

13th February, 2020



Harvest Scientific Services
Environmental and Earth Science Consultants

Mr M Collins
Collins Construction Materials Pty Ltd
214 MacArthur Road
Elderslie NSW 2570

Dear Matt,

Re: Environmental Monitoring – Spring Farm: Report 2020-2

Our Ref: 201019

This is to confirm that groundwater sampling and dust monitoring at Spring Farm (see Appendix 1 for sample locations) has been carried out with the results summarised in Tables 1 and 2 respectively below.

(a) Groundwater Monitoring

TABLE 1: SUMMARY OF GROUNDWATER MONITORING RESULTS.					
ANALYTE	VALUE	TARGET	DATE	TIME	TEMP
EC (uS/cm)	344 (<i>Non-Saline</i>)	< 800 uS/cm	4-2-2020	10.00 am	19°C
pH	5.57 (<i>Moderately alkaline</i>)	4 – 6.50			
Depth to Water Table (m) ¹	11.90	> 10 m			

Notes: 1. This value represents the depth to groundwater from the TOP OF THE STAND PIPE (670 mm above ground level); 2. Refer to **Appendix 2** for laboratory analysis results and monthly summary data 3 Refer to **Appendix 3** for quality control documentation.

The results indicate that groundwater is:

- *Non-saline* and is well below the nominated target of < 800uS/cm;
- *Moderately alkaline* and falls outside the nominated pH range of 4 – 6.50;
- At the limit of the target depth > 10 m.

(b) Dust Monitoring

TABLE 2: SUMMARY OF DUST DEPOSITION MONITORING RESULTS.					
SAMPLING PERIOD	LOCATION	TOTAL INSOLUBLE MATTER ¹ (G/M2/MONTH)	Ash or Mineral Content (g/m2/month)	COMMENT	EMP targets (Ash or Mineral Content)
January 2020	1	6.3	101	Fail	≤ 4g / m2 per month
	2	6.5	99	Fail	
	3	6.0	104	Fail	

Notes: 1.Refer to **Appendix 1** for monitoring locations. 2. Refer to **Appendix 2** for laboratory analysis results and monthly summary data. Refer to **Appendix 3** for quality control documentation.

Values at all monitoring Stations failed to meet the EMP target levels. It is likely that the severe drought conditions, smoke debris from many regional bushfires and associated high wind conditions contributed to the results.

Yours faithfully,

Mart Rampe BSc (Applied Geology)
Principal Consultant

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APPENDIX 1: Collins Spring Farm Monitoring Locations

MS 1: Dust MS 2: Dust MS 3: Dust

GW-1: Groundwater



APPENDIX 2: Laboratory Analytical Results and monthly summary data

GROUNDWATER MONITORING STATION GW-1: COLLINS SITE 2009 - 2015						
Date	Time	Temp. (°C)	EC (uS/cm)	pH	Depth to Water Table (m) from top of stand pipe	Comments
10-03-09	15:30	N/A	528	< 6.2	11.59	pH was measured using a QUIKCHEK pH test strip.
01-04-09	11:00	N/A	533	< 6.2	11.50	pH was measured using a Eutech pH 5+ meter
01-05-09	10:35	N/A	533	< 6.2	11.50	
01-06-09	10:25	17.3	541	4.79	11.50	
24-06-09	10:20	17	542	4.53	11.50	
31-07-09	9:05	17.3	598	4.98	11.59	
31-08-09	9:07	17.6	610	4.81	11.60	
30-09-09	9:45	18	619	4.71	11.59	
30-10-09	9:45	18.5	621	4.75	11.47	
27-11-09	8:00	19	-	4.73	11.47	
04-01-10	9:50	18.5	634	4.73	11.51	
02-02-10	9:45	18.7	641	4.78	11.52	
01-03-10	9:50	18.1	635	4.67	11.56	
31-03-10	9:15	18.2	639	4.74	11.56	
30-04-10	9:15	17.8	640	4.76	11.56	
01-06-10	10:40	18.1	640	4.66	11.56	
30-06-10	9:30	16.4	614	5.17	11.56	
02-08-10	10:40	17.4	639	4.64	11.56	
01-09-10	9:30	18.6	641	4.82	11.56	
05-10-10	15:50	19.3	651	4.61	11.56	
05-11-10	15:30	18.5	657	5.12	11.36	
07-12-10	9:50	19	670	5.09	11.32	
23-12-10	12:30	19.5	952	5.12	11.32	
01-02-11	12:00	20.3	657	5.17	11.39	
01-04-11	11:00	18.7	778	5.01	11.39	
29-04-11	11:30	18.3	745	5.12	11.39	
30-05-11	10:30	17	777	5.64	11.39	
01-07-11	16:30	16.5	763	5.27	11.39	
29-07-11	15:30	18.5	775	-	11.29	
01-09-11	15:30	18.8	851	4.64	11.29	
04-10-11	13:00	18.4	847	4.66	11.29	
28-10-11	15:30	19.5	846	4.48	11.29	
01-12-11	8:30	17.9	896	4.51	11.35	
23-12-11	9:45	18.8	793	4.49	11.35	
01-02-12	16:15	18.9	782	4.48	11.35	
28-02-12	8:30	18.7	806	4.42	11.35	
30-03-12	15:30	19.7	775	4.52	10.77	
30-04-12	14:30	18.9	772	4.59	10.77	
31-05-12	12:30	19	744	4.55	10.78	
08-07-12	10:30	17.5	784	4.46	10.90	
02-08-12	8:00	13.2	769	4.53	11.05	
03-09-12	15:30	19.3	759	4.66	11.20	
29-09-12	15:00	19.2	799	4.67	11.47	
01-11-12	15:00	19.8	786	4.67	11.30	
03-12-12	13:00	19.1	769	4.81	11.69	
28-12-12	14:30	19.1	767	4.69	11.69	
31-01-13	11:30	19.2	789	4.82	11.40	Prolonged period of heavy rain.
04-03-13	9:30	19.1	757	4.78	11.09	
03-04-13	N/A	N/A	756	5.24	11.21	New site personnel (Simon Winter).
03-05-13	9:30	N/A	620	4.40	11.17	Commenced laboratory analysis of pH and EC
03-06-13	15:05	N/A	670	4.80	11.20	
03-07-13	15:00	N/A	690	4.30	10.85	
02-08-13	15:00	N/A	700	5.10	10.80	
03-09-13	14:30	23	700	4.40	11.05	
03-10-13	12:05	16	680	4.40	11.15	
04-11-13	11:25	18	640	4.80	11.35	
03-12-13	10:30	23	690	4.70	11.28	
09-01-14	14:00	19	670	4.80	11.49	
04-02-14	9:45	24	680	4.60	11.49	
07-03-14	9:55	21	545	4.60	11.50	
04-04-14	10:05	20	700	4.90	11.37	
06-05-14	10:00	16	690	4.80	11.37	
03-06-14	12:15	18	652	5.26	11.47	
02-07-14	11:45	17	688	5.54	11.55	
06-08-14	11:45	20	648	5.94	11.60	New site personnel (Cheyne Hudson).
09-09-14	11:45	21	636	5.30	11.30	Commenced laboratory analysis of pH and EC at ALSE
08-10-14	11:30	20	628	5.40	11.45	
13-11-14	11:30	22	609	5.74	11.50	
03-12-14	12:00	30	598	5.84	11.50	
09-01-15	12:00	30	601	5.68	11.45	
11-02-15	11:45	28	588	5.43	11.45	
10-03-15	12:00	22	581	5.79	11.45	
08-04-15	11:00	20	573	5.13	11.40	
07-05-15	11:00	20	527	5.26	11.20	Sampling undertaken by M Rampe
10-06-15	9:00	15	507	5.28	11.20	
06-07-15	10:00	10	500	4.96	11.20	
07-08-15	10:00	12	480	5.58	11.45	
03-09-15	9:00	11	417	5.75	11.25	
08-10-15	9:00	16	423	5.15	11.50	
06-11-15	9:00	22	456	5.26	11.45	
07-12-15	10:00	23	434	5.25	11.50	

GROUNDWATER MONITORING STATION GW-1: COLLINS SITE 2016 - 2019						
Date	Time	Temp. (°C)	EC (µS/cm)	pH	Depth to Water Table (m) from top of stand pipe	Comments
04-01-16	11:00	20	409	5.00	11.50	
05-02-16	10:45	22	410	5.61	11.60	
03-03-16	9:00	23	399	5.23	11.60	
06-04-16	9:00	23	359	5.03	11.40	
05-05-16	12:30	22	363	5.77	11.50	
03-06-16	2:00	18	377	5.47	11.60	
04-07-16	12.30	13	372	5.32	10.70	
03-08-16	10.00	12	261	6.84	10.70	
05-09-16	10.00	12	250	5.62	10.40	
01-10-16	10.00	12	252	6.16	10.50	
01-11-16	8.00	11	296	5.93	10.70	
01-12-16	8.00	12	352	5.63	10.70	
06-01-17	11.00	21	363	5.45	10.70	
03-02-17	8.30	22	334	5.53	11.10	
03-03-17	8.30	23	361	5.25	11.10	
04-04-17	8.30	16	392	5.46	10.80	
01-05-17	10.30	16	294	6.09	10.70	
01-06-17	8.00	8	373	5.12	11.00	
03-07-17	8.00	2	356	5.63	10.90	
01-08-17	9.00	12	346	6.00	11.00	
04-09-17	9.00	12	352	5.63	11.00	
10-10-17	8.00	16	349	5.57	11.10	
06-11-17	9.00	16	326	5.06	11.00	
05-12-17	9.00	18	304	5.42	11.20	
11-01-18	9.00	22	305	5.72	11.10	
07-02-18	10.00	25	303	4.94	11.40	
07-03-18	9.00	20	302	4.86	11.40	
06-04-18	10.00	22	318	5.43	11.40	
03-05-18	10.00	12	307	5.37	11.50	
05-06-18	10.00	14	304	5.60	11.60	
06-07-18	10.00	20	306	5.61	11.50	
02-08-18	9.00	15	303	5.95	11.50	
03-09-18	10.00	6	311	5.57	11.60	
03-10-18	10.00	14	338	6.24	11.60	
05-11-18	10.00	20	324	6.25	11.60	
03-12-18	8.30	20	324	6.09	11.60	
11-01-19	10.00	23	291	6.07	11.50	
04-02-19	8.00	22	264	5.72	11.50	
05-03-19	10.00	25	262	5.60	11.60	
01-04-19	10.00	18	273	5.62	11.60	
01-05-19	10.00	17	221	5.81	11.60	
31-05-19	10.00	9	293	5.28	11.70	
27-06-19	9.00	10	288	5.85	11.70	
02-08-19	9.00	5	318	7.48	11.80	
02-09-19	10.00	13	318	5.37	11.80	
03-10-19	10.00	21	310	6.57	11.80	
05-11-19	10.00	23	318	5.78	11.80	
04-12-19	10.00	21	307	6.15	11.80	
02-01-20	10.00	23	302	5.66	11.80	
04-02-20	10.00	19	344	5.57	11.90	

Period	TIM (g/m2/month)			Notes	Controls Implemented
	MS 1	MS 2	MS 3		
Feb-13	1.2	1.5	0.5	Introduction of Station 3	
Mar-13	0.6	1.1	2		
Apr-13	1.6	1.5	3.1*	*TIM exceedance	*Measured Ash Content
May-13	0.4	0.8	1.8		
Jun-13	0.7	1.3	1.7		
Jul-13	0.4	0.5	1.3		
Aug-13	0.4	0.2	0.4		
Sep-13	0.5	1.4	0.8		
Oct-13	0.7	1.2	1.1		
Nov-13	0.1	0.3	0.1		
Dec-13	1.7	1.1	1.2		
Jan-14	0.7	0.9	1		
Feb-14	0.8	1.9	0.7		
Mar-14	0.7	1.4	1.8		
Apr-14	0.4	2.1	0.6		
May-14	1.2	1.1	1.2	Cheyne Hudson takes over sampling and reporting	Mesh screens inserted to filter organic content
Jun-14	0.1	0.1	0.1		
Jul-14	0.4	0.4	0.8		
Aug-14	2	2*	**	*Funnel in jug smashed **Jug smashed.	
Sep-14	2.1	0.6	1.5		
Oct-14	1.8	0.9	1.6		
Nov-14	1.5	2.8	6.2*	*Site clean-up and mow on adjacent rental property	
Dec-14	2.2	2.2	1.6		
Jan-15	1.2	1.2	2		
Feb-15	1.7	0.9	2.3		
Mar-15	2.9	3.3	3.6		
Apr-15	6*	1.6	4.4	*New earthworks noted 50 metres from M1	*Monitor results May-15 due to new E1 extraction
May-15	1.5	0.9	0.9		
Jun-15	1.6	1.2	2.0		
Jul-15	1.9	0.8	1.5		
Aug-15	4.2*	1.1	2.5	*Expanded quarry area to within 20 m of M1.	*Relocation of Monitoring Sites 1 and 2 (September)
Sep-15	1.7	0.9	6.1*	*Expansion of nearby Spring Farm urban	*Regular inspection monitor urban development activity
Oct-15	3.9	4	6.4*	*Hot windy weather and nearby grass mowing	*Dust suppression irrigation
Nov-15	1.7	0.5	2.4		
Dec-15	3.5	2.4	5.3*	development	*Regular inspection monitor urban development activity
Jan-16	2	1	4.7*	*Expansion of nearby Spring Farm urban	*Regular inspection monitor urban development activity
Feb-16	1.5	1.1	1.9		
Mar-16	3.3	2.5	2.5		
Apr-16	1.2	1.8	2		
May-16	0.9	1.5	1.6		
Jun-16	2.7	3.6	3.2		
Jul-16	0.9	0.8	4		
Aug-16	0.5	3.3	0.8		
Sep-16	1.0	2.3	1.6		
Oct-16	1.2	0.7	1.8		
Nov-16	1.0	0.8	2.8		
Dec-16	1.6	2.6	11*	*Springs Road widening and very hot dry weather	
Jan-17	1.3	1.3	2.9		
Feb-17	1.0	0.9	2.1		
Mar-17	2.7	1.5	1.8		
Apr-17	0.6	0.4	2.9		
May-17	0.7	0.5	1.8		
Jun-17	1.2	0.6	1.3		
Jul-17	0.8	1.2	1.5		
Aug-17	0.3	1.3	2.2		
Set - 17	1.0	1.6	4.3	High vegetable (leaves)and organic (bugs) content in all samples	
Oct-17	1.7	2.8	2.2		
Nov-17	0.9	1.5	4.6	High vegetable (leaves)and organic (bugs) content in all samples	
Dec-17	0.6	1.2	2.3		
Jan-18	1.3	2.0	2.8		
Feb-18	0.5	1.9	5.6	Very hot and dry month	
Mar-18	0.6	0.7	7.2	Very hot and dry month and at times windy	
Apr-18	6.7	1.1	2.6	MS-1 sample polluted - bird droppings?	
May-18	0.4	0.6	2.5		
Jun-18	0.5	0.5	34.1	MS-1 sample highly polluted - anomalous result	
Jul-18	0.4	0.8	0.7		
Aug-18	0.6	0.9	0.7		
Sep-18	1.0	0.8	1.5		
Oct-18	0.7	1.2	1.4		
Nov-18	0.5	1.0	1.8		
Dec-18	2.4	0.7	2.0		
Jan-19	1.6	3.5	4.7	Very hot and dry month and at times windy	
Feb-19	1.0	2.5	3.6		
Mar-19	2.0	4.3	1.6	No significant activities noted	
Apr-19	0.7	3.2	1.2		
May-19	0.5	1.9	1.4	Fresh road works around Stations 2 and 3	
Jun-19	0.7	1.3	1.1		
Jul-19	0.2	0.4	0.6		
Aug-19	0.4	0.8	1.4		
Sep-19	1.0	0.3	1.1		
Oct-19	1.5	2.3	3.8		
Nov-19	2.4	1.2	4.6	Month of high winds and smoke from bushfires	
Jan-20	1.2	2.8	2.2		
Feb-20	6.3	6.5	6.0	Month of high winds, bushfire smoke and drought conditions	

APPENDIX 3: Laboratory Quality Control Documentation