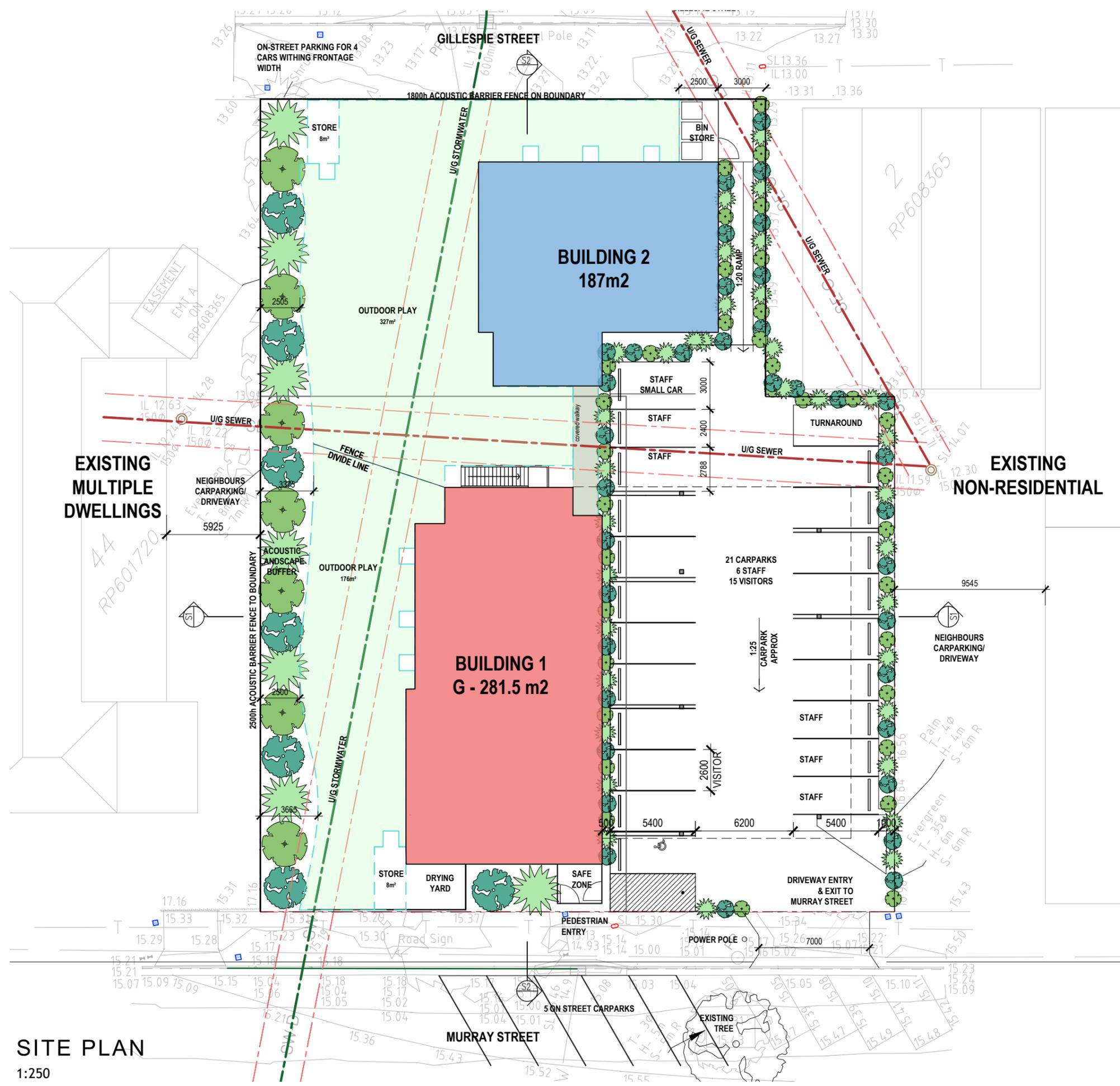


# PLANNING ISSUE

A	ISSUED FOR PLANNING	28/02/2022
B	ISSUED FOR PLANNING	11/04/2022

SITE DATA	
SITE AREA	1911sqm
BUILDING AREAS	GROUND - 468.5sqm FIRST - 265sqm TOTAL - 733.5sqm
SITE - LANDSCAPE - IMPERVIOUS	795.5sqm 1115.5sqm
SITE COVER	825sqm = 42% (approx)
PROPOSED CHILD CARE PLACES	90
REQUIRED CARPARKING	1 per Staff = 14 spaces 1 per 6 places = 15 spaces TOTAL REQ = 29
PROPOSED CARPARKING	26 Formal Carparks <ul style="list-style-type: none"> <li>• 21 Carparks on-site</li> <li>• 5 Formal on-street (Murray St)</li> <li>• 4 Informal on-street (Gillespie St)</li> </ul>



**ROCKHAMPTON REGIONAL COUNCIL**  
**APPROVED PLANS**  
 These plans are approved subject to the current conditions of approval associated with  
**Development Permit No.: D/20-2022**  
**Dated: 27 June 2022**



ON Architecture Pty Ltd abn 71 627 522 043  
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Project  
**90 PLACE CHILD CARE CENTRE**  
 7-11 MURRAY ST & 25 GILLESPIE ST  
 WANDAL, QLD.

Drawing  
**SITE PLAN**

Scale As indicated Drawn HT  
 Client  
 Date 25/02/2022  
 Job No. 202100104  
 Dwg No. **DA03** Rev: **B** A3 SHEET

**SITE PLAN**  
 1:250

# PLANNING ISSUE

Rev	Amendment	Date
A	ISSUED FOR PLANNING	28/02/2022
B	ISSUED FOR PLANNING	11/04/2022

ACTIVITY AREA SCHEDULE								
ROOM	PLACES	AGE	STAFF RATIO	STAFF No.	AREA REQ	UNENCUMBERED AREA	ENCUMBERED AREA	TOTAL AREA PROVIDED
ROOM 1	8	0-2	1:4	2	26	27sqm	7sqm	34sqm
ROOM 2	8	0-2	1:4	2	26	27sqm	7sqm	34sqm
ROOM 3	15	2-3	1:5	3	49	50sqm	9sqm	59sqm
ROOM 4	15	2-3	1:5	3	49	50sqm	9sqm	59sqm
ROOM 5	22	3-4	1:11	2	71.5	72sqm	9sqm	81sqm
ROOM 6	22	4-5	1:11	2	71.5	72sqm	9sqm	81sqm
TOTALS	90			14	293	298sqm	50sqm	348sqm

OUTDOOR PLAY AREA SCHEDULE					
ROOMS	PLACES	AREA REQ	UNENCUMBERED AREA	ENCUMBERED AREA	TOTAL AREA PROVIDED
ROOM 1	8		499sqm	10sqm	509sqm
ROOM 2	8				
ROOM 3	15				
ROOM 4	15				
ROOM 5	22	308	337sqm	8sqm	345sqm
ROOM 6	22				
TOTALS	90	630	872sqm	18sqm	890sqm

## ROCKHAMPTON REGIONAL COUNCIL

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Project  
**90 PLACE CHILD CARE CENTRE**  
 7-11 MURRAY ST & 25 GILLESPIE ST  
 WANDAL, QLD.

Drawing  
 PROPOSED FLOOR PLAN

Scale As indicated Drawn HT

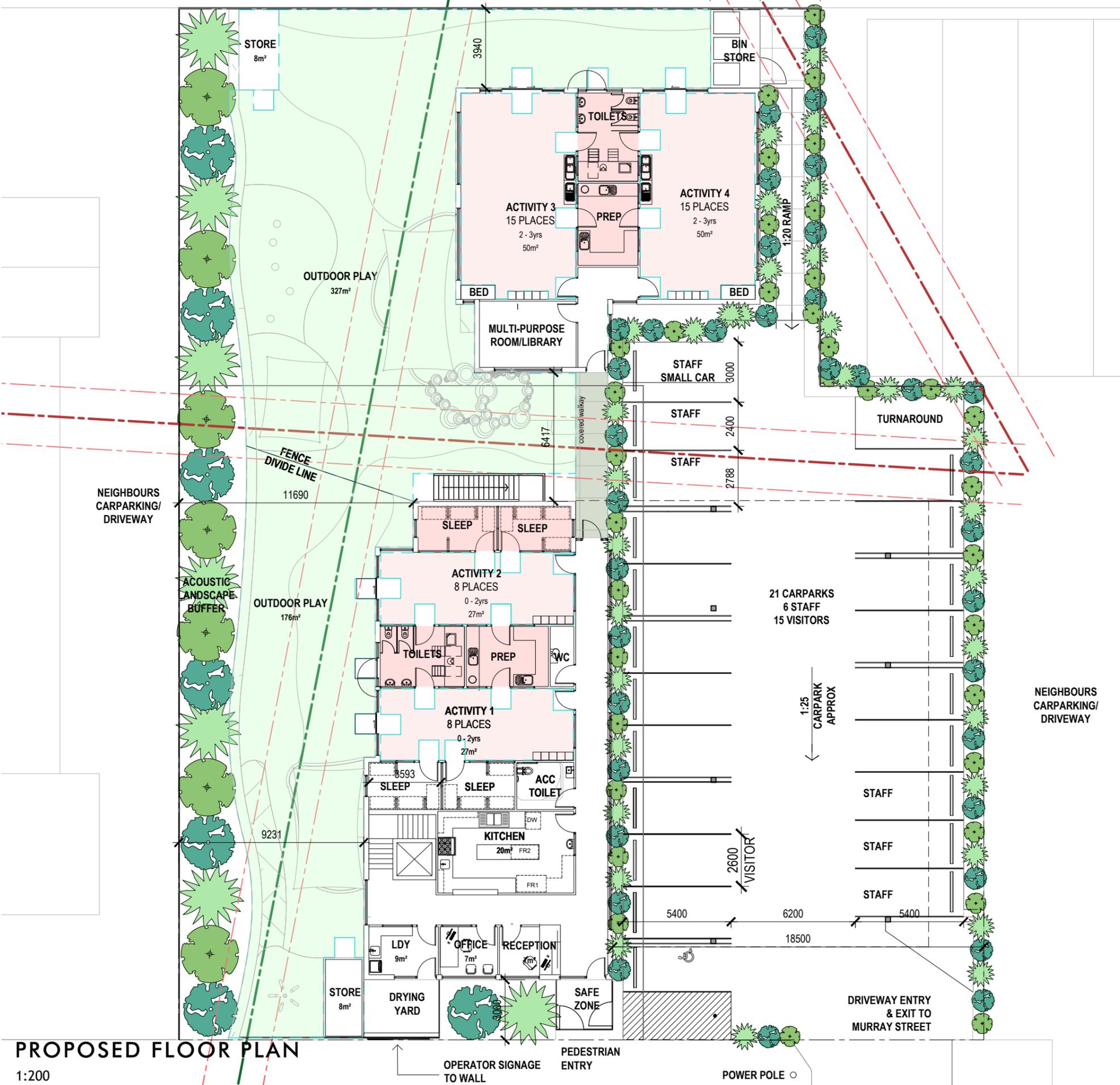
Client

Date 25/02/2022

Job No. 202100104

Dwg No. DA04

Rev: B A3 SHEET



**PROPOSED FLOOR PLAN**  
 1:200

OPERATOR SIGNAGE TO WALL  
 PEDESTRIAN ENTRY  
 POWER POLE

DRIVEWAY ENTRY & EXIT TO MURRAY STREET

NEIGHBOURS CARPARKING/ DRIVEWAY

NEIGHBOURS CARPARKING/ DRIVEWAY

21 CARPARKS  
 6 STAFF  
 15 VISITORS

1:25 CARPARK APPROX

2600 VISITOR

5400 6200 5400

18500

STORE 8m<sup>2</sup>

BIN STORE

ACTIVITY 3  
 15 PLACES  
 2 - 3yrs  
 50m<sup>2</sup>

ACTIVITY 4  
 15 PLACES  
 2 - 3yrs  
 50m<sup>2</sup>

OUTDOOR PLAY  
 327m<sup>2</sup>

MULTI-PURPOSE ROOM/LIBRARY

STAFF SMALL CAR 3000

STAFF 2400

STAFF 2788

TURNAROUND

FENCE DIVIDE LINE  
 11690

NEIGHBOURS CARPARKING/ DRIVEWAY

ACOUSTIC LANDSCAPE BUFFER

OUTDOOR PLAY  
 176m<sup>2</sup>

SLEEP SLEEP

ACTIVITY 2  
 8 PLACES  
 0 - 2yrs  
 27m<sup>2</sup>

TOILETS PREP WC

ACTIVITY 1  
 8 PLACES  
 0 - 2yrs  
 27m<sup>2</sup>

SLEEP SLEEP ACC TOILET

8593

SLEEP SLEEP

KITCHEN  
 20m<sup>2</sup> FR2

LDY 9m<sup>2</sup>

OFFICE 7m<sup>2</sup>

RECEPTION

STORE 8m<sup>2</sup>

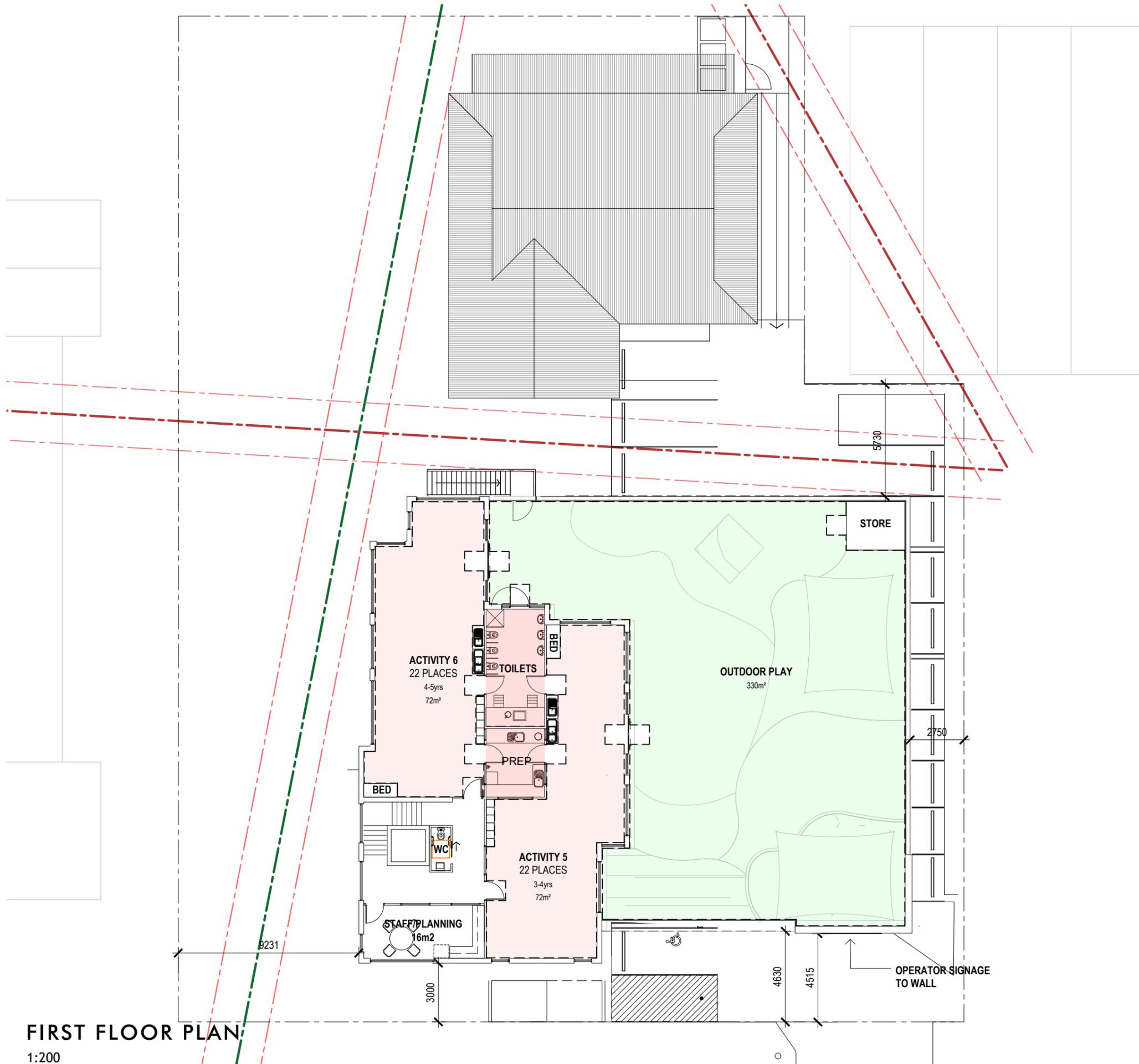
DRYING YARD

SAFE ZONE

POWER POLE

# PLANNING ISSUE

Rev	Amendment	Date
A	ISSUED FOR PLANNING	28/02/2022
B	ISSUED FOR PLANNING	11/04/2022



**FIRST FLOOR PLAN**  
1:200

**ROCKHAMPTON REGIONAL COUNCIL**  
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**Dated: 27 June 2022**



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Project  
**90 PLACE CHILD CARE CENTRE**  
7-11 MURRAY ST & 25 GILLESPIE ST  
WANDAL, QLD.

Drawing  
PROPOSED FIRST FLOOR PLAN

Scale As indicated Drawn HT  
Client  
Date 25/02/2022  
Job No. 202100104  
Dwg No. **DA05** Rev: **B** A3 SHEET



# PLANNING ISSUE

Rev	Amendment	Date
A	ISSUED FOR PLANNING	28/02/2022
B	ISSUED FOR PLANNING	11/04/2022



**SOUTH-WEST ELEVATION (MURRAY ST)**  
1:200



**SOUTH-EAST ELEVATION**  
1:200



**NORTH-EAST ELEVATION (GILLESPIE STREET)**  
1:200

**ROCKHAMPTON REGIONAL COUNCIL**

**APPROVED PLANS**

These plans are approved subject to the current conditions of approval associated with

**Development Permit No.: D/20-2022**

**Dated: 27 June 2022**



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Project  
**90 PLACE CHILD CARE CENTRE**  
7-11 MURRAY ST & 25 GILLESPIE ST  
WANDAL, QLD.

Drawing  
PROPOSED ELEVATIONS

Scale As indicated Drawn HT  
Client  
Date 25/02/2022  
Job No. 202100084  
Dwg No. **DA07** Rev: **B** A3 SHEET

# PLANNING ISSUE

Rev	Amendment	Date
A	ISSUED FOR PLANNING	28/02/2022
B	ISSUED FOR PLANNING	11/04/2022



**NORTH-WEST ELEVATION**

1:200



**NORTH-EAST ELEVATION - BUILDING 1**

1:200



**SOUTH-WEST ELEVATION - BUILDING 2**

1:200

**ROCKHAMPTON REGIONAL COUNCIL**  
**APPROVED PLANS**  
 These plans are approved subject to the current conditions of approval associated with  
**Development Permit No.: D/20-2022**  
**Dated: 27 June 2022**



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Project  
**90 PLACE CHILD CARE CENTRE**  
 7-11 MURRAY ST & 25 GILLESPIE ST  
 WANDAL, QLD.

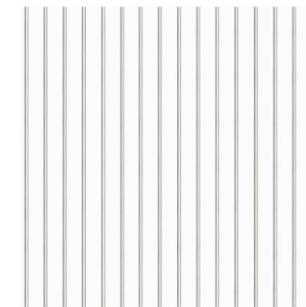
Drawing  
 PROPOSED ELEVATIONS

Scale As indicated Drawn HT  
 Client  
 Date 25/02/2022  
 Job No. 202100104  
 Dwg No. **DA08** Rev: **B** A3 SHEET



# PLANNING ISSUE

Rev	Amendment	Date
A	ISSUED FOR PLANNING	28/02/2022
B	ISSUED FOR PLANNING	11/04/2022



**1** CFC WEATHERBOARD PANELLINH - DULUX DIESKAU.

**2** RENDERED FACADE DULUX MONUMENT

**3** ALUMINIUM BATTENING WHITE ASH FINISH.

**4** PAINT FINISH TO FC CLADDINGS & COLORBOND FASCIAS DULUX - COLORBOND WHITE ON WHITE.

**5** DULUX POWDERCOAT - WHITE ON WHITE WINDOW FRAMES AND ALUMINIUM

**6** TIMBER PALING FENCE WHITE PAINT FINISH.

## MATERIAL SELECTIONS



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Project  
**90 PLACE CHILD CARE CENTRE**  
7-11 MURRAY ST & 25 GILLESPIE ST  
WANDAL, QLD.

Drawing  
MATERIALS SELECTIONS

Scale As indicated Drawn HT

Client

Date 25/02/2022

Job No. 202100104

Dwg No. **DA10**

Rev: **B** A3 SHEET



Our Ref: 21480-L02-RFI

22 April 2022

**ATT: BRENDAN STANDEN**

Rockhampton Regional Council  
232 Bolsover Street,  
Rockhampton QLD 4700  
07 4932 9000

Dear Brendan,

**ROCKHAMPTON REGIONAL COUNCIL**

**APPROVED PLANS**

These plans are approved subject to the current conditions of approval associated with

**Development Permit No.:** D/20-2022

**Dated:** 27 June 2022



**VT CONSULTING  
ENGINEERS**

PO Box 26,  
Carina, Qld 4152  
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1300 185 737

VT CONSULTING ENGINEERS PTY LTD, as  
Trustee for van Tonder Family Trust ABN  
73 781 850 547, trading as vT Consulting  
Engineers (vTCE)

**RE: INFORMATION REQUEST (APPLICATION NO. D/20-2022)  
7 & 11 MURRAY STREET & 25 GILLESPIE STREET,  
WANDAL QLD 4133  
LOTS 2 & 3 ON RP605719 & LOT 3 ON RP608365**

vT Consulting Engineers has received the Information Request for Development Application D/20-2022 dated the 24<sup>th</sup> of March 2022. Please find our responses to the requested applicable items listed below for your convenience.

## 1.0 ENGINEERING

1.1 Provide updated proposal plans that show the two (2) storey building, including roofing, separated a minimum of 1.5 metres(m) from the centre line of existing trunk stormwater infrastructure (600mm diameter main).

As shown on drawing P200/C and architectural drawings, the building is more than 1.5m from the centre line of the pipeline.

1.2 Provide a section drawing of the encroachment of the single storey building into the existing drainage easement (north) and over the 150mm sewer reticulation main (south), which details the height of the roof and distance encroached into the easement/ over the sewer reticulation main.

As shown on drawing P200/C and architectural drawings, the building does not encroach into the easement.

1.3 Provide a copy of the 'Engineering Report & Stormwater Management Plan' and associated drawings, prepared by vT Consulting Engineers, which are certified by a Registered Professional Engineer of Queensland (RPEQ).

Please refer to the attached amended report and drawings.

1.4 Demonstrate the proposed development complies with Queensland Development Code (QDC), *Mandatory Part 1.4 "Building over or near relevant infrastructure"*.

A note on the 'Preliminary Bulk Earthworks – Layout Plan', drawing P200 Revision B, indicates the edge of the bored pier footing to be 1.0m from edge of the sewer and stormwater infrastructure, however, this is to be 1.2m in accordance with QDC MP1.4.

As shown on drawing P200/C, the bored piers are more than 1.2m from the edge of the buildings.

1.6 Council has concerns regarding the methodology used to determine the peak stormwater runoff from the site for the pre and post development scenarios and for the determination of the detention tank sizing. The runoff coefficient values for both scenarios should be determined from Table 4.5.3 in the *Queensland Urban Drainage Manual (QUDM)*. Clarify these issues and provide supporting calculations for the detention tank sizing.

Please refer to the attached amended report for the calculations relating to the pre and post development flows.

1.7 Demonstrate how the proposed development responds to the overland flooding and ensures non-worsening of conditions on the adjoining properties due to the proposed filling on the site.

The site is affected by overland flooding based on the *Wandal and West Rockhampton Local Catchment Study 2018*, as identified in the pre-lodgement meeting minutes. Please note this flood mapping is not yet adopted in the current *Rockhampton Region Planning Scheme 2015 (2.2)*.

The proposed development site does not appear to be impacted by flooding based on the 2014 AECOM Flood Fitzroy River Flood modelling maps.

As identified as part of the prelodgement meeting the 2018 mapping wasn't incorporated into the planning scheme and cannot be considered under the assessment benchmarks for a code assessable application.

Please do not hesitate to contact the undersigned should you require any further information.

Kind Regards



Andrew van Tonder  
Director, Civil Engineer (RPEQ)

Encl.

*Updated Civil Design Drawings.*

*Civil Engineering Report & Stormwater Management Plan, Doc. No. 21480-ENG-C.*





**25 Gillespie Street & 7,11 Murray  
Street, Wandal QLD 4700**  
Engineering Report & Stormwater  
Management Plan

February 2022  
Project No.: 21480  
Revision No.: C

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Document Status:

REVISION	PREPARED BY	REVIEWED BY	DATE
Draft	J. Kruger	S. Carroll	16/02/2022
A	S. Carroll	A. van Tonder	26/02/2022
B	S. Carroll	A. van Tonder	28/02/2022
C	S. Carroll	A. van Tonder <i>A van Tonder</i> RPEQ 16132	20/04/2022

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## 1. Introduction

vT Consulting Engineers has been commissioned by Property Projects Australia to prepare this engineering services report and stormwater management plan. The development is located at 25 Gillespie Street & 7,11 Murray Street, Wandal QLD 4700. The site locality is illustrated in Figure 1.1. This report is being submitted to support the Development Approval for the proposed child care development for Rockhampton Regional Council’s consideration.

The following report will detail civil engineering requirements for the development.

Street Address	25 Gillespie Street & 7,11 Murray Street, Wandal QLD 4700
Real Property Description	Lot 3 RP608365 and Lot 3 & 2 RP605719
Total Site Area	1909m <sup>2</sup>
Proposed Use	Proposed Childcare
Local Authority	Rockhampton Regional Council



Figure 1.1 Site Layout Plan (Google Maps)



### a. Existing Topography

The levels on the site range from approximately RL15.36 in the southwest corner to RL13.08 in the northeast corner of the site. The site is situated in a residential area, fronting Murray Street to the southwest and Gillespie Street in the northeast. The site is bounded by residential properties to the north and commercial properties to the south.

### b. Existing Land Use

The property is currently occupied by a single residential house on each of the three lots. There are existing hardstand areas around each house. The rest of the site is predominately grassed with a few large trees.

The existing house and structures are to be demolished and removed.

### c. Proposed Land Use

It is proposed to develop a child care development with onsite and on street carping and vehicle access from Murray Street.

Refer attached Appendix A for proposed layout plans and details.

## 2. Erosion and Sediment Control

Using the International Erosion Control Association's (IECA) Erosion Hazard Assessment Procedure AustIECA, 2016a), we believe the proposed development site represents an erosion risk as trigger values were equalled or exceeded and resulted in a total score of 17 (Refer Appendix B for Erosion Hazard Assessment Form). IECA requires that a preliminary Erosion and Sediment Control Plan (ESCP) be submitted to the local government for approval during the planning phase if the development obtains a total point score of 17 or greater or when any trigger value is scored or exceeded.

The construction contractor is responsible for ensuring that soil and debris does not leave the site as well as the confines of the construction zone and is not deposited on external roads or existing in-use areas due to the proposed earthworks and construction activity.

### *Acid Sulphate Soils*

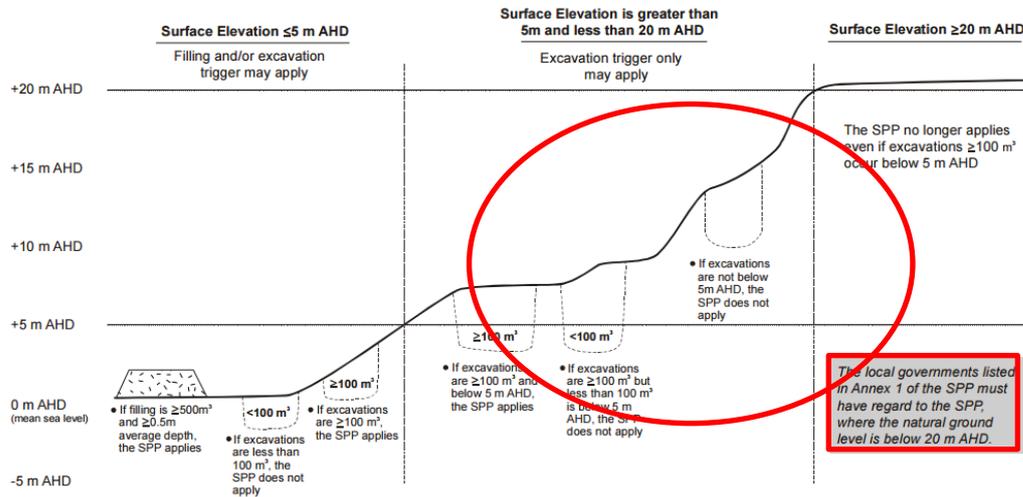
The local council is listed in the Glossary (Acid Sulphate soil affected area) in State Planning Policy July 2017, indicating that this development application may require compliance with the State Planning Policy July 2017 acid sulphate soils development objectives.

Acid sulphate soil testing is typically conducted in areas with reduced levels of less than 5.0m Australian Height Datum (AHD) as stated in State Planning Policy July 2017. This policy also states that developments below 20.0m AHD that involve a Material Change of Use or operational works are required to be assessed against the State Planning Policy July 2017 acid sulphate soils development objectives. As the lowest point on this site is an approximate level



of RL 13.08, we believe that there is a possibility of acid sulphate soil being present and therefore testing would be likely.

Figure 2.1 provides a visual aid to determining assessable development.



**Figure 2.1 Acid Sulphate Soils assessment diagram (Adapted from SPP Water Quality State Interest Guideline 2016)**

As the proposed excavations are not expected to be below RL5.0m AHD, the State Planning Policy does not apply.

The requirements for Acid Sulphate Testing will be confirmed by a geotechnical engineer prior to the detailed design stage of this proposed development.

**Land Disturbing Activities**

Important causes/issues of erosion for this site would consist of the following:

- Precipitation and consequent run-off
- Stripping and removal of topsoil
- Removal of fill
- Other earthwork operations
- Heavy vehicle use on site
- Wind erosion

The proposed development is a short construction period which will be programmed so that the shortest period of time elapses between ground cover removal and restoration.

**Erosion and Sediment Control Measures**

Sediment control filter fabric will be securely placed around the downstream boundaries of the construction site. This will ensure sediment is trapped before being released into the catchment. Refer Appendix C.



An ESC measure will be provided at any vehicular access points to the site. Construction and maintenance details are given in Appendix C. A temporary construction entrance will be provided from the adjacent roads for access during construction.

A filter sock sediment trap will be utilized on all downstream stormwater inlets. Refer Appendix C for construction and maintenance details.

No clearing will be undertaken unless preceded or accompanied by installation of adequate run-off and sediment control measures, as described above.

Following practical completion of the project a minimum of 70% coverage of all soil with ground cover (i.e. topsoiling and seeding) will be provided within 30 calendar days.

During the demolition and construction phases, spraying of water will be used with care to act as a dust suppression method.

#### ***Monitoring and Maintenance Programs***

Water discharge from the site will adhere to a total suspended solid content of less than 50 milligrams per litre and a pH range of between 6.5 and 8.5 at all times. If the pH of the flocculated water is not achieved, then pH adjustments will be required. This could possibly be done by a dosing of lime.

Site personnel will inspect all erosion and control measures at least at the following frequencies:

- Daily during construction works,
- Weekly when construction works are not happening,
- Within 24 hours of expected rain, and
- Within 18 hours of an impacting rainfall event.

All erosion and sediment control measures that have an order of efficiency below 75% will be corrected by the end of that working day.

### **3. Earthworks**

For the purpose of this proposed development earthworks will be conducted for constructing the new proposed building platforms and internal carparking. Retaining walls up to 1m high will be required. Excavation on site will be required for the service trenches. Any excess cut will need to be removed from the site by the contractor.

A geotechnical report will be prepared for the site during the detailed design stage.



## 4. Roadworks

The proposed development fronts onto Murray Street and Gillespie Street. Vehicle access to the site is proposed from Murray Street. A new crossover will be provided as shown on the proposed layout plans. Minor roadworks are proposed to incorporate off-street parking spaces on Murray Street.

Refer attached Appendix A for proposed layout plans and details.

## 5. Stormwater Drainage

### a. Existing Stormwater Drainage

There is an existing 600mm diameter trunk stormwater main which traverses through 7 Murray Street and 25 Gillespie Street. There is an existing easement in 25 Gillespie Street. The existing site stormwater generally sheet flows towards the northeast of the site into the existing kerb and channel of Gillespie Street before being conveyed to the existing gully pit in Gillespie Street. Figure 5.1 below shows the existing stormwater drainage in the area of the site.

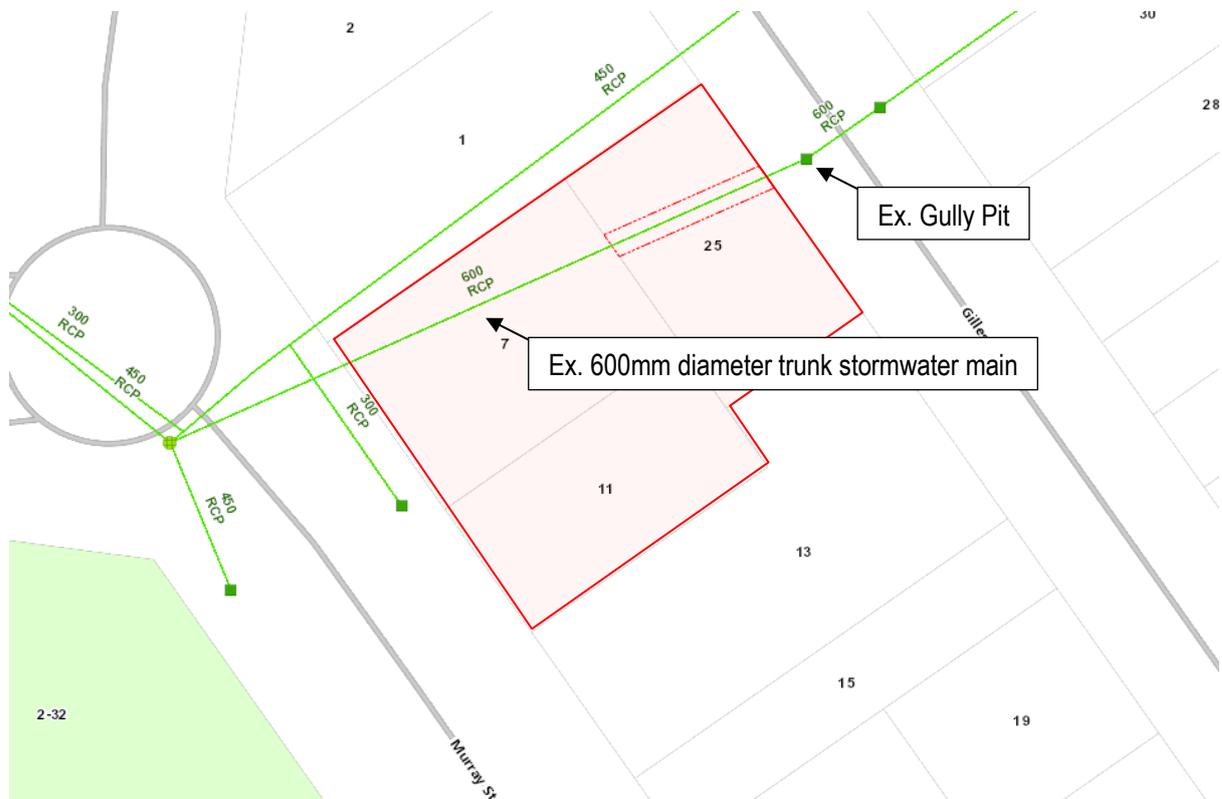


Figure 5.1 Rockhampton City Council Interactive Mapping - Stormwater Overlay

### b. Proposed Stormwater Drainage

It is proposed that stormwater runoff from the proposed development be directly discharged to the gully pit in Gillespie Street via a quantity treatment solution.

Refer to attached Appendix A for proposed layout plans and details.

### c. Stormwater Quality Management

#### *State Planning Policy*

The State Planning Policy (SPP) applies for stormwater quality management and management of new or expanded non-tidal artificial waterways applies to development that is outlined below in Table 5.1.

<b>SPP PART E: INTERIM DEVELOPMENT ASSESSMENT REQUIREMENTS. STATE INTEREST – WATER QUALITY</b>	<b>YES / NO</b>
<i>Material change of use for urban purposes that involves a land area greater than 2500m<sup>2</sup> that:</i>	
<i>will result in an impervious area greater than 25% of the net developable area</i>	<b>N/A</b>
<i>Will result in 6 or more dwellings</i>	<b>N/A</b>
<i>Reconfiguring a lot for urban purposes that involves a land area greater than 2500m<sup>2</sup> and will result in six or more lots:</i>	<b>NO</b>
<i>Operational works for urban purposes that involve disturbing more than 2500m<sup>2</sup> of land</i>	<b>NO</b>

**Table 5.1 Water Quality Objectives**

The proposed development does not trigger any applicable items in the above Table 5.1, therefore the SPP is not applicable and compliance is not expected by the local government authority.

### d. MUSIC Model

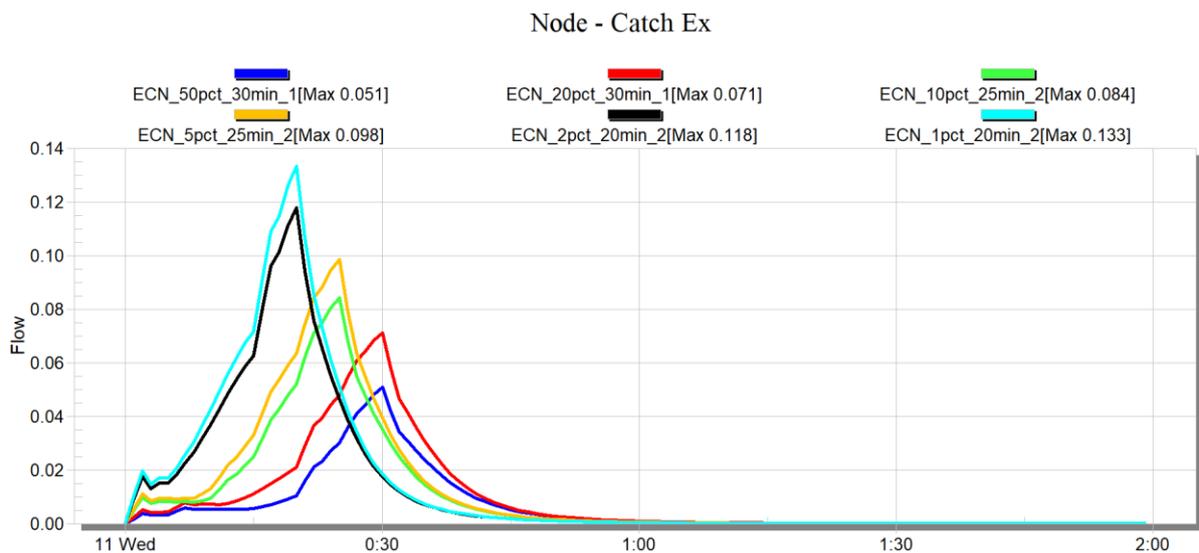
The site area is under 2500m<sup>2</sup> and so a MUSIC model has not been prepared.

## e. Stormwater Quantity Management

The proposed development will have a larger impervious area than the existing site and will require a stormwater detention system to mitigate the effects of the additional runoff.

The stormwater runoff from the development site will discharge into the proposed detention basin to ensure non-worsening effects on surrounding properties.

XP Storm is a software package for dynamic modelling of urban stormwater systems, river systems and floodplains. XP Storm was used to determine the required detention storage volume to ensure that the developed flow is equal to or less than the pre-development flow. The Laurensen method was used for determining the volume of runoff within the XP Storm model. Figure 5.4 shows the pre-development stormwater flows for various storm events. For clarity, only the maximum storm events for each return period are shown, the 25m storm event was determined to be the maximum storm for every return period modelled.



**Figure 5.4 Existing stormwater flows for various storm events**

As a check for the XP Storm model, the Rational Method was used as outlined in the Queensland Urban Drainage Manual, to determine the peak flow rate corresponding to the minor and major storm events for the existing conditions. It should be noted that the Rational Method was not used in the calculation of detention volumes but rather as a check that the peak flow outputs in the XP Storm model were feasible.

Table 5.7 below shows the peak stormwater discharge from the development site for existing conditions.

Runoff Coefficient (C <sub>10</sub> ) - Developed:	0.70	t <sub>c</sub> = 5 min.
Runoff Coefficient (C <sub>10</sub> ) - Undeveloped:	0.90	t <sub>c</sub> = 5 min.

PARAMETERS							
ARI		2yr	5yr	10yr	20yr	50yr	100yr
Rainfall Intensity	mm/hr	128	170	200	229	268	300
Frequency Factor	f <sub>y</sub> =	0.85	0.95	1.00	1.05	1.15	1.20
Undeveloped C	C <sub>u</sub> =	0.60	0.67	0.70	0.74	0.81	0.84
Developed C	C <sub>d</sub> =	0.77	0.86	0.90	0.95	1.00	1.00

FLOWS								
Undeveloped Flow	Q <sub>u</sub> = C*I*A	l/s	40.4	60.0	74.3	89.3	114.5	133.8
Developed Flow	Q <sub>d</sub> =Q <sub>i</sub> = C*I*A	l/s	52.0	77.2	95.6	114.9	142.3	159.3
Difference	Q <sub>o</sub> =	l/s	11.6	17.2	21.3	25.6	27.8	25.5

**Table 5.7 Peak Discharge using Rational Method**

Comparing the results from Figure 5.4 and Table 5.7, the relationship is good between the XP Storm and Rational method results and therefore the XP Storm model output is acceptable.

Settings within the XP Storm models are shown in Tables 5.8. Results summaries are shown in Tables 5.9.

PARAMETER	DETENTION TANK
Detention Volume (m <sup>3</sup> )	25.3
Base Area (m <sup>2</sup> )	19
Minor Orifice Area (m <sup>2</sup> )	0.0154 (0.14m dia)
Major Orifice IL Above Minor Orifice IL (m)	0.50
Major Orifice Area (m <sup>2</sup> )	0.0154 (0.14m dia)

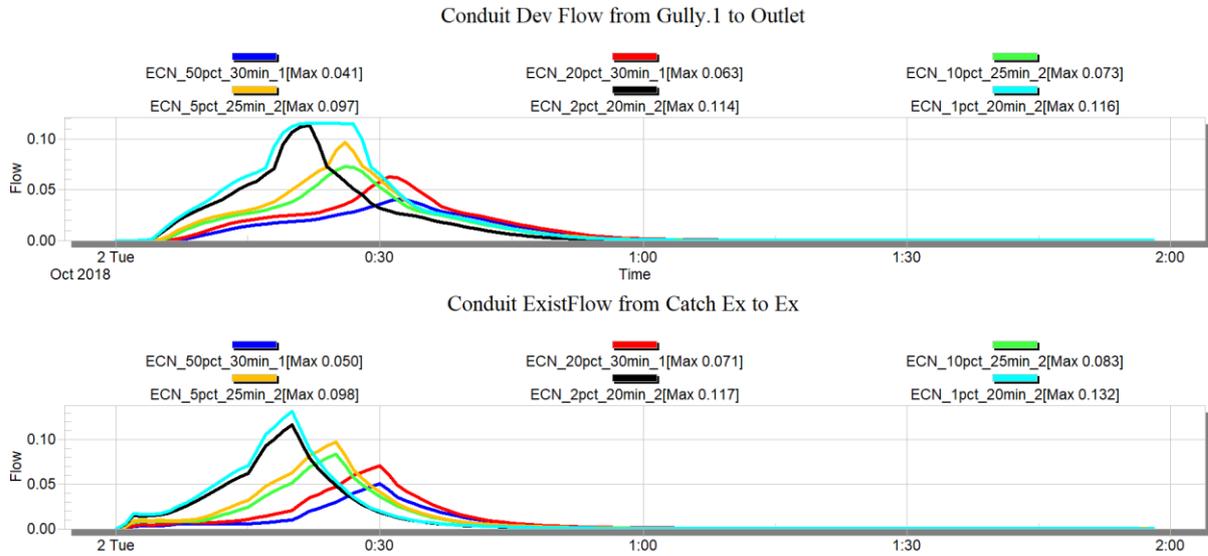
**Table 5.8 Detention Parameters**

EVENT	PRE-DEVELOPMENT (l/s)	POST-DEVELOPMENT (l/s)
2yr	51	41
5yr	71	63
10yr	84	73
20yr	98	97
50yr	118	114
100yr	133	116

**Table 5.9 Pre- and Post-Development outlet flows**



The detention basin was sized using the XP Storm model, the results of which are shown in Figures 5.5.



**Figure 5.5 Undeveloped vs. Developed stormwater flows for various storm events**

Figure 5.5 shows comparisons of the 2yr, 5yr, 10yr, 20yr, 50yr and 100yr flow events for pre- and post-development scenarios using a detention basin volume of **25.3m<sup>3</sup>** plus freeboard.



## f. Maintenance

### **Construction Phase Management Plan**

Potential construction phase impacts include the following:

- Sedimentation and erosion
- Management of contaminated soils and materials on the site Construction Material (such as cement)

### **General**

The objective of the Construction Phase Management Plan is to comply with the requirements of the Queensland Environmental Protection Act 1994 and Environmental Protection (Water) Policy 2009 so that the environmental values of effected receiving waters are maintained or enhanced. In essence the purpose of the Plan is to prevent polluted stormwater being discharged to the local waterways.

### **Performance Indicators**

The management is not being effective when any of the following occur during the construction phase of the project.

- The required water quality objectives are not achieved,
- Contaminated water is released off site.

### **Construction Phase Management of Sedimentation and Erosion**

Existing vegetation from site will be removed in stages as required to reduce the likelihood of surface erosion. A sediment and siltation fence will be erected around the property boundary to ensure that sediment is not washed off site and onto adjacent properties or roads. Entry and exit from the site will be restricted to a single stabilised location to minimise the rise of onsite transport of silt sediment or mud. It is anticipated that a layer of crushed rock will provide the necessary stabilisation of the access route. If required a specific bunded wash down area will be provided for the cleaning of plant before leaving the site and all wash down waste water will be collected. In the event that debris or sediment leaves the site it will be cleaned.

### **Management of Imported Materials**

Any material imported to the site including construction materials will be stockpiled in a location where it cannot contaminate the stormwater system or stormwater runoff.

### **Complaint Response**

The contractor will erect signage at the entrance to the works with contact information, including afterhours contact numbers. The contractor will properly deal with all complaints.

### **Monitoring and Reporting**

All sediment and erosion control devices will be checked daily and after rainfall events by the construction site supervisor. Defective or full devices will be cleaned and repaired as required. Regular inspections and maintenance of the storm water system will be carried out



by the property owner. The civil components (structural and erosion) are to be assessed by a suitably qualified engineer as required.

### **Stormwater Treatment Systems**

The design, installation and ongoing maintenance of the stormwater treatment systems is to be in accordance with the manufacturers specifications and in accordance with the service station operator maintenance guidelines and procedures.

It remains the service provider and user's responsibility to maintain the treatment and site in accordance with the current State Planning Policy and legislation requirements.

### **Lifecycle cost assessment**

There will be no abnormal capital or recurrent costs for the proposed stormwater strategy.

## **6. Flood Planning and Overland Flow**

The proposed development site does not appear to be impacted by flooding based on the 2014 AECOM Flood Fitzroy River Flood modelling maps.



## 7. Sewer Reticulation

An existing sewer connection to the proposed site exists from the sewer main. This connection will be reused for proposed development.

The proposed development is to be constructed clear of the existing sewer infrastructure traversing the site in accordance with Council's requirement not to build over service infrastructure.

For more details refer to the engineering plans in Appendix A.

Internal house drainage design for this proposed development will be by others.

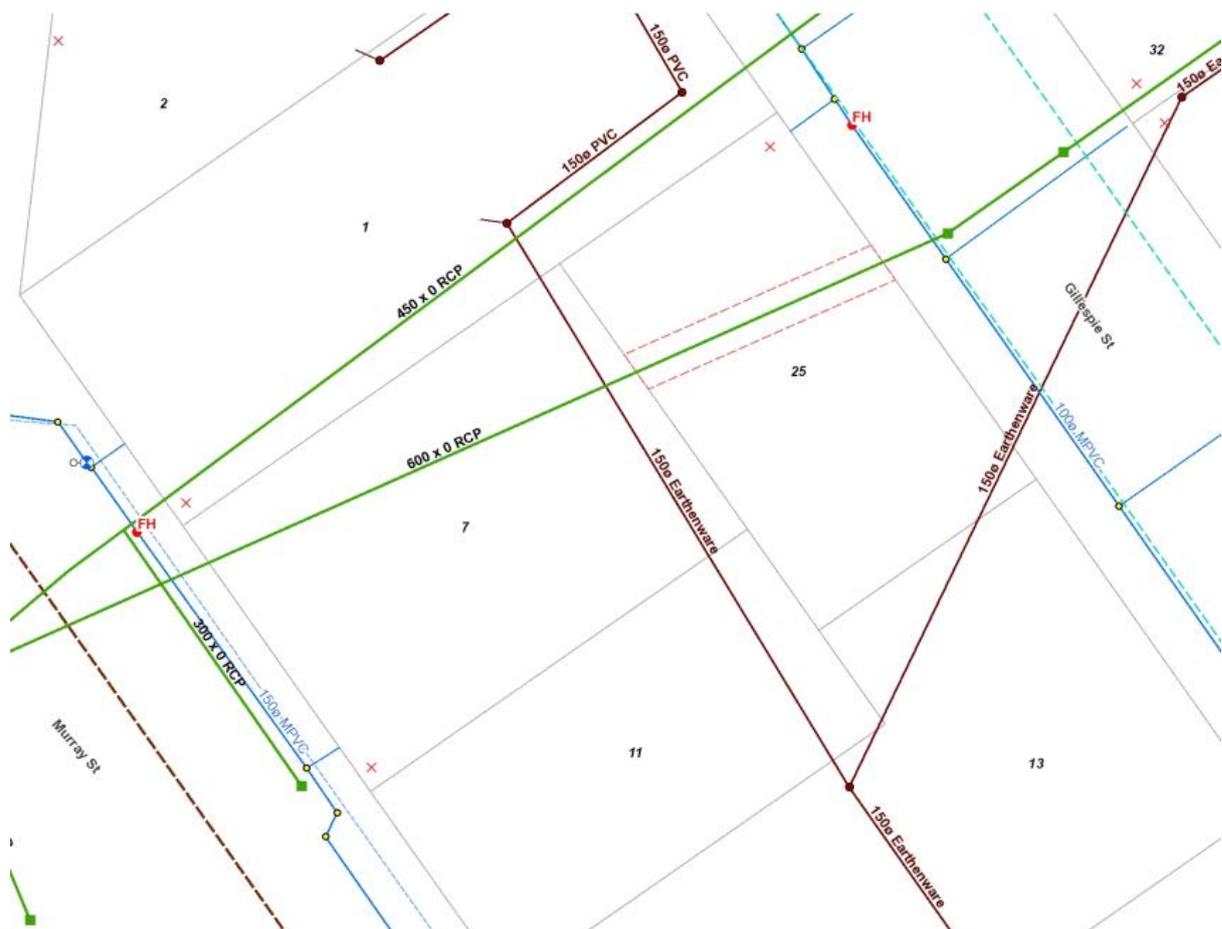


Figure 7.1 QUU DBYD sewer and reticulated water infrastructure plan

## 8. Water Reticulation

It is proposed to reuse the existing water connection provided to the site from the water main running along Murray Street for proposed development. A new connection will be established for proposed development. A hydrant exists in Murray Street and Gillespie Street to service the proposed development. Please refer to Figure 7.1.

For more details refer to the engineering plans in Appendix A.

The Internal water supply design for this proposed development will be by others.

## 9. Electrical and Telecommunication

The electrical supply and communications supply for this proposed development will be by others.

## 10. Safety in Design

At the time of preparing this report, it is considered that there is no atypical safety in design issues for a project of this type and use. Typical issues to be reviewed include but are not limited to construction activities, falls, confined spaces, excavations and hazardous materials.

A full review of and preparation of a Safety In Design report will be conducted during the detailed design of the project by the project design engineer. The ongoing implementation, review and amendments to the Safety in Design register is to be by the property owner or users.

## 11. Development Codes

The following applicable Local Codes have been completed to address the proposed development and are included in Appendix D:

- Stormwater Management Code
- Water and Sewer Code

## 12. Conclusions

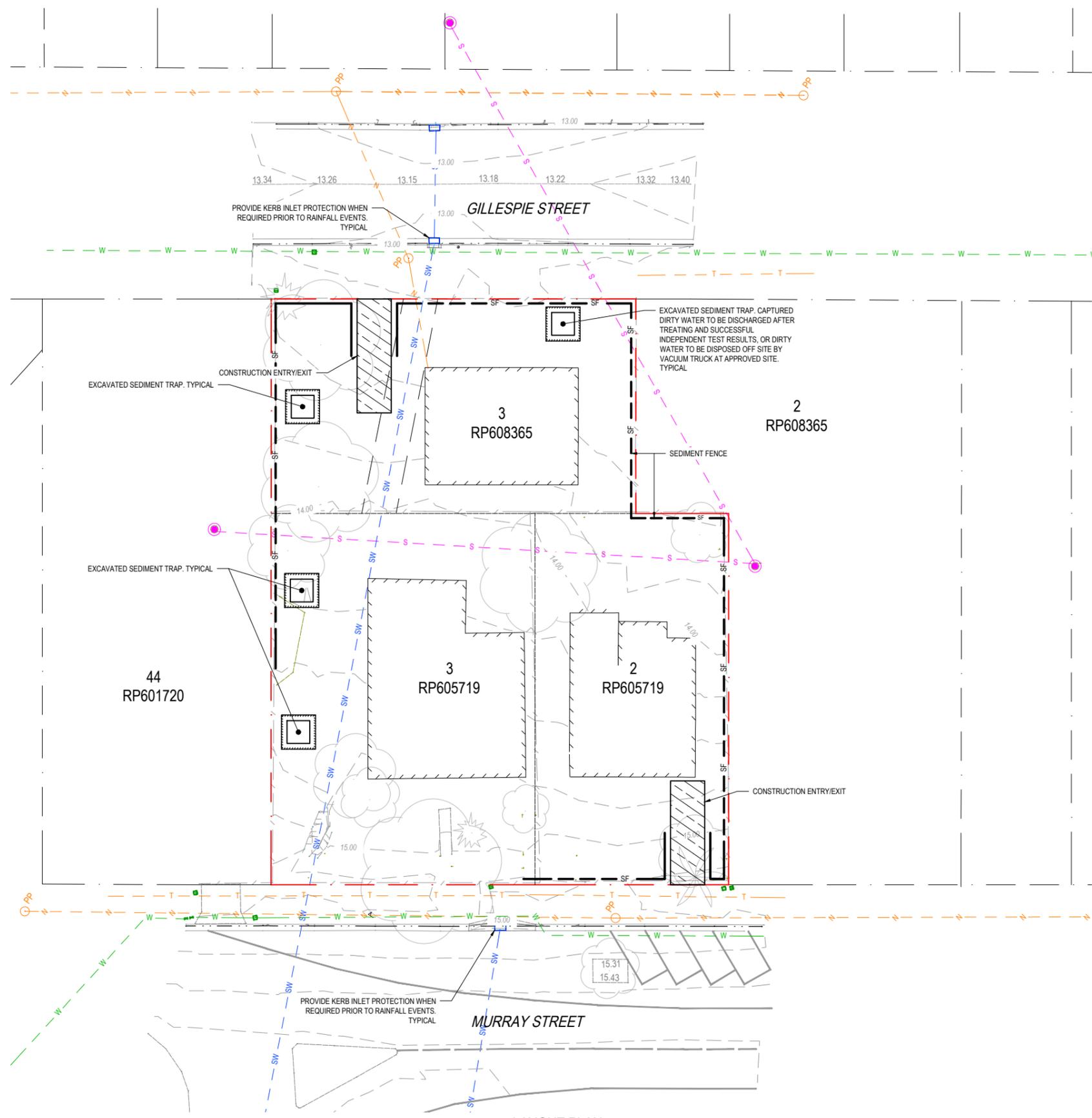
vT Consulting Engineers has undertaken a preliminary review of civil engineering services required for the proposed development located at 25 Gillespie Street & 7,11 Murray Street, Wandal QLD 4700.

Based on all the findings outlined in this report, vT Consulting Engineers believes that, should the recommendation contained within the report be implemented, there are no significant engineering issues in relation to this development.



### 13. References

- AustIECA (2016). Book 6 Standard Drawings. Accessed August 30 2016.  
[www.google.com.au/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=ieca%20standard%20drawings](http://www.google.com.au/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=ieca%20standard%20drawings)
- BCC (2014). Brisbane City Plan 2014 document – Schedule 6 – Infrastructure design priority infrastructure plan. Accessed September 17 2014. [www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/brisbane-city-plan-2014/document/schedule-6/infrastructure-design-pp](http://www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/brisbane-city-plan-2014/document/schedule-6/infrastructure-design-pp)
- BCC (2016a). Brisbane Standard Drawings (BSD), Brisbane City Council. Accessed August 30 2016.  
[www.google.com.au/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=bcc%20standard%20drawings](http://www.google.com.au/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=bcc%20standard%20drawings)
- BCC (2016b). Brisbane City Council Mapped Waterway Corridor Overlay  
<http://cityplan2014maps.brisbane.qld.gov.au/CityPlan/>. Accessed October 04 2016.
- BCC (2016c). Flood Awareness Map, Brisbane City Council. Accessed August 30 2016.  
<http://floodinformation.brisbane.qld.gov.au/fio/>
- Department of Infrastructure, Local Government and Planning (DILGP 2016a). State Planning Policy (SPP). Accessed August 30 2016. <http://www.dilgp.qld.gov.au/planning/state-planning-instruments/state-planning-policy.html>
- DILGP (2016b). State Planning Policy-State Interest Guideline, Water Quality. Accessed August 30 2016.  
<http://www.dilgp.qld.gov.au/resources/guideline/spp/spp-guideline-water-quality.pdf>
- GHD (2012). Port of Brisbane PTY LTD. Port of Brisbane Acid Sulphate Soil Management Plan. Accessed December, 07 2016. <https://www.portbris.com.au/PortBris/media/General-Files/Environment/PBPL-Acid-Sulfate-Soils-Management-Plan-2012.pdf>
- Google Earth (2016). Accessed August 30 2016. [www.google.com.au/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=google%20earth%20queensland](http://www.google.com.au/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=google%20earth%20queensland)
- PBPL (2015). Port of Brisbane Land Use Plan. Accessed December 07 2016. <file:///Z:/Standards/Design%20Info%20-%20Civil/Port%20of%20Brisbane%20Land%20Use%20Plan/Brisbane-Port-Land-Use-Plan-2015.pdf>
- Queensland Government (1994). *Environmental Protection Act*. Accessed August 30 2016.  
[www.legislation.qld.gov.au/legisln/current/e/envprota94.pdf](http://www.legislation.qld.gov.au/legisln/current/e/envprota94.pdf)
- Queensland Government (2009). *Environmental Protection (Water) Policy*. Accessed August 30 2016.  
[www.ehp.qld.gov.au/water/policy/](http://www.ehp.qld.gov.au/water/policy/)
- Water by Design (2006). Water Sensitive Urban Design, Technical Design Guidelines for South East Queensland. Accessed August 10 2016.  
[http://healthywaterways.org/u/lib/mob/20151210164506\\_9581d6262ed405324/2006\\_wsudtechdesignguidelines-4mb.pdf](http://healthywaterways.org/u/lib/mob/20151210164506_9581d6262ed405324/2006_wsudtechdesignguidelines-4mb.pdf)
- Water by Design (2010). *MUSIC Modelling Guidelines*. SEQ Healthy Waterways Partnership. Brisbane, Queensland. ISBN 978-0-9806278-4-8. Accessed 01 August 2016.  
[http://healthywaterways.org/u/lib/mob/20141110114128\\_5aed87c313f50ca3d/2010\\_musicmodellingguidelines\\_v10-025mb.pdf](http://healthywaterways.org/u/lib/mob/20141110114128_5aed87c313f50ca3d/2010_musicmodellingguidelines_v10-025mb.pdf)



**LEGEND**

---	EXISTING PROPERTY BOUNDARY
---	EXISTING EASEMENT BOUNDARY
---	EXISTING CONTOUR - MAJOR
---	EXISTING CONTOUR - MINOR
---	EXISTING BUILDING
---	EXISTING KERB AND CHANNEL
---	EXISTING KERB
---	EXISTING RETAINING WALL
---	EXISTING STORMWATER DRAINAGE
---	EXISTING ROOFWATER DRAINAGE
---	EXISTING SEWER
---	EXISTING WATER
---	EXISTING ELECTRICAL
---	EXISTING ELEC. OVERHEAD
---	EXISTING COMMUNICATIONS
---	ABANDON EXISTING SERVICE
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---	EARTHWORKS BOTTOM OF BATTER
---	RETAINING WALL
---	SEDIMENT FENCE
---	FENCE - TYPE 1
---	KERB AND CHANNEL
---	KERB
---	STORMWATER DRAINAGE
---	ROOFWATER DRAINAGE
---	SUBSOIL DRAIN
---	SEWER
---	WATER
---	EXISTING SURFACE LEVEL (ESL)
+	FINISHED SURFACE LEVEL (FSL)
x	BULK EARTHWORKS LEVEL (BEL)

- CONTRACTOR TO ENSURE SURROUNDING ROADS ARE KEPT CLEAN AND FREE OF DEBRIS DURING CONSTRUCTION. TYPICAL.
- CONTRACTOR TO PROVIDE TRAFFIC CONTROL (AS REQUIRED) AND ENSURE WORK ZONES ARE SAFE DURING CONSTRUCTION. TYPICAL.
- PROVIDE KERB INLET SEDIMENT PROTECTION AT ALL DOWNSTREAM GULLIES UPTO 50m FROM SITE. TYPICAL.
- SITE TO BE CLEARED IN PREPARATION FOR BUILDING CONSTRUCTION. ALL EXISTING STRUCTURES (INCLUDING ANY PILES) AND SITE IMPROVEMENTS TO BE DEMOLISHED AND REMOVED, UNLESS NOTED OTHERWISE.

**ROCKHAMPTON REGIONAL COUNCIL**  
**APPROVED PLANS**  
 These plans are approved subject to the current conditions of approval associated with  
**Development Permit No.: D/20-2022**  
**Dated: 27 June 2022**

**LAYOUT PLAN**  
SCALE 1:200



REV.	DATE	AMENDMENT	BY	APP.
C	20.04.22	GENERAL AMENDMENTS	AvT	AvT
B	28.02.22	GENERAL AMENDMENTS	TQ	AvT
A	26.02.22	ORIGINAL ISSUE	TQ	AvT

**VT CONSULTING ENGINEERS**  
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SCALE: AS SHOWN	DRAWN: TQ
SHEET SIZE: A1	DESIGN: AvT
DATUM: AHD	CHECKED: AvT
APPROVED: <i>AvanTonder</i>	A. VAN TONDER
RPEQ: 16132	DATE: 20.04.22

PROJECT: COMMERCIAL DEVELOPMENT  
 25 GILLESPIE ST, WANDAL, ROCKHAMPTON QLD 4700  
 DRAWING TITLE: PRELIMINARY EROSION AND SEDIMENT CONTROL LAYOUT PLAN

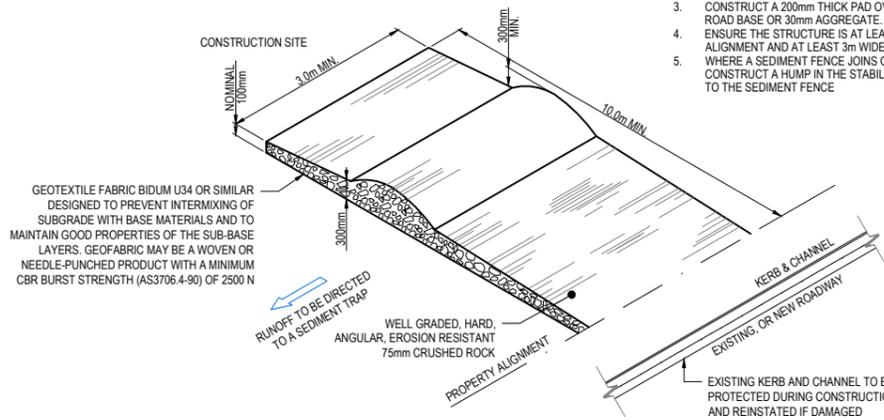
JOB No.: 21480
DRAWING No.: P100
REV.: C

PLOTTED: 20.04.2022



**CONSTRUCTION ENTRY/ EXIT NOTES**

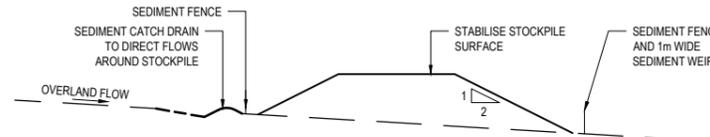
1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.



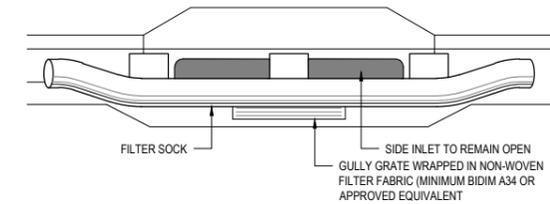
**TYPICAL CONSTRUCTION ENTRY/ EXIT**  
NOT TO SCALE

**STOCKPILE NOTES**

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.

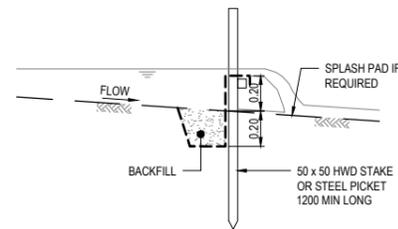


**TYPICAL STOCKPILE**  
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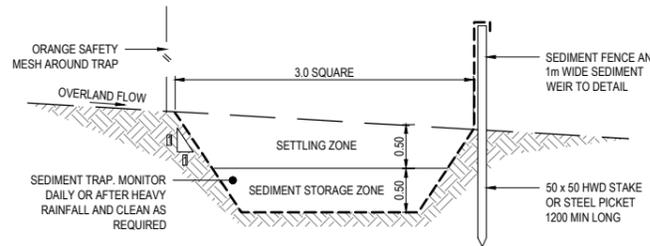


NOTE:  
• INLET SEDIMENT TRAP TO BE PLACED ON ALL EXISTING INLETS WITHIN 50m OF SITE  
• INLET SEDIMENT TRAP MAY BE OMITTED WHERE IT CAUSES A SAFETY HAZARD, BUT IS TO BE PROVIDED PRIOR TO A RAINFALL EVENT

**TYPICAL KERB INLET SEDIMENT TRAP**  
NOT TO SCALE



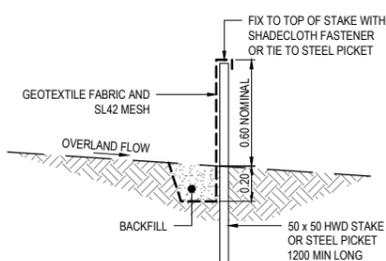
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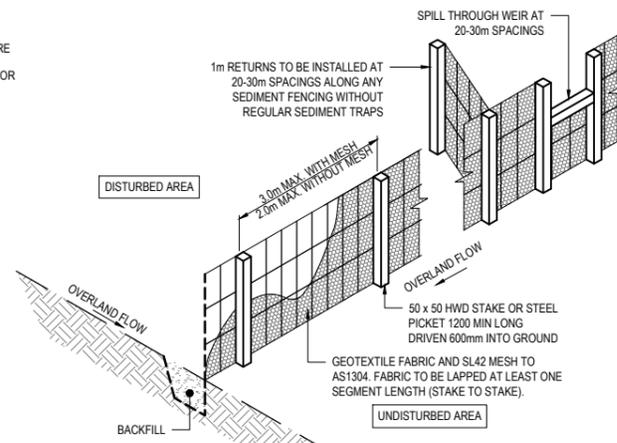
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NOT TO SCALE

**SEDIMENT FENCE NOTES**

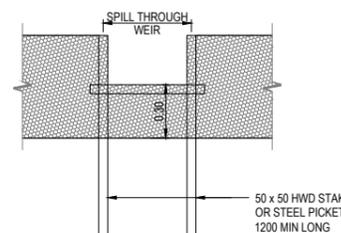
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50L/s IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND AT INTERVALS EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



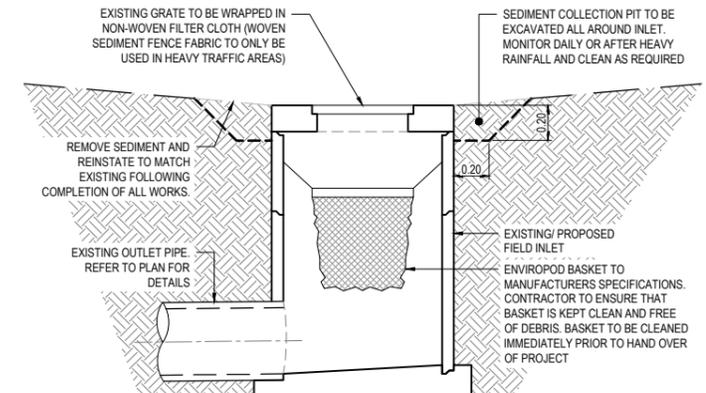
**TYPICAL SEDIMENT FENCE SECTION**  
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**TYPICAL SEDIMENT FENCE ELEVATION**  
NOT TO SCALE



**TYPICAL SEDIMENT WEIR ELEVATION**  
NOT TO SCALE



**TYPICAL FIELD INLET SEDIMENT TRAP**  
NOT TO SCALE

**ROCKHAMPTON REGIONAL COUNCIL**  
**APPROVED PLANS**  
These plans are approved subject to the current conditions of approval associated with  
**Development Permit No.: D/20-2022**  
**Dated: 27 June 2022**

PLOTTED: 20/04/2022

REV.	DATE	AMENDMENT	BY:	APP:
C	20.04.22	GENERAL AMENDMENTS	AvT	AvT
B	28.02.22	GENERAL AMENDMENTS	TQ	AvT
A	26.02.22	ORIGINAL ISSUE	TQ	AvT

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P: 1300 185 737  
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CLIENT: **TALIB PROJECTS**

SCALE: AS SHOWN  
SHEET SIZE: A1  
DATUM: AHD

DRAWN: TQ  
DESIGN: AvT  
CHECKED: AvT

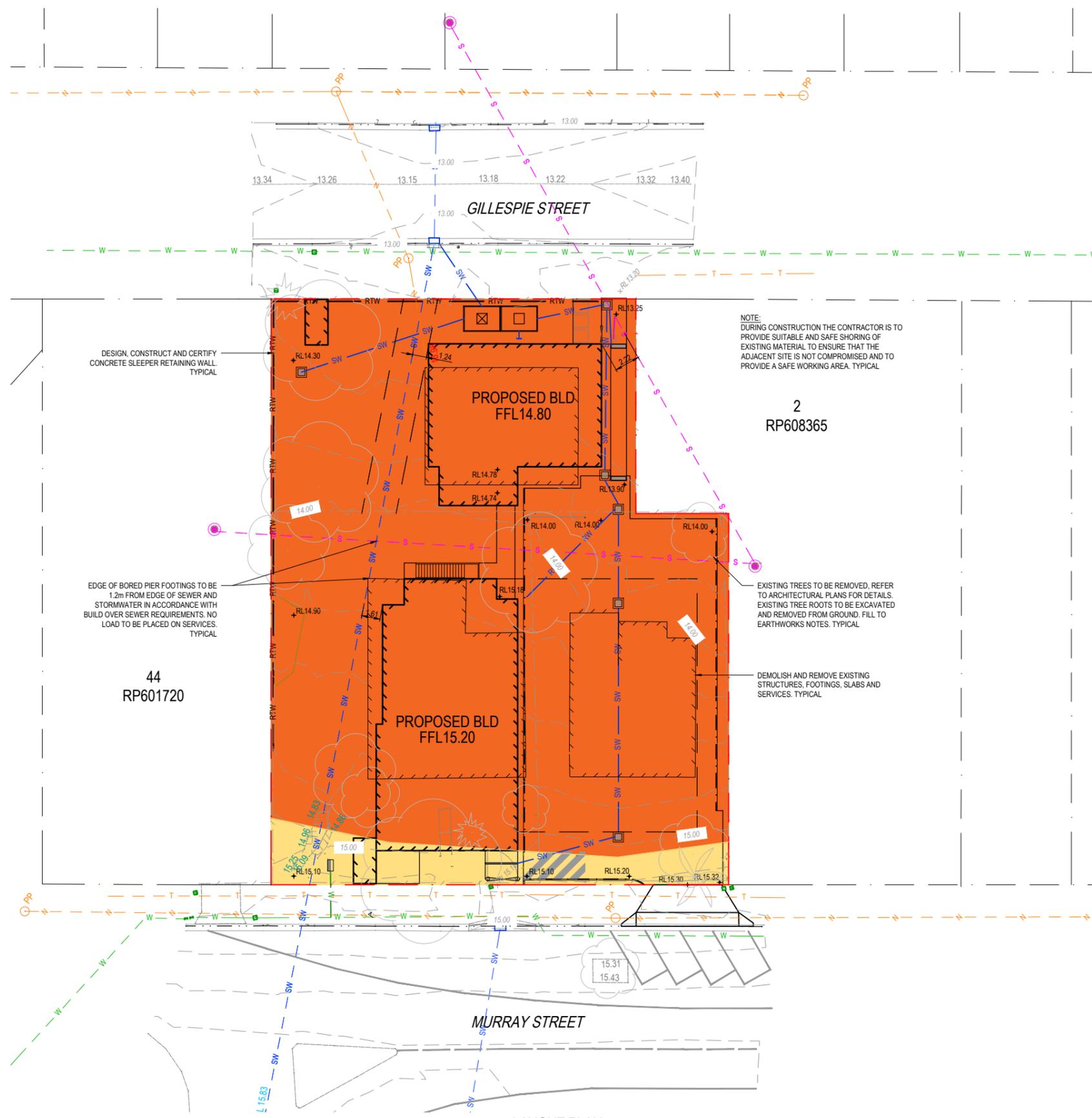
APPROVED: *A. Van Tonder*  
A. VAN TONDER  
RPEQ: 16132 DATE: 20.04.22

PROJECT: **COMMERCIAL DEVELOPMENT**  
25 GILLESPIE ST, WANDAL, ROCKHAMPTON QLD 4700

DRAWING TITLE: **PRELIMINARY EROSION AND SEDIMENT CONTROL DETAILS**

JOB No.: **21480**

DRAWING No.: **P110**  
REV.: **C**



**LEGEND**

---	EXISTING PROPERTY BOUNDARY
---	EXISTING EASEMENT BOUNDARY
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---	EXISTING KERB
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---	EXISTING ROOFWATER DRAINAGE
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---	FENCE - TYPE 1
---	KERB AND CHANNEL
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---	SUBSOIL DRAIN
---	SEWER
---	WATER
---	EXISTING SURFACE LEVEL (ESL)
---	FINISHED SURFACE LEVEL (FSL)
---	BULK EARTHWORKS LEVEL (BEL)

**EARTHWORKS VOLUMES**

APPROXIMATE INSITU EARTHWORKS VOLUMES FROM STRIPPED SURFACE LEVEL TO BULK EARTHWORKS LEVEL HAVE BEEN CALCULATED AS:

█	CUT
█	FILL

VOLUMES PROVIDED ARE INDICATIVE ONLY AND THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE VOLUMES PRIOR TO TENDERING AND CONSTRUCTION. REFER TO STRUCTURAL ENGINEERS DETAILS FOR SAFE BEARING CAPACITY REQUIREMENTS. NO ALLOWANCE HAS BEEN MADE FOR EXCAVATION OF STRUCTURAL FOOTING, SERVICE TRENCHES OR PITS.

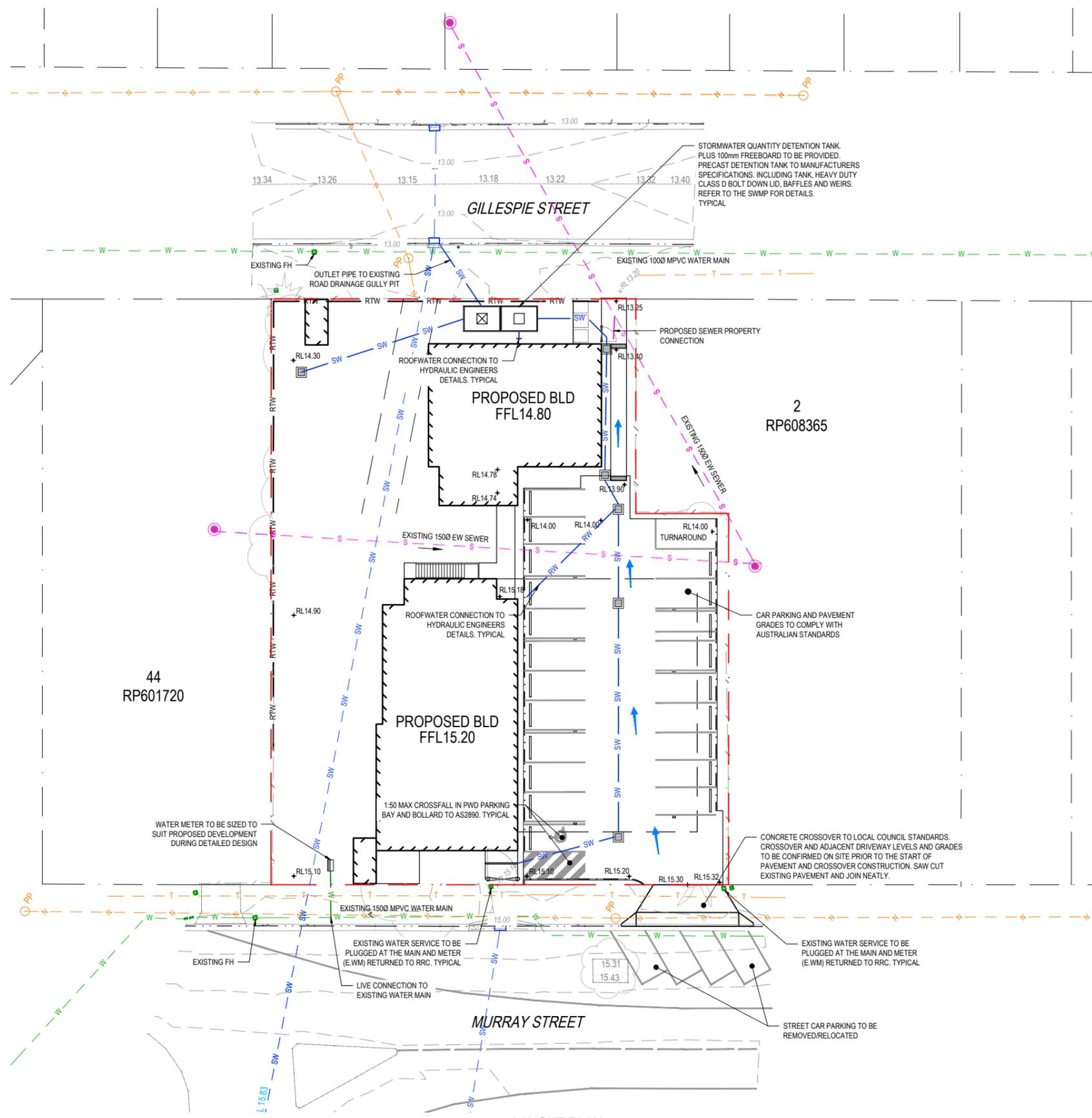
**ROCKHAMPTON REGIONAL COUNCIL**  
**APPROVED PLANS**

These plans are approved subject to the current conditions of approval associated with  
**Development Permit No.: D/20-2022**  
**Dated: 27 June 2022**

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	REV.	DATE	AMENDMENT	BY	APP.																					
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A	26.02.22	ORIGINAL ISSUE	TQ	AvT																						
SHEET SIZE: A1	DESIGN: AvT	DATUM: AHD	CHECKED: AvT	DRAWING TITLE: PRELIMINARY BULK EARTHWORKS LAYOUT PLAN	DRAWING No.: P200 <small>PRELIMINARY</small>	REV.: C																				
APPROVED: A. VAN TONDER RPE: 16132 DATE: 20.04.22			COPYRIGHT: THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF VT CONSULTING ENGINEERS. THIS DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT. UNAUTHORISED USE OF THIS DOCUMENT IN ANY FORM WHATSOEVER IS PROHIBITED.		PROJECT: COMMERCIAL DEVELOPMENT 25 GILLESPIE ST, WANDAL, ROCKHAMPTON QLD 4700 JOB No.: 21480																					



PLOTTED: 20.04.2022



LEGEND	
	EXISTING PROPERTY BOUNDARY
	EXISTING EASEMENT BOUNDARY
	EXISTING CONTOUR - MAJOR
	EXISTING CONTOUR - MINOR
	EXISTING BUILDING
	EXISTING KERB AND CHANNEL
	EXISTING KERB
	EXISTING RETAINING WALL
	EXISTING STORMWATER DRAINAGE
	EXISTING ROOFWATER DRAINAGE
	EXISTING SEWER
	EXISTING WATER
	EXISTING ELECTRICAL
	EXISTING ELEC. OVERHEAD
	EXISTING COMMUNICATIONS
	ABANDON EXISTING SERVICE
	PROPERTY BOUNDARY
	EASEMENT BOUNDARY
	CONTOUR - MAJOR
	CONTOUR - MINOR
	BUILDING
	EARTHWORKS TOP OF BATTER
	EARTHWORKS BOTTOM OF BATTER
	RETAINING WALL
	SEDIMENT FENCE
	FENCE - TYPE 1
	KERB AND CHANNEL
	KERB
	STORMWATER DRAINAGE
	ROOFWATER DRAINAGE
	SUBSOIL DRAIN
	SEWER
	WATER
	EXISTING SURFACE LEVEL (ESL)
	FINISHED SURFACE LEVEL (FSL)
	BULK EARTHWORKS LEVEL (BEL)

**NOTES:**  
 1. EXISTING SEWER LOCATION AND INVERT LEVELS TBC ON SITE PRIOR TO THE START OF CONSTRUCTION.

**ROCKHAMPTON REGIONAL COUNCIL**  
**APPROVED PLANS**  
 These plans are approved subject to the current conditions of approval associated with  
**Development Permit No.: D/20-2022**  
**Dated: 27 June 2022**

**LAYOUT PLAN**  
SCALE 1:200

<table border="1"> <tr> <td>C</td> <td>20.04.22</td> <td>GENERAL AMENDMENTS</td> <td>AvT</td> <td>AvT</td> </tr> <tr> <td>B</td> <td>28.02.22</td> <td>GENERAL AMENDMENTS</td> <td>TQ</td> <td>AvT</td> </tr> <tr> <td>A</td> <td>26.02.22</td> <td>ORIGINAL ISSUE</td> <td>TQ</td> <td>AvT</td> </tr> <tr> <td>REV.</td> <td>DATE:</td> <td>AMENDMENT:</td> <td>BY:</td> <td>APP.</td> </tr> </table>	C	20.04.22	GENERAL AMENDMENTS	AvT	AvT	B	28.02.22	GENERAL AMENDMENTS	TQ	AvT	A	26.02.22	ORIGINAL ISSUE	TQ	AvT	REV.	DATE:	AMENDMENT:	BY:	APP.	 PO Box 36, Carina QLD 4152 E: admin@vtce.com.au Ph: 1300 185 737 W: vtce.com.au
C	20.04.22	GENERAL AMENDMENTS	AvT	AvT																	
B	28.02.22	GENERAL AMENDMENTS	TQ	AvT																	
A	26.02.22	ORIGINAL ISSUE	TQ	AvT																	
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CLIENT:	SCALE: AS SHOWN	DRAWN: TQ	PROJECT:	JOB No.:
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	DATUM: AHD	CHECKED: AvT	25 GILLESPIE ST, WANDAL, ROCKHAMPTON QLD 4700	
		APPROVED:	DRAWING TITLE:	DRAWING No.:
		RPEQ: 16132 DATE: 20.04.22	PRELIMINARY SERVICES LAYOUT PLAN	P300
				REV: C

PLOTTED: 21.04.2022





**NOISE IMPACT ASSESSMENT**  
**PROPOSED CHILDCARE CENTRE**  
**7 &11 MURRAY STREET AND 25 GILLESPIE STREET**  
**WANDAL**

**ROCKHAMPTON REGIONAL COUNCIL**

**APPROVED PLANS**

These plans are approved subject to the current conditions of approval associated with

**Development Permit No.:** D/20-2022

**Dated:** 27 June 2022

**Prepared for:**  
Property Projects Australia Pty Ltd

**Prepared by:**  
MWA Environmental

**28 February 2022**

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Job No: 21-202

Original Date of Issue: 28 February 2022

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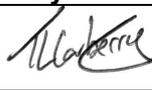
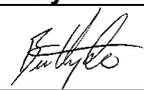
Title: Noise Impact Assessment – Proposed Childcare Centre –  
7 & 11 Murray Street and 25 Gillespie Street, Wandal

Principal Author: Mr Travis Carberry

Client: Property Projects Australia Pty Ltd

Client Contact: Mr Sam West

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**FIGURES****ATTACHMENTS**

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## 1.0 INTRODUCTION

### 1.1 STUDY BRIEF

MWA Environmental has been engaged to prepare a Noise Impact Assessment for a childcare centre development at 7 & 11 Murray Street and 25 Gillespie Street, Wandal.

This assessment has considered the potential noise amenity impact of the proposed childcare centre upon nearby sensitive receptors. The assessment is based on ambient noise monitoring conducted on site, noise measurements previously conducted on typical sources associated with the proposed use and detailed noise propagation modelling.

### 1.2 SITE DESCRIPTION

The subject site is located at 7 & 11 Murray Street and 25 Gillespie Street, Wandal and has a real property description of Lots 2 & 3 on RP605719 and Lot 3 on RP608365.

Residential uses are located adjacent the site to the northwest and to the northeast, across Gillespie Street. Murray Street adjoins the site to the southwest, with The Hall State School located beyond. Commercial uses adjoin the site to the southeast.

It is considered that there is no significant risk of adverse noise impacts from The Hall State School (an educational use) upon the proposed childcare centre use (another educational use), or vice versa, as the two uses are fundamentally compatible and generate similar noise emissions (i.e. children playing and car parking etc.).

The site location and surrounding land uses are shown on **Figure 1**.

### 1.3 PROPOSED DEVELOPMENT

The proposed development is for a two storey, 90 place childcare centre with associated outdoor play areas and carparking. The development provides 21 car parking bays on the southern part of the site, accessed via a driveway from Murray Street. An additional 5 car parking bays are located on Murray Street. Outdoor play areas are proposed on the northern and eastern parts of the site at ground floor level and at the first floor level to the south of the building.

The development plans are included as **Attachment 1**.

The proposed operating hours for the childcare centre are 6:30am to 6:30pm Monday to Friday.

## 2.0 EXISTING NOISE ENVIRONMENT

To enable an assessment of the existing noise environment at the surrounding residential land uses, noise measurements have been undertaken using a noise datalogger located towards the centre of the site over an 8-day period from 2 to 9 February 2022. The statistical noise levels recorded by the noise datalogger are listed below in **Table 1**, with the logger location provided on **Figure 2**.

The noise datalogger used was a Rion NL-42, programmed to provide statistical analysis results based on 15-minute sampling periods. The datalogger was pre-calibrated to 94 dB at 1kHz using a Bruel & Kjaer Sound Level Calibrator, Type 4231, and displayed a deviation of less than  $\pm 0.5$  dB from this level at post-calibration. Weather conditions during the monitoring period were generally fine with light to moderate winds.

The results of the datalogger noise monitoring are provided in **Table 1**. The recorded noise levels are presented as statistical components, which are described as:

- L<sub>1</sub>: Noise level exceeded for 1 percent of the measurement period, referred to as the adjusted maximum sound pressure level.
- L<sub>10</sub>: Noise level exceeded for 10 percent of the measurement period, referred to as the averaged maximum sound pressure level.
- L<sub>90</sub>: Noise level exceeded for 90 percent of the measurement period. AS1055-2018<sup>1</sup> notes that the L<sub>90</sub> is described as the background sound pressure level.
- L<sub>eq</sub>: An “average” measurement, and as per AS1055–2018 defined as the value of the sound pressure level of a continuous steady sound state, that within a measurement period, has the same mean square sound pressure as a sound under consideration whose level varies with time.

---

<sup>1</sup> Australian Standard AS 1055-2018 *Acoustics – Description and measurement of environmental noise*

**Table 1: Ranges of Site Recorded Noise Levels  
2 to 9 February 2022**

PARAMETER	PERIOD	RECORDED NOISE LEVELS - dB(A)		
		MINIMUM	MAXIMUM	AVERAGE
L <sub>1</sub>	Daytime (7am-6pm)	52.5	75.7	61.3
	Evening (6pm-10pm)	45.7	76.5	56.4
	Nighttime (10pm-7am)	41.8	78.3	52.1
L <sub>10</sub>	Daytime (7am-6pm)	47.7	63.2	53.5
	Evening (6pm-10pm)	43.0	75.0	50.1
	Nighttime (10pm-7am)	40.4	66.9	47.3
L <sub>90</sub>	Daytime (7am-6pm)	40.3	53.5	45.1
	Evening (6pm-10pm)	39.5	72.1	44.9
	Nighttime (10pm-7am)	39.0	58.7	43.3
L <sub>eq</sub>	Daytime (7am-6pm)	46.3	62.3	51.7
	Evening (6pm-10pm)	42.0	73.6	48.8
	Nighttime (10pm-7am)	39.8	63.9	46.5

The datalogger recorded noise levels are included as graphical traces of noise level versus time for the statistical noise level descriptors L<sub>1</sub>, L<sub>10</sub>, L<sub>90</sub> and L<sub>eq</sub> as **Attachment 2**.

Key recorded statistical noise level parameters are presented below.

Early Morning Background Level 6:30am to 7am	=	43 dB(A)
Weekday Rating Background Level 7am to 6pm	=	43 dB(A)
Early Evening Background Level 6pm to 6:30pm	=	42 dB(A)

### 3.0 NOISE CRITERIA

The Rockhampton Regional Planning Scheme does not provide specific noise criteria or goals for new developments although reference is made to the Environmental Protection Policy ('EPP') within the scheme.

### 3.1 ACOUSTIC QUALITY OBJECTIVES

The *Environmental Protection (Noise) Policy 2019* specifies Acoustic Quality Objectives for sensitive receptors to enhance or protect acoustic amenity. The applicable Acoustic Quality Objectives from Schedule 1 of the policy are presented in **Table 2**.

**Table 2: Adopted Acoustic Quality Objectives**

SENSITIVE RECEPTOR	PERIOD	ACOUSTIC QUALITY OBJECTIVES (MEASURED AT THE RECEPTOR) dB(A)			ENVIRONMENTAL VALUE
		( $L_{Aeq,adj,1-hour}$ )	( $L_{A10,adj,1-hour}$ )	( $L_{A1,adj,1-hour}$ )	
Dwelling (for outdoors)	7am to 10pm	50	55	65	Health and wellbeing
Dwelling (for indoors)	7am to 10pm	35	40	45	Health and wellbeing
	10pm to 7am	30	35	40	Health and wellbeing in relation to the ability to sleep

Previous experience with noise measurements conducted at similar facilities demonstrates that the most stringent of the Acoustic Quality Objective parameter for dwellings are the  $L_{Aeq}$  levels for each period of the day.

Comparison of the Acoustic Quality Objectives and the measured existing noise levels at the subject site, as presented in **Table 1**, demonstrates that the Acoustic Quality Objectives are currently exceeded at the locality due noise from existing surrounding land uses and local road transport noise. Therefore, the Acoustic Quality Objectives are not considered the appropriate basis for determination of project noise criteria to prevent environmental nuisance at surrounding residential land uses.

### 3.2 CONTROLLING BACKGROUND CREEP

Part 4, Section 10 of the *Environmental Protection (Noise) Policy (2008)* provides 'controlling background creep' noise criteria for the assessment of amenity impacts for an activity involving noise from the development (such as vehicle movements, car parking, outdoor play activity and mechanical plant and equipment).

Considering the nature of noise emissions from a childcare centre, the relevant 'controlling background creep' criteria are those specified for both 'continuous noise and noise that varies over time', as follows:

#### 10 Controlling Background Creep

(1) *This section states the management intent for an activity involving noise.*

*Note—*

*See section 51 of the Environmental Protection Regulation 2008.*

(2) *To the extent that it is reasonable to do so, noise from an activity must not be—*

- (a) *for noise that is continuous noise measured by  $L_{A90,T}$  – more than nil dB(A) greater than the existing acoustic environment measured by  $L_{A90,T}$ ; or*
- (b) *for noise that varies over time measured by  $L_{Aeq,adj,T}$  – more than 5 dB(A) greater than the existing acoustic environment measured by  $L_{A90,T}$ .*

As such, the adopted noise criteria for this assessment of noise impacts from the proposed development are that:

- the noise from **mechanical plant** (continuous steady-state noise) measured as the  $L_{A90,adj,T}$  does not exceed the otherwise prevailing  $L_{A90,T}$ ; and
- the **overall noise** from the use measured as the  $L_{Aeq,adj,T}$  including vehicle and operation activities (noise that varies over time) does not exceed the otherwise prevailing  $L_{A90,T}$  by more than 5 dB(A).

The applicable criteria are presented in **Table 3**.

**Table 3: Adopted Background Creep Noise Criteria**

Period	Rating Background Noise Level ( $L_{A90}$ ) – dB(A)	Mechanical Plant Noise Criteria ( $L_{A90}$ ) – dB(A)	Overall Noise Criteria ( $L_{Aeq}$ ) – dB(A)
Daytime (7:00am to 6:00pm)	43	43	48
Evening (6:00pm to 6:30pm)	42	42	47
Night-time (6:30am to 7:00am)	43	43	48

### 3.3 SLEEP DISTURBANCE

As the site will operate during the night period (6:30am to 7am) it is appropriate to consider the potential for sleep disturbance at nearby sensitive receptors. Queensland *Ecoaccess Guideline: Noise - Planning for Noise Control* (2016) indicates that unreasonable sleep disturbance impacts due to maximum instantaneous noise levels from events such as car starts and door slams can occur at levels of 45 to 50 dB(A) within a bedroom, depending upon the number of noise events per night. Consideration of potential sleep disturbance noise criteria should also give regard to the existing noise environment i.e. whether existing noise from vehicles on public roads results in noise levels above the default planning criteria.

The average measured  $L_{A1}$  noise level<sup>2</sup> between 6:30am and 7:00am at a location representative of the surrounding residential dwellings was 61 dB(A). Based on the measured noise levels on site, the higher sleep disturbance noise criterion of 50 dB(A)  $L_{Amax}$  within a bedroom has been adopted for assessment of noise peaks from the development during the 6:30 to 7am night period. Adopting a typical 7<sup>3</sup> dB(A) noise reduction through an open window relates to a **sleep disturbance criterion of  $L_{Amax}$  57 dB(A) external to a bedroom window.**

---

<sup>2</sup> the noise level exceeded for 1% of the time

<sup>3</sup> AS3671 states approximate 10 dB(A) noise reduction through a façade with 10% open area. Thus approximately 7 dB(A) noise reduction through a façade with 20% open area. A large 1200x1800 sliding window relates to approximately 10% open area. A large 2100x2300 sliding glass door represents approximately 20% open area. Thus, 7dB(A) noise reduction is conservatively adopted based upon a large sliding glass door in the affected façade. Openings larger than 20% open area are unlikely to be necessary for ventilation during the night period.

## 4.0 NOISE IMPACT ASSESSMENT

### 4.1 NEAREST NOISE SENSITIVE RECEPTORS

The six (6) nearest surrounding sensitive land uses (residential uses to the north and east) that have been identified and considered as noise sensitive receptors for the purposes of this assessment are the following properties:

- R1: Double storey residential apartments at 1 Murray Street to the north of the subject site.
- R2: Double storey residential dwelling at 34 Gillespie Street to the east of the subject site, across Gillespie Street.
- R3: Double storey residential dwelling at 32 Gillespie Street to the east of the subject site, across Gillespie Street.
- R4: Single storey residential dwelling at 30 Gillespie Street to the east of the subject site, across Gillespie Street.
- R5: Double storey residential dwelling at 28 Gillespie Street to the east of the subject site, across Gillespie Street.
- R6: Double storey residential dwelling at 26 Gillespie Street to the east of the subject site, across Gillespie Street.

The nominated receptors are shown on an aerial image base on **Figure 3**.

### 4.2 MECHANICAL PLANT NOISE

No detailed specification for external mechanical plant associated with the development is available at this stage. However, external mechanical plant is likely to include split system air-conditioning units and exhaust fans for the kitchen and amenities.

The appropriate noise criteria for the assessment of plant noise impact from any external plant and equipment is 42 dB(A) for the proposed operating hours.

The relevant noise criteria apply to surrounding sensitive land uses which include residential uses to the north and east. Any mechanical plant and equipment associated with the development should thus be selected, located and acoustically treated and/or shielded to achieve the relevant noise criteria.

The relevant noise criteria do not necessarily apply to a single item of plant, but rather should constitute the additive noise component levels of all plant and equipment in operation during the assessed period, measured at the nearest sensitive receptors.

Experience dictates that appropriate modern air conditioning and exhaust ventilation systems achieve noise emission levels capable of ensuring that residential amenity is not adversely impacted by the required plant and equipment.

Indicative air-conditioning plant has been considered in the overall noise modelling assessment presented in **Section 4.3** and is noted to comply with the identified noise criteria for mechanical plant noise.

More detailed assessment of acoustic treatments required for the plant and equipment installations should be undertaken at the detailed design stage of the development. Experience with many other similar developments and given the proximity to sensitive land uses dictates that appropriate noise controls are feasible to ensure that plant and equipment can achieve the noise limits. This is considered a matter for future detailed design and can be readily conditioned in a development approval.

#### 4.3 TIME VARYING NOISE ASSESSMENT

Noise emissions from carparking, vehicles, servicing and outdoor play areas associated with the proposed childcare centre have been assessed using the SoundPLAN 8.2 computer noise model.

The source noise levels for the childcare outdoor play areas were determined using the *Association of Australian Acoustical Consultants Technical Guideline Child Care Centre Noise Assessment* (September 2020, Version 3).

As per the guideline, the noise levels of children playing can vary depending on the age of the children and the type of activity. Sound power levels of children are presented in the guideline as per **Table 4** below.

**Table 4: Typical Sound Power Levels for Children Playing as per AAC Technical Guideline**

AGE GROUP	NUMBER OF CHILDREN	SOUND POWER LEVEL DB(A) (L <sub>EQ 15MIN</sub> )
0 to 2 years	10	78
2 to 3 years	10	85
3 to 5 years	10	87

Assessment noise emissions from outdoor play areas has been conservatively based upon an indicative 75% outdoor play area occupation coinciding with peak carparking activity during the 7am to 6pm period. For the 6:30am to 7am and 6pm to 6:30pm periods, attendance will be lower and an outdoor play area occupancy of 25% has been assessed.

The relevant sound power levels per age group based upon the place age allowances for the development are:

Ground Floor Outdoor Play Area (East) – 30 children (2-3 years): 89.8 dB(A)

Ground Floor Outdoor Play Area (West) – 16 children (0-2 years): 80.0 dB(A)

First Floor Outdoor Play Area – 44 children (3 to 5 years): 93.4 dB(A)

The noise from outdoor play was modelled as three separate area sources representing each outdoor play area and the associated age groups.

The modelled peak hour traffic volumes through the site have been based on traffic engineering advice provided by TTM Group, the project traffic engineers. The peak traffic through site is projected to be as follows:

AM Peak: 72 trips per hour (36 in and 36 out)

PM Peak: 63 trips per hour (32 in and 31 out)

For the purpose of the noise modelling, the childcare centre traffic has been conservatively assessed as a peak hour traffic of 72 vehicles per hour between 7am and 6pm. Additionally, 25% of the daytime peak has been considered for the early morning 6:30am to 7am and evening 6pm to 6:30pm periods.

Servicing of the centre will generally be via vans which do not generate materially different noise to passenger vehicles. The modelled trip volumes adequately account for van deliveries of approximately 2 per day which are unlikely to coincide with peak drop off and pick up periods.

Refuse collections are generally during the 7am to 6pm period and scheduled to not coincide with peak hour traffic through the development. Typically, 2 to 3 refuse collections per week are likely to occur for childcare centres, with the overall noise amenity impact negligible.

Carparking vehicle movements were represented as a line<sup>4</sup> source with the following sound power levels:

6:30am to 7am and 6pm to 6:30pm:  $L_{Aeq}$  58.5 dB(A)/m<sup>5</sup> SWL

7am to 6pm:  $L_{Aeq}$  64.6 dB(A)/m<sup>6</sup> SWL

All hours:  $L_{Amax}$  89 dB(A) SWL

<sup>4</sup> moving point source

<sup>5</sup> Based upon an instantaneous maximum level of 89 dB(A) and an average speed of 10 km/h extrapolated to represent 18 vehicle movements as the peak hour between 6:30am and 7am and 6pm and 6:30pm.

<sup>6</sup> Based upon an instantaneous maximum level of 89 dB(A) and an average speed of 10 km/h extrapolated to represent 72 vehicle movements as the peak hour between 7am to 6pm.

For carparking noise the parking lot area source was represented in the model for proposed car parking areas with source noise levels based upon peak parking rates of 36 vehicle movements per hour during the day and 9 vehicle movements per hour during the evening and night. These parking rates are consistent with the adopted carpark trips for each period of the day.

Noise emissions from external mechanical plant have been represented as point sources as follows:

Air-Conditioning Units (x2):  $L_{Aeq}$  72.7 dB(A) SWL

The noise modelling has included topographical representations for surrounding areas, along with the design levels for the proposed building, carparking area and outdoor play areas as per the proposed development drawings (refer **Attachment 1**).

The assessment has determined whether overall noise levels from the vehicle movements through the site, car parking activities and outdoor play area noise will comply with the noise criteria as per **Section 3** at the nearest sensitive receptors.

The following acoustic barrier elements are recommended to satisfy the noise criteria at the nearest surrounding residences:

- **2.5 metre high acoustic barrier along the northern site boundary (above the finished level of the adjacent ground floor outdoor play area).**
- **1.8 metre high acoustic barrier along the eastern boundary of the outdoor play area (above the finished level of the adjacent ground floor outdoor play area).**
- **1.8 metre high solid (gap-free) balustrade / acoustic screen above the finished floor level along the eastern, southern and western perimeters of the first floor outdoor play area (as per the architectural plans).**

The proposed acoustic barriers/screens are presented on **Figures 4 and 5**.

The acoustic barrier/screen elements should be gap free and constructed of materials achieving a minimum surface density of 12.5kg/m<sup>2</sup>. A range of suitable acoustic barrier products are available if transparent sections of the barriers/screens are required.

The predicted noise levels at the nearest surrounding residences are summarised in **Table 5** below.

The results of the overall development noise modelling are also presented in **Attachment 3** as contours of the predicted  $L_{Aeq}$  daytime and  $L_{Amax}$  noise levels across the model domain.

**Table 5: Predicted Noise Levels – Overall Development Noise**

RECEPTOR	PREDICTED NOISE LEVEL $L_{Aeq}$ dB(A) 7AM-6PM	PREDICTED NOISE LEVEL $L_{Aeq}$ dB(A) 6PM-6:30PM	PREDICTED NOISE LEVEL $L_{Aeq}$ dB(A) 6:30AM-7AM	PREDICTED NOISE LEVEL $L_{Amax}$ dB(A) 6:30AM-7AM
R1	48	44	44	50
R2	40	35	35	42
R3	40	36	36	42
R4	37	32	32	42
R5	41	36	36	50
R6	41	36	36	49
<b>CRITERIA</b>	<b>48</b>	<b>47</b>	<b>48</b>	<b>57</b>

The predicted resultant noise levels satisfy the relevant noise criteria at the nearest surrounding residences with the recommended acoustic barriers/screens. All other surrounding residences are predicted to experience lower noise levels than those summarised in **Table 5**.

## 5.0 CONCLUSION

MWA Environmental has been engaged to prepare a Noise Impact Assessment for a childcare centre development at 7 & 11 Murray Street and 25 Gillespie Street, Wandal.

This assessment has considered the potential noise amenity impact of the proposed childcare centre upon nearby sensitive receptors. The assessment is based on ambient noise monitoring conducted on site, noise measurements previously conducted on typical sources associated with the proposed use and detailed noise propagation modelling.

The noise assessment undertaken demonstrates that the proposed childcare centre development can comply with the relevant noise criteria with the following recommended acoustic barriers/screens:

- **2.5 metre high acoustic barrier along the northern site boundary (above the finished level of the adjacent ground floor outdoor play area).**
- **1.8 metre high acoustic barrier along the eastern boundary of the outdoor play area (above the finished level of the adjacent ground floor outdoor play area).**
- **1.8 metre high solid (gap-free) balustrade / acoustic screen above the finished floor level along the eastern, southern and western perimeters of the first floor outdoor play area (as per the architectural plans).**

The proposed acoustic barriers/screens are presented on **Figures 4 and 5**.

The acoustic barrier/screen elements should be gap free and constructed of materials achieving a minimum surface density of 12.5kg/m<sup>2</sup>. A range of suitable acoustic barrier products are available if transparent sections of the barriers/screens are required.

The noise assessment undertaken demonstrates that the proposed childcare centre development can satisfy the relevant noise amenity criteria at all surrounding sensitive land uses.

**MWA Environmental**  
**28 February 2022**

## FIGURES



**LEGEND**  
 SITE LOCATION

**DRAWING REFERENCE**  
 © THE STATE OF QUEENSLAND  
 DNRM&E QLDGLOBE.

N

**CLIENT**  
 PROPERTY PROJECTS AUSTRALIA PTY LTD

**PROJECT**  
**NOISE IMPACT ASSESSMENT**  
 PROPOSED CHILDCARE CENTRE  
 7 AND 11 MURRAY STREET  
 AND 25 GILLESPIE STREET  
 WANDAL QLD

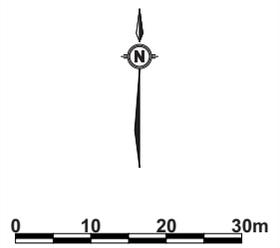
**TITLE**  
**SITE LOCATION AND SURROUNDING LAND USES**

<b>JOB</b>	WANDAL	<b>FIGURE 1</b>
<b>JOB NO.</b>	21-202	
<b>DATE</b>	28/02/22	<b>DWG NUMBER</b>
<b>SCALE</b>	1:2000 (A4)	<b>21-202-1</b>
<b>REV.</b>		

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**LEGEND**  
 — SITE LOCATION  
 ● NOISE DATALOGGER LOCATION  
 DRAWING REFERENCE  
 © THE STATE OF QUEENSLAND  
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PROJECT  
**NOISE IMPACT ASSESSMENT**  
 PROPOSED CHILDCARE CENTRE  
 7 AND 11 MURRAY STREET  
 AND 25 GILLESPIE STREET  
 WANDAL QLD

TITLE  
**NOISE MONITORING LOCATION**

JOB	WANDAL	<b>FIGURE 2</b>
JOB NO.	21-202	
DATE	28/02/22	DWG NUMBER
SCALE	1:1000 (A4)	<b>21-202-2</b>
REV.		

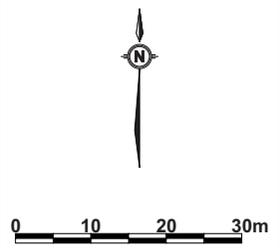


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**LEGEND**  
 **R6** SITE LOCATION  
 NEAREST SENSITIVE RECEPTORS (R1-R6)

DRAWING REFERENCE  
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 AND 25 GILLESPIE STREET  
 WANDAL QLD

TITLE  
**SENSITIVE RECEPTOR LOCATIONS**

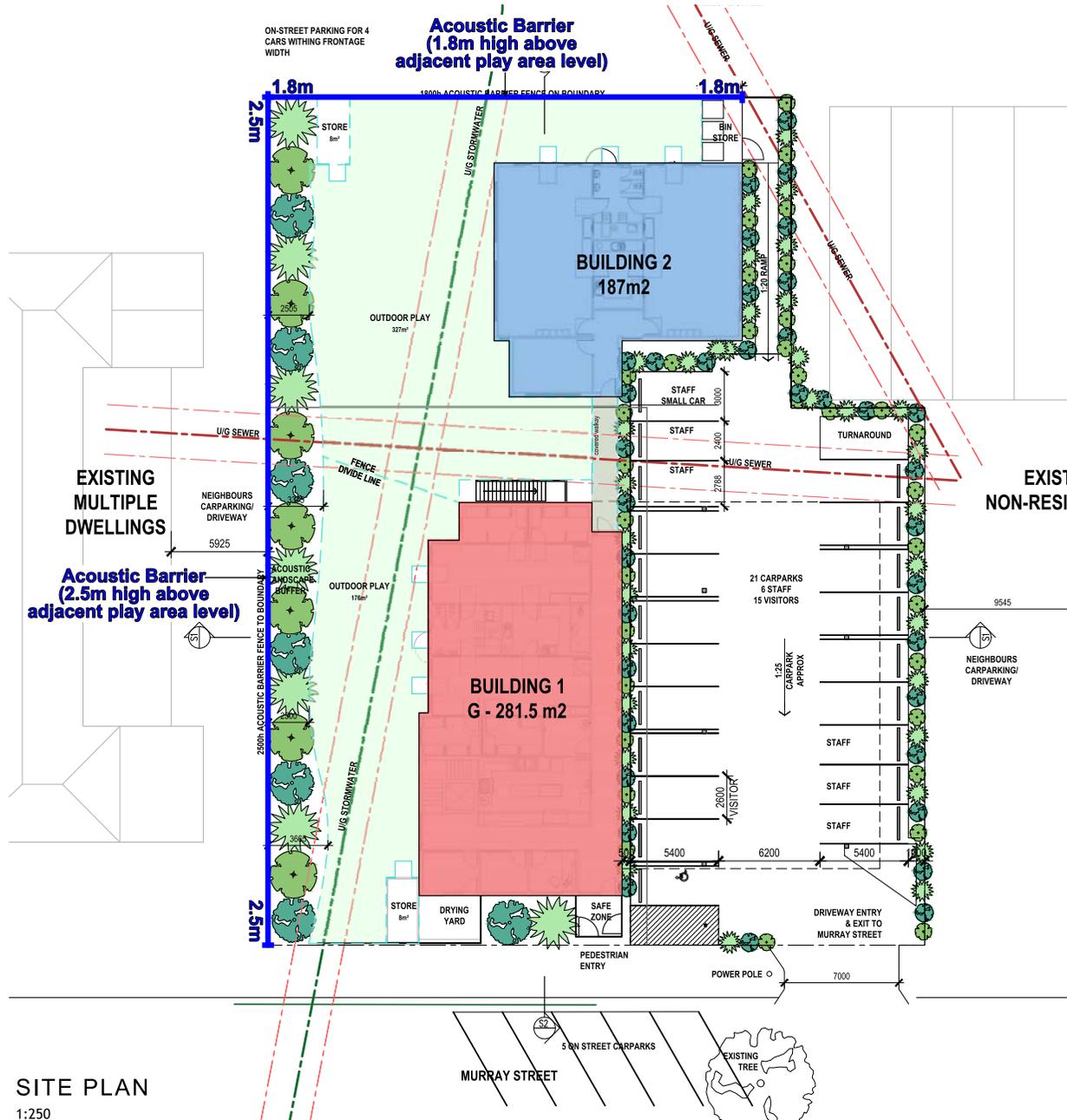
JOB	WANDAL	<b>FIGURE 3</b>
JOB NO.	21-202	
DATE	28/02/22	DWG NUMBER
SCALE	1:1000 (A4)	<b>21-202-3</b>
REV.		



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# PLANNING ISSUE

A ISSUED FOR PLANNING 28/02/2022



SITE DATA	
SITE AREA	1911sqm
BUILDING AREAS	GROUND - 468.5sqm FIRST - 265sqm TOTAL - 733.5sqm
SITE	LANDSCAPE 795.5sqm IMPERVIOUS 1115.5sqm
SITE COVER	825sqm = 42% (approx)
PROPOSED CHILD CARE PLACES	90
REQUIRED CARPARKING	1 per Staff = 14 spaces 1 per 6 places = 15 spaces TOTAL REQ = 29
PROPOSED CARPARKING	26 Formal Carparks • 21 Carparks on-site • 5 Formal on-street (Murray St) • 4 Informal on-street (Gillespie St)

**LEGEND**  
2.5m BARRIER HEIGHT ABOVE ADJACENT PLAY AREA LEVEL  
 ACUSTIC BARRIER

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PROJECT  
**NOISE IMPACT ASSESSMENT**  
 PROPOSED CHILDCARE CENTRE  
 7 AND 11 MURRAY STREET  
 AND 25 GILLESPIE STREET  
 WANDAL QLD

TITLE  
**GROUND FLOOR ACUSTIC BARRIER LOCATIONS**

JOB	WANDAL	<b>FIGURE 4</b>
JOB NO.	21-202	
DATE	28/02/22	DWG NUMBER
SCALE	1:400 (A4)	<b>21-202-4</b>
REV.		



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 1300 225 225

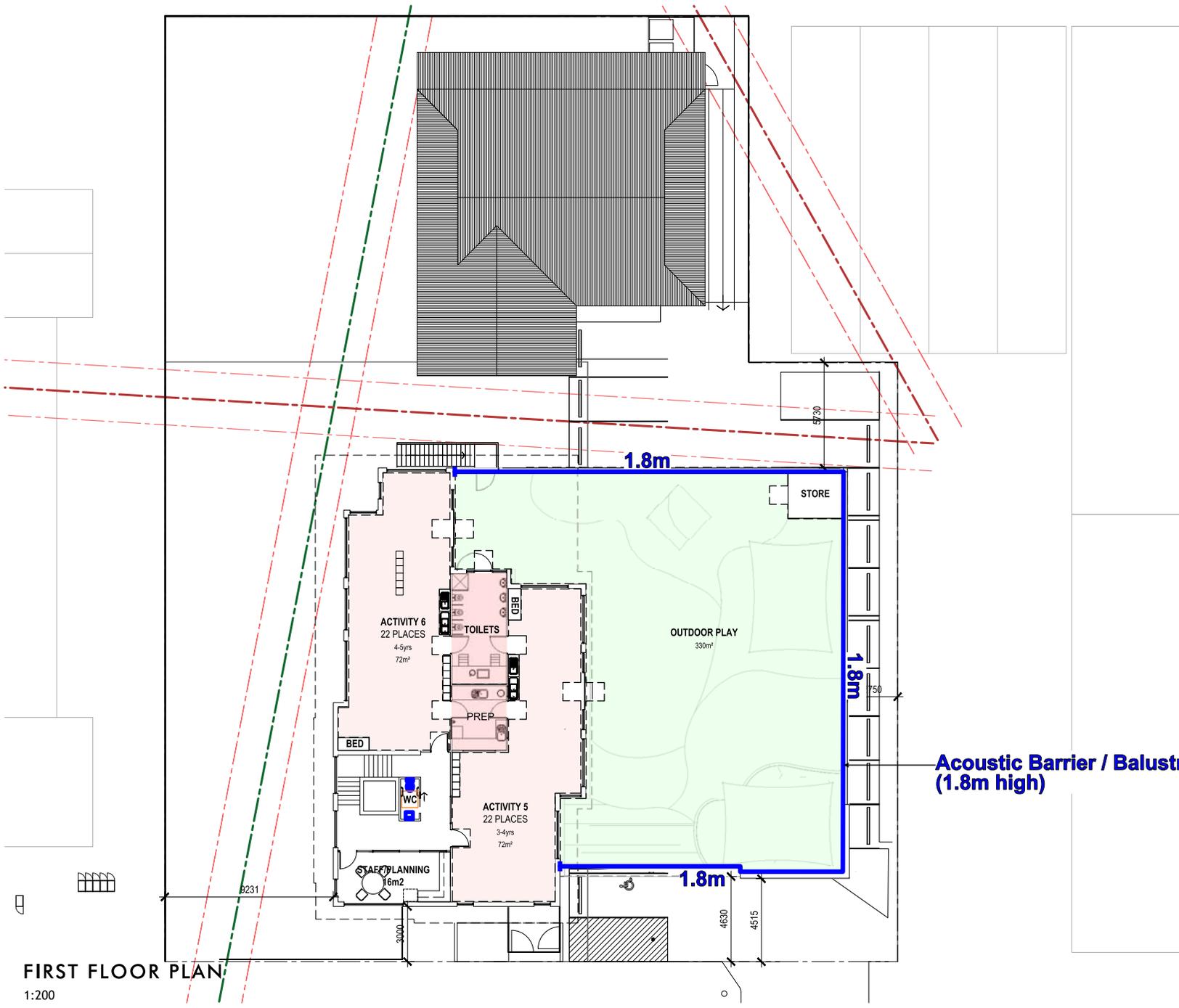
Project  
**90 PLACE CHILD CARE CENTRE**  
 7-11 MURRAY ST & 25 GILLESPIE ST  
 WANDAL, QLD.

Drawing  
 SITE PLAN

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 Date 25/02/2022  
 Job No. 202101104  
 Dwg No. DA03 Rev. A A3 SHEET

SITE PLAN  
 1:250



**FIRST FLOOR PLAN**  
1:200

**PLANNING ISSUE**

Rev	Amendment	Date
A	ISSUED FOR PLANNING	28/02/2022

**LEGEND**  
**1.8m** BARRIER HEIGHT ABOVE ADJACENT PLAY AREA LEVEL  
 ACOUSTIC BARRIER / BALUSTRADE

**CLIENT**  
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**PROJECT**  
**NOISE IMPACT ASSESSMENT**  
 PROPOSED CHILDCARE CENTRE  
 7 AND 11 MURRAY STREET  
 AND 25 GILLESPIE STREET  
 WANDAL QLD

**TITLE**  
**FIRST FLOOR ACOUSTIC BARRIER LOCATION**

JOB	WANDAL	FIGURE 5
JOB NO.	21-202	
DATE	28/02/22	DWG NUMBER
SCALE	1:300 (A4)	
REV.		21-202-5



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**Project**  
**90 PLACE CHILD CARE CENTRE**  
 7-11 MURRAY ST & 25 GILLESPIE ST  
 WANDAL, QLD.

**Drawing**  
 PROPOSED FIRST FLOOR PLAN

Scale	As indicated	Drawn	HT
Client			
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Job No.	202100104		
Dwg No.	DA05	Rev.	A A3 SHEET

**Acoustic Barrier / Balustrade (1.8m high)**

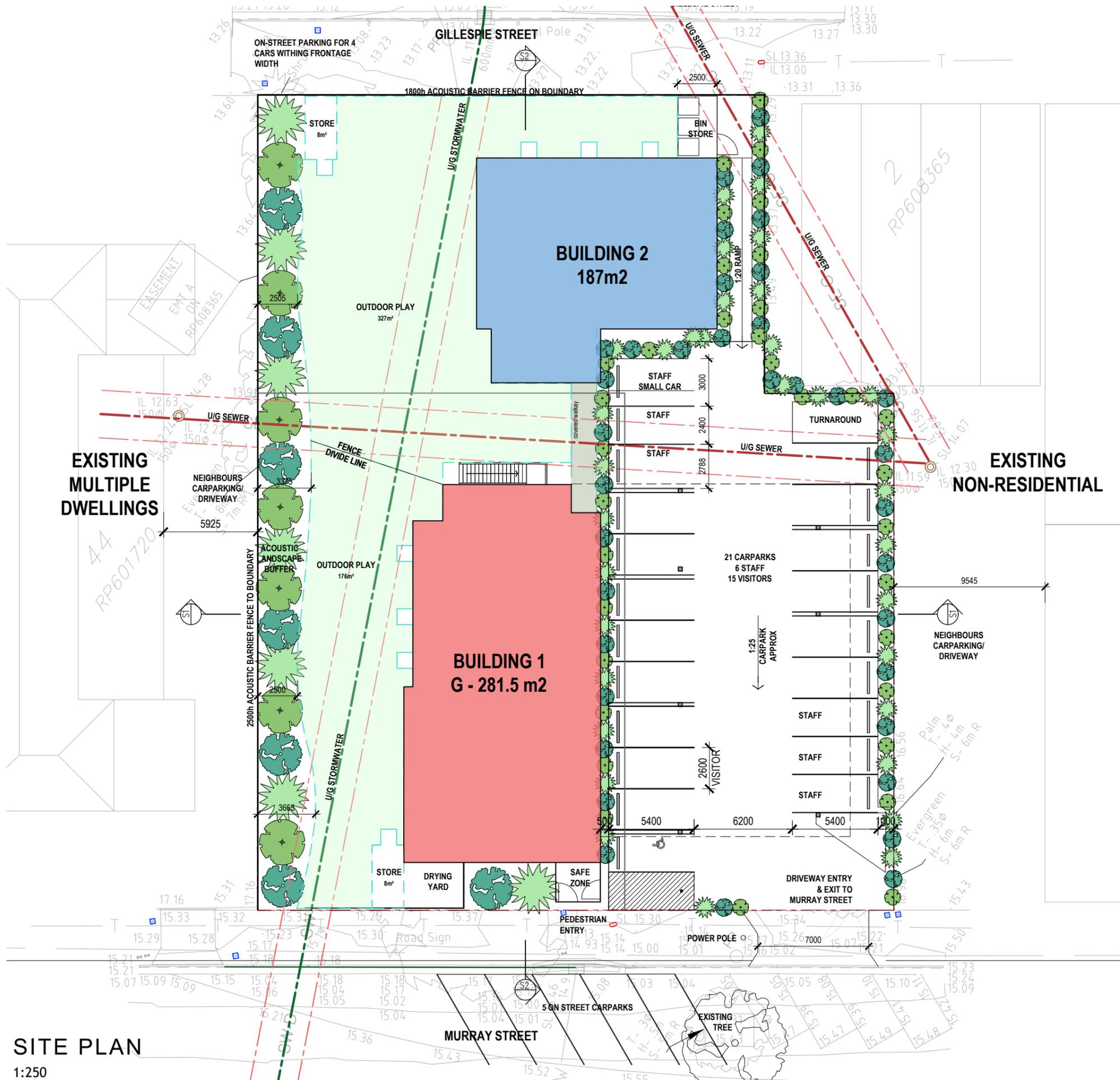
***Attachment 1***

***Proposed Development Plans***

# PLANNING ISSUE

A ISSUED FOR PLANNING 28/02/2022

SITE DATA	
SITE AREA	1911sqm
BUILDING AREAS	GROUND - 468.5sqm FIRST - 265sqm TOTAL - 733.5Sqm
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REQUIRED CARPARKING	1 per Staff = 14 spaces 1 per 6 places = 15 spaces TOTAL REQ = 29
PROPOSED CARPARKING	26 Formal Carparks <ul style="list-style-type: none"> <li>21 Carparks on-site</li> <li>5 Formal on-street (Murray St)</li> <li>4 Informal on-street (Gillespie St)</li> </ul>



## SITE PLAN

1:250



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Project  
**90 PLACE CHILD CARE CENTRE**  
 7-11 MURRAY ST & 25 GILLESPIE ST  
 WANDAL, QLD.

Drawing  
 SITE PLAN

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 Client  
 Date 25/02/2022  
 Job No. 202100104  
 Dwg No. **DA03** Rev: **A** A3 SHEET

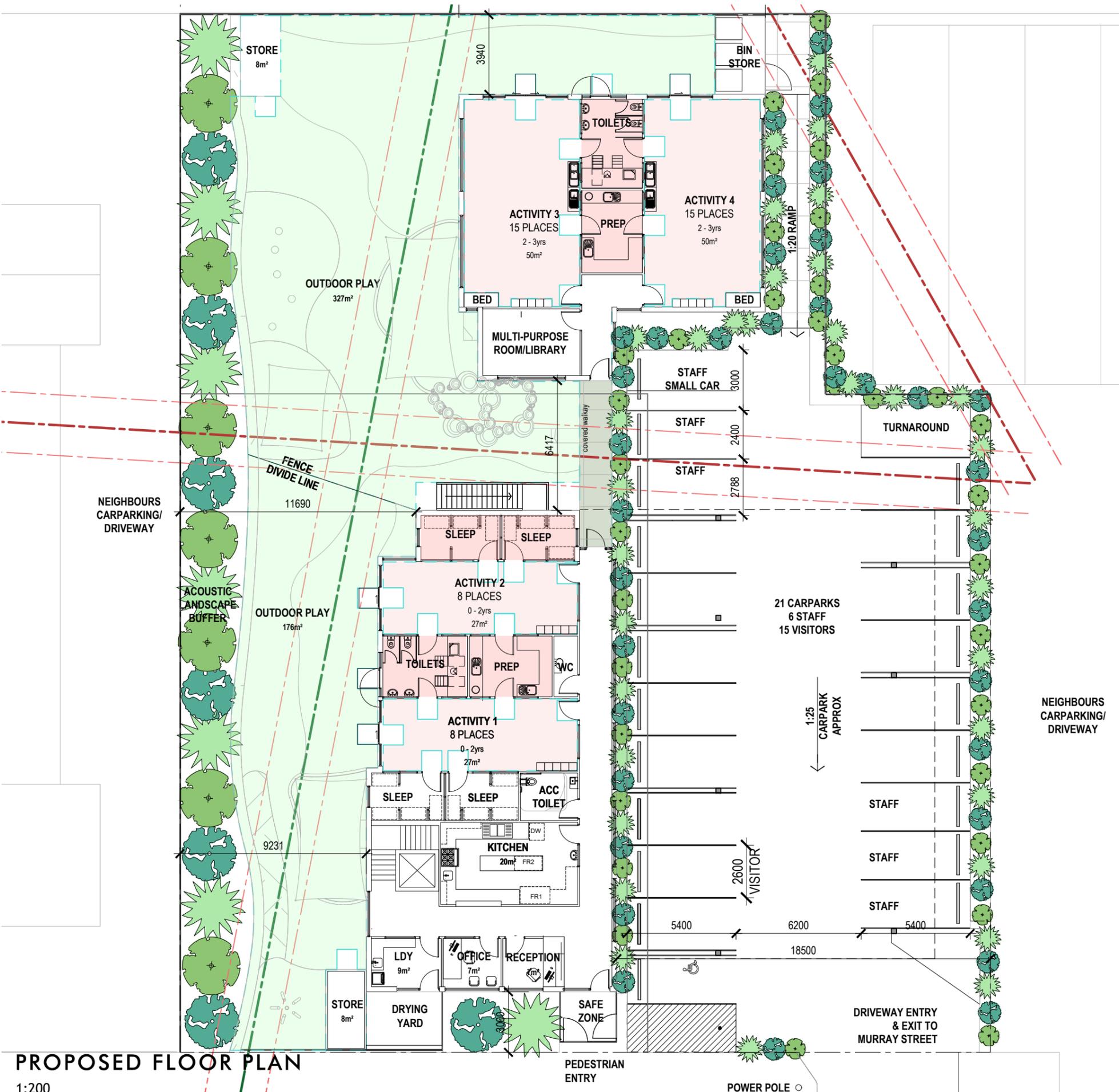
# PLANNING ISSUE

Rev	Amendment	Date
A	ISSUED FOR PLANNING	28/02/2022

ACTIVITY AREA SCHEDULE								
ROOM	PLACES	AGE	STAFF RATIO	STAFF No.	AREA REQ	UNENCUMBERED AREA	ENCUMBERED AREA	TOTAL AREA PROVIDED
ROOM 1	8	0-2	1:4	2	26	27sqm	7sqm	34sqm
ROOM 2	8	0-2	1:4	2	26	27sqm	7sqm	34sqm
ROOM 3	15	2-3	1:5	3	49	50sqm	9sqm	59sqm
ROOM 4	15	2-3	1:5	3	49	50sqm	9sqm	59sqm
ROOM 5	22	3-4	1:11	2	71.5	72sqm	9sqm	81sqm
ROOM 6	22	4-5	1:11	2	71.5	72sqm	9sqm	81sqm
TOTALS	90			14	293	298sqm	50sqm	348sqm

OUTDOOR PLAY AREA SCHEDULE					
ROOMS	PLACES	AREA REQ	UNENCUMBERED AREA	ENCUMBERED AREA	TOTAL AREA PROVIDED
ROOM 1	8		499sqm	10sqm	509sqm
ROOM 2	8				
ROOM 3	15				
ROOM 4	15				
ROOM 5	22	308	337sqm	8sqm	345sqm
ROOM 6	22				
TOTALS	90	630	872sqm	18sqm	890sqm



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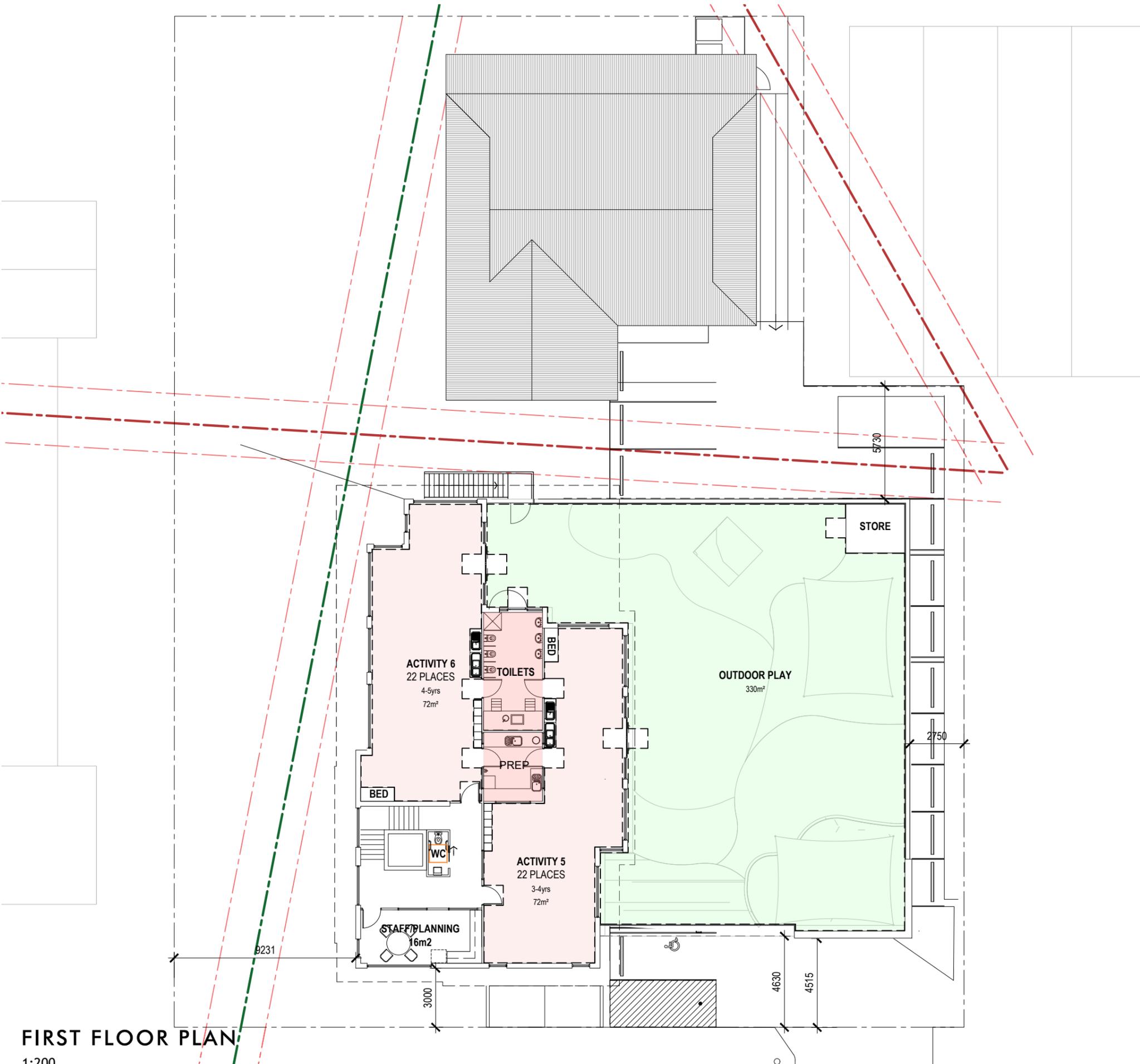
Project  
**90 PLACE CHILD CARE CENTRE**  
7-11 MURRAY ST & 25 GILLESPIE ST  
WANDAL, QLD.

Drawing  
PROPOSED FLOOR PLAN

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Client  
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Job No. 202100104  
Dwg No. **DA04** Rev: **A** A3 SHEET

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**FIRST FLOOR PLAN**  
1:200



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7-11 MURRAY ST & 25 GILLESPIE ST  
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Drawing  
PROPOSED FIRST FLOOR PLAN

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Client  
Date 25/02/2022  
Job No. 202100104  
Dwg No. **DA05** Rev: **A** A3 SHEET



# PLANNING ISSUE

Rev	Amendment	Date
A	ISSUED FOR PLANNING	28/02/2022



**SOUTH-WEST ELEVATION (MURRAY ST)**  
1:200



**SOUTH-EAST ELEVATION**  
1:200



**NORTH-EAST ELEVATION (GILLESPIE STREET)**  
1:200



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Project  
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WANDAL, QLD.

Drawing  
PROPOSED ELEVATIONS

Scale As indicated Drawn HT  
Client  
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Dwg No. **DA07** Rev: **A** A3 SHEET



# PLANNING ISSUE

Rev	Amendment	Date
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**NORTH-WEST ELEVATION**

1:200



**NORTH-EAST ELEVATION - BUILDING 1**

1:200



**SOUTH-WEST ELEVATION - BUILDING 2**

1:200



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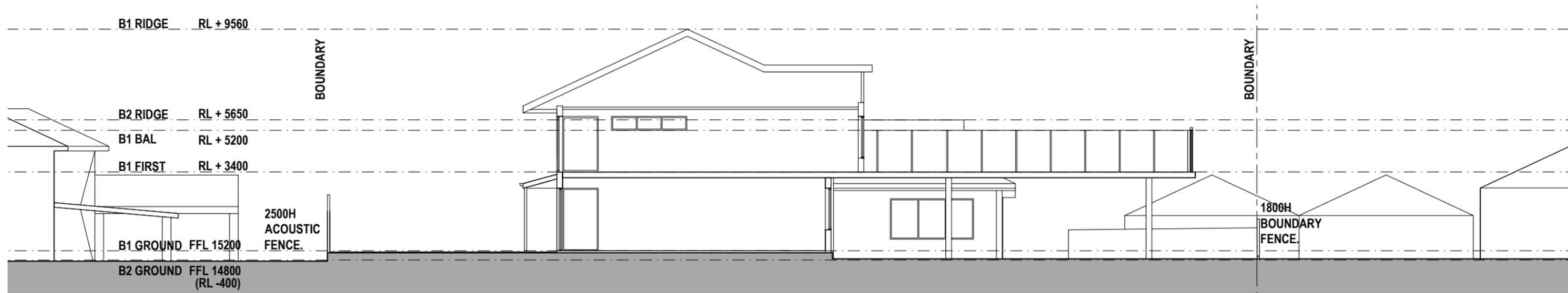
Drawing  
 PROPOSED ELEVATIONS

Scale As indicated Drawn HT  
 Client  
 Date 25/02/2022  
 Job No. 202100104  
 Dwg No. **DA08** Rev: **A** A3 SHEET



# PLANNING ISSUE

Amendment	Date
A	ISSUED FOR PLANNING 28/02/2022



## SECTION 1

1:200



## SECTION 2

1:200



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Project  
**90 PLACE CHILD CARE CENTRE**  
 7-11 MURRAY ST & 25 GILLESPIE ST  
 WANDAL, QLD.

Drawing  
 PROPOSED ELEVATIONS

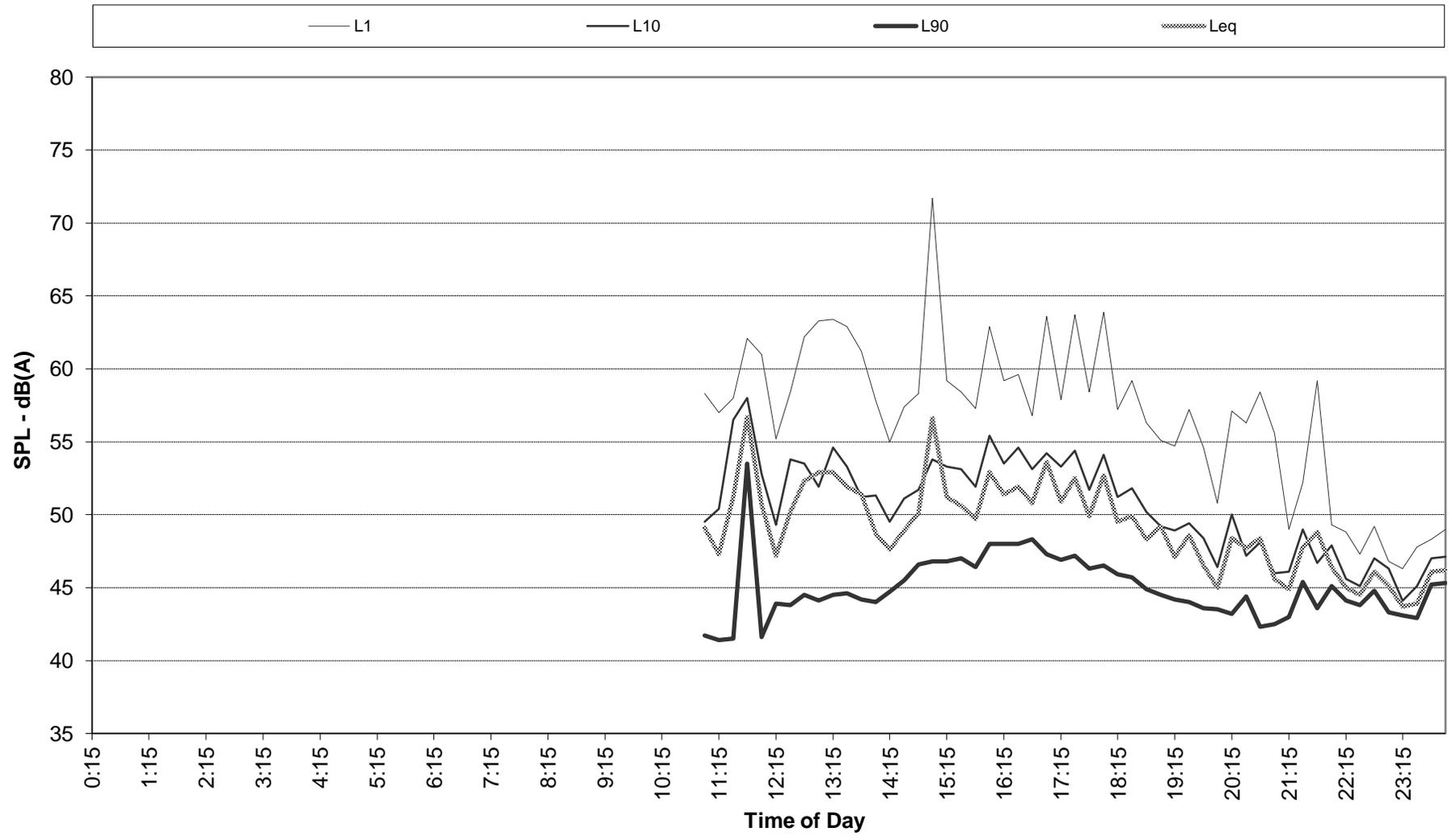
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 Date 25/02/2022  
 Job No. 202100004  
 Dwg No. **DA09** Rev: **A** A3 SHEET



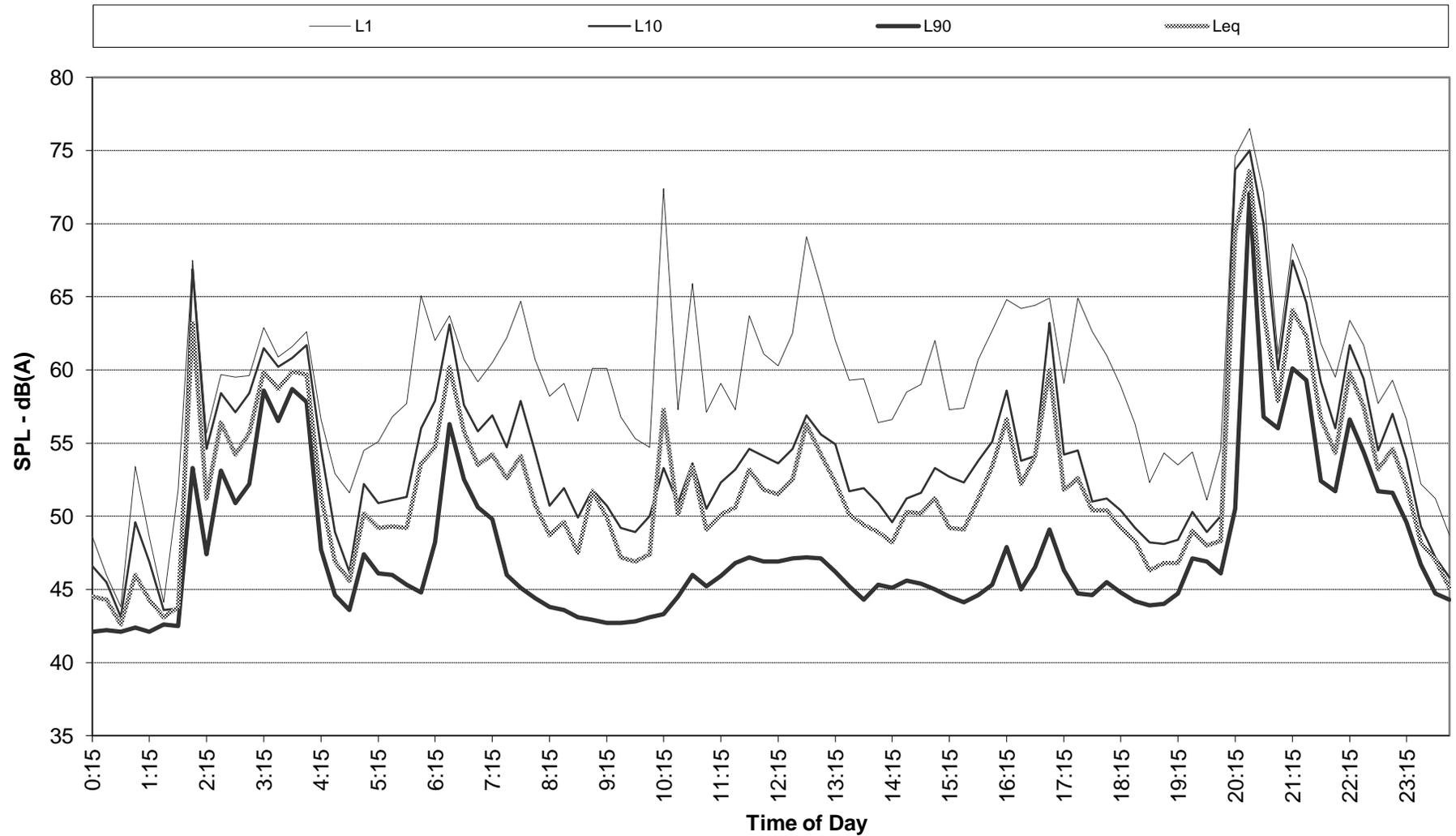
***Attachment 2***

***Noise Data Logger Results***

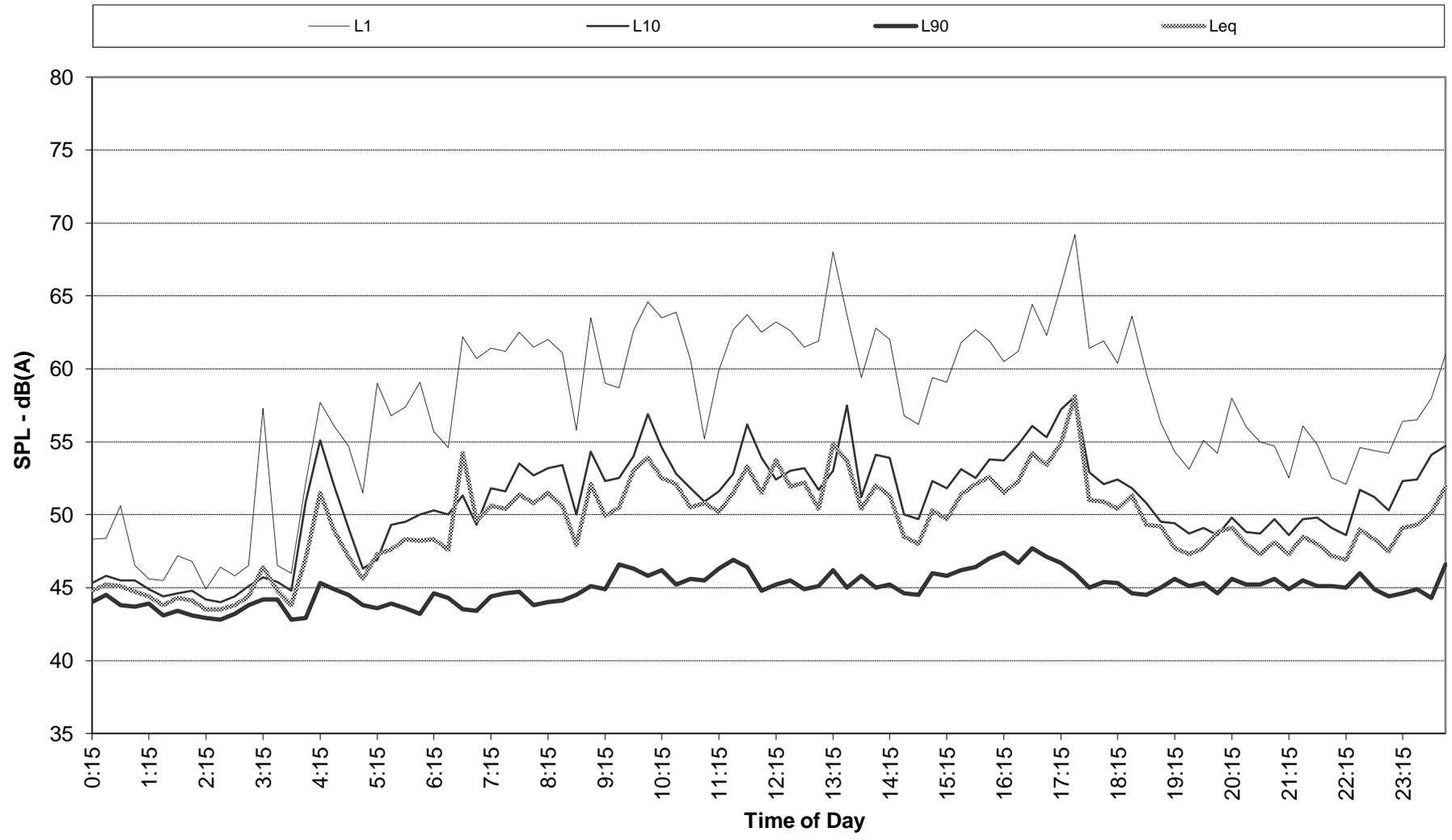
Recorded Statistical Noise Levels for Wandal 21-202 - - 02-Feb-2022 - Wednesday



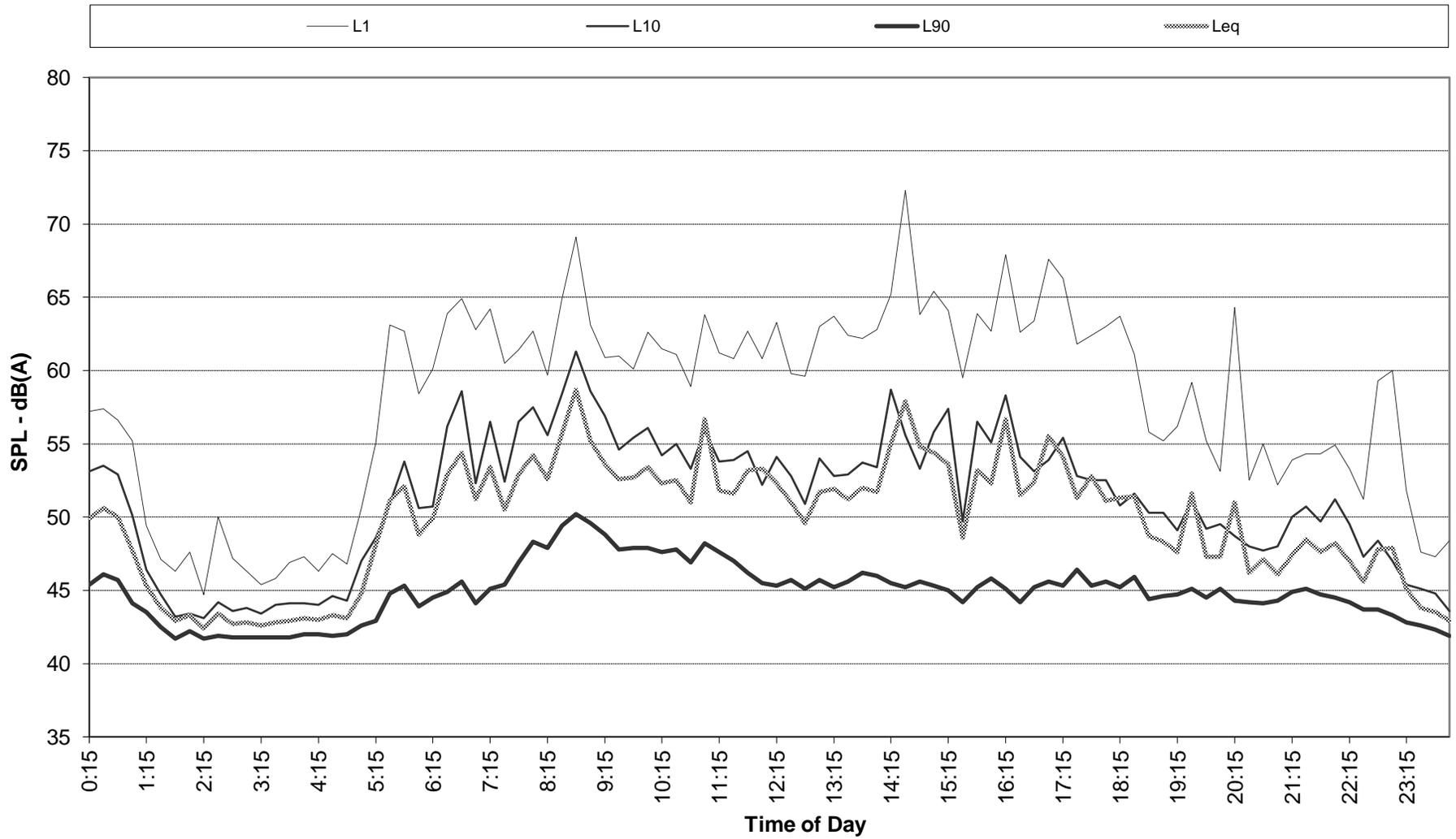
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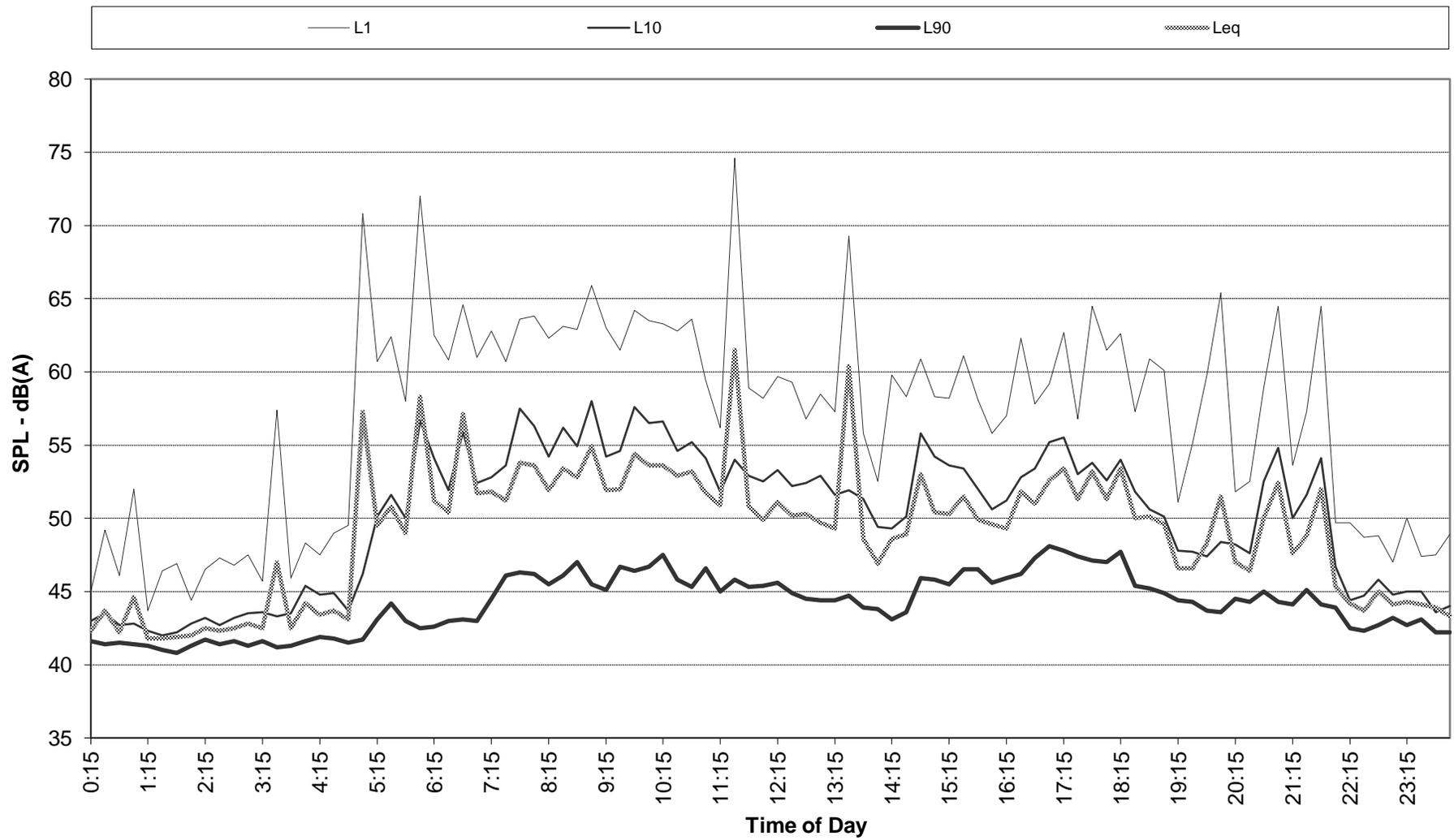
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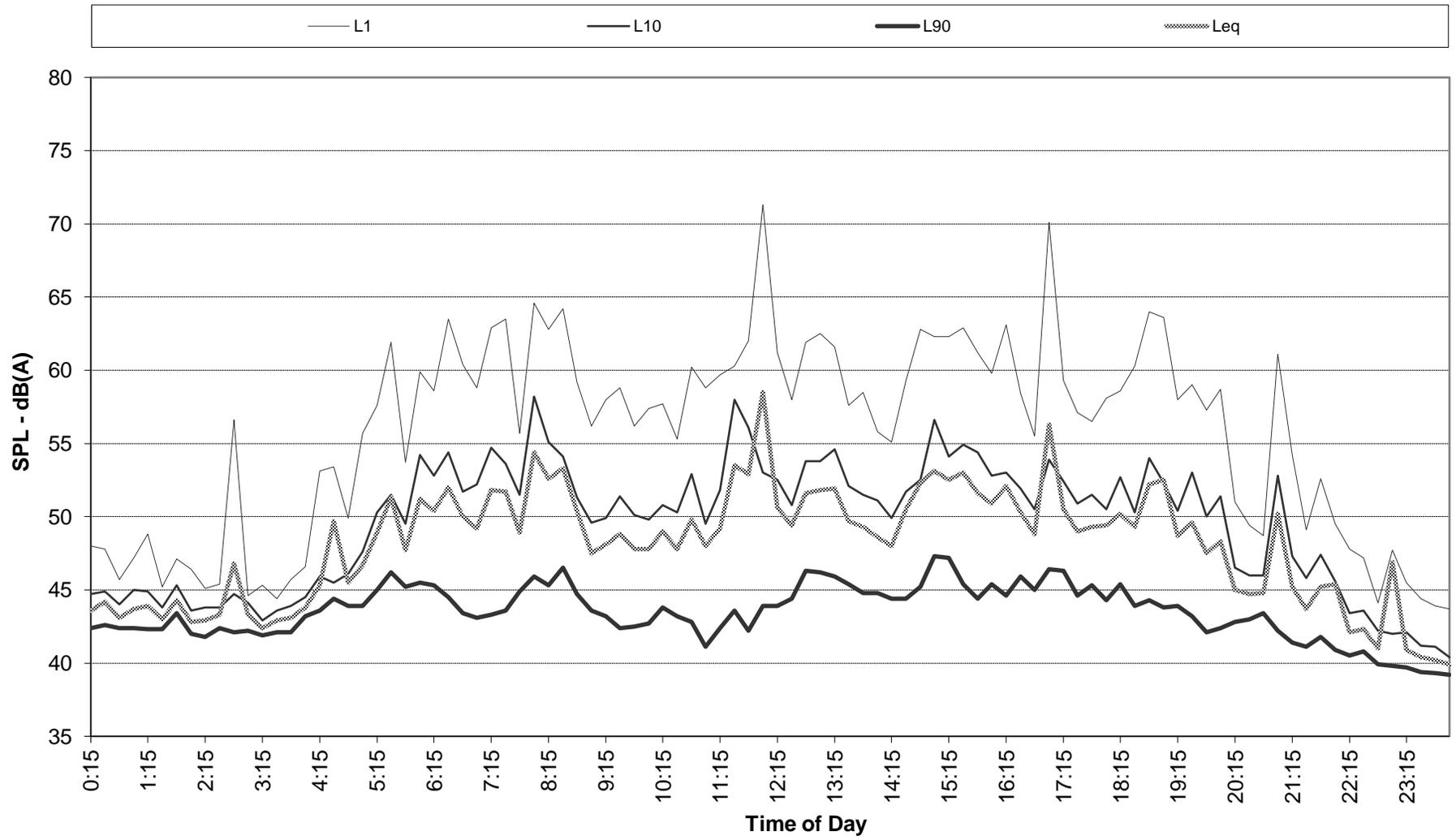
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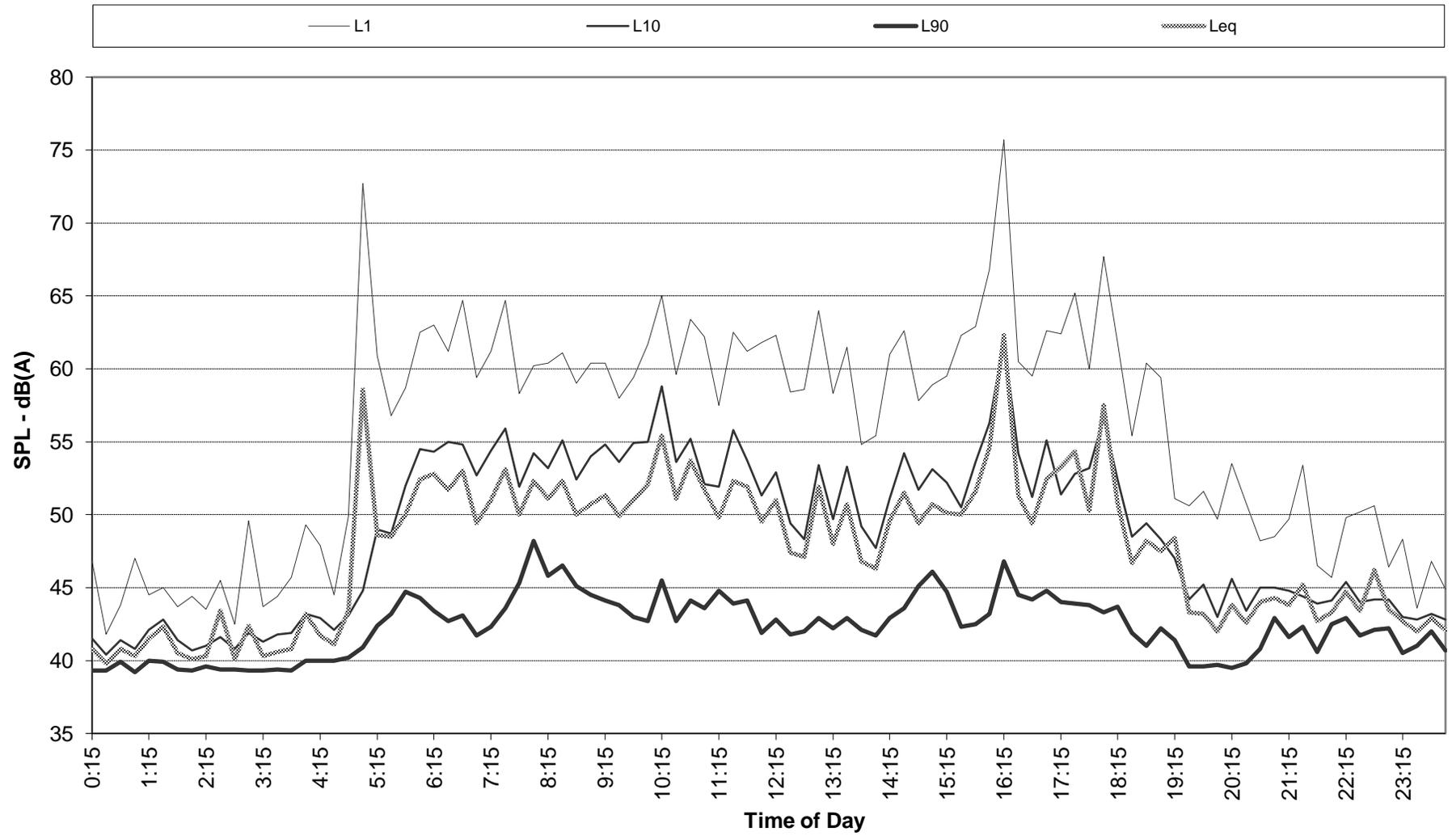
Recorded Statistical Noise Levels for Wandal 21-202 - - 06-Feb-2022 - Sunday



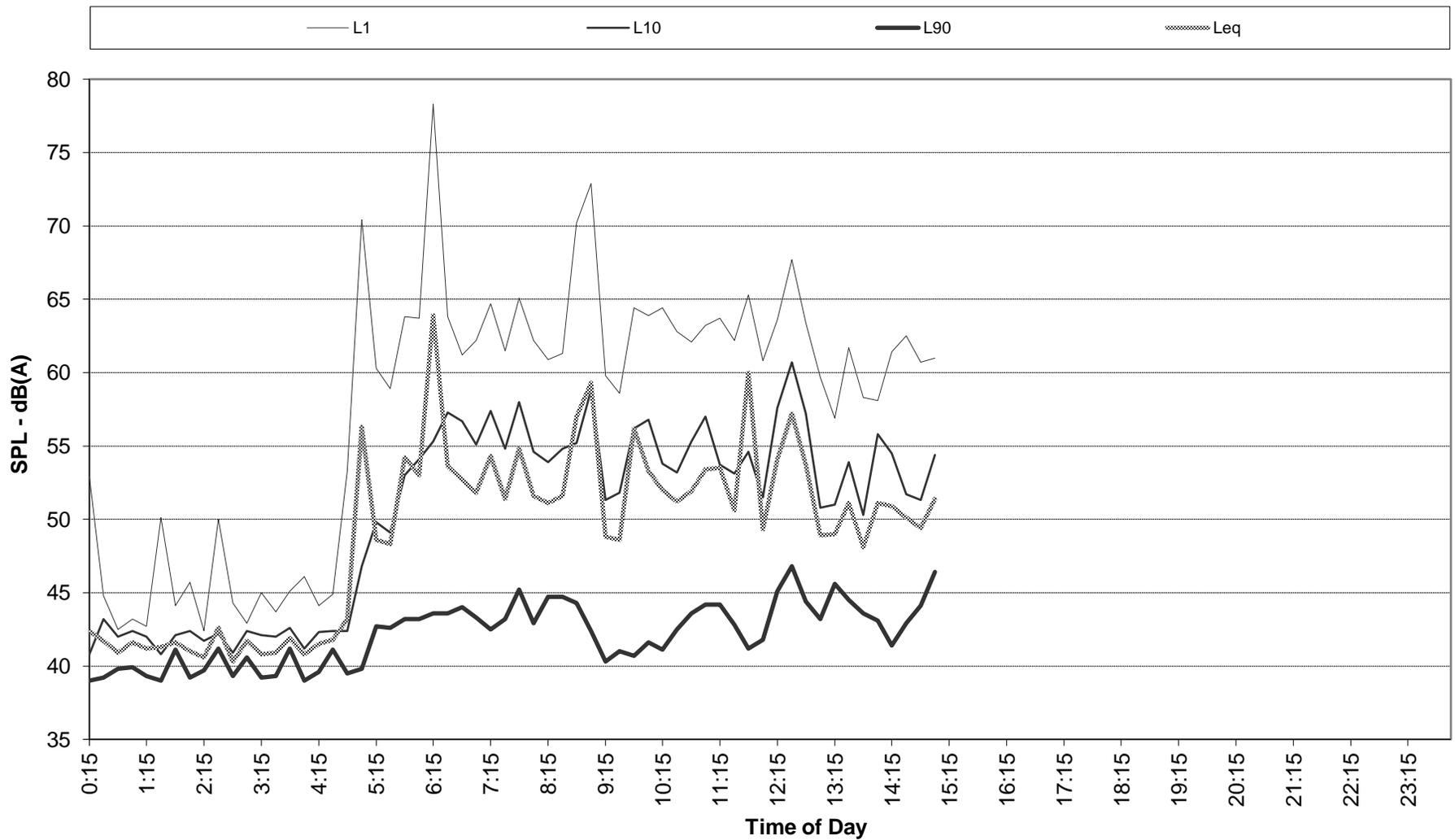
Recorded Statistical Noise Levels for Wandal 21-202 - - 07-Feb-2022 - Monday



Recorded Statistical Noise Levels for Wandal 21-202 - - 08-Feb-2022 - Tuesday



Recorded Statistical Noise Levels for Wandal 21-202 - - 09-Feb-2022 - Wednesday



***Attachment 3***

*SoundPLAN  
Model Results*



Noise level  
LAeq,T  
in dB(A)

<= 39	Yellow	<= 39
39 <	Light Green	<= 42
42 <	Green	<= 45
45 <	Dark Green	<= 48
48 <	Red	<= 51
51 <	Magenta	<= 54
54 <	Orange	<= 57
57 <	Blue	<= 60
60 <	Purple	<= 60

- Legend**
- Point source
  - Parking lot
  - Line source
  - Area source
  - Main building
  - Acoustic Barrier
  - Floating screen
  - Point receiver

**Wandal 21-202**

**Overall Noise Predictions  
Leq Daytime**

**Upper Level Receivers  
Ground Level +4.5m**

**February 2022**

Length scale 1:1000





Noise level  
L<sub>Amax</sub>  
in dB(A)

<= 48	Yellow	<= 48
48 <	Light Green	<= 51
51 <	Green	<= 54
54 <	Dark Green	<= 57
57 <	Red	<= 60
60 <	Magenta	<= 63
63 <	Orange	<= 66
66 <	Blue	<= 69
69 <	Purple	<= 69

**Legend**

- Point source
- Parking lot
- Line source
- Area source
- Main building
- Acoustic Barrier
- Floating screen
- Point receiver

**Wandal 21-202**

**Overall Noise Predictions  
L<sub>max</sub>**

**Upper Level Receivers  
Ground Level +4.5m**

**February 2022**

Length scale 1:1000





# Traffic Engineering Report

Proposed Childcare Centre

At 7-11 Murray Street & 25 Gillespie Street, Wandal

On behalf of Property Projects Australia

**ROCKHAMPTON REGIONAL COUNCIL**

**APPROVED PLANS**

These plans are approved subject to the current conditions of approval associated with

**Development Permit No.:** D/20-2022

**Dated:** 27 June 2022



## About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

We have over 50 staff, with an unrivalled depth of experience. Our industry knowledge, technical expertise and commercial insight allow us to deliver an exceptional and reliable service.

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Acoustics



Data



Traffic



Waste

## Revision Record

No.	Author	Reviewed/Approved	Description	Date
1.	A. Shrestha		DA Report - Draft	01/02/2022
2.	A. Shrestha	S. Crank RPEQ18360 	DA Report – Final	28/02/2022
3.				

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# 1 Introduction

## 1.1 Background

TTM Consulting has been engaged by Property Projects Australia (PPA) to prepare a traffic engineering report investigating a proposed Childcare Centre at 7-11 Murray Street and 25 Gillespie Street in Wandal. It is understood that a Development Application (material change of use) will be lodged with Rockhampton Regional Council (RCC).

## 1.2 Scope

This report investigates the transport aspects associated with the proposed development. The scope of the transport aspects investigated includes:

- Parking supply required to cater for development demand.
- Parking layout to provide efficient and safe internal manoeuvring.
- Identification of likely traffic volumes and traffic distribution from the future development.
- Identification of likely traffic impact of development on the public road network.
- Access configuration to provide efficient and safe manoeuvring between the site and the public road network.
- Suitability of access and internal facilities to provide for pedestrian and cyclist operation.
- Access to suitable level of public transport.

To assess the proposed transport arrangements, the development plans have been assessed against the following guidelines and planning documents:

- Rockhampton Council Planning Scheme, specifically:
  - Access, Parking and Transport
  - Local Government Infrastructure Plan
  - Road Infrastructure and Hierarchy Planning Scheme Policy
  - Bicycle Network Planning Scheme Policy
  - Waste Management Code
- Capricorn Municipal Development Guidelines (CMDG)
- Australian Standards for Parking Facilities (AS2890 series), namely:
  - Part 1: Off- street car parking (AS2890.1:2004)

- Part 2: Off-street commercial vehicle facilities (AS2890.2:2019)
- Part 3: Bicycle parking (AS2890.3:2015)
- Part 6: Off-street parking for people with disabilities (AS2890.6:2009)
- Department of Transport and Main Roads 'Road Planning and Design Manual' (RPDM)
- Department of Transport and Main Roads 'Guide to Traffic Impact Assessment' (GTIA)
- Austroads 'Guide to Traffic Management' (GTM)

### 1.3 Site Location

As shown in Figure 1.1, the site is located near the intersection of Rundle Street and Murray Street. The property description is Lot 3 on RP608365 and Lots 2 and 3 on RP605719. The site has road frontages to Murray Street and Gillespie Street and is located opposite The Hall State School. Rockhampton State High School is located approx. 380m to the north of the development site. The site is located in the 'Low Density Residential' zone as defined by RCC Planning Scheme.

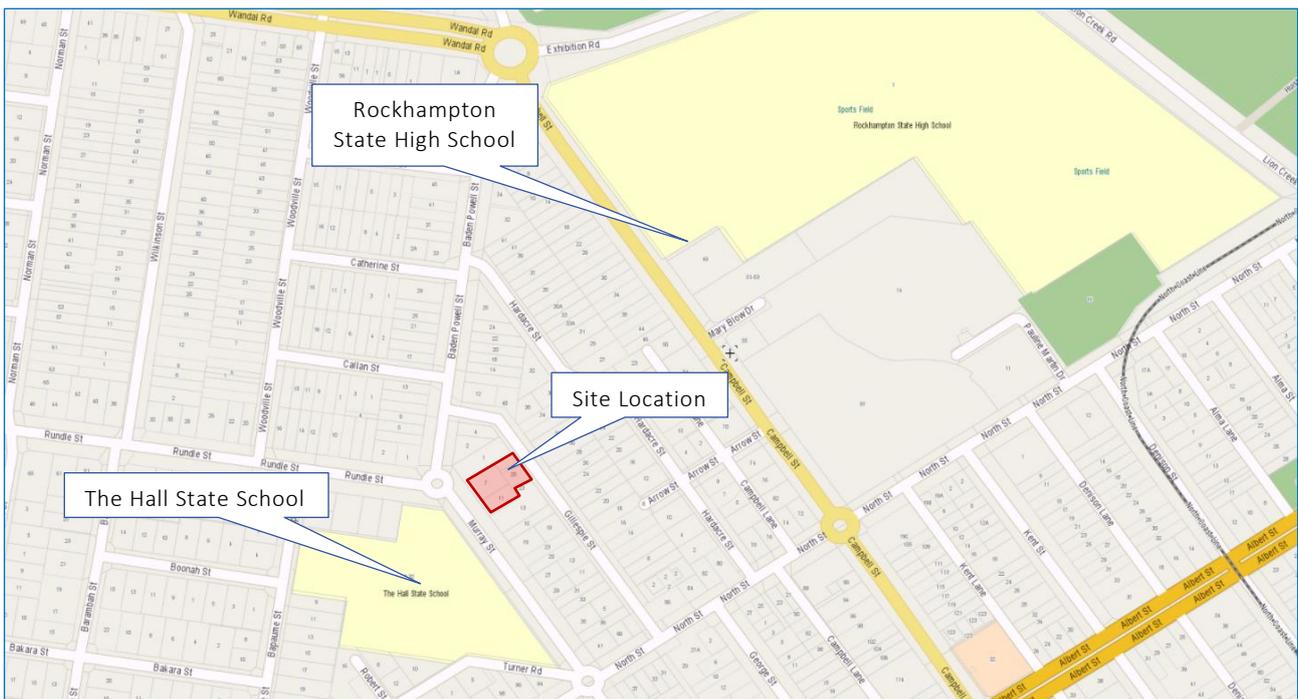


Figure 1.1: Site Location (Source: Street Directory)

As shown in Figure 1.2, the development site is currently occupied by 3 detached dwellings which are currently accessed via 3 separate residential driveways on Murray Street and Gillespie Street.



Figure 1.2: Site Area and Existing Site Access Arrangements (Source: Queensland Globe)

## 1.4 Proposed Development

The development involves the removal of the existing three residential dwellings and the construction of a two-storey Childcare Centre with a total capacity of 90 children and 14 staff. The proposed Childcare Centre has a GFA of 733.5m<sup>2</sup>.

The development plans prepared by ON Architecture, are included in **Appendix A**.

### 1.4.1 Parking

The development proposal includes the following parking supply:

- 21 spaces (on-site) located on grade which are inclusive of:
  - 6 spaces allocated to staff
  - 15 spaces allocated to visitors

- 1 PWD space, located adjacent to the Childcare entrance
- plus 10 on-street parking along the site frontage allocated to visitors

Further details regarding parking arrangements are included in Section 3.

### 1.4.2 Site Access

The development plan includes the following access arrangements:

- Murray Street access is provided at the south-western frontage of the Childcare Centre. The characteristics of this access include:
  - Type A CMDG standard driveway – CMDG-R-042A, 7.0m wide at the property boundary
  - Priority controlled, all turns permitted
- Pedestrian access to the development is provided via both Murray Street and Gillespie Street frontage.

Further details regarding the access arrangements are included in Section 4.

### 1.4.3 Servicing

Servicing for the development is proposed to be undertaken by a VAN which will utilise the visitor car parking spaces for loading/unloading.

The development proposes kerb-side refuse collection from Gillespie Street frontage.

Further details regarding servicing arrangements are included in Section 5.

## 2 Existing Transport Infrastructure

### 2.1 The Road Network

The hierarchy and characteristics of the roads in the immediate vicinity of the site are shown below in Table 2.1.

Table 2.1: Road Hierarchy

Road	Speed Limit	Road Configuration			Classification	Road Authority
		Reserve Width	Carriageway Width	Lanes Configuration		
Murray Street	50kph*	30.0m	17.7m	2 (undivided, plus parking)	Minor Urban Collector	RRC
Gillespie Street	50kph	20.0m	10.6m	2 (undivided, plus parking)	Urban Access Street	RRC
Rundle Street	50kph	34.9m	24.5m	2 (divided, plus parking)	Minor Urban Collector	RRC
Baden Powell Street	50kph	30.0m	21.5m	2 (divided, plus parking)	Minor Urban Collector	RRC

*\*Default speed limit on unsigned roads is 50 kph in built-up areas in Queensland*

Formal and informal on-street car parking spaces are provided along Murray Street, Gillespie Street, Rundle Street and Baden Powell Street in the vicinity of the proposed development site. There are ample on-street parking opportunities within the vicinity of the development site.

A summary of the various intersection treatments of the roads surrounding the site is shown in Figure 2.1.



Figure 2.1: Road intersections surrounding the development site

## 2.2 Road Planning

Review of Table SC3.4.3 schedule of works – transport network of RRC Local Government Infrastructure Plan (LGIP) indicates that there are no plans to upgrade Murray Street and Gillespie Street, including Murray Street / Gillespie Street intersection, in the vicinity of the subject site.

A standard condition of approval will be the construction of a pedestrian footpath across the frontage of the site as part of the development.

## 2.3 Public and Active Transport

### Buses

Translink currently operates routes 403, 405 and 407 along Murray Street. A formal bus stop (stop id: 860648) is located on Murray Street which is located directly opposite the development site.

Bus route 405 operates two-way between Depot Hill and City Centre. The service operates from 8:15am to 5.00pm on weekdays only. The service only operates 5 services per day.

Figure 2.2 shows public transport routes for the wider Rockhampton area.

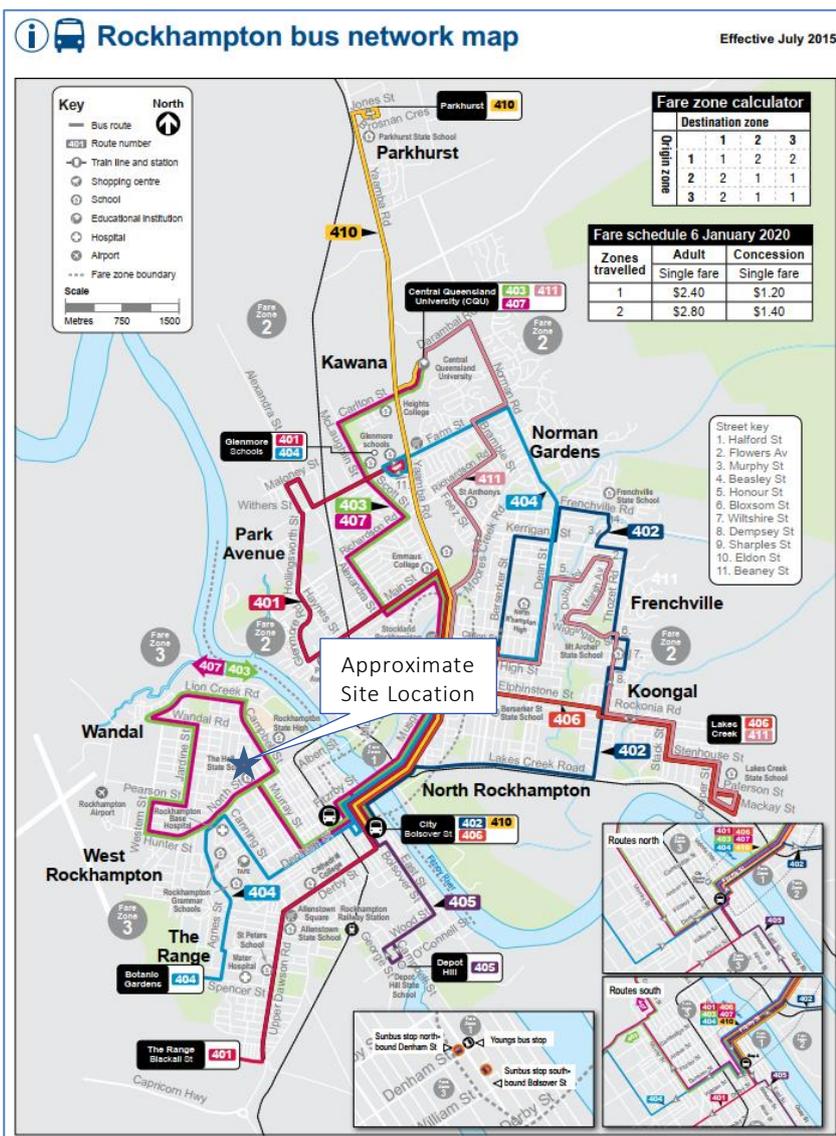


Figure 2.2: Public transport routes for wider Rockhampton Area

## Pedestrians

Formal pedestrian paths are provided on one side of Murray Street to cater for The Hall State School foot traffic. A pedestrian crossing facility is provided on Rundle Street, approximately 90m west of the development site. It includes a central pedestrian refuge and dropped pedestrian kerb. A school crossing is also provided to the south of the development site on Murray Street. The majority of the surrounding roads do not provide pedestrian footpaths.

The subject site provides adequate on-site pedestrian facilities with pedestrian access points provided on both eastern and western site frontage.

Overall, the development site is located within a limited external pedestrian infrastructure. Given the nature of the proposed land use, high pedestrian traffic to/from the development site is not anticipated.

## Cyclists

The roads surrounding the development site does not provide any on-street cyclist facilities and markings. Whilst the surrounding roads does not provide any on-street cyclist facilities, these roads are categorised as cycling routes under the RRC 'Cycle Network Plan Overlay Map'.

A summary of the cycle routes in the vicinity of the subject site is provided in Figure 2.3.

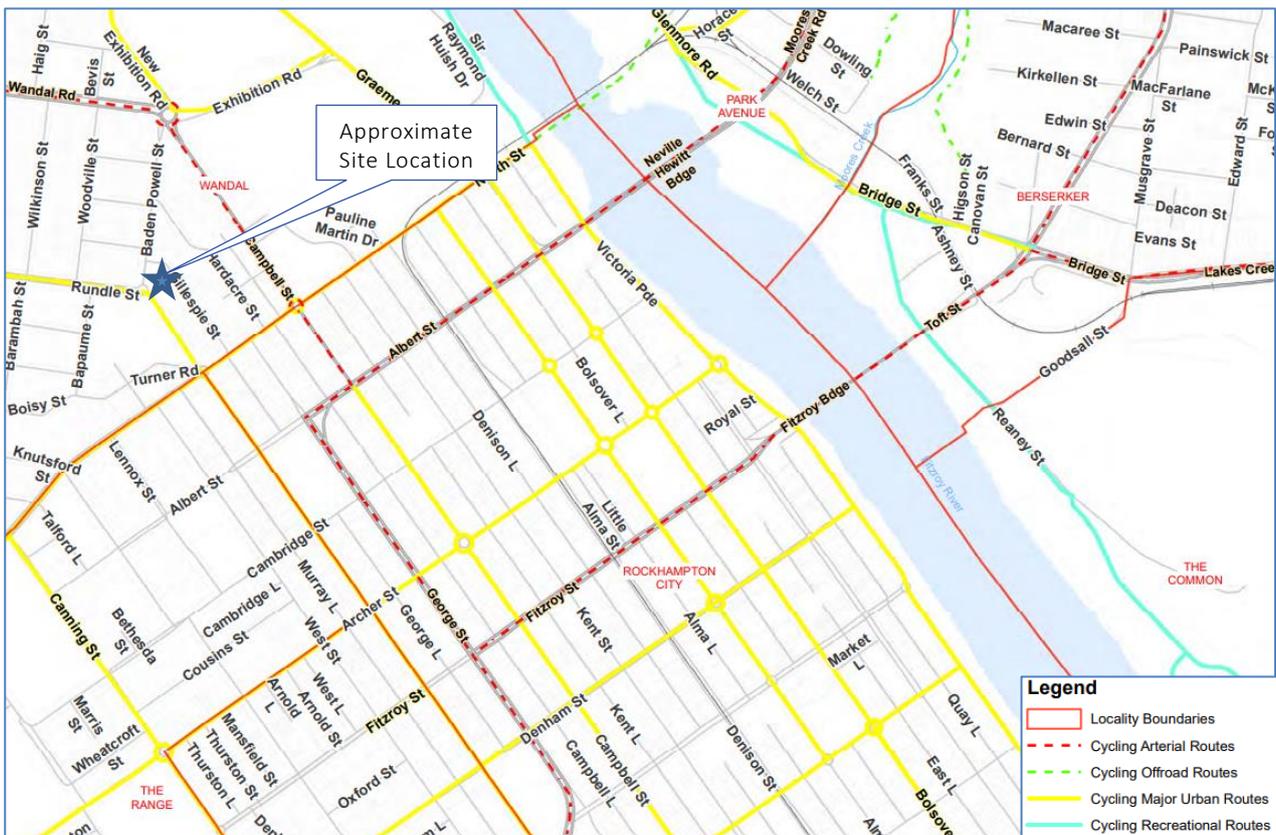


Figure 2.3: RCC Bicycle Network Plan Overlay Map (Source: RRC)

## 3 Car Parking Arrangements

### 3.1 RRC Parking Supply Requirement

Table 9.3.1.3.2 of RRC ‘Access, Parking and Transport Code’ provides guidance on the minimum parking space requirements for the proposed Childcare Centre. Table 3.1 below outlines RRC ‘Access, Parking and Transport Code’ parking requirement and proposed parking provisions.

Table 3.1: Parking Supply Requirement

Land Use	RRC Requirement	Extent	Requirement	Provision
Childcare:				
– Staff	1 space per FTE	14 staff	14 staff spaces	6 staff spaces
– Children	1 space 6 children	90 children	15 visitor spaces	15 visitor spaces
<b>Total</b>			<b>29 spaces</b>	<b>21 on-site plus 10 on-street</b>

\*FTE = Full-Time Employee

The development provides a total of 21 parking spaces (including 1 PWD space) for the visitors and staff. In addition to the on-site car parking spaces, the development will also rely on Gillespie Street and Murray Street on-street car parking spaces that directly front the site to alleviate the shortfall of 10 car parking spaces. Overall, the proposed development will have access up to 31 car parking spaces in total.

The above car parking supply includes the provision of 1 PWD parking space which is in accordance with the AS2890.1:2004 minimum requirement of 1 space per 50 standard spaces. The PWD space is to be located directly adjacent to the development entry point for ease of accessibility. Additionally, the development also provides a turnaround bay at the rear of the car parking area.

### 3.2 Acceptability of Proposed Parking Provisions

It is understood that RRC has acknowledged the site constraints and is satisfied with the proposed car parking arrangements i.e. combination of on-street and on-site car parking spaces. Furthermore, a comparison of RRC parking requirements with other councils shows RCC has higher parking requirements for childcares. For comparison purpose, Table 3.2 below show car parking supply requirements in relation to other local councils.

Table 3.2: Comparison of Parking Supply Requirement

Councils	Extent	RRC Requirement	Requirement
Rockhampton Regional Council	14 staff 90 children	1 space per FTE 1 space 6 children	29 spaces
Brisbane City Council		1 space 5 children	18 spaces
Cairns Regional council		1 space per FTE 1 space 10 children	23 spaces
Ipswich City Council		1 space per FTE 1 space 8 children	26 spaces
Logan City Council		1 space per FTE 1 space 10 children	23 spaces

\*FTE = Full-Time Employee

As shown in Table 3.2, RRC car parking supply requirements for childcare is higher compared to other councils. Based on other council car parking requirements, the proposed parking supply is considered appropriate. Furthermore, a review of the other recent development application shows that RRC has approved childcare development with reduced parking supply consistent with the proposed development scheme.

Based on the above, it is considered that the proposed 21 on-site car parking spaces are adequate to cater to the parking demand of the development site. The on-street car parking spaces are only expected to be used during the morning peak period. It is anticipated that staff parking overflow will not occur during peak hours i.e. only the visitors are expected to utilise on-street car parking spaces.

Overall, the development will have access up to 31 car parking spaces which satisfies the RRC car parking requirements.

### 3.3 Car Park Layout

Table 9.3.1.3.1 of RRC 'Access, Parking and Transport Code' refers to AS/NZS 2890.1:2004 for the design of car parking area. Table 3.3 identifies the characteristics of the proposed parking area with respect to AS2890.1:2004 requirements. The last column identifies the compliance of each design aspect. Where compliance with AS2890.1:2004 is not achieved, further information is provided below.

Table 3.3: Parking Design Requirements

Design Aspect	Minimum RRC Standard (AS2890.1:2004)	Proposed Provision	Compliance
Parking space length:			
– Staff bay	5.4m (min)	5.4m (min)	Compliant
– Visitor bay	5.4m (min)	5.4m (min)	Compliant
– PWD bay	5.4m (min)	5.4m (min)	Compliant
– Small bay	5.0m (min)	5.0m (min)	Compliant
Parking space width:			
– Staff bay	2.4m (min)	2.4m (min)	Compliant

Design Aspect	Minimum RRC Standard (AS2890.1:2004)	Proposed Provision	Compliance
<ul style="list-style-type: none"> <li>– Visitor bay</li> <li>– PWD bay</li> <li>– Small bay</li> </ul>	2.6m (min) 2.4m (min) + 2.4m shared area 2.3 (min)	2.6m (min) 2.4m (min) + 2.4m shared area 2.3m (min)	Compliant Compliant Compliant
Aisle Width: <ul style="list-style-type: none"> <li>– Parking aisle</li> </ul>	5.8m (min)	6.2m (min)	Compliant / see comments below
Maximum Gradient: <ul style="list-style-type: none"> <li>– PWD parking</li> <li>– Parking bay</li> <li>– Parking aisle</li> </ul>	1:40 (2.5%) 1:20 (5.0%) 1:16 (6.25%)	1:40 (2.5%) (max) 1:20 (5.0%) (max) 1:16 (6.25%) (max)	Compliant Compliant Compliant
Height Clearance <ul style="list-style-type: none"> <li>– General Min.</li> <li>– Over PWD bay</li> </ul>	2.2m (2.3m PWD) 2.5m	Clear height Clear height	Compliant Compliant
Parking Aisle Extension	1m beyond last bay	Min. 1m beyond last bay	Compliant
Parking Envelope Clearance – space adjacent to obstructions	Space 0.3m clear of obstructions	Space 0.3m clear of obstructions	Compliant

Whilst the design of the car park layout is consistent with AS289.01 requirements, it is noted that the small parking space provided at the rear end of the car parking area is accessed via reduced wide aisle width. The development provides 3.0m wide small car parking space to compensate for the reduced aisle width. Regardless, the space will be allocated to staff who will be accustomed to access/egress the parking space. As shown in Figure 3.1, a small car can access the parking space with adequate manoeuvrability utilising the turnaround bay.

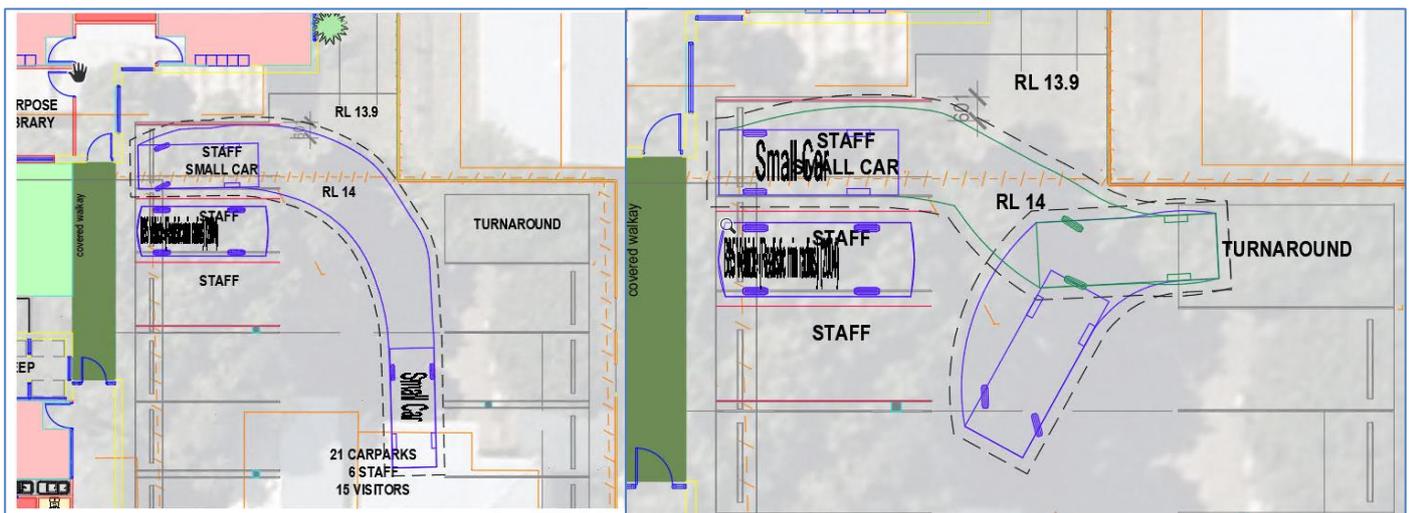


Figure 3.1: Small car access/egress small staff car bay

Based on the above, TTM considers the proposed car parking layout acceptable and ‘fit for purpose’.

## 4 Site Access Arrangements

The site currently provides three existing vehicle crossovers which will be removed as part of the development. It is proposed that development will be accessed via a single 7.0m wide crossover with all turns permitted. The details regarding the proposed access arrangements are discussed below.

### 4.1 RRC Requirements

The key design parameters of this access are to be in accordance with RRC ‘Access, Parking and Transport Code’ requirements which refers to AS2890.1:2004. These key design parameters are set out in Table 4.1 below. Where compliance with AS2890.1:2004 is not achieved, further information pertaining to the issue is provided below.

Table 4.1: Typical Driveway Requirements for Murray Street Access

Design Aspect	RRC Requirement	Proposed Provision	Compliance
Design Type	Type A (CNDG-R-042)	Modified Type A	See comments below
Entry and Exit Widths	3.0m – 5.5m	7m	See Comments below
Minimum Sight Distance (60kph)	Min – 45m Max – 69m	Clear line of sight towards Murray St/ Baden Powell St/ Rundle St intersection 109m (towards south)	See comments below Compliant
Ped Visibility Splays	2.0m x 2.5m	2.0m x 2.5m	Compliant
Gradient of first 6m	1:20 (5%)	1:20 (5%)	Compliant
Minimum Queuing Provisions	2 cars (12.0m)	0 cars (2.4m)	Performance Solution

#### Driveway Width

AS2890.1:2004 stipulates maximum 5.5m width for the proposed car park. Due to the irregular shape of the development site, the parking aisle and the driveway does not align. Therefore, the proposed width of the driveway (7.0m) is based on the swept path requirements of B99 and B85 design vehicles simultaneously accessing the driveway.

On this basis, the proposed driveway width is considered appropriate.

#### Minimum Sight Distance

The location of the proposed driveway generally compiles with the sight distance requirements in accordance with AS2890.1:2004 requirements. However, it is noted that the existing tree near to the driveway will temporarily obstruct the sight distance towards the right (while exiting the site). The temporary obstruction in sight distance is not expected to cause safety issues or impact the operation of the driveway. Murray Street frontage is deemed as a low-speed environment due to the low-speed limit (i.e. 50kph) and location of the driveway being close to the intersection. Drivers are required to approach/exit the roundabout intersection at a lower speed thus limiting the speed along the site frontage. Due to this the sight distance requirement is further reduced and also allows drivers with adequate reaction time.

Nevertheless, as shown in Figure 4.1, there is adequate sight distance to the right (while exiting the site) before and after passing the tree.

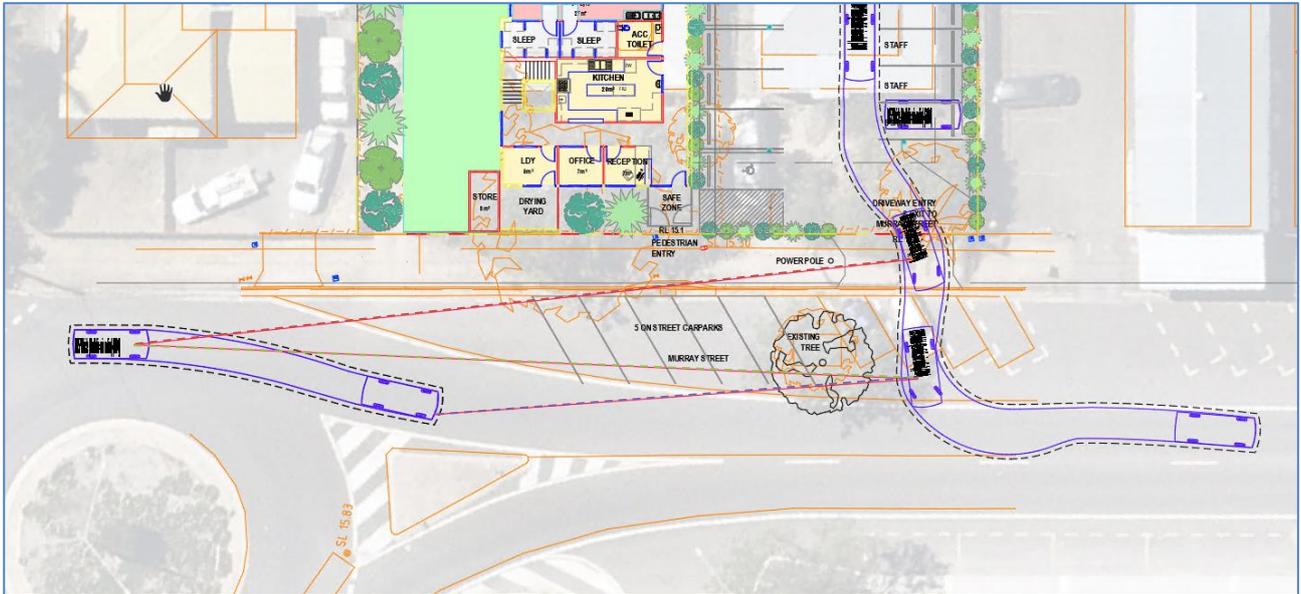


Figure 4.1: Driver sightlines at the driveway

### Minimum Queuing Provision

For the proposed car park, AS2890.1:2004 stipulates a minimum queuing provision of 2 cars (i.e. 12m). The proposed on-site queuing provision is less than 12m. In order to address this, the parking bays immediate to the property boundary/vehicle access are allocated to low turnover spaces i.e. PWD bay and staff bays. PWD bay is a low turnover parking space and staff are expected to arrive before and leave after the visitors. Therefore, queuing on the driveway impacting the operation of Murray Street is not anticipated. Furthermore, Murray Street parking lane and verge along the site frontage are sufficient to accommodate inbound queuing if required.

On this basis, it is considered that minor queuing at the site frontage can be accommodated within the verge and parking lane without impacting Murray Street operation.

## 4.2 Conclusion

Based on the information provided above, TTM considers the proposed access arrangements acceptable and ‘fit for purpose’.

## 5 Service Vehicle Arrangements

To assess the required servicing arrangements for the development, TTM has referred to RRC 'Waste Management Code' for service vehicle requirements.

### 5.1 RRC Requirements

For the proposed development, RRC 'Parking & Access Code' outline the following service vehicle requirements:

- For on-site waste collection, waste storage areas are located and designed so that:
  - they are easily accessed and convenient to use;
  - sufficient space is provided for safe entry and exit and servicing by service vehicles without the need for manual handling;
  - sufficient height clearance is provided for the safe operation of both front and side bin lifting operations;
  - they are clear of car parking bays, loading bays and similar areas; and
  - they are clear of footpaths and pedestrian access.
- Kerbside collection of waste containers ensures the safety and amenity of road and footpath users.

RRC does not specify the required allocation of service vehicle bays for the development. As such, the service vehicle arrangements will be based upon the practical operational requirements of the site.

### 5.2 General Servicing Arrangements

Childcare Centres are generally serviced by VANs due to the smaller size of the deliveries. A number of councils within Queensland City Council stipulate VAN as the largest service vehicle for childcare Centres for general servicing requirements. Therefore, based on the practical demand of the childcare, VAN is adopted as the largest 'regular access' design vehicle for the development.

It is proposed that on-site servicing will be undertaken by VANs utilising the staff or visitor parking spaces for loading and unloading. TTM Drawing 21BRT0737-01 included as **Appendix B**, demonstrates that the VAN can access/egress the site in forward gear. It is considered that on-site servicing by VAN will not impact the availability of visitor/staff car parking spaces as it is envisaged that servicing will occur outside of peak operation hours for a short duration.

The on-site servicing arrangements for the development is therefore considered adequate.

### 5.3 Waste Collection Arrangements

It is understood that waste collection will be undertaken via a private contractor by an 8.8m MRV sized waste collection vehicle. Therefore, an 8.8m MRV sized waste collection vehicle is adopted as an 'occasional access' design vehicle.

The development proposes kerbside waste collection via Gillespie Street frontage. A bin store is provided at the north-east corner of the development site. As illustrated in the TTM drawing 20BRT0737-01 (included in **Appendix B**), a refuse collection vehicle can undertake kerbside refuse collection with adequate manoeuvrability.

It is envisaged that on waste collection day, staff members will wheel the bins out and display along the site frontage kerb for collection. It is understood that 240-660 litres bins will be used for the waste collection. The development site has adequate frontage along Gillespie Street to display the bins. The proposed provision of on-street waste collection is consistent with the other existing developments within the wider Rockhampton area including the following Childcares:

- City Childcare Centre - 189 Alma St, Rockhampton QLD 4700
- Archer Street Childcare Centre - 148 Archer St, Rockhampton QLD 4700
- Kallahara Childcare Centre - 621 Norman Rd, Norman Gardens QLD 4701

The proposed waste collection arrangements are considered adequate for the development. It is envisaged that the proposed waste collection will occur outside of peak operating hours for a minimal duration. This can be expected to have negligible impacts on the operation of the development and external road network.

Overall, the service vehicle provisions for the proposed development are considered acceptable and 'fit-for-purpose.'

### 5.4 Conclusion

Overall, TTM considers that the proposed on-site servicing provisions are sufficient to cater for the expected demands generated by the development.

## 6 Traffic Impact Analysis

### 6.1 Estimated Development Traffic Generation

The current use on the site (which is residential dwellings) generates 27 vehicles per day and 3 vehicles per hour during peak hours. Once the existing dwellings are removed these trips will no longer occur and have therefore been deducted from future development generation.

For a Childcare centre, the RTA's 'Guide to Traffic Generating Developments' recommends, for planning purposes, adopting a peak hour traffic generation rate depending on the type of centre. Given the proposed development will cater for day long Childcare, TTM consider it appropriate that a rate of 0.8 vehicular trips per child be adopted during the AM peak (7am – 9am). During the PM peak (4pm-6pm), a rate of 0.7 vehicular trips per child has been adopted.

Application of these rates to the proposed development results in the following estimate of development site traffic generation is shown below.

Table 6.1: Estimated Traffic Generation

Use	Extent	Traffic Generation Rate (Weekday AM)	Peak Generation (Weekday AM)	Traffic Generation Rate (Weekday PM)	Peak Generation (Weekday PM)
Existing Dwellings	3 dwellings	0.85 / dwelling (AM & PM)	-3vph	0.85 / dwelling (AM & PM)	-3vph
Child Care	90 children	0.8vph / child (AM)	72vph	0.7vph / child (PM)	63vph
<b>Total</b>			<b>69vph</b>		<b>60vph</b>

### 6.2 Estimated Development Traffic Distribution

Childcare Centres generally cater for a certain catchment area. As shown in Figure 6.1, there are a number of existing Childcare Centres located to the north, north-east and east of the development site across the Fitzroy River. Therefore, the proposed Child Care is expected to serve the southern and western catchments. The town centre is located to the north-east of the development site, therefore, it is expected that the majority of the trips generated by the proposed development will be drop-in trips i.e., parents dropping off the children on the way to work.

It is also noted that Rockhampton State High School and The Hall State School are located in close proximity to the proposed development site. Therefore, it is considered that there will be further drop-in/shared trips for the proposed development (i.e., parents dropping off/picking up children from the school).

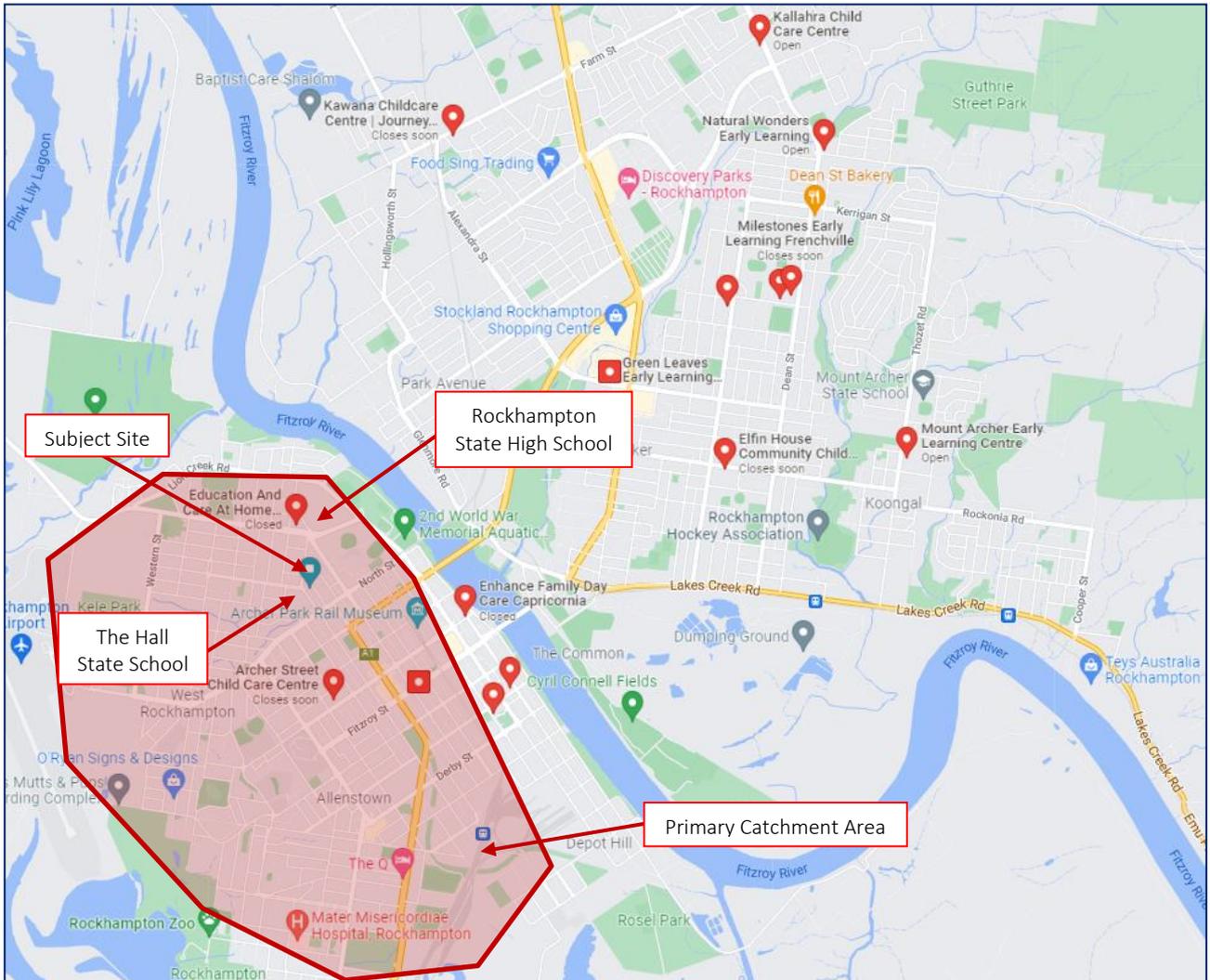


Figure 6.1: Primary catchment area of the proposed childcare

On the basis of the above, the distribution of development generation traffic is based on the following:

- 30% new trips with the remaining 70% as drop-in trips during the peak periods
- 50% of development traffic is inbound, with the remaining 50% outbound in the AM and PM Peak

Application of the estimated development traffic generation with the in/out splits are shown below.

Table 6.2: Traffic Distribution

Use	Peak Generation (vph)- New Trips						Peak Generation (vph)- Drop-in Trips					
	AM			PM			AM			PM		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Childcare	21	11	10	18	9	9	49	24	25	42	21	21

Considering the above, a detailed traffic impact assessment is not considered necessary on the following basis:

- Traffic will be distributed 50% / 50% inbound / outbound during peak hours.
- The impact on the immediate/frontage road is negligible since parents can access the site either via Murray Street or Gillespie Street. Therefore, development traffic will be distributed to two roads.
- Also, the impact on the wider road network is considered negligible since there are several approach and departure routes to the development. From the expected catchment area (south and west) of the development site), vehicles can access the site by various streets including Baden Powell Street, Rundle Street, North Street. Once the trips are distributed to the local road network and nearby road intersections, the impact of the development is expected to be minimal.
- As per RRC 'Road Infrastructure and Hierarchy Planning Scheme Policy', Murray Street, Rundle Street and Baden Powell Street are classified as minor urban collector roads. It is therefore anticipated that the additional traffic volume for the proposed development can be accommodated without any significant impact.
- The road network surrounding the development site is in a grid pattern which all provides access to the major roads. Therefore, it is anticipated that both Murray Street and Gillespie Street is adequate to accommodate the development traffic without any significant impact on the local traffic operation.
- The new trips or additional trips generated by the development site during the peak hours is 21vph (in+out) which is 1 vehicle every 3 minutes. Therefore, the impact on the surrounding road network and intersections will be minimal.

## 7 On-street Allocations

Murray Street currently provides 18.2m (approx.) wide pavement within 30m (approx.) wide road reserve along the site frontage. There are currently 4 angle parking spaces along the south-eastern frontage of the development site. These car parking spaces will be removed to provide access arrangements to the development site. There are ample parking opportunities along Murray Street. Therefore, the removal of these parking spaces is not expected to impact on-street parking provision. As shown in Figure 7.1, up to 5 angled car parking spaces for visitors will be provided along Murray Street frontage. It is noted that the proposed on-street allocations are consistent with the pre-lodgement advice provided by RRC.

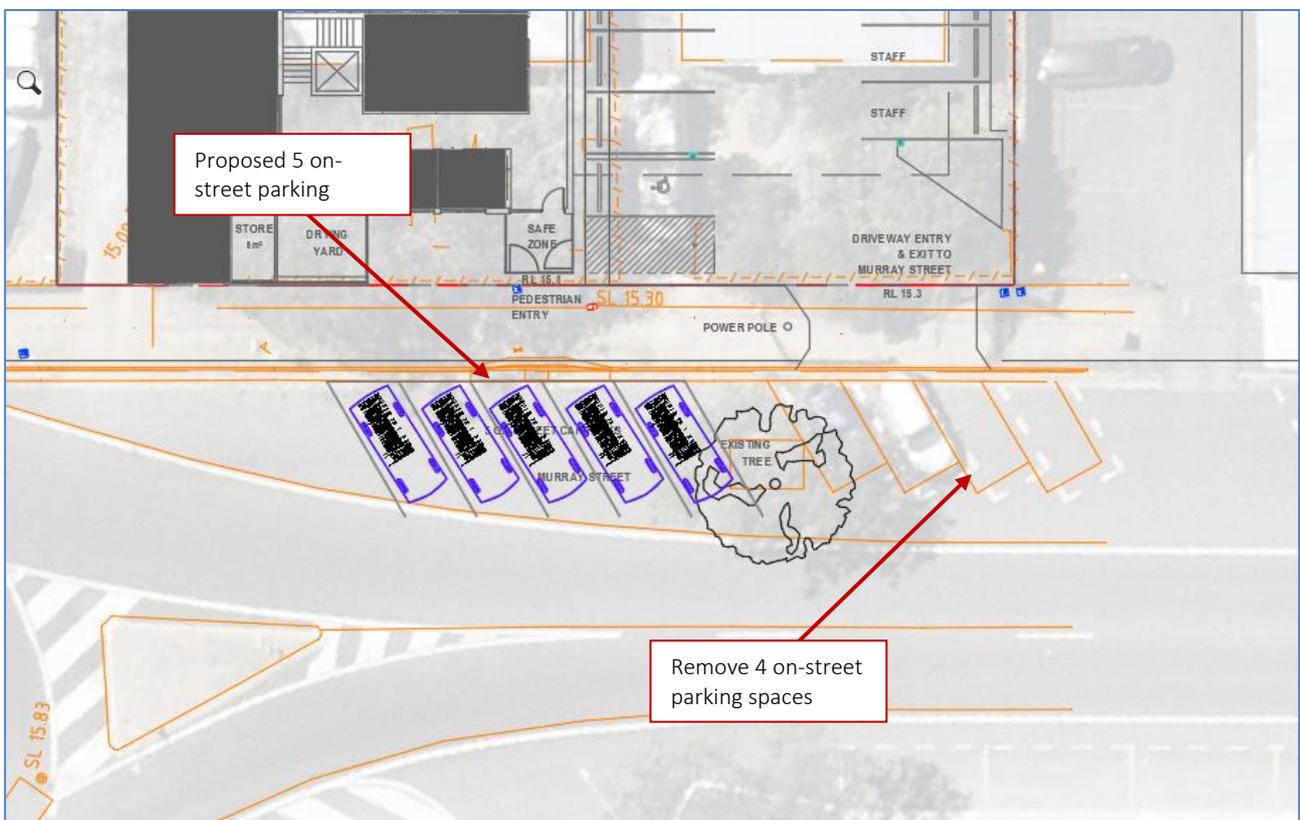


Figure 7.1: Proposed on-street parking allocation along Murray Street frontage

Additionally, as shown in Figure 7.2, up to 5 on-street car parking spaces can be utilised by the development along the Gillespie Street frontage.

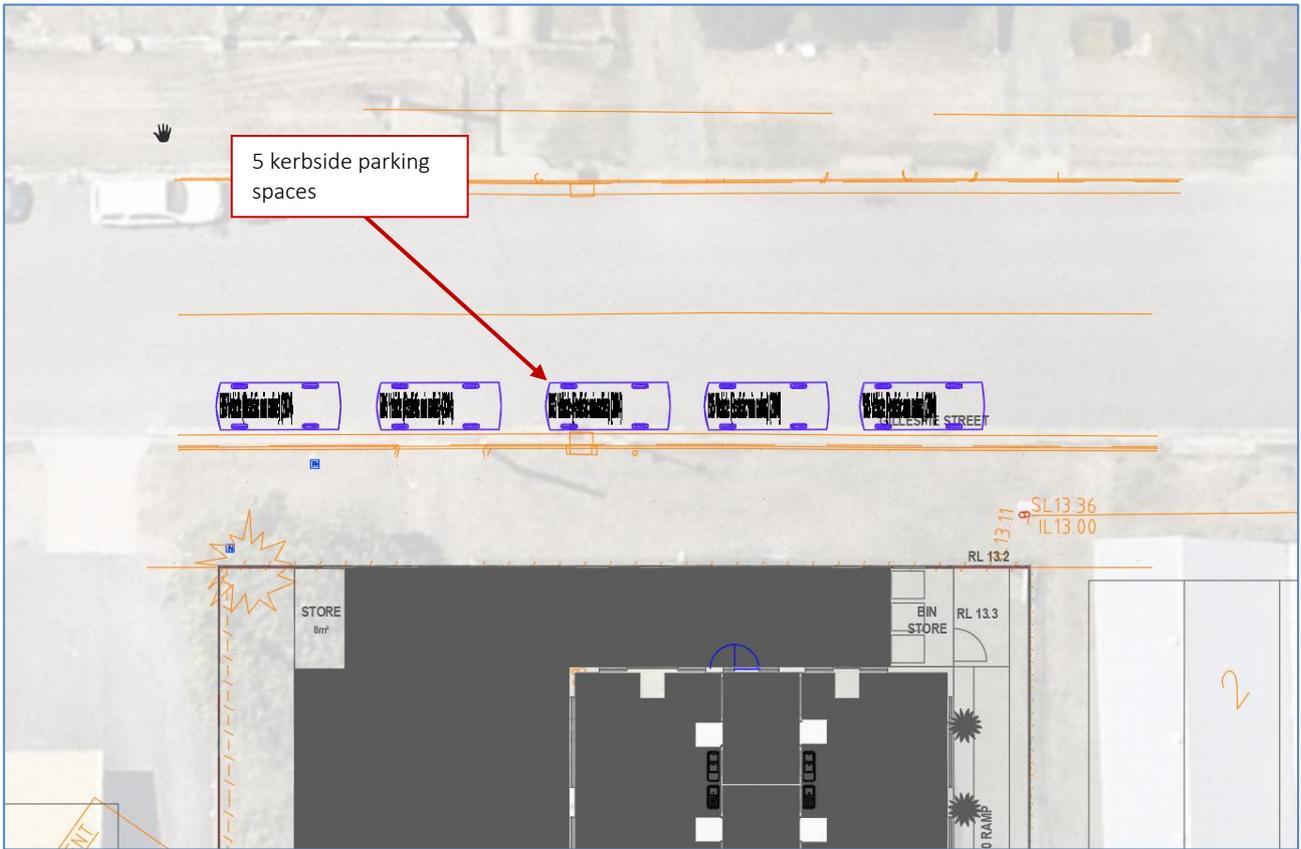


Figure 7.2: Proposed on-street parking allocation along Gillespie Street frontage

Overall, the reconfiguration of the on-street car parking spaces is not expected to impact the traffic operation on Murray Street.

## 8 Active Transport

### 8.1 Public Transport

The development is located directly opposite Translink's bus stop on Murray Street. This stop is currently being serviced by bus route 405 which provides approximately 5 services per day. Further bus stops are located along Murray Street which is located approx. 250m from the development site. These stops are being serviced by bus routes 403 and 407. These services similarly run on an hourly timetable.

Given the nature of the development, the demand for public transport is expected to be minimum. Therefore, TTM considers the existing provision of public transportation adequate for the development.

### 8.2 Pedestrian Access

Pedestrian access to the site is considered suitable with pedestrian access points available along Murray Street and Gillespie Street frontage. Formal pedestrian footpaths are provided only one side (western side) of Murray Street along the site frontage. A formal school crossing is provided to the south of the development site on Murray Street.

### 8.3 Cyclist Requirements

The roads surrounding the development site does not provide any on-street cyclist facilities and on-road markings. Whilst the surrounding roads does not provide any on-street cyclist facilities, these roads are categorised as cycling routes under the RRC 'Bicycle Network Plan Overlay Map'.

## 9 Summary and Conclusions

### 9.1 Car Parking Arrangements

The development provides 21 on-site parking spaces and also relies on on-street car parking spaces to meet the parking supply requirements outlined in RRC 'Access, Parking and Transport Code'. It is understood that RRC acknowledges the constraints of the site and is satisfied with the provision of on-street parking spaces to meet the car parking requirements. The provision of on-site car parking spaces in addition to on-street car parking spaces is considered sufficient for the proposed development site.

The design of the car parking area is consistent with AS2890.1:2004 requirements.

Overall, the car parking arrangements for the development are considered acceptable.

### 9.2 Access Arrangements

The development is accessed via a 7m wide crossover onto Murray Street. The proposed access arrangements are generally consistent with the requirements outlined in RRC. Some of the design elements of the access arrangements are proposed as a performance solution.

The development provides pedestrian access via both Murray Street and Gillespie Street frontage. Therefore, visitors will be able to utilise both Murray Street and Gillespie Street on-street parking spaces.

Overall, the access arrangement for the development is considered adequate.

### 9.3 Service Vehicle Arrangements

On-site servicing for the development will be undertaken by VAN utilising the visitor car parking spaces for loading and unloading. Kerbside waste collection will be undertaken by a private waste contractor. The provision of servicing and waste collection is consistent with other existing Childcare within the wider Rockhampton area.

Overall, the proposed servicing and waste collection arrangements are considered adequate to meet the practical needs of the proposed development.

### 9.4 Impact on Surrounding Road Network

Given the expected catchment serviced by the proposed Childcare and, The Hall State School and Rockhampton State High School located close to the proposed Childcare, it is expected that majority of the trips of the development site will be drop-in trips/ shared trips.

On this basis, it is considered that the development will not have a significant impact on the local road network surrounding the development site. As such, no further mitigating road works are required.

## 9.5 On-street Allocations

The development proposes a minor reconfiguration of the on-street parking provision along the Murray Street frontage. The development proposes to remove existing 4 angle parking spaces to provide access arrangements and provide 5 angle parking spaces towards the north of the existing tree.

## 9.6 Active Transport Facilities

The public transport infrastructure and existing pedestrian and cycling facilities are considered limited within the vicinity of the development. Given the nature of the land use demand for active and public transport are not anticipated.

## 9.7 Conclusion

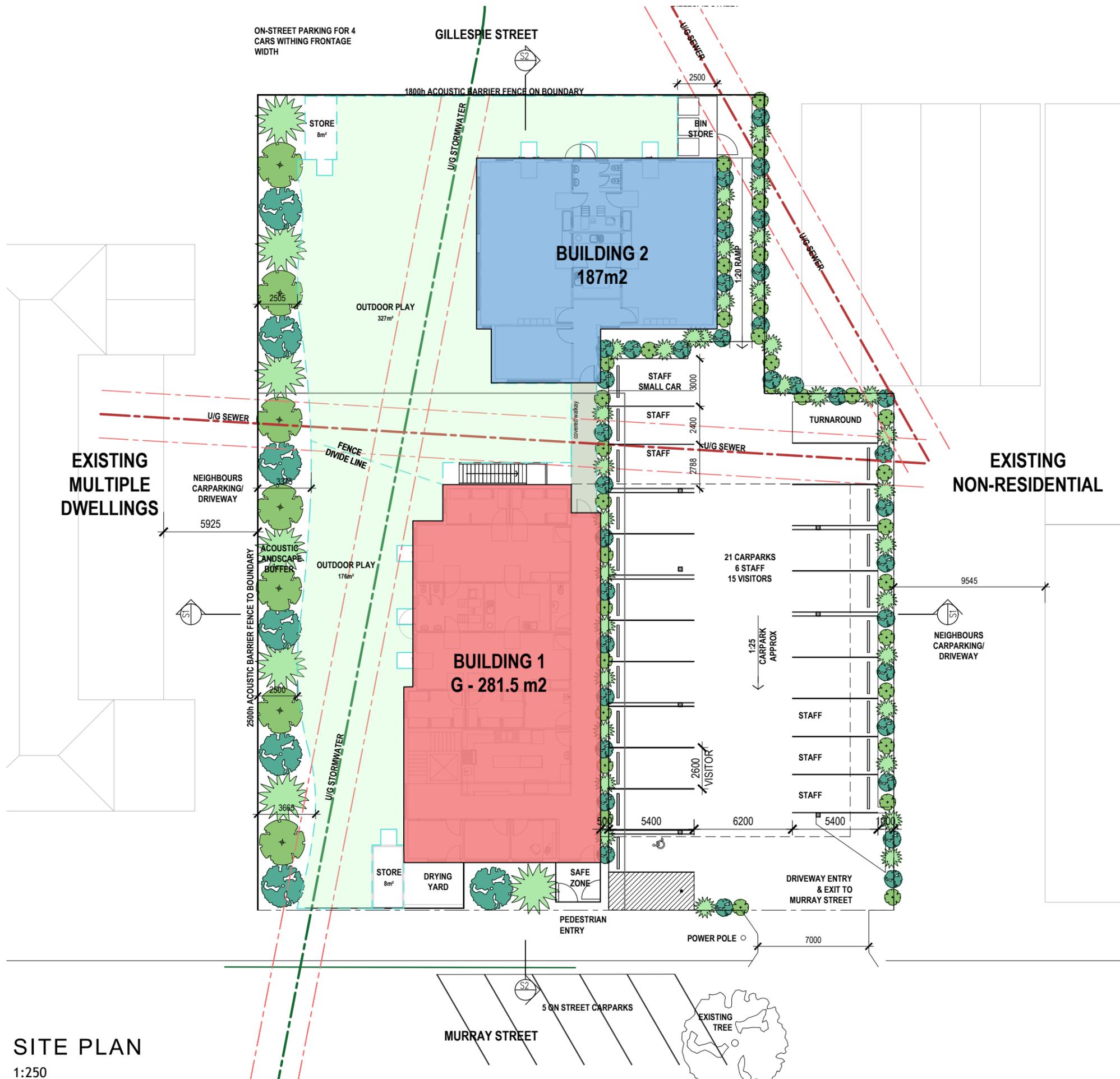
Based on the assessment contained within this report, TTM sees no traffic engineering reason why the relevant approvals should not be granted.

# Appendix A Proposed Site Plan

# PLANNING ISSUE

A ISSUED FOR PLANNING 28/02/2022

SITE DATA	
SITE AREA	1911sqm
BUILDING AREAS	GROUND - 468.5sqm FIRST - 265sqm TOTAL - 733.5Sqm
SITE - LANDSCAPE - IMPERVIOUS	795.5sqm 1115.5sqm
SITE COVER	825sqm = 42% (approx)
PROPOSED CHILD CARE PLACES	90
REQUIRED CARPARKING	1 per Staff = 14 spaces 1 per 6 places = 15 spaces TOTAL REQ = 29
PROPOSED CARPARKING	26 Formal Carparks <ul style="list-style-type: none"> <li>21 Carparks on-site</li> <li>5 Formal on-street (Murray St)</li> <li>4 Informal on-street (Gillespie St)</li> </ul>



**SITE PLAN**  
1:250



ON Architecture Pty Ltd abn 71 627 522 043  
242 ANGAS STREET, ADELAIDE, SOUTH AUSTRALIA. 5000  
Troy Owen 0432 225 859 t.owen@onarchitecture.com.au  
Mark Nield 0432 680 486 m.nield@onarchitecture.com.au

Project  
**90 PLACE CHILD CARE CENTRE**  
7-11 MURRAY ST & 25 GILLESPIE ST  
WANDAL, QLD.

Drawing  
SITE PLAN

Scale As indicated Drawn HT  
Client  
Date 25/02/2022  
Job No. 202100104  
Dwg No. **DA03** Rev: **A** A3 SHEET

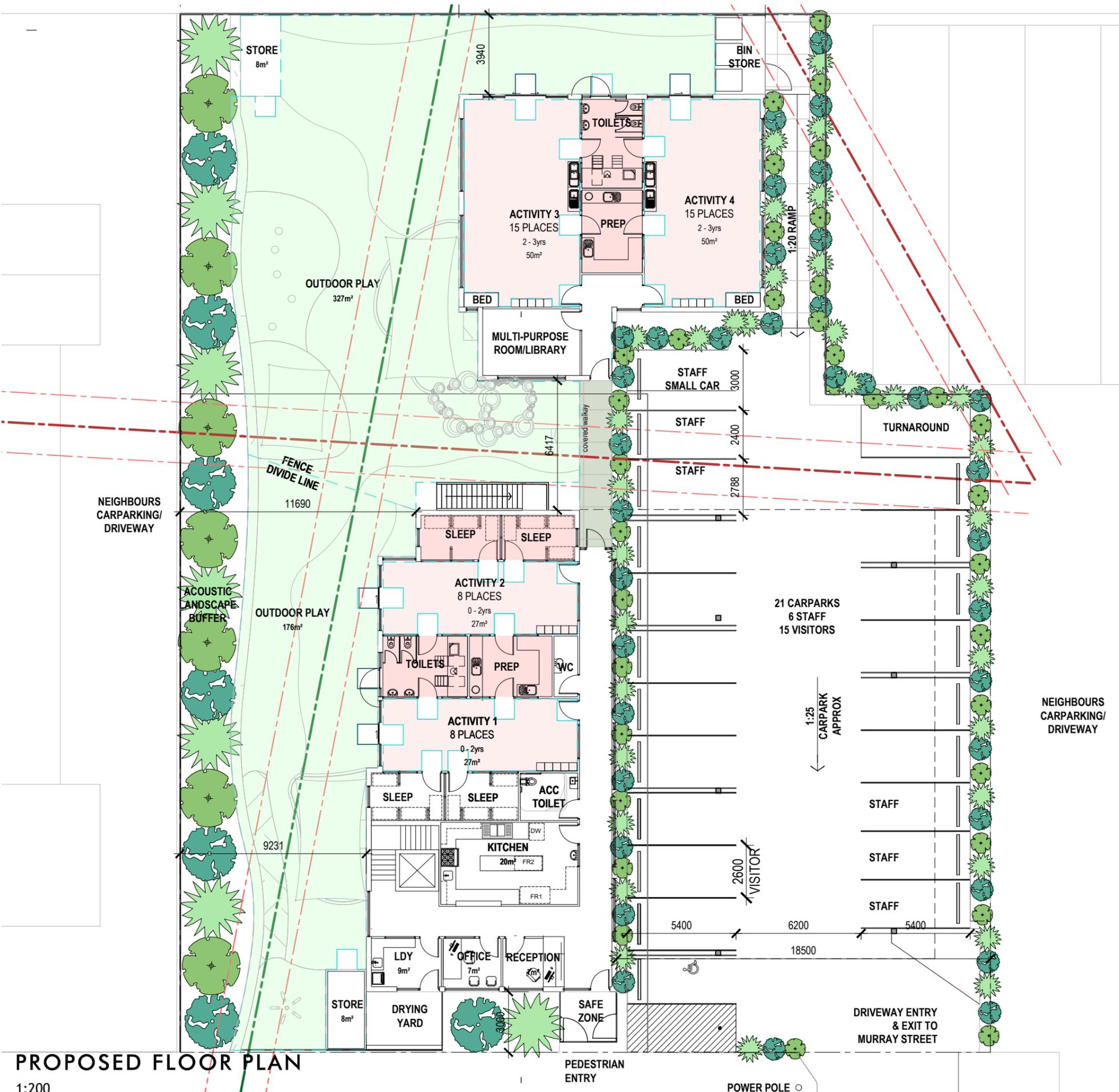
# PLANNING ISSUE

Rev	Amendment	Date
A	ISSUED FOR PLANNING	28/02/2022

ACTIVITY AREA SCHEDULE								
ROOM	PLACES	AGE	STAFF RATIO	STAFF No.	AREA REQ	UNENCUMBERED AREA	ENCUMBERED AREA	TOTAL AREA PROVIDED
ROOM 1	8	0-2	1:4	2	26	27sqm	7sqm	34sqm
ROOM 2	8	0-2	1:4	2	26	27sqm	7sqm	34sqm
ROOM 3	15	2-3	1:5	3	49	50sqm	9sqm	59sqm
ROOM 4	15	2-3	1:5	3	49	50sqm	9sqm	59sqm
ROOM 5	22	3-4	1:11	2	71.5	72sqm	9sqm	81sqm
ROOM 6	22	4-5	1:11	2	71.5	72sqm	9sqm	81sqm
TOTALS	90			14	293	298sqm	50sqm	348sqm

OUTDOOR PLAY AREA SCHEDULE					
ROOMS	PLACES	AREA REQ	UNENCUMBERED AREA	ENCUMBERED AREA	TOTAL AREA PROVIDED
ROOM 1	8		499sqm	10sqm	509sqm
ROOM 2	8				
ROOM 3	15				
ROOM 4	15				
ROOM 5	22	308	337sqm	8sqm	345sqm
ROOM 6	22				
TOTALS	90	630	872sqm	18sqm	890sqm



## PROPOSED FLOOR PLAN

1:200



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 Troy Owen 0432 225 859 t.owen@onarchitecture.com.au  
 Mark Nield 0432 680 486 m.nield@onarchitecture.com.au

Project  
**90 PLACE CHILD CARE CENTRE**  
 7-11 MURRAY ST & 25 GILLESPIE ST  
 WANDAL, QLD.

Drawing  
 PROPOSED FLOOR PLAN

Scale As indicated Drawn HT  
 Client  
 Date 25/02/2022  
 Job No. 202100104  
 Dwg No. **DA04** Rev: **A** A3 SHEET



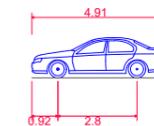
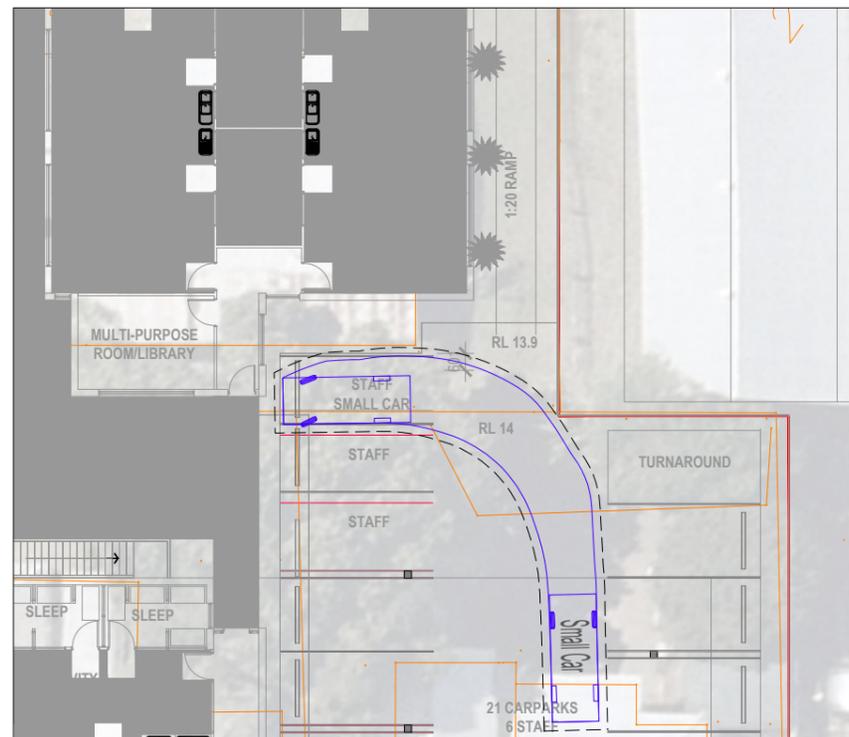
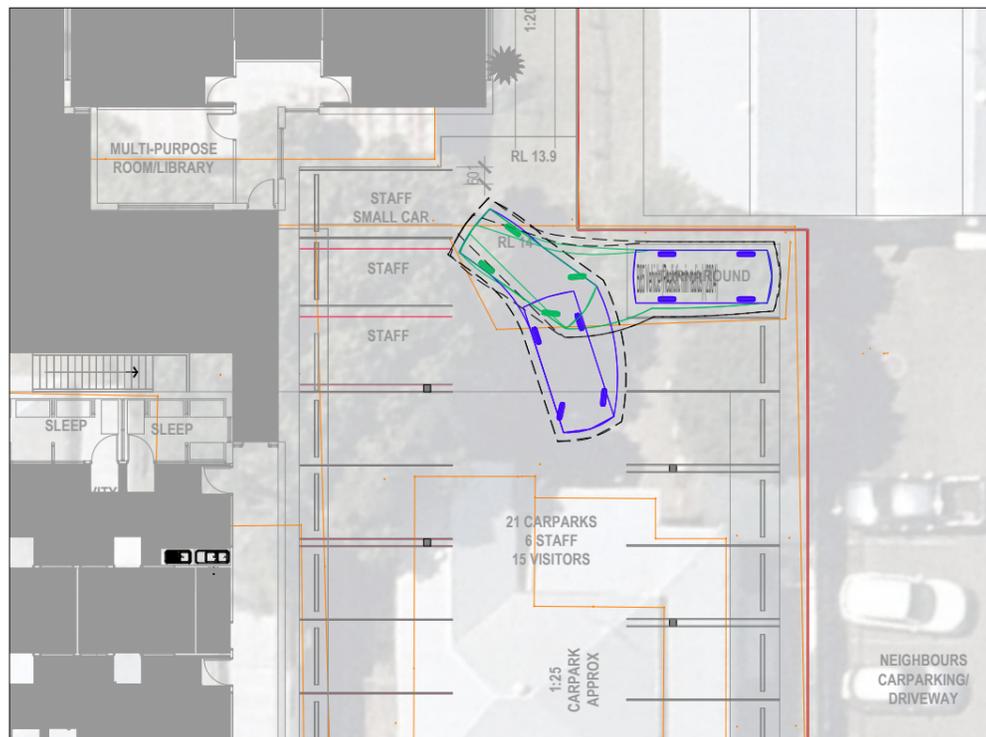
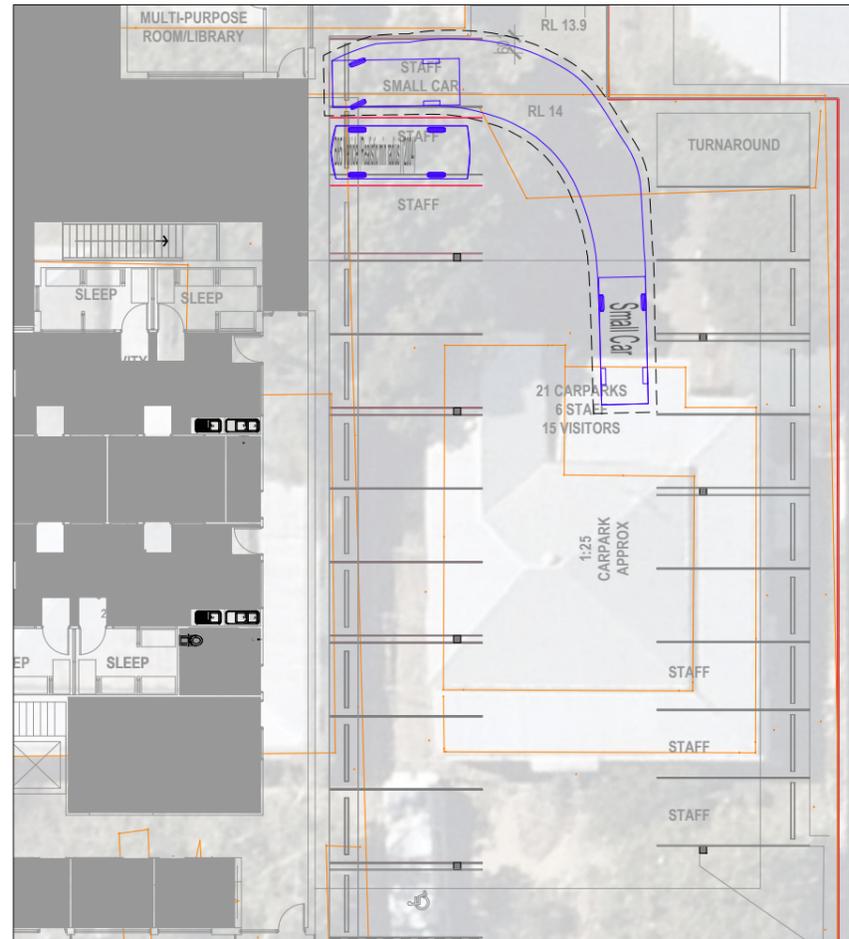
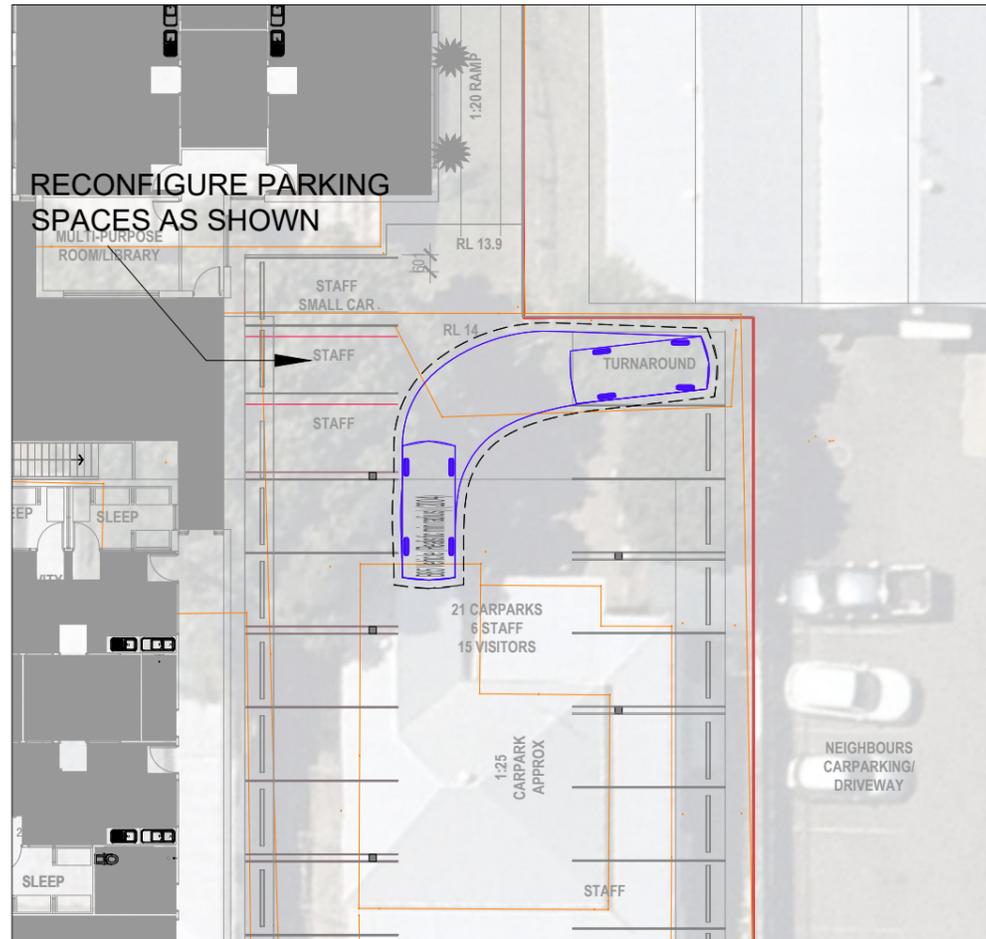
## Appendix B Swept Paths Analysis

# PRELIMINARY ADVISE ONLY

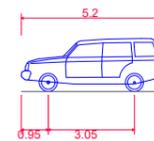
28 February 2022

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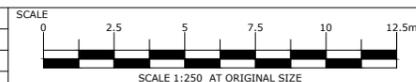
1. MAPPING UNDERLAY PROVIDED BY NEARMAP. MAY BE SUBJECT TO DETAILED DESIGN & SITE SURVEY.
2. ALL UNITS SHOWN ARE IN METERS (m) UNLESS OTHERWISE NOTED



**B85 Vehicle (Realistic min radius) (2004)**  
 Overall Length 4.910m  
 Overall Width 1.870m  
 Overall Body Height 1.421m  
 Min Body Ground Clearance 0.159m  
 Track Width 1.770m  
 Lock-to-lock time 4.00s  
 Curb to Curb Turning Radius 5.750m  
 Clearance Envelope 0.300m



**B99 Vehicle (Realistic min radius) (2004)**  
 Overall Length 5.200m  
 Overall Width 1.940m  
 Overall Body Height 1.878m  
 Min Body Ground Clearance 0.272m  
 Track Width 1.840m  
 Lock-to-lock time 4.00s  
 Curb to Curb Turning Radius 6.250m  
 Clearance Envelope 0.300m



CLIENT  
TAL GP Pty Ltd



TTM CONSULTING PTY LTD

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PROJECT

**25 GILLESPIE STREET AND 7 & 11 MURRAY STREET, WANDAL**

DRAWING TITLE

**SWEPT PATHS ANALYSIS  
 DESIGN VEHICLE B85 & B99**

PROJECT NUMBER ORIGINAL SIZE

21BRT0737 A3

DRAWING NUMBER REVISION

21BRT0737-01 A

DATE SHEET

28 Feb 2022 1 OF 2

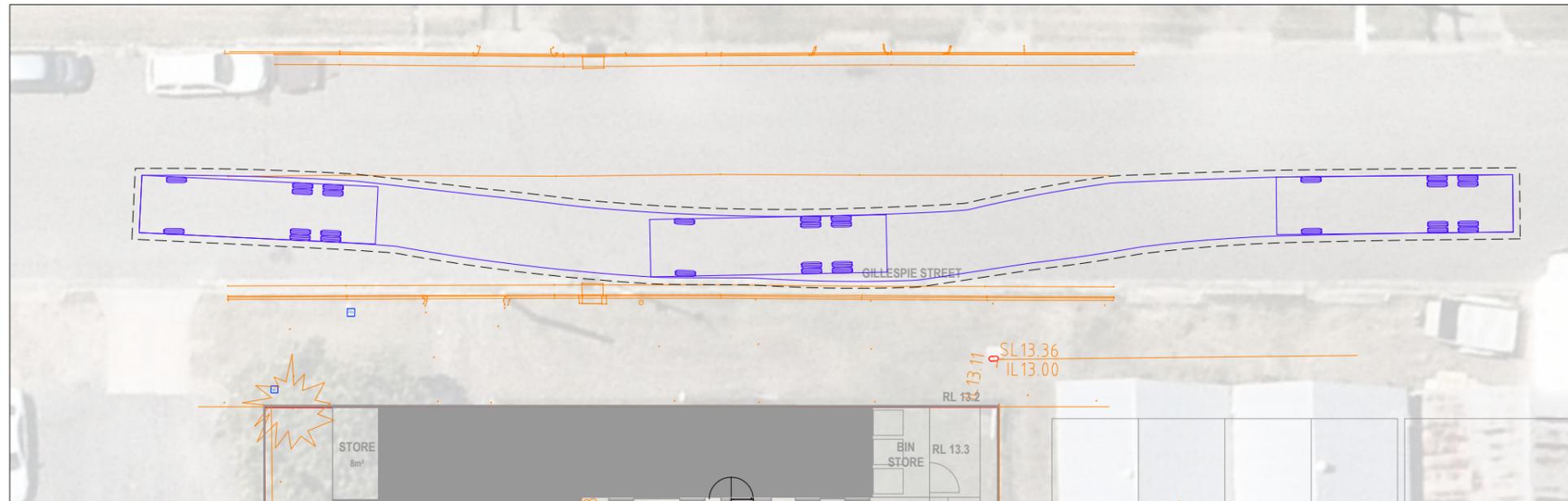
REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	28-02-22	ORIGINAL ISSUE	AH	ASH	SC

# PRELIMINARY ADVISE ONLY

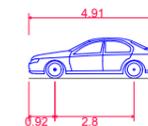
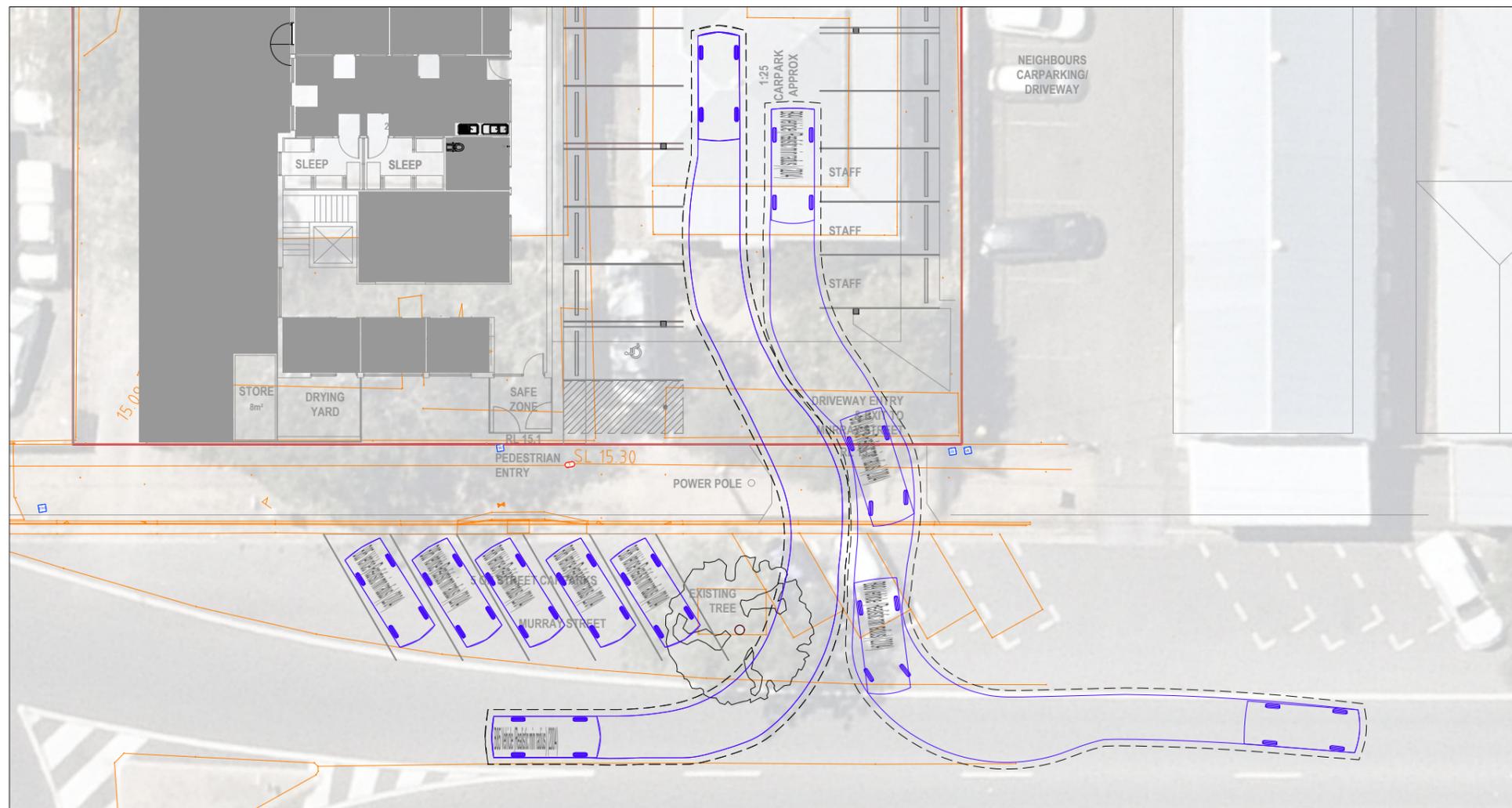
28 February 2022

### NOTES:

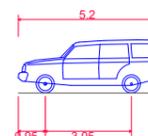
- MAPPING UNDERLAY PROVIDED BY NEARMAP. MAY BE SUBJECT TO DETAILED DESIGN & SITE SURVEY.
- ALL UNITS SHOWN ARE IN METERS (m) UNLESS OTHERWISE NOTED



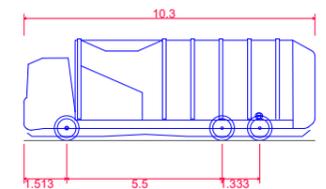
WASTE COLLECTION VEHICLE SWEEP PATH - KERBSIDE WASTE COLLECTION



**B85 Vehicle (Realistic min radius) (2004)**  
 Overall Length 4.910m  
 Overall Width 1.870m  
 Overall Body Height 1.421m  
 Min Body Ground Clearance 0.159m  
 Track Width 1.770m  
 Lock-to-lock time 4.00s  
 Curb to Curb Turning Radius 5.750m  
 Clearance Envelope 0.300m

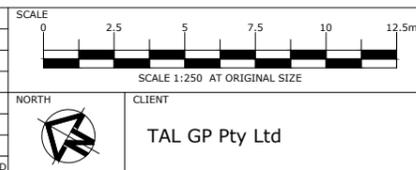


**B99 Vehicle (Realistic min radius) (2004)**  
 Overall Length 5.200m  
 Overall Width 1.940m  
 Overall Body Height 1.878m  
 Min Body Ground Clearance 0.272m  
 Track Width 1.840m  
 Lock-to-lock time 4.00s  
 Curb to Curb Turning Radius 6.250m  
 Clearance Envelope 0.300m



**Acco RCV (Side Lift)**  
 Overall Length 10.300m  
 Overall Width 2.500m  
 Overall Body Height 3.600m  
 Min Body Ground Clearance 0.150m  
 Track Width 2.500m  
 Lock-to-lock time 6.00s  
 Curb to Curb Turning Radius 9.500m  
 Clearance Envelope 0.500m

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	28-02-22	ORIGINAL ISSUE	AH	ASH	SC



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CLIENT  
**TAL GP Pty Ltd**

PROJECT  
**25 GILLESPIE STREET AND 7 & 11 MURRAY STREET, WANDAL**

DRAWING TITLE  
**SWEPT PATHS ANALYSIS  
 DESIGN VEHICLE B85, B99 & WCV**

PROJECT NUMBER	ORIGINAL SIZE
21BRT0737	A3
DRAWING NUMBER	REVISION
21BRT0737-01	A
DATE	SHEET
28 Feb 2022	2 OF 2

# Appendix C Access, Parking and Transport Code

Performance outcomes	Acceptable Outcomes	Response
<b>Access driveways</b>		
<p>PO1</p> <p>Access driveways are located to avoid conflicts and designed to operate efficiently and safely, taking into account:</p> <ul style="list-style-type: none"> <li>a) the size of the parking area;</li> <li>b) the volume, frequency and type of vehicle traffic;</li> <li>c) the need for some land uses (for example hospitals) to accommodate emergency vehicle access;</li> <li>d) the type of use and the implications on parking and circulation, for example long-term or short-term car parking;</li> <li>e) frontage road function and conditions; and</li> <li>f) the capacity and function of the adjoining street system.</li> </ul>	<p>AO1.1</p> <p>Access driveways are not located within:</p> <ul style="list-style-type: none"> <li>twenty–five (25) metres of a signalised road intersection;</li> <li>twenty (20) metres of an un-signalised road intersection in an industrial or centres zone or ten (10) metres otherwise; and</li> <li>one (1) metre of any street signage, power poles, street lights, manholes, stormwater gully pits or other Council asset.</li> </ul>	<p>Complies with Acceptable and Acceptable Outcome</p> <p>Refer to section 4 for further information.</p>
<p>PO2</p> <p>Access driveways do not disrupt existing road or footpath infrastructure.</p>	<p>AO2.1</p> <p>Access driveways:</p> <ul style="list-style-type: none"> <li>a) do not require the modification, relocation or removal of any infrastructure including street trees, fire hydrants, water meters and street signs;</li> <li>b) do not front a traffic island, speed control device, car parking bay, bus stop or other infrastructure within the road carriageway;</li> <li>c) must be sealed and to a formed road;</li> <li>d) are not constructed over an access point to equipment under the control of a regulatory authority, including storm water pits, water meters, hydrants and telephone pits; and</li> <li>e) are raised or lowered to match the surface level of the driveway, where an access chamber is to be incorporated within the driveway.</li> </ul>	<p>Complies with Acceptable Outcome.</p>
<p>PO3</p> <p>Access driveways are designed and constructed so as to:</p>	<p>AO3.1</p>	<p>Complies with Performance Outcome.</p>

<p>a) enable safe and functional vehicular access from the street to the property; and</p> <p>b) not cause a change in the level of a footpath.</p>	<p>Access driveways are constructed in compliance with the Capricorn Municipal Development Guidelines.</p>	<p>The driveway splays have been reconfigured to suit site conditions. Refer to section 4 for further details.</p>
<p>PO4 A driveway does not allow water to pond adjacent to any buildings or cause water to enter a building.</p>	<p>AO4.1 A driveway has a minimum cross fall of one (1) metre (vertical) to 100 metres (horizontal) away from all adjoining buildings.</p>	<p>Complies with Acceptable Outcome.</p>
<p>Parking</p>		
<p>Table 9.3.1.3.1 Development outcomes for assessable development (part)</p>		
<p>Performance outcomes</p>	<p>Acceptable outcomes</p>	<p>Response</p>
<p>Parking</p>		
<p>PO5 Provision is made for on-site vehicle parking: to meet the demand likely to be generated by the development; and to avoid on-street parking where that would adversely impact on the safety or capacity of the road network or unduly impact on local amenity. Editor's note—SC6.6 — Car parking contributions planning scheme policy prescribes circumstances under which an applicant can satisfy PO5.</p>	<p>AO5.1 AO5.1.1 On-site car parking is provided at the rates set out in Table 9.3.1.3.2 of the access, parking and transport code. OR AO5.1.2 Where a change of use of existing premises is proposed and there is no increase in the gross floor area, the existing number of on-site car parks is retained or increased. AND AO5.2 All parking, loading and manoeuvring facilities for visitors and employees to be located on-site. AND AO5.3 Manoeuvring facilities to be of adequate dimensions to prevent any queuing in a roadway.</p>	<p>Complies with Performance Outcome.  Refer to section 3 and 4 for further details.</p>
<p>PO6 Parking and servicing facilities are designed to meet user requirements.</p>	<p>AO6.1 Parking spaces, access and manoeuvring facilities, loading facilities and connections to the transport network are sealed and designed in accordance with Australian Standard AS 2890.</p>	<p>Complies with Acceptable Outcome.</p>
<p>PO7 Sites with more than one (1) road frontage (excluding laneways) gain access only from the lower order road, except if it will introduce traffic generated by a non-residential use into a street that is in a residential zone.</p>	<p>No acceptable outcome is nominated.</p>	<p>Complies with Performance Outcome.  Due to site constraints, the development provides access via higher order road. Refer to traffic engineering report and town planning report for further information.</p>
<p>PO8</p>	<p>AO8.1</p>	

<p>Parking areas are illuminated in a manner that maximises user safety but minimises the impacts on adjoining residents.</p>	<p>Parking areas for uses that operate at night are illuminated in accordance with the requirements of Australian Standard AS 1158. AND AO8.2 Lighting used in parking areas does not cause an environmental nuisance and complies with Australian Standard AS 4282.</p>	<p>Not within the scope of the traffic engineering report.</p>
<p>PO9 Car parking areas, pathways and other elements of the transport network are designed to enhance public safety by discouraging crime and antisocial behaviour, having regard to:</p> <ul style="list-style-type: none"> <li>a) provision of opportunities for casual surveillance;</li> <li>b) the use of fencing to define public and private spaces, whilst allowing for appropriate sightlines;</li> <li>c) minimising potential concealment points and assault locations;</li> <li>d) minimising opportunities for graffiti and other vandalism; and</li> <li>e) restricting unlawful access to buildings and between buildings.</li> </ul>	<p>No acceptable outcome is nominated.  Editor's note—Refer to Crime Prevention Through Environmental Design (CPTED) guidelines for Queensland for guidance.</p>	<p>Complies with Acceptable Outcome.</p>
<p>PO10 Parking and servicing areas are kept accessible and available for their intended use at all times during the normal business hours of the activity.</p>	<p>No acceptable outcome is nominated. Editor's note—Refer to SC6.19 – Structure plan planning scheme policy for guidance.</p>	
<p>Transport impact</p>		
<p>Table 9.3.1.3.1 Development outcomes for assessable development (part)</p>		
<p>Performance outcomes</p>	<p>Acceptable outcomes</p>	<p>Response</p>
<p>Transport impact Editor's note—Applicants should note that the Department of Transport and Main Roads may have additional requirements.</p>		
<p>PO11 Development contributes to the creation of a transport network which is designed to:</p> <ul style="list-style-type: none"> <li>a) achieve a high level of permeability and connectivity for all modes of transport, including pedestrians and cyclists, within the development and to the surrounding area; and</li> </ul>	<p>No acceptable outcome is nominated. Editor's note—Refer to SC6.19 – Structure plan planning scheme policy for guidance.</p>	<p>Not Applicable The development does not propose any new road / road network.</p>

<p>b) encourage people to walk, cycle or use public transport to and from the site instead of using a car.</p>		
<p>PO12 Development is located on roads that are appropriate for the nature of traffic (including vehicles, pedestrians and cyclists) generated, having regard to the safety and efficiency of the transport network.</p>	<p>AO12.1 Traffic generated by the development is safely accommodated within the design capacity of roads as provided in SC6.15 — Road infrastructure and hierarchy planning scheme policy.</p> <p>AND</p> <p>AO12.2 A road or street does not connect with another road or street that is more than two (2) levels higher or lower in the road hierarchy.</p> <p>AND</p> <p>AO12.3 The existing infrastructure fronting the proposed development is upgraded in accordance with SC6.15 — Road infrastructure and hierarchy planning scheme policy and Capricorn Municipal Development Guidelines.</p>	<p>Complies with Acceptable Outcome.</p> <p>It is considered that the traffic generated by the development site can be accommodated in the existing road network without any significant impact.</p> <p>The development has frontages to Minor Urban Collector and Urban Access Street.</p> <p>The development does not require any upgrade to existing infrastructure along the site frontage.</p>
<p>PO13 Where the nature of the development creates a demand, provision is made for set down and pick-up facilities by bus, taxis or private vehicle, which:</p> <p>a) are safe for pedestrians and vehicles;</p> <p>b) are conveniently connected to the main component of the development by pedestrian pathway; and</p> <p>c) provide for pedestrian priority and clear sightlines.</p>	<p>No acceptable outcome is nominated.</p>	<p>Complies with Acceptable Outcome.</p>
<p>Site access</p>		
<p>Table 9.3.1.3.1 Development outcomes for assessable development (part)</p>		
<p>Performance outcomes</p>	<p>Performance outcomes</p>	<p>Response</p>
<p>Site access</p>		
<p>PO14 Development does not impact on the safety, operation or function of the road network or system.</p>	<p>AO14.1 Vehicle manoeuvring into and from the site for all vehicles is designed in accordance with the Australian Standard AS 2890, as updated from time to time.</p> <p>AND</p> <p>AO14.2</p>	<p>Complies with Acceptable Outcome.</p>

	<p>No direct property access is gained to a highway, main road, urban arterial or sub arterial road as defined in SC6.15 — Road infrastructure and hierarchy planning scheme policy other than via a service road or a joint access arrangement with other sites.</p> <p>AND</p> <p>AO14.3 Development that generates greater than 100 vehicle movements per day does not gain access to or from an urban access place or urban access streets as defined in SC6.15 — Road infrastructure and hierarchy planning scheme policy.</p>	
<p>PO15 Development facilitates the orderly provision and upgrading of the transport network or contributes to the construction of transport network improvements.</p>	<p>No acceptable outcome is nominated.</p>	<p>Complies with Acceptable Outcome.</p> <p>The proposed development does not require upgrading or construction of transport network.</p>
<p>PO16 On-site transport network infrastructure integrates safely and effectively with surrounding networks.</p>	<p>AO16.1 Intersections, connections and access arrangements are designed in accordance with the <a href="#">Capricorn Municipal Development Guidelines</a> and <a href="#">Australian Standard AS 2890</a>.</p>	<p>Complies with Acceptable and Performance Outcome.</p> <p>On-site parking area generally complies with relevant requirements where not compliant acceptable performance solutions have been proposed,</p>
<p>Pedestrian and cyclist facilities</p>		
<p>Table 9.3.1.3.1 Development outcomes for assessable development (part)</p>		
<p>Performance outcomes</p>	<p>Acceptable outcomes</p>	
<p>Pedestrian and cyclist facilities</p>		
<p>PO17 Development provides safe and convenient pedestrian and cycle movement to the site and within the site having regard to desire lines, users' needs, safety and legibility.</p>	<p>AO17.1 Pedestrian and cyclist movement are designed in compliance with the <a href="#">Capricorn Municipal Development Guidelines</a> and <a href="#">Australian Standard AS 2890 — Parking facilities</a>.</p>	<p>Complies with Acceptable.</p> <p>On-site pedestrian facilities are provided in accordance with relevant requirements.</p> <p>The development does not require any on-site bicycle facilities.</p>
<p>PO18 Provision is made for adequate bicycle parking and end of trip facilities, to meet the likely needs of users and encourage cycle travel.</p>	<p>No acceptable outcome is nominated.</p> <p>Editor's note—Provisions are made for parking and end of trip facilities in accordance with the <a href="#">SC6.4 — Bicycle network planning scheme policy</a>.</p>	<p>Not applicable.</p> <p>The development does not require any on-site bicycle facilities.</p>
<p>Servicing</p>		
<p>Table 9.3.1.3.1 Development outcomes for assessable development (part)</p>		

Performance outcomes	Acceptable outcomes	
<b>Servicing</b>		
PO19 Refuse collection vehicles are able to safely access <u>on-site</u> refuse collection facilities.	AO19.1 Refuse collection areas are provided and designed in accordance with the <u>waste management code</u> and <u>Australian Standard AS 2890</u> .	Complies with Alternative Solution. The development proposed kerbside refuse collection due to site constraints. Refer to section 5 of traffic engineering report for further information.

## PROPOSED CHANGES IN RESPONSE TO INFORMATION REQUEST

In response to the information request, the Applicant provides notice to Council in accordance with s.52 of the *Planning Act 2016* ("PA") to make a minor change to the development application. More specifically, the changes are presented in the Amended Proposal Plans provided at **Attachment 2** and discussed in the responses to the information request below.

The changed development application does not trigger any additional assessment fees or require an updated DA Form 1.

In accordance with s.52(3) of the PA and the DA Rules, the minor change does not affect the development assessment process.

Notwithstanding that the proposed changes are made in direct response to the Assessment Manager's information request, the proposed changes are also considered to be a *minor* change in accordance with the definition of a *minor change* under Schedule 2 of the PA. The proposed changes do not result in:-

- substantially different development in accordance with Schedule 1 of the DA Rules;
- the inclusion of prohibited development;
- additional referral agencies or additional matters the referral agency must assess; and
- an increase in the level of assessment to the original development application that would require the development application to be publicly notified.

### **ROCKHAMPTON REGIONAL COUNCIL**

#### **APPROVED PLANS**

These plans are approved subject to the current conditions of approval associated with

**Development Permit No.: D/20-2022**

**Dated: 27 June 2022**

## INFORMATION REQUEST RESPONSE

### 1.0 ENGINEERING

1.1 Provide updated proposal plans that show the two (2) storey building, including roofing, separated a minimum of 1.5 metres(m) from the centre line of existing trunk stormwater infrastructure (600mm diameter main).

1.2 Provide a section drawing of the encroachment of the single storey building into the existing drainage easement (north) and over the 150mm sewer reticulation main (south), which details the height of the roof and distance encroached into the easement/ over the sewer reticulation main.

1.3 Provide a copy of the 'Engineering Report & Stormwater Management Plan' and associated drawings, prepared by vT Consulting Engineers, which are certified by a Registered Professional Engineer of Queensland (RPEQ).

1.4 Demonstrate the proposed development complies with *Queensland Development Code (QDC)*, Mandatory Part 1.4 "Building over or near relevant infrastructure". A note on the 'Preliminary Bulk Earthworks - Layout Plan', drawing P200 Revision B, indicates the edge of the bored pier footing to be 1.0m from edge of the sewer and stormwater infrastructure, however, this is to be 1.2m in accordance with QDC MP1.4.

1.5 Demonstrate that a 19m semi can exit the roundabout onto Murray Street and not impact on the proposed angle parking bays within the road reserve.

1.6 Council has concerns regarding the methodology used to determine the peak stormwater runoff from the site for the pre and post development scenarios and for the determination of the detention tank sizing. The runoff coefficient values for both scenarios should be determined from Table 4.5.3 in the *Queensland Urban Drainage Manual (QUDM)*. Clarify these issues and provide supporting calculations for the detention tank sizing.

1.7 Demonstrate how the proposed development responds to the overland flooding and ensures non-worsening of conditions on the adjoining properties due to the proposed filling on the site. The site is affected by overland flooding based on the *Wandal and West Rockhampton Local Catchment Study 2018*, as identified in the pre-lodgement meeting minutes. Please note this flood mapping is not yet adopted in the current. Rockhampton Region Planning Scheme 2015 (2.2).

#### Applicant's Response

Refer to the Amended Proposal Plans at **Attachment 2** which include the revised roof design, modified to eliminate the encroachment into the 1.5m area measured from the centreline of the existing trunk stormwater infrastructure (See **Extract 1** below).

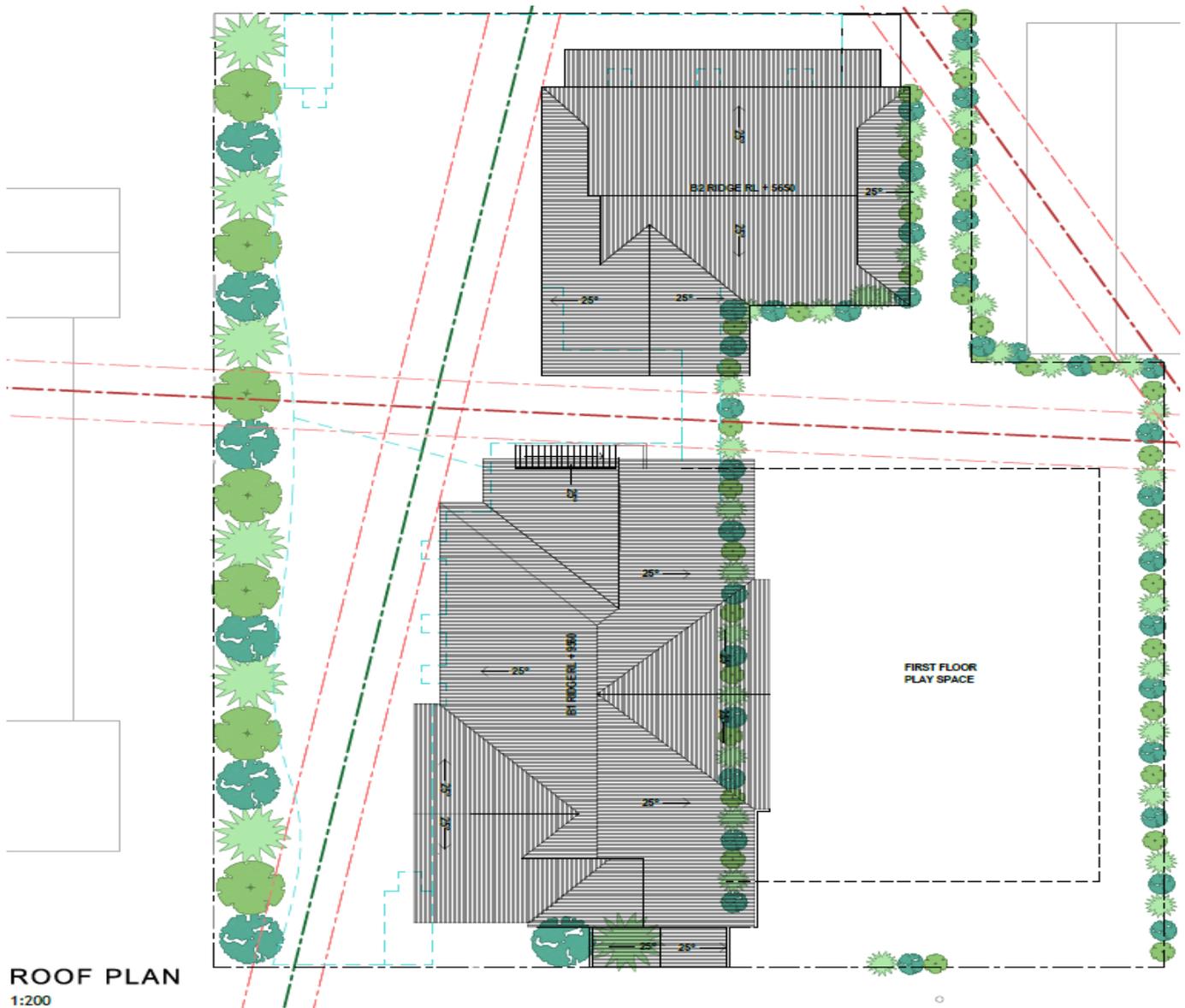
#### **ROCKHAMPTON REGIONAL COUNCIL**

#### **APPROVED PLANS**

These plans are approved subject to the current conditions of approval associated with

**Development Permit No.:** D/20-2022

**Dated:** 27 June 2022



**Extract 1** – Proposed Roof Plan (Source: On Architecture)

As can be seen in **Extract 1** above, the revised roof design ensures the single storey building does not encroach into the existing drainage easement (north) or the 150mm sewer reticulation main (south). As such, details of encroachment are not required.

Refer to the Engineering Response provided at **Attachment 3**, which includes a copy of the Engineering Report and Stormwater Management Plan provided as part of the development application, which has been certified by a Registered Professional Engineer of Queensland (RPEQ). The Engineering Response has been revised to ensure compliant separation between the edge of the bored pier footing and existing stormwater and sewer infrastructure. As noted within the updated Engineering Report & Stormwater Management Plan (**Attachment 3**), the bored pier footing is separated a minimum 1.2m from the edge of the existing stormwater infrastructure in accordance with Queensland Development Code (QDC) MP1.4. A detailed assessment of the QDC will be required to be undertaken as part of a subsequent Building Application process and the response provided at **Attachment 3** is considered sufficient for this development application.

Refer to the Traffic Response provided at **Attachment 4** which includes a swept path to demonstrate how a 19m long semi-articulated vehicle can navigate the Murray Street roundabout and travel along Murray Street without impacting the proposed angled parking spaces within the road reserve.

Refer to the Engineering Response at **Attachment 3** which provides the calculation and methodology used to determine the detention capacity required for the proposed development. Pre-development and post-development scenarios are included within the reporting to ensure the establishment of the childcare centre will have a non-worsening effect on the existing stormwater drainage network. The runoff calculation method used is in accordance with Table 4.5.3 in the Queensland Urban Drainage Manual and certified by an RPEQ engineer.

As identified by council, the subject site is not affected by overland flow flood mapping under the *Rockhampton Regional Planning Scheme 2015* which includes the assessment benchmarks for the development application. As such, the overland flow study identified by council in Item 1.7 and within the Prelodgement Minutes is not an assessment benchmark for the development application under the current planning scheme as the abovementioned flood mapping has not been adopted. The proposed on-site cut and fill and stormwater management arrangements have been assessed by an RPEQ Engineer to ensure a non-worsening impact to adjoining properties.

## 2.0 PLANNING

2.1 Detail the type and amount of waste (general and recyclable) anticipated to be generated by the proposed development. Council officers are concerned there is insufficient area in the proposed 'Bin Store' to accommodate the required number of waste bins to cater for the development.

2.2 Detail how the proposed four (4) on-street car parking spaces within Gillespie Street will work without compromising the ability of a waste collection vehicle to collect the waste bins.

### Applicant's Response

As detailed within the Traffic Response at **Attachment 4**, 3 x 1100L bins are required to appropriately service the development with the provision of twice weekly refuse collection. The current size of the bin store is sufficient to accommodate the three (3) bins required to effectively service the development (see **Extract 2** below). As noted within the Traffic Response, the waste generation rates were determined by engaging with the future childcare centre operator to understand waste generation and collection requirements of existing 90-place childcare centres within their portfolio. This approach was required due to the absence of specific waste generation rates for childcare centres within the *Rockhampton Regional Planning Scheme 2015*.

Refer to the Traffic Response at **Attachment 4** which demonstrates the process for a waste collection vehicle to access kerbside refuse without conflicting with vehicles parked within the informal on-street parking spaces located on Gillespie Street. There is enough space along the Gillespie Street frontage to accommodate four (4) vehicles for drop off/pick up, with sufficient room for a refuse collection vehicle to undertake kerbside collection, refer to **Extract 2** below.

# Wandal Childcare Landscape Plan

**ROCKHAMPTON REGIONAL COUNCIL**

**APPROVED PLANS**

These plans are approved subject to the current conditions of approval associated with

**Development Permit No.:** D/20-2022

**Dated:** 27 June 2022

28<sup>st</sup> February 2022

Project:

**202100104 - Wandal**

**01\_ Site Planting & Surfaces Plan**

**02\_ First - Play Space Design**

**03\_ Fence Design Intent**

**04\_ Landscape Planting Palette**

**05\_ Materials & Elements**



# 01\_Site Planting & Surfaces Plan



## Legend

- 1 - Proposed Medium Tree
- 2 - Proposed Screen Planting
- 3 - Proposed Shrubs & Groundcover
- 4 - Existing Tree

-  Outdoor Play Area
-  Grass
-  Playdirt
-  Screen Planting
-  Shrubs & Groundcover

**ROCKHAMPTON REGIONAL COUNCIL**

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**Project:**  
Proposed Childcare Centre  
7-11 Murray St & 25 Gillespie St, Wandal, QLD

**Job:** 202100104      **Scale:** 1:200  
**Date:** 28/02/2022      **Sheet:** A3



# 02\_First - Play Space Design

## Legend

MURRAY STREET

GILLESPIE STREET

-  Outdoor Play Area
-  Hanging Garden
-  Barrel Planter

**ROCKHAMPTON REGIONAL COUNCIL**

**APPROVED PLANS**

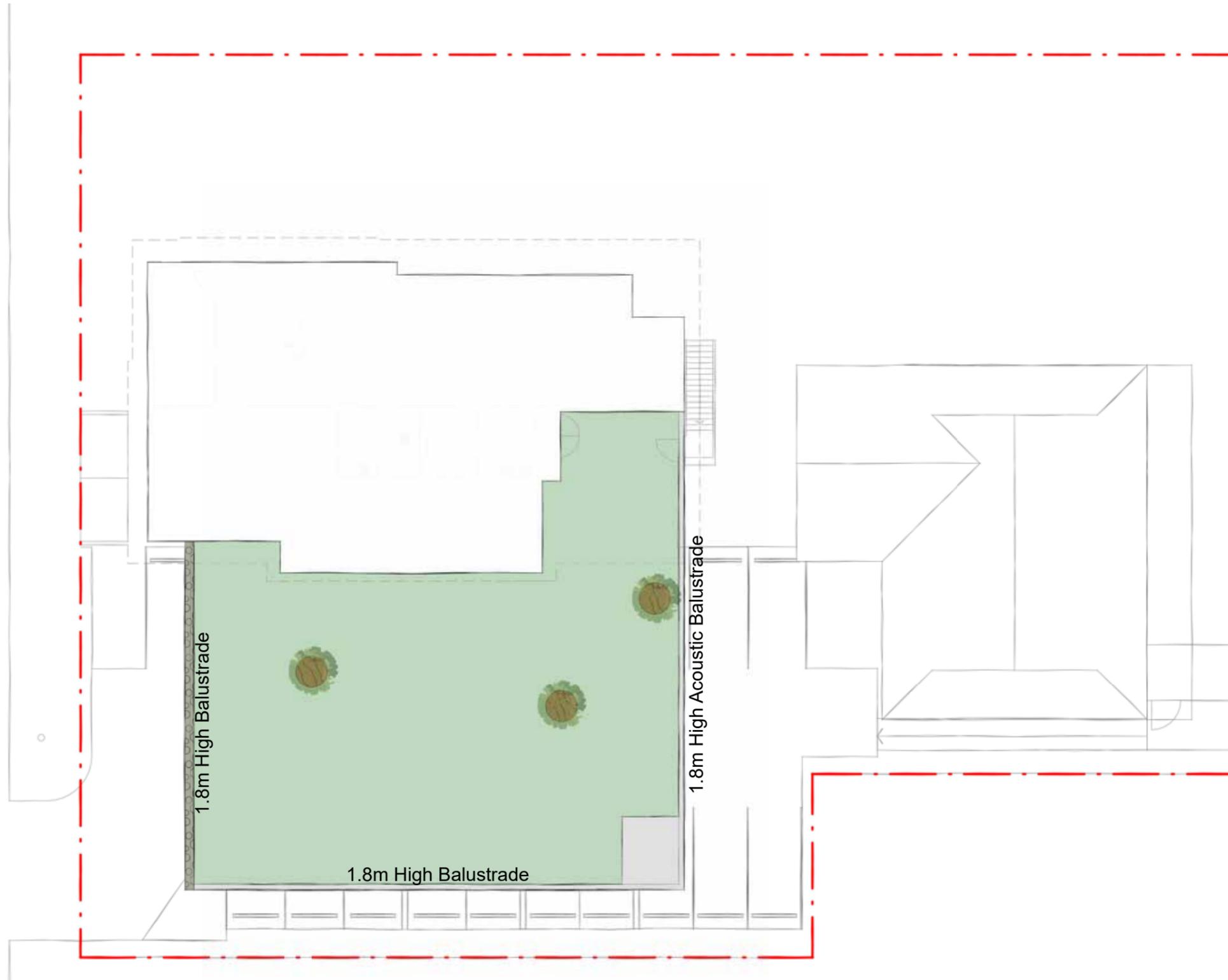
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# 03\_Fence Design Intent



## Legend

- FT1 1.8m Colorbond Good Neighbor Fence
- FT2 2.5m Acoustic Fence
- FT3 1.8m Acoustic Fence
- FT4 1.2m Timber Pailing fence
- FT5 1.2m Pool Fencing

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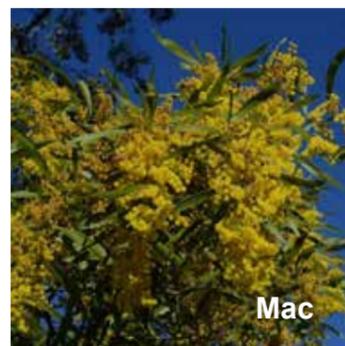
**Project:**  
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# 04\_Landscape Planting Palette

Code	Common Name	Spacing	Pot Size	Height & Width at Maturity (m)	
<b>1. Medium Tree</b>					
Fim	<i>Acacia fimbriata</i>	Brisbane Golden Wattle	As shown	100L	4-6 (H)
Lob	<i>Glochidon lobocarpum</i>	Cheese Tree	As shown	100L	5-8 (H)
Ana	<i>Cupaniopsis anacardioides</i>	Tuckeroo	As shown	100L	5-10 (H)
<b>2. Screen Planting</b>					
Ban	<i>Grevillea banksii</i>	Red Flowered Silky Oak	3000mm	200mm	5 x 2-5
Mac	<i>Acacia Macradenia</i>	Zig Zag Wattle	1500mm	200mm	4 x 3
Pol	<i>Leptospermum Polygalifolium</i>	Yellow Tea Tree	2000mm	200mm	4 x 3-5
<b>4. Shrubs and Groundcovers</b>					
Mal	<i>Melastoma malabathricum</i>	Blue Tongue	1000mm	140mm	1-3 x 2-3
Aus	<i>Pavetta australiensis</i>	Butterfly Bush	2000mm	140mm	2-4 x 2-3
Syz	<i>Syzygium australe</i>	Mini Lilly Pilly	1500mm	140mm	2-3 x 3
Par	<i>Myoporum parvifolium</i>	Creeping Boobiolla	500mm	140mm	0.3 x 3
Cae	<i>Dianella caerulea</i>	Flax Lily	1000mm	140mm	<1 x 1
<b>5. Climbers</b>					
Pan	<i>Pandorea pandorana</i>	Wonga Vine	1000mm	140mm	Climber 6m+ (h)



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