

Consulting Advice Note

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Date	5 May 2026
From	Martyn Chambers
To	Andrew Richards
Project	Pakowhai 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 Pakowhai Pump Station replacement in Pakowhai, Hastings District (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 Hastings District Plan (**HDP**) 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 the HDP.

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 Pakowhai Pump Station site, Pakowhai. The works form part of the HBRC Stormwater Pump Stations Design and Build Flood Resilience Programme.

The site is in the Plains Production Zone (**PPZ**). It is located south of Sissons Road, between the Tutaekuri and Ngaruroro Rivers, in the Hastings District.

The closest sensitive receivers include 38 Sissons Road and Hohepa Hawke's Bay, which are both within the PPZ. The closest residential zoned properties are those at Waitaha Place which are within the Clive / Whakatu Zone (**CWZ**).

The new pump station includes two fish-friendly pumps, two DN1200 discharge pipelines, 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 the receivers closest to the site.



Figure 1 Site location and closest receivers

Table 1 The neighbouring properties

Receiver	Zone	Approximate separation distance from the receiver building façade to nearest site boundary
38 Sissons Road	PPZ	1,000m
Waitaha Place	CWZ	1,400m
Hohepa Hawke's Bay	PPZ	1,700m

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 HDP.

Operational noise limits

The closest dwellings are within the PPZ and the CWZ. The lowest applicable operational noise limit at the receivers in both zones is 40 dBA L_{10} .

Table 2 sets out the relevant operational noise limits. For operational noise, the HDP requires assessment of noise levels at the notional boundary for PPZ receivers and at the site boundary for residential zone receivers.

Table 2 Operational noise limits

Receiving zone	Daytime ¹	All other times	Night-time L_{max} ²
PPZ	50 dBA L_{10}	40 dBA L_{10}	65 dBA L_{max}
CWZ / residential receiving area	50 dBA L_{10}	40 dBA L_{10}	65 dBA L_{max}

3.1 Construction noise limits

The HDP requires construction noise to be measured and assessed in accordance with NZS 6803:1999 Acoustics - Construction Noise. The construction noise limits apply at 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.

¹ Daytime 7:00am to 7:00pm Monday to Friday, and 7:00am to 12:00 noon Saturday

² Nighttime 10:00pm to 7:00am the following day, for L_{max}

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 other occupied buildings.

Table 3 Construction noise limits for noise-sensitive activities

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
Sundays and public holidays	6:30am – 7:30am	45 dB	75 dB
	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	293.15K
Atmospheric pressure	101.33kPa
Air humidity	60%
Receiver heights (relative)	1.5m above ground
Operation model noise sources	2 x Vision 90MC 560kW @ 308rpm = 57.0dB(A) at 1m 1 x 913kW backup generator = approximately 77dB(A) at 7m
Construction noise source	Sheet piling = 88dB(A) at 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 6802:1991. 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, operational noise is not expected to be audible at any assessed receiver. 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 relevant receiver locations in the PPZ and the CWZ

For construction noise, the noise levels are predicted 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
38 Sissons Road	<20 dB dBA L ₁₀	40 dBA L ₁₀	Y
Waitaha Place	<20 dB dBA L ₁₀	40 dBA L ₁₀	Y
Hohepa Hawke's Bay	<20 dB dBA L ₁₀	40 dBA L ₁₀	Y

Table 7 Predicted construction noise levels

Receiver	Predicted construction noise level	Controlling noise limit	Compliant Y/N
38 Sissons Road	32 dB L _{Aeq}	45 dB L _{Aeq}	Y
Waitaha Place	31 dB L _{Aeq}	45 dB L _{Aeq}	Y
Hohepa Hawke's Bay	24 dB L _{Aeq}	45 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 40 dB L₁₀ controlling noise limit within the life of the resource consent. An exceedance would only occur if new noise-sensitive development established directly next to the site boundary.

Our 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 Pakowhai Pump Station replacement.

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

Our 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. Construction noise levels will comply with the daytime permitted construction noise limits by a significant margin, and will be largely inaudible at the nearest dwellings.

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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