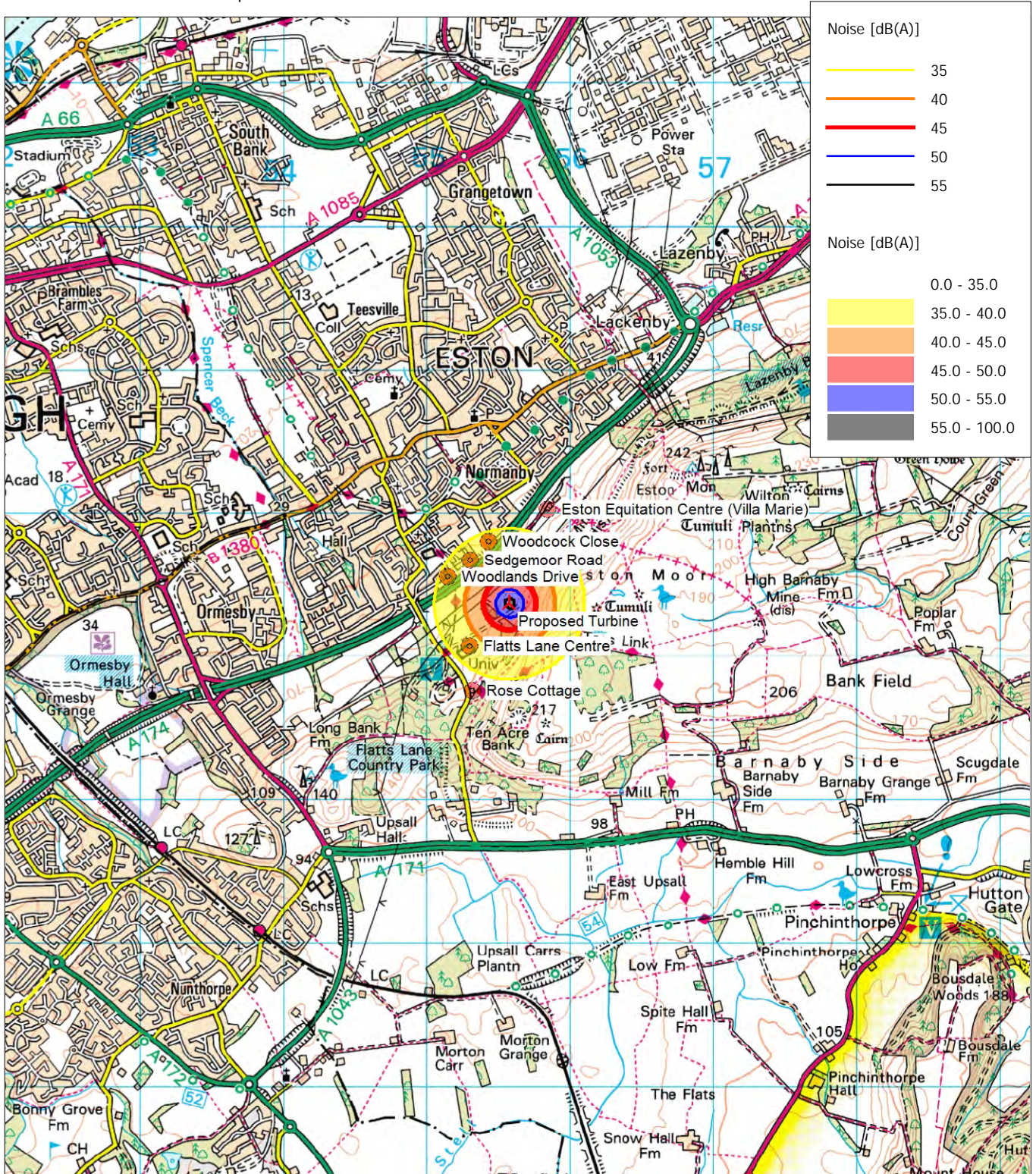


DECIBEL - Map 8.0 m/s

Calculation: Eston - Desktop Noise Assessment



0 500 1000 1500 2000 m

Map: Eston, Print scale 1:40,000, Map center British TM-OSGB36/Airy (GB/IE) East: 455,578 North: 517,364

▲ New WTG

■ Noise sensitive area

Noise calculation model: ISO 9613-2 General. Wind speed: 8.0 m/s
Height above sea level from active line object

Project:
Eston

Licensed user:
Entrust
Daresbury Innovation Centre Keckwick Lane
GB-DARESBUY WA4 4FS
+44 1925 607 235
Conor McAllister / conor@en-trust.co.uk
Calculated:
27/05/2015 11:23/3.0.578

DECIBEL - Main Result

Calculation: Eston - Desktop Noise Assessment

Noise calculation model:

ISO 9613-2 General

Wind speed:

4.0 m/s - 10.0 m/s, step 1.0 m/s

Ground attenuation:

General, fixed, Ground factor: 0.5

Meteorological coefficient, CO:

0.0 dB

Type of demand in calculation:

3: WTG noise is compared to ambient noise plus margin (UK, AT etc.)

Noise values in calculation:

All noise values are 90% exceedance values (L90)

Pure tones:

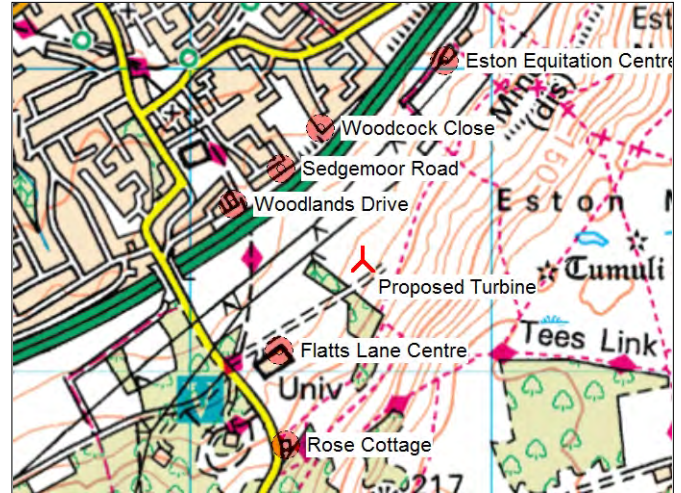
Pure and Impulse tone penalty are added to WTG source noise

Height above ground level, when no value in NSA object:

4.0 m Don't allow override of model height with height from NSA object

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0.0 dB(A)



New WTG

Noise sensitive area

WTGs

Easting	Northing	Z	Row data/Description	WTG type			Power, rated	Rotor diameter	Hub height	Noise data		First wind speed	LwaRef	Last wind speed	LwaRef	Pure tones
				Valid	Manufact.	Type-generator				Creator	Name					
455,578	517,364	83.2	ENERCON E-44 900 44.0 I-I hub: 5...	Yes	ENERCON	E-44-900	900	44.0	55.0	EMD	Level 0 - guaranteed - OM I / Rev 1.1 - 02/2006	4.0	103.0	10.0	103.0	No g
[m]																
Proposed Turbine																
h) Generic octave distribution used																
g) Data calculated from data for other wind speed (uncertain)																

Calculation Results

Sound Level

Noise sensitive area No.	Name	Easting	Northing	Z	Imission height	Demands			Sound Level			Distance to noise demand	Demands fulfilled ? Noise
						Max Noise demand	Max From WTGs	Max exceedence	[dB(A)]	[dB(A)]	[dB(A)]		
	Eston Equitation Centre (Villa Marie) Noise sensitive point: British - British (6)	455,847	518,022	75.0	4.0	45.0	31.9	0.0	531	Yes			
	Flatts Lane Centre Noise sensitive point: British - British (1)	455,300	517,067	81.9	4.0	45.0	37.5	0.0	226	Yes			
	Rose Cottage Noise sensitive point: British - British (5)	455,322	516,755	112.6	4.0	45.0	32.7	0.0	476	Yes			
	Sedgemoor Road Noise sensitive point: British - British (2)	455,306	517,668	64.9	4.0	45.0	37.5	0.0	229	Yes			
	Woodcock Close Noise sensitive point: British - British (4)	455,436	517,799	63.4	4.0	45.0	36.3	0.0	280	Yes			
	Woodlands Drive Noise sensitive point: British - British (3)	455,148	517,549	64.2	4.0	45.0	36.1	0.0	290	Yes			

Distances (m)

NSA	WTG Proposed Turbine
Eston Equitation Centre (Villa Marie)	711
Flatts Lane Centre	407
Rose Cottage	661
Sedgemoor Road	407
Woodcock Close	458
Woodlands Drive	468

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Calculated:
27/05/2015 11:23/3.0.578

DECIBEL - Assumptions for noise calculation

Calculation: Eston - Desktop Noise Assessment

Noise calculation model:

ISO 9613-2 General

Wind speed:

4.0 m/s - 10.0 m/s, step 1.0 m/s

Ground attenuation:

General, fixed, Ground factor: 0.5

Meteorological coefficient, CO:

0.0 dB

Type of demand in calculation:

3: WTG noise is compared to ambient noise plus margin (UK, AT etc.)

Noise values in calculation:

All noise values are 90% exceedance values (L90)

Pure tones:

Pure and Impulse tone penalty are added to WTG source noise

Height above ground level, when no value in NSA object:

4.0 m Don't allow override of model height with height from NSA object

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0.0 dB(A)

Octave data required

Air absorption

63	125	250	500	1,000	2,000	4,000	8,000
[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]	[db/km]
0.1	0.4	1.0	1.9	3.7	9.7	32.8	117.0

WTG: ENERCON E-44 900 44.0 I-I

Noise: Level 0 - guaranteed - OM I / Rev 1.1 - 02/2006

Source Source/Date Creator Edited

08/02/2006 EMD 12/07/2006 12:24

According to Enercon specification SA-04-SPL Guarantee E-44-Rev1_1-ger-eng.pdf

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data								
					63	125	250	500	1000	2000	4000	8000	
ExtraPolated	55.0	4.0	103.0	No	Generic data	84.6	91.6	95.0	97.6	97.4	94.5	89.7	80.2
Interpolated	55.0	5.0	103.0	No	Generic data	84.6	91.6	95.0	97.6	97.4	94.5	89.7	80.2
Interpolated	55.0	6.0	103.0	No	Generic data	84.6	91.6	95.0	97.6	97.4	94.5	89.7	80.2
Interpolated	55.0	7.0	103.0	No	Generic data	84.6	91.6	95.0	97.6	97.4	94.5	89.7	80.2
Interpolated	55.0	8.0	103.0	No	Generic data	84.6	91.6	95.0	97.6	97.4	94.5	89.7	80.2
Interpolated	55.0	9.0	103.0	No	Generic data	84.6	91.6	95.0	97.6	97.4	94.5	89.7	80.2
From Windcat	55.0	10.0	103.0	No	Generic data	84.6	91.6	95.0	97.6	97.4	94.5	89.7	80.2

NSA: Noise sensitive point: British - British (1)-Flatts Lane Centre

Predefined calculation standard: British

Imission height(a.g.l.): Use standard value from calculation model

Ambient noise:

4.0 [m/s]	5.0 [m/s]	6.0 [m/s]	7.0 [m/s]	8.0 [m/s]	9.0 [m/s]	10.0 [m/s]	11.0 [m/s]	12.0 [m/s]
0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.0 dB(A)	0.0 dB(A)

Margin or Allowed additional exposure: 5.0 dB(A)

Sound level always accepted: 45.0 dB(A)

No distance demand

NSA: Noise sensitive point: British - British (2)-Sedgemoor Road

Predefined calculation standard: British

Imission height(a.g.l.): Use standard value from calculation model

Ambient noise:

4.0 [m/s]	5.0 [m/s]	6.0 [m/s]	7.0 [m/s]	8.0 [m/s]	9.0 [m/s]	10.0 [m/s]	11.0 [m/s]	12.0 [m/s]
0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.0 dB(A)	0.0 dB(A)

Margin or Allowed additional exposure: 5.0 dB(A)

Sound level always accepted: 45.0 dB(A)

No distance demand

Project:
Eston

Licensed user:
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Daresbury Innovation Centre Keckwick Lane
GB-DARESBURY WA4 4FS
+44 1925 607 235
Conor McAllister / conor@en-trust.co.uk
Calculated:
27/05/2015 11:23/3.0.578

DECIBEL - Assumptions for noise calculation

Calculation: Eston - Desktop Noise Assessment

NSA: Noise sensitive point: British - British (3)-Woodlands Drive
Predefined calculation standard: British
Mission height(a.g.l.): Use standard value from calculation model

Ambient noise:

4.0 [m/s]	5.0 [m/s]	6.0 [m/s]	7.0 [m/s]	8.0 [m/s]	9.0 [m/s]	10.0 [m/s]	11.0 [m/s]	12.0 [m/s]
0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.0 dB(A)	0.0 dB(A)

Margin or Allowed additional exposure: 5.0 dB(A)
Sound level always accepted: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: British - British (4)-Woodcock Close
Predefined calculation standard: British
Mission height(a.g.l.): Use standard value from calculation model

Ambient noise:

4.0 [m/s]	5.0 [m/s]	6.0 [m/s]	7.0 [m/s]	8.0 [m/s]	9.0 [m/s]	10.0 [m/s]	11.0 [m/s]	12.0 [m/s]
0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.0 dB(A)	0.0 dB(A)

Margin or Allowed additional exposure: 5.0 dB(A)
Sound level always accepted: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: British - British (5)-Rose Cottage
Predefined calculation standard: British
Mission height(a.g.l.): Use standard value from calculation model

Ambient noise:

4.0 [m/s]	5.0 [m/s]	6.0 [m/s]	7.0 [m/s]	8.0 [m/s]	9.0 [m/s]	10.0 [m/s]	11.0 [m/s]	12.0 [m/s]
0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.0 dB(A)	0.0 dB(A)

Margin or Allowed additional exposure: 5.0 dB(A)
Sound level always accepted: 45.0 dB(A)
No distance demand

NSA: Noise sensitive point: British - British (6)-Eston Equitation Centre (Villa Marie)
Predefined calculation standard: British
Mission height(a.g.l.): Use standard value from calculation model

Ambient noise:

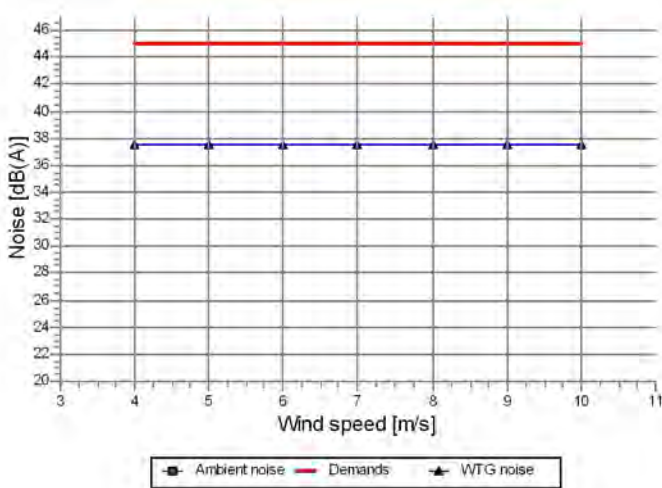
4.0 [m/s]	5.0 [m/s]	6.0 [m/s]	7.0 [m/s]	8.0 [m/s]	9.0 [m/s]	10.0 [m/s]	11.0 [m/s]	12.0 [m/s]
0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.1 dB(A)	0.0 dB(A)	0.0 dB(A)

Margin or Allowed additional exposure: 5.0 dB(A)
Sound level always accepted: 45.0 dB(A)
No distance demand

DECIBEL - Detailed results

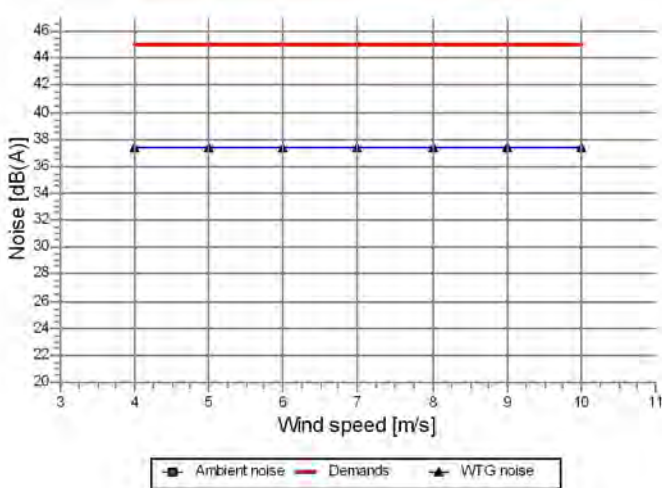
Calculation: Eston - Desktop Noise Assessment Noise calculation model: ISO 9613-2 General

Noise sensitive point: British - British (1) (Flatts Lane Centre)



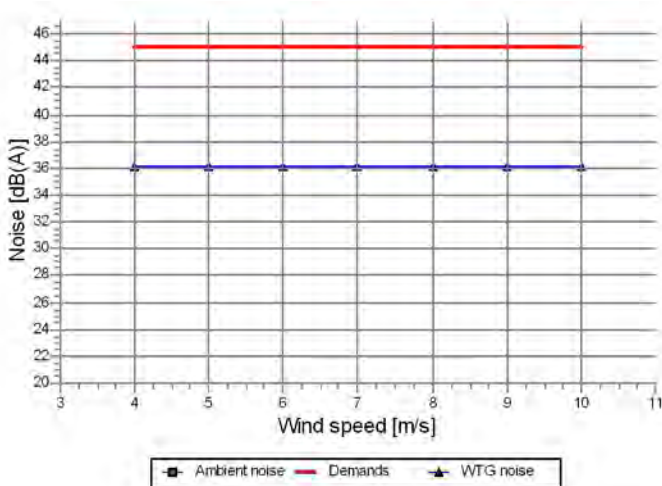
Wind speed [m/s]	Ambient noise [dB(A)]	Demands		Sound Level		Demands fulfilled ?
		Margin [dB(A)]	Demands [dB(A)]	WTG noise [dB(A)]	Demands fulfilled	
4.0	0.1	5.0	45.0	37.5	Yes	
5.0	0.1	5.0	45.0	37.5	Yes	
6.0	0.1	5.0	45.0	37.5	Yes	
7.0	0.1	5.0	45.0	37.5	Yes	
8.0	0.1	5.0	45.0	37.5	Yes	
9.0	0.1	5.0	45.0	37.5	Yes	
10.0	0.1	5.0	45.0	37.5	Yes	

Noise sensitive point: British - British (2) (Sedgemoor Road)



Wind speed [m/s]	Ambient noise [dB(A)]	Demands		Sound Level		Demands fulfilled ?
		Margin [dB(A)]	Demands [dB(A)]	WTG noise [dB(A)]	Demands fulfilled	
4.0	0.1	5.0	45.0	37.5	Yes	
5.0	0.1	5.0	45.0	37.5	Yes	
6.0	0.1	5.0	45.0	37.5	Yes	
7.0	0.1	5.0	45.0	37.5	Yes	
8.0	0.1	5.0	45.0	37.5	Yes	
9.0	0.1	5.0	45.0	37.5	Yes	
10.0	0.1	5.0	45.0	37.5	Yes	

Noise sensitive point: British - British (3) (Woodlands Drive)

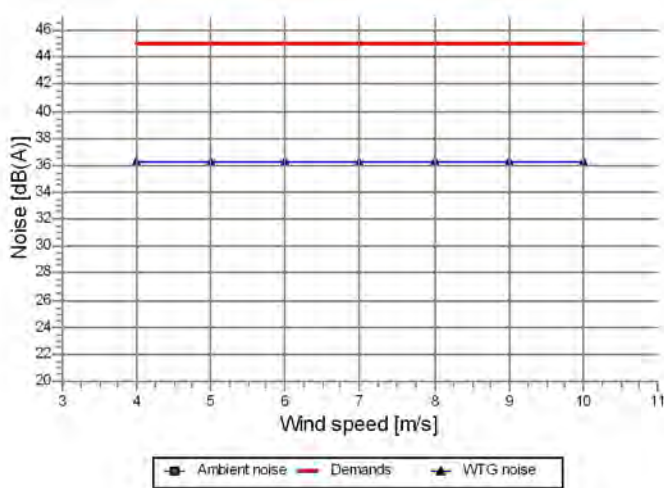


Wind speed [m/s]	Ambient noise [dB(A)]	Demands		Sound Level		Demands fulfilled ?
		Margin [dB(A)]	Demands [dB(A)]	WTG noise [dB(A)]	Demands fulfilled	
4.0	0.1	5.0	45.0	36.1	Yes	
5.0	0.1	5.0	45.0	36.1	Yes	
6.0	0.1	5.0	45.0	36.1	Yes	
7.0	0.1	5.0	45.0	36.1	Yes	
8.0	0.1	5.0	45.0	36.1	Yes	
9.0	0.1	5.0	45.0	36.1	Yes	
10.0	0.1	5.0	45.0	36.1	Yes	

DECIBEL - Detailed results

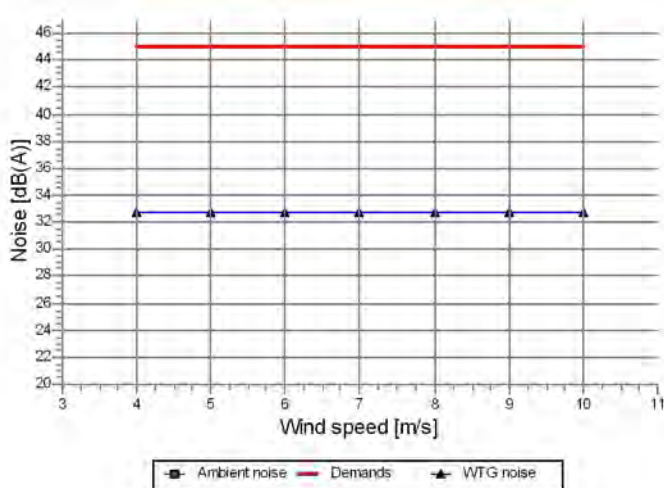
Calculation: Eston - Desktop Noise Assessment Noise calculation model: ISO 9613-2 General

Noise sensitive point: British - British (4) (Woodcock Close)



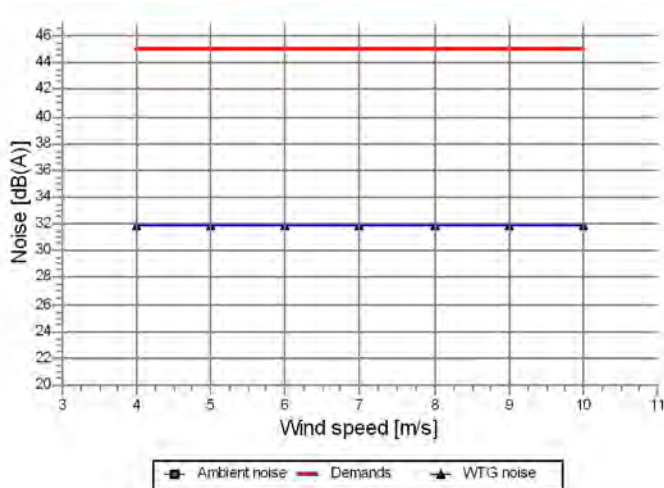
Wind speed [m/s]	Ambient noise [dB(A)]	Demands		Sound Level		Demands fulfilled ?
		Margin [dB(A)]	Demands [dB(A)]	WTG noise [dB(A)]	Demands fulfilled ?	
4.0	0.1	5.0	45.0	36.3	Yes	
5.0	0.1	5.0	45.0	36.3	Yes	
6.0	0.1	5.0	45.0	36.3	Yes	
7.0	0.1	5.0	45.0	36.3	Yes	
8.0	0.1	5.0	45.0	36.3	Yes	
9.0	0.1	5.0	45.0	36.3	Yes	
10.0	0.1	5.0	45.0	36.3	Yes	

Noise sensitive point: British - British (5) (Rose Cottage)



Wind speed [m/s]	Ambient noise [dB(A)]	Demands		Sound Level		Demands fulfilled ?
		Margin [dB(A)]	Demands [dB(A)]	WTG noise [dB(A)]	Demands fulfilled ?	
4.0	0.1	5.0	45.0	32.7	Yes	
5.0	0.1	5.0	45.0	32.7	Yes	
6.0	0.1	5.0	45.0	32.7	Yes	
7.0	0.1	5.0	45.0	32.7	Yes	
8.0	0.1	5.0	45.0	32.7	Yes	
9.0	0.1	5.0	45.0	32.7	Yes	
10.0	0.1	5.0	45.0	32.7	Yes	

Noise sensitive point: British - British (6) (Eston Equitation Centre (Villa Marie))



Wind speed [m/s]	Ambient noise [dB(A)]	Demands		Sound Level		Demands fulfilled ?
		Margin [dB(A)]	Demands [dB(A)]	WTG noise [dB(A)]	Demands fulfilled ?	
4.0	0.1	5.0	45.0	31.9	Yes	
5.0	0.1	5.0	45.0	31.9	Yes	
6.0	0.1	5.0	45.0	31.9	Yes	
7.0	0.1	5.0	45.0	31.9	Yes	
8.0	0.1	5.0	45.0	31.9	Yes	
9.0	0.1	5.0	45.0	31.9	Yes	
10.0	0.1	5.0	45.0	31.9	Yes	