

Monthly Air Quality Monitoring – May 2020
Bass Point Quarry

Licensee

HANSON CONSTRUCTION MATERIALS PTY LTD

LOCKED BAG 5260

PARRAMATTA NSW 2124

Premises Details

HANSON CONSTRUCTION MATERIALS PTY LTD

BOOLLWARROO PARADE

SHELLHARBOUR

NSW 2529

LOT 16 DP 627783, LOT 78 DP 751290, LOT 22 DP 1010797

Project Approval: Ref 08_0143, January 28, 2014
Environmental Protection Licence (EPL) No: 2193*

* Listed in the [EPA Public Register](#)



Report Author: Chelsea Flood (Compliance Officer)

Date issued: 11.08.2020

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1. Air quality monitoring requirements

As per the Project Approval and Air Quality Management Plan (AQMP), the quarry is required to report on the following:

1.1. **Particulate Matter**

The quarry monitors two PM₁₀ samplers (**Table 1, Figure 1**) and will gather representative data, to compare the results against the following tables:

Table 4: Long-Term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging period	^d Criterion
Total suspended particulates (TSP)	Annual	^a 90 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	Annual	^a 30 µg/m ³

Table 5: Short Term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging period	^d Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	^a 50 µg/m ³

1.2. **Dust Deposition Gauges**

The quarry monitors two Dust Deposition Gauges (DDGs) (**Table 1, Figure 1**) and will compare the results against the following table:

Table 6: Long-Term Impact Assessment Criteria for Deposited Dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
^c Deposited dust	Annual	^b 2 g/m ² /month	^a 4 g/m ² /month

1.3. **Representative Meteorological Data**

The quarry will gather representative meteorological data for the respective month including temperature, rainfall, wind speed and direction.

2. Air quality monitoring program

The Air Quality Management Plan was prepared by SLR Global Environmental solutions and details the assessment criteria, monitoring locations and procedures, and the compliance checking procedures for the subsequent reporting in accordance with the Department of Planning, Industry and Environment (DPIE) and the NSW Environment Protection Authority (EPA) requirements.

All monitoring locations conform to the requirements of *AS 3580.1.1:2016*, subject to local site constraints. Monitoring activities are outlined in **Table 1**, with site monitoring points shown in **Figure 1**. Note that Site No. PM10-1 is used as a management tool and not for compliance purposes, and as such, is not used to establish compliance monitoring for PM₁₀. In addition, though not part of the Bass Point Quarry air quality monitoring program, regional background data for 24 hour PM₁₀ concentration is sourced from the Office of Environment and Heritage (OEH) Albion Park South Air Quality Monitoring Station (AQMS) as per the AQMP.

Table 1: Summary of the air quality monitoring program at Bass Point Quarry. Sites that are not monitored for compliance purposes (e.g. used as management tools only) are shaded pale grey.

Site No.	Location	Parameter	Instrument	Sampling frequency	Reporting frequency
DDG-1	Western Boundary	Dust Deposition	Dust Deposition Gauge (DDG)	30 days (± 2 days)	Monthly
DDG-2	West, on the amenity bund	Dust Deposition	Dust Deposition Gauge (DDG)	30 days (± 2 days)	Monthly
Automatic Weather Station	Kiama (Bombo Headland)	Meteorological Parameters	Automatic Weather Station (AWS)	Continuous	Monthly
PM10-1	West of the Main Site Office	PM ₁₀	Beta Attenuation Monitor (BAM)	Continuous	Monthly
PM10-2	West, on the amenity bund	PM ₁₀	Low Volume Air Sampler (LVAAS)	1 in 6 day sampling	Monthly



Property Border
 Extraction Boundary

Figure 1: Monitoring locations at the Bass Point Quarry. Air quality monitoring locations have been acronymised as follows: DDG1 – Dust Deposition Gauge 1; DDG2 – Dust Deposition Gauge 2; PM10-1 – Continuous PM₁₀ Monitor; PM10-2 – Low Volume PM₁₀ Sampler.

3. Monthly results

3.1. *Particulate Matter – Particulate Matter < 10 µm (PM₁₀)*

The PM₁₀-2 (LVAS) monitoring site is located on the site boundary (as per the AQMP). An exceedance of the 24 hour or annual average criteria at this monitoring point therefore does not necessarily mean that there has been an exceedance of the assessment criteria outlined in Project Approval 08_0143 Schedule 3 (which apply at any residence on privately-owned land).

Five samples were collected during May 2020 (**Figure 2, Table 2**). All five samples were below the 24 hour average PM₁₀ criterion of 50 µg/m³ and were hence compliant. Note that four of the samples (06/05/2020, 19/05/2020, 25/05/2020, 31/05/2020) were below the limit of reporting (LOR) for the laboratory, i.e. smaller than the laboratory is permitted to report. In those cases, the limit of reporting has been graphed.

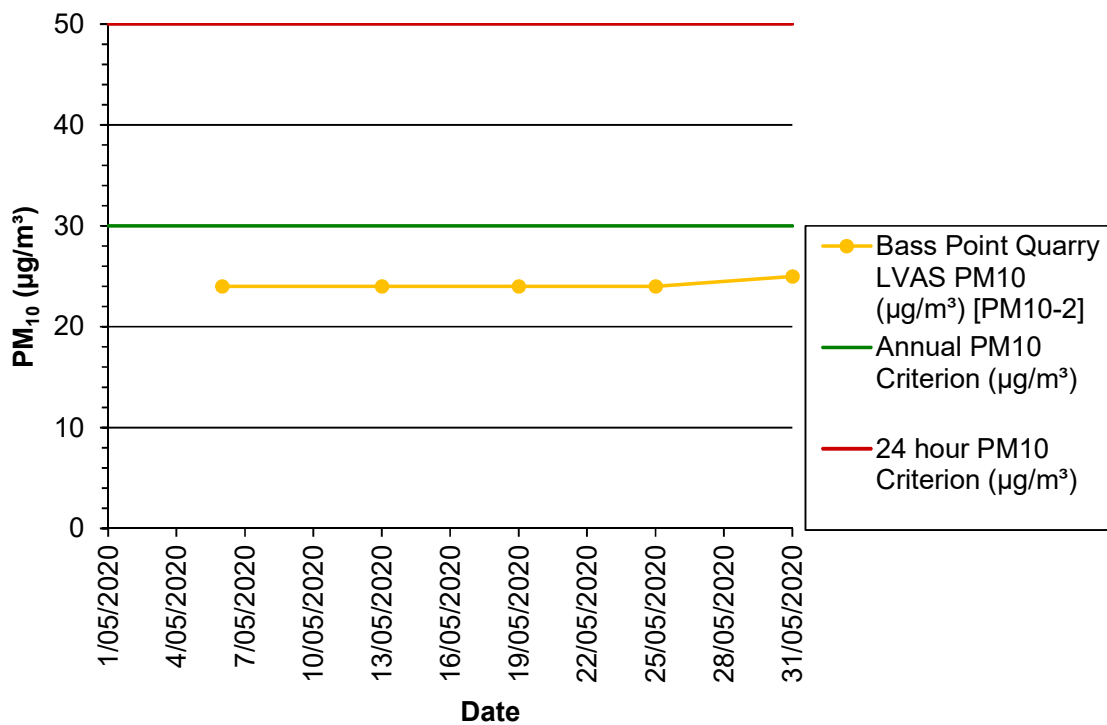


Figure 2: Twenty-four hour PM₁₀ concentration (µg/m³) as measured at PM10-2 during May 2020, compared to the annual criterion and 24 hour criterion (µg/m³).

The 24 hour average PM₁₀ reading at Albion Park South AQMS was below the 24 hour average PM₁₀ criterion of 50 µg/m³ for all sampling dates during May 2020 (**Figure 3, Table 2**) and was hence compliant.

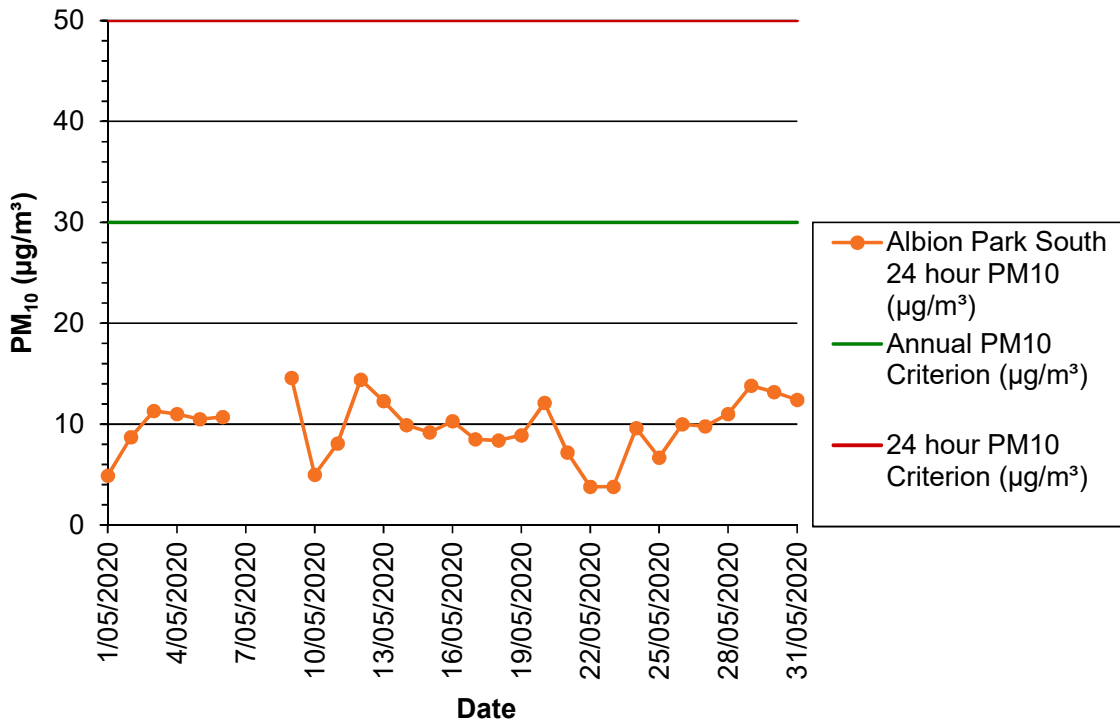


Figure 3: Twenty-four hour PM₁₀ concentration (µg/m³) as measured at Albion Park South AQMS during May 2020, compared to the annual criterion and 24 hour criterion (µg/m³).

Hanson are required to report on the annual average 24 hour PM₁₀ concentration for the identified periods: (i) calendar year, as part of the Environmental Management Annual Review, and; (ii) 15th June to 14th June, as part of the EPL Annual Return. Annual average PM₁₀ data is therefore not required as part of the May 2020 monthly report. However, as a management tool, Hanson have begun calculating the rolling annual average 24 hour PM₁₀ for the monthly air quality reports.

The rolling annual average 24 hour PM₁₀ for the PM10-2 site, as calculated using data up to and including May 2020, was 61.2 µg/m³. This is above the annual PM₁₀ criterion of 30 µg/m³. Hanson are undertaking a more detailed investigation into the PM₁₀ levels experienced at a relevant nearby residence/receiver, as is required under the site AQMP.

The rolling annual average 24 hour PM₁₀ from the OEH Albion Park South AQMS, as calculated using data the 12 months up to and including May 2020, was 20.5 µg/m³. This is slightly more than two-thirds of the 30 µg/m³ annual limit as outlined in the Project Approval 08_0143.

As per the AQMP, the PM10-1 (E-BAM) monitoring site is located on-site and is significantly closer to the quarrying activities than the nearest sensitive receptors. An exceedance of the PM₁₀ criterion recorded at this location (**Figure 4, Table 2**)

therefore does not represent non-compliance with the criteria outlined in Project Approval 08_0143 Schedule 3 (which apply at any residence on privately-owned land). In addition, PM10-1 is used as a management tool and not for compliance purposes, and as such, is not used to establish compliance monitoring for PM₁₀.

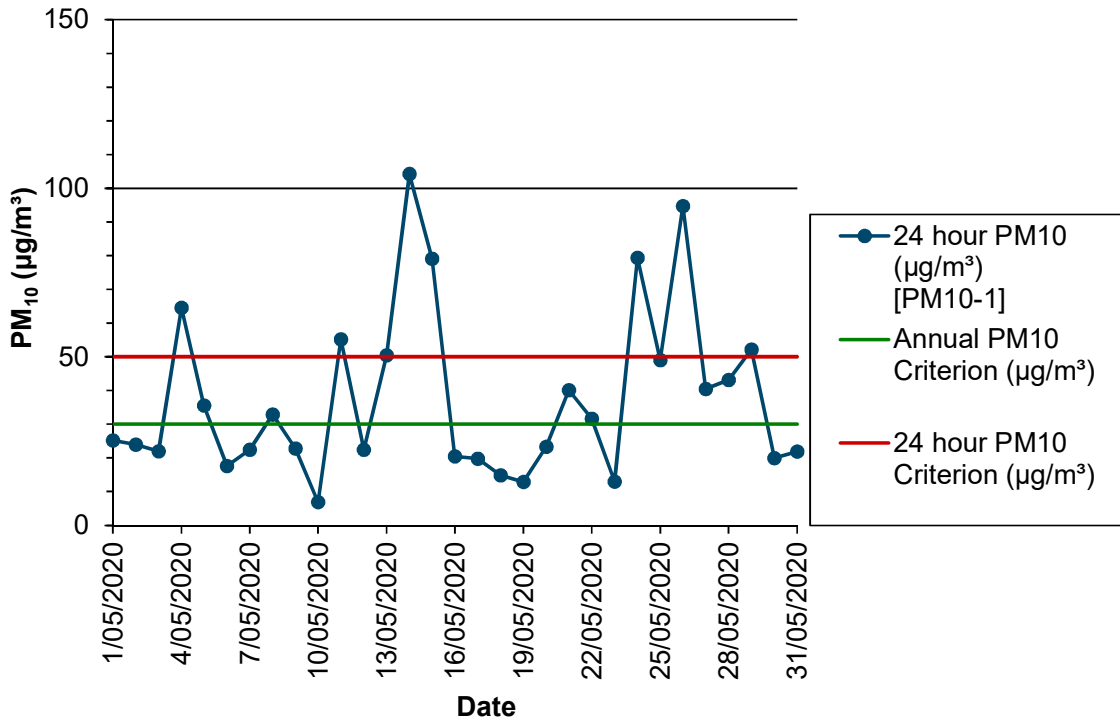


Figure 4: Twenty-four hour PM₁₀ concentration (µg/m³) as measured at PM10-1 during May 2020, compared to the annual PM₁₀ criterion and 24 hour PM₁₀ criterion (µg/m³).

Table 2: Monitoring results for Particulate Matter – PM₁₀ monitoring during May 2020. Prevailing wind conditions and climate data were measured at PM10-1. Apparent exceedances of the 24 hour PM₁₀ criteria are shaded red. Note that as previously discussed, PM10-1 is not used for compliance monitoring; exceedances of the 24 hour PM₁₀ criteria at this monitoring location are shaded orange.

Date	24 hour PM ₁₀ (µg/m ³) [PM10-1]	24 hour PM ₁₀ (µg/m ³) [PM10-2]	24 hour PM ₁₀ (µg/m ³) [Albion Park South]	24 hour PM ₁₀ Criterion (µg/m ³)	Mean Wind Speed (m/s)	Mode Wind Direction (°)	Mean Atm. Temp. (°C)	Mean Relative Humidity (%)	Mean Bar. Pressure (mmHg)	Comments
1/05/2020	25		5	50	4.0	WNW	13.2	53	752	
2/05/2020	24		9	50	5.7	W	13.8	48	750	
3/05/2020	22		11	50	2.6	WSW	14.8	52	760	
4/05/2020	65		11	50	2.3	SW	14.6	62	767	
5/05/2020	36		11	50	2.3	SW	16.3	72	770	
6/05/2020	18	<24	11	50	2.6	W	17.1	67	767	
7/05/2020	22			50	2.5	W	17.8	58	763	
8/05/2020	33			50	2.7	WNW	19.4	67	760	
9/05/2020	23		15	50	4.1	NW	19.6	52	756	
10/05/2020	7		5	50	2.7	W	13.7	45	762	
11/05/2020	55		8	50	2.2	WSW	13.8	51	767	
12/05/2020	22		14	50	2.9	WSW	15.4	52	766	
13/05/2020	50	24	12	50	1.6	SW	15.6	53	764	Issue with PM10-2 sampler; sample run 1 day late.
14/05/2020	104		10	50	3.8	SSW	14.5	68	768	
15/05/2020	79		9	50	3.4	SSW	14.0	73	770	
16/05/2020	21		10	50	1.4	SSW	15.7	82	771	
17/05/2020	20		9	50	1.8	SSW	16.5	76	771	
18/05/2020	15		8	50	1.4	SSW	15.9	86	771	
19/05/2020	13	<24	9	50	3.4	N	17.0	80	768	
20/05/2020	23		12	50	3.3	NNW	18.4	69	761	
21/05/2020	40		7	50	2.6	NW	15.1	84	757	
22/05/2020	32		4	50	5.8	SW	13.3	67	754	
23/05/2020	13		4	50	3.8	SW	14.5	67	753	
24/05/2020	79		10	50	7.0	SSW	15.6	62	756	
25/05/2020	49	<24	7	50	7.2	SSW	13.6	83	761	
26/05/2020	95		10	50	4.1	SSW	15.0	85	764	
27/05/2020	41		10	50	1.6	WSW	15.4	82	764	
28/05/2020	43		11	50	1.8	SW	16.5	71	763	
29/05/2020	52		14	50	1.9	SW	15.7	81	767	
30/05/2020	20		13	50	3.8	NNW	16.3	76	766	
31/05/2020	22	<25	12	50	3.6	NNW	16.3	73	761	

3.2. Particulate Matter – Total Suspended Particles (TSP)

Total Suspended Particles (TSP) is not currently monitored in the vicinity of the Bass Point Quarry. The SLR Global Environmental Solutions (formerly Heggies Pty Ltd) prepared report *Bass Point Quarry Expansion – Air Quality Impact Assessment (2010)* determined that the approximate PM₁₀ to TSP ratio is 36.2% for the Illawarra region.

Hanson are required to report on the annual average TSP concentration for the calendar year, as part of the Environmental Management Annual Review. This annual average TSP data is therefore not required as part of the May 2020 monthly report. However, as a management tool, Hanson have begun calculating the rolling annual average TSP for the monthly air quality reports. In the absence of TSP readings, the 36.2% ratio has been applied to the Albion Park South AQMS rolling annual average 24 hour PM₁₀ data (as per the AQMP) for May 2020 (**Table 3**). The rolling annual average TSP is therefore 56.7 µg/m³; over half of the annual TSP criterion of 90 µg/m³ identified in Project Approval 08_0143 Schedule 3.

Table 3: Calculation of Rolling Annual Average TSP (µg/m³) for the month of May 2020.

Rolling annual average 24 hour PM ₁₀ (µg/m ³) [Albion Park South]	PM ₁₀ to TSP ratio	Calculated rolling annual average TSP	Annual TSP criterion
20.5 µg/m ³	36.2%	56.7 µg/m ³	90 µg/m ³

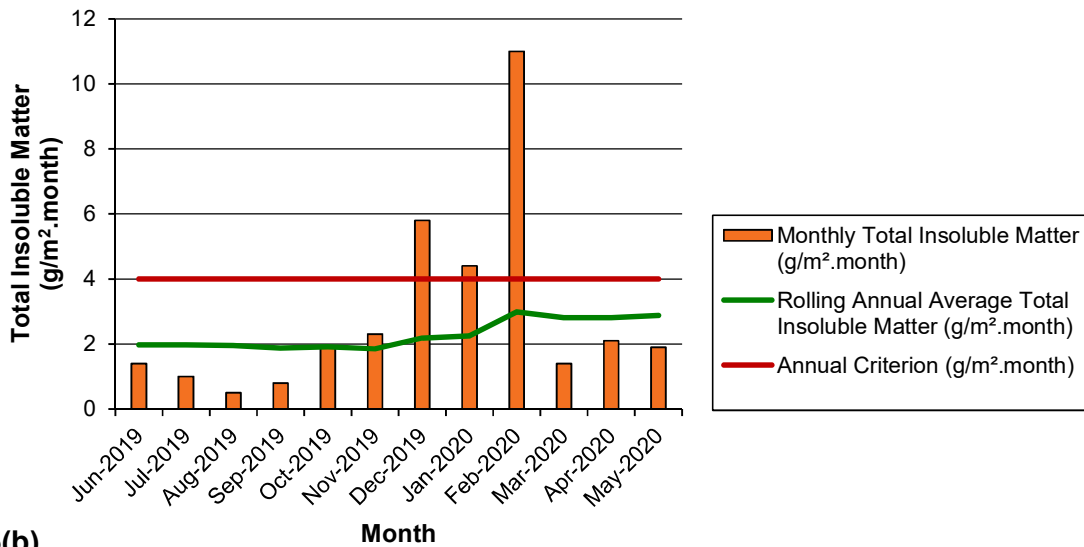
3.3. Dust Deposition Gauges

Monthly analyses of deposited dust samples collected at DDG-1 and DDG-2 are completed by NATA-accredited laboratory ALS Environmental. Monitoring results for the month of May 2020 indicate that dust deposition at DDG-1 and DDG-2 was less than the annual criterion of 4 g/m².month identified in Project Approval 08_0143 Schedule 3 and EPL-2193 (**Table 4, Figure 5(a), Figure 5(b)**).

Table 4: Monthly Total Insoluble Matter ($\text{g/m}^2\cdot\text{month}$) measured at the two Bass Point Quarry Dust Deposition Gauges (DDGs) during the period 14/04/2020 to 15/05/2020 (i.e. May 2020), and calculated rolling annual average Total Insoluble Matter ($\text{g/m}^2\cdot\text{month}$).

Site	Monthly Total Insoluble Matter ($\text{g/m}^2\cdot\text{month}$)	Rolling Annual Average Total Insoluble Matter ($\text{g/m}^2\cdot\text{month}$)	Comments
DDG-1	1.9	2.9	
DDG-2	1.9	9.1	

5(a)



5(b)

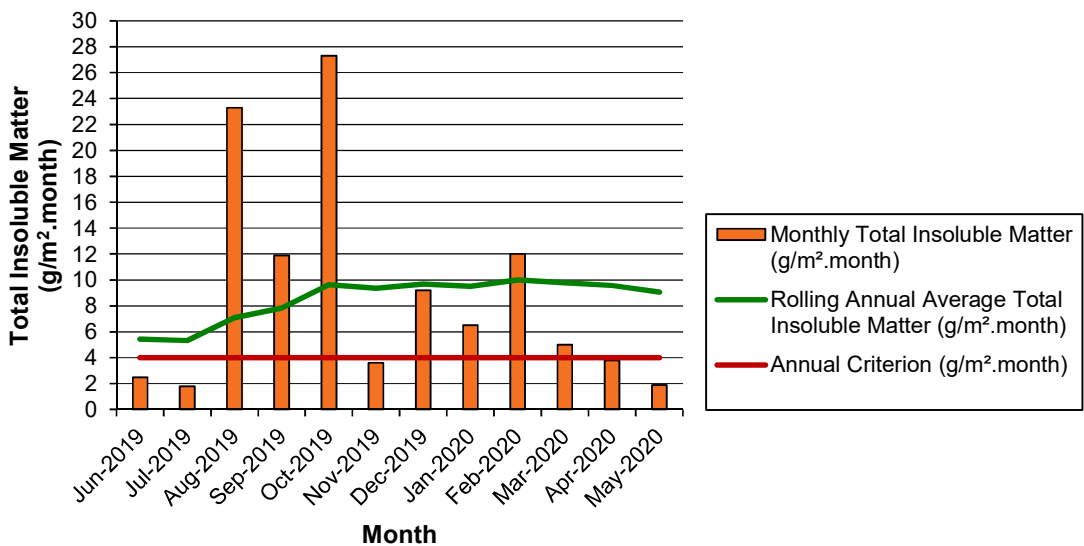


Figure 5: Total Insoluble Matter, rolling annual average, and annual criterion ($\text{g/m}^2\cdot\text{month}$) for the Bass Point Quarry as measured at (a) DDG-1, and; (b) DDG-2; during the 12-month period to May 2020.

4. Representative Meteorological Data

Representative meteorological data has been sourced from the Bureau of Meteorology's (BOM) Kiama (Bombo Headland) Automatic Weather Station (AWS), as per the AQMP.

4.1. *Monthly Meteorological Data Summary*

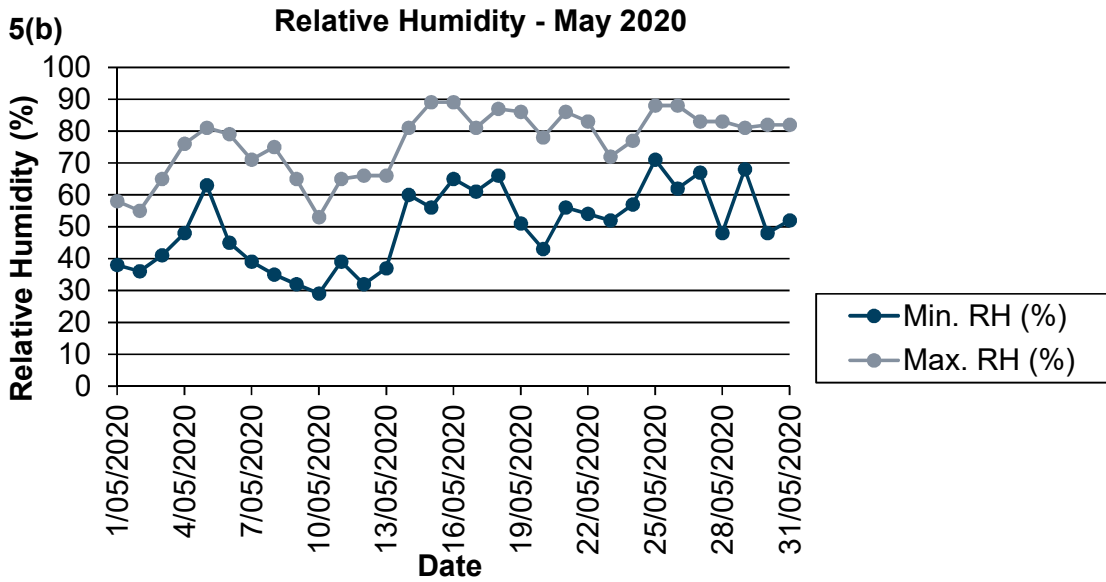
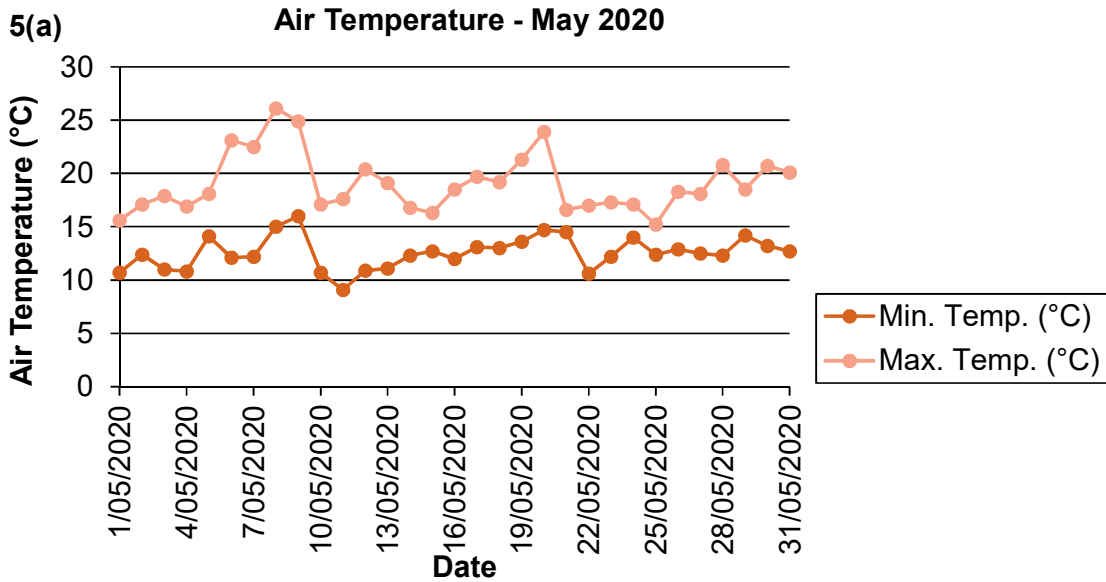
Table 5: Summary of representative meteorological data sourced from the BOM Kiama (Bombo Headland) AWS.

Date	Min. Temp. (°C)	Max. Temp. (°C)	Evapo-Transp. (mm)	Rainfall (mm)	Min. RH (%)	Max. RH (%)	Direction of maximum wind gust	Speed of maximum wind gust (km/h)	Time of maximum wind gust	Average 10 m Wind Speed (m/sec)	Solar Radiation (MJ/sq m)
1/05/2020	10.7	15.6	3.1	8.6	38	58	W	59	11:42	4.57	10.18
2/05/2020	12.4	17.1	3.9	0.0	36	55	WSW	78	23:54	6.21	10.93
3/05/2020	11.0	17.9	3.5	0.0	41	65	WSW	76	0:02	5.71	13.28
4/05/2020	10.8	16.9	2.6	0.0	48	76	S	39	13:59	4.37	12.90
5/05/2020	14.1	18.1	2.4	0.2	63	81	S	35	7:44	4.43	13.31
6/05/2020	12.1	23.1	2.9	0.0	45	79	NNE	30	14:24	3.25	13.02
7/05/2020	12.2	22.5	2.5	0.0	39	71	NNE	31	14:45	2.44	9.32
8/05/2020	15.0	26.1	3.4	0.0	35	75	NW	31	8:34	3.20	12.90
9/05/2020	16.0	24.9	3.8	0.0	32	65	WSW	39	16:00	3.95	11.31
10/05/2020	10.7	17.1	3.6	0.4	29	53	WSW	44	2:21	4.89	12.75
11/05/2020	9.1	17.6	2.7	0.0	39	65	S	30	10:02	3.69	12.64
12/05/2020	10.9	20.4	2.8	0.0	32	66	N	31	13:11	3.06	12.51
13/05/2020	11.1	19.1	2.4	0.0	37	66	SSW	35	23:40	2.52	10.97
14/05/2020	12.3	16.8	2.5	0.0	60	81	S	48	13:02	6.99	10.15
15/05/2020	12.7	16.3	2.2	0.0	56	89	SSE	44	13:24	5.72	8.23
16/05/2020	12.0	18.5	1.6	5.6	65	89	S	20	0:28	2.16	11.79
17/05/2020	13.1	19.7	1.8	0.2	61	81	SSE	20	10:57	2.35	11.95
18/05/2020	13.0	19.2	1.3	0.6	66	87	NNE	22	15:42	1.78	6.60
19/05/2020	13.6	21.3	2.4	2.4	51	86	NNE	35	14:05	3.65	11.86
20/05/2020	14.7	23.9	2.6	0.0	43	78	NNE	33	12:05	3.08	8.04
21/05/2020	14.5	16.6	2.1	0.8	56	86	SSW	72	23:58	5.13	3.75
22/05/2020	10.6	17.0	3.1	29.0	54	83	SSW	85	16:11	11.23	7.51
23/05/2020	12.2	17.3	3.2	2.2	52	72	SSW	76	3:58	8.26	7.36
24/05/2020	14.0	17.1	3.3	0.0	57	77	S	81	11:27	11.75	8.65
25/05/2020	12.4	15.2	2.1	0.8	71	88	S	81	0:39	11.92	7.75
26/05/2020	12.9	18.3	2.4	5.2	62	88	S	67	4:10	8.04	6.99
27/05/2020	12.5	18.1	1.6	3.2	67	83	SSW	30	0:29	3.06	10.33
28/05/2020	12.3	20.8	2.2	0.0	48	83	S	35	15:56	3.19	11.18
29/05/2020	14.2	18.5	1.8	0.6	68	81	S	35	11:41	3.48	10.14
30/05/2020	13.2	20.7	2.5	0.0	48	82	N	41	16:26	4.06	10.98
31/05/2020	12.7	20.1	1.9	0.0	52	82	N	35	15:47	2.69	8.22

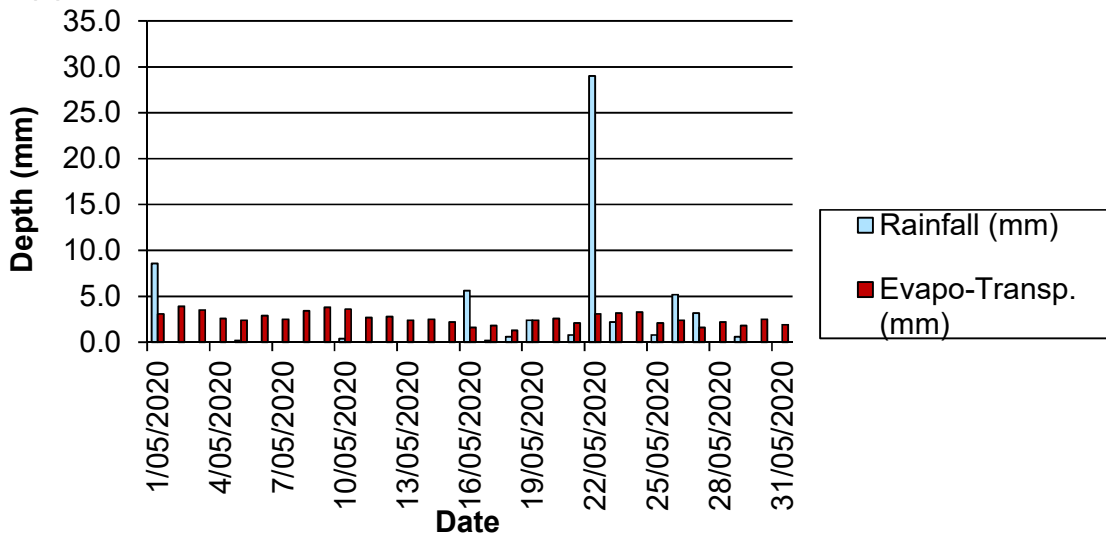
Monthly	Min. Temp. (°C)	Max. Temp. (°C)	Evapo-Transp. (mm)	Rainfall (mm)	Min. RH (%)	Max. RH (%)	Direction of maximum wind gust	Speed of maximum wind gust (km/h)	Time of maximum wind gust	Average 10 m Wind Speed (m/sec)	Solar Radiation (MJ/sq m)
Mean	12.5	19.1	2.6	1.9	50	76	-	46	-	4.87	10.24
Lowest	9.1	15.2	1.3	0.0	29	53	S / SSE	20	0:28 / 10:57	1.78	3.75
Highest	16.0	26.1	3.9	29.0	71	89	SSW	85	16:11	11.92	13.31
Total	-	-	80.2	59.8	-	-	-	-	-	-	-

4.2. Monthly Weather Charts

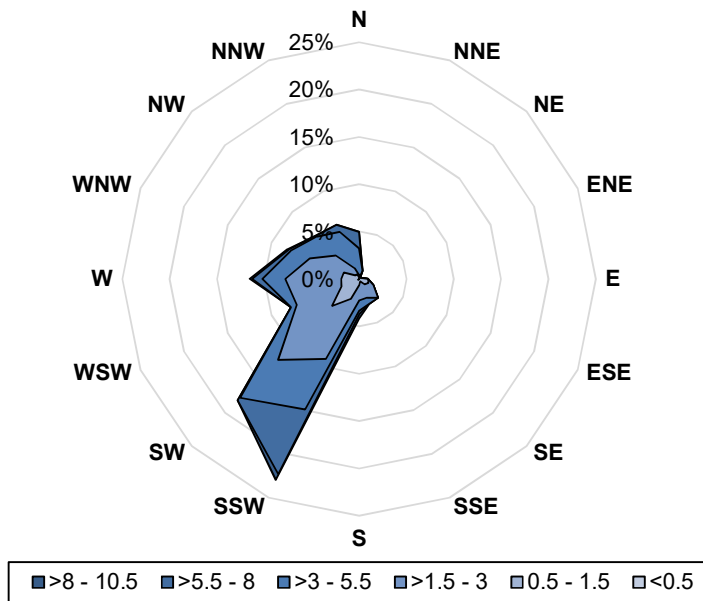
Figure 6: Summary of representative meteorological data sourced from the BOM Kiama (Bombo Headland) AWS for (a) Air Temperature; (b) Relative Humidity; (c) Rainfall and Evapo-Transpiration; and, (d) Wind Speed and Direction. Note that wind speed and direction data was sourced from PM10-1.



5(c) Rainfall and Evapo-Transpiration - May 2020



5(d) Wind speed and direction - May 2020



Appendix 1
Chain of Custody & Laboratory Certificates



CHAIN OF CUSTODY

ALS Laboratory: please tick →

- Sydney 277 Woodcock Rd, Smithfield NSW 2174
Brisbane 37 Skard St, MtPond QLD 4005
Melbourne 24 Wuscol Rd, Springvale VIC 3171
Perth 10 Hedley Way, Malaga WA 6090
Newcastle 5 Rusequin Rd, Waratah NSW 2304
Townsville 14-15 Duenna Ct, DuNu QLD 4810
Adelaide 21 Barma St, Plympton SA 5095
Lanceston 97 Wellington St, Launceston TAS 7250

CLIENT: Hanson Construction Materials
OFFICE: PO Box 4022 Shellharbour NSW 2529
PROJECT: LVAS (PM10)
ORDER NUMBER:
PROJECT MANAGER: Steve Butcher
SAMPLER: Chelsea Flood
COC emailed to ALS? (YES / NO)
Email Reports to (will default to PM if no other addresses are listed): chelsea.flood@hanson.com.au
Email Invoice to (will default to PM if no other addresses are listed): chelsea.flood@hanson.com.au

Table with columns: LAB ID, SAMPLE ID, DATE / TIME, MATRIX, TYPE & PRESERVATIVE, TOTAL BOTTLES, ANALYSIS REQUIRED including SUITES, Additional Information. Includes a barcode and reference number EW2002595.

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved Oric; SH = Sodium Hydroxide/Ca Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Air/Inert Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulphuric Preserved; AV = Air/Inert Unpreserved Vial; SG = Sulphuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CERTIFICATE OF ANALYSIS

Work Order	: EW2002595	Page	: 1 of 2
Client	: HANSON CONSTRUCTION MATERIALS PTY LTD	Laboratory	: Environmental Division NSW South Coast
Contact	: MR STEVE BUTCHER	Contact	: Glenn Davies
Address	: BOOLLWARROO PDE SHELLHARBOUR NSW, AUSTRALIA 2529	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 4/13 Geary Pl, North Nowra 2541 Australia NSW Australia
Telephone	: +81 02 4295 1355	Telephone	: 02 42253125
Project	: LVAS (PM10)	Date Samples Received	: 02-Jun-2020 14:45
Order number	: ----	Date Analysis Commenced	: 10-Jun-2020
C-O-C number	: ----	Issue Date	: 12-Jun-2020 14:40
Sampler	: CHELSEA FLOOD		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 5		
No. of samples analysed	: 5		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Joel Mullarvey	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Joel Mullarvey	Laboratory Technician	Newcastle, Mayfield West, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

- Key :
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 @ = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

- NATA accreditation is not held for results reported in $\mu\text{g}/\text{m}^3$. Air volume data was provided by the client.
- Analytical work for this work order will be conducted at ALS Sydney.
- The variation in LOR for $\mu\text{g}/\text{m}^3$ results is due to the variation in sample volumes.

Analytical Results

Sub-Matrix: FILTER (Matrix: AIR)				Client sample ID				
				47-163D9094360	47-163D9094361	47-163D9094362	47-163D9094363	47-163D9094364
				47-163D9094360	47-163D9094361	47-163D9094362	47-163D9094363	47-163D9094364
				06-May-2020 00:00	13-May-2020 00:00	19-May-2020 00:00	25-May-2020 00:00	31-May-2020 00:00
Compound	CAS Number	LOR	Unit	Client sampling date / time				
				EW2002595-001	EW2002595-002	EW2002595-003	EW2002595-004	EW2002595-005
				Result	Result	Result	Result	Result
EA143: Particulates in Air - LVAFs								
PM10	---	14	$\mu\text{g}/\text{m}^3$	<24	24	<24	<24	<25
PM10 (mass per filter)	---	100	$\mu\text{g}/\text{filter}$	<100	100	<100	<100	<100
EA143: Total Suspended Particulates								
Initial Weight	---	0.0001	mg	161.6229	163.0785	163.8986	163.1648	164.2377
Final Weight	---	0.0001	mg	161.7097	163.1785	163.9362	163.2043	164.2431
Low Volume Air-Sampling Parameters								
@ Volume	---	1	L	4090	4100	4090	4100	4060



CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 277 Wondpark Rd. Smithfield NSW 2176
Ph: 02 9784 8555 E: samples_sydney@alsenviro.com

☐ Brisbane: 32 Shavel St. Stafford QLD 4053
Ph: 07 3243 7222 E: samples_brisbane@alsenviro.com

☐ Melbourne: 2-4 Westall Rd. Springvale VIC 3171
Ph: 03 8545 9600 E: samples_melbourne@alsenviro.com

☐ Perth: 10 Hed Way, Malaga WA 6090
Ph: 08 9209 7655 E: samples_perth@alsenviro.com

☐ Newcastle: 5 Rosgum Rd. Warabrook NSW 2304
Ph: 02 4568 9433 E: samples_newcastle@alsenviro.com

☐ Townsville: 14-15 Desma Ct. Bohle QLD 4818
Ph: 07 4796 0000 E: townsville_environmental@alsenviro.com

☐ Adelaide: 2-1 Burma Rd. Pooraka SA 5095
Ph: 08 8359 0950 E: Adelaide@alsenviro.com

☐ Launceston: 27 Wellington St. Launceston TAS 7250
Ph: 03 6331 2158 E: launceston@alsenviro.com

CLIENT: Hanson Construction Materials		TURNAROUND REQUIREMENTS : <input type="checkbox"/> Standard TAT (List due date):		FOR LABORATORY USE ONLY (Circle) <input type="checkbox"/> Empty Seal intact? Yes No NA <input type="checkbox"/> Free ice / frozen ice blocks present upon receipt? Yes No NA <input type="checkbox"/> Random Sample Temperature on Receipt: °C Other comment:								
OFFICE: Boolwarroo Pde Shellharbour NSW 2529		<input type="checkbox"/> Non Standard or urgent TAT (List due date): (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)										
PROJECT: Bass Point Dust Monitoring		ALS QUOTE NO.: WL/043/11		COC SEQUENCE NUMBER (Circle)								
ORDER NUMBER:		CONTACT PH: 02 4295 1352		COC: <table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>		1	2	3	4	5	6	7
1	2	3	4	5	6	7						
PROJECT MANAGER: Steve Butcher		SAMPLER MOBILE:		OF: <table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>		1	2	3	4	5	6	7
1	2	3	4	5	6	7						
SAMPLER:		RELINQUISHED BY: Robert		RECEIVED BY: Aneta								
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default):		DATE/TIME: 15.5.20 13:20								
Email Reports to : steve.butcher@hanson.com.au		DATE/TIME: 15.5.20		DATE/TIME: 15.5.20								
Email Invoice to : steve.butcher@hanson.com.au		DATE/TIME: 15.5.20		DATE/TIME: 15.5.20								

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:				CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price)							Additional Information
ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)					Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)							Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	A04-3 (Total Insoluble Solids, Ash, Combustibles)							
	DDG 1	15.5.20 10:40	AIR	AG	1	✓							
	DDG 2	↓ 9:20	AIR	AG	1	✓							
	DDG 3	↓ 10:02	AIR	AG	1	✓							
					TOTAL	3							

Environmental Division
Wollongong
Work Order Reference
EW2002348



Telephone: 02 42243125

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solts; B = Unpreserved Bag

CERTIFICATE OF ANALYSIS

Work Order	: EW2002348	Page	: 1 of 2
Client	: HANSON CONSTRUCTION MATERIALS PTY LTD	Laboratory	: Environmental Division NSW South Coast
Contact	: MR STEVE BUTCHER	Contact	: Glenn Davies
Address	: BOOLLWARROO PDE SHELLHARBOUR NSW, AUSTRALIA 2529	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 4/13 Geary Pl, North Nowra 2541 Australia NSW Australia
Telephone	: +61 02 4295 1355	Telephone	: 02 42253125
Project	: Bass Point Dust Monitoring	Date Samples Received	: 15-May-2020 14:58
Order number	: ----	Date Analysis Commenced	: 19-May-2020
C-O-C number	: ----	Issue Date	: 26-May-2020 12:02
Sampler	: Robert DaLio		
Site	: ----		
Quote number	: WL/043/11 Bass Point Dust Monitoring		
No. of samples received	: 3		
No. of samples analysed	: 3		



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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 - LOR = Limit of reporting
 - ^ = This result is computed from individual analyte detections at or above the level of reporting
 - ⊖ = ALS is not NATA accredited for these tests.
 - ~ = Indicates an estimated value.

- Analytical work for this work order will be conducted at ALS Newcastle.
- Analysis as per AS3580.10.1-2016. Samples passed through a 1mm sieve prior to analysis. NATA accreditation is not held for results reported in g/m².mh.
- Sampling completed as per FWI-EN010 Sampling of Dust Deposition Gauges.

Analytical Results

Sub-Matrix: DEPOSITIONAL DUST (Matrix: AIR)				Client sample ID		DDG 1 14/04/2020 - 15/05/2020	DDG 2 14/04/2020 - 15/05/2020	DDG 3 14/04/2020 - 15/05/2020	---	---
Client sampling date / time				15-May-2020 10:40	15-May-2020 09:20	15-May-2020 10:00	---	---	---	---
Compound	CAS Number	LOR	Unit	EW2002348-001	EW2002348-002	EW2002348-003	---	---	---	---
				Result	Result	Result	---	---	---	---
EA120: Ash Content										
Ash Content	---	0.1	g/m ² .month	1.2	1.5	3.8	---	---	---	---
Ash Content (mg)	---	1	mg	21	28	75	---	---	---	---
EA125: Combustible Matter										
Combustible Matter	---	0.1	g/m ² .month	0.7	0.4	0.1	---	---	---	---
Combustible Matter (mg)	---	1	mg	13	6	2	---	---	---	---
EA141: Total Insoluble Matter										
Total Insoluble Matter	---	0.1	g/m ² .month	1.9	1.9	3.9	---	---	---	---
Total Insoluble Matter (mg)	---	1	mg	34	34	77	---	---	---	---