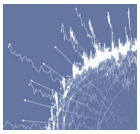
Appendix D Barrier Calculations

Barrier calculation for the eastern end of The Site with the barrier calculated on the existing fence line between the Distribution Warehouse and the closest NSR at MP1.

The activity sounds were generally at ground level. Vehicle sound source height is taken as 0.5m from the road surface (CRTN, 1988). The greater and more onerous height of 0.5m is used.
Assessment height taken as the Monitoring height of 1.5m.

This provides the necessary information for the barrier calculation for the proposed fence on the boundary between The Site and Madley Industrial Estate.



Barrier Calculation - Source Data 2.4m Fence MP1

Source to barrier	18.50
Barrier to receiver	4.50
Barrier height difference to source	1.90
Barrier height difference to receiver	0.90
Height difference source to receiver	1.00
Source to receiver direct (c)	23.02
Source to barrier top (a)	18.60
Receiver to barrier top (b)	4.59
Path difference (c-(a+b))	0.16

Broadband LAeq (dB)	
Measured level	55.3
Mitigated Figure	41.4
Reduction	13.9

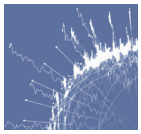
Reduction=10*LOG (3+(40*Path Difference*Frequency)/344)

Frequency band (Hz)	Path difference	Reduction (dB)	Readings (Day)	With Barrier
12.5	0.164700329	5.10463239	-4.9	-10.00463239
16	0.164700329	5.193579165	-4.9	-10.09357916
20	0.164700329	5.293050816	-4.7	-9.993050816
25	0.164700329	5.41426968	4.8	-0.61426968
31.5	0.164700329	5.566959422	14.1	8.533040578
40	0.164700329	5.758858561	13.6	7.841141439
50	0.164700329	5.974275139	30.5	24.52572486
63	0.164700329	6.239235434	27.4	21.16076457
80	0.164700329	6.562991091	27.3	20.73700891
100	0.164700329	6.915341351	24.8	17.88465865
125	0.164700329	7.319029017	23	15.68097098
160	0.164700329	7.827729558	24.1	16.27227044
200	0.164700329	8.344359781	25.9	17.55564022
250	0.164700329	8.914148051	36.7	27.78585195
315	0.164700329	9.558141413	36.7	27.14185859
400	0.164700329	10.27776778	38.5	28.22223222
500	0.164700329	10.99528734	40.6	29.60471266
630	0.164700329	11.77976536	43.4	31.62023464
800	0.164700329	12.62948247	43.3	30.67051753
1000	0.164700329	13.4539728	45.3	31.8460272
1250	0.164700329	14.30381492	47.4	33.09618508
1600	0.164700329	15.26880796	49.3	34.03119204
2000	0.164700329	16.15975312	45.2	29.04024688
2500	0.164700329	17.06530054	44.3	27.23469946
3150	0.164700329	18.01584001	40.9	22.88415999
4000	0.164700329	19.0093928	39.5	20.4906072
5000	0.164700329	19.94563515	37.9	17.95436485
6300	0.164700329	20.92203136	36.5	15.57796864
8000	0.164700329	21.93707745	31.7	9.762922552
10000	0.164700329	22.88946424	23.9	1.010535761
12500	0.164700329	23.84514723	18.9	-4.945147233
16000	0.164700329	24.90547284	9.2	-15.70547284
20000	0.164700329	25.86614331	0.2	-25.66614331
Broadband LAeq (dB)			**55.3**	**41.4**

Barrier calculation for the western end of The Site with the barrier calculated on the existing fence line between the Commercial Vehicle Workshop and the closest NSR at MP2.

Vehicle sound source height is taken as 0.5m from the road surface (CRTN, 1988).
Assessment height taken as the Monitoring height of 1.5m.

This provides the necessary information for the barrier calculation for the proposed fence on the boundary between The Site and Madley Industrial Estate.



Barrier Calculation - Source Data 2.4m Fence MP2

Source to barrier	36.00
Barrier to receiver	4.00
Barrier height difference to source	1.90
Barrier height difference to receiver	0.90
Height difference source to receiver	1.00
Source to receiver direct (c)	40.01
Source to barrier top (a)	36.05
Receiver to barrier top (b)	4.10
Path difference (c-(a+b))	0.14

Broadband LAeq (dB)	
Measured level	58.4
Mitigated Figure	46.7
Reduction	11.8

Reduction=10*LOG (3+(40*Path Difference*Frequency)/344)

Frequency band (Hz)	Path difference	Reduction (dB)	Readings (Day)	With Barrier
12.5	0.137605975	5.051511569	-4.9	-9.951511569
16	0.137605975	5.126858788	-4.2	-9.326858788
20	0.137605975	5.211399012	0.7	-4.511399012
25	0.137605975	5.314811355	7	1.685188645
31.5	0.137605975	5.445668098	20.4	14.9543319
40	0.137605975	5.611046991	22.4	16.78895301
50	0.137605975	5.797875665	28	22.20212434
63	0.137605975	6.029324553	33.4	27.37067545
80	0.137605975	6.314494084	37	30.68550592
100	0.137605975	6.627643906	34.2	27.57235609
125	0.137605975	6.989775471	36.1	29.11022453
160	0.137605975	7.450834738	40.4	32.94916526
200	0.137605975	7.92401422	40.1	32.17598578
250	0.137605975	8.451088153	43.9	35.44891185
315	0.137605975	9.052678694	43.6	34.54732131
400	0.137605975	9.731406922	45.1	35.36859308
500	0.137605975	10.41406399	48.1	37.68593601
630	0.137605975	11.16622276	47.8	36.63377724
800	0.137605975	11.98672363	48.9	36.91327637
1000	0.137605975	12.7876948	49.2	36.4123052
1250	0.137605975	13.61744233	49.7	36.08255767
1600	0.137605975	14.56382912	50.1	35.53617088
2000	0.137605975	15.44085285	46.2	30.75914715
2500	0.137605975	16.33485997	43.6	27.26514003
3150	0.137605975	17.27559054	42.1	24.82440946
4000	0.137605975	18.26092815	40.1	21.83907185
5000	0.137605975	19.19096267	36.6	17.40903733
6300	0.137605975	20.16215665	34.4	14.23784335
8000	0.137605975	21.1728972	30.8	9.627102796
10000	0.137605975	22.12206114	26.5	4.377938861
12500	0.137605975	23.07514616	21.3	-1.775146158
16000	0.137605975	24.13318402	22.8	-1.333184022
20000	0.137605975	25.09221204	7.6	-17.49221204
Broadband LAeq (dB)			**58.4**	**46.7**