New Beith Subdivision Precinct B

Road Traffic and Rail Noise Impact Assessment

301050975

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Prepared for:

Frasers Property Australia

Prepared by:

Stantec Australia

Revision	Description	Author	Date	Approved by
001	For Issue	Paul Lonard	28/03/2025	Karen McMorrow
003	Update for EDQ conditions	Paul Lonard	15/01/2026	Karen McMorrow

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1.0 INTRODUCTION

This noise impact assessment was conducted on behalf of Frasers Property Australia in relation to a proposed Reconfiguration of a Lot (ROL) application as part of the New Beith Subdivision (Frasers) Precinct A. The purpose of the report is to assess noise impacting the project from Mountain Ridge Road Extension and the future North-South Trunk Collector and railway corridor, determining any requirements for acoustic treatments. The assessment was conducted in accordance with the EDQ DA conditions referenced in Section 3.1 and has been further updated to address the PDA Decision Notice DEV2025/1681 dated 15 December 2025. The condition relevant to acoustics is as follows:

Table 1 Relevant EDQ Development Condition

PDA Development Conditions		
No.	**Condition**	**Timing**
32.	**Road Traffic and Rail Noise Impact Assessment** Submit to EDQ IS an amended Road Traffic and Rail Noise Impact Assessment, certified by a RPEQ, addressing the following: i) Update the noise barrier design with three opening locations along the Trunk Connector. ii) Provide a site plan indicating the road segment as outlined in Table 6. iii) Provide the referenced SLR report (620.v013870.00001) in the Appendix. iv) Update Table 7: Predicted Road Traffic Noise Level.	Prior to commencing site works

To address the above condition the following has been completed:

(i) The acoustic barrier design has been updated to include three openings, as shown in Section 5.1, (Figure 5).

(ii) Figure 4 has been added to Section 4.1.2 to show the assessed road segments.

(iii) The referenced SLR report has been incorporated into Appendix B.

(iv) Table 7 (now Table 8) has been updated to reflect the revised barrier design.

Furthermore, noise prediction tables and figures have been amended to reflect updated lot numbering.

1.1 SITE DESCRIPTION

The subject site location is shown in Figure 1.

Figure 1 Site Location

1.2 PROPOSAL DETAILS

The New Beith Subdivision is an emerging community that will be develop in phases, divided into multiple precincts. The development will initially consist of two precincts: Precinct A, located in the northern part of the subdivision, and Precinct B, situated in the southern part. Access to the subdivision will be facilitated through an extension of the existing Mountain Ridge Road to the northwest. Both Precinct A and Precinct B will be developed in accordance with the Flagstone Development Scheme (FDS), ensuring that all phases of the development comply with the established guidelines and regulatory requirements.

A Plan of Development is presented in Appendix A.

2.0 EXISTING NOISE ENVIRONMENT

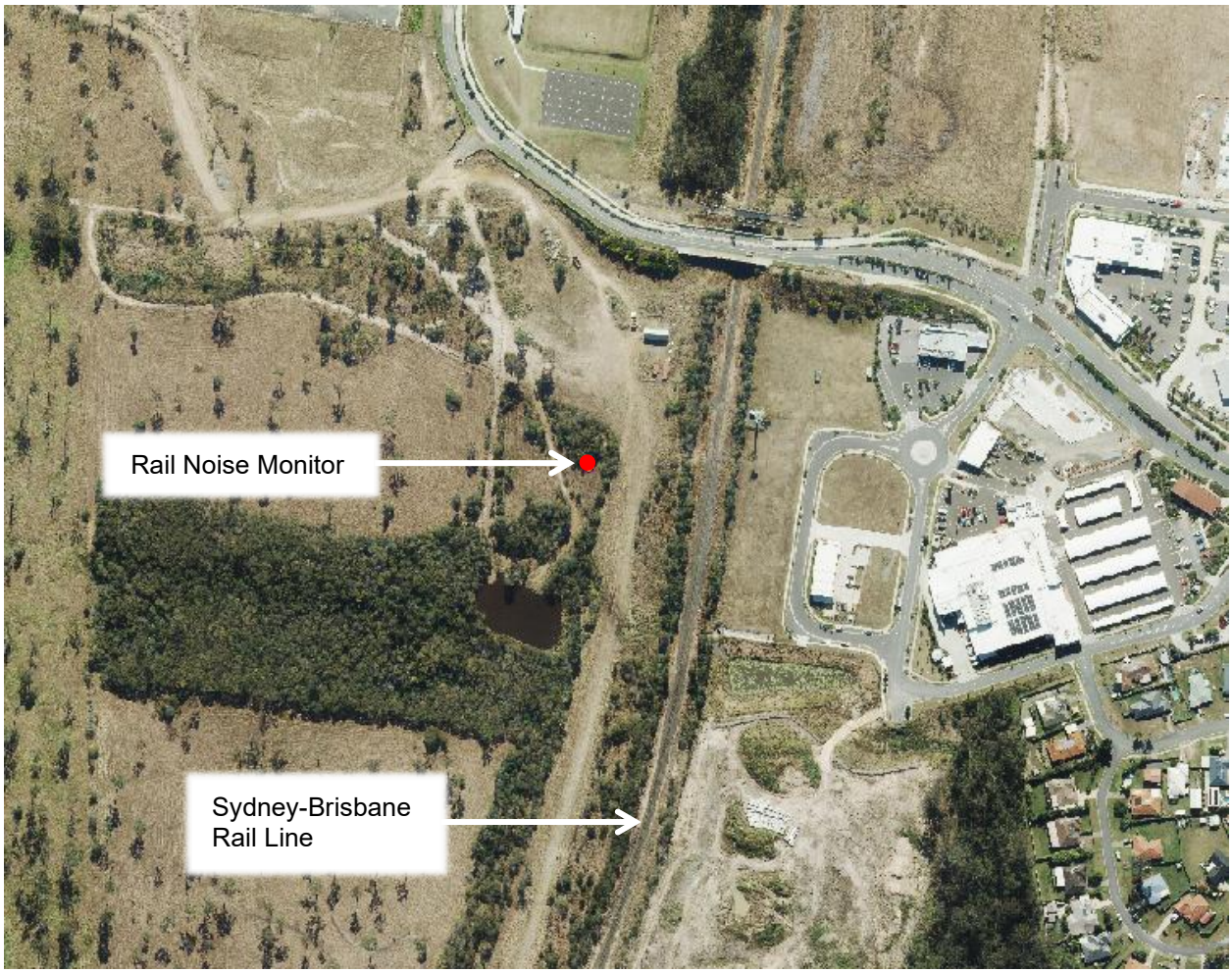
2.1 ROAD TRAFFIC NOISE

As the Flagstonian Drive Extension and the future North-South Arterial Road are yet to be constructed, noise monitoring was not undertaken for the project. The site is located in a rural area with ongoing development typical of emerging communities. Once the surrounding roads are constructed, the site would be predominately affected by road traffic noise.

2.2 RAIL NOISE

The noise monitoring for this assessment was undertaken by SLR Consulting Australia (SLR ref: 620.013870.00001-R2-v2.0-20240611) to measure noise from the Brisbane-Sydney Rail Line. Rail noise monitoring was conducted between 30 March and 6 April 2022 at the location shown in Figure 2.

Figure 2 Noise Monitoring Location



The noise logger was placed in the free field with a microphone height of 1.5m above the existing ground level and was configured to measure rail noise levels as follows:

- 'A' weighting
- 'Fast' response
- Measurement descriptors L_{Amax}, L_{Aeq}, L_{A1}, L_{A10}, L_{A90}

Table 2 presents a summary of the equipment used for rail noise monitoring and the calibration results.

Table 2 Summary of Rail Monitoring Equipment and Calibration

Equipment Type	Manufacturer and type	Serial Number	Pre-Calibration	Post-Calibration
Noise Logger	ARL Ngara	878073	114.2 dB(A)	114.2 dB(A)

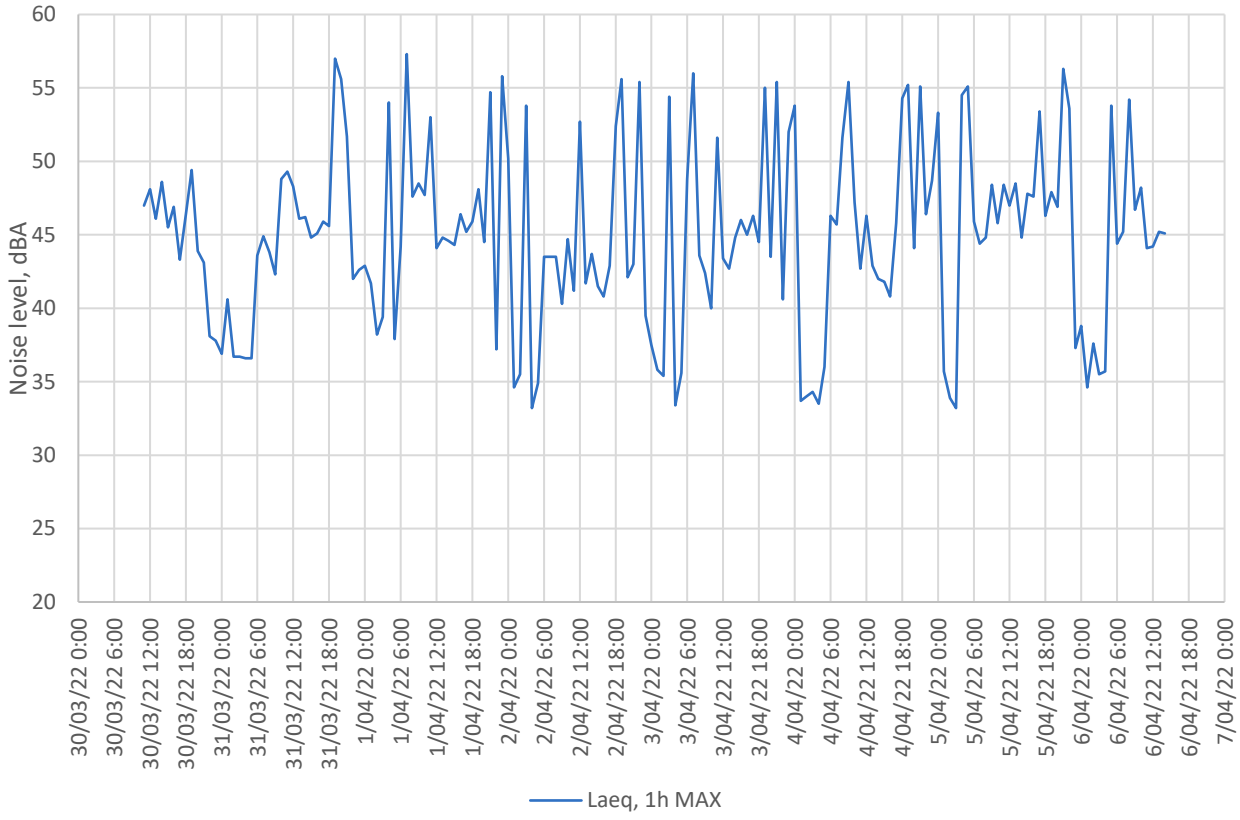
2.2.1 Measured Rail Noise Levels

The measured rail noise levels are presented in Table 3, with measured time traces presented in Figure 3.

Table 3 Measured Rail Noise Levels (SLR, 2024)

Date	Measured $L_{Aeq\ 1h}$, Max
30/03/2022	49
31/03/2022	57
1/04/2022	56
2/04/2022	56
3/04/2022	55
4/04/2022	56
5/04/2022	56

Figure 3 Measured Rail Noise Levels, Time Trace



3.0 NOISE ASSESSMENT CRITERIA

3.1 EDQ REQUIREMENTS

New Beith Precincts A and B are included in the Greater Flagstone Urban Development Area (UDA) and must comply with the Flagstone Development Scheme (FDS). According to the FDS Community Safety and Community Constraints, it is essential to shield residents and other sensitive uses from noise impacts originating from regional transport corridors. However, the document lacks specific objective criteria for evaluating these impacts.

The acoustic requirements currently enforced by Economic Development Queensland (EDQ) for several lots within the Flagstone UDA are specified in Condition 35 of the EDQ PDA development notice dated 4 April 2024, under reference DEV2012/403/128. Condition 35, which pertains to Acoustic Compliance, is detailed in Table 4. This report presumes that these conditions will be consistently applied to other New Beith roads with similar traffic volumes, as New Beith falls within the same PDA.

Table 4 Precinct B Noise Requirements

Conditions	Reconfiguration of a lot	Timing
35	*a.* Except where identified in Condition 35A1, submit to EDQ Development Assessment DSDI for compliance assessment a Noise Mitigation Report, certified by a RPEQ, for *all lots within 100m from Flagstonian Drive Extension (excluding Lot 50021), the future North-South Arterial Road and 200m from the railway corridor achieving a ≤ 35dBA for 1 hour max, over a 24-hour period for all habitable rooms.* Where a ≤ 35dBA for 1 hour max, over a 24-hour period for all habitable rooms cannot be achieved, the Noise Mitigation Report is to provide the proposed noise mitigation measures generally in accordance with QDC MP4.4 – Buildings in a Noise Transport Corridor. If any noise barriers are proposed, the detailed design/construction plans certified by a RPEQ are to be provided including how passive surveillance of the streetscape can be maintained. Note: For lots fronting Flagstonian Drive (excluding Lot 50021), the acoustic fence must be no higher than that specified in the approved plan of development. Note: an acoustic report may address the acoustic needs of multiple stages/sub-stages in one report.	a. Prior to the commencement of site works for the relevant sub-stage.

Conditions	Reconfiguration of a lot	Timing
	b. Construct barrier(s) works generally in accordance with the certified plans submitted under part a) of this condition.	b. Prior to survey plan endorsement for each relevant sub-stage.
	c. Submit to EDQ IS 'as constructed' plans, certified by a RPEQ, an asset registers in a format acceptable to Council and 'Issued For Construction' plans for noise barriers within the relevant sub-stage.	c. Prior to survey plan endorsement for each relevant sub-stage.
Note 1: Condition 35A is in relation to the certification of noise walls specific to sub-stages 3G, 3Fi, 3H, 5Ai, 5Aii, 5Bi, 5Bii, 5C, 5D, 5Ei, 5Eii, 5Eiii, 5F, 5G, 5H, 5Ki, 5Kii, 5L, 5M, 5Qii, 5R and 5S. Therefore, it is not considered further.		

It is assumed the 35dB(A) for 1 hour max, over a 24-hour period is equivalent to the maximum $L_{Aeq, 1h}$ over a 24 hour period. The SLR report further notes that they were advised by EDQ that:

> *EDQ consider the acceptable forms of building construction in MP4.4 as appropriate noise mitigation measures referenced in Condition 31. MP4.4 does not provide internal noise criteria but the minimum building constructions in MP4.4 would typically achieve an internal transport noise level of approximately 35 dB(A) within habitable rooms.*

Refer to Section 3.2 for a review of QDC MP 4.4 requirements.

3.2 QUEENSLAND DEVELOPMENT CODE (QDC) MP 4.4 – BUILDINGS IN A TRANSPORT NOISE CORRIDOR

Residential dwellings constructed near designated transport corridors (i.e. the North South Truck Connector, Flagstonian Drive, New Beith Road and the Sydney to Brisbane Rail Line) are required to comply with Queensland Development Code Mandatory Part 4.4 - Buildings in a Transport Noise Corridor (QDC MP 4.4).

Table 5 QDC MP4.4 Noise Category Levels

Noise Category	Level of transport noise * (LA10, 18hr) for State controlled roads and designated local government roads	Single event maximum noise* (LAmax) for railway land
Category 4	≥ 73 dB(A)	> 85 dB(A)
Category 3	68 – 72 dB(A)	80 – 84 dB(A)
Category 2	63 - 67 dB(A)	75 – 79 dB(A)

Noise Category	Level of transport noise * (LA10, 18hr) for State controlled roads and designated local government roads	Single event maximum noise* (LAmax) for railway land
Category 1	58 - 62 dB(A)	70 – 74 dB(A)
Category 0	≤ 57 dB(A)	≤ 69 dB(A)

3.3 AUSTRALIAN STANDARDS AND RELEVANT DESIGN GUIDELINES

AS 2107 - Australian / New Zealand Standard AS/NZS 2107:2016 – Acoustics – *Recommended design sound levels and reverberation times for building interiors*

AS 3671 - Australian / New Zealand Standard AS/NZS 3671:1989 – Acoustics – *Road traffic noise intrusion – Building siting and construction*

AS 1055 - Australian / New Zealand Standard AS/NSZ 1055:1997 – Acoustics – *Description and measurement of environmental noise*

CoP Vol 1 – Queensland Department of Transport and Main Roads (DTMR) – *Transport Noise Management: Code of Practice 2013, Volume 1 – Road Traffic Noise*

CoP Vol 3 - Queensland Department of Transport and Main Roads (DTMR) – *Transport Noise Management: Code of Practice 2013, Volume 3 – Operational Railway Noise and Vibration (Interim Guideline)*

4.0 NOISE ASSESSMENT METHODOLOGY

SoundPLAN 9.0 computer modelling software was used to predict noise levels from the local road network impacting the subject site and to predict noise levels from the Brisbane-Sydney rail corridor impacting the proposed subdivision. Road traffic data has been used to generate computer noise models for the ultimate planning horizon (year 2041), which has been assessed in accordance with the relevant criteria.

SoundPLAN 9.0 uses Calculation of Road Traffic Noise (CoRTN) algorithms developed by the UK Department of Transport (Welsh Division) in 1988, and Background Material for the Nordic Rail Traffic Noise Prediction Method (Kilde Report 67/130).

The EDQ DA conditions referenced in the SLR assessment require compliance with an internal limit of 35 dBA for 1 hour.

- within 100m of Flagstonian Drive Extension and the future North-South Arterial Road.
- within 200m of the rail corridor.

A previously approved Stantec assessment in the same PDA with the same DA condition assessed this limit as an $L_{Aeq,\ 1hour}$ max (EDQ ref: DEV2018/988). QDC MP4.4 Noise Categories have been applied for the design of future dwellings to comply with this limit.

4.1 ROAD NOISE MODEL INPUTS AND ASSUMPTIONS

4.1.1 General Model Input Data

Table 6 details the sources of information used in the prediction of road traffic noise levels.

Table 6: Road Traffic Noise Inputs and Assumptions

Input Parameter	Source Reference
Ground elevation geometry	Provided by Colliers.
Traffic volumes and %Heavy vehicles	Refer to section 4.1.2.
Speed Limits	Refer to section 4.1.2.
Road Surface Type	Modelling has assumed a pavement surface of Dense Grade Asphalt – DGA indicating a correction factor of 0 dB(A) (with reference to Queensland Department of Transport and Main Roads' *Transport Noise Management Code of Practice* (TMR TNM CoP2013) to be applied to all road traffic noise modelling.
Ground absorption	0% over hard surfaces and 100% for soft (i.e. vegetated) surfaces
Correction to CoRTN for Australian Conditions	- 0.7 dB(A) CoRTN correction for Australian conditions (for free field receiver points) - 1.7 dB(A) CoRTN correction for Australian conditions (for facade corrected receiver points located within 1 metre of a receiver building)
Façade correction	+ 2.5 dB(A)
Receiver height	Dwellings will be typical slab on ground construction, as opposed to elevated "Queenslander" or flood plain type homes. Therefore, receiver height will be 1.8m

Input Parameter	Source Reference
	above ground level for ground floor level receivers and 4.6m above ground level for first floor level receivers. Receiver heights will be 1.5m above ground level for private open spaces.

4.1.2 Road Traffic Volumes

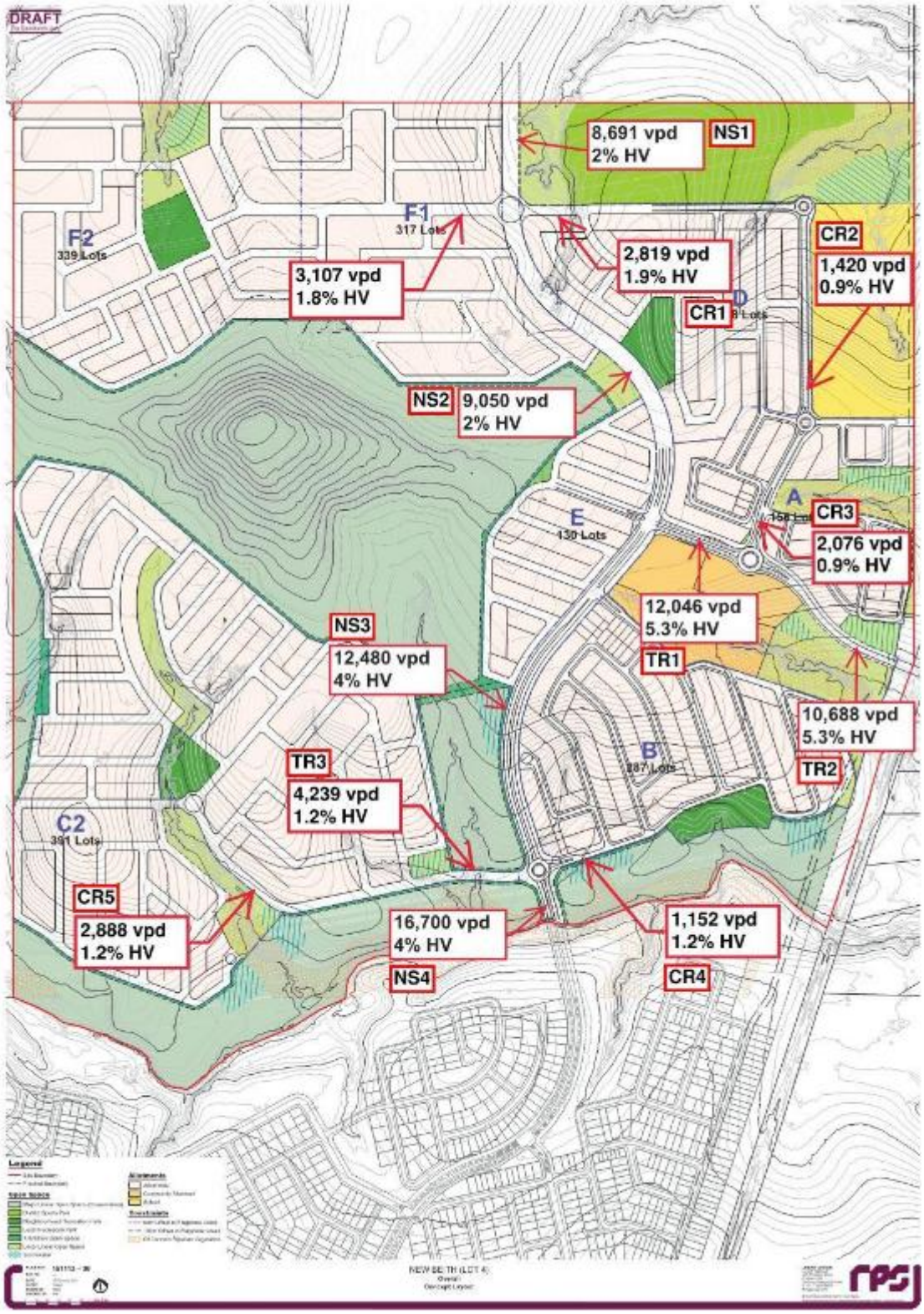
The future year 2041 traffic volumes are taken from the New Beith, Precinct A, Stage 1, 2 and 3a – Transport Noise Intrusion Assessment (SLR Project No.: 620.v013870.00001) prepared by SLR Consulting Australia.

Table 7: Future Year 2041 Traffic Volumes

Road	Road Segment	Vehicles per Day	18hr Traffic Volume	%Heavy Vehicles	Posted Speed, Km/h
North South Trunk Connector	NS1	8,691	8,170	2	70
	NS2	9,050	8,507	2	70
	NS3	12,480	11,731	4	70
	NS4	16,700	15,698	4	70
Mountain Ridge Road (Trunk Road)	TR1	12,046	11,323	5.3	60
	TR2	10,688	10,047	5.3	60
	TR3	4,239	3,985	1.2	60
Road traffic on internal local roads has not been considered. This can be expected to cause minimal impact compared to other roads carrying much larger traffic volumes. Thus, they do not warrant noise treatment, noting that it is not possible to apply noise mitigation in front of these roads due to the presence of driveways.					

The above locations are presented in Figure 4.

Figure 4 Traffic volumes (Source: SLR/Bitzios)



4.1.3 Predicted Road Traffic Noise Levels 2041

Predicted road traffic noise levels and applicable Noise Categories for the ground and first floor levels are presented in Table 8.

Table 8: Predicted Road Traffic Noise Levels

Receiver number	Floor	Predicted traffic noise level, L10(18h), dB(A)	QDC MP4.4 Noise Category
401	Ground	63	2
	First	65	2
402	Ground	60	1
	First	62	1
403	Ground	58	1
	First	60	1
404	Ground	57	0
	First	59	1
405	Ground	56	0
	First	58	1
406	Ground	55	0
	First	57	0
407	Ground	54	0
	First	56	0
501	Ground	54	0
	First	55	0
502	Ground	55	0
	First	56	0
503	Ground	56	0
	First	57	0
504	Ground	56	0
	First	58	1
505	Ground	57	0
	First	59	1
506	Ground	59	1
	First	61	1
507	Ground	60	1
	First	63	2
508	Ground	63	2
	First	67	2
509	Ground	59	1
	First	63	2
510	Ground	59	1
	First	63	2

Receiver number	Floor	Predicted traffic noise level, L10(18h), dB(A)	QDC MP4.4 Noise Category
511	Ground	59	1
	First	62	1
512	Ground	59	1
	First	62	1
513	Ground	59	1
	First	62	1
514	Ground	59	1
	First	62	1
515	Ground	59	1
	First	62	1
516	Ground	58	1
	First	62	1
517	Ground	58	1
	First	61	1
518	Ground	58	1
	First	61	1
519	Ground	58	1
	First	61	1
520	Ground	58	1
	First	61	1
521	Ground	58	1
	First	61	1
522	Ground	58	1
	First	61	1
523	Ground	58	1
	First	61	1
524	Ground	58	1
	First	61	1
525	Ground	59	1
	First	61	1
526	Ground	59	1
	First	62	1
527	Ground	58	1
	First	61	1
528	Ground	58	1
	First	61	1
529	Ground	58	1
	First	61	1
530	Ground	57	0
	First	61	1

Receiver number	Floor	Predicted traffic noise level, L10(18h), dB(A)	QDC MP4.4 Noise Category
531	Ground	57	0
	First	61	1
532	Ground	57	0
	First	61	1
533	Ground	57	0
	First	61	1
534	Ground	58	1
	First	61	1
535	Ground	60	1
	First	65	2
536	Ground	57	0
	First	59	1
537	Ground	56	0
	First	58	1
538	Ground	55	0
	First	57	0
539	Ground	54	0
	First	56	0
540	Ground	54	0
	First	55	0
541	Ground	53	0
	First	55	0
542	Ground	53	0
	First	54	0
543	Ground	52	0
	First	54	0
544	Ground	55	0
	First	57	0
545	Ground	55	0
	First	57	0
546	Ground	55	0
	First	57	0
547	Ground	55	0
	First	57	0
548	Ground	55	0
	First	57	0
549	Ground	56	0
	First	57	0
550	Ground	56	0
	First	57	0

Receiver number	Floor	Predicted traffic noise level, L10(18h), dB(A)	QDC MP4.4 Noise Category
551	Ground	56	0
	First	57	0
552	Ground	55	0
	First	57	0
553	Ground	55	0
	First	57	0
554	Ground	55	0
	First	57	0
555	Ground	56	0
	First	57	0
556	Ground	56	0
	First	57	0
557	Ground	56	0
	First	57	0
558	Ground	56	0
	First	57	0
559	Ground	56	0
	First	57	0
560	Ground	56	0
	First	58	1
561	Ground	56	0
	First	58	1
562	Ground	55	0
	First	56	0
563	Ground	54	0
	First	56	0
564	Ground	54	0
	First	55	0
565	Ground	54	0
	First	55	0
566	Ground	54	0
	First	55	0
567	Ground	54	0
	First	55	0
568	Ground	54	0
	First	55	0
569	Ground	54	0
	First	55	0
570	Ground	54	0
	First	55	0

Receiver number	Floor	Predicted traffic noise level, L10(18h), dB(A)	QDC MP4.4 Noise Category
571	Ground	54	0
	First	55	0
572	Ground	53	0
	First	54	0
573	Ground	53	0
	First	54	0
574	Ground	53	0
	First	54	0
575	Ground	54	0
	First	54	0
576	Ground	54	0
	First	55	0
577	Ground	54	0
	First	55	0
578	Ground	54	0
	First	55	0
579	Ground	54	0
	First	54	0
580	Ground	53	0
	First	54	0
581	Ground	53	0
	First	54	0
701	Ground	59	1
	First	64	2
702	Ground	58	1
	First	60	1
703	Ground	56	0
	First	58	1
704	Ground	55	0
	First	57	0
705	Ground	54	0
	First	56	0
706	Ground	53	0
	First	55	0
707	Ground	53	0
	First	54	0
708	Ground	52	0
	First	54	0

Based on inclusion of the barrier recommended in Section 5.1, the predicted noise levels result in noise categories 1 or 2 applying at up to 40 allotments. Refer to Section 5.2 for recommendations regarding acoustic treatment.

4.2 RAIL NOISE ASSESSMENT

4.2.1 General Model Input Data

Table 9 details the sources of information used in the prediction of railway noise levels.

Table 9 Rail Noise Modelling Inputs and Assumptions

Input Parameter	Source Reference
Ground elevation geometry	Provided by Frasers Property Australia PTY LTD
Rail alignment	Current rail alignment verified by aerial photography
Rail volumes	Refer to Section 4.2.2
Rail traffic speeds	80 km/h/100km/h
Ground absorption	Predominately soft ground
Façade reflections	+2.5 dBA
Receiver height	Dwellings will be typical slab on ground construction, as opposed to elevated "Queenslander" or flood plain type homes. Therefore, receiver height will be 1.8m above ground level for ground floor level receivers and 4.6m above ground level for first floor level receivers. Receiver heights will be 1.5m above ground level for private open spaces.

4.2.2 Rail Volumes

Current daily rail volumes were obtained from the SLR Consulting Australia (SLR ref: 620.013870.00001-R2-v2.0-20240611).

Table 10 Pre-existing rail volumes

Train Type	Noise Emission	Modelled Speed	Train per 24-hour
XPT	95 dBA SEL	100 km/h	2
Locomotive (notch 8)	86 dBA SEL	80 km/h	6
Freight wagons (1,000m)	90 dBA SEL	80 km/h	6

4.2.3 Modelled Scenarios

2041 traffic noise predictions were modelled for single and two storey receivers using the SoundPLAN 9.0 computer noise model. Detailed noise contour maps were produced to identify lots affected by rail noise based on relevant assessment criteria. Lots deemed to exceed the assessment criteria were further reviewed to investigate appropriate mitigation measures to control noise exceedance. The highest noise category predicted onto the lot at the ground floor and first floor is conservatively reported.

The Kilde Railway noise prediction methodology was applied to calculate the railway noise levels in SoundPLAN.

To assess railway noise impact to the proposal, the following model scenarios were prepared:

- **Model Verification:** Existing rail noise model based on the modelling inputs supplied for 2022 provided by SLR.
- **Predicted Rail Noise Impacts, No Barriers**: Current rail volumes were used to determine the predicted rail noise impacts at ground and first floor receiver locations.

4.3 MODEL VERIFICATION- SCENARIO 1

Verification of the SoundPLAN 9.0 modelling program was undertaken prior to the prediction of rail noise impacts. An iteration of the model was developed using current rail volumes and site conditions to predict the $L_{Aeq,\ 1\ hour\ max}$ for comparison to the measured $L_{Aeq,\ 1\ hour\ max}$.

Table 11 Model Verification Results

Measured Noise Level dB(A) $L_{Aeq,\ 1\ hour\ max}$	Predicted Noise Level, dB(A) $L_{Aeq,\ 1\ hour\ max}$	Difference $L_{Aeq,\ 1\ hour\ max}$
57.0	58.1	1.1

The SoundPLAN 9.0 rail noise model is over predicting by 1.1 dB(A), which is within the allowable tolerance of +/- 2.0 dB(A).

4.4 PREDICTED RAILWAY NOISE IMPACTS, NO MITIGATION – SCENARIO 2

Predicted rail noise levels and applicable Noise Categories for the ground and first floor levels are presented in Table 12.

Table 12: Predicted rail noise levels

Receiver number	Floor	Predicted Rail Noise Level, $L_{eq\ 1h}$ MAX dB(A)	Predicted Transport Noise Reduction Required for habitable rooms	(1) QDC MP4.4 Noise Category
607	Ground	57	22	1
	First	58	23	1
608	Ground	57	22	1
	First	59	24	1

Receiver number	Floor	Predicted Rail Noise Level, $L_{eq\ 1h}$ MAX dB(A)	Predicted Transport Noise Reduction Required for habitable rooms	[1] QDC MP4.4 Noise Category
609	Ground	57	22	1
	First	59	24	1
610	Ground	58	23	1
	First	59	24	1
611	Ground	58	23	1
	First	60	25	1
612	Ground	58	23	1
	First	60	25	1
613	Ground	59	24	1
	First	61	26	2
614	Ground	59	24	1
	First	61	26	2
615	Ground	60	25	1
	First	62	27	2
616	Ground	61	26	2
	First	62	27	2
617	Ground	62	27	2
	First	63	28	2
618	Ground	61	26	2
	First	62	27	2
619	Ground	60	25	1
	First	61	26	2
620	Ground	60	25	1
	First	61	26	2
621	Ground	59	24	1
	First	60	25	1
622	Ground	58	23	1
	First	60	25	1
623	Ground	58	23	1
	First	60	25	1
624	Ground	57	22	1
	First	59	24	1
625	Ground	57	22	1
	First	59	24	1
626	Ground	57	22	1
	First	58	23	1
627	Ground	57	22	1
	First	58	23	1
628	Ground	56	21	1
	First	58	23	1
635	Ground	57	22	1
	First	58	23	1
636	Ground	57	22	1
	First	58	23	1
637	Ground	57	22	1
	First	59	24	1

Receiver number	Floor	Predicted Rail Noise Level, $L_{eq\ 1h}$ MAX dB(A)	Predicted Transport Noise Reduction Required for habitable rooms	(1) QDC MP4.4 Noise Category
638	Ground	58	23	1
	First	59	24	1
639	Ground	58	23	1
	First	59	24	1
640	Ground	59	24	1
	First	60	25	1
641	Ground	60	25	1
	First	61	26	2
642	Ground	60	25	1
	First	61	26	2
643	Ground	60	25	1
	First	60	25	1
644	Ground	59	24	1
	First	60	25	1
645	Ground	59	24	1
	First	59	24	1
736	Ground	57	22	1
	First	58	23	1
737	Ground	57	22	1
	First	58	23	1
738	Ground	57	22	1
	First	58	23	1
739	Ground	58	23	1
	First	59	24	1
740	Ground	56	21	1
	First	57	22	1

Notes:
(1). Noise categories for rail noise are based on the minimum transport noise reduction in to achieve the internal noise objective.

The predicted noise levels result in noise categories 1 or 2 applying at up to 41 allotments. Refer to Section 5.2 for recommendations regarding acoustic treatment.

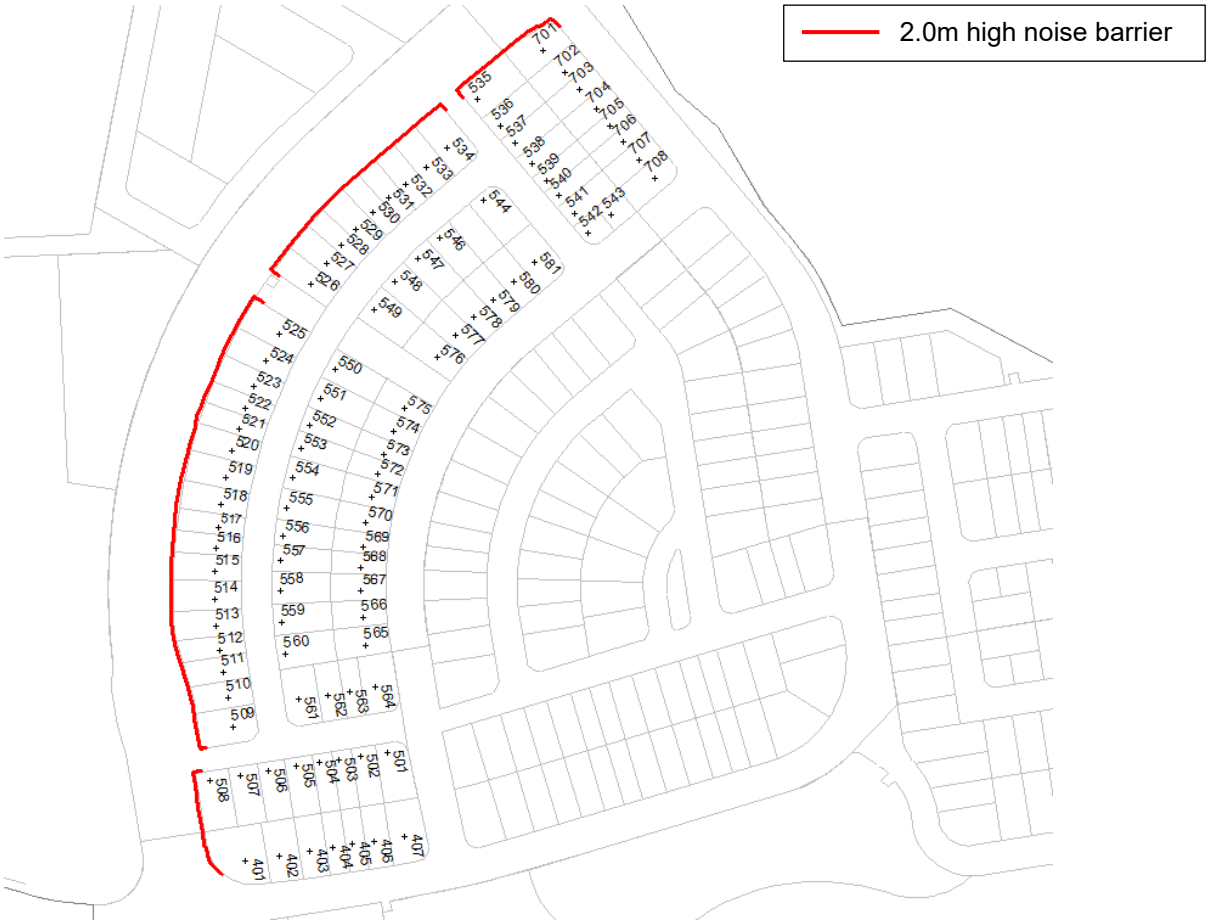
5.0 RECOMMENDATIONS

5.1 TRAFFIC NOISE BARRIERS

To reduce road traffic noise levels, we recommended the construction of a 2 metre high noise barrier as detailed in Figure 5. The design and construction of the noise barriers should be free of gaps or holes, including along the base of the barrier. The selected barrier material should achieve a minimum surface density of 12.5 kg/m^2. Small drainage holes may be present at the base, provided the openings do not exceed 1% of the total surface. Suitable materials may include the following:

- Toughened safety glass
- Overlapped timber palings with a 40mm overlap
- Concrete
- Masonry
- Fibre cement sheet
- Earth mounding
- A combination of the above.

Figure 5: Recommended noise barrier



5.2 QDC MP4.4 NOISE CATEGORY REQUIREMENTS

The building treatments provided in Sections 5.2.1 to 5.2.4 are in accordance with QDC MP 4.4.

5.2.1 Glazing

Based on the recommended noise categories nominated in in Section 4.1.3, QDC MP 4.4 nominates glazing treatments as presented in Table 13.

Table 13: QDC MP 4.4 Acceptable Glazing

Noise Category	Rw Requirement	QDC Acceptable Glazing	Acoustic Seals?
2	**35** (where total area of glazing for a habitable room is greater than 1.8m^2)	10.38mm Laminate	Yes
	32 (where total area of glazing for a habitable room is less than or equal to 1.8m^2)	6.38mm Laminate	Yes
1	**27** (where total area of glazing for a habitable room is greater than 1.8m^2)	4mm Float	Yes
	24 (where total area of glazing for a habitable room is less than or equal to 1.8m^2)	4mm Float	No
0	N/A	N/A	N/A

5.2.2 External Walls

Based on the recommended noise categories presented in in Section 4.1.3, QDC nominates acceptable wall treatment as presented in Table 14.

Table 14: QDC MP 4.4 Acceptable Wall Construction

Noise Category	Rw Requirement	QDC Acceptable Wall Construction
2	41	Two leaves of clay brick masonry at least 110mm thick with cavity not less than 50mm between leaves OR Single leaf of clay brick masonry at last 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m3 positioned between studs; and (iii) One layer of plasterboard at least 10mm thick fixed to outside face of studs OR Single leaf of brick masonry at least 110mm thick with at least 13mm thick render on each face OR Concrete brickwork at least 110mm thick OR In-situ concrete at least 100mm thick OR Precast concrete at least 100mm thick and without joints.
1	35	Single leaf of clay brick masonry at last 110mm thick with:

Noise Category	Rw Requirement	QDC Acceptable Wall Construction
		(i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) One layer of plasterboard at least 10mm thick fixed to outside face of studs OR Minimum 6mm thick fibre cement sheeting or weatherboards or plank cladding externally, minimum 90mm deep timber stud or 92mm metal stud, standard plasterboard at least 13mm thick internally.
0	N/A	N/A

Note that alternative systems are acceptable provided they meet the minimum Rw requirement.

5.2.3 Roof/Ceiling

Based on the recommended noise categories presented in in Section 4.1.3, QDC MP4.4 nominates acceptable roof/ceilings treatments as presented in Table 15.

Table 15: QDC MP 4.4 Acceptable Roof/Ceiling Construction

Noise Category	Rw Requirement	QDC Acceptable Roof/Ceiling Construction
2	38	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity, mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m^3.
1	35	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity.
0	N/A	N/A

Note that alternative systems are acceptable provided they meet the minimum Rw requirement.

5.2.4 External Doors

Based on the recommended noise categories presented in Section 4.1.3, QDC MP4.4 nominates acceptable external door treatments as presented in Table 16.

Table 16: QDC MP 4.4 Acceptable External Door Construction

Noise Category	Rw Requirement	QDC Acceptable External Door Construction
2	33	Fixed so as to overlap the frame or rebate of the frame by not less than 10mm, fitted with full perimeter acoustically rated seals and constructed of – (i) solid core, wood, particleboard or blockboard not less than 45mm thick; and/or (ii) (ii) acoustically laminated glass not less than 10.38mm thick.
1	28	Fixed so as to overlap the frame or rebate of the frame, constructed of - (i) Wood, particleboard or blockboard not less than 33mm thick; or

Noise Category	Rw Requirement	QDC Acceptable External Door Construction
		(ii) Compressed fibre reinforced sheeting not less than 9mm thick; or (iii) Other suitable material with a mass per unit area not less than 24.4kg/m2; or (iv) Solid core timber door not less than 35mm thick fitted with full perimeter acoustically rated seals.
0	N/A	N/A

Note that alternative systems are acceptable provided they meet the minimum Rw requirement.

5.2.5 Alternative Ventilation

Facade glazing will need to be closed in order to exclude noise. Therefore, provision of mechanical ventilation such as air conditioning or alternative ventilation may be required for habitable rooms with Noise Category 1 and 2 construction.

6.0 CONCLUSION

A full rail and road traffic noise assessment for the proposed subdivision located at Precinct B New Beith was conducted. Provided the recommendations in Section 5.0 are implemented, compliance with the criteria in Section 3.0 are predicted to be achieved.

2.0m high acoustic barriers were recommended along road frontages to reduce QDC MP4.4 noise category requirements for future dwellings. This has resulted in the worst affected lots being designated with noise category 2 construction.

Rail noise was assessed in order to meet the internal noise objectives nominated in Section 3.1. QDC MP4.4 noise categories were specified on the basis of predicted transport noise reduction required to achieve compliance with this limit.

APPENDIX A NOISE CONTOUR CHARTS

Figure 6: Predicted Road Traffic Noise Levels – Ground Floor Level

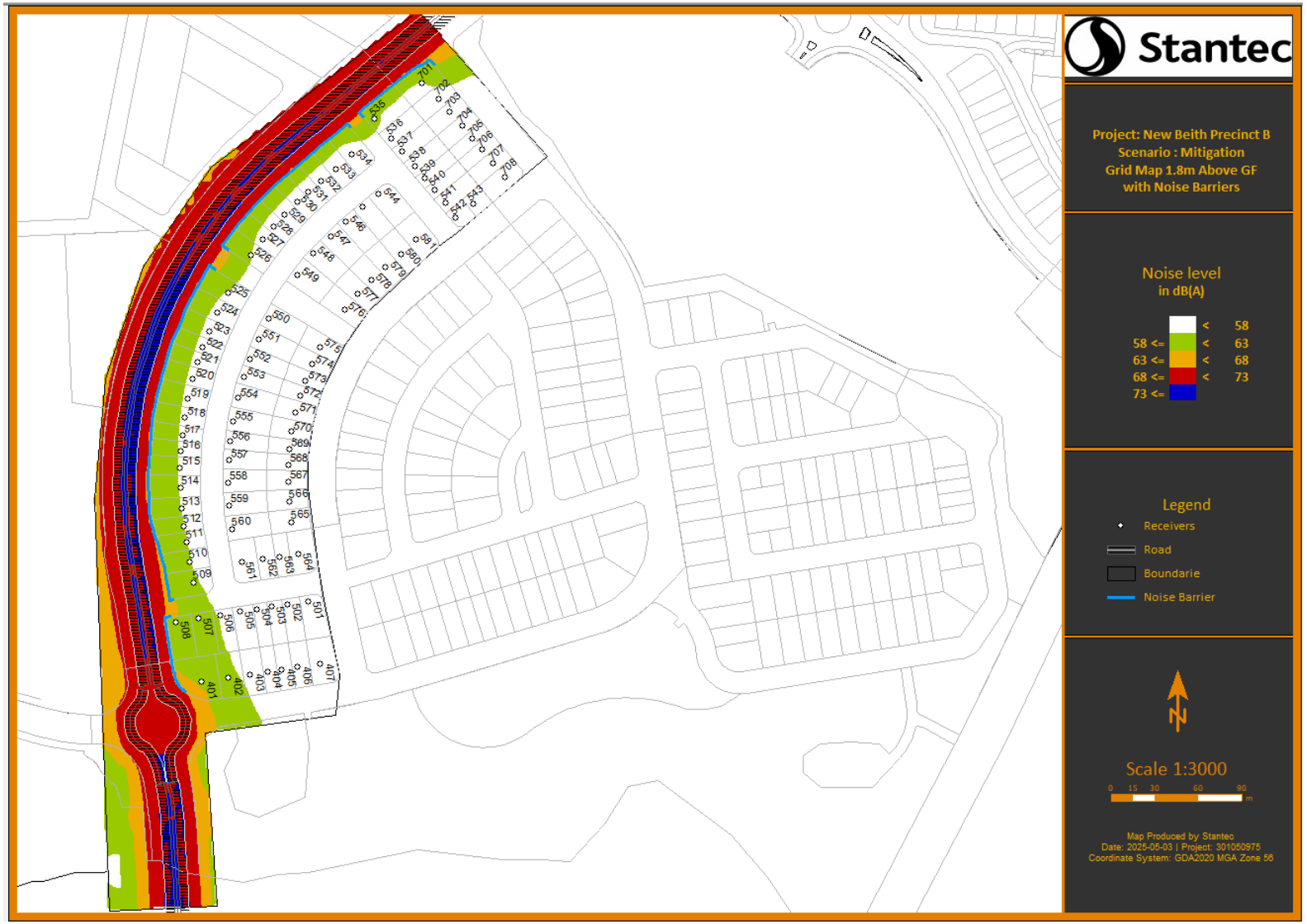


Figure 7: Predicted Road Traffic Noise Levels – First Floor Level

Figure 8: Predicted Rail Noise Levels – Ground Floor Level

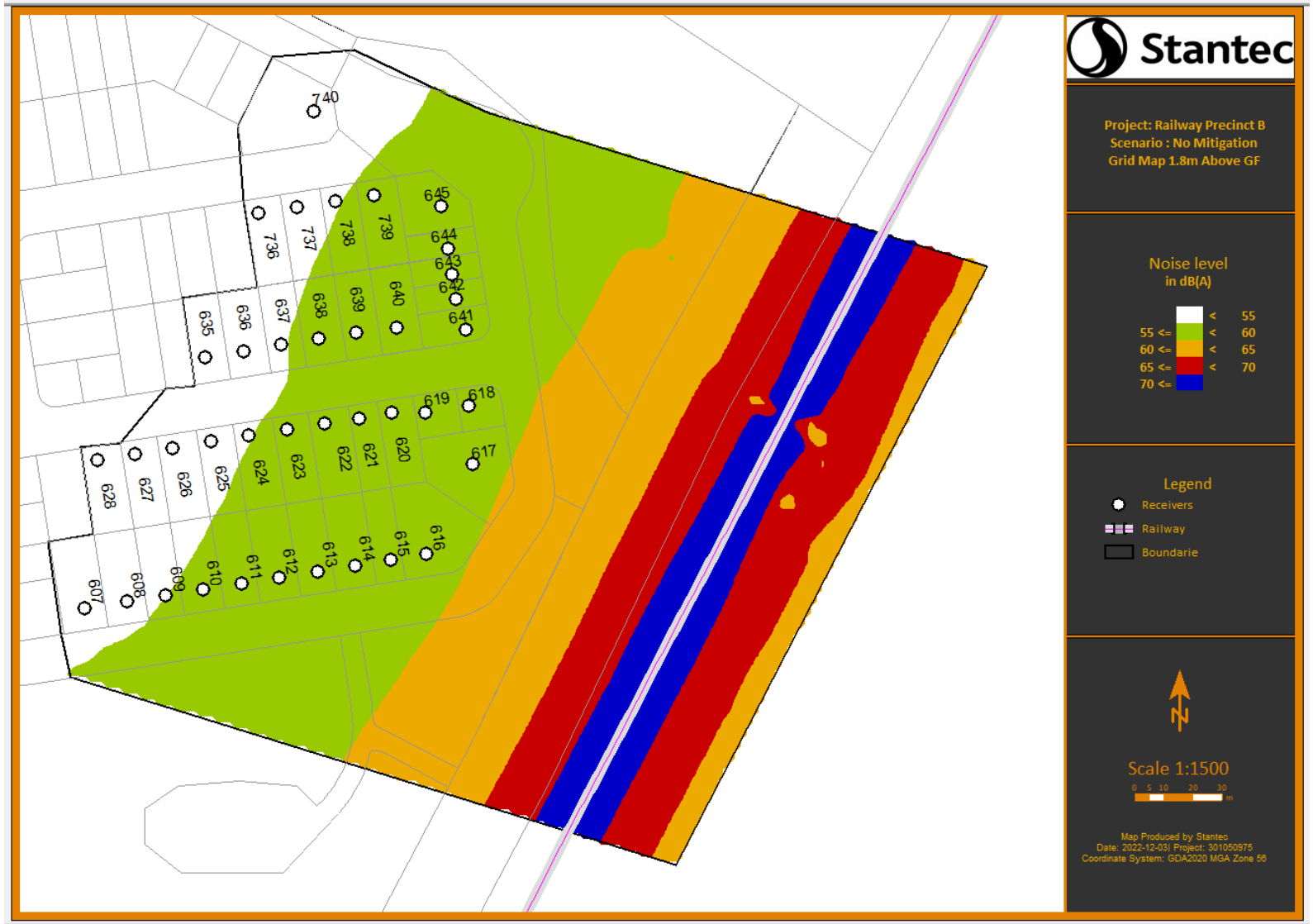
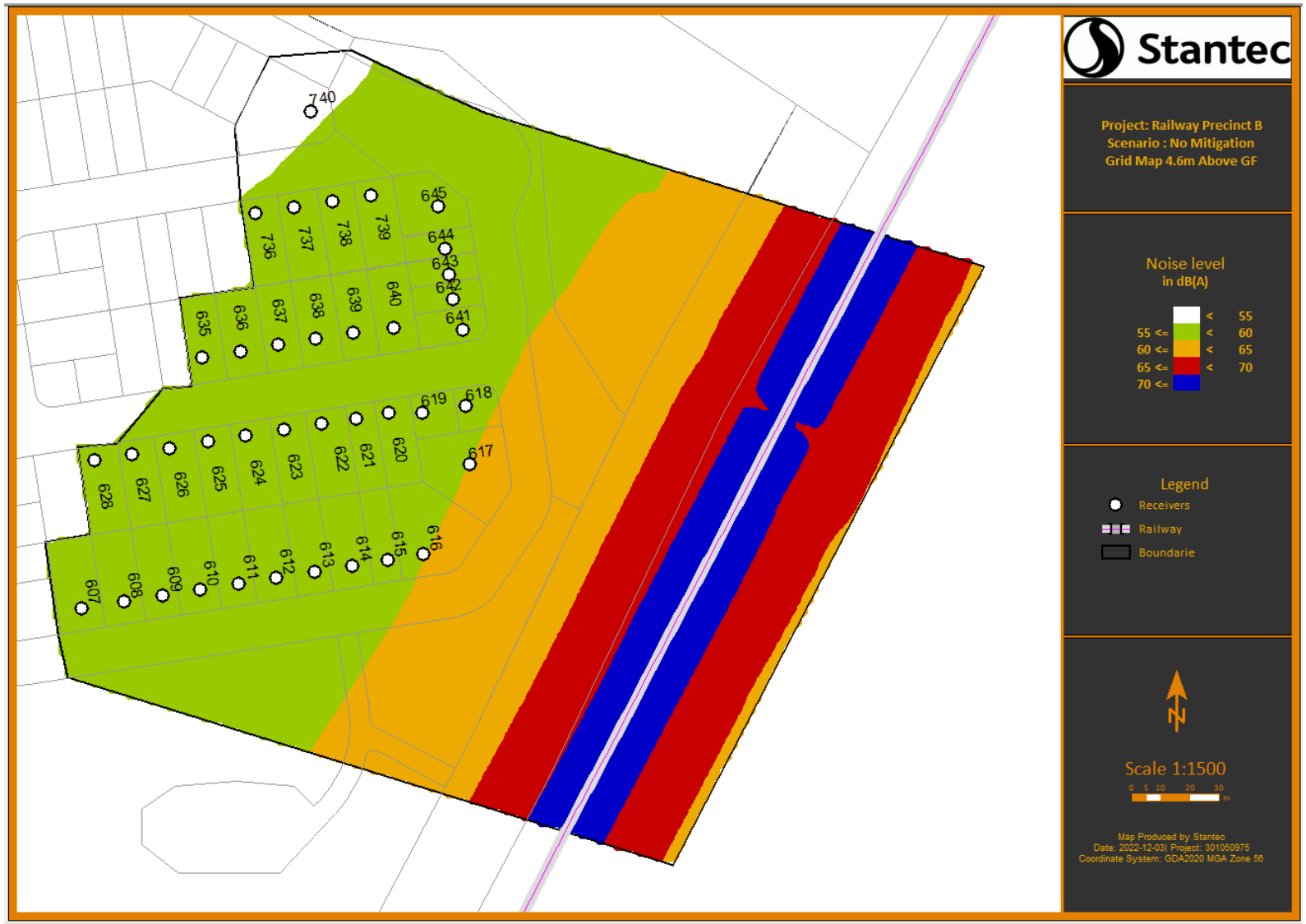


Figure 9: Predicted Rail Noise Levels – First Floor Level



APPENDIX B SLR REPORT

New Beith, Precinct B, Stage 4, 5, 6a and 7

Transport Noise Intrusion Assessment

Frasers Property Australia Pty Ltd

Level 2, 167 Eagle Street
Brisbane QLD 4000

Prepared by:

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Level 16, 175 Eagle Street, Brisbane QLD 4000,
Australia

SLR Project No.: 620.v013870.00001

Client Reference No.: NA

11 June 2024

Revision: 2.0

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
2.0	11 June 2024	Rodrigo Olavarria	Steve Henry	Steve Henry
1.0	24 May 2024	Rodrigo Olavarria	Steve Henry	Steve Henry

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Frasers Property Australia Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

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Appendices

1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) was commissioned by Frasers Property Australia Pty Ltd (Frasers Property) to conduct a noise impact assessment for the New Beith Concept Plan, Precincts A and B.

This report addresses the transportation (i.e. railway and road traffic) noise intrusion onto Precinct B, Stage 4, 5, 6a and 7.

The purpose of this assessment is to present a set of noise prediction results and applicable Queensland Development Code Mandatory Part 4.4 (QDC MP4.4) Noise Categories for the lots, following detailed noise modelling of road traffic and railway noise intrusion, which was based on the plan of subdivision reproduced in **Appendix B**.

Results of noise intrusion predictions are presented in this report with and without the implementation of noise barriers in front of the lots most exposed to the abovementioned transportation noise sources.

Applicable Noise Categories (NC) as per the QDC MP4.4 were derived from the noise predictions for each lot with and without the noise barriers.

The noise predictions are based on the latest digital elevation model and transportation volumes available on the date of issue of this report, including road traffic volume forecasts for the period coinciding 10 years after the estimated project completion year and the potential future Inland Rail and Salisbury to Beaudesert railway projects.

The outcomes presented in this report are potentially subject to change as the project progresses; therefore, the objective of this report is to support the application for Reconfiguration of Lot (ROL) by informing the effectiveness of the implementation of noise barriers and the QDC MP4.4 Noise Categories applicable to the construction of the dwellings, after the implementation of these.

The following Codes are relevant to this assessment:

- Department of Transport and Main Roads (TMR) Transport Management Code of Practice Volume 1: Road traffic noise (CoP Vol 1).
- Department of Transport and Main Roads (TMR) Transport Management Code of Practice Volume 3: Operational railway noise and vibration (CoP Vol 3) (Interim Guideline).
- Queensland Development Code Mandatory Part 4.4 (QDC MP4.4).

Supporting material:

- UK Department of Transport Welsh Office Calculation of Road Traffic Noise 1988 (CoRTN)
- Ringheim, M 1984, 'Background Material for the Nordic Rail Traffic Noise Prediction Method', Kilde Report 130, KILDE, Norway (Kilde)

A glossary of terms used in this report are detailed in **Appendix A**.

2.0 Noise Assessment Requirements

New Beith Precinct A and B will be part of the Greater Flagstone Urban Development Area (UDA) and therefore, is to meet the requirements of the Flagstone Development Scheme (FDS). The FDS Community Safety and Community Constraints indicates that residents and other sensitive uses are to be protected from the impacts of noise from regional transport corridors. However, the document does not provide a set of objective criteria for the assessment of these.

The current acoustic requirements applied by Economic Development Queensland (EDQ) for a number of lots within the Flagstone UDA are contained in the EDQ PDA development Condition 35 of 4 April 2024, EDQ reference DEV2012/403/128.

Condition 35 of the abovementioned Decision Notice is relevant to Acoustic Compliance and is reproduced in **Table 1**. This report assumes that the same conditions are to be applied for consistency in the assessment of other New Beith roads carrying relevant volumes of traffic, as New Beith pertains the same PDA.

Table 1 PDA Development Condition 35

Condition	Timing
a) Except where identified in Condition 35A[1], submit to EDQ Development Assessment DSDI for compliance assessment a Noise Mitigation Report, certified by a RPEQ, for all lots within 100m from Flagstonian Drive Extension (excluding Lot 50021), the future North-South Arterial road and 200m from the railway corridor achieving a ≤ 35dBA for 1 hour max, over a 24 hour period for all habitable rooms. Where a ≤ 35dBA for 1 hour max, over a 24 hour period for all habitable rooms cannot be achieved, the Noise Mitigation Report is to provide the proposed noise mitigation measures generally in accordance with QDC MP4.4 – Buildings in a Noise Transport Corridor. If any noise barriers are proposed, the detailed design/construction plans certified by a RPEQ are to be provided including how passive surveillance of the streetscape can be maintained. Note: For lots fronting Flagstonian Drive (excluding Lot 50021), the acoustic fence must be no higher than that specified in the approved plan of development. Note: an acoustic report may address the acoustic needs of multiple stages/sub-stages in one report.	a) Prior to the commencement of site works for the relevant sub-stage.
b) Construct barrier(s) works generally in accordance with the certified plans submitted under part a) of this condition.	b) Prior to survey plan endorsement for each relevant sub-stage.
c) Submit to EDQ IS 'as constructed' plans, certified by a RPEQ, an asset register in a format acceptable to Council and 'Issued For Construction' plans for noise barriers within the relevant sub-stage.	c) Prior to survey plan endorsement for each relevant sub-stage.
Note 1: Condition 35A is in relation to the certification of noise walls specific to sub-stages 3G, 3Fi, 3H, 5Ai, 5Aii, 5Bi, 5Bii, 5C, 5D, 5Ei, 5Eii, 5Eiii, 5F, 5G, 5H, 5Ki, 5Kii, 5L, 5M, 5Qii, 5R and 5S. Therefore, it is not considered further.	

From the above, it is understood that EDQ considers the application of QDC MP4.4 at residential lots to achieve the acoustic requirements of Condition 35. Whilst MP4.4 does not provide internal noise limits or targets, the minimum building constructions in QDC MP4.4 would result in a reasonable internal transportation noise level within habitable rooms and is considered to meet the intent of the EDQ Condition 35.

QDC MP4.4 applies to residential buildings that are constructed within designated Transport Noise Corridors.

It is understood on this basis that, for the purpose of assessing transport noise, the North-South Trunk Connector, Flagstonian Drive, New Beith Road and the Sydney to Brisbane rail line are considered to be "Transport Noise Corridors".

Under the QDC MP4.4, when within a Transport Noise Corridor, the residential building needs to achieve certain levels of noise reduction, dependent upon the highest Noise Category in which all or any part of the building sits. The noise reduction can be achieved through incorporating appropriate building materials to the building envelope to achieve the required noise reduction in habitable rooms.

Reproduced from QDC MP4.4, the Noise Categories and associated minimum noise reduction requirements and minimum Weighted Sound Reduction Index (Rw) for facade building elements are shown in **Table 2**. The Rw is a measure of the sound insulation properties of a specific building material element.

QDC MP4.4 also provides acceptable forms of construction for the external elements of the building to assist in achieving a building design and construction which meets the required noise reduction for each Noise Category. These are reproduced in **Appendix C**, noting that other forms of construction are acceptable where they achieve the required Rw rating.

Table 2 QDC MP4.4 Noise Categories and Minimum Noise Reduction for Road Transport Noise

Noise Category	Transport Noise Level, Facade Corrected	Minimum Transport Noise Reduction for Habitable Rooms	Building External Envelope Component	Minimum Rw Required for Each Component	
4	Road traffic noise ≥73 dBA $L_{A10(18hour)}$ Rail traffic noise ≥85 dBA SEM[1]	40 dBA	Glazing	43	
			External Walls	52	
			Roof	45	
			Floors	51	
			Entry doors	35	
3	Road traffic noise 68 – 72 dBA $L_{A10(18hour)}$ Rail traffic noise 80 – 84 dBA SEM	35 dBA	Glazing	38	where total area of glazing for a habitable room is greater than 1.8 m^2
				35	where total area of glazing for a habitable room is less than or equal to than 1.8 m^2
			External walls	47	
			Roof	41	

[1] SEM: Single Event Maximum, defined in **Section 3.2**.

Noise Category	Transport Noise Level, Facade Corrected	Minimum Transport Noise Reduction for Habitable Rooms	Building External Envelope Component	Minimum Rw Required for Each Component	
			Floors	45	
			Entry doors	33	
2	Road traffic noise 63 – 67 dBA $L_{A10(18hour)}$ Rail traffic noise 75 – 79 dBA SEM	30 dBA	Glazing	35	where total area of glazing for a habitable room is greater than 1.8 m^2
				32	where total area of glazing for a habitable room is less than or equal to than 1.8 m^2
			External walls	41	
			Roof	38	
			Floors	45	
			Entry doors	33	
1	Road traffic noise 58 – 62 dBA $L_{A10(18hour)}$ Rail traffic noise 70 – 74 dBA SEM	25 dBA	Glazing	27	where total area of glazing for a habitable room is greater than 1.8 m^2
				24	where total area of glazing for a habitable room is less than or equal to than 1.8 m^2
			External walls	35	
			Roof	35	
			Entry doors	28	
0	Road traffic noise ≤57 dBA $L_{A10(18hour)}$ Rail traffic noise ≤69 dBA SEM	No additional acoustic treatment required – standard building assessment provisions apply.			

3.0 Noise Assessment Methodology

A three-dimensional noise model of the Greater Flagstone UDA was developed to incorporate the New Beith Precinct A and B subdivision. The model was developed within SoundPLAN v8.1 acoustic software to represent the future noise intrusion, including the following inputs:

- Calculation algorithms - SoundPLAN implementation of the following standards and methodologies:
  - Ringheim, M 1984, 'Background Material for the Nordic Rail Traffic Noise Prediction Method', Kilde Report 130, KILDE, Norway (Kilde). KILDE is widely accepted in Australia for the calculation of road traffic noise and its use is recommended in the CoP Vol 3.
  - UK Department of Transport Welsh Office Calculation of Road Traffic Noise 1988 (CoRTN). CoRTN is widely accepted in Australia for the calculation of road traffic noise and its use is recommended in the CoP Vol 1.
- Terrain elevation - Digital Elevation Model (DEM) built from:
  - *MGA2020design tin combined.dwg* provided by Colliers.
  - 2017 3D LiDAR file representing existing contours outside the study area, as the latest available from a QLD Government website at the date of issue of this report.
- Noise barriers - top of barrier height of 2.0m to 2.5m above the DEM.
- Ground surface corrections – areas of soft (absorptive) and hard (reflective) ground.
- Sensitive receptors – locations where the transportation noise levels are to be assessed.

3.1 Road Traffic Noise Modelling

Road traffic noise was modelled following general guidance from the TMR CoP Vol 1.

Road traffic volumes have been provided by the Project traffic consultant and are presented in **Table 4** and **Figure 1.** The traffic forecasts for the Year 2041 have been used, which are adopted as the estimated 10-year after completion of the subdivision construction.

The 18 hour traffic volume has further been estimated from the Vehicles Per Day (VPD) traffic volume provided by the project consultant assuming 94% of traffic occurs between 6am and 12am (midnight).

All road surfaces were assumed to be Dense Graded Asphalt (DGA). On this basis, a road surface correction factor of 0 dBA was applied for all road traffic noise predictions, in accordance with CoP Vol 1.

A -0.7 dBA (free field) or -1.7 dBA (1m from façade) road traffic calibration factor was applied, where applicable, in accordance with the CoP Vol 1 with a further +2.5 dB facade correction factor in accordance with the CoRTN.

The QDC MP4.4 Noise Categories were determined from the noise contour maps calculated at 1.8 m and 4.6 m above ground level as per the DEM, for the ground floor and first floor of two storey dwellings assumed for the development, respectively. The highest Noise Category predicted onto the lot at ground floor and first floor is reported conservatively.

Road traffic noise contours were generated from noise predictions using a grid spacing of 1.0 m.

Table 3 Year 2041 Road Traffic Forecasts

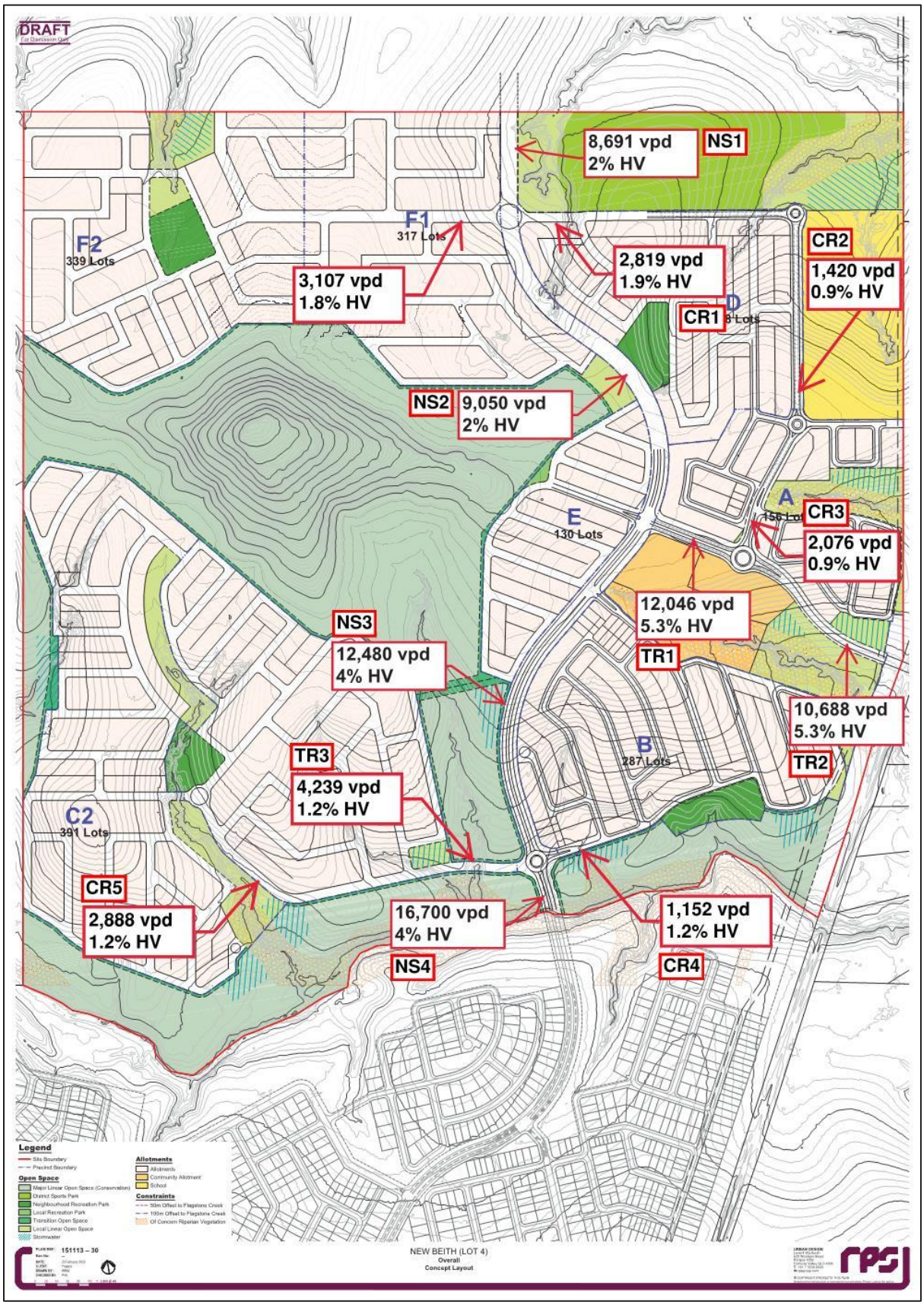
Road	Road segment	Vehicles per Day	18hr traffic volume	% Heavy Vehicles	Posted Speed, Km/h
North South Trunk Connector	NS1	8,691	8,170	2	70
North South Trunk Connector	NS2	9,050	8,507	2	70
North South Trunk Connector	NS3	12,480	11,731	4	70
North South Trunk Connector	NS4	16,700	15,698	4	70
Mountain Ridge Road (Trunk Road)	TR1	12,046	11,323	5.3	60
Mountain Ridge Road (Trunk Road)	TR2	10,688	10,047	5.3	60
Mountain Ridge Road (Trunk Road)	TR3	4,239	3,985	1.2	60
Collector Road	CR1	2,819	2,650	1.9	50
Collector Road	CR2	1,420	1,335	0.9	50
Collector Road	CR3	2,076	1,951	0.9	50
Collector Road	CR4	1,152	1,083	1.2	50
Collector Road	CR5	2,888	2,715	1.2	50
Road traffic on internal local roads has not been considered. This can be expected to cause minimal impact compared to other roads carrying much larger traffic volumes. Thus, they do not warrant noise treatment, noting that it is not possible to apply noise mitigation in front of these roads due to the presence of driveways.					

3.1.1 Road Traffic Noise Model Verification

It is acknowledged that, according to the CoP Vol 1, a road traffic noise model is deemed to be verified if the average difference between the measured and calculated values of the noise descriptors is no more than ±2.0 dBA.

A road traffic model verification for new roads to be built as part of the Project is not possible at this stage as the roads are non-existing. However, past experience has shown that noise predictions using CoRTN typically result in conservative predictions of of road traffic noise levels at receptors.

Figure 1 Year 2041 Traffic volume estimates (Source: Bitzios Consulting)



3.2 Railway Noise Modelling

The Kilde railway noise prediction methodology was applied to calculate railway noise levels. The methodology was used to predict the Single Event Maximum (SEM) rail noise levels[2] for daily railway traffic and referenced noise emissions specific for Queensland's rolling stock. The noise modelling also referenced guidelines on the prediction of railway noise from TMR.

The SEM is defined as the arithmetic average of maximum levels from the highest 15 single events over a given 24 hour period.

The QDC MP4.4 Noise Categories were determined from the noise contour maps calculated at 1.8 m and 4.6 m, representing the ground floor and first floor of two storey dwellings assumed for the development, respectively. The highest Noise Category predicted onto the lot at ground floor and first floor is reported conservatively.

Rail noise contours were generated from noise predictions calculated using a grid spacing of 1.0 m.

The noise predictions by Kilde are free field predictions. Therefore, the calculated railway noise levels were adjusted by +2.5 dBA to account for the reflected sound at 1 m from a building façade, in accordance with the TMR Vol 3.

3.2.1 Railway Model Validation

Railway noise levels measured in 2022 (detailed in **Appendix D**) were referenced to verify the accuracy of the railway noise prediction model. The daily railway movements used to validate the model are detailed in **Table 4**.

Table 4 Daily Railway Movements

Train Type	Noise Emission	Modelled Speed	Train per 24-hour
XPT	95 dBA SEL, 87 dBA L_{Amax} at 25 m	100 km/h	2
Locomotive (notch 8)	86 dBA SEL, 84 dBA L_{Amax} at 25m	80 km/h	6
Freight wagons (1,000 m)	90 dBA SEL, 85 dBA L_{Amax} at 25m	80 km/h	6

The noise model verification results are detailed in **Table 5**, which shows the predicted rail noise levels are within ±2 dBA of the measured rail noise levels; therefore, the model is considered validated in accordance with CoP Vol 3.

Table 5 Verification of Railway Noise Model

Measured Rail Noise Levels		Predicted Rail Noise Levels		Verification of Predicted Levels	
$L_{Aeq(24hour)}$	SEM	$L_{Aeq(24hour)}$	SEM	$L_{Aeq(24hour)}$	SEM
49	80	49	81	0	+1

Railway noise levels were measured in the free-field at 1.5 m above ground and 55 m from a straight section of track with no signals, cross overs or other acoustically-significant features.

[2] Kilde also predicts the LAeq(24hour). However, only the SEM is relevant to this noise assessment.

3.2.2 Future Railway Operations

In the future, the Inland Rail project and proposed Salisbury to Beaudesert rail corridor could substantially increase passenger and freight rail operations adjacent to the Flagstone development and the Project.

The Inland Rail project will increase existing freight train operations as well as introduce new super-freighter train services. Railway data for the Inland Rail project has been referenced from the Inland Rail Environmental Impact Statement (EIS). Additionally, the Environmental Impact Statement (EIS) for the Cross River Rail project includes forecast future passenger services for the proposed Salisbury to Beaudesert corridor of up to 148 passenger trains per day.

The forecast future railway operations with the Inland Rail and Salisbury to Beaudesert projects adopted for this assessment are summarised in **Table 6**.

It is important to note that, as the Inland Rail and Salisbury to Beaudesert projects continue to be developed, the daily railway operations modelled in this assessment may be subject to change. Notwithstanding this, SLR has applied the best available information to forecast potential peak railway operations to provide a suitably conservative assessment of railway noise.

In this regard, the predicted noise levels may not be experienced everyday due to variability in timetabled railway operations and the variability of other parameters which influence noise emissions such as train speeds, train length and locomotive types.

Table 6 Forecast Future Daily Rail Movements

Train Type	Noise Emission	Modelled Speed	Trains per 24-hour
SMU passenger	90 dBA SEL at 25m 84 dBA LAmax at 25m	100 km/h	148
XPT	95 dBA SEL at 25 m 87 dBA LAmax at 25 m	100 km/h	2
Locomotive (notch 8)	86 dBA SEL at 25m 84 dBA LAmax at 25m	80 km/h	36
Inland Rail freight NR class	85 dBA SEL at 15m 90 dBA LAmax at 15m	100 km/h	4
Inland Rail super-freighter	85 dBA SEL at 15m 90 dBA LAmax at 15m	100 km/h	11
Freight wagons (1,000 m)	90 dBA SEL at 25m 85 dBA LAmax at 25m	80 km/h	36
Inland Rail wagons (1,000 m)	92 dBA SEL at 25m 88 dBA LAmax at 25m	100 km/h	15

4.0 Noise Assessment Results

4.1 QDC MP4.4 Noise Categories

The QDC MP4.4 Categories applicable to all lots of Stages 4,5, 6a and 7 of Precinct B, related to road traffic noise and railway noise are presented in **Appendix E (Table E-1).** The results present the lot number, stage, modelled ground elevation at the (approximate) centre of the lot and the QDC MP4.4 Noise Category for Ground Floor and First Floor noise levels (read from the noise maps as the highest Noise Category within the lot), with and without noise mitigation.

The QDC MP4.4 noise category to be applied to the design of the dwelling inside the lots is the highest of the road and railway (last column in **Table E-1**) for the residual noise after the implementation of the recommended noise barriers.

Table 7 presents a summary of QDC MP4.4 noise predictions on the lots with noise barriers in front. The modelled ground elevation at the approximate centre of the lot, as well as the mid span elevation of the barrier and the approximate elevation of the road or railway section immediately in front are also presented for information.

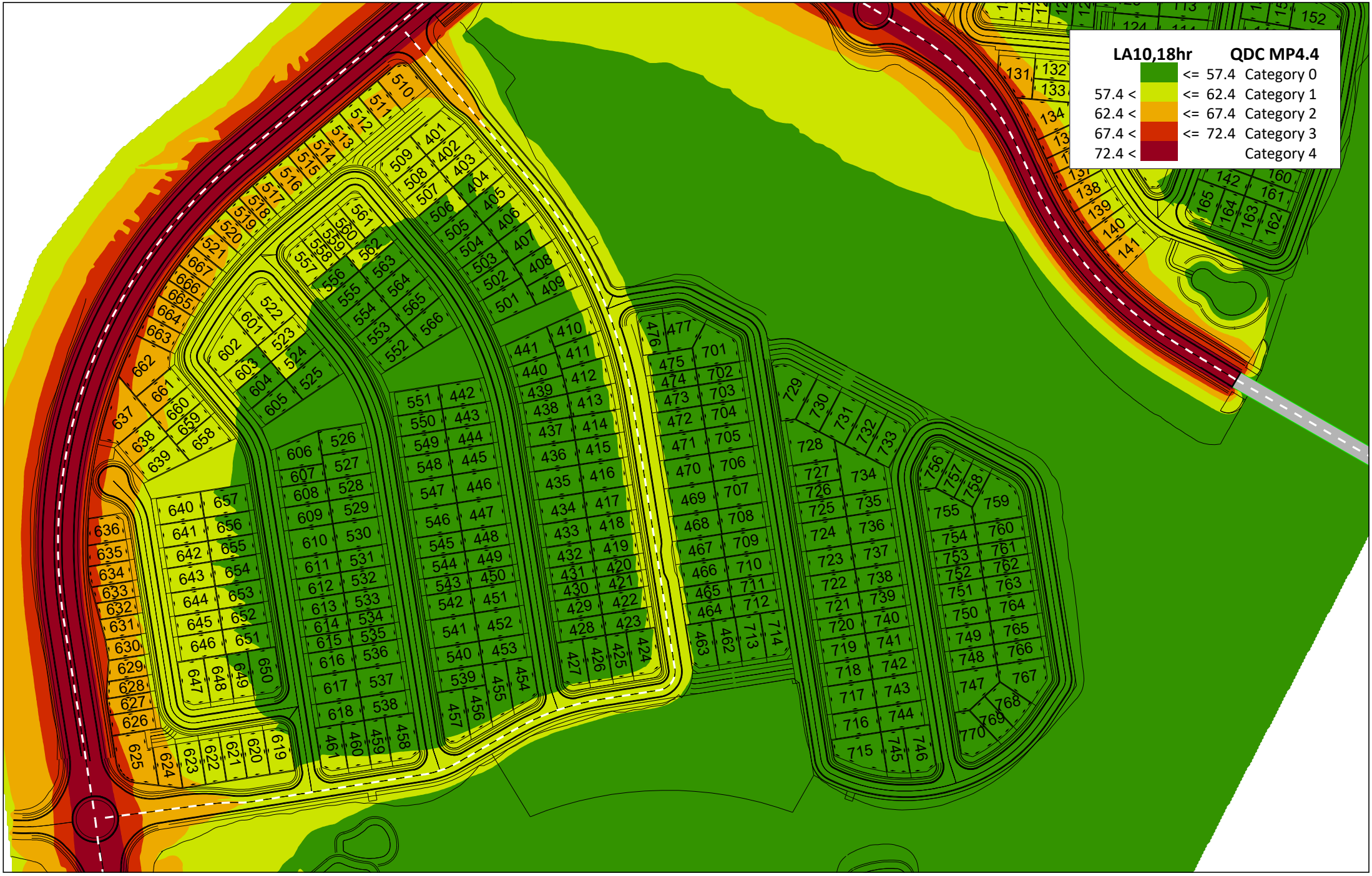
Noise contours are provided in **Figure 2** to **Figure 5** to depict the road traffic noise levels with and without the noise barriers. The contours show the predicted $L_{A10(18hour)}$ noise descriptor and the applicable QDC MP4.4 Noise Categories without a noise barrier, as well as with noise barriers.

Noise contours are provided in **Figure 6** to **Figure 9** to depict the railway noise levels with and without the noise barriers. The contours show the predicted SEM noise descriptor and relevant QDC MP4.4 Noise Categories.

Table 7 Transportation Noise Predictions on Lots With a Noise Barrier

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)		Elevation at Base of Barrier (mid span), m	Approximate Elevation of Road/Railway in Front of Lot, m	Lot in Cut /Fill
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier			
510	GF	495427.35	6926720.45	70.3	2	1	0	0	2	1	72.5	72.4	Cut
510	FF	495427.35	6926720.45	70.3	3	3	0	1	3	3	-	-	-
511	GF	495414.16	6926708.19	69.7	2	1	0	0	2	1	72.3	72.2	Cut
511	FF	495414.16	6926708.19	69.7	3	2	0	1	3	2	-	-	-
512	GF	495402.74	6926699.68	69.6	2	0	0	0	2	0	72.2	72.1	Cut
512	FF	495402.74	6926699.68	69.6	3	2	0	1	3	2	-	-	-
513	GF	495391.42	6926689.6	69.4	2	0	0	0	2	0	72.1	72.0	Cut
513	FF	495391.42	6926689.6	69.4	3	2	0	1	3	2	-	-	-
514	GF	495380.41	6926680.98	69.3	2	0	0	0	2	0	71.9	71.7	Cut
514	FF	495380.41	6926680.98	69.3	3	2	0	1	3	2	-	-	-
515	GF	495370.95	6926673.4	69.2	2	1	0	0	2	1	71.7	71.5	Cut
515	FF	495370.95	6926673.4	69.2	3	2	0	1	3	2	-	-	-
516	GF	495360.36	6926664.26	68.8	2	1	0	0	2	1	71.3	71.2	Cut
516	FF	495360.36	6926664.26	68.8	3	2	0	1	3	2	-	-	-
517	GF	495349.66	6926655.43	68.3	2	1	0	0	2	1	71.0	70.8	Cut
517	FF	495349.66	6926655.43	68.3	3	2	0	1	3	2	-	-	-
518	GF	495341.35	6926647.85	68.0	2	1	0	0	2	1	70.6	70.5	Cut
518	FF	495341.35	6926647.85	68.0	3	2	0	1	3	2	-	-	-
519	GF	495333.04	6926640.78	67.6	2	1	0	0	2	1	70.2	70.1	Cut
519	FF	495333.04	6926640.78	67.6	3	2	0	1	3	2	-	-	-
520	GF	495324.63	6926632.37	67.1	2	1	0	0	2	1	69.7	69.5	Cut
520	FF	495324.63	6926632.37	67.1	3	2	0	1	3	2	-	-	-
521	GF	495314.45	6926622.82	66.5	2	1	0	0	2	1	69.0	68.9	Cut
521	FF	495314.45	6926622.82	66.5	3	3	0	1	3	3	-	-	-
624	GF	495286.38	6926312.76	44.5	2	1	0	0	2	1	44.4	42.8	Fill
624	FF	495286.38	6926312.76	44.5	2	2	0	0	2	2	-	-	-
625	GF	495267.48	6926317.85	45.1	3	2	0	1	3	2	45.1	45.9	Cut
625	FF	495267.48	6926317.85	45.1	3	3	0	0	3	3	-	-	-
626	GF	495266.89	6926339.11	45.6	3	1	0	1	3	1	47.0	47.0	Cut
626	FF	495266.89	6926339.11	45.6	3	3	0	0	3	3	-	-	-
627	GF	495265.71	6926350.25	45.8	3	1	0	1	3	1	47.7	47.6	Cut
627	FF	495265.71	6926350.25	45.8	3	3	0	0	3	3	-	-	-
628	GF	495264.83	6926360.07	46.3	2	1	0	1	2	1	48.3	48.2	Cut
628	FF	495264.83	6926360.07	46.3	3	3	0	1	3	3	-	-	-
629	GF	495263.94	6926371.51	46.8	2	1	0	1	2	1	49.1	49.0	Cut
629	FF	495263.94	6926371.51	46.8	3	3	0	1	3	3	-	-	-
630	GF	495262.24	6926383.98	47.8	2	1	0	1	2	1	49.9	49.7	Cut
630	FF	495262.24	6926383.98	47.8	3	3	0	0	3	3	-	-	-
631	GF	495259.22	6926396.6	49.0	2	1	0	1	2	1	50.6	50.6	Cut
631	FF	495259.22	6926396.6	49.0	3	3	0	0	3	3	-	-	-
632	GF	495257.23	6926407.15	50.3	2	1	0	1	2	1	51.3	51.2	Cut
632	FF	495257.23	6926407.15	50.3	3	3	0	0	3	3	-	-	-
633	GF	495254.79	6926416.89	51.5	3	1	0	1	3	1	51.9	51.6	Cut
633	FF	495254.79	6926416.89	51.5	3	3	0	0	3	3	-	-	-
634	GF	495252.87	6926427.74	52.5	3	2	0	1	3	2	52.7	53.2	Cut
634	FF	495252.87	6926427.74	52.5	3	3	0	1	3	3	-	-	-
635	GF	495251.47	6926440.06	53.9	3	2	0	1	3	2	54.0	53.2	Fill
635	FF	495251.47	6926440.06	53.9	3	3	0	0	3	3	-	-	-
636	GF	495249.99	6926454.01	55.3	3	2	0	1	3	2	55.4	54.4	Fill
636	FF	495249.99	6926454.01	55.3	3	3	0	0	3	3	-	-	-

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)		Elevation at Base of Barrier (mid span), m	Approximate Elevation of Road/Railway in Front of Lot, m	Lot in Cut /Fill
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier			
637	GF	495259.61	6926520.82	60.7	3	2	0	1	3	2	60.7	60.4	Fill
637	FF	495259.61	6926520.82	60.7	3	3	0	0	3	3	-	-	-
662	GF	495271.66	6926552.09	63.7	3	2	0	1	3	2	63.7	63.2	Fill
662	FF	495271.66	6926552.09	63.7	3	3	0	0	3	3	-	-	-
663	GF	495281.32	6926571.3	63.9	3	1	0	1	3	1	65.0	64.8	Cut
663	FF	495281.32	6926571.3	63.9	3	3	0	0	3	3	-	-	-
664	GF	495287.55	6926583.04	64.5	3	1	0	1	3	1	66.0	65.8	Cut
664	FF	495287.55	6926583.04	64.5	3	3	0	0	3	3	-	-	-
665	GF	495293.99	6926592.49	65.0	2	1	0	0	2	1	66.8	66.6	Cut
665	FF	495293.99	6926592.49	65.0	3	3	0	0	3	3	-	-	-
666	GF	495298.67	6926601.73	65.5	2	1	0	0	2	1	67.5	67.3	Cut
666	FF	495298.67	6926601.73	65.5	3	3	0	1	3	3	-	-	-
667	GF	495305.94	6926611.5	66.0	2	1	0	0	2	1	68.2	68.0	Cut
667	FF	495305.94	6926611.5	66.0	3	3	0	1	3	3	-	-	-
759	GF	495783.1	6926470.7	47.7	0	0	3	2	3	2	47.1	46.9	Fill
759	FF	495783.1	6926470.7	47.7	0	0	3	3	3	3	-	-	-
760	GF	495785.88	6926454.43	47.4	0	0	3	2	3	2	46.7	46.2	Fill
760	FF	495785.88	6926454.43	47.4	0	0	3	3	3	3	-	-	-
761	GF	495787.59	6926442.66	47.1	0	0	3	2	3	2	46.5	46.0	Fill
761	FF	495787.59	6926442.66	47.1	0	0	3	3	3	3	-	-	-
762	GF	495788.88	6926432.6	47.1	0	0	3	2	3	2	46.4	46.0	Fill
762	FF	495788.88	6926432.6	47.1	0	0	3	3	3	3	-	-	-
763	GF	495790.38	6926421.47	47.0	0	0	3	2	3	2	46.3	45.7	Fill
763	FF	495790.38	6926421.47	47.0	0	0	3	3	3	3	-	-	-
764	GF	495792.73	6926408.62	46.9	0	0	3	2	3	2	46.3	45.4	Fill
764	FF	495792.73	6926408.62	46.9	0	0	3	3	3	3	-	-	-
765	GF	495794.87	6926394.28	46.8	0	0	3	2	3	2	46.2	44.7	Fill
765	FF	495794.87	6926394.28	46.8	0	0	3	3	3	3	-	-	-
766	GF	495797.23	6926382.08	46.7	0	0	3	2	3	2	46.1	44.8	Fill
766	FF	495797.23	6926382.08	46.7	0	0	3	3	3	3	-	-	-
767	GF	495800.22	6926365.81	46.5	0	0	3	2	3	2	45.9	44.0	Fill
767	FF	495800.22	6926365.81	46.5	0	0	3	3	3	3	-	-	-
768	GF	495789.78	6926350.34	46.4	0	0	3	2	3	2	45.8	43.2	Fill
768	FF	495789.78	6926350.34	46.4	0	0	3	3	3	3	-	-	-
769	GF	495780.5	6926340.33	46.3	0	0	3	2	3	2	45.7	42.9	Fill
769	FF	495780.5	6926340.33	46.3	0	0	3	3	3	3	-	-	-
770	GF	495768.81	6926331.67	46.2	0	0	3	2	3	2	45.5	42.1	Fill
770	FF	495768.81	6926331.67	46.2	0	0	3	3	3	3	-	-	-



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SCALE :2000

0 10 20 40 60 80 100 m

ORIENTATION

N

LEGEND

Roads

PROJECT	New Beith Precinct B, Stages 4, 5, 6a and 7
CLIENT	Frasers Property Australia Pty Ltd
DESCRIPTION	Ground Floor Facade Corrected $L_{A10,18hr}$ at 1.8m Above the Ground Without Noise Mitigation

Date:	7/06/2024
Project No.:	620.013870.00001
Report No.:	620.013870.00001-R2-v2.0
Prediction Method:	CoRTN
Prepared By:	RO
Prediction Height:	1.8 m

Figure 2

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SCALE :2000

0 10 20 40 60 80 100 m

ORIENTATION

N

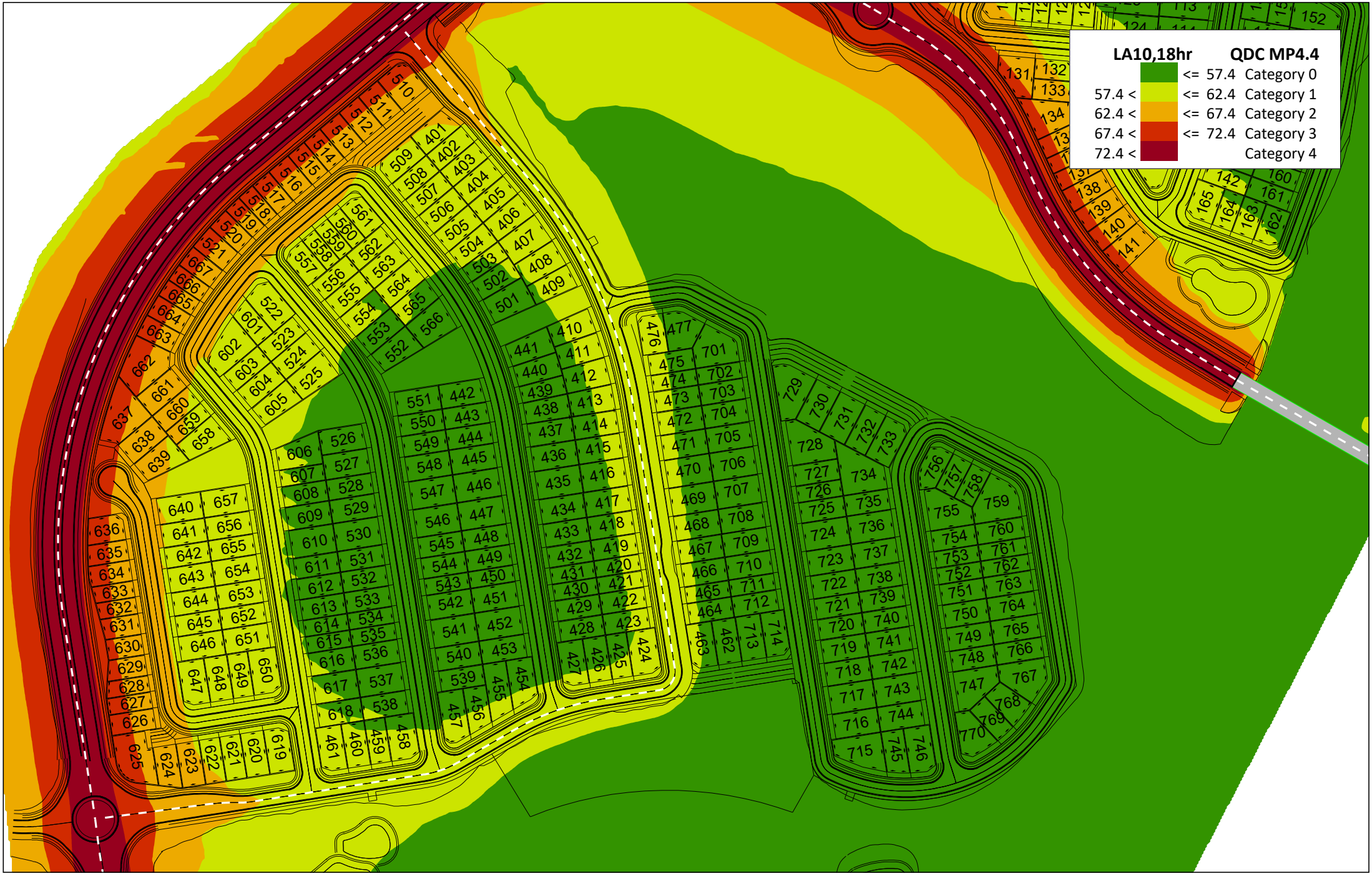
Legend

- 2.0m hign noise barrier
- 2.5m high noise barrier

PROJECT	New Beith Precinct B, Stages 4, 5, 6a and 7
CLIENT	Frasers Property Australia Pty Ltd
DESCRIPTION	Ground Floor Facade Corrected $L_{A10,18hr}$ at 1.8m Above the Ground With Noise Mitigation

Date:	7/06/2024
Project No.:	620.013870.00001
Report No.:	620.013870.00001-R2-v2.0
Prediction Method:	CoRTN
Prepared By:	RO
Prediction Height:	1.8 m

Figure 3



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SCALE :2000

0 10 20 40 60 80 100 m

ORIENTATION

N

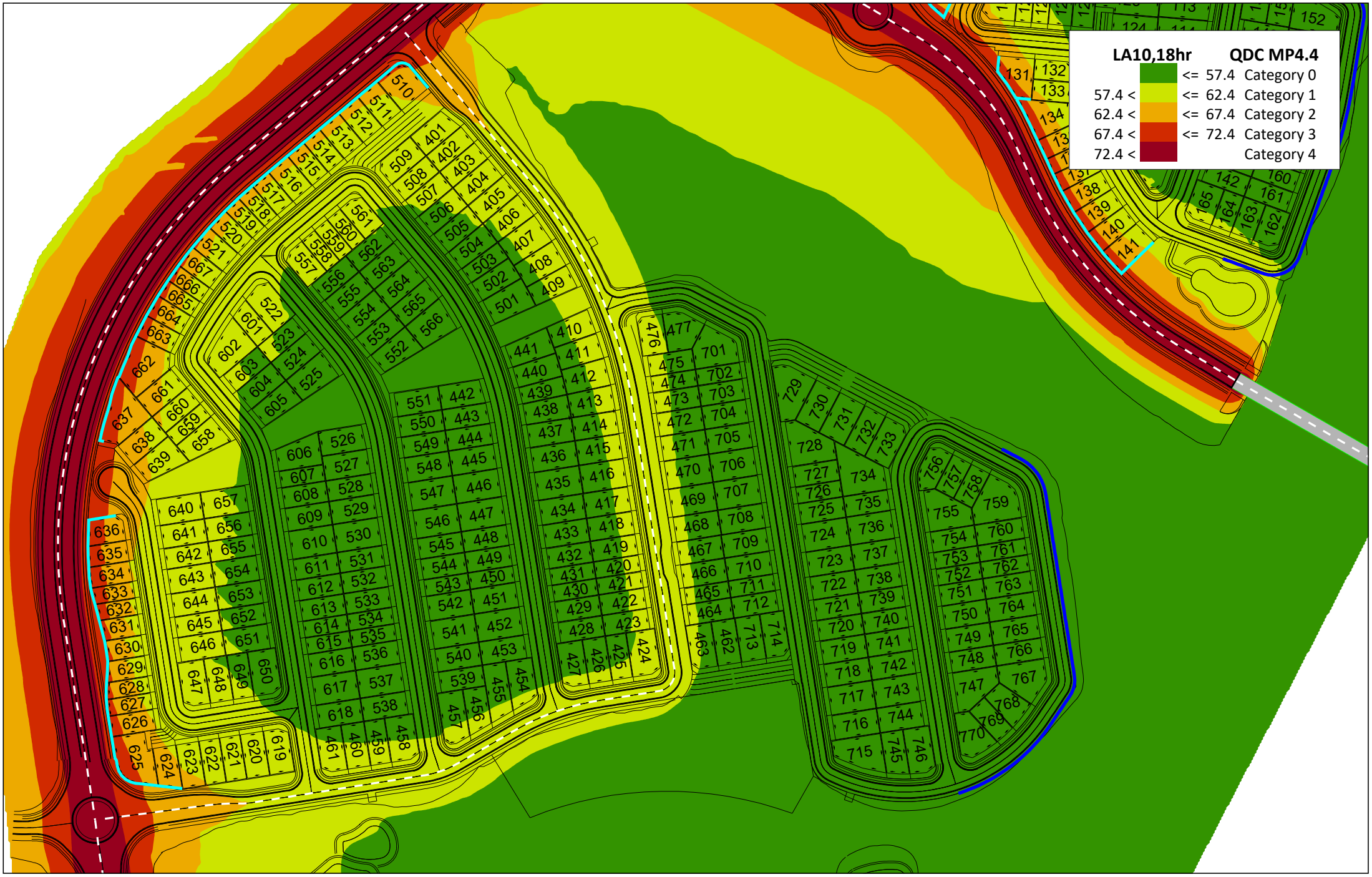
Legend

Roads

PROJECT	New Beith Precinct B, Stages 4, 5, 6a and 7
CLIENT	Frasers Property Australia Pty Ltd
DESCRIPTION	First Floor Facade Corrected $L_{A10,18hr}$ at 4.6m Above the Ground Without Noise Mitigation

Date:	7/06/2024
Project No.:	620.013870.00001
Report No.:	620.013870.00001-R2-v2.0
Prediction Method:	CoRTN
Prepared By:	RO
Prediction Height:	4.6 m

Figure 4



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SCALE :2000

0 10 20 40 60 80 100 m

ORIENTATION

N

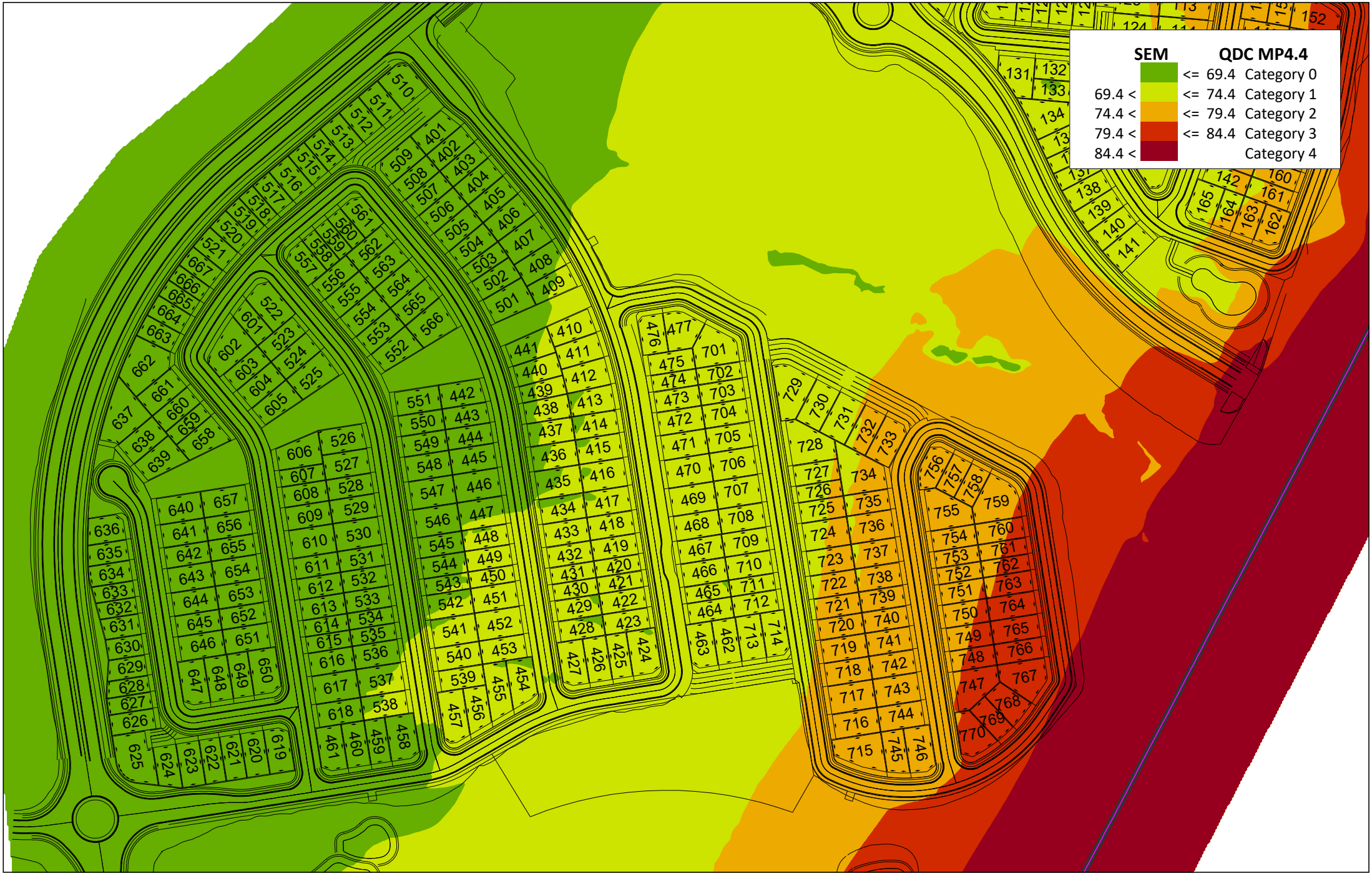
Legend

- 2.0m hign noise barrier
- 2.5m high noise barrier

PROJECT	New Beith Precinct B, Stages 4, 5, 6a and 7
CLIENT	Frasers Property Australia Pty Ltd
DESCRIPTION	First Floor Facade Corrected $L_{A10,18hr}$ at 4.6m Above the Ground With Noise Mitigation

Date:	7/06/2024
Project No.:	620.013870.00001
Report No.:	620.013870.00001-R2-v2.0
Prediction Method:	CoRTN
Prepared By:	RO
Prediction Height:	4.6 m

Figure 5



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SCALE :2000

0 10 20 40 60 80 100 m

ORIENTATION

N

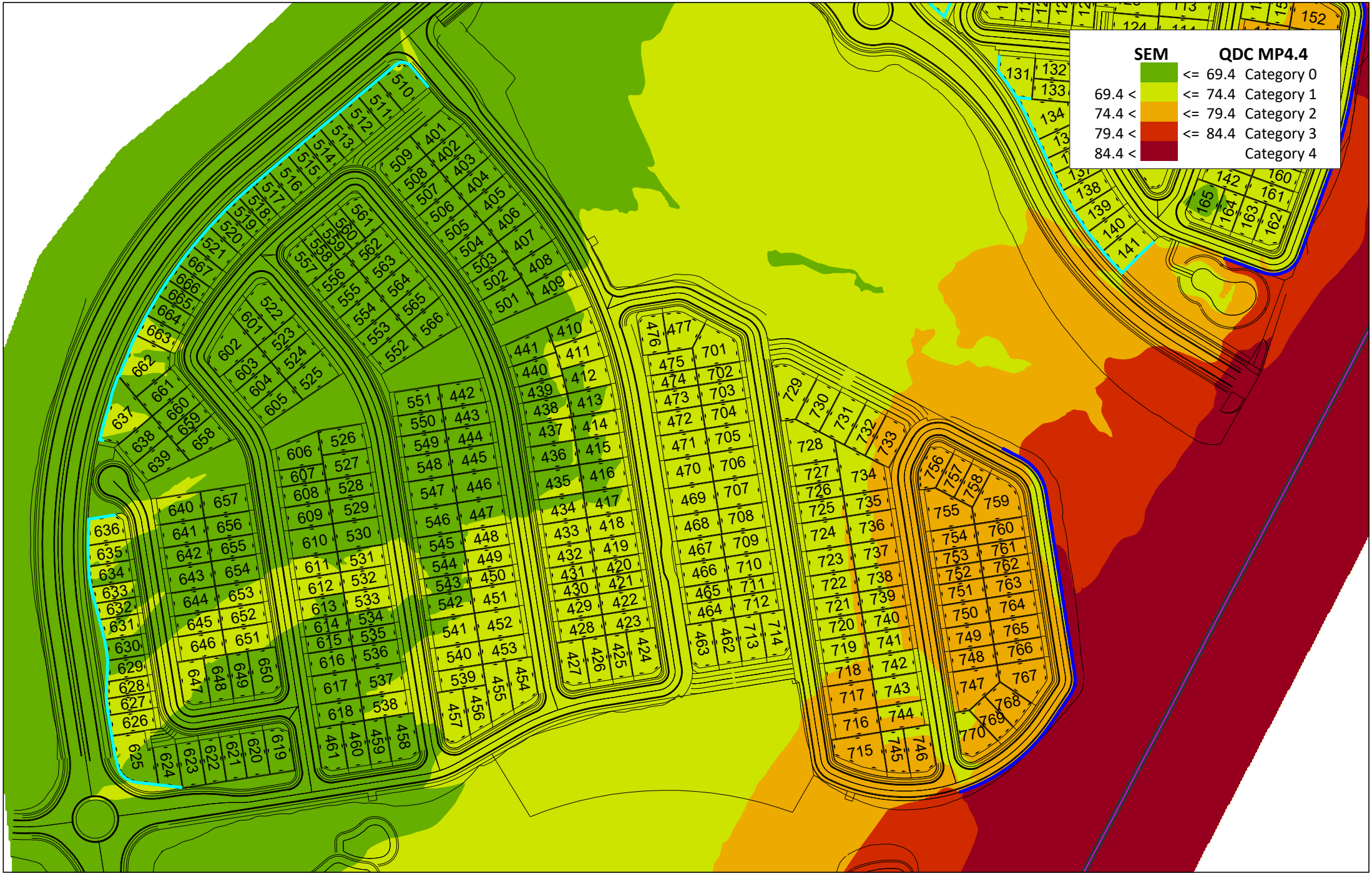
LEGEND

Railway

PROJECT	New Beith Precinct B, Stages 4, 5, 6a and 7
CLIENT	Frasers Property Australia Pty Ltd
DESCRIPTION	Ground Floor Facade Corrected SEM at 1.8m Above the Ground Without Noise Mitigation

Date:	7/06/2024
Project No.:	620.013870.00001
Report No.:	620.013870.00001-R2-v2.0
Prediction Method:	Kilde
Prepared By:	RO
Prediction Height:	1.8 m

Figure 6



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SCALE :2000

0 10 20 40 60 80 100 m

ORIENTATION

N

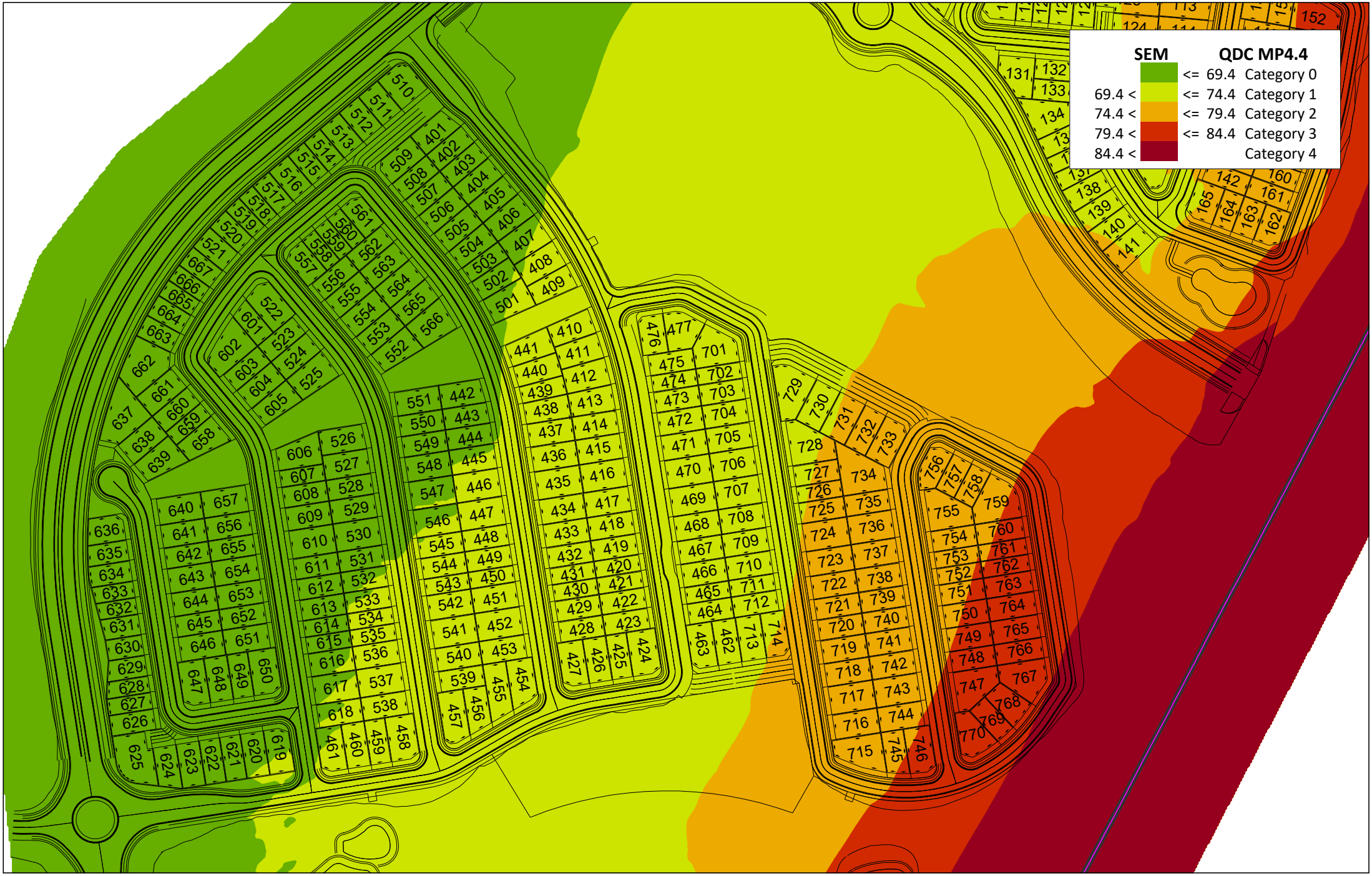
Legend

- Railway
- 2.0m high noise barrier
- 2.5m high noise barrier

PROJECT	New Beith Precinct B, Stages 4, 5, 6a and 7
CLIENT	Frasers Property Australia Pty Ltd
DESCRIPTION	Ground Floor Facade Corrected SEM at 1.8m Above the Ground With Noise Mitigation

Date:	11/06/2024
Project No.:	620.013870.00001
Report No.:	620.013870.00001-R2-v2.0
Prediction Method:	Kilde
Prepared By:	RO
Prediction Height:	1.8 m

Figure 7



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SCALE :2000

0 10 20 40 60 80 100 m

ORIENTATION

N

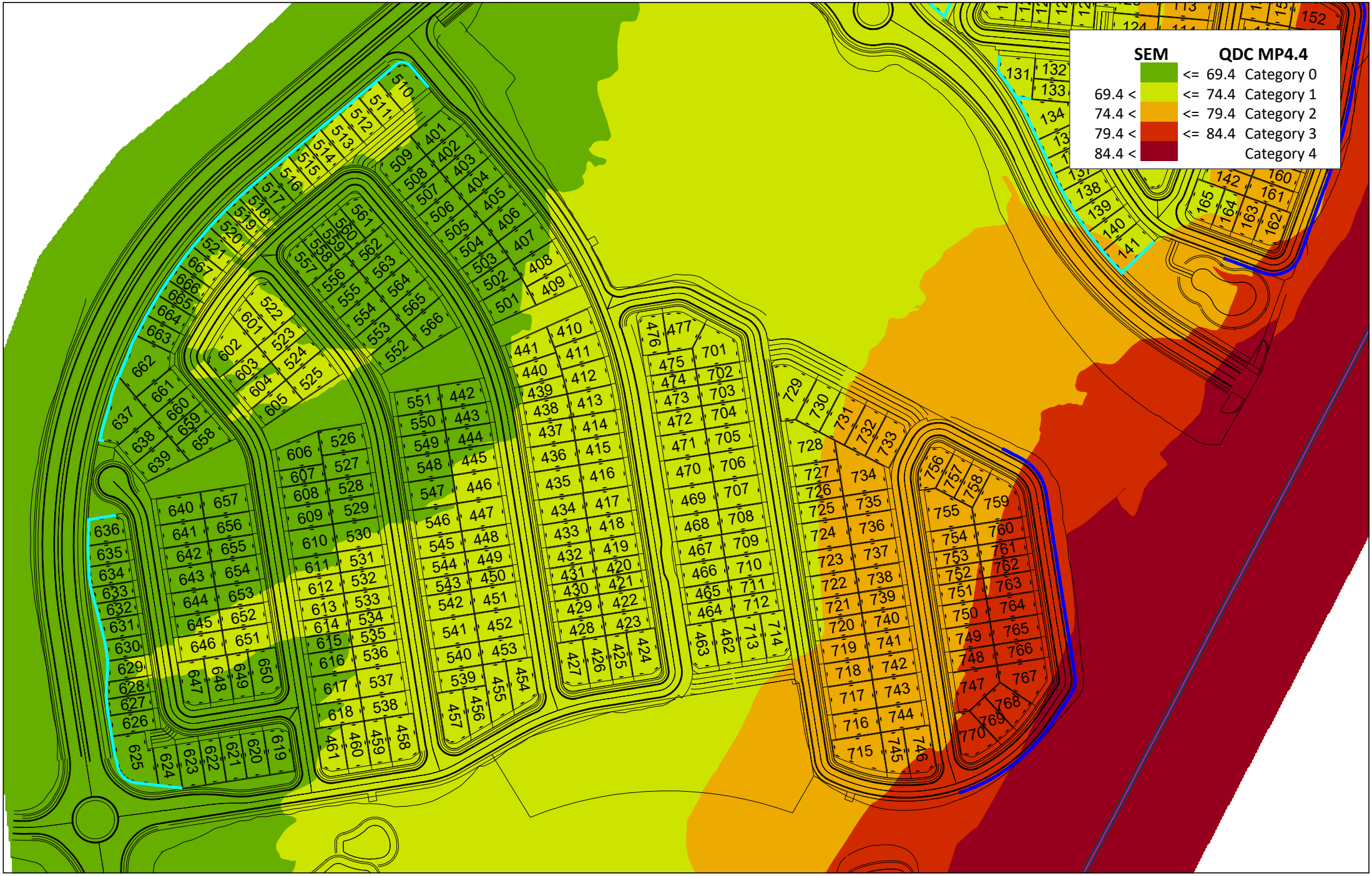
LEGEND

Railway

PROJECT	New Beith Precinct B, Stages 4, 5, 6a and 7
CLIENT	Frasers Property Australia Pty Ltd
DESCRIPTION	Ground Floor Facade Corrected SEM at 4.6m Above the Ground Without Noise Mitigation

Date:	7/06/2024
Project No.:	620.013870.00001
Report No.:	620.013870.00001-R2-v2.0
Prediction Method:	Kilde
Prepared By:	RO
Prediction Height:	4.6 m

Figure 8



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SCALE :2000

0 10 20 40 60 80 100 m

ORIENTATION

N

Legend

- Railway
- 2.0m high noise barrier
- 2.5m high noise barrier

PROJECT	New Beith Precinct B, Stages 4, 5, 6a and 7
CLIENT	Frasers Property Australia Pty Ltd
DESCRIPTION	First Floor Facade Corrected SEM at 4.6m Above the Ground With Noise Mitigation

Date: 11/06/2024
Project No.: 620.013870.00001
Report No.: 620.013870.00001-R2-v2.0
Prediction Method: Kilde
Prepared By: RO
Prediction Height:4.6 m

Figure 9

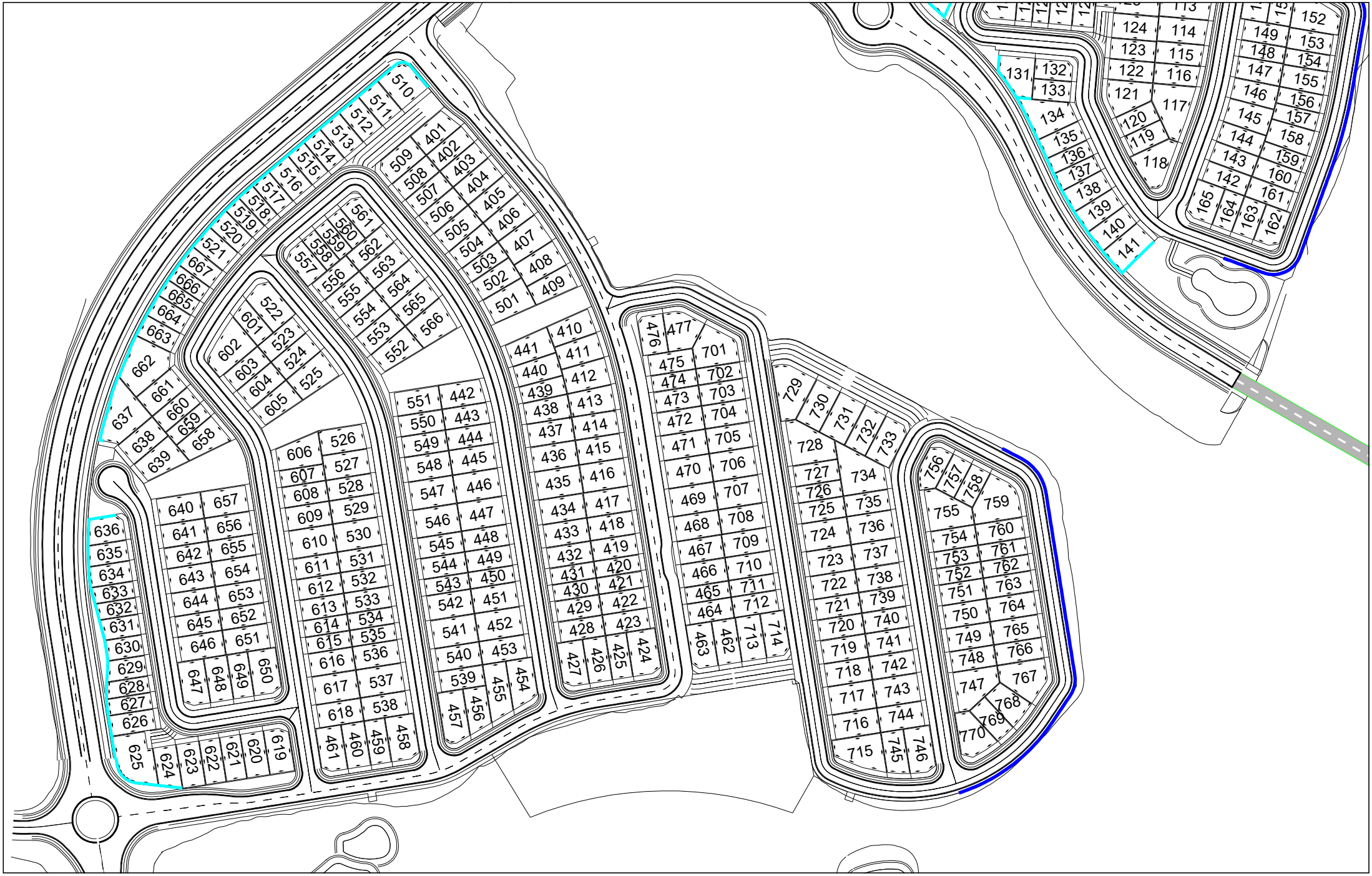
5.0 Recommendations

5.1 Noise Barriers

For the external noise levels to meet the predicted noise categories detailed in **Section 4.0**, noise barriers are recommended to be built as follows:

- The locations of the modelled noise barriers are shown in **Figure 10**.
- The noise barriers must be built on top of any retaining walls. This applies regardless of whether the lot is in a cut or in fill (i.e. lot at a lower elevation than the assessed road immediately adjoining, and vice versa).

  Table 7 above presents the approximate ground elevation at the base of the barrier at mid span of the respective lot fronting the noise source, the ground elevation at the approximate centre of the lot and the approximate elevation of the closest road/railway section in front.
- The barriers must be installed without gaps between concrete panels and posts.
- Small gaps between the bottom of the noise fences are permissible if required for drainage. However, these must be minimised.
- The noise barriers must have a minimum surface density of 12.5 kg/m² (excluding structural components):
  - Overlapped timber barriers are suitable. Brisbane City Council drawings BSD-7021 and Moreton Bay Regional Council drawings SF-1520 are provided for reference (also reproduced in **Appendix F**). Note the noise barriers must be built to the minimum height indicated in **Figure 10**.
  - Other construction materials are also suitable where the panels meet the minimum surface density.



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PROJECT	New Beith Precinct B, Stages 4, 5, 6a and 7
CLIENT	Frasers Property Australia Pty Ltd
DESCRIPTION	Assessed Noise Barriers

Date:	7/06/2024
Project No.:	620.013870.00001
Report No.:	620.013870.00001-R2-v2.0
Prediction Method:	NA
Prepared By:	RO
Prediction Height:	NA

Figure 10

5.2 QDC MP4.4 Noise Category requirements

The minimum QDC MP4.4 noise categories applicable to the construction of a dwelling with a noise barrier in front are presented in **Section 4.1**.

A full list of QDC MP4.4 Noise Categories applicable to all lots within Precinct B is provided in **Table E-1** (**Appendix E**). The highest Noise Category for road and railway (last column in **Table E-1**) applies for the residual noise after the implementation of the recommended noise barriers.

The applicable QDC MP4.4 categories on these lots after the implementation of the noise barriers will vary between Noise Category 0 and Noise Category 2 for ground floor level and Noise Category 0 to Noise Category 3 for First Floor level. The Noise Category will depend on distance from the noise source, number of storeys of the dwelling and whether the dwelling will have a direct view of the noise source (e.g. when built in a fill).

The Rw rating applicable to the dwelling facade elements for each of QDC MP4.4 Noise Category are presented in **Table 2**. Acceptable forms of construction are reproduced from Schedule 2 of QDC MP4.4 in **Appendix C**, noting that other forms of construction are acceptable where they meet the required Rw rating.

The noise attenuation provided by the dwelling facade will be largely controlled by the window elements; therefore, it is recommended that facade glazing systems (window + frame + seals) required to achieve a minimum Rw performance are supplied with an acoustic test report conducted in Australia by a qualified consultant who is a member of the Australian Acoustical Society (AAS), or an acoustic consultant who works for a member firm of the Association of Australasian Acoustical Consultants (AAAC). The acoustic test report should address the requirements in the following standards:

- AS 1191-2002 *Acoustics - Method for laboratory measurement of airborne sound transmission insulation of building elements*
- ISO 717-1:2013 *Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation*

It should be noted that as stated in QDC MP4.4, *"the part applies to building work for the construction or renovation of a residential building in a designated transport noise corridor"*; therefore, it is only relevant at the Building Application stage of the individual lots being the building owner responsible for obtaining certification.

A lower Noise Category should be acceptable at specific facades of the future dwellings depending on the layout of these within the lots, pending demonstration of the railway or road traffic noise levels onto specific habitable spaces within a dwelling via a lot specific noise assessment based on architectural drawings, presented by the lot owner.

6.0 Conclusion

SLR Consulting Pty Ltd (SLR) have completed a road traffic noise assessment of the proposed New Beith Precinct B, Stage 4, 5, 6a and 7.

This report addresses the transportation (railway and road traffic) noise intrusion onto the Precinct B lots.

The assessment was conducted following guidance from the Queensland Department of Transport and Main Roads (DTMR) – Transport Noise Management: Code of Practice Volume 1 - Road Traffic Noise, dated November 2013 (CoP Vol 1) and the Code of Practice Volume 3 - Operational railway noise and vibration (CoP Vol 3) (Interim Guideline).

A computational noise model was used to predict the noise levels from the future roads to be built as part of the development, as well as future railway noise levels.

Noise monitoring previously conducted in 2022 as part of the Flagstone City Centre Masterplan noise assessment was used to verify the railway noise model.

For the external noise levels to meet the predicted noise categories detailed in this report, noise barriers are recommended to be built as follows:

- The locations of the modelled noise barriers are shown in **Figure 10**.
- The noise barriers must be built on top of any retaining walls. This applies regardless of whether the lot is in a cut or in fill (i.e. a lot at a lower elevation than the assessed road immediately adjoining, and vice versa).

  Table 7 above presents the approximate ground elevation at the base of the barrier at mid span of the respective lot fronting the noise source, the ground elevation at the approximate centre of the lot and the approximate elevation of the closest road/railway section in front of the lot.
- The barriers must be installed without gaps between concrete panels and posts.
- Small gaps between the bottom of the noise fences are permissible if required for drainage. However, these must be minimised.
- The noise barriers must have a minimum surface density of 12.5 kg/m² (excluding structural components):
  - Overlapped timber barriers are suitable. Brisbane City Council drawings BSD-7021 and Moreton Bay Regional Council drawings SF-1520 are provided for reference (also reproduced in **Appendix F**). Note the noise barriers must be built to the minimum height indicated in **Figure 10**.
  - Other construction materials are also suitable where the panels meet the minimum surface density.

The residual noise levels after the implementation of noise barriers were assessed against noise criteria derived from the Queensland Development Code Mandatory Part 4.4 (QDC MP4.4).

QDC MP4.4 Categories applicable to all the lots pertaining the assessed Precinct B stages are presented in **Appendix E**.

The Rw rating applicable to the dwelling facade elements are presented in **Table 2**. Acceptable forms of construction are reproduced from Schedule 2 of QDC MP4.4 in **Appendix C**, noting that other forms of construction are acceptable where they meet the required Rw rating.

The predicted QDC MP4.4 Noise Categories presented in this report represent the highest Noise Category for any part of the Lot (rather than only the building envelope). A lower Noise Category may be applicable depending on the position and layout of the building on the Lot. Buildings may also screen road and railway noise. For these reasons, the Noise Categories predicted in this report are considered a conservative assessment of transportation noise.

A lower Noise Category should be acceptable at specific facades of the future dwellings depending on the layout of these within the lots, pending demonstration of the road/railway traffic noise levels onto specific habitable spaces within a dwelling via a lot-specific noise assessment based on architectural drawings, presented by the lot owner.

Appendix A Glossary of terms

New Beith, Precinct B, Stage 4, 5, 6a and 7

Transport Noise Intrusion Assessment

Frasers Property Australia Pty Ltd

SLR Project No.: 620.v013870.00001

11 June 2024

Sound Level (or Noise Level)

The terms sound and noise are almost interchangeable, except that in common usage noise is often used to refer to unwanted sound.

Sound (or noise) consists of minute fluctuations in atmospheric pressure capable of evoking the sense of hearing. The human ear (and those of other species) responds to changes in sound pressure over a very wide range. The loudest sound pressure to which the human ear responds is ten million times greater than the softest. The decibel (dB or dBL) scale reduces this ratio to a more manageable size by the use of logarithms.

A-weighted Sound Pressure Level

The overall level of a sound is usually expressed in terms of dBA, which is measured using a sound level meter with an 'A-weighting' filter. This is an electronic filter having a frequency response corresponding approximately to human hearing.

Change in Sound Pressure Levels

For human perception, a change of 1 dBA or 2 dBA in the level of a sound is considered to be indiscernible, while a 3 dBA to 5 dBA change corresponds to a small but noticeable change in loudness. A 10 dBA change corresponds to an approximate doubling or halving in loudness. As noted in Section 2.4 of the TMR CoP Vol 1, while the above noted changes in sound pressure level are *not precisely verifiable for road traffic noise, it is useful in understanding the significance of change in environmental noise exposure*.

Additional facts about road traffic noise as stated in Section 2.4 of the TMR CoP Vol 1:

- A 3 dBA change in noise level is equivalent to halving or doubling the traffic volumes.
- A 10 dBA change in noise level is equivalent to halving or doubling the subjective or perceived loudness or a tenfold increase or decrease in traffic volume.
- A 10 km/h increase in speed will increase the noise level by approximately 1 dBA.
- A 3.5% compound annual growth rate in traffic will increase the noise level by approximately 1.5 dBA over a 10-year horizon.
- An 8% compound annual growth rate in traffic will increase the noise level by approximately 3.0 dBA over a 10-year horizon.

Typical Sound Pressure Levels

The table below lists examples of typical sound pressure levels.

Table A-1 Examples of Perceived Sound Pressure Levels

Sound pressure level (dBA)	Typical Example
130	Threshold of pain
120	Metal hammering
110	Grinding on steel
100	Loud car horn at 3 metres (m)
90	Dog bark at 1 m
80	Cicadas at 1 m
70	Noise level directly adjacent to a busy main road
60	Ambient noise level in urban area close to main roads

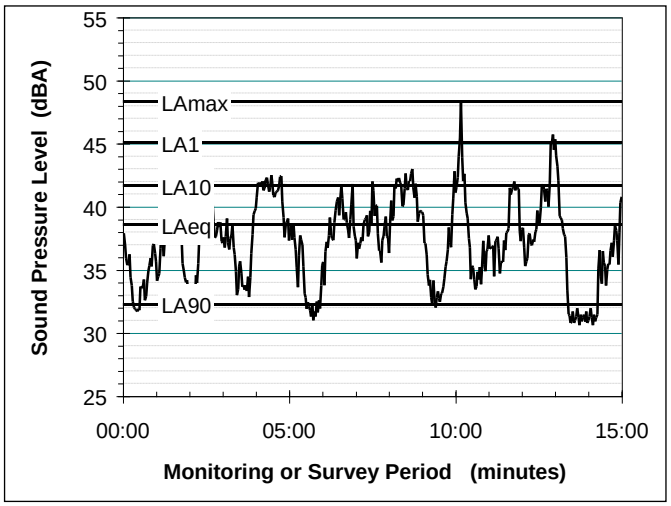
Sound pressure level (dBA)	Typical Example
50	Day time in a quiet suburban environment with background or distant road traffic noise
40	Night-time in a quiet suburban environment with background or distant road traffic noise Ambient noise level in rural to semi-rural environments with light breezes and some noise from insects, birds and distant traffic
30	Ambient noise level in a typical rural noise environment in the absence of insect noise and wind. Inside bedroom
20	Ambient noise level in remote rural environment away from main roads with no wind and no insect noise

Statistical Noise Levels

Sounds that vary in level over time, such as road traffic noise and most community noise, are commonly described in terms of the statistical exceedance levels (LAN), where LAN is the A-weighted sound pressure level exceeded for N% of a given measurement period. For example, the LA1 is the noise level exceeded for 1% of the time and LA10 the noise exceeded for 10% of the time.

Figure A-1 below presents a hypothetical 15-minute noise measurement, illustrating various common statistical indices of interest.

Figure A-1 Hypothetical 15-minute Noise Measurement



Of particular relevance to this study, are:

- L_{A10}: The A-weighted noise level exceeded for 10% during any given measurement period. This is commonly referred to as the average maximum noise level.

Additionally;

- $L_{A10(18hour)}$ Road Traffic Noise Level: the level exceeded for 10% of any measurement period; the usual period of measurement is 1 hour. The hourly L_{A10} level, therefore, is the traffic noise level exceeded for 6 minutes in the hour. The 18-hour L_{A10} level

($L_{A10(18hour)}$) is the arithmetic average of 18, hourly L_{A10} traffic noise levels measured in consecutive hours between 6:00 am and 12:00 midnight.

- $L_{A10(12hour)}$ Road Traffic Noise Level – is the arithmetic average of 12 hourly L_{A10} traffic noise levels measured in consecutive hours between 6:00 am and 6:00 pm.
- $L_{A1(1hour)}$ Road Traffic Noise Level – the level exceeded for n% of a 1-hour period.

Noise Propagation

Provided the receptor is in the far-field of the noise source, noise levels will reduce as a receptor moves further away from the source. This is due to spreading of the noise source energy over distance. For a simple point source (for example, a motor) the theoretical reduction in noise levels is 6 dBA per doubling of distance. For a line source (for example, a busy road) the theoretical reduction is 3 dBA per doubling of distance. In reality however other factors affect noise propagation. These include ground absorption, air absorption, acoustic screening, and meteorological effects.

Facade Corrected versus Free field

A ‘facade corrected’ measurement/monitoring location is a location which is influenced by facade reflections. Measurements at facades are typically taken at a distance of 1 m away and the measured noise level generally regarded as being +2.5 dB higher than in the ‘free field’.

A ‘free field’ measurement/monitoring location is a location where the microphone is positioned sufficiently far from nearby surfaces for the measured data to not be influenced by reflected noise. This is typically regarded as a position 3.5 m or greater from a reflective surface.

Appendix B New Beith Precinct A & B Concept Layout

New Beith, Precinct B, Stage 4, 5, 6a and 7

Transport Noise Intrusion Assessment

Frasers Property Australia Pty Ltd

SLR Project No.: 620.v013870.00001

11 June 2024

Allotment Type	Typical Width	Typical Area	Precinct A	
26m Deep Allotments				
Villa Allotment	10 m	260 m²	—	0%
Premium Villa Allotment	12.5 m	325 m²	9	6%
Courtyard Allotment	14 m	364 m²	4	3%
Premium Courtyard Allotment	15 m	390 m²	6	4%
Traditional Allotment	17 m	442 m²	2	1%
Sub - Total			**21**	**14%**
30m Deep Allotments				
Villa Allotment	10 m	300 m²	22	14%
Premium Villa Allotment	12.5 m	375 m²	50	32%
Courtyard Allotment	14 m	420 m²	28	18%
Premium Courtyard Allotment	15 m	450 m²	23	15%
Traditional Allotment	17 m	510 m²	10	6%
Sub - Total			**133**	**86%**
Total Residential Allotments			**154**	**100%**
Average Lot Size			**438.7 m²**	

Precinct A			
Allotment Width	Overall		
10	22	14%	15%
12.5	59	38%	30%
14	32	21%	25%
15	29	19%	15%
17	12	8%	15%
Overall	**154**	**100%**	100%

Legend

- Site Boundary
- Precinct Boundary

Open Space

- Major Linear Open Space (Conservation)
- Neighbourhood Recreation Park
- Local Recreation Park
- Transition Open Space
- Local Linear Open Space
- Stormwater

Allotments

- Allotments
- Community Allotment
- School

Constraints

- 50m Offset to Flagstone Creek
- 100m Offset to Flagstone Creek
- Of Concern Riparian Vegetation

Stage 1
Stage 2
Stage 3a
Stage 3b
Stage 4
Stage 5
Stage 6a
Stage 6b
Stage 7
A
B
E
8000 6.089 ha
9000 3905m²
9001 1.711 ha
9002 1.042 ha
9003 2.846 ha
9004 2.74 ha
9005 1.632 ha

Precinct B			
Allotment Width	Concept		
10	34	12%	15%
12.5	92	33%	30%
14	74	26%	25%
15	48	17%	15%
17	32	11%	15%
Overall	**280**	**100%**	100%

Allotment Type	Typical Width	Typical Area	Precinct B	
26m Deep Allotments				
Villa Allotment	10 m	260 m²	11	4%
Premium Villa Allotment	12.5 m	325 m²	18	6%
Courtyard Allotment	14 m	364 m²	9	3%
Premium Courtyard Allotment	15 m	390 m²	11	4%
Traditional Allotment	17 m	442 m²	5	2%
Sub - Total			**54**	**19%**
30m Deep Allotments				
Villa Allotment	10 m	300 m²	23	8%
Premium Villa Allotment	12.5 m	375 m²	74	26%
Courtyard Allotment	14 m	420 m²	65	23%
Premium Courtyard Allotment	15 m	450 m²	37	13%
Traditional Allotment	17 m	510 m²	27	10%
Sub - Total			**226**	**81%**
Total Residential Allotments			**280**	**100%**
Average Lot Size			**419.3 m²**	

PLAN REF: 151113 – 32
Rev No: G
DATE: 29 January 2024
CLIENT: Frasers
DRAWN BY: WNW
CHECKED BY: PHE

0 10 20 30 40 50 1 : 1,000 @ A0

NEW BEITH (LOT 4)
Precinct A & B
Concept Layout

URBAN DESIGN
Level 4 HQ South
520 Wickham Street
PO Box 1559
Fortitude Valley QLD 4006
T +61 7 3539 9500
W rpsgroup.com

Appendix C Schedule 2 of QDC MP4.4

New Beith, Precinct B, Stage 4, 5, 6a and 7

Transport Noise Intrusion Assessment

Frasers Property Australia Pty Ltd

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11 June 2024

Table C-1 Schedule 2 of QDC MP4.4

Component of Building's External Envelope	Minimum R_w	Acceptable Forms of Construction
Glazing	43	Double glazing consisting of two panes of minimum 5mm thick glass with at least 100mm air gap and full perimeter *acoustically rated seals*.
	38	Minimum 14.38mm thick laminated glass, with full perimeter *acoustically rated seals*; or Double glazing consisting of one pane of minimum 5mm thick glass and one pane of minimum 6mm thick glass with at least 44mm air gap, and full perimeter *acoustically rated seals*
	35	Minimum 10.38mm thick laminated glass, with full perimeter *acoustically rated seals*.
	32	Minimum 6.38mm thick laminated glass with full perimeter *acoustically rated seals*.
	27	Minimum 4mm thick glass with full perimeter *acoustically rated seals*
	24	Minimum 4mm thick glass with standard weather seals
External Walls	52	Two leaves of clay brick masonry, at least 270mm in total, with subfloor vents fitted with noise attenuators.
	47	Two leaves of clay brick masonry at least 110mm thick with: (i) cavity not less than 50mm between leaves; and (ii) 50mm thick mineral insulation or 50mm thick glass wool insulation with a density of 11kg/m3 or 50mm thick polyester insulation with a density of 20kg/m3 in the cavity. or Two leaves of clay brick masonry at last 110mm thick with: (i) cavity not less than 50mm between leaves; and (ii) at least 13mm thick cement render on each face or Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) Mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m3 positioned between studs; and (iii) One layer of plasterboard at least 13mm thick fixed to outside face of studs. or Single leaf of minimum 150mm thick masonry of hollow, dense concrete blocks, with mortar joints laid to prevent moisture bridging.
	41	Two leaves of clay brick masonry at least 110mm thick with cavity not less than 50mm between leaves

Component of Building's External Envelope	Minimum R_w	Acceptable Forms of Construction
		or Single leaf of clay brick masonry at last 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m^3 positioned between studs; and (iii) One layer of plasterboard at least 10mm thick fixed to outside face of studs or Single leaf of brick masonry at least 110mm thick with at least 13mm thick render on each face or Concrete brickwork at least 110mm thick or In-situ concrete at least 100mm thick or Precast concrete at least 100mm thick and without joints.
	35	Single leaf of clay brick masonry at least 110mm thick with: (i) a row of at least 70mm x 35mm timber studs or 64mm steel studs at 600mm centres, spaced at least 20mm from the masonry wall; and (ii) One layer of plasterboard at least 10mm thick fixed to outside face of studs or Minimum 6mm thick fibre cement sheeting or weatherboards or plank cladding externally, minimum 90mm deep timber stud or 92mm metal stud, standard plasterboard at least 13mm thick internally.
Roof	45	Concrete or terracotta tile or sheet metal roof with sarking, *acoustically rated plasterboard* ceiling at least 13mm thick fixed to ceiling joists, cellulose fibre insulation at least 100mm thick with a density of at least 45kg/m^3 in the cavity. or Concrete or terracotta tile or sheet metal roof with sarking, 2 layers of *acoustically rated plasterboard* at least 16mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m^3 or polyester insulation at least 50mm thick with a density of at least 20kg/m^3 in the cavity.
	41	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling joists, glass wool insulation at least 50mm thick with a density of at least 11kg/m^3 or polyester insulation at least 50mm thick with a density of at least 20kg/m^3 in the cavity. or Concrete suspended slab at least 100mm thick.

Component of Building's External Envelope	Minimum R_w	Acceptable Forms of Construction
	38	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity, mineral insulation or glass wool insulation at least 50mm thick with a density of at least 11 kg/m^3.
	35	Concrete or terracotta tile or metal sheet roof with sarking, plasterboard ceiling at least 10mm thick fixed to ceiling cavity.
Floors	51	Concrete slab at least 150mm thick.
	45	Concrete slab at least 100mm thick or Tongued and grooved boards at least 19mm thick with: (i) timber joists not less than 175mm x 50mm; and (ii) mineral insulation or glass wool insulation at least 75mm thick with a density of at least 11kg/m^3 positioned between joists and laid on plasterboard at least 10mm thick fixed to underside of joists; and (iii) mineral insulation or glass wool insulation at least 25mm thick with a density of at least 11kg/m^3 laid over entire floor, including tops of joists before flooring is laid; and (iv) secured to battens at least 75mm x 50mm; and (v) the assembled flooring laid over the joists, but not fixed to them, with battens lying between the joists.
Entry Doors	35	Solid core timber not less than 45mm thick, fixed so as to overlap the frame or rebate of the frame by not less than 10mm, with full perimeter acoustically rated seals.
	33	Fixed so as to overlap the frame or rebate of the frame by not less than 10mm, fitted with full perimeter acoustically rated seals and constructed of - (i) solid core, wood, particleboard or blockboard not less than 45mm thick; and/or (ii) acoustically laminated glass not less than 10.38mm thick.
	28	Fixed so as to overlap the frame or rebate of the frame, constructed of - (i) Wood, particleboard or blockboard not less than 33mm thick; or (ii) Compressed fibre reinforced sheeting not less than 9mm thick; or (iii) Other suitable material with a mass per unit area not less than 24.4kg/m^2; or (iv) Solid core timber door not less than 35mm thick fitted with full perimeter *acoustically rated seals*.

Appendix D Noise Monitoring Results

New Beith, Precinct B, Stage 4, 5, 6a and 7

Transport Noise Intrusion Assessment

Frasers Property Australia Pty Ltd

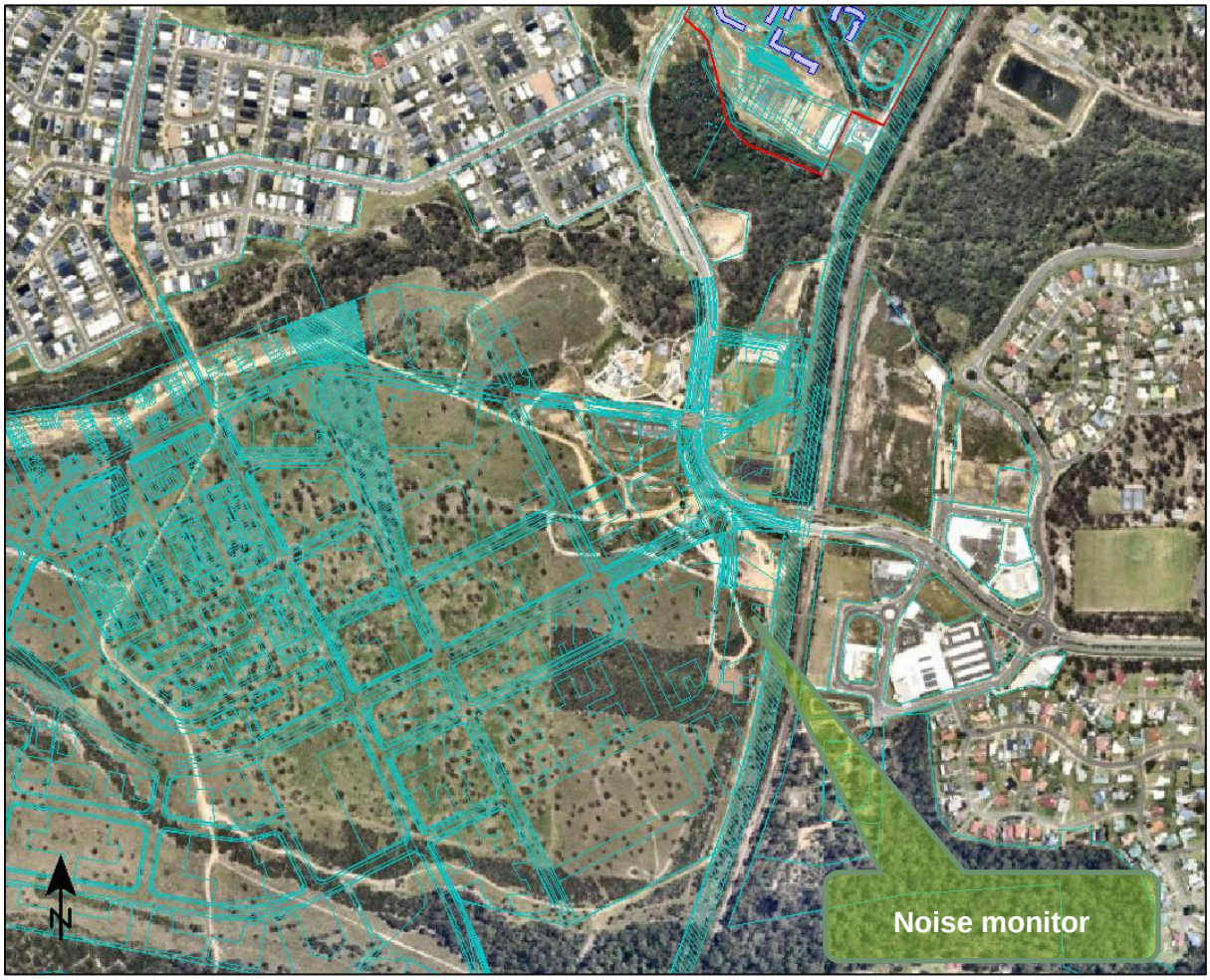
SLR Project No.: 620.v013870.00001

11 June 2024

Unattended noise logging was conducted as part of the Flagstone City Centre Masterplan noise assessment. Noise monitoring was conducted to verify the railway noise model.

Monitoring was undertaken between 30th March and 6th April 2022 at the location shown in **Figure D-1**. The noise logger was placed in the free-field with a microphone height of 1.5 m above the existing ground level.

Figure D-1 Noise Monitoring Location



The instrumentation used is detailed in **Table C-1**. At the time of measurement, all the instrumentation used held a current calibration certificate issued by a National Association of Testing Authorities (NATA) accredited laboratory.

Table D-1 Schedule 2 of QDC MP4.4

Equipment Type	Manufacturer & Type	Serial Number	Pre-Calibration	Post-Calibration
Noise Logger	ARL Ngara	8781CD	94.0 dBA	94.0 dBA
Acoustic calibrator	Svan SV30A	24513	N/A	N/A

The noise loggers were configured to record A-weighted Fast-response statistical noise levels, including the L_{A10}, L_{A90}, L_{Aeq} and L_{Amax} noise levels at 15-minute intervals with 1 second resolution. Calibration of the instrument was checked before and after the monitoring, with the instruments exhibiting a drift less than ±1.0 dB during the course of

monitoring; therefore, measurements are considered valid according to the TMR CoP Vol 3 and AS 1055.

Detailed monitoring results are presented in **Table D-2** and noise level time traces are presented in **Figure D-2**.

A summary of railway noise events captured by the monitor are presented in **Table D-3**.

A summary of weather observations by the Bureau of Meteorology (BoM) during the monitoring period are presented in **Table D-4**. Brief periods of rain were recorded during the monitoring period. The noise data captured during these periods has been excluded from analysis in accordance with CoP Vol 3. However, the overall values were largely unaffected.

Table D-2 Summary of Environmental Noise Levels

Descriptor	Wed 30 Mar 2022	Thu 31 Mar 2022	Fri 1 Apr 2022	Sat 2 Apr 2022	Sun 3 Apr 2022	Mon 4 Apr 2022	Tue 5 Apr 2022	Wed 6 Apr 2022
$L_{A10(18hour)}$	-	47	46	44	45	46	48	-
$L_{Aeq,Day(7am-6pm)}$	-	46	47	46	46	50	48	-
$L_{Aeq,Evening(6pm-10pm)}$	46	54	50	53	52	52	53	-
$L_{Aeq,Night\ (10pm-7am)}$	40	50	49	49	47	50	46	-
Max $L_{Aeq(1hour)(7am-6pm)}$	-	50	53	53	51	56	53	-
Max $L_{Aeq(1hour)(6pm-10pm)}$	49	57	55	55	55	55	56	-
Max $L_{Aeq(1hour)(10pam-7am)}$	45	57	56	56	54	55	54	-
$L_{A90,Day(7am-6pm)}$	-	41	40	36	38	40	41	-
$L_{A90,Evening(6pm-10pm)}$	41	40	39	41	39	41	42	-
$L_{A90,Night\ (10pm-7am)}$	36	36	32	33	35	34	35	-

Figure D-2 Noise Level Time Traces

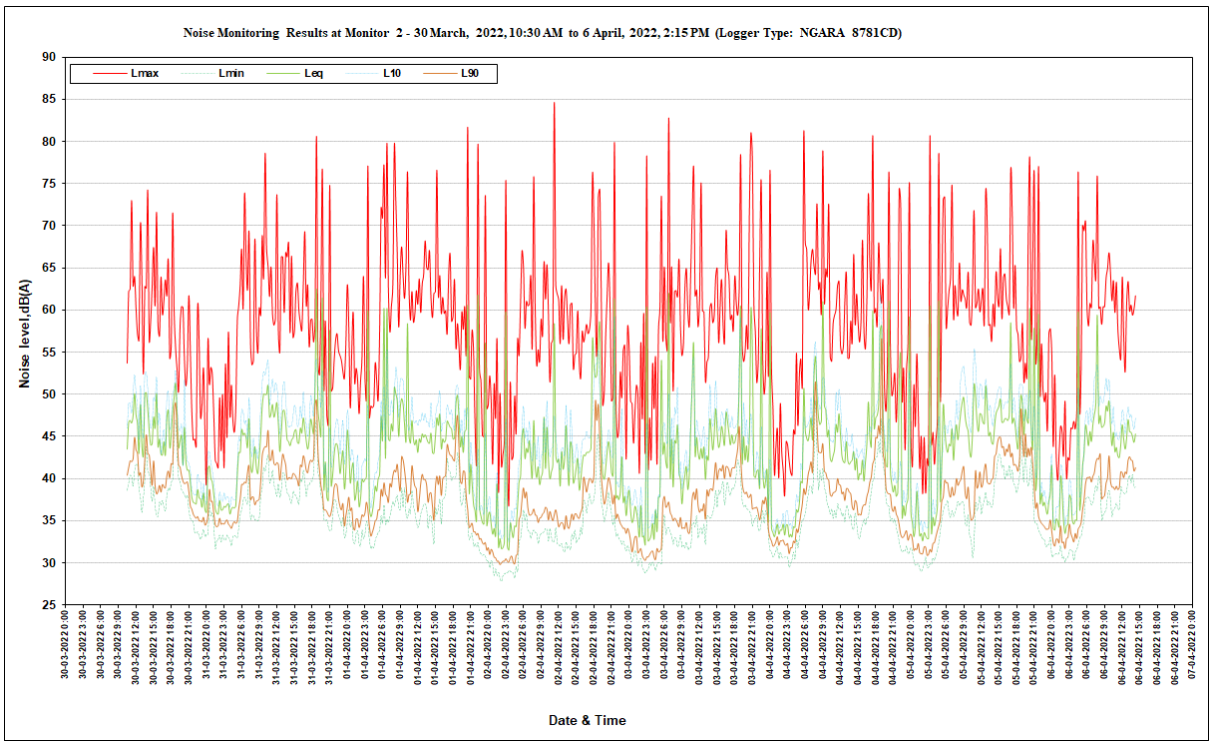


Table D-3 BoM Observations During Monitoring (March 2022)

Date & time	$L_{Aeq,T}$ dBA / duration	L_{Amax} dBA
3/04/2022 06:43	72 dBA / 90 sec	83 dBA
1/04/2022 20:18	71 dBA / 76 sec	82 dBA
03-04-2022 20:45	71 dBA / 86 sec	81 dBA
04-04-2022 17:16	72 dBA / 60 sec	81 dBA
05-04-2022 03:06	72 dBA / 64 sec	81 dBA
31-03-2022 18:38	70 dBA / 147 sec	81 dBA
02-04-2022 21:22	71 dBA / 104 sec	80 dBA
01-04-2022 06:35	70 dBA / 81 sec	80 dBA
01-04-2022 22:03	73 dBA / 76 sec	80 dBA
04-04-2022 08:51	71 dBA / 79 sec	79 dBA
05-04-2022 04:40	72 dBA / 74 sec	79 dBA
03-04-2022 18:48	70 dBA / 83 sec	78 dBA
03-04-2022 02:55	71 dBA / 86 sec	78 dBA
05-04-2022 20:13	70 dBA / 83 sec	78 dBA
01-04-2022 03:24	70 dBA / 86 sec	77 dBA
Average	**71 dBA / 85 sec**	**80 dBA**

Table D-3 BoM Observations During Monitoring (March 2022)

Greenbank (Defence), Queensland
March 2022 Daily Weather Observations

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Tu	18.9	29.8	2.8			E	22	14:08	26.0	75		SSW	6		28.1	67		ESE	9	
2	We	19.6	32.8	0			E	24	17:15	26.4	74		SW	6		30.0	64		ENE	6	
3	Th	19.0	27.7	29.0			SSW	41	06:49	19.5	100		NNW	4		26.4	65		ENE	7	
4	Fr	19.3	27.5	2.4			ENE	15	12:15	23.4	87		SW	6		23.4	96			Calm	
5	Sa	18.0	32.1	29.2			N	19	16:09	25.3	78		W	4		31.6	49		WNW	4	
6	Su	20.7	30.8	0			SSW	35	16:53	27.9	75		NNE	4		30.3	71		NNE	13	
7	Mo	18.7	31.8	20.0			NNE	19	14:58	22.8	87		SSW	4		29.0	49		NE	9	
8	Tu	19.9	34.4	0.2			WSW	28	13:20	26.4	74		NW	4		33.8	38		W	9	
9	We	22.3	35.1	0			NW	22	10:42	27.0	72		NW	6		34.1	44		WNW	9	
10	Th	21.3	27.5	0			ESE	20	15:12	24.1	74		SSW	4		25.2	73		ESE	9	
11	Fr	19.5	26.4	0						23.4	76		SE	6		23.3	75		SE	9	
12	Sa	17.7	26.7	1.4			E	24	14:42	23.4	69		SSW	9		25.0	59		ESE	6	
13	Su	15.8	28.2	0			ESE	30	15:19	23.6	65		SSW	7		25.1	60		SE	11	
14	Mo	16.0	28.5	0.4			SSE	19	11:11	23.9	69		SSE	6		26.4	58		SE	4	
15	Tu	14.8	27.7	0			SSW	24	09:43	23.9	71		SSW	11		25.6	61		SE	7	
16	We	16.2	29.2	0.4			SE	26	15:04	23.3	73		SW	6		28.8	55		ESE	6	
17	Th	15.7	30.5	0.2			SE	22	11:25	24.9	67		S	7		29.7	49		S	6	
18	Fr	17.3	30.1	0			ESE	30	16:15	24.8	69		SSE	9		27.9	57		ESE	9	
19	Sa	15.3	29.4	0			S	26	12:34	24.5	65		S	7		28.5	45		SE	7	
20	Su	17.9	29.2	0			NNE	20	16:46	23.9	61		S	6		28.5	42		ESE	4	
21	Mo	13.3	29.7	0			SSW	20	09:10	22.8	67		SSW	11		28.7	37		S	7	
22	Tu	14.5	30.6	0			NE	20	16:19	24.5	64		S	4		29.3	37		ESE	4	
23	We	14.5	32.4	0			WNW	20	09:18	24.2	70		W	7		31.2	42		W	6	
24	Th	19.3	32.0	0			N	22	15:15	26.0	70		SSW	6		31.0	42		NNE	11	
25	Fr	17.6	31.5	0			SSW	30	16:56	24.6	72		S	4		28.1	62		ESE	9	
26	Sa	17.9	28.4	3.0			S	24	15:25	23.9	76		SW	7		27.8	53		SSW	9	
27	Su	18.9	28.1	0.2			NNE	20	15:57	24.2	74		SSW	6		27.1	58		ENE	7	
28	Mo	19.9	21.9	15.2			SSE	43	22:49	21.2	98			Calm		20.8	98		SE	4	
29	Tu	17.9	24.3	63.0			SSW	30	01:02	21.3	96		S	7		22.9	86		S	6	
30	We	19.3	27.4	2.8			WNW	33	12:58	20.9	91		WNW	9		26.4	64		SW	13	
31	Th	17.7	28.4	0.8			S	41	10:40	25.8	65		WSW	6		26.7	58		SSW	11	
Statistics for March 2022																					
	Mean	17.9	29.4							24.1	74			6		27.8	58			7	
	Lowest	13.3	21.9							19.5	61			Calm		20.8	37			Calm	
	Highest	22.3	35.1	63.0			SSE	43		27.9	100		SSW	11		34.1	98		#	13	
	Total			171.0																	

Observations were drawn from Greenbank (Defence) {station 140009}

IDCJDW4156.202203 Prepared at 13:02 UTC on 21 Apr 2022

Appendix E Predicted QDC MP4.4 Noise Categories

New Beith, Precinct B, Stage 4, 5, 6a and 7

Transport Noise Intrusion Assessment

Frasers Property Australia Pty Ltd

SLR Project No.: 620.v013870.00001

11 June 2024

Table E-1 QDC MP4.4 Noise Categories

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)	
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier
401	GF	495446.57	6926691.37	68.6	1	1	0	0	1	1
401	FF	495446.57	6926691.37	68.6	2	1	0	0	2	1
402	GF	495454.25	6926680.88	67.4	1	1	0	0	1	1
402	FF	495454.25	6926680.88	67.4	1	1	0	0	1	1
403	GF	495463.7	6926672.57	66.1	1	1	0	0	1	1
403	FF	495463.7	6926672.57	66.1	1	1	0	0	1	1
404	GF	495471.91	6926662.28	65.0	1	1	0	0	1	1
404	FF	495471.91	6926662.28	65.0	1	1	0	0	1	1
405	GF	495481.67	6926652.21	64.0	1	1	0	0	1	1
405	FF	495481.67	6926652.21	64.0	1	1	0	0	1	1
406	GF	495490.4	6926640.27	63.1	1	1	0	0	1	1
406	FF	495490.4	6926640.27	63.1	1	1	0	0	1	1
407	GF	495499.95	6926627.49	62.4	1	1	0	0	1	1
407	FF	495499.95	6926627.49	62.4	1	1	1	0	1	1
408	GF	495509.4	6926613.37	61.8	1	1	1	0	1	1
408	FF	495509.4	6926613.37	61.8	1	1	1	1	1	1
409	GF	495517.09	6926600.38	61.2	1	1	1	1	1	1
409	FF	495517.09	6926600.38	61.2	1	1	1	1	1	1
410	GF	495527.08	6926574.09	59.7	1	1	1	1	1	1
410	FF	495527.08	6926574.09	59.7	1	1	1	1	1	1
411	GF	495532.43	6926560.39	58.7	1	1	1	1	1	1
411	FF	495532.43	6926560.39	58.7	1	1	1	1	1	1
412	GF	495535.64	6926545.84	57.6	1	1	1	1	1	1
412	FF	495535.64	6926545.84	57.6	1	1	1	1	1	1
413	GF	495539.28	6926531.07	56.7	1	1	1	1	1	1
413	FF	495539.28	6926531.07	56.7	1	1	1	1	1	1
414	GF	495542.49	6926516.72	55.9	1	1	1	1	1	1
414	FF	495542.49	6926516.72	55.9	1	1	1	1	1	1
415	GF	495544.2	6926502.81	55.3	1	1	1	1	1	1
415	FF	495544.2	6926502.81	55.3	1	1	1	1	1	1
416	GF	495546.77	6926487.18	54.6	1	1	1	1	1	1
416	FF	495546.77	6926487.18	54.6	1	1	1	1	1	1
417	GF	495549.98	6926470.7	53.9	1	1	1	1	1	1
417	FF	495549.98	6926470.7	53.9	1	1	1	1	1	1
418	GF	495552.55	6926457.43	53.2	1	1	1	1	1	1
418	FF	495552.55	6926457.43	53.2	1	1	1	1	1	1
419	GF	495554.91	6926443.73	52.4	1	1	1	1	1	1
419	FF	495554.91	6926443.73	52.4	1	1	1	1	1	1
420	GF	495556.84	6926432.3	51.6	1	1	1	1	1	1
420	FF	495556.84	6926432.3	51.6	1	1	1	1	1	1
421	GF	495558.17	6926422.61	50.8	1	1	1	1	1	1
421	FF	495558.17	6926422.61	50.8	1	1	1	1	1	1
422	GF	495560.43	6926411.33	49.8	1	1	1	1	1	1
422	FF	495560.43	6926411.33	49.8	1	1	1	1	1	1
423	GF	495562.42	6926398.45	48.4	1	1	1	1	1	1
423	FF	495562.42	6926398.45	48.4	1	1	1	1	1	1
424	GF	495571.96	6926381.87	46.7	1	1	1	1	1	1
424	FF	495571.96	6926381.87	46.7	1	1	1	1	1	1
425	GF	495557.03	6926378.64	46.4	1	1	1	1	1	1
425	FF	495557.03	6926378.64	46.4	1	1	1	1	1	1
426	GF	495544.29	6926376.14	46.0	1	1	1	1	1	1

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)	
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier
426	FF	495544.29	6926376.14	46.0	1	1	1	1	1	1
427	GF	495529.77	6926373.56	45.7	1	1	1	1	1	1
427	FF	495529.77	6926373.56	45.7	1	1	1	1	1	1
428	GF	495534.57	6926394.71	46.9	0	0	1	1	1	1
428	FF	495534.57	6926394.71	46.9	0	0	1	1	1	1
429	GF	495533.07	6926407.55	48.3	0	0	1	1	1	1
429	FF	495533.07	6926407.55	48.3	0	0	1	1	1	1
430	GF	495530.93	6926418.26	49.7	0	0	1	1	1	1
430	FF	495530.93	6926418.26	49.7	0	0	1	1	1	1
431	GF	495529.22	6926427.89	50.7	0	0	1	1	1	1
431	FF	495529.22	6926427.89	50.7	0	0	1	1	1	1
432	GF	495527.29	6926438.81	51.8	0	0	1	1	1	1
432	FF	495527.29	6926438.81	51.8	0	0	1	1	1	1
433	GF	495525.37	6926452.51	53.1	0	0	1	1	1	1
433	FF	495525.37	6926452.51	53.1	0	0	1	1	1	1
434	GF	495523.44	6926466.42	54.3	0	0	1	1	1	1
434	FF	495523.44	6926466.42	54.3	0	0	1	1	1	1
435	GF	495520.23	6926482.47	55.5	0	0	1	1	1	1
435	FF	495520.23	6926482.47	55.5	0	0	1	1	1	1
436	GF	495517.66	6926498.32	56.7	0	0	1	1	1	1
436	FF	495517.66	6926498.32	56.7	0	0	1	1	1	1
437	GF	495516.16	6926513.3	57.7	0	0	1	1	1	1
437	FF	495516.16	6926513.3	57.7	0	0	1	1	1	1
438	GF	495512.95	6926526.14	58.6	0	0	1	1	1	1
438	FF	495512.95	6926526.14	58.6	0	0	1	1	1	1
439	GF	495509.53	6926537.06	59.3	0	0	1	1	1	1
439	FF	495509.53	6926537.06	59.3	0	0	1	1	1	1
440	GF	495506.31	6926549.26	59.8	0	0	1	1	1	1
440	FF	495506.31	6926549.26	59.8	0	0	1	1	1	1
441	GF	495501.39	6926562.32	60.2	0	0	1	1	1	1
441	FF	495501.39	6926562.32	60.2	0	0	1	1	1	1
442	GF	495462.85	6926535.29	59.6	0	0	0	0	0	0
442	FF	495462.85	6926535.29	59.6	0	0	0	0	0	0
443	GF	495465.66	6926521.83	58.8	0	0	0	0	0	0
443	FF	495465.66	6926521.83	58.8	0	0	0	0	0	0
444	GF	495467.9	6926509.3	58.1	0	0	0	0	0	0
444	FF	495467.9	6926509.3	58.1	0	0	0	0	0	0
445	GF	495469.96	6926496.59	57.1	0	0	0	0	0	0
445	FF	495469.96	6926496.59	57.1	0	0	1	1	1	1
446	GF	495472.95	6926480.51	55.9	0	0	0	0	0	0
446	FF	495472.95	6926480.51	55.9	0	0	1	1	1	1
447	GF	495474.63	6926463.68	54.6	0	0	1	1	1	1
447	FF	495474.63	6926463.68	54.6	0	0	1	1	1	1
448	GF	495477.25	6926449.29	53.5	0	0	1	1	1	1
448	FF	495477.25	6926449.29	53.5	0	0	1	1	1	1
449	GF	495479.31	6926437.14	52.3	0	0	1	1	1	1
449	FF	495479.31	6926437.14	52.3	0	0	1	1	1	1
450	GF	495481.36	6926426.11	51.3	0	0	1	1	1	1
450	FF	495481.36	6926426.11	51.3	0	0	1	1	1	1
451	GF	495482.86	6926413.02	49.7	0	0	1	1	1	1
451	FF	495482.86	6926413.02	49.7	0	0	1	1	1	1
452	GF	495485.29	6926397.5	47.8	0	0	1	1	1	1

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)	
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier
452	FF	495485.29	6926397.5	47.8	0	0	1	1	1	1
453	GF	495488.09	6926382.36	46.3	0	0	1	1	1	1
453	FF	495488.09	6926382.36	46.3	0	0	1	1	1	1
454	GF	495499.04	6926364.52	44.2	0	0	1	1	1	1
454	FF	495499.04	6926364.52	44.2	1	1	1	1	1	1
455	GF	495484.84	6926358.72	43.9	1	1	1	1	1	1
455	FF	495484.84	6926358.72	43.9	1	1	1	1	1	1
456	GF	495472.1	6926347.1	43.3	1	1	1	1	1	1
456	FF	495472.1	6926347.1	43.3	1	1	1	1	1	1
457	GF	495458.47	6926342.34	43.2	1	1	1	1	1	1
457	FF	495458.47	6926342.34	43.2	1	1	1	1	1	1
458	GF	495427.48	6926329.96	41.7	1	1	0	0	1	1
458	FF	495427.48	6926329.96	41.7	1	1	1	1	1	1
459	GF	495412.2	6926327.08	41.4	1	1	0	0	1	1
459	FF	495412.2	6926327.08	41.4	1	1	1	1	1	1
460	GF	495399.29	6926325.38	41.2	1	1	0	0	1	1
460	FF	495399.29	6926325.38	41.2	1	1	1	1	1	1
461	GF	495384.97	6926323.76	41.1	1	1	0	0	1	1
461	FF	495384.97	6926323.76	41.1	1	1	1	1	1	1
462	GF	495621.8	6926387.43	48.4	0	0	1	1	1	1
462	FF	495621.8	6926387.43	48.4	0	0	1	1	1	1
463	GF	495606.48	6926385.82	47.6	0	0	1	1	1	1
463	FF	495606.48	6926385.82	47.6	1	1	1	1	1	1
464	GF	495611.15	6926405.37	48.9	0	0	1	1	1	1
464	FF	495611.15	6926405.37	48.9	1	1	1	1	1	1
465	GF	495610	6926416.68	49.8	0	0	1	1	1	1
465	FF	495610	6926416.68	49.8	1	1	1	1	1	1
466	GF	495607.89	6926428.95	50.6	0	0	1	1	1	1
466	FF	495607.89	6926428.95	50.6	1	1	1	1	1	1
467	GF	495605.78	6926442.37	51.8	0	0	1	1	1	1
467	FF	495605.78	6926442.37	51.8	1	1	1	1	1	1
468	GF	495603.29	6926456.95	52.7	0	0	1	1	1	1
468	FF	495603.29	6926456.95	52.7	1	1	1	1	1	1
469	GF	495601.37	6926472.48	53.6	0	0	1	1	1	1
469	FF	495601.37	6926472.48	53.6	1	1	1	1	1	1
470	GF	495598.3	6926489.92	54.5	0	0	1	1	1	1
470	FF	495598.3	6926489.92	54.5	1	1	1	1	1	1
471	GF	495595.81	6926505.26	55.2	0	0	1	1	1	1
471	FF	495595.81	6926505.26	55.2	1	1	1	1	1	1
472	GF	495593.13	6926519.83	55.8	0	0	1	1	1	1
472	FF	495593.13	6926519.83	55.8	1	1	1	1	1	1
473	GF	495591.21	6926532.49	56.4	0	0	1	1	1	1
473	FF	495591.21	6926532.49	56.4	1	1	1	1	1	1
474	GF	495589.48	6926543.42	57.1	0	0	1	1	1	1
474	FF	495589.48	6926543.42	57.1	1	1	1	1	1	1
475	GF	495588.33	6926553.96	57.7	0	0	1	1	1	1
475	FF	495588.33	6926553.96	57.7	1	1	1	1	1	1
476	GF	495577.47	6926571.24	59.0	1	1	1	1	1	1
476	FF	495577.47	6926571.24	59.0	1	1	1	1	1	1
477	GF	495593.32	6926575.05	57.3	0	0	1	1	1	1
477	FF	495593.32	6926575.05	57.3	0	0	1	1	1	1
501	GF	495489.88	6926590	61.9	0	0	0	0	0	0

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)	
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier
501	FF	495489.88	6926590	61.9	0	0	1	1	1	1
502	GF	495482.71	6926603.71	62.7	0	0	0	0	0	0
502	FF	495482.71	6926603.71	62.7	1	0	1	0	1	0
503	GF	495476.17	6926613.99	63.2	0	0	0	0	0	0
503	FF	495476.17	6926613.99	63.2	1	0	0	0	1	0
504	GF	495468.48	6926623.86	64.1	0	0	0	0	0	0
504	FF	495468.48	6926623.86	64.1	1	0	0	0	1	0
505	GF	495459.55	6926633.83	64.9	0	0	0	0	0	0
505	FF	495459.55	6926633.83	64.9	1	1	0	0	1	1
506	GF	495450.62	6926644.84	66.0	1	0	0	0	1	0
506	FF	495450.62	6926644.84	66.0	1	1	0	0	1	1
507	GF	495442.31	6926655.01	67.1	1	0	0	0	1	0
507	FF	495442.31	6926655.01	67.1	1	1	0	0	1	1
508	GF	495434.85	6926664.48	68.1	1	1	0	0	1	1
508	FF	495434.85	6926664.48	68.1	1	1	0	0	1	1
509	GF	495426.21	6926675.27	68.8	1	1	0	0	1	1
509	FF	495426.21	6926675.27	68.8	1	1	0	0	1	1
510	GF	495427.35	6926720.45	70.3	2	1	0	0	2	1
510	FF	495427.35	6926720.45	70.3	3	3	0	1	3	3
511	GF	495414.16	6926708.19	69.7	2	1	0	0	2	1
511	FF	495414.16	6926708.19	69.7	3	2	0	1	3	2
512	GF	495402.74	6926699.68	69.6	2	0	0	0	2	0
512	FF	495402.74	6926699.68	69.6	3	2	0	1	3	2
513	GF	495391.42	6926689.6	69.4	2	0	0	0	2	0
513	FF	495391.42	6926689.6	69.4	3	2	0	1	3	2
514	GF	495380.41	6926680.98	69.3	2	0	0	0	2	0
514	FF	495380.41	6926680.98	69.3	3	2	0	1	3	2
515	GF	495370.95	6926673.4	69.2	2	1	0	0	2	1
515	FF	495370.95	6926673.4	69.2	3	2	0	1	3	2
516	GF	495360.36	6926664.26	68.8	2	1	0	0	2	1
516	FF	495360.36	6926664.26	68.8	3	2	0	1	3	2
517	GF	495349.66	6926655.43	68.3	2	1	0	0	2	1
517	FF	495349.66	6926655.43	68.3	3	2	0	0	3	2
518	GF	495341.35	6926647.85	68.0	2	1	0	0	2	1
518	FF	495341.35	6926647.85	68.0	3	2	0	1	3	2
519	GF	495333.04	6926640.78	67.6	2	1	0	0	2	1
519	FF	495333.04	6926640.78	67.6	3	2	0	1	3	2
520	GF	495324.63	6926632.37	67.1	2	1	0	0	2	1
520	FF	495324.63	6926632.37	67.1	3	2	0	1	3	2
521	GF	495314.45	6926622.82	66.5	2	1	0	0	2	1
521	FF	495314.45	6926622.82	66.5	3	3	0	1	3	3
522	GF	495348.62	6926586.98	66.0	1	0	0	0	1	0
522	FF	495348.62	6926586.98	66.0	1	1	0	1	1	1
523	GF	495355.38	6926568.39	64.8	1	0	0	0	1	0
523	FF	495355.38	6926568.39	64.8	1	1	0	1	1	1
524	GF	495362.75	6926557.18	63.4	1	0	0	0	1	0
524	FF	495362.75	6926557.18	63.4	1	0	0	1	1	1
525	GF	495372.2	6926544.71	61.7	0	0	0	0	0	0
525	FF	495372.2	6926544.71	61.7	1	0	0	1	1	1
526	GF	495391.51	6926508.35	57.6	0	0	0	0	0	0
526	FF	495391.51	6926508.35	57.6	0	0	0	0	0	0
527	GF	495393.84	6926493.33	56.5	0	0	0	0	0	0

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)	
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier
527	FF	495393.84	6926493.33	56.5	0	0	0	0	0	0
528	GF	495396.16	6926480.1	55.5	0	0	0	0	0	0
528	FF	495396.16	6926480.1	55.5	0	0	0	0	0	0
529	GF	495399.38	6926467.04	54.3	0	0	0	0	0	0
529	FF	495399.38	6926467.04	54.3	0	0	0	0	0	0
530	GF	495400.81	6926451.48	52.9	0	0	0	0	0	0
530	FF	495400.81	6926451.48	52.9	0	0	0	1	0	1
531	GF	495402.96	6926436.82	51.8	0	0	0	1	0	1
531	FF	495402.96	6926436.82	51.8	0	0	0	1	0	1
532	GF	495403.85	6926424.66	50.7	0	0	0	1	0	1
532	FF	495403.85	6926424.66	50.7	0	0	1	1	1	1
533	GF	495406	6926411.96	49.5	0	0	0	1	0	1
533	FF	495406	6926411.96	49.5	0	0	1	1	1	1
534	GF	495408.15	6926401.41	48.6	0	0	0	0	0	0
534	FF	495408.15	6926401.41	48.6	0	0	1	1	1	1
535	GF	495409.4	6926391.22	47.7	0	0	0	0	0	0
535	FF	495409.4	6926391.22	47.7	0	0	1	1	1	1
536	GF	495410.83	6926379.95	46.4	0	0	0	0	0	0
536	FF	495410.83	6926379.95	46.4	0	0	1	1	1	1
537	GF	495414.58	6926363.68	44.8	0	0	1	1	1	1
537	FF	495414.58	6926363.68	44.8	0	0	1	1	1	1
538	GF	495416.73	6926348.66	43.5	0	0	1	1	1	1
538	FF	495416.73	6926348.66	43.5	1	0	1	1	1	1
539	GF	495463.4	6926364.93	44.4	0	0	1	1	1	1
539	FF	495463.4	6926364.93	44.4	0	0	1	1	1	1
540	GF	495460.9	6926378.7	45.6	0	0	1	1	1	1
540	FF	495460.9	6926378.7	45.6	0	0	1	1	1	1
541	GF	495458.4	6926393.72	46.9	0	0	1	1	1	1
541	FF	495458.4	6926393.72	46.9	0	0	1	1	1	1
542	GF	495455.89	6926410	48.4	0	0	1	1	1	1
542	FF	495455.89	6926410	48.4	0	0	1	1	1	1
543	GF	495454.46	6926421.44	49.8	0	0	1	1	1	1
543	FF	495454.46	6926421.44	49.8	0	0	1	1	1	1
544	GF	495452.32	6926432.89	50.7	0	0	1	1	1	1
544	FF	495452.32	6926432.89	50.7	0	0	1	1	1	1
545	GF	495450.51	6926445.18	51.9	0	0	0	0	0	0
545	FF	495450.51	6926445.18	51.9	0	0	1	1	1	1
546	GF	495448.08	6926459.38	53.0	0	0	0	0	0	0
546	FF	495448.08	6926459.38	53.0	0	0	1	1	1	1
547	GF	495445.28	6926476.77	54.4	0	0	0	0	0	0
547	FF	495445.28	6926476.77	54.4	0	0	1	1	1	1
548	GF	495443.22	6926492.48	55.8	0	0	0	0	0	0
548	FF	495443.22	6926492.48	55.8	0	0	0	0	0	0
549	GF	495441.35	6926505.56	56.9	0	0	0	0	0	0
549	FF	495441.35	6926505.56	56.9	0	0	0	0	0	0
550	GF	495439.3	6926518.65	57.8	0	0	0	0	0	0
550	FF	495439.3	6926518.65	57.8	0	0	0	0	0	0
551	GF	495437.24	6926531.36	58.7	0	0	0	0	0	0
551	FF	495437.24	6926531.36	58.7	0	0	0	0	0	0
552	GF	495423.41	6926561.23	60.7	0	0	0	0	0	0
552	FF	495423.41	6926561.23	60.7	0	0	0	0	0	0
553	GF	495412.5	6926571.72	61.7	0	0	0	0	0	0

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)	
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier
553	FF	495412.5	6926571.72	61.7	0	0	0	0	0	0
554	GF	495404.29	6926583.35	62.8	0	0	0	0	0	0
554	FF	495404.29	6926583.35	62.8	1	0	0	0	1	0
555	GF	495394.95	6926594.67	64.2	0	0	0	0	0	0
555	FF	495394.95	6926594.67	64.2	1	0	0	0	1	0
556	GF	495385.6	6926603.6	65.8	1	0	0	0	1	0
556	FF	495385.6	6926603.6	65.8	1	0	0	0	1	0
557	GF	495369.09	6926613.99	67.8	1	0	0	0	1	0
557	FF	495369.09	6926613.99	67.8	1	1	0	0	1	1
558	GF	495378.43	6926621.78	68.1	1	0	0	0	1	0
558	FF	495378.43	6926621.78	68.1	1	1	0	0	1	1
559	GF	495386.01	6926627.8	68.5	1	0	0	0	1	0
559	FF	495386.01	6926627.8	68.5	1	1	0	0	1	1
560	GF	495393.6	6926634.24	68.9	1	0	0	0	1	0
560	FF	495393.6	6926634.24	68.9	1	1	0	0	1	1
561	GF	495403.15	6926642.34	69.1	1	0	0	0	1	0
561	FF	495403.15	6926642.34	69.1	1	1	0	0	1	1
562	GF	495407.51	6926622.19	66.9	1	0	0	0	1	0
562	FF	495407.51	6926622.19	66.9	1	0	0	0	1	0
563	GF	495415.72	6926611.7	65.8	0	0	0	0	0	0
563	FF	495415.72	6926611.7	65.8	1	0	0	0	1	0
564	GF	495424.76	6926600.59	64.7	0	0	0	0	0	0
564	FF	495424.76	6926600.59	64.7	1	0	0	0	1	0
565	GF	495433.9	6926589.27	63.6	0	0	0	0	0	0
565	FF	495433.9	6926589.27	63.6	1	0	0	0	1	0
566	GF	495444.49	6926577.32	62.3	0	0	0	0	0	0
566	FF	495444.49	6926577.32	62.3	0	0	0	0	0	0
601	GF	495336.99	6926577.95	65.5	1	0	0	0	1	0
601	FF	495336.99	6926577.95	65.5	1	1	0	1	1	1
602	GF	495323.28	6926561.95	64.3	1	1	0	0	1	1
602	FF	495323.28	6926561.95	64.3	1	1	0	1	1	1
603	GF	495333.46	6926550.32	62.3	1	0	0	0	1	0
603	FF	495333.46	6926550.32	62.3	1	1	0	1	1	1
604	GF	495341.98	6926540.66	61.0	0	0	0	0	0	0
604	FF	495341.98	6926540.66	61.0	1	0	0	1	1	1
605	GF	495351.12	6926529.03	60.0	0	0	0	0	0	0
605	FF	495351.12	6926529.03	60.0	1	0	0	1	1	1
606	GF	495365.4	6926500.13	57.2	0	0	0	0	0	0
606	FF	495365.4	6926500.13	57.2	1	0	0	0	1	0
607	GF	495367.55	6926486.89	56.1	0	0	0	0	0	0
607	FF	495367.55	6926486.89	56.1	1	0	0	0	1	0
608	GF	495369.34	6926475.45	54.7	0	0	0	0	0	0
608	FF	495369.34	6926475.45	54.7	1	0	0	0	1	0
609	GF	495371.66	6926462.21	53.2	0	0	0	0	0	0
609	FF	495371.66	6926462.21	53.2	1	0	0	0	1	0
610	GF	495374.53	6926447.01	51.3	0	0	0	0	0	0
610	FF	495374.53	6926447.01	51.3	0	0	0	0	0	0
611	GF	495376.13	6926432.35	50.0	0	0	0	1	0	1
611	FF	495376.13	6926432.35	50.0	0	0	0	1	0	1
612	GF	495378.1	6926419.83	48.7	0	0	0	1	0	1
612	FF	495378.1	6926419.83	48.7	0	0	0	1	0	1
613	GF	495380.07	6926407.31	47.6	0	0	0	1	0	1

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)	
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier
613	FF	495380.07	6926407.31	47.6	0	0	0	1	0	1
614	GF	495381.68	6926396.76	46.8	0	0	0	0	0	0
614	FF	495381.68	6926396.76	46.8	0	0	0	1	0	1
615	GF	495383.11	6926387.1	46.1	0	0	0	0	0	0
615	FF	495383.11	6926387.1	46.1	0	0	0	0	0	0
616	GF	495384.9	6926375.3	45.2	0	0	0	0	0	0
616	FF	495384.9	6926375.3	45.2	1	0	1	1	1	1
617	GF	495387.22	6926359.92	43.8	0	0	0	0	0	0
617	FF	495387.22	6926359.92	43.8	1	0	1	1	1	1
618	GF	495390.08	6926344.36	42.4	0	0	0	0	0	0
618	FF	495390.08	6926344.36	42.4	1	0	1	1	1	1
619	GF	495353.16	6926323.46	42.5	1	1	0	0	1	1
619	FF	495353.16	6926323.46	42.5	1	1	1	0	1	1
620	GF	495338.62	6926321.62	42.8	1	1	0	0	1	1
620	FF	495338.62	6926321.62	42.8	1	1	1	0	1	1
621	GF	495325.86	6926319.7	43.2	1	1	0	0	1	1
621	FF	495325.86	6926319.7	43.2	1	1	0	0	1	1
622	GF	495313.02	6926317.19	43.6	1	1	0	0	1	1
622	FF	495313.02	6926317.19	43.6	2	1	0	0	2	1
623	GF	495300.32	6926315.35	44.0	2	1	0	0	2	1
623	FF	495300.32	6926315.35	44.0	2	2	0	0	2	2
624	GF	495286.38	6926312.76	44.5	2	1	0	0	2	1
624	FF	495286.38	6926312.76	44.5	2	2	0	0	2	2
625	GF	495267.48	6926317.85	45.1	3	2	0	1	3	2
625	FF	495267.48	6926317.85	45.1	3	3	0	0	3	3
626	GF	495266.89	6926339.11	45.6	3	1	0	1	3	1
626	FF	495266.89	6926339.11	45.6	3	3	0	0	3	3
627	GF	495265.71	6926350.25	45.8	3	1	0	1	3	1
627	FF	495265.71	6926350.25	45.8	3	3	0	0	3	3
628	GF	495264.83	6926360.07	46.3	2	1	0	1	2	1
628	FF	495264.83	6926360.07	46.3	3	3	0	1	3	3
629	GF	495263.94	6926371.51	46.8	2	1	0	1	2	1
629	FF	495263.94	6926371.51	46.8	3	3	0	1	3	3
630	GF	495262.24	6926383.98	47.8	2	1	0	0	2	1
630	FF	495262.24	6926383.98	47.8	3	3	0	0	3	3
631	GF	495259.22	6926396.6	49.0	2	1	0	1	2	1
631	FF	495259.22	6926396.6	49.0	3	3	0	0	3	3
632	GF	495257.23	6926407.15	50.3	2	1	0	1	2	1
632	FF	495257.23	6926407.15	50.3	3	3	0	0	3	3
633	GF	495254.79	6926416.89	51.5	3	1	0	1	3	1
633	FF	495254.79	6926416.89	51.5	3	3	0	0	3	3
634	GF	495252.87	6926427.74	52.5	3	2	0	1	3	2
634	FF	495252.87	6926427.74	52.5	3	3	0	0	3	3
635	GF	495251.47	6926440.06	53.9	3	2	0	1	3	2
635	FF	495251.47	6926440.06	53.9	3	3	0	0	3	3
636	GF	495249.99	6926454.01	55.3	3	2	0	1	3	2
636	FF	495249.99	6926454.01	55.3	3	3	0	0	3	3
637	GF	495259.61	6926520.82	60.7	3	2	0	1	3	2
637	FF	495259.61	6926520.82	60.7	3	3	0	0	3	3
638	GF	495271.56	6926506.91	59.6	2	2	0	0	2	2
638	FF	495271.56	6926506.91	59.6	2	2	0	0	2	2
639	GF	495281.22	6926494.86	58.8	2	1	0	0	2	1

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)	
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier
639	FF	495281.22	6926494.86	58.8	2	2	0	0	2	2
640	GF	495294.41	6926466.72	55.8	1	1	0	1	1	1
640	FF	495294.41	6926466.72	55.8	2	1	0	0	2	1
641	GF	495296.73	6926452.26	54.4	1	1	0	0	1	1
641	FF	495296.73	6926452.26	54.4	1	1	0	0	1	1
642	GF	495299.16	6926439.27	53.0	1	1	0	0	1	1
642	FF	495299.16	6926439.27	53.0	1	1	0	0	1	1
643	GF	495300.75	6926425.55	51.4	1	1	0	0	1	1
643	FF	495300.75	6926425.55	51.4	1	1	0	0	1	1
644	GF	495303.17	6926411.4	49.8	1	1	0	0	1	1
644	FF	495303.17	6926411.4	49.8	1	1	0	0	1	1
645	GF	495305.5	6926398.19	48.4	1	1	0	1	1	1
645	FF	495305.5	6926398.19	48.4	1	1	0	1	1	1
646	GF	495307.64	6926385.14	47.1	1	0	0	1	1	1
646	FF	495307.64	6926385.14	47.1	1	1	0	1	1	1
647	GF	495303.04	6926362.83	45.2	1	0	0	1	1	1
647	FF	495303.04	6926362.83	45.2	1	1	0	1	1	1
648	GF	495317.23	6926364.77	44.8	1	0	0	1	1	1
648	FF	495317.23	6926364.77	44.8	1	1	0	1	1	1
649	GF	495330.38	6926366.46	44.4	1	0	0	0	1	0
649	FF	495330.38	6926366.46	44.4	1	1	0	1	1	1
650	GF	495345.14	6926369.77	44.1	0	0	0	0	0	0
650	FF	495345.14	6926369.77	44.1	1	0	0	0	1	0
651	GF	495334.47	6926388.71	46.5	1	0	0	1	1	1
651	FF	495334.47	6926388.71	46.5	1	1	0	1	1	1
652	GF	495331.78	6926402.31	47.7	1	0	0	1	1	1
652	FF	495331.78	6926402.31	47.7	1	1	0	1	1	1
653	GF	495330.35	6926415.36	48.9	1	0	0	1	1	1
653	FF	495330.35	6926415.36	48.9	1	1	0	1	1	1
654	GF	495328.21	6926429.67	50.3	1	0	0	0	1	0
654	FF	495328.21	6926429.67	50.3	1	1	0	0	1	1
655	GF	495325.88	6926443.62	52.0	1	0	0	0	1	0
655	FF	495325.88	6926443.62	52.0	1	1	0	0	1	1
656	GF	495323.38	6926456.49	53.4	1	0	0	0	1	0
656	FF	495323.38	6926456.49	53.4	1	1	0	0	1	1
657	GF	495321.59	6926471.51	54.9	1	0	0	0	1	0
657	FF	495321.59	6926471.51	54.9	1	1	0	0	1	1
658	GF	495307.7	6926508.36	60.5	1	1	0	0	1	1
658	FF	495307.7	6926508.36	60.5	1	1	0	0	1	1
659	GF	495298.98	6926517.6	61.8	1	1	0	0	1	1
659	FF	495298.98	6926517.6	61.8	2	1	0	0	2	1
660	GF	495292.33	6926526.64	62.5	2	1	0	0	2	1
660	FF	495292.33	6926526.64	62.5	2	2	0	0	2	2
661	GF	495283.29	6926537.34	63.2	2	2	0	0	2	2
661	FF	495283.29	6926537.34	63.2	2	2	0	0	2	2
662	GF	495271.66	6926552.09	63.7	3	2	0	1	3	2
662	FF	495271.66	6926552.09	63.7	3	3	0	0	3	3
663	GF	495281.32	6926571.3	63.9	3	1	0	1	3	1
663	FF	495281.32	6926571.3	63.9	3	3	0	0	3	3
664	GF	495287.55	6926583.04	64.5	3	1	0	0	3	1
664	FF	495287.55	6926583.04	64.5	3	3	0	0	3	3
665	GF	495293.99	6926592.49	65.0	2	1	0	0	2	1

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)	
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier
665	FF	495293.99	6926592.49	65.0	3	3	0	0	3	3
666	GF	495298.67	6926601.73	65.5	2	1	0	0	2	1
666	FF	495298.67	6926601.73	65.5	3	3	0	1	3	3
667	GF	495305.94	6926611.5	66.0	2	1	0	0	2	1
667	FF	495305.94	6926611.5	66.0	3	3	0	1	3	3
701	GF	495614.02	6926561.63	55.7	0	0	1	1	1	1
701	FF	495614.02	6926561.63	55.7	0	0	1	1	1	1
702	GF	495617.48	6926548.02	54.6	0	0	1	1	1	1
702	FF	495617.48	6926548.02	54.6	0	0	1	1	1	1
703	GF	495618.82	6926536.71	54.3	0	0	1	1	1	1
703	FF	495618.82	6926536.71	54.3	0	0	1	1	1	1
704	GF	495619.78	6926524.05	54.0	0	0	1	1	1	1
704	FF	495619.78	6926524.05	54.0	0	0	1	1	1	1
705	GF	495622.08	6926509.48	53.6	0	0	1	1	1	1
705	FF	495622.08	6926509.48	53.6	0	0	1	1	1	1
706	GF	495625.14	6926493.57	53.2	0	0	1	1	1	1
706	FF	495625.14	6926493.57	53.2	0	0	1	1	1	1
707	GF	495627.45	6926477.84	52.7	0	0	1	1	1	1
707	FF	495627.45	6926477.84	52.7	0	0	1	1	1	1
708	GF	495629.94	6926461.55	52.3	0	0	1	1	1	1
708	FF	495629.94	6926461.55	52.3	0	0	1	1	1	1
709	GF	495633.01	6926446.98	51.9	0	0	1	1	1	1
709	FF	495633.01	6926446.98	51.9	0	0	1	1	1	1
710	GF	495634.92	6926432.79	51.6	0	0	1	1	1	1
710	FF	495634.92	6926432.79	51.6	0	0	1	1	1	1
711	GF	495637.24	6926420.87	51.5	0	0	1	1	1	1
711	FF	495637.24	6926420.87	51.5	0	0	1	1	1	1
712	GF	495639.17	6926410.27	50.9	0	0	1	1	1	1
712	FF	495639.17	6926410.27	50.9	0	0	1	1	1	1
713	GF	495636.08	6926390.17	49.2	0	0	1	1	1	1
713	FF	495636.08	6926390.17	49.2	0	0	1	1	1	1
714	GF	495650.68	6926391.95	50.1	0	0	1	1	1	1
714	FF	495650.68	6926391.95	50.1	0	0	2	1	2	1
715	GF	495701.31	6926321.03	47.0	0	0	2	2	2	2
715	FF	495701.31	6926321.03	47.0	0	0	2	2	2	2
716	GF	495698.79	6926337.92	48.9	0	0	2	2	2	2
716	FF	495698.79	6926337.92	48.9	0	0	2	2	2	2
717	GF	495696.79	6926354.35	49.6	0	0	2	2	2	2
717	FF	495696.79	6926354.35	49.6	0	0	2	2	2	2
718	GF	495694.28	6926369.27	50.3	0	0	2	2	2	2
718	FF	495694.28	6926369.27	50.3	0	0	2	2	2	2
719	GF	495691.64	6926382.94	50.8	0	0	2	2	2	2
719	FF	495691.64	6926382.94	50.8	0	0	2	2	2	2
720	GF	495690.26	6926396.61	51.1	0	0	2	2	2	2
720	FF	495690.26	6926396.61	51.1	0	0	2	2	2	2
721	GF	495688.26	6926408.65	51.2	0	0	2	2	2	2
721	FF	495688.26	6926408.65	51.2	0	0	2	2	2	2
722	GF	495685.75	6926421.69	51.4	0	0	2	2	2	2
722	FF	495685.75	6926421.69	51.4	0	0	2	2	2	2
723	GF	495683.62	6926435.87	51.5	0	0	2	2	2	2
723	FF	495683.62	6926435.87	51.5	0	0	2	2	2	2
724	GF	495679.35	6926451.67	51.8	0	0	2	2	2	2

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)	
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier
724	FF	495679.35	6926451.67	51.8	0	0	2	2	2	2
725	GF	495678.35	6926466.34	52.3	0	0	2	2	2	2
725	FF	495678.35	6926466.34	52.3	0	0	2	2	2	2
726	GF	495676.47	6926477.25	52.6	0	0	2	1	2	1
726	FF	495676.47	6926477.25	52.6	0	0	2	2	2	2
727	GF	495675.72	6926488.16	52.9	0	0	2	1	2	1
727	FF	495675.72	6926488.16	52.9	0	0	2	2	2	2
728	GF	495671.45	6926504.72	53.2	0	0	1	1	1	1
728	FF	495671.45	6926504.72	53.2	0	0	2	2	2	2
729	GF	495660.9	6926537.75	53.4	0	0	1	1	1	1
729	FF	495660.9	6926537.75	53.4	0	0	1	1	1	1
730	GF	495676.66	6926528.2	52.7	0	0	1	1	1	1
730	FF	495676.66	6926528.2	52.7	0	0	1	1	1	1
731	GF	495691.46	6926521.02	51.9	0	0	2	1	2	1
731	FF	495691.46	6926521.02	51.9	0	0	2	2	2	2
732	GF	495704.95	6926512.97	51.3	0	0	2	2	2	2
732	FF	495704.95	6926512.97	51.3	0	0	2	2	2	2
733	GF	495717.55	6926505.87	50.7	0	0	2	2	2	2
733	FF	495717.55	6926505.87	50.7	0	0	2	2	2	2
734	GF	495703.56	6926486.78	50.8	0	0	2	2	2	2
734	FF	495703.56	6926486.78	50.8	0	0	2	2	2	2
735	GF	495706.44	6926470.6	50.5	0	0	2	2	2	2
735	FF	495706.44	6926470.6	50.5	0	0	2	2	2	2
736	GF	495708.39	6926456.14	50.1	0	0	2	2	2	2
736	FF	495708.39	6926456.14	50.1	0	0	2	2	2	2
737	GF	495711.17	6926440.52	49.8	0	0	2	2	2	2
737	FF	495711.17	6926440.52	49.8	0	0	2	2	2	2
738	GF	495713.31	6926425.32	49.5	0	0	2	2	2	2
738	FF	495713.31	6926425.32	49.5	0	0	2	2	2	2
739	GF	495714.81	6926413.55	49.2	0	0	2	2	2	2
739	FF	495714.81	6926413.55	49.2	0	0	2	2	2	2
740	GF	495717.38	6926400.49	49.1	0	0	2	2	2	2
740	FF	495717.38	6926400.49	49.1	0	0	2	2	2	2
741	GF	495718.88	6926387.22	48.8	0	0	2	2	2	2
741	FF	495718.88	6926387.22	48.8	0	0	2	2	2	2
742	GF	495721.88	6926373.3	48.5	0	0	2	1	2	1
742	FF	495721.88	6926373.3	48.5	0	0	2	2	2	2
743	GF	495723.59	6926358.32	47.8	0	0	2	2	2	2
743	FF	495723.59	6926358.32	47.8	0	0	2	2	2	2
744	GF	495725.94	6926343.12	47.1	0	0	2	2	2	2
744	FF	495725.94	6926343.12	47.1	0	0	3	2	3	2
745	GF	495722.59	6926322.29	46.1	0	0	2	2	2	2
745	FF	495722.59	6926322.29	46.1	0	0	3	3	3	3
746	GF	495737.33	6926323	46.0	0	0	2	2	2	2
746	FF	495737.33	6926323	46.0	0	0	3	3	3	3
747	GF	495768.75	6926360.89	47.7	0	0	3	2	3	2
747	FF	495768.75	6926360.89	47.7	0	0	3	3	3	3
748	GF	495768.11	6926377.16	48.4	0	0	3	2	3	2
748	FF	495768.11	6926377.16	48.4	0	0	3	3	3	3
749	GF	495766.4	6926389.79	48.8	0	0	3	2	3	2
749	FF	495766.4	6926389.79	48.8	0	0	3	3	3	3
750	GF	495764.47	6926403.7	49.0	0	0	3	2	3	2

Lot	Floor	Coordinates and ground elevation at centre of lot, m			QDC MP4.4 Road Traffic Noise Category		QDC MP4.4 Railway Traffic Noise Category		Applicable QDC MP4.4 Noise Category (Highest of Road and Railway)	
		Easting	Northing	Ground elevation, m	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier	No Mitigation	Noise Barrier
750	FF	495764.47	6926403.7	49.0	0	0	3	3	3	3
751	GF	495761.69	6926417.19	49.2	0	0	3	2	3	2
751	FF	495761.69	6926417.19	49.2	0	0	3	3	3	3
752	GF	495760.19	6926427.89	49.4	0	0	2	2	2	2
752	FF	495760.19	6926427.89	49.4	0	0	3	3	3	3
753	GF	495758.69	6926437.95	49.6	0	0	2	2	2	2
753	FF	495758.69	6926437.95	49.6	0	0	3	2	3	2
754	GF	495758.05	6926449.51	49.9	0	0	2	2	2	2
754	FF	495758.05	6926449.51	49.9	0	0	2	2	2	2
755	GF	495753.13	6926465.14	50.1	0	0	2	2	2	2
755	FF	495753.13	6926465.14	50.1	0	0	2	2	2	2
756	GF	495745.58	6926491.42	49.5	0	0	2	2	2	2
756	FF	495745.58	6926491.42	49.5	0	0	2	2	2	2
757	GF	495757.31	6926485.82	49.1	0	0	2	2	2	2
757	FF	495757.31	6926485.82	49.1	0	0	2	2	2	2
758	GF	495769.04	6926479.95	48.7	0	0	2	2	2	2
758	FF	495769.04	6926479.95	48.7	0	0	2	2	2	2
759	GF	495783.1	6926470.7	47.7	0	0	3	2	3	2
759	FF	495783.1	6926470.7	47.7	0	0	3	3	3	3
760	GF	495785.88	6926454.43	47.4	0	0	3	2	3	2
760	FF	495785.88	6926454.43	47.4	0	0	3	3	3	3
761	GF	495787.59	6926442.66	47.1	0	0	3	2	3	2
761	FF	495787.59	6926442.66	47.1	0	0	3	3	3	3
762	GF	495788.88	6926432.6	47.1	0	0	3	2	3	2
762	FF	495788.88	6926432.6	47.1	0	0	3	3	3	3
763	GF	495790.38	6926421.47	47.0	0	0	3	2	3	2
763	FF	495790.38	6926421.47	47.0	0	0	3	3	3	3
764	GF	495792.73	6926408.62	46.9	0	0	3	2	3	2
764	FF	495792.73	6926408.62	46.9	0	0	3	3	3	3
765	GF	495794.87	6926394.28	46.8	0	0	3	2	3	2
765	FF	495794.87	6926394.28	46.8	0	0	3	3	3	3
766	GF	495797.23	6926382.08	46.7	0	0	3	2	3	2
766	FF	495797.23	6926382.08	46.7	0	0	3	3	3	3
767	GF	495800.22	6926365.81	46.5	0	0	3	2	3	2
767	FF	495800.22	6926365.81	46.5	0	0	3	3	3	3
768	GF	495789.78	6926350.34	46.4	0	0	3	2	3	2
768	FF	495789.78	6926350.34	46.4	0	0	3	3	3	3
769	GF	495780.5	6926340.33	46.3	0	0	3	2	3	2
769	FF	495780.5	6926340.33	46.3	0	0	3	3	3	3
770	GF	495768.81	6926331.67	46.2	0	0	3	2	3	2
770	FF	495768.81	6926331.67	46.2	0	0	3	3	3	3

Appendix F Reference Noise Barrier Designs

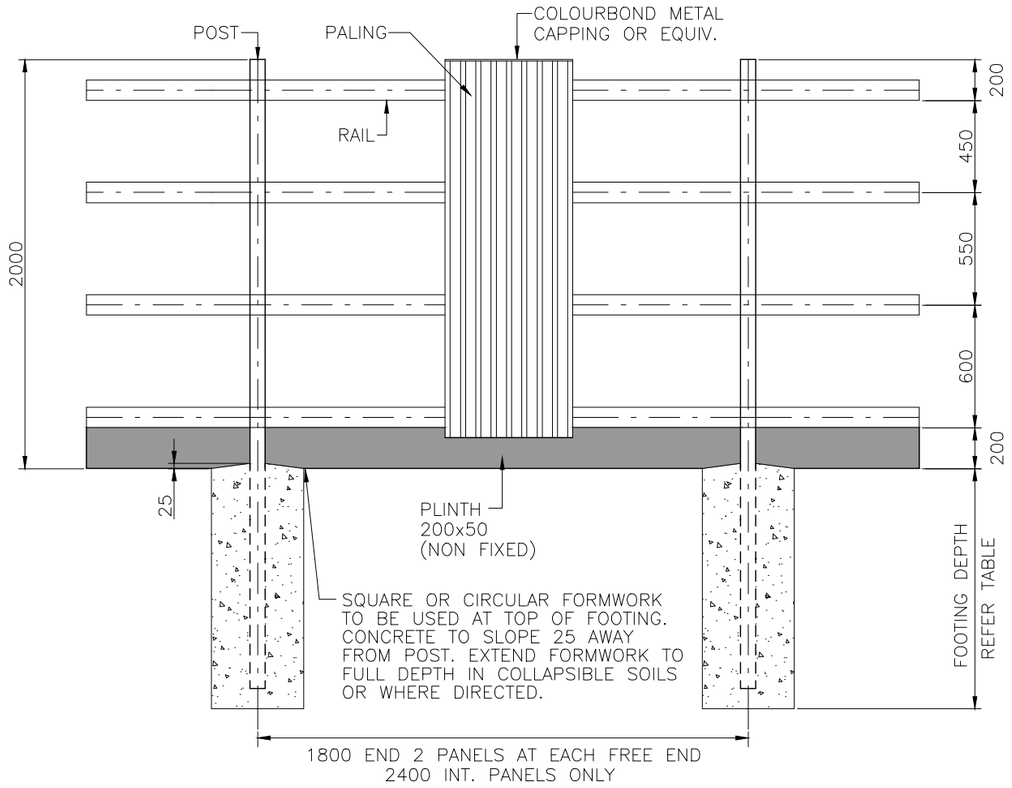
New Beith, Precinct B, Stage 4, 5, 6a and 7

Transport Noise Intrusion Assessment

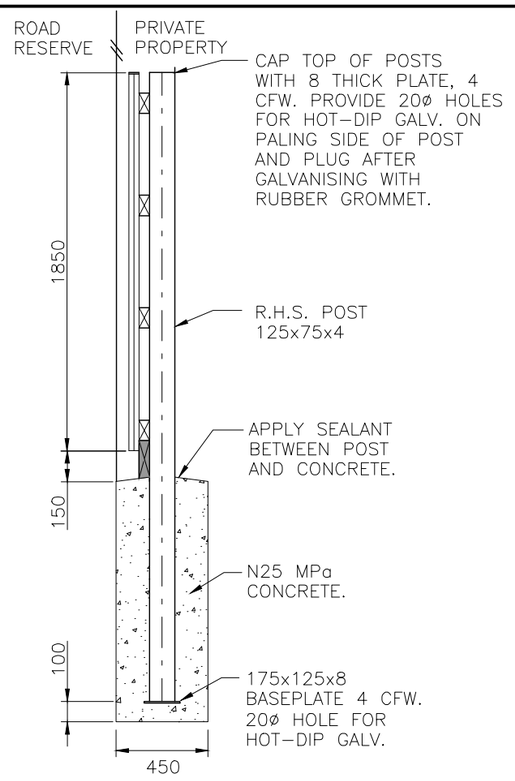
Frasers Property Australia Pty Ltd

SLR Project No.: 620.v013870.00001

11 June 2024



ELEVATION



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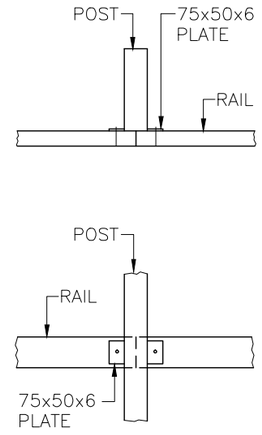
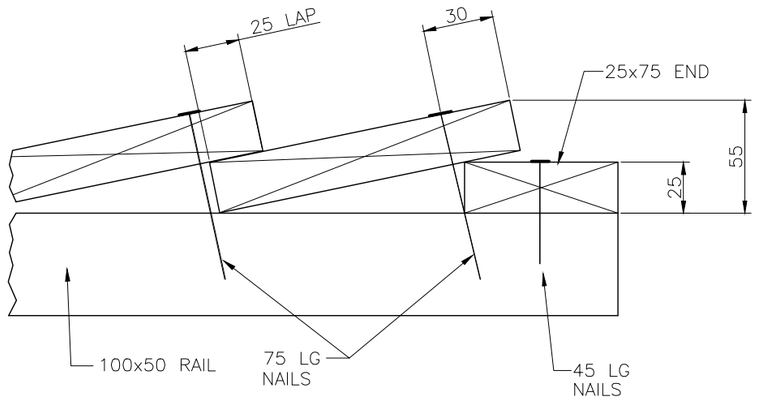


POST & RAIL CONNECTION

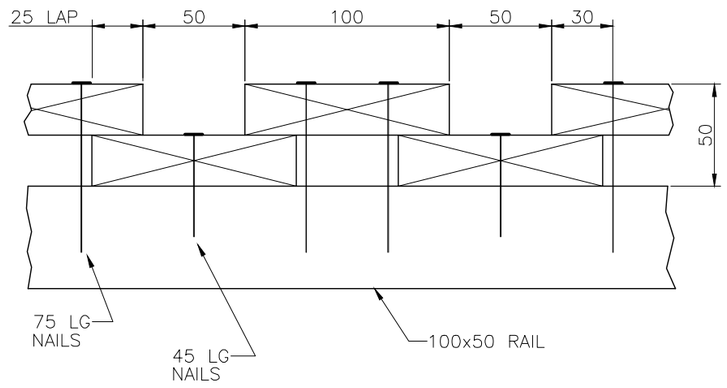
FOOTING DEPTH	
SOIL TYPE	FOOTING DEPTH
SOFT CLAY (Cu = 25 kPa)	1600
FIRM CLAY (Cu = 50 kPa)	1300
STIFF CLAY (Cu = 100 kPa)	1100
MEDIUM DENSE NON-COHESIVE SOIL	1200

NOTES:

1. THIS DRAWING DEPICTS A TYPICAL 2000 HIGH ACOUSTIC BARRIER AND DOES NOT NECESSARILY REPRESENT A NOISE ATTENUATION SOLUTION FOR ALL DEVELOPMENTS. NOISE ATTENUATION SOLUTION FOR EACH DEVELOPMENT IS SITE SPECIFIC AND SHALL BE ADDRESSED IN ACCORDANCE WITH THE "NOISE IMPACT ASSESSMENT PLANNING SCHEME POLICY" OF THE BRISBANE CITY PLAN.
2. MAXIMUM PERMISSIBLE STRESS DESIGN WIND VELOCITY IS 33m/s (W33) WHICH CORRESPONDS TO A SUBURBAN ENVIRONMENT WITH NO EXPOSURE TO OPEN AREAS AND NOT LOCATED IN CLOSE PROXIMITY TO HILLS, RIDGES OR ESCARPMENTS, AS THE NATURAL SURFACE 2m EITHER SIDE OF THE FENCE IS ASSUMED FLAT FOR DESIGN OF FOOTING. IF THESE CONDITIONS ARE NOT MET AN ALTERNATIVE CERTIFIED ENGINEERING DESIGN MUST BE SUBMITTED FOR APPROVAL.
3. FOR NEW SUBDIVISIONS/DEVELOPMENTS, THE ENTIRE FENCE SHALL BE CONTAINED WITHIN THE PRIVATE PROPERTY AND MAINTAINED BY THE PROPERTY OWNER.
4. ALL PALINGS, RAILS AND PLINTH SHALL BE C.C.A TREATED PINE TO H5 LEVEL IN ACCORDANCE WITH AS 1604.
5. ALL FIXINGS SHALL BE HOT-DIP GALVANISED OR EQUIVALENT.
6. CAPPING: COLOURBOND METAL, 30 DEEP WITH OVERFOLDED EDGES FIX WITH No.10 x 12 LONG GALV. TYPE 17 SCREWS AT 300 CRS AND STAGGERED EACH SIDE. CAPPING TO FIT SNUGLY OVER PALINGS.
7. PALINGS: F5 TREATED PINE. REFER PALING DETAILS FOR SIZES. NAILS SHALL BE 2.8ø HOT-DIP GALVANISED FLAT HEAD CLOUTS (OR SIMILAR GUN-DRIVEN NAILS). STAGGER NAIL PATTERN ALONG LENGTH OF PALING TO AVOID SPLITTING AND DRIVE NAILS SQUARE TO FACE OF BOARD. RING SHANK NAILS TO BE USED.
8. RAILS: 100 x 50 F5 TREATED PINE. FIX WITH No.14-10 x 50 GALVANISED HEX HD TYPE 17 SCREW.
9. POSTS: 125 x 75 x 4 R.H.S. HOT-DIP GALVANISED AFTER FABRICATION.
10. PLINTH: 200 x 50 F5 TREATED PINE (NON FIXED).
11. DIMENSIONS IN MILLIMETRES (UNO).



SYSTEM 1 (150x25)



SYSTEM 2 (100x25)

TREATED PINE PALING

ISSUE	AMENDMENT	DRAWN DATE	CHK'D DATE	APPR'D DATE
B	Drawing Title Amended	FEB'16	JUL '16	JUL '16
A	Drawing Converted from UMS Series April 2014	APR '14	APR '14	APR '14

DRAWING AUTHORISED FOR PUBLICATION
B.BALL SIGNATURE ON ORIGINAL
DATED 29/06/01 R.P.E.Q 3852
ASSET ENGINEERING MANAGER
STRATEGIC ASSET MANAGEMENT

DESIGN APPROVED
B.HANSEN SIGNATURE ON ORIGINAL
DATED 27/06/01
PRINCIPAL ASSET OFFICER
ROADS & DRAINAGE

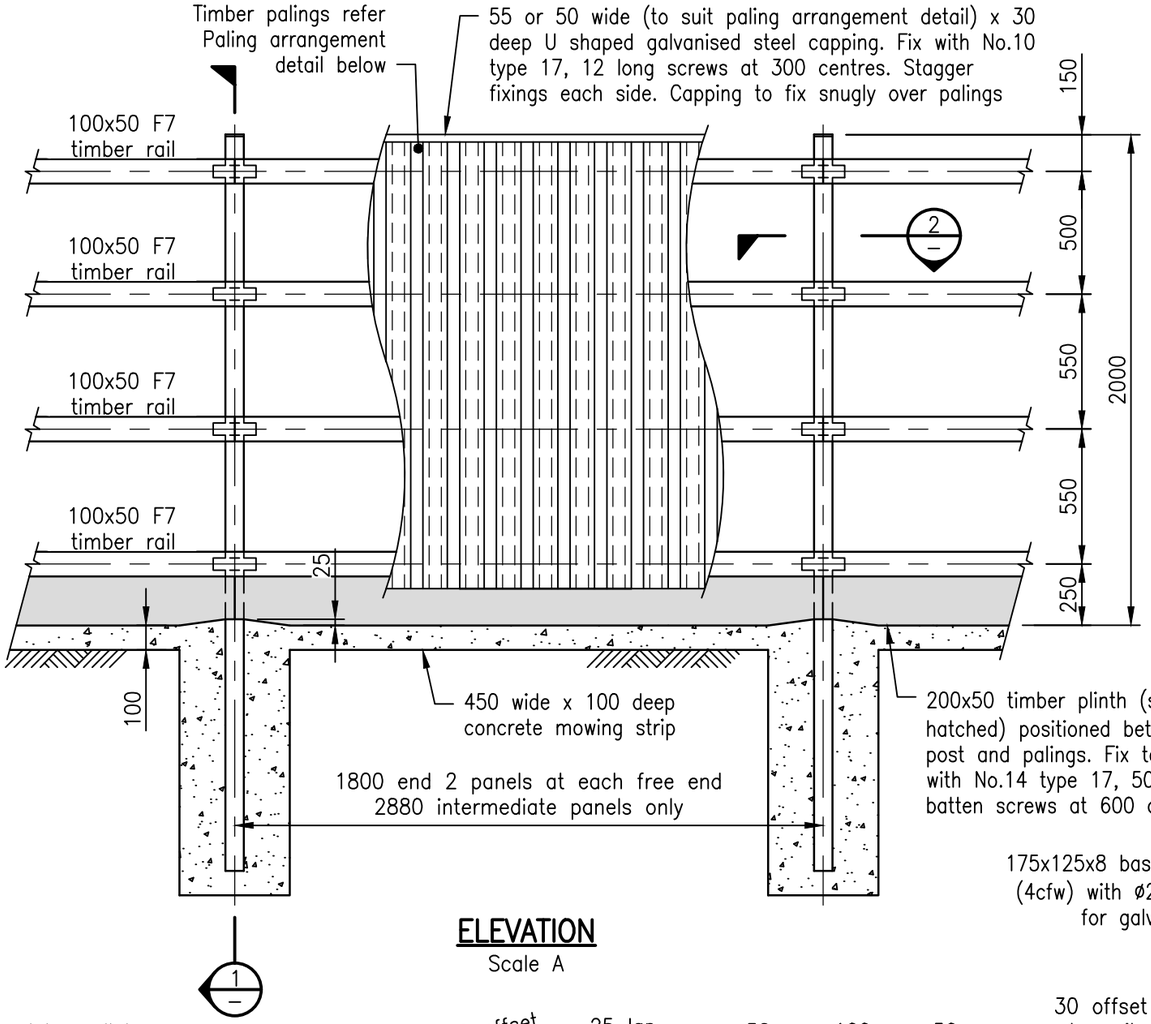
DESIGN	Std Dwgs Group	DATE	APRIL '01
DRAWN	CITY DESIGN	DATE	APRIL '01
CHECKED	M. STEER	DATE	MAY '01
DRAWING FILENAME	BSD-7021 (B) Noise barrier fence 2.0m high - Post and paling.dwg		
ASSOCIATED PLANS	SUPERSEDES UMS-245		

BRISBANE CITY

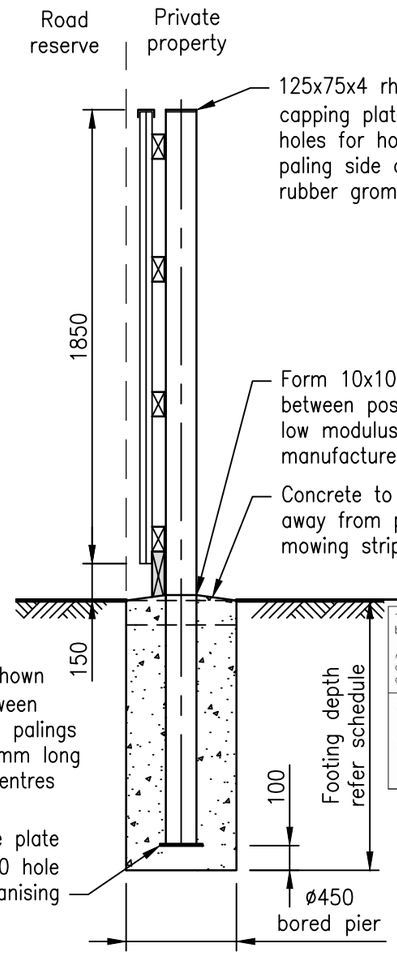
BRISBANE CITY COUNCIL STANDARD DRAWING

NOISE BARRIER FENCE 2.0m HIGH POST AND PALING

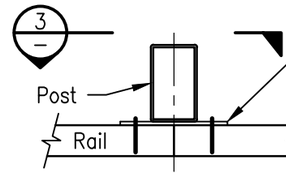
SCALE: NOT TO SCALE
DWG No.: BSD-7021
ORIGINAL SIZE: A3
REVISION: B



ELEVATION
Scale A

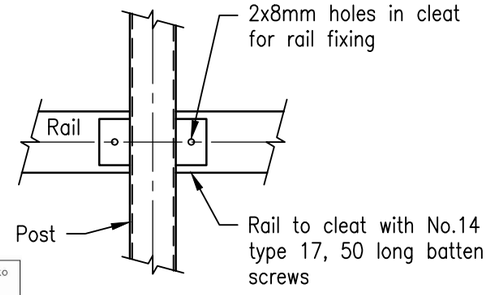


SECTION
Scale A



SECTION
Scale B

THIS DRAWING IS FOR COUNCIL CONSTRUCTION WORKS WITHIN THE ROAD RESERVE ONLY



SECTION
Scale B

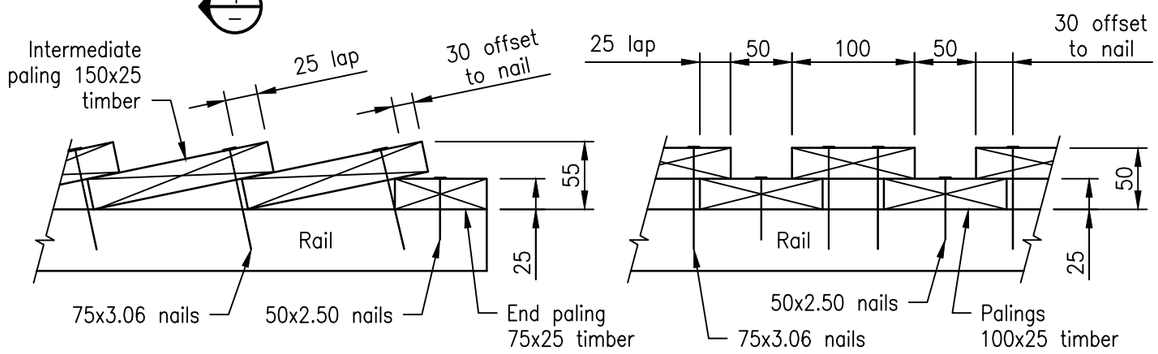
The structural work shown on this drawing is considered to be structurally sound, and suitable for the design loads.

All construction to be as per current Australian Standards and Building Codes, in accordance with MBRC requirements, and in a professional and tradesmanlike manner

IAN BARNES & ASSOCIATES P/Ltd
CONSULTING ENGINEERS
P.O. Box 1378
CABOOLTURE 4510
ABN 70 057802490
Office : 07 5495 8444
Mobile : 0418 873 320
RPEQ 3333 Date : 13/09/2017

NOTES:

1. This drawing depicts a typical 2000 high acoustic barrier and does not necessarily represent a noise attenuation solution for all developments. Noise attenuation solution for each development is site specific and shall be addressed by a qualified acoustic engineer.
2. Maximum permissible stress design wind velocity is 33m/s (w33) which corresponds to a suburban environment with no exposure to open areas and not located in close proximity to hills, ridges or escarpments, as the natural surface 2m either side of the fence Is assumed flat for design of footing. If these conditions are not met an alternative certified engineering design must be submitted for approval.
3. For new subdivisions/developments, the entire fence shall be contained within the private property and maintained by the property owner.
4. All palings, rails and plinths shall be ACQ or CCA treated pine to H5 level in accordance with AS 1604. Rails min. F7 Stress Grade.
5. All fixings (apart from nails) shall be 'Zenith-Tufcote' or 'Buildex-Climacoat' or approved equivalent (unless noted otherwise).
6. All nails shall be ring shank type and hot dipped galvanised.
7. Stagger nail pattern along length of paling to avoid splitting and drive nails square to face of board.
8. Posts shall be hot-dip galvanised after fabrication.
9. Noise barrier fence shall be screened with vegetation.
10. Dimensions are in millimetres unless stated otherwise.



TYPE 1 TYPE 2

PALING ARRANGEMENT DETAILS
Scale C

FOOTING DEPTH SCHEDULE

SOIL TYPE	FOOTING DEPTH
Soft clay (Cu = 25kPa)	1600
Firm clay (Cu = 50kPa)	1300
Stiff clay (Cu = 100kPa)	1100
Medium dense non-cohesive soil medium	1200

	REVISIONS	INIT	DATE
E			
D			
C	Approved by Structural Engineer	TC	7/17
B	Structural Design Note Changed	RH	12/16
A	Add note - For council construction works only, change landscape note	BW	08/16
X	ORIGINAL ISSUE	BW	07/16

SCALES
A 0mm 100 200 300 400 500 1:25
B 0mm 50 100 150 200 1:10
C 0mm 25 50 75 100 1:5

Drawn	BW	Date	07/16
Coordinator	PP	Date	07/16

AUTHORISED
SYD JERRAM
07/07/16
Manager Integrated Transport Planning & Design
RPEQ 6872

NOISE BARRIER FENCE
2.0m HIGH POST AND PALING

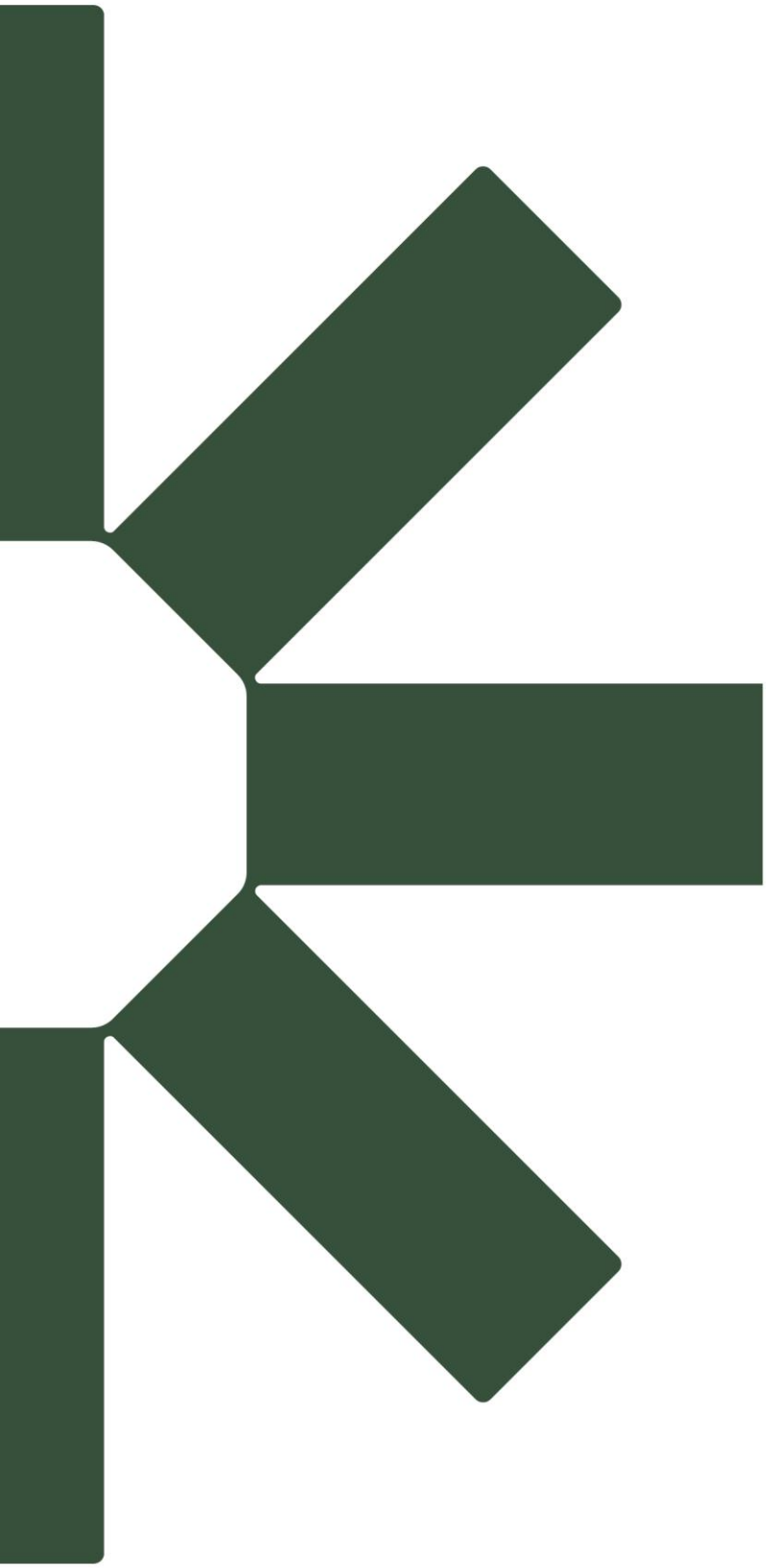
Moreton Bay Regional Council

DRG No. SF-1520

ORIGINAL SIZE A3

REVISION C

File name: I:\User_Group\Design_Services\Projects\MBRC Standard Drawings\AutoCAD Files\04 - Street Furniture Including Fences\SF-1520C - Noise Barrier Fence 2.0m high - Post and Paling.dwg Date: Sep 28, 2017 - 12:02pm



Making Sustainability Happen