



Fair Isle Harbour Improvement Works

A.16 Airborne Noise report

On behalf of **Shetland Isle Council (SIC)**



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Appendix I Airborne Noise

I.1 Assumptions and Limitations

I.1.1 *BS 5228: Code of practice for noise and vibration control on construction and open sites –Part 1: Noise* does not contain maximum sound level (dB $L_{max,f}$) data associated with construction activities. The data required for the assessment of potential noise impact on ecological receptors has been derived from the Stantec UK Acoustic Team’s database of measured construction activities and is based on construction activities described by Mott MacDonald. Data that relates to likely equipment to be used and activities to be carried out is not always readily available or in the most preferred form to create a noise model. Therefore, any results presented should consider the following assumptions and limitations.

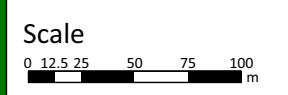
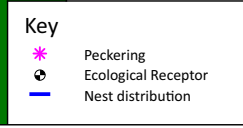
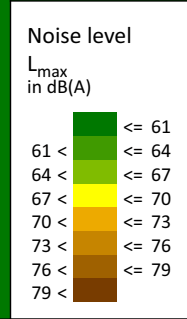
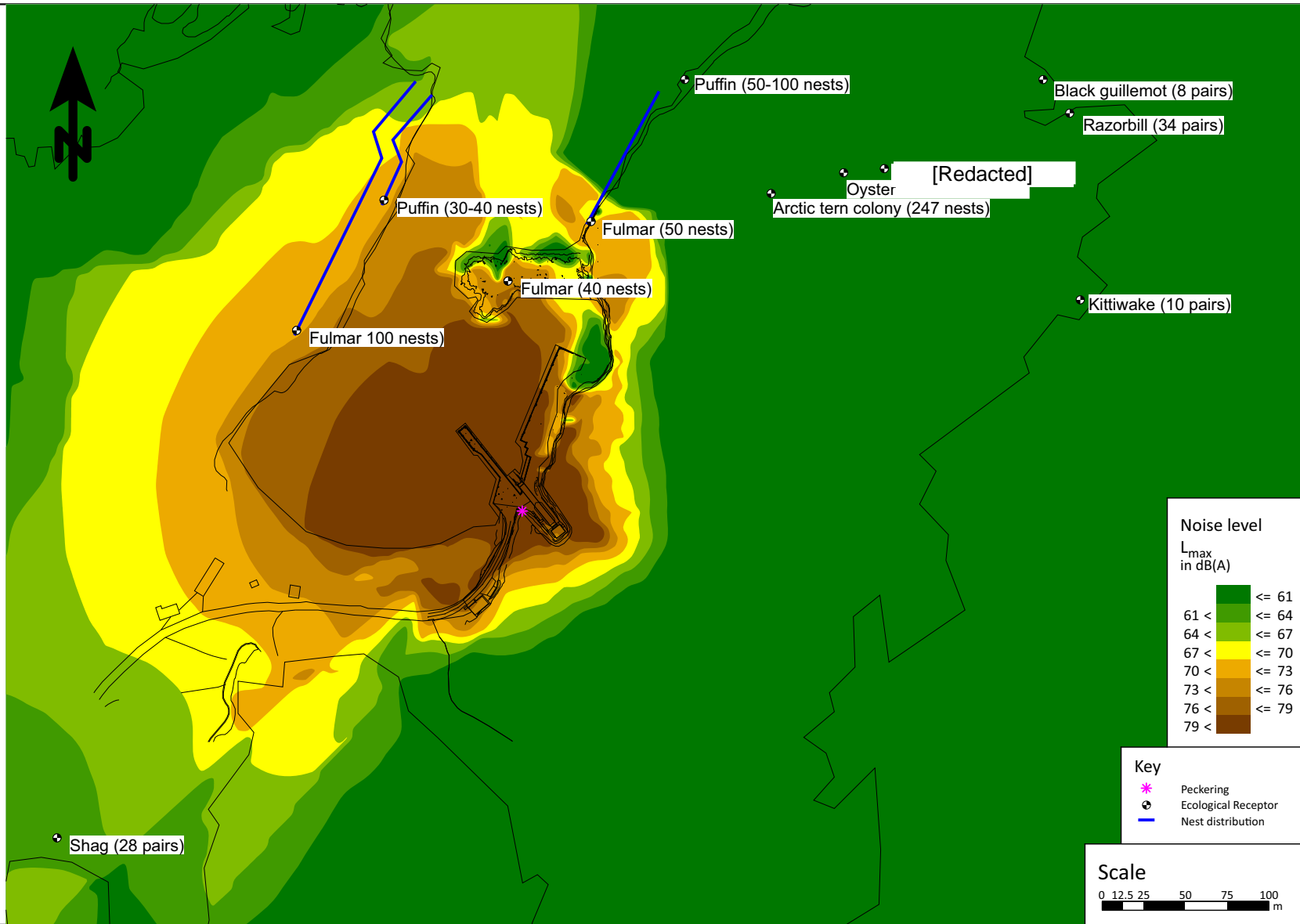
- The A-weighted dB L_{max} used is based on the following equipment after discussions with Mott MacDonald and it is assumed that equipment selected from Stantec’s Acoustic Team database is equivalent to what will be used on site:
 - Peckering – 45T Excavator with rock-hammer - 128 dB L_{max} Sound Power Level (SWL)
- The octave band levels used in the model have been weighted to equipment data which is based on the unweighted L_{eq} octave-bands within BS 5228:
 - BS 5228-1:2009+A1:2014 Table C.9:11: Excavator mounted rock breaker
- In the model, the sound source relating to peckering is assumed to be 1 m above the local ground level where peckering is taking place on the cliff. This is equivalent to 4.5 m above the base of the noust.

I.2 Results

I.2.1 The noise contours that relate to peckering activity to the west and east of the North Haven pier are shown in Figures 1 and 2 respectively. The distribution of ecological receptor nests is indicated by blue lines within the figures. Sound levels from both peckering activity locations at the worst-case ecological receptor nesting locations are shown in Table 1.1. The ecological receptor height has been assumed to be at 0.5 m above ground.

Table 1.1 Ecological Receptor and Noise Levels

Ecological Receptor	Peckering $L_{max,f}$ dB(A)	
	Works on West of Pier	Works on East of Pier
Arctic tern colony (247 nests)	47.0	47.6
Black guillemot (8 pairs)	40.8	41.2
Fulmar (40 nests)	74.9	61.4
Fulmar (50 nests)	66.8	54.6
Fulmar (100 nests)	72.7	71.0
Kittiwake (10 pairs)	42.3	42.7
Oystercatcher (30 nests)	46.4	46.6
Puffin (30-40 nests)	71.6	71.0
Puffin (50-100 nests)	46.2	44.6
Razorbill (34 pairs)	40.8	41.2
[Redacted]		
Shag (28 pairs)	62.9	62.4

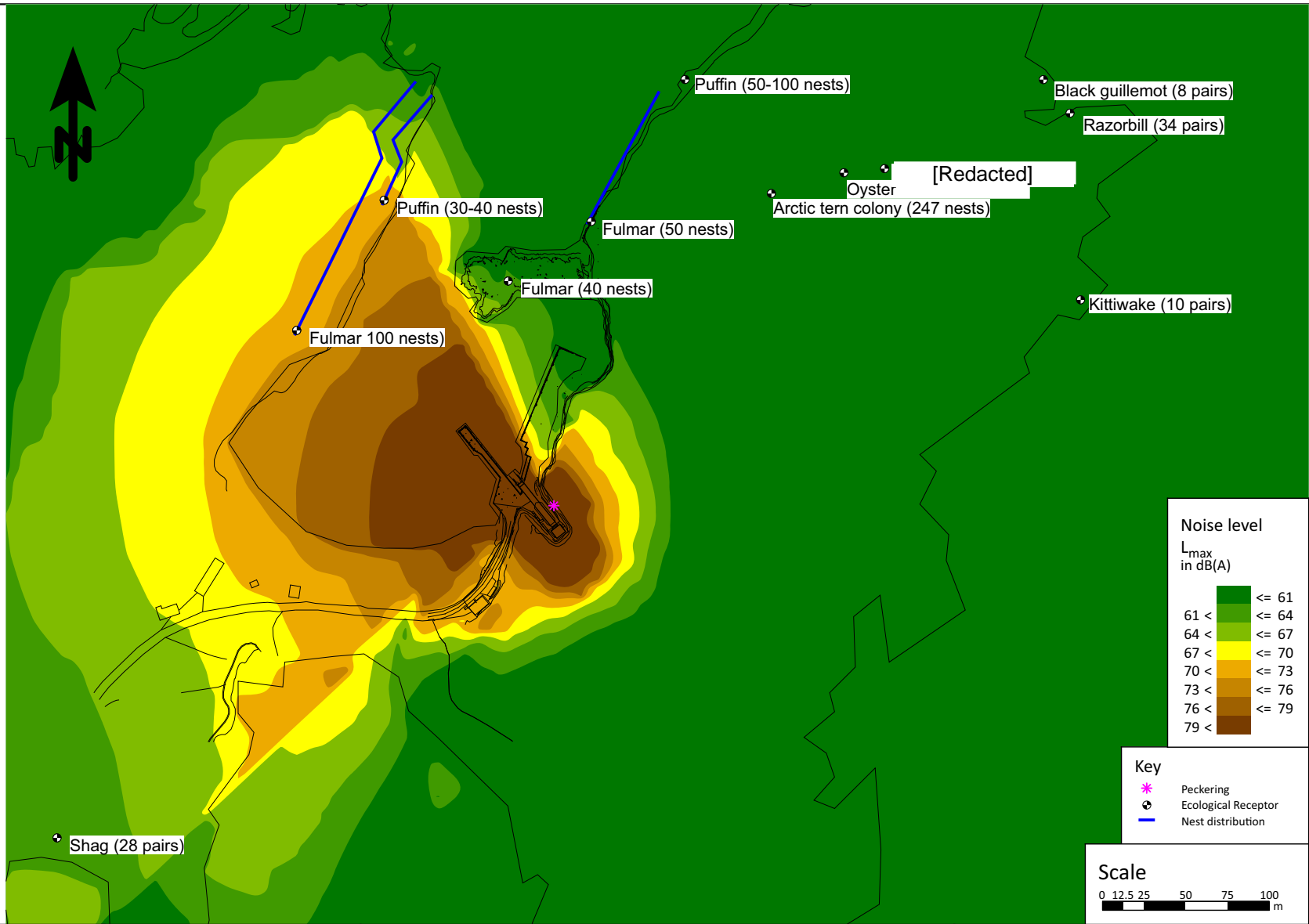


Client
Mott MacDonald

OS copyright data

Fair Isle Ferry (North Haven) - West of Pier
 Environmental Sound Levels - Peckering- Day $L_{max, f}$

Mark	Revision	Drawn	Date	Chkd
Date	27/04/2023	<div style="display: flex; justify-content: space-around; font-size: 24px; font-weight: bold;"> FIGURE 1 </div>		
Scale	A4 - N.T.S			
Drawn by	JM			
Checked by	PT			



Client
Mott MacDonald

OS copyright data

Fair Isle Ferry (North Haven) - East of Pier
 Environmental Sound Levels - Peckering- Day $L_{max, f}$

Mark	Revision	Drawn	Date	Chkd
Date	27/04/2023	<div style="border: 2px solid black; padding: 5px; display: inline-block;"> FIGURE </div>		
Scale	A4 - N.T.S			
Drawn by	JM			
Checked by	PT			
		<div style="border: 2px solid black; padding: 5px; display: inline-block;"> 2 </div>		