

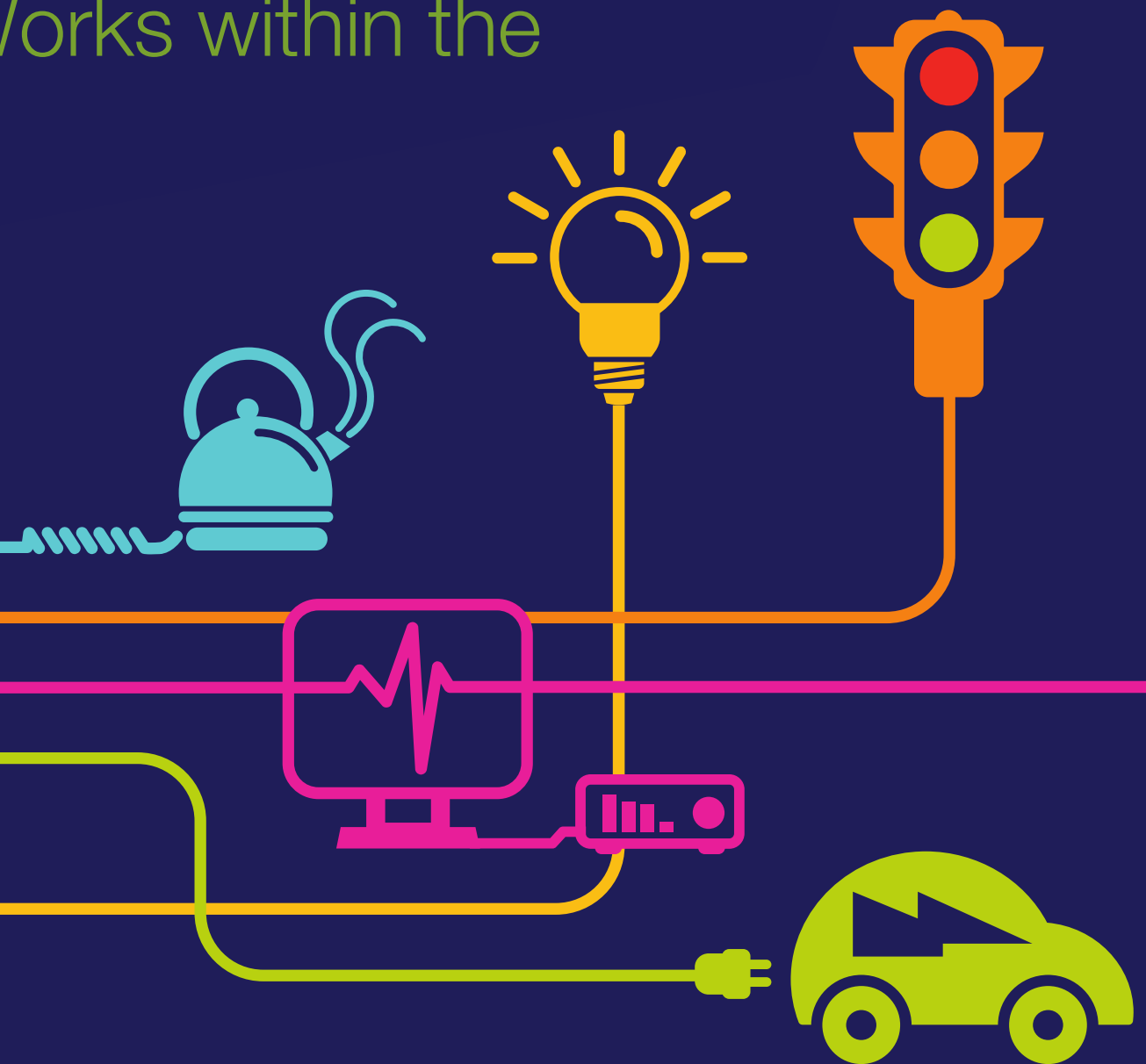
# DOCUMENT 5.15.2.13

## Assessment of Noise Effects from Works within the Tŷ Fodol Construction Compound

### Chapter 15 – Appendix 13

National Grid (North Wales Connection Project)

*Regulation 5(2)(a) including (l) and (m) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009*







## **North Wales Connection Project**

### **Volume 5**

## **Document 5.15.2.13 Appendix 15.13 Assessment of Noise Effects from Works within the Tŷ Fodol Construction Compound**

National Grid  
National Grid House  
Warwick Technology Park  
Gallows Hill  
Warwick  
CV34 6DA

Final September 2018

*Page intentionally blank*

Document Control			
Document Properties			
Organisation		RPS	
Author		Susan Hirst	
Approved by		Phil Evans	
Title		Environmental Statement Appendix 15.13	
Document Reference		Document 5.15.2.13	
Version History			
Date	Version	Status	Description/Changes
September 2018	Rev A	Final	Final for submission

*Page intentionally blank*

## Contents

<b>1. Enabling Works</b>	<b>1</b>
1.1 Enabling Works - Daytime effects	1
<b>2. Shaft Sinking</b>	<b>5</b>
1.2 Shaft Sinking - Daytime Effects	5
1.3 Shaft Sinking - Weekend Effects	9
1.4 Shaft Sinking - Night-time Effects	13
1.5 Shaft Sinking - Overall Magnitude of Effect	17
<b>3. Tunnel Related Works – TBM Method (Scenarios 1 and 2)</b>	<b>21</b>
1.6 Tunnel Related Works TBM Method (Scenarios 1 and 2) - Daytime Effects	21
1.7 Tunnel Related Works TBM Method (Scenarios 1 and 2) - Weekend Effects	25
1.8 Tunnel Related Works TBM Method (Scenarios 1 and 2) - Night-time Effects	29
1.9 Tunnel Related Works TBM Method (Scenarios 1 and 2) - Overall Magnitude of Effects	33
<b>Figure A</b>	<b>37</b>
<b>4. Tunnel Related Works – D&amp;B Method (Scenario 3)</b>	<b>39</b>
1.10 Tunnel Related Works D&B Method (Scenario 3) - Daytime Effects	39
1.11 Tunnel Related Works D&B Method (Scenario 3) - Weekend Effects	43
1.12 Tunnel Related Works D&B Method (Scenario 3) - Night-time Effects	47
1.13 Tunnel Related Works D&B Method (Scenario 3) - Overall Magnitude of Effects	51
<b>Figure B</b>	<b>55</b>

*Page intentionally blank*



# 1. Enabling Works

## 1.1 ENABLING WORKS - DAYTIME EFFECTS

Enabling Works - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
C5/00784	Holiday Let/ Accommodation/ Short-Term Let Other Than CH01	Medium	46	49	51	2	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	44	49	50	1	Very Low
C5/00918	Restaurant / Cafeteria	Low	44	49	50	1	Very Low
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	45	49	50	1	Very Low
C5/00940	Factory/Manufacturing	Very low	43	52	53	1	Very Low
C5/00941	Shop / Showroom	Low	43	52	53	1	Very Low
C5/00954	Shop / Showroom	Low	42	54	54	0	No Effect
C5/00955	Office / Work Studio	Low	42	54	54	0	No Effect
C5/01051	Warehouse / Store / Storage Depot	Very low	44	52	53	1	Very Low
C5/01053	Workshop / Light Industrial	Very low	44	55	55	0	No Effect
C5/01065	Warehouse / Store / Storage Depot	Very low	55	49	56	7	Very Low
C5/01069	Holiday / Campsite	Medium	48	49	51	2	Very Low
R5/06316	Semi-Detached	Medium	42	49	50	1	Very Low
R5/06336	Terraced	Medium	42	49	50	1	Very Low
R5/06349	Semi-Detached	Medium	43	49	50	1	Very Low
R5/06651	Detached	Medium	45	49	50	1	Very Low
R5/06802	Detached	Medium	45	49	51	2	Very Low
R5/06811	Detached	Medium	46	49	51	2	Very Low
R5/06868	Detached	Medium	46	49	51	2	Very Low
R5/06876	Detached	Medium	47	49	51	2	Very Low
R5/06893	Detached	Medium	47	49	51	2	Very Low
R5/06922	Detached	Medium	49	49	52	3	Very Low

Enabling Works - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/06982	Detached	Medium	46	49	51	2	Very Low
R5/07063	Detached	Medium	45	47	49	2	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	41	49	50	1	Very Low
R5/07068	Detached	Medium	41	49	50	1	Very Low
R5/07079	Detached	Medium	48	49	52	3	Very Low
R5/07128	Caravan	Medium	45	49	50	1	Very Low
R5/07156	Detached	Medium	58	49	58	9	Very Low
R5/07169	Caravan	Medium	56	49	57	8	Very Low
R5/07222	Detached	Medium	43	61	61	0	No Effect
R5/07236	Detached	Medium	55	49	56	7	Very Low
R5/07260	Detached	Medium	54	49	56	7	Very Low
R5/07261	Detached	Medium	43	57	57	0	No Effect
R5/07264	Detached	Medium	46	47	50	3	Very Low
R5/07267	Detached	Medium	43	57	57	0	No Effect
R5/07278	Detached	Medium	44	53	53	0	Very Low
R5/07284	Detached	Medium	57	49	57	8	Very Low
R5/07286	Terraced	Medium	44	53	54	0	Very Low
R5/07287	Caravan	Medium	44	53	53	0	Very Low
R5/07290	Terraced	Medium	43	53	54	0	Very Low
R5/07294	Terraced	Medium	43	54	54	0	No Effect
R5/07295	Terraced	Medium	43	54	54	0	No Effect
R5/07299	Terraced	Medium	43	54	55	0	No Effect
R5/07300	Terraced	Medium	43	54	54	0	No Effect
R5/07303	Terraced	Medium	43	54	55	0	No Effect
R5/07307	Detached	Medium	54	49	55	6	Very Low
R5/07310	Caravan	Medium	43	55	55	0	No Effect
R5/07322	Detached	Medium	58	49	58	9	Very Low
R5/07355	Semi-Detached	Medium	46	47	50	3	Very Low
R5/07360	Semi-Detached	Medium	46	47	50	3	Very Low

Enabling Works - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07362	Terraced	Medium	42	57	57	0	No Effect
R5/07368	Terraced	Medium	42	57	58	0	No Effect
R5/07375	Terraced	Medium	42	57	58	0	No Effect
R5/07384	Terraced	Medium	42	58	58	0	No Effect
R5/07391	Terraced	Medium	42	58	58	0	No Effect
R5/07397	Detached	Medium	43	47	49	2	Very Low
R5/07402	Terraced	Medium	42	58	58	0	No Effect
R5/07407	Terraced	Medium	42	58	58	0	No Effect
R5/07424	Detached	Medium	42	58	58	0	No Effect
R5/07439	Terraced	Medium	43	47	48	1	Very Low
R5/07442	Terraced	Medium	43	47	48	1	Very Low
R5/07444	Terraced	Medium	43	47	48	1	Very Low
R5/07450	Terraced	Medium	43	47	48	1	Very Low
R5/07453	Terraced	Medium	43	47	49	2	Very Low
R5/07456	Terraced	Medium	44	47	49	2	Very Low
R5/07460	Terraced	Medium	44	47	49	2	Very Low
R5/07463	Terraced	Medium	44	47	49	2	Very Low
R5/07524	Detached	Medium	55	49	56	7	Very Low
R5/07577	Detached	Medium	49	49	52	3	Very Low
R5/07602	Detached	Medium	41	49	50	1	Very Low
R5/07645	Semi-Detached	Medium	41	49	50	1	Very Low
R5/07647	Detached	Medium	56	49	57	8	Very Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	56	49	57	8	Very Low
R5/07660	Detached	Medium	56	49	57	8	Very Low
R5/07665	Semi-Detached	Medium	41	49	50	1	Very Low
R5/07673	Semi-Detached	Medium	46	47	49	2	Very Low
R5/07676	Detached	Medium	42	49	50	1	Very Low
R5/07698	Semi-Detached	Medium	45	47	49	2	Very Low
R5/07749	Detached	Medium	44	47	49	2	Very Low

Enabling Works - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07765	Detached	Medium	44	49	50	1	Very Low
R5/07769	Detached	Medium	42	61	61	0	No Effect
R5/07785	Detached	Medium	45	49	51	2	Very Low
R5/07787	Detached	Medium	44	49	50	1	Very Low
R5/07868	Detached	Medium	44	49	50	1	Very Low
R5/07945	Detached	Medium	43	47	48	1	Very Low
R5/08106	Detached	Medium	47	47	50	3	Very Low
R5/08346	Detached	Medium	49	49	52	3	Very Low
R5/08407	Detached	Medium	49	49	52	3	Very Low
R5/08539	Detached	Medium	44	47	49	2	Very Low
R5/08540	Caravan	Medium	44	47	49	2	Very Low
R5/08541	Semi-Detached	Medium	44	47	49	2	Very Low
R5/08574	Detached	Medium	47	47	50	3	Very Low
R5/08636	Detached	Medium	43	49	50	1	Very Low
R5/08699	Caravan	Medium	45	49	51	2	Very Low
R5/08700	Caravan	Medium	45	49	51	2	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	45	49	51	2	Very Low
R5/08715	Detached	Medium	47	47	50	3	Very Low
R5/08718	Detached	Medium	45	49	51	2	Very Low
R5/09355	Detached	Medium	44	47	49	2	Very Low
R5/09356	Caravan	Medium	44	47	49	2	Very Low
R5/13667	Detached	Medium	49	49	52	3	Very Low

## 2. Shaft Sinking

### 1.2 SHAFT SINKING - DAYTIME EFFECTS

Shaft Sinking - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Daytime Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	41	49	50	1	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	37	49	49	0	No Effect
C5/00918	Restaurant / Cafeteria	Low	37	49	49	0	No Effect
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	37	49	49	0	No Effect
C5/00940	Factory/Manufacturing	Very low	39	52	52	0	No Effect
C5/00941	Shop / Showroom	Low	39	52	52	0	No Effect
C5/00954	Shop / Showroom	Low	38	54	54	0	No Effect
C5/00955	Office / Work Studio	Low	38	54	54	0	No Effect
C5/01051	Warehouse / Store / Storage Depot	Very low	40	52	52	0	No Effect
C5/01053	Workshop / Light Industrial	Very low	40	55	55	0	No Effect
C5/01065	Warehouse / Store / Storage Depot	Very low	49	49	52	3	Very Low
C5/01069	Holiday / Campsite	Medium	44	49	50	1	Very Low
R5/06316	Semi-Detached	Medium	38	49	49	0	No Effect
R5/06336	Terraced	Medium	38	49	49	0	No Effect
R5/06349	Semi-Detached	Medium	38	49	49	0	No Effect
R5/06651	Detached	Medium	40	49	50	1	Very Low
R5/06802	Detached	Medium	41	49	50	1	Very Low
R5/06811	Detached	Medium	41	49	50	1	Very Low
R5/06868	Detached	Medium	41	49	50	1	Very Low
R5/06876	Detached	Medium	42	49	50	1	Very Low
R5/06893	Detached	Medium	42	49	50	1	Very Low
R5/06922	Detached	Medium	41	49	50	1	Very Low

Shaft Sinking - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Daytime Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/06982	Detached	Medium	39	49	49	0	No Effect
R5/07063	Detached	Medium	38	47	48	1	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	36	49	49	0	No Effect
R5/07068	Detached	Medium	36	49	49	0	No Effect
R5/07079	Detached	Medium	41	49	50	1	Very Low
R5/07128	Caravan	Medium	37	49	49	0	No Effect
R5/07156	Detached	Medium	53	49	54	5	Low
R5/07169	Caravan	Medium	51	49	53	4	Very Low
R5/07222	Detached	Medium	39	61	61	0	No Effect
R5/07236	Detached	Medium	49	49	52	3	Very Low
R5/07260	Detached	Medium	49	49	52	3	Very Low
R5/07261	Detached	Medium	39	57	57	0	No Effect
R5/07264	Detached	Medium	41	47	48	1	Very Low
R5/07267	Detached	Medium	39	57	57	0	No Effect
R5/07278	Detached	Medium	40	53	53	0	No Effect
R5/07284	Detached	Medium	52	49	54	5	Low
R5/07286	Terraced	Medium	40	53	53	0	No Effect
R5/07287	Caravan	Medium	40	53	53	0	No Effect
R5/07290	Terraced	Medium	39	53	53	0	No Effect
R5/07294	Terraced	Medium	39	54	54	0	No Effect
R5/07295	Terraced	Medium	39	54	54	0	No Effect
R5/07299	Terraced	Medium	39	54	55	0	No Effect
R5/07300	Terraced	Medium	39	54	54	0	No Effect
R5/07303	Terraced	Medium	39	54	54	0	No Effect
R5/07307	Detached	Medium	49	49	52	3	Very Low
R5/07310	Caravan	Medium	39	55	55	0	No Effect
R5/07322	Detached	Medium	53	49	54	5	Low
R5/07355	Semi-Detached	Medium	41	47	48	1	Very Low
R5/07360	Semi-Detached	Medium	42	47	48	1	Very Low



Shaft Sinking - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Daytime Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07362	Terraced	Medium	38	57	57	0	No Effect
R5/07368	Terraced	Medium	38	57	57	0	No Effect
R5/07375	Terraced	Medium	38	57	57	0	No Effect
R5/07384	Terraced	Medium	38	58	58	0	No Effect
R5/07391	Terraced	Medium	38	58	58	0	No Effect
R5/07397	Detached	Medium	39	47	48	1	Very Low
R5/07402	Terraced	Medium	38	58	58	0	No Effect
R5/07407	Terraced	Medium	38	58	58	0	No Effect
R5/07424	Detached	Medium	38	58	58	0	No Effect
R5/07439	Terraced	Medium	38	47	48	1	Very Low
R5/07442	Terraced	Medium	38	47	48	1	Very Low
R5/07444	Terraced	Medium	38	47	48	1	Very Low
R5/07450	Terraced	Medium	39	47	48	1	Very Low
R5/07453	Terraced	Medium	39	47	48	1	Very Low
R5/07456	Terraced	Medium	39	47	48	1	Very Low
R5/07460	Terraced	Medium	40	47	48	1	Very Low
R5/07463	Terraced	Medium	40	47	48	1	Very Low
R5/07524	Detached	Medium	49	49	52	3	Very Low
R5/07577	Detached	Medium	45	49	51	2	Very Low
R5/07602	Detached	Medium	37	49	49	0	No Effect
R5/07645	Semi-Detached	Medium	38	49	49	0	No Effect
R5/07647	Detached	Medium	52	49	54	5	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	51	49	53	4	Low
R5/07660	Detached	Medium	51	49	53	4	Low
R5/07665	Semi-Detached	Medium	38	49	49	0	No Effect
R5/07673	Semi-Detached	Medium	42	47	48	1	Very Low
R5/07676	Detached	Medium	39	49	49	0	No Effect
R5/07698	Semi-Detached	Medium	42	47	48	1	Very Low
R5/07749	Detached	Medium	41	47	48	1	Very Low

Shaft Sinking - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Daytime Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07765	Detached	Medium	40	49	50	1	Very Low
R5/07769	Detached	Medium	38	61	61	0	No Effect
R5/07785	Detached	Medium	41	49	50	1	Very Low
R5/07787	Detached	Medium	40	49	50	1	Very Low
R5/07868	Detached	Medium	41	49	50	1	Very Low
R5/07945	Detached	Medium	38	47	48	1	Very Low
R5/08106	Detached	Medium	43	47	48	1	Very Low
R5/08346	Detached	Medium	45	49	50	1	Very Low
R5/08407	Detached	Medium	45	49	50	1	Very Low
R5/08539	Detached	Medium	39	47	48	1	Very Low
R5/08540	Caravan	Medium	39	47	48	1	Very Low
R5/08541	Semi-Detached	Medium	39	47	48	1	Very Low
R5/08574	Detached	Medium	42	47	48	1	Very Low
R5/08636	Detached	Medium	39	49	49	0	No Effect
R5/08699	Caravan	Medium	42	49	50	1	Very Low
R5/08700	Caravan	Medium	42	49	50	1	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	42	49	50	1	Very Low
R5/08715	Detached	Medium	42	47	48	1	Very Low
R5/08718	Detached	Medium	42	49	50	1	Very Low
R5/09355	Detached	Medium	40	47	48	1	Very Low
R5/09356	Caravan	Medium	40	47	48	1	Very Low
R5/13667	Detached	Medium	41	49	50	1	Very Low



### 1.3 SHAFT SINKING - WEEKEND EFFECTS

Shaft Sinking – Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Evening and Weekend Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	41	45	46	1	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	37	44	45	1	Very Low
C5/00918	Restaurant / Cafeteria	Low	37	44	45	1	Very Low
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	37	44	45	1	Very Low
C5/00940	Factory/Manufacturing	Very low	39	49	49	0	Very Low
C5/00941	Shop / Showroom	Low	39	49	49	0	Very Low
C5/00954	Shop / Showroom	Low	38	51	51	0	No Effect
C5/00955	Office / Work Studio	Low	38	51	51	0	No Effect
C5/01051	Warehouse / Store / Storage Depot	Very low	40	49	50	0	Very Low
C5/01053	Workshop / Light Industrial	Very low	40	52	52	0	No Effect
C5/01065	Warehouse / Store / Storage Depot	Very low	49	45	50	5	Low
C5/01069	Holiday / Campsite	Medium	44	44	47	3	Very Low
R5/06316	Semi-Detached	Medium	38	45	46	1	Very Low
R5/06336	Terraced	Medium	38	45	46	1	Very Low
R5/06349	Semi-Detached	Medium	38	45	46	1	Very Low
R5/06651	Detached	Medium	40	45	46	1	Very Low
R5/06802	Detached	Medium	41	45	47	2	Very Low
R5/06811	Detached	Medium	41	45	46	1	Very Low
R5/06868	Detached	Medium	41	45	46	1	Very Low
R5/06876	Detached	Medium	42	45	47	2	Very Low
R5/06893	Detached	Medium	42	44	46	2	Very Low
R5/06922	Detached	Medium	41	45	46	1	Very Low
R5/06982	Detached	Medium	39	44	45	1	Very Low

Shaft Sinking – Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Evening and Weekend Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07063	Detached	Medium	38	44	45	1	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	36	44	45	1	Very Low
R5/07068	Detached	Medium	36	44	45	1	Very Low
R5/07079	Detached	Medium	41	44	46	2	Very Low
R5/07128	Caravan	Medium	37	44	45	1	Very Low
R5/07156	Detached	Medium	53	44	53	9	Low
R5/07169	Caravan	Medium	51	44	51	7	Low
R5/07222	Detached	Medium	39	58	58	0	No Effect
R5/07236	Detached	Medium	49	45	51	6	Low
R5/07260	Detached	Medium	49	45	51	6	Low
R5/07261	Detached	Medium	39	54	54	0	No Effect
R5/07264	Detached	Medium	41	44	46	2	Very Low
R5/07267	Detached	Medium	39	54	54	0	No Effect
R5/07278	Detached	Medium	40	50	50	0	No Effect
R5/07284	Detached	Medium	52	45	53	8	Low
R5/07286	Terraced	Medium	40	50	51	0	No Effect
R5/07287	Caravan	Medium	40	50	50	0	No Effect
R5/07290	Terraced	Medium	39	50	51	0	No Effect
R5/07294	Terraced	Medium	39	51	51	0	No Effect
R5/07295	Terraced	Medium	39	51	51	0	No Effect
R5/07299	Terraced	Medium	39	51	52	0	No Effect
R5/07300	Terraced	Medium	39	51	51	0	No Effect
R5/07303	Terraced	Medium	39	51	52	0	No Effect
R5/07307	Detached	Medium	49	45	51	6	Low
R5/07310	Caravan	Medium	39	52	52	0	No Effect
R5/07322	Detached	Medium	53	45	54	9	Low
R5/07355	Semi-Detached	Medium	41	44	46	2	Very Low
R5/07360	Semi-Detached	Medium	42	44	46	2	Very Low

Shaft Sinking – Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Evening and Weekend Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07362	Terraced	Medium	38	54	54	0	No Effect
R5/07368	Terraced	Medium	38	54	55	0	No Effect
R5/07375	Terraced	Medium	38	54	55	0	No Effect
R5/07384	Terraced	Medium	38	55	55	0	No Effect
R5/07391	Terraced	Medium	38	55	55	0	No Effect
R5/07397	Detached	Medium	39	44	45	1	Very Low
R5/07402	Terraced	Medium	38	55	55	0	No Effect
R5/07407	Terraced	Medium	38	55	55	0	No Effect
R5/07424	Detached	Medium	38	55	55	0	No Effect
R5/07439	Terraced	Medium	38	44	45	1	Very Low
R5/07442	Terraced	Medium	38	44	45	1	Very Low
R5/07444	Terraced	Medium	38	44	45	1	Very Low
R5/07450	Terraced	Medium	39	44	45	1	Very Low
R5/07453	Terraced	Medium	39	44	45	1	Very Low
R5/07456	Terraced	Medium	39	44	45	1	Very Low
R5/07460	Terraced	Medium	40	44	45	1	Very Low
R5/07463	Terraced	Medium	40	44	45	1	Very Low
R5/07524	Detached	Medium	49	45	51	6	Low
R5/07577	Detached	Medium	45	44	48	4	Very Low
R5/07602	Detached	Medium	37	44	45	1	Very Low
R5/07645	Semi-Detached	Medium	38	44	45	1	Very Low
R5/07647	Detached	Medium	52	44	52	8	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	51	44	52	8	Low
R5/07660	Detached	Medium	51	44	52	8	Low
R5/07665	Semi-Detached	Medium	38	44	45	1	Very Low
R5/07673	Semi-Detached	Medium	42	44	46	2	Very Low
R5/07676	Detached	Medium	39	44	45	1	Very Low
R5/07698	Semi-Detached	Medium	42	44	46	2	Very Low

Shaft Sinking – Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Evening and Weekend Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07749	Detached	Medium	41	44	46	2	Very Low
R5/07765	Detached	Medium	40	44	45	1	Very Low
R5/07769	Detached	Medium	38	58	58	0	No Effect
R5/07785	Detached	Medium	41	45	46	1	Very Low
R5/07787	Detached	Medium	40	44	45	1	Very Low
R5/07868	Detached	Medium	41	44	46	2	Very Low
R5/07945	Detached	Medium	38	44	45	1	Very Low
R5/08106	Detached	Medium	43	44	46	2	Very Low
R5/08346	Detached	Medium	45	44	47	3	Very Low
R5/08407	Detached	Medium	45	44	47	3	Very Low
R5/08539	Detached	Medium	39	44	45	1	Very Low
R5/08540	Caravan	Medium	39	44	45	1	Very Low
R5/08541	Semi-Detached	Medium	39	44	45	1	Very Low
R5/08574	Detached	Medium	42	44	46	2	Very Low
R5/08636	Detached	Medium	39	44	45	1	Very Low
R5/08699	Caravan	Medium	42	44	46	2	Very Low
R5/08700	Caravan	Medium	42	44	46	2	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	42	44	46	2	Very Low
R5/08715	Detached	Medium	42	44	46	2	Very Low
R5/08718	Detached	Medium	42	44	46	2	Very Low
R5/09355	Detached	Medium	40	44	45	1	Very Low
R5/09356	Caravan	Medium	40	44	45	1	Very Low
R5/13667	Detached	Medium	41	45	46	1	Very Low

#### 1.4 SHAFT SINKING - NIGHT-TIME EFFECTS

Shaft Sinking – Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Night-time Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	29	37	38	1	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	26	39	39	0	No Effect
C5/00918	Restaurant / Cafeteria	Low	26	39	39	0	No Effect
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	27	39	39	0	No Effect
C5/00940	Factory/Manufacturing	Very low	27	39	39	0	No Effect
C5/00941	Shop / Showroom	Low	27	39	39	0	No Effect
C5/00954	Shop / Showroom	Low	26	39	39	0	No Effect
C5/00955	Office / Work Studio	Low	26	39	39	0	No Effect
C5/01051	Warehouse / Store / Storage Depot	Very low	28	39	39	0	No Effect
C5/01053	Workshop / Light Industrial	Very low	28	39	39	0	No Effect
C5/01065	Warehouse / Store / Storage Depot	Very low	37	37	40	3	Low
C5/01069	Holiday / Campsite	Medium	32	39	40	1	Very Low
R5/06316	Semi-Detached	Medium	27	37	37	0	No Effect
R5/06336	Terraced	Medium	27	37	37	0	No Effect
R5/06349	Semi-Detached	Medium	27	37	37	0	No Effect
R5/06651	Detached	Medium	29	37	38	1	Very Low
R5/06802	Detached	Medium	30	37	38	1	Very Low
R5/06811	Detached	Medium	29	37	38	1	Very Low
R5/06868	Detached	Medium	29	37	38	1	Very Low
R5/06876	Detached	Medium	31	37	38	1	Very Low
R5/06893	Detached	Medium	31	39	40	1	Very Low
R5/06922	Detached	Medium	29	37	38	1	Very Low
R5/06982	Detached	Medium	27	39	39	0	No Effect

Shaft Sinking – Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Night-time Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
R5/07063	Detached	Medium	26	35	36	1	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	24	39	39	0	No Effect
R5/07068	Detached	Medium	24	39	39	0	No Effect
R5/07079	Detached	Medium	30	39	40	1	Very Low
R5/07128	Caravan	Medium	27	39	39	0	No Effect
R5/07156	Detached	Medium	41	39	43	4	Low
R5/07169	Caravan	Medium	40	39	43	4	Low
R5/07222	Detached	Medium	27	39	39	0	No Effect
R5/07236	Detached	Medium	36	37	39	2	Very Low
R5/07260	Detached	Medium	36	37	40	3	Very Low
R5/07261	Detached	Medium	27	39	39	0	No Effect
R5/07264	Detached	Medium	29	35	36	1	Very Low
R5/07267	Detached	Medium	27	39	39	0	No Effect
R5/07278	Detached	Medium	28	39	39	0	No Effect
R5/07284	Detached	Medium	39	37	41	4	Low
R5/07286	Terraced	Medium	28	39	39	0	No Effect
R5/07287	Caravan	Medium	28	39	39	0	No Effect
R5/07290	Terraced	Medium	27	39	39	0	No Effect
R5/07294	Terraced	Medium	27	39	39	0	No Effect
R5/07295	Terraced	Medium	27	39	39	0	No Effect
R5/07299	Terraced	Medium	27	39	39	0	No Effect
R5/07300	Terraced	Medium	27	39	39	0	No Effect
R5/07303	Terraced	Medium	27	39	39	0	No Effect
R5/07307	Detached	Medium	36	37	40	3	Very Low
R5/07310	Caravan	Medium	27	39	39	0	No Effect
R5/07322	Detached	Medium	40	37	42	5	Low
R5/07355	Semi-Detached	Medium	29	35	36	1	Very Low
R5/07360	Semi-Detached	Medium	29	35	36	1	Very Low



Shaft Sinking – Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Night-time Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
R5/07362	Terraced	Medium	26	39	39	0	No Effect
R5/07368	Terraced	Medium	26	39	39	0	No Effect
R5/07375	Terraced	Medium	26	39	39	0	No Effect
R5/07384	Terraced	Medium	26	39	39	0	No Effect
R5/07391	Terraced	Medium	26	39	39	0	No Effect
R5/07397	Detached	Medium	27	35	36	1	Very Low
R5/07402	Terraced	Medium	26	39	39	0	No Effect
R5/07407	Terraced	Medium	26	39	39	0	No Effect
R5/07424	Detached	Medium	26	39	39	0	No Effect
R5/07439	Terraced	Medium	26	35	35	0	Very Low
R5/07442	Terraced	Medium	26	35	35	0	Very Low
R5/07444	Terraced	Medium	26	35	36	1	Very Low
R5/07450	Terraced	Medium	26	35	36	1	Very Low
R5/07453	Terraced	Medium	26	35	36	1	Very Low
R5/07456	Terraced	Medium	27	35	36	1	Very Low
R5/07460	Terraced	Medium	27	35	36	1	Very Low
R5/07463	Terraced	Medium	27	35	36	1	Very Low
R5/07524	Detached	Medium	39	37	41	4	Low
R5/07577	Detached	Medium	33	39	40	1	Very Low
R5/07602	Detached	Medium	26	39	39	0	No Effect
R5/07645	Semi-Detached	Medium	26	39	39	0	No Effect
R5/07647	Detached	Medium	39	39	42	3	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	38	39	42	3	Low
R5/07660	Detached	Medium	38	39	42	3	Low
R5/07665	Semi-Detached	Medium	26	39	39	0	No Effect
R5/07673	Semi-Detached	Medium	29	35	36	1	Very Low
R5/07676	Detached	Medium	27	39	39	0	No Effect
R5/07698	Semi-Detached	Medium	29	35	36	1	Very Low

Shaft Sinking – Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Night-time Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
R5/07749	Detached	Medium	28	35	36	1	Very Low
R5/07765	Detached	Medium	28	39	39	0	No Effect
R5/07769	Detached	Medium	25	39	39	0	No Effect
R5/07785	Detached	Medium	28	37	38	1	Very Low
R5/07787	Detached	Medium	28	39	39	0	No Effect
R5/07868	Detached	Medium	29	39	39	0	No Effect
R5/07945	Detached	Medium	26	35	36	1	Very Low
R5/08106	Detached	Medium	30	35	36	1	Very Low
R5/08346	Detached	Medium	32	39	40	1	Very Low
R5/08407	Detached	Medium	32	39	40	1	Very Low
R5/08539	Detached	Medium	26	35	36	1	Very Low
R5/08540	Caravan	Medium	26	35	36	1	Very Low
R5/08541	Semi-Detached	Medium	26	35	36	1	Very Low
R5/08574	Detached	Medium	30	35	36	1	Very Low
R5/08636	Detached	Medium	26	39	39	0	No Effect
R5/08699	Caravan	Medium	29	39	39	0	No Effect
R5/08700	Caravan	Medium	29	39	39	0	No Effect
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	29	39	39	0	No Effect
R5/08715	Detached	Medium	29	35	36	1	Very Low
R5/08718	Detached	Medium	29	39	39	0	No Effect
R5/09355	Detached	Medium	27	35	36	1	Very Low
R5/09356	Caravan	Medium	27	35	36	1	Very Low
R5/13667	Detached	Medium	29	37	38	1	Very Low



## 1.5 SHAFT SINKING - OVERALL MAGNITUDE OF EFFECT

Shaft Sinking – Overall Magnitude of Effect			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	Very Low
C5/00918	Restaurant / Cafeteria	Low	Very Low
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	Very Low
C5/00940	Factory/Manufacturing	Very low	Very Low
C5/00941	Shop / Showroom	Low	Very Low
C5/00954	Shop / Showroom	Low	No Effect
C5/00955	Office / Work Studio	Low	No Effect
C5/01051	Warehouse / Store / Storage Depot	Very low	Very Low
C5/01053	Workshop / Light Industrial	Very low	No Effect
C5/01065	Warehouse / Store / Storage Depot	Very low	Low
C5/01069	Holiday / Campsite	Medium	Very Low
R5/06316	Semi-Detached	Medium	Very Low
R5/06336	Terraced	Medium	Very Low
R5/06349	Semi-Detached	Medium	Very Low
R5/06651	Detached	Medium	Very Low
R5/06802	Detached	Medium	Very Low
R5/06811	Detached	Medium	Very Low
R5/06868	Detached	Medium	Very Low
R5/06876	Detached	Medium	Very Low
R5/06893	Detached	Medium	Very Low
R5/06922	Detached	Medium	Very Low
R5/06982	Detached	Medium	Very Low
R5/07063	Detached	Medium	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	Very Low
R5/07068	Detached	Medium	Very Low
R5/07079	Detached	Medium	Very Low

Shaft Sinking – Overall Magnitude of Effect			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
R5/07128	Caravan	Medium	Very Low
R5/07156	Detached	Medium	Low
R5/07169	Caravan	Medium	Low
R5/07222	Detached	Medium	No Effect
R5/07236	Detached	Medium	Low
R5/07260	Detached	Medium	Low
R5/07261	Detached	Medium	No Effect
R5/07264	Detached	Medium	Very Low
R5/07267	Detached	Medium	No Effect
R5/07278	Detached	Medium	No Effect
R5/07284	Detached	Medium	Low
R5/07286	Terraced	Medium	No Effect
R5/07287	Caravan	Medium	No Effect
R5/07290	Terraced	Medium	No Effect
R5/07294	Terraced	Medium	No Effect
R5/07295	Terraced	Medium	No Effect
R5/07299	Terraced	Medium	No Effect
R5/07300	Terraced	Medium	No Effect
R5/07303	Terraced	Medium	No Effect
R5/07307	Detached	Medium	Low
R5/07310	Caravan	Medium	No Effect
R5/07322	Detached	Medium	Low
R5/07355	Semi-Detached	Medium	Very Low
R5/07360	Semi-Detached	Medium	Very Low
R5/07362	Terraced	Medium	No Effect
R5/07368	Terraced	Medium	No Effect
R5/07375	Terraced	Medium	No Effect
R5/07384	Terraced	Medium	No Effect
R5/07391	Terraced	Medium	No Effect
R5/07397	Detached	Medium	Very Low

Shaft Sinking – Overall Magnitude of Effect			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
R5/07402	Terraced	Medium	No Effect
R5/07407	Terraced	Medium	No Effect
R5/07424	Detached	Medium	No Effect
R5/07439	Terraced	Medium	Very Low
R5/07442	Terraced	Medium	Very Low
R5/07444	Terraced	Medium	Very Low
R5/07450	Terraced	Medium	Very Low
R5/07453	Terraced	Medium	Very Low
R5/07456	Terraced	Medium	Very Low
R5/07460	Terraced	Medium	Very Low
R5/07463	Terraced	Medium	Very Low
R5/07524	Detached	Medium	Low
R5/07577	Detached	Medium	Very Low
R5/07602	Detached	Medium	Very Low
R5/07645	Semi-Detached	Medium	Very Low
R5/07647	Detached	Medium	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	Low
R5/07660	Detached	Medium	Low
R5/07665	Semi-Detached	Medium	Very Low
R5/07673	Semi-Detached	Medium	Very Low
R5/07676	Detached	Medium	Very Low
R5/07698	Semi-Detached	Medium	Very Low
R5/07749	Detached	Medium	Very Low
R5/07765	Detached	Medium	Very Low
R5/07769	Detached	Medium	No Effect
R5/07785	Detached	Medium	Very Low
R5/07787	Detached	Medium	Very Low
R5/07868	Detached	Medium	Very Low
R5/07945	Detached	Medium	Very Low
R5/08106	Detached	Medium	Very Low

Shaft Sinking – Overall Magnitude of Effect			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
R5/08346	Detached	Medium	Very Low
R5/08407	Detached	Medium	Very Low
R5/08539	Detached	Medium	Very Low
R5/08540	Caravan	Medium	Very Low
R5/08541	Semi-Detached	Medium	Very Low
R5/08574	Detached	Medium	Very Low
R5/08636	Detached	Medium	Very Low
R5/08699	Caravan	Medium	Very Low
R5/08700	Caravan	Medium	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	Very Low
R5/08715	Detached	Medium	Very Low
R5/08718	Detached	Medium	Very Low
R5/09355	Detached	Medium	Very Low
R5/09356	Caravan	Medium	Very Low
R5/13667	Detached	Medium	Very Low

## 3. Tunnel Related Works – TBM Method (Scenarios 1 and 2)

### 1.6 TUNNEL RELATED WORKS TBM METHOD (SCENARIOS 1 AND 2) - DAYTIME EFFECTS

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	42	49	50	1	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	37	49	49	0	No Effect
C5/00918	Restaurant / Cafeteria	Low	37	49	49	0	No Effect
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	38	49	49	0	No Effect
C5/00940	Factory/Manufacturing	Very low	41	52	52	0	No Effect
C5/00941	Shop / Showroom	Low	41	52	52	0	No Effect
C5/00954	Shop / Showroom	Low	40	54	54	0	No Effect
C5/00955	Office / Work Studio	Low	40	54	54	0	No Effect
C5/01051	Warehouse / Store / Storage Depot	Very low	41	52	52	0	No Effect
C5/01053	Workshop / Light Industrial	Very low	41	55	55	0	No Effect
C5/01065	Warehouse / Store / Storage Depot	Very low	49	49	52	3	Very Low
C5/01069	Holiday / Campsite	Medium	43	49	50	1	Very Low
R5/06316	Semi-Detached	Medium	39	49	49	0	Very Low
R5/06336	Terraced	Medium	39	49	49	0	Very Low
R5/06349	Semi-Detached	Medium	40	49	49	0	Very Low
R5/06651	Detached	Medium	41	49	50	1	Very Low
R5/06802	Detached	Medium	42	49	50	1	Very Low
R5/06811	Detached	Medium	42	49	50	1	Very Low
R5/06868	Detached	Medium	42	49	50	1	Very Low
R5/06876	Detached	Medium	43	49	50	1	Very Low
R5/06893	Detached	Medium	42	49	50	1	Very Low
R5/06922	Detached	Medium	42	49	50	1	Very Low
R5/06982	Detached	Medium	39	49	49	0	No Effect

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07063	Detached	Medium	38	47	48	1	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	37	49	49	0	No Effect
R5/07068	Detached	Medium	37	49	49	0	No Effect
R5/07079	Detached	Medium	41	49	50	1	Very Low
R5/07128	Caravan	Medium	38	49	49	0	No Effect
R5/07156	Detached	Medium	53	49	54	5	Low
R5/07169	Caravan	Medium	52	49	54	5	Low
R5/07222	Detached	Medium	40	61	61	0	No Effect
R5/07236	Detached	Medium	49	49	52	3	Very Low
R5/07260	Detached	Medium	48	49	52	3	Very Low
R5/07261	Detached	Medium	40	57	57	0	No Effect
R5/07264	Detached	Medium	41	47	48	1	Very Low
R5/07267	Detached	Medium	40	57	57	0	No Effect
R5/07278	Detached	Medium	41	53	53	0	No Effect
R5/07284	Detached	Medium	51	49	53	4	Very Low
R5/07286	Terraced	Medium	40	53	53	0	No Effect
R5/07287	Caravan	Medium	40	53	53	0	No Effect
R5/07290	Terraced	Medium	40	53	54	0	No Effect
R5/07294	Terraced	Medium	40	54	54	0	No Effect
R5/07295	Terraced	Medium	40	54	54	0	No Effect
R5/07299	Terraced	Medium	40	54	55	0	No Effect
R5/07300	Terraced	Medium	40	54	54	0	No Effect
R5/07303	Terraced	Medium	40	54	54	0	No Effect
R5/07307	Detached	Medium	48	49	52	3	Very Low
R5/07310	Caravan	Medium	40	55	55	0	No Effect
R5/07322	Detached	Medium	52	49	54	5	Low
R5/07355	Semi-Detached	Medium	40	47	48	1	Very Low
R5/07360	Semi-Detached	Medium	41	47	48	1	Very Low
R5/07362	Terraced	Medium	39	57	57	0	No Effect

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07368	Terraced	Medium	39	57	57	0	No Effect
R5/07375	Terraced	Medium	39	57	57	0	No Effect
R5/07384	Terraced	Medium	39	58	58	0	No Effect
R5/07391	Terraced	Medium	39	58	58	0	No Effect
R5/07397	Detached	Medium	38	47	48	1	Very Low
R5/07402	Terraced	Medium	39	58	58	0	No Effect
R5/07407	Terraced	Medium	39	58	58	0	No Effect
R5/07424	Detached	Medium	39	58	58	0	No Effect
R5/07439	Terraced	Medium	38	47	47	0	Very Low
R5/07442	Terraced	Medium	38	47	47	0	Very Low
R5/07444	Terraced	Medium	38	47	47	0	Very Low
R5/07450	Terraced	Medium	38	47	48	1	Very Low
R5/07453	Terraced	Medium	38	47	48	1	Very Low
R5/07456	Terraced	Medium	38	47	48	1	Very Low
R5/07460	Terraced	Medium	39	47	48	1	Very Low
R5/07463	Terraced	Medium	39	47	48	1	Very Low
R5/07524	Detached	Medium	50	49	52	3	Very Low
R5/07577	Detached	Medium	44	49	50	1	Very Low
R5/07602	Detached	Medium	36	49	49	0	No Effect
R5/07645	Semi-Detached	Medium	36	49	49	0	No Effect
R5/07647	Detached	Medium	53	49	55	6	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	53	49	54	5	Low
R5/07660	Detached	Medium	53	49	54	5	Low
R5/07665	Semi-Detached	Medium	37	49	49	0	No Effect
R5/07673	Semi-Detached	Medium	41	47	48	1	Very Low
R5/07676	Detached	Medium	38	49	49	0	No Effect
R5/07698	Semi-Detached	Medium	41	47	48	1	Very Low
R5/07749	Detached	Medium	40	47	48	1	Very Low
R5/07765	Detached	Medium	39	49	49	0	No Effect



Tunnel Related Works TBM Method (Scenarios 1 and 2) – Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07769	Detached	Medium	38	61	61	0	No Effect
R5/07785	Detached	Medium	40	49	50	1	Very Low
R5/07787	Detached	Medium	39	49	49	0	No Effect
R5/07868	Detached	Medium	39	49	49	0	No Effect
R5/07945	Detached	Medium	38	47	47	0	Very Low
R5/08106	Detached	Medium	43	47	48	1	Very Low
R5/08346	Detached	Medium	46	49	51	2	Very Low
R5/08407	Detached	Medium	45	49	51	2	Very Low
R5/08539	Detached	Medium	39	47	48	1	Very Low
R5/08540	Caravan	Medium	39	47	48	1	Very Low
R5/08541	Semi-Detached	Medium	39	47	48	1	Very Low
R5/08574	Detached	Medium	43	47	49	2	Very Low
R5/08636	Detached	Medium	39	49	49	0	Very Low
R5/08699	Caravan	Medium	42	49	50	1	Very Low
R5/08700	Caravan	Medium	42	49	50	1	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	42	49	50	1	Very Low
R5/08715	Detached	Medium	43	47	48	1	Very Low
R5/08718	Detached	Medium	42	49	50	1	Very Low
R5/09355	Detached	Medium	41	47	48	1	Very Low
R5/09356	Caravan	Medium	41	47	48	1	Very Low
R5/13667	Detached	Medium	42	49	50	1	Very Low



## 1.7 TUNNEL RELATED WORKS TBM METHOD (SCENARIOS 1 AND 2) - WEEKEND EFFECTS

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Evening and Weekend Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	42	45	47	2	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	37	44	45	1	Very Low
C5/00918	Restaurant / Cafeteria	Low	37	44	45	1	Very Low
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	38	44	45	1	Very Low
C5/00940	Factory/Manufacturing	Very low	41	49	50	1	Very Low
C5/00941	Shop / Showroom	Low	41	49	50	1	Very Low
C5/00954	Shop / Showroom	Low	40	51	51	0	No Effect
C5/00955	Office / Work Studio	Low	40	51	51	0	No Effect
C5/01051	Warehouse / Store / Storage Depot	Very low	41	49	50	1	Very Low
C5/01053	Workshop / Light Industrial	Very low	41	52	52	0	No Effect
C5/01065	Warehouse / Store / Storage Depot	Very low	49	45	51	6	Low
C5/01069	Holiday / Campsite	Medium	43	44	46	2	Very Low
R5/06316	Semi-Detached	Medium	39	45	46	1	Very Low
R5/06336	Terraced	Medium	39	45	46	1	Very Low
R5/06349	Semi-Detached	Medium	40	45	46	1	Very Low
R5/06651	Detached	Medium	41	45	47	2	Very Low
R5/06802	Detached	Medium	42	45	47	2	Very Low
R5/06811	Detached	Medium	42	45	47	2	Very Low
R5/06868	Detached	Medium	42	45	47	2	Very Low
R5/06876	Detached	Medium	43	45	47	2	Very Low
R5/06893	Detached	Medium	42	44	46	2	Very Low
R5/06922	Detached	Medium	42	45	47	2	Very Low
R5/06982	Detached	Medium	39	44	45	1	Very Low
R5/07063	Detached	Medium	38	44	45	1	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	37	44	45	1	Very Low
R5/07068	Detached	Medium	37	44	45	1	Very Low

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Evening and Weekend Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07079	Detached	Medium	41	44	46	2	Very Low
R5/07128	Caravan	Medium	38	44	45	1	Very Low
R5/07156	Detached	Medium	53	44	53	9	Low
R5/07169	Caravan	Medium	52	44	52	8	Low
R5/07222	Detached	Medium	40	58	58	0	No Effect
R5/07236	Detached	Medium	49	45	50	5	Low
R5/07260	Detached	Medium	48	45	50	5	Very Low
R5/07261	Detached	Medium	40	54	54	0	No Effect
R5/07264	Detached	Medium	41	44	46	2	Very Low
R5/07267	Detached	Medium	40	54	54	0	No Effect
R5/07278	Detached	Medium	41	50	50	0	Very Low
R5/07284	Detached	Medium	51	45	52	7	Low
R5/07286	Terraced	Medium	40	50	51	0	Very Low
R5/07287	Caravan	Medium	40	50	50	0	Very Low
R5/07290	Terraced	Medium	40	50	51	0	No Effect
R5/07294	Terraced	Medium	40	51	51	0	No Effect
R5/07295	Terraced	Medium	40	51	51	0	No Effect
R5/07299	Terraced	Medium	40	51	52	0	No Effect
R5/07300	Terraced	Medium	40	51	51	0	No Effect
R5/07303	Terraced	Medium	40	51	52	0	No Effect
R5/07307	Detached	Medium	48	45	50	5	Very Low
R5/07310	Caravan	Medium	40	52	52	0	No Effect
R5/07322	Detached	Medium	52	45	52	7	Low
R5/07355	Semi-Detached	Medium	40	44	46	2	Very Low
R5/07360	Semi-Detached	Medium	41	44	46	2	Very Low
R5/07362	Terraced	Medium	39	54	54	0	No Effect
R5/07368	Terraced	Medium	39	54	55	0	No Effect
R5/07375	Terraced	Medium	39	54	55	0	No Effect
R5/07384	Terraced	Medium	39	55	55	0	No Effect

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Evening and Weekend Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07391	Terraced	Medium	39	55	55	0	No Effect
R5/07397	Detached	Medium	38	44	45	1	Very Low
R5/07402	Terraced	Medium	39	55	55	0	No Effect
R5/07407	Terraced	Medium	39	55	55	0	No Effect
R5/07424	Detached	Medium	39	55	55	0	No Effect
R5/07439	Terraced	Medium	38	44	45	1	Very Low
R5/07442	Terraced	Medium	38	44	45	1	Very Low
R5/07444	Terraced	Medium	38	44	45	1	Very Low
R5/07450	Terraced	Medium	38	44	45	1	Very Low
R5/07453	Terraced	Medium	38	44	45	1	Very Low
R5/07456	Terraced	Medium	38	44	45	1	Very Low
R5/07460	Terraced	Medium	39	44	45	1	Very Low
R5/07463	Terraced	Medium	39	44	45	1	Very Low
R5/07524	Detached	Medium	50	45	51	6	Low
R5/07577	Detached	Medium	44	44	47	3	Very Low
R5/07602	Detached	Medium	36	44	45	1	Very Low
R5/07645	Semi-Detached	Medium	36	44	45	1	Very Low
R5/07647	Detached	Medium	53	44	54	10	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	53	44	53	9	Low
R5/07660	Detached	Medium	53	44	53	9	Low
R5/07665	Semi-Detached	Medium	37	44	45	1	Very Low
R5/07673	Semi-Detached	Medium	41	44	46	2	Very Low
R5/07676	Detached	Medium	38	44	45	1	Very Low
R5/07698	Semi-Detached	Medium	41	44	46	2	Very Low
R5/07749	Detached	Medium	40	44	45	1	Very Low
R5/07765	Detached	Medium	39	44	45	1	Very Low
R5/07769	Detached	Medium	38	58	58	0	No Effect
R5/07785	Detached	Medium	40	45	46	1	Very Low

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Evening and Weekend Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07787	Detached	Medium	39	44	45	1	Very Low
R5/07868	Detached	Medium	39	44	45	1	Very Low
R5/07945	Detached	Medium	38	44	45	1	Very Low
R5/08106	Detached	Medium	43	44	46	2	Very Low
R5/08346	Detached	Medium	46	44	48	4	Very Low
R5/08407	Detached	Medium	45	44	48	4	Very Low
R5/08539	Detached	Medium	39	44	45	1	Very Low
R5/08540	Caravan	Medium	39	44	45	1	Very Low
R5/08541	Semi-Detached	Medium	39	44	45	1	Very Low
R5/08574	Detached	Medium	43	44	47	3	Very Low
R5/08636	Detached	Medium	39	44	45	1	Very Low
R5/08699	Caravan	Medium	42	44	46	2	Very Low
R5/08700	Caravan	Medium	42	44	46	2	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	42	44	46	2	Very Low
R5/08715	Detached	Medium	43	44	46	2	Very Low
R5/08718	Detached	Medium	42	44	46	2	Very Low
R5/09355	Detached	Medium	41	44	46	2	Very Low
R5/09356	Caravan	Medium	41	44	46	2	Very Low
R5/13667	Detached	Medium	42	45	47	2	Very Low

## 1.8 TUNNEL RELATED WORKS TBM METHOD (SCENARIOS 1 AND 2) - NIGHT-TIME EFFECTS

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Night-time Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	31	37	38	1	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	28	39	39	0	No Effect
C5/00918	Restaurant / Cafeteria	Low	28	39	39	0	No Effect
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	29	39	39	0	No Effect
C5/00940	Factory/Manufacturing	Very low	31	39	40	1	Very Low
C5/00941	Shop / Showroom	Low	31	39	40	1	Very Low
C5/00954	Shop / Showroom	Low	29	39	39	0	Very Low
C5/00955	Office / Work Studio	Low	29	39	39	0	Very Low
C5/01051	Warehouse / Store / Storage Depot	Very low	31	39	40	1	Very Low
C5/01053	Workshop / Light Industrial	Very low	31	39	40	1	Very Low
C5/01065	Warehouse / Store / Storage Depot	Very low	39	37	41	4	Low
C5/01069	Holiday / Campsite	Medium	33	39	40	1	Low
R5/06316	Semi-Detached	Medium	29	37	38	1	Very Low
R5/06336	Terraced	Medium	29	37	38	1	Very Low
R5/06349	Semi-Detached	Medium	29	37	38	1	Very Low
R5/06651	Detached	Medium	31	37	38	1	Very Low
R5/06802	Detached	Medium	32	37	38	1	Very Low
R5/06811	Detached	Medium	31	37	38	1	Very Low
R5/06868	Detached	Medium	31	37	38	1	Very Low
R5/06876	Detached	Medium	33	37	38	1	Very Low
R5/06893	Detached	Medium	32	39	40	1	Very Low
R5/06922	Detached	Medium	32	37	38	1	Very Low
R5/06982	Detached	Medium	30	39	39	0	Very Low
R5/07063	Detached	Medium	29	35	36	1	Very Low
R5/07067	Self Contained Flat (Includes	Medium	27	39	39	0	No Effect

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Night-time Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
	Maisonette / Apartment)						
R5/07068	Detached	Medium	27	39	39	0	No Effect
R5/07079	Detached	Medium	32	39	40	1	Very Low
R5/07128	Caravan	Medium	29	39	39	0	No Effect
R5/07156	Detached	Medium	43	39	45	6	Low
R5/07169	Caravan	Medium	42	39	44	5	Low
R5/07222	Detached	Medium	30	39	39	0	Very Low
R5/07236	Detached	Medium	38	37	41	4	Low
R5/07260	Detached	Medium	38	37	40	3	Low
R5/07261	Detached	Medium	30	39	40	1	Very Low
R5/07264	Detached	Medium	30	35	36	1	Very Low
R5/07267	Detached	Medium	30	39	40	1	Very Low
R5/07278	Detached	Medium	31	39	40	1	Very Low
R5/07284	Detached	Medium	40	37	42	5	Low
R5/07286	Terraced	Medium	31	39	40	1	Very Low
R5/07287	Caravan	Medium	31	39	40	1	Very Low
R5/07290	Terraced	Medium	31	39	40	1	Very Low
R5/07294	Terraced	Medium	31	39	40	1	Very Low
R5/07295	Terraced	Medium	31	39	40	1	Very Low
R5/07299	Terraced	Medium	30	39	40	1	Very Low
R5/07300	Terraced	Medium	30	39	40	1	Very Low
R5/07303	Terraced	Medium	30	39	40	1	Very Low
R5/07307	Detached	Medium	38	37	41	4	Low
R5/07310	Caravan	Medium	31	39	40	1	Very Low
R5/07322	Detached	Medium	42	37	43	6	Low
R5/07355	Semi-Detached	Medium	30	35	36	1	Very Low
R5/07360	Semi-Detached	Medium	30	35	36	1	Very Low
R5/07362	Terraced	Medium	29	39	39	0	No Effect
R5/07368	Terraced	Medium	29	39	39	0	No Effect



Tunnel Related Works TBM Method (Scenarios 1 and 2) – Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Night-time Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
R5/07375	Terraced	Medium	29	39	39	0	No Effect
R5/07384	Terraced	Medium	29	39	39	0	Very Low
R5/07391	Terraced	Medium	29	39	39	0	Very Low
R5/07397	Detached	Medium	28	35	36	1	Very Low
R5/07402	Terraced	Medium	29	39	39	0	Very Low
R5/07407	Terraced	Medium	29	39	39	0	Very Low
R5/07424	Detached	Medium	29	39	39	0	No Effect
R5/07439	Terraced	Medium	28	35	36	1	Very Low
R5/07442	Terraced	Medium	28	35	36	1	Very Low
R5/07444	Terraced	Medium	28	35	36	1	Very Low
R5/07450	Terraced	Medium	28	35	36	1	Very Low
R5/07453	Terraced	Medium	28	35	36	1	Very Low
R5/07456	Terraced	Medium	29	35	36	1	Very Low
R5/07460	Terraced	Medium	29	35	36	1	Very Low
R5/07463	Terraced	Medium	29	35	36	1	Very Low
R5/07524	Detached	Medium	40	37	42	5	Low
R5/07577	Detached	Medium	34	39	40	1	Low
R5/07602	Detached	Medium	28	39	39	0	No Effect
R5/07645	Semi-Detached	Medium	28	39	39	0	No Effect
R5/07647	Detached	Medium	41	39	43	4	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	41	39	43	4	Low
R5/07660	Detached	Medium	41	39	43	4	Low
R5/07665	Semi-Detached	Medium	28	39	39	0	No Effect
R5/07673	Semi-Detached	Medium	31	35	36	1	Very Low
R5/07676	Detached	Medium	29	39	39	0	Very Low
R5/07698	Semi-Detached	Medium	31	35	36	1	Very Low
R5/07749	Detached	Medium	30	35	36	1	Very Low
R5/07765	Detached	Medium	30	39	39	0	Very Low

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level $L_{Aeq,T}$ dB	Pre Construction Night-time Ambient Noise Level, $L_{Aeq,T}$ dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, $L_{Aeq,T}$ dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
R5/07769	Detached	Medium	29	39	39	0	No Effect
R5/07785	Detached	Medium	30	37	38	1	Very Low
R5/07787	Detached	Medium	30	39	39	0	Very Low
R5/07868	Detached	Medium	30	39	39	0	Very Low
R5/07945	Detached	Medium	28	35	36	1	Very Low
R5/08106	Detached	Medium	31	35	36	1	Very Low
R5/08346	Detached	Medium	34	39	40	1	Low
R5/08407	Detached	Medium	34	39	40	1	Low
R5/08539	Detached	Medium	27	35	36	1	Very Low
R5/08540	Caravan	Medium	27	35	36	1	Very Low
R5/08541	Semi-Detached	Medium	27	35	36	1	Very Low
R5/08574	Detached	Medium	31	35	36	1	Very Low
R5/08636	Detached	Medium	28	39	39	0	No Effect
R5/08699	Caravan	Medium	31	39	40	1	Very Low
R5/08700	Caravan	Medium	31	39	40	1	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	31	39	40	1	Very Low
R5/08715	Detached	Medium	31	35	36	1	Very Low
R5/08718	Detached	Medium	30	39	40	1	Very Low
R5/09355	Detached	Medium	28	35	36	1	Very Low
R5/09356	Caravan	Medium	28	35	36	1	Very Low
R5/13667	Detached	Medium	32	37	38	1	Very Low



## 1.9 TUNNEL RELATED WORKS TBM METHOD (SCENARIOS 1 AND 2) - OVERALL MAGNITUDE OF EFFECTS

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Overall Magnitude of Effects			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	Very Low
C5/00918	Restaurant / Cafeteria	Low	Very Low
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	Very Low
C5/00940	Factory/Manufacturing	Very low	Very Low
C5/00941	Shop / Showroom	Low	Very Low
C5/00954	Shop / Showroom	Low	Very Low
C5/00955	Office / Work Studio	Low	Very Low
C5/01051	Warehouse / Store / Storage Depot	Very low	Very Low
C5/01053	Workshop / Light Industrial	Very low	Very Low
C5/01065	Warehouse / Store / Storage Depot	Very low	Low
C5/01069	Holiday / Campsite	Medium	Low
R5/06316	Semi-Detached	Medium	Very Low
R5/06336	Terraced	Medium	Very Low
R5/06349	Semi-Detached	Medium	Very Low
R5/06651	Detached	Medium	Very Low
R5/06802	Detached	Medium	Very Low
R5/06811	Detached	Medium	Very Low
R5/06868	Detached	Medium	Very Low
R5/06876	Detached	Medium	Very Low
R5/06893	Detached	Medium	Very Low
R5/06922	Detached	Medium	Very Low
R5/06982	Detached	Medium	Very Low
R5/07063	Detached	Medium	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	Very Low
R5/07068	Detached	Medium	Very Low

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Overall Magnitude of Effects			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
R5/07079	Detached	Medium	Very Low
R5/07128	Caravan	Medium	Very Low
R5/07156	Detached	Medium	Low
R5/07169	Caravan	Medium	Low
R5/07222	Detached	Medium	Very Low
R5/07236	Detached	Medium	Low
R5/07260	Detached	Medium	Low
R5/07261	Detached	Medium	Very Low
R5/07264	Detached	Medium	Very Low
R5/07267	Detached	Medium	Very Low
R5/07278	Detached	Medium	Very Low
R5/07284	Detached	Medium	Low
R5/07286	Terraced	Medium	Very Low
R5/07287	Caravan	Medium	Very Low
R5/07290	Terraced	Medium	Very Low
R5/07294	Terraced	Medium	Very Low
R5/07295	Terraced	Medium	Very Low
R5/07299	Terraced	Medium	Very Low
R5/07300	Terraced	Medium	Very Low
R5/07303	Terraced	Medium	Very Low
R5/07307	Detached	Medium	Low
R5/07310	Caravan	Medium	Very Low
R5/07322	Detached	Medium	Low
R5/07355	Semi-Detached	Medium	Very Low
R5/07360	Semi-Detached	Medium	Very Low
R5/07362	Terraced	Medium	No Effect
R5/07368	Terraced	Medium	No Effect
R5/07375	Terraced	Medium	No Effect
R5/07384	Terraced	Medium	Very Low
R5/07391	Terraced	Medium	Very Low

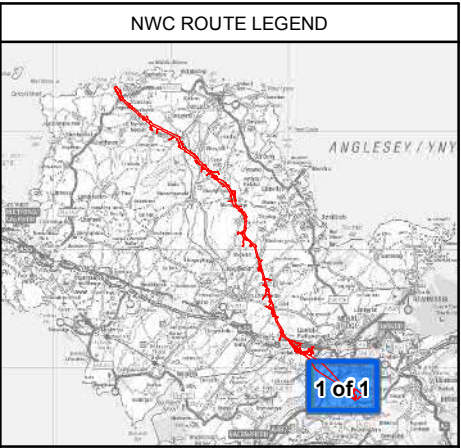
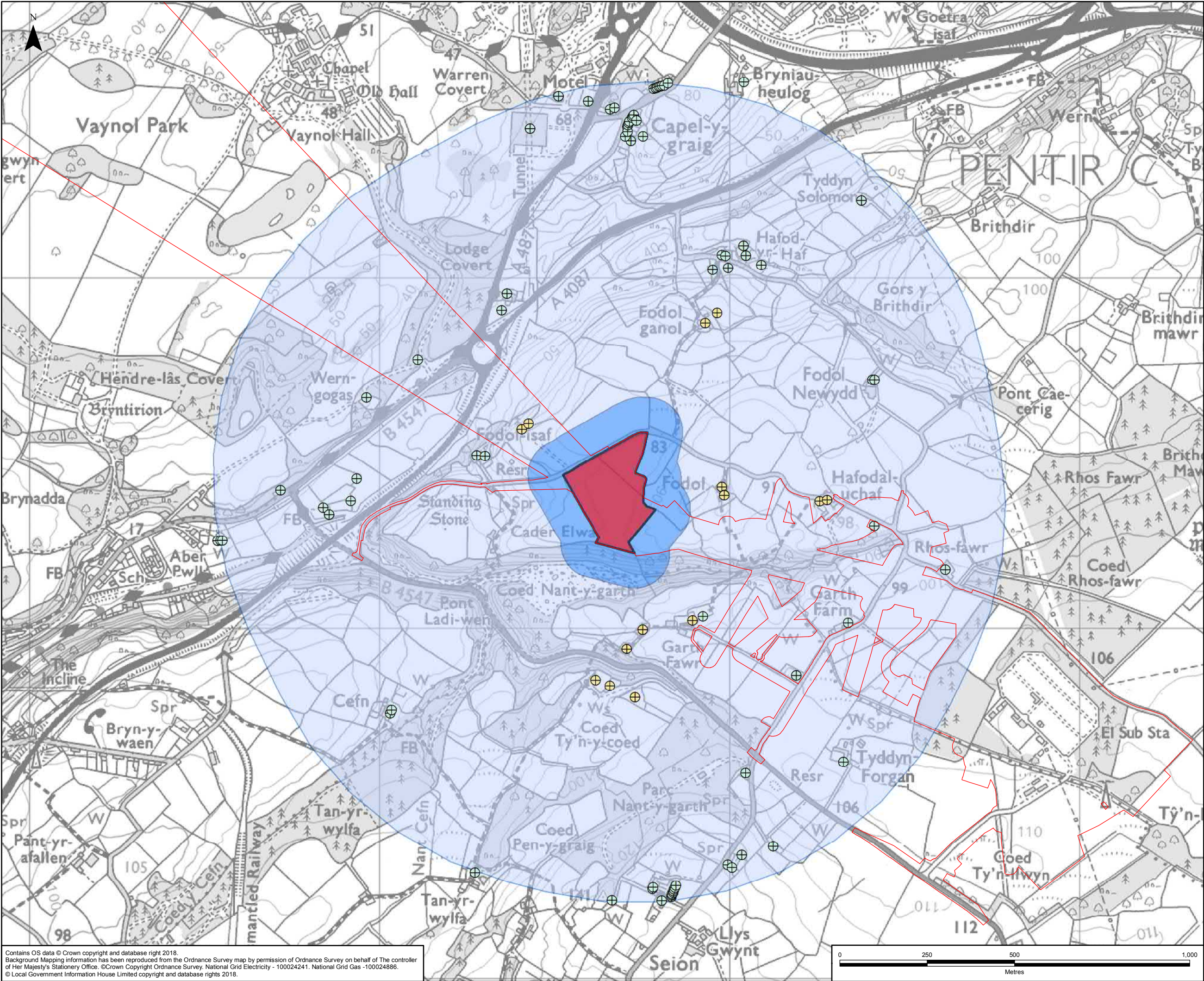
Tunnel Related Works TBM Method (Scenarios 1 and 2) – Overall Magnitude of Effects			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
R5/07397	Detached	Medium	Very Low
R5/07402	Terraced	Medium	Very Low
R5/07407	Terraced	Medium	Very Low
R5/07424	Detached	Medium	No Effect
R5/07439	Terraced	Medium	Very Low
R5/07442	Terraced	Medium	Very Low
R5/07444	Terraced	Medium	Very Low
R5/07450	Terraced	Medium	Very Low
R5/07453	Terraced	Medium	Very Low
R5/07456	Terraced	Medium	Very Low
R5/07460	Terraced	Medium	Very Low
R5/07463	Terraced	Medium	Very Low
R5/07524	Detached	Medium	Low
R5/07577	Detached	Medium	Low
R5/07602	Detached	Medium	Very Low
R5/07645	Semi-Detached	Medium	Very Low
R5/07647	Detached	Medium	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	Low
R5/07660	Detached	Medium	Low
R5/07665	Semi-Detached	Medium	Very Low
R5/07673	Semi-Detached	Medium	Very Low
R5/07676	Detached	Medium	Very Low
R5/07698	Semi-Detached	Medium	Very Low
R5/07749	Detached	Medium	Very Low
R5/07765	Detached	Medium	Very Low
R5/07769	Detached	Medium	No Effect
R5/07785	Detached	Medium	Very Low
R5/07787	Detached	Medium	Very Low
R5/07868	Detached	Medium	Very Low
R5/07945	Detached	Medium	Very Low

Tunnel Related Works TBM Method (Scenarios 1 and 2) – Overall Magnitude of Effects			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
R5/08106	Detached	Medium	Very Low
R5/08346	Detached	Medium	Low
R5/08407	Detached	Medium	Low
R5/08539	Detached	Medium	Very Low
R5/08540	Caravan	Medium	Very Low
R5/08541	Semi-Detached	Medium	Very Low
R5/08574	Detached	Medium	Very Low
R5/08636	Detached	Medium	Very Low
R5/08699	Caravan	Medium	Very Low
R5/08700	Caravan	Medium	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	Very Low
R5/08715	Detached	Medium	Very Low
R5/08718	Detached	Medium	Very Low
R5/09355	Detached	Medium	Very Low
R5/09356	Caravan	Medium	Very Low
R5/13667	Detached	Medium	Very Low

## Figure A

*Page intentionally blank*





**LEGEND**

ORDER LIMITS

SECTION OUTLINES

SIGNIFICANCE OF EFFECT:

- MINOR
- NEGLECTIBLE

CONSTRUCTION COMPOUND

NOISE STUDY AREA: Tŷ FODOL CONSTRUCTION COMPOUND

VIBRATION STUDY AREA: Tŷ FODOL CONSTRUCTION COMPOUND

Contains OS data © Crown copyright and database right 2018.  
Background Mapping Information has been reproduced from the Ordnance Survey map by permission of Ordnance Survey on behalf of The controller of Her Majesty's Stationery Office. ©Crown Copyright Ordnance Survey, National Grid Electricity - 100024241. National Grid Gas - 100024886.  
© Local Government Information House Limited copyright and database rights 2018.

A	10/08/2018	ENVIRONMENTAL STATEMENT	JF	SH	PE
Rev	Date	Description	GIS	Chk	App
nationalgrid					
Scheme: NORTH WALES CONNECTION PROJECT					
Document Number: 5.15.2.13					
Document Title: FIGURE A SIGNIFICANCE OF EFFECTS FROM WORKS WITHIN THE Tŷ FODOL CONSTRUCTION COMPOUND - TUNNEL BORING MACHINE METHOD (SCENARIOS 1 AND 2) SECTION F					
Creator: JF	Date: 10/08/2018	Checker: SH	Date: 10/08/2018	Approver: PE	Date: 10/08/2018
Document Type: FIGURE	Scale: 1:10,000	Format: A3	Sheets: 1 of 1	Rev: A	







## 4. Tunnel Related Works – D&B Method (Scenario 3)

### 1.10 TUNNEL RELATED WORKS D&B METHOD (SCENARIO 3) - DAYTIME EFFECTS

Tunnel Related Works D&B Method (Scenario 3) - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	43	49	50	1	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	38	49	49	0	No Effect
C5/00918	Restaurant / Cafeteria	Low	38	49	49	0	No Effect
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	38	49	49	0	No Effect
C5/00940	Factory/Manufacturing	Very low	42	52	52	0	No Effect
C5/00941	Shop / Showroom	Low	42	52	52	0	No Effect
C5/00954	Shop / Showroom	Low	41	54	54	0	No Effect
C5/00955	Office / Work Studio	Low	41	54	54	0	No Effect
C5/01051	Warehouse / Store / Storage Depot	Very low	42	52	52	0	No Effect
C5/01053	Workshop / Light Industrial	Very low	42	55	55	0	No Effect
C5/01065	Warehouse / Store / Storage Depot	Very low	50	49	52	3	Very Low
C5/01069	Holiday / Campsite	Medium	43	49	50	1	Very Low
R5/06316	Semi-Detached	Medium	41	49	50	1	Very Low
R5/06336	Terraced	Medium	41	49	50	1	Very Low
R5/06349	Semi-Detached	Medium	41	49	50	1	Very Low
R5/06651	Detached	Medium	43	49	50	1	Very Low
R5/06802	Detached	Medium	44	49	50	1	Very Low
R5/06811	Detached	Medium	43	49	50	1	Very Low
R5/06868	Detached	Medium	44	49	50	1	Very Low
R5/06876	Detached	Medium	44	49	50	1	Very Low
R5/06893	Detached	Medium	43	49	50	1	Very Low
R5/06922	Detached	Medium	44	49	50	1	Very Low
R5/06982	Detached	Medium	39	49	49	0	Very Low

Tunnel Related Works D&B Method (Scenario 3) - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07063	Detached	Medium	40	47	48	1	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	38	49	49	0	No Effect
R5/07068		Medium	38	49	49	0	No Effect
R5/07079	Detached	Medium	42	49	50	1	Very Low
R5/07128	Caravan	Medium	38	49	49	0	No Effect
R5/07156	Detached	Medium	53	49	55	6	Low
R5/07169	Caravan	Medium	52	49	54	5	Low
R5/07222	Detached	Medium	41	61	61	0	No Effect
R5/07236	Detached	Medium	50	49	53	4	Very Low
R5/07260	Detached	Medium	50	49	52	3	Very Low
R5/07261	Detached	Medium	41	57	57	0	No Effect
R5/07264	Detached	Medium	42	47	48	1	Very Low
R5/07267	Detached	Medium	41	57	57	0	No Effect
R5/07278	Detached	Medium	42	53	53	0	No Effect
R5/07284	Detached	Medium	52	49	54	5	Low
R5/07286	Terraced	Medium	42	53	53	0	No Effect
R5/07287	Caravan	Medium	42	53	53	0	No Effect
R5/07290	Terraced	Medium	42	53	54	0	No Effect
R5/07294	Terraced	Medium	41	54	54	0	No Effect
R5/07295	Terraced	Medium	41	54	54	0	No Effect
R5/07299	Terraced	Medium	41	54	55	0	No Effect
R5/07300	Terraced	Medium	41	54	54	0	No Effect
R5/07303	Terraced	Medium	41	54	55	0	No Effect
R5/07307	Detached	Medium	49	49	52	3	Very Low
R5/07310	Caravan	Medium	42	55	55	0	No Effect
R5/07322	Detached	Medium	52	49	54	5	Low
R5/07355	Semi-Detached	Medium	42	47	48	1	Very Low
R5/07360	Semi-Detached	Medium	42	47	48	1	Very Low

Tunnel Related Works D&B Method (Scenario 3) - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07362	Terraced	Medium	40	57	57	0	No Effect
R5/07368	Terraced	Medium	40	57	57	0	No Effect
R5/07375	Terraced	Medium	40	57	57	0	No Effect
R5/07384	Terraced	Medium	40	58	58	0	No Effect
R5/07391	Terraced	Medium	40	58	58	0	No Effect
R5/07397	Detached	Medium	40	47	48	1	Very Low
R5/07402	Terraced	Medium	40	58	58	0	No Effect
R5/07407	Terraced	Medium	40	58	58	0	No Effect
R5/07424	Detached	Medium	40	58	58	0	No Effect
R5/07439	Terraced	Medium	40	47	48	1	Very Low
R5/07442	Terraced	Medium	40	47	48	1	Very Low
R5/07444	Terraced	Medium	40	47	48	1	Very Low
R5/07450	Terraced	Medium	40	47	48	1	Very Low
R5/07453	Terraced	Medium	40	47	48	1	Very Low
R5/07456	Terraced	Medium	40	47	48	1	Very Low
R5/07460	Terraced	Medium	41	47	48	1	Very Low
R5/07463	Terraced	Medium	41	47	48	1	Very Low
R5/07524	Detached	Medium	50	49	53	4	Very Low
R5/07577	Detached	Medium	44	49	50	1	Very Low
R5/07602	Detached	Medium	36	49	49	0	No Effect
R5/07645	Semi-Detached	Medium	37	49	49	0	No Effect
R5/07647	Detached	Medium	54	49	55	6	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	54	49	55	6	Low
R5/07660	Detached	Medium	54	49	55	6	Low
R5/07665	Semi-Detached	Medium	37	49	49	0	No Effect
R5/07673	Semi-Detached	Medium	42	47	48	1	Very Low
R5/07676	Detached	Medium	38	49	49	0	No Effect
R5/07698	Semi-Detached	Medium	42	47	48	1	Very Low

Tunnel Related Works D&B Method (Scenario 3) - Daytime Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Daytime Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07749	Detached	Medium	41	47	48	1	Very Low
R5/07765	Detached	Medium	39	49	49	0	No Effect
R5/07769	Detached	Medium	39	61	61	0	No Effect
R5/07785	Detached	Medium	42	49	50	1	Very Low
R5/07787	Detached	Medium	39	49	49	0	No Effect
R5/07868	Detached	Medium	40	49	49	0	Very Low
R5/07945	Detached	Medium	40	47	48	1	Very Low
R5/08106	Detached	Medium	44	47	49	2	Very Low
R5/08346	Detached	Medium	46	49	51	2	Very Low
R5/08407	Detached	Medium	45	49	51	2	Very Low
R5/08539	Detached	Medium	40	47	48	1	Very Low
R5/08540	Caravan	Medium	40	47	48	1	Very Low
R5/08541	Semi-Detached	Medium	40	47	48	1	Very Low
R5/08574	Detached	Medium	44	47	49	2	Very Low
R5/08636	Detached	Medium	40	49	50	1	Very Low
R5/08699	Caravan	Medium	42	49	50	1	Very Low
R5/08700	Caravan	Medium	42	49	50	1	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	42	49	50	1	Very Low
R5/08715	Detached	Medium	43	47	48	1	Very Low
R5/08718	Detached	Medium	42	49	50	1	Very Low
R5/09355	Detached	Medium	41	47	48	1	Very Low
R5/09356	Caravan	Medium	41	47	48	1	Very Low
R5/13667	Detached	Medium	44	49	50	1	Very Low

### 1.11 TUNNEL RELATED WORKS D&B METHOD (SCENARIO 3) - WEEKEND EFFECTS

Tunnel Related Works D&B Method (Scenario 3) - Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Evening and Weekend Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	43	45	47	2	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	38	44	45	1	Very Low
C5/00918	Restaurant / Cafeteria	Low	38	44	45	1	Very Low
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	38	44	45	1	Very Low
C5/00940	Factory/Manufacturing	Very low	42	49	50	1	Very Low
C5/00941	Shop / Showroom	Low	42	49	50	1	Very Low
C5/00954	Shop / Showroom	Low	41	51	51	0	Very Low
C5/00955	Office / Work Studio	Low	41	51	51	0	Very Low
C5/01051	Warehouse / Store / Storage Depot	Very low	42	49	50	1	Very Low
C5/01053	Workshop / Light Industrial	Very low	42	52	52	0	No Effect
C5/01065	Warehouse / Store / Storage Depot	Very low	50	45	51	6	Low
C5/01069	Holiday / Campsite	Medium	43	44	47	3	Very Low
R5/06316	Semi-Detached	Medium	41	45	46	1	Very Low
R5/06336	Terraced	Medium	41	45	46	1	Very Low
R5/06349	Semi-Detached	Medium	41	45	46	1	Very Low
R5/06651	Detached	Medium	43	45	47	2	Very Low
R5/06802	Detached	Medium	44	45	47	2	Very Low
R5/06811	Detached	Medium	43	45	47	2	Very Low
R5/06868	Detached	Medium	44	45	47	2	Very Low
R5/06876	Detached	Medium	44	45	48	3	Very Low
R5/06893	Detached	Medium	43	44	47	3	Very Low
R5/06922	Detached	Medium	44	45	47	2	Very Low
R5/06982	Detached	Medium	39	44	45	1	Very Low
R5/07063	Detached	Medium	40	44	45	1	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	38	44	45	1	Very Low

Tunnel Related Works D&B Method (Scenario 3) - Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Evening and Weekend Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07068	Detached	Medium	38	44	45	1	Very Low
R5/07079	Detached	Medium	42	44	46	2	Very Low
R5/07128	Caravan	Medium	38	44	45	1	Very Low
R5/07156	Detached	Medium	53	44	54	10	Low
R5/07169	Caravan	Medium	52	44	53	9	Low
R5/07222	Detached	Medium	41	58	58	0	No Effect
R5/07236	Detached	Medium	50	45	51	6	Low
R5/07260	Detached	Medium	50	45	51	6	Low
R5/07261	Detached	Medium	41	54	55	0	No Effect
R5/07264	Detached	Medium	42	44	46	2	Very Low
R5/07267	Detached	Medium	41	54	54	0	No Effect
R5/07278	Detached	Medium	42	50	51	1	Very Low
R5/07284	Detached	Medium	52	45	53	8	Low
R5/07286	Terraced	Medium	42	50	51	1	Very Low
R5/07287	Caravan	Medium	42	50	51	1	Very Low
R5/07290	Terraced	Medium	42	50	51	1	Very Low
R5/07294	Terraced	Medium	41	51	51	1	Very Low
R5/07295	Terraced	Medium	41	51	51	0	Very Low
R5/07299	Terraced	Medium	41	51	52	0	Very Low
R5/07300	Terraced	Medium	41	51	51	0	Very Low
R5/07303	Terraced	Medium	41	51	52	0	Very Low
R5/07307	Detached	Medium	49	45	51	6	Low
R5/07310	Caravan	Medium	42	52	52	0	No Effect
R5/07322	Detached	Medium	52	45	53	8	Low
R5/07355	Semi-Detached	Medium	42	44	46	2	Very Low
R5/07360	Semi-Detached	Medium	42	44	46	2	Very Low
R5/07362	Terraced	Medium	40	54	54	0	No Effect
R5/07368	Terraced	Medium	40	54	55	0	No Effect
R5/07375	Terraced	Medium	40	54	55	0	No Effect



Tunnel Related Works D&B Method (Scenario 3) - Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Evening and Weekend Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07384	Terraced	Medium	40	55	55	0	No Effect
R5/07391	Terraced	Medium	40	55	55	0	No Effect
R5/07397	Detached	Medium	40	44	46	2	Very Low
R5/07402	Terraced	Medium	40	55	55	0	No Effect
R5/07407	Terraced	Medium	40	55	55	0	No Effect
R5/07424	Detached	Medium	40	55	55	0	No Effect
R5/07439	Terraced	Medium	40	44	45	1	Very Low
R5/07442	Terraced	Medium	40	44	45	1	Very Low
R5/07444	Terraced	Medium	40	44	45	1	Very Low
R5/07450	Terraced	Medium	40	44	45	1	Very Low
R5/07453	Terraced	Medium	40	44	46	2	Very Low
R5/07456	Terraced	Medium	40	44	46	2	Very Low
R5/07460	Terraced	Medium	41	44	46	2	Very Low
R5/07463	Terraced	Medium	41	44	46	2	Very Low
R5/07524	Detached	Medium	50	45	51	6	Low
R5/07577	Detached	Medium	44	44	47	3	Very Low
R5/07602	Detached	Medium	36	44	45	1	Very Low
R5/07645	Semi-Detached	Medium	37	44	45	1	Very Low
R5/07647	Detached	Medium	54	44	55	11	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	54	44	54	10	Low
R5/07660	Detached	Medium	54	44	54	10	Low
R5/07665	Semi-Detached	Medium	37	44	45	1	Very Low
R5/07673	Semi-Detached	Medium	42	44	46	2	Very Low
R5/07676	Detached	Medium	38	44	45	1	Very Low
R5/07698	Semi-Detached	Medium	42	44	46	2	Very Low
R5/07749	Detached	Medium	41	44	46	2	Very Low
R5/07765	Detached	Medium	39	44	45	1	Very Low
R5/07769	Detached	Medium	39	58	58	0	No Effect
R5/07785	Detached	Medium	42	45	47	2	Very Low

Tunnel Related Works D&B Method (Scenario 3) - Weekend Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Evening and Weekend Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Daytime Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Daytime Pre Construction Noise, dB	Magnitude of Effect
R5/07787	Detached	Medium	39	44	45	1	Very Low
R5/07868	Detached	Medium	40	44	45	1	Very Low
R5/07945	Detached	Medium	40	44	45	1	Very Low
R5/08106	Detached	Medium	44	44	47	3	Very Low
R5/08346	Detached	Medium	46	44	48	4	Very Low
R5/08407	Detached	Medium	45	44	48	4	Very Low
R5/08539	Detached	Medium	40	44	45	1	Very Low
R5/08540	Caravan	Medium	40	44	45	1	Very Low
R5/08541	Semi-Detached	Medium	40	44	45	1	Very Low
R5/08574	Detached	Medium	44	44	47	3	Very Low
R5/08636	Detached	Medium	40	44	45	1	Very Low
R5/08699	Caravan	Medium	42	44	46	2	Very Low
R5/08700	Caravan	Medium	42	44	46	2	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	42	44	46	2	Very Low
R5/08715	Detached	Medium	43	44	46	2	Very Low
R5/08718	Detached	Medium	42	44	46	2	Very Low
R5/09355	Detached	Medium	41	44	46	2	Very Low
R5/09356	Caravan	Medium	41	44	46	2	Very Low
R5/13667	Detached	Medium	44	45	48	3	Very Low



## 1.12 TUNNEL RELATED WORKS D&B METHOD (SCENARIO 3) - NIGHT-TIME EFFECTS

Tunnel Related Works D&B Method (Scenario 3) - Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Night-time Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	32	37	38	1	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	28	39	39	0	No Effect
C5/00918	Restaurant / Cafeteria	Low	28	39	39	0	No Effect
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	28	39	39	0	No Effect
C5/00940	Factory/Manufacturing	Very low	31	39	40	1	Very Low
C5/00941	Shop / Showroom	Low	31	39	40	1	Very Low
C5/00954	Shop / Showroom	Low	29	39	39	0	Very Low
C5/00955	Office / Work Studio	Low	29	39	39	0	Very Low
C5/01051	Warehouse / Store / Storage Depot	Very low	31	39	40	1	Very Low
C5/01053	Workshop / Light Industrial	Very low	31	39	40	1	Very Low
C5/01065	Warehouse / Store / Storage Depot	Very low	38	37	41	4	Low
C5/01069	Holiday / Campsite	Medium	32	39	40	1	Very Low
R5/06316	Semi-Detached	Medium	29	37	38	1	Very Low
R5/06336	Terraced	Medium	29	37	38	1	Very Low
R5/06349	Semi-Detached	Medium	30	37	38	1	Very Low
R5/06651	Detached	Medium	32	37	38	1	Very Low
R5/06802	Detached	Medium	32	37	38	1	Very Low
R5/06811	Detached	Medium	32	37	38	1	Very Low
R5/06868	Detached	Medium	32	37	38	1	Very Low
R5/06876	Detached	Medium	33	37	39	2	Very Low
R5/06893	Detached	Medium	33	39	40	1	Very Low
R5/06922	Detached	Medium	32	37	38	1	Very Low
R5/06982	Detached	Medium	29	39	39	0	No Effect
R5/07063	Detached	Medium	29	35	36	1	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	26	39	39	0	No Effect
R5/07068	Detached	Medium	26	39	39	0	No Effect
R5/07079	Detached	Medium	32	39	40	1	Very Low

Tunnel Related Works D&B Method (Scenario 3) - Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Night-time Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
R5/07128	Caravan	Medium	28	39	39	0	No Effect
R5/07156	Detached	Medium	43	39	45	6	Low
R5/07169	Caravan	Medium	42	39	44	5	Low
R5/07222	Detached	Medium	29	39	39	0	Very Low
R5/07236	Detached	Medium	39	37	41	4	Low
R5/07260	Detached	Medium	39	37	41	4	Low
R5/07261	Detached	Medium	30	39	39	0	Very Low
R5/07264	Detached	Medium	31	35	37	2	Very Low
R5/07267	Detached	Medium	30	39	39	0	Very Low
R5/07278	Detached	Medium	30	39	40	1	Very Low
R5/07284	Detached	Medium	41	37	43	6	Low
R5/07286	Terraced	Medium	30	39	40	1	Very Low
R5/07287	Caravan	Medium	30	39	40	1	Very Low
R5/07290	Terraced	Medium	30	39	40	1	Very Low
R5/07294	Terraced	Medium	30	39	40	1	Very Low
R5/07295	Terraced	Medium	30	39	40	1	Very Low
R5/07299	Terraced	Medium	30	39	40	1	Very Low
R5/07300	Terraced	Medium	30	39	40	1	Very Low
R5/07303	Terraced	Medium	30	39	40	1	Very Low
R5/07307	Detached	Medium	39	37	41	4	Low
R5/07310	Caravan	Medium	30	39	40	1	Very Low
R5/07322	Detached	Medium	43	37	44	7	Low
R5/07355	Semi-Detached	Medium	31	35	37	2	Very Low
R5/07360	Semi-Detached	Medium	31	35	37	2	Very Low
R5/07362	Terraced	Medium	29	39	39	0	No Effect
R5/07368	Terraced	Medium	29	39	39	0	No Effect
R5/07375	Terraced	Medium	29	39	39	0	No Effect
R5/07384	Terraced	Medium	29	39	39	0	No Effect
R5/07391	Terraced	Medium	29	39	39	0	No Effect
R5/07397	Detached	Medium	29	35	36	1	Very Low

Tunnel Related Works D&B Method (Scenario 3) - Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Night-time Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
R5/07402	Terraced	Medium	29	39	39	0	No Effect
R5/07407	Terraced	Medium	29	39	39	0	No Effect
R5/07424	Detached	Medium	29	39	39	0	No Effect
R5/07439	Terraced	Medium	28	35	36	1	Very Low
R5/07442	Terraced	Medium	28	35	36	1	Very Low
R5/07444	Terraced	Medium	28	35	36	1	Very Low
R5/07450	Terraced	Medium	29	35	36	1	Very Low
R5/07453	Terraced	Medium	29	35	36	1	Very Low
R5/07456	Terraced	Medium	29	35	36	1	Very Low
R5/07460	Terraced	Medium	29	35	36	1	Very Low
R5/07463	Terraced	Medium	30	35	36	1	Very Low
R5/07524	Detached	Medium	40	37	42	5	Low
R5/07577	Detached	Medium	33	39	40	1	Low
R5/07602	Detached	Medium	25	39	39	0	No Effect
R5/07645	Semi-Detached	Medium	26	39	39	0	No Effect
R5/07647	Detached	Medium	42	39	44	5	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	41	39	43	4	Low
R5/07660	Detached	Medium	41	39	43	4	Low
R5/07665	Semi-Detached	Medium	26	39	39	0	No Effect
R5/07673	Semi-Detached	Medium	32	35	37	2	Very Low
R5/07676	Detached	Medium	27	39	39	0	No Effect
R5/07698	Semi-Detached	Medium	32	35	37	2	Very Low
R5/07749	Detached	Medium	31	35	36	1	Very Low
R5/07765	Detached	Medium	28	39	39	0	No Effect
R5/07769	Detached	Medium	28	39	39	0	No Effect
R5/07785	Detached	Medium	30	37	38	1	Very Low
R5/07787	Detached	Medium	28	39	39	0	No Effect
R5/07868	Detached	Medium	29	39	39	0	No Effect
R5/07945	Detached	Medium	28	35	36	1	Very Low
R5/08106	Detached	Medium	32	35	37	2	Very Low

Tunnel Related Works D&B Method (Scenario 3) - Night-time Effects							
Receptor	Receptor Classification	Sensitivity of Receptor	Predicted Noise Level L <sub>Aeq,T</sub> dB	Pre Construction Night-time Ambient Noise Level, L <sub>Aeq,T</sub> dB	Log Sum of Night-time Pre Construction Ambient Noise and Predicted Noise Level, L <sub>Aeq,T</sub> dB	Exceedance of Night-time Pre Construction Noise, dB	Magnitude of Effect
R5/08346	Detached	Medium	34	39	40	1	Low
R5/08407	Detached	Medium	34	39	40	1	Low
R5/08539	Detached	Medium	27	35	36	1	Very Low
R5/08540	Caravan	Medium	27	35	36	1	Very Low
R5/08541	Semi-Detached	Medium	27	35	36	1	Very Low
R5/08574	Detached	Medium	32	35	37	2	Very Low
R5/08636	Detached	Medium	28	39	39	0	No Effect
R5/08699	Caravan	Medium	30	39	40	1	Very Low
R5/08700	Caravan	Medium	30	39	40	1	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	30	39	40	1	Very Low
R5/08715	Detached	Medium	31	35	36	1	Very Low
R5/08718	Detached	Medium	30	39	40	1	Very Low
R5/09355	Detached	Medium	29	35	36	1	Very Low
R5/09356	Caravan	Medium	29	35	36	1	Very Low
R5/13667	Detached	Medium	32	37	38	1	Very Low

### 1.13 TUNNEL RELATED WORKS D&B METHOD (SCENARIO 3) - OVERALL MAGNITUDE OF EFFECTS

Tunnel Related Works D&B Method (Scenario 3) – Overall Magnitude of Effects			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
C5/00784	Holiday Let/Accommodation/Short-Term Let Other Than CH01	Medium	Very Low
C5/00917	Indoor / Outdoor Leisure / Sporting Activity / Centre	Low	Very Low
C5/00918	Restaurant / Cafeteria	Low	Very Low
C5/00921	Boarding / Guest House / Bed And Breakfast / Youth Hostel	Medium	Very Low
C5/00940	Factory/Manufacturing	Very low	Very Low
C5/00941	Shop / Showroom	Low	Very Low
C5/00954	Shop / Showroom	Low	Very Low
C5/00955	Office / Work Studio	Low	Very Low
C5/01051	Warehouse / Store / Storage Depot	Very low	Very Low
C5/01053	Workshop / Light Industrial	Very low	Very Low
C5/01065	Warehouse / Store / Storage Depot	Very low	Low
C5/01069	Holiday / Campsite	Medium	Very Low
R5/06316	Semi-Detached	Medium	Very Low
R5/06336	Terraced	Medium	Very Low
R5/06349	Semi-Detached	Medium	Very Low
R5/06651	Detached	Medium	Very Low
R5/06802	Detached	Medium	Very Low
R5/06811	Detached	Medium	Very Low
R5/06868	Detached	Medium	Very Low
R5/06876	Detached	Medium	Very Low
R5/06893	Detached	Medium	Very Low
R5/06922	Detached	Medium	Very Low
R5/06982	Detached	Medium	Very Low
R5/07063	Detached	Medium	Very Low
R5/07067	Self Contained Flat (Includes Maisonette / Apartment)	Medium	Very Low
R5/07068	Detached	Medium	Very Low

Tunnel Related Works D&B Method (Scenario 3) – Overall Magnitude of Effects			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
R5/07079	Detached	Medium	Very Low
R5/07128	Caravan	Medium	Very Low
R5/07156	Detached	Medium	Low
R5/07169	Caravan	Medium	Low
R5/07222	Detached	Medium	Very Low
R5/07236	Detached	Medium	Low
R5/07260	Detached	Medium	Low
R5/07261	Detached	Medium	Very Low
R5/07264	Detached	Medium	Very Low
R5/07267	Detached	Medium	Very Low
R5/07278	Detached	Medium	Very Low
R5/07284	Detached	Medium	Low
R5/07286	Terraced	Medium	Very Low
R5/07287	Caravan	Medium	Very Low
R5/07290	Terraced	Medium	Very Low
R5/07294	Terraced	Medium	Very Low
R5/07295	Terraced	Medium	Very Low
R5/07299	Terraced	Medium	Very Low
R5/07300	Terraced	Medium	Very Low
R5/07303	Terraced	Medium	Very Low
R5/07307	Detached	Medium	Low
R5/07310	Caravan	Medium	Very Low
R5/07322	Detached	Medium	Low
R5/07355	Semi-Detached	Medium	Very Low
R5/07360	Semi-Detached	Medium	Very Low
R5/07362	Terraced	Medium	No Effect
R5/07368	Terraced	Medium	No Effect
R5/07375	Terraced	Medium	No Effect
R5/07384	Terraced	Medium	No Effect
R5/07391	Terraced	Medium	No Effect



Tunnel Related Works D&B Method (Scenario 3) – Overall Magnitude of Effects			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
R5/07397	Detached	Medium	Very Low
R5/07402	Terraced	Medium	No Effect
R5/07407	Terraced	Medium	No Effect
R5/07424	Detached	Medium	No Effect
R5/07439	Terraced	Medium	Very Low
R5/07442	Terraced	Medium	Very Low
R5/07444	Terraced	Medium	Very Low
R5/07450	Terraced	Medium	Very Low
R5/07453	Terraced	Medium	Very Low
R5/07456	Terraced	Medium	Very Low
R5/07460	Terraced	Medium	Very Low
R5/07463	Terraced	Medium	Very Low
R5/07524	Detached	Medium	Low
R5/07577	Detached	Medium	Low
R5/07602	Detached	Medium	Very Low
R5/07645	Semi-Detached	Medium	Very Low
R5/07647	Detached	Medium	Low
R5/07659	Self Contained Flat (Includes Maisonette / Apartment)	Medium	Low
R5/07660	Detached	Medium	Low
R5/07665	Semi-Detached	Medium	Very Low
R5/07673	Semi-Detached	Medium	Very Low
R5/07676	Detached	Medium	Very Low
R5/07698	Semi-Detached	Medium	Very Low
R5/07749	Detached	Medium	Very Low
R5/07765	Detached	Medium	Very Low
R5/07769	Detached	Medium	No Effect
R5/07785	Detached	Medium	Very Low
R5/07787	Detached	Medium	Very Low
R5/07868	Detached	Medium	Very Low
R5/07945	Detached	Medium	Very Low

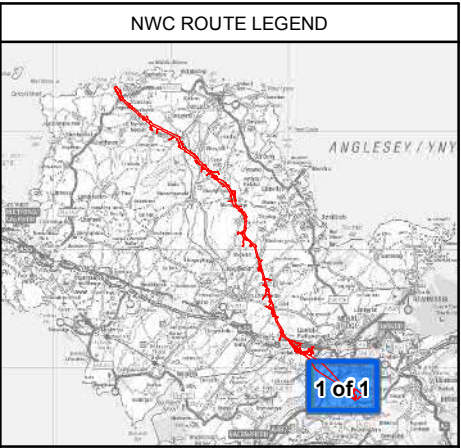
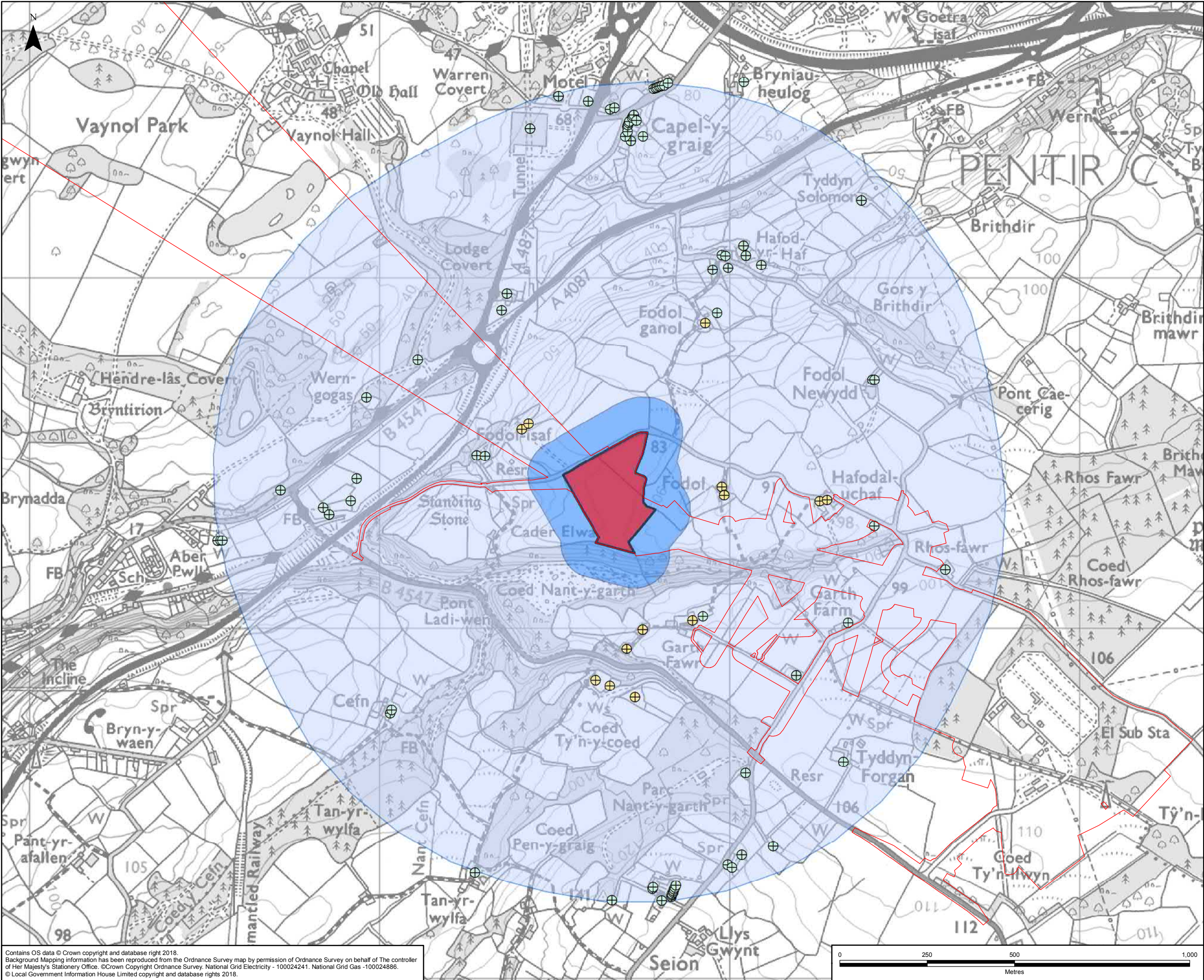
Tunnel Related Works D&B Method (Scenario 3) – Overall Magnitude of Effects			
Receptor	Receptor Classification	Sensitivity of Receptor	Maximum Magnitude of Effect Over all Periods
R5/08106	Detached	Medium	Very Low
R5/08346	Detached	Medium	Low
R5/08407	Detached	Medium	Low
R5/08539	Detached	Medium	Very Low
R5/08540	Caravan	Medium	Very Low
R5/08541	Semi-Detached	Medium	Very Low
R5/08574	Detached	Medium	Very Low
R5/08636	Detached	Medium	Very Low
R5/08699	Caravan	Medium	Very Low
R5/08700	Caravan	Medium	Very Low
R5/08701	Self Contained Flat (Includes Maisonette / Apartment)	Medium	Very Low
R5/08715	Detached	Medium	Very Low
R5/08718	Detached	Medium	Very Low
R5/09355	Detached	Medium	Very Low
R5/09356	Caravan	Medium	Very Low
R5/13667	Detached	Medium	Very Low



# Figure B

*Page intentionally blank*





**LEGEND**

ORDER LIMITS

SECTION OUTLINES

SIGNIFICANCE OF EFFECT:

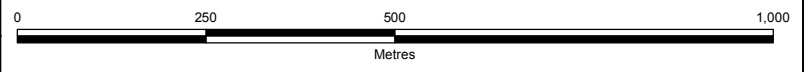
- MINOR
- NEGLECTIBLE

CONSTRUCTION COMPOUND

NOISE STUDY AREA: Tŷ FODOL CONSTRUCTION COMPOUND

VIBRATION STUDY AREA: Tŷ FODOL CONSTRUCTION COMPOUND

Contains OS data © Crown copyright and database right 2018.  
Background Mapping Information has been reproduced from the Ordnance Survey map by permission of Ordnance Survey on behalf of The controller of Her Majesty's Stationery Office. ©Crown Copyright Ordnance Survey, National Grid Electricity - 100024241, National Grid Gas -100024886.  
© Local Government Information House Limited copyright and database rights 2018.



A	10/08/2018	ENVIRONMENTAL STATEMENT	JF	SH	PE
Rev	Date	Description	GIS	Chk	App
nationalgrid					
Scheme: NORTH WALES CONNECTION PROJECT					
Document Number: 5.15.2.13					
Document Title: FIGURE B SIGNIFICANCE OF EFFECTS FROM WORKS WITHIN THE Tŷ FODOL CONSTRUCTION COMPOUND - DRILL AND BLAST METHOD (SCENARIO 3) SECTION F					
Creator: JF	Date: 10/08/2018	Checker: SH	Date: 10/08/2018	Approver: PE	Date: 10/08/2018
Document Type: FIGURE	Scale: 1:10,000	Format: A3	Sheets: 1 of 1	Rev: A	



