



**AQUIND Limited**

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# **AQUIND INTERCONNECTOR**

## **Operational Broadband and Octave Band Noise Criteria Document**

The Planning Act 2008

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## DOCUMENT

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### **Appendix 1 – Locations of sensitive receptors**

# 1. OPERATIONAL BROADBAND AND OCTAVE BAND NOISE CRITERIA DOCUMENT

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## 1.1. INTRODUCTION

- 1.1.1.1. Requirement 20 contained in Schedule 2 of the draft Development Consent Order ('dDCO') is required for the control of noise during the operational period of the Proposed Development.
- 1.1.1.2. To ensure that the operational impacts of the proposed development do not exceed those set-out in Chapter 24 of the Environmental Statement ('ES') (APP-139) it is necessary for operational noise criteria to be secured. The noise criteria contained in Chapter 24 of the ES are therefore contained in this document, which is referred to in Requirement 20 to the dDCO and as certified document at Schedule 14 to the dDCO, and certified as such pursuant to Article 43 of the same.
- 1.1.1.3. Set out in the following sections are the operational daytime and night-time broadband and octave band noise criteria for the Converter Station Area (i.e. the Converter Station and Telecommunications Building) and the Optical Regeneration Station ('ORS') at Landfall. Also included are the locations where compliance with the operational daytime and night-time broadband and octave band noise criteria are to be measured from.

## 1.2. NOISE CRITERIA FOR CONVERTER STATION AREA

- 1.2.1.1. Table 1 contains the receptor addresses at which noise criteria for the Converter Station Area are applicable. These are the same as those presented in Table 1 of Appendix 24.3 of the ES (APP-462).
- 1.2.1.2. Figure 1 in Appendix 1 shows the location of each receptor group. This is the same as Figure 24.1 of the ES (APP-335).

**Table 1 – Addresses of properties in each sensitive receptor group close to the Converter Station Area**

Receptor Group Name	Receptor Group Number	Addresses
<b>The Haven and Old Mill Cottage</b>	R1	The Haven, Old Mill Lane, Lovedean, Waterlooville, PO8 0SN Caravan 1, The Haven, Old Mill Lane, Lovedean, PO8 0SN Caravan 2, The Haven, Old Mill Lane, Lovedean, PO8 0SN Old Mill Cottage, Old Mill Lane, Lovedean, Waterlooville, PO8 0SN
<b>Hillcrest</b>	R2	Hillcrest, Old Mill Lane, Lovedean, Waterlooville, PO8 0SN
<b>Millfield Farm</b>	R3	Mobile Home, Mill View Farm, Old Mill Lane, Lovedean, PO8 0SN Mobile Home 2, Mill View Farm, Old Mill Lane, Lovedean, PO8 0SN
<b>Kimberley House</b>	R4	Kimberley House, Old Mill Lane, Denmead, Waterlooville, PO7 6JW
<b>Little Denmead Farm</b>	R5	Little Denmead Farm, Broadway Lane, Denmead, Waterlooville, PO8 0SL The Cottage, Little Denmead Farm, Broadway Lane, Denmead, Waterlooville, PO8 0SL Kimville, Broadway Lane, Denmead, Waterlooville, PO8 0SL Nairobi, Broadway Lane, Denmead, Waterlooville, PO8 0SL The Caravan, Little Denmead Farm, Broadway Lane, Denmead, Waterlooville, PO8 0SL
<b>Holme and Highfield Cottages</b>	R6	Holme Cottage, Broadway Lane, Lovedean, Waterlooville, PO8 0SS Highfield Cottage, Broadway Lane, Lovedean, Waterlooville, PO8 0SS
<b>Lower Chapters</b>	R7	Lower Chapters, Broadway Lane, Lovedean, Waterlooville, PO8 0SS
<b>The Arrows</b>	R8	The Arrows, Broadway Lane, Lovedean, Waterlooville, PO8 0SS
<b>Broadways</b>	R9	Broadways, Broadway Lane, Lovedean, Waterlooville, PO8 0SP
<b>Broadway Farm House</b>	R10	Broadway Farm House, Broadway Lane, Lovedean, Waterlooville, PO8 0SJ 1 Broadway Farm Barn, Broadway Lane, Lovedean, Waterlooville, PO8 0SJ 2 Broadway Farm Barn, Broadway Lane, Lovedean, Waterlooville, PO8 0SJ 3 Broadway Farm Barn, Broadway Lane, Lovedean, Waterlooville, PO8 0SJ Little Lovedean, Broadway Lane, Lovedean, Waterlooville, PO8 0SJ
<b>Broadway Farm Cottages</b>	R11	1 Broadway Farm Cottages, Broadway Lane, Lovedean, Waterlooville, PO8 0SJ 2 Broadway Farm Cottages, Broadway Lane, Lovedean, Waterlooville, PO8 0SJ

<b>Hinton Daubnay</b>	R12	Hinton Daubnay House, Broadway Lane, Lovedean, Waterloooville, PO8 0SG Coach House, Hinton Daubnay, Broadway Lane, Lovedean, Waterloooville, PO8 0SG Northorn, Broadway Lane, Waterloooville, PO8 0SG
<b>Ludmore Cottages</b>	R13	1 Ludmore Cottages, Broadway Lane, Lovedean, Waterloooville, PO8 0SG 2 Ludmore Cottages, Broadway Lane, Lovedean, Waterloooville, PO8 0SG
<b>Old Mill House and The Shieling</b>	R14	Old Mill House, Old Mill Lane, Lovedean, Waterloooville, PO8 0SW The Shieling, Old Mill Lane, Lovedean, Waterloooville, PO8 0SW
<b>The Ranch</b>	R15	The Ranch, Old Mill Lane, Lovedean, Waterloooville, PO8 0SN Windy Ridge, Old Mill Lane, Lovedean, Waterloooville, PO8 0SN





- 1.2.1.3. Table 2 contains the daytime operational noise criteria for the Converter Station Area, which are applicable during simultaneous operation of the Converter Station and the Telecommunications Buildings.

**The criteria in**

- 1.2.1.4. Table 2 are external free-field values, applicable 1m from the façade of the sensitive receptor at a height of 1.5m above the ground. These criteria are applicable to the Converter Station and the Telecommunications Buildings and are in the absence of sound from any other sources. Paragraphs 24.4.5.5 to 24.4.5.11 of the ES (APP-139) provide an explanation of how the criteria have been derived.
- 1.2.1.5. The criteria reflect the target noise assessment criteria and the small adverse (not significant) exceedance identified in Chapter 24 of the ES (APP-139), as updated by the ES Addendum (document reference 7.8.1).

**Table 2 – Daytime operational noise criteria for the Converter Station Area**

Receptor Group Number <sup>3</sup>	Daytime broadband operational noise criteria	Daytime A-weighted octave band operational noise criteria ( $L_{Aeq,Tr}$ ) <sup>2</sup>								
	$L_{Ar,Tr}$ <sup>1</sup>	31.5Hz	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
R1	33	6.6	17.8	21.8	24.1	27.4	26.6	23.9	22.6	18.9
R2	33	6.6	17.8	21.8	24.1	27.4	26.6	23.9	22.6	18.9
R3	33	6.6	17.8	21.8	24.1	27.4	26.6	23.9	22.6	18.9
R4	33	6.5	18.0	23.1	24.2	26.4	26.8	24.3	23.1	18.1
R5	33	6.5	18.0	23.1	24.2	26.4	26.8	24.3	23.1	18.1
R6	29	-12.2	4.7	10.5	16.5	23.7	24.6	20.7	18.1	15.1
R7	29	-12.2	4.1	10.5	16.5	23.7	24.6	20.7	18.1	15.1
R8	29	-12.2	3.5	10.5	16.5	23.7	24.6	20.7	18.1	15.1
R9	32	5.3	16.5	27.8	20.8	24.5	24.1	21.4	19.5	16.3
R10	32	5.3	16.5	27.8	20.8	24.5	24.1	21.4	19.5	16.3
R11	32	5.3	16.5	27.8	20.8	24.5	24.1	21.4	19.5	16.3
R12	33	5.6	15.8	21.2	24.5	28.6	26.0	23.3	22.1	15.4
R13	33	5.6	15.8	21.2	24.5	28.6	26.0	23.3	22.1	15.4
R14	33	6.6	17.8	21.8	24.1	27.4	26.6	23.9	22.6	18.9
R15	33	6.6	17.8	21.8	24.1	27.4	26.6	23.9	22.6	18.9

1 –  $L_{Ar,Tr}$  is the rating level, as per BS 4142:2014+A1:2019 (the specific sound level adjusted for any characteristic features) determined over the reference time interval (1 hour during the day between 0700-2300 hours).

2 –  $L_{Aeq,Tr}$  is the A-weighted sound level in each octave band from the converter station and telecommunications buildings determined over the reference time interval (1 hour during the day between 0700-2300 hours).

3 – The baseline noise survey measurement position that has been used to derive the noise criteria for each receptor group is explained in section 24.4.1 of the ES (APP-139).

- 1.2.1.6. Table 3 contains the night-time operational noise criteria for the Converter Station Area, which are applicable during simultaneous operation of the Converter Station and the Telecommunications Buildings.
- 1.2.1.7. The criteria in Table 3 are external free-field values, applicable 1m from the property façade which contain rooms that are used as sleeping accommodation (i.e. bedrooms). The criteria are applicable at a height of 1.5m above the ground for single storey properties (e.g. bungalows or caravans) or 4m above the ground for multi-storey properties (which is equivalent to first floor).
- 1.2.1.8. The criteria in Table 3 are derived from the target assessment criterion (Noise Rating (NR) 20) used in the operational noise assessment. Further information is provided in Paragraph 24.4.5.11 of the ES (APP-139).

**Table 3 – Night-time operational noise criteria for the Converter Station Area**

Receptor Group Number <sup>3</sup>	Night-time broadband operational noise criteria	Night-time A-weighted octave band operational noise criteria ( $L_{Aeq,Tr}$ ) <sup>2</sup>							
	$L_{Ar,Tr}$ <sup>1</sup>	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
R1	25								
R2	25								
R3	25								
R4	27								
R5	27								
R6	23								
R7	23								
R8	23	48.2	37.9	33.5	41.7	30.2	32.9	29.6	25.7
R9	27								
R10	27								
R11	27								
R12	27								
R13	27								
R14	25								
R15	25								

1 –  $L_{Ar,Tr}$  is the rating level, as per BS 4142:2014+A1:2019 (the specific sound level adjusted for any characteristic features) determined over the reference time interval (15 minutes during the night between 2300-0700 hours).

2 –  $L_{Aeq,Tr}$  is the A-weighted sound level in each octave band from the converter station and telecommunications buildings determined over the reference time interval (15 minutes during the night between 2300-0700 hours).

3 – The baseline noise survey measurement position that has been used to derive the broadband noise criteria for each receptor group is explained in section 24.4.1 of the ES (APP-139).

NB The night-time octave band criteria are less strict than the daytime octave band criteria, which is a peculiarity of the methodology adopted. However, this is of little importance as the protection of the sensitive receptors is secured through the night-time broadband noise criteria, which will ensure the noise levels in any octave band are far below the criteria. Furthermore, the noise control and mitigation measures that will be required to ensure the daytime octave band criteria are met will also ensure that night-time octave band noise levels are far below the night-time noise criteria.

### **1.3. NOISE CRITERIA FOR THE OPTICAL REGENERATION STATION**

- 1.3.1.1. Table 4 contains the receptor addresses at which noise criteria for the ORS are applicable. These are the same as those presented in Table 2 of Appendix 24.3 of the ES (APP-462).
- 1.3.1.2. Figure 2 in Appendix 1 shows the location of each receptor group. This is the same as figure 24.3 of the ES (APP-337).

**Table 4 – Addresses of properties in each sensitive receptor group close to the Optical Regeneration Station**

Receptor Group Name	Receptor Group Number	Addresses
<b>Southsea Leisure Park (Caravans)</b>	R16	Southsea Leisure Park, Melville Road, Southsea, PO4 9TB.
<b>41-51 Fort Cumberland Road</b>	R17	41 Fort Cumberland Road, Southsea, PO4 9LG 43 Fort Cumberland Road, Southsea, PO4 9LG 45 Fort Cumberland Road, Southsea, PO4 9LG 47 Fort Cumberland Road, Southsea, PO4 9LG 49 Fort Cumberland Road, Southsea, PO4 9LG 51 Fort Cumberland Road, Southsea, PO4 9LG



- 1.3.1.3. Table 5 contains the daytime operational noise criteria for the ORS, which are external free-field values, applicable 1m from the façade of each sensitive receptor at a height of 1.5m above the ground. These criteria are applicable to the ORS in the absence of sound from any other sources. The criteria reflect the target noise assessment criteria identified in Chapter 24 of the ES (APP-139), and Paragraphs 24.4.5.14 to 24.4.5.16 of the ES explain how the criteria have been derived.

**Table 5 – Daytime operational noise criteria for the Optical Regeneration Station**

Receptor Group Number <sup>3</sup>	Daytime broadband operational noise criteria	Daytime A-weighted octave band operational noise criteria ( $L_{Aeq,Tr}$ ) <sup>2</sup>								
		$L_{Ar,Tr}$ <sup>1</sup>	31.5Hz	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz
R16	43	15.8	22.5	25.9	30.0	35.3	38.6	36.4	31.1	22.0
R17	43	15.8	22.5	25.9	30.0	35.3	38.6	36.4	31.1	22.0

1 –  $L_{Ar,Tr}$  is the rating level, as per BS 4142:2014+A1:2019 (the specific sound level adjusted for any characteristic features) determined over the reference time interval (1 hour during the day between 0700-2300 hours).

2 –  $L_{Aeq,Tr}$  is the A-weighted sound level in each octave band from the Optical Regeneration Station determined over the reference time interval (1 hour during the day between 0700-2300 hours).

3 - Baseline noise survey measurement position 5 has been used to derive the noise criteria for the receptors.

- 1.3.1.4. Table 6 contains the night-time operational noise criteria for the ORS, which are external free-field values, applicable 1m from the façade of rooms that are used as sleeping accommodation (i.e. bedrooms). The criteria are applicable at a height of 1.5m above the ground for R16 (the Caravans) and 4m for R17 (i.e. first floor for the houses on Fort Cumberland Road).

**Table 6 – Night-time operational noise criteria for the Optical Regeneration Station**

Receptor Group Number <sup>3</sup>	Night-time broadband operational noise criteria	Night-time A-weighted octave band operational noise criteria (L <sub>Aeq,Tr</sub> ) <sup>2</sup>							
	L <sub>Ar,Tr</sub> <sup>1</sup>	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
R16	35	48.2	37.9	33.5	41.7	30.2	32.9	29.6	25.7
R17	35								

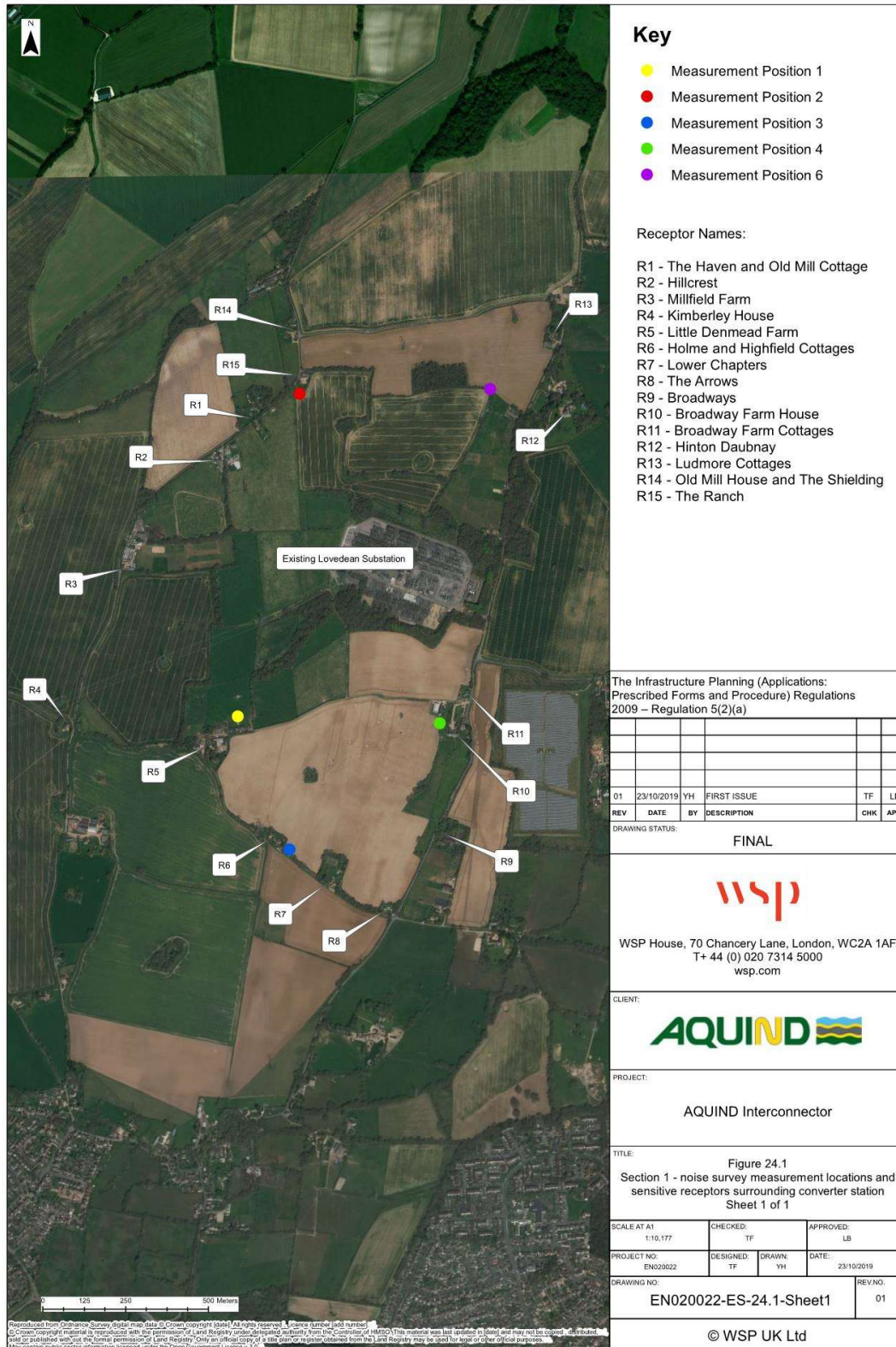
1 – L<sub>Ar,Tr</sub> is the rating level, as per BS 4142:2014+A1:2019 (the specific sound level adjusted for any characteristic features) determined over the reference time interval (15 minutes during the night between 2300-0700 hours).

2 – L<sub>Aeq,Tr</sub> is the A-weighted sound level in each octave band from the Optical Regeneration Station determined over the reference time interval (15 minutes during the night between 2300-0700 hours).

3 – Baseline noise survey measurement position 5 has been used to derive the broadband noise criteria for the receptors.

# **Appendix 1 – Locations of sensitive receptors**

**Figure 1 – sensitive receptors surrounding the Converter Station Area at which operational noise criteria are applicable**



**Figure 2 – Sensitive receptors surrounding the ORS at which the operational noise criteria are applicable**



