City of Joondalup

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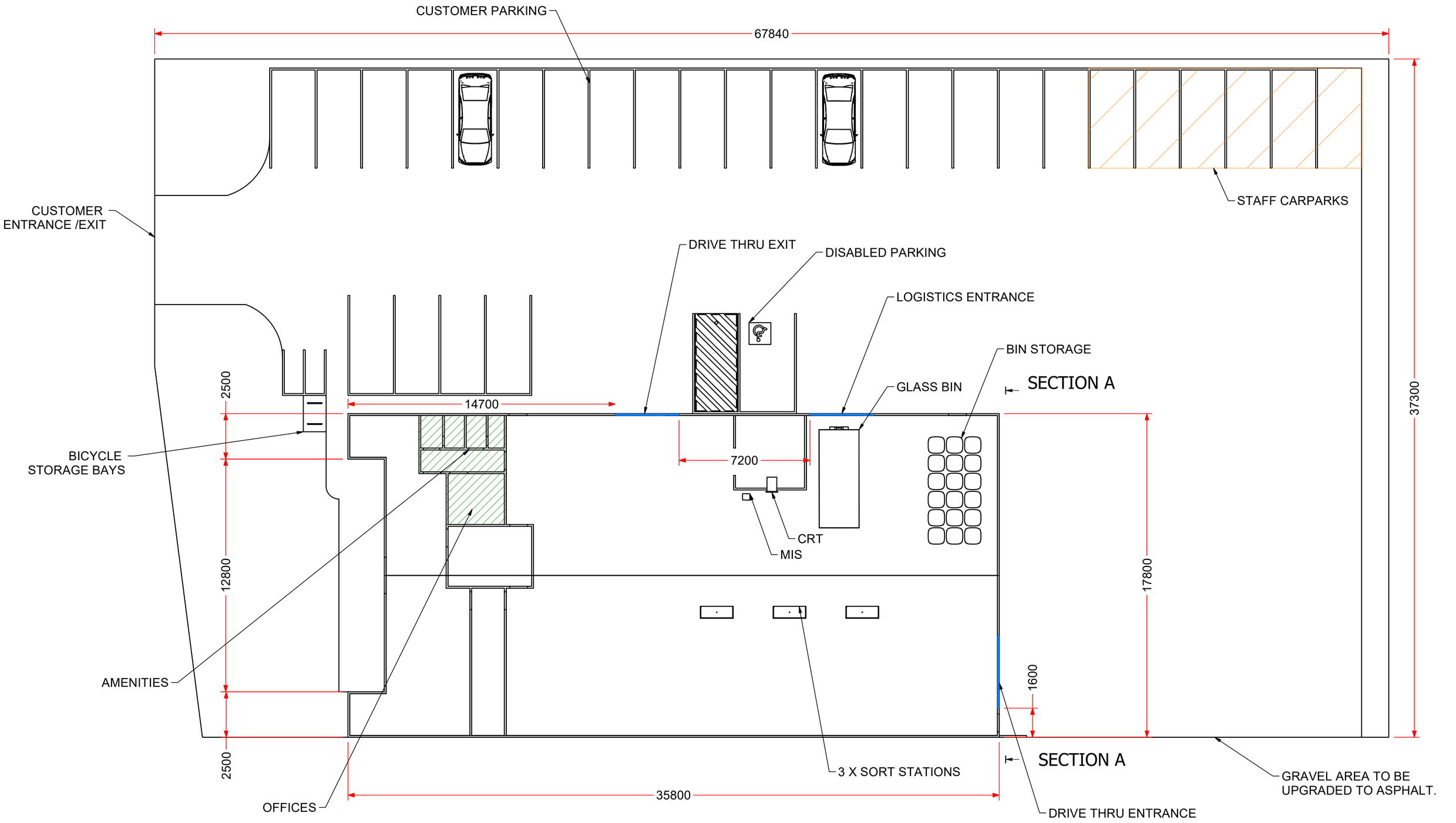
ATTACHMENT 2



REV.	DESCRIPTION	DRAWN	DATE	APP. BY	DATE
A	ISSUED FOR APPROVAL				

REVISION HISTORY

SUITE 6, 26 BRANDL STREET, EIGHT MILE PLAINS, QUEENSLAND AUSTRALIA, 4113
PH:+61 (0)7 3245 4522
FAX:+61 (0)7 3245 4622
WEB: www.rdtaust.com.au
E-MAIL: engineering@rdtaust.com

DRAWN RBrandenburg	DATE 31/08/2021	TITLE: 5 Winton Rd, Joondalup	SHEET 2 OF 4
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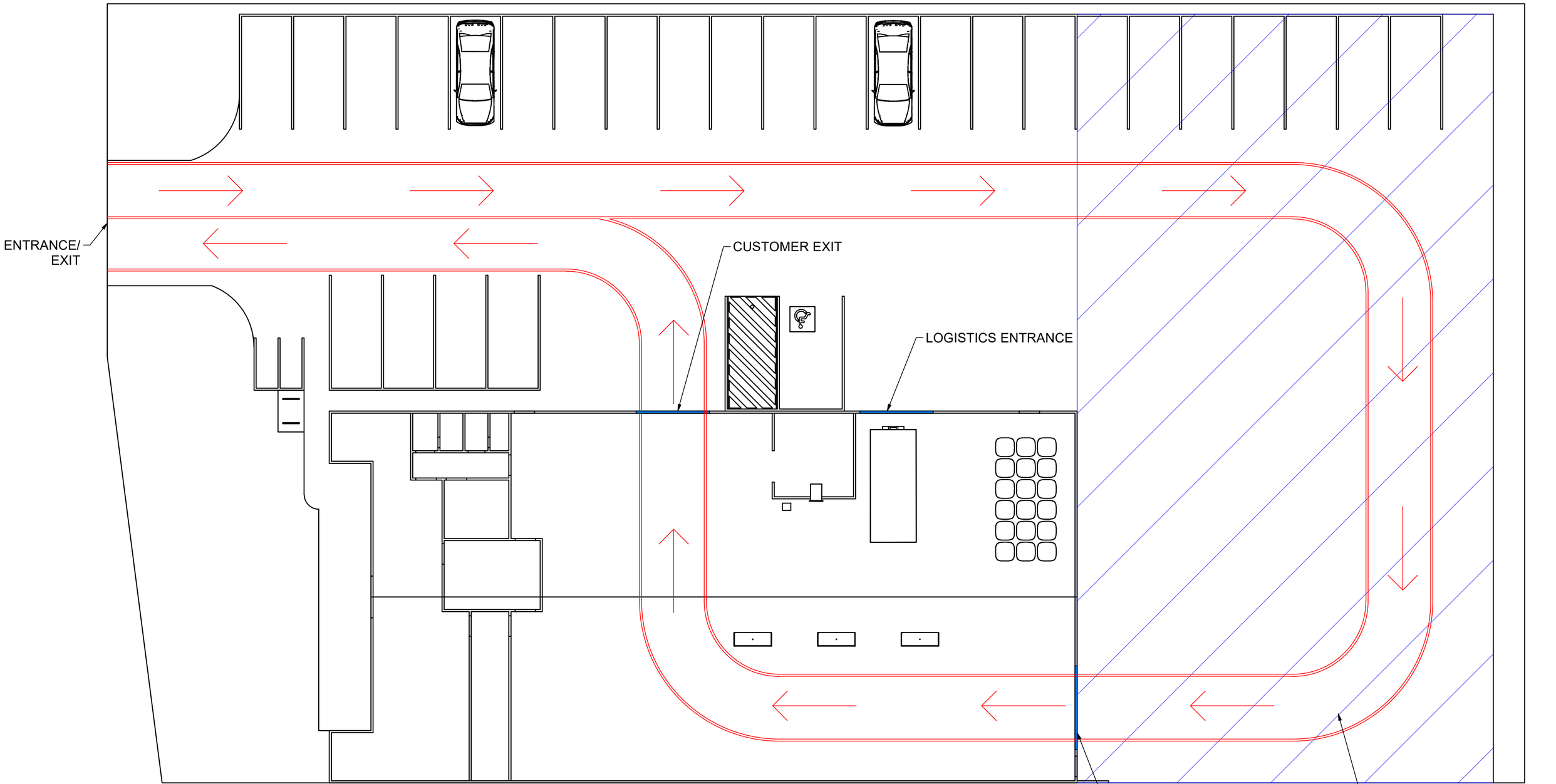
APPR.	DATE	DRG/PART NUMBER: JD-RP-01	DRAWING DOCUMENT FILE NAME: JD-RP-01.idw; MODEL DOCUMENT FILE NAME: JD-RP-01.iam; SCALE 1 : 140
RAW MATERIAL		STOCK NUMBER / DESCRIPTION	REV. B

Client - RETURN-IT CDS WA

UNLESS OTHERWISE SPECIFIED
XX = ±1mm
X.X = ±0.5mm
XX.XX = ±0.25
MACHINE FINISHES = 3.2
= ± 1°
ALL DIMENSIONS IN MILLIMETERS
ALL THREAD TO BE METRIC COARSE
ALL WELDS TO AS1554
ALL BURRS AND SHARP EDGES TO BE REMOVED
PART NUMBER TO BE CLEARLY MARKED

SURFACE AREA: N/A FINISH: MASS: N/A A2



TRAFFIC ARRANGMENT (1 : 130)

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EIGHT MILE PLAINS,
QUEENSLAND
AUSTRALIA, 4113
PH:+61 (0)7 3245 4522
FAX:+61 (0)7 3245 4622
WEB: www.rdtaust.com.au
E-MAIL: engineering@rdtaust.com

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RAW MATERIAL		STOCK NUMBER / DESCRIPTION	REV.: B

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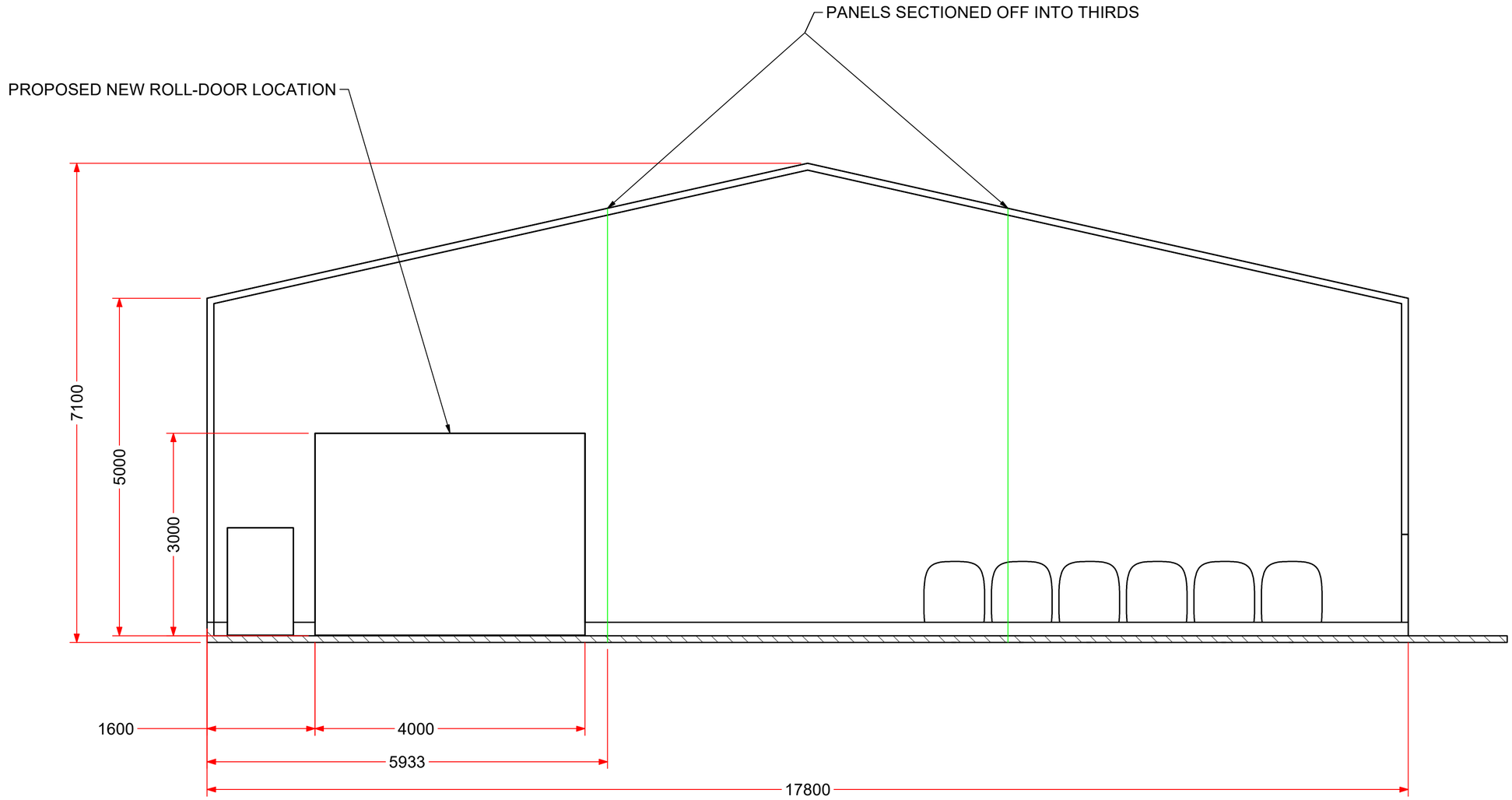

SECTION A-SECTION A (1 : 50)

SUITE 6, 26 BRANDL STREET,
EIGHT MILE PLAINS,
QUEENSLAND
AUSTRALIA, 4113
PH:+61 (0)7 3245 4522
FAX:+61 (0)7 3245 4622
WEB: www.rdtaust.com.au
E-MAIL: engineering@rdtaust.com

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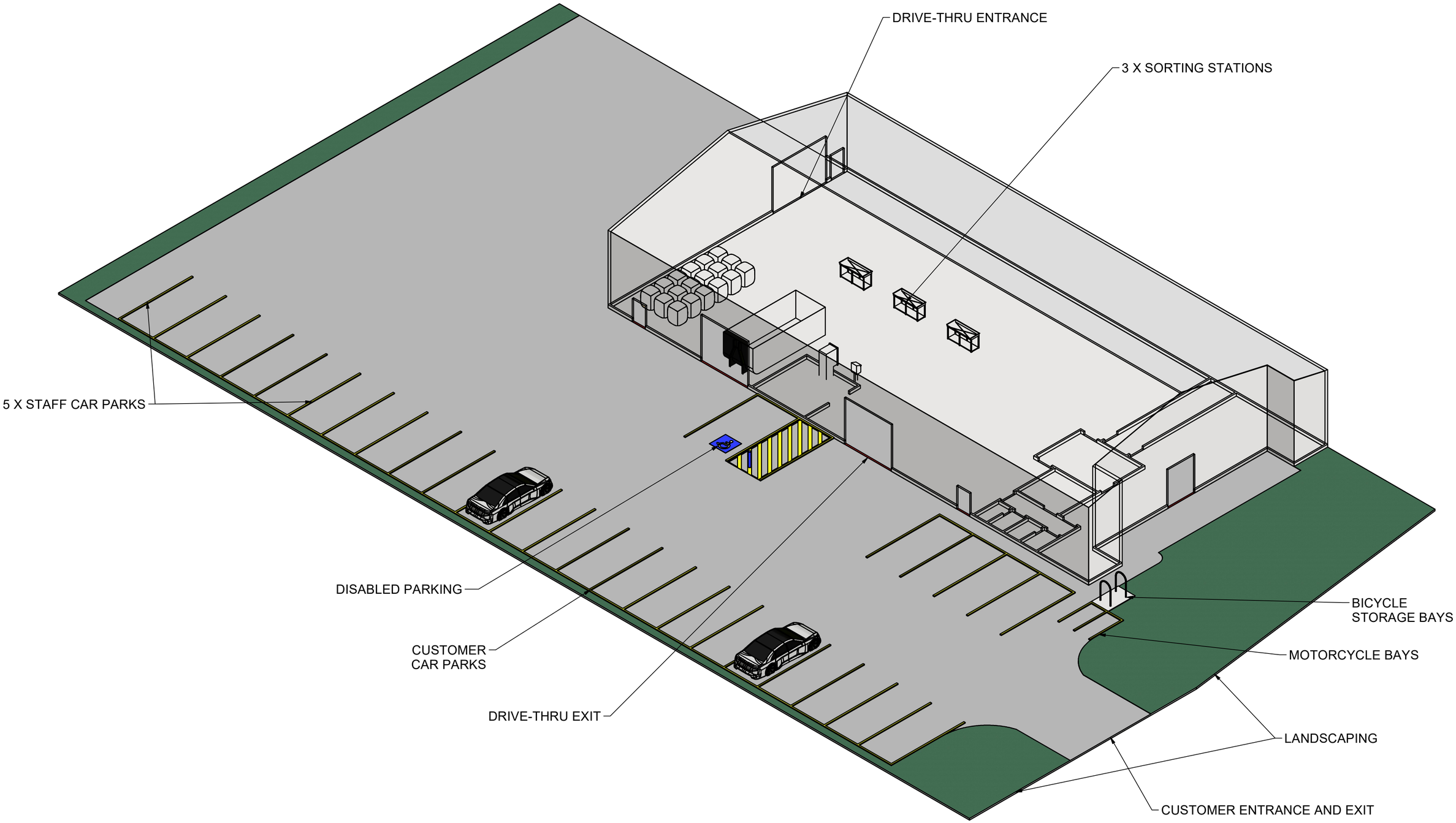

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WEB: www.rdtaust.com.au
E-MAIL: engineering@rdtaust.com

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SURFACE AREA: N/A | FINISH: | MASS: N/A | A2

ATTACHMENT 3

HERRING STORER ACOUSTICS

RE-GROUP

JOONDALUP
RECYCLING FACILITY
5 WINTON ROAD, JOONDALUP

WESTERN AUSTRALIAN CONTAINER DEPOSIT SCHEME

ACOUSTIC ASSESSMENT

OCTOBER 2021

OUR REFERENCE: 28500-4-19338

Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as:
HERRING STORER ACOUSTICS
P.O. Box 219, Como, W.A. 6952
(08) 9367 6200
hsa@hsacoustics.com.au

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ACOUSTIC ASSESSMENT
JOONDALUP

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FOR

RE-GROUP

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Author:	Paul Daly	**Checked By:**	Tim Reynolds
Date of Issue:	11 October 2021		

REVISION HISTORY

Revision	Description	Date	Author	Checked
1	Amended plans	12/10/2021	PLD	
2	Client Comments	19/10/2021	PLD	
3	Clarify Influencing Factor	27/10/2021	PLD	

DOCUMENT DISTRIBUTION

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APPENDICIES

A	Site Layout Plan
B	Noise Contour Plot

1. INTRODUCTION

Herring Storer Acoustics has been commissioned by Rowe Group on behalf of Re.Group to assess noise emissions from its proposed operations at an existing facility, located at 5 Winton Road, Joondalup. The purpose of this assessment was to assess noise emissions for compliance in accordance with the *Environmental Protection (Noise) Regulations 1997* at the new facility.

Return-It (Re.Group business responsible for container deposit schemes) provides a modern and convenient way to collect containers eligible under Container Deposit Schemes and accurately pay back refund amounts.

The facility is located within the Joondalup Activity Centre, with the nearest noise sensitive premises located on the opposite side of the Michell Freeway, on Huntingdale Crescent. The current use is the same as the proposed use, i.e., there is an existing Containers for Change facility operating on site, for which Return-It have acquired and are restructuring.

The acoustic assessment, as per this report, assesses noise emissions for the proposed location based on noise levels from manufacturer data and file data from previous noise measurements of operating facilities run by Return-It.

The proposed Joondalup operations will be a drive through depot (container collection point). This facility occupies an existing factory type unit and will be accessible by the public who drive into the store bringing bags of bottles and containers to deposit and receive a cash-back transaction. The bottles and containers will then be sorted and supplied to the “back of house”. The bins are wheeled outside for emptying into a compactor truck. Glass is emptied by forklift from glass intermediate bins into the hook-lift bin which is inside. The hook-lift bin is lifted onto the truck through the open door. It is noted, that as the proposed Return-It facility will be a drive-thru operations, noise emissions are likely to be less than the existing operations.

The facility will operate between 0700 and 1900 hours Monday to Saturday and 0900 to 1900 hours Sundays and Public Holidays, hence the most critical period of “day - time” criteria for a Sunday / Public Holiday has been used for this assessment. Figure 1 shows the proposed layout of the operations, which are also attached in Appendix A.

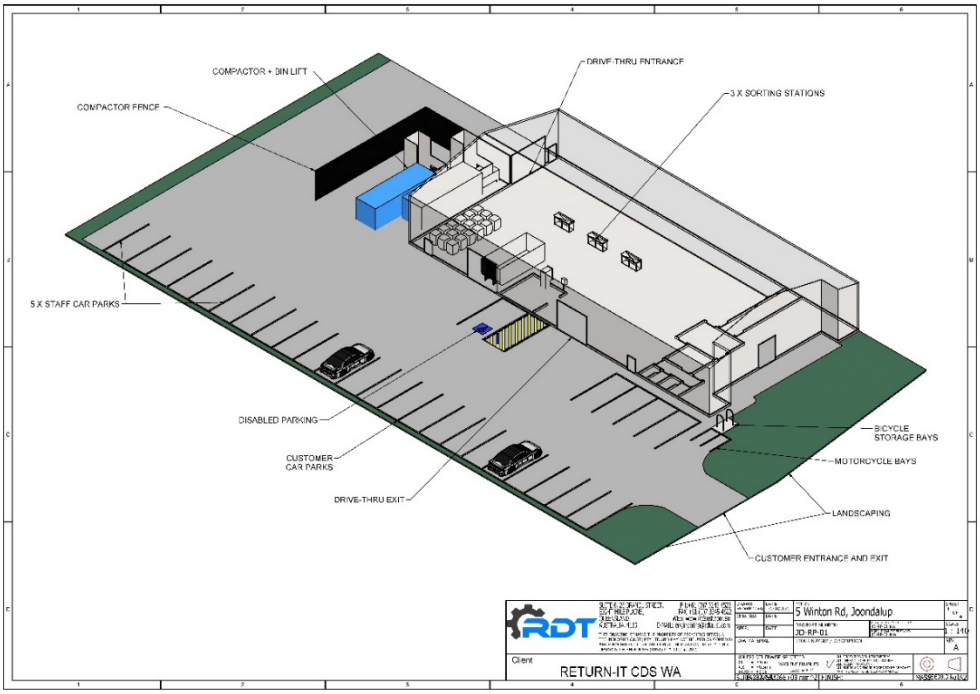

FIGURE 1 – PROPOSED FACILITY

2. SUMMARY

The assessable noise level at the nearest residential noise sensitive premises for the facility operations has been calculated to be L_{A10} of 0 dB(A) which can be compared to the allowable noise level of 46 dB(A) for day-time on a Sunday / Public Holiday operations. Noise levels for the noise emissions have been considered as not containing annoying characteristics such as tonality, as they would be inaudible.

The assessable noise level at the nearest noise sensitive premises for the facility external operations (Truck loading) has been calculated to be L_{A1} of 14 dB(A) which can be compared to the allowable noise level of 56 dB(A) for day-time on a Sunday / Public Holiday operations. Noise levels for the noise emissions have been considered as not containing annoying characteristics such as tonality, as they would be inaudible.

The assessable noise level at the nearest non-residential noise sensitive premises (Place of Worship) for the facility internal and external operations has been calculated to be L_{A10} of 37 dB(A) and L_{A1} of 64 dB(A) which can be compared to the allowable noise level of 59 and 69 dB(A) respectively, for day-time on a Sunday / Public Holiday operations. Noise levels for the noise emissions have been considered as containing annoying characteristics such as tonality for the L_{A10} and impulsiveness for the L_{A01}. It is noted that although the Place of Worship is considered as a noise sensitive premise, due to it being in an industrial area, it attracts a high influencing factor, which brings it inline with the same surrounding land uses.

Based on the noise modelling, noise received at the neighbouring industrial premises (internal and external operations), has been calculated, at up to L_{A10} of 45 dB(A) and an L_{A01} of 71 dB(A). This can be compared to the assigned noise level of 65 dB(A) and 80 dB(A) respectively.

Based on the assessment, noise level emissions attributable to the operations at the proposed facility at Joondalup, have been determined to comply with the *Environmental Protection (Noise) Regulations 1997* at the nearest residential and industrial premises, for the proposed times of operation.

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 residential premises, this is determined by the calculation of an influencing factor, which is then added to the base levels shown below. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern.

TABLE 3.1 - BASELINE ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises: highly sensitive area	0700 - 1900 hours Monday to Saturday	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	35 + IF	45 + IF	55 + IF
Industrial	All times	65	80	90

Note: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} 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_{Apeak} and $L_{AmaxSlow}$ 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 $L_{A\ Fast}$ or is more than 3 dB $L_{A\ Fast}$ 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 3dB 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 8dB at any time when the sound pressure levels are determined as $L_{A\ Slow}$ 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 **tonality** is present	Where **modulation** is present	Where **impulsiveness** is present
+5 dB(A)	+5 dB(A)	+10 dB(A)

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

The influencing factor for the nearest residential premises, located in Huntingdale Crescent, has been assessed as 9 dB based on a major road (Mitchell Freeway) in the inner circle an 30% industrial in outer circle. Additionally, there is a place of worship located at 10 Winton Drive. As this is classified as a noise sensitive premise, the influencing factor has been assessed as 19 dB based on major roads in outer circle and industrial land use in the inner and outer circles. . It is noted that although the Place of Worship is considered as a noise sensitive premise, due to it being in an industrial area, it attracts a high influencing factor, which brings it in line with the same surrounding land uses. Therefore, the assigned noise levels for the nearest noise sensitive premises are contained in Table 3.3, with Figure 2 detailing an area map.

TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Residence - Huntingdale Crescent	0700 - 1900 hours Monday to Saturday	54	64	74
	0900 - 1900 hours Sunday and Public Holidays	49	59	74
	1900 - 2200 hours all days	49	59	69
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	44	54	64
10 Winton (Place of Worship)	0700 - 1900 hours Monday to Saturday	64	74	84
	0900 - 1900 hours Sunday and Public Holidays	59	69	84
	1900 - 2200 hours all days	59	69	74
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	54	64	74
Industrial Premise	All times	65	80	90

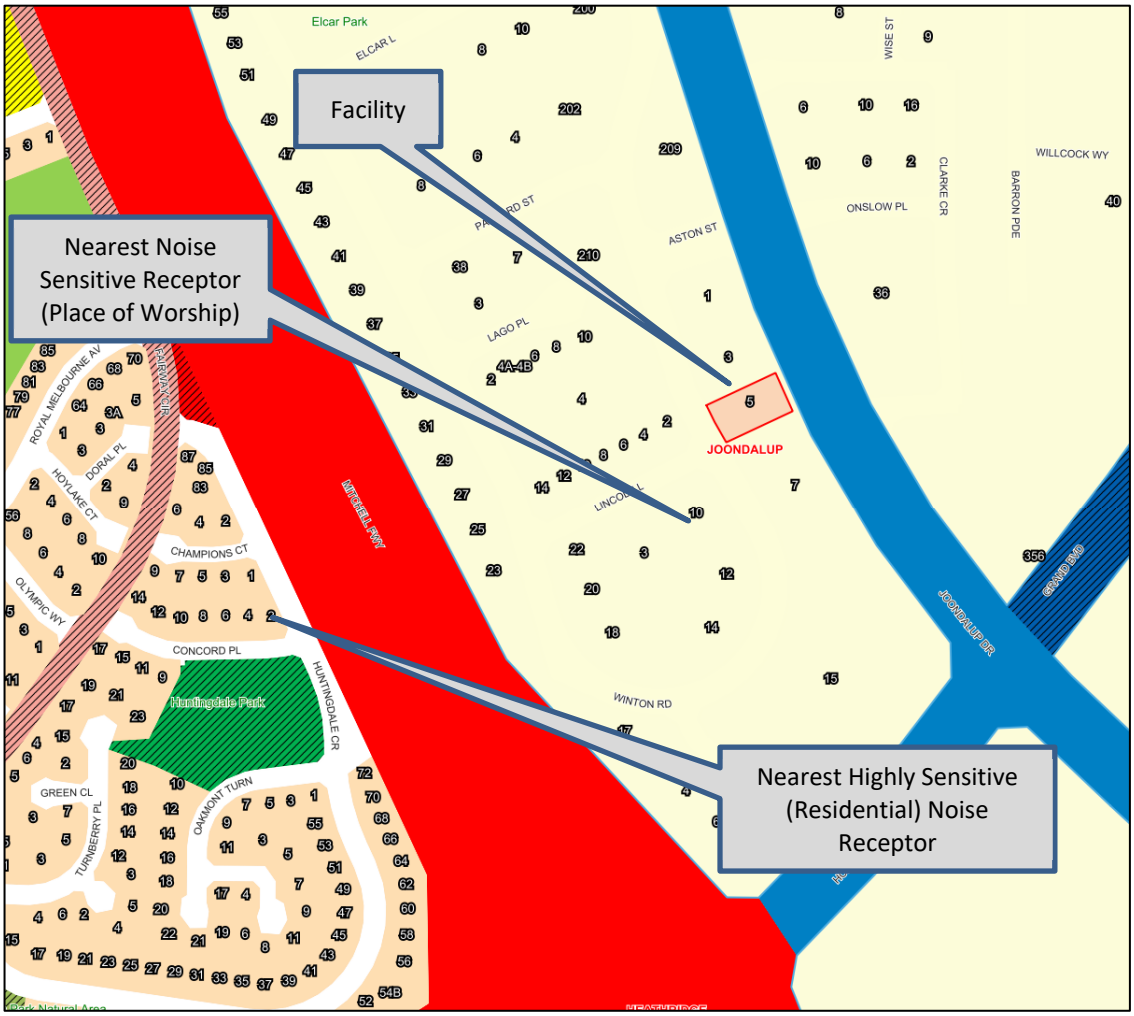

FIGURE 2 – NOISE SENSITIVE RECEIVERS

4. MODELLING

Noise immissions at the nearest neighbouring residential premises and commercial boundaries, due to noise associated with the proposed facility, was modelled with the computer programme SoundPlan. Sound power levels used for the calculations are based on measured file data and manufacturer supplied noise levels.

Noise modelling included single point noise sources both inside and outside the main facility. For noise sources located inside the processing area, calculations were based on an “industrial building” source, using the attenuation loss of the building. It has been assumed that the drive-thru entry and

exit doors to the facility were open and the Logistics Entrance door is closed whilst activities occurred inside.

Additionally, whilst a highly unlikely scenario, allowance has been made in the modelling for all noise sources to be present at the same time (as per Table 4.1). As there is only one forklift on site, bins can only be moved one at a time. Additionally, for the sorting and customer side of the operations, allowance has been made for glass, aluminium and plastic to be dropped into bins at the same moment. Therefore, given the unlikely nature of this occurring, the noise assessment would be considered highly conservative, "worst case" scenario.

Additionally, the activities for the truck movement and loading / moving of bins are a short duration activity, hence internal and external operations have been considered under the L_{A01} parameter as the noise levels associated with this activity are likely to be present less than 10% of the representative period.
For other noise sources such as cars moving through the facility and the forklift operating, noise emissions are likely to be present for greater periods, hence these noise levels have been assessed against the LA10 criteria.

Based on the information above, the following modelling scenarios have been calculated:

1. Internal noise levels – Noise sources inside the facility, such as tipping into bins, customer sorting, and emptying glass into large lift bin.
2. External Short term noise sources such as the compactors, and truck movement / loading
3. External continuous noise sources such as vehicle and customer movements and forklift.

The modelling of noise levels has been based on noise sources and sound power levels shown in Table 4.1.

TABLE 4.1 – SOUND POWER LEVEL - NOISE SOURCES dB(A)

Noise Emission	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	dB(A)
Glass – drop into bin	75	85	92	98	101	102	102	100	108
Aluminium – drop into bin	54	69	81	97	100	101	96	84	105
Plastic – drop into bin	50	60	67	73	76	77	77	75	83
Truck in Yard	56	67	67	72	79	73	74	58	82
Forklift	42	52	59	65	68	69	69	67	75
Vehicle (Cars) Moving through yard	-	-	-	-	-	-	-	-	80
Compactor 1 and 2	95	105	105	107	104	101	95	90	108

The facility will operate between 0700 and 1700 hours Monday to Saturday and 0900 to 1700 hours Sundays and Public Holidays, hence the most critical period of "day- time" for Sunday / Public Holiday criteria has been used for this assessment.

Weather conditions for modelling were as stipulated in the DER's *"Draft Guidelines on Environmental Noise for Prescribed Premises"* and for the night period as listed in Table 4.2.

TABLE 4.2 – WEATHER CONDITIONS

Condition	Day	Night
Temperature	20°C	15°C
Relative humidity	50%	50%
Pasquill Stability Class	D	G
Wind speed	4 m/s*	3 m/s*

* From sources, towards receivers.

5. RESULTS

Calculated noise levels are summarised in Table 5.1 with a noise contour plots contained in Appendix B.

TABLE 5.1 – CALCULATED NOISE LEVEL, dB(A)

Receiver Location / Name	Scenario 1 Internal Activities L_{A01} Noise Level	Scenario 2 External Noise Activities L_{A01} Noise Level	Scenario 3 External Noise Activities L_{A10} Noise Level
Ind East	57	61	31
Ind North	60	55	42
Ind South	50	57	37
Ind West	38	37	36
Place of Worship (10 Winton)	43	54	32
Residence Huntingdale Crescent	13	14	0

6. ASSESSMENT

Based on the calculated noise levels it was determined that noise emissions from the facility may contain annoying characteristics, dependant on the operation and the calculated noise level. Operational hours are to be 0700 and 1900 hours Monday to Saturday and 0900 to 1900 hours Sundays and Public Holidays, hence the most critical period of “day- time” criteria for Sunday / Public Holiday has been used for this assessment.

Therefore, the following Table (6.1) summarises the applicable adjustments, and the resulting assessable noise level for the worst-case operating scenario.

TABLE 6.1 – APPLICABLE ADJUSTMENTS AND ASSESSABLE LEVEL OF NOISE EMISSIONS, dB(A)

Noise Receiving Location	Scenario 1 Internal Activities L_{A01} Noise Level	Scenario 2 External Noise Activities L_{A01} Noise Level	Scenario 3 External Noise Activities L_{A10} Noise Level	Applicable Adjustments to Measured Noise Levels, Characteristics			Assessable Noise Level	
				Where Noise Emission is NOT music			L_{A10}	L_{A01}
				Tonality L_{A10}	Modulation	Impulsiveness L_{A01}		
Ind East	57	61	31	+5	-	+10	36	71
Ind North	60	55	42	+5	-	+10	47	70
Ind South	50	57	37	+5	-	+10	42	67
Ind West	38	37	36	+5	-	+10	41	48
Place of Worship (10 Winton)	43	54	32	+5	-	+10	37	64
Residence Huntingdale Crescent	13	14	0	-	-	-	0	14

Hence Table 6.2 summaries the applicable Assigned Noise Levels and assessable noise level emissions for the worst-case noise condition.

TABLE 6.2 – ASSESSMENT OF L_{A10} NOISE LEVEL EMISSIONS

Noise Measurement Location	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
Ind East	36	Day (Sunday)	65	Complies
Ind North	47			Complies
Ind South	42			Complies
Ind West	41			Complies
Place of Worship (10 Winton)	37		59	Complies
Residence Huntingdale Crescent	0		46	Complies

TABLE 6.3 – ASSESSMENT OF L_{A1} NOISE LEVEL EMISSIONS

Noise Measurement Location	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned Noise Level (dB)	Exceedance to Assigned Noise Level (dB)
Ind East	71	Day (Sunday)	80	Complies
Ind North	70			Complies
Ind South	67			Complies
Ind West	48			Complies
Place of Worship (10 Winton)	64		69	Complies
Residence Huntingdale Crescent	14		56	Complies

7. CONCLUSION

The assessable noise level at the nearest residential noise sensitive premises for the facility operations has been calculated to be L_{A10} of 0 dB(A) which can be compared to the allowable noise level of 46 dB(A) for day-time on a Sunday / Public Holiday operations. Noise levels for the noise emissions have been considered as not containing annoying characteristics such as tonality, as they would be inaudible.

The assessable noise level at the nearest noise sensitive premises for the facility external operations (Truck loading) has been calculated to be L_{A1} of 14 dB(A) which can be compared to the allowable noise level of 56 dB(A) for day-time on a Sunday / Public Holiday operations. Noise levels for the noise emissions have been considered as not containing annoying characteristics such as tonality, as they would be inaudible.

The assessable noise level at the nearest non-residential noise sensitive premises (Place of Worship) for the facility internal and external operations has been calculated to be L_{A10} of 37 dB(A) and L_{A1} of 64 dB(A) which can be compared to the allowable noise level of 59 and 69 dB(A) respectively, for day-time on a Sunday / Public Holiday operations. Noise levels for the noise emissions have been considered as containing annoying characteristics such as tonality for the L_{A10} and impulsiveness for the L_{A01}.

Based on the noise modelling, noise received at the neighbouring industrial premises (internal and external operations), has been calculated, at up to L_{A10} of 45 dB(A) and an L_{A01} of 71 dB(A). This can be compared to the assigned noise level of 65 dB(A) and 80 dB(A) respectively.

Based on the assessment, noise level emissions attributable to the operations at the proposed facility at Joondalup, have been determined to comply with the *Environmental Protection (Noise) Regulations 1997* at the nearest residential and industrial premises, for the proposed times of operation.