use of pins. The Acoustic Report indicates a requirement of up to NRC 0.85 for some rooms. Pinboard has been applied to most available surfaces within learning spaces.

Ceiling s: The Acoustic Report indicates a requirement of up to NRC 0.85 for some rooms.

Acoustic reverberation is likely to be higher within the Multi-purpose Space due to function. Acoustic Panels have been specified for the walls.

Internal windows are required for supervision of adjacent internal spaces for Child Protection requirements. This impacts acoustic separation, so glazing specification will consider acoustics.

Operable walls will be selected to consider the acoustic requirements.

Pool spaces typically require specialist reverberation control to ensure that appropriate levels of speech intelligibility are achieved. Ceiling products for this space have been carefully selected.



8.4 SERVICES INFRASTRUCTURE

GroupGSA have worked with Services Engineers Intelle and their consultants on the Schematic Design for Budawang School.

Design of the services undertaken by Intelle has considered the following key factors:

- Treatment of the Budawang site and the wider site as two separate entities
- Provision of adequate services capacity to the Budawang School site to enable the inclusion of an additional block of 3 homebases at an unknown future date.
- Services design with consideration to existing in ground services, based on the Services Survey conducted by Phillip Brown Surveyors in December 2020

Please refer to the relevant services reports for further information. Key considerations in relation to the Services disciplines are as follows:

Electrical / Comms

- Lighting design considers avoidance of glare that may be problematic for neuro-diverse students
- Provision of separate metering for the School
- New substation with upgraded capacity
- Disconnection and removal of the existing pole mounted substation from site
- Photo voltaic system included on core facilities block
- Provision of power and data in line with EFSG requirements
- LED lights
- Motion sensors

Mechanical

- The heating/cooling strategy for Budawang School will be mixed mode / air conditioning. Rooms will be naturally ventilated via operable windows whenever external conditions are favourable.
- Ceiling fans will be provided as per the EFSG
- Noise and vibrations caused by mechanical systems will be considered and appropriate acoustic treatment applied.
- Air conditioning units will be fenced or caged to avoid students accessing this equipment. Design of any cages around this equipment will ensure these items are not climbable

Hydraulic

- No gas is available on the site. Pool is to be heated by electric supply.
- On site storm water detention tank to be under the admin/library block
- Rainwater tanks have been included. At the request of the PRG this water will only be used for irrigating the landscape



8.5 CPTED

The principles of CPTED have been considered during the design process of the new Budawang School.

One of the key tenets of the design is maximisation of passive surveillance throughout the site, which has been discussed in detail elsewhere within this document. The Special Needs of students attending the school means that for safety purposes fencing throughout the site has been carefully considered to restrict students absconding and endangering themselves. This fencing also serves as territorial reinforcement and assists the ability to control site access.

Selection of fencing and boundary treatments that provide the security required for the school, but are also aesthetically pleasing to those within the school and to the community outside. Fencing strategies are covered in further detail within the landscape section of this document.

Natural Surveillance

School fences are primarily used within the school for safety of students and staff. However, fences are also used to maximise natural surveillance,, keep watch over school grounds, and monitor the flow of individuals into and out of the campus.

Specification of fencing materials considers the requirement for a visually permeable barrier, where surveillance is prioritised over privacy.

Orientation of buildings and occupied spaces within the school typically faces inwards towards the corridor for surveillance of students. However, the admin spaces including offices also have an interface with the car park, entrances and exits which provides surveillance over the public interface.

External lighting has been provided for night-time illumination of car parks, walkways, entrances,exits and related areas to promote a safe environment.

Access Control

Access control is linked to natural surveillance and territoriality. The amount of access points into the school has been carefully considered to minimise the number of access points along the secure line.

The position of the secure line and masterplanning of spatial adjacencies has been carefully considered to ensure the public have access to the reception area and hydrotherapy pool without accessing the rest of the Budawang site. Signage within the car park and along the Croobyar Road boundary will assist way-finding to these areas.

The main entry point to the school grounds leads directly to the front doors of the school, administration. All visitors to the school need to check in at the school's offices, therefore site access funnels past this point. Store Rooms used for Bulk and General storage has access points outside the secure line, allowing deliveries to be dropped off into the store room without delivery personnel needing to cross the secure line.

Territorial Reinforcement

Fencing is a key element of territoriality, marking ownership of a space using landscape and architecture. Good maintenance of property line markers such as fencing, landscaping, and architecture will help to foster respect for school property and engender pride in the students attending the school.

High palisade school fencing can create a prison like appearance. To avoid this the fences adjoining Croobyar Road have been softened with planting.

Space Management

Materials have been selected for their robustness and ease of maintenance. Pre-cast concrete in particular will require application of an anti-graffiti treatment, particularly the Hydrotherapy wall facing the street.

8.6 MAINTENANCE AND BUSHFIRE CONSIDERATIONS

Through the consultation process with the Project Reference Group and Department of Education Technical Stakeholders the design has considered the long term maintenance strategy of all proposed work.

Key strategies adopted in the new learning building include:

- Selection of external materials which have low maintenance and longevity such as concrete, aluminium, Zinalume roofing.
- Avoiding paint finishes which require ongoing maintenance.
- Roof access from inside the building.
- Roof drainage strategy utilising eave gutters and maintaining appropriate pitches.
- Selection of internal materials with resilient finishes to allow cleaning and provide durability.
- Ease of maintaining lighting, which includes consideration of where lighting is located and specification of LED fixtures.
- Avoiding inclusion glazing below 900mm to limit breakages

Bushfire Assessment and requirements

During Schematic Design a Bushfire Assessment and Report was conducted in relation to 17 Croobyar Road, Milton by Ecological Australia.

The Budawang site itself is not on land mapped as bush fire prone by Shoalhaven City Council's (Council) Bush Fire Prone Land (BFPL) map1. However the far south-east corner of the wider 7.7 Ha Department of Education site at is affected by Category 2 vegetation buffer.

Consequently an assessment of the entire 7.7HA site was conducted by Ecological Australia , The Bushfire report outlines a BAL12.5 requirement for the Budawang site and a 47 metre Asset Protection Zone is required immediately to the west of the Budawang School buildings.

Refer to Bushfire Report for further information.

8.7 WASTE STRATEGY

A waste management plan has been developed by the Waste Consultant, Elephants Foot Recycling Solutions to address the operational management of waste generated by the school.

- Key objectives of the waste strategy for the school are outlined as follows:
- i. Promote responsible source separation to reduce the amount of waste that goes to landfill by implementing convenient and efficient waste management systems.
 - ii. Ensure adequate waste provisions and robust procedures that will cater for potential changes during the operational phase of the development.
 - iii. Comply with all relevant council codes, policies, and guidelines.

Waste Management Procedures

A waste bin will be located in each room throughout the campus. After hours cleaners will circulate through the campus to collect and transport the waste to the bulk bins that are located within the Bin Room, which is located within the car park.

The location of the Bin Enclosure within the car park allows for ease of collection out of school hours by Garbage truck, which will utilise the drop off for existing the site.

Sanitary waste bins will be placed in wet areas as required. Collection methodology for these bins will be either from the Bin Enclosure, or directly from the relevant wet areas depending upon the collection contractor. Due to the nature of the school sanitary waste will include nappies.

Waste Sorting

- Waste streams will be sorted into the following categories to enable appropriate recycling and delivery to the correct location
- General Waste
 - Recycling
 - Secure Documents
 - Green Waste
 - Electronic Waste
 - Bulky Items
 - Sanitary Waste
 - Other

Bin Provision

To manage the waste generated by the school the Waste Consultant has advised that the following bins be provided within the Bin Enclosure to enable adequate waste storage and sorting.

General Waste: 6 x 240L MGBs collected 1 x weekly

Recycling: 3 x 240L MGBs collected 1 x weekly

Sanitary Waste: 3 x 240L MGBs collected 1 x weekly

8.8 DELIVERIES AND LOADING

Design of the car park and positioning of store rooms has considered deliveries and loading.

- Deliveries drivers will all report to the reception area upon arrival. The driver may then be escorted by a member of staff, depending upon whether they are accessing accommodation within the secure line of the school.**
- Main factors that have been considered within the design include the following:**
- Ease of access for delivery drivers to the admin reception, including location of signage
 - Positioning of the campus secure line to avoid the need for delivery drivers to cross the secure line to deliver to the Garden Store, Bulk Store, and General Store.
 - Positioning of Bulk Store, General Store , and Garden Store close to the car park to avoid the need to carry large deliveries longer distances through the campus.
 - General store positioned to have external access from outside the school secure line, with additional access from the admin corridor to enable staff to easily collect resources.
 - Deliveries of food to the kitchenette. This will involve cross the secure line of the school via the productive garden, therefore staff will be escorted.
 - Deliveries to park within the drop off area outside drop off and pick up hours

Hydrotherapy Deliveries

- Design for deliveries to the Hydrotherapy Pool has been undertaken based on advice received from the Pool Consultant, as follows:
- Bunded parking spaced sized for Hydrotherapy delivery truck
 - Stormwater pit with isolation valve required to the hydrotherapy deliver space
 - Parking space located immediately adjacent to the pool plant to ensure the truck is visible to services personnel in the pool plant room
 - Deliveries truck to exit the site via the drop off.



GANSW / SEPP RESPONSE

9.0

9.1 RESPONSE TO GANSW STATE DESIGN PANEL - 02/12/2020

On 02/12/2020 SINSW and GroupGSA presented the Budawang School design to the Government Architect. Comments received from GANSW following the first design review of our design are itemised as follows with our response:

1. “The design should better integrate with the existing topography of the site and the existing trees”

The organisation of accommodation into linear blocks around a central playground was a key request of the Budawang Principal during the masterplanning phase. This arrangement increases passive surveillance and supports the pedagogical goal of independence. The form created by the courtyard means that one of the blocks runs cross contour, as the site falls from east to west. Access requirements inherent in a Special Needs school, means that changes to site levels to minimise cross falls are required. The school will be used by large numbers of wheelchair users, who are considered within the landscape design.

Following this comment levels were re-examined and tree retention was increased.

Refer to the Tree Management Plan within the Landscape Section

2. “Community access to the hydrotherapy pool is supported. Provide a management plan indicating which facilities are accessible by the broader community and how these are accessed. Consider the public address of this building and how it can have a more generous relationship to the street”

The spatial planning has prioritised creating views from the pool to private garden spaces, to create a calming atmosphere within the building. Privacy for people using the Hydrotherapy building is important, as such the pool faces away from the street.

The Pool entry is focused on the school use and the car park access. Nevertheless the pool entry can be accessed the school's pedestrian entry pathway from Croobyar Road.

The pool's primary function is for the school to support students. When considering community access to the Hydrotherapy Pool it is important to

note that the community utilising the facility will be mobility impaired people arriving by car. The pool will not be used for “Learn to Swim” classes.

The Hydrotherapy wall facing the street may be an urban art wall, possibly recognising Country.

3. “The proposed scale of the car park and its proximity to the street do not deliver good urban design outcomes. Consider alternative options for car parking and access that allow the school and the hydrotherapy pool to have a public address to the street”

Buildings that create a public façade for the school also require adjacency with the car park for ease of access both during and outside school hours. Site constraints have resulted in the need to locate these core facilities and consequently the car park to the front of the site.

To diminish the adverse visual impact of the car park on Croobyar Road the following changes to the plans are being implemented:

- Eight parking spaces removed from the car park to the front of the site and relocated to the site access road to the west and will be constructed if required in the future.
- Twenty two new trees planted within the car park to replace those removed
- Planting to the street boundary fencing to screen views of the car park
- Street frontage of Hydrotherapy building used as site boundary
- Suggestion for Hydrotherapy street frontage to include a mural possibly depicting indigenous or local themes.
- Location of the car park is based on the functional relationship of pick up and drop off, combined with achieving a connection to other educational facilities within the Budawang site.
- Best use of available land, achieving Government value for money objectives.

4. “Explore the sequencing of spaces including the progression from the inside to the outside as well as public to private”

Refer to Access and Circulation, Drop Off Process, and Public Interface under sections 6.3, 6.5, and 6.6 within this report.

5. “Explore opportunities to incorporate views out to the landscape and open space”

Maximisation of passive surveillance has informed the design, leading to the arrangement of linear blocks around a courtyard, which results in strong internal/ external views.

Homebases have wide windows from AFFL900mm to 2700AFFL, which maximise views over the attached outdoor learning spaces and central courtyard arrangement.

Learning spaces including the Library, Lifeskills Room and Multipurpose Hall all benefit from strong physical and visual connections to adjacent outdoor learning spaces, so that learning can flow between indoor and outdoor learning spaces. Views from the Sensory Playground benefit from views out towards the Creek, and surrounding existing vegetation.

- Refer to Courtyard Form - Accessibility and Visibility under section 6.2, for further information regarding the courtyard
- Connection of homebases to outdoor learning is covered in section 6.8.
- Connection of indoor and outdoor learning is covered in section 7.7.

6. “The proposed pedestrian access to the future school is not supported as there is no surveillance and lacks amenity. Consider other design solutions that allow for the separation of pedestrian and vehicular movement”

The pedestrian access to the east of the lot is not

part of this application. Location of the path is a requirement to separate pedestrian entry from the vehicular path.

Potential location will be investigated as part of future development acknowledging the need for a pedestrian entry separated from vehicular traffic.

7. “There is an opportunity to engage with Indigenous Landscapes that could enhance the design and provide sensory experiences for students with moderate to severe intellectual learning impairments”

An Indigenous Heritage Consultant is engaged and there will be continual consultation with the community to understand their local traditional stories so that those stories can be incorporated into the design. This could be achieved through the following methods:

- Provision of a traditional yarning circle in the Bush Garden
- A mural to the Hydrotherapy building facing the street
- Native and endemic planting included within the landscape throughout the site.

8. “The importance of water to the local Aboriginal culture and the presence of watercourses on the site could inform the design”

The Budawang School site does not include the watercourse but the story related to it could be part of the Designing with Country interpretation if appropriate. Refer to comments under point 7 above.

9. “Through sections demonstrate the passive heating/cooling and solar access requirements that have driven the roof form. Currently the roof forms do not vary with their respective orientations, provide

justification for this and confirm the amenity and environmental performance of internal spaces”

Deep overhangs to the homebases protect these learning spaces from excess solar gain in the height of summer. During winter, this natural light enters the homebases at the beginning and end of the day.

Refer to the ESD section within this report

10. “Adopt a more rigorous approach to addressing solar access into the classrooms”

Roof lights have been included to homebases located within the centre of blocks. Homebases have high ceilings facing towards the courtyard which will increase the amount of natural light within these spaces.

Refer to roofplans for further information.

11. “Illustrate how the site will achieve a tree canopy target of 40% of site coverage, noting this is consistent with State government targets and priorities”

The Landscape Plan includes planting of new trees and creation of outdoor learning areas - refer to the Vegetation Strategy within this report for further information.

Percentage of tree cover is also impacted by various functional requirement associated with the school:

- Requirement for open space
- Need for clear sight lines
- Avoidance of climbing hazards
- Amount of tree coverage suitable for a regional educational facility

12. “Explore opportunities for each classroom to have a mixed mode system advising occupants on the optimal method of passive climate control”

A mixed mode system has been proposed utilising operable windows to the learning spaces. Refer to the ESD and Services sections within this report.

13. “Illustrate how the project is helping to deliver State government policies related to net-zero emissions”

Refer to the ESD sections 8.1 and 8.2 within this report

14. “Clarify the staging of the school and how the future block to the south of the site is to be used by the students”

The future block contains 3 homebases with ancillary accommodation. It has been located to the south of the school to maximise future options for expansion and connectivity with the remainder of the lot. This block will only be built if enrolment growth requires it at some point in the future and is not part of this SSDA.

Core facilities have been designed as per the EFSG area allowance for 10 homebases.

15. “Clarify the gradient of and accessibility to the courtyard and other outdoor spaces”

The gradient across the central courtyard will be 1:40. There will be short stretches of walkway at a maximum of 1:20. Refer to section ... within this report

16. “Present a clear pedagogical approach for the school. This should be a clear driving principle informing the design of the homebases and the outdoor spaces;”

Refer to sections 3.3, 3.4, 6.6, 6.8, and 7.1 within this report.

17. “Provide a current Landscape Plan incorporating an Arborist report to define which trees are being retained, which are being removed and if there is a proposed plan to reduce removed trees”

Following the initial design review with the Government Architect levels were adjusted to enable the retention of more existing trees.

Refer to the landscape section 7.0 within this report.

18. “Provide detail as to the type of fencing to be used noting the opportunity to reference the rural context of the site. Use built form as an alternative barrier where possible”

Refer to the Landscape section 7.6 within this report for information regarding fencing. Fencing of 2150mm high is for safety and security. Along Croobyar Road the existing site access road to the west of the School, planting has been used to screen the fences to create a softer aesthetic.

19. “Provide considered masterplan options that do not preference vehicular movement over other site and design considerations”

As the majority of students arrive at the school via car and experience significant disabilities vehicular access needs to be considered to a greater degree than would be required for a mainstream school.

20. “Provide plans showing alternative traffic and parking options”

Following the initial GANSW design review with the Government Architect 8 parking spaces were relocated to the western side of the site for construction in the future if the additional 3 homebase block is required. This would be part of a future application.

9.2 RESPONSE TO GANSW STATE DESIGN PANEL - 17/02/2021

On 17/02/2021 SINSW and GroupGSA presented the Budawang School design to the Government Architect. Comments received from GANSW following the first design review of our design are itemised as follows with our response:

1. “The site should be better integrated with the existing topography of the site. Demonstrate how the changes to the levels will allow for tree retention”

Site levels respond to the function of the building as an School for students with Special Needs which will be attended by students with special needs, many of whom are wheelchair users. Consequently the design has minimised falls across the play area with a gradient of 1:40 to the courtyard playground. This functional requirement has impacted the extent to which the existing site levels can be maintained.

Adjustments following the first review with GANSW include:

- Number of new trees increased
- More existing trees retained around the Productive garden by introduction of low height retaining wall structures

Presentation of the buildings and boundary treatment to the existing roads has been considered. Planting has been used to screen fences and soften level changes. Refer to Landscape sections for further information.

2. “The edge condition to the east of the site and visibility into the homebase from the elevated pedestrian path requires further resolution”

The pathway to the eastern side of the Budawang School site lies outside the site boundary and does not form part of this application.

Fencing has been selected to provide adequate privacy to and from the outdoor learning spaces located behind the homebases. Planting is also being used for screening to this fencing.

Refer to Landscape Fencing Strategy for further information.

3. “Community access to the Hydrotherapy Pool is supported. Provide a management plan indicating which facilities are accessible by the

broader community and how these are accessed”

The Hydrotherapy building will potentially be used by the local community outside school hours. This specialised facility caters for the wide ranging needs of the disabled community, who will benefit from the health aspects of Hydrotherapy.

Community members expected to use this facility are local people with disabilities, people requiring hydrotherapy as part of injury rehabilitation, School students and their families, and residents from the nearby aged care facilities.

Due to the disabilities of people attending the pool it is expected that most will arrive by either car or taxi. From the car park access to the Hydrotherapy Pool is via a footpath to a signposted entry.

4. “More detailed resolution is required on pedestrian access as well as drop-off arrangement for the pool”

A pedestrian pathway has been included to the north of the drop-off fence. This will connect parking to a pedestrian crossing leading to the Hydrotherapy building. There is no doorway directly from the hydrotherapy to the car park due to safety reasons associated with the function of the school. Signage at the entrance to the car park and on the building will direct patrons to the entry to the Hydrotherapy Building. Refer to site plan.

5. “While we acknowledge tree coverage has increased to 23% of the site and the concerns of the PRG, we encourage an increase in planting in this rural setting to deliver on state targets. Consider tree species that respond to the concerns of the PRG”

Refer to Planting Schedules within Landscape section.

6. “The Hydrotherapy pool is encouraged to have a more open and

generous relationship to the street, consider perforations in the blank facade or other solutions”

Privacy for people attending the pool is a key requirement for the design. This wall provides a buffer zone for the pool maintaining privacy from the street. The swimming pool faces towards green spaces to create a calming therapeutic environment. Functional adjacency of the plant room with the car park meant that the plant room is located adjacent to Croobyar Road.

7. “The proposed scale of the car park and it’s proximity to the street do not deliver good urban design outcomes. Consider alternative options for car parking and access that allow the school and the Hydrotherapy pool to have a public address to the street”

Buildings that create a public façade for the school also require adjacency with the car park for ease of access both during and outside school hours. Site constraints have resulted in the need to locate these core facilities and consequently the car park to the front of the site.

To diminish any adverse visual impact of the car park on Croobyar Road the following changes to the plans are being implemented:

- Eight parking spaces removed from the car park to the front of the site and relocated to the site access road to the west and will be constructed if required in the future.
- Twenty two new trees planted within the car park to replace those removed
- Planting to the street boundary fencing to obscure views of the car park
- Street frontage of Hydrotherapy building used as site boundary
- Suggestion for Hydrotherapy street frontage to include a mural depicting local or indigenous themes.
- Location of the car park is based on the functional relationship of pick up and drop off, combined with achieving a connection to other

educational facilities within the Budawang site.

- Best use of available land, achieving Government value for money objectives.

8. “Explore opportunities to incorporate views out to the landscape and open space”

Maximisation of passive surveillance has informed the design, leading to the arrangement of linear blocks around a courtyard, which results in strong internal/ external views.

The Hydrotherapy Pool has been designed and orientation to benefit from views southwards over the productive garden, so that building occupants can enjoy views of nature whilst swimming or undertaking therapy.

Homebases have wide windows from AFFL900mm to 2700AFFL, which maximise views over the attached outdoor learning spaces and central courtyard.

Learning spaces including the Library, Lifeskills Room and Multipurpose Hall all benefit from strong physical and visual connections to adjacent outdoor learning spaces, so that learning can flow between indoor and outdoor learning spaces.

Sensory Playground benefits from views out towards the Creek, and surrounding existing vegetation.

Refer to Courtyard Form - Accessibility and Visibility under section 6.2 within this report.

9. The proposed pedestrian access to the future school is still not supported as there is no surveillance and lacks amenity. Consider other design solutions that allow for the separation of pedestrian and vehicular movement.

The eastern pathway does not form part of this application - if required it will form part of a future application. This pathway ensures that no pedestrians cross vehicular paths, which is a chief consideration for SINSW.

Street frontage to the site is limited. Consequently

the ability to separate traffic from pedestrians has limitations.

Pedestrians accessing the site will typically be from The Princes Highway to the east. Consequently all pedestrian access has been located to this side of the site to avoid conflicts between vehicles and pedestrians.

A combination of factors including easements, existing site road, riparian corridor, and flood levels associated with the creek mean that it is not possible to move the Budawang School site boundary further west.

10. “More details are required on the architectural expression to the school including materiality. The awning elements to the pathways as well as to the COLA need further detail and illustration”

Long , simple rural forms have been adopted. The architecture is a domestic scale in order to be familiar to the special needs student.

Natural materials are calming and timber effect soffits are proposed for the overhangs, COLA and Porte Cochere. The use of timber effect panels is reflective of the forest and timber getting early European history of the area. Masonry walls are precast concrete with a colour additive and texture reflecting the Sandstone of Budawang Ranges and Clyde River containment of sandstone cliffs. The surface coloration is to resemble a rammed earth wall and the colours of the sandstone to the nearby heritage bakery.

Refer to materiality description in section...

11. “Provide more detail on the thresholds of inside to outside and “pause spaces”

Each function has an entry space. The size of these spaces reflect the primacy of the entry. The various spaces are indicated on diagrams with sections 6.6 and 6.7. The Homebase outdoor learning spaces and pause spaces associated with the homebase block entrys are illustrated in section 7.11.

12. “Provide more details on the section through the homebases to the courtyard to illustrate how views/edges are to be maximised”

Refer to Landscape drawings in section 7.0. Outdoor learning spaces between the homebases and courtyard are detailed in section 7.11 of this report.

Refer to Architectural information in sections 6.2, 6.8.

Refer to drawing SSDA-3100 for site sections

The home bases all look out over their own outdoor learning spaces into the central courtyard play area. Each home base also looks out to a more private outdoor learning space, also accessed by a withdrawal room . This space overlooks a quiet landscaped zone. Thus there are two main outlooks for every home base, active or passive.

Fencing materials have been selected to maximise views from the homebases to the courtyard. To increase visibility these will be a dark coloured mesh within frames. Fences are coordinated to respond to either the architecture or the landscape to ensure they do not dominate.

13. “The plenums to the homebase rooms appear to the significantly oversized for the room volume. We understand the desire to create a feeling of differentiation in the space however this can be achieved in other ways which will not affect solar access and daylighting to these deep floor plates. The reduced ceiling heights to the withdrawal rooms will make tight enclosed spaces”

The ceiling to the back of the homebases and Withdrawal Rooms is 2700mm high. Ceiling height to the front of the homebases is around 4200mm. This is to create a variety of different scales of space.

Withdrawal rooms are used within Schools for Students with Special Needs to decompress and calm; these are not intended to be large spaces.

Rooflights have been included within the homebases to

allow daylight into the centre of the homebases. Refer to roof plans for further information.

14. “The fencing requirements to the outdoor learning spaces require resolution to prevent the effect of “fences within fences”. Consider other ways to separate these outdoor spaces through planting, programming of student groups, or movable fences”

The outdoor learning spaces attached to the homebases are a request from the PRG dating from the earliest masterplan stage and serve a pedagogical function of allowing students a calm space that provides a more gradual transition between indoors and outdoors to enable them to control aggressive behaviours and enter the homebaes at their own pace. Additionally these spaces allow students to undertake lessons or play outdoors if preferred. These spaces are used for break out as a means of separating students for safety reasons.

Fencing to these spaces is a safety function associated with separation of students

The selection of fencing material has considered maximisation of the views from homebases out to the courtyard. Planting of a height sufficient to create a barrier would obstruct views over the central courtyard.

The design of these spaces and the request from the PRG to include them within the landscape plan results from a review of other designs for School for students with Special Needs.

Refer to point 12.

15. “As 20% of the students are anticipated to be Indigenous, the response to Aboriginal Cultural Heritage is considered critical. The current proposed “yarning circle” has become a one-size fits all approach to school design. Consider a site specific response through local consultation and the specific needs of this school”

Indigenous Cultural Heritage is being considered as part of the design, however discussions are still underway with the relevant community members to determine the most appropriate approach to integrate Indigenous Heritage into the design.

The “yarning circle” will serve a pedagogical function as a gathering space within nature. Indigenous and endemic planting is used throughout the site.

Refer to consultation report. Further consultation will be undertaken as the project progresses.

16. “The indigenous landscaping components should be considered as an integrated whole rather than a discrete element of the landscape design”

Agreed. Please see point 15.

17. “The importance of water to the local Aboriginal culture and the presence of watercourses on the site could inform the design”

Agreed. Please see point 15.

18. “Adopt a more rigorous approach to addressing solar access and daylighting into the classrooms”

A rigorous approach to solar access and daylighting has been adopted .

Roof lights have been included to homebases located within the centre of blocks.

The roof shape opens to the courtyards to emphasise the connection with place.

The roof overhangs are calculated to allow solar access in Winter and exclude it in Summer during school hours. External vertical louvres allow individual homebase control over daylighting and solar access. Refer to diagrams in section 8.2.

Refer to roofplans for further information.

19. “Explore opportunities for each classroom to have a mixed mode system advising occupants on the optimal method of passive climate control”

A mixed mode system is being applied. Refer to the Mechanical Report and ESD Report for further information.

Refer to section 8.1 and 8.2 of this report

20. “Clarify the quantum of how the ESD goals are to be achieved. Show where the water tanks, PVC [solar panels] etc are located and how many there are”

Integration of ESD elements such as solar panels and rainwater tanks has been considered as part of the design. Solar panels are to be located on the roof of block A facing north towards Croobyar Road.

In addition to being the optimal position, this also expresses the school’s environmental credentials to the community.

Rainwater tanks will harvest water to irrigate the landscape; these are located to the backs of the homebases. An additional tank is located within the Productive Garden, which will be used as part of the pedagogical processes of growing and learning about food.

Refer to the ESD section 8.1 and 8.2 within this report.

9.3 RESPONSE TO EDUCATION SEPP / GANSW DESIGN PRINCIPLES

“High quality, well designed schools create a sense of pride, identity and ownership for the communities they serve. They also help deliver better educational results.

There is growing appreciation of the significant role that good design can play in education, with increasing evidence that student learning outcomes are closely related to the quality of the environment in which they learn.”

“Better Placed Design Guide for Schools”
Government Architect NSW

Context, built form and landscape

The site for Budawang School is located in Milton, on the South Coast of NSW. It is around 3 hours drive south of Sydney close to Ulladulla and Mollymook. The town is on the Princes Highway, which runs through the town centre. The Budawang School is 10 minutes walk south of the centre of Milton near the junction of The Princes Highway and Croobyar Road.

The project is located on part of the Department of Education site on Croobyar Road (referred to as the Lot). The lot measures around 7.7Ha, of which the Budawang site occupies 10,206sqm to the north side of the lot, occupying much of the street frontage onto Croobyar Road. The south, west and east of the Budawang site is surrounded by the remainder of the Wider Department of Education site with existing school buildings largely to the south of the Budawang site.

Adjoining uses of the 7.7Ha DoE site are as follows:

- Croobyar Road to the north with residential buildings
- A heritage commercial building to the east operated as a bakery
- Residential buildings to the east
- One residential building and cement works to the west
- Milton Heliport to the west

The built context comprises residential properties along Croobyar Road and the Princes Highway. These are typically single storey, low density, detached cottages with pitched metal roofs. Single storey town houses are positioned at the junction of Croobyar Road and The Princes Highway, these are of a linear form with pitched metal roofs.

A key built landmark in the vicinity of the site is the nearby bakery on the corner of The Princes Highway and Croobyar Road. This sandstone building was constructed in the 1870s, and is heritage listed. The Heritage Bakery is a different scale to the rest of the context; it is two storeys with a steeply pitched metal roof and a verandah at first floor overlooking Croobyar Road. The Heritage building is separated from the Budawang School site by a car park and line of trees.

Built Form

The school is designed to have a massing which responds to the scale of the local residential context - as a single storey building.

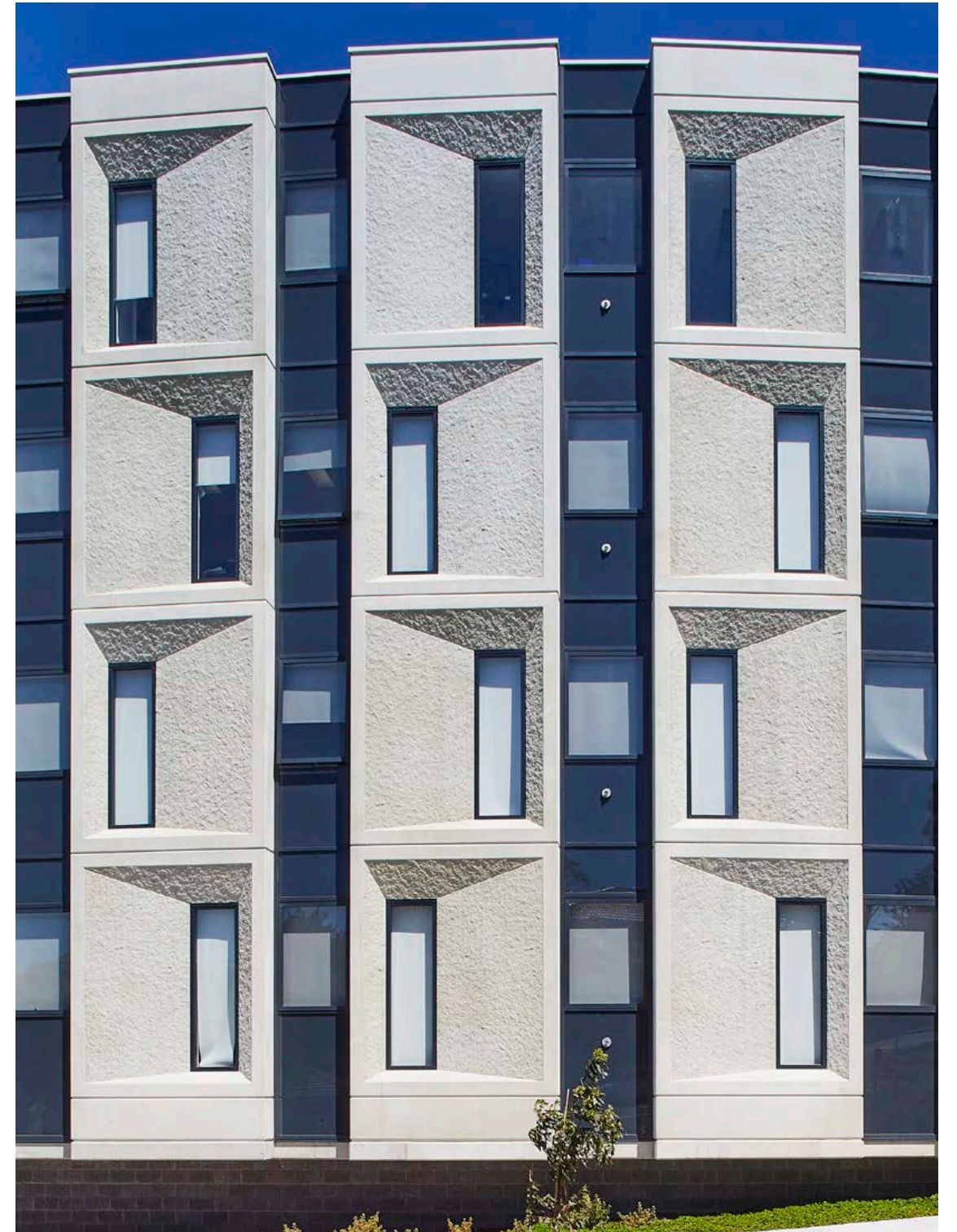
Design concepts considered student reaction to the building. It should feel comfortable and home-like. Materials reference the residential and rural materiality and scale of the area, so that the building will be friendly and familiar, whilst still being contemporary. The design of the school responds to the local context in materiality, form and scale, through this consideration of the vernacular.

The materials and colour palette reference nearby buildings and rock formations in the area, including the neighbouring sandstone heritage bakery, which is referenced in the selection of sandstone coloured concrete.

A key concept of the form is the courtyard layout. This stemmed from the earliest discussions with the PRG and relates to the PRG's desire to maximise passive surveillance of the main playground area and pathways leading through the school. The courtyard form also maximises connections of indoor and outdoor spaces, with all homebases benefiting from a view over the courtyard. This provides calming views of the landscape. The courtyard form provides privacy for students, whilst still offering a public facade to the streetscape.

Tying together the myriad of requirements for each individual block and function and responding to the courtyard form, is the conceptual idea of an series of over-sailing roofs, which gather the accommodation below. The roofs provide a dominant form, overlapping and stretching over the buildings, allowing flex of the building footprint, whilst maintaining the clean roof lines.

These overlapping roof forms are skillions with clerestories, the scale and materiality of which is comparable to nearby properties. The skillion roofs reference rural buildings, whilst the clerestories refer to the existing educational buildings on the wider site. Clerestories bring in natural light. Roof pitches



are raised 4 degrees towards the central courtyard - expanding the view of this central space, which forms the heart of the school. Clerestories to the library, hall and hydrotherapy pool face north and west towards the streetscape. Increasing the height where required and providing more interest to the public facing facade.

The clerestory ridge line of the Hydrotherapy building is the highest point of the new Budawang School buildings. The Hydrotherapy building is also located closer to Croobyar Road and the Heritage Bakery than the other blocks. At a level of RL58.00 the ridge line of the Hydrotherapy building is almost 5 metres lower than the ridge line of the 2 storey Heritage Bakery. The Hydrotherapy ridge is comparable to residential property heights to the opposite side of Croobyar Road.

Landscape

The courtyard form focuses the landscape at the heart of the school. Connecting to the central courtyard, are further landscape zones which maximise outdoor learning and play. These zones are an important educational tool, providing authentic learning activities where students can experience science, art, and essential life skills that can only be created in the gardens and ecosystems of the natural environment.

Three design principles underpin the approach to the landscape design. These are:

1. Create a quality outdoor learning environment
2. Designing for inclusion
3. Develop a diversity of play opportunities

These principles will lead to "whole of school" activation and resulting in spaces which fully support the school's educational pedagogy.

Sustainable, efficient and durable

Sustainable design improves amenity for users of a building by providing well ventilated, well lit and comfortable places, therefore ideal for learning. For schools in particular, sustainability becomes embedded within the teaching and fosters opportunity for outdoor learning. Students are able to learn about sustainability

through experiencing its positive impacts on their day to day life. EFSG Standards relating to sustainable design are being applied to this project. The design is being developed to achieve equivalency of a 4 Star Green Star rating.

Specification of robust materials, which are also durable and easy to maintain has been a main consideration. ESD principles are outlined further in this document. Key aspects include:

- Selection of robust, hard-wearing, low maintenance materials
- Ease of maintenance has been considered as part of the design process in terms of the building form and the selection of materials
- Protection from excess solar gain provided by deep overhangs and louvres
- Photovoltaic panels
- Rainwater tanks to be used for irrigation
- Waste management considers recycling
- Dual aspect façades
- Avoidance of damage caused by vandalism

Refer to Section 8.1 and 8.2 of this report and the ESD Report for further information, and Section 8.6 and 8.7 of the report with regard to maintenance and waste.

Accessible and inclusive

Due to the nature of the user group, accessibility and inclusivity have been considered in from the earliest stage of the design to ensure that the building is suitable for students with differing needs and capabilities. Students attending the school all have a diagnosis of moderate to severe intellectual impairment. This is typically accompanied by another disability or condition, which may include severe physical disabilities, neuro-diversity, sensory impairments, behavioural issues, etc. As such the mobility of students and nature of their requirements varies significantly. Refer to section 3.3 for further information on Special Needs.

The school will have a high staff to student ratio. Class sizes will be typically 6-8 students with two

staff members, however this will vary depending upon levels of care required. Staff will assist students in undertaking their day-to-day activities in addition to delivery of the pedagogy.

The focus of pedagogy is gaining lifeskills to achieve independent living. Learning spaces both indoors and outdoors have been designed with this aim in mind.

Homebases are designed for wide ranging needs; from the highly active with behavioural issues, through to the severely physically disabled. Ensuring that all can be accommodated maximises flexibility when allocating students to homebases, and thus is a means of future proofing the school.

The location of the school the wider Department of Education site offers the possibility of co-location with the remainder of the 7.7 Ha campus, which may be used for future educational purposes. This affords the opportunity for students to access wider facilities if deemed appropriate.

The nature of the user group means that access compliance has typically needed to be above and beyond the requirements of AS1428.1 to adequately provide for the students needs. Examples are as follows:

- No ramps - gradient through central courtyard typically 1:40
- Short stretches of walkways at 1:20
- Hygiene Rooms are accessed directly off every homebase. These incorporate an adult sized changing table and accessible shower similar to the "Changing Places" design, which has been modified to locate WC and grab rails adjacent to wall to allow for assisted and non-assisted individuals to use the facility.

Health and safety

Health and Safety has been a key consideration as part of the design process for the new Budawang School. Due to the nature of the school some Health and Safety considerations have related specifically to



the Special Needs and abilities of students attending the school. This has included:

- Escape routes considered from a BCA perspective and for escape from challenging (aggressive) student behaviours.
- Calming areas both within the building, such as the Withdrawal Rooms and Sensory Rooms allow students to calm and decompress and in the landscape.
- Glazing below 900mm has been avoided owing to the risks associated with students breaking windows.
- Fencing throughout the site considers the need to separate students, and reduce risks associated with students endangering themselves by absconding from school.

Safety in Design Reviews have been undertaken as part of the Schematic Design process.

Amenity

The existing Budawang School on Camden Street is on a site that is too small to expand and is not in the ownership of the Department of Education, these existing facilities are not fit for purpose. The proposed new school resolves a shortfall in Special Needs educational placements within the Shoalhaven area. The new school provides facilities that fit the Special Needs pedagogy engendered by the school.

The school is designed based on the EFSG standards relating to a School for Specific Purposes with 10 homebases. This allows for future expansion from 7 to 10 homebases. The Schedule of Accommodation for the school, including all learning, staff, and storage areas, etc., refers to the EFSG area allowance to ensure that the provision for Budawang School is adequate both from the day it opens and into the future.

Facilities provided by include the following:

- Seven homebases, accommodating 6-8 students per homebase depending upon levels of care required by the students. Each homebase will have two staff members.
- Every homebase is directly connected to a

- Practical Activities Area.
- Hygiene facilities located off every homebase catering for wide ranging needs and abilities. These spaces form part of the pedagogy of learning self care skills.
- Additional hygiene facilities and WCs are located around the school within the Hydrotherapy building, library and hall.
- Core facilities include the Library, Multipurpose Hall, Passive and Active Sensory Rooms, and Lifeskills Facility
- Hydrotherapy / aquatic facility
- Staff and Admin Rooms including office/interview rooms that can be used by visiting therapists.
- External play area: minimum of 10m² per student including a variety of different outdoor learning settings and options for play to suit different ages, abilities, and interests. The landscape includes a bike path, sensory garden, productive (vegetable) garden, bush garden, and play areas. These outdoor settings also serve as learning spaces, connecting the internal and external learning spaces and opportunities.

The school has been designed to allow for future expansion through inclusion of an additional 3 homebases at an unknown future date. This has been allowed for spatially within both the site Masterplan and in the area allocation for core facilities such as the hall and library, etc.

Design of learning spaces throughout the school has been based on Research undertaken by GroupGSA and discussed with the PRG and SINSW. Designing to suit the PRG pedagogy is discussed further within this report.

Whole of life flexible and adaptive

Flexibility of great importance to the design of learning spaces. Learning methodologies have changed notably within recent years, with a shift towards more open plan, collaborative spaces.

Flexibility for a Special Needs School can mean the ability to cater for as many student needs as possible, without being constrained by the

layout of the building and site. With this in mind the homebases and their ancillary hygiene rooms have been designed to cater for wide ranging Special Needs - from the highly physically able with behavioural issues, to students who are severely physically disabled. Needs relating to neuro-diversity and sensory impairments have also been considered. Considering all of these factors, the seven homebases are almost identical to maximise options for staff when allocating students to classes, unencumbered by any consideration relating to toilet provision, ceiling hoists, bright colours on permanent surfaces, etc.

Further to this the following factors have been considered:

- The pedagogy of the school is focussed on lifeskills for independent living in adulthood. These skills can be learned in numerous parts of the building both indoors and outdoors.
- The school affords a variety of different spaces, including homebases which facilitate team teaching through inclusion of operable walls.
- Spatial adjacencies have been carefully considered.
- Location of the future 3 homebases to the south of the Budawang site maximises the opportunities for expansion within the future. The Budawang site is "Landlocked" in all other directions by either roads or boundaries. Leaving the southern side of the courtyard open allows the opportunity of increased connection with any potential future educational purposes to the remainder of the lot

Aesthetics

The building responds sympathetically to the immediate local context and the wider vernacular. This has been discussed under "Context, Built Form, and Landscape".

As described, the building form is a courtyard with roof forms that provide deep overhanging eaves and clerestorys. These roofs also allows diffused overhead natural light into the learning spaces, whilst the overhangs provides shading to the outdoor learning areas and create covered walkways.

Soffits to the overhangs, drop off and COLA roofs are lined with timber effect panels to soften the aesthetic.

Coloured vertical louvres to high level windows offer colour as an fun element and is a component of the wayfinding strategy. Colour is located at this higher level to raise it above the fences..

Elevations overlooking the courtyard are glazed from 900mm AFFL. to maximise opportunities for passive surveillance over the central courtyard from the homebases. This glazing aids the impression of the roof as a floating element.

End elevations are concrete to 2700mm AFFL creating the appearance of being bookends. The zone from 2700mm AFFL to the soffit is bridged by either glazing or horizontal louvres, which serve the mechanical system.

The internal colour scheme has been carefully considered in relation to the diverse needs of the students - particularly in relation to neuro-diverse students and those who are visually impaired.. This has been described further under sections 3.3, 6.9 and 6.12 of this report.

Robustness of materials has been a key consideration; as surfaces may be susceptible to damage from aggressive student behaviours or from being hit by wheelchairs.

9.4 GANSW DESIGN PROCESS AND EVALUATION

The following principles defined by the Government Architect have been considered:

Community integration

The the school considers the aesthetic integration of the project into the screetscape through careful selection of materials to relate to the local built form and .nearby landmarks Bulk and scale of the buildings also refer to the neighbouring residential properties and to existing educational buildings on the wider Department of Education site.

Students attending the school travel from a wide ranging area; from St Georges Basin to Batemans Bay. It is expected that most students attending the school will not live in Milton. Due to this factor the integration of the school into the immediately community differs from a Primary School.

The school facilities provide amenity to the local community through the potential for shared use of the Hydrotherapy Pool outside school hours. This specialised facility is designed to cater for the wide ranging needs of the disabled community, who will benefit from the health aspects of Hydrotherapy.

Community members anticipated to use this facility are local people with disabilities, people requiring hydrotherapy as part of injury rehabilitation, Special Needs students and their families, and residents from the nearby aged care facilities.

A collaborative brief

The functional brief and education rationale was carefully developed through a collaborative design process, setting ambitions, goals and approach strategy. The design team, teachers, school executives, SINSW, DoE area director, parents and carers representatives developed the design through a structured consultation process through regular PRG meetings throughout the design process.

Additionally research was undertaken by GroupGSA into the requirements of students with Special Needs. This included the following:

- Visits to other Schools for Specific Purposes s and discussion with School Principals to evaluate the designs. These schools are: Fernhill School,

Yandelora School, The Ponds School, and Adjuga School.

- Desk top study of international Special Needs Schools to determine best practice on an internal level
- Reading various PhD studies covering various aspects of designing for Special Needs
- Discussion with PRG to corroborate learnings against the PRG's experience.

Participatory pedagogy

The school's pedagogical focus is on the goal of independent living in adulthood. Learning spaces cater specifically to this aim.

There is extensive academic thought on the ideal method of catering for the requirements of Special Needs Students within the education system. During the Project initiation phase various Special Needs Pedagogical methods were discussed to determine the masterplanning of the site for the short and long terms needs of the school. Options for Integration, Co-Location and Separation were considered within the masterplans presented to the PRG. A masterplan that provided adequate separation between Budawang School and the future educational facility, with the potential for selective co-location was preferred. Site Planning has allowed for the possibility of increased integration in the future.

Procurement

The intention in terms of procurement is to deliver a value for money long-term community asset.

The project has been adapted to fit SINSW's DfMA grid to construct the building using a "Kit of Parts" modular system - the use of pre-cast concrete and modularised window systems fits with this construction methodology. This application of DfMA achieves an efficient construction method. Early Contractor Involvement (ECI) contracting may occur to enable contractor involvement during the design process under a Design and Construct contract.

Master plan

Several masterplan options were presented to SINSW and the PRG by GroupGSA before the preferred option was

developed further into a functional design brief.

The masterplan options all addressed location, massing, site access, car parking, existing site infrastructure, existing buildings on site, levels, opportunities and constraints, opportunities for connectivity. Privacy and surveillance.

Educational Rational and school specific needs and goals were considered as part of the consultation process during the masterplanning stage. Additionally the selected Masterplan allows for;

- Street presence for the Hydrotherapy and Core Facilities building
- Increased options for future expansion of the school southwards
- Considers the best use of the wider site
- Fits the courtyard concept of Budawang School

Design Review

Design reviews were undertaken internally at all milestones including masterplan stage, concept design stage, and schematic design. These benchmarked the design intent against the functional brief and educational expectations. Reviews included interdisciplinary staff from outside the project team.

Design reviews feedback and proposed changes and opportunities were further discussed and agreed upon with the Project Reference Group, DoE Project Management Office, the DoE technical stakeholder group, and GANSW.

Design Champion

The Project Reference Group was set at the beginning of the consultation process, prior to the Masterplanning stage. A Parents and Carers representative, as well as a local School Principal and different head teachers were included in the group. Their role was to set priorities and influence decisions as a reference to the State Government Client.

Post-occupancy evaluation

GroupGSA architects encourage stakeholders and DoE to obtain and keep records on objective outcomes of the design, efficiency, maintenance, fit for purpose functionality of the school.

The information becomes a benchmark for future project deliveries, impact on design outcomes, efficient use of space, community use, energy efficiency and any other matters that will benefit the future designs and stakeholders.

As part of the design process for Budawang School GroupGSA have visited other Schools for Specific Purposes and undertaken discussion with School Principals as part of a "Lessons Learned" exercise. This information has been considered as part of the design for Budawang School

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