

# Noise Impact Assessment

Proposed Mixed Use Development  
1 Renshaw Street  
Cranebrook, NSW



# Document Information

## Noise Impact Assessment

Proposed Mixed Use Development

1 Renshaw Street, Cranebrook, NSW

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# 1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by Isaac Property Developments Pty Ltd (IPD) to prepare a Noise Impact Assessment (NIA) to address potential emissions associated with the proposed Mixed Use Development to be established at 1 Renshaw Street, Cranebrook, NSW (the 'project').

The project will consist of a childcare centre, three (3) food and drinks premises, service station with drive-thru, carwash facility and recreation facility (indoor). The NIA has quantified potential operational noise emissions pertaining to customer vehicles and onsite traffic movements, delivery/collection vehicles, children playing in the CCC, and mechanical plant associated with the proposed buildings. The NIA recommends reasonable and feasible noise controls where required.

Additionally, the assessment has quantified the noise intrusion from surrounding noise sources to the CCC. Relevant guidelines and policies adopted in this assessment are detailed in **Section 3** of this report.

The assessment has been undertaken in accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI) 2017;
- Association of Australian Acoustical Consultants (AAAC), Guideline for Child Care Centre Acoustic Assessment (GCCCAA);
- Australian Standard AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures; and
- International Standard ISO 9613:1993 - Acoustics - Attenuation of sound during propagation outdoors.

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**

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## 2 Project Description

### 2.1 General

The project is to be established at 1 Renshaw Street, Cranebrook, NSW, which is located in Waterside Estate, Cranebrook, NSW. The estate area surrounding the project site is a mix of existing childcare centres, commercial and industrial ventures. The site is bounded to the west by a creek reserve and to the north by an approved industrial unit's development. To the east of the project site is Renshaw Street and to the south by Andrews Road. The site location is shown in **Figure 1**.

The nearest residential receivers to the project site are located 70m to the north of the site and will be shielded by the approved industrial units. Although the units are not yet constructed, they have been approved and site preparation works have commenced, as such the units have been included in this assessment. Furthermore, the near point of the nearest residential receivers is part of an acoustic barrier with only a single window of each dwelling located in the barrier structure. MAC have reviewed online images of the interior and exterior of the windows and the windows are located in the main bathroom of each dwelling and are non-opening windows. Accordingly, the predicted received noise levels at these dwelling includes a 20dB reduction, representative of the transmission loss of a shut window.

The noise environment at receivers surrounding the project is dominated by road traffic from Andrews Road with the general hum from the nearby commercial and industrial sites audible during the day, evening and night periods.

The proposal involves the construction of a 100 space childcare centre (CCC), three (3) food and drinks premises (FDP1-FDP3) each with drive-thru facilities, service station (SS) with drive-thru lane and a car wash facility (CWF) with and recreational facility (indoor) (RF) located above. There is associated parking for each premises and a dedicated carpark located along the northern boundary of the site, giving a total of 128 parking spaces. Site plans are provided in **Appendix B**.

The CCC proposed hours of operation are 6am to 6.30pm Monday to Friday. Children's outdoor activities are generally planned with consideration given primarily to sun exposure and age of the children. All other premises within the project are proposed to operate 24 hours 7 days.

## 2.2 Receiver Review

A review of residential and non-residential receivers in close proximity to the project has been completed. The nearest residential receiver to the project is approximately 70m from the northern boundary on the far side of the industrial units development. The residential receptor, MGA(56) coordinates to the project are summarised in **Table 1**. **Figure 1** provides a locality plan identifying the position of these receivers in relation to the project. Receiver heights were set at various heights above relative ground level and is representative of the single or multistorey buildings surrounding the project.

Table 1 Receiver Locations				
Receiver	MGA56 Coordinates		Receiver Height	Receiver Type
	Easting	Northing		
R01	286867	6265477	4m	Residential
R02	287071	6265491	4m	Residential
R03	287109	6265489	4m	Residential
R04	287157	6265486	4m	Residential
R05	287248	6265479	4m	Residential
R06	287315	6265474	4m	Residential
CC01	287164	6265430	1.5m	Educational
CC02	287278	6265429	1.5m	Educational
CC03	287396	6265388	1.5m	Educational
C01	286885	6265396	1.5m	Commercial
C02	287194	6265322	1.5m	Commercial
C03	287237	6265323	1.5m	Commercial
C04	287263	6265320	1.5m	Commercial
C05	287323	6265338	1.5m	Commercial
C06	287276	6265367	1.5m	Commercial
C07	287210	6265428	1.5m	Commercial
FC01	286991	6265448	1.5/4.0m	Future Commercial
FC02	287027	6265443	1.5/4.0m	Future Commercial
FC03	287061	6265440	1.5/4.0m	Future Commercial
FC04	287093	6265435	1.5/4.0m	Future Commercial
FC05	287124	6265426	1.5/4.0m	Future Commercial
FC06	287141	6265412	1.5/4.0m	Future Commercial
FC07	287136	6265443	1.5/4.0m	Future Commercial
FC08	287093	6265448	1.5/4.0m	Future Commercial
FC09	287053	6265454	1.5/4.0m	Future Commercial
FC10	287008	6265460	1.5/4.0m	Future Commercial
I01	286797	6265302	1.5m	Industrial
I02	286882	6265284	1.5m	Industrial
I03	286916	6265094	1.5m	Industrial
I04	287080	6265156	1.5m	Industrial
I05	287390	6265126	1.5m	Industrial
I06	287378	6265274	1.5m	Industrial

The CCC receivers for both external play areas and internal occupied rooms are presented in **Table 2**.

Table 2 On-site Receiver Locations			
Receptors	Type	MGA56 Coordinates	
		Easting	Northing
Outdoor Play Area 1	Play Area	286994	6265429
Outdoor Play Area 2	Play Area	286993	6265422
Outdoor Play Area 3	Play Area	286993	6265415
Playroom 01 South Facade	Internal	286991	6265408
Playroom 01 East Facade	Internal	286990	6265402
Playroom 02	Internal	287002	6265397
Playroom 03	Internal	287000	6265400
Playroom 04	Internal	287001	6265407
Playroom 05	Internal	287002	6265411
Playroom 06	Internal	287003	6265418

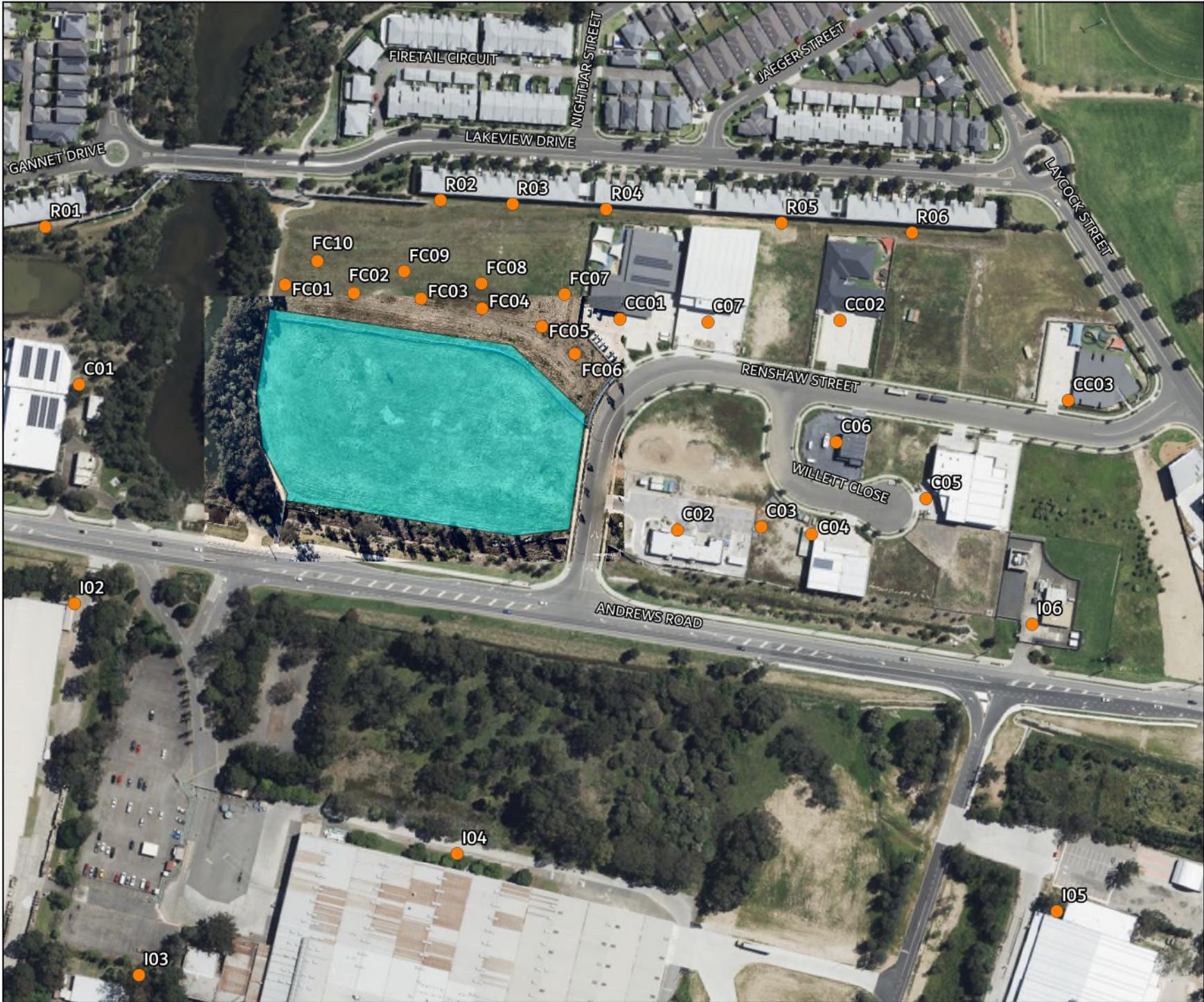
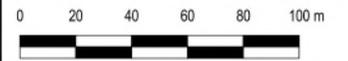


FIGURE 1  
 Locality Plan  
 MAC211443-01  
 Cranebrook Mixed Use

**KEY**

- Receivers
- Site Boundary



## 2.3 Proposed Activities

There are several key activities associated with the project that have the potential to generate acoustic impacts on nearby receivers. **Table 3** provides a summary of noise sources, assessment period and proposed time of occurrence all aspects of the project site.

Table 3 Noise Generating Activities		
Activity/Source	Period <sup>1</sup>	Operational
<b>Child Care Centre</b>		
Mechanical Plant	Day	✓
	Evening	✓
	Night	X
CCC External Children at Play	Day	✓
	Evening	✓
	Night	X
Parent and Staff light vehicles	Day	✓
	Evening	✓
	Night	✓
Waste Collection	Day	✓
	Evening	✓
	Night	✓
<b>Food and Drinks Premises &amp; Service Station Operation</b>		
Customer light vehicles	Day	✓
	Evening	✓
	Night	✓
Truck Consumable Deliveries or Waste Collection	Day	✓
	Evening	✓
	Night	✓
Mechanical Plant including COD Operations	Day	✓
	Evening	✓
	Night	✓
<b>CWF &amp; RFI Operation</b>		
Customer light vehicles	Day	✓
	Evening	✓
	Night	✓
Mechanical Plant	Day	✓
	Evening	✓
	Night	✓
Truck Consumable Deliveries or Waste Collection	Day	✓
	Evening	✓
	Night	✓

Note 1: Day – the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening – the period from 6pm to 10pm; Night – the remaining periods.

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### 3 Noise Policy and Guidelines

#### 3.1 Noise Policy for Industry

The EPA released the Noise Policy for Industry (NPI) in October 2017 which provides a process for establishing noise criteria for consents and licenses enabling the EPA to regulate noise emissions from scheduled premises under the Protection of the Environment Operations Act 1997.

The objectives of the NPI are to:

- provide noise criteria that is used to assess the change in both short term and long-term noise levels;
- provide a clear and consistent framework for assessing environmental noise impacts from industrial premises and industrial development proposals;
- promote the use of best-practice noise mitigation measures that are feasible and reasonable where potential impacts have been identified; and
- support a process to guide the determination of achievable noise limits for planning approvals and/or licences, considering the matters that must be considered under the relevant legislation (such as the economic and social benefits and impacts of industrial development).

The policy sets out a process for industrial noise management involving the following key steps:

1. Determine the Project Noise Trigger Levels (PNTLs) (ie criteria) for a development. These are the levels (criteria), above which noise management measures are required to be considered. They are derived by considering two factors: shorter-term intrusiveness due to changes in the noise environment; and maintaining the noise amenity of an area.
2. Predict or measure the noise levels produced by the development with regard to the presence of annoying noise characteristics and meteorological effects such as temperature inversions and wind.
3. Compare the predicted or measured noise level with the PNTL, assessing impacts and the need for noise mitigation and management measures.
4. Consider residual noise impacts – that is, where noise levels exceed the PNTLs after the application of feasible and reasonable noise mitigation measures. This may involve balancing economic, social and environmental costs and benefits from the proposed development against the noise impacts, including consultation with the affected community where impacts are expected to be significant.

5. Set statutory compliance levels that reflect the best achievable and agreed noise limits for the development.
6. Monitor and report environmental noise levels from the development.

### 3.1.1 Project Noise Trigger Levels (PNTL)

The policy sets out the procedure to determine the PNTLs relevant to an industrial development. The PNTL is the lower (ie, the more stringent) of the **Project Intrusiveness Noise Level (PINL)** and **Project Amenity Noise Level (PANL)** determined in accordance with Section 2.3 and Section 2.4 of the NPI.

### 3.1.2 Rating Background Level (RBL)

The Rating Background Level (RBL) is a determined parameter from noise monitoring and is used for assessment purposes. As per the NPI, the RBL is an overall single figure background level representing each assessment period (day, evening and night) over the noise monitoring period. The adopted RBLs relevant to the project are contained in **Section 5**.

### 3.1.3 Project Intrusiveness Noise Level (PINL)

The PINL ( $L_{Aeq}(15min)$ ) is the RBL + 5dB and seeks to limit the degree of change a new noise source introduces to an existing environment. Hence, when assessing intrusiveness, background noise levels need to be measured.

Background noise levels need to be determined before intrusive noise can be assessed. The NPI states that background noise levels to be measured are those that are present at the time of the noise assessment and without the subject development operating. For the assessment of modifications to existing premises, the noise from the existing premises should be excluded from background noise measurements. It is note that the exception is where the premises has been operating for a significant period of time and is considered a normal part of the acoustic environment; it may be included in the background noise assessment under the following circumstances:

- the development must have been operating for a period in excess of 10 years in the assessment period/s being considered and is considered a normal part of the acoustic environment; and,
- the development must be operating in accordance with noise limits and requirements imposed in a consent or licence and/or be applying best practice.

Where a project intrusiveness noise level has been derived in this way, the derived level applies for a period of 10 years to avoid continuous incremental increases in intrusiveness noise levels. This approach is consistent with the purpose of the intrusiveness noise level to limit significant change in the acoustic environment. The purpose of the project amenity noise level is to moderate against background noise creep.

#### 3.1.4 Project Amenity Noise Level (PANL)

The PANL is relevant to a specific land use or locality. To limit continuing increases in intrusiveness levels, the ambient noise level within an area from all combined industrial sources should remain below the recommended amenity noise levels specified in Table 2.2 (of the NPI). The NPI defines two categories of amenity noise levels:

- **Amenity Noise Levels (ANL)** – are determined considering all current and future industrial noise within a receiver area; and
- **Project Amenity Noise Level (PANL)** – is the recommended level for a receiver area, specifically focusing the project being assessed.

Additionally, Section 2.4 of the NPI states: “to ensure that industrial noise levels (existing plus new) remain within the recommended amenity noise levels for an area, a project amenity noise level applies for each new source of industrial noise as follows”:

**PANL** for new industrial developments = recommended **ANL** minus 5dBA.

The following exceptions apply when deriving the PANL:

- areas with high traffic noise levels;
- proposed developments in major industrial clusters;
- existing industrial noise and cumulative industrial noise effects; and
- greenfield sites.

The NPI states with respect to high traffic noise areas:

The level of transport noise, road traffic noise in particular, may be high enough to make noise from an industrial source effectively inaudible, even though the LAeq noise level from that industrial noise source may exceed the project amenity noise level. In such cases the project amenity noise level may be derived from the LAeq, period(traffic) minus 15 dB(A).

Where relevant this assessment has considered influences of traffic with respect to amenity noise levels (ie areas where existing traffic noise levels are 10dB greater than the recommended amenity noise level).

The recommended amenity noise levels as per Table 2.2 of the NPI are reproduced in **Table 4**.

Table 4 Amenity Noise Levels			
Receiver Type	Noise Amenity Area	Time of day	Recommended amenity noise level dB LAeq(period)
Residential	Rural	Day	50
		Evening	45
		Night	40
	Suburban	Day	55
		Evening	45
		Night	40
	Urban	Day	60
		Evening	50
		Night	45
Hotels, motels, caretakers' quarters, holiday accommodation, permanent resident caravan parks.	See column 4	See column 4	5dB above the recommended amenity noise level for a residence for the relevant noise amenity area and time of day
School Classroom	All	Noisiest 1-hour period when in use	35 (internal) 45 (external)
Hospital ward			
- internal	All	Noisiest 1-hour	35
- external	All	Noisiest 1-hour	50
Place of worship			
- internal	All	When in use	40
Passive Recreation	All	When in use	50
Active Recreation	All	When in use	55
Commercial premises	All	When in use	65
Industrial	All	When in use	70

Notes: The recommended amenity noise levels refer only to noise from industrial noise sources. However, they refer to noise from all such sources at the receiver location, and not only noise due to a specific project under consideration. The levels represent outdoor levels except where otherwise stated.

Types of receivers are defined as rural residential; suburban residential; urban residential; industrial interface; commercial; industrial – see Table 2.3 and Section 2.7 of the NPI.

Note: Day – the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening – the period from 6pm to 10pm; Night – the period from 10pm to 5.30am; Morning Shoulder – the period between 5.30am to 7am.

### 3.2 The AAAC Guideline

The Guideline for the assessment of noise from the CCC has been prepared by the AAAC. The document provides criteria for the assessment of noise intrusion into and noise emissions from CCCs and also provides recommendations for treatment to minimise noise upon surrounding receptors. The guideline aligns with the NPI and Council for establishing criteria for CCCs with respect to the following noise sources:

- mechanical plant (air conditioning condensers and mechanical ventilation);
- on-site traffic, deliveries and ingress and egress of vehicles;
- on-site drop off/collection areas of children; and
- internal noise emissions from children at play.

### 3.3 Maximum Noise Assessment Trigger Levels

The potential for sleep disturbance from maximum noise level events from a project during the night-time period needs to be considered. The NPI considers sleep disturbance to be both awakenings and disturbance to sleep stages.

Where night-time noise levels from a development/premises at a residential location exceed the following criteria, a detailed maximum noise level event assessment should be undertaken:

- LAeq(15min) 40dB or the prevailing RBL plus 5dBA, whichever is the greater, and/or
- Lamax 52dB or the prevailing RBL plus 15dBA, whichever is the greater.

A detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the rating background noise level, and the number of times this happens during the night-time period.

Other factors that may be important in assessing the impacts on sleep disturbance include:

- how often the events would occur;
- the distribution of likely events across the night-time period and the existing ambient maximum events in the absence of the development;
- whether there are times of day when there is a clear change in the noise environment (such as during early morning shoulder periods); and
- current understanding of effects of maximum noise level events at night.

### 3.4 Interim Construction Noise Guideline

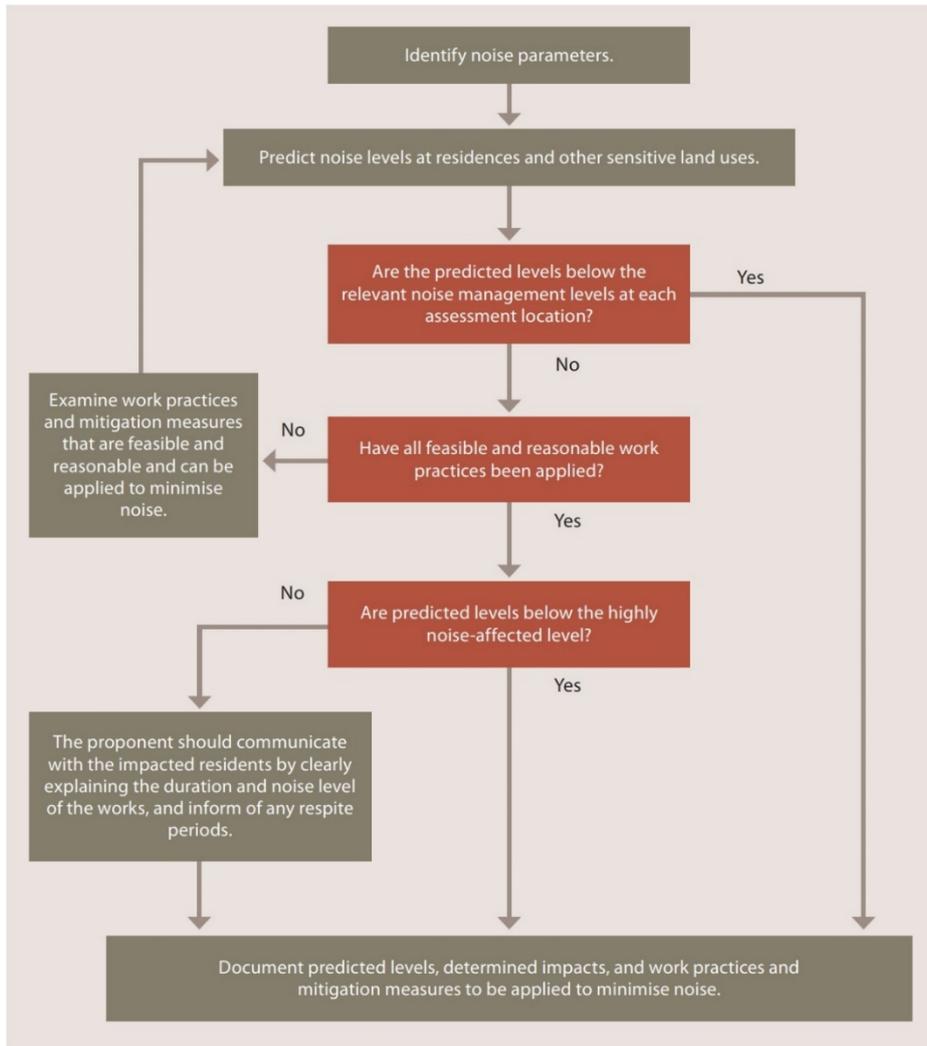
The ICNG sets out procedures to identify and address the impacts of construction noise on residences and other sensitive land uses. This section provides a summary of noise objectives that are applicable

to the assessment. The ICNG provides two methodologies for the assessment of construction noise emissions:

- Quantitative, which is suited to major construction projects with typical durations of more than three weeks; and
- Qualitative, which is suited to short term infrastructure maintenance (< three weeks).

The qualitative assessment methodology is a more simplified approach that relies on noise management strategies. This study has adopted a quantitative assessment approach which is summarised in **Figure 2**. The quantitative approach includes identification of potentially affected receivers, derivation of the construction noise management levels, quantification of potential noise impact at receivers via predictive modelling and, provides management and mitigation recommendations.

Figure 2 Quantitative Assessment Processes for Assessing and Managing Construction Noise



Source: Department of Environment and Climate Change, 2009.

### 3.4.1 Standard Hours for Construction

**Table 5** summaries the ICNG recommended standard hours for construction works.

Table 5 Recommended Standard Hours for Construction	
Daytime	Construction Hours
Monday to Friday	7am to 6pm
Saturdays	8am to 1pm
Sundays or Public Holidays	No construction

These recommended hours do not apply in the event of direction from police, or other relevant authorities, for safety reasons or where required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm. Construction activities are anticipated to be undertaken during standard construction hours.

### 3.4.2 Construction Noise Management Levels

Section 4 of the ICNG (DECC, 2009) details the quantitative assessment method involving predicting noise levels and comparing them with the Noise Management Level (NML) and are important indicators of the potential level of construction noise impact. **Table 6** reproduces the ICNG Noise Management Level (NML) for residential receivers. The NML is determined by adding 10dB (standard hours) or 5dB (OOH) to the Rating Background Level (RBL) for each specific assessment period.

**Table 6 Noise Management Levels**

Time of Day	Management Level LAeq(15min) <sup>1</sup>	How to Apply
Recommended standard hours: Monday to Friday 7am to 6pm Saturday 8am to 1pm No work on Sundays or public holidays.	Noise affected RBL + 10dB	The noise affected level represents the point above which there may be some community reaction to noise.  Where the predicted or measured LAeq(15min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level.  The proponent should also inform all potentially impacted residents of the nature of work to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise.  Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account times identified by the community when they are less sensitive to noise such as before and after school for work near schools, or mid-morning or mid-afternoon for work near residences; and if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours.	Noise affected RBL + 5dB	A strong justification would typically be required for work outside the recommended standard hours.  The proponent should apply all feasible and reasonable work practices to meet the noise affected level.  Where all feasible and reasonable practices have been applied and noise is more than 5dBA above the noise affected level, the proponent should negotiate with the community.  For guidance on negotiating agreements see section 7.2.2.

Note 1: The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the construction noise management levels for noise assessment purposes and is the median of the ABL's.

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## 4 Existing Acoustic Environment

### 4.1 Background Noise Environment

Historic noise data has been adopted as part of this assessment. Historic background noise data was sourced from the report ‘Noise Impact Assessment for Park Land Waterside Pty Ltd Proposed Childcare Centre Waterside Estate Cranebrook’ (Report Ref 161135\_Noise\_Rev1, Benbow Environmental – Dated 9 September 2016) (the ‘historic report’).

The historic report presented unattended noise monitoring conducted at a location representative of the nearest residential receivers surrounding the project site. The RBLs measured at this location, outlined in Table 3-1 of the historic report, are reproduced in **Table 7**.

**Table 7 Historic Noise Monitoring Summary**

Location	Measured background noise level			Measured		
	dB RBL			dB LAeq		
	Day	Evening	Night	Day	Evening	Night
	7am to 6pm	6pm to 10pm	10pm to 7am	7am to 6pm	6pm to 10pm	10pm to 7am
LA – 112 Lakeview Drive Cranebrook	37	37	35	64	55	50

Note 1: Day – the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening – the period from 6pm to 10pm; Night – the remaining periods.

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## 5 Assessment Criteria

### 5.1 Operational Noise Criteria

#### 5.1.1 Intrusiveness Noise Levels

The Project Intrusiveness Noise Levels (PINLs) for the project are presented in **Table 8** and have been determined based on the RBL +5dBA.

Table 8 Intrusiveness Noise Levels			
Receiver	Period <sup>1</sup>	Measured RBL dB LA90	PINL dB LAeq(15min)
Residential	Day	37	42
	Evening	37	42
	Night	35	40

Note 1: Day – the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening – the period from 6pm to 10pm; Night – the remaining periods.

#### 5.1.2 Project Amenity Noise Levels

The Project Amenity Noise Levels (PANLs) for residential receivers and other sensitive receivers potentially affected by the project are presented in **Table 9**.

Table 9 Amenity Noise Levels and Project Amenity Levels					
Receiver Type	Noise Amenity Area	Period <sup>1</sup>	Recommended Amenity Noise Level LAeq(period)	PANL LAeq(period)	PANL LAeq(15min) <sup>4</sup>
Residential	Suburban	Day	55 <sup>2</sup>	50 <sup>3</sup>	53
		Evening	45 <sup>2</sup>	40 <sup>3</sup>	43
		Night	40 <sup>2</sup>	35 <sup>3</sup>	38
School Classroom (CCC)		Noisest 1 hour	35 (internal) 45 (external) <sup>5</sup>	40 (external) <sup>3</sup>	43 (external)
Commercial		When in use	65	60	63
Industrial		When in use	70	65	68

Note 1: Day – the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening – the period from 6pm to 10pm; Night – the remaining periods.

Note 2: Recommended amenity noise levels as per Table 2.2 of the NPI.

Note 3: Project Amenity Noise Level equals the amenity noise level – 5dB as there is other industry in the area.

Note 4: Includes a +3dB adjustment to the amenity period level to convert to a fifteen-minute assessment period as per Section 2.2 of the NPI.

Note 5: External level based on 10dB loss through partially open window.

### 5.1.3 Project Noise Trigger Levels

The Project Noise Trigger Levels (PNTLs) is the lower of either the PINL or the PANL. **Table 10** presents the derivation of the PNTL's in accordance with the methodologies outlined in the NPI.

<b>Table 10 Project Noise Trigger Levels</b>				
Receiver	Period <sup>1</sup>	PINL	PANL	PNTL
		dB LAeq(15min)	dB LAeq(15min)	dB LAeq(15min)
Residential	Day	42	53	42
	Evening	42	43	42
	Night	40	38	38
School Classroom (CCC)	Nosiest 1 hour	N/A	43 (external)	43
Commercial	When in use	N/A	63	63
Industrial	When in use	N/A	68	68

Note 1: Day – the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening – the period from 6pm to 10pm; Night – the remaining periods.

### 5.2 Maximum Noise Assessment Trigger Levels

The maximum noise trigger levels shown in **Table 11** are based on night time RBLs and trigger levels as per Section 2.5 of the NPI. The trigger levels will be applied to transient noise events that have the potential to cause sleep disturbance.

<b>Table 11 Maximum Noise Assessment Trigger Levels</b>			
Residential Receivers– Night Period			
LAeq(15min)		Lamax	
40dB LAeq(15min) or RBL + 5dB		52dB Lamax or RBL + 15dB	
Trigger	40	Trigger	52
RBL +5dB	40	RBL +15dB	50
<b>Highest</b>	<b>40</b>	<b>Highest</b>	<b>52</b>

Note: Monday to Saturday; Night 10pm to 7am. On Sundays and Public Holidays Night 10pm to 8am.

Note: NPI identifies that maximum of the two values is to be adopted which is shown in bold font.

### 5.3 Noise Intrusion Criteria to Child Care Centres

The AAAC child care centre guideline also provides recommendations for external noise impact upon children in child care centres. The relevant criteria for noise intrusion to the CCC is reproduced below:

- The LAeq(1-hour) intrusive noise level from road, rail or industry at any location within an outdoor play area should not exceed 55dBA; and
- The LAeq(1-hour) intrusive noise level from road, rail or industry within the indoor play or sleeping areas should not exceed 40dBA.

### 5.4 Noise Emission Criteria from Child Care Centres

The GCCCAA recommends a base criterion of 45dB LAeq(15min) for the assessment of outdoor play where the background noise level is less than 40dBA and is reproduced below.

*Base Criteria – With the development of child care centres in residential areas, the background noise level within these areas can at certain times, be low. Thus, a base criterion of a contributed Leq,15min 45 dB(A) for the assessment of outdoor play is recommended in locations where the background noise level is less than 40 dB(A).*

Other noise emissions, from indoor play, mechanical plant, drop off, pick up and any other activities are not to exceed the background noise level by more than 5dB. In regard to sleep disturbance, activities prior to 7am, such as the LAm<sub>ax</sub> noise level from staff vehicles arriving, parking etc should not exceed the background noise level by more than 15dB. **Table 12** summarises the noise emission criteria from the CCC.

Table 12 CCC Noise Emission Criteria			
Location	Period	Activity	Criteria
Residential Receivers	Day (7am-6pm)	Outdoor Play	45dB LAeq(15min)
	Evening (6pm-7pm)	Outdoor Play	45dB LAeq(15min)
	Day (7am-6pm)	All other activities	52dB LAeq(15min)
	Evening (6pm-7pm)	All other activities	52dB LAeq(15min)

## 5.5 Construction Noise Management Levels

The Construction Noise Management Levels established in accordance with the ICNG for the project are presented in **Table 13**.

Table 13 Construction Noise Management Levels			
Location	Period <sup>1</sup>	Rating Background Level (RBL), dB LA90	Noise Management Level dB LAeq(15min) (RBL+10dB)
Residential	Day	37	47
School Classroom	Day	N/A	45 (internal) 55 (external)
Commercial	Day	N/A	70
Industrial	Day	N/A	75

Note 1: See Table 5 of this report for Recommended Standard Hours for Construction.

## 6 Noise Assessment Methodology

A computer model was developed to quantify project noise emissions to neighbouring receivers using DGMR (iNoise, Version 2021.1) noise modelling software. iNoise is an intuitive and quality assured software for industrial noise calculations in the environment. 3D noise modelling is considered industry best practice for assessing noise emissions from projects.

The model incorporated a three-dimensional digital terrain map giving all relevant topographic information used in the modelling process. Additionally, the model uses relevant noise source data, ground type, attenuation from barrier or buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers. Where relevant, modifying factors in accordance with Fact Sheet C of the NPI have been applied to calculations.

The model calculation method used to predict noise levels was in accordance with ISO 9613-1 'Acoustics – Attenuation of sound during propagation outdoors. Part 1: Calculation of the absorption of sound by the atmosphere' and ISO 9613-2 'Acoustics – Attenuation of sound during propagation outdoors. Part 2: General method of calculation' including corrections for meteorological conditions using CONCAWE<sup>1</sup>. The ISO 9613 standard from 1996 is the most used noise prediction method worldwide. Many countries refer to ISO 9613 in their noise legislation. However, the ISO 9613 standard does not contain guidelines for quality assured software implementation, which leads to differences between applications in calculated results. In 2015 this changed with the release of ISO/TR 17534-3. This quality standard gives clear recommendations for interpreting the ISO 9613 method. iNoise fully supports these recommendations. The models and results for the 19 test cases are included in the software.

### 6.1 Sound Power Levels

Sound power data for the proposed CCC and commercial premises were referenced from the GCCCAA (AAAC, 2010) or the MAC noise source data base for similar developments. The sound power levels for noise sources adopted for this assessment are summarised in **Table 14**.

---

<sup>1</sup> Report no. 4/18, "the propagation of noise from petroleum and petrochemical complexes to neighbouring communities", Prepared by C.J. Manning, M.Sc., M.I.O.A. Acoustic Technology Limited (Ref.AT 931), CONCAWE, Den Haag May 1981

**Table 14 Acoustically Significant Sources – Sound Power Levels (re 10<sup>-12</sup> Watts)**

Item and number modelled per 15 minutes	Individual Sound Power Level, dB LAeq	Total Modelled Source Sound Power Level, dB LAeq(15min)	Source Height <sup>1</sup>
<b>Operation</b>			
FDP1 Fan PCD454ER (x4)	75	81	0.3m
FDP1 AC Plant PKY620T (x2)	81	84	1.7m
FDP1 Cold Room Condenser (x1)	80	80	0.5m
FDP1 Customer's vehicles travelling through Drive-Thru (15 cars per 15min)	81	85 <sup>2</sup>	0.5m
FDP1 Truck Delivery (x1)	92	92	1.5m
FDP1 Customer Ordering Displays (x2)	75	78	1.0m
FDP2 Fan PCD454ER (x3)	75	80	0.3m
FDP2 AC Plant PKY620T (x3)	81	86	1.7m
FDP2 Cold Room Condenser (x1)	80	80	0.5m
FDP2 Customer's vehicles travelling through Drive-Thru (15 cars per 15min)	81	85 <sup>2</sup>	0.5m
FDP2 Truck Delivery (x1)	92	92	1.5m
FDP2 Customer Ordering Displays (x2)	75	78	1.0m
FDP3 Fan PCD454ER (x2)	75	78	0.3m
FDP3. AC Plant PKY620T (x3)	81	86	1.7m
FDP3 Cold Room Condenser (x1)	80	80	0.5m
FDP3 Customer's vehicles travelling through Drive-Thru (15 cars per 15min)	81	85 <sup>2</sup>	0.5m
FDP3 Truck Delivery (x1)	92	92	1.5m
FDP3 Customer Ordering Displays (x2)	75	78	1.0m
SS Fan PCD454ER (x2)	75	78	0.3m
SS. AC Plant PKY620T (x2)	81	84	1.7m
SS Cold Room Condenser (x1)	80	80	0.5m
SS Customer's vehicles travelling through Drive-Thru (15 cars per 15min)	81	85 <sup>2</sup>	0.5m
SS Truck Delivery (x1)	92	92	1.5m
SS Customer Ordering Displays (x1)	75	75	1.0m
SS Fuel Delivery (x1)	82	82	1.0m
CWF Pressure Wash Bay (x3)	92	97	1.0m
Auto Wash System (x1)	80	80	1.0m
Vacuum System (x2)	86	89	1.5m
CCC AC Plant PCG290LR (x2)	78	81	1.5
CCC Fan CDG354 (x3)	73	78	0.6m
Car idle, start up and drive off (x83) <sup>1</sup>	81	92	0.5m
Car Park vehicles travelling along access road (135 cars per 15min)	81	85 <sup>2</sup>	0.5m

**Table 14 Acoustically Significant Sources – Sound Power Levels (re 10<sup>-12</sup> Watts)**

Item and number modelled per 15 minutes	Individual Sound Power Level, dB LAeq	Total Modelled Source Sound Power Level, dB LAeq(15min)	Source Height <sup>1</sup>
<b>CCC Outdoor play<sup>1</sup></b>			
3 groups of 10 children aged 0-2 years		77 to 80 (per group)	
3 groups of 10 children aged 2-3 years		83 to 87 (per group)	
4 groups of 10 children aged 3-6 years		84 to 90 (per group)	
<b>Sleep disturbance assessment (L<sub>Amax</sub>), Night-time periods (10pm to 7am)</b>			
Car Door Slam		85	0.5m
Waste Collection		104	2.5m
Fuel Delivery Impact		104	0.3m
<b>Construction Fleet</b>			
Combined Construction Fleet		108	1.5m

Note 1: Referenced from GCCCAA (AAAC 2010).

Note 2: Includes a duration adjustment assuming vehicles operate for three (3) minutes continuously within a period of 15-minutes.

## 6.2 Noise Attenuation Assumptions and Controls

The noise model adopted the following noise assumptions and controls:

- construction of the adjoining industrial units along the northern boundary of the project site;
- the service station mechanical plant is located on the rooftop of the building and surrounded by a 2.1m rooftop barrier as per the site plans;
- the RFI and CWF mechanical plant and equipment is located internally within the plant rooms, with the plant rooms of concrete construction. Accordingly, they are considered acoustically insignificant compared to the external noise sources and have not been considered as part of this assessment; and
- the COD's are assumed to be set at the lowest volume setting.

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## 7 Assessment of Noise Impacts

### 7.1 Operational Noise Results

Noise predictions from all sources including deliveries to all premises simultaneously have been quantified at surrounding residential receivers to the project site and are presented in **Table 15**. The predictions are considered a worse case assessment. Noise levels from are predicted to satisfy the relevant NPI noise criteria at all receivers during all assessment periods.

**Table 15 Combined Noise Predictions – All Receivers**

Residential and Temporary Accommodation Receivers							
Receiver	Predicted Noise Level			PNTL			Compliant
	dB LAeq(15min)			dB LAeq(15min)			
	Day	Evening	Night	Day	Evening	Night	
R01	<35	<35	<35	42	42	38	✓
R02	<35	<35	<35	42	42	38	✓
R03	<35	<35	<35	42	42	38	✓
R04	<35	<35	<35	42	42	38	✓
R05	<35	<35	<35	42	42	38	✓
R06	<35	<35	<35	42	42	38	✓
Other Receivers							
Rec	Period	Predicted Noise Level		PNTL		Compliant	
		dB LAeq(15min)		dB LAeq(15min)			
CC01	Noisiest 1 Hour	37		43		✓	
CC02	Noisiest 1 Hour	<35		43		✓	
CC03	Noisiest 1 Hour	<35		43		✓	
C01	When in Use	43		63		✓	
C02	When in Use	46		63		✓	
C03	When in Use	42		63		✓	
C04	When in Use	40		63		✓	
C05	When in Use	39		63		✓	
C06	When in Use	39		63		✓	
C07	When in Use	38		63		✓	
FC01	When in Use	<35		63		✓	
FC02	When in Use	36		63		✓	
FC03	When in Use	37		63		✓	
FC04	When in Use	35		63		✓	
FC05	When in Use	36		63		✓	
FC06	When in Use	36		63		✓	
FC07	When in Use	36		63		✓	
FC08	When in Use	37		63		✓	
FC09	When in Use	37		63		✓	
FC10	When in Use	35		63		✓	
I01	When in Use	38		68		✓	
I02	When in Use	41		68		✓	
I03	When in Use	38		68		✓	
I04	When in Use	43		68		✓	
I05	When in Use	<35		68		✓	
I06	When in Use	<35		68		✓	

## 7.2 Maximum Noise Trigger Level Assessment Results

In assessing maximum noise events, typical L<sub>Amax</sub> noise levels from transient events were assessed to the nearest residential receivers. For the maximum noise assessment, a sound power level of 87dBA for a door slam in the main car park of the project and 104dBA for impact noise in each of the loading bays and fuel delivery point are adopted for this assessment. Predicted noise levels L<sub>Amax</sub> events for FDP1 to FDP3 and the CCC for assessed residential receivers are presented in **Table 16** with L<sub>Amax</sub> events for SS Fuel and good delivery impact, CWF/RFI delivery impacts and car door slams in the main car park presented in **Table 17**. Results identify that the maximum noise events trigger values will be satisfied for all assessed receivers for all assessed transient events.

**Table 16 Maximum Noise Trigger Level Assessment (Night)<sup>1</sup>**

Rec	Predicted Noise Level				Trigger Level	Compliant
	dB L <sub>Amax</sub>				dB L <sub>Amax</sub>	
	FDP1 Waste Collection	FDP2 Waste Collection	FDP3 Waste Collection	CCC Door Slam		
R01	40	46	<35	<35	52	✓
R02	41	46	36	<35	52	✓
R03	<35	<35	<35	<35	52	✓
R04	<35	<35	<35	<35	52	✓
R05	<35	<35	<35	<35	52	✓
R06	<35	36	<35	<35	52	✓

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

**Table 17 Maximum Noise Trigger Level Assessment (Night)<sup>1</sup>**

Rec	Predicted Noise Level				Trigger Level	Compliant
	dB L <sub>Amax</sub>				dB L <sub>Amax</sub>	
	SS Waste Collection	SS Fuel Delivery Impact	CWF/RFI Delivery Impact	Carpark Car Door Slam		
R01	<35	<35	38	<35	52	✓
R02	<35	<35	39	<35	52	✓
R03	<35	<35	<35	<35	52	✓
R04	<35	<35	<35	<35	52	✓
R05	<35	<35	<35	<35	52	✓
R06	<35	<35	<35	<35	52	✓

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

## 7.3 Child Care Centre Noise Assessment Results

### 7.3.1 Noise Intrusion Results - Outdoor Play Area

**Table 18** presents the predicted cumulative noise intrusion from the surrounding industrial sources associated with the project, on the CCC external play spaces. The predicted results show compliance with the AAAC childcare centre guideline criteria.

<b>Table 18 External Play Area Noise Results</b>			
Receptor	Predicted Industrial Noise Level	Criteria	Compliant
	dB LAeq(15min)	dB LAeq(15min)	
Outdoor Play Area 1	39	55	✓
Outdoor Play Area 2	41	55	✓
Outdoor Play Area 3	42	55	✓
Outdoor Play Area 4	44	55	✓
Outdoor Play Area 5	44	55	✓

### 7.3.2 Noise Intrusion Results – Internal Spaces

**Table 19** presents the predicted internal CCC noise levels from the surrounding industrial sources, including those associated with the project. The predicted results show compliance with the AAAC Guideline criteria assuming a 10dB loss for the installed windows partially opened.

<b>Table 19 Internal Cumulative Noise Results</b>				
Receptor	Predicted Cumulative Industrial noise level		Internal Criteria	Compliant
	dB LAeq(15min)			
	External	Internal		
Playroom 1 Southern Facade	56	36 <sup>1</sup>	40	✓
Playroom 1 Western Facade	41	31 <sup>2</sup>	40	✓
Playroom 2 Western Facade	39	29 <sup>2</sup>	40	✓
Playroom 3 Western Facade	39	29 <sup>2</sup>	40	✓
Playroom 4 Western Facade	38	28 <sup>2</sup>	40	✓
Playroom 5 Western Facade	38	28 <sup>2</sup>	40	✓
Playroom 6 Western Facade	38	28 <sup>2</sup>	40	✓

Note 1: Assumes 20dB attenuation for fully sealed southern façade external windows

Note 2: Assumes 10dB attenuation for partially opened external windows and doors

### 7.3.3 Outdoor Play Noise Emission Results

**Table 20** presents the noise emission results for children at play (LAeq(15min)) in the outdoor play area, of the CCC during the day and evening. As the criteria for day and evening are the same, the presented results are representative of either period.

Table 20 Noise Emissions Results – Outdoor Play			
Receiver	Predicted Noise Level		Compliant
	Day/Evening		
	dB LAeq(15min)		
		Emission Criteria/Trigger Level	
		Day/Evening	
		dB LAeq(15min)	
R01	<35		45 ✓
R02	<35		45 ✓
R03	<35		45 ✓
R04	<35		45 ✓
R05	<35		45 ✓
R06	<35		45 ✓

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

### 7.3.4 CCC Operations Noise Emission Results

**Table 20** presents the noise emission results for CCC Operations (parent and staff vehicles and mechanical plant) (LAeq(15min)) for the CCC. As the criteria for day and evening is the same, the presented results are representative of either period

Table 21 Noise Emissions Results – Outdoor Play & Transient Events			
Receiver	Predicted Noise Level		Compliant
	Day/Evening		
	dB LAeq(15min)		
		Emission Criteria/Trigger Level	
		Day/Evening	
		dB LAeq(15min)	
R01	<35		52 ✓
R02	<35		52 ✓
R03	<35		52 ✓
R04	<35		52 ✓
R05	<35		52 ✓
R06	<35		52 ✓

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods

## 7.4 Construction Noise Results

**Table 22** presents the results of modelled construction noise emissions for each individual building included in the project. Predictions identify that levels from construction activities have the potential to be above the relevant noise management levels at the nearest residential receiver. Accordingly, noise controls and management measures are recommended to be implemented during noise intensive construction activities for the site as a best practice measure.

Table 22 Construction/Demolition Noise Levels – All Receivers								
Rec	Predicted Noise Level dB LAeq						CNML dB LAeq	Compliant
	FDP1	FDP2	FDP3	CCC	SS	CWF/RFI		
R01	<35	52	37	53	47	51	47	X
R02	36	<35	36	<35	<35	<35	47	✓
R03	38	39	39	37	38	40	47	✓
R04	<35	36	<35	<35	38	35	47	✓
R05	<35	35	<35	<35	48	37	47	✓
R06	<35	37	<35	<35	44	35	47	✓
CC01	38	42	41	<35	45	40	55	✓
CC02	<35	47	<35	35	50	49	55	✓
CC03	<35	43	<35	<35	45	45	55	✓
C01	54	56	52	57	52	53	70	✓
C02	54	53	56	52	57	55	70	✓
C03	51	49	54	49	53	52	70	✓
C04	48	48	52	47	52	50	70	✓
C05	35	48	49	45	51	50	70	✓
C06	<35	48	42	36	52	50	70	✓
C07	37	40	38	37	56	40	70	✓
FC01	37	46	<35	40	<35	<35	70	✓
FC02	43	38	35	44	37	38	70	✓
FC03	45	40	39	39	38	39	70	✓
FC04	40	<35	40	39	38	38	70	✓
FC05	38	37	43	<35	39	42	70	✓
FC06	37	39	44	<35	38	36	70	✓
FC07	<35	38	40	<35	44	38	70	✓
FC08	39	40	40	37	42	42	70	✓
FC09	42	38	38	40	38	39	70	✓
FC10	38	38	36	41	36	37	70	✓
I01	49	49	48	48	47	48	75	✓
I02	52	53	51	53	51	51	75	✓
I03	46	48	46	47	47	48	75	✓
I04	51	53	52	51	53	53	75	✓
I05	42	41	38	41	43	42	75	✓
I06	46	<35	48	42	<35	<35	75	✓

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

## 8 Construction Recommendations

The results of the noise assessment demonstrate that levels during standard construction hours have the potential to be above the ICNG noise management levels at the nearest receiver to the project. Accordingly, it is recommended that noise management and mitigation measures be adopted during noise intensive construction activities to limit impacts on surrounding receivers.

Recommendations for consideration during construction activities for this project may include:

- implement boundary fences/retaining walls as early as possible to maximise their attenuation benefits to surrounding receivers;
- toolbox and induction of personnel prior to shift to discuss noise control measures that may be implemented to reduce noise emissions to the community;
- where possible use mobile screens or construction hording to act as barriers between construction works and receivers;
- all plant should be shut down when not in use. Plant to be parked/started at farthest point from relevant assessment locations;
- operating plant in a conservative manner (no over-revving);
- selection of the quietest suitable machinery available for each activity;
- avoidance of noisy plant/machinery working simultaneously where practicable;
- minimisation of metallic impact noise;
- all plant are to utilise a broadband reverse alarm in lieu of the traditional hi frequency type reverse alarm; and
- undertake letter box drops to notify receivers of potential works.

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## 9 Discussion and Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has conducted a Noise Impact Assessment (NIA) to address potential noise emissions associated with the proposed mixed-use development to be established at 1 Renshaw Street, Cranebrook, NSW.

The results of the NIA demonstrate that cumulative emissions from the project including simultaneous heavy vehicle deliveries would satisfy the relevant criteria at all receivers for all assessment periods based on the noise controls and assumptions outlined in **Section 6.2** of this report.

Furthermore, sleep disturbance is not anticipated, and maximum noise events are predicted to remain below the EPA trigger level for sleep disturbance and awakenings.

Construction noise emissions are predicted to be above the relevant noise management levels during construction works at the nearest residential receiver. Accordingly, noise control and management measures as per **Section 8** of this report should be adopted where feasible during noise intensive periods to minimise noise impacts.

Noise levels are predicted to comply with the AAAC Child Care Centre Acoustic Assessment Guideline criteria.

Based the Noise Impact Assessment results, it is recommended Council approve the development based on noise attenuation assumptions (**Section 6.2**) and referenced architectural plans for the development provided in this report.

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# Appendix A – Glossary of Terms

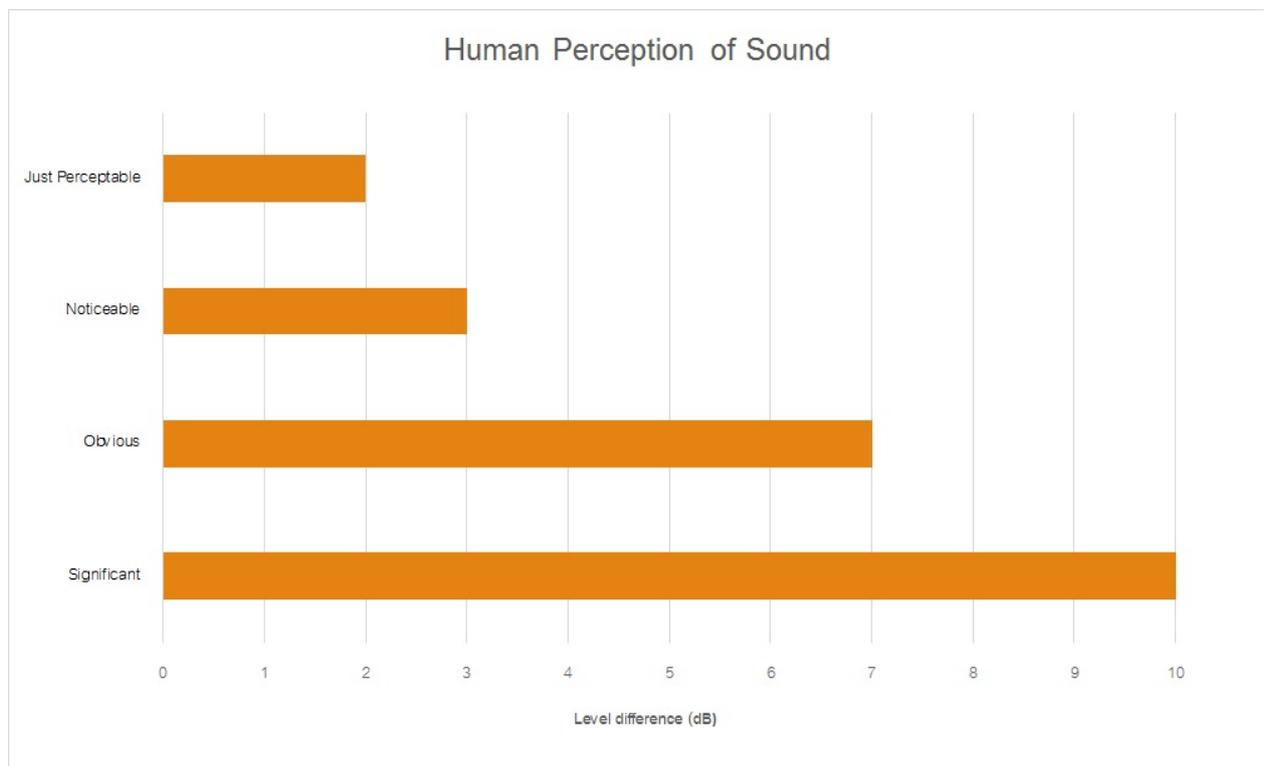
Table A1 provides a number of technical terms have been used in this report.

Table A1 Glossary of Terms	
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured LA90 statistical noise levels.
Ambient Noise	The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
dB(Z), dB(L)	Decibels Linear or decibels Z-weighted.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA10	A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels.
LA90	Commonly referred to as the background noise, this is the level exceeded 90 % of the time.
LAeq	The summation of noise over a selected period of time. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
LAm <sub>ax</sub>	The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's.
Sound power level (LW)	This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by:  $= 10 \cdot \log_{10} (W/W_0)$ <p>Where: W is the sound power in watts and W<sub>0</sub> is the sound reference power at 10-12 watts.</p>

Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA	
Source	Typical Sound Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



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# Appendix B – Project Site Plans

## ARCHITECTURAL DRAWINGS

DA00	C	COVER SHEET	DA25	C	ELEVATIONS - TACO BELL	DA49	C	SIGNAGE - HUNGRY JACKS
DA01	C	3D VIEWS	DA26	C	ELEVATIONS - TACO BELL	DA50	C	SITE PLAN - CARWASH & SWIM SCHOOL
DA02	C	3D VIEWS	DA27	C	EXTERNAL FINISHES - TACO BELL	DA51	C	FLOORPLAN - CARWASH
DA03	C	3D VIEWS	DA28	C	SIGNAGE - TACO BELL	DA52	C	FLOORPLAN - SWIM SCHOOL
DA04	C	AREA PLAN	DA29	C	SIGNAGE - TACO BELL	DA55	C	ELEVATIONS - CARWASH & SWIM SCHOOL
DA05	C	OVERALL SITE PLAN	DA30	C	SITE PLAN - EL JANNAH	DA56	C	ELEVATIONS - CARWASH & SWIM SCHOOL
DA06	C	SITE SIGNAGE PLAN	DA31	C	FLOORPLAN - EL JANNAH	DA57	C	EXTERNAL FINISHES - CARWASH & SWIM SCHOOL
DA07	C	SITE SIGNAGE SCHEDULE	DA32	C	ROOF PLAN - EL JANNAH	DA58	C	SIGNAGE - CARWASH & SWIM SCHOOL
DA08	C	SITE SIGNAGE	DA35	C	ELEVATIONS - EL JANNAH	DA60	C	SITE PLAN - PETROL STATION
DA09	C	SITE SETOUT PLAN	DA36	C	ELEVATIONS - EL JANNAH	DA61	C	FLOORPLAN - OTR
DA10	C	SITE PLAN - CHILDCARE CENTRE	DA37	C	EXTERNAL FINISHES - EL JANNAH	DA62	C	ROOF PLAN - OTR
DA11	C	FLOORPLAN - CHILDCARE CENTRE	DA38	C	SIGNAGE - EL JANNAH	DA65	C	ELEVATIONS - PETROL STATION
DA15	C	ELEVATIONS - CHILDCARE CENTRE	DA40	C	SITE PLAN - HUNGRY JACKS	DA66	C	ELEVATIONS - PETROL STATION
DA16	C	ELEVATIONS - CHILDCARE CENTRE	DA41	C	FLOORPLAN - HUNGRY JACKS	DA67	C	EXTERNAL FINISHES - OTR
DA17	C	EXTERNAL FINISHES - CHILDCARE CENTRE	DA42	C	ROOFPLAN - HUNGRY JACKS	DA68	C	SIGNAGE - OTR
DA18	C	SIGNAGE - CHILDCARE CENTRE	DA45	C	ELEVATIONS - HUNGRY JACKS			
DA20	C	SITE PLAN - TACO BELL	DA46	C	ELEVATIONS - HUNGRY JACKS			
DA21	C	FLOORPLAN - TACO BELL	DA47	C	EXTERNAL FINISHES - HUNGRY JACKS			
DA22	C	ROOFPLAN - TACO BELL	DA48	C	SIGNAGE - HUNGRY JACKS			



## CRANEBROOK - PROPOSED DEVELOPMENT

DA ISSUE

NOVEMBER 2021

### General Notes

Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.

Architect

ABN 34 001 485 436

**Richmond+Ross**  
CONSULTING ENGINEERS AND PROJECT LEADERS

38 Willoughby Road Crows Nest NSW 2065  
TEL: (02) 9490 9600 FAX: (02) 94381224

Client

ISAAC PROPERTY  
DEVELOPMENTS

Location

CRANEBROOK

**DA ISSUE**

NOT TO BE USED DURING CONSTRUCTION

Project Number Drawing Number Issue

210285 DA00 C



<p>Revisions</p> <table border="1"> <tr> <td>C</td> <td>Revision 3</td> <td>04-11-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td>B</td> <td>DA ISSUE</td> <td>26-10-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td>A</td> <td>DA ISSUE</td> <td>22-10-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td></td> <td></td> <td>Date</td> <td>CHK</td> <td>INT</td> </tr> </table>	C	Revision 3	04-11-2021	RR	PK	B	DA ISSUE	26-10-2021	RR	PK	A	DA ISSUE	22-10-2021	RR	PK			Date	CHK	INT	<p>General Notes</p> <p>Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.</p>	<p>Drawing Notes</p> <p><b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b></p>	<p>Architect</p> <p><b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS</p> <p>38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224</p>	<p>ABN 34 001 485 436</p> <p>Client ISAAC PROPERTY DEVELOPMENTS</p> <p>Project CRANE BROOK - PROPOSED DEVELOPMENT</p> <p>Location CRANE BROOK</p>	<p>Scale @ A3</p> <p>Drawing 3D VIEWS</p> <p>Project Number Drawing Number Issue 210285 DA01 C</p>
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B	DA ISSUE	26-10-2021	RR	PK																					
A	DA ISSUE	22-10-2021	RR	PK																					
		Date	CHK	INT																					



PROPOSED CHILDCARE CENTRE



PROPOSED TACO BELL



PROPOSED EL JANNAH



PROPOSED HUNGRY JACKS

<p>Revisions</p> <table border="1"> <tr> <td>C</td> <td>Revision 3</td> <td>04-11-2021</td> <td>RR</td> <td>RK</td> </tr> <tr> <td>B</td> <td>DA ISSUE</td> <td>28-10-2021</td> <td>RR</td> <td>RK</td> </tr> <tr> <td>A</td> <td>DA ISSUE</td> <td>22-10-2021</td> <td>RR</td> <td>RK</td> </tr> <tr> <td></td> <td></td> <td>Date</td> <td>CHK</td> <td>INT</td> </tr> </table>	C	Revision 3	04-11-2021	RR	RK	B	DA ISSUE	28-10-2021	RR	RK	A	DA ISSUE	22-10-2021	RR	RK			Date	CHK	INT	<p>General Notes</p> <p>Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacture. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.</p>	<p>Drawing Notes</p> <p><b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b></p>	<p>Architect</p> <p><b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS</p> <p>38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224</p>	<p>ABN 34 001 485 436</p> <p>Client ISAAC PROPERTY DEVELOPMENTS</p>	<p>Project CRANEBROOK - PROPOSED DEVELOPMENT</p> <p>Location CRANEBROOK</p>	<p>Scale @ A3</p> <p>Drawing 3D VIEWS</p> <table border="1"> <tr> <td>Project Number</td> <td>Drawing Number</td> <td>Issue</td> </tr> <tr> <td>210285</td> <td>DA02</td> <td>C</td> </tr> </table>	Project Number	Drawing Number	Issue	210285	DA02	C
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B	DA ISSUE	28-10-2021	RR	RK																												
A	DA ISSUE	22-10-2021	RR	RK																												
		Date	CHK	INT																												
Project Number	Drawing Number	Issue																														
210285	DA02	C																														



PROPOSED CARWASH



PROPOSED NEPTUNE SWIM SCHOOL

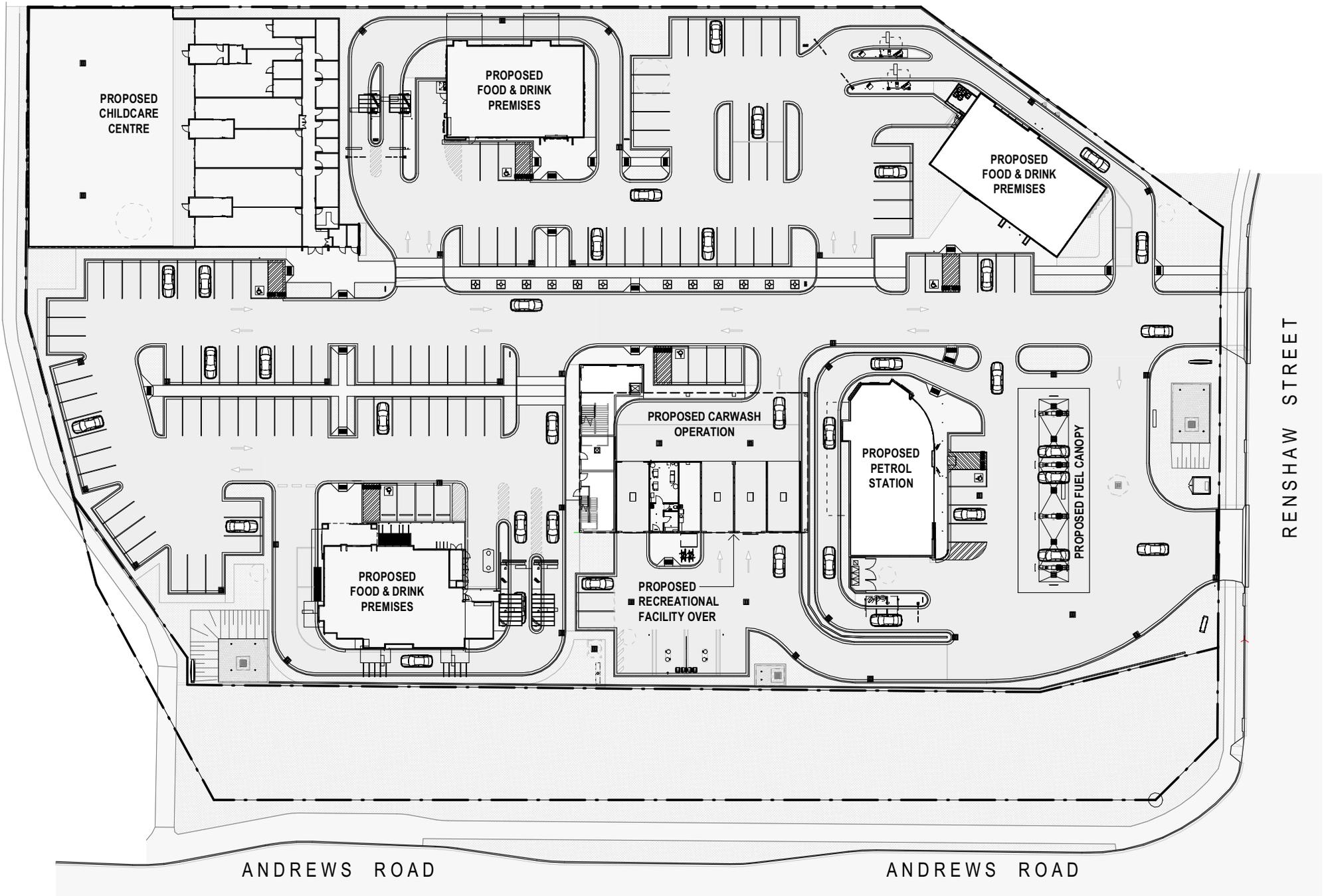


PROPOSED CONVENIENCE STORE



PROPOSED PETROL STATION

<p>Revisions</p> <table border="1"> <tr> <td>C</td> <td>Revision 3</td> <td>04-11-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td>B</td> <td>DA ISSUE</td> <td>29-10-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td>A</td> <td>DA ISSUE</td> <td>22-10-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td></td> <td></td> <td>Date</td> <td>CHK</td> <td>INT</td> </tr> </table>	C	Revision 3	04-11-2021	RR	PK	B	DA ISSUE	29-10-2021	RR	PK	A	DA ISSUE	22-10-2021	RR	PK			Date	CHK	INT	<p>General Notes</p> <p>Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.</p>	<p>Drawing Notes</p> <p><b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b></p>	<p>Architect</p> <p><b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS</p> <p>38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224</p>	<p>Client</p> <p>ISAAC PROPERTY DEVELOPMENTS</p>	<p>Project</p> <p>CRANE BROOK - PROPOSED DEVELOPMENT</p> <p>Location</p> <p>CRANE BROOK</p>	<p>Scale</p> <p>@ A3</p> <p>Drawing</p> <p>3D VIEWS</p> <table border="1"> <tr> <td>Project Number</td> <td>Drawing Number</td> <td>Issue</td> </tr> <tr> <td>210285</td> <td>DA03</td> <td>C</td> </tr> </table>	Project Number	Drawing Number	Issue	210285	DA03	C
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B	DA ISSUE	29-10-2021	RR	PK																												
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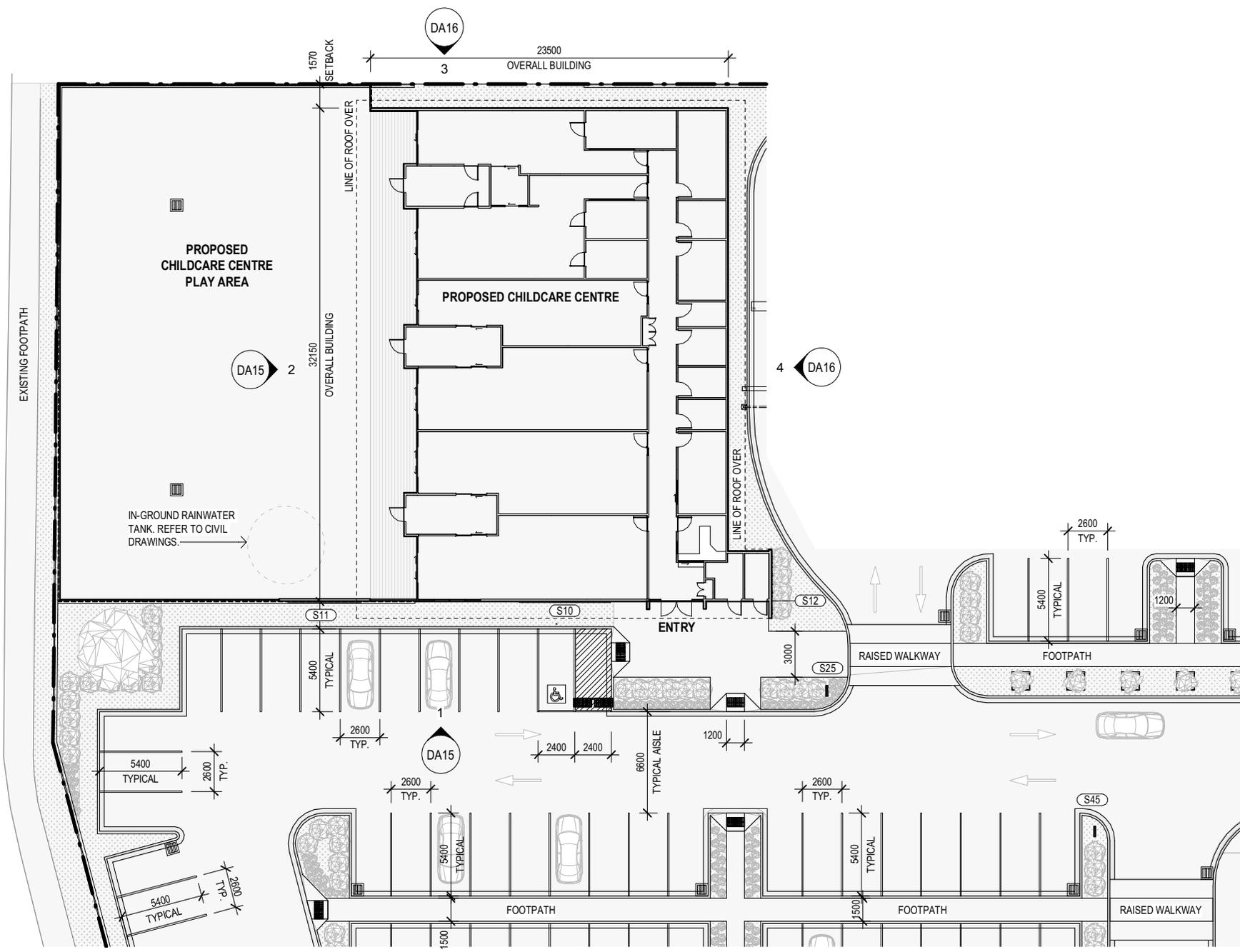


ANDREWS ROAD

ANDREWS ROAD

RENSHAW STREET

<p>Revisions</p> <table border="1"> <tr> <td>C</td> <td>Revision 3</td> <td>04-11-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td>B</td> <td>DA ISSUE</td> <td>29-10-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td>A</td> <td>DA ISSUE</td> <td>22-10-2021</td> <td>RR</td> <td>PK</td> </tr> </table>	C	Revision 3	04-11-2021	RR	PK	B	DA ISSUE	29-10-2021	RR	PK	A	DA ISSUE	22-10-2021	RR	PK	<p>General Notes</p> <p>Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.</p>	<p>Drawing Notes</p> <p><b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b></p>	<p>Architect</p> <p><b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS</p> <p>38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224</p>	<p>Client</p> <p>ISAAC PROPERTY DEVELOPMENTS</p>	<p>Project</p> <p>CRANE BROOK - PROPOSED DEVELOPMENT</p> <p>Location</p> <p>CRANE BROOK</p>	<p>Scale</p> <p>1:500 @ A3</p> <p>Drawing</p> <p>OVERALL SITE PLAN</p> <table border="1"> <tr> <td>Project Number</td> <td>Drawing Number</td> <td>Issue</td> </tr> <tr> <td>210285</td> <td>DA05</td> <td>C</td> </tr> </table>	Project Number	Drawing Number	Issue	210285	DA05	C
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A	DA ISSUE	22-10-2021	RR	PK																							
Project Number	Drawing Number	Issue																									
210285	DA05	C																									



Revisions	General Notes	Drawing Notes
C Revision 3 B DA ISSUE A DA ISSUE Date: 12/11/2021 CHK: Int	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	<b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b>

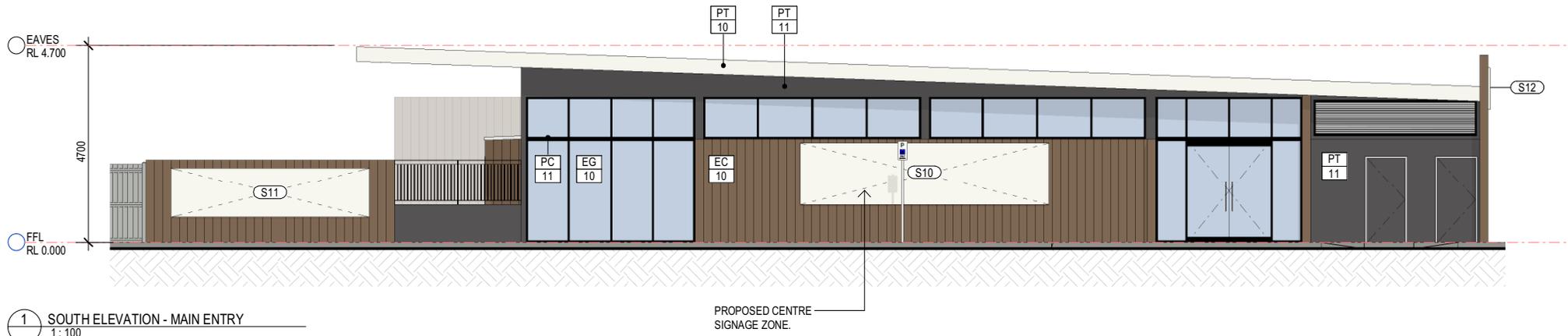
Architect	Client	Project	Scale
<b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS 38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224	ISAAC PROPERTY DEVELOPMENTS	CRANE BROOK - PROPOSED DEVELOPMENT	1:250 @ A3

Location
CRANE BROOK

Drawing
SITE PLAN - CHILDCARE CENTRE

Project Number	Drawing Number	Issue
210285	DA10	C





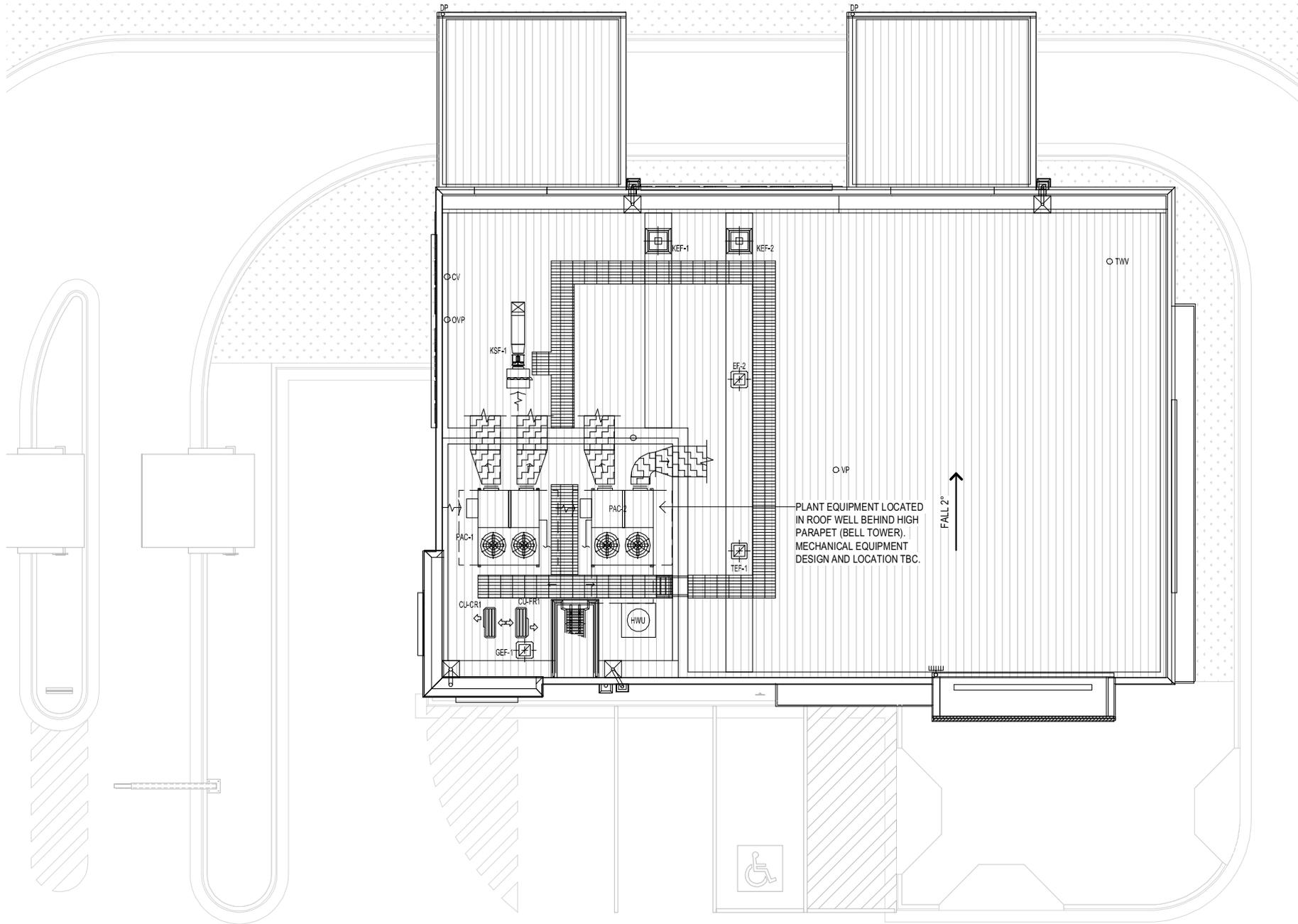
1 SOUTH ELEVATION - MAIN ENTRY  
1:100



2 WEST ELEVATION - VIEW FROM PLAY AREA  
1:100

<b>Revisions</b>  C Revision 3 04-11-2021 RR PK B DA ISSUE 29-10-2021 RR PK A DA ISSUE 22-10-2021 RR PK Date CHK INT	<b>General Notes</b> Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	<b>Drawing Notes</b>  <div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>FOR DA</b>  <b>NOT TO BE USED DURING CONSTRUCTION</b> </div>	<b>Architect</b> <b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS 38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224	<b>Client</b> ISAAC PROPERTY DEVELOPMENTS	<b>Project</b> CRANE BROOK - PROPOSED DEVELOPMENT  <b>Location</b> CRANE BROOK	<b>Scale</b> 1:100 @ A3
						<b>Drawing</b> ELEVATIONS - CHILDCARE CENTRE <b>Project Number</b> Drawing Number Issue 210285 DA15 C





Revisions	General Notes	Drawing Notes
C Revision 3 B DA ISSUE A DA ISSUE	04-11-2021 RR PK 29-10-2021 RR PK 22-10-2021 RR PK Date: _____ CHK: Int	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.

**FOR DA**  
 NOT TO BE USED DURING CONSTRUCTION

Architect  
**Richmond+Ross**  
 CONSULTING ENGINEERS AND PROJECT LEADERS  
 38 Willoughby Road Crows Nest NSW 2065  
 TEL: (02) 9490 9600 FAX: (02) 94381224

Client  
 ISAAC PROPERTY DEVELOPMENTS

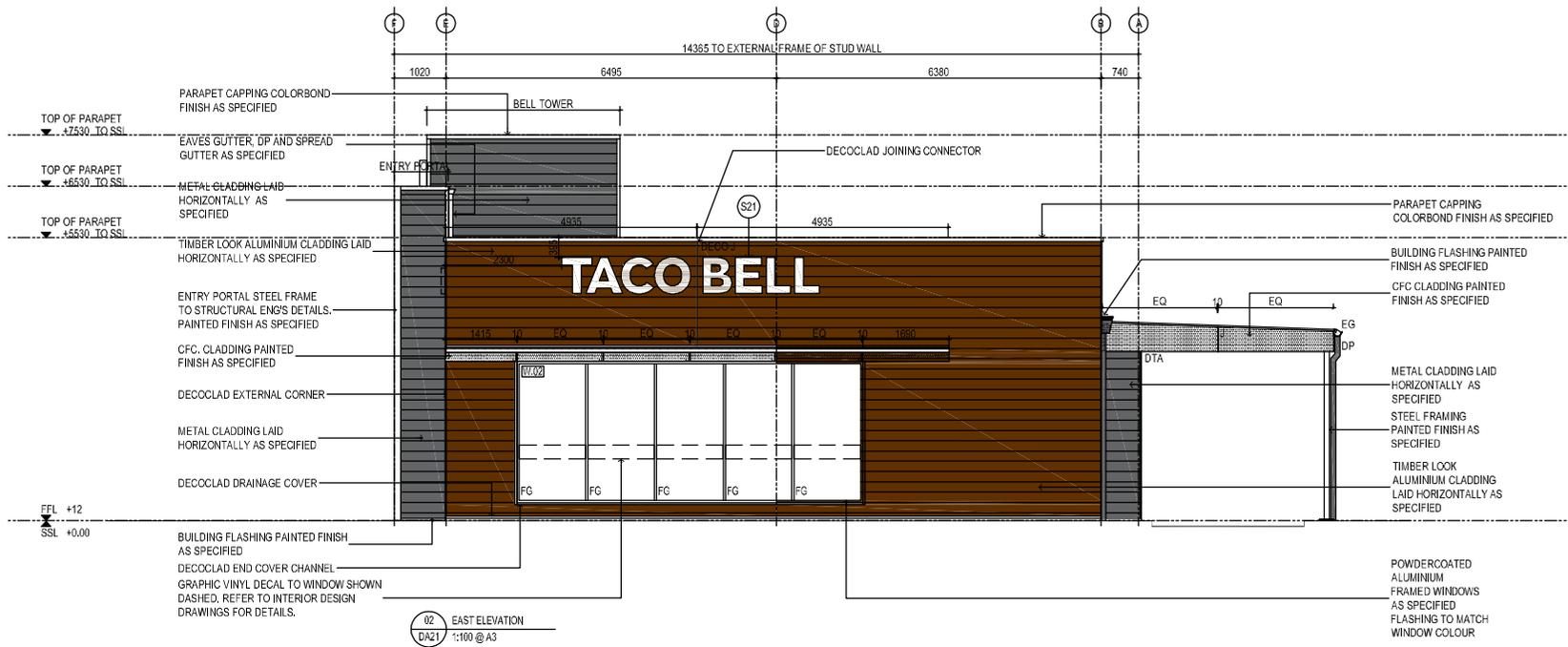
Project  
 CRANE BROOK - PROPOSED DEVELOPMENT

Location  
 CRANE BROOK

Scale 1:100 @ A3
Drawing ROOF PLAN - TACO BELL
Project Number 210285
Drawing Number DA22
Issue C

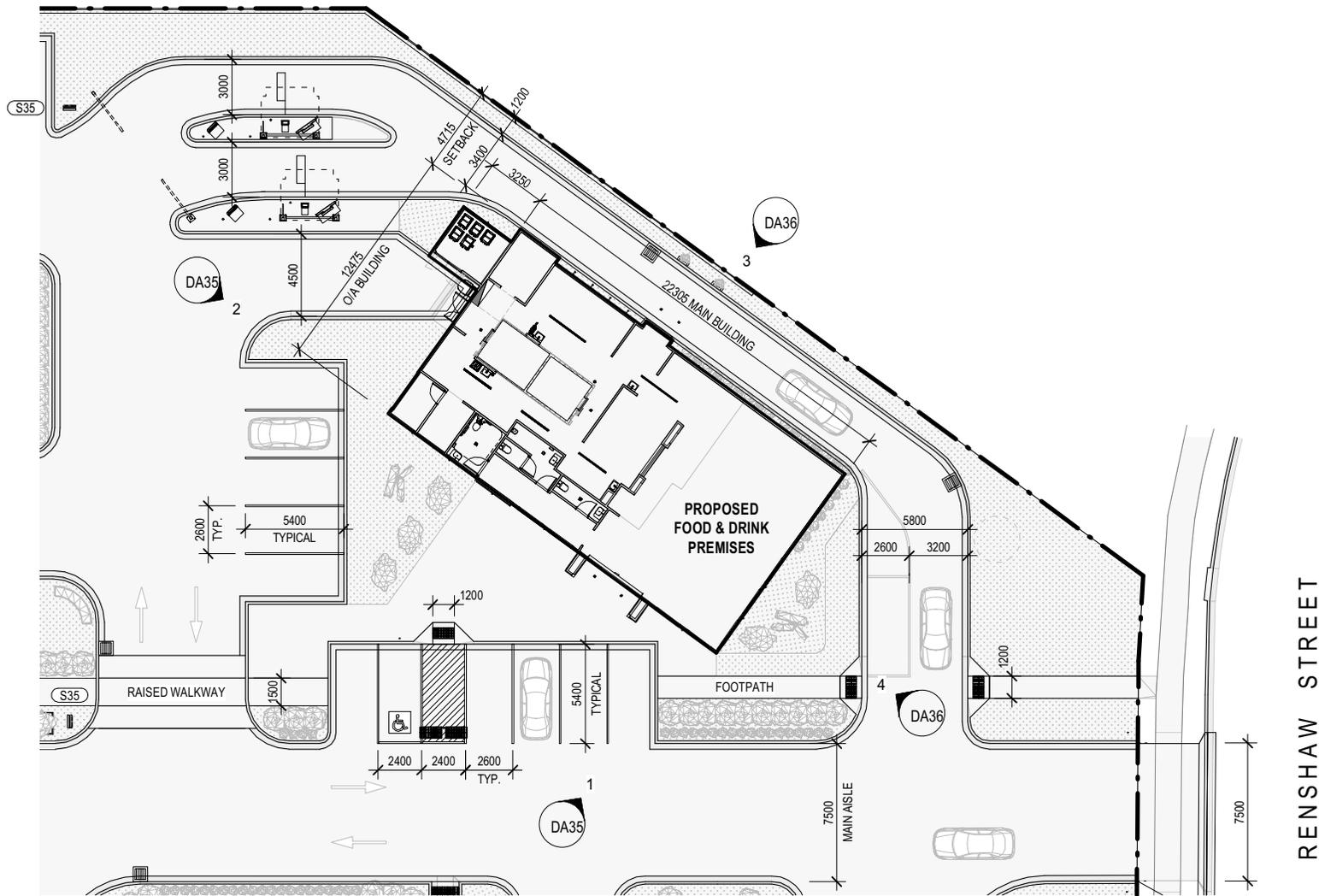


01 SOUTH ELEVATION  
DA21 1:100 @ A3



02 EAST ELEVATION  
DA21 1:100 @ A3

<b>Revisions</b> C DA ISSUE 04.11.21 SH PK B DA ISSUE 25.10.21 SH JK A DA ISSUE 26.10.21 SH JK CHK: HZ	<b>General Notes</b> Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comment or approval prior to commencing work.	<b>Drawing Notes</b>	<b>PRELIMINARY ISSUE</b> NOT TO BE USED DURING CONSTRUCTION	N/A	Approved <b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS 38 Willoughby Road Crows Nest NSW 2085 TEL: (02) 9490 9600 FAX: (02) 9438 1224	Approved ISAAC PROPERTY GROUP	Project IPD CRANE BROOK  Location 1 RENSCHAW STREET CRANE BROOK NSW 2749	Sheets 1:100 @ A3	Series SOUTH AND EAST ELEVATIONS	
								Drawing Number 210285	Drawing Number DA25	Issue C
								Project Number 210285		



Revisions	General Notes	Drawing Notes
C Revision 3 B DA ISSUE A DA ISSUE	04-11-2021 RR PK 29-10-2021 RR PK 22-10-2021 RR PK Date CHK Int	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.

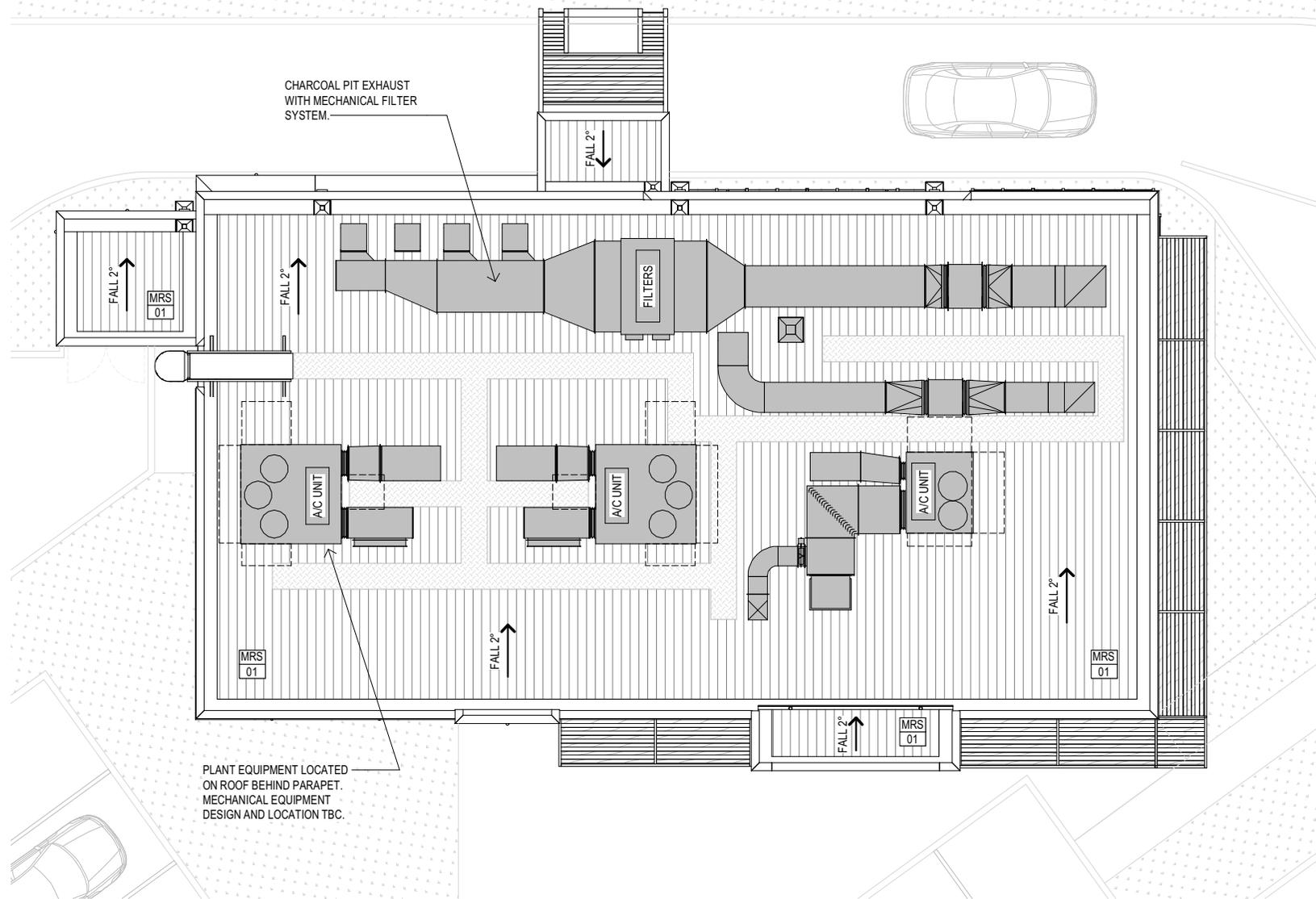
**FOR DA**  
 NOT TO BE USED DURING CONSTRUCTION

Architect  
**Richmond+Ross**  
 CONSULTING ENGINEERS AND PROJECT LEADERS  
 38 Willoughby Road Crows Nest NSW 2065  
 TEL: (02) 9490 9600 FAX: (02) 94381224

Client  
 ISAAC PROPERTY DEVELOPMENTS  
 Location  
 CRANE BROOK

Project  
 CRANE BROOK - PROPOSED DEVELOPMENT  
 Drawing  
 SITE PLAN - EL JANNAH  
 Project Number Drawing Number Issue  
 210285 DA30 C

Scale  
 1:250 @ A3



Revisions	General Notes	Drawing Notes
C Revision 3 B DA ISSUE A DA ISSUE	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	<b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b>
04-11-2021 RR RK 29-10-2021 RR RK 22-10-2021 RR RK	Date CHK INT	

Architect	Client	Project	Scale
<b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS 38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224	ISAAC PROPERTY DEVELOPMENTS	CRANE BROOK - PROPOSED DEVELOPMENT ROOF PLAN - EL JANNAH	1:100 @ A3

Location	Project Number	Drawing Number	Issue
CRANE BROOK	210285	DA32	C

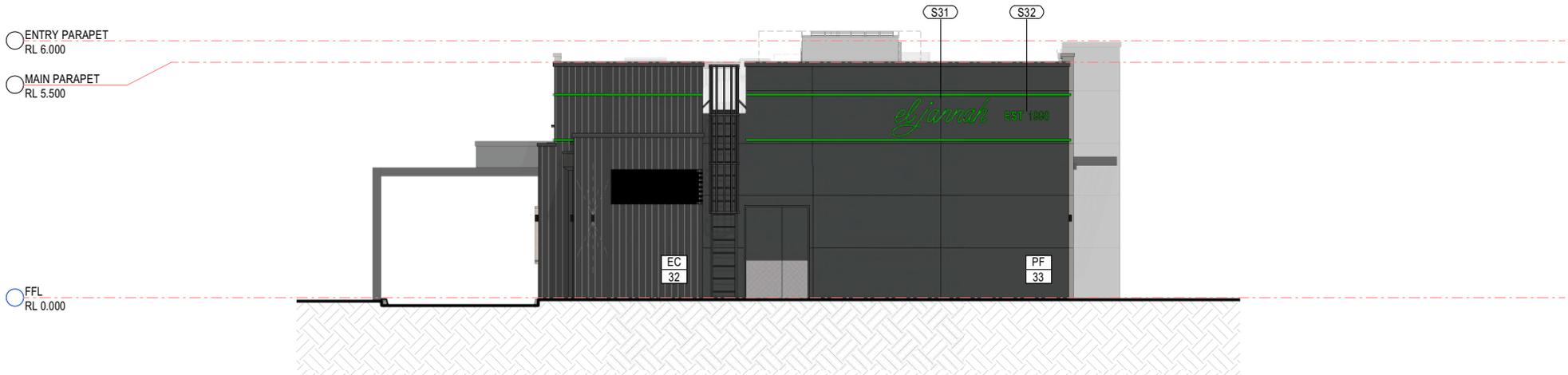
Architect	Client	Project	Scale
<b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS 38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224	ISAAC PROPERTY DEVELOPMENTS	CRANE BROOK - PROPOSED DEVELOPMENT ROOF PLAN - EL JANNAH	1:100 @ A3

Location	Project Number	Drawing Number	Issue
CRANE BROOK	210285	DA32	C

Location	Project Number	Drawing Number	Issue
CRANE BROOK	210285	DA32	C

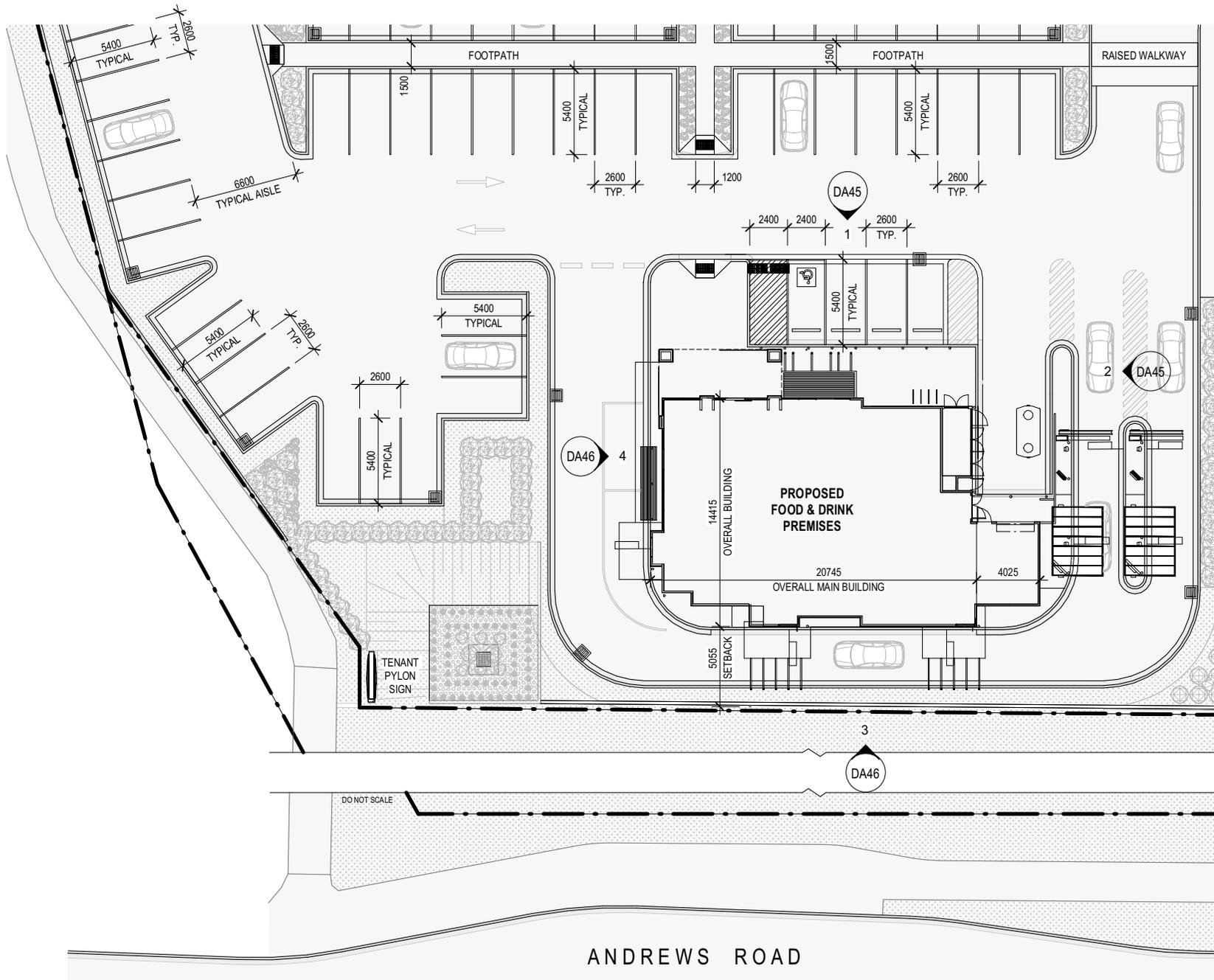


1 SOUTH WEST ELEVATION - MAIN ENTRY  
1 : 100



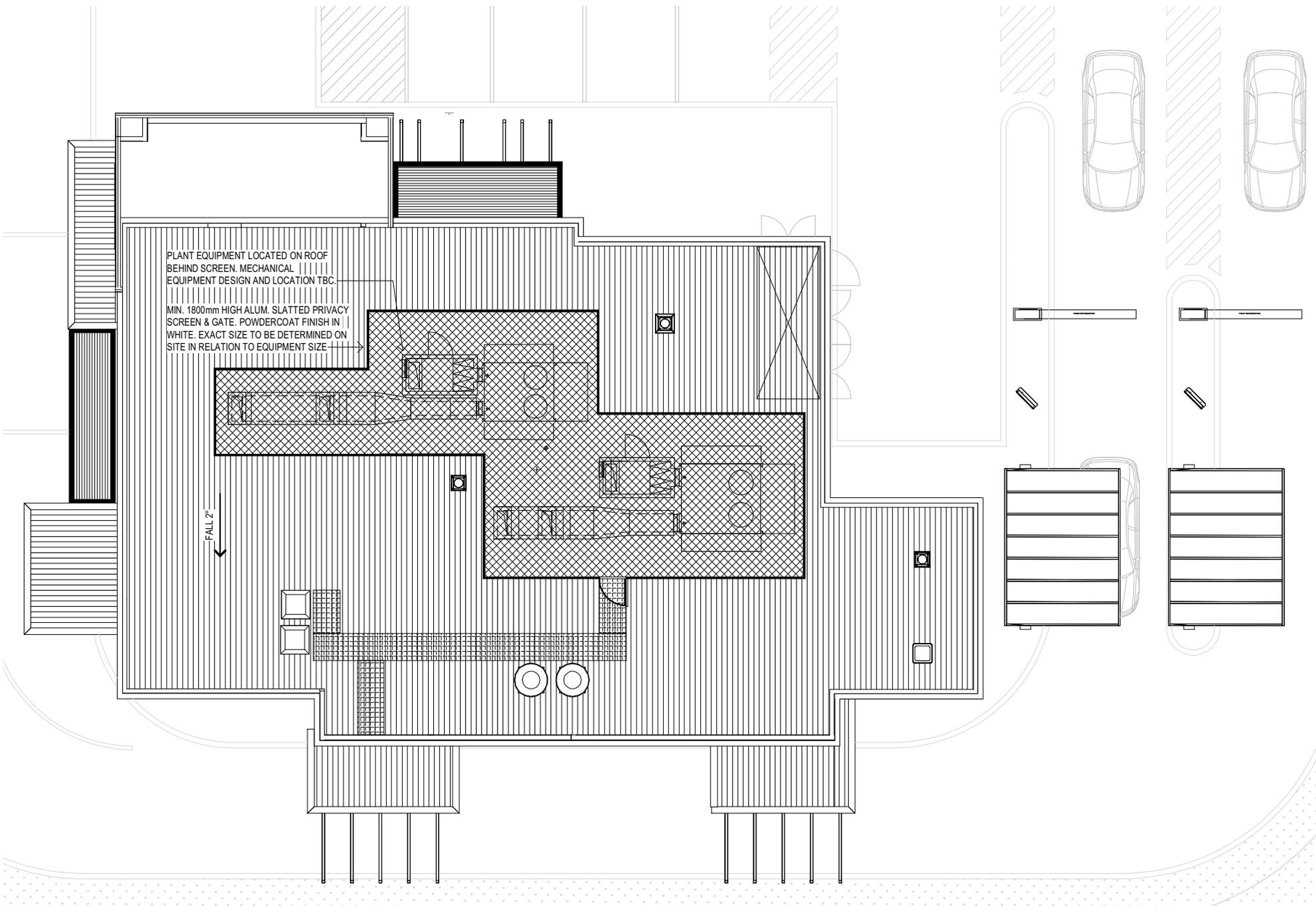
2 NORTH WEST ELEVATION  
1 : 100

<p>Revisions</p> <p>C Revision 3 04-11-2021 RR PK          B DA ISSUE 29-10-2021 RR PK          A DA ISSUE 23-10-2021 RR PK</p>	<p>General Notes</p> <p>Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not stamp by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.</p>	<p>Drawing Notes</p>	<p><b>FOR DA</b>  <b>NOT TO BE USED DURING CONSTRUCTION</b></p>	<p>Architect  <b>Richmond+Ross</b>          CONSULTING ENGINEERS AND PROJECT LEADERS          38 Willoughby Road Crows Nest NSW 2065          TEL: (02) 9490 9600 FAX: (02) 94381224</p>	<p>Client          ISAAC PROPERTY DEVELOPMENTS</p>	<p>Project          CRANE BROOK - PROPOSED DEVELOPMENT</p> <p>Location          CRANE BROOK</p>	<p>Scale          1 : 100 @ A3</p> <p>Drawing          ELEVATIONS - EL JANNAH</p> <p>Project Number Drawing Number Issue          210285 DA35 C</p>
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ANDREWS ROAD

<p>Revisions</p> <table border="1"> <tr> <td>C</td> <td>Revision 3</td> <td>04-11-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td>B</td> <td>DA ISSUE</td> <td>29-10-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td>A</td> <td>DA ISSUE</td> <td>22-10-2021</td> <td>RR</td> <td>PK</td> </tr> </table>	C	Revision 3	04-11-2021	RR	PK	B	DA ISSUE	29-10-2021	RR	PK	A	DA ISSUE	22-10-2021	RR	PK	<p>General Notes</p> <p>Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.</p>	<p>Drawing Notes</p>	<p><b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b></p>	<p>Architect <b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS 38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224</p>	<p>Client ISAAC PROPERTY DEVELOPMENTS</p>	<p>Project CRANE BROOK - PROPOSED DEVELOPMENT</p> <p>Location CRANE BROOK</p>	<p>Scale 1:250 @ A3</p> <p>Drawing SITE PLAN - HUNGRY JACKS</p> <p>Project Number Drawing Number Issue 210285 DA40 C</p>
C	Revision 3	04-11-2021	RR	PK																		
B	DA ISSUE	29-10-2021	RR	PK																		
A	DA ISSUE	22-10-2021	RR	PK																		



PLANT EQUIPMENT LOCATED ON ROOF  
BEHIND SCREEN. MECHANICAL  
EQUIPMENT DESIGN AND LOCATION TBC.

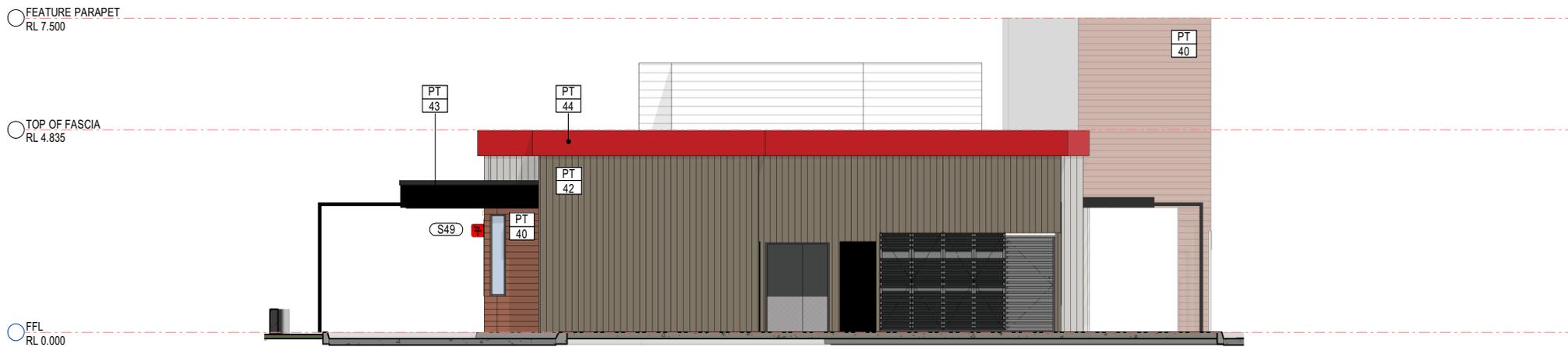
MIN. 1800mm HIGH ALUM. SLATTED PRIVACY  
SCREEN & GATE. POWDERCOAT FINISH IN  
WHITE. EXACT SIZE TO BE DETERMINED ON  
SITE IN RELATION TO EQUIPMENT SIZE

FALL 2%

<p>Revisions</p> <table border="1"> <tr> <td>C</td> <td>Revision 3</td> <td>04-11-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td>B</td> <td>DA ISSUE</td> <td>29-10-2021</td> <td>RR</td> <td>PK</td> </tr> <tr> <td>A</td> <td>DA ISSUE</td> <td>22-10-2021</td> <td>RR</td> <td>PK</td> </tr> </table>	C	Revision 3	04-11-2021	RR	PK	B	DA ISSUE	29-10-2021	RR	PK	A	DA ISSUE	22-10-2021	RR	PK	<p>General Notes</p> <p>Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.</p>	<p>Drawing Notes</p>	<p><b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b></p>	<p>Architect <b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS 38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224</p>	<p>Client ISAAC PROPERTY DEVELOPMENTS</p>	<p>Project CRANE BROOK - PROPOSED DEVELOPMENT</p> <p>Location CRANE BROOK</p>	<p>Scale 1:100 @ A3</p> <p>Drawing ROOF PLAN - HUNGRY JACKS</p> <p>Project Number Drawing Number Issue 210285 DA42 C</p>
C	Revision 3	04-11-2021	RR	PK																		
B	DA ISSUE	29-10-2021	RR	PK																		
A	DA ISSUE	22-10-2021	RR	PK																		

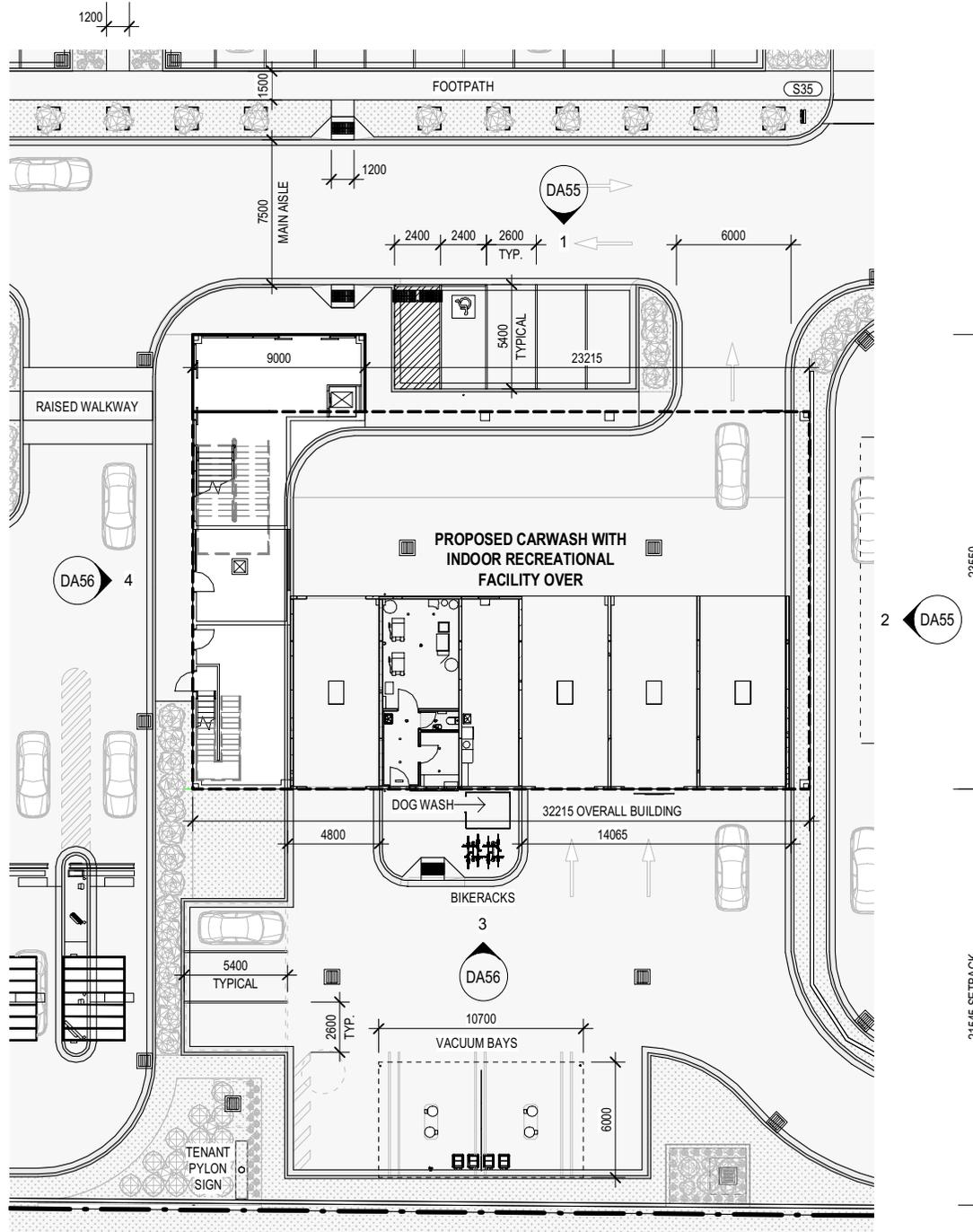


1 NORTH ELEVATION - MAIN ENTRY  
1 : 100



2 EAST ELEVATION  
1 : 100

<b>Revisions</b>  C Revision 3 04/11/2021 RR PK B DA ISSUE 29/10/2021 RR PK A DA ISSUE 23/10/2021 RR PK	<b>General Notes</b> Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	<b>Drawing Notes</b>  <b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b>	<b>Architect</b> <b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS 38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224	<b>Client</b> ISAAC PROPERTY DEVELOPMENTS	<b>Project</b> CRANEBROOK - PROPOSED DEVELOPMENT	<b>Scale</b> 1 : 100 @ A3	
							<b>Location</b> CRANEBROOK
							<b>Drawing</b> ELEVATIONS - HUNGRY JACKS Project Number Drawing Number Issue 210285 DA45 C



Revisions	General Notes	Drawing Notes
C Revision 3 B DA ISSUE A DA ISSUE	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.
04-11-2021 RR RK 29-10-2021 RR RK 22-10-2021 RR RK	Date: 04-11-2021 Date: 29-10-2021 Date: 22-10-2021	Date: 04-11-2021 Date: 29-10-2021 Date: 22-10-2021

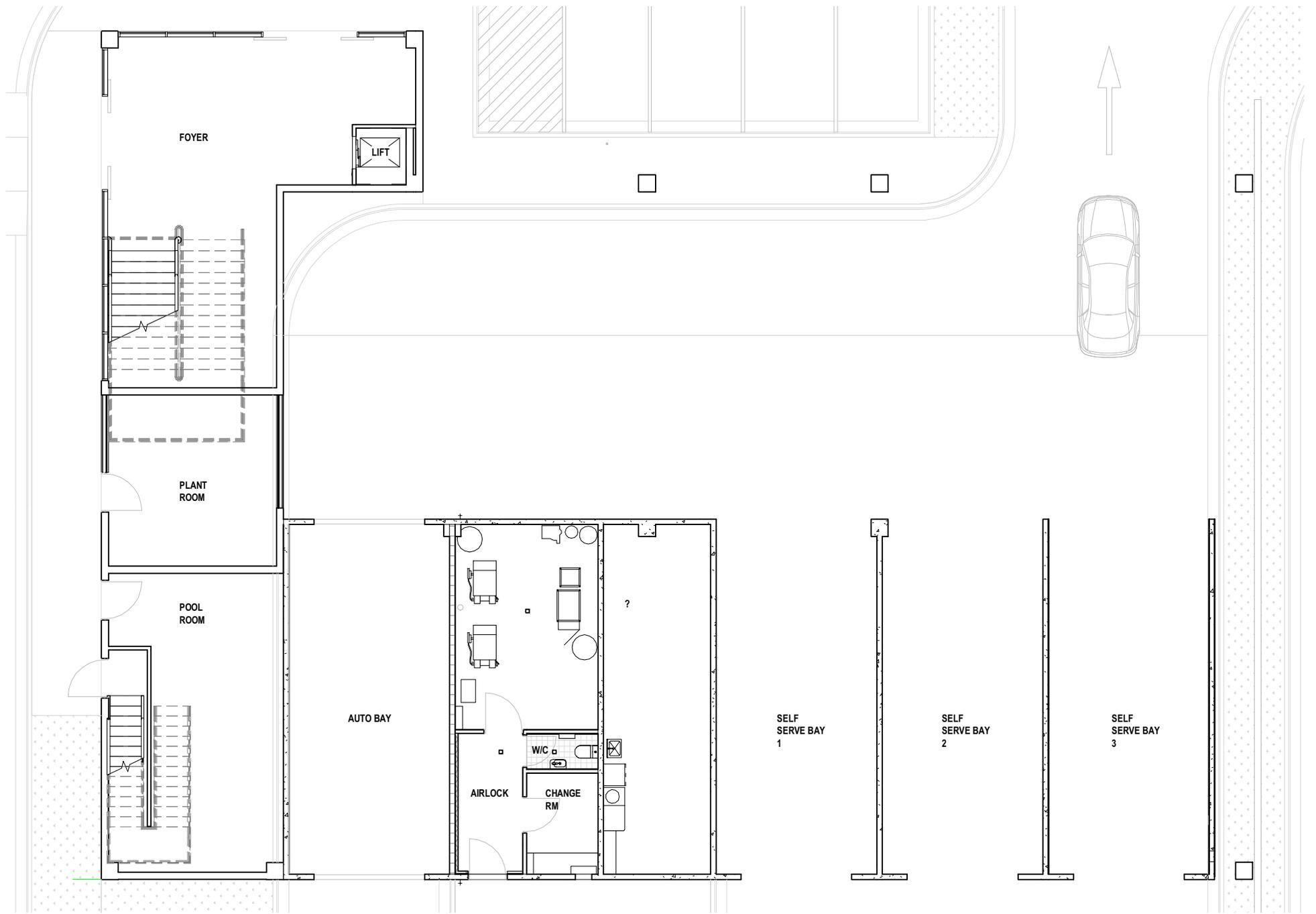
FOR DA
<b>NOT TO BE USED DURING CONSTRUCTION</b>

Architect
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Client
ISAAC PROPERTY DEVELOPMENTS

Project
CRANE BROOK - PROPOSED DEVELOPMENT
Location
CRANE BROOK

Scale		
1:250 @ A3		
Drawing		
SITE PLAN - CARWASH & SWIM SCHOOL		
Project Number	Drawing Number	Issue
210285	DA50	C



Revisions	General Notes	Drawing Notes
C Revision 3 B DA ISSUE A DA ISSUE	04-11-2021 RR PK 29-10-2021 RR PK 22-10-2021 RR PK Date:      CHK: Int	<b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b>

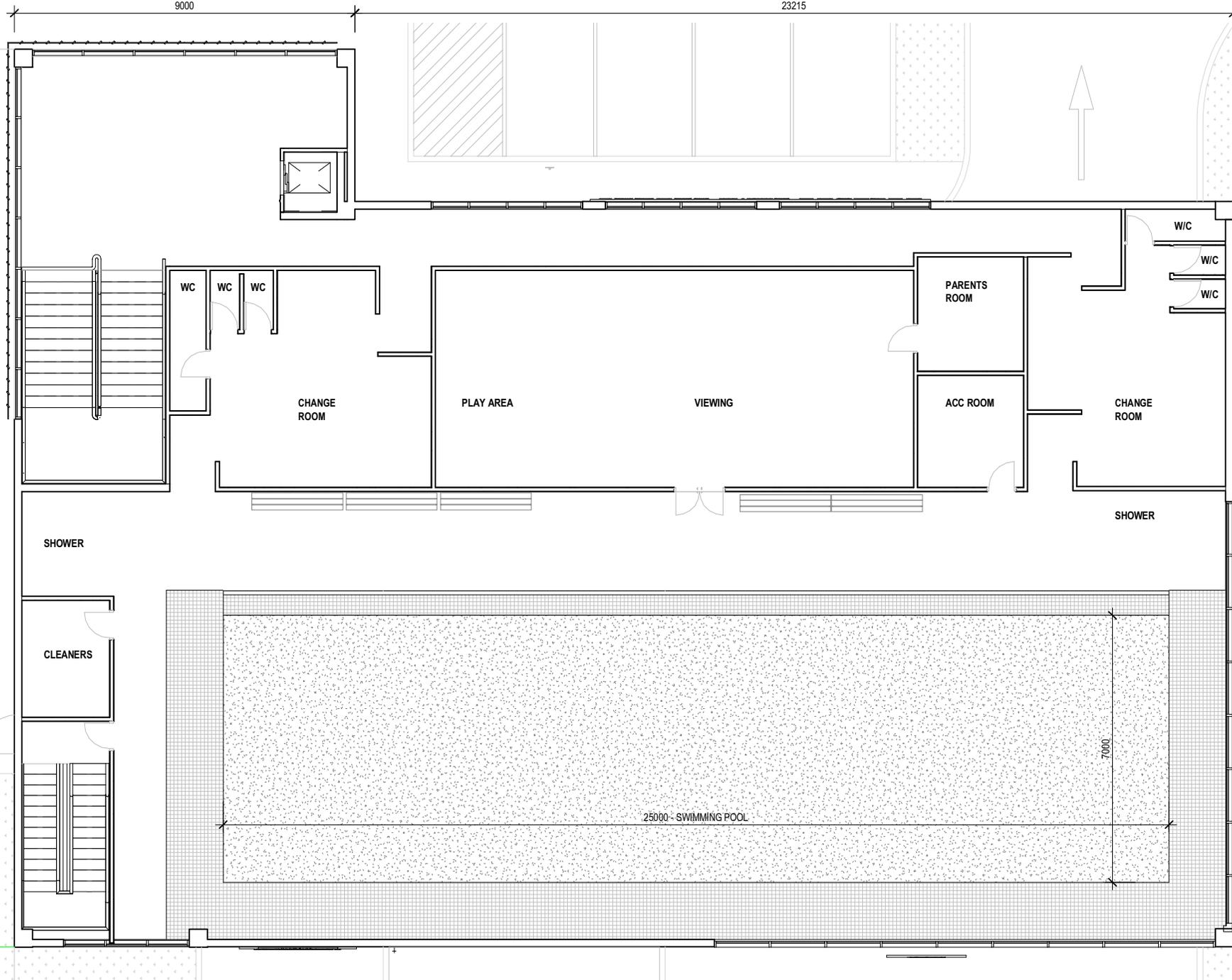
Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.

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ABN 34 001 485 436  
 Client  
 ISAAC PROPERTY DEVELOPMENTS

Project  
 CRANE BROOK - PROPOSED DEVELOPMENT  
 Location  
 CRANE BROOK

Scale  
 1:100 @ A3  
 Drawing  
 FLOORPLAN - CARWASH  
 Project Number Drawing Number Issue  
 210285 DA51 C



Revisions	General Notes	Drawing Notes
C Revision 3 B DA ISSUE A DA ISSUE	04-11-2021 RR PK 29-10-2021 RR PK 22-10-2021 RR PK Date: _____ Chk: Int	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.

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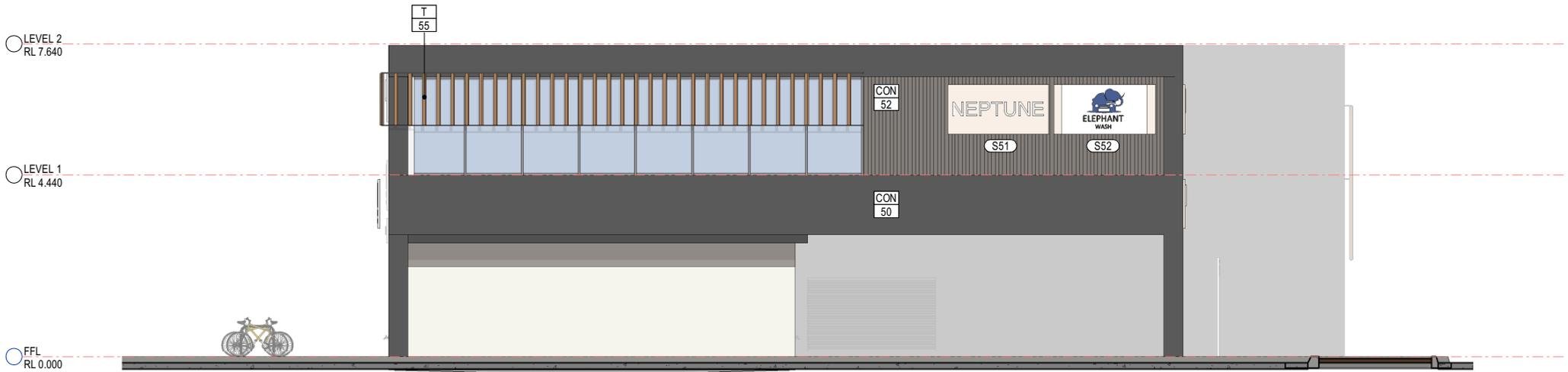
Client  
 ISAAC PROPERTY DEVELOPMENTS

Project  
 CRANE BROOK - PROPOSED DEVELOPMENT  
 Location  
 CRANE BROOK

Scale  
 1:100 @ A3  
 Drawing  
 FLOORPLAN - SWIM SCHOOL  
 Project Number Drawing Number Issue  
 210285 DA52 C

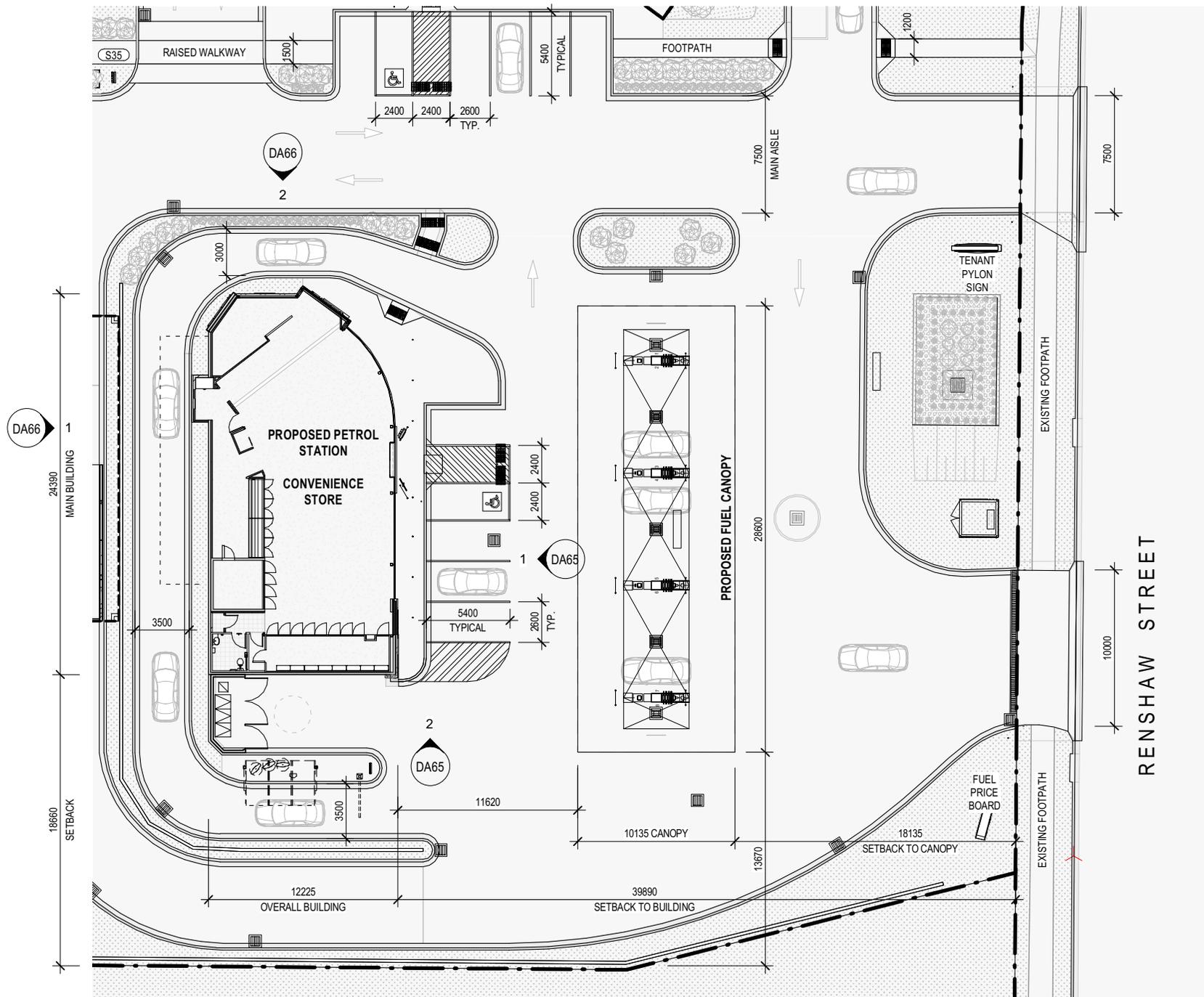


1 NORTH ELEVATION - CARWASH - SWIM CENTRE - MAIN ENTRY  
1: 100



2 EAST ELEVATION  
1: 100

Revisions  C Revision 3 04-11-2021 RR PK B DA ISSUE 29-10-2021 RR PK A DA ISSUE 23-10-2021 RR PK Date Chk Int	General Notes Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	Drawing Notes	<b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b>	Architect <b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS 38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224	Client ISAAC PROPERTY DEVELOPMENTS	Project CRANE BROOK - PROPOSED DEVELOPMENT	Location CRANE BROOK	Scale 1: 100 @ A3
								Drawing ELEVATIONS - CARWASH & SWIM SCHOOL Project Number Drawing Number Issue 210285 DA55 C

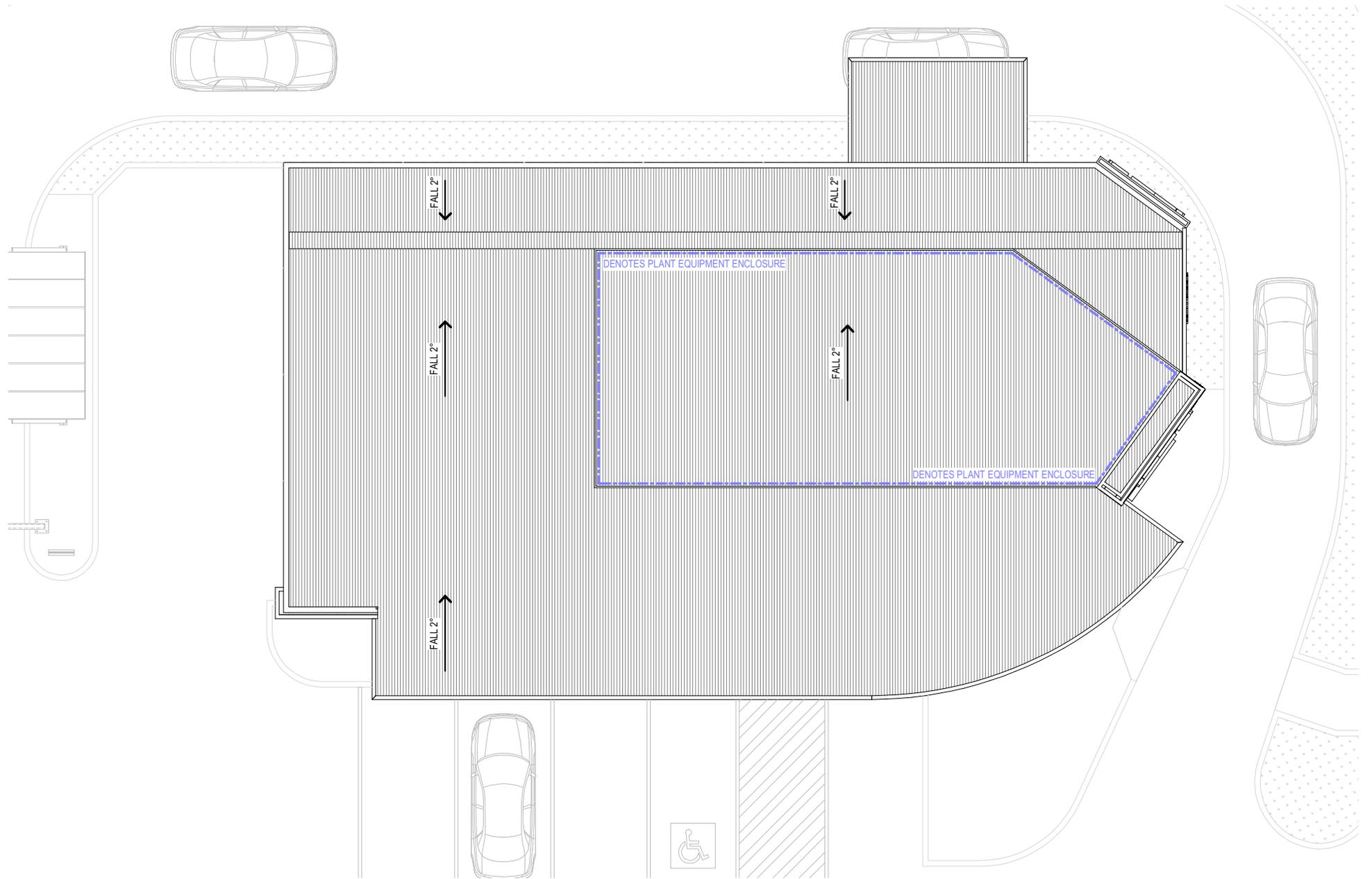


Revisions	General Notes	Drawing Notes
C Revision 3 B DA ISSUE A DA ISSUE Date: 12/11/2021 CHK: Int	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	<b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b>

Architect	Client	Project	Scale
<b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS 38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224	ISAAC PROPERTY DEVELOPMENTS	CRANE BROOK - PROPOSED DEVELOPMENT	1:250 @ A3

Location	Drawing	Project Number	Drawing Number	Issue
CRANE BROOK	SITE PLAN - PETROL STATION	210285	DA60	C

Revisions	General Notes	Drawing Notes
C Revision 3 B DA ISSUE A DA ISSUE Date: 12/11/2021 CHK: Int	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	<b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b>



<b>Revisions</b>  C Revision 3 04-11-2021 RR RK B DA ISSUE 29-10-2021 RR RK A DA ISSUE 22-10-2021 RR RK Date Date Date Date Date Date Date Date Date	<b>General Notes</b> Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	<b>Drawing Notes</b>  <b>FOR DA</b> <b>NOT TO BE USED DURING CONSTRUCTION</b>	<b>Architect</b> <b>Richmond+Ross</b> CONSULTING ENGINEERS AND PROJECT LEADERS 38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224	<b>Client</b> ISAAC PROPERTY DEVELOPMENTS	<b>Project</b> CRANE BROOK - PROPOSED DEVELOPMENT	<b>Scale</b> 1:100 @ A3		
							<b>Location</b> CRANE BROOK	<b>Drawing</b> ROOF PLAN - OTR
							<b>Project Number</b> 210285	<b>Drawing Number</b> DA62



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