Appendix H
EAPC Initial Noise Report at 48 dB
Revision "A"
8/25/2009

Project:
Save-As West.Stevens.WindPro

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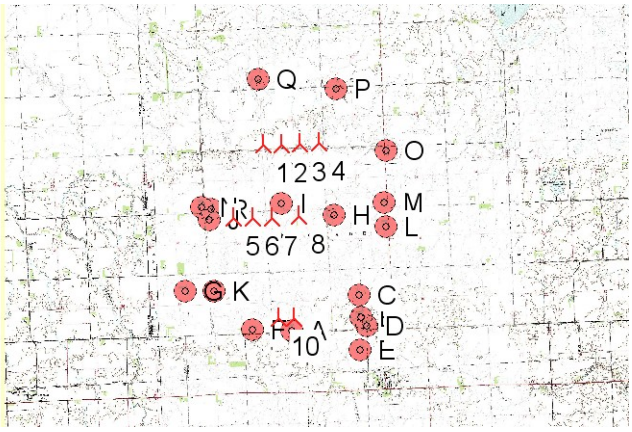
DECIBEL - Main Result

Calculation: West Stevens at 48 dB

DANISH RULES FOR NOISE CALCULATION.

The calculation is based on the "Bekendtgørelse nr. 304 af 14. maj 91" from the Danish Environmental Agency.



Scale 1:200,000

New WTG Noise sensitive area

WTGs

	UTM WGS84 Zone: 14				WTG type							Noise data						
	East	North	Z [m]	Row data/Description	Valid	Manufact.	Type	Power [kW]	Diam. [m]	Height [m]	Circle radius [m]	Creator	Name	Wind speed [m/s]	Hub height [m]	LwA,ref [dB(A)]	Pure tones	Octave data
1	717,242	5,056,772	336.2	1	No	Suzlon	S88	2,100	88.0	80.0	440.0	USER	Noise (2)	8.0	80.0	106.5	No	No
2	717,732	5,056,791	336.3	2	No	Suzlon	S88	2,100	88.0	80.0	440.0	USER	Noise (2)	8.0	80.0	106.5	No	No
3	718,228	5,056,806	336.6	3	No	Suzlon	S88	2,100	88.0	80.0	440.0	USER	Noise (2)	8.0	80.0	106.5	No	No
4	718,721	5,056,822	336.8	4	No	Suzlon	S88	2,100	88.0	80.0	440.0	USER	Noise (2)	8.0	80.0	106.5	No	No
5	716,463	5,054,831	338.7	5	No	Suzlon	S88	2,100	88.0	80.0	440.0	USER	Noise (2)	8.0	80.0	106.5	No	No
6	716,977	5,054,839	338.9	6	No	Suzlon	S88	2,100	88.0	80.0	440.0	USER	Noise (2)	8.0	80.0	106.5	No	No
7	717,484	5,054,854	339.1	7	No	Suzlon	S88	2,100	88.0	80.0	440.0	USER	Noise (2)	8.0	80.0	106.5	No	No
8	718,195	5,054,882	339.3	8	No	Suzlon	S88	2,100	88.0	80.0	440.0	USER	Noise (2)	8.0	80.0	106.5	No	No
9	718,079	5,052,198	342.0	10	No	Suzlon	S88	2,100	88.0	80.0	440.0	USER	Noise (2)	8.0	80.0	106.5	No	No
10	717,651	5,052,202	342.0	9	No	Suzlon	S88	2,100	88.0	80.0	440.0	USER	Noise (2)	8.0	80.0	106.5	No	No

Calculation Results

Sound Level

Noise sensitive area		UTM WGS84 Zone: 14				Demands	Sound Level	Demands fulfilled ?
No.	Name	East	North	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Noise
A	Noise Sensitive Point: 48 dB Dist: 0 m (1)	718,015	5,051,862	342.3	0.0	48.0	47.3	Yes
B	Noise Sensitive Point: 48 dB Dist: 0 m (2)	719,859	5,052,220	341.5	0.0	48.0	26.4	Yes
C	Noise Sensitive Point: 48 dB Dist: 0 m (3)	719,808	5,052,809	341.4	0.0	48.0	26.6	Yes
D	Noise Sensitive Point: 48 dB Dist: 0 m (4)	720,013	5,051,983	341.7	0.0	48.0	24.8	Yes
E	Noise Sensitive Point: 48 dB Dist: 0 m (5)	719,834	5,051,350	341.4	0.0	48.0	24.7	Yes
F	Noise Sensitive Point: 48 dB Dist: 0 m (6)	716,959	5,051,875	341.9	0.0	48.0	38.0	Yes
G	Noise Sensitive Point: 48 dB Dist: 0 m (7)	715,185	5,052,893	340.8	0.0	48.0	24.1	Yes
H	Noise Sensitive Point: 48 dB Dist: 0 m (8)	719,142	5,054,909	339.5	0.0	48.0	35.7	Yes
I	Noise Sensitive Point: 48 dB Dist: 0 m (9)	717,734	5,055,217	339.0	0.0	48.0	45.8	Yes
J	Noise Sensitive Point: 48 dB Dist: 0 m (10)	715,832	5,054,801	338.6	0.0	48.0	40.2	Yes
K	Noise Sensitive Point: 48 dB Dist: 0 m (11)	715,941	5,052,899	341.4	0.0	48.0	28.7	Yes
L	Noise Sensitive Point: 48 dB Dist: 0 m (12)	720,512	5,054,621	339.9	0.0	48.0	23.2	Yes
M	Noise Sensitive Point: 48 dB Dist: 0 m (13)	720,474	5,055,255	339.9	0.0	48.0	24.7	Yes
N	Noise Sensitive Point: 48 dB Dist: 0 m (15)	715,608	5,055,133	338.3	0.0	48.0	36.2	Yes
O	Noise Sensitive Point: 48 dB Dist: 0 m (16)	720,512	5,056,625	338.3	0.0	48.0	26.7	Yes
P	Noise Sensitive Point: 48 dB Dist: 0 m (17)	719,193	5,058,264	335.3	0.0	48.0	30.3	Yes
Q	Noise Sensitive Point: 48 dB Dist: 0 m (18)	717,119	5,058,527	333.6	0.0	48.0	29.2	Yes
R	Noise Sensitive Point: 48 dB Dist: 0 m (19)	715,877	5,055,082	338.3	0.0	48.0	40.2	Yes

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DECIBEL - Main Result

Calculation: West Stevens at 48 dB

Distances (m)

	WTG									
NSA	1	2	3	4	5	6	7	8	9	10
A	4971	4937	4949	5010	3351	3153	3039	3025	342	499
B	5251	5041	4867	4740	4284	3894	3547	3139	1780	2208
C	4721	4490	4298	4157	3909	3483	3095	2626	1834	2241
D	5532	5321	5142	5008	4551	4168	3826	3421	1946	2372
E	6010	5833	5688	5584	4846	4510	4219	3894	1949	2343
F	4906	4977	5092	5252	2998	2964	3025	3251	1166	766
G	4391	4656	4957	5286	2321	2645	3022	3608	2976	2560
H	2661	2351	2106	1958	2680	2166	1659	948	2912	3091
I	1631	1574	1664	1885	1328	846	440	570	3038	3016
J	2424	2752	3124	3526	632	1146	1653	2364	3438	3172
K	4086	4284	4527	4808	2001	2199	2491	3002	2250	1847
L	3914	3527	3161	2838	4055	3542	3037	2332	3434	3747
M	3570	3143	2729	2351	4033	3522	3017	2309	3884	4158
N	2314	2694	3108	3541	907	1400	1897	2599	3837	3573
O	3274	2785	2292	1802	4429	3961	3508	2900	5052	5268
P	2457	2075	1749	1518	4387	4080	3815	3526	6168	6255
Q	1759	1841	2047	2339	3753	3690	3691	3800	6401	6347
R	2172	2522	2915	3334	638	1127	1623	2327	3629	3383

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DECIBEL - Detailed results

Calculation: West Stevens at 48 dB **Noise calculation model:** Danish Codes 8.0 m/s

Assumptions

Calculated L(DW) = LWA,ref + K + Dc - (Adiv + Aatm + Agr + Abar + Amisc) - Cmet
(when calculated with ground attenuation, then Dc = Domega)

LWA,ref:	Sound pressure level at WTG
K:	Pure tone
Dc:	Directivity correction
Adiv:	the attenuation due to geometrical divergence
Aatm:	the attenuation due to atmospheric absorption
Agr:	the attenuation due to ground effect
Abar:	the attenuation due to a barrier
Amisc:	the attenuation due to miscellaneous other effects
Cmet:	Meteorological correction

Calculation Results

Noise sensitive area: A Noise Sensitive Point: 48 dB Dist: 0 m (1)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	4,971	4,971	**-0.29**	106.5	3.00	84.93	24.86	0.00	0.00	0.00	109.79	0.00
2	4,937	4,938	**-0.06**	106.5	3.00	84.87	24.69	0.00	0.00	0.00	109.56	0.00
3	4,949	4,949	**-0.14**	106.5	3.00	84.89	24.75	0.00	0.00	0.00	109.64	0.00
4	5,010	5,011	**-0.55**	106.5	3.00	85.00	25.05	0.00	0.00	0.00	110.05	0.00
5	3,351	3,351	**11.24**	106.5	3.00	81.50	16.76	0.00	0.00	0.00	98.26	0.00
6	3,153	3,154	**12.75**	106.5	3.00	80.98	15.77	0.00	0.00	0.00	96.75	0.00
7	3,039	3,040	**13.64**	106.5	3.00	80.66	15.20	0.00	0.00	0.00	95.86	0.00
8	3,025	3,026	**13.75**	106.5	3.00	80.62	15.13	0.00	0.00	0.00	95.75	0.00
9	342	351	**45.83**	106.5	3.00	61.91	1.76	0.00	0.00	0.00	63.67	0.00
10	499	505	**41.91**	106.5	3.00	65.06	2.52	0.00	0.00	0.00	67.59	0.00

Sum 47.32

Noise sensitive area: B Noise Sensitive Point: 48 dB Dist: 0 m (2)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	5,251	5,251	**-2.16**	106.5	3.00	85.40	26.26	0.00	0.00	0.00	111.66	0.00
2	5,041	5,042	**-0.76**	106.5	3.00	85.05	25.21	0.00	0.00	0.00	110.26	0.00
3	4,867	4,868	**0.41**	106.5	3.00	84.75	24.34	0.00	0.00	0.00	109.09	0.00
4	4,740	4,741	**1.28**	106.5	3.00	84.52	23.70	0.00	0.00	0.00	108.22	0.00
5	4,284	4,284	**4.44**	106.5	3.00	83.64	21.42	0.00	0.00	0.00	105.06	0.00
6	3,894	3,895	**7.21**	106.5	3.00	82.81	19.48	0.00	0.00	0.00	102.29	0.00
7	3,547	3,547	**9.76**	106.5	3.00	82.00	17.74	0.00	0.00	0.00	99.74	0.00
8	3,139	3,140	**12.86**	106.5	3.00	80.94	15.70	0.00	0.00	0.00	96.64	0.00
9	1,780	1,782	**24.57**	106.5	3.00	76.02	8.91	0.00	0.00	0.00	84.93	0.00
10	2,208	2,210	**20.56**	106.5	3.00	77.89	11.05	0.00	0.00	0.00	88.94	0.00

Sum 26.44

Noise sensitive area: C Noise Sensitive Point: 48 dB Dist: 0 m (3)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	4,721	4,722	**1.41**	106.5	3.00	84.48	23.61	0.00	0.00	0.00	108.09	0.00
2	4,490	4,491	**3.00**	106.5	3.00	84.05	22.46	0.00	0.00	0.00	106.50	0.00
3	4,298	4,298	**4.34**	106.5	3.00	83.67	21.49	0.00	0.00	0.00	105.16	0.00
4	4,157	4,158	**5.33**	106.5	3.00	83.38	20.79	0.00	0.00	0.00	104.17	0.00
5	3,909	3,909	**7.11**	106.5	3.00	82.84	19.55	0.00	0.00	0.00	102.39	0.00
6	3,483	3,484	**10.24**	106.5	3.00	81.84	17.42	0.00	0.00	0.00	99.26	0.00

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DECIBEL - Detailed results

Calculation: West Stevens at 48 dB **Noise calculation model:** Danish Codes 8.0 m/s

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WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
7	3,095	3,096	**13.20**	106.5	3.00	80.82	15.48	0.00	0.00	0.00	96.30	0.00
8	2,626	2,628	**16.97**	106.5	3.00	79.39	13.14	0.00	0.00	0.00	92.53	0.00
9	1,834	1,836	**24.04**	106.5	3.00	76.28	9.18	0.00	0.00	0.00	85.46	0.00
10	2,241	2,242	**20.27**	106.5	3.00	78.01	11.21	0.00	0.00	0.00	89.23	0.00

Sum 26.59

Noise sensitive area: D Noise Sensitive Point: 48 dB Dist: 0 m (4)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	5,532	5,533	**-4.02**	106.5	3.00	85.86	27.66	0.00	0.00	0.00	113.52	0.00
2	5,321	5,322	**-2.63**	106.5	3.00	85.52	26.61	0.00	0.00	0.00	112.13	0.00
3	5,142	5,143	**-1.44**	106.5	3.00	85.22	25.71	0.00	0.00	0.00	110.94	0.00
4	5,008	5,009	**-0.54**	106.5	3.00	84.99	25.04	0.00	0.00	0.00	110.04	0.00
5	4,551	4,552	**2.58**	106.5	3.00	84.16	22.76	0.00	0.00	0.00	106.92	0.00
6	4,168	4,169	**5.26**	106.5	3.00	83.40	20.84	0.00	0.00	0.00	104.24	0.00
7	3,826	3,826	**7.71**	106.5	3.00	82.66	19.13	0.00	0.00	0.00	101.79	0.00
8	3,421	3,422	**10.70**	106.5	3.00	81.69	17.11	0.00	0.00	0.00	98.80	0.00
9	1,946	1,948	**22.97**	106.5	3.00	76.79	9.74	0.00	0.00	0.00	86.53	0.00
10	2,372	2,373	**19.13**	106.5	3.00	78.51	11.87	0.00	0.00	0.00	90.37	0.00

Sum 24.85

Noise sensitive area: E Noise Sensitive Point: 48 dB Dist: 0 m (5)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	6,010	6,010	**-7.13**	106.5	3.00	86.58	30.05	0.00	0.00	0.00	116.63	0.00
2	5,833	5,834	**-5.99**	106.5	3.00	86.32	29.17	0.00	0.00	0.00	115.49	0.00
3	5,688	5,688	**-5.04**	106.5	3.00	86.10	28.44	0.00	0.00	0.00	114.54	0.00
4	5,584	5,585	**-4.36**	106.5	3.00	85.94	27.92	0.00	0.00	0.00	113.86	0.00
5	4,846	4,846	**0.56**	106.5	3.00	84.71	24.23	0.00	0.00	0.00	108.94	0.00
6	4,510	4,510	**2.86**	106.5	3.00	84.08	22.55	0.00	0.00	0.00	106.64	0.00
7	4,219	4,220	**4.89**	106.5	3.00	83.51	21.10	0.00	0.00	0.00	104.61	0.00
8	3,894	3,895	**7.22**	106.5	3.00	82.81	19.47	0.00	0.00	0.00	102.28	0.00
9	1,949	1,951	**22.94**	106.5	3.00	76.80	9.75	0.00	0.00	0.00	86.56	0.00
10	2,343	2,345	**19.38**	106.5	3.00	78.40	11.72	0.00	0.00	0.00	90.12	0.00

Sum 24.71

Noise sensitive area: F Noise Sensitive Point: 48 dB Dist: 0 m (6)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	4,906	4,906	**0.15**	106.5	3.00	84.81	24.53	0.00	0.00	0.00	109.35	0.00
2	4,977	4,977	**-0.33**	106.5	3.00	84.94	24.89	0.00	0.00	0.00	109.83	0.00
3	5,092	5,093	**-1.10**	106.5	3.00	85.14	25.46	0.00	0.00	0.00	110.60	0.00
4	5,252	5,252	**-2.17**	106.5	3.00	85.41	26.26	0.00	0.00	0.00	111.67	0.00
5	2,998	2,999	**13.97**	106.5	3.00	80.54	14.99	0.00	0.00	0.00	95.53	0.00
6	2,964	2,965	**14.23**	106.5	3.00	80.44	14.83	0.00	0.00	0.00	95.27	0.00
7	3,025	3,026	**13.75**	106.5	3.00	80.62	15.13	0.00	0.00	0.00	95.75	0.00
8	3,251	3,252	**11.99**	106.5	3.00	81.24	16.26	0.00	0.00	0.00	97.51	0.00
9	1,166	1,168	**31.31**	106.5	3.00	72.35	5.84	0.00	0.00	0.00	78.19	0.00
10	766	770	**36.93**	106.5	3.00	68.73	3.85	0.00	0.00	0.00	72.57	0.00

Sum 38.04

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DECIBEL - Detailed results

Calculation: West Stevens at 48 dB **Noise calculation model:** Danish Codes 8.0 m/s

Noise sensitive area: G Noise Sensitive Point: 48 dB Dist: 0 m (7)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	4,391	4,391	**3.69**	106.5	3.00	83.85	21.96	0.00	0.00	0.00	105.81	0.00
2	4,656	4,657	**1.85**	106.5	3.00	84.36	23.29	0.00	0.00	0.00	107.65	0.00
3	4,957	4,958	**-0.19**	106.5	3.00	84.91	24.79	0.00	0.00	0.00	109.69	0.00
4	5,286	5,286	**-2.39**	106.5	3.00	85.46	26.43	0.00	0.00	0.00	111.89	0.00
5	2,321	2,323	**19.57**	106.5	3.00	78.32	11.61	0.00	0.00	0.00	89.93	0.00
6	2,645	2,647	**16.81**	106.5	3.00	79.45	13.23	0.00	0.00	0.00	92.69	0.00
7	3,022	3,023	**13.78**	106.5	3.00	80.61	15.11	0.00	0.00	0.00	95.72	0.00
8	3,608	3,608	**9.31**	106.5	3.00	82.15	18.04	0.00	0.00	0.00	100.19	0.00
9	2,976	2,977	**14.14**	106.5	3.00	80.48	14.88	0.00	0.00	0.00	95.36	0.00
10	2,560	2,562	**17.52**	106.5	3.00	79.17	12.81	0.00	0.00	0.00	91.98	0.00

Sum 24.13

Noise sensitive area: H Noise Sensitive Point: 48 dB Dist: 0 m (8)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	2,661	2,662	**16.69**	106.5	3.00	79.50	13.31	0.00	0.00	0.00	92.81	0.00
2	2,351	2,353	**19.30**	106.5	3.00	78.43	11.76	0.00	0.00	0.00	90.20	0.00
3	2,106	2,107	**21.49**	106.5	3.00	77.47	10.53	0.00	0.00	0.00	88.01	0.00
4	1,958	1,960	**22.85**	106.5	3.00	76.85	9.80	0.00	0.00	0.00	86.65	0.00
5	2,680	2,682	**16.52**	106.5	3.00	79.57	13.41	0.00	0.00	0.00	92.98	0.00
6	2,166	2,168	**20.94**	106.5	3.00	77.72	10.84	0.00	0.00	0.00	88.56	0.00
7	1,659	1,661	**25.79**	106.5	3.00	75.41	8.31	0.00	0.00	0.00	83.71	0.00
8	948	951	**34.18**	106.5	3.00	70.56	4.76	0.00	0.00	0.00	75.32	0.00
9	2,912	2,914	**14.64**	106.5	3.00	80.29	14.57	0.00	0.00	0.00	94.86	0.00
10	3,091	3,092	**13.24**	106.5	3.00	80.80	15.46	0.00	0.00	0.00	96.26	0.00

Sum 35.66

Noise sensitive area: I Noise Sensitive Point: 48 dB Dist: 0 m (9)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	1,631	1,633	**26.07**	106.5	3.00	75.26	8.17	0.00	0.00	0.00	83.43	0.00
2	1,574	1,576	**26.67**	106.5	3.00	74.95	7.88	0.00	0.00	0.00	82.83	0.00
3	1,664	1,666	**25.73**	106.5	3.00	75.43	8.33	0.00	0.00	0.00	83.77	0.00
4	1,885	1,886	**23.56**	106.5	3.00	76.51	9.43	0.00	0.00	0.00	85.94	0.00
5	1,328	1,330	**29.37**	106.5	3.00	73.48	6.65	0.00	0.00	0.00	80.13	0.00
6	846	849	**35.67**	106.5	3.00	69.58	4.25	0.00	0.00	0.00	73.83	0.00
7	440	448	**43.25**	106.5	3.00	64.02	2.24	0.00	0.00	0.00	66.25	0.00
8	570	576	**40.42**	106.5	3.00	66.20	2.88	0.00	0.00	0.00	69.08	0.00
9	3,038	3,039	**13.65**	106.5	3.00	80.66	15.20	0.00	0.00	0.00	95.85	0.00
10	3,016	3,017	**13.82**	106.5	3.00	80.59	15.08	0.00	0.00	0.00	95.68	0.00

Sum 45.82

Noise sensitive area: J Noise Sensitive Point: 48 dB Dist: 0 m (10)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	2,424	2,425	**18.68**	106.5	3.00	78.69	12.12	0.00	0.00	0.00	90.82	0.00
2	2,752	2,753	**15.94**	106.5	3.00	79.80	13.76	0.00	0.00	0.00	93.56	0.00
3	3,124	3,125	**12.97**	106.5	3.00	80.90	15.63	0.00	0.00	0.00	96.53	0.00
4	3,526	3,527	**9.92**	106.5	3.00	81.95	17.63	0.00	0.00	0.00	99.58	0.00
5	632	637	**39.24**	106.5	3.00	67.08	3.18	0.00	0.00	0.00	70.26	0.00
6	1,146	1,148	**31.56**	106.5	3.00	72.20	5.74	0.00	0.00	0.00	77.94	0.00
7	1,653	1,655	**25.85**	106.5	3.00	75.37	8.27	0.00	0.00	0.00	83.65	0.00
8	2,364	2,366	**19.19**	106.5	3.00	78.48	11.83	0.00	0.00	0.00	90.31	0.00

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DECIBEL - Detailed results

Calculation: West Stevens at 48 dB **Noise calculation model:** Danish Codes 8.0 m/s

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WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
9	3,438	3,439	**10.57**	106.5	3.00	81.73	17.20	0.00	0.00	0.00	98.93	0.00
10	3,172	3,173	**12.61**	106.5	3.00	81.03	15.86	0.00	0.00	0.00	96.89	0.00

Sum 40.20

Noise sensitive area: K Noise Sensitive Point: 48 dB Dist: 0 m (11)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	4,086	4,086	**5.84**	106.5	3.00	83.23	20.43	0.00	0.00	0.00	103.66	0.00
2	4,284	4,285	**4.44**	106.5	3.00	83.64	21.42	0.00	0.00	0.00	105.06	0.00
3	4,527	4,528	**2.74**	106.5	3.00	84.12	22.64	0.00	0.00	0.00	106.76	0.00
4	4,808	4,809	**0.82**	106.5	3.00	84.64	24.04	0.00	0.00	0.00	108.68	0.00
5	2,001	2,003	**22.45**	106.5	3.00	77.03	10.01	0.00	0.00	0.00	87.05	0.00
6	2,199	2,201	**20.65**	106.5	3.00	77.85	11.00	0.00	0.00	0.00	88.85	0.00
7	2,491	2,492	**18.11**	106.5	3.00	78.93	12.46	0.00	0.00	0.00	91.39	0.00
8	3,002	3,003	**13.93**	106.5	3.00	80.55	15.02	0.00	0.00	0.00	95.57	0.00
9	2,250	2,251	**20.19**	106.5	3.00	78.05	11.26	0.00	0.00	0.00	89.31	0.00
10	1,847	1,848	**23.92**	106.5	3.00	76.34	9.24	0.00	0.00	0.00	85.58	0.00

Sum 28.71

Noise sensitive area: L Noise Sensitive Point: 48 dB Dist: 0 m (12)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	3,914	3,915	**7.07**	106.5	3.00	82.85	19.57	0.00	0.00	0.00	102.43	0.00
2	3,527	3,528	**9.91**	106.5	3.00	81.95	17.64	0.00	0.00	0.00	99.59	0.00
3	3,161	3,162	**12.69**	106.5	3.00	81.00	15.81	0.00	0.00	0.00	96.81	0.00
4	2,838	2,839	**15.24**	106.5	3.00	80.06	14.19	0.00	0.00	0.00	94.26	0.00
5	4,055	4,056	**6.06**	106.5	3.00	83.16	20.28	0.00	0.00	0.00	103.44	0.00
6	3,542	3,543	**9.80**	106.5	3.00	81.99	17.72	0.00	0.00	0.00	99.70	0.00
7	3,037	3,038	**13.66**	106.5	3.00	80.65	15.19	0.00	0.00	0.00	95.84	0.00
8	2,332	2,333	**19.47**	106.5	3.00	78.36	11.67	0.00	0.00	0.00	90.03	0.00
9	3,434	3,435	**10.61**	106.5	3.00	81.72	17.18	0.00	0.00	0.00	98.89	0.00
10	3,747	3,748	**8.28**	106.5	3.00	82.48	18.74	0.00	0.00	0.00	101.22	0.00

Sum 23.23

Noise sensitive area: M Noise Sensitive Point: 48 dB Dist: 0 m (13)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	3,570	3,571	**9.59**	106.5	3.00	82.06	17.86	0.00	0.00	0.00	99.91	0.00
2	3,143	3,144	**12.83**	106.5	3.00	80.95	15.72	0.00	0.00	0.00	96.67	0.00
3	2,729	2,731	**16.12**	106.5	3.00	79.72	13.65	0.00	0.00	0.00	93.38	0.00
4	2,351	2,352	**19.31**	106.5	3.00	78.43	11.76	0.00	0.00	0.00	90.19	0.00
5	4,033	4,034	**6.21**	106.5	3.00	83.11	20.17	0.00	0.00	0.00	103.29	0.00
6	3,522	3,523	**9.95**	106.5	3.00	81.94	17.61	0.00	0.00	0.00	99.55	0.00
7	3,017	3,018	**13.82**	106.5	3.00	80.59	15.09	0.00	0.00	0.00	95.68	0.00
8	2,309	2,311	**19.67**	106.5	3.00	78.27	11.55	0.00	0.00	0.00	89.83	0.00
9	3,884	3,884	**7.29**	106.5	3.00	82.79	19.42	0.00	0.00	0.00	102.21	0.00
10	4,158	4,159	**5.33**	106.5	3.00	83.38	20.80	0.00	0.00	0.00	104.17	0.00

Sum 24.69

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DECIBEL - Detailed results

Calculation: West Stevens at 48 dB **Noise calculation model:** Danish Codes 8.0 m/s

Noise sensitive area: N Noise Sensitive Point: 48 dB Dist: 0 m (15)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	2,314	2,315	**19.63**	106.5	3.00	78.29	11.58	0.00	0.00	0.00	89.87	0.00
2	2,694	2,695	**16.41**	106.5	3.00	79.61	13.48	0.00	0.00	0.00	93.09	0.00
3	3,108	3,109	**13.10**	106.5	3.00	80.85	15.55	0.00	0.00	0.00	96.40	0.00
4	3,541	3,542	**9.80**	106.5	3.00	81.99	17.71	0.00	0.00	0.00	99.70	0.00
5	907	910	**34.76**	106.5	3.00	70.18	4.55	0.00	0.00	0.00	74.74	0.00
6	1,400	1,403	**28.55**	106.5	3.00	73.94	7.01	0.00	0.00	0.00	80.95	0.00
7	1,897	1,898	**23.44**	106.5	3.00	76.57	9.49	0.00	0.00	0.00	86.06	0.00
8	2,599	2,600	**17.20**	106.5	3.00	79.30	13.00	0.00	0.00	0.00	92.30	0.00
9	3,837	3,838	**7.63**	106.5	3.00	82.68	19.19	0.00	0.00	0.00	101.87	0.00
10	3,573	3,574	**9.57**	106.5	3.00	82.06	17.87	0.00	0.00	0.00	99.93	0.00

Sum 36.20

Noise sensitive area: O Noise Sensitive Point: 48 dB Dist: 0 m (16)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	3,274	3,275	**11.82**	106.5	3.00	81.30	16.37	0.00	0.00	0.00	97.68	0.00
2	2,785	2,786	**15.67**	106.5	3.00	79.90	13.93	0.00	0.00	0.00	93.83	0.00
3	2,292	2,293	**19.83**	106.5	3.00	78.21	11.46	0.00	0.00	0.00	89.67	0.00
4	1,802	1,804	**24.36**	106.5	3.00	76.12	9.02	0.00	0.00	0.00	85.14	0.00
5	4,429	4,430	**3.42**	106.5	3.00	83.93	22.15	0.00	0.00	0.00	106.08	0.00
6	3,961	3,962	**6.73**	106.5	3.00	82.96	19.81	0.00	0.00	0.00	102.77	0.00
7	3,508	3,509	**10.05**	106.5	3.00	81.90	17.55	0.00	0.00	0.00	99.45	0.00
8	2,900	2,901	**14.74**	106.5	3.00	80.25	14.50	0.00	0.00	0.00	94.76	0.00
9	5,052	5,053	**-0.83**	106.5	3.00	85.07	25.26	0.00	0.00	0.00	110.33	0.00
10	5,268	5,269	**-2.28**	106.5	3.00	85.43	26.34	0.00	0.00	0.00	111.78	0.00

Sum 26.71

Noise sensitive area: P Noise Sensitive Point: 48 dB Dist: 0 m (17)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	2,457	2,458	**18.40**	106.5	3.00	78.81	12.29	0.00	0.00	0.00	91.10	0.00
2	2,075	2,077	**21.77**	106.5	3.00	77.35	10.38	0.00	0.00	0.00	87.73	0.00
3	1,749	1,751	**24.88**	106.5	3.00	75.86	8.75	0.00	0.00	0.00	84.62	0.00
4	1,518	1,520	**27.27**	106.5	3.00	74.64	7.60	0.00	0.00	0.00	82.23	0.00
5	4,387	4,387	**3.72**	106.5	3.00	83.84	21.94	0.00	0.00	0.00	105.78	0.00
6	4,080	4,081	**5.88**	106.5	3.00	83.21	20.40	0.00	0.00	0.00	103.62	0.00
7	3,815	3,816	**7.79**	106.5	3.00	82.63	19.08	0.00	0.00	0.00	101.71	0.00
8	3,526	3,527	**9.91**	106.5	3.00	81.95	17.64	0.00	0.00	0.00	99.59	0.00
9	6,168	6,168	**-8.14**	106.5	3.00	86.80	30.84	0.00	0.00	0.00	117.64	0.00
10	6,255	6,256	**-8.71**	106.5	3.00	86.93	31.28	0.00	0.00	0.00	118.21	0.00

Sum 30.34

Noise sensitive area: Q Noise Sensitive Point: 48 dB Dist: 0 m (18)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	1,759	1,761	**24.78**	106.5	3.00	75.91	8.80	0.00	0.00	0.00	84.72	0.00
2	1,841	1,843	**23.98**	106.5	3.00	76.31	9.21	0.00	0.00	0.00	85.52	0.00
3	2,047	2,049	**22.03**	106.5	3.00	77.23	10.24	0.00	0.00	0.00	87.47	0.00
4	2,339	2,341	**19.41**	106.5	3.00	78.39	11.70	0.00	0.00	0.00	90.09	0.00
5	3,753	3,754	**8.24**	106.5	3.00	82.49	18.77	0.00	0.00	0.00	101.26	0.00
6	3,690	3,691	**8.70**	106.5	3.00	82.34	18.46	0.00	0.00	0.00	100.80	0.00
7	3,691	3,692	**8.70**	106.5	3.00	82.34	18.46	0.00	0.00	0.00	100.80	0.00
8	3,800	3,801	**7.90**	106.5	3.00	82.60	19.01	0.00	0.00	0.00	101.60	0.00

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DECIBEL - Detailed results

Calculation: West Stevens at 48 dB **Noise calculation model:** Danish Codes 8.0 m/s

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WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
9	6,401	6,402	**-9.63**	106.5	3.00	87.13	32.01	0.00	0.00	0.00	119.13	0.00
10	6,347	6,348	**-9.29**	106.5	3.00	87.05	31.74	0.00	0.00	0.00	118.79	0.00
Sum	29.17											

Noise sensitive area: R Noise Sensitive Point: 48 dB Dist: 0 m (19)

WTG **Wind speed: 8.0 m/s**

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]	Cmet [dB]
1	2,172	2,174	**20.89**	106.5	3.00	77.74	10.87	0.00	0.00	0.00	88.61	0.00
2	2,522	2,523	**17.84**	106.5	3.00	79.04	12.62	0.00	0.00	0.00	91.66	0.00
3	2,915	2,916	**14.62**	106.5	3.00	80.30	14.58	0.00	0.00	0.00	94.88	0.00
4	3,334	3,335	**11.36**	106.5	3.00	81.46	16.67	0.00	0.00	0.00	98.14	0.00
5	638	643	**39.13**	106.5	3.00	67.16	3.21	0.00	0.00	0.00	70.37	0.00
6	1,127	1,129	**31.80**	106.5	3.00	72.06	5.65	0.00	0.00	0.00	77.70	0.00
7	1,623	1,625	**26.16**	106.5	3.00	75.22	8.13	0.00	0.00	0.00	83.34	0.00
8	2,327	2,328	**19.52**	106.5	3.00	78.34	11.64	0.00	0.00	0.00	89.98	0.00
9	3,629	3,630	**9.15**	106.5	3.00	82.20	18.15	0.00	0.00	0.00	100.35	0.00
10	3,383	3,384	**10.99**	106.5	3.00	81.59	16.92	0.00	0.00	0.00	98.51	0.00
Sum	40.19											

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DECIBEL - Assumptions for noise calculation

Calculation: West Stevens at 48 dB **Noise calculation model:** Danish Codes 8.0 m/s

Noise calculation model:
Danish Codes
Wind speed:
8.0 m/s
Ground attenuation:
None
Meteorological coefficient, C0:
0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Pure tone penalty are added to demand: 5.0 m/s
Height above ground level, when no value in NSA object:
0.0 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 not required
Air absorption: 5.0 dB/km

WTG: Suzlon S88 60Hz 2100 88.0 !O!
Noise: Noise (2)

Source	Source/Date	Creator	Edited
Manufacturer	04/11/2005	USER	04/11/2006 7:32 PM

Calculated estimated sound level from tech specs

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones
Original	80.0	8.0	106.5	No

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (1)-A
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (2)-B
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (3)-C
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

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06/19/2007 10:04 AM / 10

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DECIBEL - Assumptions for noise calculation

Calculation: West Stevens at 48 dB **Noise calculation model:** Danish Codes 8.0 m/s

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (4)-D
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (5)-E
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (6)-F
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (7)-G
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (8)-H
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (9)-I
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (10)-J
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

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DECIBEL - Assumptions for noise calculation

Calculation: West Stevens at 48 dB **Noise calculation model:** Danish Codes 8.0 m/s

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (11)-K
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (12)-L
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (13)-M
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (15)-N
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (16)-O
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (17)-P
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

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DECIBEL - Assumptions for noise calculation

Calculation: West Stevens at 48 dB **Noise calculation model:** Danish Codes 8.0 m/s

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (18)-Q
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

NSA: Noise Sensitive Point: 48 dB Dist: 0 m (19)-R
Predefined calculation standard: User defined
Imission height(a.g.l.): Use standard value from calculation model

Noise demand: 48.0 dB(A)
Ambient noise: 0.0 dB(A)
Margin or Allowed additional exposure: 0.0 dB(A)
Sound level always accepted: 0.0 dB(A)
Distance demand: 0.0 m

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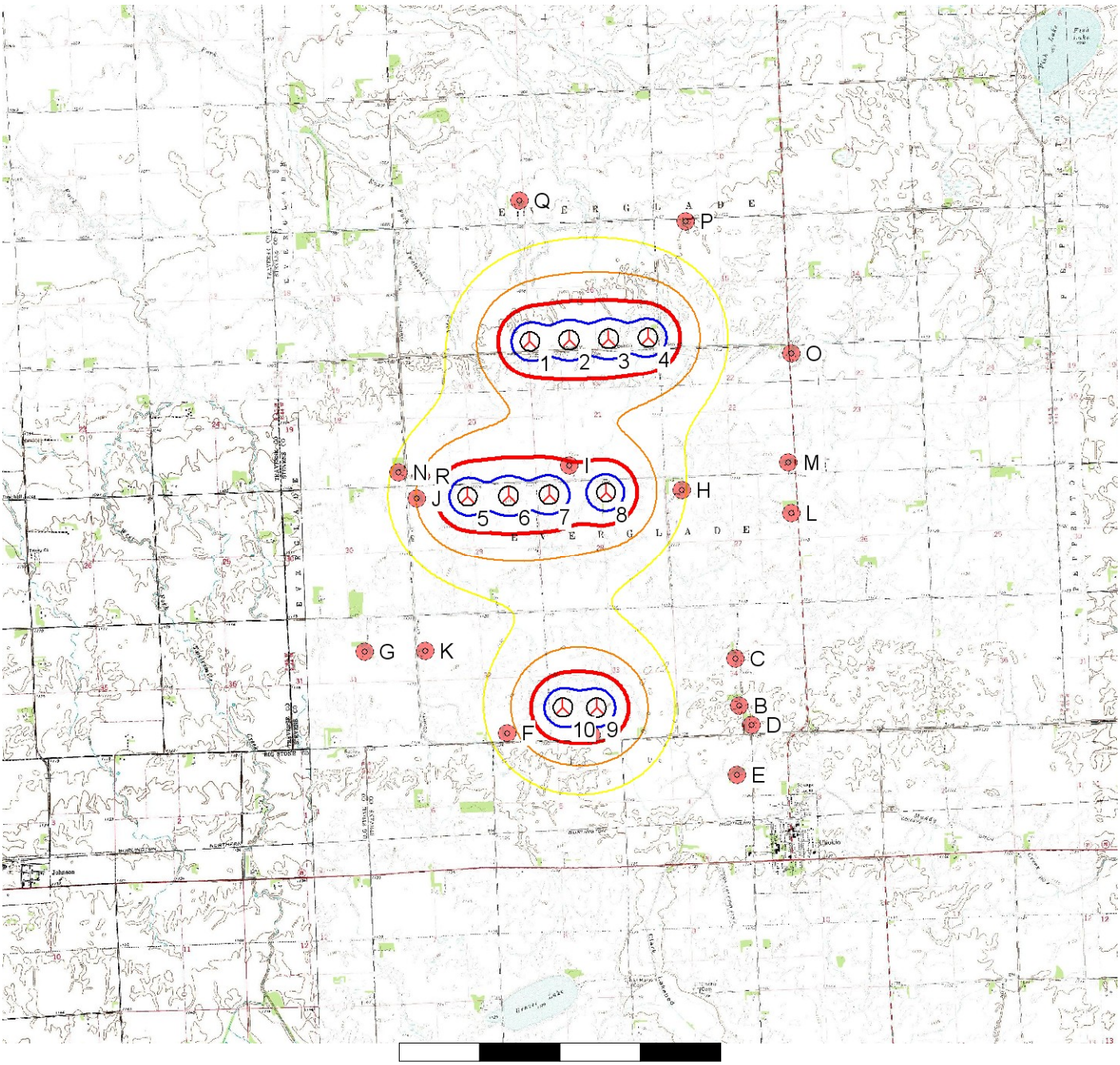
DECIBEL - 24k topo

Calculation: West Stevens at 48 dB **File:** 24k topo.jpg



0 1 2 3 4 km

Map: , Print scale 1:75,000, Map center UTM WGS 84 Zone: 14 East: 717,592 North: 5,054,510
Noise calculation model: Danish Codes. Wind speed: 8.0 m/s

New WTG Noise sensitive area

Height above sea level from active line object

35.0 dB(A) 40.0 dB(A) 45.0 dB(A) 50.0 dB(A) 55.0 dB(A)