

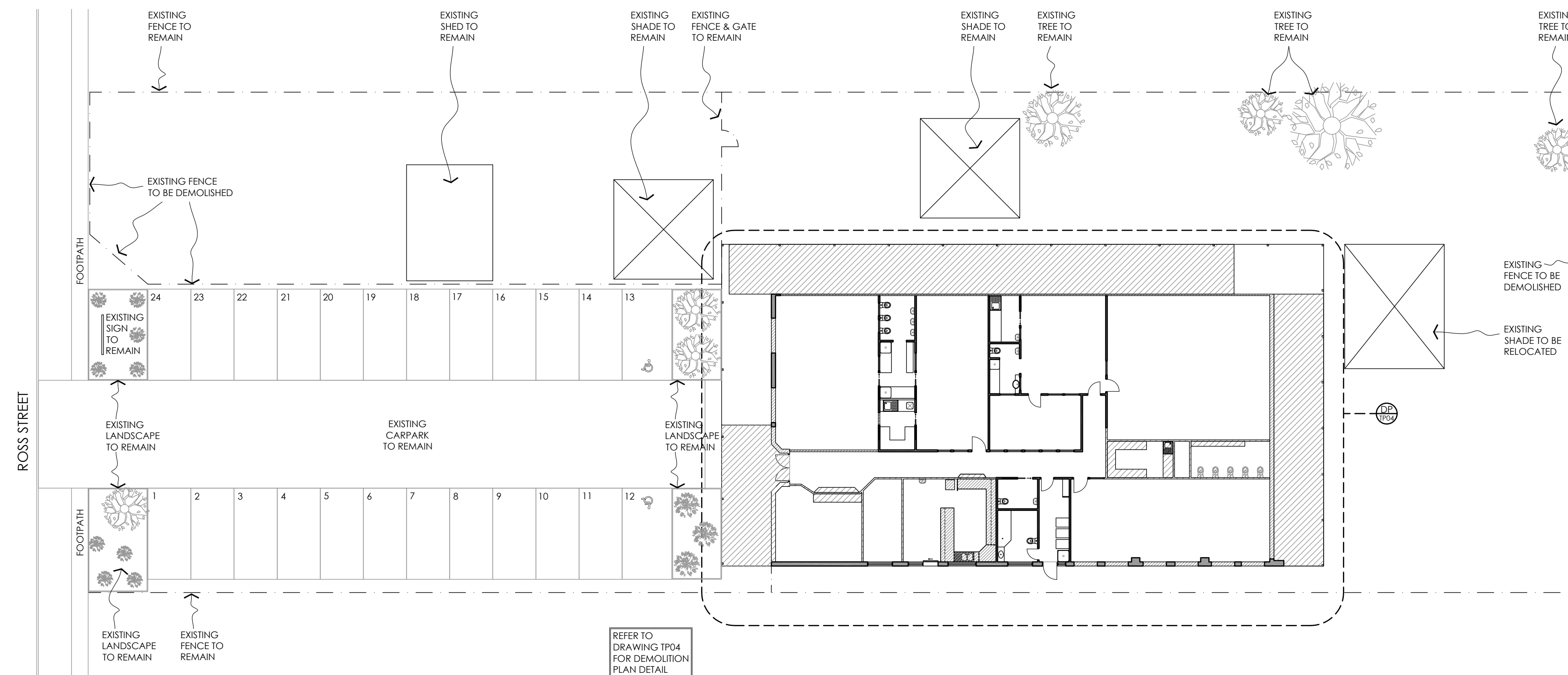
**ROCKHAMPTON REGIONAL COUNCIL**

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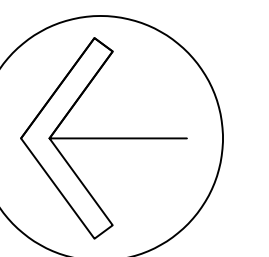
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**Dated: 8 December 2020**



 SITE DEMOLITION PLAN  
Scale 1:200



SCALE



1m 2m 5m

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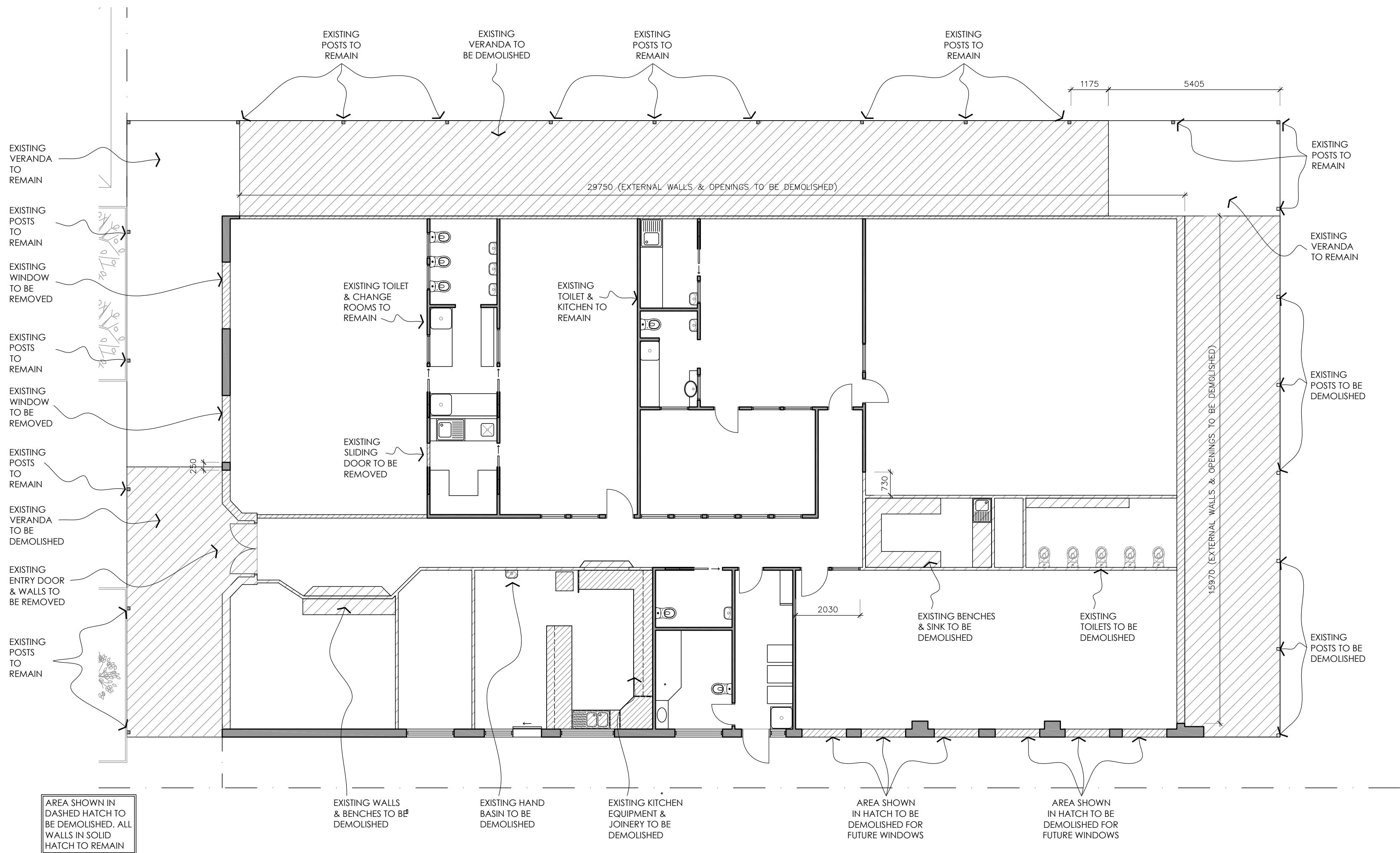
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DP DEMOLITION PLAN  
TP03 Scale 1:100

Revisions:			
No.	Descriptions	By	Date
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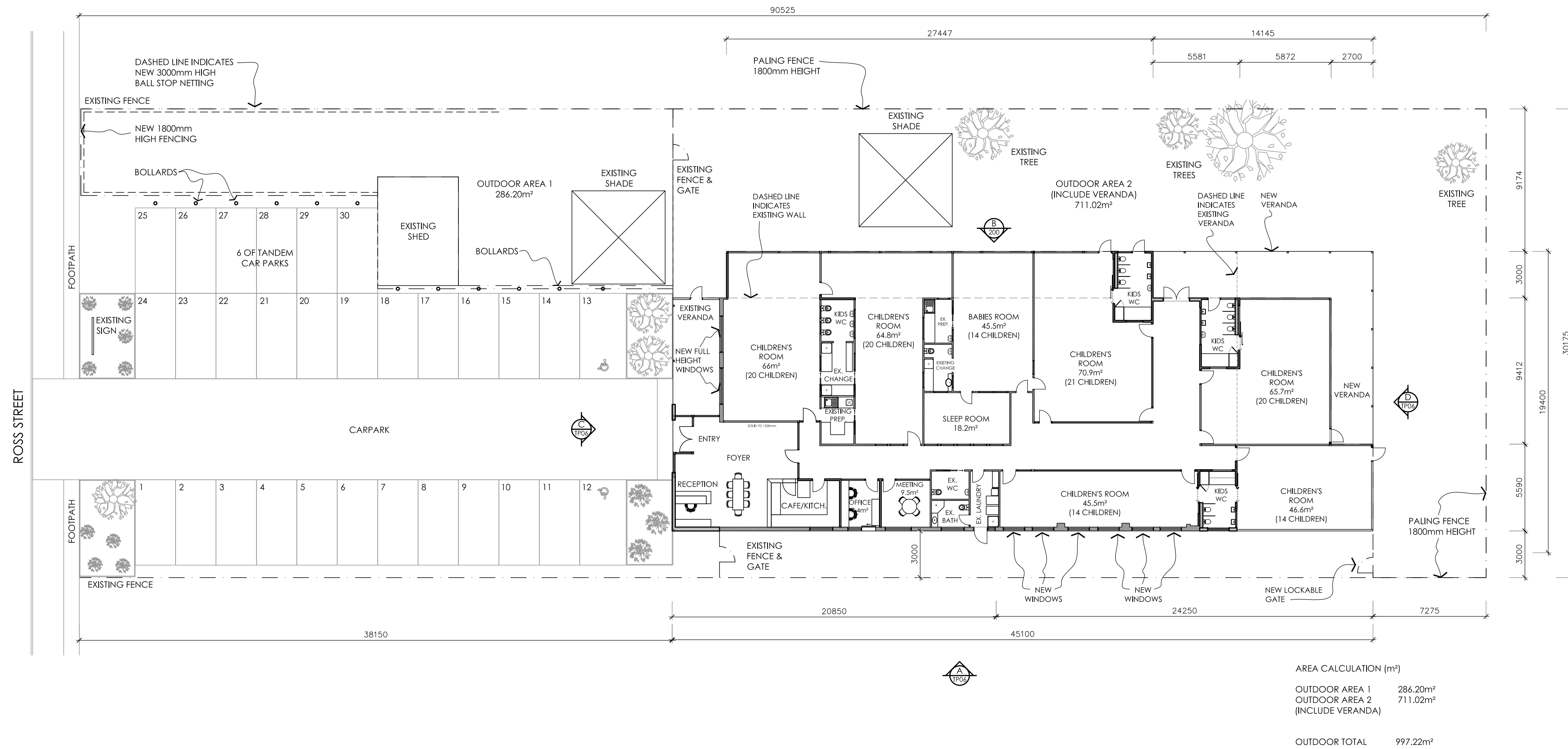
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TOWN PLANNING

Project:  
GENIUS ALLENSTOWN  
Address:  
27 ROSS STREET, ROCKHAMPTON, QLD  
Drawing Title:  
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Project No.:  
19048  
Scale:  
1:100 @ A1  
Drawn by:  
CJ

Date:  
17.08.2020  
Dwg No. & Revision:  
TP04  
TP.01





**PROPOSED SITE / FLOOR PLAN**  
Scale 1:200

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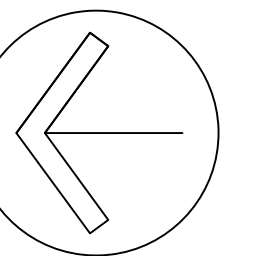
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**DATE**

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SCALE  
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TP.01	TOWN PLANNING ISSUE	JP	27.10.20

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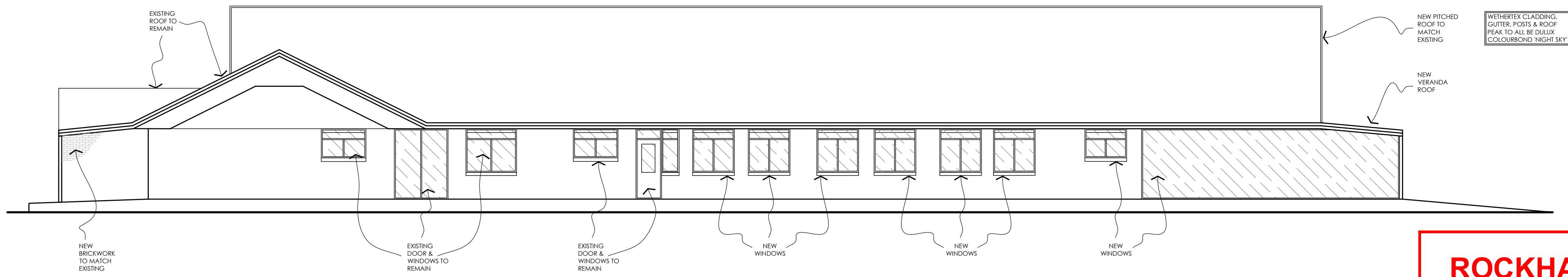
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Drawing Title:  
**PROPOSED SITE/ FLOOR PLAN**

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Scale: 1:200 @ A1	Dwg No. & Revision: TP05
Drawn by: JP	TP.01

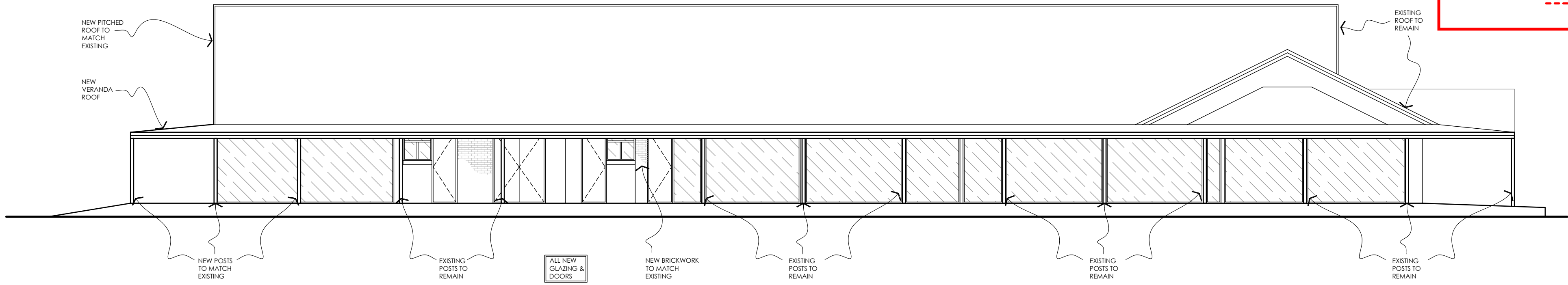




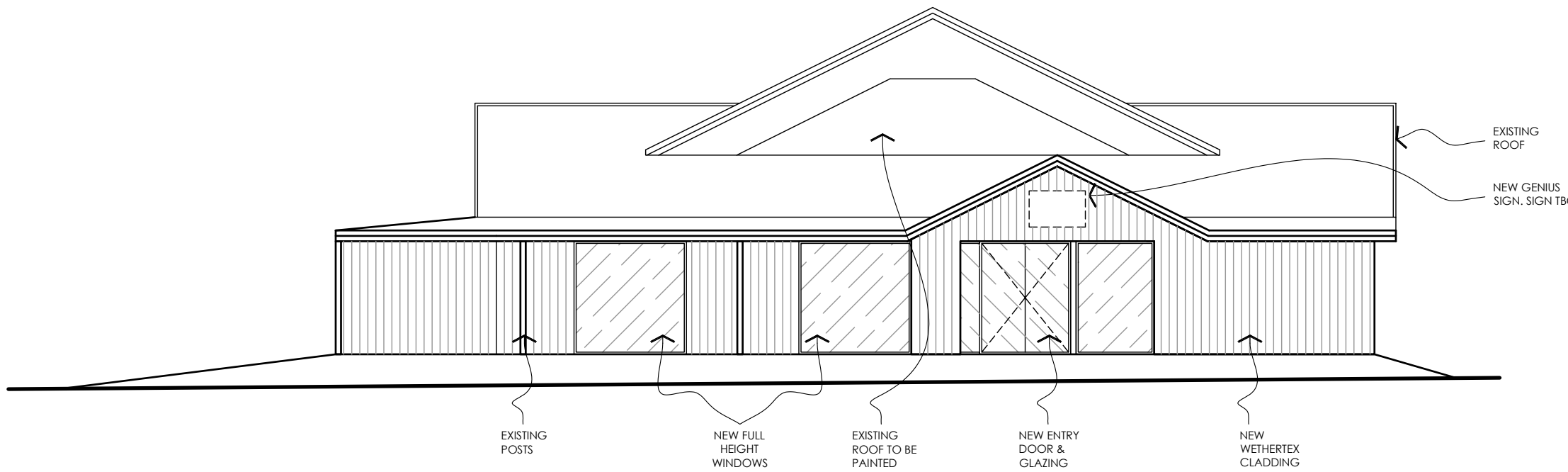
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**ROCKHAMPTON REGIONAL COUNCIL**  
**APPROVED PLANS**

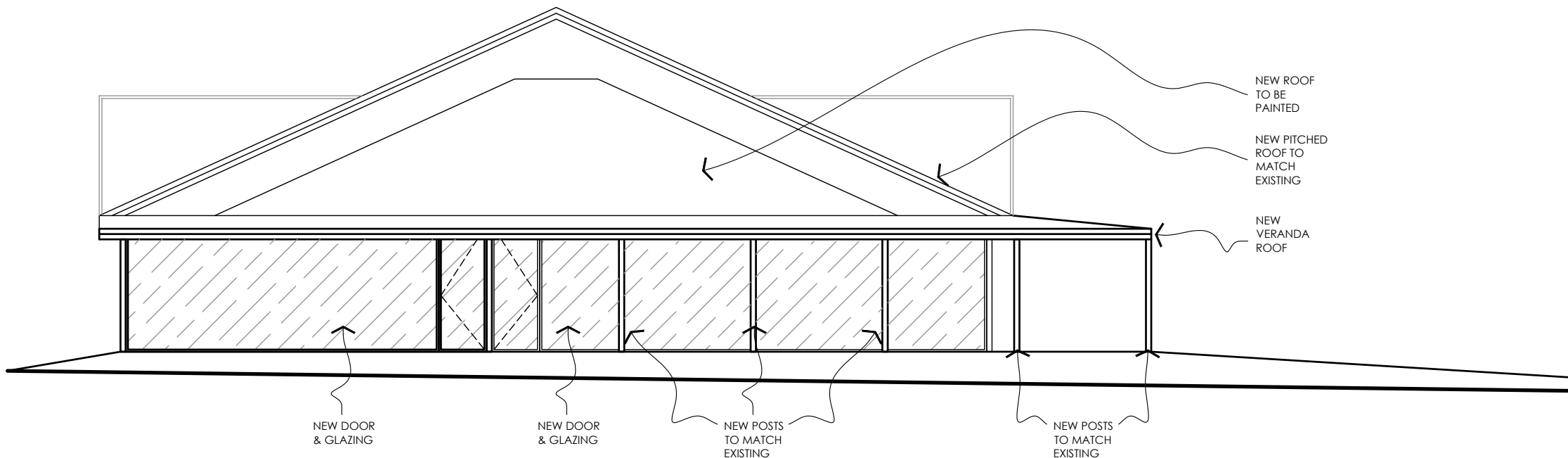
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**B** PROPOSED ELEVATION  
Scale 1:100



**C** PROPOSED ELEVATION  
Scale 1:100



**D** PROPOSED ELEVATION  
Scale 1:100

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Issue:  
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Project:  
**GENIUS ALLENSTOWN**  
Address:  
**27 ROSS STREET, ROCKHAMPTON, QLD**  
Drawing Title:  
**PROPOSED ELEVATIONS**

Project No.: 19048	Date: 17.08.2020
Scale: 1:100 @ A1	Dwg No. & Revision: TP06
Drawn by: C.J	TP.01



# **Childcare Centre Extension, 27 Ross Street, Allenstown**

## **Traffic Report**

Revision B

1 September 2020

Our Ref: 1373\_TPA424

Prepared for: Town Planning Alliance

Prepared by: Richard Quinn  
Director, Q Traffic  
*BE Civil, MIEAust, RPEQ*





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### **APPENDIX A**

#### Architectural Plans

Q Traffic has prepared this report solely for the benefit and use of our Client for the sole purpose of lodging a development application. This report takes into account the particular instructions and requirements of the client. In preparing this report we assume that all information and documents provided to us by the client or its consultants were complete, accurate and current. Q Traffic will not be liable for any conclusion drawn resulting from omission or lack of full disclosure by the client or its consultants.

This report may not be relied upon by a third party. Q Traffic does not and shall not assume any responsibility or liability whatsoever to any third party arising from the use, reliance upon, or any decision made regarding the contents of this report.

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## 1.0 Introduction

Q Traffic was engaged to undertake a Traffic Impact Assessment for the proposed extension of a childcare centre at 27 Ross Street, Allenstown. Approval is sought for works that will enable the capacity of the childcare centre to be increased from 77 placements to 132 placements.

The site is located in the Rockhampton Region Local Government Area, and the proposal has been assessed considering the relevant Council controls.

This report provides relevant background information regarding the proposal, and documents the results and findings of our investigations addressing the following key traffic design elements and issues:

- Site access arrangements;
- On-site car parking provision;
- Service vehicle requirements; and
- The traffic impacts anticipated as a result of the development.



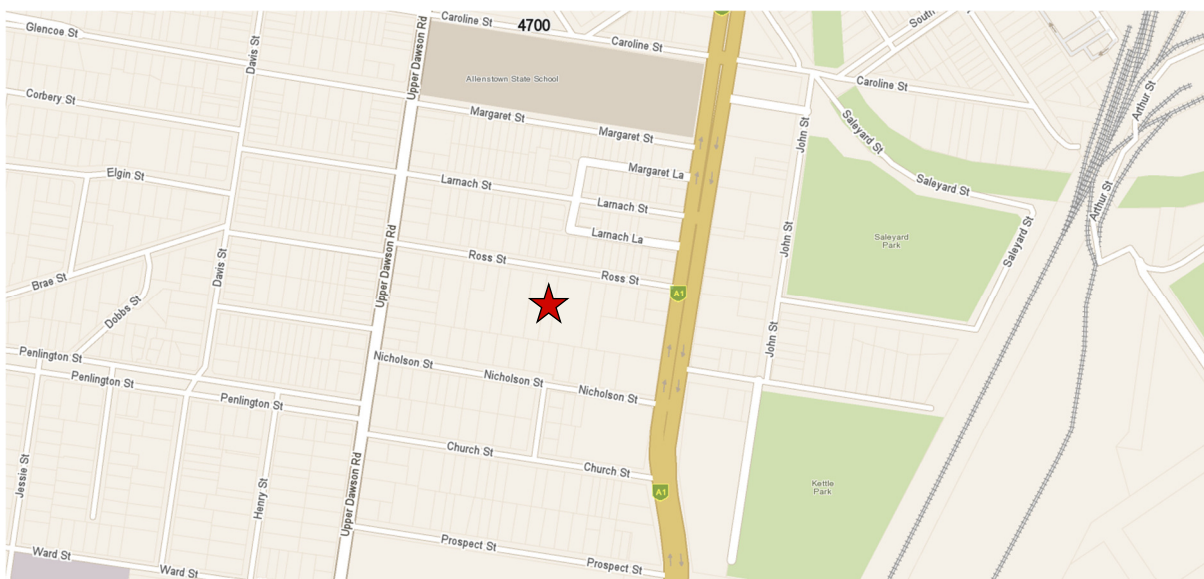
## 2.0 Context

### 2.1 Subject Site

The subject site is located on the site at 27 Ross Street in Allenstown, on the southern side of the road and approximately 190 metres west of Gladstone Road (Bruce Highway). It is legally described as Lot 1 on RP881585 and has an area of 2,731m<sup>2</sup>.

The existing childcare centre development comprises of a single building (excluding shed) with capacity for 77 placements. At-grade car park has capacity for 24 parking spaces (including two PWD spaces) and is accessed via a sing crossover to Ross Street.

**Figure 2.1a** and **Figure 2.1b** below show the location of the subject site, as well as the local road network in the vicinity of the site.



**Figure 2.1a: Site Location**



**Figure 2.1b: Subject Site**



## 2.2 Road Network

Ross Street is a local road that runs in an east-west direction between Gladstone Road (Bruce Highway) in the east and Upper Dawson Road to the west. As shown in **Figure 2.2a** and **Figure 2.2b** below, it has an undivided carriageway with a width of approximately 14m and permits two-way traffic flow. Parking is permitted on both kerbsides of Ross Street but as noted in the photos below demand for kerbside parking is very limited.



**Figure 2.2a: Looking west on Ross Street**

**Source: Google Maps**



**Figure 2.2b: Looking east on Ross Street**

**Source: Google Maps**

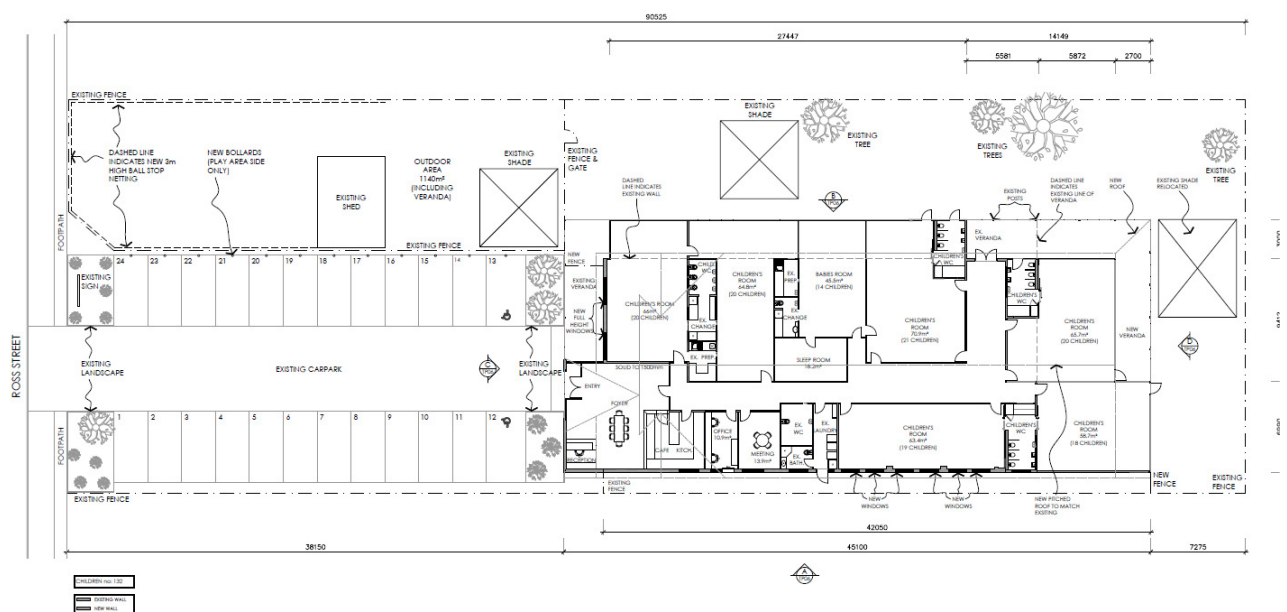


### 3.0 Proposal

The application seeks approval for an extension of the childcare centre, that will increase the capacity from 77 placements to 132 placements (increase of 55placements). Staff numbers will increase from 12 employees to 17 employees (increase of 5 staff).

Due to physical constraints, no modifications are proposed to the existing car park and access (24 parking spaces). Architectural plans of the proposed development are included as **Appendix A**, with an extract of the Site Plan provided for reference as **Figure 3** below.

The parking and traffic impacts of the extended childcare centre has been assessed under the relevant controls of Council's Access, Parking and Transport Code (Rockhampton Region Planning Scheme), as discussed in the following sections.



**Figure 3: Extract from Site Plan**

### 3.1 Vehicle Access

Given access requirements under the nominated design standard AS2890.1 are based on car park capacity, no modifications are warranted under this proposal. Notwithstanding, the existing 6.0m is consistent with a Category 2 driveway and performs with a high level of amenity.



## 3.2 Car Parking Provision

The suggested parking rate in Table 9.3.1.3.2 of Council's Access, Parking and Transport Code is:

- One space per full-time employee; plus
- One space per six (6) children.

Application of the above rates to the expanded childcare centre results in a nominal requirement for 39 parking spaces, including 17 employee spaces and 22 pick-up and drop-off spaces.

The level of on-site parking suggested by Council is considered to be excessive, and not consistent with the demand observed or the approach taken at a number of recently approved and/or operational childcare, as discussed following:

### 1. Mother Duck Child Care Centre, 96 Barrett St, Bracken Ridge

This operational childcare centre has 150 places, and provides a total of 37 parking spaces. The overall parking rate at this centre is therefore 1 parking space per 4.05 children.

Parking demand surveys undertaken at this centre between the hours of 6:30am - 6:30pm on Monday 22 May 2017 revealed that the peak parking demand occurred in the morning, and did not exceed 22 vehicles. This equates to a peak parking demand of 1 vehicle per 6.82 children.

### 2. Mother Duck Child Care Centre, 1370 Anzac Ave, Kallangur

This operational childcare centre has 95 places, and provides a total of 19 parking spaces. The overall parking rate at this centre is therefore 1 parking space per 5 children.

Parking demand surveys undertaken at this centre between the hours of 6:30am - 6:30pm on Monday 22 May 2017 revealed that the peak parking demand occurred in the morning, and did not exceed 13 vehicles. This equates to a peak parking demand of 1 vehicle per 7.31 children.

### 3. Kids Capers Mango Hill, 81 Fresh Water Creek Rd, Mango Hill

This operational childcare centre has 117 places, and provides a total of 38 parking spaces. The overall parking rate at this centre is therefore 1 parking space per 3.08 children.

Parking demand surveys conducted on Tuesday 12<sup>th</sup> May 2015, from 6:00am to 9:00am during the 'Drop-Off Peak', and from 3:00pm to 6:30pm during the 'Pick-Up Peak' revealed that a peak parking demand of 25 vehicles. This equates to a peak parking demand of 1 vehicle per 4.68 children.

### 4. Green Leaves Early Learning Centre, 130 Brays Road, Griffin (Murrumba Downs)

An expansion has been approved at this childcare centre to provide 186 places, and a total of 46 parking spaces. The approved overall parking rate at this centre is therefore 1 parking space per 4.04 children.

### 5. Green Leaves Early Learning Centre, 1185 Old North Road, Warner

This approved (but not yet operational) childcare centre will have 128 places, and provide a total of 29 parking spaces, based upon the conditions of the approval. The approved overall parking rate at this centre is therefore 1 parking space per 4.41 children.

The information outlined above is summarised in Table 1 overpage.



**Table 1: Summary of Parking Rates / Observed Demand**

Centre	Address	Number of Places	Number of Parking Spaces	Provided Parking Rate	Observed Peak Parking Demand
Mother Duck Child Care Centre	96 Barrett St, Bracken Ridge	150	37	1 parking space per 4.05 children	1 vehicle per 6.82 children
Mother Duck Child Care Centre	1370 Anzac Ave, Kallangur	95	19	1 parking space per 5 children	1 vehicle per 7.31 children
Kids Capers Mango Hill	81 Fresh Water Creek Rd, Mango Hill	117	38	1 parking space per 3.08 children	1 vehicle per 4.68 children
Green Leaves Early Learning Centre	130 Brays Road, Griffin	186	46	1 parking space per 4.04 children	-
Green Leaves Early Learning Centre	1185 Old North Road, Warner	128	29	1 parking space per 4.41 children	-
<b>Average</b>				<b>1 parking space per 4.12 children</b>	<b>1 parking space per 6.27 children</b>

The information above reveals that:

- The average observed peak parking demand at the three (3) operational centres surveyed was 1 vehicle per 6.27 children; and
- The maximum observed peak parking demand at the three (3) operational centres surveyed was 1 vehicle per 4.68 children.

For the purpose of comparison, it is noted that the Brisbane City Council's Transport, Access, Parking and Servicing Planning Scheme Policy stipulates a parking rate of **1 space per 5 children** for childcare centres which would appear to be a more appropriate parking rate based on the survey data available.

Adopting the rate of 1 space per 5 children, the expanded childcare centre will likely require in the order of **27 parking spaces**.

On this basis, the development will accommodate 90% of this demand within the existing 24 on-site parking spaces. A shortfall of three (3) spaces could readily be accommodated on Ross Street with negligible impacts, noting the low observed on-street parking demand and limited periods of peak activity for childcare centres.

### 3.3 Servicing and Refuse Collection

It is anticipated that any additional servicing demands for the expanded childcare centre will be minor due to economies of scale. As such, the existing servicing arrangements can be maintained (noting there are no modifications to the existing parking area).



## 4.0 Traffic Impact Assessment

The Department of Transport and Main Roads (TMR) has collected and published trip generation data at nine (9) existing child care centres, a summary of which is provided in **Table 1** below. This data reveals the following average surveyed trip generation rates:

- AM Peak Hour: 0.66 trips per child
- PM Peak Hour: 0.48 trips per child

**Table 1: Summary of Trip Generation for Child Care Centres (TMR Traffic Generation Data—2006–2018)**

Year	Land use	SITE	Suburb	Variable Units	Variable Value	Start Date	End Date	Average Weekday Volume	Weekday Peak Hour Start	Weekday Peak Hour End	Weekday Peak Hour Volume	Weekday Peak Hour Trip Generation Rate (trips / child)
2006	Child Care	2006CC1	ROBERTSON	Childcare Spaces	75	9/05/2006	23/05/2006		8:00:00	9:00:00	50	0.67
2006	Child Care	2006CC2	ROTHWELL	Childcare Spaces	74	9/05/2006	23/05/2006		8:15:00	9:15:00	56	0.76
2006	Child Care	2006CC3	OXLEY	Childcare Spaces	75	9/05/2006	23/05/2006		8:00:00	9:00:00	49	0.65
2006	Child Care	2006CC4	NORTH LAKES	Childcare Spaces	75	9/05/2006	23/05/2006		7:00:00	8:00:00	48	0.64
2009	Child Care	2009CC1	ROBERTSON	Childcare Spaces	75	5/05/2009	11/05/2009	186	7:45:00	8:45:00	32	0.43
2009	Child Care	2009CC2	ROTHWELL	Childcare Spaces	74	5/05/2009	11/05/2009	228	8:00:00	9:00:00	42	0.57
2009	Child Care	2009CC3	OXLEY	Childcare Spaces	75	5/05/2009	11/05/2009	138	8:15:00	9:15:00	30	0.40
2009	Child Care	2009CC4	HENDRA	Childcare Spaces	75	17/05/2009	23/05/2009	162	17:00:00	18:00:00	30	0.40
2010	Child Care	2010CC1	KENMORE	Childcare Spaces	72	4/10/2010	10/10/2010	220	8:00:00	9:00:00	50	0.69
2010	Child Care	2010CC2	ANNERLEY	Childcare Spaces	72	4/10/2010	10/10/2010	262	8:00:00	9:00:00	53	0.74
2010	Child Care	2010CC3	EIGHT MILE PLAINS	Childcare Spaces	72	4/10/2010	10/10/2010	271	7:45:00	8:45:00	52	0.72
2010	Child Care	2010CC4	BOONDALL	Childcare Spaces	72	4/10/2010	10/10/2010	265	16:00:00	17:00:00	53	0.74
2010	Child Care	2010CC5	NEW FARM	Childcare Spaces	48	4/10/2010	10/10/2010	80	17:00:00	18:00:00	15	0.31
2010	Child Care	2010CC6	THE RANGE	Childcare Spaces	72	22/11/2010	28/11/2010	253	8:00:00	9:00:00	58	0.81
2010	Child Care	2010CC7	BARGARA	Childcare Spaces	72	22/11/2010	28/11/2010	222	8:00:00	9:00:00	46	0.64
2010	Child Care	2010CC8	THABEBAN	Childcare Spaces	72	22/11/2010	28/11/2010	204	8:00:00	9:00:00	47	0.65
2010	Child Care	2010CC9	FRENCHVILLE	Childcare Spaces	72	22/11/2010	28/11/2010	297	8:00:00	9:00:00	65	0.90
											<b>AVG (AM)</b>	<b>0.66</b>
											<b>AVG (PM)</b>	<b>0.48</b>

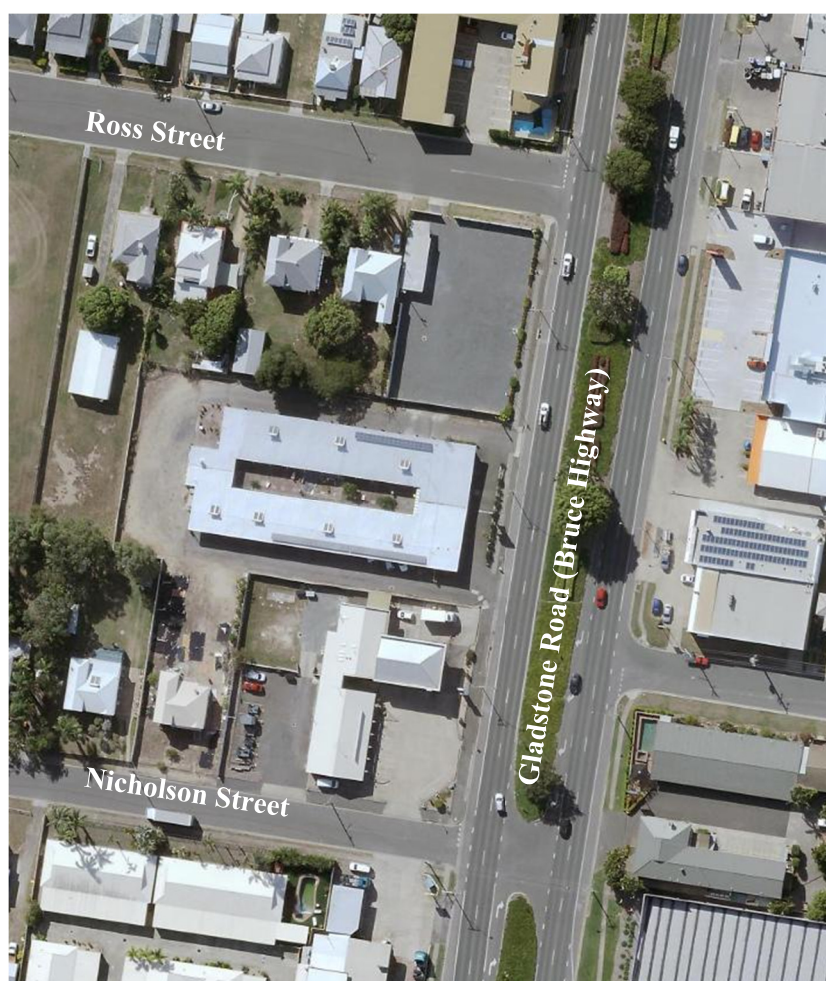
Applying these trip generation rates to the proposed development (+ 55 children), suggests the following peak hour trip generation volumes:

- AM Peak Hour: 36 vehicle trips (18 parents dropping off a child)
- PM Peak Hour: 26 vehicle trips (13 parents picking up a child)

This level of traffic generation (i.e. less than one additional vehicle per minute in the peak periods) is relatively low, and likely to be within the range of typical fluctuations in traffic volumes on the surrounding road network. However a reasonable proportion of the trips generated are likely to be drop-in / pass-by trips, with parents dropping children at the centre on the way to work, and picking children up from the centre on the way home. These trips would have occurred even in the absence of the proposed development within the broader road network.

Furthermore, the localised impacts of additional traffic on the arterial road network are anticipated to be minimal as a median on Gladstone Road (Bruce Highway) limits movements from Ross Street to left-in and left-out only, as evident in **Figure 4**. An auxiliary southbound lane on approach to Nicholson Street will allow for U-turns without disrupting through traffic on Gladstone Road.





**Figure 4: Gladstone Road (Bruce Highway)**

In light of the above, no external roadworks are considered to be required to support the proposed development. Any impacts (however minor) would be mitigated by way of infrastructure charges payable as part of the development of the site.



## 5.0 Recommendation

In light of the information contained within this report, we consider that the proposal is satisfactory from a traffic operations perspective and recommend that the development application be approved.

### 5.1 Qualifications

This report has been approved by Richard Quinn | Director | RPEQ 08565



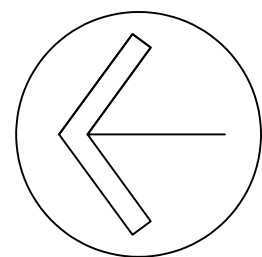
# **APPENDIX A**

## Architectural Plans





LOCATION PLAN  
Scale NTS



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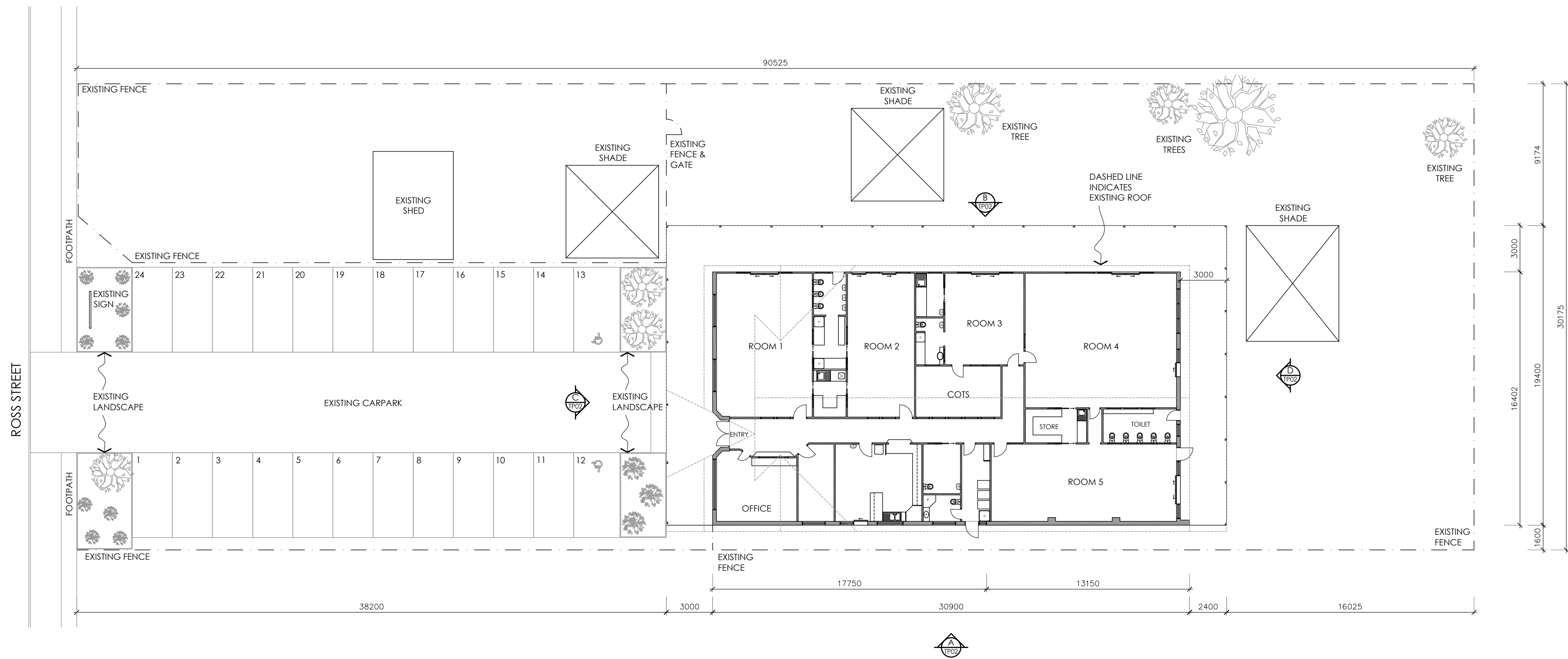
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Drawing Title:  
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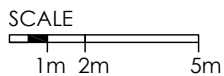
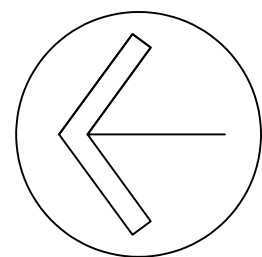
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**TP.01**





EXISTING SITE PLAN  
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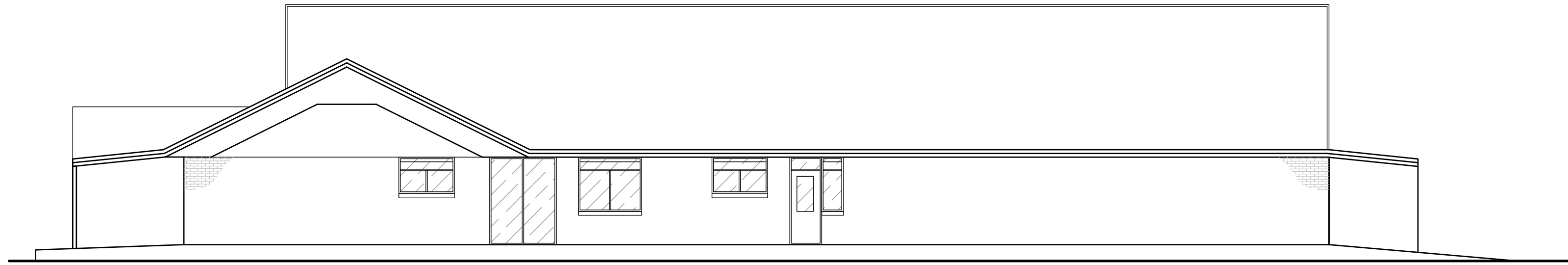
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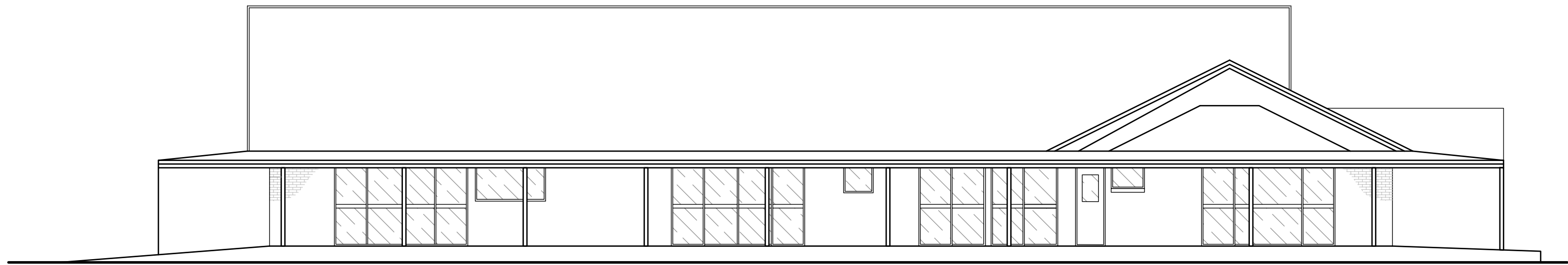
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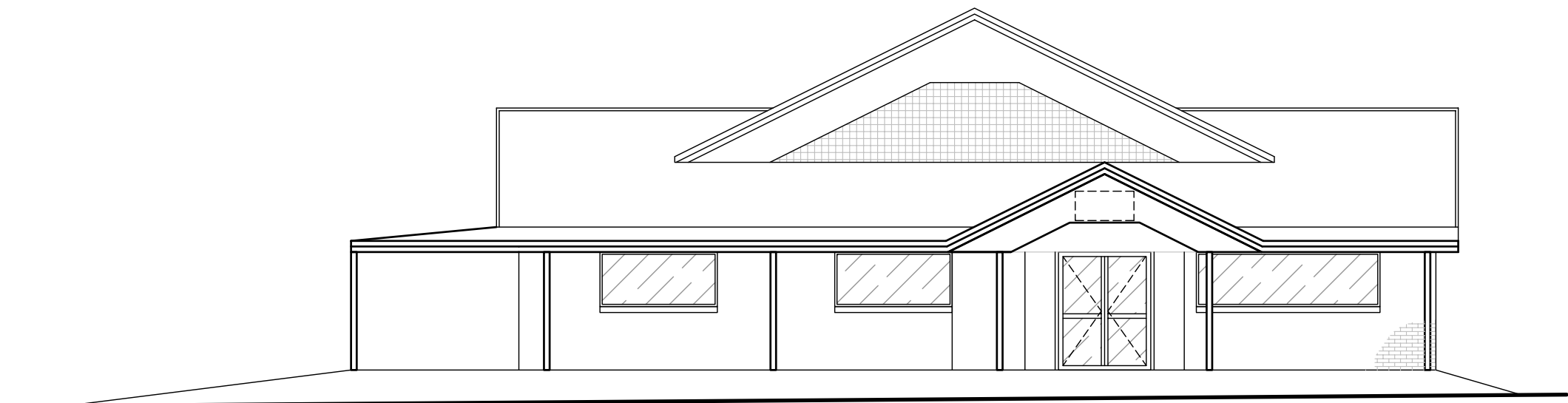




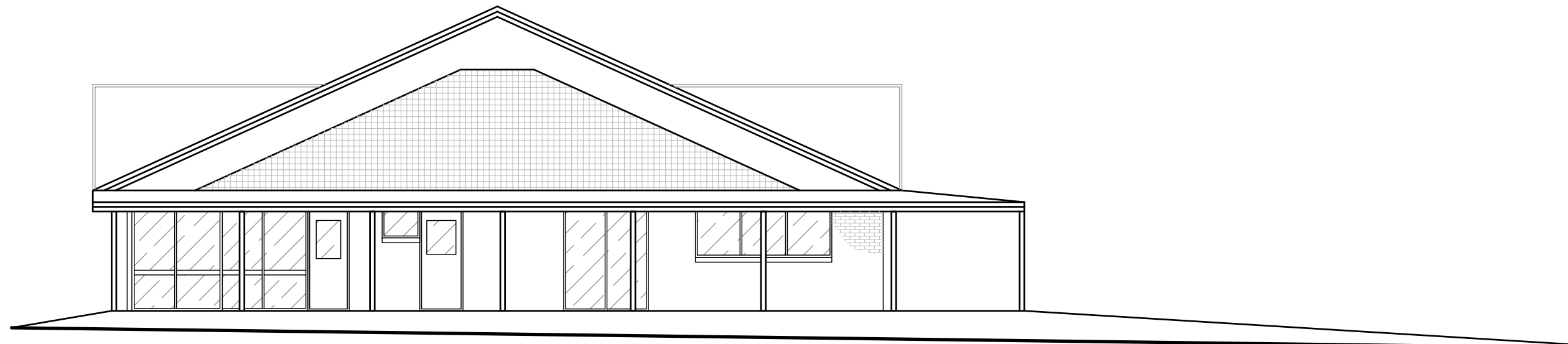
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Scale 1:100



**B** EXISTING ELEVATION  
Scale 1:100



**C** EXISTING ELEVATION  
Scale 1:100



**D** EXISTING ELEVATION  
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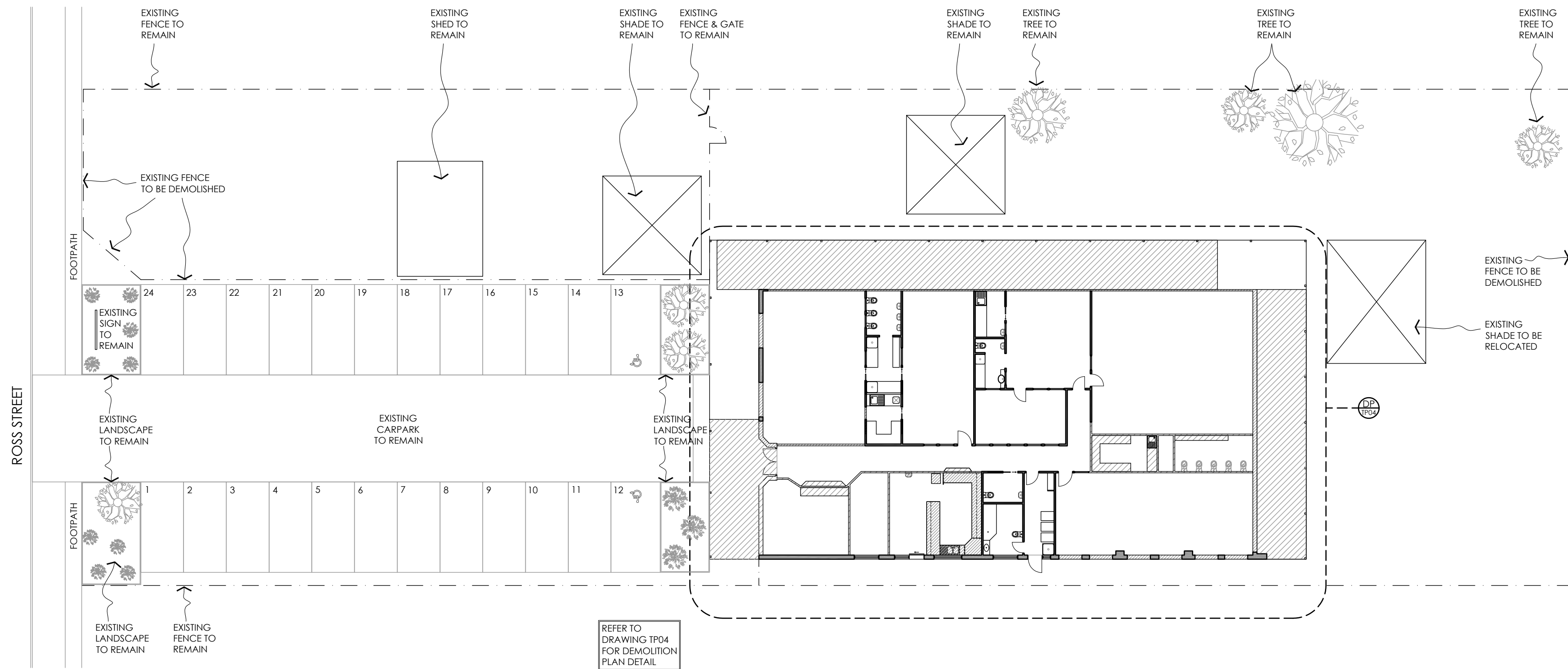
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**TOWN PLANNING**

Project:  
**GENIUS ALLENSTOWN**  
Address:  
**27 ROSS STREET, ROCKHAMPTON, QLD**  
Drawing Title:  
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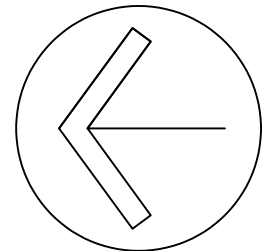
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**19048**  
Scale:  
**1:100 @ A1**  
Drawn by:  
**CJ**

Date:  
**17.08.2020**  
Dwg No. & Revision:  
**TP02**  
**TP.01**





 **SITE DEMOLITION PLAN**  
Scale 1:200



SCALE  
1m 2m 3m

Revisions:		By	Date
No.	Descriptions		
TP.01	TOWN PLANNING ISSUE	CJ	17.08.20

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Victoria, Australia 3205  
P +61 3 9698 7220

IN ASSOCIATION WITH:  
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Issue:  
**TOWN PLANNING**


Project:  
**GENIUS ALLENSTOWN**  
Address:  
**27 ROSS STREET, ROCKHAMPTON, QLD**  
Drawing Title:  
**SITE DEMOLITION PLAN**

Project No.:  
**19048**  
Scale:  
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Drawn by:  
**CJ**

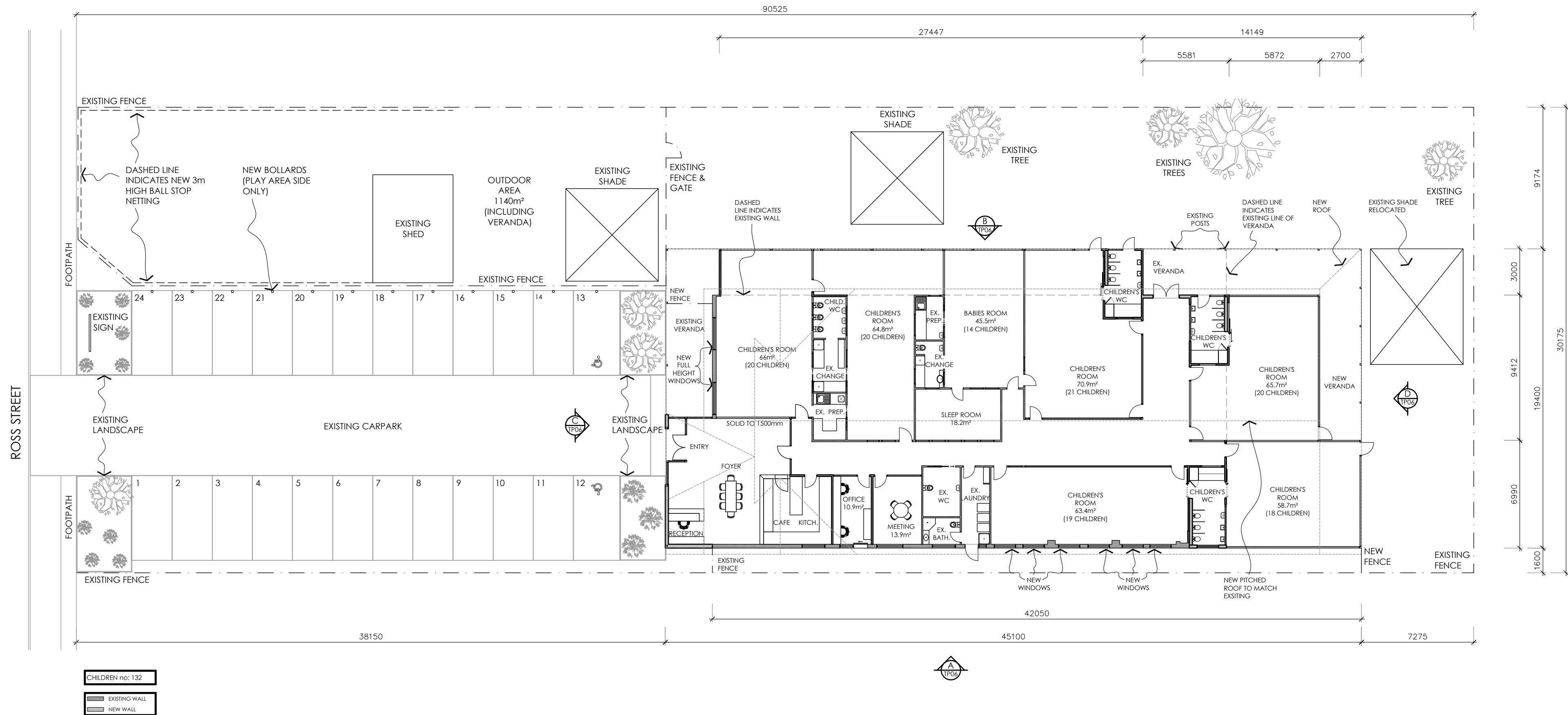
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**TP.01**



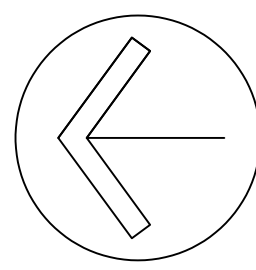


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No.	Descriptions	By	Date																	Scale: 1:100 @ A1		Dwg No. & Revision: TP04	
TP.01	TOWN PLANNING ISSUE	CJ	17.08.20																	Drawn by: CJ		TP.01	





PROPOSED SITE PLAN  
Scale 1:200



SCALE  
1m 2m 5m

Revisions:			
No.	Descriptions	By	Date
TP.01	TOWN PLANNING ISSUE	C.J	17.08.20

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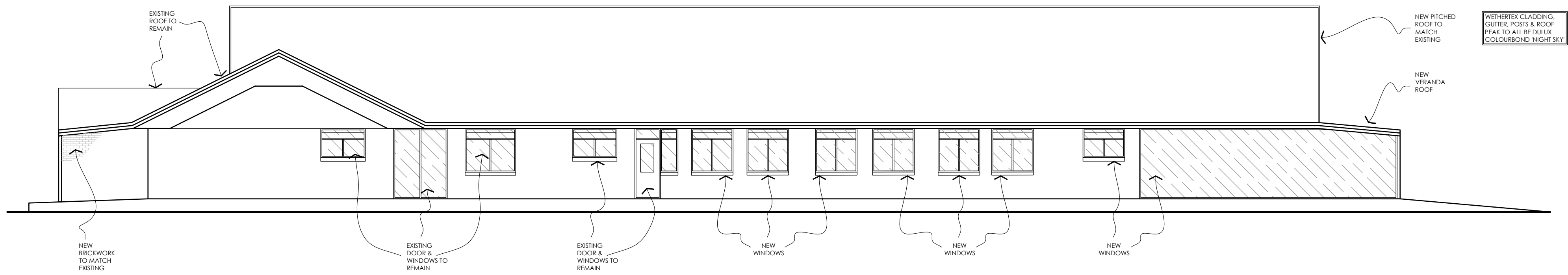
Issue:

TOWN PLANNING

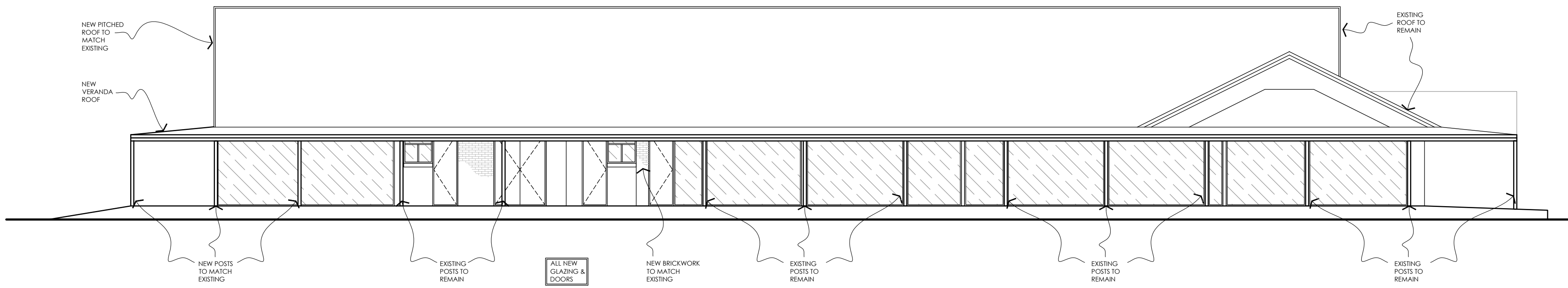
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GENIUS ALLENSTOWN  
Address:  
27 ROSS STREET, ROCKHAMPTON, QLD  
Drawing Title:  
PROPOSED SITE/ FLOOR PLAN

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Scale:  
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Dwg No. & Revision:  
TP05  
TP.01

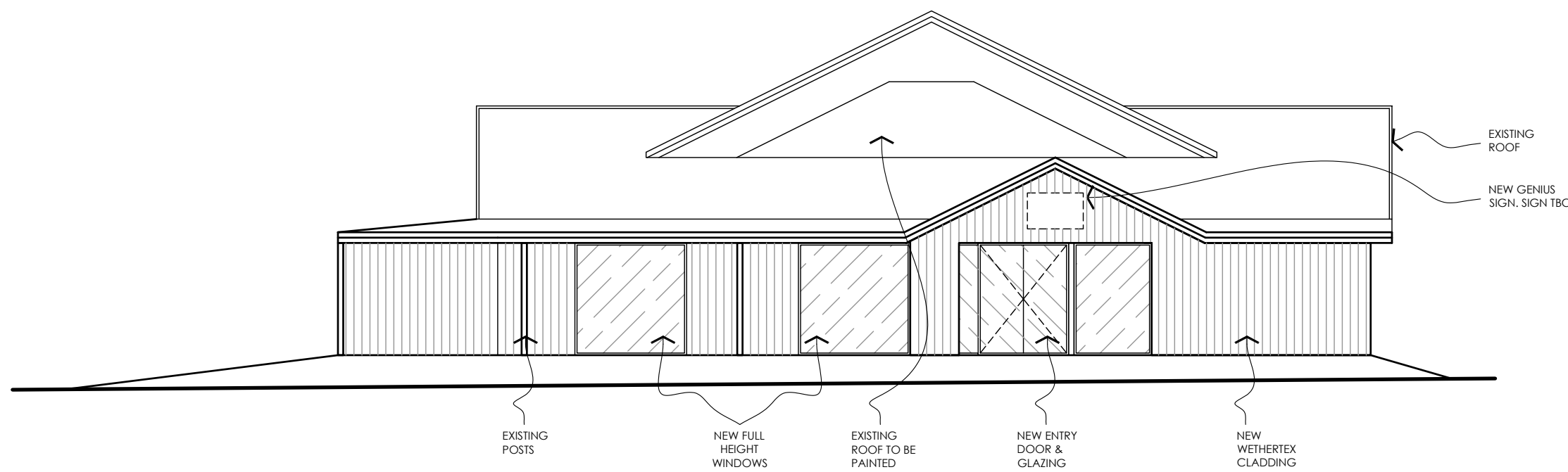




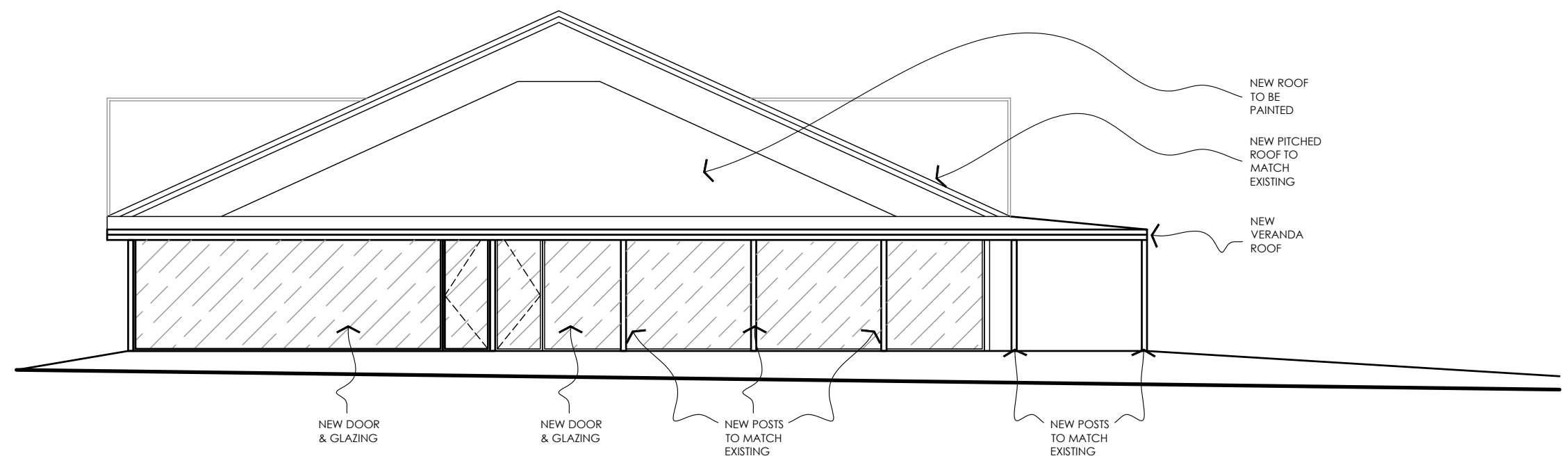
**A** PROPOSED ELEVATION  
Scale 1:100



**B** PROPOSED ELEVATION  
Scale 1:100



**C** PROPOSED ELEVATION  
Scale 1:100



**D** PROPOSED ELEVATION  
Scale 1:100

Revisions:			By	Date
No.	Descriptions			
TP.01	TOWN PLANNING ISSUE		CJ	17.08.20

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Issue:  
**TOWN PLANNING**

Project:  
**GENIUS ALLENSTOWN**  
Address:  
**27 ROSS STREET, ROCKHAMPTON, QLD**  
Drawing Title:  
**PROPOSED ELEVATIONS**

Project No.: <b>19048</b>	Date: <b>17.08.2020</b>
Scale: <b>1:100 @ A1</b>	Dwg No. & Revision: <b>TP06</b>
Drawn by: <b>CJ</b>	<b>TP.01</b>



# STORMWATER MANAGEMENT PLAN

## CHILDCARE CENTRE EXTENSION 27 ROSS STREET – ALLENSTOWN

### ROCKHAMPTON REGIONAL COUNCIL

#### APPROVED PLANS

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

**Development Permit No.:** D/114-2020

**Dated:** 8 December 2020



mpn consulting

Prepared By:

MPN CONSULTING PTY LTD

Level 5

39 Sherwood Road

Toowong

Queensland

4066 • Australia



## REVISION STATUS


MPN Reference No: 8507

Client: Tonic Projects Pty Ltd

Site Address: 27 Ross Street, Allenstown

Report Title: Stormwater Management plan

## DOCUMENT CONTROL

Version	Date	Author	Reviewer	Approved	RPEQ
Issue A	24/07/2020	Peter Derrington	Matthew Hendle		16903
Issue B	04/11/2020	Matthew Hendle	Lachlan Stephenson		16903



## EXECUTIVE SUMMARY

This report has been commissioned by Tonic Projects Pty Ltd for the proposed childcare centre extension at 27 Ross Street, Allentown.

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

- Topography
- Flooding
- Stormwater quality management
- Stormwater quantity management
- Erosion and sediment control

Revision B of this report addresses the Rockhampton Regional Council Information Request dated 20 October 2020.

Additional information on the site stormwater management has been provided within this report. It is further noted that the previously calculated existing case flows have been amended due to a calculation error.



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## 1 PURPOSE

This Stormwater Management Plan has been prepared in support of the proposed childcare centre extension at 27 Ross Street, Allens town.

## 2 INTRODUCTION

### 2.1 Project Description

The current proposal involves the renovation and extension of a childcare centre. The extension will comprise of new single level rooms and a new veranda.

Additional car parking areas will be constructed at the front of the site.

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

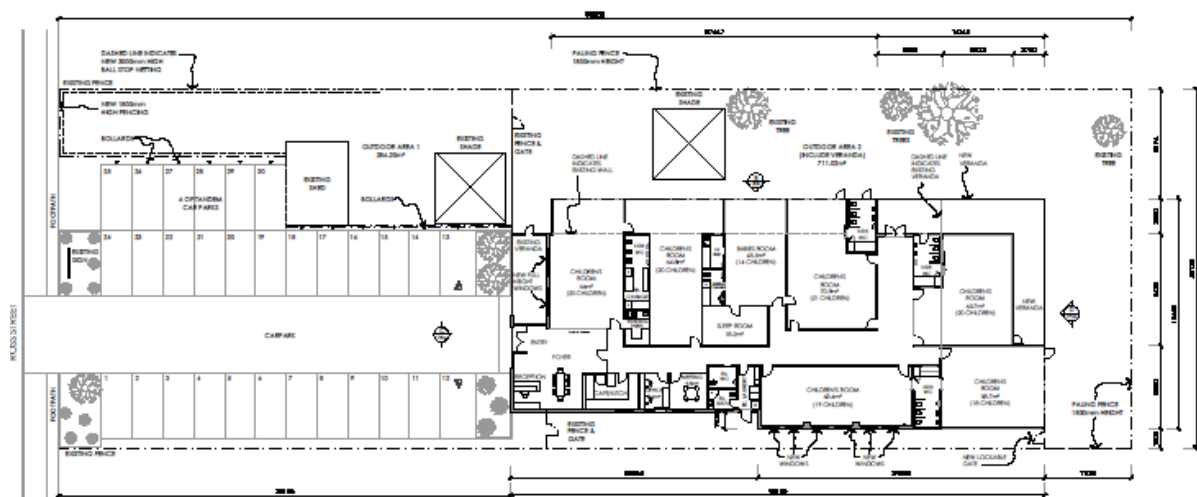


Figure 1 – Proposed Development



### 3 SITE CHARACTERISTICS

#### 3.1 Site location

The site is located at 27 Ross Street, Allenstown and is formally known as Lot 1 on RP881585.

The site fronts Ross Street to the North and is bounded by residential allotments to the East, South and West.



Figure 2 – Site Location



### 3.2 Topography and Existing Site Drainage

The site is currently occupied by an existing childcare centre and is neighboured by residential allotments.

The site generally falls from the South to the North from a high RL of 11.246 near the South West corner of the site to a low RL of 10.250 at the North East corner of the site.

Stormwater runoff from the site is collected and conveyed in an open concrete channel which runs South to North along the East boundary of the site and discharges into Ross Street via a kerb adaptor.

An existing Rockhampton City Council 150mm dia sewer reticulation main runs West to East through the centre of the site and connects to a 375mm dia sewer trunk main East of the site.

A copy of the survey plan prepared for the site by GSPC is attached in Appendix 2.

## 4 SITE DATA

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

- Rockhampton Regional Council
- Discussions with relevant authorities
- Dial Before You Dig (DBYD)
- Relevant Reports
- Satellite Imagery
- Site Survey



## **5 STORMWATER**

### **5.1 Flooding**

Rockhampton Region Planning Scheme mapping indicates that the site is not subject to flooding from any sources.

### **5.2 Site Based Stormwater Management Plan**

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

- Prevent or minimise adverse social or environmental impacts from stormwater runoff originating from the proposed development.
- Achieve acceptable levels of stormwater runoff quality and quantity by not overloading the current systems in place.

The Stormwater Management Plan aims to identify Stormwater Quality and Quantity Best Management Practice for the site before discharging into the stormwater network in Ross Street, whilst the construction phase of the Stormwater Management Plan addresses erosion and sediment control to prevent contamination of water sources by stormwater runoff during construction of the development.

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

### **5.3 Operational Phase**

#### **5.3.1 Lawful Point of discharge**

The lawful point of discharge for the site is the existing kerb adaptor to the kerb and channel in Ross Street.

#### **5.3.2 Proposed Site Drainage**

Stormwater runoff from the new roof will be connected to the existing roofwater line which runs around the perimeter of the building and discharges to the concrete open channel. Part of the existing roofwater line will also be required to be relocated away from under the new building extension.

The new car park areas will drain to the existing car park drainage system being the grated drain and field inlet at the site crossover. The runoff will discharge as per existing condition to the sites Lawful point of discharge.

The existing and proposed stormwater network is shown on MPN Plan 8507-DA.01 attached in Appendix 3.



### 5.3.3 Stormwater Quantity Management Strategy

For the management of stormwater quantity for the proposed development, hydrological analysis was undertaken using the rational method. The calculations were completed in accordance with the Queensland Urban Drainage Manual (QUDM). The runoff parameters were estimated from thorough analysis of satellite imagery and site survey plans.

The site runoff was estimated for the pre and post development conditions for Annual Recurrence Intervals from 2 to 100 years.

Results of the hydrological analysis are detailed below in Table 1. The full calculations are shown in Appendix 4.

ARI Year	Existing Discharge From Site (m <sup>3</sup> /sec)	Proposed Discharge From Site (m <sup>3</sup> /sec)	Difference (m <sup>3</sup> /sec)
2	0.059	0.060	0.001
5	0.074	0.076	0.002
10	0.087	0.089	0.002
20	0.100	0.102	0.002
50	0.118	0.120	0.002
100	0.132	0.134	0.002

Table 1 – Existing and Proposed Rational Method Flows

As can be seen in the table above, there will be a minor increase in flows from the proposed development, however this increase is considered negligible and will not cause any adverse impact to properties upstream or downstream of the site. On this basis no detention storage is proposed as part of the development.

### 5.3.4 Stormwater Quality Management Strategy

As the land area of the proposed development does not exceed 2,500m<sup>2</sup>, the development does not trigger the requirements of State Planning Policy July 2017 for water quality treatment.

In lieu of other stormwater treatment devices, 'Best Management Practice' such as roofwater first flush diverters and swales will be incorporated into the development in order to satisfy the developments stormwater quality requirements.



## 5.4 Construction Phase (Sediment and Erosion Control)

### 5.4.1 Intent of Erosion and Sediment Control Management Plan

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

### 5.4.2 Implementation Strategy

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

### 5.4.3 Erosion and Sediment Control Measures

- Obtain a licence or approval to operate activities that are classed as environmental relevant activities (i.e. they have the potential to cause environmental harm).
- Implement and maintain appropriate control measures to prevent sediment laden wastewater and other potential pollutants such as oil, paint and wet concrete from entering the stormwater system via stormwater drains and gullies. The control measures which must be considered to be adopted are:
  - Limit site access during construction to minimise disruption to traffic
  - Install a temporary construction entry/exit sediment trap at all site accesses to minimise mud and sediment from the site being tracked onto public road, particularly during wet weather or when the site is muddy.
  - Install and maintain appropriate sediment fences around construction areas
    - Divert clean stormwater runoff, using catch drains, around construction areas to existing or new stormwater drainage system.
    - Install sandbags and other pollution containment devices around stormwater drains and any other locations where required to prevent sediment entering the trunk stormwater system.
    - Cover open earth/soil areas progressively (with concrete slabs and pavements or mulch) to minimise areas of bare earth/soil.
    - Any stockpiles of excavated soil and demolition / construction waste must be located where risk of erosion and sediment is minimal, and must be protected from wind and water erosion.
  - Implement and maintain appropriate control measures such as catch drains and sediment fences to prevent ponding of stormwater or discharge of stormwater from the site to adjacent properties.
  - Provision of spill / pollution control equipment that is readily accessible to clean up spills and leaks.
  - Ensure spill/pollution control measures are available and maintained in working condition.
  - Sediment contained by the sediment control devices such as sandbags, sediment fences and containment bunds must be frequently removed and placed in a controlled area.
  - Implement an inspection schedule for any spill or leaks of any potential polluting areas or activities.



#### **5.4.4 Erosion Sediment Control Management Goals**

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

#### **5.4.5 Erosion and Sediment Control Implementation Program**

- Licenses, permits or approvals for each environmentally relevant activity must be obtained prior to the commencement of the particular activity.
- Appropriate control measures such as sediment fences, temporary construction entry/ exit sediment traps, pollution containment devices (e.g. sandbags), stormwater diversion and administrative controls must be installed and established prior to commencement of the earthworks and construction activities.
- Pollution control devices such as spill control equipment must be inspected on a regular basis (at least weekly).
- Other sediment and pollution control equipment such as containment bunds, hay bales and sediment fences must be inspected on a regular basis (at least daily).
- Inspection for any leaks, spills or potential contaminating activity must be performed on a regular basis (at least daily).
- Remove accumulated sediment or other contaminants from sediment/ pollution control devices on a regular basis.
- All erosion and sediment control measures must be inspected within 24 hours of expected rain and within 18 hours of a rainfall event.

#### **5.4.6 Responsible Person Or Organisation**

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

#### **5.4.7 Reporting / Review**

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

#### **5.4.8 Corrective Actions**

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



## 6 CONCLUSION

This Stormwater Management Plan demonstrates that under the proposed concept plan, stormwater quantity treatment is achievable to the levels required by State Planning Policy July 2017.

The lawful point of discharge for the site is the existing kerb adaptor to the kerb and channel in Ross Street.

There will be a minor increase in flows from the proposed development, however the increase is considered negligible and will not cause any adverse impact to properties upstream or downstream of the site. On this basis no detention storage is proposed as part of the proposed development.

Stormwater quality treatment is not required as part of the development, as the land area of the proposed development does not exceed 2,500m<sup>2</sup>, thus not triggering the requirements of State Planning Policy July 2017 for water quality treatment.

In lieu of stormwater treatment devices, 'Best Management Practice' such as roofwater first flush diverters, rainwater tanks and swales will be incorporated into the development in order to satisfy the development's stormwater quality requirements.

## 7 LIMITATIONS OF REPORT

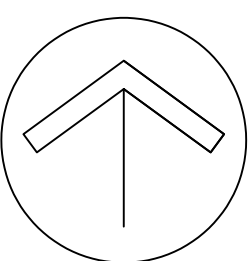
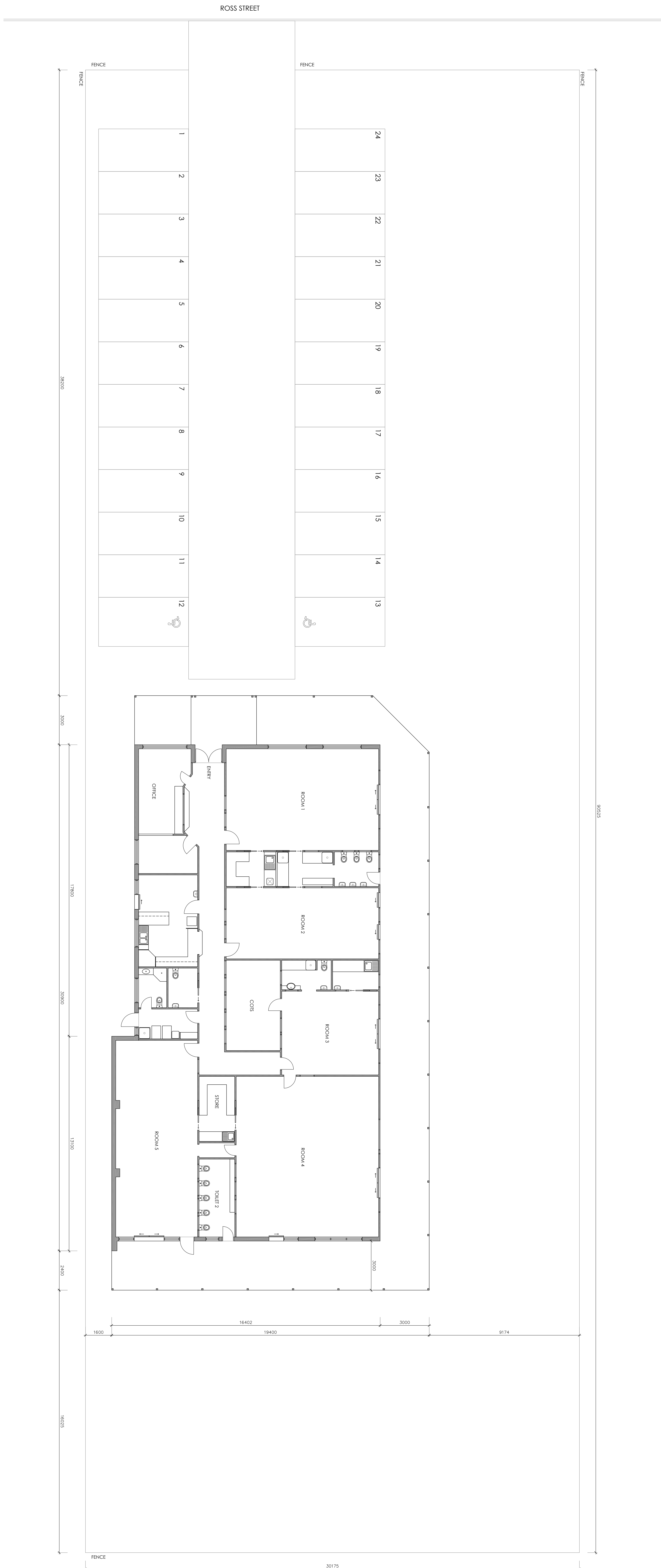
MPN have prepared this report for the proposed childcare extension at 27 Ross Street, Allentown in accordance with MPN's proposal to Tonic Projects Pty Ltd. This report is provided for the exclusive use of Tonic Projects Pty Ltd for this specific project and its requirements. It should not be used or relied upon by a third party and MPN accept no responsibility for the use of this report by any party other than Tonic Projects Pty Ltd.



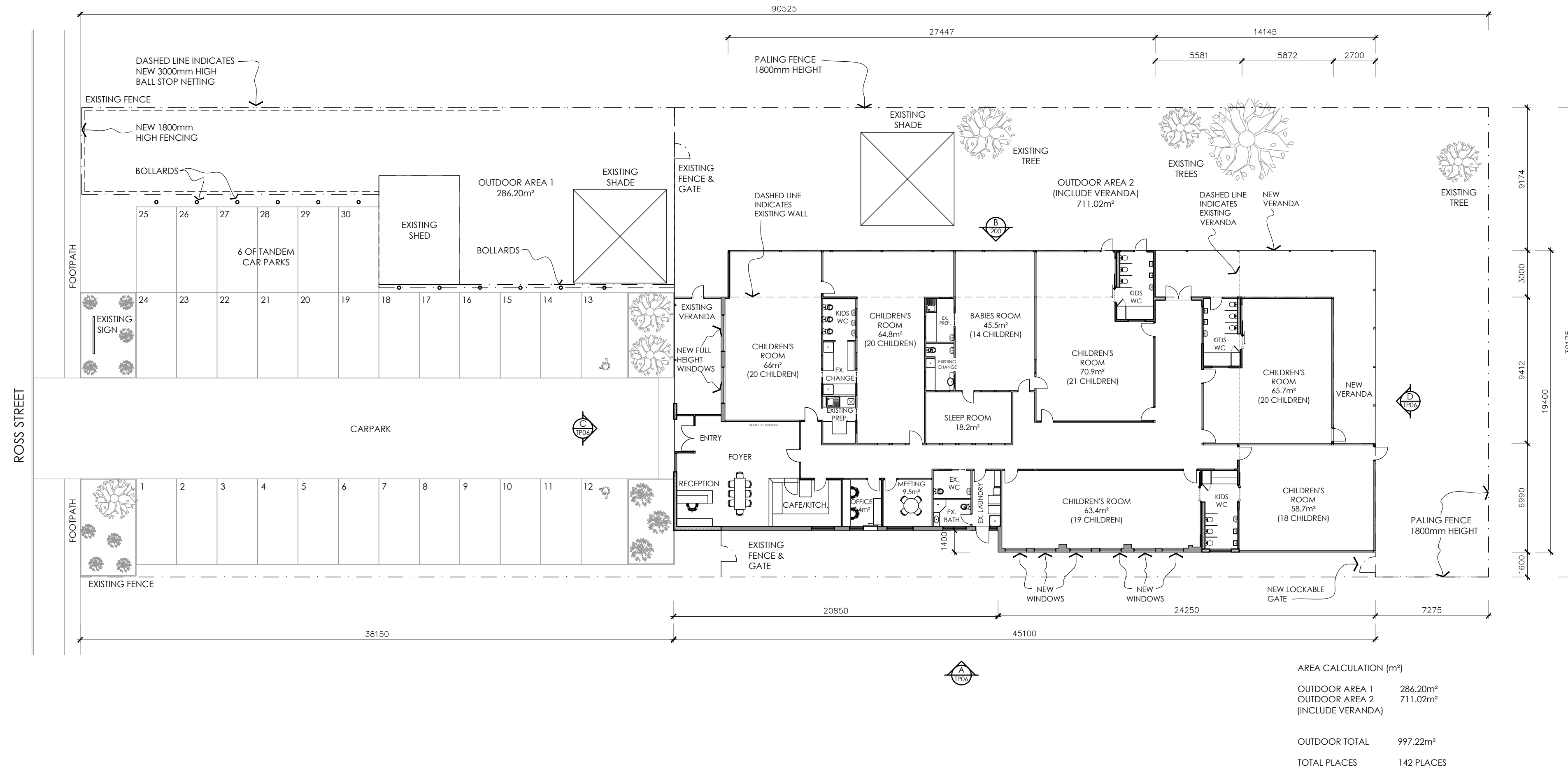
**Appendix 1**  
**Architectural Plans**



# GENIUS CHILDCARE - ALLENSTOWN - EXISTING

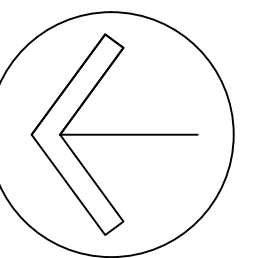
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## PROPOSED SITE / FLOOR PLAN

Scale 1:200



SCALE  
1m 2m 5m

Revisions:			
No.	Descriptions	By	Date
TP.01	TOWN PLANNING ISSUE	CJ	30.07.20
TP.01	TOWN PLANNING ISSUE	JP	27.10.20

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Issue:

TOWN PLANNING

Project:

GENIUS CHILDCARE - ALLENSTOWN

Drawing Title:

PROPOSED SITE/ FLOOR PLAN

Project No.:

19048

Scale:

1:200 @ A1

Drawn by:

JP

Date:

27.10.2020

Dwg No. & Revision:

TP05

TP.01

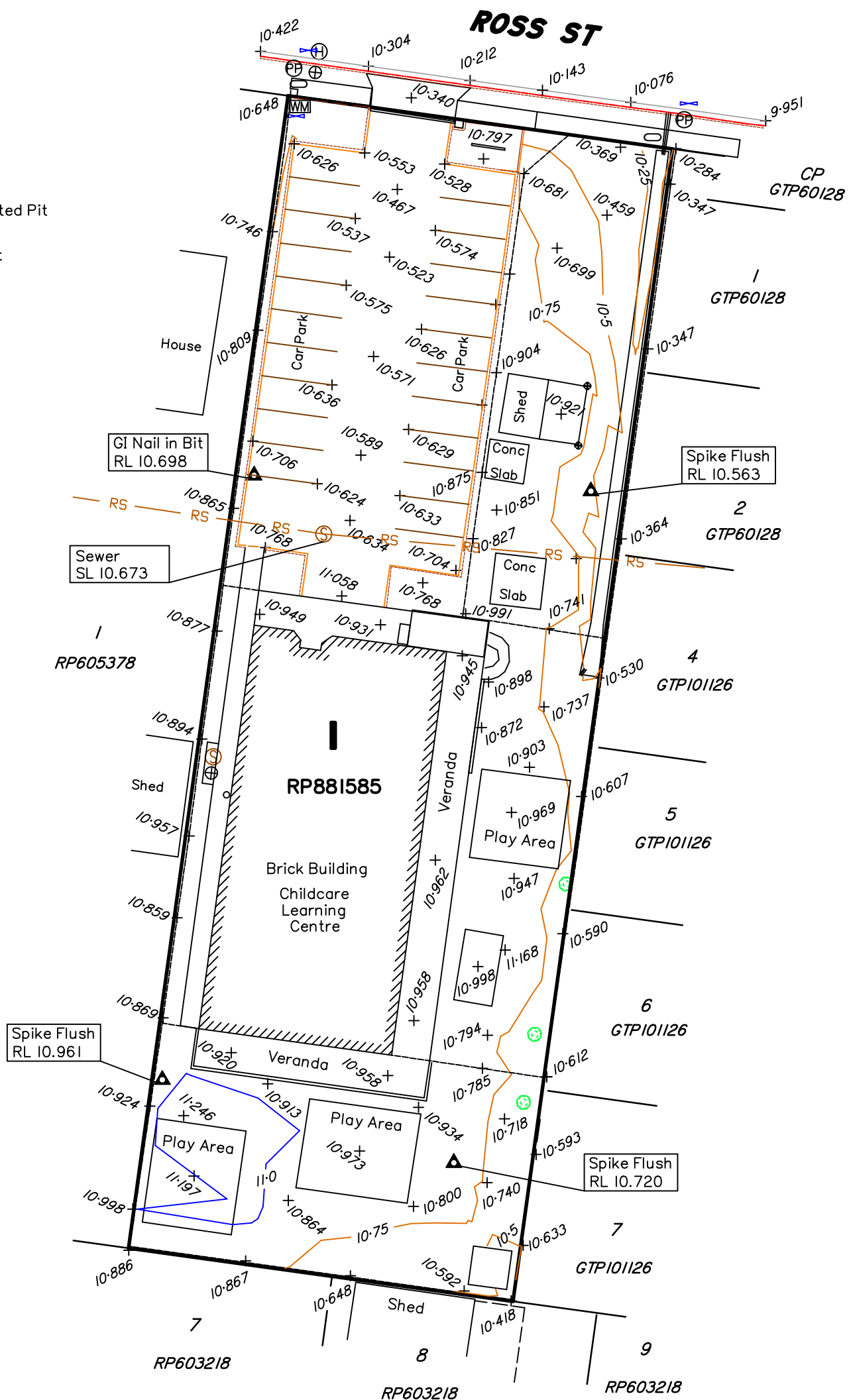




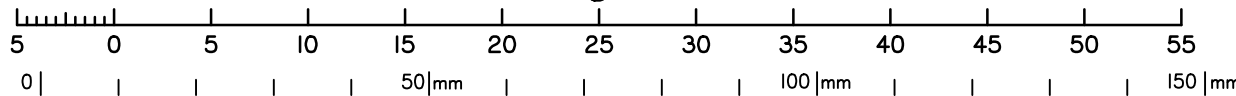


LEGEND

- Major Contour 1.0m interval
- Minor Contour 0.25m interval
- Boundary
- Edge of Bitumen
- Lip of Kerb
- Invert of Kerb
- Back of Kerb
- Fire Hydrant
- Light Pole
- Water meter
- Sewer
- Stormwater Grated Pit
- Water Valve
- Inspection Point
- Telecom Pit
- Tree



Scale 1:400 – Lengths are in Metres.



This plan has been prepared from a combination of field survey and existing records for the purpose of showing the physical features of the land to assist in designing future development, and should not be used for any other purpose.

The title boundaries shown hereon were not verified or marked at the time of survey but were determined by existing title dimensions and occupation (where available), not by field measurement. As such, these dimensions could be out of date and incorrect by modern standards. This plan should not be used for building to boundary, or to prescribe set-backs, without further boundary survey. Services shown hereon were located where possible by field survey completed on 05-07-20. If not able to be so located, known services have been shown from the record of the relevant authorities or service providers where available and have been noted accordingly on this plan. All services shown from records only will need verification prior to, or during work on site.

Prior to any demolition, excavation or construction on site, the relevant authority should be contacted for:

- Verification of all services plotted from records only; and
- Possible location of any services altered since this survey was completed or any new services installed either on or adjacent to this site.

**Before starting any demolition, excavation or construction on this site, the relevant person should make an independent and updated enquiry of 'dial before you dig' and any relevant service providers to ascertain the existence of further services (if any) and the accurate location of those not able to have been surveyed at the time of preparing this plan.**

No responsibility can be accepted by GSPC for any damage caused to any underground service or any loss or injury so suffered if enquiry and verification have not been completed in accordance with this note.

This note is an integral part of this plan. Reproduction of this plan or any part of it without this note being included in full will render information shown on such reproduction invalid and not suitable for use.

# Detail and Level survey over Lot 1 on RP881585

**GSPC**  
(Gracemere Surveying and Planning Consultants Pty Ltd)  
ABN: 40 124 780 445  
PO Box 379 Gracemere QLD 4702  
Rockhampton & Toowoomba  
PH: (07) 4922 7033 email: admin@gspc.com.au FAX: (07) 4922 7044

LOCALITY	Allenstown
LOCAL GOVERNMENT	Rockhampton Regional Council
HORIZONTAL DATUM	MGA Zone 56
MERIDIAN	GPS
VERTICAL DATUM	AHD
DERIVED vide	PM 128516
MAP REF	9051-33443

PLAN SCALE	1:400
AUTOCAD SCALE	1:1000
DATE	05-07-2020
DRAWN	EZE
SHEET 1 OF 1	
REF.	201065-01







LOCATION AND LEVEL OF ALL EXISTING SERVICES ARE TO BE CONFIRMED ON SITE PRIOR TO WORKS COMMENCING

EXISTING

PROPOSED

PROPERTY BOUNDARY

CONTOUR

BUILDING

CONCRETE

KERB

KERB AND CHANNEL

STORM WATER MAIN

ROOFWATER

WATER MAIN

SEWER MAIN

TELECOMMUNICATIONS

FENCE

ABANDONED UTILITY

5.00

5.00

SW

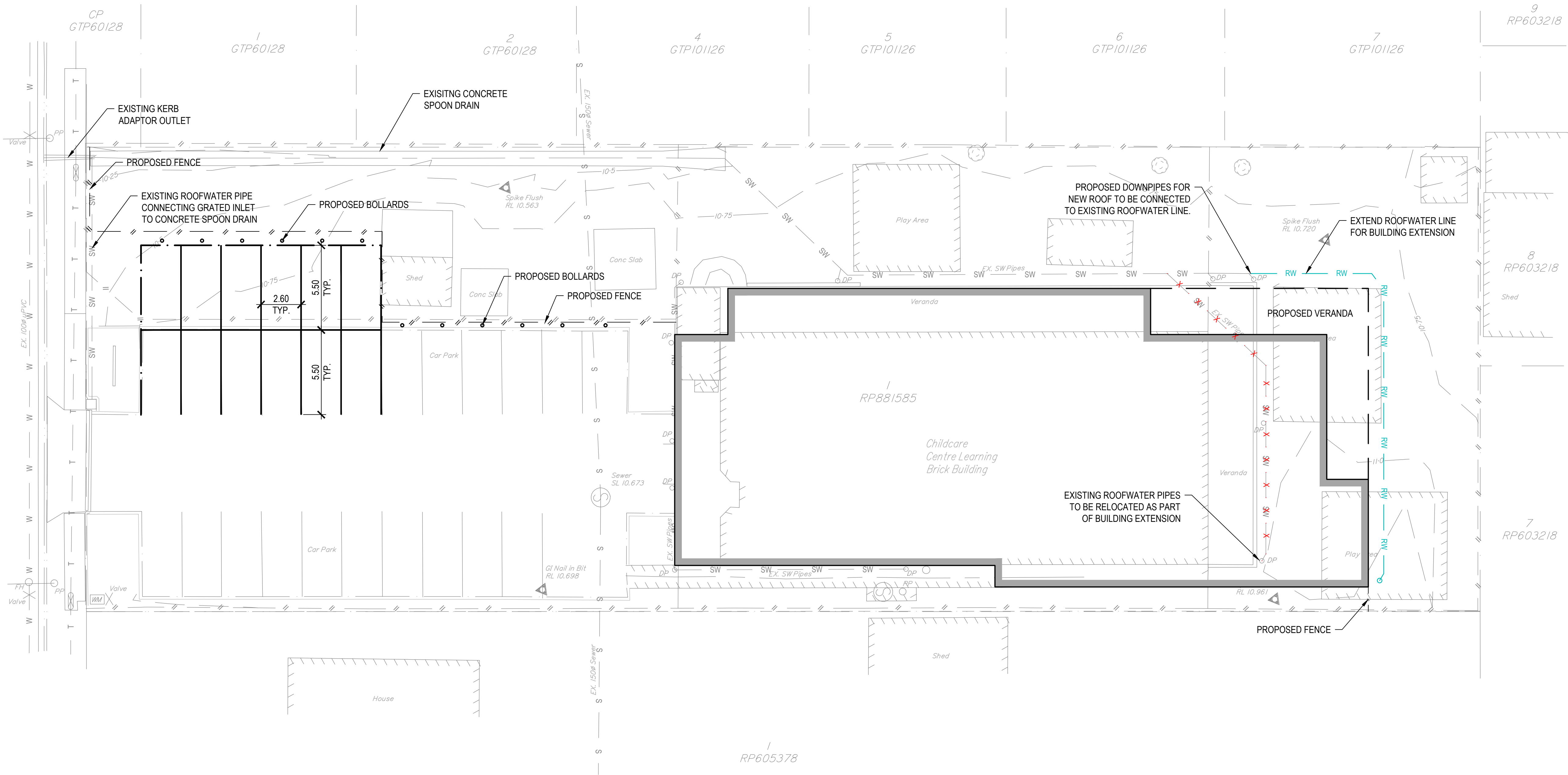
RW

SW

RW

X

X



B	04.11.20	ISSUED FOR DA APPROVAL	ST	LS	
A	24.07.20	ISSUED FOR DA APPROVAL	GS	MH	
ISSUE	DATE	AMENDMENT	BY	APP	
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STORMWATER LAYOUT PLAN

DESIGN:	DRAWN:	SCALES:
CHKD:	APPRD:	DATE:

mpn JOB	DRAWING No.	REV
8507	DA.01	B

FOR APPROVAL

NOT FOR CONSTRUCTION



**Appendix 4**  
**Rational Method Calculations**



Project Number:	8507
Address	27 Ross Street, Allenstown
Revision	A
Date	4/11/2020

Stormwater Drainage Runoff - Calculations	Unit	Value						Reference / Comments
Existing Condition								
Site Catchment								
Average Recurrence Interval (ARI)	Years	2	5	10	20	50	100	
Area	ha	0.2732	0.2732	0.2732	0.2732	0.2732	0.2732	
$f_i$		0.514	0.514	0.514	0.514	0.514	0.514	
$C_{10}$		0.78	0.78	0.78	0.78	0.78	0.78	QUDM Table 4.5.3
$F_y$		0.85	0.95	1	1.05	1.15	1.2	QUDM Table 4.5.2
$C_y = F_y * C_{10}$		0.663	0.741	0.78	0.819	0.897	0.936	
Time of concentration ( $t_c$ ) (channel flow)	minutes	0.3	0.3	0.3	0.3	0.3	0.3	QUDM Figure 4.5 (300mm fall over 40m)
Time of concentration ( $t_c$ ) (overland flow)	minutes	13.7	13.7	13.7	13.7	13.7	13.7	QUDM Figure 4.4 (0.7% over 40m with Horton's $n = 0.035$ )
Time of concentration ( $t_c$ )	minutes	14	14	14	14	14	14	
Rainfall Intensity (I)	mm / hr	100.131	125.4	146.6866	168.5	198.7134	222.6	
$Q_{exist}$ (Peak Runoff) = $(C*I*A)/360$	$m^3/s$	0.059271	0.074218	0.086829	0.099767	0.117625	0.131794	

Stormwater Drainage Runoff - Calculations	Unit	Value						Reference / Comments
Developed Condition								
Site Catchment								
Average Recurrence Interval (ARI)	Years	2	5	10	20	50	100	
Area	ha	0.2732	0.2732	0.2732	0.2732	0.2732	0.2732	
$f_i$		0.582	0.582	0.582	0.582	0.582	0.582	
$C_{10}$		0.796	0.796	0.796	0.796	0.796	0.796	QUDM Table 4.5.3
$F_y$		0.85	0.95	1	1.05	1.15	1.2	QUDM Table 4.5.2
$C_y = F_y * C_{10}$		0.6766	0.7562	0.796	0.8358	0.9154	0.9552	
Time of concentration ( $t_c$ ) (channel flow)	minutes	0.3	0.3	0.3	0.3	0.3	0.3	QUDM Figure 4.5 (300mm fall over 40m)
Time of concentration ( $t_c$ ) (overland flow)	minutes	13.7	13.7	13.7	13.7	13.7	13.7	QUDM Figure 4.4 (0.7% over 40m with Horton's $n = 0.035$ )
Time of concentration ( $t_c$ )	minutes	14	14	14	14	14	14	
Rainfall Intensity (I)	mm / hr	100.131	125.4	146.6866	168.5	198.7134	222.6	
$Q_{post}$ (Peak Runoff) = $(C*I*A)/360$	$m^3/s$	0.060487	0.075741	0.08861	0.101814	0.120038	0.134497	