



**STATEMENT OF COMMON GROUND
NOISE**

**IN RELATION TO AN APPLICATION BY RES UK & IRELAND LIMITED
DATED
27 MARCH 2009
FOR CONSENT TO CONSTRUCT AND OPERATE A WIND TURBINE
GENERATING STATION
IN
POWYS, MID-WALES**

:

INTRODUCTION

1. This Statement of Common Ground is prepared on behalf of RES UK & Ireland Limited ('RES') for agreement with Powys County Council in relation to an application for consent pursuant to section 36 of the Electricity Act 1989 to construct and operate the Llanbrynmair wind turbine generating station in Powys, Mid-Wales.
2. This Statement of Common Ground relates to noise including noise related health issues.
3. No Reason for Objection has been issued by Powys County Council on noise grounds.
4. The Alliance object to the Development on noise grounds.

OPERATIONAL NOISE

Baseline Noise Levels

5. Baseline noise measurements have been carried out at 5 locations around the site and used to derive noise limits for the most affected properties in the area, as described in paragraphs 9.5.26 – 9.5.41 in the 2013 Consolidated SEI. This followed the methodology described in ETSU-R-97, *The Assessment and Rating of Noise from Wind Farms*, dealing with wind shear in the manner described in the Institute of Acoustics (IoA) *Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise*.

Derived Noise Limits

6. Noise limits for the night and day-time hours have been derived from the results of the baseline noise monitoring in line with ETSU-R-97 and as described in the 2013 Consolidated SEI at paragraphs 9.5.43-9.5.49.

Assessment

7. Operational noise from the development acting both alone, and in conjunction with the adjacent Carnedd Wen development, has been predicted following the guidance contained in the IoA Good Practice Guide and as described in the 2013 Consolidated SEI at paragraphs 9.5.10-9.5.25. This has been compared with the

derived night-time and upper day-time limits, which is considered appropriate for the assessment in this case, for all properties where predicted noise levels from the Development exceed the ETSU-R-97 simplified noise limit. The noise limits for properties other than those where baseline measurements were carried out are assigned from the baseline measurement locations as described in the ES.

8. The ETSU-R-97 night and day-time limits described above are met in all cases for both the Development acting alone and in conjunction with the adjacent Carnedd Wen development. For the avoidance of doubt Appendix 1 shows the predicted noise levels for Llanbrynmair acting alone for all properties considered in the Consolidated SEI and Appendix 2 shows the updated predicted cumulative noise levels using the latest data from Npower for Carnedd Wen. Appendices 3a and 3b show a comparison of the predicted noise levels for Llanbrynmair with the derived ETSU-R-97 day and night-time limits respectively and Appendix 4a and 4b show a comparison of the predicted cumulative noise levels with the day and night-time limits respectively.

Tonal Noise

9. ETSU-R-97 specifies a tonal penalty to be applied for the presence of tonal components in noise from the turbines. It is agreed that this has not been included in the assessment but that provision for such a penalty should be included in planning conditions covering noise.

Amplitude Modulation

10. This is discussed in the 2013 Consolidated SEI at paragraphs 9.3.11-9.3.16. The IoA Good Practice Guide notes that the evidence in relation to "Excess" or "Other" Amplitude Modulation (AM) is still developing. At the time of writing, current practice is not to assign a planning condition to deal with AM.

Low Frequency Noise, Infrasound and Ground-borne Vibration

11. These are discussed in the 2013 Consolidated SEI at paragraphs 9.32 – 9.3.10. There is no evidence to suggest that these adverse factors would be present at any residential property as a result of turbine operation.

CONSTRUCTION NOISE

12. Noise during construction and de-commissioning of the Development has been assessed according to methodologies prescribed in BS5228, 2009, *Code of Practice for Noise and Vibration Control on Construction and Open Sites, Part 1 – Noise* and is not likely to cause significant impacts for day-times (0700-1900) and Saturday mornings (0700-1300) .
13. In addition to existing powers under the Control of Pollution Act 1974, this is most appropriately dealt with through Planning Conditions and by way of a Construction Management Plan to be submitted to PCC which, amongst other things, may restrict the hours when construction and construction related activities may take place. A draft condition on construction noise proposed by Powys County Council is included in Appendix 5

THIRD PARTY OBJECTIONS

14. The Outline Statement by The Alliance is to the effect that not one of the six developments should be allowed on the grounds of, inter-alia, *'imposition on the local community of intolerable exposure to health hazards'* (which may or may not relate to noise) and that they will also *'inflict on the residents living in close proximity a volume and type of noise which will cause serious harm to their residential amenity'*.
15. It is agreed that the assessment presented in the August 2013 SEI demonstrates that operational and construction noise will not cause harm to residential amenity and that this can be adequately controlled through planning conditions.

PLANNING CONDITIONS ON NOISE

16. A draft planning condition on operational noise proposed by Powys County Council is included here in Appendix 5 including noise limits designed to ensure that noise from the Llanbrynmair wind turbine generating station operating either alone, or in conjunction with the adjacent Carnedd Wen development, will operate within the derived ETSU-R-97 day-time noise limits which, as requested by PCC, should also apply at night and irrespective of whether Carnedd Wen is operational or not and which include a reduction of headroom by the amounts shown at Appendix 6.

17. Appendix 7 shows a comparison of the predicted noise levels for Llanbryn-mair with the proposed noise limits.

This Statement has been agreed by:

Dr Andrew McKenzie, Director & Principal Consultant at Hayes McKenzie Partnership Ltd

Signed.....

On behalf of RES

Date..... 7th October 2013

This Statement has been agreed by:

Signed.....

On behalf of PCC

Date..... 8/10/13

APPENDIX 1 – Predicted Noise Levels for Llanbrynmair Wind Farm

House ID	House Name	Reference Wind Speed (Standardised v_{10}) / ms^{-1}								
		4	5	6	7	8	9	10	11	12
H1	Ysgubor Cannon	29.5	33.7	36.4	37.4	37.9	37.4	37.2	37.2	37.2
H2	Pen yr Eisteddfod	15.9	20.2	22.9	24.0	24.6	24.2	23.9	23.9	23.9
H3	Dolwen Isaf	24.0	28.2	31.0	32.0	32.5	32.0	31.8	31.8	31.8
H4	The Barn - Blaen y Cwm	16.3	20.6	23.4	24.5	25.1	24.8	24.5	24.5	24.5
H5	Rhydymeirch	18.9	23.1	25.9	27.0	27.5	27.1	26.9	26.9	26.9
H6	Abercannon	27.3	31.5	34.2	35.2	35.7	35.2	35.0	35.0	35.0
H7	Beulah Chapel House	26.3	30.4	33.2	34.2	34.7	34.2	34.0	34.0	34.0
H8	Neinthirion	26.3	30.4	33.2	34.2	34.7	34.2	34.0	34.0	34.0
H9	Delfryn	27.4	31.6	34.4	35.4	35.8	35.3	35.2	35.2	35.2
H10	Berth-lwyd	20.4	24.5	27.3	28.4	29.0	28.5	28.3	28.3	28.3
H11	Castell y Gwynt	25.5	29.8	32.5	33.5	34.1	33.6	33.4	33.4	33.4
H12	Pant y Powsi	21.7	25.9	28.6	29.7	30.2	29.8	29.6	29.6	29.6
H13	Nant yr Esgairwen	20.7	24.9	27.6	28.6	29.2	28.7	28.5	28.5	28.5
H14	Capel yr Aber	19.3	23.5	26.3	27.3	27.8	27.4	27.2	27.2	27.2
H15	Hafodowen	28.5	32.7	35.5	36.4	36.9	36.4	36.2	36.2	36.2
H16	Cwm-carnedd-isaf	22.4	26.5	29.3	30.3	30.9	30.4	30.2	30.2	30.2
H17	Cwm-carnedd-uchaf	22.8	26.9	29.7	30.7	31.2	30.7	30.5	30.5	30.5
H18	Dolau	24.0	28.2	31.0	32.0	32.5	32.0	31.8	31.8	31.8
H19	Dolau-ceimion	24.8	29.0	31.7	32.7	33.2	32.7	32.5	32.5	32.5
H20	Bryn Du	17.9	22.2	24.9	26.0	26.5	26.2	25.9	25.9	25.9
H21	Glegyrnant	17.5	21.7	24.5	25.6	26.3	25.9	25.7	25.7	25.7
H22	Blaen y Cwm	16.0	20.3	23.1	24.2	24.8	24.6	24.3	24.3	24.3
H23	Cwm Pen Llydan	22.9	26.9	29.7	30.9	31.5	31.0	30.8	30.8	30.8
H24	Cwm-y-ffynnon	19.5	23.6	26.4	27.5	28.2	27.8	27.5	27.5	27.5
H25	Pwll-melyn	19.7	23.8	26.5	27.7	28.3	27.8	27.6	27.6	27.6
H26	Ffriddfawr	27.5	31.7	34.4	35.4	35.9	35.4	35.2	35.2	35.2
H27	Cwmdrwen	28.5	32.7	35.5	36.4	36.9	36.4	36.2	36.2	36.2
H28	Cannon	29.9	34.1	36.9	37.8	38.3	37.8	37.6	37.6	37.6
H29	Dolwen Uchaf	24.3	28.5	31.2	32.2	32.7	32.2	32.1	32.1	32.1
H30	Ffridd Newydd	18.0	22.3	25.0	26.1	26.7	26.3	26.1	26.1	26.1
H31	Caecrwn	15.5	19.8	22.5	23.6	24.2	23.8	23.6	23.6	23.6
H32	Llwyn	13.2	17.5	20.3	21.4	22.0	21.7	21.5	21.5	21.5
H33	Maes Llymystyn	13.8	18.1	20.9	22.0	22.6	22.3	22.0	22.0	22.0
H34	Moel Ddolwen	15.5	19.8	22.5	23.7	24.3	24.1	23.8	23.8	23.8
H35	Tyn-y-fedw	12.9	17.2	19.9	21.0	21.7	21.4	21.2	21.2	21.2
H36	Gesail-ddu	11.6	15.9	18.7	19.9	20.7	20.5	20.2	20.2	20.2
H37	Caer-lloi	10.4	14.8	17.5	18.6	19.4	19.2	18.9	18.9	18.9
H38	Dol-y-maen	7.3	11.8	14.5	15.7	16.6	16.6	16.3	16.3	16.3
H39	Nant-y-dugoed	5.8	10.5	13.2	14.4	15.4	15.5	15.1	15.1	15.1
H40	Talglannau	6.3	11.0	13.7	14.9	15.9	16.0	15.7	15.7	15.7
H41	Barwn	5.6	10.3	12.8	14.2	15.3	15.5	15.1	15.1	15.1
H42	Ty-coch	6.1	10.8	13.5	14.7	15.9	16.0	15.5	15.5	15.5
H43	Groes-heol	6.4	11.1	13.8	15.0	16.1	16.2	15.8	15.8	15.8
H44	Glan-yr-afon	7.3	11.9	14.7	15.9	17.0	17.2	16.8	16.8	16.8
H45	Blaentafalog Farm	8.8	13.4	16.1	17.4	18.4	18.5	18.1	18.1	18.1
H46	House 46	9.9	14.4	17.1	18.3	19.3	19.3	18.9	18.9	18.9
H47	Nant Carfan	12.5	16.9	19.7	21.0	21.9	21.9	21.6	21.6	21.6
H48	Dol Fawr	12.7	17.1	19.8	21.1	21.9	21.8	21.5	21.5	21.5
H49	Gerddi-gleision	15.2	19.6	22.3	23.4	24.1	23.9	23.6	23.6	23.6
H50	The Lodge	15.0	19.2	22.0	23.1	23.8	23.5	23.2	23.2	23.2
H51	Cefn	22.7	26.9	29.6	30.6	31.1	30.7	30.5	30.5	30.5
H52	Caeau-gleision	18.8	23.0	25.7	26.8	27.4	26.9	26.7	26.7	26.7

APPENDIX 2 – Predicted Cumulative Noise Levels (All Downwind)

House ID	House Name	Reference Wind Speed (Standardised v_{10}) / ms^{-1}									
		4	5	6	7	8	9	10	11	12	
H1	Ysgubor Cannon	31.6	35.5	38.0	39.1	39.7	39.5	39.5	39.5	39.6	
H2	Pen yr Eisteddfod	27.9	31.4	34.0	35.5	36.3	36.3	36.3	36.3	36.3	
H3	Dolwen Isaf	27.5	31.3	34.0	35.2	35.9	35.7	35.6	35.6	35.7	
H4	The Barn - Blaen y Cwm	27.2	30.7	33.3	34.7	35.4	35.4	35.5	35.5	35.5	
H5	Rhydymeirch	29.5	32.9	35.6	36.9	37.6	37.6	37.8	37.8	37.8	
H6	Abercannon	29.8	33.6	36.2	37.4	38.0	37.8	37.7	37.8	37.8	
H7	Beulah Chapel House	28.9	32.7	35.4	36.5	37.1	36.9	36.9	37.0	37.0	
H8	Neinthirion	28.9	32.7	35.3	36.5	37.1	36.9	36.9	37.0	37.0	
H9	Delfryn	29.6	33.5	36.2	37.4	37.9	37.6	37.6	37.7	37.7	
H10	Berth-lwyd	24.2	27.9	30.6	31.8	32.5	32.3	32.4	32.4	32.4	
H11	Castell y Gwynt	28.2	32.1	34.8	35.9	36.6	36.4	36.3	36.3	36.3	
H12	Pant y Powsi	23.7	27.6	30.3	31.5	32.1	31.9	31.8	31.8	31.8	
H13	Nant yr Esgairwen	22.9	26.8	29.4	30.6	31.2	31.0	30.9	30.9	30.9	
H14	Capel yr Aber	21.7	25.6	28.3	29.5	30.1	29.9	29.8	29.8	29.8	
H15	Hafodowen	29.5	33.6	36.3	37.3	37.9	37.5	37.4	37.4	37.4	
H16	Cwm-carnedd-isaf	24.5	28.3	31.1	32.2	32.8	32.5	32.5	32.5	32.5	
H17	Cwm-carnedd-uchaf	24.7	28.6	31.3	32.5	33.1	32.8	32.7	32.7	32.7	
H18	Dolau	27.2	31.0	33.7	34.9	35.5	35.3	35.3	35.4	35.4	
H19	Dolau-ceimion	28.0	31.8	34.4	35.6	36.3	36.1	36.1	36.1	36.1	
H20	Bryn Du	25.8	29.4	32.0	33.4	34.2	34.1	34.1	34.1	34.1	
H21	Glegyrnant	28.5	32.0	34.6	35.9	36.7	36.7	36.8	36.9	36.9	
H22	Blaen y Cwm	26.8	30.3	32.9	34.3	35.0	35.1	35.2	35.2	35.2	
H23	Cwm Pen Llydan	34.9	38.4	41.0	42.5	43.2	43.2	43.3	43.3	43.3	
H24	Cwm-y-ffynnon	26.9	30.4	33.1	34.3	35.0	34.9	35.2	35.2	35.2	
H25	Pwll-melyn	25.4	29.0	31.6	32.9	33.6	33.5	33.6	33.6	33.6	
H26	Ffriddfawr	29.6	33.5	36.2	37.4	38.0	37.7	37.6	37.6	37.6	
H27	Cwmderwen	30.6	34.5	37.2	38.3	38.9	38.6	38.5	38.5	38.5	
H28	Cannon	31.9	35.8	38.4	39.5	40.1	39.8	39.8	39.9	39.9	
H29	Dolwen Uchaf	27.7	31.5	34.1	35.3	36.0	35.8	35.8	35.8	35.8	
H30	Ffridd Newydd	25.6	29.1	31.8	33.2	33.9	33.9	33.9	33.9	33.9	
H31	Caecrwn	28.0	31.4	34.1	35.6	36.3	36.3	36.3	36.3	36.3	
H32	Llwyn	27.7	31.1	33.8	35.3	36.1	36.1	36.1	36.1	36.1	
H33	Maes Llymystyn	28.8	32.2	34.9	36.3	37.1	37.1	37.1	37.1	37.1	
H34	Moel Ddolwen	21.0	24.7	27.3	28.7	29.4	29.4	29.3	29.3	29.3	
H35	Tyn-y-fedw	23.7	27.1	29.8	31.2	32.0	32.0	32.0	32.0	32.0	
H36	Gesail-ddu	28.9	32.3	34.9	36.4	37.2	37.2	37.2	37.2	37.2	
H37	Caer-lloi	27.8	31.2	33.9	35.4	36.2	36.2	36.2	36.2	36.2	
H38	Dol-y-maen	24.3	27.7	30.4	31.9	32.7	32.7	32.7	32.7	32.7	
H39	Nant-y-dugoed	21.3	24.7	27.4	28.8	29.7	29.7	29.7	29.7	29.7	
H40	Talglannau	21.5	24.9	27.5	29.0	29.8	29.8	29.9	29.9	29.9	
H41	Barwn	19.5	23.0	25.6	27.1	27.9	27.9	27.9	28.0	28.0	
H42	Ty-coch	19.9	23.4	26.0	27.5	28.3	28.3	28.3	28.4	28.4	
H43	Groes-heol	19.3	22.8	25.4	26.9	27.7	27.7	27.7	27.8	27.8	
H44	Glan-yr-afon	19.3	22.8	25.4	26.9	27.7	27.7	27.7	27.7	27.7	
H45	Blaentafalog Farm	19.6	23.1	25.7	27.1	27.9	28.0	28.0	28.0	28.0	
H46	House 46	19.3	22.8	25.4	26.9	27.7	27.7	27.7	27.7	27.7	
H47	Nant Carfan	20.1	23.7	26.3	27.7	28.5	28.5	28.5	28.6	28.6	
H48	Dol Fawr	19.3	23.0	25.6	27.0	27.7	27.7	27.8	27.8	27.8	
H49	Gerddi-gleision	21.7	25.3	28.0	29.2	29.9	29.9	30.0	30.0	30.1	
H50	The Lodge	22.4	26.0	28.6	29.9	30.7	30.6	30.7	30.8	30.8	
H51	Cefn	24.8	28.7	31.4	32.5	33.1	32.9	32.8	32.8	32.8	
H52	Caean-gleision	25.5	29.1	31.8	33.0	33.7	33.6	33.8	33.8	33.8	

APPENDIX 3a – Llanbrynmair Compliance with ETSU-R-97 Noise Limits (Day-Time)

House ID	House Name	Reference Wind Speed (Standardised v_{10}) / ms^{-1}									
		4	5	6	7	8	9	10	11	12	
H1	Ysgubor Cannon	-10.5	-6.4	-4.2	-4.0	-4.5	-6.1	-6.3	-6.3	-6.3	
H2	Pen yr Eisteddfod	-24.1	-19.8	-17.1	-16.0	-15.4	-15.8	-16.1	-16.1	-16.1	
H3	Dolwen Isaf	-16.0	-11.9	-9.6	-9.4	-9.9	-11.5	-11.7	-11.7	-11.7	
H4	The Barn - Blaen y Cwm	-23.7	-19.4	-16.6	-17.7	-19.3	-21.6	-23.6	-24.9	-25.6	
H5	Rhydymeirch	-21.1	-16.9	-14.1	-15.2	-16.9	-19.3	-21.2	-22.5	-23.2	
H6	Abercannon	-12.7	-8.6	-6.4	-6.2	-6.7	-8.3	-8.5	-8.5	-8.5	
H7	Beulah Chapel House	-13.7	-9.7	-7.4	-7.2	-7.7	-9.3	-9.5	-9.5	-9.5	
H8	Neinthirion	-13.7	-9.7	-7.4	-7.2	-7.7	-9.3	-9.5	-9.5	-9.5	
H9	Delfryn	-12.6	-8.4	-5.6	-4.6	-6.2	-8.9	-9.0	-9.0	-9.0	
H10	Berth-lwyd	-19.6	-15.5	-12.7	-11.6	-11.0	-13.6	-13.8	-13.8	-13.8	
H11	Castell y Gwynt	-14.5	-10.2	-7.5	-6.5	-7.9	-10.6	-10.8	-10.8	-10.8	
H12	Pant y Powsi	-18.3	-14.1	-11.4	-10.3	-11.8	-14.4	-14.6	-14.6	-14.6	
H13	Nant yr Esgairwen	-19.3	-15.1	-12.4	-11.4	-12.8	-15.5	-15.7	-15.7	-15.7	
H14	Capel yr Aber	-20.7	-16.5	-13.7	-12.7	-14.2	-16.8	-17.0	-17.0	-17.0	
H15	Hafodowen	-11.5	-7.3	-5.7	-7.4	-10.1	-13.8	-14.0	-14.0	-14.0	
H16	Cwm-carnedd-isaf	-17.6	-13.5	-10.7	-9.7	-9.1	-11.7	-11.9	-11.9	-11.9	
H17	Cwm-carnedd-uchaf	-17.2	-13.1	-10.3	-9.3	-8.8	-11.4	-11.6	-11.6	-11.6	
H18	Dolau	-16.0	-11.9	-9.6	-9.4	-9.9	-11.5	-11.7	-11.7	-11.7	
H19	Dolau-ceimion	-15.2	-11.1	-8.9	-8.7	-9.2	-10.8	-11.0	-11.0	-11.0	
H20	Bryn Du	-22.1	-17.8	-15.1	-14.0	-13.5	-13.8	-14.1	-14.1	-14.1	
H21	Glegyrnant	-22.5	-18.3	-15.5	-16.6	-18.1	-20.5	-22.4	-23.7	-24.4	
H22	Blaen y Cwm	-24.0	-19.7	-16.9	-18.0	-19.6	-21.8	-23.8	-25.1	-25.8	
H23	Cwm Pen Llydan	-17.1	-13.1	-10.3	-11.3	-12.9	-15.4	-17.3	-18.6	-19.3	
H24	Cwm-y-ffynnon	-20.5	-16.4	-13.6	-12.5	-11.8	-14.3	-14.6	-14.6	-14.6	
H25	Pwll-melyn	-20.3	-16.2	-13.5	-12.3	-11.7	-14.3	-14.5	-14.5	-14.5	
H26	Ffriddfawr	-12.5	-8.3	-5.6	-4.6	-6.1	-8.8	-9.0	-9.0	-9.0	
H27	Cwmdrwen	-11.5	-7.3	-4.5	-3.6	-5.1	-7.8	-8.0	-8.0	-8.0	
H28	Cannon	-10.1	-6.0	-3.7	-3.6	-4.1	-5.7	-5.9	-5.9	-5.9	
H29	Dolwen Uchaf	-15.7	-11.6	-9.4	-9.2	-9.7	-11.3	-11.4	-11.4	-11.4	
H30	Ffridd Newydd	-22.0	-17.7	-15.0	-13.9	-13.3	-13.7	-13.9	-13.9	-13.9	
H31	Caecrwn	-24.5	-20.2	-17.5	-16.4	-15.8	-16.2	-16.4	-16.4	-16.4	
H32	Llwyn	-26.8	-22.5	-19.7	-18.6	-18.0	-18.3	-18.5	-18.5	-18.5	
H33	Maes Llymystyn	-26.2	-21.9	-19.1	-18.0	-17.4	-17.7	-18.0	-18.0	-18.0	
H34	Moel Ddolwen	-24.5	-20.3	-18.1	-17.7	-18.1	-19.4	-19.7	-19.7	-19.7	
H35	Tyn-y-fedw	-27.1	-22.8	-20.1	-19.0	-18.3	-18.6	-18.8	-18.8	-18.8	
H36	Gesall-ddu	-28.4	-24.1	-21.3	-20.1	-19.3	-19.5	-19.8	-19.8	-19.8	
H37	Caer-lloi	-29.6	-25.2	-22.5	-21.4	-20.6	-20.8	-21.1	-21.1	-21.1	
H38	Dol-y-maen	-32.7	-28.2	-25.5	-24.3	-23.4	-23.4	-23.7	-23.7	-23.7	
H39	Nant-y-dugoed	-34.2	-29.5	-26.8	-25.6	-24.6	-24.5	-24.9	-24.9	-24.9	
H40	Talglannau	-33.7	-29.0	-26.3	-25.1	-24.1	-24.0	-24.3	-24.3	-24.3	
H41	Barwn	-34.4	-29.7	-27.2	-25.8	-24.7	-24.5	-24.9	-24.9	-24.9	
H42	Ty-coch	-33.9	-29.2	-26.5	-25.3	-24.1	-24.0	-24.5	-24.5	-24.5	
H43	Groes-heol	-33.6	-28.9	-26.2	-25.0	-23.9	-23.8	-24.2	-24.2	-24.2	
H44	Glan-yr-afon	-32.7	-28.1	-25.3	-24.1	-23.0	-22.8	-23.2	-23.2	-23.2	
H45	Blaentafalog Farm	-31.2	-26.6	-23.9	-22.6	-21.6	-21.5	-21.9	-21.9	-21.9	
H46	House 46	-30.1	-25.6	-22.9	-21.7	-20.7	-20.7	-21.1	-21.1	-21.1	
H47	Nant Carfan	-27.5	-23.1	-20.3	-19.0	-18.1	-18.1	-18.4	-18.4	-18.4	
H48	Dol Fawr	-27.3	-22.9	-20.2	-18.9	-18.1	-18.2	-18.5	-18.5	-18.5	
H49	Gerddi-gleision	-24.8	-20.4	-17.7	-16.6	-15.9	-18.2	-18.5	-18.5	-18.5	
H50	The Lodge	-25.0	-20.8	-18.0	-16.9	-16.2	-18.6	-18.9	-18.9	-18.9	
H51	Cefn	-17.3	-13.1	-10.4	-9.4	-8.9	-11.4	-11.6	-11.6	-11.6	
H52	Caean-gleision	-21.2	-17.0	-14.3	-13.2	-12.6	-15.2	-15.4	-15.4	-15.4	

APPENDIX 3b – Llanbrynmair Compliance with ETSU-R-97 Noise Limits (Night-Time)

House ID	House Name	Reference Wind Speed (Standardised v_{10}) / ms^{-1}									
		4	5	6	7	8	9	10	11	12	
H1	Ysgubor Cannon	-13.5	-9.3	-6.6	-5.6	-5.1	-5.6	-5.8	-5.8	-5.8	
H2	Pen yr Eisteddfod	-27.1	-22.8	-20.1	-19.0	-18.4	-18.8	-19.1	-19.1	-19.1	
H3	Dolwen Isaf	-19.0	-14.8	-12.0	-11.0	-10.5	-11.0	-11.2	-11.2	-11.2	
H4	The Barn - Blaen y Cwm	-26.7	-22.4	-19.6	-18.5	-17.9	-18.2	-20.2	-22.4	-24.7	
H5	Rhydymeirch	-24.1	-19.9	-17.1	-16.0	-15.5	-15.9	-17.8	-20.0	-22.3	
H6	Abercannon	-15.7	-11.5	-8.8	-7.8	-7.3	-7.8	-8.0	-8.0	-8.0	
H7	Beulah Chapel House	-16.7	-12.6	-9.8	-8.8	-8.3	-8.8	-9.0	-9.0	-9.0	
H8	Neinthirion	-16.7	-12.6	-9.8	-8.8	-8.3	-8.8	-9.0	-9.0	-9.0	
H9	Delfryn	-15.6	-11.4	-8.6	-7.6	-7.2	-7.7	-9.3	-9.3	-9.3	
H10	Berth-lwyd	-22.6	-18.5	-15.7	-14.6	-14.0	-14.5	-14.7	-14.7	-14.7	
H11	Castell y Gwynt	-17.5	-13.2	-10.5	-9.5	-8.9	-9.4	-11.1	-11.1	-11.1	
H12	Pant y Powsi	-21.3	-17.1	-14.4	-13.3	-12.8	-13.2	-14.9	-14.9	-14.9	
H13	Nant yr Esgairwen	-22.3	-18.1	-15.4	-14.4	-13.8	-14.3	-16.0	-16.0	-16.0	
H14	Capel yr Aber	-23.7	-19.5	-16.7	-15.7	-15.2	-15.6	-17.3	-17.3	-17.3	
H15	Hafodowen	-14.5	-10.3	-7.5	-8.6	-13.5	-14.0	-14.2	-14.2	-14.2	
H16	Cwm-carnedd-isaf	-20.6	-16.5	-13.7	-12.7	-12.1	-12.6	-12.8	-12.8	-12.8	
H17	Cwm-carnedd-uchaf	-20.2	-16.1	-13.3	-12.3	-11.8	-12.3	-12.5	-12.5	-12.5	
H18	Dolau	-19.0	-14.8	-12.0	-11.0	-10.5	-11.0	-11.2	-11.2	-11.2	
H19	Dolau-ceimion	-18.2	-14.0	-11.3	-10.3	-9.8	-10.3	-10.5	-10.5	-10.5	
H20	Bryn Du	-25.1	-20.8	-18.1	-17.0	-16.5	-16.8	-17.1	-17.1	-17.1	
H21	Glegyrnant	-25.5	-21.3	-18.5	-17.4	-16.7	-17.1	-19.0	-21.2	-23.5	
H22	Blaen y Cwm	-27.0	-22.7	-19.9	-18.8	-18.2	-18.4	-20.4	-22.6	-24.9	
H23	Cwm Pen Llydan	-20.1	-16.1	-13.3	-12.1	-11.5	-12.0	-13.9	-16.1	-18.4	
H24	Cwm-y-ffynnon	-23.5	-19.4	-16.6	-15.5	-14.8	-15.2	-15.5	-15.5	-15.5	
H25	Pwll-melyn	-23.3	-19.2	-16.5	-15.3	-14.7	-15.2	-15.4	-15.4	-15.4	
H26	Ffriddfawr	-15.5	-11.3	-8.6	-7.6	-7.1	-7.6	-9.3	-9.3	-9.3	
H27	Cwmderwen	-14.5	-10.3	-7.5	-6.6	-6.1	-6.6	-8.3	-8.3	-8.3	
H28	Cannon	-13.1	-8.9	-6.1	-5.2	-4.7	-5.2	-5.4	-5.4	-5.4	
H29	Dolwen Uchaf	-18.7	-14.5	-11.8	-10.8	-10.3	-10.8	-10.9	-10.9	-10.9	
H30	Ffridd Newydd	-25.0	-20.7	-18.0	-16.9	-16.3	-16.7	-16.9	-16.9	-16.9	
H31	Caecrwn	-27.5	-23.2	-20.5	-19.4	-18.8	-19.2	-19.4	-19.4	-19.4	
H32	Llwyn	-29.8	-25.5	-22.7	-21.6	-21.0	-21.3	-21.5	-21.5	-21.5	
H33	Maes Llymystyn	-29.2	-24.9	-22.1	-21.0	-20.4	-20.7	-21.0	-21.0	-21.0	
H34	Moel Ddolwen	-27.5	-23.2	-20.5	-19.3	-18.7	-18.9	-19.2	-19.2	-19.2	
H35	Tyn-y-fedw	-30.1	-25.8	-23.1	-22.0	-21.3	-21.6	-21.8	-21.8	-21.8	
H36	Gesail-ddu	-31.4	-27.1	-24.3	-23.1	-22.3	-22.5	-22.8	-22.8	-22.8	
H37	Caer-lloi	-32.6	-28.2	-25.5	-24.4	-23.6	-23.8	-24.1	-24.1	-24.1	
H38	Dol-y-maen	-35.7	-31.2	-28.5	-27.3	-26.4	-26.4	-26.7	-26.7	-26.7	
H39	Nant-y-dugoed	-37.2	-32.5	-29.8	-28.6	-27.6	-27.5	-27.9	-27.9	-27.9	
H40	Talglannau	-36.7	-32.0	-29.3	-28.1	-27.1	-27.0	-27.3	-27.3	-27.3	
H41	Barwn	-37.4	-32.7	-30.2	-28.8	-27.7	-27.5	-27.9	-27.9	-27.9	
H42	Ty-coch	-36.9	-32.2	-29.5	-28.3	-27.1	-27.0	-27.5	-27.5	-27.5	
H43	Groes-heol	-36.6	-31.9	-29.2	-28.0	-26.9	-26.8	-27.2	-27.2	-27.2	
H44	Glan-yr-afon	-35.7	-31.1	-28.3	-27.1	-26.0	-25.8	-26.2	-26.2	-26.2	
H45	Blaentafalog Farm	-34.2	-29.6	-26.9	-25.6	-24.6	-24.5	-24.9	-24.9	-24.9	
H46	House 46	-33.1	-28.6	-25.9	-24.7	-23.7	-23.7	-24.1	-24.1	-24.1	
H47	Nant Carfan	-30.5	-26.1	-23.3	-22.0	-21.1	-21.1	-21.4	-21.4	-21.4	
H48	Dol Fawr	-30.3	-25.9	-23.2	-21.9	-21.1	-21.2	-21.5	-21.5	-21.5	
H49	Gerddi-gleision	-27.8	-23.4	-20.7	-19.6	-18.9	-19.1	-19.4	-19.4	-19.4	
H50	The Lodge	-28.0	-23.8	-21.0	-19.9	-19.2	-19.5	-19.8	-19.8	-19.8	
H51	Cefn	-20.3	-16.1	-13.4	-12.4	-11.9	-12.3	-12.5	-12.5	-12.5	
H52	Caeau-gleision	-24.2	-20.0	-17.3	-16.2	-15.6	-16.1	-16.3	-16.3	-16.3	

APPENDIX 4a – Cumulative Compliance with ETSU-R-97 Noise Limits (Day-Time)

House ID	House Name	Reference Wind Speed (Standardised v_{10}) / ms^{-1}									
		4	5	6	7	8	9	10	11	12	
H1	Ysgubor Cannon	-8.4	-4.6	-2.6	-2.3	-2.7	-4.0	-4.0	-4.0	-3.9	
H2	Pen yr Eisteddfod	-12.1	-8.6	-6.0	-4.5	-3.7	-3.7	-3.7	-3.7	-3.7	
H3	Dolwen Isaf	-12.5	-8.8	-6.6	-6.2	-6.5	-7.8	-7.9	-7.9	-7.8	
H4	The Barn - Blaen y Cwm	-12.8	-9.3	-6.7	-7.5	-9.0	-11.0	-12.6	-13.9	-14.6	
H5	Rhydyrmeirch	-10.5	-7.1	-4.4	-5.3	-6.8	-8.8	-10.3	-11.6	-12.3	
H6	Abercannon	-10.2	-6.5	-4.4	-4.0	-4.4	-5.7	-5.8	-5.7	-5.7	
H7	Beulah Chapel House	-11.1	-7.4	-5.2	-4.9	-5.3	-6.6	-6.6	-6.5	-6.5	
H8	Neinthirion	-11.1	-7.4	-5.3	-4.9	-5.3	-6.6	-6.6	-6.5	-6.5	
H9	Delfryn	-10.4	-6.5	-3.8	-2.6	-4.1	-6.6	-6.6	-6.5	-6.5	
H10	Berth-lwyd	-15.8	-12.1	-9.4	-8.2	-7.5	-9.8	-9.7	-9.7	-9.7	
H11	Castell y Gwynt	-11.8	-7.9	-5.2	-4.1	-5.4	-7.8	-7.9	-7.9	-7.9	
H12	Pant y Powsi	-16.3	-12.4	-9.7	-8.5	-9.9	-12.3	-12.4	-12.4	-12.4	
H13	Nant yr Esgairwen	-17.1	-13.2	-10.6	-9.4	-10.8	-13.2	-13.3	-13.3	-13.3	
H14	Capel yr Aber	-18.3	-14.4	-11.7	-10.5	-11.9	-14.3	-14.4	-14.4	-14.4	
H15	Hafodowen	-10.5	-6.4	-4.9	-6.5	-9.1	-12.7	-12.8	-12.8	-12.8	
H16	Cwm-carnedd-isaf	-15.5	-11.7	-8.9	-7.8	-7.2	-9.6	-9.6	-9.6	-9.6	
H17	Cwm-carnedd-uchaf	-15.3	-11.4	-8.7	-7.5	-6.9	-9.3	-9.4	-9.4	-9.4	
H18	Dolau	-12.8	-9.1	-6.9	-6.5	-6.9	-8.2	-8.2	-8.1	-8.1	
H19	Dolau-ceimion	-12.0	-8.3	-6.2	-5.8	-6.1	-7.4	-7.4	-7.4	-7.4	
H20	Bryn Du	-14.2	-10.6	-8.0	-6.6	-5.8	-5.9	-5.9	-5.9	-5.9	
H21	Glegyrnant	-11.5	-8.0	-5.4	-6.3	-7.7	-9.7	-11.3	-12.5	-13.2	
H22	Blaen y Cwm	-13.2	-9.7	-7.1	-7.9	-9.4	-11.3	-12.9	-14.2	-14.9	
H23	Cwm Pen Llydan	-5.1	-1.6	1.0	0.3	-1.2	-3.2	-4.8	-6.1	-6.8	
H24	Cwm-y-ffynnon	-13.1	-9.6	-6.9	-5.7	-5.0	-7.2	-6.9	-6.9	-6.9	
H25	Pwil-melyn	-14.6	-11.0	-8.4	-7.1	-6.4	-8.6	-8.5	-8.5	-8.5	
H26	Ffriddfawr	-10.4	-6.5	-3.8	-2.6	-4.0	-6.5	-6.6	-6.6	-6.6	
H27	Cwmdrwen	-9.4	-5.5	-2.8	-1.7	-3.1	-5.6	-5.7	-5.7	-5.7	
H28	Cannon	-8.1	-4.3	-2.2	-1.9	-2.3	-3.7	-3.7	-3.6	-3.6	
H29	Dolwen Uchaf	-12.3	-8.6	-6.5	-6.1	-6.4	-7.7	-7.7	-7.7	-7.7	
H30	Ffridd Newydd	-14.4	-10.9	-8.2	-6.8	-6.1	-6.1	-6.1	-6.1	-6.1	
H31	Caecrwn	-12.0	-8.6	-5.9	-4.4	-3.7	-3.7	-3.7	-3.7	-3.7	
H32	Llwyn	-12.3	-8.9	-6.2	-4.7	-3.9	-3.9	-3.9	-3.9	-3.9	
H33	Maes Llymystyn	-11.2	-7.8	-5.1	-3.7	-2.9	-2.9	-2.9	-2.9	-2.9	
H34	Moel Ddolwen	-19.0	-15.4	-13.3	-12.7	-13.0	-14.1	-14.2	-14.2	-14.2	
H35	Tyn-y-fedw	-16.3	-12.9	-10.2	-8.8	-8.0	-8.0	-8.0	-8.0	-8.0	
H36	Gesail-ddu	-11.1	-7.7	-5.1	-3.6	-2.8	-2.8	-2.8	-2.8	-2.8	
H37	Caer-lloi	-12.2	-8.8	-6.1	-4.6	-3.8	-3.8	-3.8	-3.8	-3.8	
H38	Dol-y-maen	-15.7	-12.3	-9.6	-8.1	-7.3	-7.3	-7.3	-7.3	-7.3	
H39	Nant-y-dugoed	-18.7	-15.3	-12.6	-11.2	-10.3	-10.3	-10.3	-10.3	-10.3	
H40	Talglannau	-18.5	-15.1	-12.5	-11.0	-10.2	-10.2	-10.1	-10.1	-10.1	
H41	Barwn	-20.5	-17.0	-14.4	-12.9	-12.1	-12.1	-12.1	-12.0	-12.0	
H42	Ty-coch	-20.1	-16.6	-14.0	-12.5	-11.7	-11.7	-11.7	-11.6	-11.6	
H43	Groes-heol	-20.7	-17.2	-14.6	-13.1	-12.3	-12.3	-12.3	-12.2	-12.2	
H44	Glan-yr-afon	-20.7	-17.2	-14.6	-13.1	-12.3	-12.3	-12.3	-12.3	-12.3	
H45	Blaentafalog Farm	-20.4	-16.9	-14.3	-12.9	-12.1	-12.0	-12.0	-12.0	-12.0	
H46	House 46	-20.7	-17.2	-14.6	-13.1	-12.3	-12.3	-12.3	-12.3	-12.3	
H47	Nant Carfan	-19.9	-16.3	-13.7	-12.3	-11.5	-11.5	-11.5	-11.4	-11.4	
H48	Dol Fawr	-20.7	-17.0	-14.4	-13.0	-12.3	-12.3	-12.2	-12.2	-12.2	
H49	Gerddi-gleision	-18.3	-14.7	-12.0	-10.8	-10.1	-12.2	-12.1	-12.1	-12.0	
H50	The Lodge	-17.6	-14.0	-11.4	-10.1	-9.3	-11.5	-11.4	-11.3	-11.3	
H51	Cefn	-15.2	-11.3	-8.6	-7.5	-6.9	-9.2	-9.3	-9.3	-9.3	
H52	Caeau-gleision	-14.5	-10.9	-8.2	-7.0	-6.3	-8.5	-8.3	-8.3	-8.3	

APPENDIX 4b – Cumulative Compliance with ETSU-R-97 Noise Limits (Night-Time)

House ID	House Name	Reference Wind Speed (Standardised v_{10}) / ms^{-1}									
		4	5	6	7	8	9	10	11	12	
H1	Ysgubor Cannon	-11.4	-7.5	-5.0	-3.9	-3.3	-3.5	-3.5	-3.5	-3.4	
H2	Pen yr Eisteddfod	-15.1	-11.6	-9.0	-7.5	-6.7	-6.7	-6.7	-6.7	-6.7	
H3	Dolwen Isaf	-15.5	-11.7	-9.0	-7.8	-7.1	-7.3	-7.4	-7.4	-7.3	
H4	The Barn - Blaen y Cwm	-15.8	-12.3	-9.7	-8.3	-7.6	-7.6	-9.2	-11.4	-13.7	
H5	Rhydymeirch	-13.5	-10.1	-7.4	-6.1	-5.4	-5.4	-6.9	-9.1	-11.4	
H6	Abercannon	-13.2	-9.4	-6.8	-5.6	-5.0	-5.2	-5.3	-5.2	-5.2	
H7	Beulah Chapel House	-14.1	-10.3	-7.6	-6.5	-5.9	-6.1	-6.1	-6.0	-6.0	
H8	Neinthirion	-14.1	-10.3	-7.7	-6.5	-5.9	-6.1	-6.1	-6.0	-6.0	
H9	Delfryn	-13.4	-9.5	-6.8	-5.6	-5.1	-5.4	-6.9	-6.8	-6.8	
H10	Berth-lwyd	-18.8	-15.1	-12.4	-11.2	-10.5	-10.7	-10.6	-10.6	-10.6	
H11	Castell y Gwynt	-14.8	-10.9	-8.2	-7.1	-6.4	-6.6	-8.2	-8.2	-8.2	
H12	Pant y Powsi	-19.3	-15.4	-12.7	-11.5	-10.9	-11.1	-12.7	-12.7	-12.7	
H13	Nant yr Esgairwen	-20.1	-16.2	-13.6	-12.4	-11.8	-12.0	-13.6	-13.6	-13.6	
H14	Capel yr Aber	-21.3	-17.4	-14.7	-13.5	-12.9	-13.1	-14.7	-14.7	-14.7	
H15	Hafodowen	-13.5	-9.4	-6.7	-7.7	-12.5	-12.9	-13.0	-13.0	-13.0	
H16	Cwm-carnedd-isaf	-18.5	-14.7	-11.9	-10.8	-10.2	-10.5	-10.5	-10.5	-10.5	
H17	Cwm-carnedd-uchaf	-18.3	-14.4	-11.7	-10.5	-9.9	-10.2	-10.3	-10.3	-10.3	
H18	Dolau	-15.8	-12.0	-9.3	-8.1	-7.5	-7.7	-7.7	-7.6	-7.6	
H19	Dolau-ceimion	-15.0	-11.2	-8.6	-7.4	-6.7	-6.9	-6.9	-6.9	-6.9	
H20	Bryn Du	-17.2	-13.6	-11.0	-9.6	-8.8	-8.9	-8.9	-8.9	-8.9	
H21	Glegyrnant	-14.5	-11.0	-8.4	-7.1	-6.3	-6.3	-7.9	-10.0	-12.3	
H22	Blaen y Cwm	-16.2	-12.7	-10.1	-8.7	-8.0	-7.9	-9.5	-11.7	-14.0	
H23	Cwm Pen Llydan	-8.1	-4.6	-2.0	-0.5	0.2	0.2	-1.4	-3.6	-5.9	
H24	Cwm-y-ffynnon	-16.1	-12.6	-9.9	-8.7	-8.0	-8.1	-7.8	-7.8	-7.8	
H25	Pwll-melyn	-17.6	-14.0	-11.4	-10.1	-9.4	-9.5	-9.4	-9.4	-9.4	
H26	Ffriddfawr	-13.4	-9.5	-6.8	-5.6	-5.0	-5.3	-6.9	-6.9	-6.9	
H27	Cwmderwen	-12.4	-8.5	-5.8	-4.7	-4.1	-4.4	-6.0	-6.0	-6.0	
H28	Cannon	-11.1	-7.2	-4.6	-3.5	-2.9	-3.2	-3.2	-3.1	-3.1	
H29	Dolwen Uchaf	-15.3	-11.5	-8.9	-7.7	-7.0	-7.2	-7.2	-7.2	-7.2	
H30	Ffridd Newydd	-17.4	-13.9	-11.2	-9.8	-9.1	-9.1	-9.1	-9.1	-9.1	
H31	Caecrwn	-15.0	-11.6	-8.9	-7.4	-6.7	-6.7	-6.7	-6.7	-6.7	
H32	Llwyn	-15.3	-11.9	-9.2	-7.7	-6.9	-6.9	-6.9	-6.9	-6.9	
H33	Maes Llymystyn	-14.2	-10.8	-8.1	-6.7	-5.9	-5.9	-5.9	-5.9	-5.9	
H34	Moel Ddolwen	-22.0	-18.3	-15.7	-14.3	-13.6	-13.6	-13.7	-13.7	-13.7	
H35	Tyn-y-fedw	-19.3	-15.9	-13.2	-11.8	-11.0	-11.0	-11.0	-11.0	-11.0	
H36	Gesail-ddu	-14.1	-10.7	-8.1	-6.6	-5.8	-5.8	-5.8	-5.8	-5.8	
H37	Caer-lloi	-15.2	-11.8	-9.1	-7.6	-6.8	-6.8	-6.8	-6.8	-6.8	
H38	Dol-y-maen	-18.7	-15.3	-12.6	-11.1	-10.3	-10.3	-10.3	-10.3	-10.3	
H39	Nant-y-dugoed	-21.7	-18.3	-15.6	-14.2	-13.3	-13.3	-13.3	-13.3	-13.3	
H40	Taiglannau	-21.5	-18.1	-15.5	-14.0	-13.2	-13.2	-13.1	-13.1	-13.1	
H41	Barwn	-23.5	-20.0	-17.4	-15.9	-15.1	-15.1	-15.1	-15.0	-15.0	
H42	Ty-coch	-23.1	-19.6	-17.0	-15.5	-14.7	-14.7	-14.7	-14.6	-14.6	
H43	Groes-heol	-23.7	-20.2	-17.6	-16.1	-15.3	-15.3	-15.3	-15.2	-15.2	
H44	Glan-yr-afon	-23.7	-20.2	-17.6	-16.1	-15.3	-15.3	-15.3	-15.3	-15.3	
H45	Blaentafalog Farm	-23.4	-19.9	-17.3	-15.9	-15.1	-15.0	-15.0	-15.0	-15.0	
H46	House 46	-23.7	-20.2	-17.6	-16.1	-15.3	-15.3	-15.3	-15.3	-15.3	
H47	Nant Carfan	-22.9	-19.3	-16.7	-15.3	-14.5	-14.5	-14.5	-14.4	-14.4	
H48	Dol Fawr	-23.7	-20.0	-17.4	-16.0	-15.3	-15.3	-15.2	-15.2	-15.2	
H49	Gerddi-gleision	-21.3	-17.7	-15.0	-13.8	-13.1	-13.1	-13.0	-13.0	-12.9	
H50	The Lodge	-20.6	-17.0	-14.4	-13.1	-12.3	-12.4	-12.3	-12.2	-12.2	
H51	Cefn	-18.2	-14.3	-11.6	-10.5	-9.9	-10.1	-10.2	-10.2	-10.2	
H52	Caean-gleision	-17.5	-13.9	-11.2	-10.0	-9.3	-9.4	-9.2	-9.2	-9.2	

APPENDIX 5 - Proposed Noise Conditions for Llanbrynmair Wind Farm

- NC1 Development shall not commence until a Construction Method Statement has been submitted to and approved in writing by the Local Planning Authority. The construction of the development shall be carried out in accordance with the approved Statement, subject to any variations approved in writing by the Local Planning Authority.
- NC2 No construction work (other than the delivery of abnormal loads) shall take place outside the hours of 07:30 and 19:30 Monday to Friday inclusive, 07:30 and 13:00 on Saturdays with no construction work at all on Sundays and Public Holidays. Outside these hours, works at the site shall be limited to emergency works, unless otherwise approved in writing by the Local Planning Authority.
- NC3 The rating level of noise immissions from the combined effects of the wind turbines (including the application of any tonal penalty) when determined in accordance with the attached Guidance Notes (to this condition), shall not exceed the values for the relevant integer wind speed set out in, or derived from, the tables attached to these conditions at any dwelling which is lawfully existing or has planning permission at the date of this permission and:
- a) The wind farm operator shall continuously log power production, wind speed and wind direction, all in accordance with Guidance Note 1(d). These data shall be retained for a period of not less than 24 months. The wind farm operator shall provide this information in the format set out in Guidance Note 1(e) to the Local Planning Authority on its request, within 14 days of receipt in writing of such a request.
 - b) No electricity shall be exported until the wind farm operator has submitted to the Local Planning Authority for written approval a list of proposed independent consultants who may undertake compliance measurements in accordance with this condition. Amendments to the list of approved consultants shall be made only with the prior written approval of the Local Planning Authority.
 - c) Within 21 days from receipt of a written request from the Local Planning Authority following a complaint to it from an occupant of a dwelling alleging noise disturbance at that dwelling, the wind farm operator shall, at its expense, employ a consultant approved by the Local Planning Authority to assess the level of noise immissions from the wind farm at the complainant's

property in accordance with the procedures described in the attached Guidance Notes. The written request from the Local Planning Authority shall set out at least the date, time and location that the complaint relates to and any identified atmospheric conditions, including wind direction, and include a statement as to whether, in the opinion of the Local Planning Authority, the noise giving rise to the complaint contains or is likely to contain a tonal component.

- d) The assessment of the rating level of noise immissions shall be undertaken in accordance with an assessment protocol that shall previously, have been submitted to and approved in writing by the Local Planning Authority. The protocol shall include the proposed measurement location identified in accordance with the Guidance Notes where measurements for compliance checking purposes shall be undertaken, whether noise giving rise to the complaint contains or is likely to contain a tonal component, and also the range of meteorological and operational conditions (which shall include the range of wind speeds, wind directions, power generation and times of day) to determine the assessment of rating level of noise immissions. The proposed range of conditions shall be those which prevailed during times when the complainant alleges there was disturbance due to noise, having regard to the written request of the Local Planning Authority under paragraph (c), and such others as the independent consultant considers likely to result in a breach of the noise limits.

- e) Where a dwelling to which a complaint is related is not listed in the tables attached to these conditions, the wind farm operator shall submit to the Local Planning Authority for written approval proposed noise limits selected from those listed in the tables to be adopted at the complainant's dwelling for compliance checking purposes. The proposed noise limits are to be those limits selected from the Tables specified for a listed location which the independent consultant considers as being likely to experience the most similar background noise environment to that experienced at the complainant's dwelling. The rating level of noise immissions resulting from the combined effects of the wind turbines when determined in accordance with the attached Guidance Notes shall not exceed the noise limits approved in writing by the Local Planning Authority for the complainant's dwelling.

- f) The wind farm operator shall provide to the Local Planning Authority the independent consultant's assessment of the rating level of noise immissions undertaken in accordance with the Guidance Notes within 2 months of the date of the written request of the Local Planning Authority for compliance measurements to be made under paragraph (c), unless the time limit is extended in writing by the Local Planning Authority. The assessment shall include all data collected for the purposes of undertaking the compliance measurements, such data to be provided in the format set out in Guidance Note 1(e) of the Guidance Notes. The instrumentation used to undertake the measurements shall be calibrated in accordance with Guidance Note 1(a) and certificates of calibration shall be submitted to the Local Planning Authority with the independent consultant's assessment of the rating level of noise immissions.
- g) Where a further assessment of the rating level of noise immissions from the wind farm is required pursuant to Guidance Note 4(c), the wind farm operator shall submit a copy of the further assessment within 21 days of submission of the independent consultant's assessment pursuant to paragraph (d) above unless the time limit has been extended in writing by the Local Planning Authority.

Table 1 – Noise limits expressed in dB $L_{A90,10 \text{ minute}}$ to be applied to Noise from Llanbrynmair at all times of Day or Night

Location	Standardised 10 metre-height Wind Speed (as defined in accordance with the attached Guidance Notes to the noise condition)											
	1	2	3	4	5	6	7	8	9	10	11	12
Ysgubor Cannon	38.9	38.9	38.9	38.9	39.0	39.5	40.3	41.3	42.4	42.4	42.4	42.4
Pen yr Eisteddfod	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3
Dolwen Isaf	35.6	35.6	35.6	35.6	35.7	36.2	37.0	38.0	39.1	39.1	39.1	39.1
The Barn - Blaen y Cwm	34.6	34.6	34.6	34.6	34.6	34.6	35.0	35.0	35.0	36.5	37.8	38.5
Rhydymeirch	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.2	37.3	39.0	40.3	41.0
Abercannon	38.4	38.4	38.4	38.4	38.5	39.1	39.8	40.8	42.0	42.0	42.0	42.0
Beulah Chapel House	37.8	37.8	37.8	37.8	37.9	38.5	39.2	40.2	41.4	41.4	41.4	41.4

Table 2: Coordinate locations of the properties listed in Table 1.

Property	Easting	Northing
Ysgubor Cannon	295941	307427
Pen yr Eisteddfod	297925	310831
Dolwen Isaf	297529	307560
The Barn - Blaen y Cwm	291684	307903
Rhydymeirch	292058	306823
Abercannon	296279	306935
Beulah Chapel House	296391	306648
Neinthirion	296386	306621
Delfryn	295709	305450
Berth-lwyd	291029	303782
Castell y Gwynt	294857	302951
Pant y Powsi	294820	302356
Nant yr Esgairwen	294406	302236
Capel yr Aber	293953	301802
Hafodowen	292785	302747
Cwm-camedd-isaf	291916	302705
Cwm-camedd-uchaf	291578	302872
Dolau	297042	306720
Dolau-ceilmion	296367	305821
Bryn Du	298673	309646
Glegymant	292154	307624
Blaen y Cwm	291582	308033
Cwm Pen Llydan	292893	306371
Cwm-y-ffynnon	291242	305314
Pwl-melyn	291008	304715
Ffriddfawr	294629	303945
Cwmderwen	295533	305435
Cannon	295885	307416
Dolwen Uchaf	297496	307622
Ffridd Newydd	298558	309877
Caecrwn	298045	310848
Llwyn	297508	311561

Property	Easting	Northing
Maes Llymystyn	297081	311578
Moel Ddolwen	299312	307798
Tyn-y-fedw	298458	311040
Gesail-ddu	295260	312217
Caer-lloi	295255	312635
Dol-y-maen	294289	313607
Nant-y-dugoed	291872	313235
Talglannau	291309	312606
Barwn	290828	312354
Ty-coch	290257	312064
Groes-heol	289577	311083
Glan-yr-afon	289377	310403
Blaentafalog Farm	289347	309423
Nant-Hir	289127	308752
Nant Carfan	289367	307302
Dol Fawr	288957	306421
Gerddi-gleision	289397	305491
The Lodge	290237	305472
Cefn	292539	302062
Caeau-gleision	290993	305193

Note to Table 2: The geographical coordinate references are provided for the purpose of identifying the general location of dwellings to which a given set of noise limits applies.

Note:

For the purposes of this condition, a "dwelling" is a building within Use Class C3 & C4 of the Town and Country Planning (Use Classes) Order 1987 which lawfully exists or had planning permission at the date of this consent.

Reason: To protect the amenity of the area.

Guidance Notes for Noise Condition NC3

These notes are to be read with and form part of the noise condition. They further explain the condition and specify the methods to be employed in the assessment of complaints about noise immissions from the wind farm. The rating level at each integer wind speed is the arithmetic sum of the wind farm noise level as determined from the best-fit curve described in Guidance Note 2 of these Guidance Notes and any tonal penalty applied in accordance with Guidance Note 3. Reference to ETSU-R-97 refers to the publication entitled "The Assessment and Rating of Noise from Wind Farms" (1997) published by the Energy Technology Support Unit (ETSU) for the Department of Trade and Industry (DTI).

Guidance Note 1

(a) Values of the $L_{A90,10 \text{ minute}}$ noise statistic should be measured at the complainant's property, using a sound level meter of EN 60651/BS EN 60804 Type 1, or BS EN 61672 Class 1 quality (or the equivalent UK adopted standard in force at the time of the measurements) set to measure using the fast time weighted response as specified in BS EN 60651/BS EN 60804 or BS EN 61672-1 (or the equivalent UK adopted standard in force at the time of the measurements). This should be calibrated in accordance with the procedure specified in BS 4142: 1997 (or the equivalent UK adopted standard in force at the time of the measurements). Measurements shall be undertaken in such a manner to enable a tonal penalty to be applied in accordance with Guidance Note 3.

(b) The microphone should be mounted at 1.2 – 1.5 metres above ground level, fitted with a two-layer windshield or suitable equivalent approved in writing by the Local Planning Authority, and placed outside the complainant's dwelling. Measurements should be made in "free field" conditions. To achieve this, the microphone should be placed at least 3.5 metres away from the building facade or any reflecting surface except the ground at the approved measurement location. In the event that the consent of the complainant for access to his or her property to undertake compliance measurements is withheld, the wind farm operator shall submit for the written approval of the Local Planning Authority details of the proposed alternative representative measurement location prior to the commencement of measurements and the measurements shall be undertaken at the approved alternative representative measurement location.

(c) The $L_{A90,10 \text{ minute}}$ measurements should be synchronised with measurements of the 10-minute arithmetic mean wind and operational data logged in accordance with Guidance Note 1(d), including the power generation data from the turbine control systems of the wind farm.

(d) To enable compliance with the conditions to be evaluated, the wind farm operator shall continuously log arithmetic mean wind speed in metres per second and wind direction in degrees from north at hub height for each turbine and arithmetic mean power generated by each turbine, all in successive 10-minute periods. Unless an alternative procedure is previously agreed in

writing with the Planning Authority, this hub height wind speed, averaged across all operating wind turbines, shall be used as the basis for the analysis. All 10 minute arithmetic average mean wind speed data measured at hub height shall be 'standardised' to a reference height of 10 metres as described in ETSU-R-97 at page 120 using a reference roughness length of 0.05 metres . It is this standardised 10 metre height wind speed data, which is correlated with the noise measurements determined as valid in accordance with Guidance Note 2, such correlation to be undertaken in the manner described in Guidance Note 2. All 10-minute periods shall commence on the hour and in 10- minute increments thereafter.

(e) Data provided to the Local Planning Authority in accordance with the noise condition shall be provided in comma separated values in electronic format.

(f) A data logging rain gauge shall be installed in the course of the assessment of the levels of noise immissions. The gauge shall record over successive 10-minute periods synchronised with the periods of data recorded in accordance with Note 1(d).

Guidance Note 2

(a) The noise measurements shall be made so as to provide not less than 20 valid data points as defined in Guidance Note 2 (b)

(b) Valid data points are those measured in the conditions specified in the agreed written protocol under paragraph (d) of the noise condition, but excluding any periods of rainfall measured in the vicinity of the sound level meter. Rainfall shall be assessed by use of a rain gauge that shall log the occurrence of rainfall in each 10 minute period concurrent with the measurement periods set out in Guidance Note 1. In specifying such conditions the Local Planning Authority shall have regard to those conditions which prevailed during times when the complainant alleges there was disturbance due to noise or which are considered likely to result in a breach of the limits.

(c) For those data points considered valid in accordance with Guidance Note 2(b), values of the $L_{A90,10 \text{ minute}}$ noise measurements and corresponding values of the 10- minute wind speed, as derived from the standardised ten metre height wind speed averaged across all operating wind turbines using the procedure specified in Guidance Note 1(d), shall be plotted on an XY chart with noise level on the Y-axis and the standardised mean wind speed on the X-axis. A least squares, "best fit" curve of an order deemed appropriate by the independent consultant (but which may not be higher than a fourth order) should be fitted to the data points and define the wind farm noise level at each integer speed.

Guidance Note 3

(a) Where, in accordance with the approved assessment protocol under paragraph (d) of the noise condition, noise immissions at the location or locations where compliance measurements

are being undertaken contain or are likely to contain a tonal component, a tonal penalty is to be calculated and applied using the following rating procedure.

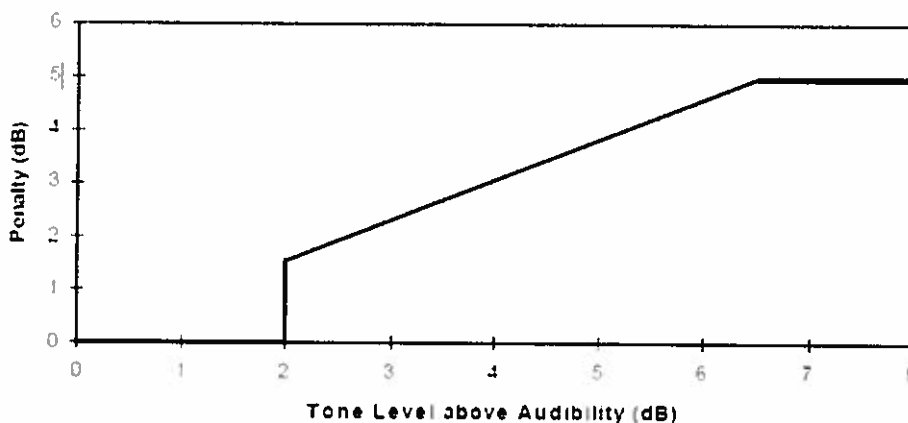
(b) For each 10 minute interval for which $L_{A90,10 \text{ minute}}$ data have been determined as valid in accordance with Guidance Note 2 a tonal assessment shall be performed on noise immissions during 2 minutes of each 10 minute period. The 2 minute periods should be spaced at 10 minute intervals provided that uninterrupted uncorrupted data are available ("the standard procedure"). Where uncorrupted data are not available, the first available uninterrupted clean 2 minute period out of the affected overall 10 minute period shall be selected. Any such deviations from the standard procedure, as described in Section 2.1 on pages 104-109 of ETSU-R-97, shall be reported.

(c) For each of the 2 minute samples the tone level above or below audibility shall be calculated by comparison with the audibility criterion given in Section 2.1 on pages 104-109 of ETSU-R-97.

(d) The tone level above audibility shall be plotted against wind speed for each of the 2 minute samples. Samples for which the tones were below the audibility criterion or no tone was identified, a value of zero audibility shall be used.

(e) A least squares "best fit" linear regression line shall then be performed to establish the average tone level above audibility for each integer wind speed derived from the value of the "best fit" line at each integer wind speed. If there is no apparent trend with wind speed then a simple arithmetic mean shall be used. This process shall be repeated for each integer wind speed for which there is an assessment of overall levels in Guidance Note 2.

(f) The tonal penalty is derived from the margin above audibility of the tone according to the figure below.



Guidance Note 4

(a) If a tonal penalty is to be applied in accordance with Guidance Note 3 the rating level of the turbine noise at each wind speed is the arithmetic sum of the measured noise level as determined from the best fit curve described in Guidance Note 2 and the penalty for tonal noise as derived in accordance with Guidance Note 3 at each integer wind speed within the range specified by the Local Planning Authority in its written protocol under paragraph (d) of the noise condition.

(b) If no tonal penalty is to be applied then the rating level of the turbine noise at each wind speed is equal to the measured noise level as determined from the best fit curve described in Guidance Note 2.

(c) In the event that the rating level is above the limit(s) set out in the Tables attached to the noise conditions or the noise limits for a complainant's dwelling approved in accordance with paragraph (e) of the noise condition, the independent consultant shall undertake a further assessment of the rating level to correct for background noise so that the rating level relates to wind turbine noise immission only.

(d) The wind farm operator shall ensure that all the wind turbines in the development are turned off for such period as the independent consultant requires to undertake the further assessment. The further assessment shall be undertaken in accordance with the following steps:

(e). Repeating the steps in Guidance Note 2, with the wind farm switched off, and determining the background noise (L3) at each integer wind speed within the range requested by the Local Planning Authority in its written request under paragraph (c) and the approved protocol under paragraph (d) of the noise condition.

(f) The wind farm noise (L1) at this speed shall then be calculated as follows where L2 is the measured level with turbines running but without the addition of any tonal penalty:

$$L_1 = 10 \log \left[10^{L_2/10} - 10^{L_3/10} \right]$$

(g) The rating level shall be re-calculated by adding arithmetically the tonal penalty (if any is applied in accordance with Note 3) to the derived wind farm noise L1 at that integer wind speed.

(h) If the rating level after adjustment for background noise contribution and adjustment for tonal penalty (if required in accordance with note 3 above) at any integer wind speed lies at or below the values set out in the Tables attached to the conditions or at or below the noise limits approved by the Local Planning Authority for a complainant's dwelling in accordance with

paragraph (e) of the noise condition then no further action is necessary. If the rating level at any integer wind speed exceeds the values set out in the Tables attached to the conditions or the noise limits approved by the Local Planning Authority for a complainant's dwelling in accordance with paragraph (e) of the noise condition then the development fails to comply with the conditions.

Ty-coch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Groes-heol	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Glan-yr-afon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blaentafalog Farm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
House 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nant Carfan	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Dol Fawr	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Gerddi-gleision	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-5.3	-5.3	-5.3
The Lodge	-2.4	-2.4	-2.4	-2.4	-2.4	-2.4	-2.4	-2.4	-2.4	-4.5	-4.5	-4.5
Cefn	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Caeau-gleision	-3.7	-3.7	-3.7	-3.7	-3.7	-3.7	-3.7	-3.7	-3.7	-5.8	-5.8	-5.8

APPENDIX 7 – Compliance with Planning Condition Noise Limits for Llanbrynmair

House Name	Reference Wind Speed (v_{10}) / ms^{-1}											
	1	2	3	4	5	6	7	8	9	10	11	12
Ysgubor Cannon	-12.4	-12.4	-12.4	-9.4	-5.3	-3.1	-2.9	-3.4	-5.0	-5.2	-5.2	-5.2
Pen yr Elsteddfod	-19.4	-19.4	-19.4	-16.4	-12.1	-9.4	-8.3	-7.7	-8.1	-8.4	-8.4	-8.4
Dolwen Isaf	-14.6	-14.6	-14.6	-11.6	-7.5	-5.2	-5.0	-5.5	-7.1	-7.3	-7.3	-7.3
The Barn - Blaen y Cwm	-21.3	-21.3	-21.3	-18.3	-14.0	-11.2	-10.5	-9.9	-10.2	-12.0	-13.3	-14.0
Rhydymeirch	-19.1	-19.1	-19.1	-16.1	-11.9	-9.1	-8.0	-7.7	-10.2	-12.1	-13.4	-14.1
Abercannon	-14.1	-14.1	-14.1	-11.1	-7.0	-4.9	-4.6	-5.1	-6.8	-7.0	-7.0	-7.0
Beulah Chapel House	-14.5	-14.5	-14.5	-11.5	-7.5	-5.3	-5.0	-5.5	-7.2	-7.4	-7.4	-7.4
Neinthliron	-14.5	-14.5	-14.5	-11.5	-7.5	-5.3	-5.0	-5.5	-7.2	-7.4	-7.4	-7.4
Delfryn	-13.6	-13.6	-13.6	-10.6	-6.4	-3.6	-2.6	-4.2	-7.0	-7.1	-7.1	-7.1
Berth-lwyd	-17.6	-17.6	-17.6	-14.6	-10.5	-7.7	-6.6	-6.0	-7.6	-7.8	-7.8	-7.8
Castell y Gwynt	-15.5	-15.5	-15.5	-12.5	-8.2	-5.5	-4.5	-5.9	-8.6	-8.8	-8.8	-8.8
Pant y Powsi	-16.3	-16.3	-16.3	-13.3	-9.1	-6.4	-5.3	-6.4	-9.1	-9.3	-9.3	-9.3
Nant yr Esgairwen	-17.3	-17.3	-17.3	-14.3	-10.1	-7.4	-6.4	-6.4	-9.2	-9.4	-9.4	-9.4
Capel yr Aber	-18.7	-18.7	-18.7	-15.7	-11.5	-8.7	-7.7	-7.2	-9.1	-9.3	-9.3	-9.3
Hafodowen	-13.4	-13.4	-13.4	-10.4	-6.2	-4.6	-6.3	-9.0	-12.8	-13.0	-13.0	-13.0
Cwm-carnedd-isaf	-16.5	-16.5	-16.5	-13.5	-9.4	-6.6	-5.6	-5.0	-7.6	-7.8	-7.8	-7.8
Cwm-carnedd-uchaf	-16.4	-16.4	-16.4	-13.4	-9.3	-6.5	-5.5	-5.0	-7.6	-7.8	-7.8	-7.8
Dolau	-14.7	-14.7	-14.7	-11.7	-7.5	-5.3	-5.0	-5.5	-7.2	-7.4	-7.4	-7.4
Dolau-ceimlon	-14.5	-14.5	-14.5	-11.5	-7.4	-5.2	-5.0	-5.5	-7.2	-7.4	-7.4	-7.4
Bryn Du	-20.1	-20.1	-20.1	-17.1	-12.8	-10.1	-9.0	-8.5	-8.8	-9.1	-9.1	-9.1
Glegyrnant	-20.6	-20.6	-20.6	-17.5	-13.3	-10.5	-9.4	-8.7	-10.0	-11.9	-13.2	-13.9
Blaen y Cwm	-21.1	-21.1	-21.1	-18.1	-13.8	-11.0	-10.8	-10.2	-10.4	-11.9	-13.2	-13.9
Cwm Pen Llydan	-13.9	-13.9	-13.9	-10.9	-6.9	-4.1	-5.1	-6.6	-9.2	-11.1	-12.4	-13.1
Cwm-y-ffynnon	-18.5	-18.5	-18.5	-15.5	-11.4	-8.6	-7.5	-6.8	-7.5	-7.8	-7.8	-7.8
Pwll-melyn	-18.3	-18.3	-18.3	-15.3	-11.2	-8.5	-7.3	-6.7	-7.6	-7.8	-7.8	-7.8
Ffriddfawr	-14.2	-14.2	-14.2	-11.2	-7.0	-4.3	-3.3	-4.8	-7.5	-7.7	-7.7	-7.7
Cwmderwen	-12.6	-12.6	-12.6	-9.6	-5.4	-2.6	-1.7	-3.1	-5.9	-6.1	-6.1	-6.1
Cannon	-12.1	-12.1	-12.1	-9.1	-5.0	-2.7	-2.6	-3.1	-4.8	-5.0	-5.0	-5.0
Dolwen Uchaf	-14.5	-14.5	-14.5	-11.5	-7.3	-5.2	-5.0	-5.4	-7.1	-7.2	-7.2	-7.2
Ffridd Newydd	-20.0	-20.0	-20.0	-17.0	-12.7	-10.0	-8.9	-8.3	-8.7	-8.9	-8.9	-8.9
Caecrwn	-19.6	-19.6	-19.6	-16.6	-12.3	-9.6	-8.5	-7.9	-8.3	-8.5	-8.5	-8.5
Llwyn	-20.9	-20.9	-20.9	-17.9	-13.6	-10.8	-9.7	-9.1	-9.4	-9.6	-9.6	-9.6
Maes Llymystyn	-19.6	-19.6	-19.6	-16.6	-12.3	-9.5	-8.4	-7.8	-8.1	-8.4	-8.4	-8.4
Moel Ddolwen	-22.5	-22.5	-22.5	-19.5	-15.2	-12.5	-11.3	-10.7	-10.9	-11.2	-11.2	-11.2
Tyn-y-fedw	-24.0	-24.0	-24.0	-21.0	-16.7	-14.0	-12.9	-12.2	-12.5	-12.7	-12.7	-12.7
Gesail-ddu	-21.1	-21.1	-21.1	-18.1	-13.8	-11.0	-9.8	-9.0	-9.2	-9.5	-9.5	-9.5
Caer-lloi	-21.8	-21.8	-21.8	-18.8	-14.4	-11.7	-10.6	-9.8	-10.0	-10.3	-10.3	-10.3
Dol-y-maen	-25.8	-25.8	-25.8	-22.8	-18.3	-15.6	-14.4	-13.5	-13.5	-13.8	-13.8	-13.8
Nant-y-dugoed	-27.9	-27.9	-27.9	-24.9	-20.2	-17.5	-16.3	-15.3	-15.2	-15.6	-15.6	-15.6
Talglannau	-27.2	-27.2	-27.2	-24.2	-19.5	-16.8	-15.6	-14.6	-14.5	-14.8	-14.8	-14.8
Barwn	-28.8	-28.8	-28.8	-25.8	-21.1	-18.6	-17.2	-16.1	-15.9	-16.3	-16.3	-16.3

Ty-coch	-28.2	-28.2	-28.2	-25.2	-20.5	-17.8	-16.6	-15.4	-15.3	-15.8	-15.8	-15.8
Groes-heol	-28.6	-28.6	-28.6	-25.6	-20.9	-18.2	-17.0	-15.9	-15.8	-16.2	-16.2	-16.2
Glan-yr-afon	-28.2	-28.2	-28.2	-25.2	-20.6	-17.8	-16.6	-15.5	-15.3	-15.7	-15.7	-15.7
Blaentafalog Farm	-27.4	-27.4	-27.4	-24.4	-19.8	-17.1	-15.8	-14.8	-14.7	-15.1	-15.1	-15.1
House 46	-27.2	-27.2	-27.2	-24.2	-19.7	-17.0	-15.8	-14.8	-14.8	-15.2	-15.2	-15.2
Nant Carfan	-25.5	-25.5	-25.5	-22.5	-18.1	-15.3	-14.0	-13.1	-13.1	-13.4	-13.4	-13.4
Dol Fawr	-25.3	-25.3	-25.3	-22.3	-17.9	-15.2	-13.9	-13.1	-13.2	-13.5	-13.5	-13.5
Gerddi-gleision	-22.8	-22.8	-22.8	-19.8	-15.4	-12.7	-11.6	-10.9	-11.1	-11.4	-11.4	-11.4
The Lodge	-23.0	-23.0	-23.0	-20.0	-15.8	-13.0	-11.9	-11.2	-11.5	-11.8	-11.8	-11.8
Cefn	-16.4	-16.4	-16.4	-13.4	-9.2	-6.5	-5.5	-5.0	-7.5	-7.7	-7.7	-7.7
Caeau-gleision	-19.2	-19.2	-19.2	-16.2	-12.0	-9.3	-8.2	-7.6	-8.1	-8.3	-8.3	-8.3

