Summary of Assessment of Airborne Noise in Te Ākau Bream Bay

Styles Group has assessed the airborne noise effects of proposed sand extraction activities in the Te Ākau Bream Bay embayment. This report has been prepared to accompany the resource consent application and Assessment of Environmental Effects for the proposal.

Styles Group has used computer noise modelling software to predict the airborne noise that will be received at the coastal interface of Te Ākau Bream Bay and the adjacent land from the trailing suction hopper dredge (TSHD) vessel operating in the sand extraction area. The noise model has been calibrated using noise measurements of the proposed TSHD vessel, the William Fraser. The noise level predictions have been prepared for onshore meteorological conditions for comparison with the noise limits prescribed by Condition 22 of the Proposed Northland Regional Plan February 2024 (PNRP).

Condition 22 of the PNRP requires that noise generated from within the coastal marine area must not exceed 55 dB LAeq during the daytime and 45 dB LAeq and 75 dB LAFmax during the nighttime when measured and assessed at any noise sensitive activity. The predicted sand extraction noise levels range received at the closest dwellings will be less than 12dB. This level will be inaudible. The predicted noise levels readily comply with both the daytime and nighttime noise limits prescribed by Condition 22 of the PNRP.

The noise level predictions show that in the most favourable conditions for the propagation of noise towards the foreshore, the noise generated from sand extraction will be less than 15dB LAeq on the beach. The noise levels received at the closest noise sensitive activities (dwellings) will be much lower. This level of noise will be inaudible.

Styles Group has also undertaken a series of ambient noise measurements at the coastal interface of Te Ārai and Pākiri Beach. These measurements assist to characterise the noise levels of sand extraction in the context of an open coastal environment where waves break on the shore more-or-less constantly. Our experience from projects and time spent in both areas is that the noise environment on the shoreline of is very similar to the noise environment of Te Ārai and Pākiri Beach.

The ambient noise measurements show that the ambient noise on the beach environment is primarily controlled by wave action on the shore. The ambient measurements show that the noise levels on the beach fluctuate considerably depending on wind and swell conditions. Our assessment is that the noise from sand extraction will be inaudible on the beach and further inland.

We expect that it would be remarkable if the TSHD could be heard on shore. If it was ever audible, the noise level would be very low, and the meteorological conditions and wave heights would have to be unusually calm.

We have no concerns relating to cumulative noise effects from the operation of the TSHD and the contribution from other commercial and recreational vessels in Te Ākau/ Bream Bay. The noise level predictions demonstrate that the TSHD vessel will generate a very low level of noise (likely inaudible) when received onshore. The noise environment at the shoreline will be controlled by wave activity and the noise from vessels operating much closer to the shore. The TSHD will not add to the noise level of other vessels in the area when observed on land.