

**PROPOSED CHILD CARE CENTRE  
1 ISLIP COURT AND 2A/2B BROADHURST CRESCENT  
BATEMAN**

**ENVIRONMENTAL ACOUSTIC ASSESSMENT**

SEPTEMBER 2022

OUR REFERENCE: 30103-2-22306

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**ENVIRONMENTAL ACOUSTIC ASSESSMENT**  
**PROPOSED CHILD CARE CENTRE**  
**BATEMAN**

Job No: 22306

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FOR

**DYNAMIC PLANNING AND DEVELOPMENTS PTY LTD**

**DOCUMENT INFORMATION**

<b>Author:</b>	Tim Reynolds	<b>Checked By:</b>	Paul Daly
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## 1. INTRODUCTION

Herring Storer Acoustics were commissioned to undertake an acoustic assessment of noise emissions associated with the proposed day care centre to be located at 1 Islip Court and 2A – 2B Broadhurst Crescent, Bateman.

The report considers noise received at the neighbouring premises from the proposed development for compliance with the requirements of the *Environmental Protection (Noise) Regulations 1997*. This report considers noise emissions from:

- Children playing within the outside play areas of the centre; and
- Mechanical services.

We note that from information received from DWER, the bitumised area would be considered as a road, thus noise relating to motor vehicles is exempt from the *Environmental Protection (Noise) Regulations 1997*. We note that these noise sources are rarely critical in the determination of compliance. However, as requested by council and for completeness, they have been included in the assessment, for information purposes only.

For information, a plan of the proposed development is attached in Appendix A.

## 2. SUMMARY

The closest neighbouring residences would be located to the northeast, east and south. Noise received at these residences from the outdoor play areas would comply with the requirements of the *Environmental Protection (Noise) Regulations 1997*, with the fencing as shown on Figure 5.1 in Section 5 – Modelling (which are also shown on the plan attached in Appendix A); and provided outdoor play is limited to the day period (i.e. after 7am).

Noise from the mechanical services has also been assessed to comply with the relevant criteria. However, as the assessment has not been based on the mechanical services design, it is recommended that the mechanical services design be reviewed for compliance with the Regulatory requirements.

It is noted that noise associated with cars movements and cars starting are exempt from complying with the Regulations. However, noise emissions from car doors is not strictly exempt from the Regulations. Noise received at the existing neighbouring residences from these noise sources would with the fencing and parking restrictions, as shown on Figures 5.1 (which are also shown on the plan attached in Appendix A) and 5.2 in Section 5 - Modelling, comply with the Regulatory requirements, at all times.

Thus, noise emissions from the proposed development, would be deemed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* for the proposed hours of operation, with the inclusion of the following:

- 1 Although the proposed facility would open before 7 am (ie during the night period), the outdoor play area would not be used until after 7am. Thus, noise received at the neighbouring existing residences from the outdoor play area needs to comply with the assigned day period noise level.
- 2 Fencing to be as shown on Figure 5.1 in Section 5 – Modelling (which are also shown on the plan attached in Appendix A). We note that for this development, colourbond is an acceptable fencing material.

- 3 Parking to be restricted, as shown on Figure 5.2 in Section 5 – Modelling.
- 4 As the air conditioning has not been designed at this stage, it is recommended that the design be reviewed / assessed to ensure compliance with the Environmental Protection (Noise) Regulations 1997 are achieved.
- 5 It is recommended that the air conditioning condensing units to be installed with “Low Noise” night period modes.

### 3. CRITERIA

The allowable noise level at the surrounding locales is prescribed by the *Environmental Protection (Noise) Regulations 1997*. Regulations 7 & 8 stipulate maximum allowable external noise levels. For highly sensitive area of a noise sensitive premises this is determined by the calculation of an influencing factor, which is then added to the base levels shown below in Table 3.1. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern. For other areas within a noise sensitive premises, the assigned noise levels are fixed throughout the day, as listed in Table 3.1.

**TABLE 3.1 - BASELINE ASSIGNED OUTDOOR NOISE LEVEL**

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L <sub>A10</sub>	L <sub>A1</sub>	L <sub>Amax</sub>
Noise sensitive premises: highly sensitive area	0700 - 1900 hours Monday to Saturday (Day)	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days (Evening)	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35 + IF	45 + IF	55 + IF
Commercial Premises	All hours	60	75	80

Note: L<sub>A10</sub> is the noise level exceeded for 10% of the time.  
 L<sub>A1</sub> is the noise level exceeded for 1% of the time.  
 L<sub>Amax</sub> is the maximum noise level.  
 IF is the influencing factor.

It is a requirement that received noise be free of annoying characteristics (tonality, modulation and impulsiveness), defined below as per Regulation 9.

**“impulsiveness”** means a variation in the emission of a noise where the difference between L<sub>Apeak</sub> and L<sub>Amax(Slow)</sub> is more than 15 dB when determined for a single representative event;

**“modulation”** means a variation in the emission of noise that –

- (a) is more than 3 dB L<sub>Afast</sub> or is more than 3 dB L<sub>Afast</sub> in any one-third octave band;
- (b) is present for more at least 10% of the representative assessment period; and
- (c) is regular, cyclic and audible;

**“tonality”** means the presence in the noise emission of tonal characteristics where the difference between –

- (a) the A-weighted sound pressure level in any one-third octave band; and

(b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as  $L_{Aeq,T}$  levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as  $L_{ASlow}$  levels.

Where the noise emission is not music, if the above characteristics exist and cannot be practicably removed, then any measured level is adjusted according to Table 3.2 below.

**TABLE 3.2 - ADJUSTMENTS TO MEASURED LEVELS**

Where <b>tonality</b> is present	Where <b>modulation</b> is present	Where <b>impulsiveness</b> is present
+5 dB(A)	+5 dB(A)	+10 dB(A)

Note: These adjustments are cumulative to a maximum of 15 dB.

For this development, the closest existing neighbouring residences are located to the west and south, with future residence located to the north, west and south. It is noted that the premises to the east are commercial premises. An aerial showing the neighbouring premises are shown below on Figure 3.1.



**FIGURE 3.1 – NEIGHBOURING LOTS**

As the neighbouring residences are within 450 metre of Murdoch Drive, (major road, north of Sommerville Boulevard), the Influencing Factor for these residences has been determined to be +2 dB. Thus, the assigned noise levels would be as listed in Table 3.3.

**TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL**

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L <sub>A10</sub>	L <sub>A1</sub>	L <sub>Amax</sub>
Noise sensitive premises: highly sensitive area	0700 - 1900 hours Monday to Saturday (Day)	47	57	67
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	42	52	67
	1900 - 2200 hours all days (Evening)	42	52	57
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	37	47	57

Note: L<sub>A10</sub> is the noise level exceeded for 10% of the time.  
 L<sub>A1</sub> is the noise level exceeded for 1% of the time.  
 L<sub>Amax</sub> is the maximum noise level.

#### 4. PROPOSAL

From information supplied, we understand that the child care centre normal hours of operations would be between 0630 and 1830 hours, Monday to Friday (closed on public holidays). It is understood that the proposed childcare centre will cater for a maximum of 82 children: with the following breakdown:

Nursery	12 places
Babies	12 places
Toddlers	14 places
Toddlers	14 places
Kindy	30 places

It is noted that although the proposed child care centre would open before 7 am (ie during the night period), the outdoor play area would not be used until after 7am.

Note: We understand that the children within the nursery and babies rooms would be under 2 years of age.

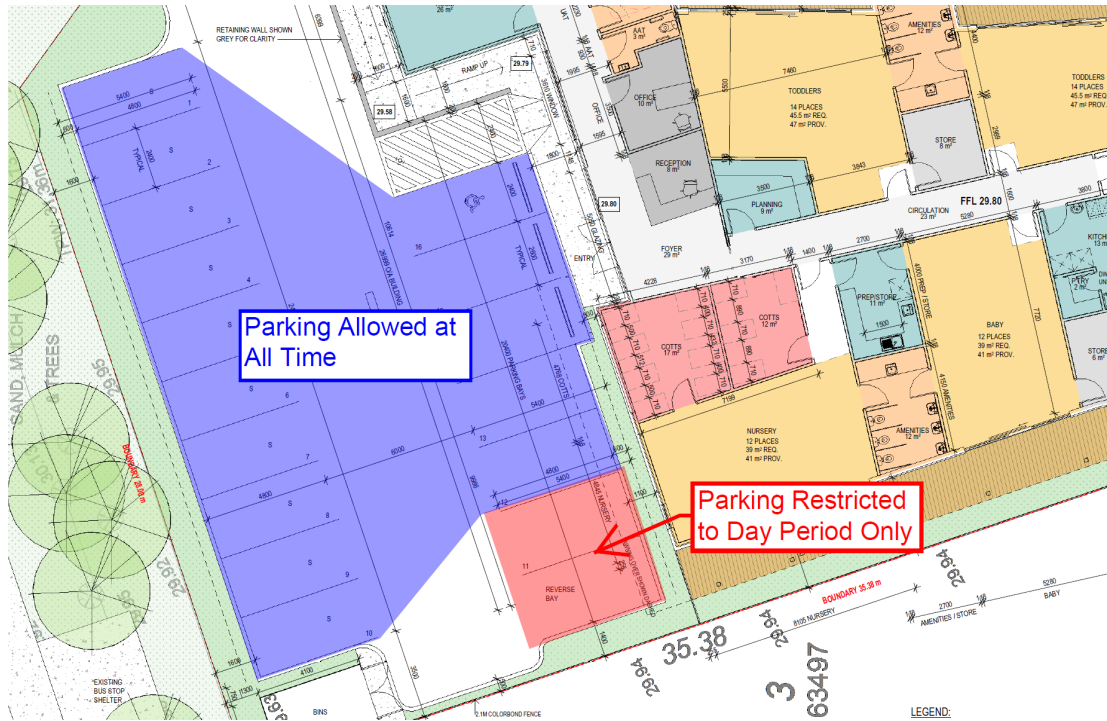
#### 5. MODELLING

To assess the noise received at the neighbouring premises from the proposed development, noise modelling was undertaken using the noise modelling program SoundPlan.

Calculations were carried out using the DWER's weather conditions, which relate to worst case noise propagation, as stated in the Department of Environment Regulation "*Draft Guidance on Environmental Noise for Prescribed Premises*". These conditions include winds blowing from sources to the receiver(s).

Calculations were based on the sound power levels used in the calculations are listed in Table 5.1.





**FIGURE 5.2 – PARKING RESTRICTIONS**

**6. ASSESSMENT**

The resultant noise levels at the neighbouring residence from children playing outdoors and the mechanical services are tabulated in Table 6.1.

From previous measurements, noise emissions from children playing does not contain any annoying characteristics. Noise emissions from the mechanical services could be tonal and a +5 dB(A) penalty would be applicable, as shown in Table 6.1. Noise emissions from both outdoor play and the mechanical services needs to comply with the assigned L<sub>A10</sub> noise levels.

**TABLE 6.1 - ACOUSTIC MODELLING RESULTS FOR L<sub>A10</sub> CRITERIA  
 OUTDOOR PLAY AREAS AND MECHANICAL PLANT**

Neighbouring Premises	Calculated Noise Level (dB(A))	
	Children Playing	Air Conditioning
West	47	29 (34)
East	45	31 (36)
South	43	28 (33)

( ) Includes +5 dB(A) penalty for tonality

With regards to noise associated with cars within the parking area, resultant noise levels are tabulated in Tables 6.2 and 6.3. It is noted that noise emissions from a moving car being an L<sub>A1</sub> noise level, with noise emissions from cars starting and doors closing being an L<sub>AMax</sub> noise level.

Based on the definitions of tonality, noise emissions from car movements and car starts, being an L<sub>A1</sub> and L<sub>AMax</sub> respectively, being present for less than 10% of the time, would not be considered tonal. Thus, no penalties would be applicable, and the assessment would be as listed in Table 6.2 (Car Moving) and Table 6.3 (Car Starting). However, noise emissions from car doors closing could be impulsive, hence the +10dB penalty has been included in the assessment.

**TABLE 6.2 - ACOUSTIC MODELLING RESULTS L<sub>A1</sub> CRITERIA  
 CAR MOVING**

Neighbouring Premises	Calculated Noise Level (dB(A))
West	44
East	42
South	19

**TABLE 6.3 - ACOUSTIC MODELLING RESULTS L<sub>Amax</sub> CRITERIA  
 CAR STARTING / DOOR CLOSING**

Neighbouring Premises	Calculated Noise Level (dB(A))			
	Car Starting		Door Closing	
	Day Period	Night Period	Day Period	Night Period
West	45	44	49 [59]	46 [56]
East	44	44	46 [56]	46 [56]
South	24	24	26 [36]	26 [36]

[ ] Includes +10 dB(A) penalty for impulsiveness.

Tables 6.4 to 6.10 summarise the applicable Assigned Noise Levels, and assessable noise level emissions for each identified noise.

**TABLE 6.4 – ASSESSMENT OF L<sub>A10</sub> NOISE LEVEL EMISSIONS  
 OUTDOOR PLAY (DAY PERIOD)**

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
West	47	47	Complies
East	45	47	Complies
South	43	47	Complies

**TABLE 6.5 – ASSESSMENT OF L<sub>A10</sub> NIGHT PERIOD NOISE LEVEL EMISSIONS  
 AIR CONDITIONING**

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
West	34	37	Complies
East	36	37	Complies
South	33	37	Complies

**TABLE 6.6 – ASSESSMENT OF L<sub>A1</sub> NIGHT PERIOD NOISE LEVEL EMISSIONS  
 CAR MOVEMENTS**

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
West	44	47	Complies
East	42	47	Complies
South	19	47	Complies

**TABLE 6.7 – ASSESSMENT OF  $L_{Amax}$  DAY PERIOD NOISE LEVEL EMISSIONS  
 CAR STARTING**

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
West	45	67	Complies
East	44	67	Complies
South	24	67	Complies

**TABLE 6.8 – ASSESSMENT OF  $L_{Amax}$  NIGHT PERIOD NOISE LEVEL EMISSIONS  
 CAR STARTING**

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
West	44	57	Complies
East	44	57	Complies
South	24	57	Complies

**TABLE 6.9 – ASSESSMENT OF  $L_{Amax}$  DAY PERIOD NOISE LEVEL EMISSIONS  
 CAR DOOR**

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
West	59	67	Complies
East	56	67	Complies
South	36	67	Complies

**TABLE 6.10 – ASSESSMENT OF  $L_{Amax}$  NIGHT PERIOD NOISE LEVEL EMISSIONS  
 CAR DOOR**

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
West	56	57	Complies
East	56	57	Complies
South	36	57	Complies

## 7. CONCLUSION

Noise received at the neighbouring residences from the outdoor play area would comply with day period assigned noise level, with boundary fencing as shown on Figure 5.1 in Section 5 – Modelling (which are also shown on the plan attached in Appendix A).

The air conditioning condensing units have also been assessed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* at all times.

It is noted that noise associated with cars movements and cars starting are exempt from complying with the Regulations. However, noise emissions from car doors are not strictly exempt from the Regulations. Noise received at the neighbouring residences from these noise sources would with boundary fencing as shown on Figure 5.1 in Section 5 – Modelling (which are also shown on the plan attached in Appendix A); and the restriction in parking as shown on Figure 5.2 in Section 5 – modelling, comply with the Regulatory requirements, at all times.

Thus, noise emissions from the proposed development, would be deemed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* for the proposed hours of operation, with the inclusion of the following:

- 1 Although the proposed facility would open before 7 am (ie during the night period), the outdoor play area would not be used until after 7am. Thus, noise received at the neighbouring existing residences from the outdoor play area needs to comply with the assigned day period noise level.
- 2 Fencing to be as shown on Figure 5.1 in Section 5 – Modelling (which are also shown on the plan attached in Appendix A). We note that for this development, colourbond is an acceptable fencing material.
- 3 Parking to be restricted, as shown on Figure 5.2 in Section 5 – Modelling.
- 4 As the air conditioning has not been design at this stage, it is recommended that the design be reviewed / assessed to ensure compliance with the Environmental Protection (Noise) Regulations 1997 are achieved.
- 5 The air conditioning condensing units to be installed with “Low Noise” night period modes.

# **APPENDIX A**

## **PLANS**



## BATEMAN CHILD CARE DEVELOPMENT

Drawing List	
Sheet Number	Sheet Name
DA000	COVER PAGE
DA001	EXISTING SITE CONDITIONS
DA002	PROPOSED OVERALL SITE PLAN
DA100	PROPOSED GROUND FLOOR PLAN
DA101	PROPOSED AREA PLAN
DA200	PROPOSED ELEVATION
DA300	RENDER

revision/ issue	description	drawn by	check by	date
.	DA PACK FINAL	JS	NP	21.10.2022
project	PROPOSED CHILDCARE DEVELOPMENT	Author	description	COVER PAGE
location	1 ISLIP CRT 2A&2B BROADHURST CR, BATEMAN	checked Checker		
scale	1 : 50	date	21.10.2022	
<b>Hodge Collard Preston</b> <small>ARCHITECTS</small>		<small>Third Floor, 38 Richardson Street,  West Perth, WA 6005  PO Box 743, West Perth, WA 6872  Ph: (08) 9322 5144  Fax: (08) 9322 5140  Email: admin@hccparoh.com</small>	<small>project no</small> <b>28.22</b>	<small>dwg no</small> <b>DA000</b> <small>rev</small>



# BROADHURST CRESCENT



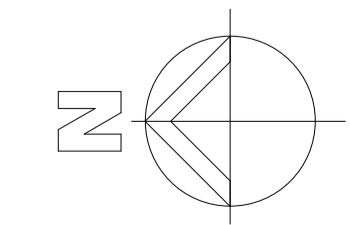
**EXTERNAL PLAY**  
82 PLACES  
574 m<sup>2</sup> REQ.  
591 m<sup>2</sup> PROV.

1 GROUND FLOOR PLAN  
1:100

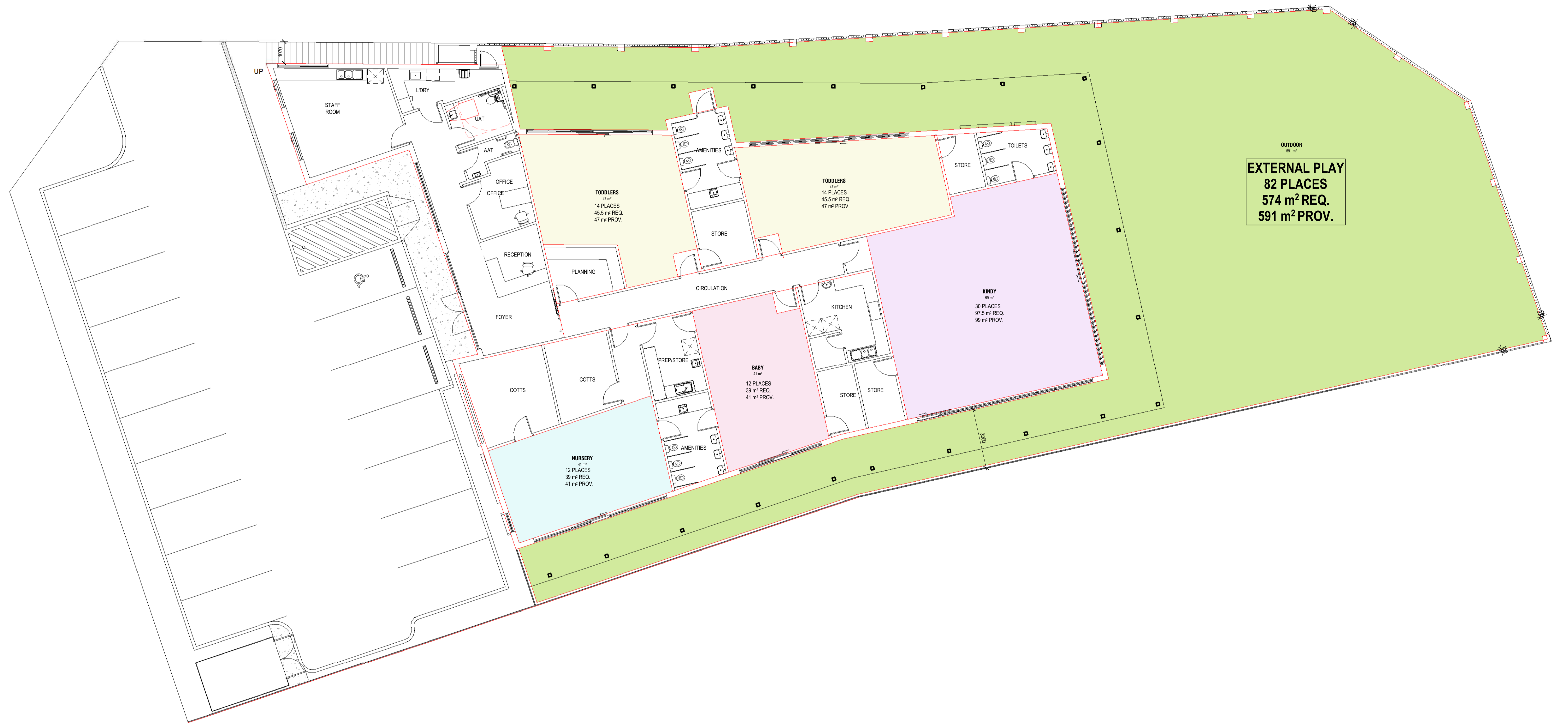
- LEGEND:**
- CONCRETE PAVING
  - LANDSCAPING AREA AS PER L.A. DRAWINGS
  - VERANDAH AREA
  - STAFF PARKING
  - PROPOSED LEVEL
  - EXISTING LEVEL

Childcare Room Schedule

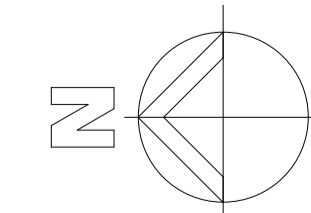
Name	Provided Area	Required area
AAT	3 m <sup>2</sup>	
AMENITIES	12 m <sup>2</sup>	
AMENITIES	12 m <sup>2</sup>	
BABY	41 m <sup>2</sup>	39 sqm
CIRCULATION	23 m <sup>2</sup>	
COTTES	17 m <sup>2</sup>	
COTTES	12 m <sup>2</sup>	
FOYER	29 m <sup>2</sup>	
KINDY	99 m <sup>2</sup>	97.5 sqm
KITCHEN	13 m <sup>2</sup>	
L'DRY	8 m <sup>2</sup>	
NURSERY	41 m <sup>2</sup>	39 sqm
OFFICE	10 m <sup>2</sup>	
PTRY	2 m <sup>2</sup>	
PLANNING	9 m <sup>2</sup>	
PREP/STORE	11 m <sup>2</sup>	
RECEPTION	8 m <sup>2</sup>	
STAFF ROOM	26 m <sup>2</sup>	
STORE	8 m <sup>2</sup>	
STORE	6 m <sup>2</sup>	
STORE	6 m <sup>2</sup>	
STORE	5 m <sup>2</sup>	
TODDLERS	47 m <sup>2</sup>	45.5 sqm
TODDLERS	47 m <sup>2</sup>	45.5 sqm
TOILETS	9 m <sup>2</sup>	
UAT	6 m <sup>2</sup>	



DA PACK FINAL		JS	NP	21.10.2022
revision/ issue	description	drawn by	check by	date
PROPOSED CHILDCARE DEVELOPMENT		Author	description	
1 ISLIP CRT 2A&2B BROADHURST CR, BATEMAN		checked	PROPOSED GROUND FLOOR PLAN	
		Checker		
scale	1:100	date	21.10.2022	
Hodge Collard Preston ARCHITECTS		project no	28.22	dwg no DA100
Third Floor, 38 Richardson Street, West Perth, WA 6005 PO Box 743, West Perth, WA 6872 Ph: (08) 9322 5144 Fax: (08) 9322 5140 Email: admin@hpcparh.com		rev		



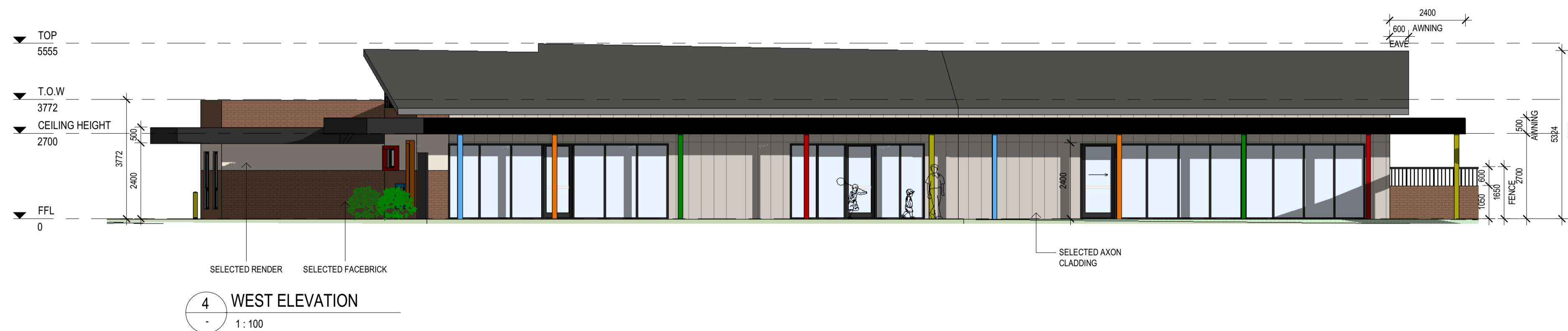
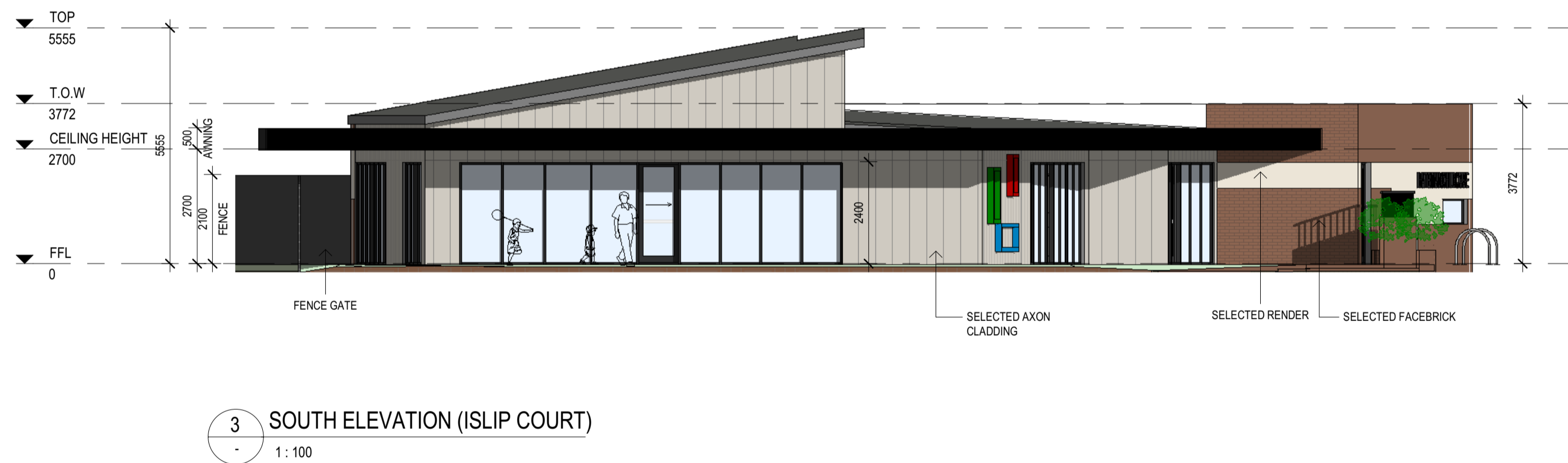
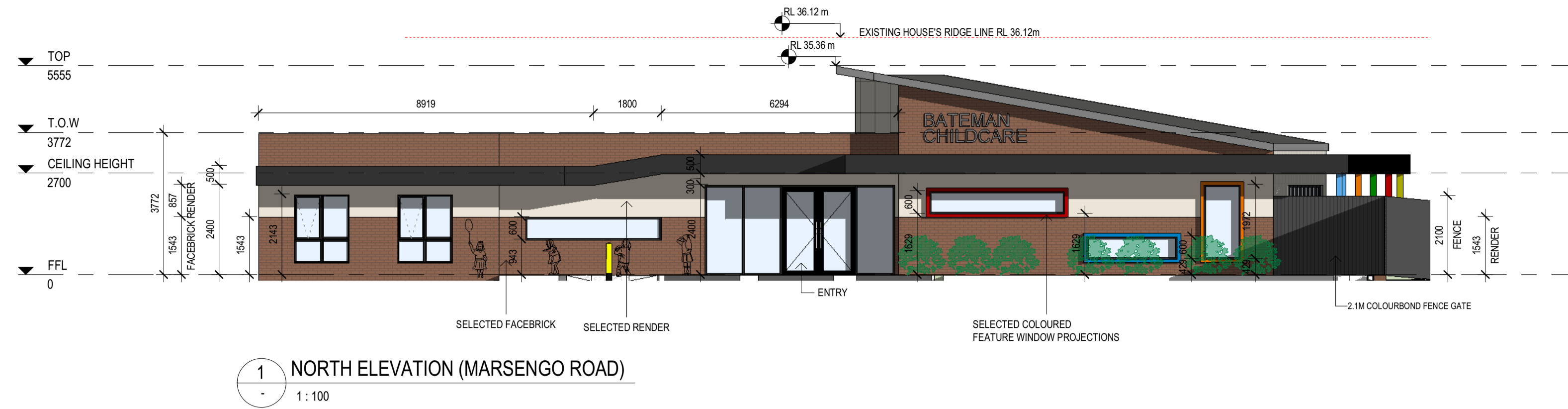
1 GROUND FLOOR AREA PLAN  
1:100



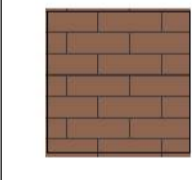
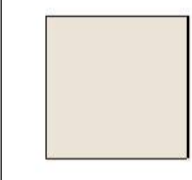
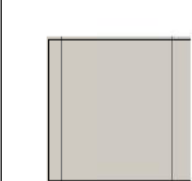
revision/ issue	description	drawn by	check by	date
DA PACK FINAL		JS	NP	21.10.2022
project	description	drawn	Author	description
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checked	Checker	checked	Checker	date
		checked	Checker	21.10.2022
scale	1:100	project no	28.22	dwg no
		rev		DA101

**Hodge Collard Preston**  
ARCHITECTS

Third Floor, 38 Richardson Street,  
West Perth, WA 6005  
PO Box 743, West Perth, WA 6872  
Ph: (08) 9322 5144  
Fax: (08) 9322 5740  
Email: admin@hccparoh.com



MATERIAL SCHEDULE

	FACE BRICK
	RENDER
	AXON CLADDING

revision/ issue	description	drawn by	check by	date
DA PACK FINAL		JS	NP	21.10.2022
project	description	drawn by	check by	date
PROPOSED CHILDCARE DEVELOPMENT	PROPOSED ELEVATION	Author		
location	checked	Checker		
1 ISLIP CRT 2A&2B BROADHURST CR, BATEMAN				
scale	date	21.10.2022	project no	dwg no
As indicated	28.22		DA200	rev

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ARCHITECTS

Third Floor, 38 Richardson Street,  
West Perth, WA 6005  
PO Box 743, West Perth, WA 6872  
Ph: (08) 9322 5144  
Fax: (08) 9322 5740  
Email: admin@hpcparoch.com