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Consulting Advice Note

Date	5 May 2026
From	Martyn Chambers
To	Andrew Richards
Project	Awatoto Pump Station
Re	**Construction and Operational Noise**

1.0 Introduction

Brian Perry Civil Limited has engaged Styles Group to assess the operational and construction noise from the proposed Awatoto Pump Station replacement near State Highway 51 and Waitangi Road, Awatoto, Napier (the **site**).

This report sets out an assessment of the proposal from an acoustics perspective, including:

i. Operational and construction noise level predictions at the surrounding sites prepared using DGMR iNoise computer noise modelling software

ii. An assessment of the operational noise levels in accordance with the Operative Napier District Plan (**ONDP**), and with reference to the Proposed Napier District Plan (**PNDP**) and the relevant New Zealand acoustics standards.

This report should be read in conjunction with the application site plans and the Assessment of Environmental Effects.

To preface this report, the construction and operation of the pump station are predicted to comply with the permitted noise limits under both the ONDP and PNDP.

Due to the separation distance between the site and the nearest receivers, vibration effects have not been assessed further. Vibration levels at the receivers are expected to be negligible.

2.0 The proposal

The proposal is to construct and operate a new stormwater pump station at the existing Awatoto Pump Station site, near State Highway 51 and Waitangi Road, Awatoto. The works form part of the HBRC Stormwater Pump Stations Design and Build Flood Resilience Programme.

The site is within the River Conservation Zone (**RCZ**) under the ONDP. It is within the Natural Open Space Zone (**NOSZ**) under the PNDP. The site also sits next to the Main Industrial Zone (**MIZ**) under the ONDP and the General Industrial Zone (**GIZ**) under the PNDP.

The closest noise-sensitive receivers are within the Main Rural Zone (**MRZ**) under the ONDP. They are within the Rural Production Zone (**RPZ**) under the PNDP.

The closest non-noise-sensitive receiver in the MIZ / GIZ is Ravensdown Napier Works.

The Hastings District boundary is located to the south of the site. Our assessment predicts no exceedances of the Hastings District Plan noise limits from the operation or construction of the pump station due to the sizeable separation distance. Receivers within the Hastings District have therefore not been considered further in this assessment.

The new pump station includes three fish-friendly pumps, two DN1200 discharge pipelines, one DN600 discharge pipeline, a new outlet structure, riprap scour protection, inlet channel works, ground improvement, electrical upgrades, site access, hardstand areas and fencing. The design also allows for a backup generator to be brought to site when required.

Piling is expected to be the main construction noise source. This includes sheet piling and driven timber piling for ground improvement. General construction plant, excavation and cofferdam works may also generate noise.

Operational noise will arise from the pumps and any backup generator used on site. The pump motors will be installed in the open with weatherproof covers. The assessment does not include any additional acoustic enclosure or building attenuation for the pumps or generators.

Figure 1 illustrates the site location and closest receivers. Table 1 identifies receivers closest to the site.

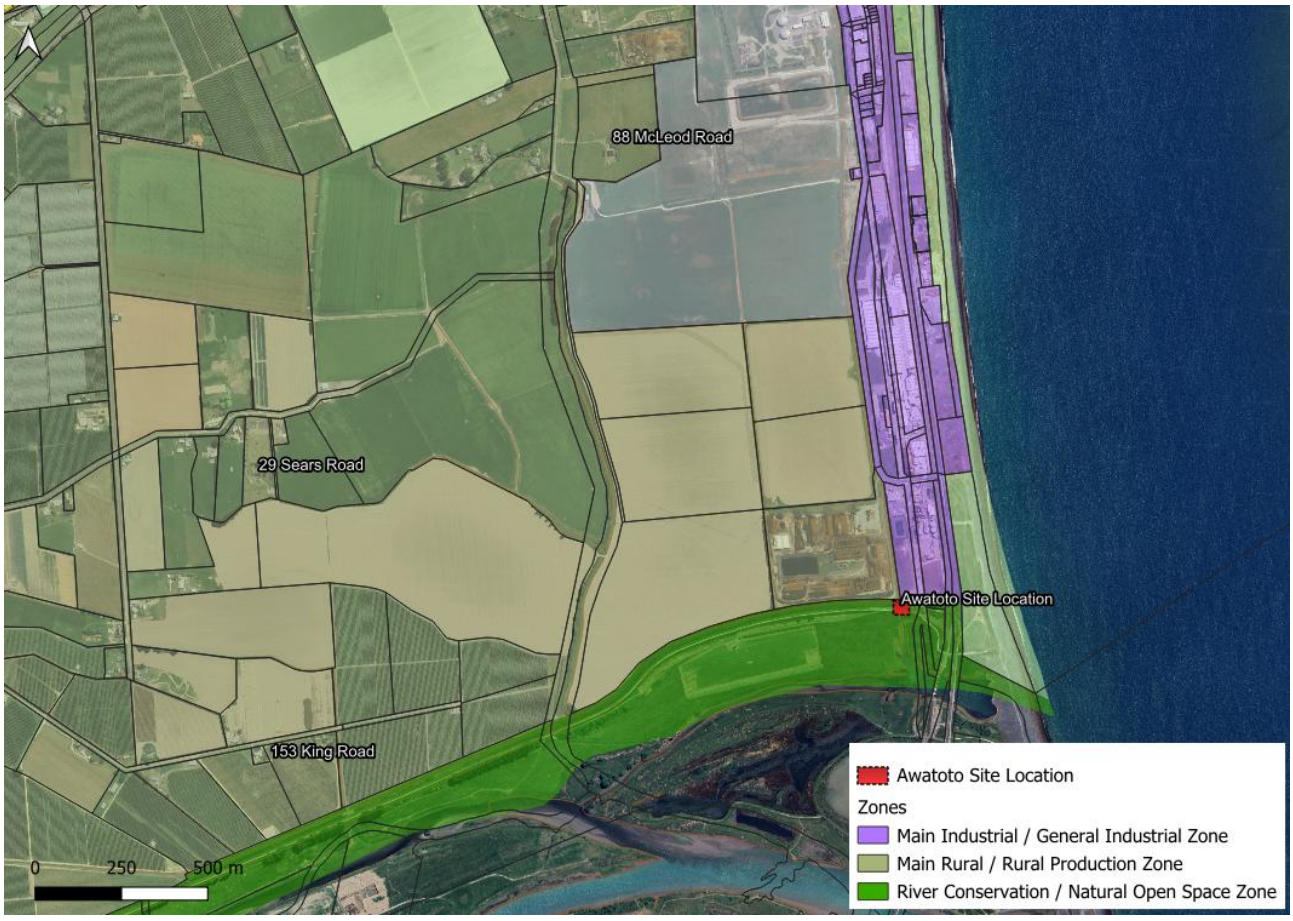

Figure 1 Site location and closest receivers

Table 1: The neighbouring properties

Address	Zone	Approximate separation distance from the receiver building façade to nearest site boundary
153 King Road	MRZ / RPZ	1,600 m
88 McLeod Road	MRZ / RPZ	1,500 m
29 Sears Road	MRZ / RPZ	1,800 m
Ravensdown Napier Works	MIZ / GIZ	15 m*

*Distance to the boundary of the zone

2.1 Operational and construction hours

The pump station will operate 24 hours per day when required. Operation will depend on stormwater levels and flood events. The pumps will not operate continuously at all times.

Construction works will normally occur between 7:30am and 6:00pm, Monday to Saturday. However, occasional works may occur outside these hours, particularly during the early morning.

The construction period is expected to be approximately 12 months.

3.0 Noise performance standards

This section sets out the permitted noise limits and relevant standards for the assessment of operational and construction noise under the ONDP and PNDP.

Operational noise limits

The closest residential receivers sit within the MRZ under the ONDP and the RPZ under the PNDP. Both plans apply the same operational noise limits at these receivers.

Land next to the site sits within the MIZ under the ONDP and the GIZ under the PNDP. Both plans also apply the same industrial noise limits.

Table 2 sets out the relevant operational noise limits. The ONDP MRZ limits apply at the notional boundary of any dwelling on another site. The PNDP requires noise received in a different zone to comply with the limits for the receiving zone.

Table 2 Operational noise limits

Receiving environment	Relevant zone	Time period	Noise limit
Closest residential receivers	MRZ / RPZ	7:00am - 7:00pm	55 dB L_{Aeq}
Closest residential receivers	MRZ / RPZ	7:00pm - 10:00pm	50 dB L_{Aeq}

Receiving environment	Relevant zone	Time period	Noise limit
Closest residential receivers	MRZ / RPZ	10:00pm - 7:00am	45 dB L_{Aeq}
Closest residential receivers	MRZ / RPZ	10:00pm - 7:00am	75 dB L_{AFmax}
Adjacent industrial land	MIZ / GIZ	All times	70 dB L_{Aeq}
Adjacent industrial land	MIZ / GIZ	All times	85 dB L_{AFmax}

3.1 Construction noise limits

Both Napier plans require construction noise to be measured and assessed in accordance with NZS 6803:1999 Acoustics - Construction Noise. The construction noise limits apply 1m from the façade of any occupied building.

Construction works will normally occur between 7:30am and 6:00pm, Monday to Saturday. However, occasional works may occur outside these hours, particularly during the early morning. The assessment has therefore adopted the conservative assumption that construction may occur before 7:30am, when the night-time construction noise limits apply.

The construction period is expected to be approximately 12 months. The works will therefore exceed 20 weeks. The NZS 6803 long-duration adjustment has been applied to the Monday to Saturday limits between 6:30am and 8:00pm. Table 3 summarises the adopted construction noise limits for occupied buildings containing noise-sensitive activities. Table 4 provides the construction noise limits for occupied buildings that do not contain noise-sensitive activities. These limits would apply to buildings in the MIZ / GIZ.

Table 3 Construction noise limits

Time of week	Time period	L_{Aeq}	L_{AFmax}
Weekdays	6:30am – 7:30am	55 dB	70 dB
	7:30am – 6:00pm	70 dB	85 dB
	6:00pm – 8:00pm	65 dB	80 dB
	8:00pm – 6:30am	45 dB	75 dB
Saturdays	6:30am – 7:30am	40 dB	70 dB
	7:30am – 6:00pm	70 dB	85 dB
	6:00pm – 8:00pm	40 dB	70 dB
	8:00pm – 6:30am	45 dB	75 dB
	6:30am – 7:30am	45 dB	75 dB

Time of week	Time period	L_{Aeq}	L_{AFmax}
Sundays and public holidays	7:30am – 6:00pm	55 dB	85 dB
	6:00pm – 8:00pm	45 dB	75 dB
	8:00pm – 6:30am	45 dB	75 dB

Table 4 Construction noise limits for other occupied buildings

Time period	Construction noise limit
8:00pm to 6:30am	75 dB L_{Aeq}
6:30am to 7:30am, Monday to Saturday	70 dB L_{Aeq}
7:30am to 6:00pm, Monday to Saturday	75 dB L_{Aeq}
6:00pm to 8:00pm, Monday to Saturday	70 dB L_{Aeq}

4.0 Noise modelling and predictions

Computer noise modelling software has been used to predict operational and construction noise levels.

Separate models have been prepared for operational noise and construction noise. The operational noise model includes all relevant noise sources operating at full capacity. This includes the pumps and the backup generator.

The construction noise model is based on sheet piling. Sheet piling is expected to generate the highest construction noise levels. If sheet piling complies with the relevant construction noise limits, then other lower-noise construction activities are also expected to comply.

4.1 Noise model parameters

DGMR iNoise computer noise modelling software was used to prepare the noise level predictions, based on the International Standard ISO 9613-1/2. The noise level predictions assume meteorological conditions that slightly enhance propagation in all directions.

Terrain contours, land parcels and building footprints for the model were acquired from online geospatial data services. The topographical contours encompass the entire site and the surrounding land.

The noise model outputs have been verified by manual calculations during Styles Group's internal review process.

The input parameters for the noise model are set out in Table 5.

Table 5: Noise model input parameters

Parameters/calculation settings	Details
Software	DGMR iNoise
Calculation method	ISO 9613.1/2
Meteorological parameters	Single value, C0 = 0
Ground attenuation over land	General method Ground factor: 1.0 (long grass and farmland)
Air temperature	293.15 K
Atmospheric pressure	101.33k Pa.
Air humidity	60%
Receiver heights (relative)	1.5 m above ground
Operation model noise sources	1 x Vision 45MC 75 Kw @ 396rpm = 54.0 dB(A) @ 1m 2 x Vision 90MC 630 Kw @ 340rpm = 62.1 dB(A) @ 1m 1 x Generator 913 Kw 77 dB @ 7m
Construction Noise Sources	Sheet Piling 88 dB @ 10m
Source heights (relative)	Pumps and generator 1m Sheet piling: 16m

4.2 Noise rating level calculation adjustments

The following adjustments have been considered to derive the noise rating level for the operational noise assessment, in accordance with NZS 6802:2008. These adjustments apply to operational noise only. They do not apply to construction noise.

4.3 Special audible character

No adjustment has been applied for special audible characteristics.

Based on the predicted noise levels in Table 6, the only location where operational noise from the Site is likely to be audible is the MIZ / GIZ. The noise generated by the pumps and backup generator is consistent with the type of noise that may be expected in an industrial zone. It is therefore not considered appropriate to apply a special audible characteristics adjustment at this receiver.

At the MRZ / RPZ receivers, the predicted operational noise levels are very low. Noise from the pumps and backup generator is not expected to be audible at these receivers. A special audible characteristics adjustment has therefore not been applied.

4.3.1 Duration adjustment

No duration adjustment has been applied to the operational noise levels.

When required, the pump station may operate at any time over a 24-hour period. The assessment has therefore assumed continuous operation for the purpose of comparing the predicted noise levels with the permitted noise limits.

4.4 Noise rating level predictions

Table 6 presents the predicted operational noise rating levels. Table 7 presents the predicted construction noise levels.

For operational noise, the noise levels are predicted at the notional boundary of the MRZ / RPZ receivers. For the MIZ / GIZ, the noise levels are predicted at the zone boundary.

For construction noise, the noise level predictions are at 1m from the façade of the receiving building.

Table 6: Predicted operational noise rating levels

Receiver	Predicted operational noise rating level	Controlling noise limit	Compliant Y/N
153 King Road	<20 dB L_{Aeq}	45 dB L_{Aeq}	Y
88 McLeod Road	<20 dB L_{Aeq}	45 dB L_{Aeq}	Y
29 Sears Road	<20 dB L_{Aeq}	45 dB L_{Aeq}	Y
Ravensdown Napier Works	67 dB L_{Aeq}	70 dB L_{Aeq}	Y

Table 7: Predicted construction noise levels

Receiver	Predicted construction noise level	Controlling noise limit	Compliant Y/N
153 King Road	27 dB L_{Aeq}	45 dB L_{Aeq}	Y
88 McLeod Road	26 dB L_{Aeq}	45 dB L_{Aeq}	Y
29 Sears Road	24 dB L_{Aeq}	45 dB L_{Aeq}	Y
Ravensdown Napier Works	52 dB L_{Aeq}	70 dB L_{Aeq}	Y

5.0 Assessment of effects

The predicted operational noise rating levels comply with the permitted noise limits at all sensitive receivers. Operational noise is unlikely to be audible at any existing noise-sensitive receiver.

The planning team has advised that noise-sensitive development is unlikely to occur close enough to exceed the 45 dB L_{Aeq} controlling noise limit. This would only occur if new noise-sensitive development established directly next to the zone boundary.

The assessment uses sheet piling as the highest-noise construction activity. The predicted sheet piling noise levels comply with the night-time construction noise limits at all existing receivers.

The predicted construction noise levels are low. Adverse effects are therefore not expected, even if sheet piling occurs at night. No specific noise mitigation is required.

6.0 Summary

Styles Group has assessed operational and construction noise from the proposed Awatoto Pump Station replacement.

The predicted operational noise levels comply with the permitted noise limits under the ONDP and PNDP at all assessed receivers. Operational noise is unlikely to be audible at the closest existing noise-sensitive receivers, which are more than 1km from the site.

The assessment uses sheet piling as the highest-noise construction activity. The predicted sheet piling noise levels comply with the relevant construction noise limits at all assessed receivers. This includes the night-time limits, which are the controlling construction noise criteria.

The construction and operation of the pump station are not expected to cause adverse noise effects. The assessment does not recommend specific noise mitigation or noise consent conditions because the predicted noise levels are low and readily comply with the relevant noise limits.

Please contact me if you require any further information.

Yours sincerely,

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