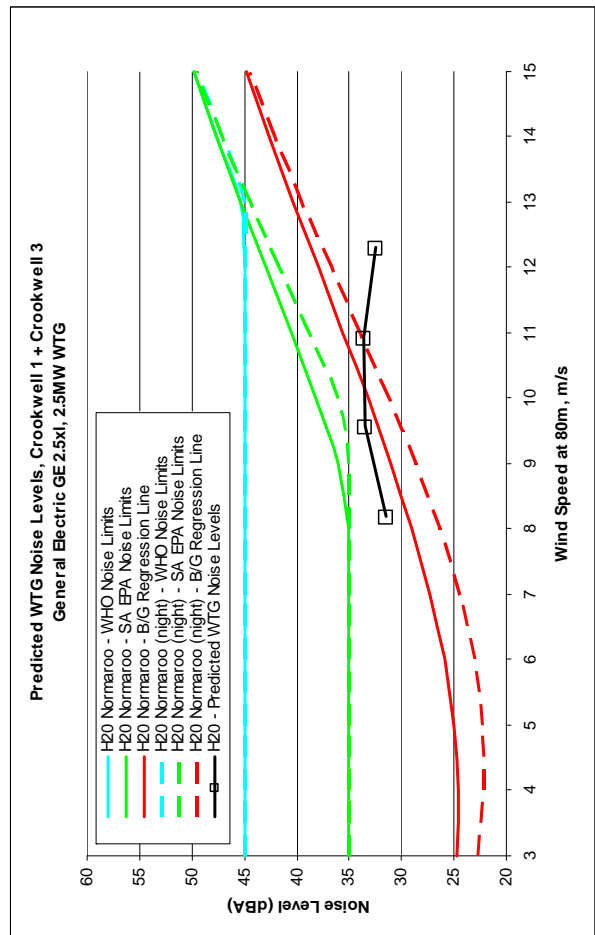
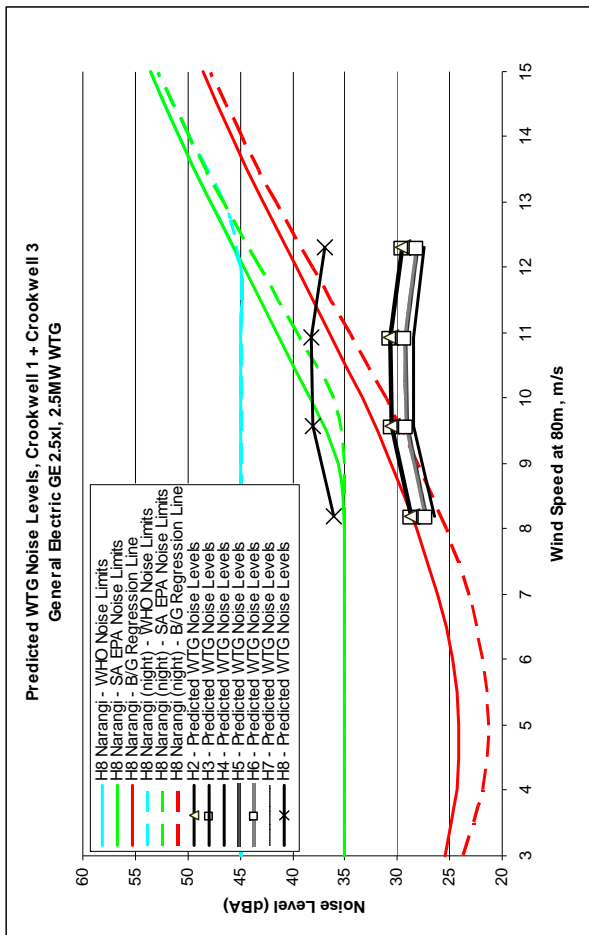
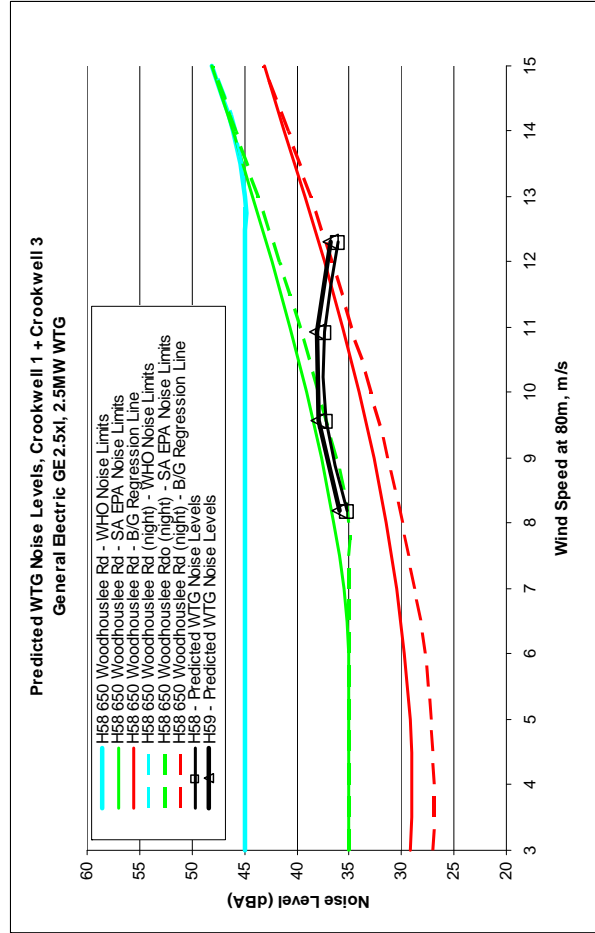
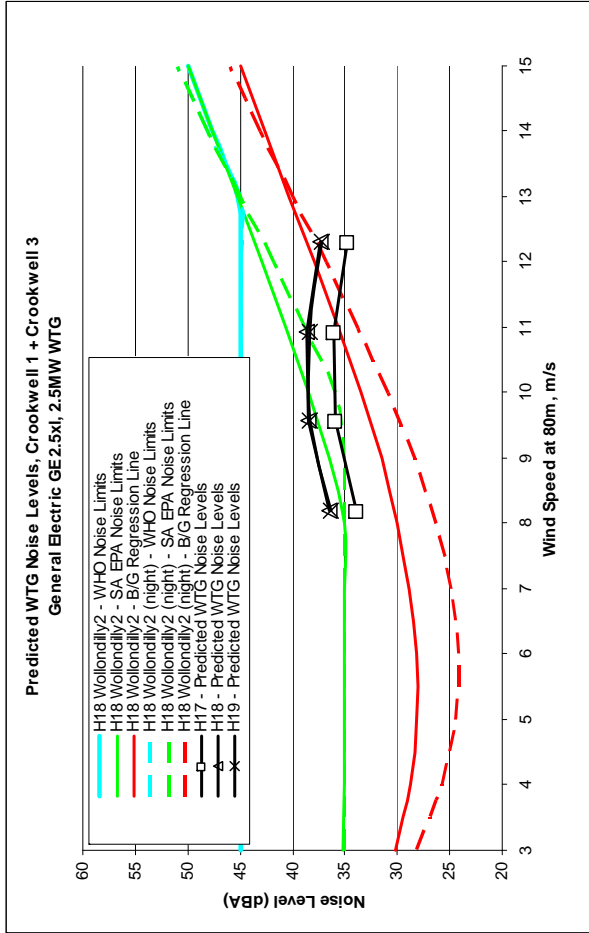
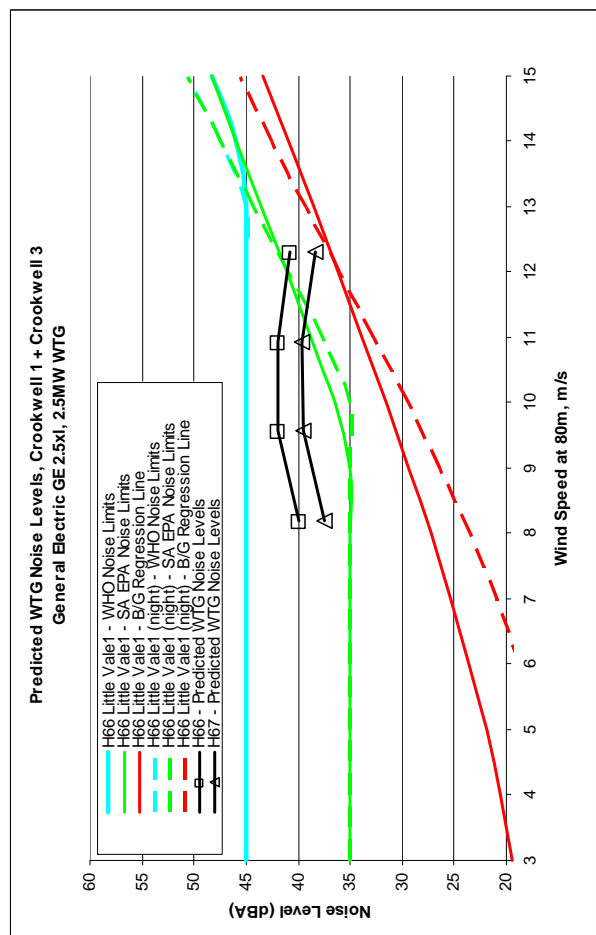
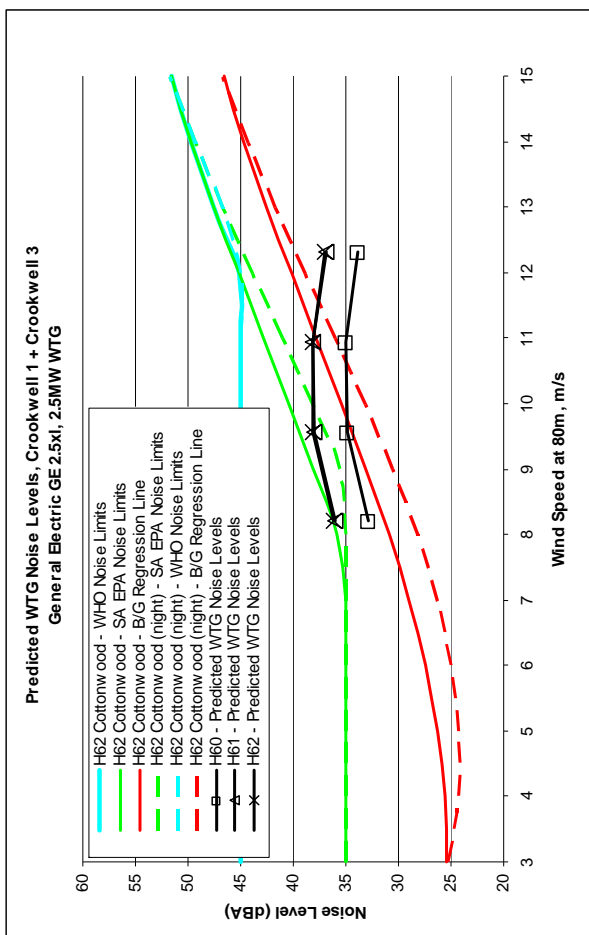
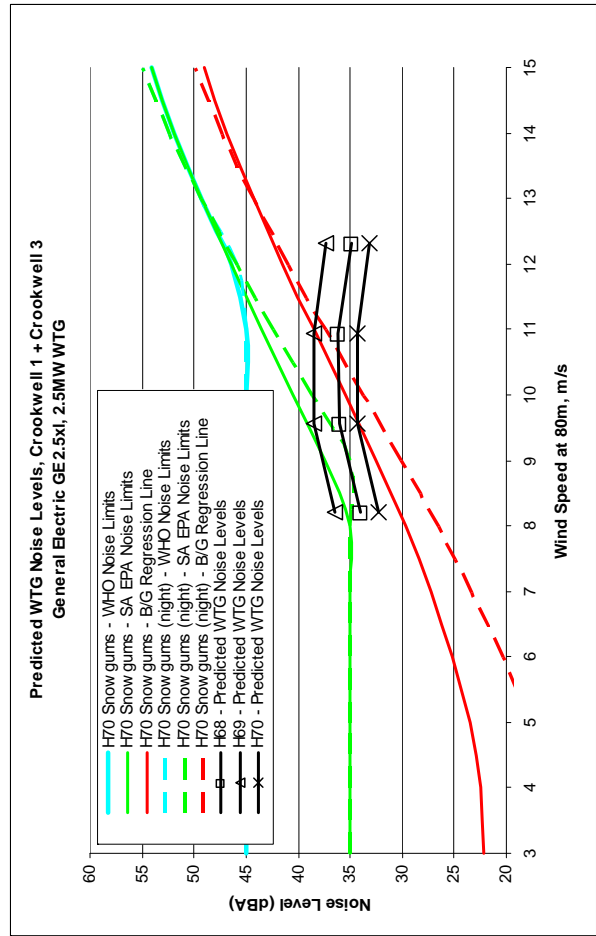
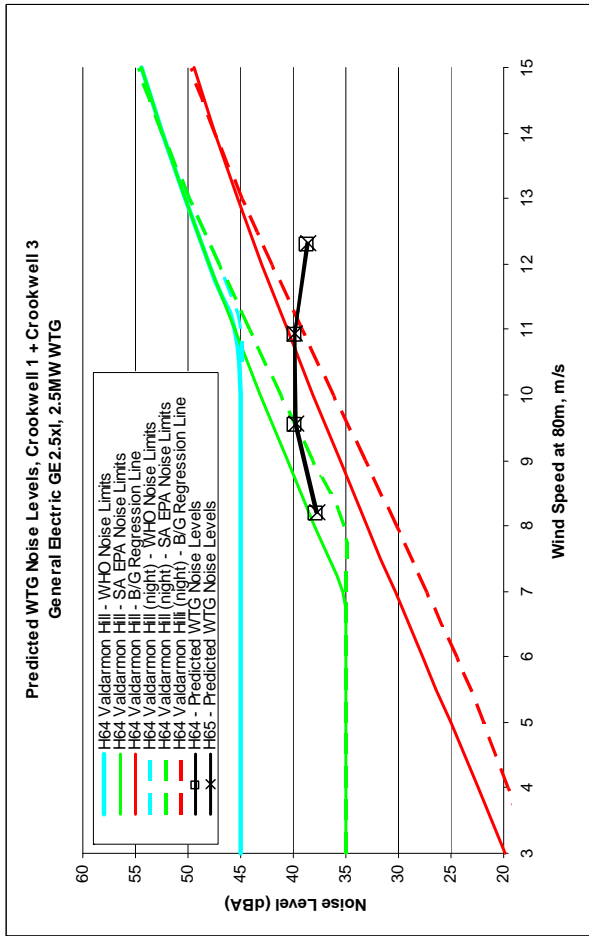
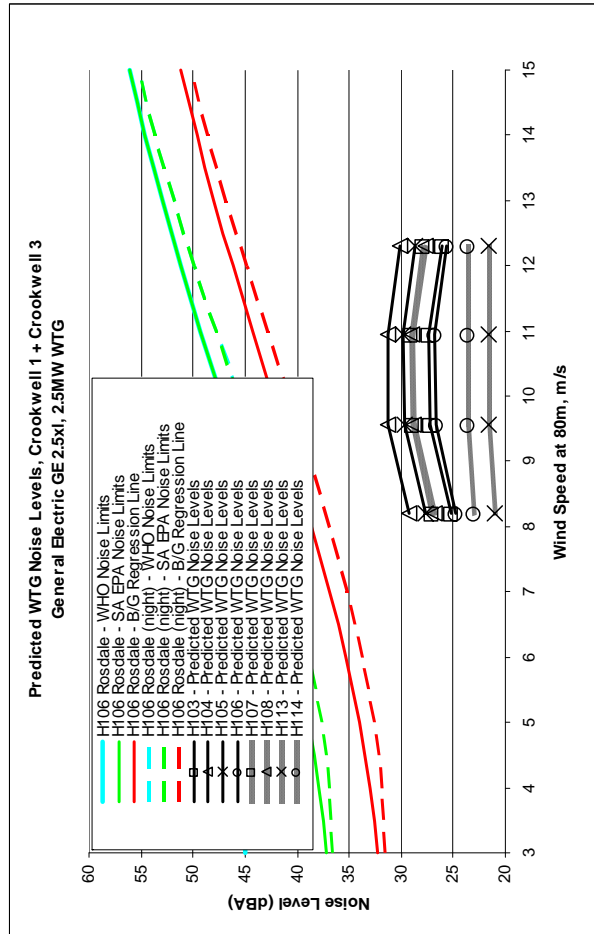
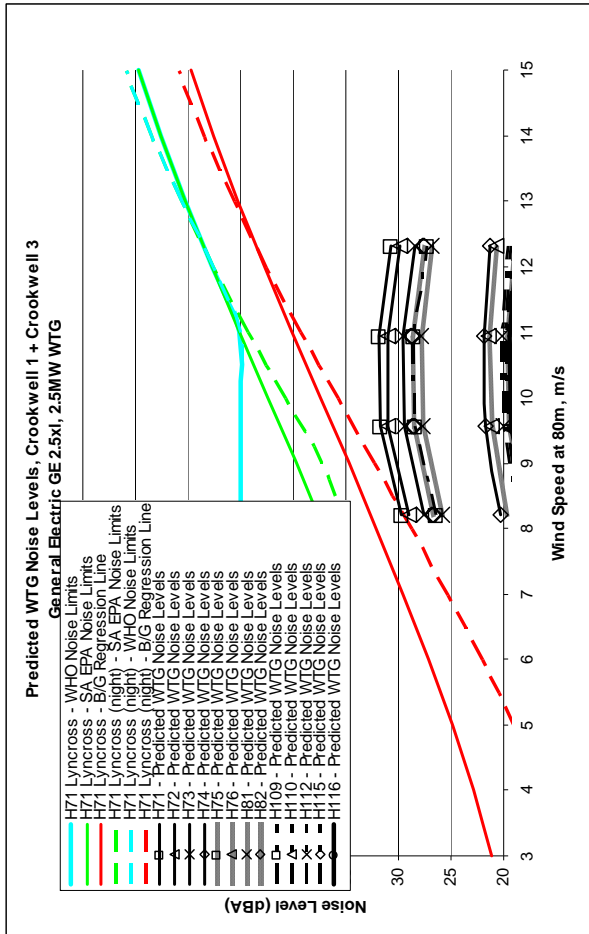
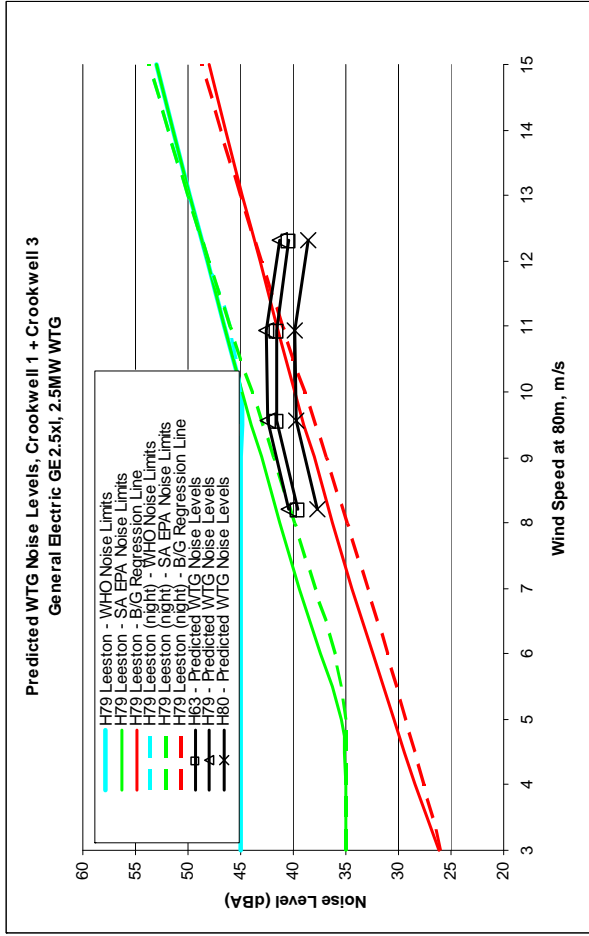
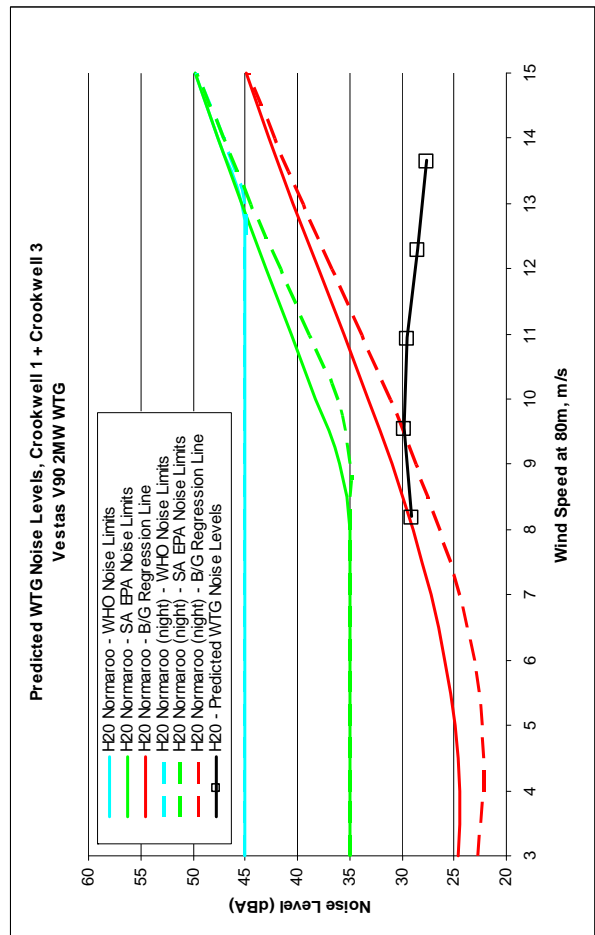
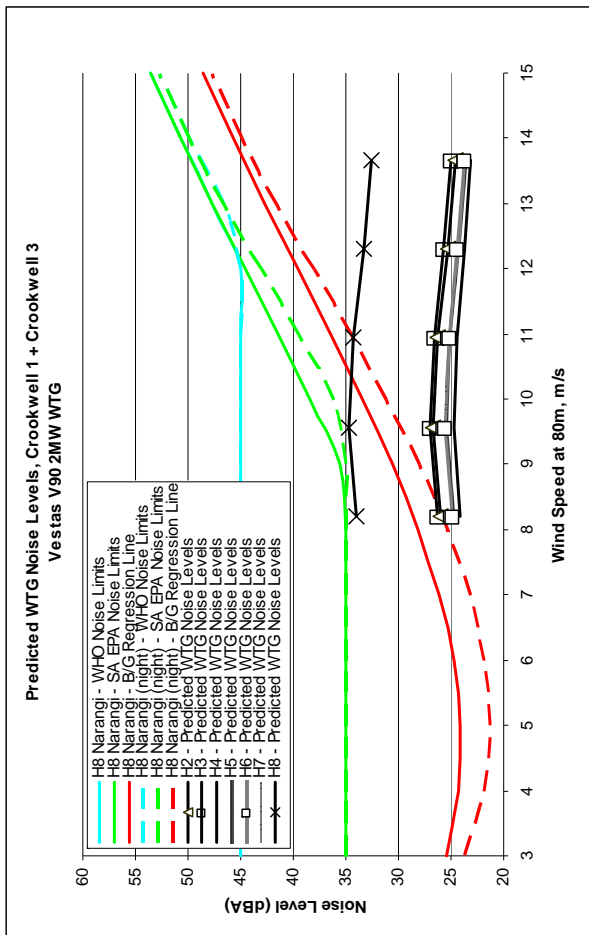
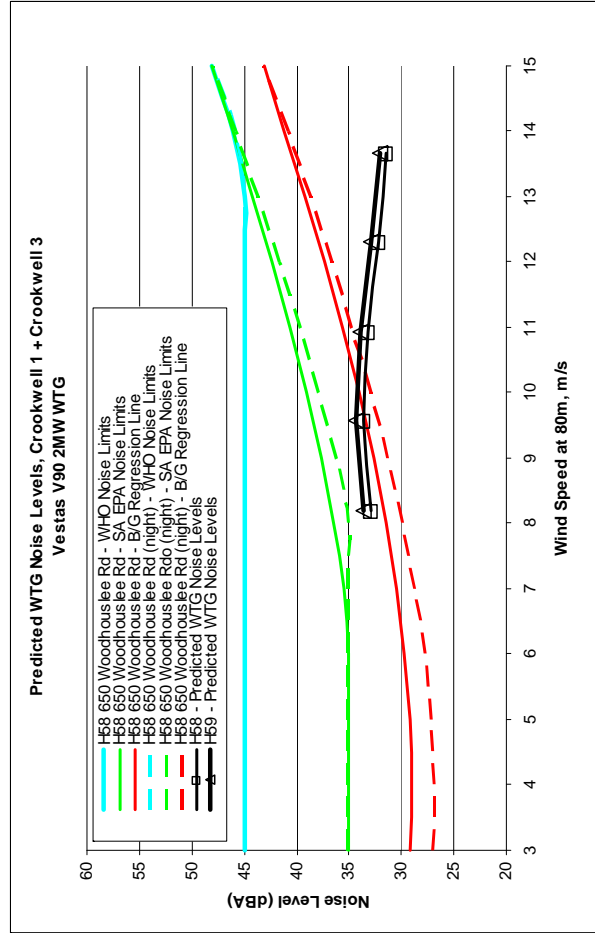
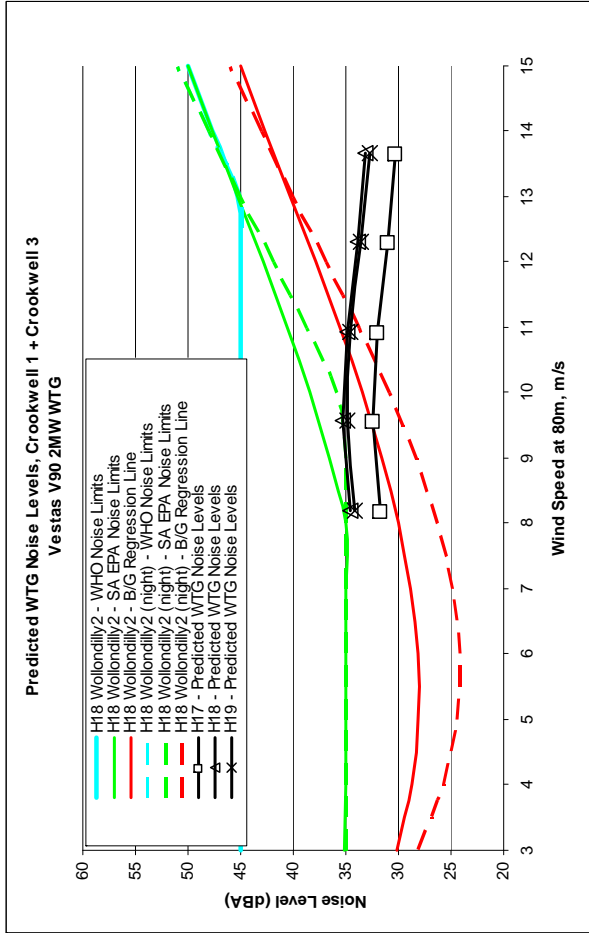


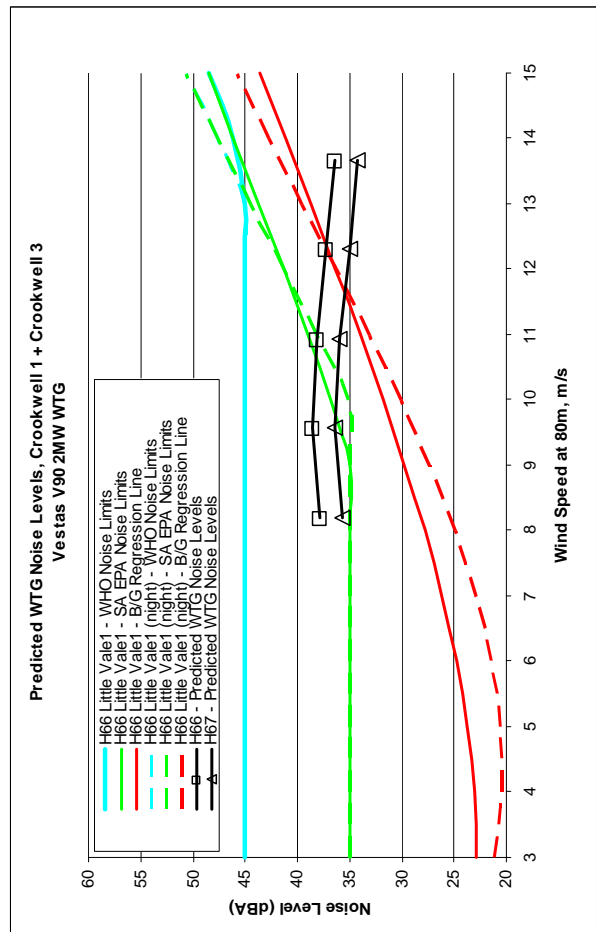
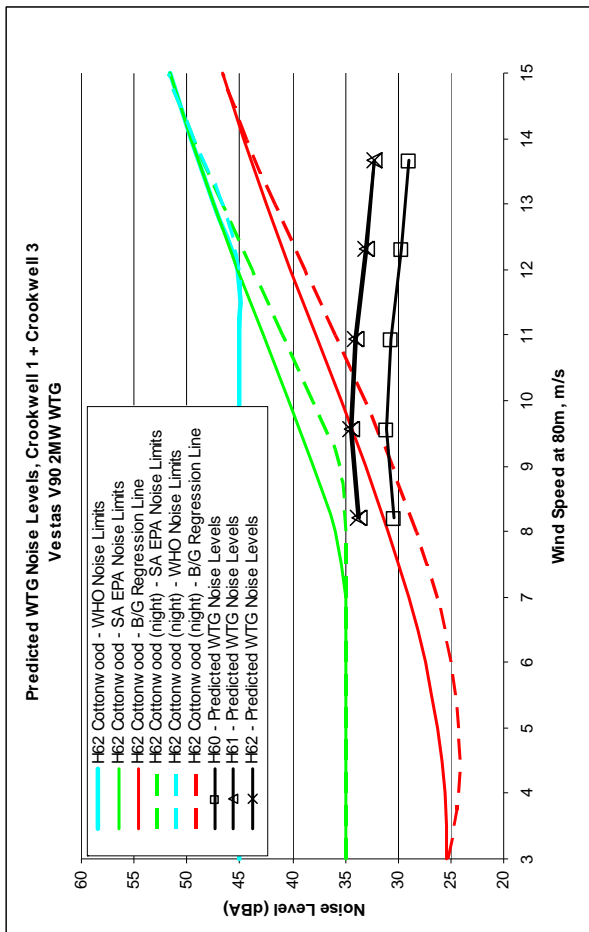
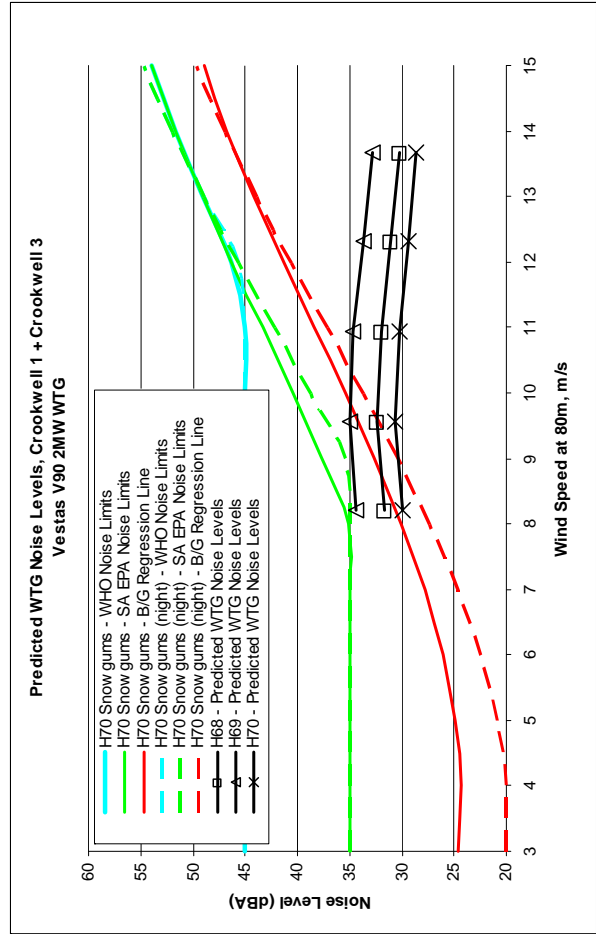
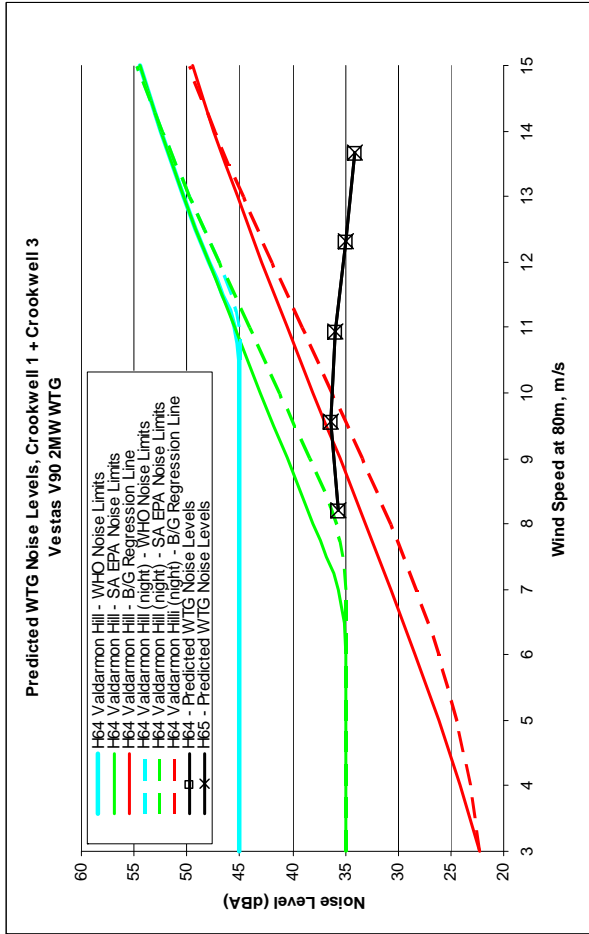
## Assessment Graphs - Crookwell 1 and Crookwell 3 Wind Farm

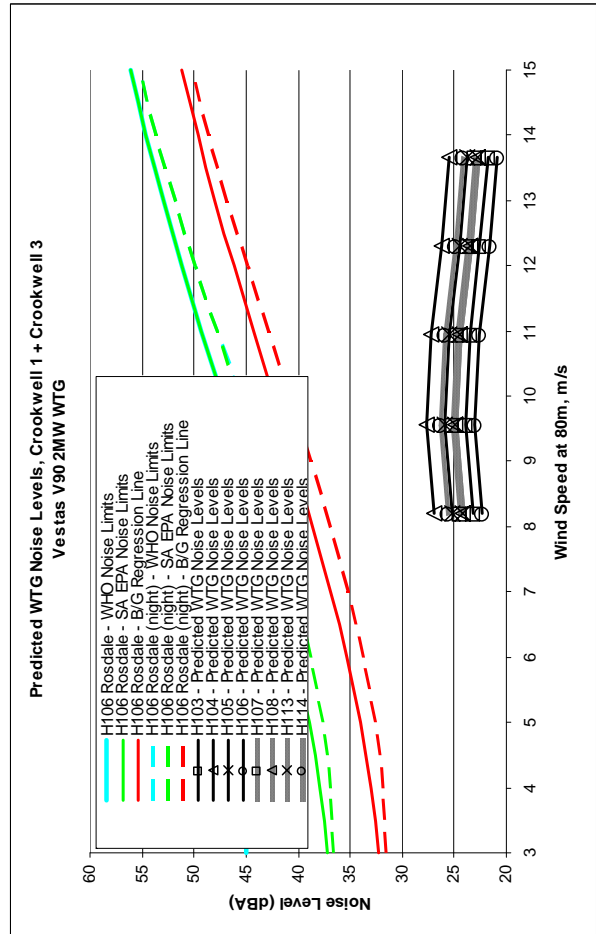
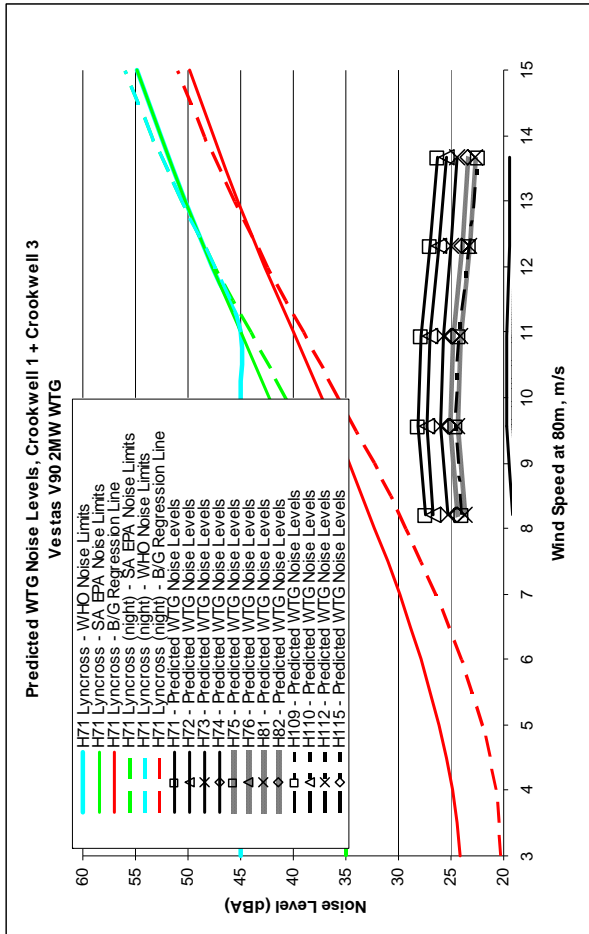
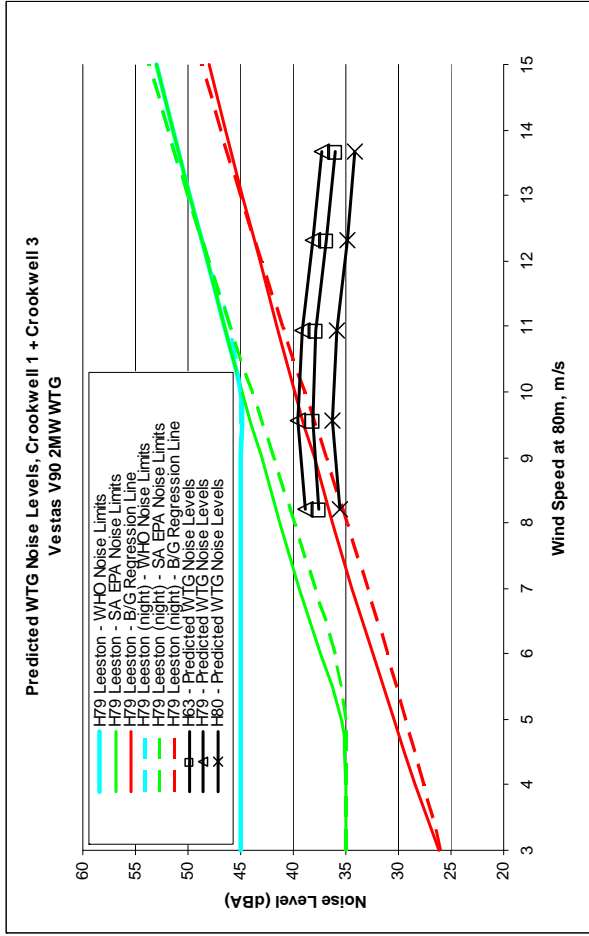


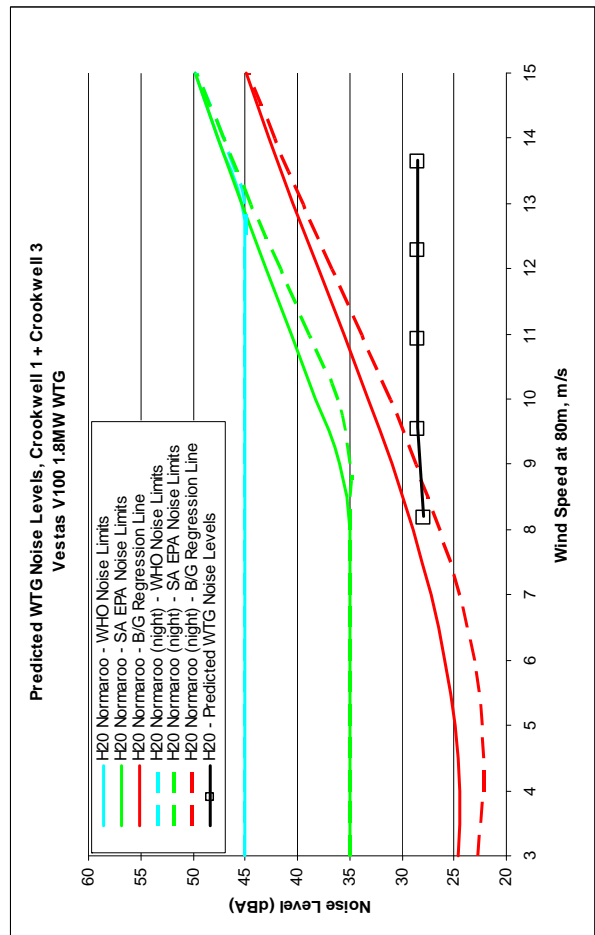
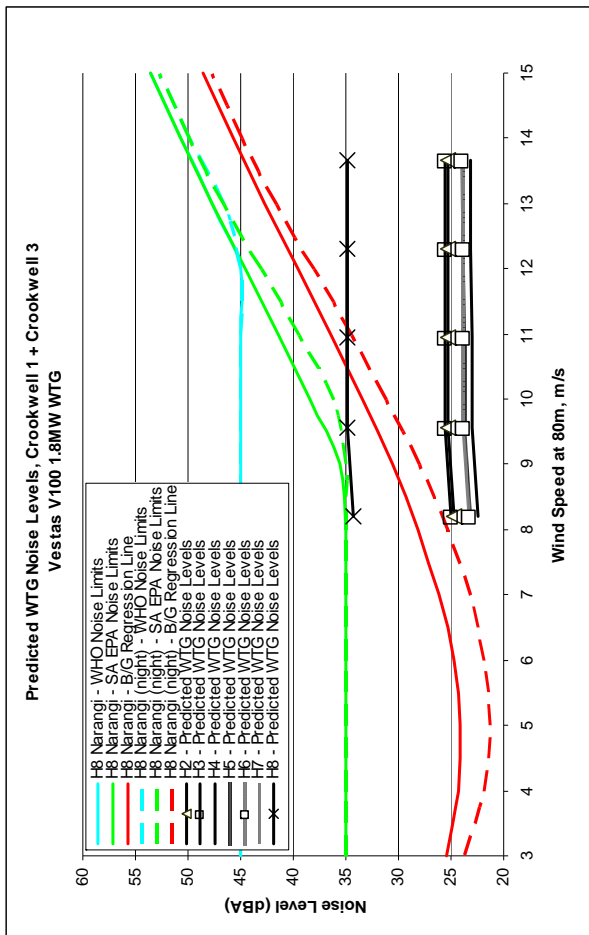
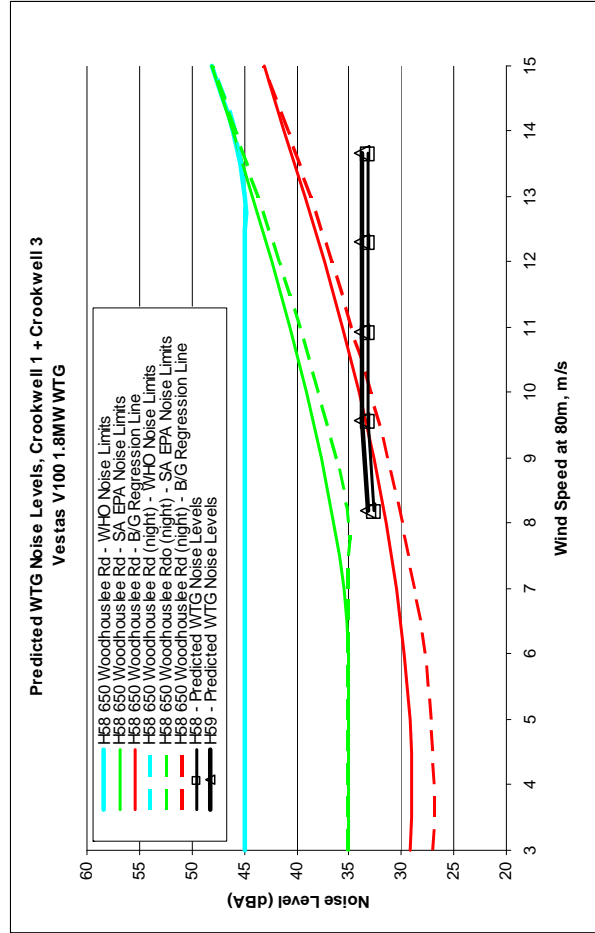
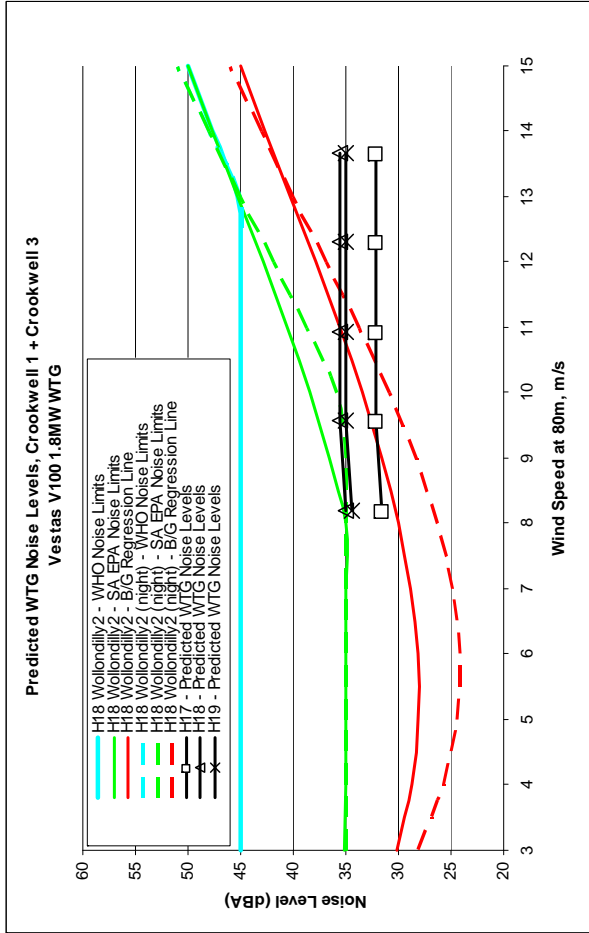




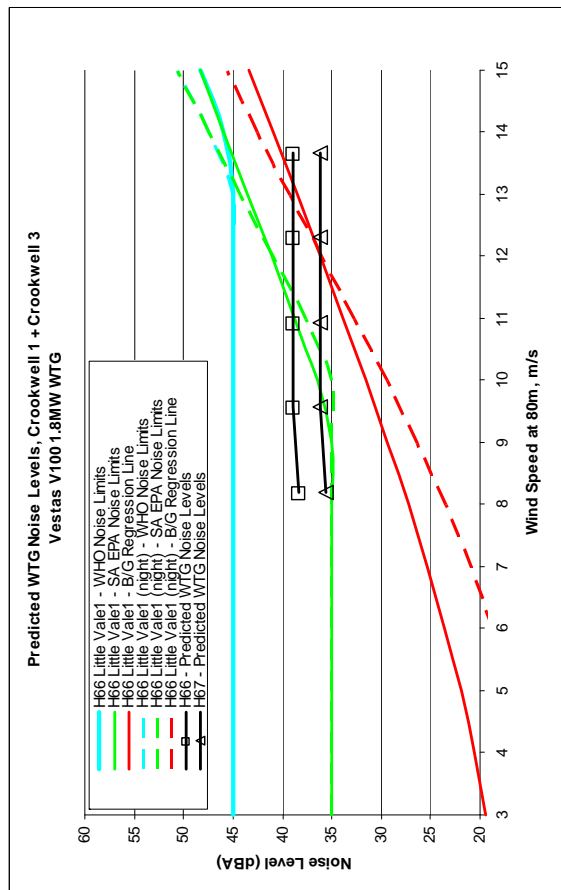
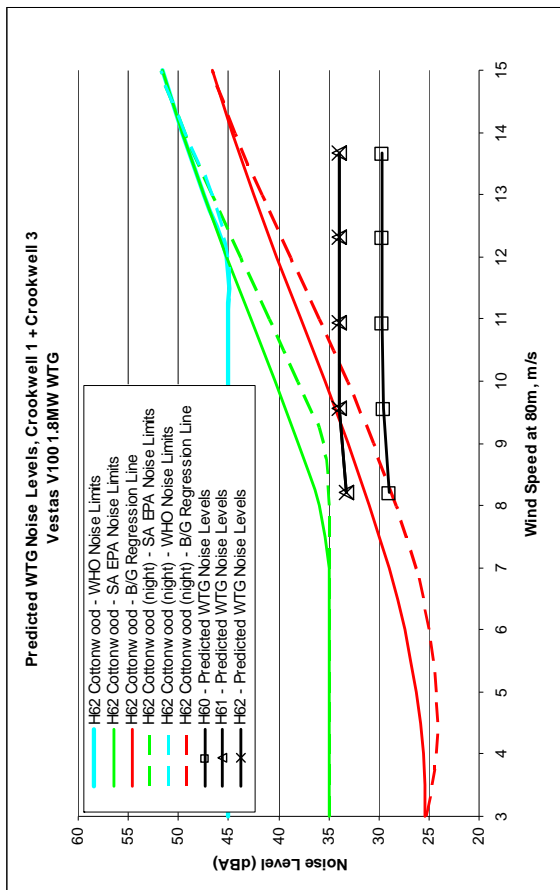
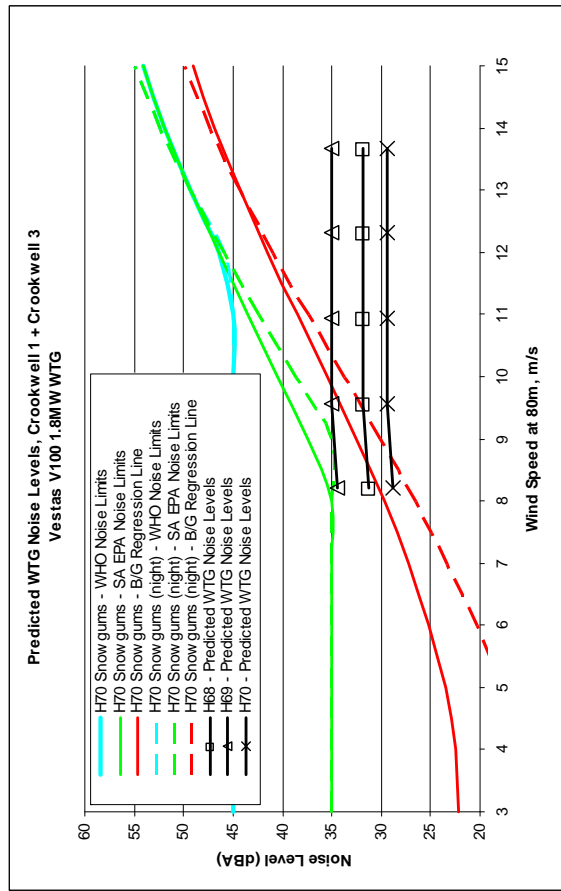
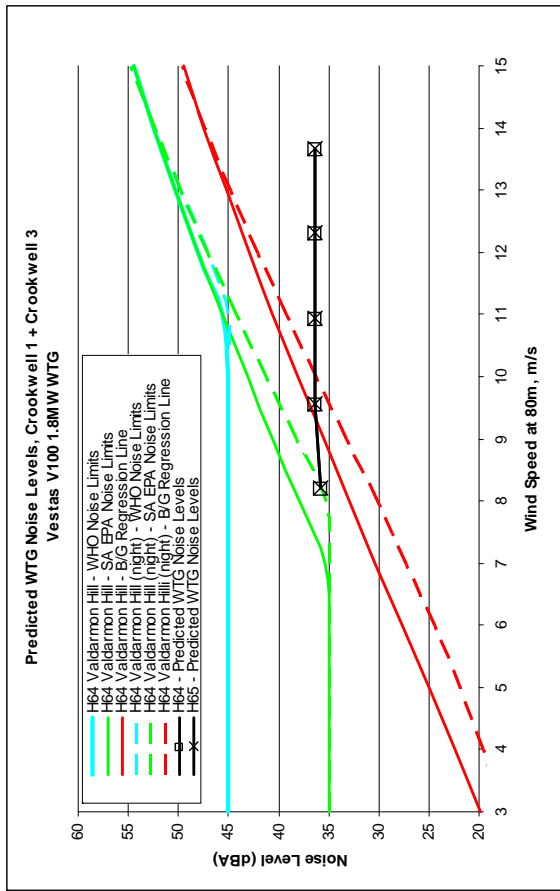


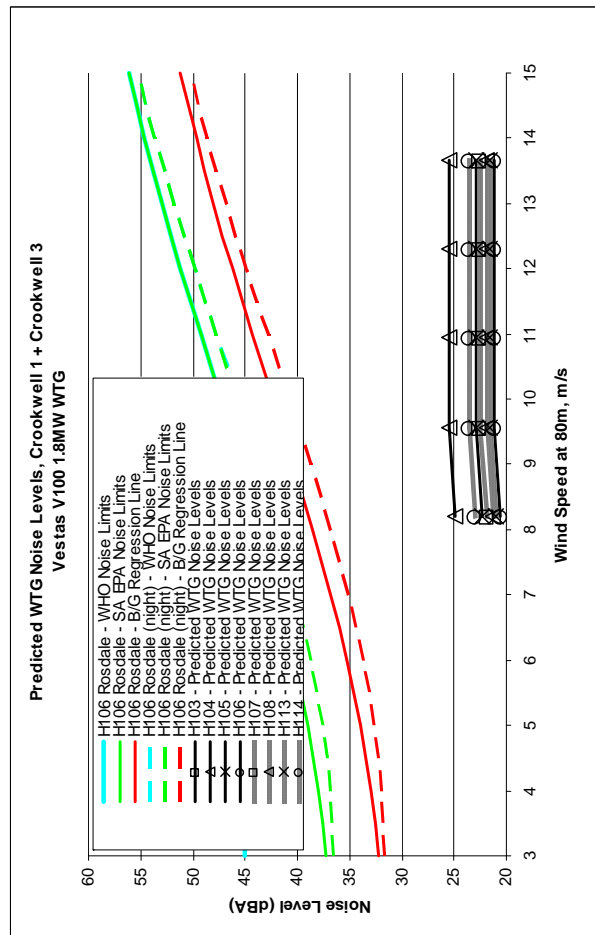
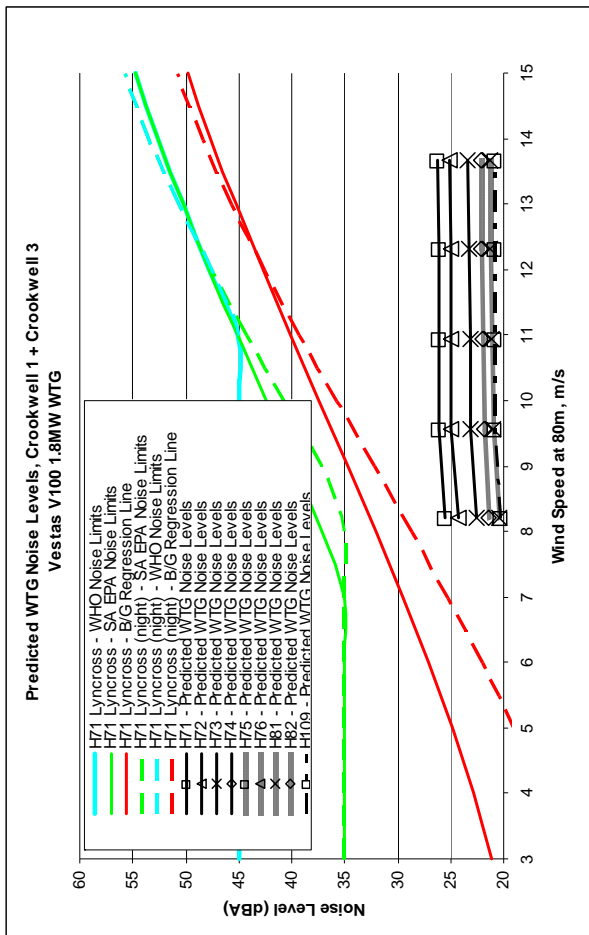
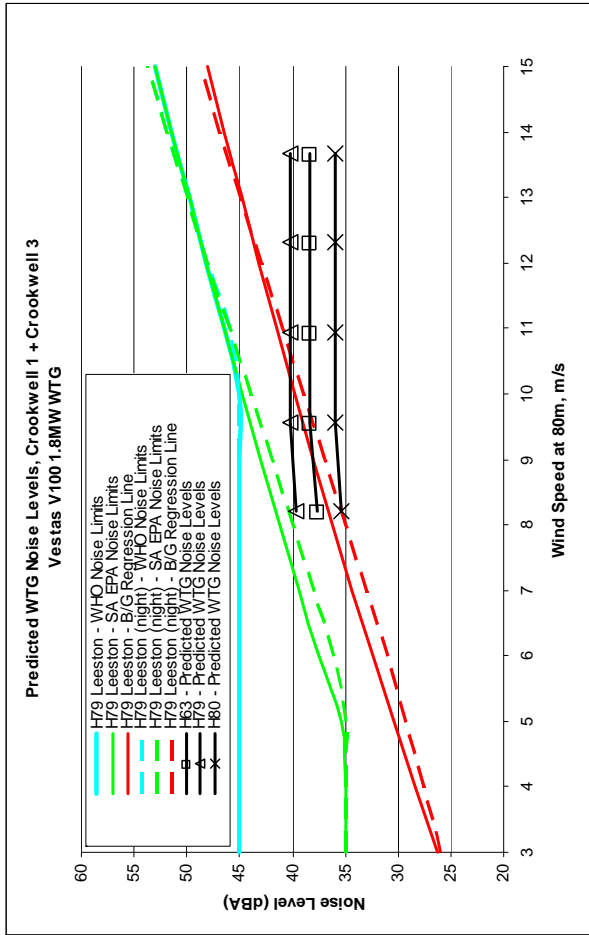


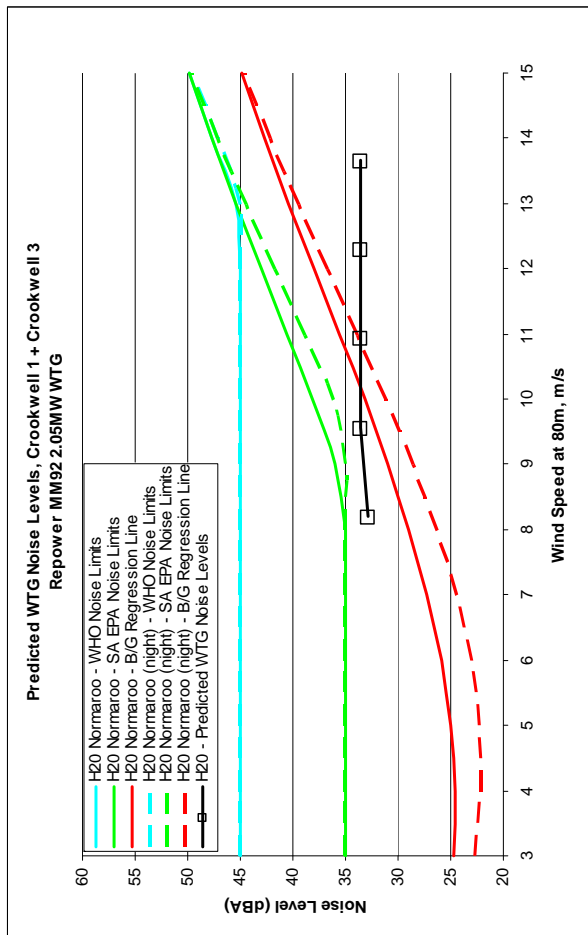
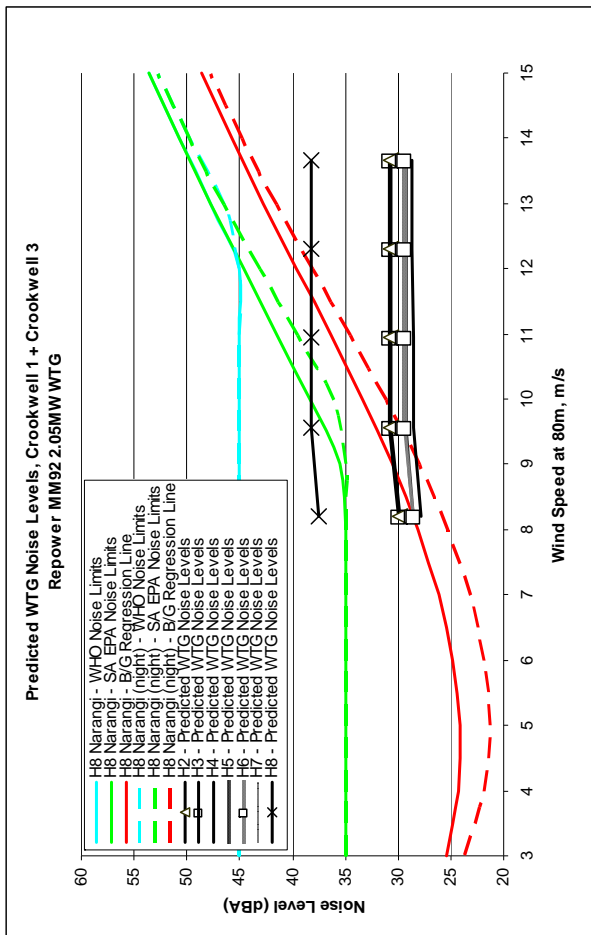
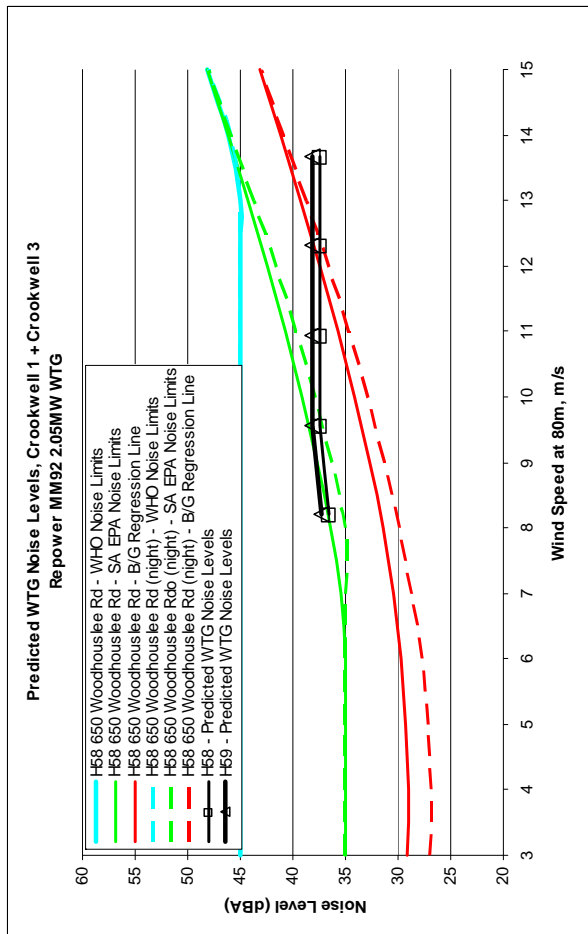
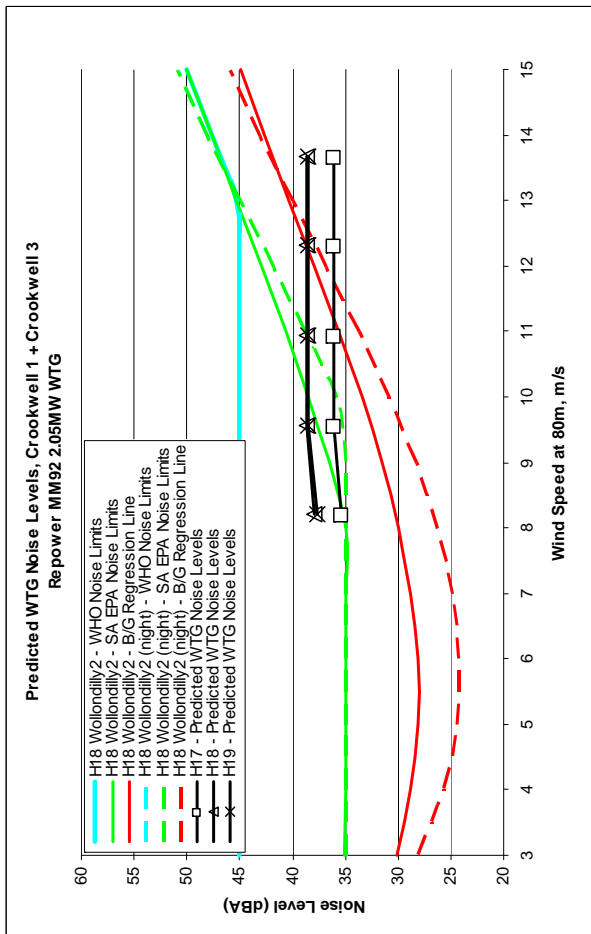


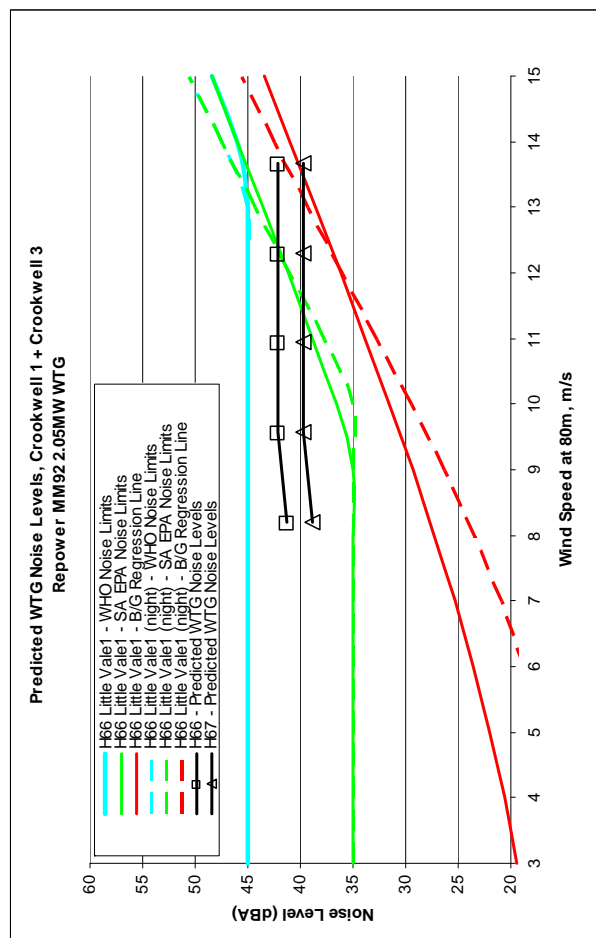
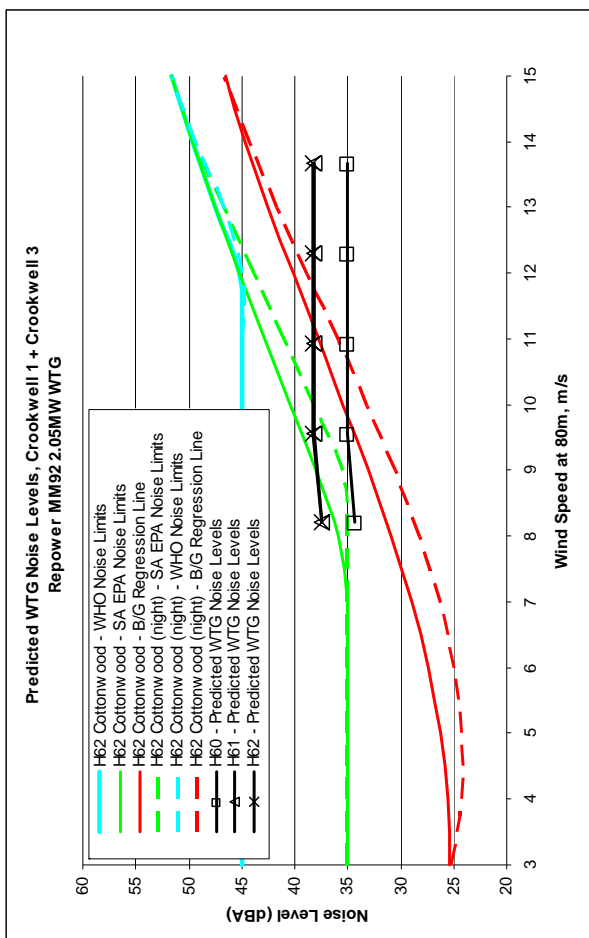
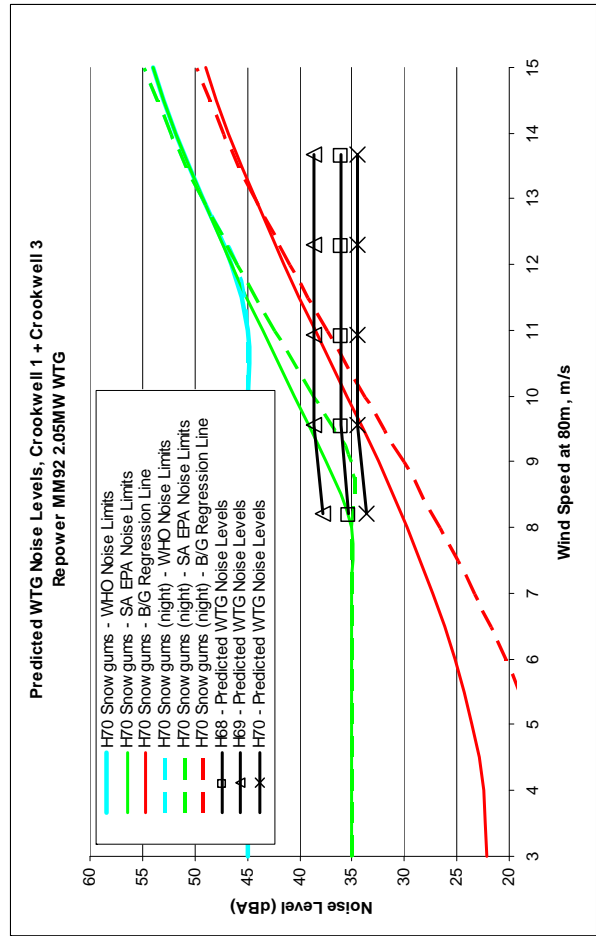
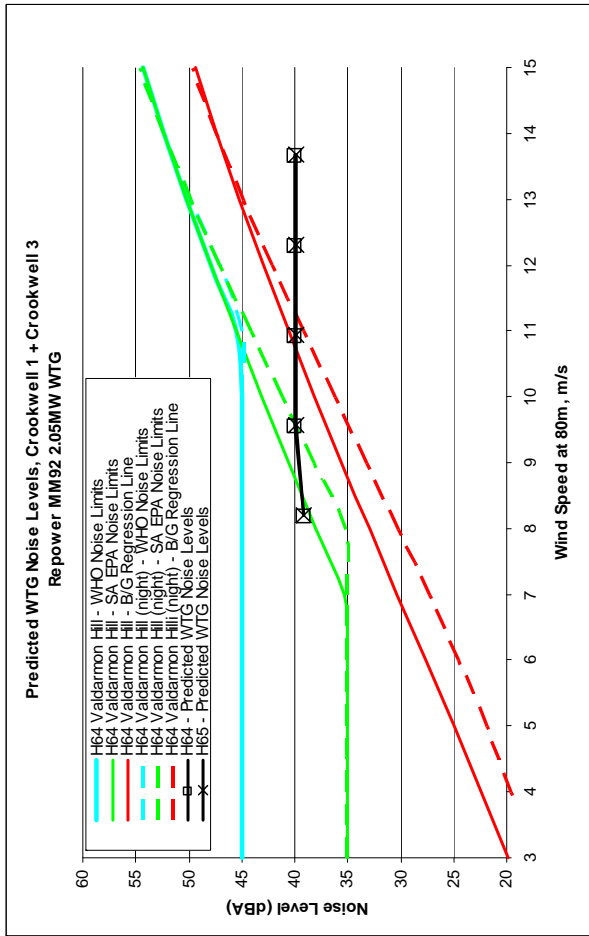


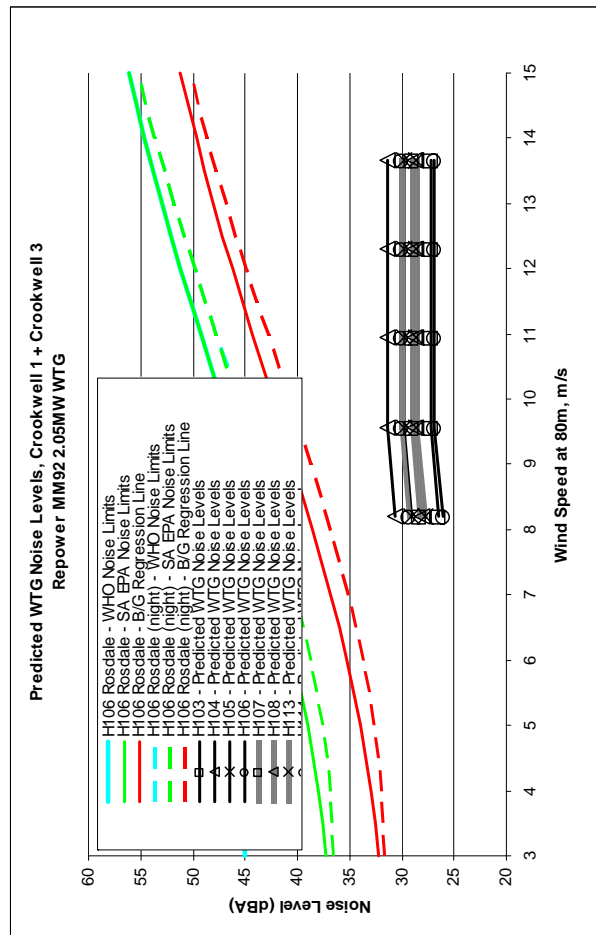
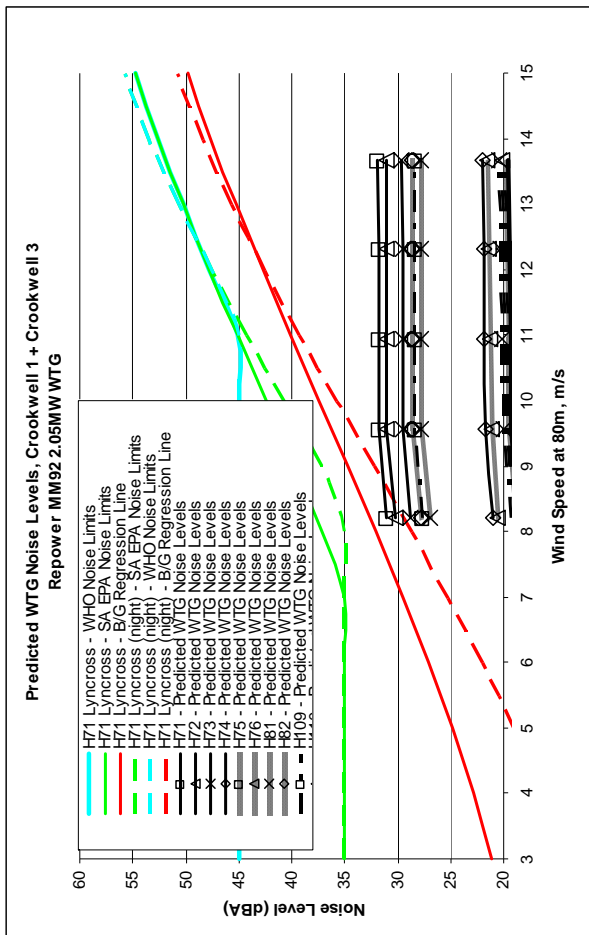
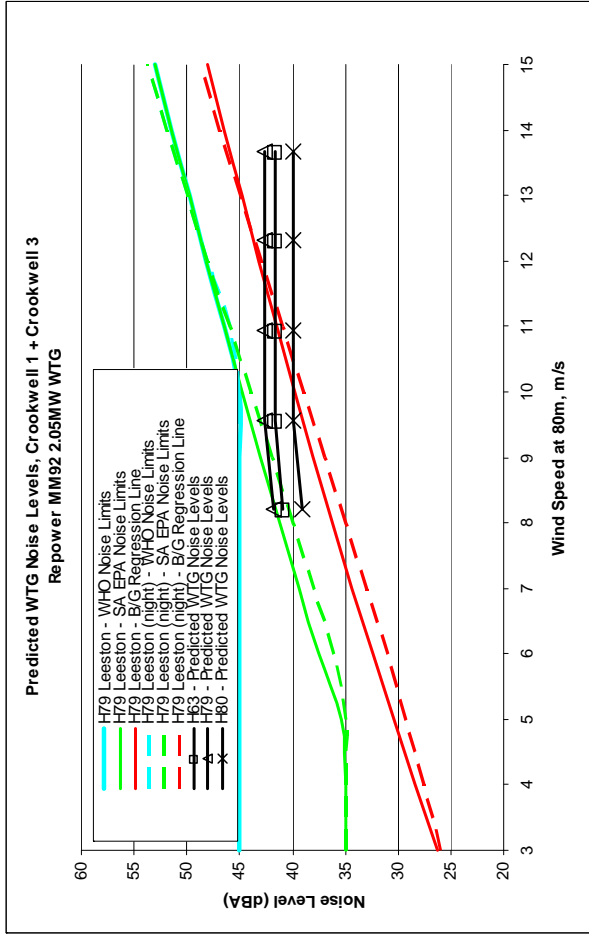


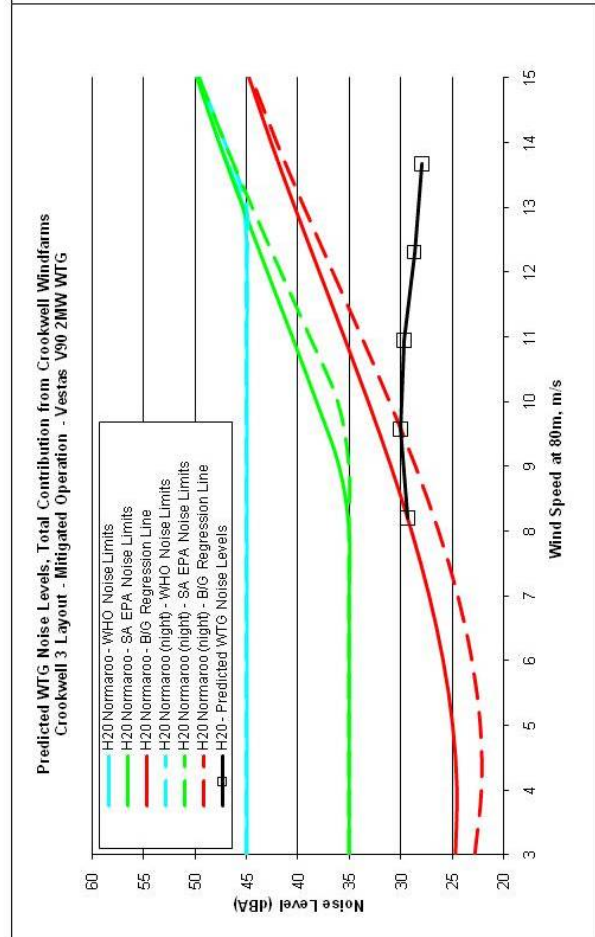
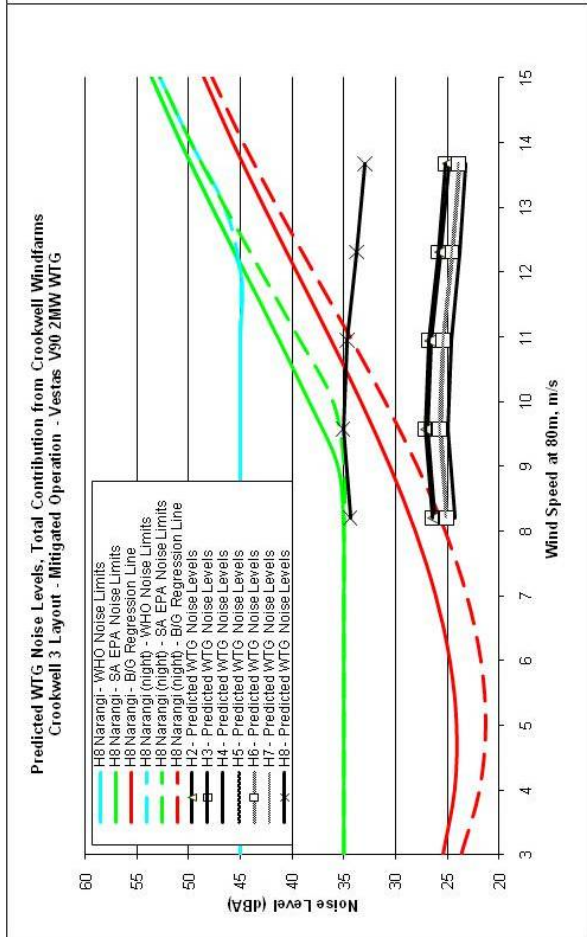
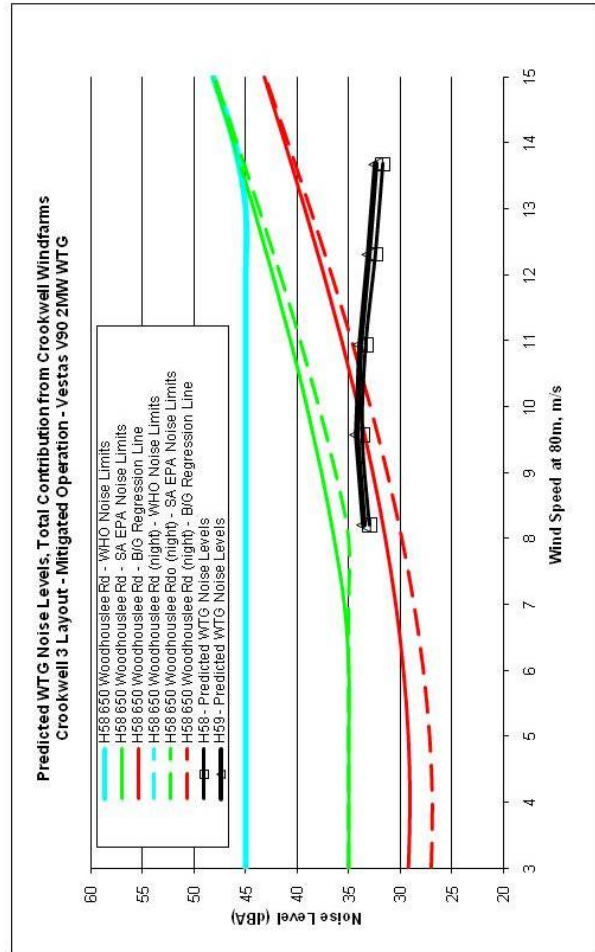
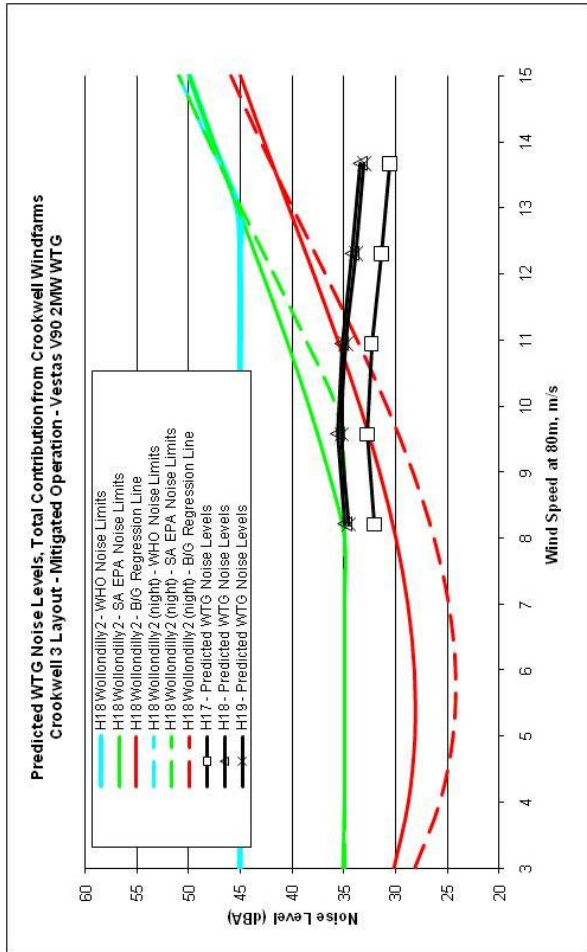




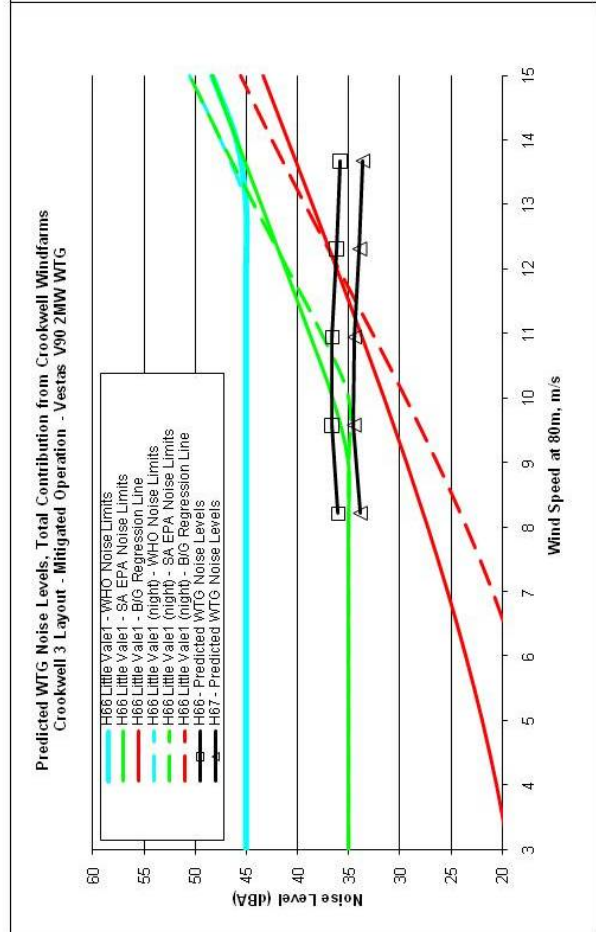
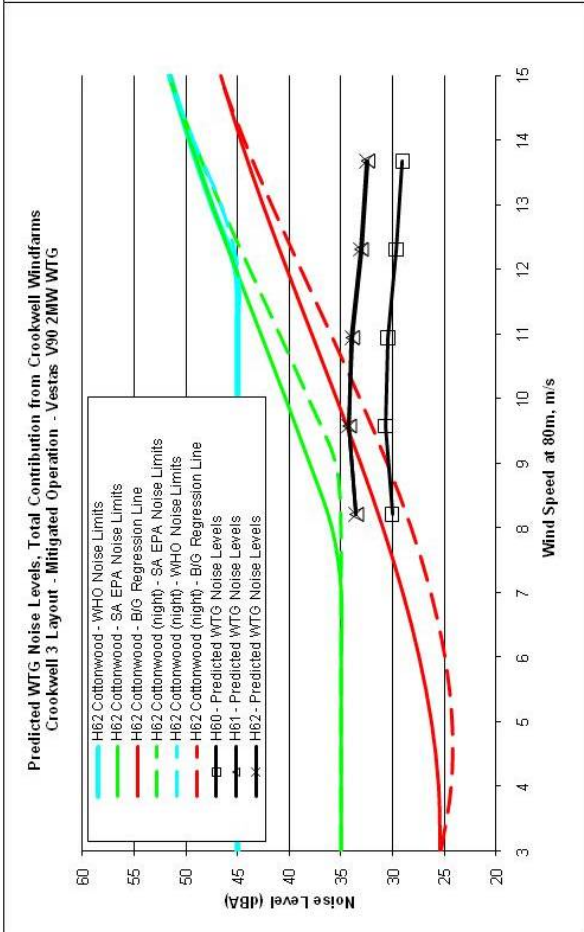
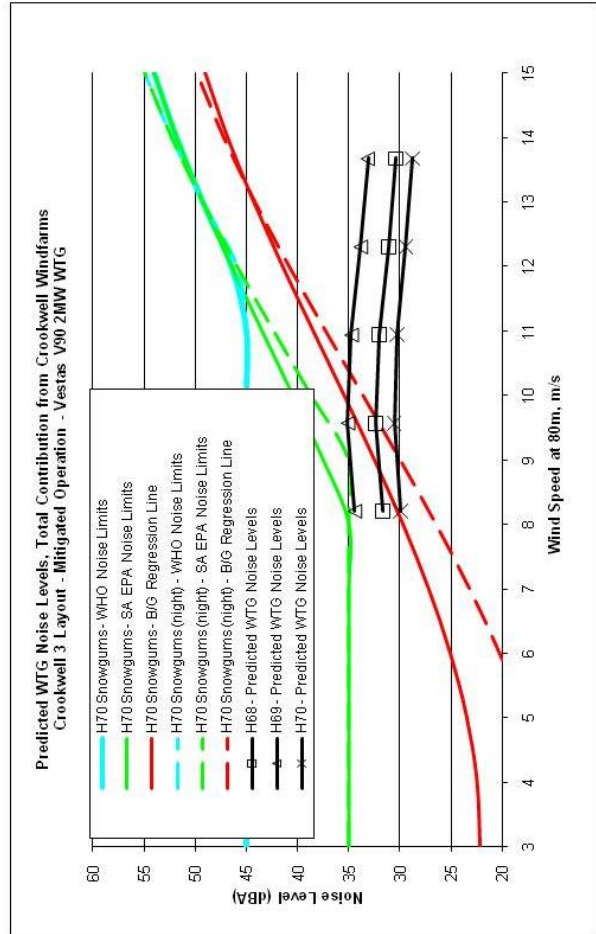
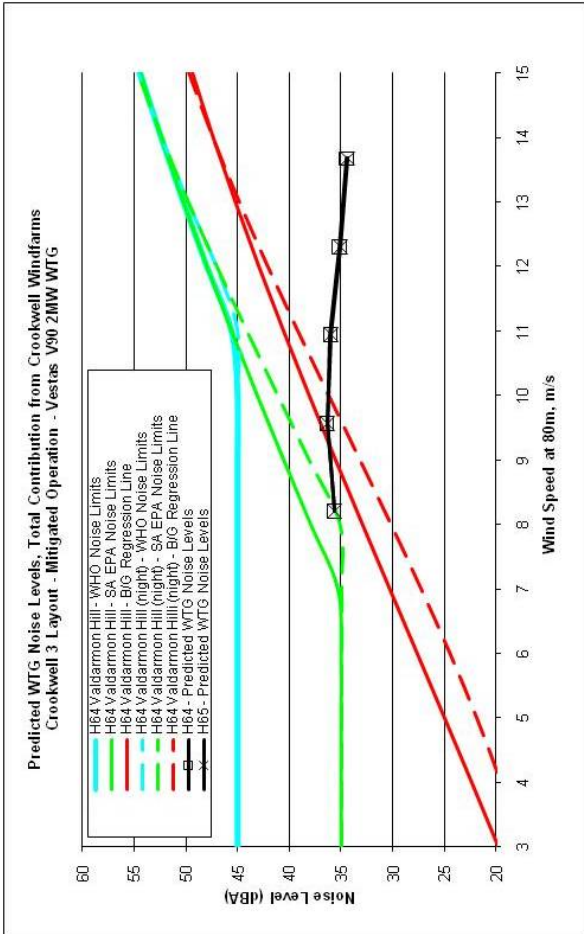


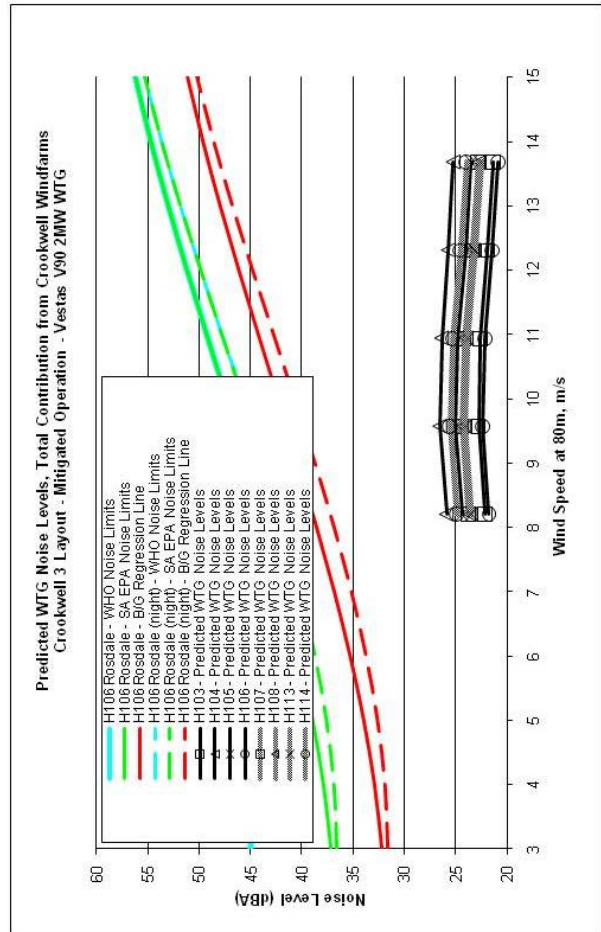
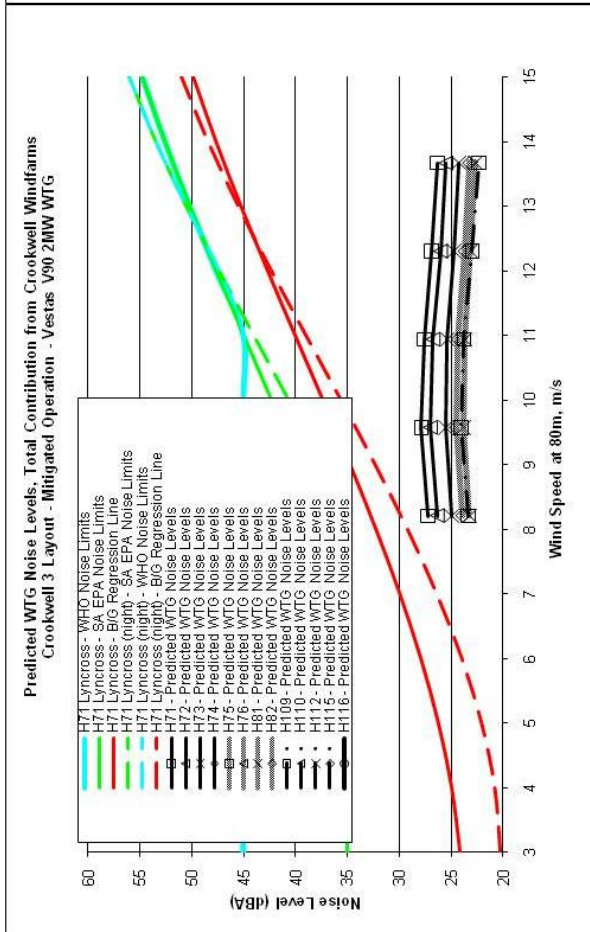
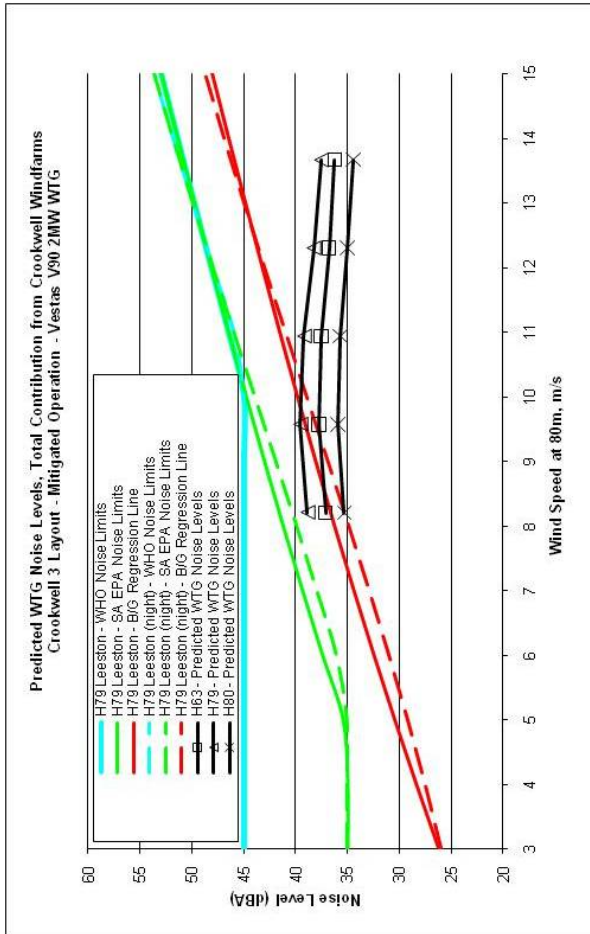






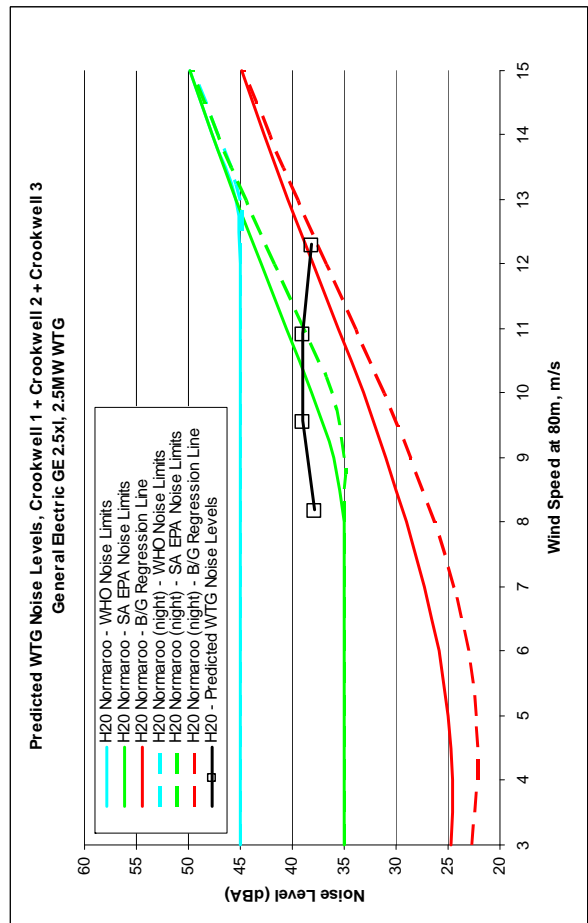
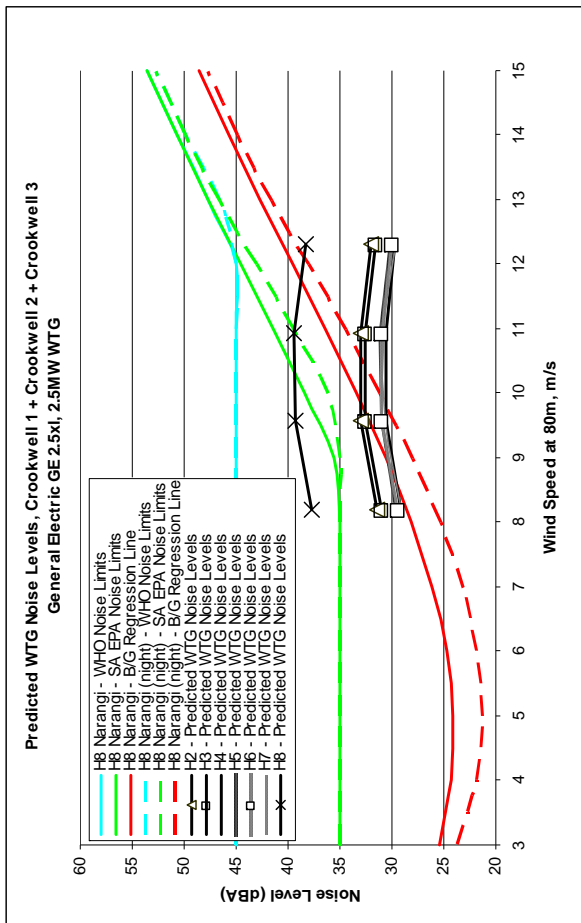
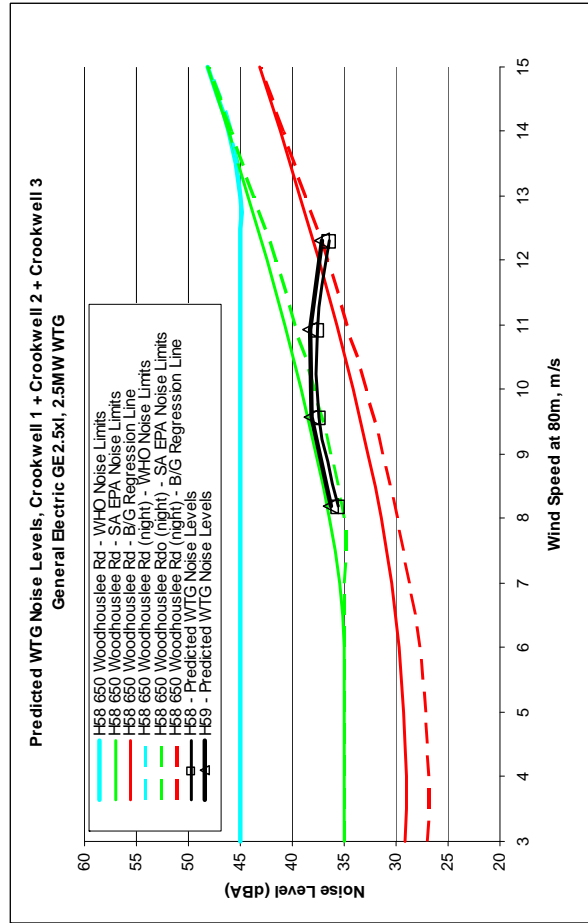
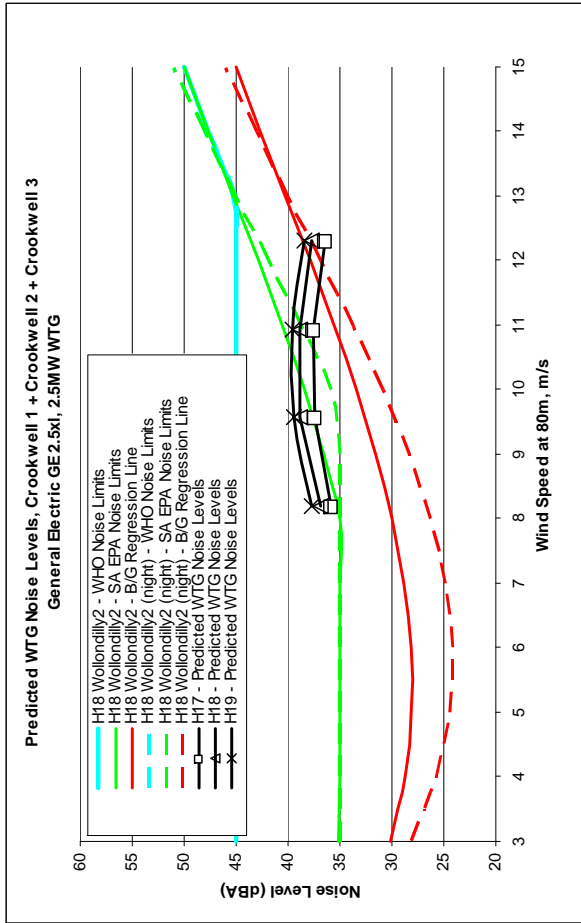


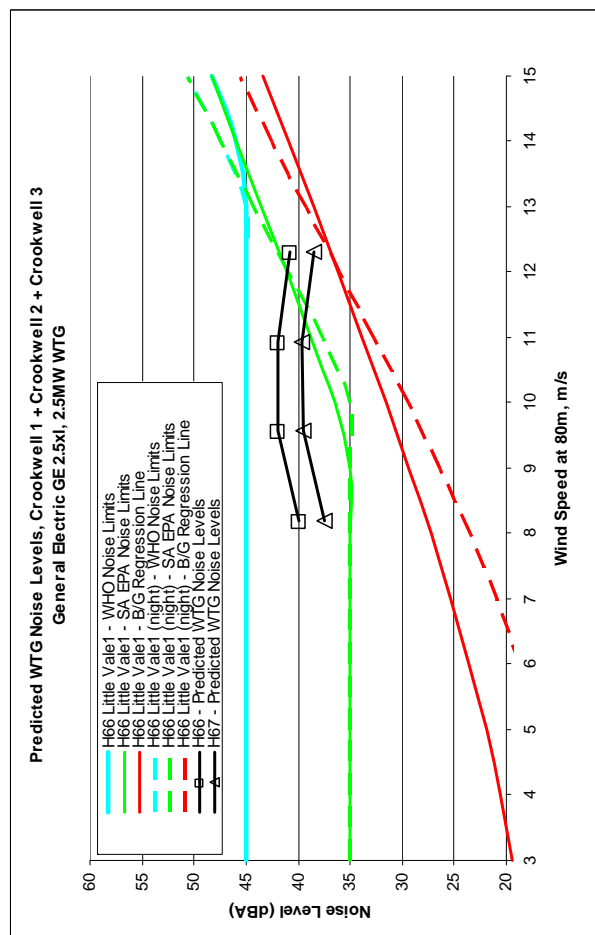
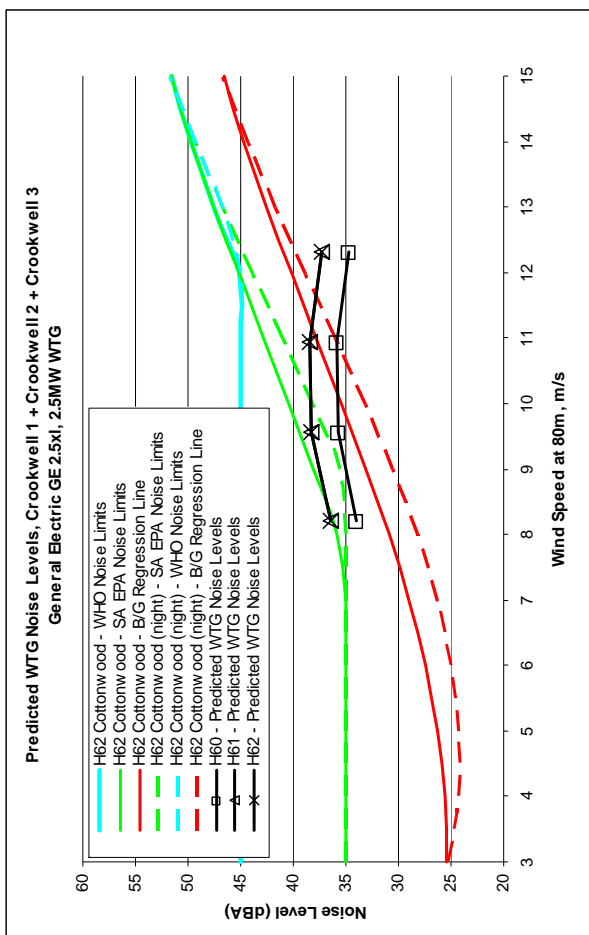
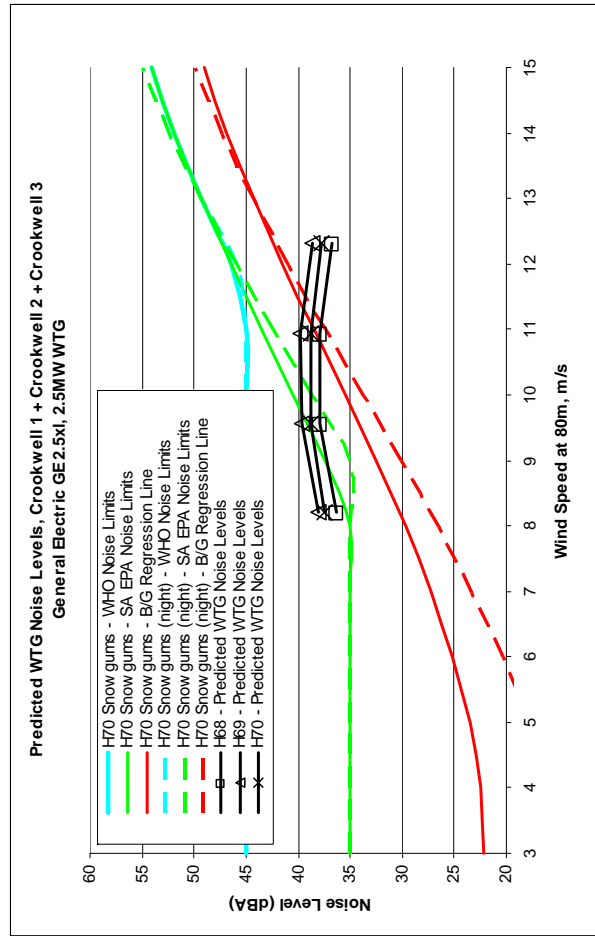
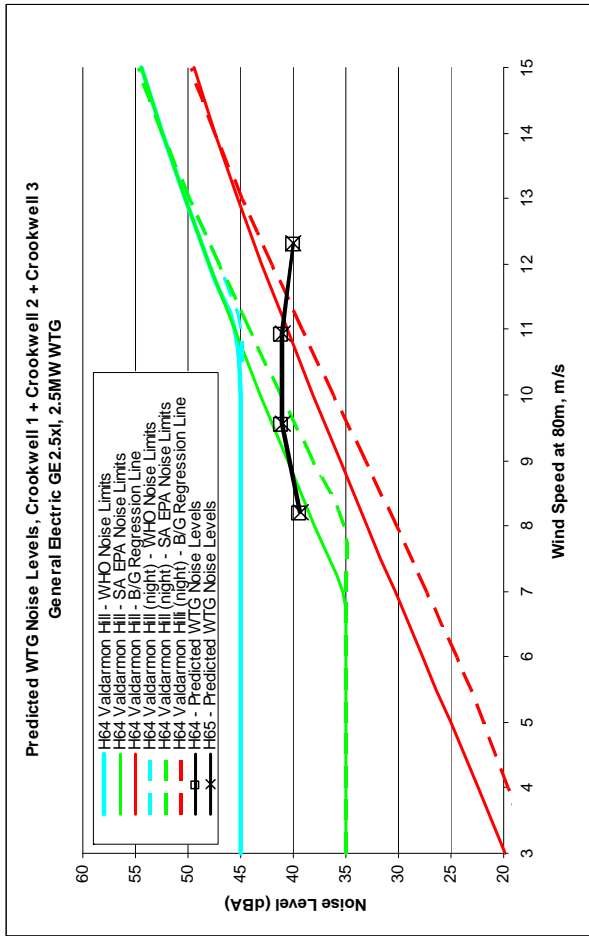


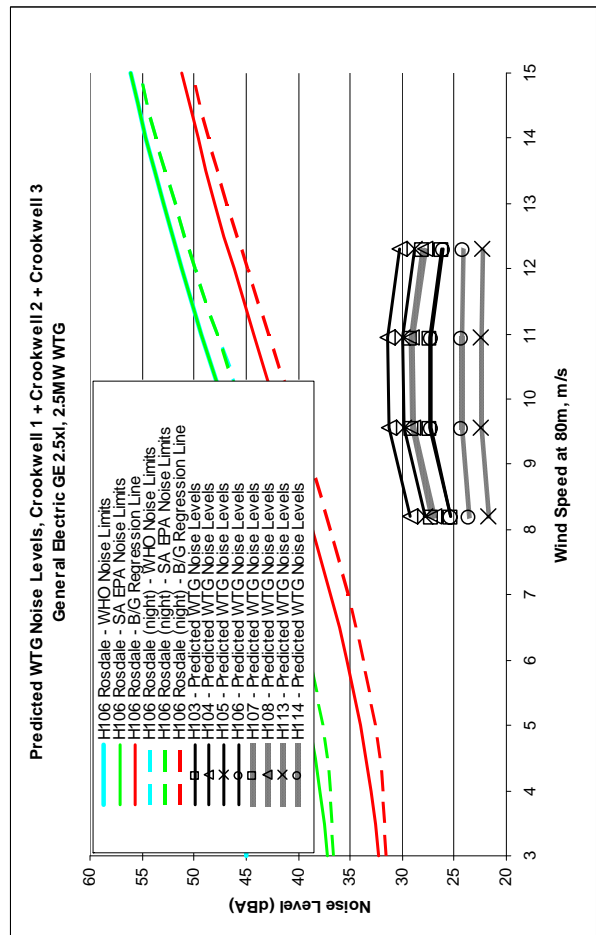
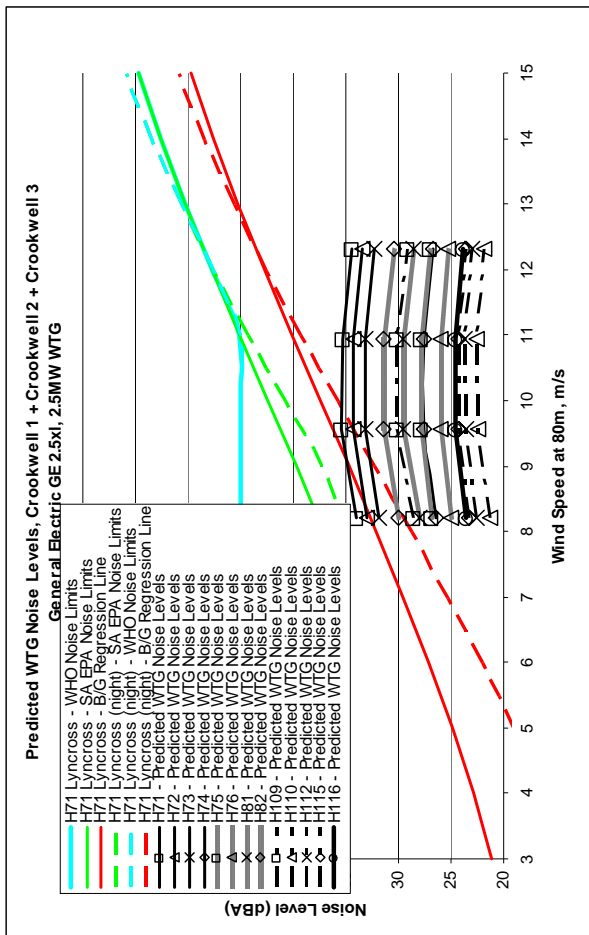
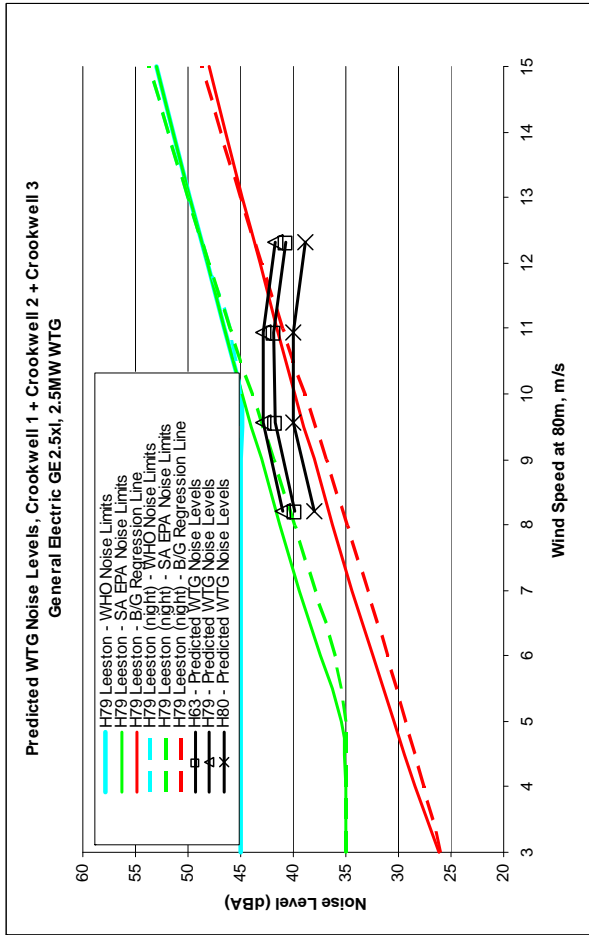


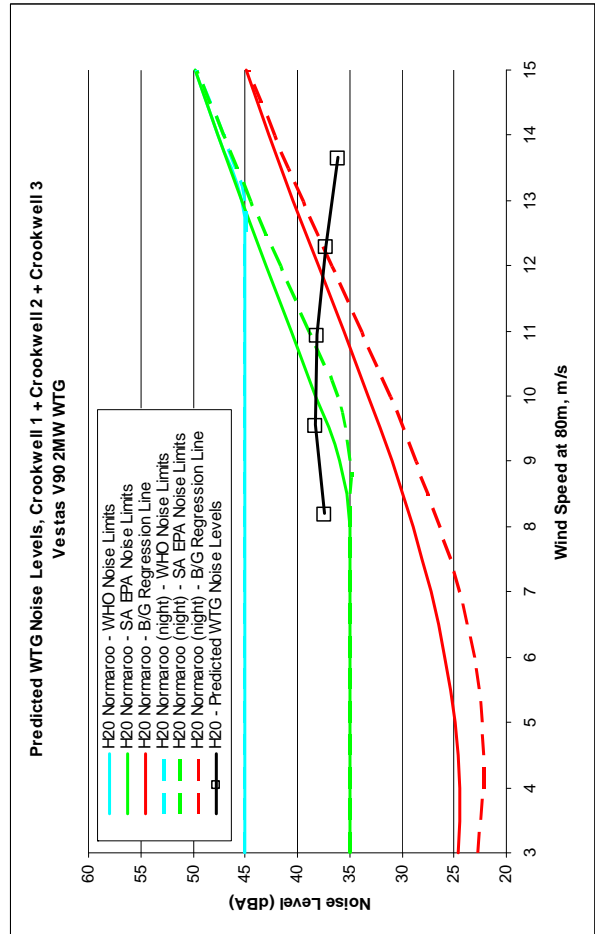
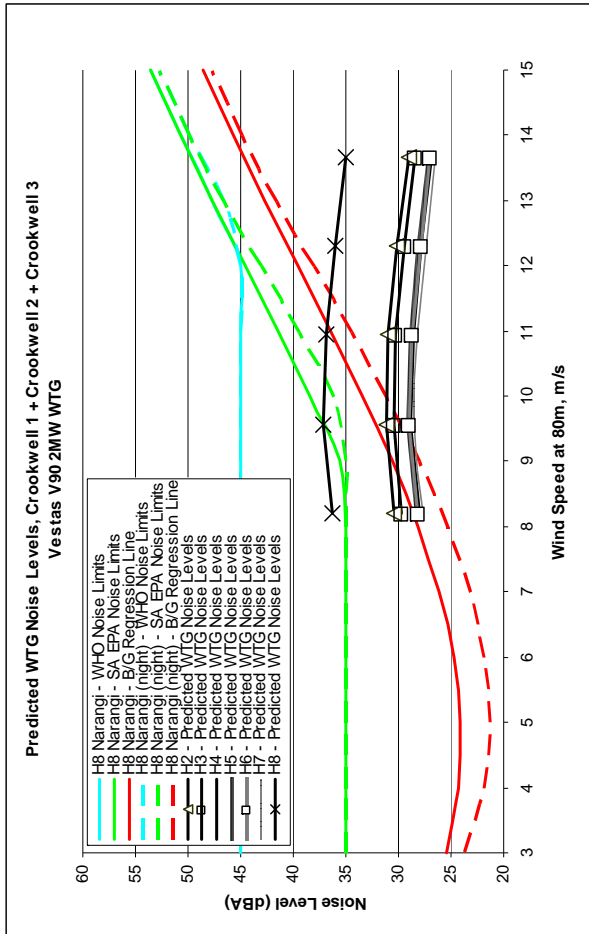
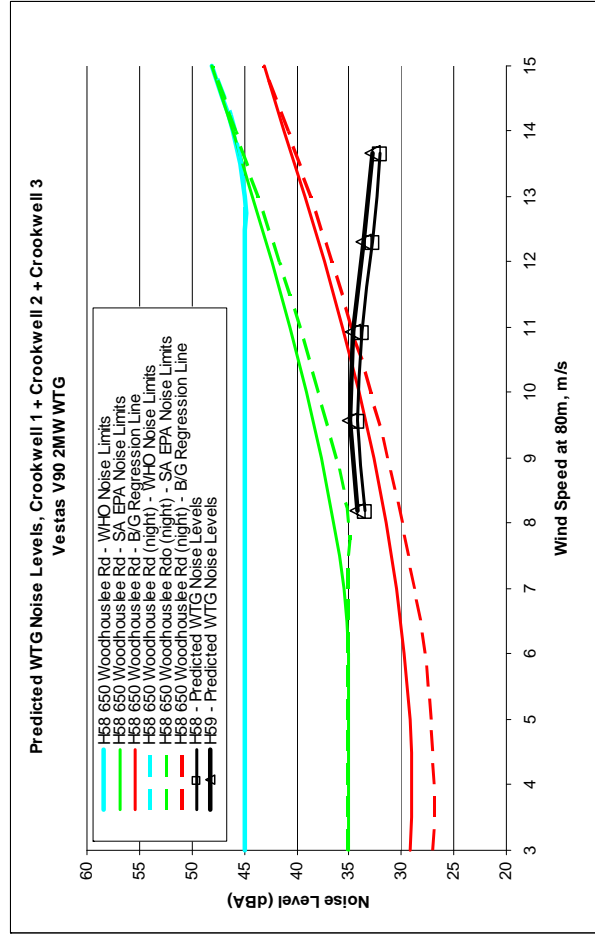
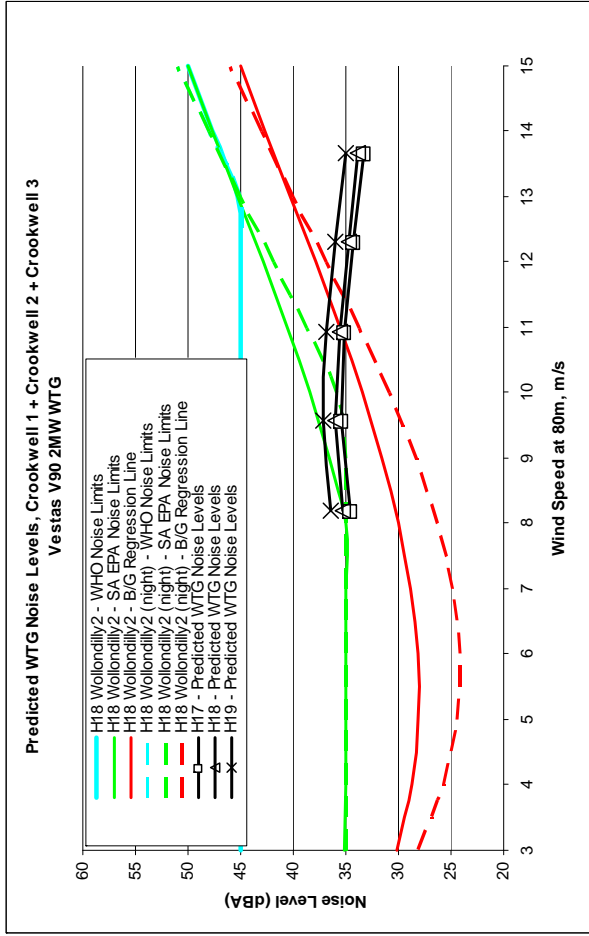


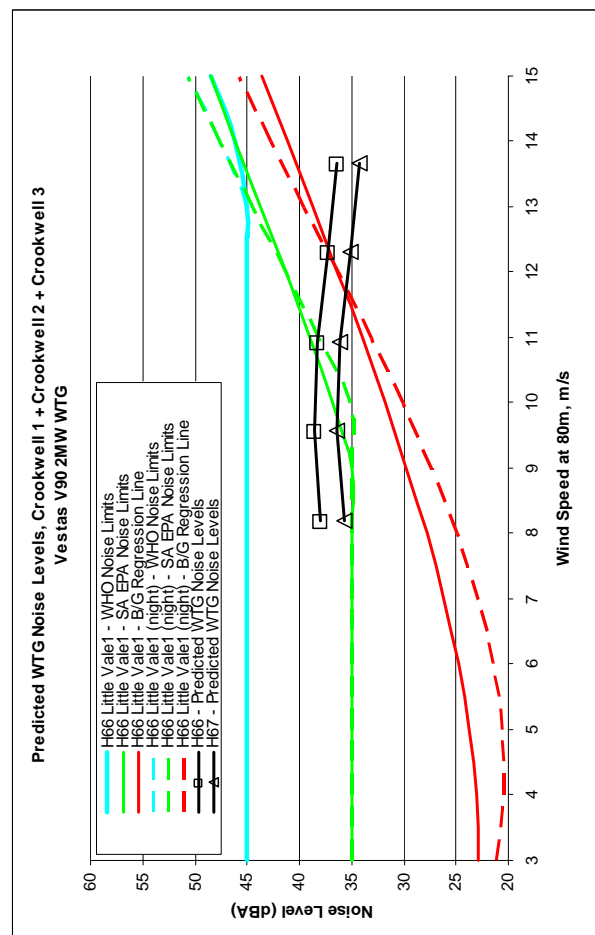
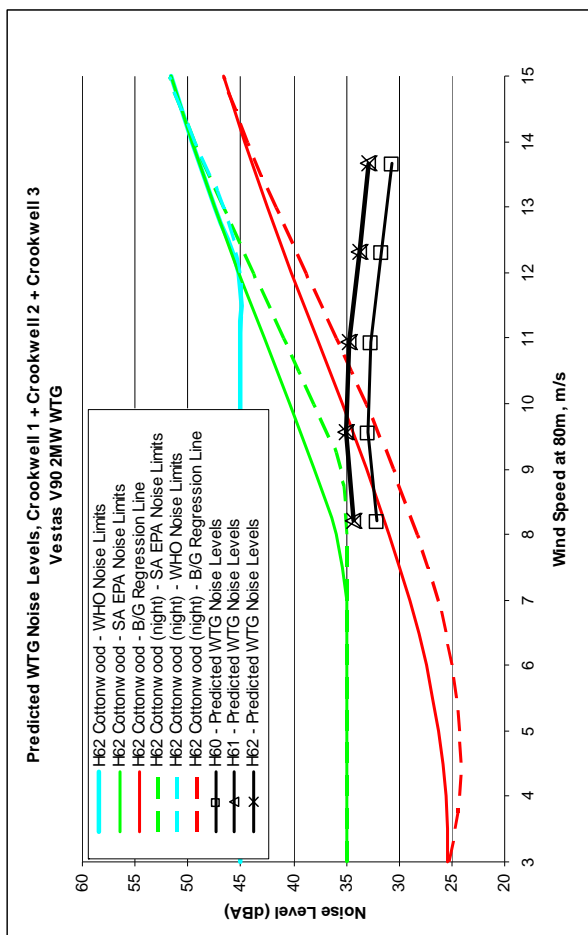
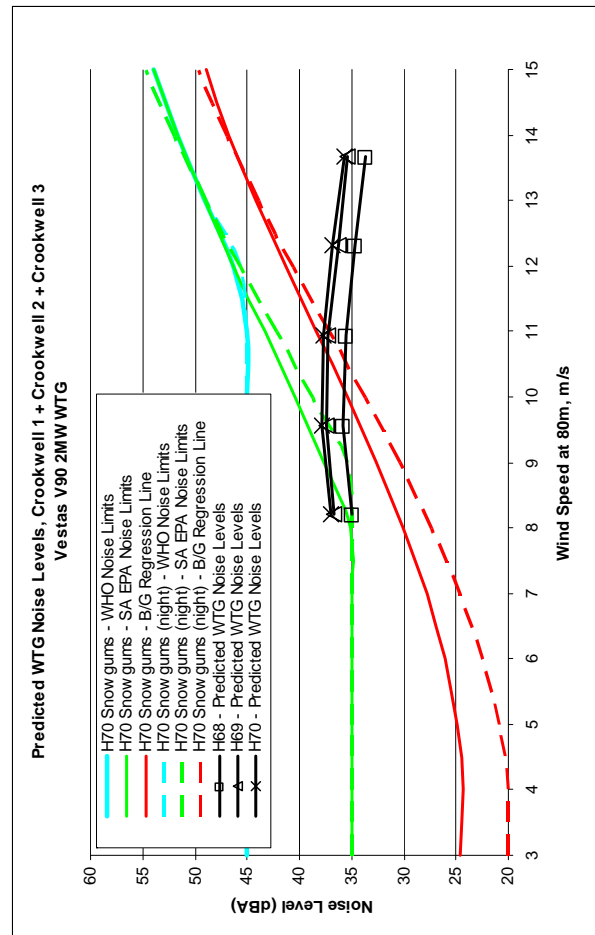
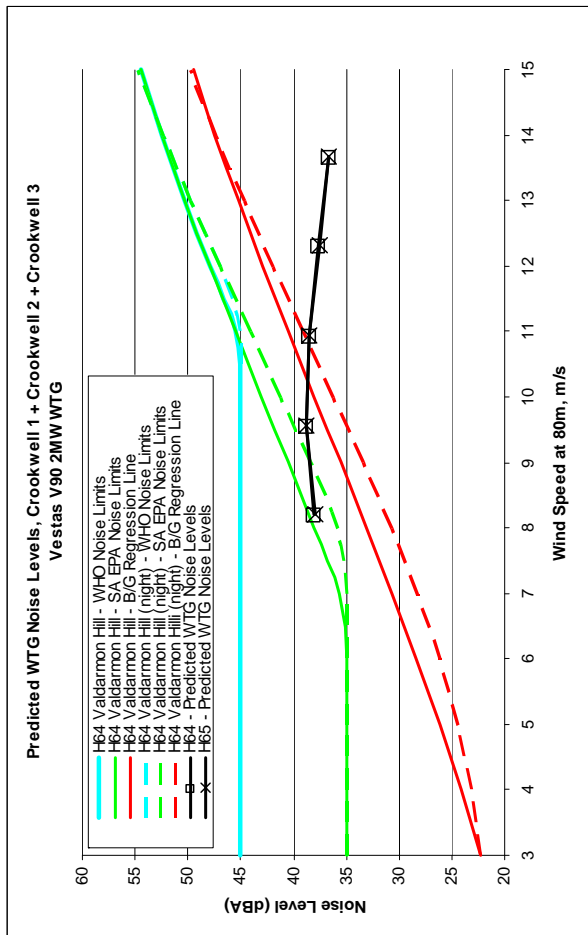
## Assessment Graphs - Crookwell 1, Crookwell 2 and Crookwell 3 Wind Farms

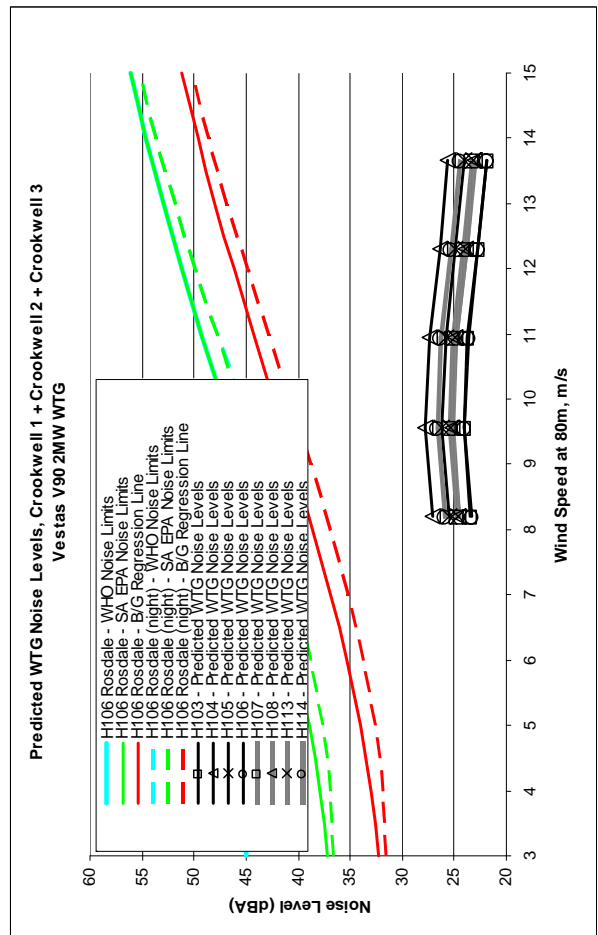
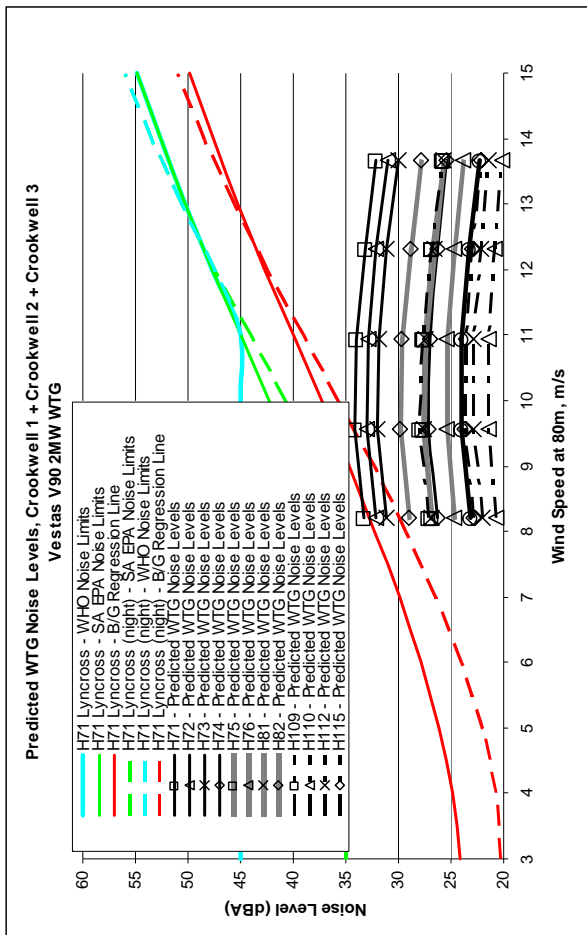
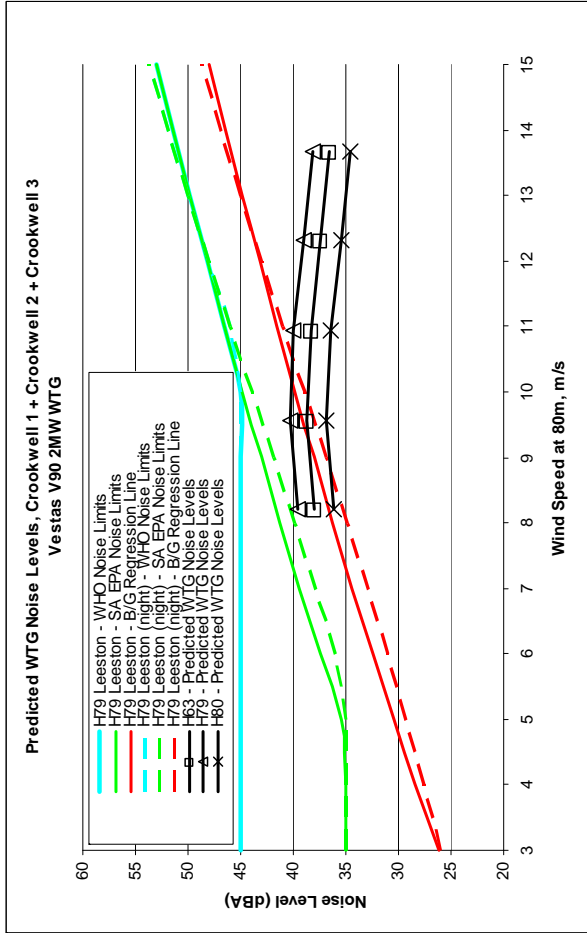


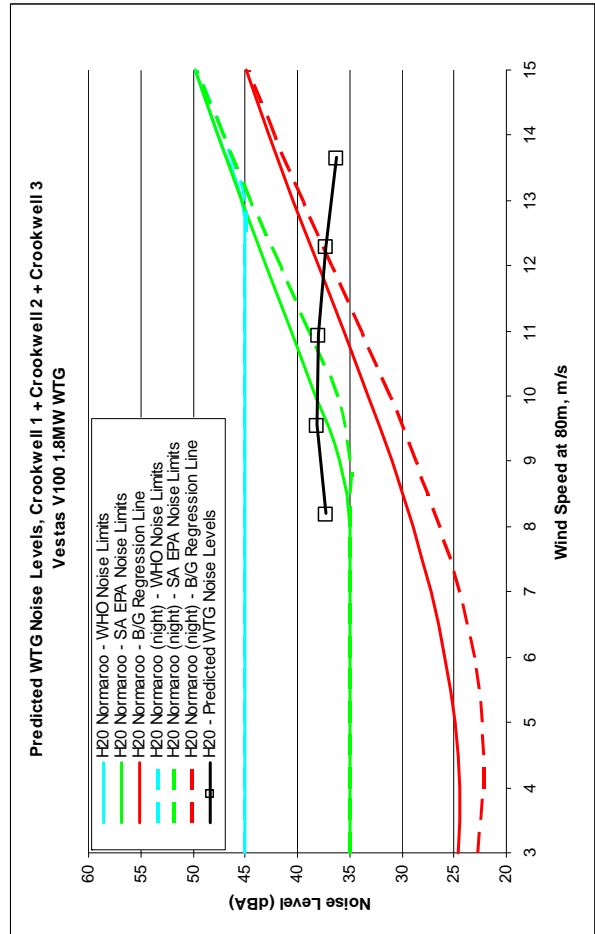
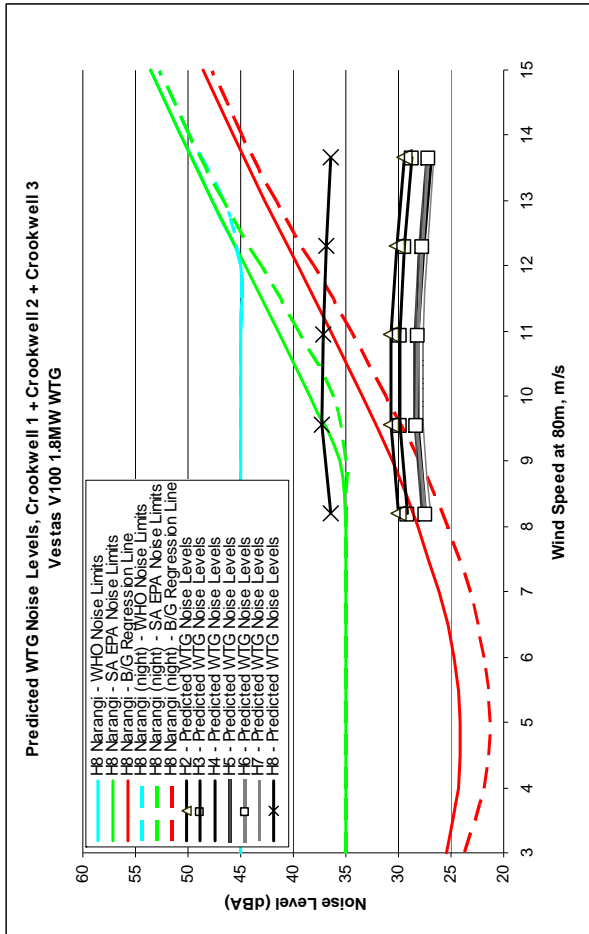
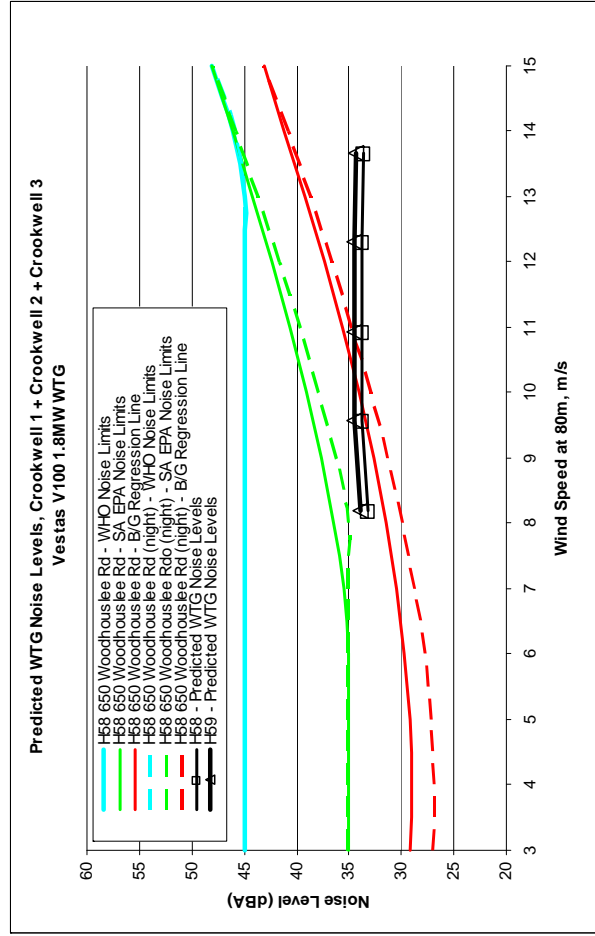
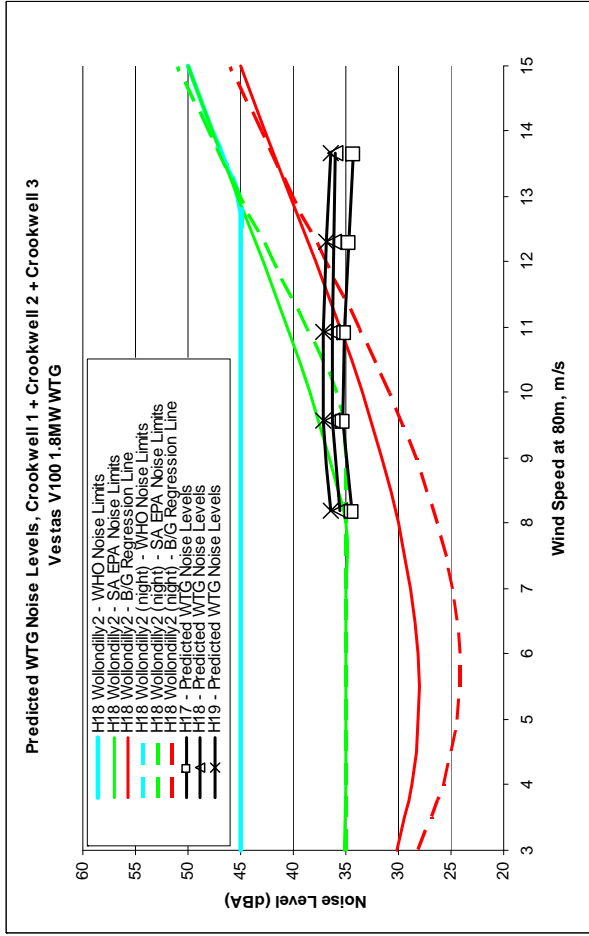




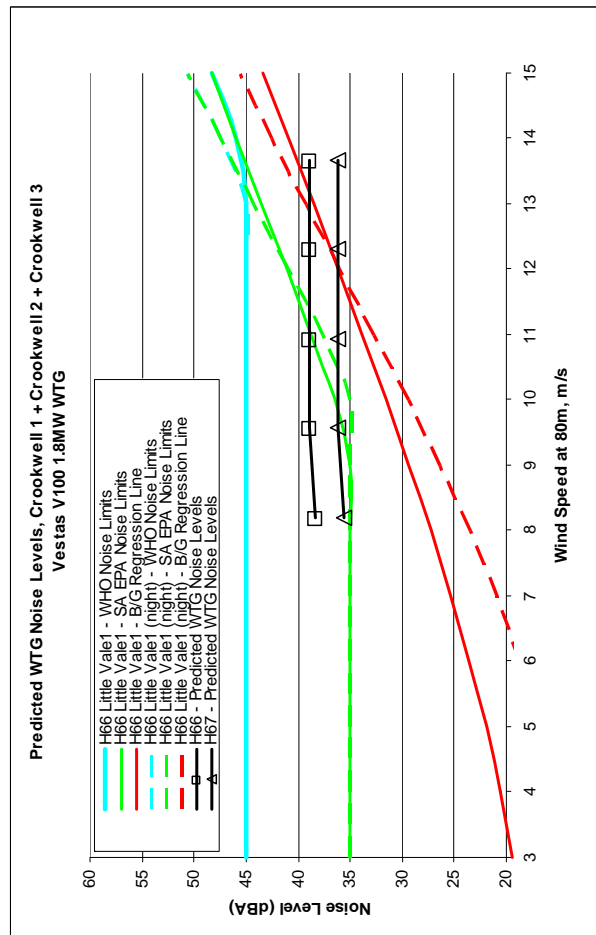
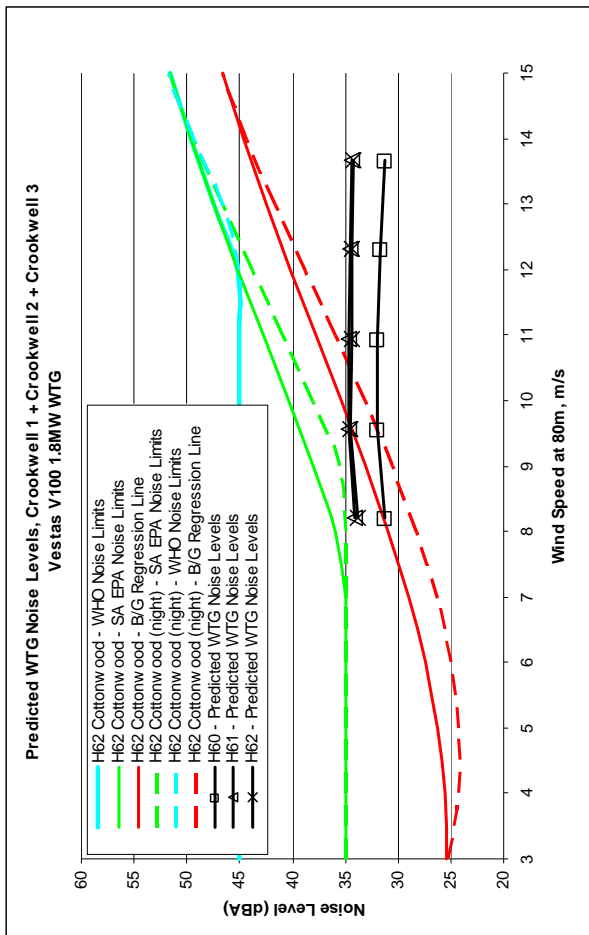
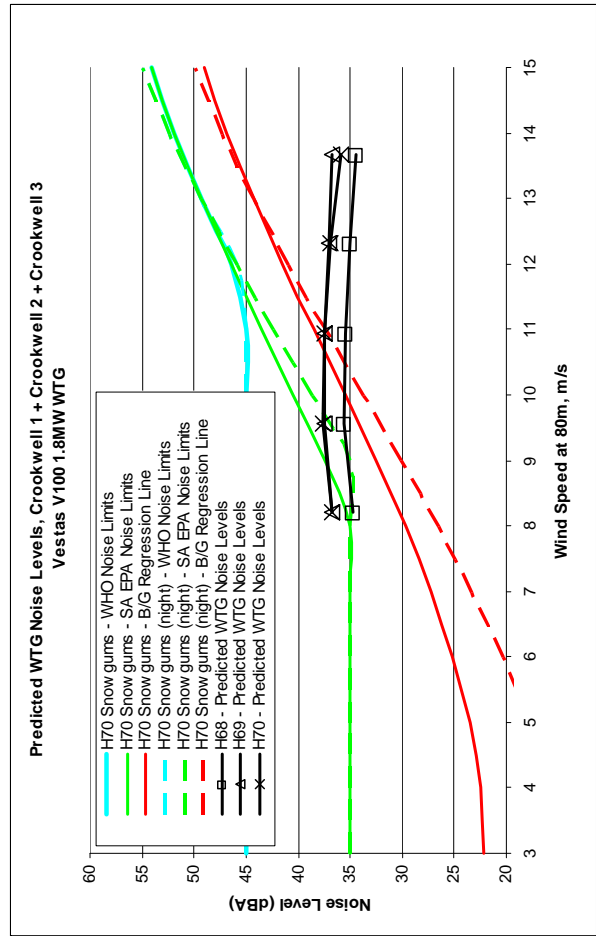
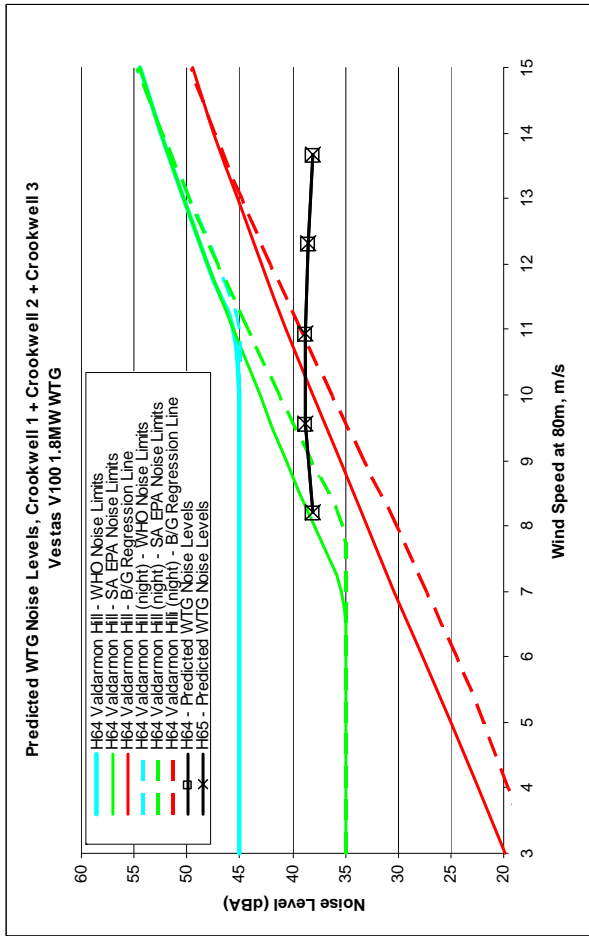


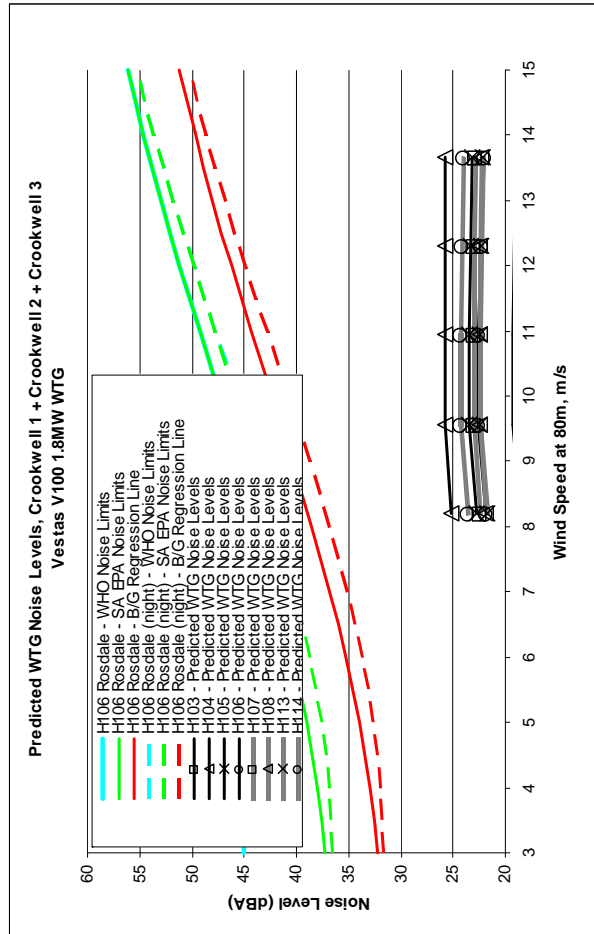
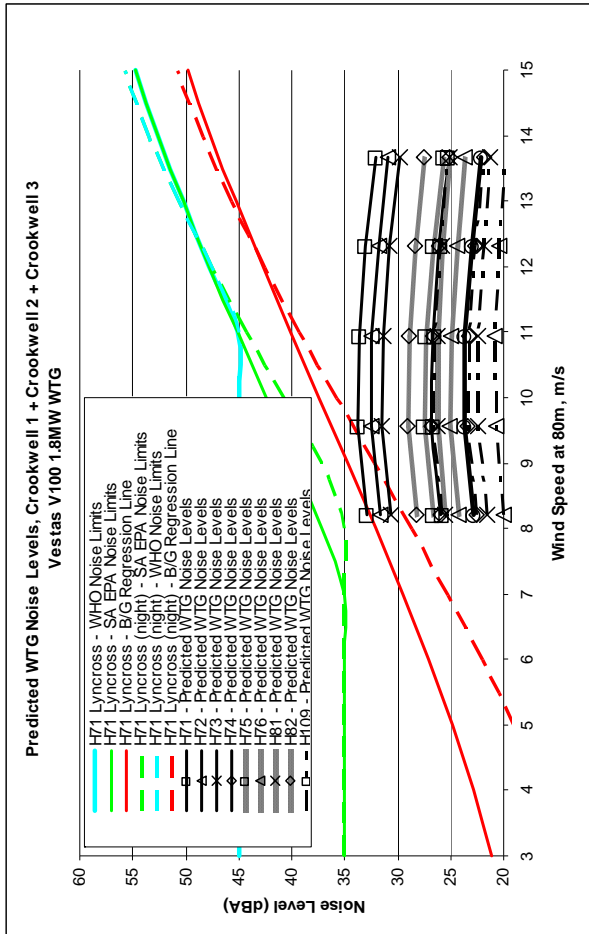
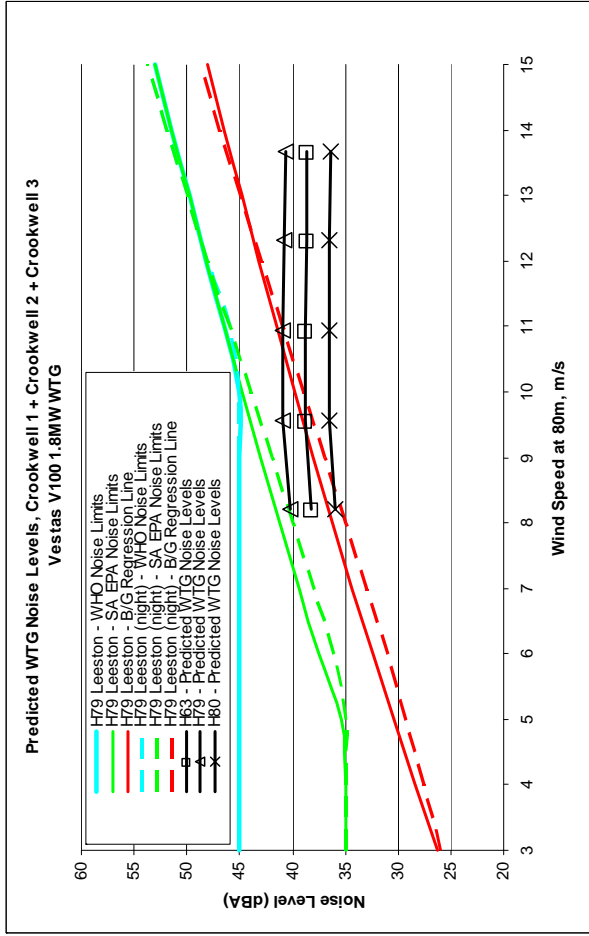


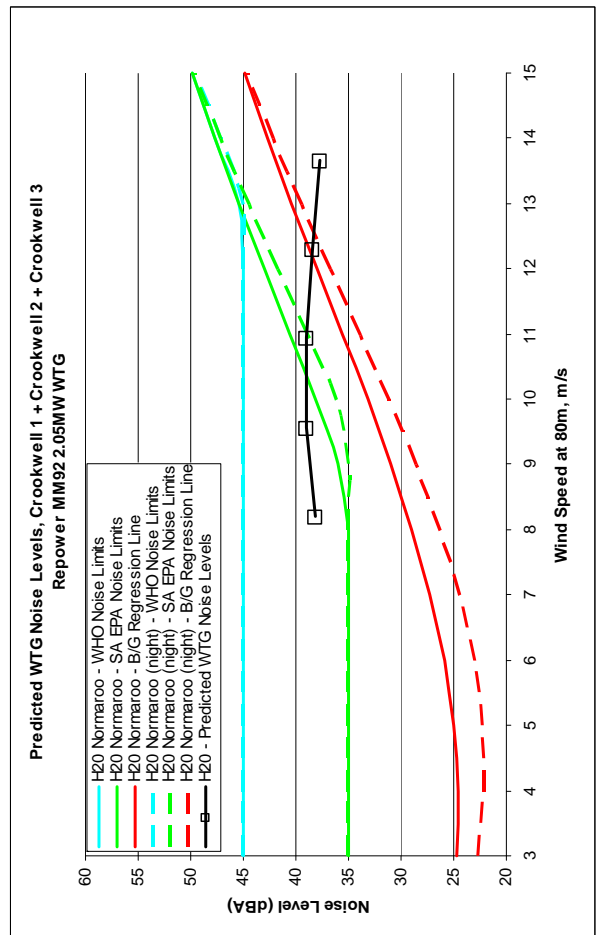
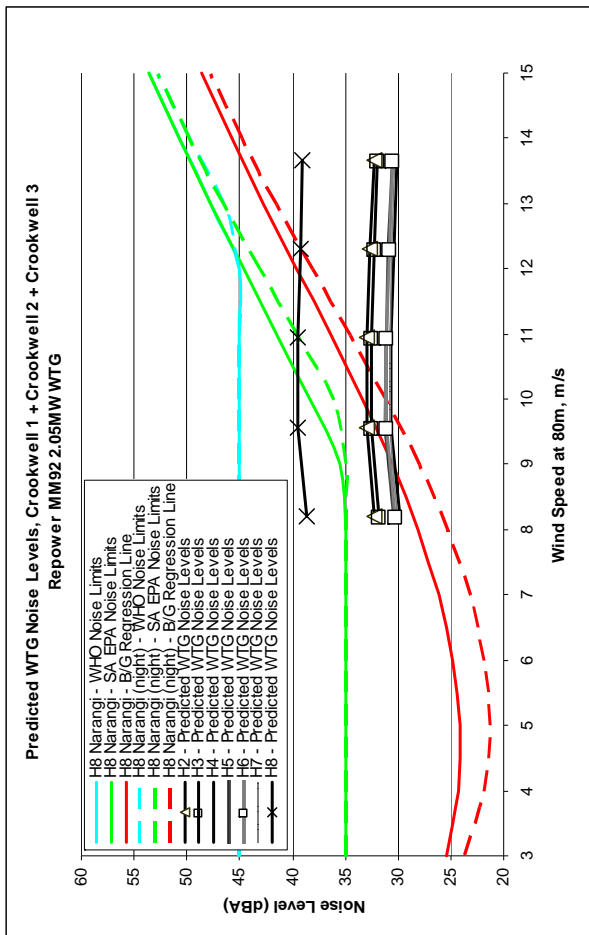
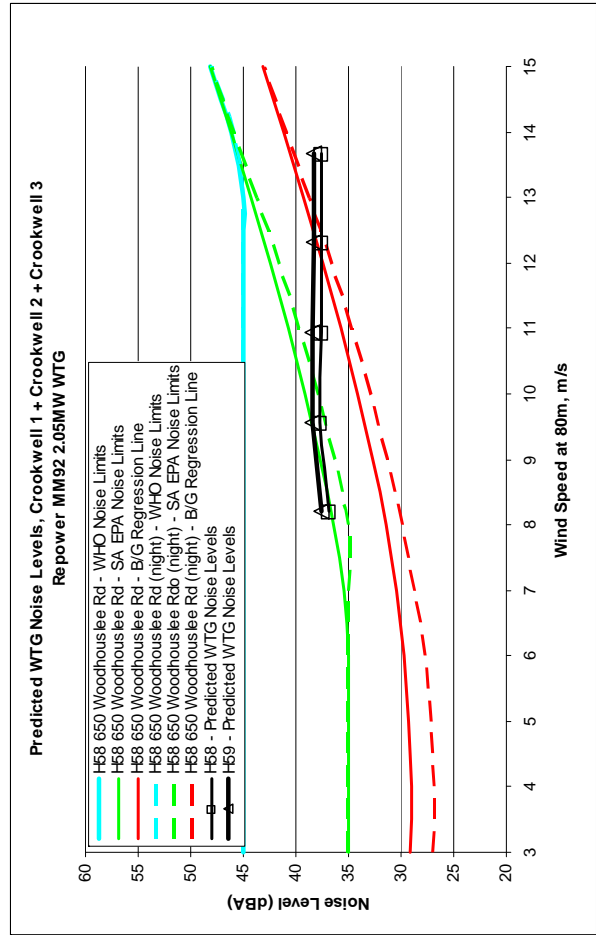
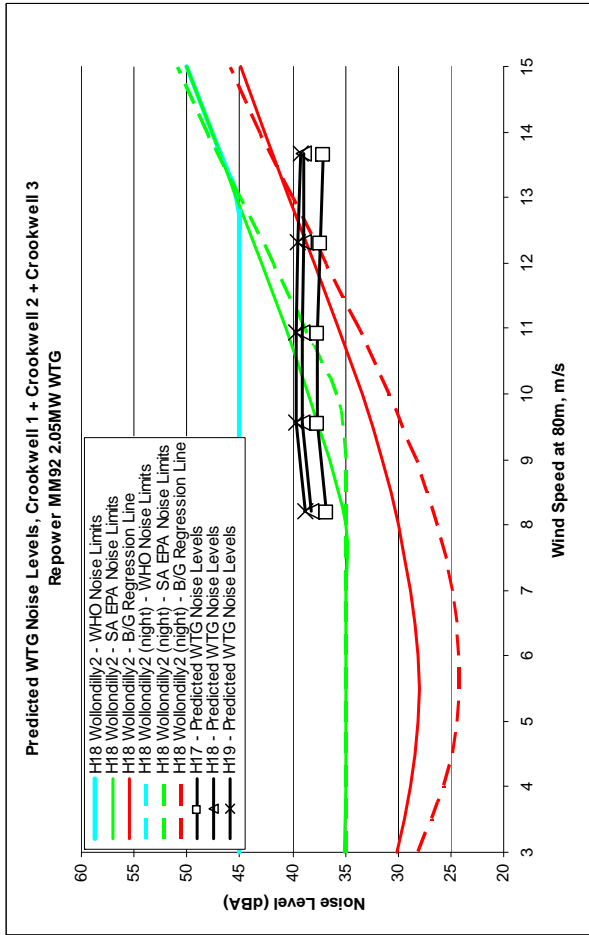


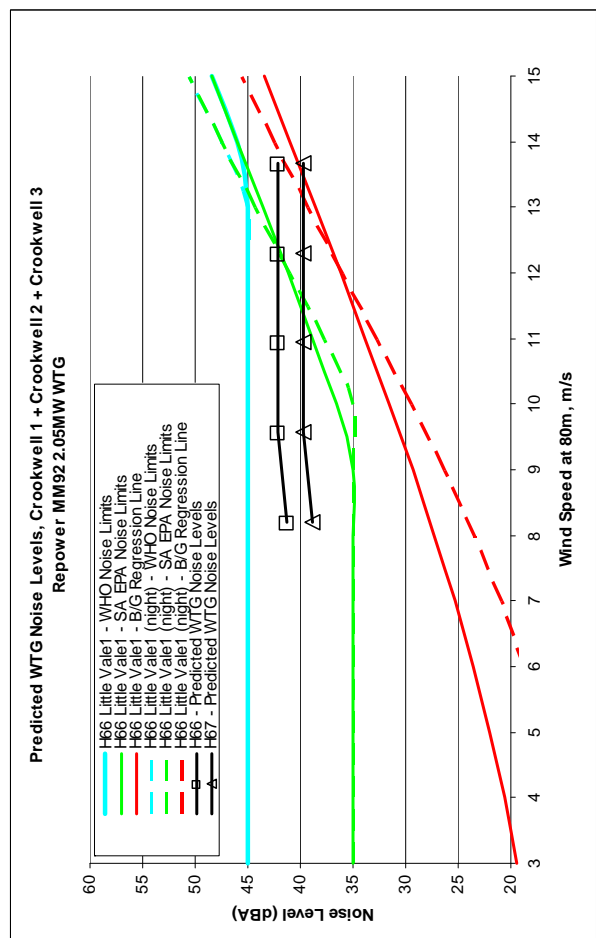
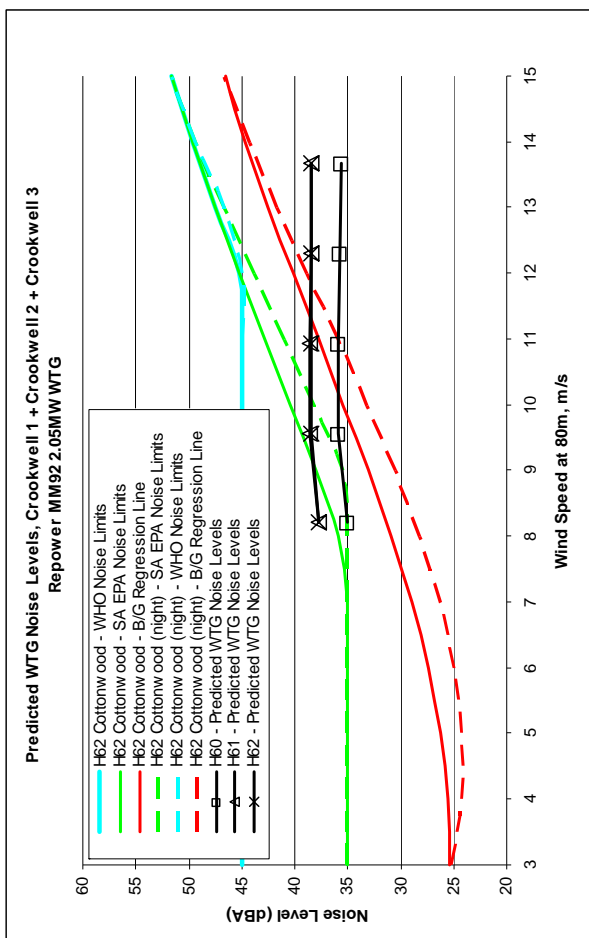
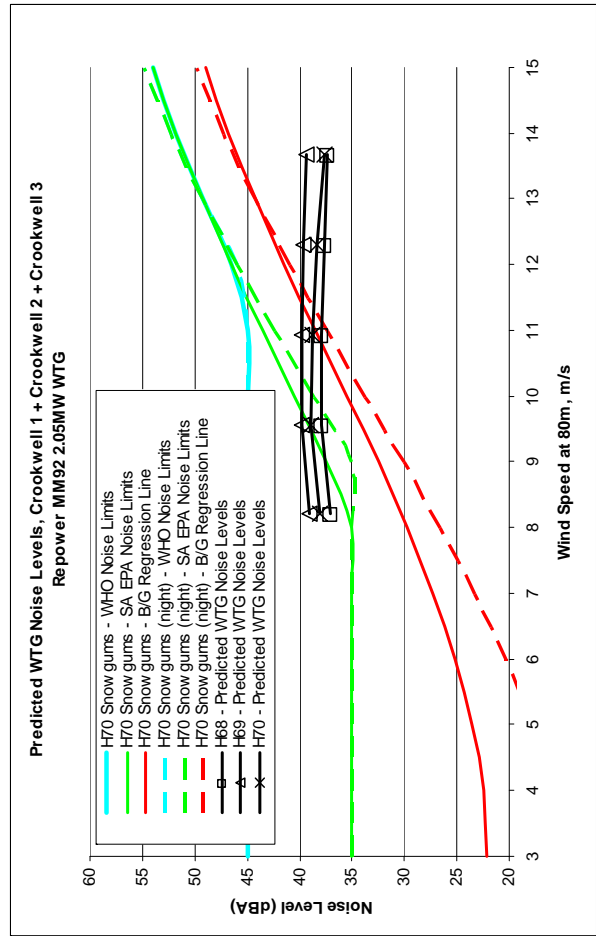
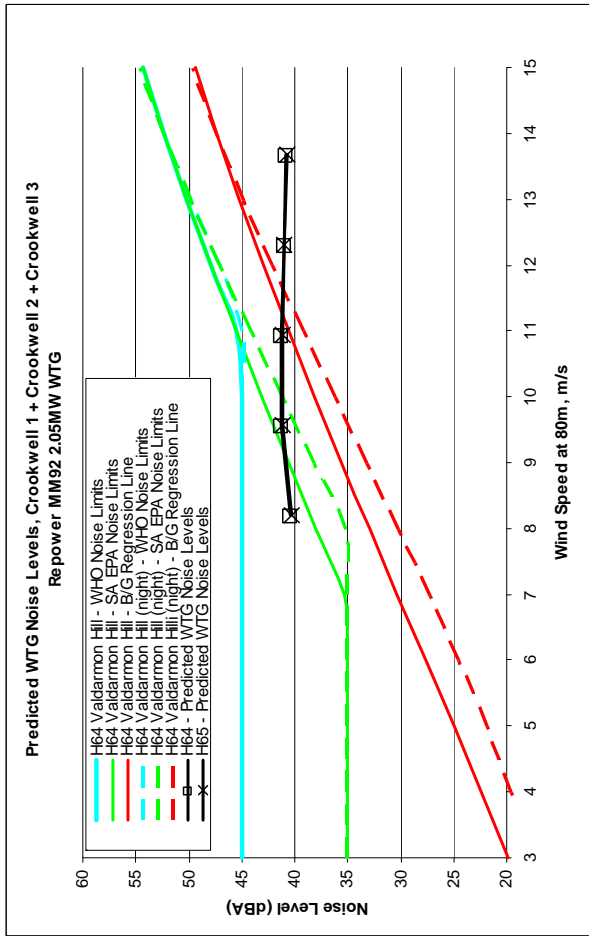


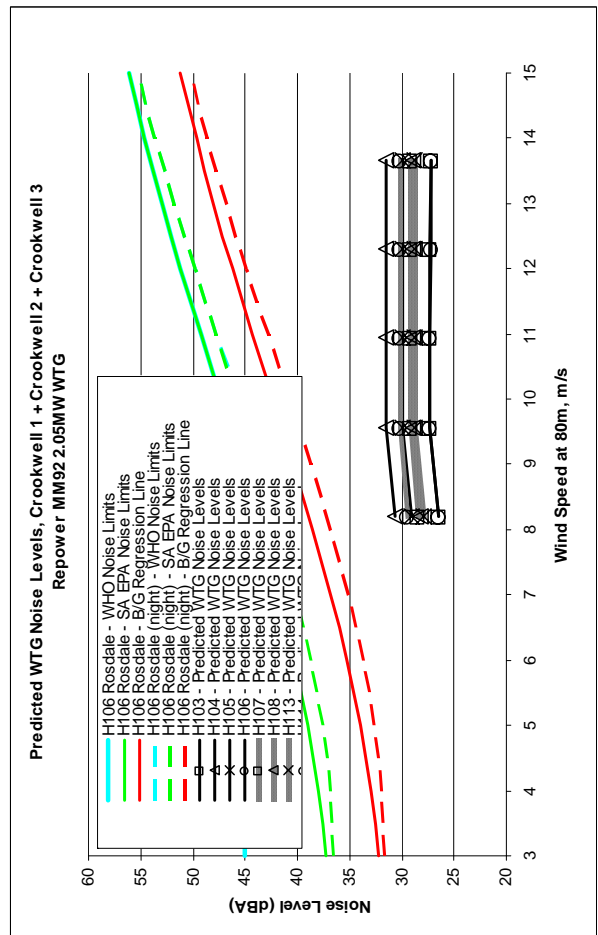
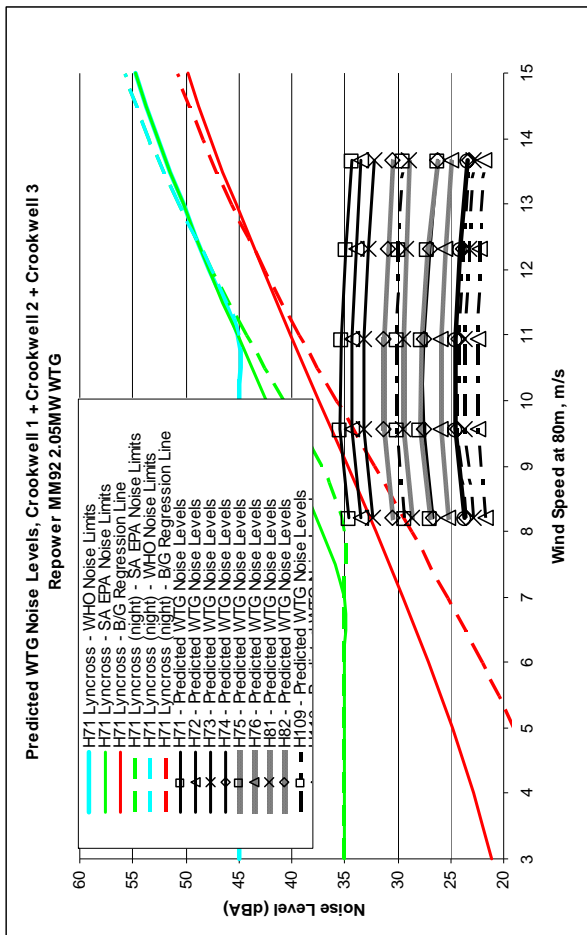
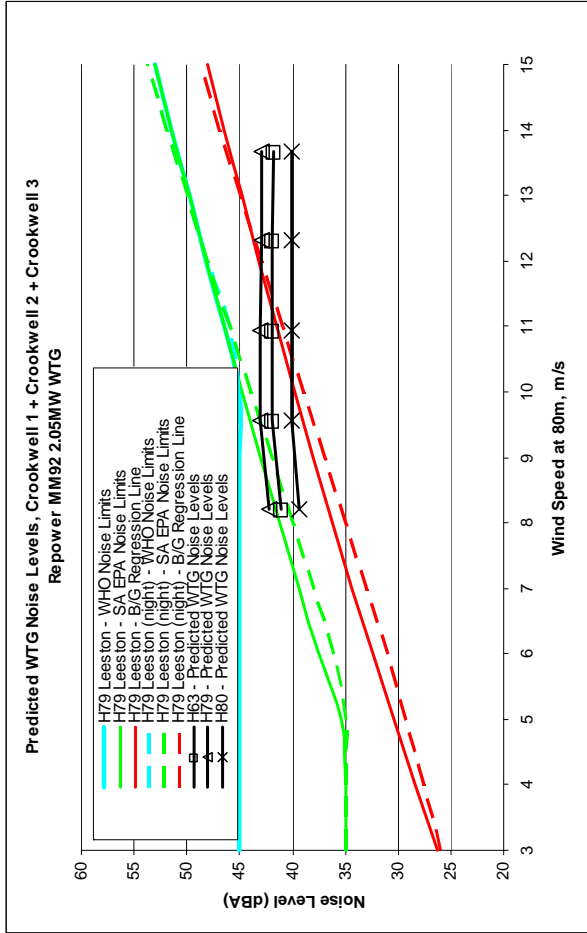


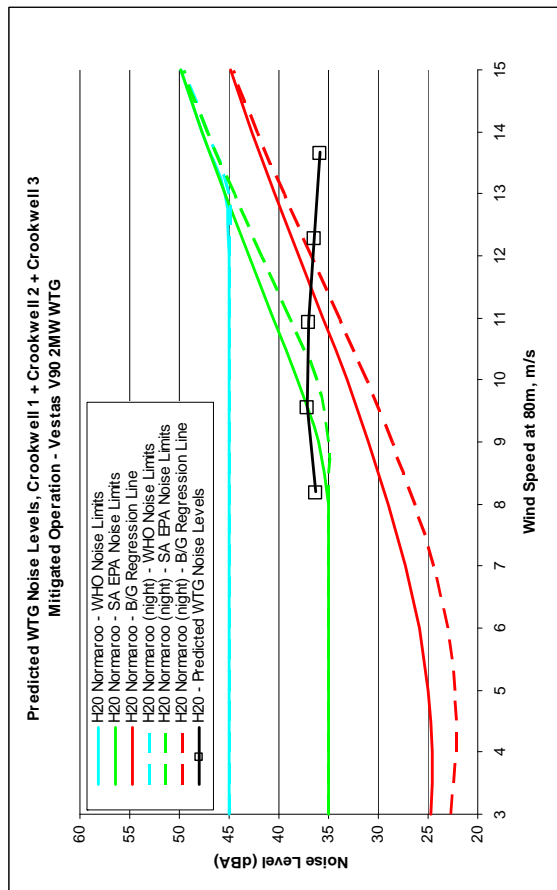
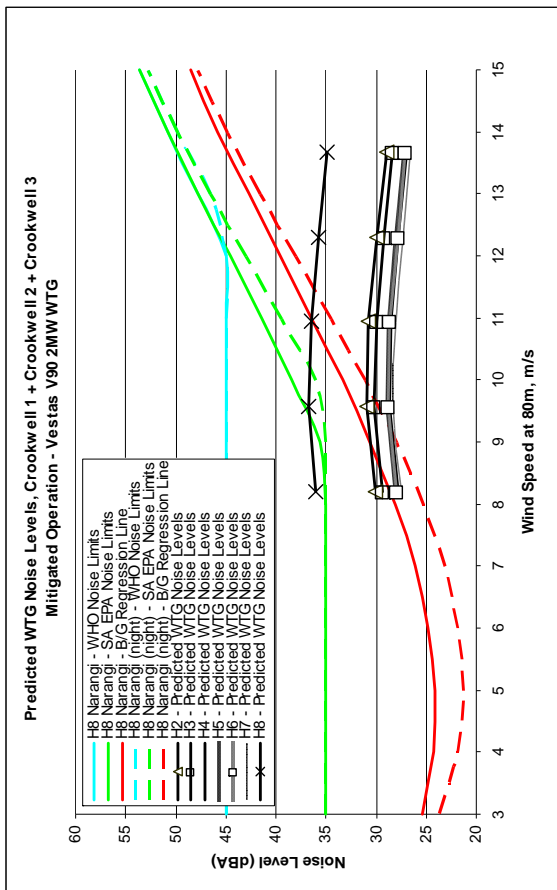
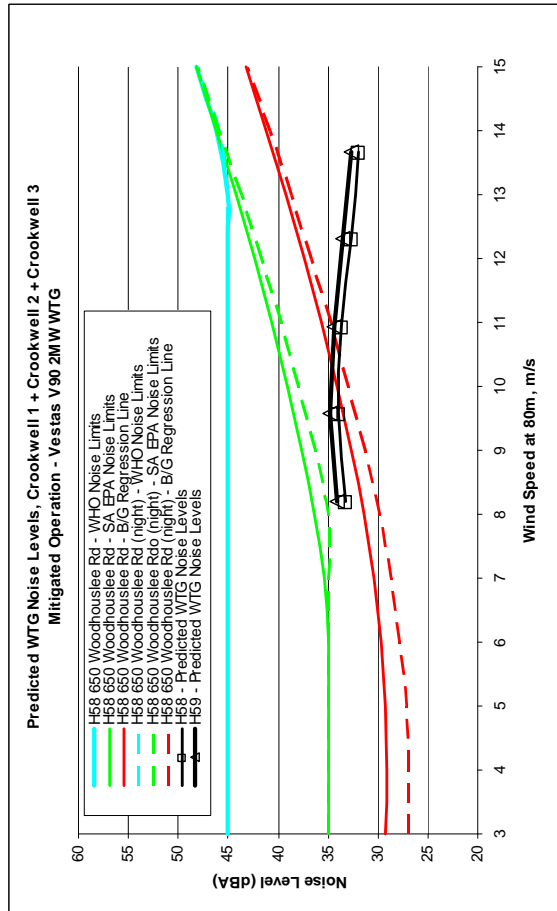
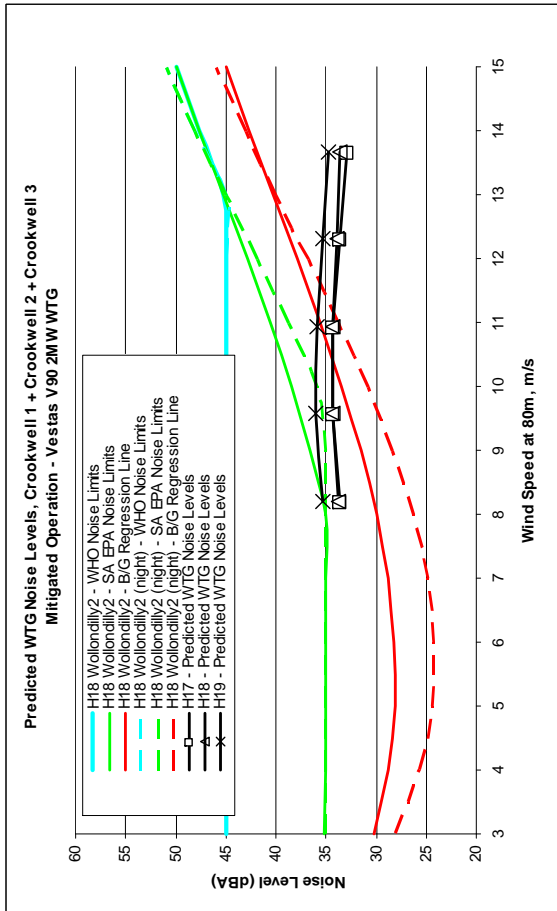


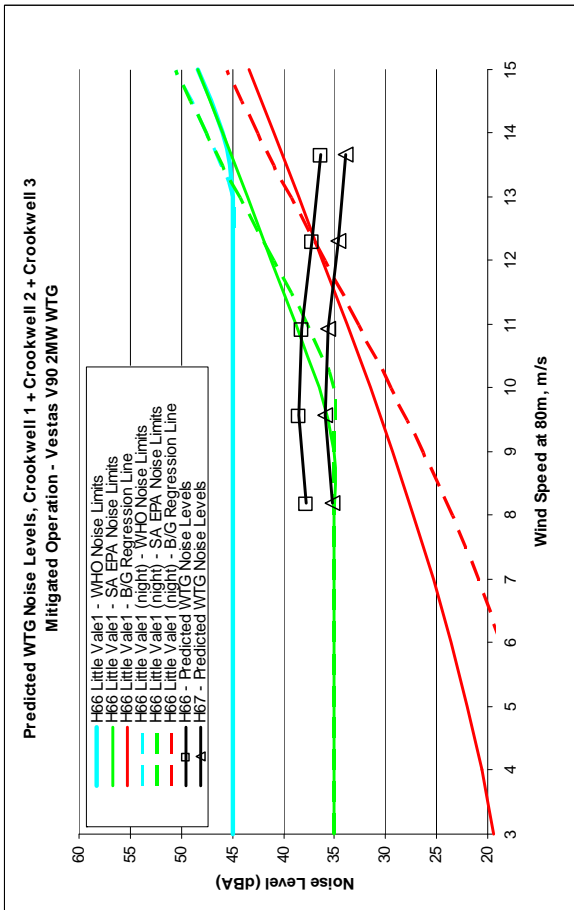
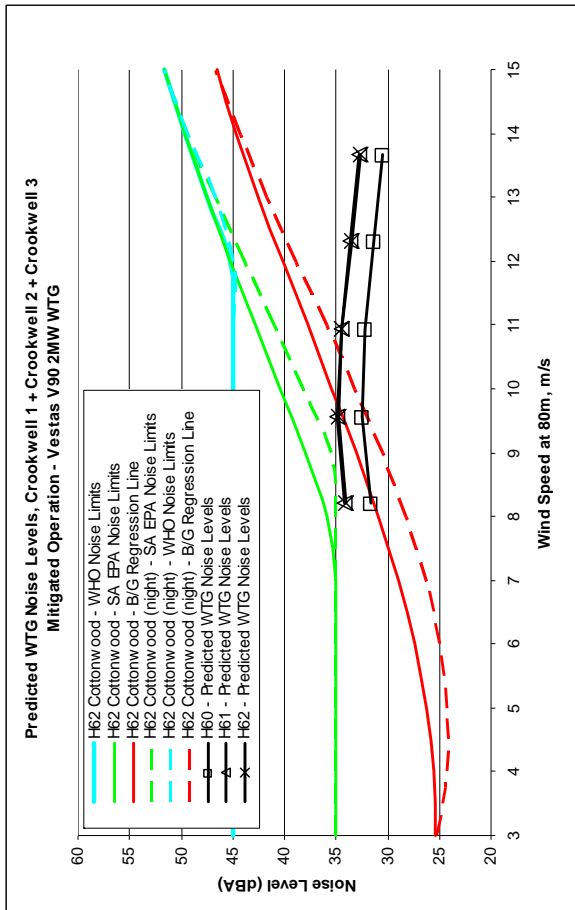
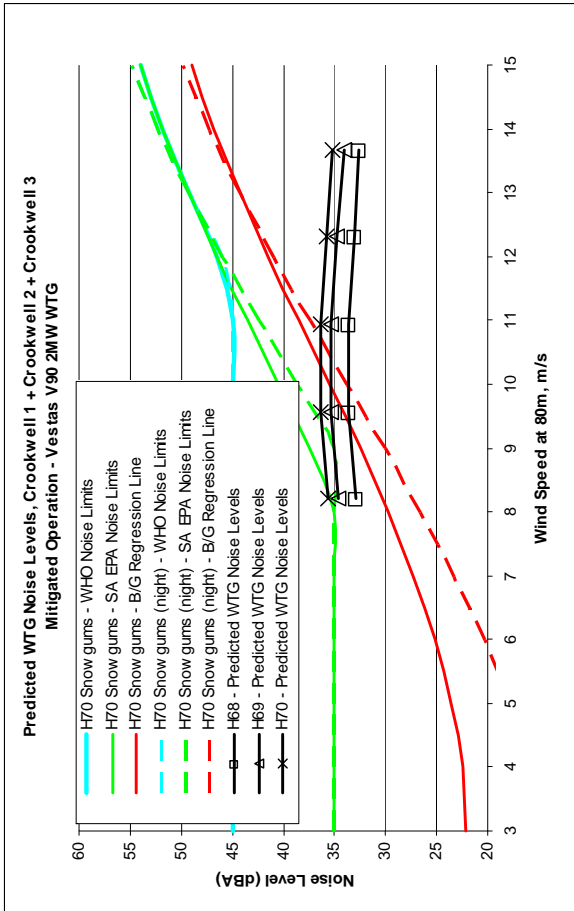
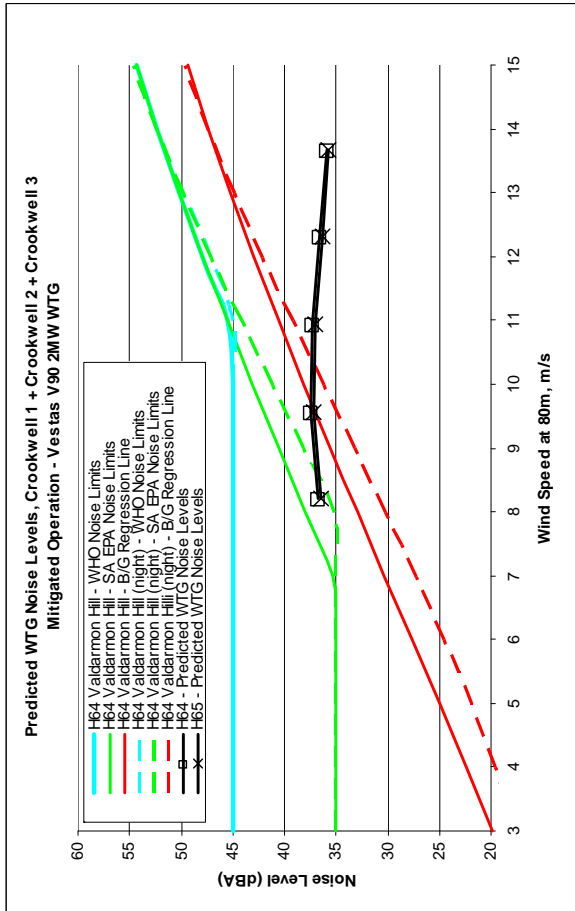


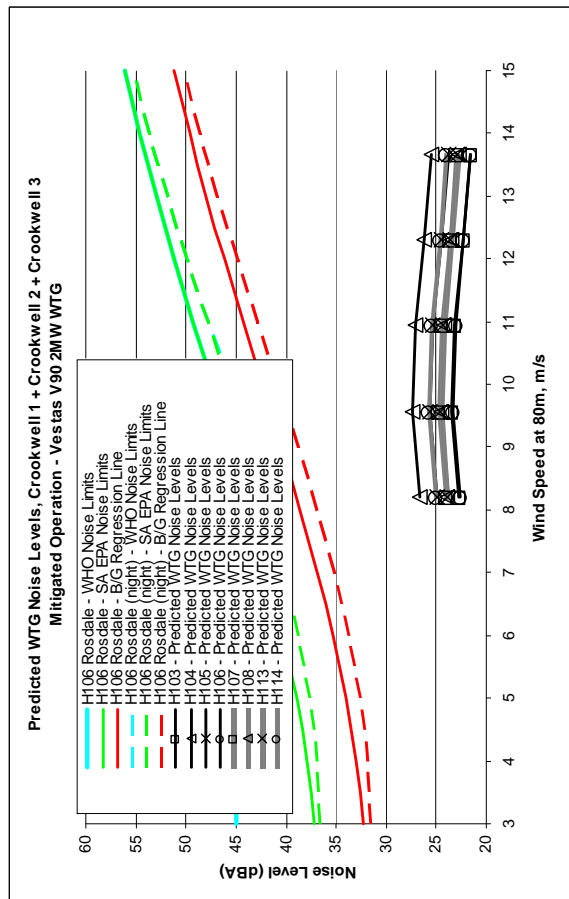
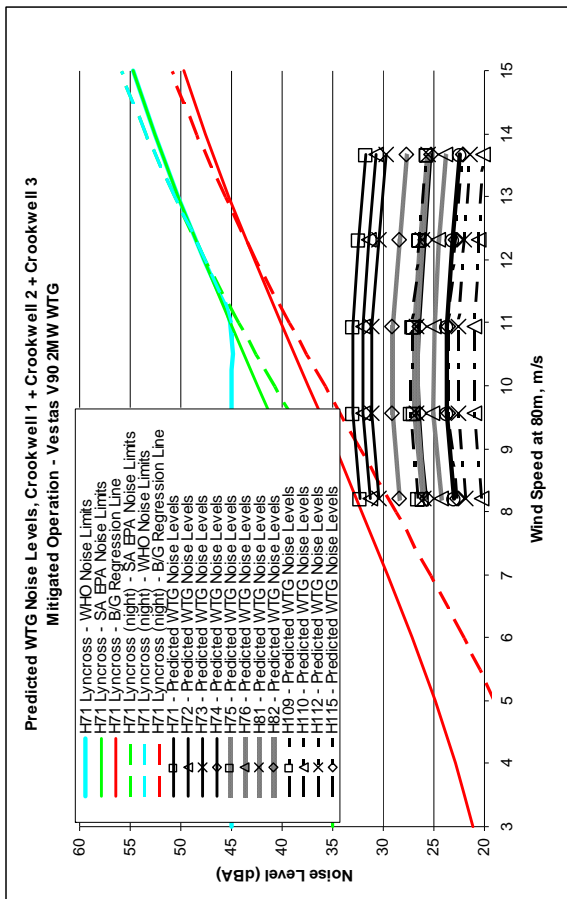
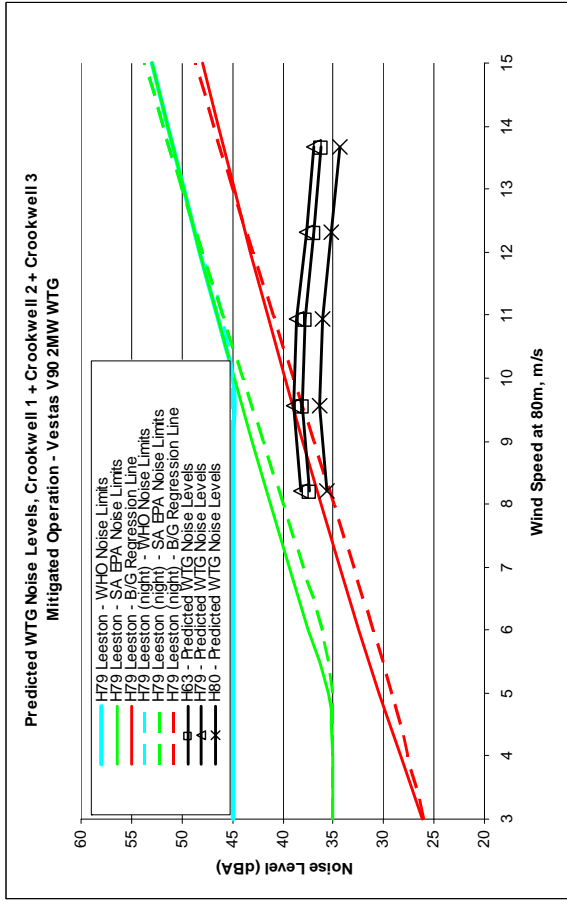














	Noise Levels / Limits at winds speed, in m/s								
	10m AGL	3	4	5	6	7	8	9	10
	80m AGL			6.836	8.2	9.6	10.9	12.3	13.7
H8 Narangi - B/G Regression Line		25.4	24.3	24.1	24.8	26.2	28.1	30.6	
<b>H8 Narangi - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.6</b>	
<b>H8 Narangi - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H8 Narangi (night) - B/G Regression Line		23.7	21.9	21.3	21.8	23.2	25.3	28.0	
<b>H8 Narangi (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	
<b>H8 Narangi (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H2 - Predicted WTG Noise Levels					31.5	33.0	33.0	32.0	
H3 - Predicted WTG Noise Levels					30.9	32.5	32.6	31.5	
H4 - Predicted WTG Noise Levels					29.1	30.6	30.6	29.6	
H5 - Predicted WTG Noise Levels					29.5	31.1	31.1	30.1	
H6 - Predicted WTG Noise Levels					29.5	31.0	31.1	30.0	
H7 - Predicted WTG Noise Levels					29.1	30.8	30.8	29.8	
H8 - Predicted WTG Noise Levels					37.6	39.3	39.4	38.3	
H18 Wollondilly2 - B/G Regression Line		30.2	28.8	28.1	28.2	28.8	30.0	31.5	
<b>H18 Wollondilly2 - SA EPA Noise Limits</b>		<b>35.2</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.5</b>	
<b>H18 Wollondilly2 - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H18 Wollondilly2 (night) - B/G Regression Line		28.2	25.7	24.4	24.2	24.9	26.3	28.3	
<b>H18 Wollondilly2 (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	
<b>H18 Wollondilly2 (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H17 - Predicted WTG Noise Levels					35.8	37.5	37.5	36.4	
H18 - Predicted WTG Noise Levels					36.9	38.8	38.9	37.7	
H19 - Predicted WTG Noise Levels					37.8	39.5	39.5	38.4	
H20 Normaroo - B/G Regression Line		24.7	24.5	24.9	25.9	27.3	29.0	31.0	
<b>H20 Normaroo - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.0</b>	
<b>H20 Normaroo - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H20 Normaroo (night) - B/G Regression Line		22.8	22.1	22.2	23.1	24.4	26.3	28.6	
<b>H20 Normaroo (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	
<b>H20 Normaroo (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H20 - Predicted WTG Noise Levels					37.9	39.0	39.0	38.1	
H58 650 Woodhouslee Rd - B/G Regression Line		29.2	29.0	29.2	29.7	30.4	31.4	32.7	
<b>H58 650 Woodhouslee Rd - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.4</b>	<b>36.4</b>	<b>37.7</b>	
<b>H58 650 Woodhouslee Rd - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H58 650 Woodhouslee Rd (night) - B/G Regression Line		27.0	26.9	27.2	27.8	28.7	29.9	31.3	
<b>H58 650 Woodhouslee Rdo (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.3</b>	
<b>H58 650 Woodhouslee Rd (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H58 - Predicted WTG Noise Levels					35.5	37.5	37.5	36.4	
H59 - Predicted WTG Noise Levels					36.3	38.2	38.3	37.1	

Noise Levels / Limits at winds speed, in m/s

10m AGL	3	4	5	6	7	8	9	10
80m AGL			6.836	8.2	9.6	10.9	12.3	13.7

H62 Cottonwood - B/G Regression Line	25.4	25.5	26.2	27.4	29.0	30.9	33.1	
<b>H62 Cottonwood - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.9</b>	<b>38.1</b>	
<b>H62 Cottonwood - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H62 Cottonwood (night) - B/G Regression Line	25.3	24.3	24.2	24.9	26.3	28.2	30.5	
<b>H62 Cottonwood (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.5</b>	
<b>H62 Cottonwood (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H60 - Predicted WTG Noise Levels				34.0	35.7	35.8	34.7	
H61 - Predicted WTG Noise Levels				36.4	38.3	38.4	37.2	
H62 - Predicted WTG Noise Levels				36.4	38.3	38.4	37.2	

H64 Valdarmon Hill - B/G Regression Line	19.8	22.4	25.0	27.7	30.3	33.0	35.6	
<b>H64 Valdarmon Hill - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.3</b>	<b>38.0</b>	<b>40.6</b>	
<b>H64 Valdarmon Hill - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H64 Valdarmon Hill (night) - B/G Regression Line	17.5	19.5	21.9	24.5	27.3	30.2	33.2	
<b>H64 Valdarmon Hill (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.2</b>	<b>38.2</b>	
<b>H64 Valdarmon Hill (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H64 - Predicted WTG Noise Levels				39.4	41.1	41.1	40.0	
H65 - Predicted WTG Noise Levels				39.3	41.0	41.0	39.9	

H66 Little Vale1 - B/G Regression Line	19.4	20.5	21.9	23.5	25.3	27.3	29.3	
<b>H66 Little Vale1 - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	
<b>H66 Little Vale1 - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H66 Little Vale1 (night) - B/G Regression Line	15.2	15.8	17.0	18.7	20.9	23.5	26.3	
<b>H66 Little Vale1 (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	
<b>H66 Little Vale1 (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H66 - Predicted WTG Noise Levels				39.9	41.9	42.0	40.8	
H67 - Predicted WTG Noise Levels				37.5	39.5	39.6	38.4	

H70 Snowgums - B/G Regression Line	22.2	22.5	23.5	25.1	27.2	29.7	32.5	
<b>H70 Snowgums - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.5</b>	
<b>H70 Snowgums - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H70 Snowgums (night) - B/G Regression Line	14.7	15.9	17.9	20.3	23.3	26.5	30.1	
<b>H70 Snowgums (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.1</b>	
<b>H70 Snowgums (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H68 - Predicted WTG Noise Levels				36.2	37.8	37.9	36.8	
H69 - Predicted WTG Noise Levels				38.0	39.7	39.8	38.7	
H70 - Predicted WTG Noise Levels				37.5	38.8	38.8	37.8	

**Noise Levels / Limits at winds speed, in m/s**

<b>10m AGL</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>80m AGL</b>			<b>6.836</b>	<b>8.2</b>	<b>9.6</b>	<b>10.9</b>	<b>12.3</b>	<b>13.7</b>

H71 Lyncross - B/G Regression Line	21.1	22.9	24.9	27.1	29.5	32.1	34.8
<b>H71 Lyncross - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.1</b>	<b>39.8</b>
<b>H71 Lyncross - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H71 Lyncross (night) - B/G Regression Line	14.2	16.4	19.1	22.1	25.3	28.7	32.2
<b>H71 Lyncross (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.2</b>
<b>H71 Lyncross (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H71 - Predicted WTG Noise Levels				34.0	35.4	35.4	34.4
H72 - Predicted WTG Noise Levels				33.0	34.3	34.3	33.4
H73 - Predicted WTG Noise Levels				31.9	33.2	33.2	32.2
H74 - Predicted WTG Noise Levels				26.5	27.5	27.5	26.7
H75 - Predicted WTG Noise Levels				26.9	27.9	27.8	27.0
H76 - Predicted WTG Noise Levels				25.0	26.0	26.0	25.3
H81 - Predicted WTG Noise Levels				28.0	29.5	29.6	28.6
H82 - Predicted WTG Noise Levels				30.0	31.4	31.4	30.4
H109 - Predicted WTG Noise Levels				28.5	30.1	30.2	29.1
H110 - Predicted WTG Noise Levels				21.3	22.5	22.5	21.8
H112 - Predicted WTG Noise Levels				22.5	23.6	23.7	22.9
H115 - Predicted WTG Noise Levels				23.2	24.3	24.3	23.6
H116 - Predicted WTG Noise Levels				23.5	24.6	24.6	23.8

H79 Leeston - B/G Regression Line	26.2	28.4	30.4	32.4	34.4	36.2	38.0
<b>H79 Leeston - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.4</b>	<b>37.4</b>	<b>39.4</b>	<b>41.2</b>	<b>43.0</b>
<b>H79 Leeston - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H79 Leeston (night) - B/G Regression Line	26.0	27.5	29.2	31.0	32.9	34.9	36.9
<b>H79 Leeston (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.0</b>	<b>37.9</b>	<b>39.9</b>	<b>41.9</b>
<b>H79 Leeston (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H63 - Predicted WTG Noise Levels				39.8	41.7	41.8	40.7
H79 - Predicted WTG Noise Levels				41.0	42.8	42.9	41.8
H80 - Predicted WTG Noise Levels				38.0	39.9	40.0	38.9

H106 Rosdale - B/G Regression Line	32.2	32.9	34.0	35.3	36.9	38.6	40.4
<b>H106 Rosdale - SA EPA Noise Limits</b>	<b>37.2</b>	<b>37.9</b>	<b>39.0</b>	<b>40.3</b>	<b>41.9</b>	<b>43.6</b>	<b>45.4</b>
<b>H106 Rosdale - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.4</b>
H106 Rosdale (night) - B/G Regression Line	31.6	31.9	32.6	33.7	35.2	36.9	38.7
<b>H106 Rosdale (night) - SA EPA Noise Limits</b>	<b>36.6</b>	<b>36.9</b>	<b>37.6</b>	<b>38.7</b>	<b>40.2</b>	<b>41.9</b>	<b>43.7</b>
<b>H106 Rosdale (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H103 - Predicted WTG Noise Levels				25.3	27.3	27.4	26.2
H104 - Predicted WTG Noise Levels				29.3	31.3	31.4	30.2
H105 - Predicted WTG Noise Levels				27.9	29.8	29.9	28.7

	Noise Levels / Limits at winds speed, in m/s								
	<i>10m</i> <i>AGL</i>	3	4	5	6	7	8	9	10
	<i>80m</i> <i>AGL</i>			<b>6.836</b>	<b>8.2</b>	<b>9.6</b>	<b>10.9</b>	<b>12.3</b>	<b>13.7</b>
H106 - Predicted WTG Noise Levels					25.3	27.2	27.2	26.1	
H107 - Predicted WTG Noise Levels					27.2	29.1	29.2	28.0	
H108 - Predicted WTG Noise Levels					27.0	29.0	29.0	27.9	
H113 - Predicted WTG Noise Levels					21.8	22.4	22.4	22.3	
H114 - Predicted WTG Noise Levels					23.6	24.3	24.3	24.2	

Noise Levels / Limits at winds speed, in m/s

	10m AGL	3	4	5	6	7	8	9	10
	80m AGL			6.84	8.2	9.6	10.9	12.3	13.7
H8 Narangi - B/G Regression Line		25.4	24.3	24.1	24.8	26.2	28.1	30.6	33.4
<b>H8 Narangi - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.6</b>	<b>38.4</b>
<b>H8 Narangi - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H8 Narangi (night) - B/G Regression Line		23.7	21.9	21.3	21.8	23.2	25.3	28.0	31.1
<b>H8 Narangi (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.1</b>
<b>H8 Narangi (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H2 - Predicted WTG Noise Levels					30.4	31.2	31.0	30.1	29.1
H3 - Predicted WTG Noise Levels					29.7	30.5	30.3	29.4	28.4
H4 - Predicted WTG Noise Levels					28.0	28.8	28.6	27.8	26.9
H5 - Predicted WTG Noise Levels					28.3	29.1	28.9	28.1	27.1
H6 - Predicted WTG Noise Levels					28.1	28.9	28.7	27.9	27.0
H7 - Predicted WTG Noise Levels					27.8	28.5	28.3	27.5	26.5
H8 - Predicted WTG Noise Levels					36.3	37.1	36.8	36.0	35.0
H18 Wollondilly2 - B/G Regression Line		30.2	28.8	28.1	28.2	28.8	30.0	31.5	33.4
<b>H18 Wollondilly2 - SA EPA Noise Limits</b>		<b>35.2</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.5</b>	<b>38.4</b>
<b>H18 Wollondilly2 - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H18 Wollondilly2 (night) - B/G Regression Line		28.2	25.7	24.4	24.2	24.9	26.3	28.3	30.8
<b>H18 Wollondilly2 (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.8</b>
<b>H18 Wollondilly2 (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H17 - Predicted WTG Noise Levels					34.6	35.4	35.1	34.2	33.2
H18 - Predicted WTG Noise Levels					35.2	36.0	35.6	34.6	33.8
H19 - Predicted WTG Noise Levels					36.4	37.1	36.9	36.0	35.0
H20 Normaroo - B/G Regression Line		24.7	24.5	24.9	25.9	27.3	29.0	31.0	33.2
<b>H20 Normaroo - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.0</b>	<b>38.2</b>
<b>H20 Normaroo - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H20 Normaroo (night) - B/G Regression Line		22.8	22.1	22.2	23.1	24.4	26.3	28.6	31.1
<b>H20 Normaroo (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.1</b>
<b>H20 Normaroo (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H20 - Predicted WTG Noise Levels					37.4	38.3	38.1	37.3	36.2
H58 650 Woodhouslee Rd - B/G Regression Line		29.2	29.0	29.2	29.7	30.4	31.4	32.7	34.1
<b>H58 650 Woodhouslee Rd - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.4</b>	<b>36.4</b>	<b>37.7</b>	<b>39.1</b>
<b>H58 650 Woodhouslee Rd - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H58 650 Woodhouslee Rd (night) - B/G Regression Line		27.0	26.9	27.2	27.8	28.7	29.9	31.3	32.9
<b>H58 650 Woodhouslee Rdo (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.3</b>	<b>37.9</b>
<b>H58 650 Woodhouslee Rd (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H58 - Predicted WTG Noise Levels					33.4	34.2	33.8	32.8	32.0
H59 - Predicted WTG Noise Levels					34.2	35.0	34.6	33.6	32.8

Noise Levels / Limits at winds speed, in m/s

	10m AGL	3	4	5	6	7	8	9	10
	80m AGL			6.84	8.2	9.6	10.9	12.3	13.7
H62 Cottonwood - B/G Regression Line		25.4	25.5	26.2	27.4	29.0	30.9	33.1	35.4
<b>H62 Cottonwood - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.9</b>	<b>38.1</b>	<b>40.4</b>
<b>H62 Cottonwood - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H62 Cottonwood (night) - B/G Regression Line		25.3	24.3	24.2	24.9	26.3	28.2	30.5	33.1
<b>H62 Cottonwood (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.5</b>	<b>38.1</b>
<b>H62 Cottonwood (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H60 - Predicted WTG Noise Levels					32.1	32.9	32.6	31.7	30.7
H61 - Predicted WTG Noise Levels					34.4	35.1	34.8	33.8	32.9
H62 - Predicted WTG Noise Levels					34.3	35.0	34.6	33.6	32.8
H64 Valdarmon Hill - B/G Regression Line		22.3	24.1	26.2	28.4	30.7	33.1	35.6	38.0
<b>H64 Valdarmon Hill - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.7</b>	<b>38.1</b>	<b>40.6</b>	<b>43.0</b>
<b>H64 Valdarmon Hill - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H64 Valdarmon Hill (night) - B/G Regression Line		22.3	23.1	24.4	26.2	28.3	30.7	33.4	36.2
<b>H64 Valdarmon Hill (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.7</b>	<b>38.4</b>	<b>41.2</b>
<b>H64 Valdarmon Hill (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H64 - Predicted WTG Noise Levels					38.0	38.8	38.5	37.6	36.6
H65 - Predicted WTG Noise Levels					38.0	38.8	38.5	37.6	36.6
H66 Little Vale1 - B/G Regression Line		22.8	23.1	23.8	24.8	26.2	27.8	29.7	31.8
<b>H66 Little Vale1 - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.8</b>
<b>H66 Little Vale1 - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H66 Little Vale1 (night) - B/G Regression Line		21.1	20.5	20.6	21.4	22.9	24.9	27.4	30.1
<b>H66 Little Vale1 (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.1</b>
<b>H66 Little Vale1 (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H66 - Predicted WTG Noise Levels					37.9	38.6	38.2	37.2	36.4
H67 - Predicted WTG Noise Levels					35.7	36.4	36.0	35.0	34.2
H70 Snowgums - B/G Regression Line		24.6	24.3	24.8	26.0	27.8	30.0	32.6	35.4
<b>H70 Snowgums - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.6</b>	<b>40.4</b>
<b>H70 Snowgums - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H70 Snowgums (night) - B/G Regression Line		20.0	20.0	20.9	22.5	24.7	27.4	30.4	33.7
<b>H70 Snowgums (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.4</b>	<b>38.7</b>
<b>H70 Snowgums (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H68 - Predicted WTG Noise Levels					35.0	35.8	35.6	34.7	33.7
H69 - Predicted WTG Noise Levels					36.7	37.5	37.2	36.3	35.3
H70 - Predicted WTG Noise Levels					37.0	37.8	37.7	36.8	35.7

Noise Levels / Limits at winds speed, in m/s

10m AGL	3	4	5	6	7	8	9	10
<b>80m AGL</b>			<b>6.84</b>	<b>8.2</b>	<b>9.6</b>	<b>10.9</b>	<b>12.3</b>	<b>13.7</b>

H71 Lyncross - B/G Regression Line	24.1	24.9	26.2	27.9	29.9	32.2	34.7	37.3
<b>H71 Lyncross - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.2</b>	<b>39.7</b>	<b>42.3</b>
<b>H71 Lyncross - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H71 Lyncross (night) - B/G Regression Line	20.2	20.8	22.1	24.0	26.4	29.2	32.3	35.6
<b>H71 Lyncross (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.3</b>	<b>40.6</b>
<b>H71 Lyncross (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H71 - Predicted WTG Noise Levels				33.3	34.2	34.0	33.2	32.1
H72 - Predicted WTG Noise Levels				32.2	33.1	32.9	32.1	31.0
H73 - Predicted WTG Noise Levels				31.2	32.0	31.9	31.1	30.1
H74 - Predicted WTG Noise Levels				26.2	27.1	27.0	26.3	25.4
H75 - Predicted WTG Noise Levels				26.8	27.7	27.6	26.8	25.8
H76 - Predicted WTG Noise Levels				24.6	25.5	25.4	24.7	23.9
H81 - Predicted WTG Noise Levels				26.8	27.6	27.4	26.6	25.7
H82 - Predicted WTG Noise Levels				29.1	29.9	29.7	28.9	27.9
H109 - Predicted WTG Noise Levels				27.2	28.0	27.8	26.9	25.9
H110 - Predicted WTG Noise Levels				20.7	21.4	21.4	20.8	20.1
H112 - Predicted WTG Noise Levels				22.1	22.9	22.8	22.2	21.5
H115 - Predicted WTG Noise Levels				22.9	23.7	23.6	23.0	22.1
H116 - Predicted WTG Noise Levels				23.2	24.0	24.0	23.3	22.3

H79 Leeston - B/G Regression Line	26.2	28.4	30.4	32.4	34.4	36.2	38.0	39.8
<b>H79 Leeston - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.4</b>	<b>37.4</b>	<b>39.4</b>	<b>41.2</b>	<b>43.0</b>	<b>44.8</b>
<b>H79 Leeston - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H79 Leeston (night) - B/G Regression Line	26.0	27.5	29.2	31.0	32.9	34.9	36.9	38.9
<b>H79 Leeston (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.0</b>	<b>37.9</b>	<b>39.9</b>	<b>41.9</b>	<b>43.9</b>
<b>H79 Leeston (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H63 - Predicted WTG Noise Levels				38.0	38.7	38.3	37.4	36.5
H79 - Predicted WTG Noise Levels				39.6	40.3	40.0	39.0	38.1
H80 - Predicted WTG Noise Levels				36.1	36.8	36.5	35.5	34.6

H106 Rosdale - B/G Regression Line	32.2	32.9	34.0	35.3	36.9	38.6	40.4	42.3
<b>H106 Rosdale - SA EPA Noise Limits</b>	<b>37.2</b>	<b>37.9</b>	<b>39.0</b>	<b>40.3</b>	<b>41.9</b>	<b>43.6</b>	<b>45.4</b>	<b>47.3</b>
<b>H106 Rosdale - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.4</b>	<b>47.3</b>
H106 Rosdale (night) - B/G Regression Line	31.6	31.9	32.6	33.7	35.2	36.9	38.7	40.7
<b>H106 Rosdale (night) - SA EPA Noise Limits</b>	<b>36.6</b>	<b>36.9</b>	<b>37.6</b>	<b>38.7</b>	<b>40.2</b>	<b>41.9</b>	<b>43.7</b>	<b>45.7</b>
<b>H106 Rosdale (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.7</b>
H103 - Predicted WTG Noise Levels				23.4	24.1	23.7	22.7	21.9
H104 - Predicted WTG Noise Levels				27.1	27.8	27.4	26.4	25.6
H105 - Predicted WTG Noise Levels				25.5	26.2	25.8	24.8	24.0

**Noise Levels / Limits at winds speed, in m/s**

	<b>10m AGL</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
	<b>80m AGL</b>			<b>6.84</b>	<b>8.2</b>	<b>9.6</b>	<b>10.9</b>	<b>12.3</b>	<b>13.7</b>
H106 - Predicted WTG Noise Levels					23.3	24.0	23.7	22.7	21.8
H107 - Predicted WTG Noise Levels					24.8	25.5	25.1	24.2	23.3
H108 - Predicted WTG Noise Levels					24.5	25.3	24.9	23.9	23.1
H113 - Predicted WTG Noise Levels					24.6	25.3	24.9	23.9	23.1
H114 - Predicted WTG Noise Levels					26.0	26.7	26.3	25.3	24.5



	Noise Levels / Limits at winds speed, in m/s								
	10m AGL	3	4	5	6	7	8	9	10
	80m AGL			6.84	8.2	9.6	10.9	12.3	13.7
H8 Narangi - B/G Regression Line		25.4	24.3	24.1	24.8	26.2	28.1	30.6	33.4
<b>H8 Narangi - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.6</b>	<b>38.4</b>
<b>H8 Narangi - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H8 Narangi (night) - B/G Regression Line		23.7	21.9	21.3	21.8	23.2	25.3	28.0	31.1
<b>H8 Narangi (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.1</b>
<b>H8 Narangi (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H2 - Predicted WTG Noise Levels					29.9	30.7	30.7	30.1	29.4
H3 - Predicted WTG Noise Levels					29.1	29.9	29.8	29.4	28.7
H4 - Predicted WTG Noise Levels					27.4	28.2	28.1	27.6	26.9
H5 - Predicted WTG Noise Levels					27.7	28.5	28.4	27.9	27.3
H6 - Predicted WTG Noise Levels					27.5	28.2	28.2	27.7	27.1
H7 - Predicted WTG Noise Levels					27.0	27.7	27.7	27.3	26.7
H8 - Predicted WTG Noise Levels					36.5	37.2	37.2	36.9	36.5
H18 Wollondilly2 - B/G Regression Line		30.2	28.8	28.1	28.2	28.8	30.0	31.5	33.4
<b>H18 Wollondilly2 - SA EPA Noise Limits</b>		<b>35.2</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.5</b>	<b>38.4</b>
<b>H18 Wollondilly2 - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H18 Wollondilly2 (night) - B/G Regression Line		28.2	25.7	24.4	24.2	24.9	26.3	28.3	30.8
<b>H18 Wollondilly2 (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.8</b>
<b>H18 Wollondilly2 (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H17 - Predicted WTG Noise Levels					34.5	35.2	35.2	34.8	34.3
H18 - Predicted WTG Noise Levels					35.6	36.2	36.2	36.1	36.0
H19 - Predicted WTG Noise Levels					36.5	37.2	37.2	36.9	36.5
H20 Normaroo - B/G Regression Line		24.7	24.5	24.9	25.9	27.3	29.0	31.0	33.2
<b>H20 Normaroo - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.0</b>	<b>38.2</b>
<b>H20 Normaroo - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H20 Normaroo (night) - B/G Regression Line		22.8	22.1	22.2	23.1	24.4	26.3	28.6	31.1
<b>H20 Normaroo (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.1</b>
<b>H20 Normaroo (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H20 - Predicted WTG Noise Levels					37.2	38.1	38.0	37.3	36.3
H58 650 Woodhouslee Rd - B/G Regression Line		29.2	29.0	29.2	29.7	30.4	31.4	32.7	34.1
<b>H58 650 Woodhouslee Rd - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.4</b>	<b>36.4</b>	<b>37.7</b>	<b>39.1</b>
<b>H58 650 Woodhouslee Rd - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H58 650 Woodhouslee Rd (night) - B/G Regression Line		27.0	26.9	27.2	27.8	28.7	29.9	31.3	32.9
<b>H58 650 Woodhouslee Rdo (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.3</b>	<b>37.9</b>
<b>H58 650 Woodhouslee Rd (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H58 - Predicted WTG Noise Levels					33.2	33.8	33.8	33.7	33.6
H59 - Predicted WTG Noise Levels					33.9	34.5	34.5	34.4	34.3

Noise Levels / Limits at winds speed, in m/s

<b>10m AGL</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>80m AGL</b>			<b>6.84</b>	<b>8.2</b>	<b>9.6</b>	<b>10.9</b>	<b>12.3</b>	<b>13.7</b>

H62 Cottonwood - B/G Regression Line	25.4	25.5	26.2	27.4	29.0	30.9	33.1	35.4	
<b>H62 Cottonwood - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.9</b>	<b>38.1</b>	<b>40.4</b>	
<b>H62 Cottonwood - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H62 Cottonwood (night) - B/G Regression Line	25.3	24.3	24.2	24.9	26.3	28.2	30.5	33.1	
<b>H62 Cottonwood (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.5</b>	<b>38.1</b>	
<b>H62 Cottonwood (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H60 - Predicted WTG Noise Levels					31.2	32.0	31.9	31.6	31.2
H61 - Predicted WTG Noise Levels					34.1	34.7	34.7	34.6	34.4
H62 - Predicted WTG Noise Levels					33.8	34.5	34.4	34.4	34.2

H64 Valdarmon Hill - B/G Regression Line	19.8	22.4	25	27.7	30.3	33	35.6	38.1	
<b>H64 Valdarmon Hill - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.3</b>	<b>38.0</b>	<b>40.6</b>	<b>43.1</b>	
<b>H64 Valdarmon Hill - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H64 Valdarmon Hill (night) - B/G Regression Line	17.5	19.5	21.9	24.5	27.3	30.2	33.2	36.2	
<b>H64 Valdarmon Hill (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.2</b>	<b>38.2</b>	<b>41.2</b>	
<b>H64 Valdarmon Hill (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H64 - Predicted WTG Noise Levels					38.1	38.9	38.8	38.5	38.1
H65 - Predicted WTG Noise Levels					38.1	38.8	38.8	38.4	38.0

H66 Little Vale1 - B/G Regression Line	19.4	20.5	21.9	23.5	25.3	27.3	29.3	31.5	
<b>H66 Little Vale1 - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.5</b>	
<b>H66 Little Vale1 - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H66 Little Vale1 (night) - B/G Regression Line	15.2	15.8	17.0	18.7	20.9	23.5	26.3	29.4	
<b>H66 Little Vale1 (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	
<b>H66 Little Vale1 (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H66 - Predicted WTG Noise Levels					38.3	38.9	38.9	38.9	38.9
H67 - Predicted WTG Noise Levels					35.6	36.2	36.2	36.2	36.2

H70 Snowgums - B/G Regression Line	22.2	22.5	23.5	25.1	27.2	29.7	32.5	35.5	
<b>H70 Snowgums - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.5</b>	<b>40.5</b>	
<b>H70 Snowgums - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H70 Snowgums (night) - B/G Regression Line	14.7	15.9	17.9	20.3	23.3	26.5	30.1	33.7	
<b>H70 Snowgums (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.1</b>	<b>38.7</b>	
<b>H70 Snowgums (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H68 - Predicted WTG Noise Levels					34.8	35.6	35.5	35.1	34.5
H69 - Predicted WTG Noise Levels					36.7	37.5	37.4	37.1	36.7
H70 - Predicted WTG Noise Levels					36.8	37.6	37.5	36.9	35.9

Noise Levels / Limits at winds speed, in m/s

<b>10m</b>								
<b>AGL</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>80m</b>								
<b>AGL</b>			<b>6.84</b>	<b>8.2</b>	<b>9.6</b>	<b>10.9</b>	<b>12.3</b>	<b>13.7</b>

H71 Lyncross - B/G Regression Line	21.1	22.9	24.9	27.1	29.5	32.1	34.8	37.5	
<b>H71 Lyncross - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.1</b>	<b>39.8</b>	<b>42.5</b>	
<b>H71 Lyncross - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H71 Lyncross (night) - B/G Regression Line	14.2	16.4	19.1	22.1	25.3	28.7	32.2	35.8	
<b>H71 Lyncross (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.2</b>	<b>40.8</b>	
<b>H71 Lyncross (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H71 - Predicted WTG Noise Levels					32.9	33.7	33.6	33.0	32.1
H72 - Predicted WTG Noise Levels					31.7	32.5	32.4	31.8	30.9
H73 - Predicted WTG Noise Levels					30.6	31.5	31.4	30.8	29.8
H74 - Predicted WTG Noise Levels					25.9	26.8	26.7	26.1	25.2
H75 - Predicted WTG Noise Levels					26.6	27.5	27.4	26.7	25.6
H76 - Predicted WTG Noise Levels					24.2	25.1	25.0	24.5	23.6
H81 - Predicted WTG Noise Levels					25.5	26.3	26.3	25.8	25.1
H82 - Predicted WTG Noise Levels					28.2	29.0	29.0	28.4	27.5
H109 - Predicted WTG Noise Levels					25.8	26.6	26.6	26.0	25.2
H110 - Predicted WTG Noise Levels					20.0	20.8	20.8	20.4	19.8
H112 - Predicted WTG Noise Levels					21.6	22.4	22.4	21.9	21.2
H115 - Predicted WTG Noise Levels					22.5	23.4	23.3	22.7	21.9
H116 - Predicted WTG Noise Levels					22.9	23.7	23.7	23.0	22.1

H79 Leeston - B/G Regression Line	26.2	28.4	30.4	32.4	34.4	36.2	38.0	39.8	
<b>H79 Leeston - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.4</b>	<b>37.4</b>	<b>39.4</b>	<b>41.2</b>	<b>43.0</b>	<b>44.8</b>	
<b>H79 Leeston - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H79 Leeston (night) - B/G Regression Line	26.0	27.5	29.2	31.0	32.9	34.9	36.9	38.9	
<b>H79 Leeston (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.0</b>	<b>37.9</b>	<b>39.9</b>	<b>41.9</b>	<b>43.9</b>	
<b>H79 Leeston (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H63 - Predicted WTG Noise Levels					38.2	38.8	38.8	38.7	38.6
H79 - Predicted WTG Noise Levels					40.3	40.9	40.9	40.8	40.7
H80 - Predicted WTG Noise Levels					35.9	36.6	36.6	36.5	36.4

H106 Rosdale - B/G Regression Line	32.2	32.9	34.0	35.3	36.9	38.6	40.4	42.3	
<b>H106 Rosdale - SA EPA Noise Limits</b>	<b>37.2</b>	<b>37.9</b>	<b>39.0</b>	<b>40.3</b>	<b>41.9</b>	<b>43.6</b>	<b>45.4</b>	<b>47.3</b>	
<b>H106 Rosdale - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.4</b>	<b>47.3</b>	
H106 Rosdale (night) - B/G Regression Line	31.6	31.9	32.6	33.7	35.2	36.9	38.7	40.7	
<b>H106 Rosdale (night) - SA EPA Noise Limits</b>	<b>36.6</b>	<b>36.9</b>	<b>37.6</b>	<b>38.7</b>	<b>40.2</b>	<b>41.9</b>	<b>43.7</b>	<b>45.7</b>	
<b>H106 Rosdale (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.7</b>	
H103 - Predicted WTG Noise Levels					18.6	19.3	19.2	19.2	19.1
H104 - Predicted WTG Noise Levels					25.2	25.8	25.8	25.8	25.7
H105 - Predicted WTG Noise Levels					22.8	23.4	23.4	23.3	23.2

	Noise Levels / Limits at winds speed, in m/s								
	<i>10m</i> AGL	3	4	5	6	7	8	9	10
	<i>80m</i> AGL			6.84	8.2	9.6	10.9	12.3	13.7
H106 - Predicted WTG Noise Levels					21.9	22.6	22.5	22.3	22.1
H107 - Predicted WTG Noise Levels					22.4	23.1	23.1	23.0	22.9
H108 - Predicted WTG Noise Levels					21.9	22.5	22.5	22.4	22.3
H113 - Predicted WTG Noise Levels					21.8	22.4	22.4	22.3	22.1
H114 - Predicted WTG Noise Levels					23.6	24.3	24.3	24.2	24.0

	Noise Levels / Limits at winds speed, in m/s								
	10m AGL	3	4	5	6	7	8	9	10
	80m AGL			6.84	8.2	9.6	10.9	12.3	13.7
H8 Narangi - B/G Regression Line		25.4	24.3	24.1	24.8	26.2	28.1	30.6	33.4
<b>H8 Narangi - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.6</b>	<b>38.4</b>
<b>H8 Narangi - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H8 Narangi (night) - B/G Regression Line		23.7	21.9	21.3	21.8	23.2	25.3	28.0	31.1
<b>H8 Narangi (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.1</b>
<b>H8 Narangi (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H2 - Predicted WTG Noise Levels					32.2	33.0	33.0	32.7	32.3
H3 - Predicted WTG Noise Levels					31.8	32.6	32.6	32.3	32.0
H4 - Predicted WTG Noise Levels					29.9	30.7	30.7	30.4	30.1
H5 - Predicted WTG Noise Levels					30.3	31.2	31.1	30.9	30.6
H6 - Predicted WTG Noise Levels					30.3	31.1	31.1	30.8	30.5
H7 - Predicted WTG Noise Levels					30.1	30.9	30.9	30.7	30.4
H8 - Predicted WTG Noise Levels					38.6	39.5	39.4	39.3	39.0
H18 Wollondilly2 - B/G Regression Line		30.2	28.8	28.1	28.2	28.8	30.0	31.5	33.4
<b>H18 Wollondilly2 - SA EPA Noise Limits</b>		<b>35.2</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.5</b>	<b>38.4</b>
<b>H18 Wollondilly2 - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H18 Wollondilly2 (night) - B/G Regression Line		28.2	25.7	24.4	24.2	24.9	26.3	28.3	30.8
<b>H18 Wollondilly2 (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.8</b>
<b>H18 Wollondilly2 (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H17 - Predicted WTG Noise Levels					36.8	37.6	37.6	37.4	37.1
H18 - Predicted WTG Noise Levels					38.2	39.0	39.0	39.0	38.9
H19 - Predicted WTG Noise Levels					38.8	39.6	39.6	39.4	39.2
H20 Normaroo - B/G Regression Line		24.7	24.5	24.9	25.9	27.3	29.0	31.0	33.2
<b>H20 Normaroo - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.0</b>	<b>38.2</b>
<b>H20 Normaroo - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H20 Normaroo (night) - B/G Regression Line		22.8	22.1	22.2	23.1	24.4	26.3	28.6	31.1
<b>H20 Normaroo (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.1</b>
<b>H20 Normaroo (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H20 - Predicted WTG Noise Levels					38.2	39.1	39.0	38.4	37.7
H58 650 Woodhouslee Rd - B/G Regression Line		29.2	29.0	29.2	29.7	30.4	31.4	32.7	34.1
<b>H58 650 Woodhouslee Rd - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.4</b>	<b>36.4</b>	<b>37.7</b>	<b>39.1</b>
<b>H58 650 Woodhouslee Rd - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H58 650 Woodhouslee Rd (night) - B/G Regression Line		27.0	26.9	27.2	27.8	28.7	29.9	31.3	32.9
<b>H58 650 Woodhouslee Rdo (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.3</b>	<b>37.9</b>
<b>H58 650 Woodhouslee Rd (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H58 - Predicted WTG Noise Levels					36.8	37.6	37.6	37.6	37.6
H59 - Predicted WTG Noise Levels					37.6	38.4	38.4	38.3	38.3

Noise Levels / Limits at winds speed, in m/s

10m AGL	3	4	5	6	7	8	9	10
80m AGL			6.84	8.2	9.6	10.9	12.3	13.7

H62 Cottonwood - B/G Regression Line	25.4	25.5	26.2	27.4	29.0	30.9	33.1	35.4	
<b>H62 Cottonwood - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.9</b>	<b>38.1</b>	<b>40.4</b>	
<b>H62 Cottonwood - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H62 Cottonwood (night) - B/G Regression Line	25.3	24.3	24.2	24.9	26.3	28.2	30.5	33.1	
<b>H62 Cottonwood (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.5</b>	<b>38.1</b>	
<b>H62 Cottonwood (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H60 - Predicted WTG Noise Levels					35.1	35.9	35.9	35.8	35.6
H61 - Predicted WTG Noise Levels					37.7	38.5	38.5	38.5	38.4
H62 - Predicted WTG Noise Levels					37.7	38.5	38.5	38.5	38.4

H64 Valdarmon Hill - B/G Regression Line	19.8	22.4	25.0	27.7	30.3	33.0	35.6	38.1	
<b>H64 Valdarmon Hill - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.3</b>	<b>38.0</b>	<b>40.6</b>	<b>43.1</b>	
<b>H64 Valdarmon Hill - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H64 Valdarmon Hill (night) - B/G Regression Line	17.5	19.5	21.9	24.5	27.3	30.2	33.2	36.2	
<b>H64 Valdarmon Hill (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.2</b>	<b>38.2</b>	<b>41.2</b>	
<b>H64 Valdarmon Hill (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H64 - Predicted WTG Noise Levels					40.4	41.2	41.2	41.0	40.8
H65 - Predicted WTG Noise Levels					40.3	41.1	41.1	40.9	40.7

H66 Little Vale1 - B/G Regression Line	19.4	20.5	21.9	23.5	25.3	27.3	29.3	31.5	
<b>H66 Little Vale1 - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.5</b>	
<b>H66 Little Vale1 - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H66 Little Vale1 (night) - B/G Regression Line	15.2	15.8	17.0	18.7	20.9	23.5	26.3	29.4	
<b>H66 Little Vale1 (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	
<b>H66 Little Vale1 (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H66 - Predicted WTG Noise Levels					41.3	42.1	42.1	42.1	42.1
H67 - Predicted WTG Noise Levels					38.9	39.7	39.7	39.7	39.7

H70 Snowgums - B/G Regression Line	22.2	22.5	23.5	25.1	27.2	29.7	32.5	35.5	
<b>H70 Snowgums - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.5</b>	<b>40.5</b>	
<b>H70 Snowgums - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H70 Snowgums (night) - B/G Regression Line	14.7	15.9	17.9	20.3	23.3	26.5	30.1	33.7	
<b>H70 Snowgums (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.1</b>	<b>38.7</b>	
<b>H70 Snowgums (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	
H68 - Predicted WTG Noise Levels					37.1	37.9	37.9	37.6	37.3
H69 - Predicted WTG Noise Levels					39.0	39.9	39.8	39.6	39.4
H70 - Predicted WTG Noise Levels					38.0	38.9	38.8	38.3	37.7

Noise Levels / Limits at winds speed, in m/s

10m AGL	3	4	5	6	7	8	9	10
80m AGL			6.84	8.2	9.6	10.9	12.3	13.7

H71 Lyncross - B/G Regression Line	21.1	22.9	24.9	27.1	29.5	32.1	34.8	37.5
<b>H71 Lyncross - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.1</b>	<b>39.8</b>	<b>42.5</b>
<b>H71 Lyncross - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H71 Lyncross (night) - B/G Regression Line	14.2	16.4	19.1	22.1	25.3	28.7	32.2	35.8
<b>H71 Lyncross (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.2</b>	<b>40.8</b>
<b>H71 Lyncross (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H71 - Predicted WTG Noise Levels				34.6	35.4	35.4	34.9	34.4
H72 - Predicted WTG Noise Levels				33.5	34.4	34.3	33.9	33.4
H73 - Predicted WTG Noise Levels				32.4	33.2	33.2	32.7	32.2
H74 - Predicted WTG Noise Levels				26.7	27.5	27.5	26.9	26.2
H75 - Predicted WTG Noise Levels				27.0	27.9	27.8	27.2	26.2
H76 - Predicted WTG Noise Levels				25.2	26.0	26.0	25.5	24.9
H81 - Predicted WTG Noise Levels				28.7	29.5	29.5	29.3	29.0
H82 - Predicted WTG Noise Levels				30.5	31.4	31.3	31.0	30.5
H109 - Predicted WTG Noise Levels				29.3	30.1	30.1	29.9	29.6
H110 - Predicted WTG Noise Levels				21.7	22.5	22.5	22.2	21.8
H112 - Predicted WTG Noise Levels				22.8	23.6	23.6	23.3	22.8
H115 - Predicted WTG Noise Levels				23.5	24.3	24.3	23.8	23.2
H116 - Predicted WTG Noise Levels				23.8	24.6	24.6	24.0	23.4

H79 Leeston - B/G Regression Line	26.2	28.4	30.4	32.4	34.4	36.2	38.0	39.8
<b>H79 Leeston - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.4</b>	<b>37.4</b>	<b>39.4</b>	<b>41.2</b>	<b>43.0</b>	<b>44.8</b>
<b>H79 Leeston - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H79 Leeston (night) - B/G Regression Line	26.0	27.5	29.2	31.0	32.9	34.9	36.9	38.9
<b>H79 Leeston (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.0</b>	<b>37.9</b>	<b>39.9</b>	<b>41.9</b>	<b>43.9</b>
<b>H79 Leeston (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H63 - Predicted WTG Noise Levels				41.1	41.9	41.9	41.9	41.8
H79 - Predicted WTG Noise Levels				42.2	43.0	43.0	42.9	42.9
H80 - Predicted WTG Noise Levels				39.3	40.1	40.1	40.1	40.0

H106 Rosdale - B/G Regression Line	32.2	32.9	34.0	35.3	36.9	38.6	40.4	42.3
<b>H106 Rosdale - SA EPA Noise Limits</b>	<b>37.2</b>	<b>37.9</b>	<b>39.0</b>	<b>40.3</b>	<b>41.9</b>	<b>43.6</b>	<b>45.4</b>	<b>47.3</b>
<b>H106 Rosdale - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.4</b>	<b>47.3</b>
H106 Rosdale (night) - B/G Regression Line	31.6	31.9	32.6	33.7	35.2	36.9	38.7	40.7
<b>H106 Rosdale (night) - SA EPA Noise Limits</b>	<b>36.6</b>	<b>36.9</b>	<b>37.6</b>	<b>38.7</b>	<b>40.2</b>	<b>41.9</b>	<b>43.7</b>	<b>45.7</b>
<b>H106 Rosdale (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.7</b>
H103 - Predicted WTG Noise Levels				26.5	27.3	27.3	27.3	27.3
H104 - Predicted WTG Noise Levels				30.7	31.5	31.5	31.5	31.5
H105 - Predicted WTG Noise Levels				29.1	29.9	29.9	29.9	29.9

	Noise Levels / Limits at winds speed, in m/s								
	<i>10m</i> <i>AGL</i>	3	4	5	6	7	8	9	10
	<i>80m</i> <i>AGL</i>			<b>6.84</b>	<b>8.2</b>	<b>9.6</b>	<b>10.9</b>	<b>12.3</b>	<b>13.7</b>
H106 - Predicted WTG Noise Levels					26.5	27.3	27.3	27.3	27.2
H107 - Predicted WTG Noise Levels					28.4	29.2	29.2	29.2	29.2
H108 - Predicted WTG Noise Levels					28.1	29.0	28.9	28.9	28.9
H113 - Predicted WTG Noise Levels					28.0	28.8	28.8	28.7	28.7
H114 - Predicted WTG Noise Levels					29.5	30.3	30.3	30.2	30.2



Noise Levels / Limits at winds speed, in m/s

	10m AGL	3	4	5	6	7	8	9	10
	80m AGL			6.84	8.2	9.6	10.9	12.3	13.7
H8 Narangi - B/G Regression Line		25.4	24.3	24.1	24.8	26.2	28.1	30.6	33.4
<b>H8 Narangi - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.6</b>	<b>38.4</b>
<b>H8 Narangi - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H8 Narangi (night) - B/G Regression Line		23.7	21.9	21.3	21.8	23.2	25.3	28.0	31.1
<b>H8 Narangi (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.1</b>
<b>H8 Narangi (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H2 - Predicted WTG Noise Levels					30.1	30.9	30.7	29.9	29.0
H3 - Predicted WTG Noise Levels					29.4	30.2	30.0	29.2	28.4
H4 - Predicted WTG Noise Levels					27.8	28.6	28.5	27.7	26.9
H5 - Predicted WTG Noise Levels					28.1	28.9	28.8	28.0	27.2
H6 - Predicted WTG Noise Levels					28.0	28.8	28.6	27.9	27.0
H7 - Predicted WTG Noise Levels					27.6	28.3	28.2	27.4	26.6
H8 - Predicted WTG Noise Levels					36.0	36.7	36.5	35.7	34.9
H18 Wollondilly2 - B/G Regression Line		30.2	28.8	28.1	28.2	28.8	30.0	31.5	33.4
<b>H18 Wollondilly2 - SA EPA Noise Limits</b>		<b>35.2</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.5</b>	<b>38.4</b>
<b>H18 Wollondilly2 - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H18 Wollondilly2 (night) - B/G Regression Line		28.2	25.7	24.4	24.2	24.9	26.3	28.3	30.8
<b>H18 Wollondilly2 (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.8</b>
<b>H18 Wollondilly2 (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H17 - Predicted WTG Noise Levels					33.6	34.3	34.3	33.6	33.0
H18 - Predicted WTG Noise Levels					33.8	34.4	34.4	33.9	33.6
H19 - Predicted WTG Noise Levels					35.3	36.0	35.9	35.3	34.8
H20 Normaroo - B/G Regression Line		24.7	24.5	24.9	25.9	27.3	29.0	31.0	33.2
<b>H20 Normaroo - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.0</b>	<b>38.2</b>
<b>H20 Normaroo - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H20 Normaroo (night) - B/G Regression Line		22.8	22.1	22.2	23.1	24.4	26.3	28.6	31.1
<b>H20 Normaroo (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.1</b>
<b>H20 Normaroo (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H20 - Predicted WTG Noise Levels					36.3	37.1	37.1	36.5	35.8
H58 650 Woodhouslee Rd - B/G Regression Line		29.2	29.0	29.2	29.7	30.4	31.4	32.7	34.1
<b>H58 650 Woodhouslee Rd - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.4</b>	<b>36.4</b>	<b>37.7</b>	<b>39.1</b>
<b>H58 650 Woodhouslee Rd - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H58 650 Woodhouslee Rd (night) - B/G Regression Line		27.0	26.9	27.2	27.8	28.7	29.9	31.3	32.9
<b>H58 650 Woodhouslee Rdo (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.3</b>	<b>37.9</b>
<b>H58 650 Woodhouslee Rd (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H58 - Predicted WTG Noise Levels					33.3	34.0	33.7	32.7	31.9
H59 - Predicted WTG Noise Levels					34.1	34.8	34.4	33.5	32.7

Noise Levels / Limits at winds speed, in m/s

	10m AGL	3	4	5	6	7	8	9	10
	80m AGL			6.84	8.2	9.6	10.9	12.3	13.7
H62 Cottonwood - B/G Regression Line		25.4	25.5	26.2	27.4	29.0	30.9	33.1	35.4
<b>H62 Cottonwood - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.9</b>	<b>38.1</b>	<b>40.4</b>
<b>H62 Cottonwood - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H62 Cottonwood (night) - B/G Regression Line		25.3	24.3	24.2	24.9	26.3	28.2	30.5	33.1
<b>H62 Cottonwood (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.5</b>	<b>38.1</b>
<b>H62 Cottonwood (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H60 - Predicted WTG Noise Levels					31.7	32.4	32.2	31.3	30.5
H61 - Predicted WTG Noise Levels					34.1	34.9	34.5	33.6	32.8
H62 - Predicted WTG Noise Levels					34.0	34.8	34.4	33.5	32.7
H64 Valdarmon Hill - B/G Regression Line		19.8	22.4	25.0	27.7	30.3	33.0	35.6	38.1
<b>H64 Valdarmon Hill - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.3</b>	<b>38.0</b>	<b>40.6</b>	<b>43.1</b>
<b>H64 Valdarmon Hill - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H64 Valdarmon Hill (night) - B/G Regression Line		17.5	19.5	21.9	24.5	27.3	30.2	33.2	36.2
<b>H64 Valdarmon Hill (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.2</b>	<b>38.2</b>	<b>41.2</b>
<b>H64 Valdarmon Hill (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H64 - Predicted WTG Noise Levels					36.7	37.5	37.3	36.6	35.9
H65 - Predicted WTG Noise Levels					36.5	37.2	37.0	36.4	35.7
H66 Little Vale1 - B/G Regression Line		19.4	20.5	21.9	23.5	25.3	27.3	29.3	31.5
<b>H66 Little Vale1 - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.5</b>
<b>H66 Little Vale1 - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H66 Little Vale1 (night) - B/G Regression Line		15.2	15.8	17.0	18.7	20.9	23.5	26.3	29.4
<b>H66 Little Vale1 (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>
<b>H66 Little Vale1 (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H66 - Predicted WTG Noise Levels					37.8	38.5	38.2	37.2	36.4
H67 - Predicted WTG Noise Levels					35.3	36.0	35.6	34.6	33.9
H70 Snowgums - B/G Regression Line		22.2	22.5	23.5	25.1	27.2	29.7	32.5	35.5
<b>H70 Snowgums - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.5</b>	<b>40.5</b>
<b>H70 Snowgums - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H70 Snowgums (night) - B/G Regression Line		14.7	15.9	17.9	20.3	23.3	26.5	30.1	33.7
<b>H70 Snowgums (night) - SA EPA Noise Limits</b>		<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.1</b>	<b>38.7</b>
<b>H70 Snowgums (night) - WHO Noise Limits</b>		<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H68 - Predicted WTG Noise Levels					32.9	33.6	33.6	33.1	32.7
H69 - Predicted WTG Noise Levels					34.7	35.4	35.3	34.7	34.1
H70 - Predicted WTG Noise Levels					35.6	36.3	36.3	35.8	35.1

Noise Levels / Limits at winds speed, in m/s

10m AGL	3	4	5	6	7	8	9	10
<b>80m AGL</b>			<b>6.84</b>	<b>8.2</b>	<b>9.6</b>	<b>10.9</b>	<b>12.3</b>	<b>13.7</b>

H71 Lyncross - B/G Regression Line	21.1	22.9	24.9	27.1	29.5	32.1	34.8	37.5
<b>H71 Lyncross - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.1</b>	<b>39.8</b>	<b>42.5</b>
<b>H71 Lyncross - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H71 Lyncross (night) - B/G Regression Line	14.2	16.4	19.1	22.1	25.3	28.7	32.2	35.8
<b>H71 Lyncross (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>37.2</b>	<b>40.8</b>
<b>H71 Lyncross (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H71 - Predicted WTG Noise Levels				32.3	33.0	33.0	32.4	31.7
H72 - Predicted WTG Noise Levels				31.3	32.1	32.0	31.4	30.7
H73 - Predicted WTG Noise Levels				30.4	31.1	31.1	30.5	29.8
H74 - Predicted WTG Noise Levels				25.7	26.4	26.4	25.9	25.3
H75 - Predicted WTG Noise Levels				26.2	27.0	27.0	26.4	25.7
H76 - Predicted WTG Noise Levels				24.3	25.1	25.1	24.5	23.8
H81 - Predicted WTG Noise Levels				26.1	26.8	26.7	26.1	25.5
H82 - Predicted WTG Noise Levels				28.4	29.2	29.1	28.5	27.8
H109 - Predicted WTG Noise Levels				26.5	27.3	27.1	26.4	25.7
H110 - Predicted WTG Noise Levels				20.3	21.0	21.0	20.6	20.1
H112 - Predicted WTG Noise Levels				21.8	22.5	22.5	22.1	21.4
H115 - Predicted WTG Noise Levels				22.8	23.5	23.5	22.9	22.1
H116 - Predicted WTG Noise Levels				23.0	23.8	23.7	23.1	22.4

H79 Leeston - B/G Regression Line	26.2	28.4	30.4	32.4	34.4	36.2	38.0	39.8
<b>H79 Leeston - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.4</b>	<b>37.4</b>	<b>39.4</b>	<b>41.2</b>	<b>43.0</b>	<b>44.8</b>
<b>H79 Leeston - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H79 Leeston (night) - B/G Regression Line	26.0	27.5	29.2	31.0	32.9	34.9	36.9	38.9
<b>H79 Leeston (night) - SA EPA Noise Limits</b>	<b>35.0</b>	<b>35.0</b>	<b>35.0</b>	<b>36.0</b>	<b>37.9</b>	<b>39.9</b>	<b>41.9</b>	<b>43.9</b>
<b>H79 Leeston (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>
H63 - Predicted WTG Noise Levels				37.3	38.0	37.7	36.9	36.2
H79 - Predicted WTG Noise Levels				38.2	38.9	38.6	37.7	36.9
H80 - Predicted WTG Noise Levels				35.7	36.4	36.0	35.1	34.4

H106 Rosdale - B/G Regression Line	32.2	32.9	34.0	35.3	36.9	38.6	40.4	42.3
<b>H106 Rosdale - SA EPA Noise Limits</b>	<b>37.2</b>	<b>37.9</b>	<b>39.0</b>	<b>40.3</b>	<b>41.9</b>	<b>43.6</b>	<b>45.4</b>	<b>47.3</b>
<b>H106 Rosdale - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.4</b>	<b>47.3</b>
H106 Rosdale (night) - B/G Regression Line	31.6	31.9	32.6	33.7	35.2	36.9	38.7	40.7
<b>H106 Rosdale (night) - SA EPA Noise Limits</b>	<b>36.6</b>	<b>36.9</b>	<b>37.6</b>	<b>38.7</b>	<b>40.2</b>	<b>41.9</b>	<b>43.7</b>	<b>45.7</b>
<b>H106 Rosdale (night) - WHO Noise Limits</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.0</b>	<b>45.7</b>
H103 - Predicted WTG Noise Levels				22.8	23.5	23.2	22.3	21.6
H104 - Predicted WTG Noise Levels				26.7	27.4	27.0	26.1	25.4
H105 - Predicted WTG Noise Levels				24.9	25.6	25.3	24.4	23.8

**Noise Levels / Limits at winds speed, in m/s**

	<b>10m AGL</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
	<b>80m AGL</b>			<b>6.84</b>	<b>8.2</b>	<b>9.6</b>	<b>10.9</b>	<b>12.3</b>	<b>13.7</b>
H106 - Predicted WTG Noise Levels					22.6	23.3	23.1	22.3	21.5
H107 - Predicted WTG Noise Levels					24.1	24.8	24.5	23.7	23.0
H108 - Predicted WTG Noise Levels					23.8	24.5	24.3	23.4	22.8
H113 - Predicted WTG Noise Levels					24.0	24.6	24.4	23.6	22.9
H114 - Predicted WTG Noise Levels					25.0	25.7	25.5	24.6	24.0

## IEC 61400-11 WTG Manufacturer Sound Data

Item no.: 961263.RO

Schalltechnisches Gutachten

Date: 2006-02-06

IEC Ed.2

Class: I

Issued by: Technology Dept.

Windtest (complete)

Type: Report

V90-2MW VCS (Mode 0)

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Class 1

Item no. 961263.RO

2006-02-06

# Report of acoustical emissions

IEC Ed.2

Windtest (complete)

V90-2MW VCS (Mode 0)

Site: Porep

VMP 5000-02 / 50HZ



[WWW.VESTAS.COM](http://WWW.VESTAS.COM)

# WINDTEST

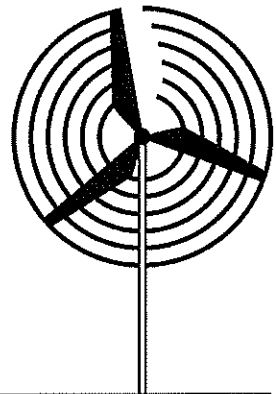
## Kaiser-Wilhelm-Koog GmbH

Report of acoustical emissions of a  
wind turbine generator system of the  
type V90-2MW VCS (Mode 0)  
near Porep, Germany

Date(s) of measurements: 2005-08-09/10

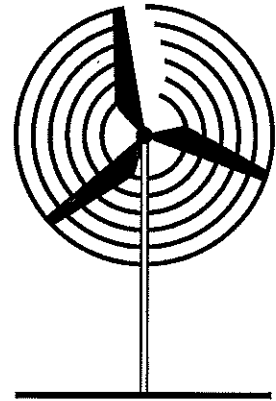
February 2006

Report WT 4848/06



Laboratory accredited by DAP Deutsches Akkreditierungssystem  
Prüfwesen according to DIN EN ISO/IEC 17025. This  
accreditation is valid for the test and measurement procedures  
given in the certificate.

Deutscher  
Akkreditierungs  
Rat  
**DAP**  
DAP-PL-1556.00



# WINDTEST

**Kaiser-Wilhelm-Koog GmbH**

**Report of acoustical emissions of a  
wind turbine generator system of the  
type V90-2MW VCS (Mode 0)  
near Porep, Germany**

Report WT 4848/06

Site or measuring place:	Porep in the region of Prignitz, Germany
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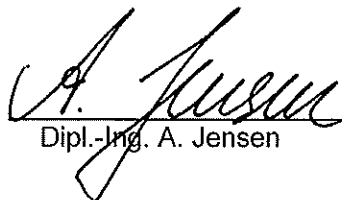
Customer:	Vestas Wind Systems A/S Smed Soerensvej 5 DK-6950 Ringkoebing Denmark
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Contractor:	WINDTEST Kaiser-Wilhelm-Koog GmbH Sommerdeich 14 b 25709 Kaiser-Wilhelm-Koog, Germany
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Date of order:	2005-05-04	Order No.:	4250 05 02968 64
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Engineer:

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Dipl.-Ing. A. Jensen

  
Dipl.-Ing. J. Neubert  
Acoustics Group Leader

Kaiser-Wilhelm-Koog, 2006-02-06





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## 1 Scope

The order from Vestas Wind Systems A/S dated 2005-05-04 required WINDTEST Kaiser-Wilhelm-Koog GmbH (WINDTEST) to carry out acoustic noise measurements on the wind turbine generator system (WTGS or 'turbine') V90-2MW VCS (Mode 0) of hub height 105 m near Porep in the region of Prignitz, Germany. From this, the sound power level, relevant for noise propagation calculations, of the noise emitted from the turbine at different wind speeds, and frequency spectra of the same, was also to be determined.

**The results given in this report relate only to this WTGS.**

## 2 Method

### 2.1 Measurement procedures

All measurements and analysis described in this report were done in accordance with the IEC 61400-11: Wind turbine generator systems – Part 11: Acoustic noise measurement techniques, Ed. 2 [IEC 61400-11] using Method 1 as outlined in 7.3.1.1 "Method 1: determination of the wind speed from the electric output and the power curve". In this report the sound power level and the tonality are given in the range of wind speeds from 5 to 8 m/s at a height of 10 m.

**Note:** A measured power curve for the turbine was provided by the customer for purposes of converting the measured turbine power output into the standardised wind speed. This power curve is given in the Annex.

### 2.2 Measurement object

Table 1 shows the characteristics of the measured WTGS. The remaining characteristics can be found in the manufacturer's certificate included in the Annex.

**Table 1:** Characteristics of the measured WTGS

parameter	Value
manufacturer	Vestas Wind Systems A/S
type	V90-2MW VCS (Mode 0)
turbine serial no.	19702
site	Porep
hub-height above ground	105 m
rotor diameter	90 m
distance middle of tower to middle of blade flange	4,44 m
power control (pitch/stall)	Pitch and VCS

### 2.3 Course of the measurements

The total measurement period lasted from 2005-08-09 12:00 h until 2005-08-09 20:30 h and from 2005-08-10 8:30 h until 2005-08-10 16:30 h. During this time the measured wind speed



ranged from 4.2 to 7.9 m/s at a height of 10 m. The real electrical power output of the turbine ranged between 465 and 1996 kW. The turbine was running continuously during the operating noise measurements.

The sound pressure level was measured with a microphone on an acoustically hard board and fed into a sound level meter which then calculated A-weighted equivalent 1-second average values which were then acquired by the measurement system. Non-acoustic data were sampled and acquired by the measurement with a sampling rate of 1 Hz. Time periods, where there were intermittent background noise of a significant nature, e.g. passing cars, planes flying over, rain etc., were marked accordingly during the measurements, and were omitted in the later evaluation. If there were random and reoccurring disturbances, which could not be marked during the measurement, a later state correction by means of a comparison with the DAT-recording was done.

The wind turbine generator system is sited in farmland. The surface roughness length for this measurement is assumed to be 0.05 m. The microphone position was chosen to minimise the effect of buildings, trees or bushes in the surrounding area of the wind turbine generator system, which might have had an influence on the measurement results. The conditions comply with free field behaviour over a reflecting plane.

During the noise measurements the meteorological conditions given in Table 2 were prevailing.

**Table 2:** Prevailing meteorological conditions during the measurements

<i>barometric pressure at 2 m height above ground [hPa]</i>	998
<i>air temperature at 2 m height above ground [°C]</i>	12
<i>prevailing wind direction</i>	W
<i>range of wind direction</i>	250 - 265
<i>weather conditions</i>	cloudy and dry
<i>Turbulence intensity at 10 m height above ground [%]</i>	20,8

## 2.4 Measuring equipment

The measuring equipment used is listed in the Annex. This equipment is tested regularly according to [IEC 61400-11] to ensure a high degree of measurement accuracy as well as security of data. The complete acoustic measurement system was checked before and after the measurements using an acoustic calibrator (B&K 4231).

## 2.5 Position of microphone

The microphone was placed according to [IEC 61400-11]. The distance from the turbine to the reference measuring point,  $R_0 = 150$  m, was chosen taking local circumstances into account. The height of the microphone with respect to the bottom of the turbine foundation was 0 m.



### 3 Measurement results

#### 3.1 Determination of directivity

As no significant directivity was ascertained the reference measurement position was chosen to be directly downwind of the turbine. This ensured worst case sound propagation conditions were taken into account.

#### 3.2 Sound pressure level

The microphone converts the sound pressure into a continuous analogue signal which is then fed to a sound level meter. The resulting dB value,  $L_{Aeq}$ , together with the status, the wind speed at a height of 10 m, WS, and the real power output of the turbine,  $P_w$ , all recorded by the measurement system, is plotted against time in a graph given in the Annex. Here it can be seen at which points in time the turbine is switched on and off and provides an overview of the background noise in relation to the operating noise recorded by the measurement system over the whole period of the measurement. As can be seen, data was captured continuously throughout the whole measurement period. Non-normal background noises occurring in the measurement period, e.g. from aircraft or traffic, were marked during data acquisition to enable their easy omission in the evaluation to follow. The state signal is used to differentiate between periods when the turbine is running and when it is stopped. *state = 1* depicts a running turbine, *state = 0.5* depicts a stopped turbine, and *state = 0* marks the data to be omitted in the evaluation.

The noise produced by the turbine alone  $L_{Aeq,c}$  at wind speeds of 5, 6, 7 and 8 m/s is then determined by converting the dB levels of background and in-service noise to intensities, performing a subtraction and converting back again to dB. In order to determine this, regression curves of the measured sound pressure level with the turbine both running and stopped, plotted with respect to the standardised wind speed at a height of 10 m are required. The wind speed measured during the background noise measurement is multiplied by the factor  $\kappa$ , which is defined as the following:

$$\kappa = \frac{V_s}{V_z}$$

where,

$V_s$  is the standardised wind speed

$V_z$  is the measured wind speed.

For this measurement,  $\kappa = 1,12$ .

The results of this regression analysis are given in the Annex. All relevant sound pressure level values are given in the annex.

**Remarks:** The data have been analysed using a fourth order regression because this is the best fitting approximation through all the relevant data points. Furthermore there are no measurement values in the 9 m/s and 10 m/s wind classes.



### 3.3 Sound power level of the turbine

In accordance with [IEC 61400-11] the sound power level  $L_{WA,k}$  of the turbine in dB is derived from the corrected sound pressure level  $L_{Aeq,c,k}$ , at wind speeds between 6 and 10 m/s at a height of 10 m, using the following formula:

$$L_{WA,k} = L_{Aeq,c,k} - 6 + 10 \cdot \lg\left(\frac{4 \cdot \pi \cdot R_1^2}{S_0}\right)$$

where, 6 dB is the correction due to the doubled sound pressure sensed by the microphone caused by coherent interference at the acoustically hard board.

$10 \cdot \lg\left(\frac{4 \cdot \pi \cdot R_1^2}{S_0}\right)$  = the ratio in dB of the surface area of a sphere having the radius  $R_1$  to the reference surface area of  $S_0$

where,

$$S_0 = 1 \text{ m}^2$$

$$R_1 = \sqrt{(R_0 + d)^2 + (H - h_A)^2}$$

$R_0$  = distance between tower centre and microphone position

$d$  = distance between tower centre and rotor flange middle point

$H$  = hub-height above ground level

$h_A$  = height of microphone

The following results are given in the Annex:

- A graph showing regressions through all the measured wind turbine sound data  $L_{Aeq}$  and background noise data  $L_n$ .
- A plot of the background corrected normalised values of  $L_{WA}$  against the standardised wind speed.
- A plot of  $L_{Aeq}$  and  $L_n$  against measured wind speed.
- A plot of  $L_{Aeq}$  against power.
- A plot of pitch angle against power.
- A plot of rotor speed against power.
- A time plot of the measurement.

For the V90-2MW VCS (Mode 0) in the present configuration the real power output and the apparent sound power levels are given in table 4.

### 3.4 Tonal and frequency analyses

In accordance with the technical guideline [IEC 61400-11] a tonal analysis has to be carried out. The frequency spectrum of the noise, which is measured on the acoustically hard board, is determined on the basis of a narrow band analysis by means of the FFT-analyser B&K 2144.



This analysis was performed after the measurements using the audio signal recorded on a DAT-recorder.

The results of the tonal analysis of the V90-2MW VCS (Mode 0) according to [IEC 61400-11] are given in table 4.

### 3.5 One-third octave analysis

The A-weighted sound spectra at all the integer wind speeds are given in the Annex.

### 3.6 Uncertainties

#### 3.6.1 Sound power level

The result of the sound power level measurement is subject to uncertainties which are due to the environment, meteorological conditions and the measurement system. For these measurements all the type B measurement uncertainty components as specified in the technical guideline [IEC 61400-11] are given in Table 3. For all of the type B uncertainties mentioned here, a rectangular distribution of possible values is assumed for simplicity with a range described as "±a". The standard deviation for such a distribution is:

$$U = \frac{a}{\sqrt{3}}$$

**Table 3:** Type B measurement uncertainty components

Component	Range [dB]	Uncertainty (standard deviation) [dB]
Calibration, $U_{B1}$	±0,2	0,12
Chain of acoustic measurement instruments, $U_{B2}$	±0,4	0,23
Acoustically hard board, $U_{B3}$	±0,5	0,29
Distance measurement, $U_{B4}$	±0,1	0,06
Acoustic impedance of air, $U_{B5}$	±0,2	0,12
Meteorological variation (including turbulence), $U_{B6}$	±0,7	0,40
Wind speed derived from the power curve, $U_{B7}$	±0,3	0,17
Wind direction, $U_{B8}$	±0,5	0,29
$\sum_{i=1}^8 U_{Bi}^2$		0,44



The error in the background correction  $U_{B9}$  in dB has been calculated for each integer wind speed as follows:

$$U_{B9} = L_{Aeq,c,k} - \left[ 10 \cdot \log \left( 10^{0,1 \cdot L_{Aeq,k}} - 10^{0,1(L_n + U_{HG})} \right) \right]$$

where  $U_{HG}$  is the error in the background noise in dB defined as follows:

$$U_{HG} = \sqrt{\frac{(y_n - y_{n,est})^2}{N_n - 2}}$$

where:

$y_n$  = measured sound pressure level of background noise in dB

$y_{n,est}$  = estimated sound pressure level of background noise from the regression analysis in dB

$N_n$  = number of background noise measurement values in the wind speed bin corresponding to the integer wind speed.

The combined measurement uncertainty  $U_C$  relating to the sound power level  $L_{WA,k}$  is calculated as follows:

$$U_C = \sqrt{U_A^2 + U_{B9}^2 + \sum_{i=1}^8 U_{Bi}^2}$$

where:

$$U_A = \sqrt{\frac{\sum (y - y_{est})^2}{N - 2}}$$

where:

$y$  = measured sound pressure level of total noise (operating plus background) in dB

$y_{est}$  = estimated sound pressure level of total noise from the regression analysis in dB

$N$  = number of total noise measurement values in the wind speed bin corresponding to the integer wind speed.

All values for  $U_A$ ,  $U_{B9}$  and  $U_C$  are given in the annex.

### 3.6.2 One-third octave band spectra

The uncertainty in the one-third octave band spectra is given in the Annex for all the third octave bands.





### 3.6.3 Tonality analysis

The uncertainty in the tonality is given in the Annex for all the given tones.

## 4 Summary

As ordered by Vestas Wind Systems A/S, DK-6950 Ringkoebing, WINDTEST Kaiser-Wilhelm-Koog GmbH took measurements of the acoustic noise emissions on the WTGS V90-2MW VCS (Mode 0) with a hub height of 105 m.

All measurements and analyses of the sound power level and tonality described in this report were made on the basis of the technical guideline [IEC 61400-11]. The analysis of the sound power level was carried out using the standardised wind speed which was calculated from the certified, measured power curve provided by the customer (see Annex).

The data on the WTGS V90-2MW VCS (Mode 0) have been evaluated by using a fourth order regression because this is the best fitting approximation over all relevant points.

The results of this measurement are given in table 4.

**Table 4:** Summary of results

<i>wind speed in 10 m height [m/s]</i>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9<sup>1)</sup></b>	<b>10<sup>1)</sup></b>
<i>electrical power output calculated from the power curve [kW]</i>	661	1149	1635	1949	-	-
<i>measured pitch angle [degrees]</i>	-2.0	-2.1	-1.6	-1.5	-	-
<i>measured rotor speed [min<sup>-1</sup>]</i>	13.1	14.7	14.9	14.9	-	-
<i>sound power level [dB]</i>	99.2	102.4	103.6	103.9	-	-
<i>combined uncertainty in the sound power level, U<sub>c</sub> [dB]</i>	1.0	0.8	0.8	0.9	-	-
<i>tonality, ΔL<sub>k</sub> [dB]</i>	-5,92	-15.59	-12.77	-13.45	-	-
<i>tonal audibility, ΔL<sub>a,k</sub> [dB]</i>	-3,47	-13.23	-10.57	-11.22	-	-
<i>frequency of the most prevalent tone [Hz]</i>	-	-	-	-		

<sup>1)</sup> There are no values in this bin

***It is assured that this report has been drawn up impartially in accordance with state-of-the-art science and technology and with best knowledge and conscience.***



## 5 List of employed symbols and abbreviations

d	- distance from rotor centre to tower axis	m
D	- rotor diameter	m
$\Delta L_{ln,j,k}$	- tonality of the 'j th' spectrum at 'k th' wind speed, where j = 1 to 12 and k = 6, 7, 8, 9, 10	dB
$\Delta L_k$	- energetic average of the 12 $\Delta L_{ln,j,k}$	dB
$\Delta L_{a,k}$	- tonal audibility	dB
f	- frequency of the tone	Hz
$f_c$	- centre frequency of critical band	Hz
H	- height of rotor centre (horizontal axis turbine) or height of rotor equatorial plane (vertical axis turbine) above local ground near the wind turbine	m
$h_A$	- location point height (in measurement equal to microphone height)	m
$\kappa$	- the ratio between standardised wind speed and measured wind speed	-
$L_A$ or $L_C$	- A or C-weighted sound pressure level	dB
$L_{Aeq,k}$	- equivalent continuous A-weighted sound pressure level, where k = 6, 7, 8, 9, 10	dB
$L_{Aeq,c,k}$	- equivalent continuous A-weighted sound pressure level corrected for background noise at each integer wind speed and corrected to reference conditions, where k = 6, 7, 8, 9, 10	dB
$L_n$	- equivalent continuous sound pressure level level of the background noise	dB
$L_p$	- sound pressure level	dB
$L_{pn,j,k}$	- sound pressure level of masking noise within a critical band in the 'j th' spectrum at the 'k th' wind speed, where j = 1 to 12 and k = 6, 7, 8, 9, 10	dB
$L_{pn,avg,j,k}$	- average of analysis bandwidth sound pressure levels of masking noise in the 'j th' spectrum at the 'k th' wind speed, where j = 1 to 12 and k = 6, 7, 8, 9, 10	dB
$L_{pt,j,k}$	- sound pressure level of the tone or tones in the 'j th' spectrum at the 'k th' wind speed, where j = 1 to 12 and k = 6, 7, 8, 9, 10	dB
$L_s$	- equivalent continuous sound pressure level of only wind turbine noise	dB
$L_{s+n}$	- equivalent continuous sound pressure level of combined wind turbine and background noise	dB
$L_{WA,k}$	- apparent sound power level, where k = 6, 7, 8, 9, 10	dB
N	- Number of measured values	-
$P_W$	- effective electrical power	kW
$R_0$	- reference distance	m
$R_l$	- slant distance from rotor centre to actual measurement position	m
$S_0$	- reference area, $S_0 = 1 \text{ m}^2$	m
$U_A$ , $U_B$	- Uncertainty components	dB
$U_C$	- Total uncertainty	dB
$U_{HG}$	- Error in the background noise	dB
$V_m$	- derived wind speed from power curve	m/s
$V_S$	- standardised wind speed	m/s
WTGS	- wind turbine generator system	-
y	- measured sound pressure level of operating plus background noise	dB
$y_{est}$	- estimated sound pressure level of operating plus background noise from the regression analysis	dB



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## 6 References

[IEC 61400-11] IEC 61400-11, Wind turbine generator systems - Part 11: Acoustic noise measurement techniques, Ed. 2.

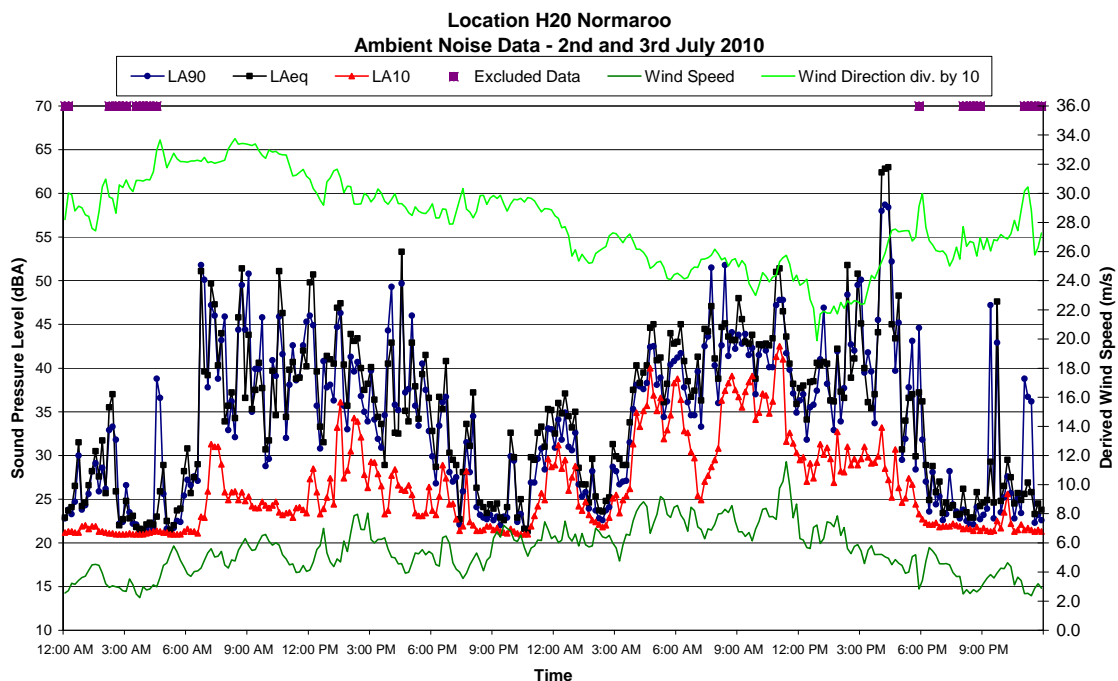
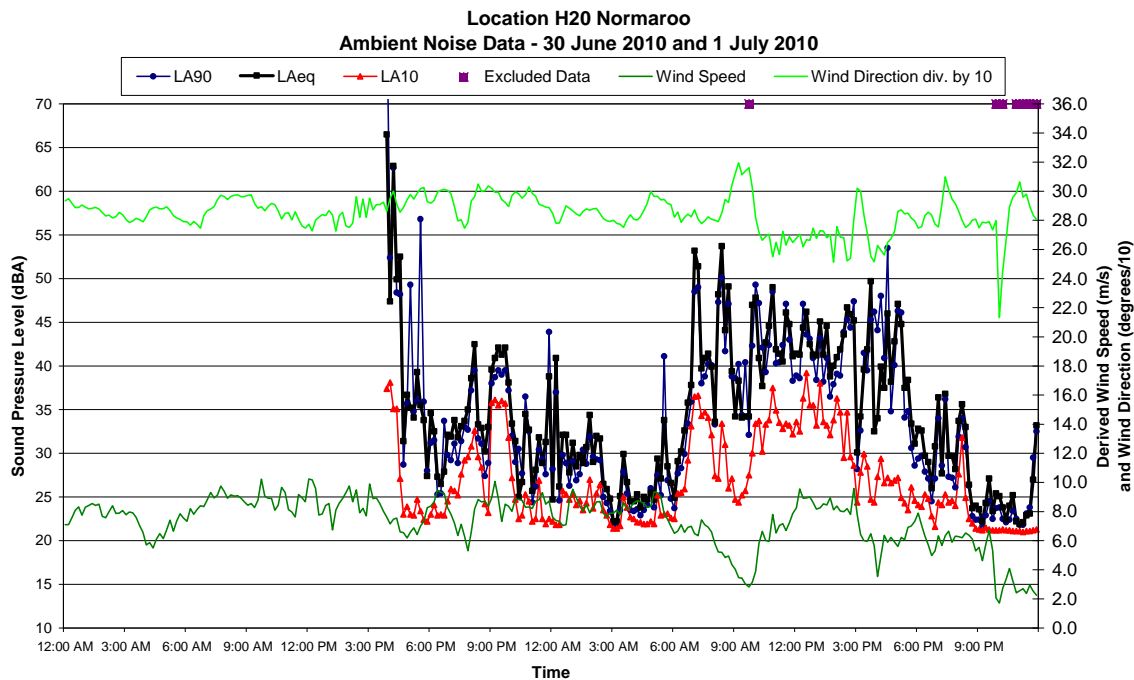
## 7 Annex

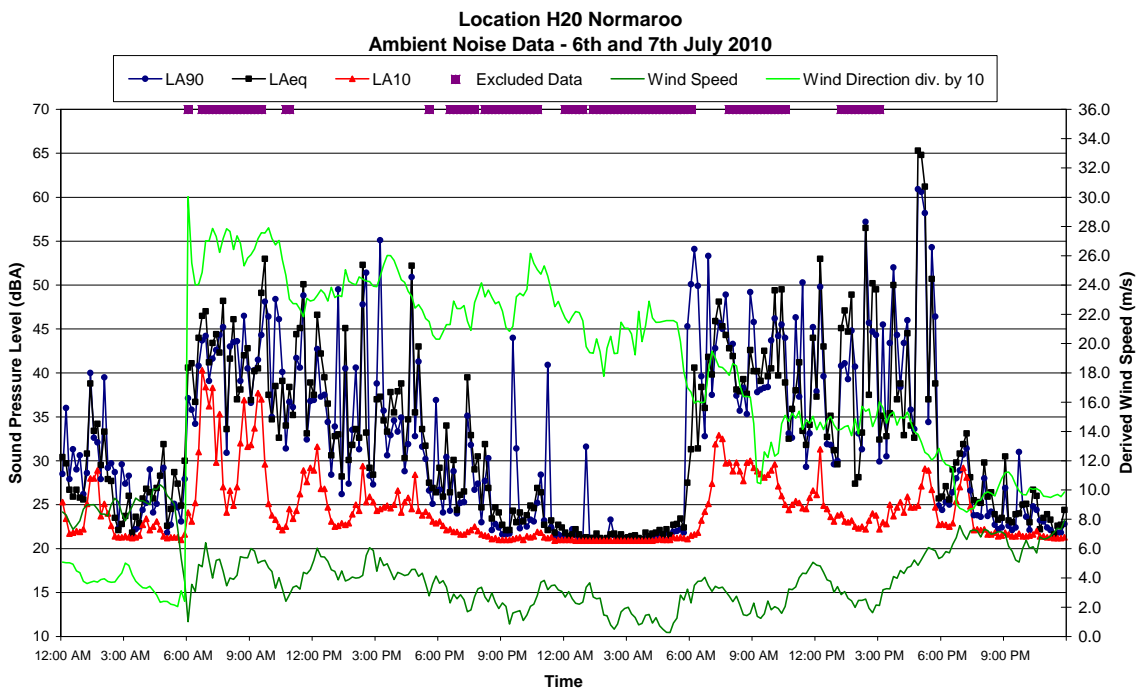
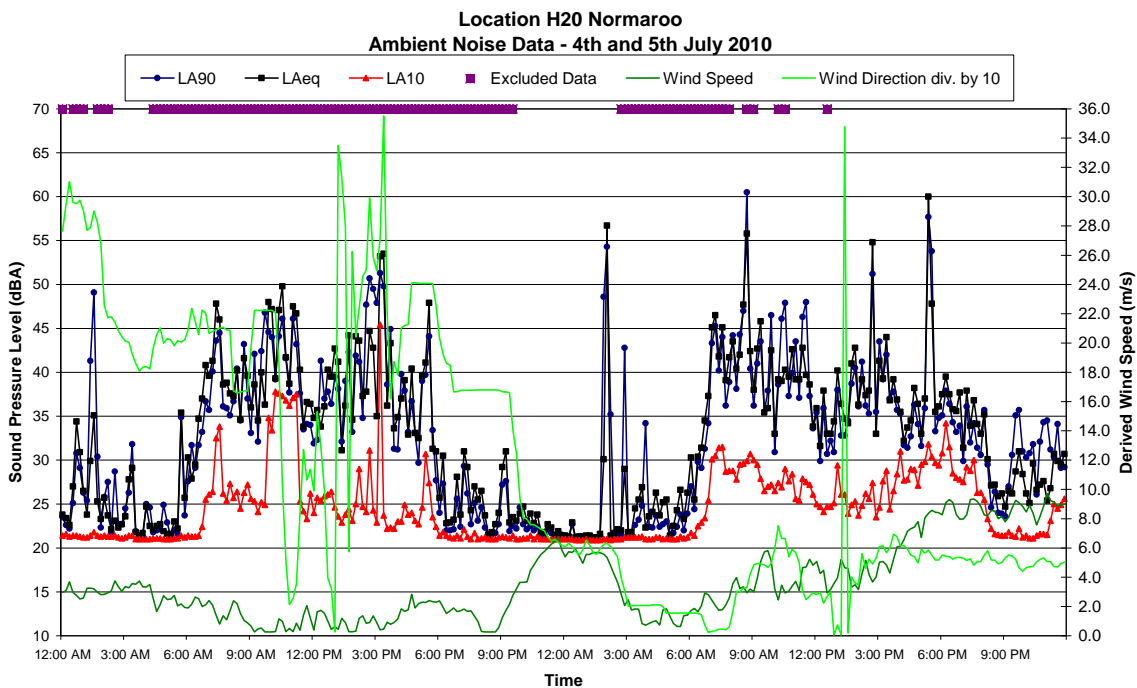


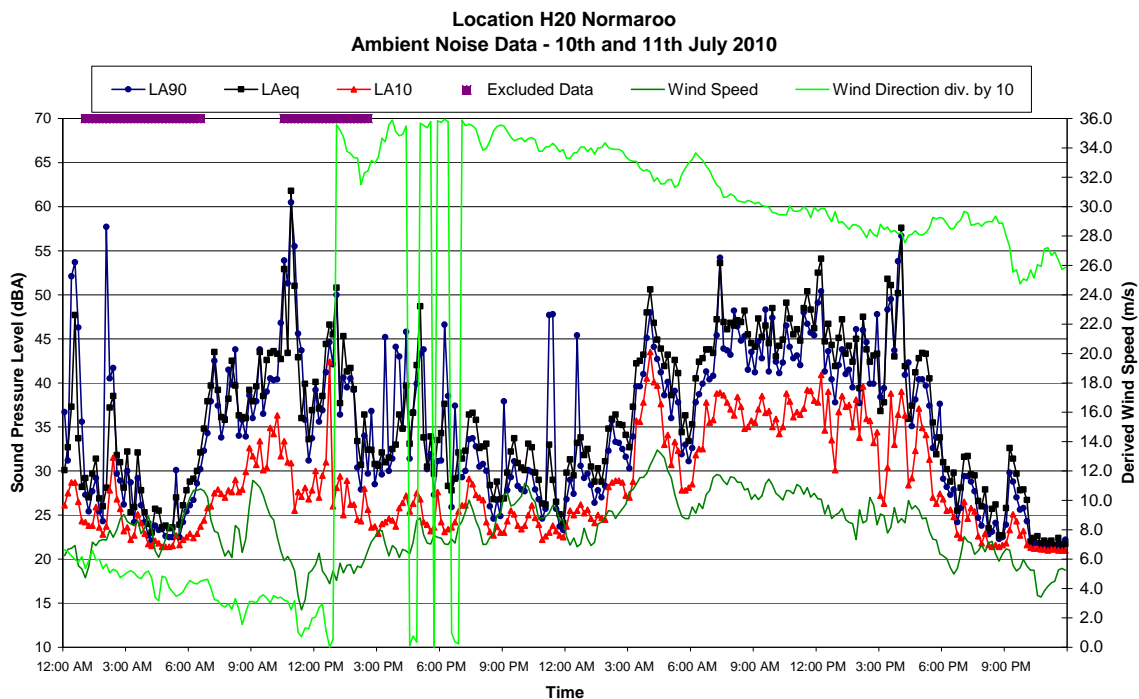
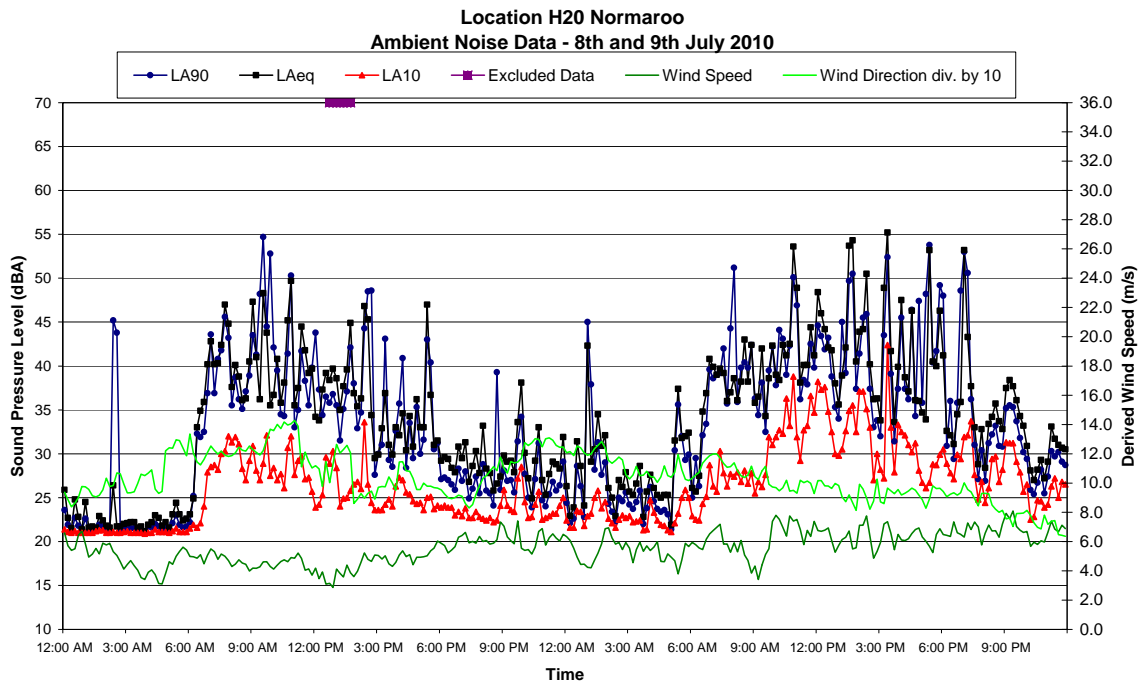
## Annex 1: Measuring equipment used

Beschreibung <i>description</i>	Fabrikat <i>supplier</i>	Typ/type	WT Nr./Ser.Nr. <i>WT stock number/serial number</i>	Kal. am <i>cal. on</i>	Eichung am <i>standardisation</i>	Einsatz <i>used</i>
Akustischer Kalibrator <i>acoustic calibrator</i>	Brüel & Kjær	4231	WT 300056602 (2342985)	-	-	x
Mikrofon <i>microphone</i>	Brüel & Kjær	4188	zu WT 300056502 (2304153)	-	31.12.2006	x
Vorverstärker <i>preamp.</i>	Brüel & Kjær	ZC 0030	zu WT 300056502	-	31.12.2006	x
Mikrofonkabel <i>microphone cable</i>	Brüel & Kjær	AO 0560	zu WT 300056502	-	31.12.2006	x
Handschallpegelmesser <i>decibel meter</i>	Brüel & Kjær	2238	WT 300056502 (2337750)	-	31.12.2006	x
Primärwindschirm <i>primary wind shield</i>	Brüel & Kjær	UA 0237	-	-	-	x
Sekundärwindschirm <i>secondary wind shield</i>	WINDTEST	-	WT 300038300	-	-	x
DAT-Rekorder <i>DAT-recorder</i>	Sony	TCD-D100	WT 300061602 (538378)	-	-	x
Anemometer <i>anemometer</i>	Thies Clima	4.3519.00.000	WT 010031803 (PN 637 0205)	Feb. 05	-	x
Windrichtungsgeber <i>wind direction sensor</i>	Thies Clima	4.3129.00.012	WT 020012103 (0103789)	-	-	x
Temperaturgeber <i>temperature sensors</i>	Heraeus	PT100	WT 300084404	Jul. 05	-	x
Luftdruckgeber <i>pressure sensors</i>	Wilms Messtechnik	0619	WT 090020303	Jul. 05	-	x
Vestas Kundenschnittstelle optisch <i>Vestas customer interface optical</i>	Colas	CT 236	WT 990011304 (4411)	-	-	x
Frontend <i>frontend</i>	IED GmbH Hamburg	MM Box 16S16	WT 300069003 (02032801)	Mai. 05	-	x
Zweikanal-Echtzeit- Frequenzanalysator <i>2-channel real time frequency analyser</i>	Brüel & Kjær	2144	WT 9904897 (1732981)	Sep. 03	-	x
Erfassungs- und Auswertesoftware <i>data acquisition and analytical software</i>	GfS Aachen Microsoft DATALOG GmbH	DIAdem 8.1 Excel 2000 Dasy-Lab 7.0	-	-	-	x
Erfassungsrechner <i>data acquisition Computer</i>	HP	Compaq nx 9005	WT 400023903 (CNF 3371X4F)	-	-	
Erfassungsrechner <i>data acquisition Computer</i>	HP	OmniBook XE3	WT 400021502 (TW 21806701)	-	-	
Erfassungsrechner <i>data acquisition Computer</i>	HP	OmniBook XE3	WT 400020802 (TW 21121810)	-	-	
Erfassungsrechner <i>data acquisition Computer</i>	HP	Compaq nx 5000	WT 400026604 (CNU43700RT)	-	-	
Erfassungsrechner <i>data acquisition Computer</i>	HP	Compaq nx 9005	WT 400024003 (CNF 3371X70)	-	-	x
Erfassungsrechner <i>data acquisition Computer</i>	HP	Compaq nx 9005	WT 400024103 (CNF 3371X4X)	-	-	
10 m – Teleskopmast <i>10 m – telescopic mast</i>	Clark (SMS 6)	QT 12M/HP	WT 050019204 (GK 70725)	-	-	x
Unterbrechungsfreie Spannungsversorgung <i>uninterruptible power supply</i>	APS	Smart UPS 1000	WT 4200574	-	-	x

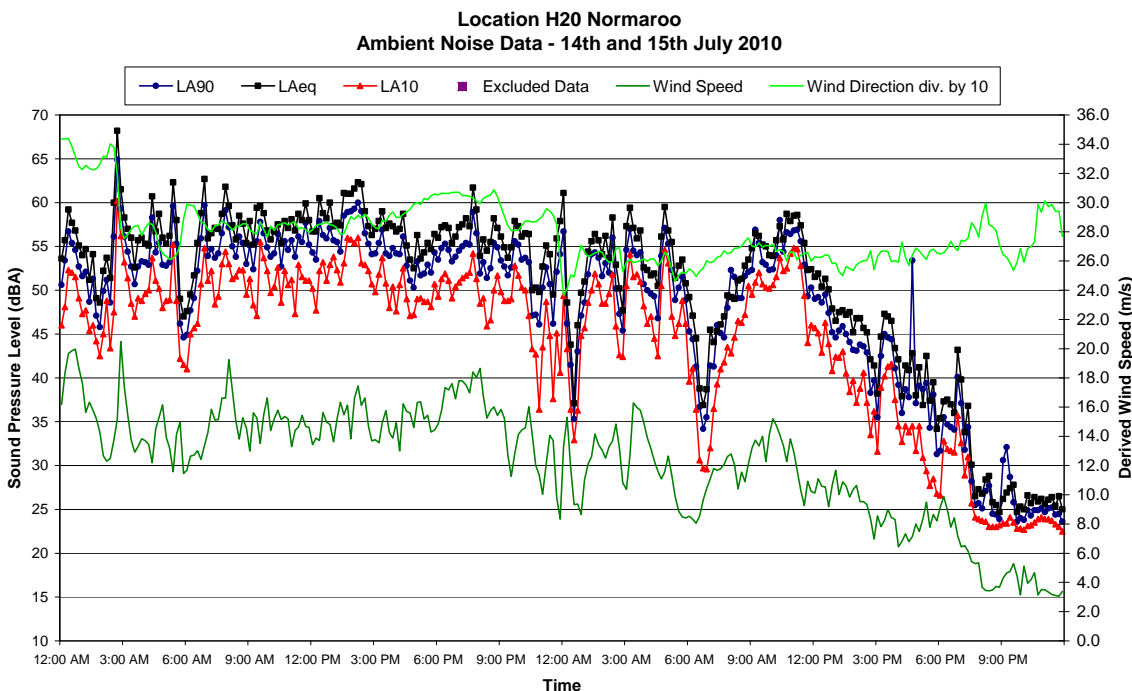
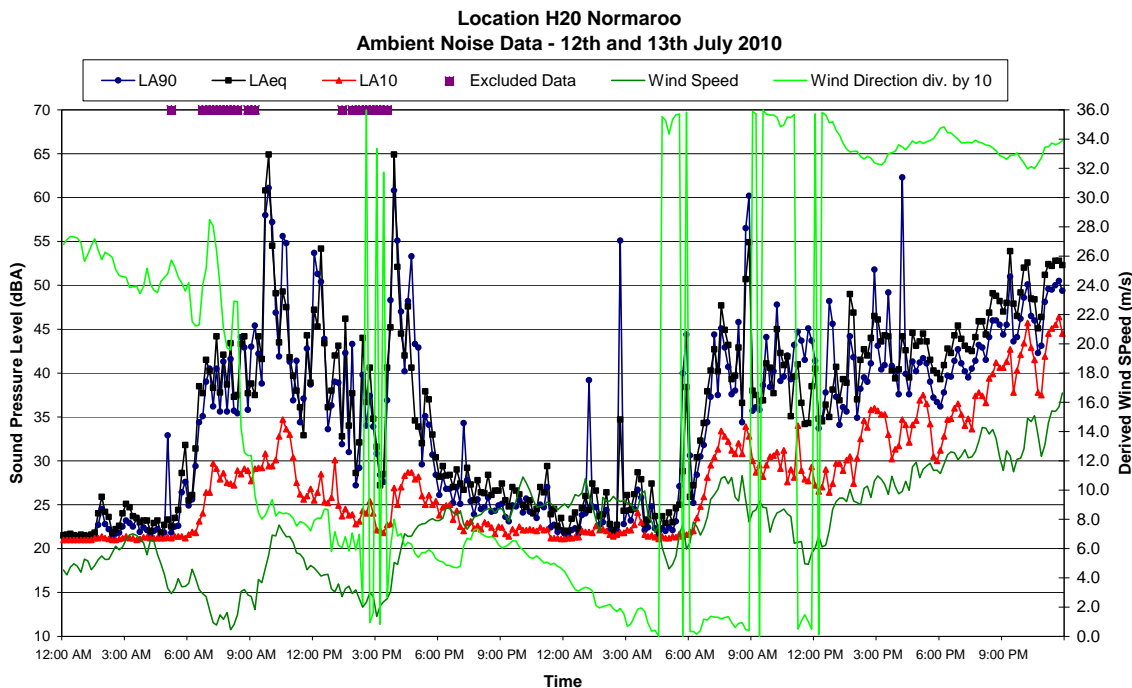
## Noise Monitoring Data - Noise Level & Wind vs. Time

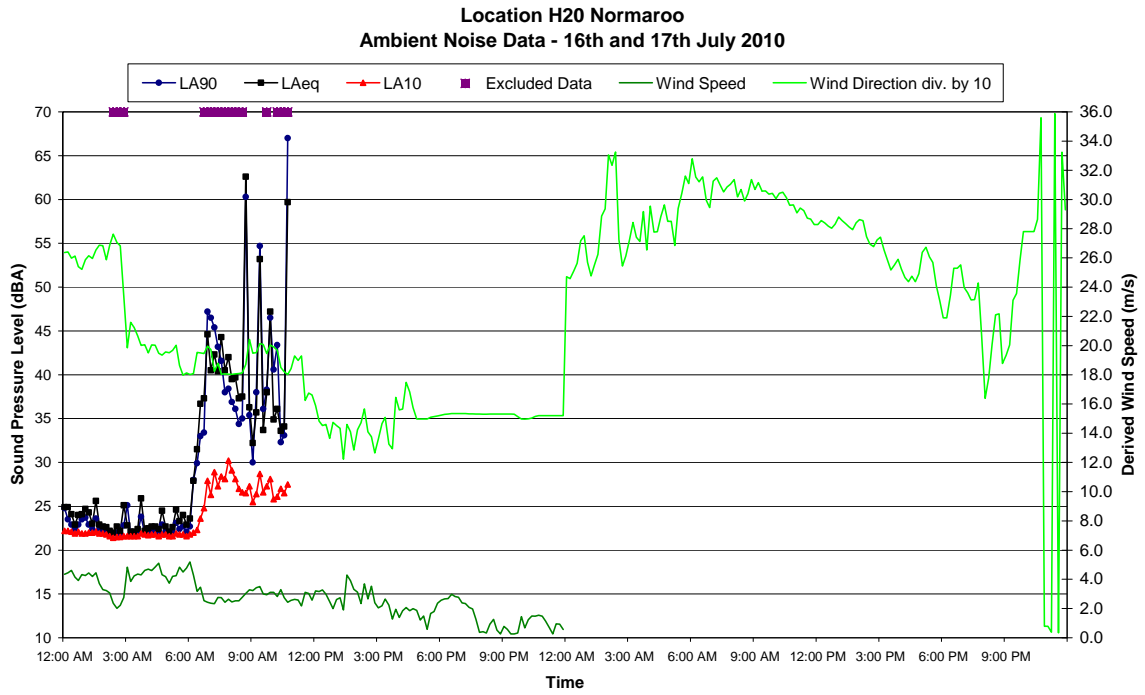


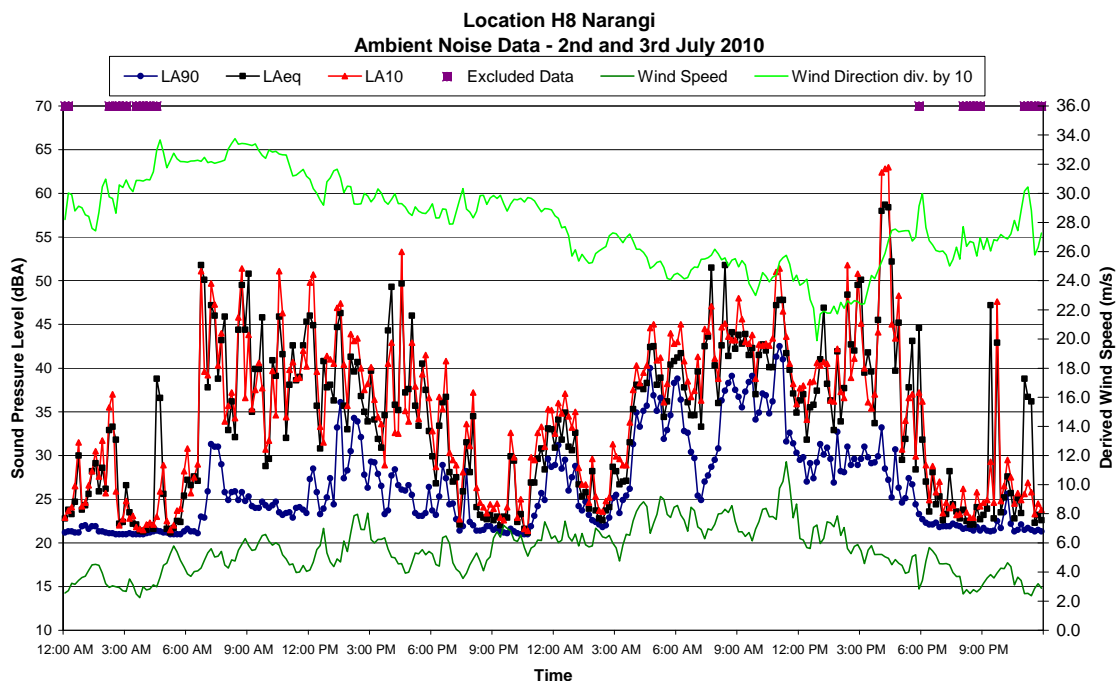
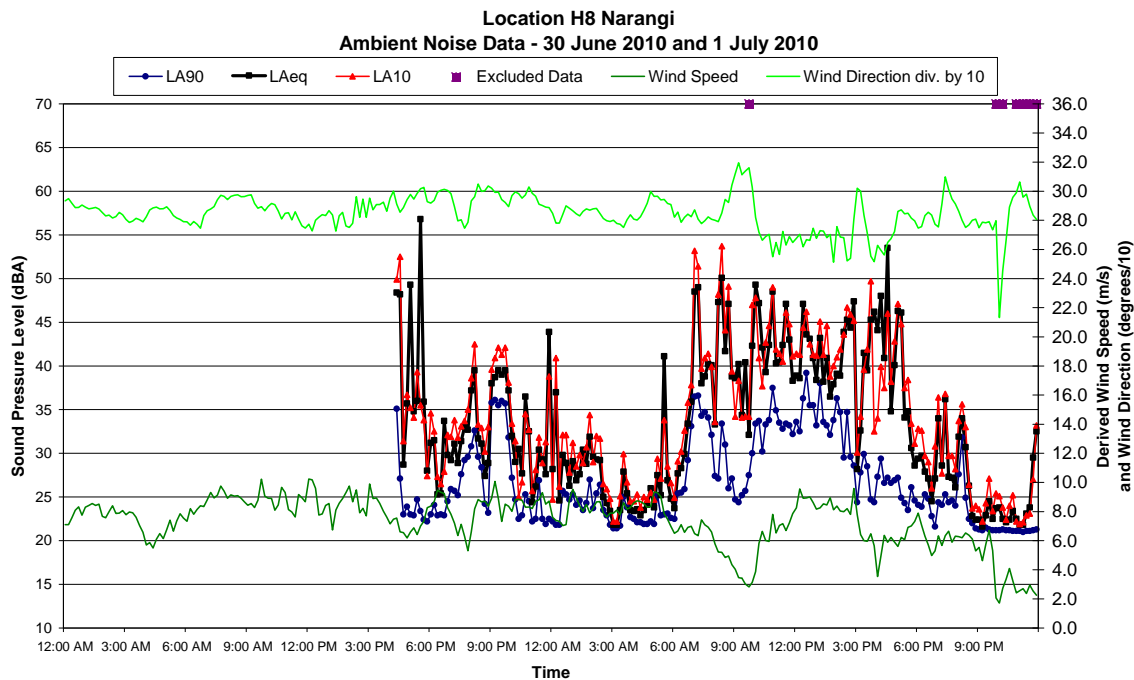


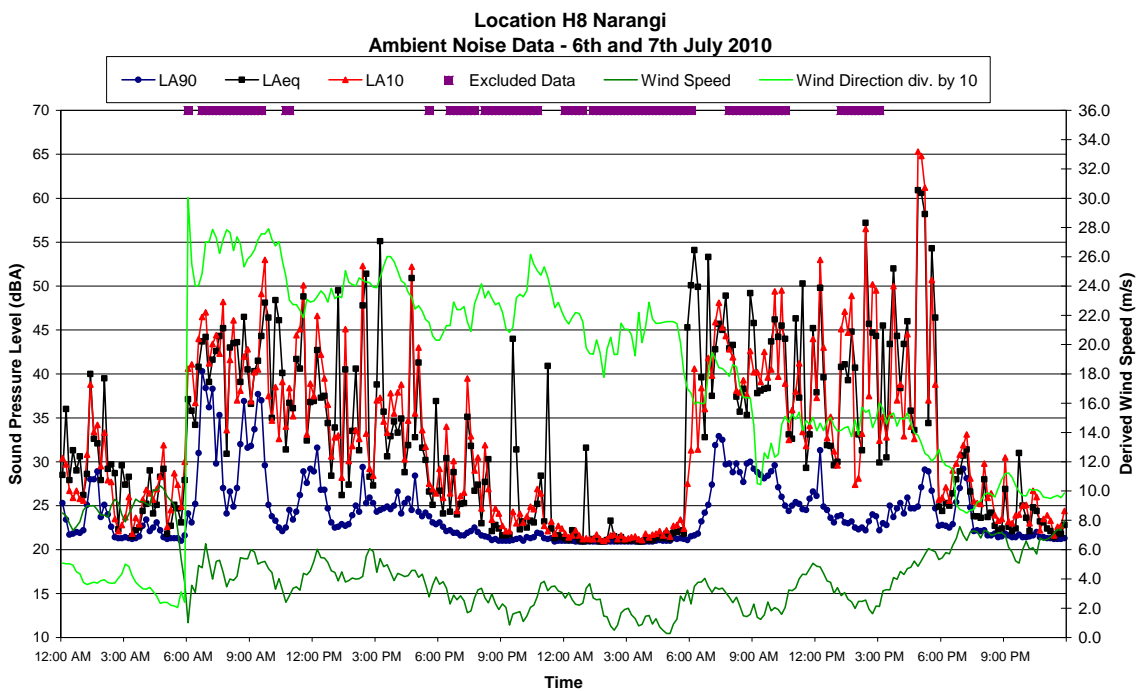
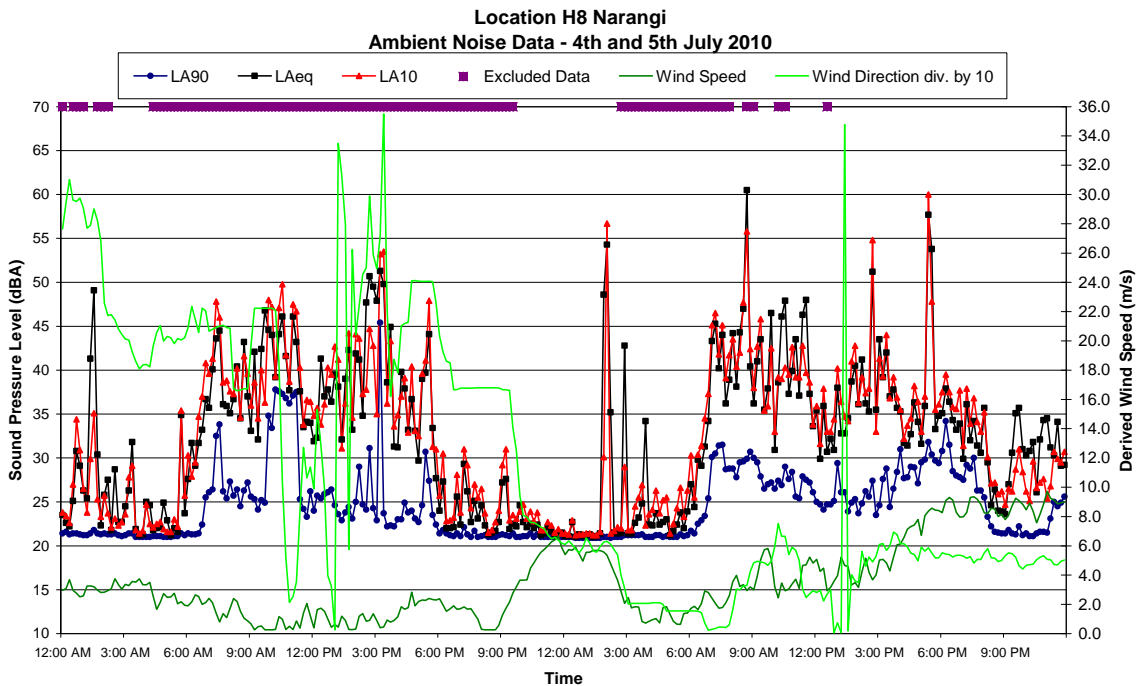


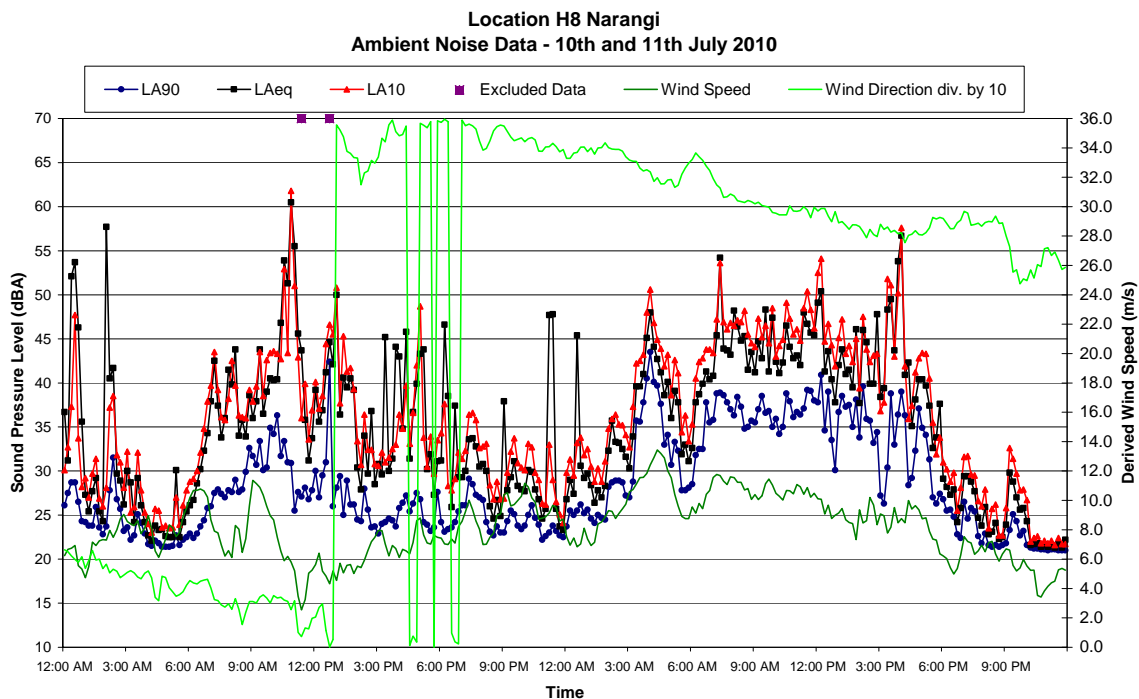
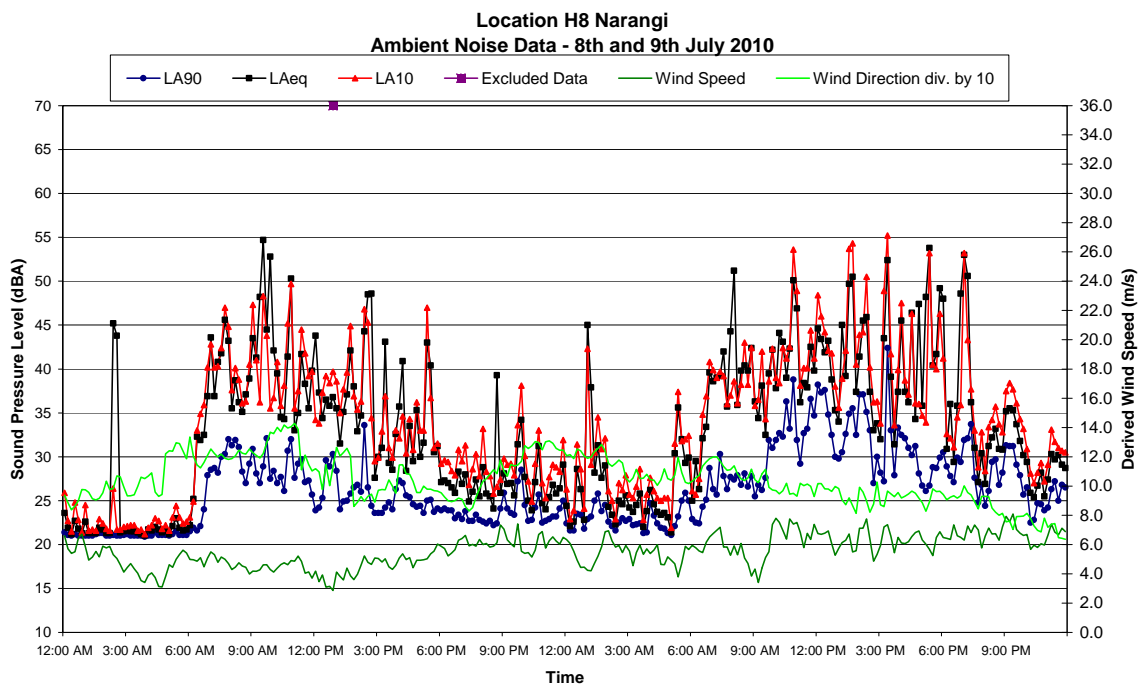


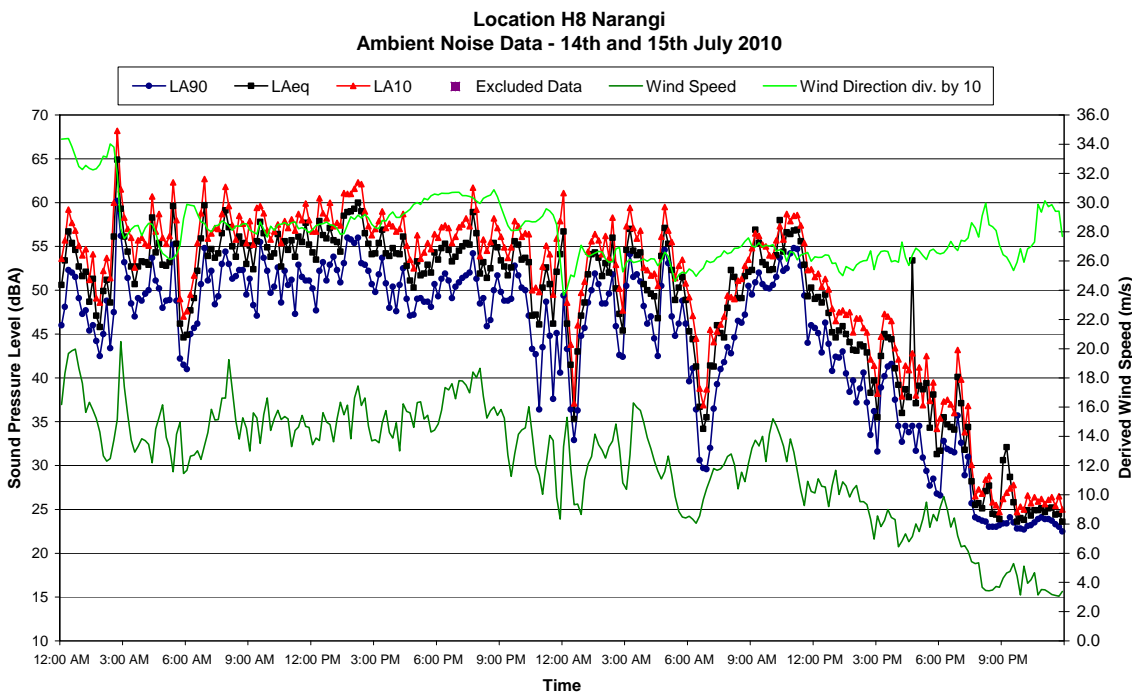
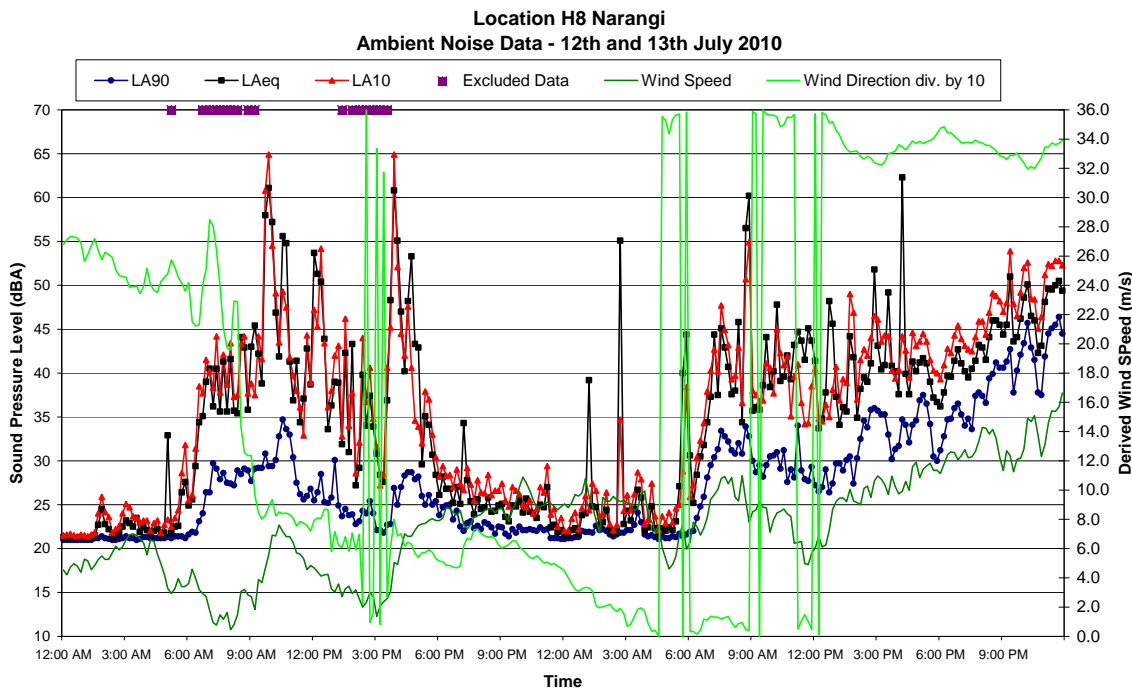


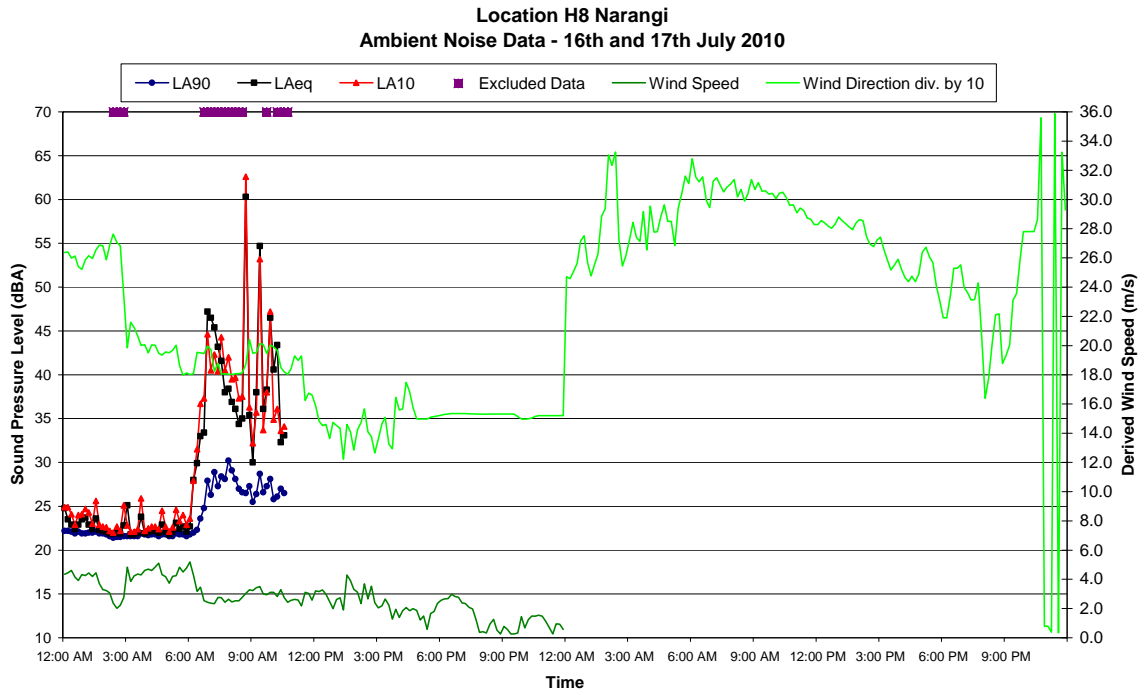


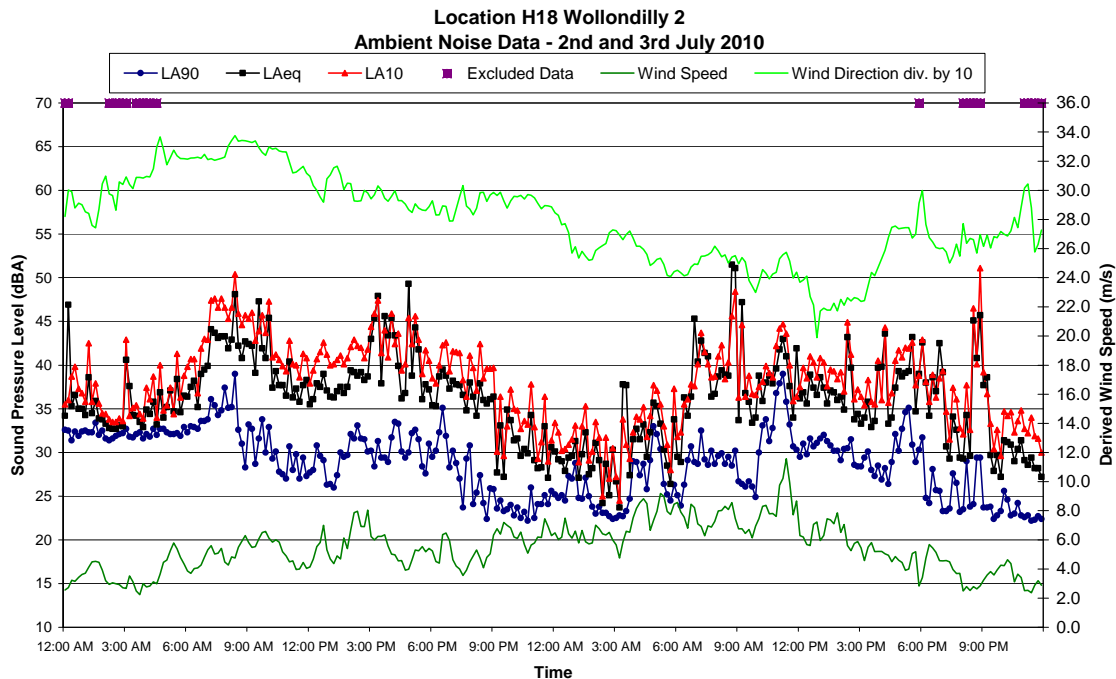
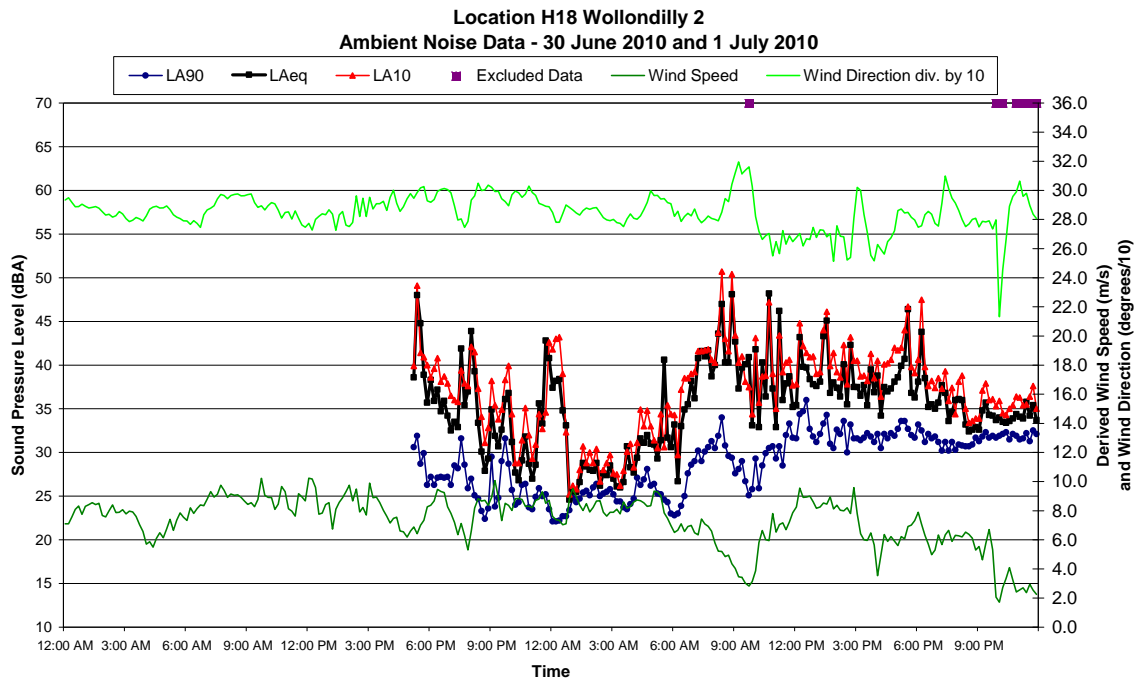




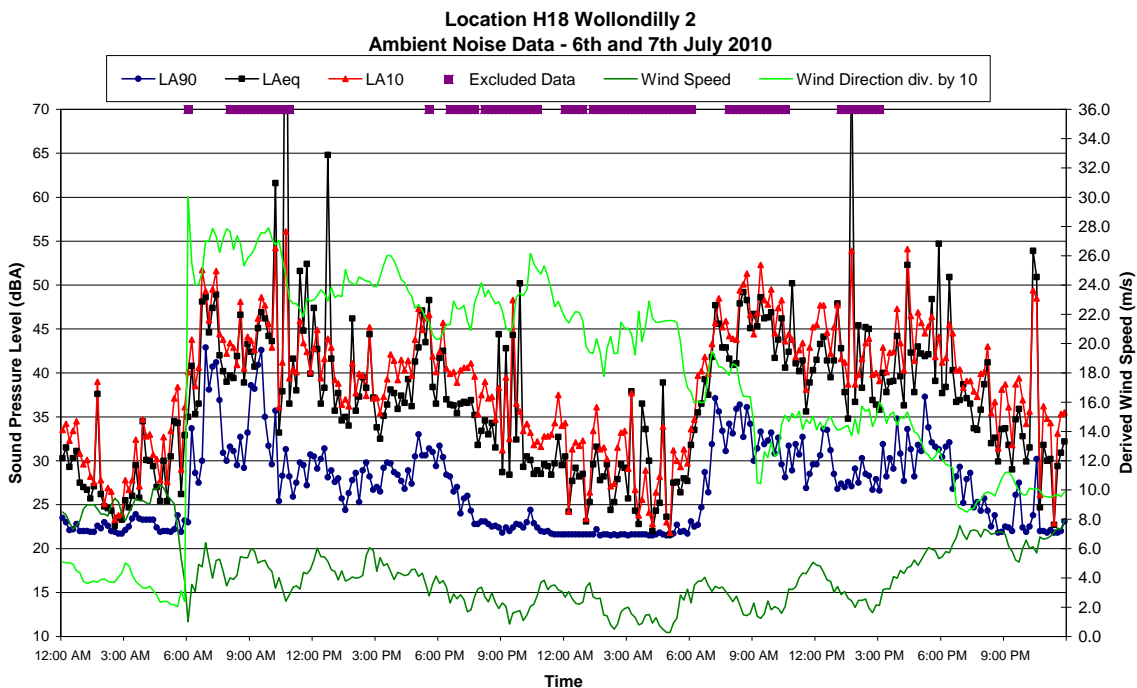
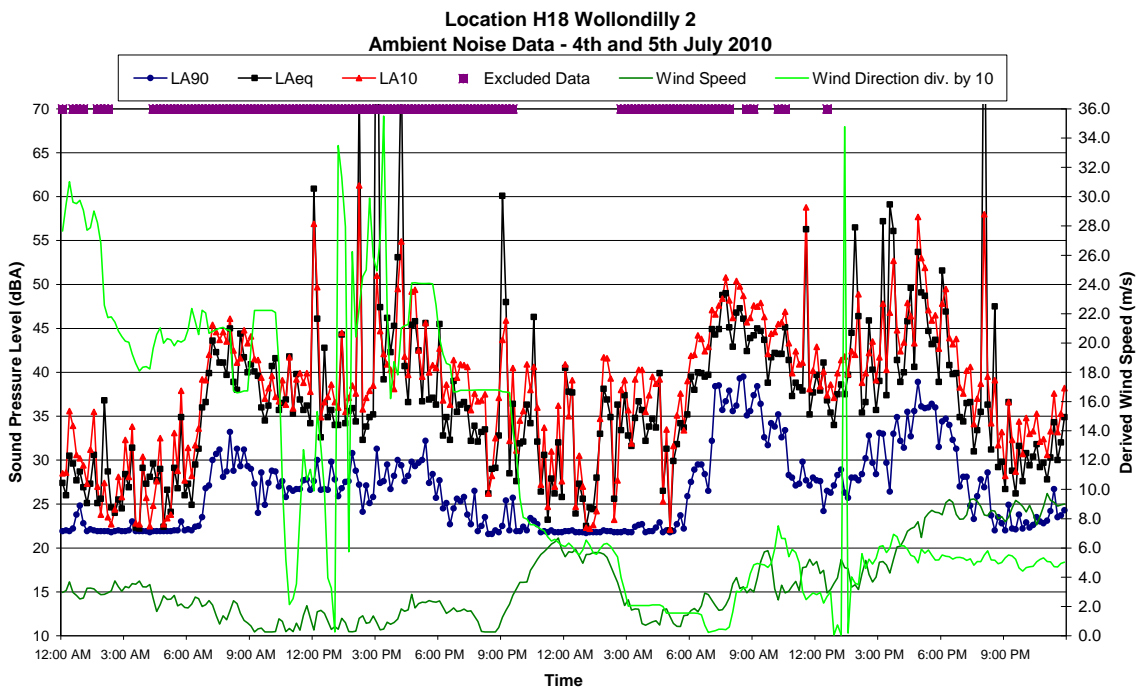


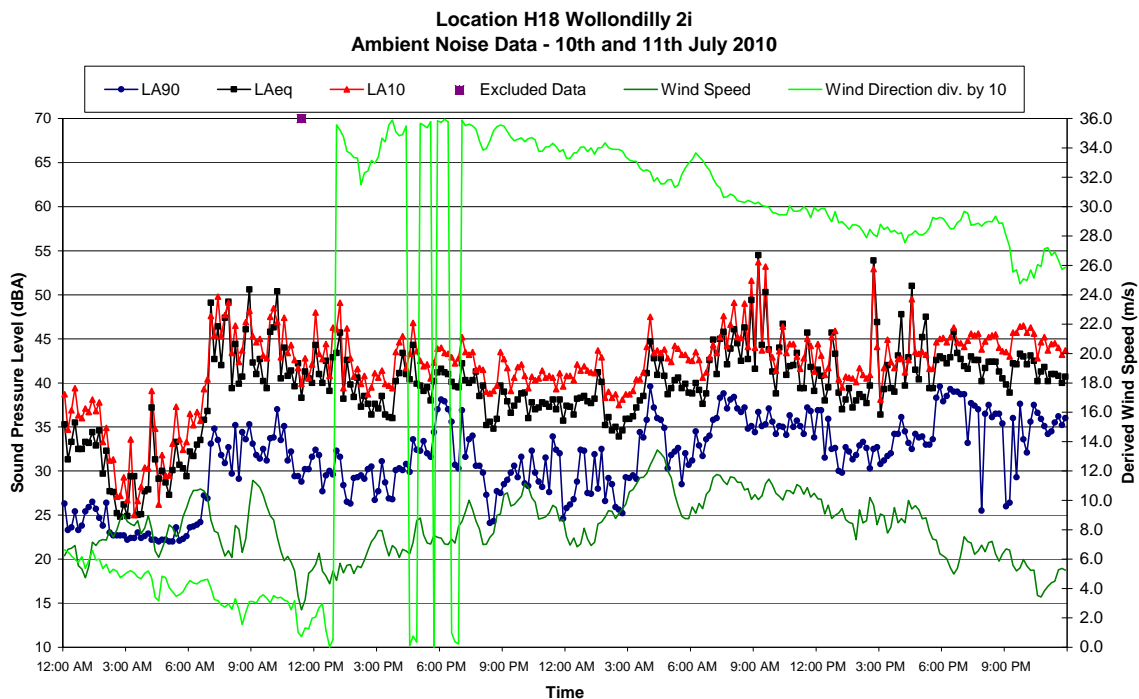
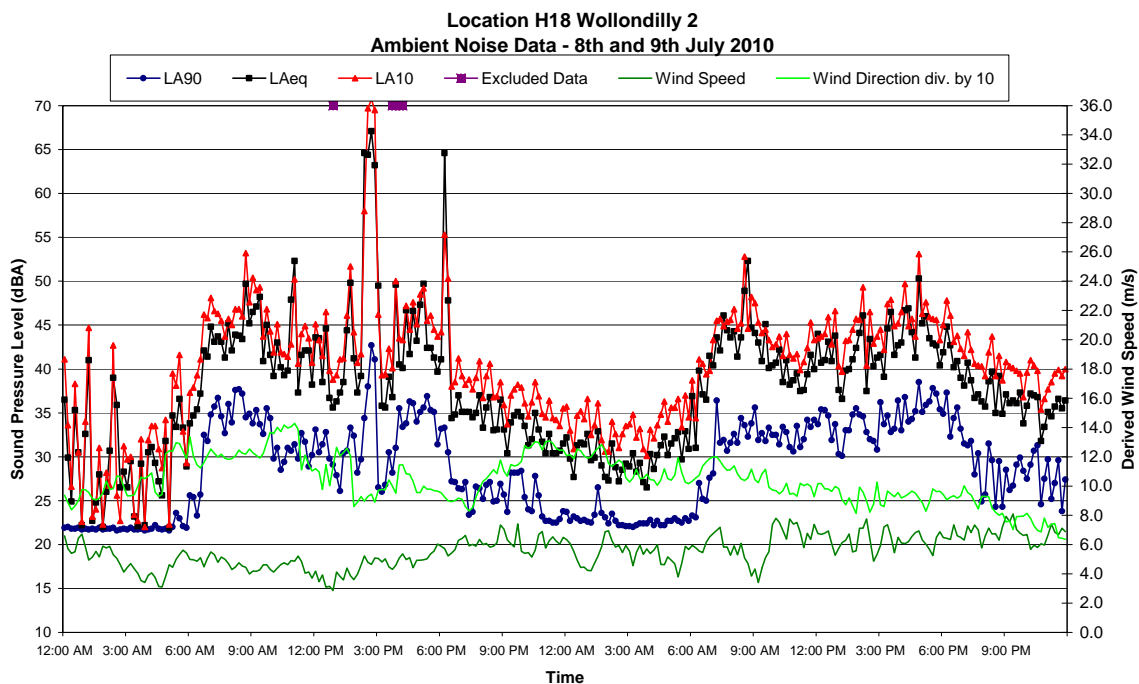


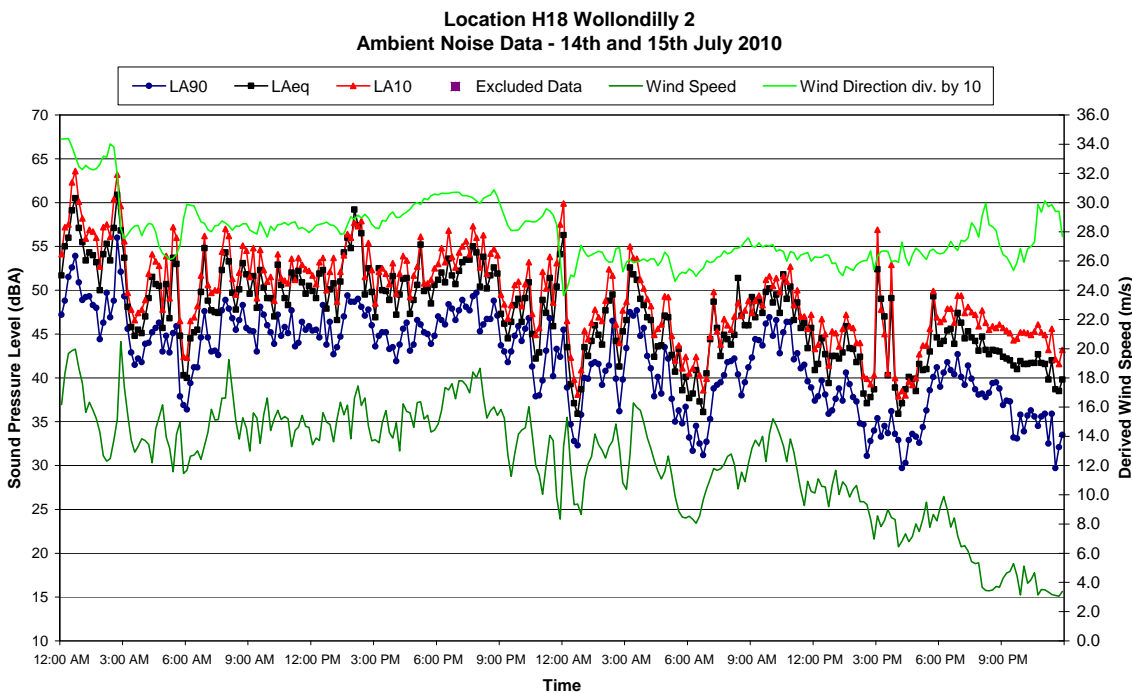
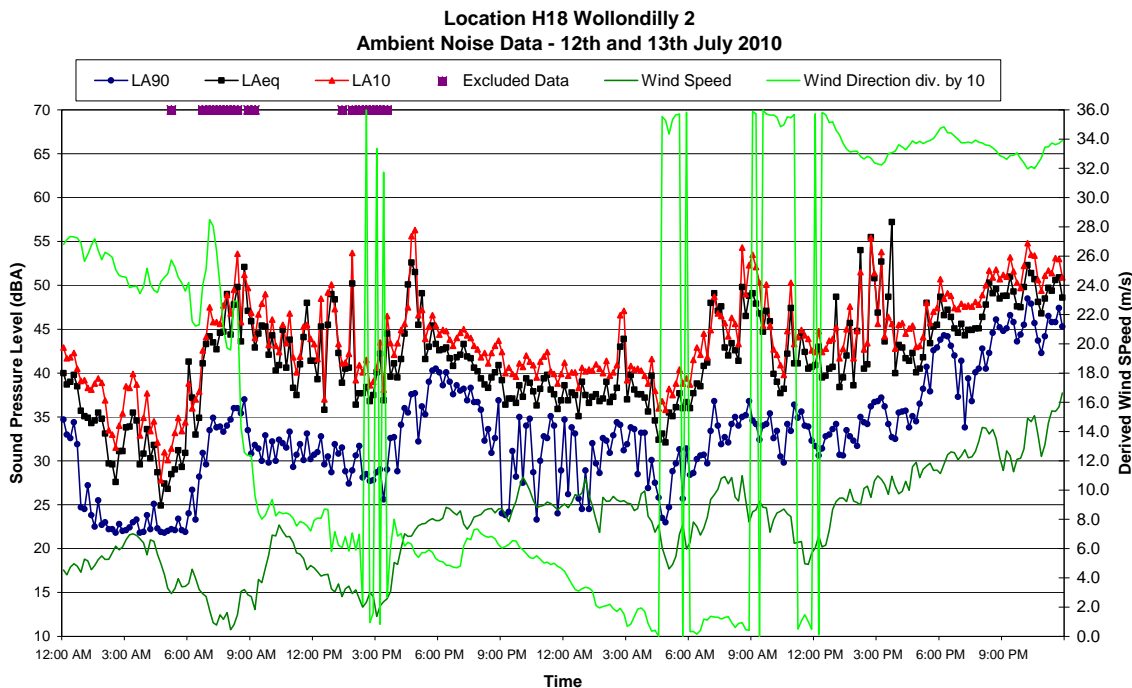




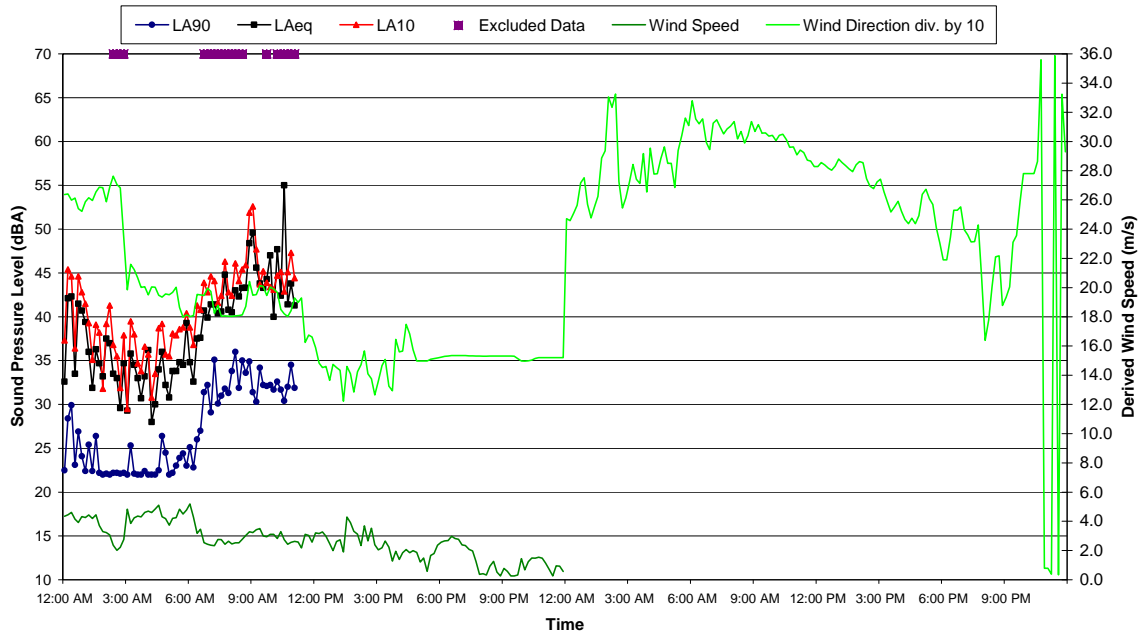


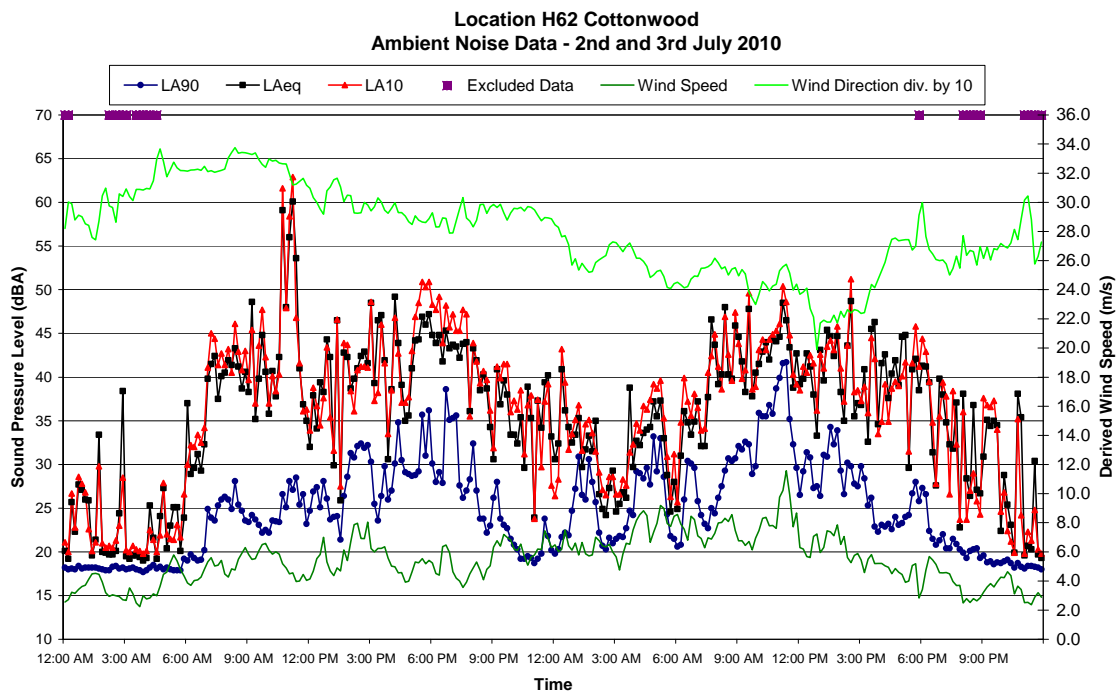
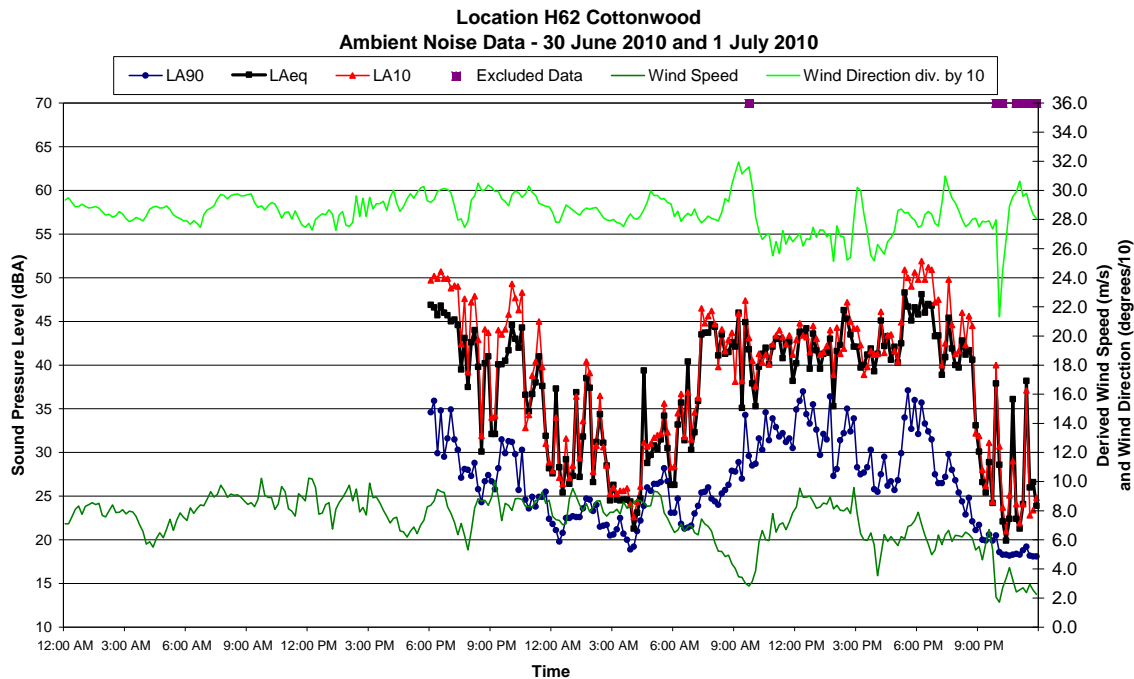


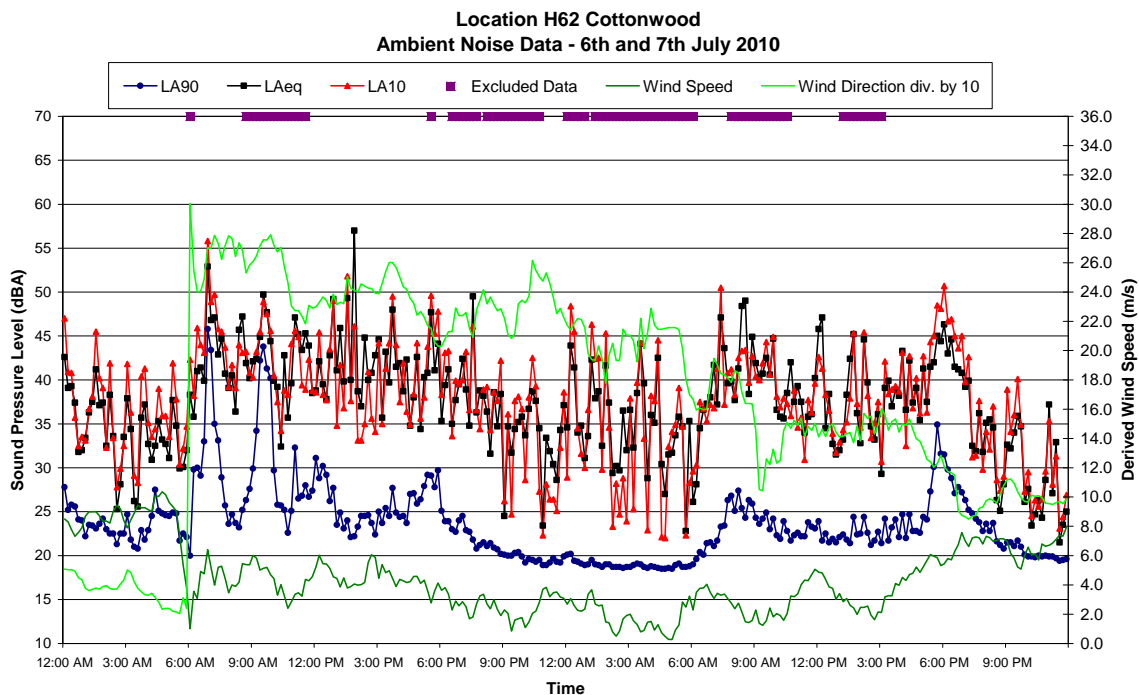
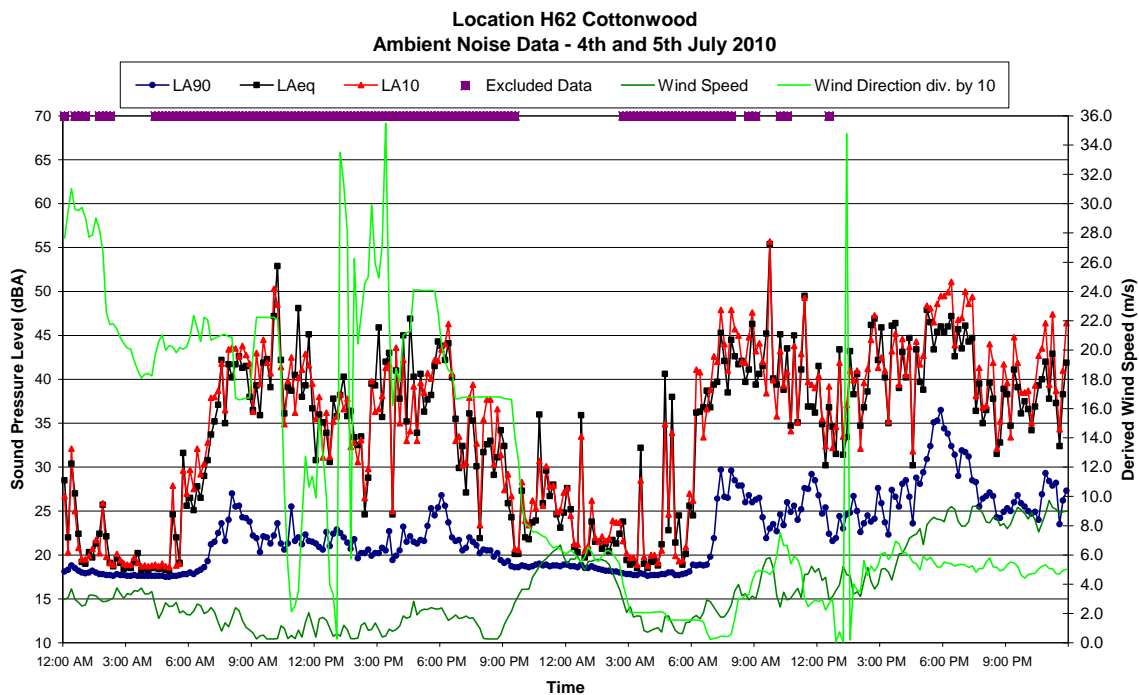


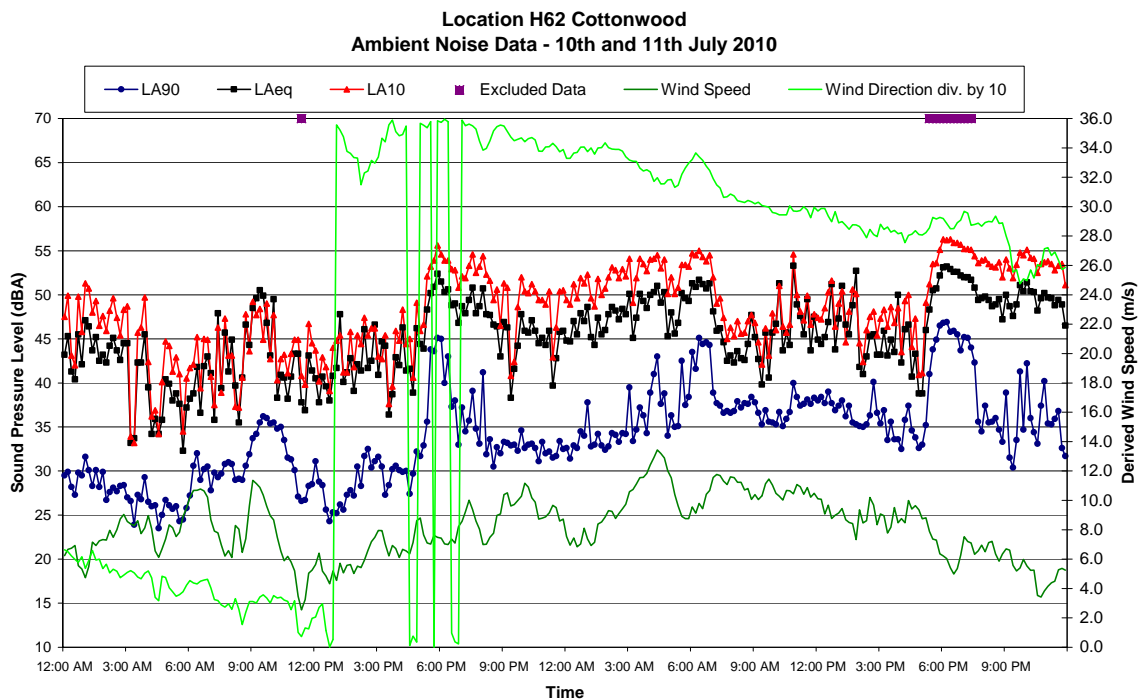
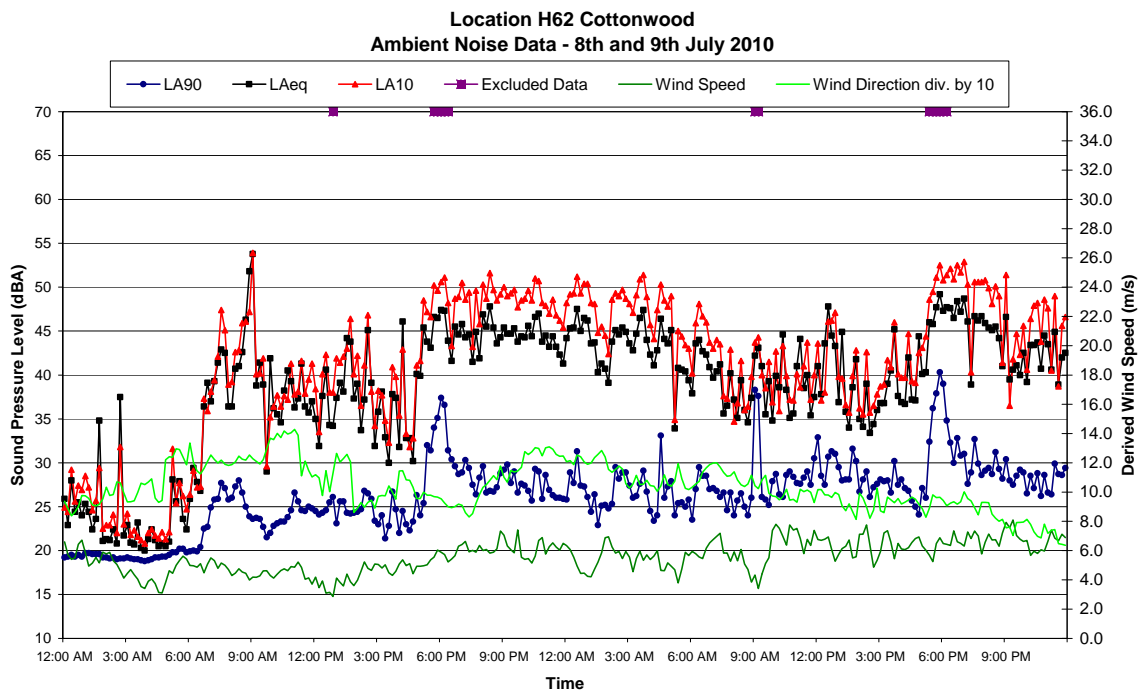


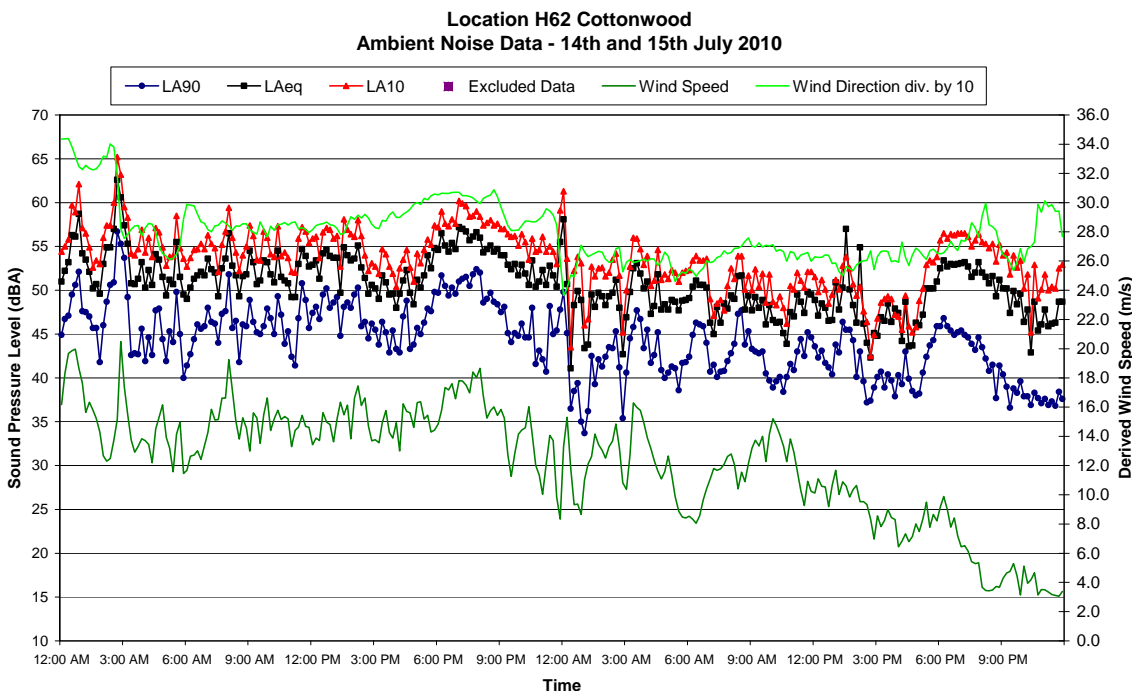
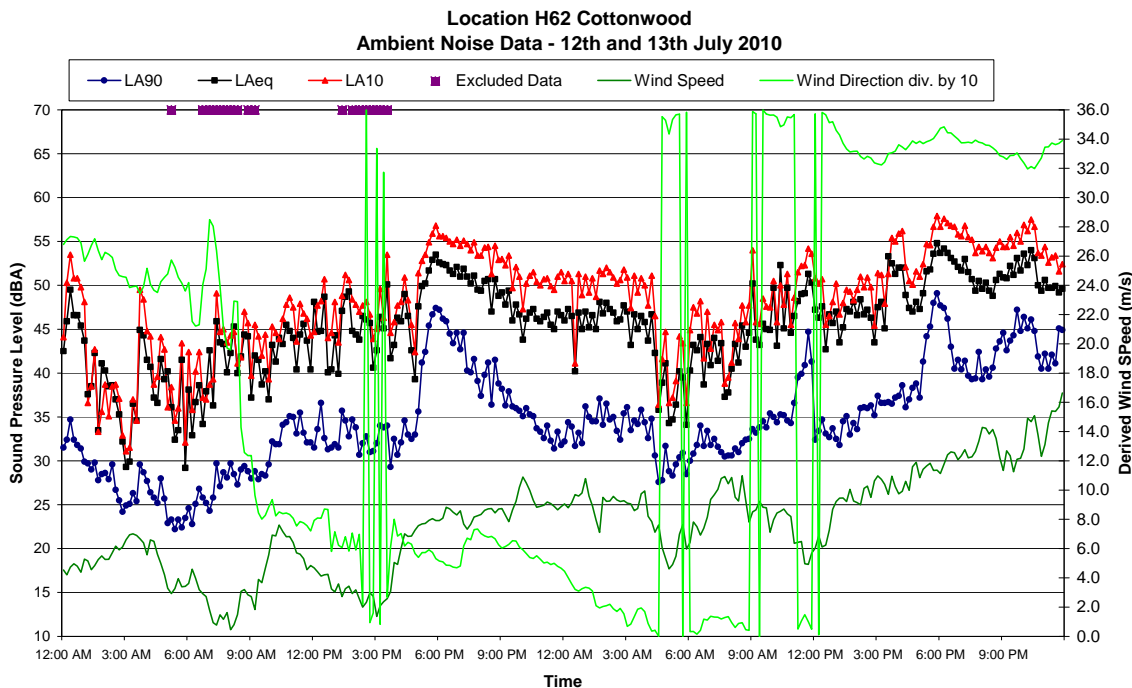
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Ambient Noise Data - 16th and 17th July 2010





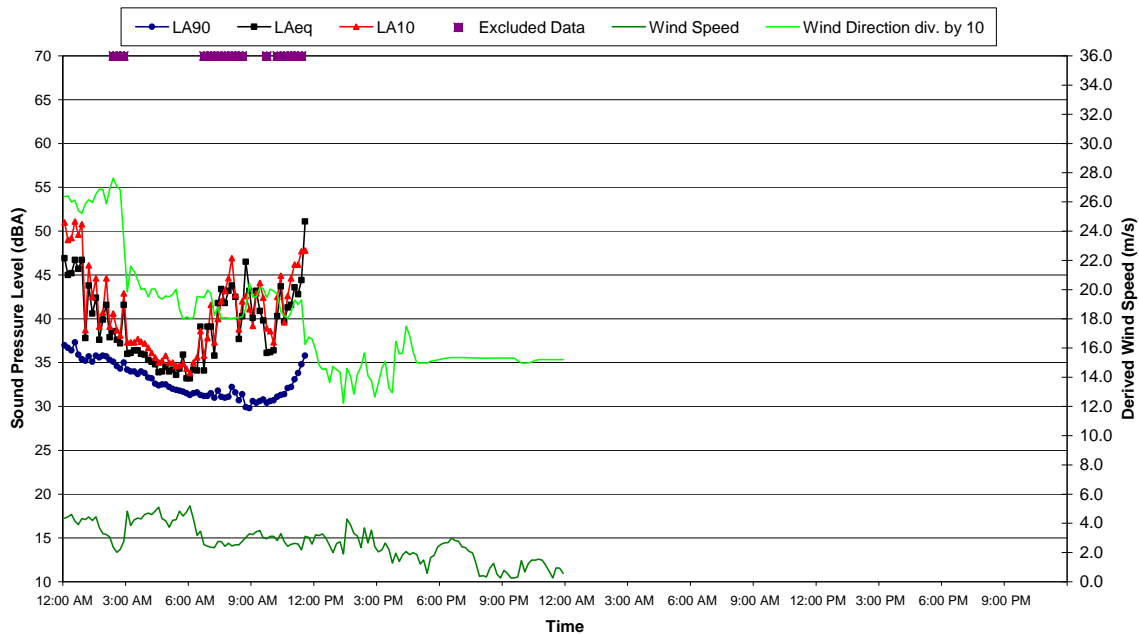


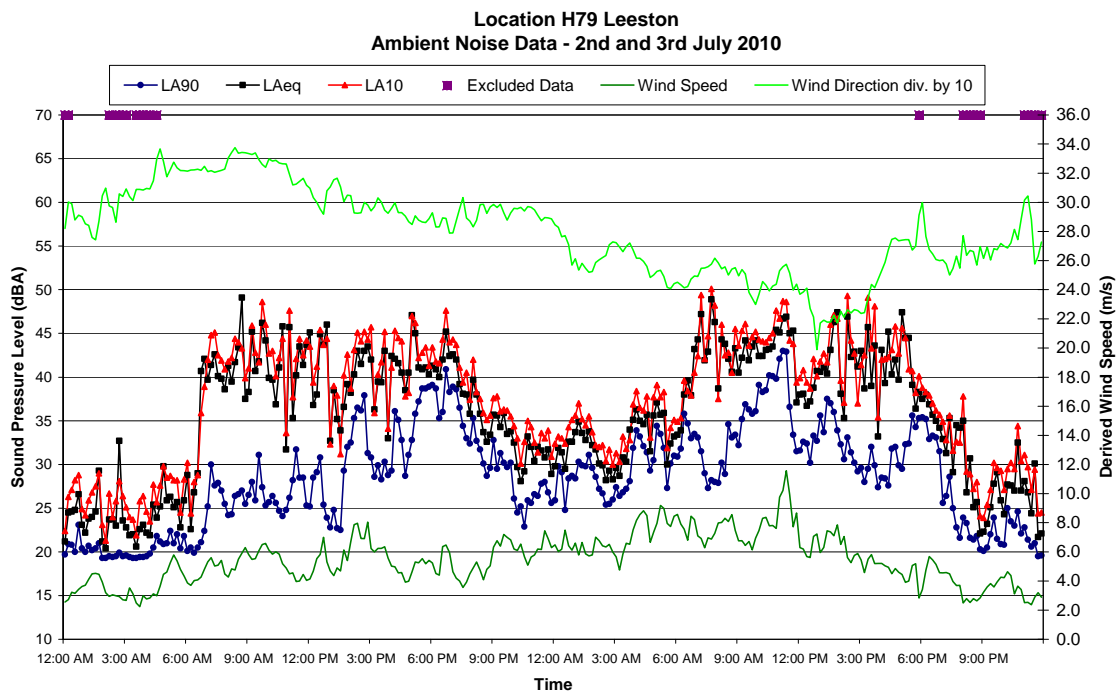
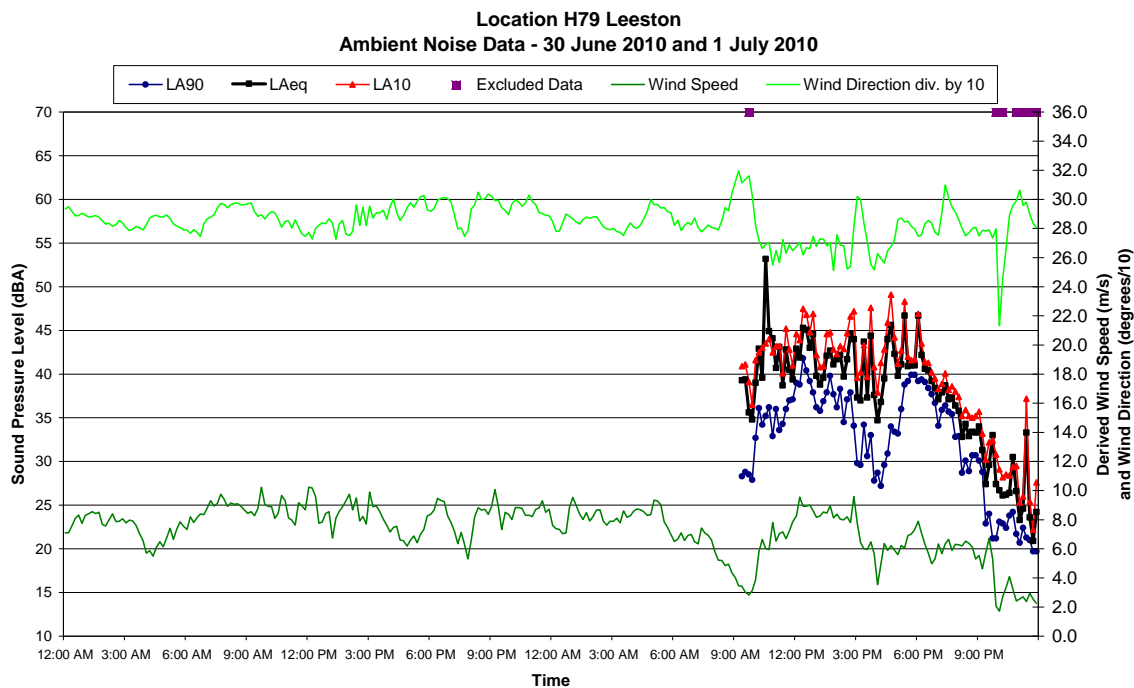


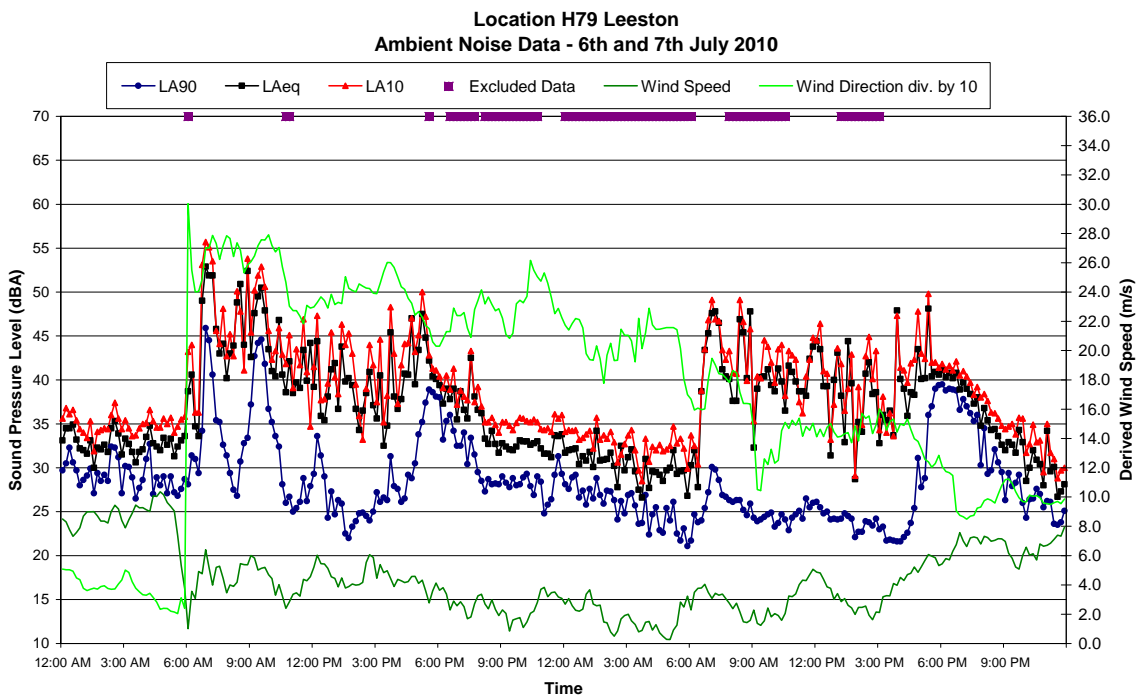
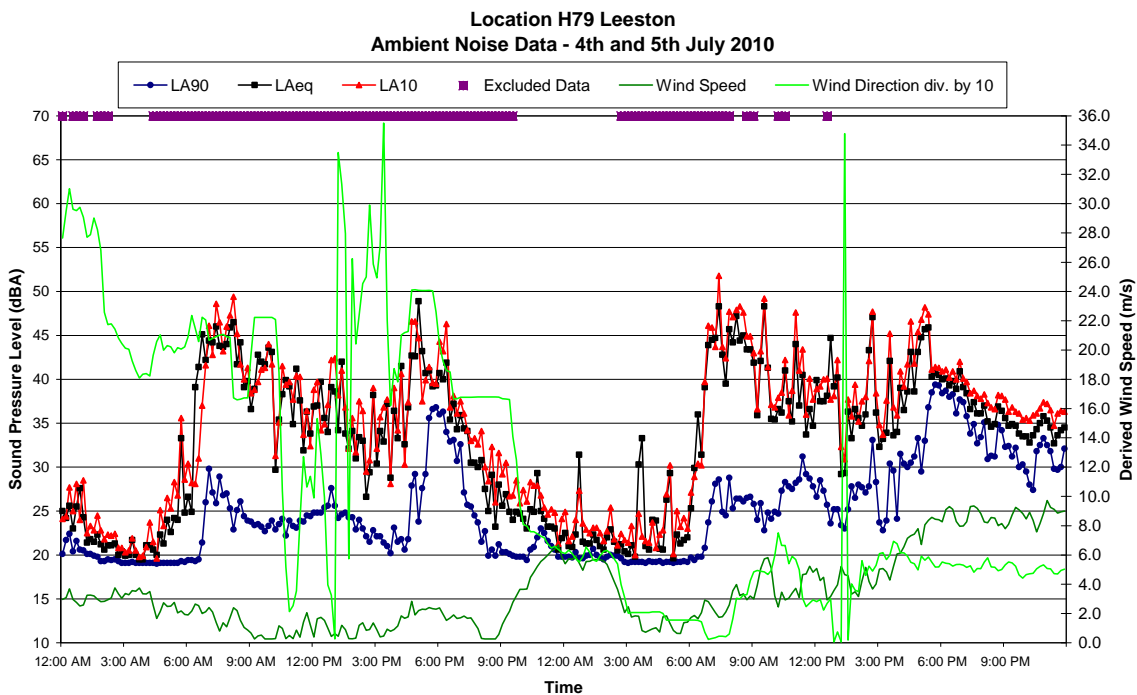


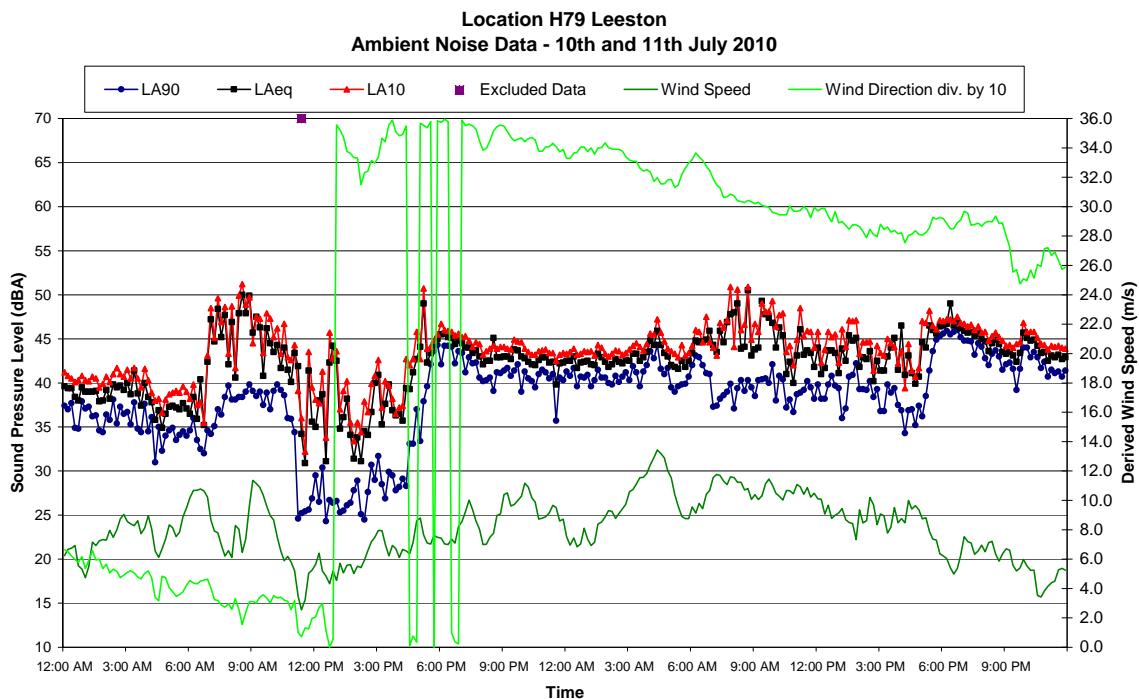
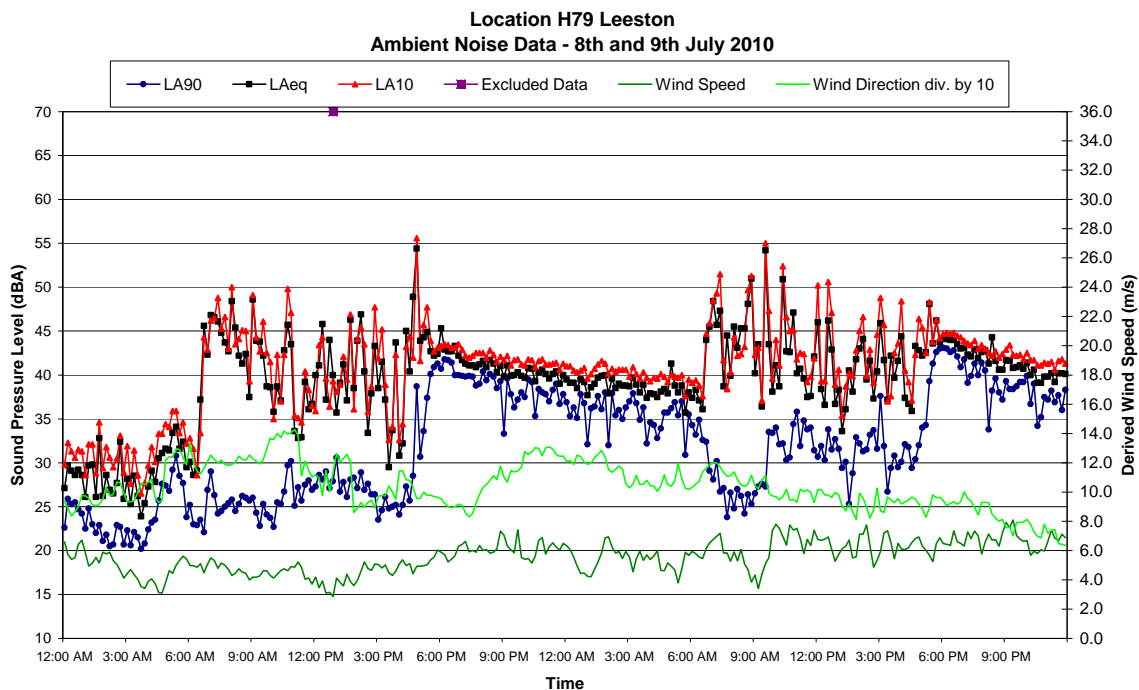


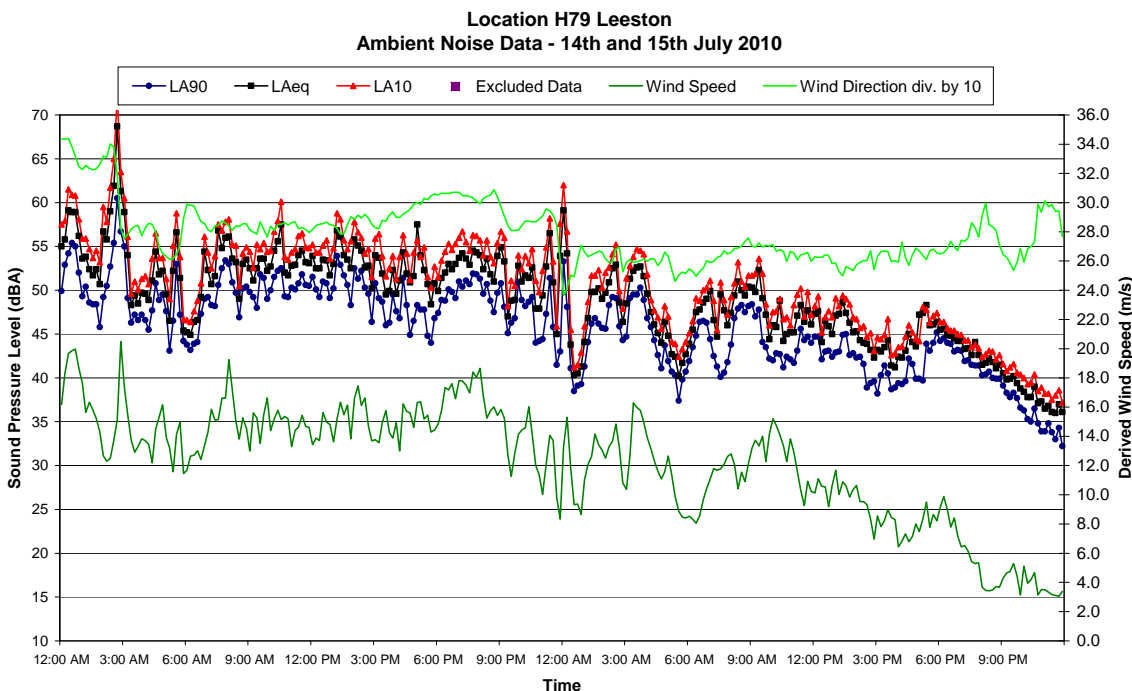
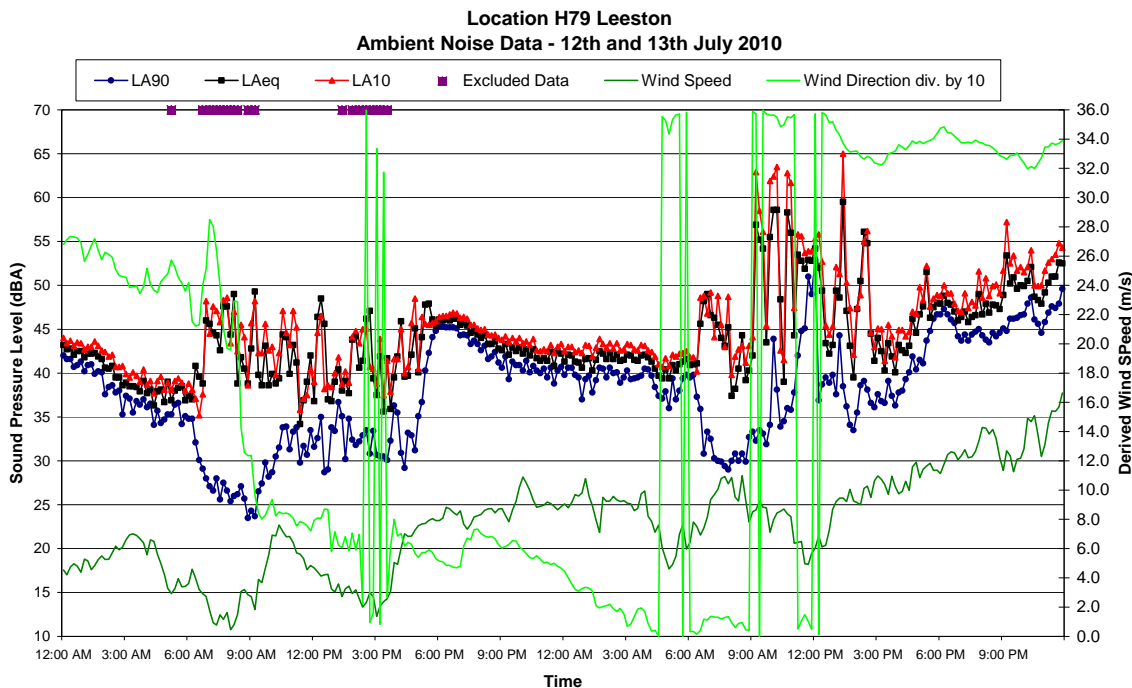
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Ambient Noise Data - 16th and 17th July 2010

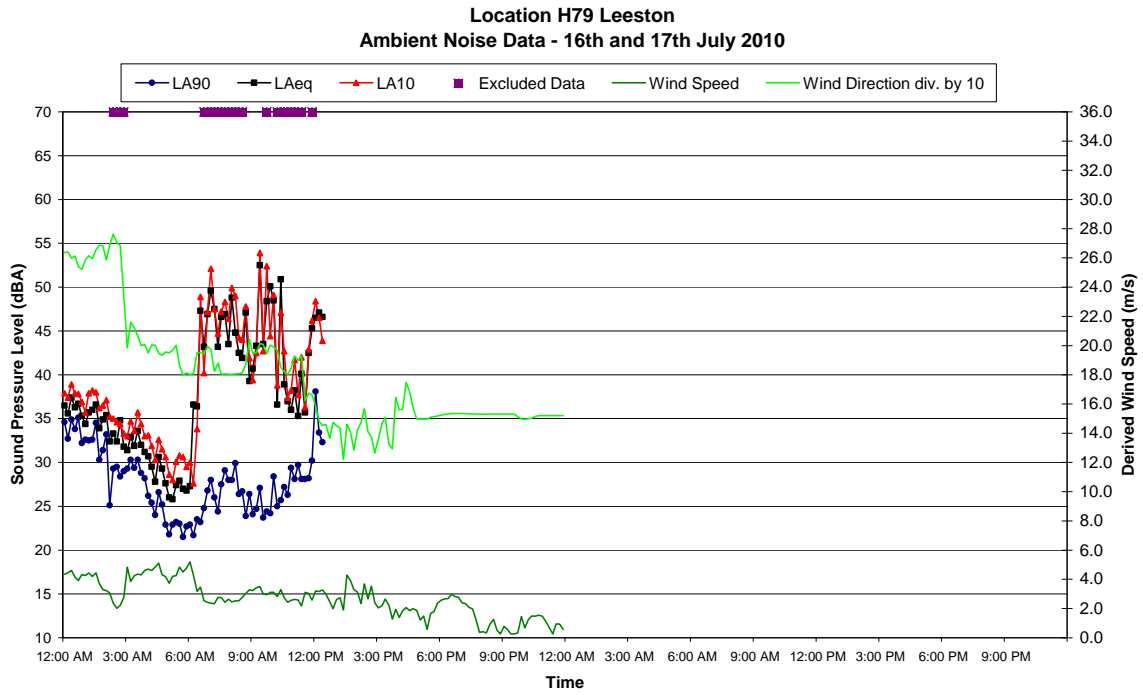


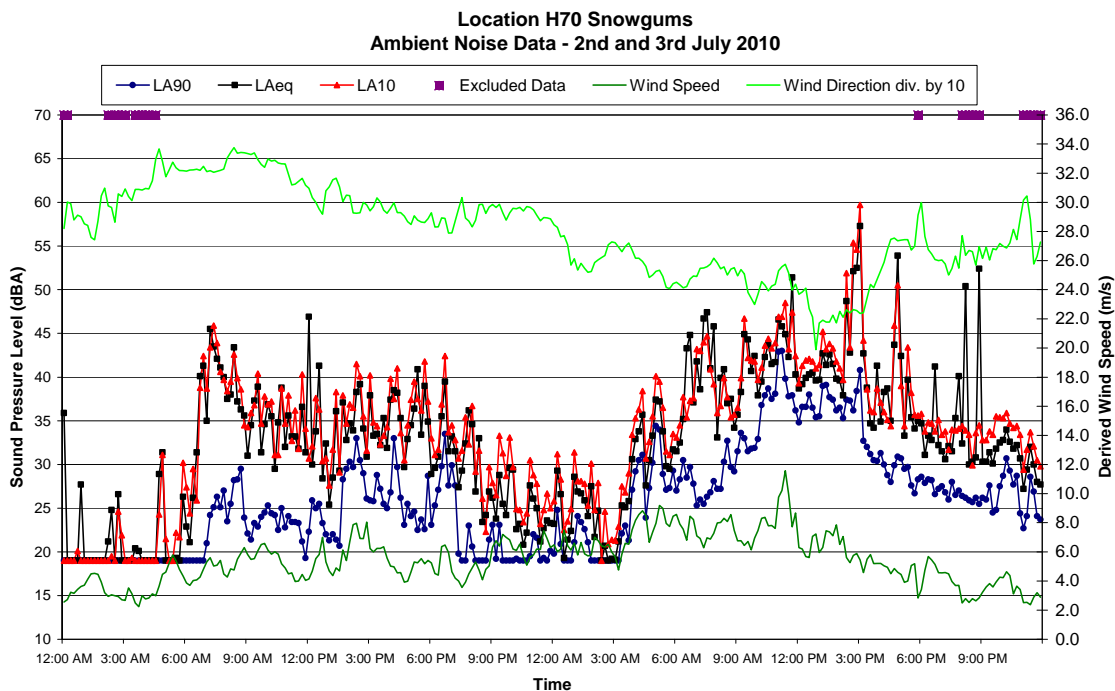
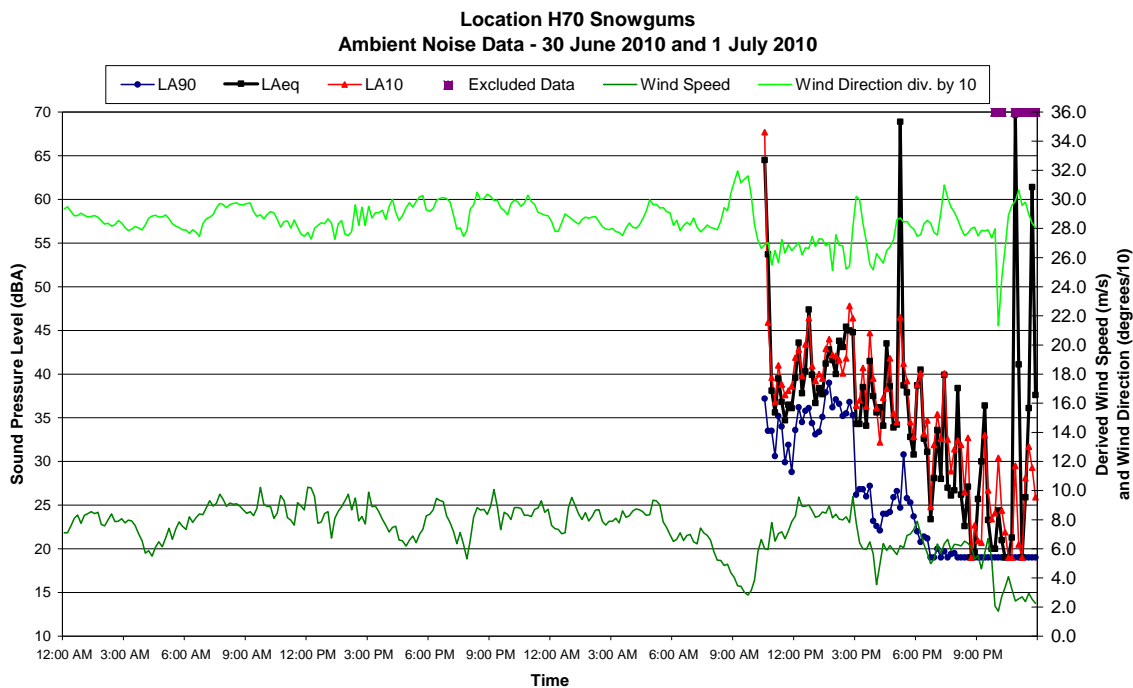


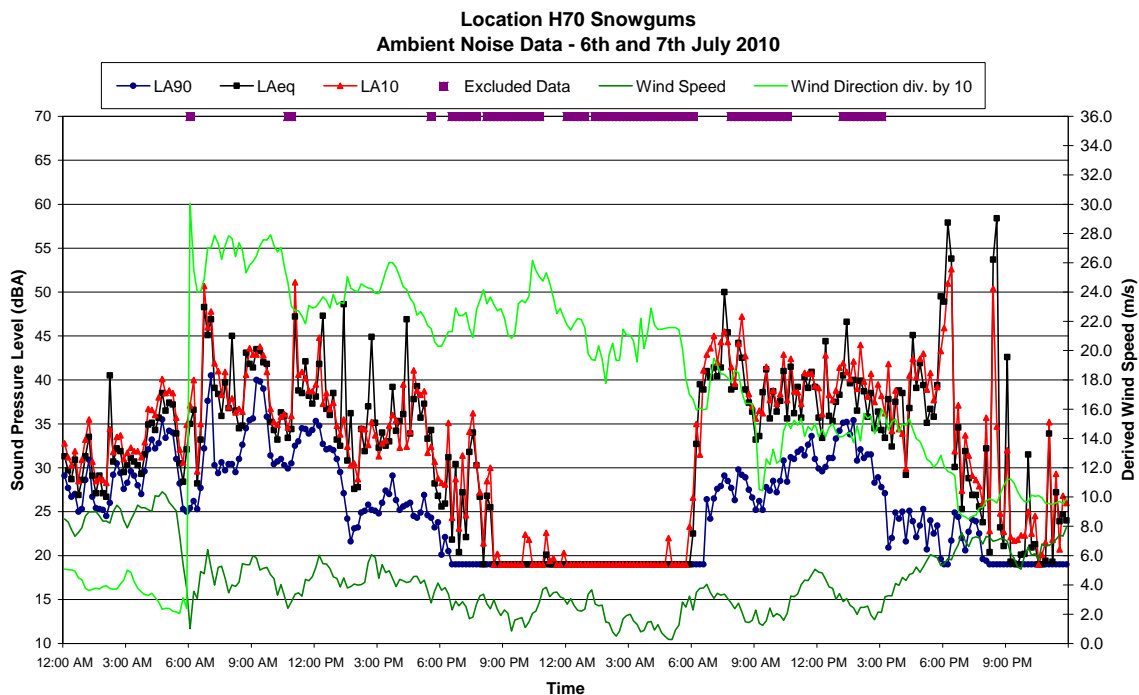
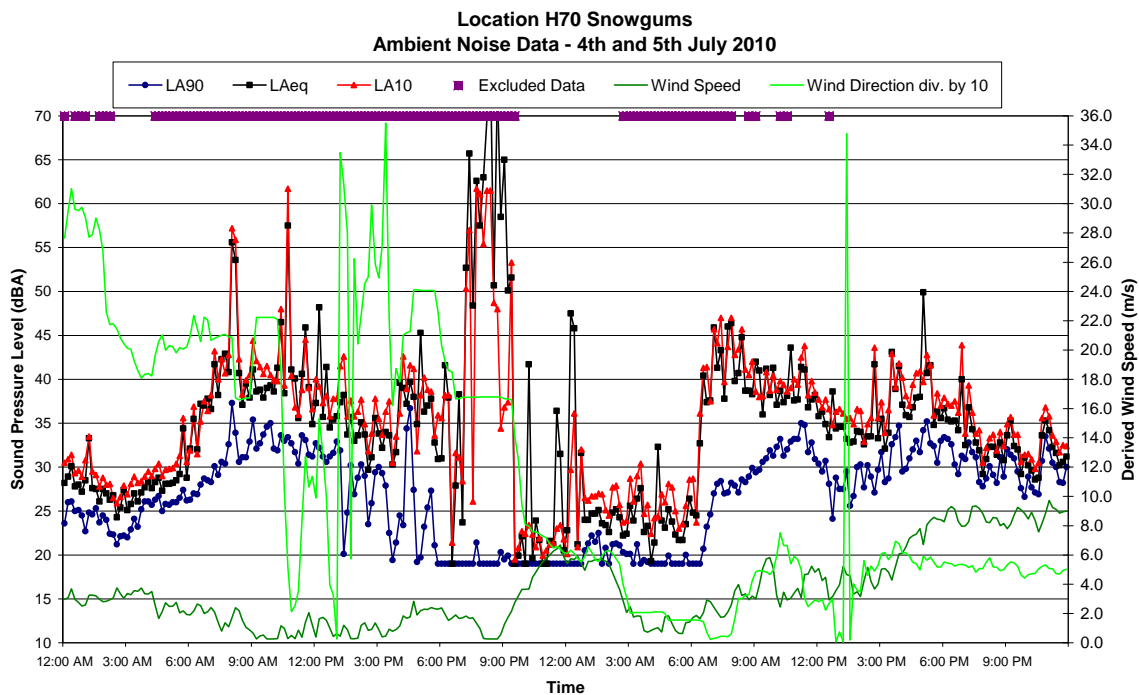




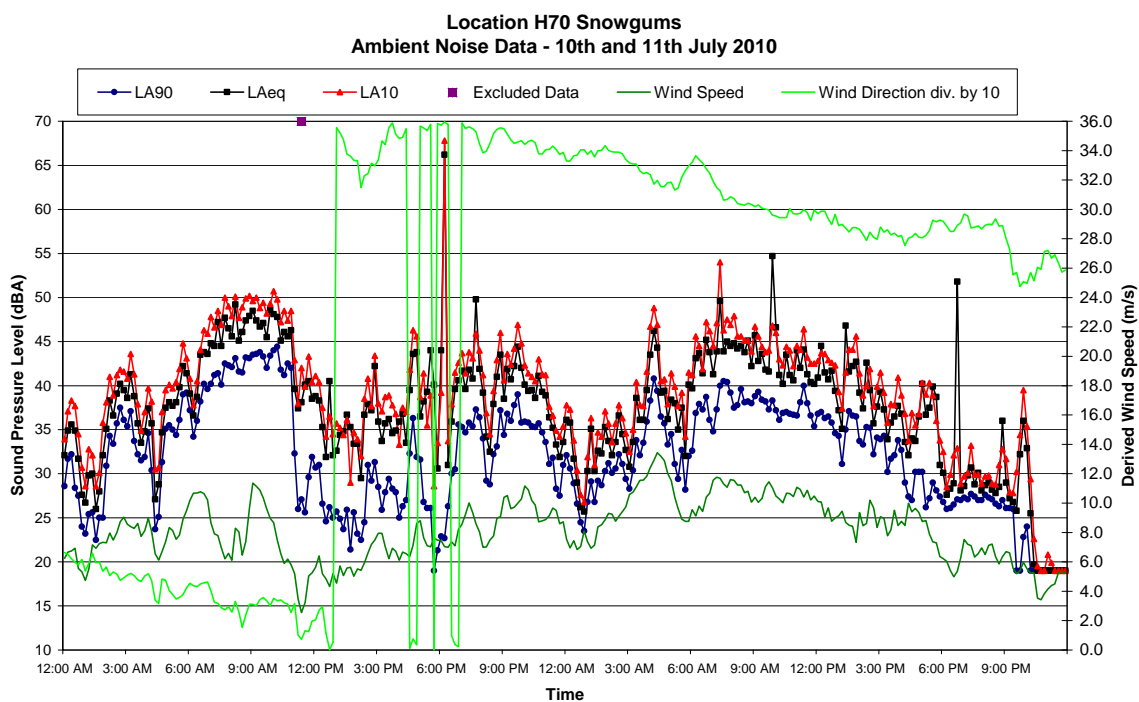
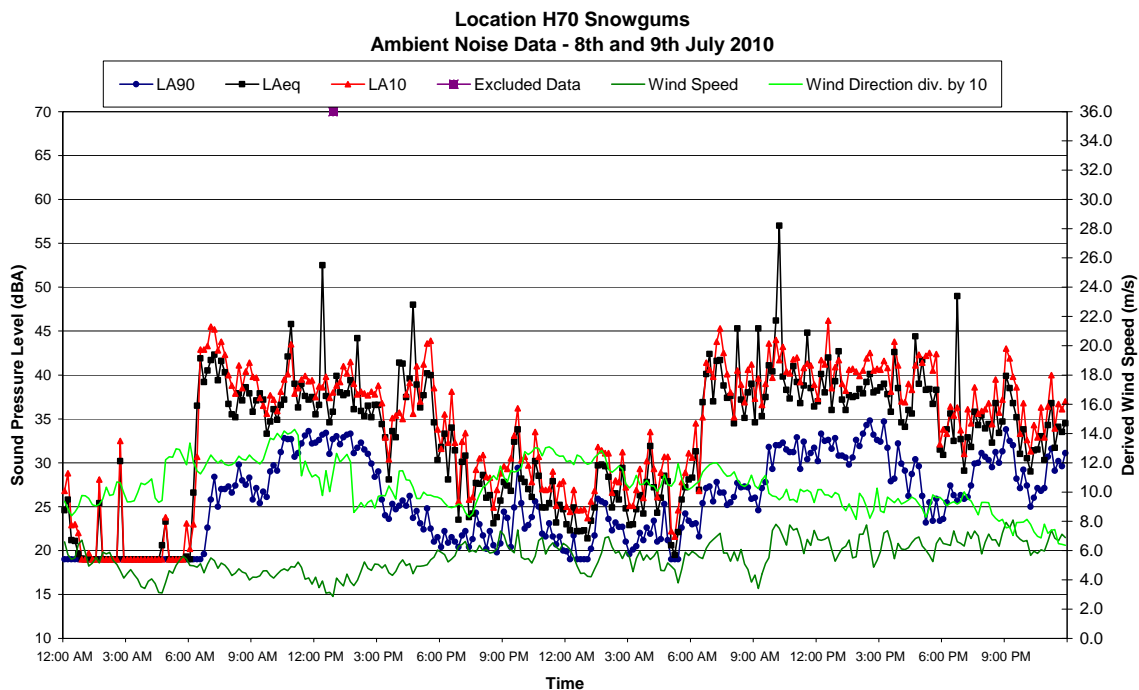


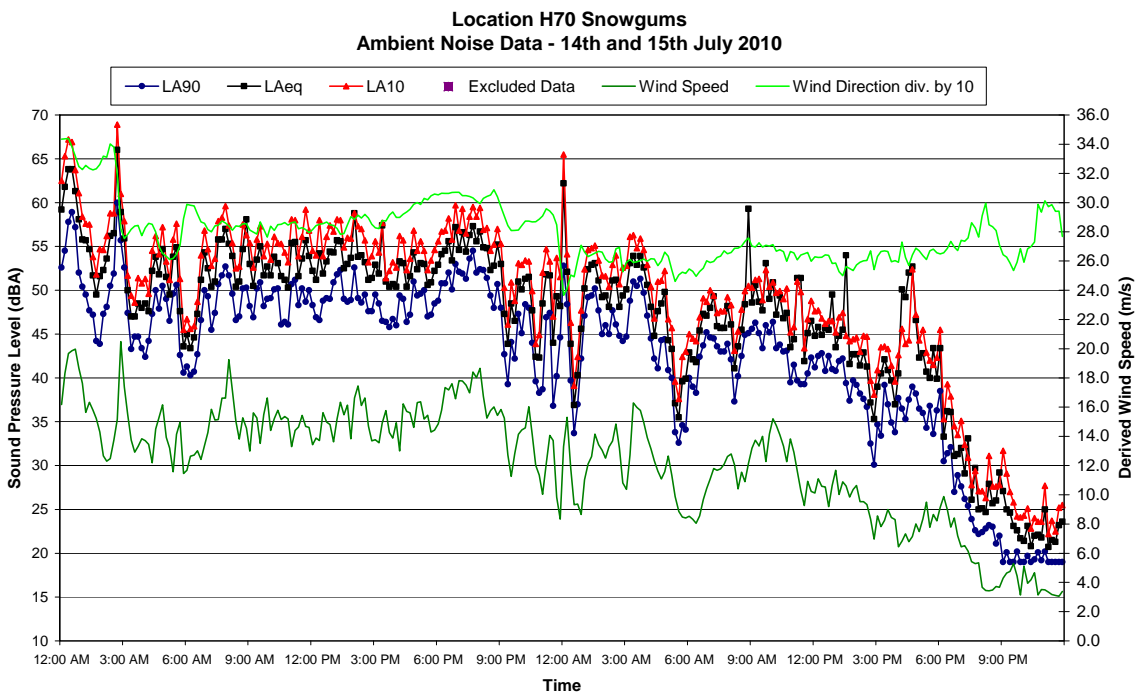
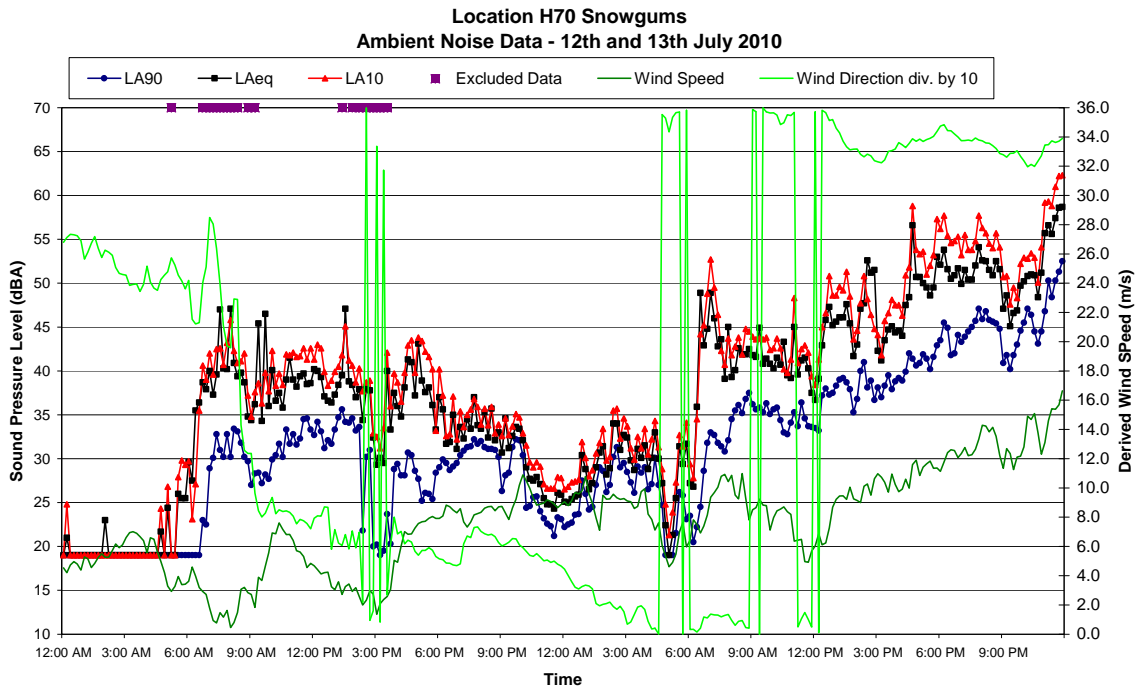


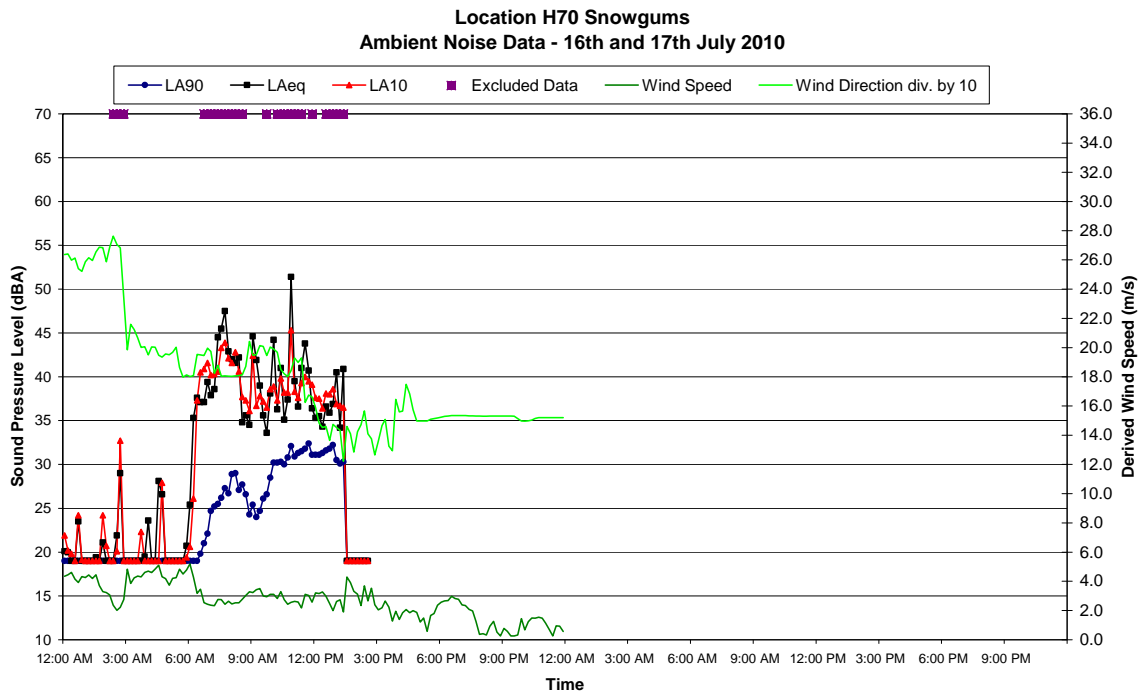


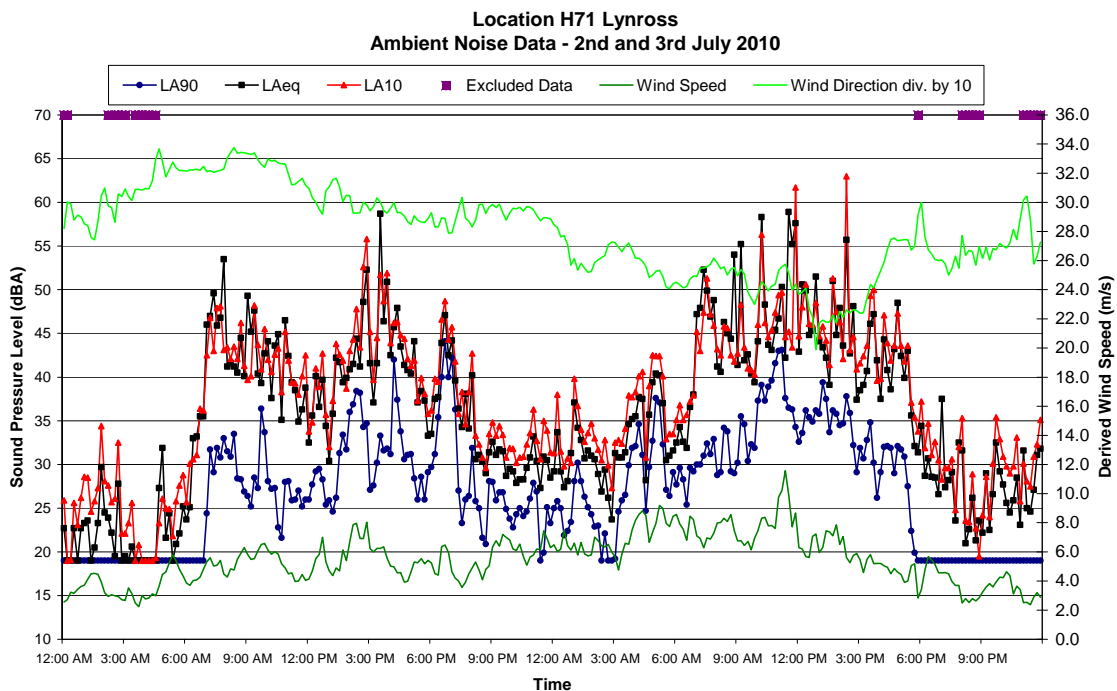
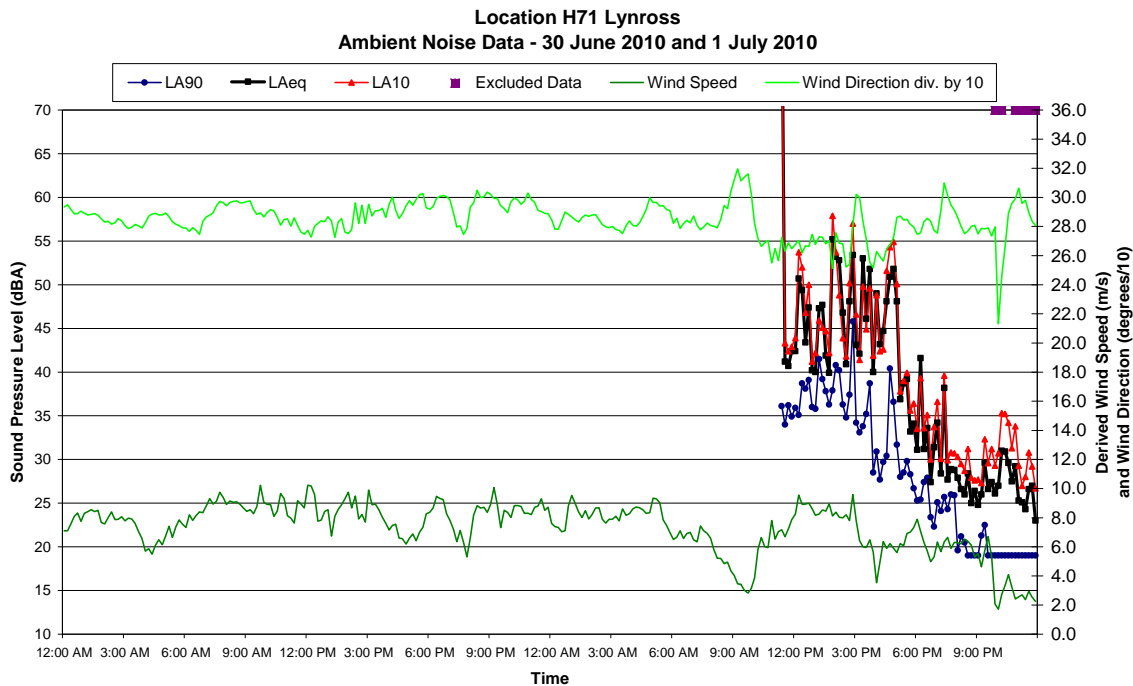


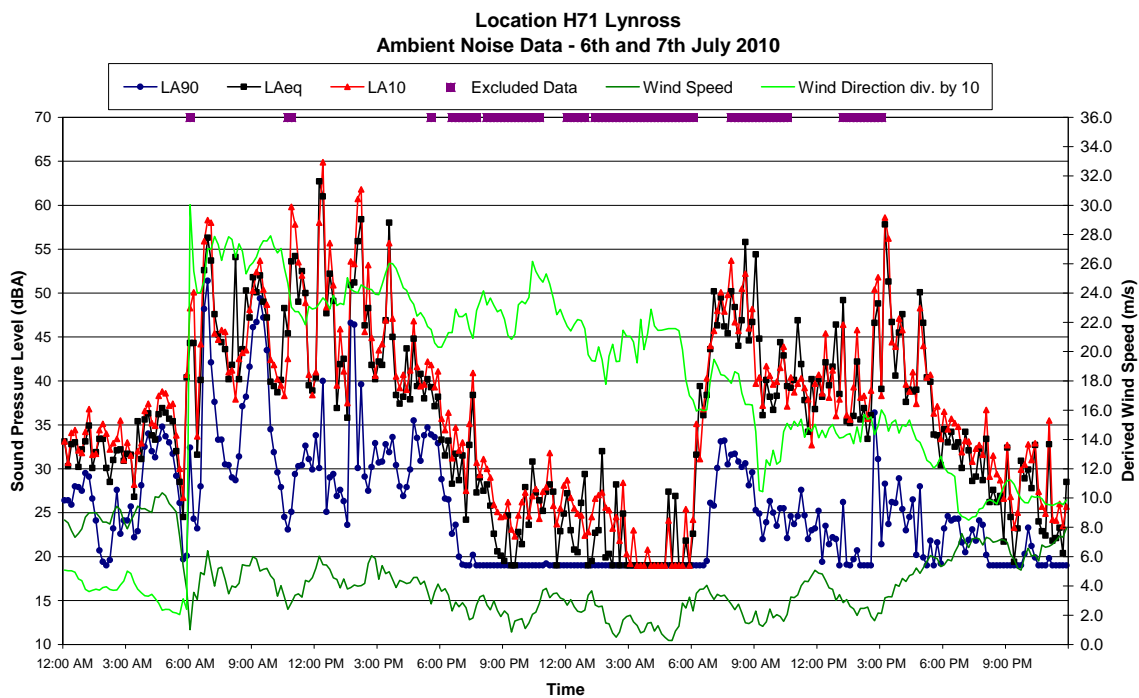
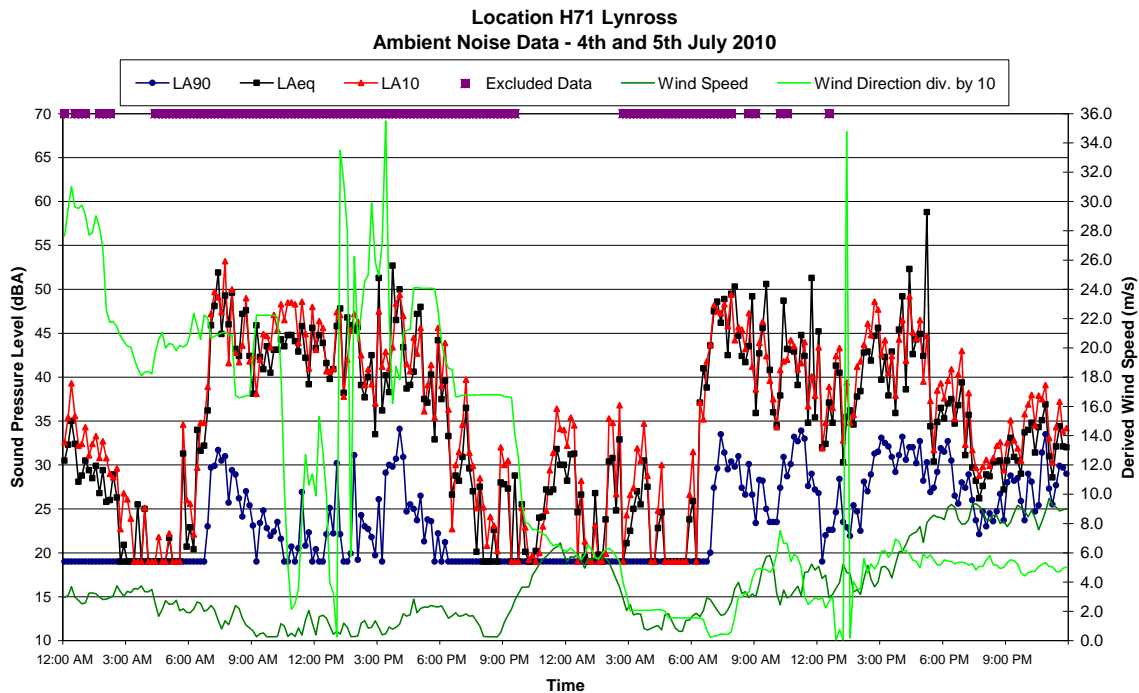


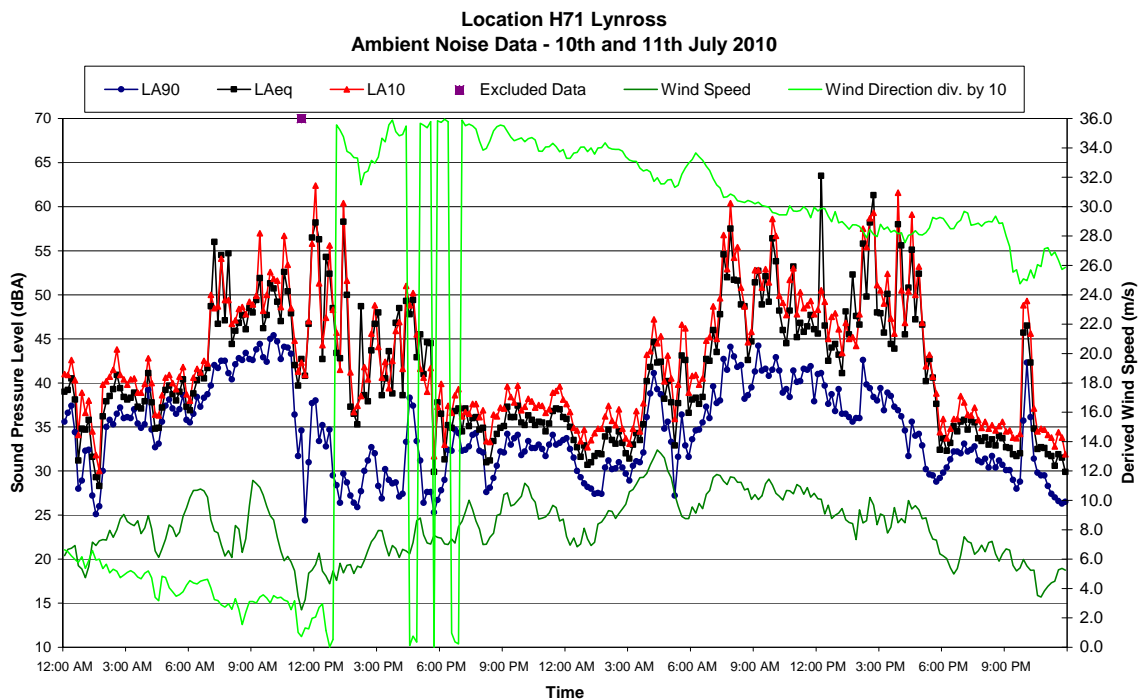
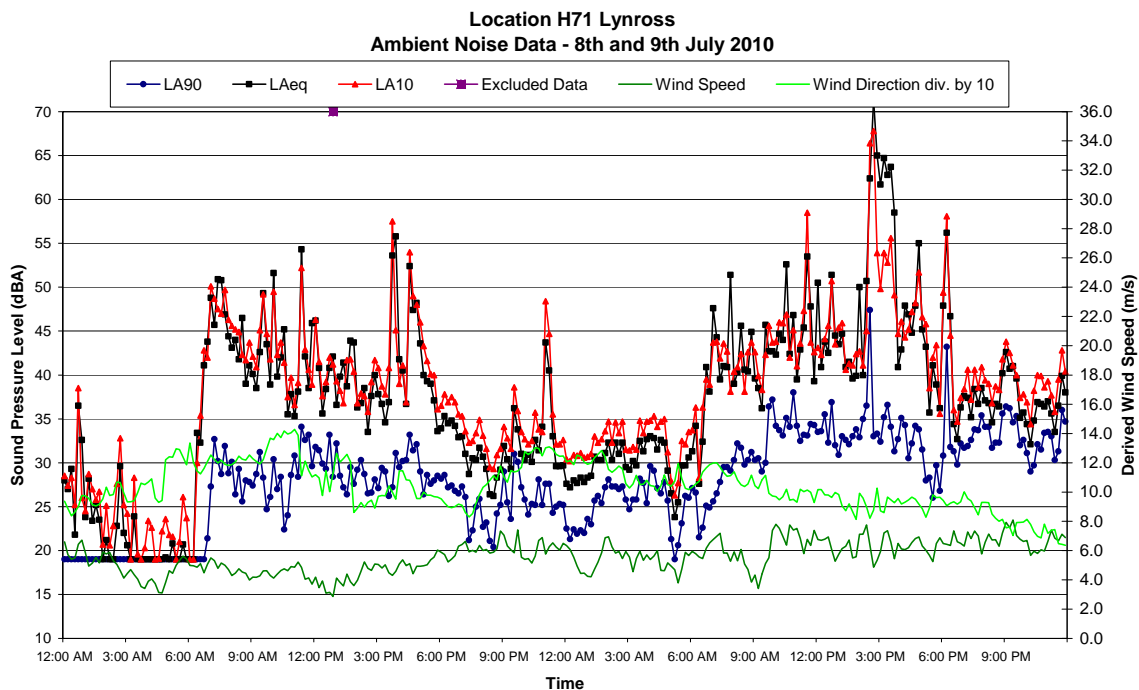


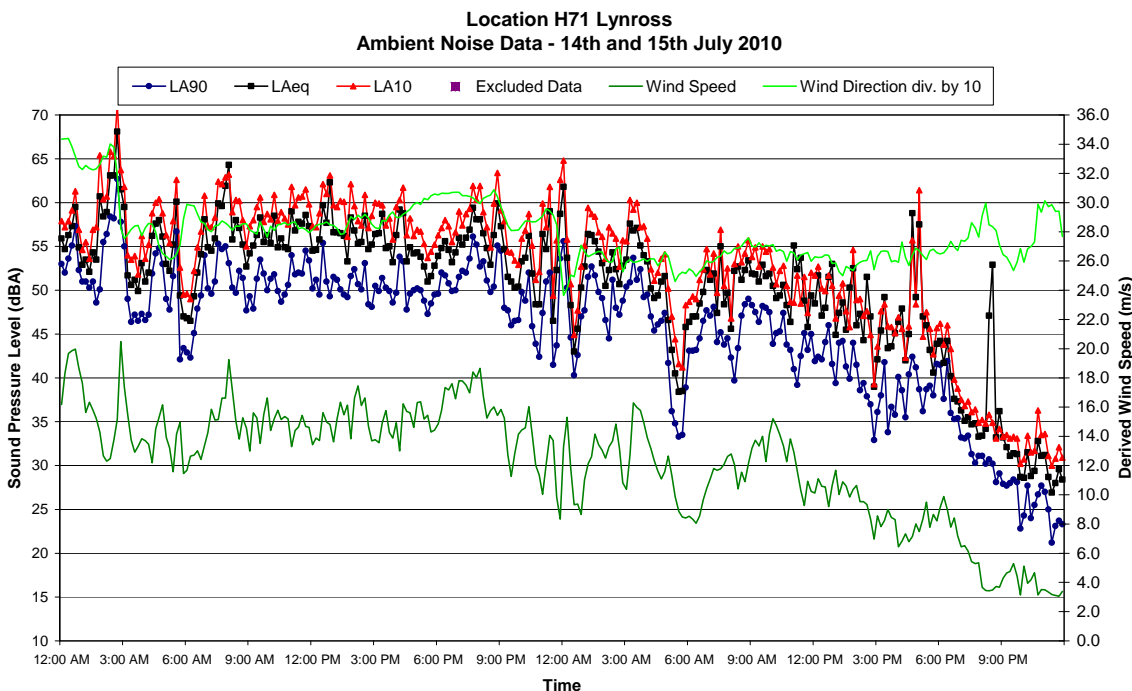
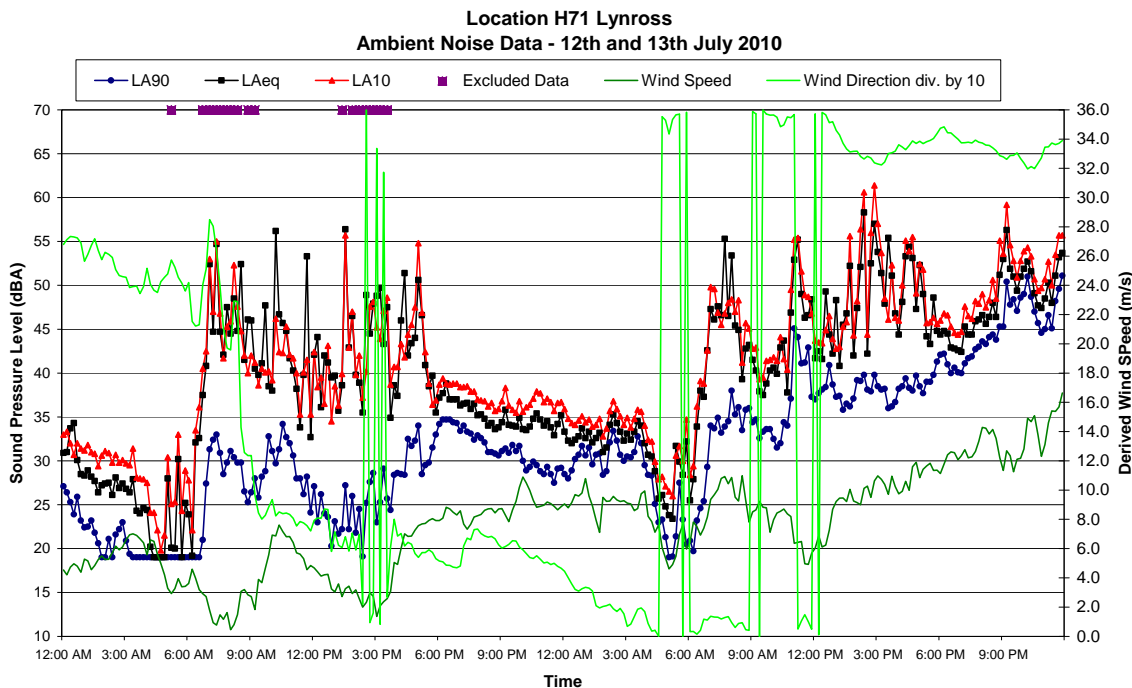




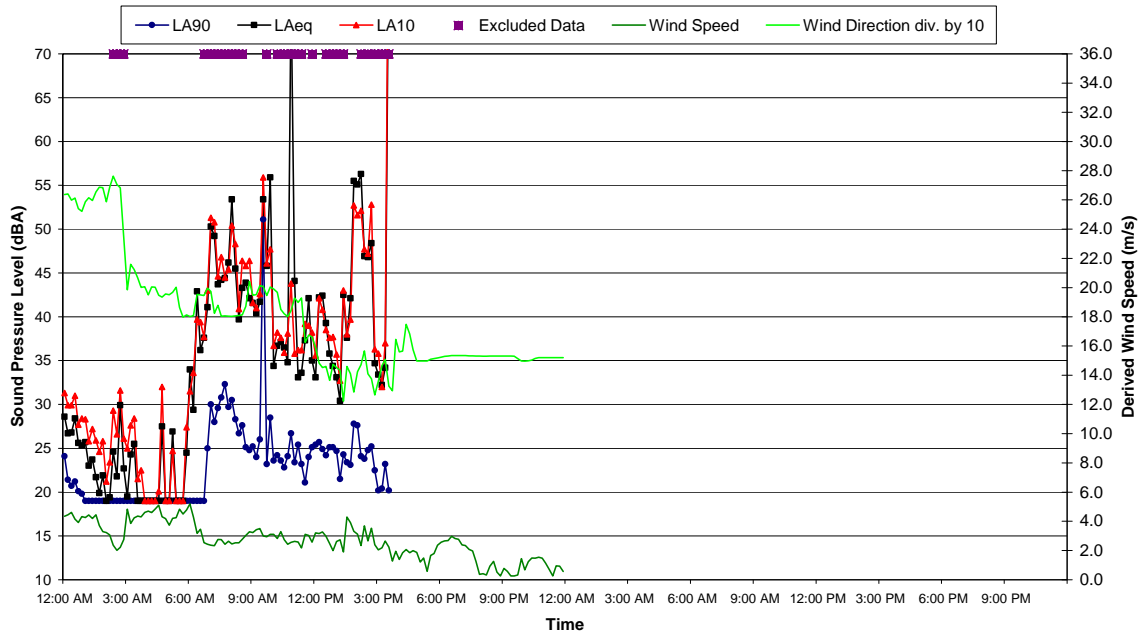




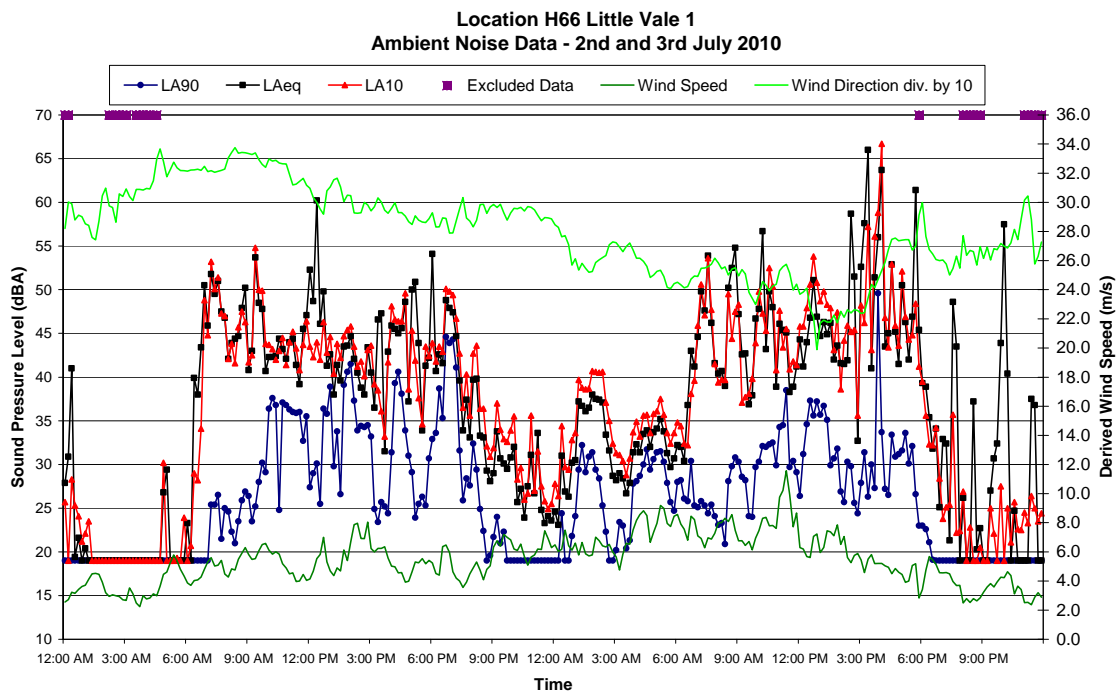
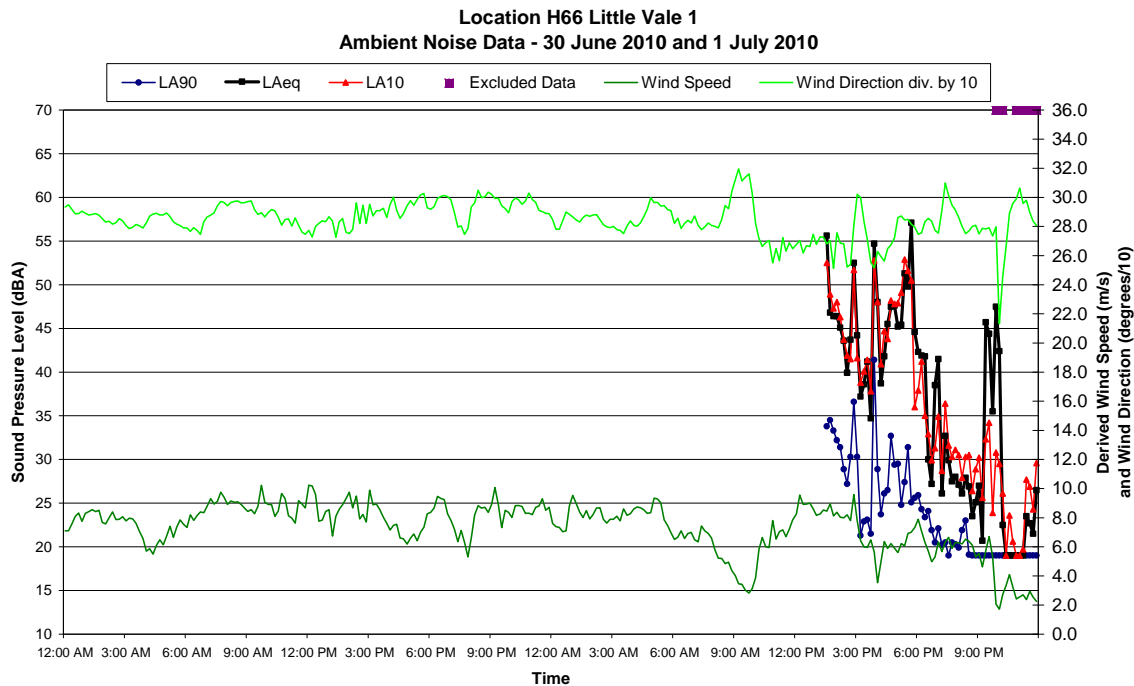


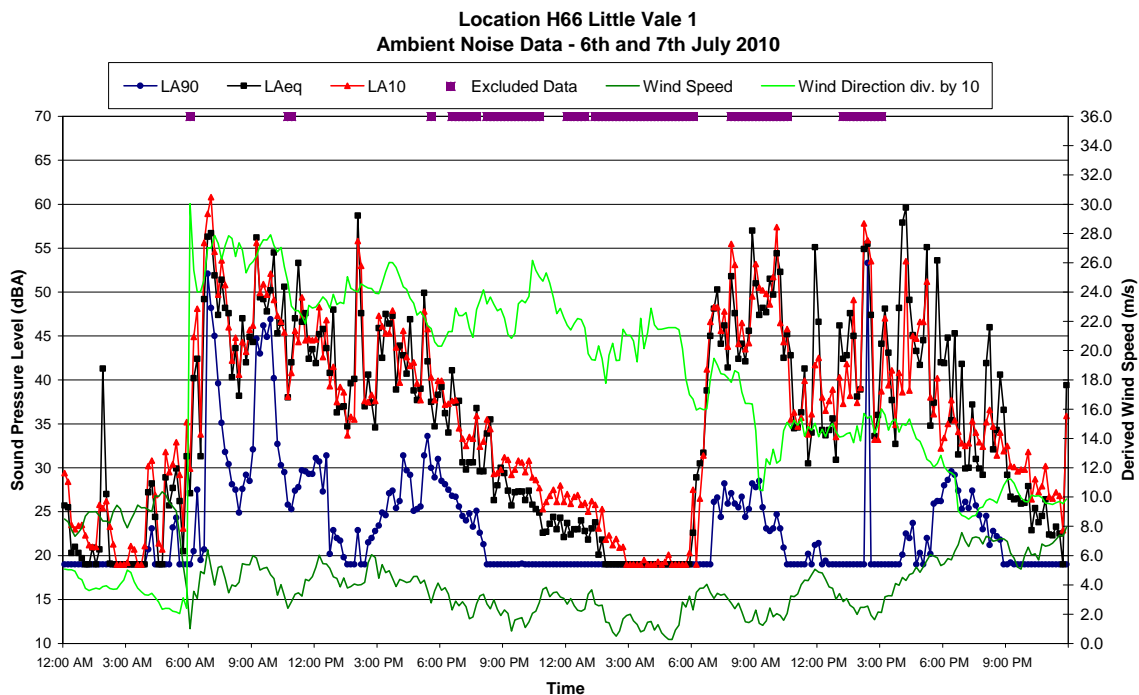
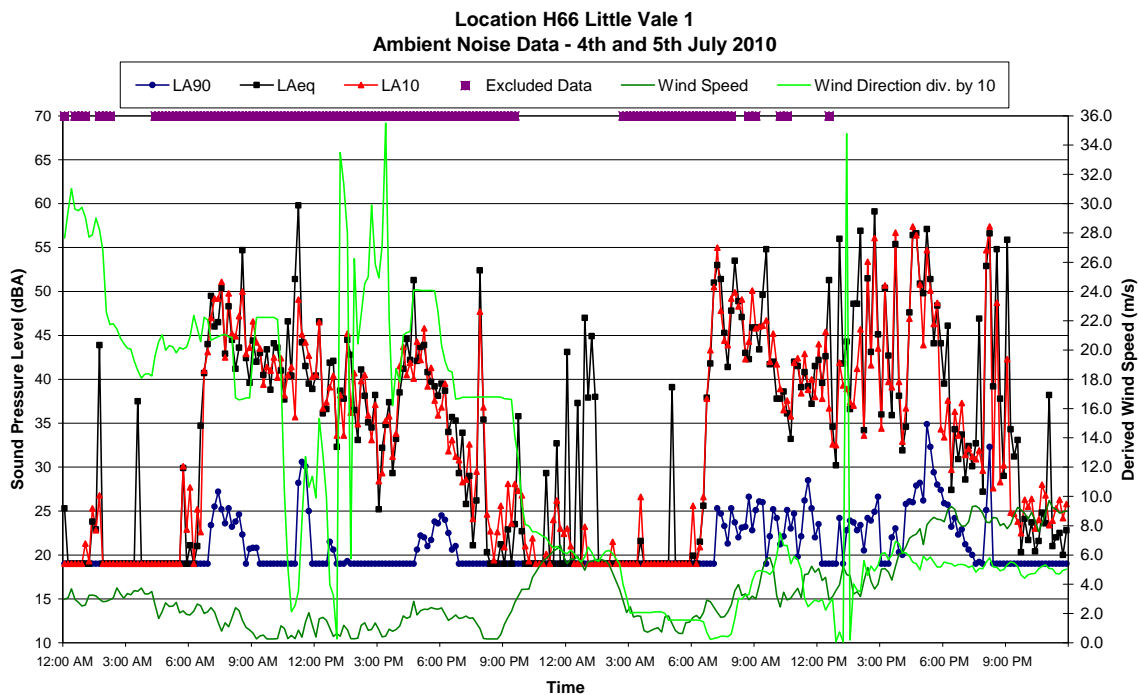


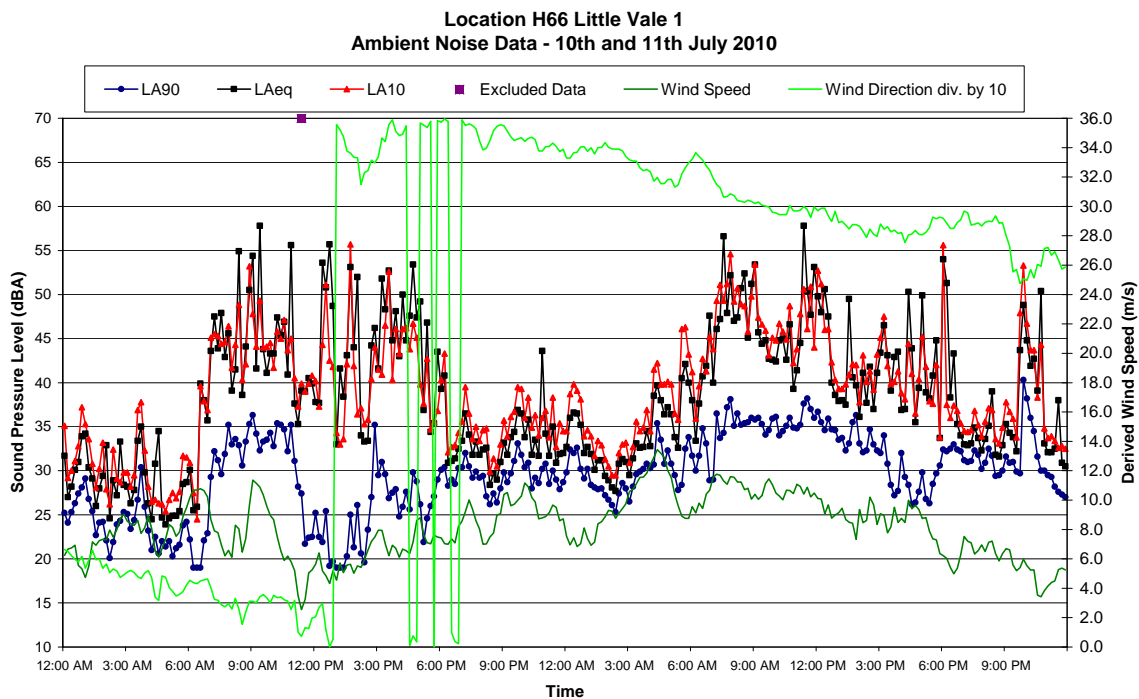
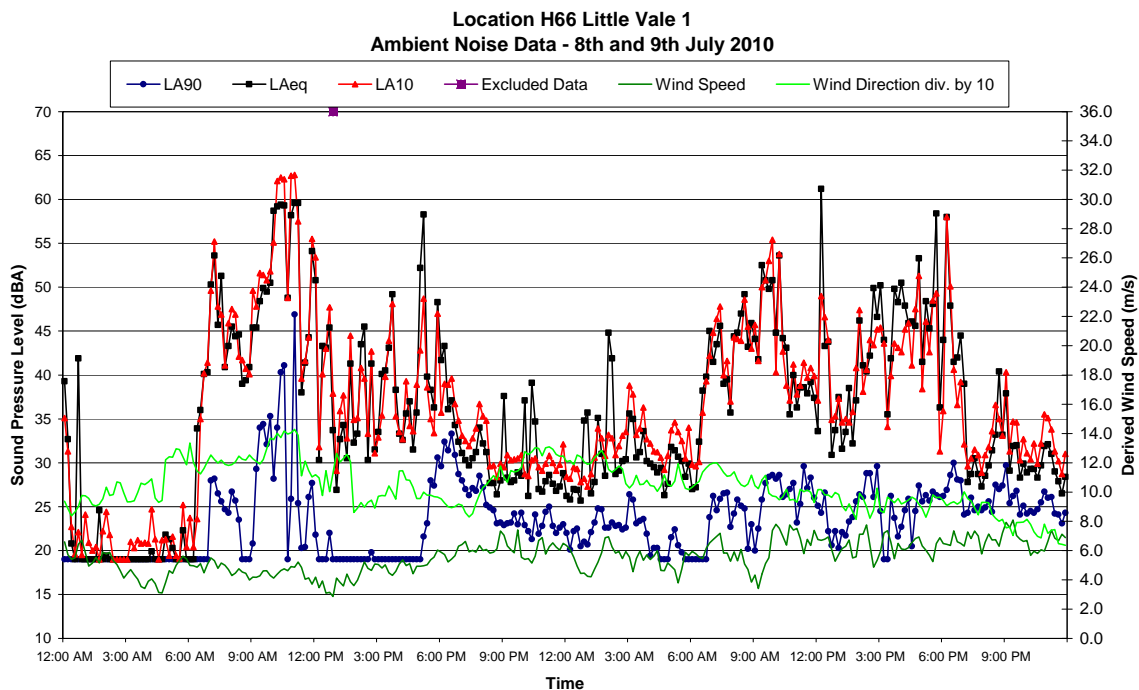
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Ambient Noise Data - 16th and 17th July 2010

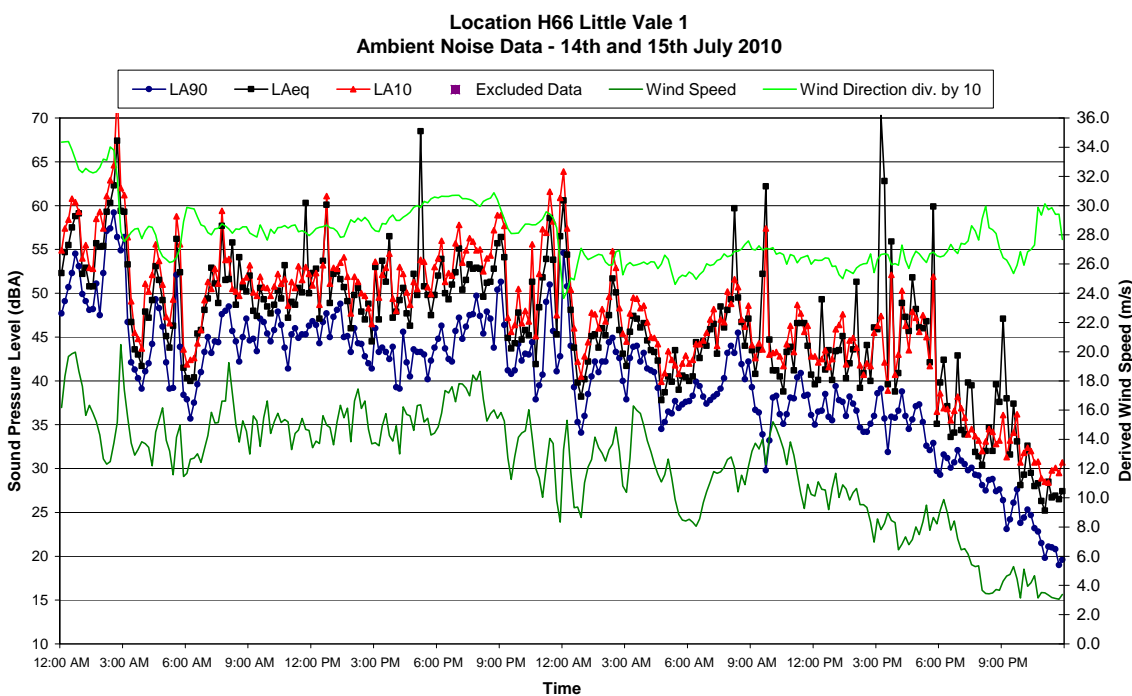
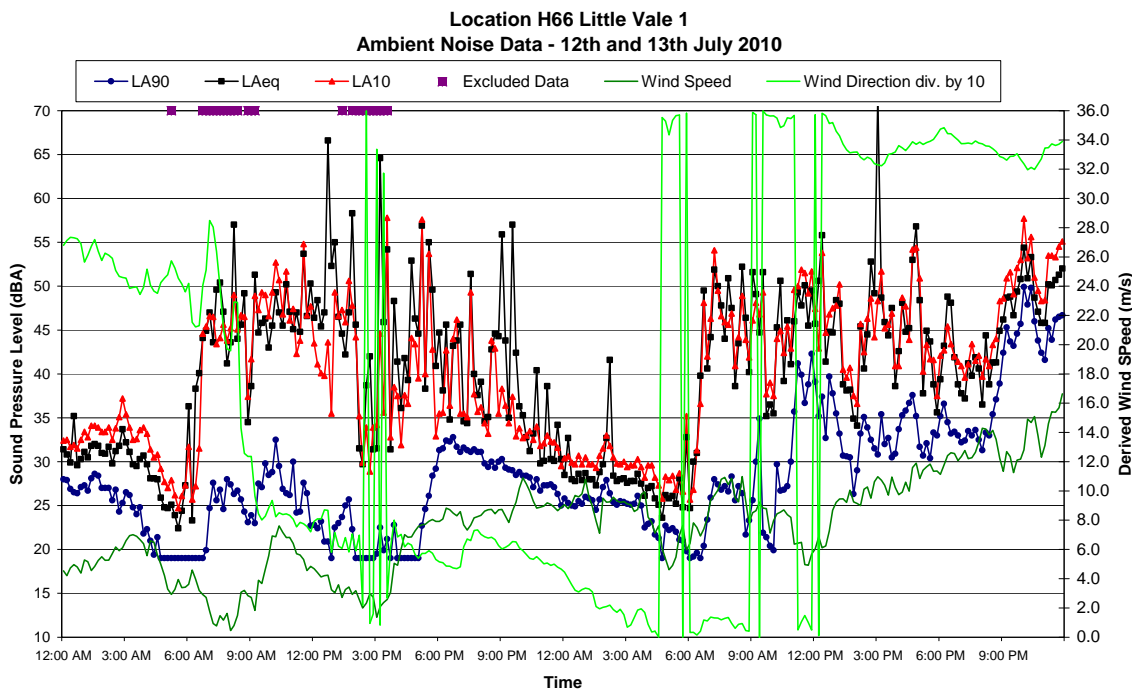




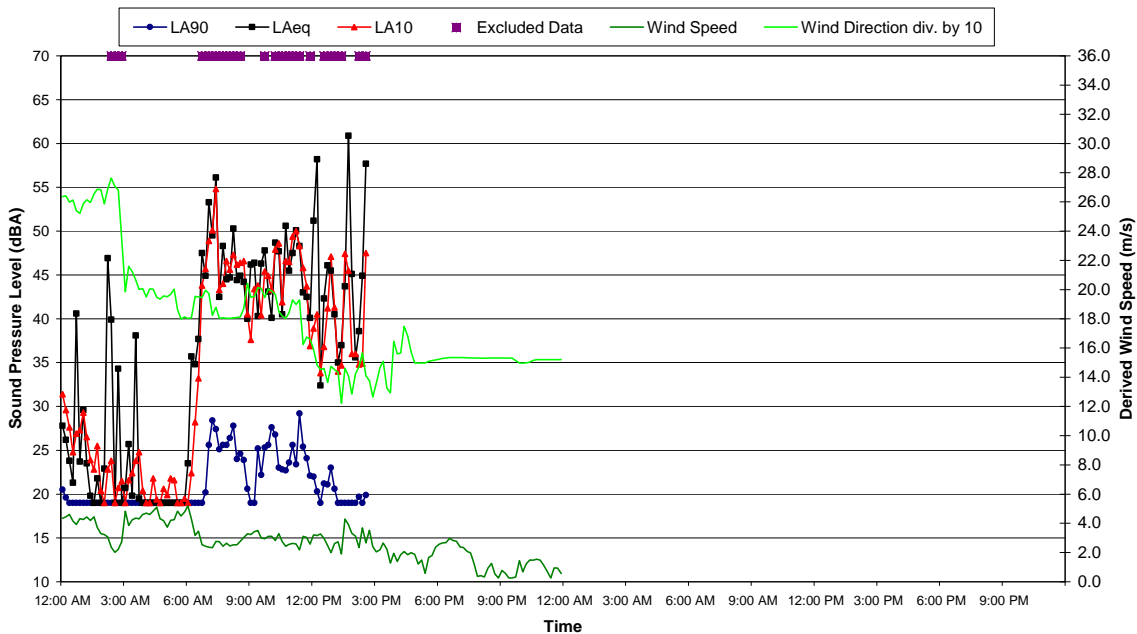




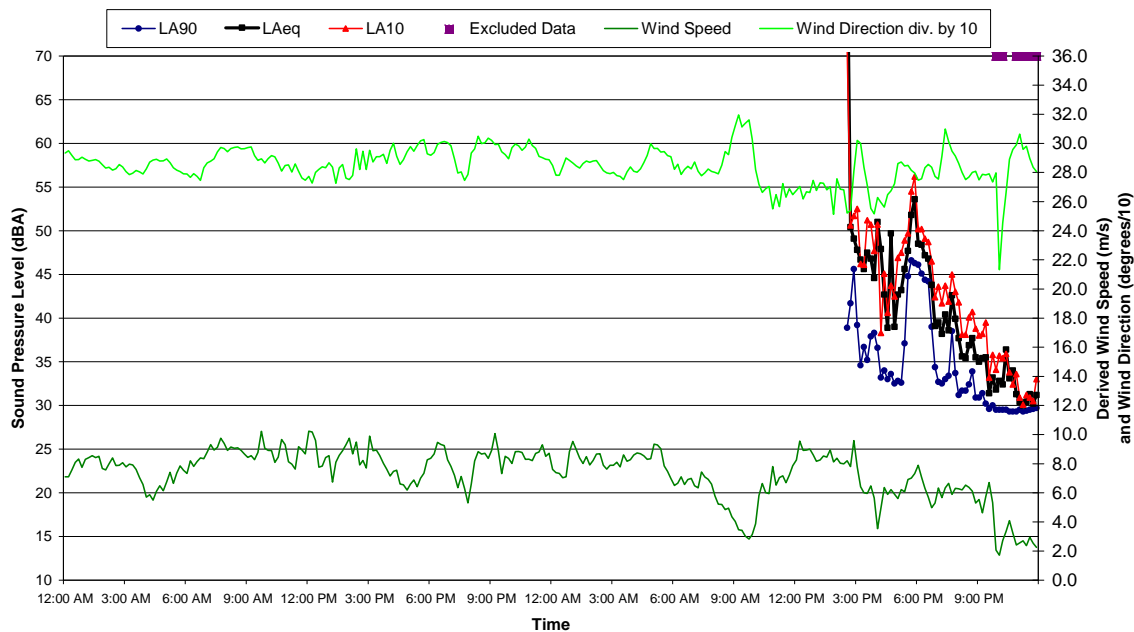




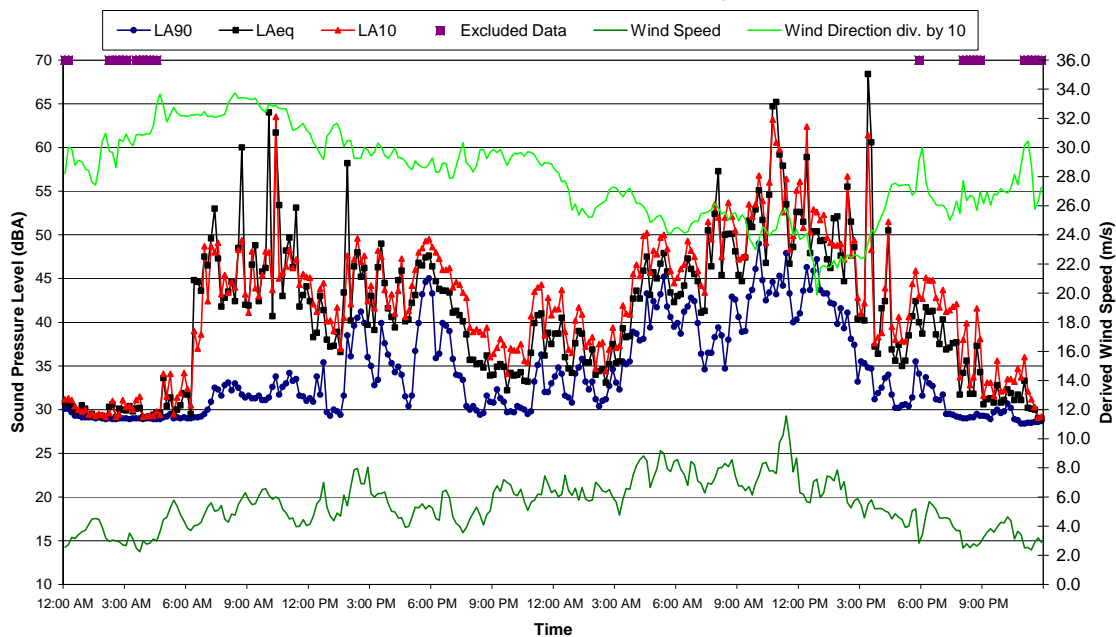
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Ambient Noise Data - 16th and 17th July 2010

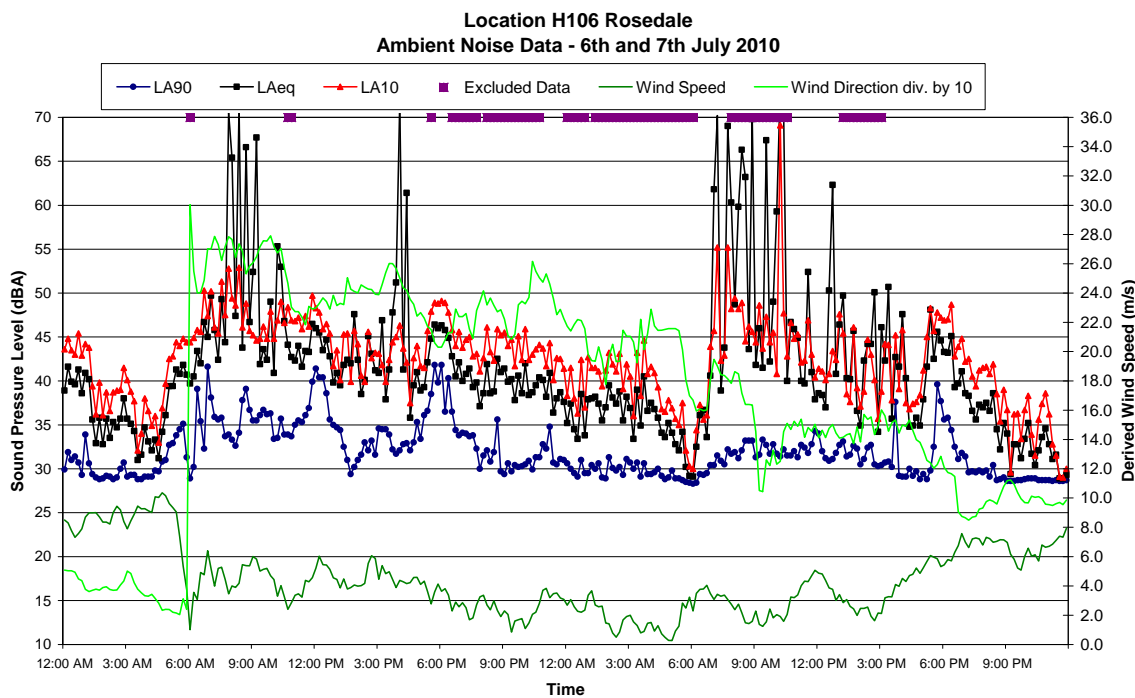
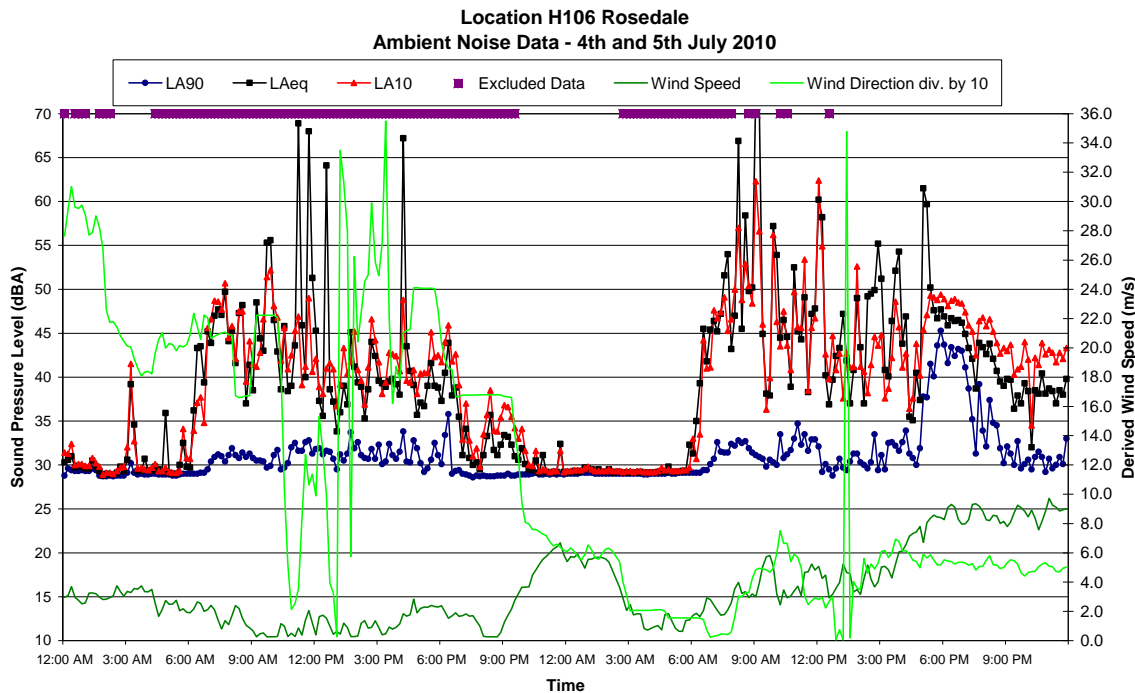


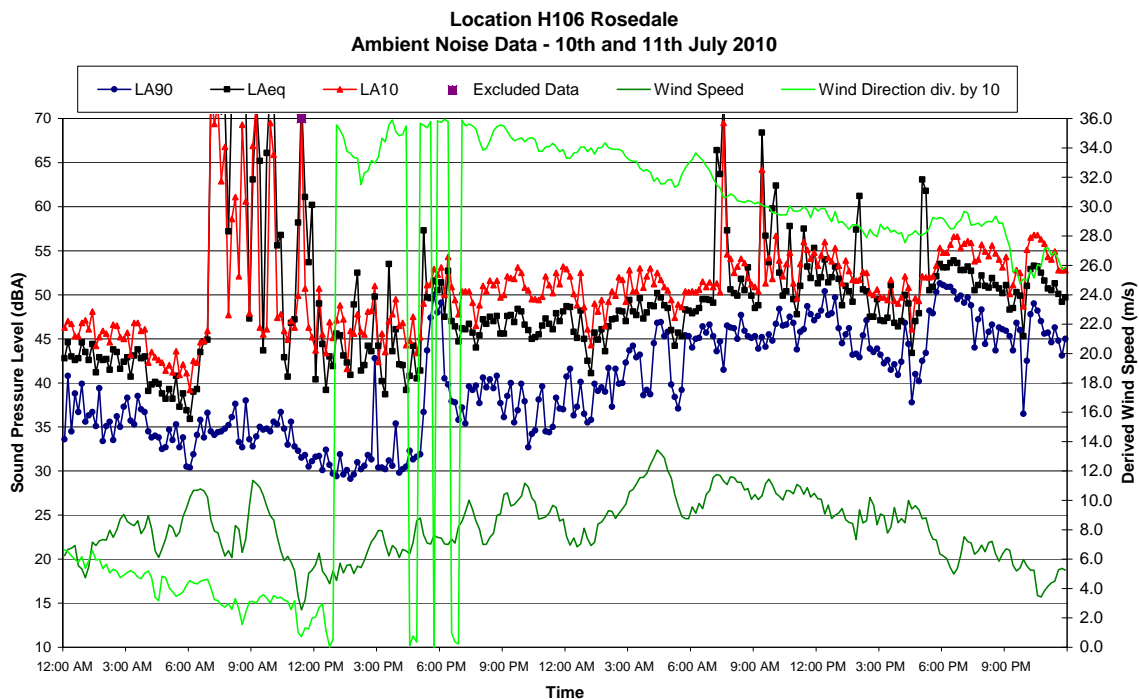
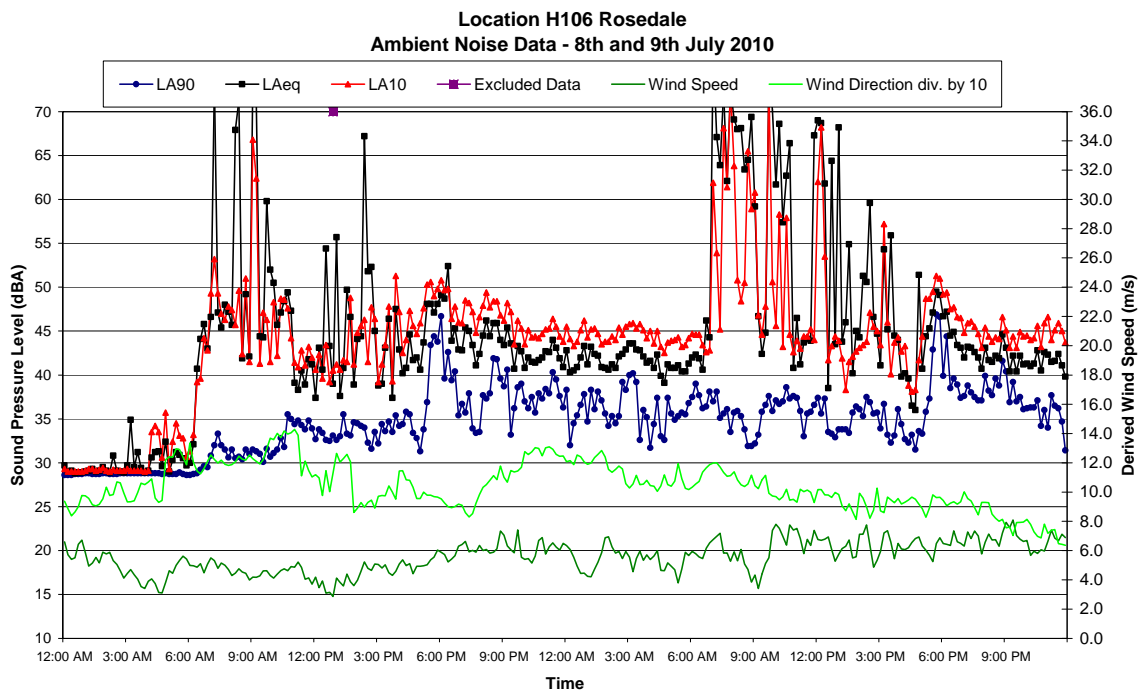
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**Ambient Noise Data - 30 June 2010 and 1 July 2010**



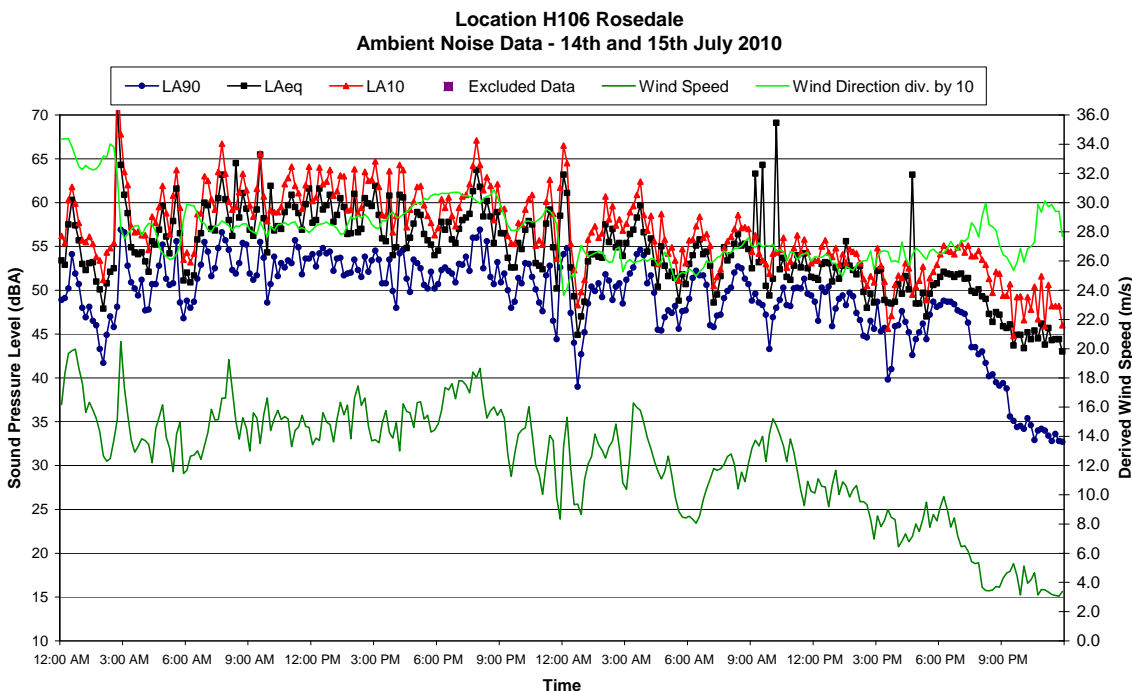
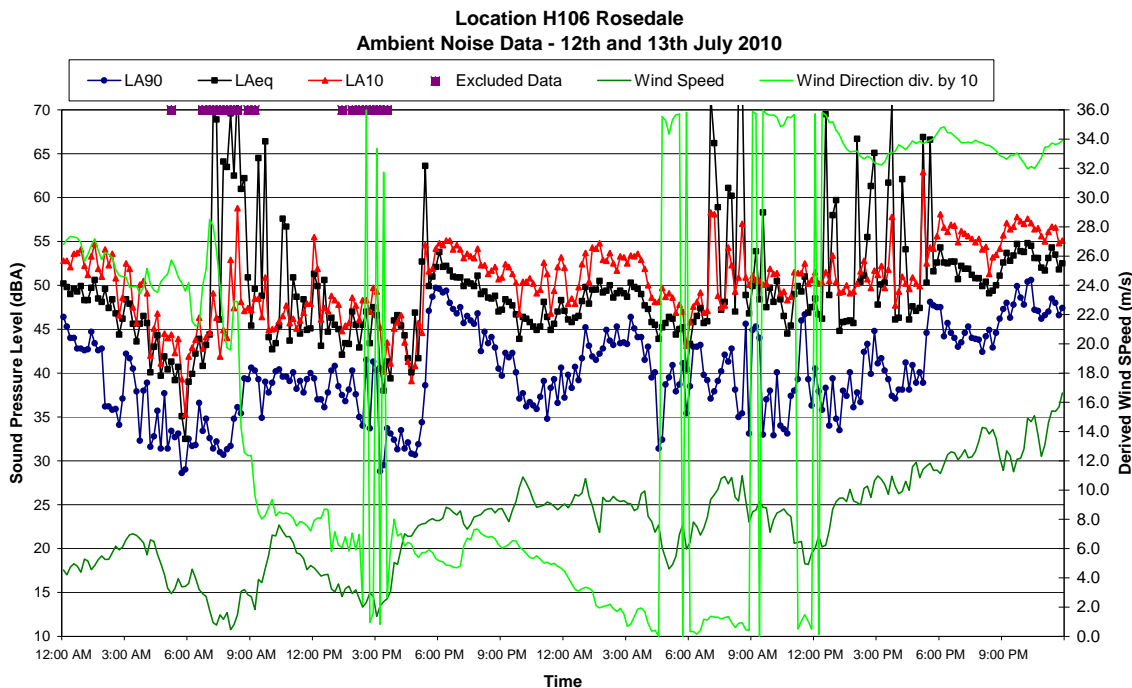
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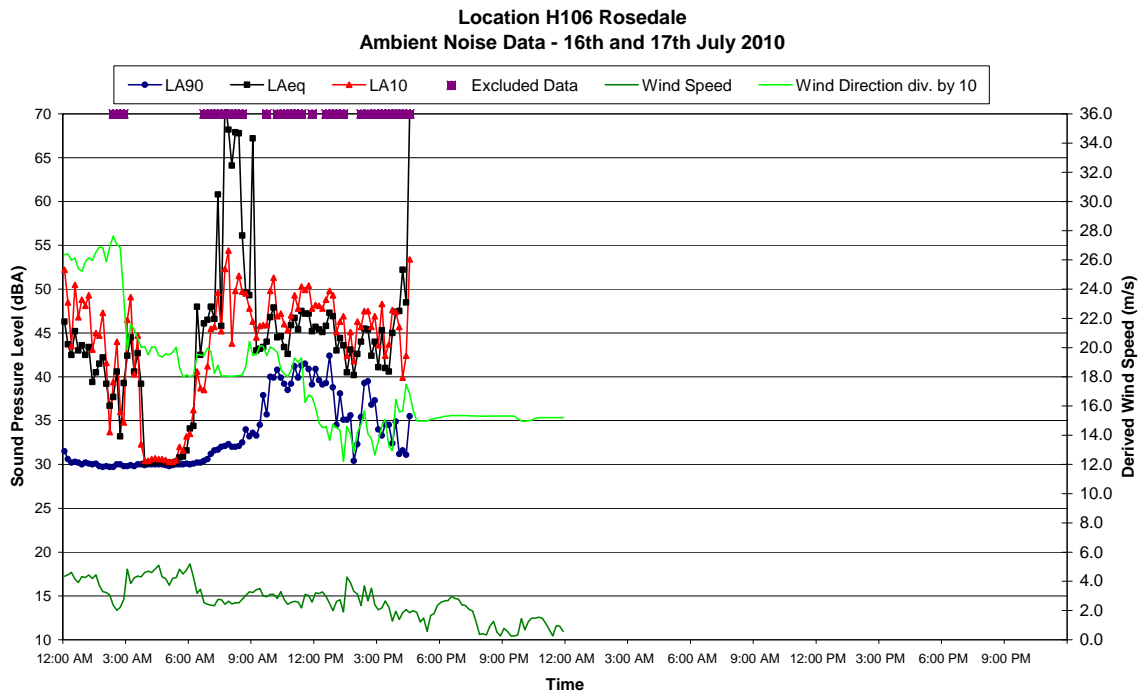




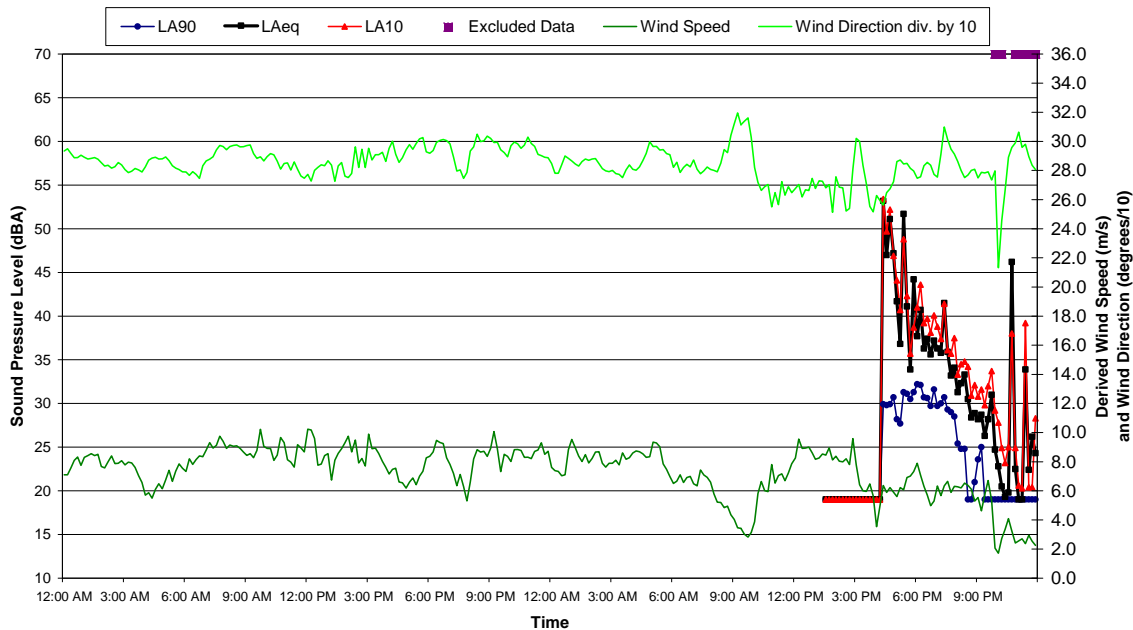




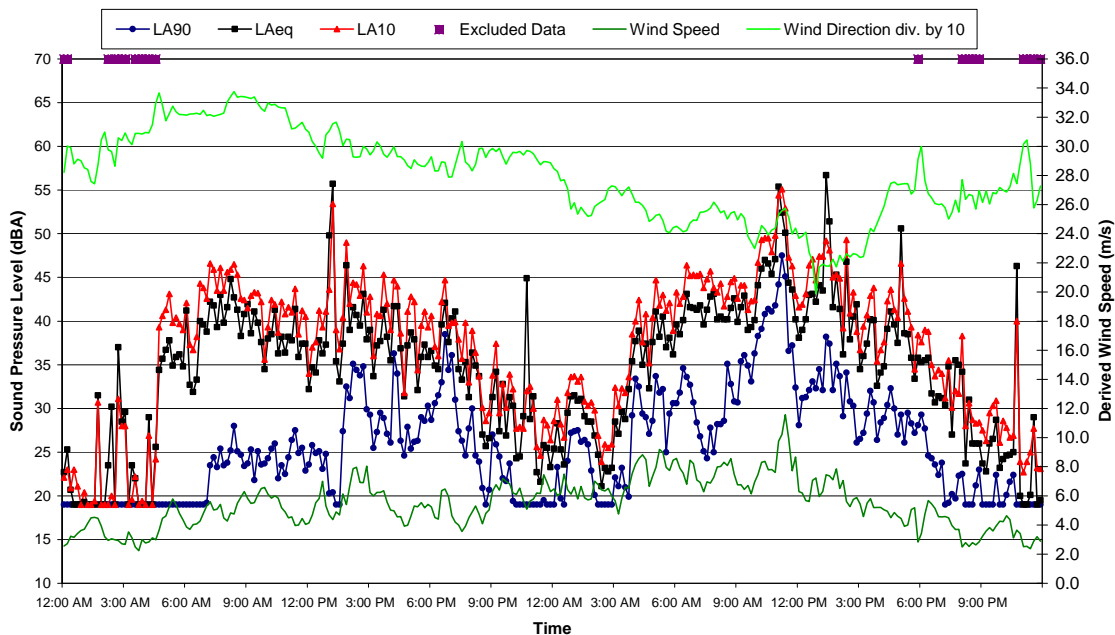


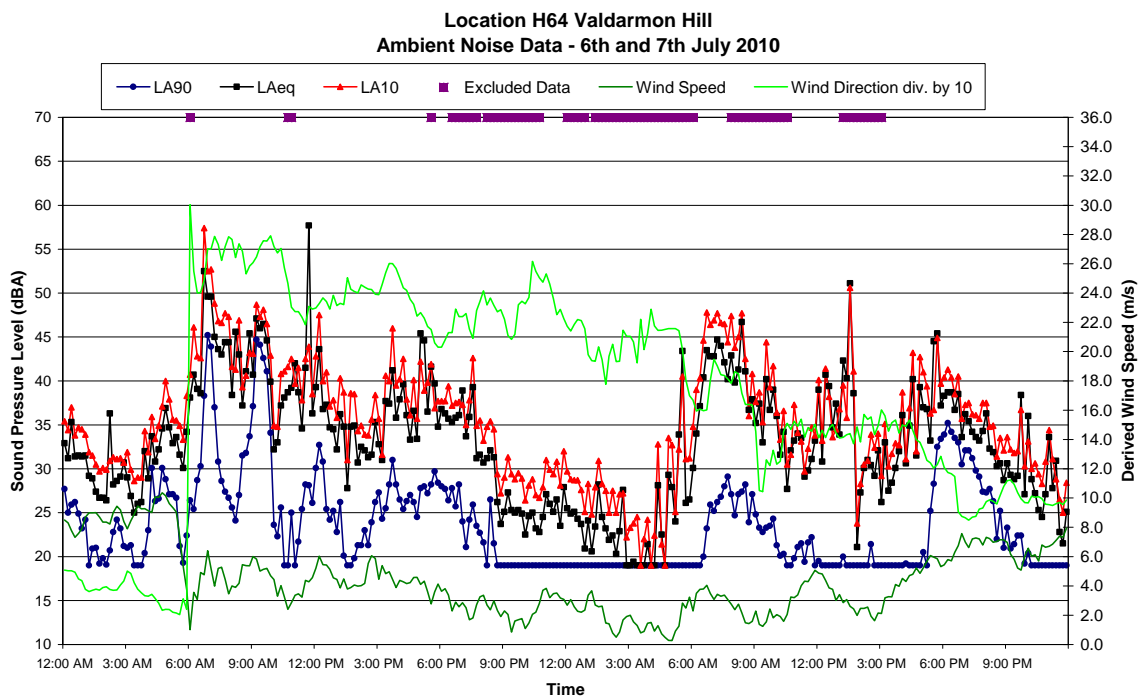
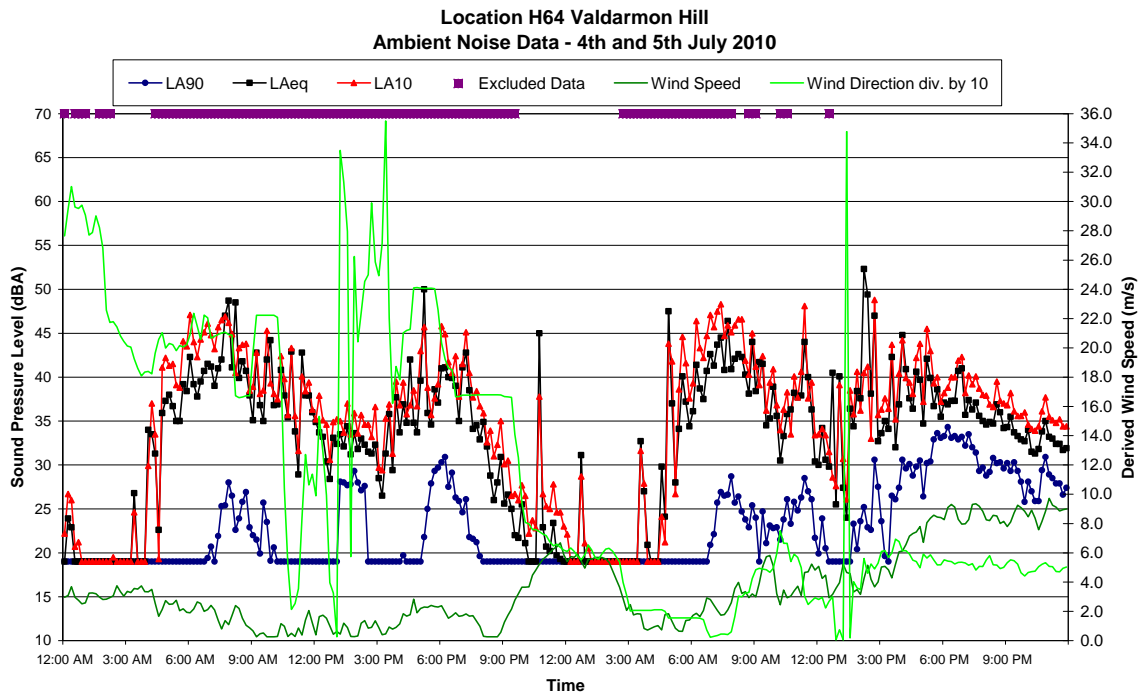


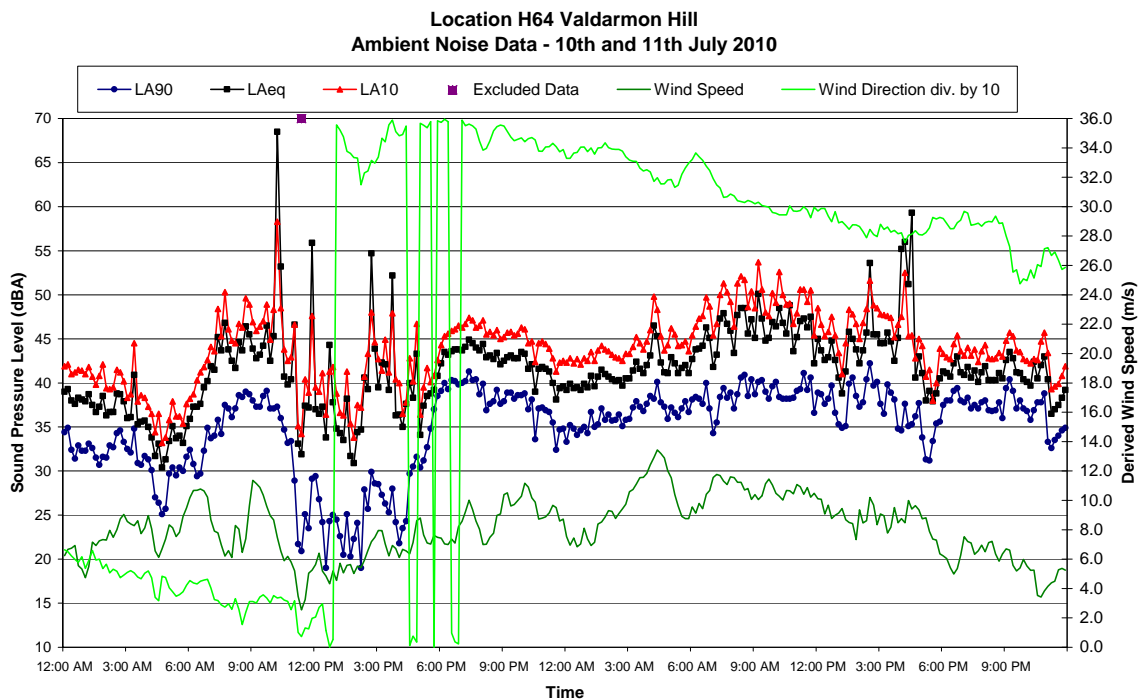
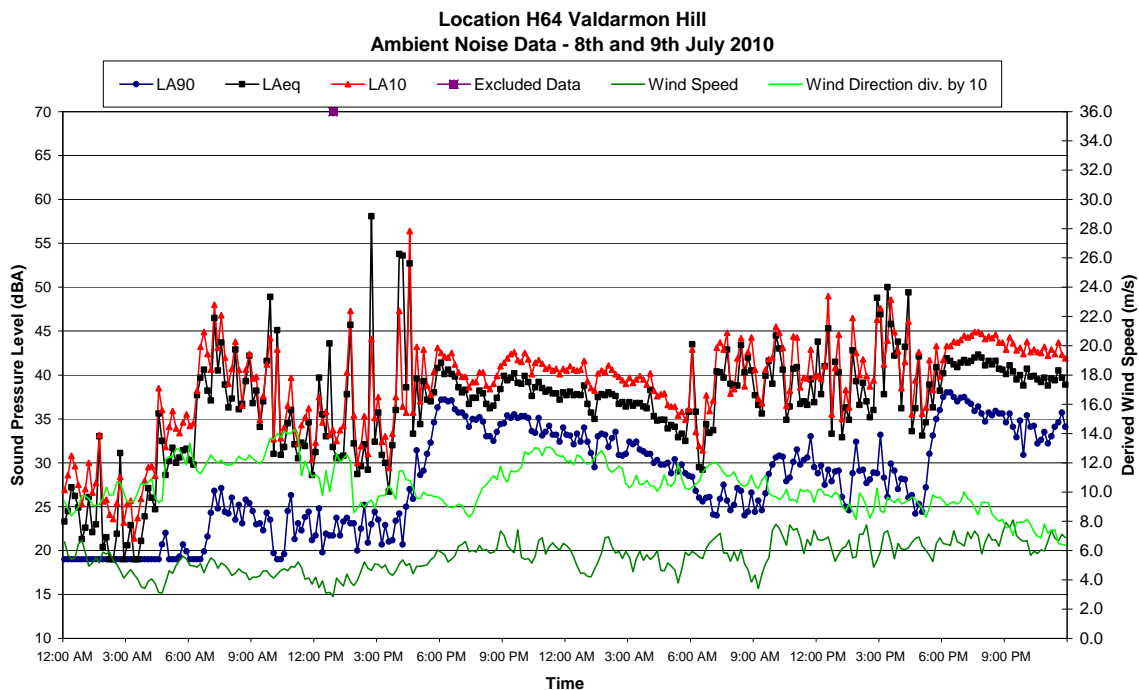
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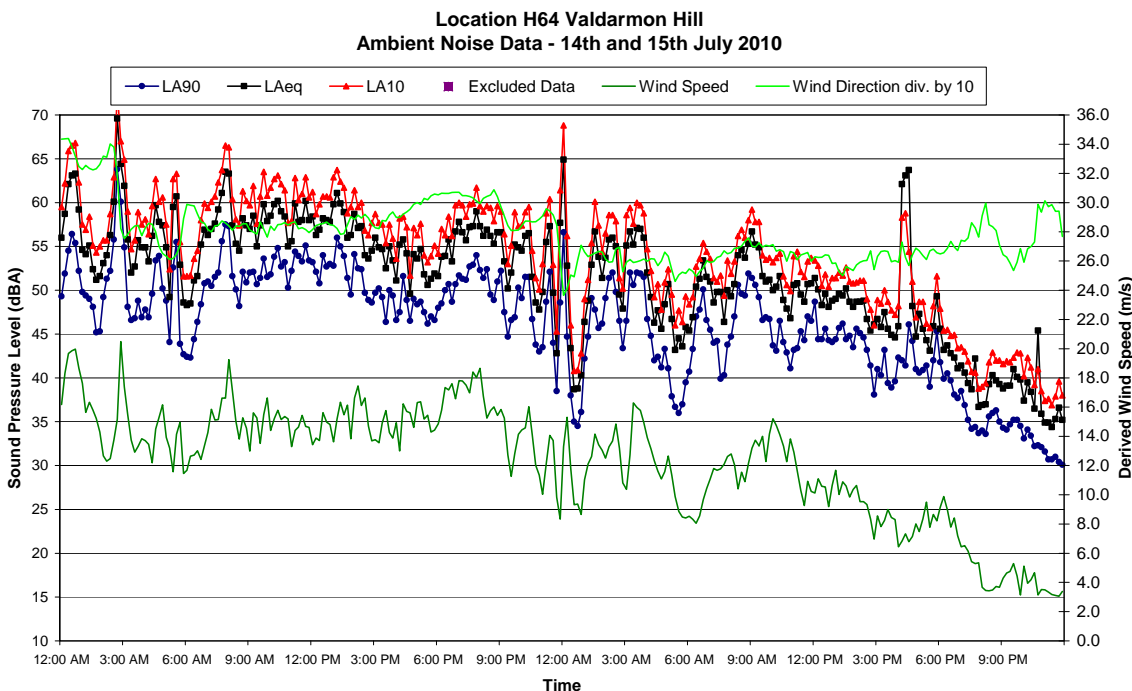
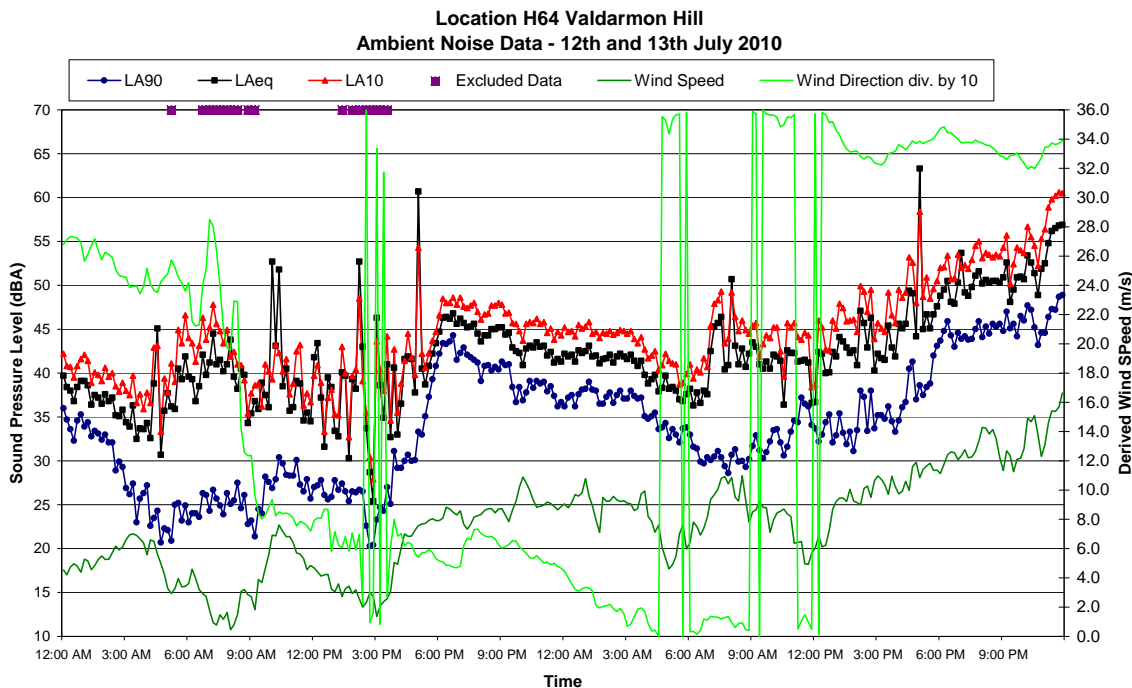


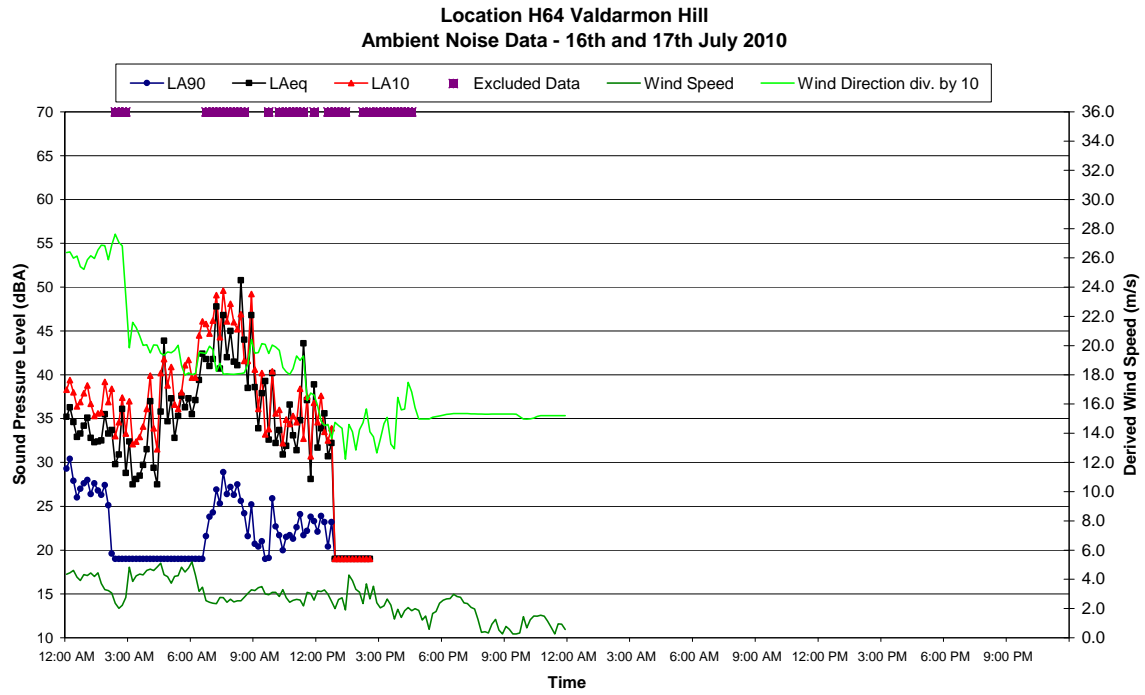
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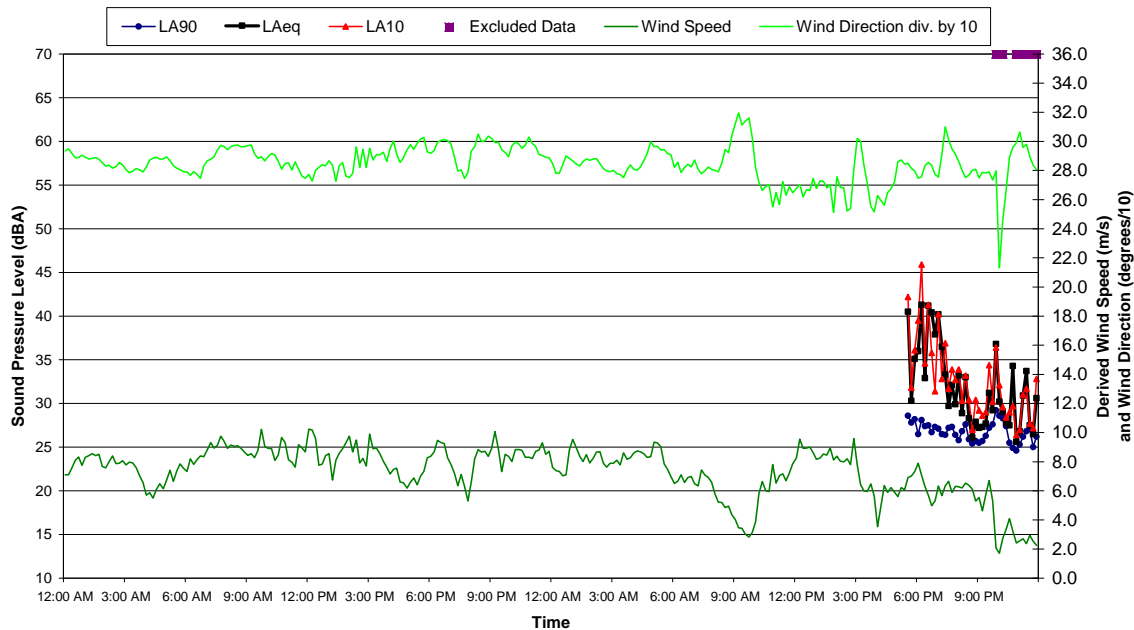




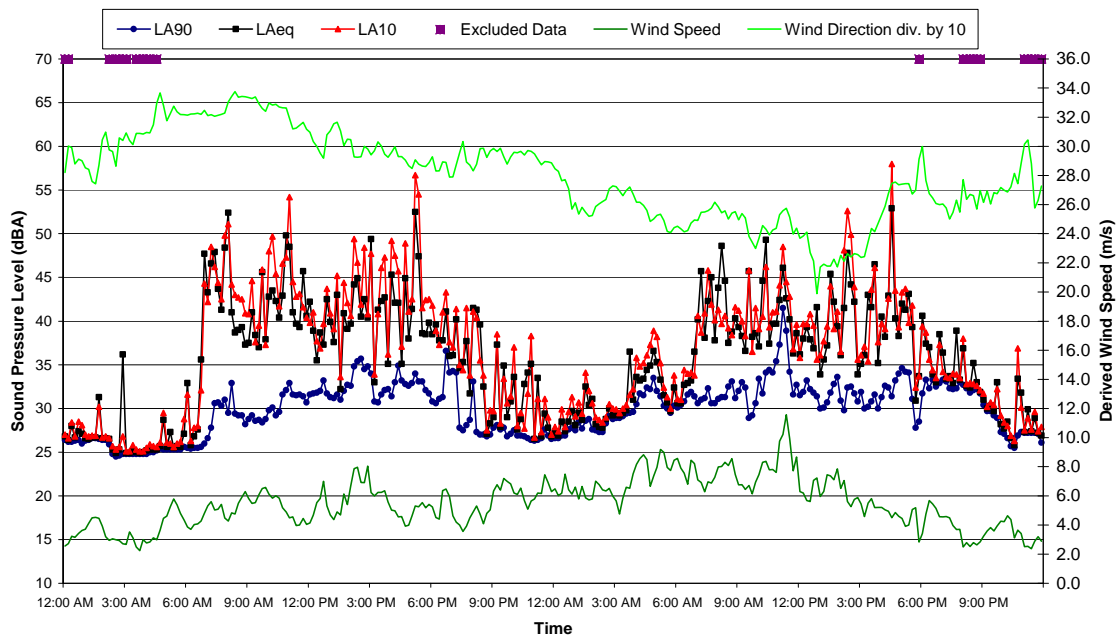




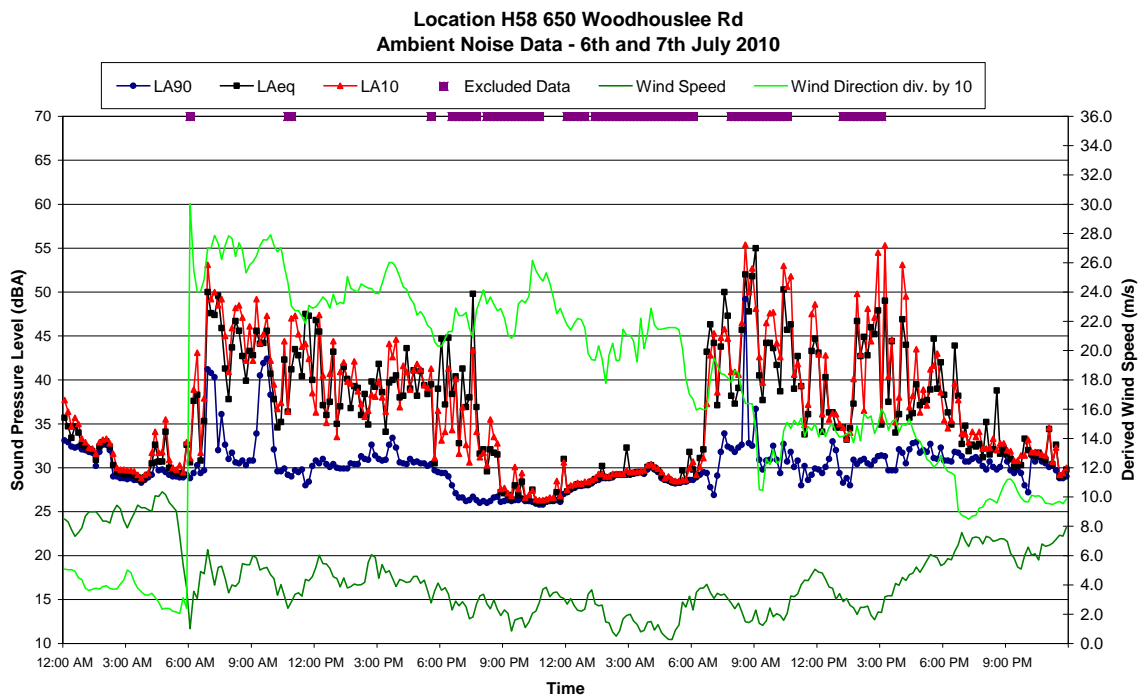
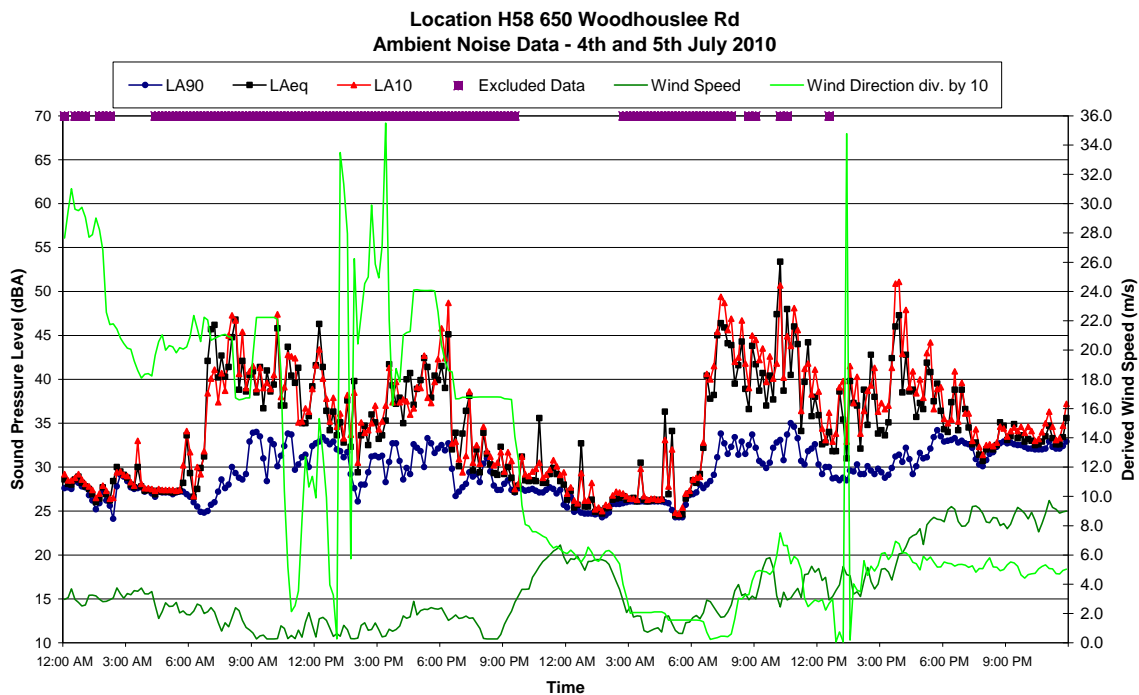
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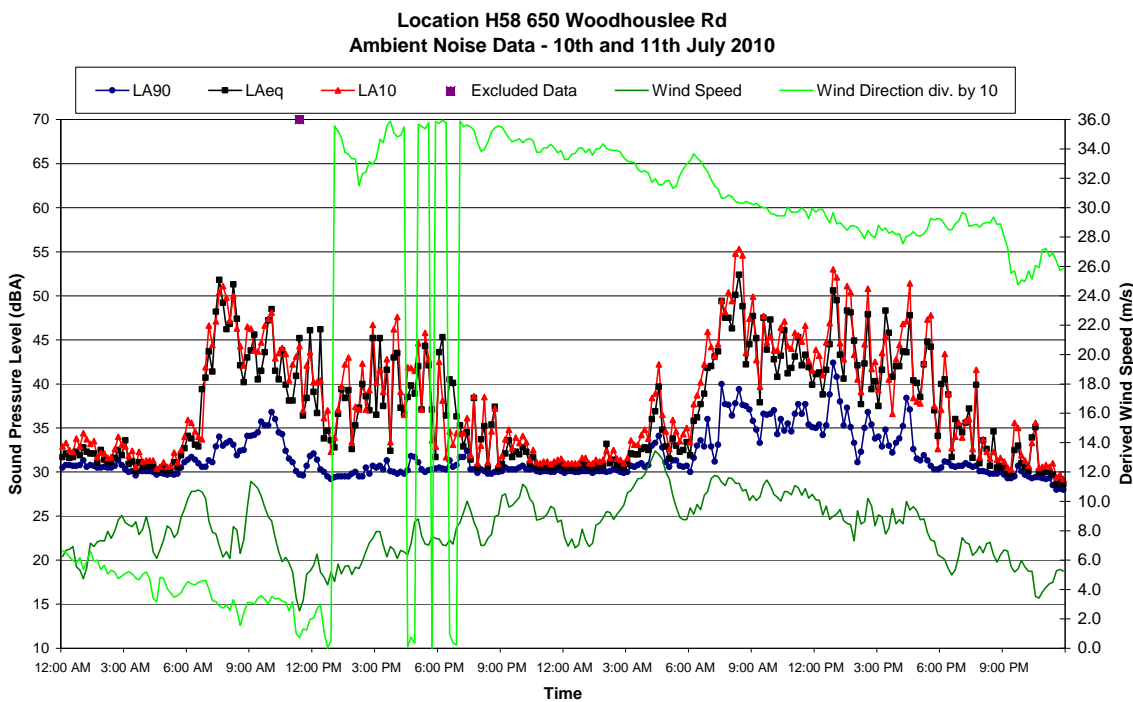
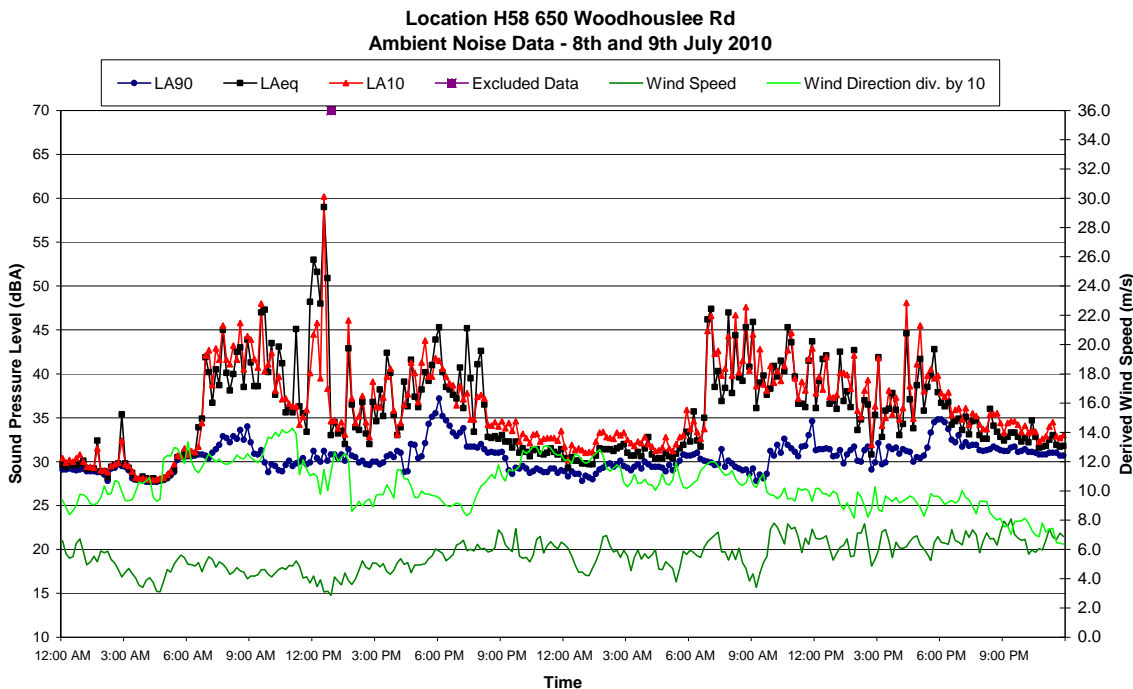


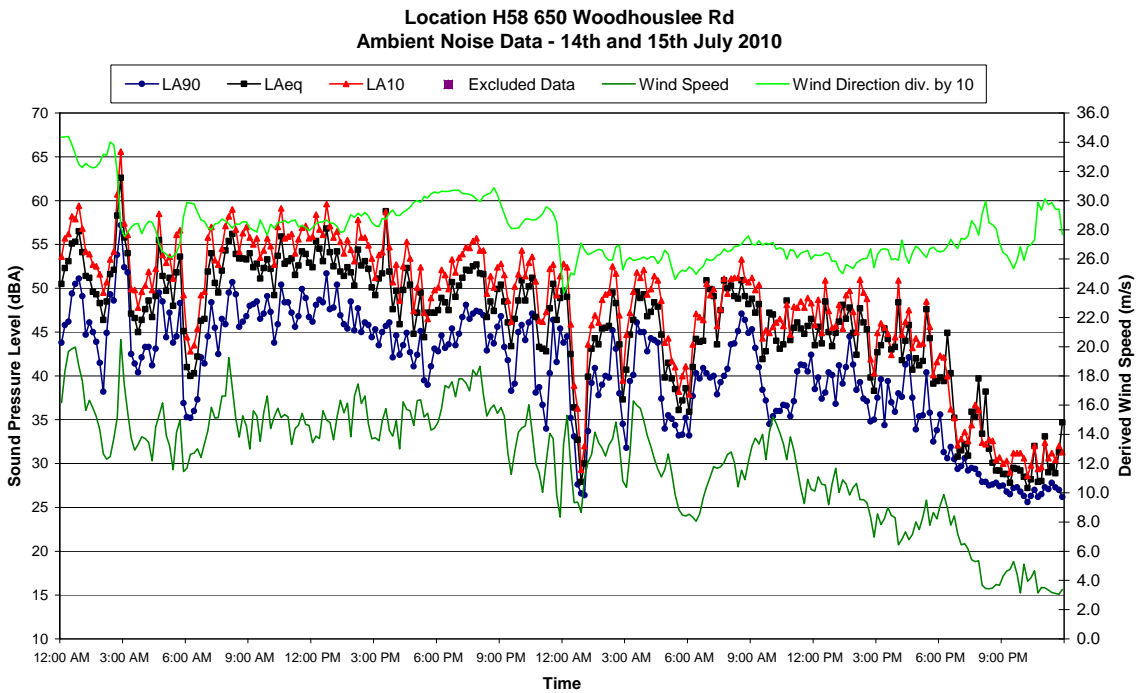
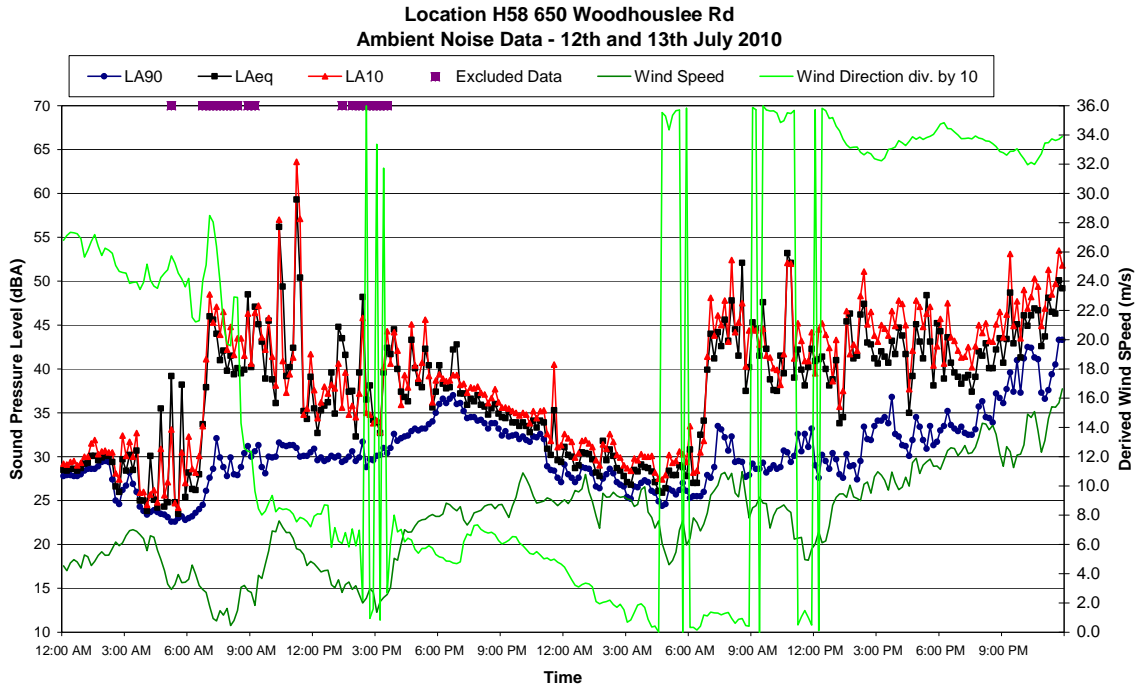
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 Ambient Noise Data - 2nd and 3rd July 2010**

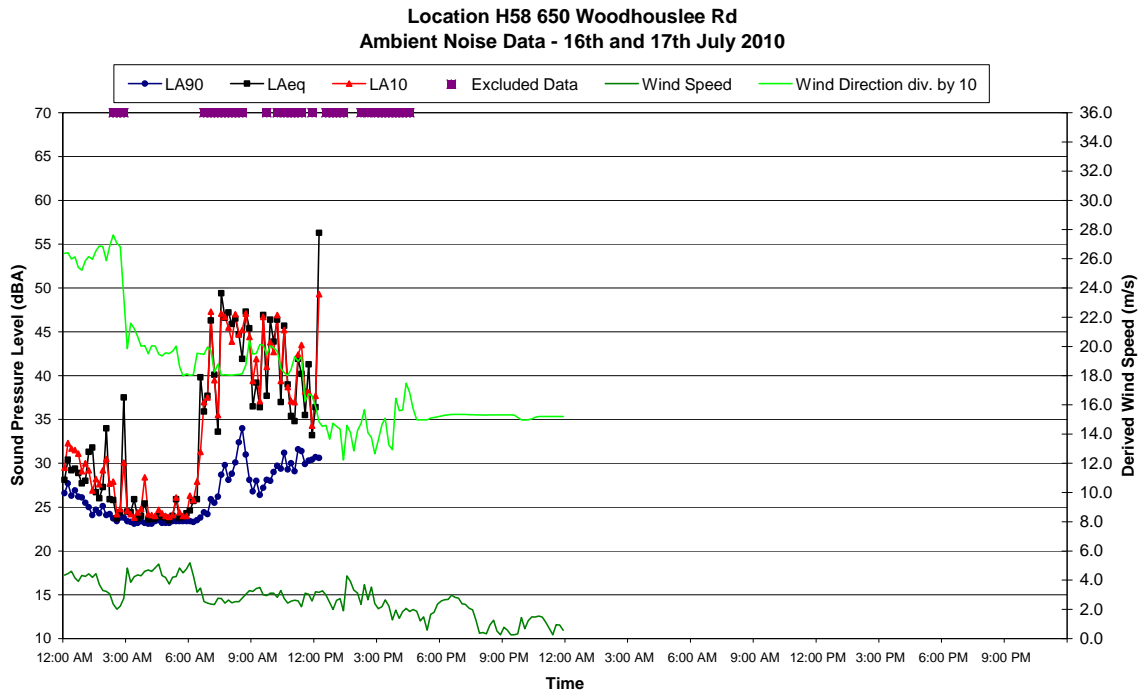












## NOISE FUNDAMENTALS

### Noise

Hearing is a fundamental human sense and is used constantly for communication and awareness of the environment.

Noise is generally described as being ‘unwanted’ or ‘unfavourable’ sound and, to some extent, is an individual or subjective response as what may be sound to one person, may be regarded as noise by another.

The measurement and assessment of sound has been developed steadily over the last century, taking into account human response measures such as hearing damage and other potential health affects such as stress. Complex sound measurement and analytical devices have also been developed.

### A-weighting and ‘dBA’

The overall level of a sound is usually expressed in terms of dBA, which is measured using the ‘A-weighting’ filter incorporated in sound level meters. These filters have a frequency response corresponding approximately to that of human hearing. People’s hearing is most sensitive to sounds at mid frequencies (typically 500 Hz to 4,000 Hz) and less sensitive at lower and higher frequencies. The level of a sound in dBA is considered a good measure of the loudness of that sound. Different sources having the same dBA level generally sound about equally as loud, although the perceived loudness can also be affected by the character of the sound (e.g. the loudness of human speech and a distant motorbike may be perceived differently, although they can be of the same dBA level).

A change of up to 3 dBA in the level of a sound is difficult for most people to detect, whilst a 3 dBA to 5 dBA change corresponds to a small but noticeable change in loudness. A 10 dBA change corresponds to an approximate doubling or halving in loudness.

**Table 1** below presents examples of typical noise levels.

**Table 1 Typical Noise Levels**

Sound Pressure Level (dBA)	Typical Source	Subjective Evaluation
130	Threshold of pain	Intolerable
120 110	Heavy rock concert Grinding on steel	Extremely noisy
100 90	Loud car horn at 3 m Construction site with pneumatic hammering	Very noisy
80 70	Kerbside of busy street Loud radio or television	Loud
60 50	Department store General Office	Moderate to quiet
40 30	Inside private office Inside bedroom	Quiet to very quiet
20	Unoccupied recording studio	Almost silent

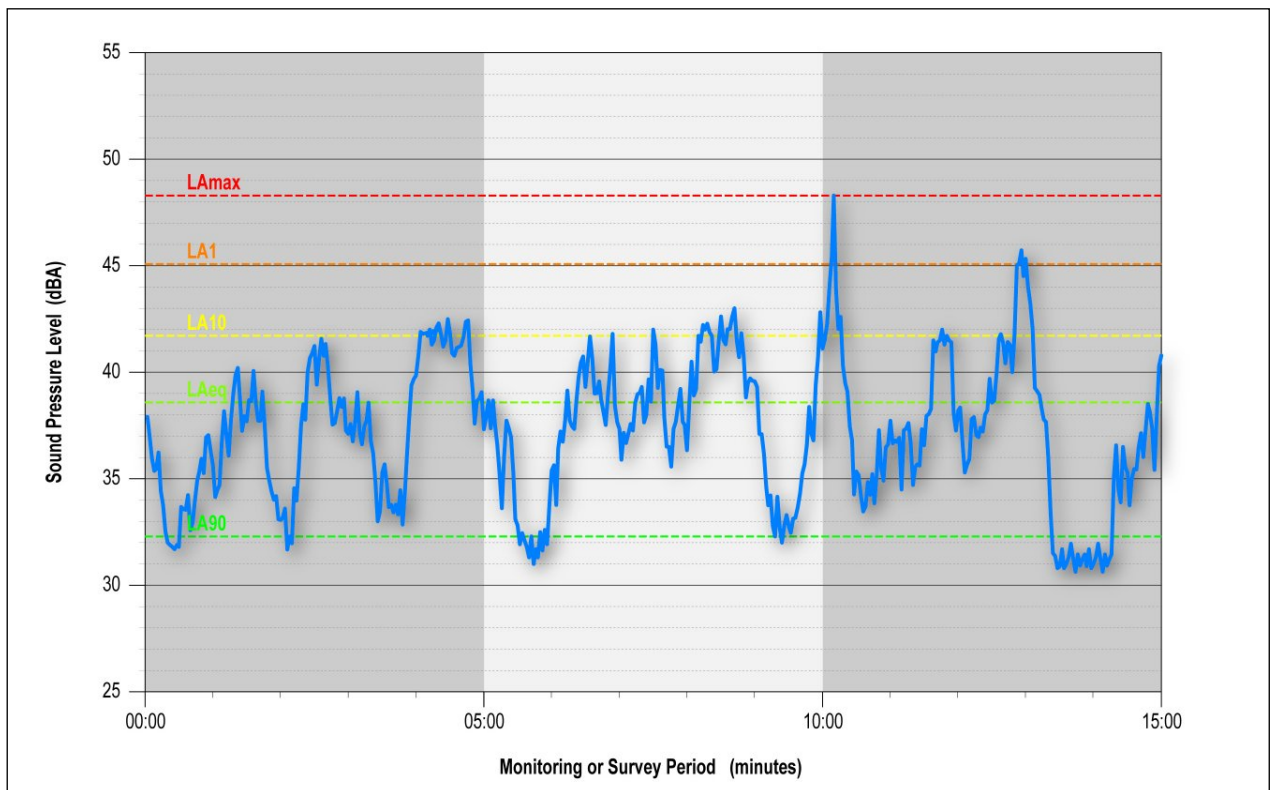
### Statistical Noise Level Descriptors

As environmental noise usually varies in level over time, it is common to present the results of environmental noise testing in the form of statistical descriptors.

An explanation of noise level descriptors typically used for assessing the noise environment are illustrated in **Figure 1** and described below.

L <sub>Amax</sub>	The maximum A-weighted noise level associated with a noise measurement interval.
L <sub>A1</sub>	The noise level exceeded for 1% of a given measurement period. This parameter is often used to represent the <u>typical maximum</u> noise level in a given interval.
L <sub>A10</sub>	The A-weighted sound pressure level exceeded 10% of a given measurement interval and is utilised normally to characterise <u>average maximum</u> noise levels.
L <sub>Aeq</sub>	The A-weighted equivalent continuous sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound over the same measurement interval. Can be loosely thought of as the 'average'.
L <sub>A90</sub>	The A-weighted sound pressure level exceeded 90% of a given measurement interval and is representative of the <u>average minimum</u> sound level. Often used to describe the 'background' level.

**Figure 1 Graphical Display of Typical Noise Descriptors**



## Character

The A-weighted noise level alone is a simplistic parameter and may not be sufficient in providing a thorough assessment of noise. The subjective character of a sound is also a significant parameter that needs to be considered.

Some basic characteristics of sound which can make a sound more or less intrusive include:

- The frequency content of a sound – i.e. low frequency sound such as exhaust noise or high frequency sound such as birds or insects,
- the 'tonality' of a sound – i.e. sound contains one or more prominent tones such as a horn or a whistle,
- the 'impulsiveness' of a sound – i.e. hammering, dog barking or a intermittently operating power saw.

The above parameters can usually be indicatively subjectively assessed, but more thorough assessment can be made with advanced sound measuring devices (i.e. narrow band or one-third octave analysis). Many noise policies provide an assessment method which applies penalties to sounds that exhibit particular characteristics such as the above.

## Frequency Analysis

Frequency analysis is the process used to examine the tones (or frequency components) which make up the overall noise or vibration signal. This analysis was traditionally carried out using analogue electronic filters, but is now normally carried out using Fast Fourier Transform (FFT) analysers.

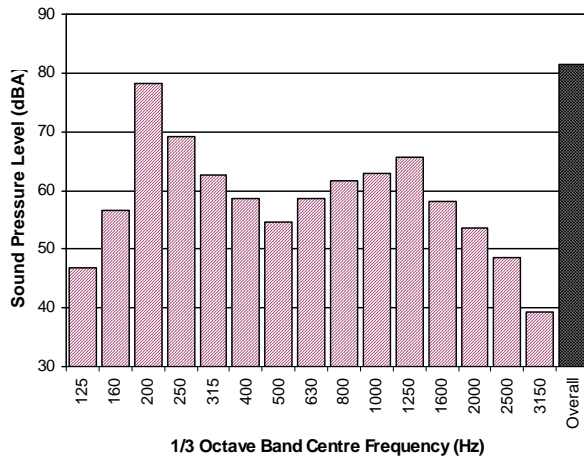
The units for frequency are Hertz (Hz), which represent the number of cycles per second.

Frequency analysis can be in:

- Octave bands (where the centre frequency and width of each band is double the previous band)
- 1/3 octave bands (3 bands in each octave band)
- Narrow band (where the spectrum is divided into 400 or more bands of equal width)

**Figure 2** shows a 1/3 octave band frequency analysis where the noise is dominated by the 200 Hz band. Note that the indicated level of each individual band is less than the overall level, which is the logarithmic sum of the bands.

**Figure 2 Representative 1/3 Octave Band Analysis**



**Vibration**

Vibration may be defined as cyclic or transient motion. This motion can be measured in terms of its displacement, velocity or acceleration. Most assessments of human response to vibration or the risk of damage to buildings use measurements of vibration velocity. These may be expressed in terms of “peak” velocity or “rms” velocity.

The former is the maximum instantaneous velocity, without any averaging, and is sometimes referred to as “peak particle velocity”, or PPV. The latter incorporates “root mean squared” averaging over some defined time period.

Vibration measurements may be carried out in a single axis or alternatively as triaxial measurements. Where triaxial measurements are used, the axes are commonly designated vertical, longitudinal (aligned toward the source) and transverse.

The common units for velocity are millimetres per second (mm/s). As with noise, decibel units can also be used, in which case the reference level should always be stated. A vibration level  $V$ , expressed in mm/s can be converted to decibels by the formula  $20 \log (V/V_0)$ , where  $V_0$  is the reference level (1E-6 mm/s). Care is required in this regard, as other reference levels are used by some organizations.

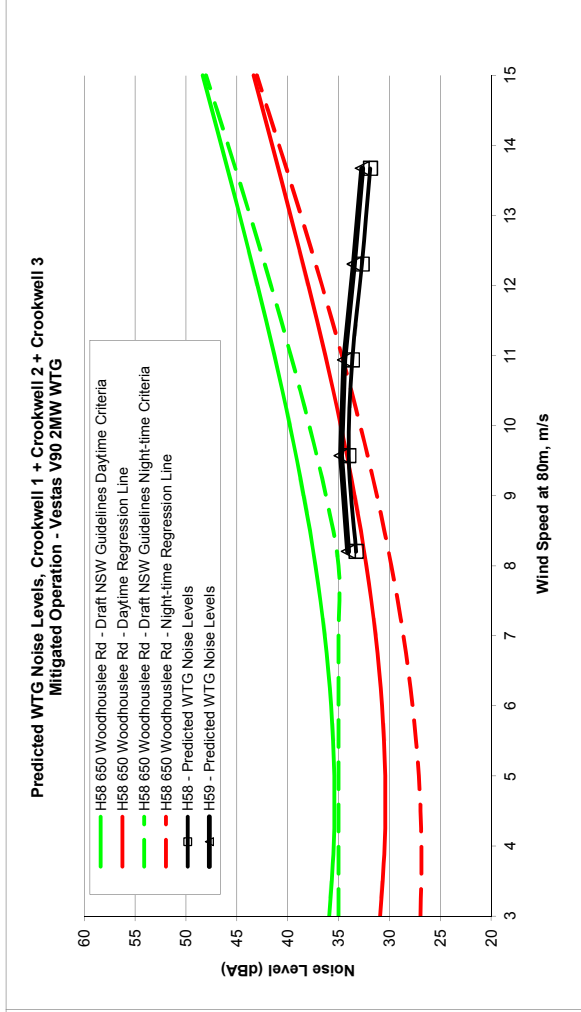
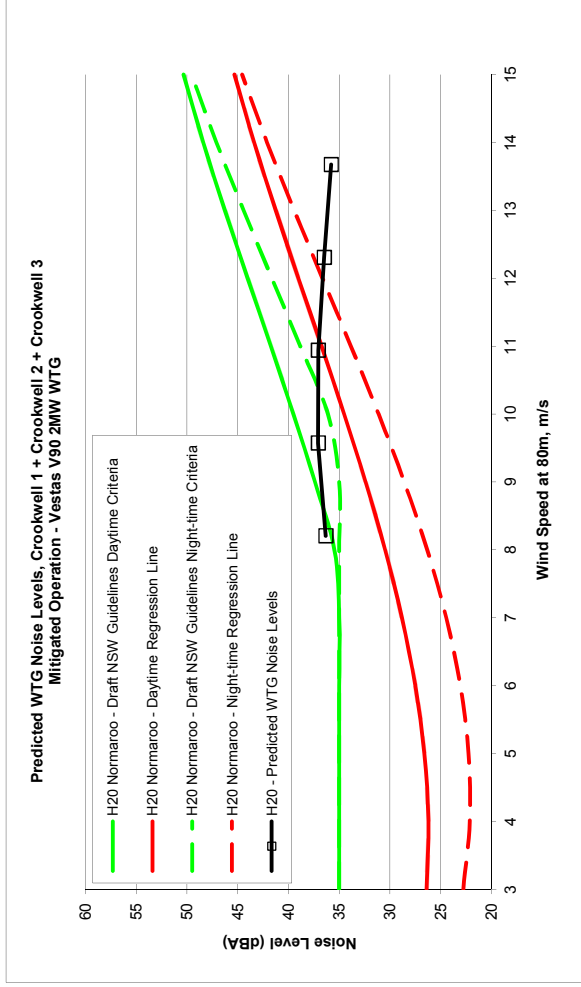
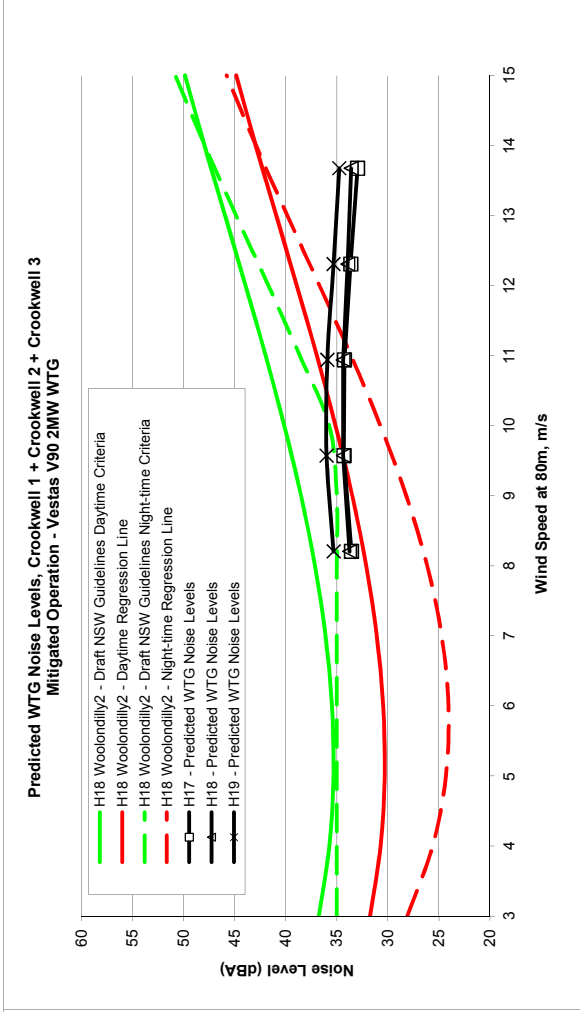
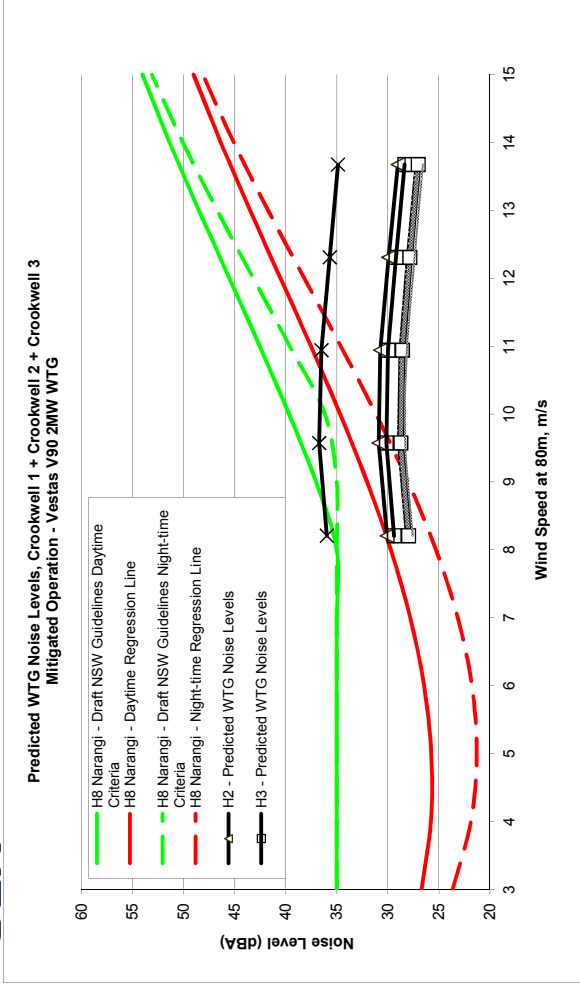
**Human Perception of Vibration**

People are able to “feel” vibration at levels lower than those required to cause even superficial damage to the most susceptible classes of building (even though they may not be disturbed by the motion). An individual’s perception of motion or response to vibration depends very strongly on previous experience and expectations, and on other connotations associated with the perceived source of the vibration. For example, the vibration that a person responds to as “normal” in a car, bus or train is considerably higher than what is perceived as “normal” in a shop, office or dwelling.

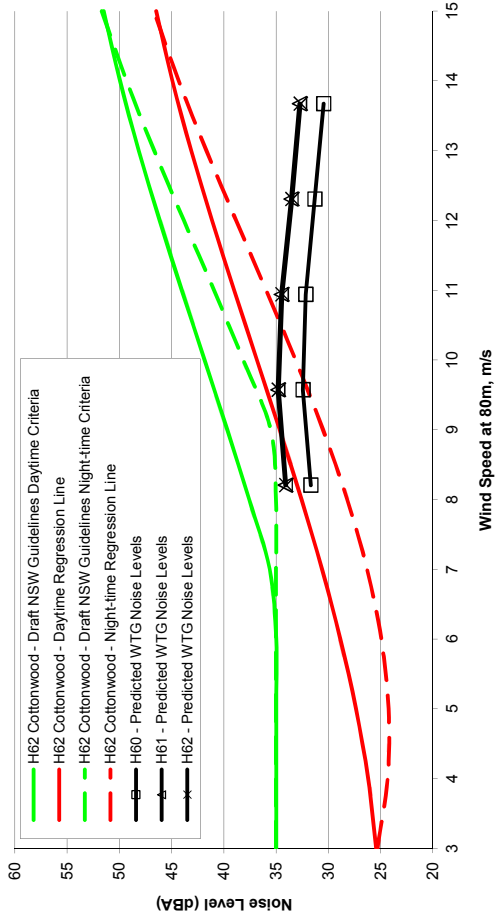
**Over-Pressure**

The term “over-pressure” is used to describe the air pressure pulse emitted during blasting or similar events. The peak level of an event is normally measured using a microphone in the same manner as linear noise (ie unweighted), at frequencies both in and below the audible range.

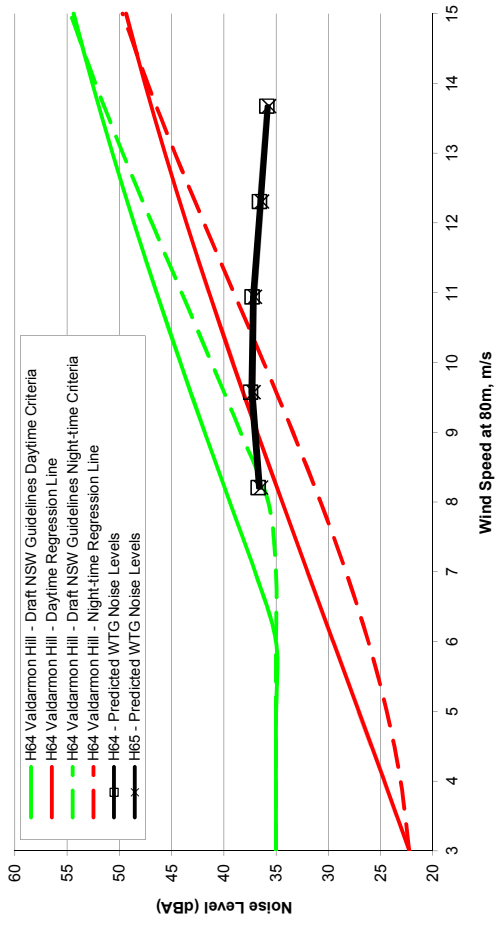




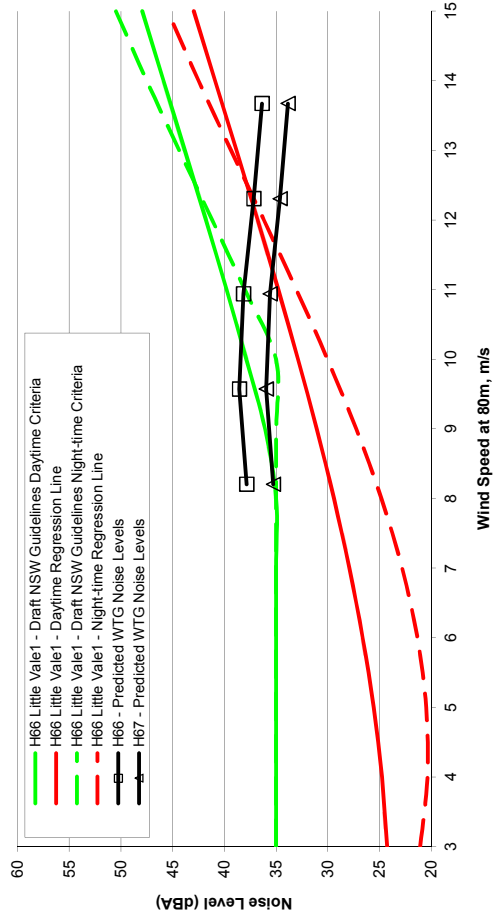
**Predicted WTG Noise Levels, Crookwell 1 + Crookwell 2 + Crookwell 3  
Mitigated Operation - Vestas V90 2MW WTG**



**Predicted WTG Noise Levels, Crookwell 1 + Crookwell 2 + Crookwell 3  
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