M40 Overbridge	19	32050	13	44930	11	45407	11	80.5
MSA to Padbury	20	49418	15	65096	13	65729	13	80.5

Table 10.9: AAWT, 1hr Night-time Road Traffic Flows – Western Development

Road	Link	AAWT,1hr Two-way Traffic Flow						Speed Limit (km/h)
		2019 Baseline		2025 Future Baseline		2025 With Development		
		AAWT,1hr	% HGVs	AAWT,1hr	% HGVs	AAWT,1hr	% HGVs	
B4100	1	66	4	71	4	83	4	96.6
B4100	2	66	4	71	4	146	4	80.5
B4100	3	138	7	159	7	233	6	80.5
B4100	4	138	7	159	7	233	6	80.5
B4100	5	119	7	156	7	231	6	80.5
A4095	6	175	2	200	2	225	3	80.5
A4095	7	133	2	166	3	190	3	80.5
A43	8	510	16	604	16	639	19	80.5
B430	9	78	7	153	8	162	7	96.6
M40S	10	1864	17	2075	17	2097	18	112.7
M40N	11	1526	18	1728	17	1732	18	112.7
A43	12	528	16	631	15	648	17	112.7
A43	13	512	16	613	15	627	17	112.7
A421	14	114	13	125	13	129	16	96.6
M40 Northbound On	15	67	15	88	14	90	19	64.4
M40 Southbound Off	16	99	16	113	16	116	18	64.4
M40 Northbound off	17	198	18	234	17	246	20	64.4
M40 Southbound On	18	339	19	379	19	389	21	64.4
M40 Overbridge	19	343	15	472	13	496	15	80.5
MSA to Padbury	20	683	17	869	15	902	17	80.5

Table 10.10: AAWT, 18hr Daytime Road Traffic Flows – Development

Road	Link	AAWT,18hr Two-way Traffic Flow						Speed Limit (km/h)
		2019 Baseline		2025 Future Baseline		2025 With Development		
		AAWT,18hr	% HGVs	AAWT,18hr	% HGVs	AAWT,18hr	% HGVs	
B4100	1	7073	3	7662	3	8030	2	96.6
B4100	2	7073	3	7662	3	11525	11	80.5
B4100	3	12658	4	14697	4	17615	7	80.5
B4100	4	12658	4	14697	4	17197	4	80.5
B4100	5	12300	4	16311	4	18812	4	80.5
A4095	6	18143	4	20916	4	21808	4	80.5
A4095	7	14116	2	17609	2	18414	2	80.5
A43	8	34644	15	41608	14	43814	16	80.5
B430	9	8351	5	16158	5	16449	5	96.6
M40S	10	123826	14	138706	14	140170	15	112.7
M40N	11	95298	12	108578	12	109028	12	112.7
A43	12	37936	12	45716	11	46585	12	112.7
A43	13	34510	12	41927	12	42678	12	112.7
A421	14	12139	8	13151	8	13582	10	96.6
M40 Northbound On	15	5617	15	7533	12	7745	14	64.4
M40 Southbound Off	16	6497	16	7696	14	7933	15	64.4
M40 Northbound off	17	18082	17	21900	15	22140	15	64.4
M40 Southbound On	18	17368	18	20671	17	20913	17	64.4
M40 Overbridge	19	32050	13	44930	11	45673	11	80.5
MSA to Padbury	20	49418	15	65096	13	66080	13	80.5

Table 10.11: AAWT, 1hr Night-time Road Traffic Flows – Development

Road	Link	AAWT,1hr Two-way Traffic Flow						Speed Limit (km/h)
		2019 Baseline		2025 Future Baseline		2025 With Development		
		AAWT,1hr	% HGVs	AAWT,1hr	% HGVs	AAWT,1hr	% HGVs	
B4100	1	66	4	71	4	89	3	96.6
B4100	2	66	4	71	4	152	3	80.5
B4100	3	138	7	159	7	269	14	80.5
B4100	4	138	7	159	7	275	5	80.5
B4100	5	119	7	156	7	273	6	80.5
A4095	6	175	2	200	2	239	3	80.5
A4095	7	133	2	166	3	204	3	80.5
A43	8	510	16	604	16	659	21	80.5
B430	9	78	7	153	8	167	7	96.6
M40S	10	1864	17	2075	17	2109	19	112.7
M40N	11	1526	18	1728	17	1735	18	112.7
A43	12	528	16	631	15	658	18	112.7
A43	13	512	16	613	15	635	17	112.7
A421	14	114	13	125	13	131	17	96.6
M40 Northbound On	15	67	15	88	14	91	22	64.4
M40 Southbound Off	16	99	16	113	16	117	20	64.4
M40 Northbound off	17	198	18	234	17	253	21	64.4
M40 Southbound On	18	339	19	379	19	395	22	64.4
M40 Overbridge	19	343	15	472	13	509	16	80.5
MSA to Padbury	20	683	17	869	15	921	18	80.5

Receptor point calculations have been undertaken using the LimA® computational sound modelling software (v2020). The noise model includes a detailed digital terrain model to represent acoustic influence of topographical data. Calculation heights have been assumed at 1.5m (ground floor) above ground level for the daytime period and 4m (1st floor bedroom) above ground for the night-time period.

The model has been used to present road traffic noise levels at specific receptor points in the vicinity of the site and illustrated as contour plots.

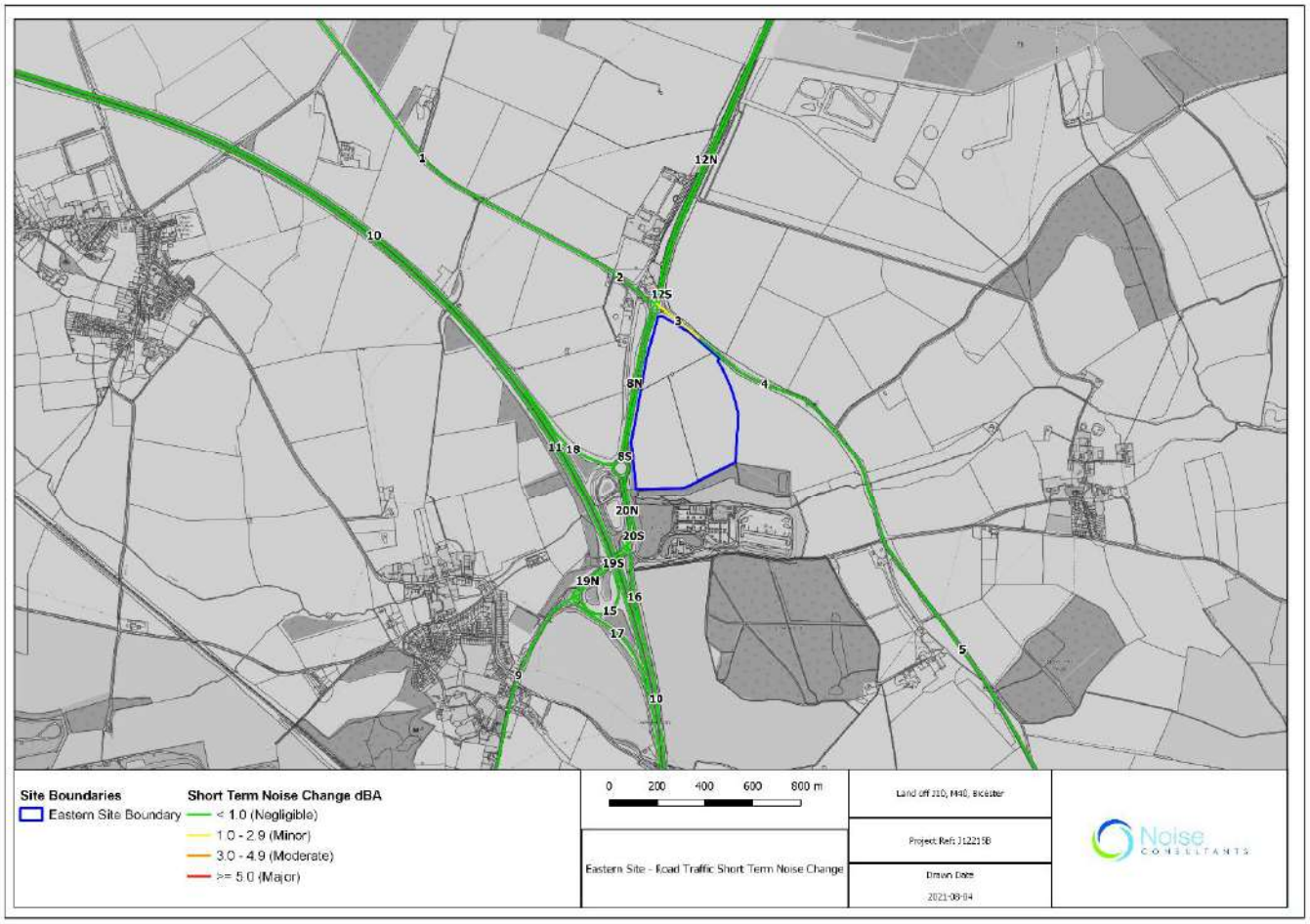
Assessment of Effects

Eastern Development

Initial Scoping

As shown in Figure 10.1, there is a road link in the vicinity of the Eastern Development with a daytime BNL change of more than 1 dB(A) for the '2025 Future Baseline (without Development) vs 2025 Completed Development' assessment scenario.

Figure 10.1: Road Traffic Link Change in BNL: Eastern Development



Outside the spatial extents of the noise model, a consideration of change in night-time BNL has been used to identify areas with receptors with potentially adverse noise effects. The road traffic links and associated night-time change in BNL are summarised in Table 10.17.

Table 10.12: AAWT, 1hr Night-time Road Traffic Flows – BNL Change 2025 Future Baseline (without Development) vs 2025 Completed Development' – Eastern Development

Road	Link	Basic Noise Level (BNL), LA10,1h dB		
		2025 Future Baseline (DM)	2025 With Development (DS)	DS-DM
B4100	1	62.6	63.1	0.5
B4100	2	61.1	61.6	0.5
B4100	3	66.3	68.9	2.7
B4100	4	66.3	67.2	0.9
B4100	5	66.3	67.2	0.9
A4095	6	66.4	66.7	0.3
A4095	7	65.7	66.0	0.4
A43	8	73.5	73.9	0.4
B430	9	67.6	67.7	0.1
M40S	10	81.5	81.6	0.1
M40N	11	80.7	80.8	0.0
A43	12	76.1	76.3	0.2
A43	13	76.0	76.2	0.1
A421	14	67.4	67.7	0.3
M40 Northbound On	15	62.9	63.4	0.5
M40 Southbound Off	16	64.7	65.0	0.3
M40 Northbound off	17	68.4	68.7	0.4
M40 Southbound On	18	70.8	71.0	0.2
M40 Overbridge	19	72.0	72.4	0.3
MSA to Padbury	20	75.1	75.3	0.3

As shown, the B4100 to the east of the Eastern Development (Link 3, as defined in Chapter 8: Transport and Access) is likely to experience a BNL change +2.7 dB(A), however there are no receptors in the vicinity of this link. At all other links, the change in BNL is less than 1 dB(A).

Based on the outcomes of the daytime BNL evaluation shown in Figure 10.1, further consideration of likely significant effects is therefore required.

Noise Exposure Classifications

The road traffic noise exposures, presented in the noise metric forms used in the noise threshold of potential effect criteria are presented in Table 10.13 and Table 10.14, and in terms of the associated noise level category, are presented in Table 10.15 and Table 10.16.

The magnitude of change in noise exposure has been determined for the opening year, 2025.

Noise Exposure Classifications

Table 10.13: Eastern Development - Daytime Road Traffic Noise Exposure

Receptor ID	2019 Existing Baseline	2025 Future Baseline	2025 With Development

	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB
R1	69.0	64.5	69.3	64.8	69.4	64.9
R2	69.1	64.6	69.3	64.8	69.5	65.0
R3	67.1	62.6	67.7	63.2	67.7	63.2
R4	69.9	65.4	70.5	66.0	70.5	66.0
R5	70.0	65.5	70.7	66.2	70.7	66.2
R6	69.6	65.1	69.7	65.2	69.8	65.3

Table 10.14: Eastern Development - Night-time Road Traffic Noise Exposure

Receptor ID	2019 Existing Baseline	2025 Future Baseline	2025 With Development
	$L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	$L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	$L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB
R1	57.5	58.0	58.2
R2	58.1	58.8	59.2
R3	56.7	57.3	57.6
R4	59.3	60.0	60.3
R5	59.8	60.4	60.5
R6	58.4	59.1	59.5

Table 10.15: Eastern Development - Daytime Road Traffic Noise Exposure (Noise Level Category)

Receptor ID	Noise Level Category		
	2019 Existing Baseline	2025 Future Baseline	2025 With Development
R1	Very High	Very High	Very High
R2	Very High	Very High	Very High
R3	High	High	High
R4	Very High	Very High	Very High
R5	Very High	Very High	Very High
R6	Very High	Very High	Very High

Table 10.16: Eastern Development - Night-time Road Traffic Noise Exposure (Noise Level Category)

Receptor ID	Noise Level Category		
	2019 Existing Baseline	2025 Future Baseline	2025 With Development
R1	Very High	Very High	Very High
R2	Very High	Very High	Very High
R3	Very High	Very High	Very High
R4	Very High	Very High	Very High
R5	Very High	Very High	Very High
R6	Very High	Very High	Very High

As shown in Table 10.15, 'Very High' daytime noise level exposures occur at receptors R1, R2, R4, R5 and R6 and 'High' daytime noise levels occur at receptor R3 across all assessment years. During the night-time period, 'Very High' noise level exposures occur at all receptors across all assessment years, as shown in Table 10.16.

Magnitude of Change in Noise Exposure

The magnitude of change in noise exposure is considered for the following scenarios:

- 2019 – Baseline vs 2025 Future Baseline (without Development); and
- 2025 Future Baseline (without Development) vs 2025 Completed Development

The first scenario has been considered for context to demonstrate the likely noise change between the 2019 Baseline and the 2025 assessment year irrespective of the Development.

The associated significance has been determined for the 2025 assessment scenario.

Noise exposure has been presented to one decimal place to inform the noise change criteria. An increase in noise level, indicated by a positive value in the 'Noise Change' column indicates an 'adverse' change. A 'beneficial' change occurs when there is a negative value in the 'Noise Change' column.

Table 10.17: Eastern Development - Daytime: 2019 Baseline vs 2025 Future Baseline (Noise Change Category)

Receptor ID	2019 Baseline $L_{A10,18hr}$ dB	2025 Future Baseline $L_{A10,18hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	69.0	69.3	0.3	Very High	Negligible
R2	69.1	69.3	0.2	Very High	Negligible
R3	67.1	67.7	0.6	High	Negligible
R4	69.9	70.5	0.6	Very High	Negligible
R5	70.0	70.7	0.7	Very High	Negligible
R6	69.6	69.7	0.1	Very High	Negligible

Table 10.18: Eastern Development - Night-time: 2019 Baseline vs 2025 Future Baseline (Noise Change Category)

Receptor ID	2019 Baseline $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	2025 Future Baseline $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	57.5	58.0	0.5	Very High	Negligible
R2	58.1	58.8	0.7	Very High	Negligible
R3	56.7	57.3	0.6	Very High	Negligible

R4	59.3	60.0	0.7	Very High	Negligible
R5	59.8	60.4	0.6	Very High	Negligible
R6	58.4	59.1	0.7	Very High	Negligible

Table 10.19: Eastern Development - Daytime: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	2025 Future Baseline $L_{A10,18hr}$ dB	2025 With Development $L_{A10,18hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	69.3	69.4	0.1	Very High	Negligible
R2	69.3	69.5	0.2	Very High	Negligible
R3	67.7	67.7	0.0	High	Negligible
R4	70.5	70.5	0.0	Very High	Negligible
R5	70.7	70.7	0.0	Very High	Negligible
R6	69.7	69.8	0.1	Very High	Negligible

Table 10.20: Eastern Development - Night-time: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	2025 Without Development $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	2025 With Development $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	58.0	58.2	0.2	Very High	Negligible
R2	58.8	59.2	0.4	Very High	Negligible
R3	57.3	57.6	0.3	Very High	Negligible
R4	60.0	60.3	0.3	Very High	Negligible
R5	60.4	60.5	0.1	Very High	Negligible
R6	59.1	59.5	0.4	Very High	Negligible

Significance Evaluation Summary

Significance has been quantitatively evaluated for those receptors in the vicinity of the Eastern Development and also in the vicinity of road traffic links with a change in daytime BNL of more than 1 dB(A) for the '2025 Future Baseline (without Development) vs 2025 Completed Development' assessment scenario.

Table 10.21: Eastern Development - Daytime: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	Noise Exposure Category 'End State'	Noise Change Category	Significance Evaluation
R1	Very High	Negligible	Not Significant
R2	Very High	Negligible	Not Significant
R3	High	Negligible	Not Significant
R4	Very High	Negligible	Not Significant
R5	Very High	Negligible	Not Significant
R6	Very High	Negligible	Not Significant

Table 10.22: Eastern Development - Night-time: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	Noise Exposure Category 'End State'	Noise Change Category	Significance Evaluation
R1	Very High	Negligible	Not Significant
R2	Very High	Negligible	Not Significant
R3	Very High	Negligible	Not Significant
R4	Very High	Negligible	Not Significant
R5	Very High	Negligible	Not Significant
R6	Very High	Negligible	Not Significant

As shown, a significance outcome of 'Not Significant' is determined for those receptors in the vicinity of the Eastern Development, and therefore no management and control measures are proposed.

Proposed Management and Control Measures

No specific noise management or control measures associated with the operational road traffic assessment is proposed.

Mitigation, Monitoring and Residual Effects

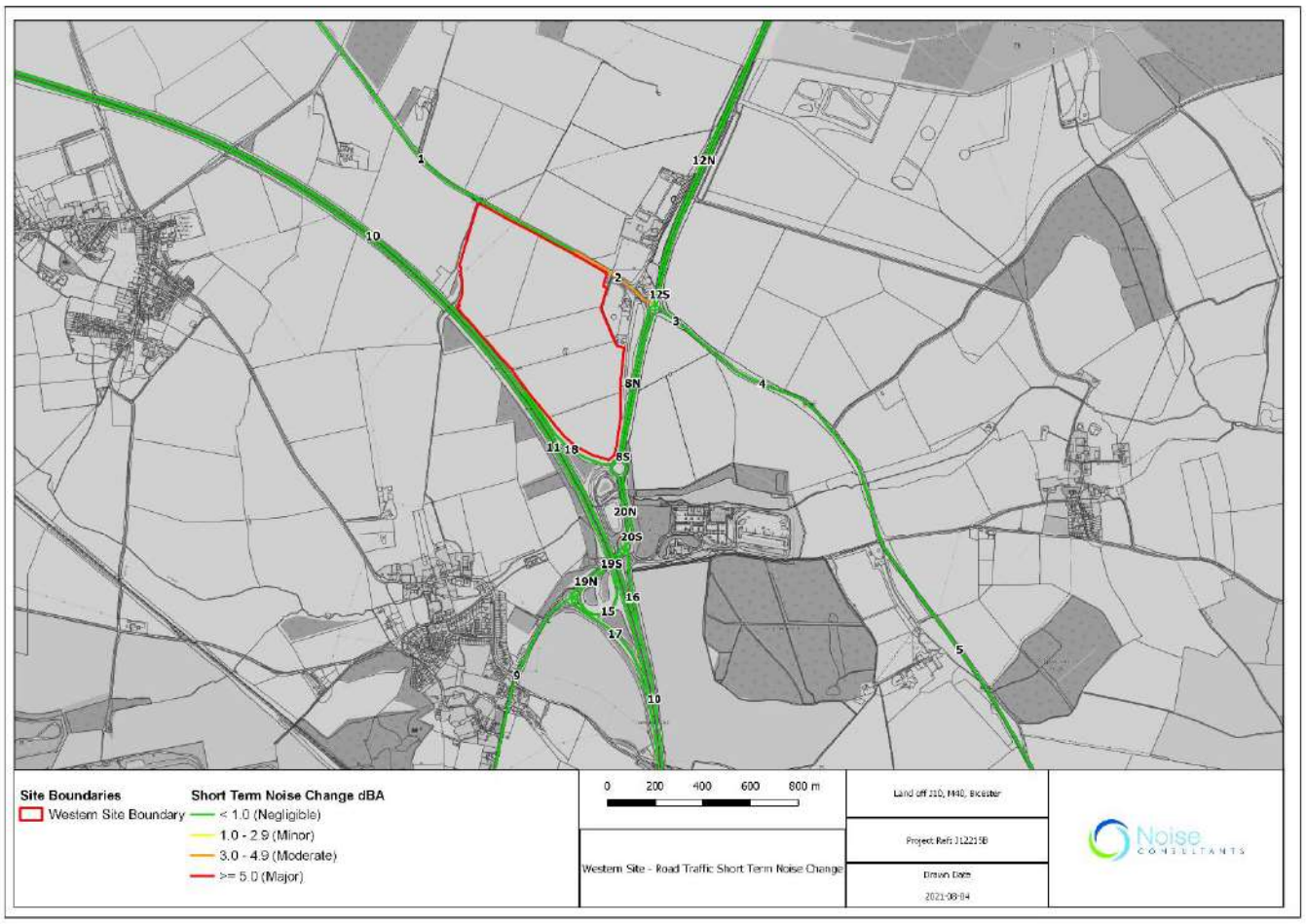
No specific noise mitigation or monitoring associated with the operational road traffic assessment is proposed.

Western Development

Initial Scoping

As shown in Figure 10.2, there is a road link in the vicinity of the Western Development with a daytime BNL change of more than 1 dB(A) for the '2025 Future Baseline (without Development) vs 2025 Completed Development' assessment scenario.

Figure 10.2: Road Traffic Link change in BNL: Western Development



Outside the spatial extents of the noise model, a consideration of change in night-time BNL has been used to identify areas with receptors with potentially adverse noise effects. The road traffic links and associated night-time change in BNL are summarised in Table 10.29.

Table 10.23: AAWT, 1hr Night-time Road Traffic Flows – BNL Change 2025 Future Baseline (without Development) vs 2025 Completed Development' – Western Development

Road	Link	Basic Noise Level (BNL), LA10,1h dB		
		2025 Future Baseline (DM)	2025 With Development (DS)	DS-DM
B4100	1	62.6	63.5	0.8
B4100	2	61.1	65.2	4.0
B4100	3	66.3	67.8	1.5
B4100	4	66.3	67.8	1.5
B4100	5	66.3	67.8	1.5
A4095	6	66.4	67.0	0.5
A4095	7	65.7	66.3	0.6
A43	8	73.5	74.2	0.7
B430	9	67.6	67.8	0.2
M40S	10	81.5	81.7	0.1
M40N	11	80.7	80.8	0.1
A43	12	76.1	76.4	0.3
A43	13	76.0	76.3	0.2
A421	14	67.4	67.9	0.5
M40 Northbound On	15	62.9	63.8	0.9
M40 Southbound Off	16	64.7	65.2	0.5
M40 Northbound off	17	68.4	69.0	0.6
M40 Southbound On	18	70.8	71.2	0.4
M40 Overbridge	19	72.0	72.6	0.5
MSA to Padbury	20	75.1	75.5	0.4

As shown in Table 10.23, the B4100 to the east of the Eastern Development (Link 4 and 5, as defined in Chapter 8: Transport and Access) is likely to experience a BNL changes greater than 1 dB(A) along the route, including link 4 and 5, to the north-west of Bicester.

Further consideration of likely significant effects is therefore required.

Noise Exposure Classifications

The road traffic noise exposures, presented in the noise metric forms used in the noise threshold of potential effect criteria are presented in Table 10.24 and Table 10.25, and in terms of the associated noise level category, are presented in Table 10.26 and Table 10.27.

The magnitude of change in noise exposure has been determined for the opening year, 2025.

Noise Exposure Classifications

Table 10.24: Western Development - Daytime Road Traffic Noise Exposure

Receptor ID	2019 Existing Baseline		2025 Future Baseline		2025 With Development	
	$L_{A10,18hr}$ (f)	$L_{Aeq,16hr}$ dB	$L_{A10,18hr}$ (f)	$L_{Aeq,16hr}$ dB	$L_{A10,18hr}$ (f)	$L_{Aeq,16hr}$ dB

	dB		dB		dB	
R1	69.0	64.5	69.3	64.8	72.3	67.8
R2	69.1	64.6	69.3	64.8	70.6	66.1
R3	67.1	62.6	67.7	63.2	67.8	63.3
R4	69.9	65.4	70.5	66.0	70.2	65.7
R5	70.0	65.5	70.7	66.2	70.6	66.1
R6	69.6	65.1	69.7	65.2	71.3	66.8

Table 10.25: Western Development - Night-time Road Traffic Noise Exposure

Receptor ID	2019 Existing Baseline	2025 Future Baseline	2025 With Development
	$L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	$L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	$L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB
R1	57.5	58.0	59.9
R2	58.1	58.8	59.9
R3	56.7	57.3	57.6
R4	59.3	60.0	60.0
R5	59.8	60.4	60.3
R6	58.4	59.1	60.5

Table 10.26: Western Development - Daytime Road Traffic Noise Exposure (Noise Level Category)

Receptor ID	Noise Level Category		
	2019 Existing Baseline	2025 Future Baseline	2025 With Development
R1	Very High	Very High	Very High
R2	Very High	Very High	Very High
R3	High	High	High
R4	Very High	Very High	Very High
R5	Very High	Very High	Very High
R6	Very High	Very High	Very High

Table 10.27: Western Development - Night-time Road Traffic Noise Exposure (Noise Level Category)

Receptor ID	Noise Level Category		
	2019 Existing Baseline	2025 Future Baseline	2025 With Development
R1	Very High	Very High	Very High
R2	Very High	Very High	Very High
R3	Very High	Very High	Very High
R4	Very High	Very High	Very High
R5	Very High	Very High	Very High
R6	Very High	Very High	Very High

As shown in Table 10.26 'Very High' daytime noise level exposures occur at receptors R1, R2, R4, R5 and R6 and 'High' daytime noise level exposures occur at receptor R3 across all assessment years. During the night-time period, 'Very High' noise level exposures occur at all receptors across all assessment years, as shown in Table 10.27.

Magnitude of Change in Noise Exposure

The magnitude of change in noise exposure is considered for the following scenarios:

- 2019 – Baseline vs 2025 Future Baseline (without Development); and
- 2025 Future Baseline (without Development) vs 2025 Completed Development

The first scenario has been considered for context to demonstrate the likely noise change between the 2019 Baseline and the 2025 assessment year irrespective of the Development.

The associated significance has been determined for the 2025 assessment scenario.

Noise exposure has been presented to one decimal place to inform the noise change criteria. An increase in noise level, indicated by a positive value in the 'Noise Change' column indicates an 'adverse' change. A 'beneficial' change occurs when there is a negative value in the 'Noise Change' column.

Table 10.28: Western Development - Daytime: 2019 Baseline vs 2025 Future Baseline (Noise Change Category)

Receptor ID	2019 Baseline $L_{A10,18hr}$ dB	2025 Future Baseline $L_{A10,18hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	69.0	69.3	0.3	Very High	Negligible
R2	69.1	69.3	0.2	Very High	Negligible
R3	67.1	67.7	0.6	High	Negligible
R4	69.9	70.5	0.6	Very High	Negligible
R5	70.0	70.7	0.7	Very High	Negligible
R6	69.6	69.7	0.1	Very High	Negligible

Table 10.29: Western Development - Night-time: 2019 Baseline vs 2025 Future Baseline (Noise Change Category)

Receptor ID	2019 Baseline $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	2025 Future Baseline $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	57.5	58.0	0.5	Very High	Negligible
R2	58.1	58.8	0.7	Very High	Negligible
R3	56.7	57.3	0.6	Very High	Negligible
R4	59.3	60.0	0.7	Very High	Negligible

R5	59.8	60.4	0.6	Very High	Negligible
R6	58.4	59.1	0.7	Very High	Negligible

Table 10.30: Western Development - Daytime: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	2025 Future Baseline $L_{A10,18hr}$ dB	2025 With Development $L_{A10,18hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	69.3	72.3	3.0	Very High	Medium
R2	69.3	70.6	1.3	Very High	Low
R3	67.7	67.8	0.1	High	Negligible
R4	70.5	70.2	-0.3	Very High	Negligible
R5	70.7	70.6	-0.1	Very High	Negligible
R6	69.7	71.3	1.6	Very High	Low

Table 10.31: Western Development - Night-time: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	2025 Without Development $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	2025 With Development $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	58.0	59.9	1.9	Very High	Low
R2	58.8	59.9	1.1	Very High	Low
R3	57.3	57.6	0.3	Very High	Negligible
R4	60.0	60.0	0.0	Very High	Negligible
R5	60.4	60.3	-0.1	Very High	Negligible
R6	59.1	60.5	1.4	Very High	Low

Significance Evaluation Summary

Significance has been quantitatively evaluated for those receptors in the vicinity of the Western Development also in the vicinity of road traffic links with a change in daytime BNL of more than 1 dB(A) for the '2025 Future Baseline (without Development) vs 2025 Completed Development' assessment scenario.

Table 10.32: Western Development - Daytime: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	Noise Exposure	Noise Change Category	Significance Evaluation

	Category 'End State'		
R1	Very High	Medium	Significant
R2	Very High	Low	Significant
R3	High	Negligible	Not Significant
R4	Very High	Negligible	Not Significant
R5	Very High	Negligible	Not Significant
R6	Very High	Low	Significant

Table 10.33: Western Development - Night-time: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	Noise Exposure Category 'End State'	Noise Change Category	Significance Evaluation
R1	Very High	Low	Significant
R2	Very High	Low	Significant
R3	Very High	Negligible	Not Significant
R4	Very High	Negligible	Not Significant
R5	Very High	Negligible	Not Significant
R6	Very High	Low	Significant

As shown, a significance outcome of 'Significant' is determined at receptors R1, R2 and R6, located in the vicinity of the Western Development. Consideration of site specific mitigation is therefore presented.

In addition, as shown in Table 10.29, receptors in the vicinity of the B4100 between the Western Development and Bicester, namely the residential properties at The Lodge, Swifts House Farm, Braeburn Avenue/ B4100, and Charlotte Avenue/ B4100 (Link 4 and 5, as shown in Figure 8.1, Chapter 8: Transport and Access), are likely to experience changes in BNL in the region of +1.5 dB(A), and therefore a 'Significant' effect. A qualitative consideration mitigation options with respect of receptors in these areas is also presented.

Proposed Management and Control Measures

There are a number of mitigation strategies that can be implemented to reduce these noise levels at the receptors in the vicinity of the Western Development, with the most appropriate suite of measures subject to agreement with CDC. Noise mitigation options with respect of the receptors located in the vicinity of the Western Development, which would be considered, and delivered pre-occupation of the units (i.e. R1, R2 and R6) include:

- A noise barrier - of sufficient density, to be located between the B4100 and the Western Development either on highways land (to be secured through a Section 278 (S.278) Agreement) or within the ownership boundary of the private dwellings. The specific design of any noise barrier will be the subject of further analysis, however for the purpose

of significance evaluation a barrier with 2 metre height, located along the position illustrated in Figure 10.3 in Appendix 10.5, has been modelled;

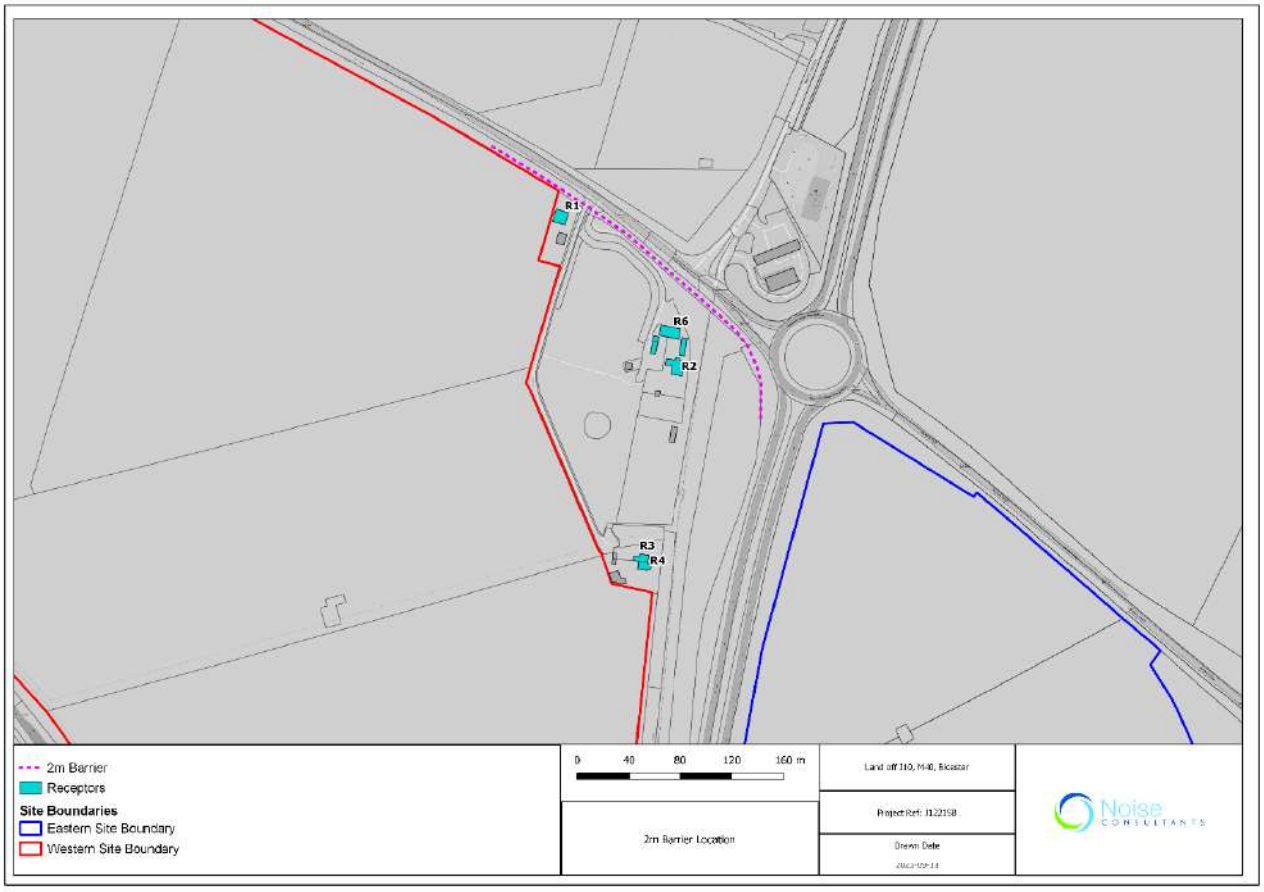
- Low noise road surfacing – depending on the speeds of the road in question, and the existing road construction, the use of low noise road surfacing can achieve reductions in the region of 3 dB(A); or
- Financial contribution to the landowner of R1, R2 and R6, to contribute to upgrades in building insultation.

For those receptors located outside the spatial extents of the noise model, where a potential significant effect is determined for the night-time period with respect to the Western Development, namely the residential properties at The Lodge, Swifts House Farm, Braeburn Avenue/ B4100, and Charlotte Avenue/ B4100 (Link 4 and 5, as shown in Figure 8.1, Chapter 8: Transport and Access), the Travel Plan would set out measures to mitigate these impacts. The specific mitigation measures to be adopted in relation to these receptors will be determined as part of the development of the final design.

The specific mitigation measures to be adopted in relation to these receptors will be determined as part of the development of the final design.

Where Western Development associated traffic can be concentrated during periods of the night-time when baseline traffic flows are greatest, such as the shoulder periods at the beginning and end of the night-time (2300-0000hrs and 0600-0700hrs), this would reduce the overall change in noise levels experienced by receptors on the B4100, and the associated significance in EIA terms. However on a precautionary basis in the absence of any further study, the effects at these receptors are considered 'Significant'.

Figure 10.3: Noise Mitigation – 2m Noise Barrier



Mitigation, Monitoring and Residual Effects

For the purpose of significance evaluation, the noise model has been updated to include a 2m noise barrier, and the associated assessment scenarios updated in the tables below.

Table 10.34: Western Development - Daytime Road Traffic Noise Exposure with 2m Noise Barrier

Receptor ID	2019 Existing Baseline		2025 Future Baseline		2025 With Development	
	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB
R1	69.0	64.5	69.3	64.8	68.8	64.3
R2	69.1	64.6	69.3	64.8	68.3	63.8
R3	67.1	62.6	67.7	63.2	67.4	62.9
R4	69.9	65.4	70.5	66.0	69.9	65.4
R5	70.0	65.5	70.7	66.2	70.6	66.1
R6	69.6	65.1	69.7	65.2	69.6	65.1

Table 10.35: Western Development - Daytime: 2025 Future Baseline vs 2025 With Development with 2m Noise Barrier (Noise Change Category)

Receptor ID	2025 Future Baseline $L_{A10,18hr}$ dB	2025 With Development $L_{A10,18hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	69.3	68.8	-0.5	Very High	Negligible
R2	69.3	68.3	-1.0	Very High	Negligible
R3	67.7	67.4	-0.3	High	Negligible
R4	70.5	69.9	-0.6	Very High	Negligible
R5	70.7	70.6	-0.1	Very High	Negligible
R6	69.7	69.6	-0.1	Very High	Negligible

Table 10.36: Western Development - Night-time: 2025 Future Baseline vs 2025 With Development with 2m Noise Barrier (Noise Change Category)

Receptor ID	2025 Without Development $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	2025 With Development $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	58.0	56.7	-1.3	Very High	Negligible
R2	58.8	57.8	-1.0	Very High	Negligible
R3	57.3	57.2	-0.1	Very High	Negligible
R4	60.0	59.8	-0.2	Very High	Negligible
R5	60.4	60.3	-0.1	Very High	Negligible
R6	59.1	59.1	0.0	Very High	Negligible

Table 10.37: Western Development - Daytime: 2025 Future Baseline vs 2025 With Development with 2m Noise Barrier (Noise Change Category)

Receptor ID	Noise Exposure Category 'End State'	Noise Change Category	Significance Evaluation
R1	Very High	Negligible	Not Significant
R2	Very High	Negligible	Not Significant
R3	High	Negligible	Not Significant
R4	Very High	Negligible	Not Significant
R5	Very High	Negligible	Not Significant
R6	Very High	Negligible	Not Significant

Table 10.38: Western Development - Night-time: 2025 Future Baseline vs 2025 With Development with 2m Noise Barrier (Noise Change Category)

Receptor ID	Noise Exposure	Noise Change Category	Significance Evaluation

	Category 'End State'		
R1	Very High	Negligible	Not Significant
R2	Very High	Negligible	Not Significant
R3	Very High	Negligible	Not Significant
R4	Very High	Negligible	Not Significant
R5	Very High	Negligible	Not Significant
R6	Very High	Negligible	Not Significant

As shown, a significance outcome of 'Not Significant' is determined for those receptors in the vicinity of the Western Development, with the provision of a 2m noise barrier.

Further noise reductions, in the order of 3 dB, could be achieved with the provision of low noise road surfacing.

The specific mitigation measures to be adopted will be determined as part of the development of the final design.

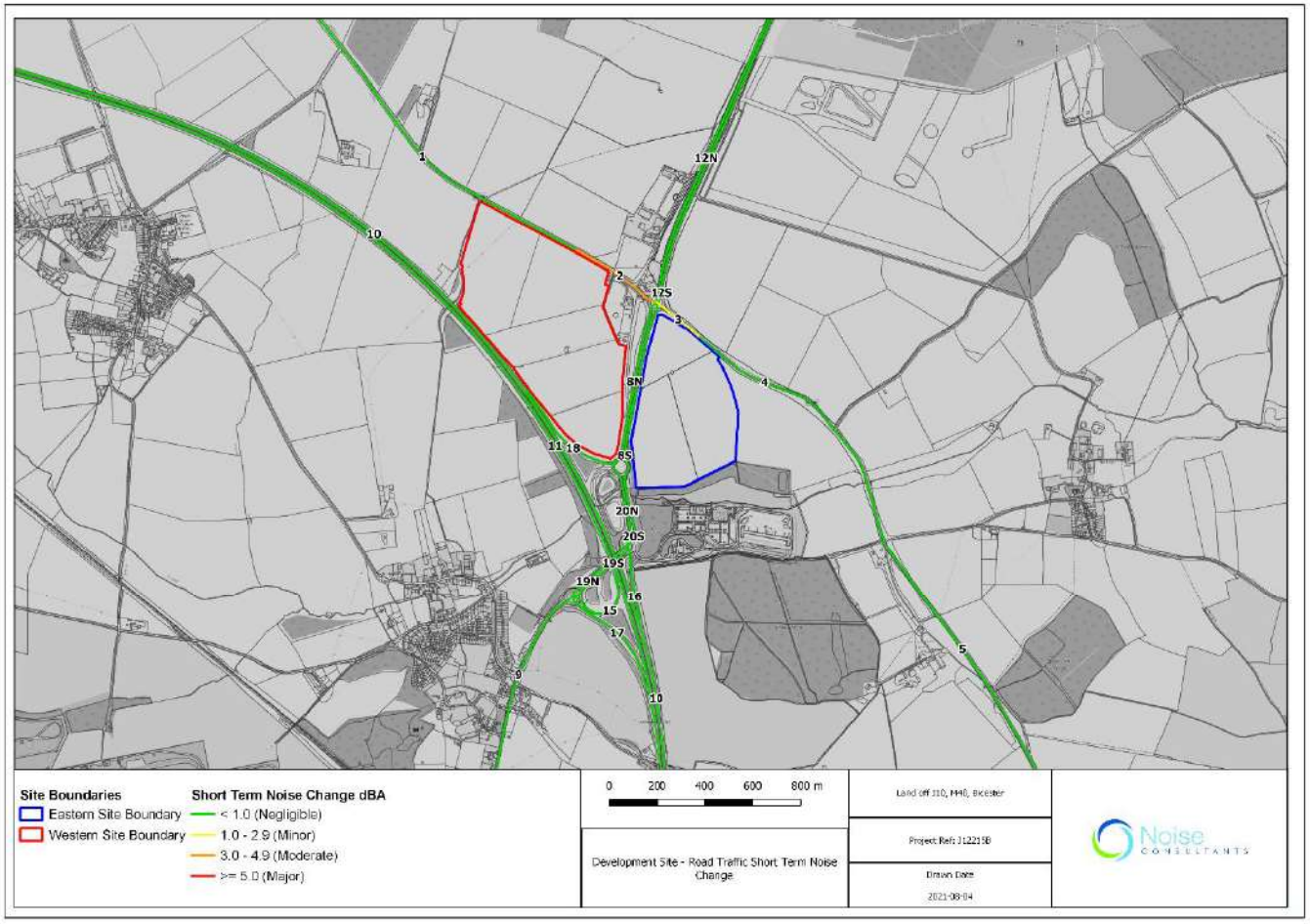
For those receptors located outside the spatial extents of the noise model where a potential significant effect is determined for the night-time period with respect to the Western Development, namely the residential properties at The Lodge, Swifts House Farm, Braeburn Avenue/ B4100, and Charlotte Avenue/ B4100, reductions in the overall change in noise levels experienced at the receptors could be achieved through measures set out in the Travel Plan The specific mitigation measures to be adopted in relation to these receptors will be determined as part of the development of the final design. This would reduce the change in noise levels, and likely associated significance in EIA terms. However on a precautionary basis in the absence of any further study, the effects at these receptors are considered 'Significant'

Development

Initial Scoping

As shown in Figure 0.4 there are road links in the vicinity of the Development with a daytime BNL change of more than 1 dB(A) for the '2025 Future Baseline (without Development) vs 2025 Completed Development' assessment scenario.

Figure 0.4: Road Traffic Link change in BNL: Development



Outside the spatial extents of the noise model, a consideration of change in night-time BNL has been used to identify areas with receptors with potentially adverse noise effects. The road traffic links and associated night-time change in BNL are summarised in Table 10.39.

Table 10.39: AAWT, 1hr Night-time Road Traffic Flows – BNL Change 2025 Future Baseline (without Development) vs 2025 Completed Development' – Development

Road	Link	Basic Noise Level (BNL), LA10,1h dB		
		2025 Future Baseline (DM)	2025 With Development (DS)	DS-DM
B4100	1	62.6	63.9	1.3
B4100	2	61.1	65.4	4.2
B4100	3	66.3	69.8	3.5
B4100	4	66.3	68.4	2.1
B4100	5	66.3	68.4	2.1
A4095	6	66.4	67.2	0.8
A4095	7	65.7	66.6	1.0
A43	8	73.5	74.6	1.0
B430	9	67.6	67.9	0.3
M40S	10	81.5	81.7	0.2
M40N	11	80.7	80.8	0.1
A43	12	76.1	76.6	0.5
A43	13	76.0	76.4	0.4
A421	14	67.4	68.2	0.7
M40 Northbound On	15	62.9	64.3	1.3
M40 Southbound Off	16	64.7	65.5	0.7
M40 Northbound off	17	68.4	69.3	0.9
M40 Southbound On	18	70.8	71.4	0.6
M40 Overbridge	19	72.0	72.9	0.8
MSA to Padbury	20	75.1	75.7	0.7

As shown in Table 10.39, the B4100 to the east of the Development Site (Link 4 and 5, as defined in Chapter 8: Transport and Access) is likely to experience a BNL change +2.1 dB(A). Further consideration of likely significant effects is therefore required.

Noise Exposure Classifications

The road traffic noise exposures, presented in the noise metric forms used in the noise threshold of potential effect criteria are presented in Table 10.40 and Table 10.41, and in terms of the associated noise level category, are presented in Table 10.42 and Table 10.43.

The magnitude of change in noise exposure has been determined for the opening year, 2025.

Noise Exposure Classifications

Table 10.40: Development - Daytime Road Traffic Noise Exposure

Receptor ID	2019 Existing Baseline		2025 Future Baseline		2025 With Development	
	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB
R1	69.0	64.5	69.3	64.8	72.3	67.8
R2	69.1	64.6	69.3	64.8	70.8	66.3
R3	67.1	62.6	67.7	63.2	68.1	63.6
R4	69.9	65.4	70.5	66.0	70.4	65.9
R5	70.0	65.5	70.7	66.2	70.6	66.1
R6	69.6	65.1	69.7	65.2	71.5	67

Table 10.41: Development - Night-time Road Traffic Noise Exposure

Receptor ID	2019 Existing Baseline	2025 Future Baseline	2025 With Development
	$L_{night(outside)}$ / $L_{Aeq,\ 8hr}$ dB	$L_{night(outside)}$ / $L_{Aeq,\ 8hr}$ dB	$L_{night(outside)}$ / $L_{Aeq,\ 8hr}$ dB
R1	57.5	58.0	59.9
R2	58.1	58.8	60.2
R3	56.7	57.3	58.1
R4	59.3	60.0	60.3
R5	59.8	60.4	60.4
R6	58.4	59.1	60.8

Table 10.42: Development - Daytime Road Traffic Noise Exposure (Noise Level Category)

Receptor ID	Noise Level Category		
	2019 Existing Baseline	2025 Future Baseline	2025 With Development
R1	Very High	Very High	Very High
R2	Very High	Very High	Very High
R3	High	High	Very High
R4	Very High	Very High	Very High
R5	Very High	Very High	Very High
R6	Very High	Very High	Very High

Table 10.43: Development - Night-time Road Traffic Noise Exposure (Noise Level Category)

Receptor ID	Noise Level Category		
	2019 Existing Baseline	2025 Future Baseline	2025 With Development
R1	Very High	Very High	Very High
R2	Very High	Very High	Very High
R3	Very High	Very High	Very High

R4	Very High	Very High	Very High
R5	Very High	Very High	Very High
R6	Very High	Very High	Very High

As shown in Table 10.42 'Very High' daytime noise level exposures occur at all receptors for the 2025 With Development scenario. For the 2019 Existing Baseline and 2025 Future Baseline scenario, 'Very High' daytime noise level exposures occur at receptors R1, R2, R4 and R5 and 'High' daytime noise exposures occur at receptor R3. During the night-time period, 'Very High' noise level exposures occur at all receptors across all assessment years, as shown in Table 10.43.

Magnitude of Change in Noise Exposure

The magnitude of change in noise exposure is considered for the following scenarios:

- 2019 – Baseline vs 2025 Future Baseline (without Development); and
- 2025 Future Baseline (without Development) vs 2025 Completed Development

The first scenario has been considered for context to demonstrate the likely noise change between the 2019 Baseline and the 2025 assessment year irrespective of the Development.

The associated significance has been determined for the 2025 assessment scenario.

Noise exposure has been presented to one decimal place to inform the noise change criteria. An increase in noise level, indicated by a positive value in the 'Noise Change' column indicates an 'adverse' change. A 'beneficial' change occurs when there is a negative value in the 'Noise Change' column.

Table 10.44: Development - Daytime: 2019 Baseline vs 2025 Future Baseline (Noise Change Category)

Receptor ID	2019 Baseline $L_{A10,18hr}$ dB	2025 Future Baseline $L_{A10,18hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	69.0	69.3	0.3	Very High	Negligible
R2	69.1	69.3	0.2	Very High	Negligible
R3	67.1	67.7	0.6	High	Negligible
R4	69.9	70.5	0.6	Very High	Negligible
R5	70.0	70.7	0.7	Very High	Negligible
R6	69.6	69.7	0.1	Very High	Negligible

Table 10.45: Development - Night-time: 2019 Baseline vs 2025 Future Baseline (Noise Change Category)

Receptor ID	2019 Baseline $L_{night(outside)}$ / $L_{Aeq, 8hr}$	2025 Future Baseline $L_{night(outside)}$ / $L_{Aeq, 8hr}$	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category

	dB	dB			
R1	57.5	58.0	0.5	Very High	Negligible
R2	58.1	58.8	0.7	Very High	Negligible
R3	56.7	57.3	0.6	Very High	Negligible
R4	59.3	60.0	0.7	Very High	Negligible
R5	59.8	60.4	0.6	Very High	Negligible
R6	58.4	59.1	0.7	Very High	Negligible

Table 10.46: Development - Daytime: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	2025 Without Development $L_{A10,18hr}$ dB	2025 With Development $L_{A10,18hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	69.3	72.3	3.0	Very High	Medium
R2	69.3	70.8	1.5	Very High	Low
R3	67.7	68.1	0.4	Very High	Negligible
R4	70.5	70.4	-0.1	Very High	Negligible
R5	70.7	70.6	-0.1	Very High	Negligible
R6	69.7	71.5	1.8	Very High	Low

Table 10.47: Development - Night-time: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	2025 Without Development $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	2025 With Development $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	58.0	59.9	1.9	Very High	Low
R2	58.8	60.2	1.4	Very High	Low
R3	57.3	58.1	0.8	Very High	Negligible
R4	60.0	60.3	0.3	Very High	Negligible
R5	60.4	60.4	0.0	Very High	Negligible
R6	59.1	60.8	1.7	Very High	Low

Significance Evaluation Summary

Significance has been quantitatively evaluated for those receptors in the vicinity of the Development also in the vicinity of road traffic links with a change in daytime BNL of more than 1 dB(A) for the '2025 Future Baseline (without Development) vs 2025 Completed Development' assessment scenario.

Table 10.48: Development - Daytime: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	Noise Exposure Category	Noise Change Category	Significance Evaluation
R1	Very High	Medium	Significant
R2	Very High	Low	Significant
R3	Very High	Negligible	Not Significant
R4	Very High	Negligible	Not Significant
R5	Very High	Negligible	Not Significant
R6	Very High	Low	Significant

Table 10.49: Development - Night-time: 2025 Future Baseline vs 2025 With Development (Noise Change Category)

Receptor ID	Noise Exposure Category	Noise Change Category	Significance Evaluation
R1	Very High	Low	Significant
R2	Very High	Low	Significant
R3	Very High	Negligible	Not Significant
R4	Very High	Negligible	Not Significant
R5	Very High	Negligible	Not Significant
R6	Very High	Low	Significant

As shown, a significance outcome of 'Significant' is determined at receptors R1, R2 and R6, located in the vicinity of the Development. Consideration of site specific mitigation is therefore presented.

In addition, as shown in Table 10.39, receptors in the vicinity of the B4100 between the Western Development and Bicester, namely the residential properties at The Lodge, Swifts House Farm, Braeburn Avenue/ B4100, and Charlotte Avenue/ B4100 (Link 4 and 5, as shown in Figure 8.1, Chapter 8: Transport and Access), are likely to experience changes in BNL in the region of +2.1 dB(A). A qualitative consideration mitigation options with respect of receptors in these areas is also presented.

Proposed Management and Control Measures

There are a number of mitigation strategies that can be implemented to reduce these noise levels at the receptors in the vicinity of the Development, with the most appropriate suite of measures subject to agreement with CDC. Noise mitigation options with respect of the receptors located in the vicinity of the Development, which would be considered, and delivered pre-occupation of the units (i.e. R1, R2 and R6) include:

- A noise barrier - of sufficient density, to be located between the B4100 and the Western Development either on highways land (to be secured through a Section 278 (S.278) Agreement) or within the ownership boundary of the private dwellings. The specific design of any noise barrier will be the subject of further analysis, however for the purpose of significance evaluation a barrier with 2 metre height, located along the position illustrated in Figure 10.3 in Appendix 10.5, has been modelled;
- Low noise road surfacing – depending on the speeds of the road in question, and the existing road construction, the use of low noise road surfacing can achieve reductions in the region of 3 dB(A); or
- Financial contribution to the landowner of R1, R2 and R6, to contribute to upgrades in building insultation.

For those receptors located outside the spatial extents of the noise model, where a potential significant effect is determined for the night-time period with respect to the Development, namely the residential properties at The Lodge, Swifts House Farm, Braeburn Avenue/ B4100, and Charlotte Avenue/ B4100 (Link 4 and 5, as shown in Figure 8.1, Chapter 8: Transport and Access), the Travel Plan would set out measures to mitigate these impacts. The specific mitigation measures to be adopted in relation to these receptors will be determined as part of the development of the final design.

The specific mitigation measures to be adopted in relation to these receptors will be determined as part of the development of the final design.

Where Development associated traffic can be concentrated during periods of the night-time when baseline traffic flows are greatest, such as the shoulder periods at the beginning and end of the night-time (2300-0000hrs and 0600-0700hrs), this would reduce the overall change in noise levels experienced by receptors on the B4100, and the associated significance in EIA terms. However on a precautionary basis in the absence of any further study, the effects at these receptors are considered 'Significant'.

Mitigation, Monitoring and Residual Effects

For the purpose of significance evaluation, the noise model has been updated to include a 2m noise barrier, and the associated assessment scenarios updated in the tables below.

Table 10.50: Development - Daytime Road Traffic Noise Exposure with 2m Noise Barrier

Receptor ID	2019 Existing Baseline		2025 Future Baseline		2025 With Development	
	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB	$L_{A10,18hr}$ (f) dB	$L_{Aeq,16hr}$ dB
R1	69.0	64.5	69.3	64.8	68.8	64.3
R2	69.1	64.6	69.3	64.8	68.6	64.1
R3	67.1	62.6	67.7	63.2	67.7	63.2
R4	69.9	65.4	70.5	66.0	70.1	65.6
R5	70.0	65.5	70.7	66.2	70.6	66.1

R6	69.6	65.1	69.7	65.2	69.8	65.3

Table 10.51: Development - Night-time Road Traffic Noise Exposure with 2m Noise Barrier

Receptor ID	2019 Existing Baseline	2025 Future Baseline	2025 With Development
	$L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	$L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	$L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB
R1	57.5	58.0	56.7
R2	58.1	58.8	58.2
R3	56.7	57.3	57.7
R4	59.3	60.0	60.1
R5	59.8	60.4	60.4
R6	58.4	59.1	59.4

Table 10.52: Development - Daytime: 2025 Future Baseline vs 2025 With Development with 2m Noise Barrier (Noise Change Category)

Receptor ID	2025 Without Development $L_{A10,18hr}$ dB	2025 With Development $L_{A10,18hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	69.3	68.8	-0.5	Very High	Negligible
R2	69.3	68.6	-0.7	Very High	Negligible
R3	67.7	67.7	0.0	High	Negligible
R4	70.5	70.1	-0.4	Very High	Negligible
R5	70.7	70.6	-0.1	Very High	Negligible
R6	69.7	69.8	0.1	Very High	Negligible

Table 10.53: Development - Night-time: 2025 Future Baseline vs 2025 With Development with 2m Noise Barrier (Noise Change Category)

Receptor ID	2025 Without Development $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	2025 With Development $L_{night(outside)}$ / $L_{Aeq, 8hr}$ dB	Noise Change dB	Noise Exposure Category 'End State'	Noise Change Category
R1	58.0	56.7	-1.3	Very High	Negligible
R2	58.8	58.2	-0.6	Very High	Negligible
R3	57.3	57.7	0.4	Very High	Negligible
R4	60.0	60.1	0.1	Very High	Negligible
R5	60.4	60.4	0.0	Very High	Negligible
R6	59.1	59.4	0.3	Very High	Negligible

Table 10.54: Development - Daytime: 2025 Future Baseline vs 2025 With Development with 2m Noise Barrier (Noise Change Category)

Receptor ID	Noise Exposure Category	Noise Change Category	Significance Evaluation
R1	Very High	Negligible	Not Significant
R2	Very High	Negligible	Not Significant
R3	High	Negligible	Not Significant
R4	Very High	Negligible	Not Significant
R5	Very High	Negligible	Not Significant
R6	Very High	Negligible	Not Significant

Table 10.55: Development - Night-time: 2025 Future Baseline vs 2025 With Development with 2m Noise Barrier (Noise Change Category)

Receptor ID	Noise Exposure Category	Noise Change Category	Significance Evaluation
R1	Very High	Negligible	Not Significant
R2	Very High	Negligible	Not Significant
R3	Very High	Negligible	Not Significant
R4	Very High	Negligible	Not Significant
R5	Very High	Negligible	Not Significant
R6	Very High	Negligible	Not Significant

As shown, a significance outcome of 'Not Significant' is determined for those receptors in the vicinity of the Development, with the provision of a 2m noise barrier.

Further noise reductions, in the order of 3 dB, could be achieved with the provision of low noise road surfacing.

The specific mitigation measures to be adopted will be determined as part of the development of the final design.

For those receptors located outside the spatial extents of the noise model, where a potential significant effect is determined for the night-time period with respect to the Development, namely the residential properties at The Lodge, Swifts House Farm, Braeburn Avenue/ B4100, and Charlotte Avenue/ B4100, reductions in the overall change in noise levels experienced at the receptors could be achieved through the Travel Plan. The specific mitigation measures to be adopted in relation to these receptors will be determined as part of the development of the final design. This would reduce the change in noise levels, and likely associated significance in EIA terms. However on a precautionary basis in the absence of any further study, the effects at these receptors are considered 'Significant'

Appendix 10.6

ROAD TRAFFIC NOISE CONTOURS

Appendix 10.6: Road Traffic Noise Contours

Figure 0.1: 2019 Baseline Daytime Noise Exposure Categories

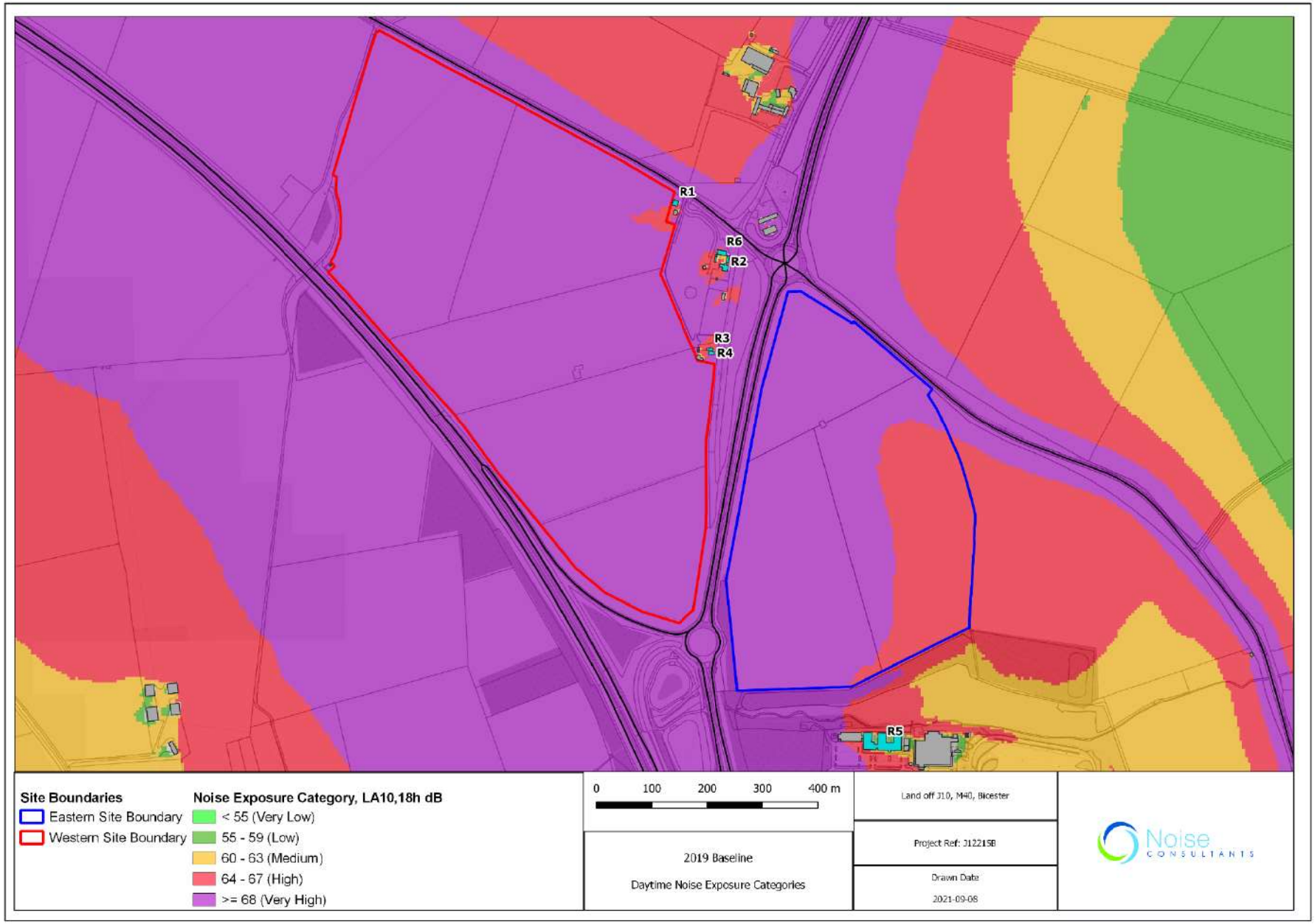


Figure 0.2: 2019 Baseline Night-time Noise Exposure Categories

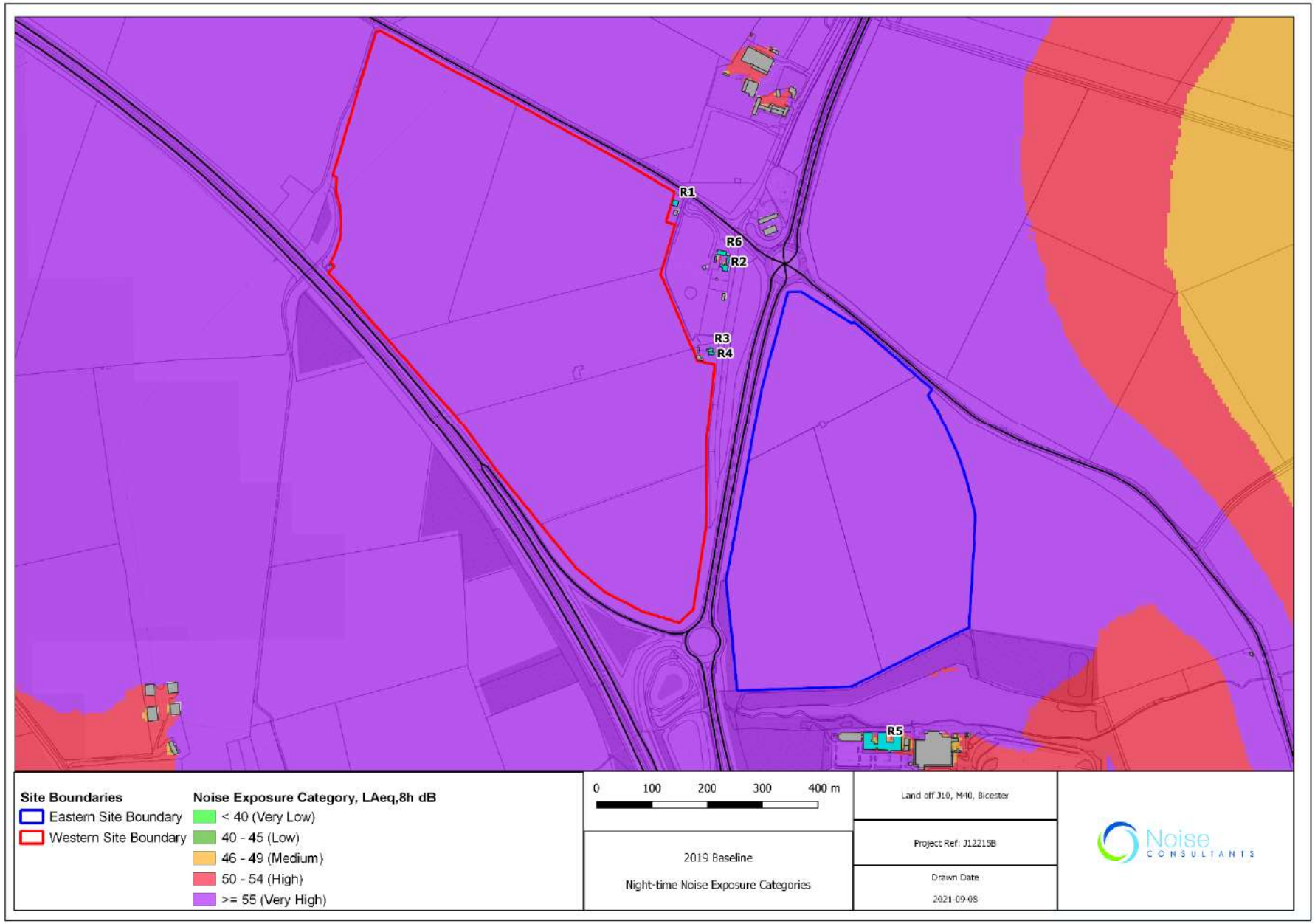


Figure 0.3: 2025 Future Baseline Daytime Noise Exposure Categories

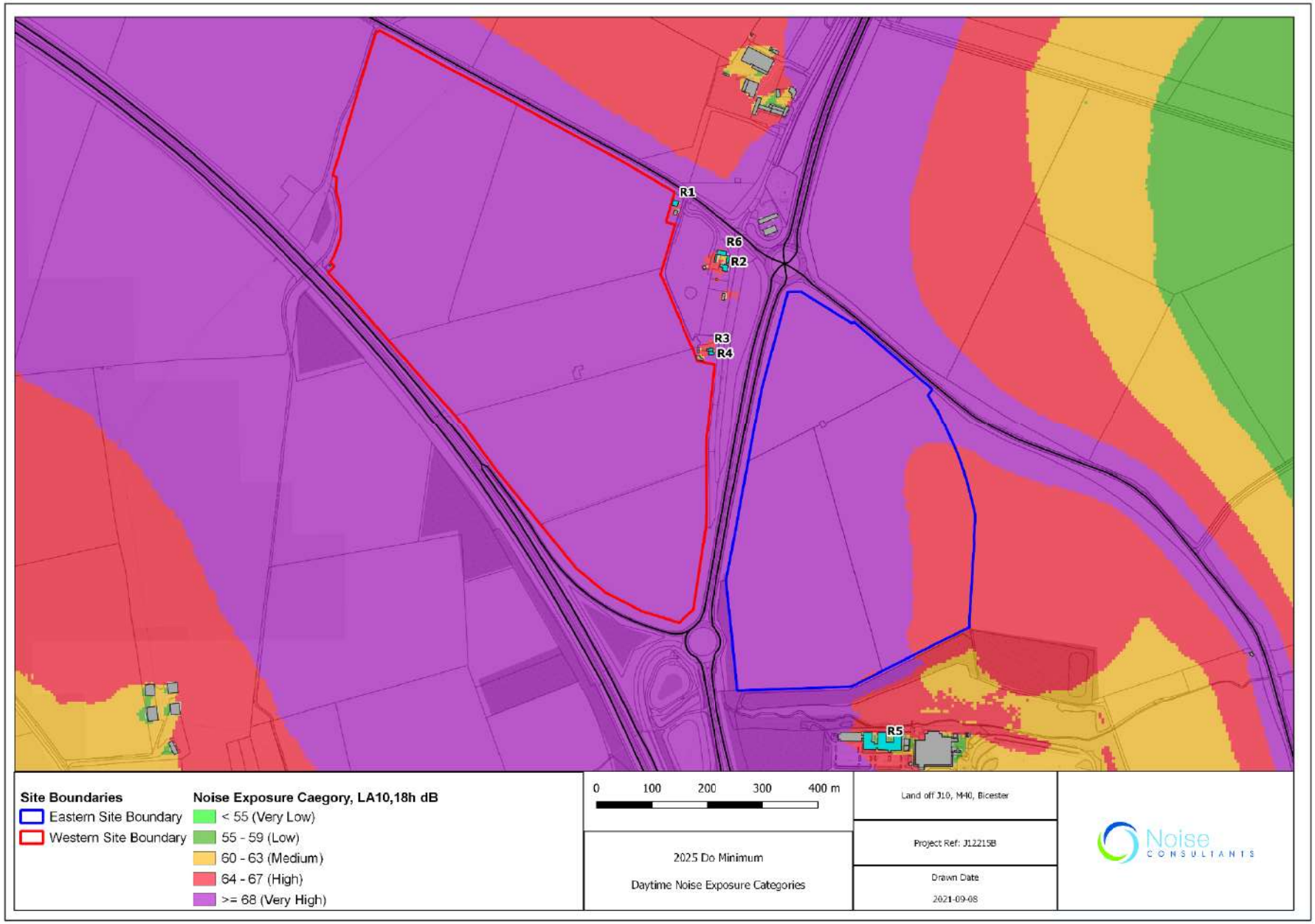


Figure 0.4: 2025 Future Baseline Night-time Noise Exposure Categories

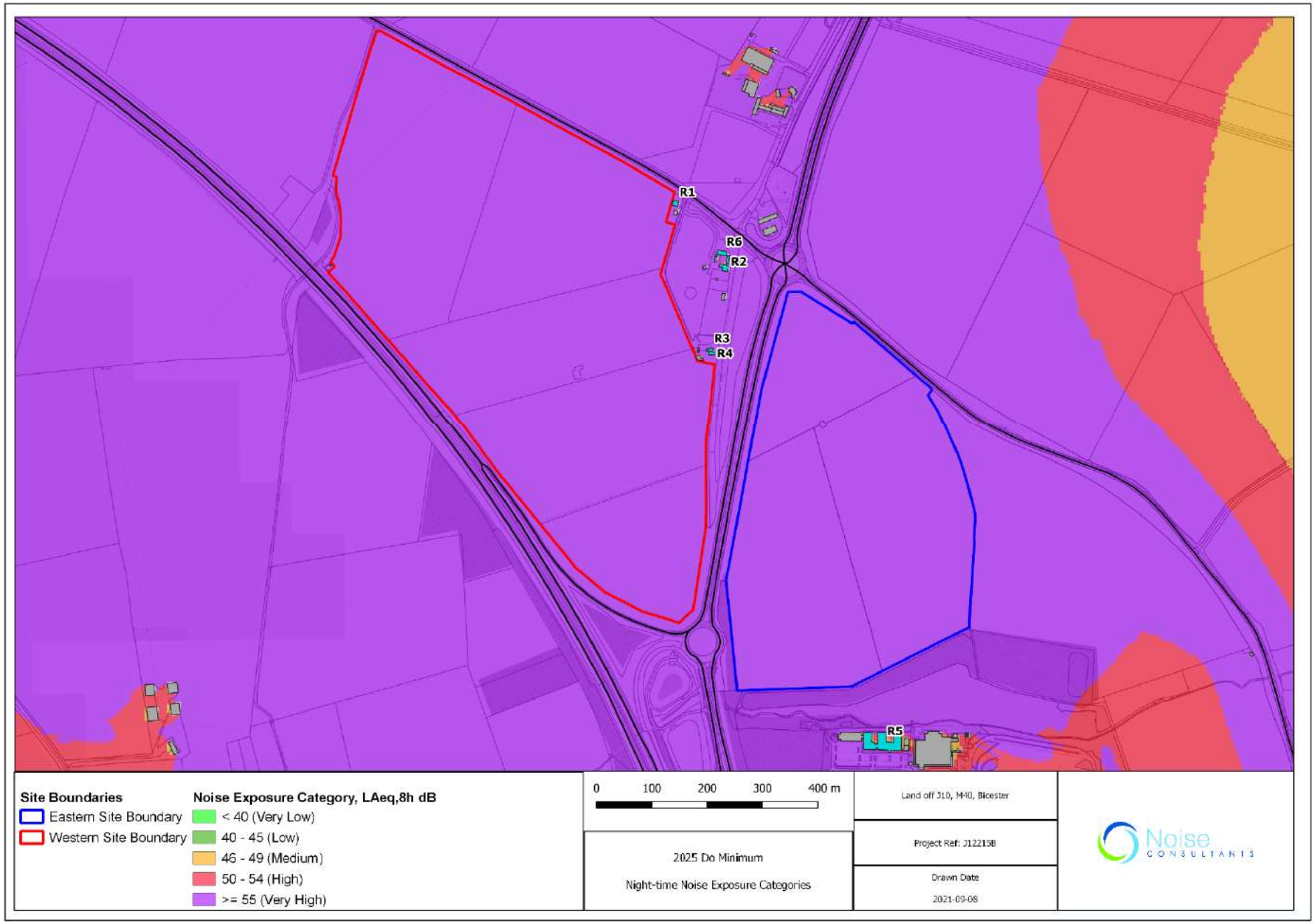


Figure 0.5: Eastern Development - 2025 With Development Daytime Noise Exposure Categories

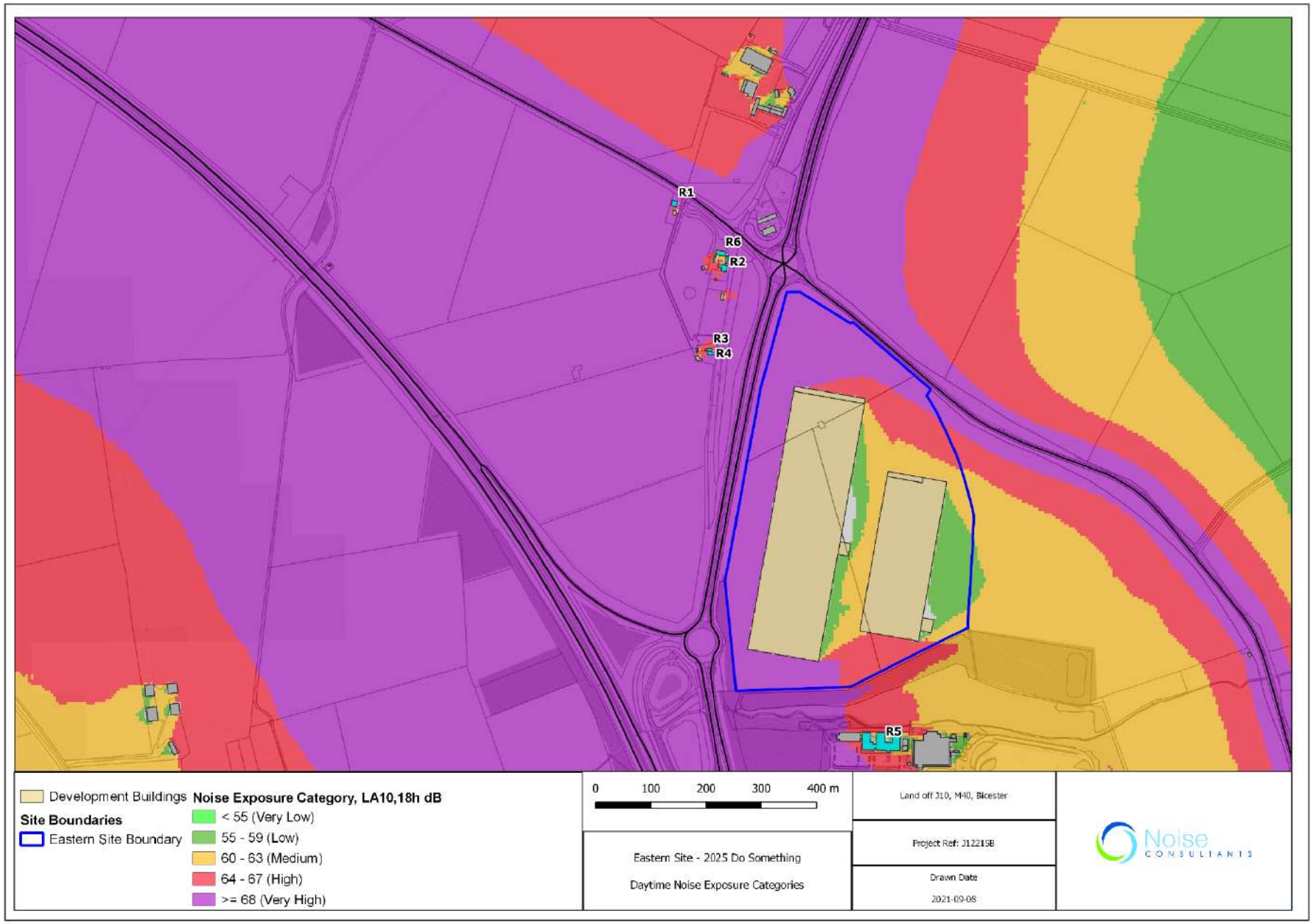


Figure 0.6: Eastern Development - 2025 With Development Night-time Noise Exposure Categories

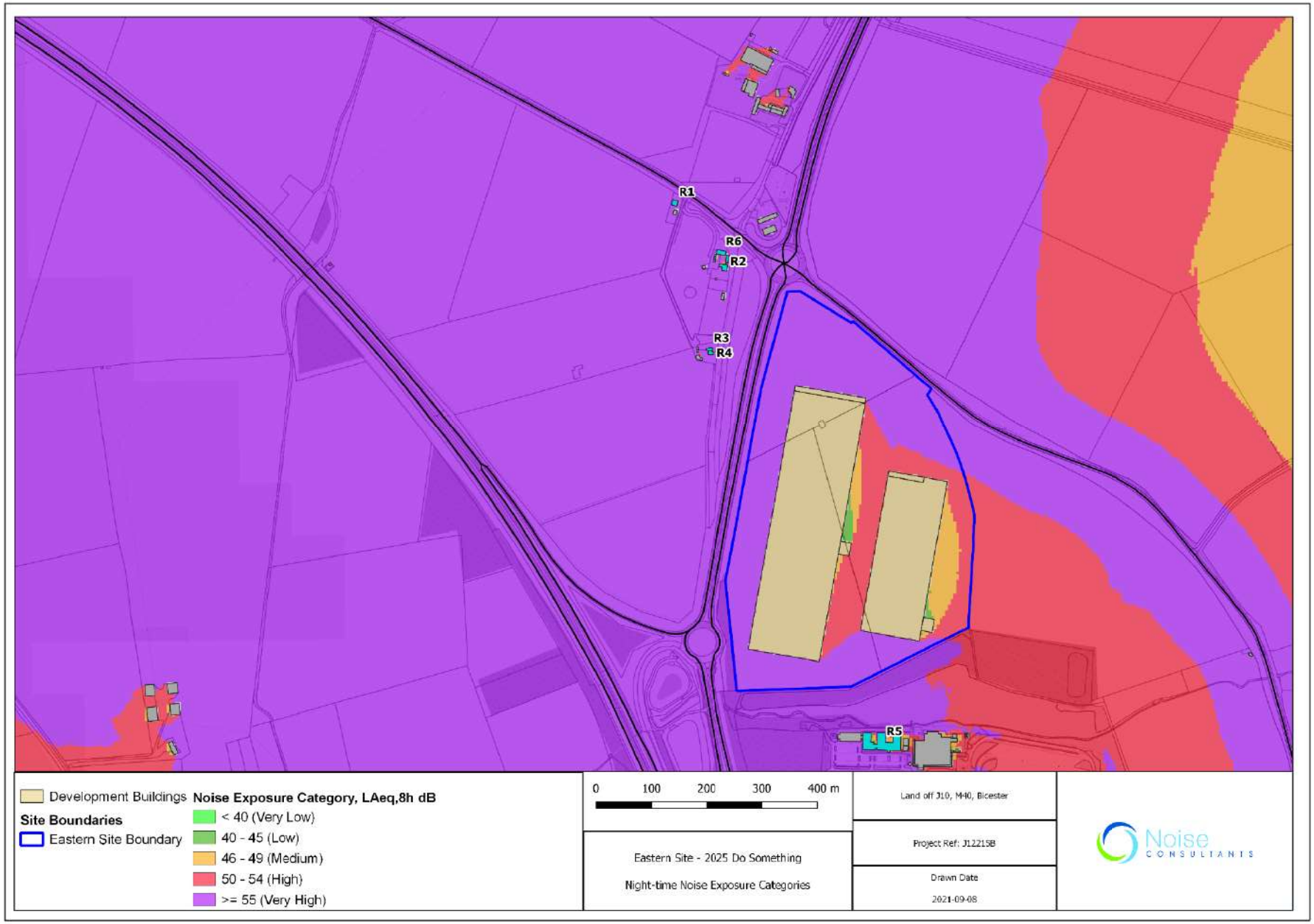


Figure 0.7: Western Development - 2025 With Development Daytime Noise Exposure Categories

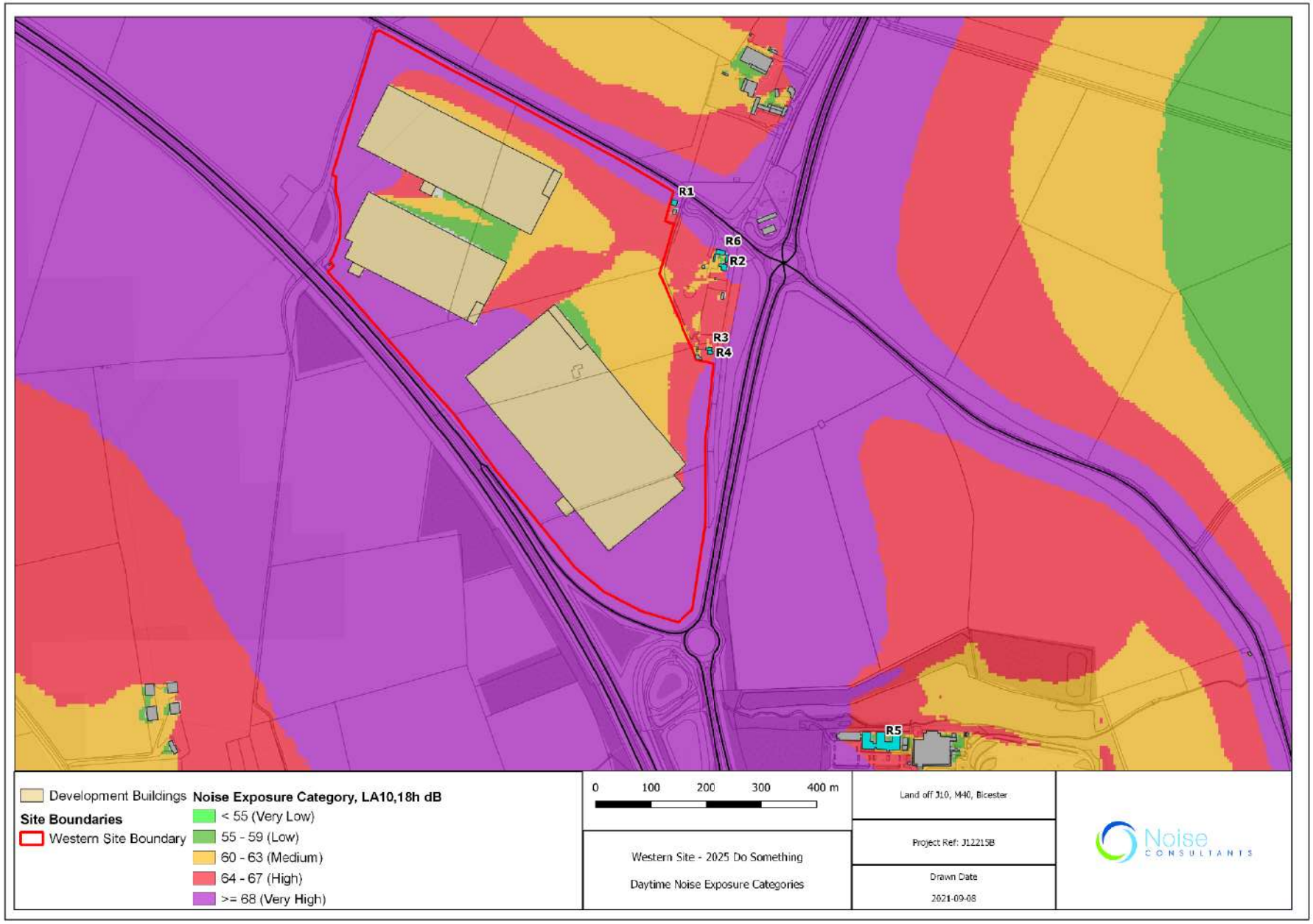


Figure 0.8: Western Development - 2025 With Development Night-time Noise Exposure Categories

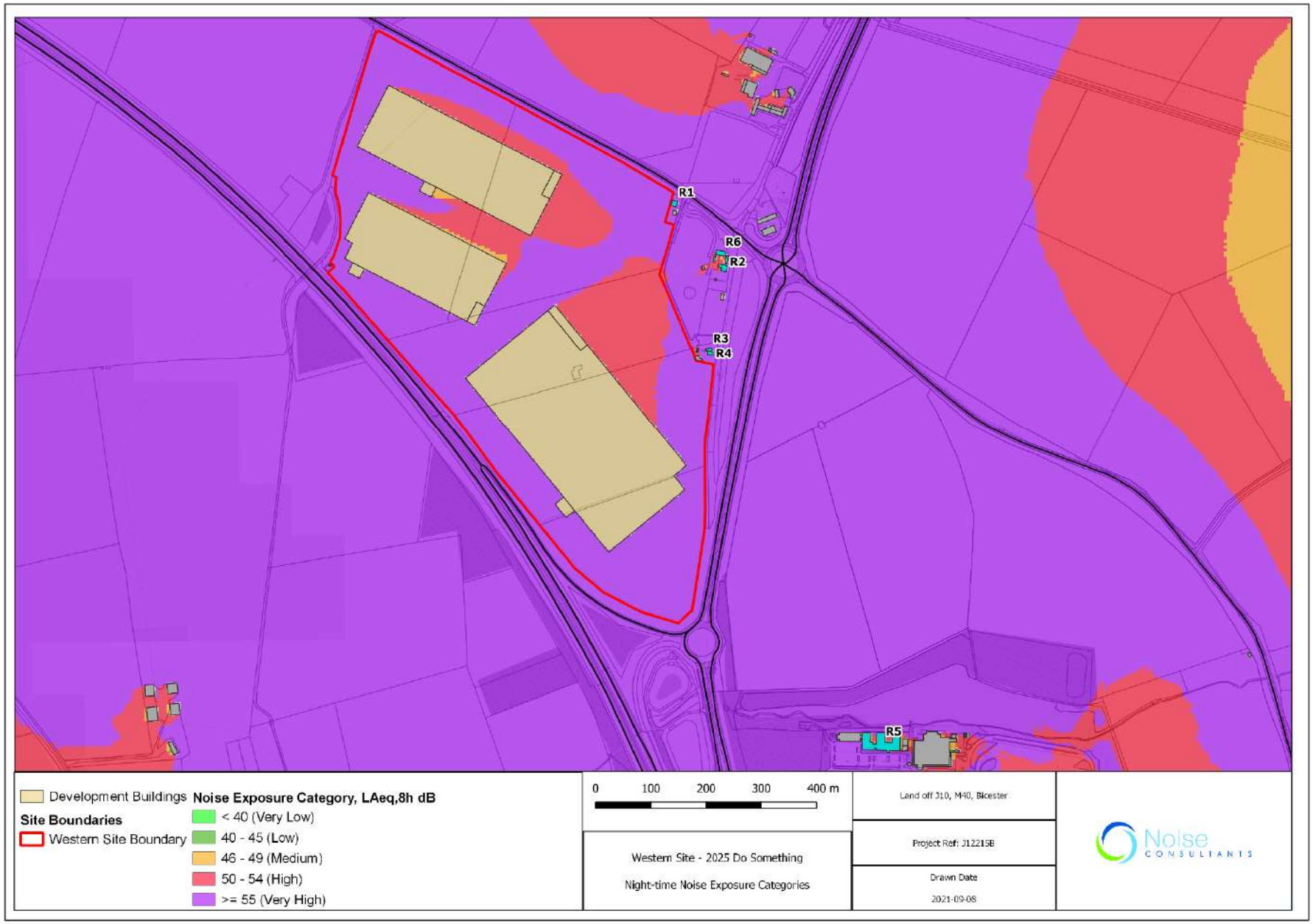


Figure 0.9: Development Site - 2025 With Development Daytime Noise Exposure Categories

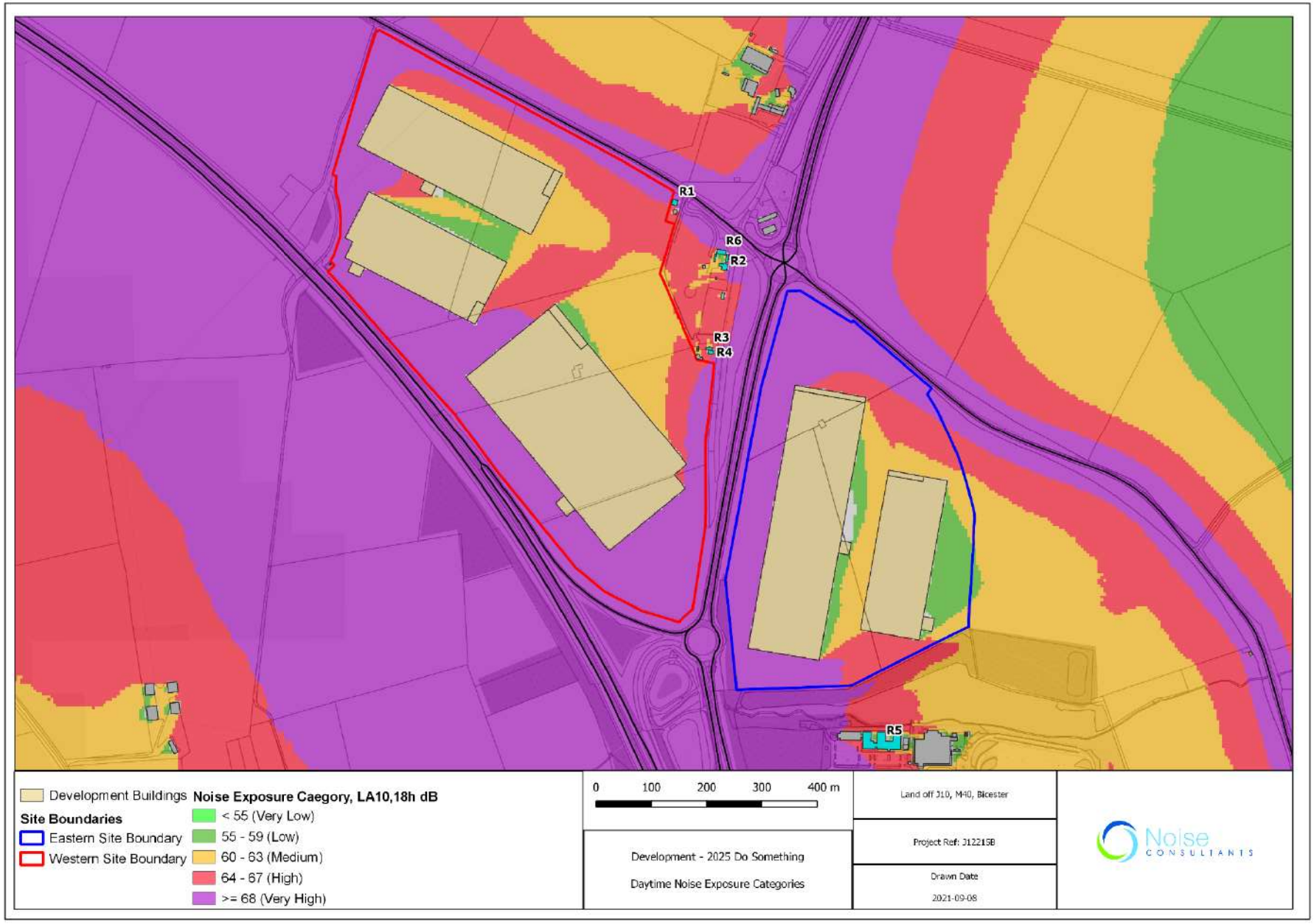
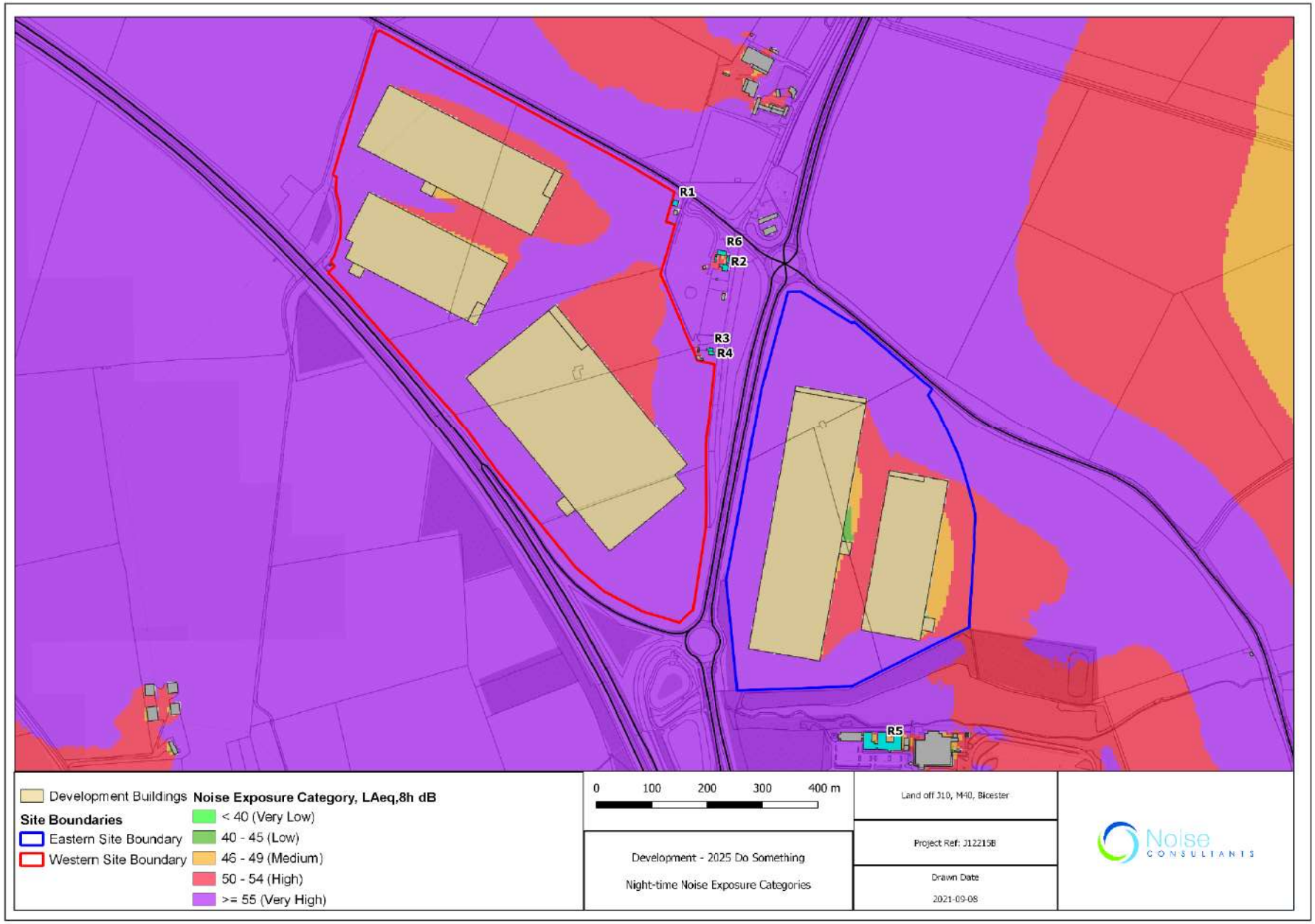


Figure 0.10: Development Site - 2025 With Development Night-time Noise Exposure Categories



Appendix 11.1

CULTURAL HERITAGE DESK BASED ASSESSMENT

CULTURUAL HERITAGE REPORT

Land at J10, M40, Baynards Green, Bicester

JAC27300
Land at J10, M40, Baynards Green, Bicester
Version 4
August 2021

rpsgroup.com

Quality Management

Version	Status	Authored by	Reviewed by	Approved by	Date
Version 1	Draft for Comment	James Archer	Sally Dicks	Sally Dicks	29/06/2021
Version 2	To Include Historic England NMR Data and Aerial Photographs	James Archer	Sally Dicks	Sally Dicks	20/07/2021
Version 3	Client comments	James Archer	Sally Dicks	Sally Dicks	02/08/2021
Version 4	To include for Built Heritage Assets	James Archer & Anja Ueberjahn-Trita	Thomas Copp	Thomas Copp	25/08/2021

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Prepared for:

Albion Land

EXECUTIVE SUMMARY

- Land at J10, M40, Baynards Green, Bicester has been assessed for its below ground archaeological potential as well as built heritage constraints in advance of proposed development.
- The proposed development will not impact on any designated archaeological assets or designated built heritage assets.
- The results of this assessment and recent geophysical survey have suggested a moderate archaeological potential at the site for the Later Prehistoric periods and for Saxon/Medieval rural and transient activity. A specific potential is identified in association with possible archaeological anomalies identified during geophysical survey. If present at the site, it is most likely that any remains would be of a local or possibly a regional significance.
- Past ground disturbance at the site is likely to have been widespread as a result of historic agricultural activity, as well as very localised areas of development and extraction.
- Overall, the site is likely to retain an archaeological potential and it is possible that development at the site could impact upon remains of a local or possibly regional significance.
- The site shares no visual or functional connection to any designated built heritage asset. The nearest heritage asset, comprising a Grade II listed Barn, has had its historical connection to the open countryside disrupted when the barn was converted for business use in the 20th century. Therefore, the site no longer contributes to its significance.
- Given that the results of this assessment and geophysical survey suggest that high significance remains which might preclude development or provide a material design consideration are unlikely to be present at the site or be impacted by proposals, per paragraph 194 of the NPPF it is suggested that this information is sufficient to confirm the site's suitability for development from an archaeological and built heritage perspective, and that any further archaeological works could be reasonably secured by an appropriately worded planning condition.

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1 INTRODUCTION AND SCOPE OF STUDY

1.1 This cultural heritage assessment, which includes for below ground archaeological remains and built heritage assets, has been produced by RPS Group on behalf of Albion Land.

1.2 The subject of this assessment, also known as the study site, is land at J10, M40, Baynards Green, Bicester. The Site is split into two land parcels, bisected by the route of the A43. The western site parcel is approximately 42ha in extent whilst the eastern site parcel comprises approximately 24ha in extent. The overall site is centred at SP 54700 28852 (Fig. 1) within the administrative area of Cherwell District.

1.3 Albion Land has commissioned RPS Heritage to establish the archaeological potential of the site, to identify relevant nearby built heritage assets, and to provide guidance on ways to address any heritage constraints identified.

1.4 In accordance with relevant policy and guidance, and in accordance with the 'Standard and Guidance for Historic Environment Desk-Based Assessments' (Chartered Institute for Archaeologists October 2020), this assessment draws together the available archaeological, built-heritage, topographic and land-use information in order to clarify the archaeological potential of the site and identify relevant built heritage assets.

1.5 This desk-based assessment comprises an examination of evidence on the Oxfordshire Historic Environment Record (HER), and other sources, and includes the results of a comprehensive map regression exercise and geophysical survey. A Written Scheme of Investigation was agreed with the Oxfordshire County Council Archaeologist for the methodology and scope of the archaeological input into this assessment (RPS May 2021 and see Appendix 1). A site visit was initially carried out in May 2021 with a follow-up visit in August 2021.

1.6 This assessment thus enables relevant parties to assess the archaeological potential of various parts of the site and to consider the need for design, civil engineering, and archaeological solutions to the archaeological potential identified.

1.7 It further assesses the significance of built heritage assets affected by the proposed development, the contribution made by their setting, as well as the impact of the proposed development upon this significance.

2 PLANNING BACKGROUND AND DEVELOPMENT PLAN FRAMEWORK

2.1 National legislation regarding archaeology, including scheduled monuments, is contained in the Ancient Monuments and Archaeological Areas Act 1979, amended by the National Heritage Act 1983 and 2002, and updated in April 2014.

2.2 In March 2012, the government published the National Planning Policy Framework (NPPF), which was most recently revised in July 2021. The NPPF is supported by the National Planning Practice Guidance (NPPG), which was published online 6th March 2014 and has since been periodically updated.

2.3 The NPPF and NPPG are additionally supported by three Good Practice Advice (GPA) documents published by Historic England: GPA 1: The Historic Environment in Local Plans; GPA 2: Managing Significance in Decision-Taking in the Historic Environment (both published March 2015). The second edition of GPA3: The Setting of Heritage Assets was published in December 2017.

National Planning Policy

2.4 Section 16 of the NPPF, entitled 'Conserving and Enhancing the Historic Environment' provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets. Overall, the objectives of Section 16 of the NPPF can be summarised as seeking the:

- Delivery of sustainable development;
- Understanding the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment;
- Conservation of England's heritage assets in a manner appropriate to their significance; and
- Recognition of the contribution that heritage makes a contribution towards our knowledge and understanding of the past.

2.5 Section 16 of the NPPF recognises that intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term. Paragraph 194 states that planning decisions should be based on the significance of the heritage asset and that the level of detail supplied by an applicant should be proportionate to the importance of the asset and should be *no more than sufficient* to review the potential impact of the proposal upon the significance of that asset.

2.6 *Heritage Assets* are defined in Annex 2 of the NPPF as: a building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. It includes designated heritage assets and assets identified by the local planning authority (including local listing).

2.7 Annex 2 also defines *Archaeological Interest* as a heritage asset which holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point.

2.8 A *Nationally Important Designated Heritage Asset* comprises a: World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant legislation.

2.9 *Significance* is defined as: The value of a heritage asset to this and future generations because of its heritage interest. This interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.

2.10 *Setting of a heritage asset* is defined as: The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.

2.11 In short, government policy provides a framework which:

- Protects nationally important designated Heritage Assets;
- Protects the settings of such designations;
- In appropriate circumstances seeks adequate information (from desk based assessment and field evaluation where necessary) to enable informed decisions;
- Provides for the excavation and investigation of sites not significant enough to merit *in-situ* preservation.

National Guidance

Planning Practice Guidance (DCLG)

2.12 The Planning Practice Guidance (PPG) has been adopted in order to aid the application of the NPPF. It reiterates that conservation of heritage assets in a manner appropriate to their significance is a core planning principle.

2.13 Key elements of the guidance relate to assessing harm. It states that substantial harm is a high bar that may not arise in many cases and that while the level of harm will be at the discretion of the decision maker, generally substantial harm is a high test that will only arise where a development seriously affects a key element of an asset's special interest. It is the degree of harm, rather than the scale of development, that is to be assessed.

Overview: Historic Environment Good Practice Advice in Planning

2.14 The PPS5 Practice Guide was withdrawn in March 2015 and replaced with three Good Practice Advice in Planning Notes (GPAs) published by Historic England. *GPA1: The Historic Environment in Local Plans* provides guidance to local planning authorities to help them make well informed and effective local plans. *GPA2: Managing Significance in Decision-Making* includes technical advice on the repair and restoration of historic buildings and alterations to heritage assets to guide local planning authorities, owners, practitioners and other interested parties. *GPA 3: The Setting of Heritage Assets* replaces guidance published in 2011. These are complemented by the Historic England Advice Notes in Planning which include *HEA1: Understanding Place: Conservation Area Designation, Appraisal and Management* (February 2016), *HEA2: Making Changes to Heritage Assets* (February 2016), *HEA3: The Historic Environment and Site Allocations in Local Plans* (October 2015), and *HEA4: Tall Buildings* (December 2015).

GPA1: The Historic Environment in Local Plans (March 2015)

2.15 This advice note focuses on the importance of identifying heritage policies within Local Plans. The advice echoes the NPPF by stressing the importance of formulating Local Plans based on up-to-date and relevant evidence on economic, social and environmental characteristics and prospects of the area, including the historic environment.

GPA2: Managing Significance in Decision-Taking in the Historic Environment (March 2015)

2.16 This document provides advice on numerous ways in which decision making in the historic environment could be undertaken, emphasising that the first step for all applicants is to understand the significance of any affected heritage asset and the contribution of its setting to that significance. In line with the NPPF and PPG, the document states that early engagement and expert advice in considering and assessing the significance of heritage assets is encouraged. The advice suggests a structured, staged approach to the assembly and analysis of relevant information:

1. Understand the significance of the affected assets;
2. Understand the impact of the proposal on that significance;
3. Avoid, minimise and mitigate impact in a way that meets the objectives of the NPPF;
4. Look for opportunities to better reveal or enhance significance;
5. Justify any harmful impacts in terms of the sustainable development objective of conserving significance balanced with the need for change; and
6. Offset negative impacts to significance by enhancing others through recording, disseminating and archiving archaeological and historical interest of the important elements of the heritage assets affected.

GPA3: The Setting of Heritage Assets (Second Edition; December 2017)

2.17 This advice note focuses on the management of change within the setting of heritage assets. This document replaces GPA3: The Setting of Heritage Assets (March 2017) and Seeing History in the View (English Heritage, 2011) in order to aid practitioners with the implementation of national legislation, policies and guidance relating to the setting of heritage assets found in the 1990 Act, the NPPF and PPG. The guidance is largely a continuation of the philosophy and approach of the 2011 and 2015 documents and does not present a divergence in either the definition of setting or the way in which it should be assessed.

2.18 As with the NPPF the document defines setting as *'the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve'*. Setting is also described as being a separate term to curtilage, character and context. The guidance emphasises that setting is not a heritage asset, nor a heritage designation, and that its importance lies in what it contributes to the significance of the heritage asset, or the ability to appreciate that significance. It also states that elements of setting may make a positive, negative or neutral contribution to the significance of the heritage asset.

2.19 While setting is largely a visual term, with views considered to be an important consideration in any assessment of the contribution that setting makes to the significance of an asset, and thus the way in which an asset is experienced, setting also encompasses other environmental factors including noise, vibration and odour. Historical and cultural associations may also form part of the asset's setting, which can inform or enhance the significance of a heritage asset.

2.20 This document provides guidance on practical and proportionate decision making with regards to the management of change within the setting of heritage assets. It is stated that the protection of the setting of a heritage asset need not prevent change and that decisions relating to such issues need to be based on the nature, extent and level of the significance of a heritage asset, further weighing up the potential public benefits associated with the proposals. It is further stated that changes within the setting of a heritage asset may have positive or neutral effects.