Monthly Water Quality Monitoring Results, Cabbage Tree Road Sand Quarry, NSW

November 2023 Monitoring Event

NCA23R161538

2 February 2024

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2 February 2024
NCA23R161538

Williamtown Sand Syndicate (WSS)
PO Box 898
Newcastle, NSW 2300

Attention: Darren Williams

Subject: Monthly Water Quality Monitoring Results, Cabbage Tree Road Sand Quarry, NSW
November 2023 Monitoring Event

Please find enclosed the monthly water quality monitoring results for the November 2023 monitoring event undertaken by Kleinfelder at the Cabbage Tree Road Sand Quarry, NSW (herein referred to as the 'site').

1 SCOPE OF WORK

The scope of work presented in this report includes the results from the monthly groundwater monitoring event undertaken in accordance with the NSW Environment Protection Authority (EPA) and Department of Planning and Environment (DPE) requirements for monthly water quality monitoring at the site. **Figure 1**, **Attachment 1** presents the groundwater sampling locations.

The scheduled November 2023 monitoring event included gauging of ten (10) monitoring wells, recording of field parameters for groundwater, surface water and sampling from seven (7) monitoring wells and one (1) Wash Plant Water (WPW) sample as outlined in the Soil and Water Management Plan (SWMP, 2021) for the quarry. It is noted that the scheduled November 2023 quarterly event will be conducted in December 2023.

2 SITE WORK

The monthly monitoring round was conducted on the 22nd of November 2023 and comprised:

- Gauging of ten monitoring wells (BH1A, BH2, BH4, BH6, BH7, BH9, BH9A, BH11, BH12A & MW239S) as summarised in **Table 4**.
- Groundwater sampling from seven monitoring wells (BH2, BH4, BH6, BH7, BH9A, BH11 & MW239S) for water quality parameters and contaminants of potential concern, as summarised in **Table 4** and **Table 5** respectively.
- One WPW sample (WPW2) as summarised in **Table 6**.

All field records and tabulated data are presented in **Attachment 2**

Each well location was gauged using a water level meter to determine groundwater depth (relative to the top of the well casing) and the total depth of the well in order to determine potential sand/silt inundation and potential maintenance requirements. Following gauging, a HydraSleeve was placed into the well, ensuring the top of the sleeve was located below the water column to be sampled, and suspended in place while all remaining wells were gauged. Each HydraSleeve was then removed from the well and representative groundwater samples taken.

The WPW sample was collected directly into laboratory supplied sample containers using a nitrile-gloved hand.

All samples collected were placed into an ice chilled esky and then submitted to a National Association of Testing Authorities (NATA) accredited laboratory under a chain of custody (COC) for the analytical schedule as per **Table 1**.

Table 1: Summary of Monthly Water Quality Analysis (November 2023)

Analysis	Number of Samples				
	Primary	Intra-lab (Duplicate)	Inter-lab (Triplicate)	Transport Blank	Rinsate Blank
Metals*	8	0	0	1	1
PFAS (28 analytes, standard level)	1	0	0	1	1

* - Metals suite (dissolved) – arsenic (As), iron (Fe) and manganese (Mn)
Note: the scheduled quarterly monitoring event will be conducted in December 2023

Table 2 provides a summary of the gauging data for November 2023. The full set of gauging data for each monitoring location is provided in **Table 13**, **Attachment 2**. Additionally, Watershed HydroGeo (2019) outlined a Trigger Action and Response Plan (TARP) to mitigate groundwater elevations that may potentially impact Cabbage Tree Road Sand Quarry operations (primarily sand excavation depths). Based on these recommendations, groundwater elevation has been shaded to correspond to triggers and actions outlined in **Table 3.** There were no instances of TARP Level Exceedances during the November monitoring event.

Table 2: Summary of Gauging Data (November 2023)

Well ID	Top of Casing (mAHD)	Depth to Water (mBTOC)	Ground-water Elevation (mAHD)	Well Total Depth Current (mBTOC)	Well Total Depth 2014 (mBTOC)	Inferred Max GW Elevation (mAHD)[1]	Difference Between Inferred Max and Measured GW Elevation (mAHD)	Comment
BH1A	8.98	5.749	3.231	12.153	N/A	4.5[2]	1.269	Gauge only
BH2	7.79	5.429	2.361	8.803	9.45	3.8	1.439	Brown, no odour, no sheen
BH4	3.06	1.567	1.493	6.01	6.45	3.0[3]	1.507	Clear, no odour, no sheen
BH6	3.62	1.417	2.203	4.537	4.95	4.4	2.197	Clear, Sulphur odour, no sheen
BH7	2.98	1.513	1.467	4.525	4.95	3.7	2.233	Clear, Sulphur odour, no sheen
BH9	17.75	Dry	-	16.085	18.8	3.0[3]	3	Gauge only
BH9A	10.75	9.158	1.592	12.2	16.16	3.0[3]	1.408	Brown, moderate sulphur odour, no sheen
BH11	6.63	2.82	3.81	5.23	5.95	5.5	1.69	Clear, Sulphur odour, no sheen
BH12A	5.62	3.202	2.418	7.31	NA	4.0[5]	1.582	Gauge only
MW239S	3.04	1.175	1.865	3.785	4.0	3.9[4]	2.035	Brown, Sulphur odour, no sheen

[1] – Sourced from Watershed HydroGeo ,2019, *Maximum Extraction Depth Management Plan, Cabbage Tree Road Sand Quarry*, May 2019.
[2] – Inferred Max Groundwater level based on former adjacent well (BH1).
[3] – Inferred Max Groundwater level based on adjacent wells (BH4 & BH9).
[4] – Inferred Max Groundwater level based on adjacent well (MW239S).
[5] – Inferred Max Groundwater level based on former adjacent well (BH12).

Table 3: Groundwater Level Monitoring TARP Rules (Watershed HydroGeo, 2019)

Level	Trigger	Action and Response	Report / Response Actions
0	Groundwater levels more than 0.5 m below *inferred* maximum historical level (**Table 2**).	Standard operations – monthly dipping of operational on-site monitoring bores.	N/A
1	Groundwater levels within 0.5 m below *inferred* maximum historical level (**Table 2**) at any on-site bore.	Weekly (or more frequent) monitoring (dipping) of groundwater levels until water level declines to below high frequency level bores listed in **Table 2**.	Internal and environmental consultant. Include note in Annual Report.
2	Groundwater levels within 0.25 m of *inferred* maximum historical level (**Table 2**) at any on-site bore.	Weekly (or more frequent) monitoring (dipping) of groundwater levels. Re-analysis and review of Minimum Extraction Level (MEL).	WSS to issue letter to DPIE, documenting groundwater level and rainfall trends, review and make recommendations regarding MEL.
3	Groundwater levels within resource area rise above previously *inferred* maximum groundwater level (**Table 2**).	Analysis of recent data by hydrogeologist, including site data and data from local HWC wells and local Defence wells (if available). Revision of MEL. Remediation of earlier excavations to revised MEL if required by DPIE.	WSS to issue letter to DPIE, DoI Water and HWC, documenting groundwater level trends, and revision (if necessary) of MEL. Letter to outline remedial options, considering access, vegetation condition in previously rehabilitated areas. Re-grading of previously rehabilitated areas if required by DPIE.

Table 4 provides a summary of the field parameters taken during the November 2023 monitoring event. All field parameters for each monitoring location are detailed in the field sheets provided in **Attachment 2**.

Table 4: Summary of Field Measurements

Well ID	Temp (°C)	DO (mg/L)	EC (µS/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)
BH1A	ND	ND	ND	ND	ND	ND	ND
BH2	19.3	5.32	55.6	43	5.34	183.4	85
BH4	20	3.35	69.2	50	5.93	200	24
BH6	20.9	3.24	202.2	142	5.38	-90.4	31
BH7	20.5	2.19	86.6	62	5.3	-78	66
BH9	ND	ND	ND	ND	ND	ND	ND
BH9A	19.9	2.3	162.9	117	5.3	1	85
BH11	19.1	4.19	79.5	58	5.45	-94	45
BH12A	ND	ND	ND	ND	ND	ND	ND
MW239S	20.9	3.07	79.6	56	5.26	-78.8	180
WPW2	22.8	8.4	200	136	5.06	151.3	360

ND: No Data – no sample taken

Table 5 below presents a summary of the groundwater monitoring results for key analytes reported above the laboratory limit of reporting (LOR).

Table 5: Summary of Groundwater Analytical results and Adopted Criteria

Analyte	Metals			Discussion of results relative to previous monitoring (details on specific data trends provided in Section 4 below)
	Arsenic	Iron	Manganese	
LOR	0.001	0.05	0.001	
Units	mg/L	mg/L	mg/L	
Adopted Site Specific Trigger Values (SWMP 2021)	0.003	4.1 (8.84 for BH1A)	0.136	
Samples				
BH1A	NS	NS	NS	Metals for BH1A were not sampled - gauge only.
BH2	<0.001	<0.05	0.002	Metal concentrations were generally consistent with historical results and remain below the adopted criteria. BH2 is located marginally down hydraulic gradient from the current quarry operations footprint.
BH4	<0.001	0.06	0.013	Metal concentrations were generally consistent with historical variations and remain below the adopted criteria. BH4 is located down hydraulic gradient (approximately 700 m) from current quarry operations and on the southernmost boundary of the site adjacent to Cabbage Tree Road.
BH6	<0.001	3.21	0.006	Metal concentrations are generally consistent with historical results and remain below the adopted criteria. BH6 is considered up hydraulic gradient (approximately 860 m) from current quarry operations and the most north-eastern location at the site.
BH7	<0.001	0.36	0.004	Metal concentrations were generally consistent with historical results and are below the adopted criteria. BH7 is located (approximately 960 m) east of the current quarry operations.
BH9	NS	NS	NS	Metals for BH9 were not sampled - gauge only.
BH9A	<0.001	0.8	0.061	Metal concentrations were generally consistent with historical results and below the adopted criteria. BH9A is down gradient (approximately 700m) from current quarry operations and is on the southern-most boundary of the site adjacent to Cabbage Tree Road.
BH11	<0.001	0.55	0.004	Metal concentrations were generally consistent with historical results and below the adopted criteria. BH11 is located approximately 460 m from current quarry operations and at the most north-western point of the site.
BH12A	NS	NS	NS	Metals for BH12A were not sampled - gauge only.
MW239S	<0.001	0.14	0.005	Metal concentrations were generally consistent with historical results and below the adopted criteria. MW239S is located approximately 800 m east of the current quarry operations.

Notes:
< = less than laboratory limit of reporting, NS = no sample taken

Table 6 presents a summary of the wash plant sample results for key PFAS analytes in water. The site-specific groundwater criteria outlined in the SWMP (2021) has been applied to this monthly report, including a comparison of results with previous data. PFAS compounds were not detected within the wash plant water sample (WPW2) during this monitoring event.

Table 6: Wash Plant Water Sample Results and Screening Criteria

Analyte	PFAS				Discussion of results
	PFOA	PFOS	PFHxS	Sum of PFOS + PFHxS	
LOR	0.01	0.01	0.01	0.01	
Units	µg/L	µg/L	µg/L	µg/L	
Site Specific Trigger Values (SWMP 2021)	0.56	N/A	N/A	0.07	
Sample Name	Sand Wash Plant				
WPW2	<0.01	<0.01	<0.01	<0.01	Concentrations of PFAS compounds were not detected above the laboratory (LOR) during this monitoring event.

Notes:
< - Less than laboratory limit of reporting

Full results summary tables, including quality assurance/quality control (QA/QC) sample analyses, are provided in **Attachment 2**. No duplicate or triplicate samples were collected for this GME. Field rinsate and trip blank samples collected by Kleinfelder did not detect any analytes above the laboratory LOR.

Based on a review of the QA/QC Compliance Assessment provided by ALS, no outliers were identified, and the overall data quality is considered acceptable for interpretive use. Copies of the final NATA endorsed laboratory reports, including internal QA/QC results and chain-of-custody documentation are provided in **Attachment 3.**

3 RAINFALL DATA

Table 7 presents the rainfall data from Williamtown RAAF base (Station Number: 061078, Latitude: 32.79°S; Longitude: 151.84°E; Elevation: 8 m) for the period 2022/23. The total monthly rainfall for November was reported below the monthly mean and marginally greater than the previous two months. This marks seven consecutive months of below average rainfall since the May 2023 monitoring event. Based on current rainfall data (mean and monthly totals) for November 2023, it is expected that groundwater elevations will continue to decrease due to a lag in groundwater response, broadly consistent with current groundwater trend data.

Table 7: 2022-2023 Rainfall data (12-month period)

Date	Dec (22)	Jan (22)	Feb (23)	Mar (23)	Apr (23)	May (23)	Jun (23)	Jul (23)	Aug (23)	Sep (23)	Oct (23)	Nov (23)
1st	0	0	0	0.2	0	0	0	0	0	0	0	0
2nd	0	0	0	0	11.2	0	0	0	0	4.2	0	0
3rd	0	0	0	0	2.4	0	0	0	0	0	0	2.4
4th	0	0	0.6	1	3.4	0	0	2.2	0	0	0	0
5th	0	13.8	0	0	ND	0	0.2	5	0	0.2	7	0
6th	0.4	5.6	0	0	6.8	0	0.8	0	12.6	0	0	19.4
7th	0	21.2	0	0	3	0	0	0	8.8	0	3	0.2
8th	0	4.8	0	0	10.6	4.6	0	0	1.6	4.4	0.2	0
9th	0	ND	0	0	0.2	0	0.6	0	0.4	3.8	0	0
10th	0	0	0	0	0	0	0	0	0	0	0	16
11th	0	0	0.2	0	0	0	0	0	0	0	0	0.2
12th	0	0	0	0	0	0	0	0	0	0	0	0
13th	5.6	0	0	4.2	11.6	0	1.2	ND	0	0	1.2	0
14th	0	0	21.2	1.6	25.4	0.2	0.6	0	4.6	0	0.2	0
15th	0	ND	1	7.4	2	0	0	0	8.4	0	0	0
16th	0.2	0	0.2	0.2	0	0	0	0	ND	0	0	0
17th	4.2	0	0	0	0	11.4	0	5.4	0	0	0.2	8.2
18th	2.8	0	0	0	0	22.2	0	0.2	ND	0	0	0.2
19th	3	0.2	1.8	0	0	2.2	0	0.8	0	0.6	0.6	0
20th	0	21.4	0.2	0	3.2	0	0	0	0	0	0	0
21st	2	0.8	0	0.6	29.4	0	0	0.4	0	0	0	0.6
22nd	0	9.0	45.6	0	0.8	0	0	1	0	0	0	0.4
23rd	0.2	4.4	35	0	0	0	3.6	0	1.8	0	0	0
24th	0.8	0	1.2	25.6	0.2	0	0.2	22	2.4	0	0	5.4
25th	0	0	0	31.4	0	0	0	1	0	0	0	0.2
26th	0	0	0	1.8	0	0.2	0	0.2	0	0	7.2	0

27th	0	3.6	0	0	0	45.8	0	0.2	0	0	35	0.2
28th	0	0	0.4	22.4	0	0	0	0	0	3.2	4.8	1.2
29th	0	0	-	8.8	0	0	1.6	0	0	0	0.2	5.6
30th	0	3.4	-	0.8	8.2	0	0	ND	ND	0.2	0	5.2
31st	0	18.0	-	0	-	0	-	ND	7	-	0	-
Total	19.2	106.2	107.4	106	118.4	86.6	8.8	38.4	47.6	16.6	59.6	65.4
Historical Mean	77.1	99.4	118.8	128.0	109.6	108.2	121.5	75.2	71.7	60.1	75.9	82.9

Notes:
ND – no data retrieved.

4 DATA TRENDS

Data trends, based on from analyses undertaken throughout the duration of the sampling program (January 2019 – present), are provided as **Attachment 4.** Generally, groundwater elevations have increased over the last four years with a notable spike in elevation following the March 2021 and February 2022 water monitoring events. A general increase in groundwater elevations across the site occurred during 2022 and is predominantly due to the above average rainfall recorded for most months during the year. Since October 2022 groundwater elevations have decreased across the site, with a minor rebound across the March and April 2023 monitoring events, coinciding with the above average rainfall received during this period as presented in **Section 3**. Site wide groundwater elevations since June 2023 have shown a generally steady decreasing trend with some locations stabilising during at past two monitoring events due to the marginally increasing rainfall discussed above in **Section 3,** in line with expected annual fluctuations.

Notable changes in data trends were observed for the following analytes:

- Iron – The reported iron concentrations at BH6 had reported concentrations greater than the site-specific trigger value (4.1 mg/L) for the past eight consecutive months beginning in March 2023 with a peak concentration reported during the July 2023 monitoring event (6.78mg/L). The reported concentration of iron during this Groundwater Monitoring Event (GME) (3.21 mg/L) has decreased below the site-specific trigger value after three consecutive months of a decreasing trend.
- PFAS – PFAS compounds, including PFOA, PFOS, PFHxS, and Sum of PFOS + PFHxS were not detected in the WPW2 sample during this monitoring event.

5 CLOSING

Overall, the results suggest that since quarry operations began in August 2019, there has been negligible change in analytical results across the sampled locations. Groundwater level monitoring TARP rules, outlined in **Section 2,** recorded no exceedances at any locations during the November 2023 monitoring event.

No analyte exceedances were reported at any locations during the November 2023 monitoring event.

We trust that the above report meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Kleinfelder Australia Pty Ltd

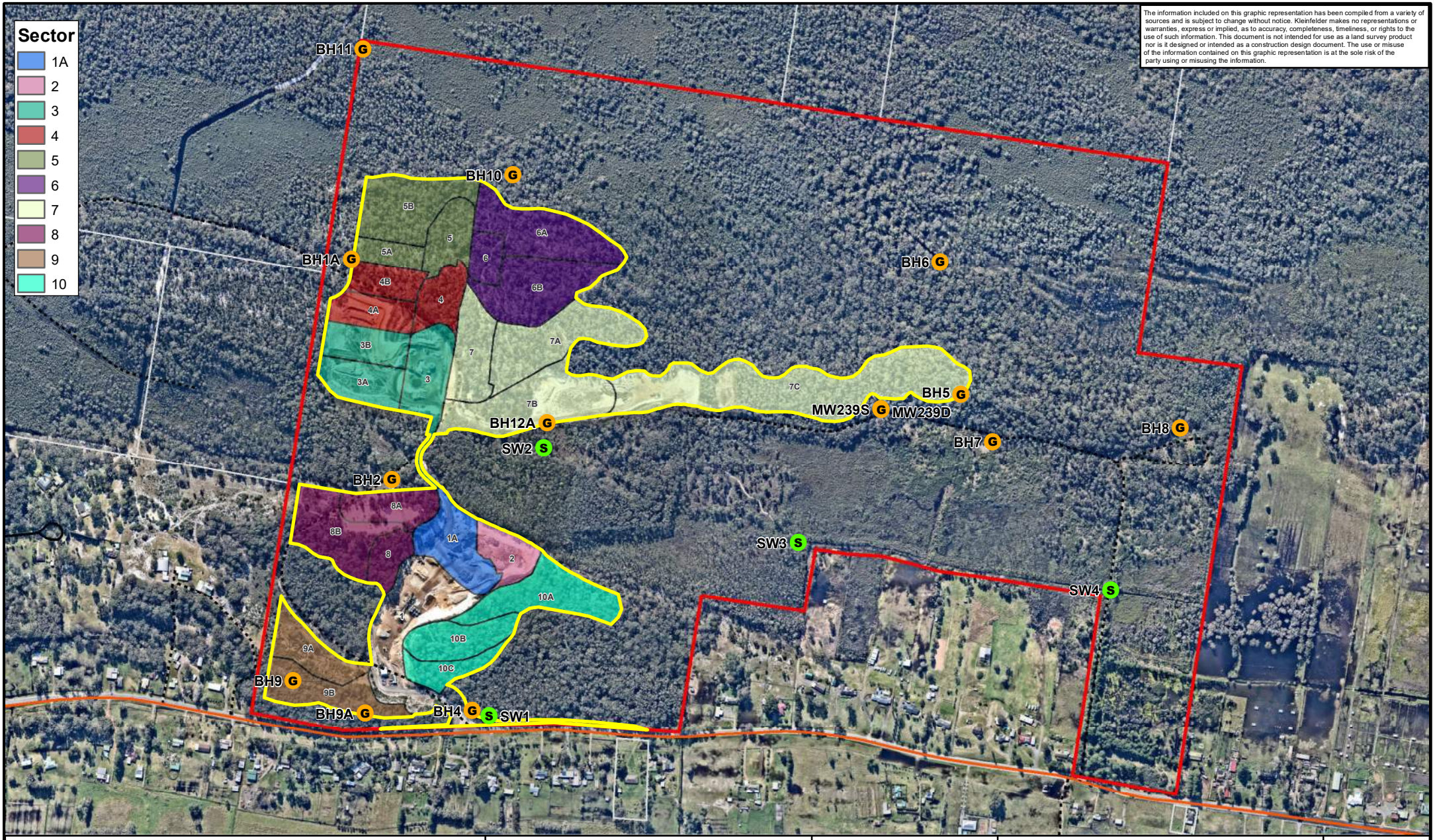
Aaron King

Graduate Environmental Scientist
Contaminated Land Management
Aking@kleinfelder.com
Mobile: 0457 426 013

Attachments

Attachment 1: Figures
Attachment 2: Results Tables and Field Records
Attachment 3: Laboratory Documentation and COCs
Attachment 4: Data Trends

ATTACHMENT 1: FIGURES



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Legend

- G Groundwater Sample Site
- S Surface Water Sample Site
- Quarry Project Area
- Subject Land Boundary
- Arterial Road
- Local Road
- Track

Metres
0 50 100 200 300 400 500
N

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PROJECT REFERENCE: 20232071
DATE DRAWN: 7/10/2022 14:16 Version 1
DRAWN BY: CMiskell

DATA SOURCE:
NSW DFSI - 2017
Nearmap - 2022

Monthly Monitoring Locations

Williamtown Sand Syndicate
Proposed Sand Quarry
398 Cabbage Tree Road, Williamtown

FIGURE:
1

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ATTACHMENT 2: RESULTS TABLES AND FIELD RECORDS

Williamtown Sand Syndicate
November 2023
Monthly Water Monitoring Event

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up				
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	100	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																		
BH1	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	**1,710**	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	**40**	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 100	-	< 100	< 50	< 50
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH11	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	06-Mar-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH12	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH12A	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH1A	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up				
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	100	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																		
BH2	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH3	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH4	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	**250**	< 50	**250**	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	**130**	< 50	**130**
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	**340**	< 50	**340**
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH5	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up				
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	100	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																		
BH6	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH7	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH8	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up				
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	100	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																		
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up				
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	100	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																		
BH9A	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
MW239S	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenzene, total xylenes, naphthalene
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	$>C_{10}$ - C_{16}	$>C_{10}$ - C_{16} minus Naphthalene (F2)	$>C_{16}$ - C_{34}	$>C_{34}$ - C_{40}	$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date												
BH1	15-Mar-19	**1,690**	**1,690**	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	**30**	**30**	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 20	< 20	-	-	-	-	-	-	< 100	< 100	< 100	< 100
	13-Oct-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH11	21-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH12	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH12A	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH1A	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	$>C_{10}$ - C_{16}	$>C_{10}$ - C_{16} minus Naphthalene (F2)	$>C_{16}$ - C_{34}	$>C_{34}$ - C_{40}	$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date												
BH2	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH3	21-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH4	21-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	**280**	< 100	**280**	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	**140**	< 100	**140**
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	**370**	< 100	**370**
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH5	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	$>C_{10}$ - C_{16}	$>C_{10}$ - C_{16} minus Naphthalene (F2)	$>C_{16}$ - C_{34}	$>C_{34}$ - C_{40}	$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date												
BH6	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH7	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH8	21-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	$>C_{10}$ - C_{16}	$>C_{10}$ - C_{16} minus Naphthalene (F2)	$>C_{16}$ - C_{34}	$>C_{34}$ - C_{40}	$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date												
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	$>C_{10}$ - C_{16}	$>C_{10}$ - C_{16} minus Naphthalene (F2)	$>C_{16}$ - C_{34}	$>C_{34}$ - C_{40}	$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date												
BH9A	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
MW239S	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenze
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managem

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Anions and Cations																		Anions and Cations						
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1	0.2	1.0
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0	--	--	--	--	--	--	0.5	5.9	5.9	5.9	--	--	--
Sample Name	Sample Date																									
BH1	15-Mar-19	**11**	**2.0**	**1.0**	< 1.0	< 1.0	**25**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	**14**	**1.0**	**2.0**	< 1.0	**4.0**	**25**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**12**	< 1.0	**2.0**	< 1.0	**5.0**	**25**	< 0.1	-	**0.03**	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.11**	-	**0.3**	-	-	**0.3**	-	-
	14-Jun-19	**10**	< 1.0	**2.0**	< 1.0	**3.0**	**24**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**15**	< 1.0	**2.0**	< 1.0	**4.0**	**23**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**14**	< 1.0	**2.0**	< 1.0	**2.0**	**21**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**13**	< 1.0	**2.0**	< 1.0	**2.0**	**20**	< 0.1	-	< 0.01	**0.06**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.12**	-	**0.3**	-	-	**0.3**	-	-
	15-Oct-19	**13**	< 1.0	**2.0**	< 1.0	**2.0**	**21**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**16**	< 1.0	**2.0**	< 1.0	**3.0**	**23**	**0.1**	< 0.01	< 0.01	-	-	-	-	< 0.01	**0.01**	-	**0.01**	-	**0.13**	**0.3**	-	-	**0.3**	-	-
	16-Sep-20	**13**	< 1.0	**2.0**	< 1.0	**2.0**	**21**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**14**	< 1.0	**2.0**	< 1.0	**4.0**	**21**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**11**	< 1.0	**2.0**	< 1.0	**5.0**	**18**	< 0.1	-	< 0.01	**0.02**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.07**	**0.2**	-	-	**0.2**	-	-
	16-Dec-20	**13**	< 1.0	**2.0**	**1.0**	**6.0**	**22**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**12**	< 1.0	**2.0**	< 1.0	**5.0**	**23**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**14**	< 1.0	**2.0**	**1.0**	**5.0**	**25**	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	**0.02**	**0.02**	-	**0.05**	< 0.1	-	-	< 0.1	-	-
	17-Mar-21	**14**	**1.0**	**2.0**	< 1.0	**4.0**	**23**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**14**	**1.0**	**3.0**	< 1.0	**10**	**23**	< 0.1	-	-	< 0.01	-	-	< 0.01	-	**0.02**	-	**0.02**	**0.11**	-	**0.2**	-	-	**0.2**	-	-
BH11	21-Feb-19	**48**	< 1.0	**10**	< 1.0	**24**	**80**	**0.1**	-	< 0.01	**0.03**	-	-	-	< 0.01	-	**0.04**	**0.04**	**0.06**	-	**1.8**	-	-	**1.8**	-	-
	15-Mar-19	**26**	< 1.0	**2.0**	< 1.0	**2.0**	**52**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	**32**	< 1.0	**5.0**	< 1.0	**2.0**	**57**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**29**	< 1.0	**4.0**	< 1.0	**2.0**	**55**	< 0.1	-	< 0.01	**0.01**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.12**	-	**0.4**	-	-	**0.4**	-	-
	14-Jun-19	**26**	< 1.0	**3.0**	< 1.0	< 1.0	**53**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**49**	< 1.0	**8.0**	< 1.0	**8.0**	**73**	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**28**	< 1.0	**3.0**	< 1.0	**4.0**	**47**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**27**	< 1.0	**3.0**	< 1.0	**5.0**	**46**	< 0.1	-	< 0.01	**0.12**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.15**	-	**0.7**	-	-	**0.7**	-	-
	15-Oct-19	**28**	< 1.0	**3.0**	< 1.0	**3.0**	**44**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**28**	< 1.0	**3.0**	< 1.0	< 1.0	**53**	< 0.1	**2.11**	< 0.01	-	-	-	-	< 0.01	-	**0.06**	-	**0.06**	-	**0.18**	**5.9**	-	-	**5.8**	-	-
	16-Sep-20	**29**	< 1.0	**5.0**	< 1.0	**6.0**	**48**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**29**	< 1.0	**6.0**	< 1.0	**4.0**	**61**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**27**	< 1.0	**5.0**	< 1.0	**5.0**	**50**	< 0.1	-	< 0.01	**0.06**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.08**	**0.5**	-	-	**0.5**	-	-
	16-Dec-20	**31**	< 1.0	**6.0**	< 1.0	**7.0**	**60**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**32**	< 1.0	**6.0**	< 1.0	**12**	**63**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**32**	< 1.0	**5.0**	**1.0**	**12**	**55**	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.08**	< 0.1	-	-	< 0.1	-	-
	17-Mar-21	**29**	< 1.0	**6.0**	< 1.0	**17**	**48**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	**58**	< 1.0	**7.0**	< 1.0	**9.0**	**110**	**0.1**	-	< 0.01	**0.08**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**1.4**	-	-	**1.4**	-	-
	22-Sep-21	**49**	< 1.0	**6.0**	< 1.0	**12**	**101**	**0.1**	-	< 0.01	**0.01**	-	-	-	< 0.01	-	**0.01**	**0.01**	-	**0.01**	**0.8**	-	-	**0.8**	-	-
	13-Oct-21	**51**	< 1.0	**8.0**	< 1.0	**29**	**90**	< 0.1	-	< 0.01	**0.03**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.8**	-	-	**0.8**	-	-
	16-Nov-21	**37**	< 1.0	**8.0**	< 1.0	**24**	**55**	< 0.1	-	< 0.01	**0.03**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.9**	-	-	**0.9**	-	-
	24-Feb-22	**41**	< 1.0	**6.0**	< 1.0	**4.0**	**80**	< 0.1	-	-	< 0.01	-	-	< 0.01	-	< 0.01	-	< 0.01	**0.02**	-	**0.6**	-	-	**0.6**	-	-
	06-Mar-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**17**	< 1.0	**2.0**	< 1.0	< 1.0	**29**	< 0.1	-	< 0.01	**0.04**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.07**	**1.0**	-	-	**1.0**	-	-
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12	16-Sep-20	**24**	< 1.0	**7.0**	**1.0**	**22**	**38**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**22**	< 1.0	**4.0**	**1.0**	**11**	**41**	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	**0.02**	**0.02**	-	< 0.01	**0.2**	-	-	**0.2**	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**20**	< 1.0	**4.0**	**2.0**	**18**	**28**	< 0.1	-	-	**0.12**	-	-	< 0.01	-	**0.01**	-	**0.01**	**0.01**	-	**0.4**	-	-	**0.4**	-	-
BH12A	15-Feb-23	**16**	< 1.0	**2.0**	< 1.0	**8.0**	**29**	< 0.1	-	< 0.01	**1.74**	-	-	-	**0.02**	-	**0.02**	**0.04**	-	**0.21**	**3.2**	-	-	**3.2**	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1A	15-Feb-23	**9.0**	< 1.0	< 1.0	< 1.0	**7.0**	**13**	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	**0.26**	**0.26**	-	**0.04**	**0.5**	-	-	**0.2**	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	22-Feb-19	**12**	**2.0**	**2.0**	< 1.0	**6.0**	**22**	**0.1**	-	< 0.01	**0.28**	-	-	-	< 0.01	-	**2.76**	**2.76**	**0.05**	-	**4.0**	-	-	**1.2**	-	-
	15-Mar-19	**10**	**3.0**	**2.0**	< 1.0	**7.0**	**23**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	**14**	**2.0**	**2.0**	< 1.0	**6.0**	**23**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**12**	**2.0**	**2.0**	< 1.0	**21**	**22**	< 0.1	-	< 0.01	**0.26**	-	-	-	< 0.01	-	**0.38**	**0.38**	**0.01**	-	**1.3**	-	-	**0.9**	-	-
	14-Jun-19	**11**	**1.0**	**2.0**	< 1.0	**5.0**	**23**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**13**	**2.0**	**2.0**	< 1.0	**9.0**	**20**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**12**	**1.0**	**2.0**	< 1.0	**8.0**	**20**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**11**	**2.0**	**2.0**	< 1.0	**8.0**	**18**	< 0.1	-	< 0.01	-	-	**0.28**	-	< 0.01	-	**1.07**	**1.07**	**0.04**	-	-	-	**2.7**	-	-	**1.6**
	15-Oct-19	**12**	**2.0**	**2.0**	< 1.0	**5.0**	**20**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**14**	**2.0**	**1.0**	< 1.0	**7.0**	**19**	< 0.1	**0.21**	< 0.01	-	-	-	-	< 0.01	**1.01**	-	**1.01**	-	**0.05**	**2.1**	-	-	**1.1**	-	-
	16-Sep-20	**11**	**2.0**	**2.0**	< 1.0	**7.0**	**17**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**11**	**2.0**	**2.0**	< 1.0	**6.0**	**16**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**11**	**2.0**	**2.0**	< 1.0	**9.0**	**16**	< 0.1	-	< 0.01	**0.48**	-	-	-	< 0.01	-	**2.88**	**2.88**	-	< 0.01	**4.8**	-	-	**1.9**	-	-
	16-Dec-20	**11**	**2.0**	**2.0**	< 1.0	**7.0**	**15**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**9.0**	**2.0**	**2.0**	< 1.0	**7.0**	**13**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**12**	**1.0**	**1.0**	< 1.0	**8.0**	**12**	< 0.1	-	< 0.01	**0.15**	-	-	-	< 0.01	-	**2.58**	**2.58**	-	< 0.01	**3.5**	-	-	**0.9**	-	-
	17-Mar-21	**10**	**2.0**	**2.0**	< 1.0	**7.0**	**13**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**8.0**	**2.0**	**1.0**	< 1.0	**7.0**	**14**	< 0.1	-	-	**0.06**	-	-	< 0.01	-	**0.05**	-	**0.05**	**0.01**	-	**0.4**	-	-	**0.3**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**9.0**	< 1.0	**1.0**	< 1.0	**6.0**	**16**	< 0.1	-	< 0.01	**0.22**	-	-	-	< 0.01	-	**0.04**	**0.04**	-	**0.01**	**1.4**	-	-	**1.4**	-	-
	16-May-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Anions and Cations																		Anions and Cations						
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1	0.2	1.0
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0	--	--	--	--	--	--	0.5	5.9	5.9	5.9	--	--	--
Sample Name	Sample Date																									
BH3	21-Feb-19	**4.0**	**4.0**	**1.0**	< 1.0	**4.0**	**10**	< 0.1	-	< 0.01	**2.76**	-	-	-	< 0.01	-	**0.78**	**0.78**	**0.3**	-	**5.9**	-	-	**5.1**	-	-
BH4	21-Feb-19	**8.0**	**2.0**	**1.0**	**1.0**	**5.0**	**17**	< 0.1	-	< 0.01	**0.19**	-	-	-	< 0.01	-	**0.35**	**0.35**	**0.04**	-	**0.6**	-	-	**0.3**	-	-
	15-Mar-19	**9.0**	**2.0**	< 1.0	< 1.0	**5.0**	**18**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	**10**	**2.0**	**1.0**	**1.0**	**3.0**	**19**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**9.0**	**2.0**	**1.0**	**1.0**	**22**	**19**	< 0.1	-	< 0.01	**0.97**	-	-	-	< 0.01	-	**0.29**	**0.29**	< 0.01	-	**1.0**	-	-	**0.7**	-	-
	14-Jun-19	**6.0**	**1.0**	**1.0**	< 1.0	**4.0**	**18**	< 0.1	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**10**	**2.0**	**2.0**	**1.0**	**6.0**	**18**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**8.0**	**2.0**	**1.0**	**1.0**	**5.0**	**16**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**11**	**2.0**	**2.0**	< 1.0	**8.0**	**19**	< 0.1	-	< 0.01	**0.4**	-	-	-	< 0.01	-	**0.24**	**0.24**	**0.02**	-	**0.6**	-	-	**0.4**	-	-
	15-Oct-19	**10**	**1.0**	**1.0**	< 1.0	**4.0**	**18**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**11**	**1.0**	**1.0**	< 1.0	**6.0**	**18**	< 0.1	**0.08**	< 0.01	-	-	-	-	< 0.01	**0.29**	-	**0.29**	-	< 0.01	**0.3**	-	-	< 0.1	-	-
	16-Sep-20	**20**	< 1.0	**2.0**	< 1.0	**11**	**31**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**19**	**1.0**	**3.0**	< 1.0	**10**	**34**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**18**	< 1.0	**2.0**	< 1.0	**12**	**27**	< 0.1	-	< 0.01	**0.06**	-	-	-	< 0.01	-	**0.1**	**0.1**	-	< 0.01	**0.1**	-	-	< 0.1	-	-
	16-Dec-20	**25**	**1.0**	**4.0**	< 1.0	**15**	**43**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**36**	**1.0**	**4.0**	< 1.0	**23**	**54**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**69**	**2.0**	**9.0**	**1.0**	**32**	**111**	< 0.1	-	< 0.01	**0.11**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.03**	< 0.1	-	-	< 0.1	-	-
	17-Mar-21	**77**	**2.0**	**11**	**1.0**	**26**	**128**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**7.0**	**1.0**	**2.0**	< 1.0	**7.0**	**15**	< 0.1	-	-	**0.3**	-	-	< 0.01	-	**0.21**	-	**0.21**	**0.01**	-	**0.6**	-	-	**0.4**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**10**	**1.0**	**1.0**	**1.0**	**7.0**	**18**	< 0.1	-	< 0.01	**0.11**	-	-	-	< 0.01	-	**0.33**	**0.33**	-	**0.02**	**0.7**	-	-	**0.4**	-	-
	16-May-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5	22-Feb-19	**42**	< 1.0	**6.0**	**1.0**	**19**	**69**	**0.2**	-	< 0.01	**0.34**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.09**	-	**3.0**	-	-	**3.0**	-	-
	24-Feb-22	**40**	< 1.0	**8.0**	< 1.0	**42**	**60**	< 0.1	-	-	**0.29**	-	-	< 0.01	-	**0.02**	-	**0.02**	**0.21**	-	**1.2**	-	-	**1.2**	-	-
	15-Feb-23	**18**	< 1.0	**2.0**	< 1.0	**17**	**24**	< 0.1	-	< 0.01	**0.32**	-	-	-	< 0.01	-	**0.01**	**0.01**	-	**0.06**	**3.9**	-	-	**3.9**	-	-
BH6	22-Feb-19	**28**	**3.0**	**4.0**	**1.0**	**28**	**42**	< 0.1	-	< 0.01	**0.05**	-	-	-	< 0.01	-	**0.09**	**0.09**	**0.14**	-	**0.5**	-	-	**0.4**	-	-
	14-Mar-19	**23**	**2.0**	**4.0**	**1.0**	**17**	**37**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	**25**	**3.0**	**4.0**	**1.0**	**18**	**42**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**23**	**3.0**	**4.0**	**1.0**	**18**	**45**	< 0.1	-	< 0.01	**0.13**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.14**	-	**0.6**	-	-	**0.6**	-	-
	14-Jun-19	**20**	**2.0**	**4.0**	**1.0**	**16**	**42**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**23**	**2.0**	**4.0**	**1.0**	**20**	**35**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**23**	**2.0**	**3.0**	**1.0**	**21**	**38**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**25**	**3.0**	**3.0**	**1.0**	**21**	**38**	< 0.1	-	< 0.01	**0.15**	-	-	-	< 0.01	-	**0.07**	**0.07**	**0.19**	-	**0.8**	-	-	**0.7**	-	-
	15-Oct-19	**25**	**2.0**	**4.0**	**1.0**	**13**	**41**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**27**	**3.0**	**3.0**	**1.0**	**18**	**45**	< 0.1	**0.06**	< 0.01	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	**0.23**	**0.4**	-	-	**0.4**	-	-
	16-Sep-20	**36**	**2.0**	**4.0**	**1.0**	**16**	**55**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**36**	**2.0**	**5.0**	**1.0**	**12**	**64**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**37**	**3.0**	**5.0**	**2.0**	**23**	**61**	< 0.1	-	**0.01**	**0.08**	-	-	-	< 0.01	-	**0.01**	**0.01**	-	**0.22**	**0.3**	-	-	**0.3**	-	-
	16-Dec-20	**46**	**3.0**	**6.0**	**2.0**	**15**	**75**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**39**	**3.0**	**5.0**	**2.0**	**21**	**73**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**43**	**3.0**	**6.0**	**2.0**	**18**	**72**	< 0.1	-	< 0.01	**0.1**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.25**	< 0.1	-	-	< 0.1	-	-
	17-Mar-21	**51**	**4.0**	**9.0**	**1.0**	**25**	**80**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	**5.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**30**	< 1.0	**4.0**	< 1.0	**10**	**61**	< 0.1	-	-	**0.11**	-	-	< 0.01	-	**0.02**	-	**0.02**	**0.04**	-	**0.4**	-	-	**0.4**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**32**	< 1.0	**4.0**	< 1.0	**21**	**59**	< 0.1	-	< 0.01	**0.03**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.03**	**0.4**	-	-	**0.4**	-	-
	16-May-23	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**7.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	22-Feb-19	**34**	< 1.0	**5.0**	**2.0**	**12**	**64**	**0.2**	-	< 0.01	**0.13**	-	-	-	< 0.01	-	**0.02**	**0.02**	**0.34**	-	**2.2**	-	-	**2.2**	-	-
	14-Mar-19	**36**	< 1.0	**6.0**	**2.0**	**16**	**61**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	**38**	< 1.0	**6.0**	**2.0**	**17**	**62**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**35**	< 1.0	**5.0**	**2.0**	**15**	**68**	**0.2**	-	< 0.01	**0.06**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.27**	-	**0.9**	-	-	**0.9**	-	-
	14-Jun-19	**31**	< 1.0	**4.0**	**2.0**	**11**	**56**	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**36**	< 1.0	**5.0**	**2.0**	**12**	**46**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**32**	< 1.0	**4.0**	**2.0**	**15**	**49**	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**27**	< 1.0	**4.0**	**1.0**	**13**	**53**	< 0.1	-	< 0.01	**0.09**	-	-	-	< 0.01	-	**0.06**	**0.06**	**0.2**	-	-	-	**1.2**	-	**1.1**	-
	15-Oct-19	**34**	< 1.0	**5.0**	**2.0**	**12**	**53**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**31**	< 1.0	**5.0**	**1.0**	**15**	**56**	**0.1**	**0.02**	< 0.01	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	**0.17**	**0.5**	-	-	**0.5**	-	-
	16-Sep-20	**33**	< 1.0	**5.0**	**2.0**	**12**	**62**	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**34**	< 1.0	**5.0**	**2.0**	**9.0**	**64**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**30**	< 1.0	**5.0**	**2.0**	**9.0**	**54**	**0.1**	-	< 0.01	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.3**	**0.6**	-	-	**0.6**	-	-
	16-Dec-20	**30**	< 1.0	**6.0**	**2.0**	**9.0**	**58**	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**31**	< 1.0	**5.0**	**2.0**	**10**	**63**	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**34**	< 1.0	**6.0**	**2.0**	**12**	**64**	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.3**	**0.6**	-	-	**0.6**	-	-
	17-Mar-21	**36**	< 1.0	**7.0**	**2.0**	**11**	**68**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**17**	< 1.0	**2.0**	**1.0**	**8.0**	**25**	< 0.1	-	-	**0.12**	-	-	< 0.01	-	**0.02**	-	**0.02**	**0.08**	-	**1.0**	-	-	**1.0**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**10**	< 1.0	**1.0**	< 1.0	**1.0**	**14**	< 0.1	-	< 0.01	**0.23**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.03**	**1.6**	-	-	**1.6**	-	-
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Anions and Cations																		Anions and Cations						
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1	0.2	1.0
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0	--	--	--	--	--	--	0.5	5.9	5.9	5.9	--	--	--
Sample Name	Sample Date																									
BH8	21-Feb-19	**52**	< 1.0	**6.0**	< 1.0	**11**	**90**	< 0.1	-	< 0.01	**1.97**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.5**	-	**2.4**	-	-	**2.4**	-	-
	14-Mar-19	**45**	< 1.0	**6.0**	< 1.0	**6.0**	**76**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	**53**	< 1.0	**7.0**	< 1.0	**8.0**	**89**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**47**	< 1.0	**4.0**	< 1.0	**6.0**	**81**	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.12**	-	**0.4**	-	-	**0.4**	-	-
	14-Jun-19	**47**	< 1.0	**5.0**	< 1.0	**4.0**	**89**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**57**	< 1.0	**5.0**	< 1.0	**70**	**121**	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**42**	< 1.0	**3.0**	< 1.0	**4.0**	**63**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**46**	< 1.0	**3.0**	< 1.0	**4.0**	**70**	< 0.1	-	< 0.01	-	**0.43**	-	-	< 0.01	-	< 0.01	< 0.01	**0.13**	-	-	**1.1**	-	-	**1.1**	-
	15-Oct-19	**45**	< 1.0	**4.0**	< 1.0	**4.0**	**70**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**49**	< 1.0	**4.0**	< 1.0	**8.0**	**80**	< 0.1	**0.58**	< 0.01	-	-	-	-	< 0.01	**0.01**	-	**0.01**	-	**0.17**	**1.3**	-	-	**1.3**	-	-
	16-Sep-20	**58**	< 1.0	**4.0**	< 1.0	**9.0**	**109**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**43**	< 1.0	**4.0**	< 1.0	**12**	**70**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**48**	< 1.0	**6.0**	< 1.0	**10**	**76**	< 0.1	-	< 0.01	**0.14**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.13**	**0.6**	-	-	**0.6**	-	-
	16-Dec-20	**35**	< 1.0	**4.0**	< 1.0	**14**	**56**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**44**	< 1.0	**5.0**	< 1.0	**13**	**77**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**50**	< 1.0	**6.0**	< 1.0	**17**	**79**	< 0.1	-	< 0.01	**0.14**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.12**	< 0.1	-	-	< 0.1	-	-
	17-Mar-21	**50**	< 1.0	**6.0**	< 1.0	**19**	**75**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	**7.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**8.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**55**	< 1.0	**5.0**	< 1.0	**54**	**70**	< 0.1	-	-	**0.3**	-	-	< 0.01	-	**0.72**	-	**0.72**	**0.13**	-	**1.7**	-	-	**1.0**	-	-
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**16**	< 1.0	**1.0**	< 1.0	**15**	**22**	< 0.1	-	< 0.01	**0.19**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.06**	**1.7**	-	-	**1.7**	-	-
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH9A	16-Sep-20	**35**	**5.0**	**5.0**	**1.0**	**41**	**38**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**32**	**3.0**	**6.0**	**1.0**	**33**	**48**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**23**	**2.0**	**4.0**	**1.0**	**23**	**35**	< 0.1	-	< 0.01	**0.11**	-	-	-	< 0.01	-	**2.35**	**2.35**	-	< 0.01	**2.8**	-	-	**0.5**	-	-
	16-Dec-20	**23**	**1.0**	**3.0**	**1.0**	**9.0**	**37**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**24**	**1.0**	**3.0**	**1.0**	**15**	**43**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**25**	**1.0**	**3.0**	**1.0**	**12**	**40**	< 0.1	-	< 0.01	**1.74**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.15**	**5.1**	-	-	**5.1**	-	-
	17-Mar-21	**25**	**1.0**	**3.0**	< 1.0	**12**	**35**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	**25**	**1.0**	**3.0**	**1.0**	**14**	**37**	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.8**	-	-	**0.8**	-	-
	22-Sep-21	**22**	**1.0**	**2.0**	**1.0**	**12**	**35**	< 0.1	-	< 0.01	**0.16**	-	-	-	< 0.01	-	**0.03**	**0.03**	-	**0.25**	**1.0**	-	-	**1.0**	-	-
	13-Oct-21	**24**	< 1.0	**2.0**	**1.0**	**11**	**38**	< 0.1	-	< 0.01	**0.13**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.31**	**0.9**	-	-	**0.9**	-	-
	16-Nov-21	**24**	**2.0**	**3.0**	**1.0**	**17**	**32**	< 0.1	-	< 0.01	**0.05**	-	-	-	< 0.01	-	**0.04**	**0.04**	-	**0.21**	**1.1**	-	-	**1.1**	-	-
	24-Feb-22	**21**	**2.0**	**4.0**	**1.0**	**17**	**32**	< 0.1	-	-	**0.19**	-	-	< 0.01	-	< 0.01	-	< 0.01	**0.25**	-	**1.0**	-	-	**1.0**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**18**	< 1.0	**2.0**	**1.0**	**20**	**19**	< 0.1	-	< 0.01	**0.13**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.27**	**2.0**	-	-	**2.0**	-	-
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW239S	22-Feb-19	**61**	< 1.0	**6.0**	< 1.0	**6.0**	**104**	< 0.1	-	< 0.01	**0.56**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.18**	-	**3.9**	-	-	**3.9**	-	-
	14-Mar-19	**64**	< 1.0	**6.0**	< 1.0	**2.0**	**126**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	**64**	< 1.0	**7.0**	**1.0**	**9.0**	**97**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**52**	< 1.0	**6.0**	< 1.0	**13**	**88**	< 0.1	-	< 0.01	**0.43**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.09**	-	**1.7**	-	-	**1.7**	-	-
	14-Jun-19	**50**	< 1.0	**6.0**	< 1.0	**13**	**87**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**52**	< 1.0	**7.0**	**1.0**	**16**	**73**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**54**	< 1.0	**7.0**	< 1.0	**11**	**88**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**55**	< 1.0	**6.0**	**1.0**	**14**	**85**	< 0.1	-	< 0.01	-	**0.32**	-	-	< 0.01	-	< 0.01	< 0.01	**0.1**	-	-	**1.4**	-	-	**1.4**	-
	15-Oct-19	**58**	< 1.0	**6.0**	< 1.0	**8.0**	**108**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**63**	< 1.0	**6.0**	**1.0**	**8.0**	**118**	< 0.1	**0.23**	< 0.01	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	**0.17**	**1.2**	-	-	**1.2**	-	-
	16-Sep-20	**53**	< 1.0	**8.0**	**1.0**	**36**	**86**	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**76**	< 1.0	**9.0**	**1.0**	**17**	**148**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**68**	< 1.0	**9.0**	**2.0**	**37**	**125**	< 0.1	-	< 0.01	**0.59**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.01**	**2.6**	-	-	**2.6**	-	-
	16-Dec-20	**68**	< 1.0	**10**	**1.0**	**24**	**126**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**58**	< 1.0	**9.0**	**2.0**	**37**	**102**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**66**	< 1.0	**11**	**2.0**	**38**	**124**	< 0.1	-	< 0.01	**0.58**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.06**	**2.5**	-	-	**2.5**	-	-
	17-Mar-21	**49**	< 1.0	**7.0**	**1.0**	**38**	**70**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**24**	< 1.0	**3.0**	< 1.0	**15**	**33**	< 0.1	-	-	**0.33**	-	-	< 0.01	-	**0.16**	-	**0.16**	**0.04**	-	**1.8**	-	-	**1.6**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**14**	< 1.0	**2.0**	< 1.0	**7.0**	**25**	< 0.1	-	< 0.01	**0.31**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.04**	**1.5**	-	-	**1.5**	-	-
	16-May-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte					Anions and Cations		Alkalinity								Inorganics					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																			
BH1	15-Mar-19	**0.66**	**0.88**	-	-	-	-	**9.0**	< 1.0	< 1.0	**9.0**	**9.0**	-	**104**	**68**	**129**	**78**	**5.67**	-	-
	23-Apr-19	**0.82**	**0.99**	-	-	-	-	**10**	< 1.0	< 1.0	**10**	**11**	-	**84**	**55**	**97**	**248**	**5.83**	-	-
	16-May-19	**0.69**	**1.01**	-	-	**1.7**	-	**10**	< 1.0	< 1.0	**10**	**8.0**	-	**105**	**68**	**164**	**80**	**5.82**	-	-
	14-Jun-19	**0.6**	**0.94**	-	-	-	-	**10**	< 1.0	< 1.0	**10**	**8.0**	-	**99**	**64**	**72**	**39**	**5.52**	-	-
	16-Jul-19	**0.82**	**0.95**	-	-	-	-	**11**	< 1.0	< 1.0	**11**	**8.0**	-	**102**	**66**	**84**	**26**	**5.62**	-	-
	15-Aug-19	**0.77**	**0.91**	-	-	-	-	**14**	< 1.0	< 1.0	**14**	**8.0**	-	**128**	**83**	**82**	**181**	**6.22**	-	-
	16-Sep-19	**0.73**	**0.76**	-	-	**1.84**	-	**8.0**	< 1.0	< 1.0	**8.0**	**8.0**	-	**102**	**66**	**88**	**108**	**5.44**	-	-
	15-Oct-19	**0.73**	**0.71**	-	-	-	-	**4.0**	< 1.0	< 1.0	**4.0**	**8.0**	-	**98**	**64**	-	-	**5.5**	-	-
	18-Nov-19	**0.86**	**1.19**	-	-	**2.26**	-	**24**	< 1.0	< 1.0	**24**	**8.0**	-	**126**	**82**	-	-	**6.29**	-	-
	16-Sep-20	**0.73**	**0.81**	-	-	-	-	**9.0**	< 1.0	< 1.0	**9.0**	**8.0**	-	**95**	**62**	**81**	**58**	**5.87**	-	-
	16-Oct-20	**0.77**	**0.84**	-	-	-	-	**8.0**	< 1.0	< 1.0	**8.0**	**8.0**	-	**88**	**57**	-	-	**5.7**	-	-
	16-Nov-20	**1.02**	**1.05**	-	-	**1.55**	-	**22**	< 1.0	< 1.0	**22**	**8.0**	-	**120**	**78**	**76**	**41**	**5.98**	-	-
	16-Dec-20	**0.93**	**1.16**	-	-	-	-	**21**	< 1.0	< 1.0	**21**	**8.0**	-	**134**	**87**	-	-	**5.76**	-	-
	14-Jan-21	**0.96**	**1.07**	-	-	-	-	**16**	< 1.0	< 1.0	**16**	**8.0**	-	**124**	**81**	-	-	**5.63**	-	-
	16-Feb-21	**0.8**	**1.05**	-	-	**1.98**	-	**12**	< 1.0	< 1.0	**12**	**8.0**	-	**116**	**75**	**89**	**20**	**5.57**	-	-
	17-Mar-21	**0.82**	**0.95**	-	-	-	-	**11**	< 1.0	< 1.0	**11**	**11**	-	**111**	**72**	-	-	**6.02**	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.66**	**98**	-
	24-Feb-22	**0.9**	**1.18**	-	-	-	**16**	-	< 1.0	< 1.0	**16**	**15**	-	**127**	**82**		-	**5.95**	-	< 0.01
BH11	21-Feb-19	**2.91**	**2.76**	-	-	**3.21**	-	< 1.0	< 1.0	< 1.0	< 1.0	**41**	-	**346**	**225**	**278**	**144**	**4.67**	-	-
	15-Mar-19	**1.3**	**1.51**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**8.0**	-	**186**	**121**	**144**	**152**	**4.82**	-	-
	23-Apr-19	**1.8**	**1.65**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**150**	**98**	**135**	**112**	**4.99**	-	-
	16-May-19	**1.59**	**1.59**	-	-	**3.0**	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**188**	**122**	**216**	**156**	**4.91**	-	-
	14-Jun-19	**1.38**	**1.5**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**12**	-	**175**	**114**	**107**	**136**	**4.84**	-	-
	16-Jul-19	**2.79**	**2.22**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**318**	**207**	**192**	**223**	**4.68**	-	-
	15-Aug-19	**1.46**	**1.41**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**12**	-	**197**	**128**	**135**	**303**	**4.88**	-	-
	16-Sep-19	**1.42**	**1.4**	-	-	**3.18**	-	< 1.0	< 1.0	< 1.0	< 1.0	**12**	-	**195**	**127**	**140**	**533**	**4.66**	-	-
	15-Oct-19	**1.46**	**1.3**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**12**	-	**194**	**126**	-	-	**4.92**	-	-
	18-Nov-19	**1.46**	**1.5**	-	-	**3.3**	-	< 1.0	< 1.0	< 1.0	< 1.0	**12**	-	**193**	**125**	-	-	**5.12**	-	-
	16-Sep-20	**1.67**	**1.48**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**223**	**145**	**111**	**136**	**4.61**	-	-
	16-Oct-20	**1.76**	**1.8**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**218**	**142**	-	-	**4.8**	-	-
	16-Nov-20	**1.58**	**1.51**	-	-	**2.51**	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**217**	**141**	**146**	**100**	**4.81**	-	-
	16-Dec-20	**1.84**	**1.84**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**249**	**162**	-	-	**4.74**	-	-
	14-Jan-21	**1.88**	**2.03**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**264**	**172**	-	-	**4.41**	-	-
	16-Feb-21	**1.83**	**1.8**	-	-	**2.98**	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**235**	**153**	**149**	**386**	**4.73**	-	-
	17-Mar-21	**1.76**	**1.71**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**223**	**145**	-	-	**4.66**	-	-
	19-Aug-21	**3.1**	**3.29**	**3.0**	-	**4.6**	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**403**	**262**	-	-	**4.38**	-	-
	22-Sep-21	**3.01**	**3.1**	**1.54**	-	**4.18**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**382**	**248**	-	-	**4.47**	-	-
	13-Oct-21	**2.88**	**3.14**	**4.42**	-	**3.79**	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**373**	**242**	-	-	**4.27**	**18**	-
	16-Nov-21	**2.27**	**2.05**	-	-	**2.75**	-	< 1.0	< 1.0	< 1.0	< 1.0	-	**33**	**268**	**174**	-	-	**4.54**	-	-
	24-Feb-22	**2.28**	**2.4**	-	-	-	**3.0**	-	< 1.0	< 1.0	**3.0**	**25**	-	**260**	**169**	-	-	**4.57**	-	< 0.01
	06-Mar-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**24**	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.9**	**0.82**	-	-	**2.4**	-	< 1.0	< 1.0	< 1.0	< 1.0	**8.0**	-	**118**	**77**	-	-	**4.54**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12	16-Sep-20	**1.64**	**1.57**	-	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**	**29**	-	**206**	**134**	**118**	**446**	**5.37**	-	-
	16-Nov-20	**1.31**	**1.52**	-	-	**2.27**	-	**7.0**	< 1.0	< 1.0	**7.0**	**16**	-	**190**	**124**	**134**	**438**	**5.92**	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.75**	**398**	-
	24-Feb-22	**1.25**	**1.2**	-	-	-	**2.0**	-	< 1.0	< 1.0	**2.0**	**16**	-	**148**	**96**	-	-	**5.03**	-	< 0.01
BH12A	15-Feb-23	**0.86**	**0.98**	-	-	**2.26**	-	< 1.0	< 1.0	< 1.0	< 1.0	**8.0**	-	**129**	**84**	-	-	**4.91**	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1A	15-Feb-23	**0.39**	**0.51**	-	-	**2.15**	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	**70**	**46**	-	-	**4.49**	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	22-Feb-19	**0.79**	**0.74**	-	-	**1.44**	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**91**	**59**	**128**	**376**	**4.87**	-	-
	15-Mar-19	**0.75**	**0.79**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**101**	**66**	**90**	**352**	**4.71**	-	-
	23-Apr-19	**0.87**	**0.77**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**70**	**46**	**84**	**575**	**4.82**	-	-
	16-May-19	**0.79**	**1.06**	-	-	**1.44**	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**94**	**61**	**144**	**111**	**4.85**	-	-
	14-Jun-19	**0.69**	**0.75**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**11**	-	**91**	**59**	**51**	**215**	**4.76**	-	-
	16-Jul-19	**0.83**	**0.75**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**90**	**58**	**63**	**92**	**4.84**	-	-
	15-Aug-19	**0.74**	**0.73**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**11**	-	**110**	**72**	**61**	**310**	**5.2**	-	-
	16-Sep-19	**0.74**	**0.67**	-	-	**1.32**	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**96**	**62**	**60**	**216**	**4.72**	-	-
	15-Oct-19	**0.79**	**0.67**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**102**	**66**	-	-	**5.06**	-	-
	18-Nov-19	**0.79**	**0.68**	-	-	**2.02**	-	< 1.0	< 1.0	< 1.0	< 1.0	**9.0**	-	**102**	**66**	-	-	**5.47**	-	-
	16-Sep-20	**0.74**	**0.62**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**99**	**64**	**76**	**356**	**4.85**	-	-
	16-Oct-20	**0.74**	**0.58**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**90**	**58**	-	-	**5.07**	-	-
	16-Nov-20	**0.74**	**0.7**	-	-	**1.32**	-	**3.0**	< 1.0	< 1.0	**3.0**	**13**	-	**119**	**77**	**91**	**952**	**5.09**	-	-
	16-Dec-20	**0.74**	**0.57**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**105**	**68**	-	-	**4.66**	-	-
	14-Jan-21	**0.66**	**0.57**	-	-	-	-	**3.0**	< 1.0	< 1.0	**3.0**	**13**	-	**93**	**60**	-	-	**5.04**	-	-
	16-Feb-21	**0.65**	**0.5**	-	-	**2.03**	-	< 1.0	< 1.0	< 1.0	< 1.0	**7.0**	-	**89**	**58**	**67**	**86**	**4.84**	-	-
	17-Mar-21	**0.7**	**0.53**	-	-	-	-	**1.0**	< 1.0	< 1.0	**1.0**	**13**	-	**88**	**57**	-	-	**5.28**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.09**	**101**	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**0.53**	**0.6**	-	-	-	**3.0**	-	< 1.0	< 1.0	**3.0**	**9.0**	-	**70**	**46**	-	-	**5.18**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**462**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.47**	**0.62**	-	-	**1.69**	-	**2.0**	< 1.0	< 1.0	**2.0**	**4.0**	-	**73**	**47**	-	-	**4.67**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte					Anions and Cations		Alkalinity								Inorganics					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																			
BH3	21-Feb-19	**0.46**	**0.54**	-	-	**0.46**	-	**9.0**	< 1.0	< 1.0	**9.0**	**14**	-	**60**	**39**	**438**	**3,800**	**5.55**	-	-
BH4	21-Feb-19	**0.56**	**0.7**	-	-	**1.15**	-	**6.0**	< 1.0	< 1.0	**6.0**	**9.0**	-	**73**	**47**	**96**	**122**	**5.4**	-	-
	15-Mar-19	**0.49**	**0.61**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**5.0**	-	**77**	**50**	**70**	**45**	**5.12**	-	-
	23-Apr-19	**0.64**	**0.6**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**9.0**	-	**54**	**35**	**61**	**147**	**5.05**	-	-
	16-May-19	**0.6**	**0.99**	-	-	**1.3**	-	< 1.0	< 1.0	< 1.0	< 1.0	**9.0**	-	**73**	**47**	**100**	**44**	**4.99**	-	-
	14-Jun-19	**0.39**	**0.59**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**7.0**	-	**69**	**45**	**36**	**186**	**4.84**	-	-
	16-Jul-19	**0.72**	**0.63**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**75**	**49**	**42**	**74**	**4.96**	-	-
	15-Aug-19	**0.56**	**0.56**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**9.0**	-	**85**	**55**	**49**	**30**	**5.01**	-	-
	16-Sep-19	**0.74**	**0.7**	-	-	**1.32**	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**95**	**62**	**58**	**49**	**4.83**	-	-
	15-Oct-19	**0.57**	**0.59**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**7.0**	-	**85**	**55**	-	-	**4.93**	-	-
	18-Nov-19	**0.61**	**0.63**	-	-	**1.86**	-	< 1.0	< 1.0	< 1.0	< 1.0	**7.0**	-	**86**	**56**	-	-	**5.34**	-	-
	16-Sep-20	**1.03**	**1.1**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**8.0**	-	**148**	**96**	**74**	**24**	**4.66**	-	-
	16-Oct-20	**1.12**	**1.21**	-	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**	**15**	-	**133**	**86**	-	-	**5.21**	-	-
	16-Nov-20	**0.95**	**1.03**	-	-	**2.54**	-	**1.0**	< 1.0	< 1.0	**1.0**	**8.0**	-	**146**	**95**	**90**	**15**	**4.98**	-	-
	16-Dec-20	**1.47**	**1.58**	-	-	-	-	**3.0**	< 1.0	< 1.0	**3.0**	**19**	-	**193**	**125**	-	-	**4.81**	-	-
	14-Jan-21	**1.94**	**2.02**	-	-	-	-	**1.0**	< 1.0	< 1.0	**1.0**	**19**	-	**258**	**168**	-	-	**5.23**	-	-
	16-Feb-21	**3.87**	**3.82**	**0.65**	-	**4.63**	-	**1.0**	< 1.0	< 1.0	**1.0**	**42**	-	**445**	**289**	**251**	**56**	**4.86**	-	-
	17-Mar-21	**4.38**	**4.21**	**1.96**	-	-	-	**3.0**	< 1.0	< 1.0	**3.0**	**50**	-	**501**	**326**	-	-	**5.07**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**4.51**	**56**	-
	24-Feb-22	**0.52**	**0.61**	-	-	-	**2.0**	-	< 1.0	< 1.0	**2.0**	**11**	-	**74**	**48**	-	-	**5.07**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**61**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.59**	**0.65**	-	-	**1.69**	-	< 1.0	< 1.0	< 1.0	< 1.0	**7.0**	-	**84**	**55**	-	-	**5.06**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5	22-Feb-19	**2.35**	**2.34**	-	-	**3.59**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**250**	**162**	**211**	**458**	**4.87**	-	-
	24-Feb-22	**2.4**	**2.63**	-	-	-	**3.0**	-	< 1.0	< 1.0	**3.0**	**33**	-	**276**	**179**	-	-	**4.67**	-	< 0.01
	15-Feb-23	**0.95**	**1.07**	-	-	**2.54**	-	**2.0**	< 1.0	< 1.0	**2.0**	**8.0**	-	**126**	**82**	-	-	**4.64**	-	-
BH6	22-Feb-19	**1.72**	**1.77**	-	-	**2.49**	-	< 1.0	< 1.0	< 1.0	< 1.0	**24**	-	**177**	**115**	**144**	**41**	**4.37**	-	-
	14-Mar-19	**1.46**	**1.44**	-	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**	**21**	-	**179**	**116**	**146**	**144**	**4.95**	-	-
	23-Apr-19	**1.59**	**1.56**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**24**	-	**136**	**88**	**115**	**62**	**4.64**	-	-
	16-May-19	**1.5**	**1.64**	-	-	**2.04**	-	< 1.0	< 1.0	< 1.0	< 1.0	**24**	-	**175**	**114**	**214**	**106**	**4.88**	-	-
	14-Jun-19	**1.32**	**1.52**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**21**	-	**174**	**113**	**90**	**32**	**4.82**	-	-
	16-Jul-19	**1.46**	**1.4**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**21**	-	**161**	**105**	**82**	**23**	**4.73**	-	-
	15-Aug-19	**1.37**	**1.51**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**17**	-	**201**	**131**	**104**	**16**	**4.87**	-	-
	16-Sep-19	**1.51**	**1.55**	-	-	**2.44**	-	**2.0**	< 1.0	< 1.0	**2.0**	**20**	-	**197**	**128**	**124**	**71**	**4.68**	-	-
	15-Oct-19	**1.54**	**1.43**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**21**	-	**202**	**131**	-	-	**5.17**	-	-
	18-Nov-19	**1.6**	**1.64**	-	-	**2.64**	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**204**	**133**	-	-	**5.32**	-	-
	16-Sep-20	**2.02**	**1.9**	-	-	-	-	**1.0**	< 1.0	< 1.0	**1.0**	**21**	-	**273**	**177**	**121**	**49**	**4.98**	-	-
	16-Oct-20	**2.1**	**2.14**	-	-	-	-	**4.0**	< 1.0	< 1.0	**4.0**	**26**	-	**249**	**162**	-	-	**5.3**	-	-
	16-Nov-20	**2.22**	**2.2**	-	-	**3.04**	-	< 1.0	< 1.0	< 1.0	< 1.0	**28**	-	**321**	**209**	**205**	**12**	**4.45**	-	-
	16-Dec-20	**2.7**	**2.43**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**32**	-	**321**	**209**	-	-	**4.63**	-	-
	14-Jan-21	**2.31**	**2.5**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**28**	-	**332**	**216**	-	-	**4.33**	-	-
	16-Feb-21	**2.56**	**2.46**	-	-	**3.3**	-	**3.0**	< 1.0	< 1.0	**3.0**	**32**	-	**316**	**205**	**182**	**20**	**4.89**	-	-
	17-Mar-21	**3.18**	**2.82**	-	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**	**47**	-	**358**	**233**	-	-	**5.07**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**6.1**	**51**	-
	24-Feb-22	**1.63**	**1.93**	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	**16**	-	**241**	**157**	-	-	**3.92**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**33**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**1.93**	**2.1**	-	-	**3.31**	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**265**	**172**	-	-	**3.95**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	22-Feb-19	**1.94**	**2.06**	-	-	**3.16**	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**213**	**138**	**196**	**152**	**4.76**	-	-
	14-Mar-19	**2.11**	**2.05**	**1.37**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**271**	**176**	**212**	**149**	**4.73**	-	-
	23-Apr-19	**2.2**	**2.1**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**205**	**133**	**185**	**20**	**4.51**	-	-
	16-May-19	**1.98**	**2.23**	-	-	**3.26**	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**235**	**153**	**310**	**29**	**4.87**	-	-
	14-Jun-19	**1.73**	**1.81**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**213**	**138**	**145**	**39**	**4.91**	-	-
	16-Jul-19	**2.03**	**1.55**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**202**	**131**	**164**	**61**	**5.0**	-	-
	15-Aug-19	**1.77**	**1.85**	-	-	-	-	**8.0**	< 1.0	< 1.0	**8.0**	**16**	-	**232**	**151**	**168**	**44**	**5.53**	-	-
	16-Sep-19	**1.53**	**1.86**	-	-	**2.79**	-	**5.0**	< 1.0	< 1.0	**5.0**	**16**	-	**222**	**144**	**181**	**44**	**5.07**	-	-
	15-Oct-19	**1.94**	**1.74**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**252**	**164**	-	-	**4.95**	-	-
	18-Nov-19	**1.78**	**1.89**	-	-	**2.89**	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**239**	**155**	-	-	**4.97**	-	-
	16-Sep-20	**1.9**	**2.0**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**248**	**161**	**140**	**24**	**4.81**	-	-
	16-Oct-20	**1.94**	**1.99**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**243**	**158**	-	-	**4.87**	-	-
	16-Nov-20	**1.77**	**1.71**	-	-	**2.79**	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**245**	**159**	**168**	**6.0**	**4.57**	-	-
	16-Dec-20	**1.85**	**1.82**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**265**	**172**	-	-	**4.34**	-	-
	14-Jan-21	**1.81**	**1.98**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**267**	**174**	-	-	**4.62**	-	-
	16-Feb-21	**2.02**	**2.06**	-	-	**2.9**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**270**	**176**	**161**	**9.0**	**4.54**	-	-
	17-Mar-21	**2.19**	**2.15**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**279**	**181**	-	-	**4.9**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.22**	**170**	-
	24-Feb-22	**0.93**	**0.87**	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	**8.0**	-	**124**	**81**	-	-	**4.43**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**33**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.52**	**0.46**	-	-	**1.88**	-	**2.0**	< 1.0	< 1.0	**2.0**	**4.0**	-	**66**	**43**	-	-	**4.83**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte					Anions and Cations		Alkalinity								Inorganics					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																			
BH8	21-Feb-19	**2.76**	**2.77**	-	-	**4.44**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**352**	**229**	**258**	**438**	**4.46**	-	-
	14-Mar-19	**2.45**	**2.27**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**319**	**207**	**253**	**138**	**4.77**	-	-
	23-Apr-19	**2.88**	**2.68**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**264**	**172**	**223**	**121**	**4.76**	-	-
	16-May-19	**2.37**	**2.43**	-	-	**4.86**	-	**1.0**	< 1.0	< 1.0	**1.0**	**16**	-	**302**	**196**	**354**	**312**	**4.9**	-	-
	14-Jun-19	**2.46**	**2.59**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**315**	**205**	**194**	**83**	**4.82**	-	-
	16-Jul-19	**2.89**	**4.87**	**26**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**353**	**229**	**226**	**145**	**4.78**	-	-
	15-Aug-19	**2.07**	**1.86**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**12**	-	**260**	**169**	**140**	**98**	**5.0**	-	-
	16-Sep-19	**2.25**	**2.06**	-	-	**5.43**	-	< 1.0	< 1.0	< 1.0	< 1.0	**12**	-	**293**	**190**	**206**	**79**	**4.85**	-	-
	15-Oct-19	**2.29**	**2.06**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**303**	**197**	-	-	**5.02**	-	-
	18-Nov-19	**2.46**	**2.42**	-	-	**5.06**	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**316**	**205**	-	-	**5.12**	-	-
	16-Sep-20	**3.1**	**3.26**	**2.57**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**391**	**254**	**216**	**34**	**4.79**	-	-
	16-Oct-20	**2.2**	**2.22**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**268**	**174**	-	-	**5.01**	-	-
	16-Nov-20	**2.58**	**2.35**	-	-	**4.1**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**341**	**222**	**212**	**14**	**4.75**	-	-
	16-Dec-20	**1.85**	**1.87**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**256**	**166**	-	-	**4.82**	-	-
	14-Jan-21	**2.32**	**2.44**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**317**	**206**	-	-	**4.76**	-	-
	16-Feb-21	**2.67**	**2.58**	-	-	**4.27**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**335**	**218**	**184**	**63**	**4.68**	-	-
	17-Mar-21	**2.67**	**2.51**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**329**	**214**	-	-	**4.57**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**2.8**	**3.2**	**6.58**	-	-	**5.0**	-	< 1.0	< 1.0	**5.0**	**20**	-	**329**	**214**	-	-	**4.67**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.78**	**0.93**	-	-	**3.0**	-	< 1.0	< 1.0	< 1.0	< 1.0	**4.0**	-	**135**	**88**	-	-	**4.93**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH9A	16-Sep-20	**2.21**	**2.06**	-	-	-	-	**7.0**	< 1.0	< 1.0	**7.0**	**33**	-	**276**	**179**	**310**	**1,060**	**5.78**	-	-
	16-Oct-20	**2.06**	**2.06**	-	-	-	-	**1.0**	< 1.0	< 1.0	**1.0**	**32**	-	**237**	**154**	-	-	**5.15**	-	-
	16-Nov-20	**1.46**	**1.51**	-	-	**2.16**	-	**2.0**	< 1.0	< 1.0	**2.0**	**21**	-	**195**	**127**	**142**	**2,220**	**4.93**	-	-
	16-Dec-20	**1.32**	**1.23**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**15**	-	**175**	**114**	-	-	**4.83**	-	-
	14-Jan-21	**1.37**	**1.52**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**15**	-	**196**	**127**	-	-	**4.96**	-	-
	16-Feb-21	**1.41**	**1.42**	-	-	**2.82**	-	**2.0**	< 1.0	< 1.0	**2.0**	**15**	-	**181**	**118**	**135**	**2,030**	**4.72**	-	-
	17-Mar-21	**1.38**	**1.32**	-	-	-	-	**4.0**	< 1.0	< 1.0	**4.0**	**15**	-	**164**	**107**	-	-	**5.23**	-	-
	19-Aug-21	**1.41**	**1.42**	-	-	**2.82**	-	**4.0**	< 1.0	< 1.0	**4.0**	**15**	-	**180**	**117**	-	-	**5.03**	-	-
	22-Sep-21	**1.2**	**1.36**	-	-	**2.92**	-	**6.0**	< 1.0	< 1.0	**6.0**	**11**	-	**172**	**112**	-	-	**4.99**	-	-
	13-Oct-21	**1.23**	**1.46**	-	-	**3.39**	-	**8.0**	< 1.0	< 1.0	**8.0**	**8.0**	-	**156**	**101**	-	-	**5.21**	**105**	-
	16-Nov-21	**1.42**	**1.36**	-	-	**2.51**	-	**5.0**	< 1.0	< 1.0	**5.0**	-	**17**	**163**	**106**	-	-	**5.51**	-	-
	24-Feb-22	**1.37**	**1.26**	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	**21**	-	**164**	**107**	-	-	**4.85**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**289**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.97**	**1.01**	-	-	**2.54**	-	**3.0**	< 1.0	< 1.0	**3.0**	**8.0**	-	**141**	**92**	-	-	**4.65**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW239S	22-Feb-19	**3.15**	**3.06**	**1.43**	-	**5.21**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**329**	**214**	**234**	**149**	**4.89**	-	-
	14-Mar-19	**3.28**	**3.64**	**5.18**	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**	**25**	-	**410**	**266**	**232**	**504**	**5.02**	-	-
	23-Apr-19	**3.38**	**2.92**	**7.32**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**294**	**191**	**208**	**385**	**4.92**	-	-
	16-May-19	**2.76**	**2.75**	-	-	**4.44**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**327**	**212**	**320**	**371**	**4.87**	-	-
	14-Jun-19	**2.67**	**2.86**	-	-	-	-	**7.0**	< 1.0	< 1.0	**7.0**	**25**	-	**334**	**217**	**220**	**427**	**5.39**	-	-
	16-Jul-19	**2.86**	**2.39**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**353**	**229**	**188**	**70**	**4.85**	-	-
	15-Aug-19	**2.92**	**2.71**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**359**	**233**	**195**	**363**	**4.83**	-	-
	16-Sep-19	**2.91**	**2.69**	-	-	**4.7**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**373**	**242**	**224**	**179**	**4.66**	-	-
	15-Oct-19	**3.02**	**3.21**	**3.15**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**404**	**263**	-	-	**4.86**	-	-
	18-Nov-19	**3.26**	**3.5**	**3.48**	-	**5.38**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**419**	**272**	-	-	**4.76**	-	-
	16-Sep-20	**2.99**	**3.24**	**3.95**	-	-	-	**3.0**	< 1.0	< 1.0	**3.0**	**33**	-	**390**	**254**	**244**	**350**	**5.2**	-	-
	16-Oct-20	**4.14**	**4.57**	**4.99**	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**	**37**	-	**458**	**298**	-	-	**4.73**	-	-
	16-Nov-20	**4.21**	**4.3**	**1.0**	-	**4.78**	-	< 1.0	< 1.0	< 1.0	< 1.0	**37**	-	**489**	**318**	**294**	**562**	**4.55**	-	-
	16-Dec-20	**3.81**	**4.05**	**3.15**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**41**	-	**484**	**315**	-	-	**4.68**	-	-
	14-Jan-21	**3.31**	**3.65**	**4.78**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**37**	-	**430**	**280**	-	-	**4.44**	-	-
	16-Feb-21	**4.03**	**4.29**	**3.1**	-	**4.21**	-	< 1.0	< 1.0	< 1.0	< 1.0	**45**	-	**488**	**317**	**375**	**346**	**4.61**	-	-
	17-Mar-21	**2.73**	**2.76**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**343**	**223**	-	-	**4.73**	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**4.87**	**295**	-
	24-Feb-22	**1.29**	**1.3**	-	-	-	**3.0**	-	< 1.0	< 1.0	**3.0**	**12**	-	**159**	**103**	-	-	**4.67**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**104**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.77**	**0.89**	-	-	**1.98**	-	**2.0**	< 1.0	< 1.0	**2.0**	**8.0**	-	**111**	**72**	-	-	**4.63**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of report
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the l
Highlighting indicates an exceedance

Criteria:
SWMP 2021 - Soil and Water Managen

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH1	15-Mar-19	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.004**	< 0.001	< 0.001	**13**	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01	**1.27**
	23-Apr-19	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.004**	< 0.001	**0.002**	**10**	**0.001**	**0.015**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.363**
	16-May-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**8.33**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.132**
	14-Jun-19	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**6.31**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.074**
	16-Jul-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.002**	**7.35**	< 0.001	**0.01**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.116**
	15-Aug-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.002**	**7.96**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.023**
	16-Sep-19	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.004**	< 0.001	**0.001**	**8.84**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.034**
	15-Oct-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.006**	-	< 0.001	**0.007**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.037**
	18-Nov-19	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	**0.004**	< 0.001	< 0.001	**11**	< 0.001	**0.008**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.012**
	16-Sep-20	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.005**	**5.48**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.016**
	16-Oct-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**5.55**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.017**
	16-Nov-20	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.001**	**7.05**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.045**
	16-Dec-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.008**	**3.21**	< 0.001	**0.011**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.077**
	14-Jan-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**5.21**	< 0.001	**0.013**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.032**
	16-Feb-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**3.24**	< 0.001	**0.015**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.652**
	17-Mar-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**4.0**	< 0.001	**0.027**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.596**
	24-Feb-22	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**7.7**	< 0.001	**0.018**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.106**
	21-Feb-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.001**	< 0.001	**0.26**	< 0.001	**0.003**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.031**
	15-Mar-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.49**	< 0.001	**0.007**	< 0.0001	**0.037**	< 0.01	< 0.01	**0.016**
	23-Apr-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.98**	< 0.001	**0.007**	< 0.0001	**0.07**	< 0.01	< 0.01	**0.04**
	16-May-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.97**	< 0.001	**0.006**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.024**
	14-Jun-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.98**	< 0.001	**0.005**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.005**
	16-Jul-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.47**	< 0.001	**0.003**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.007**
	15-Aug-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**0.87**	< 0.001	**0.007**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.005**
	16-Sep-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.79**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.012**
	15-Oct-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.004**	-	< 0.001	**0.006**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.016**
	18-Nov-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.95**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.005**	**0.9**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.009**
	16-Oct-20	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.06**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.01**
	16-Nov-20	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.84**	< 0.001	**0.011**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.016**
	16-Dec-20	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.0**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.008**
	14-Jan-21	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.025**	**0.56**	< 0.001	**0.006**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.018**
	16-Feb-21	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.018**	**0.59**	< 0.001	**0.008**	< 0.0001	**0.007**	< 0.01	< 0.01	**0.03**
	17-Mar-21	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.2**	< 0.001	**0.002**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.014**
	19-Aug-21	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.62**	< 0.001	**0.003**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.047**
	22-Sep-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.72**	< 0.001	**0.003**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.042**
	13-Oct-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.69**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.037**
	16-Nov-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.92**	< 0.001	**0.002**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.036**
BH11	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.92**	-	**0.003**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**1.06**	-	**0.003**	-	-	-	-	-
	24-Feb-22	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**1.25**	< 0.001	**0.003**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.036**
	06-Mar-22	< 0.001	**0.004**	-	-	-	**0.002**	-	< 0.001	**1.27**	-	-	-	**0.002**	-	-	**0.028**
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**1.06**	-	**0.004**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**1.06**	-	**0.004**	-	-	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**1.24**	-	**0.004**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**1.03**	-	**0.004**	-	-	-	-	-
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**1.14**	-	**0.004**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**1.14**	-	**0.003**	-	-	-	-	-
	18-Nov-22	< 0.001	**0.002**	-	-	-	**0.003**	< 0.001	< 0.001	**1.06**	-	**0.003**	-	**0.003**	-	-	**0.042**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.96**	-	**0.003**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.86**	-	**0.003**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.008**	**0.91**	< 0.001	**0.003**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.076**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.99**	-	**0.002**	-	-	-	-	-
	18-Apr-23	**0.001**	**0.001**	< 0.001	< 0.05	< 0.0001	**0.004**	< 0.001	< 0.001	**1.07**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.029**
	16-May-23	< 0.001	**0.002**	-	-	-	**0.003**	-	**0.001**	**1.04**	-	-	-	**0.003**	-	-	**0.065**
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.59**	-	**0.001**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.86**	-	**0.002**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.002**	-	-	-	**0.003**	-	**0.001**	**0.88**	-	**0.004**	-	**0.002**	-	-	**0.081**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.78**	-	**0.002**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.66**	-	**0.003**	-	-	-	-	-
	22-Nov-23	< 0.001	-	-	-	-	-	-	-	**0.55**	-	**0.004**	-	-	-	-	-
BH12	16-Nov-20	< 0.001	-	-	-	< 0.0001	**0.002**	-	**0.002**	-	< 0.001	-	< 0.0001	**0.002**	-	-	**0.017**

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH12	24-Feb-22	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.33**	< 0.001	**0.006**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH12A	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.003**	**3.64**	< 0.001	**0.019**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.015**
	14-Aug-23	< 0.001	**0.006**	-	-	-	< 0.001	-	**0.001**	< 0.05	-	**0.006**	-	< 0.001	-	-	**0.025**
BH1A	15-Feb-23	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.001	**0.003**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.013**
	14-Aug-23	< 0.001	**0.003**	-	-	-	**0.003**	-	**0.004**	**0.45**	-	**0.011**	-	< 0.001	-	-	**0.015**
BH2	22-Feb-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.14**	< 0.001	**0.021**	< 0.0001	**0.015**	< 0.01	< 0.01	**0.006**
	15-Mar-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.003**	< 0.05	< 0.001	**0.02**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	23-Apr-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.004**	**0.19**	< 0.001	**0.018**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.008**
	16-May-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.06**	< 0.001	**0.014**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	14-Jun-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.004**	**0.08**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Jul-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.008**	**0.05**	< 0.001	**0.013**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.006**
	15-Aug-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.08**	< 0.001	**0.011**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Sep-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.008**	**0.26**	< 0.001	**0.014**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.007**
	15-Oct-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.006**	-	< 0.001	**0.011**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.007**
	18-Nov-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.013**	**0.08**	< 0.001	**0.011**	< 0.0001	**0.007**	< 0.01	< 0.01	**0.028**
	16-Sep-20	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.026**	**0.07**	< 0.001	**0.016**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.013**	< 0.05	< 0.001	**0.015**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Nov-20	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.02**	**0.36**	< 0.001	**0.015**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.018**
	16-Dec-20	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.011**	< 0.05	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.006**	< 0.05	< 0.001	**0.016**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Feb-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.021**	< 0.05	< 0.001	**0.009**	< 0.0001	**0.007**	< 0.01	< 0.01	**0.017**
	17-Mar-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.003**	< 0.05	< 0.001	**0.016**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	19-Aug-21	< 0.001	**0.003**	-	-	-	< 0.001	-	**0.007**	< 0.05	-	**0.015**	-	< 0.001	-	-	< 0.005
	22-Sep-21	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.013**	-	-	-	-	-
	13-Oct-21	< 0.001	-	-	-	-	-	-	-	**0.08**	-	**0.012**	-	-	-	-	-
	16-Nov-21	< 0.001	**0.003**	-	-	-	< 0.001	-	**0.006**	< 0.05	-	-	-	< 0.001	-	-	< 0.005
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.05**	-	**0.008**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.49**	-	**0.012**	-	-	-	-	-
	24-Feb-22	**0.002**	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.01**	-	-	-	-	-
	12-Apr-22	**0.001**	-	-	-	-	-	-	-	**0.25**	-	**0.009**	-	-	-	-	-
	27-May-22	< 0.001	**0.002**	-	-	-	< 0.001	-	**0.004**	< 0.05	-	-	-	< 0.001	-	-	**0.005**
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.007**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.008**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.005**	-	-	-	< 0.001	-	**0.012**	< 0.05	-	-	-	**0.001**	-	-	**0.169**
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.15**	-	**0.009**	-	-	-	-	**0.125**
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.005**	-	-	-	-	**0.086**
	18-Nov-22	< 0.001	**0.004**	-	-	-	< 0.001	**0.001**	**0.002**	**0.14**	-	**0.005**	-	< 0.001	-	-	**0.086**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.09**	-	**0.004**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.12**	-	**0.005**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	< 0.05	< 0.001	**0.002**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.048**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.003**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.003**	< 0.001	**0.05**	< 0.0001	< 0.001	< 0.001	**0.003**	**0.09**	< 0.001	**0.004**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.039**
	16-May-23	< 0.001	**0.002**	-	-	-	< 0.001	-	**0.004**	**0.08**	-	-	-	**0.001**	-	-	**0.05**
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.002**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.12**	-	**0.007**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.004**	-	-	-	< 0.001	-	**0.008**	**0.18**	-	**0.009**	-	< 0.001	-	-	**0.164**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.06**	-	**0.005**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.11**	-	**0.007**	-	-	-	-	-
	22-Nov-23	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.002**	-	-	-	-	-
BH3	21-Feb-19	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.06**	< 0.001	**0.005**	< 0.0001	**0.053**	< 0.01	< 0.01	< 0.005

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
	21-Feb-19	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.16**	< 0.001	**0.039**	< 0.0001	**0.018**	< 0.01	< 0.01	**0.014**
	15-Mar-19	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	< 0.05	< 0.001	**0.014**	< 0.0001	**0.022**	< 0.01	< 0.01	**0.043**
	23-Apr-19	< 0.001	**0.013**	< 0.001	**0.05**	< 0.0001	< 0.001	< 0.001	**0.002**	**0.99**	< 0.001	**0.045**	< 0.0001	**0.007**	< 0.01	< 0.01	**0.008**
	16-May-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.27**	< 0.001	**0.022**	< 0.0001	**0.022**	< 0.01	< 0.01	**0.011**
	14-Jun-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.038**	< 0.05	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.005**
	16-Jul-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.046**	< 0.05	< 0.001	**0.019**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.007**
	15-Aug-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.026**	< 0.05	< 0.001	**0.018**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.007**
	16-Sep-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.051**	**0.19**	< 0.001	**0.026**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.005**
	15-Oct-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.011**	-	< 0.001	**0.136**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.014**
	18-Nov-19	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.005**	< 0.05	< 0.001	**0.013**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.078**	**0.06**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.003**	**0.25**	< 0.001	**0.021**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.018**
	16-Nov-20	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.005**	**0.18**	< 0.001	**0.008**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.005**
	16-Dec-20	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.46**	< 0.001	**0.027**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.27**	< 0.001	**0.012**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	16-Feb-21	< 0.001	**0.02**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.94**	< 0.001	**0.023**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.008**
	17-Mar-21	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.006**	**1.39**	< 0.001	**0.029**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.019**
	19-Aug-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.198**	**0.14**	< 0.001	**0.022**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.013**
	22-Sep-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.172**	**0.1**	< 0.001	**0.02**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	13-Oct-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.026**	**1.65**	< 0.001	**0.019**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Nov-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.38**	< 0.001	**0.021**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.006**
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.69**	-	**0.016**	-	-	-	-	-
BH4	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.52**	-	**0.018**	-	-	-	-	-
	24-Feb-22	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.62**	< 0.001	**0.017**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.008**
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.09**	-	**0.018**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.27**	-	**0.017**	-	-	-	-	-
	27-May-22	< 0.001	**0.011**	-	-	-	< 0.001	-	**0.097**	< 0.05	-	-	-	< 0.001	-	-	< 0.005
	17-Jun-22	< 0.001	-	-	-	-	-	-	**0.082**	< 0.05	-	**0.014**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.09**	-	**0.014**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.013**	-	-	-	< 0.001	-	**0.05**	< 0.05	-	-	-	< 0.001	-	-	**0.013**
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.11**	-	**0.014**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.19**	-	**0.016**	-	-	-	-	-
	18-Nov-22	< 0.001	**0.012**	-	-	-	< 0.001	< 0.001	**0.006**	**0.13**	-	**0.016**	-	< 0.001	-	-	**0.011**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.14**	-	**0.015**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.12**	-	**0.022**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.06**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.015**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.022**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.059**	**0.05**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.008**
	16-May-23	< 0.001	**0.008**	-	-	-	< 0.001	-	**0.135**	**0.09**	-	-	-	< 0.001	-	-	**0.017**
	14-Jun-23	< 0.001	-	-	-	-	-	-	**0.067**	< 0.05	-	**0.009**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.06**	-	**0.013**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.009**	-	-	-	< 0.001	-	**0.119**	**0.09**	-	**0.015**	-	< 0.001	-	-	**0.028**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.13**	-	**0.013**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.08**	-	**0.013**	-	-	-	-	-
	22-Nov-23	< 0.001	-	-	-	-	-	-	-	**0.06**	-	**0.013**	-	-	-	-	-
	22-Feb-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.4**	< 0.001	**0.005**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.008**
BH5	24-Feb-22	< 0.001	**0.024**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.64**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	15-Feb-23	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.47**	< 0.001	**0.002**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.018**

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH6	22-Feb-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.03**	< 0.001	**0.014**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.019**
	14-Mar-19	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.9**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.012**
	23-Apr-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.96**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.022**
	16-May-19	< 0.001	**0.029**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**2.57**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	14-Jun-19	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**2.86**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.008**
	16-Jul-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**2.41**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.005**
	15-Aug-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**2.19**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.007**
	16-Sep-19	< 0.001	**0.034**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.008**	**2.08**	< 0.001	**0.012**	< 0.0001	**0.007**	< 0.01	< 0.01	**0.035**
	15-Oct-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	-	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	18-Nov-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.58**	< 0.001	**0.009**	< 0.0001	**0.008**	< 0.01	< 0.01	**0.073**
	16-Sep-20	< 0.001	**0.047**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**1.78**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	**0.04**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.84**	< 0.001	**0.011**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.007**
	16-Nov-20	< 0.001	**0.061**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.72**	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.01**
	16-Dec-20	< 0.001	**0.07**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.64**	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.007**
	14-Jan-21	< 0.001	**0.054**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.011**	**1.06**	< 0.001	**0.014**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.025**
	16-Feb-21	< 0.001	**0.048**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.013**	**1.18**	< 0.001	**0.012**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.012**
	17-Mar-21	< 0.001	**0.068**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.39**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	19-Aug-21	**0.005**	**0.037**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.55**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	22-Sep-21	**0.002**	**0.02**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.55**	< 0.001	**0.005**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	13-Oct-21	**0.002**	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.65**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Nov-21	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.83**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.66**	-	**0.002**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.7**	-	**0.003**	-	-	-	-	-
	24-Feb-22	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.55**	< 0.001	**0.001**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.031**
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.81**	-	**0.002**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**3.24**	-	**0.016**	-	-	-	-	-
	27-May-22	< 0.001	**0.007**	-	-	-	< 0.001	-	< 0.001	**3.45**	-	-	-	< 0.001	-	-	< 0.005
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**2.7**	-	**0.005**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**2.38**	-	**0.001**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.008**	-	-	-	< 0.001	-	< 0.001	**2.38**	-	-	-	< 0.001	-	-	**0.008**
	16-Sep-22	**0.001**	-	-	-	-	-	-	-	**3.45**	-	**0.002**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**3.44**	-	**0.002**	-	-	-	-	-
	18-Nov-22	< 0.001	**0.009**	-	-	-	< 0.001	< 0.001	< 0.001	**4.39**	-	**0.006**	-	**0.002**	-	-	**0.005**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**3.23**	-	**0.012**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**3.61**	-	**0.014**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.002**	**3.82**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.032**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**4.97**	-	**0.006**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**4.13**	< 0.001	**0.003**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-May-23	< 0.001	**0.007**	-	-	-	< 0.001	-	< 0.001	**4.56**	-	-	-	< 0.001	-	-	**0.024**
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**5.53**	-	< 0.001	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**6.78**	-	**0.005**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.008**	-	-	-	< 0.001	-	**0.001**	**6.34**	-	**0.006**	-	< 0.001	-	-	**0.062**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**4.68**	-	**0.004**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**4.27**	-	**0.006**	-	-	-	-	-
	22-Nov-23	< 0.001	-	-	-	-	-	-	-	**3.21**	-	**0.006**	-	-	-	-	-

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH7	22-Feb-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**1.8**	< 0.001	**0.026**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.019**
	14-Mar-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.003**	< 0.001	**1.8**	< 0.001	**0.02**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.009**
	23-Apr-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**2.0**	< 0.001	**0.026**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.01**
	16-May-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**2.32**	< 0.001	**0.035**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.013**
	14-Jun-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**2.06**	< 0.001	**0.03**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.006**
	16-Jul-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.66**	< 0.001	**0.025**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	15-Aug-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.54**	< 0.001	**0.023**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	16-Sep-19	< 0.001	**0.016**	< 0.001	**0.06**	< 0.0001	**0.002**	**0.002**	**0.007**	**1.42**	**0.001**	**0.024**	< 0.0001	**0.02**	< 0.01	< 0.01	**0.085**
	15-Oct-19	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	**0.003**	-	< 0.001	**0.018**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.011**
	18-Nov-19	< 0.001	**0.016**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.1**	< 0.001	**0.015**	< 0.0001	**0.013**	< 0.01	< 0.01	**0.053**
	16-Sep-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.67**	< 0.001	**0.021**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.49**	< 0.001	**0.015**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.015**
	16-Nov-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**1.72**	< 0.001	**0.023**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.006**
	16-Dec-20	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.79**	< 0.001	**0.024**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	**0.004**	**1.65**	< 0.001	**0.025**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.017**
	16-Feb-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	**0.002**	**1.74**	< 0.001	**0.025**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.013**
	17-Mar-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**2.28**	< 0.001	**0.028**	< 0.0001	**0.005**	< 0.01	< 0.01	< 0.005
	19-Aug-21	**0.003**	**0.004**	< 0.001	< 0.05	< 0.0001	**0.003**	**0.001**	< 0.001	**0.79**	< 0.001	**0.006**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	22-Sep-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.62**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	13-Oct-21	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.69**	**0.002**	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	16-Nov-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.39**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.007**
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.47**	-	**0.002**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.45**	-	**0.002**	-	-	-	-	-
	24-Feb-22	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.66**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.45**	-	**0.003**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.43**	-	**0.004**	-	-	-	-	-
	27-May-22	< 0.001	**0.003**	-	-	-	**0.003**	-	< 0.001	**0.52**	-	-	-	**0.002**	-	-	**0.005**
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.56**	-	**0.004**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.51**	-	**0.004**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.003**	-	-	-	**0.002**	-	**0.003**	**0.56**	-	-	-	**0.002**	-	-	< 0.005
	16-Sep-22	**0.001**	-	-	-	-	-	-	-	**0.54**	-	**0.004**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.5**	-	**0.003**	-	-	-	-	-
	18-Nov-22	**0.001**	**0.002**	-	-	-	**0.002**	< 0.001	< 0.001	**0.43**	-	**0.001**	-	**0.001**	-	-	**0.009**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.32**	-	**0.002**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.29**	-	**0.002**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.31**	< 0.001	**0.003**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.011**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.34**	-	**0.003**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.46**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.011**
	16-May-23	< 0.001	**0.002**	-	-	-	**0.002**	-	**0.001**	**0.47**	-	-	-	**0.002**	-	-	**0.025**
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.003**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.53**	-	**0.004**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.002**	-	-	-	**0.002**	-	**0.003**	**0.41**	-	**0.003**	-	**0.002**	-	-	**0.024**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.55**	-	**0.004**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.53**	-	**0.004**	-	-	-	-	-
	22-Nov-23	< 0.001	-	-	-	-	-	-	-	**0.36**	-	**0.004**	-	-	-	-	-

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH8	21-Feb-19	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**4.1**	< 0.001	**0.012**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.005**
	14-Mar-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.25**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	23-Apr-19	**0.001**	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.2**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.008**
	16-May-19	**0.003**	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.0**	< 0.001	**0.01**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	14-Jun-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**2.5**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	16-Jul-19	**0.001**	**0.012**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**2.6**	< 0.001	**0.004**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	15-Aug-19	**0.001**	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.72**	< 0.001	**0.004**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	16-Sep-19	**0.001**	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**2.06**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	15-Oct-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.002**	-	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.011**
	18-Nov-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**2.49**	< 0.001	**0.01**	< 0.0001	**0.013**	< 0.01	< 0.01	**0.053**
	16-Sep-20	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.035**	**3.35**	**0.001**	**0.009**	< 0.0001	**0.009**	< 0.01	< 0.01	**0.039**
	16-Oct-20	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.03**	< 0.001	**0.007**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.012**
	16-Nov-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**3.48**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	16-Dec-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.001**	**2.98**	< 0.001	**0.01**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.002**	**2.71**	< 0.001	**0.01**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.009**
	16-Feb-21	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.004**	**2.99**	< 0.001	**0.01**	< 0.0001	**0.006**	< 0.01	< 0.01	**0.013**
	17-Mar-21	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.86**	< 0.001	**0.01**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	19-Aug-21	**0.003**	**0.008**	-	-	-	**0.002**	-	< 0.001	**3.72**	-	-	-	**0.002**	-	-	< 0.005
	16-Nov-21	**0.001**	**0.01**	-	-	-	**0.002**	-	< 0.001	**4.23**	-	-	-	**0.002**	-	-	< 0.005
	16-Dec-21	-	-	-	-	-	-	-	-	**3.78**	-	-	-	-	-	-	-
	24-Feb-22	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**2.98**	< 0.001	**0.007**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.012**
	27-May-22	**0.001**	**0.004**	-	-	-	**0.002**	-	< 0.001	**1.1**	-	-	-	**0.001**	-	-	< 0.005
	12-Aug-22	**0.001**	**0.006**	-	-	-	**0.002**	-	< 0.001	**1.54**	-	-	-	**0.001**	-	-	**0.007**
	18-Nov-22	**0.002**	**0.004**	-	-	-	**0.002**	< 0.001	< 0.001	**1.16**	-	**0.001**	-	< 0.001	-	-	**0.008**
	15-Feb-23	**0.001**	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**0.96**	< 0.001	**0.002**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.034**
	16-May-23	**0.002**	**0.004**	-	-	-	**0.003**	-	< 0.001	**1.37**	-	-	-	**0.001**	-	-	**0.015**
	14-Aug-23	**0.002**	**0.005**	-	-	-	**0.003**	-	< 0.001	**1.78**	-	**0.006**	-	**0.001**	-	-	**0.024**
BH9	16-Nov-21	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.014**	-	-	-	-	-
BH9A	16-Sep-20	< 0.001	**0.028**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.004**	**0.14**	< 0.001	**0.076**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.02**
	16-Oct-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.001**	**0.06**	< 0.001	**0.042**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.016**
	16-Nov-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.001**	**0.11**	< 0.001	**0.03**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.011**
	16-Dec-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.31**	< 0.001	**0.024**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	14-Jan-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.017**	**0.14**	< 0.001	**0.025**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.011**
	16-Feb-21	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	< 0.001	**0.35**	< 0.001	**0.024**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.006**
	17-Mar-21	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.27**	< 0.001	**0.024**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.01**
	19-Aug-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.26**	< 0.001	**0.03**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.006**
	22-Sep-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.32**	< 0.001	**0.027**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	13-Oct-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.51**	< 0.001	**0.033**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.021**
	16-Nov-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	< 0.001	**0.33**	< 0.001	**0.025**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.031**
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.025**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.03**	-	-	-	-	-
	24-Feb-22	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	< 0.001	**0.5**	< 0.001	**0.042**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.006**
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.32**	-	**0.036**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.038**	-	-	-	-	-
	27-May-22	< 0.001	**0.007**	-	-	-	< 0.001	-	< 0.001	**0.35**	-	-	-	**0.003**	-	-	< 0.005
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.42**	-	**0.032**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.16**	-	**0.019**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.009**	-	-	-	< 0.001	-	**0.004**	**0.53**	-	-	-	**0.004**	-	-	**0.008**
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.54**	-	**0.031**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.27**	-	**0.022**	-	-	-	-	-
	18-Nov-22	< 0.001	**0.007**	-	-	-	< 0.001	< 0.001	< 0.001	**0.56**	-	**0.034**	-	**0.002**	-	-	**0.012**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.18**	-	**0.023**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.49**	-	**0.035**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.61**	< 0.001	**0.041**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.015**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.15**	-	**0.02**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.004**	**0.5**	< 0.001	**0.033**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.038**
	16-May-23	< 0.001	**0.004**	-	-	-	< 0.001	-	< 0.001	**0.26**	-	-	-	**0.002**	-	-	**0.029**
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.16**	-	**0.013**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.67**	-	**0.045**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.006**	-	-	-	< 0.001	-	**0.003**	**0.63**	-	**0.041**	-	**0.003**	-	-	**0.038**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.21**	-	**0.023**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.63**	-	**0.051**	-	-	-	-	-

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
	22-Nov-23	< 0.001	-	-	-	-	-	-	-	**0.8**	-	**0.061**	-	-	-	-	-
	22-Feb-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.11**	< 0.001	**0.003**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.006**
	14-Mar-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.25**	< 0.001	**0.005**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.008**
	23-Apr-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.01**	< 0.001	**0.004**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.007**
	16-May-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.87**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	14-Jun-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.8**	< 0.001	**0.003**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	16-Jul-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.87**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	15-Aug-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.0**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Sep-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.94**	< 0.001	**0.006**	< 0.0001	**0.006**	< 0.01	< 0.01	**0.032**
	15-Oct-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.003**	-	< 0.001	**0.004**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.011**
	18-Nov-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.1**	< 0.001	**0.004**	< 0.0001	**0.008**	< 0.01	< 0.01	**0.03**
	16-Sep-20	< 0.001	**0.016**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.51**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.17**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.005**
	16-Nov-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**0.3**	< 0.001	**0.011**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.021**
	16-Dec-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.06**	< 0.001	**0.011**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.005**	**0.77**	< 0.001	**0.012**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.011**
	16-Feb-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.001**	**0.01**	**0.92**	< 0.001	**0.012**	< 0.0001	**0.009**	< 0.01	< 0.01	**0.014**
	17-Mar-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.95**	< 0.001	**0.01**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.009**
	19-Aug-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.53**	< 0.001	**0.006**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	22-Sep-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.65**	< 0.001	**0.004**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.005**
	13-Oct-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.79**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.016**
	16-Nov-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.68**	< 0.001	**0.006**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.01**
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.77**	-	**0.005**	-	-	-	-	-
MW239S	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.003**	-	-	-	-	-
	24-Feb-22	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.55**	< 0.001	**0.004**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.005**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.93**	-	**0.007**	-	-	-	-	-
	27-May-22	< 0.001	**0.004**	-	-	-	**0.002**	-	< 0.001	**0.56**	-	-	-	**0.001**	-	-	**0.009**
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.36**	-	**0.004**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.43**	-	**0.004**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.002**	-	-	-	**0.002**	-	< 0.001	**0.4**	-	-	-	**0.001**	-	-	< 0.005
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.006**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.38**	-	**0.004**	-	-	-	-	-
	18-Nov-22	< 0.001	**0.003**	-	-	-	**0.001**	< 0.001	< 0.001	**0.28**	-	**0.002**	-	**0.002**	-	-	**0.006**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.26**	-	**0.003**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.2**	-	**0.003**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.17**	< 0.001	**0.004**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.019**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.29**	-	**0.004**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.27**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	16-May-23	< 0.001	**0.002**	-	-	-	**0.002**	-	< 0.001	**0.21**	-	-	-	**0.002**	-	-	**0.027**
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.2**	-	**0.004**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.25**	-	**0.005**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.002**	-	-	-	**0.002**	-	< 0.001	**0.28**	-	**0.004**	-	**0.001**	-	-	**0.013**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.3**	-	**0.004**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.22**	-	**0.005**	-	-	-	-	-
	22-Nov-23	< 0.001	-	-	-	-	-	-	-	**0.14**	-	**0.005**	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
mg/L - Milligrams per litre
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl Carboxylic Acids			Perfluoroalkyl Carboxylic Acids					
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.56	--	--	--	--	--	--
Sample Name	Sample Date																		
BH1	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH11	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	06-Mar-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH12	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH12A	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH1A	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH2	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH3	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH4	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH5	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids					Perfluoroalkyl Carboxylic Acids						
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.56	--	--	--	--	--	--
Sample Name	Sample Date																		
BH6	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH7	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH8	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids					Perfluoroalkyl Carboxylic Acids						
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.56	--	--	--	--	--	--
Sample Name	Sample Date																		
BH9A	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
MW239S	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids			Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
		Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanesulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
LOR		0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.07	--	--
Sample Name	Sample Date														
BH1	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH11	21-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	06-Mar-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH12	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.07**	< 0.05	< 0.05	< 0.01	**0.07**	**0.07**
BH12A	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH1A	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH2	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH3	21-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH4	21-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Mar-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Apr-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	**0.02**	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	**0.02**
	15-Oct-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.15**	< 0.05	< 0.05	< 0.01	**0.15**	**0.15**
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.06**	< 0.05	< 0.05	< 0.01	**0.06**	**0.06**
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.05**	< 0.05	< 0.05	< 0.01	**0.05**	**0.05**
	14-Jun-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH5	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids			Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
		Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
LOR		0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.07	--	--
Sample Name	Sample Date														
BH6	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Mar-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Apr-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Oct-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH7	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Mar-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Apr-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Oct-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH8	21-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Mar-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Apr-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Oct-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids			Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
		Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
LOR		0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.07	--	--
Sample Name	Sample Date														
BH9A	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
MW239S	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Manager

Table 5
Surface Water Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																	
SW1	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
SW2	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
SW3	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	**2.0**	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	**2.0**	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50

Table 5
Surface Water Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SW4	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenzene, total xylenes, naphthalene
Bold indicates a detection above the laboratory limit of reporting

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 5
Surface Water Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	$>C_{10}$ - C_{16}	$>C_{10}$ - C_{16} minus Naphthalene (F2)	$>C_{16}$ - C_{34}	$>C_{34}$ - C_{40}	$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date												
SW1	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
SW2	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
SW3	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Table 5
Surface Water Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	$>C_{10}$ - C_{16}	$>C_{10}$ - C_{16} minus Naphthalene (F2)	$>C_{16}$ - C_{34}	$>C_{34}$ - C_{40}	$>C_{10}$ - C_{40} (sum)	$>C_{10}$-C_{16} - Silica Cleanup	F2 - Silica Cleanup	$>C_{16}$-C_{34} - Silica Cleanup	$>C_{34}$-C_{40} - Silica Cleanup	$>C_{10}$-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		20	20	100	--	100	100	--	--	--	--	--	--
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
SW4	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Notes:
- - Not analysed
< - Less than laboratory limit of repor
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenze
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Manager

Table 6
Surface Water - Cations Anions and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Anions and Cations																					Anions and Cations	
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Sulphate	Sulphate	Chloride	Chloride	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	1.0	10	5.0	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		142	40	52	8.0	324	324	324	234	234	234	0.8	--	--	0.17	--	--	--	--	--	--	0.2	5.9	--
Sample Name	Sample Date																							
SW1	23-Apr-19	**94**	**34**	**52**	**6.0**	**310**	-	-	**95**	-	-	**0.5**	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**86**	**24**	**42**	**6.0**	**324**	-	-	**112**	-	-	**0.3**	-	< 0.01	**0.13**	-	< 0.01	-	< 0.01	< 0.01	< 0.01	-	**1.8**	**1.8**
	14-Jun-19	**77**	**20**	**34**	**5.0**	-	**182**	-	-	**112**	-	**0.4**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**90**	**20**	**35**	**4.0**	**240**	-	-	**130**	-	-	**0.4**	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**97**	**18**	**32**	**4.0**	**212**	-	-	**134**	-	-	**0.4**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**117**	**21**	**39**	**4.0**	**244**	-	-	**193**	-	-	**0.7**	-	< 0.01	**0.05**	-	< 0.01	-	**0.02**	**0.02**	< 0.01	-	**1.2**	**1.2**
	15-Oct-19	**124**	**16**	**31**	**3.0**	-	-	**127**	-	-	**191**	**0.6**	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**142**	**14**	**30**	**4.0**	**165**	-	-	**234**	-	-	**0.5**	**0.02**	< 0.01	-	-	< 0.01	< 0.01	-	< 0.01	-	**0.03**	**1.1**	**1.1**
	16-Sep-20	**9.0**	**16**	**3.0**	**3.0**	< 1.0	-	-	< 1.0	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**12**	**40**	**4.0**	**4.0**	< 1.0	-	-	**16**	-	-	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**8.0**	**13**	**2.0**	**3.0**	< 1.0	-	-	**10**	-	-	< 0.1	-	< 0.01	**0.03**	-	< 0.01	-	**0.04**	**0.04**	-	< 0.01	**0.6**	**0.6**
	16-Dec-20	**10**	**19**	**2.0**	**3.0**	**5.0**	-	-	**12**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**10**	**18**	**2.0**	**3.0**	< 1.0	-	-	**13**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**10**	**15**	**2.0**	**3.0**	< 1.0	-	-	**12**	-	-	**0.1**	-	< 0.01	**0.02**	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.5**	**0.5**
	17-Mar-21	**10**	**15**	**2.0**	**2.0**	< 1.0	-	-	**13**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**6.0**	**9.0**	**2.0**	**2.0**	< 1.0	-	-	**10**	-	-	< 0.1	-	-	**0.11**	< 0.01	-	< 0.01	-	< 0.01	**0.02**	-	**1.0**	**1.0**
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**15**	**10**	**2.0**	< 1.0	**6.0**	-	-	**22**	-	-	**0.1**	-	**0.06**	**0.06**	-	< 0.01	-	< 0.01	< 0.01	-	**0.03**	**1.1**	**1.1**
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW2	17-Mar-21	**12**	**2.0**	**2.0**	< 1.0	**6.0**	-	-	**16**	-	-	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	**12**	< 1.0	**1.0**	< 1.0	**6.0**	-	-	**22**	-	-	< 0.1	-	< 0.01	**0.07**	-	< 0.01	-	< 0.01	< 0.01	-	**0.17**	**1.2**	**1.2**
	22-Sep-21	**14**	**2.0**	**2.0**	**2.0**	**16**	-	-	**30**	-	-	**0.1**	-	< 0.01	**0.08**	-	< 0.01	-	**1.77**	**1.77**	-	< 0.01	**3.0**	**1.2**
	13-Oct-21	**10**	< 1.0	**1.0**	< 1.0	**6.0**	-	-	**18**	-	-	< 0.1	-	< 0.01	**0.03**	-	< 0.01	-	**0.02**	**0.02**	-	< 0.01	**0.6**	**0.6**
	16-Nov-21	**10**	**2.0**	**2.0**	< 1.0	**7.0**	-	-	**16**	-	-	**0.1**	-	< 0.01	**0.09**	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**1.8**	**1.8**
	24-Feb-22	**10**	**1.0**	**1.0**	< 1.0	**2.0**	-	-	**21**	-	-	**0.1**	-	-	**0.63**	< 0.01	-	< 0.01	-	< 0.01	**0.31**	-	**7.5**	**7.5**
	17-Mar-22	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.01	-	-	-	-	**0.04**	-	**0.13**	**0.4**	**0.4**
	27-May-22	-	-	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**14**	**2.0**	**3.0**	< 1.0	**6.0**	-	-	**36**	-	-	**0.4**	-	< 0.01	**0.16**	-	< 0.01	-	< 0.01	< 0.01	-	**0.05**	**5.4**	**5.4**
	16-May-23	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW3	22-Feb-19	**40**	**4.0**	**4.0**	**1.0**	**16**	-	-	**82**	-	-	< 0.1	-	< 0.01	**0.06**	-	< 0.01	-	< 0.01	< 0.01	**0.16**	-	**1.0**	**1.0**
	14-Mar-19	**45**	**6.0**	**6.0**	**2.0**	**44**	-	-	**64**	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	**37**	**8.0**	**6.0**	**1.0**	**42**	-	-	**53**	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**35**	**7.0**	**5.0**	< 1.0	**34**	-	-	**54**	-	-	< 0.1	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	< 0.01	-	**0.1**	**0.1**
	14-Jun-19	**32**	**7.0**	**6.0**	< 1.0	**41**	-	-	**55**	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**46**	**8.0**	**12**	< 1.0	**104**	-	-	**57**	-	-	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**38**	**6.0**	**7.0**	< 1.0	**54**	-	-	**56**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**42**	**7.0**	**8.0**	< 1.0	**48**	-	-	**57**	-	-	**0.1**	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	**0.01**	-	**0.1**	**0.1**
	15-Oct-19	**40**	**5.0**	**7.0**	< 1.0	**42**	-	-	**57**	-	-	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**36**	**5.0**	**5.0**	< 1.0	**29**	-	-	**56**	-	-	< 0.1	**0.04**	< 0.01	-	-	< 0.01	**0.01**	-	**0.01**	-	**0.03**	**0.6**	**0.6**
	16-Sep-20	**39**	**3.0**	**8.0**	< 1.0	**65**	-	-	**55**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**40**	**4.0**	**6.0**	< 1.0	**40**	-	-	**63**	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**34**	**2.0**	**5.0**	< 1.0	**67**	-	-	**53**	-	-	< 0.1	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.3**	**0.3**
	16-Dec-20	**36**	**1.0**	**5.0**	**1.0**	**27**	-	-	**61**	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**27**	< 1.0	**2.0**	< 1.0	**26**	-	-	**54**	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**30**	**2.0**	**3.0**	< 1.0	**21**	-	-	**56**	-	-	< 0.1	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.5**	**0.5**
	17-Mar-21	**29**	< 1.0	**2.0**	< 1.0	**15**	-	-	**51**	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**27**	< 1.0	**2.0**	< 1.0	**8.0**	-	-	**53**	-	-	< 0.1	-	-	**0.03**	< 0.01	-	< 0.01	-	< 0.01	**0.02**	-	**0.9**	**0.9**
	27-May-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**33**	< 1.0	**2.0**	**1.0**	**20**	-	-	**76**	-	-	< 0.1	-	< 0.01	< 0.01	-	**0.02**	-	< 0.01	**0.02**	-	**0.21**	**2.8**	**2.8**
	16-May-23	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 6
Surface Water - Cations Anions and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Anions and Cations																					Anions and Cations	
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Sulphate	Sulphate	Chloride	Chloride	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	1.0	10	5.0	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		142	40	52	8.0	324	324	324	234	234	234	0.8	--	--	0.17	--	--	--	--	--	--	0.2	5.9	--
SW4	23-Apr-19	**39**	**5.0**	**5.0**	< 1.0	**60**	-	-	**64**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**41**	**5.0**	**5.0**	< 1.0	**41**	-	-	**59**	-	-	< 0.1	-	**0.01**	< 0.01	-	< 0.01	-	**0.05**	**0.05**	< 0.01	-	**0.2**	**0.2**
	14-Jun-19	**40**	**5.0**	**5.0**	< 1.0	**39**	-	-	**60**	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**46**	**7.0**	**7.0**	< 1.0	**67**	-	-	**56**	-	-	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**40**	**5.0**	**5.0**	< 1.0	**43**	-	-	**55**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**45**	**7.0**	**6.0**	< 1.0	**45**	-	-	**58**	-	-	**0.1**	-	< 0.01	**0.01**	-	< 0.01	-	< 0.01	< 0.01	< 0.01	-	**0.1**	**0.1**
	15-Oct-19	**44**	**6.0**	**6.0**	< 1.0	**38**	-	-	**57**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**41**	**4.0**	**5.0**	< 1.0	**41**	-	-	**64**	-	-	**0.2**	< 0.01	< 0.01	-	-	< 0.01	**0.02**	-	**0.02**	-	< 0.01	**0.2**	**0.2**
	16-Sep-20	**45**	**6.0**	**7.0**	< 1.0	**58**	-	-	**59**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**43**	**5.0**	**5.0**	< 1.0	**40**	-	-	**67**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**37**	**8.0**	**6.0**	**2.0**	**42**	-	-	**54**	-	-	**0.2**	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.1**	**0.1**
	16-Dec-20	**43**	**4.0**	**4.0**	**2.0**	**24**	-	-	**70**	-	-	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**36**	**16**	**4.0**	**2.0**	**15**	-	-	**58**	-	-	**0.8**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**37**	**6.0**	**4.0**	**2.0**	**14**	-	-	**61**	-	-	**0.3**	-	< 0.01	**0.03**	-	< 0.01	-	< 0.01	< 0.01	-	**0.02**	**1.2**	**1.2**
	17-Mar-21	**36**	**10**	**4.0**	**2.0**	**10**	-	-	**54**	-	-	**0.4**	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**35**	**3.0**	**4.0**	< 1.0	**27**	-	-	**63**	-	-	< 0.1	-	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	**0.3**	**0.3**
	27-May-22	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**34**	**1.0**	**3.0**	< 1.0	**9.0**	-	-	**63**	-	-	< 0.1	-	< 0.01	**0.02**	-	< 0.01	-	< 0.01	< 0.01	-	**0.04**	**0.7**	**0.7**
	16-May-23	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 6
Surface Water - Cations Anions and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte					Anions and Cations		Alkalinity								Inorganics					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																			
SW1	23-Apr-19	**10**	**9.13**	**5.6**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**299**	-	**893**	**580**	**707**	**32**	**4.01**	-	-
	16-May-19	**8.94**	**9.9**	**5.13**	-	**2.45**	-	< 1.0	< 1.0	< 1.0	< 1.0	**233**	-	**947**	**616**	**715**	**59**	**4.6**	-	-
	14-Jun-19	**7.27**	**6.95**	**2.28**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**190**	-	**847**	**550**	**512**	**26**	**4.5**	-	-
	16-Jul-19	**7.9**	**8.66**	**4.64**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**194**	-	**876**	**569**	**568**	**17**	**4.42**	-	-
	15-Aug-19	**7.85**	**8.19**	**2.12**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**177**	-	**813**	**528**	**548**	**5.0**	**4.53**	-	-
	16-Sep-19	**9.45**	**11**	**5.38**	-	**3.49**	-	< 1.0	< 1.0	< 1.0	< 1.0	**213**	-	**1,080**	**702**	**689**	**15**	**4.32**	-	-
	15-Oct-19	**8.82**	**8.03**	**4.68**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**168**	-	**1,050**	**682**	-	-	**5.32**	-	-
	18-Nov-19	**9.45**	**10**	**3.03**	-	**4.91**	-	< 1.0	< 1.0	< 1.0	< 1.0	**158**	-	**1,090**	**708**	-	-	**5.06**	-	-
	16-Sep-20	**1.51**	**1.1**	-	-	-	-	**55**	< 1.0	< 1.0	**55**	**52**	-	**137**	**89**	**152**	**8.0**	**6.5**	-	-
	16-Oct-20	**2.95**	**2.69**	-	-	-	-	**112**	< 1.0	< 1.0	**112**	**116**	-	**268**	**174**	-	-	**7.29**	-	-
	16-Nov-20	**1.24**	**1.12**	-	-	**0.54**	-	**42**	< 1.0	< 1.0	**42**	**41**	-	**127**	**82**	**127**	< 5.0	**6.5**	-	-
	16-Dec-20	**1.62**	**1.68**	-	-	-	-	**62**	< 1.0	< 1.0	**62**	**56**	-	**171**	**111**	-	-	**7.01**	-	-
	14-Jan-21	**1.57**	**1.46**	-	-	-	-	**55**	< 1.0	< 1.0	**55**	**53**	-	**154**	**100**	-	-	**6.71**	-	-
	16-Feb-21	**1.42**	**1.36**	-	-	**0.64**	-	**51**	< 1.0	< 1.0	**51**	**46**	-	**141**	**92**	**115**	**6.0**	**6.93**	-	-
	17-Mar-21	**1.4**	**1.26**	-	-	-	-	**45**	< 1.0	< 1.0	**45**	**46**	-	**139**	**90**	-	-	**6.63**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**6.82**	**3.3**	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**0.92**	**0.8**	-	-	-	**26**	-	< 1.0	< 1.0	**26**	**31**	-	**89**	**58**	-	-	**6.38**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**1.32**	**1.36**	-	-	**1.13**	-	**31**	< 1.0	< 1.0	**31**	**33**	-	**141**	**92**	-	-	**6.59**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW2	17-Mar-21	**0.79**	**0.58**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**83**	**54**	-	-	**5.08**	-	-
	19-Aug-21	**0.6**	**0.74**	-	-	**2.25**	-	< 1.0	< 1.0	< 1.0	< 1.0	**4.0**	-	**103**	**67**	-	-	**4.21**	-	-
	22-Sep-21	**0.92**	**1.18**	-	-	**1.67**	-	< 1.0	< 1.0	< 1.0	< 1.0	**13**	-	**235**	**153**	-	-	**3.55**	-	-
	13-Oct-21	**0.52**	**0.63**	-	-	**1.88**	-	< 1.0	< 1.0	< 1.0	< 1.0	**4.0**	-	**77**	**50**	-	-	**4.58**	**4.7**	-
	16-Nov-21	**0.7**	**0.6**	-	-	**1.2**	-	< 1.0	< 1.0	< 1.0	< 1.0	-	**13**	**93**	**60**	-	-	**4.39**	-	-
	24-Feb-22	**0.57**	**0.63**	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	**7.0**	-	**97**	**63**	-	-	**4.32**	-	< 0.01
	17-Mar-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.96**	**1.14**	-	-	**1.46**	-	< 1.0	< 1.0	< 1.0	< 1.0	**17**	-	**150**	**98**	-	-	**4.2**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW3	22-Feb-19	**2.55**	**2.87**	-	-	**3.38**	-	**11**	< 1.0	< 1.0	**11**	**26**	-	**262**	**170**	**228**	**58**	**6.21**	-	-
	14-Mar-19	**2.8**	**2.8**	-	-	-	-	**4.0**	< 1.0	< 1.0	**4.0**	**40**	-	**344**	**224**	**279**	**34**	**5.42**	-	-
	23-Apr-19	**2.53**	**2.37**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**45**	-	**220**	**143**	**190**	**9.0**	**5.2**	-	-
	16-May-19	**2.28**	**2.25**	-	-	**2.47**	-	**1.0**	< 1.0	< 1.0	**1.0**	**38**	-	**271**	**176**	**300**	**14**	**5.24**	-	-
	14-Jun-19	**2.24**	**2.4**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**42**	-	**300**	**195**	**170**	**12**	**4.58**	-	-
	16-Jul-19	**3.39**	**3.77**	**5.38**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**69**	-	**451**	**293**	**246**	**7.0**	**4.47**	-	-
	15-Aug-19	**2.53**	**2.7**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**44**	-	**338**	**220**	**192**	< 5.0	**4.47**	-	-
	16-Sep-19	**2.83**	**2.61**	-	-	**2.57**	-	< 1.0	< 1.0	< 1.0	< 1.0	**50**	-	**374**	**243**	**201**	**7.0**	**4.3**	-	-
	15-Oct-19	**2.56**	**2.48**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**41**	-	**383**	**249**	-	-	**4.75**	-	-
	18-Nov-19	**2.23**	**2.18**	-	-	**2.72**	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**278**	**181**	-	-	**5.39**	-	-
	16-Sep-20	**3.12**	**2.9**	**3.5**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**40**	-	**402**	**261**	**224**	**6.0**	**4.41**	-	-
	16-Oct-20	**2.73**	**2.61**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**35**	-	**333**	**216**	-	-	**4.15**	-	-
	16-Nov-20	**2.6**	**2.89**	-	-	**2.92**	-	< 1.0	< 1.0	< 1.0	< 1.0	**26**	-	**460**	**299**	**201**	< 5.0	**3.95**	-	-
	16-Dec-20	**2.05**	**2.3**	-	-	-	-	**1.0**	< 1.0	< 1.0	**1.0**	**23**	-	**303**	**197**	-	-	**4.8**	-	-
	14-Jan-21	**1.82**	**2.06**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**8.0**	-	**301**	**196**	-	-	**4.06**	-	-
	16-Feb-21	**1.65**	**2.02**	-	-	**3.13**	-	< 1.0	< 1.0	< 1.0	< 1.0	**17**	-	**273**	**177**	**172**	< 5.0	**4.15**	-	-
	17-Mar-21	**1.43**	**1.75**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**8.0**	-	**237**	**154**	-	-	**4.65**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**1.34**	**1.7**	-	-	-	**2.0**	-	< 1.0	< 1.0	**2.0**	**8.0**	-	**183**	**119**	-	-	**4.59**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**2.13**	**2.56**	-	-	**4.66**	-	< 1.0	< 1.0	< 1.0	< 1.0	**8.0**	-	**247**	**160**	-	-	**4.08**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 6
Surface Water - Cations Anions and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte					Anions and Cations		Alkalinity								Inorganics					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	23-Apr-19	**2.36**	**3.05**	**13**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**293**	**190**	**198**	< 5.0	**4.0**	-	-
SW4	16-May-19	**2.44**	**2.52**	-	-	**3.1**	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**331**	**215**	**288**	**13**	**4.08**	-	-
	14-Jun-19	**2.4**	**2.5**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**316**	**205**	**163**	< 5.0	**4.31**	-	-
	16-Jul-19	**2.93**	**2.97**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**46**	-	**367**	**238**	**207**	**6.0**	**4.46**	-	-
	15-Aug-19	**2.4**	**2.45**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**308**	**200**	**160**	< 5.0	**4.48**	-	-
	16-Sep-19	**2.8**	**2.57**	-	-	**3.01**	-	< 1.0	< 1.0	< 1.0	< 1.0	**42**	-	**360**	**234**	**208**	< 5.0	**4.47**	-	-
	15-Oct-19	**2.71**	**2.4**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**40**	-	**365**	**237**	-	-	**4.48**	-	-
	18-Nov-19	**2.76**	**2.66**	-	-	**3.22**	-	< 1.0	< 1.0	< 1.0	< 1.0	**30**	-	**348**	**226**	-	-	**4.48**	-	-
	16-Sep-20	**2.83**	**2.87**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**44**	-	**421**	**274**	**228**	< 5.0	**4.16**	-	-
	16-Oct-20	**2.53**	**2.72**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**355**	**231**	-	-	**3.94**	-	-
	16-Nov-20	**2.55**	**2.4**	-	-	**2.41**	-	< 1.0	< 1.0	< 1.0	< 1.0	**45**	-	**338**	**220**	**196**	**6.0**	**4.21**	-	-
	16-Dec-20	**2.45**	**2.79**	-	-	-	-	**16**	< 1.0	< 1.0	**16**	**26**	-	**323**	**210**	-	-	**6.15**	-	-
	14-Jan-21	**2.74**	**2.69**	-	-	-	-	**37**	< 1.0	< 1.0	**37**	**56**	-	**316**	**205**	-	-	**6.38**	-	-
	16-Feb-21	**2.29**	**2.15**	-	-	**2.87**	-	**7.0**	< 1.0	< 1.0	**7.0**	**31**	-	**267**	**174**	**240**	**48**	**5.91**	-	-
	17-Mar-21	**2.44**	**2.25**	-	-	-	-	**26**	< 1.0	< 1.0	**26**	**41**	-	**271**	**176**	-	-	**6.23**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.86**	**8.6**	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**2.0**	**2.34**	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	**24**	-	**275**	**179**	-	-	**3.96**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**1.78**	**2.02**	-	-	**3.84**	-	**3.0**	< 1.0	< 1.0	**3.0**	**15**	-	**250**	**162**	-	-	**5.44**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of repor
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the l
Highlighting indicates an exceedance

Criteria:
SWMP 2021 - Soil and Water Manager

Table 7
Surface Water Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		0.006	0.08	0.002	0.1	0.0002	0.004	0.006	0.033	7.25	0.003	0.841	0.0001	0.02	0.01	0.01	0.535
Sample Name	Sample Date																
SW1	23-Apr-19	< 0.001	**0.043**	< 0.001	**0.14**	< 0.0001	< 0.001	**0.017**	**0.002**	**4.16**	< 0.001	**0.841**	< 0.0001	**0.02**	< 0.01	< 0.01	**0.356**
	16-May-19	< 0.001	**0.029**	< 0.001	**0.1**	< 0.0001	< 0.001	**0.01**	**0.003**	**7.25**	< 0.001	**0.666**	< 0.0001	**0.012**	< 0.01	< 0.01	**0.077**
	14-Jun-19	< 0.001	**0.029**	< 0.001	**0.09**	**0.0002**	< 0.001	**0.009**	**0.006**	**2.75**	< 0.001	**0.595**	< 0.0001	**0.011**	< 0.01	< 0.01	**0.535**
	16-Jul-19	< 0.001	**0.032**	< 0.001	**0.08**	**0.0001**	< 0.001	**0.007**	**0.003**	**1.86**	< 0.001	**0.59**	< 0.0001	**0.008**	< 0.01	< 0.01	**0.239**
	15-Aug-19	< 0.001	**0.027**	< 0.001	**0.09**	< 0.0001	< 0.001	**0.005**	**0.003**	**2.15**	< 0.001	**0.482**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.075**
	16-Sep-19	< 0.001	**0.056**	< 0.001	**0.09**	**0.0002**	**0.001**	**0.008**	**0.012**	**2.45**	**0.001**	**0.587**	< 0.0001	**0.014**	< 0.01	< 0.01	**0.282**
	15-Oct-19	< 0.001	**0.036**	< 0.001	**0.07**	< 0.0001	< 0.001	**0.005**	**0.003**	-	< 0.001	**0.383**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.055**
	18-Nov-19	< 0.001	**0.042**	< 0.001	**0.11**	< 0.0001	**0.001**	**0.003**	< 0.001	**1.14**	< 0.001	**0.366**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.026**
	16-Sep-20	< 0.001	**0.021**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.005**	**0.87**	**0.001**	**0.096**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.061**
	16-Oct-20	**0.001**	**0.021**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.76**	< 0.001	**0.15**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.005**
	16-Nov-20	< 0.001	**0.02**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.005**	**0.18**	< 0.001	**0.017**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.03**
	16-Dec-20	< 0.001	**0.015**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.003**	**0.18**	< 0.001	**0.058**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.013**
	14-Jan-21	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.02**	**0.35**	< 0.001	**0.04**	< 0.0001	**0.006**	< 0.01	< 0.01	**0.037**
	16-Feb-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.12**	< 0.001	**0.028**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.024**
	17-Mar-21	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.16**	< 0.001	**0.036**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.04**
	19-Aug-21	< 0.001	**0.011**	-	< 0.05	-	**0.001**	< 0.001	**0.002**	**0.86**	-	-	-	**0.002**	-	-	**0.056**
	16-Nov-21	< 0.001	**0.006**	-	< 0.05	-	< 0.001	< 0.001	**0.002**	**1.0**	-	-	-	**0.001**	-	-	**0.036**
	24-Feb-22	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.12**	< 0.001	**0.025**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.014**
	27-May-22	< 0.001	**0.01**	-	< 0.05	-	**0.003**	**0.001**	< 0.001	**4.39**	-	-	-	**0.002**	-	-	**0.047**
	12-Aug-22	< 0.001	**0.007**	-	< 0.05	-	**0.003**	< 0.001	**0.001**	**2.92**	-	-	-	**0.002**	-	-	**0.019**
	18-Nov-22	< 0.001	**0.01**	-	< 0.05	-	< 0.001	**0.001**	< 0.001	**2.89**	-	**0.038**	-	< 0.001	-	-	**0.022**
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.005**	**0.51**	< 0.001	**0.06**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.007**
	16-May-23	< 0.001	< 0.001	-	< 0.05	-	< 0.001	< 0.001	**0.001**	**0.39**	-	-	-	< 0.001	-	-	**0.013**
	14-Aug-23	< 0.001	**0.004**	-	< 0.05	-	< 0.001	< 0.001	**0.003**	**0.16**	-	**0.026**	-	< 0.001	-	-	**0.013**
SW2	17-Mar-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.002**	< 0.001	**0.62**	< 0.001	**0.11**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.097**
	19-Aug-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	< 0.001	**0.55**	< 0.001	**0.045**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.022**
	22-Sep-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	< 0.001	**1.11**	< 0.001	**0.087**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.134**
	13-Oct-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.88**	< 0.001	**0.049**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.06**
	16-Nov-21	**0.001**	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.002**	< 0.001	**5.59**	< 0.001	**0.064**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.083**
	24-Feb-22	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**16**	< 0.001	**0.032**	< 0.0001	**0.006**	< 0.01	< 0.01	**0.099**
	17-Mar-22	-	-	-	-	-	-	-	-	**1.62**	-	-	-	-	-	-	-
	27-May-22	< 0.001	**0.005**	-	< 0.05	-	**0.001**	**0.001**	< 0.001	**1.7**	-	-	-	**0.002**	-	-	**0.111**
	12-Aug-22	< 0.001	**0.005**	-	< 0.05	-	**0.001**	< 0.001	< 0.001	**2.79**	-	-	-	**0.001**	-	-	**0.09**
	18-Nov-22	< 0.001	**0.004**	-	< 0.05	-	< 0.001	< 0.001	< 0.001	**0.45**	-	**0.011**	-	< 0.001	-	-	**0.031**
	15-Feb-23	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.003**	**2.37**	< 0.001	**0.056**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.063**
	16-May-23	< 0.001	**0.018**	-	< 0.05	-	< 0.001	**0.004**	**0.003**	**0.87**	-	-	-	**0.005**	-	-	**0.284**
	14-Aug-23	< 0.001	**0.01**	-	< 0.05	-	**0.001**	**0.003**	< 0.001	**6.48**	-	**0.061**	-	**0.004**	-	-	**0.062**
SW3	22-Feb-19	**0.003**	**0.075**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**4.84**	< 0.001	**0.033**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.016**
	14-Mar-19	**0.006**	**0.08**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	< 0.001	**9.26**	< 0.001	**0.048**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.009**
	23-Apr-19	< 0.001	**0.043**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	**0.001**	**2.01**	< 0.001	**0.046**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.016**
	16-May-19	< 0.001	**0.034**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	< 0.001	**1.78**	< 0.001	**0.038**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.012**
	14-Jun-19	< 0.001	**0.035**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	< 0.001	**1.68**	< 0.001	**0.038**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.016**
	16-Jul-19	< 0.001	**0.055**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.007**	**0.002**	**1.25**	< 0.001	**0.043**	< 0.0001	**0.006**	< 0.01	< 0.01	**0.029**
	15-Aug-19	< 0.001	**0.035**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	**0.002**	**1.16**	< 0.001	**0.036**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.013**
	16-Sep-19	< 0.001	**0.045**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.02**	**0.69**	**0.001**	**0.036**	< 0.0001	**0.017**	< 0.01	< 0.01	**0.094**
	15-Oct-19	< 0.001	**0.034**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.005**	**0.002**	-	< 0.001	**0.027**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.022**
	18-Nov-19	< 0.001	**0.031**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**2.6**	< 0.001	**0.026**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.001	**0.034**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.007**	**0.007**	**3.49**	< 0.001	**0.029**	< 0.0001	**0.007**	< 0.01	< 0.01	**0.031**
	16-Oct-20	< 0.001	**0.028**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.003**	**7.09**	< 0.001	**0.027**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.019**
	16-Nov-20	< 0.001	**0.029**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.009**	**0.002**	**4.79**	< 0.001	**0.032**	< 0.0001	**0.009**	< 0.01	< 0.01	**0.03**
	16-Dec-20	**0.002**	**0.015**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.002**	**0.005**	**16**	< 0.001	**0.023**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.054**
	14-Jan-21	**0.002**	**0.015**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.02**	**8.28**	< 0.001	**0.026**	< 0.0001	**0.01**	< 0.01	< 0.01	**0.025**
	16-Feb-21	**0.004**	**0.014**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	**0.001**	**11**	< 0.001	**0.015**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.011**
	17-Mar-21	**0.004**	**0.013**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.002**	< 0.001	**12**	< 0.001	**0.016**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.007**
	19-Aug-21	**0.001**	**0.005**	-	< 0.05	-	< 0.001	< 0.001	< 0.001	**7.14**	-	-	-	< 0.001	-	-	< 0.005
	16-Nov-21	**0.001**	**0.006**	-	< 0.05	-	< 0.001	< 0.001	< 0.001	**4.89**	-	-	-	< 0.001	-	-	< 0.005
	24-Feb-22	**0.004**	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**10**	< 0.001	**0.015**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.005**
	27-May-22	< 0.001	**0.01**	-	< 0.05	-	**0.001**	**0.002**	< 0.001	**13**	-	-	-	**0.002**	-	-	< 0.005
	12-Aug-22	< 0.001	**0.012**	-	< 0.05	-	**0.001**	**0.003**	< 0.001	**9.73**	-	-	-	**0.004**	-	-	**0.007**
	18-Nov-22	**0.001**	**0.012**	-	< 0.05	-	< 0.001	**0.002**	**0.002**	**7.82**	-	**0.05**	-	< 0.001	-	-	< 0.005
	15-Feb-23	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**5.16**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.009**
	16-May-23	**0.001**	**0.004**	-	< 0.05	-	< 0.001	< 0.001	< 0.001	**4.81**	-	-	-	< 0.001	-	-	**0.008**
	14-Aug-23	< 0.001	**0.005**	-	< 0.05	-	< 0.001	< 0.001	< 0.001	**4.72**	-	**0.034**	-	< 0.001	-	-	< 0.005

Table 7
Surface Water Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS - Surface Water		0.006	0.08	0.002	0.1	0.0002	0.004	0.006	0.033	7.25	0.003	0.841	0.0001	0.02	0.01	0.01	0.535
SW4	23-Apr-19	< 0.001	**0.059**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	**0.003**	**2.09**	< 0.001	**0.037**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.03**
	16-May-19	< 0.001	**0.047**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	< 0.001	**1.12**	< 0.001	**0.03**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.019**
	14-Jun-19	< 0.001	**0.041**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.003**	**0.79**	< 0.001	**0.034**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.014**
	16-Jul-19	< 0.001	**0.044**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.002**	**0.96**	< 0.001	**0.043**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.014**
	15-Aug-19	< 0.001	**0.04**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.001**	**0.57**	< 0.001	**0.032**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.009**
	16-Sep-19	< 0.001	**0.046**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.02**	**0.7**	**0.001**	**0.039**	< 0.0001	**0.017**	< 0.01	< 0.01	**0.085**
	15-Oct-19	< 0.001	**0.037**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.004**	-	< 0.001	**0.031**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.018**
	18-Nov-19	< 0.001	**0.035**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**6.32**	< 0.001	**0.032**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.001	**0.041**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.005**	**0.97**	< 0.001	**0.053**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.02**
	16-Oct-20	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.001**	**2.26**	< 0.001	**0.042**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.007**
	16-Nov-20	< 0.001	**0.031**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.001**	**1.93**	< 0.001	**0.074**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.016**
	16-Dec-20	< 0.001	**0.017**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.001**	**0.002**	**32**	< 0.001	**0.035**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	14-Jan-21	**0.002**	**0.028**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	**0.026**	**20**	< 0.001	**0.171**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.013**
	16-Feb-21	**0.003**	**0.02**	< 0.001	< 0.05	< 0.0001	**0.003**	**0.001**	< 0.001	**27**	< 0.001	**0.054**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.01**
	17-Mar-21	**0.002**	**0.02**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**16**	< 0.001	**0.057**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	19-Aug-21	< 0.001	**0.022**	-	< 0.05	-	< 0.001	**0.001**	< 0.001	**2.13**	-	-	-	**0.001**	-	-	**0.005**
	16-Nov-21	< 0.001	**0.016**	-	< 0.05	-	< 0.001	**0.001**	< 0.001	**6.59**	-	-	-	< 0.001	-	-	< 0.005
	24-Feb-22	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	< 0.001	**1.19**	< 0.001	**0.034**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.011**
	27-May-22	< 0.001	**0.021**	-	< 0.05	-	< 0.001	**0.001**	< 0.001	**0.68**	-	-	-	**0.001**	-	-	< 0.005
	12-Aug-22	< 0.001	**0.022**	-	< 0.05	-	**0.002**	**0.003**	< 0.001	**0.39**	-	-	-	**0.004**	-	-	**0.011**
	18-Nov-22	**0.002**	**0.013**	-	< 0.05	-	**0.002**	**0.001**	**0.003**	**20**	-	**0.084**	-	**0.001**	-	-	< 0.005
	15-Feb-23	**0.001**	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.001**	< 0.001	**12**	< 0.001	**0.017**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	16-May-23	< 0.001	**0.025**	-	< 0.05	-	< 0.001	**0.003**	**0.004**	**0.38**	-	-	-	**0.003**	-	-	**0.018**
	14-Aug-23	< 0.001	**0.028**	-	< 0.05	-	< 0.001	**0.002**	< 0.001	**0.26**	-	**0.022**	-	**0.003**	-	-	**0.021**

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
mg/L - Milligrams per litre
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 8
Surface Water Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids										
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	0.56	--	--	--	--	--	--
Sample Name	Sample Date																		
SW1	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
SW2	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
SW3	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
SW4	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 8
Surface Water Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids									(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
		Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
LOR		0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	0.07	--	--
Sample Name	Sample Date														
SW1	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**	**0.01**
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
SW2	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
SW3	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
SW4	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**	**0.01**
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.02**	**0.02**
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.02**	**0.02**
	14-Jan-21	< 0.02	< 0.02	-	**0.03**	< 0.02	**0.04**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.07**	**0.07**	**0.07**
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	17-Mar-21	< 0.02	< 0.02	-	**0.02**	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**	**0.04**	**0.04**
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of repor
µg/L - Micrograms per litre
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Manager

Table 9
Wash Plant Water Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sample Name	Sample Date																
WPW	19-Aug-21	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.062**	-	-	-	-	-
	22-Sep-21	< 0.001	-	-	-	-	-	-	-	**0.08**	-	**0.051**	-	-	-	-	-
	13-Oct-21	< 0.001	-	-	-	-	-	-	-	**0.22**	-	**0.079**	-	-	-	-	-
	16-Nov-21	< 0.001	-	-	-	-	-	-	-	**0.29**	-	**0.045**	-	-	-	-	-
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.2**	-	**0.078**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.56**	-	**0.038**	-	-	-	-	-
	24-Feb-22	< 0.001	-	-	-	-	-	-	-	**1.02**	-	**0.084**	-	-	-	-	-
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.97**	-	**0.05**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.042**	-	-	-	-	-
	27-May-22	< 0.001	-	-	-	-	-	-	-	**0.07**	-	**0.038**	-	-	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.94**	-	**0.061**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.27**	-	**0.038**	-	-	-	-	-
	12-Aug-22	< 0.001	-	-	-	-	-	-	-	**0.17**	-	**0.026**	-	-	-	-	-
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.58**	-	**0.069**	-	-	-	-	-
	24-Oct-22	**0.002**	-	-	-	-	-	-	-	**2.22**	-	**0.118**	-	-	-	-	-
	18-Nov-22	< 0.001	-	-	-	-	-	-	-	**0.56**	-	**0.066**	-	-	-	-	-
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.42**	-	**0.062**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.36**	-	**0.05**	-	-	-	-	-
WPW2	15-Feb-23	< 0.001	**0.015**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.003**	< 0.05	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.115**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.15**	-	**0.061**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.001**	**0.004**	**0.6**	< 0.001	**0.049**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.053**
	16-May-23	< 0.001	-	-	-	-	-	-	-	**0.28**	-	**0.07**	-	-	-	-	-
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.33**	-	**0.047**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.39**	-	**0.08**	-	-	-	-	-
	14-Aug-23	< 0.001	-	-	-	-	-	-	-	**0.88**	-	**0.058**	-	-	-	-	-
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.2**	-	**0.047**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.26**	-	**0.062**	-	-	-	-	-
	22-Nov-23	< 0.001	-	-	-	-	-	-	-	**0.31**	-	**0.055**	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
mg/L - Milligrams per litre
Bold indicates a detection above the laboratory limit of reporting

Table 10
Wash Plant Water Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl Carboxylic Acids			Perfluoroalkyl Carboxylic Acids					
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date																		
INPUT	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
WPW	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Dec-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Jan-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Apr-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Jun-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-Jul-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Oct-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	**0.01**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Dec-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	**0.01**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Jan-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
WPW2	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Mar-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Apr-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	**0.01**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Jul-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Sep-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	23-Oct-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Nov-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting

Table 10
Wash Plant Water Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids			Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
		Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
LOR		0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date														
INPUT	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
WPW	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**	**0.01**
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Dec-21	< 0.02	< 0.02	< 0.01	-	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	18-Jan-22	< 0.02	< 0.02	< 0.01	-	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	24-Feb-22	< 0.02	< 0.02	**0.01**	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**	**0.01**
	17-Mar-22	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	12-Apr-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Jun-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-Jul-22	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Oct-22	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	18-Nov-22	< 0.02	< 0.02	**0.02**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**	**0.05**	**0.05**
	14-Dec-22	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.04**	**0.04**
	17-Jan-23	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.02**	**0.02**
WPW2	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Mar-23	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	18-Apr-23	< 0.02	< 0.02	**0.02**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**	**0.05**	**0.05**
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	14-Jun-23	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	24-Jul-23	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Sep-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Oct-23	< 0.02	< 0.02	< 0.01	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.02**	**0.02**
	22-Nov-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
Bold indicates a detection above the l

Table 11
QAQC Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Metals		
			Arsenic	Iron	Manganese
Units			mg/L	mg/L	mg/L
Sample Name	Sample Date	Sample Type			
TB_221123_22112023	22-Nov-23	Trip Blank	< 0.001	< 0.05	< 0.001
RB_221123_22112023	22-Nov-23	Rinsate	< 0.001	< 0.05	< 0.001

Notes:
< - Less than laboratory limit of reporting
mg/L - Milligrams per litre

Table 12
QAQC Analytical Data- PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl Carboxylic Acids			Perfluoroalkyl Carboxylic Acids								Perfluoroalkyl Sulfonic Acids	
			Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type																					
TB_221123_22112023	22-Nov-23	Trip Blank	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
RB_221123_22112023	22-Nov-23	Rinsate	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01

Notes:
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre

Table 12
QAQC Analytical Data- PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
			Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type										
TB_221123_22112023	22-Nov-23	Trip Blank	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
RB_221123_22112023	22-Nov-23	Rinsate	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Notes:
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
BH1	27-Jul-22	8.210	NM	NM	3.836	--	M Ferguson
	12-Aug-22	NM	NM	NM	NM	--	M Ferguson
BH1A	16-Sep-22	12.400	8.980	5.030	3.950	--	J Roby
	24-Oct-22	12.266	8.980	5.034	3.946	--	J Roby
	18-Nov-22	12.290	8.980	4.810	4.170	Gauge only	J. Roby
	14-Dec-22	12.163	8.980	4.513	4.467	--	M Ferguson
	17-Jan-23	12.181	8.980	4.142	4.838	--	A king
	15-Feb-23	12.190	8.980	3.885	5.095	Clear	A King
	15-Mar-23	12.160	8.980	3.766	5.214	--	A King
	18-Apr-23	12.155	8.980	3.764	5.216	Gauge only	A King
	16-May-23	12.160	8.980	3.688	5.292	Gauge only	A King
	14-Jun-23	12.160	8.980	3.792	5.188	--	M Ferguson
	24-Jul-23	12.150	8.980	3.522	5.458	--	A King
	14-Aug-23	12.150	8.980	3.501	5.479	Clear, no odor, no sheen	AK
	13-Sep-23	12.160	8.980	3.451	5.529	--	A King
	23-Oct-23	12.16	8.98	3.31	5.67	Gauge only	TJ
	22-Nov-23	12.153	8.980	3.231	5.749	Gauge only	TJ
BH2	27-Jul-22	8.940	7.790	3.897	3.893	Clear	M Ferguson
	12-Aug-22	8.000	7.790	3.735	4.055	Clear	M Ferguson
	16-Sep-22	8.997	7.790	3.671	4.119	Dark brown	J Roby
	24-Oct-22	9.952	7.790	3.608	4.182	Clear	J Roby
	18-Nov-22	9.450	7.790	3.410	4.380	Light brown, NO, NS	J. Roby
	14-Dec-22	8.879	7.790	3.203	4.587	Very light brown	M Ferguson
	17-Jan-23	8.930	7.790	2.917	4.873	Brown	A king
	15-Feb-23	8.871	7.790	2.732	5.058	Odor, Light brown	A King
	15-Mar-23	8.842	7.790	2.655	5.135	Light brown	A King
	18-Apr-23	8.861	7.790	2.703	5.087	Light brown, no odour, no sheen	A King
	16-May-23	8.850	7.790	2.654	5.136	Brown, no odour / sheen, well in good condition	A King
	14-Jun-23	8.840	7.790	2.706	5.084	Clear	M Ferguson
	24-Jul-23	8.840	7.790	2.574	5.216	Lt brown	A King
	14-Aug-23	8.825	7.790	2.582	5.208	Brown, no odour, no sheen	AK
	14-Sep-23	8.840	7.790	2.538	5.252	Lt brown	A King
	23-Oct-23	8.836	7.79	2.407	5.383	Light brown, no odour, no sheen	TJ
	22-Nov-23	8.803	7.790	2.361	5.429	Brown, no odour, no sheen	TJ
BH4	27-Jul-22	5.980	3.060	2.296	0.764	Clear	M Ferguson
	12-Aug-22	5.000	3.060	2.261	0.799	Clear	M Ferguson
	16-Sep-22	5.990	3.060	2.234	0.826	Light brown	J Roby
	24-Oct-22	6.050	3.060	2.239	0.821	Clear	J Roby
	18-Nov-22	6.010	3.060	2.110	0.950	Clear, NO/NS	J. Roby
	14-Dec-22	6.025	3.060	1.941	1.119	Clear	M Ferguson
	17-Jan-23	6.006	3.060	1.761	1.299	Clear	A king
	15-Feb-23	6.015	3.060	1.627	1.433	Clear	A King
	15-Mar-23	6.015	3.060	1.625	1.435	Clear	A King
	18-Apr-23	6.018	3.060	1.832	1.228	Clear, no odour, no sheen	A King
	16-May-23	5.992	3.060	1.771	1.289	Clear, no odour / sheen, well in good condition	A King
	14-Jun-23	5.990	3.060	1.832	1.228	Slightly cloudy/clear	M Ferguson
	24-Jul-23	5.995	3.060	1.814	1.246	Clear	A King
	14-Aug-23	6.010	3.060	1.809	1.251	Clear, low Sulphur odor, no sheen	AK
	14-Sep-23	6.020	3.060	1.529	1.531	Clear	A King

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
	23-Oct-23	6.014	3.06	1.475	1.585	Clear, no odour, no sheen	TJ
	22-Nov-23	6.010	3.060	1.493	1.567	Clear, no odour, no sheen	TJ
BH5	12-Aug-22	0.000	7.360	2.320	5.040	--	M Ferguson
	18-Nov-22	8.820	7.360	2.169	5.191	Gauge only	J. Roby
	15-Feb-23	5.612	7.360	-1.375	8.735	Odor, Light brown	A King
	14-Aug-23	8.700	7.360	2.013	5.347	Gauge only	AK
BH6	27-Jul-22	4.510	3.620	2.914	0.706	Odor, Clear	M Ferguson
	12-Aug-22	4.000	3.620	2.909	0.711	Odor, Clear	M Ferguson
	16-Sep-22	4.580	3.620	2.904	0.716	Odor, Clear	J Roby
	24-Oct-22	4.554	3.620	2.870	0.750	Odor, Clear	J Roby
	18-Nov-22	4.540	3.620	2.815	0.805	Cloudy, low sulfur odour, NS	J. Roby
	14-Dec-22	4.530	3.620	2.596	1.024	Odor, Light yellow	M Ferguson
	17-Jan-23	4.520	3.620	2.381	1.239	--	A king
	15-Feb-23	4.529	3.620	2.267	1.353	Odor, Clear	A King
	15-Mar-23	4.535	3.620	2.303	1.317	Odor, Clear	A King
	18-Apr-23	4.535	3.620	2.580	1.040	Clear, no odour, no sheen	A King
	16-May-23	4.515	3.620	2.480	1.140	Clear, low Sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	4.490	3.620	2.542	1.078	Odor, Clear	M Ferguson
	24-Jul-23	4.920	3.620	2.645	0.975	Odor, Cloudy white	A King
	14-Aug-23	4.525	3.620	2.572	1.048	Clear, low Sulphur odor, no sheen	AK
	14-Sep-23	4.530	3.620	2.376	1.244	Odor, Clear	A King
	23-Oct-23	4.528	3.62	2.097	1.523	Clear, no odour, no sheen	TJ
	22-Nov-23	4.537	3.620	2.203	1.417	Clear, Sulphur odour, no sheen	TJ
BH7	27-Jul-22	4.500	2.980	2.074	0.906	Weak Odor, Light yellow	M Ferguson
	12-Aug-22	4.000	2.980	2.035	0.945	Light yellow	M Ferguson
	16-Sep-22	4.499	2.980	2.027	0.953	Yello	J Roby
	24-Oct-22	4.530	2.980	2.040	0.940	Odor, Brown	J Roby
	18-Nov-22	5.500	2.980	1.890	1.090	Light brown, low sulfur odour, NS	J. Roby
	14-Dec-22	4.520	2.980	1.702	1.278	Odor, Light yellow	M Ferguson
	17-Jan-23	4.510	2.980	1.584	1.396	Odor, Light yellow, almost clear	A king
	15-Feb-23	4.520	2.980	1.511	1.469	Odor, Light brown	A King
	15-Mar-23	4.505	2.980	1.535	1.445	Odor, Lght yeloow	A King
	18-Apr-23	4.520	2.980	1.789	1.191	Light yellow, no odour, no sheen	A King
	16-May-23	4.520	2.980	1.715	1.265	Light yellow, low sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	4.520	2.980	1.762	1.218	Light yellow	M Ferguson
	24-Jul-23	4.520	2.980	1.769	1.211	Weak Odor, Lt yellow	A King
	14-Aug-23	4.510	2.980	1.766	1.214	Light brown, moderate Sulphur odor, no sheen	AK
	14-Sep-23	4.519	2.980	1.685	1.295	Odor, Lt yellow	A King
	23-Oct-23	4.526	2.98	1.453	1.527	Clear, low sulphur odour, no sheen	TJ
	22-Nov-23	4.525	2.980	1.467	1.513	Clear, Sulphur odour, no sheen	TJ
BH8	12-Aug-22	0.000	3.880	2.191	1.689	Strong Odor, Milky white	M Ferguson
	18-Nov-22	6.040	3.880	2.055	1.825	Cloudy, low sulfur odour, NS	J. Roby
	15-Feb-23	6.055	3.880	1.540	2.340	Odor, Light brown	A King
	16-May-23	6.025	3.880	1.858	2.022	Yellow, strong sulphur odour, no sheen, well in good condition	A King
	14-Aug-23	3.490	3.880	1.964	1.916	Yellow, moderate Sulphur odor, no sheen, white suspended sediment	AK
	27-Jul-22	16.190	17.750	2.709	15.041	--	M Ferguson
	12-Aug-22	16.000	17.750	2.600	15.150	--	M Ferguson
	16-Sep-22	16.145	17.750	2.494	15.256	--	J Roby
	24-Oct-22	16.000	17.750	2.471	15.279	--	J Roby

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
BH9	18-Nov-22	16.320	17.750	2.291	15.459	Gauge only	J. Roby
	14-Dec-22	16.110	17.750	2.091	15.659	--	M Ferguson
	17-Jan-23	16.240	17.750	1.895	15.855	--	A king
	15-Feb-23	16.108	17.750	1.747	16.003	--	A King
	15-Mar-23	16.090	17.750	1.707	16.043	--	A King
	18-Apr-23	16.095	17.750	1.904	15.846	Gauge only	A King
	16-May-23	16.075	17.750	1.832	15.918	Gauge only	A King
	14-Jun-23	16.100	17.750	1.872	15.878	--	M Ferguson
	24-Jul-23	1616.100	17.750	1.834	15.916	--	A King
	14-Aug-23	16.090	17.750	1.864	15.886	Gauge only	AK
	14-Sep-23	16.070	17.750	11.797	5.953	--	A King
	23-Oct-23	16.07	17.75	NM	Dry	Gauge only, Dry	TJ
	22-Nov-23	16.085	17.750	--	--	Gauge only	TJ

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
BH9A	27-Jul-22	12.440	10.750	2.548	8.202	Weak Odor, Clear	M Ferguson
	12-Aug-22	12.000	10.750	2.455	8.295	Light yellow	M Ferguson
	16-Sep-22	12.283	10.750	2.395	8.355	Odor, Light brown	J Roby
	24-Oct-22	12.420	10.750	2.384	8.366	Clear	J Roby
	18-Nov-22	12.430	10.750	2.229	8.521	Brown, NO/NS	J. Roby
	14-Dec-22	12.295	10.750	2.053	8.697	Light yellow	M Ferguson
	17-Jan-23	12.264	10.750	1.881	8.869	Weak Odor, Light brown	A king
	15-Feb-23	12.235	10.750	1.744	9.006	Odor, Light bown	A King
	15-Mar-23	12.241	10.750	1.727	9.023	Light brown	A King
	18-Apr-23	12.215	10.750	1.934	8.816	Light brown, moderate sulfur odour, no sheen	A King
	16-May-23	12.235	10.750	1.871	8.879	Light brown, low sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	12.230	10.750	1.931	8.819	Weak Odor, Light yellow/clear	M Ferguson
	24-Jul-23	12.270	10.750	1.891	8.859	Strong Odor, Lt yellow	A King
	14-Aug-23	12.195	10.750	1.905	8.845	Brown, strong Sulphur odor, no sheen	AK
	14-Sep-23	12.290	10.750	1.828	8.922	Odor, Brown	A King
	23-Oct-23	12.225	10.75	1.586	9.164	Light brown, Moderate Sulphur odour, no sheen	TJ
	22-Nov-23	12.200	10.750	1.592	9.158	Brown, moderate sulphur odour, no sheen	TJ
BH10	12-Aug-22	0.000	6.690	4.991	1.699	--	M Ferguson
	18-Nov-22	3.480	6.690	4.600	2.090	Gauge only	J. Roby
	15-Feb-23	3.486	6.690	3.771	2.919	--	A King
	14-Aug-23	3.490	6.690	3.473	3.217	Gauge only	AK
BH11	27-Jul-22	5.280	6.630	5.837	0.793	Strong Odor, Light yellow	M Ferguson
	16-Sep-22	5.304	6.630	5.783	0.847	Odor, Yellow	J Roby
	24-Oct-22	4.315	6.630	5.760	0.870	Odor, Yellow	J Roby
	18-Nov-22	5.290	6.630	5.450	1.180	Yellow, moderate sulfur odour, NS	J. Roby
	14-Dec-22	5.302	6.630	5.174	1.456	Odor, Light yellow	M Ferguson
	17-Jan-23	5.300	6.630	4.836	1.794	Odor, Light yellow	A king
	15-Feb-23	5.309	6.630	4.577	2.053	Odor, Yellow light	A King
	15-Mar-23	5.300	6.630	4.431	2.199	Odor, Yellow	A King
	18-Apr-23	5.300	6.630	4.520	2.110	Light yellow, strong sulfur odour, no sheen	A King
	16-May-23	5.295	6.630	4.402	2.228	Light yellow, strong sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	5.280	6.630	4.410	2.220	Strong Odor, Yellow	M Ferguson
	24-Jul-23	5.305	6.630	4.209	2.421	Strong Odor, Yellow	A King
	14-Aug-23	5.280	6.630	4.174	2.456	Light yellow, strong Sulphur odor, no sheen	AK
	14-Sep-23	5.300	6.630	4.120	2.510	Odor, Light yellow	A King
	23-Oct-23	5.313	6.63	3.932	2.698	Clear, High Sulphur odour, no sheen	TJ
	22-Nov-23	5.230	6.630	3.810	2.820	Clear, Sulphur odour, no sheen	TJ
BH12A	16-Sep-22	7.337	5.620	3.322	2.298	--	J Roby
	24-Oct-22	7.340	5.620	3.329	2.291	Light brown	J Roby
	18-Nov-22	7.390	5.620	3.190	2.430	Gauge only	J. Roby
	14-Dec-22	7.370	5.620	3.033	2.587	--	M Ferguson
	17-Jan-23	7.327	5.620	2.907	2.713	--	A king
	15-Feb-23	7.335	5.620	2.717	2.903	Brown	A King
	15-Mar-23	7.310	5.620	2.664	2.956	--	A King
	18-Apr-23	7.312	5.620	2.746	2.874	Gauge only	A King
	16-May-23	7.300	5.620	2.698	2.922	Gauge only	A King
	14-Jun-23	7.300	5.620	2.724	2.896	--	M Ferguson
	24-Jul-23	7.290	5.620	2.640	2.980	--	A King
	14-Aug-23	7.290	5.620	2.631	2.989	Light brown, low Sulphur odor, no sheen	AK

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
	14-Sep-23	7.290	5.620	3.584	2.036	--	A King
	23-Oct-23	7.309	5.62	2.443	3.177	Gauge only	TJ
	22-Nov-23	7.310	5.620	2.418	3.202	Gauge only	TJ
MW239D	18-Nov-22	20.490	3.040	2.300	0.740	Gauge only	J. Roby
	15-Feb-23	20.500	3.040	1.964	1.076	--	A King
	15-Aug-23	20.275	3.040	2.161	0.879	Gauge only	AK

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
MW239S	27-Jul-22	3.800	3.040	2.510	0.530	Strong Odor, Light yellow	M Ferguson
	12-Aug-22	3.000	3.040	2.445	0.595	Odor, Cloudy yellow	M Ferguson
	16-Sep-22	3.820	3.040	2.420	0.620	Odor, Yellow	J Roby
	24-Oct-22	3.620	3.040	2.430	0.610	Odor, Clear	J Roby
	18-Nov-22	3.820	3.040	2.280	0.760	Cloudy, low sulfur odour, NS	J. Roby
	14-Dec-22	3.810	3.040	2.129	0.911	Odor, Light brown	M Ferguson
	17-Jan-23	3.618	3.040	2.008	1.032	Strong Odor, Brown	A king
	15-Feb-23	3.815	3.040	1.939	1.101	Odor, Light brown	A King
	15-Mar-23	3.805	3.040	1.952	1.088	Odor, Orange brown	A King
	18-Apr-23	3.827	3.040	2.155	0.885	Light brown, moderate sulfur odour, no sheen	A King
	16-May-23	3.787	3.040	2.102	0.938	Light brown, moderate sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	3.760	3.040	2.139	0.901	Odor, Clear	M Ferguson
	24-Jul-23	3.790	3.040	2.128	0.912	Odor, Light brown	A King
	15-Aug-23	3.790	3.040	2.136	0.904	Light yellow, strong Sulphur odor, no sheen	AK
	14-Sep-23	3.786	3.040	2.060	0.980	Odor, Brown	A King
	23-Oct-23	3.775	3.04	1.87	1.17	Light brown, no odour, no sheen	TJ
	22-Nov-23	3.785	3.040	1.865	1.175	Brown to clear, Sulphur odour, no sheen	TJ
SW1	12-Aug-22	NM	NM	NM	NM	Odor, Yellow	M Ferguson
	15-Feb-23	NM	NM	NM	NM	Odor, Clear	A King
	14-Aug-23	NM	NM	NM	NM	Clear, Green algae, no odor, no sheen	AK
SW2	12-Aug-22	NM	NM	NM	NM	Light yellow	M Ferguson
	15-Feb-23	NM	NM	NM	NM	Odor, Light brown	A King
	14-Aug-23	NM	NM	NM	NM	Clear, low Sulphur odor, no sheen	AK
SW3	12-Aug-22	NM	NM	NM	NM	Clear	M Ferguson
	15-Feb-23	NM	NM	NM	NM	Odor, Yellow tanins	A King
	14-Aug-23	NM	NM	NM	NM	Clear, no odor, no sheen	AK
SW4	12-Aug-22	NM	NM	NM	NM	Clear	M Ferguson
	15-Feb-23	NM	NM	NM	NM	Odor, Yellow tanins	A King
	14-Aug-23	NM	NM	NM	NM	Clear, no odor, no sheen	AK
WPW	27-Jul-22	NM	NM	NM	NM	Dark cloudy brown	M Ferguson
	12-Aug-22	NM	NM	NM	NM	Light brown	M Ferguson
	16-Sep-22	NM	NM	NM	NM	Brown	J Roby
	24-Oct-22	NM	NM	NM	NM	Dark brown	J Roby
	14-Dec-22	NM	NM	NM	NM	Brown	M Ferguson
	17-Jan-23	NM	NM	NM	NM	Weak Odor, Brown	A king
	15-Feb-23	NM	NM	NM	NM	Clear	A King
	15-Mar-23	NM	NM	NM	NM	Odor, Brown	A King
WPW2	18-Apr-23	NM	NM	NM	NM	Light brown, low earthy odour, no sheen	A King
	14-Jun-23	NM	NM	NM	NM	Turbid muddy brown	M Ferguson
	24-Jul-23	NM	NM	NM	NM	Odor, Dark brown	A King
	14-Aug-23	NM	NM	NM	NM	Light brown, earthy odor, no sheen	AK
	14-Sep-23	NM	NM	NM	NM	Odor, Brown	A King
	23-Oct-23	NM	NM	NM	NM	Brown, earthy odour, no sheen	TJ

Notes:
DTW = Depth to water
mBTOC = metres below top of casing
m = Metres
NC = Not calculated

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician

NM = Not measured

Table 14
Field Parameters
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
BH1A	15-Feb-23	5.8	192.5	4.33	82.6	55	23.8	
	14-Aug-23	4.1	252.3	4.05	101.5	66	18.4	72
BH2	27-Jul-22	5.85	223	4.13	87.6		15.6	131
	12-Aug-22	4.34	269.7	4.52	53		16.7	15.58
	16-Sep-22	3.28	262.7	4.76	80.7	60	18.1	710.34
	24-Oct-22	4.55	218.8	4.71	73.6	55	18.5	33.87
	18-Nov-22	1.9	213.9	4.7	73.2	54	19	
	14-Dec-22	4.14	229.7	4.79	78.6	51	19.3	27.86
	17-Jan-23	3.88	211.3	4.69	75.6	228.72	21.7	240.6
	15-Feb-23	4.2	300.5	4.54	70.9	50	21	133.94
	15-Mar-23	3.62	227.7	4.67	69	49	20.8	103
	18-Apr-23	4.84	224.5	4.88	64.6	4.6	20.2	44.8
	16-May-23	3.27	234	4.54	64.1	47	18.6	
	14-Jun-23	3.1	258	4.43	79.2	52	17.9	0.86
	14-Jun-23	3.1	258	4.43	79.2	52	17.9	0.86
	24-Jul-23	4.14	103.7	4.57	84	64	17.4	40
	14-Aug-23	64	187.8	4.38	102.5	67	18.1	164
	13-Sep-23	3.13	209.2	4.72	71.9	55	17	44.01
	23-Oct-23	3.87	177	5.69	79.5	56	21.3	50.58
	22-Nov-23	5.32	183.4	5.34	55.6	43	19.3	85
BH4	27-Jul-22	3	190.7	4.6	90.2		14.1	121
	12-Aug-22	3.25	236	4.86	77		15.5	10.2
	16-Sep-22	5.35	163.8	5.29	75.2	60	15.4	34.07
	24-Oct-22	3.52	162.3	5.45		57	17.8	45.42
	18-Nov-22	3.57	170.6	5.32	80.2	62	16.8	
	14-Dec-22	3.95	119.8	5.59	92.5	60	18.1	16.36
	17-Jan-23	1.89	159.5	5.31	128.8	91	20.9	8
	15-Feb-23	2.6	166	5.47	115.5	82	20.8	29.64
	15-Mar-23	4.46	179	5.22	92.5	65	21	8.26
	18-Apr-23	4.84	196.7	5.27	70.3	52	18.7	8.45
	16-May-23	3.96	217.9	4.84	65.5	56	16.8	
	14-Jun-23	2.7	157.9	4.97	92.8	60	16.4	3.33
	14-Jun-23	2.7	157.9	4.97	92.8	60	16.4	3.33
	24-Jul-23	3.41	215.7	5.18	66	53	15.3	7.71
	14-Aug-23	4.9	143.9	5.11	87.7	57	15.6	18.06
	13-Sep-23	4.53	213	5.06	70.8	56	15.2	27.65
	23-Oct-23	3.58	155.7	6.16	126.4	95	18.1	29.4
	22-Nov-23	3.35	200	5.93	69.2	50	20	24
BH5	15-Feb-23	3	15.6	4.64	132.9	88	23.9	75.75
BH6	27-Jul-22	4.75	-104	4.76	225		14.2	16.8
	12-Aug-22	3.94	-80	5.1	217		14.2	156
	16-Sep-22	2.64	-112.5	5.18	229.4	71	18.1	101.53
	24-Oct-22	1.75	-66.8	4.01	84.3	171	18.3	65.7
	18-Nov-22	2.29	-85.2	4.14	224.4	156	21.7	
	14-Dec-22	1.72	-45.6	4.11	232.3	151	21.1	35
	17-Jan-23	2.46	-7	3.82	245.5	162	24.5	34.06
	15-Feb-23	3	-57.2	4.55	233.8	148	26.4	88.41
	15-Mar-23	4.29	150.2	4.09	233.2	155	23.9	32.96
	18-Apr-23	2.64	-60.1	4.85	195.4	137	21	19.48
	16-May-23	3.45	-39.9	4.8	195.1	140	20.2	
	14-Jun-23	2.9	-49.9	4.59	242.1	157	15.7	82.08
	14-Jun-23	2.9	-49.9	4.59	242.1	157	15.7	82.08
	24-Jul-23	8.84	97	4.91	230.2	174	17.7	230
	14-Aug-23	1.9	38.3	4.36	275.9	179	14.6	39

Table 14
Field Parameters
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
	13-Sep-23	3.6	-11	4.79	207.7	164	15.6	30.2
	23-Oct-23	3.9	2.8	7.68	2.8	150	20.7	107.4
	22-Nov-23	3.24	-90.4	5.38	202.2	142	20.9	31

Table 14
Field Parameters
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
BH7	27-Jul-22	4.21	26	4.43	117		14.3	489
	12-Aug-22	3.98	11	4.84	110		14.9	110.4
	16-Sep-22	2.92	65.6	4.78	94.1	71	17.6	101.6
	24-Oct-22	3.52	-93.2	4.72	81.9	62	17.7	68.09
	18-Nov-22	3.35	-92.5	4.75	78.4	54	22.1	
	14-Dec-22	3.82	-72.2	4.74	70.1	46	21.6	35.8
	17-Jan-23	2.98	38	4.49	74.1	51	22	15.49
	15-Feb-23	3.4	-50.1	4.68	70.4	45	25.4	70.91
	15-Mar-23	4.06	4	4.62	75.9	51	23.2	28.4
	18-Apr-23	4.02	174.3	4.8	82.9	58	21	51.83
	16-May-23	1.84	161.2	4.18	75.2	54	20	
	14-Jun-23	2.9	99.5	4.66	87.2	57	16.1	184
	14-Jun-23	2.9	99.5	4.66	87.2	57	16.1	184
	24-Jul-23	5.6	159.2	4.83	90.6	71	16.3	58
	14-Aug-23	3.5	123.5	4.45	102.8	67	15.3	55
	13-Sep-23	3.26	26.6	4.87	81.5	64	15.8	49
	23-Oct-23	5.91	5.3	6.88	5.3	71	21.1	110
	22-Nov-23	2.19	-78	5.3	86.6	62	20.5	66
BH8	12-Aug-22	4.2	-67.9	4.81	135		14.7	782
	18-Nov-22	3.4	-97.2	4.66	98.5	69	20.7	
	15-Feb-23	1.7	-108.51	4.81	129.9	82	26.7	45.25
	16-May-23	2.72	-85.5	4.81	113.1	84	18.6	
	14-Aug-23	3.4	-19.2	4.26	163.3	106	15.3	271
BH9A	27-Jul-22	4.93	208.5	4.11	182.8		16.6	52
	12-Aug-22	3.96	249	4.46	186		17.6	41.5
	16-Sep-22	3.65	241.4	4.69	132	99	18	45.22
	24-Oct-22	2.84	196.2	4.76	118	87	19	36.09
	18-Nov-22	2.04	86.3	4.79	112	84	18.1	
	14-Dec-22	2.32	166	4.75	107.7	70	18.7	61
	17-Jan-23	1.94	111.5	4.73	107.4	75	21.4	32.2
	15-Feb-23	3.2	29.5	3.83	171.6	119	21.6	87.9
	15-Mar-23	4.24	171.7	4.83	103.3	72	21.9	51.32
	18-Apr-23	3.5	9.5	4.83	123.5	90	19.5	69.85
	16-May-23	6.01	44.1	4.6	103.9	80	17.1	
	14-Jun-23	3.6	168.9	4.45	107.6	70	18.2	66.18
	14-Jun-23	3.6	168.9	4.45	107.6	70	18.2	66.18
	24-Jul-23	4.13	195.5	4.69	125.6	95	17.8	55.5
	14-Aug-23	2.6	77.5	4.33	164.1	107	17.9	121.51
	13-Sep-23	3.85	37.3	4.7	96.2	73	17.6	55.55
	23-Oct-23	4.18	32.5	5.63	32.5	51	20.2	94
	22-Nov-23	2.3	1	5.3	162.9	117	19.9	85
BH11	27-Jul-22	4.74	-39	4.2	158		14	9.7
	16-Sep-22	2.46	-63.9	4.54	118.4	89	18	26.3
	24-Oct-22	2.12	-92.9	4.37	120.3	90	18.1	23.72
	18-Nov-22	2.01	-100.5	4.47	120.7	89	18.8	
	14-Dec-22	3.19	-86	4.48	130.2	85	19.1	73
	17-Jan-23	2.16	-80.5	4.31	133.5	89	23.9	5.8
	15-Feb-23	4	-66.5	4.45	110.1	76	22.1	53.17
	15-Mar-23	3.05	-43.4	4.58	102.9	71	21.6	4.83
	18-Apr-23	3.11	-69.5	4.61	100.1	72	20.1	417.6
	16-May-23	3.13	-60	4.45	111.1	83	18.4	
	14-Jun-23	2.5	-48.9	4.38	122.9	80	16.6	74.09
	14-Jun-23	2.5	-48.9	4.38	122.9	80	16.6	74.09
	24-Jul-23	5.69	-35.6	4.45	102.2	80	16	133

Table 14
Field Parameters
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
	14-Aug-23	3	16	4.26	125.2	81	16.5	75
	13-Sep-23	3.34	-83.7	4.77	91	72	15.8	104.53
	23-Oct-23	3.43	4.3	6.07	93.6	66	20.6	47.66
	22-Nov-23	4.19	-94	5.45	79.5	58	19.1	45

Table 14
Field Parameters
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
BH12A	24-Oct-22	2.94	141.5	4.95	120.8	89	18.8	146
	15-Feb-23	2.5	167.5	4.93	138.4	90	24.9	287.01
	14-Aug-23	2.9	166.6	3.82	137.5	89	16.5	21
MW239S	27-Jul-22	4	-71	4.32	125		14.2	175
	12-Aug-22	2.73	-69	4.6	115		15.2	310
	16-Sep-22	3.65	-79.71	4.83	102.4	77	17.9	129.37
	24-Oct-22	2.33	-117.7	4.72	86.5	65	18	83.71
	18-Nov-22	1.93	-113	4.74	97.3	67	22	
	14-Dec-22	3.05	-62	4.62	115.4	75	21.5	239
	17-Jan-23	2.61	-9.4	4.52	100.2	67	23.6	105.4
	15-Feb-23	3.1	-62.6	4.51	114.2	72	26.6	145
	15-Mar-23	3.02	-4.1	4.61	102.4	70	22.5	206.44
	18-Apr-23	3.29	-85	4.78	87.2	63	20.1	84.02
	16-May-23	2.75	-50.4	4.52	84.7	63	18.6	
	14-Jun-23	2.4	-77.3	4.58	100.8	66	17.4	88.4
	14-Jun-23	2.4	-77.3	4.58	100.8	66	17.4	88.4
	24-Jul-23	4.37	-57	4.53	84.6	67	15.6	217
	15-Aug-23	3.3	-34	4.77	105.9	69	15.1	223
	13-Sep-23	3.22	-68.1	4.69	93.1	72	17	339
	23-Oct-23	3.29	2.9	7.72	87.6	59	22.9	132
	22-Nov-23	3.07	-78.8	5.26	79.6	56	20.9	180
SW1	12-Aug-22	2.97	182	5.18	140		12.6	4.3
	18-Nov-22	0.89	154.6	5.45	99.5	78	15.9	
	15-Feb-23	4	117.8	6.37	138.5	97	21.1	20.69
	16-May-23	3.58	75.7	6.34	82.4	69	13.3	
	14-Aug-23	2.8	0.8	6.31	114.5	74	12.5	5.67
SW2	12-Aug-22	1.11	-40	4.95	88.2		12.9	23
	18-Nov-22	2.49	122	4.62	82.5	61	18.4	
	15-Feb-23	2.5	-27.9	4.39	137.7	90	23.9	80.7
	16-May-23	3.62	206.2	4.02	147.8	116	15.8	
	14-Aug-23	1.7	52.7	4.15	203.9	133	14	0.5
SW3	12-Aug-22	1.4	41.1	3.99	259.8		11.9	2.8
	18-Nov-22	3.09	80.4	5.62	227.1	164	19.5	
	15-Feb-23	3	-72	4.72	215.5	138	25.6	43.33
	16-May-23	0.98	-24	4.36	176	143	14.7	
	14-Aug-23	2.8	0.8	6.31	114.5	74	12.5	5.67
SW4	12-Aug-22	3.75	224	4.57	214		11.3	1.34
	18-Nov-22	3.5	130.2	4.43	217.9	149	22.4	
	15-Feb-23	0.7	-74	5.75	253.3	172	22.7	4.1
	16-May-23	3.74	292.9	3.96	209.7	172	14	
	14-Aug-23	4.3	281.1	3.84	258.6	168	10.9	1.4
WPW	12-Aug-22	10.09	210	5.06	255		14.7	205
	16-Sep-22	9.42	174.5	4.7	208.2	149	20	1000.34
	24-Oct-22	9.11	145.4	4.73	199.4	143	20.2	4120.3
	18-Nov-22	8.57	209.5	4.77	253.6	167	24.3	
	14-Dec-22	8.64	189.5	4.97	267.8	174	22.1	3055.6
	17-Jan-23	8.24	195.3	4.69	264.1	167	26.5	415
	15-Mar-23	8.29	171.9	4.83	297.2	195	24.7	468.5

Table 14
Field Parameters
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
WPW2	15-Feb-23	8.2	470.7	6.1	272	164	29	4.88
	18-Apr-23	8.61	203.3	5	226.3	163	20	56.08
	16-May-23	9.61	249.7	4.71	230.1	173	17.8	
	14-Jun-23	10.7	168.3	4.46	263.5	171	14.6	1037
	14-Jun-23	10.7	168.3	4.46	263.5	171	14.6	1037
	24-Jul-23	11.79	448	2.65	1207	980	14.5	1300
	14-Aug-23	10.2	205.6	4.41	242.8	158	15.9	42
	13-Sep-23	9.94	156.3	4.8	208.8	162	16.6	483

Calibration Date 14/11/23 **Technician:** AK

Handheld Serial Number: 23F105250 **Handheld Software Version:** 1.3.35

Cable Serial Number: 23G103080

Temperature

Reading when sensor is dry and in room temp air: 23.8 Accurate? (Y) N

Conductivity

Reading when sensor is dry and in room temp air: 8.4 Acceptable value is less than 1 µS/cm ✗

Actual Reading in solution before calibration is accepted: 10462 10.9°C

Reading in calibration solution after calibration is completed: 9807

Conductivity Cell Constant in GLP* record after calibration: 4.689989 ✓

Acceptable range for ProDSS conductivity/temperature sensors (626902) is **4.5** to **6.5**

Acceptable range for integral (i.e. built-in) sensors on ODO/CT assemblies is **4.4** to **6.4**

Optical Dissolved Oxygen

Barometric pressure: 749.1

Actual Reading before DO% calibration is accepted: 101.3

Reading in DO% calibration environment after calibration is completed: ~~101~~ 98.6

ODO gain in GLP record after calibration: 0.969854 Acceptable range is **0.75** to **1.50** ✓

pH

Buffer	Calibration Value	Actual Readings during calibration: pH	Actual Readings during calibration: pH mV**	Acceptable pH mV in buffer
7	7.24	7.07	-13.2	-50 mV to 50 mV
~~4~~ 10	10.16	10.24	-183.0 ✗	+165 to +180 from pH 7 buffer mV value
~~10~~				-165 to -180 from pH 7 buffer mV value

pH slope in GLP record after calibration: 57.4366 Acceptable range is ~ **55** to **60** pH/mV (Ideal is 59.16 mV/pH) ✓

ORP

Actual Reading in solution before calibration is accepted: ~~197.4~~ 258.5

Reading in calibration solution after calibration is completed: ~~244.4~~ 244.3

ORP Cal Offset in GLP record after calibration: -1.9 Acceptable range is **-100** to **50** ✓

*GLP stands for Good Laboratory Practice file. This calibration record contains important information about the calibration result.

**The pH mV at the time of calibration (Sensor Value) can also be seen in the final pH GLP record.

KLEINFELDER

HYDRASLEEVE™ SAMPLING LOG

Project Number:	Date:	Site Address:
24001956	22/11	Gabbage Tree Road

Site Name:	Field Manager:	Weather Observations:
WSS	TS	Cloudy

Field Measurements													
Well ID	Sample Time	DTW (mbTOC)	Total Depth (mbTOC)	Sample Depth (mbTOC)	Temp (°C)	DO (mg/L)	EC (µc/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)	Description (Odour, Colour, Sheen)
BH1A	~~11:20~~ 11:14	5.749	12.453									Gauge Only
BH2	9:56	5.429	8.803	6.50	19.5	5.32	58.6	43	5.34	183.4	65	Brown, NS, NO
BH4	9:05	1.567	6.010	2.5	20.0	3.35	69.2	50	5.93	200	24	Clear, NS, NO
BH6	11:28	1.417	4.577	2.5	20.9	3.24	202.3	142	5.38	-90.4	51	Clear, HS odour, NS
BH7	11:45	1.513	4.525	2.50	20.5	2.19	86.6	62	5.3	-78	66	Clear, HS odour, NS
BH9	9:47	Dry	16.025									Gauge Only
BH9A	9:25	9.158	12.200	10.50	19.9	2.3	162.9	117	5.30	1.0	85	Brown, NS, NO
BH11	10:30	7.800	5.780	3.90	19.1	4.19	79.5	58	5.45	-94	45	Clear, HS odour, NS
BH12A	~~12:15~~ 12:00	3.202	2.310		20.9	3.07						Gauge Only
MW23S	~~15:15~~ 14:00	1.175	3.785	20.8	~~3.07~~ 3.04	~~29.6~~	79.6	56	5.26	-78.8	180	Brown to Clear, NS, HS odour
WPW2	10:50				22.8	8.4	200	136	5.06	151.3	360	Brown, Earthy smell, NS

Damaged wells (identify how damaged): _____

*Sample Depth is reported as bottom of hydrasleeve depth

KLEINFELDER
Bright People. Right Solutions.

QA/QC SAMPLE REGISTER

Project Number:	Site Name:	Site Address:
24001956	Newcastle Sands	Cabbage Tree Road

Date:	Field Manager:
22/11	TS

Date Sampled	Field Staff	QC Sample ID	QC Sample Type	Primary Sample	Rinsate Item (Hand auger, low flow pump etc.)	Rinsate Water Batch	Analysing Lab	Analysis Requested
22/11/23	TS	RB_22123	Rinsate	–	IP	–	ALS	See CoC
"	"	TB_22123	Trip Blank	–	–	–	ALS	"

COMMENTS: _____

ATTACHMENT 3: LABORATORY DOCUMENTATION AND COCS

CERTIFICATE OF ANALYSIS

Work Order	: **ES2340503**	Page	: 1 of 6
Client	: **KLEINFELDER AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: DANIEL KOUSBROEK	Contact	: Graeme Jablonskas
Address	: Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +6138549 9609
Project	: 24001956	Date Samples Received	: 22-Nov-2023 13:31
Order number	: ----	Date Analysis Commenced	: 24-Nov-2023
C-O-C number	: ----	Issue Date	: 29-Nov-2023 18:26
Sampler	: Tom Jeffery		
Site	: WSS Cabbage Tree Road		
Quote number	: EN/222		
No. of samples received	: 10		
No. of samples analysed	: 10		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

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

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

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH2	BH4	BH6	BH7	BH9A
				Sampling date / time	22-Nov-2023 00:00	22-Nov-2023 00:00	22-Nov-2023 00:00	22-Nov-2023 00:00	22-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2340503-001	ES2340503-002	ES2340503-003	ES2340503-004	ES2340503-005
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L		**0.002**	**0.013**	**0.006**	**0.004**	**0.061**
Iron	7439-89-6	0.05	mg/L		<0.05	**0.06**	**3.21**	**0.36**	**0.80**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH11	MW239S	WPW2	RB_221123	TB_221123
				Sampling date / time	22-Nov-2023 00:00	22-Nov-2023 00:00	22-Nov-2023 00:00	22-Nov-2023 00:00	22-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2340503-006	ES2340503-007	ES2340503-008	ES2340503-009	ES2340503-010
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L		**0.004**	**0.005**	**0.055**	<0.001	<0.001
Iron	7439-89-6	0.05	mg/L		**0.55**	**0.14**	**0.31**	<0.05	<0.05
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	----	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		----	----	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		----	----	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		----	----	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	----	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		----	----	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	----	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	----	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	----	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	----	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	----	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		----	----	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		----	----	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		----	----	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		----	----	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		----	----	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		----	----	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH11	MW239S	WPW2	RB_221123	TB_221123
				Sampling date / time	22-Nov-2023 00:00	22-Nov-2023 00:00	22-Nov-2023 00:00	22-Nov-2023 00:00	22-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2340503-006	ES2340503-007	ES2340503-008	ES2340503-009	ES2340503-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		----	----	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		----	----	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		----	----	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		----	----	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		----	----	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		----	----	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		----	----	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		----	----	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		----	----	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		----	----	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		----	----	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		----	----	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	----	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	----	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		----	----	**106**	**106**	**110**
13C8-PFOA	----	0.02	%		----	----	**96.1**	**99.1**	**99.0**

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	***Low***	***High***
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2340503**	Page	: 1 of 4
Client	: **KLEINFELDER AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: DANIEL KOUSBROEK	Contact	: Graeme Jablonskas
Address	: Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +6138549 9609
Project	: 24001956	Date Samples Received	: 22-Nov-2023
Order number	: ----	Date Analysis Commenced	: 24-Nov-2023
C-O-C number	: ----	Issue Date	: 29-Nov-2023
Sampler	: Tom Jeffery		
Site	: WSS Cabbage Tree Road		
Quote number	: EN/222		
No. of samples received	: 10		
No. of samples analysed	: 10		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5450902)									
EN2311638-005	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.093	0.091	2.2	0% - 20%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2340438-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5450906)									
ES2340503-007	MW239S	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.005	0.004	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.14	0.20	33.9	No Limit
EW2305239-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.528	0.532	0.9	0% - 20%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5450902)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	85.0	114
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.2	82.0	110
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	99.0	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5450906)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.2	85.0	114
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.0	82.0	110
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	93.4	82.0	112
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5448147)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	83.5	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	101	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	105	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	103	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	98.1	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	96.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5448147)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.5	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.5	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	100	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	98.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	99.7	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	95.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	105	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5448147)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	90.9	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	111	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.4	62.6	147

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5448147) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	92.5	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	101	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	104	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5448147)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	97.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	106	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	111	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	89.7	71.4	144

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5450902)							
ES2340424-001	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	93.1	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	95.8	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5450906)							
ES2340503-008	WPW2	EG020A-F: Arsenic	7440-38-2	1 mg/L	90.1	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	93.6	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2340503**	Page	: 1 of 5
Client	: **KLEINFELDER AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: DANIEL KOUSBROEK	Telephone	: +6138549 9609
Project	: 24001956	Date Samples Received	: 22-Nov-2023
Site	: WSS Cabbage Tree Road	Issue Date	: 29-Nov-2023
Sampler	: Tom Jeffery	No. of samples received	: 10
Order number	: ----	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
BH2,	BH4,	**22-Nov-2023**	**----**	----	----	**27-Nov-2023**	20-May-2024	✓
BH6,	BH7,							
BH9A,	BH11,							
MW239S,	WPW2,							
RB_221123,	TB_221123							
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
WPW2,	RB_221123,	**22-Nov-2023**	**27-Nov-2023**	20-May-2024	✓	**29-Nov-2023**	20-May-2024	✓
TB_221123								
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
WPW2,	RB_221123,	**22-Nov-2023**	**27-Nov-2023**	20-May-2024	✓	**29-Nov-2023**	20-May-2024	✓
TB_221123								
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
WPW2,	RB_221123,	**22-Nov-2023**	**27-Nov-2023**	20-May-2024	✓	**29-Nov-2023**	20-May-2024	✓
TB_221123								
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
WPW2,	RB_221123,	**22-Nov-2023**	**27-Nov-2023**	20-May-2024	✓	**29-Nov-2023**	20-May-2024	✓
TB_221123								

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) WPW2, RB_221123, TB_221123	**22-Nov-2023**	**27-Nov-2023**	20-May-2024	✓	**29-Nov-2023**	20-May-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

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Page 1 of 1

COC number:

KLEINFELDER
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Client:	SITE, COC AND CONTACT DATA				Laboratory:
Kleinfelder Australia Pty Ltd Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290 Phone: 02 4949 5200	Site Name:	WSS Cabbage Tree Road	Sampler Name:	Tom Jeffery	ALS 5/585 Maitland Rd Mayfield West, Newcastle NSW 2304 Phone: 02 4014 2500
	QUOTE NUMBER		Contact Number:	421887830	
	Job No.:	24001956	Contact e-mail:	tjeffery@kleinfelder.com	
	Required TAT:	48 hrs 3 days 5 days (7 days)	PM e-mail:	Dkousbroek@kleinfelder.com	
	Data QA level:	LAB minimum unless specified:	EDD Format	KLF_EFWEDD	

CHAIN OF CUSTODY							Send Results to:
Relinquished by (print): T.Jeffery	(sign)	Received by (print): IR	(sign)	Relinquished: IR	(sign)	Received by: R Tran	(sign)	dkousbroek@kleinfelder.com, tjeffery@kleinfelder.com
Date / Time: 1:30 pm		Date / Time: 22.11.23 1331		Date / Time: 22.11.23 1700		Date / Time: 29.11.23 19:30	
Notes:		Temp. (°C) 2.6 Notes: Ice ice present / no ice seals intact / no seal		Notes:		Temp. (°C) Notes: ice present / no ice seals intact / no seal	Suite 3, 240-244 Pacific Highway Charlestown, NSW 2290 Phone: 02 4949 5200

Sample ID	Lab ID	Sample Point	Sample Type	Date	Start Depth	End Depth	Units	# Containers	Organic Analytes: TRH, TPH, BTEXN (Silica Gel, Clean up)	Organic Analytes	Organic Analytes	Organic Analytes	Organic Analytes	Organic Analytes	Organic Analytes	Organic Analytes	Metals: Dissolved Metals - As, Fe, Mn	Metals	Metals	Other Analytes: PFAS (23 analytes standard Level)	Other Analytes: Extended Water Quality Suite B	Other Analytes	Other Analytes	Other Analytes: HOLD	Comments
BH2			Water	22/11/2023				1									X								
BH4			Water	22/11/2023				1									X								
BH6			Water	22/11/2023				1									X								
BH7			Water	22/11/2023				1									X								
BH9A			Water	22/11/2023				1									X								
BH11			Water	22/11/2023				1									X								
MW239S			Water	22/11/2023				1									X								
WPW2			Water	22/11/2023				3									X			X					
RB_~~231925~~2311123			Water	22/11/2023				3									X			X					
TB_~~231926~~2311123			Water	22/11/2023				3									X			X					

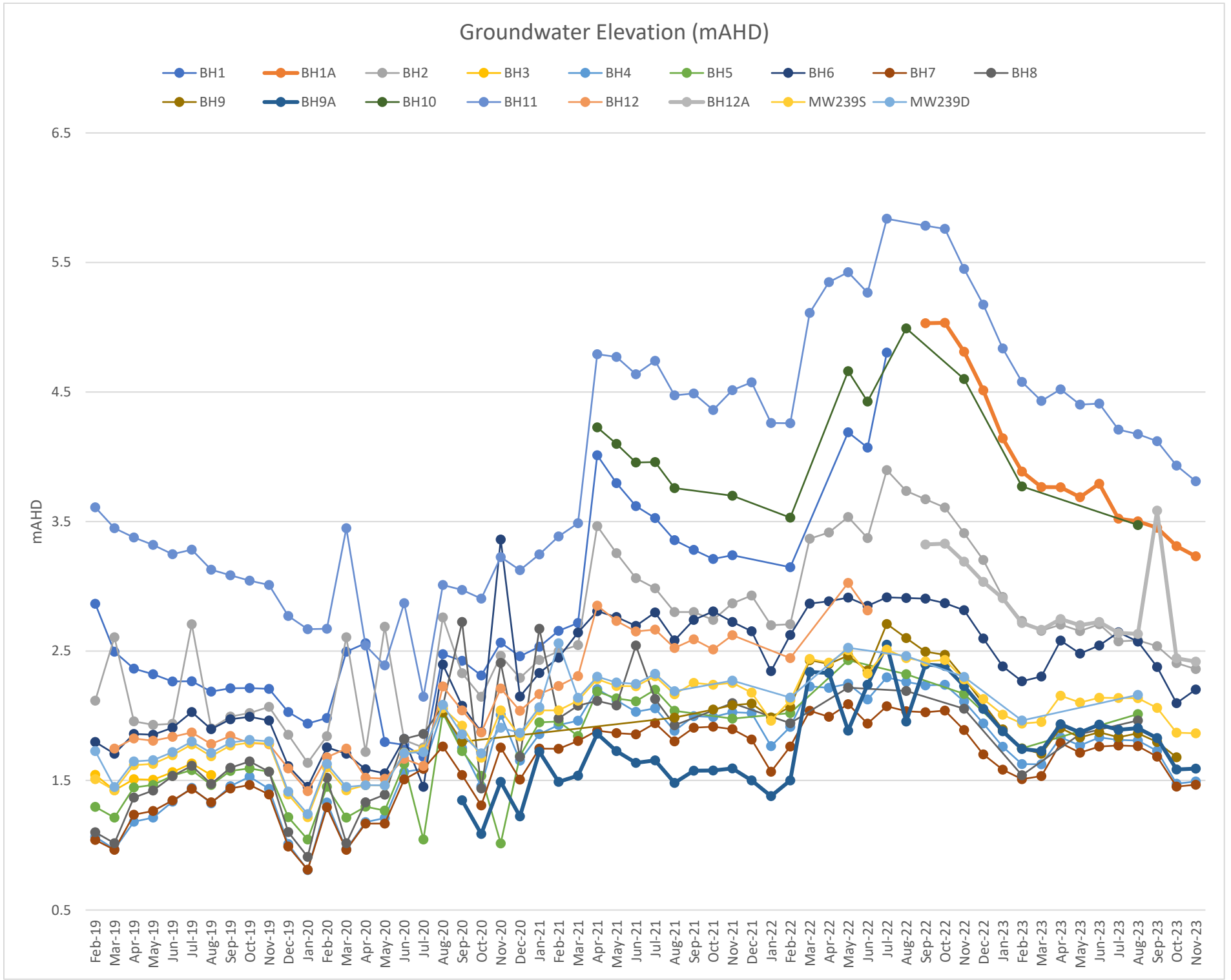
Environmental Division
Sydney
Work Order Reference
ES2340503

Telephone : +61-2-8784 8555

LAB OF ORIGIN:
NEWCASTLE

E-MAILED

ATTACHMENT 4: DATA TRENDS


Groundwater Elevation (mAHD)
BH1
BH1A
BH2
BH3
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
BH11
BH12
BH12A
MW239S
MW239D
mAHD
6.5
5.5
4.5
3.5
2.5
1.5
0.5
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
May-20
Jun-20
Jul-20
Aug-20
Sep-20
Oct-20
Nov-20
Dec-20
Jan-21
Feb-21
Mar-21
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Jan-22
Feb-22
Mar-22
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May-22
Jun-22
Jul-22
Aug-22
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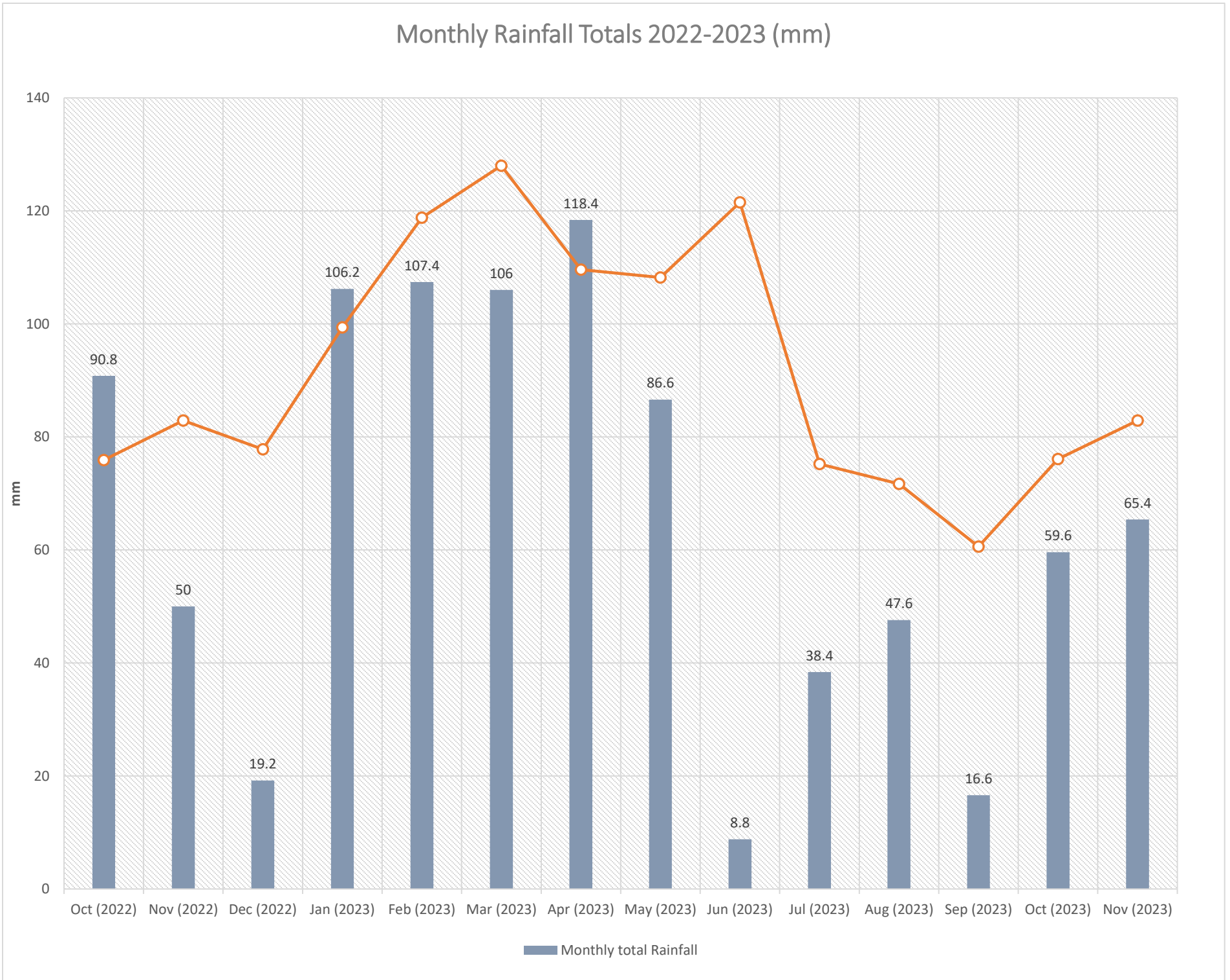
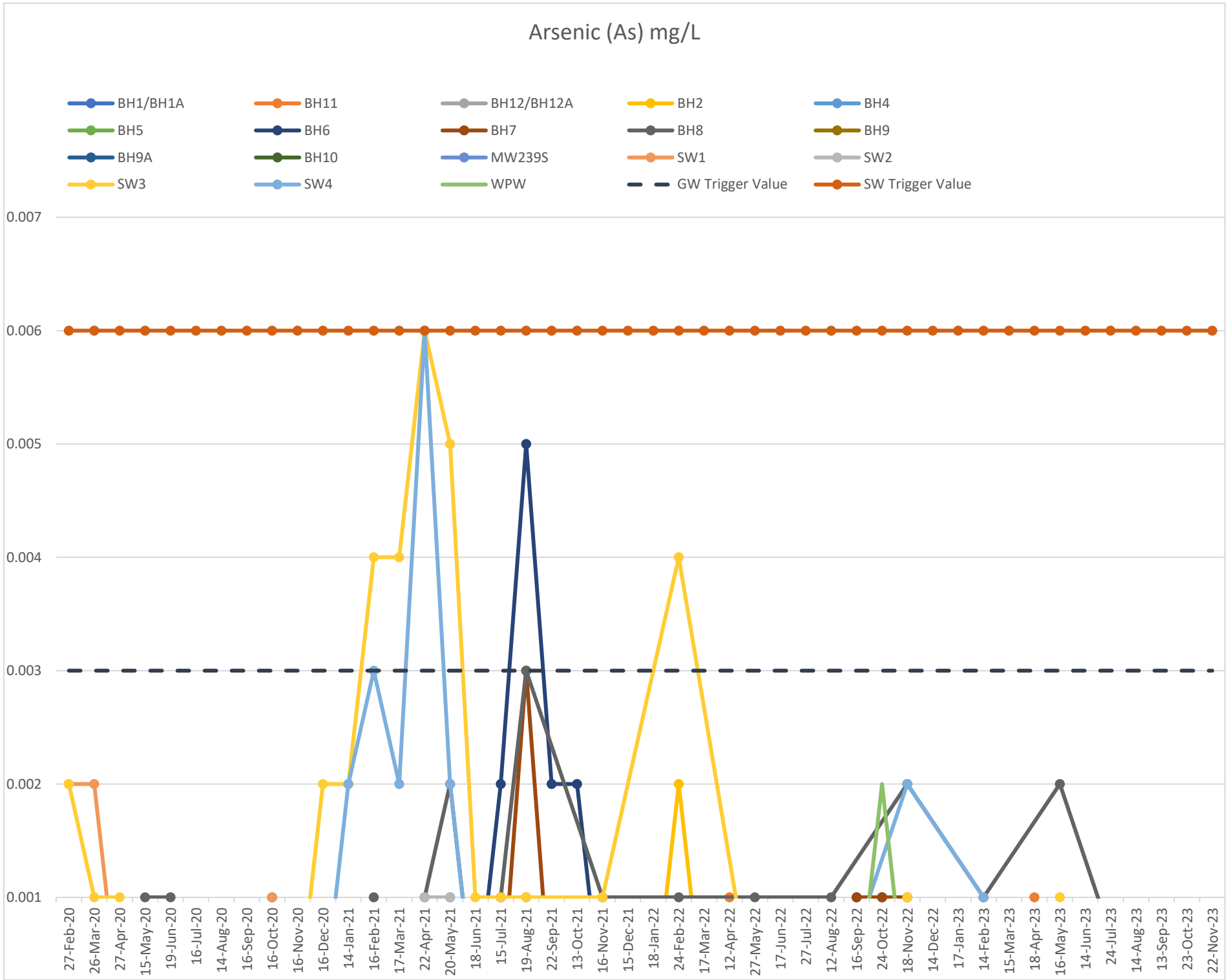
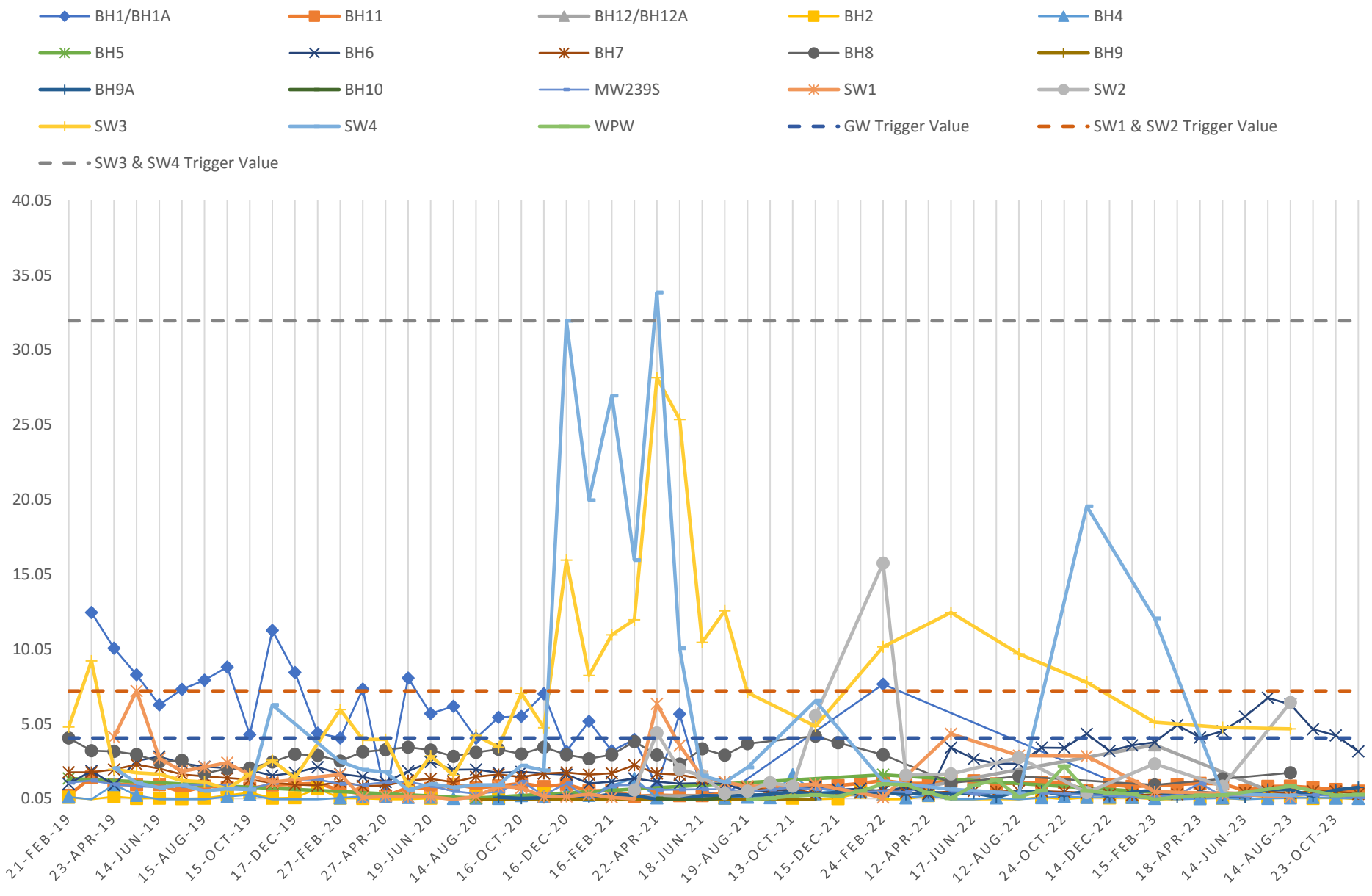
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23

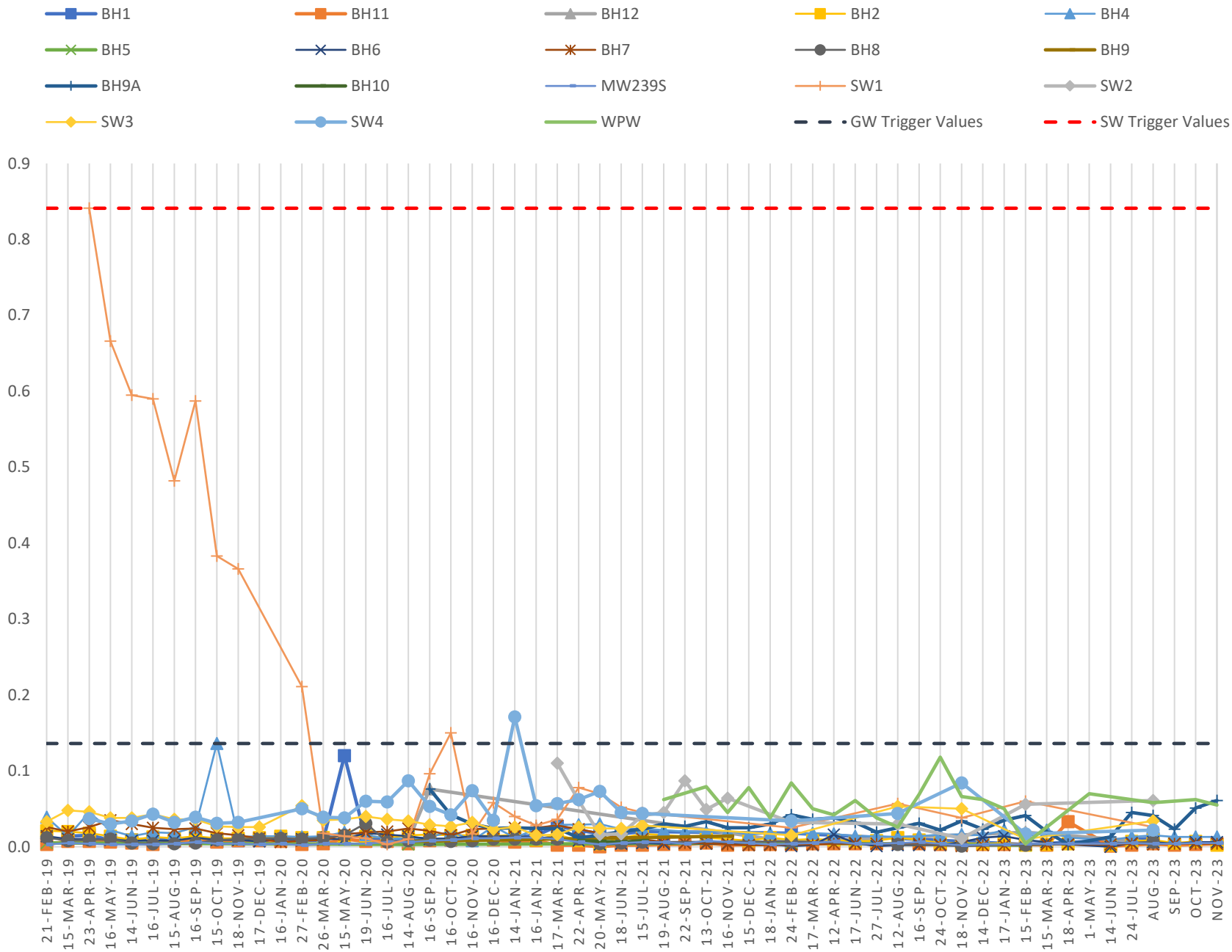

Monthly Rainfall Totals 2022-2023 (mm)
mm
140
120
100
80
60
40
20
0
90.8
50
19.2
106.2
107.4
106
118.4
86.6
8.8
38.4
47.6
16.6
59.6
65.4
Oct (2022)
Nov (2022)
Dec (2022)
Jan (2023)
Feb (2023)
Mar (2023)
Apr (2023)
May (2023)
Jun (2023)
Jul (2023)
Aug (2023)
Sep (2023)
Oct (2023)
Nov (2023)
Monthly total Rainfall

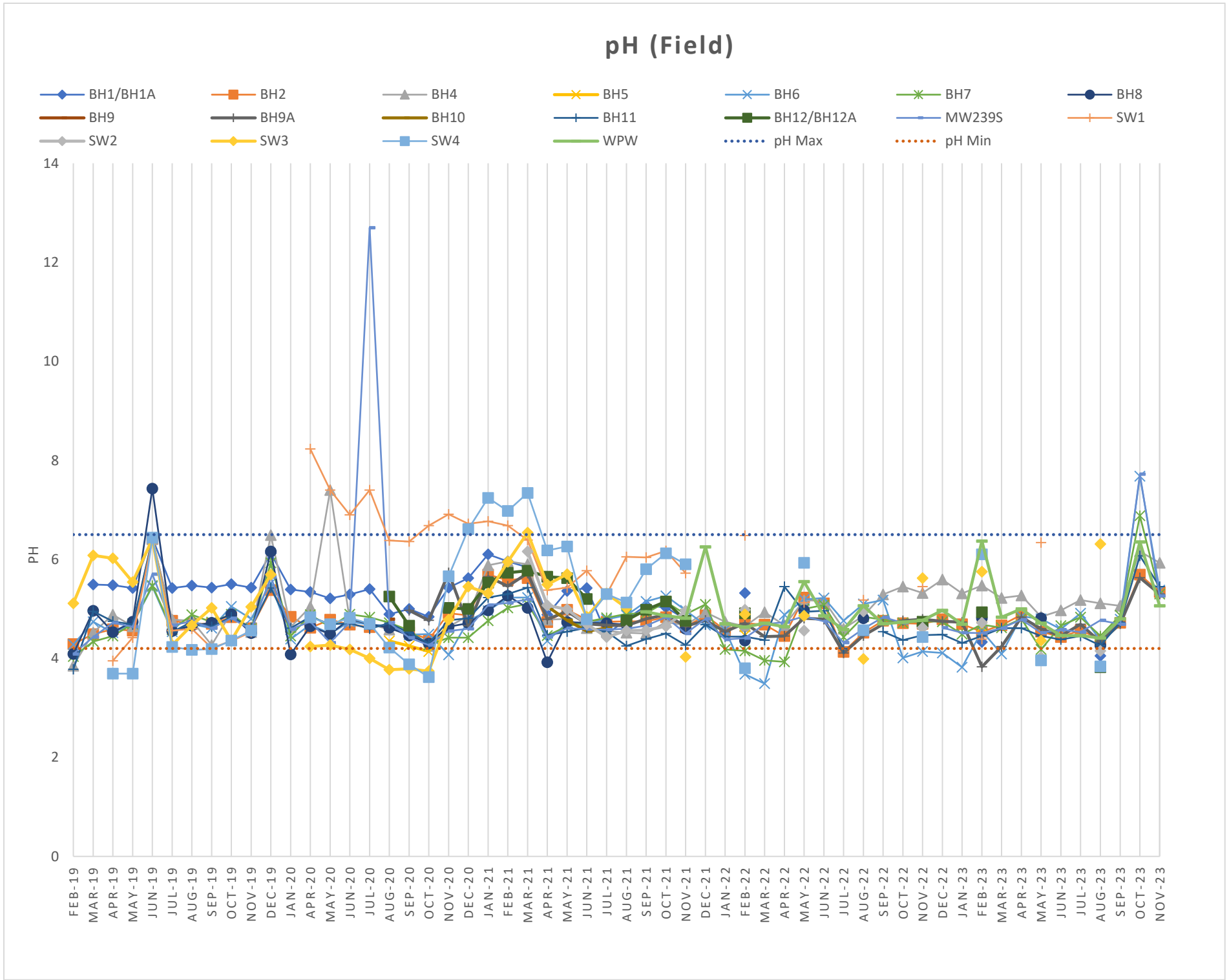

Arsenic (As) mg/L
BH1/BH1A
BH11
BH12/BH12A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
MW239S
SW1
SW2
SW3
SW4
WPW
GW Trigger Value
SW Trigger Value
0.007
0.006
0.005
0.004
0.003
0.002
0.001
27-Feb-20
26-Mar-20
27-Apr-20
15-May-20
19-Jun-20
16-Jul-20
14-Aug-20
16-Sep-20
16-Oct-20
16-Nov-20
16-Dec-20
14-Jan-21
16-Feb-21
17-Mar-21
22-Apr-21
20-May-21
18-Jun-21
15-Jul-21
19-Aug-21
22-Sep-21
13-Oct-21
16-Nov-21
15-Dec-21
18-Jan-22
24-Feb-22
17-Mar-22
12-Apr-22
27-May-22
17-Jun-22
27-Jul-22
12-Aug-22
16-Sep-22
24-Oct-22
18-Nov-22
14-Dec-22
17-Jan-23
14-Feb-23
15-Mar-23
18-Apr-23
16-May-23
14-Jun-23
24-Jul-23
14-Aug-23
13-Sep-23
23-Oct-23
22-Nov-23

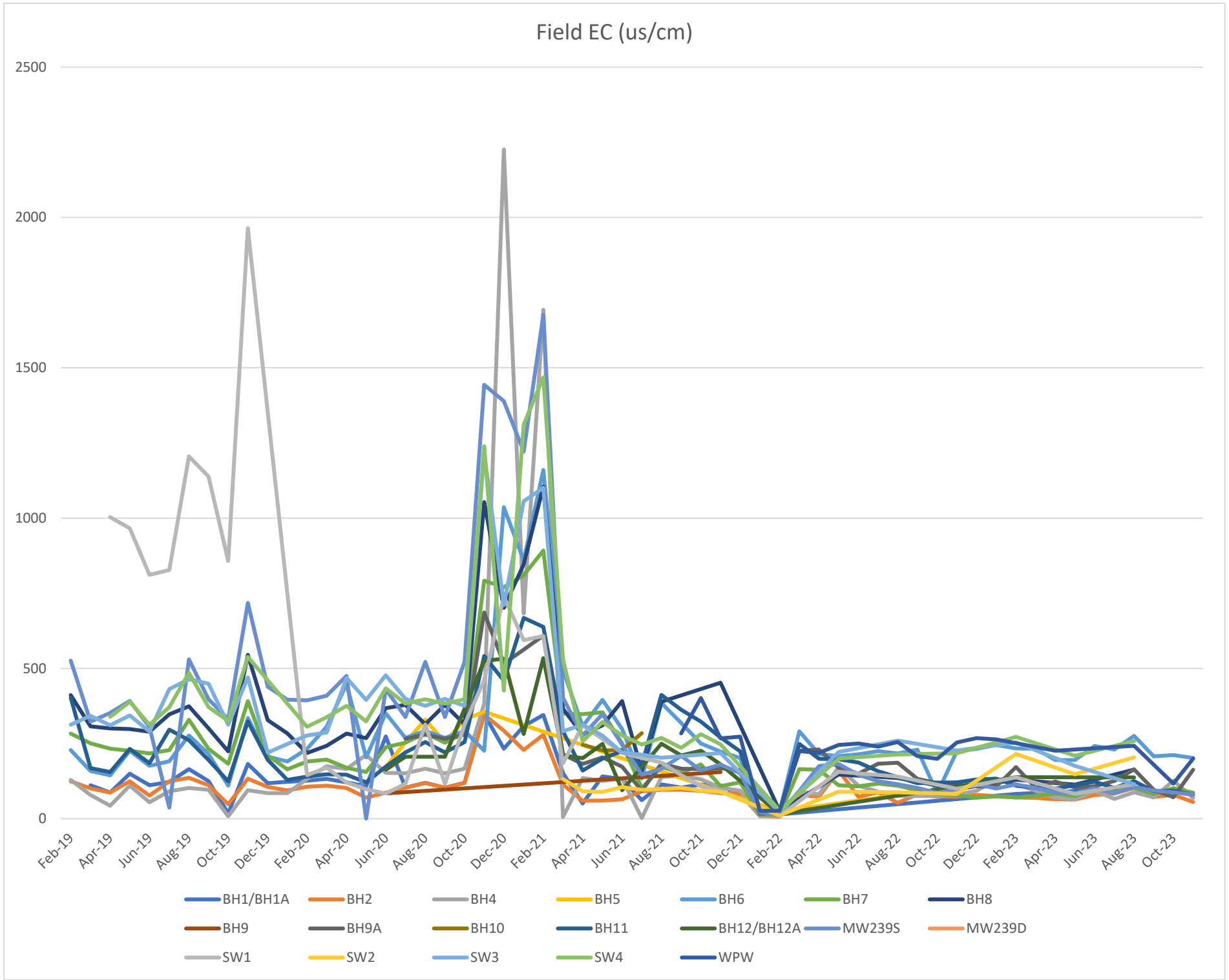
Iron (Fe) mg/L


BH1/BH1A
BH11
BH12/BH12A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
MW239S
SW1
SW2
SW3
SW4
WPW
GW Trigger Value
SW1 & SW2 Trigger Value
SW3 & SW4 Trigger Value
40.05
35.05
30.05
25.05
20.05
15.05
10.05
5.05
0.05
21-FEB-19
23-APR-19
14-JUN-19
15-AUG-19
15-OCT-19
17-DEC-19
27-FEB-20
27-APR-20
19-JUN-20
14-AUG-20
16-OCT-20
16-DEC-20
16-FEB-21
22-APR-21
18-JUN-21
19-AUG-21
13-OCT-21
15-DEC-21
24-FEB-22
12-APR-22
17-JUN-22
12-AUG-22
24-OCT-22
14-DEC-22
15-FEB-23
18-APR-23
14-JUN-23
14-AUG-23
23-OCT-23

Manganese (Mn) mg/L




pH (Field)
BH1/BH1A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
BH11
BH12/BH12A
MW239S
SW1
SW2
SW3
SW4
WPW
pH Max
pH Min
PH
14
12
10
8
6
4
2
0
FEB-19
MAR-19
APR-19
MAY-19
JUN-19
JUL-19
AUG-19
SEP-19
OCT-19
NOV-19
DEC-19
JAN-20
APR-20
MAY-20
JUN-20
JUL-20
AUG-20
SEP-20
OCT-20
NOV-20
DEC-20
JAN-21
FEB-21
MAR-21
APR-21
MAY-21
JUN-21
JUL-21
AUG-21
SEP-21
OCT-21
NOV-21
DEC-21
JAN-22
FEB-22
MAR-22
APR-22
MAY-22
JUN-22
JUL-22
AUG-22
SEP-22
OCT-22
NOV-22
DEC-22
JAN-23
FEB-23
MAR-23
APR-23
MAY-23
JUN-23
JUL-23
AUG-23
SEP-23
OCT-23
NOV-23


Field EC (us/cm)
2500
2000
1500
1000
500
0
Feb-19
Apr-19
Jun-19
Aug-19
Oct-19
Dec-19
Feb-20
Apr-20
Jun-20
Aug-20
Oct-20
Dec-20
Feb-21
Apr-21
Jun-21
Aug-21
Oct-21
Dec-21
Feb-22
Apr-22
Jun-22
Aug-22
Oct-22
Dec-22
Feb-23
Apr-23
Jun-23
Aug-23
Oct-23
BH1/BH1A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
BH11
BH12/BH12A
MW239S
MW239D
SW1
SW2
SW3
SW4
WPW