

STORMWATER MANAGEMENT PLAN

CHILDCARE CENTRE AND SWIM SCHOOL
DEVELOPMENT
FLAGSTONIAN DRIVE, FLAGSTONE



Prepared By:

MPN CONSULTING PTY LTD
Level 5
39 Sherwood Road
Toowong
Queensland
4066 • Australia

REVISION STATUS

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Client: Satara Investments Australia

Site Address: Flagstonian Drive Flagstone

Report Title: Stormwater Management Plan

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Version	Date	Author	Reviewer	Approved	RPEQ
Issue A	06/05/2022	Lachlan Stephenson	Sam Rowen		16903

EXECUTIVE SUMMARY

This report has been commissioned by Satara Investments Australia in support of the Development Application for the proposed childcare centre and swim school development on land located at Flagstonian Drive Flagstone.

This report addresses the following Engineering aspects of the proposed development:

- Topography
- Flooding
- Stormwater Quality Management
- Stormwater Quantity Management
- Erosion and Sediment Control.

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1 PURPOSE

This Stormwater Management Plan has been prepared in support of the proposed childcare centre and swim school development at Flagstonian Drive Flagstone.

2 INTRODUCTION

2.1 Project description

The current proposal involves the construction of a new, single storey childcare centre with on grade car parking and outdoor play areas and a new swim school.

Pedestrian access into the site will be from the external road network beside both the childcare and the swim school.

The proposed development is depicted on the architectural plans prepared by Alto Architecture attached in Appendix 1, with excerpt below.

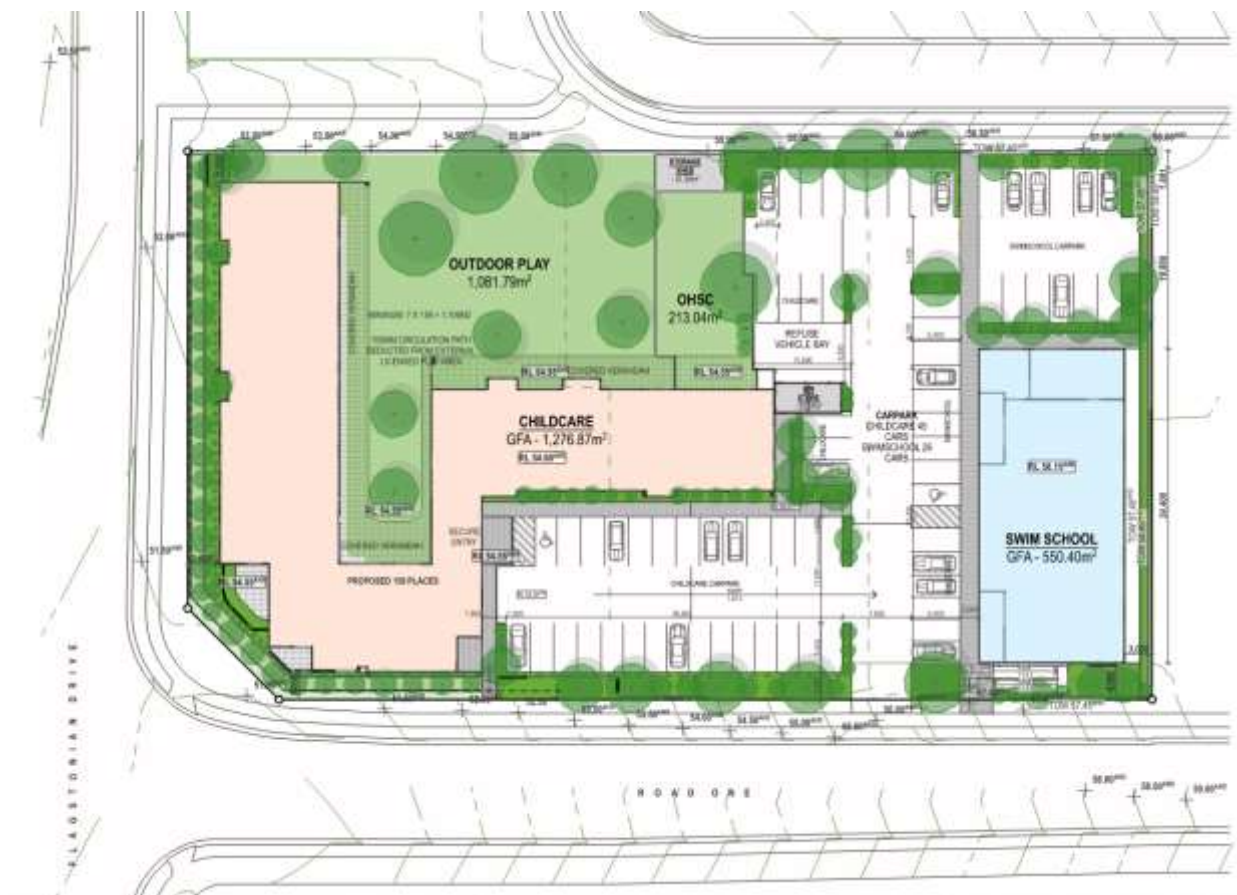


Figure 1 – Proposed Development

3 SITE CHARACTERISTICS

3.1 Site Location

The site is located at Flagstonian Drive, Flagstone and is formally known as lot 905 Flagstonian Drive.

The site is bounded by Flagstonian Drive to the west, public roads to the north and south and existing residential allotments to the east.



Figure 2 – Site Location

3.2 Topography and Existing Site Drainage

The site is currently vacant having recently undergone allotment earthworks and retaining construction.

The site generally falls to the west and south west towards Flagstonian Drive.

Stormwater runoff from the existing site sheet flows across the site to the south west and into the existing stormwater pits on the western and southern site frontage before discharge to the road reserve.

There are no external upstream catchments which drain through the site.

4 SITE DATA

Site data has been obtained from the following sources of information:

- As constructed data
- Dial Before You Dig (DBYD)
- Discussions with relevant authorities
- Logan City Council
- Logan City Council GIS Mapping
- EDQ
- Relevant reports
- Satellite imagery
- Site survey
- Site inspection

5 STORMWATER

5.1 Lawful Point of Discharge

The lawful point of discharge for the proposed development is the existing stormwater pit located at the site frontage with Flagstonian Drive on the sites western boundary and the existing stormwater pit located on the sites southern boundary.

5.2 Flooding

Based on a review of the Logan City Council Planning Scheme Flooding Overlay and the current Flagstone Flood reporting, the site is not subject to flooding from any sources.

5.3 Site Based Stormwater Management Plan

The aim of the Stormwater Management Plan outlined below is to:

- Prevent or minimise adverse social or environmental impacts from stormwater runoff originating from the proposed development.
- Achieve acceptable levels of stormwater runoff quality and quantity.

The Stormwater Management Plan aims to identify Stormwater Quantity and Quality Best Management Practice for the site and demonstrate that water quantity and quality impacts will be minimised in receiving waters.

The Stormwater Management Plan outlines the site in two sections, the operational phase and the construction phase. The operational phase addresses treatment of contaminated runoff from the developed site before discharging into receiving waters whilst the construction phase of the Stormwater Management Plan addresses erosion and sediment control to prevent contamination of water sources by stormwater runoff during construction of the site.

5.4 Operational Phase

5.4.1 Proposed Site Drainage

Stormwater runoff from the proposed development will be collected and conveyed in a new internal pit and pipe network.

Stormwater runoff from the carpark, roof and landscape areas will be directed to the sites existing stormwater connection points for discharge to the external network.

Stormwater detention and treatment for the site has been catered for within the masterplan stormwater strategy for Flagstone City Stage 2. Bioretention and detention basins have been constructed offsite.

The proposed site stormwater infrastructure is shown on MPN Plan 9337-DA.03 attached in Appendix 2.

5.4.2 Stormwater Quantity Management Strategy

Stormwater detention for the proposed development site has been constructed offsite in combined centralised basins. The detention strategy for stages 2-5 of Flagstone City has been addressed in reports completed by Cardno and subsequent technical memo's by Meinhardt.

As such no detention basins or tanks are proposed on site for the new childcare and swim school development.

5.4.3 Stormwater Quality Management Strategy

In order to satisfy the requirements of the State Planning Policy July 2017 for the adequate treatment of stormwater runoff, offsite stormwater solutions have been provided to remove hydrocarbons, suspended solids and nutrients for the proposed building prior to being discharged from site.

The stormwater treatment for the proposed development site will be completed offsite in centralised basins as part of the stage 2 stormwater quality treatment strategy for Flagstone City. The stormwater assessment was previously completed by Cardno with tech memo updates completed by Meinhardt.

As a result of the above no additional treatment measures are proposed to be installed on site.

5.5 Construction Phase (Sediment and Erosion Control)

5.5.1 Intent of Erosion and Sediment Control Management Plan

To prevent stormwater contamination (of watercourses) and the release of contaminated stormwater and wastewater by ensuring compliance with the Environmental Protection Act 1994 and Environmental Protection (Water) Policy 2009.

5.5.2 Implementation Strategy

Establish control measures and best practice approaches to prevent stormwater contamination and minimise the risk and adverse effects of erosion and sedimentation. All Erosion and Sediment Control measures must be designed, constructed and maintained in a manner that is commensurate with the site's erosion risk.

5.5.3 Erosion and Sediment Control Measures

- Obtain a license or approval to operate activities that are classed as environmental relevant activities (i.e. they have the potential to cause environmental harm).
- Implement and maintain appropriate control measures to prevent sediment laden wastewater and other potential pollutants such as oil, paint and wet concrete from entering the stormwater system via stormwater drains and gullies. The control measures which must be considered to be adopted are:
 - Limitation of site access during construction to minimise disruption to traffic.
 - Install a temporary construction entry/ exit sediment trap at all site accesses to

minimise mud and sediment from the site being tracked onto public road, particularly during wet weather or when the site is muddy.

- Install and maintain appropriate sediment fences around construction areas.
- Divert clean stormwater runoff, using catch drains, around construction areas to existing or new stormwater drainage system.
- Install sandbags and other pollution containment devices around stormwater drains and any other locations where required to prevent sediment entering the trunk stormwater system.
- Cover open earth/ soil areas progressively (with concrete slabs and pavements or mulch) to minimise areas of bare earth/ soil.
- Any stockpiles of excavated soil and demolition/ construction waste must be located where risk of erosion and sedimentation is minimal, and must be protected from wind and water erosion.
- Implement and maintain appropriate control measures such as catch drains and sediment fences to prevent ponding of stormwater or discharge of stormwater from the site to adjacent properties.
- Provision of spill/ pollution control equipment that is readily accessible to clean up spills and leaks.
- Ensure spill/ pollution control measures are available and maintained in working condition.
- Sediment contained by the sediment control devices such as sandbags, sediment fences and containment bunds must be frequently removed and placed in a controlled area.
- Implement an inspection schedule for any spill or leaks of any potential polluting areas or activities.

5.5.4 Erosion and Sediment Control Management Goals

- Licenses, approvals, permits and inspection reports are in order.
- Sediment or pollution control devices such as sandbags, sediment fences and containment bunds are in place, maintained and effective.
- Spill/ pollution control equipment is readily accessible at designated locations.
- No accumulated sediment is contained by the sediment control devices such as hay bales, sediment fences and containment bunds.
- No sediment exceeding a depth of 300mm in the pollution control devices (e.g. silt trap).

5.5.5 Erosion and Sediment Control Implementation Program

- Licenses, permits or approvals for each environmentally relevant activity must be obtained prior to the commencement of the particular activity.
- Appropriate control measures such as sediment fences, temporary construction entry/ exit sediment traps, pollution containment devices (e.g. sandbags), stormwater diversion and administrative controls must be installed and established prior to commencement of the earthworks and construction activities.
- Pollution control devices such as spill control equipment must be inspected on a regular basis (at least weekly).
- Other sediment and pollution control equipment such as containment bunds, hay bales and sediment fences must be inspected on a regular basis (at least daily).

- Inspection for any leaks, spills or potential contaminating activity must be performed on a regular basis (at least daily).
- Remove accumulated sediment or other contaminants from sediment/ pollution control devices on a regular basis.
- All erosion and sediment control measures must be inspected within 24 hours of expected rain and within 18 hours of a rainfall event.

5.5.6 Responsible Person or Organisation

The contractor shall be responsible for the implementation and maintenance of the Erosion and Sediment Control Measures.

5.5.7 Reporting/ Review

Records such as licenses, approvals, permits and inspection reports must be reviewed on a regular basis (e.g. at least monthly) to ensure that legal compliance is met, complaints are reviewed and systems are working to prevent contamination.

5.5.8 Corrective Actions

- Perform clean-up of any spills immediately.
- Any mud or sediment which is tracked onto public roads is to be immediately removed using dry clean-up methods (i.e. shovel and broom).
- Remove or relocate any stockpiles of waste where there is a reasonable risk of erosion and sedimentation.
- Replace or repair sediment or pollution control devices if they are not maintained in good working condition.

6 CONCLUSION

This Stormwater Management Plan and the previous assessments completed by Cardno and Meinhardt demonstrate that under the proposed concept plan, stormwater quality and quantity treatment is achievable to the levels required by State Planning Policy July 2017.

The lawful point of discharge for the proposed development is the existing stormwater pits located on the western and southern site frontages.

The site is not subject to flooding from any sources.

As all detention and treatment for the site has been completed offsite in centralised basins, no additional detention or treatment is proposed to be installed on site.

7 LIMITATIONS OF REPORT

MPN have prepared this report for the proposed development at Flagstonian Drive, Flagstone in accordance with MPN's proposal to Satara Investments Australia. This report is provided for the exclusive use of Satara Investments Australia for this specific project and its requirements. It should not be used or relied upon by a third party and MPN accept no responsibility for the use of this report by any party other than Satara Investments Australia.

6 May 2022

Appendix 1
Architectural Plans



Perspective View from the corner of Flagstonian Drive & 'Road One'

Flagstonian Drive Flagstone QLD
4280 AUSTRALIA
Stage 2Di Lot 905

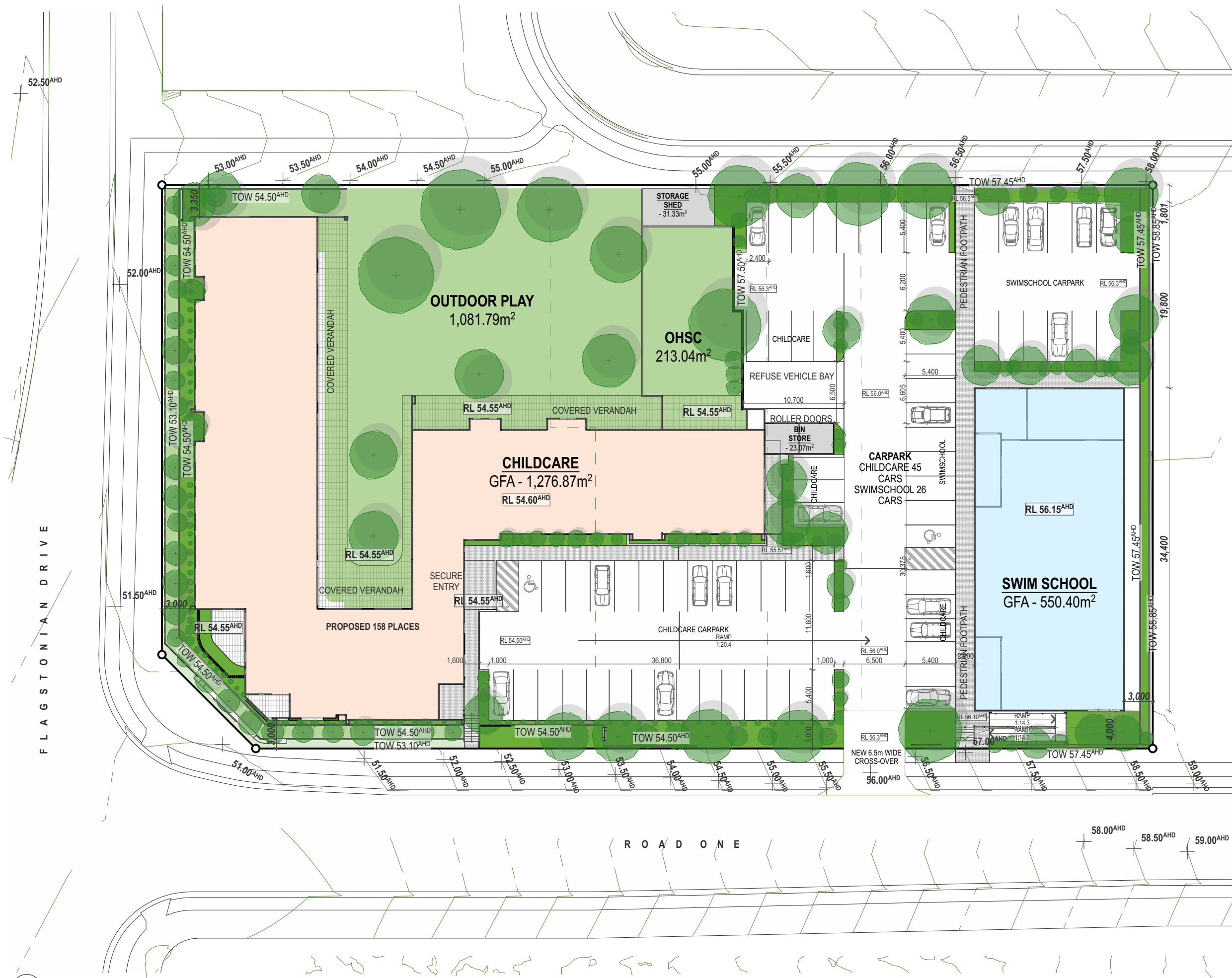
TOWN PLANNING SUBMISSION

PROJECT SUMMARY

Site Area	6,282m ²
Proposed Development	Childcare Centre & Swimschool
Carparking	Childcare: Drop-off 19 car spaces Staff: 26 car spaces Swimschool: 26 car spaces
New GFA	Childcare Centre 1,277m ² Swimschool 550m ²
Proposed Site Cover	2,210m ² (35%) includes covered verandahs, entry awning & bin store
Road Frontage	159.7m
Cross-over Width	6.5m
Impervious Area	4,374m ²



- LOCALITY KEY**
- 1. PROPOSED SITE
CHILD CARE & SWIM SCHOOL
 - 2. NEW RESIDENTIAL SUBDIVISIONS
 - 3. SANDY CREEK
 - 4.



Project Statistics
Childcare Centre GFA: 1,277m²
0-5 yrs: 158 Places
Out of Hours School Care: 30 places
Drop-Off Cars: 19 cars
Staff Cars: 26 cars
Total Carparks: 45 Cars
Swimschool GFA: 550m²
Swimschool Carparks: 26 Cars

1

SITE PLAN DA (1:400)
1:400

Signage (3.6m W x 1.2m H) Illuminated

52.00^{AHD}

51.50^{AHD}

Existing 'Aspire' Signage wall

Signage (3.6m W x 1.2m H) Illuminated

GROUND LEVEL
1:250

CHILD'S INDOOR PLAY
3-5 YEARS
22 CHILDREN
72.71m²

CHILD'S INDOOR PLAY
3-5 YEARS
22 CHILDREN
74.03m²

CHILD'S INDOOR PLAY
3-5 YEARS
22 CHILDREN
72.18m²

CHILD'S INDOOR PLAY
2-3 OR 3-5 YRS
22 CHILDREN
70.07m²

CHILD'S INDOOR PLAY
2-3 YEARS
15 CHILDREN
53.42m²

CHILD'S INDOOR PLAY
2-3 YEARS
15 CHILDREN
53.28m²

VEG GARDEN
30.53m²

DINING
59.56m²

KITCHEN
34.36m²

PNTRY / WASH-UP

DRYING COURT

LDRY / SERVICES
10.45m²

COMMS

PLANNING
9.89m²

STAFFROOM
24.64m²

OFFICE/MEETING
13.28m²

PWD
6.98m²

DIRECTORS OFFICE
14.08m²

COURT YARD

RECEPTION
14.05m²

ENTRY
59.69m²

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16.04m²

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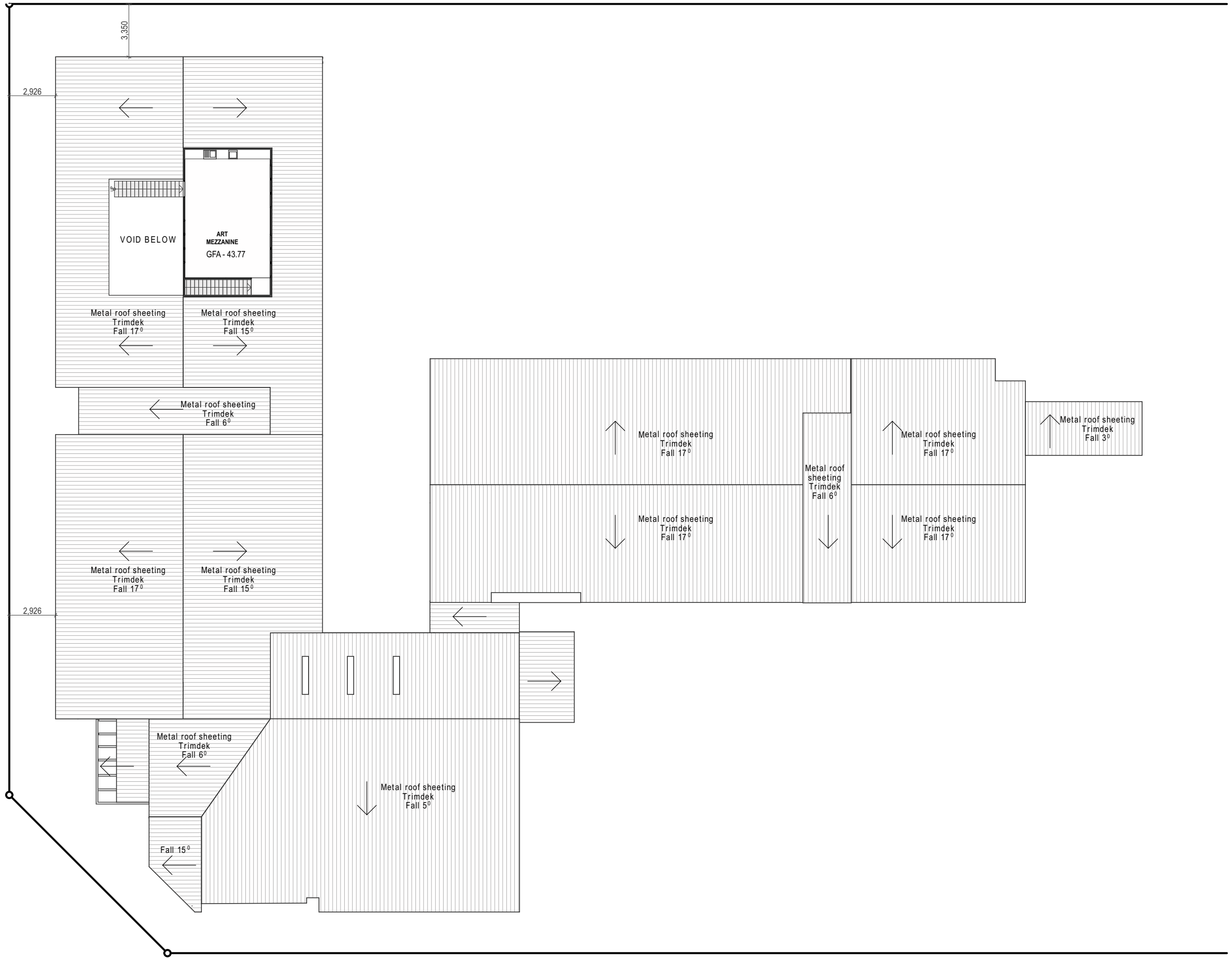
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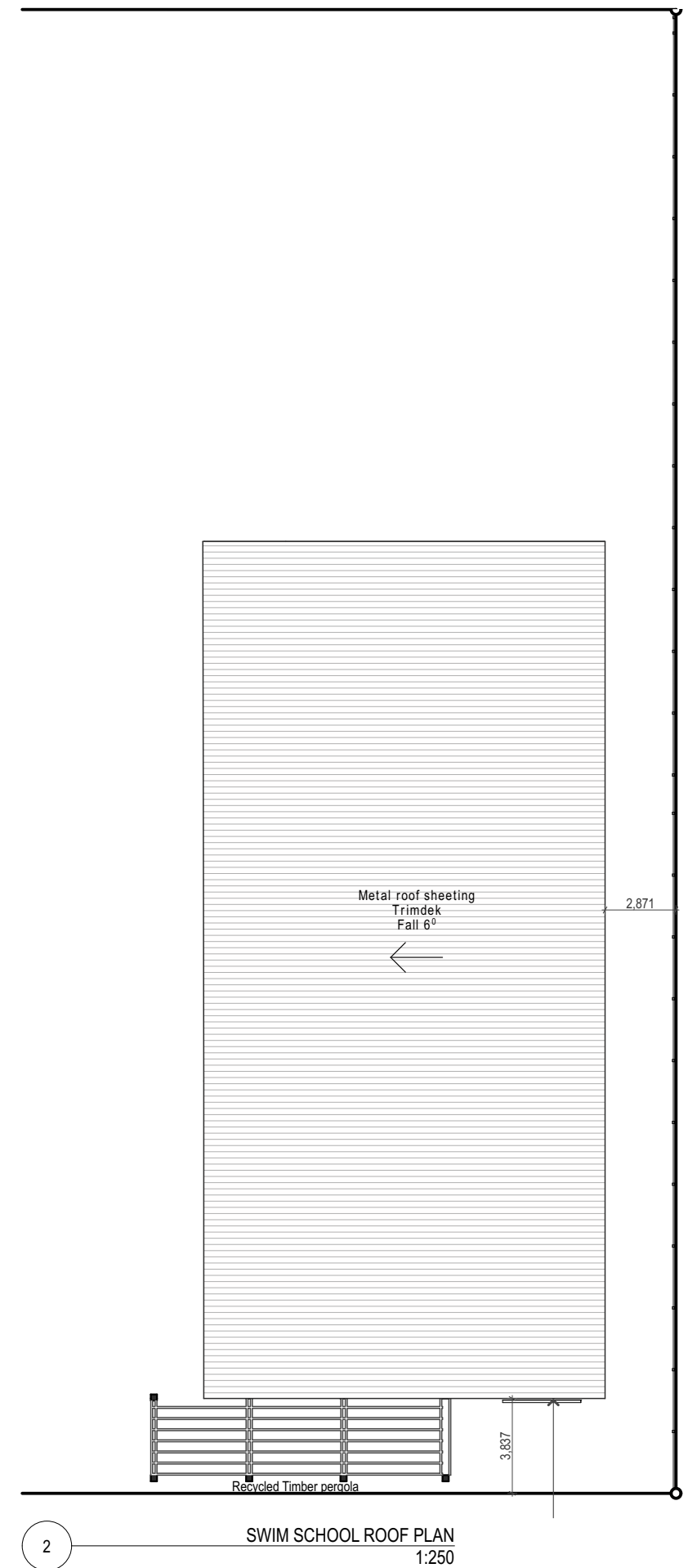
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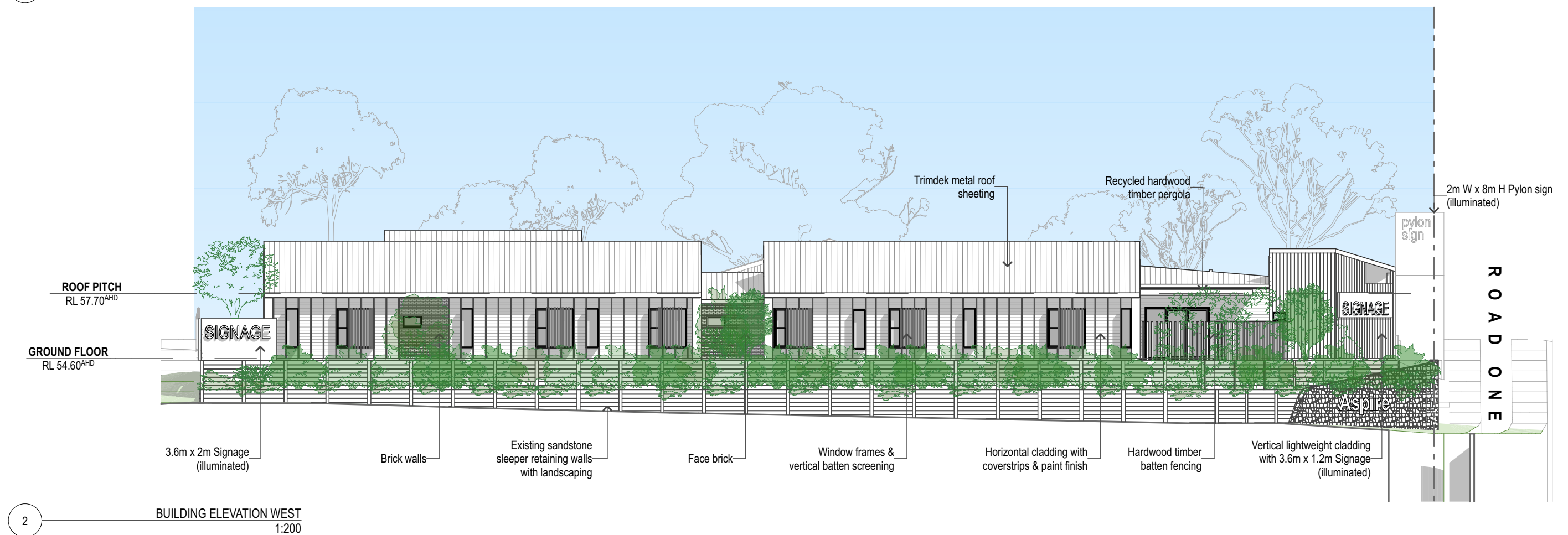
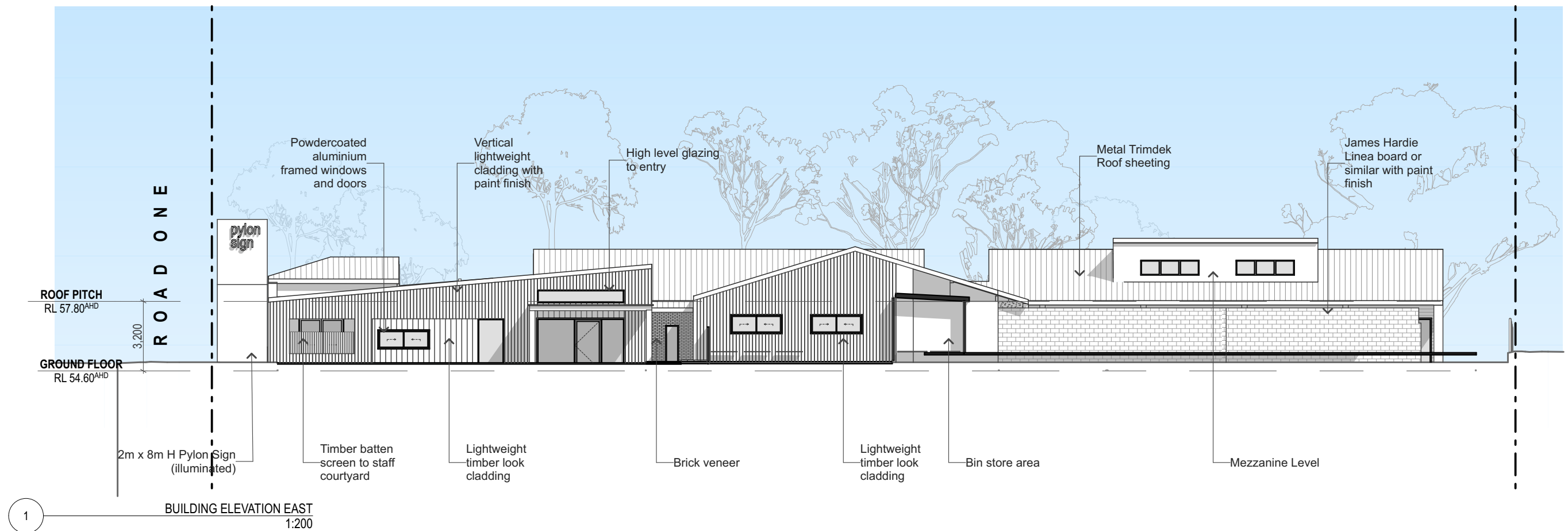


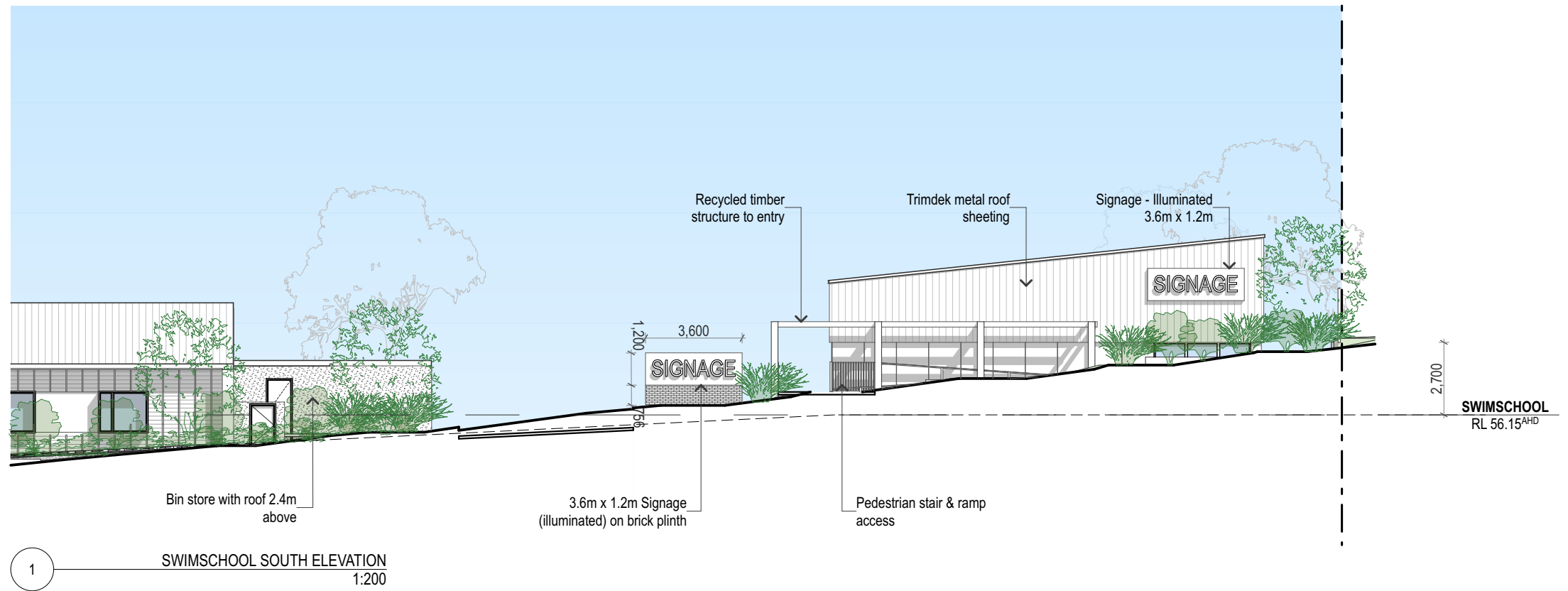
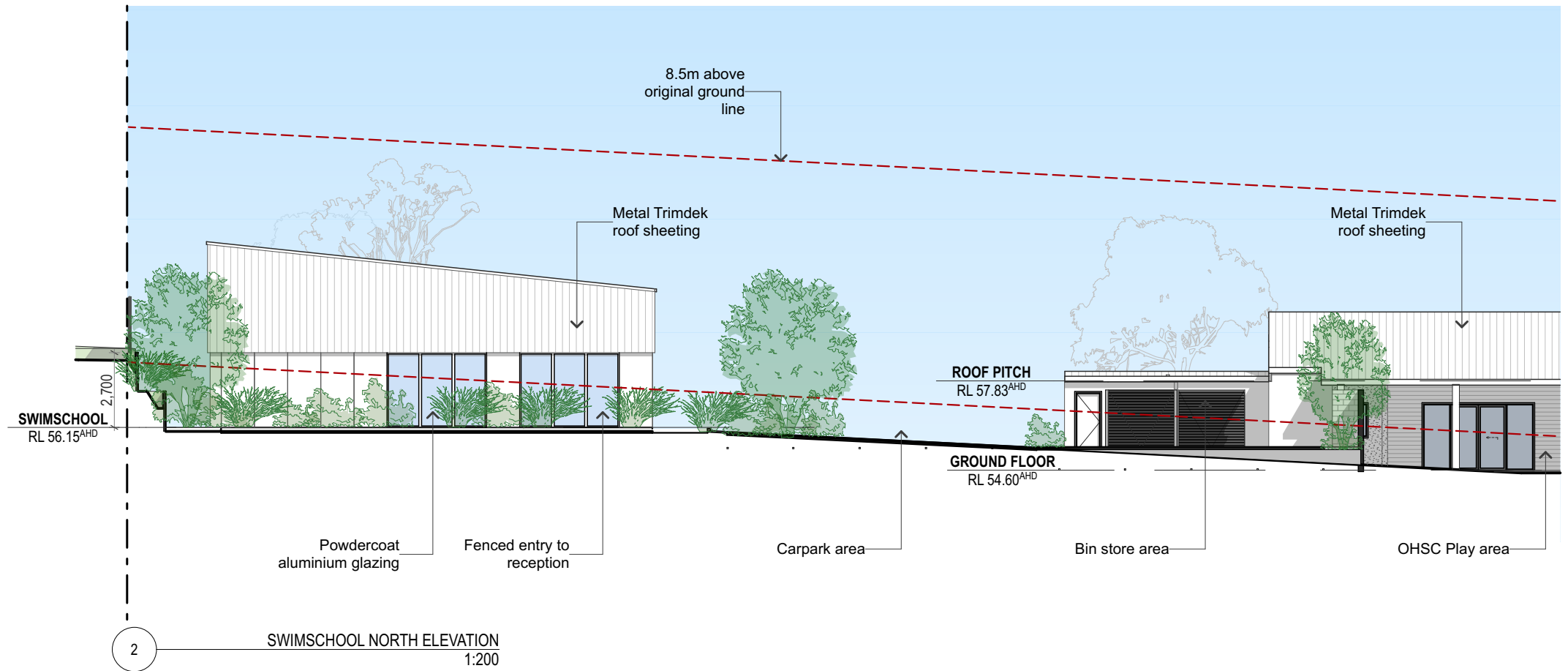
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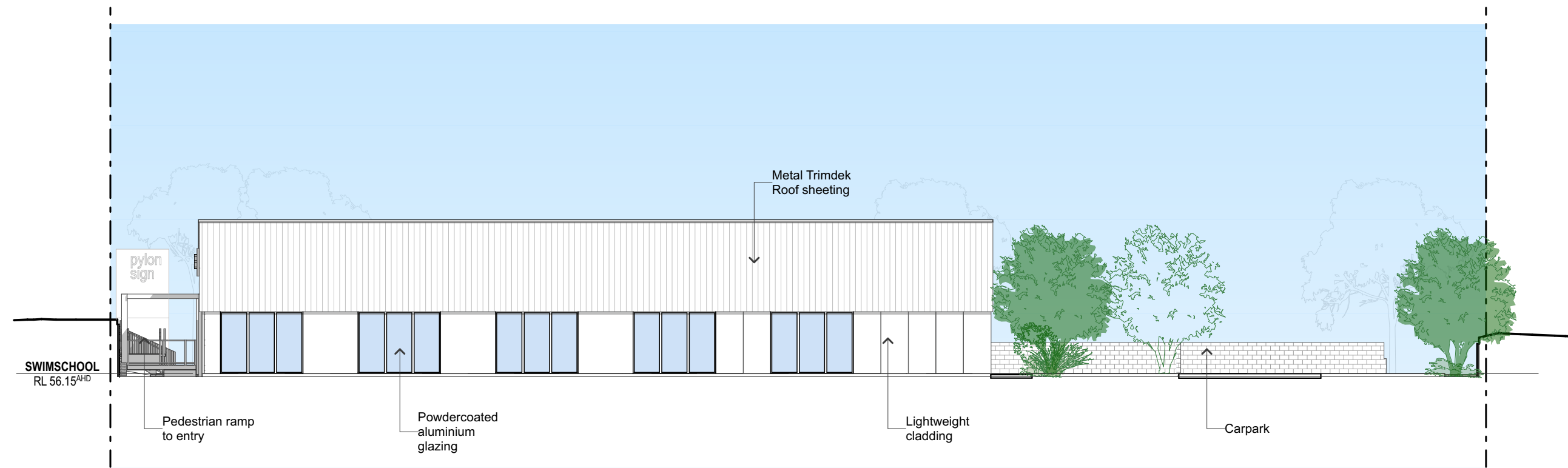
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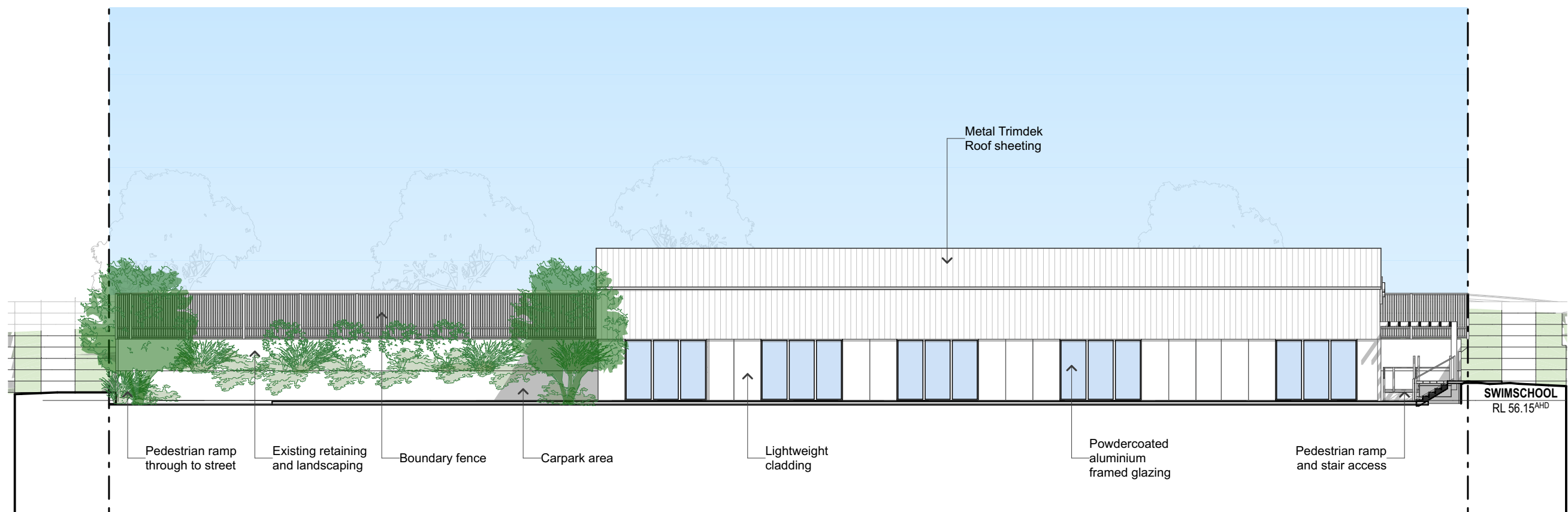




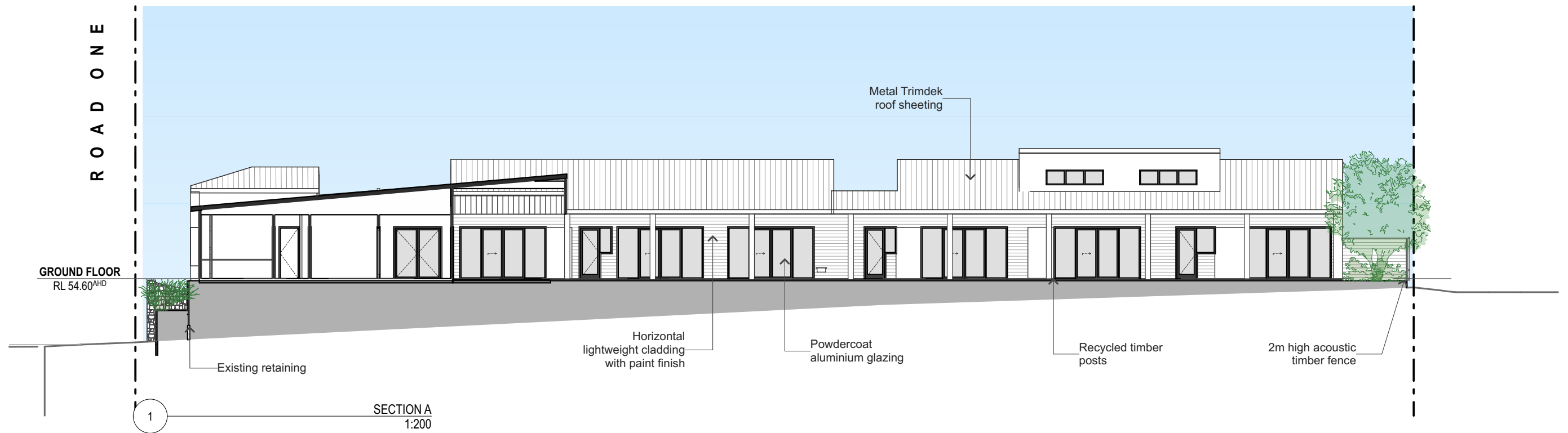




1 SWIMSCHOOL EAST ELEVATION
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2 SWIMSCHOOL WEST ELEVATION
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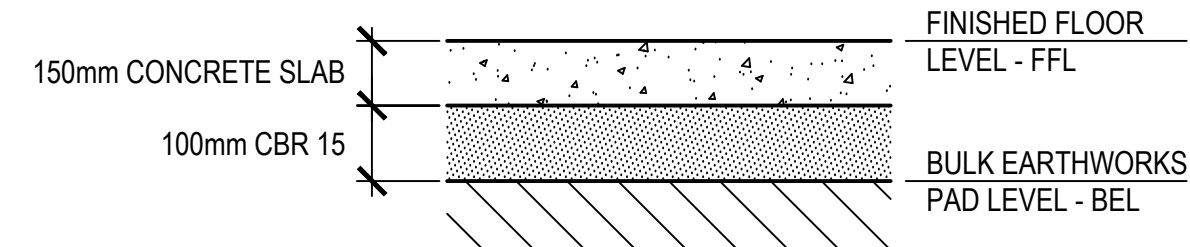
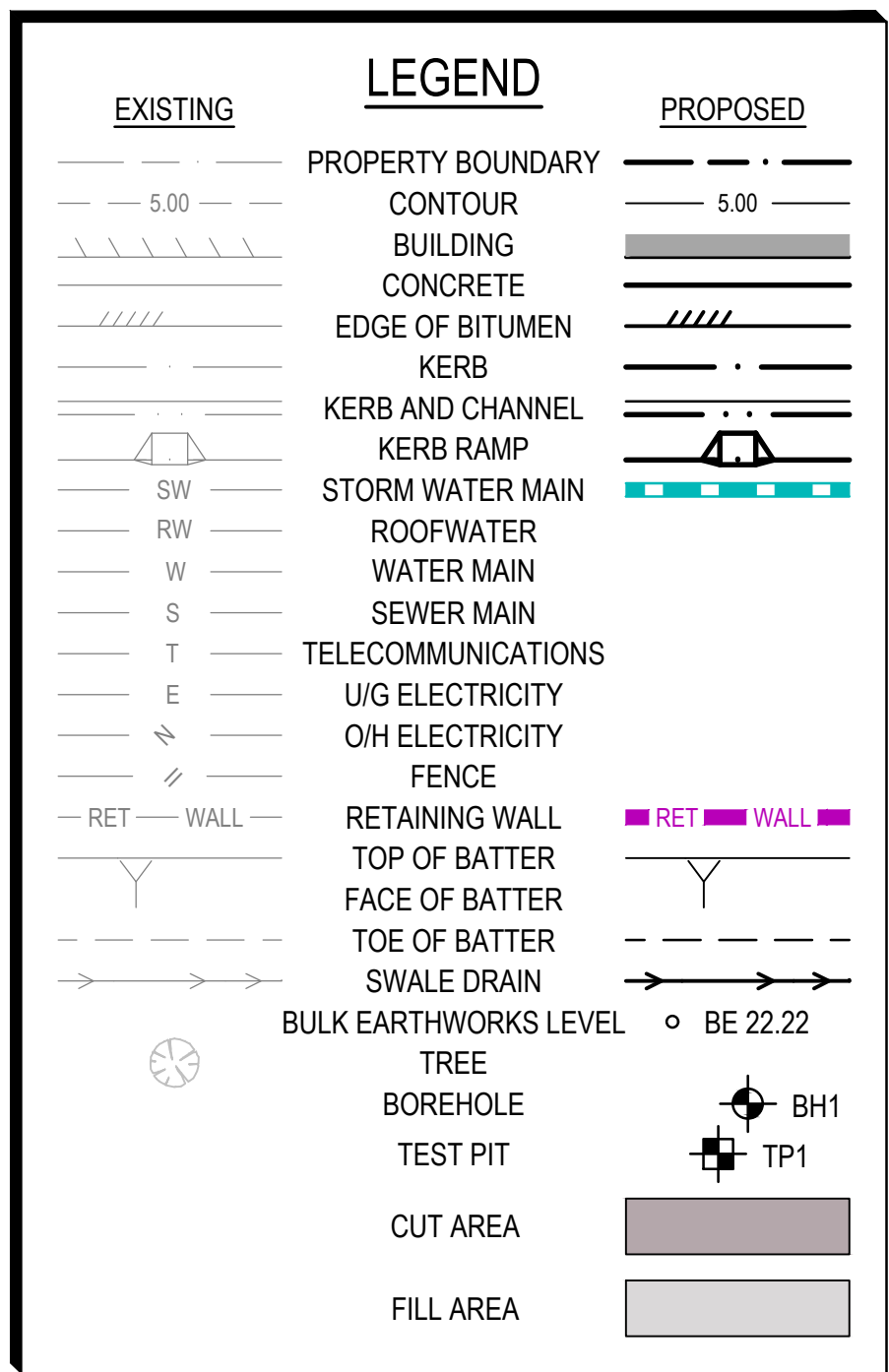




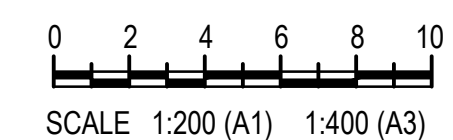
Perspective View from 'Road One'

6 May 2022

Appendix 2
MPN Plans

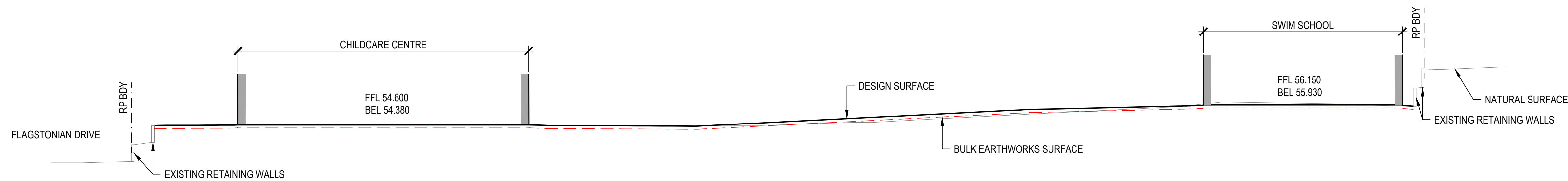


CAR PARK WORKING PLATFORM DETAIL
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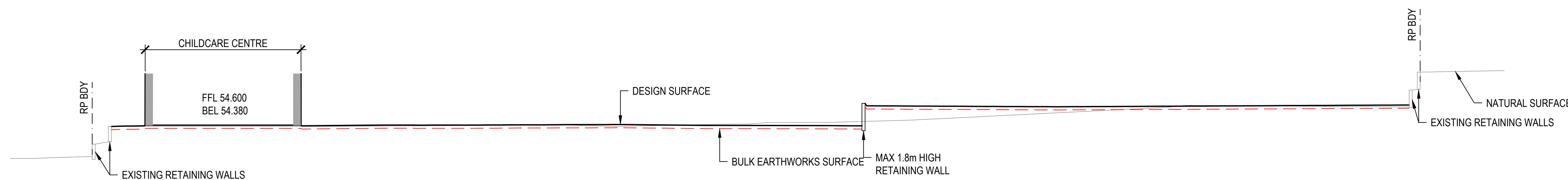


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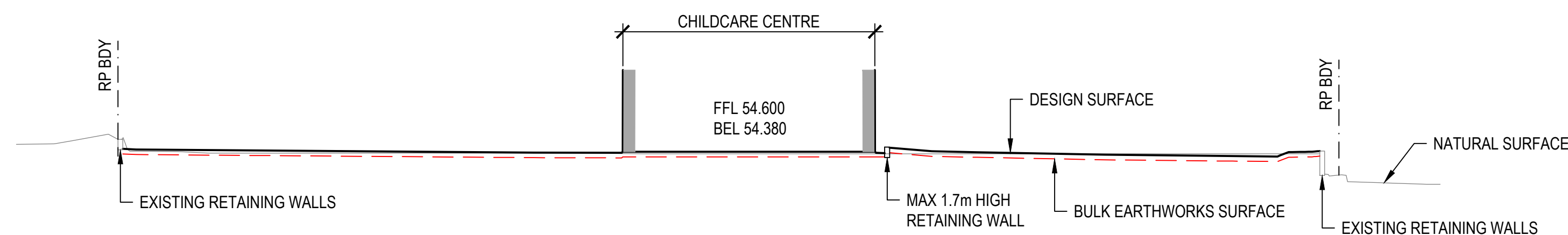
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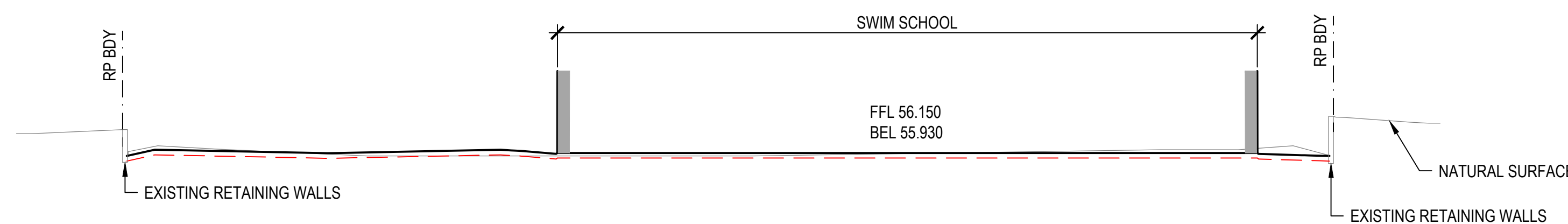
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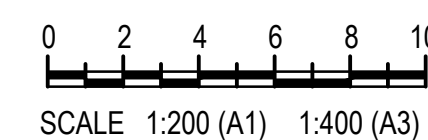
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SECTION C
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SECTION D
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ISSUE	DATE	AMENDMENT	BY	APP	

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ABN: 39 062 191 799
39 Sherwood Road, Toowong, Qld, 4066
P: 61 7 3335 4555
E: solutions@mpnc.net.au

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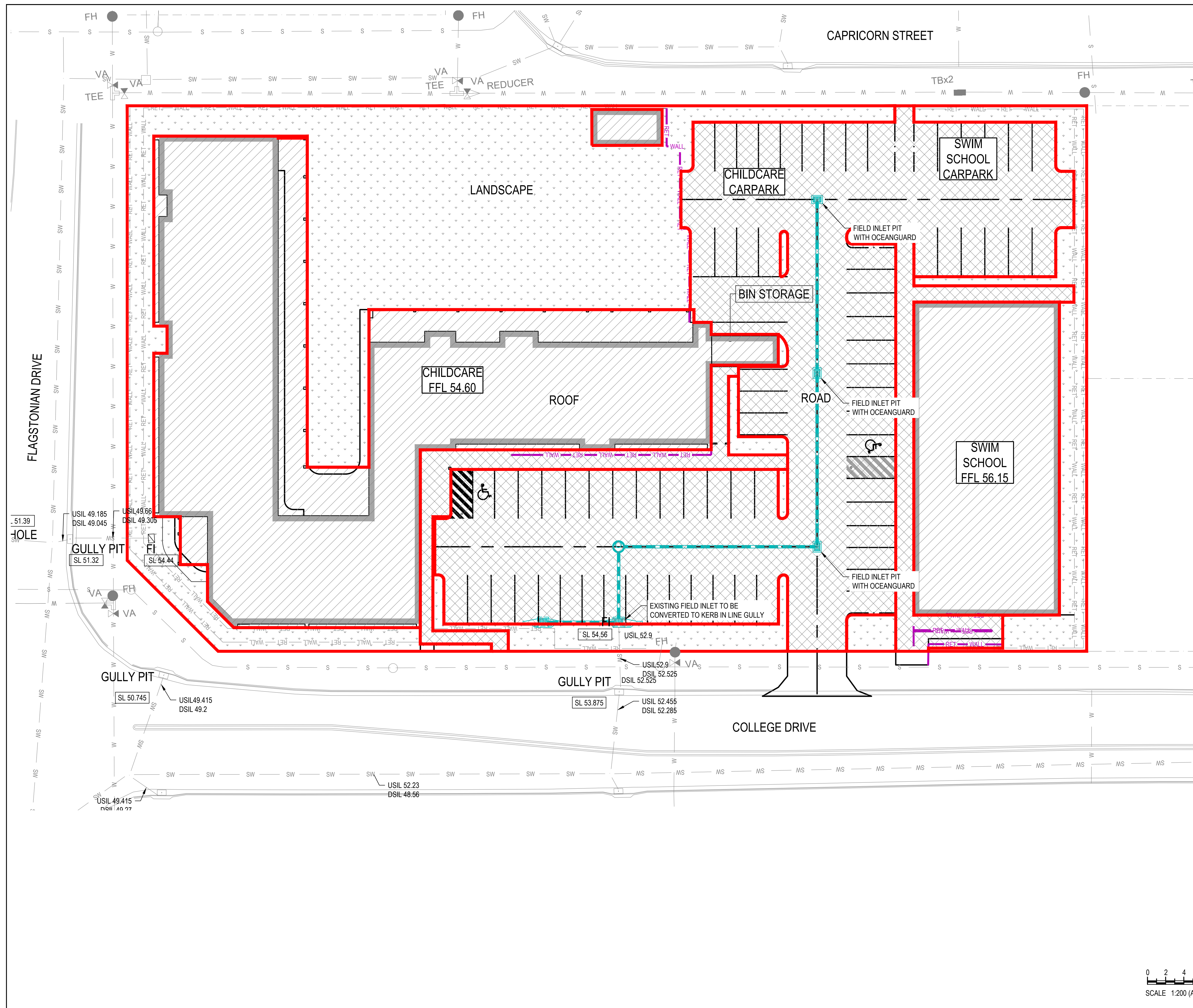
**CHILDCARE CENTRE AND SWIM
SCHOOL DEVELOPMENT**
LOT 905 FLAGSTONIAN DRIVE
FLAGSTONE, QLD 4280

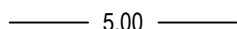
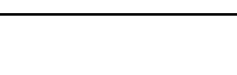
BULK EARTHWORKS SECTIONS

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9337	DA.02	A

PRELIMINARY



EXISTING	LEGEND	PROPOSED
	PROPERTY BOUNDARY	
	CONTOUR	
	BUILDING	
	CONCRETE	
	EDGE OF BITUMEN	
	KERB	
	KERB AND CHANNEL	
	STORM WATER MAIN	
	WATER MAIN	
	TELECOMMUNICATIONS	
	U/G ELECTRICITY	
	O/H ELECTRICITY	
	FENCE	
	RETAINING WALL	
	SWALE DRAIN	
	CONCRETE CHANNEL	
	SUBSOIL DRAIN	
	FINISHED SURFACE LEVEL	
	ROOF AREA	
	ROAD AREA	
	LANDSCAPE AREA	

MUSIC NODE	TREATMENT TYPE	CATCHMENT AREA (Ha)	IMPERVIOUS AREA (%)
ROOF	OFFSITE	0.226	100
LANDSCAPE	OFFSITE	0.182	30
ROAD	OFFSITE	0.220	100
TOTAL		0.628	

[illegible]

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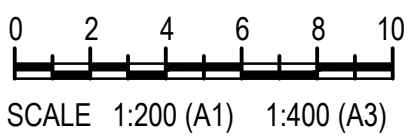
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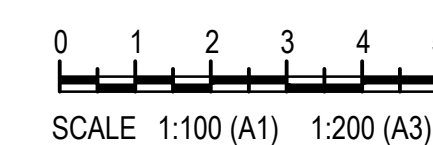
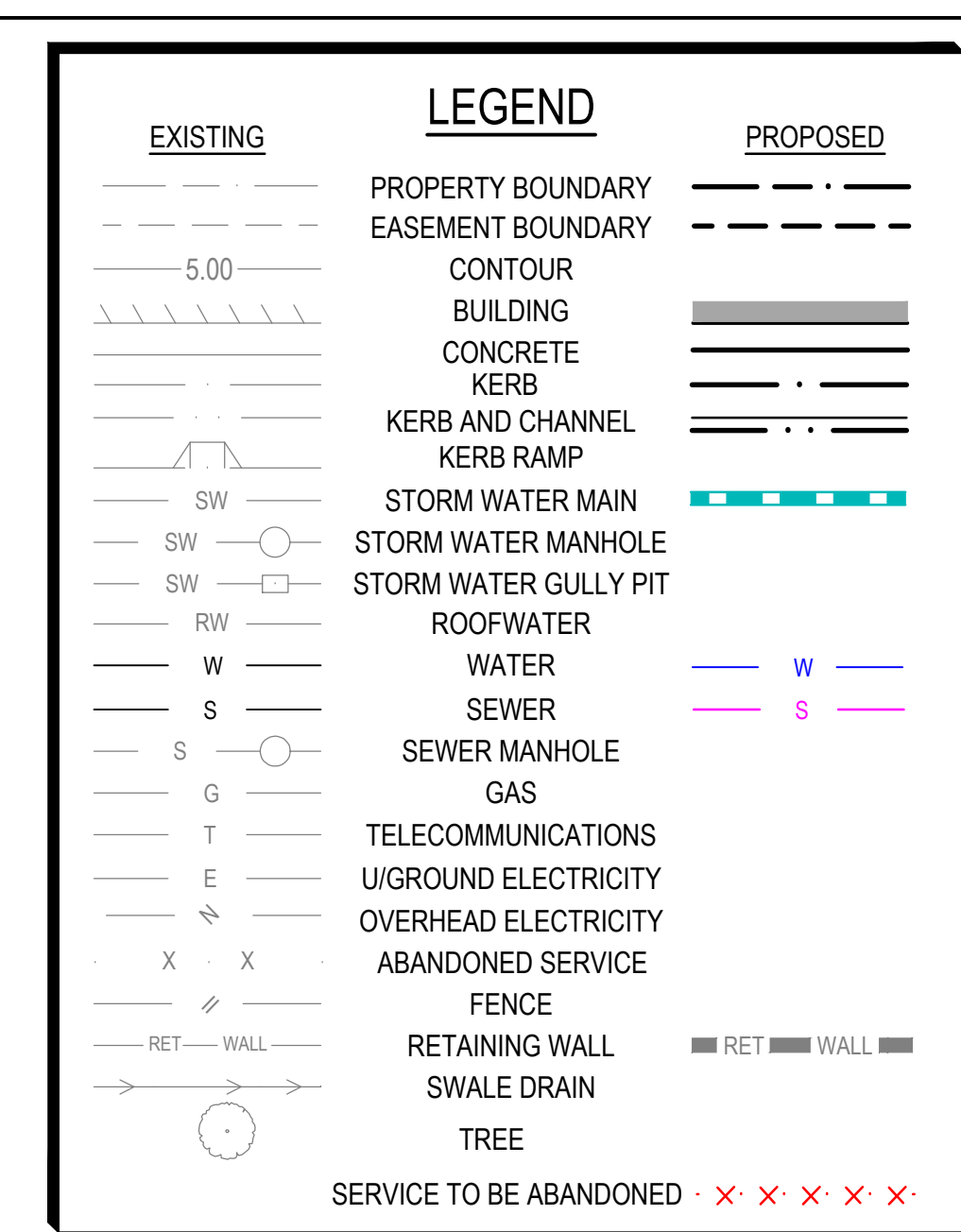
**CHILDCARE CENTRE AND SWIM
SCHOOL DEVELOPMENT**
LOT 905 FLAGSTONIAN DRIVE
FLAGSTONE, QLD 4280

STORMWATER TREATMENT PLAN

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PRELIMINARY





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A	10.05.22	PRELIMINARY ISSUE							VL
ISSUE DATE		AMENDMENT						BY A	
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ABN: 39 062 191 759 39 Sherwood Road, Toowoomba, Qld, 4606				P: 61 7 3335 456 E: solutions@mpn.net.au					
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C/- TOWN PLANNING ALLIANCE									
KIDCARE CENTRE AND SWIM SCHOOL DEVELOPMENT									
LOT 905 FLAGSTONIAN DRIVE FLAGSTONE, QLD 4280									
SERVICES CONNECTION PLAN									
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CHKD:			APPRD:			DATE:			
mpn JOB 9337			DRAWING No. DA.04				REV A		
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