



**East Pye Solar
Environmental Statement
Volume 3: Appendix 12.2 – Noise Modelling and
Calculations**

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Appendix 12.2 Noise Modelling and Calculations

East Pye Solar

March 2026

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Appendix 12.2 Noise Modelling and Calculations

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Appendix 12.2 Noise Modelling and Calculations

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1 Introduction

- 1.1.1 This document provides details of the assessments, assessment results, and further information relating to the calculations undertaken to support the Noise and Vibration ES Chapter (**ES: Chapter 12 Noise and Vibration [EN0110014APP/6.1.12]**).



2 Construction Noise and Vibration Assessment

2.1 Construction Activity Noise

- 2.1.1 The construction noise assessment has been undertaken using assumptions relating to anticipated construction activities, as set out in **ES: Chapter 12 Noise and Vibration [EN0110014APP/6.1.12]**. The assessment reflects construction practices typically associated with schemes of this nature and scale and has been informed by British Standard BS 5228-1:2009+A1:2014¹, including published noise data for a range of construction activities and experience from comparable developments.
- 2.1.2 **Table 2.1** identifies the expected construction stages and the overall sound power level associated with each stage. These sound power levels represent reasonable worst-case assumptions and take account of typical emission levels, the number of items of plant operating concurrently, and the proportion of time plant is expected to be in use (for HDD drilling this includes during night-time hours).
- 2.1.3 Where available, reference sound power data from BS 5228-1:2009+A1:2014¹ has been applied, supplemented by manufacturer information where appropriate. The assessment assumes no screening effects and soft ground between the source and receptor.
- 2.1.4 Based on professional judgement, receptors located more than 300 metres from the proposed works are unlikely to experience significant noise effects arising from the construction activities and are therefore outside of the study area as defined in **ES: Chapter 12 Noise and Vibration [EN0110014APP/6.1.12]**.
- 2.1.5 Predicted sound pressure levels at the assessed receptors are presented in **Table 2.2 to Table 2.11**. Access road works and PV panel installation have been assumed to occur at the closest practicable location within the Order Limits boundary, while works associated with the National Grid Substation, Project Substations, and BESS are assumed to take place within their works areas as defined in **Works Plans [EN0110014/APP/2.3]**.

Table 2.1: Construction Activities and Associated Sound Levels

Construction Stage	Construction Activity	Construction Equipment	Calculated Overall Sound Power Level (L_{WA} dB)	Calculated Sound Pressure Level at 10 m ($L_{Aeq,T}$)
Solar PV and BESS Works	Access Road (New/Upgrades)	Excavator / Tamper / Wheeled Backhoe Loader / Dumper / Vibratory Roller /	108	80

¹British Standards Institute (BSI) (2014) 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise.



Construction Stage	Construction Activity	Construction Equipment	Calculated Overall Sound Power Level (L_{wA} dB)	Calculated Sound Pressure Level at 10 m ($L_{Aeq,T}$)
		Delivery Lorry / Asphalt Paver		
Solar PV and BESS Works	Site Compound	Excavator / Dozer / Wheeled Backhoe Loader / Vibratory Roller / Dump Truck / Delivery Lorry / Mobile Tele-crane	112	84
BESS	Earthworks	Excavator / Dozer / Wheeled Backhoe Loader / Dump Truck	111	83
BESS	M&E Installation Works	Delivery Lorry / Mobile Tele-crane / Generator / Towing Tractor / Compressor / Tools / Hammering	108	80
Solar PV	Piling	Tubular Steel Piling (Hydraulic Jacking 240mm) / Mobile Tele-crane / Wheeled Backhoe Loader	117	89
Project and National Grid Substation	Enabling Works	Excavator / Wheeled Backhoe Loader / Dump Truck / Delivery Lorry / Vibratory Roller / Tubular Steel Piling	120	92
Project and National Grid Substation	Civil Works and Concrete Pour -	Concrete Truck / Generator / Compressor / Power Tools / Delivery Lorry	112	84
Project and National Grid Substation	M&E Installation Works	Delivery Lorry / Mobile Tele-crane / Generator / Towing Tractor / Compressor / Tools / Hammering	110	82
Cable Route Crossing	HDD	HDD power unit and drill / HDD generator / Bentonite pump / Bentonite mixer / Generator for Site Offices	115	87

2.1.6 An assessment of Access Road construction noise has been undertaken to establish the likely effect at varying distances. Table 2.2 shows that the SOAEL (65 dB $L_{Aeq,T}$) would be exceeded when construction of Access Roads is within 30 m from high sensitivity receptors.



Table 2.2: Construction Noise Assessment of Access Roads Over Example Distances

Calculated Overall Sound Power Level (L_{wA} dB)	Distance from Source to Receptor	Predicted Sound Level at Receptor $L_{Aeq,T}$ dB
108	30	65
	50	61
	75	57
	100	55



Table 2.3: Construction Noise Assessment – Solar PV and BESS Works - Site Compound

Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
Site 1									
NSR1	Dwellings in the south of Great Moulton	High	300	54	65	49	<LOAEL	Negligible	Negligible
NSR2A & NSR2B	Woodlands and Frith Farms	High	280	53	65	50	<LOAEL	Negligible	Negligible
NSR3	Dwellings on Station Road	High	300	53	65	49	<LOAEL	Negligible	Negligible
Site 5									
NSR29	Commercial facilities on Bungay Road	Medium	280	51	65	62	<LOAEL	Negligible	Negligible
Site 6									
NSR37	Firs Field Farm, Bungay Road	High	185	51	65	54	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR41	Agricultural Facility on Alburgh Road	Negligible	195	51	65	53	≥LOAEL and <SOAEL	Low	Minor Adverse



Table 2.4: Construction Noise Assessment – BESS - Earthworks

Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
Site 1									
NSR2A & NSR2B	Woodlands and Frith Farms	High	260	53	65	50	<LOAEL	Negligible	Negligible



Table 2.5: Construction Noise Assessment – BESS - M&E Installation Works

Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
Site 1									
NSR2A & NSR2B	Woodlands and Frith Farms	High	260	53	65	47	<LOAEL	Negligible	Negligible



Table 2.6: Construction Noise Assessment – Solar PV - Piling

Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
Site 1									
NSR1	Dwellings in the south of Great Moulton	High	260	54	65	56	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR2A	Woodlands and Frith Farms	High	170	53	65	59	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR2B	Woodlands and Frith Farms	High	130	53	65	62	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR5A	Dwellings on Broadgate Road	High	130	49	65	62	≥LOAEL and <SOAEL	Low	Minor Adverse
Site 2									
NSR7	Dwellings on Lodge Road	High	130	50	65	62	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR8	Dwellings on Ipswich Road	High	90	56	65	65	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR9	Dwellings on Frith Way	High	145	49	65	61	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR10	Red House Farm Bed & Breakfast on Station Road	High	270	56	65	55	<LOAEL	Negligible	Negligible
Site 3									
NSR13	Plumtree Cottage, Spring Lane	High	100	45	65	64	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR14	Springwood, Spring Lane	High	140	45	65	61	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR16	Grange Farm	High	400	45	65	52	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR17	Dwellings on Lundy Green	High	155	45	65	60	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR18	Commercial and agricultural facilities on Spring Lane	Medium	100	45	65	64	≥LOAEL and <SOAEL	Low	Minor Adverse



Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
Site 4									
NSR20	Mill Farm, Hempnall Road	High	300	53	65	54	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR22	Dwellings on Norwich Road	High	170	56	65	59	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR23	Dwellings on Brands Lane	High	265	49	65	56	≥LOAEL and <SOAEL	Low	Minor Adverse
Site 5									
NSR28	Dwellings on Bungay Road	High	220	51	65	57	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR29	Commercial facilities on Bungay Road	Medium	45	51	65	71	≥SOAEL	High	Moderate Adverse
NSR30	Jack in the Box Nursery	High	120	51	65	62	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR31	Beech Farm, The Street	High	95	50	65	64	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR32	Dwellings on The Street	High	230	50	65	57	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR34	St Catherine's Church	High	155	50	65	60	≥LOAEL and <SOAEL	Low	Minor Adverse
Site 7									
NSR43	Dwellings on Church Lane	High	170	50	65	59	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR44	Dwellings on The Green	High	240	45	65	56	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR45	Thetford Farm House on The Green	High	300	45	65	54	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR47	Oakdene Cottage, Shotesham Road	High	100	43	65	64	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR48	Dwellings on Springwood Lane	High	185	43	65	59	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR51	Grove Farm, Fairstead Lane	High	145	48	65	61	≥LOAEL and <SOAEL	Low	Minor Adverse



Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
NSR52	Dwellings on Fairstead Lane	High	300	48	65	54	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR53	Limetree Farm, Fairstead Lane	High	300	50	65	54	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR54	Dwellings on Quaker Lane	High	115	49	65	63	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR55	Dwellings in Tasburgh	High	280	49	65	55	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR56	Dwellings on Ipswich Road	High	240	50	65	56	≥LOAEL and <SOAEL	Low	Minor Adverse
Site 8									
NSR59	Dwellings on Baxter's Lane	High	200	47	65	58	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR60	Dawsons Farm, Wash Lane	High	100	44	65	64	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR62	Market Lane Farm	High	180	46	65	59	≥LOAEL and <SOAEL	Low	Minor Adverse
Site 9									
NSR64	Dwellings on High Green	High	110	48	65	63	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR65	Dwellings on Littlebeck Lane	High	280	45	65	55	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR66	Dwellings on Mill Lane	High	145	50	65	61	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR67	Highfield Farm, Highfield Lane	High	160	50	65	60	≥LOAEL and <SOAEL	Low	Minor Adverse
Site 10									
NSR71	Gerrins Farm	High	180	49	65	59	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR72	Dwellings on Upgate Road	High	245	52	65	56	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR77	Dwellings on Norwich Road	High	210	54	65	58	≥LOAEL and <SOAEL	Low	Minor Adverse



Table 2.7: Construction Noise Assessment – Project and National Grid Substations – Enabling Works

Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
Site 1									
NSR1	Dwellings in the south of Great Moulton	High	240	54	65	59	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR2A	Woodlands and Frith Farms	High	300	53	65	58	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR2B	Woodlands and Frith Farms	High	320	53	65	57	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR3	Dwellings on Station Road	High	220	53	65	60	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR5B	Commercial and agricultural facilities on Broadgate Lane	Medium	230	49	65	60	≥LOAEL and <SOAEL	Low	Minor Adverse



Table 2.8: Construction Noise Assessment – Project and National Grid Substation – Civil Works and Concrete Pour

Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
Site 1									
NSR1	Dwellings in the south of Great Moulton	High	240	54	65	51	<LOAEL	Negligible	Negligible
NSR2A	Woodlands and Frith Farms	High	300	53	65	49	<LOAEL	Negligible	Negligible
NSR2B	Woodlands and Frith Farms	High	80	53	65	61	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR4	Dwellings on Broadgate Lane	High	220	54	65	52	<LOAEL	Negligible	Negligible
NSR5B	Commercial and agricultural facilities on Broadgate Lane	Medium	230	49	65	52	≥LOAEL and <SOAEL	Low	Minor Adverse



Table 2.9: Construction Noise Assessment – Project and National Grid Substations – M&E Installation Works

Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
Site 1									
NSR1	Dwellings in the south of Great Moulton	High	300	54	65	47	<LOAEL	Negligible	Negligible
NSR2A	Woodlands and Frith Farms	High	300	53	65	47	<LOAEL	Negligible	Negligible
NSR2B	Woodlands and Frith Farms	High	80	53	65	59	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR4	Dwellings on Broadgate Lane	High	220	54	65	50	<LOAEL	Negligible	Negligible
NSR5B	Commercial and agricultural facilities on Broadgate Lane	Medium	230	49	65	50	≥LOAEL and <SOAEL	Low	Minor Adverse



Table 2.10: Construction Noise Assessment – Cable Route Crossing – HDD (Daytime 07:00 to 18:00)

Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
CRC3									
	Dwellings north of Carpenter's Walk	High	260	50	65	54	≥LOAEL and <SOAEL	Low	Minor Adverse
	Dwellings north of Stony Lane	High	360	50	65	51	≥LOAEL and <SOAEL	Low	Minor Adverse
CRC4									
	Farm north of Wood Lane	High	210	49	65	56	≥LOAEL and <SOAEL	Low	Minor Adverse
Between Sub-Site 4A and Sub-Site 4B									
NSR22	Dwellings on Norwich Road	High	220	56	65	55	<LOAEL	Negligible	Negligible
CRC6									
	Dwellings on the south-west side of Hempnall	High	210	51	65	56	≥LOAEL and <SOAEL	Low	Minor Adverse
	Dwellings north of Lundy Green	High	185	45	65	57	≥LOAEL and <SOAEL	Low	Minor Adverse
	Dwellings south of Lundy Green	High	340	45	66	50	≥LOAEL and <SOAEL	Low	Minor Adverse
CRC7									
	Dwellings west of The Krons	High	230	51	65	55	≥LOAEL and <SOAEL	Low	Minor Adverse
	Dwellings North of Bungay Road	High	270	51	66	53	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR28	Dwellings on Bungay Road	High	230	51	65	55	≥LOAEL and <SOAEL	Low	Minor Adverse
Between Site 8A and Site 8B									
NSR62	Market Lane Farm	High	160	46	65	58	≥LOAEL and <SOAEL	Low	Minor Adverse



Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
NSR61	Dwellings on Wash Lane	High	515	44	65	48	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR59	Dwellings on Baxter's Lane	High	390	47	65	50	≥LOAEL and <SOAEL	Low	Minor Adverse
CRC9									
	Dwelling north of Springwood	High	490	50	65	48	<LOAEL	Negligible	Negligible
CRC10									
NSR45	Thetford Farm House on The Green	High	65	46	65	66	≥SOAEL	Medium	Moderate Adverse
	Dwelling north of The Green	High	470	45	66	48	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR60	Dawsons Farm, Wash Lane	High	220	44	65	55	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR61	Dwellings on Wash Lane	High	350	44	66	51	≥LOAEL and <SOAEL	Low	Minor Adverse



Table 2.11: Construction Noise Assessment – Cable Route Crossing – HDD (Night-Time 23:00 to 07:00)

Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
CRC3									
	Dwellings north of Carpenter's Walk	High	260	43	50	54	≥SOAEL	Medium	Moderate Adverse
	Dwellings north of Stony Lane	High	360	43	50	51	≥SOAEL	Medium	Moderate Adverse
CRC4									
	Farm north of Wood Lane	High	210	50	55	56	≥SOAEL	Medium	Moderate Adverse
Between Sub-Site 4A and Sub-Site 4B									
NSR22	Dwellings on Norwich Road	High	220	51	55	55	≥SOAEL	Medium	Moderate Adverse
CRC6									
	Dwellings on the south-west side of Hempnall	High	210	51	55	56	≥SOAEL	Medium	Moderate Adverse
	Dwellings north of Lundy Green	High	185	34	45	57	≥SOAEL	High	Major Adverse
	Dwellings south of Lundy Green	High	340	34	45	50	≥SOAEL	High	Major Adverse
CRC7									
	Dwellings west of The Krons	High	230	51	55	55	≥LOAEL and <SOAEL	Low	Minor Adverse
	Dwellings North of Bungay Road	High	270	51	55	53	≥LOAEL and <SOAEL	Low	Minor Adverse
NSR28	Dwellings on Bungay Road	High	230	51	55	55	≥LOAEL and <SOAEL	Low	Minor Adverse
Between Sub-Site 8A and Sub-Site 8B									
NSR62	Market Lane Farm	High	160	40	45	58	≥SOAEL	High	Major Adverse
NSR61	Dwellings on Wash Lane	High	515	37	45	48	≥SOAEL	Medium	Moderate Adverse



Receptor			Distance from Source (m)	Measured Ambient Noise Level $L_{Aeq,16hour}$	SOAEL Threshold dB $L_{Aeq,T}$	Calculated Construction Sound Level dB $L_{Aeq,T}$	Effect Level	Magnitude of Impact	Significance of Effect
ID	Description	Sensitivity							
NSR59	Dwellings on Baxter's Lane	High	390	47	50	50	≥SOAEL	Medium	Moderate Adverse
CRC9									
	Dwelling north of Springwood	High	490	40	45	48	≥SOAEL	Medium	Moderate Adverse
CRC10									
NSR45	Thetford Farm House on The Green	High	65	43	50	66	≥SOAEL	High	Major Adverse
	Dwelling north of The Green	High	470	39	45	48	≥SOAEL	Medium	Moderate Adverse
NSR60	Dawsons Farm, Wash Lane	High	220	37	45	55	≥SOAEL	High	Major Adverse
NSR61	Dwellings on Wash Lane	High	350	37	45	51	≥SOAEL	High	Major Adverse





2.2 Construction Activity Vibration

2.2.1 Vibration calculations have been prepared using reference data from BS 5228-2:2009+A1:2019, *Code of Practice for Noise and Vibration Control on Construction and Open Sites: Part 2 - Vibration*². The assessment adopts conservative, worst-case assumptions which are likely to overestimate vibration levels experienced in practice.

2.2.2 While HDD plant can generate localised vibration, these activities are located at sufficient distance from the nearest vibration-sensitive receptors such that further detailed assessment is not required this is discussed in Section 12.8 of the **ES: Chapter 12 Noise and Vibration [EN0110014APP/6.1.12]**.

2.2.3 Calculations for vibratory ground compaction have been undertaken assuming:

- A maximum amplitude of drum vibration of 0.5 mm
- A vibrating roller drum width of 1 m
- Two vibrating drums
- Steady-state operation and start-up and run-down conditions
- A scaling factor k_t of 276, which means there is a 5% chance of the calculated vibration levels being exceeded.

2.2.4 Calculations for percussive piling have been undertaken assuming:

- A hammer energy of 2 kJ (kilojoules)
- A maximum hammer depth of 4 m
- A scaling factor k_p of 3, which means that piles are assumed to not be at refusal

2.2.5 The calculated Peak Particle Velocity (PPV), expressed in millimetres per second, for the various separation distances considered are presented in **Table 2.12**.

Table 2.12: Vibration Assessment at Worst Affected Receptors

Receptor ID	Activity	Distance from Source to Receptor (m)	Calculated PPV at Receptor (mm/s)	Magnitude of Impact	Significance of Effect
NSR29 (Commercial)	Percussive Piling (Solar Arrays)	45	1.0	Low	Minor Adverse

² British Standards Institute (BSI) (2014) 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration.



Receptor ID	Activity	Distance from Source to Receptor (m)	Calculated PPV at Receptor (mm/s)	Magnitude of Impact	Significance of Effect
NSR8 (Residential)	Percussive Piling (Solar Arrays)	90	0.4	Low	Minor Adverse
NSR2B (Residential)	Percussive Piling (BESS/ 400kV Substation)	200	0.1	Negligible	Negligible

2.2.6 For reference purposes, **Table 2.13** sets out the calculated PPV for different separation distances and provides an overview of the likely effects for each source. The table indicates that construction activities associated with the access roads and piling would need to occur within 45 metres for the SOAEL to be exceeded. When considering the resultant vibration levels at the nearest high-sensitivity receptors at such distances, the impact would be of low magnitude and would therefore be considered no greater than a minor adverse effect. The effect is likely to be short term in nature and is therefore not significant.

Table 2.13: Vibration Assessment of PPV Over Example Distances

Distance (m)	Calculated PPV (mm/s) at Distance (m)		
	Vibratory Compaction Start Up/ Run Down	Vibratory Compaction Steady State	Percussive Piling
25	2.0	1	2.0
45	1.0	0.4	1.0
50	0.8	0.4	0.8
75	0.5	0.2	0.5
100	0.3	0.1	0.3



3 Operational Assessment

3.1 Introduction

3.1.1 This section presents the details of the impact assessment at residential receptors of noise arising from static plant as summarised in the **ES: Chapter 12 Noise and Vibration [EN0110014APP/6.1.12]**.

3.2 Proposed Equipment

3.2.1 Example sound data for the plant proposed at the development has been provided by the Client based on information provided by potential manufacturers. The A-weighted sound power levels and indicative sound pressure level at 10 m used in the assessment are detailed in **Table 3.14**.

Table 3.14: Summary of Sound Source Data

Item of Plant	Sound Power (dBA)	Sound Pressure Level at 10 m (dBA)*
Solar Inverter (per inverter)	91	63
BESS Container – Daytime (per battery)	77	49
BESS Container reduced fan speed duty - night-time and early morning (per battery)	72	44
BESS Inverter (per inverter)	83	55
132kV Substation	85	57
400kV Substation	85	57
Solar Tracking Motor (per motor)	50	50

3.3 Acoustic Fencing

3.3.1 Calculations indicate that a 4 m high acoustic barrier is required in selected areas around the BESS. The locations of the barriers are indicated in Error! Reference source not found.. The acoustic barrier is assumed to be solid, continuous, sealed at all interfaces and have a surface density in the order of 15 kg/m², which are to be achieved and maintained throughout the design life of the product. The acoustic barrier should be absorptive on the side facing the battery storage containers with an overall weighted absorption coefficient of at least 0.8 α_w .

3.3.2 The acoustic barriers have been included in the assessment, although it is noted that the final locations of the barrier would be subject to detailed assessment.



3.4 Description of Plant Operation

- 3.4.1 National Grid Substation and Project Substations have been modelled to operate 24 hours a day.
- 3.4.2 Due to the on-demand operational nature of the BESS, the facility has been modelled as operating continuously over a 24-hour period. This represents a conservative approach, as in practice most BESS typically discharge for approximately 2 to 4 hours, with trickle charging occurring during the remaining periods of the day. As a result, cooling fans would only operate as required, and therefore generate lower sound levels over the course of a day.
- 3.4.3 Solar inverters have been modelled as operating between 04:00 and 23:00 to represent worst-case summer daylight conditions. This is a robust and conservative assumption, as in practice solar inverters will only operate during periods of daylight, which typically occur for a shorter duration than the modelled hours for the majority of the year.

3.5 Background Sound Levels

- 3.5.1 Based on the results of the environmental sound surveys, a statistical analysis of the background sound levels measured during the sound survey has been undertaken. The statistical analysis of measured $L_{A90,15mins}$ sound levels from the unattended sound survey are provided in **ES: Appendix 12.1 Baseline Sound Survey Report [EN0110014/APP/6.3.12.1]**.
- 3.5.2 Details of the relative measurement position to each receptor locations can be found in **ES: Chapter 12: Noise and Vibration [EN0110014APP/6.1.12]**.

3.6 Acoustic Modelling

Calculation Process

- 3.6.1 Calculations were carried out using Soundplan V9.1, which is 3D acoustic modelling software. The computer acoustic model calculates the propagation of sound from the proposed development in accordance with '*BS ISO 9613-2:2024 Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation*'.

Acoustic Model Assumptions

- 3.6.2 The ground between the proposed development and the nearest receptors is mostly grass and vegetation. With reference to BS ISO 9613-2:2024³, the ground is considered to be soft and a ground factor of 1 has been used in the calculations.

³ British Standards Institute (2024) BS ISO 9613:2024 Acoustics – Attenuation of Sound During Propagation Outdoors Part 2: General Method of Calculation.



Specific Sound Level Map

- 3.6.3 The sound map showing the specific sound level emissions from the static plant associated with the proposed development can be seen in **Appendix A**.



3.7 Calculated Specific Sound Level at High Sensitivity Residential Receptors

3.7.1 The specific sound levels calculated at receptors are summarised in **Table 3.15**.

Table 3.15: Calculated Specific Sound Levels at the Receptor Locations

Receptor	Calculated Specific Sound Level $L_{Aeq,T}$ (dB)		
	Daytime (07:00 – 23:00 hours) at Ground Floor Level (1.5 m Above Ground)	Early Morning (04:00 – 07:00) at First Floor Level (4 m Above Ground)	Night-Time (23:00 – 04:00 hours) at First Floor Level (4 m Above Ground)
Site 1			
NSR1A	27	28	26
NSR1B	25	28	26
NSR2A	32	32	28
NSR2B	31	32	29
NSR3A	33	30	30
NSR3B	35	33	33
NSR4	29	28	27
NSR5A	31	30	26
Site 2			
NSR7	29	30	14
NSR8	29	29	17
NSR9	28	29	14
NSR10	26	27	18
Site 3			
NSR13	30	30	<0
NSR14	29	30	4
NSR15	19	20	1
NSR16	22	23	6
NSR17	29	30	<0
Site 4			
NSR20	24	27	19
NSR21	26	27	22
NSR22	30	30	19
NSR23	25	26	14
NSR24	22	22	11
NSR25	24	24	15
Site 5			
NSR28	29	30	22
NSR31	28	29	21
NSR32	27	28	23
NSR33	25	26	21
NSR35	25	26	21
Site 7			
NSR43	27	28	14
NSR44	28	29	18



Receptor	Calculated Specific Sound Level $L_{Aeq,T}$ (dB)		
	Daytime (07:00 – 23:00 hours) at Ground Floor Level (1.5 m Above Ground)	Early Morning (04:00 – 07:00) at First Floor Level (4 m Above Ground)	Night-Time (23:00 – 04:00 hours) at First Floor Level (4 m Above Ground)
NSR45	25	26	11
NSR46	24	25	1
NSR47	28	29	<0
NSR48	28	28	<0
NSR49	25	25	12
NSR51	28	13	29
NSR52	27	28	7
NSR53	26	27	3
NSR54	25	26	4
NSR55	26	26	12
NSR56	26	26	12
Site 8			
NSR58	22	22	1
NSR59	28	29	2
NSR60	28	29	7
NSR61	25	26	5
NSR62	26	27	<0
Site 9			
NSR64	27	27	<0
NSR65	25	26	<0
NSR66	25	26	<0
NSR67	29	29	<0
NSR68	15	17	<0
NSR69	21	22	<0
Site 10			
NSR71	26	26	6
NSR72	23	24	5
NSR73	25	25	9
NSR75	21	22	3
NSR75	21	22	3
NSR76	23	24	15
NSR77	27	28	21
NSR78	24	25	14

3.8 BS 4142 Acoustic Feature Rating Corrections

3.8.1 Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound levels and the background sound levels. The calculated specific sound level should therefore be modified in accordance with the following guidance. Due to the type of assessment, the subjective method has been used to determine the type and level of acoustic feature corrections applied to each source.



3.8.2 Note 2 within Paragraph 9.2 of BS 4142:2014 + A1 2019⁴ states:

“If characteristics likely to affect perception and response are present in the specific sound, within the same reference period, then the applicable corrections ought normally to be added arithmetically. However, if any single feature is dominant to the exclusion of the others then it might be appropriate to apply a reduced or even zero correction for the minor characteristics.”

3.8.3 BS 4142⁴ offers the following guidance on the subjective assessment of acoustic feature corrections.

“Tonality

For sound ranging from not tonal to predominantly tonal the Joint Nordic Method gives a correction of between 0 dB and + 6 dB for tonality. Subjectively, this can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible.

Impulsivity

A correction of up to + 9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible and 9 dB where it is highly perceptible.

Other Sound Characteristics

Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment a penalty of 3 dB can be applied.

Intermittency

When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time... If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.”

3.8.4 Based on the above, the following acoustic feature corrections have been considered in accordance with BS 4142⁴.

⁴ British Standards Institute (BSI) (2019) British Standard 4142:2014 +A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound.



Table 3.16: Acoustic Feature Corrections

Acoustic Feature	Rating Penalty	Comments
Tonality	0 dB	<p>The main source of sound from energy storage projects comes from the fans used for inverter skids and battery cooling systems. The fans associated with the cooling systems produce broadband sound with no identifiable tones, which is a result of the design. Tones are unlikely to be audible against the residual sound environment as calculated sound levels are low. Furthermore, tonal characteristics can be mitigated during detailed design by selection of appropriate attenuator selection.</p> <p>High voltage transformers can generate a 100Hz hum due to vibration of the transformer coil. The acoustic modelling exercise indicates that the specific sound level from the high voltage transformers, including the 100Hz tone, is unlikely to be distinguishable at the receptor as it will be masked by other broadband sound relating to the BESS inverters and BESS Containers.</p> <p>Therefore, no rating penalty has been applied for 'Tonality'.</p>
Impulsivity	0 dB	<p>Inverters, transformers and battery cooling systems run continuously without producing sudden, noticeable sounds. Therefore, no rating penalty has been applied for 'Impulsivity'.</p>
Intermittency	0 dB	<p>During the battery charging and discharging process, inverters, transformers and battery cooling systems operate continuously, surpassing the BS 4142 reference time interval (1 hour during the day and 15 minutes at night). As the system cools down, the cooling units shut off gradually and at different times, without any distinct on/off patterns. Therefore, no rating penalty has been applied for 'Intermittency'.</p>
Other Sound Characteristics	0 dB	<p>BESS are designed without any noticeable acoustic features due to the broadband nature of the sound. Noise from the proposed development is not likely to be readily distinctive against the residual sound environment.</p> <p>Therefore, no rating penalty has been applied for 'Other Sound Characteristics.'</p>

3.9 Assessment Uncertainties

3.9.1 Care has been taken to reduce uncertainty as far as reasonably possible. However, it should be recognised that in any environmental sound survey and assessment process, uncertainty exists.

Environmental Sound Survey

3.9.2 Uncertainty in measured background sound levels can occur due to variations in temporary/non representative meteorological conditions affecting the survey results. The measurements were undertaken over a 5 to 7-day period including both weekday and weekend periods, reducing the uncertainty related to the meteorological conditions and nearby activities. Measuring as close possible to affected receptors to the site has enabled the determination of representative background sound levels.

3.9.3 Weather was measured on site using a weather station which measured wind speed, rain fall and temperature. Periods of adverse weather have been removed from the data set in accordance with BS 4142:2014+A1:2014⁴.



3.9.4 The acoustic measurement equipment accorded with Type 1 specification of British Standard 61672-1:2013⁵ and were deployed with appropriate wind shields.

Calculation Method

3.9.5 Measured background sound levels were rounded to 0.1 dB. Rounding would not have had a significant impact on the overall typical background sound levels.

3.9.6 The acoustic modelling assumes downwind propagation which demonstrates a worst-case scenario.

3.9.7 The estimated accuracy of the BS ISO 9613-2³ calculation procedure is presented in Section 9 of the standard. Where the mean height of the source and receiver is below 5 m, the accuracy of the calculation procedure for broadband noise is noted to be ± 3 dB at distances up to 1000 m.

⁵ British Standards Institute (BSI) (2013) BS EN 61672-1:2013 - Electroacoustics. Sound level meters – Specifications.





3.10 Assessment Results (Excluding Additional Mitigation)

3.10.1 Based on the calculated specific sound levels and applicable feature corrections, the rating levels (excluding additional mitigation) have been calculated at the nearest noise sensitive receptors during daytime, early morning and night-time periods and presented in **Table 3.17**, **Table 3.18** and **Table 3.19** respectively. The receptors considered are residential, with a high sensitivity.

Table 3.17: Operational Noise Assessment Results – Daytime (07:00 to 23:00)

Receptor	Calculated Rating Level $L_{Ar,1hour}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
Site 1						
NSR1A	27	33	-6	Negligible	Below the NOAEL	Negligible
NSR1B	25	33	-8	Negligible	Below the NOAEL	Negligible
NSR2A	32	36	-4	Negligible	Below the NOAEL	Negligible
NSR2B	31	36	-5	Negligible	Below the NOAEL	Negligible
NSR3A	33	41	-8	Negligible	Below the NOAEL	Negligible
NSR3B	35	41	-6	Negligible	Below the NOAEL	Negligible
NSR4	29	35	-6	Negligible	Below the NOAEL	Negligible
NSR5A	31	35	-4	Negligible	Below the NOAEL	Negligible
Site 2						
NSR7	29	38	-9	Negligible	Below the NOAEL	Negligible
NSR8	29	46	-17	Negligible	Below the NOAEL	Negligible
NSR9	28	38	-10	Negligible	Below the NOAEL	Negligible
NSR10	26	37	-11	Negligible	Below the NOAEL	Negligible



Receptor	Calculated Rating Level $L_{Ar,1hour}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
Group 3						
NSR13	30	31	-1	Negligible	Below the NOAEL	Negligible
NSR14	29	30	-1	Negligible	Below the NOAEL	Negligible
NSR15	19	30	-11	Negligible	Below the NOAEL	Negligible
NSR16	22	31	-9	Negligible	Below the NOAEL	Negligible
NSR17	29	31	-2	Negligible	Below the NOAEL	Negligible
Site 4						
NSR20	24	47	-23	Negligible	Below the NOAEL	Negligible
NSR21	26	40	-14	Negligible	Below the NOAEL	Negligible
NSR22	30	52	-22	Negligible	Below the NOAEL	Negligible
NSR23	25	37	-12	Negligible	Below the NOAEL	Negligible
NSR24	22	37	-15	Negligible	Below the NOAEL	Negligible
NSR25	24	44	-20	Negligible	Below the NOAEL	Negligible
Site 5						
NSR28	29	41	-12	Negligible	Below the NOAEL	Negligible
NSR31	28	38	-10	Negligible	Below the NOAEL	Negligible
NSR32	27	38	-11	Negligible	Below the NOAEL	Negligible
NSR33	25	38	-13	Negligible	Below the NOAEL	Negligible
NSR35	25	41	-16	Negligible	Below the NOAEL	Negligible
Site 7						
NSR43	27	34	-7	Negligible	Below the NOAEL	Negligible
NSR44	28	30	-2	Negligible	Below the NOAEL	Negligible



Receptor	Calculated Rating Level $L_{Ar,1hour}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
NSR45	25	30	-5	Negligible	Below the NOAEL	Negligible
NSR46	24	30	-6	Negligible	Below the NOAEL	Negligible
NSR47	28	29	-1	Negligible	Below the NOAEL	Negligible
NSR48	28	29	-1	Negligible	Below the NOAEL	Negligible
NSR49	25	33	-8	Negligible	Below the NOAEL	Negligible
NSR51	28	30	-2	Negligible	Below the NOAEL	Negligible
NSR52	27	30	-3	Negligible	Below the NOAEL	Negligible
NSR53	26	36	-10	Negligible	Below the NOAEL	Negligible
NSR54	25	42	-17	Negligible	Below the NOAEL	Negligible
NSR55	26	42	-16	Negligible	Below the NOAEL	Negligible
NSR56	26	38	-12	Negligible	Below the NOAEL	Negligible
Site 8						
NSR58	22	30	-8	Negligible	Below the NOAEL	Negligible
NSR59	28	28	0	Negligible	Below the NOAEL	Negligible
NSR60	28	29	-1	Negligible	Below the NOAEL	Negligible
NSR61	25	29	-4	Negligible	Below the NOAEL	Negligible
NSR62	26	28	-2	Negligible	Below the NOAEL	Negligible
Site 9						
NSR64	27	34	-7	Negligible	Below the NOAEL	Negligible
NSR65	25	32	-7	Negligible	Below the NOAEL	Negligible
NSR66	25	34	-9	Negligible	Below the NOAEL	Negligible
NSR67	29	34	-5	Negligible	Below the NOAEL	Negligible



Receptor	Calculated Rating Level $L_{Ar,1hour}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
NSR68	15	33	-18	Negligible	Below the NOAEL	Negligible
NSR69	21	33	-12	Negligible	Below the NOAEL	Negligible
Site 10						
NSR71	26	36	-10	Negligible	Below the NOAEL	Negligible
NSR72	23	36	-13	Negligible	Below the NOAEL	Negligible
NSR73	25	36	-11	Negligible	Below the NOAEL	Negligible
NSR75	21	41	-20	Negligible	Below the NOAEL	Negligible
NSR76	23	45	-22	Negligible	Below the NOAEL	Negligible
NSR77	27	45	-18	Negligible	Below the NOAEL	Negligible
NSR78	24	46	-22	Negligible	Below the NOAEL	Negligible



Table 3.18: Operational Noise Assessment Results – Early Morning (04:00 to 07:00)

Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
Site 1						
NSR1A	28	29	-1	Negligible	Below the NOAEL	Negligible
NSR1B	28	29	-1	Negligible	Below the NOAEL	Negligible
NSR2A	32	32	0	Negligible	Below the NOAEL	Negligible
NSR2B	32	32	0	Negligible	Below the NOAEL	Negligible
NSR3A	30	32	-2	Negligible	Below the NOAEL	Negligible
NSR3B	33	32	+1	Low	Between NOAEL and LOAEL	Minor Adverse
NSR4	28	33	-5	Negligible	Below the NOAEL	Negligible
NSR5A	30	33	-3	Negligible	Below the NOAEL	Negligible
Site 2						
NSR7	30	34	-4	Negligible	Below the NOAEL	Negligible
NSR8	29	36	-7	Negligible	Below the NOAEL	Negligible
NSR9	29	29	0	Negligible	Below the NOAEL	Negligible
NSR10	27	32	-5	Negligible	Below the NOAEL	Negligible
Group 3						
NSR13	30	25	+5	Low	Between NOAEL and LOAEL	Minor Adverse
NSR14	30	24	+6	Medium	Between LOAEL and SOAEL	Moderate Adverse
NSR15	20	24	-4	Negligible	Below the NOAEL	Negligible
NSR16	23	25	-2	Negligible	Below the NOAEL	Negligible



Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
NSR17	30	25	+5	Low	Between NOAEL and LOAEL	Minor Adverse
Site 4						
NSR20	27	30	-3	Negligible	Below the NOAEL	Negligible
NSR21	27	29	-2	Negligible	Below the NOAEL	Negligible
NSR22	30	34	-4	Negligible	Below the NOAEL	Negligible
NSR23	26	35	-9	Negligible	Below the NOAEL	Negligible
NSR24	22	35	-13	Negligible	Below the NOAEL	Negligible
NSR25	24	36	-12	Negligible	Below the NOAEL	Negligible
Site 5						
NSR28	30	32	-2	Negligible	Below the NOAEL	Negligible
NSR31	29	34	-5	Negligible	Below the NOAEL	Negligible
NSR32	28	34	-6	Negligible	Below the NOAEL	Negligible
NSR33	26	34	-8	Negligible	Below the NOAEL	Negligible
NSR35	26	33	-7	Negligible	Below the NOAEL	Negligible
Site 7						
NSR43	28	20	+8	Medium	Between LOAEL and SOAEL	Moderate Adverse
NSR44	29	24	+5	Low	Between NOAEL and LOAEL	Minor Adverse
NSR45	26	24	+2	Low	Between NOAEL and LOAEL	Minor Adverse
NSR46	25	24	+1	Low	Between NOAEL and LOAEL	Minor Adverse



Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
NSR47	29	21	+8	Medium	Between LOAEL and SOAEL	Moderate Adverse
NSR48	28	21	+7	Medium	Between LOAEL and SOAEL	Moderate Adverse
NSR49	25	23	+2	Low	Between NOAEL and LOAEL	Minor Adverse
NSR51	29	24	+5	Low	Between NOAEL and LOAEL	Minor Adverse
NSR52	28	24	+4	Low	Between NOAEL and LOAEL	Minor Adverse
NSR53	27	27	0	Negligible	Below the NOAEL	Negligible
NSR54	26	33	-7	Negligible	Below the NOAEL	Negligible
NSR55	26	33	-7	Negligible	Below the NOAEL	Negligible
NSR56	26	26	0	Negligible	Below the NOAEL	Negligible
Site 8						
NSR58	22	21	+1	Low	Between NOAEL and LOAEL	Minor Adverse
NSR59	29	22	+7	Medium	Between LOAEL and SOAEL	Moderate Adverse
NSR60	29	22	+7	Medium	Between LOAEL and SOAEL	Moderate Adverse
NSR61	26	22	+4	Low	Between NOAEL and LOAEL	Minor Adverse
NSR62	27	21	+6	Medium	Between LOAEL and SOAEL	Moderate Adverse
Site 9						



Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
NSR64	27	24	+3	Low	Between NOAEL and LOAEL	Minor Adverse
NSR65	26	24	+2	Low	Between NOAEL and LOAEL	Minor Adverse
NSR66	26	27	-1	Negligible	Below the NOAEL	Negligible
NSR67	29	27	+2	Low	Between NOAEL and LOAEL	Minor Adverse
NSR68	17	28	-11	Negligible	Below the NOAEL	Negligible
NSR69	22	28	-6	Negligible	Below the NOAEL	Negligible
Site 10						
NSR71	26	32	-6	Negligible	Below the NOAEL	Negligible
NSR72	24	32	-8	Negligible	Below the NOAEL	Negligible
NSR73	25	32	-7	Negligible	Below the NOAEL	Negligible
NSR75	22	37	-15	Negligible	Below the NOAEL	Negligible
NSR76	24	36	-12	Negligible	Below the NOAEL	Negligible
NSR77	28	36	-8	Negligible	Below the NOAEL	Negligible
NSR78	25	36	-11	Negligible	Below the NOAEL	Negligible



Table 3.19: Operational Noise Assessment Results – Night-Time (23:00 to 04:00)

Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
Site 1						
NSR1A	26	28	-2	Negligible	Below the NOAEL	Negligible
NSR1B	26	28	-2	Negligible	Below the NOAEL	Negligible
NSR2A	28	29	-1	Negligible	Below the NOAEL	Negligible
NSR2B	29	29	0	Negligible	Below the NOAEL	Negligible
NSR3A	30	31	-1	Negligible	Below the NOAEL	Negligible
NSR3B	33	31	+2	Low	Below the NOAEL	Minor Adverse
NSR4	27	30	-3	Negligible	Below the NOAEL	Negligible
NSR5A	26	30	-4	Negligible	Below the NOAEL	Negligible
Site 2						
NSR7	14	29	-15	Negligible	Below the NOAEL	Negligible
NSR8	17	35	-18	Negligible	Below the NOAEL	Negligible
NSR9	14	28	-14	Negligible	Below the NOAEL	Negligible
NSR10	18	27	-9	Negligible	Below the NOAEL	Negligible
Group 3						
NSR13	<0	24	-24	Negligible	Below the NOAEL	Negligible
NSR14	4	22	-18	Negligible	Below the NOAEL	Negligible
NSR15	1	22	-21	Negligible	Below the NOAEL	Negligible
NSR16	6	24	-18	Negligible	Below the NOAEL	Negligible
NSR17	<0	24	-24	Negligible	Below the NOAEL	Negligible
Site 4						



Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
NSR20	19	29	-10	Negligible	Below the NOAEL	Negligible
NSR21	22	29	-7	Negligible	Below the NOAEL	Negligible
NSR22	19	28	-9	Negligible	Below the NOAEL	Negligible
NSR23	14	30	-16	Negligible	Below the NOAEL	Negligible
NSR24	11	30	-19	Negligible	Below the NOAEL	Negligible
NSR25	15	27	-12	Negligible	Below the NOAEL	Negligible
Site 5						
NSR28	22	30	-8	Negligible	Below the NOAEL	Negligible
NSR31	21	29	-8	Negligible	Below the NOAEL	Negligible
NSR32	23	29	-6	Negligible	Below the NOAEL	Negligible
NSR33	21	29	-8	Negligible	Below the NOAEL	Negligible
NSR35	21	30	-9	Negligible	Below the NOAEL	Negligible
Site 7						
NSR43	14	20	-6	Negligible	Below the NOAEL	Negligible
NSR44	18	21	-3	Negligible	Below the NOAEL	Negligible
NSR45	11	21	-10	Negligible	Below the NOAEL	Negligible
NSR46	1	18	-17	Negligible	Below the NOAEL	Negligible
NSR47	<0	20	-22	Negligible	Below the NOAEL	Negligible
NSR48	<0	20	-20	Negligible	Below the NOAEL	Negligible
NSR49	12	21	-9	Negligible	Below the NOAEL	Negligible
NSR51	13	23	-10	Negligible	Below the NOAEL	Negligible
NSR52	7	23	-16	Negligible	Below the NOAEL	Negligible



Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
NSR53	3	26	-23	Negligible	Below the NOAEL	Negligible
NSR54	4	26	-22	Negligible	Below the NOAEL	Negligible
NSR55	12	26	-14	Negligible	Below the NOAEL	Negligible
NSR56	12	24	-12	Negligible	Below the NOAEL	Negligible
Site 8						
NSR58	1	20	-19	Negligible	Below the NOAEL	Negligible
NSR59	2	19	-17	Negligible	Below the NOAEL	Negligible
NSR60	7	20	-13	Negligible	Below the NOAEL	Negligible
NSR61	5	20	-15	Negligible	Below the NOAEL	Negligible
NSR62	<0	18	-18	Negligible	Below the NOAEL	Negligible
Site 9						
NSR64	<0	23	-23	Negligible	Below the NOAEL	Negligible
NSR65	<0	22	-22	Negligible	Below the NOAEL	Negligible
NSR66	<0	24	-24	Negligible	Below the NOAEL	Negligible
NSR67	<0	24	-24	Negligible	Below the NOAEL	Negligible
NSR68	<0	28	-28	Negligible	Below the NOAEL	Negligible
NSR69	<0	28	-28	Negligible	Below the NOAEL	Negligible
Site 10						
NSR71	6	31	-25	Negligible	Below the NOAEL	Negligible
NSR72	5	27	-22	Negligible	Below the NOAEL	Negligible
NSR73	9	27	-18	Negligible	Below the NOAEL	Negligible
NSR75	3	28	-25	Negligible	Below the NOAEL	Negligible



Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
NSR76	15	29	-14	Negligible	Below the NOAEL	Negligible
NSR77	21	29	-8	Negligible	Below the NOAEL	Negligible
NSR78	14	29	-15	Negligible	Below the NOAEL	Negligible



3.11 Assessment Results (Including Additional Mitigation)

3.11.1 Further to the additional mitigation outlined in **ES Chapter 12: Noise and Vibration [EN0110014APP/6.1.12]** an assessment of the early morning period has been provided to demonstrate the residual effects. The results of the assessment during early morning hours are presented **Table 3.20**. An assessment of the residual effects during the daytime periods are Negligible and Not Significant at all receptors. The outcome of the night-time assessment will not change due to the mitigation measures only being applied to solar inverters, which do not operate during the night-time period.

Table 3.20: Operational Noise Assessment Results with Additional Mitigation – Early Morning Period (04:00 to 07:00)

Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
Site 1						
NSR1A	28	29	-1	Negligible	Below the NOAEL	Negligible
NSR1B	28	29	-1	Negligible	Below the NOAEL	Negligible
NSR2A	32	32	0	Negligible	Below the NOAEL	Negligible
NSR2B	32	32	0	Negligible	Below the NOAEL	Negligible
NSR3A	30	32	-2	Negligible	Below the NOAEL	Negligible
NSR3B	33	32	+1	Low	Between NOAEL and LOAEL	Minor Adverse
NSR4	28	33	-5	Negligible	Below the NOAEL	Negligible
NSR5A	30	33	-3	Negligible	Below the NOAEL	Negligible
Site 2						
NSR7	30	34	-4	Negligible	Below the NOAEL	Negligible
NSR8	29	36	-7	Negligible	Below the NOAEL	Negligible
NSR9	29	29	0	Negligible	Below the NOAEL	Negligible
NSR10	27	32	-5	Negligible	Below the NOAEL	Negligible



Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
Group 3						
NSR13	24	25	-1	Negligible	Below the NOAEL	Negligible
NSR14	24	24	0	Negligible	Below the NOAEL	Negligible
NSR15	14	24	-10	Negligible	Below the NOAEL	Negligible
NSR16	17	25	-8	Negligible	Below the NOAEL	Negligible
NSR17	24	25	-1	Negligible	Below the NOAEL	Negligible
Site 4						
NSR20	27	30	-3	Negligible	Below the NOAEL	Negligible
NSR21	26	29	-3	Negligible	Below the NOAEL	Negligible
NSR22	30	34	-4	Negligible	Below the NOAEL	Negligible
NSR23	26	35	-9	Negligible	Below the NOAEL	Negligible
NSR24	22	35	-13	Negligible	Below the NOAEL	Negligible
NSR25	24	36	-12	Negligible	Below the NOAEL	Negligible
Site 5						
NSR28	29	32	-3	Negligible	Below the NOAEL	Negligible
NSR31	29	34	-5	Negligible	Below the NOAEL	Negligible
NSR32	28	34	-6	Negligible	Below the NOAEL	Negligible
NSR33	25	34	-9	Negligible	Below the NOAEL	Negligible
NSR35	25	33	-8	Negligible	Below the NOAEL	Negligible
NSR43	20	20	0	Negligible	Below the NOAEL	Negligible
NSR44	23	24	-1	Negligible	Below the NOAEL	Negligible
NSR45	19	24	-5	Negligible	Below the NOAEL	Negligible



Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
NSR46	18	24	-6	Negligible	Below the NOAEL	Negligible
NSR47	21	21	0	Negligible	Below the NOAEL	Negligible
NSR48	20	21	-1	Negligible	Below the NOAEL	Negligible
NSR49	21	23	-2	Negligible	Below the NOAEL	Negligible
NSR51	22	24	-2	Negligible	Below the NOAEL	Negligible
NSR52	21	24	-3	Negligible	Below the NOAEL	Negligible
NSR53	20	27	-7	Negligible	Below the NOAEL	Negligible
NSR54	20	33	-13	Negligible	Below the NOAEL	Negligible
NSR55	22	33	-11	Negligible	Below the NOAEL	Negligible
NSR56	21	26	-5	Negligible	Below the NOAEL	Negligible
Site 8						
NSR58	16	21	-5	Negligible	Below the NOAEL	Negligible
NSR59	22	22	0	Negligible	Below the NOAEL	Negligible
NSR60	22	22	0	Negligible	Below the NOAEL	Negligible
NSR61	19	22	-3	Negligible	Below the NOAEL	Negligible
NSR62	20	21	-1	Negligible	Below the NOAEL	Negligible
Site 9						
NSR64	24	24	0	Negligible	Below the NOAEL	Negligible
NSR65	23	24	-1	Negligible	Below the NOAEL	Negligible
NSR66	23	27	-4	Negligible	Below the NOAEL	Negligible
NSR67	26	27	-1	Negligible	Below the NOAEL	Negligible
NSR68	14	28	-14	Negligible	Below the NOAEL	Negligible



Receptor	Calculated Rating Level $L_{Ar,15minutes}$ (dB)	Background Sound Level ($L_{A90,15mins}$) (dB)	Excess of Rating over Background Sound Level (dB)	Magnitude of Impact	Effect Level	Significance of Effect
NSR69	18	28	-10	Negligible	Below the NOAEL	Negligible
Site 10						
NSR71	26	32	-6	Negligible	Below the NOAEL	Negligible
NSR72	24	32	-8	Negligible	Below the NOAEL	Negligible
NSR73	25	32	-7	Negligible	Below the NOAEL	Negligible
NSR75	22	37	-15	Negligible	Below the NOAEL	Negligible
NSR76	24	36	-12	Negligible	Below the NOAEL	Negligible
NSR77	28	36	-8	Negligible	Below the NOAEL	Negligible
NSR78	25	36	-11	Negligible	Below the NOAEL	Negligible



3.12 Operational Assessment of Low Frequency Noise

3.12.1 An assessment of Low Frequency Noise (LFN) has been undertaken. **Table 3.21** to **Table 3.28** show the LFN assessment criteria, the calculated 1/3 octave façade incident external sound levels and the calculated internal sound level within first floor bedrooms at those worst affected receptors closest to the National Grid Substation, project substations and the BESS Site. A comparison of the internal 1/3 octave band levels has been made against NANR45 criteria.

Table 3.21: Operational Low Frequency Noise Assessment – NSR2A

Parameter	Sound Level (dB) at Third Octave Band Centre Frequency (Hz) – NSR2A								
	25	31.5	40	50	63	80	100	125	160
Calculated Sound Level (external) – L_{eq}	42	40	41	43	41	39	31	28	21
Attenuation Provided by an Open Window*	10	10	10	10	10	10	10	10	10
Calculated Sound Level (internal) - L_{eq}	32	30	31	33	31	29	21	18	11
LFN Criteria L_{eq}	64	56	49	43	42	40	38	36	34
Difference	-32	-26	-18	-10	-11	-11	-17	-18	-23



Table 3.22: Operational Low Frequency Noise Assessment – NSR2B

Parameter	Sound Level (dB) at Third Octave Band Centre Frequency (Hz) – NSR2B								
	25	31.5	40	50	63	80	100	125	160
Calculated Sound Level (external) – L_{eq}	46	43	44	46	44	41	36	31	26
Attenuation Provided by an Open Window	10	10	10	10	10	10	10	10	10
Calculated Sound Level (internal) - L_{eq}	36	33	34	36	34	31	26	21	16
LFN Criteria L_{eq}	64	56	49	43	42	40	38	36	34
Difference	-29	-23	-15	-7	-8	-9	-12	-15	-18

Table 3.23: Operational Low Frequency Noise Assessment – NSR3A

Parameter	Sound Level (dB) at Third Octave Band Centre Frequency (Hz) – NSR3A								
	25	31.5	40	50	63	80	100	125	160
Calculated Sound Level (external) – L_{eq}	43	41	41	44	42	39	30	29	21
Attenuation Provided by an Open Window	10	10	10	10	10	10	10	10	10
Calculated Sound Level (internal) - L_{eq}	33	31	31	34	32	29	20	19	11
LFN Criteria L_{eq}	64	56	49	43	42	40	38	36	34
Difference	-31	-26	-18	-10	-10	-11	-18	-17	-24



Table 3.24: Operational Low Frequency Noise Assessment – NSR3B

Parameter	Sound Level (dB) at Third Octave Band Centre Frequency (Hz) – NSR3B								
	25	31.5	40	50	63	80	100	125	160
Calculated Sound Level (external) – L_{eq}	45	43	43	46	44	42	32	32	23
Attenuation Provided by an Open Window	10	10	10	10	10	10	10	10	10
Calculated Sound Level (internal) - L_{eq}	35	33	33	36	34	32	22	22	13
LFN Criteria L_{eq}	64	56	49	43	42	40	38	36	34
Difference	-29	-23	-16	-7	-8	-8	-16	-14	-21

Table 3.25: Operational Low Frequency Noise Assessment – NSR21

Parameter	Sound Level (dB) at Third Octave Band Centre Frequency (Hz) – NSR21								
	25	31.5	40	50	63	80	100	125	160
Calculated Sound Level (external) – L_{eq}	43	41	42	44	42	40	27	19	18
Attenuation Provided by an Open Window	10	10	10	10	10	10	10	10	10
Calculated Sound Level (internal) - L_{eq}	33	31	32	34	32	30	17	9	8
LFN Criteria L_{eq}	64	56	49	43	42	40	38	36	34
Difference	-31	-25	-17	-9	-10	-10	-21	-27	-27



Table 3.26: Operational Low Frequency Noise Assessment – NSR29

Parameter	Sound Level (dB) at Third Octave Band Centre Frequency (Hz) – NSR29								
	25	31.5	40	50	63	80	100	125	160
Calculated Sound Level (external) – L_{eq}	46	44	45	47	45	43	35	27	26
Attenuation Provided by an Open Window	10	10	10	10	10	10	10	10	10
Calculated Sound Level (internal) - L_{eq}	36	34	35	37	35	33	25	17	16
LFN Criteria L_{eq}	64	56	49	43	42	40	38	36	34
Difference	-28	-22	-14	-6	-7	-7	-13	-19	-18

Table 3.27: Operational Low Frequency Noise Assessment – NSR44

Parameter	Sound Level (dB) at Third Octave Band Centre Frequency (Hz) – NSR44								
	25	31.5	40	50	63	80	100	125	160
Calculated Sound Level (external) – L_{eq} dB	46	44	44	47	45	43	31	23	22
Attenuation Provided by an Open Window	10	10	10	10	10	10	10	10	10
Calculated Sound Level (internal) - L_{eq} dB	36	34	34	37	35	33	21	13	12
LFN Criteria L_{eq} dB	64	56	49	43	42	40	38	36	34
Difference dB	-28	-22	-15	-6	-7	-7	-18	-23	-23



Table 3.28: Operational Low Frequency Noise Assessment – NSR77

Parameter	Sound Level (dB) at Third Octave Band Centre Frequency (Hz) – NSR77								
	25	31.5	40	50	63	80	100	125	160
Calculated Sound Level (external) – L_{eq} dB	44	42	43	45	43	41	29	21	20
Attenuation Provided by an Open Window	10	10	10	10	10	10	10	10	10
Calculated Sound Level (internal) - L_{eq} dB	34	32	33	35	33	31	19	11	10
LFN Criteria L_{eq} dB	64	56	49	43	42	40	38	36	34
Difference dB	-30	-24	-16	-8	-9	-9	-19	-25	-24



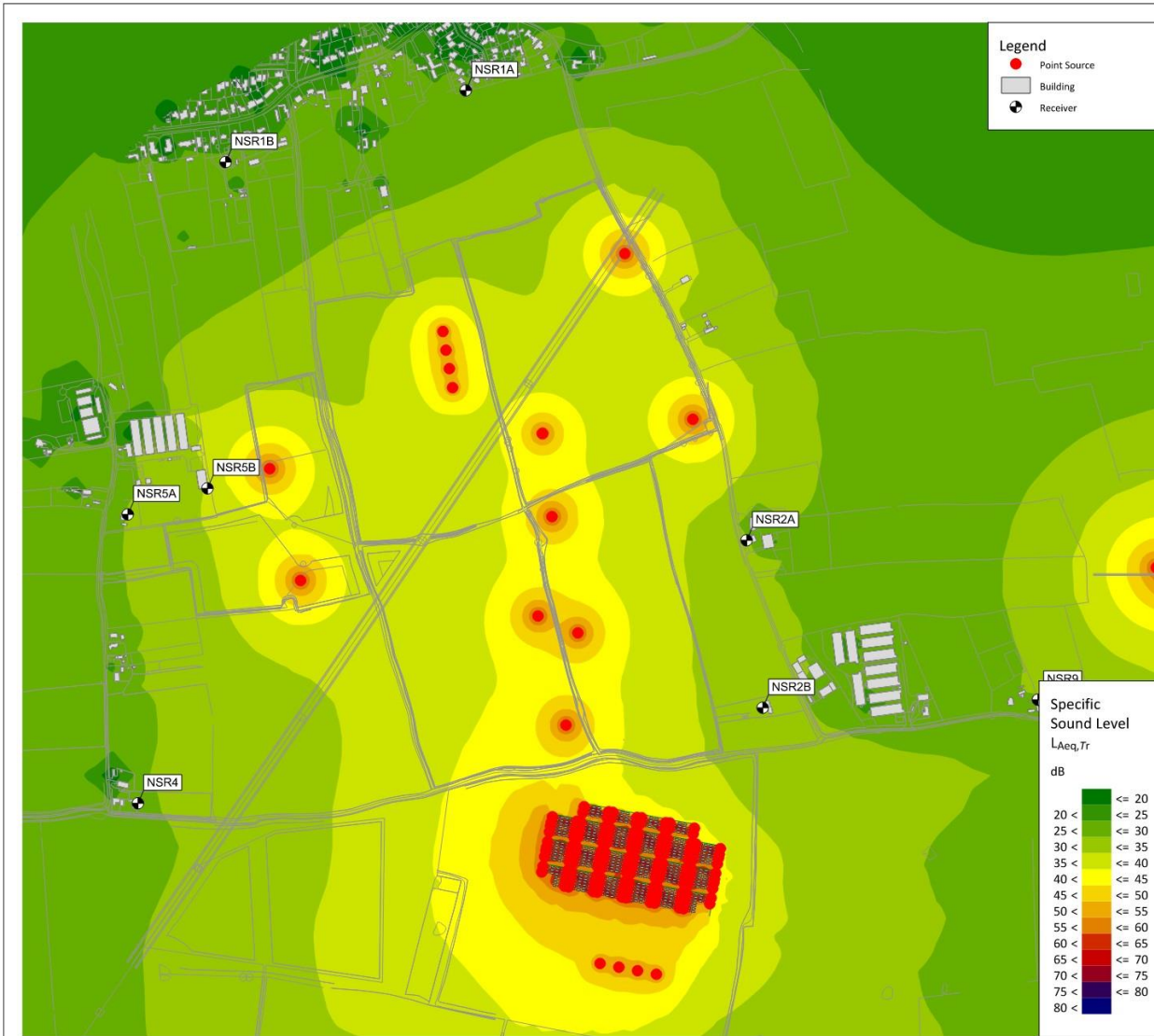


Appendix A Indicative Acoustic Fence Locations



Appendix B Specific Sound Level Maps





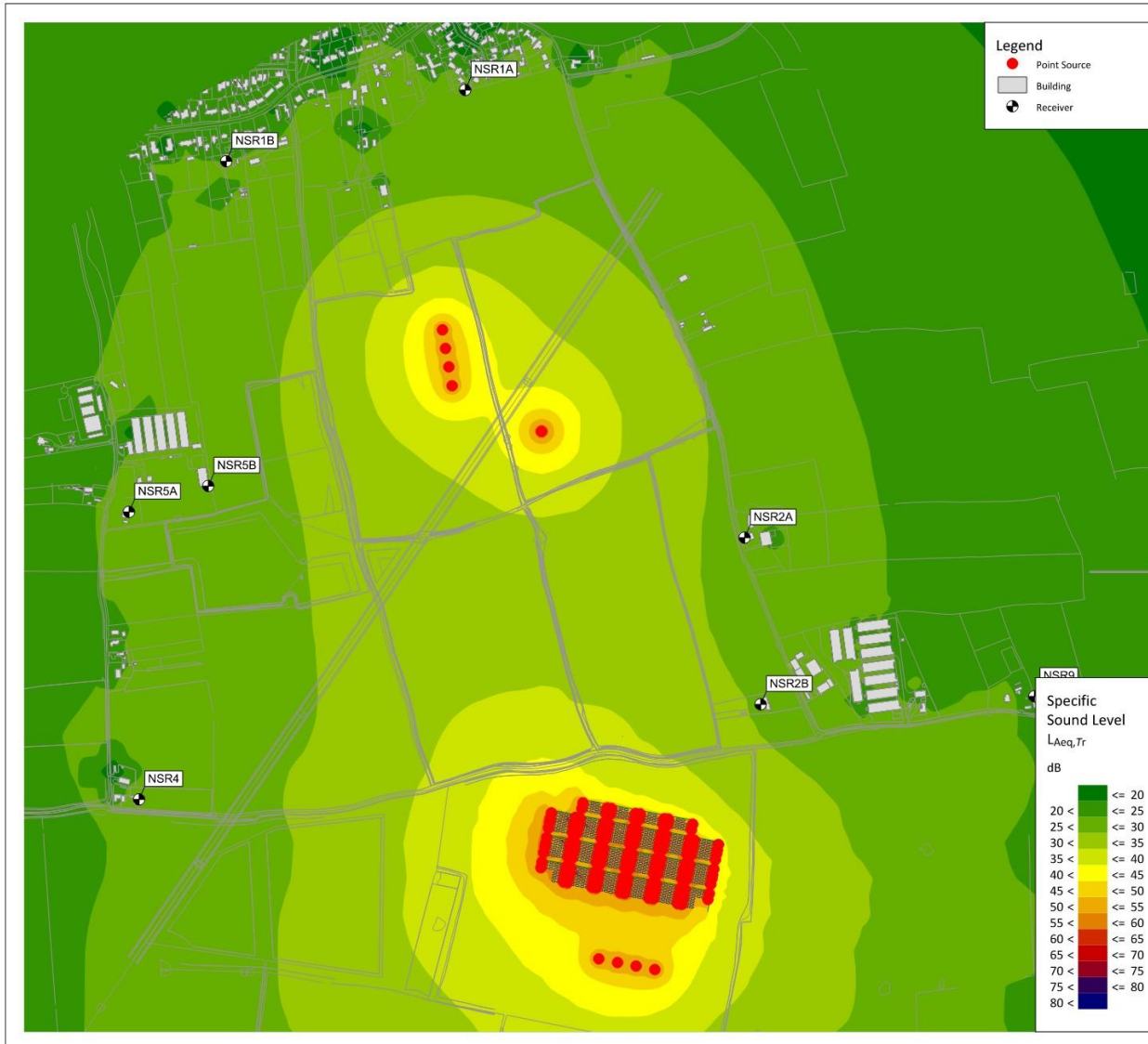
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ES: Chapter 12
Appendix 12.2 - Figure 2
Operational Noise Contours
Daytime, Without Mitigation
Parcel Group 1
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1

Figure not to scale. Do not scale.

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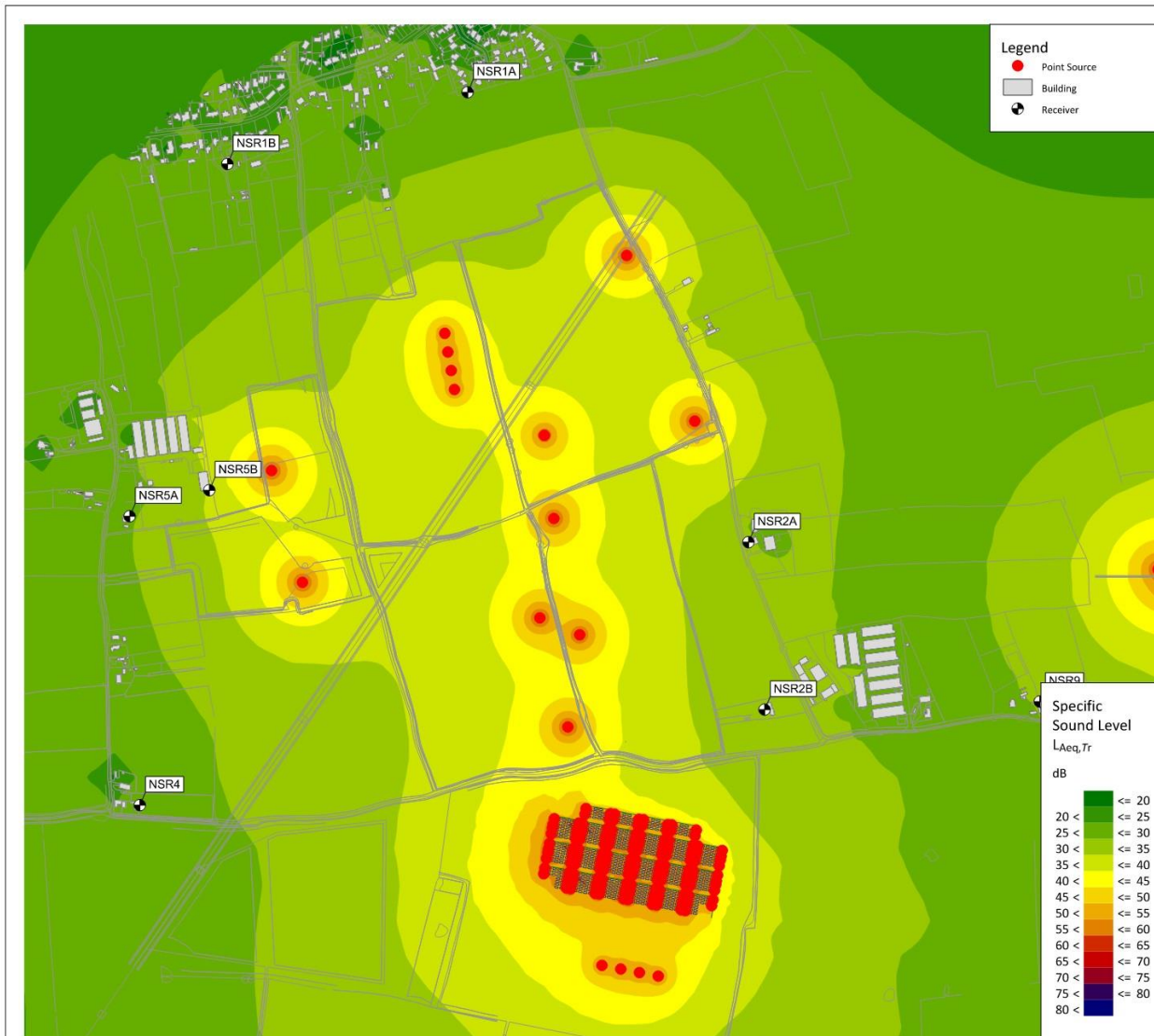
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ES: Chapter 12
Appendix 12.2 - Figure 4
Operational Noise Contours
Night-time, Without Mitigation
Parcel Group 1
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1

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<https://www.stantec.com/uk>





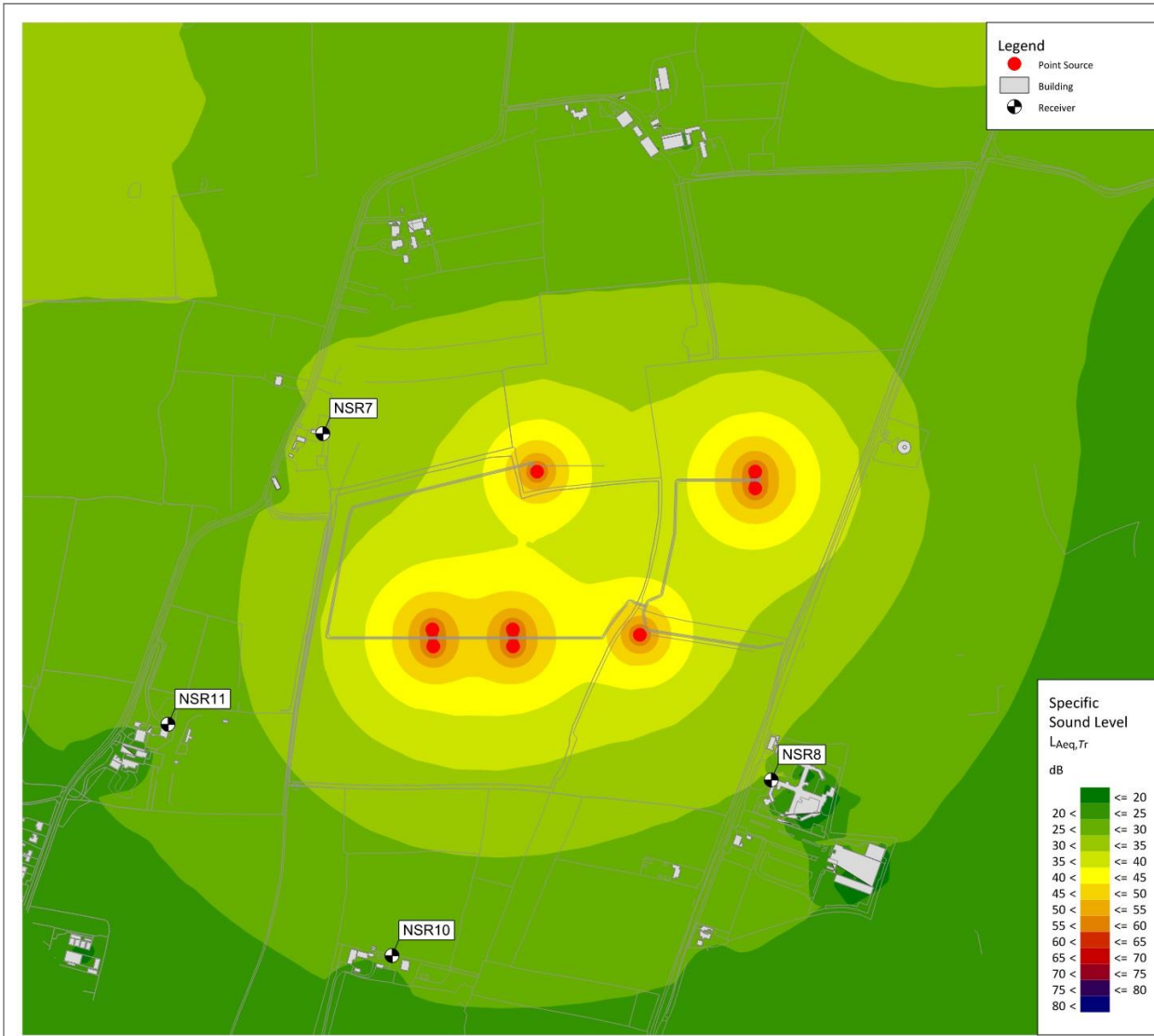
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ES: Chapter 12
Appendix 12.2 - Figure 3
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Group 1
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1

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ES: Chapter 12
Appendix 12.2 - Figure 5
Operational Noise Contours
Daytime, Without Mitigation
Parcel Group 2A

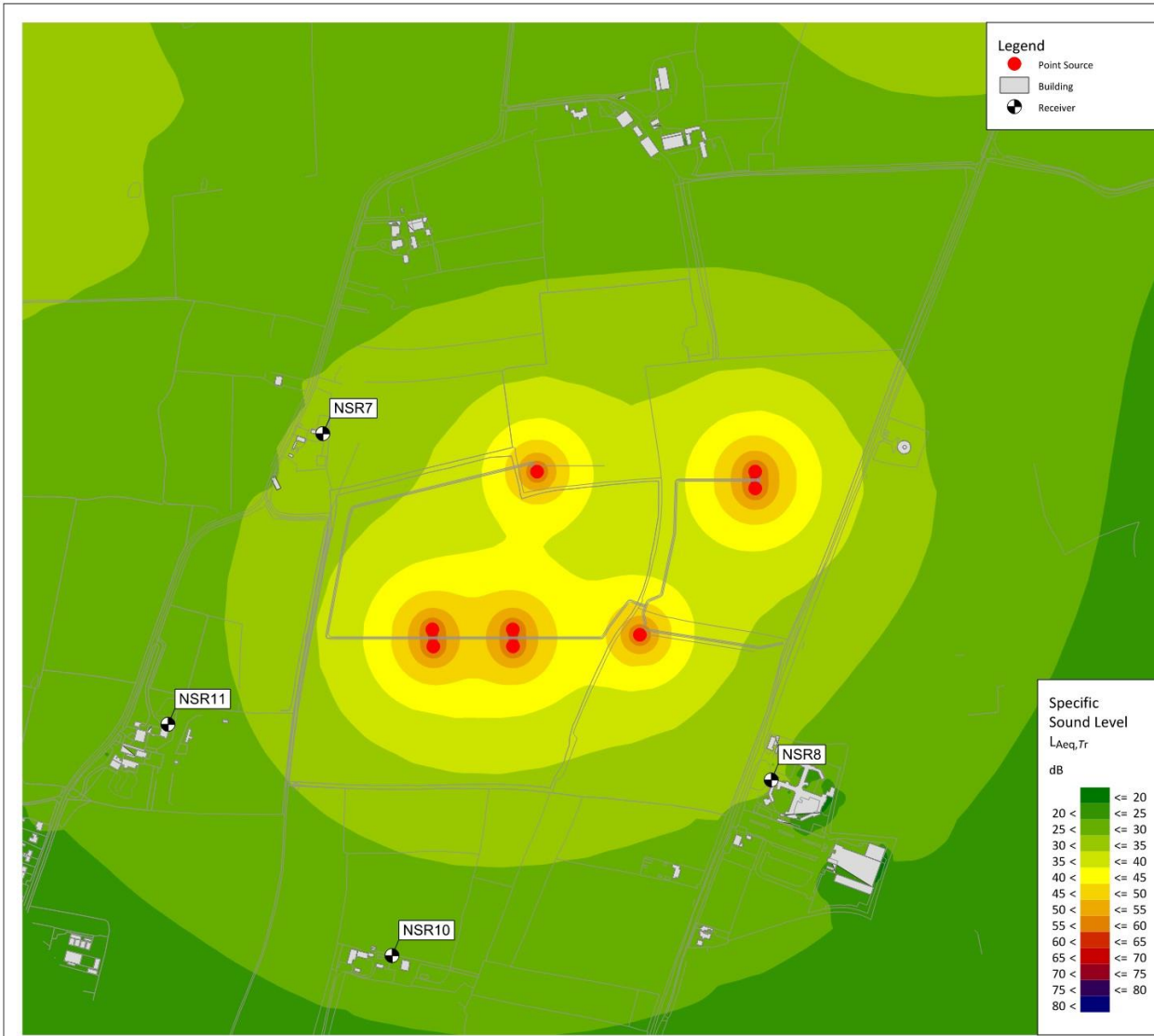
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 6
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Group 2A

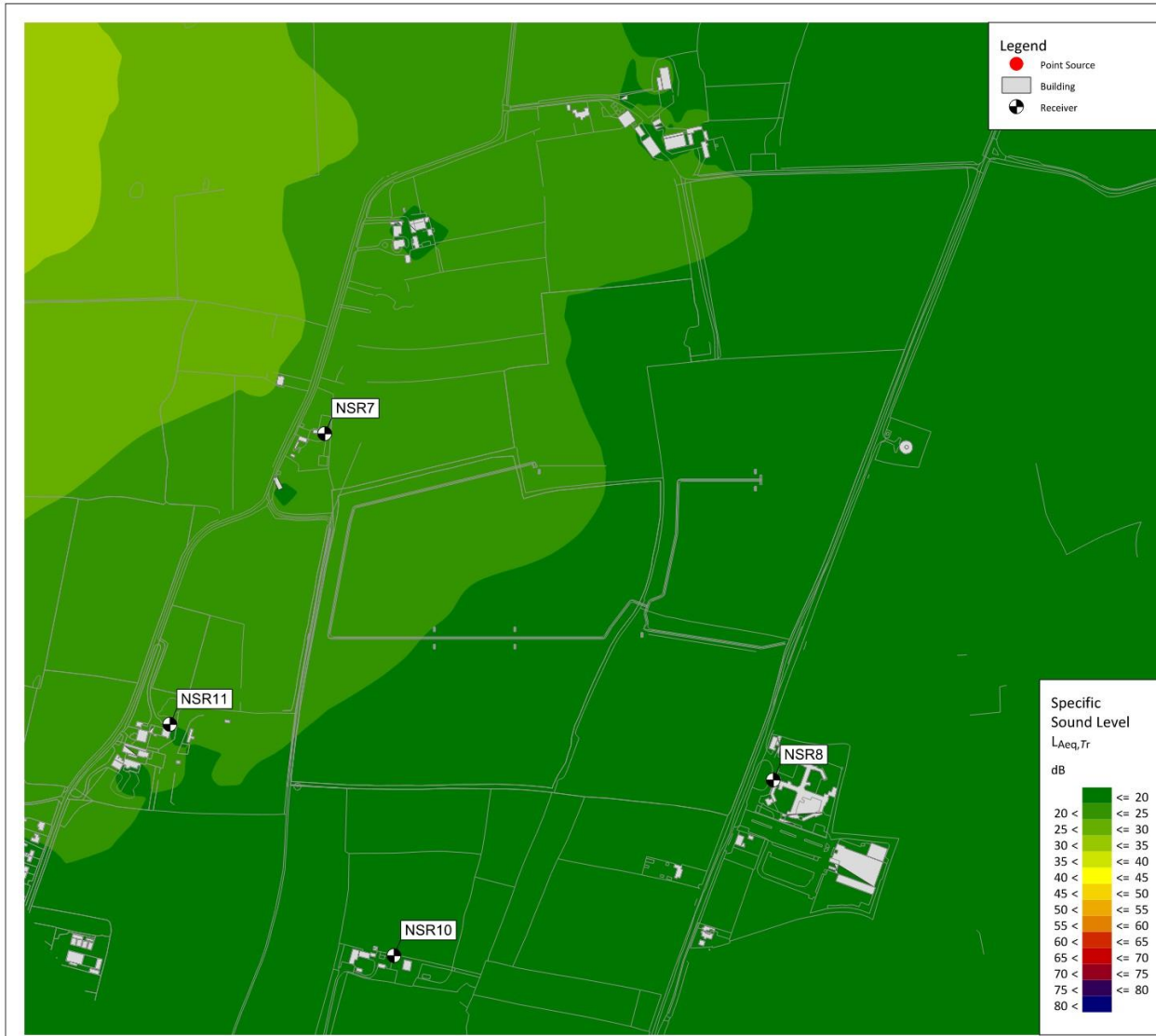
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 7
Operational Noise Contours
Night-time, Without Mitigation
Parcel Group 2A

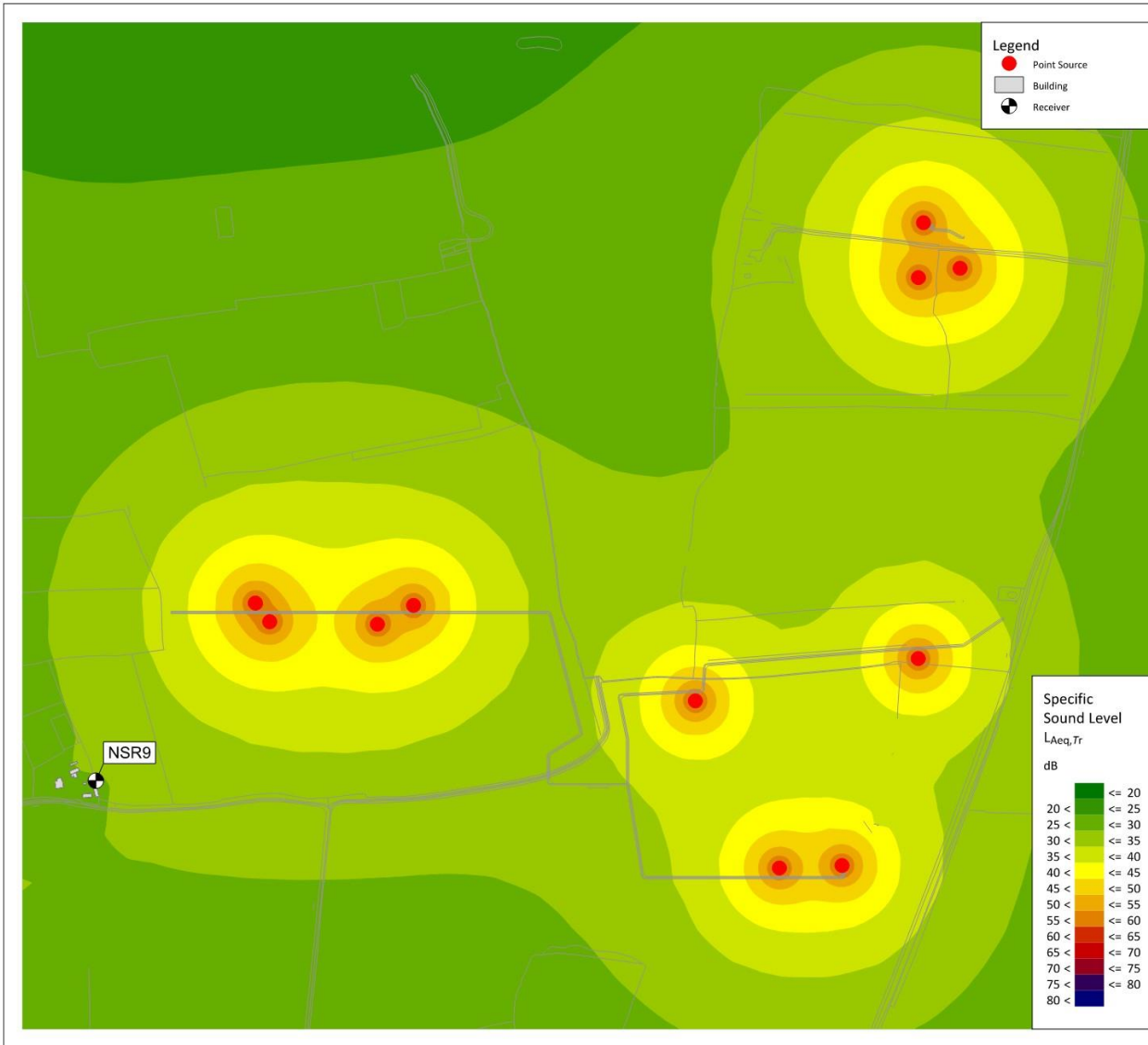
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 8
Operational Noise Contours
Daytime, Without Mitigation
Parcel Group 2B

Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 9
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Group 2B

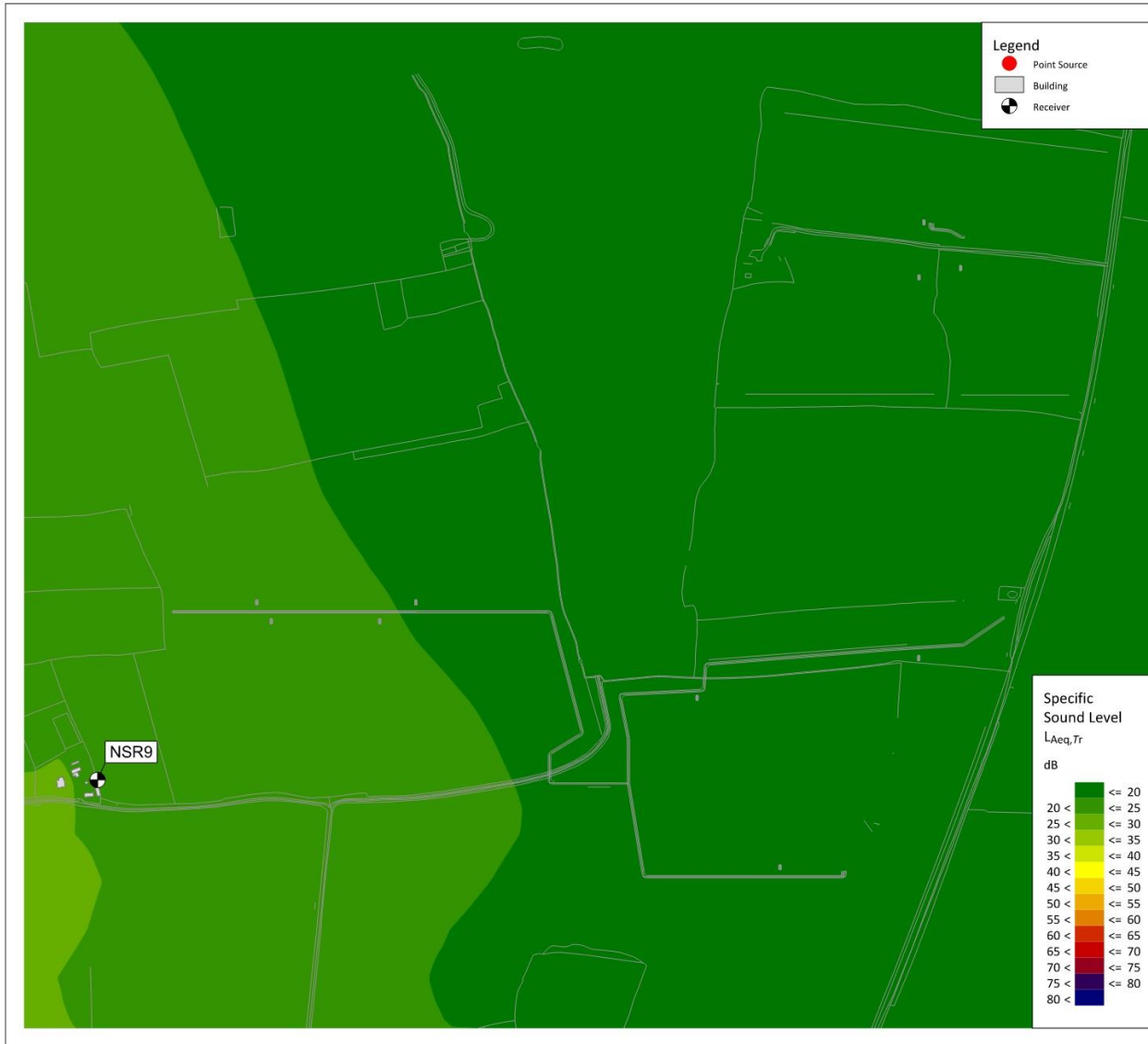
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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**ES: Chapter 12
 Appendix 12.2 - Figure 10
 Operational Noise Contours
 Night-time, Without Mitigation
 Parcel Group 2B**

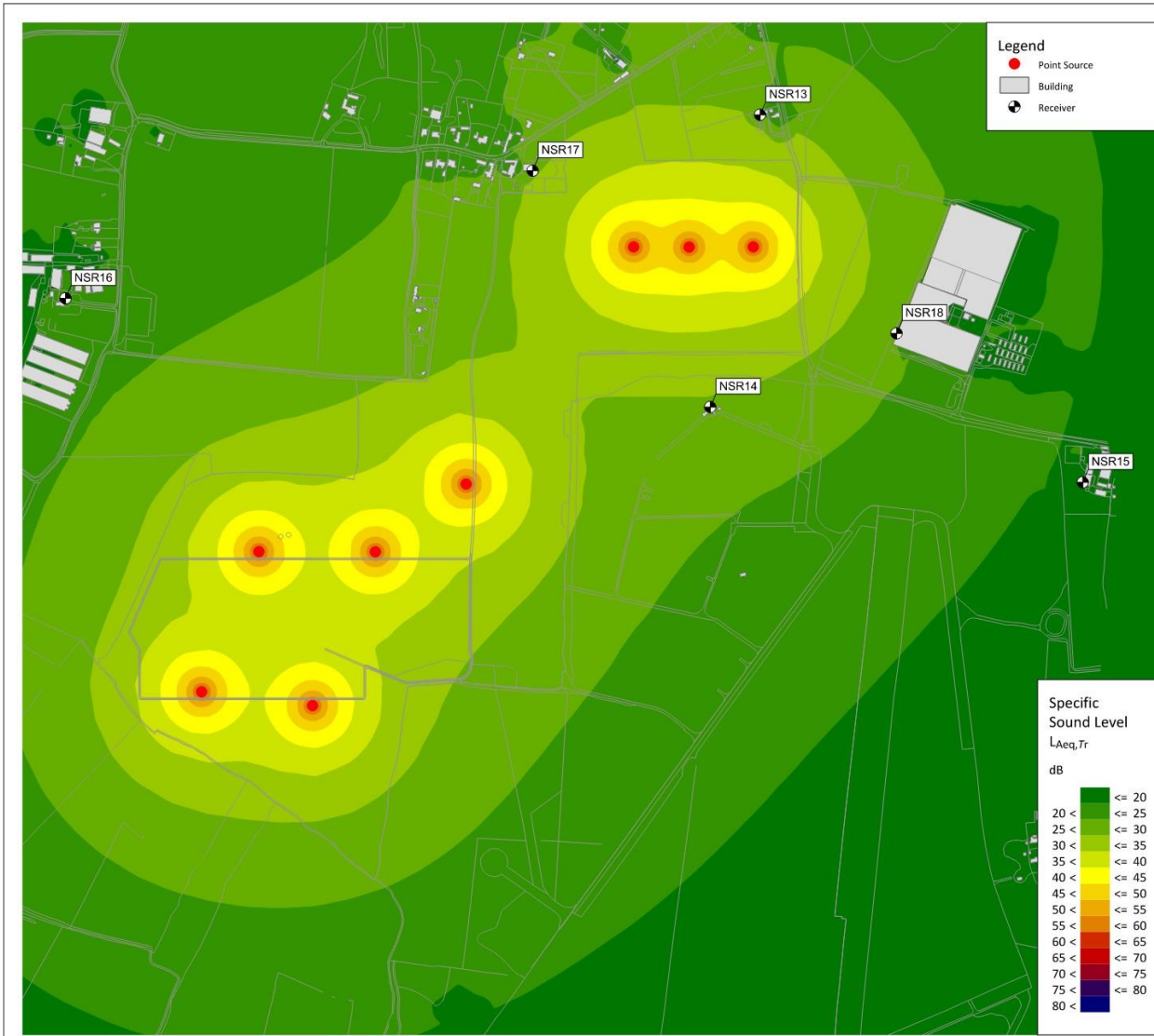
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 11
Operational Noise Contours
Daytime, Without Mitigation
Parcel Group 3

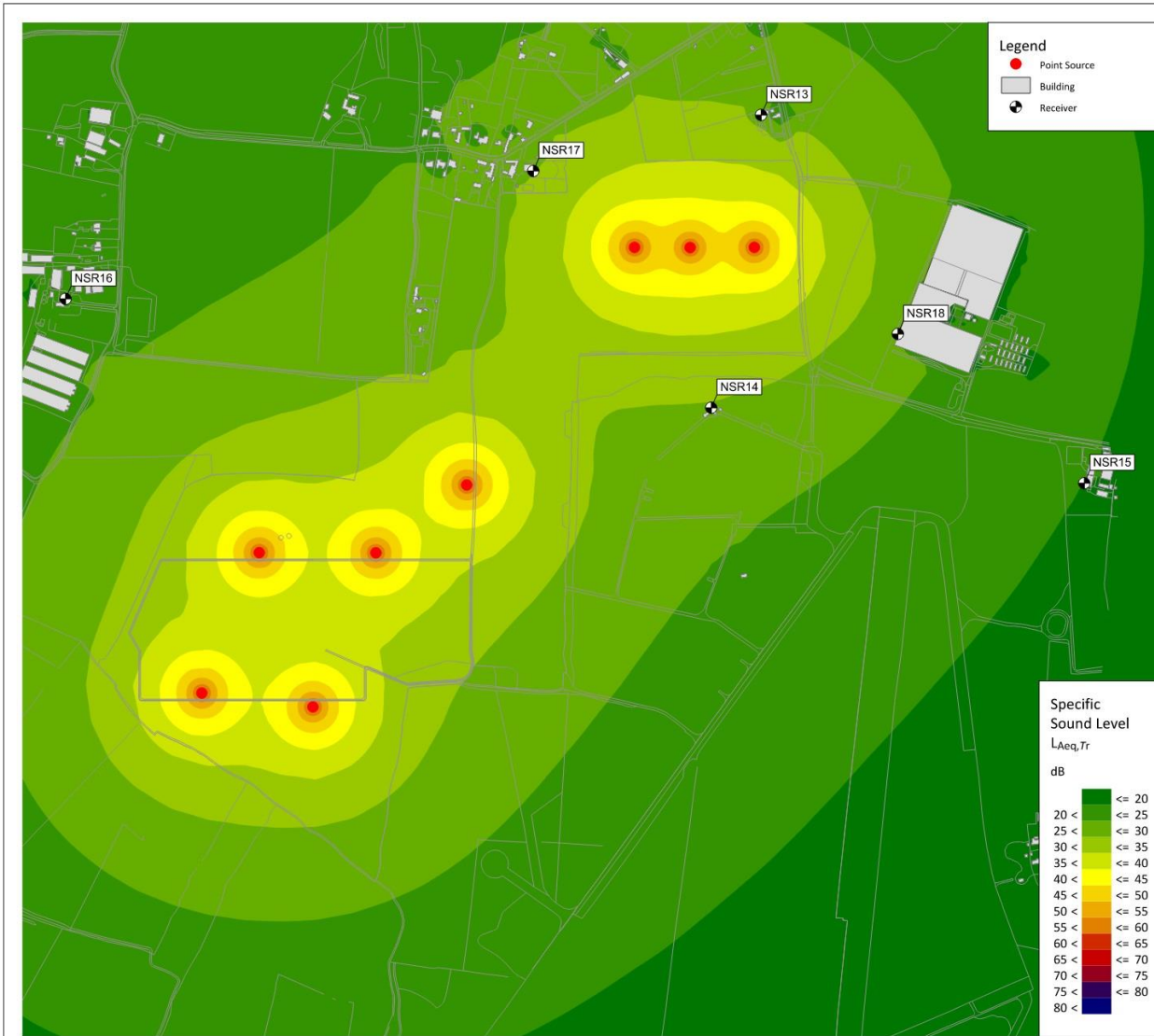
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



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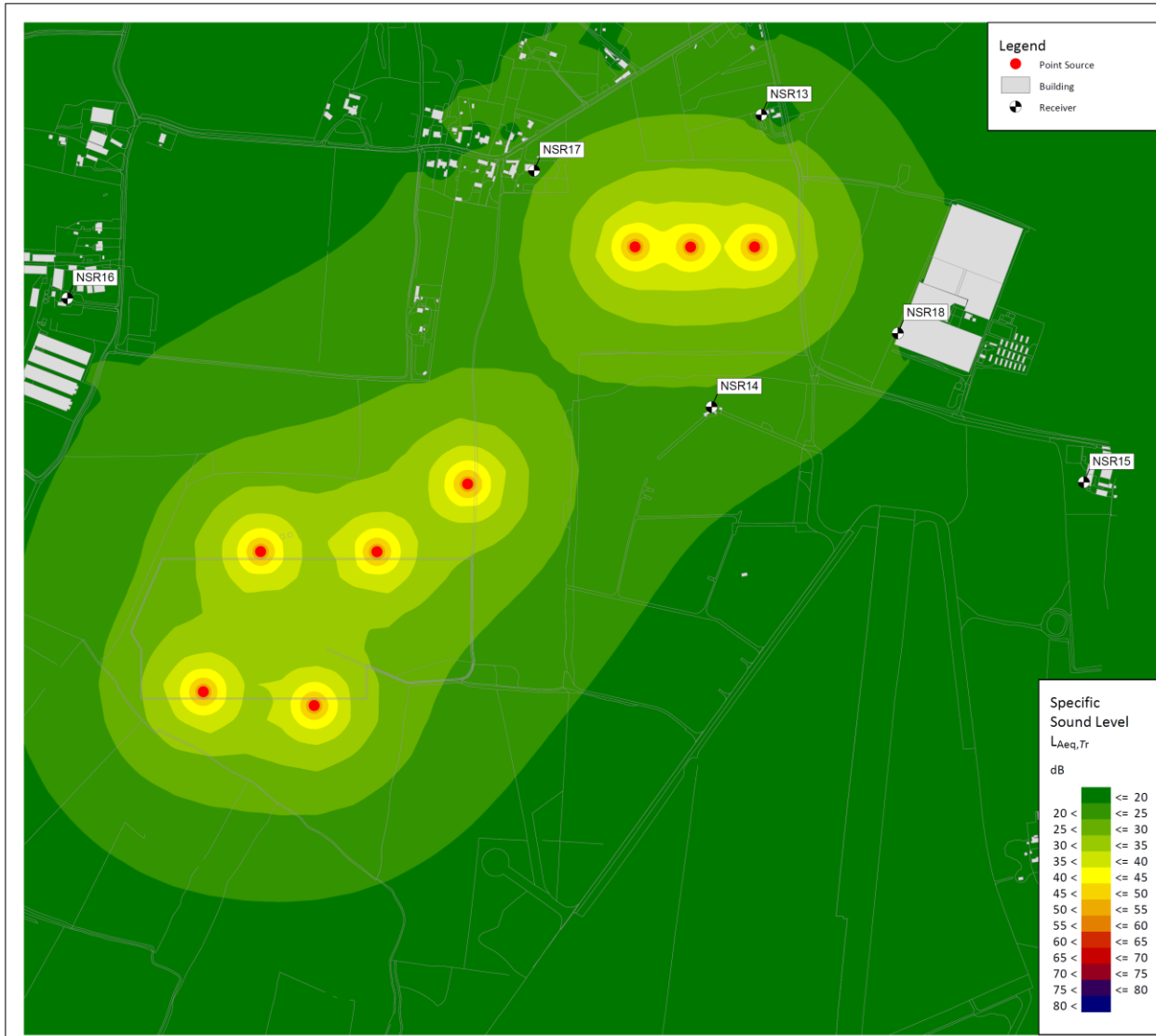
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ES: Chapter 12
Appendix 12.2 - Figure 12
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Group 3
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1

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ES: Chapter 12
Appendix 12.2 - Figure 13
Operational Noise Contours
Early Morning, With Additional Mitigation
Parcel Group 3
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1

Figure not to scale. Do not scale.

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ES: Chapter 12
Appendix 12.2 - Figure 14
Operational Noise Contours
Night-time, Without Mitigation
Parcel Group 3

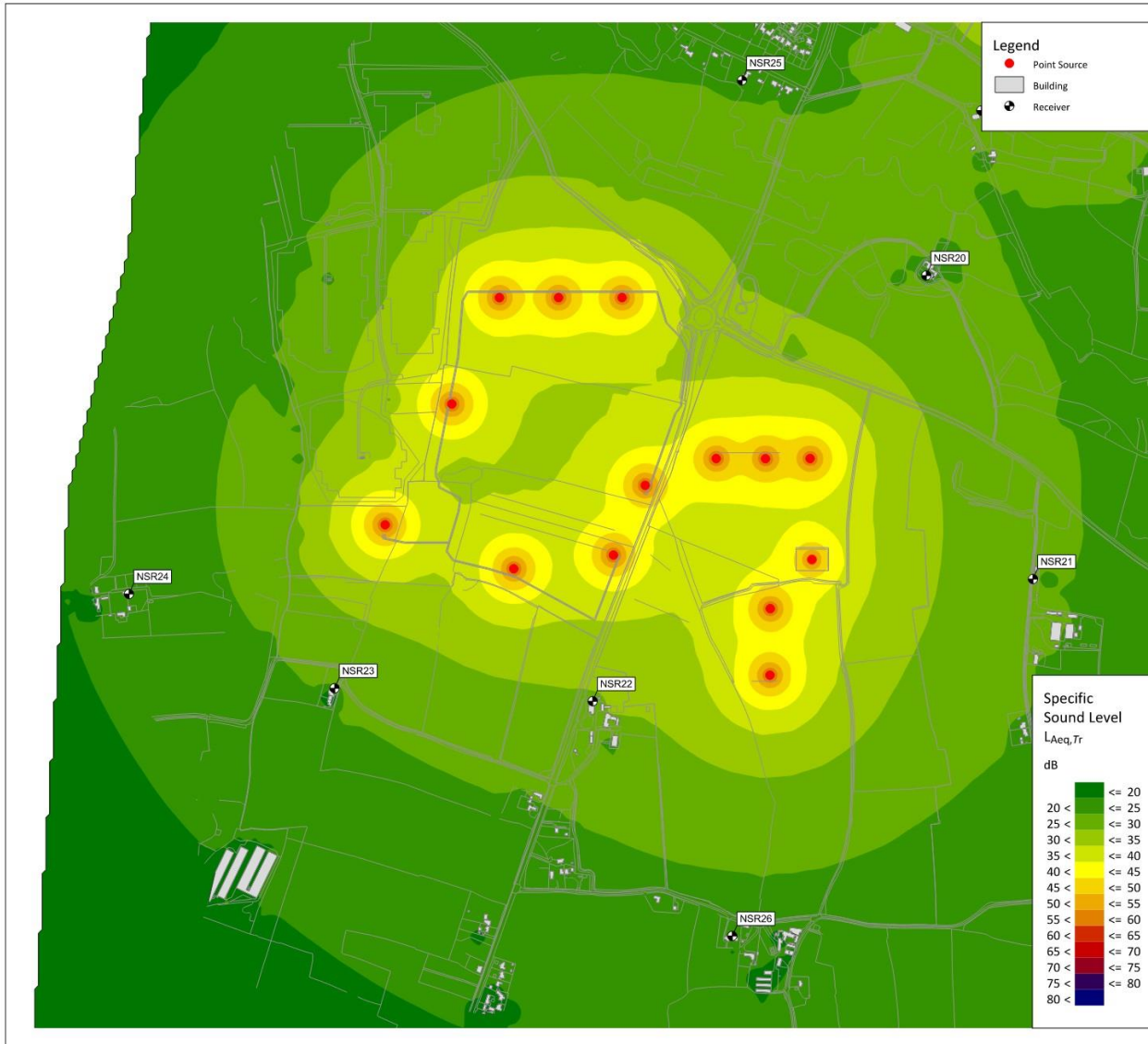
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 15
Operational Noise Contours
Daytime, Without Mitigation
Parcel Group 4

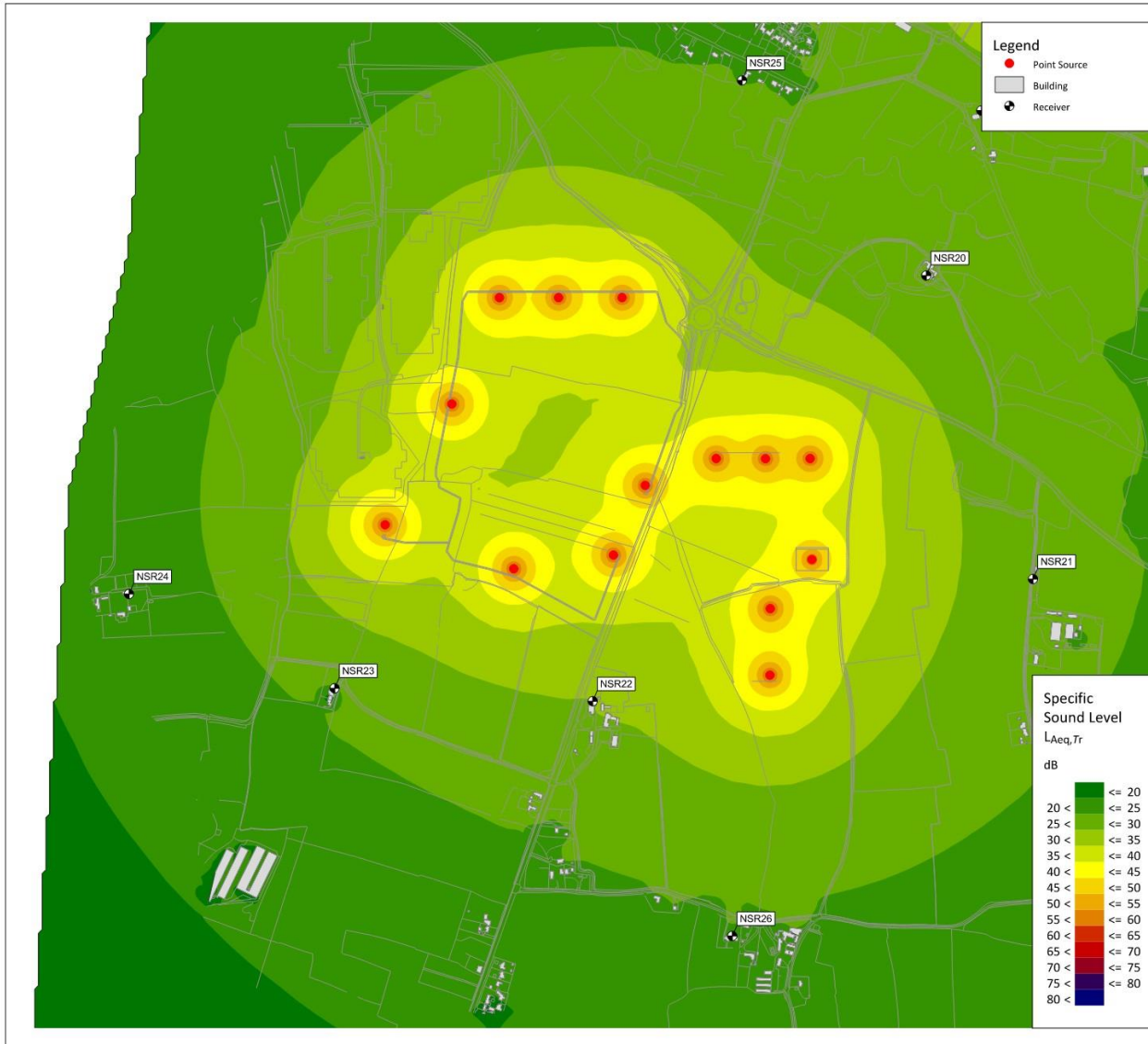
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 16
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Group 4

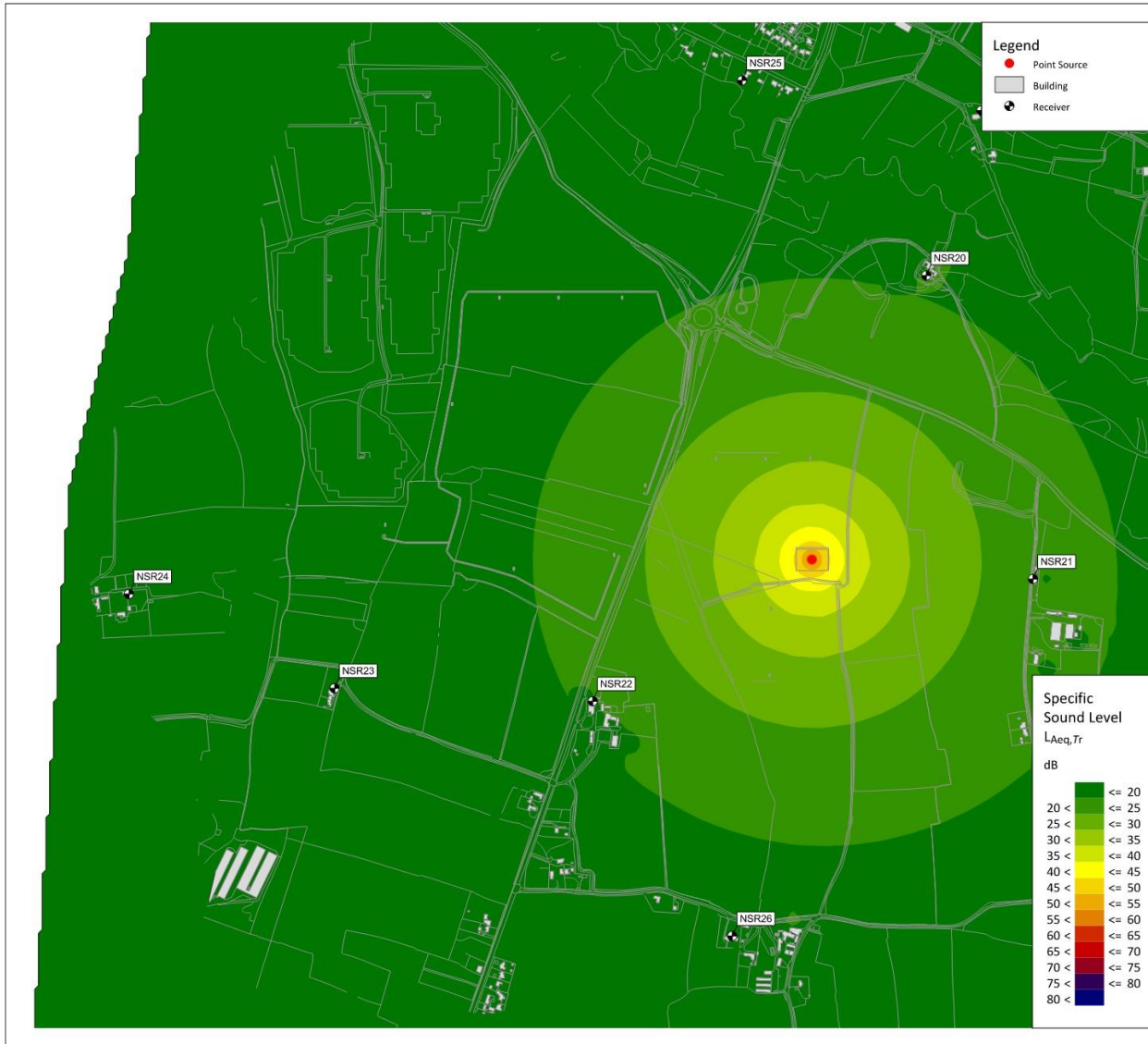
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 17
Operational Noise Contours
Night-time, Without Mitigation
Parcel Group 4

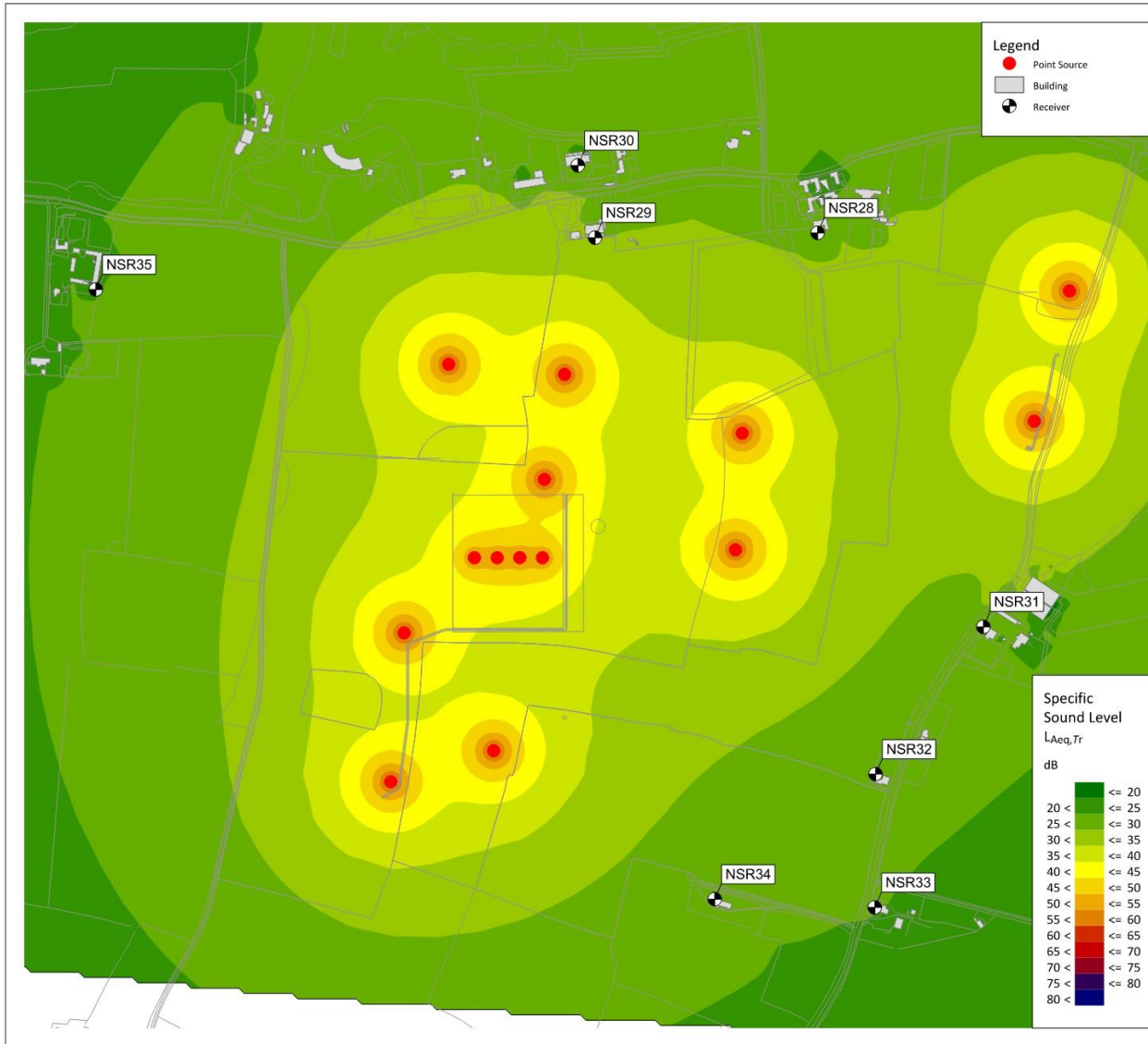
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 18
Operational Noise Contours
Daytime, Without Mitigation
Parcel Group 5

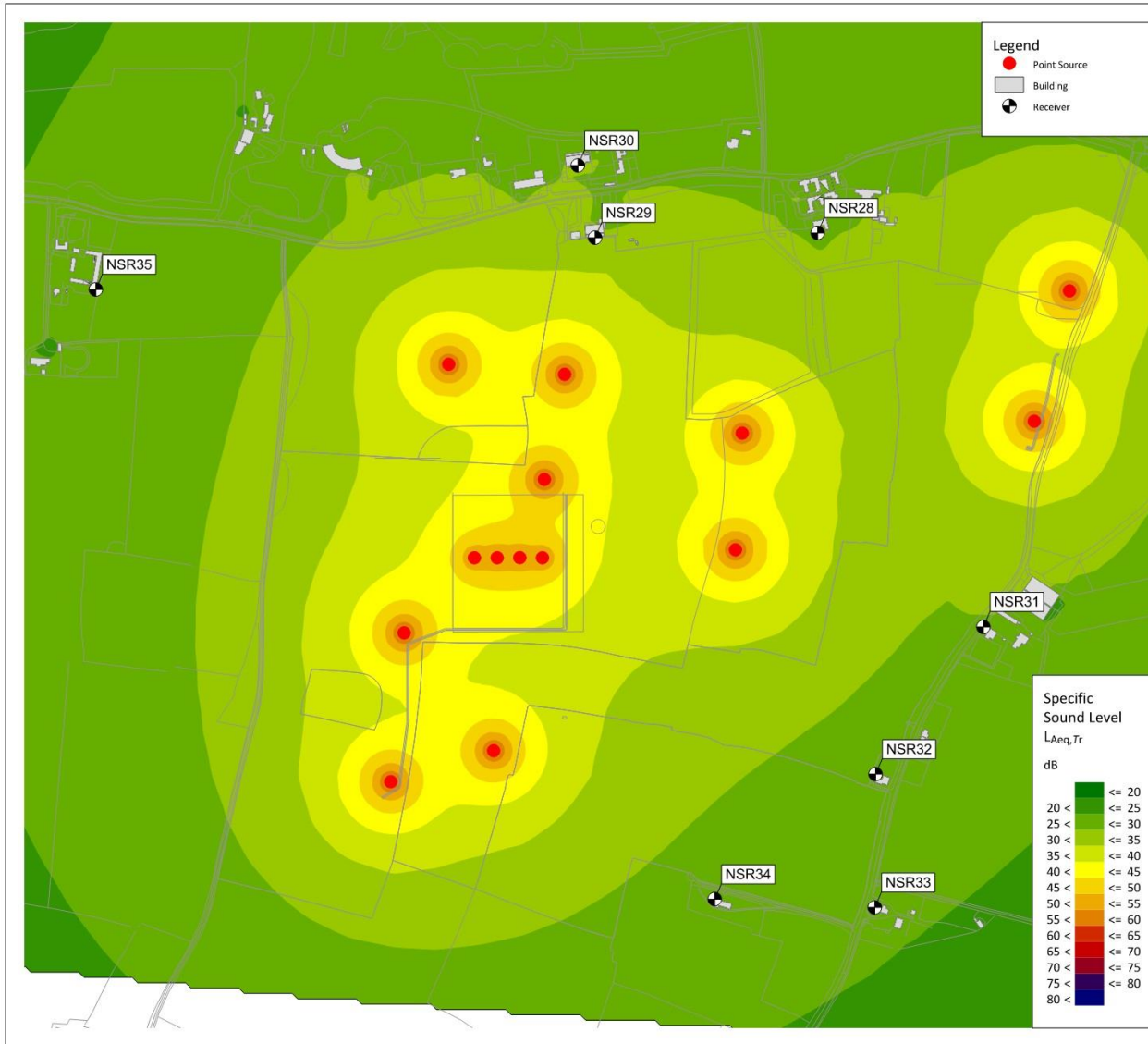
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 19
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Group 5

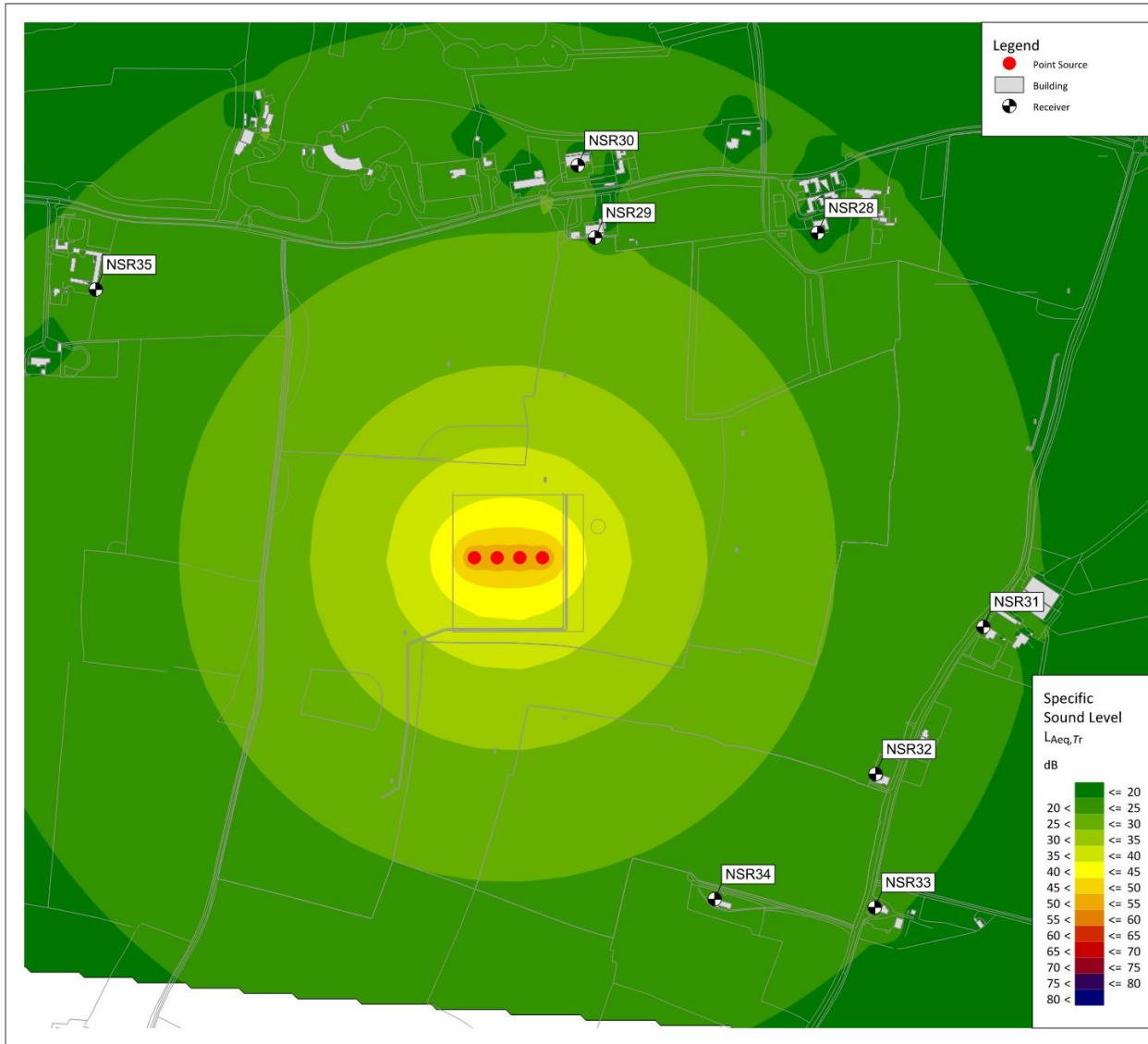
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 20
Operational Noise Contours
Night-time, Without Mitigation
Parcel Group 5

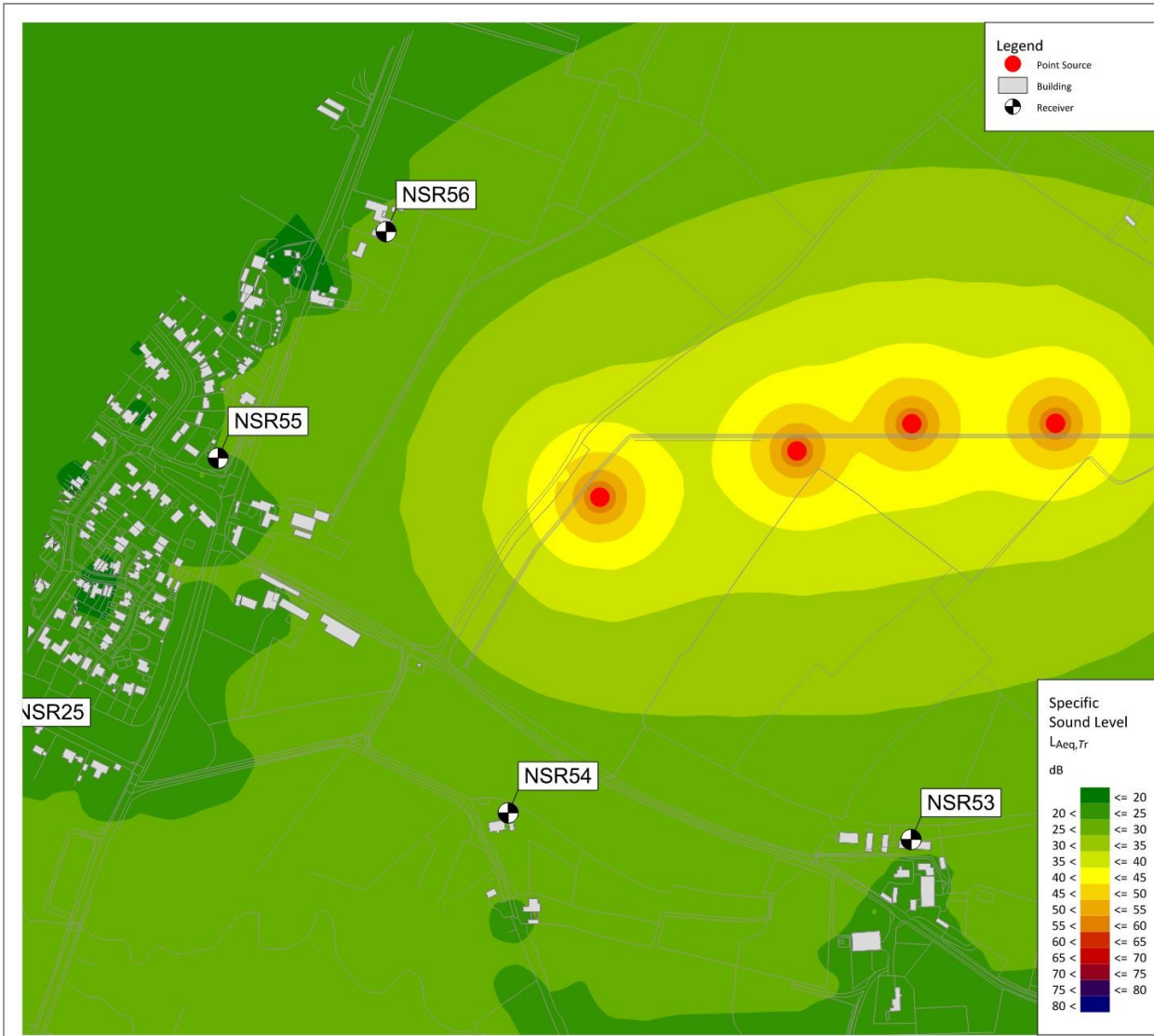
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 21
Operational Noise Contours
Daytime, Without Mitigation
Parcel Group 7A

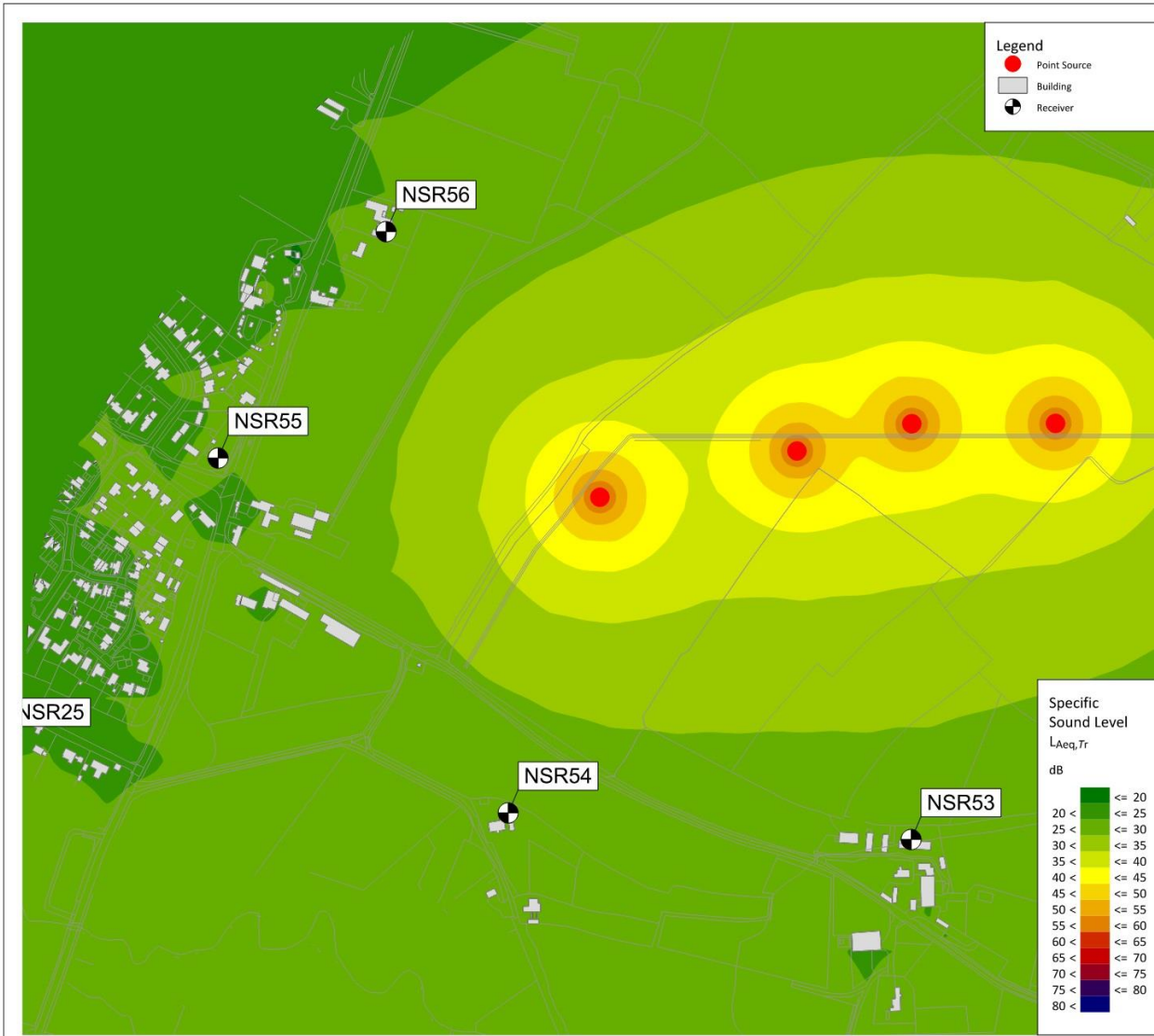
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 22
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Group 7A

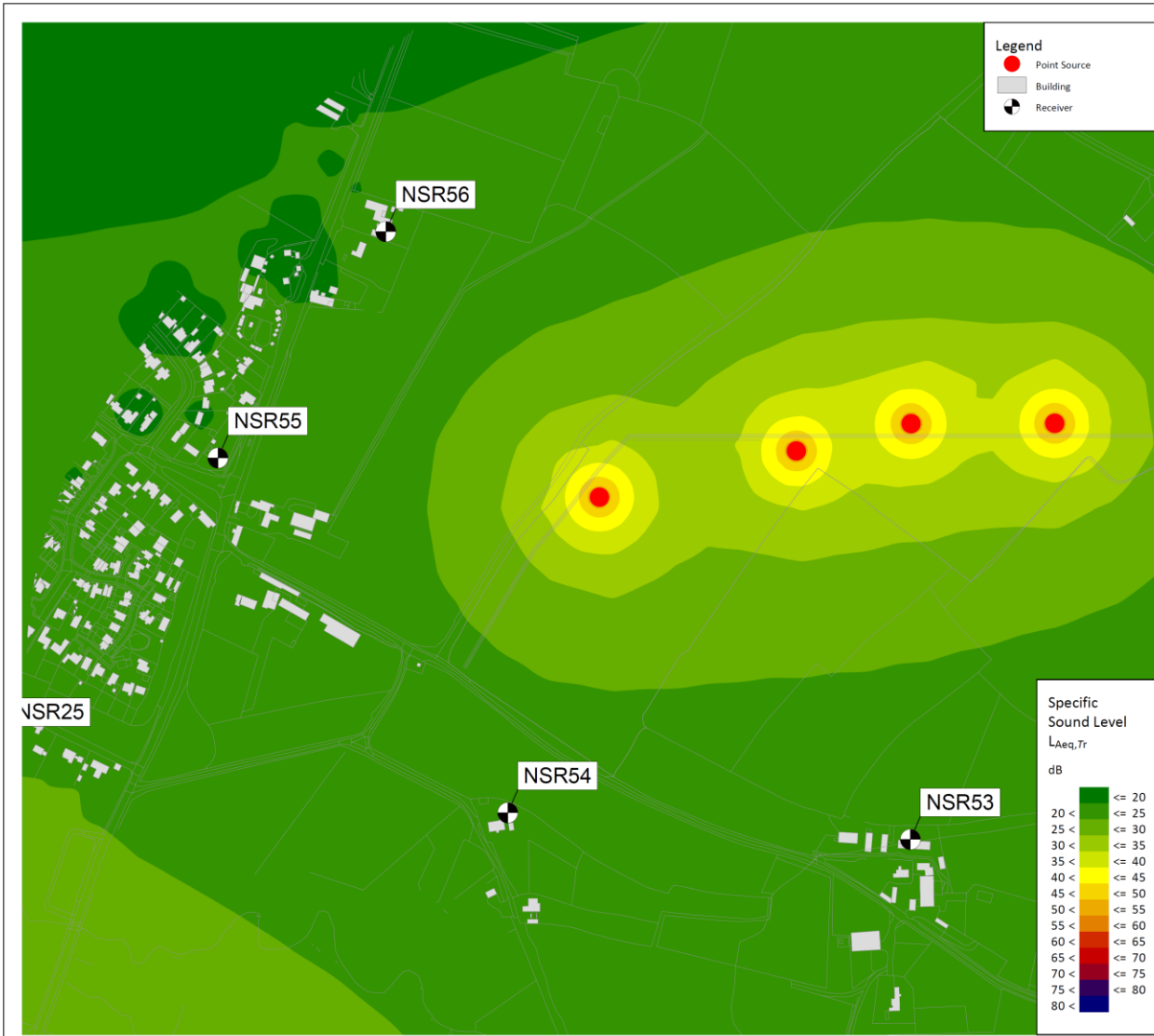
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 23
Operational Noise Contours
Early Morning, With Additional Mitigation
Parcel Group 7A
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 24
Operational Noise Contours
Night-time, Without Mitigation
Parcel Group 7A

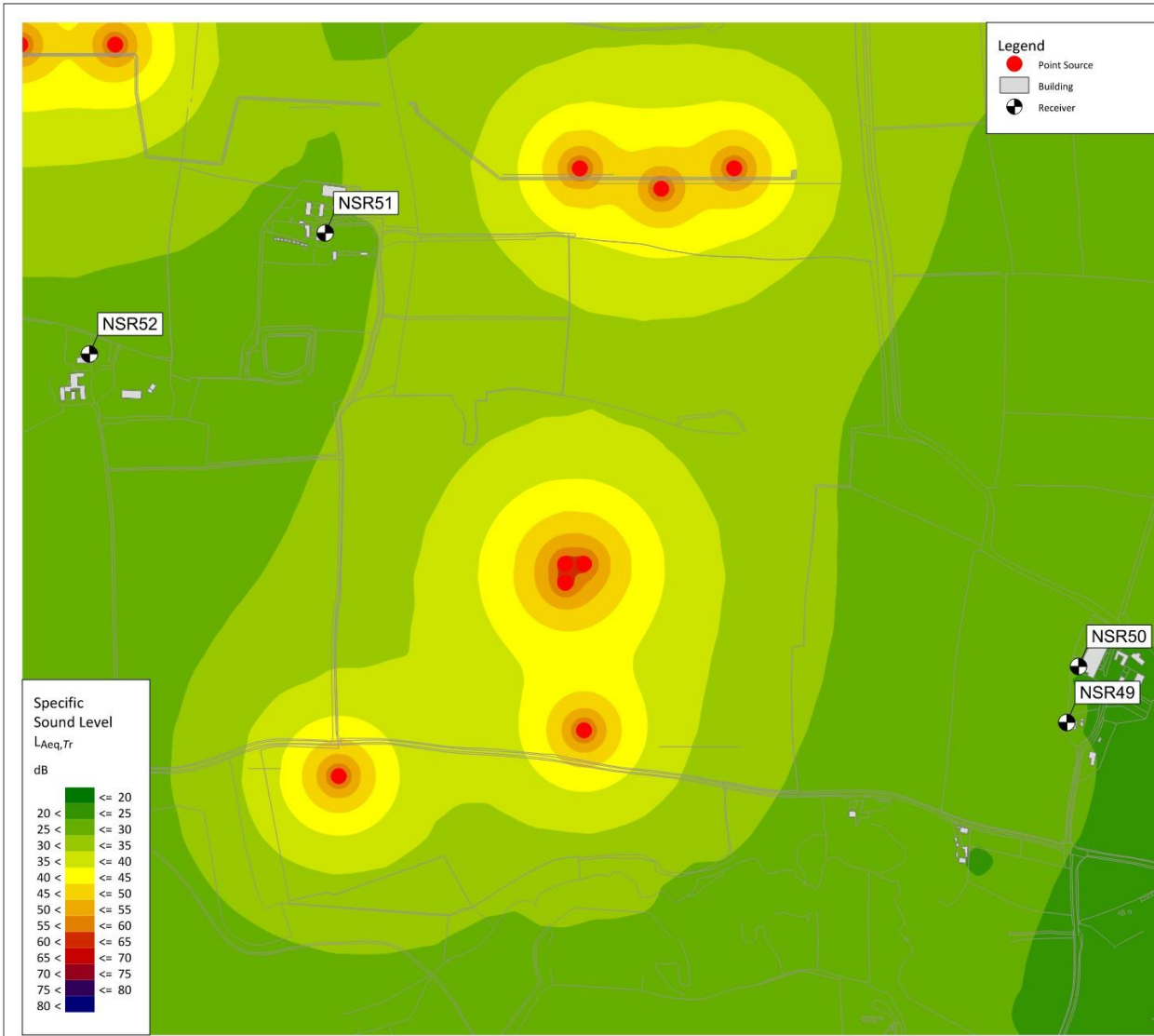
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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**ES: Chapter 12
 Appendix 12.2 - Figure 25
 Operational Noise Contours
 Daytime, Without Mitigation
 Parcel Groups 7B and 7C**

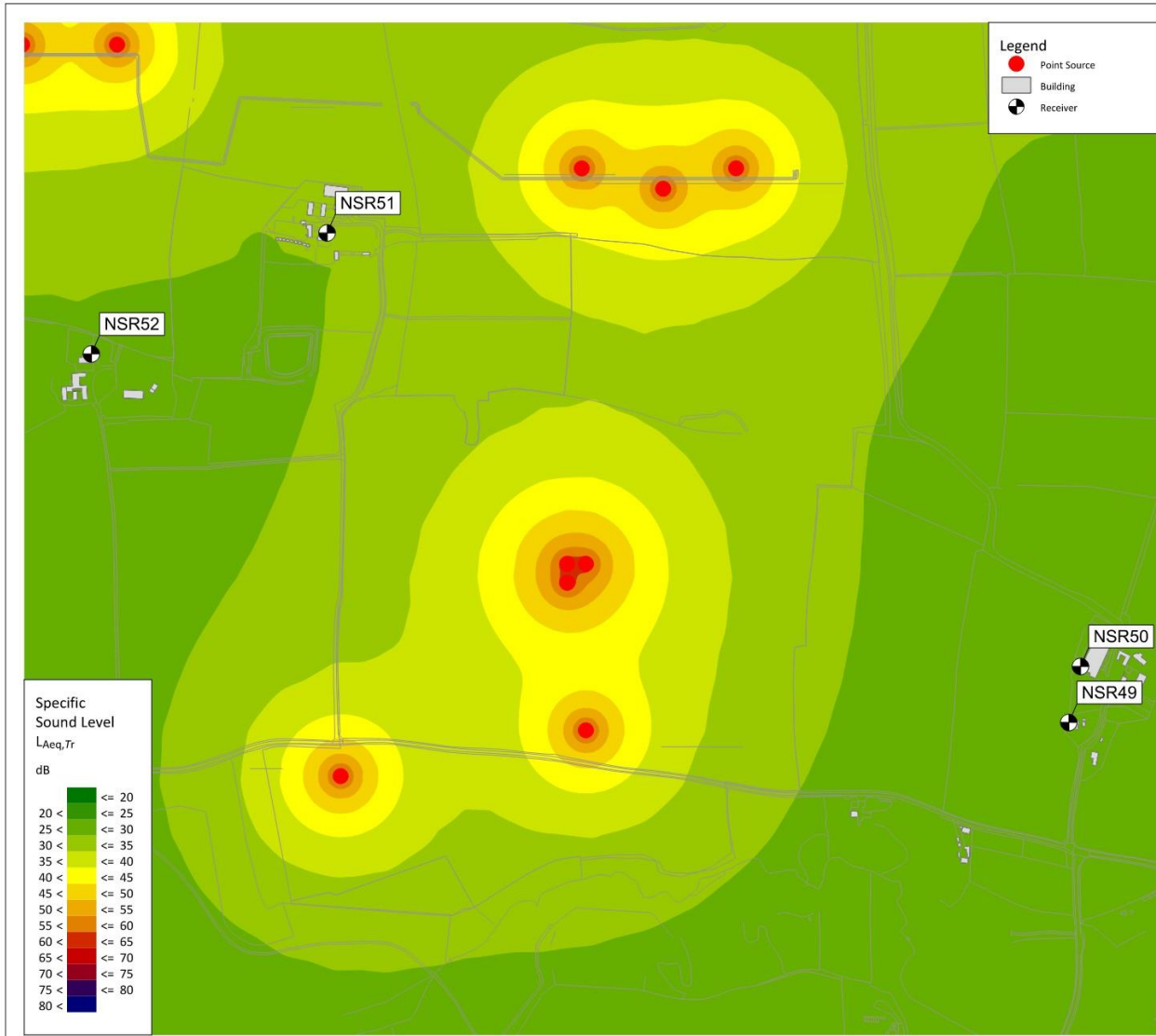
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 26
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Groups 7B and 7C

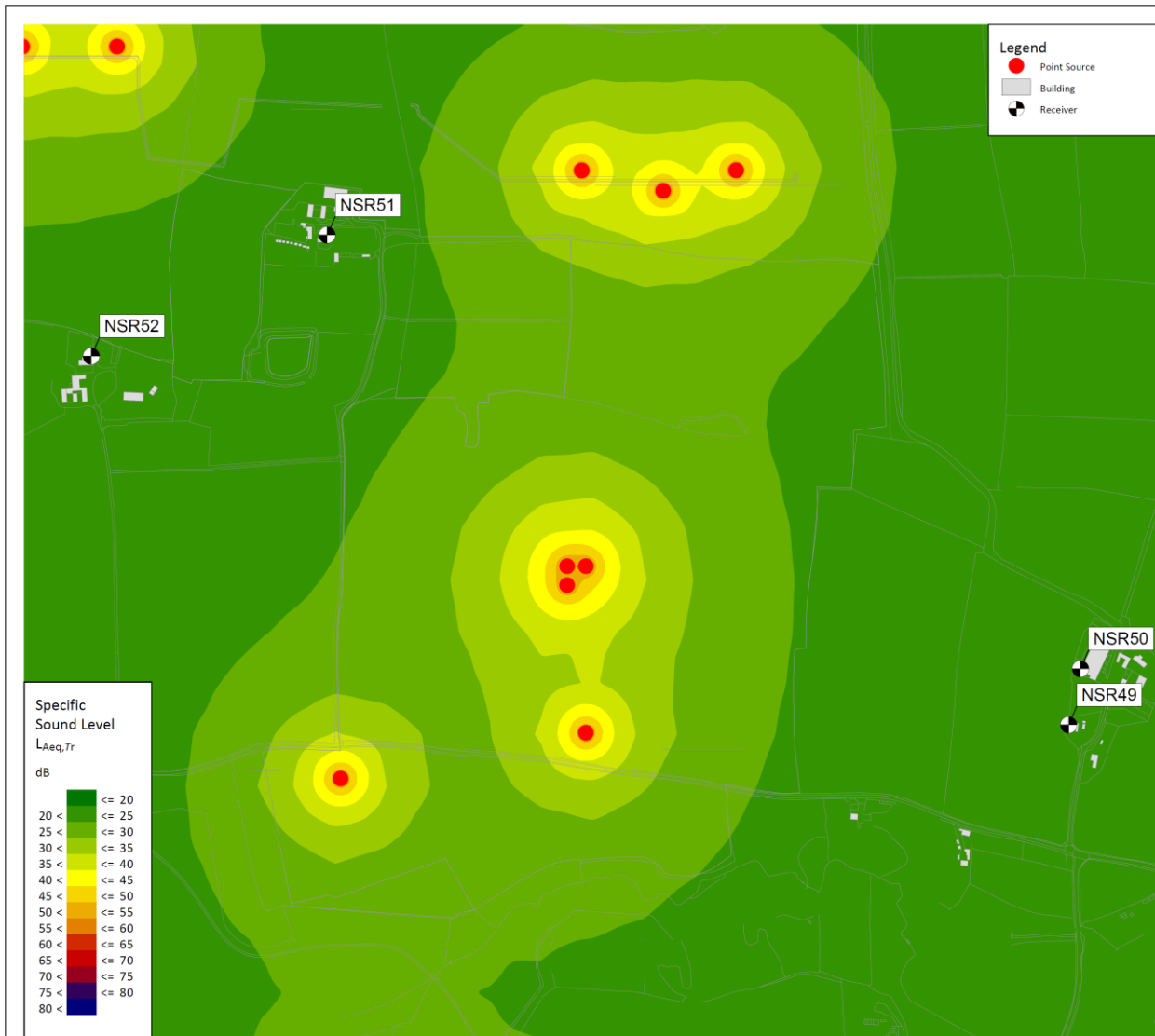
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 27
Operational Noise Contours
Early Morning, With Additional
Mitigation
Parcel Groups 7B and 7C

Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1

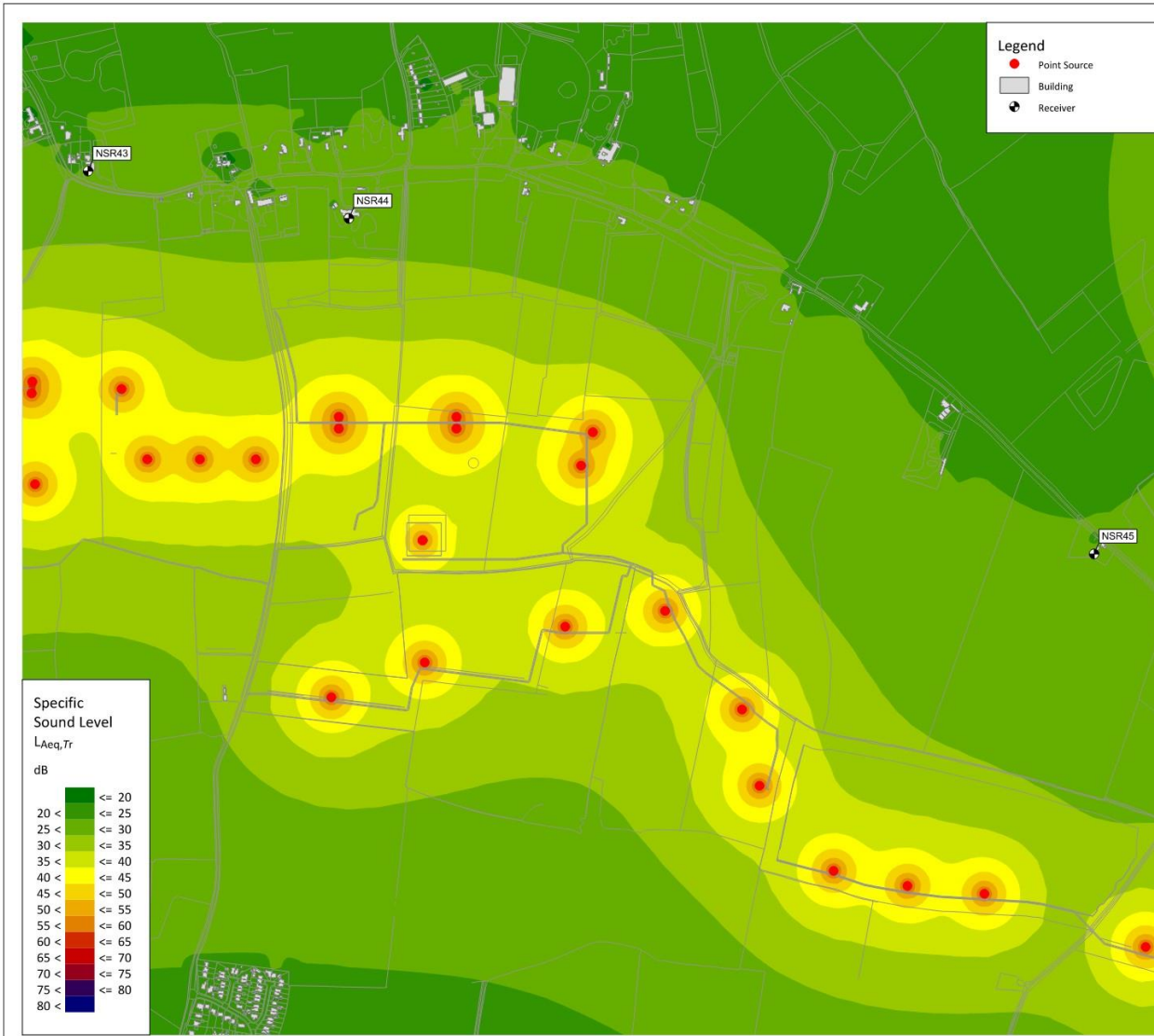


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ES: Chapter 12
Appendix 12.2 - Figure 29
Operational Noise Contours
Daytime, Without Mitigation
Parcel Groups 7D to 7H

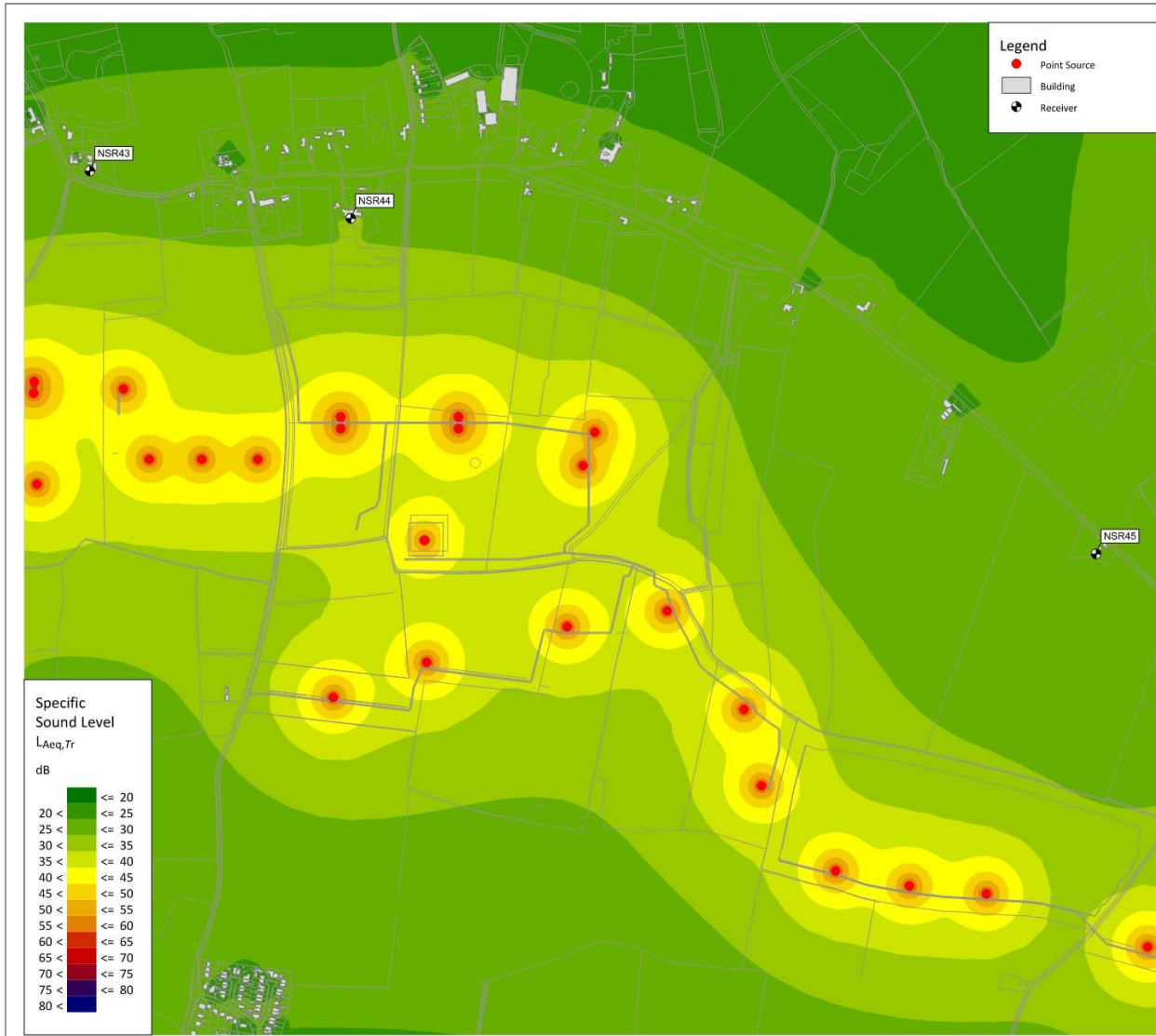
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



Figure not to scale. Do not scale.

<https://www.stantec.com/uk>





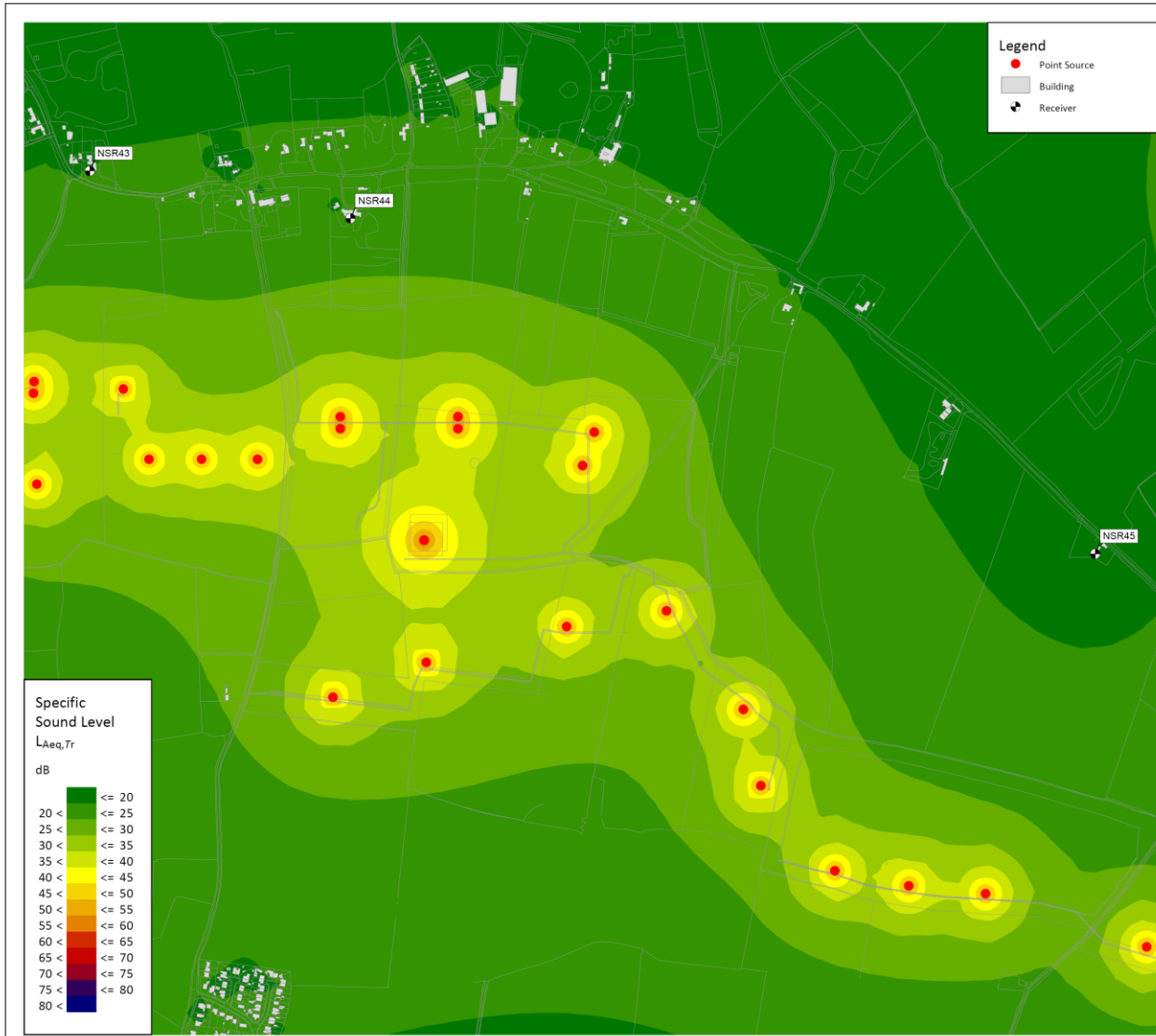
This figure has been prepared by Stantec UK Limited ("Stantec") on behalf of its client to whom this figure is addressed ("Client") in connection with the project described and takes into account the Client's particular instructions and requirements. This figure was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This figure is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this figure.

ES: Chapter 12
Appendix 12.2 - Figure 30
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Groups 7D to 7H
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1

 Figure not to scale. Do not scale.

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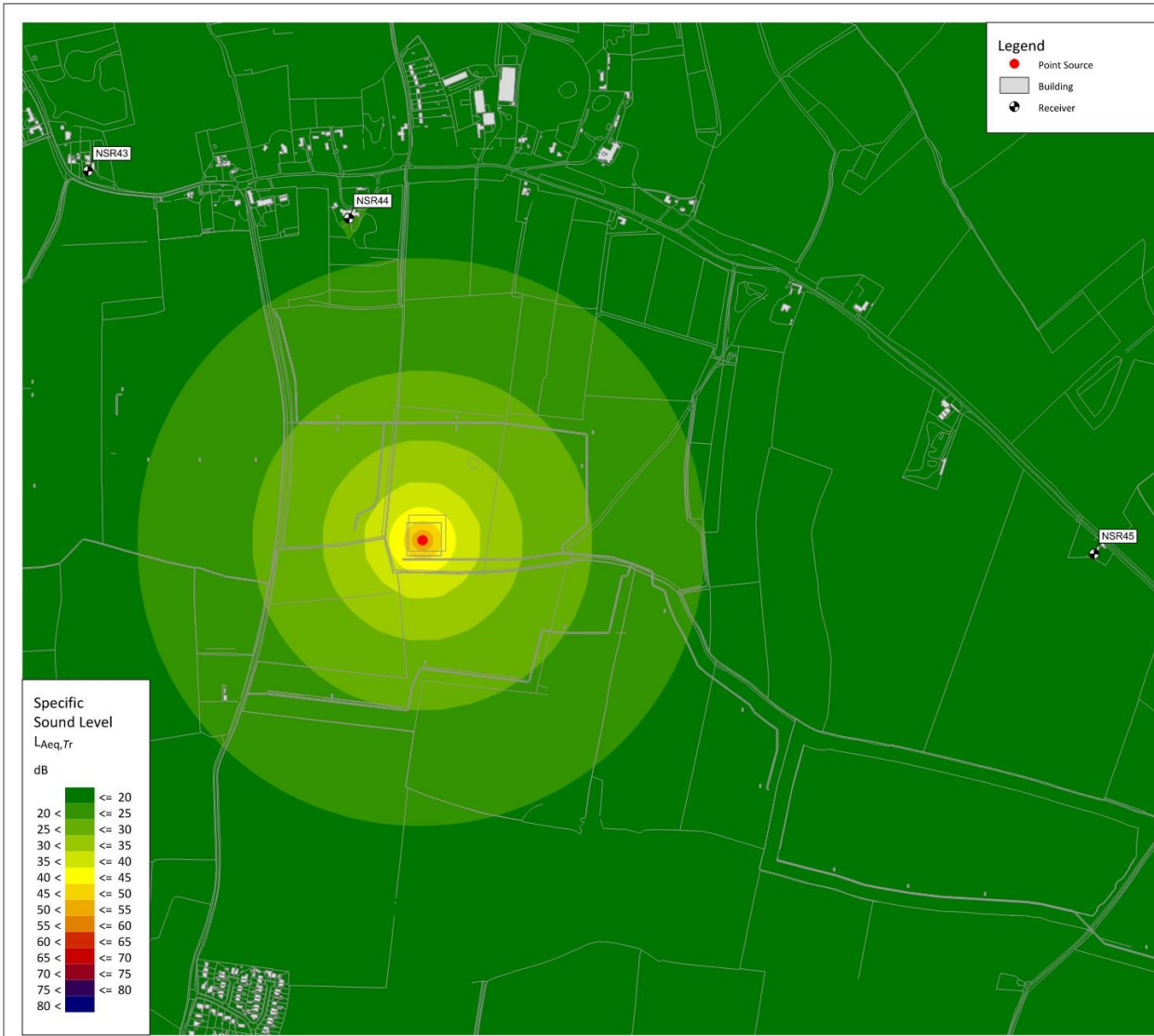
ES: Chapter 12
Appendix 12.2 - Figure 31
Operational Noise Contours
Early Morning, With Additional
Mitigation
Parcel Groups 7D to 7H
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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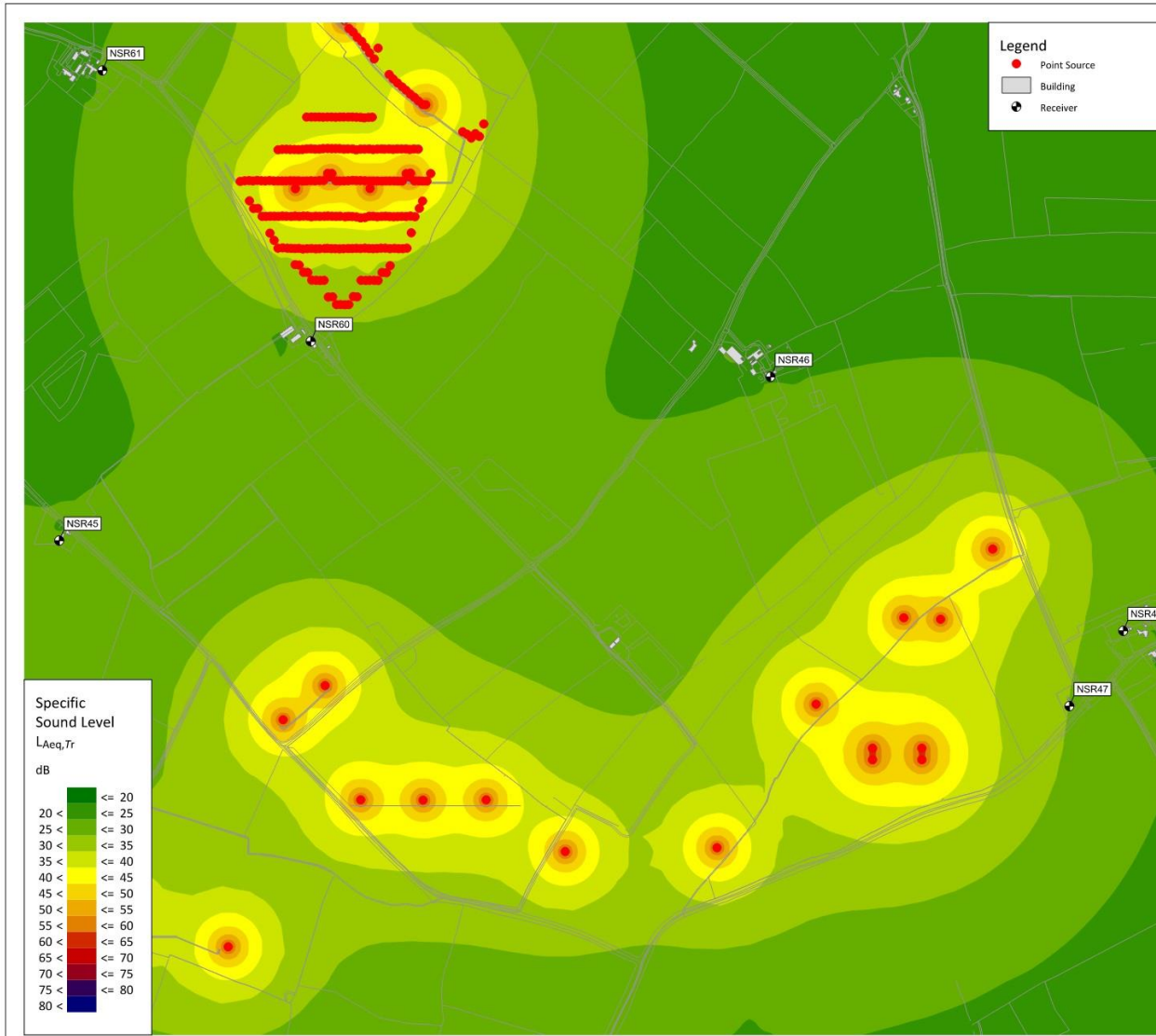
ES: Chapter 12
Appendix 12.2 - Figure 32
Operational Noise Contours
Night-time, Without Mitigation
Parcel Groups 7D to 7H
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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**ES: Chapter 12
 Appendix 12.2 - Figure 33
 Operational Noise Contours
 Daytime, Without Mitigation
 Parcel Groups 7I to 7L**

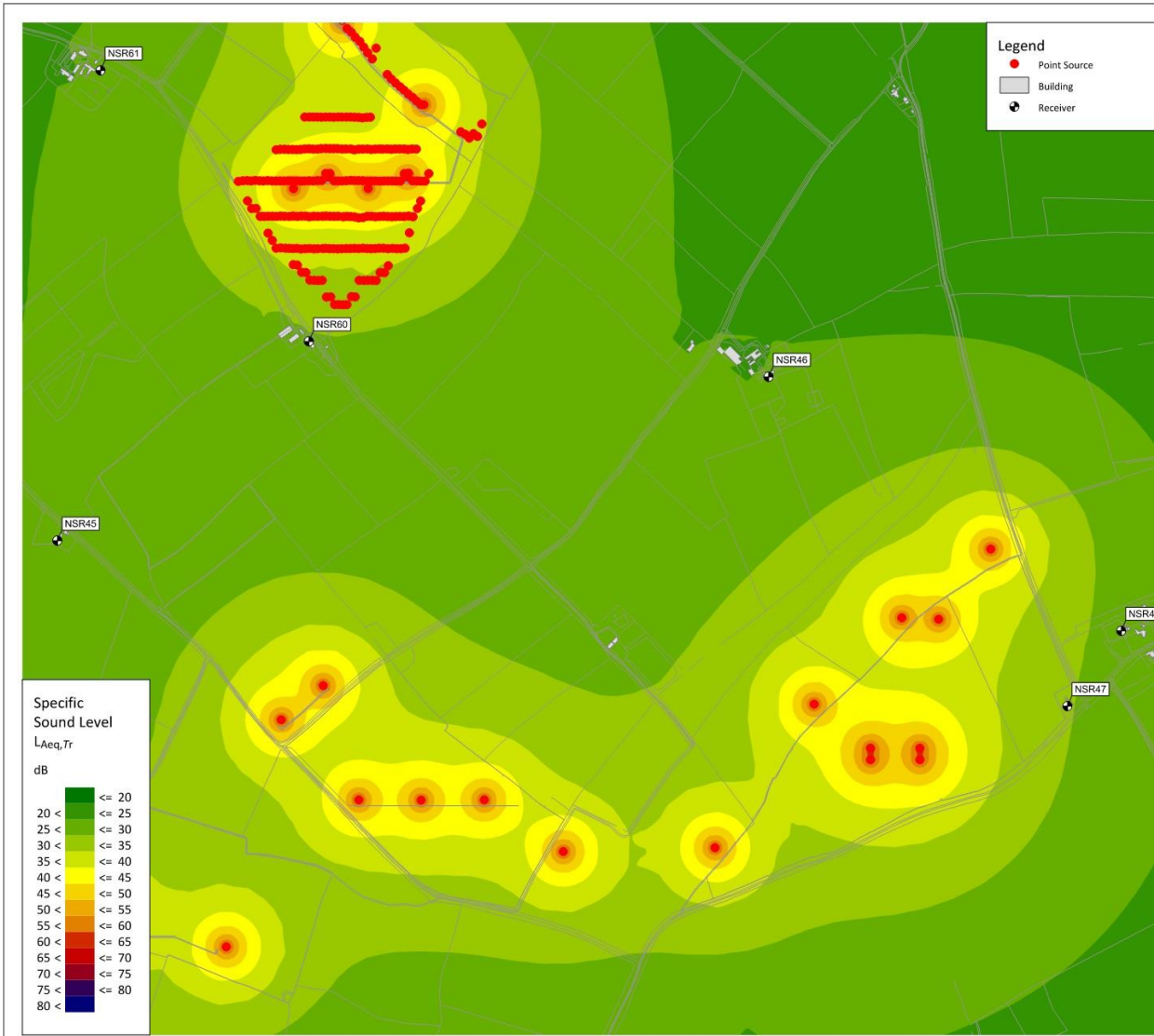
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



Figure not to scale. Do not scale.

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**ES: Chapter 12
 Appendix 12.2 - Figure 34
 Operational Noise Contours
 Early Morning, Without Mitigation
 Parcel Groups 7I to 7L**

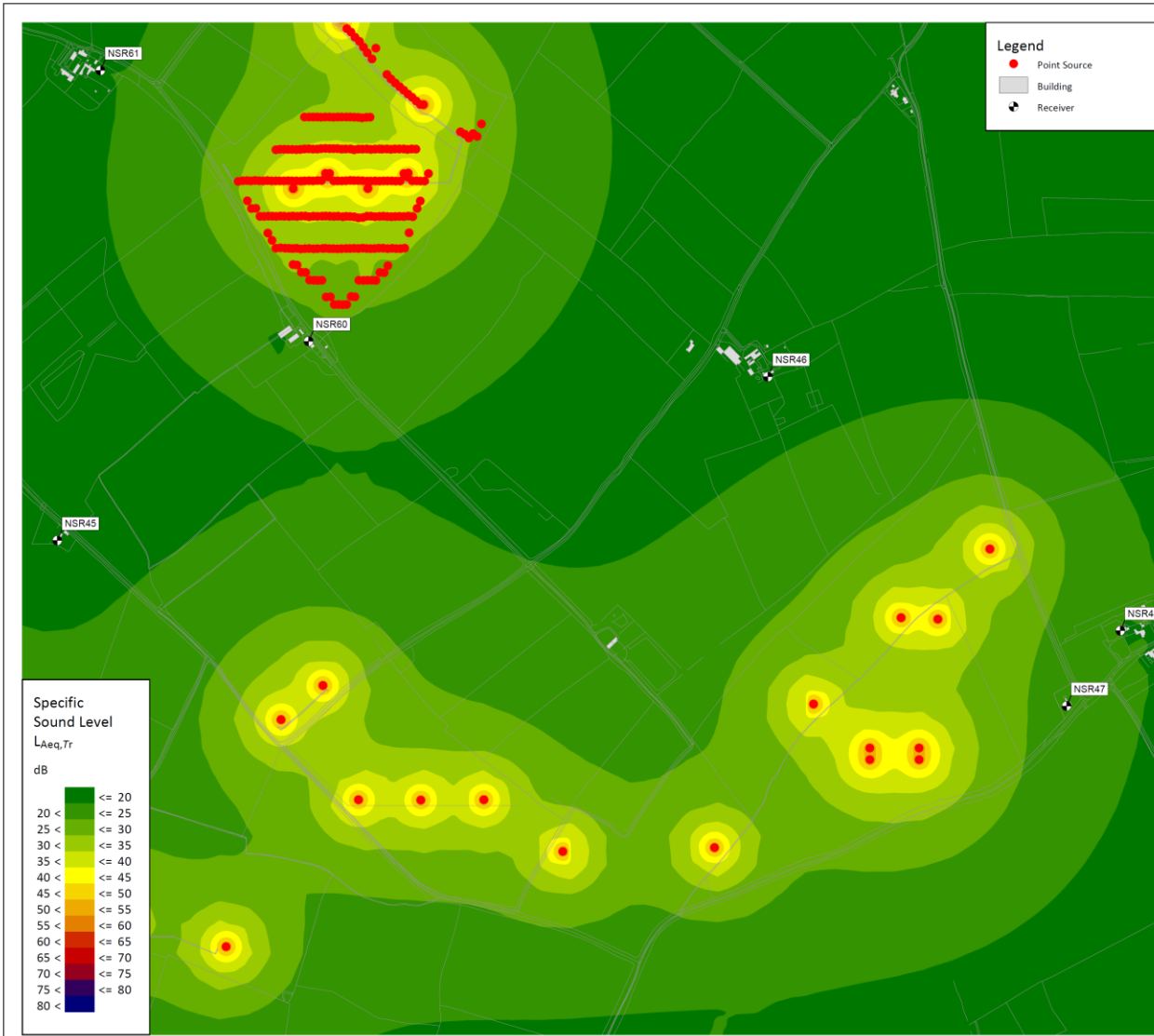
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



Figure not to scale. Do not scale.

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**ES: Chapter 12
Appendix 12.2 - Figure 35
Operational Noise Contours
Early Morning, With Additional
Mitigation
Parcel Groups 7I to 7L**

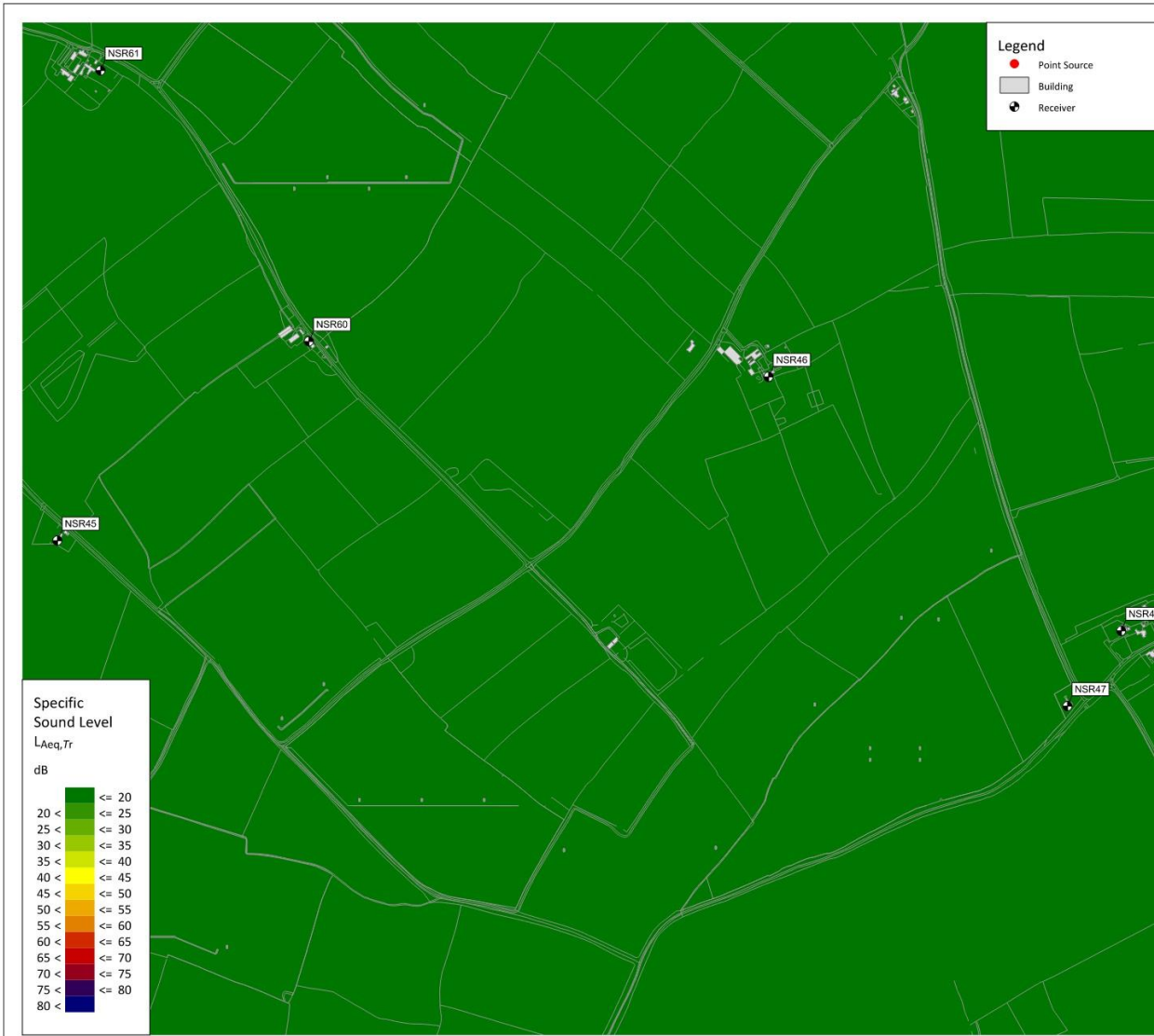
Project: East Pye Solar
Project Number: 333101211
Project Engineer: LW, GW
Calculation at 4 m above ground
Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 36
Operational Noise Contours
Night-time, Without Mitigation
Parcel Groups 7I to 7L

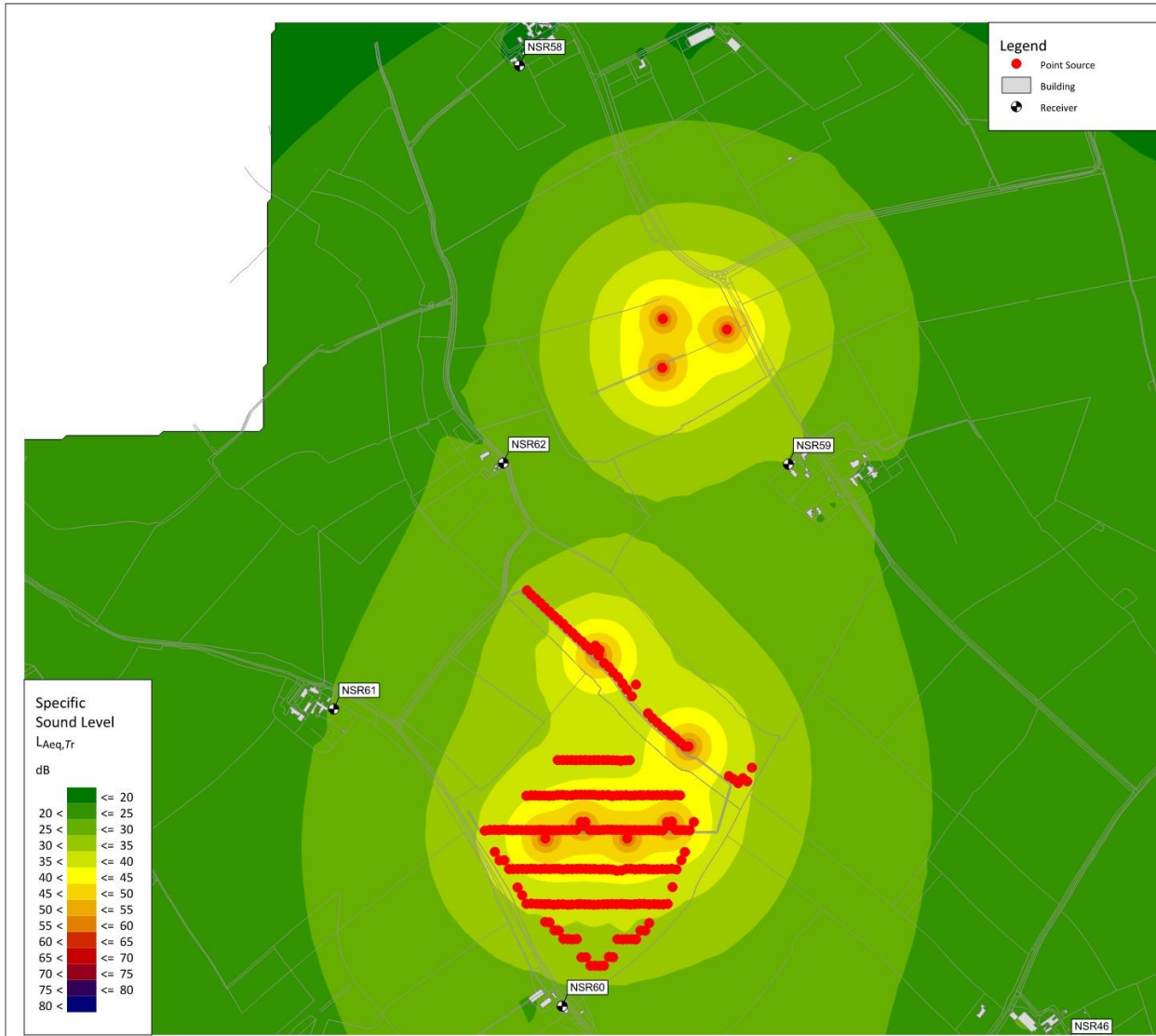
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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**ES: Chapter 12
Appendix 12.2 - Figure 37
Operational Noise Contours
Daytime, Without Mitigation
Parcel Group 8**

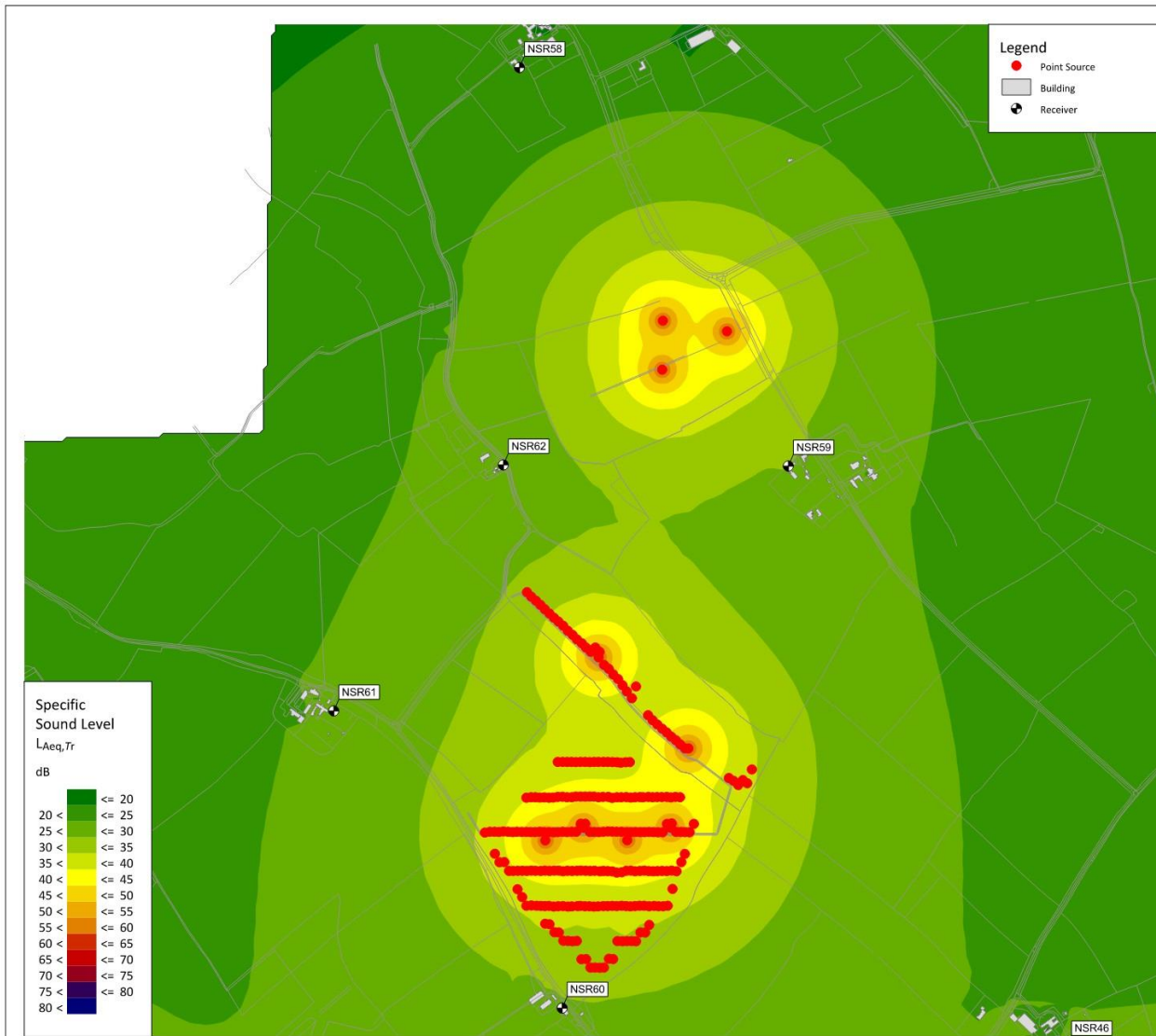
Project: East Pye Solar
Project Number: 333101211
Project Engineer: LW, GW
Calculation at 1.5 m above ground
Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 38
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Group 8

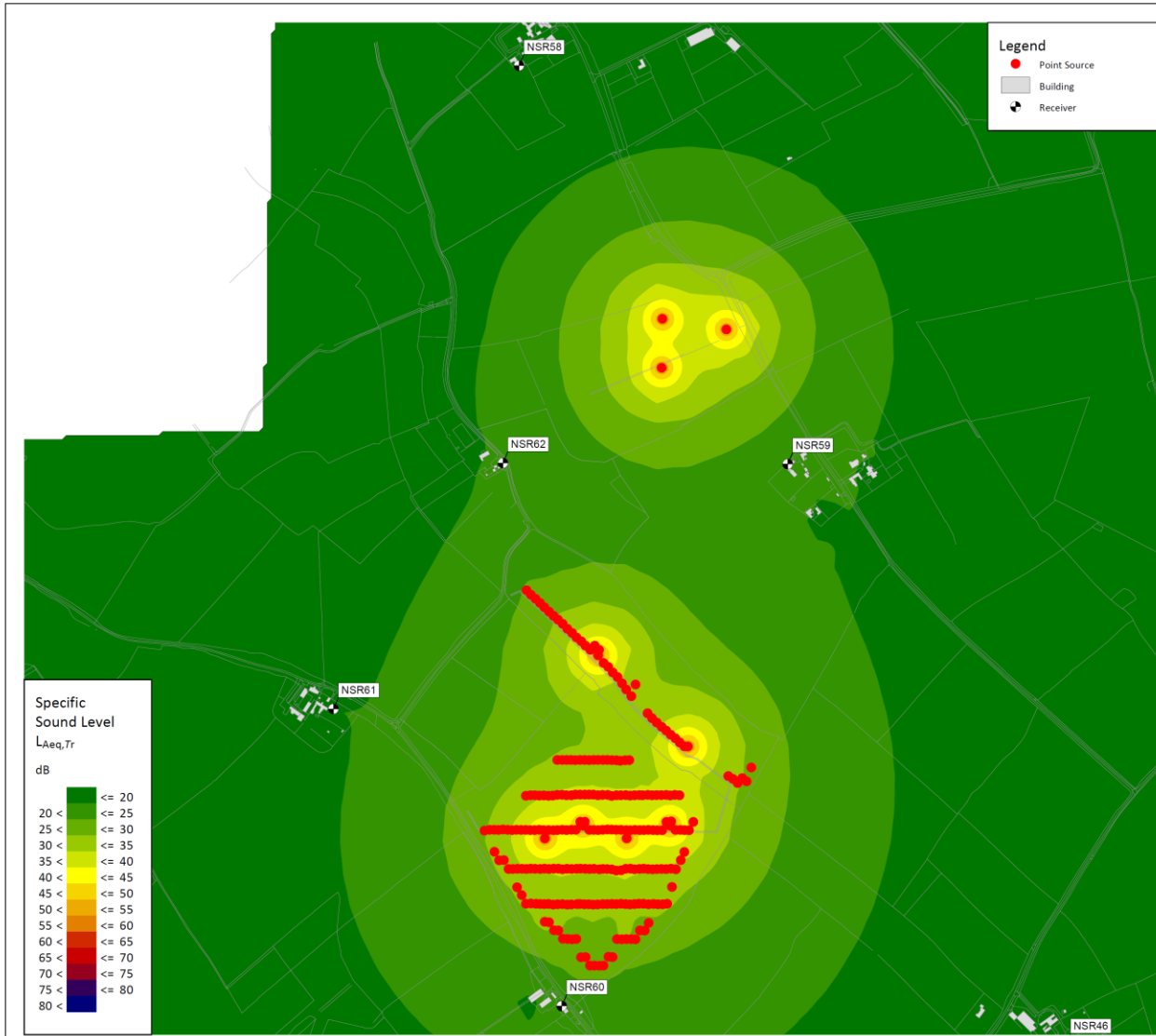
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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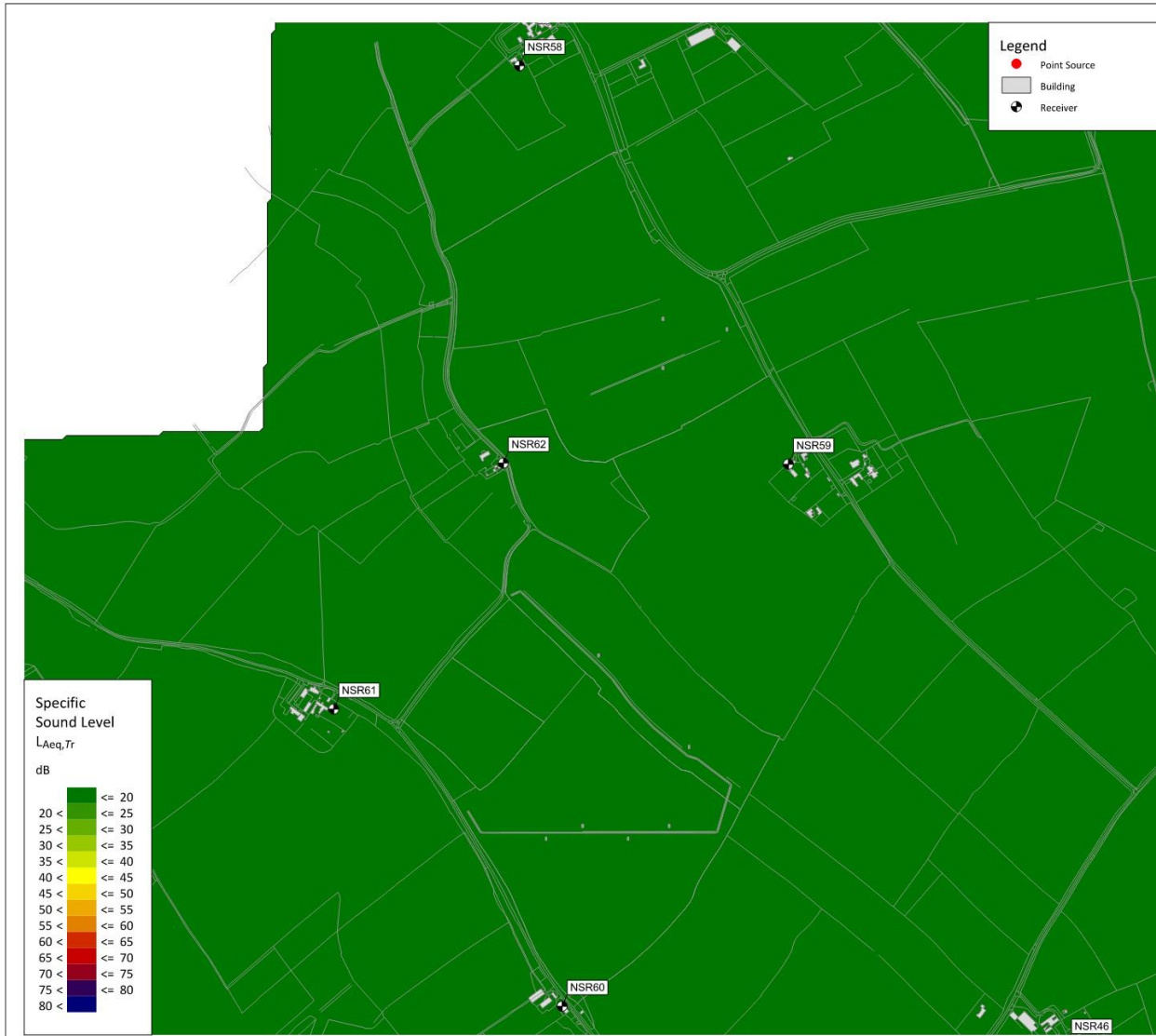
ES: Chapter 12
Appendix 12.2 - Figure 39
Operational Noise Contours
Early Morning, With Additional Mitigation
Parcel Group 8
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 40
Operational Noise Contours
Night-time, Without Mitigation
Parcel Group 8

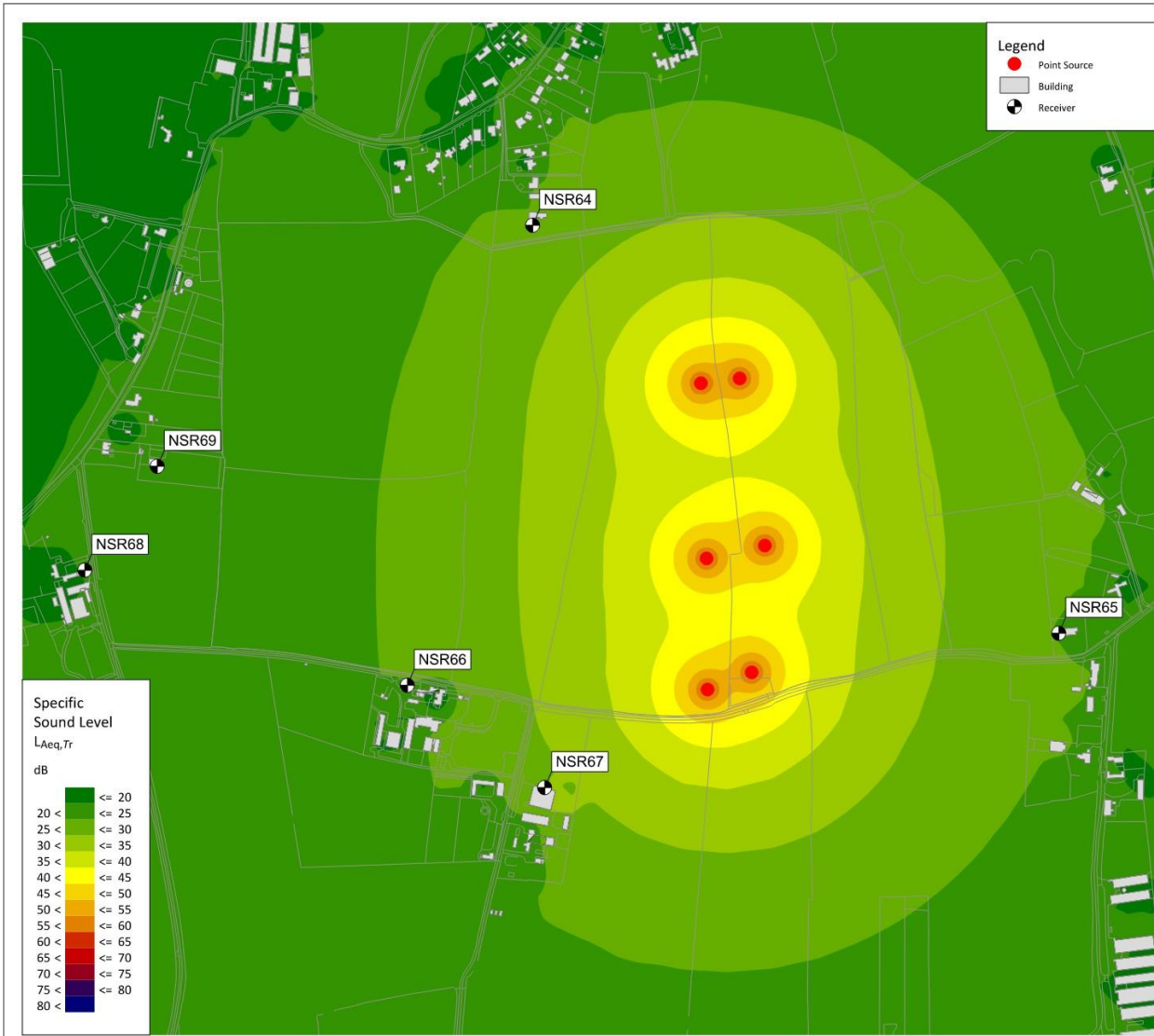
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 41
Operational Noise Contours
Daytime, Without Mitigation
Parcel Group 9

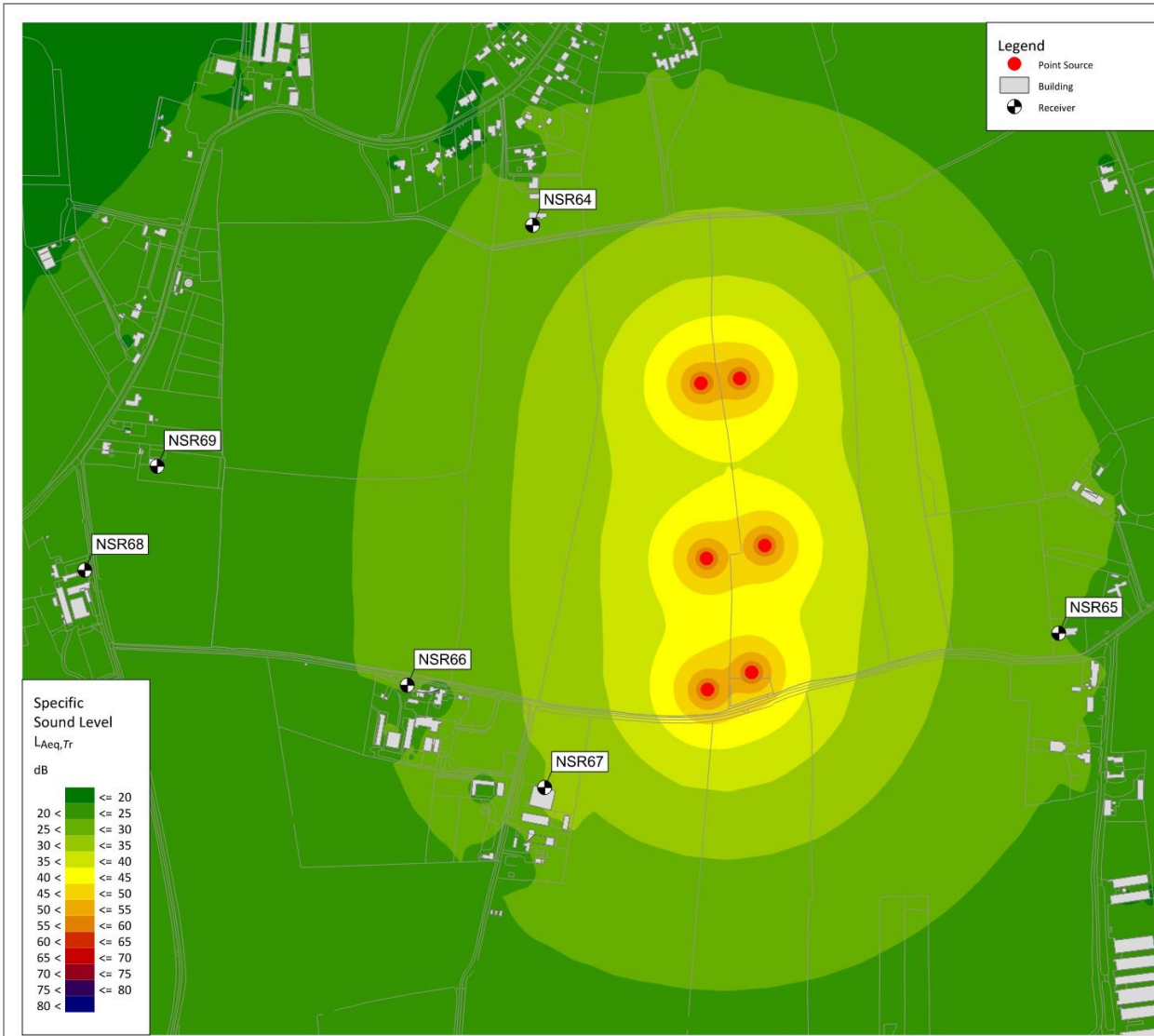
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 42
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Group 9

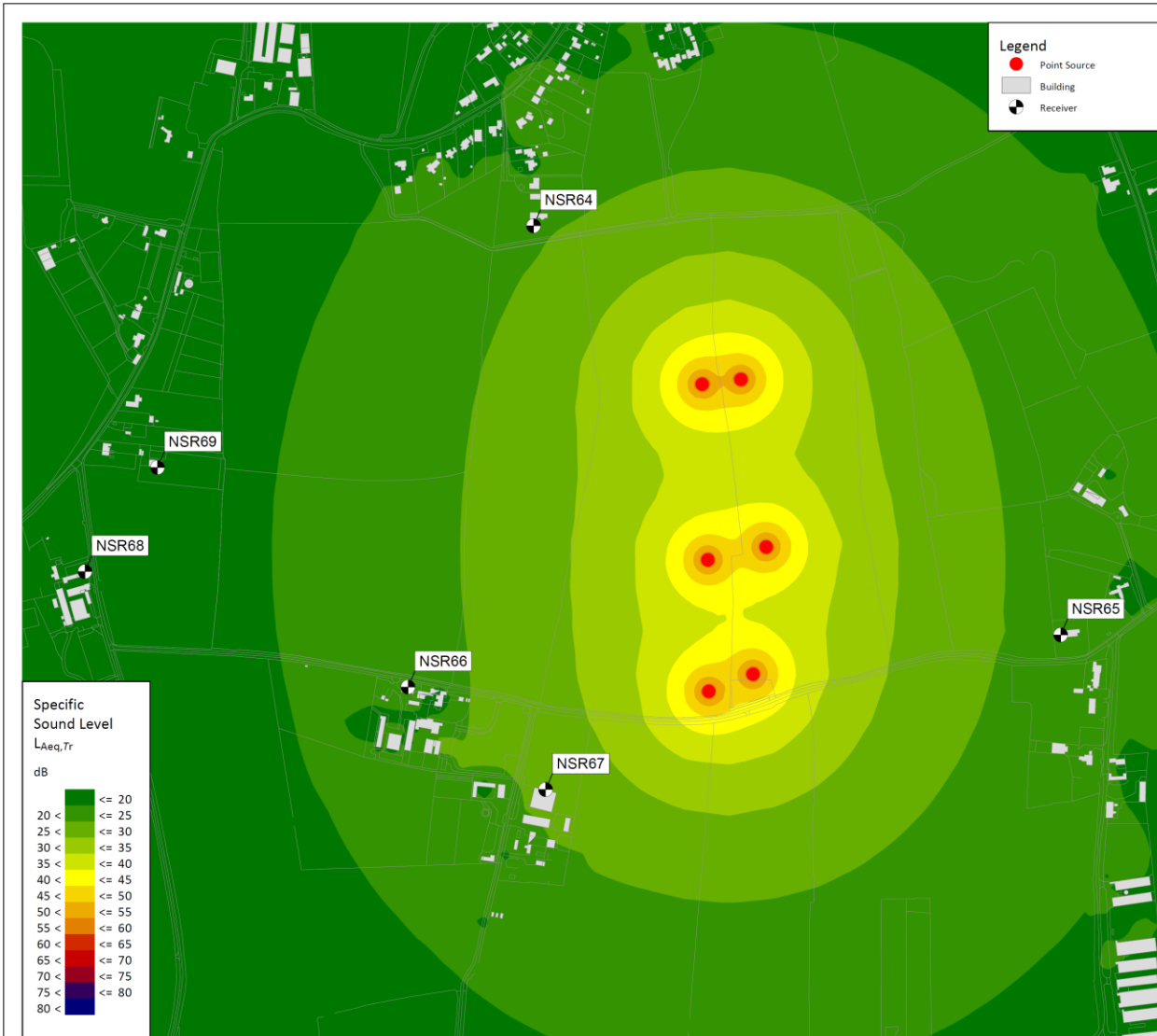
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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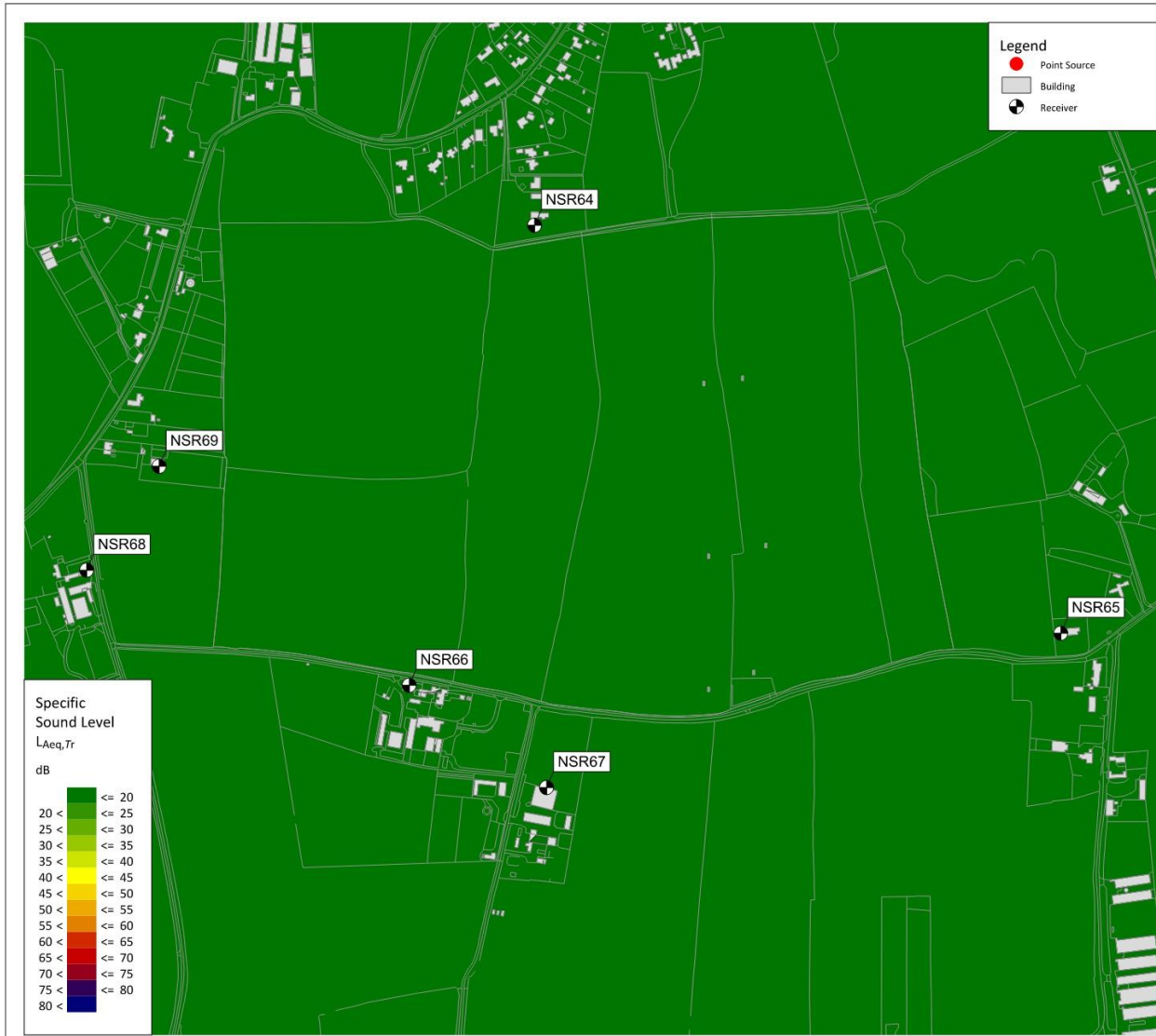
ES: Chapter 12
Appendix 12.2 - Figure 43
Operational Noise Contours
Early Morning, With Additional
Mitigation
Parcel Group 9
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 44
Operational Noise Contours
Night-time, Without Mitigation
Parcel Group 9

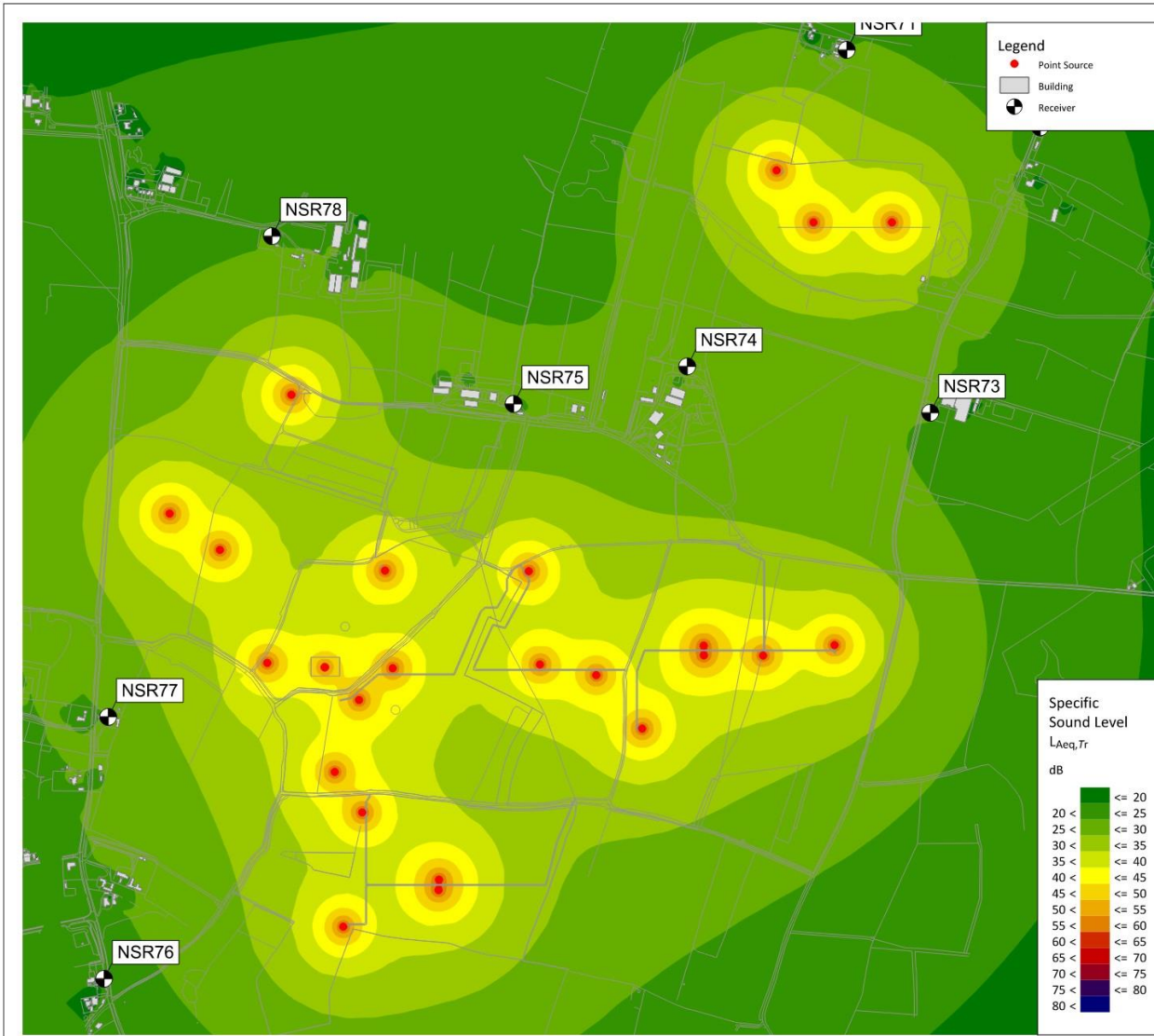
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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**ES: Chapter 12
 Appendix 12.2 - Figure 45
 Operational Noise Contours
 Daytime, Without Mitigation
 Parcel Group 10**

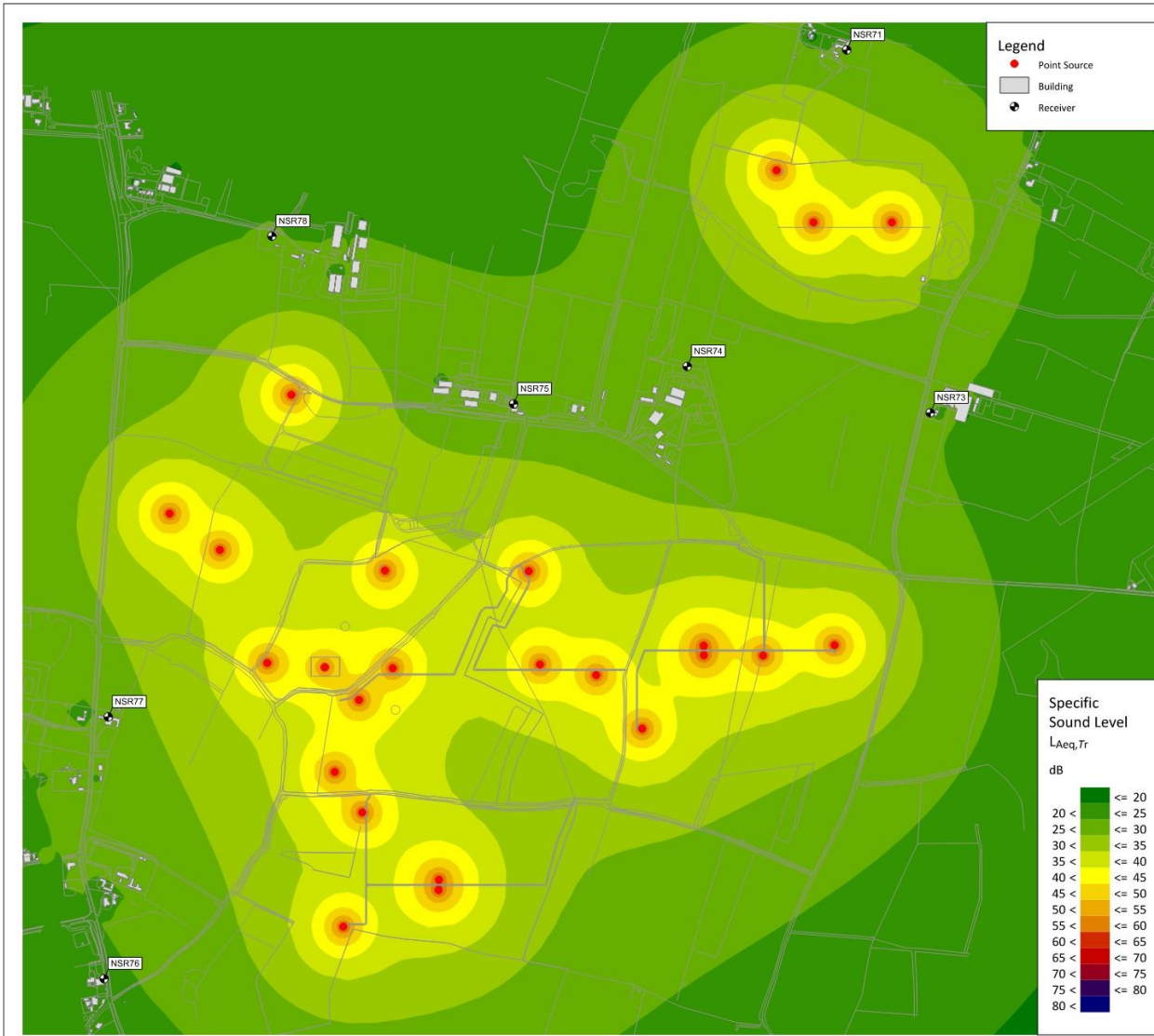
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 46
Operational Noise Contours
Early Morning, Without Mitigation
Parcel Group 10

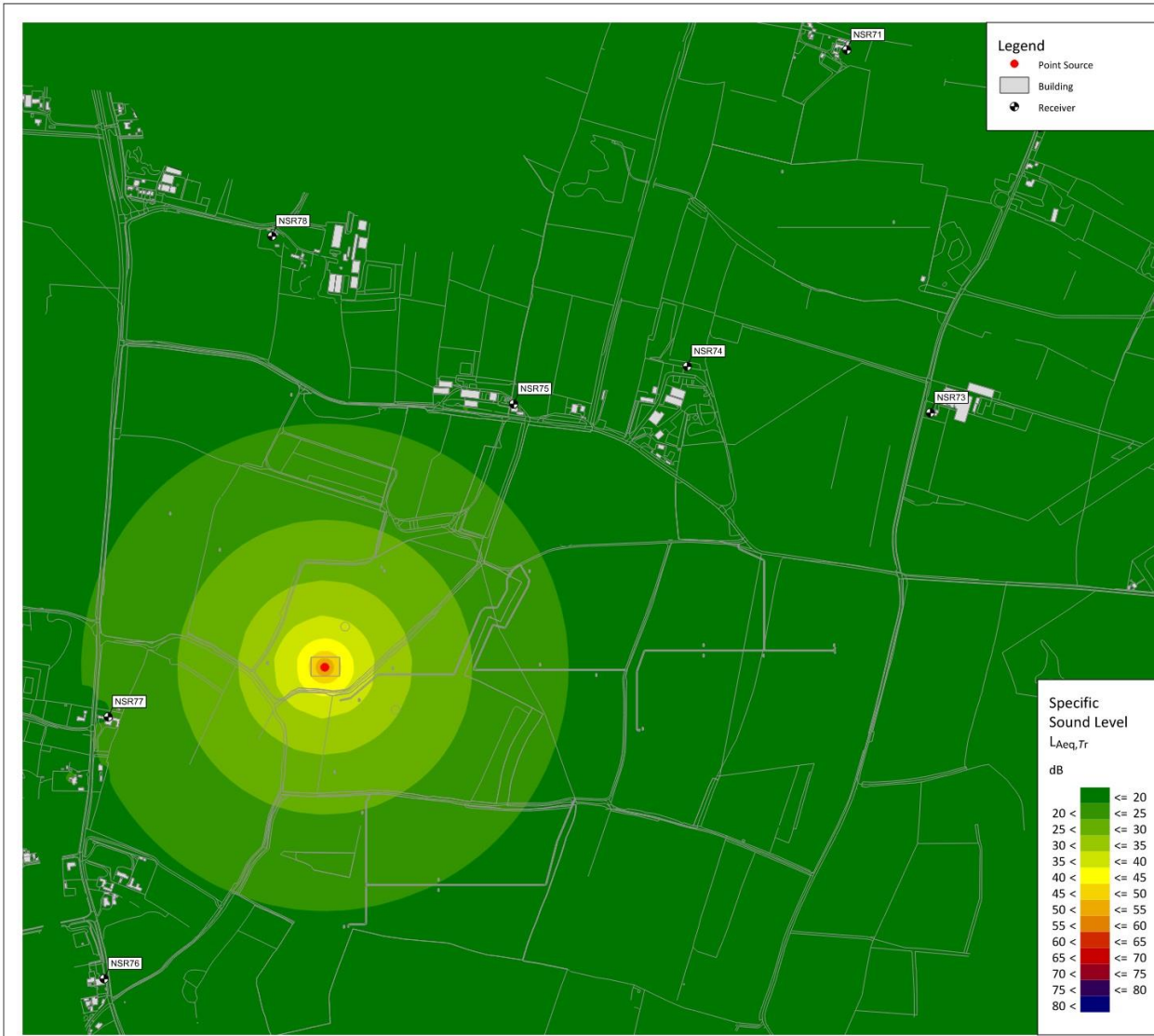
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 47
Operational Noise Contours
Night-time, Without Mitigation
Parcel Group 10

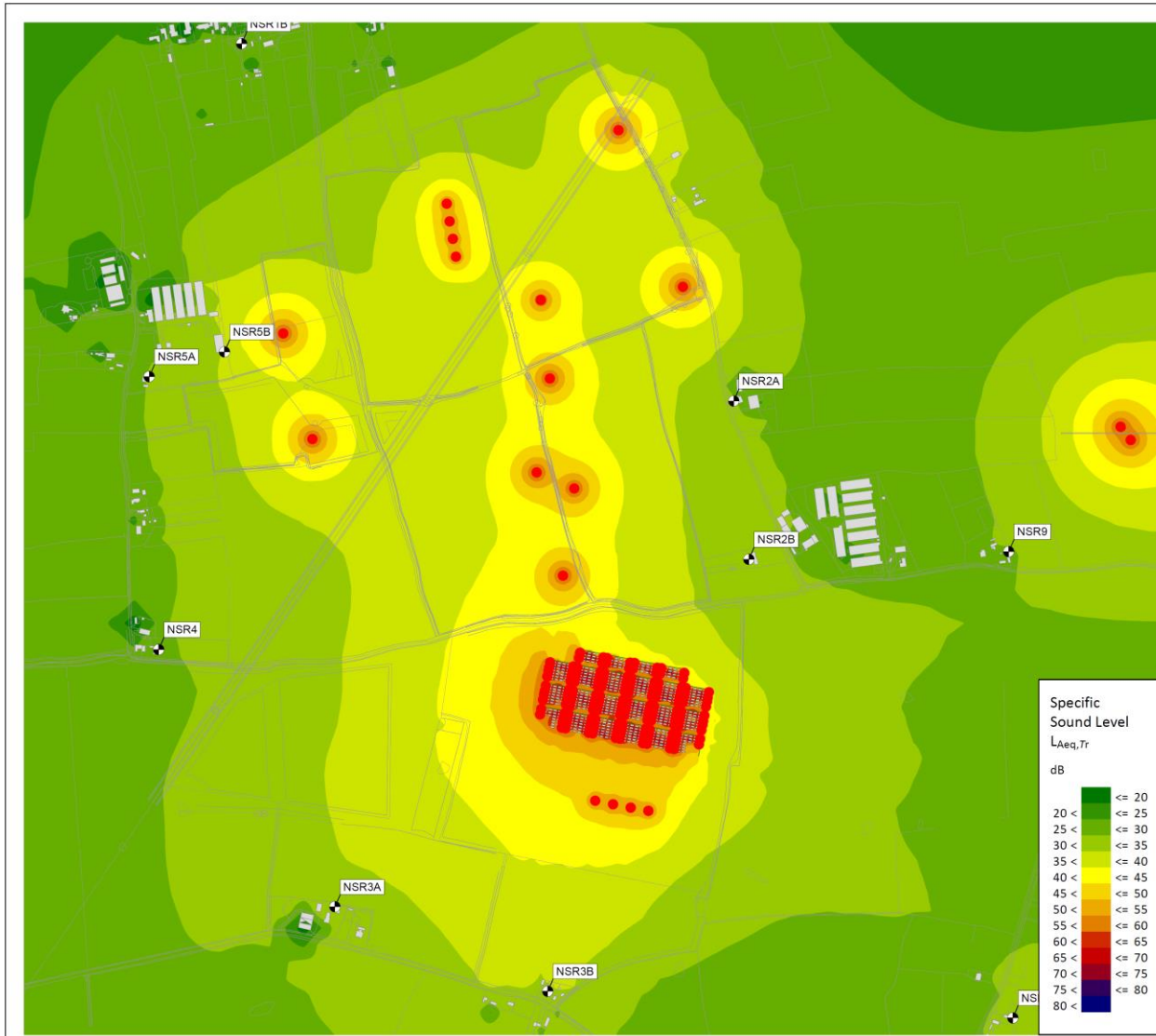
Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



Figure not to scale. Do not scale.

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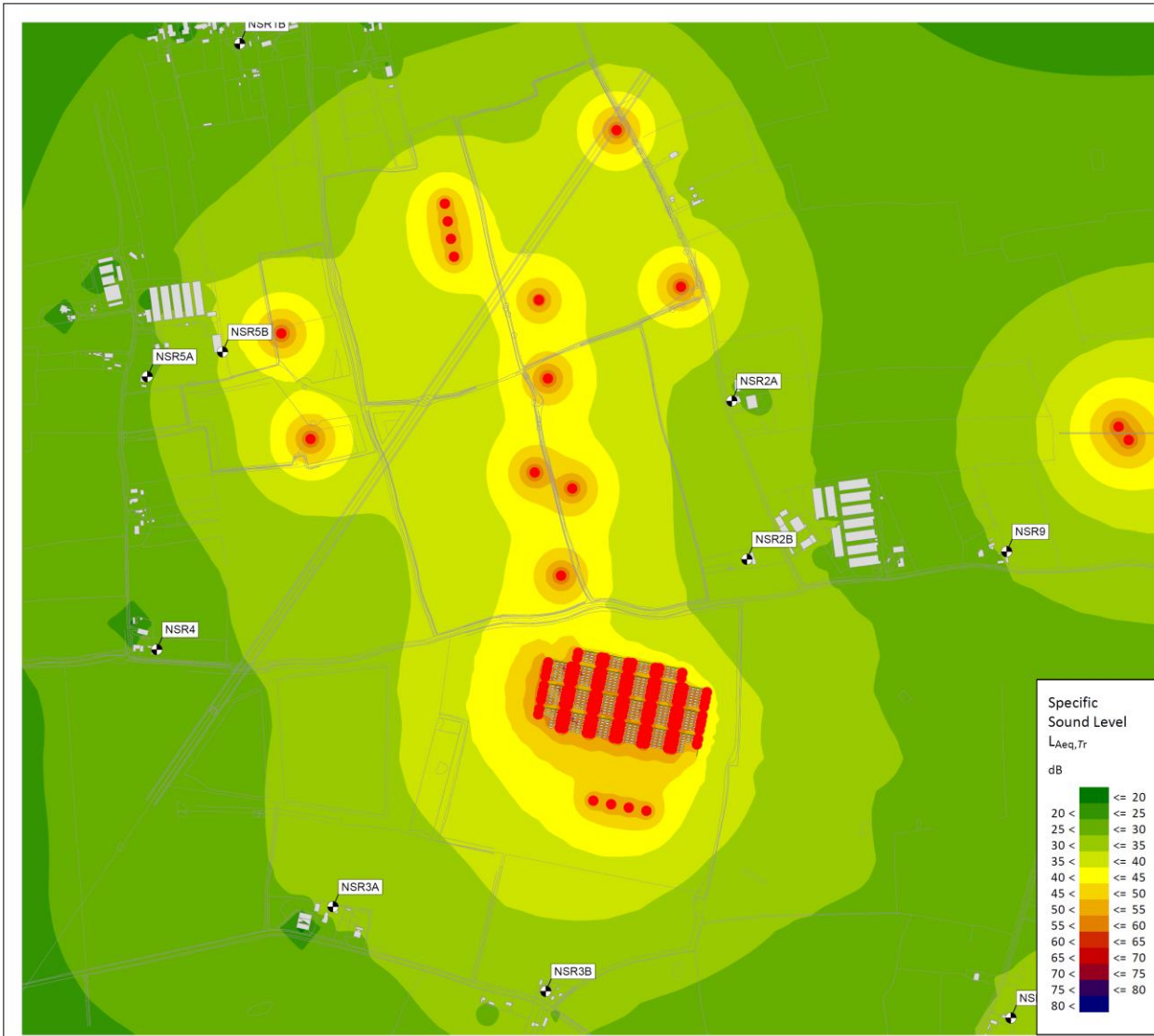
ES: Chapter 12
Appendix 12.2 - Figure 48
Operational Noise Contours
Daytime, Without Mitigation
BESS
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 1.5 m above ground
 Processed with SoundPLAN 9.1



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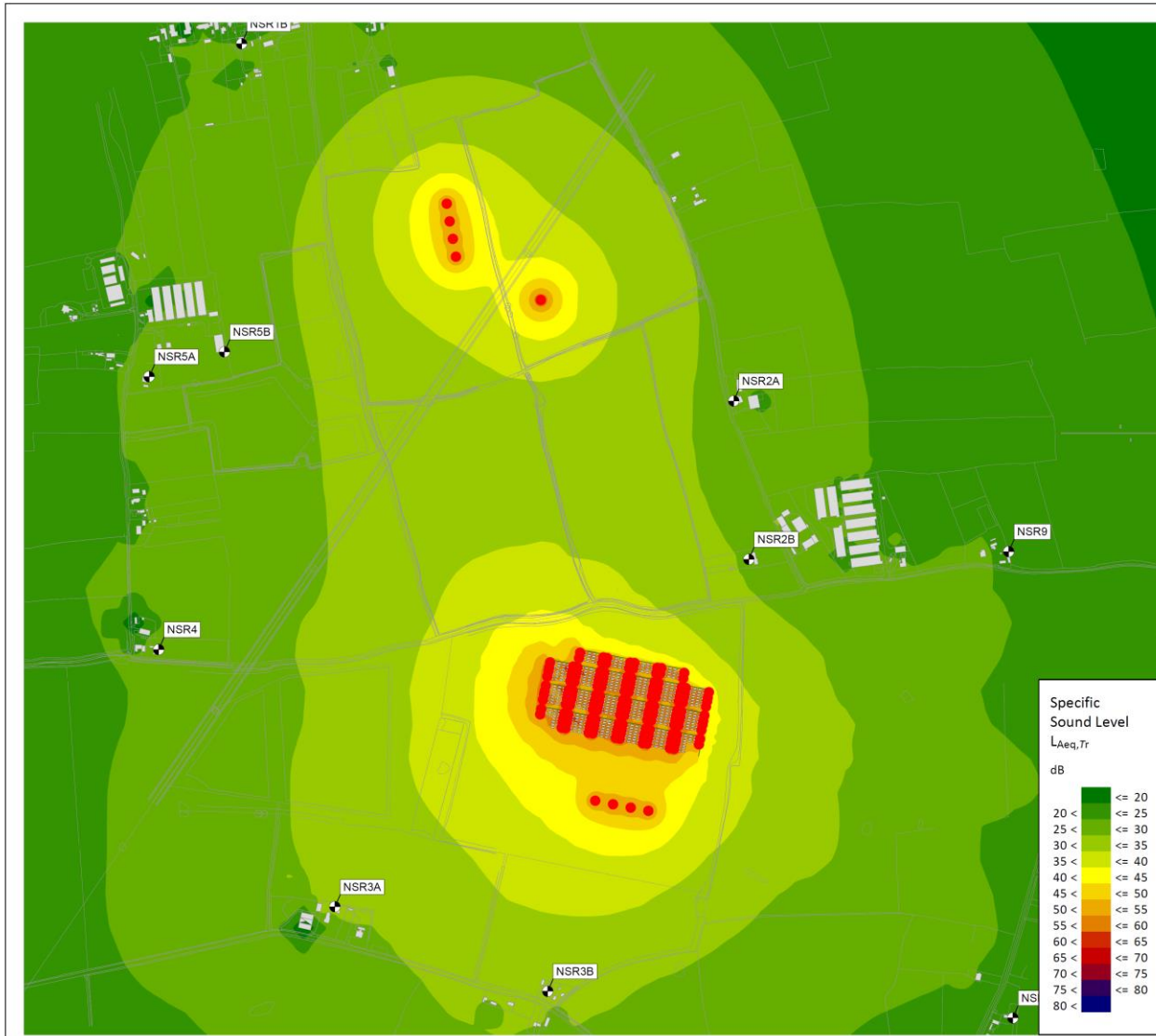
ES: Chapter 12
Appendix 12.2 - Figure 49
Operational Noise Contours
Early Morning, Without Mitigation
BESS
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



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ES: Chapter 12
Appendix 12.2 - Figure 50
Operational Noise Contours
Night-time, Without Mitigation
BESS
 Project: East Pye Solar
 Project Number: 333101211
 Project Engineer: LW, GW
 Calculation at 4 m above ground
 Processed with SoundPLAN 9.1



Figure not to scale. Do not scale.

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