

Monthly Air Quality Monitoring – February 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: 06.05.2020

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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

<i>Pollutant</i>	<i>Averaging period</i>	<i>^d Criterion</i>
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

<i>Pollutant</i>	<i>Averaging period</i>	<i>^d Criterion</i>
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

<i>Pollutant</i>	<i>Averaging period</i>	<i>Maximum increase in deposited dust level</i>	<i>Maximum total deposited dust level</i>
^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 (LVAS)	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 (LVA5) 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). PM₁₀₋₂ was relocated offsite to undertake a detailed investigation, however, the unit malfunctioned and was sent for repairs. Therefore, no data is available for the month of February 2020.

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

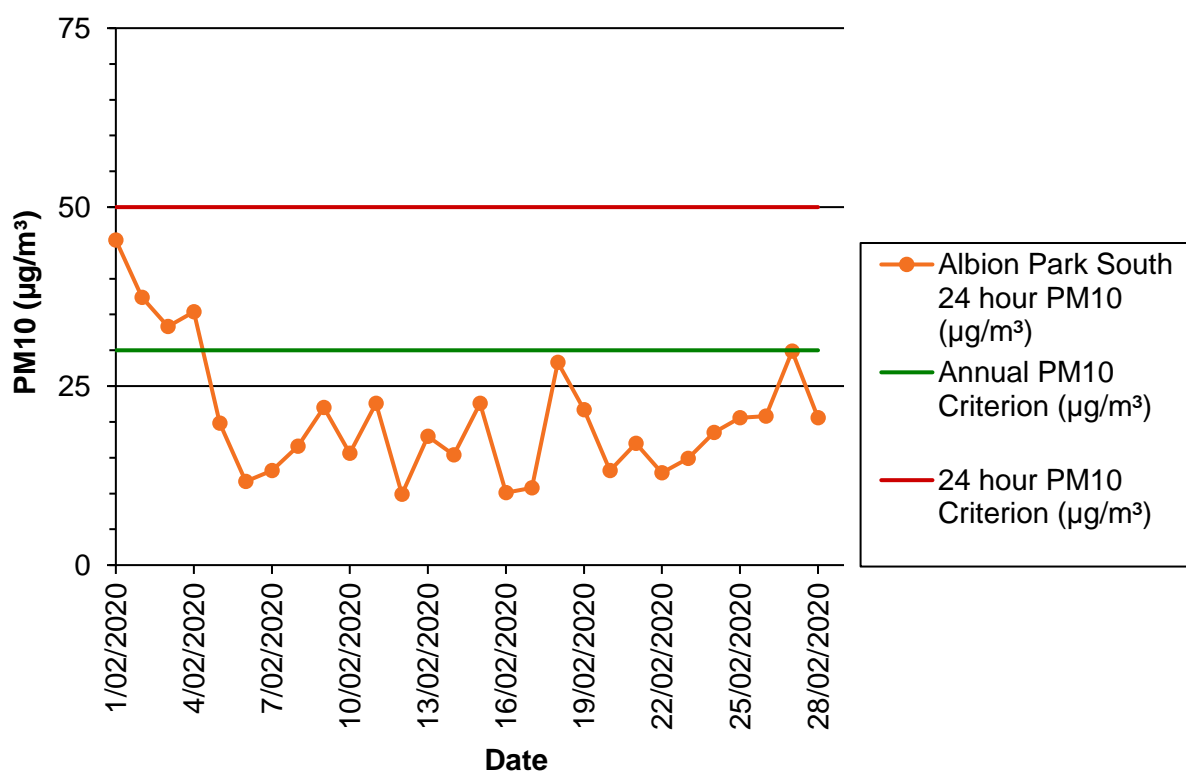


Figure 2: Twenty-four hour PM₁₀ concentration (µg/m³) as measured at Albion Park South AQMS during February 2020, compared to the annual criterion and 24 hour criterion (µg/m³).

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 February 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 February 2020, was 72.7 µg/m³. This is above the annual PM₁₀ criterion of 30 µg/m³. As such, Hanson will be undertaking a more detailed

investigation into the PM₁₀ levels experienced at a relevant nearby residence or receiver, as is required under the site AQMP. This investigation is pending the repair and return of the PM10-2 unit.

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 February 2020, was 21.1 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 3, 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.

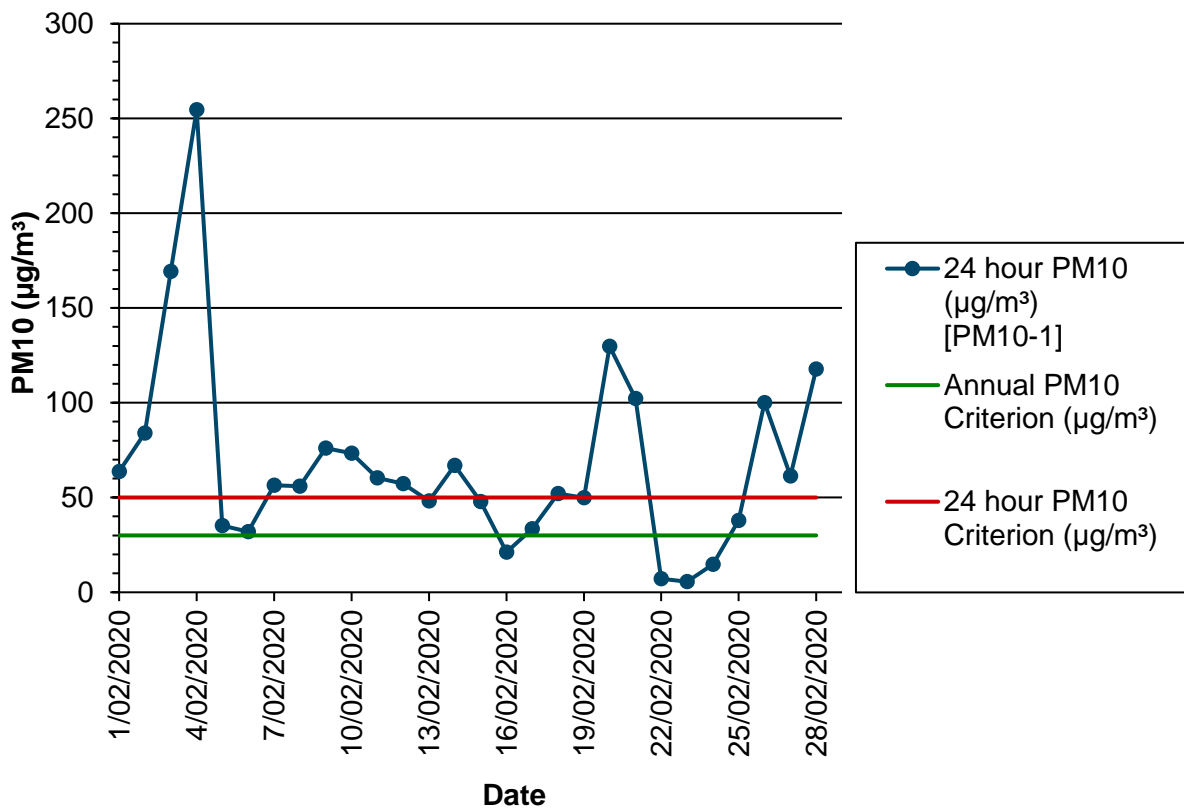


Figure 3: Twenty-four hour PM₁₀ concentration (µg/m³) as measured at PM10-1 during February 2020, compared to the annual PM₁₀ criterion and 24 hour PM₁₀ criterion (µg/m³).

Table 2: Monitoring results for Particulate Matter – PM₁₀ monitoring during February 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
1/02/2020	64		45	50	4.9	N	25.2	87	754	
2/02/2020	84		37	50	3.4	SSE	23.4	87	753	
3/02/2020	169		33	50	3.1	SSE	23.2	71	753	
4/02/2020	255		35	50	3.8	S	19.9	51	763	Trial for relocation of PM10-2. Sample not analysed.
5/02/2020	35		20	50	3.8	NNE	22.2	67	763	
6/02/2020	32		12	50	2.0	NE	21.8	82	764	
7/02/2020	57		13	50	2.7	E	20.9	88	764	
8/02/2020	56		17	50	3.4	E	21.5	88	762	
9/02/2020	76		22	50	5.4	E	20.1	96	759	
10/02/2020	73		16	50	3.3	N	22.4	95	754	PM10-2 malfunction.
11/02/2020	60		23	50	2.4	N	23.0	90	754	
12/02/2020	57		10	50	1.8	SSE	22.6	97	755	
13/02/2020	48		18	50	1.7	ENE	23.3	92	757	
14/02/2020	67		15	50	1.5	ESE	23.7	76	754	
15/02/2020	48		23	50	1.4	SW	22.1	80	753	
16/02/2020	21		10	50	2.6	SSE	21.6	85	758	
17/02/2020	34		11	50	1.5	S	20.9	95	758	
18/02/2020	52		28	50	3.0	N	23.4	88	753	
19/02/2020	50		22	50	3.3	W	23.4	51	750	
20/02/2020	130		13	50	2.1	E	20.7	63	756	
21/02/2020	102		17	50	0.8	N	22.2	69	761	
22/02/2020	7		13	50			25.0	59	766	
23/02/2020	6		15	50			25.5	59	766	
24/02/2020	15		19	50	3.0	N	24.3	71	763	
25/02/2020	38		21	50	4.0	N	22.9	83	758	
26/02/2020	100		21	50	3.7	NNW	25.3	66	752	
27/02/2020	61		30	50	3.0	NNE	21.1	71	755	
28/02/2020	118		21	50	2.3	E	21.1	63	757	
29/02/2020	40		20	50	3.0	NNE	21.8	71	760	

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 February 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 February 2020 (**Table 3**). The rolling annual average TSP is therefore 58.2 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 February 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
21.1 µg/m ³	36.2%	58.2 µg/m ³	90 µg/m ³

3.3. Dust Deposition Gauges

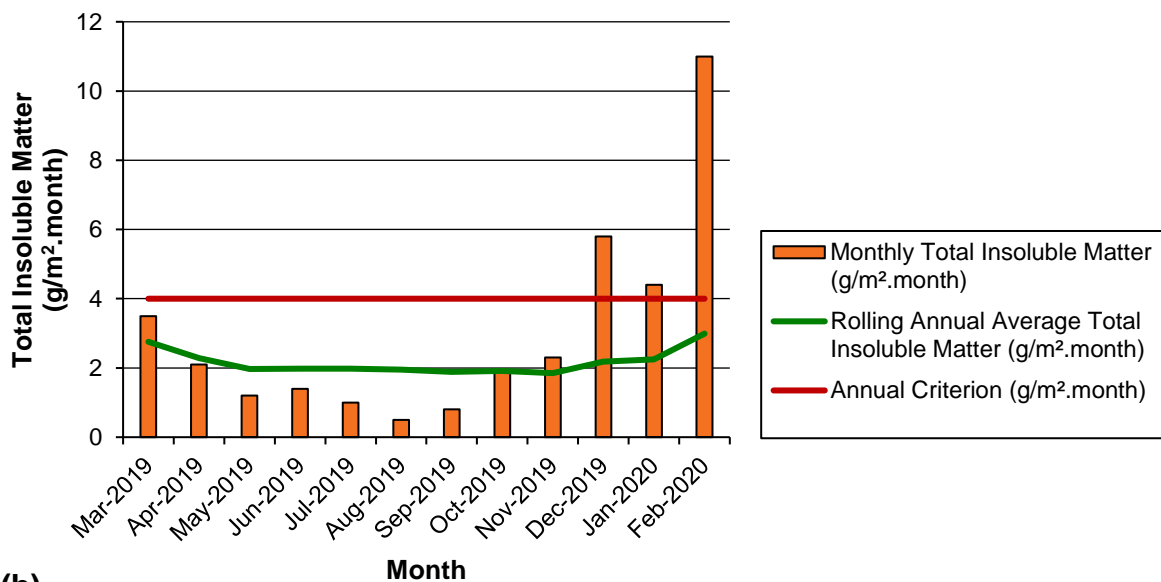
Monthly analyses of deposited dust samples collected at DDG-1 and DDG-2 are completed by NATA-accredited laboratory ALS Environmental. Monitoring results for the month of February 2020 indicate that dust deposition at DDG-1 and DDG-2 was greater than the annual criterion of 4 g/m².month identified in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

Wind direction analysis suggests that sources external to the site may be at least partially attributable to these elevated results. North winds had the highest relative prevalence in February 2020, followed by east winds. The location of DDG-1 at the western site boundary means that north winds may expose the dust gauge to dust sources not associated with the site. The location of DDG-2 at the north-western site boundary means that the dust gauge may have been predominantly exposed to dust sources not associated with the site. In addition, DDG-2 is located in close proximity to earthworks and the associated haulage route for the Shell Cove Boat Harbour Redevelopment project, which may have impacted the results.

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 14/01/2020 to 12/02/2020 (i.e. February 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	11.0	3.0	Results likely affected by external sources
DDG-2	12.0	10.0	Results likely affected by Boat Harbour construction and external sources

4(a)



4(b)

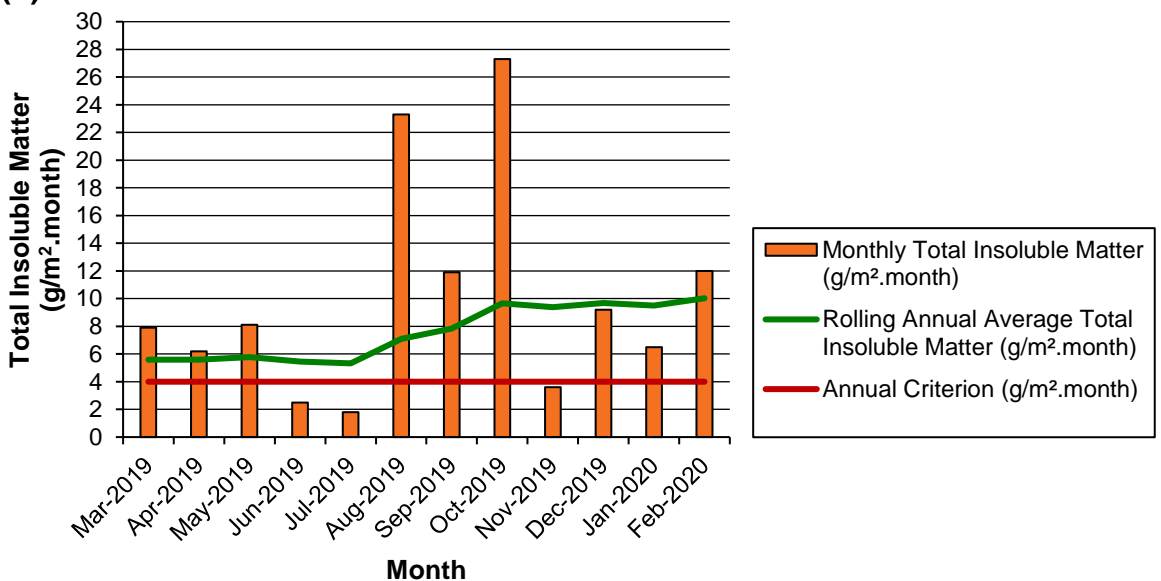


Figure 4: Total Insoluble Matter, rolling annual average, and annual criterion ($\text{g/m}^2\cdot\text{month}$) for the Bass Point Quarry as measured at (a) DDG-1, and; (b) DDG-2; during the 12-month period to February 2020.

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*

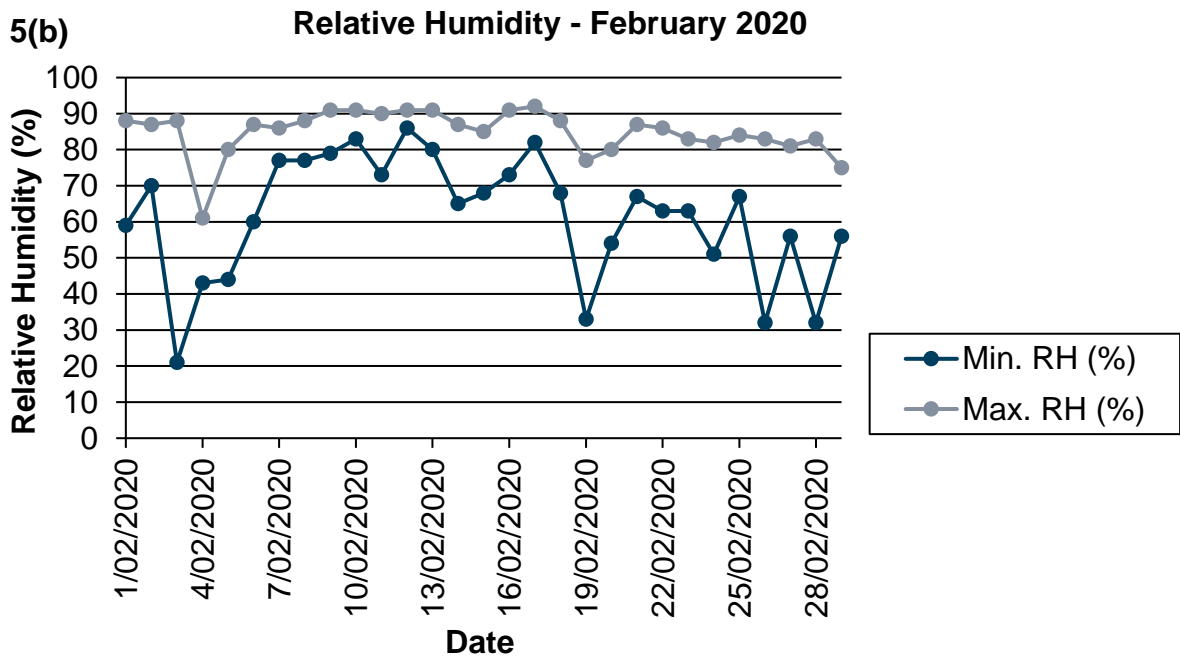
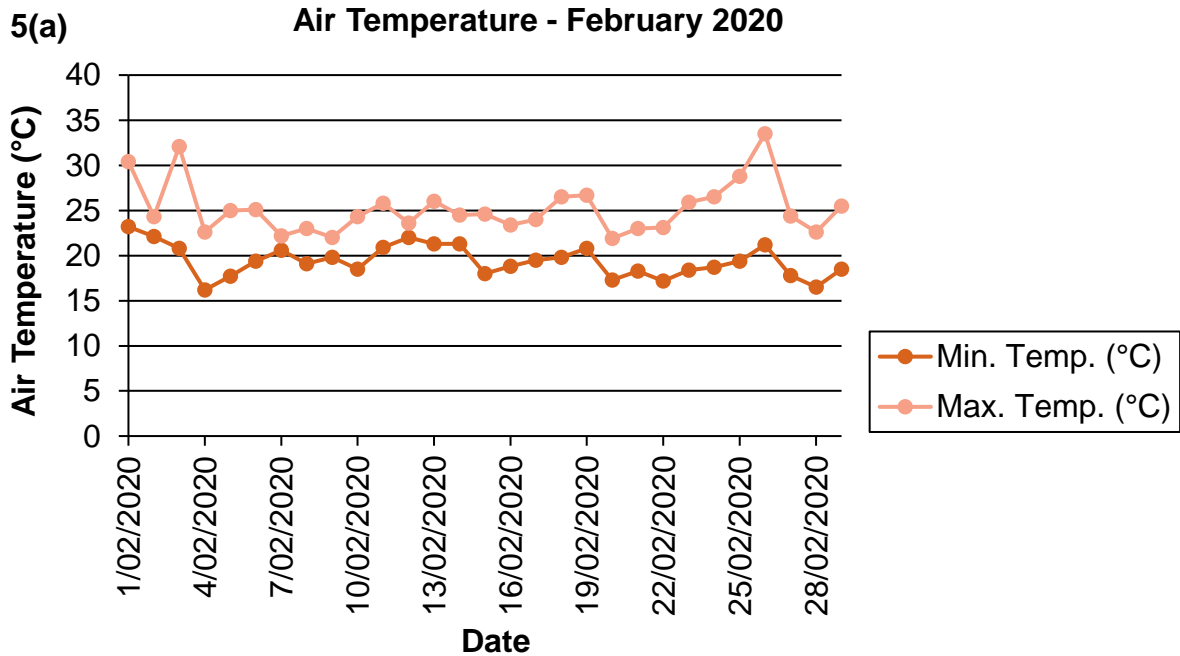
Table 5: Summary of representative meteorological data sourced from the BOM Kiama (Bombo Headland) AWS.

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)
1/02/2020	23.2	30.4	6.5	0.0	59	88	N	39	16:17	4.91	29.44
2/02/2020	22.1	24.3	4.4	0.0	70	87	S	65	1:15	6.67	20.67
3/02/2020	20.8	32.1	8.7	1.4	21	88	SSE	70	16:28	7.03	26.06
4/02/2020	16.2	22.6	6.5	0.0	43	61	S	63	23:07	6.74	28.41
5/02/2020	17.7	25.0	5.8	0.0	44	80	NNE	39	12:16	4.55	26.78
6/02/2020	19.4	25.1	2.9	2.4	60	87	NNE	43	22:17	3.00	9.72
7/02/2020	20.6	22.2	1.7	2.6	77	86	ENE	44	16:02	4.89	0.98
8/02/2020	19.1	23.0	2.4	22.0	77	88	ESE	56	17:33	7.41	6.39
9/02/2020	19.8	22.0	1.9	18.0	79	91	ESE	74	14:47	11.23	0.27
10/02/2020	18.5	24.3	3.3	110.0	83	91	ENE	74	3:47	5.05	18.01
11/02/2020	20.9	25.8	4.5	1.4	73	90	N	33	20:37	2.32	23.91
12/02/2020	22.0	23.6	2.0	0.4	86	91	SSE	30	21:19	3.01	8.18
13/02/2020	21.3	26.0	3.5	18.2	80	91	NE	24	9:32	1.88	17.75
14/02/2020	21.3	24.5	5.0	0.0	65	87	SE	22	14:42	3.25	27.13
15/02/2020	18.0	24.6	3.1	0.0	68	85	S	28	17:52	2.45	13.92
16/02/2020	18.8	23.4	3.5	3.4	73	91	SSE	43	15:54	5.29	17.09
17/02/2020	19.5	24.0	2.1	20.8	82	92	S	26	23:06	2.18	9.42
18/02/2020	19.8	26.5	4.2	0.2	68	88	SE	39	20:19	3.09	20.91
19/02/2020	20.8	26.7	6.4	4.4	33	77	SW	50	15:00	5.04	24.43
20/02/2020	17.3	21.9	4.9	0.2	54	80	SSE	39	12:17	4.73	25.29
21/02/2020	18.3	23.0	3.2	0.0	67	87	ESE	31	16:40	3.52	13.85
22/02/2020	17.2	23.1	3.8	3.6	63	86	S	30	23:52	3.65	18.99
23/02/2020	18.4	25.9	3.9	1.0	63	83	N	37	20:39	3.36	16.94
24/02/2020	18.7	26.5	5.4	0.2	51	82	NNE	37	13:20	4.01	25.82
25/02/2020	19.4	28.8	5.1	0.0	67	84	N	46	18:39	3.96	25.35
26/02/2020	21.2	33.5	7.3	0.0	32	83	S	89	16:59	6.73	16.59
27/02/2020	17.8	24.4	4.7	3.2	56	81	N	39	19:32	3.76	23.02
28/02/2020	16.5	22.6	5.4	0.0	32	83	S	44	5:23	4.85	24.01
29/02/2020	18.5	25.5	4.7	0.0	56	75	N	35	16:23	3.15	22.43

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	19.5	25.2	4.4	7.6	62	85	-	45	-	4.59	18.55
Lowest	16.2	21.9	1.7	0.0	21	61	SE	22	14:42	1.88	0.27
Highest	23.2	33.5	8.7	110.0	86	92	S	89	16:59	11.23	29.44
Total	-	-	122.1	213.4	-	-	-	-	-	-	-

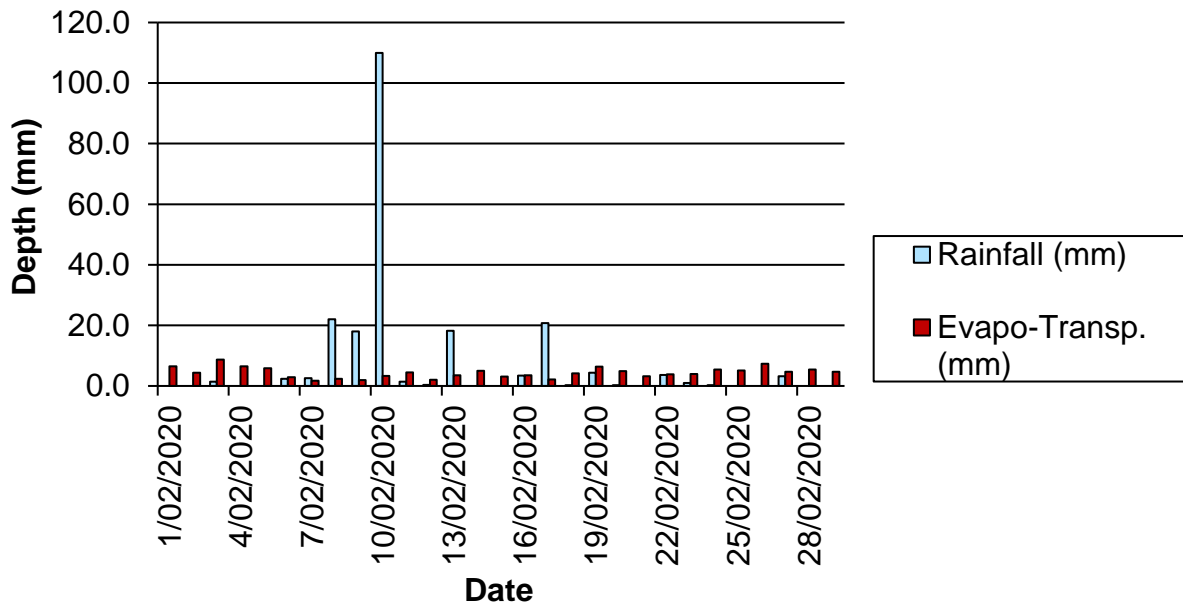
4.2. Monthly Weather Charts

Figure 5: 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.



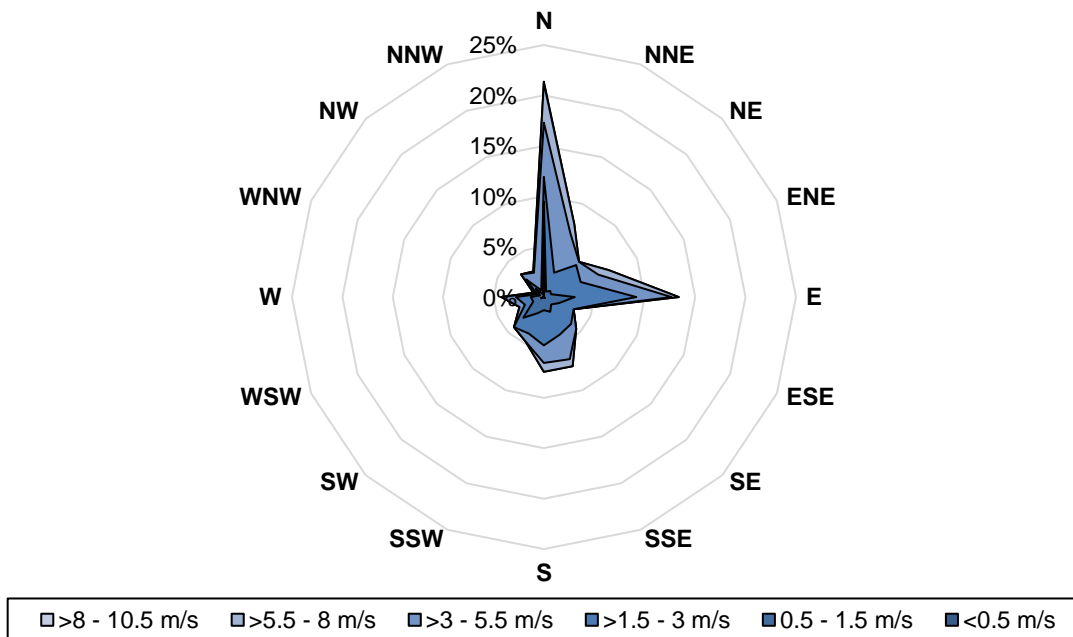
5(c)

Rainfall and Evapo-Transpiration - February 2020



5(d)

Wind speed and direction - February 2020



Appendix 1
Chain of Custody & Laboratory Certificates



CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 277 Woodpark Rd, Smithfield NSW 2176
Ph: 02 8784 8555 E: samples.sydney@alsenviro.com
☐ Newcastle: 5 Rosegum Rd, Warabrook NSW 2304
Ph: 02 4968 9433 E: samples.newcastle@alsenviro.com

☐ Brisbane: 32 Shand St, Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com
☐ Townsville: 14-15 Desma Ct, Bohle QLD 4818
Ph: 07 4766 0800 E: townsville.environmental@alsenviro.com

☐ Melbourne: 2-4 Wetaill Rd, Springvale VIC 3171
Ph: 03 9549 9600 E: samples.melbourne@alsenviro.com
☐ Adelaide: 2-1 Burma Rd, Pooraka SA 5005
Ph: 08 8359 0860 E: adelaide@alsenviro.com


☐ Perth: 10 Had Way, Malaga WA 6009
Ph: 08 9209 7856 E: samples.perth@alsenviro.com
☐ Launceston: 27 Wellington St, Launceston TAS 7250
Ph: 03 6331 2158 E: launceston@alsenviro.com

CLIENT: Hanson Construction Materials	TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Boolwarroo Pde Shellharbour NSW 2529	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Insert: Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
PROJECT: Bass Point Dust Monitoring	ALS QUOTE NO.: WL/043/11	Free ice / frozen ice bricks present upon receipt? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
ORDER NUMBER:		Random Sample Temperature on Receipt: °C	
PROJECT MANAGER: Steve Butcher	CONTACT PH: 02 4295 1352	Other comment:	
SAMPLER:	SAMPLER MOBILE:	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	<i>Robert</i>	<i>[Signature]</i>
Email Reports to : steve.butcher@hanson.com.au		DATE/TIME:	DATE/TIME:
Email Invoice to : steve.butcher@hanson.com.au		12.2.20 15:30	12/2/20 15:30

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) <small>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).</small>							Additional Information	
	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <small>(refer to codes below)</small>	TOTAL BOTTLES	A04-3 (Total Insoluble Solids, Ash, Combustibles)							
	DDG 1		12.2.20	AIR	AG	1	✓							
	DDG 2		↓	AIR	AG	1	✓							
	DDG 3			AIR	AG	1	✓							
TOTAL						3								

Environmental Division
Wollongong
Work Order Reference
EW2000714



Telephone : 02 42263125

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 Solids; B = Unpreserved Bag.



CERTIFICATE OF ANALYSIS

Work Order : **EW2000714**
Client : **HANSON CONSTRUCTION MATERIALS PTY LTD**
Contact : **MR STEVE BUTCHER**
Address : **BOOLLWARROO PDE**
SHELLHARBOUR NSW, AUSTRALIA 2529

Telephone : **+61 02 4295 1355**
Project : **Bass Point Dust Monitoring**
Order number :
C-O-C number : **---**
Sampler : **Robert DaLio**
Site : **---**
Quote number : **WL/043/11 Bass Point Dust Monitoring**
No. of samples received : **3**
No. of samples analysed : **3**

Page : **1 of 2**
Laboratory : **Environmental Division NSW South Coast**
Contact : **Glenn Davies**
Address : **1/19 Ralph Black Dr, North Wollongong 2500**
4/13 Geary Pl, North Nowra 2541
Australia NSW Australia

Telephone : **02 42253125**
Date Samples Received : **12-Feb-2020 15:12**
Date Analysis Commenced : **14-Feb-2020**
Issue Date : **20-Feb-2020 10:35**



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>
Jennifer Targett	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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
 ø = 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 AS3580.10.1-2010. Samples passed through a 1mm sieve prior to analysis. NATA accreditation is not held for results reported in g/m².mth.
- Sampling completed as per FWI-EN010 Sampling of Dust Depositon Gauges.

Analytical Results

Sub-Matrix: DEPOSITIONAL DUST
 (Matrix: AIR)

Client sample ID

				DDG 1 14/01/2020 - 12/02/2020	DDG 2 14/01/2020 - 12/02/2020	DDG 3 14/01/2020 - 12/02/2020	----	----
Client sampling date / time				12-Feb-2020 11:55	12-Feb-2020 10:15	12-Feb-2020 11:13	----	----
Compound	CAS Number	LOR	Unit	EW2000714-001	EW2000714-002	EW2000714-003	-----	-----
				Result	Result	Result	---	---
EA120: Ash Content								
Ash Content	----	0.1	g/m ² .month	9.8	10.8	9.3	---	---
Ash Content (mg)	----	1	mg	167	184	171	---	---
EA125: Combustible Matter								
Combustible Matter	----	0.1	g/m ² .month	1.2	1.2	1.2	---	---
Combustible Matter (mg)	----	1	mg	21	21	23	---	---
EA141: Total Insoluble Matter								
Total Insoluble Matter	----	0.1	g/m ² .month	11.0	12.0	10.5	---	---
Total Insoluble Matter (mg)	----	1	mg	188	205	194	---	---