

<b>Corrib Gas Pipeline Environmental Report</b>	Period Ending:	29 <sup>th</sup> February 2012
Compiled By:	Siobhán Sheridan	
Approved By:	Aoife Reynolds	

## 1 Monitoring Data

### 1.1 Monitoring Equipment

Noise	Seven noise monitoring locations are currently being used – NSR1 & NSR2 (compliance monitoring points) and AN1, AN2, AN3, GN1 and RN1 (information purposes). The noise meters records in the 1/3 octave band.
Vibration	There are two vibration monitoring points being used- V2 and V3
Weather Station	The data used for this reporting period was taken from the Aughoose construction site meteorological station.
TSS	There are TSS meters (SB3 line 1 and SB3 line 2) on the each of discharges on the Silbuster.
Sonde	The results are displayed graphically for dissolved oxygen, conductivity, pH, turbidity and temperature.
Discharge pipe flow	The results are displayed graphically.

### 1.2 Rainfall Data

Date	Rainfall mm	Date	Rainfall mm	Date	Rainfall mm
01/02/2012	0.0	12/02/2012	0.2	23/02/2012	1.6
02/02/2012	0.0	13/02/2012	0.6	24/02/2012	2.8
03/02/2012	1.6	14/02/2012	0.0	25/02/2012	0.0
04/02/2012	7.8	15/02/2012	0.4	26/02/2012	5.4
05/02/2012	1.4	16/02/2012	3.8	27/02/2012	3.0
06/02/2012	0.8	17/02/2012	3.8	28/02/2012	0.8
07/02/2012	0.0	18/02/2012	9.0	29/02/2012	0.2
08/02/2012	9.2	19/02/2012	0.6		
09/02/2012	12.6	20/02/2012	13.0		
10/02/2012	2.2	21/02/2012	7.0		
11/02/2012	2.4	22/02/2012	11.2		
Total 103mm					

### 1.3 Summary

Environment	Comments
Vibration	There were no vibration exceedances during the reporting period
Weather	There was a total of 103mm of rainfall during the reporting period, with a temperature range of 0.7°C to 11.4°C
Noise	For one week (week ending February 8 <sup>th</sup> ) there was a difficulty downloading GN1 noise meter. Results for that week were included in the subsequent weekly report (week ending February 15 <sup>th</sup> ). A technical error occurred during the download of the noise data at NSR2. on February 15 <sup>th</sup> . Technical

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Environment	Comments
	assistance was sought but the data was unable to be retrieved. There were occasions of elevated noise at NSR2 on the 18 <sup>th</sup> , 20 <sup>th</sup> and 22 <sup>nd</sup> due to the close proximity of the construction works to the noise meter. During those periods, the noise results at GN1 are provided for information.
Surface Water - Aughooose	There were no identified surface water exceedances during the reporting period.
Surface Water - Glengad	No surface water discharge was available at SW01 for sample collection.
Groundwater Monitoring	Monitoring of groundwater undertaken during the reporting period were within the anticipated results range.

**Note:** All laboratory data generated on site should be considered indicative only.

## 2 Environmental Exceedances / Incidents / Complaints / Highlights

### 2.1 Complaints

Date & time of complaint	Nature of complaint	Actions taken as a result of the complaint
9/02/2012	Noise disturbance from site. Disturbing complainant's horses.	Complaint acknowledged. Further assessment underway.
16/02/2012 16.00	Traffic – Road Signs Complaint in relation to the absence of speed limit signs between Aughooose & Glengad – complainant seeking confirmation and reasons for their removal and copy of agreement from MCC permitting the construction traffic to continue without appropriate road signs	The road signs had been erected in accordance with the Traffic Management Plan. Road signs removed by unknown third party. SEPIL have made arrangements in consultation with Mayo County Council and Gardai to ensure that the relevant speed limits are being complied with and public safety is maintained until signage is re-erected. Complainant advised.
21/02/2012 2.30	Complaint in relation to damage to property along haul route	Awaiting property survey report
28/02/2012 10.30	Complaint in relation to SHELL Internship Programme criteria.	Complaint Acknowledged. Complaint Open

### 2.2 Exceedance

There were no identified environmental exceedances during this reporting period.

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## 2.3 Incidents

There were no incidents during the reporting period, however on the 20<sup>th</sup> of February at 11.00 am, hydrocarbon staining was observed on the outer sections of the bog mats, outside the northern fence line. A sample of the product on the mat was taken and the stains were mopped up using absorbent matting and then treated with Bioversal. In addition, samples were taken from small pockets of water on the vegetation adjacent to the fence line. The entire perimeter of the fence line was walked to check for further staining and none was detected. From the assessment, the hydrocarbon staining was not thought to result from a malfunction of onsite environmental management activities.

## 2.4 Environmental Highlights

Environment	Comments
Surface Water Treatment	Additional surface water controls installed within compound.
Training	Environmental Management Plan training ongoing.

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Grey shaded areas denote parameters that cannot or were not analysed on-site or the lab.

Dust Monitoring Record Sheet							
	Date Positioned	Date Removed	Ref. Number	Date Dispatched	Date Returned	Weight (mg/m <sup>2</sup> /day)	Comments
Target (Consent) Limit: 350 mg m <sup>2</sup> d <sup>-1</sup> on as a 30 day average							
AD1	11/01/2012	09/02/2012	359009	10/02/2012	15/02/2012	95	
AD2	11/01/2012	09/02/2012	359010	10/02/2012	15/02/2012	106	
AD3	11/01/2012	09/02/2012	359012	10/02/2012	15/02/2012	123	
AD4	11/01/2012	09/02/2012	359013	10/02/2012	15/02/2012	126	
		NDP = No Determination Possible					
Monitoring Results will be presented monthly							

	Date Positioned	Date Removed	Ref. Number	Date Dispatched	Date Returned	Weight (mg/m <sup>2</sup> /day)	Comments
Target (Consent) Limit: 350 mg m <sup>2</sup> d <sup>-1</sup> on as a 30 day average							
AD1	11/01/2012	09/02/2012	359009	10/02/2012	15/02/2012	95	
AD2	11/01/2012	09/02/2012	359010	10/02/2012	15/02/2012	106	
AD3	11/01/2012	09/02/2012	359012	10/02/2012	15/02/2012	123	
AD4	11/01/2012	09/02/2012	359013	10/02/2012	15/02/2012	126	
		NDP = No Determination Possible					

Monitoring Results will be presented monthly

Groundwater Monitoring Results - Accredited Laboratory

Location	Date	DO	Temp	Cond.	pH	TDS	BOD	Suspended Solids	Turbidity	Orthophosphate as PO4 -P	Ammonia as NH3-N	Total Phosphorus as P	Nitrate as NO <sub>3</sub>	Nitrite as NO <sub>2</sub>	Phosphate as PO4	COD	Copper
		% Sat	°C	uS/cm	pH Units	mg/l	mg/l	mg/l	N.T.U	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l
GW1	02/02/2012	21	8.6	416	6.3	219	<1	73	83.9	0.994	0.273	1.26	<0.44	0.096	3.05	31	38
GW2	02/02/2012	18	7.1	575	6.5	293	8	128	78.5	0.303	2.28	0.63	<0.44	<0.017	0.929	43	8
GW3	02/02/2012	27	6.8	371	6.1	169	<1	45	24.5	0.22	2.73	0.35	<0.44	<0.017	0.675	24	1
GW4	02/02/2012	15	6.9	403	6.3	188	<1	16	24.4	0.184	0.56	0.27	<0.44	<0.017	0.564	27	9
Location	Date	Arsenic, total	Chromium, total	Lead, total	Cadmium, total	Tin, total	Iron, total	Mercury	TOC	Total Hardness	Zinc	Extractable HC/ DRO (C8-C40) total and dissolved	PRO (C5 - C12) total and dissolved	Manganese	Chloride	Water Level	
		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	ug/l	ug/l	ug/l	ug/l	mg/l	m	
GW1	02/02/2012	11	6	13	3	<0.5	24610	<0.05	7.13	142	28	<100	<100	3083	55.4	3.17	
GW2	02/02/2012	3	4	17	<0.5	<0.5	38240	<0.05	10.9	<20	30	<100	<100	1064	53.2	2.17	
GW3	02/02/2012	5	3	0.5	<0.5	<0.5	64950	<0.05	9.13	20.9	6	<100	<100	221	55.2	2.5	
GW4	02/02/2012	4	2	0.5	<0.5	<0.5	56340	<0.05	8.58	107	8	<100	<100	1010	57.9	2.72	
Grey shaded areas denote parameters that cannot or were not analysed on-site or at the lab.																	

Graphs provided for GW1 - GW4: Temperature, Conductivity, and pH.

## Determinant Results

\* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).

\*\* Allowance of +/- 1.5dB accuracy of sound level meter (ref: IEC 61672 (2002-2005))

09:00

NSR1

NSR2

## Determinant Results

\* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).

\*\*Allowance of +/- 1.5dB accuracy of sound level meter (ref: IEC 61672 (2002-2005))

09:00

NSR1	
NSR2	



Day Time Noise Monitoring / Max Hourly or above 60dB L <sub>aeq</sub> Record Sheet											
Determinant Results											
Location	Air Temp. (Min)	Air Temp. (Max)	Start Date and Time	Duration	Wind		Results dB				
					Speed (m/s)*	Direction (Degrees)	L <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>Amin</sub>		
AN1	0.0	4.3	01/02/2012 15:00:00	01:00:00			64.6	84.5	47.5		
			01/02/2012 16:00:00	01:00:00	1.3	156.0	63.2	82.1	43.5		
AN2			01/02/2012 11:00:00	01:00:00	1.6	163.3	59.1	77.9	37.0		
AN3			02/01/2012 09:00:00	01:00:00	1.5	178.0	43.1	60.5	28.1		
RN1			01/02/2012 14:00:00	01:00:00			49.7	76.8	35.8		
AN1	-2.9	5.4	02/02/2012 09:00:00	1:00:00	0.6	113.3	66.4	83.4	48.4		
			02/02/2012 11:00:00	1:00:00			62.1	78.5	49.9		
			02/02/2012 12:00:00	1:00:00	1.8	123.5	62.9	79.0	46.8		
			02/02/2012 13:00:00	1:00:00	2.3	144.5	60.7	80.1	39.4		
			02/02/2012 15:00:00	1:00:00	2.2	136.0	64.3	85.0	44.9		
02/02/2012 16:00:00			1:00:00	1.3	134.0	63.3	79.6	47.7			
AN2			02/02/2012 11:00:00	1:00:00			61.8	82.4	36.2		
			02/02/2012 16:00:00	1:00:00	1.3	134.0	60.4	75.2	38.4		
AN3			02/02/2012 08:00:00	1:00:00	0.5	229.0	39.5	58.8	28.0		
RN1			02/02/2012 15:00:00	1:00:00	2.2	136.0	51.7	81.5	33.8		
AN1	0.6	8.3	03/02/2012 08:00:00	1:00:00	3.1	143.3	65.1	87.4	49.3		
			03/02/2012 09:00:00	1:00:00	2.1	140.0	66.2	88.3	40.7		
			03/02/2012 10:00:00	1:00:00	1.7	133.3	60.2	82.1	40.1		
			03/02/2012 11:00:00	1:00:00	2.2	130.8	65.3	87.6	49.4		
			03/02/2012 12:00:00	1:00:00	2.9	115.3	63.5	84.9	48.6		
03/02/2012 13:00:00			1:00:00	3.3	144.8	63.8	84.2	40.5			
03/02/2012 15:00:00			1:00:00	3.0	135.3	63.6	82.8	48.7			
AN2			03/02/2012 09:00:00	1:00:00	2.1	140.0	62.1	75.8	37.9		
			03/02/2012 11:00:00	1:00:00	2.2	130.8	60.8	75.6	39.1		
			03/02/2012 15:00:00	1:00:00	3.0	135.3	63.1	86.2	38.6		
			03/02/2012 16:00:00	1:00:00	2.7	144.3	63.0	85.3	37.9		
AN3			03/02/2012 15:00:00	1:00:00	3.0	135.3	40.7	64.3	30.7		
RN1			03/02/2012 09:00:00	1:00:00	2.1	140.0	54.8	78.6	33.6		
AN1			7.2	10.1	04/02/2012 08:00:00	1:00:00	6.6	195.5	67.0	80.1	41.1
					04/02/2012 09:00:00	1:00:00	6.7	197.3	65.7	78.9	40.7
	04/02/2012 10:00:00	1:00:00			6.6	183.0	65.3	80.0	39.7		
AN2	04/02/2012 08:00:00	1:00:00			6.6	195.5	60.8	76.7	43.6		
	04/02/2012 09:00:00	1:00:00			6.7	197.3	60.4	75.2	43.5		
	04/02/2012 10:00:00	1:00:00			6.6	183.0	63.5	82.2	43.5		
AN3	04/02/2012 16:00:00	01:00:00			3.0	284.8	52.5	73.5	32.3		
RN1	04/02/2012 09:00:00	1:00:00	6.7	197.3	58.8	82.9	48.3				
AN1	9.5	10.8	06/02/2012 14:00:00	1:00:00	1.8	213.5	60.3	81.2	40.7		
			06/02/2012 17:00:00	1:00:00	1.7	197.8	66.8	81.8	38.5		
AN2			04/02/2012 09:00:00	1:00:00	1.3	207.0	58.9	76.9	38.7		
AN3			06/02/2012 11:00:00	1:00:00	1.5	226.3	49.5	76.0	28.6		
RN1			06/02/2012 10:00:00	1:00:00	0.7	214.5	53.0	76.0	23.5		
AN1	8.5	9.9	07/02/2012 08:00:00	1:00:00	0.9	149.8	70.5	84.4	51.2		
			07/02/2012 09:00:00	1:00:00	2.0	111.0	68.6	82.1	45.2		
			07/02/2012 10:00:00	1:00:00	0.8	104.5	64.9	82.3	45.9		
			07/02/2012 11:00:00	1:00:00	1.6	131.3	61.8	77.9	47.5		
			07/02/2012 12:00:00	1:00:00	1.9	134.8	64.6	82.6	45.9		
07/02/2012 13:00:00			1:00:00	2.1	137.8	65.3	81.7	36.3			
07/02/2012 17:00:00			1:00:00	1.9	149.0	60.7	79.5	35.9			
AN2			07/02/2012 13:00:00	1:00:00	2.1	137.8	60.4	74.7	37.3		
AN3			07/02/2012 16:00:00	1:00:00	2.4	140.0	40.8	58.7	29.6		
RN1			07/02/2012 14:00:00	1:00:00	2.0	140.8	51.1	79.4	31.8		
AN1	8.2	9.5	08/02/2012 13:00:00	1:00:00	4.1	167.5	63.5	80.3	48.3		
			08/02/2012 16:00:00	1:00:00	2.6	167.3	60.3	76.0	40.2		
AN2			08/02/2012 08:00:00	1:00:00	3.6	142.8	58.5	72.6	40.0		
AN3			08/02/2012 16:00:00	1:00:00	2.6	167.3	47.5	74.6	32.0		
RN1			08/02/2012 11:00:00	1:00:00	3.6	154.8	58.1	86.9	38.0		
AN1	9.4	11.4	09/02/2012 10:00:00	1:00:00	4.8	191.5	64.4	89.1	41.1		
AN2			09/02/2012 12:00:00	1:00:00	3.8	204.3	61.5	84.8	40.7		
AN3			09/02/2012 15:00:00	1:00:00	3.1	186.5	55.4	63.0	41.5		
GN1			09/02/2012 15:00:00	1:00:00	3.1	186.5	55.4	90.7	41.7		
RN1			09/02/2012 14:00:00	1:00:00	3.2	202.3	55.9	88.1	34.5		
AN1	6.8	11.8	10/02/2012 16:00:00	1:00:00	5.2	186.0	53.4	69.8	37.5		
AN2			10/02/2012 14:00:00	1:00:00	3.8	195.8	57.2	76.8	36.8		
AN3			10/02/2012 12:00:00	1:00:00	3.3	199.8	54.5	78.0	35.5		
GN1			10/02/2012 13:00:00	1:00:00	4.6	195.8	51.3	73.8	34.7		
RN1			10/02/2012 09:00:00	1:00:00	2.0	166.5	55.6	82.7	31.0		
AN1	4.4	9.8	11/02/2012 12:00:00	1:00:00	2.4	327.0	46.5	61.3	40.4		
AN2			11/02/2012 11:00:00	1:00:00	1.5	325.8	51.7	70.0	39.3		
AN3			11/02/2012 16:00:00	1:00:00	1.4	328.0	52.8	71.0	36.5		
GN1			11/02/2012 16:00:00	1:00:00	1.4	328.0	52.8	89.8	37.1		
RN1			11/02/2012 08:00:00	1:00:00	1.9	309.5	57.6	83.8	23.2		
* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).											
**Allowance of +/- 1.5dB accuracy of sound level meter (ref: IEC 61672 (2002-2005))											
The results show Laeq(1hr) for maximum daily values or values over 60dB for each day of monitoring											
	AN1		AN2		AN3		GN1		RN1		

Day Time Noise Monitoring / Max Hourly or above 60dB L <sub>aeq</sub> Record Sheet											
Determinant Results											
Location	Air Temp. (Min)	Air Temp. (Max)	Start Date and Time	Duration	Wind		Results dB				
					Speed (m/s)*	Direction (Degrees)	L <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>Amin</sub>		
AN1	6.8	9.3	13/02/2012 09:00:00	1:00:00	5.1	305.0	67.5	85.0	47.5		
AN2			13/02/2012 10:00:00	1:00:00	5.6	321.0	62.0	80.3	44.6		
AN3			13/02/2012 10:00:00	1:00:00	5.6	321.0	50.1	72.2	34.7		
GN1			13/02/2012 10:00:00	1:00:00	5.6	321.0	52.1	79.1	41.1		
RN1			13/02/2012 16:00:00	1:00:00	5.0	333.8	57.3	84.4	29.3		
AN1	7.2	9.4	14/02/2012 08:00:00	1:00:00	4.1	321.3	62.8	84.5	46.6		
			14/02/2012 09:00:00	1:00:00	4.5	319.5	60.0	71.1	49.6		
			14/02/2012 10:00:00	1:00:00	4.6	311.8	66.5	93.8	50.2		
			14/02/2012 11:00:00	1:00:00	4.3	313.3	62.5	75.3	50.4		
			14/02/2012 12:00:00	1:00:00	4.7	323.3	62.0	81.1	47.4		
			14/02/2012 14:00:00	1:00:00	4.9	324.3	60.6	76.9	42.7		
			14/02/2012 16:00:00	1:00:00	3.2	343.3	63.9	82.7	48.4		
AN2			14/02/2012 08:00:00	1:00:00	4.1	321.3	61.0	76.3	46.1		
			14/02/2012 09:00:00	1:00:00	4.5	319.5	64.5	78.3	40.8		
			14/02/2012 10:00:00	1:00:00	4.6	311.8	61.5	83.0	41.8		
			14/02/2012 11:00:00	1:00:00	4.3	313.3	63.0	76.0	48.4		
			14/02/2012 12:00:00	1:00:00	4.7	323.3	64.7	77.2	47.5		
			14/02/2012 15:00:00	1:00:00	4.3	327.5	62.6	77.0	44.6		
			14/02/2012 16:00:00	1:00:00	3.2	343.3	61.4	76.6	43.8		
AN3			14/02/2012 11:00:00	1:00:00	4.3	313.3	46.5	66.2	34.4		
GN1			14/02/2012 15:00:00	1:00:00	4.3	327.5	51.7	90.9	40.1		
RN1			14/02/2012 14:00:00	1:00:00	4.9	324.3	45.1	73.8	31.4		
AN2	8.1	10.7	15/02/2012 12:00:00	1:00:00	3.9	327.3	64.2	82.0	47.6		
			15/02/2012 13:00:00	1:00:00	3.3	287.5	60.5	77.9	42.1		
			15/02/2012 14:00:00	1:00:00	4.8	278.8	60.5	77.3	41.2		
			15/02/2012 16:00:00	1:00:00	2.9	275.8	63.2	79.7	45.9		
			AN3	15/02/2012 09:00:00	1:00:00	4.3	314.3	45.9	62.6	32.5	
GN1			15/02/2012 16:00:00	1:00:00	2.9	275.8	55.1	87.7	41.0		
RN1			15/02/2012 16:00:00	1:00:00	2.9	275.8	51.6	77.9	31.4		
AN1			8.6	10.5	16/02/2012 16:00:00	1:00:00	3.5	256.0	64.7	87.6	54.8
AN2	16/02/2012 11:00:00	1:00:00			4.9	233.0	76.0	82.0	49.8		
	16/02/2012 13:00:00	1:00:00			5.8	230.8	76.0	92.3	46.1		
	16/02/2012 14:00:00	1:00:00			5.0	240.3	72.1	81.4	44.7		
	16/02/2012 15:00:00	1:00:00			4.3	243.0	61.3	85.2	45.5		
AN3	16/02/2012 13:00:00	1:00:00			5.8	230.8	49.3	65.3	34.9		
GN1	16/02/2012 11:00:00	1:00:00			4.9	233.0	58.7	76.7	45.3		
RN1	16/02/2012 10:00:00	1:00:00			4.9	239.0	57.4	81.5	36.4		
AN1	7.9	10.8	17/02/2012 13:00:00	1:00:00	4.1	240.0	60.8	79.8	43.7		
			17/02/2012 14:00:00	1:00:00	4.3	198.0	60.6	78.1	43.5		
			17/02/2012 15:00:00	1:00:00	6.0	213.3	63.4	83.0	43.6		
			17/02/2012 16:00:00	1:00:00	3.6	211.5	66.3	83.5	43.8		
			17/02/2012 17:00:00	1:00:00	5.1	231.3	62.6	79.6	43.2		
AN2			17/02/2012 13:00:00	1:00:00	4.1	240.0	61.1	73.8	42.3		
			17/02/2012 14:00:00	1:00:00	4.3	198.0	61.1	74.5	42.5		
			17/02/2012 15:00:00	1:00:00	6.0	213.3	62.8	83.1	43.3		
			17/02/2012 16:00:00	1:00:00	3.6	211.5	65.2	80.0	44.0		
			17/02/2012 17:00:00	1:00:00	5.1	231.3	63.7	77.7	43.7		
AN3			17/02/2012 16:00:00	1:00:00	3.6	211.5	55.4	74.6	33.2		
GN1			17/02/2012 11:00:00	1:00:00	4.1	220.8	61.1	79.6	46.3		
			17/02/2012 12:00:00	1:00:00	3.9	214.8	63.6	80.9	48.8		
			17/02/2012 13:00:00	1:00:00	4.1	240.0	63.9	80.5	48.3		
			17/02/2012 14:00:00	1:00:00	4.3	198.0	62.7	79.7	46.4		
			17/02/2012 15:00:00	1:00:00	6.0	213.3	63.6	80.3	45.8		
			17/02/2012 16:00:00	1:00:00	3.6	211.5	67.5	84.7	47.0		
			17/02/2012 17:00:00	1:00:00	5.1	231.3	64.9	80.1	49.7		
RN1			17/02/2012 16:00:00	1:00:00	3.6	211.5	57.3	81.3	47.4		
AN1	4.0	9.5	18/02/2012 08:00:00	1:00:00	6.4	276.5	75.7	88.9	45.6		
			18/02/2012 09:00:00	1:00:00	5.0	270.8	73.6	85.1	47.1		
			18/02/2012 10:00:00	1:00:00	7.2	292.3	78.2	88.9	47.2		
			18/02/2012 11:00:00	1:00:00	7.5	284.0	80.7	95.6	45.2		
			18/02/2012 12:00:00	1:00:00	5.5	303.8	73.3	86.7	47.1		
			18/02/2012 13:00:00	1:00:00	5.4	312.3	71.8	84.2	47.3		
			18/02/2012 14:00:00	1:00:00	3.9	325.8	67.6	81.1	45.4		
18/02/2012 15:00:00			1:00:00	4.0	319.5	65.6	85.8	43.9			
18/02/2012 16:00:00			1:00:00	4.6	303.3	63.7	85.2	42.3			
AN2			18/02/2012 08:00:00	1:00:00	6.4	276.5	66.2	81.6	42.0		
			18/02/2012 09:00:00	1:00:00	5.0	270.8	66.9	86.8	41.9		
			18/02/2012 10:00:00	1:00:00	7.2	292.3	67.1	79.2	41.4		
			18/02/2012 11:00:00	1:00:00	7.5	284.0	71.7	88.4	42.5		
			18/02/2012 12:00:00	1:00:00	5.5	303.8	65.7	78.8	43.7		
			18/02/2012 13:00:00	1:00:00	5.4	312.3	66.8	81.4	43.3		
			18/02/2012 14:00:00	1:00:00	3.9	325.8	63.2	75.4	43.0		
AN3			18/02/2012 16:00:00	1:00:00	4.6	303.3	62.3	78.6	40.4		
			18/02/2012 08:00:00	1:00:00	6.4	276.5	63.2	81.4	38.0		
			18/02/2012 09:00:00	1:00:00	5.0	270.8	60.2	77.1	41.4		
			18/02/2012 10:00:00	1:00:00	7.2	292.3	63.9	77.4	42.3		
			18/02/2012 11:00:00	1:00:00	7.5	284.0	67.7	87.4	35.8		
GN1			18/02/2012 12:00:00	1:00:00	5.5	303.8	60.0	78.9	40.7		
			18/02/2012 08:00:00	1:00:00	6.4	276.5	64.1	80.8	48.3		
			18/02/2012 09:00:00	1:00:00	5.0	270.8	62.5	81.3	50.3		
			18/02/2012 10:00:00	1:00:00	7.2	292.3	63.1	82.5	48.7		
			18/02/2012 11:00:00	1:00:00	7.5	284.0	67.8	85.2	49.9		
RN1			18/02/2012 16:00:00	1:00:00	4.6	303.3	63.3	81.8	31.1		
* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).											
**Allowance of +/- 1.5dB accuracy of sound level meter (ref: IEC 61672 (2002-2005))											
The results show Laeq(1hr) for maximum daily values or values over 60dB for each day of monitoring											
	AN1		AN2		AN3		GN1		RN1		

Day Time Noise Monitoring / Max Hourly or above 60dB L <sub>aeq</sub> Record Sheet											
Determinant Results											
Location	Air Temp. (Min)	Air Temp. (Max)	Start Date and Time	Duration	Wind		Results dB				
					Speed (m/s)*	Direction (Degrees)	L <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>Amin</sub>		
AN1	7.0	10.4	20/02/2012 08:00:00	1:00:00	6.2	203.8	69.1	84.4	48.5		
			20/02/2012 09:00:00	1:00:00	8.1	207.3	76.1	93.6	54.6		
			20/02/2012 10:00:00	1:00:00	7.9	199.0	75.1	93.7	53.4		
			20/02/2012 11:00:00	1:00:00	6.1	196.0	75.0	91.2	57.6		
			20/02/2012 12:00:00	1:00:00	4.9	199.8	73.0	89.2	55.8		
			20/02/2012 13:00:00	1:00:00	6.4	198.3	75.7	95.2	52.7		
			20/02/2012 14:00:00	1:00:00	5.9	203.3	73.0	90.8	55.2		
			20/02/2012 15:00:00	1:00:00	5.8	200.3	72.1	92.2	56.7		
			20/02/2012 16:00:00	1:00:00	5.5	200.3	68.1	83.7	58.1		
20/02/2012 17:00:00			1:00:00	4.4	191.8	67.7	83.4	49.9			
AN2			20/02/2012 08:00:00	1:00:00	6.2	203.8	62.0	78.6	43.8		
			20/02/2012 09:00:00	1:00:00	8.1	207.3	67.9	85.8	43.5		
			20/02/2012 10:00:00	1:00:00	7.9	199.0	63.2	76.9	43.1		
			20/02/2012 11:00:00	1:00:00	6.1	196.0	66.1	81.2	44.0		
			20/02/2012 12:00:00	1:00:00	4.9	199.8	64.3	80.2	42.6		
			20/02/2012 13:00:00	1:00:00	6.4	198.3	61.2	74.6	40.3		
			20/02/2012 14:00:00	1:00:00	5.9	203.3	61.7	82.4	40.6		
AN3			20/02/2012 15:00:00	1:00:00	5.8	200.3	62.9	83.9	41.1		
			20/02/2012 15:00:00	1:00:00	5.8	200.3	53.3	73.9	34.7		
GN1			20/02/2012 08:00:00	1:00:00	6.2	203.8	66.1	79.7	46.8		
			20/02/2012 09:00:00	1:00:00	8.1	207.3	66.0	82.2	48.4		
			20/02/2012 10:00:00	1:00:00	7.9	199.0	64.5	79.6	48.8		
			20/02/2012 11:00:00	1:00:00	6.1	196.0	63.0	80.6	49.0		
			20/02/2012 12:00:00	1:00:00	4.9	199.8	62.7	78.1	46.1		
			20/02/2012 13:00:00	1:00:00	6.4	198.3	62.7	77.1	47.2		
			20/02/2012 14:00:00	1:00:00	5.9	203.3	64.8	81.2	48.8		
			20/02/2012 15:00:00	1:00:00	5.8	200.3	63.1	78.4	41.4		
	20/02/2012 16:00:00	1:00:00	5.5	200.3	62.9	87.6	45.1				
RN1	20/02/2012 17:00:00	1:00:00	4.4	191.8	61.6	78.9	44.3				
	20/02/2012 09:00:00	1:00:00	8.1	207.3	60.7	85.2	50.5				
AN1	10.2	11.1	21/02/2012 08:00:00	1:00:00	5.7	187.5	74.2	91.9	59.8		
			21/02/2012 09:00:00	1:00:00	7.3	189.8	72.1	84.5	55.1		
			21/02/2012 10:00:00	1:00:00	6.7	182.3	74.4	89.4	56.5		
			21/02/2012 11:00:00	1:00:00	6.9	195.0	74.5	90.4	58.5		
			21/02/2012 12:00:00	1:00:00	5.7	177.3	77.6	90.2	61.9		
			21/02/2012 13:00:00	1:00:00	8.4	189.3	76.1	88.1	49.5		
			21/02/2012 14:00:00	1:00:00	5.9	180.5	69.7	89.4	50.4		
			21/02/2012 15:00:00	1:00:00	6.6	195.5	72.4	88.2	56.5		
			21/02/2012 16:00:00	1:00:00	5.7	199.5	71.7	89.1	57.3		
21/02/2012 17:00:00			1:00:00	6.4	196.5	73.0	95.6	48.8			
AN2			21/02/2012 08:00:00	1:00:00	5.7	187.5	62.5	84.7	41.4		
			21/02/2012 11:00:00	1:00:00	6.9	195.0	63.4	77.7	45.0		
			21/02/2012 12:00:00	1:00:00	5.7	177.3	61.7	79.2	42.8		
			21/02/2012 13:00:00	1:00:00	8.4	189.3	62.6	79.5	43.3		
			21/02/2012 14:00:00	1:00:00	5.9	180.5	62.1	75.3	44.1		
			21/02/2012 15:00:00	1:00:00	6.6	195.5	64.4	81.1	44.4		
			21/02/2012 16:00:00	1:00:00	5.7	199.5	64.1	79.4	43.8		
AN3			21/02/2012 17:00:00	1:00:00	6.4	196.5	62.6	78.2	43.4		
			21/02/2012 14:00:00	1:00:00	5.9	180.5	50.6	76.7	34.3		
GN1			21/02/2012 13:00:00	1:00:00	8.4	189.3	62.3	86.8	39.1		
			21/02/2012 14:00:00	1:00:00	5.9	180.5	62.4	83.9	39.9		
			21/02/2012 15:00:00	1:00:00	6.6	195.5	65.2	86.0	41.9		
			21/02/2012 16:00:00	1:00:00	5.7	199.5	66.4	85.9	43.4		
			21/02/2012 17:00:00	1:00:00	6.4	196.5	68.4	89.9	47.5		
			21/02/2012 14:00:00	1:00:00	5.9	180.5	54.7	76.2	48.0		
AN1			10.3	12.6	22/02/2012 08:00:00	1:00:00	9.3	203.3	77.1	91.6	60.3
					22/02/2012 09:00:00	1:00:00	6.8	206.3	75.9	91.3	55.7
	22/02/2012 10:00:00	1:00:00			6.2	223.8	75.7	92.2	52.8		
	22/02/2012 11:00:00	1:00:00			4.8	231.0	71.0	87.6	56.1		
	22/02/2012 12:00:00	1:00:00			5.0	201.0	74.0	91.2	56.6		
	22/02/2012 13:00:00	1:00:00			3.8	215.8	69.8	84.6	49.2		
	22/02/2012 14:00:00	1:00:00			6.7	234.8	73.2	93.3	51.6		
	22/02/2012 15:00:00	1:00:00			4.8	271.0	69.9	86.5	57.4		
	22/02/2012 16:00:00	1:00:00			6.9	244.8	70.6	85.5	56.2		
22/02/2012 17:00:00	1:00:00	5.6			233.8	69.4	87.1	50.2			
AN2	22/02/2012 08:00:00	1:00:00			9.3	203.3	72.6	84.3	52.0		
	22/02/2012 09:00:00	1:00:00			6.8	206.3	70.9	84.9	48.4		
	22/02/2012 10:00:00	1:00:00			6.2	223.8	67.6	79.2	47.2		
	22/02/2012 11:00:00	1:00:00			4.8	231.0	68.4	80.8	47.3		
	22/02/2012 12:00:00	1:00:00			5.0	201.0	65.8	83.0	46.1		
	22/02/2012 13:00:00	1:00:00			3.8	215.8	65.6	79.7	45.4		
	22/02/2012 14:00:00	1:00:00			6.7	234.8	63.7	77.7	44.4		
AN3	22/02/2012 15:00:00	1:00:00			4.8	271.0	61.7	79.0	45.6		
	22/02/2012 16:00:00	1:00:00			6.9	244.8	61.3	77.5	44.9		
GN1	22/02/2012 17:00:00	1:00:00			5.6	233.8	62.6	81.3	42.3		
	22/02/2012 09:00:00	1:00:00			6.8	206.3	50.6	76.7	34.3		
	22/02/2012 08:00:00	1:00:00			9.3	203.3	67.8	80.9	52.1		
	22/02/2012 09:00:00	1:00:00			6.8	206.3	68.7	83.2	53.7		
	22/02/2012 10:00:00	1:00:00			6.2	223.8	66.8	80.5	51.0		
RN1	22/02/2012 11:00:00	1:00:00			4.8	231.0	67.2	82.6	52.1		
	22/02/2012 12:00:00	1:00:00			5.0	201.0	64.7	78.3	50.4		
	22/02/2012 13:00:00	1:00:00			3.8	215.8	64.5	81.7	47.8		
	22/02/2012 08:00:00	1:00:00	9.3	203.3	60.2	81.9	53.4				
* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).											
**Allowance of +/- 1.5dB accuracy of sound level meter (ref: IEC 61672 (2002-2005))											
The results show Laeq(1hr) for maximum daily values or values over 60dB for each day of monitoring											
	AN1		AN2		AN3		GN1		RN1		

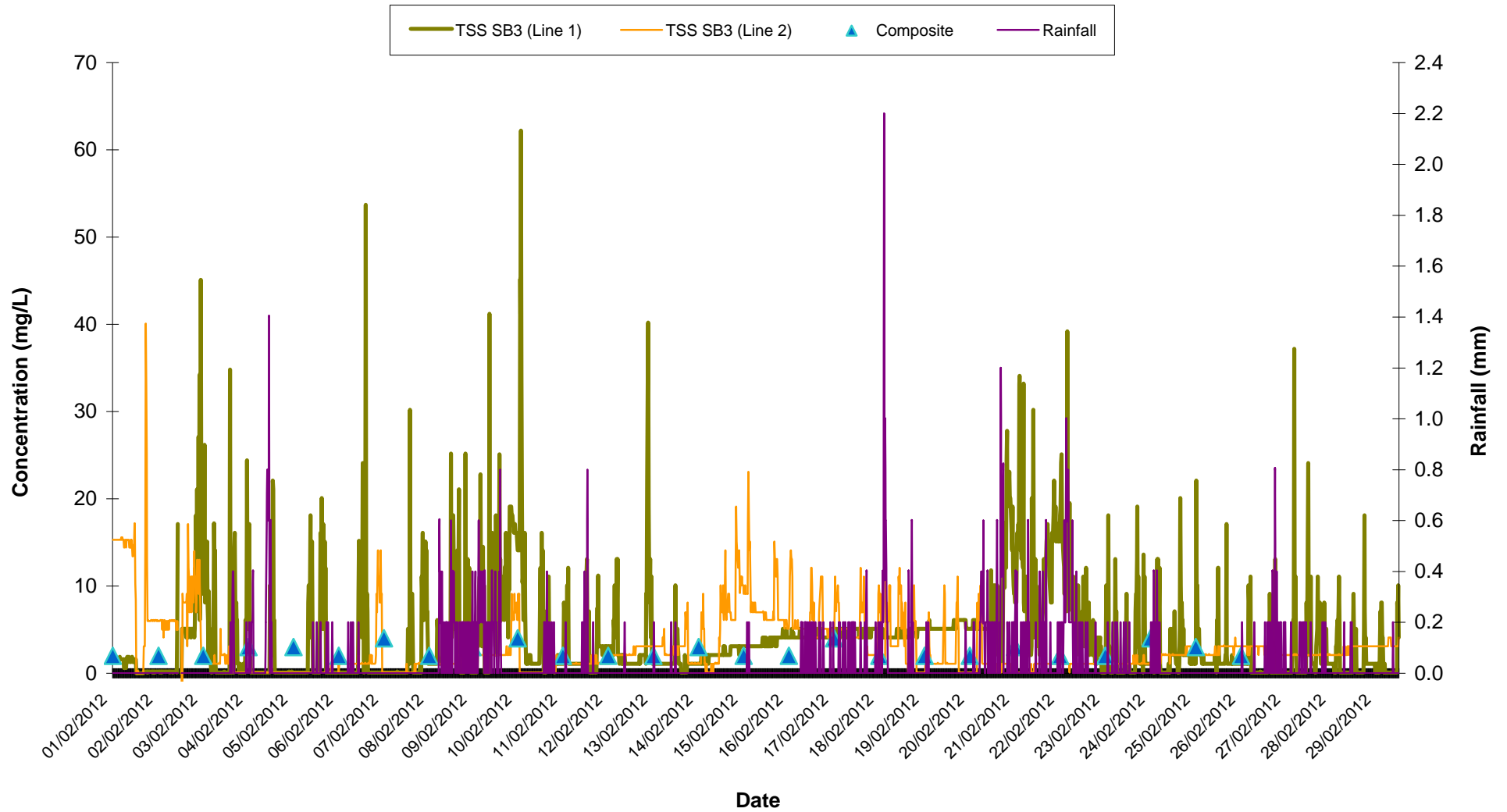
Day Time Noise Monitoring / Max Hourly or above 60dB L <sub>aeq</sub> Record Sheet											
Determinant Results											
Location	Air Temp. (Min)	Air Temp. (Max)	Start Date and Time	Duration	Wind		Results dB				
					Speed (m/s)*	Direction (Degrees)	L <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>Amin</sub>		
AN1	10.3	12.5	23/02/2012 07:00:00	1:00:00	4.9	194.8	60.0	77.8	47.5		
			23/02/2012 08:00:00	1:00:00	7.1	195.3	74.5	91.3	51.2		
			23/02/2012 09:00:00	0:40:03	7.2	186.8	75.4	90.0	57.9		
			23/02/2012 10:00:00	00:54:25	7.3	203.8	68.4	94.5	53.7		
			23/02/2012 11:00:00	1:00:00	6.0	202.8	71.3	85.0	58.8		
			23/02/2012 12:00:00	1:00:00	8.4	195.0	70.2	87.7	54.8		
			23/02/2012 13:00:00	1:00:00	8.3	203.3	65.6	93.0	48.5		
			23/02/2012 14:00:00	1:00:00	7.9	204.8	65.3	86.0	48.8		
			23/02/2012 15:00:00	0:19:53	6.3	202.0	67.0	95.3	56.5		
			23/02/2012 16:00:00	1:00:00	5.4	210.3	64.8	86.4	52.5		
23/02/2012 17:00:00			1:00:00	3.9	236.8	62.0	80.2	51.0			
AN2			23/02/2012 13:00:00	1:00:00	8.3	203.3	62.5	80.4	46.6		
			23/02/2012 14:00:00	1:00:00	7.9	204.8	63.4	84.2	48.4		
			23/02/2012 15:00:00	1:00:00	6.3	202.0	61.7	78.5	46.3		
AN3			23/02/2012 17:00:00	1:00:00	3.9	236.8	61.9	76.8	41.7		
GN1			23/02/2012 13:00:00	1:00:00	8.3	203.3	54.2	75.4	34.3		
			23/02/2012 08:00:00	1:00:00	7.1	195.3	68.4	90.0	49.8		
			23/02/2012 09:00:00	1:00:00	7.2	186.8	69.1	94.2	52.7		
			23/02/2012 10:00:00	1:00:00	7.3	203.8	68.9	87.8	47.5		
			23/02/2012 11:00:00	1:00:00	6.0	202.8	70.4	89.2	48.4		
			23/02/2012 12:00:00	1:00:00	8.4	195.0	72.1	90.5	48.8		
			23/02/2012 13:00:00	1:00:00	8.3	203.3	70.4	86.2	51.4		
			23/02/2012 14:00:00	1:00:00	7.9	204.8	67.0	82.4	51.4		
			23/02/2012 15:00:00	1:00:00	6.3	202.0	67.0	83.0	51.3		
			23/02/2012 16:00:00	1:00:00	5.4	210.3	62.4	86.5	45.5		
RN1			23/02/2012 13:00:00	1:00:00	8.3	203.3	58.2	72.1	49.3		
AN1	6.8	10.1	24/11/1900 08:00:00	1:00:00	2.6	274.8	62.2	82.6	52.1		
			24/02/2012 09:00:00	1:00:00	2.3	296.3	63.6	89.3	50.3		
			24/02/2012 10:00:00	1:00:00	2.4	283.0	62.4	87.6	50.7		
			24/02/2012 11:00:00	1:00:00	3.0	285.0	64.7	82.8	56.1		
			24/02/2012 12:00:00	1:00:00	2.4	258.3	69.5	89.1	55.3		
			24/02/2012 13:00:00	1:00:00	2.4	285.3	66.2	90.3	44.7		
			24/02/2012 14:00:00	1:00:00	2.0	293.0	63.9	86.9	50.7		
			24/02/2012 15:00:00	1:00:00	1.8	280.8	61.9	85.9	51.3		
			24/02/2012 16:00:00	1:00:00	1.6	264.5	61.8	77.1	45.4		
			AN2	24/02/2012 16:00:00	1:00:00	1.6	264.5	60.9	77.7	36.9	
AN3			24/02/2012 08:00:00	1:00:00	2.6	274.8	43.5	32.5	59.9		
GN1			24/02/2012 12:00:00	1:00:00	2.4	258.3	52.9	38.6	93.5		
RN1			24/02/2012 16:00:00	1:00:00	1.6	264.5	58.6	22.5	83.5		
AN1	7.2	10.0	25/02/2012 11:00:00	1:00:00	3.1	224.3	56.1	81.4	47.5		
AN2			25/02/2012 11:00:00	1:00:00	3.1	224.3	49.5	73.2	36.9		
AN3			25/02/2012 13:00:00	1:00:00	3.6	237.3	43.3	30.6	62.2		
GN1			25/02/2012 16:00:00	1:00:00	3.5	230.8	55.3	40.6	88.7		
RN1			25/02/2012 07:00:00	1:00:00	1.7	199.0	55.2	26.6	79.2		
AN1	10.4	11.6	27/02/2012 08:00:00	1:00:00	6.9	199.0	62.3	91.8	48.9		
			27/02/2012 09:00:00	1:00:00	6.0	189.0	72.3	91.2	56.3		
			27/02/2012 10:00:00	1:00:00	8.0	204.0	73.1	92.2	55.0		
			27/02/2012 11:00:00	1:00:00	6.2	201.3	75.8	97.3	56.3		
			27/02/2012 12:00:00	1:00:00	5.7	200.8	67.8	91.1	58.5		
			27/02/2012 13:00:00	1:00:00	5.3	200.3	70.3	91.2	57.8		
			27/02/2012 14:00:00	1:00:00	6.8	198.0	65.9	89.3	53.1		
			27/02/2012 15:00:00	1:00:00	6.0	191.8	64.6	90.5	52.0		
			27/02/2012 16:00:00	1:00:00	5.1	193.3	68.2	89.1	56.8		
			27/02/2012 17:00:00	1:00:00	4.9	197.3	68.5	89.6	57.4		
AN2			27/02/2012 18:00:00	1:00:00	4.9	198.8	66.6	91.6	52.0		
AN3			27/02/2012 16:00:00	1:00:00	5.1	193.3	58.3	78.4	37.9		
GN1			27/02/2012 10:00:00	1:00:00	8.0	204.0	49.5	64.0	32.5		
			27/02/2012 08:00:00	1:00:00	6.9	199.0	63.6	78.8	46.3		
			27/02/2012 09:00:00	1:00:00	6.0	189.0	64.3	85.4	44.7		
			27/02/2012 10:00:00	1:00:00	8.0	204.0	63.9	80.4	46.4		
			27/02/2012 11:00:00	1:00:00	6.2	201.3	64.0	78.0	49.3		
			27/02/2012 12:00:00	1:00:00	5.7	200.8	63.1	77.2	49.6		
			27/02/2012 13:00:00	1:00:00	5.3	200.3	63.0	79.7	46.4		
			27/02/2012 14:00:00	1:00:00	6.8	198.0	61.1	76.7	44.9		
			RN1	27/02/2012 07:00:00	1:00:00	6.2	214.8	59.2	81.3	47.0	
	AN1	9.3	12.1	28/02/2012 08:00:00	1:00:00			67.4	96.1	54.4	
28/02/2012 09:00:00				1:00:00	3.1	214.7	69.0	87.3	56.1		
28/02/2012 10:00:00				1:00:00	3.3	207.5	70.2	92.9	54.8		
28/02/2012 11:00:00				1:00:00	3.2	207.5	66.4	94.4	56.5		
28/02/2012 12:00:00				1:00:00	4.1	205.0	76.2	91.2	57.1		
28/02/2012 13:00:00				1:00:00	4.0	207.3	72.4	89.7	52.0		
28/02/2012 14:00:00				1:00:00	4.7	195.5	67.7	89.2	52.7		
28/02/2012 15:00:00				1:00:00	6.4	205.3	68.2	90.1	59.5		
28/02/2012 16:00:00				1:00:00	3.1	193.0	67.3	89.2	56.7		
28/02/2012 17:00:00				1:00:00	3.8	196.5	68.3	92.3	54.9		
AN2	28/02/2012 17:00:00			1:00:00	3.8	196.5	61.2	76.7	38.0		
AN3	28/02/2012 13:00:00			1:00:00	4.0	207.3	53.4	66.0	29.5		
GN1	28/02/2012 14:00:00			1:00:00	4.7	195.5	56.9	76.4	41.3		
RN1	28/02/2012 07:00:00			1:00:00			54.1	77.9	30.1		
* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).											
**Allowance of +/- 1.5dB accuracy of sound level meter (ref: IEC 61672 (2002-2005))											
The results show Laeq(1hr) for maximum daily values or values over 60dB for each day of monitoring											
	AN1		AN2		AN3		GN1		RN1		

Day Time Noise Monitoring / Max Hourly or above 60dB L <sub>Aeq</sub> Record Sheet									
Determinant Results									
Location	Air Temp. (Min)	Air Temp. (Max)	Start Date and Time	Duration	Wind		Results dB		
					Speed (m/s)*	Direction (Degrees)	L <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>Amin</sub>
AN1	9.0	11.0	29/02/2012 07:00:00	1:00:00	2.1	164.8	60.1	93.1	48.8
			29/02/2012 08:00:00	1:00:00	2.0	180.5	70.6	89.8	58.2
			29/02/2012 09:00:00	1:00:00	4.1	175.5	74.5	97.5	53.6
			29/02/2012 10:00:00	1:00:00	5.1	193.3	67.7	96.2	54.0
			29/02/2012 11:00:00	1:00:00	5.1	182.3	68.5	87.9	57.4
			29/02/2012 12:00:00	1:00:00	3.9	173.5	73.4	97.1	60.9
			29/02/2012 13:00:00	1:00:00	5.0	196.5	74.9	99.1	58.8
			29/02/2012 14:00:00	1:00:00	2.9	149.7	75.4	98.8	54.4
			29/02/2012 15:00:00	1:00:00	2.6	167.0	75.7	98.1	56.3
			29/02/2012 16:00:00	1:00:00	3.6	150.7	65.7	86.9	55.2
			29/02/2012 17:00:00	1:00:00	1.6	191.5	67.1	87.1	54.7
AN2	29/02/2012 10:00:00	1:00:00	5.1	193.3	57.9	77.8	37.7		
AN3	29/02/2012 12:00:00	1:00:00	3.9	173.5	43.8	62.0	29.5		
GN1	29/02/2012 09:00:00	1:00:00	4.1	175.5	52.3	70.0	37.5		
RN1	29/02/2012 18:00:00	1:00:00	3.4	168.2	55.3	78.0	38.8		
* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).									
**Allowance of +/- 1.5dB accuracy of sound level meter (ref: IEC 61672 (2002-2005))									
The results show Laeq(1hr) for maximum daily values or values over 60dB for each day of monitoring									
	AN1		AN2		AN3		GN1		RN1

Vibration Monitoring Record Sheet						
Minimum Criterion 8mm/s						
Date	Location	PPV max	Location	Date	PPV max (mm/s)	Comment
01/02/2012	V3	0.40	V2	01/02/2012		
02/02/2012	V3	0.40	V2	02/02/2012		
03/02/2012	V3	0.88	V2	03/02/2012		
04/02/2012	V3	0.88	V2	04/02/2012		
06/02/2012	V3	0.80	V2	06/02/2012		
07/02/2012	V3	0.40	V2	07/02/2012		
08/02/2012	V3	0.32	V2	08/02/2012		
09/02/2012	V3	0.40	V2	09/02/2012		
10/02/2012	V3	0.64	V2	10/02/2012	12.77	Disturbance of meter
11/02/2012	V3	0.32	V2	11/02/2012	0.64	
13/02/2012	V3	0.32	V2	13/02/2012	2.57	
14/02/2012	V3	0.32	V2	14/02/2012	4.18	
15/02/2013	V3	0.32	V2	15/02/2013	2.49	
16/02/2013	V3	0.32	V2	16/02/2013	5.14	
17/02/2013	V3	0.32	V2	17/02/2013	1.53	
18/02/2014	V3	0.32	V2	18/02/2014	4.18	
20/02/2014	V3	0.48	V2	20/02/2014	2.65	
21/02/2014	V3	0.32	V2	21/02/2014	2.97	
22/02/2015	V3	0.32	V2	22/02/2015	1.61	
23/02/2015	V3	0.32	V2	23/02/2015	20.00	Disturbance of meter
24/02/2016	V3	0.48	V2	24/02/2016	2.25	
25/02/2016	V3	0.40	V2	25/02/2016	0.48	
27/02/2017	V3	0.40	V2	27/02/2017	0.32	
28/02/2017	V3	0.40	V2	28/02/2017	20.00	Disturbance of meter
29/02/2018	V3	0.40	V2	29/02/2018	20.00	Disturbance of meter

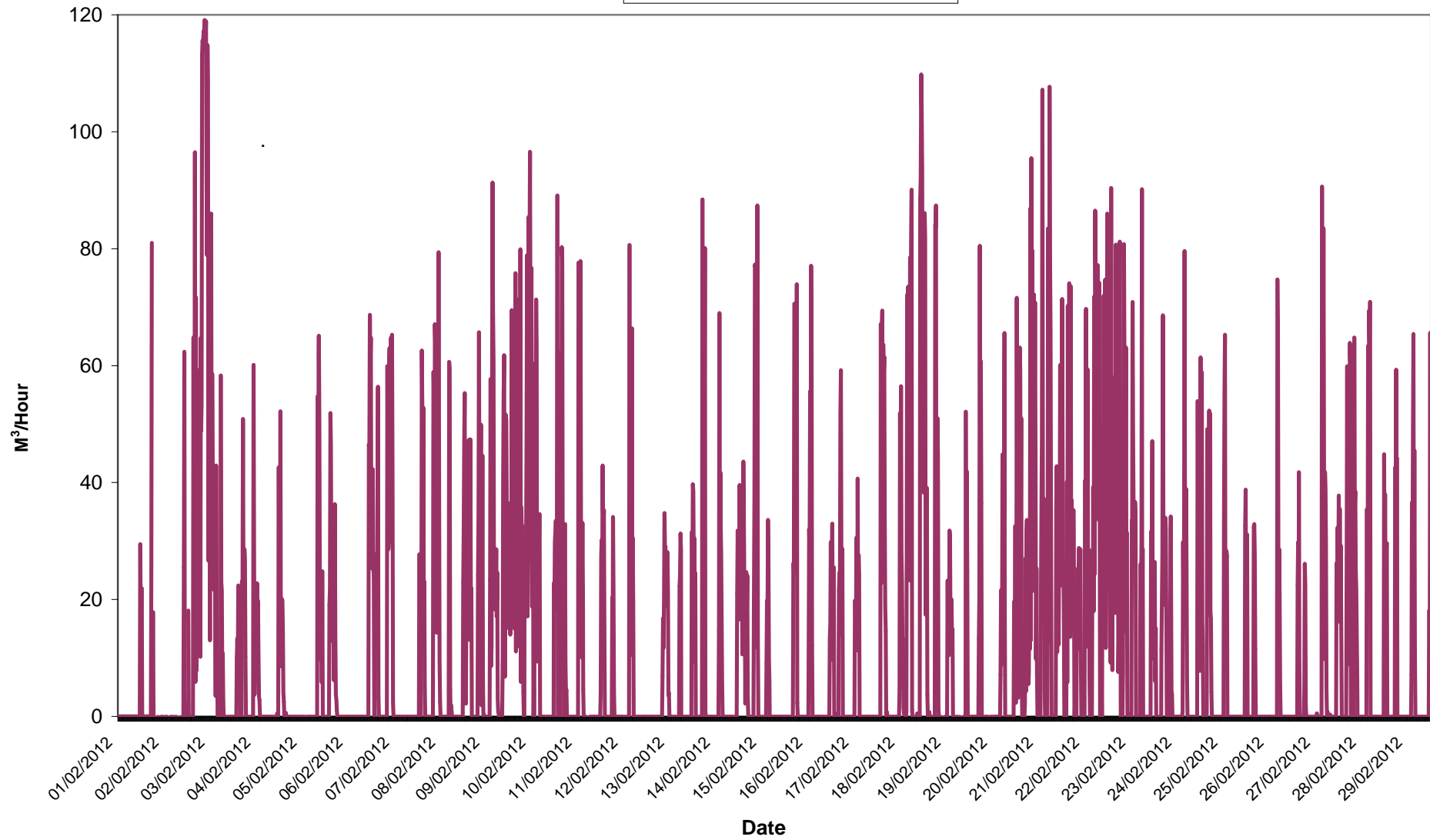


## Total Suspended Solids February 2012



# Surface Water Discharge February 2012

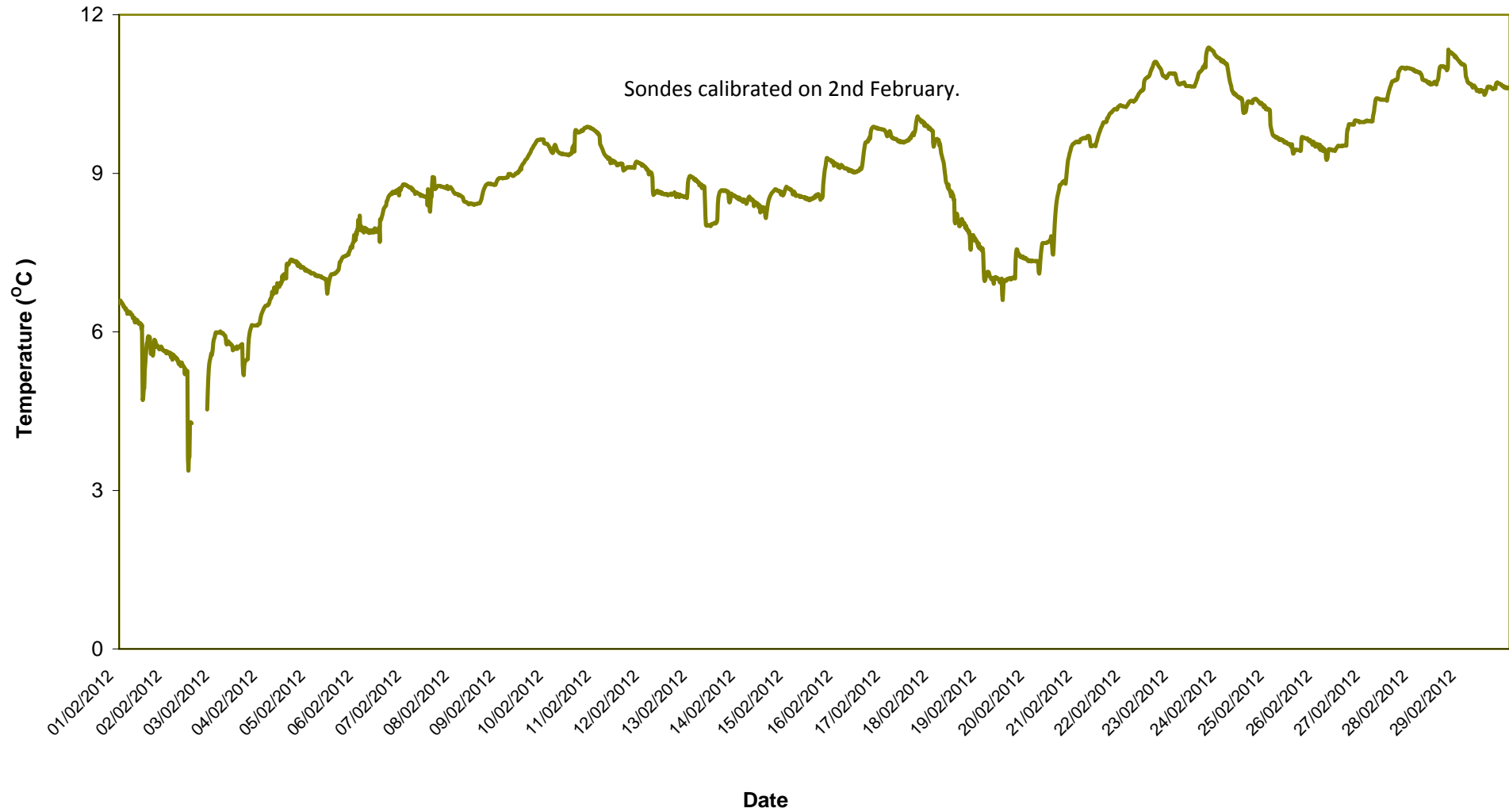
SB3



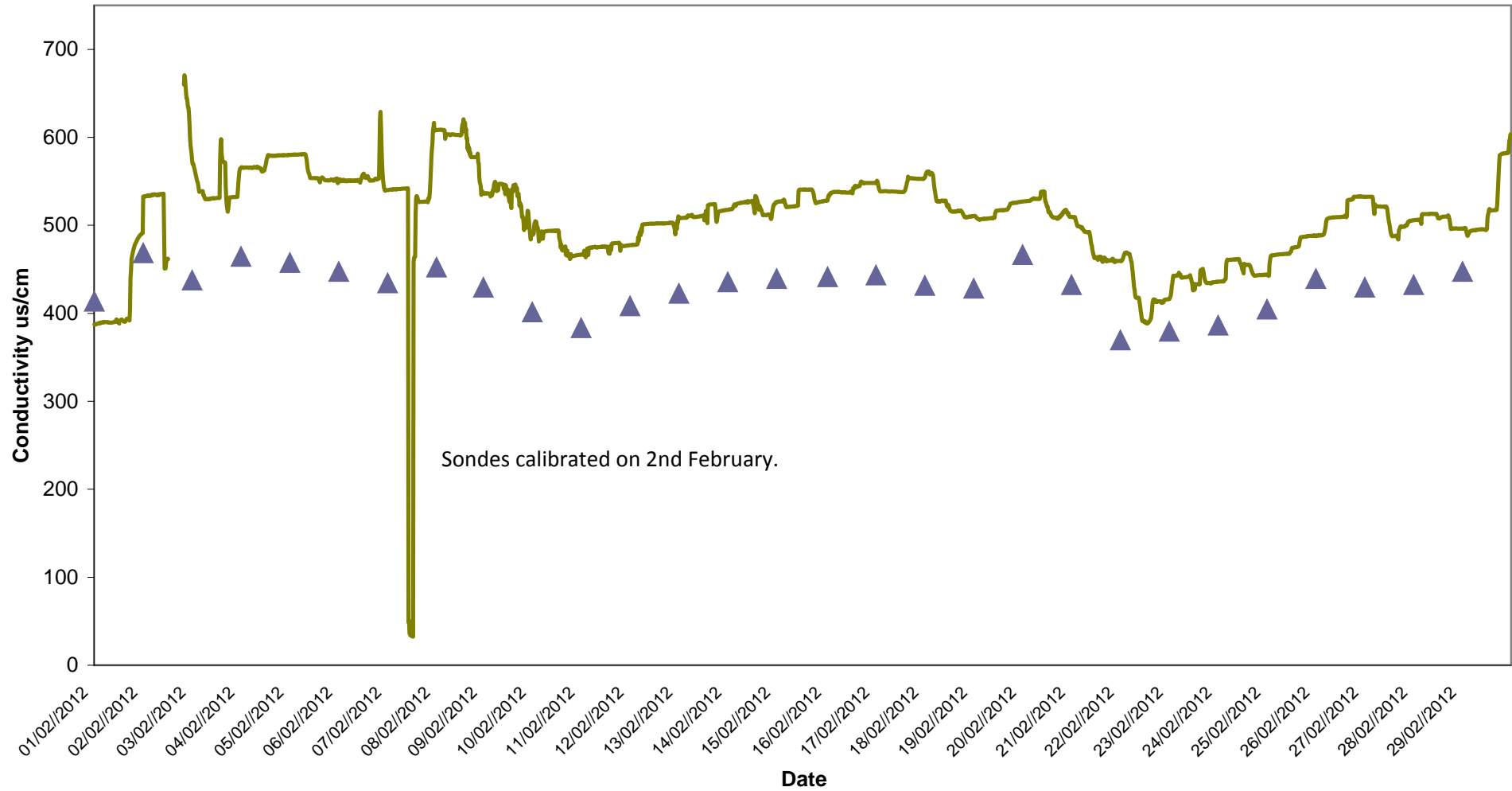


# Temperature - Surface Water Discharge February 2012

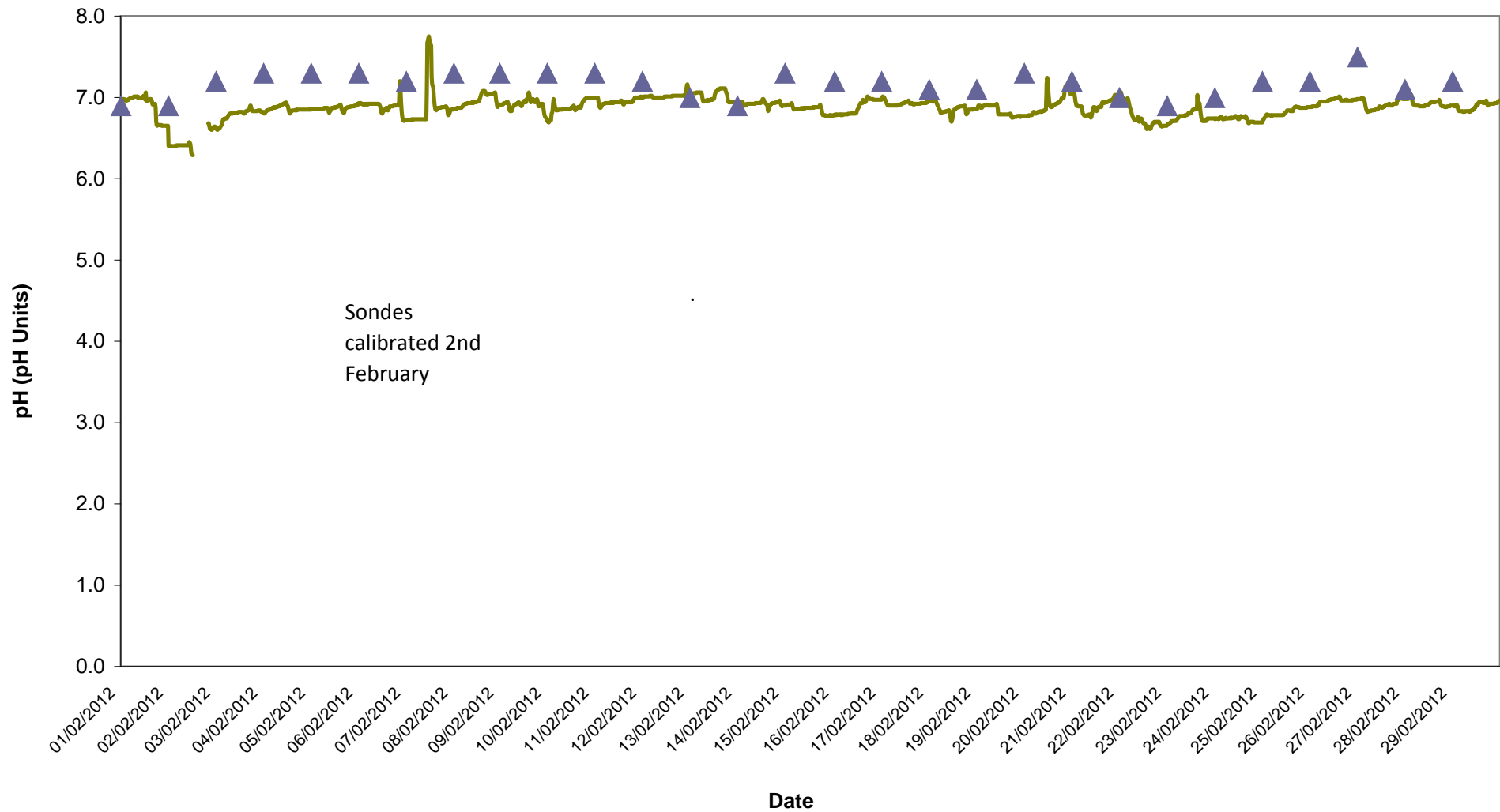
SB3



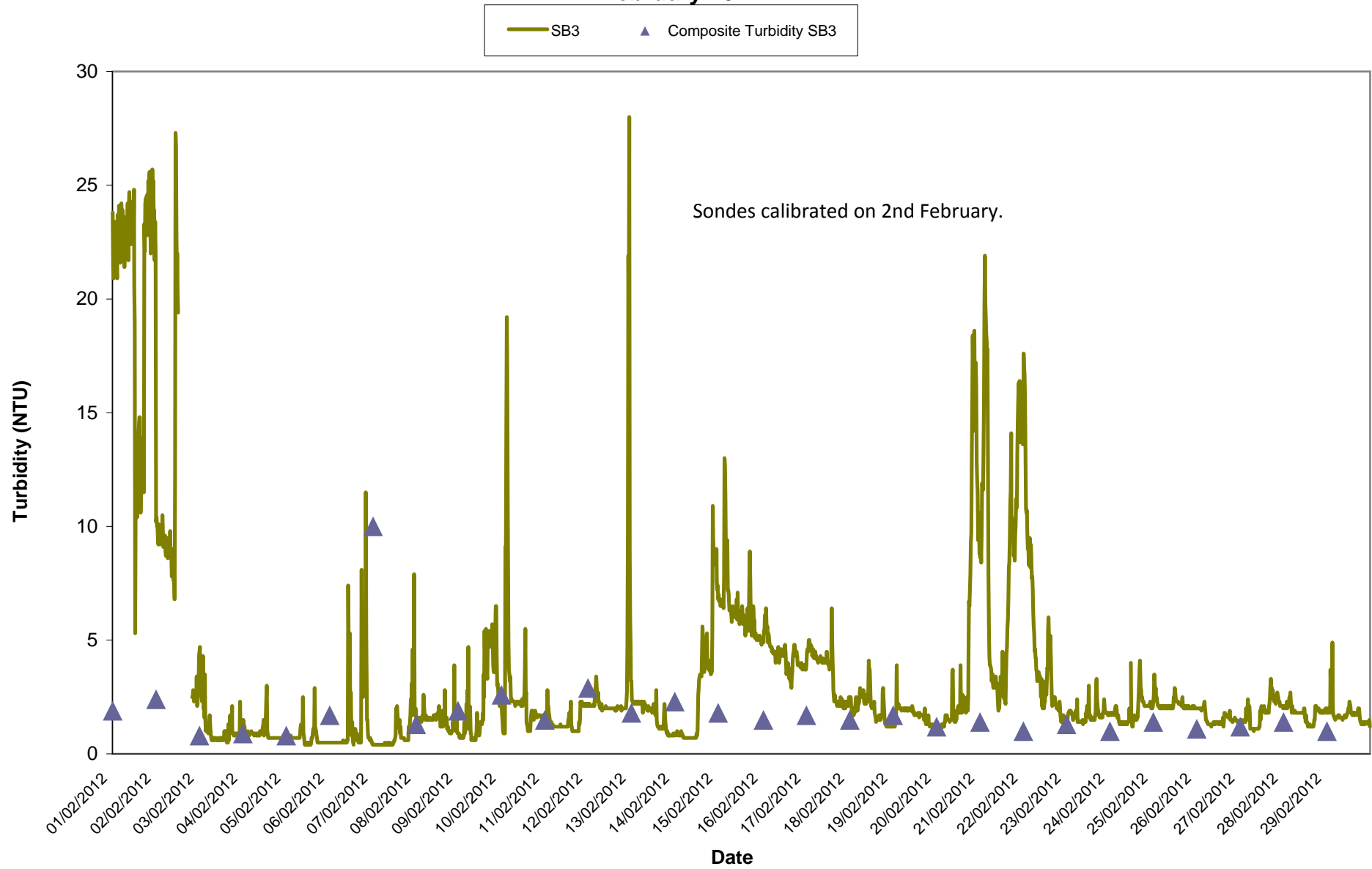
# Conductivity - Surface Water Discharge February 2012



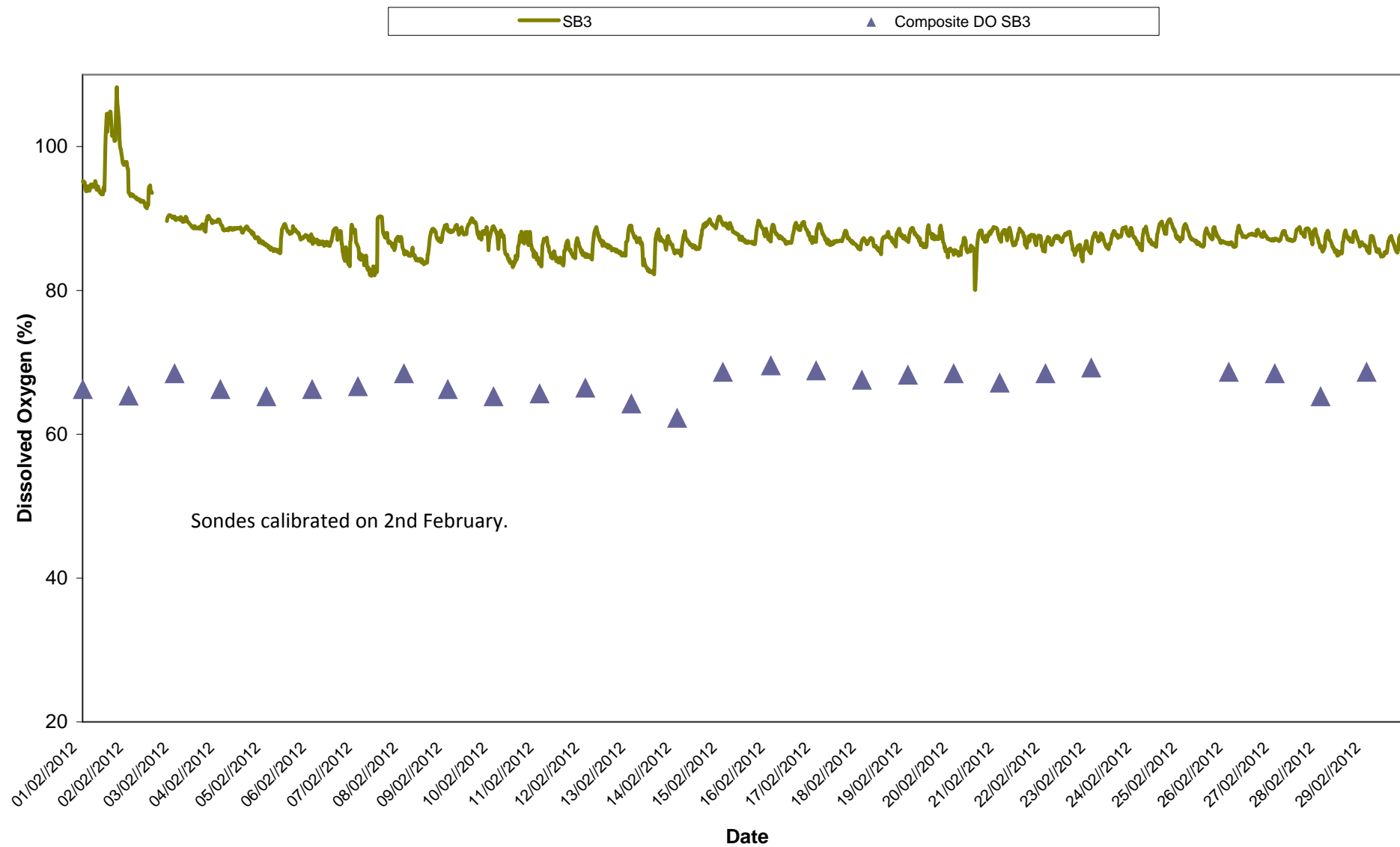
# pH - Surface Water Discharge February 2012



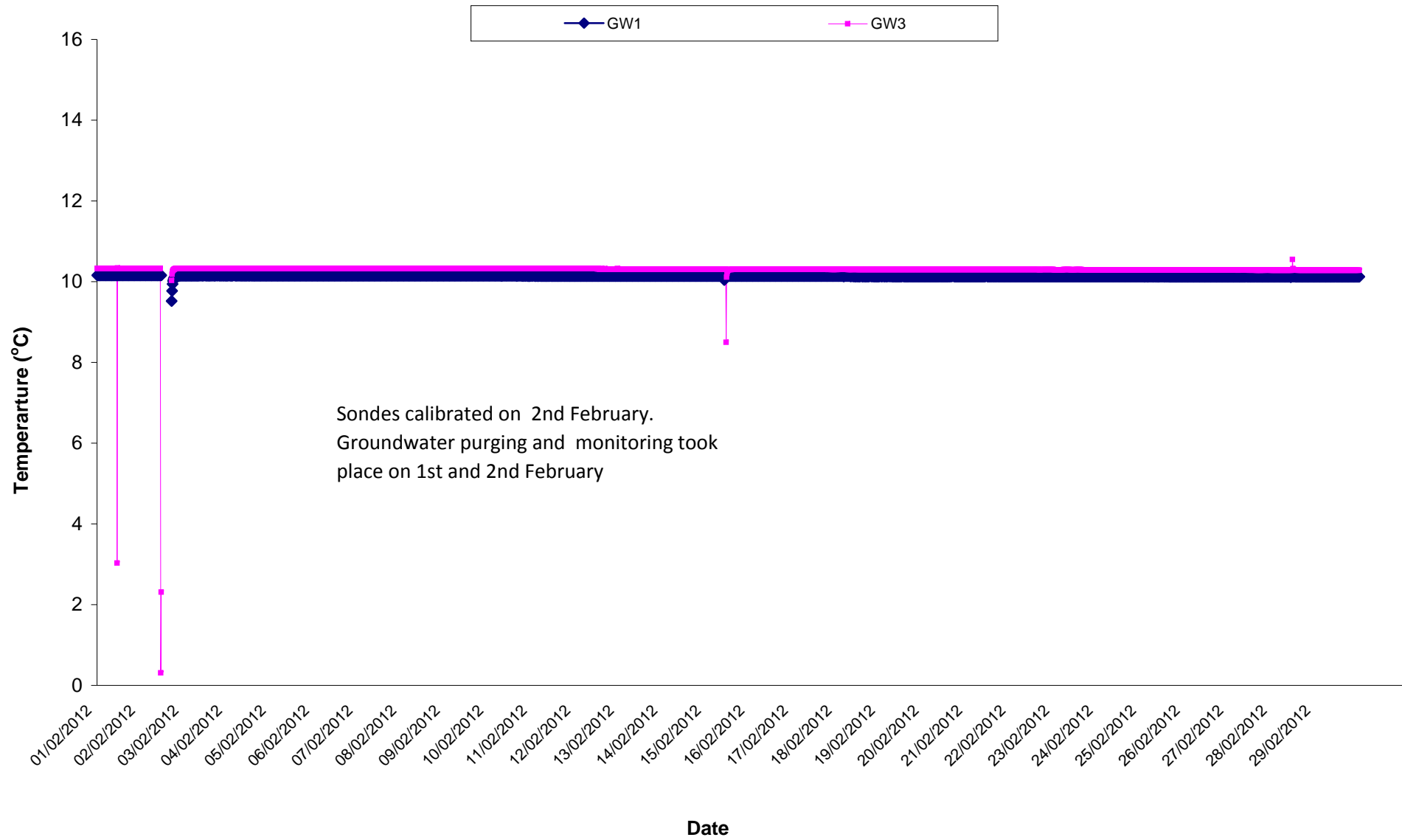
# Turbidity- Surface Water Discharge February 2012



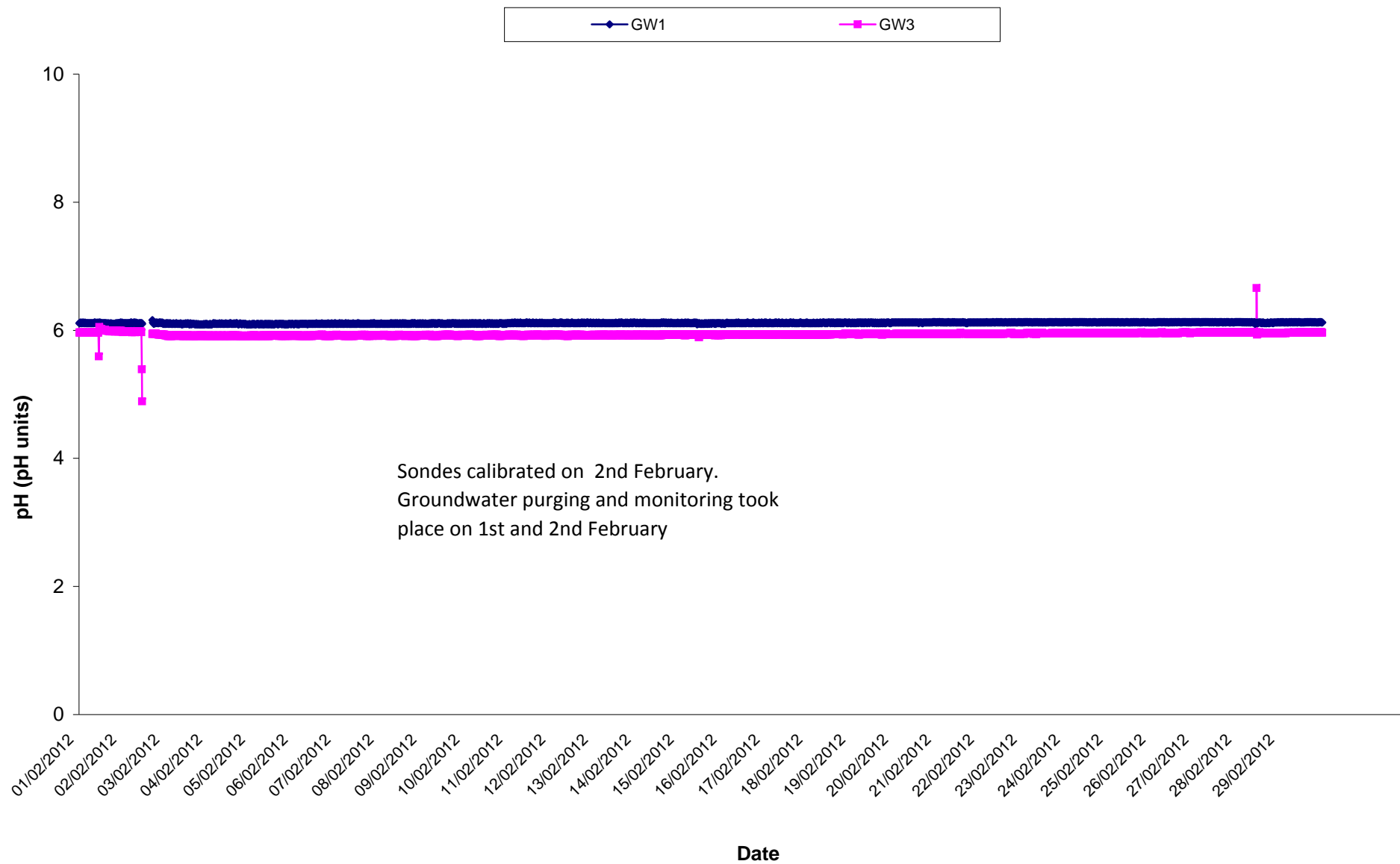
## Dissolved Oxygen - Surface Water Discharge February 2012



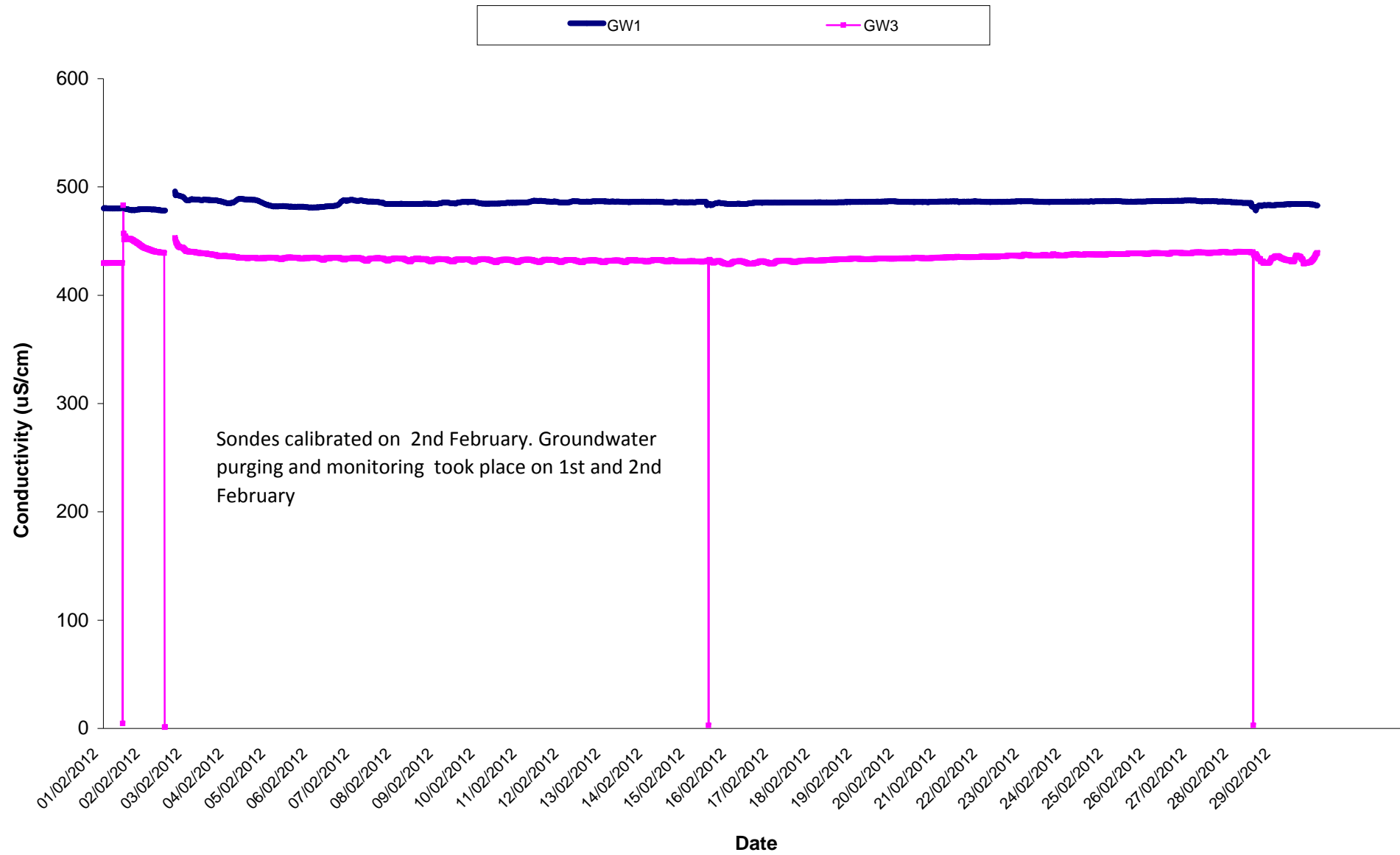
## Temperature - Groundwaters February 2012



## pH - Groundwaters February 2012



# Conductivity - Groundwaters February 2012





## **Appendix 1**

**Appendix 1: Surface Water Monitoring Record Sheet- Onsite Monitoring**

	Date	Temp	DO	Cond.	Turbidity	pH
		oC	% Sat	µS/cm	NTU	
<b>Grab samples</b>						
DL 2	01/02/2011	5.4	23.2	546	10.0	6.9
DL 2	02/02/2012	3.1	81.7	501	4.1	6.7
DL 2	03/02/2012	5.7	73.3	539	2.3	6.6
DL 2	06/02/2012	8.1	88.6	466	7.1	6.5
DL 2	07/02/2012	8.2	20.8	385	6.0	6.9
DL 2	08/02/2012	8.6	42.8	467	6.0	7.2
DL 2	09/02/2012	9.6	91.1	488	6.9	6.7
DL 2	10/02/2012	9.9	48.8	289	1.0	7.2
DL 2	13/02/2012	9.0	90.6	413	1.5	7.1
DL 2	14/02/2012	8.0	31.6	441	1.0	7.0
DL 2	15/02/2012	9.2	42.2	487	10.2	6.8
DL 2	16/02/2012	9.4	34.9	512	3.0	6.4
DL 2	17/02/2012	Site closed				
DL 2	20/02/2012	9.2	88.3	515	11.2	7.0
DL 2	21/02/2012	9.8	94.3	423	2.9	6.8
DL 2	22/02/2012	11.5	94.9	369	4.0	6.6
DL 2	23/02/2012	11.2	92.2	430	5.3	6.7
DL 2	24/02/2012	10.0	53.3	335	2.3	6.7
DL 2	27/02/2012	11.6	88.6	503	11.7	7.1
DL 2	28/02/2012	11.2	42.0	379	13.0	7.0
DL 2	29/02/2012	10.1	37.6	415	1.3	6.8
<b>Sruwaddaon Bay</b>						
Sbay 1	24/02/2012	12.3	105.0	>LOD	4.0	7.9
Sbay 3	24/02/2012	12.3	108.0	>LOD	5.6	7.9
Sbay 4	24/02/2012	11.9	101.6	4180	5.3	7.9
Sbay 6	24/02/2012	11.9	104.7	>LOD	3.4	8.0
	= Indicative Only					
I.P.	= In Progress					
< LOD	= Below Limit of Detection					
> LOD	= Above Limit of Detection					

## **Appendix 2**

## **1. MONITORING PERIOD**

Ecological monitoring activities undertaken during February 2012 included:

- Site inspections at the Aughooose compound;
- Glengad: pre- and during construction site checks and trainings;
- Ongoing weekly bird monitoring of the Sruwaddacon Bay area and onshore pipeline area in general;
- Ongoing non-avian faunal checks (general, pre-construction and during construction);

## **2. SITE INSPECTIONS - AUGHOOSE**

A number of site visits were made to Aughooose during February. These included detailed walkover inspections of the compound at Aughooose on 2<sup>nd</sup> and 23<sup>rd</sup>, during which interior walkways and the perimeter fence were walked. Any changes since the previous walkovers were noted, as was any matter requiring attention.

The main purpose of these site inspections was to:

- Inspect the condition of the stored surface vegetation layer in the peat storage areas.
- Inspect the progress of removal of the vegetation layer to the peat storage areas
- Check the avian and non-avian mitigation measures, including: fencing, screening and wildlife proofing on the perimeter security fence; and others such as the status of covers on the settlement ponds / silt traps etc.
- Discuss with site personnel any other measures which might have been required.

Inspections of the exterior of the perimeter fence, with regard to faunal (avian and non-avian) mitigation measures, were made during the weekly bird survey visits in February, with an additional inspection by the Project ecologist and ornithologist on 14<sup>th</sup> February.

It was noted that previously flagged required actions had largely been addressed, and that the work was ongoing.

## **3. HABITATS/VEGETATION**

### **3.1 Aughooose**

The project ecologist's team advised on the removal of the vegetation layer. This included a site visit on 8<sup>th</sup> February, specifically to identify what remaining vegetation was suitable to be stored in the peat storage areas for use in reinstatement.

## **4. BIRDS**

#### 4.1 Sruwaddacon Bay area

Weekly low water and high water counts continued in the Sruwaddacon Bay area throughout February as scheduled, to summarise:

- Brent Goose numbers were generally low throughout the month. A monthly peak of 101 individuals was recorded on February 14<sup>th</sup> with typical weekly peak numbers 50-80 Brent Geese present.
  - The pattern, now well established of Brent Geese utilising intertidal margins within Sruwaddacon Bay has continued in February with Brent Geese regularly recorded from Count Section 1 as far upstream as Count Section 5.
  - As noted previously, preferred feeding areas (shingle banks) just off Glengad strand have been diminished in size this winter due to the natural deposition of large amounts of sand in this area. However, there has been a visible 'greening' of the remaining shingle during February due to the growth of green algae (mainly *Enteromorpha* sp.).
- 
- The numbers of certain wading bird species present declined throughout the month e.g. Redshank, Ringed Plover, as these birds return to their breeding grounds.
  - As in January, two Little Grebes were recorded within Sruwaddacon Bay on several occasions during February. This species has been infrequently recorded at the site in previous winter surveys.
  - Another, even more unexpected record, was of a pair of Iceland Gulls present in Sruwaddacon Bay on two survey weeks during February. Iceland Gulls had not previously been recorded in the study area.
  - As noted throughout the current winter, both Godwit species have persisted in the area this winter with a combined total of 20-30 individuals regularly present in the February counts at low water.

#### 4.2 Tidal observer training

Further tidal observer training was undertaken on 8<sup>th</sup> February.

#### 4.3 Wader behaviour and noise

Observations were made on wader behaviour in tandem with noise monitoring at Aughooose on 8<sup>th</sup> February. No adverse reaction was observed during recorded noise "peaks" and waders continued feeding with normal behaviour..

#### **4.4 Areas of tree felling (Aughoose / Bellagelly)**

The tree felled areas were inspected again during February for the presence of available bird nesting habitat. This included walkovers on 3<sup>rd</sup> and 22<sup>nd</sup> of the month. Work on the felled material was noted to be ongoing and effective.

#### **4.5 Glengad walkovers**

Walkovers at Glengad were undertaken on 3<sup>rd</sup> and 23<sup>rd</sup> February.

The purpose of these was to check on the suitability of habitat for ground nesting birds in preparation for mowing in advance of, and during, construction works.

### **5. NON-AVIAN FAUNA**

#### **5.1 Aughoose to Bellanaboy**

A faunal survey was conducted along in connection with the tree-felled areas.

- No dwelling places or resting places of badgers or otters were found.
- As previously, signs were noted of Irish Hares and foxes in places;
- Drains and small pools that may be utilised as breeding sites by frogs were identified.

#### **5.2 Aughoose**

- Frog spawn was found at several locations at the Aughoose compound and was translocated to alternative sites in accordance with the current wildlife licence.
- Gaps with potential for mammal access into the Aughoose compound site had been identified and these have been addressed..

#### **5.3 Glengad**

A walkover of the Glengad site was conducted on 23<sup>rd</sup> February in tandem with the ornithological inspection.

- Faunal signs were noted and burrows were checked.
- No change in faunal activity since previous surveys/inspections was noted

#### **5.4 Non-avian faunal observations made during the bird surveys**

- Two individual Otters were sighted during the bay count on February 2<sup>nd</sup> 2012:
  - An adult Otter observed in Count Section 2 just to the east of the sand/shingle high water roost; and
  - A smaller individual observed feeding near the northern shore in Count Section 4.
- Several observations of both Grey & Common Seal were made during February, including an observation of a Common Seal hauled out on the high-water bird roost in Count Section 2.

## **Appendix 3**

**Corrib Onshore Pipeline**  
Monthly Archaeological Report  
**Aughoose and Glengad**

DAHG Licence Reference: 11E0214  
DAHG Metal Detection Licence Reference: 11R0090

Director: James Kyle

Month Ending: 29<sup>th</sup> February 2012

**COURTNEYDEERY**   
Heritage Consultancy

**IAC** Irish Archaeological  
Consultancy



## **1.0 General Review of Works**

### **1.1 Works**

Works commenced Monday the 25<sup>th</sup> of July 2011 at the Aughoose Compound.  
Works commenced Monday the 6<sup>th</sup> of February 2012 at Glengad.

## **2.0 Staffing Levels**

The following licenced archaeologists are present to monitor all ground breaking and excavation:

Site Director: James Kyle,  
Archaeologist: David Bayley.

## **3.0 Areas Investigated**

### **3.1 Aughoose**

Construction works were carried out at several areas of the Aughoose site, these were monitored under strict archaeological supervision. These works (Figure 1) comprised:

- The removal of the surface vegetation of peat into turves, this enabled its transport and safe storage. This activity took place in advance of all bulk peat excavation works.
- Bulk excavation of peat (1.2-3m in depth) was completed from the northern shear key and IR 2 (Plate 1), with a peat stone matrix employed as part of the construction of IR 2 (between 0.30m and 0.50m of peat was left *in situ* at the base of the excavation).
- Bulk excavation of peat (1m-2.5m in depth) was completed from Area 3 (Plate 2). The excavation of peat from Area 3 was completed Friday 13<sup>th</sup> February.
- Bulk excavation of mineral soil (3.5m-4.7m below present ground level) from the main settlement lagoon (Plate 3) in the northwest corner of the site was completed. Works in this area were completed on Wednesday 18<sup>th</sup> January.
- Monitoring of core piling commenced in the BAM compound with piles drilled to between 11m and 14m deep. The monitoring of the piling was limited to inspection of the excavated material as it is deposited into a skip (Plate 4) beside the piling rig.
- Bulk excavation of peat was ongoing in the filter press area, located between IR3 and IR4 (Plate 5), (peat depth 1.8-2.5m) this work has yet to be completed.

In addition to the above; all construction works which had any impact on the peat and the underlying residual ground substrate were monitored and nothing of archaeological significance was revealed.

### **3.2 Glengad**

Construction works were carried out at several areas of the Glengad site, these were monitored under strict archaeological supervision. These works (Figure 1a) comprised:

- The removal of the topsoil layer (0.1m in depth) in advance of access road construction (Plate 6).
- The excavation of a shallow drain (0.25m in depth), adjacent and parallel to the access road (Plate 7).
- The erection of the site perimeter fence (Plate 8).
- Monitoring of excavation work at the southern end of the access road in the vicinity of the enclosure site (MA004-015) revealed a layer of hardcore underneath the topsoil, this had been put in place during previous works. No archaeological material was revealed as a result of the monitoring of development works.
- Archaeological monitoring has taken place on two separate occasions in the vicinity of this site, (Frazer 2002 and Kieran 2009)<sup>1</sup>. No archaeological features or finds were revealed.
- Fencing in the area of the enclosure did not require any excavation works. The fence now acts as a protection barrier ensuring that there is in excess of 10m between the monument (outer western visible extent) and construction related activity along the access route for landfall works at Glengad.

In addition to the above; all construction works which had any impact on the underlying residual ground substrate were monitored and nothing of archaeological significance was revealed.

### **4.0 Projected Future Work and Staff**

Archaeological monitoring will be undertaken during the construction phase of the project to determine the presence (if any) of below ground archaeological features. This will be conducted by two licenced archaeologists, James Kyle and David Bayley, on a rotational basis between the Aughooose and Glengad sites.

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<sup>1</sup> Monitoring of topsoil removal Glengad (Licence Ref. 02E0568, W. Frazer) Margaret Gowen Ltd.  
Archaeological monitoring of construction works associated with the Corrib Gas Pipeline at Broadhaven Bay (Licence Ref. 09E176 and 09E177, E. Kieran) Moore Marine.

## **5.0 Reporting**

The monthly report records the extent of works requiring archaeological monitoring and in the event of archaeological material being revealed will record, photograph and map any new discovery. As part of the licensing requirement a final report will be completed upon the cessation of ground breaking and excavation works. This report will describe in detail the results of the archaeological monitoring programme and will be sent to the statutory authorities in accordance to the licensing agreement.

## **6.0 Location of Artefacts and Samples**

To date no artefacts or samples have been retrieved from site.

## **7.0 Information any Unforeseen Difficulties**

At Glengad work practices observed tidal restrictions in the SAC area. Site works at Glengad were halted at 13:30 and cancelled at Aughooose, on Friday 17<sup>th</sup> due to protestor activity. Work resumed at both sites on the 20<sup>th</sup> of February (Monday).

## **8.0 Health and Safety Issues**

Both on-site archaeologists have been inducted after receiving the requisite conflict management training and manual handling training.

## **Summary**

Nothing of an archaeological significance has been uncovered as a result of works on site to date.



Plate 1 Aughooose: Peat excavation in Area 3, facing northeast.



Plate 2 Aughooose: Bulk excavation of peat from Area 3, facing north.



Plate 3 Aughooose: Close-up of section face of settlement pond excavation, facing south.



Plate 4 Aughooose: Excavated material from core piling, BAM compound.





Plate 5 Aughoose: Bulk excavation of peat from the filter press area, facing north.



Plate 6 Glengad: Topsoil stripping on access road, facing north.



Plate 7 Glengad: Excavation of drain adjacent to access road, facing north.



Plate 8 Glengad: Erection of perimeter fence, facing west.

