TALISON LITHIUM LTD

PROPOSED EXPANSION

GREENBUSHES

ACOUSTIC ASSESSMENT

JULY 2023

OUR REFERENCE: 31341-3-23047

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

DOCUMENT CONTROL PAGE

ACOUSTIC ASSESSMENT

GREENBUSHES

Job No: 23047

Document Reference: 31341-3-23047

FOR

TALISON LITHIUM LTD

DOCUMENT INFORMATION			
Author:	Paul Daly	**Checked By:**	Tim Reynolds
Date of Issue:	26 July 2023		

REVISION HISTORY

Revision	Description	Date	Author	Checked
1	Client comments	30/08/2023	PLD	
2	Client Comments	17/1/2024	PLD	

DOCUMENT DISTRIBUTION

Copy No.	Version No.	Destination	Hard Copy	Electronic Copy
1	1	Talison Lithium Ltd Attn: Simone Reilly Simone.Reilly@talisonlithium.com		✓
1	2	Talison Lithium Ltd Attn: Simone Reilly Simone.Reilly@talisonlithium.com		✓
1	3	Talison Lithium Ltd Attn: Simone Reilly Simone.Reilly@talisonlithium.com		✓

CONTENTS

APPENDICIES

1. INTRODUCTION

Herring Storer Acoustics was commissioned by Talison Lithium Ltd to undertake noise modelling relating to noise emissions from the proposed new crushing and processing plants.

Previously, the acoustic assessment for the proposed Greenbushes Expansion (reference *28799-4-21307)*, was developed for the approval process, however due to changes in the timing for each stage, an updated acoustic assessment (this document) has been undertaken.

From information provided, we understand that the expansion consists of the installation of new crushing and processing plants at the Greenbushes mine. This is a staged expansion; hence this assessment considers the noise impact for multiple scenarios between the current and future (2030) operations.

The objectives of the study were to:

- Determine, by modelling, noise propagation from the current and future operations.
- Relate the noise levels predicted with the previously predicted noise emissions and the requirements of the 2015 Regulation 17 Variation.

For information, a locality plan showing the various operation areas is shown below in Figure 1.1.

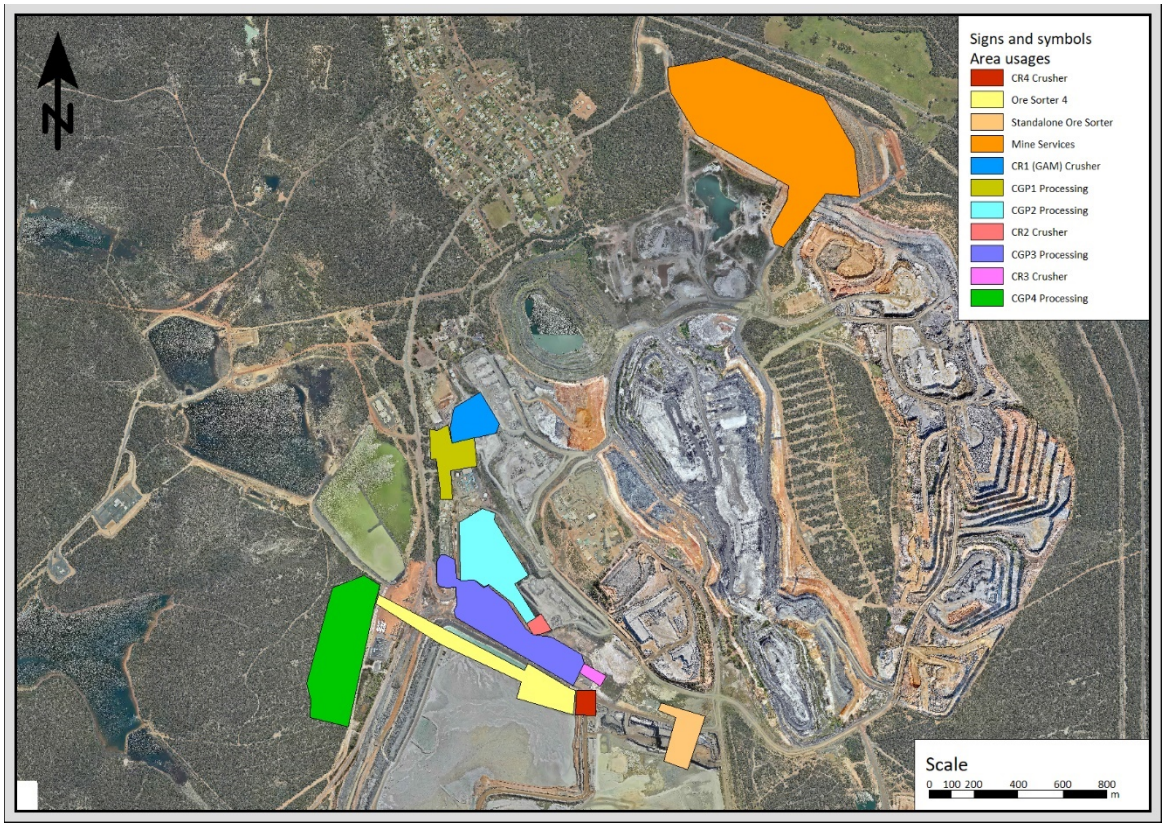


FIGURE 1.1 – GREENBUSHED CURRENT AND PROPOSED OPERATIONAL AREAS

2. SUMMARY

Assessment of current mining and processing operations shows compliance is being achieved with the regulatory criteria contained in the Regulation 17 variation of the assigned noise level, for which Talison operates under. Current operations include the following components:

- Mining Fleet
- CGP1 Processing and Crushing
- CGP2 Processing and Crushing
- Technical Grade Plant (TGP)
- Tailings Retreatment Plant (TRP)
- Mine Services

To provide a comparison of the current noise emissions to the proposed expansion noise emissions, each modelling scenario presented has been separated to allow for assessment of the fixed processing operations, and the cumulative with the mobile mining fleet.

Generally, the mining fleet, which is a mobile source is the critical for compliance based on location. The fixed plant is a constant noise source in the same location. By separating the mining fleet from processing, the comparison for each phase of the operations can be made.

The cumulative noise of the for the final expansion phase in 2027, which includes all processing operations, is 50 dB(A) during the night period at the most critical noise sensitive receiver in Greenbushes townsite. Analysis of this noise level shows that this is due to noise emissions from the mobile mining fleet.

When considering the fixed plant processing, the highest noise level in the Greenbushes townsite is 45 dB(A), with this noise also including noise emissions associated with the Mine Services Area.

Noise levels associated with the fixed plant are unlikely to be technically tonal, however given the nature and level of the mobile mining fleet, there is a likelihood that noise emissions could be tonal dependent on the location of the equipment.

3. CRITERIA

The Talison Greenbushes Operation operates under Regulation 17 variation of assigned noise level, which was approved in 2009.

The following extract from the Government Gazette No 31, dated Friday 27 February 2015 states the acoustic criteria as allowed under the Regulation 17.

4. Approval

Approval is granted to Talison Lithium Australia to allow the level of noise emitted from the mine site to exceed the standards prescribed under regulations 7 and 11(4)(a)(i) and (6)(a)(i) if —

(a) for noise emissions other than those resulting from blasting, the level of noise emitted from the mine site when received at a premises of a type referred to in column 1 in the Table in Schedule 1, at a time of day referred to in column 2 opposite those premises does not exceed the LA 10 approved level referred to in column 3 or the LA max approved level set out in column 4 for those premises at that time; and

The approved noise levels for noise emission other than blasting, as outlined in the approval are listed in the following Table 3.1:

TABLE 3.1 – APPROVED REG 17 NOISE LEVELS

Premises Receiving Noise	Time of Day	Assigned Level (dB)	
		$L_{A\ 10}$	$L_{A\ max}$
A highly sensitive area	0700 to 1900 hours all days	53	71
	1900 to 2200 hours all days	51	69
	2200 to 0700 hours all days	50	68
A noise sensitive premises other than a highly sensitive area	All hours	60	80
Commercial premises	All hours	60	80
Industrial and Utility Premises	All Hours	65	90

Notes: L_{A10} is the noise level exceeded for 10% of the time.
L_{Amax} is the maximum noise level.

A highly sensitive area, means that area (if any) of noise sensitive premises comprising-

(a) a building, or a part of a building, on the premises that is used for a noise sensitive purpose; and

(b) any other part of the premises within 15 m of that building or that part of the building;

Additional to the above, Part (f) of Clause 8 – Noise Management Plan of the approval also states :

(g) procedures to be adopted by Talison Lithium Australia to minimise tonality, modulation and impulsiveness in noise emissions;

From the approval, we understand that no penalties for characteristics of noise are applicable.

4. MEASURED NOISE LEVELS

To enable the assessment of noise emissions from the current mining operations, noise level measurements were carried out on the 3rd May 2022.

This noise monitoring was undertaken to confirm the noise levels of the recently commissioned CGP2 Processing Plant and CR2 Crusher system in conjunction with the existing infrastructure of CGP1 Processing and CR1 Crusher, as well as the active mining fleet.

Noise level measurements were conducted using two methods. The first method involved utilising two Ngara loggers recording continuous noise levels at two different locations, being at Crusher 1 and Crusher 2 within the mine operations.

The noise monitors recorded continuous noise levels from 15:00 on the 3rd to 08:00 on the 4th May 2022. The two loggers were set to record continuous noise levels for the assessment period and were time synchronised so that the noise levels at each location were comparable. Monitoring locations are shown in Figure 4.1.

FIGURE 4.1 – FIXED CONTINUOUS MONITORING LOCATIONS

The second method of measurement was short term handheld noise level measurements using a Svan 948 integrated sound level meter.

Measurements were conducted in various locations in both the near and far field to the operating mine site. Near field measurements were used for the purpose of confirming operations of various plant and mobile equipment. Locations 1 to 3 represent the near field measurements therefore are not to be used as a guidance for compliance against the criteria.

The measurement locations are contained in Figure 4.2.

FIGURE 4.2 – OBSERVED NOISE LEVEL MEASUREMENT LOCATIONS

5. MEASURED RESULTS

Based on the analysis of the measured noise levels from the Talison operations, noise levels at various locations have been determined.

The resultant noise levels from hand-held, observed measurements for the period is contained in Table 5.1.

TABLE 5.1 MEASURED NOISE LEVELS L_{A10}dB(A)

Location		Measured L_{A10} Noise Level	Comments
Location 1*	Carpark Crusher 1	66	Rock Fall Audible
Location 2*	Gate 3 - Crusher 2	53	Truck Tipping
Location 3	Maranup Ford Rd - side track	49	Haul Truck / Rock fall
Location 4	Maranup Ford Rd and Dolerite St	50	Haul Truck / Rock fall
Location 5	Dolerite and Tourmaline St	48	Haul Truck / Rock fall
Location 6	George and Stanifer St	44	Haul Truck movement - general processing
Location 7	Stanifer St near S Western Hwy	39	Haul Truck movement - general processing
Location 8	Catterick Rd	31	Mine Not audible
Location 9	Cemetery	30	Mine Not audible

*Not assessable locations – measured as reference locations for confirmation of crusher operations only.

Results of the continuous noise monitoring have been shown graphically below in Figure 5.1.

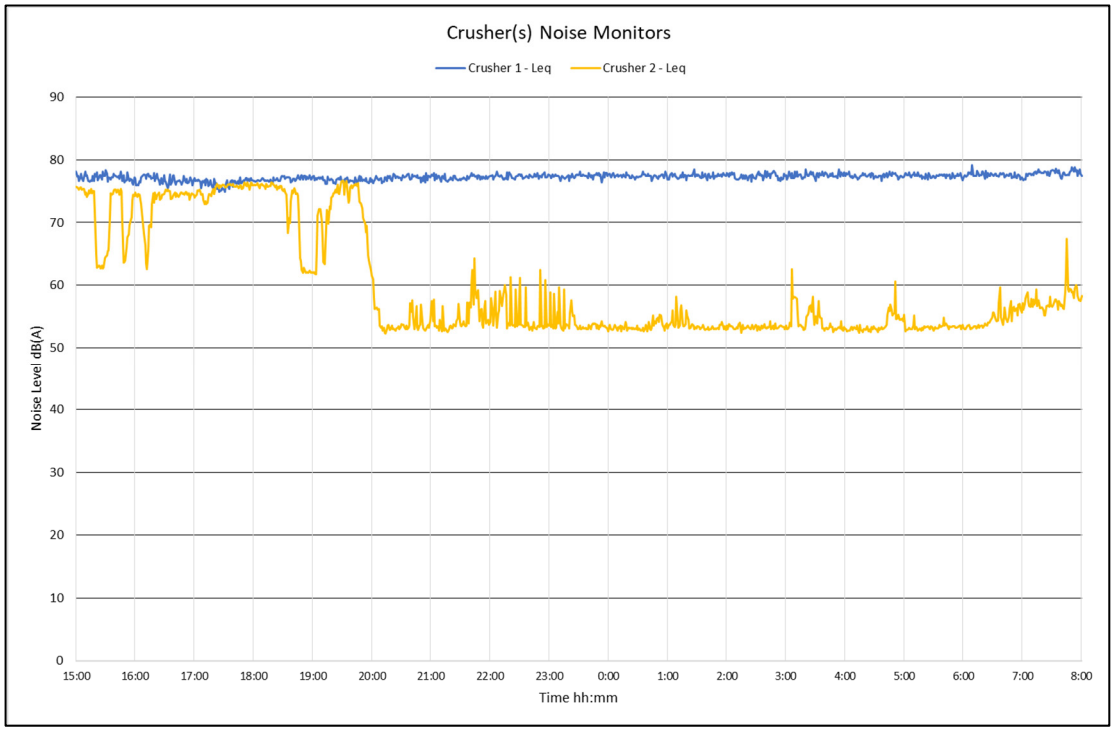


FIGURE 5.1 – CRUSHER MONITOR NOISE LEVELS

Measured noise level at the Locations 4 to 9 have been analysed to establish the presence of annoying characteristics, in particular tonality. 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 $L_{A\ Slow}$ levels. Therefore, Figure 5.2 details the arithmetic average difference 2 adjacent one third octave bands. If this value is greater than 8 dB then the noise emissions would be considered at tonal.

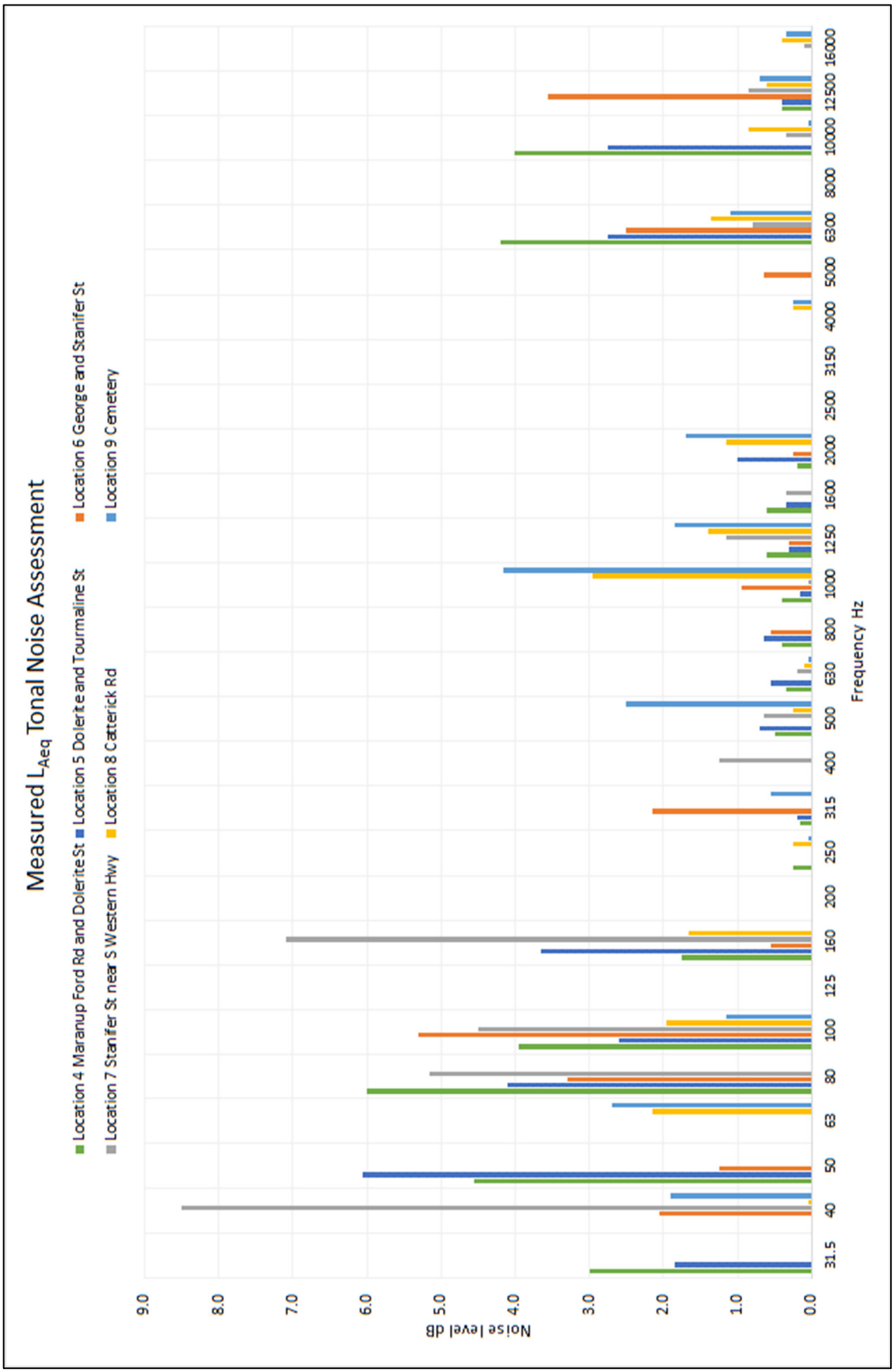


FIGURE 5.2 – TONAL ASSESSMENT

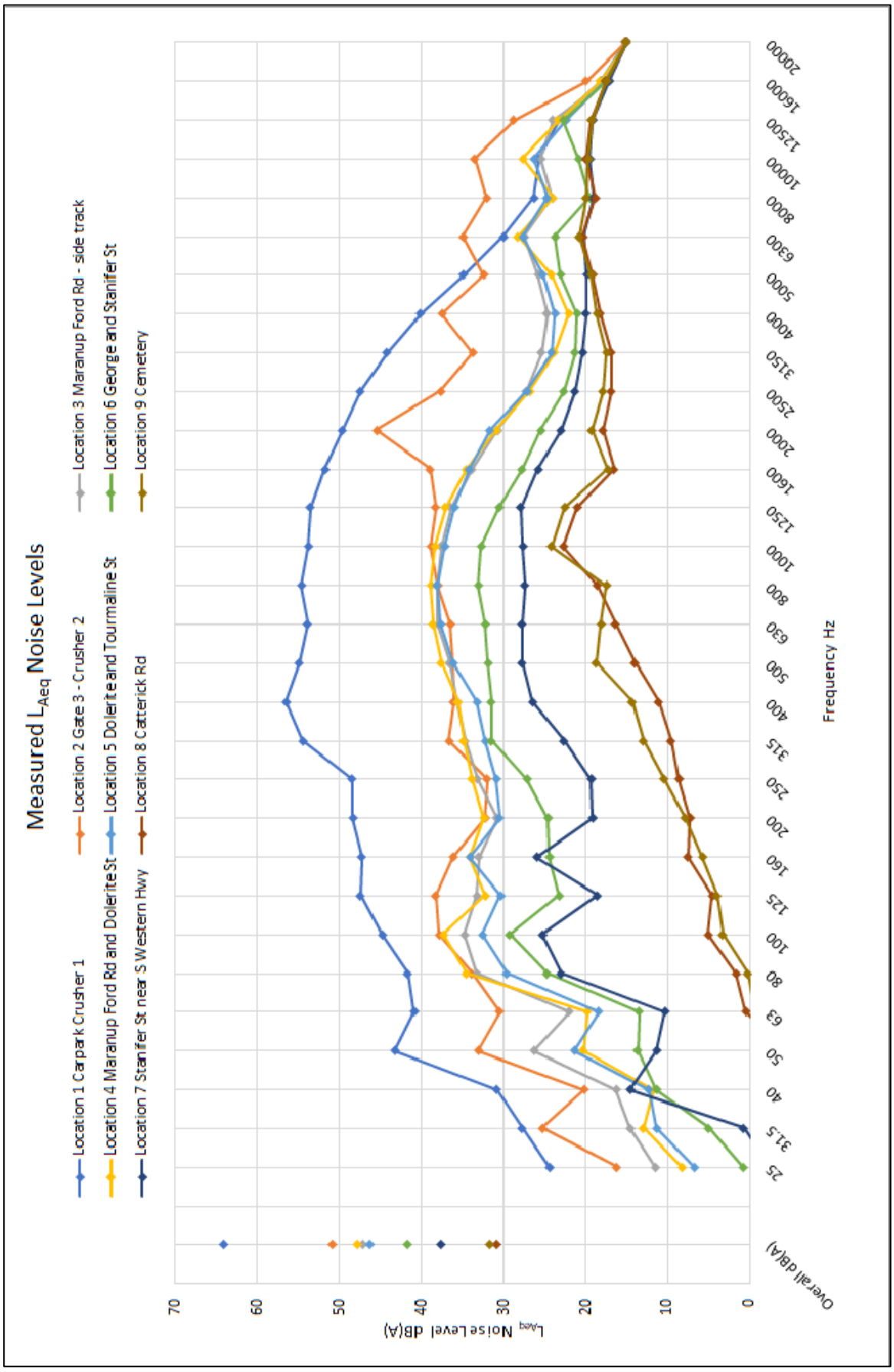


FIGURE 5.3 – COMPARATIVE THIRD OCTAVE NOISE LEVELS

As can be seen in Figure 5.2, there are considerable “tones” in low frequency noise emissions which range between 40 and 160 Hz. Further analysis of the near and far field measured noise levels has been carried out to show a comparison to allow for the identification of the noise source. Figure 5.3 shows an overall comparison of the third octave noise levels.

Analysis of the noise levels shows that the tonal component at 50 and 100Hz is the frequency of concern. Previous measurements and observations of the mining operations determined that the 50 Hz noise emission is related to the CGP1 Crusher and or mill.

It is further noted that the tonal noise emission at 40 Hz which is prevalent at Location 7 is unlikely to be related to mining noise as it is not present at other locations. It is likely to be related to truck noise associated with the South Western Highway.

Assessment of current mining and processing operations shows compliance is being achieved with the regulatory criteria contained in the Regulation 17 variation of the assigned noise level, for which Talison operates under.

Measured noise levels at the nearest noise sensitive premise (Dolerite Street) were 50 dB(A) during the night period. This compares to the criteria within the Regulation 17 variation not to exceed 50 dB(A) during this period.

Analysis of the noise levels at the highly noise sensitive premises show that there is the potential for the noise to be tonal in characteristics. Under the Regulation 17 there is a condition which states “procedures to be adopted by Talison Lithium Australia to minimise tonality, modulation and impulsiveness in noise emissions;” hence, it is recommended that the source of the 50 Hz noise emission is further investigated, with an outlook to provide noise control options.

6. CALCULATED NOISE LEVELS

To determine the noise that would be received at highly noise sensitive receptors from the proposed expansion, modelling of noise emissions was carried out using “SoundPlan”. The results were then used to determine the noise level that would be received at noise sensitive premises within the Town of Greenbushes and surrounding areas. These calculated noise levels were then assessed for compliance with the Regulation 17 Approval. Additionally, using the results of previous noise modelling, the resultant overall noise level was determined, which was also compared to the approved noise levels as stated in the Regulation 17 Approval.

Noise modelling was undertaken as per the scenarios outlined in Table 6.1.

TABLE 6.1 MODELLING SCENARIOS

Area	S1 - 2023	S2 - 2025 Q1	S3 – 2025 Q2	S4 – 2027
Fixed Plant (Processing)	CGP1 Crusher	CGP1 Crusher	CGP1 Crusher	CGP1 Crusher
	CGP2 Crusher	CGP2 Crusher	CGP2 Crusher	CGP2 Crusher
	CGP1 Processing Plant	CGP1 Processing Plant	CGP1 Processing Plant	CGP1 Processing Plant
	CGP2 Processing Plant	CGP2 Processing Plant	CGP2 Processing Plant	CGP2 Processing Plant
	Mine Services Area	CGP3 Crusher	CGP3 Crusher	CGP3 Crusher
	-	CGP3 Processing Plant	CGP3 Processing Plant	CGP3 Processing Plant
		Mine Services Area	Mine Services Area	Mine Services Area
			CGP2 Ore Sorter	CGP2 Ore Sorter
	-		Standalone Ore Sorter	Standalone Ore Sorter
				CGP4 Crusher
				CGP4 Processing Plant
				Ore Sorter 4
Mobile Equipment				
Production Excavators - Hitachi EX3600	1	2	2	2
Production Excavators - Hitachi EX2600	1	2	2	2
Haul Trucks (Cat 785)	14	32	32	36
Haul Trucks (Cat 777)	4	4	4	4
Dozers (Cat D10T2)	3	5	5	5
Wheel Dozer (Cat 854K WD)	1	2	2	2
Graders (Cat 16M)	1	3	3	3
Water Carts (Cat 785)	1	1	1	1
Water Carts (Cat 777)	1	3	3	3
Non Production Excavators - Hitachi EX2600	1	1	1	1
Non Production Excavators - Cat 336 c/w RB	1	1	1	1
Non Production Excavators - Cat 336 c/w RB	3	3	3	3
Non Production Excavators - Hitachi EX1200	1	1	1	1
Front End Loaders (ROM) - Cat988K	1	1	1	1
Front End Loaders (ROM) - Cat 992	1	1	1	1
Front End Loaders (ROM) - Cat 992	1	1	1	1
Front End Loaders - (ROM) Cat 992	-	1	1	1

To provide a better comparison of the above, each scenario was separated into fixed plant and the mobile mining fleet. Generally, the mining fleet which is a mobile source is the critical noise emission for compliance based on location. The fixed plant is a constant noise source in the same location. By separating the mining fleet from processing, the comparison for each phase of the operations can be made.

Single point calculations were carried out at the monitoring locations and the reference locations within the Town of Greenbushes and surrounding areas.

These locations are indicated on the site plan attached in Appendix A.

The calculations used the following input data:

a) Ground contours.

b) Sound power levels used in the model were based on either file data or acoustic data provided by Talison. The sound power data is summarised in Table 6.3.

c) Standard night period weather conditions.

Weather conditions for the modelling were undertaken using the "Default Conditions for Noise Modelling" as stipulated within the Environmental Protection Authority's "*Draft Guidance for Environmental Noise for Prescribed Premises"* for the night period as listed in Table 6.2.

TABLE 6.2 – WEATHER CONDITIONS

Condition	Night
Temperature	15°C
Relative humidity	50%
Pasquill Stability Class	F
Wind speed	3 m/s*

* From sources, towards receivers.

TABLE 6.3 – SOUND POWER LEVELS

Item of Plant / Equipment	Sound Power Level	dB-weighting
CAT 988G Loader	113	dB(A)
Chem Grade Plant East CGP 1	110	dB(A)
Chem Grade Plant North (Mills) CGP 1	110	dB(A)
Chem Grade Plant South CGP 1	104	dB(A)
Chem Grade Plant West CGP 1	109	dB(A)
Conveyors	100	dB
Conveyor from ROM	100	dB
Dozer	120	dB
Drill Rig	125	dB
Excavator A (ROM)	98	dB(A)
Excavator A (PC1200)	126	dB
Excavator B Pit C2 (PC2000)	126	dB(A)
Extra Transfer	111	dB
Final Product Stockpile Conveyor 3	100	dB
Final Product Transfer Station 1	111	dB
Final Product Transfer Station 2	111	dB
Front End Loader	117	dB
General Plant	118	dB
HMS Screens	117	dB
Primary crushing	127	dB
Processing 2	114	dB
Processing 3	114	dB
Processing Mill	111	dB
Reclaim conveyor to plant	100	dB
Rockbreaker A (ROM)*	119	dB(A)
ROM - FEL	117	dB
Screens	117	dB
Secondary Crushing	113	dB
Stacker	104	dB
Tantalum - East	119	dB
Tantalum - North	119	dB
Tantalum - West	118	dB
Tantalum - Transfer	111	dB
Tech Grade Plant East CGP 1	109	dB(A)
Tech Grade Plant North CPG 1	113	dB(A)
Tech Grade Plant South CGP 1	109	dB(A)
Tech Grade Plant West CPG 1	109	dB(A)
Temporary Crusher	118	dB(A)
Thicknesser 2	116	dB
Transfer Station	111	dB
Truck (777)	116	dB(A)
Truck (785)	116	dB(A)
WHIMS 1 - Processing	114	dB

*Day only operations

In combination with the above mining and processing noise sources, modelling included the Mine Services Area (MSA) which was completed in 2022. Due to the high noise emissions, haul trucks have been modelled as moving around the MSA on the designated roads.

General workshop activities such as grinding, rattle guns etc. have been assumed as being carried out within the workshop structures. Equipment such as exhaust fans, compressors and other plant have been assumed as external noise sources to the buildings.

Noise modelling was undertaken for the various scenarios outlined in Table 6.4 with Figure 6.1 showing the site layout.

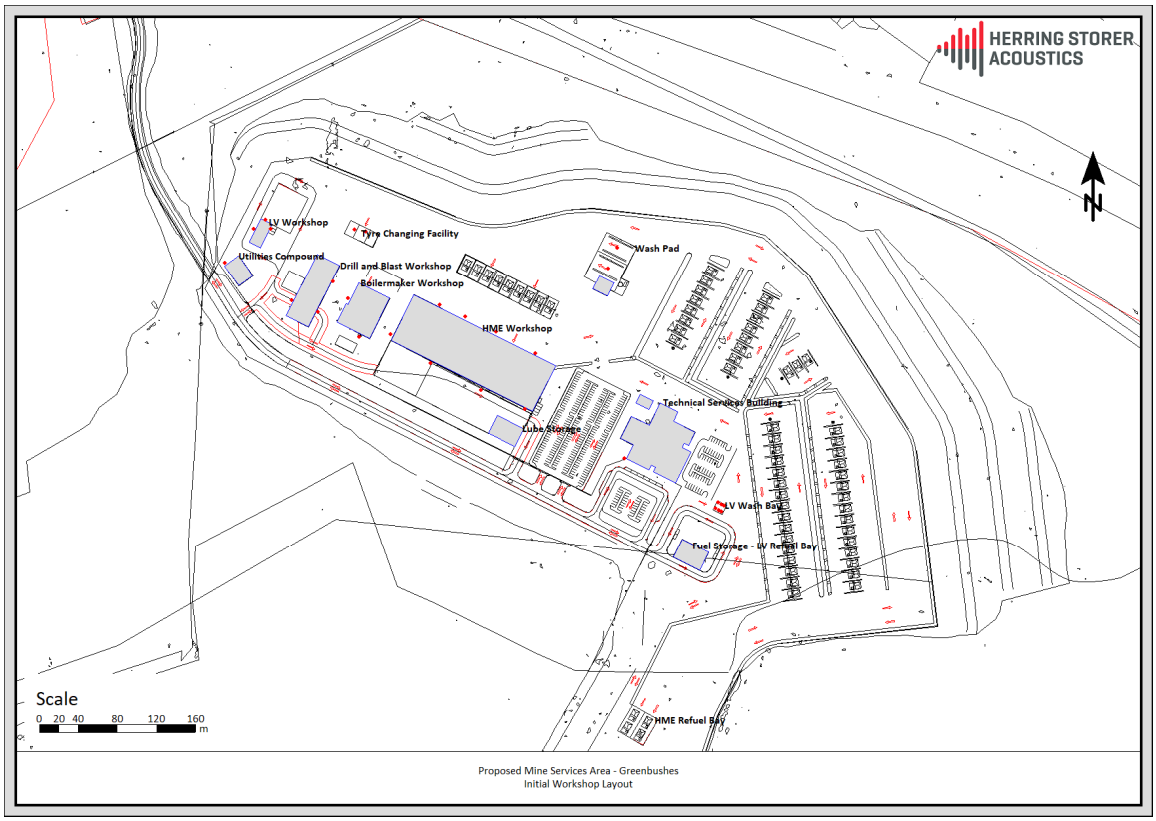


FIGURE 6.1 –MSA LAYOUT

TABLE 6.4 - MSA MODELLING SCENARIOS

Scenario	Area / Building	Internal Equipment	External Equipment
Scenario 1 – Workshop Operations	Utilities Compound	Forklift	Air conditioning, Compressor
	Drill and Blast Workshop	Grinding, Welding, Rattle Gun, Forklift	Air Conditioning, Compressor, Exhaust Fan
	Tyre Change Area	Grinding, Hammering, Forklift	Air Conditioning, Compressor, Exhaust Fan
	LV Workshop	Rattle Gun, Forklift	Air Conditioning, Compressor, Exhaust Fan
	HME Workshop	Grinding, Rattle Gun, Forklift	Air Conditioning, Compressor, Exhaust Fan
	Boiler Making Workshop	Grinding, Welding, Cut Off Saw, Forklift	Air Conditioning, Compressor, Exhaust Fan
	Truck and Drill Washdown Bay	-	High Pressure Wash Tips
	Technical Services	-	Air Conditioning
Scenario 2 – Heavy Vehicle (Haul Truck) Movement around MSA	MSA Park-up Bays and Haul Road Routes	-	CAT 785 Haul Truck

7. RESULTS

Calculated L_{A10} noise levels associated with the various scenarios considered are summarised in following tables.

For the value presented, the first number is the cumulative noise level for all operations, including Processing, MSA and the Mine Fleet. The value presented in the bracket is for only the processing and MSA and excludes the mobile mining fleet.

The noise contour plots for the proposed scenarios are attached in Appendix B. These have been presented for both operating conditions, as outlined above. For ease of reporting these have been identified as scenario A (cumulative) and B (excluding mine fleet).

TABLE 7.1 – CALCULATED L_{A10} NOISE LEVELS

Receiver	S1 2023	S2 2025 Q1	S3 2025 Q2	S4 2027
A	48 (48)	48 (48)	48 (48)	48 (48)
B	42 (40)	46 (46)	46 (46)	46 (46)
C	44 (31)	46 (42)	46 (42)	46 (42)
D	29 (12)	30 (20)	30 (21)	31 (27)
E	31 (11)	31 (24)	31 (24)	32 (28)
F	36 (14)	36 (28)	36 (28)	36 (14)
G	29 (18)	32 (28)	32 (28)	33 (31)
H	31 (18)	33 (29)	33 (29)	34 (31)
I	29 (21)	33 (32)	33 (32)	35 (34)
J	16 (9)	21 (20)	21 (20)	22 (21)
K	24 (20)	32 (32)	32 (32)	34 (34)
L	8 (5)	14 (13)	14 (13)	15 (14)
M	29 (26)	29 (27)	29 (27)	29 (28)
N	15 (11)	18 (17)	18 (17)	19 (18)
O	44 (19)	44 (25)	44 (25)	44 (25)
P	41 (19)	41 (21)	41 (21)	41 (22)
Town A	46 (40)	47 (44)	47 (44)	48 (45)
Town B	40 (30)	46 (45)	46 (45)	46 (45)
Town C	50 (32)	50 (39)	50 (39)	50 (39)
Town D	47 (31)	48 (36)	48 (36)	48 (36)
Town E	46 (28)	46 (35)	46 (35)	46 (35)
Town F	46 (31)	47 (40)	47 (40)	47 (40)

8. DISCUSSION

To provide a comparison of the current noise emissions to the proposed expansion noise emissions, each scenario presented has been separated to allow for assessment of the fixed processing operations, and the cumulative with the mobile mining fleet.

Generally, the mining fleet which is a mobile source is the critical for compliance based on location. The fixed plant is a constant noise source in the same location. By separating the mining fleet from processing, the comparison for each phase of the operations can be made.

The cumulative noise of the for the final expansion phase in 2027, which includes all processing operations, is 50 dB(A) during the night period at the most critical noise sensitive receiver in Greenbushes townsite. Analysis of this noise level shows that this is due to noise emissions from the mobile mining fleet.

When considering the fixed plant processing, the highest noise level in the Greenbushes townsite is 45 dB(A), with this noise also including noise emissions associated with the Mine Services Area.

Noise levels associated with the fixed plant are unlikely to be technically tonal, however given the nature and level of the mobile mining fleet, there is a likelihood that noise emissions could be tonal dependent on the location of the equipment.

9. CONCLUSION

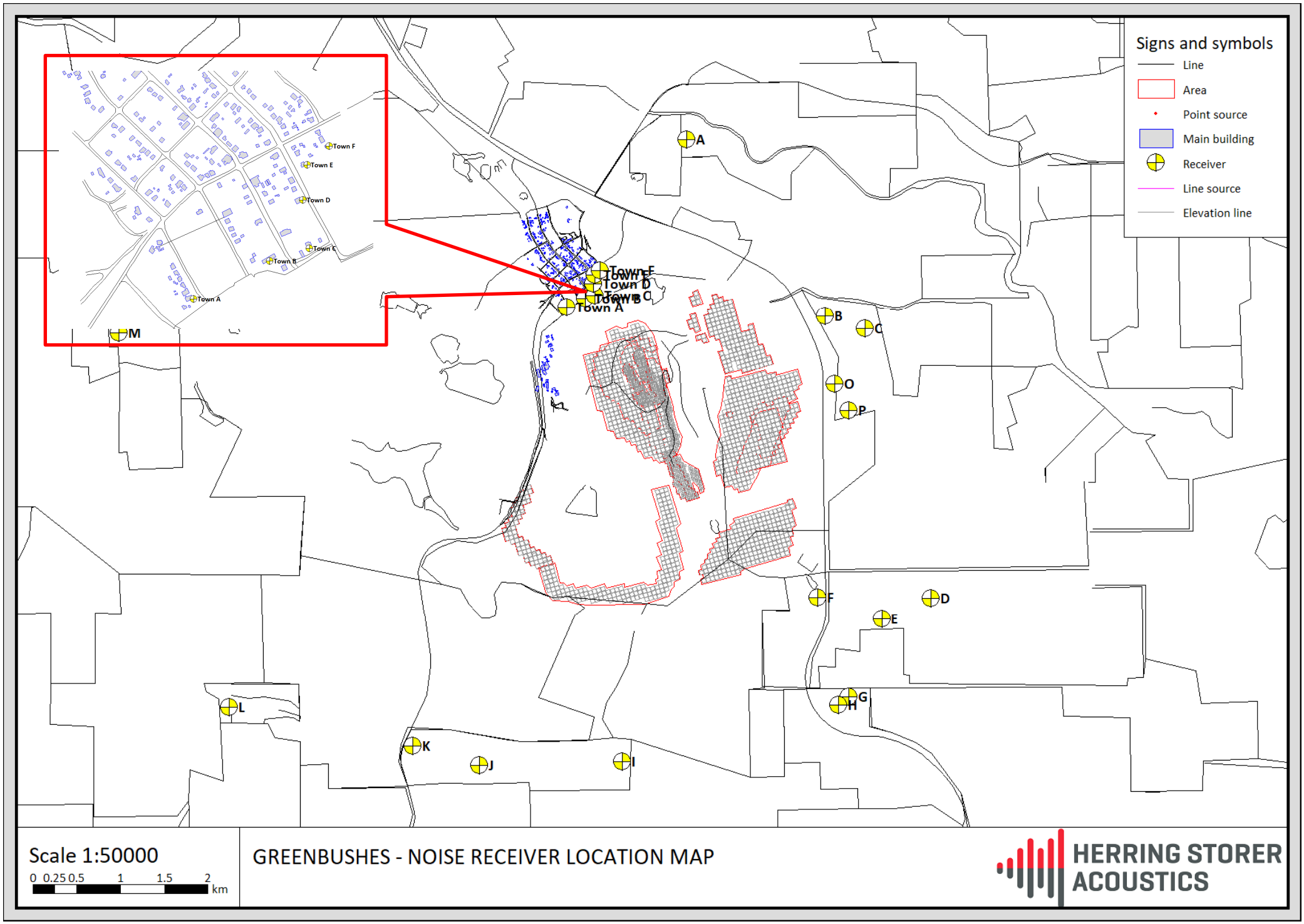
Assessment of current mining and processing operations shows compliance is being achieved with the regulatory criteria contained in the Regulation 17 variation of the assigned noise level, for which Talison operates under.

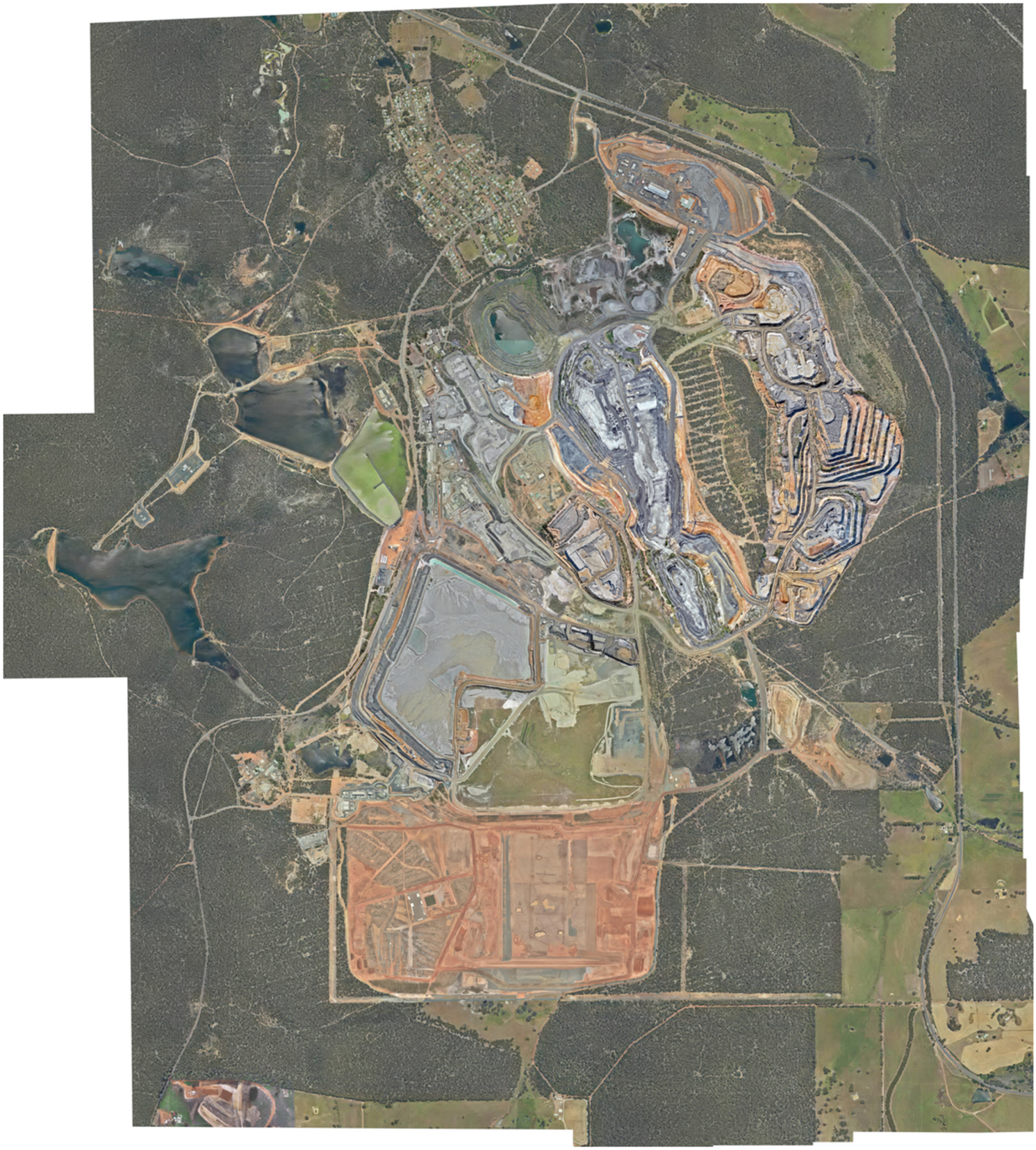
Predictive noise modelling shows that noise levels for the expansion of the mine, including the additional crushers, the processing plants and additional mining fleet, meets the criteria of 50dB(A) for the night period, however the critical component for compliance is the location of mobile equipment associated with the mining fleet.

To manage the noise levels to ensure compliance with the 50 dB(A) criteria for night operations, management of operations is required through the development of a revised noise management plan, which has been undertaken in conjunction with this assessment.

APPENDIX A

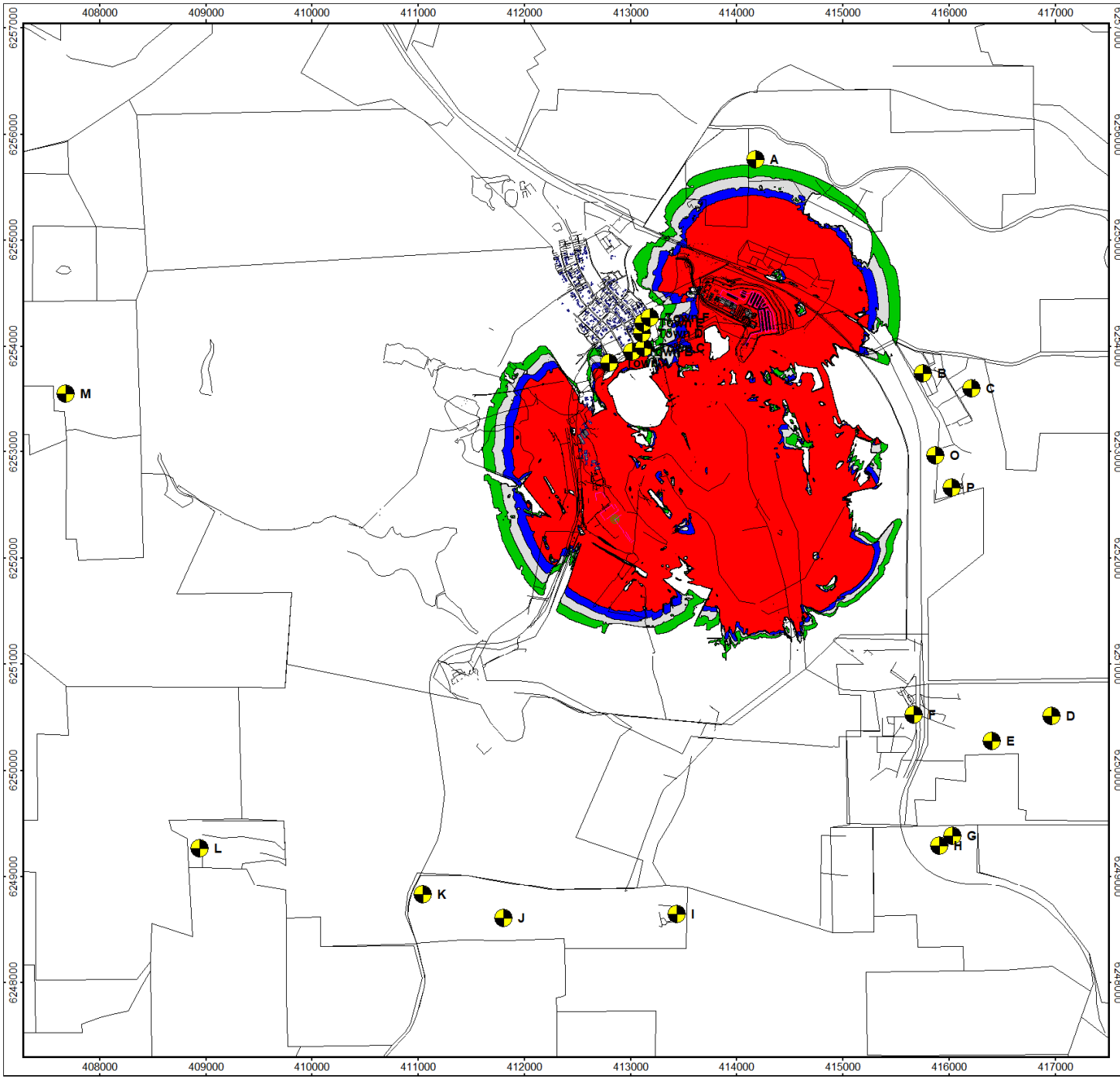
LOCATION MAPS / REFERENCE LOCATIONS


Signs and symbols
Line
Area
Point source
Main building
Receiver
Line source
Elevation line
Town F
Town E
Town D
Town C
Town B
Town A
A
B
C
D
E
F
G
H
I
J
K
L
M
O
P
Scale 1:50000
0 0.25 0.5 1 1.5 2
km
GREENBUSHES - NOISE RECEIVER LOCATION MAP
HERRING STORER ACOUSTICS



APPENDIX B

NOISE CONTOURS PLOTS



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 23047

Map

S1A

TALISON LITHIUM

CURRENT OPERATIONS 2023
CGP1 Processing and CR1 (GAM) Crusher, CGP2 Processing and CR2 Crusher, MSA and Mine Fleet

GNM(89,1) ++ GNM(98,1) + 1.5;
Result number 0
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 26/07/2023
Processed with SoundPLAN 9.0, Update 19/04/2023

Levels LA10
in dB(A)

- < 50 Complies Night Period
- < 51 Complies Evening Perio
- < 52
- < 53 Complies Day Period
- >= 53 Exceeds Day Period

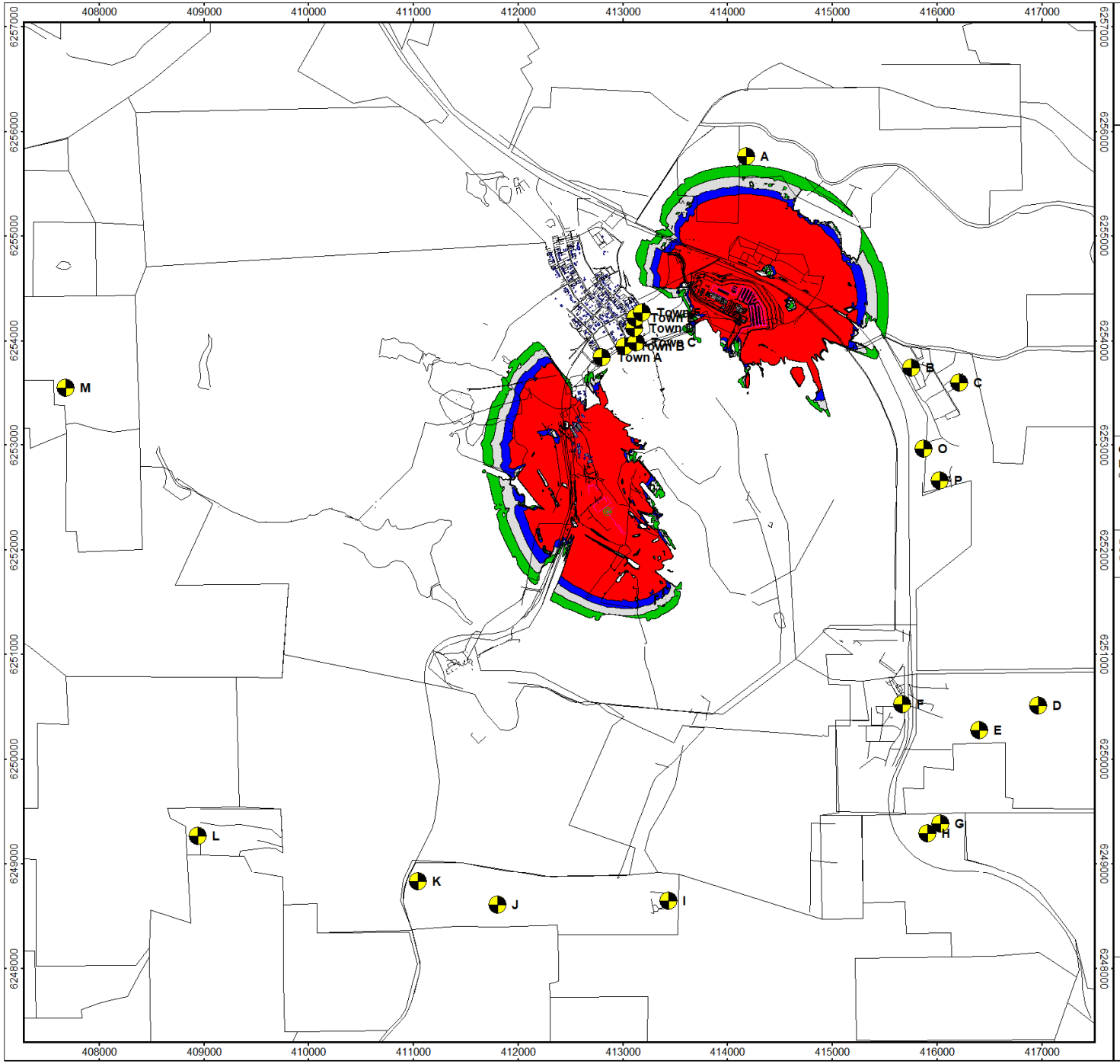
Signs and symbols
- Main building
- Elevation point
- Terrain edge
- Point receiver
- Line source
- Berm
- Base line
- Flächenquelle
- additional 1

N

Length scale
0 300 600 1200 1800 2400 m

HERRING STORER ACOUSTICS

G:\2023\23047 Talison Lithium - Greenbushes\Geenbushes Model\S1A 2023 (Current) Mining and Fixed Plant July 23.sgs



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 23047

Map

S1B

TALISON LITHIUM

CURRENT OPERATIONS 2023
CGP1 Processing and CR1 (GAM) Crusher, CGP2 Processing and CR2 Crusher, MSA (No Mine Fleet)

GNM(89,1) + 1.5;
Result number 0
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 26/07/2023
Processed with SoundPLAN 9.0, Update 19/04/2023

Levels LA10
in dB(A)

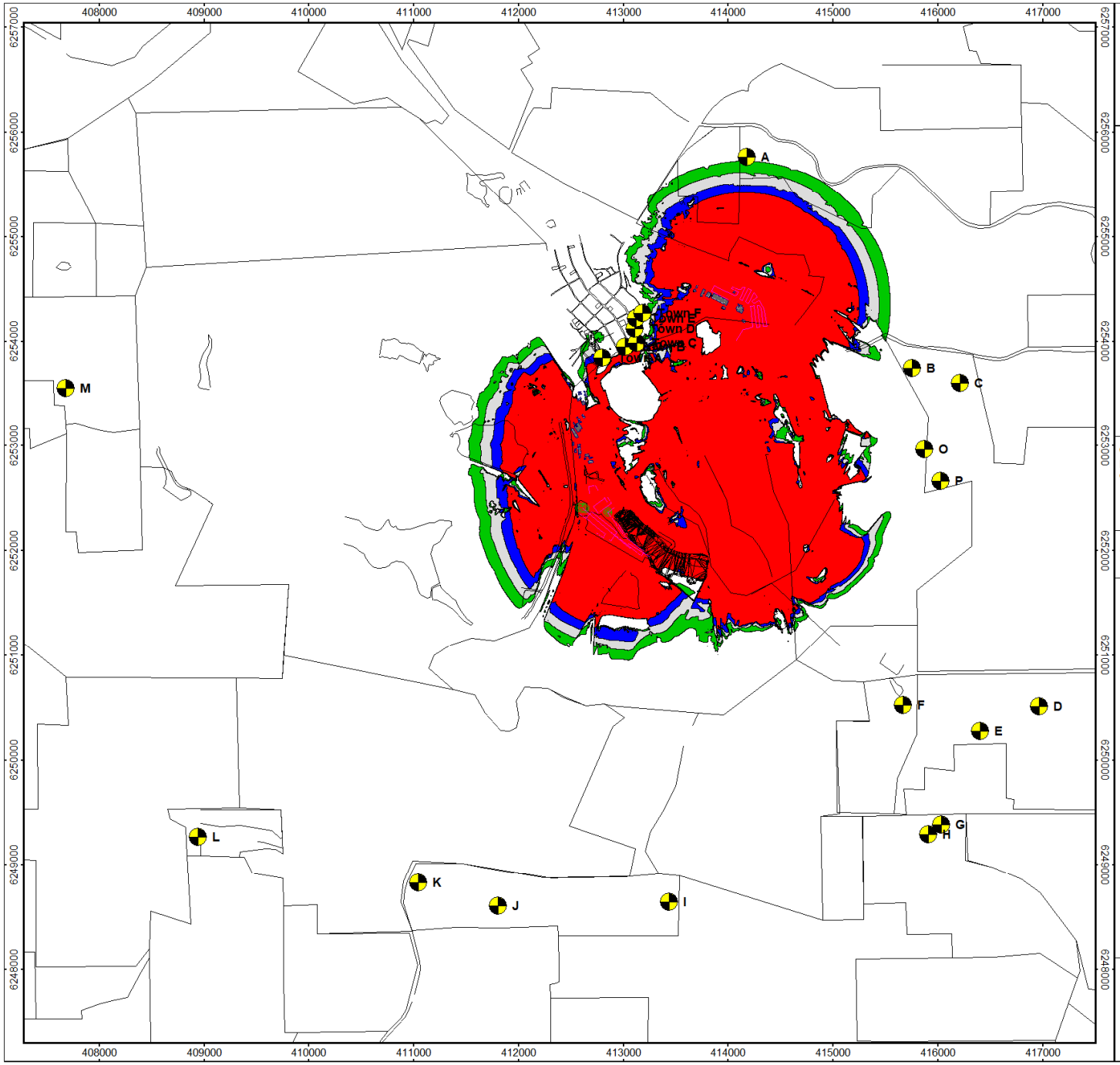
< 50	Complies Night Period
< 51	Complies Evening Perio
< 52	
< 53	Complies Day Period
>= 53	Exceeds Day Period

Signs and symbols
- Main building
- Elevation point
- Terrain edge
- Point receiver
- Line source
- Berm
- Base line
- Flächenquelle
- additional 1

Length scale
0 300 600 1200 1800 2400 m

HERRING STORER ACOUSTICS

G:\2023\23047 Talison Lithium - Greenbushes\Geenbushes Model\S1B 2023 (Current) Fixed Plant and MSA Only July 23.sgs



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 23047

Map

S2A

TALISON LITHIUM

PROPOSED OPERATIONS 2025 Q1
CGP1 Processing and CR1 (GAM) Crusher,
CGP2 Processing and CR2 Crusher,
CGP3 Processing and CR3 Crusher,
MSA and Mine Fleet

GNM(90,1) ++ GNM(98,1) + 1.5;
Result number 0
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 26/07/2023
Processed with SoundPLAN 9.0, Update 19/04/2023

Levels LA10
in dB(A)

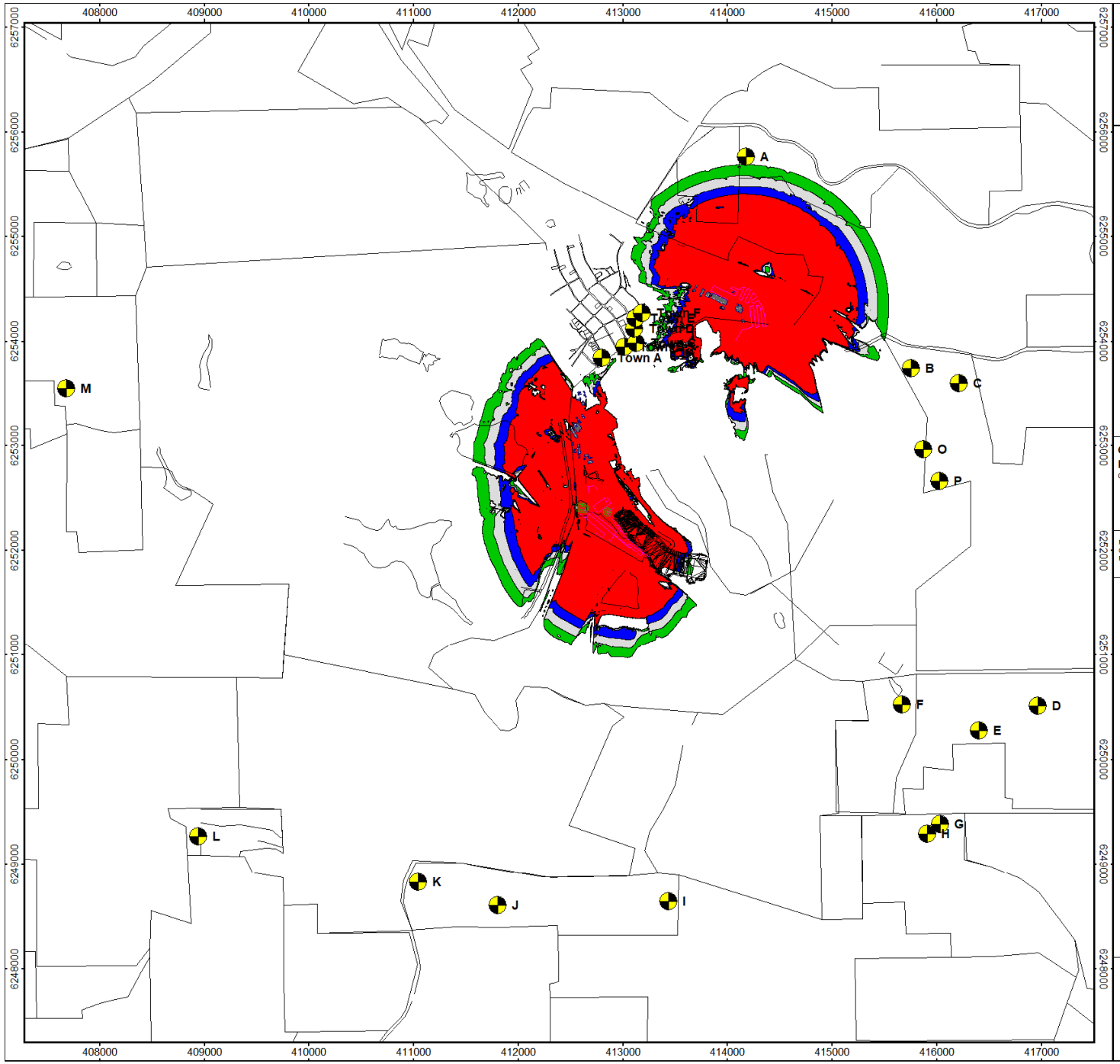
- < 50 Complies Night Period
- < 51 Complies Evening Perio
- < 52
- < 53 Complies Day Period
- >= 53 Exceeds Day Period

Signs and symbols
- Main building
- Elevation point
- Terrain edge
- Point receiver
- Line source
- Berm
- Base line
- Flächenquelle
- additional 1

Length scale
0 300 600 1200 1800 2400 m

HERRING STORER ACOUSTICS

G:\2023\23047 Talison Lithium - Greenbushes\Geenbushes Model\S2A 2025 Q1 (Current) Mining and Fixed Plant July 23.sgs



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 23047

Map

S2B

TALISON LITHIUM

PROPOSED OPERATIONS 2025 Q1
CGP1 Processing and CR1 (GAM) Crusher,
CGP2 Processing and CR2 Crusher,
CGP3 Processing and CR3 Crusher,
MSA (No Mine Fleet)

GNM(90,1) + 1.5;
Result number 0
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 26/07/2023
Processed with SoundPLAN 9.0, Update 19/04/2023

Levels LA10
in dB(A)

- < 50 Complies Night Period
- < 51 Complies Evening Perio
- < 52
- < 53 Complies Day Period
- >= 53 Exceeds Day Period

Signs and symbols

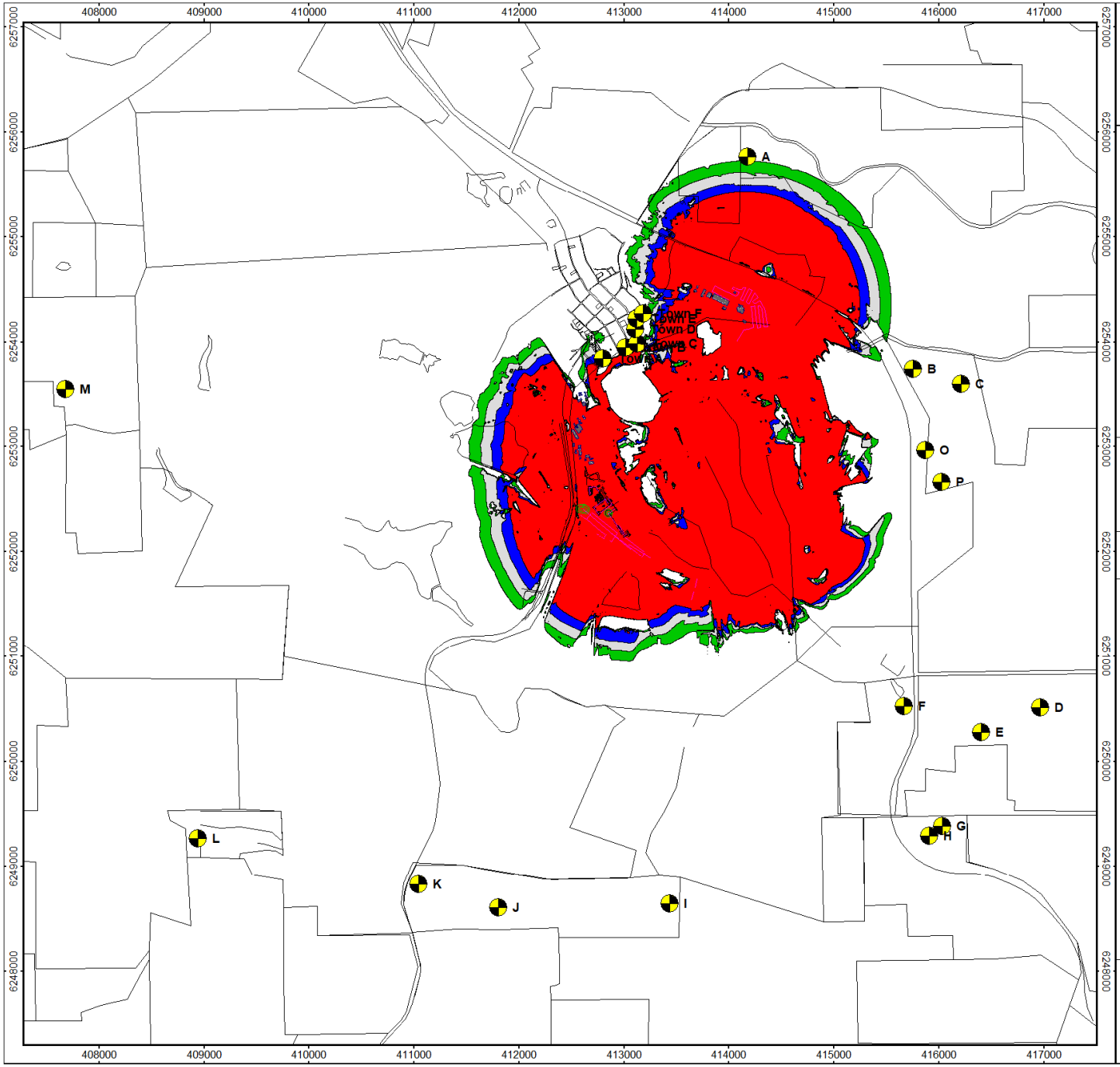
- Main building
- Elevation point
- Terrain edge
- Point receiver
- Line source
- Berm
- Base line
- Flächenquelle
- additional 1

N

Length scale
0 300 600 1200 1800 2400 m

HERRING STORER ACOUSTICS

G:\2023\23047 Talison Lithium - Greenbushes\Geenbushes Model\S2B 2025 Q1 (Current) Mining and Fixed Plant July 23.sgs



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 23047

Map

S3A

TALISON LITHIUM

PROPOSED OPERATIONS 2025 Q2
CGP1 Processing and CR1 (GAM) Crusher,
CGP2 Processing and CR2 Crusher, CGP2 Ore Sorter
CGP3 Processing and CR3 Crusher,
Standalone Ore Sorter
MSA and Mine Fleet

GNM(91,1) ++ GNM(98,1) + 1.5;
Result number 0
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 26/07/2023
Processed with SoundPLAN 9.0, Update 19/04/2023

Levels LA10
in dB(A)

<	50 Complies Night Period
<	51 Complies Evening Perio
<	52
<	53 Complies Day Period
>=	53 Exceeds Day Period

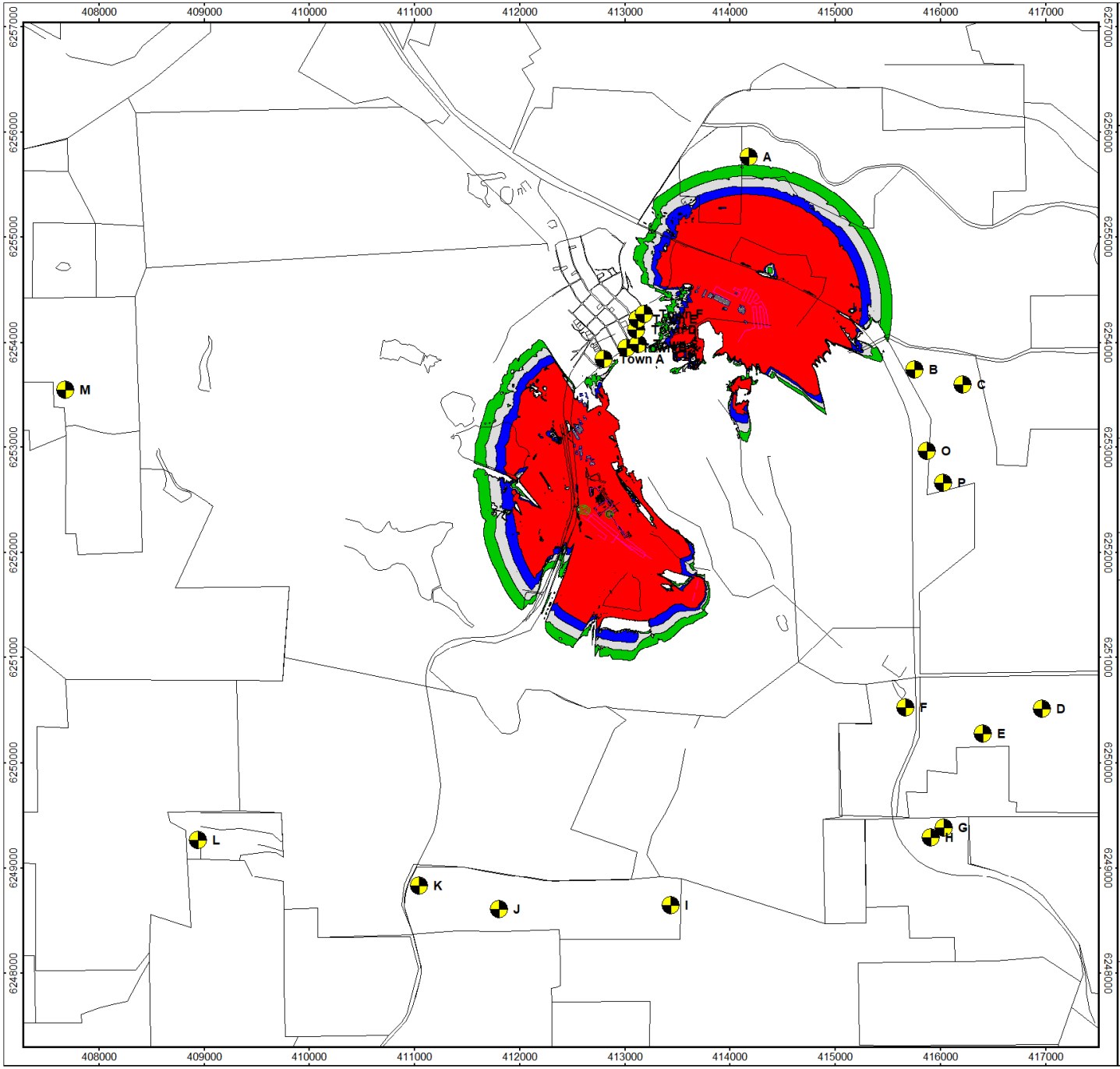
Signs and symbols
- Main building
- Elevation point
- Terrain edge
- Point receiver
- Line source
- Berm
- Base line
- Flächenquelle
- additional 1

N

Length scale
0 300 600 1200 1800 2400 m

HERRING STORER ACOUSTICS

G:\2023\23047 Talison Lithium - Greenbushes\Geenbushes Model\S3A 2025 Q2 (Current) Mining and Fixed Plant July 23.sgs



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 23047

Map

S3B

TALISON LITHIUM

PROPOSED OPERATIONS 2025 Q2
CGP1 Processing and CR1 (GAM) Crusher,
CGP2 Processing and CR2 Crusher, CGP2 Ore Sorter
CGP3 Processing and CR3 Crusher,
Standalone Ore Sorter
MSA (No Mine Fleet)

GNM(91,1) + 1.5;
Result number 0
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 26/07/2023
Processed with SoundPLAN 9.0, Update 19/04/2023

Levels LA10
in dB(A)

< 50	Complies Night Period
< 51	Complies Evening Perio
< 52	
< 53	Complies Day Period
>= 53	Exceeds Day Period

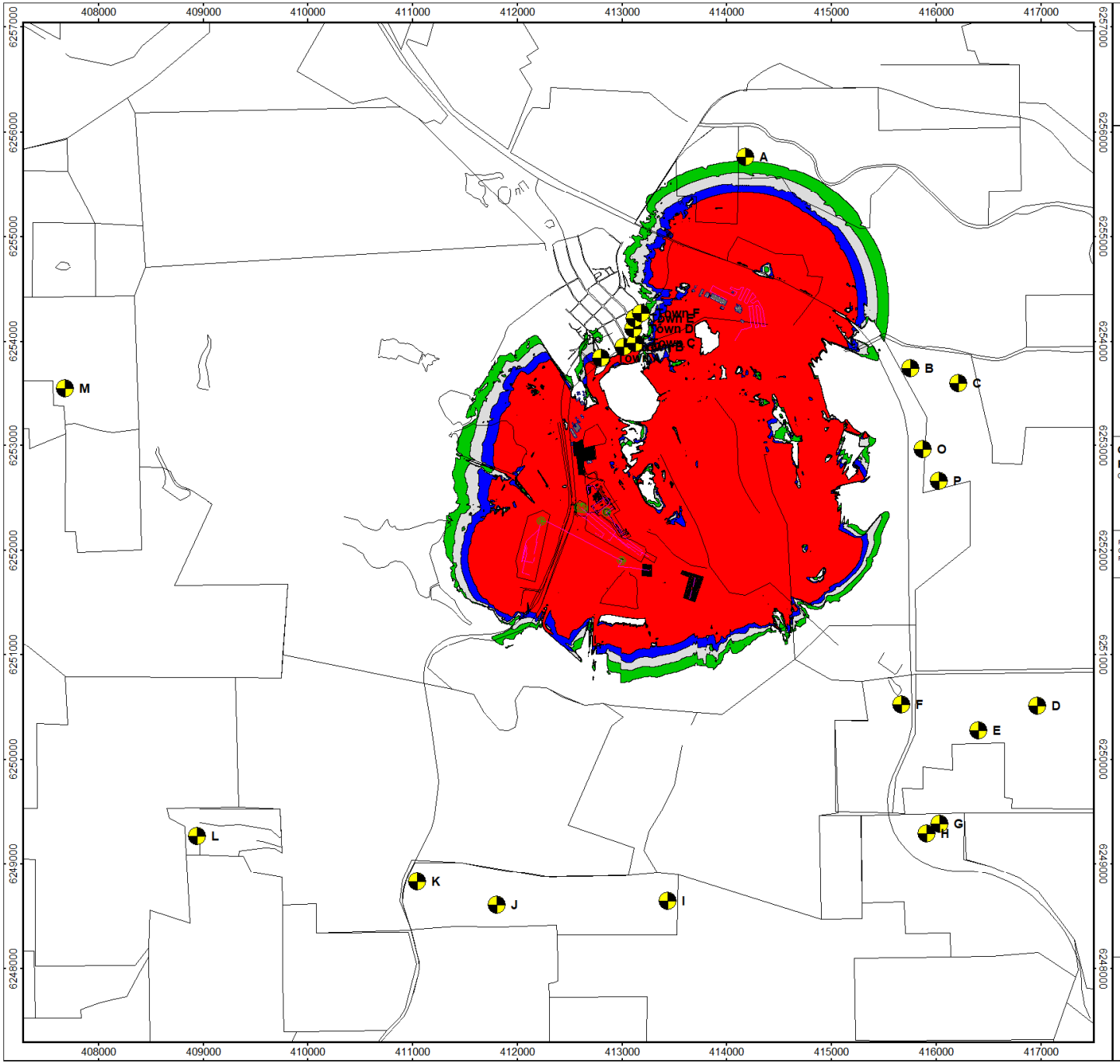
Signs and symbols
- Main building
- Elevation point
- Terrain edge
- Point receiver
- Line source
- Berm
- Base line
- Flächenquelle
- additional 1

N

Length scale
0 300 600 1200 1800 2400 m

HERRING STORER ACOUSTICS

G:\2023\23047 Talison Lithium - Greenbushes\Geenbushes Model\S3B 2025 Q2 Fixed Plant and MSA OnlyJuly 23.sgs



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 23047

Map

S4A

TALISON LITHIUM

PROPOSED OPERATIONS 2027
CGP1 Processing and CR1 (GAM) Crusher,
CGP2 Processing and CR2 Crusher, CGP2 Ore Sorter
CGP3 Processing and CR3 Crusher,
CGP4 Processing and CR4 Crusher, CGP4 Ore Sorter
Standalone Ore Sorter
MSA and Mine Fleet

GNM(92,1) ++ GNM(98,1) + 1.5;
Result number 0
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 26/07/2023
Processed with SoundPLAN 9.0, Update 19/04/2023

Levels LA10
in dB(A)

- < 50 Complies Night Period
- < 51 Complies Evening Perio
- < 52
- < 53 Complies Day Period
- >= 53 Exceeds Day Period

Signs and symbols

- Main building
- Elevation point
- Terrain edge
- Point receiver
- Line source
- Berm
- Base line
- Flächenquelle
- additional 1
- Industrial area
- Gewerbegebiete
- Inner city
- Mischgebiete

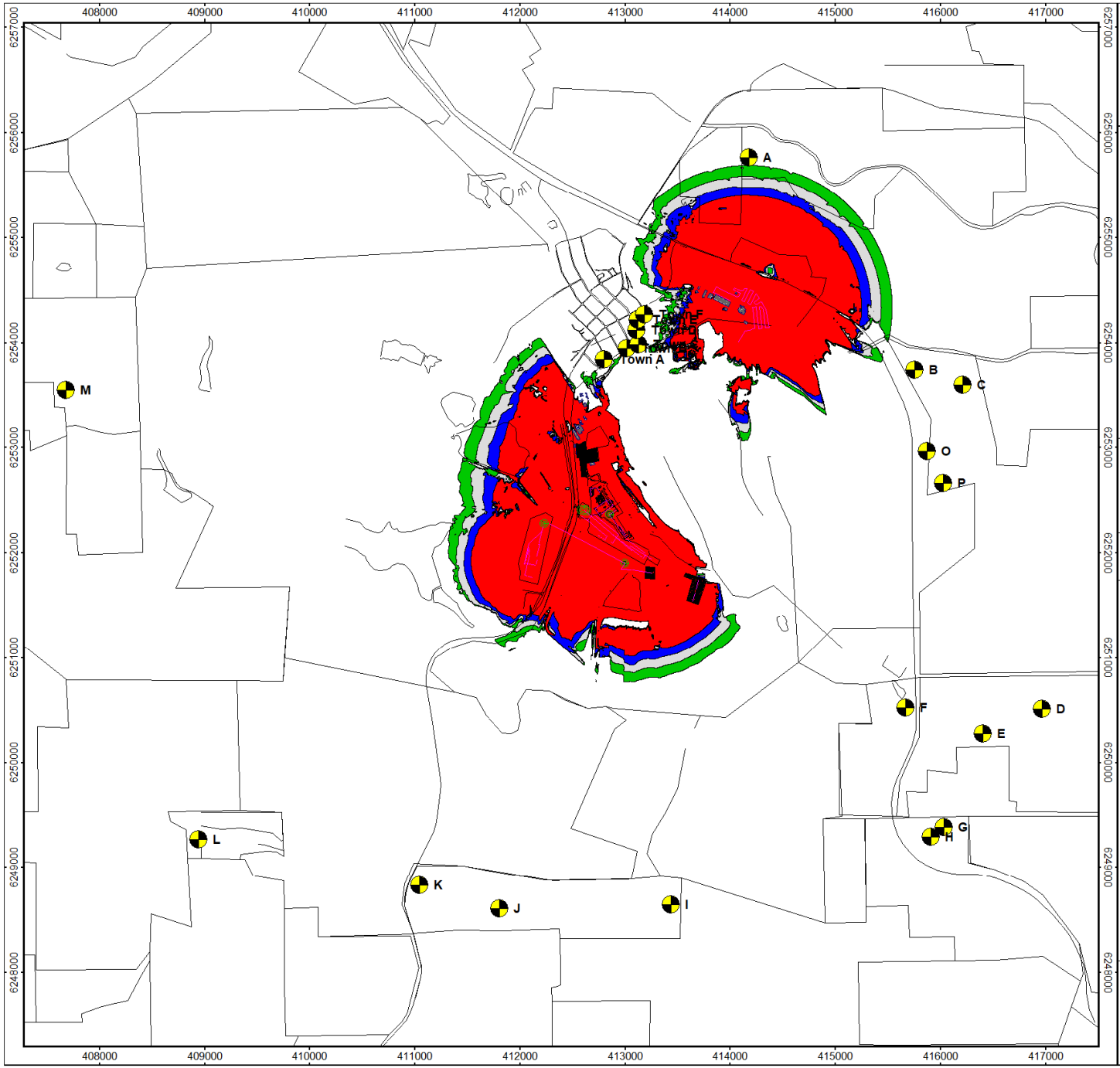
N

Length scale

0 300 600 1200 1800 2400 m

HERRING STORER ACOUSTICS

G:\2023\23047 Talison Lithium - Greenbushes\Geenbushes Model\S4A 2027 (Current) Mining and Fixed Plant July 23.sgs



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 23047

Map

S4B

TALISON LITHIUM

PROPOSED OPERATIONS 2027
CGP1 Processing and CR1 (GAM) Crusher,
CGP2 Processing and CR2 Crusher, CGP2 Ore Sorter
CGP3 Processing and CR3 Crusher,
CGP4 Processing and CR4 Crusher, CGP4 Ore Sorter
Standalone Ore Sorter
MSA (No Mine Fleet)

GNM(92,1) + 1.5;
Result number 0
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 26/07/2023
Processed with SoundPLAN 9.0, Update 19/04/2023

Levels LA10
in dB(A)

- < 50 Complies Night Period
- < 51 Complies Evening Perio
- < 52
- < 53 Complies Day Period
- >= 53 Exceeds Day Period

Signs and symbols

- Main building
- Elevation point
- Terrain edge
- Point receiver
- Line source
- Berm
- Base line
- Flächenquelle
- additional 1
- Industrial area
- Gewerbegebiete
- Inner city
- Mischgebiete

N

Length scale

0 300 600 1200 1800 2400 m

HERRING STORER ACOUSTICS

G:\2023\23047 Talison Lithium - Greenbushes\Geenbushes Model\S4B 2027 Fixed Plant and MSA July 23.sgs