

Appendix 8.13

Railway Noise Predictions and Assessment

Appendix 8.13 Railway Noise Predictions and Assessment

Table 1 Predicted railway noise levels for daytime period – 07:00-23:00 (free-field)

Receptor		Predicted $L_{Aeq,16hr}$ (dB) from Railway Noise						
Name	Height (m)	2017 Baseline	2021 DM	2021 DS	2033 DM	2033 DS	2043 DM	2043 DS
R1 Woodpecker Way	1.5	53.6	54.0	54.1	55.3	55.5	55.8	56.1
R2 Northampton South SUE W	1.5	44.3	44.7	44.7	45.9	46.0	46.3	46.5
R3 Northampton South SUE S	1.5	38.6	39.0	38.8	40.2	40.1	40.6	40.6
R15 Collingtree Rd North	1.5	53.8	54.2	54.1	55.4	55.5	55.8	55.9
R16 Collingtree Rd South	1.5	52.2	52.6	52.1	53.8	53.4	54.2	53.8
R17 Collingtree Rd West	4.5*	55.9	56.3	56.1	57.5	57.4	57.9	57.8
R18 Collingtree Rd North	1.5	59.5	59.8	59.8	61.1	61.2	61.5	61.6
R19 Collingtree Rd South	1.5	56.5	56.8	56.8	58.0	58.1	58.5	58.7
R20 Stockwell Way	1.5	52.2	52.5	52.5	53.7	53.8	54.2	54.3
R21 Barn Lane	1.5	46.7	47.0	47.0	48.2	48.3	48.6	48.7
R23 Barn Ln	1.5	49.3	49.6	49.6	50.8	50.8	51.2	51.2
R24 Lodge Farm	1.5	55.4	55.7	55.7	56.9	56.9	57.3	57.3
R25 Barn Ln	1.5	44.0	44.3	44.3	45.5	45.5	45.9	45.9
R28 Courteenhall Rd	1.5	42.5	42.6	42.7	43.1	43.3	43.3	43.5
R31 Bridge Cottage North	1.5	49.8	49.8	49.8	50.1	50.1	50.2	50.3
R32 Bridge Cottage South	1.5	58.7	58.7	58.7	58.8	58.8	58.9	58.9
R33 Bridge Cottage West	1.5	62.6	62.6	62.6	62.6	62.6	62.7	62.7
R39 Bailey Brooks Ln West	1.5	55.7	55.8	55.8	56.1	56.2	56.3	56.4
R39a Bailey Brooks Ln West	1.5	50.4	50.4	50.4	50.7	50.8	50.8	50.9
R54 Ashton Rd W	1.5	67.8	68.0	68.0	68.5	68.6	68.7	68.9

Notes:
DM = Do Minimum, DS = Do Something;
* R17 does not have a window at 1.5 m so a receptor height of 4.5 m (where there is a window) has been used.

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Table 2 Assessment of predicted railway noise – 2021 daytime period

Receptor		L _{Aeq,16hr} (dB)		Do Something Effect Level	Change DS - DM	Impact Magnitude	Significant? (See Table 8.4)
Name	Height (m)	DM 2021	DS 2021				
R1 Woodpecker Way	1.5	54.0	54.1	Between LOAEL and SOAEL	0.1	Negligible	No
R2 Northampton South SUE W	1.5	44.7	44.7	<LOAEL	0.0	-	No
R3 Northampton South SUE S	1.5	39.0	38.8	<LOAEL	-0.2	-	No
R15 Collingtree Rd North	1.5	54.2	54.1	Between LOAEL and SOAEL	-0.1	Negligible	No
R16 Collingtree Rd South	1.5	52.6	52.1	Between LOAEL and SOAEL	-0.5	Negligible	No
R17 Collingtree Rd West	4.5*	56.3	56.1	Between LOAEL and SOAEL	-0.2	Negligible	No
R18 Collingtree Rd North	1.5	59.8	59.8	Between LOAEL and SOAEL	0.0	No Change	No
R19 Collingtree Rd South	1.5	56.8	56.8	Between LOAEL and SOAEL	0.0	No Change	No
R20 Stockwell Way	1.5	52.5	52.5	Between LOAEL and SOAEL	0.0	No Change	No
R21 Barn Lane	1.5	47.0	47.0	<LOAEL	0.0	-	No
R23 Barn Ln	1.5	49.6	49.6	<LOAEL	0.0	-	No
R24 Lodge Farm	1.5	55.7	55.7	Between LOAEL and SOAEL	0.0	No Change	No
R25 Barn Ln	1.5	44.3	44.3	<LOAEL	0.0	-	No
R28 Courteenhall Rd	1.5	42.6	42.7	<LOAEL	0.1	-	No
R31 Bridge Cottage North	1.5	49.8	49.8	<LOAEL	0.0	-	No
R32 Bridge Cottage South	1.5	58.7	58.7	Between LOAEL and SOAEL	0.0	No Change	No
R33 Bridge Cottage West	1.5	62.6	62.6	Between LOAEL and SOAEL	0.0	No Change	No
R39 Bailey Brooks Ln West	1.5	55.8	55.8	Between LOAEL and SOAEL	0.0	No Change	No
R39a Bailey Brooks Ln West	1.5	50.4	50.4	Between LOAEL and SOAEL	0.0	No Change	No
R54 Ashton Rd W	1.5	68.0	68.0	≥SOAEL	0.0	No Change	No

* R17 does not have a window at 1.5 m so a receptor height of 4.5 m (where there is a window) has been used.

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Table 3 Assessment of predicted railway noise – 2033 daytime period

Receptor		L _{Aeq,16hr} (dB)		Do Something Effect Level	Change DS - DM	Impact Magnitude	Significant? (See Table 8.4)
Name	Height (m)	DM 2033	DS 2033				
R1 Woodpecker Way	1.5	55.3	55.5	Between LOAEL and SOAEL	0.2	Negligible	No
R2 Northampton South SUE W	1.5	45.9	46.0	<LOAEL	0.1	-	No
R3 Northampton South SUE S	1.5	40.2	40.1	<LOAEL	-0.1	-	No
R15 Collingtree Rd North	1.5	55.4	55.5	Between LOAEL and SOAEL	0.1	Negligible	No
R16 Collingtree Rd South	1.5	53.8	53.4	Between LOAEL and SOAEL	-0.4	Negligible	No
R17 Collingtree Rd West	4.5*	57.5	57.4	Between LOAEL and SOAEL	-0.1	Negligible	No
R18 Collingtree Rd North	1.5	61.1	61.2	Between LOAEL and SOAEL	0.1	Negligible	No
R19 Collingtree Rd South	1.5	58.0	58.1	Between LOAEL and SOAEL	0.1	Negligible	No
R20 Stockwell Way	1.5	53.7	53.8	Between LOAEL and SOAEL	0.1	Negligible	No
R21 Barn Lane	1.5	48.2	48.3	<LOAEL	0.1	-	No
R23 Barn Ln	1.5	50.8	50.8	Between LOAEL and SOAEL	0.0	No Change	No
R24 Lodge Farm	1.5	56.9	56.9	Between LOAEL and SOAEL	0.0	No Change	No
R25 Barn Ln	1.5	45.5	45.5	<LOAEL	0.0	-	No
R28 Courteenhall Rd	1.5	43.1	43.3	<LOAEL	0.2	-	No
R31 Bridge Cottage North	1.5	50.1	50.1	Between LOAEL and SOAEL	0.0	No Change	No
R32 Bridge Cottage South	1.5	58.8	58.8	Between LOAEL and SOAEL	0.0	No Change	No
R33 Bridge Cottage West	1.5	62.6	62.6	Between LOAEL and SOAEL	0.0	No Change	No
R39 Bailey Brooks Ln West	1.5	56.1	56.2	Between LOAEL and SOAEL	0.1	Negligible	No
R39a Bailey Brooks Ln West	1.5	50.7	50.8	Between LOAEL and SOAEL	0.1	Negligible	No
R54 Ashton Rd W	1.5	68.5	68.6	≥SOAEL	0.1	Negligible	No

* R17 does not have a window at 1.5 m so a receptor height of 4.5 m (where there is a window) has been used.

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Table 4 Assessment of predicted railway noise – 2043 daytime period

Receptor		L _{Aeq,16hr} (dB)		Do Something Effect Level	Change DS - DM	Impact Magnitude	Significant? (See Table 8.4)
Name	Height (m)	DM 2043	DS 2043				
R1 Woodpecker Way	1.5	55.8	56.1	Between LOAEL and SOAEL	0.3	Negligible	No
R2 Northampton South SUE W	1.5	46.3	46.5	<LOAEL	0.2	-	No
R3 Northampton South SUE S	1.5	40.6	40.6	<LOAEL	0.0	-	No
R15 Collingtree Rd North	1.5	55.8	55.9	Between LOAEL and SOAEL	0.1	Negligible	No
R16 Collingtree Rd South	1.5	54.2	53.8	Between LOAEL and SOAEL	-0.4	Negligible	No
R17 Collingtree Rd West	4.5*	57.9	57.8	Between LOAEL and SOAEL	-0.1	Negligible	No
R18 Collingtree Rd North	1.5	61.5	61.6	Between LOAEL and SOAEL	0.1	Negligible	No
R19 Collingtree Rd South	1.5	58.5	58.7	Between LOAEL and SOAEL	0.2	Negligible	No
R20 Stockwell Way	1.5	54.2	54.3	Between LOAEL and SOAEL	0.1	Negligible	No
R21 Barn Lane	1.5	48.6	48.7	<LOAEL	0.1	-	No
R23 Barn Ln	1.5	51.2	51.2	Between LOAEL and SOAEL	0.0	No Change	No
R24 Lodge Farm	1.5	57.3	57.3	Between LOAEL and SOAEL	0.0	No Change	No
R25 Barn Ln	1.5	45.9	45.9	<LOAEL	0.0	-	No
R28 Courteenhall Rd	1.5	43.3	43.5	<LOAEL	0.2	-	No
R31 Bridge Cottage North	1.5	50.2	50.3	Between LOAEL and SOAEL	0.1	Negligible	No
R32 Bridge Cottage South	1.5	58.9	58.9	Between LOAEL and SOAEL	0.0	No Change	No
R33 Bridge Cottage West	1.5	62.7	62.7	Between LOAEL and SOAEL	0.0	No Change	No
R39 Bailey Brooks Ln West	1.5	56.3	56.4	Between LOAEL and SOAEL	0.1	Negligible	No
R39a Bailey Brooks Ln West	1.5	50.8	50.9	Between LOAEL and SOAEL	0.1	Negligible	No
R54 Ashton Rd W	1.5	68.7	68.9	≥SOAEL	0.2	Negligible	No

* R17 does not have a window at 1.5 m so a receptor height of 4.5 m (where there is a window) has been used.

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Table 5 Predicted railway noise levels for night-time period – 23:00-07:00 (free-field)

Receptor		Predicted L _{Aeq,8hr} (dB) from Railway Noise						
Name	Height (m)	2017 Baseline	2021 DM	2021 DS	2033 DM	2033 DS	2043 DM	2043 DS
R1 Woodpecker Way	4.5	55.0	55.5	55.9	57.6	58.3	58.4	59.1
R2 Northampton South SUE W	4.5	42.3	42.7	43.0	44.7	45.2	45.6	46.2
R3 Northampton South SUE S	4.5	36.1	36.5	36.7	38.5	38.8	39.4	39.7
R15 Collingtree Rd North	4.5	50.8	51.3	51.5	53.3	53.6	54.1	54.5
R16 Collingtree Rd South	4.5	49.7	50.2	50.2	52.2	52.3	53.0	53.1
R17 Collingtree Rd West	4.5	52.1	52.6	52.6	54.6	54.7	55.4	55.6
R18 Collingtree Rd North	4.5	58.5	58.9	59.1	60.9	61.3	61.7	62.1
R19 Collingtree Rd South	4.5	55.4	55.9	56.1	57.8	58.2	58.7	59.1
R20 Stockwell Way	1.5*	48.4	48.8	49.1	50.8	51.2	51.6	52.1
R21 Barn Lane	4.5	43.6	44.0	44.2	46.0	46.3	46.9	47.3
R23 Barn Ln	4.5	46.5	46.9	46.9	48.9	48.9	49.8	49.9
R24 Lodge Farm	4.5	52.6	53.0	53.0	55.0	55.0	55.9	55.9
R25 Barn Ln	1.5*	40.2	40.6	40.6	42.7	42.7	43.5	43.5
R28 Courteenhall Rd	4.5	37.2	37.6	37.8	39.7	40.3	40.6	41.2
R31 Bridge Cottage North	4.5	47.6	48.1	48.1	50.3	50.4	51.1	51.3
R32 Bridge Cottage South	4.5	57.4	57.9	57.9	60.2	60.2	61.0	61.1
R33 Bridge Cottage West	4.5	58.4	58.9	58.9	61.1	61.2	61.9	62.0
R39 Bailey Brooks Ln West	4.5	55.0	55.5	55.6	57.7	57.9	58.5	58.8
R39a Bailey Brooks Ln West	4.5	45.6	46.1	46.2	48.2	48.5	49.1	49.5
R54 Ashton Rd W	4.5	62.6	63.0	63.2	65.2	65.8	66.1	66.9

Notes:
DM = Do Minimum, DS = Do Something;
* R20 & R25 are single storey so a receptor height of 1.5 m has been used.

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Table 6 Assessment of predicted railway noise – 2021 night-time period

Receptor		L _{Aeq,8hr} (dB)		Do Something Effect Level	Change 2021 DS - DM	Impact Magnitude	Significant? (See Table 8.5)
Name	Height (m)	DM 2021	DS 2021				
R1 Woodpecker Way	4.5	55.5	55.9	≥SOAEL	0.4	Negligible	No
R2 Northampton South SUE W	4.5	42.7	43.0	Between LOAEL and SOAEL	0.3	Negligible	No
R3 Northampton South SUE S	4.5	36.5	36.7	<LOAEL	0.2	-	No
R15 Collingtree Rd North	4.5	51.3	51.5	Between LOAEL and SOAEL	0.2	Negligible	No
R16 Collingtree Rd South	4.5	50.2	50.2	Between LOAEL and SOAEL	0.0	No Change	No
R17 Collingtree Rd West	4.5	52.6	52.6	Between LOAEL and SOAEL	0.0	No Change	No
R18 Collingtree Rd North	4.5	58.9	59.1	≥SOAEL	0.2	Negligible	No
R19 Collingtree Rd South	4.5	55.9	56.1	≥SOAEL	0.2	Negligible	No
R20 Stockwell Way	1.5*	48.8	49.1	Between LOAEL and SOAEL	0.3	Negligible	No
R21 Barn Lane	4.5	44.0	44.2	Between LOAEL and SOAEL	0.2	Negligible	No
R23 Barn Ln	4.5	46.9	46.9	Between LOAEL and SOAEL	0.0	No Change	No
R24 Lodge Farm	4.5	53.0	53.0	Between LOAEL and SOAEL	0.0	No Change	No
R25 Barn Ln	1.5*	40.6	40.6	Between LOAEL and SOAEL	0.0	No Change	No
R28 Courteenhall Rd	4.5	37.6	37.8	<LOAEL	0.2	-	No
R31 Bridge Cottage North	4.5	48.1	48.1	Between LOAEL and SOAEL	0.0	No Change	No
R32 Bridge Cottage South	4.5	57.9	57.9	≥SOAEL	0.0	No Change	No
R33 Bridge Cottage West	4.5	58.9	58.9	≥SOAEL	0.0	No Change	No
R39 Bailey Brooks Ln West	4.5	55.5	55.6	≥SOAEL	0.1	Negligible	No
R39a Bailey Brooks Ln West	4.5	46.1	46.2	Between LOAEL and SOAEL	0.1	Negligible	No
R54 Ashton Rd W	4.5	63.0	63.2	≥SOAEL	0.2	Negligible	No

* R20 & R25 are single storey so a receptor height of 1.5 m has been used.

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Table 7 Assessment of predicted railway noise – 2033 night-time period

Receptor		L _{Aeq,8hr} (dB)		Do Something Effect Level	Change 2033 DS - DM	Impact Magnitude	Significant? (See Table 8.5)
Name	Height (m)	DM 2033	DS 2033				
R1 Woodpecker Way	4.5	57.6	58.3	≥SOAEL	0.7	Negligible	No
R2 Northampton South SUE W	4.5	44.7	45.2	Between LOAEL and SOAEL	0.5	Negligible	No
R3 Northampton South SUE S	4.5	38.5	38.8	<LOAEL	0.3	-	No
R15 Collingtree Rd North	4.5	53.3	53.6	Between LOAEL and SOAEL	0.3	Negligible	No
R16 Collingtree Rd South	4.5	52.2	52.3	Between LOAEL and SOAEL	0.1	Negligible	No
R17 Collingtree Rd West	4.5	54.6	54.7	Between LOAEL and SOAEL	0.1	Negligible	No
R18 Collingtree Rd North	4.5	60.9	61.3	≥SOAEL	0.4	Negligible	No
R19 Collingtree Rd South	4.5	57.8	58.2	≥SOAEL	0.4	Negligible	No
R20 Stockwell Way	1.5*	50.8	51.2	Between LOAEL and SOAEL	0.4	Negligible	No
R21 Barn Lane	4.5	46.0	46.3	Between LOAEL and SOAEL	0.3	Negligible	No
R23 Barn Ln	4.5	48.9	48.9	Between LOAEL and SOAEL	0.0	No Change	No
R24 Lodge Farm	4.5	55.0	55.0	≥SOAEL	0.0	No Change	No
R25 Barn Ln	1.5*	42.7	42.7	Between LOAEL and SOAEL	0.0	No Change	No
R28 Courteenhall Rd	4.5	39.7	40.3	Between LOAEL and SOAEL	0.6	Negligible	No
R31 Bridge Cottage North	4.5	50.3	50.4	Between LOAEL and SOAEL	0.1	Negligible	No
R32 Bridge Cottage South	4.5	60.2	60.2	≥SOAEL	0.0	No Change	No
R33 Bridge Cottage West	4.5	61.1	61.2	≥SOAEL	0.1	Negligible	No
R39 Bailey Brooks Ln West	4.5	57.7	57.9	≥SOAEL	0.2	Negligible	No
R39a Bailey Brooks Ln West	4.5	48.2	48.5	Between LOAEL and SOAEL	0.3	Negligible	No
R54 Ashton Rd W	4.5	65.2	65.8	≥SOAEL	0.6	Negligible	No

* R20 & R25 are single storey so a receptor height of 1.5 m has been used.

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Table 8 Assessment of predicted railway noise – 2043 night-time period

Receptor		L _{Aeq,8hr} (dB)		Do Something Effect Level	Change 2043 DS - DM	Impact Magnitude	Significant? (See Table 8.5)
Name	Height (m)	DM 2043	DS 2043				
R1 Woodpecker Way	4.5	58.4	59.1	≥SOAEL	0.7	Negligible	No
R2 Northampton South SUE W	4.5	45.6	46.2	Between LOAEL and SOAEL	0.6	Negligible	No
R3 Northampton South SUE S	4.5	39.4	39.7	<LOAEL	0.3	-	No
R15 Collingtree Rd North	4.5	54.1	54.5	Between LOAEL and SOAEL	0.4	Negligible	No
R16 Collingtree Rd South	4.5	53	53.1	Between LOAEL and SOAEL	0.1	Negligible	No
R17 Collingtree Rd West	4.5	55.4	55.6	≥SOAEL	0.2	Negligible	No
R18 Collingtree Rd North	4.5	61.7	62.1	≥SOAEL	0.4	Negligible	No
R19 Collingtree Rd South	4.5	58.7	59.1	≥SOAEL	0.4	Negligible	No
R20 Stockwell Way	1.5*	51.6	52.1	Between LOAEL and SOAEL	0.5	Negligible	No
R21 Barn Lane	4.5	46.9	47.3	Between LOAEL and SOAEL	0.4	Negligible	No
R23 Barn Ln	4.5	49.8	49.9	Between LOAEL and SOAEL	0.1	Negligible	No
R24 Lodge Farm	4.5	55.9	55.9	≥SOAEL	0.0	No Change	No
R25 Barn Ln	1.5*	43.5	43.5	Between LOAEL and SOAEL	0.0	No Change	No
R28 Courteenhall Rd	4.5	40.6	41.2	Between LOAEL and SOAEL	0.6	Negligible	No
R31 Bridge Cottage North	4.5	51.1	51.3	Between LOAEL and SOAEL	0.2	Negligible	No
R32 Bridge Cottage South	4.5	61	61.1	≥SOAEL	0.1	Negligible	No
R33 Bridge Cottage West	4.5	61.9	62.0	≥SOAEL	0.1	Negligible	No
R39 Bailey Brooks Ln West	4.5	58.5	58.8	≥SOAEL	0.3	Negligible	No
R39a Bailey Brooks Ln West	4.5	49.1	49.5	Between LOAEL and SOAEL	0.4	Negligible	No
R54 Ashton Rd W	4.5	66.1	66.9	≥SOAEL	0.8	Negligible	No

* R20 & R25 are single storey so a receptor height of 1.5 m has been used.

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Table 9 Potential increase in the number of noise induced awakenings per night as a result of maximum noise levels from the additional freight trains serving the SRFI

Receptor	With Windows Open			With Windows Closed		
	2021	2033	2043	2021	2033	2043
R1 Woodpecker Way	0.3	0.8	1.1	0.2	0.5	0.7
R18 Collingtree Rd North	0.3	0.8	1.1	0.2	0.5	0.7
R24 Lodge Farm	0.1	0.2	0.3	0.0	0.0	0.0
R32 Bridge Cottage South	0.1	0.6	0.7	0.0	0.4	0.5
R39 Bailey Brooks Ln West	0.2	0.7	0.9	0.1	0.4	0.6
R54 Ashton Rd W	0.3	0.9	1.2	0.2	0.6	0.8