



Maxwell Underground Project  
Environmental Monitoring Data  
Quarter 1 2022

## 1 INTRODUCTION

This report has been compiled to present environmental monitoring data for the Maxwell Underground Coal Mine Project (the project) in accordance with Schedule 2, Condition E17 (a) (vii) of SSD-9526.

This report covers the reporting period 1 October to 31 December 2021. Summaries of historic environmental monitoring data (prior to this report) can be found in the Annual Environmental Management Reports located on the Malabar Resources website.

## 2 MONITORING RESULTS

Deposited dust monitoring results are provided in **Table 1**.

Continuous TEOM PM<sub>10</sub> monitoring results are provided in **Figure 1**.

Continuous TEOM PM<sub>2.5</sub> monitoring results are provided in **Figure 1**.

Mine storage surface water quality monitoring results are provided in **Table 2**.

Downstream surface water quality monitoring results are provided in **Table 3**.

Surface water quality field measurements from Saddlers Creek are compared to trigger levels in **Table 4**.

Surface water quality laboratory results from Saddlers Creek are compared to trigger levels in **Table 5**.

Groundwater quality results for Maxwell Infrastructure bores are provided in **Table 6**.

Groundwater quality results for Maxwell Underground bores are provided in **Table 7**.

Groundwater level results are provided in **Table 8**.

Noise monitoring results are provided from **Table 9**.

Locations of monitoring sites are shown in **Appendix 1 to 4**.

Hydrographs of total and dissolved metals concentrations are shown in **Appendix 5**.

**Table 1: Deposited dust monitoring results for Quarter 1 2022.**

Gauge	Insoluble Solids Result (g/m <sup>2</sup> /month)			Annual Mean Limit (g/m <sup>2</sup> /month)	Rolling Annual Average to end of March 2022 (g/m <sup>2</sup> /month)
	January	February	March		
<b>2175</b>	2.2	2.8	1.9	4	<b>1.8</b>
<b>2230</b>	1.5	1.5	0.8	4	<b>2.5</b>
<b>2235</b>	4.5	1.8	2.2	4	<b>2.1</b>
<b>2247</b>	1.8	1.8	1.2	4	<b>1.4</b>

**Notes**

Sampling notes from January 2022 state that sample location 2235 contained bird droppings (no such comment for December 2021 however it is deemed likely that the December result was also contaminated as the value was also elevated (4.1g/m<sup>2</sup>)).

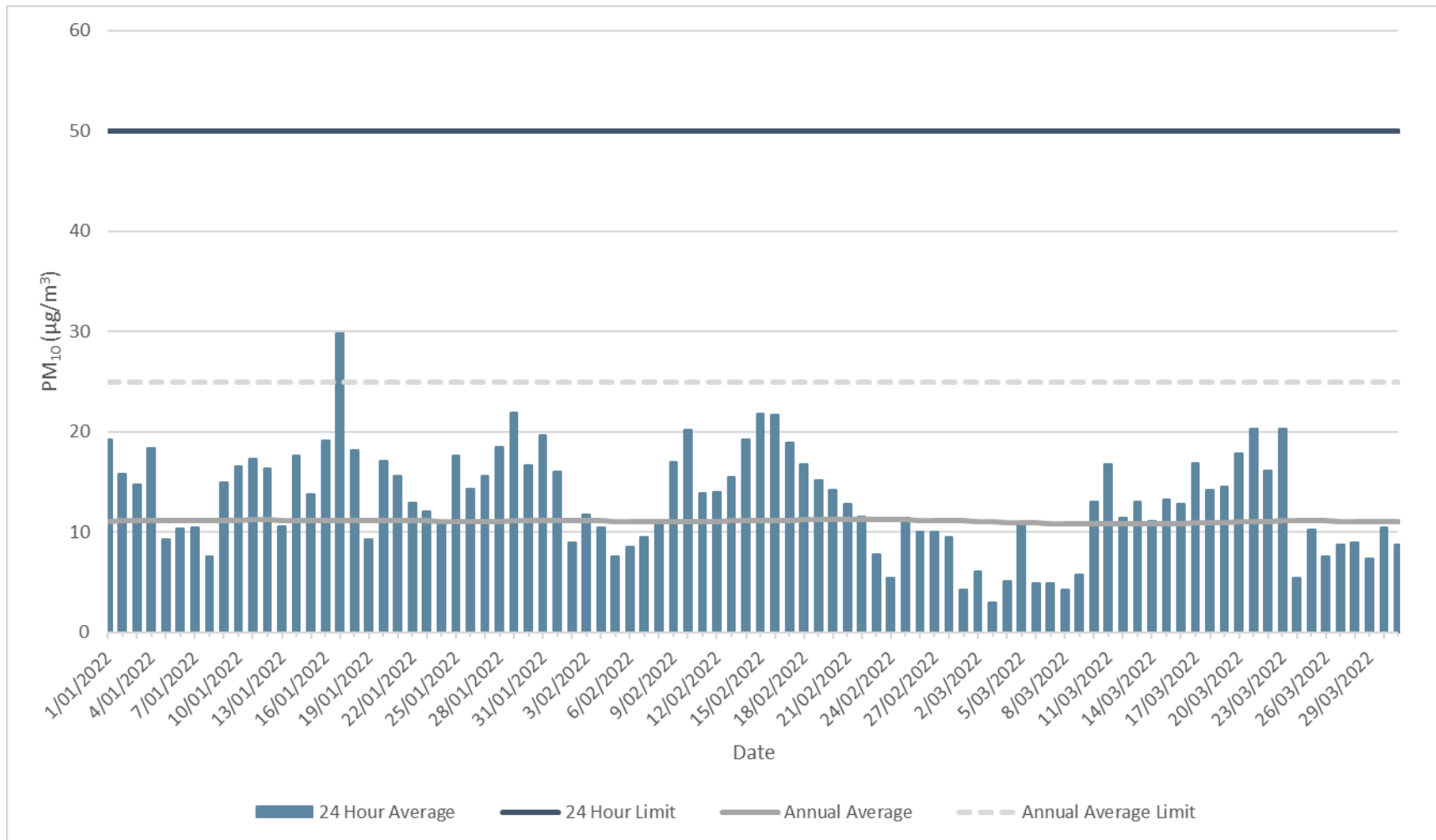


Figure 1: TEOM-1 PM<sub>10</sub> monitoring results for Quarter 1 2022.

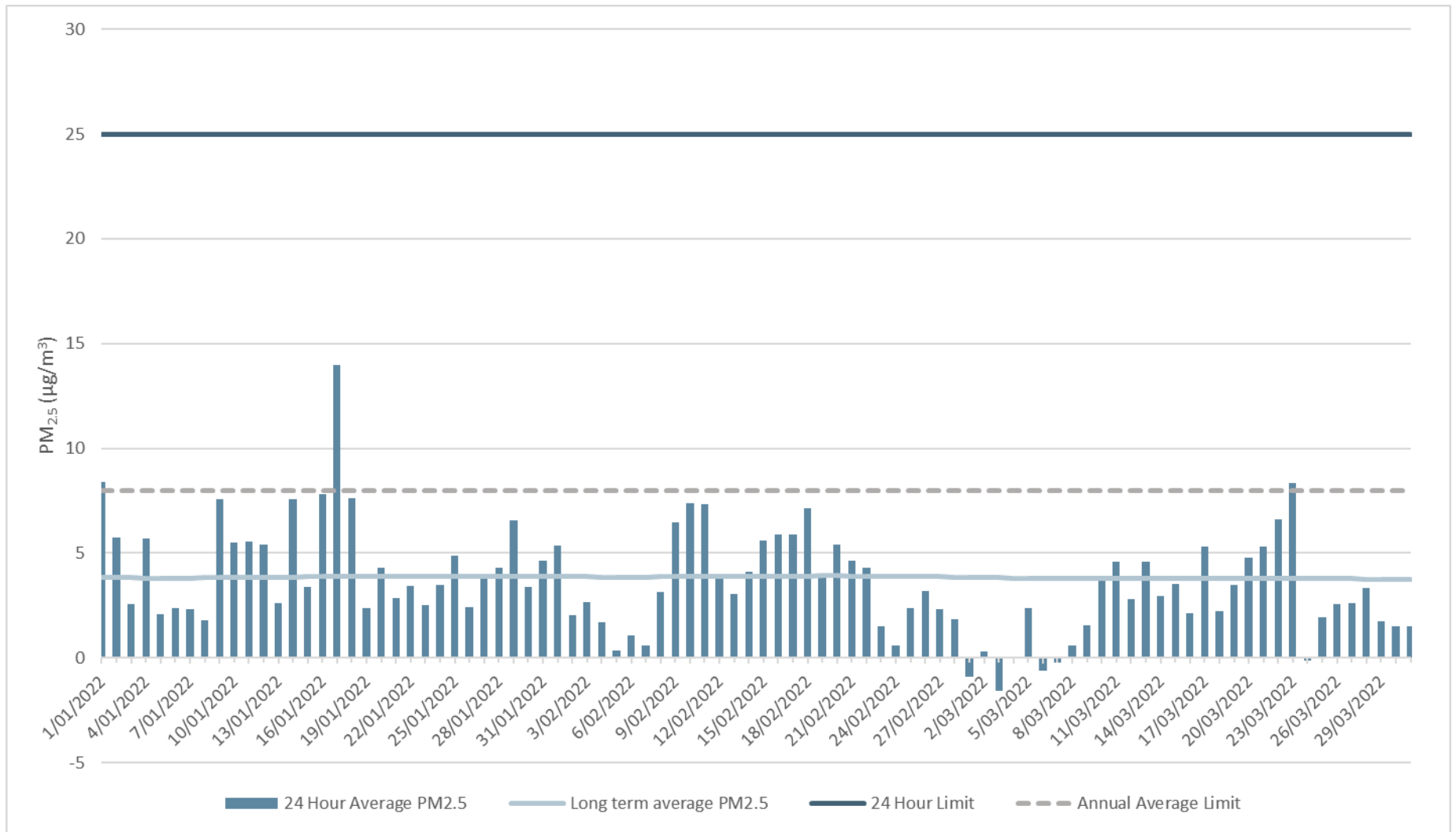


Figure 2: TEOM-1 PM<sub>2.5</sub> monitoring results for Quarter 1 2022.

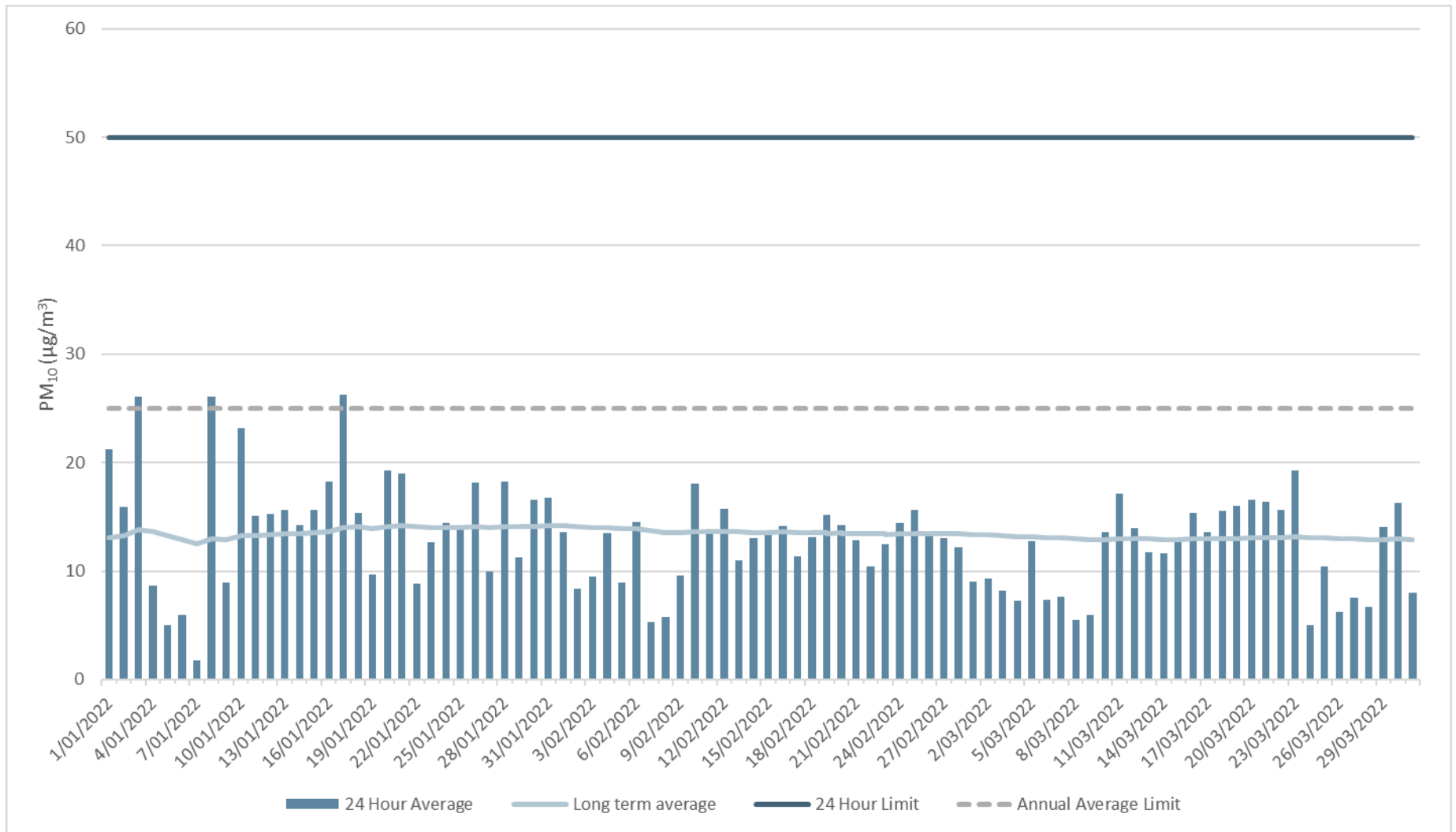


Figure 3: TEOM-2 PM<sub>10</sub> monitoring results for Quarter 1 2022.

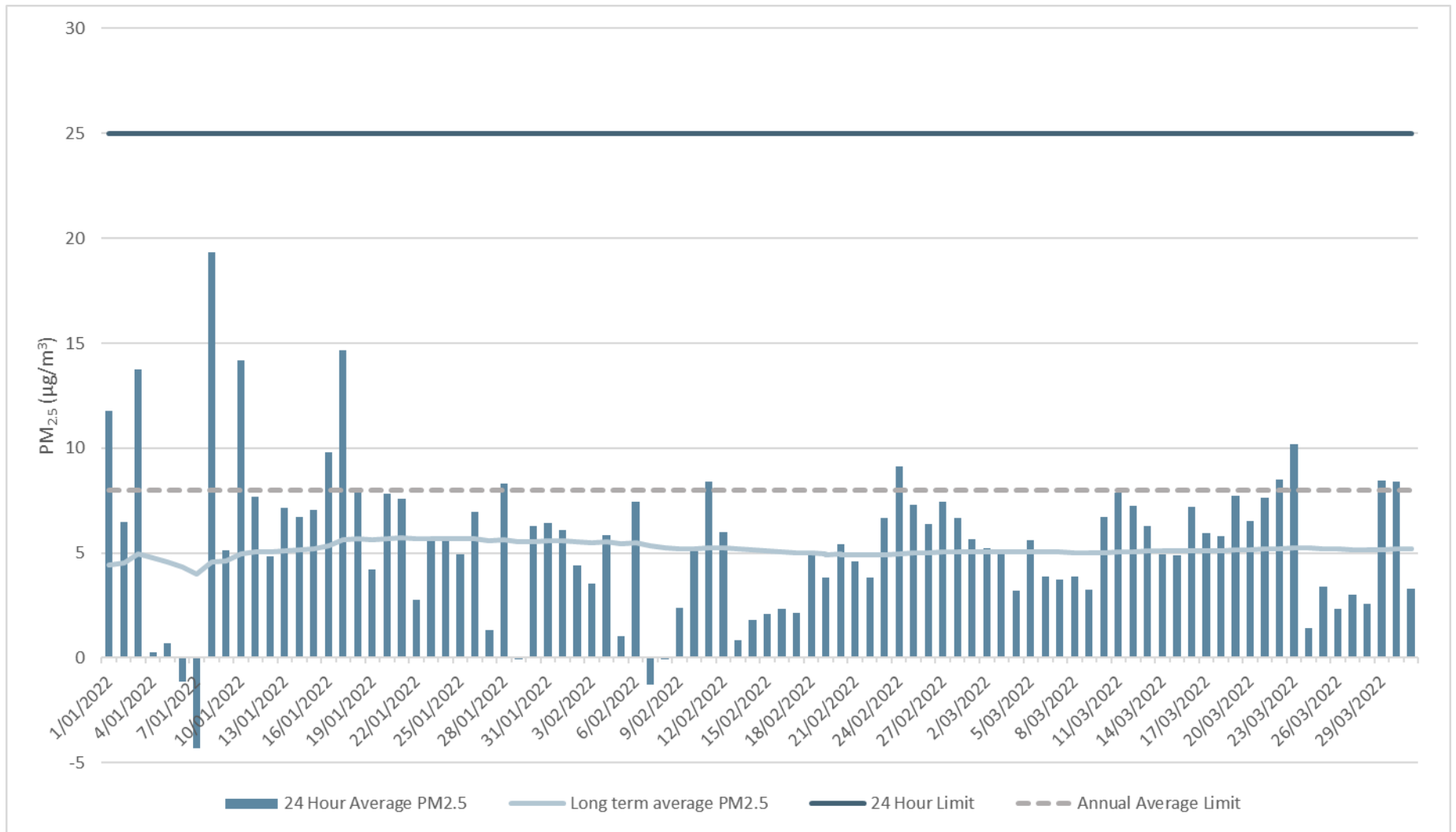


Figure 4: TEOM-2 PM<sub>2.5</sub> monitoring results for Quarter 1 2022.

**Notes:**

- Monitoring of PM<sub>10</sub> and PM<sub>2.5</sub> commenced at TEOM-2 on 12 December 2021.
- All 24-hour averages during Quarter 1 2022 were below the 24-hour criteria for both PM<sub>10</sub> and PM<sub>2.5</sub> at both TEOM-1 and TEOM-2. The results of the investigations into any exceedances of the criteria (if required) are provided in the Annual Review.
- The rolling annual averages remained very low during the reporting period, which reflects lower recorded concentrations following the significant rainfall for the year to date with the resultant higher vegetation cover locally and across regional NSW. Levels are much lower than those experienced in 2019 and early 2020, which were predominantly due to regional dust storms and bush fires.
- Gaps in data are due to maintenance and scheduled calibration by monitoring contractor, plus occasionally power cuts and equipment failure. Note that values close to zero may appear as gaps in data in the graphs.
- As a result of actual gaps in data resulting from events such as maintenance and scheduled calibration, the TEOM-generated rolling 24-hour average value is reported by the TEOM as zero (ie invalid). In accordance with Malabar's data validation process, where such events result in >75% valid 1-hour data during the 24-hour period midnight to midnight, this 1-hour data is used to manually calculate the 24-hour average. This process has been applied from Q1 2022. Prior to this the raw data from the TEOM has been presented.



**Table 2. All mine water storage monitoring locations: laboratory water quality monitoring results for Quarter 1 2022 (year to date average shown). See notes for further details.**

Site	Month	Bicarbonate (CaCO <sub>3</sub> ) (mg/L)	Calcium (mg/L)	Chloride (mg/L)	EC (µS/cm)	Magnesium (mg/L)	pH	Potassium (mg/L)	Sodium (mg/L)	Sulphate (SO <sub>4</sub> ) (mg/L)	TSS (mg/L)	TDS (mg/L)
Access Rd Dam (2081)	Mar	62	155	306	2480	178	7.4	27	237	1050	14	2100
	<b>Average</b>	<b>94</b>	<b>379</b>	<b>693</b>	<b>6190</b>	<b>470</b>	<b>7.9</b>	<b>61</b>	<b>599</b>	<b>2944</b>	<b>8.4</b>	<b>5984</b>
DC2 Dam (2109)	Apr*	68	47	298	1740	63	7.0	7.0	242	453	31	1310
	<b>Average</b>	<b>51</b>	<b>45</b>	<b>253</b>	<b>1638</b>	<b>57</b>	<b>7.0</b>	<b>6.0</b>	<b>229</b>	<b>408</b>	<b>20</b>	<b>1146</b>
Rail Loop Dam (2114)	Apr*	158	97	132	1560	73	7.6	7.0	136	531	11	1240
	<b>Average</b>	<b>121</b>	<b>96</b>	<b>147</b>	<b>1568</b>	<b>76</b>	<b>7.8</b>	<b>6.8</b>	<b>150</b>	<b>507</b>	<b>7.6</b>	<b>1088</b>
Industrial Dam (1969)	Apr*	97	153	271	2420	154	7.8	21	250	898	6.0	2310
	<b>Average</b>	<b>98</b>	<b>198</b>	<b>360</b>	<b>3362</b>	<b>216</b>	<b>8.3</b>	<b>29</b>	<b>312</b>	<b>1317</b>	<b>8.4</b>	<b>2910</b>
OPC Dam	Apr*	125	66	56	884	46	8.5	5.0	69	285	6.0	698
	<b>Average</b>	<b>120</b>	<b>66</b>	<b>59</b>	<b>905</b>	<b>46</b>	<b>8.7</b>	<b>4.8</b>	<b>65</b>	<b>267</b>	<b>9.0</b>	<b>640</b>
V Notch	Mar	196	240	747	5490	221	7.9	10	781	1800	12	4060
	<b>Average</b>	<b>287</b>	<b>392</b>	<b>1221</b>	<b>8632</b>	<b>368</b>	<b>7.7</b>	<b>12</b>	<b>1366</b>	<b>2618</b>	<b>6.7</b>	<b>7336</b>
ES Void	Apr*	244	519	770	7370	529	7.8	70.0	572	3710	5.0	7100
	<b>Average</b>	<b>247</b>	<b>541</b>	<b>792</b>	<b>7480</b>	<b>558</b>	<b>7.9</b>	<b>74</b>	<b>608</b>	<b>3780</b>	<b>5.8</b>	<b>6864</b>

**Notes:**

The year-to-date value consists of an average of the quarterly sample for the current quarter plus the three previous quarters, as per the Water Management Plan. The exceptions are for the V Notch dam, where samples are taken monthly as is required by the EPL and for the ES Void

where monthly samples were also taken in October and November 2021 to inform the design of the water treatment plant for the underground project and hence are included here for completeness.

\*Due to wet weather resulting in some sites being inaccessible, some of Q1 samples were taken on 4 April 2022 and are included here for Q1.

Table 2 excludes mine water storages yet to be constructed (MEA dam, Mine Water Dam, Treated Water Dam, MEA Sedimentation Dam).

**Table 3. All downstream surface water monitoring locations: laboratory surface water quality scheduled monitoring results for Quarter 1 2022 compared to year-to-date averages (Q2 2021–Q1 2022). See notes for further details.**

Site	Month	Antimony	Arsenic	Bicarbonate (CaCO <sub>3</sub> )	Calcium	Chloride	EC	Magnesium	Molybdenum	Potassium	Selenium	Sodium	Sulphate (SO <sub>4</sub> )	TSS	TDS	Turbidity
Saddlers U/S	Jan	0.0010	0.0040	408	119	395	2090	100	0.0010	11	0.010	171	223	5.0	1420	2.4
	<b>Average</b>	<b>0.0010</b>	<b>0.0033</b>	<b>374</b>	<b>146</b>	<b>321</b>	<b>2033</b>	<b>110</b>	<b>0.0010</b>	<b>18</b>	<b>0.010</b>	<b>153</b>	<b>353</b>	<b>11</b>	<b>1485</b>	<b>4.2</b>
W3	Jan	Too low to sample														
	<b>Average</b>	<b>0.0010</b>	<b>0.0010</b>	<b>400</b>	<b>68</b>	<b>1019</b>	<b>3782</b>	<b>169</b>	<b>0.0010</b>	<b>5.8</b>	<b>0.010</b>	<b>552</b>	<b>278</b>	<b>33</b>	<b>2526</b>	<b>41</b>
SW1/ Saddlers	Jan	0.0010	0.0010	896	188	3690	12100	327	0.0020	6.0	0.010	1870	423	6.0	7800	7.9
	<b>Average</b>	<b>0.0010</b>	<b>0.0011</b>	<b>567</b>	<b>145</b>	<b>2551</b>	<b>8028</b>	<b>223</b>	<b>0.0013</b>	<b>7.0</b>	<b>0.010</b>	<b>1352</b>	<b>347</b>	<b>26</b>	<b>5348</b>	<b>53</b>
Saddlers D/S (W4-Bowfield)	Jan	0.0010	0.0010	753	85	2040	7300	210	0.0010	9.0	0.010	1100	263	5.0	4350	2.4
	<b>Average</b>	<b>0.0010</b>	<b>0.0010</b>	<b>467</b>	<b>57</b>	<b>1233</b>	<b>4498</b>	<b>126</b>	<b>0.0010</b>	<b>9.3</b>	<b>0.010</b>	<b>723</b>	<b>172</b>	<b>18</b>	<b>2691</b>	<b>21</b>
MEA D/S	Jan	0.0010	0.0010	82	8.0	9.0	205	5.0	0.0010	9.0	0.010	10	1.0	7.0	125	6.7
	<b>Average</b>	<b>0.0010</b>	<b>0.0010</b>	<b>61</b>	<b>9.0</b>	<b>12</b>	<b>166</b>	<b>4.5</b>	<b>0.0010</b>	<b>8.8</b>	<b>0.010</b>	<b>10</b>	<b>1.0</b>	<b>22</b>	<b>142</b>	<b>35</b>
Saltwater D/S	Jan	0.0010	0.0020	106	12	3.0	170	4.0	0.0010	14	0.010	10	1.0	564	119	220
	<b>Average</b>	<b>0.0010</b>	<b>0.0015</b>	<b>71</b>	<b>9.0</b>	<b>11</b>	<b>156</b>	<b>4.0</b>	<b>0.0010</b>	<b>8.5</b>	<b>0.010</b>	<b>14</b>	<b>5.5</b>	<b>297</b>	<b>163</b>	<b>127</b>
SW3	Jan	Dry														
	<b>Average</b>	<b>0.0010</b>	<b>0.0010</b>	<b>55</b>	<b>12</b>	<b>7.0</b>	<b>129</b>	<b>3.8</b>	<b>0.0010</b>	<b>11</b>	<b>0.010</b>	<b>4.4</b>	<b>7.0</b>	<b>72</b>	<b>171</b>	<b>115</b>
Transport and Services Corridor sediment dams	See notes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Notes:**

In addition to quarterly scheduled sampling, the MUG Project Water Management Plan requires sampling and analysis following 25mm or more of rain over a 24-hour period (defined as midnight to midnight and as recorded at the Drayton South meteorological recording station (AWS-2)). The results from any such post-rainfall events have been included in the year-to-date averages.

The quarterly field measurements of pH, EC, redox potential and temperature are recorded to enable subsequent evaluation in case of need and are not included in the quarterly reporting.

The location of the Transport and Services Corridor sediment dams (eg SW2) are to be confirmed as they are yet to be constructed hence monitoring has not yet commenced.

All results are in mg/L except Conductivity ( $\mu\text{S/cm}$ ), pH (in pH units) and turbidity (nephelometric turbidity units).

The following will be reported in the AEMR:

- Comparison of water quality results from Saddlers Creek against Water Quality Trigger Values
- Results from the automatic weather stations (AWS-1 and AWS-2)
- Results of the stream health monitoring.

**Table 4. Surface water scheduled field measurements at sites along Saddlers Creek for Q4 2021 and Q1 2022 and comparison against trigger levels. If an exceedance of the trigger level occurs for three consecutive readings, this is highlighted in red.**

Site		Field result					
		pH		EC		Turbidity	
		Units		µS/cm		NTU	
		Trigger		7,600		64	
		Q4 2021	Q1 2022	Q4 2021	Q1 2022	Q4 2021	Q1 2022
W3		Too low to sample	Dry	Too low to sample	Dry	Too low to sample	Dry
Saddlers D/S (W4 – Bowfield)		7.9	8.1	3,630	7,910	35	2.4
MEA D/S		8.4	6.5	279	156	26	6.7
Saddlers U/S		7.7	7.8	2,817	2,451	5.7	2.4
Saltwater D/S		Dry	6.5	Dry	160	Dry	220
SW1/ Saddlers		7.8	7.6	17,840	1,350	3.4	7.9
SW2	Not yet operational	-	-	-	-	-	-
SW3		Dry	Dry	Dry	Dry	Dry	Dry

**Notes**

- Any exceedances of trigger values will only be investigated if they occur after construction commences.
- Turbidity results presented are laboratory results; from Q2 2022, a field meter will be used to determine turbidity; this will enable direct comparison against the field trigger values for turbidity.
- Trigger for turbidity calculated by WRM Water based on the 80<sup>th</sup> percentile of the entire laboratory NTU dataset to end of 2021.

**Table 5. Surface water laboratory results at sites along Saddlers Creek (scheduled and post-rainfall sampling) during Q4 and comparison against trigger levels. If an exceedance of the trigger level occurs for three consecutive readings, this is highlighted in **red**.**

Site	Sample date	Sampling type	Laboratory result													
			Sb	As (V)	As (III)	CaCO3	Ca	Cl	Mg	Mb	K	Se	Na	SO4	TSS	TDS
Units			mg/L	mg/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger			9 <sup>(c)</sup>	13 <sup>(c)</sup>	24 <sup>(b)</sup> <sup>(c)</sup>	(a)	(a)	(a)	(a)	34 <sup>(c)</sup>	(a)	11 <sup>(c)</sup>	(a)	(a)	50	4900
W3	27/10/21	Scheduled	Too low to sample													
	12/11/21	Rainfall	0.0010	0.0010	0.0010	66	10	103	17	0.0010	7.0	0.010	62	41	17	406
	22/11/21	Rainfall	0.0010	0.0010	0.0010	187	22	284	44	0.0010	6.0	0.010	160	93	30	925
	10/12/21	Rainfall	Too low to sample													
	8/1/22	Rainfall	Too low to sample													
	27/1/22	Scheduled	Dry													
	6/3/22	Rainfall	Too low to sample													
	8/3/22	Rainfall	0.0010	0.0010	0.0010	40	5.0	26	5.0	0.0010	6.0	0.010	18	1.0	20	157
	28/3/22	Rainfall	Too low to sample													
Saddlers D/S (W4 – Bowfield)	27/10/21	Scheduled	0.0010	0.0010	0.0010	311	34	849	80	0.0010	9.0	0.010	476	109	58.0	1800
	12/11/21	Rainfall	No access, too wet													
	22/11/21	Rainfall	No access, too wet													
	10/12/21	Rainfall	0.0010	0.0010	0.0010	80	17	111	17	0.0010	7.0	0.010	71	55	14.0	425
	8/1/22	Rainfall	0.0010	0.0010	0.0010	627	67	1580	150	0.0010	9.0	0.010	944	208	10	3560
	27/1/22	Scheduled	0.0010	0.0010	0.0010	753	85	2040	210	0.0010	9.0	0.010	1100	263	5.0	4350

Site	Sample date	Sampling type	Laboratory result													
			Sb	As (V)	As (III)	CaCO3	Ca	Cl	Mg	Mb	K	Se	Na	SO4	TSS	TDS
Units			mg/L	mg/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger			9 <sup>(c)</sup>	13 <sup>(c)</sup>	24 <sup>(b)</sup> <sup>(c)</sup>	<sup>(a)</sup>	<sup>(a)</sup>	<sup>(a)</sup>	<sup>(a)</sup>	34 <sup>(c)</sup>	<sup>(a)</sup>	11 <sup>(c)</sup>	<sup>(a)</sup>	<sup>(a)</sup>	50	4900
	6/3/22	Rainfall	0.0010	0.0010	0.0010	511	77	1820	186	0.0010	12	0.010	1000	222	29	3620
	8/3/22	Rainfall	No access, too wet													
	28/3/22	Rainfall	0.0010	0.0010	0.0010	122	17	244	28	0.0010	9.0	0.010	134	51	16	579
MEA D/S	27/10/21	Scheduled	0.0010	0.0010	0.0010	51	11	18	5.0	0.0010	9.0	0.010	11	1.0	8.0	149
	12/11/21	Rainfall	No access, too wet													
	22/11/21	Rainfall	No access, too wet													
	10/12/21	Rainfall	No access, too wet													
	8/1/22	Rainfall	No access, too wet													
	27/1/22	Scheduled	0.0010	0.0010	0.0010	82	8.0	9.0	5.0	0.0010	9.0	0.010	10	1.0	7.0	125
	6/3/22	Rainfall	No access, too wet													
	8/3/22	Rainfall	No access, too wet													
	28/3/22	Rainfall	No access, too wet													
	Saddlers U/S	27/10/21	Scheduled	0.0010	0.0020	0.0020	388	147	373	116	0.0010	18.0	0.010	175	418	14.0
12/11/21		Rainfall	No access, too wet													
22/11/21		Rainfall	No access, too wet													
10/12/21		Rainfall	No access, too wet													
8/1/22		Rainfall	No access, too wet													

Site	Sample date	Sampling type	Laboratory result													
			Sb	As (V)	As (III)	CaCO3	Ca	Cl	Mg	Mb	K	Se	Na	SO4	TSS	TDS
Units			mg/L	mg/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger			9 <sup>(c)</sup>	13 <sup>(c)</sup>	24 <sup>(b)</sup> <sup>(c)</sup>	(a)	(a)	(a)	(a)	34 <sup>(c)</sup>	(a)	11 <sup>(c)</sup>	(a)	(a)	50	4900
	27/1/22	Scheduled	0.0010	0.0040	0.0040	408	119	395	100	0.0010	11	0.010	171	223	5.0	1420
	6/3/22	Rainfall	No access, too wet													
	8/3/22	Rainfall	No access, too wet													
	28/3/22	Rainfall	No access, too wet													
Saltwater D/S	27/10/21	Scheduled	Dry													
	12/11/21	Rainfall	No access, too wet													
	22/11/21	Rainfall	No access, too wet													
	10/12/21	Rainfall	No access, too wet													
	8/1/22	Rainfall	No access, too wet													
	28/1/22	Scheduled	0.0010	0.0020	0.0020	106	12	3.0	4.0	0.0010	14	0.010	10	1.0	564	119
	6/3/22	Rainfall	No access, too wet													
	8/3/22	Rainfall	0.0010	0.0010	0.0010	35	6.0	19	4.0	0.0010	3.0	0.010	17	10	30	207
	28/3/22	Rainfall	No access, too wet													
SW1/ Saddlers	27/10/21	Scheduled	0.0010	0.0010	0.0010	927	268	5280	432	0.0010	6.0	0.010	2590	622	5.0	9910
	12/11/21	Rainfall	No access, too wet													
	22/11/21	Rainfall	No access, too wet													
	10/12/21	Rainfall	0.0010	0.0010	0.0010	80	14	105	11	0.0010	7.0	0.010	63	17	14.0	372



Site	Sample date	Sampling type	Laboratory result													
			Sb	As (V)	As (III)	CaCO3	Ca	Cl	Mg	Mb	K	Se	Na	SO4	TSS	TDS
Units			mg/L	mg/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger			9 <sup>(c)</sup>	13 <sup>(c)</sup>	24 <sup>(b)</sup> <sup>(c)</sup>	(a)	(a)	(a)	(a)	34 <sup>(c)</sup>	(a)	11 <sup>(c)</sup>	(a)	(a)	50	4900
	8/1/22	Rainfall	0.0010	0.0010	0.0010	597	136	2570	201	0.0010	9.0	0.010	1300	345	10	5520
	27/1/22	Scheduled	0.0010	0.0010	0.0010	896	188	3690	327	0.0020	6.0	0.010	1870	423	6.0	7800
	6/3/22	Rainfall	0.0010	0.0010	0.0010	68	14	171	14	0.0010	8.0	0.010	103	22	119	452
	8/3/22	Rainfall	0.0010	0.0010	0.0010	No access, too wet										
	28/3/22	Rainfall	0.0010	0.0010	0.0010	90	14	125	13	0.0010	8.0	0.010	77	16	26	402
SW2	-	-	Location to be established – see notes													
SW3	27/10/21	Scheduled	Dry													
	12/11/21	Rainfall	No access, too wet													
	22/11/21	Rainfall	No access, too wet													
	10/12/21	Rainfall	0.0010	0.0010	0.0010	83	21	8.0	6.0	0.0010	11.0	0.010	6.0	10	7.0	216
	8/1/22	Rainfall	0.0010	0.0010	0.0010	54	8.0	6.0	2.0	0.0010	10	0.010	4.0	10	20	124
	27/1/22	Scheduled	Dry													
	6/3/22	Rainfall	0.0010	0.0010	0.0010	32	7.0	5.0	2.0	0.0010	10	0.010	3.0	4.0	96	153
	8/3/22	Rainfall	0.0010	0.0010	0.0010	29	6.0	6.0	2.0	0.0010	9.0	0.010	3.0	1.0	221	161
	28/3/22	Rainfall	0.0010	0.0010	0.0010	79	20	10	7.0	0.0010	13	0.010	6.0	10	18	202

**Notes.**

(a) No trigger; for interpretation purposes only. (b) Result is a combination of As (V) and As (III) (c) Trigger set as a preliminary guideline value. In accordance with the Surface Water Management Plan, results from Saddlers Creek (median over three consecutive samples) will be compared to the relevant trigger levels. Trigger values are values that trigger further investigation or management action.

**Table 6: Maxwell Infrastructure Groundwater quality biennial monitoring results for Quarter 1 2022 (year to date average shown). See notes for further details. NS = Not sampled.**

Site	Aluminium	Arsenic	Bicarbonate Alkalinity as	Boron	Calcium	Chloride	Chromium	Copper	Electrical conductivity	EC trigger value	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	pH value	pH trigger value
R4241	NS	NS	NS	NS	NS	NS	NS	NS	NS	6253	NS	NS	NS	NS	NS	NS	NS	Min: 6.0, Max: 8.5
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>612</b>	<b>0.22</b>	<b>218</b>	<b>908</b>	<b>0.001</b>	<b>0.001</b>	<b>5187</b>	<b>-</b>	<b>0.99</b>	<b>0.001</b>	<b>302</b>	<b>0.379</b>	<b>0.001</b>	<b>0.016</b>	<b>7.18</b>	<b>-</b>
F1162	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS	-
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>522</b>	<b>0.22</b>	<b>101</b>	<b>738</b>	<b>0.002</b>	<b>0.001</b>	<b>3720</b>	<b>-</b>	<b>8.59</b>	<b>0.001</b>	<b>146</b>	<b>0.56</b>	<b>0.001</b>	<b>0.004</b>	<b>6.96</b>	<b>-</b>
F1164	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS	-
<b>Average</b>	<b>NS</b>	<b>0.003</b>	<b>677</b>	<b>0.06</b>	<b>138</b>	<b>707</b>	<b>0.001</b>	<b>0.001</b>	<b>4320</b>	<b>-</b>	<b>NS</b>	<b>0.001</b>	<b>185</b>	<b>0.75</b>	<b>NS</b>	<b>0.005</b>	<b>6.90</b>	<b>-</b>
GW01D	NS	NS	NS	NS	NS	NS	NS	NS	NS	5680	NS	NS	NS	NS	NS	NS	NS	Min: 6.0, Max: 8.5
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>551</b>	<b>0.32</b>	<b>392</b>	<b>1203</b>	<b>0.001</b>	<b>0.001</b>	<b>5407</b>	<b>-</b>	<b>0.08</b>	<b>0.001</b>	<b>160</b>	<b>0.259</b>	<b>0.008</b>	<b>0.029</b>	<b>6.95</b>	<b>-</b>
GW01S	NS	NS	NS	NS	NS	NS	NS	NS	NS	9260	NS	NS	NS	NS	NS	NS	NS	Min: 6.0, Max: 8.5
<b>Average</b>	<b>0.01</b>	<b>0.00</b>	<b>367</b>	<b>0.13</b>	<b>218</b>	<b>2367</b>	<b>0.001</b>	<b>0.001</b>	<b>8013</b>	<b>-</b>	<b>0.05</b>	<b>0.001</b>	<b>211</b>	<b>0.098</b>	<b>0.002</b>	<b>0.017</b>	<b>6.96</b>	<b>-</b>
GW02D	NS	NS	NS	NS	NS	NS	NS	NS	NS	10500	NS	NS	NS	NS	NS	NS	NS	Min: 6.0, Max: 8.5

Site	Aluminium	Arsenic	Bicarbonate Alkalinity as	Boron	Calcium	Chloride	Chromium	Copper	Electrical conductivity	EC trigger value	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	pH value	pH trigger value
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>2003</b>	<b>0.28</b>	<b>44</b>	<b>1062</b>	<b>0.001</b>	<b>0.002</b>	<b>10733</b>	<b>-</b>	<b>0.05</b>	<b>0.001</b>	<b>13</b>	<b>0.32</b>	<b>0.008</b>	<b>0.012</b>	<b>7.49</b>	<b>*</b>
<b>GW02S</b>	NS	NS	NS	NS	NS	NS	NS	NS	NS	9480	NS	NS	NS	NS	NS	NS	NS	Min: 6.0, Max: 8.5
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>855</b>	<b>0.12</b>	<b>371</b>	<b>899</b>	<b>0.001</b>	<b>0.001</b>	<b>7193</b>	<b>-</b>	<b>3.54</b>	<b>0.001</b>	<b>358</b>	<b>1.15</b>	<b>0.001</b>	<b>0.013</b>	<b>6.75</b>	<b>-</b>

Table 6 continued

Site	Selenium	Silver	Sodium	Sulfate as SO <sub>4</sub> – Turbidimetric	Suspended Solids (SS)	Total Dissolved Solids @180°C	Zinc
R4241	NS	NS	NS	NS	NS	NS	NS
<i>Average</i>	<i>0.01</i>	<i>0.001</i>	<i>548</i>	<i>971</i>	<i>53</i>	<i>3757</i>	<i>0.01</i>
F1162	NS	NS	NS	NS	NS	NS	NS
<i>Average</i>	<i>0.01</i>	<i>0.001</i>	<i>506</i>	<i>360</i>	<i>110</i>	<i>2260</i>	<i>0.01</i>
F1164	NS	NS	NS	NS	NS	NS	NS
<i>Average</i>	<i>0.01</i>	NS	<i>612</i>	<i>685</i>	<i>90</i>	<i>2900</i>	<i>0.02</i>
GW01D	NS	NS	NS	NS	NS	NS	NS
<i>Average</i>	<i>0.01</i>	<i>0.001</i>	<i>540</i>	<i>600</i>	<i>58</i>	<i>3743</i>	<i>0.05</i>
GW01S	NS	NS	NS	NS	NS	NS	NS
<i>Average</i>	<i>0.33</i>	<i>0.001</i>	<i>1237</i>	<i>508</i>	<i>6207</i>	<i>5407</i>	<i>0.05</i>
GW02D	NS	NS	NS	NS	NS	NS	NS
<i>Average</i>	<i>0.01</i>	<i>0.001</i>	<i>2717</i>	<i>2693</i>	<i>2926</i>	<i>7933</i>	<i>0.01</i>
GW02S	NS	NS	NS	NS	NS	NS	NS
<i>Average</i>	<i>0.01</i>	<i>0.001</i>	<i>958</i>	<i>2500</i>	<i>193</i>	<i>5933</i>	<i>0.02</i>

Table 7: DS1 monitoring bore: Groundwater quality monthly monitoring results for Quarter 1 2022 (year to date average shown). See notes for further details. NS = Not sampled.

Date of sample	pH value	Electrical conductivity	Total Dissolved Solids @180°C	Salinity (g/kg)
31/01/2022	6.43	7700	6540	4.29
28/02/2022	6.43	7250	7810	3.98
29/03/2022	6.32	7780	6590	4.30
<b>Average (year to date)</b>	<b>6.5</b>	<b>7505</b>	<b>6486</b>	<b>4.1</b>

**Table 8: Maxwell Underground Groundwater quality biennial monitoring results for Quarter 1 2022 (year to date average shown). See notes for further details (under the new Maxwell Underground Project, sampling changed from quarterly to biennial, the next scheduled sampling due Q3 2022). NS = Not sampled.**

Site	Aluminium	Arsenic	Bicarbonate Alkalinity as	Boron	Calcium	Chloride	Chromium	Copper	Electrical conductivity	EC trigger value	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	pH value	pH trigger value
DD1005	0.01	0.001	827	0.24	85	1370	0.004	0.02	5820	-	0.05	0.001	175	0.003	0.008	0.013		
<b>Average</b>	<b>0.02</b>	<b>0.001</b>	<b>946</b>	<b>0.19</b>	<b>119</b>	<b>1647</b>	<b>0.005</b>	<b>0.020</b>	<b>6617</b>	<b>-</b>	<b>0.900</b>	<b>0.002</b>	<b>204</b>	<b>0.01</b>	<b>0.004</b>	<b>0.013</b>	<b>7.38</b>	
DD1014	0.01	0.001	630	0.39	69	3080	0.001	0.002	9950	-	0.18	0.001	42	0.112	0.001	0.011	7.4	
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>773</b>	<b>0.34</b>	<b>69</b>	<b>3030</b>	<b>0.001</b>	<b>0.001</b>	<b>9937</b>	<b>-</b>	<b>0.490</b>	<b>0.001</b>	<b>43</b>	<b>0.18</b>	<b>0.001</b>	<b>0.005</b>	<b>7.35</b>	
DD1015										-								
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>1100</b>	<b>0.19</b>	<b>109</b>	<b>1320</b>	<b>0.001</b>	<b>0.002</b>	<b>6035</b>	<b>-</b>	<b>0.050</b>	<b>0.001</b>	<b>184</b>	<b>0.01</b>	<b>0.001</b>	<b>0.002</b>	<b>7.17</b>	
DD1016	0.01	0.001	960	0.31	157	1520	0.001	0.001	5660	-	1.77	0.001	289	0.152	0.001	0.001	7.02	
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>1087</b>	<b>0.27</b>	<b>164</b>	<b>1477</b>	<b>0.001</b>	<b>0.001</b>	<b>5987</b>	<b>-</b>	<b>1.900</b>	<b>0.001</b>	<b>301</b>	<b>0.16</b>	<b>0.001</b>	<b>0.001</b>	<b>6.98</b>	
DD1025	0.01	0.001	1190	0.2	226	4040	0.001	0.794	11200	14,200	0.05	0.001	438	0.155	0.001	0.009	7.23	Min: 6.0, Max: 8.5
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>1220</b>	<b>0.18</b>	<b>230</b>	<b>4030</b>	<b>0.001</b>	<b>1.305</b>	<b>12267</b>	<b>-</b>	<b>0.050</b>	<b>0.001</b>	<b>453</b>	<b>0.25</b>	<b>0.001</b>	<b>0.015</b>	<b>7.10</b>	
DD1032	0.01	0.001	1140	0.29	12	1500	0.001	0.001	6700	7,170	0.18	0.001	4	0.011	0.001	0.001	7.67	Min: 6.0, Max: 8.5
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>1213</b>	<b>0.26</b>	<b>11</b>	<b>1473</b>	<b>0.001</b>	<b>0.001</b>	<b>6610</b>	<b>-</b>	<b>0.110</b>	<b>0.001</b>	<b>4</b>	<b>0.01</b>	<b>0.001</b>	<b>0.001</b>	<b>7.86</b>	
DD1043	0.01	0.001	2370	0.42	41	1350	0.001	0.001	7840	-	0.05	0.001	24	0.025	0.001	0.001	7.15	
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>2417</b>	<b>0.30</b>	<b>42</b>	<b>1307</b>	<b>0.001</b>	<b>0.001</b>	<b>7863</b>	<b>-</b>	<b>0.060</b>	<b>0.001</b>	<b>25</b>	<b>0.03</b>	<b>0.001</b>	<b>0.001</b>	<b>7.10</b>	
DD1052	0.13	0.001	774	0.3	5	1850	0.001	0.001	7360	-	0.05	0.001	2	0.02	0.001	0.005	8.78	
<b>Average</b>	<b>0.14</b>	<b>0.002</b>	<b>713</b>	<b>0.28</b>	<b>5</b>	<b>1875</b>	<b>0.001</b>	<b>0.003</b>	<b>7195</b>	<b>-</b>	<b>0.050</b>	<b>0.001</b>	<b>3</b>	<b>0.02</b>	<b>0.005</b>	<b>0.006</b>	<b>8.98</b>	

Site	Aluminium	Arsenic	Bicarbonate Alkalinity as	Boron	Calcium	Chloride	Chromium	Copper	Electrical conductivity	EC trigger value	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	pH value	pH trigger value
DD1057	0.01	0.002	3840	0.24	10	1410	0.001	0.001	10400	-	1.02	0.001	5	0.028	0.001	0.002	7.73	-
<b>Average</b>	<b>0.013</b>	<b>0.002</b>	<b>3617</b>	<b>0.30</b>	<b>11</b>	<b>1377</b>	<b>0.001</b>	<b>0.001</b>	<b>10100</b>	-	<b>0.870</b>	<b>0.001</b>	<b>6</b>	<b>0.03</b>	<b>0.003</b>	<b>0.001</b>	<b>7.63</b>	-
MB03	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS	-
<b>Average</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	-	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	-
MB1A	0.01	0.001	563	0.09	94	532	0.001	0.006	2420	-	0.05	0.001	68	0.002	0.002	0.005	7.77	-
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>603</b>	<b>0.08</b>	<b>103</b>	<b>580</b>	<b>0.001</b>	<b>0.004</b>	<b>2747</b>	-	<b>0.050</b>	<b>0.001</b>	<b>77</b>	<b>0.01</b>	<b>0.003</b>	<b>0.006</b>	<b>7.70</b>	-
MB1R	0.01	0.001	1150	0.17	51	1280	0.001	0.001	5870	-	0.37	0.001	47	0.013	0.001	0.001	7.36	-
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>1263</b>	<b>0.18</b>	<b>58</b>	<b>1260</b>	<b>0.001</b>	<b>0.001</b>	<b>6047</b>	-	<b>0.310</b>	<b>0.001</b>	<b>55</b>	<b>0.02</b>	<b>0.001</b>	<b>0.001</b>	<b>7.29</b>	-
MB1W	0.01	0.001	1220	0.22	56	1240	0.001	0.001	5610	-	0.05	0.001	52	0.001	0.001	0.002	7.74	-
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>1303</b>	<b>0.20</b>	<b>59</b>	<b>1180</b>	<b>0.001</b>	<b>0.001</b>	<b>5710</b>	-	<b>0.050</b>	<b>0.001</b>	<b>53</b>	<b>0.00</b>	<b>0.001</b>	<b>0.001</b>	<b>7.62</b>	-
MB2A	0.01	0.001	869	0.19	90	1810	0.001	0.002	7790	-	0.05	0.001	195	0.646	0.003	0.002	7.6	-
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>931</b>	<b>0.23</b>	<b>126</b>	<b>2370</b>	<b>0.001</b>	<b>0.001</b>	<b>8930</b>	-	<b>0.050</b>	<b>0.001</b>	<b>289</b>	<b>0.49</b>	<b>0.003</b>	<b>0.004</b>	<b>7.48</b>	-
MB2R	0.01	0.001	1060	0.15	26	1260	0.001	0.005	5990	-	0.05	0.001	43	0.006	0.001	0.015	8.5	-
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>1057</b>	<b>0.20</b>	<b>33</b>	<b>1277</b>	<b>0.001</b>	<b>0.002</b>	<b>5883</b>	-	<b>0.050</b>	<b>0.001</b>	<b>46</b>	<b>0.01</b>	<b>0.001</b>	<b>0.006</b>	<b>8.24</b>	-
MB3A	0.01	0.001	686	0.31	45	2420	0.001	0.004	7680	9,009	0.05	0.001	224	0.005	0.002	0.004	7.66	Min: 6.0, Max: 8.5
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>795</b>	<b>0.29</b>	<b>46</b>	<b>2290</b>	<b>0.001</b>	<b>0.002</b>	<b>8193</b>	-	<b>0.050</b>	<b>0.001</b>	<b>225</b>	<b>0.01</b>	<b>0.003</b>	<b>0.002</b>	<b>7.65</b>	-
MB3R	0.01	0.001	869	0.22	153	1500	0.001	0.001	5500	6,327	0.05	0.001	302	0.272	0.001	0.002	7.46	Min: 6.0, Max: 8.5
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>785</b>	<b>0.20</b>	<b>161</b>	<b>1420</b>	<b>0.001</b>	<b>0.001</b>	<b>5850</b>	-	<b>0.160</b>	<b>0.001</b>	<b>317</b>	<b>0.29</b>	<b>0.001</b>	<b>0.001</b>	<b>7.35</b>	-

Site	Aluminium	Arsenic	Bicarbonate Alkalinity as	Boron	Calcium	Chloride	Chromium	Copper	Electrical conductivity	EC trigger value	Iron	Lead	Magnesium	Manganese	Molybdenum	Nickel	pH value	pH trigger value
MB4A	0.01	0.001	280	0.05	60	136	0.001	0.001	942	-	0.05	0.001	45	0.002	0.001	0.001	7.33	-
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>507</b>	<b>0.11</b>	<b>32</b>	<b>404</b>	<b>0.001</b>	<b>0.001</b>	<b>2124</b>	<b>-</b>	<b>0.050</b>	<b>0.001</b>	<b>37</b>	<b>0.01</b>	<b>0.001</b>	<b>0.001</b>	<b>7.83</b>	<b>-</b>
MB4C	0.01	0.001	504	0.14	15	557	0.001	0.001	2480	-	0.05	0.001	30	0.028	0.001	0.001	8.06	-
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>358</b>	<b>0.08</b>	<b>43</b>	<b>259</b>	<b>0.001</b>	<b>0.001</b>	<b>1397</b>	<b>-</b>	<b>0.050</b>	<b>0.001</b>	<b>38</b>	<b>0.01</b>	<b>0.001</b>	<b>0.001</b>	<b>7.47</b>	<b>-</b>
MW1	0.01	0.001	560	0.24	114	1700	0.002	0.108	6010	-	0.05	0.001	361	0.002	0.001	0.056	7.5	-
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>560</b>	<b>0.24</b>	<b>114</b>	<b>1700</b>	<b>0.002</b>	<b>0.108</b>	<b>6010</b>	<b>-</b>	<b>0.050</b>	<b>0.001</b>	<b>361</b>	<b>0.00</b>	<b>0.001</b>	<b>0.056</b>	<b>7.50</b>	<b>-</b>
MW2	0.01	0.001	687	0.05	29	894	0.004	0.001	4180	-	0.05	0.001	62	0.001	0.003	0.001	7.82	-
<b>Average</b>	<b>0.01</b>	<b>0.001</b>	<b>702</b>	<b>0.18</b>	<b>41</b>	<b>1188</b>	<b>0.020</b>	<b>0.001</b>	<b>5083</b>	<b>-</b>	<b>0.050</b>	<b>0.001</b>	<b>94</b>	<b>0.00</b>	<b>0.004</b>	<b>0.001</b>	<b>7.80</b>	<b>-</b>
MW3	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS	-
<b>Average</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>-</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>-</b>



Table 8 continued

Site	Potassium	Selenium	Silver	Sodium	Sulfate as SO <sub>4</sub> - Turbidimetric	Suspended Solids (SS)	Total Dissolved Solids @180°C	Zinc
DD1005	15	0.01	0.001	NS	222	33	3530	0.02
<b>Average</b>	<b>16</b>	<b>0.01</b>	<b>0.001</b>	<b>1119</b>	<b>216</b>	<b>39</b>	<b>3940</b>	<b>0.02</b>
DD1014	10	0.01	0.001	NS	222	16	6430	0.01
<b>Average</b>	<b>12</b>	<b>0.01</b>	<b>0.001</b>	<b>2247</b>	<b>210</b>	<b>16</b>	<b>6120</b>	<b>0.01</b>
DD1015	NS	NS	NS	NS	NS	NS	NS	NS
<b>Average</b>	<b>18</b>	<b>0.01</b>	<b>0.001</b>	<b>981</b>	<b>166</b>	<b>42</b>	<b>3425</b>	<b>0.02</b>
DD1016	14	0.01	0.001	NS	98	9	4080	0.01
<b>Average</b>	<b>15</b>	<b>0.01</b>	<b>0.001</b>	<b>838</b>	<b>97</b>	<b>16</b>	<b>3863</b>	<b>0.01</b>
DD1025	16	0.01	0.001	NS	475	5	9510	0.07
<b>Average</b>	<b>17</b>	<b>0.01</b>	<b>0.001</b>	<b>2317</b>	<b>443</b>	<b>6</b>	<b>8777</b>	<b>0.1</b>
DD1025	5	0.01	0.001	NS	29	16	4070	0.01
<b>Average</b>	<b>5</b>	<b>0.01</b>	<b>0.001</b>	<b>1543</b>	<b>10</b>	<b>12</b>	<b>3943</b>	<b>0.01</b>
DD1032	19	0.01	0.001	NS	142	9	5180	0.01
<b>Average</b>	<b>19</b>	<b>0.01</b>	<b>0.001</b>	<b>1810</b>	<b>139</b>	<b>8</b>	<b>5060</b>	<b>0.01</b>
DD1043	18	0.02	0.001	NS	23	15	4360	0.01
<b>Average</b>	<b>20</b>	<b>0.02</b>	<b>0.001</b>	<b>1505</b>	<b>27</b>	<b>55</b>	<b>4280</b>	<b>0.01</b>

Table 8 continued

Site	Potassium	Selenium	Silver	Sodium	Sulfate as SO <sub>4</sub> - Turbidimetric	Suspended Solids (SS)	Total Dissolved Solids @180°C	Zinc
DD1052	15	0.01	0.001	NS	1	13	7110	0.01
<b>Average</b>	<b>16</b>	<b>0.01</b>	<b>0.001</b>	<b>2570</b>	<b>1</b>	<b>28</b>	<b>6733</b>	<b>0.01</b>
DD1057	NS	NS	NS	NS	NS	NS	NS	NS
<b>Average</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>
MB03	4	0.01	0.001	NS	90	237	1690	0.01
<b>Average</b>	<b>4</b>	<b>0.01</b>	<b>0.001</b>	<b>425</b>	<b>86</b>	<b>354</b>	<b>1690</b>	<b>0.02</b>
MB1A	13	0.01	0.001	NS	84	5	3690	0.02
<b>Average</b>	<b>14</b>	<b>0.01</b>	<b>0.001</b>	<b>1273</b>	<b>87</b>	<b>18</b>	<b>3677</b>	<b>0.01</b>
MB1R	13	0.01	0.001	NS	66	15	3790	0.01
<b>Average</b>	<b>14</b>	<b>0.01</b>	<b>0.001</b>	<b>1277</b>	<b>79</b>	<b>13</b>	<b>3573</b>	<b>0.01</b>
MB1W	5	0.01	0.001	NS	479	5	4480	0.01
<b>Average</b>	<b>7</b>	<b>0.01</b>	<b>0.001</b>	<b>1543</b>	<b>601</b>	<b>37</b>	<b>5557</b>	<b>0.01</b>
MB2A	10	0.01	0.001	NS	2	14	3340	0.01
<b>Average</b>	<b>9</b>	<b>0.01</b>	<b>0.001</b>	<b>1207</b>	<b>2</b>	<b>11</b>	<b>3300</b>	<b>0.01</b>
MB2R	2	0.01	0.001	NS	636	20	5500	0.01
<b>Average</b>	<b>2</b>	<b>0.01</b>	<b>0.001</b>	<b>1567</b>	<b>578</b>	<b>15</b>	<b>5213</b>	<b>0.01</b>

Table 8 continued

Site	Potassium	Selenium	Silver	Sodium	Sulfate as SO <sub>4</sub> - Turbidimetric	Suspended Solids (SS)	Total Dissolved Solids @180°C	Zinc
MB3R	8	0.01	0.001	NS	358	36	4190	0.01
<b>Average</b>	<b>8</b>	<b>0.01</b>	<b>0.001</b>	<b>772</b>	<b>457</b>	<b>21</b>	<b>4080</b>	<b>0.01</b>
MB4A	2	0.01	0.001	NS	33	101	575	0.01
<b>Average</b>	<b>5</b>	<b>0.01</b>	<b>0.001</b>	<b>413</b>	<b>25</b>	<b>38</b>	<b>1268</b>	<b>0.01</b>
MB4C	5	0.01	0.001	NS	19	7	1660	0.01
<b>Average</b>	<b>3</b>	<b>0.01</b>	<b>0.001</b>	<b>217</b>	<b>21</b>	<b>72</b>	<b>885</b>	<b>0.01</b>
MW1	5	0.01	0.001	NS	817	580	4930	0.01
<b>Average</b>	<b>5</b>	<b>0.01</b>	<b>0.001</b>	<b>846</b>	<b>817</b>	<b>580</b>	<b>4930</b>	<b>0.01</b>
MW2	4	0.01	0.001	NS	92	2500	2510	0.01
<b>Average</b>	<b>6</b>	<b>0.02</b>	<b>0.001</b>	<b>939</b>	<b>114</b>	<b>1887</b>	<b>2970</b>	<b>0.01</b>
MW3	NS	NS	NS	NS	NS	NS	NS	NS
<b>Average</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>

## Notes:

The Maxwell UG (MUG) Project Water Management Plan (WMP) was implemented for Q3 2021 and supercedes the requirements of the Maxwell Infrastructure WMP. The MUG Project WMP requires:

- the monthly recording of reduced standing water levels in all bores (standpipes either manually or using loggers and VWPs)
- quarterly recording (field measurement) of all standpipes for pH, EC, redox potential and temperature; and
- biennial sampling and analysis of all standpipes for TDS, TSS, major cations (Ca, Mg, Na), major anions (chloride, sulfate, carbonate, bicarbonate), total alkalinity, and total and dissolved metals (Al, As, B, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Se, Ag & Zn).

Of these, the following are new or amended variables required by the new MUG WMP:

- monthly rather than quarterly recording of reduced standing water levels where there are no loggers (however the long-term plan is to install loggers in all bores); for those with loggers and for the VWPs the data is downloaded quarterly;
- quarterly recording (field measurement) of redox potential and temperature (previously not required);
- biennial sampling and analysis for carbonate and total alkalinity (previously not required); these will be added to the table for Q4 2021 given the first sampling under the new plan occurred in Dec 2021;
- removal of the requirement to record barium (Ba), beryllium (Be), cadmium (Cd), cobalt (Co), potassium (K), vanadium (V), nitrite as N, nitrate as N, mercury (Hg), ammonia as N, total Kjeldahl nitrogen as N, total phosphorus (P) and reactive phosphorus as P.
- removal of bores DD1030, DD1034-A and B, DD1041 A and B.

Sampling for the MI bores under the previous Maxwell Infrastructure WMP transitioned to the new MUG Project WMP. Sampling of the MI bores occurred in December 2021 and hence is next scheduled for July 2022 (Q3 2022). No results are presented in the Q1 2022 report for the MI bore. Sampling of the MUG bores occurred in July 2021 hence the quarterly reporting for Q1 2022 includes the results.

The year-to-date averages includes samples taken on a quarterly basis until the implementation of the new MUG Project WMP, which requires biennial sampling. The exception is for DS1 for which monthly samples are taken as per the EPL for pH, EC, TDS and salinity, and hence the average presented is the average of all samples taken during each of the past 12 months for those variables.

All results are in mg/L except Conductivity ( $\mu\text{S}/\text{cm}$ ), pH (in pH units) and salinity (g/kg). Dissolved metal concentration (mg/L) are presented in **Table 6, Table 7, Table 8**. Plots of total and dissolved metal concentrations are shown in **Appendix 5**.

### ***Trigger levels***

The electrical conductivity trigger level was exceeded at site GW02D in Q4 2021 and is the first exceedance. Monitoring notes indicate that the logger was suspended in mud, implying that the bore contained only mud and no water, hence the high EC value. It is planned that the logger will be raised out of the mud. The TARP for hard rock aquifers requires further investigation following the exceedance of three consecutive groundwater level, pH or EC trigger levels.

**Table 9. All groundwater bores: Reduced standing groundwater levels (mAHD) during Quarter 1 2022 compared to the year-to-date average**

Site (with seam names for VWPs)	Oct	Nov	Dec	Year to date average	Type of bore	Type of measurement as of Sep 2021
DS1	223.92	223.93	(8)	223.93	Standpipe	Manual
R4241	175.69	175.51	(8)	175.60	Standpipe	Manual
F1162	137.18	137.40	139.04	137.87	Standpipe	Manual
F1164	135.28	135.60	(8)	135.44	Standpipe	Manual
GW01D	(6)	202.12	203.02	202.50	Standpipe	Logger
GW01S	(6)	198.73	199.22	198.98	Standpipe	Logger
GW02D	(6)	136.58	136.57	136.55	Standpipe	Logger
GW02S	(6)	191.86	193.54	192.60	Standpipe	Logger
GW04	144.32	144.48	(8)	144.40	Standpipe	Manual
BLK6R12 – VW1 (WB)	159.79	159.97	159.97	159.92	VWP	Logger
BLK6R12 – VW2 (RB)	147.76	147.90	147.87	147.86	VWP	Logger
BLK6R12 – VW3 (WN)	121.92	122.02	122.00	122.11	VWP	Logger
BLK6R12 – VW4 (BK)	121.47	121.63	121.65	121.48	VWP	Logger
DD1005	144.07	144.07	144.05	144.04	Standpipe	Manual
DD1014	133.64	133.60	133.59	133.61	Standpipe	Manual
DD1015	Bore blocked	Bore blocked	Bore blocked	-	Standpipe	Manual
DD1016	141.36	141.41	141.38	141.38	Standpipe	Manual
DD1025	155.33	154.94	155.36	155.21	Standpipe	Manual
DD1027	133.89	133.91	134.00	133.93	Standpipe	Manual
DD1032	128.38	128.31	128.42	128.37	Standpipe	Manual
DD1043	128.63	128.45	128.61	128.56	Standpipe	Manual
DD1052	115.17	115.17	115.23	115.36	Standpipe	Manual

DD1057	124.43	124.38	124.40	124.40	Standpipe	Manual
MB03 <sup>(1)</sup>	114.79	114.82	114.85	114.80	Standpipe	Logger
MB1-Alluvial	73.62	73.36	74.29	73.76	Standpipe	Logger
MB1-Redbank	75.36	75.37	75.88	75.54	Standpipe	Manual
MB1-Whybrow	74.86	74.75	75.23	74.95	Standpipe	Manual
MB2-Alluvial	113.77	113.62	114.01	113.81	Standpipe	Logger
MB2-Regolith	115.36	115.31	115.58	115.47	Standpipe	Logger
MB3-Alluvial	129.64	129.64	130.05	129.71	Standpipe	Logger
MB3-Regolith	129.29	129.17	129.58	129.35	Standpipe	Logger <sup>(2)</sup>
MB4-Alluvial	72.02	71.54	72.45	72.00	Standpipe	Logger
MB4-Coal	71.81	70.36	72.39	71.52	Standpipe	Manual
MW1	129.01	128.85	129.39	129.06	Standpipe	Logger
MW2	112.99	112.89	113.09	112.99	Standpipe	Logger
MW3	(8)	(8)	(8)	(8)	Standpipe	Manual
RBD1 – VW1 (WB)	147.70	147.85	147.87	147.71	VWP	Logger
RBD1 – VW2 (RB)	143.03	143.17	143.16	143.15	VWP	Logger
RBD1 – VW3 (WN)	128.36	128.34	128.37	128.12	VWP	Logger
RBD1 – VW4 (BK)	87.97	88.03	88.09	87.96	VWP	Logger
RD1189 – VWP1 (WH)	184.59*	(9)	184.59*	185.09	VWP	Logger
RD1189 – VWP2 (AZZBF)	59.05*	(9)	58.45*	58.69	VWP	Logger
RD1189 – VWP3 (WW12)	142.11*	(9)	142.05*	142.18	VWP	Logger
RD1189 – VWP4 (Mt Arthur seam)	140.87*	(9)	141.05*	141.07	VWP	Logger
RD1189 – VWP5 (PF2)	136.60*	(9)	136.78*	136.46	VWP	Logger
RD1189 – VWP6 (BY)	136.42*	(9)	137.10*	135.83	VWP	Logger

RD1189 – VWP7 (WY)	134.34*	(9)	135.56*	134.88	VWP	Logger
RD1192- VWP1 (WB)	149.01*	149.13*	148.19*	148.45	VWP	Logger
RD1192- VWP2 (RB)	132.80*	132.87*	134.15*	133.24	VWP	Logger
RD1192-VWP3 (BK)	149.57*	149.80*	147.57*	148.75	VWP	Logger
MB1VWP (VWP1) (INT)	75.73	75.68	76.15	75.28	VWP	Logger
MB1VWP (VWP2) (INT)	86.80	86.81	86.97	86.95	VWP	Logger
MB1VWP (VWP3) (INT)	95.21	95.19	95.41	95.27	VWP	Logger
MB1VWP (VWP4) (WB)	96.55	96.52	96.79	96.60	VWP	Logger
MB1VWP (VWP5) (WN)	100.15	100.17	100.39	99.84	VWP	Logger
WND16 (VWP1) (WB)	112.30	112.68	112.26	112.58	VWP	Logger
WND16 (VWP2) (WN)	106.93	107.08	107.51	107.17	VWP	Logger
WND16 (VWP4) (BK)	108.99	109.36	109.31	109.32	VWP	Logger
WND26 (VWP1) (WB)	134.34	134.44	134.57	134.37	VWP	Logger
WND26 (VWP2) (RB)	130.29	130.39	130.51	130.35	VWP	Logger
WND26 (VWP3) (WA)	137.51	137.73	137.83	137.06	VWP	Logger

1. In addition to a water level logger, a barologger was installed at MB3-Regolith on 23 August 2021 (a barologger enables the correction of water level for barometric pressure for all bores for this project). Prior to August, it was installed at DD1032.
2. In August 2021, loggers in DD1043, DD1057, DD1014, DD1025 and DD1032 were removed and placed into other bores that the Environmental Statement committed to containing loggers.

3. GWLs for the Maxwell Infrastructure loggers are the values on the same day as the manual measurements taken in the bores without loggers. See notes under Table 7 for an explanation of any NS.
4. GWLs for the Maxwell Underground loggers are the values taken on the 15th of each month (as the manual measurements are taken over a number of days due to the number of loggers). If there are multiple values on the same day, the average of the daily values is presented.
5. Data from MB1VWP (VWP5)(WN) and WND16 (VW3) (BK) was not available during the reporting period; no data is available from WND26 from 11/07/21 to 27/10/21; this is due to data download errors by the monitoring contractor. The latest available groundwater data at site RD1189 over the reporting period is on 23/11/2021 due to low battery voltage.
6. New Solinst Levellogger 5's were installed in MB03, MB1 – Alluvial, MB4 - Alluvial, MB3 – Alluvial, MB2 – Regolith, GW01D, GW01S, GW02D and GW02S in August 2021. In addition, older loggers from DD1057, DD1014, DD1015, DD1025 and DD1032 were relocated to MB2 – Alluvial, MW2, MW1, MB3 – Regolith. Malabar became aware of an issue with the firmware installed on these new loggers in January 2022; the issue caused the loggers to stop recording in mid-November. Following identification of the issue and in consultation with Solinst, the firmware was upgraded and the loggers were redeployed in February 2022. Manual measurements recommenced monthly at all bores in January 2022 and will continue until confidence in the loggers can be obtained. Data in this table is therefore manual measurements unless not taken; if manual measurements were not taken an average of the monthly logger recordings are included, where available. Hence for those bores, there is a gap in data between mid-November 2021 and when the monthly manual measurements recommenced in January 2022.
7. Manual measurements were not taken in August and September 2021, as the Groundwater Management Plan at that time required only quarterly measurements (July and October). If data is shown for those months they are logger recordings, where loggers were installed. Annual averages are calculated from manual measurements only, to avoid calculating an average from two different measurement techniques.
8. There was no access to site DS1, R4241, F1164 and GW04 in March 2022 due to flooding events and no access at MW3 over the reporting period.
9. No groundwater levels are available at site RD1189 in February 2022 due to battery voltage, hence no results were recorded. A new battery was installed, with further monitoring in the next review period.

\* GWLs for the Maxwell Underground VWPs are the values taken on the 15th of each month. If there are multiple values on the same day, the average of the daily values is presented. If no data is recorded on the 15th of the month, then the closest recorded value to the 15th of the month is presented (see\*).

Acronyms: DD = diamond drill hole. mAHD = meters above Australian Height Datum (the elevation of the water level is calculated by subtracting the Depth to Water from the reference elevation). n/a = not available. NS = not sampled. RH = rotary drill hole. VWP = Vibrating wire piezometer and logger. Seam acronyms: BK = Blakefield seam; BY = Bayswater seam; MA = Mt Arthur seam; PF = Piercefield seam; INT = Interburden; WB = Wambo seam; RB = Redbank Creek seam; WA = tbc; WH = Woodlands Hill seam; WN = Whynot seam; WY = Wynn seam. WW = Warkworth seam; ZZ = indicates that the seam is intruded or heat affected.



### Noise monitoring results for Quarter 1 2022

Noise monitoring under the Noise and Blasting Management Plan (NBMP) for the Maxwell Underground Coal Mine Project commenced in September 2021 at monitoring sites NM1 to NM4 as required by the plan.

To date, the Maxwell Underground Project has been inaudible at all locations and all dates.

**Table 10. Noise monitoring results for 10 January 2022**

EPA identification no.	Sampling point	Day (L <sub>A</sub> eq (15 minute))		Evening (L <sub>A</sub> eq (15 minute))		Night (L <sub>A</sub> eq (15 minute))		Night (L <sub>A1</sub> (1 minute))		Exceedance (yes/no)	Observations
		Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level		
16	NM1	45	65	41	63	41	59	52	85	No	Project inaudible
17	NM2	44	44	40	58	40	43	52	56	No	Project inaudible
18	NM3	40	55	35	53	35	47	52	66	No	Project inaudible
-	NM4	40	71	35	70	35	66	52	90	No	Project inaudible
Additional Information											
Date of Final Report	21 January 2022										
Weather Conditions	Wind speed 1.2–4.8 m/s. No rain during monitoring.										
Notes	Measured noise sources included traffic, birds, insects and frogs. The Maxwell Underground Coal Mine Project was inaudible at all locations and times.										

**Table 11. Noise monitoring results for 11 January 2022**

EPA identification no.	Sampling point	Day (L <sub>A</sub> eq (15 minute))		Evening (L <sub>A</sub> eq (15 minute))		Night (L <sub>A</sub> eq (15 minute))		Night (L <sub>A1</sub> (1 minute))		Exceedance (yes/no)	Observations
		Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level		
16	NM1	45	67	41	58	41	50	52	78	No	Project inaudible
17	NM2	44	46	40	54	40	43	52	56	No	Project inaudible
18	NM3	40	55	35	53	35	50	52	71	No	Project inaudible
-	NM4	40	72	35	70	35	65	52	92	No	Project inaudible
<b>Additional Information</b>											
Date of Final Report	21 January 2022										
Weather Conditions	Wind speed 1.2–4.2 m/s. No rain during monitoring.										
Notes	Measured noise sources included traffic, birds, a train, insects, & frogs. The Maxwell Underground Coal Mine Project was inaudible at all locations and times.										

**Table 12. Noise monitoring results for 12 January 2022**

EPA identification no.	Sampling point	Day (L <sub>A</sub> eq (15 minute))		Evening (L <sub>A</sub> eq (15 minute))		Night (L <sub>A</sub> eq (15 minute))		Night (L <sub>A1</sub> (1 minute))		Exceedance (yes/no)	Observations
		Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level		
16	NM1	45	66	41	64	41	60	52	87	No	Project inaudible
17	NM2	44	45	40	58	40	46	52	64	No	Project inaudible
18	NM3	40	71	35	55	35	44	52	65	No	Project inaudible
-	NM4	40	56	35	67	35	64	52	91	No	Project inaudible
<b>Additional Information</b>											
Date of Final Report	21 January 2022										
Weather Conditions	Wind speed 1.9–8.1 m/s. No rain during monitoring.										
Notes	Measured noise sources included traffic, birds, insects & frogs. The Maxwell Underground Coal Mine Project was inaudible at all locations and times.										

**Table 13. Noise monitoring results for 21 February 2022**

EPA identification no.	Sampling point	Day (L <sub>A</sub> eq (15 minute))		Evening (L <sub>A</sub> eq (15 minute))		Night (L <sub>A</sub> eq (15 minute))		Night (L <sub>A1</sub> (1 minute))		Exceedance (yes/no)	Observations
		Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level		
16	NM1	45	65	41	62	41	40	52	60	No	Project inaudible
17	NM2	44	60	40	41	40	36	52	52	No	Project inaudible
18	NM3	40	54	35	51	35	59	52	70	No	Project inaudible
-	NM4	40	71	35	69	35	72	52	95	No	Project inaudible
<b>Additional Information</b>											
Date of Final Report	7 March 2022										
Weather Conditions	Wind speed 1.4–4.2 m/s. No rain during monitoring.										
Notes	Measured noise sources included traffic, birds, insects, frogs and cows. The Maxwell Underground Coal Mine Project was inaudible at all locations and times.										

**Table 14. Noise monitoring results for 22 February 2022**

EPA identification no.	Sampling point	Day (L <sub>A</sub> eq (15 minute))		Evening (L <sub>A</sub> eq (15 minute))		Night (L <sub>A</sub> eq (15 minute))		Night (L <sub>A1</sub> (1 minute))		Exceedance (yes/no)	Observations
		Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level		
16	NM1	45	68	41	63	41	41	52	86	No	Project inaudible
17	NM2	44	53	40	36	40	61	52	54	No	Project inaudible
18	NM3	40	56	35	56	35	49	52	68	No	Project inaudible
-	NM4	40	72	35	69	35	66	52	90	No	Project inaudible
<b>Additional Information</b>											
Date of Final Report	7 March 2022										
Weather Conditions	Wind speed 2.8–9.4 m/s. No rain during monitoring.										
Notes	Measured noise sources included traffic, birds, insects, & frogs. The Maxwell Underground Coal Mine Project was inaudible at all locations and times.										

**Table 15. Noise monitoring results for 23 February 2022**

EPA identification no.	Sampling point	Day (L <sub>A</sub> eq (15 minute))		Evening (L <sub>A</sub> eq (15 minute))		Night (L <sub>A</sub> eq (15 minute))		Night (L <sub>A1</sub> (1 minute))		Exceedance (yes/no)	Observations
		Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level		
16	NM1	45	69	41	65	41	60	52	86	No	Project inaudible
17	NM2	44	44	40	45	40	38	52	57	No	Project inaudible
18	NM3	40	69	35	54	35	48	52	70	No	Project inaudible
-	NM4	40	55	35	67	35	68	52	90	No	Project inaudible
<b>Additional Information</b>											
Date of Final Report	7 March 2022										
Weather Conditions	Wind speed 1.4–10.2 m/s. No rain during monitoring.										
Notes	Measured noise sources included traffic, birds, insects & frogs. The Maxwell Underground Coal Mine Project was inaudible at all locations and times.										

**Table 16. Noise monitoring results for 16 March 2022**

EPA identification no.	Sampling point	Day (L <sub>A</sub> eq (15 minute))		Evening (L <sub>A</sub> eq (15 minute))		Night (L <sub>A</sub> eq (15 minute))		Night (L <sub>A1</sub> (1 minute))		Exceedance (yes/no)	Observations
		Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level		
16	NM1	45	67	41	64	41	59	52	82	No	Project inaudible
17	NM2	44	41	40	44	40	46	52	57	No	Project inaudible
18	NM3	40	54	35	56	35	54	52	70	No	Project inaudible
-	NM4	40	72	35	67	35	60	52	89	No	Project inaudible
<b>Additional Information</b>											
Date of Final Report	5 April 2022										
Weather Conditions	Wind speed 2.3–6.5 m/s. No rain during monitoring.										
Notes	Measured noise sources included traffic, birds, insects, frogs. The Maxwell Underground Coal Mine Project was inaudible at all locations and times.										

**Table 17. Noise monitoring results for 17 March 2022**

EPA identification no.	Sampling point	Day (L <sub>A</sub> eq (15 minute))		Evening (L <sub>A</sub> eq (15 minute))		Night (L <sub>A</sub> eq (15 minute))		Night (L <sub>A1</sub> (1 minute))		Exceedance (yes/no)	Observations
		Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level		
16	NM1	45	67	41	62	41	61	52	88	No	Project inaudible
17	NM2	44	52	40	44	40	44	52	53	No	Project inaudible
18	NM3	40	50	35	56	35	52	52	68	No	Project inaudible
-	NM4	40	71	35	70	35	64	52	89	No	Project inaudible
<b>Additional Information</b>											
Date of Final Report	5 April 2022										
Weather Conditions	Wind speed 2.0–3.2 m/s. No rain during monitoring.										
Notes	Measured noise sources included traffic, birds, insects, frogs. The Maxwell Underground Coal Mine Project was inaudible at all locations and times.										



**Table 18. Noise monitoring results for 18 March 2022**

EPA identification no.	Sampling point	Day (L <sub>A</sub> eq (15 minute))		Evening (L <sub>A</sub> eq (15 minute))		Night (L <sub>A</sub> eq (15 minute))		Night (L <sub>A1</sub> (1 minute))		Exceedance (yes/no)	Observations
		Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level	Criteria	Noise Level		
16	NM1	45	68	41	61	41	49	52	78	No	Project inaudible
17	NM2	44	42	40	41	40	45	52	60	No	Project inaudible
18	NM3	40	53	35	56	35	50	52	68	No	Project inaudible
-	NM4	40	72	35	69	35	57	52	86	No	Project inaudible
<b>Additional Information</b>											
Date of Final Report	5 April 2022										
Weather Conditions	Wind speed 1.6–6.1 m/s. No rain during monitoring.										
Notes	Measured noise sources included traffic, birds, insects, frogs, and dogs. The Maxwell Underground Coal Mine Project was inaudible at all locations and times.										

# APPENDIX 1 – AIR QUALITY MONITORING LOCATIONS





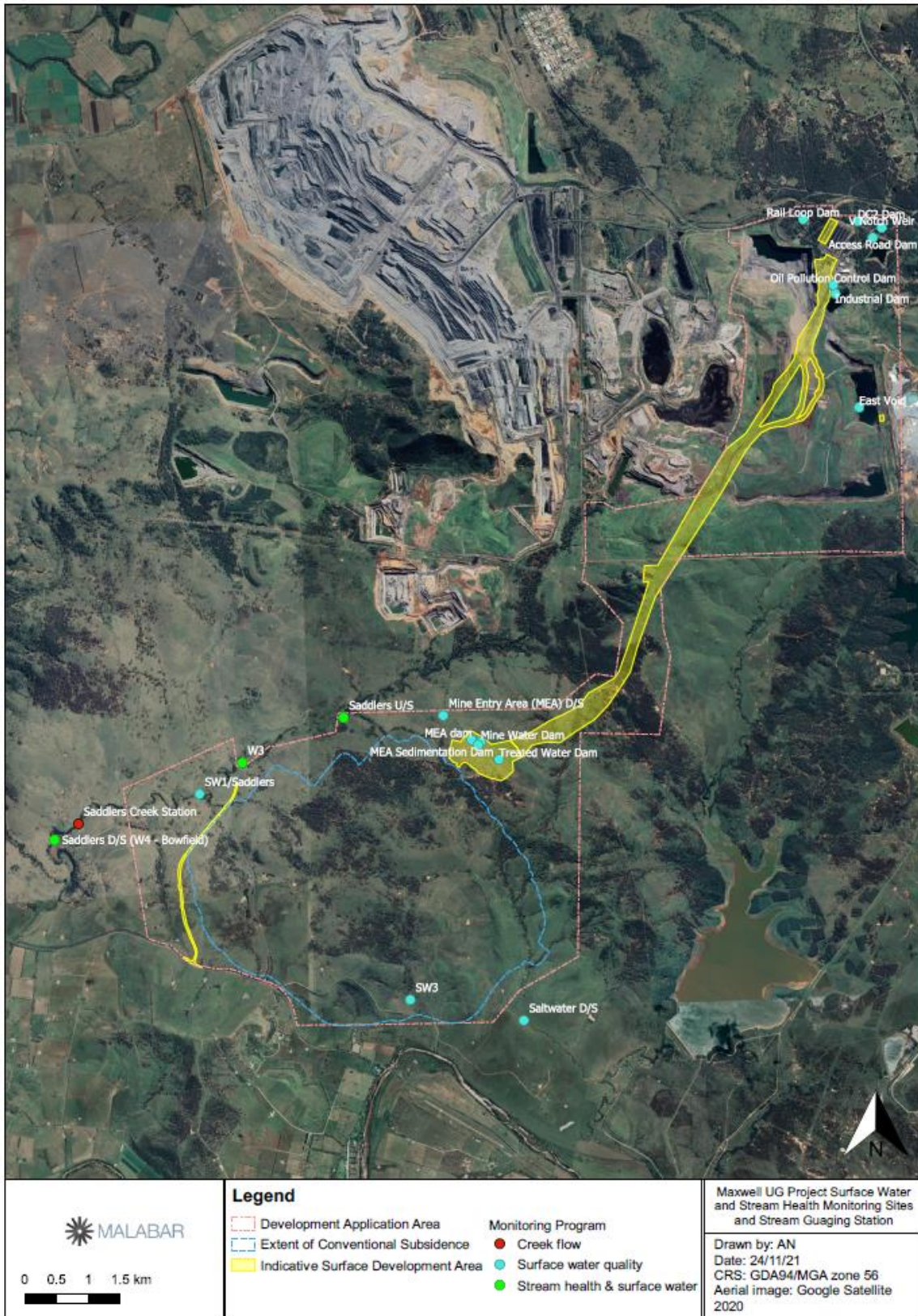
# APPENDIX 2 – NOISE AND BLAST MONITORING LOCATIONS



Figure 1. Noise and Blast Monitoring Locations



# APPENDIX 3 – SURFACE WATER MONITORING LOCATIONS





# APPENDIX 4 – GROUNDWATER MONITORING LOCATIONS



## APPENDIX 5 – GROUNDWATER TOTAL AND DISSOLVED METALS CONCENTRATIONS

