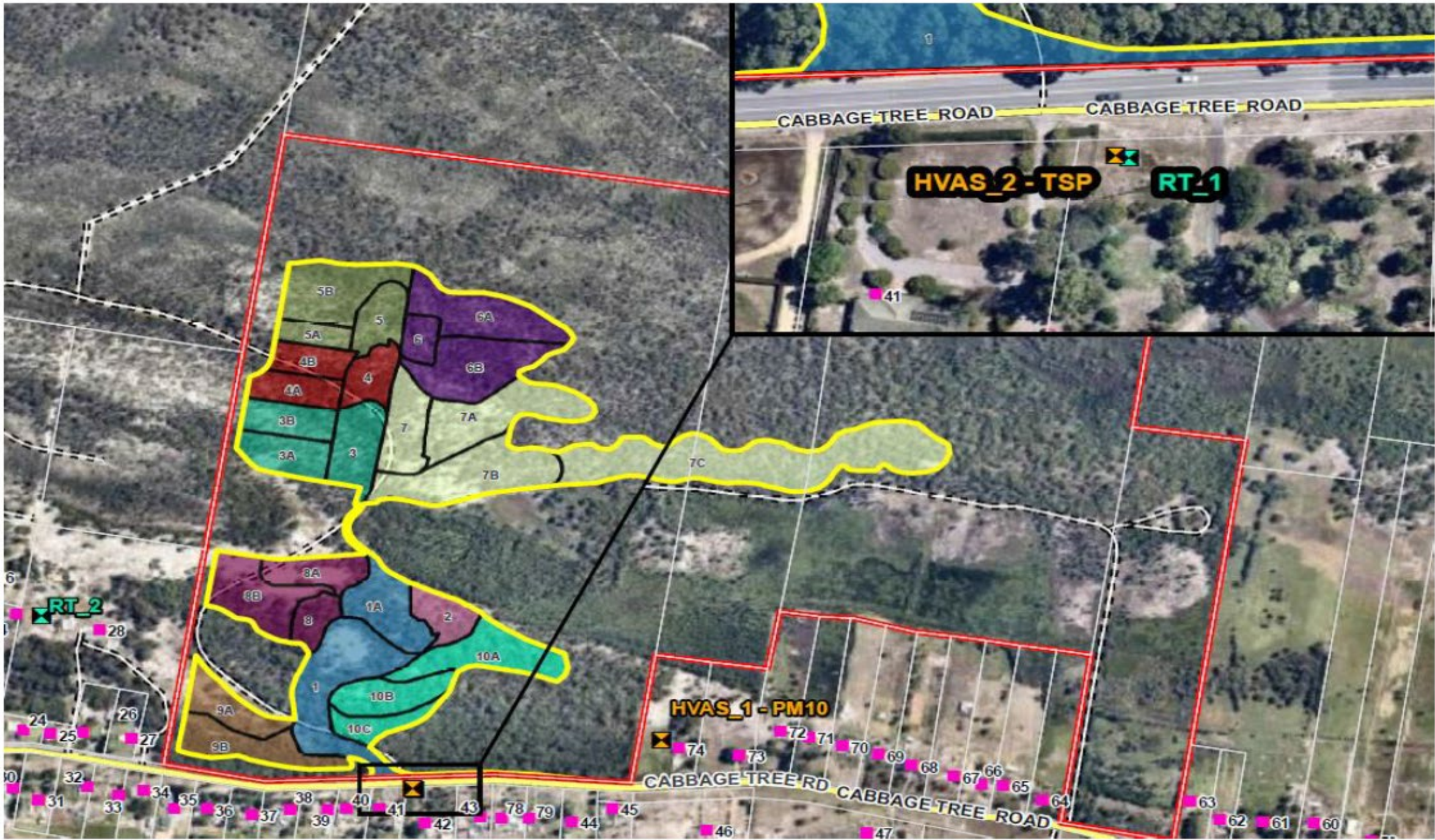


Newcastle Sand

Cabbage Tree Road Sand Quarry
282B (398) Cabbage Tree Road, Williamstown NSW
Air Quality Monitoring Network Results

Sample Locations



Air Quality Impact Assessment Criteria

7. The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 3 at any residence on privately-owned land.

Table 3: Air quality criteria

Pollutant	Averaging Period	Criterion
Particulate matter < 10 µm (PM ₁₀)	Annual	a, c 25 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	24 hour	b 50 µg/m ³
Total suspended particulates (TSP)	Annual	a, c 90 µg/m ³

Notes to Table 4:

a Cumulative impact (ie increase in concentrations due to the development plus background concentrations due to all other sources).

b Incremental impact (ie increase in concentrations due to the development alone, with zero allowable exceedances of the criteria over the life of the development).

c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.

d "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements in conditions 8 and 9 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.

Beta Attenuation Monitoring (BAM) Real-Time Monitoring - updated at end of month

Month	RT1 (sth of CBT Rd)				RT2 (nth of CBT Rd)				Comments
	Minimum	Average	Median	Maximum	Minimum	Average	Median	Maximum	
Jul-19	2.03	14.22	13.68	41.73	0.20	13.08	13.23	33.74	
Aug-19	-996.95	17.99	14.29	986.46	0.20	16.57	13.02	313.63	- Construction commenced 26 August - Machine error at RT1 - insects - Machine error at RT2 - air conditioner not working
Sep-19	6.27	23.92	16.47	194.14	3.23	20.29	14.24	84.62	-Regional dust storm event on weekend
Oct-19	0.23	21.72	16.16	182.65	0.32	25.45	17.92	146.94	- BAM service visit and calibration 2/10/19
Nov-19	2.27	39.32	25.84	377.49	0.32	42.31	28.86	285.84	- Regional bushfire smoke impacts air quality - BAM units cleaned 21/11/19 - Machine error on RT2, average corrected with RT1 data
Dec-19	2.58	33.93	27.24	141.87	0.29	35.26	27.40	297.89	- Regional bushfire smoke impacts on air quality - Machine erro on RT2, average corrected with RT1 data, service technician booked
Jan-20	0.00	107.82	36.92	442.82	2.94	33.60	28.56	132.98	- Machine error on RT1, average corrected with RT2 data. Service technician booked. - Power lost to both units during storm 28/01/2020
Feb-20	0.26	15.37	13.14	97.30	0.26	13.89	12.86	102.77	- Machine error on RT1, average corrected with RT2 data. Service technician booked.
Mar-20	0.23	19.21	13.00	137.93	0.87	16.08	13.10	187.47	- Machine error on RT1, average corrected with RT2 data. - RT1 serviced on 4/3/2020
Apr-20	0.23	14.72	12.71	62.59	0.60	18.97	16.02	109.19	
May-20	-3.59	11.95	7.86	193.85	0.23	11.88	10.52	143.45	- Machine error on RT1, average corrected with RT2 data. - Calibration on BAM and HVAS units
Jun-20	-3.62	1.97	1.14	35.09	0.29	10.94	10.24	37.29	- Machine error on RT1, average corrected with RT2 data.
Jul-20	-3.62	0.84	1.72	68.88	-3.62	3.38	2.14	68.88	- Machine error on RT1, average corrected with RT2 data. - TES technician inspected site during July
Aug-20	-3.62	2.77	1.72	50.29	0.95	13.46	10.90	109.91	- Site experienced seasonal increase in windy weather
Sep-20	0.65	13.76	11.49	97.83	-109.30	9.54	9.02	113.36	- Machine error on RT2, average corrected with RT1 data. - Error occurred after thunderstorm within local area
Oct-20	0.37	11.74	10.61	37.75	-0.62	11.33	10.29	36.70	- Machine (Online logging) error continued on RT2 - Results for RT2 provided directly from the machine by Thompson
Nov-20	0.37	17.69	15.28	77.99	-2.49	16.52	14.37	56.29	- Machine (Online logging) error continued on RT2 - Results for RT2 provided directly from the machine by Thompson
Dec-20	0.37	14.37	12.63	43.96	0.63	15.53	14.13	49.16	- Machine (Online logging) error fixed on RT2, Results for RT2 provided directly from the machine by Thompson up to 18/12/2020 - Machine error at RT2 displaying inaccurate results, machine to be serviced early 2021
Jan-21	0.96	12.16	10.61	37.45	3.02	23.49	24.01	27.60	- Machine error at RT2 displaying inaccurate results, machine to be serviced February 2021
Feb-21	0.37	13.92	13.51	45.75	0.15	11.72	7.97	25.90	- Machine error at RT2 displaying inaccurate results, until calibration on 09.02.2021 - Both Machines serviced and calibrated by Thompson 9-10 February
Mar-21	3.31	13.25	12.07	41.09	0.14	5.69	5.26	16.47	
Apr-21	0.40	12.37	12.07	52.19	0.60	5.83	5.54	14.27	
May-21	0.36	11.40	10.59	51.86	0.60	4.97	4.81	11.63	
Jun-21	0.39	9.55	8.31	58.51	0.15	3.67	3.21	38.19	
Jul-21									

HVAS 1 (PM10) paddock		
Sample Date	Concentration (µg/m ³)	Comment
01-Jun-20	15.2	
07-Jun-20	4.1	
13-Jun-20	14.9	
19-Jun-20	4.9	
25-Jun-20	14.9	
1-Jul-20	7.0	
07-Jul-20	11.4	
13-Jul-20	6.4	
19-Jul-20	6.3	
25-Jul-20	4.9	
31-Jul-20	10.5	
6-Aug-20	10.6	
12-Aug-20	7.0	
18-Aug-20	5.6	
24-Aug-20	13.7	
30-Aug-20	51.6	
05-Sep-20	12.3	
11-Sep-20	8.3	
17-Sep-20	21.0	
23-Sep-20	30.3	
29-Sep-20	12.0	
05-Oct-20	19.9	
11-Oct-20	22.4	
17-Oct-20	19.2	
23-Oct-20	9.8	
29-Oct-20	6.8	
04-Nov-20	11.7	
10-Nov-20	8.6	
16-Nov-20	19.6	
22-Nov-20	21.9	
28-Nov-20	26.3	
04-Dec-20	21.7	
10-Dec-20	26.1	
16-Dec-20	6.8	
22-Dec-20	23.0	- Machine calibrated
28-Dec-20	26.7	- Machine didn't take complete sample
03-Jan-21	13.6	- Machine didn't take complete sample
09-Jan-21	<0.1, no result result recorded	- Machine didn't take complete sample - no result
15-Jan-21	<0.1, no result result recorded	- Machine didn't take complete sample - no result
21-Jan-21	8.9	- Machine didn't take complete sample, machine to be serviced early February
27-Jan-21	<0.1, no result result recorded	- Machine didn't take complete sample, machine to be serviced early February
02-Feb-21	<0.1, no result result recorded	- Machine didn't take complete sample, machine to be serviced February 10
08-Feb-21	29.3	
14-Feb-21	18.8	- Machine serviced and calibrated February 10
20-Feb-21	13.6	
26-Feb-21	22.1	
4-Mar-21	N/A	Machine not accesible due to weather
10-Mar-21	N/A	Machine not accesible due to weather
16-Mar-21	23.2	
22-Mar-21	N/A	Machine error - sample could not be collected
28-Mar-21	16.8	
03-Apr-21	10.1	
9-Apr-21	20.3	
15-Apr-21	32.0	
21-Apr-21	17.2	
27-Apr-21	8.8	
03-May-21	7.3	
09-May-21	12.5	
15-May-21	10.0	
21-May-21	11.2	
27-May-21	9.1	
2-Jun-21	4.7	
08-Jun-21	2.8	
14-Jun-21	8.0	
20-Jun-21	4.8	
26-Jun-21	4.5	

HVAS 2 (TSP) sampson		
Sample Date	Concentration (µg/m ³)	Comment
01-Jun-20	27.3	
07-Jun-20	11.4	
13-Jun-20	27.8	
19-Jun-20	28.6	
25-Jun-20	39.4	
1-Jul-20	35.0	
07-Jul-20	30.4	
13-Jul-20	16.1	
19-Jul-20	20.7	
25-Jul-20	13.6	
31-Jul-20	23.2	
6-Aug-20	28.5	
12-Aug-20	22.2	
18-Aug-20	23.7	
24-Aug-20	50.5	
30-Aug-20	23.2	
05-Sep-20	28.6	
11-Sep-20	25.3	
17-Sep-20	74.8	
23-Sep-20	102.0	
29-Sep-20	34.6	
05-Oct-20	40.2	
11-Oct-20	34.1	
17-Oct-20	42.8	
23-Oct-20	29.2	
29-Oct-20	16.4	
04-Nov-20	39.6	
10-Nov-20	29.8	
16-Nov-20	69.7	
22-Nov-20	57.2	
28-Nov-20	63.7	
04-Dec-20	51.2	
10-Dec-20	65.4	- Machine calibrated
16-Dec-20	20.9	
22-Dec-20	32.5	
28-Dec-20	59.6	
03-Jan-21	15.6	
09-Jan-21	16.1	
15-Jan-21	69.0	
21-Jan-21	46.7	
27-Jan-21	38.4	
02-Feb-21	43.8	
08-Feb-21		
14-Feb-21	32.0	- Machine serviced and calibrated February 10
20-Feb-21	18.5	
26-Feb-21	41.5	
4-Mar-21	N/A	Machine not accesible due to weather
10-Mar-21	N/A	Machine not accesible due to weather
16-Mar-21	18.8	
22-Mar-21	23.0	
28-Mar-21	30.7	
03-Apr-21	15.9	
9-Apr-21	52.9	
15-Apr-21	73.2	
21-Apr-21	34.4	
27-Apr-21	25.6	
03-May-21	21.7	
09-May-21	20.9	
15-May-21	22.6	
21-May-21	21.9	
27-May-21	25.2	
2-Jun-21	39.9	
08-Jun-21	23.0	
14-Jun-21	19.8	
20-Jun-21	8.2	
26-Jun-21	23.7	

Meteological Data

Station ID: 061078
Name: WILLIAMTOWN RAAF
Lat: -32.7 Long: 151.84
Height: 7.5 m

<http://www.bom.gov.au/products/IDN60801/IDN60801.94776.shtml>